

DÜSTERLOH has been developing fluid technology products for more than 100 years.

The drives, controls and hydraulic power units from Hattingen are appreciated throughout the world for their complete reliability; including under extreme conditions. The owner-managed company's own development and construction department and the wide range of products cater for distinctive flexibility and customer-orientation.

Products

- Hydraulic radial piston motors
- Hydraulic axial piston motors
- Hydraulic high precision motors
- Pneumatic motors
- Pneumatic starters
- Hydraulic and pneumatic controls
- Hydraulic power units

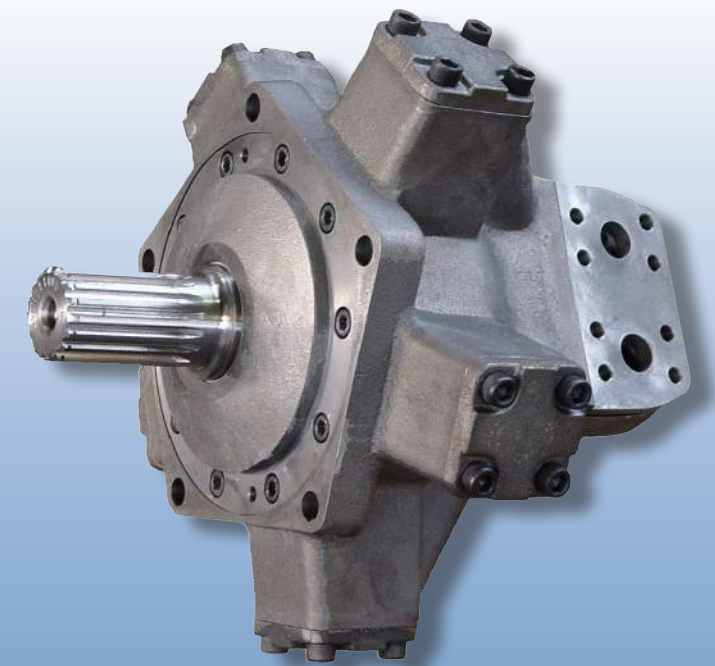
Designing controls and hydraulic power units specific to the customer is our company's major strength. Vast product diversity is also available for standardized products.

Industrial areas of application

- Machine tools
- Smelting and rolling mill equipment
- Foundry machines
- Testing machines
- Shipbuilding (diesel engines)
- Offshore technology
- Printing and paper technology
- Vehicle construction
- Manipulators
- Environmental technology
- Mining equipment
- Materials handling equipment



DÜSTERLOH
Fluidtechnik
Hydraulic motors



Axial piston motors
Radial piston motors
High-precision motors
Hydraulic brake motors
Hydraulic geared motors

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DÜSTERLOH
Fluidtechnik

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Certified acc. to ISO 9001



Doc.-No. HM1-002 UK

Axial- and radial piston motors



AEHP 40ZA1



Flange ISO 3019/2 KM 110ZAF



Flange ISO 3019/3 RM 450XKA1

Examine the following features of our motors:

- shaft end can be subjected to high radial and axial forces
- only very few moving parts in the rotating group
- extremely low moment of inertia
- instrument shaft may be fitted
- low leakage-built in wear compensation
- suitable for use with fire resistant fluids
- low maintenance
- small ports are B.S.P. type G threads according to ISO 22811
- full torque available over complete speed range
- immediately reversible
- high starting torque
- no counterpressure necessary when operated as a motor
- suitable for use as pumps with boosted system
- eminently suitable for control systems
- control of feed and discharge possible
- may be operated in parallel
- total efficiency up to 96%
- SAE Flange connection

Standard motors

Hydraulic motor type		displacement V_g ccm/rev.	torque		speed range		continuous pressure p_{cont} bar	interm. pressure $p_{interm.}$ bar	peak-pressure p_{peak} bar	power	
Axialpiston	Radialpiston		$T_{average spec.}$ Nm/bar	T_{max} Nm	n_{min} rpm	n_{max} rpm				$P_{cont.}$ kW	$P_{intermit.}$ kW
AE 3		2,859	0,04	10,25	10	5250	210	250	315	3,20	3,80
AE 4		4,003	0,06	14,25	5	3750	210	250	315	3,20	3,80
AE 5		5,146	0,07	18,50	3	3000	210	250	315	3,20	3,80
AE 10		11,44	0,16	40,90	10	3000	210	250	315	7,70	9,20
AE 16		16,01	0,23	57,30	5	2500	210	250	315	8,10	9,60
AE 21		21,31	0,31	76,25	3	2400	210	250	315	10,7	12,8
AE 22		22,50	0,32	80,00	10	2000	210	250	315	9,00	11,0
AE 32		31,50	0,45	113,0	5	2000	210	250	315	12,5	15,0
AE 40		40,50	0,58	145,0	3	2000	210	250	315	16,0	19,0
AE 45		45,00	0,65	161,3	10	2000	210	250	315	18,0	21,5
	KM 11	11,13	0,15	31,60	10	3000	140	210	250	3,50	4,30
	RM 11	11,13	0,15	37,70	5	3600	160	250	315	4,70	6,00
	KM 22	21,99	0,31	77,90	10	2250	160	250	315	6,00	7,50
	KM 32	32,98	0,47	118,0	10	1500	160	250	315	6,00	7,50
	KM 45	43,98	0,62	156,0	5	1800	160	250	315	9,50	11,0
	KM 63	65,97	0,95	236,0	5	1200	160	250	315	9,50	11,0
	KM 90	88,40	1,27	267,0	5	900	140	210	250	8,50	10,0
	KM 110	109,5	1,59	333,0	5	750	140	210	250	8,50	10,0
	RM 80N	80,43	1,15	363,0	5	800	250	315	400	12,0	15,0
	RM 125N	125,6	1,80	567,0	5	600	200	315	350	12,0	15,0
	RM 160N	160,9	2,36	742,0	5	800	250	315	400	24,0	30,0
	RM 250N	251,3	3,68	1159	5	600	200	315	350	24,0	30,0
	RM 250X	255,3	3,74	1177	5	600	250	315	400	28,0	35,0
	RM 355X	359,3	5,26	1657	5	550	250	315	400	36,0	45,0
	RM 450X	441,8	6,47	2038	5	500	250	315	400	40,0	50,0
	RM 500X	490,8	7,19	2264	5	450	250	315	400	40,0	50,0
	RM 710X	704,5	10,3	3249	5	500	250	315	400	63,0	80,0
	RM 900X	904,0	13,2	4170	5	450	250	315	400	63,0	80,0
	RM 1250X	1265	18,5	5837	5	540	250	315	400	125	150
	RM 2000X	2010	29,4	9274	5	350	250	315	400	130	160
	RM 3150X	3167	46,4	14606	3	250	250	315	400	145	180
	RM 5000X	5278	77,3	24343	2	150	250	315	400	150	190

- $p_{cont.}$ continuous pressure under the condition that average power is less then power cont.
- $p_{max.}$ max. working pressure when keeping to P_{cont} counted on a running time of max. 10% for one hour duty time
- p_{peak} short peak pressure at which components still function safely
- $P_{cont.}$ max. con. output power at max. reverse pressure up to 10 bar. Flushing should be considered for higher performance
- $P_{intermit.}$ output power over a short time (running time of max. 10% for one hour duty time)

Special characteristics of the high-precision motors are...

- low speed (unregulated 1 rpm, regulated 0,1rpm)
- high continuous speed (standard deviation 0,011 rpm bei 1 rpm)

High-precision hydraulic motors

Hydraulic motor type		displacement V_g ccm/rev.	torque		speed range		continuous pressure p_{cont} bar	interm.-pressure $p_{interm.}$ bar	peak-pressure p_{peak} bar	power	
Axialpiston	Radialpiston		$T_{average spec.}$ Nm/bar	T_{max} Nm	n_{min} rpm	n_{max} rpm				$P_{cont.}$ kW	$P_{intermit.}$ kW
AEHP 40		43,70	0,63	155	1	2000	210	250	315	18,0	21
	RMHP 90	88,40	1,24	252	1	900	140	210	250	8,50	10
	RMHP 110	109,5	1,55	310	1	750	140	210	250	8,50	10

- $p_{cont.}$ continuous pressure under the condition that average power is less than $P_{cont.}$
- $p_{max.}$ max. working pressure when keeping to P_{cont} counted on a running time of max. 10% for one hour duty time
- p_{peak} short peak pressure at which components still function safely
- $P_{cont.}$ max. con. output power at max. reverse pressure up to 10 bar. Flushing should be considered for higher performance
- $P_{intermit.}$ output power over a short time (running time of max. 10% for one hour duty time)

Hydraulic brake motors with spring operated multiple disc brakes



RM 900XKA1 - LBD 901Z



KM 32ZA - LBD 11Z

Hydraulic brake motors of this design consist of radial piston motors linked to spring operated multiple disc brakes.

In order to open the disc brake the control pressure should be fed via a 2/3 way valve to the control line connection G 1/4.

To reach the maximum braking moment in the stop function, the control pressure must be passed without pressure via the 2/3 way valve and a separate line to the tank. The braking moments given apply only to pressureless control line connection, and in the case of pressure increase in the control line connection are interrupted according to the spring characteristics as soon as the control pressure is reached.

Hydraulic brake motors with a cylindrical drive shaft and feather key according to DIN 6885, female involute splined shaft, or male involute splined drive shaft according to DIN 5480 can be supplied on request.

The drawing of shaft and flange of the brake motors are identical with the radial piston motors. So it is possible to change the motors.

Hydraulic geared motors

Hydraulic geared motors of this range consist of radial piston motors linked to a single or multiple stage coaxial or angular gearbox with or without spring disc brake.

Coaxial hydraulic geared motors offer high torque and small r.p.m. in small dimensions. They are reversible and can be used for universal application.

Angular gearboxes are often used for mobile drive because of short length and free space. Various models for multiple applications available.



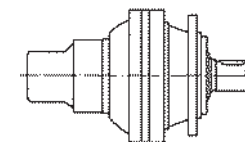
Coaxial geared motor



Angular geared motor

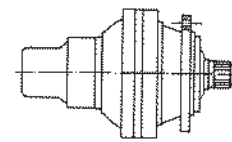
Output shaft design

Type: Z



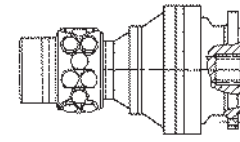
Keywayed shaft with parallel key acc. to DIN 6885

Type: K



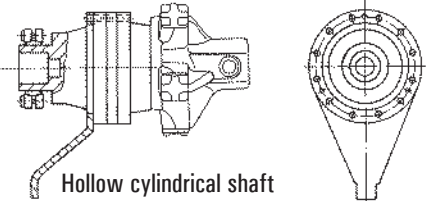
male involute splined shaft acc. to DIN 5480/5482

Type: FE



female involute splined shaft acc. to DIN 5480/5482

Type: FS



Hollow cylindrical shaft with torque arm and shrink disc

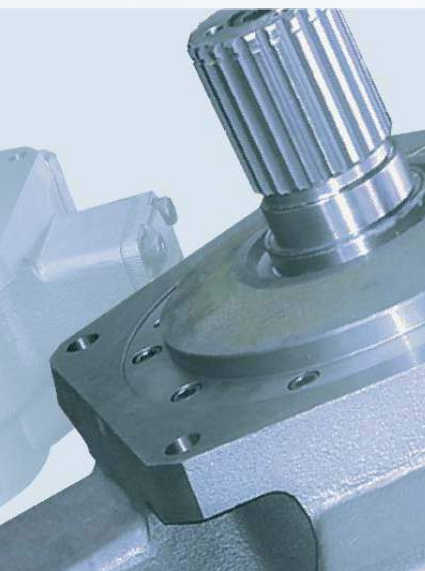


DÜSTERLOH **Fluidtechnik**

Hydraulic gear motors



Hydraulic gear motors
Hydraulic brake gear motors
Continuous torques up to 19 kNm



Doc-No. GM1-010 UK

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A contact form for hydraulic gear motors is available from our website
www.duesterloh.de - download area

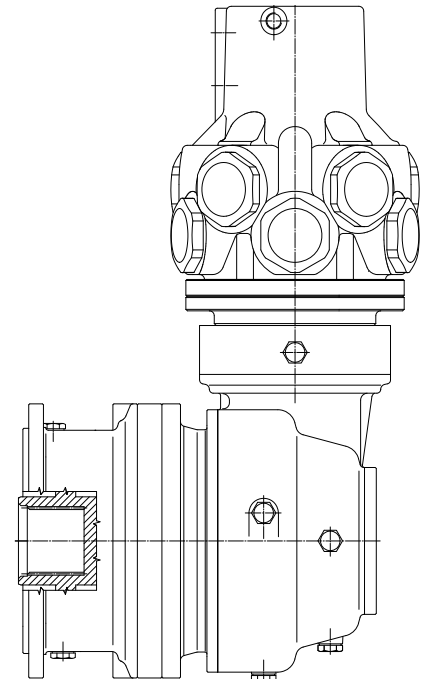
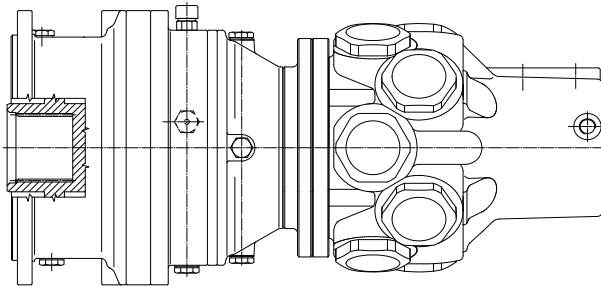
You can combine our radial-piston motor series

KM 11	to KM 110	(Radial-piston fixed-displacement motors)
RM 80 N	to RM 250 N	(Radial-piston fixed-displacement motors)
RM 250 X	to RM 3150 X	(Radial-piston fixed-displacement motors)

and our axial-piston motors as well as all commercially available IEC electric motors with our 1- to 4-speed planetary gears. In addition, you can install spring-pressure multi-disc brakes, which are required for holding static loads, between motor and gear.

We differentiate between coaxial and bevel gear motors:

While coaxial hydraulic gear motors have a small diameter, they often need more lengthwise installation space than bevel gear motors. The latter have a short length and are often used as wheel drives because of their ground clearance.



The gear motors described here have been designed for the following torques:

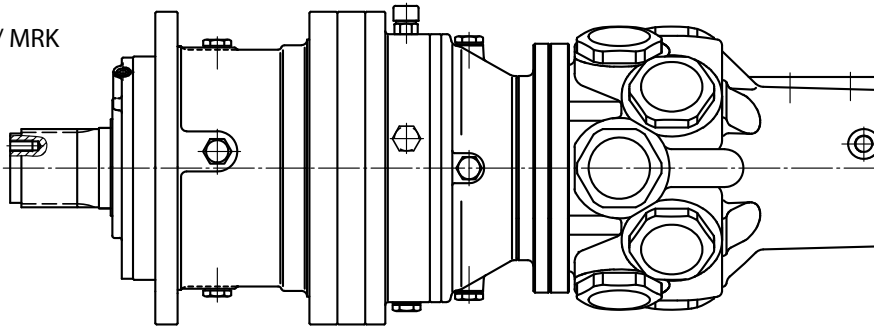
E standard series	Coaxial	Continuous torques of 0.3 kNm up to 19 kNm
	Bevel	Continuous torques of 1.3 kNm up to 19 kNm

The standard series consists of gear sizes 010, 020, 030, 045, 065, 090, 150, and 250. They vary with regard to admissible loads and are available with the following output variants:

- Z** Cylindrical output spigot with DIN 6885 feather key connection
Available for sizes 010, 040, 046, 090, 150, 250
- MRZ** Cylindrical output spigot, reinforced, with DIN 6885 feather key connection
Available for sizes 010, 020, 030, 045, 065, 090, 150
- K** Cylindrical output spigot with DIN 5482 splined shaft teeth
Available for sizes 010, 040, 046, 090, 150, 250
- MRK** Cylindrical output spigot, reinforced, with DIN 5482 splined shaft teeth
Available for sizes 010, 020, 030, 045, 065, 090, 150
- H** DIN 5482 hollow shaft teeth
Available for sizes 010, 020, 030, 045, 065, 090, 150, 250
- FS** Slip-on design with torque support and shrink-fitted disc
Available for sizes 010, 020, 030, 045, 065, 090, 150, 250

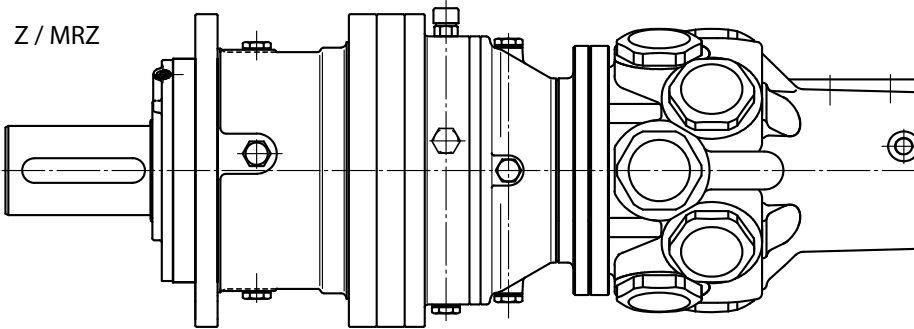
Overview of all output variants (displayed model is RM 160NHAF-ED2065....)

K / MRK



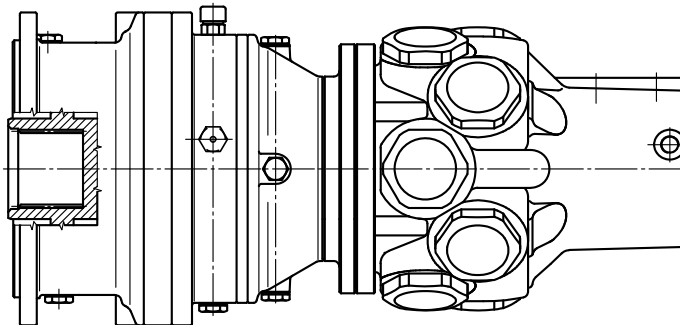
Geared output shaft as per DIN 5480 / 5482. Reinforced bearings makes it particularly suitable for additional radial and axial loads.

Z / MRZ



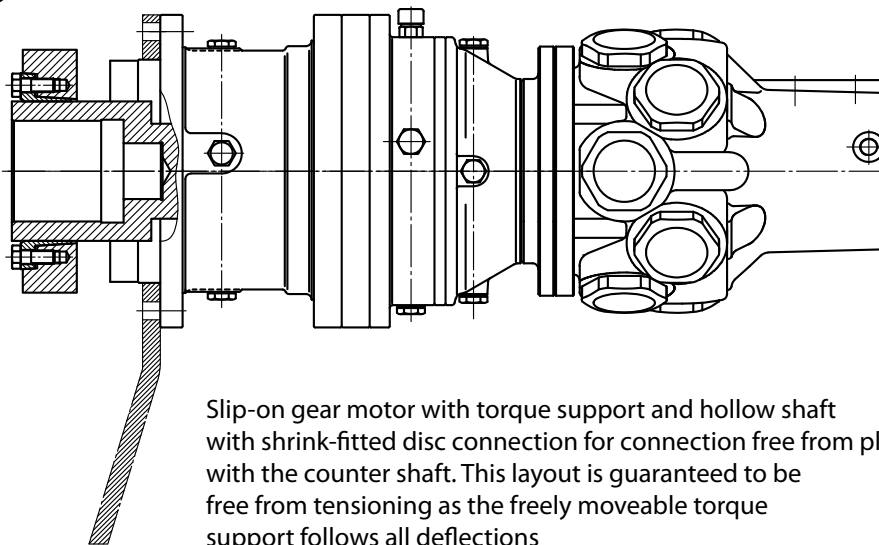
Cylindrical output shaft with DIN 6885 feather key. Reinforced bearings makes it particularly suitable for additional radial and axial loads.

H

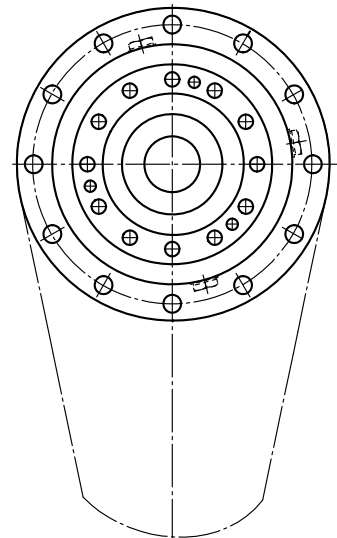


Geared hollow shaft as per DIN 5480 / 5482. Not suitable for receiving radial and axial forces. Aligned installation is paramount.

FS



Slip-on gear motor with torque support and hollow shaft with shrink-fitted disc connection for connection free from play with the counter shaft. This layout is guaranteed to be free from tensioning as the freely moveable torque support follows all deflections



Type designation

The exact gear name is composed of the type code for the series and the design (EM, ED, ET and EQ for 1-, 2-, 3-, and 4-speed coaxial gear and/or EC for all bevel gears regardless of the number of speeds), the number of speeds (1, 2, 3, or 4), the size (010, 020, 030/040, ...), the type of output (Z, K, ...), and the gear ratio

Example:	ED 2065 MRZ - i = 22,39	
	ED	Coaxial gear (2 speeds)
	2	2-speed gear
	065	Size 065
	MRZ	Shaft design (see above)
	- i = 22,39	Effective gear ratio
	EC 3090 Z - i = 50,55	
	EC	Bevel gear
	3	3-speed gear
	090	Size 090
	Z	Shaft design (see above)
	- i = 50,55	Effective gear ratio

The full type designation of a hydraulic gear motor and/or a hydraulic brake gear motor is always composed of the type information of the hydraulic motor, the multi-disc brake (if required), and the gear. For example,

KM 63 ZAF - FL 635 U - ED 2090 H - i = 25,98

Multi-disc brake

It is possible to equip each motor-gear combination with a spring-pressure multi-disc brake for holding static loads. There are two different brake types, **LBD** and **FL**:

Type **LBD** brakes form a unit with the motor. They have generally been designed for the maximum motor torque possible. They have hard nickel-plated brake pistons and a special gasket system, making it possible to use these brakes with flame-retardant hydraulic fluids such as HFC. Please see catalogue **HM1-050** for a selection of these brakes in connection with our radial-piston motors. For installation on a planetary gear, standardised add-on parts are used according to the following table. When selecting a brake motor from catalogue **HM1-050**, please ensure to choose the correct output version, e.g., KM 63ZA-LBD11ZF.

Standard brakes of type **FL635U**, **FL250**, **FL350**, **FL450**, **FL650**, **FL750**, and **FL960** generally form a unit with the respective gear. The hydraulic motor is also installed on the brake input using standardised add-on parts according to the following table. The choice depends on the gear size and the respective holding torque. These brakes are not suitable for operation with flame-retardant hydraulic fluids or for more than 60 gear-changing operations per hour.

Observe two conditions for designing these brakes:

- | | | | |
|---|---|---|--|
| A | Braking torque $T_{\text{brake}} \times i_{\text{eff}}$ | > | Required driving moment |
| B | Braking torque $T_{\text{brake}} \times i_{\text{eff}}$ | > | $1,1 \times T_{\text{max}}$ (see Design section) |

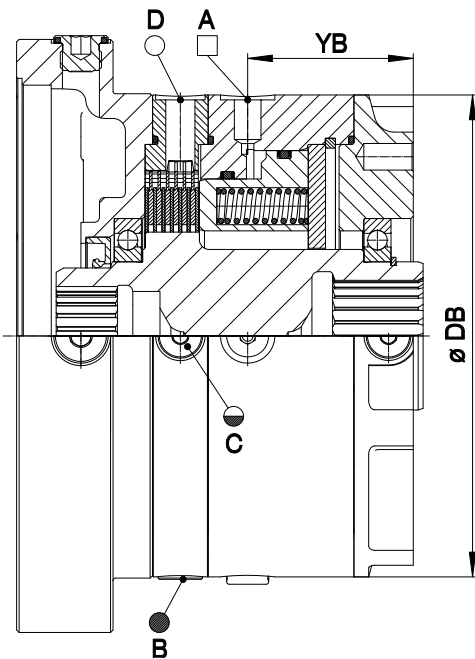
Considering the above conditions, the brake of type FL635U can be used on all gears, except on gears of type EM1150 and EM1250.

The brakes of type **FL250**, **FL350**, **FL450**, **FL650**, **FL750**, and **FL960** are not available for all gear sizes. Consult the dimension tables for choosing the required model.

Higher rotational speeds or prolonged operation with a vertical axis may result in temperature increases. Please contact our technical field offices or our back office staff in such cases or if it is necessary to brake high inertial loads.

For lubrication, use heat and ageing resistant mineral oils with a viscosity of ISO VG 32 and a viscosity index of 95 or higher. Normally, hydraulic oils are suitable. All the brakes mentioned here have been designed for a maximum operating pressure of 315 bar.

Type	T _{brake}	P _{open}	m	V _{Oil h}	V _{Oil v}	A	B / C / D	V _h	ø DB	YB
	[Nm]	[bar]	[kg]	[l]	[l]			[cm ³]	[mm]	[mm]
FL 635 U	380	15 - 315	10,8	0,1	0,2	M12 x 1,5	R 1/4	10 / 20	165	59
FL 250.4C	181	15 - 315	24	0,3	0,6	M12 x 1,5	R 1/4	15 / 30	195	67
FL 250.6C	278	15 - 315	24	0,3	0,6	M12 x 1,5	R 1/4	15 / 30	195	67
FL 350.6C	417	20 - 315	24	0,3	0,6	M12 x 1,5	R 1/4	15 / 30	195	67
FL 350.8C	571	20 - 315	24	0,3	0,6	M12 x 1,5	R 1/4	15 / 30	195	67
FL 450.6C	540	26 - 315	26	0,3	0,6	M12 x 1,5	R 1/4	15 / 30	195	67
FL 450.8C	737	26 - 315	26	0,3	0,6	M12 x 1,5	R 1/4	15 / 30	195	67
FL 650.10C	642	20 - 315	36	0,5	1,0	M12 x 1,5	R 1/4	15 / 30	195	67
FL 650.12C	792	20 - 315	36	0,5	1,0	M12 x 1,5	R 1/4	15 / 30	195	67
FL 650.14C	949	20 - 315	36	0,5	1,0	M12 x 1,5	R 1/4	15 / 30	195	67
FL 750.10C	834	26 - 315	37	0,5	1,0	M12 x 1,5	R 1/4	15 / 30	195	67
FL 750.12C	1027	26 - 315	37	0,5	1,0	M12 x 1,5	R 1/4	15 / 30	195	67
FL 750.14C	1229	26 - 315	37	0,5	1,0	M12 x 1,5	R 1/4	15 / 30	195	67
FL 960.10C	1528	22 - 315	42	1,2	2,4	M12 x 1,5	R 1/4	22 / 45	225	72,5
FL 960.12C	1783	22 - 315	42	1,2	2,4	M12 x 1,5	R 1/4	22 / 45	225	72,5
FL 960.16C	2038	22 - 315	42	1,2	2,4	M12 x 1,5	R 1/4	22 / 45	225	72,5
FL 960.18C	2293	22 - 315	42	1,2	2,4	M12 x 1,5	R 1/4	22 / 45	225	72,5



- A Control port
- B Oil drain plug
- C Oil level plug
- D Filling oil and venting
- T_{brake} Static holding torque / braking torque in Nm
- P_{open} Opening pressure in bar (min - max)
- V_{Oil h/v} Oil fill quantity in litres (horizontal / vertical installation)
- V_h Gear-changing volume (new / worm discs)

Add-on parts

So-called **add-on parts** are used to create the frictional connection between hydraulic motor and planetary gear and/or between hydraulic brake motor as per catalogue HM1-050 and planetary gear. These installation elements have been standardised depending on the hydraulic motors and are used for all gears with a so-called **universal input** on the drive side.

All standard series gears, except sizes **EM1150** and **EM 1250**, are equipped with this input.

In case of combinations of gear and multi-disc brake of type FL, install the add-on part on the brake, which generally has a universal input.

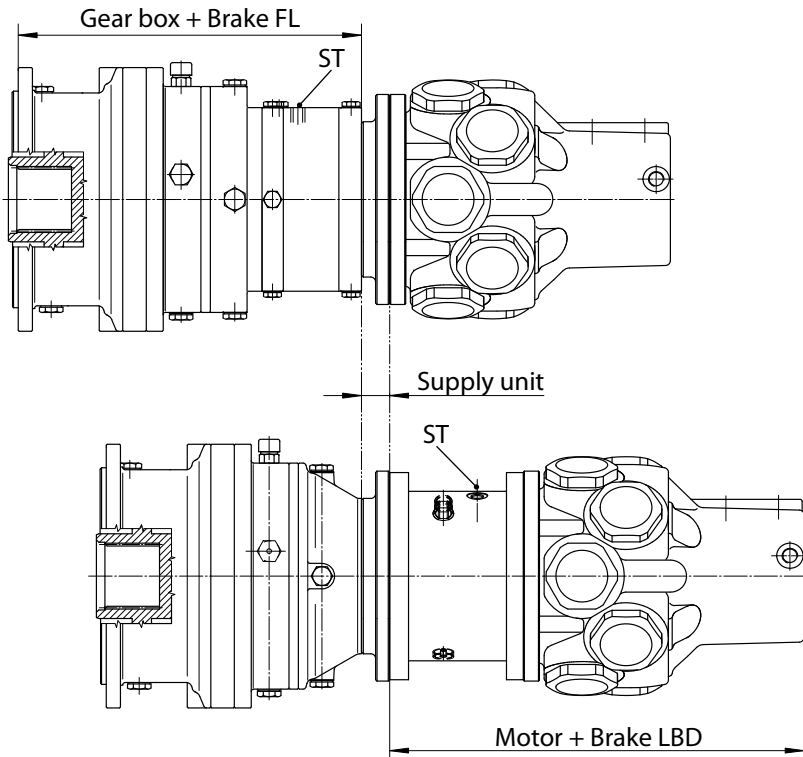
The gears of type EM1150 and EM 1250 mentioned above have a centre gear input and require special add-on parts depending on the gear and hydraulic motor size.

In addition, due to their high power data, you need to take special measures when using motors of type RM 710X up to RM 3150X on gears with universal input.

Please contact our technical field offices or our back office staff if selecting a gear with centre gear input or a motor-gear combination with a hydraulic motor of type RM 710X up to RM 3150X.

Changes reserved!

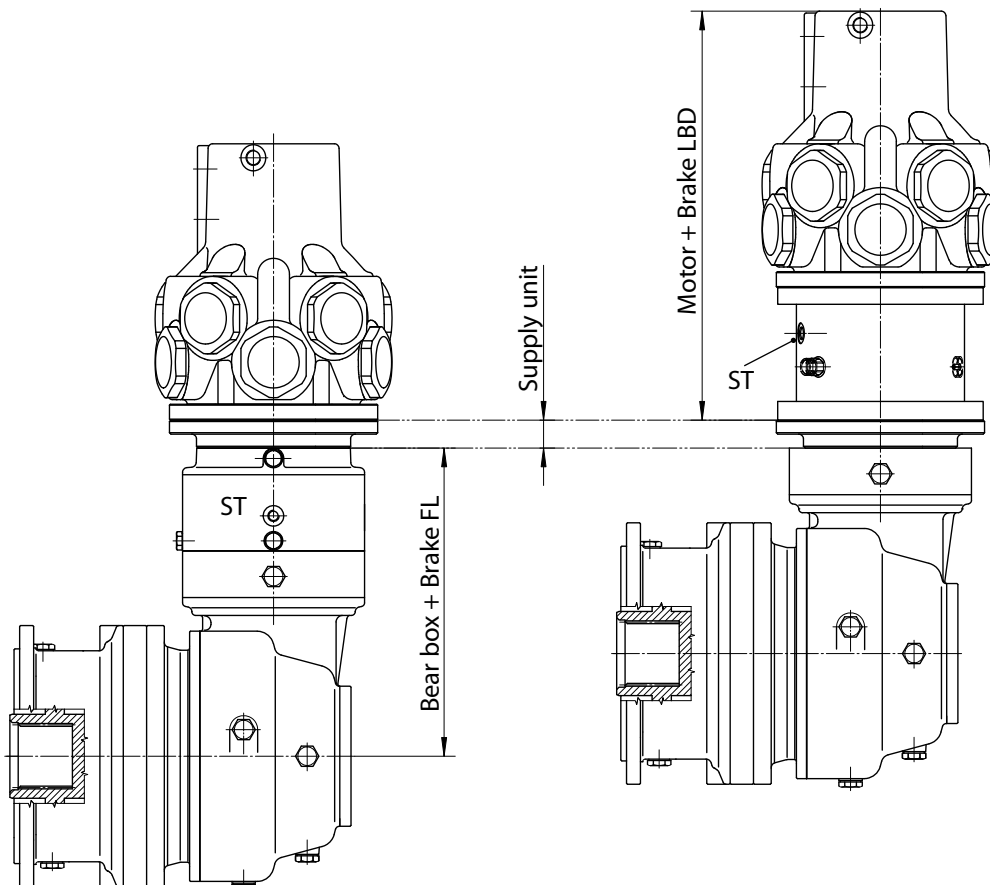
DÜSTERLOH Fluidtechnik GmbH * Im Vogelsang 105 * 45527 Hattingen * ☎ +49 (0) 2324 / 709-0 * Fax +49 (0) 2324 / 709-110



The adjacent drawings highlight the installation type and the position of the add-on parts depending on the multi-disc brake used::

Gear and brake of type FL form a unit. The dimension drawings indicate this by stating LGB for coaxial gear and/or YGB for bevel gear.

Brakes of type LBD form a unit with their respective motor. The dimension drawings use LG and/or Y for bevel gear to indicate the gear length.



Complementing the dimension drawings and dimension tables at the end of this catalogue, the table below lists the dimensions of the add-on parts for gears and/or combinations of gears and brake of type LBD, each with universal input. The add-on parts depend on the respective motor / brake motor size and/or the motor family and the shaft and flange version:

Hydraulic motor	Drive shaft	Supply unit		Hydraulic motor / Brake				
		LA	DA	LM	LB	YB1	DB1	ST
Hydraulic brake motor	Flange							
KM 11 ZF RM 11 ZF	Ø 15,875 zyl. ISO 3019/2	26	Ø 165 150x150	151 (161)				
KM 22 ZF KM 32 ZF	Ø 30 zyl. ISO 3019/2	25	175x175	142				
KM 45 ZF KM 63 ZF	Ø 30 zyl. ISO 3019/2	25	175x175	160				
KM 90 ZF KM 110 ZF	Ø 30 zyl. ISO 3019/2	25	175x175	182				
RM 80 N HF RM 125 N HF	DIN 5480 N45x2x21x9H ISO 3019/2	30	Ø 223	256				
RM 160 N HF RM 250 N HF	DIN 5480 N45x2x21x9H ISO 3019/2	30	Ø 223	298				
RM 250 X H RM 500 X H	DIN 5480 N55x3x17x9H	55	Ø 295	290				
RM 710 X H RM 900 X H	DIN 5480 N70x3x22x9H	60	Ø 345	353				
KM 11Z-LBD 9 ZF RM 11Z-LBD 9 ZF	Ø 15,875 zyl. ISO 3019/2	26	Ø 165 150x150	151 (161)	139	42	120	G ¼
KM 22Z-LBD 11ZF KM 32Z-LBD 11ZF	Ø 30 zyl. ISO 3019/2	25	175x175	148	106	31	120	G ¼
KM 45Z-LBD 11ZF KM 63Z-LBD 11ZF	Ø 30 zyl. ISO 3019/2	25	175x175	166	106	31	120	G ¼
KM 90Z-LBD 11ZF KM 110Z-LBD 11ZF	Ø 30 zyl. ISO 3019/2	25	175x175	188	106	31	120	G ¼
KM 22Z-LBD 13Z KM 32Z-LBD 13Z	Ø 32 zyl ISO 3019/2	25	Ø 135	142	110	42	140	M 12x1,5
KM 45Z-LBD 13Z KM 63Z-LBD 13Z	Ø 32 zyl ISO 3019/2	25	Ø 135	160	110	42	140	M 12x1,5
KM 90Z-LBD 13Z KM 110Z-LBD 13Z	Ø 32 zyl ISO 3019/2	25	Ø 135	182	110	42	140	M 12x1,5
RM 80 NKF-LBD 124 H F RM 125 NKF-LBD 124 H F	DIN 5480 N45x2x21x9H ISO 3019/2	30	Ø 223	256	138	48	220	G ¼
RM 160 NKF-LBD 249 H F RM 250 NKF-LBD 249 H F	DIN 5480 N45x2x21x9H ISO 3019/2	30	Ø 223	298	142	50	220	G ¼
RM 250 XK-LBD 449 H F RM 500 XK-LBD 449 H F	DIN 5480 N55x3x17x9H	55	Ø 295	290	176	68	290	G ¼
RM 710 XK-LBD 901 H RM 900 XK-LBD 901 H	DIN 5480 N70x3x22x9H	60	Ø 345	353	175	75	340	G ¼

Design

Hydraulic gear motors are designed based on a number of criteria:

- Maximum or continuous transmission output performance
- Maximum or continuous transmission output torque
- Maximum required output speed
- Radial or axial load transmission on transmission output shaft
- Required holding torque when using a multi-disc brake

Normally, the design process follows these steps:

Definition and/or calculation of the loads to be raised on the transmission output shaft

- Maximum transmission torque as a short-term peak value at, e.g., 5% ED/h
- Nominal torque to be transmitted continuously by the gear, i.e., at 100% ED
- Speed range, i.e., minimum and maximum speed of the transmission output shaft
- The performance data required based on these values
- Any potential radial and axial loads
- The differential pressure available in the hydraulics for reaching the torques

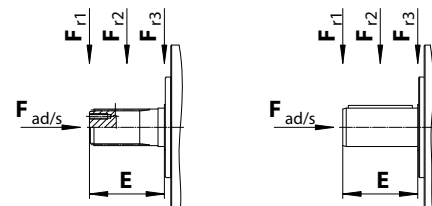
Based on the existing and/or calculated power data, such as nominal or continuous performance and maximum performance at, e.g., 5% ED/h, you pre-select the required motor size (e.g., as per overview HM1-002 or catalogues HM1-014 and/or HM1-015). Following this, use the corresponding tables for making your selection. Here, the individual data, which generally refer to the transmission output shaft, have the following meaning:

i	Effective transmission ratio of the gear
V_g	Geometric displacement in cm ³ /U
T_{spez}	Mean specific torque in Mn/bar
T_{dauer}	Admissible continuous torque in Nm at delta p d in bar
T_{max}	Maximum admissible operating torque in Nm at delta p m in bar and 5% ED/h
k_d	Service factor for the continuous capacity of the gears relating to T _{continuous}
k_m	Service factor for the continuous capacity of the gears relating to T _{max}
n_{min} - n_{max}	Operating speed range in min ⁻¹
P_d	Maximum admissible output continuous performance. In case values are continuously exceeded you need to provide for a gearing purge and/or a gear oil cooling.

The dimension tables also specify admissible radial and axial loads, regarded as a singular force, for each gear size. The calculations are based on a working life of

$$n_2 * L_{h10} = 10^5$$

F_{r1}	Admissible radial force for linear measure E = E
F_{r2}	Admissible radial force for linear measure E = E/2
F_{r3}	Admissible radial force for linear measure E = 0
F_{ad}	Admissible axial force, dynamic
F_{as}	Admissible axial force, static
n₂	Output speed
L_{h10}	Nominal bearing working life



Apart from the actual design data such as torque, speed etc., factors such as the operating medium used, operating and ambient temperatures, operating mode, installation position, potential radial and axial forces or requested bearing working life, even gear-changing and/or starting up frequency in case of holding brakes, play a role. This is why no calculation formulas are listed here. We therefore recommend not to use your own calculations but to make use of our complimentary design service. Please contact our back office staff and/or our technical field offices or simply fax us the request form (with as much information entered as possible) and we will send you our suggestion for a solution and a detailed offer as soon as possible.

Installation instructions

Ensure during installation that venting and oil filling plug, oil level plug, and oil drain plug are in the correct position. The owner of the systems has to ensure adequate protection of the shafts on the drive and output side, the couplings, belts, or belt pulleys as well as for everything else to safely operate the machines as per EC Directives 89/392 ff.

Observe the following instructions for flange version gears:

The structures for attaching the gears need to be fixed, the contact surfaces need to be machined, even, in vertical position to the driven shaft and have a tolerance of ISO H8.

Particular attention needs to be paid to the alignment of the gear and the shaft to be driven, especially for gears with hollow output shafts allowing neither axial nor radial stress.

Attachment requires screws of strength class 8.8 or higher, and fastened at the mandatory tensioning torque. Applications with impacts, high numbers of start-ups and changes in rotational direction, or exceeding 70% of the maximum torque require the use of screws of strength class 10.9 or 12.9 and of clamping sleeves, which are pre-installed by default for gears of size 150 up to 250.

Sprockets, discs, or couplings for attachment on the output shaft need to have a tolerance of ISO H7. Use suitable tools for installation and uninstallation and make use of the threaded bore hole on the shaft front; otherwise, heat the part to 80—100°C.

Check all attachments if loads are exerted on the drive and the output shaft simultaneously. Please contact our technical office in such a case.

For outdoor installations, apply an anti-rust treatment and use water-repellent grease to protect the oil gaskets.

Weather-proof the gears, in particular if they are installed vertically.

Observe the following when installing gears in shrink-fitted disc version:

Fasten any three shrink-fitted disc fixing screws arranged at an angle of 120°. Slightly fasten them until it is just about possible to move the inner ring. Over-tightening the screws may distort the ring shape.

Measure the space between the two fastening elements at several points to ensure that the distance between the discs is identical. Slip shrink-fitted disc onto gear shaft.

Please note: Fully install both shafts prior to fastening the fixing screws.

Completely remove all the grease from the inner surface of the gear shaft and the shaft to be fitted inside it.

Insert the entire solid shaft into the gear hollow shaft.

Gradually and clockwise fasten all fixing screws one after the other (not crosswise) up to the admissible tensioning torque. Both fastening elements need to be at the same distance.

Installing the torque support requires screws of strength class 8.8 or higher, fastened at 70% yield stress.

Applications with impacts, high numbers of start-ups and changes in rotational direction, or exceeding 70% of the maximum torque require the use of screws of strength class 10.9 or 12.9 and, where available, of clamping sleeves (gears of size 150 up to 250).

Uninstalling the shrink-fitted disc is similar to installing it:

Gradually and clockwise loosen the fixing screws. Initially, only loosen each screw by a quarter of a turn. This prevents the fastening elements from sloping and jamming. Do not unscrew the fixing screws fully.

Disconnect the shaft or the gear from the shaft. This is helped by a bore hole on the gear shaft, where you can pump in oil at a low pressure to ensure you remove the disc gradually and evenly. Prior to uninstallation, remove all residual contamination between both shafts. Remove the shrink-fitted disc from the gear shaft.

Maintenance instructions

Our planetary gears require no special maintenance measures. However, check them regularly to prevent a potential loss in performance. The lubricant requires special attention because you need to regularly check its fill level and re-fill it, if necessary. Do not mix different kinds of oil. If you are unsure about the type of lubricating oil inside the gear, you are best advised to change the oil entirely.

Our gears are delivered without oil filling.

This is why you need to fill in oil prior to starting them up.

Note: To store the gears for a longer period of time, in particular in wet ambient conditions, protect all parts from rust and completely fill the gear with oil to avoid the build-up of rust.

Lubrication

For the gears we recommend using gear oil with EP additive, a viscosity index of 95 or higher or a viscosity with a minimum value of 40—60 cst at normal operating temperatures and depending on speed and transmitted torque. With normal temperature increases of 40°—50°C, the choice of oil mostly depends on the ambient temperature. With high temperature variations, we recommend using synthetic lubricants with EP additive, a viscosity index of 165 or higher and a viscosity of VG 150 or 220 (ISO 3448).

Please consult with our technical office for special applications with high performance and speed. It is always advisable to use oil that does not age too quickly under the respective operating

temperature. Adjust the intervals between oil changes to your use case but in keeping with the intervals specified in the Oil Change section. The required oil quantities for each individual gear depend on the gear type and the installation:

Installation with horizontal axis requires filling up to the centre line (for coaxial gear and bevel gear, positions B3A, B3B, and B3C).

Installation with vertical axis requires complete filling. This also applies to coaxial gears in positions V6B and V5B. The same applies to position B3D, provided they are gears used in periodic duty. Please contact our technical office in all other cases.

Check the oil level at operating temperature.

To ensure correct lubrication you also need to know the layout of the individual ports. It is advisable in all cases to perform a visual inspection after re-filling.

Depending on the model, you can also install pipes on the outside to make checking the oil level easier. For vertical installations you need to use an oil expansion tank. The maximum oil temperature during continuous operation is 90°C.

Oil change

The first gear oil change needs to take place after 50—100 operating hours, and then after every 2,500 hours and/or at least every 12 months.

Depending on the operating conditions, choose shorter intervals.

When changing the oil, also purge the gear housing using a suitable product that is recommended by the lubricant manufacturer.

To prevent the build-up of oil sludge, change the oil while the gear is still warm.

We recommend checking the oil level once a month or more often. If more than 10% of the total fill quantity are missing, check the gear for leaks.

It is not recommended to mix different types of oil of either a certain brand or of different brands. In particular, avoid mixing mineral oil and synthetic oil.

Lubricant	-20° C / +5° C min. VI = 95	+5° C / +30° C min. VI = 95	+30° C / +50° C min. VI = 95	-30° C / +65° C min. VI = 165
ISO 3448	VG 100	VG 150	VG 320	VG 150 - 220
AGIP	Blasia 100	Blasia 150	Blasia 320	Blasia S 220
ARAL	Degol BG 100	Degol BG 150	Degol BG 320	Degol GS 220
BP	GR XP 100	GR XP 150	GR XP 320	Energol HTX 220
CASTROL	Alpha SP 100	Alpha SP 160	Alpha 320	Alpha SN 150
ESSO	Spartan EP 100	Spartan EP 150	Spartan EP 320	Excolub SLG
SHELL	Omala oil 100	Omala oil 150	Omala oil 320	Tivela Oil SA
TOTAL	Carter EP 100 N	Carter EP 150	Carter EP 320 N	
KLÜBER LUBRICATION	GEM 1-100 N	GEM 1-150 N	GEM 1-320 N	Synth GH 6-220
ELF	Reductelf SP 100	Reductelf SP 150	Reductelf SP 320	ORTIS 125 MS

Gearbox		m	Oil quantity in l	
Size of gearbox		[kg]	B3	V5 / V6
EM 1010	Z / K	13	0,5	1,0
	MRZ / MRK	14	0,5	1,0
	H	12,5	0,5	1,0
	FS	13	0,5	1,0
ED 2010	Z / K	17	0,8	1,6
	MRZ / MRK	18	0,8	1,6
	H	16,5	0,8	1,6
	FS	17	0,8	1,6
ET 3010	Z / K	21	0,9	1,8
	MRZ / MRK	22	0,9	1,8
	H	20	0,9	1,8
	FS	21	0,9	1,8
EM 1020	MRZ / MRK	31	1,0	2,0
	H	23	1,2	2,4
	FS	31	1,0	2,0
ED 2020	MRZ / MRK	30	1,2	2,4
	H	22	1,5	3,0
	FS	30	1,2	2,4
EC 2020	MRZ / MRK	69	2,2	4,4
	H	61	2,3	4,6
	FS	69	2,2	4,4
ET 3020	MRZ / MRK	38	1,6	3,2
	H	26	1,7	3,4
	FS	38	1,6	3,2
EQ 4020	MRZ / MRK	40	1,7	3,4
	H	30	1,8	3,6
	FS	40	1,7	3,4
ED 2030	MRZ / MRK	32	1,3	2,6
	H	26	1,1	2,2
ET 3030	MRZ / MRK	40	1,6	3,2
	H	30	1,6	3,2
EQ 4030	MRZ / MRK	42	1,7	3,4
	H	23	1,7	3,4
ED 2040	Z / K	45	1,7	3,4
ET 3040	Z / K	46	1,7	3,4
EQ 4040	Z / K	48	1,8	3,6
EM 1045	MRZ / MRK	36	1,0	2,0
	H	28	1,1	2,2
	FS	36	1,0	2,0
ED 2045	MRZ / MRK	48	1,6	3,2
	H	38	1,5	3,0
	FS	48	1,6	3,2
EC 2045	MRZ / MRK	71	2,0	4,0
	H	63	2,1	4,2
	FS	71	2,0	4,0

Gearbox		m	Oil quantity in l	
Size of gearbox		[kg]	B3	V5 / V6
ET 3045	MRZ / MRK	49	1,6	3,2
	H	40	1,6	3,2
	FS	49	1,6	3,2
EC 3045	MRZ / MRK	83	3,0	6,0
	H	75	3,2	6,4
	FS	83	3,0	6,0
EQ 4045	MRZ / MRK	51	2,2	4,4
	H	44	2,5	5,0
	FS	51	2,2	4,4
EM 1046	Z / K	45	1,2	2,4
ED 2046	Z / K	52	2,0	4,0
EC 2046	Z / K	82	2,5	5,0
ET 3046	Z / K	60	1,8	3,6
EC 3046	Z / K	90	3,3	6,6
EQ 4046	Z / K	62	2,2	4,4
EM 1065	MRZ / MRK	65	1,6	3,2
	H	60	1,8	3,6
	FS	65	1,6	3,2
ED 2065	MRZ / MRK	75	2,4	4,8
	H	70	2,6	5,2
	FS	75	2,4	4,8
EC 2065	MRZ / MRK	102	2,7	5,4
	H	97	2,9	5,8
	FS	102	2,7	5,4
ET 3065	MRZ / MRK	78	2,3	4,6
	H	73	2,5	5,0
	FS	78	2,3	4,6
EC 3065	MRZ / MRK	115	3,7	7,4
	H	110	3,8	7,6
	FS	115	3,7	7,4
EQ 4065	MRZ / MRK	80	2,5	5,0
	H	75	2,8	5,6
	FS	80	2,5	5,0
EM 1090	Z / K	100	2,2	4,4
	MRZ / MRK	110	3,0	6,0
	H	95	2,2	4,4
ED 2090	FS	100	2,2	4,4
	Z / K	106	2,2	4,4
	MRZ / MRK	115	3,5	7,0
EC 2090	H	95	3,2	6,4
	FS	106	2,2	4,4
	Z / K	140	5,0	10,0
EC 2090	MRZ / MRK	148	6,0	12,0
	H	133	5,2	10,4
	FS	140	5,0	10,0

Mounting position: horizontal - B3; vertical - V5/V6

Changes reserved!

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Gearbox		m	Oil quantity in l	
Size of gearbox		[kg]	B3	V5 / V6
ET 3090	Z / K	116	3,3	6,6
	MRZ / MRK	125	3,2	6,4
	H	110	3,2	6,4
	FS	116	3,3	6,6
EC 3090	Z / K	145	5,2	10,4
	MRZ / MRK	153	6,2	12,4
	H	146	5,5	11,0
	FS	145	5,2	10,4
EQ 4090	Z / K	119	4,0	8,0
	MRZ / MRK	128	5,0	10,0
	H	113	3,8	7,6
	FS	119	4,0	8,0
EC 4090	Z / K	153	5,5	11,0
	MRZ / MRK	161	6,5	13,0
	H	154	5,8	11,6
	FS	153	5,5	11,0
EM 1150	Z / K	110	2,5	5,0
	MRZ / MRK	135	4,5	9,0
	H	90	1,8	3,6
	FS	110	2,5	5,0
ED 2150	Z / K	123	3,2	6,4
	MRZ / MRK	156	5,0	10,0
	H	108	2,5	5,0
	FS	123	3,2	6,4
EC 2150	Z / K	175	5,0	10,0
	MRZ / MRK	195	7,0	14,0
	H	120	3,0	6,0
	FS	175	5,0	10,0
ET 3150	Z / K	130	3,5	7,0
	MRZ / MRK	165	5,3	10,6
	H	125	3,0	6,0
	FS	130	3,5	7,0
EC 3150	Z / K	158	4,4	8,8
	MRZ / MRK	193	6,0	12,0
	H	130	3,7	7,4
	FS	158	4,4	8,8
EQ 4150	Z / K	133	3,7	7,4
	MRZ / MRK	168	5,5	11,0
	H	128	3,5	7,0
	FS	133	3,7	7,4
EC 4150	Z / K	185	5,5	11,0
	MRZ / MRK	205	6,0	12,0
	H	143	3,5	7,0
	FS	185	5,5	11,0

Gearbox		m	Oil quantity in l	
Size of gearbox		[kg]	B3	V5 / V6
EM 1250	Z / K	138	3,8	7,0
	H	128	2,5	5,0
	FS	138	3,8	7,0
ED 2250	Z / K	190	4,5	9,0
	H	160	3,5	7,0
	FS	190	4,5	9,0
EC 2250	Z / K	205	6,5	13,0
	H	195	5,0	10,0
	FS	205	6,5	13,0
ET 3250	Z / K	197	5,0	10,0
	H	180	4,5	9,0
	FS	197	5,0	10,0
EC 3250	Z / K	225	5,7	11,4
	H	200	6,0	12,0
	FS	225	5,7	11,4
EQ 4250	Z / K	200	5,2	10,4
	H	163	4,8	9,6
	FS	200	5,2	10,4
EC 4250	Z / K	235	7,0	14,0
	H	195	5,7	11,4
	FS	235	7,0	14,0
PD 1010	MRZ	17	1,1	2,0
PD 2010	MRZ	19	1,3	2,3
PD 3010	MRZ	30	1,4	2,5
PD 1020	MRZ	42	3,6	6,8
PD 2020	MRZ	43,5	3,8	7,2
PD 3020	MRZ	45	4,0	7,5
PD 4020	MRZ	46,5	4,3	8,0
PD 2030	MRZ	45	3,6	6,8
PD 3030	MRZ	46,5	3,8	7,1
PD 4030	MRZ	48	4,1	7,6
PD 1045	MRZ	43	3,4	6,5
PD 2045	MRZ	54	4,0	7,6
PD 3045	MRZ	59	4,2	8,0
PD 4045	MRZ	65	4,5	8,2
PD 1065	MRZ	71	5,0	9,0
PD 2065	MRZ	81	5,8	10,5
PD 3065	MRZ	86	6,0	11,0
PD 4065	MRZ	90	6,4	11,8
PD 1090	MRZ	125	5,2	9,5
PD 2090	MRZ	134	6,0	11,0
PD 3090	MRZ	140	6,3	11,6
PD 4090	MRZ	144	7,0	13,0
PD 1150	MRZ	147	5,5	10,2
PD 2150	MRZ	160	6,3	11,6
PD 3150	MRZ	167	6,5	12,0

Mounting position: horizontal - B3; vertical - V5/V6

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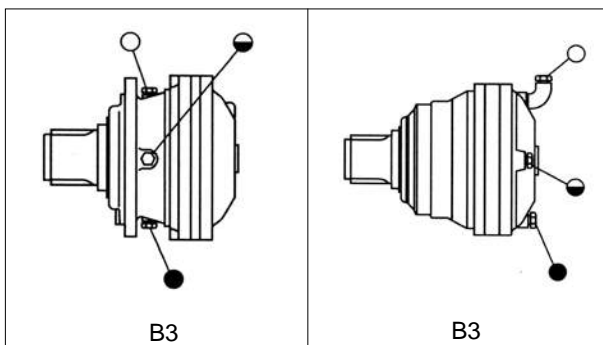
Gearbox		m [kg]	Oil quantity in l	
Size of gearbox			B3	V5 / V6
PD 4150	MRZ	172	7,2	13,4
PDA 2010	MRZ			
PDA 3010	MRZ			
PDA 4010	MRZ			
PDA 2020	MRZ			
PDA 3020	MRZ			
PDA 3030	MRZ			
PDA 4030	MRZ			
PDA 2045	MRZ	77	4,0	8,0
PDA 3045	MRZ	93	5,5	7,5
PDA 4045	MRZ			
PDA 2065	MRZ	108	6,0	11,4
PDA 3065	MRZ	123	7,0	13,8
PDA 4065	MRZ			
PDA 2090	MRZ	168	8,5	14,8
PDA 3090	MRZ	169	9,0	15,4

Gearbox		m [kg]	Oil quantity in l	
Size of gearbox			B3	V5 / V6
PDA 4090	MRZ	178	9,5	16,0
PDA 2150	MRZ	212	10,0	15,2
PDA 3150	MRZ	195	9,0	15,7
PDA 4150	MRZ	224	9,0	16,4

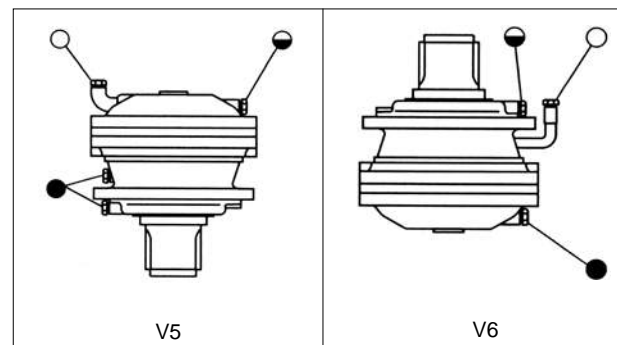
Arrangement of the oil drain, oil level and air vents

○ = Breather and filling plug ● = Oil level plug ● = Drain plug

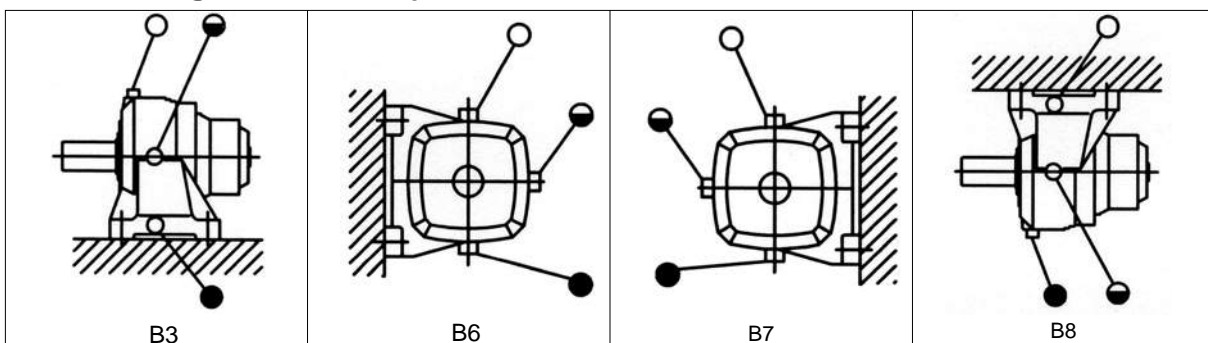
Flange mounted gears, horizontal position



Flange mounted gears, vertical position



Foot mounted gears, horizontal position

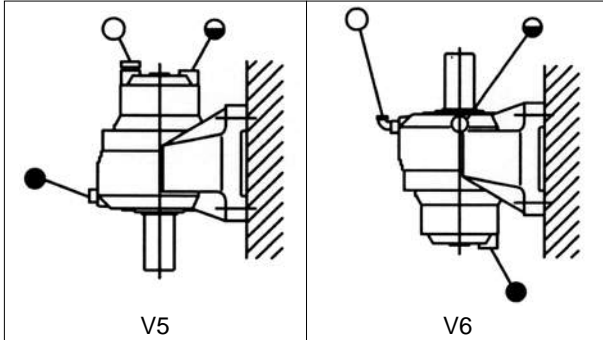


○ = Breather and filling plug

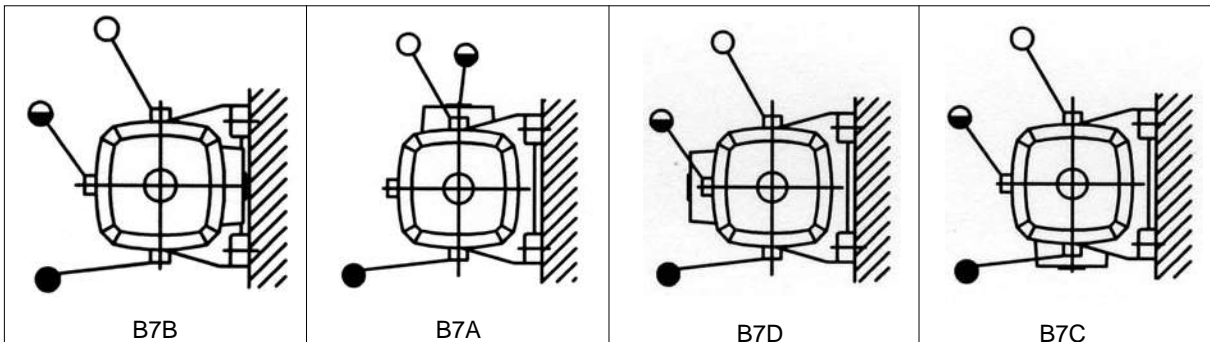
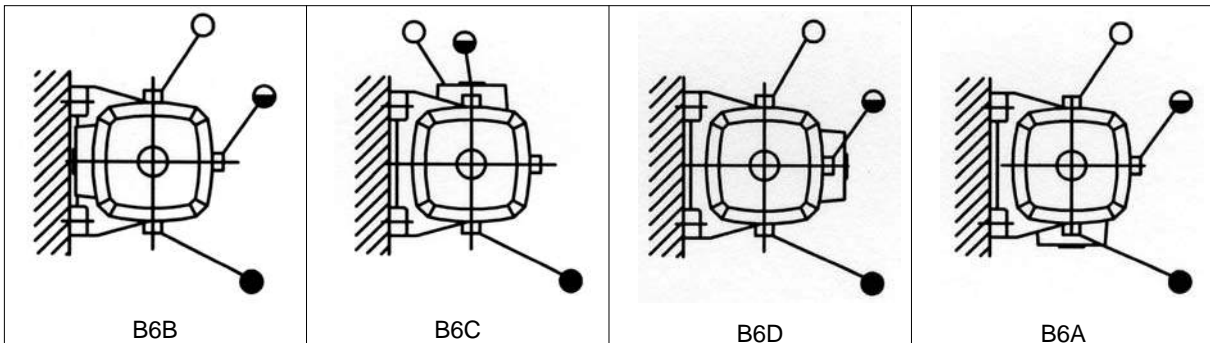
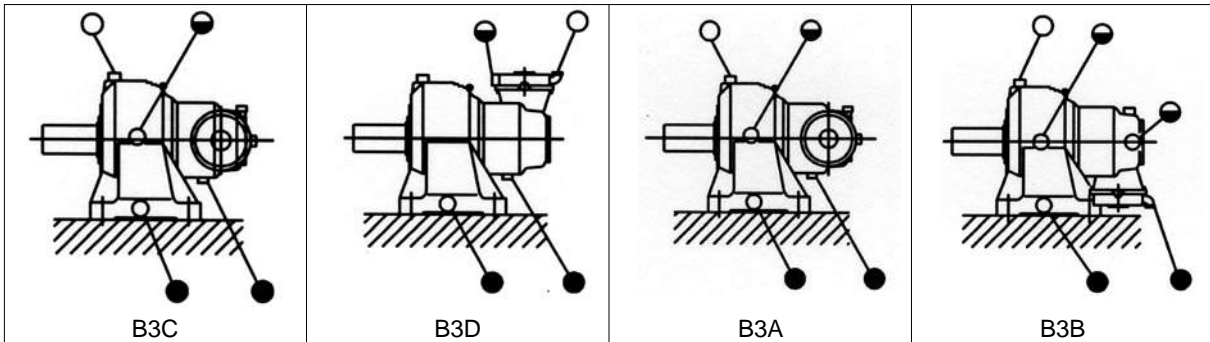
◐ = Oil level plug

● = Drain plug

Foot mounted gears, vertical position



Right angle foot mounted gears, horizontal position

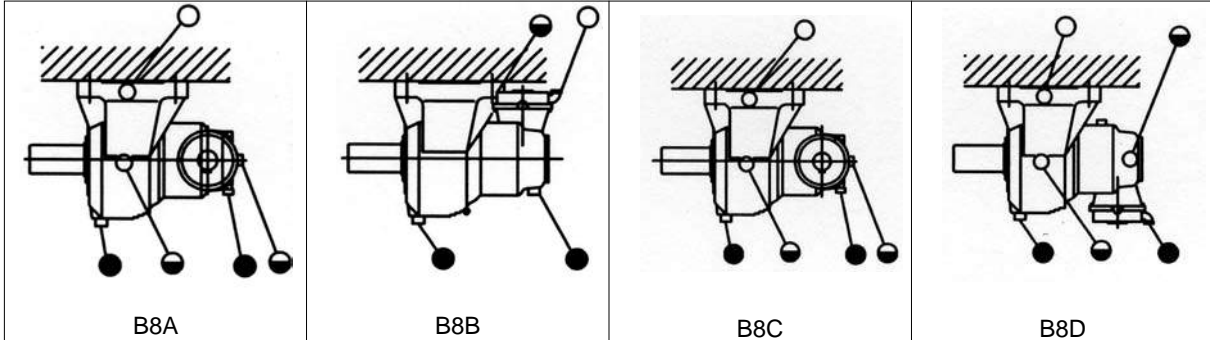


○ = Breather and filling plug

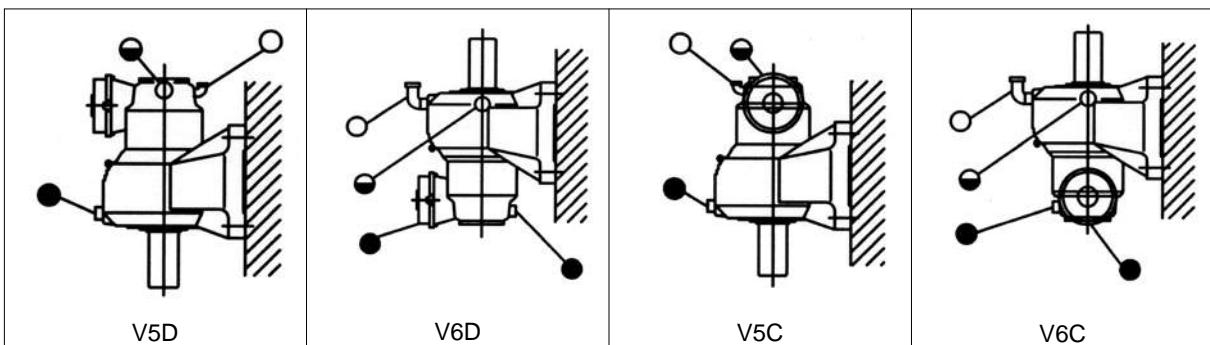
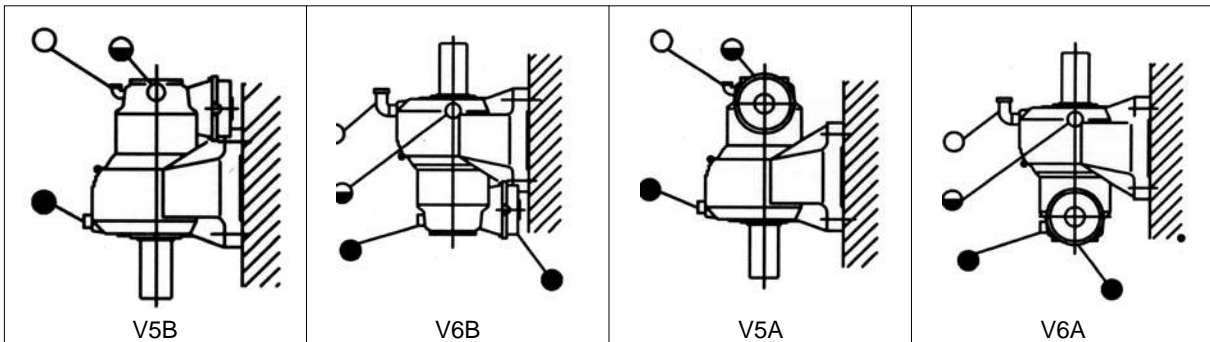
◐ = Oil level plug

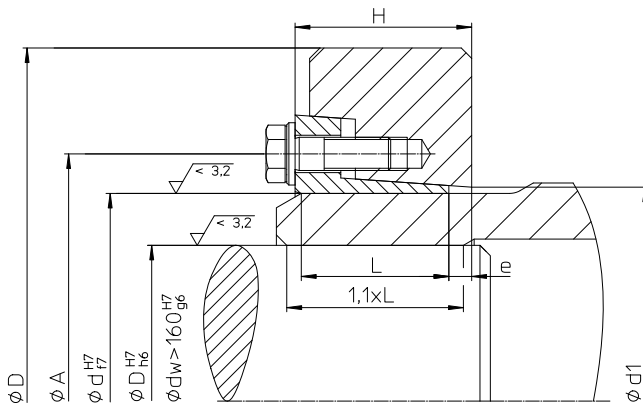
● = Drain plug

Right angle foot mounted gears, horizontal position



Right angle foot mounted gears, vertical position





Size	Shrink-fitted disc	d	d _w	T ₂
Gear box	Description	[mm]	[mm]	[kNm]
010	HSD 62 - 22 x 62	62	50	1,92
020	HSD 100 - 22 x 100	100	75	7,42
030	HSD 100 - 22 x 100	100	75	7,42
045	HSD 100 - 22 x 100	100	75	7,42
065	HSD 125 - 22 x 125	125	90	12,85
090	HSD 140 - 22 x 140	140	100	18,50
090	HSD 140 - 23 x 140	140	100	26,00
150	HSD 165 - 22 x 165	165	120	34,50
150	HSD 165 - 23 x 165	165	120	47,00
250	HSD 175 - 22 x 175	175	130	42,00
250	HSD 175 - 23 x 175	175	130	58,00

Size	F _{a max}	T _A	B	D	L	H	A	d ₁	e	m	E ₁	E ₁ / d _w
Gear box	[kN]	[Nm]		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]	[Lx1,1]	
010	77	29	M 8	110	23	29	80	66	3,0	1,3	25	0,50
020	200	58	M 10	170	34	43	124	104	4,0	4,7	37	0,50
030	200	58	M 10	170	34	43	124	104	4,0	4,7	37	0,50
045	200	58	M 10	170	34	43	124	104	4,0	4,7	37	0,50
065	280	100	M 12	215	42	53	160	134	5,5	8,3	46	0,50
090	370	160	M 14	230	46	58	172	146	6,0	10,0	51	0,51
090	520	240	M 16	230	60	74	178	144	7,0	13,0	66	0,66
150	525	240	M 16	290	56	68	204	175	7,0	22,0	62	0,52
150	780	240	M 16	290	72	88	204	174	8,0	26,0	79	0,66
250	650	240	M 16	300	56	68	214	185	8,0	22,0	62	0,48
250	890	240	M 16	300	72	88	214	184	8,0	29,0	79	0,61

Installation and uninstallation instructions for HSD shrink-fitted discs

Installation

The shrink-fitted discs are delivered ready for installation. Therefore, avoid disassembling them prior to initial tensioning. Remove grease from hub bore hole and shaft. Slip shrink-fitted disc onto the hub. Grease the outer surface of the hub in the area of the shrink-fitted disc seat. Never fasten the tensioning screws prior to installing the shaft. Install the shaft and/or slip the hub onto the shaft. Evenly fasten all tensioning screws. Fasten all tensioning screws until the front lateral surfaces of the outer and inner rings are level. This makes it possible to visually check the correct tensioning state.

Uninstallation

Loosening the screws is similar to tensioning them: Loosen the tensioning screws evenly and one after the other. If the outer ring fails to disengage from the inner ring automatically, you can unscrew some tensioning screws and screw them into the adjoining force-off threadings. You can then easily slacken the rings. Remove the shaft and/or slip the hub off the shaft. Prior to that, remove any rust that may have built up on the hub of the shaft. Slip the shrink-fitted discs off the hub.

Cleaning and lubrication

There is no need for disassembling and re-lubricating uninstalled shrink-fitted discs prior to re-tensioning them. Clean and re-lubricate the shrink-fitted disc only if it has been contaminated. Use a solids lubricant with a friction coefficient of $\mu = 0.04$.

Examples:

Lubricant type	Available as / manufacturer
Molykote 321 R (Gleitlack)	Spray Dow Corning
Molykote Spray (Pulver Spray)	Spray Dow Corning
Molykote G Rapid	Spray oder Paste Dow Corning
Aemasol MO 19 R	A.C. Matthes
UNIMOLY P 5	Pulver KLÜBER LUBRICATION

Technical details

Torque T_2
 The transmittable torque depends on the friction coefficient between shaft and hub, the fitting tolerance, and the shaft diameter. The friction coefficient for dry and degreased surfaces varies between 0.15 and 0.33 for steel/steel pairs. The value $\mu_w = 0.15$ has been used for calculating the table values. Careful grease removal (washing with solvents and additional washing with limewash) may yield higher friction coefficients—approx. 0.2. The transmittable torque increases relative to the friction coefficient ratio.

Fitting tolerances
 Torque calculation takes into account the maximum fitting tolerance and the surface roughness (H7/h6 up to a shaft diameter of 150mm, H7/g6 from 160mm). If the actual fitting tolerance is less, the transmittable torque increases. Vice versa, if the fitting tolerance is greater than specified, the transmittable torque decreases

Axial force $F_{a \max}$

Use the maximum transmittable torque for calculating the maximum transmitted axial force :

$$F_{ax \max.} = T_{2 \text{ Liste}} \cdot 2 / d_w$$

Superposition of torques and axial forces. To be able to transmit torques and axial forces simultaneously, add their vectors:

$$T_2'' = [T_2^2 \text{ Liste} - (d_w \cdot F_{a \max})^2]^{0.5}$$

T_2'' is the reduced transmittable torque at simultaneous axial force $F_{a \max}$.

Hub material

Use steel, cast steel, or nodular iron with a yield stress of 360N/mm² or more. For connections required to transmit bending torques (circular bending), use heat-treated steel such as 42 CrMo 4 or higher-quality cast steel or nodular iron. For connections without any notable bending torques, you can also use grey cast iron. In that case, choose a hub wall thickness greater than the usual one.

Surface roughness

Ensure the surface roughness of shaft and hub is below Ro 3.2 (lathing machining is sufficient).

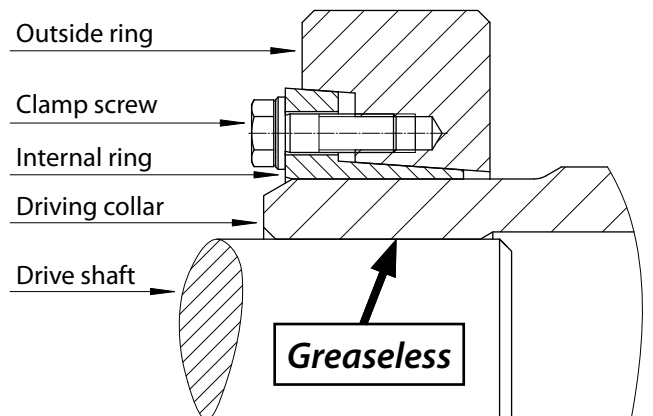
Tensioning screws

Commercial-grade hexagon bolts as per DIN 931, grade 10.9, are used by default.

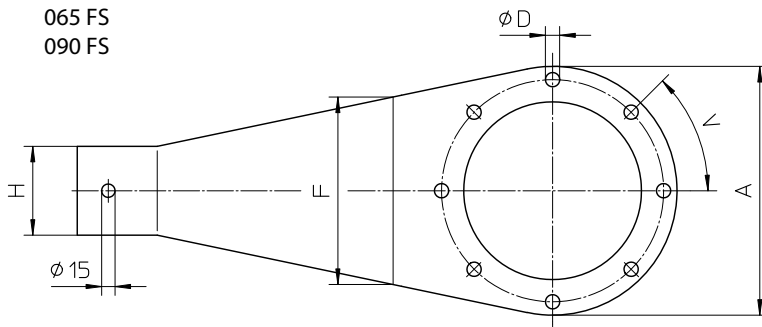
Hub calculation

When tensioning the shrink-fitted disc connection, the hub assumes a multi-axial tensioning state. Use the formulas for thick-walled pipes for calculating the tangential and radial tensions.

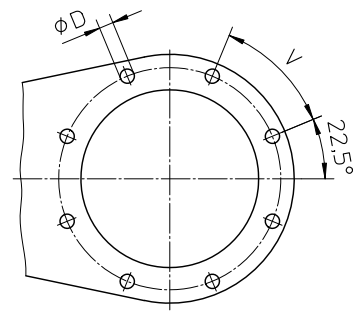
(Tensions in axial direction can be neglected.)



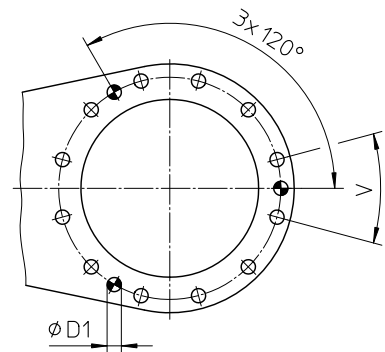
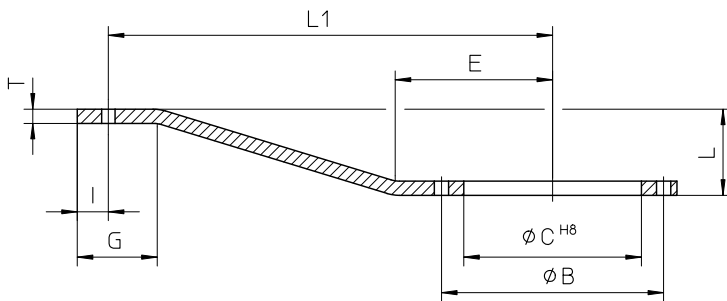
020, 030, 045 FS
065 FS
090 FS



010 FS



150 FS, 250 FS



Size	A	Ø B	Ø C	E	F	G	H	I	L	L1	T	Ø D	V	Ø D1
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		[mm]
010 FS	180	165	110 ^{H8}	110	140	70	80	30	42	300	12	9	8x45°	
020 FS	220	195	150 ^{H8}	140	173	90	100	35	58	400	16	14	10x36°	
030 FS	220	195	150 ^{H8}	140	173	90	100	35	58	400	16	14	10x36°	
045 FS	220	195	150 ^{H8}	140	173	90	100	35	58	400	16	14	10x36°	
065 FS	280	250	200 ^{H8}	170	215	90	100	35	97	500	16	16	12x30°	
090 FS	325	295	230 ^{H8}	190	251	90	100	35	98	600	16	18	10x36°	
150 FS	350	314	278 ^{H8}	200	283	110	120	45	205	715	20	16	12x30°	12
250 FS	399	370	340 ^{H8}	230	324	110	120	45	252	875	20	18	15x24°	16

Anti-twist device!

The locking pins of gears 150 FS and 250 FS are inserted by 20mm into the bore hole of the torque support.

Caution!

Check the exact position of the attachment bore holes with the respective gear dimension sheets.

Request binding dimension drawings when placing an order.

Legend:

LM* = length hydraulic motor

LA* = length supply unit

LG = length gear box to connection surface

LGB = length gear box with FL-brake to connection surface

DB = diameter FL-brake

LB* = length LBD-brake

DB1* = diameter LBD-brake

ST = signal pressure connection FL / LBD - brake

YB = distance signal pressure connection FL-brake

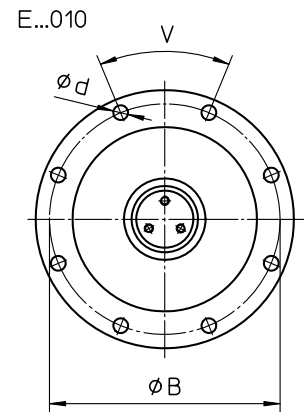
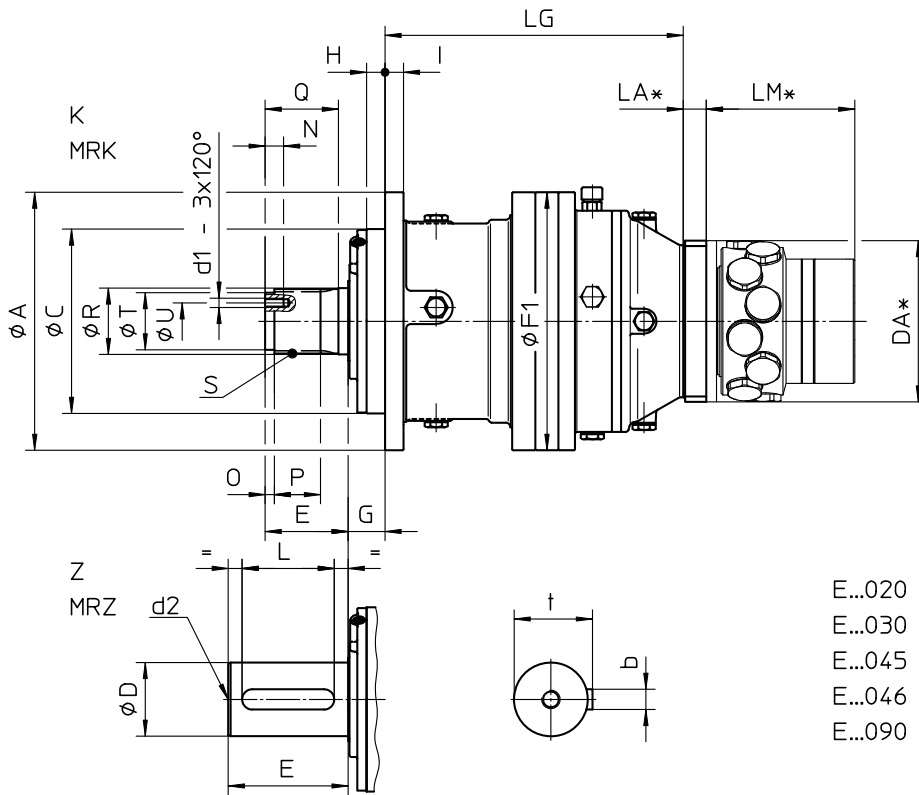
YB1* = distance signal pressure connection LBD-brake

DA* = diameter supply unit

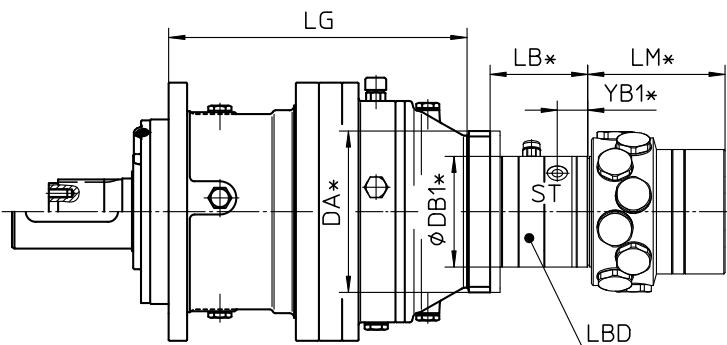
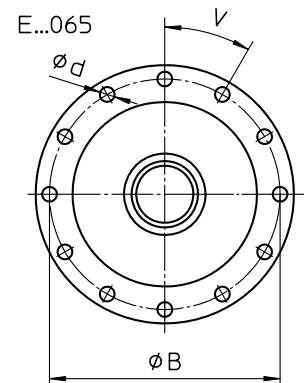
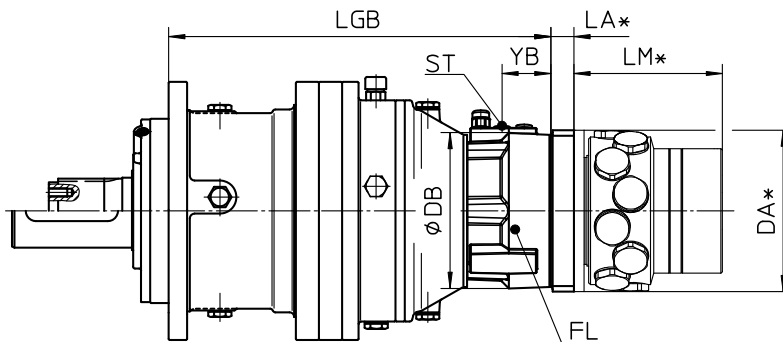
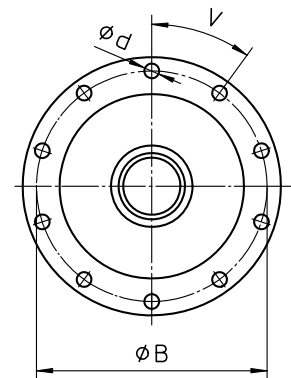
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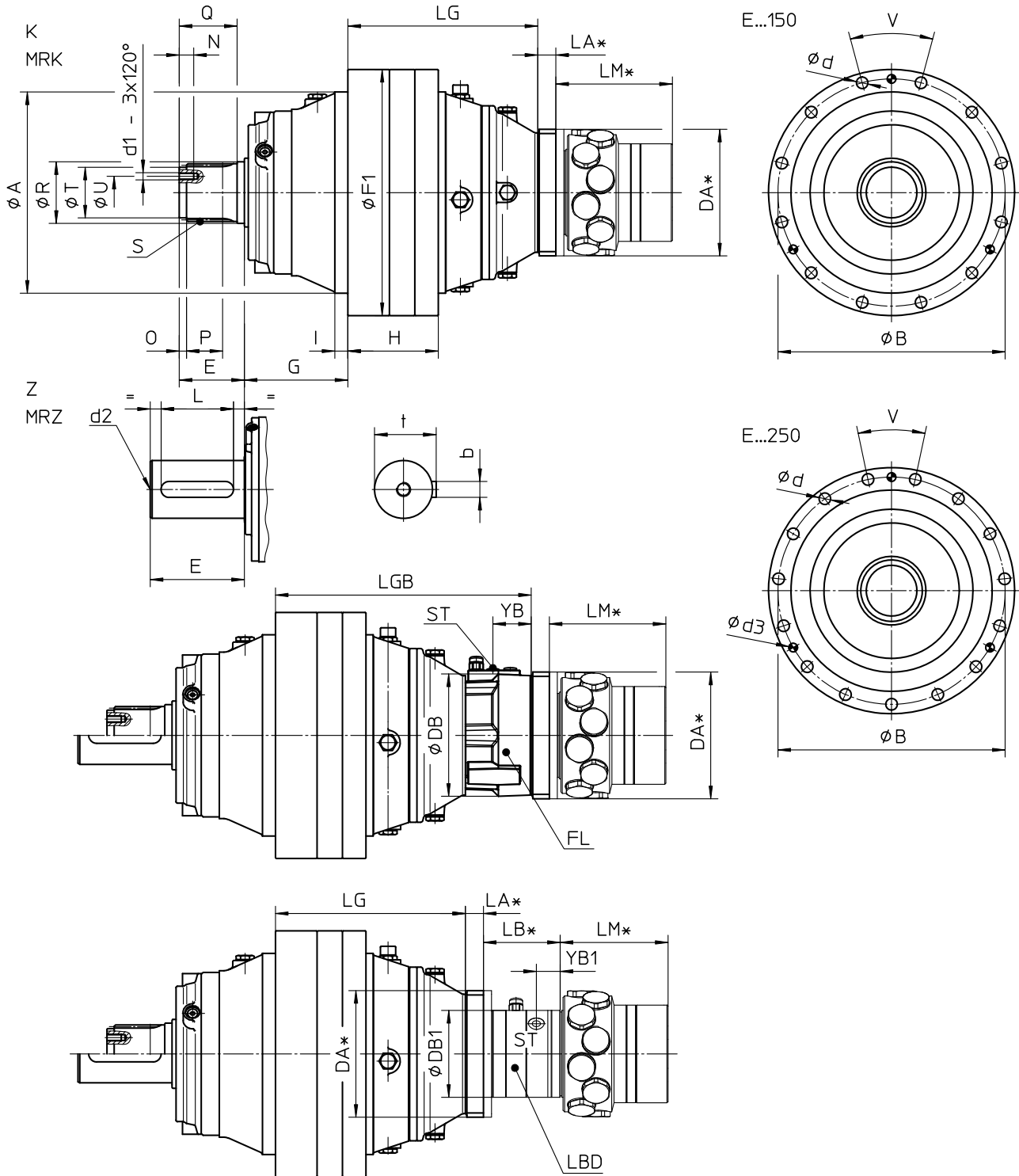
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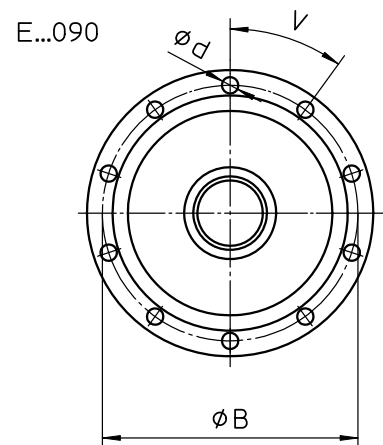
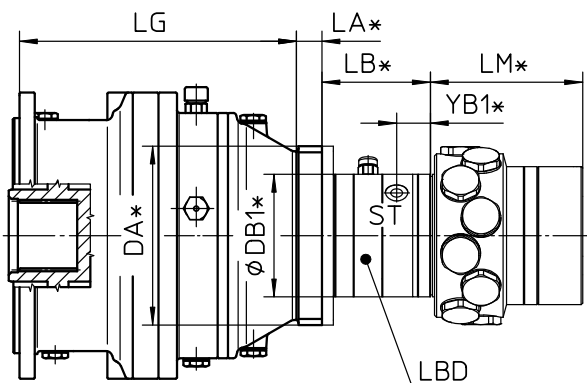
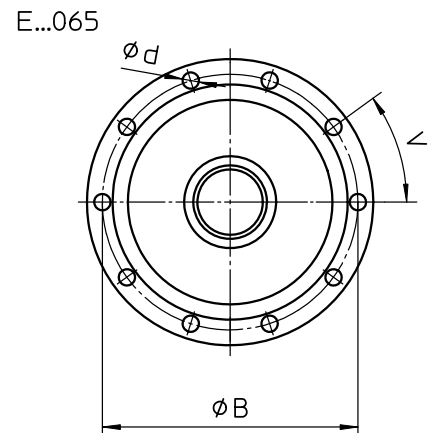
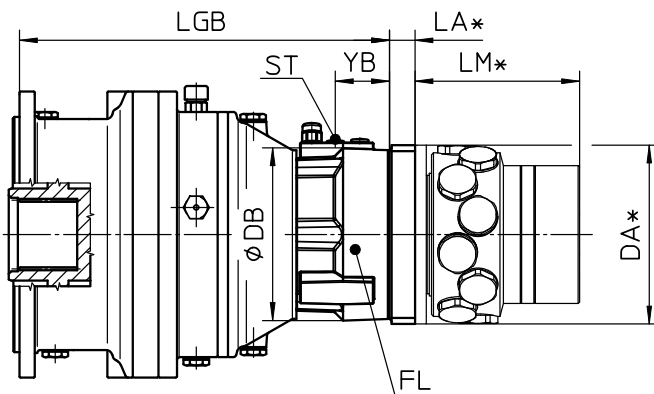
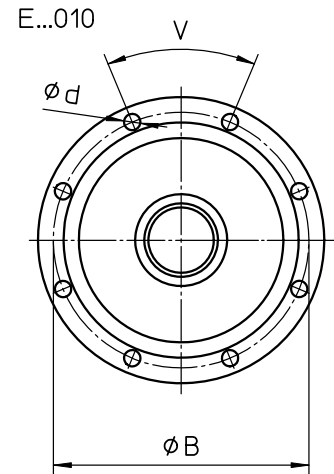
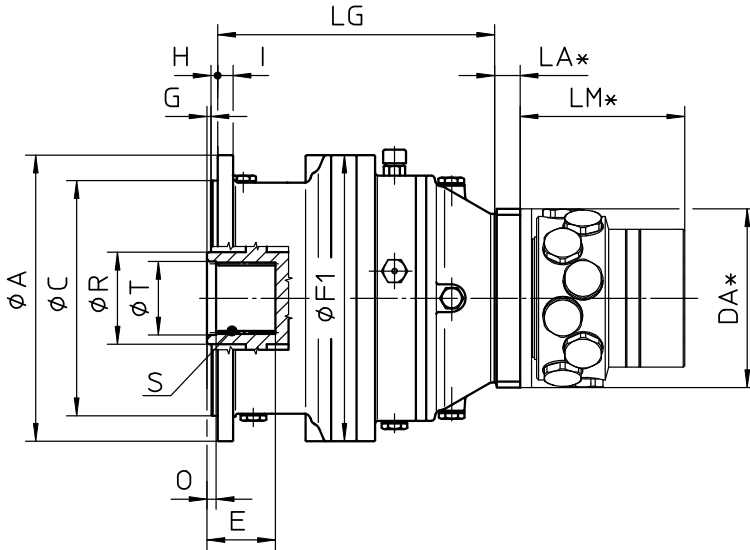
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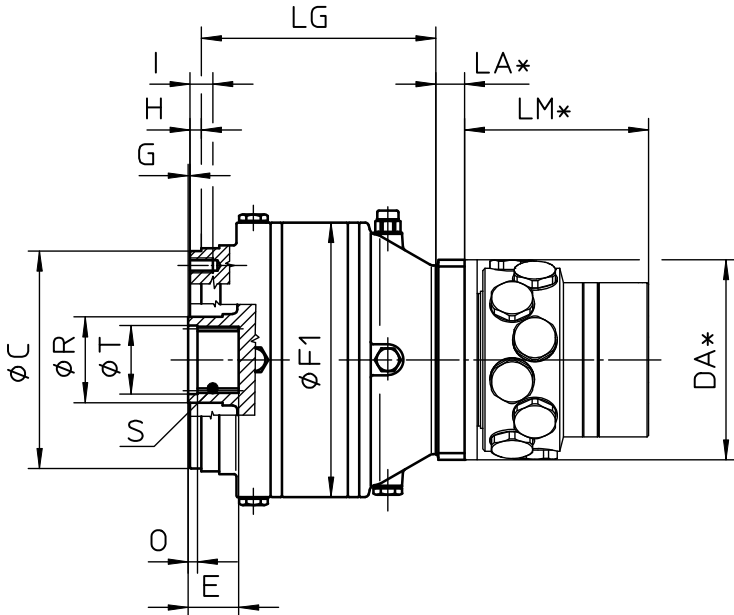
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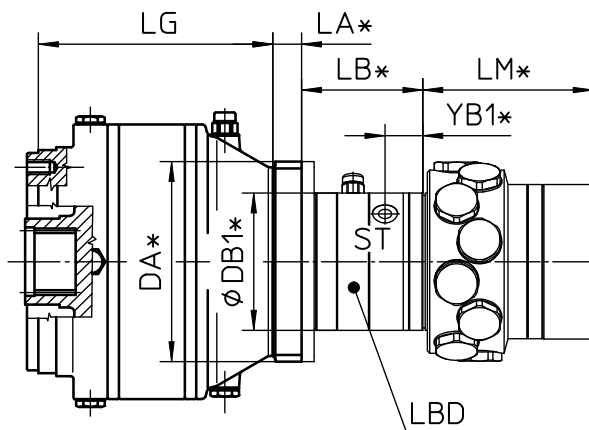
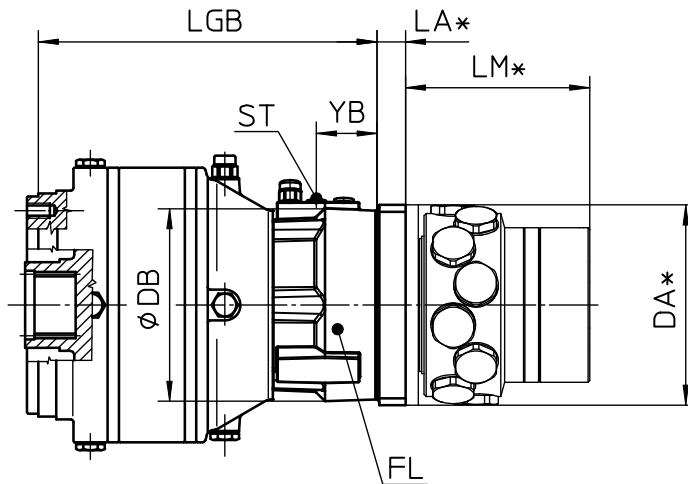
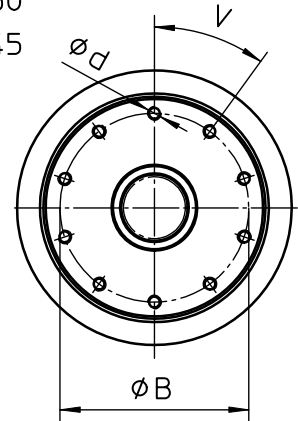
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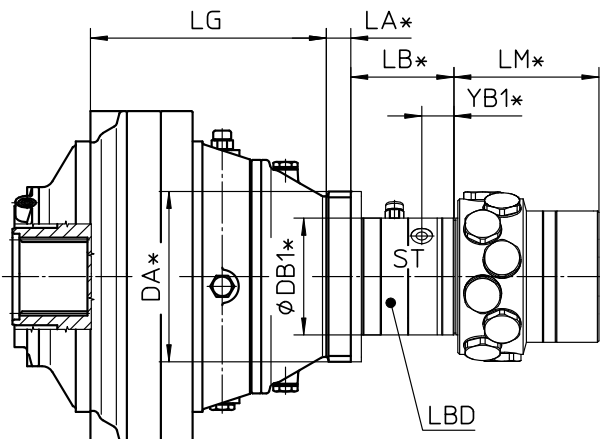
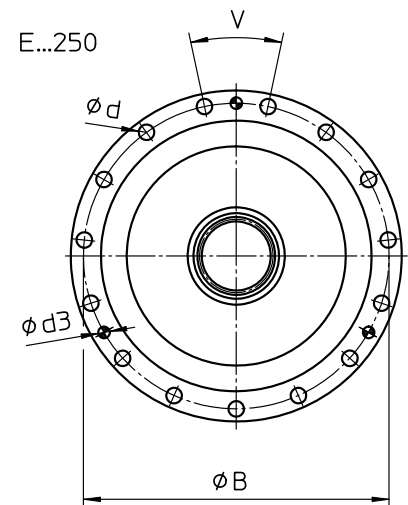
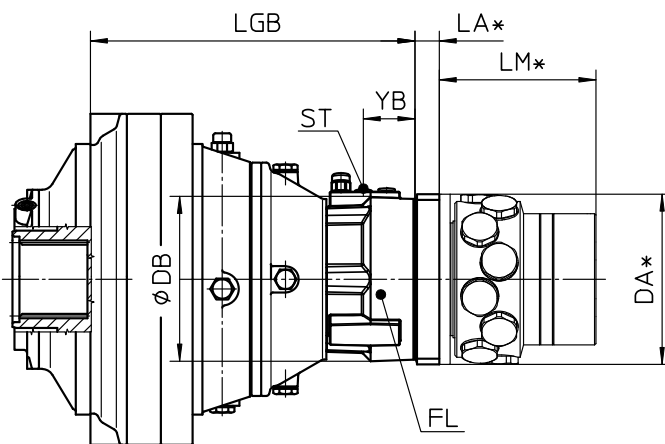
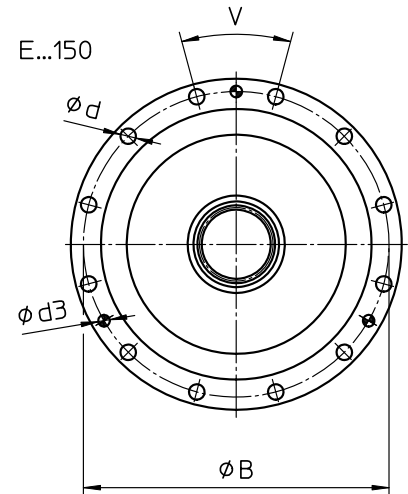
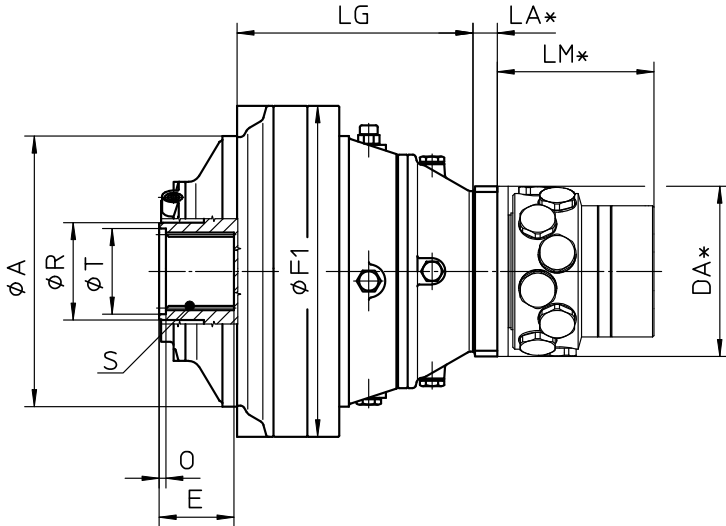
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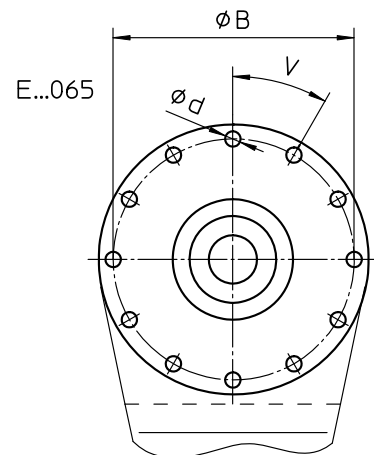
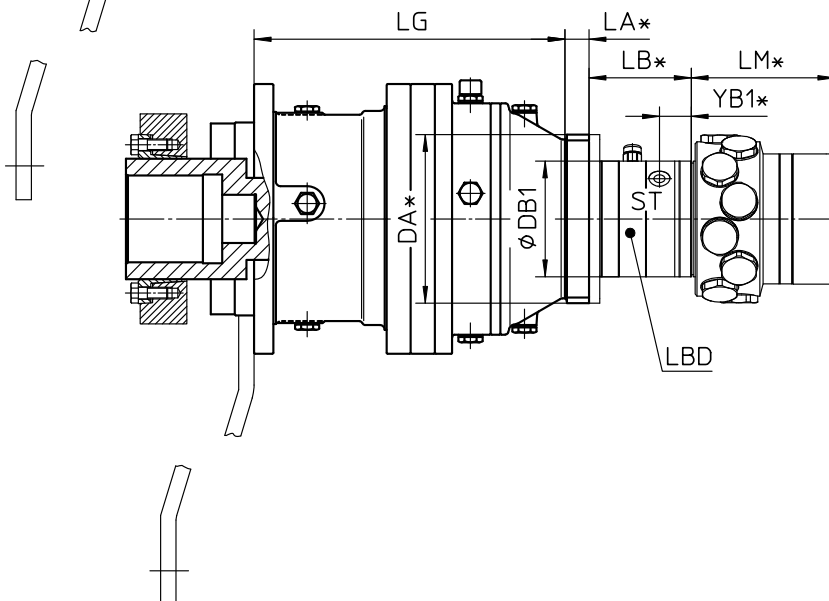
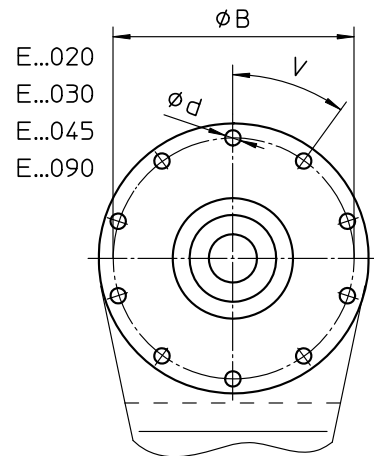
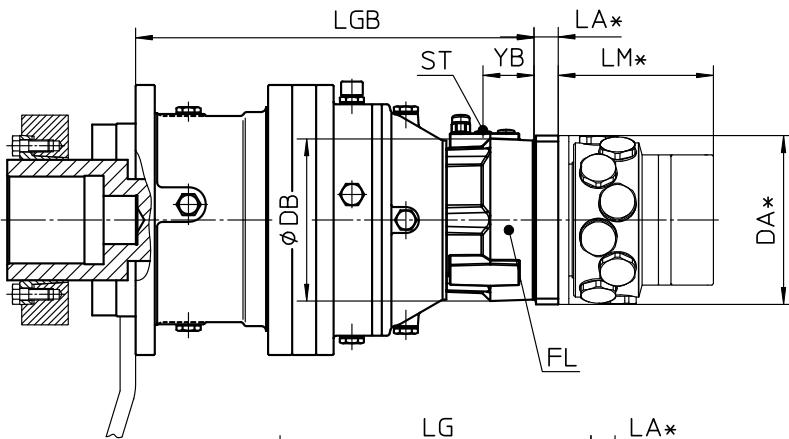
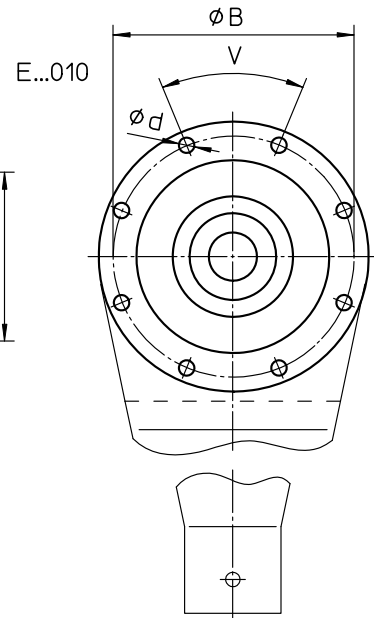
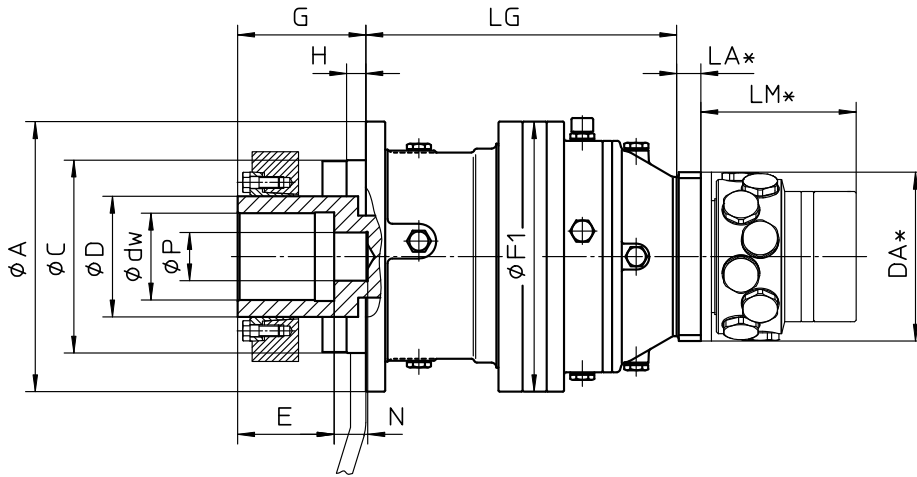
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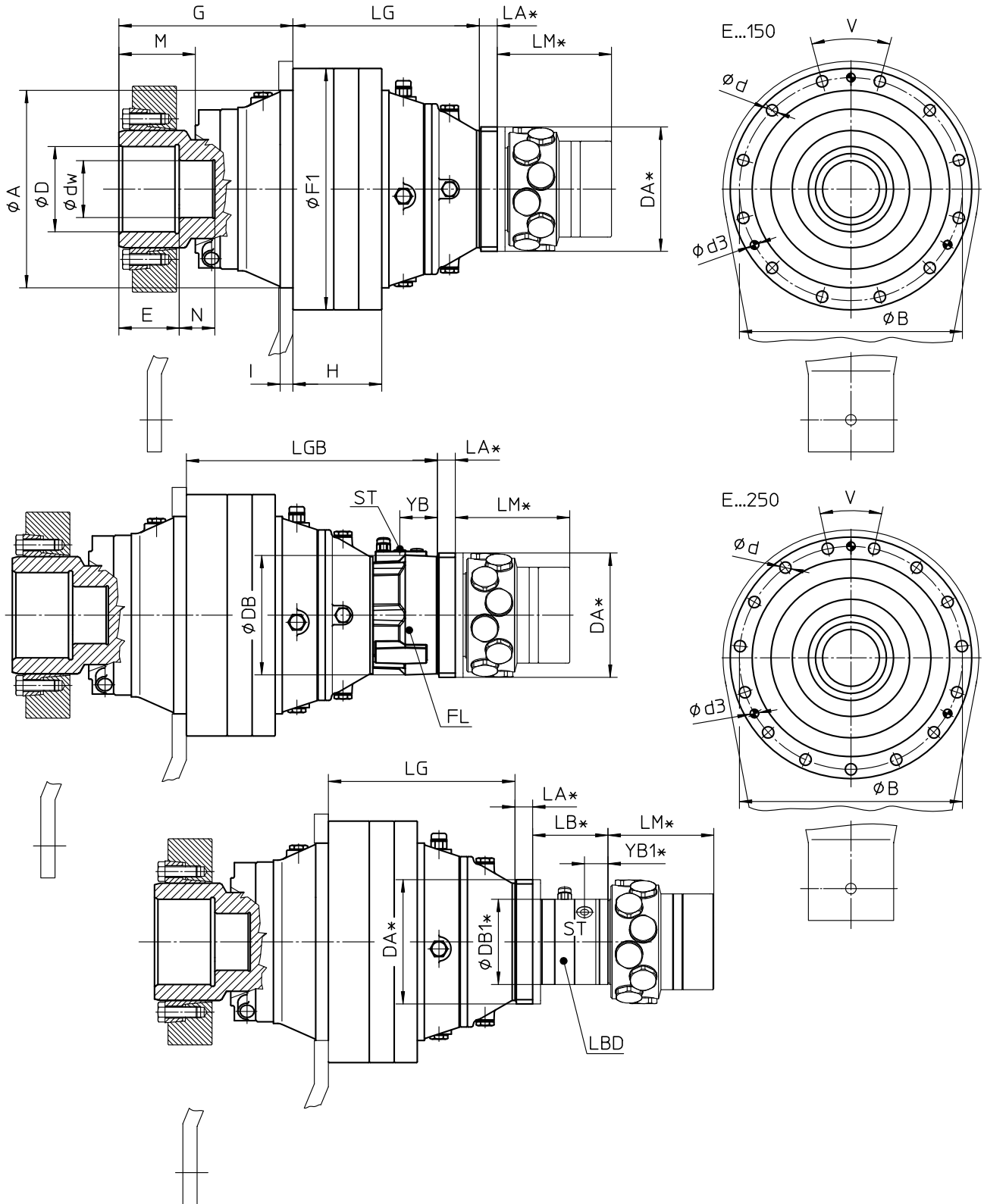
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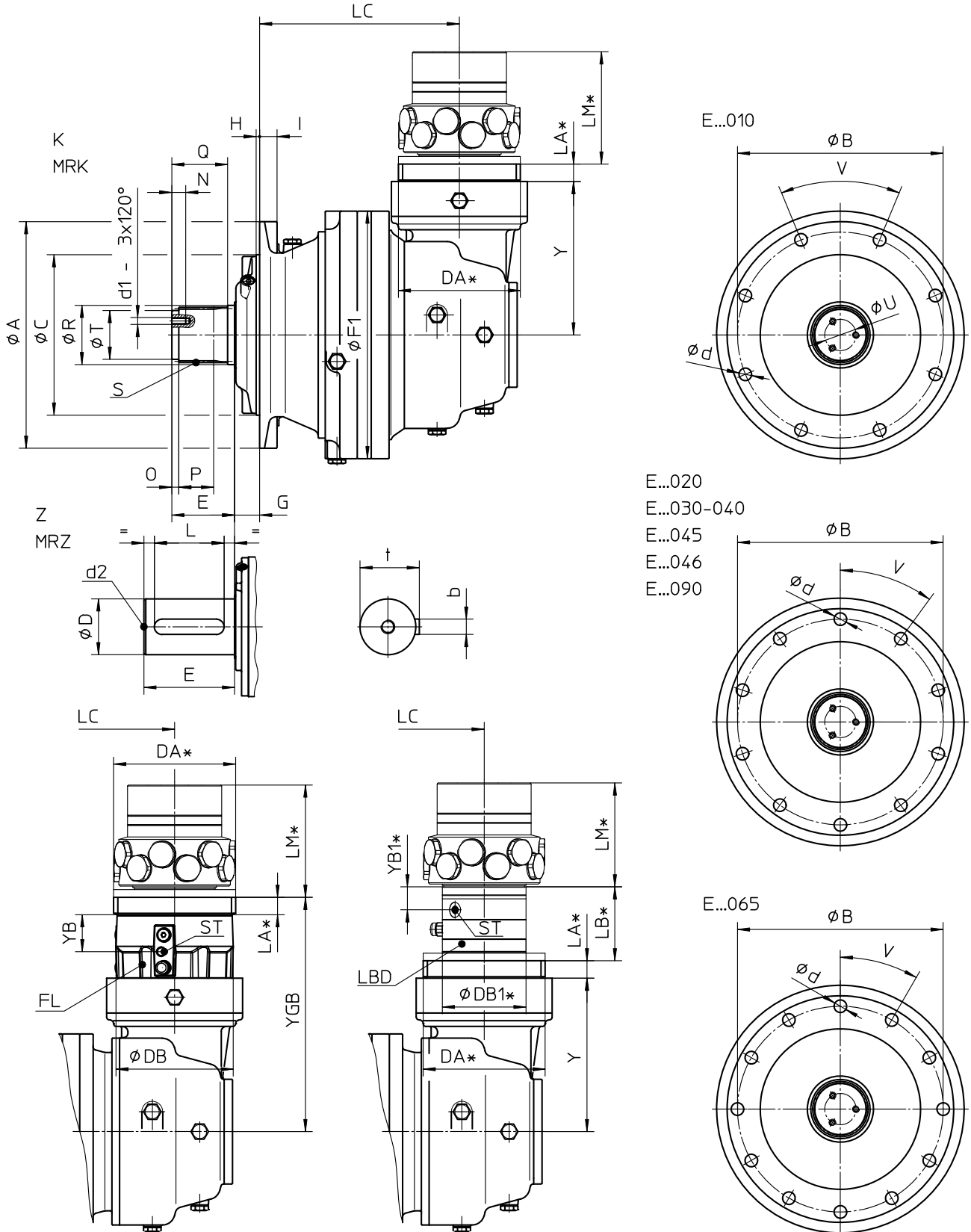
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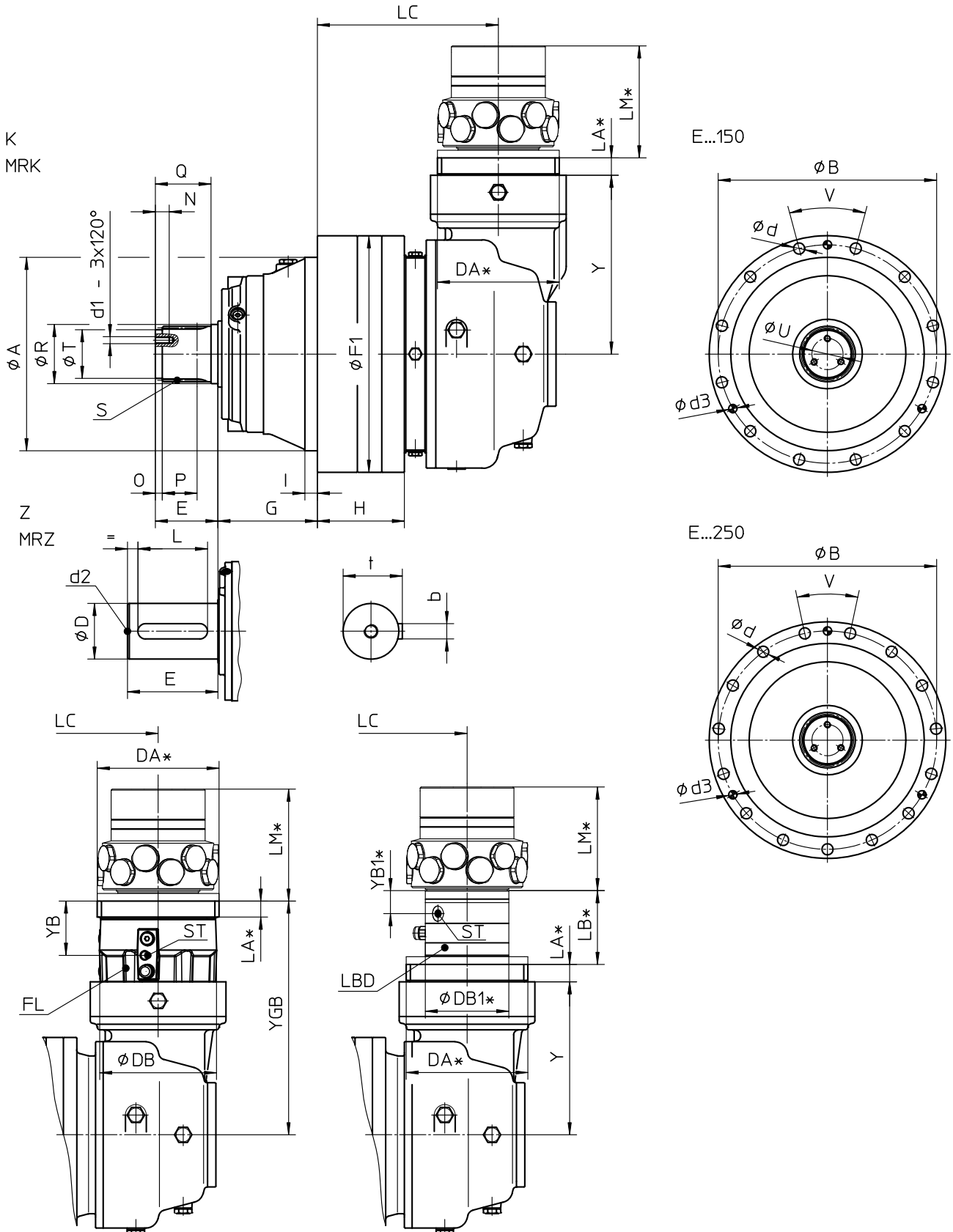
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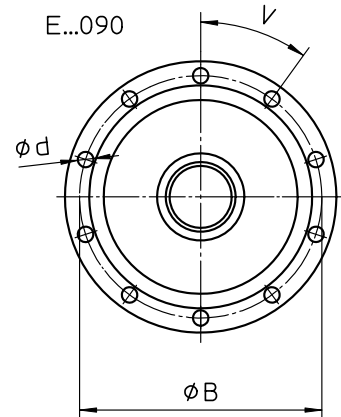
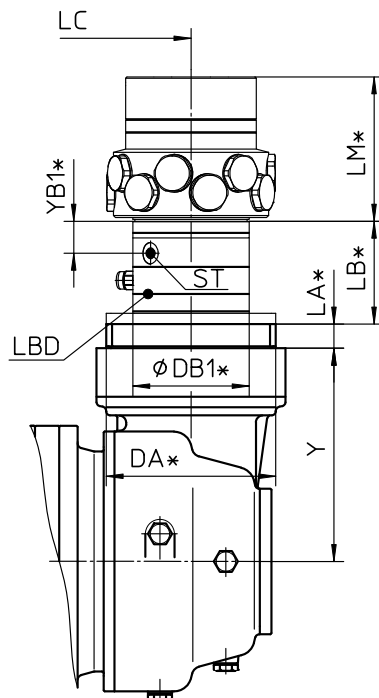
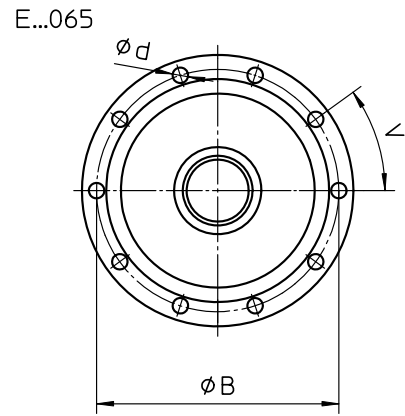
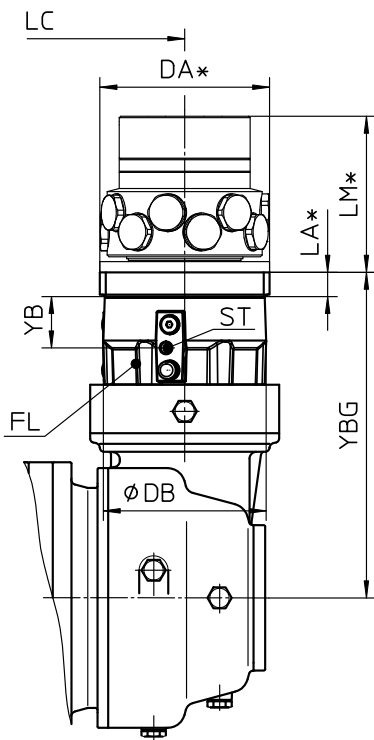
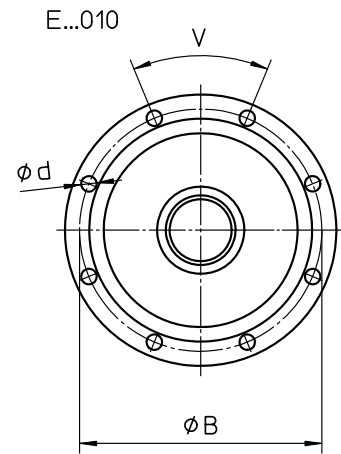
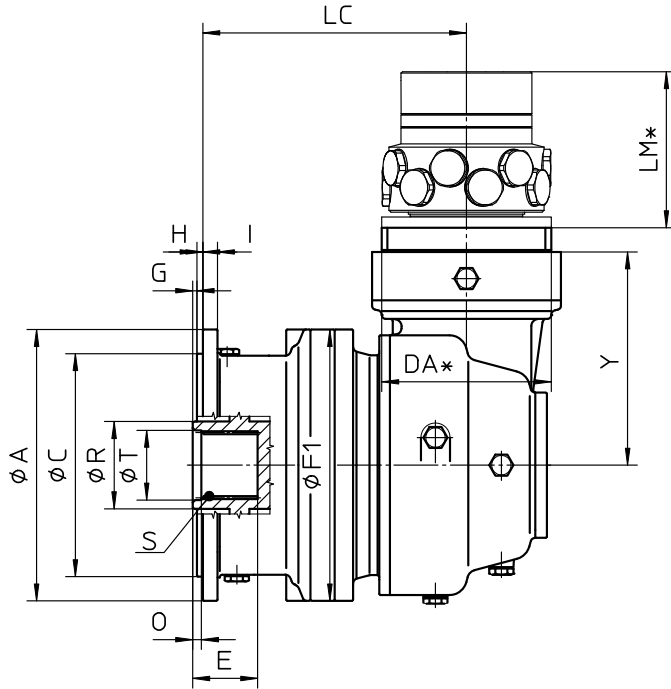
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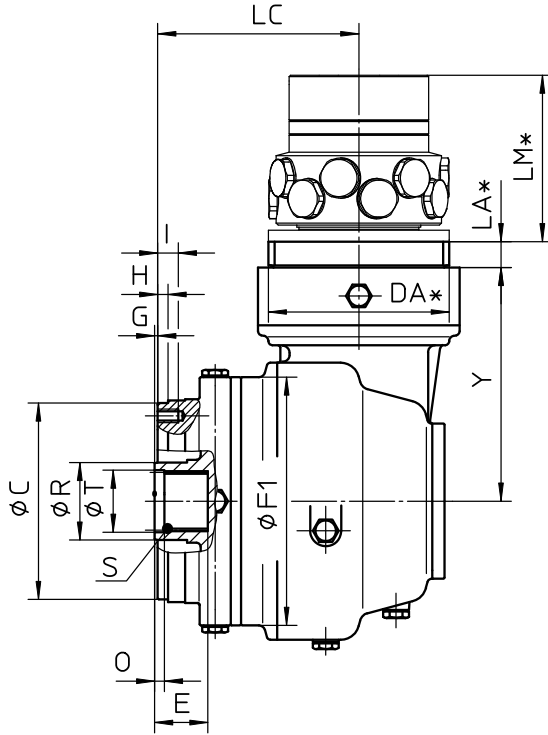
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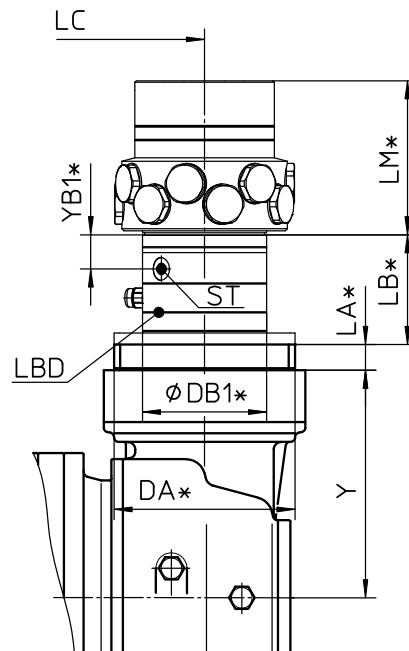
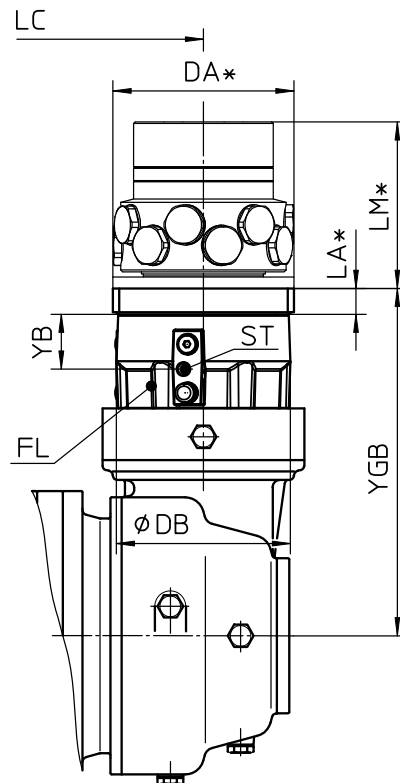
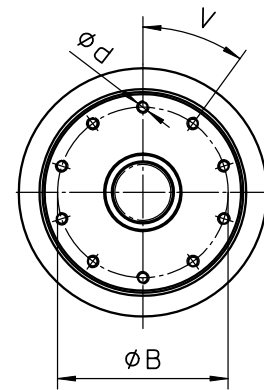
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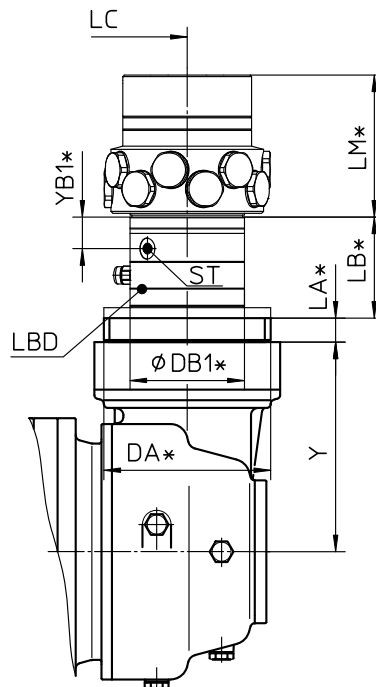
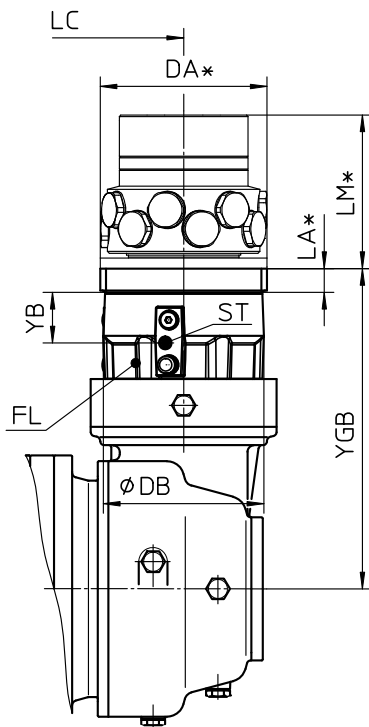
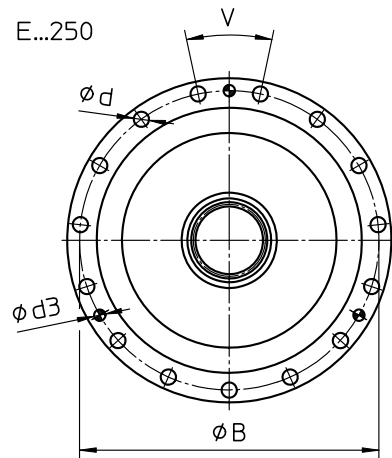
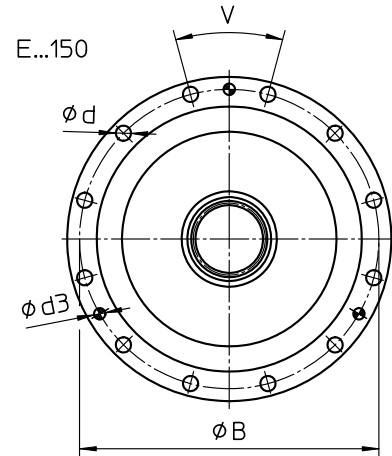
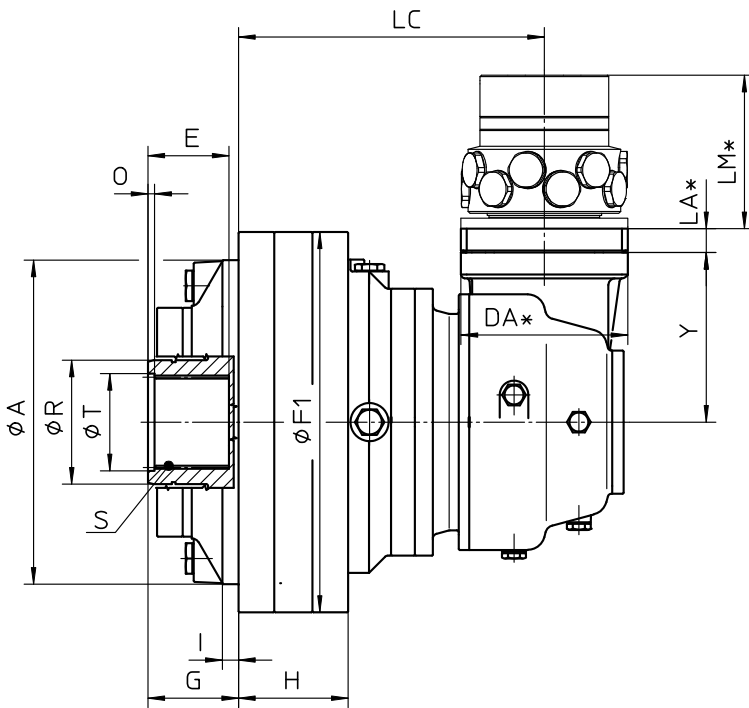
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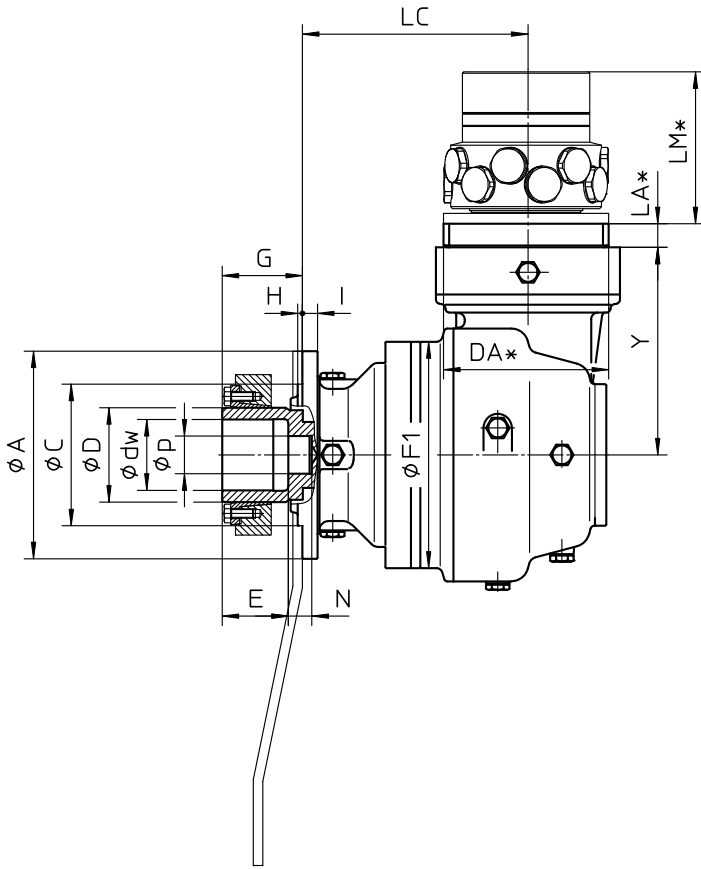
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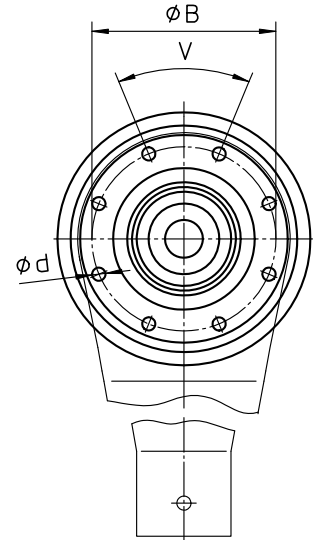
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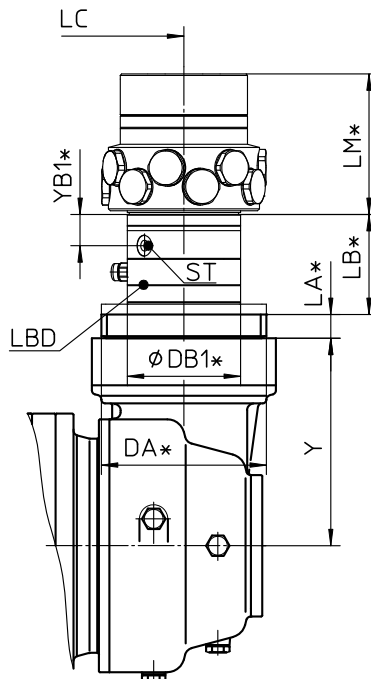
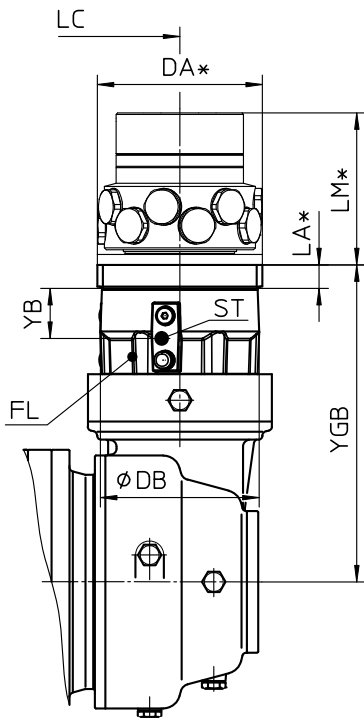
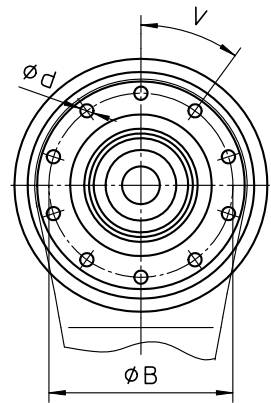
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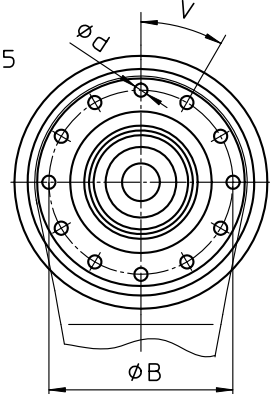
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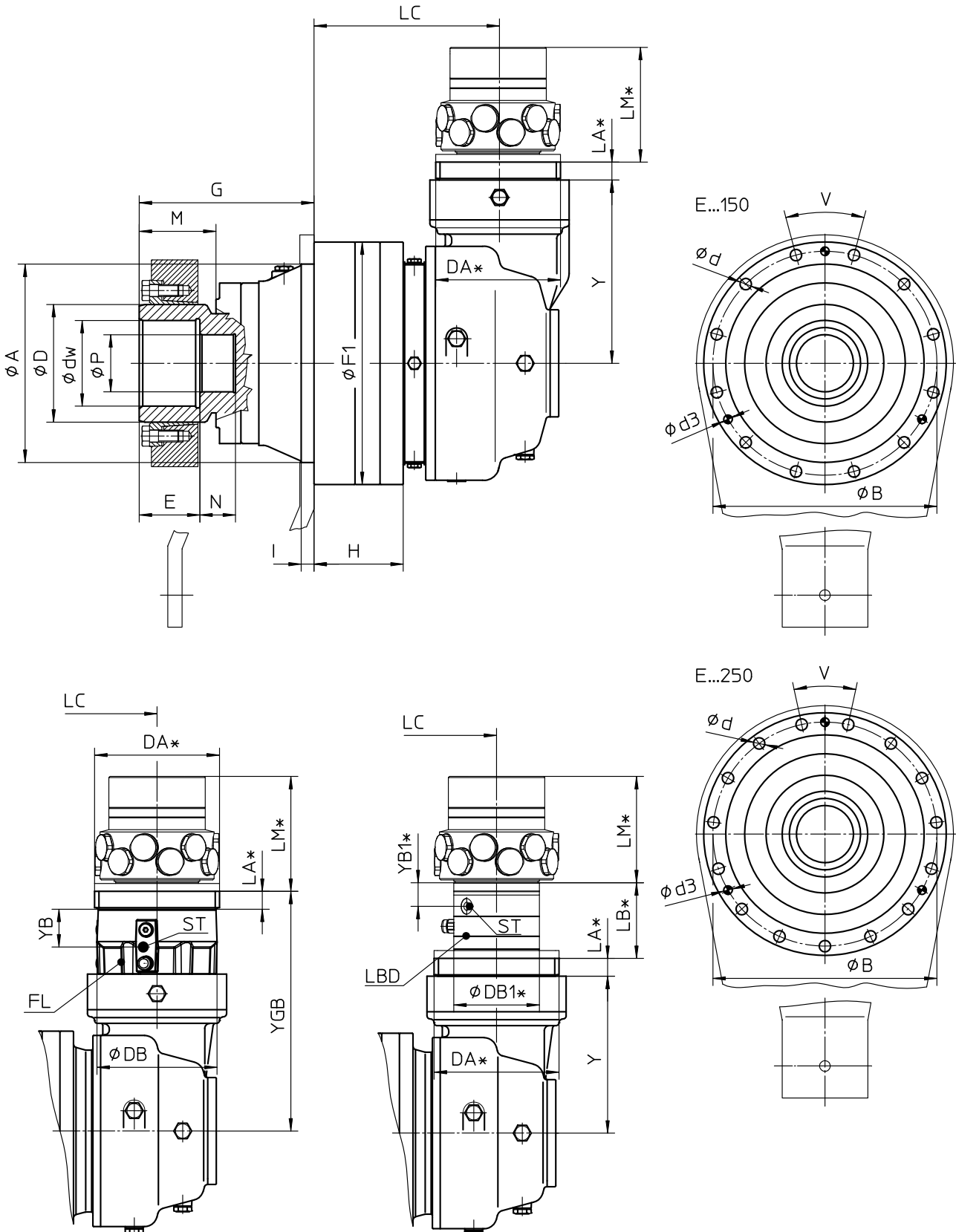
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E...065



The dimensions LG, LGB with coaxial gears and/or LC, Y, YGB with bevel gears depend on the number of gear speeds.
The dimensions LA, LM, DA, LB, YB1, and DB1 depend on the selected hydraulic motor and/or hydraulic brake motor.



Gear box	Ø A	Ø B	Ø C _{f7}	Ø D	E	Ø F1	G	H	I	LG ₁	LG ₂	LG ₃	LG ₄	LC ₂
010	K	180	165	110		55	183	7	6	13	127	167	206	154
	MRK	180	165	110		55	183	7	6	13	164	204	243	191
	Z	180	165	110	42 _{k6}	82	183	7	6	13	127	167	206	154
	MRZ	180	165	110	42 _{k6}	82	183	7	6	13	164	204	243	191
	H	180	165	110		34	183	8	6	13	127	167	206	154
	FS	180	165	110	62 _{f7}	38	183	55	6	13	127	167	206	154
020	MRK	220	195	150		68	240	15	5	16	192	245	284	324
	MRZ	220	195	150	65 _{m6}	105	240	15	5	16	192	245	284	324
	H		165	190		51	240	1,5	10	20	148	200	240	279
	FS	220	195	150	100 _{f7}	70	240	85	16	16	192	245	284	324
030	MRK	220	195	150		68	240	15	5	16		245	284	324
	MRZ	220	195	150	65 _{m6}	105	240	15	5	16		245	284	324
	H		165	190		44	240	1,5	10	20		200	240	279
	FS	220	195	150	100 _{f7}	70	240	85	16	16		245	284	324
040	K	272	245	175		80	240	39	10	20		261	301	341
	Z	272	245	175	65 _{m6}	105	240	39	10	20		261	301	341
045	MRK	220	195	150		68	240	15	5	16	192	260	312	352
	MRZ	220	195	150	65 _{m6}	105	240	15	5	16	192	260	284	352
	H		165	190		44	240	1,5	10	20	148	215	268	307
	FS	220	195	150	100 _{f7}	70	240	85	16	16	192	260	312	352
046	K	272	245	175		68	240	39	10	18	209	277	329	369
	Z	272	245	175	65 _{m6}	105	240	39	10	18	209	277	329	369
065	MRK	280	250	200		90	280	40	20	20	258	323	375	415
	MRZ	280	250	200	80 _{m6}	130	280	40	20	20	258	323	375	415
	H	280	260	230		67	280	4,5	6	15	206	271	324	363
	FS	280	250	200	125 _{f7}	100	280	133	20	20	258	323	375	402
090	K	325	295	230		90	355	36	5	25	241	308	376	428
	MRK	325	295	230		90	355	36	12	25	280	347	414	467
	Z	325	295	230	90 _{m6}	170	355	36	5	25	241	308	376	428
	MRZ	325	295	230	90 _{m6}	170	355	36	12	25	280	347	414	467
	H	325	295	230		75	355		5	25	241	308	376	428
	FS	325	295	230	140 _{f7}	100	355	140	25	25	241	308	376	428
150	K	278 _{f7}	314			90	340	143	125	18	186	263	331	383
	MRK	278 _{f7}	314			110	340	249	145	30	206	283	351	403
	Z	278 _{f7}	314		100 _{m6}	210	340	143	125	18	186	263	331	383
	MRZ	278 _{f7}	314		100 _{m6}	210	340	249	145	30	206	283	351	403
	H	278 _{f7}	314			77	340	80	105	15	166	243	311	363
	FS	278 _{f7}	314		165 _{f7}	85	340	245	125	17	186	263	331	383
250	K	340 _{f7}	370			110	399	180	130	17	175	270	335	388
	Z	340 _{f7}	370		110 _{m6}	210	399	180	130	17	175	270	335	388
	H	340 _{f7}	370			85	399	95	115	17	160	255	320	373
	FS	340 _{f7}	370		175 _{f7}	100	399	290	130	17	175	270	335	388
Gear box	Ø A	Ø B	Ø C _{f7}	Ø D	E	Ø F1	G	H	I	LG ₁	LG ₂	LG ₃	LG ₄	LC ₂

Gear box	LC ₃	LC ₄	M	N	O	P	ØP	Q	ØR	S	ØT	ØU	V	b	d	
010	K	194		20	5	30		48	42 _{f7}	B 40 x 36	35 _{f7}	24	8 x 45°		9	
	MRK	231		20	5	30		48		B 40 x 36	35 _{f7}	24	8 x 45°		9	
	Z	194											8 x 45°	12	9	
	MRZ	231											8 x 45°	12	9	
	H	194				5			50	A 40 x 36	42 ^{H7}		8 x 45°		9	
	FS	194						30 ^{H7}						8 x 45°		
020	MRK	272	311		20	8	38		58	60 _{f7}	B 58 x 53	50 _{f7}	32	10 x 36°	14	
	MRZ	272	311											10 x 36°	14	
	H	227	267			8			75	A 58 x 53	60 ^{H7}			10 x 36°	M12	
	FS	272	311		25			40 ^{H7}						10 x 36°		
030	MRK	272	311		20	8	38		58	60 _{f7}	B 58 x 53	50 _{f7}	32	10 x 36°	14	
	MRZ	272	311											10 x 36°	18	14
	H	227	267			8			75	A 58 x 53	60 ^{H7}			10 x 36°	M12	
	FS	272	311		25			40 ^{H7}						10 x 36°		
040	K	288	328		20	8	50		73	60 _{f7}	B 58 x 53	50 _{f7}	32	10 x 36°	14	
	Z	288	328											10 x 36°	18	14
045	MRK	307	339		20	8	38		58	60 _{f7}	B 58 x 53	50 _{f7}	32	10 x 36°	14	
	MRZ	307	339											10 x 36°	18	14
	H	262	295			8			75	A 58 x 53	60 ^{H7}			10 x 36°	M12	
	FS	307	339		25			40 ^{H7}						10 x 36°		
046	K	323	356		20	8	50		73	60 _{f7}	B 58 x 53	50 _{f7}	32	10 x 36°	14	
	Z	323	356											10 x 36°	18	14
065	MRK	368	402		20	10	50		80	72 _{f7}	B 70 x 64	62 _{f7}	40	12 x 30°	16	
	MRZ	388	402											12 x 30°	22	16
	H	336	351			9				A 70 x 64	72 ^{H7}			10 x 36°	14	
	FS	388	402		35			50 ^{H7}						12 x 30°		
090	K	355	423		25	10	50		80	85 _{f7}	B 80 x 74	70 _{f7}	45	10 x 36°	18	
	MRK	394	462		25	10	50		80	85 _{f7}	B 80 x 74	70 _{f7}	45	10 x 36°	18	
	Z	355	423											10 x 36°	25	18
	MRZ	394	462											10 x 36°	25	18
	H	355	423			5				A 70 x 64	72 ^{H7}			10 x 36°	18	
	FS	355	423		40			60 ^{H7}						10 x 36°		
150	K	310	378		25	10	50		80	85 _{f7}	B 80 x 74	70 _{f7}	45	12 x 30°	16	
	MRK	330	398		30	12	65		80	105 _{f7}	B 100 x 94	85 _{f7}	52	12 x 30°	16	
	Z	310	378											12 x 30°	28	16
	MRZ	330	398											12 x 30°	28	16
	H	290	357			7			98	A 80 x 74	88 ^{H7}			12 x 30°	16	
	FS	310	378	107	50			80 ^{H7}						12 x 30°		
250	K	336	400		25	12	65		97	105 _{f7}	B 100 x 94	85 _{f7}	52	15 x 24°	18	
	Z	336	400											15 x 24°	28	18
	H	321	385			7			130	A 100 x 94	102 ^{H7}			15 x 24°	18	
	FS	336	400	120	50			80 ^{H7}						15 x 24°		
Gear box	LC ₃	LC ₄	M	N	O	P	ØP	Q	ØR	S	ØT	ØU	V	b	d	

Gear box		d ₁	d ₂	d ₃	Ø d _w	L	t	Y ₂	Y ₃₄	F _{r1}	F _{r2}	F _{r3}	F _{ad}	F _{as}
010	K	M 6						121		7,5	10,0	15,5	9,0	9,0
	MRK	M 6						121		18,7	23,9	32,0	9,0	9,0
	Z		M 16			70	45	121		5,7	8,2	15,5	9,0	9,0
	MRZ		M 16			70	45	121		14,4	20,0	32,0	9,0	9,0
	H							121						
	FS					50 ^{H7}		121						
020	MRK	M 10						220	121	23,0	30,0	42,0	35,0	60,0
	MRZ		M 20			90	69	220	121	17,0	24,5	42,0	35,0	60,0
	H							220	121					
	FS				75 ^{H7}			220	121					
030	MRK	M 10						121		23,0	30,0	42,0	35,0	60,0
	MRZ		M 20			90	69	121		17,0	24,5	42,0	35,0	60,0
	H							121						
	FS				75 ^{H7}			121						
040	K	M 10						121		39,2	42,5	68,0	45,0	80,0
	Z		M 20					121		32,7	43,4	68,0	45,0	80,0
045	MRK	M 10						220	121	23,0	30,0	42,0	35,0	60,0
	MRZ		M 20			90	69	220	121	17,0	24,5	42,0	35,0	60,0
	H							220	121					
	FS				75 ^{H7}			220	121					
046	K	M 10						220	121	39,2	49,5	68,0	45,0	80,0
	Z		M 20			90	69	220	121	32,7	43,4	68,0	45,0	80,0
065	MRK	M 10						220	85	54,4	67,7	89,0	50,0	90,0
	MRZ		M 20			110	85	220	85	43,0	58,4	89,0	50,0	90,0
	H							220	85					
	FS				90 ^{H7}			220	85					
090	K	M 10						220		50,0	75,0	91,0	48,0	60,0
	MRK	M 10						220		90,0	111,0	145,0	80,0	90,0
	Z		M 24			160	95	220		42,5	58,6	91,0	48,0	60,0
	MRZ		M 24			160	95	220		60,0	87,7	145,0	80,0	90,0
	H							220						
	FS				100 ^{H7}			220						
150	K	M 10		12				257	220	60,0	80,0	125,0	68,0	68,0
	MRK	M 14		12				257	220	90,0	113,0	151,0	100,0	100,0
	Z		M 24	12		200	106	257	220	34,0	51,7	125,0	68,0	68,0
	MRZ		M 24	12		200	106	257	220	59,0	87,0	151,0	100,0	100,0
	H			12				257	220					
	FS			12	120 ^{H7}			257	220					
250	K	M 14		16				257	220	100,0	132,0	171,0	100,0	100,0
	Z		M 24	16		200	116	257	220	62,0	97,0	171,0	100,0	100,0
	H			16				257	220					
	FS			16	130 ^{H7}			257	220					
Gear box		d ₁	d ₂	d ₃	Ø d _w	L	t	Y ₂	Y ₃₄	F _{r1}	F _{r2}	F _{r3}	F _{ad}	F _{as}

permissible radial- and axial loads in kN

Gear box	LGB ₁	LGB ₂	LGB ₃	LGB ₄	YGB	LGB ₁	LGB ₂	LGB ₃	LGB ₄	YGB	LGB ₁	LGB ₂	LGB ₃	LGB ₄	YGB
010	K														
	MRK														
	Z														
	MRZ														
	H														
	FS														
020	MRK	285				377	298								
	MRZ	285				377	298								
	H	241				377	254								
	FS	285				377	298								
030	MRK														
	MRZ														
	H														
	FS														
040	K														
	Z														
045	MRK	285	353			377	297	366							
	MRZ	285	353			377	297	366							
	H	241	309			377	254	322							
	FS	285	353			377	297	366							
046	K	302	370			377	315	383							
	Z	302	370			377	315	383							
065	MRK	363	416			377	376	429							
	MRZ	363	416			377	376	429							
	H	312	365			377	325	378			339				
	FS	363	416			377	376	429							
090	K	341	402	469		377	354	415	482		368	442			
	MRK	380	440	508		377	393	453	521		407	480			
	Z	341	402	469		377	354	415	482		368	442			
	MRZ	380	440	508		377	393	453	521		407	480			
	H	341	402	469		377	354	415	482		368	442			
	FS	341	402	469		377	354	415	482		368	442			
150	K	296	356	424		441	309	369	437		455	324	396		
	MRK	316	376	444		441	329	389	457		455	344	416		
	Z	296	356	424		441	309	369	437		455	324	396		
	MRZ	316	376	444		441	329	389	457		455	344	416		
	H	276	336	404		441	289	349	417		455	304	376		
	FS	296	356	424		441	309	369	437		455	324	396		
250	K		376	429		441		389	442		455		403		
	Z		376	429		441		389	442		455		403		
	H		361	414		441		374	427		455		388		
	FS					441					455				
Brake	FL 250 / FL 350 / FL 450					FL 650 / FL 750					FL 960				

For brake FL 635U : LGB = LG + 91 mm and/or YGB = Y + 91 mm regardless of the number of gear speeds

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EM 1010	3,38	38	0,50	69	140	14,39	104	210	9,59	2,96	887,57	3,50
EM 1010	4,39	49	0,64	90	140	9,64	135	210	6,43	2,28	683,37	3,50
EM 1010	6,00	67	0,88	123	140	5,19	185	210	3,46	1,67	500,00	3,50
EM 1010	6,94	77	1,02	143	140	4,07	214	210	2,71	1,44	432,28	3,50
EM 1010	10,50	117	1,54	216	140	1,39	324	210	0,93	0,95	285,71	3,50
ED 2010	11,42	127	1,64	230	140	4,35	345	210	2,90	0,88	262,70	3,50
ED 2010	14,84	165	2,14	299	140	3,34	448	210	2,23	0,67	202,16	3,50
ED 2010	19,27	215	2,77	388	140	2,24	582	210	1,49	0,52	155,68	3,50
ED 2010	20,28	226	2,92	409	140	2,45	613	210	1,63	0,49	147,93	3,50
ED 2010	23,46	261	3,38	473	140	2,12	709	210	1,41	0,43	127,88	3,50
ED 2010	26,34	293	3,79	531	140	1,64	796	210	1,09	0,38	113,90	3,50
ED 2010	30,47	339	4,38	614	140	1,42	921	210	0,94	0,33	98,46	3,50
ED 2010	36,00	401	5,18	640	124	1,00	1088	210	0,59	0,28	83,33	3,50
ED 2010	41,64	464	5,99	640	107	1,00	1258	210	0,51	0,24	72,05	3,50
ED 2010	48,16	536	6,93	580	84	1,00	1160	167	0,50	0,21	62,29	3,50
ET 3010	65,14	725	9,19	1000	109	1,00	1600	174	0,63	0,15	46,05	3,50
ET 3010	68,55	763	9,67	1000	103	1,00	1600	165	0,63	0,15	43,76	3,50
ET 3010	79,29	883	11,18	1000	89	1,00	1600	143	0,63	0,13	37,84	3,50
ET 3010	89,03	991	12,56	1000	80	1,00	1600	127	0,63	0,11	33,70	3,50
ET 3010	103,00	1147	14,53	1000	69	1,00	1600	110	0,63	0,10	29,13	3,50
ET 3010	115,60	1287	16,30	870	53	1,00	1600	98	0,54	0,09	25,95	3,50
ET 3010	121,70	1355	17,16	1000	58	1,00	1600	93	0,63	0,08	24,65	3,50
ET 3010	140,70	1566	19,84	1000	50	1,00	1600	80	0,63	0,07	21,32	3,50
EM 1020	5,17	58	0,76	106	140	14,11	159	210	9,41	1,93	580,27	3,50
EM 1020	6,00	67	0,88	123	140	11,35	185	210	7,57	1,67	500,00	3,50
EM 1020	7,25	81	1,06	149	140	8,72	224	210	5,81	1,38	413,79	3,50
ED 2020	24,78	276	3,57	499	140	3,61	749	210	2,40	0,40	121,07	3,50
ED 2020	28,66	319	4,12	577	140	3,12	866	210	2,08	0,35	104,68	3,50
ED 2020	31,02	345	4,46	625	140	2,40	937	210	1,60	0,32	96,71	3,50
ED 2020	35,88	399	5,16	723	140	2,08	1084	210	1,38	0,28	83,61	3,50
ED 2020	41,64	464	5,99	839	140	1,67	1258	210	1,11	0,24	72,05	3,50
ED 2020	50,32	560	7,24	1014	140	1,28	1521	210	0,85	0,20	59,62	3,50
ET 3020	59,36	661	8,37	1172	140	1,54	1758	210	1,02	0,17	50,54	3,50
ET 3020	61,28	682	8,64	1210	140	1,49	1815	210	0,99	0,16	48,96	3,50
ET 3020	70,98	790	10,01	1401	140	1,43	2102	210	0,95	0,14	42,27	3,50
ET 3020	82,10	914	11,58	1621	140	1,23	2431	210	0,82	0,12	36,54	3,50
ET 3020	92,19	1026	13,00	1820	140	1,10	2730	210	0,73	0,11	32,54	3,50
ET 3020	106,60	1187	15,03	2000	133	1,00	2800	186	0,71	0,09	28,14	3,50
ET 3020	108,80	1211	15,34	1800	117	1,00	2800	182	0,64	0,09	27,57	3,50
ET 3020	126,00	1403	17,77	2000	113	1,00	2800	157	0,71	0,08	23,81	3,50
ET 3020	145,70	1622	20,55	2000	97	1,00	2800	136	0,71	0,07	20,59	3,50
ET 3020	161,30	1796	22,75	2000	88	1,00	2800	123	0,71	0,06	18,60	3,50
ET 3020	172,00	1915	24,26	1800	74	1,00	2800	115	0,64	0,06	17,44	3,50
ET 3020	198,90	2214	28,05	1800	64	1,00	2800	99	0,64	0,05	15,08	3,50
ET 3020	220,50	2455	31,10	2000	64	1,00	2800	90	0,71	0,05	13,61	3,50
ED 2030-40	43,50	484	6,26	876	140	2,62	1315	210	1,75	0,23	68,97	3,50
ED 2030-40	50,32	560	7,24	1014	140	2,27	1521	210	1,51	0,20	59,62	3,50
ET 3030-40	59,06	658	8,33	1166	140	2,49	1749	210	1,66	0,17	50,80	3,50
ET 3030-40	61,28	682	8,64	1210	140	2,81	1815	210	1,87	0,16	48,96	3,50
ET 3030-40	70,98	790	10,01	1401	140	2,50	2102	210	1,66	0,14	42,27	3,50
ET 3030-40	83,76	933	11,81	1654	140	2,06	2481	210	1,37	0,12	35,82	3,50
ET 3030-40	89,03	991	12,56	1758	140	1,54	2637	210	1,02	0,11	33,70	3,50
ET 3030-40	96,88	1079	13,66	1913	140	1,78	2869	210	1,18	0,10	30,97	3,50

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Changes reserved!

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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
ET 3030-40	108,80	1211	15,34	2148	140	1,58	3222	210	1,06	0,09	27,57	3,50
ET 3030-40	124,20	1383	17,52	2452	140	1,43	3678	210	0,95	0,08	24,15	3,50
ET 3030-40	146,60	1632	20,67	2894	140	1,17	4342	210	0,78	0,07	20,46	3,50
ET 3030-40	157,50	1753	22,21	2900	131	1,00	4665	210	0,62	0,06	19,05	3,50
ET 3030-40	186,10	2072	26,25	2900	110	1,00	5512	210	0,53	0,05	16,12	3,50
ET 3030-40	198,90	2214	28,05	2400	86	1,00	4800	171	0,50	0,05	15,08	3,50
ET 3030-40	215,30	2397	30,36	2900	96	1,00	5800	191	0,50	0,05	13,93	3,50
ET 3030-40	249,00	2772	35,12	2900	83	1,00	5800	165	0,50	0,04	12,05	3,50
ET 3030-40	289,00	3217	40,76	2700	66	1,00	5400	132	0,50	0,03	10,38	3,50
ET 3030-40	325,70	3626	45,93	2900	63	1,00	5800	126	0,50	0,03	9,21	3,50
EQ 4030-40	367,70	4094	50,82	3400	67	1,00	6000	118	0,57	0,03	8,16	3,50
EQ 4030-40	404,70	4506	55,93	3000	54	1,00	6000	107	0,50	0,02	7,41	3,50
ET 3045-46	63,46	707	8,95	1253	140	2,95	1879	210	1,97	0,16	47,27	3,50
ET 3045-46	73,50	818	10,37	1451	140	2,55	2177	210	1,70	0,14	40,82	3,50
ET 3045-46	79,44	884	11,20	1568	140	2,36	2353	210	1,57	0,13	37,76	3,50
ET 3045-46	92,19	1026	13,00	1820	140	2,03	2730	210	1,36	0,11	32,54	3,50
ET 3045-46	100,30	1117	14,15	1980	140	1,87	2970	210	1,25	0,10	29,91	3,50
ET 3045-46	108,60	1209	15,32	2144	140	1,73	3216	210	1,15	0,09	27,62	3,50
ET 3045-46	125,60	1398	17,71	2480	140	1,49	3720	210	0,99	0,08	23,89	3,50
ET 3045-46	145,70	1622	20,55	2877	140	1,29	4315	210	0,86	0,07	20,59	3,50
ET 3045-46	152,30	1696	21,48	3007	140	1,23	4511	210	0,82	0,07	19,70	3,50
ET 3045-46	176,10	1961	24,84	3477	140	1,06	5215	210	0,71	0,06	17,04	3,50
ET 3045-46	207,80	2313	29,31	3400	116	1,00	6000	204	0,57	0,05	14,44	3,50
ET 3045-46	224,20	2496	31,62	3400	108	1,00	6000	189	0,57	0,04	13,38	3,50
ET 3045-46	260,20	2897	36,70	3400	93	1,00	6000	163	0,57	0,04	11,53	3,50
ET 3045-46	280,70	3125	39,59	2900	73	1,00	5800	146	0,50	0,04	10,69	3,50
ET 3045-46	314,40	3500	44,34	3400	77	1,00	6000	135	0,57	0,03	9,54	3,50
ET 3045-46	364,80	4061	51,45	2300	45	1,00	4600	89	0,50	0,03	8,22	3,50
EQ 4045-46	404,70	4506	55,93	3700	66	1,00	6000	107	0,62	0,02	7,41	3,50
EQ 4045-46	441,00	4910	60,95	3700	61	1,00	6000	98	0,62	0,02	6,80	3,50
EQ 4045-46	510,10	5679	70,50	3700	52	1,00	6000	85	0,62	0,02	5,88	3,50
ET 3065	98,27	1094	13,86	1940	140	2,94	2910	210	1,96	0,10	30,53	3,50
ET 3065	110,60	1231	15,60	2184	140	2,61	3276	210	1,74	0,09	27,12	3,50
ET 3065	123,90	1379	17,47	2446	140	2,25	3669	210	1,50	0,08	24,21	3,50
ET 3065	134,30	1495	18,94	2652	140	2,15	3977	210	1,43	0,07	22,34	3,50
ET 3065	155,10	1727	21,87	3062	140	1,80	4593	210	1,20	0,06	19,34	3,50
ET 3065	180,00	2004	25,39	3554	140	1,55	5331	210	1,03	0,06	16,67	3,50
ET 3065	208,20	2318	29,36	4111	140	1,34	6166	210	0,89	0,05	14,41	3,50
ET 3065	217,50	2421	30,67	4294	140	1,28	6441	210	0,85	0,05	13,79	3,50
ET 3065	251,60	2801	35,48	4968	140	1,11	7451	210	0,74	0,04	11,92	3,50
ET 3065	272,80	3037	38,47	5386	140	1,06	8079	210	0,71	0,04	11,00	3,50
EQ 4065	322,70	3593	44,60	6200	139	1,00	9366	210	0,66	0,03	9,30	3,50
EQ 4065	373,20	4155	51,58	6200	120	1,00	10000	193	0,62	0,03	8,04	3,50
EQ 4065	411,60	4582	56,89	5700	100	1,00	10000	175	0,57	0,02	7,29	3,50
EQ 4065	441,00	4910	60,95	6200	102	1,00	10000	164	0,62	0,02	6,80	3,50
EQ 4065	510,10	5679	70,50	6200	88	1,00	10000	141	0,62	0,02	5,88	3,50
EQ 4065	555,30	6182	76,75	5700	74	1,00	10000	130	0,57	0,02	5,40	3,50
EQ 4065	631,10	7026	87,22	5700	65	1,00	10000	114	0,57	0,02	4,75	3,50
EQ 4065	696,20	7751	96,22	6200	64	1,00	10000	103	0,62	0,01	4,31	3,50
EQ 4065	771,80	8592	106,67	6200	58	1,00	10000	93	0,62	0,01	3,89	3,50
EQ 4065	892,70	9938	123,38	6200	50	1,00	10000	81	0,62	0,01	3,36	3,50
ET 3090	177,50	1976	25,03	3505	140	2,57	5257	210	1,71	0,06	16,90	3,50

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
ET 3090	209,20	2329	29,50	4130	140	1,67	6196	210	1,11	0,05	14,34	3,50
ET 3090	219,70	2446	30,98	4338	140	1,78	6507	210	1,18	0,05	13,65	3,50
ET 3090	252,70	2813	35,64	4989	140	1,38	7484	210	0,92	0,04	11,87	3,50
ET 3090	265,40	2955	37,43	5240	140	1,47	7860	210	0,98	0,04	11,30	3,50
ET 3090	305,40	3400	43,07	6030	140	1,14	9045	210	0,76	0,03	9,82	3,50
ET 3090	363,70	4049	51,29	5500	107	1,00	10771	210	0,51	0,03	8,25	3,50
EQ 4090	409,30	4557	56,57	7920	140	1,14	11879	210	0,76	0,02	7,33	3,50
EQ 4090	443,00	4932	61,23	8572	140	1,05	12858	210	0,70	0,02	6,77	3,50
EQ 4090	512,40	5705	70,82	9000	127	1,00	14872	210	0,61	0,02	5,85	3,50
EQ 4090	555,60	6186	76,79	9000	117	1,00	15000	195	0,60	0,02	5,40	3,50
EQ 4090	654,30	7284	90,43	9000	100	1,00	15000	165	0,60	0,02	4,59	3,50
EQ 4090	718,50	7999	99,30	9000	91	1,00	15000	151	0,60	0,01	4,18	3,50
EQ 4090	779,10	8674	107,68	9000	84	1,00	15000	139	0,60	0,01	3,85	3,50
EQ 4090	878,30	9778	121,39	9000	74	1,00	15000	123	0,60	0,01	3,42	3,50
EQ 4090	1.019,00	11345	140,83	9000	64	1,00	15000	106	0,60	0,01	2,94	3,50
EQ 4090	1.145,00	12747	158,25	9000	57	1,00	15000	94	0,60	0,01	2,62	3,50
EQ 4090	1.232,00	13716	170,27	9000	53	1,00	15000	88	0,60	0,01	2,44	3,50
ET 3150	185,00	2060	26,09	3653	140	2,74	5479	210	1,83	0,05	16,22	3,50
ET 3150	192,70	2145	27,18	3805	140	2,63	5707	210	1,75	0,05	15,57	3,50
ET 3150	223,60	2489	31,53	4415	140	2,27	6622	210	1,51	0,04	13,42	3,50
ET 3150	235,00	2616	33,14	4640	140	1,94	6960	210	1,29	0,04	12,77	3,50
ET 3150	270,20	3008	38,11	5335	140	1,87	8002	210	1,25	0,04	11,10	3,50
ET 3150	329,60	3669	46,48	6508	140	1,38	9761	210	0,92	0,03	9,10	3,50
EQ 4150	359,50	4002	49,69	6956	140	1,87	10434	210	1,25	0,03	8,34	3,50
EQ 4150	391,20	4355	54,07	7569	140	1,72	11354	210	1,14	0,03	7,67	3,50
EQ 4150	461,70	5140	63,81	8934	140	1,46	13400	210	0,97	0,02	6,50	3,50
EQ 4150	491,40	5471	67,92	9508	140	1,37	14262	210	0,91	0,02	6,11	3,50
EQ 4150	568,40	6328	78,56	10998	140	1,18	16497	210	0,79	0,02	5,28	3,50
EQ 4150	645,50	7186	89,21	10000	112	1,00	18735	210	0,53	0,02	4,65	3,50
EQ 4150	700,70	7801	96,84	13000	134	1,00	20000	206	0,65	0,01	4,28	3,50
EQ 4150	810,40	9022	112,00	13000	116	1,00	20000	178	0,65	0,01	3,70	3,50
EQ 4150	883,90	9841	122,16	10000	82	1,00	20000	163	0,50	0,01	3,39	3,50
EQ 4150	1.039,00	11567	143,60	13000	91	1,00	20000	139	0,65	0,01	2,89	3,50
EQ 4150	1.110,00	12358	153,41	10000	65	1,00	20000	130	0,50	0,01	2,70	3,50
EQ 4150	1.226,00	13649	169,44	13000	77	1,00	20000	118	0,65	0,01	2,45	3,50
EQ 4150	1.342,00	14941	185,48	10000	54	1,00	20000	107	0,50	0,01	2,24	3,50
ET 3250	261,00	2906	36,81	5153	140	2,91	7730	210	1,94	0,04	11,49	3,50
EQ 4250	350,40	3901	48,43	6780	140	2,80	10170	210	1,87	0,03	8,56	3,50
EQ 4250	405,30	4512	56,02	7842	140	2,42	11763	210	1,62	0,02	7,40	3,50
EQ 4250	438,60	4883	60,62	8487	140	2,24	12730	210	1,49	0,02	6,84	3,50
EQ 4250	490,70	5463	67,82	9495	140	2,00	14242	210	1,33	0,02	6,11	3,50
EQ 4250	579,00	6446	80,02	11203	140	1,70	16805	210	1,13	0,02	5,18	3,50
EQ 4250	627,70	6988	86,75	12145	140	1,56	18218	210	1,04	0,02	4,78	3,50
EQ 4250	724,80	8069	100,17	14024	140	1,35	21036	210	0,90	0,01	4,14	3,50
EQ 4250	795,40	8855	109,93	15390	140	1,17	23085	210	0,78	0,01	3,77	3,50
EQ 4250	878,70	9783	121,44	17002	140	1,12	25503	210	0,75	0,01	3,41	3,50
EQ 4250	1.016,00	11311	140,42	19000	135	1,00	29488	210	0,64	0,01	2,95	3,50
EQ 4250	1.102,00	12269	152,31	19000	125	1,00	31984	210	0,59	0,01	2,72	3,50
EQ 4250	1.273,00	14172	175,94	19000	108	1,00	35000	198	0,54	0,01	2,36	3,50
EQ 4250	1.336,00	14874	184,65	18000	97	1,00	35000	189	0,51	0,01	2,25	3,50
EQ 4250	1.546,00	17212	213,67	18000	84	1,00	35000	163	0,51	0,01	1,94	3,50
EQ 4250	1.845,00	20540	254,99	18000	71	1,00	35000	137	0,51	0,01	1,63	3,50
EQ 4250	1.935,00	21542	267,43	18000	67	1,00	35000	130	0,51	0,01	1,55	3,50

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EQ 4250	2.268,00	25250	313,46	15000	48	1,00	35000	111	0,43	0,00	1,32	3,50
EQ 4250	2.339,00	26040	323,27	18000	56	1,00	35000	108	0,51	0,00	1,28	3,50
EQ 4250	2.741,00	30516	378,83	15000	40	1,00	35000	92	0,43	0,00	1,09	3,50

All technical data refer to the output of the motor gearbox combination.

The above values are based on the engine type KM 11. When using the motor RM 11, the continuous power P_d increased to 4,7 kW, n_{max} increases by 20 % and n_{min} reduced by 50 % of the specified sizes.

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EM 1010	4,39	97	1,33	213	160	4,08	333	250	2,61	2,28	512,53	6,00
EM 1010	6,00	132	1,82	292	160	2,20	456	250	1,40	1,67	375,00	6,00
EM 1010	6,94	153	2,11	337	160	1,72	527	250	1,10	1,44	324,21	6,00
EM 1010	10,50	231	3,19	300	94	1,00	600	188	0,50	0,95	214,29	6,00
ED 2010	11,42	251	3,40	544	160	1,84	850	250	1,18	0,88	197,02	6,00
ED 2010	14,84	326	4,42	707	160	1,42	1104	250	0,91	0,67	151,62	6,00
ED 2010	19,27	424	5,74	870	152	1,00	1434	250	0,61	0,52	116,76	6,00
ED 2010	20,28	446	6,04	966	160	1,04	1509	250	0,66	0,49	110,95	6,00
ED 2010	23,46	516	6,98	1000	143	1,00	1600	229	0,63	0,43	95,91	6,00
ED 2010	26,34	579	7,84	870	111	1,00	1600	204	0,54	0,38	85,42	6,00
ED 2010	30,47	670	9,07	870	96	1,00	1600	176	0,54	0,33	73,84	6,00
ED 2010	36,00	792	10,71	640	60	1,00	1280	119	0,50	0,28	62,50	6,00
ED 2010	41,64	916	12,39	640	52	1,00	1280	103	0,50	0,24	54,03	6,00
ED 2010	48,16	1059	14,33	580	40	1,00	1160	80	0,50	0,21	46,72	6,00
ET 3010	65,14	1433	19,00	1000	53	1,00	1600	84	0,63	0,15	34,54	6,00
ED 2020	10,41	229	3,10	496	160	3,63	775	250	2,32	0,96	216,14	6,00
ED 2020	11,83	260	3,52	563	160	3,55	880	250	2,27	0,85	190,19	6,00
ED 2020	13,52	297	4,02	644	160	2,80	1006	250	1,79	0,74	166,42	6,00
ED 2020	15,37	338	4,57	732	160	2,73	1144	250	1,75	0,65	146,39	6,00
ED 2020	18,13	399	5,40	863	160	2,08	1349	250	1,33	0,55	124,10	6,00
ED 2020	21,00	462	6,25	1000	160	2,00	1563	250	1,28	0,48	107,14	6,00
ED 2020	22,70	499	6,76	1081	160	1,39	1689	250	0,89	0,44	99,12	6,00
ED 2020	24,78	545	7,38	1180	160	1,53	1844	250	0,98	0,40	90,80	6,00
ED 2020	28,66	630	8,53	1365	160	1,32	2133	250	0,84	0,35	78,51	6,00
ED 2020	31,02	682	9,23	1477	160	1,02	2308	250	0,65	0,32	72,53	6,00
ED 2020	35,88	789	10,68	1500	140	1,00	2670	250	0,56	0,28	62,71	6,00
ED 2020	41,64	916	12,39	1400	113	1,00	2800	225	0,50	0,24	54,03	6,00
ED 2020	50,32	1107	14,98	1300	87	1,00	2600	173	0,50	0,20	44,71	6,00
ET 3020	59,36	1305	17,31	1800	104	1,00	2800	161	0,64	0,17	37,90	6,00
ET 3020	61,28	1348	17,87	1800	101	1,00	2800	156	0,64	0,16	36,72	6,00
ET 3020	70,98	1561	20,70	2000	97	1,00	2800	135	0,71	0,14	31,70	6,00
ET 3020	82,10	1806	23,95	2000	84	1,00	2800	116	0,71	0,12	27,41	6,00
ET 3020	92,19	2027	26,89	2000	74	1,00	2800	104	0,71	0,11	24,41	6,00
ET 3020	106,60	2344	31,09	2000	64	1,00	2800	90	0,71	0,09	21,11	6,00
ET 3020	108,80	2393	31,74	1800	57	1,00	2800	88	0,64	0,09	20,68	6,00
ET 3020	126,00	2771	36,75	2000	54	1,00	2800	76	0,71	0,08	17,86	6,00
ED 2030-40	15,37	338	4,57	732	160	4,10	1144	250	2,62	0,65	146,39	6,00
ED 2030-40	17,47	384	5,20	832	160	3,49	1300	250	2,23	0,57	128,79	6,00
ED 2030-40	20,28	446	6,04	966	160	2,80	1509	250	1,79	0,49	110,95	6,00
ED 2030-40	22,70	499	6,76	1081	160	2,68	1689	250	1,72	0,44	99,12	6,00
ED 2030-40	26,34	579	7,84	1254	160	2,15	1960	250	1,38	0,38	85,42	6,00
ED 2030-40	31,02	682	9,23	1477	160	1,96	2308	250	1,26	0,32	72,53	6,00
ED 2030-40	36,00	792	10,71	1714	160	1,57	2679	250	1,01	0,28	62,50	6,00
ED 2030-40	41,64	916	12,39	1983	160	1,36	3098	250	0,87	0,24	54,03	6,00
ED 2030-40	43,50	957	12,95	2072	160	1,11	3237	250	0,71	0,23	51,72	6,00
ED 2030-40	50,32	1107	14,98	2300	154	1,00	3744	250	0,61	0,20	44,71	6,00
ET 3030-40	59,06	1299	17,23	2756	160	1,05	4307	250	0,67	0,17	38,10	6,00
ET 3030-40	61,28	1348	17,87	2860	160	1,19	4469	250	0,76	0,16	36,72	6,00
ET 3030-40	70,98	1561	20,70	3313	160	1,06	5176	250	0,68	0,14	31,70	6,00
ET 3030-40	83,76	1842	24,43	3400	139	1,00	5800	237	0,59	0,12	26,86	6,00
ET 3030-40	89,03	1958	25,97	2700	104	1,00	5400	207	0,50	0,11	25,27	6,00
ET 3030-40	96,88	2131	28,26	3400	120	1,00	5800	205	0,59	0,10	23,22	6,00
ET 3030-40	108,80	2393	31,74	3400	107	1,00	5800	182	0,59	0,09	20,68	6,00

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
ET 3030-40	124,20	2731	36,23	3500	97	1,00	5800	160	0,60	0,08	18,12	6,00
ET 3030-40	146,60	3224	42,76	3400	80	1,00	5800	135	0,59	0,07	15,35	6,00
ET 3030-40	157,50	3464	45,94	2900	63	1,00	5800	126	0,50	0,06	14,29	6,00
ET 3030-40	186,10	4093	54,28	2900	53	1,00	5800	106	0,50	0,05	12,09	6,00
ED 2045-46	25,38	558	7,55	1209	160	3,06	1889	250	1,96	0,39	88,65	6,00
ED 2045-46	29,94	658	8,91	1426	160	2,38	2228	250	1,53	0,33	75,15	6,00
ED 2045-46	31,02	682	9,23	1477	160	1,96	2308	250	1,26	0,32	72,53	6,00
ED 2045-46	36,00	792	10,71	1714	160	1,57	2679	250	1,01	0,28	62,50	6,00
ED 2045-46	43,50	957	12,95	2072	160	1,30	3237	250	0,83	0,23	51,72	6,00
ED 2045-46	52,56	1156	15,64	2300	147	1,00	3911	250	0,59	0,19	42,81	6,00
ET 3045-46	53,78	1183	15,69	2510	160	1,47	3922	250	0,94	0,19	41,84	6,00
ET 3045-46	63,46	1396	18,51	2962	160	1,25	4628	250	0,80	0,16	35,46	6,00
ET 3045-46	73,50	1616	21,44	3430	160	1,08	5360	250	0,69	0,14	30,61	6,00
ET 3045-46	79,44	1747	23,17	3700	160	1,00	5793	250	0,64	0,13	28,32	6,00
ET 3045-46	92,19	2027	26,89	3700	138	1,00	6000	223	0,62	0,11	24,41	6,00
ET 3045-46	100,30	2206	29,26	3700	126	1,00	6000	205	0,62	0,10	22,43	6,00
ET 3045-46	108,60	2388	31,68	3700	117	1,00	6000	189	0,62	0,09	20,72	6,00
ET 3045-46	125,60	2762	36,64	3700	101	1,00	6000	163	0,62	0,08	17,91	6,00
ET 3045-46	145,70	3204	42,50	3700	87	1,00	6000	141	0,62	0,07	15,44	6,00
ET 3045-46	152,30	3349	44,42	3700	83	1,00	6000	135	0,62	0,07	14,77	6,00
ET 3045-46	176,10	3873	51,37	3700	72	1,00	6000	116	0,62	0,06	12,78	6,00
ET 3045-46	207,80	4570	60,61	3400	56	1,00	6000	98	0,57	0,05	10,83	6,00
ET 3045-46	224,20	4930	65,40	3400	52	1,00	6000	91	0,57	0,04	10,04	6,00
ED 2065	36,25	797	10,79	1726	160	3,19	2697	250	2,04	0,28	62,07	6,00
ED 2065	43,50	956	12,95	2072	160	2,12	3237	250	1,36	0,23	51,72	6,00
ET 3065	51,22	1126	14,94	2390	160	2,38	3735	250	1,53	0,20	43,93	6,00
ET 3065	53,78	1183	15,69	2510	160	2,47	3922	250	1,58	0,19	41,84	6,00
ET 3065	60,44	1329	17,63	2821	160	2,02	4407	250	1,29	0,17	37,23	6,00
ET 3065	73,50	1616	21,44	3430	160	1,81	5360	250	1,16	0,14	30,61	6,00
ET 3065	78,51	1727	22,90	3664	160	1,56	5725	250	1,00	0,13	28,66	6,00
ET 3065	90,93	2000	26,52	4244	160	1,34	6631	250	0,86	0,11	24,74	6,00
ET 3065	98,27	2161	28,66	4586	160	1,24	7166	250	0,80	0,10	22,90	6,00
ET 3065	110,60	2432	32,26	5162	160	1,10	8065	250	0,71	0,09	20,34	6,00
ET 3065	123,90	2725	36,14	5500	152	1,00	9035	250	0,61	0,08	18,16	6,00
ET 3065	134,30	2953	39,17	5700	146	1,00	9793	250	0,58	0,07	16,75	6,00
ET 3065	155,10	3411	45,24	5500	122	1,00	10000	221	0,55	0,06	14,51	6,00
ET 3065	180,00	3958	52,50	5500	105	1,00	10000	190	0,55	0,06	12,50	6,00
ET 3065	208,20	4579	60,73	5500	91	1,00	10000	164	0,55	0,05	10,81	6,00
ET 3065	217,50	4783	63,44	5500	87	1,00	10000	157	0,55	0,05	10,34	6,00
ET 3065	251,60	5533	73,39	5500	75	1,00	10000	136	0,55	0,04	8,94	6,00
ET 3065	272,80	5999	79,57	5700	72	1,00	10000	125	0,57	0,04	8,25	6,00
EQ 4065	322,70	7097	92,24	6200	67	1,00	10000	108	0,62	0,03	6,97	6,00
EQ 4065	373,20	8207	106,68	6200	58	1,00	10000	93	0,62	0,03	6,03	6,00
ED 2090	41,52	913	12,36	1977	160	2,78	3089	250	1,78	0,24	54,19	6,00
ED 2090	44,98	989	13,39	2142	160	1,96	3347	250	1,25	0,22	50,02	6,00
ED 2090	50,17	1103	14,93	2389	160	2,30	3733	250	1,47	0,20	44,85	6,00
ET 3090	58,98	1297	17,20	2753	160	3,27	4301	250	2,09	0,17	38,15	6,00
ET 3090	61,86	1360	18,04	2887	160	2,67	4511	250	1,71	0,16	36,37	6,00
ET 3090	73,83	1624	21,53	3446	160	2,61	5384	250	1,67	0,14	30,48	6,00
ET 3090	75,40	1658	21,99	3519	160	2,56	5498	250	1,64	0,13	29,84	6,00
ET 3090	87,12	1916	25,41	4066	160	2,21	6353	250	1,42	0,11	25,83	6,00
ET 3090	101,10	2223	29,49	4718	160	1,91	7372	250	1,22	0,10	22,26	6,00

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
ET 3090	109,10	2399	31,82	5092	160	1,77	7956	250	1,13	0,09	20,62	6,00
ET 3090	126,60	2784	36,93	5908	160	1,52	9232	250	0,97	0,08	17,77	6,00
ET 3090	146,90	3231	42,85	6856	160	1,31	10694	249	0,84	0,07	15,32	6,00
ET 3090	152,90	3362	44,60	7136	160	1,26	10694	239	0,84	0,07	14,72	6,00
ET 3090	177,50	3903	51,77	8284	160	1,09	12943	250	0,70	0,06	12,68	6,00
ET 3090	209,20	4601	61,02	6900	113	1,00	13800	226	0,50	0,05	10,76	6,00
ET 3090	219,70	4831	64,08	7700	120	1,00	15000	234	0,51	0,05	10,24	6,00
ET 3090	252,70	5557	73,71	6900	94	1,00	13800	187	0,50	0,04	8,90	6,00
ET 3090	265,40	5836	77,41	7700	99	1,00	15000	193	0,51	0,04	8,48	6,00
ET 3090	305,40	6716	89,08	6900	77	1,00	13800	154	0,50	0,03	7,37	6,00
ET 3090	363,70	7998	106,09	5500	52	1,00	11000	103	0,50	0,03	6,19	6,00
EQ 4090	409,30	9001	117,00	9000	77	1,00	15000	128	0,60	0,02	5,50	6,00
EQ 4090	443,00	9742	126,63	9000	71	1,00	15000	118	0,60	0,02	5,08	6,00
EQ 4090	512,40	11268	146,47	9000	61	1,00	15000	102	0,60	0,02	4,39	6,00
EQ 4090	555,60	12218	158,82	9000	57	1,00	15000	94	0,60	0,02	4,05	6,00
ET 3150	81,90	1801	23,89	3822	160	3,40	5972	250	2,18	0,12	27,47	6,00
ET 3150	93,01	2045	27,13	4341	160	2,30	6782	250	1,47	0,11	24,19	6,00
ET 3150	98,96	2176	28,87	4618	160	1,95	7216	250	1,25	0,10	22,74	6,00
ET 3150	107,90	2373	31,47	5036	160	1,99	7868	250	1,27	0,09	20,85	6,00
ET 3150	127,40	2802	37,16	5946	160	1,68	9290	250	1,08	0,08	17,66	6,00
ET 3150	137,40	3022	40,08	6412	160	1,56	10019	250	1,00	0,07	16,38	6,00
ET 3150	159,40	3505	46,49	7439	160	1,34	11624	250	0,86	0,06	14,12	6,00
ET 3150	185,00	4068	53,96	8634	160	1,16	13490	250	0,74	0,05	12,16	6,00
ET 3150	192,70	4238	56,21	8993	160	1,11	14052	250	0,71	0,05	11,68	6,00
ET 3150	223,60	4917	65,22	10000	153	1,00	16305	250	0,61	0,04	10,06	6,00
ET 3150	235,00	5168	68,55	9000	131	1,00	17136	250	0,53	0,04	9,57	6,00
ET 3150	270,20	5942	78,81	10000	127	1,00	19703	250	0,51	0,04	8,33	6,00
ET 3150	329,60	7248	96,14	9000	94	1,00	18000	187	0,50	0,03	6,83	6,00
EQ 4150	359,50	7906	102,76	13000	127	1,00	20000	194	0,65	0,03	6,26	6,00
EQ 4150	391,20	8603	111,82	13000	116	1,00	20000	178	0,65	0,03	5,75	6,00
EQ 4150	461,70	10153	131,98	13000	99	1,00	20000	151	0,65	0,02	4,87	6,00
EQ 4150	491,40	10806	140,47	13000	93	1,00	20000	142	0,65	0,02	4,58	6,00
EQ 4150	568,40	12500	162,48	13000	80	1,00	20000	123	0,65	0,02	3,96	6,00
EQ 4150	645,50	14195	184,52	10000	54	1,00	20000	108	0,50	0,02	3,49	6,00
EQ 4150	700,70	15409	200,29	13000	65	1,00	20000	99	0,65	0,01	3,21	6,00
EQ 4150	810,40	17822	231,65	13000	56	1,00	20000	86	0,65	0,01	2,78	6,00
ET 3250	121,20	2665	35,35	5656	160	3,36	8838	250	2,15	0,08	18,56	6,00
ET 3250	146,50	3222	42,73	6837	160	2,78	10683	250	1,78	0,07	15,36	6,00
ET 3250	158,80	3492	46,32	7411	160	2,43	11580	250	1,55	0,06	14,17	6,00
ET 3250	184,30	4053	53,76	8601	160	2,09	13439	250	1,34	0,05	12,21	6,00
ET 3250	216,00	4750	63,00	10081	160	1,49	15751	250	0,95	0,05	10,42	6,00
ET 3250	261,00	5740	76,13	12181	160	1,23	19032	250	0,79	0,04	8,62	6,00
EQ 4250	282,70	6217	80,81	12930	160	1,47	20202	250	0,94	0,04	7,96	6,00
EQ 4250	310,40	6826	88,73	14196	160	1,34	22182	250	0,86	0,03	7,25	6,00
EQ 4250	350,40	7706	100,16	16026	160	1,19	25040	250	0,76	0,03	6,42	6,00
EQ 4250	405,30	8913	115,85	18537	160	1,02	28964	250	0,66	0,02	5,55	6,00
EQ 4250	438,60	9645	125,37	19000	152	1,00	31343	250	0,61	0,02	5,13	6,00
EQ 4250	490,70	10791	140,27	19000	135	1,00	35000	249	0,54	0,02	4,59	6,00
EQ 4250	579,00	12733	165,51	19000	115	1,00	35000	211	0,54	0,02	3,89	6,00
EQ 4250	627,70	13804	179,43	19000	106	1,00	35000	195	0,54	0,02	3,58	6,00
EQ 4250	724,80	15939	207,18	19000	92	1,00	35000	168	0,54	0,01	3,10	6,00
EQ 4250	795,40	17492	227,36	18000	79	1,00	35000	153	0,51	0,01	2,83	6,00
EQ 4250	878,70	19324	251,18	19000	76	1,00	35000	139	0,54	0,01	2,56	6,00

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EQ 4250	1.016,00	22343	290,42	19000	65	1,00	35000	120	0,54	0,01	2,21	6,00
EQ 4250	1.102,00	24234	315,01	19000	60	1,00	35000	111	0,54	0,01	2,04	6,00
EQ 4250	1.273,00	27995	363,89	19000	52	1,00	35000	96	0,54	0,01	1,77	6,00

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EM 1010	3,38	112	1,56	249	160	4,01	389	250	2,57	2,96	443,79	6,00
EM 1010	4,39	145	2,02	324	160	2,69	506	250	1,72	2,28	341,69	6,00
EM 1010	6,00	198	2,76	442	160	1,45	691	250	0,93	1,67	250,00	6,00
EM 1010	6,94	229	3,20	512	160	1,13	799	250	0,73	1,44	216,14	6,00
EM 1010	10,50	346	4,84	300	62	1,00	600	124	0,50	0,95	142,86	6,00
ED 2010	11,42	376	5,16	825	160	1,21	1289	250	0,78	0,88	131,35	6,00
ED 2010	14,84	490	6,70	1000	149	1,00	1600	238	0,63	0,67	101,08	6,00
ED 2010	19,27	636	8,70	870	100	1,00	1600	183	0,54	0,52	77,84	6,00
ED 2010	20,28	669	9,16	1000	109	1,00	1600	174	0,63	0,49	73,96	6,00
ED 2010	23,46	774	10,59	1000	94	1,00	1600	151	0,63	0,43	63,94	6,00
ED 2010	26,34	869	11,89	870	73	1,00	1600	134	0,54	0,38	56,95	6,00
ED 2010	30,47	1005	13,76	870	63	1,00	1600	116	0,54	0,33	49,23	6,00
EM 1020	6,00	198	2,76	442	160	3,17	691	250	2,03	1,67	250,00	6,00
EM 1020	7,25	239	3,34	534	160	2,43	835	250	1,56	1,38	206,90	6,00
ED 2020	10,41	343	4,70	752	160	2,39	1175	250	1,53	0,96	144,09	6,00
ED 2020	11,83	390	5,34	855	160	2,34	1335	250	1,50	0,85	126,80	6,00
ED 2020	13,52	446	6,10	977	160	1,84	1526	250	1,18	0,74	110,95	6,00
ED 2020	15,37	507	6,94	1110	160	1,80	1735	250	1,15	0,65	97,59	6,00
ED 2020	18,13	598	8,19	1310	160	1,37	2046	250	0,88	0,55	82,74	6,00
ED 2020	21,00	693	9,48	1517	160	1,32	2370	250	0,84	0,48	71,43	6,00
ED 2020	22,70	749	10,25	1500	146	1,00	2562	250	0,59	0,44	66,08	6,00
ED 2020	24,78	817	11,19	1790	160	1,01	2797	250	0,64	0,40	60,53	6,00
ED 2020	28,66	945	12,94	1800	139	1,00	2800	216	0,64	0,35	52,34	6,00
ED 2020	31,02	1023	14,00	1500	107	1,00	2800	199	0,54	0,32	48,36	6,00
ED 2020	35,88	1184	16,20	1500	93	1,00	2800	172	0,54	0,28	41,81	6,00
ED 2020	41,64	1374	18,80	1400	74	1,00	2800	148	0,50	0,24	36,02	6,00
ED 2020	50,32	1660	22,72	1300	57	1,00	2600	114	0,50	0,20	29,81	6,00
ET 3020	59,36	1958	26,26	1800	69	1,00	2800	106	0,64	0,17	25,27	6,00
ET 3020	61,28	2021	27,11	1800	66	1,00	2800	103	0,64	0,16	24,48	6,00
ET 3020	70,98	2341	31,40	2000	64	1,00	2800	89	0,71	0,14	21,13	6,00
ET 3020	82,10	2708	36,32	2000	55	1,00	2800	77	0,71	0,12	18,27	6,00
ED 2030-40	15,37	507	6,94	1110	160	2,70	1735	250	1,73	0,65	97,59	6,00
ED 2030-40	17,47	576	7,89	1262	160	2,30	1972	250	1,47	0,57	85,86	6,00
ED 2030-40	20,28	669	9,16	1465	160	1,84	2289	250	1,18	0,49	73,96	6,00
ED 2030-40	22,70	749	10,25	1640	160	1,77	2562	250	1,13	0,44	66,08	6,00
ED 2030-40	26,34	869	11,89	1903	160	1,42	2973	250	0,91	0,38	56,95	6,00
ED 2030-40	31,02	1023	14,00	2241	160	1,29	3501	250	0,83	0,32	48,36	6,00
ED 2030-40	36,00	1188	16,25	2601	160	1,04	4063	250	0,66	0,28	41,67	6,00
ED 2030-40	41,64	1374	18,80	2700	144	1,00	4700	250	0,57	0,24	36,02	6,00
ED 2030-40	43,50	1435	19,64	2300	117	1,00	4600	234	0,50	0,23	34,48	6,00
ED 2030-40	50,32	1660	22,72	2300	101	1,00	4600	202	0,50	0,20	29,81	6,00
ET 3030-40	59,06	1948	26,13	2900	111	1,00	5800	221	0,50	0,17	25,40	6,00
ET 3030-40	61,28	2021	27,11	3400	125	1,00	5800	213	0,59	0,16	24,48	6,00
ET 3030-40	70,98	2341	31,40	3500	111	1,00	5800	184	0,60	0,14	21,13	6,00
ET 3030-40	83,76	2763	37,06	3400	92	1,00	5800	156	0,59	0,12	17,91	6,00
ET 3030-40	89,03	2937	39,39	2700	69	1,00	5400	137	0,50	0,11	16,85	6,00
ET 3030-40	96,88	3196	42,86	3400	79	1,00	5800	135	0,59	0,10	15,48	6,00
ET 3030-40	108,80	3589	48,14	3400	71	1,00	5800	120	0,59	0,09	13,79	6,00
ET 3030-40	124,20	4097	54,95	3500	64	1,00	5800	105	0,60	0,08	12,08	6,00
ET 3030-40	146,60	4836	64,86	3400	52	1,00	5800	89	0,59	0,07	10,23	6,00
ED 2045-46	14,46	477	6,53	1045	160	3,54	1632	250	2,27	0,69	103,73	6,00
ED 2045-46	17,06	563	7,70	1232	160	2,76	1926	250	1,77	0,59	87,92	6,00

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
ED 2045-46	18,10	597	8,17	1307	160	2,83	2043	250	1,81	0,55	82,87	6,00
ED 2045-46	21,00	693	9,48	1517	160	2,44	2370	250	1,56	0,48	71,43	6,00
ED 2045-46	25,38	838	11,46	1833	160	2,02	2865	250	1,29	0,39	59,10	6,00
ED 2045-46	29,94	988	13,52	2163	160	1,57	3379	250	1,01	0,33	50,10	6,00
ED 2045-46	31,02	1023	14,00	2241	160	1,29	3501	250	0,83	0,32	48,36	6,00
ED 2045-46	36,00	1188	16,25	2601	160	1,04	4063	250	0,66	0,28	41,67	6,00
ED 2045-46	43,50	1435	19,64	2700	137	1,00	4910	250	0,55	0,23	34,48	6,00
ED 2045-46	52,56	1734	23,73	2300	97	1,00	4600	193	0,50	0,19	28,54	6,00
ET 3045-46	53,78	1774	23,79	3700	155	1,00	5949	250	0,62	0,19	27,89	6,00
ET 3045-46	63,46	2093	28,08	3700	132	1,00	6000	213	0,62	0,16	23,64	6,00
ET 3045-46	73,50	2425	32,52	3700	114	1,00	6000	184	0,62	0,14	20,41	6,00
ET 3045-46	79,44	2621	35,15	3700	105	1,00	6000	170	0,62	0,13	18,88	6,00
ET 3045-46	92,19	3041	40,79	3700	91	1,00	6000	147	0,62	0,11	16,27	6,00
ET 3045-46	100,30	3309	44,38	3700	83	1,00	6000	135	0,62	0,10	14,96	6,00
ET 3045-46	108,60	3582	48,05	3700	77	1,00	6000	124	0,62	0,09	13,81	6,00
ET 3045-46	125,60	4143	55,57	3700	67	1,00	6000	107	0,62	0,08	11,94	6,00
ET 3045-46	145,70	4806	64,46	3700	57	1,00	6000	93	0,62	0,07	10,30	6,00
ET 3045-46	152,30	5024	67,38	3700	55	1,00	6000	89	0,62	0,07	9,85	6,00
ED 2065	25,98	857	11,73	1877	160	3,04	2932	250	1,94	0,38	57,74	6,00
ED 2065	27,99	923	12,64	2022	160	2,37	3159	250	1,52	0,36	53,59	6,00
ED 2065	30,00	990	13,54	2167	160	2,54	3386	250	1,62	0,33	50,00	6,00
ED 2065	36,25	1196	16,37	2619	160	2,10	4092	250	1,34	0,28	41,38	6,00
ED 2065	43,50	1435	19,64	3142	160	1,40	4910	250	0,90	0,23	34,48	6,00
ET 3065	51,22	1690	22,66	3626	160	1,57	5666	250	1,01	0,20	29,29	6,00
ET 3065	53,78	1774	23,79	3807	160	1,63	5949	250	1,04	0,19	27,89	6,00
ET 3065	60,44	1994	26,74	4279	160	1,33	6685	250	0,85	0,17	24,82	6,00
ET 3065	73,50	2425	32,52	5203	160	1,19	8130	250	0,76	0,14	20,41	6,00
ET 3065	78,51	2590	34,74	5558	160	1,03	8684	250	0,66	0,13	19,11	6,00
ET 3065	90,93	3000	40,23	5700	142	1,00	10000	248	0,57	0,11	16,50	6,00
ET 3065	98,27	3242	43,48	5700	131	1,00	10000	229	0,57	0,10	15,26	6,00
ET 3065	110,60	3648	48,93	5700	116	1,00	10000	204	0,57	0,09	13,56	6,00
ET 3065	123,90	4087	54,82	5500	100	1,00	10000	182	0,55	0,08	12,11	6,00
ET 3065	134,30	4430	59,42	5700	96	1,00	10000	168	0,57	0,07	11,17	6,00
ET 3065	155,10	5116	68,62	5500	80	1,00	10000	145	0,55	0,06	9,67	6,00
ET 3065	180,00	5938	79,64	5500	69	1,00	10000	125	0,55	0,06	8,33	6,00
ET 3065	208,20	6868	92,12	5500	60	1,00	10000	108	0,55	0,05	7,20	6,00
ET 3065	217,50	7175	96,23	5500	57	1,00	10000	103	0,55	0,05	6,90	6,00
ED 2090	36,61	1208	16,53	2645	160	2,91	4132	250	1,86	0,27	40,97	6,00
ED 2090	41,52	1370	18,75	2999	160	1,83	4686	250	1,17	0,24	36,13	6,00
ED 2090	44,98	1484	20,31	3249	160	1,29	5077	250	0,83	0,22	33,35	6,00
ED 2090	50,17	1655	22,65	3624	160	1,52	5663	250	0,97	0,20	29,90	6,00
ET 3090	58,98	1946	26,10	4175	160	2,16	6524	250	1,38	0,17	25,43	6,00
ET 3090	61,86	2041	27,37	4379	160	1,76	6842	250	1,13	0,16	24,25	6,00
ET 3090	73,83	2435	32,67	5227	160	1,72	8166	250	1,10	0,14	20,32	6,00
ET 3090	75,40	2487	33,36	5338	160	1,69	8340	250	1,08	0,13	19,89	6,00
ET 3090	87,12	2874	38,55	6167	160	1,46	9637	250	0,93	0,11	17,22	6,00
ET 3090	101,10	3335	44,73	7157	160	1,26	11183	250	0,80	0,10	14,84	6,00
ET 3090	109,10	3599	48,27	7723	160	1,17	12068	250	0,75	0,09	13,75	6,00
ET 3090	126,60	4176	56,01	8962	160	1,00	14003	250	0,64	0,08	11,85	6,00
ET 3090	146,90	4846	65,00	9000	138	1,00	10694	164	0,84	0,07	10,21	6,00
ET 3090	152,90	5044	67,65	9000	133	1,00	10694	158	0,84	0,07	9,81	6,00
ET 3090	177,50	5855	78,53	9000	115	1,00	15000	190	0,60	0,06	8,45	6,00
ET 3090	209,20	6901	92,56	6900	75	1,00	13800	149	0,50	0,05	7,17	6,00

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
ET 3090	219,70	7247	97,21	7700	79	1,00	15000	154	0,51	0,05	6,83	6,00
ET 3090	252,70	8336	111,81	6900	62	1,00	13800	123	0,50	0,04	5,94	6,00
ET 3090	265,40	8755	117,43	7700	66	1,00	15000	127	0,51	0,04	5,65	6,00
ET 3090	305,40	10074	135,12	6900	51	1,00	13800	102	0,50	0,03	4,91	6,00
EQ 4090	409,30	13502	177,47	9000	51	1,00	15000	84	0,60	0,02	3,66	6,00
ED 2150	45,46	1500	20,52	3284	160	2,74	5131	250	1,75	0,22	33,00	6,00
ET 3150	47,78	1576	21,14	3382	160	3,84	5285	250	2,46	0,21	31,39	6,00
ET 3150	56,37	1860	24,94	3991	160	3,26	6235	250	2,08	0,18	26,61	6,00
ET 3150	62,97	2077	27,86	4458	160	2,24	6965	250	1,44	0,16	23,82	6,00
ET 3150	70,57	2328	31,22	4996	160	2,60	7806	250	1,67	0,14	21,26	6,00
ET 3150	81,90	2702	36,24	5798	160	2,24	9059	250	1,44	0,12	18,32	6,00
ET 3150	93,01	3068	41,15	6584	160	1,52	10288	250	0,97	0,11	16,13	6,00
ET 3150	98,96	3264	43,78	7006	160	1,28	10946	250	0,82	0,10	15,16	6,00
ET 3150	107,90	3559	47,74	7638	160	1,31	11935	250	0,84	0,09	13,90	6,00
ET 3150	127,40	4203	56,37	9019	160	1,11	14092	250	0,71	0,08	11,77	6,00
ET 3150	137,40	4532	60,79	9727	160	1,03	15198	250	0,66	0,07	10,92	6,00
ET 3150	159,40	5258	70,53	10000	142	1,00	17632	250	0,57	0,06	9,41	6,00
ET 3150	185,00	6103	81,85	10000	122	1,00	20000	244	0,50	0,05	8,11	6,00
ET 3150	192,70	6357	85,26	10000	117	1,00	20000	234	0,50	0,05	7,78	6,00
ET 3150	223,60	7376	98,93	10000	101	1,00	20000	202	0,50	0,04	6,71	6,00
ET 3150	235,00	7752	103,98	9000	87	1,00	18000	173	0,50	0,04	6,38	6,00
ET 3150	270,20	8913	119,55	10000	84	1,00	20000	167	0,50	0,04	5,55	6,00
ET 3150	329,60	10873	145,83	9000	62	1,00	18000	123	0,50	0,03	4,55	6,00
EQ 4150	359,50	11859	155,88	13000	83	1,00	20000	128	0,65	0,03	4,17	6,00
EQ 4150	391,20	12905	169,62	13000	77	1,00	20000	117	0,65	0,03	3,83	6,00
EQ 4150	461,70	15230	200,19	13000	65	1,00	20000	99	0,65	0,02	3,25	6,00
EQ 4150	491,40	16210	213,07	13000	61	1,00	20000	93	0,65	0,02	3,05	6,00
EQ 4150	568,40	18750	246,46	13000	53	1,00	20000	81	0,65	0,02	2,64	6,00
ET 3250	83,43	2752	36,91	5906	160	3,22	9228	250	2,06	0,12	17,98	6,00
ET 3250	90,44	2983	40,01	6402	160	2,97	10004	250	1,90	0,11	16,59	6,00
ET 3250	104,40	3444	46,19	7391	160	2,57	11548	250	1,65	0,10	14,37	6,00
ET 3250	114,60	3780	50,70	8113	160	2,22	12676	250	1,42	0,09	13,09	6,00
ET 3250	121,20	3998	53,62	8580	160	2,21	13406	250	1,42	0,08	12,38	6,00
ET 3250	146,50	4833	64,82	10371	160	1,83	16205	250	1,17	0,07	10,24	6,00
ET 3250	158,80	5238	70,26	11242	160	1,60	17565	250	1,02	0,06	9,45	6,00
ET 3250	184,30	6080	81,54	13047	160	1,38	20386	250	0,88	0,05	8,14	6,00
ET 3250	216,00	7125	95,57	15000	157	1,00	23892	250	0,63	0,05	6,94	6,00
ET 3250	261,00	8610	115,48	15000	130	1,00	28870	250	0,52	0,04	5,75	6,00
EQ 4250	282,70	9325	122,58	19000	155	1,00	30645	250	0,62	0,04	5,31	6,00
EQ 4250	310,40	10239	134,59	19000	141	1,00	33647	250	0,56	0,03	4,83	6,00
EQ 4250	350,40	11559	151,93	19000	125	1,00	35000	230	0,54	0,03	4,28	6,00
EQ 4250	405,30	13370	175,74	19000	108	1,00	35000	199	0,54	0,02	3,70	6,00
EQ 4250	438,60	14468	190,18	19000	100	1,00	35000	184	0,54	0,02	3,42	6,00
EQ 4250	490,70	16187	212,77	19000	89	1,00	35000	164	0,54	0,02	3,06	6,00
EQ 4250	579,00	19100	251,05	19000	76	1,00	35000	139	0,54	0,02	2,59	6,00
EQ 4250	627,70	20706	272,17	19000	70	1,00	35000	128	0,54	0,02	2,39	6,00
EQ 4250	724,80	23909	314,27	19000	60	1,00	35000	111	0,54	0,01	2,07	6,00
EQ 4250	795,40	26238	344,88	18000	52	1,00	35000	101	0,51	0,01	1,89	6,00
EQ 4250	878,70	28986	381,00	19000	50	1,00	35000	91	0,54	0,01	1,71	6,00

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EM 1010	3,38	149	2,05	328	160	3,04	513	250	1,95	1,48	532,54	9,50
EM 1010	4,39	193	2,67	427	160	2,04	667	250	1,31	1,14	410,02	9,50
EM 1010	6,00	264	3,64	583	160	1,10	911	250	0,70	0,83	300,00	9,50
EM 1010	6,94	305	4,22	580	138	1,00	1054	250	0,55	0,72	259,37	9,50
EM 1010	10,50	462	6,38	300	47	1,00	600	94	0,50	0,48	171,43	9,50
ED 2010	11,42	502	6,80	1000	147	1,00	1600	235	0,63	0,44	157,62	9,50
ED 2010	14,84	653	8,83	1000	113	1,00	1600	181	0,63	0,34	121,29	9,50
ED 2010	19,27	848	11,47	870	76	1,00	1600	139	0,54	0,26	93,41	9,50
ED 2010	20,28	892	12,07	1000	83	1,00	1600	132	0,63	0,25	88,76	9,50
ED 2010	23,46	1032	13,97	1000	72	1,00	1600	114	0,63	0,21	76,73	9,50
ED 2010	26,34	1158	15,68	870	55	1,00	1600	102	0,54	0,19	68,34	9,50
EM 1020	5,17	227	3,14	502	160	2,99	785	250	1,91	0,97	348,16	9,50
EM 1020	6,00	264	3,64	583	160	2,40	911	250	1,54	0,83	300,00	9,50
EM 1020	7,25	319	4,40	705	160	1,84	1101	250	1,18	0,69	248,28	9,50
ED 2020	10,41	458	6,20	991	160	1,82	1549	250	1,16	0,48	172,91	9,50
ED 2020	11,83	520	7,04	1127	160	1,78	1761	250	1,14	0,42	152,16	9,50
ED 2020	13,52	595	8,05	1288	160	1,40	2012	250	0,89	0,37	133,14	9,50
ED 2020	15,37	676	9,15	1464	160	1,37	2287	250	0,87	0,33	117,11	9,50
ED 2020	18,13	797	10,79	1727	160	1,04	2698	250	0,67	0,28	99,28	9,50
ED 2020	21,00	924	12,50	2000	160	1,00	2800	223	0,71	0,24	85,71	9,50
ED 2020	22,70	998	13,51	1500	111	1,00	2800	207	0,54	0,22	79,30	9,50
ED 2020	24,78	1090	14,75	1800	122	1,00	2800	189	0,64	0,20	72,64	9,50
ED 2020	28,66	1261	17,06	1800	106	1,00	2800	164	0,64	0,17	62,81	9,50
ED 2020	31,02	1364	18,47	1500	81	1,00	2800	151	0,54	0,16	58,03	9,50
ED 2020	35,88	1578	21,36	1500	70	1,00	2800	131	0,54	0,14	50,17	9,50
ED 2020	41,64	1831	24,79	1400	56	1,00	2800	112	0,50	0,12	43,23	9,50
ED 2020	50,32	2213	29,95	1300	43	1,00	2600	86	0,50	0,10	35,77	9,50
ET 3020	59,36	2611	34,63	1800	52	1,00	2800	80	0,64	0,08	30,32	9,50
ET 3020	61,28	2695	35,75	1800	50	1,00	2800	78	0,64	0,08	29,37	9,50
ED 2030-40	15,37	676	9,15	1464	160	2,05	2287	250	1,31	0,33	117,11	9,50
ED 2030-40	17,47	768	10,40	1664	160	1,74	2600	250	1,12	0,29	103,03	9,50
ED 2030-40	20,28	892	12,07	1932	160	1,40	3018	250	0,89	0,25	88,76	9,50
ED 2030-40	22,70	998	13,51	2162	160	1,34	3378	250	0,86	0,22	79,30	9,50
ED 2030-40	26,34	1158	15,68	2509	160	1,08	3920	250	0,69	0,19	68,34	9,50
ED 2030-40	31,02	1364	18,47	2900	157	1,00	4616	250	0,63	0,16	58,03	9,50
ED 2030-40	36,00	1583	21,43	2700	126	1,00	5357	250	0,50	0,14	50,00	9,50
ED 2030-40	41,64	1831	24,79	2700	109	1,00	5400	217	0,50	0,12	43,23	9,50
ED 2030-40	43,50	1913	25,89	2300	89	1,00	4600	177	0,50	0,11	41,38	9,50
ED 2030-40	50,32	2213	29,95	2300	77	1,00	4600	153	0,50	0,10	35,77	9,50
ET 3030-40	59,06	2598	34,45	2900	84	1,00	5800	168	0,50	0,08	30,48	9,50
ET 3030-40	61,28	2695	35,75	3400	95	1,00	5800	162	0,59	0,08	29,37	9,50
ET 3030-40	70,98	3122	41,41	3500	85	1,00	5800	140	0,60	0,07	25,36	9,50
ET 3030-40	83,76	3684	48,86	3400	70	1,00	5800	118	0,59	0,06	21,49	9,50
ET 3030-40	89,03	3916	51,94	2700	52	1,00	5400	103	0,50	0,06	20,22	9,50
ET 3030-40	96,88	4261	56,52	3400	60	1,00	5800	102	0,59	0,05	18,58	9,50
ET 3030-40	108,80	4785	63,47	3400	54	1,00	5800	91	0,59	0,05	16,54	9,50
EM 1045-46	7,25	319	4,40	705	160	3,26	1101	250	2,09	0,69	248,28	9,50
ED 2045-46	10,78	474	6,42	1027	160	3,60	1604	250	2,31	0,46	166,98	9,50
ED 2045-46	12,25	539	7,29	1167	160	3,17	1823	250	2,03	0,41	146,94	9,50
ED 2045-46	14,46	636	8,61	1377	160	2,69	2152	250	1,72	0,35	124,48	9,50
ED 2045-46	17,06	750	10,16	1625	160	2,09	2539	250	1,34	0,29	105,51	9,50
ED 2045-46	18,10	796	10,77	1724	160	2,15	2694	250	1,37	0,28	99,45	9,50

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
ED 2045-46	21,00	924	12,50	2000	160	1,85	3125	250	1,18	0,24	85,71	9,50
ED 2045-46	25,38	1116	15,11	2417	160	1,53	3777	250	0,98	0,20	70,92	9,50
ED 2045-46	29,94	1317	17,82	2852	160	1,19	4456	250	0,76	0,17	60,12	9,50
ED 2045-46	31,02	1364	18,47	2900	157	1,00	4616	250	0,63	0,16	58,03	9,50
ED 2045-46	36,00	1583	21,43	2700	126	1,00	5357	250	0,50	0,14	50,00	9,50
ED 2045-46	43,50	1913	25,89	2700	104	1,00	5400	208	0,50	0,11	41,38	9,50
ED 2045-46	52,56	2312	31,29	2300	74	1,00	4600	147	0,50	0,10	34,25	9,50
ET 3045-46	53,78	2365	31,37	3700	118	1,00	6000	191	0,62	0,09	33,47	9,50
ET 3045-46	63,46	2791	37,02	3700	100	1,00	6000	162	0,62	0,08	28,36	9,50
ET 3045-46	73,50	3233	42,88	3700	86	1,00	6000	139	0,62	0,07	24,49	9,50
ET 3045-46	79,44	3494	46,34	3700	80	1,00	6000	129	0,62	0,06	22,66	9,50
ET 3045-46	92,19	4055	53,78	3700	69	1,00	6000	111	0,62	0,05	19,52	9,50
ET 3045-46	100,30	4411	58,51	3700	63	1,00	6000	102	0,62	0,05	17,95	9,50
ET 3045-46	108,60	4776	63,35	3700	58	1,00	6000	94	0,62	0,05	16,57	9,50
ET 3045-46	125,60	5524	73,27	3700	50	1,00	6000	81	0,62	0,04	14,33	9,50
ED 2065	17,88	786	10,64	1703	160	3,35	2661	250	2,14	0,28	100,67	9,50
ED 2065	20,65	908	12,29	1967	160	2,80	3073	250	1,79	0,24	87,17	9,50
ED 2065	22,39	985	13,33	2133	160	2,67	3332	250	1,71	0,22	80,39	9,50
ED 2065	25,98	1143	15,47	2474	160	2,30	3866	250	1,47	0,19	69,28	9,50
ED 2065	27,99	1231	16,66	2666	160	1,80	4165	250	1,15	0,18	64,31	9,50
ED 2065	30,00	1319	17,86	2857	160	1,92	4465	250	1,23	0,17	60,00	9,50
ED 2065	36,25	1594	21,58	3453	160	1,59	5395	250	1,02	0,14	49,66	9,50
ED 2065	43,50	1913	25,89	4143	160	1,06	6474	250	0,68	0,11	41,38	9,50
ET 3065	51,22	2253	29,88	4781	160	1,19	7470	250	0,76	0,10	35,14	9,50
ET 3065	53,78	2365	31,37	5020	160	1,24	7843	250	0,79	0,09	33,47	9,50
ET 3065	60,44	2658	35,26	5641	160	1,01	8815	250	0,65	0,08	29,78	9,50
ET 3065	73,50	3233	42,88	6200	145	1,00	10000	233	0,62	0,07	24,49	9,50
ET 3065	78,51	3453	45,80	5700	124	1,00	10000	218	0,57	0,06	22,93	9,50
ET 3065	90,93	3999	53,05	5700	107	1,00	10000	188	0,57	0,05	19,80	9,50
ET 3065	98,27	4322	57,33	5700	99	1,00	10000	174	0,57	0,05	18,32	9,50
ET 3065	110,60	4864	64,52	5700	88	1,00	10000	154	0,57	0,05	16,27	9,50
ET 3065	123,90	5449	72,28	5500	76	1,00	10000	138	0,55	0,04	14,53	9,50
ET 3065	134,30	5907	78,35	5700	73	1,00	10000	127	0,57	0,04	13,40	9,50
ET 3065	155,10	6822	90,48	5500	61	1,00	10000	110	0,55	0,03	11,61	9,50
ET 3065	180,00	7917	105,01	5500	52	1,00	10000	95	0,55	0,03	10,00	9,50
ED 2090	29,58	1301	17,61	2817	160	3,19	4402	250	2,04	0,17	60,85	9,50
ED 2090	30,30	1333	18,04	2886	160	2,67	4509	250	1,71	0,17	59,41	9,50
ED 2090	36,61	1610	21,79	3487	160	2,21	5448	250	1,41	0,14	49,17	9,50
ED 2090	41,52	1826	24,72	3955	160	1,39	6179	250	0,89	0,12	43,35	9,50
ED 2090	44,98	1978	26,78	4200	157	1,00	6694	250	0,63	0,11	40,02	9,50
ED 2090	50,17	2207	29,86	4778	160	1,15	7466	250	0,74	0,10	35,88	9,50
ET 3090	58,98	2594	34,41	5505	160	1,63	8602	250	1,05	0,08	30,52	9,50
ET 3090	61,86	2721	36,09	5774	160	1,33	9022	250	0,85	0,08	29,10	9,50
ET 3090	73,83	3247	43,07	6891	160	1,31	10767	250	0,84	0,07	24,38	9,50
ET 3090	75,40	3316	43,99	7038	160	1,28	10996	250	0,82	0,07	23,87	9,50
ET 3090	87,12	3832	50,82	8132	160	1,11	12706	250	0,71	0,06	20,66	9,50
ET 3090	101,10	4447	58,98	9000	153	1,00	14745	250	0,61	0,05	17,80	9,50
ET 3090	109,10	4798	63,65	9000	141	1,00	15000	235	0,60	0,05	16,50	9,50
ET 3090	126,60	5568	73,85	9000	122	1,00	15000	203	0,60	0,04	14,22	9,50
ET 3090	146,90	6461	85,70	9000	105	1,00	10694	124	0,84	0,03	12,25	9,50
ET 3090	152,90	6725	89,20	9000	101	1,00	10694	119	0,84	0,03	11,77	9,50
ET 3090	177,50	7807	103,55	9000	87	1,00	15000	144	0,60	0,03	10,14	9,50
ET 3090	209,20	9201	122,04	6900	57	1,00	13800	113	0,50	0,02	8,60	9,50

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
ET 3090	219,70	9663	128,17	7700	60	1,00	15000	117	0,51	0,02	8,19	9,50
ED 2150	28,28	1244	16,83	2693	160	3,34	4209	250	2,14	0,18	63,65	9,50
ED 2150	30,84	1356	18,36	2937	160	3,40	4590	250	2,18	0,16	58,37	9,50
ED 2150	37,27	1639	22,19	3550	160	2,82	5546	250	1,80	0,13	48,30	9,50
ED 2150	45,46	1999	27,06	4330	160	2,08	6765	250	1,33	0,11	39,60	9,50
ET 3150	47,78	2101	27,87	4460	160	2,91	6968	250	1,87	0,10	37,67	9,50
ET 3150	56,37	2479	32,88	5262	160	2,47	8221	250	1,58	0,09	31,93	9,50
ET 3150	62,97	2770	36,73	5878	160	1,70	9184	250	1,09	0,08	28,59	9,50
ET 3150	70,57	3104	41,17	6587	160	1,97	10292	250	1,26	0,07	25,51	9,50
ET 3150	81,90	3602	47,78	7644	160	1,70	11944	250	1,09	0,06	21,98	9,50
ET 3150	93,01	4091	54,26	8681	160	1,15	13565	250	0,74	0,05	19,35	9,50
ET 3150	98,96	4352	57,73	9000	156	1,00	14433	250	0,62	0,05	18,19	9,50
ET 3150	107,90	4746	62,95	10000	159	1,00	15736	250	0,64	0,05	16,68	9,50
ET 3150	127,40	5603	74,32	10000	135	1,00	18580	250	0,54	0,04	14,13	9,50
ET 3150	137,40	6043	80,15	10000	125	1,00	20000	249	0,50	0,04	13,10	9,50
ET 3150	159,40	7011	92,99	10000	108	1,00	20000	215	0,50	0,03	11,29	9,50
ET 3150	185,00	8137	107,92	10000	93	1,00	20000	185	0,50	0,03	9,73	9,50
ET 3150	192,70	8475	112,41	10000	89	1,00	20000	177	0,50	0,03	9,34	9,50
ET 3150	223,60	9834	130,44	10000	77	1,00	20000	153	0,50	0,02	8,05	9,50
ET 3150	235,00	10336	137,09	9000	66	1,00	18000	131	0,50	0,02	7,66	9,50
ET 3150	270,20	11884	157,63	10000	63	1,00	20000	126	0,50	0,02	6,66	9,50
ET 3250	70,70	3110	41,24	6599	160	2,88	10311	250	1,84	0,07	25,46	9,50
ET 3250	83,43	3669	48,67	7787	160	2,44	12168	250	1,56	0,06	21,57	9,50
ET 3250	90,44	3978	52,76	8442	160	2,25	13190	250	1,44	0,06	19,90	9,50
ET 3250	104,40	4592	60,90	9745	160	1,95	15226	250	1,25	0,05	17,24	9,50
ET 3250	114,60	5040	66,85	10697	160	1,68	16713	250	1,08	0,04	15,71	9,50
ET 3250	121,20	5331	70,70	11313	160	1,68	17676	250	1,07	0,04	14,85	9,50
ET 3250	146,50	6443	85,46	13674	160	1,39	21366	250	0,89	0,03	12,29	9,50
ET 3250	158,80	6984	92,64	14822	160	1,21	23160	250	0,78	0,03	11,34	9,50
ET 3250	184,30	8106	107,51	17202	160	1,05	26879	250	0,67	0,03	9,77	9,50
ET 3250	216,00	9500	126,01	15000	119	1,00	30000	238	0,50	0,02	8,33	9,50
ET 3250	261,00	11479	152,26	15000	99	1,00	30000	197	0,50	0,02	6,90	9,50
EQ 4250	282,70	12434	161,62	19000	118	1,00	35000	216	0,54	0,02	6,37	9,50
EQ 4250	310,40	13652	177,46	19000	107	1,00	35000	197	0,54	0,02	5,80	9,50
EQ 4250	350,40	15411	200,32	19000	95	1,00	35000	174	0,54	0,01	5,14	9,50
EQ 4250	405,30	17826	231,71	19000	82	1,00	35000	151	0,54	0,01	4,44	9,50
EQ 4250	438,60	19291	250,75	19000	76	1,00	35000	139	0,54	0,01	4,10	9,50
EQ 4250	490,70	21582	280,53	19000	68	1,00	35000	124	0,54	0,01	3,67	9,50
EQ 4250	579,00	25466	331,01	19000	57	1,00	35000	105	0,54	0,01	3,11	9,50
EQ 4250	627,70	27608	358,86	19000	53	1,00	35000	97	0,54	0,01	2,87	9,50

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EM 1010	3,38	223	3,11	498	160	2,01	779	250	1,28	1,48	355,03	9,50
EM 1010	4,39	290	4,04	647	160	1,34	1011	250	0,86	1,14	273,35	9,50
EM 1010	6,00	396	5,53	640	116	1,00	1280	231	0,50	0,83	200,00	9,50
EM 1010	6,94	458	6,39	580	91	1,00	1160	181	0,50	0,72	172,91	9,50
EM 1010	10,50	693	9,67	300	31	1,00	600	62	0,50	0,48	114,29	9,50
ED 2010	11,42	753	10,31	1000	97	1,00	1600	155	0,63	0,44	105,08	9,50
ED 2010	14,84	979	13,40	1000	75	1,00	1600	119	0,63	0,34	80,86	9,50
ED 2010	19,27	1271	17,40	870	50	1,00	1600	91	0,54	0,26	62,27	9,50
ED 2010	20,28	1338	18,31	1000	55	1,00	1600	87	0,63	0,25	59,17	9,50
EM 1020	3,08	203	2,84	454	160	3,96	709	250	2,54	1,62	389,61	9,50
EM 1020	3,50	231	3,22	516	160	3,88	806	250	2,48	1,43	342,86	9,50
EM 1020	4,13	272	3,81	609	160	2,96	951	250	1,89	1,21	290,56	9,50
EM 1020	5,17	341	4,76	762	160	1,97	1191	250	1,26	0,97	232,11	9,50
EM 1020	6,00	396	5,53	885	160	1,58	1382	250	1,01	0,83	200,00	9,50
EM 1020	7,25	478	6,68	1069	160	1,22	1670	250	0,78	0,69	165,52	9,50
ED 2020	10,41	687	9,40	1504	160	1,20	2350	250	0,77	0,48	115,27	9,50
ED 2020	11,83	780	10,68	1709	160	1,17	2670	250	0,75	0,42	101,44	9,50
ED 2020	13,52	892	12,21	1800	147	1,00	2800	229	0,64	0,37	88,76	9,50
ED 2020	15,37	1014	13,88	2000	144	1,00	2800	201	0,71	0,33	78,07	9,50
ED 2020	18,13	1196	16,37	1800	110	1,00	2800	171	0,64	0,28	66,19	9,50
ED 2020	21,00	1385	18,96	2000	105	1,00	2800	147	0,71	0,24	57,14	9,50
ED 2020	22,70	1498	20,50	1500	73	1,00	2800	136	0,54	0,22	52,86	9,50
ED 2020	24,78	1635	22,37	1800	80	1,00	2800	125	0,64	0,20	48,43	9,50
ED 2020	28,66	1891	25,88	1800	70	1,00	2800	108	0,64	0,17	41,87	9,50
ED 2020	31,02	2046	28,01	1500	54	1,00	2800	99	0,54	0,16	38,68	9,50
ED 2030-40	15,37	1014	13,88	2221	160	1,35	3470	250	0,86	0,33	78,07	9,50
ED 2030-40	17,47	1153	15,77	2524	160	1,15	3944	250	0,74	0,29	68,69	9,50
ED 2030-40	20,28	1338	18,31	2700	147	1,00	4578	250	0,59	0,25	59,17	9,50
ED 2030-40	22,70	1498	20,50	2900	141	1,00	5124	250	0,57	0,22	52,86	9,50
ED 2030-40	26,34	1738	23,78	2700	114	1,00	5400	227	0,50	0,19	45,56	9,50
ED 2030-40	31,02	2046	28,01	2900	104	1,00	5800	207	0,50	0,16	38,68	9,50
ED 2030-40	36,00	2375	32,51	2700	83	1,00	5400	166	0,50	0,14	33,33	9,50
ED 2030-40	41,64	2747	37,60	2700	72	1,00	5400	143	0,50	0,12	28,82	9,50
ED 2030-40	43,50	2870	39,28	2300	59	1,00	4600	117	0,50	0,11	27,59	9,50
ED 2030-40	50,32	3320	45,44	2300	51	1,00	4600	101	0,50	0,10	23,85	9,50
ET 3030-40	59,06	3896	52,26	2900	55	1,00	5800	110	0,50	0,08	20,32	9,50
ET 3030-40	61,28	4043	54,23	3400	63	1,00	5800	106	0,59	0,08	19,58	9,50
ET 3030-40	70,98	4683	62,81	3500	56	1,00	5800	92	0,60	0,07	16,91	9,50
EM 1045-46	3,50	231	3,22	516	160	7,17	806	250	4,59	1,43	342,86	9,50
EM 1045-46	4,13	272	3,81	609	160	5,58	951	250	3,57	1,21	290,56	9,50
EM 1045-46	5,17	341	4,76	762	160	3,80	1191	250	2,44	0,97	232,11	9,50
EM 1045-46	6,00	396	5,53	885	160	3,05	1382	250	1,95	0,83	200,00	9,50
EM 1045-46	7,25	478	6,68	1069	160	2,15	1670	250	1,38	0,69	165,52	9,50
ED 2045-46	10,78	711	9,73	1557	160	2,38	2433	250	1,52	0,46	111,32	9,50
ED 2045-46	12,25	808	11,06	1770	160	2,09	2765	250	1,34	0,41	97,96	9,50
ED 2045-46	14,46	954	13,06	2089	160	1,77	3264	250	1,13	0,35	82,99	9,50
ED 2045-46	17,06	1125	15,40	2465	160	1,38	3851	250	0,88	0,29	70,34	9,50
ED 2045-46	18,10	1194	16,34	2615	160	1,41	4086	250	0,91	0,28	66,30	9,50
ED 2045-46	21,00	1385	18,96	3034	160	1,22	4740	250	0,78	0,24	57,14	9,50
ED 2045-46	25,38	1674	22,92	3667	160	1,01	5729	250	0,65	0,20	47,28	9,50
ED 2045-46	29,94	1975	27,03	3400	126	1,00	6000	221	0,57	0,17	40,08	9,50
ED 2045-46	31,02	2046	28,01	2900	104	1,00	5800	207	0,50	0,16	38,68	9,50

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
ED 2045-46	36,00	2375	32,51	2700	83	1,00	5400	166	0,50	0,14	33,33	9,50
ED 2045-46	43,50	2870	39,28	2700	69	1,00	5400	137	0,50	0,11	27,59	9,50
ED 2045-46	52,56	3468	47,46	2300	48	1,00	4600	96	0,50	0,10	22,83	9,50
ET 3045-46	53,78	3548	47,59	3700	78	1,00	6000	126	0,62	0,09	22,31	9,50
ET 3045-46	63,46	4187	56,15	3700	66	1,00	6000	106	0,62	0,08	18,91	9,50
ET 3045-46	73,50	4849	65,04	3700	57	1,00	6000	92	0,62	0,07	16,33	9,50
ET 3045-46	79,44	5241	70,30	3700	53	1,00	6000	85	0,62	0,06	15,11	9,50
EM 1065	3,50	231	3,22	516	160	12,02	806	250	7,69	1,43	342,86	9,50
EM 1065	3,86	255	3,56	569	160	10,02	889	250	6,41	1,30	310,88	9,50
EM 1065	4,33	286	3,99	638	160	8,93	997	250	5,71	1,15	277,14	9,50
EM 1065	5,00	330	4,61	737	160	7,46	1152	250	4,78	1,00	240,00	9,50
EM 1065	6,00	396	5,53	885	160	4,97	1382	250	3,18	0,83	200,00	9,50
ED 2065	10,78	711	9,73	1557	160	3,98	2433	250	2,55	0,46	111,32	9,50
ED 2065	12,25	808	11,06	1770	160	3,50	2765	250	2,24	0,41	97,96	9,50
ED 2065	13,51	891	12,20	1952	160	2,92	3050	250	1,87	0,37	88,82	9,50
ED 2065	15,16	1000	13,69	2190	160	2,60	3422	250	1,67	0,33	79,16	9,50
ED 2065	17,88	1180	16,14	2583	160	2,21	4036	250	1,41	0,28	67,11	9,50
ED 2065	20,65	1362	18,65	2983	160	1,84	4661	250	1,18	0,24	58,11	9,50
ED 2065	22,39	1477	20,22	3235	160	1,76	5054	250	1,13	0,22	53,60	9,50
ED 2065	25,98	1714	23,46	3753	160	1,52	5865	250	0,97	0,19	46,19	9,50
ED 2065	27,99	1847	25,27	4044	160	1,19	6318	250	0,76	0,18	42,87	9,50
ED 2065	30,00	1979	27,09	4334	160	1,27	6772	250	0,81	0,17	40,00	9,50
ED 2065	36,25	2392	32,73	5237	160	1,05	8183	250	0,67	0,14	33,10	9,50
ED 2065	43,50	2870	39,28	4400	112	1,00	8800	224	0,50	0,11	27,59	9,50
ET 3065	51,22	3379	45,32	5700	126	1,00	10000	220	0,57	0,10	23,43	9,50
ET 3065	53,78	3548	47,59	6200	130	1,00	10000	210	0,62	0,09	22,31	9,50
ET 3065	60,44	3987	53,48	5700	107	1,00	10000	186	0,57	0,08	19,85	9,50
ET 3065	73,50	4849	65,04	6200	95	1,00	10000	153	0,62	0,07	16,33	9,50
ET 3065	78,51	5180	69,47	5700	82	1,00	10000	143	0,57	0,06	15,28	9,50
ET 3065	90,93	5999	80,46	5700	71	1,00	10000	124	0,57	0,05	13,20	9,50
ET 3065	98,27	6483	86,96	5700	66	1,00	10000	114	0,57	0,05	12,21	9,50
ET 3065	110,60	7297	97,87	5700	58	1,00	10000	102	0,57	0,05	10,85	9,50
ET 3065	123,90	8174	109,64	5500	50	1,00	10000	91	0,55	0,04	9,69	9,50
ED 2090	17,68	1166	15,96	2554	160	3,01	3991	250	1,93	0,28	67,87	9,50
ED 2090	21,09	1391	19,04	3047	160	2,95	4761	250	1,89	0,24	56,90	9,50
ED 2090	24,48	1615	22,10	3537	160	2,54	5526	250	1,63	0,20	49,02	9,50
ED 2090	29,58	1951	26,71	4273	160	2,11	6677	250	1,35	0,17	40,57	9,50
ED 2090	30,30	1999	27,36	4377	160	1,76	6840	250	1,13	0,17	39,60	9,50
ED 2090	36,61	2415	33,06	5289	160	1,46	8264	250	0,93	0,14	32,78	9,50
ED 2090	41,52	2739	37,49	5500	147	1,00	9373	250	0,59	0,12	28,90	9,50
ED 2090	44,98	2967	40,61	4200	103	1,00	8400	206	0,50	0,11	26,68	9,50
ED 2090	50,17	3310	45,30	5500	121	1,00	11000	242	0,50	0,10	23,92	9,50
ET 3090	58,98	3891	52,19	8350	160	1,08	13048	250	0,69	0,08	20,35	9,50
ET 3090	61,86	4081	54,74	7700	141	1,00	13685	250	0,56	0,08	19,40	9,50
ET 3090	73,83	4871	65,33	9000	138	1,00	15000	229	0,60	0,07	16,25	9,50
ET 3090	75,40	4974	66,72	9000	135	1,00	15000	224	0,60	0,07	15,92	9,50
ET 3090	87,12	5748	77,09	9000	117	1,00	15000	194	0,60	0,06	13,77	9,50
ET 3090	101,10	6670	89,46	9000	101	1,00	15000	167	0,60	0,05	11,87	9,50
ET 3090	109,10	7198	96,54	9000	93	1,00	15000	155	0,60	0,05	11,00	9,50
ET 3090	126,60	8352	112,03	9000	80	1,00	15000	133	0,60	0,04	9,48	9,50
ET 3090	146,90	9691	129,99	9000	69	1,00	10694	82	0,84	0,03	8,17	9,50
ET 3090	152,90	10087	135,30	9000	67	1,00	10694	79	0,84	0,03	7,85	9,50
ET 3090	177,50	11710	157,07	9000	57	1,00	15000	95	0,60	0,03	6,76	9,50

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
ED 2150	21,95	1448	19,82	3171	160	2,84	4955	250	1,82	0,23	54,67	9,50
ED 2150	26,57	1753	23,99	3839	160	2,61	5998	250	1,67	0,19	45,16	9,50
ED 2150	28,28	1866	25,54	4086	160	2,20	6384	250	1,41	0,18	42,43	9,50
ED 2150	30,84	2035	27,85	4455	160	2,24	6962	250	1,44	0,16	38,91	9,50
ED 2150	37,27	2459	33,65	5384	160	1,86	8413	250	1,19	0,13	32,20	9,50
ED 2150	45,46	2999	41,05	6568	160	1,37	10262	250	0,88	0,11	26,40	9,50
ET 3150	47,78	3152	42,28	6765	160	1,92	10570	250	1,23	0,10	25,12	9,50
ET 3150	56,37	3719	49,88	7981	160	1,63	12470	250	1,04	0,09	21,29	9,50
ET 3150	62,97	4154	55,72	8915	160	1,12	13930	250	0,72	0,08	19,06	9,50
ET 3150	70,57	4656	62,45	9991	160	1,30	15612	250	0,83	0,07	17,00	9,50
ET 3150	81,90	5403	72,47	11596	160	1,12	18118	250	0,72	0,06	14,65	9,50
ET 3150	93,01	6136	82,30	10000	122	1,00	20000	243	0,50	0,05	12,90	9,50
ET 3150	98,96	6529	87,57	9000	103	1,00	18000	205	0,50	0,05	12,13	9,50
ET 3150	107,90	7118	95,48	10000	105	1,00	20000	209	0,50	0,05	11,12	9,50
ET 3150	127,40	8405	112,73	10000	89	1,00	20000	177	0,50	0,04	9,42	9,50
ET 3150	137,40	9065	121,58	10000	82	1,00	20000	164	0,50	0,04	8,73	9,50
ET 3150	159,40	10516	141,05	10000	71	1,00	20000	141	0,50	0,03	7,53	9,50
ET 3150	185,00	12205	163,70	10000	61	1,00	20000	122	0,50	0,03	6,49	9,50
ET 3150	192,70	12713	170,52	10000	59	1,00	20000	117	0,50	0,03	6,23	9,50
ET 3150	223,60	14752	197,86	10000	51	1,00	20000	101	0,50	0,02	5,37	9,50
ED 2250	36,00	2375	32,51	5201	160	2,88	8126	250	1,85	0,14	33,33	9,50
ET 3250	43,55	2873	38,54	6166	160	3,08	9634	250	1,97	0,11	27,55	9,50
ET 3250	49,49	3265	43,79	7007	160	2,71	10948	250	1,74	0,10	24,25	9,50
ET 3250	58,40	3853	51,68	8268	160	2,30	12919	250	1,47	0,09	20,55	9,50
ET 3250	61,23	4040	54,18	8669	160	2,19	13545	250	1,40	0,08	19,60	9,50
ET 3250	70,70	4664	62,56	10010	160	1,90	15640	250	1,21	0,07	16,97	9,50
ET 3250	83,43	5504	73,83	11812	160	1,61	18456	250	1,03	0,06	14,38	9,50
ET 3250	90,44	5967	80,03	12805	160	1,48	20007	250	0,95	0,06	13,27	9,50
ET 3250	104,40	6888	92,38	14781	160	1,29	23095	250	0,82	0,05	11,49	9,50
ET 3250	114,60	7561	101,41	16225	160	1,11	25352	250	0,71	0,04	10,47	9,50
ET 3250	121,20	7996	107,25	17160	160	1,11	26812	250	0,71	0,04	9,90	9,50
ET 3250	146,50	9665	129,64	19000	147	1,00	32409	250	0,59	0,03	8,19	9,50
ET 3250	158,80	10477	140,52	18000	128	1,00	35000	249	0,51	0,03	7,56	9,50
ET 3250	184,30	12159	163,08	18000	110	1,00	35000	214	0,51	0,03	6,51	9,50
ET 3250	216,00	14250	191,13	15000	78	1,00	30000	156	0,50	0,02	5,56	9,50
ET 3250	261,00	17219	230,95	15000	65	1,00	30000	129	0,50	0,02	4,60	9,50
EQ 4250	282,70	18651	245,15	19000	78	1,00	35000	142	0,54	0,02	4,24	9,50
EQ 4250	310,40	20478	269,17	19000	71	1,00	35000	130	0,54	0,02	3,87	9,50
EQ 4250	350,40	23117	303,86	19000	63	1,00	35000	115	0,54	0,01	3,42	9,50
EQ 4250	405,30	26739	351,47	19000	54	1,00	35000	99	0,54	0,01	2,96	9,50
EQ 4250	438,60	28936	380,35	19000	50	1,00	35000	92	0,54	0,01	2,74	9,50

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EM 1010	3,38	299	4,17	584	140	1,71	876	210	1,14	1,48	266,27	8,50
EM 1010	4,39	388	5,42	759	140	1,15	1138	210	0,76	1,14	205,01	8,50
EM 1010	6,00	530	7,41	640	86	1,00	1280	172	0,50	0,83	150,00	8,50
EM 1010	6,94	614	8,57	580	68	1,00	1160	135	0,50	0,72	129,68	8,50
EM 1010	10,50	928	12,96	300	23	1,00	600	46	0,50	0,48	85,71	8,50
ED 2010	11,42	1010	13,82	1000	72	1,00	1600	115	0,63	0,44	78,81	8,50
ED 2010	14,84	1312	17,96	1000	56	1,00	1600	89	0,63	0,34	60,65	8,50
EM 1020	3,08	272	3,80	532	140	3,38	799	210	2,25	1,62	292,21	8,50
EM 1020	3,50	309	4,32	605	140	3,31	907	210	2,20	1,43	257,14	8,50
EM 1020	4,13	365	5,10	714	140	2,52	1071	210	1,68	1,21	217,92	8,50
EM 1020	5,17	457	6,38	894	140	1,68	1340	210	1,12	0,97	174,08	8,50
EM 1020	6,00	530	7,41	1037	140	1,35	1556	210	0,90	0,83	150,00	8,50
EM 1020	7,25	641	8,95	1253	140	1,04	1880	210	0,69	0,69	124,14	8,50
ED 2020	10,41	920	12,60	1763	140	1,02	2645	210	0,68	0,48	86,46	8,50
ED 2020	11,83	1046	14,31	2000	140	1,00	2800	195	0,71	0,42	76,08	8,50
ED 2020	13,52	1195	16,36	1800	110	1,00	2800	171	0,64	0,37	66,57	8,50
ED 2020	15,37	1359	18,60	2000	108	1,00	2800	150	0,71	0,33	58,56	8,50
ED 2020	18,13	1603	21,94	1800	82	1,00	2800	127	0,64	0,28	49,64	8,50
ED 2020	21,00	1856	25,41	2000	79	1,00	2800	110	0,71	0,24	42,86	8,50
ED 2020	22,70	2007	27,47	1500	55	1,00	2800	101	0,54	0,22	39,65	8,50
ED 2020	24,78	2191	29,98	1800	60	1,00	2800	93	0,64	0,20	36,32	8,50
ED 2020	28,66	2534	34,68	1800	52	1,00	2800	80	0,64	0,17	31,40	8,50
ED 2030-40	15,37	1359	18,60	2604	140	1,15	3905	210	0,77	0,33	58,56	8,50
ED 2030-40	17,47	1544	21,14	2900	137	1,00	4439	210	0,65	0,29	51,52	8,50
ED 2030-40	20,28	1793	24,54	2700	110	1,00	5153	210	0,52	0,25	44,38	8,50
ED 2030-40	22,70	2007	27,47	2900	106	1,00	5768	210	0,50	0,22	39,65	8,50
ED 2030-40	26,34	2329	31,87	2700	85	1,00	5400	169	0,50	0,19	34,17	8,50
ED 2030-40	31,02	2742	37,53	2900	77	1,00	5800	154	0,50	0,16	29,01	8,50
ED 2030-40	36,00	3183	43,56	2700	62	1,00	5400	123	0,50	0,14	25,00	8,50
ED 2030-40	41,64	3681	50,38	2700	54	1,00	5400	107	0,50	0,12	21,61	8,50
EM 1045-46	5,17	457	6,38	894	140	3,25	1340	210	2,16	0,97	174,08	8,50
EM 1045-46	6,00	530	7,41	1037	140	2,60	1556	210	1,74	0,83	150,00	8,50
EM 1045-46	7,25	641	8,95	1253	140	1,84	1880	210	1,22	0,69	124,14	8,50
ED 2045-46	10,78	953	13,04	1826	140	2,03	2739	210	1,35	0,46	83,49	8,50
ED 2045-46	12,25	1083	14,82	2075	140	1,78	3113	210	1,19	0,41	73,47	8,50
ED 2045-46	14,46	1278	17,50	2449	140	1,51	3674	210	1,01	0,35	62,24	8,50
ED 2045-46	17,06	1508	20,64	2890	140	1,18	4335	210	0,78	0,29	52,75	8,50
ED 2045-46	18,10	1600	21,90	3066	140	1,21	4599	210	0,80	0,28	49,72	8,50
ED 2045-46	21,00	1856	25,41	3557	140	1,04	5336	210	0,69	0,24	42,86	8,50
ED 2045-46	25,38	2244	30,71	3700	120	1,00	6000	195	0,62	0,20	35,46	8,50
ED 2045-46	29,94	2647	36,23	3400	94	1,00	6000	165	0,57	0,17	30,06	8,50
ED 2045-46	31,02	2742	37,53	2900	77	1,00	5800	154	0,50	0,16	29,01	8,50
ED 2045-46	36,00	3183	43,56	2700	62	1,00	5400	123	0,50	0,14	25,00	8,50
ED 2045-46	43,50	3846	52,63	2700	51	1,00	5400	102	0,50	0,11	20,69	8,50
ED 2045-46	52,56	4647	63,59	2300	36	1,00	4600	72	0,50	0,10	17,12	8,50
ET 3045-46	53,78	4754	63,77	3700	58	1,00	6000	94	0,62	0,09	16,73	8,50
ED 2065	12,25	1083	14,82	2075	140	2,99	3113	210	1,99	0,41	73,47	8,50
ED 2065	13,51	1194	16,35	2288	140	2,49	3433	210	1,66	0,37	66,62	8,50
ED 2065	15,16	1340	18,34	2568	140	2,22	3852	210	1,48	0,33	59,37	8,50
ED 2065	17,88	1581	21,63	3029	140	1,88	4543	210	1,25	0,28	50,34	8,50
ED 2065	20,65	1826	24,99	3498	140	1,57	5247	210	1,05	0,24	43,58	8,50
ED 2065	22,39	1979	27,09	3793	140	1,50	5689	210	1,00	0,22	40,20	8,50

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
ED 2065	25,98	2297	31,43	4401	140	1,30	6601	210	0,86	0,19	34,64	8,50
ED 2065	27,99	2474	33,87	4741	140	1,01	7112	210	0,67	0,18	32,15	8,50
ED 2065	30,00	2652	36,30	5082	140	1,08	7623	210	0,72	0,17	30,00	8,50
ED 2065	36,25	3205	43,86	5500	125	1,00	9211	210	0,60	0,14	24,83	8,50
ED 2065	43,50	3846	52,63	4400	84	1,00	8800	167	0,50	0,11	20,69	8,50
ET 3065	51,22	4528	60,73	5700	94	1,00	10000	164	0,57	0,10	17,57	8,50
ET 3065	53,78	4754	63,77	6200	97	1,00	10000	156	0,62	0,09	16,73	8,50
ET 3065	60,44	5343	71,67	5700	80	1,00	10000	139	0,57	0,08	14,89	8,50
ET 3065	73,50	6498	87,15	6200	71	1,00	10000	114	0,62	0,07	12,24	8,50
ET 3065	78,51	6941	93,09	5700	61	1,00	10000	107	0,57	0,06	11,46	8,50
ET 3065	90,93	8039	107,82	5700	53	1,00	10000	92	0,57	0,05	9,90	8,50
EM 1090	8,70	769	10,74	1504	140	2,79	2256	210	1,86	0,57	103,45	8,50
ED 2090	14,28	1262	17,28	2419	140	3,72	3628	210	2,48	0,35	63,03	8,50
ED 2090	16,85	1490	20,39	2854	140	3,15	4281	210	2,10	0,30	53,41	8,50
ED 2090	17,68	1563	21,39	2995	140	2,57	4492	210	1,71	0,28	50,90	8,50
ED 2090	21,09	1864	25,52	3572	140	2,52	5359	210	1,68	0,24	42,67	8,50
ED 2090	24,48	2164	29,62	4147	140	2,17	6220	210	1,45	0,20	36,76	8,50
ED 2090	29,58	2615	35,79	5011	140	1,80	7516	210	1,20	0,17	30,43	8,50
ED 2090	30,30	2679	36,66	5133	140	1,50	7699	210	1,00	0,17	29,70	8,50
ED 2090	36,61	3236	44,30	6201	140	1,24	9302	210	0,83	0,14	24,58	8,50
ED 2090	41,52	3671	50,24	5500	109	1,00	10550	210	0,52	0,12	21,68	8,50
ED 2090	44,98	3976	54,42	4200	77	1,00	8400	154	0,50	0,11	20,01	8,50
ED 2090	50,17	4435	60,70	5500	91	1,00	11000	181	0,50	0,10	17,94	8,50
ET 3090	58,98	5214	69,94	9000	129	1,00	14686	210	0,61	0,08	15,26	8,50
ET 3090	61,86	5469	73,35	7700	105	1,00	15000	204	0,51	0,08	14,55	8,50
ET 3090	73,83	6527	87,54	9000	103	1,00	15000	171	0,60	0,07	12,19	8,50
ET 3090	75,40	6666	89,41	9000	101	1,00	15000	167	0,60	0,07	11,94	8,50
ET 3090	87,12	7702	103,30	9000	87	1,00	15000	145	0,60	0,06	10,33	8,50
ET 3090	101,10	8938	119,88	9000	75	1,00	15000	125	0,60	0,05	8,90	8,50
ET 3090	109,10	9645	129,36	9000	70	1,00	15000	115	0,60	0,05	8,25	8,50
ET 3090	126,60	11192	150,12	9000	60	1,00	15000	99	0,60	0,04	7,11	8,50
ET 3090	146,90	12987	174,19	9000	52	1,00	10694	61	0,84	0,03	6,13	8,50
ET 3090	152,90	13517	181,30	9000	50	1,00	10694	58	0,84	0,03	5,89	8,50
ED 2150	20,16	1782	24,39	3415	140	3,22	5122	210	2,15	0,25	44,64	8,50
ED 2150	21,95	1940	26,56	3718	140	2,42	5577	210	1,61	0,23	41,00	8,50
ED 2150	26,57	2349	32,15	4501	140	2,22	6751	210	1,48	0,19	33,87	8,50
ED 2150	28,28	2500	34,22	4790	140	1,88	7186	210	1,25	0,18	31,82	8,50
ED 2150	30,84	2726	37,31	5224	140	1,91	7836	210	1,28	0,16	29,18	8,50
ED 2150	37,27	3295	45,09	6313	140	1,58	9470	210	1,06	0,13	24,15	8,50
ED 2150	45,46	4019	55,00	7701	140	1,17	11551	210	0,78	0,11	19,80	8,50
ET 3150	47,78	4224	56,65	7932	140	1,64	11898	210	1,09	0,10	18,84	8,50
ET 3150	56,37	4983	66,84	9358	140	1,39	14036	210	0,93	0,09	15,97	8,50
ET 3150	62,97	5567	74,67	10000	134	1,00	15680	210	0,64	0,08	14,29	8,50
ET 3150	70,57	6239	83,68	11715	140	1,11	17572	210	0,74	0,07	12,75	8,50
ET 3150	81,90	7240	97,11	13000	134	1,00	20000	205	0,65	0,06	10,99	8,50
ET 3150	93,01	8222	110,29	10000	91	1,00	20000	181	0,50	0,05	9,68	8,50
ET 3150	98,96	8748	117,34	9000	77	1,00	18000	153	0,50	0,05	9,09	8,50
ET 3150	107,90	9539	127,94	10000	78	1,00	20000	156	0,50	0,05	8,34	8,50
ET 3150	127,40	11263	151,06	10000	66	1,00	20000	132	0,50	0,04	7,06	8,50
ET 3150	137,40	12147	162,92	10000	61	1,00	20000	122	0,50	0,04	6,55	8,50
ET 3150	159,40	14092	189,01	10000	53	1,00	20000	105	0,50	0,03	5,65	8,50
ED 2250	30,72	2716	37,17	5204	140	3,46	7806	210	2,31	0,16	29,30	8,50

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
ED 2250	36,00	3183	43,56	6098	140	2,46	9147	210	1,64	0,14	25,00	8,50
ET 3250	43,55	3850	51,64	7229	140	2,63	10844	210	1,75	0,11	20,67	8,50
ET 3250	49,49	4375	58,68	8216	140	2,31	12323	210	1,54	0,10	18,19	8,50
ET 3250	58,40	5163	69,25	9695	140	1,96	14542	210	1,31	0,09	15,41	8,50
ET 3250	61,23	5413	72,60	10164	140	1,87	15247	210	1,25	0,08	14,70	8,50
ET 3250	70,70	6250	83,83	11737	140	1,62	17605	210	1,08	0,07	12,73	8,50
ET 3250	83,43	7376	98,93	13850	140	1,37	20775	210	0,91	0,06	10,79	8,50
ET 3250	90,44	7995	107,24	15013	140	1,27	22520	210	0,84	0,06	9,95	8,50
ET 3250	104,40	9229	123,79	17331	140	1,10	25996	210	0,73	0,05	8,62	8,50
ET 3250	114,60	10131	135,89	18000	132	1,00	28536	210	0,63	0,04	7,85	8,50
ET 3250	121,20	10715	143,71	19000	132	1,00	30180	210	0,63	0,04	7,43	8,50
ET 3250	146,50	12951	173,71	19000	109	1,00	35000	201	0,54	0,03	6,14	8,50
ET 3250	158,80	14039	188,30	18000	96	1,00	35000	185	0,51	0,03	5,67	8,50
ET 3250	184,30	16293	218,53	18000	82	1,00	35000	160	0,51	0,03	4,88	8,50
ET 3250	216,00	19095	256,12	15000	59	1,00	30000	117	0,50	0,02	4,17	8,50
ET 3250	261,00	23073	309,48	15000	48	1,00	30000	96	0,50	0,02	3,45	8,50
EQ 4250	282,70	24992	328,51	19000	58	1,00	35000	106	0,54	0,02	3,18	8,50
EQ 4250	310,40	27441	360,69	19000	53	1,00	35000	97	0,54	0,02	2,90	8,50

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EM 1010	3,38	370	5,23	732	140	1,37	1098	210	0,91	1,48	221,89	8,50
EM 1010	4,39	481	6,79	870	128	1,00	1426	210	0,61	1,14	170,84	8,50
EM 1010	6,00	657	9,28	640	69	1,00	1280	137	0,50	0,83	125,00	8,50
EM 1010	6,94	760	10,73	580	54	1,00	1160	108	0,50	0,72	108,07	8,50
ED 2010	11,42	1251	17,31	1000	58	1,00	1600	92	0,63	0,44	65,67	8,50
EM 1020	3,08	337	4,76	667	140	2,70	1000	210	1,80	1,62	243,51	8,50
EM 1020	3,50	383	5,41	758	140	2,64	1137	210	1,76	1,43	214,29	8,50
EM 1020	4,13	452	6,39	894	140	2,01	1341	210	1,34	1,21	181,60	8,50
EM 1020	5,17	566	8,00	1119	140	1,34	1679	210	0,89	0,97	145,07	8,50
EM 1020	6,00	657	9,28	1299	140	1,08	1949	210	0,72	0,83	125,00	8,50
EM 1020	7,25	794	11,21	1300	116	1,00	2355	210	0,55	0,69	103,45	8,50
ED 2020	10,41	1140	15,78	1800	114	1,00	2800	177	0,64	0,48	72,05	8,50
ED 2020	11,83	1296	17,93	2000	112	1,00	2800	156	0,71	0,42	63,40	8,50
ED 2020	13,52	1481	20,49	1800	88	1,00	2800	136	0,64	0,37	55,47	8,50
ED 2020	15,37	1683	23,29	2000	86	1,00	2800	120	0,71	0,33	48,80	8,50
ED 2020	18,13	1986	27,48	1800	66	1,00	2800	101	0,64	0,28	41,37	8,50
ED 2020	21,00	2300	31,83	2000	63	1,00	2800	87	0,71	0,24	35,71	8,50
ED 2030-40	15,37	1683	23,29	3000	129	1,00	4892	210	0,61	0,33	48,80	8,50
ED 2030-40	17,47	1913	26,48	2900	110	1,00	5560	210	0,52	0,29	42,93	8,50
ED 2030-40	20,28	2221	30,74	2700	88	1,00	5400	175	0,50	0,25	36,98	8,50
ED 2030-40	22,70	2486	34,40	2900	84	1,00	5800	168	0,50	0,22	33,04	8,50
ED 2030-40	26,34	2885	39,92	2700	68	1,00	5400	135	0,50	0,19	28,47	8,50
ED 2030-40	31,02	3397	47,01	2900	62	1,00	5800	123	0,50	0,16	24,18	8,50
ED 2030-40	36,00	3943	54,56	2700	49	1,00	5400	98	0,50	0,14	20,83	8,50
EM 1045-46	4,13	452	6,39	894	140	3,80	1341	210	2,53	1,21	181,60	8,50
EM 1045-46	5,17	566	8,00	1119	140	2,59	1679	210	1,73	0,97	145,07	8,50
EM 1045-46	6,00	657	9,28	1299	140	2,08	1949	210	1,39	0,83	125,00	8,50
EM 1045-46	7,25	794	11,21	1570	140	1,47	2355	210	0,98	0,69	103,45	8,50
ED 2045-46	10,78	1181	16,34	2287	140	1,62	3431	210	1,08	0,46	69,57	8,50
ED 2045-46	12,25	1342	18,57	2599	140	1,42	3899	210	0,95	0,41	61,22	8,50
ED 2045-46	14,46	1584	21,91	3068	140	1,21	4602	210	0,80	0,35	51,87	8,50
ED 2045-46	17,06	1868	25,86	3400	132	1,00	5430	210	0,63	0,29	43,96	8,50
ED 2045-46	18,10	1982	27,43	3700	135	1,00	5761	210	0,64	0,28	41,44	8,50
ED 2045-46	21,00	2300	31,83	3700	116	1,00	6000	188	0,62	0,24	35,71	8,50
ED 2045-46	25,38	2780	38,46	3700	96	1,00	6000	155	0,62	0,20	29,55	8,50
ED 2045-46	29,94	3279	45,38	3400	75	1,00	6000	132	0,57	0,17	25,05	8,50
ED 2045-46	31,02	3397	47,01	2900	62	1,00	5800	123	0,50	0,16	24,18	8,50
ED 2045-46	36,00	3943	54,56	2700	49	1,00	5400	98	0,50	0,14	20,83	8,50
ED 2065	10,78	1181	16,34	2287	140	2,71	3431	210	1,81	0,46	69,57	8,50
ED 2065	12,25	1342	18,57	2599	140	2,39	3899	210	1,59	0,41	61,22	8,50
ED 2065	13,51	1480	20,48	2867	140	1,99	4300	210	1,33	0,37	55,51	8,50
ED 2065	15,16	1660	22,98	3217	140	1,77	4825	210	1,18	0,33	49,47	8,50
ED 2065	17,88	1958	27,10	3794	140	1,50	5691	210	1,00	0,28	41,95	8,50
ED 2065	20,65	2262	31,30	4381	140	1,26	6572	210	0,84	0,24	36,32	8,50
ED 2065	22,39	2452	33,93	4751	140	1,20	7126	210	0,80	0,22	33,50	8,50
ED 2065	25,98	2845	39,37	5512	140	1,03	8269	210	0,69	0,19	28,87	8,50
ED 2065	27,99	3065	42,42	4800	113	1,00	8908	210	0,54	0,18	26,80	8,50
ED 2065	30,00	3285	45,47	5500	121	1,00	9548	210	0,58	0,17	25,00	8,50
ED 2065	36,25	3970	54,94	5500	100	1,00	10000	182	0,55	0,14	20,69	8,50
ED 2065	43,50	4764	65,93	4400	67	1,00	8800	133	0,50	0,11	17,24	8,50
ET 3065	51,22	5609	76,07	5700	75	1,00	10000	131	0,57	0,10	14,64	8,50
ET 3065	53,78	5890	79,88	6200	78	1,00	10000	125	0,62	0,09	13,95	8,50
Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
ET 3065	60,44	6619	89,77	5700	63	1,00	10000	111	0,57	0,08	12,41	8,50
ET 3065	73,50	8049	109,16	6200	57	1,00	10000	91	0,62	0,07	10,20	8,50
ET 3065	78,51	8598	116,61	5700	49	1,00	10000	85	0,57	0,06	9,55	8,50
EM 1090	8,70	953	13,45	1884	140	2,23	2825	210	1,49	0,57	86,21	8,50
ED 2090	14,28	1564	21,64	3030	140	2,97	4545	210	1,98	0,35	52,52	8,50
ED 2090	16,85	1845	25,54	3575	140	2,52	5363	210	1,68	0,30	44,51	8,50
ED 2090	17,68	1936	26,79	3751	140	2,05	5627	210	1,37	0,28	42,42	8,50
ED 2090	21,09	2310	31,96	4475	140	2,01	6712	210	1,34	0,24	35,56	8,50
ED 2090	24,48	2681	37,10	5194	140	1,73	7791	210	1,16	0,20	30,64	8,50
ED 2090	29,58	3239	44,83	6276	140	1,43	9414	210	0,96	0,17	25,35	8,50
ED 2090	30,30	3318	45,92	6429	140	1,20	9643	210	0,80	0,17	24,75	8,50
ED 2090	36,61	4009	55,48	7700	139	1,00	11652	210	0,66	0,14	20,49	8,50
ED 2090	41,52	4547	62,93	5500	87	1,00	11000	174	0,50	0,12	18,06	8,50
ED 2090	44,98	4926	68,17	4200	62	1,00	8400	123	0,50	0,11	16,67	8,50
ED 2090	50,17	5494	76,04	5500	72	1,00	11000	144	0,50	0,10	14,95	8,50
ET 3090	58,98	6459	87,60	9000	103	1,00	15000	171	0,60	0,08	12,72	8,50
ET 3090	61,86	6775	91,88	7700	84	1,00	15000	163	0,51	0,08	12,12	8,50
ET 3090	73,83	8086	109,66	9000	82	1,00	15000	136	0,60	0,07	10,16	8,50
ET 3090	75,40	8258	111,99	9000	80	1,00	15000	133	0,60	0,07	9,95	8,50
ET 3090	87,12	9541	129,39	9000	70	1,00	15000	115	0,60	0,06	8,61	8,50
ET 3090	101,10	11072	150,16	9000	60	1,00	15000	99	0,60	0,05	7,42	8,50
ET 3090	109,10	11948	162,04	9000	56	1,00	15000	92	0,60	0,05	6,87	8,50
ED 2150	17,99	1970	27,26	3817	140	2,62	5726	210	1,75	0,28	41,69	8,50
ED 2150	20,16	2208	30,55	4277	140	2,57	6416	210	1,71	0,25	37,20	8,50
ED 2150	21,95	2404	33,27	4657	140	1,93	6986	210	1,29	0,23	34,17	8,50
ED 2150	26,57	2910	40,27	5638	140	1,77	8456	210	1,18	0,19	28,23	8,50
ED 2150	28,28	3097	42,86	6000	140	1,50	9001	210	1,00	0,18	26,52	8,50
ED 2150	30,84	3377	46,74	6544	140	1,53	9815	210	1,02	0,16	24,32	8,50
ED 2150	37,27	4082	56,48	7908	140	1,26	11862	210	0,84	0,13	20,12	8,50
ED 2150	45,46	4979	68,90	9000	131	1,00	14468	210	0,62	0,11	16,50	8,50
ET 3150	47,78	5233	70,96	9935	140	1,31	14903	210	0,87	0,10	15,70	8,50
ET 3150	56,37	6173	83,72	11721	140	1,11	17582	210	0,74	0,09	13,30	8,50
ET 3150	62,97	6896	93,53	10000	107	1,00	19640	210	0,51	0,08	11,91	8,50
ET 3150	70,57	7729	104,81	13000	124	1,00	20000	190	0,65	0,07	10,63	8,50
ET 3150	81,90	8969	121,64	13000	107	1,00	20000	164	0,65	0,06	9,16	8,50
ET 3150	93,01	10186	138,14	10000	72	1,00	20000	144	0,50	0,05	8,06	8,50
ET 3150	98,96	10838	146,98	9000	61	1,00	18000	122	0,50	0,05	7,58	8,50
ET 3150	107,90	11817	160,26	10000	62	1,00	20000	124	0,50	0,05	6,95	8,50
ET 3150	127,40	13952	189,22	10000	53	1,00	20000	105	0,50	0,04	5,89	8,50
ET 3150	137,40	15047	204,07	10000	49	1,00	20000	98	0,50	0,04	5,46	8,50
ED 2250	30,72	3364	46,56	6518	140	2,76	9777	210	1,84	0,16	24,41	8,50
ED 2250	36,00	3943	54,56	7638	140	1,96	11458	210	1,31	0,14	20,83	8,50
ET 3250	43,55	4769	64,68	9055	140	2,10	13583	210	1,40	0,11	17,22	8,50
ET 3250	49,49	5420	73,50	10291	140	1,85	15436	210	1,23	0,10	15,15	8,50
ET 3250	58,40	6396	86,74	12143	140	1,56	18215	210	1,04	0,09	12,84	8,50
ET 3250	61,23	6706	90,94	12732	140	1,49	19098	210	0,99	0,08	12,25	8,50
ET 3250	70,70	7743	105,01	14701	140	1,29	22051	210	0,86	0,07	10,61	8,50
ET 3250	83,43	9137	123,91	17348	140	1,10	26022	210	0,73	0,06	8,99	8,50
ET 3250	90,44	9905	134,32	18805	140	1,01	28208	210	0,67	0,06	8,29	8,50
ET 3250	104,40	11433	155,06	19000	123	1,00	32562	210	0,58	0,05	7,18	8,50
ET 3250	114,60	12551	170,21	18000	106	1,00	35000	205	0,51	0,04	6,54	8,50
ET 3250	121,20	13273	180,01	19000	106	1,00	35000	194	0,54	0,04	6,19	8,50

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
ET 3250	146,50	16044	217,59	19000	87	1,00	35000	160	0,54	0,03	5,12	8,50
ET 3250	158,80	17391	235,86	18000	76	1,00	35000	148	0,51	0,03	4,72	8,50
ET 3250	184,30	20184	273,73	18000	66	1,00	35000	127	0,51	0,03	4,07	8,50

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EM 1010	3,38	272	3,80	949	250	1,05	1196	315	0,84	1,48	236,69	12,00
EM 1010	4,39	353	4,93	870	176	1,00	1553	315	0,56	1,14	182,23	12,00
EM 1010	6,00	483	6,74	640	95	1,00	1280	189	0,50	0,83	133,33	12,00
EM 1010	6,94	558	7,80	580	74	1,00	1160	148	0,50	0,72	115,27	12,00
EM 1020	3,08	248	3,46	865	250	2,08	1090	315	1,65	1,62	259,74	12,00
EM 1020	3,50	281	3,93	983	250	2,03	1238	315	1,62	1,43	228,57	12,00
EM 1020	4,13	332	4,64	1160	250	1,55	1461	315	1,23	1,21	193,70	12,00
EM 1020	5,17	416	5,81	1452	250	1,03	1829	315	0,82	0,97	154,74	12,00
EM 1020	6,00	483	6,74	1400	208	1,00	2123	315	0,66	0,83	133,33	12,00
EM 1020	7,25	583	8,14	1300	160	1,00	2565	315	0,51	0,69	110,34	12,00
ED 2020	10,41	837	11,46	1800	157	1,00	2800	244	0,64	0,48	76,85	12,00
ED 2020	11,83	951	13,02	2000	154	1,00	2800	215	0,71	0,42	67,62	12,00
ED 2020	13,52	1087	14,88	1800	121	1,00	2800	188	0,64	0,37	59,17	12,00
ED 2020	15,37	1236	16,92	2000	118	1,00	2800	165	0,71	0,33	52,05	12,00
ED 2020	18,13	1458	19,96	1800	90	1,00	2800	140	0,64	0,28	44,13	12,00
ED 2020	21,00	1689	23,12	2000	87	1,00	2800	121	0,71	0,24	38,10	12,00
ED 2020	22,70	1826	24,99	1500	60	1,00	2800	112	0,54	0,22	35,24	12,00
ED 2020	24,78	1993	27,28	1800	66	1,00	2800	102	0,64	0,20	32,28	12,00
ED 2020	28,66	2305	31,55	1800	57	1,00	2800	88	0,64	0,17	27,91	12,00
ED 2030-40	15,37	1236	16,92	3000	177	1,00	5329	315	0,56	0,33	52,05	12,00
ED 2030-40	17,47	1405	19,23	2900	151	1,00	5800	301	0,50	0,29	45,79	12,00
ED 2030-40	20,28	1631	22,32	2700	121	1,00	5400	241	0,50	0,25	39,45	12,00
ED 2030-40	22,70	1826	24,99	2900	116	1,00	5800	232	0,50	0,22	35,24	12,00
ED 2030-40	26,34	2118	28,99	2700	93	1,00	5400	186	0,50	0,19	30,37	12,00
ED 2030-40	31,02	2495	34,14	2900	85	1,00	5800	169	0,50	0,16	25,79	12,00
ED 2030-40	36,00	2895	39,63	2700	68	1,00	5400	136	0,50	0,14	22,22	12,00
ED 2030-40	41,64	3349	45,83	2700	59	1,00	5400	117	0,50	0,12	19,21	12,00
EM 1045-46	3,50	281	3,93	983	250	3,76	1238	315	2,99	1,43	228,57	12,00
EM 1045-46	4,13	332	4,64	1160	250	2,93	1461	315	2,33	1,21	193,70	12,00
EM 1045-46	5,17	416	5,81	1452	250	2,00	1829	315	1,59	0,97	154,74	12,00
EM 1045-46	6,00	483	6,74	1685	250	1,60	2123	315	1,27	0,83	133,33	12,00
EM 1045-46	7,25	583	8,14	2036	250	1,13	2565	315	0,90	0,69	110,34	12,00
ED 2045-46	10,78	867	11,87	2966	250	1,25	3738	315	0,99	0,46	74,21	12,00
ED 2045-46	12,25	985	13,48	3371	250	1,10	4247	315	0,87	0,41	65,31	12,00
ED 2045-46	14,46	1163	15,92	3700	232	1,00	5014	315	0,74	0,35	55,33	12,00
ED 2045-46	17,06	1372	18,78	3400	181	1,00	5915	315	0,57	0,29	46,89	12,00
ED 2045-46	18,10	1456	19,92	3700	186	1,00	6000	301	0,62	0,28	44,20	12,00
ED 2045-46	21,00	1689	23,12	3700	160	1,00	6000	259	0,62	0,24	38,10	12,00
ED 2045-46	25,38	2041	27,94	3700	132	1,00	6000	214	0,62	0,20	31,52	12,00
ED 2045-46	29,94	2408	32,96	3400	103	1,00	6000	182	0,57	0,17	26,72	12,00
ED 2045-46	31,02	2495	34,14	2900	85	1,00	5800	169	0,50	0,16	25,79	12,00
ED 2045-46	36,00	2895	39,63	2700	68	1,00	5400	136	0,50	0,14	22,22	12,00
ED 2045-46	43,50	3498	47,88	2700	56	1,00	5400	112	0,50	0,11	18,39	12,00
ED 2045-46	52,56	4227	57,85	2300	40	1,00	4600	79	0,50	0,10	15,22	12,00
ET 3045-46	53,78	4325	58,01	3700	64	1,00	6000	103	0,62	0,09	14,88	12,00
ET 3045-46	63,46	5104	68,46	3700	54	1,00	6000	87	0,62	0,08	12,61	12,00
EM 1065	6,00	483	6,74	1685	250	2,61	2123	315	2,07	0,83	133,33	12,00
ED 2065	10,78	867	11,87	2966	250	2,09	3738	315	1,66	0,46	74,21	12,00
ED 2065	12,25	985	13,48	3371	250	1,84	4247	315	1,46	0,41	65,31	12,00
ED 2065	13,51	1087	14,87	3718	250	1,53	4684	315	1,22	0,37	59,22	12,00
ED 2065	15,16	1219	16,69	4172	250	1,37	5256	315	1,08	0,33	52,77	12,00
ED 2065	17,88	1438	19,68	4920	250	1,16	6200	315	0,92	0,28	44,74	12,00
Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d

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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
ED 2065	20,65	1661	22,73	5500	242	1,00	7160	315	0,77	0,24	38,74	12,00
ED 2065	22,39	1801	24,65	5700	231	1,00	7763	315	0,73	0,22	35,73	12,00
ED 2065	25,98	2089	28,60	5700	199	1,00	9008	315	0,63	0,19	30,79	12,00
ED 2065	27,99	2251	30,81	4800	156	1,00	9600	311	0,50	0,18	28,58	12,00
ED 2065	30,00	2413	33,02	5500	167	1,00	10000	302	0,55	0,17	26,67	12,00
ED 2065	36,25	2915	39,90	5500	138	1,00	10000	250	0,55	0,14	22,07	12,00
ED 2065	43,50	3498	47,88	4400	92	1,00	8800	183	0,50	0,11	18,39	12,00
ET 3065	51,22	4119	55,25	5700	103	1,00	10000	180	0,57	0,10	15,62	12,00
ET 3065	53,78	4325	58,01	6200	107	1,00	10000	172	0,62	0,09	14,88	12,00
ET 3065	60,44	4861	65,20	5700	87	1,00	10000	153	0,57	0,08	13,24	12,00
ET 3065	73,50	5911	79,29	6200	78	1,00	10000	126	0,62	0,07	10,88	12,00
ET 3065	78,51	6314	84,69	5700	67	1,00	10000	118	0,57	0,06	10,19	12,00
ET 3065	90,93	7313	98,09	5700	58	1,00	10000	101	0,57	0,05	8,80	12,00
ET 3065	98,27	7903	106,01	5700	54	1,00	10000	94	0,57	0,05	8,14	12,00
EM 1090	6,92	557	7,77	1943	250	2,83	2448	315	2,25	0,72	115,61	12,00
EM 1090	8,70	700	9,77	2443	250	1,72	3078	315	1,36	0,57	91,95	12,00
ED 2090	14,28	1148	15,72	3930	250	2,29	4951	315	1,82	0,35	56,02	12,00
ED 2090	16,85	1355	18,55	4637	250	1,94	5842	315	1,54	0,30	47,48	12,00
ED 2090	17,68	1422	19,46	4865	250	1,58	6130	315	1,26	0,28	45,25	12,00
ED 2090	21,09	1696	23,21	5804	250	1,55	7313	315	1,23	0,24	37,93	12,00
ED 2090	24,48	1969	26,95	6737	250	1,34	8488	315	1,06	0,20	32,68	12,00
ED 2090	29,58	2379	32,56	8140	250	1,11	10256	315	0,88	0,17	27,05	12,00
ED 2090	30,30	2437	33,35	7700	231	1,00	10506	315	0,73	0,17	26,40	12,00
ED 2090	36,61	2944	40,30	7700	191	1,00	12694	315	0,61	0,14	21,85	12,00
ED 2090	41,52	3339	45,70	5500	120	1,00	11000	240	0,50	0,12	19,27	12,00
ED 2090	44,98	3618	49,51	4200	85	1,00	8400	169	0,50	0,11	17,79	12,00
ED 2090	50,17	4035	55,22	5500	100	1,00	11000	199	0,50	0,10	15,95	12,00
ET 3090	58,98	4743	63,62	9000	141	1,00	15000	235	0,60	0,08	13,56	12,00
ET 3090	61,86	4975	66,73	7700	115	1,00	15000	224	0,51	0,08	12,93	12,00
ET 3090	73,83	5938	79,64	9000	113	1,00	15000	188	0,60	0,07	10,84	12,00
ET 3090	75,40	6064	81,34	9000	111	1,00	15000	184	0,60	0,07	10,61	12,00
ET 3090	87,12	7007	93,98	9000	96	1,00	15000	159	0,60	0,06	9,18	12,00
ET 3090	101,10	8131	109,06	9000	83	1,00	15000	137	0,60	0,05	7,91	12,00
ET 3090	109,10	8774	117,69	9000	76	1,00	15000	127	0,60	0,05	7,33	12,00
ET 3090	126,60	10182	136,57	9000	66	1,00	15000	109	0,60	0,04	6,32	12,00
ET 3090	146,90	11814	158,46	9000	57	1,00	10694	67	0,84	0,03	5,45	12,00
ET 3090	152,90	12297	164,94	9000	55	1,00	10694	64	0,84	0,03	5,23	12,00
ED 2150	16,11	1296	17,73	4433	250	2,93	5586	315	2,33	0,31	49,66	12,00
ED 2150	17,99	1447	19,80	4951	250	2,02	6238	315	1,60	0,28	44,47	12,00
ED 2150	20,16	1621	22,19	5548	250	1,98	6990	315	1,57	0,25	39,68	12,00
ED 2150	21,95	1765	24,16	6040	250	1,49	7611	315	1,18	0,23	36,45	12,00
ED 2150	26,57	2137	29,25	7312	250	1,37	9213	315	1,09	0,19	30,11	12,00
ED 2150	28,28	2274	31,13	7782	250	1,16	9806	315	0,92	0,18	28,29	12,00
ED 2150	30,84	2480	33,95	8487	250	1,18	10693	315	0,94	0,16	25,94	12,00
ED 2150	37,27	2997	41,02	10000	244	1,00	12923	315	0,77	0,13	21,46	12,00
ED 2150	45,46	3656	50,04	9000	180	1,00	15762	315	0,57	0,11	17,60	12,00
ET 3150	47,78	3843	51,54	12885	250	1,01	16236	315	0,80	0,10	16,74	12,00
ET 3150	56,37	4534	60,81	13000	214	1,00	19154	315	0,68	0,09	14,19	12,00
ET 3150	62,97	5064	67,93	10000	147	1,00	20000	294	0,50	0,08	12,70	12,00
ET 3150	70,57	5676	76,13	13000	171	1,00	20000	262	0,65	0,07	11,34	12,00
ET 3150	81,90	6587	88,35	13000	147	1,00	20000	226	0,65	0,06	9,77	12,00
ET 3150	93,01	7480	100,33	10000	100	1,00	20000	199	0,50	0,05	8,60	12,00
ET 3150	98,96	7959	106,75	9000	84	1,00	18000	168	0,50	0,05	8,08	12,00

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
ET 3150	107,90	8678	116,39	10000	86	1,00	20000	171	0,50	0,05	7,41	12,00
ET 3150	127,40	10246	137,43	10000	73	1,00	20000	145	0,50	0,04	6,28	12,00
ET 3150	137,40	11050	148,22	10000	67	1,00	20000	134	0,50	0,04	5,82	12,00
ET 3150	159,40	12820	171,95	10000	58	1,00	20000	116	0,50	0,03	5,02	12,00
ET 3150	185,00	14879	199,56	10000	50	1,00	20000	100	0,50	0,03	4,32	12,00
ED 2250	22,17	1783	24,40	6101	250	2,95	7687	315	2,34	0,23	36,08	12,00
ED 2250	25,60	2059	28,18	7045	250	2,56	8876	315	2,03	0,20	31,25	12,00
ED 2250	30,72	2471	33,81	8454	250	2,13	10652	315	1,69	0,16	26,04	12,00
ED 2250	36,00	2895	39,63	9907	250	1,51	12482	315	1,20	0,14	22,22	12,00
ET 3250	43,55	3503	46,98	11745	250	1,62	14798	315	1,28	0,11	18,37	12,00
ET 3250	49,49	3980	53,39	13347	250	1,42	16817	315	1,13	0,10	16,16	12,00
ET 3250	58,40	4697	63,00	15749	250	1,21	19844	315	0,96	0,09	13,70	12,00
ET 3250	61,23	4924	66,05	16513	250	1,15	20806	315	0,91	0,08	13,07	12,00
ET 3250	70,70	5686	76,27	19000	249	1,00	24024	315	0,79	0,07	11,32	12,00
ET 3250	83,43	6710	90,00	19000	211	1,00	28349	315	0,67	0,06	9,59	12,00
ET 3250	90,44	7274	97,56	19000	195	1,00	30731	315	0,62	0,06	8,85	12,00
ET 3250	104,40	8396	112,62	19000	169	1,00	35000	310	0,54	0,05	7,66	12,00
ET 3250	114,60	9217	123,62	18000	146	1,00	35000	283	0,51	0,04	6,98	12,00
ET 3250	121,20	9748	130,74	19000	145	1,00	35000	267	0,54	0,04	6,60	12,00
ET 3250	146,50	11782	158,03	19000	120	1,00	35000	221	0,54	0,03	5,46	12,00
ET 3250	158,80	12771	171,30	18000	105	1,00	35000	204	0,51	0,03	5,04	12,00
ET 3250	184,30	14822	198,81	18000	91	1,00	35000	176	0,51	0,03	4,34	12,00
ET 3250	216,00	17372	233,00	15000	64	1,00	30000	128	0,50	0,02	3,70	12,00
ET 3250	261,00	20991	281,55	15000	53	1,00	30000	106	0,50	0,02	3,07	12,00
EQ 4250	282,70	22736	298,86	19000	64	1,00	35000	117	0,54	0,02	2,83	12,00
EQ 4250	310,40	24964	328,14	19000	58	1,00	35000	106	0,54	0,02	2,58	12,00
EQ 4250	350,40	28181	370,43	19000	51	1,00	35000	94	0,54	0,01	2,28	12,00

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EM 1010	3,38	425	5,93	1000	169	1,00	1600	269	0,63	1,48	177,51	12,00
EM 1010	4,39	552	7,70	870	113	1,00	1600	207	0,54	1,14	136,67	12,00
EM 1010	6,00	754	10,53	640	61	1,00	1280	121	0,50	0,83	100,00	12,00
EM 1020	3,08	387	5,41	1081	200	1,66	1703	315	1,06	1,62	194,81	12,00
EM 1020	3,50	440	6,14	1229	200	1,63	1935	315	1,03	1,43	171,43	12,00
EM 1020	4,13	519	7,25	1450	200	1,24	2283	315	0,79	1,21	145,28	12,00
EM 1020	5,17	650	9,07	1500	165	1,00	2800	308	0,54	0,97	116,05	12,00
EM 1020	6,00	754	10,53	1400	133	1,00	2800	265	0,50	0,83	100,00	12,00
EM 1020	7,25	911	12,72	1300	102	1,00	2600	204	0,50	0,69	82,76	12,00
ED 2020	10,41	1308	17,90	1800	101	1,00	2800	156	0,64	0,48	57,64	12,00
ED 2020	11,83	1487	20,35	2000	98	1,00	2800	137	0,71	0,42	50,72	12,00
ED 2020	13,52	1699	23,25	1800	77	1,00	2800	120	0,64	0,37	44,38	12,00
ED 2020	15,37	1931	26,43	2000	76	1,00	2800	105	0,71	0,33	39,04	12,00
ED 2020	18,13	2278	31,18	1800	58	1,00	2800	89	0,64	0,28	33,09	12,00
ED 2020	21,00	2639	36,12	2000	55	1,00	2800	77	0,71	0,24	28,57	12,00
ED 2030-40	15,37	1931	26,43	3000	113	1,00	5800	219	0,52	0,33	39,04	12,00
ED 2030-40	17,47	2195	30,05	2900	97	1,00	5800	193	0,50	0,29	34,34	12,00
ED 2030-40	20,28	2548	34,88	2700	77	1,00	5400	154	0,50	0,25	29,59	12,00
ED 2030-40	22,70	2853	39,04	2900	74	1,00	5800	148	0,50	0,22	26,43	12,00
ED 2030-40	26,34	3310	45,30	2700	60	1,00	5400	119	0,50	0,19	22,78	12,00
ED 2030-40	31,02	3898	53,35	2900	54	1,00	5800	108	0,50	0,16	19,34	12,00
EM 1045-46	3,50	440	6,14	1229	200	3,01	1935	315	1,91	1,43	171,43	12,00
EM 1045-46	4,13	519	7,25	1450	200	2,35	2283	315	1,49	1,21	145,28	12,00
EM 1045-46	5,17	650	9,07	1815	200	1,60	2858	315	1,01	0,97	116,05	12,00
EM 1045-46	6,00	754	10,53	2106	200	1,28	3317	315	0,81	0,83	100,00	12,00
EM 1045-46	7,25	911	12,72	2300	181	1,00	4008	315	0,57	0,69	82,76	12,00
ED 2045-46	10,78	1355	18,54	3700	200	1,00	5840	315	0,63	0,46	55,66	12,00
ED 2045-46	12,25	1539	21,07	3700	176	1,00	6000	284	0,62	0,41	48,98	12,00
ED 2045-46	14,46	1817	24,87	3700	149	1,00	6000	241	0,62	0,35	41,49	12,00
ED 2045-46	17,06	2144	29,34	3400	116	1,00	6000	204	0,57	0,29	35,17	12,00
ED 2045-46	18,10	2275	31,13	3700	119	1,00	6000	192	0,62	0,28	33,15	12,00
ED 2045-46	21,00	2639	36,12	3700	102	1,00	6000	166	0,62	0,24	28,57	12,00
ED 2045-46	25,38	3189	43,65	3700	85	1,00	6000	137	0,62	0,20	23,64	12,00
ED 2045-46	29,94	3762	51,49	3400	66	1,00	6000	116	0,57	0,17	20,04	12,00
ED 2045-46	31,02	3898	53,35	2900	54	1,00	5800	108	0,50	0,16	19,34	12,00
EM 1065	5,00	628	8,78	1755	200	3,13	2764	315	1,99	1,00	120,00	12,00
EM 1065	6,00	754	10,53	2106	200	2,09	3317	315	1,33	0,83	100,00	12,00
ED 2065	10,78	1355	18,54	3708	200	1,67	5840	315	1,06	0,46	55,66	12,00
ED 2065	12,25	1539	21,07	4214	200	1,47	6637	315	0,93	0,41	48,98	12,00
ED 2065	13,51	1698	23,24	4647	200	1,23	7319	315	0,78	0,37	44,41	12,00
ED 2065	15,16	1905	26,07	5215	200	1,09	8213	315	0,69	0,33	39,58	12,00
ED 2065	17,88	2247	30,75	5700	185	1,00	9687	315	0,59	0,28	33,56	12,00
ED 2065	20,65	2595	35,52	5500	155	1,00	10000	281	0,55	0,24	29,06	12,00
ED 2065	22,39	2814	38,51	5700	148	1,00	10000	259	0,57	0,22	26,80	12,00
ED 2065	25,98	3265	44,68	5700	128	1,00	10000	223	0,57	0,19	23,09	12,00
ED 2065	27,99	3517	48,14	4800	100	1,00	9600	199	0,50	0,18	21,44	12,00
ED 2065	30,00	3770	51,60	5500	107	1,00	10000	193	0,55	0,17	20,00	12,00
ED 2065	36,25	4555	62,35	5500	88	1,00	10000	160	0,55	0,14	16,55	12,00
ED 2065	43,50	5466	74,82	4400	59	1,00	8800	117	0,50	0,11	13,79	12,00
ET 3065	51,22	6437	86,33	5700	66	1,00	10000	115	0,57	0,10	11,71	12,00
ET 3065	53,78	6758	90,65	6200	68	1,00	10000	110	0,62	0,09	11,16	12,00
ET 3065	60,44	7595	101,87	5700	56	1,00	10000	98	0,57	0,08	9,93	12,00
Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d

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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
ET 3065	73,50	9236	123,88	6200	50	1,00	10000	80	0,62	0,07	8,16	12,00
EM 1090	8,70	1093	15,27	3054	200	1,38	4810	315	0,87	0,57	68,97	12,00
ED 2090	14,28	1794	24,56	4912	200	1,83	7736	315	1,16	0,35	42,02	12,00
ED 2090	16,85	2117	28,98	5796	200	1,55	9129	315	0,99	0,30	35,61	12,00
ED 2090	17,68	2222	30,41	6082	200	1,27	9578	315	0,80	0,28	33,94	12,00
ED 2090	21,09	2650	36,27	7255	200	1,24	10694	294	0,84	0,24	28,45	12,00
ED 2090	24,48	3076	42,10	8421	200	1,07	10694	253	0,84	0,20	24,51	12,00
ED 2090	29,58	3717	50,87	9000	177	1,00	15000	294	0,60	0,17	20,28	12,00
ED 2090	30,30	3808	52,11	7700	148	1,00	13800	264	0,56	0,17	19,80	12,00
ED 2090	36,61	4601	62,97	7700	122	1,00	15000	238	0,51	0,14	16,39	12,00
ED 2090	41,52	5218	71,41	5500	77	1,00	11000	154	0,50	0,12	14,45	12,00
ED 2090	44,98	5652	77,36	4200	54	1,00	8400	108	0,50	0,11	13,34	12,00
ED 2090	50,17	6305	86,29	5500	64	1,00	11000	127	0,50	0,10	11,96	12,00
ET 3090	58,98	7412	99,41	9000	91	1,00	15000	150	0,60	0,08	10,17	12,00
ET 3090	61,86	7774	104,27	7700	74	1,00	15000	143	0,51	0,08	9,70	12,00
ET 3090	73,83	9278	124,44	9000	72	1,00	15000	120	0,60	0,07	8,13	12,00
ET 3090	75,40	9475	127,09	9000	71	1,00	15000	118	0,60	0,07	7,96	12,00
ET 3090	87,12	10948	146,84	9000	61	1,00	15000	102	0,60	0,06	6,89	12,00
ET 3090	101,10	12705	170,40	9000	53	1,00	15000	88	0,60	0,05	5,93	12,00
ED 2150	13,65	1715	23,48	4695	200	2,77	7395	315	1,76	0,37	43,96	12,00
ED 2150	16,11	2024	27,71	5542	200	2,35	8728	315	1,49	0,31	37,24	12,00
ED 2150	17,99	2261	30,94	6188	200	1,62	9746	315	1,03	0,28	33,35	12,00
ED 2150	20,16	2533	34,67	6935	200	1,59	10922	315	1,01	0,25	29,76	12,00
ED 2150	21,95	2758	37,75	7550	200	1,19	11892	315	0,76	0,23	27,33	12,00
ED 2150	26,57	3339	45,70	9140	200	1,09	14395	315	0,69	0,19	22,58	12,00
ED 2150	28,28	3554	48,64	9000	185	1,00	15321	315	0,59	0,18	21,22	12,00
ED 2150	30,84	3875	53,04	10000	189	1,00	16708	315	0,60	0,16	19,46	12,00
ED 2150	37,27	4683	64,10	10000	156	1,00	20000	312	0,50	0,13	16,10	12,00
ED 2150	45,46	5713	78,19	9000	115	1,00	18000	230	0,50	0,11	13,20	12,00
ET 3150	47,78	6004	80,53	13000	161	1,00	20000	248	0,65	0,10	12,56	12,00
ET 3150	56,37	7084	95,01	13000	137	1,00	20000	210	0,65	0,09	10,64	12,00
ET 3150	62,97	7913	106,14	10000	94	1,00	20000	188	0,50	0,08	9,53	12,00
ET 3150	70,57	8868	118,95	13000	109	1,00	20000	168	0,65	0,07	8,50	12,00
ET 3150	81,90	10292	138,04	13000	94	1,00	20000	144	0,65	0,06	7,33	12,00
ET 3150	93,01	11688	156,77	10000	64	1,00	20000	127	0,50	0,05	6,45	12,00
ET 3150	98,96	12436	166,80	9000	54	1,00	18000	107	0,50	0,05	6,06	12,00
ET 3150	107,90	13559	181,87	10000	55	1,00	20000	109	0,50	0,05	5,56	12,00
ED 2250	17,49	2198	30,08	6016	200	3,16	9476	315	2,01	0,29	34,31	12,00
ED 2250	20,20	2538	34,74	6948	200	2,73	10944	315	1,74	0,25	29,70	12,00
ED 2250	22,17	2786	38,13	7626	200	2,36	12011	315	1,50	0,23	27,06	12,00
ED 2250	25,60	3217	44,03	8806	200	2,04	13869	315	1,30	0,20	23,44	12,00
ED 2250	30,72	3860	52,84	10567	200	1,70	16643	315	1,08	0,16	19,53	12,00
ED 2250	36,00	4524	61,92	12383	200	1,21	19504	315	0,77	0,14	16,67	12,00
ET 3250	43,55	5473	73,40	14681	200	1,29	23122	315	0,82	0,11	13,78	12,00
ET 3250	49,49	6219	83,42	16683	200	1,14	26276	315	0,72	0,10	12,12	12,00
ET 3250	58,40	7339	98,43	19000	193	1,00	31007	315	0,61	0,09	10,27	12,00
ET 3250	61,23	7694	103,20	19000	184	1,00	32509	315	0,58	0,08	9,80	12,00
ET 3250	70,70	8884	119,17	19000	159	1,00	35000	293	0,54	0,07	8,49	12,00
ET 3250	83,43	10484	140,62	19000	135	1,00	35000	248	0,54	0,06	7,19	12,00
ET 3250	90,44	11365	152,44	19000	125	1,00	35000	229	0,54	0,06	6,63	12,00
ET 3250	104,40	13119	175,97	19000	108	1,00	35000	198	0,54	0,05	5,75	12,00
ET 3250	114,60	14401	193,16	18000	93	1,00	35000	181	0,51	0,04	5,24	12,00

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
ET 3250	121,20	15230	204,28	19000	93	1,00	35000	171	0,54	0,04	4,95	12,00
ET 3250	146,50	18410	246,93	19000	77	1,00	35000	141	0,54	0,03	4,10	12,00
ET 3250	158,80	19955	267,66	18000	67	1,00	35000	130	0,51	0,03	3,78	12,00
ET 3250	184,30	23160	310,64	18000	58	1,00	35000	112	0,51	0,03	3,26	12,00

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EM 1010	3,38	544	7,76	1000	129	1,00	1600	206	0,63	1,48	236,69	24,00
EM 1010	4,39	706	10,08	870	86	1,00	1600	158	0,54	1,14	182,23	24,00
EM 1020	3,08	495	7,07	1768	250	1,02	2228	315	0,81	1,62	259,74	24,00
EM 1020	3,50	563	8,04	2000	249	1,00	2532	315	0,79	1,43	228,57	24,00
EM 1020	4,13	664	9,48	1800	190	1,00	2800	295	0,64	1,21	193,70	24,00
EM 1020	5,17	832	11,87	1500	126	1,00	2800	235	0,54	0,97	154,74	24,00
EM 1020	6,00	965	13,78	1400	102	1,00	2800	203	0,50	0,83	133,33	24,00
EM 1020	7,25	1.166	16,65	1300	78	1,00	2600	156	0,50	0,69	110,34	24,00
ED 2020	10,41	1.674	23,43	1800	77	1,00	2800	119	0,64	0,48	76,85	24,00
ED 2020	11,83	1.903	26,62	2000	75	1,00	2800	105	0,71	0,42	67,62	24,00
ED 2020	13,52	2.175	30,43	1800	59	1,00	2800	92	0,64	0,37	59,17	24,00
ED 2020	15,37	2.472	34,59	2000	58	1,00	2800	80	0,71	0,33	52,05	24,00
ED 2030-40	15,37	2.472	34,59	3000	87	1,00	5800	167	0,52	0,33	52,05	24,00
ED 2030-40	17,47	2.810	39,31	2900	74	1,00	5800	147	0,50	0,29	45,79	24,00
ED 2030-40	20,28	3.262	45,64	2700	59	1,00	5400	118	0,50	0,25	39,45	24,00
ED 2030-40	22,70	3.651	51,08	2900	57	1,00	5800	113	0,50	0,22	35,24	24,00
EM 1045-46	3,50	563	8,04	2009	250	1,84	2532	315	1,46	1,43	228,57	24,00
EM 1045-46	4,13	664	9,48	2371	250	1,43	2987	315	1,14	1,21	193,70	24,00
EM 1045-46	5,17	832	11,87	2900	244	1,00	3740	315	0,78	0,97	154,74	24,00
EM 1045-46	6,00	965	13,78	2700	196	1,00	4340	315	0,62	0,83	133,33	24,00
EM 1045-46	7,25	1.166	16,65	2300	138	1,00	4600	276	0,50	0,69	110,34	24,00
ED 2045-46	10,78	1.734	24,26	3700	153	1,00	6000	247	0,62	0,46	74,21	24,00
ED 2045-46	12,25	1.970	27,57	3700	134	1,00	6000	217	0,62	0,41	65,31	24,00
ED 2045-46	14,46	2.326	32,54	3700	114	1,00	6000	184	0,62	0,35	55,33	24,00
ED 2045-46	17,06	2.744	38,39	3400	89	1,00	6000	156	0,57	0,29	46,89	24,00
ED 2045-46	18,10	2.911	40,73	3700	91	1,00	6000	147	0,62	0,28	44,20	24,00
ED 2045-46	21,00	3.378	47,26	3700	78	1,00	6000	126	0,62	0,24	38,10	24,00
ED 2045-46	25,38	4.082	57,12	3700	65	1,00	6000	105	0,62	0,20	31,52	24,00
ED 2045-46	29,94	4.816	67,38	3400	50	1,00	6000	89	0,57	0,17	26,72	24,00
EM 1065	3,50	563	8,04	2009	250	3,09	2532	315	2,45	1,43	228,57	24,00
EM 1065	3,86	621	8,86	2216	250	2,57	2792	315	2,04	1,30	207,25	24,00
EM 1065	4,33	696	9,94	2486	250	2,29	3132	315	1,82	1,15	184,76	24,00
EM 1065	5,00	804	11,48	2870	250	1,92	3617	315	1,52	1,00	160,00	24,00
EM 1065	6,00	965	13,78	3444	250	1,28	4340	315	1,01	0,83	133,33	24,00
ED 2065	10,78	1.734	24,26	6065	250	1,02	7642	315	0,81	0,46	74,21	24,00
ED 2065	12,25	1.970	27,57	6200	225	1,00	8684	315	0,71	0,41	65,31	24,00
ED 2065	13,51	2.173	30,40	5700	187	1,00	9577	315	0,60	0,37	59,22	24,00
ED 2065	15,16	2.438	34,12	5700	167	1,00	10000	293	0,57	0,33	52,77	24,00
ED 2065	17,88	2.876	40,24	5700	142	1,00	10000	248	0,57	0,28	44,74	24,00
ED 2065	20,65	3.322	46,47	5500	118	1,00	10000	215	0,55	0,24	38,74	24,00
ED 2065	22,39	3.601	50,39	5700	113	1,00	10000	198	0,57	0,22	35,73	24,00
ED 2065	25,98	4.179	58,47	5700	97	1,00	10000	171	0,57	0,19	30,79	24,00
ED 2065	27,99	4.502	62,99	4800	76	1,00	9600	152	0,50	0,18	28,58	24,00
ED 2065	30,00	4.826	67,51	5500	81	1,00	10000	148	0,55	0,17	26,67	24,00
ED 2065	36,25	5.831	81,58	5500	67	1,00	10000	122	0,55	0,14	22,07	24,00
EM 1090	5,05	812	11,60	2899	250	2,66	3653	315	2,11	0,99	158,42	24,00
EM 1090	5,81	935	13,34	3335	250	2,07	4203	315	1,64	0,86	137,69	24,00
EM 1090	6,92	1.113	15,89	3973	250	1,38	5006	315	1,10	0,72	115,61	24,00
EM 1090	8,70	1.399	19,98	4200	210	1,00	6293	315	0,67	0,57	91,95	24,00
ED 2090	14,28	2.297	32,14	8034	250	1,12	10123	315	0,89	0,35	56,02	24,00
ED 2090	16,85	2.710	37,92	9000	237	1,00	11945	315	0,75	0,30	47,48	24,00

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
ED 2090	17,68	2.844	39,79	7700	194	1,00	12533	315	0,61	0,28	45,25	24,00
ED 2090	21,09	3.392	47,46	9000	190	1,00	10694	225	0,84	0,24	37,93	24,00
ED 2090	24,48	3.938	55,09	9000	163	1,00	10694	194	0,84	0,20	32,68	24,00
ED 2090	29,58	4.758	66,57	9000	135	1,00	15000	225	0,60	0,17	27,05	24,00
ED 2090	30,30	4.874	68,19	7700	113	1,00	13800	202	0,56	0,17	26,40	24,00
ED 2090	36,61	5.889	82,39	7700	93	1,00	15000	182	0,51	0,14	21,85	24,00
ED 2090	41,52	6.678	93,44	5500	59	1,00	11000	117	0,50	0,12	19,27	24,00
ED 2090	44,98	7.235	101,22	4200	41	1,00	8400	82	0,50	0,11	17,79	24,00
ED 2090	50,17	8.070	112,90	5500	49	1,00	11000	97	0,50	0,10	15,95	24,00
ET 3090	58,98	9.487	130,07	9000	69	1,00	15000	115	0,60	0,08	13,56	24,00
ET 3090	61,86	9.950	136,43	7700	56	1,00	15000	109	0,51	0,08	12,93	24,00
ET 3090	73,83	11.876	162,82	9000	55	1,00	15000	92	0,60	0,07	10,84	24,00
ET 3090	75,40	12.128	166,29	9000	54	1,00	15000	90	0,60	0,07	10,61	24,00
EM 1150	6,27	1.009	14,40	3599	250	2,50	4535	315	1,98	0,80	127,59	24,00
ED 2150	13,65	2.196	30,72	7679	250	1,69	9676	315	1,34	0,37	58,61	24,00
ED 2150	16,11	2.591	36,25	9063	250	1,43	11420	315	1,14	0,31	49,66	24,00
ED 2150	17,99	2.894	40,48	10000	247	1,00	12753	315	0,78	0,28	44,47	24,00
ED 2150	20,16	3.243	45,37	11000	242	1,00	14291	315	0,77	0,25	39,68	24,00
ED 2150	21,95	3.531	49,40	9000	182	1,00	15560	315	0,58	0,23	36,45	24,00
ED 2150	26,57	4.274	59,79	10000	167	1,00	18835	315	0,53	0,19	30,11	24,00
ED 2150	28,28	4.549	63,64	9000	141	1,00	18000	282	0,50	0,18	28,29	24,00
ED 2150	30,84	4.961	69,40	10000	144	1,00	20000	288	0,50	0,16	25,94	24,00
ED 2150	37,27	5.995	83,87	10000	119	1,00	20000	238	0,50	0,13	21,46	24,00
ED 2150	45,46	7.312	102,30	9000	88	1,00	18000	175	0,50	0,11	17,60	24,00
ET 3150	47,78	7.685	105,37	13000	123	1,00	20000	189	0,65	0,10	16,74	24,00
ET 3150	56,37	9.067	124,32	13000	105	1,00	20000	160	0,65	0,09	14,19	24,00
ET 3150	62,97	10.129	138,87	10000	72	1,00	20000	144	0,50	0,08	12,70	24,00
ET 3150	70,57	11.351	155,63	13000	84	1,00	20000	128	0,65	0,07	11,34	24,00
ET 3150	81,90	13.174	180,62	13000	72	1,00	20000	110	0,65	0,06	9,77	24,00
ED 2250	14,14	2.274	31,82	7955	250	2,39	10024	315	1,90	0,35	56,58	24,00
ED 2250	15,59	2.508	35,08	8771	250	2,17	11051	315	1,72	0,32	51,31	24,00
ED 2250	17,49	2.813	39,36	9840	250	1,93	12398	315	1,53	0,29	45,74	24,00
ED 2250	20,20	3.249	45,46	11365	250	1,67	14319	315	1,33	0,25	39,60	24,00
ED 2250	22,17	3.566	49,89	12473	250	1,44	15716	315	1,15	0,23	36,08	24,00
ED 2250	25,60	4.118	57,61	14403	250	1,25	18147	315	0,99	0,20	31,25	24,00
ED 2250	30,72	4.941	69,13	17283	250	1,04	21777	315	0,83	0,16	26,04	24,00
ED 2250	36,00	5.791	81,01	15000	185	1,00	25520	315	0,59	0,14	22,22	24,00
ET 3250	43,55	7.005	96,04	19000	198	1,00	30254	315	0,63	0,11	18,37	24,00
ET 3250	49,49	7.960	109,14	19000	174	1,00	34381	315	0,55	0,10	16,16	24,00
ET 3250	58,40	9.394	128,79	19000	148	1,00	35000	271	0,54	0,09	13,70	24,00
ET 3250	61,23	9.849	135,04	19000	141	1,00	35000	259	0,54	0,08	13,07	24,00
ET 3250	70,70	11.372	155,92	19000	122	1,00	35000	224	0,54	0,07	11,32	24,00
ET 3250	83,43	13.420	184,00	19000	103	1,00	35000	190	0,54	0,06	9,59	24,00
ET 3250	90,44	14.547	199,46	19000	95	1,00	35000	175	0,54	0,06	8,85	24,00
ET 3250	104,40	16.793	230,24	19000	83	1,00	35000	152	0,54	0,05	7,66	24,00
ET 3250	114,60	18.433	252,74	18000	71	1,00	35000	138	0,51	0,04	6,98	24,00
ET 3250	121,20	19.495	267,29	19000	71	1,00	35000	130	0,54	0,04	6,60	24,00
ET 3250	146,50	23.565	323,09	19000	59	1,00	35000	108	0,54	0,03	5,46	24,00
ET 3250	158,80	25.543	350,22	18000	51	1,00	35000	99	0,51	0,03	5,04	24,00

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
EM 1020	3,08	774	11,05	1800	163	1,00	2800	253	0,64	1,62	194,81	24,00
EM 1020	3,50	880	12,56	2000	159	1,00	2800	222	0,71	1,43	171,43	24,00
EM 1020	4,13	1038	14,82	1800	121	1,00	2800	188	0,64	1,21	145,28	24,00
EM 1020	5,17	1299	18,55	1500	81	1,00	2800	150	0,54	0,97	116,05	24,00
EM 1020	6,00	1508	21,53	1400	65	1,00	2800	130	0,50	0,83	100,00	24,00
EM 1020	7,25	1822	26,01	1300	50	1,00	2600	99	0,50	0,69	82,76	24,00
EM 1045-46	3,50	880	12,56	2512	200	1,47	3956	315	0,94	1,43	171,43	24,00
EM 1045-46	4,13	1038	14,82	2964	200	1,15	4668	315	0,73	1,21	145,28	24,00
EM 1045-46	5,17	1299	18,55	2900	156	1,00	5800	312	0,50	0,97	116,05	24,00
EM 1045-46	6,00	1508	21,53	2700	125	1,00	5400	250	0,50	0,83	100,00	24,00
EM 1045-46	7,25	1822	26,01	2300	88	1,00	4600	176	0,50	0,69	82,76	24,00
ED 2045-46	10,78	2709	37,91	3700	98	1,00	6000	158	0,62	0,46	55,66	24,00
ED 2045-46	12,25	3079	43,07	3700	86	1,00	6000	139	0,62	0,41	48,98	24,00
ED 2045-46	14,46	3634	50,84	3700	73	1,00	6000	118	0,62	0,35	41,49	24,00
ED 2045-46	17,06	4288	59,99	3400	57	1,00	6000	100	0,57	0,29	35,17	24,00
ED 2045-46	18,10	4549	63,64	3700	58	1,00	6000	94	0,62	0,28	33,15	24,00
ED 2045-46	21,00	5278	73,84	3700	50	1,00	6000	81	0,62	0,24	28,57	24,00
EM 1065	3,50	880	12,56	2512	200	2,47	3956	315	1,57	1,43	171,43	24,00
EM 1065	3,86	970	13,85	2770	200	2,06	4363	315	1,31	1,30	155,44	24,00
EM 1065	4,33	1088	15,54	3107	200	1,83	4894	315	1,16	1,15	138,57	24,00
EM 1065	5,00	1257	17,94	3588	200	1,53	5651	315	0,97	1,00	120,00	24,00
EM 1065	6,00	1508	21,53	4306	200	1,02	6781	315	0,65	0,83	100,00	24,00
ED 2065	10,78	2709	37,91	6200	164	1,00	10000	263	0,62	0,46	55,66	24,00
ED 2065	12,25	3079	43,07	6200	144	1,00	10000	232	0,62	0,41	48,98	24,00
ED 2065	13,51	3395	47,50	5700	120	1,00	10000	210	0,57	0,37	44,41	24,00
ED 2065	15,16	3810	53,31	5700	107	1,00	10000	187	0,57	0,33	39,58	24,00
ED 2065	17,88	4494	62,87	5700	91	1,00	10000	159	0,57	0,28	33,56	24,00
ED 2065	20,65	5190	72,61	5500	76	1,00	10000	137	0,55	0,24	29,06	24,00
ED 2065	22,39	5627	78,73	5700	72	1,00	10000	127	0,57	0,22	26,80	24,00
ED 2065	25,98	6529	91,35	5700	62	1,00	10000	109	0,57	0,19	23,09	24,00
ED 2065	27,99	7035	98,42	4800	49	1,00	9600	97	0,50	0,18	21,44	24,00
ED 2065	30,00	7540	105,49	5500	52	1,00	10000	94	0,55	0,17	20,00	24,00
EM 1090	4,08	1025	14,64	2928	200	3,07	4611	315	1,95	1,23	147,06	24,00
EM 1090	5,05	1269	18,12	3624	200	2,12	5708	315	1,35	0,99	118,81	24,00
EM 1090	5,81	1460	20,85	4169	200	1,65	6567	315	1,05	0,86	103,27	24,00
EM 1090	6,92	1739	24,83	4966	200	1,11	7821	315	0,70	0,72	86,71	24,00
EM 1090	8,70	2187	31,22	4200	135	1,00	8400	269	0,50	0,57	68,97	24,00
ED 2090	14,28	3589	50,21	9000	179	1,00	15000	298	0,60	0,35	42,02	24,00
ED 2090	16,85	4235	59,25	9000	152	1,00	15000	253	0,60	0,30	35,61	24,00
ED 2090	17,68	4443	62,17	7700	124	1,00	15000	241	0,51	0,28	33,94	24,00
ED 2090	21,09	5300	74,16	9000	121	1,00	10694	144	0,84	0,24	28,45	24,00
ED 2090	24,48	6152	86,08	9000	105	1,00	10694	124	0,84	0,20	24,51	24,00
ED 2090	29,58	7434	104,01	9000	87	1,00	15000	144	0,60	0,17	20,28	24,00
ED 2090	30,30	7615	106,54	7700	72	1,00	13800	129	0,56	0,17	19,80	24,00
ED 2090	36,61	9201	128,73	7700	60	1,00	15000	116	0,51	0,14	16,39	24,00
EM 1150	5,14	1292	18,44	3688	200	2,71	5809	315	1,72	0,97	116,73	24,00
EM 1150	6,27	1576	22,50	4499	200	2,00	7086	315	1,27	0,80	95,69	24,00
ED 2150	13,65	3431	48,00	9599	200	1,35	15119	315	0,86	0,37	43,96	24,00
ED 2150	16,11	4049	56,65	11329	200	1,15	17844	315	0,73	0,31	37,24	24,00
ED 2150	17,99	4521	63,26	10000	158	1,00	19926	315	0,50	0,28	33,35	24,00
ED 2150	20,16	5067	70,89	11000	155	1,00	20000	282	0,55	0,25	29,76	24,00
ED 2150	21,95	5517	77,18	9000	117	1,00	18000	233	0,50	0,23	27,33	24,00
Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d

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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
ED 2150	26,57	6678	93,43	10000	107	1,00	20000	214	0,50	0,19	22,58	24,00
ED 2150	28,28	7108	99,44	9000	91	1,00	18000	181	0,50	0,18	21,22	24,00
ED 2150	30,84	7751	108,44	10000	92	1,00	20000	184	0,50	0,16	19,46	24,00
ED 2150	37,27	9367	131,05	10000	76	1,00	20000	152	0,50	0,13	16,10	24,00
ED 2150	45,46	11425	159,85	9000	56	1,00	18000	112	0,50	0,11	13,20	24,00
ET 3150	47,78	12008	164,65	13000	79	1,00	20000	121	0,65	0,10	12,56	24,00
ET 3150	56,37	14167	194,25	13000	67	1,00	20000	102	0,65	0,09	10,64	24,00
ET 3150	62,97	15826	216,99	10000	46	1,00	20000	92	0,50	0,08	9,53	24,00
ET 3150	70,57	17736	243,18	13000	53	1,00	20000	82	0,65	0,07	8,50	24,00
ED 2250	14,14	3554	49,72	9944	200	1,91	15662	315	1,21	0,35	42,43	24,00
ED 2250	15,59	3918	54,82	10964	200	1,73	17268	315	1,10	0,32	38,49	24,00
ED 2250	17,49	4396	61,50	12300	200	1,54	19372	315	0,98	0,29	34,31	24,00
ED 2250	20,20	5077	71,03	14206	200	1,34	22374	315	0,85	0,25	29,70	24,00
ED 2250	22,17	5572	77,95	15591	200	1,15	24556	315	0,73	0,23	27,06	24,00
ED 2250	25,60	6434	90,02	18000	200	1,00	28355	315	0,63	0,20	23,44	24,00
ED 2250	30,72	7721	108,02	18000	167	1,00	34026	315	0,53	0,16	19,53	24,00
ED 2250	36,00	9048	126,58	15000	118	1,00	30000	236	0,50	0,14	16,67	24,00
ET 3250	43,55	10945	150,07	19000	127	1,00	35000	233	0,54	0,11	13,78	24,00
ET 3250	49,49	12438	170,54	19000	111	1,00	35000	205	0,54	0,10	12,12	24,00
ET 3250	58,40	14677	201,24	19000	94	1,00	35000	173	0,54	0,09	10,27	24,00
ET 3250	61,23	15389	210,99	19000	90	1,00	35000	165	0,54	0,08	9,80	24,00
ET 3250	70,70	17769	243,63	19000	78	1,00	35000	143	0,54	0,07	8,49	24,00
ET 3250	83,43	20968	287,49	19000	66	1,00	35000	121	0,54	0,06	7,19	24,00
ET 3250	90,44	22730	311,65	19000	61	1,00	35000	112	0,54	0,06	6,63	24,00
ET 3250	104,40	26239	359,75	19000	53	1,00	35000	97	0,54	0,05	5,75	24,00

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
EM 1020	3,08	786	11,22	1800	160	1,00	2800	249	0,64	1,62	194,81	28,00
EM 1020	3,50	893	12,75	2000	157	1,00	2800	219	0,71	1,43	171,43	28,00
EM 1020	4,13	1054	15,05	1800	120	1,00	2800	186	0,64	1,21	145,28	28,00
EM 1020	5,17	1320	18,84	1500	80	1,00	2800	148	0,54	0,97	116,05	28,00
EM 1020	6,00	1532	21,86	1400	64	1,00	2800	128	0,50	0,83	100,00	28,00
EM 1020	7,25	1851	26,42	1300	49	1,00	2600	98	0,50	0,69	82,76	28,00
EM 1045-46	3,50	893	12,75	3189	250	1,16	4018	315	0,92	1,43	171,43	28,00
EM 1045-46	4,13	1054	15,05	3400	226	1,00	4741	315	0,72	1,21	145,28	28,00
EM 1045-46	5,17	1320	18,84	2900	154	1,00	5800	307	0,50	0,97	116,05	28,00
EM 1045-46	6,00	1532	21,86	2700	123	1,00	5400	246	0,50	0,83	100,00	28,00
EM 1045-46	7,25	1851	26,42	2300	87	1,00	4600	174	0,50	0,69	82,76	28,00
ED 2045-46	10,78	2752	38,50	3700	96	1,00	6000	155	0,62	0,46	55,66	28,00
ED 2045-46	12,25	3127	43,75	3700	85	1,00	6000	137	0,62	0,41	48,98	28,00
ED 2045-46	14,46	3691	51,64	3700	72	1,00	6000	116	0,62	0,35	41,49	28,00
ED 2045-46	17,06	4355	60,92	3400	56	1,00	6000	98	0,57	0,29	35,17	28,00
ED 2045-46	18,10	4620	64,64	3700	57	1,00	6000	92	0,62	0,28	33,15	28,00
ED 2045-46	21,00	5360	74,99	3700	49	1,00	6000	80	0,62	0,24	28,57	28,00
EM 1065	3,50	893	12,75	3189	250	1,94	4018	315	1,54	1,43	171,43	28,00
EM 1065	3,86	985	14,07	3517	250	1,62	4431	315	1,29	1,30	155,44	28,00
EM 1065	4,33	1105	15,78	3945	250	1,44	4970	315	1,15	1,15	138,57	28,00
EM 1065	5,00	1276	18,22	4555	250	1,21	5739	315	0,96	1,00	120,00	28,00
EM 1065	6,00	1532	21,86	4400	201	1,00	6887	315	0,64	0,83	100,00	28,00
ED 2065	10,78	2752	38,50	6200	161	1,00	10000	259	0,62	0,46	55,66	28,00
ED 2065	12,25	3127	43,75	6200	142	1,00	10000	228	0,62	0,41	48,98	28,00
ED 2065	13,51	3448	48,25	5700	118	1,00	10000	207	0,57	0,37	44,41	28,00
ED 2065	15,16	3870	54,14	5700	105	1,00	10000	184	0,57	0,33	39,58	28,00
ED 2065	17,88	4564	63,85	5700	89	1,00	10000	156	0,57	0,28	33,56	28,00
ED 2065	20,65	5271	73,74	5500	75	1,00	10000	135	0,55	0,24	29,06	28,00
ED 2065	22,39	5715	79,96	5700	71	1,00	10000	125	0,57	0,22	26,80	28,00
ED 2065	25,98	6631	92,78	5700	61	1,00	10000	107	0,57	0,19	23,09	28,00
ED 2065	27,99	7145	99,96	4800	48	1,00	9600	96	0,50	0,18	21,44	28,00
ED 2065	30,00	7658	107,14	5500	51	1,00	10000	93	0,55	0,17	20,00	28,00
EM 1090	4,08	1041	14,87	3717	250	2,42	4683	315	1,92	1,23	147,06	28,00
EM 1090	5,05	1289	18,40	4601	250	1,67	5797	315	1,33	0,99	118,81	28,00
EM 1090	5,81	1483	21,17	5293	250	1,30	6669	315	1,03	0,86	103,27	28,00
EM 1090	6,92	1766	25,22	5500	218	1,00	7943	315	0,69	0,72	86,71	28,00
EM 1090	8,70	2221	31,70	4200	132	1,00	8400	264	0,50	0,57	68,97	28,00
ED 2090	14,28	3645	51,00	9000	176	1,00	15000	294	0,60	0,35	42,02	28,00
ED 2090	16,85	4301	60,17	9000	150	1,00	15000	249	0,60	0,30	35,61	28,00
ED 2090	17,68	4513	63,14	7700	122	1,00	15000	237	0,51	0,28	33,94	28,00
ED 2090	21,09	5383	75,32	9000	119	1,00	10694	141	0,84	0,24	28,45	28,00
ED 2090	24,48	6249	87,42	9000	103	1,00	10694	122	0,84	0,20	24,51	28,00
ED 2090	29,58	7550	105,64	9000	85	1,00	15000	141	0,60	0,17	20,28	28,00
ED 2090	30,30	7734	108,21	7700	71	1,00	13800	127	0,56	0,17	19,80	28,00
ED 2090	36,61	9345	130,74	7700	59	1,00	15000	114	0,51	0,14	16,39	28,00
EM 1150	5,14	1312	18,73	4683	250	2,14	5900	315	1,69	0,97	116,73	28,00
EM 1150	6,27	1600	22,85	5712	250	1,58	7197	315	1,25	0,80	95,69	28,00
ED 2150	13,65	3484	48,75	12187	250	1,07	15355	315	0,85	0,37	43,96	28,00
ED 2150	16,11	4112	57,53	13000	226	1,00	18122	315	0,72	0,31	37,24	28,00
ED 2150	17,99	4592	64,25	10000	156	1,00	20000	311	0,50	0,28	33,35	28,00
ED 2150	20,16	5146	71,99	11000	153	1,00	20000	277	0,55	0,25	29,76	28,00
ED 2150	21,95	5603	78,39	9000	115	1,00	18000	229	0,50	0,23	27,33	28,00
Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
ED 2150	26,57	6782	94,89	10000	105	1,00	20000	210	0,50	0,19	22,58	28,00
ED 2150	28,28	7219	100,99	9000	89	1,00	18000	178	0,50	0,18	21,22	28,00
ED 2150	30,84	7872	110,14	10000	91	1,00	20000	181	0,50	0,16	19,46	28,00
ED 2150	37,27	9513	133,10	10000	75	1,00	20000	150	0,50	0,13	16,10	28,00
ED 2150	45,46	11604	162,35	9000	55	1,00	18000	110	0,50	0,11	13,20	28,00
ET 3150	47,78	12196	167,22	13000	78	1,00	20000	119	0,65	0,10	12,56	28,00
ET 3150	56,37	14389	197,28	13000	66	1,00	20000	101	0,65	0,09	10,64	28,00
ET 3150	62,97	16073	220,38	10000	45	1,00	20000	90	0,50	0,08	9,53	28,00
ET 3150	70,57	18013	246,98	13000	53	1,00	20000	80	0,65	0,07	8,50	28,00
EM 1250	6,00	1532	21,86	5466	250	2,74	6887	315	2,18	0,83	100,00	28,00
ED 2250	14,14	3609	50,50	12624	250	1,51	15906	315	1,19	0,35	42,43	28,00
ED 2250	15,59	3979	55,67	13919	250	1,37	17538	315	1,08	0,32	38,49	28,00
ED 2250	17,49	4464	62,46	15615	250	1,22	19675	315	0,97	0,29	34,31	28,00
ED 2250	20,20	5156	72,14	18034	250	1,05	22723	315	0,84	0,25	29,70	28,00
ED 2250	22,17	5659	79,17	18000	227	1,00	24939	315	0,72	0,23	27,06	28,00
ED 2250	25,60	6535	91,42	18000	197	1,00	28798	315	0,63	0,20	23,44	28,00
ED 2250	30,72	7841	109,71	18000	164	1,00	34558	315	0,52	0,16	19,53	28,00
ED 2250	36,00	9189	128,56	15000	117	1,00	30000	233	0,50	0,14	16,67	28,00
ET 3250	43,55	11116	152,41	19000	125	1,00	35000	229	0,54	0,11	13,78	28,00
ET 3250	49,49	12633	173,20	19000	110	1,00	35000	202	0,54	0,10	12,12	28,00
ET 3250	58,40	14907	204,39	19000	93	1,00	35000	171	0,54	0,09	10,27	28,00
ET 3250	61,23	15629	214,29	19000	89	1,00	35000	163	0,54	0,08	9,80	28,00
ET 3250	70,70	18046	247,43	19000	77	1,00	35000	141	0,54	0,07	8,49	28,00
ET 3250	83,43	21296	291,98	19000	65	1,00	35000	119	0,54	0,06	7,19	28,00
ET 3250	90,44	23085	316,52	19000	60	1,00	35000	110	0,54	0,06	6,63	28,00
ET 3250	104,40	26649	365,37	19000	52	1,00	35000	95	0,54	0,05	5,75	28,00

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
EM 1020	3,08	1107	15,80	1800	114	1,00	2800	177	0,64	1,62	178,57	36,00
EM 1020	3,50	1258	17,95	2000	111	1,00	2800	155	0,71	1,43	157,14	36,00
EM 1020	4,13	1484	21,19	1800	85	1,00	2800	132	0,64	1,21	133,17	36,00
EM 1020	5,17	1858	26,52	1500	57	1,00	2800	105	0,54	0,97	106,38	36,00
EM 1045-46	3,50	1258	17,95	3700	206	1,00	5656	315	0,65	1,43	157,14	36,00
EM 1045-46	4,13	1484	21,19	3400	160	1,00	6000	283	0,57	1,21	133,17	36,00
EM 1045-46	5,17	1858	26,52	2900	109	1,00	5800	218	0,50	0,97	106,38	36,00
EM 1045-46	6,00	2156	30,78	2700	88	1,00	5400	175	0,50	0,83	91,67	36,00
EM 1045-46	7,25	2605	37,19	2300	62	1,00	4600	123	0,50	0,69	75,86	36,00
ED 2045-46	10,78	3873	54,19	3700	68	1,00	6000	110	0,62	0,46	51,02	36,00
ED 2045-46	12,25	4402	61,58	3700	60	1,00	6000	97	0,62	0,41	44,90	36,00
ED 2045-46	14,46	5196	72,69	3700	51	1,00	6000	82	0,62	0,35	38,04	36,00
EM 1065	3,50	1258	17,95	4489	250	1,38	5656	315	1,10	1,43	157,14	36,00
EM 1065	3,86	1387	19,80	4950	250	1,15	6237	315	0,91	1,30	142,49	36,00
EM 1065	4,33	1556	22,21	5553	250	1,03	6997	315	0,81	1,15	127,02	36,00
EM 1065	5,00	1797	25,65	5500	214	1,00	8079	315	0,68	1,00	110,00	36,00
EM 1065	6,00	2156	30,78	4400	143	1,00	8800	285	0,50	0,83	91,67	36,00
ED 2065	10,78	3873	54,19	6200	114	1,00	10000	184	0,62	0,46	51,02	36,00
ED 2065	12,25	4402	61,58	6200	101	1,00	10000	162	0,62	0,41	44,90	36,00
ED 2065	13,51	4854	67,92	5700	84	1,00	10000	147	0,57	0,37	40,71	36,00
ED 2065	15,16	5447	76,21	5700	75	1,00	10000	131	0,57	0,33	36,28	36,00
ED 2065	17,88	6425	89,89	5700	63	1,00	10000	111	0,57	0,28	30,76	36,00
ED 2065	20,65	7420	103,81	5500	53	1,00	10000	96	0,55	0,24	26,63	36,00
ED 2065	22,39	8045	112,56	5700	51	1,00	10000	88	0,57	0,22	24,56	36,00
EM 1090	4,08	1466	20,93	5232	250	1,72	6593	315	1,37	1,23	134,80	36,00
EM 1090	5,05	1815	25,91	6476	250	1,19	8160	315	0,94	0,99	108,91	36,00
EM 1090	5,81	2088	29,80	6900	232	1,00	9388	315	0,73	0,86	94,66	36,00
EM 1090	6,92	2486	35,50	5500	155	1,00	11000	309	0,50	0,72	79,48	36,00
EM 1090	8,70	3126	44,63	4200	94	1,00	8400	188	0,50	0,57	63,22	36,00
ED 2090	14,28	5131	71,79	9000	125	1,00	15000	208	0,60	0,35	38,52	36,00
ED 2090	16,85	6055	84,71	9000	106	1,00	15000	177	0,60	0,30	32,64	36,00
ED 2090	17,68	6353	88,88	7700	87	1,00	15000	168	0,51	0,28	31,11	36,00
ED 2090	21,09	7578	106,02	9000	85	1,00	10694	100	0,84	0,24	26,08	36,00
ED 2090	24,48	8796	123,06	9000	73	1,00	10694	86	0,84	0,20	22,47	36,00
ED 2090	29,58	10629	148,70	9000	61	1,00	15000	100	0,60	0,17	18,59	36,00
ED 2090	30,30	10887	152,32	7700	51	1,00	13800	90	0,56	0,17	18,15	36,00
EM 1150	3,90	1401	20,01	5001	250	2,60	6302	315	2,06	1,28	141,03	36,00
EM 1150	5,14	1847	26,37	6592	250	1,52	8306	315	1,20	0,97	107,00	36,00
EM 1150	6,27	2253	32,16	8041	250	1,12	10131	315	0,89	0,80	87,72	36,00
ED 2150	13,65	4905	68,62	13000	189	1,00	20000	291	0,65	0,37	40,29	36,00
ED 2150	16,11	5789	80,99	13000	161	1,00	20000	246	0,65	0,31	34,14	36,00
ED 2150	17,99	6464	90,44	10000	111	1,00	20000	221	0,50	0,28	30,57	36,00
ED 2150	20,16	7244	101,35	11000	109	1,00	20000	197	0,55	0,25	27,28	36,00
ED 2150	21,95	7887	110,35	9000	82	1,00	18000	163	0,50	0,23	25,06	36,00
ED 2150	26,57	9547	133,57	10000	75	1,00	20000	149	0,50	0,19	20,70	36,00
ED 2150	28,28	10162	142,17	9000	63	1,00	18000	126	0,50	0,18	19,45	36,00
ED 2150	30,84	11081	155,04	10000	65	1,00	20000	129	0,50	0,16	17,83	36,00
ED 2150	37,27	13392	187,36	10000	53	1,00	20000	106	0,50	0,13	14,76	36,00
EM 1250	4,04	1452	20,72	5181	250	3,67	6528	315	2,91	1,24	136,14	36,00
EM 1250	5,12	1840	26,26	6566	250	2,74	8273	315	2,18	0,98	107,42	36,00
EM 1250	6,00	2156	30,78	7695	250	1,95	9695	315	1,55	0,83	91,67	36,00

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
ED 2250	14,14	5081	71,08	17771	250	1,07	22391	315	0,85	0,35	38,90	36,00
ED 2250	15,59	5602	78,37	19000	242	1,00	24687	315	0,77	0,32	35,28	36,00
ED 2250	17,49	6285	87,92	19000	216	1,00	27696	315	0,69	0,29	31,45	36,00
ED 2250	20,20	7258	101,55	19000	187	1,00	31988	315	0,59	0,25	27,23	36,00
ED 2250	22,17	7966	111,45	18000	162	1,00	35000	314	0,51	0,23	24,81	36,00
ED 2250	25,60	9199	128,69	18000	140	1,00	35000	271	0,51	0,20	21,48	36,00
ED 2250	30,72	11038	154,43	18000	117	1,00	35000	226	0,51	0,16	17,90	36,00
ED 2250	36,00	12936	180,98	15000	83	1,00	30000	165	0,50	0,14	15,28	36,00
ET 3250	43,55	15648	214,55	19000	89	1,00	35000	163	0,54	0,11	12,63	36,00
ET 3250	49,49	17783	243,82	19000	78	1,00	35000	143	0,54	0,10	11,11	36,00
ET 3250	58,40	20984	287,71	19000	66	1,00	35000	121	0,54	0,09	9,42	36,00
ET 3250	61,23	22001	301,65	19000	63	1,00	35000	116	0,54	0,08	8,98	36,00
ET 3250	70,70	25404	348,31	19000	55	1,00	35000	100	0,54	0,07	7,78	36,00

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EM 1020	3,08	1361	19,43	1800	93	1,00	2800	144	0,64	1,62	162,34	40,00
EM 1020	3,50	1546	22,07	2000	91	1,00	2800	126	0,71	1,43	142,86	40,00
EM 1020	4,13	1825	26,05	1800	69	1,00	2800	107	0,64	1,21	121,07	40,00
EM 1045-46	3,50	1546	22,07	3700	168	1,00	6000	271	0,62	1,43	142,86	40,00
EM 1045-46	4,13	1825	26,05	3400	131	1,00	6000	230	0,57	1,21	121,07	40,00
EM 1045-46	5,17	2284	32,61	2900	89	1,00	5800	177	0,50	0,97	96,71	40,00
EM 1045-46	6,00	2651	37,84	2700	71	1,00	5400	142	0,50	0,83	83,33	40,00
EM 1045-46	7,25	3203	45,73	2300	50	1,00	4600	100	0,50	0,69	68,97	40,00
ED 2045-46	10,78	4762	66,63	3700	56	1,00	6000	90	0,62	0,46	46,38	40,00
EM 1065	3,50	1546	22,07	5519	250	1,12	6953	315	0,89	1,43	142,86	40,00
EM 1065	3,86	1705	24,35	5700	234	1,00	7669	315	0,74	1,30	129,53	40,00
EM 1065	4,33	1913	27,31	5700	209	1,00	8602	315	0,66	1,15	115,47	40,00
EM 1065	5,00	2209	31,54	5500	174	1,00	9934	315	0,55	1,00	100,00	40,00
EM 1065	6,00	2651	37,84	4400	116	1,00	8800	232	0,50	0,83	83,33	40,00
ED 2065	10,78	4762	66,63	6200	93	1,00	10000	150	0,62	0,46	46,38	40,00
ED 2065	12,25	5412	75,72	6200	82	1,00	10000	132	0,62	0,41	40,82	40,00
ED 2065	13,51	5969	83,50	5700	68	1,00	10000	119	0,57	0,37	37,01	40,00
ED 2065	15,16	6697	93,70	5700	61	1,00	10000	106	0,57	0,33	32,98	40,00
ED 2065	17,88	7899	110,51	5700	52	1,00	10000	90	0,57	0,28	27,96	40,00
EM 1090	4,08	1802	25,73	6433	250	1,40	8106	315	1,11	1,23	122,55	40,00
EM 1090	5,05	2231	31,85	7700	242	1,00	10033	315	0,77	0,99	99,01	40,00
EM 1090	5,81	2567	36,64	6900	188	1,00	11543	315	0,60	0,86	86,06	40,00
EM 1090	6,92	3057	43,64	5500	126	1,00	11000	252	0,50	0,72	72,25	40,00
EM 1090	8,70	3844	54,87	4200	77	1,00	8400	153	0,50	0,57	57,47	40,00
ED 2090	14,28	6309	88,26	9000	102	1,00	15000	169	0,60	0,35	35,01	40,00
ED 2090	16,85	7444	104,15	9000	86	1,00	15000	144	0,60	0,30	29,67	40,00
ED 2090	17,68	7811	109,28	7700	70	1,00	15000	137	0,51	0,28	28,28	40,00
ED 2090	21,09	9317	130,35	9000	69	1,00	10694	82	0,84	0,24	23,71	40,00
ED 2090	24,48	10815	151,31	9000	59	1,00	10694	70	0,84	0,20	20,42	40,00
EM 1150	3,90	1723	24,60	6149	250	2,11	7748	315	1,68	1,28	128,21	40,00
EM 1150	5,14	2271	32,42	8105	250	1,23	10212	315	0,98	0,97	97,28	40,00
EM 1150	6,27	2770	39,55	9000	228	1,00	12457	315	0,72	0,80	79,74	40,00
ED 2150	13,65	6030	84,37	13000	154	1,00	20000	237	0,65	0,37	36,63	40,00
ED 2150	16,11	7117	99,57	13000	131	1,00	20000	200	0,65	0,31	31,04	40,00
ED 2150	17,99	7948	111,19	10000	90	1,00	20000	179	0,50	0,28	27,79	40,00
ED 2150	20,16	8906	124,61	11000	88	1,00	20000	160	0,55	0,25	24,80	40,00
ED 2150	21,95	9697	135,67	9000	66	1,00	18000	132	0,50	0,23	22,78	40,00
ED 2150	26,57	11738	164,23	10000	61	1,00	20000	121	0,50	0,19	18,82	40,00
ED 2150	28,28	12494	174,80	9000	51	1,00	18000	102	0,50	0,18	17,68	40,00
ED 2150	30,84	13625	190,62	10000	52	1,00	20000	104	0,50	0,16	16,21	40,00
EM 1250	4,04	1785	25,48	6370	250	2,98	8026	315	2,37	1,24	123,76	40,00
EM 1250	5,12	2262	32,29	8073	250	2,23	10172	315	1,77	0,98	97,66	40,00
EM 1250	6,00	2651	37,84	9461	250	1,59	11920	315	1,26	0,83	83,33	40,00
ED 2250	14,14	6247	87,40	19000	217	1,00	27530	315	0,69	0,35	35,36	40,00
ED 2250	15,59	6887	96,36	19000	197	1,00	30353	315	0,63	0,32	32,07	40,00
ED 2250	17,49	7727	108,10	19000	176	1,00	34053	315	0,56	0,29	28,59	40,00
ED 2250	20,20	8924	124,85	19000	152	1,00	35000	280	0,54	0,25	24,75	40,00
ED 2250	22,17	9794	137,03	18000	131	1,00	35000	255	0,51	0,23	22,55	40,00
ED 2250	25,60	11310	158,23	18000	114	1,00	35000	221	0,51	0,20	19,53	40,00
ED 2250	30,72	13572	189,88	18000	95	1,00	35000	184	0,51	0,16	16,28	40,00
ED 2250	36,00	15904	222,51	15000	67	1,00	30000	134	0,50	0,14	13,89	40,00

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
ET 3250	43,55	19240	263,79	19000	72	1,00	35000	132	0,54	0,11	11,48	40,00
ET 3250	49,49	21864	299,77	19000	63	1,00	35000	116	0,54	0,10	10,10	40,00
ET 3250	58,40	25800	353,74	19000	54	1,00	35000	98	0,54	0,09	8,56	40,00
ET 3250	61,23	27051	370,89	19000	51	1,00	35000	94	0,54	0,08	8,17	40,00

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EM 1020	3,08	1512	21,58	1800	83	1,00	2800	129	0,64	1,62	146,10	40,00
EM 1020	3,50	1718	24,53	2000	82	1,00	2800	114	0,71	1,43	128,57	40,00
EM 1020	4,13	2027	28,94	1800	62	1,00	2800	96	0,64	1,21	108,96	40,00
EM 1045-46	3,50	1718	24,53	3700	151	1,00	6000	244	0,62	1,43	128,57	40,00
EM 1045-46	4,13	2027	28,94	3400	117	1,00	6000	207	0,57	1,21	108,96	40,00
EM 1045-46	5,17	2538	36,23	2900	80	1,00	5800	160	0,50	0,97	87,04	40,00
EM 1045-46	6,00	2945	42,05	2700	64	1,00	5400	128	0,50	0,83	75,00	40,00
EM 1065	3,50	1718	24,53	6132	250	1,01	7726	315	0,80	1,43	128,57	40,00
EM 1065	3,86	1895	27,05	5700	211	1,00	8521	315	0,67	1,30	116,58	40,00
EM 1065	4,33	2125	30,34	5700	188	1,00	9558	315	0,60	1,15	103,93	40,00
EM 1065	5,00	2454	35,04	5500	157	1,00	10000	285	0,55	1,00	90,00	40,00
EM 1065	6,00	2945	42,05	4400	105	1,00	8800	209	0,50	0,83	75,00	40,00
ED 2065	10,78	5292	74,03	6200	84	1,00	10000	135	0,62	0,46	41,74	40,00
ED 2065	12,25	6013	84,13	6200	74	1,00	10000	118	0,62	0,41	36,73	40,00
ED 2065	13,51	6632	92,78	5700	61	1,00	10000	107	0,57	0,37	33,31	40,00
ED 2065	15,16	7442	104,11	5700	55	1,00	10000	96	0,57	0,33	29,68	40,00
EM 1090	4,08	2003	28,59	7148	250	1,26	9006	315	1,00	1,23	110,29	40,00
EM 1090	5,05	2479	35,39	7700	218	1,00	11148	315	0,69	0,99	89,11	40,00
EM 1090	5,81	2852	40,72	6900	169	1,00	12825	315	0,54	0,86	77,45	40,00
EM 1090	6,92	3397	48,49	5500	113	1,00	11000	226	0,50	0,72	65,03	40,00
EM 1090	8,70	4271	60,97	4200	69	1,00	8400	137	0,50	0,57	51,72	40,00
ED 2090	14,28	7010	98,07	9000	92	1,00	15000	152	0,60	0,35	31,51	40,00
ED 2090	16,85	8271	115,72	9000	78	1,00	15000	129	0,60	0,30	26,71	40,00
ED 2090	17,68	8679	121,42	7700	63	1,00	15000	123	0,51	0,28	25,45	40,00
ED 2090	21,09	10353	144,84	9000	62	1,00	10694	73	0,84	0,24	21,34	40,00
ED 2090	24,48	12017	168,12	9000	54	1,00	10694	63	0,84	0,20	18,38	40,00
EM 1150	3,90	1914	27,33	6833	250	1,90	8609	315	1,51	1,28	115,38	40,00
EM 1150	5,14	2523	36,02	9005	250	1,11	11346	315	0,88	0,97	87,55	40,00
EM 1150	6,27	3078	43,94	9000	205	1,00	13841	315	0,65	0,80	71,77	40,00
ED 2150	13,65	6700	93,74	13000	139	1,00	20000	213	0,65	0,37	32,97	40,00
ED 2150	16,11	7908	110,64	13000	118	1,00	20000	180	0,65	0,31	27,93	40,00
ED 2150	17,99	8831	123,55	10000	81	1,00	20000	161	0,50	0,28	25,01	40,00
ED 2150	20,16	9896	138,45	11000	79	1,00	20000	144	0,55	0,25	22,32	40,00
ED 2150	21,95	10775	150,75	9000	60	1,00	18000	119	0,50	0,23	20,50	40,00
ED 2150	26,57	13043	182,47	10000	55	1,00	20000	109	0,50	0,19	16,94	40,00
EM 1250	4,04	1983	28,31	7078	250	2,68	8918	315	2,13	1,24	111,39	40,00
EM 1250	5,12	2513	35,88	8970	250	2,01	11302	315	1,59	0,98	87,89	40,00
EM 1250	6,00	2945	42,05	10512	250	1,43	13245	315	1,13	0,83	75,00	40,00
ED 2250	14,14	6941	97,11	19000	196	1,00	30589	315	0,62	0,35	31,82	40,00
ED 2250	15,59	7653	107,07	19000	177	1,00	33726	315	0,56	0,32	28,86	40,00
ED 2250	17,49	8585	120,12	19000	158	1,00	35000	291	0,54	0,29	25,73	40,00
ED 2250	20,20	9916	138,73	19000	137	1,00	35000	252	0,54	0,25	22,28	40,00
ED 2250	22,17	10883	152,26	18000	118	1,00	35000	229	0,51	0,23	20,30	40,00
ED 2250	25,60	12566	175,81	18000	102	1,00	35000	199	0,51	0,20	17,58	40,00
ED 2250	30,72	15080	210,97	18000	85	1,00	35000	165	0,51	0,16	14,65	40,00
ED 2250	36,00	17671	247,24	15000	61	1,00	30000	121	0,50	0,14	12,50	40,00
ET 3250	43,55	21378	293,10	19000	65	1,00	35000	119	0,54	0,11	10,33	40,00
ET 3250	49,49	24293	333,08	19000	57	1,00	35000	105	0,54	0,10	9,09	40,00

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
EM 1090	4,08	2874	41,03	9000	219	1,00	12926	315	0,70	1,23	122,55	63,00
EM 1090	5,05	3558	50,79	7700	152	1,00	15000	295	0,51	0,99	99,01	63,00
EM 1090	5,81	4093	58,43	6900	118	1,00	13800	236	0,50	0,86	86,06	63,00
EM 1090	6,92	4875	69,60	5500	79	1,00	11000	158	0,50	0,72	72,25	63,00
EM 1090	8,70	6129	87,50	4200	48	1,00	8400	95	0,50	0,57	57,47	63,00
ED 2090	14,28	10060	140,75	9000	64	1,00	15000	106	0,60	0,35	35,01	63,00
ED 2090	16,85	11871	166,08	9000	54	1,00	15000	90	0,60	0,30	29,67	63,00
EM 1150	3,90	2748	39,22	9806	250	1,33	12356	315	1,05	1,28	128,21	63,00
EM 1150	5,14	3621	51,70	10000	193	1,00	16284	315	0,61	0,97	97,28	63,00
EM 1150	6,27	4417	63,06	9000	143	1,00	18000	285	0,50	0,80	79,74	63,00
ED 2150	13,65	9616	134,54	13000	97	1,00	20000	148	0,65	0,37	36,63	63,00
ED 2150	16,11	11349	158,79	13000	82	1,00	20000	125	0,65	0,31	31,04	63,00
ED 2150	17,99	12674	177,32	10000	56	1,00	20000	112	0,50	0,28	27,79	63,00
ED 2150	20,16	14203	198,70	11000	55	1,00	20000	100	0,55	0,25	24,80	63,00
EM 1250	4,04	2846	40,63	10158	250	1,87	12799	315	1,48	1,24	123,76	63,00
EM 1250	5,12	3607	51,49	12874	250	1,40	16221	315	1,11	0,98	97,66	63,00
EM 1250	6,00	4227	60,35	15000	249	1,00	19009	315	0,79	0,83	83,33	63,00
ED 2250	14,14	9962	139,37	19000	136	1,00	35000	251	0,54	0,35	35,36	63,00
ED 2250	15,59	10983	153,66	19000	124	1,00	35000	227	0,54	0,32	32,07	63,00
ED 2250	17,49	12322	172,39	19000	110	1,00	35000	203	0,54	0,29	28,59	63,00
ED 2250	20,20	14231	199,10	19000	95	1,00	35000	175	0,54	0,25	24,75	63,00
ED 2250	22,17	15619	218,52	18000	82	1,00	35000	160	0,51	0,23	22,55	63,00
ED 2250	25,60	18035	252,32	18000	71	1,00	35000	138	0,51	0,20	19,53	63,00
ED 2250	30,72	21642	302,79	18000	59	1,00	35000	115	0,51	0,16	16,28	63,00

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
EM 1090	4,08	3688	52,66	9000	171	1,00	15000	284	0,60	1,23	110,29	63,00
EM 1090	5,05	4565	65,17	7700	118	1,00	15000	230	0,51	0,99	89,11	63,00
EM 1090	5,81	5252	74,98	6900	92	1,00	13800	184	0,50	0,86	77,45	63,00
EM 1090	6,92	6256	89,31	5500	62	1,00	11000	123	0,50	0,72	65,03	63,00
EM 1150	3,90	3526	50,33	12583	250	1,03	15855	315	0,82	1,28	115,38	63,00
EM 1150	5,14	4647	66,34	10000	151	1,00	20000	301	0,50	0,97	87,55	63,00
EM 1150	6,27	5668	80,92	9000	111	1,00	18000	222	0,50	0,80	71,77	63,00
ED 2150	13,65	12340	172,64	13000	75	1,00	20000	115	0,65	0,37	32,97	63,00
ED 2150	16,11	14563	203,75	13000	64	1,00	20000	98	0,65	0,31	27,93	63,00
EM 1250	4,04	3652	52,14	13035	250	1,46	16424	315	1,16	1,24	111,39	63,00
EM 1250	5,12	4628	66,08	16519	250	1,09	20814	315	0,86	0,98	87,89	63,00
EM 1250	6,00	5424	77,43	15000	194	1,00	24392	315	0,61	0,83	75,00	63,00
ED 2250	14,14	12783	178,84	19000	106	1,00	35000	195	0,54	0,35	31,82	63,00
ED 2250	15,59	14093	197,18	19000	96	1,00	35000	177	0,54	0,32	28,86	63,00
ED 2250	17,49	15811	221,21	19000	86	1,00	35000	158	0,54	0,29	25,73	63,00
ED 2250	20,20	18261	255,48	19000	74	1,00	35000	136	0,54	0,25	22,28	63,00
ED 2250	22,17	20042	280,40	18000	64	1,00	35000	124	0,51	0,23	20,30	63,00
ED 2250	25,60	23142	323,78	18000	56	1,00	35000	108	0,51	0,20	17,58	63,00

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EC 2020	21,75	242	3,13	438	140	2,97	657	210	1,98	0,46	137,93	3,50
EC 2020	23,89	266	3,44	481	140	3,12	722	210	2,08	0,42	125,58	3,50
EC 2020	27,72	309	3,99	558	140	2,51	838	210	1,67	0,36	108,23	3,50
EC 2020	33,50	373	4,82	675	140	1,93	1012	210	1,28	0,30	89,55	3,50
EC 3045-46	63,00	701	8,88	1244	140	2,97	1866	210	1,98	0,16	47,62	3,50
EC 3045-46	73,57	819	10,38	1453	140	2,00	2179	210	1,33	0,14	40,78	3,50
EC 3045-46	83,60	931	11,79	1651	140	2,24	2476	210	1,49	0,12	35,89	3,50
EC 3045-46	89,83	1000	12,67	1774	140	1,92	2660	210	1,28	0,11	33,40	3,50
EC 3045-46	97,02	1080	13,68	1916	140	1,93	2873	210	1,29	0,10	30,92	3,50
EC 3045-46	114,50	1275	16,15	2261	140	1,50	3391	210	1,00	0,09	26,20	3,50
EC 3045-46	123,50	1375	17,42	2438	140	1,19	3658	210	0,79	0,08	24,29	3,50
EC 3045-46	138,30	1540	19,50	2731	140	1,25	4096	210	0,83	0,07	21,69	3,50
EC 3045-46	166,30	1851	23,45	2700	115	1,00	4925	210	0,55	0,06	18,04	3,50
EC 3045-46	173,20	1928	24,43	2900	119	1,00	5130	210	0,57	0,06	17,32	3,50
EC 3045-46	201,00	2238	28,35	2700	95	1,00	5400	190	0,50	0,05	14,93	3,50
EC 3045-46	242,80	2703	34,24	2300	67	1,00	4600	134	0,50	0,04	12,36	3,50
EC 3065	103,40	1151	14,58	2042	140	2,79	3062	210	1,86	0,10	29,01	3,50
EC 3065	108,80	1211	15,34	2148	140	2,56	3222	210	1,71	0,09	27,57	3,50
EC 3065	120,00	1336	16,92	2369	140	2,41	3554	210	1,60	0,08	25,00	3,50
EC 3065	138,60	1543	19,55	2737	140	2,01	4105	210	1,34	0,07	21,65	3,50
EC 3065	166,30	1851	23,45	3283	140	1,34	4925	210	0,89	0,06	18,04	3,50
EC 3065	201,00	2238	28,35	3969	140	1,11	5953	210	0,74	0,05	14,93	3,50
EC 3090	140,00	1559	19,74	2764	140	2,79	4146	210	1,86	0,07	21,43	3,50
EC 3090	161,10	1794	22,72	3181	140	2,17	4771	210	1,45	0,06	18,62	3,50
EC 3090	169,10	1883	23,85	3339	140	2,31	5008	210	1,54	0,06	17,74	3,50
EC 3090	194,60	2166	27,44	3842	140	1,80	5763	210	1,20	0,05	15,42	3,50
EC 3090	231,80	2581	32,69	4577	140	1,20	6865	210	0,80	0,04	12,94	3,50
EC 4090	257,00	2861	35,52	4973	140	1,81	7459	210	1,21	0,04	11,67	3,50
EC 4090	285,80	3182	39,50	5530	140	1,39	8295	210	0,93	0,03	10,50	3,50
EC 4090	321,50	3579	44,43	6221	140	1,45	9331	210	0,96	0,03	9,33	3,50
EC 4090	341,10	3797	47,14	6600	140	1,36	9900	210	0,91	0,03	8,80	3,50
EC 4090	395,80	4406	54,70	7658	140	1,18	11488	210	0,78	0,03	7,58	3,50
EC 4090	467,10	5200	64,56	9000	139	1,00	13557	210	0,66	0,02	6,42	3,50
EC 4090	503,80	5609	69,63	9000	129	1,00	14622	210	0,62	0,02	5,95	3,50
EC 4090	564,40	6283	78,00	9000	115	1,00	15000	192	0,60	0,02	5,32	3,50
EC 4090	623,60	6943	86,19	7700	89	1,00	15000	174	0,51	0,02	4,81	3,50
EC 4090	706,50	7865	97,64	9000	92	1,00	15000	153	0,60	0,01	4,25	3,50
EC 4090	820,00	9129	113,33	9000	79	1,00	15000	132	0,60	0,01	3,66	3,50
EC 4090	874,50	9736	120,86	7700	64	1,00	15000	124	0,51	0,01	3,43	3,50
EC 4090	1015,00	11300	140,28	7700	55	1,00	15000	106	0,51	0,01	2,96	3,50
EC 3150	172,20	1917	24,29	3400	140	2,94	5100	210	1,96	0,06	17,42	3,50
EC 3150	210,00	2338	29,62	4146	140	2,17	6219	210	1,45	0,05	14,29	3,50
EC 4150	220,70	2457	30,50	4270	140	3,04	6406	210	2,03	0,05	13,59	3,50
EC 4150	260,50	2900	36,00	5040	140	2,58	7561	210	1,72	0,04	11,52	3,50
EC 4150	296,90	3305	41,03	5745	140	2,26	8617	210	1,51	0,03	10,10	3,50
EC 4150	326,00	3629	45,06	6308	140	2,06	9462	210	1,37	0,03	9,20	3,50
EC 4150	350,30	3900	48,41	6778	140	1,92	10167	210	1,28	0,03	8,56	3,50
EC 4150	384,70	4283	53,17	7444	140	1,75	11165	210	1,16	0,03	7,80	3,50
EC 4150	457,20	5090	63,19	8846	140	1,47	13270	210	0,98	0,02	6,56	3,50
EC 4150	498,70	5552	68,92	9649	140	1,04	14474	210	0,69	0,02	6,02	3,50
EC 4150	555,10	6180	76,72	10000	130	1,00	16111	210	0,62	0,02	5,40	3,50
EC 4150	634,70	7066	87,72	10000	114	1,00	18421	210	0,54	0,02	4,73	3,50
Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
EC 4150	711,00	7916	98,27	10000	102	1,00	20000	203	0,50	0,01	4,22	3,50
EC 4150	810,50	9023	112,02	10000	89	1,00	20000	178	0,50	0,01	3,70	3,50
EC 4150	890,10	9909	123,02	10000	81	1,00	20000	162	0,50	0,01	3,37	3,50
EC 4150	1033,00	11500	142,77	10000	70	1,00	20000	140	0,50	0,01	2,90	3,50
EC 4150	1086,00	12090	150,09	9000	60	1,00	18000	119	0,50	0,01	2,76	3,50
EC 4150	1248,00	13894	172,48	10000	58	1,00	20000	115	0,50	0,01	2,40	3,50
EC 4250	363,60	4048	50,25	7035	140	2,70	10553	210	1,80	0,03	8,25	3,50
EC 4250	392,00	4364	54,18	7585	140	2,50	11377	210	1,67	0,03	7,65	3,50
EC 4250	432,30	4813	59,75	8365	140	2,27	12547	210	1,51	0,02	6,94	3,50
EC 4250	484,90	5398	67,02	9382	140	2,03	14074	210	1,35	0,02	6,19	3,50
EC 4250	559,90	6233	77,38	10834	140	1,75	16250	210	1,17	0,02	5,36	3,50
EC 4250	614,50	6841	84,93	11890	140	1,51	17835	210	1,01	0,02	4,88	3,50
EC 4250	709,60	7900	98,07	13730	140	1,31	20595	210	0,87	0,01	4,23	3,50
EC 4250	811,90	9039	112,21	15710	140	1,15	23564	210	0,76	0,01	3,70	3,50
EC 4250	857,50	9547	118,51	16592	140	1,08	24888	210	0,72	0,01	3,50	3,50
EC 4250	1029,00	11456	142,22	18000	127	1,00	29865	210	0,60	0,01	2,92	3,50
EC 4250	1206,00	13426	166,68	15000	90	1,00	30000	179	0,50	0,01	2,49	3,50

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EC 2020	10,50	231	3,13	500	160	4,00	781	250	2,56	0,95	214,29	6,00
EC 2020	12,39	272	3,69	590	160	3,05	922	250	1,95	0,81	181,60	6,00
EC 2020	14,23	313	4,24	678	160	3,10	1059	250	1,98	0,70	158,12	6,00
EC 2020	16,17	356	4,81	770	160	2,60	1203	250	1,66	0,62	139,15	6,00
EC 2020	18,00	396	5,36	857	160	1,63	1339	250	1,05	0,56	125,00	6,00
EC 2020	19,08	420	5,68	909	160	1,98	1420	250	1,27	0,52	117,92	6,00
EC 2020	21,75	478	6,47	1036	160	1,26	1618	250	0,80	0,46	103,45	6,00
EC 2020	23,89	525	7,11	1138	160	1,32	1778	250	0,84	0,42	94,18	6,00
EC 2020	27,72	610	8,25	1320	160	1,06	2063	250	0,68	0,36	81,17	6,00
EC 2020	33,50	737	9,97	1300	130	1,00	2493	250	0,52	0,30	67,16	6,00
EC 2045-46	18,00	396	5,36	857	160	3,15	1339	250	2,02	0,56	125,00	6,00
EC 2045-46	19,08	420	5,68	909	160	3,74	1420	250	2,39	0,52	117,92	6,00
EC 2045-46	21,75	478	6,47	1036	160	2,22	1618	250	1,42	0,46	103,45	6,00
EC 2045-46	23,89	525	7,11	1138	160	2,55	1778	250	1,63	0,42	94,18	6,00
EC 2045-46	27,72	610	8,25	1320	160	2,05	2063	250	1,31	0,36	81,17	6,00
EC 2045-46	33,50	737	9,97	1595	160	1,44	2493	250	0,92	0,30	67,16	6,00
EC 3045-46	38,16	839	11,13	1781	160	1,91	2783	250	1,22	0,26	58,96	6,00
EC 3045-46	43,37	954	12,65	2024	160	1,83	3163	250	1,17	0,23	51,88	6,00
EC 3045-46	49,80	1095	14,53	2324	160	1,59	3631	250	1,02	0,20	45,18	6,00
EC 3045-46	56,60	1245	16,51	2641	160	1,40	4127	250	0,90	0,18	39,75	6,00
EC 3045-46	63,00	1385	18,38	2940	160	1,26	4594	250	0,81	0,16	35,71	6,00
EC 3045-46	73,57	1618	21,46	2900	135	1,00	5365	250	0,54	0,14	30,58	6,00
EC 3045-46	83,60	1838	24,38	3700	152	1,00	6000	246	0,62	0,12	26,91	6,00
EC 3045-46	89,83	1975	26,20	3400	130	1,00	6000	228	0,57	0,11	25,05	6,00
EC 3045-46	97,02	2134	28,30	3700	131	1,00	6000	212	0,62	0,10	23,19	6,00
EC 3045-46	114,50	2518	33,40	3400	102	1,00	6000	179	0,57	0,09	19,65	6,00
EC 3045-46	123,50	2716	36,02	2900	81	1,00	5800	161	0,50	0,08	18,22	6,00
EC 3045-46	138,30	3041	40,34	3400	84	1,00	6000	148	0,57	0,07	16,27	6,00
EC 3045-46	166,30	3657	48,51	2700	56	1,00	5400	111	0,50	0,06	13,53	6,00
EC 3045-46	173,20	3809	50,52	2900	57	1,00	5800	114	0,50	0,06	12,99	6,00
EC 2065	27,72	610	8,25	1320	160	3,33	2063	250	2,13	0,36	81,17	6,00
EC 3065	36,75	808	10,72	1715	160	3,61	2680	250	2,31	0,27	61,22	6,00
EC 3065	40,53	891	11,82	1892	160	3,01	2955	250	1,93	0,25	55,51	6,00
EC 3065	45,47	1000	13,26	2122	160	2,69	3316	250	1,72	0,22	49,48	6,00
EC 3065	49,80	1095	14,53	2324	160	2,67	3631	250	1,71	0,20	45,18	6,00
EC 3065	56,60	1245	16,51	2641	160	2,35	4127	250	1,50	0,18	39,75	6,00
EC 3065	62,42	1373	18,21	2913	160	1,96	4552	250	1,25	0,16	36,05	6,00
EC 3065	70,02	1540	20,42	3268	160	1,74	5106	250	1,12	0,14	32,13	6,00
EC 3065	80,85	1778	23,58	3773	160	1,46	5896	250	0,93	0,12	27,83	6,00
EC 3065	92,20	2028	26,89	4303	160	1,32	6723	250	0,85	0,11	24,40	6,00
EC 3065	103,40	2274	30,16	4826	160	1,18	7540	250	0,76	0,10	21,76	6,00
EC 3065	108,80	2393	31,74	5078	160	1,08	7934	250	0,69	0,09	20,68	6,00
EC 3065	120,00	2639	35,00	5600	160	1,02	8751	250	0,65	0,08	18,75	6,00
EC 3065	138,60	3048	40,43	5500	136	1,00	10000	247	0,55	0,07	16,23	6,00
EC 3065	166,30	3657	48,51	4400	91	1,00	8800	181	0,50	0,06	13,53	6,00
EC 3065	201,00	4420	58,63	4400	75	1,00	8800	150	0,50	0,05	11,19	6,00
EC 2090	31,97	703	9,52	1522	160	3,61	2379	250	2,31	0,31	70,38	6,00
EC 2090	40,19	884	11,96	1914	160	2,14	2991	250	1,37	0,25	55,98	6,00
EC 3090	42,84	942	12,50	1999	160	4,50	3124	250	2,88	0,23	52,52	6,00
EC 3090	50,55	1112	14,74	2359	160	3,81	3686	250	2,44	0,20	44,51	6,00
EC 3090	53,03	1166	15,47	2475	160	3,11	3867	250	1,99	0,19	42,43	6,00
EC 3090	65,97	1451	19,24	3079	160	2,92	4811	250	1,87	0,15	34,11	6,00

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
EC 3090	73,44	1615	21,42	3427	160	2,63	5355	250	1,68	0,14	30,64	6,00
EC 3090	77,85	1712	22,71	3633	160	2,48	5677	250	1,59	0,13	28,90	6,00
EC 3090	90,90	1999	26,51	4242	160	1,82	6629	250	1,16	0,11	24,75	6,00
EC 3090	97,45	2143	28,42	4548	160	1,98	7106	250	1,27	0,10	23,09	6,00
EC 3090	113,10	2487	32,99	5278	160	1,71	8247	250	1,09	0,09	19,89	6,00
EC 3090	120,60	2652	35,18	5628	160	1,37	8794	250	0,88	0,08	18,66	6,00
EC 3090	140,00	3079	40,84	6534	160	1,18	10209	250	0,75	0,07	16,07	6,00
EC 3090	161,10	3543	46,99	6900	147	1,00	11748	250	0,59	0,06	13,97	6,00
EC 3090	169,10	3719	49,32	7700	156	1,00	12331	250	0,62	0,06	13,31	6,00
EC 3090	194,60	4279	56,76	6900	122	1,00	13800	243	0,50	0,05	11,56	6,00
EC 3090	231,80	5098	67,61	5500	81	1,00	11000	162	0,50	0,04	9,71	6,00
EC 4090	257,00	5652	73,46	9000	123	1,00	15000	204	0,60	0,04	8,75	6,00
EC 4090	285,80	6285	81,70	7700	94	1,00	15000	183	0,51	0,03	7,87	6,00
EC 4090	321,50	7070	91,90	9000	98	1,00	15000	163	0,60	0,03	7,00	6,00
EC 4090	341,10	7501	97,50	9000	92	1,00	15000	153	0,60	0,03	6,60	6,00
EC 4090	395,80	8704	113,14	9000	80	1,00	15000	132	0,60	0,03	5,68	6,00
EC 4090	467,10	10272	133,52	9000	67	1,00	15000	112	0,60	0,02	4,82	6,00
EC 4090	503,80	11079	144,01	9000	62	1,00	15000	104	0,60	0,02	4,47	6,00
EC 4090	564,40	12412	161,33	9000	56	1,00	15000	92	0,60	0,02	3,99	6,00
EC 3150	74,41	1636	21,70	3473	160	3,74	5426	250	2,40	0,13	30,24	6,00
EC 3150	83,11	1828	24,24	3879	160	2,58	6060	250	1,65	0,12	27,07	6,00
EC 3150	92,52	2035	26,99	4318	160	2,32	6747	250	1,48	0,11	24,32	6,00
EC 3150	98,07	2157	28,61	4577	160	2,18	7151	250	1,40	0,10	22,94	6,00
EC 3150	111,80	2459	32,61	5218	160	1,92	8153	250	1,23	0,09	20,13	6,00
EC 3150	122,80	2700	35,82	5731	160	1,74	8955	250	1,12	0,08	18,32	6,00
EC 3150	142,50	3134	41,56	6650	160	1,50	10391	250	0,96	0,07	15,79	6,00
EC 3150	149,80	3294	43,69	6991	160	1,29	10924	250	0,82	0,07	15,02	6,00
EC 3150	172,20	3787	50,23	8036	160	1,24	12557	250	0,80	0,06	13,07	6,00
EC 3150	210,00	4618	61,25	9000	147	1,00	15313	250	0,59	0,05	10,71	6,00
EC 4150	220,70	4853	63,09	10094	160	1,29	15772	250	0,82	0,05	10,19	6,00
EC 4150	260,50	5729	74,46	11914	160	1,09	18616	250	0,70	0,04	8,64	6,00
EC 4150	296,90	6529	84,87	13000	153	1,00	20000	235	0,65	0,03	7,58	6,00
EC 4150	326,00	7169	93,19	13000	140	1,00	20000	214	0,65	0,03	6,90	6,00
EC 4150	350,30	7703	100,13	13000	130	1,00	20000	199	0,65	0,03	6,42	6,00
EC 4150	384,70	8460	109,97	13000	118	1,00	20000	181	0,65	0,03	5,85	6,00
EC 4150	457,20	10054	130,69	13000	99	1,00	20000	153	0,65	0,02	4,92	6,00
EC 4150	498,70	10967	142,55	10000	70	1,00	20000	140	0,50	0,02	4,51	6,00
EC 4150	555,10	12207	158,68	10000	63	1,00	20000	126	0,50	0,02	4,05	6,00
EC 4150	634,70	13958	181,43	10000	55	1,00	20000	110	0,50	0,02	3,54	6,00
EC 3250	118,30	2602	34,51	5521	160	3,26	8627	250	2,09	0,08	19,02	6,00
EC 3250	141,90	3121	41,39	6622	160	2,72	10347	250	1,74	0,07	15,86	6,00
EC 3250	166,30	3657	48,51	7761	160	1,93	12127	250	1,24	0,06	13,53	6,00
EC 4250	183,70	4040	52,51	8402	160	2,26	13128	250	1,45	0,05	12,25	6,00
EC 4250	212,10	4664	60,63	9701	160	1,96	15157	250	1,25	0,05	10,61	6,00
EC 4250	228,60	5027	65,35	10455	160	1,82	16336	250	1,16	0,04	9,84	6,00
EC 4250	252,20	5546	72,09	11535	160	1,65	18023	250	1,05	0,04	8,92	6,00
EC 4250	282,90	6221	80,87	12939	160	1,47	20217	250	0,94	0,04	7,95	6,00
EC 4250	314,90	6925	90,01	14402	160	1,32	22504	250	0,84	0,03	7,15	6,00
EC 4250	363,60	7996	103,94	16630	160	1,14	25984	250	0,73	0,03	6,19	6,00
EC 4250	392,00	8620	112,05	17929	160	1,06	28013	250	0,68	0,03	5,74	6,00
EC 4250	432,30	9507	123,57	19000	154	1,00	30893	250	0,62	0,02	5,20	6,00
EC 4250	484,90	10663	138,61	19000	137	1,00	34652	250	0,55	0,02	4,64	6,00
EC 4250	559,90	12313	160,05	19000	119	1,00	35000	218	0,54	0,02	4,02	6,00

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
EC 4250	614,50	13513	175,65	18000	102	1,00	35000	199	0,51	0,02	3,66	6,00
EC 4250	709,60	15605	202,84	18000	89	1,00	35000	172	0,51	0,01	3,17	6,00
EC 4250	811,90	17854	232,08	18000	78	1,00	35000	150	0,51	0,01	2,77	6,00
EC 4250	857,50	18857	245,12	18000	73	1,00	35000	142	0,51	0,01	2,62	6,00
EC 4250	1029,00	22629	294,14	18000	61	1,00	35000	118	0,51	0,01	2,19	6,00

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EC 2020	10,50	346	4,74	758	160	2,64	1185	250	1,69	0,95	142,86	6,00
EC 2020	12,39	409	5,59	895	160	2,01	1398	250	1,29	0,81	121,07	6,00
EC 2020	14,23	469	6,42	1028	160	2,04	1606	250	1,31	0,70	105,41	6,00
EC 2020	16,17	533	7,30	1168	160	1,71	1825	250	1,10	0,62	92,76	6,00
EC 2020	18,00	594	8,13	1300	160	1,08	2032	250	0,69	0,56	83,33	6,00
EC 2020	19,08	629	8,61	1378	160	1,31	2154	250	0,84	0,52	78,62	6,00
EC 2020	21,75	717	9,82	1300	132	1,00	2455	250	0,53	0,46	68,97	6,00
EC 2020	23,89	788	10,79	1500	139	1,00	2696	250	0,56	0,42	62,79	6,00
EC 2020	27,72	914	12,51	1400	112	1,00	2800	223	0,50	0,36	54,11	6,00
EC 2020	33,50	1105	15,12	1300	86	1,00	2600	171	0,50	0,30	44,78	6,00
EC 2045-46	16,17	533	7,30	1168	160	3,17	1825	250	2,03	0,62	92,76	6,00
EC 2045-46	18,00	594	8,13	1300	160	2,08	2032	250	1,33	0,56	83,33	6,00
EC 2045-46	19,08	629	8,61	1378	160	2,47	2154	250	1,58	0,52	78,62	6,00
EC 2045-46	21,75	717	9,82	1571	160	1,46	2455	250	0,94	0,46	68,97	6,00
EC 2045-46	23,89	788	10,79	1726	160	1,68	2696	250	1,08	0,42	62,79	6,00
EC 2045-46	27,72	914	12,51	2002	160	1,35	3129	250	0,86	0,36	54,11	6,00
EC 2045-46	33,50	1105	15,12	2300	152	1,00	3781	250	0,61	0,30	44,78	6,00
EC 3045-46	38,16	1259	16,88	2701	160	1,26	4221	250	0,81	0,26	39,31	6,00
EC 3045-46	43,37	1431	19,19	3070	160	1,21	4797	250	0,77	0,23	34,59	6,00
EC 3045-46	49,80	1643	22,03	3525	160	1,05	5508	250	0,67	0,20	30,12	6,00
EC 3045-46	56,60	1867	25,04	3700	148	1,00	6000	239	0,62	0,18	26,50	6,00
EC 3045-46	63,00	2078	27,87	3700	133	1,00	6000	215	0,62	0,16	23,81	6,00
EC 3045-46	73,57	2427	32,55	2900	89	1,00	5800	178	0,50	0,14	20,39	6,00
EC 3045-46	83,60	2758	36,99	3700	100	1,00	6000	162	0,62	0,12	17,94	6,00
EC 3045-46	89,83	2963	39,75	3400	86	1,00	6000	150	0,57	0,11	16,70	6,00
EC 3045-46	97,02	3200	42,93	3700	86	1,00	6000	139	0,62	0,10	15,46	6,00
EC 3045-46	114,50	3777	50,66	3400	67	1,00	6000	118	0,57	0,09	13,10	6,00
EC 3045-46	123,50	4074	54,64	2900	53	1,00	5800	106	0,50	0,08	12,15	6,00
EC 3045-46	138,30	4562	61,19	3400	56	1,00	6000	98	0,57	0,07	10,85	6,00
EC 2065	23,10	762	10,43	1669	160	3,30	2607	250	2,11	0,43	64,94	6,00
EC 2065	27,72	914	12,51	2002	160	2,20	3129	250	1,41	0,36	54,11	6,00
EC 3065	36,75	1212	16,26	2602	160	2,38	4065	250	1,53	0,27	40,82	6,00
EC 3065	40,53	1337	17,93	2869	160	1,99	4483	250	1,27	0,25	37,01	6,00
EC 3065	45,47	1500	20,12	3219	160	1,77	5030	250	1,13	0,22	32,99	6,00
EC 3065	49,80	1643	22,03	3525	160	1,76	5508	250	1,13	0,20	30,12	6,00
EC 3065	56,60	1867	25,04	4007	160	1,55	6261	250	0,99	0,18	26,50	6,00
EC 3065	62,42	2059	27,62	4419	160	1,29	6904	250	0,83	0,16	24,03	6,00
EC 3065	70,02	2310	30,98	4957	160	1,15	7745	250	0,74	0,14	21,42	6,00
EC 3065	80,85	2667	35,77	5500	154	1,00	8943	250	0,62	0,12	18,55	6,00
EC 3065	92,20	3041	40,79	5700	140	1,00	10000	245	0,57	0,11	16,27	6,00
EC 3065	103,40	3411	45,75	5700	125	1,00	10000	218	0,57	0,10	14,51	6,00
EC 3065	108,80	3589	48,14	5500	114	1,00	10000	207	0,55	0,09	13,79	6,00
EC 3065	120,00	3958	53,09	5700	107	1,00	10000	188	0,57	0,08	12,50	6,00
EC 3065	138,60	4572	61,32	5500	90	1,00	10000	163	0,55	0,07	10,82	6,00
EC 3065	166,30	5486	73,58	4400	60	1,00	8800	119	0,50	0,06	9,02	6,00
EC 3065	201,00	6630	88,93	4400	49	1,00	8800	98	0,50	0,05	7,46	6,00
EC 2090	26,84	885	12,12	1939	160	3,56	3029	250	2,28	0,37	55,89	6,00
EC 2090	31,97	1055	14,43	2309	160	2,38	3608	250	1,52	0,31	46,92	6,00
EC 2090	40,19	1326	18,14	2903	160	1,41	4536	250	0,90	0,25	37,32	6,00
EC 3090	42,84	1413	18,95	3033	160	2,97	4739	250	1,90	0,23	35,01	6,00
EC 3090	50,55	1667	22,37	3579	160	2,52	5591	250	1,61	0,20	29,67	6,00
EC 3090	53,03	1749	23,46	3754	160	2,05	5866	250	1,31	0,19	28,29	6,00

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
EC 3090	65,97	2176	29,19	4670	160	1,93	7297	250	1,23	0,15	22,74	6,00
EC 3090	73,44	2423	32,49	5199	160	1,73	8123	250	1,11	0,14	20,42	6,00
EC 3090	77,85	2568	34,44	5511	160	1,63	8611	250	1,05	0,13	19,27	6,00
EC 3090	90,90	2999	40,22	6435	160	1,20	10055	250	0,77	0,11	16,50	6,00
EC 3090	97,45	3215	43,12	6899	160	1,30	10779	250	0,83	0,10	15,39	6,00
EC 3090	113,10	3731	50,04	8007	160	1,12	12510	250	0,72	0,09	13,26	6,00
EC 3090	120,60	3978	53,36	7700	144	1,00	13340	250	0,58	0,08	12,44	6,00
EC 3090	140,00	4618	61,94	7700	124	1,00	15000	242	0,51	0,07	10,71	6,00
EC 3090	161,10	5314	71,28	6900	97	1,00	13800	193	0,50	0,06	9,31	6,00
EC 3090	169,10	5578	74,82	7700	103	1,00	15000	200	0,51	0,06	8,87	6,00
EC 3090	194,60	6419	86,10	6900	80	1,00	13800	160	0,50	0,05	7,71	6,00
EC 3090	231,80	7646	102,56	5500	54	1,00	11000	107	0,50	0,04	6,47	6,00
EC 4090	257,00	8478	111,43	9000	81	1,00	15000	134	0,60	0,04	5,84	6,00
EC 4090	285,80	9428	123,92	7700	62	1,00	15000	121	0,51	0,03	5,25	6,00
EC 4090	321,50	10605	139,40	9000	65	1,00	15000	107	0,60	0,03	4,67	6,00
EC 4090	341,10	11252	147,90	9000	61	1,00	15000	101	0,60	0,03	4,40	6,00
EC 4090	395,80	13056	171,62	9000	52	1,00	15000	87	0,60	0,03	3,79	6,00
EC 3150	53,97	1780	23,88	3821	160	2,62	5970	250	1,68	0,19	27,79	6,00
EC 3150	63,06	2080	27,90	4464	160	2,91	6975	250	1,86	0,16	23,79	6,00
EC 3150	74,41	2455	32,92	5268	160	2,47	8231	250	1,58	0,13	20,16	6,00
EC 3150	83,11	2742	36,77	5883	160	1,70	9193	250	1,09	0,12	18,05	6,00
EC 3150	92,52	3052	40,94	6550	160	1,53	10234	250	0,98	0,11	16,21	6,00
EC 3150	98,07	3235	43,39	6943	160	1,44	10848	250	0,92	0,10	15,30	6,00
EC 3150	111,80	3688	49,47	7915	160	1,26	12366	250	0,81	0,09	13,42	6,00
EC 3150	122,80	4051	54,33	8693	160	1,15	13583	250	0,74	0,08	12,21	6,00
EC 3150	142,50	4701	63,05	10000	159	1,00	15762	250	0,63	0,07	10,53	6,00
EC 3150	149,80	4941	66,28	9000	136	1,00	16570	250	0,54	0,07	10,01	6,00
EC 3150	172,20	5680	76,19	10000	131	1,00	19047	250	0,53	0,06	8,71	6,00
EC 3150	210,00	6927	92,91	9000	97	1,00	18000	193	0,50	0,05	7,14	6,00
EC 4150	220,70	7280	95,70	13000	136	1,00	20000	208	0,65	0,05	6,80	6,00
EC 4150	260,50	8593	112,95	13000	115	1,00	20000	177	0,65	0,04	5,76	6,00
EC 4150	296,90	9794	128,74	13000	101	1,00	20000	155	0,65	0,03	5,05	6,00
EC 4150	326,00	10754	141,35	13000	92	1,00	20000	141	0,65	0,03	4,60	6,00
EC 4150	350,30	11555	151,89	13000	86	1,00	20000	131	0,65	0,03	4,28	6,00
EC 4150	384,70	12690	166,81	13000	78	1,00	20000	119	0,65	0,03	3,90	6,00
EC 4150	457,20	15082	198,24	13000	66	1,00	20000	100	0,65	0,02	3,28	6,00
EC 3250	93,32	3078	41,29	6606	160	2,88	10322	250	1,84	0,11	16,07	6,00
EC 3250	102,40	3378	45,31	7249	160	2,48	11327	250	1,59	0,10	14,65	6,00
EC 3250	112,00	3695	49,55	7929	160	2,27	12389	250	1,45	0,09	13,39	6,00
EC 3250	118,30	3902	52,34	8375	160	2,15	13085	250	1,38	0,08	12,68	6,00
EC 3250	141,90	4681	62,78	10045	160	1,79	15696	250	1,15	0,07	10,57	6,00
EC 3250	166,30	5486	73,58	11773	160	1,27	18395	250	0,82	0,06	9,02	6,00
EC 4250	183,70	6060	79,65	12744	160	1,49	19913	250	0,95	0,05	8,17	6,00
EC 4250	212,10	6997	91,97	14715	160	1,29	22992	250	0,83	0,05	7,07	6,00
EC 4250	228,60	7541	99,12	15859	160	1,20	24780	250	0,77	0,04	6,56	6,00
EC 4250	252,20	8319	109,35	17497	160	1,09	27338	250	0,69	0,04	5,95	6,00
EC 4250	282,90	9332	122,67	19000	155	1,00	30666	250	0,62	0,04	5,30	6,00
EC 4250	314,90	10388	136,54	19000	139	1,00	34135	250	0,56	0,03	4,76	6,00
EC 4250	363,60	11994	157,66	19000	121	1,00	35000	222	0,54	0,03	4,13	6,00
EC 4250	392,00	12931	169,97	19000	112	1,00	35000	205	0,54	0,03	3,83	6,00
EC 4250	432,30	14260	187,44	19000	101	1,00	35000	186	0,54	0,02	3,47	6,00
EC 4250	484,90	15995	210,25	19000	90	1,00	35000	166	0,54	0,02	3,09	6,00
EC 4250	559,90	18469	242,77	19000	78	1,00	35000	144	0,54	0,02	2,68	6,00

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EC 4250	614,50	20271	266,45	18000	68	1,00	35000	131	0,51	0,02	2,44	6,00
EC 4250	709,60	23408	307,68	18000	59	1,00	35000	113	0,51	0,01	2,11	6,00
EC 4250	811,90	26782	352,04	18000	51	1,00	35000	99	0,51	0,01	1,85	6,00

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
EC 2020	10,50	462	6,25	1000	160	2,00	1563	250	1,28	0,48	171,43	9,50
EC 2020	12,39	545	7,38	1180	160	1,53	1844	250	0,98	0,40	145,28	9,50
EC 2020	14,23	626	8,47	1355	160	1,55	2118	250	0,99	0,35	126,49	9,50
EC 2020	16,17	711	9,63	1540	160	1,30	2406	250	0,83	0,31	111,32	9,50
EC 2020	18,00	792	10,71	1400	131	1,00	2679	250	0,52	0,28	100,00	9,50
EC 2020	19,08	839	11,36	1800	158	1,00	2800	246	0,64	0,26	94,34	9,50
EC 2020	21,75	957	12,95	1300	100	1,00	2600	200	0,50	0,23	82,76	9,50
EC 2020	23,89	1051	14,22	1500	105	1,00	2800	196	0,54	0,21	75,35	9,50
EC 2020	27,72	1219	16,50	1400	85	1,00	2800	169	0,50	0,18	64,94	9,50
EC 2020	33,50	1473	19,94	1300	65	1,00	2600	130	0,50	0,15	53,73	9,50
EC 2045-46	10,50	462	6,25	1000	160	3,70	1563	250	2,37	0,48	171,43	9,50
EC 2045-46	12,39	545	7,38	1180	160	2,88	1844	250	1,84	0,40	145,28	9,50
EC 2045-46	16,17	711	9,63	1540	160	2,40	2406	250	1,54	0,31	111,32	9,50
EC 2045-46	18,00	792	10,71	1714	160	1,57	2679	250	1,01	0,28	100,00	9,50
EC 2045-46	19,08	839	11,36	1817	160	1,87	2839	250	1,20	0,26	94,34	9,50
EC 2045-46	21,75	957	12,95	2072	160	1,11	3237	250	0,71	0,23	82,76	9,50
EC 2045-46	23,89	1051	14,22	2275	160	1,27	3555	250	0,82	0,21	75,35	9,50
EC 2045-46	27,72	1219	16,50	2640	160	1,02	4125	250	0,65	0,18	64,94	9,50
EC 2045-46	33,50	1473	19,94	2300	115	1,00	4600	230	0,50	0,15	53,73	9,50
EC 3045-46	38,16	1678	22,26	3400	153	1,00	5565	250	0,61	0,13	47,17	9,50
EC 3045-46	43,37	1907	25,30	3700	146	1,00	6000	237	0,62	0,12	41,50	9,50
EC 3045-46	49,80	2190	29,05	3700	127	1,00	6000	206	0,62	0,10	36,14	9,50
EC 3045-46	56,60	2489	33,02	3700	112	1,00	6000	181	0,62	0,09	31,80	9,50
EC 3045-46	63,00	2771	36,75	3700	101	1,00	6000	163	0,62	0,08	28,57	9,50
EC 3045-46	73,57	3236	42,92	2900	68	1,00	5800	135	0,50	0,07	24,47	9,50
EC 3045-46	83,60	3677	48,77	3700	76	1,00	6000	123	0,62	0,06	21,53	9,50
EC 3045-46	89,83	3951	52,40	3400	65	1,00	6000	114	0,57	0,06	20,04	9,50
EC 3045-46	97,02	4267	56,60	3700	65	1,00	6000	106	0,62	0,05	18,55	9,50
EC 3045-46	114,50	5036	66,80	3400	51	1,00	6000	89	0,57	0,04	15,72	9,50
EC 2065	16,17	711	9,63	1540	160	2,79	2406	250	1,79	0,31	111,32	9,50
EC 2065	17,83	784	10,61	1698	160	2,83	2653	250	1,81	0,28	100,95	9,50
EC 2065	20,00	880	11,91	1905	160	2,83	2976	250	1,81	0,25	90,00	9,50
EC 2065	23,10	1016	13,75	2200	160	2,50	3438	250	1,60	0,22	77,92	9,50
EC 2065	27,72	1219	16,50	2640	160	1,67	4125	250	1,07	0,18	64,94	9,50
EC 3065	36,75	1616	21,44	3430	160	1,81	5360	250	1,16	0,14	48,98	9,50
EC 3065	40,53	1783	23,64	3783	160	1,51	5911	250	0,96	0,12	44,41	9,50
EC 3065	45,47	2000	26,53	4244	160	1,34	6631	250	0,86	0,11	39,59	9,50
EC 3065	49,80	2190	29,05	4648	160	1,33	7263	250	0,85	0,10	36,14	9,50
EC 3065	56,60	2489	33,02	5283	160	1,17	8255	250	0,75	0,09	31,80	9,50
EC 3065	62,42	2745	36,41	5700	157	1,00	9103	250	0,63	0,08	28,84	9,50
EC 3065	70,02	3080	40,85	5700	140	1,00	10000	244	0,57	0,07	25,71	9,50
EC 3065	80,85	3556	47,17	5500	117	1,00	10000	212	0,55	0,06	22,26	9,50
EC 3065	92,20	4055	53,79	5700	106	1,00	10000	185	0,57	0,05	19,52	9,50
EC 3065	103,40	4548	60,32	5700	94	1,00	10000	165	0,57	0,05	17,41	9,50
EC 3065	108,80	4785	63,47	5500	87	1,00	10000	157	0,55	0,05	16,54	9,50
EC 3065	120,00	5278	70,00	5700	81	1,00	10000	142	0,57	0,04	15,00	9,50
EC 3065	138,60	6096	80,85	5500	68	1,00	10000	123	0,55	0,04	12,99	9,50
EC 2090	20,76	913	12,36	1977	160	2,78	3089	250	1,78	0,24	86,71	9,50
EC 2090	23,33	1026	13,89	2222	160	2,79	3472	250	1,79	0,21	77,15	9,50
EC 2090	26,84	1180	15,98	2556	160	2,70	3994	250	1,73	0,19	67,06	9,50
EC 2090	31,97	1406	19,03	3045	160	1,81	4758	250	1,16	0,16	56,30	9,50
EC 2090	40,19	1768	23,92	3828	160	1,07	5981	250	0,69	0,12	44,79	9,50

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
EC 3090	42,84	1884	24,99	3999	160	2,25	6248	250	1,44	0,12	42,02	9,50
EC 3090	50,55	2223	29,49	4718	160	1,91	7372	250	1,22	0,10	35,61	9,50
EC 3090	53,03	2332	30,94	4950	160	1,56	7734	250	1,00	0,09	33,94	9,50
EC 3090	65,97	2901	38,48	6158	160	1,46	9621	250	0,94	0,08	27,29	9,50
EC 3090	73,44	3230	42,84	6855	160	1,31	10711	250	0,84	0,07	24,51	9,50
EC 3090	77,85	3424	45,42	7266	160	1,24	11354	250	0,79	0,06	23,12	9,50
EC 3090	90,90	3998	53,03	7700	145	1,00	13257	250	0,58	0,06	19,80	9,50
EC 3090	97,45	4286	56,85	9000	158	1,00	14212	250	0,63	0,05	18,47	9,50
EC 3090	113,10	4974	65,98	9000	136	1,00	15000	227	0,60	0,04	15,92	9,50
EC 3090	120,60	5304	70,35	7700	109	1,00	15000	213	0,51	0,04	14,93	9,50
EC 3090	140,00	6157	81,67	7700	94	1,00	15000	183	0,51	0,04	12,86	9,50
EC 3090	161,10	7086	93,98	6900	73	1,00	13800	146	0,50	0,03	11,17	9,50
EC 3090	169,10	7437	98,65	7700	78	1,00	15000	152	0,51	0,03	10,64	9,50
EC 3090	194,60	8559	113,52	6900	61	1,00	13800	121	0,50	0,03	9,25	9,50
EC 3090	231,80	10195	135,22	5500	41	1,00	11000	81	0,50	0,02	7,77	9,50
EC 4090	257,00	11303	146,93	9000	61	1,00	15000	102	0,60	0,02	7,00	9,50
EC 2150	18,99	835	11,30	1809	160	3,43	2826	250	2,19	0,26	94,79	9,50
EC 2150	21,95	965	13,07	2091	160	4,30	3267	250	2,76	0,23	82,00	9,50
EC 2150	25,03	1101	14,90	2384	160	3,40	3725	250	2,17	0,20	71,91	9,50
EC 2150	30,53	1343	18,17	2908	160	3,10	4543	250	1,98	0,16	58,96	9,50
EC 3150	40,95	1801	23,89	3822	160	3,40	5972	250	2,18	0,12	43,96	9,50
EC 3150	48,32	2125	28,19	4510	160	2,88	7047	250	1,84	0,10	37,25	9,50
EC 3150	53,97	2374	31,48	5037	160	1,99	7871	250	1,27	0,09	33,35	9,50
EC 3150	63,06	2774	36,79	5886	160	2,21	9197	250	1,41	0,08	28,54	9,50
EC 3150	74,41	3273	43,41	6945	160	1,87	10852	250	1,20	0,07	24,19	9,50
EC 3150	83,11	3655	48,48	7757	160	1,29	12121	250	0,83	0,06	21,66	9,50
EC 3150	92,52	4069	53,97	8636	160	1,16	13493	250	0,74	0,05	19,46	9,50
EC 3150	98,07	4313	57,21	9154	160	1,09	14303	250	0,70	0,05	18,35	9,50
EC 3150	111,80	4917	65,22	10000	153	1,00	16305	250	0,61	0,04	16,10	9,50
EC 3150	122,80	5401	71,64	10000	140	1,00	17909	250	0,56	0,04	14,66	9,50
EC 3150	142,50	6267	83,13	10000	120	1,00	20000	240	0,50	0,04	12,63	9,50
EC 3150	149,80	6589	87,39	9000	103	1,00	18000	205	0,50	0,03	12,02	9,50
EC 3150	172,20	7574	100,46	10000	100	1,00	20000	199	0,50	0,03	10,45	9,50
EC 3150	210,00	9236	122,51	9000	73	1,00	18000	146	0,50	0,02	8,57	9,50
EC 4150	220,70	9707	126,17	13000	103	1,00	20000	158	0,65	0,02	8,16	9,50
EC 4150	260,50	11457	148,93	13000	87	1,00	20000	134	0,65	0,02	6,91	9,50
EC 4150	296,90	13058	169,74	13000	77	1,00	20000	117	0,65	0,02	6,06	9,50
EC 4150	326,00	14338	186,37	13000	70	1,00	20000	107	0,65	0,02	5,52	9,50
EC 4150	350,30	15407	200,27	13000	65	1,00	20000	99	0,65	0,01	5,14	9,50
EC 4150	384,70	16920	219,93	13000	59	1,00	20000	90	0,65	0,01	4,68	9,50
EC 4150	457,20	20109	261,38	13000	50	1,00	20000	76	0,65	0,01	3,94	9,50
EC 2250	24,93	1096	14,84	2374	160	3,41	3710	250	2,18	0,20	72,20	9,50
EC 2250	29,22	1285	17,39	2783	160	3,59	4348	250	2,30	0,17	61,60	9,50
EC 3250	42,42	1866	24,75	3959	160	4,80	6187	250	3,07	0,12	42,43	9,50
EC 3250	46,78	2057	27,29	4366	160	4,35	6822	250	2,78	0,11	38,48	9,50
EC 3250	52,48	2308	30,62	4898	160	3,88	7654	250	2,48	0,10	34,30	9,50
EC 3250	53,76	2364	31,36	5018	160	3,59	7840	250	2,30	0,09	33,48	9,50
EC 3250	60,60	2665	35,35	5656	160	3,36	8838	250	2,15	0,08	29,70	9,50
EC 3250	72,05	3169	42,03	6725	160	2,83	10508	250	1,81	0,07	24,98	9,50
EC 3250	80,82	3555	47,15	7544	160	2,52	11787	250	1,61	0,06	22,27	9,50
EC 3250	93,32	4104	54,44	8710	160	2,18	13610	250	1,40	0,05	19,29	9,50
EC 3250	102,40	4504	59,74	9558	160	1,88	14934	250	1,21	0,05	17,58	9,50
EC 3250	112,00	4926	65,34	10454	160	1,72	16334	250	1,10	0,04	16,07	9,50

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EC 3250	118,30	5203	69,01	11042	160	1,63	17253	250	1,04	0,04	15,22	9,50
EC 3250	141,90	6241	82,78	13245	160	1,36	20695	250	0,87	0,04	12,68	9,50
EC 3250	166,30	7314	97,01	15000	155	1,00	24253	250	0,62	0,03	10,82	9,50
EC 4250	183,70	8079	105,02	16803	160	1,13	26255	250	0,72	0,03	9,80	9,50
EC 4250	212,10	9329	121,26	19000	157	1,00	30314	250	0,63	0,02	8,49	9,50
EC 4250	228,60	10054	130,69	19000	145	1,00	32673	250	0,58	0,02	7,87	9,50
EC 4250	252,20	11092	144,18	19000	132	1,00	35000	242	0,54	0,02	7,14	9,50
EC 4250	282,90	12443	161,73	19000	117	1,00	35000	216	0,54	0,02	6,36	9,50
EC 4250	314,90	13850	180,03	19000	106	1,00	35000	194	0,54	0,02	5,72	9,50
EC 4250	363,60	15992	207,87	19000	91	1,00	35000	168	0,54	0,01	4,95	9,50
EC 4250	392,00	17241	224,11	19000	85	1,00	35000	156	0,54	0,01	4,59	9,50
EC 4250	432,30	19013	247,15	19000	77	1,00	35000	141	0,54	0,01	4,16	9,50
EC 4250	484,90	21327	277,22	19000	69	1,00	35000	126	0,54	0,01	3,71	9,50
EC 4250	559,90	24626	320,09	19000	59	1,00	35000	109	0,54	0,01	3,21	9,50
EC 4250	614,50	27027	351,31	18000	51	1,00	35000	99	0,51	0,01	2,93	9,50

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EC 2020	10,50	693	9,48	1517	160	1,32	2370	250	0,84	0,48	114,29	9,50
EC 2020	12,39	817	11,19	1790	160	1,01	2797	250	0,64	0,40	96,85	9,50
EC 2020	14,23	939	12,85	2056	160	1,02	2800	217	0,75	0,35	84,33	9,50
EC 2020	16,17	1067	14,60	2000	137	1,00	2800	191	0,71	0,31	74,21	9,50
EC 2020	18,00	1188	16,25	1400	86	1,00	2800	172	0,50	0,28	66,67	9,50
EC 2020	19,08	1259	17,23	1800	104	1,00	2800	162	0,64	0,26	62,89	9,50
EC 2020	21,75	1435	19,64	1300	66	1,00	2600	132	0,50	0,23	55,17	9,50
EC 2020	23,89	1576	21,57	1500	70	1,00	2800	129	0,54	0,21	50,23	9,50
EC 2020	27,72	1829	25,03	1400	56	1,00	2800	111	0,50	0,18	43,29	9,50
EC 2045-46	10,50	693	9,48	1517	160	2,44	2370	250	1,56	0,48	114,29	9,50
EC 2045-46	12,39	817	11,19	1790	160	1,90	2797	250	1,22	0,40	96,85	9,50
EC 2045-46	16,17	1067	14,60	2336	160	1,58	3650	250	1,01	0,31	74,21	9,50
EC 2045-46	18,00	1188	16,25	2600	160	1,04	4063	250	0,66	0,28	66,67	9,50
EC 2045-46	19,08	1259	17,23	2756	160	1,23	4307	250	0,79	0,26	62,89	9,50
EC 2045-46	21,75	1435	19,64	2300	117	1,00	4600	234	0,50	0,23	55,17	9,50
EC 2045-46	23,89	1576	21,57	2900	134	1,00	5393	250	0,54	0,21	50,23	9,50
EC 2045-46	27,72	1829	25,03	2700	108	1,00	5400	215	0,50	0,18	43,29	9,50
EC 2045-46	33,50	2210	30,25	2300	76	1,00	4600	152	0,50	0,15	35,82	9,50
EC 3045-46	38,16	2518	33,77	3400	101	1,00	6000	177	0,57	0,13	31,45	9,50
EC 3045-46	43,37	2861	38,38	3700	96	1,00	6000	156	0,62	0,12	27,67	9,50
EC 3045-46	49,80	3285	44,07	3700	84	1,00	6000	136	0,62	0,10	24,10	9,50
EC 3045-46	56,60	3734	50,08	3700	74	1,00	6000	119	0,62	0,09	21,20	9,50
EC 3045-46	63,00	4156	55,75	3700	66	1,00	6000	107	0,62	0,08	19,05	9,50
EC 3045-46	73,57	4854	65,10	2900	45	1,00	5800	89	0,50	0,07	16,31	9,50
EC 3045-46	83,60	5515	73,98	3700	50	1,00	6000	81	0,62	0,06	14,35	9,50
EC 2065	11,58	764	10,46	1673	160	3,41	2614	250	2,18	0,43	103,63	9,50
EC 2065	12,99	857	11,73	1877	160	3,04	2932	250	1,94	0,38	92,38	9,50
EC 2065	16,17	1067	14,60	2336	160	1,84	3650	250	1,18	0,31	74,21	9,50
EC 2065	17,83	1176	16,10	2576	160	1,86	4025	250	1,19	0,28	67,30	9,50
EC 2065	20,00	1319	18,06	2889	160	1,87	4515	250	1,20	0,25	60,00	9,50
EC 2065	23,10	1524	20,86	3337	160	1,65	5214	250	1,05	0,22	51,95	9,50
EC 2065	27,72	1829	25,03	4005	160	1,10	6257	250	0,70	0,18	43,29	9,50
EC 3065	36,75	2425	32,52	5203	160	1,19	8130	250	0,76	0,14	32,65	9,50
EC 3065	40,53	2674	35,86	5700	159	1,00	8966	250	0,64	0,12	29,61	9,50
EC 3065	45,47	3000	40,24	5700	142	1,00	10000	248	0,57	0,11	26,39	9,50
EC 3065	49,80	3285	44,07	6200	141	1,00	10000	226	0,62	0,10	24,10	9,50
EC 3065	56,60	3734	50,08	6200	124	1,00	10000	199	0,62	0,09	21,20	9,50
EC 3065	62,42	4118	55,23	5700	103	1,00	10000	181	0,57	0,08	19,22	9,50
EC 3065	70,02	4619	61,96	5700	92	1,00	10000	161	0,57	0,07	17,14	9,50
EC 3065	80,85	5334	71,54	5500	77	1,00	10000	139	0,55	0,06	14,84	9,50
EC 3065	92,20	6083	81,59	5700	70	1,00	10000	122	0,57	0,05	13,02	9,50
EC 3065	103,40	6822	91,50	5700	62	1,00	10000	109	0,57	0,05	11,61	9,50
EC 3065	108,80	7178	96,28	5500	57	1,00	10000	103	0,55	0,05	11,03	9,50
EC 3065	120,00	7917	106,19	5700	54	1,00	10000	94	0,57	0,04	10,00	9,50
EC 2090	15,15	999	13,68	2189	160	3,52	3420	250	2,25	0,33	79,21	9,50
EC 2090	17,43	1150	15,74	2518	160	2,74	3935	250	1,75	0,29	68,85	9,50
EC 2090	20,76	1370	18,75	2999	160	1,83	4686	250	1,17	0,24	57,80	9,50
EC 2090	23,33	1539	21,07	3370	160	1,84	5266	250	1,18	0,21	51,44	9,50
EC 2090	26,84	1771	24,23	3878	160	1,78	6059	250	1,14	0,19	44,71	9,50
EC 2090	31,97	2109	28,87	4619	160	1,19	7217	250	0,76	0,16	37,54	9,50
EC 2090	40,19	2651	36,29	4100	113	1,00	8200	225	0,50	0,12	29,86	9,50
EC 3090	42,84	2826	37,91	6065	160	1,48	9477	250	0,95	0,12	28,01	9,50

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
EC 3090	50,55	3335	44,73	7157	160	1,26	11183	250	0,80	0,10	23,74	9,50
EC 3090	53,03	3499	46,93	7508	160	1,03	11731	250	0,66	0,09	22,63	9,50
EC 3090	65,97	4352	58,38	9000	154	1,00	14594	250	0,62	0,08	18,19	9,50
EC 3090	73,44	4845	64,99	9000	138	1,00	15000	230	0,60	0,07	16,34	9,50
EC 3090	77,85	5136	68,89	9000	131	1,00	15000	217	0,60	0,06	15,41	9,50
EC 3090	90,90	5997	80,44	7700	96	1,00	15000	186	0,51	0,06	13,20	9,50
EC 3090	97,45	6429	86,23	9000	104	1,00	15000	173	0,60	0,05	12,31	9,50
EC 3090	113,10	7462	100,08	9000	90	1,00	15000	149	0,60	0,04	10,61	9,50
EC 3090	120,60	7956	106,72	7700	72	1,00	15000	140	0,51	0,04	9,95	9,50
EC 3090	140,00	9236	123,88	7700	62	1,00	15000	121	0,51	0,04	8,57	9,50
EC 3090	161,10	10628	142,55	6900	48	1,00	13800	96	0,50	0,03	7,45	9,50
EC 3090	169,10	11156	149,63	7700	51	1,00	15000	100	0,51	0,03	7,10	9,50
EC 2150	17,99	1187	16,24	2599	160	3,85	4061	250	2,46	0,28	66,70	9,50
EC 2150	18,99	1253	17,15	2743	160	2,26	4287	250	1,45	0,26	63,19	9,50
EC 2150	21,95	1448	19,82	3171	160	2,84	4955	250	1,82	0,23	54,67	9,50
EC 2150	25,03	1651	22,60	3616	160	2,24	5650	250	1,43	0,20	47,94	9,50
EC 2150	30,53	2014	27,57	4411	160	2,04	6892	250	1,31	0,16	39,31	9,50
EC 3150	40,95	2702	36,24	5798	160	2,24	9059	250	1,44	0,12	29,30	9,50
EC 3150	48,32	3188	42,76	6841	160	1,90	10689	250	1,22	0,10	24,83	9,50
EC 3150	53,97	3561	47,76	7641	160	1,31	11939	250	0,84	0,09	22,23	9,50
EC 3150	63,06	4160	55,80	8928	160	1,46	13950	250	0,93	0,08	19,03	9,50
EC 3150	74,41	4909	65,84	10535	160	1,23	16461	250	0,79	0,07	16,13	9,50
EC 3150	83,11	5483	73,54	10000	136	1,00	18386	250	0,54	0,06	14,44	9,50
EC 3150	92,52	6104	81,87	10000	122	1,00	20000	244	0,50	0,05	12,97	9,50
EC 3150	98,07	6470	86,78	10000	115	1,00	20000	230	0,50	0,05	12,24	9,50
EC 3150	111,80	7376	98,93	10000	101	1,00	20000	202	0,50	0,04	10,73	9,50
EC 3150	122,80	8101	108,66	10000	92	1,00	20000	184	0,50	0,04	9,77	9,50
EC 3150	142,50	9401	126,10	10000	79	1,00	20000	158	0,50	0,04	8,42	9,50
EC 3150	149,80	9883	132,56	9000	68	1,00	18000	135	0,50	0,03	8,01	9,50
EC 3150	172,20	11361	152,38	10000	66	1,00	20000	131	0,50	0,03	6,97	9,50
EC 3150	210,00	13854	185,83	9000	48	1,00	18000	96	0,50	0,02	5,71	9,50
EC 4150	220,70	14560	191,39	13000	68	1,00	20000	104	0,65	0,02	5,44	9,50
EC 4150	260,50	17186	225,90	13000	58	1,00	20000	88	0,65	0,02	4,61	9,50
EC 4150	296,90	19587	257,47	13000	50	1,00	20000	77	0,65	0,02	4,04	9,50
EC 2250	17,92	1182	16,18	2589	160	3,86	4045	250	2,47	0,28	66,96	9,50
EC 2250	21,00	1385	18,96	3034	160	3,96	4740	250	2,53	0,24	57,14	9,50
EC 2250	24,93	1645	22,51	3602	160	2,25	5628	250	1,44	0,20	48,13	9,50
EC 2250	29,22	1928	26,38	4221	160	2,37	6596	250	1,52	0,17	41,07	9,50
EC 3250	42,42	2799	37,54	6006	160	3,16	9384	250	2,02	0,12	28,29	9,50
EC 3250	46,78	3086	41,39	6623	160	2,87	10349	250	1,84	0,11	25,65	9,50
EC 3250	52,48	3462	46,44	7430	160	2,56	11610	250	1,64	0,10	22,87	9,50
EC 3250	53,76	3547	47,57	7611	160	2,36	11893	250	1,51	0,09	22,32	9,50
EC 3250	60,60	3998	53,62	8580	160	2,21	13406	250	1,42	0,08	19,80	9,50
EC 3250	72,05	4753	63,76	10201	160	1,86	15939	250	1,19	0,07	16,66	9,50
EC 3250	80,82	5332	71,52	11443	160	1,66	17879	250	1,06	0,06	14,85	9,50
EC 3250	93,32	6157	82,58	13212	160	1,44	20644	250	0,92	0,05	12,86	9,50
EC 3250	102,40	6756	90,61	14498	160	1,24	22653	250	0,79	0,05	11,72	9,50
EC 3250	112,00	7389	99,11	15857	160	1,14	24777	250	0,73	0,04	10,71	9,50
EC 3250	118,30	7805	104,68	16749	160	1,07	26170	250	0,69	0,04	10,14	9,50
EC 3250	141,90	9362	125,56	18000	143	1,00	31391	250	0,57	0,04	8,46	9,50
EC 3250	166,30	10971	147,16	15000	102	1,00	30000	203	0,50	0,03	7,22	9,50
EC 4250	183,70	12119	159,30	19000	119	1,00	35000	219	0,54	0,03	6,53	9,50
EC 4250	212,10	13993	183,93	19000	103	1,00	35000	190	0,54	0,02	5,66	9,50

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
EC 4250	228,60	15081	198,24	19000	96	1,00	35000	176	0,54	0,02	5,25	9,50
EC 4250	252,20	16638	218,70	19000	87	1,00	35000	160	0,54	0,02	4,76	9,50
EC 4250	282,90	18664	245,33	19000	77	1,00	35000	142	0,54	0,02	4,24	9,50
EC 4250	314,90	20775	273,08	19000	70	1,00	35000	128	0,54	0,02	3,81	9,50
EC 4250	363,60	23988	315,31	19000	60	1,00	35000	111	0,54	0,01	3,30	9,50
EC 4250	392,00	25861	339,94	19000	56	1,00	35000	102	0,54	0,01	3,06	9,50
EC 4250	432,30	28520	374,88	19000	51	1,00	35000	93	0,54	0,01	2,78	9,50

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
EC 2020	10,50	928	12,70	1779	140	1,12	2668	210	0,75	0,48	85,71	8,50
EC 2020	12,39	1095	14,99	1800	120	1,00	2800	186	0,64	0,40	72,64	8,50
EC 2020	14,23	1258	17,22	2100	122	1,00	2800	162	0,75	0,35	63,25	8,50
EC 2020	16,17	1429	19,56	2000	102	1,00	2800	143	0,71	0,31	55,66	8,50
EC 2020	18,00	1591	21,78	1400	64	1,00	2800	128	0,50	0,28	50,00	8,50
EC 2020	19,08	1687	23,09	1800	78	1,00	2800	121	0,64	0,26	47,17	8,50
EC 2020	21,75	1923	26,32	1300	49	1,00	2600	98	0,50	0,23	41,38	8,50
EC 2020	23,89	2112	28,91	1500	52	1,00	2800	96	0,54	0,21	37,67	8,50
EC 2045-46	10,50	928	12,70	1779	140	2,08	2668	210	1,39	0,48	85,71	8,50
EC 2045-46	12,39	1095	14,99	2099	140	1,62	3148	210	1,08	0,40	72,64	8,50
EC 2045-46	16,17	1429	19,56	2739	140	1,35	4109	210	0,90	0,31	55,66	8,50
EC 2045-46	18,00	1591	21,78	2700	124	1,00	4574	210	0,59	0,28	50,00	8,50
EC 2045-46	19,08	1687	23,09	3232	140	1,05	4848	210	0,70	0,26	47,17	8,50
EC 2045-46	21,75	1923	26,32	2300	87	1,00	4600	174	0,50	0,23	41,38	8,50
EC 2045-46	23,89	2112	28,91	2900	100	1,00	5800	200	0,50	0,21	37,67	8,50
EC 2045-46	27,72	2451	33,54	2700	81	1,00	5400	161	0,50	0,18	32,47	8,50
EC 2045-46	33,50	2962	40,53	2300	57	1,00	4600	113	0,50	0,15	26,87	8,50
EC 3045-46	38,16	3373	45,25	3400	75	1,00	6000	132	0,57	0,13	23,58	8,50
EC 3045-46	43,37	3834	51,43	3700	72	1,00	6000	116	0,62	0,12	20,75	8,50
EC 3045-46	49,80	4403	59,05	3700	63	1,00	6000	101	0,62	0,10	18,07	8,50
EC 3045-46	56,60	5004	67,11	3700	55	1,00	6000	89	0,62	0,09	15,90	8,50
EC 3045-46	63,00	5569	74,70	3700	50	1,00	6000	80	0,62	0,08	14,29	8,50
EC 2065	10,50	928	12,70	1779	140	3,49	2668	210	2,32	0,48	85,71	8,50
EC 2065	11,58	1024	14,01	1962	140	2,91	2942	210	1,94	0,43	77,72	8,50
EC 2065	12,99	1148	15,72	2200	140	2,59	3301	210	1,73	0,38	69,28	8,50
EC 2065	16,17	1429	19,56	2739	140	1,57	4109	210	1,05	0,31	55,66	8,50
EC 2065	17,83	1576	21,57	3020	140	1,59	4530	210	1,06	0,28	50,48	8,50
EC 2065	20,00	1768	24,20	3388	140	1,59	5082	210	1,06	0,25	45,00	8,50
EC 2065	23,10	2042	27,95	3913	140	1,41	5869	210	0,94	0,22	38,96	8,50
EC 2065	27,72	2451	33,54	4400	131	1,00	7043	210	0,62	0,18	32,47	8,50
EC 3065	36,75	3249	43,58	6101	140	1,02	9151	210	0,68	0,14	24,49	8,50
EC 3065	40,53	3583	48,06	5700	119	1,00	10000	208	0,57	0,12	22,21	8,50
EC 3065	45,47	4020	53,92	5700	106	1,00	10000	185	0,57	0,11	19,79	8,50
EC 3065	49,80	4403	59,05	6200	105	1,00	10000	169	0,62	0,10	18,07	8,50
EC 3065	56,60	5004	67,11	6200	92	1,00	10000	149	0,62	0,09	15,90	8,50
EC 3065	62,42	5518	74,01	5700	77	1,00	10000	135	0,57	0,08	14,42	8,50
EC 3065	70,02	6190	83,03	5700	69	1,00	10000	120	0,57	0,07	12,85	8,50
EC 3065	80,85	7147	95,87	5500	57	1,00	10000	104	0,55	0,06	11,13	8,50
EC 3065	92,20	8151	109,33	5700	52	1,00	10000	91	0,57	0,05	9,76	8,50
EC 2090	15,15	1339	18,33	2566	140	3,00	3849	210	2,00	0,33	59,41	8,50
EC 2090	17,43	1541	21,09	2953	140	2,34	4429	210	1,56	0,29	51,64	8,50
EC 2090	20,76	1835	25,12	3517	140	1,56	5275	210	1,04	0,24	43,35	8,50
EC 2090	23,33	2062	28,23	3952	140	1,57	5928	210	1,05	0,21	38,58	8,50
EC 2090	26,84	2373	32,47	4546	140	1,52	6820	210	1,01	0,19	33,53	8,50
EC 2090	31,97	2826	38,68	5415	140	1,02	8123	210	0,68	0,16	28,15	8,50
EC 2090	40,19	3553	48,63	4100	84	1,00	8200	168	0,50	0,12	22,39	8,50
EC 3090	42,84	3787	50,80	7112	140	1,27	10667	210	0,84	0,12	21,01	8,50
EC 3090	50,55	4469	59,94	8392	140	1,07	12587	210	0,72	0,10	17,80	8,50
EC 3090	53,03	4688	62,88	7700	122	1,00	13205	210	0,58	0,09	16,97	8,50
EC 3090	65,97	5832	78,22	9000	115	1,00	15000	191	0,60	0,08	13,64	8,50
EC 3090	73,44	6492	87,08	9000	103	1,00	15000	172	0,60	0,07	12,25	8,50
EC 3090	77,85	6882	92,31	9000	97	1,00	15000	162	0,60	0,06	11,56	8,50

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EC 3090	90,90	8036	107,78	7700	71	1,00	15000	139	0,51	0,06	9,90	8,50
EC 3090	97,45	8615	115,55	9000	78	1,00	15000	129	0,60	0,05	9,24	8,50
EC 3090	113,10	9998	134,11	9000	67	1,00	15000	111	0,60	0,04	7,96	8,50
EC 3090	120,60	10662	143,00	7700	54	1,00	15000	104	0,51	0,04	7,46	8,50
EC 2150	17,99	1590	21,77	3047	140	3,28	4571	210	2,19	0,28	50,03	8,50
EC 2150	18,99	1679	22,98	3217	140	1,93	4825	210	1,28	0,26	47,39	8,50
EC 2150	21,95	1940	26,56	3718	140	2,42	5577	210	1,61	0,23	41,00	8,50
EC 2150	25,03	2213	30,28	4240	140	1,91	6360	210	1,27	0,20	35,96	8,50
EC 2150	30,53	2699	36,94	5172	140	1,74	7757	210	1,16	0,16	29,48	8,50
EC 3150	40,95	3620	48,56	6798	140	1,91	10197	210	1,27	0,12	21,98	8,50
EC 3150	48,32	4272	57,30	8021	140	1,62	12032	210	1,08	0,10	18,63	8,50
EC 3150	53,97	4771	63,99	8959	140	1,12	13439	210	0,74	0,09	16,68	8,50
EC 3150	63,06	5575	74,77	10468	140	1,24	15702	210	0,83	0,08	14,27	8,50
EC 3150	74,41	6578	88,23	12352	140	1,05	18529	210	0,70	0,07	12,10	8,50
EC 3150	83,11	7347	98,55	10000	101	1,00	20000	202	0,50	0,06	10,83	8,50
EC 3150	92,52	8179	109,71	10000	91	1,00	20000	182	0,50	0,05	9,73	8,50
EC 3150	98,07	8670	116,29	10000	86	1,00	20000	171	0,50	0,05	9,18	8,50
EC 3150	111,80	9884	132,57	10000	75	1,00	20000	150	0,50	0,04	8,05	8,50
EC 3150	122,80	10856	145,61	10000	69	1,00	20000	137	0,50	0,04	7,33	8,50
EC 3150	142,50	12598	168,97	10000	59	1,00	20000	118	0,50	0,04	6,32	8,50
EC 3150	149,80	13243	177,62	9000	51	1,00	18000	101	0,50	0,03	6,01	8,50
EC 3150	172,20	15223	204,19	10000	49	1,00	20000	97	0,50	0,03	5,23	8,50
EC 3150	210,00	18565	249,01	9000	36	1,00	18000	72	0,50	0,02	4,29	8,50
EC 4150	220,70	19511	256,46	13000	51	1,00	20000	77	0,65	0,02	4,08	8,50
EC 2250	17,92	1584	21,68	3036	140	3,29	4553	210	2,20	0,28	50,22	8,50
EC 2250	21,00	1856	25,41	3557	140	3,37	5336	210	2,25	0,24	42,86	8,50
EC 2250	24,93	2204	30,16	4223	140	1,92	6334	210	1,28	0,20	36,10	8,50
EC 2250	29,22	2583	35,35	4950	140	2,02	7424	210	1,35	0,17	30,80	8,50
EC 3250	42,42	3750	50,30	7042	140	2,70	10563	210	1,80	0,12	21,22	8,50
EC 3250	46,78	4136	55,47	7766	140	2,45	11649	210	1,63	0,11	19,24	8,50
EC 3250	52,48	4639	62,23	8712	140	2,18	13068	210	1,45	0,10	17,15	8,50
EC 3250	53,76	4753	63,75	8924	140	2,02	13387	210	1,34	0,09	16,74	8,50
EC 3250	60,60	5357	71,86	10060	140	1,89	15090	210	1,26	0,08	14,85	8,50
EC 3250	72,05	6370	85,43	11961	140	1,59	17941	210	1,06	0,07	12,49	8,50
EC 3250	80,82	7145	95,83	13416	140	1,42	20125	210	0,94	0,06	11,14	8,50
EC 3250	93,32	8250	110,65	15492	140	1,23	23237	210	0,82	0,05	9,64	8,50
EC 3250	102,40	9053	121,42	16999	140	1,06	25498	210	0,71	0,05	8,79	8,50
EC 3250	112,00	9901	132,80	18000	136	1,00	27889	210	0,65	0,04	8,04	8,50
EC 3250	118,30	10458	140,27	18000	128	1,00	29457	210	0,61	0,04	7,61	8,50
EC 3250	141,90	12545	168,26	18000	107	1,00	35000	208	0,51	0,04	6,34	8,50
EC 3250	166,30	14702	197,19	15000	76	1,00	30000	152	0,50	0,03	5,41	8,50
EC 4250	183,70	16240	213,46	19000	89	1,00	35000	163	0,54	0,03	4,90	8,50
EC 4250	212,10	18750	246,47	19000	77	1,00	35000	142	0,54	0,02	4,24	8,50
EC 4250	228,60	20209	265,64	19000	72	1,00	35000	131	0,54	0,02	3,94	8,50
EC 4250	252,20	22295	293,06	19000	65	1,00	35000	119	0,54	0,02	3,57	8,50
EC 4250	282,90	25009	328,74	19000	58	1,00	35000	106	0,54	0,02	3,18	8,50
EC 4250	314,90	27838	365,92	19000	52	1,00	35000	95	0,54	0,02	2,86	8,50

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
EC 2020	10,50	1150	15,91	2000	126	1,00	2800	175	0,71	0,48	71,43	8,50
EC 2020	12,39	1357	18,78	1800	96	1,00	2800	149	0,64	0,40	60,53	8,50
EC 2020	14,23	1558	21,57	2100	97	1,00	2800	129	0,75	0,35	52,71	8,50
EC 2020	16,17	1771	24,51	2000	82	1,00	2800	114	0,71	0,31	46,38	8,50
EC 2020	18,00	1971	27,28	1400	51	1,00	2800	102	0,50	0,28	41,67	8,50
EC 2020	19,08	2090	28,92	1800	62	1,00	2800	96	0,64	0,26	39,31	8,50
EC 2045-46	10,50	1150	15,91	2228	140	1,66	3342	210	1,11	0,48	71,43	8,50
EC 2045-46	12,39	1357	18,78	2629	140	1,29	3943	210	0,86	0,40	60,53	8,50
EC 2045-46	16,17	1771	24,51	3431	140	1,08	5146	210	0,72	0,31	46,38	8,50
EC 2045-46	18,00	1971	27,28	2700	99	1,00	5400	197	0,50	0,28	41,67	8,50
EC 2045-46	19,08	2090	28,92	3400	118	1,00	6000	207	0,57	0,26	39,31	8,50
EC 2045-46	21,75	2382	32,96	2300	70	1,00	4600	139	0,50	0,23	34,48	8,50
EC 2045-46	23,89	2616	36,21	2900	80	1,00	5800	160	0,50	0,21	31,39	8,50
EC 2045-46	27,72	3036	42,01	2700	64	1,00	5400	128	0,50	0,18	27,06	8,50
EC 2045-46	33,50	3669	50,77	2300	45	1,00	4600	90	0,50	0,15	22,39	8,50
EC 3045-46	38,16	4179	56,68	3400	60	1,00	6000	105	0,57	0,13	19,65	8,50
EC 3045-46	43,37	4750	64,41	3700	57	1,00	6000	93	0,62	0,12	17,29	8,50
EC 3045-46	49,80	5454	73,96	3700	50	1,00	6000	81	0,62	0,10	15,06	8,50
EC 2065	10,50	1150	15,91	2228	140	2,78	3342	210	1,86	0,48	71,43	8,50
EC 2065	11,58	1268	17,55	2457	140	2,32	3686	210	1,55	0,43	64,77	8,50
EC 2065	12,99	1423	19,69	2756	140	2,07	4134	210	1,38	0,38	57,74	8,50
EC 2065	16,17	1771	24,51	3431	140	1,25	5146	210	0,84	0,31	46,38	8,50
EC 2065	17,83	1953	27,02	3783	140	1,27	5675	210	0,85	0,28	42,06	8,50
EC 2065	20,00	2190	30,31	4244	140	1,27	6365	210	0,85	0,25	37,50	8,50
EC 2065	23,10	2530	35,01	4901	140	1,12	7352	210	0,75	0,22	32,47	8,50
EC 2065	27,72	3036	42,01	4400	105	1,00	8800	209	0,50	0,18	27,06	8,50
EC 3065	36,75	4025	54,58	6200	114	1,00	10000	183	0,62	0,14	20,41	8,50
EC 3065	40,53	4439	60,20	5700	95	1,00	10000	166	0,57	0,12	18,50	8,50
EC 3065	45,47	4980	67,53	5700	84	1,00	10000	148	0,57	0,11	16,49	8,50
EC 3065	49,80	5454	73,96	6200	84	1,00	10000	135	0,62	0,10	15,06	8,50
EC 3065	56,60	6199	84,06	6200	74	1,00	10000	118	0,62	0,09	13,25	8,50
EC 3065	62,42	6836	92,71	5700	61	1,00	10000	107	0,57	0,08	12,02	8,50
EC 3065	70,02	7668	104,00	5700	55	1,00	10000	96	0,57	0,07	10,71	8,50
EC 2090	12,24	1340	18,55	2597	140	2,93	3896	210	1,95	0,41	61,27	8,50
EC 2090	15,15	1659	22,96	3214	140	2,40	4822	210	1,60	0,33	49,50	8,50
EC 2090	17,43	1909	26,42	3698	140	1,87	5547	210	1,24	0,29	43,03	8,50
EC 2090	20,76	2274	31,46	4405	140	1,25	6607	210	0,83	0,24	36,13	8,50
EC 2090	23,33	2555	35,36	4950	140	1,25	7425	210	0,84	0,21	32,15	8,50
EC 2090	26,84	2939	40,68	5695	140	1,21	8542	210	0,81	0,19	27,94	8,50
EC 2090	31,97	3501	48,45	5500	114	1,00	10175	210	0,54	0,16	23,46	8,50
EC 2090	40,19	4401	60,91	4100	67	1,00	8200	134	0,50	0,12	18,66	8,50
EC 3090	42,84	4692	63,63	8908	140	1,01	13362	210	0,67	0,12	17,51	8,50
EC 3090	50,55	5536	75,08	9000	120	1,00	15000	199	0,60	0,10	14,84	8,50
EC 3090	53,03	5808	78,76	7700	98	1,00	15000	190	0,51	0,09	14,14	8,50
EC 3090	65,97	7225	97,98	9000	92	1,00	15000	153	0,60	0,08	11,37	8,50
EC 3090	73,44	8043	109,08	9000	83	1,00	15000	137	0,60	0,07	10,21	8,50
EC 3090	77,85	8526	115,63	9000	78	1,00	15000	129	0,60	0,06	9,63	8,50
EC 3090	90,90	9955	135,01	7700	57	1,00	15000	111	0,51	0,06	8,25	8,50
EC 3090	97,45	10672	144,74	9000	62	1,00	15000	103	0,60	0,05	7,70	8,50
EC 3090	113,10	12386	167,98	9000	54	1,00	15000	89	0,60	0,04	6,63	8,50
EC 2150	14,14	1549	21,43	3000	140	3,33	4500	210	2,22	0,35	53,04	8,50
EC 2150	17,99	1970	27,26	3817	140	2,62	5726	210	1,75	0,28	41,69	8,50
Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EC 2150	18,99	2080	28,78	4029	140	1,54	6044	210	1,03	0,26	39,49	8,50
EC 2150	21,95	2404	33,27	4657	140	1,93	6986	210	1,29	0,23	34,17	8,50
EC 2150	25,03	2741	37,93	5311	140	1,53	7966	210	1,02	0,20	29,96	8,50
EC 2150	30,53	3344	46,27	6478	140	1,39	9717	210	0,93	0,16	24,57	8,50
EC 3150	40,95	4485	60,82	8515	140	1,53	12772	210	1,02	0,12	18,32	8,50
EC 3150	48,32	5292	71,77	10047	140	1,29	15071	210	0,86	0,10	15,52	8,50
EC 3150	53,97	5911	80,16	10000	125	1,00	16833	210	0,59	0,09	13,90	8,50
EC 3150	63,06	6906	93,66	13000	139	1,00	19668	210	0,66	0,08	11,89	8,50
EC 3150	74,41	8149	110,52	13000	118	1,00	20000	180	0,65	0,07	10,08	8,50
EC 3150	83,11	9102	123,44	10000	81	1,00	20000	162	0,50	0,06	9,02	8,50
EC 3150	92,52	10132	137,41	10000	73	1,00	20000	145	0,50	0,05	8,11	8,50
EC 3150	98,07	10740	145,66	10000	69	1,00	20000	137	0,50	0,05	7,65	8,50
EC 3150	111,80	12244	166,05	10000	60	1,00	20000	120	0,50	0,04	6,71	8,50
EC 3150	122,80	13449	182,39	10000	55	1,00	20000	109	0,50	0,04	6,11	8,50
EC 2250	17,92	1963	27,16	3802	140	2,63	5703	210	1,75	0,28	41,85	8,50
EC 2250	21,00	2300	31,83	4456	140	2,69	6684	210	1,80	0,24	35,71	8,50
EC 2250	24,93	2730	37,78	5290	140	1,53	7934	210	1,02	0,20	30,08	8,50
EC 2250	29,22	3200	44,28	6200	140	1,61	9300	210	1,08	0,17	25,67	8,50
EC 3250	42,42	4646	63,00	8821	140	2,15	13231	210	1,44	0,12	17,68	8,50
EC 3250	46,78	5123	69,48	9727	140	1,95	14591	210	1,30	0,11	16,03	8,50
EC 3250	52,48	5747	77,95	10912	140	1,74	16369	210	1,16	0,10	14,29	8,50
EC 3250	53,76	5888	79,85	11178	140	1,61	16768	210	1,07	0,09	13,95	8,50
EC 3250	60,60	6637	90,01	12601	140	1,51	18901	210	1,01	0,08	12,38	8,50
EC 3250	72,05	7891	107,01	14982	140	1,27	22472	210	0,85	0,07	10,41	8,50
EC 3250	80,82	8851	120,04	16805	140	1,13	25208	210	0,75	0,06	9,28	8,50
EC 3250	93,32	10220	138,60	19000	137	1,00	29106	210	0,65	0,05	8,04	8,50
EC 3250	102,40	11214	152,09	18000	118	1,00	31939	210	0,56	0,05	7,32	8,50
EC 3250	112,00	12266	166,35	18000	108	1,00	34933	210	0,52	0,04	6,70	8,50
EC 3250	118,30	12956	175,70	18000	102	1,00	35000	199	0,51	0,04	6,34	8,50
EC 3250	141,90	15540	210,76	18000	85	1,00	35000	166	0,51	0,04	5,29	8,50
EC 3250	166,30	18213	246,99	15000	61	1,00	30000	121	0,50	0,03	4,51	8,50
EC 4250	183,70	20118	267,38	19000	71	1,00	35000	130	0,54	0,03	4,08	8,50
EC 4250	212,10	23228	308,72	19000	62	1,00	35000	113	0,54	0,02	3,54	8,50
EC 4250	228,60	25035	332,73	19000	57	1,00	35000	105	0,54	0,02	3,28	8,50
EC 4250	252,20	27620	367,09	19000	52	1,00	35000	95	0,54	0,02	2,97	8,50

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
EC 2020	10,50	844	11,56	2000	173	1,00	2800	242	0,71	0,48	76,19	12,00
EC 2020	12,39	996	13,64	1800	132	1,00	2800	205	0,64	0,40	64,57	12,00
EC 2020	14,23	1144	15,66	2100	134	1,00	2800	178	0,75	0,35	56,22	12,00
EC 2020	16,17	1300	17,80	2000	112	1,00	2800	157	0,71	0,31	49,47	12,00
EC 2020	18,00	1448	19,81	1400	71	1,00	2800	141	0,50	0,28	44,44	12,00
EC 2020	19,08	1535	21,00	1800	86	1,00	2800	133	0,64	0,26	41,93	12,00
EC 2020	21,75	1749	23,94	1300	54	1,00	2600	108	0,50	0,23	36,78	12,00
EC 2020	23,89	1921	26,30	1500	57	1,00	2800	106	0,54	0,21	33,49	12,00
EC 2045-46	10,50	844	11,56	1618	140	2,29	3641	315	1,02	0,48	76,19	12,00
EC 2045-46	12,39	996	13,64	3400	249	1,00	4296	315	0,79	0,40	64,57	12,00
EC 2045-46	16,17	1300	17,80	3700	208	1,00	5607	315	0,66	0,31	49,47	12,00
EC 2045-46	18,00	1448	19,81	2700	136	1,00	5400	272	0,50	0,28	44,44	12,00
EC 2045-46	19,08	1535	21,00	3400	162	1,00	6000	285	0,57	0,26	41,93	12,00
EC 2045-46	21,75	1749	23,94	2300	96	1,00	4600	192	0,50	0,23	36,78	12,00
EC 2045-46	23,89	1921	26,30	2900	110	1,00	5800	220	0,50	0,21	33,49	12,00
EC 2045-46	27,72	2229	30,51	2700	88	1,00	5400	176	0,50	0,18	28,86	12,00
EC 2045-46	33,50	2694	36,87	2300	62	1,00	4600	124	0,50	0,15	23,88	12,00
EC 3045-46	38,16	3069	41,16	3400	83	1,00	6000	145	0,57	0,13	20,96	12,00
EC 3045-46	43,37	3488	46,78	3700	79	1,00	6000	128	0,62	0,12	18,45	12,00
EC 3045-46	49,80	4005	53,72	3700	69	1,00	6000	111	0,62	0,10	16,06	12,00
EC 3045-46	56,60	4552	61,06	3700	61	1,00	6000	98	0,62	0,09	14,13	12,00
EC 3045-46	63,00	5067	67,96	3700	54	1,00	6000	88	0,62	0,08	12,70	12,00
EC 2065	10,50	844	11,56	1618	140	3,83	3641	315	1,70	0,48	76,19	12,00
EC 2065	11,58	931	12,75	1785	140	3,19	4015	315	1,42	0,43	69,08	12,00
EC 2065	12,99	1045	14,30	2002	140	2,85	4504	315	1,27	0,38	61,59	12,00
EC 2065	16,17	1300	17,80	4300	242	1,00	5607	315	0,77	0,31	49,47	12,00
EC 2065	17,83	1434	19,63	4800	245	1,00	6182	315	0,78	0,28	44,87	12,00
EC 2065	20,00	1609	22,01	5400	245	1,00	6935	315	0,78	0,25	40,00	12,00
EC 2065	23,10	1858	25,43	5500	216	1,00	8010	315	0,69	0,22	34,63	12,00
EC 2065	27,72	2229	30,51	4400	144	1,00	8800	288	0,50	0,18	28,86	12,00
EC 3065	36,75	2956	39,64	6200	156	1,00	10000	252	0,62	0,14	21,77	12,00
EC 3065	40,53	3260	43,72	5700	130	1,00	10000	228	0,57	0,12	19,74	12,00
EC 3065	45,47	3657	49,05	5700	116	1,00	10000	203	0,57	0,11	17,59	12,00
EC 3065	49,80	4005	53,72	6200	115	1,00	10000	186	0,62	0,10	16,06	12,00
EC 3065	56,60	4552	61,06	6200	102	1,00	10000	163	0,62	0,09	14,13	12,00
EC 3065	62,42	5020	67,33	5700	85	1,00	10000	148	0,57	0,08	12,82	12,00
EC 3065	70,02	5631	75,53	5700	75	1,00	10000	132	0,57	0,07	11,43	12,00
EC 3065	80,85	6502	87,21	5500	63	1,00	10000	114	0,55	0,06	9,89	12,00
EC 3065	92,20	7415	99,46	5700	57	1,00	10000	100	0,57	0,05	8,68	12,00
EC 3065	103,40	8316	111,54	5700	51	1,00	10000	89	0,57	0,05	7,74	12,00
EC 2090	12,24	984	13,47	1886	140	4,03	4244	315	1,79	0,41	65,36	12,00
EC 2090	15,15	1218	16,68	2335	140	3,30	5253	315	1,47	0,33	52,81	12,00
EC 2090	17,43	1402	19,19	2686	140	2,57	6044	315	1,14	0,29	45,90	12,00
EC 2090	20,76	1670	22,85	5500	241	1,00	7198	315	0,76	0,24	38,54	12,00
EC 2090	23,33	1876	25,68	6200	241	1,00	8089	315	0,77	0,21	34,29	12,00
EC 2090	26,84	2159	29,54	6900	234	1,00	9306	315	0,74	0,19	29,81	12,00
EC 2090	31,97	2571	35,19	5500	156	1,00	11000	312	0,50	0,16	25,02	12,00
EC 2090	40,19	3232	44,24	4100	93	1,00	8200	185	0,50	0,12	19,91	12,00
EC 3090	42,84	3445	46,21	9000	195	1,00	14557	315	0,62	0,12	18,67	12,00
EC 3090	50,55	4065	54,53	9000	165	1,00	15000	275	0,60	0,10	15,83	12,00
EC 3090	53,03	4265	57,20	7700	135	1,00	15000	262	0,51	0,09	15,09	12,00
EC 3090	65,97	5306	71,16	9000	126	1,00	15000	210	0,60	0,08	12,13	12,00

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
EC 3090	73,44	5906	79,22	9000	114	1,00	15000	189	0,60	0,07	10,89	12,00
EC 3090	77,85	6261	83,98	9000	107	1,00	15000	178	0,60	0,06	10,28	12,00
EC 3090	90,90	7311	98,06	7700	79	1,00	15000	152	0,51	0,06	8,80	12,00
EC 3090	97,45	7837	105,12	9000	86	1,00	15000	142	0,60	0,05	8,21	12,00
EC 3090	113,10	9096	122,00	9000	74	1,00	15000	122	0,60	0,04	7,07	12,00
EC 3090	120,60	9699	130,09	7700	59	1,00	15000	115	0,51	0,04	6,63	12,00
EC 3090	140,00	11260	151,02	7700	51	1,00	15000	99	0,51	0,04	5,71	12,00
EC 2150	14,14	1137	15,56	2179	140	4,59	4903	315	2,04	0,35	56,58	12,00
EC 2150	17,99	1447	19,80	2772	140	3,61	6238	315	1,60	0,28	44,47	12,00
EC 2150	18,99	1527	20,90	2926	140	2,12	6584	315	0,94	0,26	42,13	12,00
EC 2150	21,95	1765	24,16	3383	140	2,66	7611	315	1,18	0,23	36,45	12,00
EC 2150	25,03	2013	27,55	3857	140	2,10	8679	315	0,93	0,20	31,96	12,00
EC 2150	30,53	2455	33,61	4705	140	1,91	10586	315	0,85	0,16	26,20	12,00
EC 3150	40,95	3293	44,17	6184	140	2,10	13915	315	0,93	0,12	19,54	12,00
EC 3150	48,32	3886	52,12	13000	249	1,00	16419	315	0,79	0,10	16,56	12,00
EC 3150	53,97	4341	58,22	10000	172	1,00	18339	315	0,55	0,09	14,82	12,00
EC 3150	63,06	5072	68,02	13000	191	1,00	20000	294	0,65	0,08	12,69	12,00
EC 3150	74,41	5984	80,27	13000	162	1,00	20000	249	0,65	0,07	10,75	12,00
EC 3150	83,11	6684	89,65	10000	112	1,00	20000	223	0,50	0,06	9,63	12,00
EC 3150	92,52	7441	99,80	10000	100	1,00	20000	200	0,50	0,05	8,65	12,00
EC 3150	98,07	7887	105,79	10000	95	1,00	20000	189	0,50	0,05	8,16	12,00
EC 3150	111,80	8992	120,60	10000	83	1,00	20000	165	0,50	0,04	7,16	12,00
EC 3150	122,80	9876	132,47	10000	75	1,00	20000	150	0,50	0,04	6,51	12,00
EC 3150	142,50	11461	153,72	10000	65	1,00	20000	130	0,50	0,04	5,61	12,00
EC 3150	149,80	12048	161,59	9000	56	1,00	18000	111	0,50	0,03	5,34	12,00
EC 3150	172,20	13849	185,76	10000	54	1,00	20000	107	0,50	0,03	4,65	12,00
EC 3150	210,00	16889	226,53	9000	40	1,00	18000	79	0,50	0,02	3,81	12,00
EC 4150	220,70	17750	233,31	13000	56	1,00	20000	85	0,65	0,02	3,62	12,00
EC 2250	16,50	1327	18,16	2543	140	5,90	5721	315	2,62	0,30	48,48	12,00
EC 2250	17,92	1441	19,73	2762	140	3,62	6213	315	1,61	0,28	44,64	12,00
EC 2250	21,00	1689	23,12	3236	140	3,71	7281	315	1,65	0,24	38,10	12,00
EC 2250	24,93	2005	27,44	3842	140	2,11	8644	315	0,94	0,20	32,09	12,00
EC 2250	29,22	2350	32,16	4503	140	2,22	10132	315	0,99	0,17	27,38	12,00
EC 3250	42,42	3412	45,76	6406	140	2,97	14414	315	1,32	0,12	18,86	12,00
EC 3250	46,78	3762	50,46	7065	140	2,69	15896	315	1,20	0,11	17,10	12,00
EC 3250	52,48	4221	56,61	7926	140	2,40	17833	315	1,07	0,10	15,24	12,00
EC 3250	53,76	4324	57,99	8119	140	2,22	18268	315	0,99	0,09	14,88	12,00
EC 3250	60,60	4874	65,37	9152	140	2,08	20592	315	0,92	0,08	13,20	12,00
EC 3250	72,05	5795	77,72	19000	244	1,00	24482	315	0,78	0,07	11,10	12,00
EC 3250	80,82	6500	87,18	19000	218	1,00	27462	315	0,69	0,06	9,90	12,00
EC 3250	93,32	7505	100,67	19000	189	1,00	31710	315	0,60	0,05	8,57	12,00
EC 3250	102,40	8236	110,46	18000	163	1,00	34795	315	0,52	0,05	7,81	12,00
EC 3250	112,00	9008	120,82	18000	149	1,00	35000	289	0,51	0,04	7,14	12,00
EC 3250	118,30	9514	127,61	18000	141	1,00	35000	274	0,51	0,04	6,76	12,00
EC 3250	141,90	11412	153,07	18000	118	1,00	35000	228	0,51	0,04	5,64	12,00
EC 3250	166,30	13375	179,39	15000	84	1,00	30000	167	0,50	0,03	4,81	12,00
EC 4250	183,70	14774	194,20	19000	98	1,00	35000	180	0,54	0,03	4,35	12,00
EC 4250	212,10	17058	224,22	19000	85	1,00	35000	156	0,54	0,02	3,77	12,00
EC 4250	228,60	18385	241,66	19000	79	1,00	35000	144	0,54	0,02	3,50	12,00
EC 4250	252,20	20283	266,61	19000	71	1,00	35000	131	0,54	0,02	3,17	12,00
EC 4250	282,90	22752	299,07	19000	64	1,00	35000	117	0,54	0,02	2,83	12,00
EC 4250	314,90	25326	332,90	19000	57	1,00	35000	105	0,54	0,02	2,54	12,00

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
EC 2020	10,50	1.319	18,06	2000	111	1,00	2800	155	0,71	0,48	57,14	12,00
EC 2020	12,39	1.557	21,31	1800	84	1,00	2800	131	0,64	0,40	48,43	12,00
EC 2020	14,23	1.788	24,47	2100	86	1,00	2800	114	0,75	0,35	42,16	12,00
EC 2020	16,17	2.032	27,81	2000	72	1,00	2800	100	0,71	0,31	37,11	12,00
EC 2020	18,00	2.262	30,96	1400	45	1,00	2800	90	0,50	0,28	33,33	12,00
EC 2020	19,08	2.398	32,82	1800	55	1,00	2800	85	0,64	0,26	31,45	12,00
EC 2045-46	10,50	1.319	18,06	3612	200	1,02	5689	315	0,65	0,48	57,14	12,00
EC 2045-46	12,39	1.557	21,31	3400	160	1,00	6000	281	0,57	0,40	48,43	12,00
EC 2045-46	16,17	2.032	27,81	3700	133	1,00	6000	215	0,62	0,31	37,11	12,00
EC 2045-46	18,00	2.262	30,96	2700	87	1,00	5400	174	0,50	0,28	33,33	12,00
EC 2045-46	19,08	2.398	32,82	3400	104	1,00	6000	182	0,57	0,26	31,45	12,00
EC 2045-46	21,75	2.733	37,41	2300	61	1,00	4600	122	0,50	0,23	27,59	12,00
EC 2045-46	23,89	3.002	41,09	2900	71	1,00	5800	141	0,50	0,21	25,12	12,00
EC 2045-46	27,72	3.483	47,68	2700	57	1,00	5400	113	0,50	0,18	21,65	12,00
EC 2045-46	33,50	4.210	57,62	2300	40	1,00	4600	79	0,50	0,15	17,91	12,00
EC 3045-46	38,16	4.795	64,32	3400	53	1,00	6000	93	0,57	0,13	15,72	12,00
EC 3045-46	43,37	5.450	73,10	3700	51	1,00	6000	82	0,62	0,12	13,83	12,00
EC 2065	10,50	1.319	18,06	3612	200	1,72	5689	315	1,09	0,48	57,14	12,00
EC 2065	11,58	1.455	19,92	3983	200	1,43	6274	315	0,91	0,43	51,81	12,00
EC 2065	12,99	1.632	22,34	4468	200	1,28	7038	315	0,81	0,38	46,19	12,00
EC 2065	16,17	2.032	27,81	4300	155	1,00	8600	309	0,50	0,31	37,11	12,00
EC 2065	17,83	2.241	30,67	4800	157	1,00	9600	313	0,50	0,28	33,65	12,00
EC 2065	20,00	2.513	34,40	5400	157	1,00	10000	290	0,54	0,25	30,00	12,00
EC 2065	23,10	2.903	39,73	5500	138	1,00	10000	251	0,55	0,22	25,97	12,00
EC 2065	27,72	3.483	47,68	4400	92	1,00	8800	184	0,50	0,18	21,65	12,00
EC 3065	36,75	4.618	61,94	6200	100	1,00	10000	161	0,62	0,14	16,33	12,00
EC 3065	40,53	5.093	68,31	5700	83	1,00	10000	146	0,57	0,12	14,80	12,00
EC 3065	45,47	5.714	76,64	5700	74	1,00	10000	130	0,57	0,11	13,20	12,00
EC 3065	49,80	6.258	83,94	6200	74	1,00	10000	119	0,62	0,10	12,05	12,00
EC 3065	56,60	7.113	95,40	6200	65	1,00	10000	104	0,62	0,09	10,60	12,00
EC 3065	62,42	7.844	105,21	5700	54	1,00	10000	95	0,57	0,08	9,61	12,00
EC 2090	12,24	1.538	21,05	4210	200	1,81	6631	315	1,15	0,41	49,02	12,00
EC 2090	15,15	1.904	26,06	5211	200	1,48	8208	315	0,94	0,33	39,60	12,00
EC 2090	17,43	2.190	29,98	5996	200	1,15	9443	315	0,73	0,29	34,42	12,00
EC 2090	20,76	2.609	35,71	5500	154	1,00	11000	308	0,50	0,24	28,90	12,00
EC 2090	23,33	2.932	40,13	6200	155	1,00	12400	309	0,50	0,21	25,72	12,00
EC 2090	26,84	3.373	46,16	6900	149	1,00	13800	298	0,50	0,19	22,35	12,00
EC 2090	31,97	4.017	54,99	5500	100	1,00	11000	200	0,50	0,16	18,77	12,00
EC 2090	40,19	5.050	69,12	4100	59	1,00	8200	118	0,50	0,12	14,93	12,00
EC 3090	42,84	5.383	72,21	9000	125	1,00	15000	207	0,60	0,12	14,01	12,00
EC 3090	50,55	6.352	85,20	9000	106	1,00	15000	176	0,60	0,10	11,87	12,00
EC 3090	53,03	6.664	89,38	7700	86	1,00	15000	167	0,51	0,09	11,31	12,00
EC 3090	65,97	8.290	111,19	9000	81	1,00	15000	134	0,60	0,08	9,10	12,00
EC 3090	73,44	9.229	123,78	9000	73	1,00	15000	121	0,60	0,07	8,17	12,00
EC 3090	77,85	9.783	131,22	9000	69	1,00	15000	114	0,60	0,06	7,71	12,00
EC 3090	90,90	11.423	153,21	7700	50	1,00	15000	97	0,51	0,06	6,60	12,00
EC 3090	97,45	12.246	164,25	9000	55	1,00	15000	91	0,60	0,05	6,16	12,00
EC 2150	10,73	1.348	18,45	3691	200	3,52	5813	315	2,24	0,47	55,92	12,00
EC 2150	14,14	1.777	24,32	4864	200	2,06	7661	315	1,31	0,35	42,43	12,00
EC 2150	17,99	2.261	30,94	6188	200	1,62	9746	315	1,03	0,28	33,35	12,00
EC 2150	18,99	2.386	32,66	6200	190	1,00	10288	315	0,60	0,26	31,60	12,00
EC 2150	21,95	2.758	37,75	7550	200	1,19	11892	315	0,76	0,23	27,33	12,00

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
EC 2150	25,03	3.145	43,05	8100	188	1,00	13560	315	0,60	0,20	23,97	12,00
EC 2150	30,53	3.837	52,51	9000	171	1,00	16540	315	0,54	0,16	19,65	12,00
EC 3150	40,95	5.146	69,02	13000	188	1,00	20000	289	0,65	0,12	14,65	12,00
EC 3150	48,32	6.072	81,44	13000	160	1,00	20000	245	0,65	0,10	12,42	12,00
EC 3150	53,97	6.782	90,97	10000	110	1,00	20000	219	0,50	0,09	11,12	12,00
EC 3150	63,06	7.924	106,29	13000	122	1,00	20000	188	0,65	0,08	9,51	12,00
EC 3150	74,41	9.351	125,42	13000	104	1,00	20000	159	0,65	0,07	8,06	12,00
EC 3150	83,11	10.444	140,08	10000	71	1,00	20000	142	0,50	0,06	7,22	12,00
EC 3150	92,52	11.626	155,94	10000	64	1,00	20000	128	0,50	0,05	6,49	12,00
EC 3150	98,07	12.324	165,30	10000	60	1,00	20000	120	0,50	0,05	6,12	12,00
EC 3150	111,80	14.049	188,44	10000	53	1,00	20000	106	0,50	0,04	5,37	12,00
EC 2250	16,50	2.073	28,38	5676	200	2,64	8939	315	1,68	0,30	36,36	12,00
EC 2250	17,92	2.252	30,82	6164	200	1,62	9709	315	1,03	0,28	33,48	12,00
EC 2250	21,00	2.639	36,12	7224	200	1,66	11377	315	1,05	0,24	28,57	12,00
EC 2250	24,93	3.133	42,88	8100	189	1,00	13506	315	0,60	0,20	24,07	12,00
EC 2250	29,22	3.672	50,26	10000	199	1,00	15831	315	0,63	0,17	20,53	12,00
EC 3250	42,42	5.331	71,50	14300	200	1,33	22522	315	0,84	0,12	14,14	12,00
EC 3250	46,78	5.879	78,85	15770	200	1,20	24837	315	0,76	0,11	12,83	12,00
EC 3250	52,48	6.595	88,46	17691	200	1,07	27863	315	0,68	0,10	11,43	12,00
EC 3250	53,76	6.756	90,61	18000	199	1,00	28543	315	0,63	0,09	11,16	12,00
EC 3250	60,60	7.615	102,14	19000	186	1,00	32175	315	0,59	0,08	9,90	12,00
EC 3250	72,05	9.054	121,44	19000	156	1,00	35000	288	0,54	0,07	8,33	12,00
EC 3250	80,82	10.156	136,22	19000	139	1,00	35000	256	0,54	0,06	7,42	12,00
EC 3250	93,32	11.727	157,29	19000	121	1,00	35000	222	0,54	0,05	6,43	12,00
EC 3250	102,40	12.868	172,60	18000	104	1,00	35000	202	0,51	0,05	5,86	12,00
EC 3250	112,00	14.074	188,78	18000	95	1,00	35000	185	0,51	0,04	5,36	12,00
EC 3250	118,30	14.866	199,40	18000	90	1,00	35000	175	0,51	0,04	5,07	12,00
EC 3250	141,90	17.832	239,17	18000	75	1,00	35000	146	0,51	0,04	4,23	12,00
EC 3250	166,30	20.898	280,30	15000	54	1,00	30000	107	0,50	0,03	3,61	12,00
EC 4250	183,70	23.084	303,43	19000	63	1,00	35000	115	0,54	0,03	3,27	12,00
EC 4250	212,10	26.653	350,35	19000	54	1,00	35000	99	0,54	0,02	2,83	12,00
EC 4250	228,60	28.727	377,60	19000	50	1,00	35000	92	0,54	0,02	2,62	12,00

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
EC 2020	10,50	1689	23,63	2000	85	1,00	2800	118	0,71	0,48	76,19	24,00
EC 2020	12,39	1993	27,88	1800	65	1,00	2800	100	0,64	0,40	64,57	24,00
EC 2020	14,23	2289	32,02	2100	66	1,00	2800	87	0,75	0,35	56,22	24,00
EC 2020	16,17	2601	36,39	2000	55	1,00	2800	76	0,71	0,31	49,47	24,00
EC 2045-46	10,50	1689	23,63	3700	157	1,00	6000	253	0,62	0,48	76,19	24,00
EC 2045-46	12,39	1993	27,88	3400	122	1,00	6000	215	0,57	0,40	64,57	24,00
EC 2045-46	16,17	2601	36,39	3700	102	1,00	6000	164	0,62	0,31	49,47	24,00
EC 2045-46	18,00	2895	40,51	2700	67	1,00	5400	133	0,50	0,28	44,44	24,00
EC 2045-46	19,08	3069	42,94	3400	79	1,00	6000	139	0,57	0,26	41,93	24,00
EC 2045-46	21,75	3498	48,95	2300	47	1,00	4600	93	0,50	0,23	36,78	24,00
EC 2045-46	23,89	3843	53,76	2900	54	1,00	5800	107	0,50	0,21	33,49	24,00
EC 2065	10,50	1689	23,63	5907	250	1,05	7443	315	0,83	0,48	76,19	24,00
EC 2065	11,58	1863	26,06	5700	219	1,00	8209	315	0,69	0,43	69,08	24,00
EC 2065	12,99	2089	29,23	5700	195	1,00	9208	315	0,62	0,38	61,59	24,00
EC 2065	16,17	2601	36,39	4300	118	1,00	8600	236	0,50	0,31	49,47	24,00
EC 2065	17,83	2868	40,12	4800	120	1,00	9600	239	0,50	0,28	44,87	24,00
EC 2065	20,00	3217	45,01	5400	120	1,00	10000	222	0,54	0,25	40,00	24,00
EC 2065	23,10	3716	51,98	5500	106	1,00	10000	192	0,55	0,22	34,63	24,00
EC 2065	27,72	4459	62,38	4400	71	1,00	8800	141	0,50	0,18	28,86	24,00
EC 3065	36,75	5911	81,05	6200	76	1,00	10000	123	0,62	0,14	21,77	24,00
EC 3065	40,53	6519	89,38	5700	64	1,00	10000	111	0,57	0,12	19,74	24,00
EC 3065	45,47	7314	100,28	5700	57	1,00	10000	99	0,57	0,11	17,59	24,00
EC 3065	49,80	8010	109,83	6200	56	1,00	10000	91	0,62	0,10	16,06	24,00
EC 3065	56,60	9104	124,83	6200	50	1,00	10000	80	0,62	0,09	14,13	24,00
EC 2090	12,24	1969	27,54	6886	250	1,10	8677	315	0,88	0,41	65,36	24,00
EC 2090	15,15	2437	34,09	7700	226	1,00	10739	315	0,72	0,33	52,81	24,00
EC 2090	17,43	2804	39,22	6900	176	1,00	12356	315	0,56	0,29	45,90	24,00
EC 2090	20,76	3339	46,72	5500	118	1,00	11000	235	0,50	0,24	38,54	24,00
EC 2090	23,33	3753	52,50	6200	118	1,00	12400	236	0,50	0,21	34,29	24,00
EC 2090	26,84	4317	60,40	6900	114	1,00	13800	228	0,50	0,19	29,81	24,00
EC 2090	31,97	5142	71,95	5500	76	1,00	11000	152	0,50	0,16	25,02	24,00
EC 2090	40,19	6465	90,44	4100	45	1,00	8200	90	0,50	0,12	19,91	24,00
EC 3090	42,84	6891	94,48	9000	95	1,00	15000	158	0,60	0,12	18,67	24,00
EC 3090	50,55	8131	111,48	9000	81	1,00	15000	134	0,60	0,10	15,83	24,00
EC 3090	53,03	8530	116,95	7700	66	1,00	15000	128	0,51	0,09	15,09	24,00
EC 3090	65,97	10611	145,49	9000	62	1,00	15000	103	0,60	0,08	12,13	24,00
EC 3090	73,44	11813	161,96	9000	56	1,00	15000	92	0,60	0,07	10,89	24,00
EC 3090	77,85	12522	171,69	9000	52	1,00	15000	87	0,60	0,06	10,28	24,00
EC 2150	10,73	1726	24,15	6037	250	2,15	7606	315	1,71	0,47	74,56	24,00
EC 2150	14,14	2274	31,82	7955	250	1,26	10024	315	1,00	0,35	56,58	24,00
EC 2150	17,99	2894	40,48	10000	247	1,00	12753	315	0,78	0,28	44,47	24,00
EC 2150	18,99	3055	42,74	6200	145	1,00	12400	290	0,50	0,26	42,13	24,00
EC 2150	21,95	3531	49,40	9000	182	1,00	15560	315	0,58	0,23	36,45	24,00
EC 2150	25,03	4026	56,33	8100	144	1,00	16200	287	0,50	0,20	31,96	24,00
EC 2150	30,53	4911	68,70	9000	131	1,00	18000	261	0,50	0,16	26,20	24,00
EC 3150	40,95	6587	90,31	13000	144	1,00	20000	221	0,65	0,12	19,54	24,00
EC 3150	48,32	7772	106,56	13000	122	1,00	20000	187	0,65	0,10	16,56	24,00
EC 3150	53,97	8681	119,03	10000	84	1,00	20000	168	0,50	0,09	14,82	24,00
EC 3150	63,06	10143	139,07	13000	93	1,00	20000	143	0,65	0,08	12,69	24,00
EC 3150	74,41	11969	164,10	13000	79	1,00	20000	121	0,65	0,07	10,75	24,00
EC 3150	83,11	13368	183,29	10000	55	1,00	20000	109	0,50	0,06	9,63	24,00

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
EC 2250	11,11	1787	25,00	6250	250	2,56	7876	315	2,03	0,45	72,01	24,00
EC 2250	14,08	2265	31,69	7921	250	2,27	9981	315	1,80	0,36	56,82	24,00
EC 2250	16,50	2654	37,13	9283	250	1,62	11696	315	1,28	0,30	48,48	24,00
EC 2250	17,92	2882	40,33	10000	248	1,00	12703	315	0,79	0,28	44,64	24,00
EC 2250	21,00	3378	47,26	11815	250	1,02	14886	315	0,81	0,24	38,10	24,00
EC 2250	24,93	4010	56,10	8100	144	1,00	16200	288	0,50	0,20	32,09	24,00
EC 2250	29,22	4700	65,76	10000	152	1,00	20000	304	0,50	0,17	27,38	24,00
EC 3250	42,42	6823	93,55	19000	203	1,00	29469	315	0,64	0,12	18,86	24,00
EC 3250	46,78	7525	103,17	19000	184	1,00	32498	315	0,58	0,11	17,10	24,00
EC 3250	52,48	8441	115,74	19000	164	1,00	35000	302	0,54	0,10	15,24	24,00
EC 3250	53,76	8647	118,56	18000	152	1,00	35000	295	0,51	0,09	14,88	24,00
EC 3250	60,60	9748	133,65	19000	142	1,00	35000	261	0,54	0,08	13,20	24,00
EC 3250	72,05	11589	158,90	19000	120	1,00	35000	220	0,54	0,07	11,10	24,00
EC 3250	80,82	13000	178,24	19000	107	1,00	35000	196	0,54	0,06	9,90	24,00
EC 3250	93,32	15011	205,81	19000	92	1,00	35000	170	0,54	0,05	8,57	24,00
EC 3250	102,40	16471	225,83	18000	80	1,00	35000	154	0,51	0,05	7,81	24,00
EC 3250	112,00	18015	247,00	18000	73	1,00	35000	141	0,51	0,04	7,14	24,00
EC 3250	118,30	19029	260,90	18000	69	1,00	35000	134	0,51	0,04	6,76	24,00
EC 3250	141,90	22825	312,95	18000	58	1,00	35000	111	0,51	0,04	5,64	24,00

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EC 2045-46	10,50	2639	36,92	3700	100	1,00	6000	162	0,62	0,48	57,14	24,00
EC 2045-46	12,39	3114	43,57	3400	78	1,00	6000	137	0,57	0,40	48,43	24,00
EC 2045-46	16,17	4064	56,86	3700	65	1,00	6000	105	0,62	0,31	37,11	24,00
EC 2045-46	18,00	4524	63,29	2700	43	1,00	5400	85	0,50	0,28	33,33	24,00
EC 2045-46	19,08	4795	67,09	3400	51	1,00	6000	89	0,57	0,26	31,45	24,00
EC 2065	10,50	2639	36,92	6200	168	1,00	10000	270	0,62	0,48	57,14	24,00
EC 2065	11,58	2910	40,72	5700	140	1,00	10000	245	0,57	0,43	51,81	24,00
EC 2065	12,99	3265	45,68	5700	125	1,00	10000	218	0,57	0,38	46,19	24,00
EC 2065	16,17	4064	56,86	4300	76	1,00	8600	151	0,50	0,31	37,11	24,00
EC 2065	17,83	4481	62,69	4800	77	1,00	9600	153	0,50	0,28	33,65	24,00
EC 2065	20,00	5027	70,32	5400	77	1,00	10000	142	0,54	0,25	30,00	24,00
EC 2065	23,10	5806	81,23	5500	68	1,00	10000	123	0,55	0,22	25,97	24,00
EC 2090	12,24	3076	43,04	7600	177	1,00	13557	315	0,56	0,41	49,02	24,00
EC 2090	15,15	3808	53,27	7700	145	1,00	15000	281	0,51	0,33	39,60	24,00
EC 2090	17,43	4381	61,29	6900	113	1,00	13800	225	0,50	0,29	34,42	24,00
EC 2090	20,76	5218	73,00	5500	75	1,00	11000	150	0,50	0,24	28,90	24,00
EC 2090	23,33	5863	82,03	6200	76	1,00	12400	151	0,50	0,21	25,72	24,00
EC 2090	26,84	6746	94,38	6900	73	1,00	13800	146	0,50	0,19	22,35	24,00
EC 2090	31,97	8035	112,41	5500	49	1,00	11000	97	0,50	0,16	18,77	24,00
EC 2090	40,19	10101	141,32	4100	29	1,00	8200	58	0,50	0,12	14,93	24,00
EC 3090	42,84	10767	147,62	9000	61	1,00	15000	101	0,60	0,12	14,01	24,00
EC 3090	50,55	12705	174,19	9000	52	1,00	15000	86	0,60	0,10	11,87	24,00
EC 2150	10,73	2697	37,73	7546	200	1,72	11885	315	1,09	0,47	55,92	24,00
EC 2150	14,14	3554	49,72	9944	200	1,01	15662	315	0,64	0,35	42,43	24,00
EC 2150	17,99	4521	63,26	10000	158	1,00	19926	315	0,50	0,28	33,35	24,00
EC 2150	18,99	4773	66,77	6200	93	1,00	12400	185	0,50	0,26	31,60	24,00
EC 2150	21,95	5517	77,18	9000	117	1,00	18000	233	0,50	0,23	27,33	24,00
EC 2150	25,03	6291	88,01	8100	92	1,00	16200	184	0,50	0,20	23,97	24,00
EC 2150	30,53	7673	107,35	9000	84	1,00	18000	167	0,50	0,16	19,65	24,00
EC 3150	40,95	10292	141,11	13000	92	1,00	20000	141	0,65	0,12	14,65	24,00
EC 3150	48,32	12144	166,51	13000	78	1,00	20000	120	0,65	0,10	12,42	24,00
EC 3150	53,97	13564	185,98	10000	54	1,00	20000	107	0,50	0,09	11,12	24,00
EC 3150	63,06	15849	217,30	13000	60	1,00	20000	92	0,65	0,08	9,51	24,00
EC 3150	74,41	18701	256,41	13000	51	1,00	20000	78	0,65	0,07	8,06	24,00
EC 2250	11,11	2792	39,07	7813	200	2,05	12306	315	1,30	0,45	54,01	24,00
EC 2250	14,08	3539	49,51	9902	200	1,82	15595	315	1,15	0,36	42,61	24,00
EC 2250	16,50	4147	58,02	11604	200	1,29	18276	315	0,82	0,30	36,36	24,00
EC 2250	17,92	4504	63,01	10000	159	1,00	19848	315	0,50	0,28	33,48	24,00
EC 2250	21,00	5278	73,84	12000	163	1,00	23260	315	0,52	0,24	28,57	24,00
EC 2250	24,93	6266	87,66	8100	92	1,00	16200	184	0,50	0,20	24,07	24,00
EC 2250	29,22	7344	102,74	10000	97	1,00	20000	194	0,50	0,17	20,53	24,00
EC 3250	42,42	10661	146,18	19000	130	1,00	35000	239	0,54	0,12	14,14	24,00
EC 3250	46,78	11757	161,20	19000	118	1,00	35000	217	0,54	0,11	12,83	24,00
EC 3250	52,48	13190	180,84	19000	105	1,00	35000	193	0,54	0,10	11,43	24,00
EC 3250	53,76	13511	185,25	18000	97	1,00	35000	188	0,51	0,09	11,16	24,00
EC 3250	60,60	15230	208,82	19000	91	1,00	35000	167	0,54	0,08	9,90	24,00
EC 3250	72,05	18108	248,28	19000	77	1,00	35000	140	0,54	0,07	8,33	24,00
EC 3250	80,82	20312	278,50	19000	68	1,00	35000	125	0,54	0,06	7,42	24,00
EC 3250	93,32	23454	321,57	19000	59	1,00	35000	108	0,54	0,05	6,43	24,00
EC 3250	102,40	25736	352,86	18000	51	1,00	35000	99	0,51	0,05	5,86	24,00

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
EC 2045-46	10,50	2680	37,50	3700	99	1,00	6000	160	0,62	0,48	57,14	28,00
EC 2045-46	12,39	3163	44,25	3400	77	1,00	6000	135	0,57	0,40	48,43	28,00
EC 2045-46	16,17	4127	57,75	3700	64	1,00	6000	103	0,62	0,31	37,11	28,00
EC 2045-46	18,00	4595	64,28	2700	42	1,00	5400	84	0,50	0,28	33,33	28,00
EC 2045-46	19,08	4870	68,14	3400	50	1,00	6000	88	0,57	0,26	31,45	28,00
EC 2065	10,50	2680	37,50	6200	165	1,00	10000	266	0,62	0,48	57,14	28,00
EC 2065	11,58	2956	41,35	5700	138	1,00	10000	241	0,57	0,43	51,81	28,00
EC 2065	12,99	3316	46,39	5700	123	1,00	10000	215	0,57	0,38	46,19	28,00
EC 2065	16,17	4127	57,75	4300	74	1,00	8600	148	0,50	0,31	37,11	28,00
EC 2065	17,83	4551	63,67	4800	75	1,00	9600	150	0,50	0,28	33,65	28,00
EC 2065	20,00	5105	71,42	5400	76	1,00	10000	140	0,54	0,25	30,00	28,00
EC 2065	23,10	5896	82,49	5500	67	1,00	10000	121	0,55	0,22	25,97	28,00
EC 2090	12,24	3124	43,71	7600	174	1,00	13769	315	0,55	0,41	49,02	28,00
EC 2090	15,15	3867	54,10	7700	142	1,00	15000	277	0,51	0,33	39,60	28,00
EC 2090	17,43	4449	62,25	6900	111	1,00	13800	221	0,50	0,29	34,42	28,00
EC 2090	20,76	5299	74,14	5500	74	1,00	11000	148	0,50	0,24	28,90	28,00
EC 2090	23,33	5955	83,32	6200	74	1,00	12400	148	0,50	0,21	25,72	28,00
EC 2090	26,84	6851	95,85	6900	72	1,00	13800	143	0,50	0,19	22,35	28,00
EC 3090	42,84	10935	149,93	9000	60	1,00	15000	100	0,60	0,12	14,01	28,00
EC 3090	50,55	12903	176,91	9000	51	1,00	15000	84	0,60	0,10	11,87	28,00
EC 2150	10,73	2739	38,32	9580	250	1,36	12070	315	1,08	0,47	55,92	28,00
EC 2150	14,14	3609	50,50	10000	198	1,00	15906	315	0,63	0,35	42,43	28,00
EC 2150	17,99	4592	64,25	10000	156	1,00	20000	311	0,50	0,28	33,35	28,00
EC 2150	18,99	4847	67,82	6200	91	1,00	12400	182	0,50	0,26	31,60	28,00
EC 2150	21,95	5603	78,39	9000	115	1,00	18000	229	0,50	0,23	27,33	28,00
EC 2150	25,03	6389	89,39	8100	91	1,00	16200	181	0,50	0,20	23,97	28,00
EC 2150	30,53	7793	109,03	9000	83	1,00	18000	165	0,50	0,16	19,65	28,00
EC 3150	40,95	10453	143,31	13000	91	1,00	20000	139	0,65	0,12	14,65	28,00
EC 3150	48,32	12334	169,11	13000	77	1,00	20000	118	0,65	0,10	12,42	28,00
EC 3150	53,97	13776	188,88	10000	53	1,00	20000	105	0,50	0,09	11,12	28,00
EC 3150	63,06	16096	220,69	13000	59	1,00	20000	90	0,65	0,08	9,51	28,00
EC 3150	74,41	18993	260,42	13000	50	1,00	20000	76	0,65	0,07	8,06	28,00
EC 2250	11,11	2836	39,68	9919	250	1,61	12498	315	1,28	0,45	54,01	28,00
EC 2250	14,08	3594	50,28	12571	250	1,43	15839	315	1,14	0,36	42,61	28,00
EC 2250	16,50	4212	58,92	14731	250	1,02	18561	315	0,81	0,30	36,36	28,00
EC 2250	17,92	4574	64,00	10000	156	1,00	20000	312	0,50	0,28	33,48	28,00
EC 2250	21,00	5360	74,99	12000	160	1,00	23623	315	0,51	0,24	28,57	28,00
EC 2250	24,93	6363	89,03	8100	91	1,00	16200	181	0,50	0,20	24,07	28,00
EC 2250	29,22	7459	104,35	10000	96	1,00	20000	191	0,50	0,17	20,53	28,00
EC 3250	42,42	10828	148,46	19000	128	1,00	35000	235	0,54	0,12	14,14	28,00
EC 3250	46,78	11941	163,72	19000	116	1,00	35000	213	0,54	0,11	12,83	28,00
EC 3250	52,48	13396	183,67	19000	103	1,00	35000	190	0,54	0,10	11,43	28,00
EC 3250	53,76	13722	188,15	18000	96	1,00	35000	186	0,51	0,09	11,16	28,00
EC 3250	60,60	15468	212,08	19000	90	1,00	35000	165	0,54	0,08	9,90	28,00
EC 3250	72,05	18391	252,16	19000	75	1,00	35000	138	0,54	0,07	8,33	28,00
EC 3250	80,82	20630	282,85	19000	67	1,00	35000	123	0,54	0,06	7,42	28,00
EC 3250	93,32	23820	326,60	19000	58	1,00	35000	107	0,54	0,05	6,43	28,00
EC 3250	102,40	26138	358,37	18000	50	1,00	35000	97	0,51	0,05	5,86	28,00

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EC 2065	10,50	3773	52,78	6200	117	1,00	10000	189	0,62	0,48	52,38	36,00
EC 2065	11,58	4161	58,21	5700	98	1,00	10000	171	0,57	0,43	47,50	36,00
EC 2065	12,99	4668	65,30	5700	87	1,00	10000	153	0,57	0,38	42,34	36,00
EC 2065	16,17	5810	81,29	4300	53	1,00	8600	105	0,50	0,31	34,01	36,00
EC 2065	17,83	6407	89,63	4800	54	1,00	9600	107	0,50	0,28	30,85	36,00
EC 2065	20,00	7186	100,54	5400	54	1,00	10000	99	0,54	0,25	27,50	36,00
EC 2090	12,24	4398	61,53	7600	124	1,00	15000	243	0,51	0,41	44,93	36,00
EC 2090	15,15	5444	76,16	7700	101	1,00	15000	196	0,51	0,33	36,30	36,00
EC 2090	17,43	6263	87,62	6900	79	1,00	13800	157	0,50	0,29	31,55	36,00
EC 2090	20,76	7459	104,36	5500	53	1,00	11000	105	0,50	0,24	26,49	36,00
EC 2090	23,33	8383	117,28	6200	53	1,00	12400	105	0,50	0,21	23,57	36,00
EC 2090	26,84	9644	134,93	6900	51	1,00	13800	102	0,50	0,19	20,49	36,00
EC 2150	10,73	3856	53,94	13000	241	1,00	16991	315	0,77	0,47	51,26	36,00
EC 2150	14,14	5081	71,08	10000	141	1,00	20000	281	0,50	0,35	38,90	36,00
EC 2150	17,99	6464	90,44	10000	111	1,00	20000	221	0,50	0,28	30,57	36,00
EC 2150	18,99	6823	95,47	6200	65	1,00	12400	129	0,50	0,26	28,96	36,00
EC 2150	21,95	7887	110,35	9000	82	1,00	18000	163	0,50	0,23	25,06	36,00
EC 2150	25,03	8994	125,83	8100	64	1,00	16200	128	0,50	0,20	21,97	36,00
EC 2150	30,53	10970	153,48	9000	59	1,00	18000	117	0,50	0,16	18,02	36,00
EC 3150	40,95	14714	201,74	13000	64	1,00	20000	99	0,65	0,12	13,43	36,00
EC 3150	48,32	17362	238,05	13000	55	1,00	20000	84	0,65	0,10	11,38	36,00
EC 2250	11,11	3992	55,85	13963	250	1,15	17593	315	0,91	0,45	49,50	36,00
EC 2250	14,08	5059	70,78	17695	250	1,02	22296	315	0,81	0,36	39,06	36,00
EC 2250	16,50	5929	82,95	15000	181	1,00	26129	315	0,57	0,30	33,33	36,00
EC 2250	17,92	6439	90,09	10000	111	1,00	20000	222	0,50	0,28	30,69	36,00
EC 2250	21,00	7546	105,57	12000	114	1,00	24000	227	0,50	0,24	26,19	36,00
EC 2250	24,93	8958	125,33	8100	65	1,00	16200	129	0,50	0,20	22,06	36,00
EC 2250	29,22	10499	146,89	10000	68	1,00	20000	136	0,50	0,17	18,82	36,00
EC 3250	42,42	15242	208,99	19000	91	1,00	35000	167	0,54	0,12	12,97	36,00
EC 3250	46,78	16809	230,47	19000	82	1,00	35000	151	0,54	0,11	11,76	36,00
EC 3250	52,48	18857	258,55	19000	73	1,00	35000	135	0,54	0,10	10,48	36,00
EC 3250	53,76	19317	264,85	18000	68	1,00	35000	132	0,51	0,09	10,23	36,00
EC 3250	60,60	21775	298,55	19000	64	1,00	35000	117	0,54	0,08	9,08	36,00
EC 3250	72,05	25889	354,96	19000	54	1,00	35000	98	0,54	0,07	7,63	36,00

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EC 2065	11,58	5116	71,57	5700	80	1,00	10000	139	0,57	0,43	43,18	40,00
EC 2065	12,99	5739	80,29	5700	71	1,00	10000	124	0,57	0,38	38,49	40,00
EC 2090	12,24	5407	75,65	7600	100	1,00	15000	198	0,51	0,41	40,85	40,00
EC 2090	15,15	6693	93,64	7700	82	1,00	15000	160	0,51	0,33	33,00	40,00
EC 2090	17,43	7700	107,73	6900	64	1,00	13800	128	0,50	0,29	28,69	40,00
EC 2150	10,73	4740	66,32	13000	196	1,00	20000	301	0,65	0,47	46,60	40,00
EC 2150	14,14	6247	87,40	10000	114	1,00	20000	228	0,50	0,35	35,36	40,00
EC 2150	17,99	7948	111,19	10000	90	1,00	20000	179	0,50	0,28	27,79	40,00
EC 2150	18,99	8390	117,37	6200	53	1,00	12400	105	0,50	0,26	26,33	40,00
EC 2150	21,95	9697	135,67	9000	66	1,00	18000	132	0,50	0,23	22,78	40,00
EC 2150	25,03	11058	154,71	8100	52	1,00	16200	104	0,50	0,20	19,98	40,00
EC 2150	30,53	13488	188,70	9000	48	1,00	18000	95	0,50	0,16	16,38	40,00
EC 3150	40,95	18091	248,05	13000	52	1,00	20000	80	0,65	0,12	12,21	40,00
EC 2250	11,11	4908	68,67	16000	233	1,00	21631	315	0,74	0,45	45,00	40,00
EC 2250	14,08	6220	87,03	18000	207	1,00	27413	315	0,66	0,36	35,51	40,00
EC 2250	16,50	7289	101,98	15000	147	1,00	30000	294	0,50	0,30	30,30	40,00
EC 2250	17,92	7917	110,76	10000	90	1,00	20000	180	0,50	0,28	27,90	40,00
EC 2250	21,00	9278	129,80	12000	92	1,00	24000	184	0,50	0,24	23,81	40,00
EC 2250	24,93	11014	154,09	8100	53	1,00	16200	105	0,50	0,20	20,06	40,00
EC 2250	29,22	12909	180,61	10000	55	1,00	20000	110	0,50	0,17	17,11	40,00
EC 3250	42,42	18741	256,95	19000	74	1,00	35000	136	0,54	0,12	11,79	40,00
EC 3250	46,78	20667	283,36	19000	67	1,00	35000	123	0,54	0,11	10,69	40,00
EC 3250	52,48	23185	317,89	19000	60	1,00	35000	110	0,54	0,10	9,53	40,00
EC 3250	53,76	23750	325,64	18000	55	1,00	35000	107	0,51	0,09	9,30	40,00
EC 3250	60,60	26772	367,07	19000	52	1,00	35000	95	0,54	0,08	8,25	40,00

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EC 2065	10,50	5154	72,11	6200	86	1,00	10000	138	0,62	0,48	42,86	40,00
EC 2065	11,58	5684	79,53	5700	72	1,00	10000	125	0,57	0,43	38,86	40,00
EC 2065	12,99	6376	89,21	5700	64	1,00	10000	112	0,57	0,38	34,64	40,00
EC 2090	12,24	6008	84,06	7600	90	1,00	15000	178	0,51	0,41	36,76	40,00
EC 2090	15,15	7437	104,05	7700	74	1,00	15000	144	0,51	0,33	29,70	40,00
EC 2090	17,43	8556	119,70	6900	58	1,00	13800	115	0,50	0,29	25,82	40,00
EC 2150	10,73	5267	73,69	13000	176	1,00	20000	271	0,65	0,47	41,94	40,00
EC 2150	14,14	6941	97,11	10000	103	1,00	20000	205	0,50	0,35	31,82	40,00
EC 2150	17,99	8831	123,55	10000	81	1,00	20000	161	0,50	0,28	25,01	40,00
EC 2150	18,99	9322	130,42	6200	48	1,00	12400	95	0,50	0,26	23,70	40,00
EC 2150	21,95	10775	150,75	9000	60	1,00	18000	119	0,50	0,23	20,50	40,00
EC 2250	11,11	5454	76,30	16000	210	1,00	24034	315	0,67	0,45	40,50	40,00
EC 2250	14,08	6912	96,70	18000	186	1,00	30459	315	0,59	0,36	31,96	40,00
EC 2250	16,50	8099	113,32	15000	132	1,00	30000	264	0,50	0,30	27,27	40,00
EC 2250	17,92	8796	123,07	10000	81	1,00	20000	162	0,50	0,28	25,11	40,00
EC 2250	21,00	10308	144,22	12000	83	1,00	24000	166	0,50	0,24	21,43	40,00
EC 2250	24,93	12237	171,21	8100	47	1,00	16200	94	0,50	0,20	18,05	40,00
EC 2250	29,22	14343	200,67	10000	50	1,00	20000	99	0,50	0,17	15,40	40,00
EC 3250	42,42	20823	285,50	19000	67	1,00	35000	122	0,54	0,12	10,61	40,00
EC 3250	46,78	22963	314,84	19000	60	1,00	35000	111	0,54	0,11	9,62	40,00
EC 3250	52,48	25761	353,21	19000	54	1,00	35000	99	0,54	0,10	8,57	40,00
EC 3250	53,76	26389	361,82	18000	50	1,00	35000	96	0,51	0,09	8,37	40,00

Gear box	i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
EC 2150	10,73	7559	105,76	13000	123	1,00	20000	189	0,65	0,47	46,60	63,00
EC 2150	14,14	9962	139,37	10000	72	1,00	20000	143	0,50	0,35	35,36	63,00
EC 2150	17,99	12674	177,32	10000	56	1,00	20000	112	0,50	0,28	27,79	63,00
EC 2250	11,11	7827	109,50	16000	146	1,00	32000	292	0,50	0,45	45,00	63,00
EC 2250	14,08	9919	138,78	18000	130	1,00	35000	252	0,51	0,36	35,51	63,00
EC 2250	16,50	11624	162,63	15000	92	1,00	30000	184	0,50	0,30	30,30	63,00
EC 2250	17,92	12625	176,63	10000	57	1,00	20000	113	0,50	0,28	27,90	63,00
EC 2250	21,00	14794	206,98	12000	58	1,00	24000	115	0,50	0,24	23,81	63,00

Gear box	i	V _g	T _{spez}	T _{cont}	Δ P _{cont}	k _d	T _{max}	Δ p _{max}	k _m	n _{min}	n _{max}	P _d
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Gear box		i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
EC 2250		11,11	10043	140,51	16000	114	1,00	32000	227	0,50	0,45	40,50	63,00
EC 2250		14,08	12728	178,08	18000	101	1,00	35000	196	0,51	0,36	31,96	63,00
EC 2250		16,50	14916	208,69	15000	72	1,00	30000	143	0,50	0,30	27,27	63,00

Gear box		i	V _g	T _{spez}	T _{cont}	ΔP _{cont}	k _d	T _{max}	Δp _{max}	k _m	n _{min}	n _{max}	P _d
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DÜSTERLOH has been developing fluid technology products for more than 100 years.

The drives, controls and hydraulic power units from Hattingen are appreciated throughout the world for their complete reliability; including under extreme conditions. The owner-managed company's own development and construction department and the wide range of products cater for distinctive flexibility and customer-orientation.

Products

- Hydraulic radial piston motors
- Hydraulic axial piston motors
- Hydraulic high precision motors
- Pneumatic motors
- Pneumatic starters
- Hydraulic and pneumatic controls
- Hydraulic power units

Designing controls and hydraulic power units specific to the customer is our company's major strength. Vast product diversity is also available for standardized products.

Industrial areas of application

- Machine tools
- Smelting and rolling mill equipment
- Foundry machines
- Testing machines
- Shipbuilding (diesel engines)
- Offshore technology
- Printing and paper technology
- Vehicle construction
- Manipulators
- Environmental technology
- Mining equipment
- Materials handling equipment



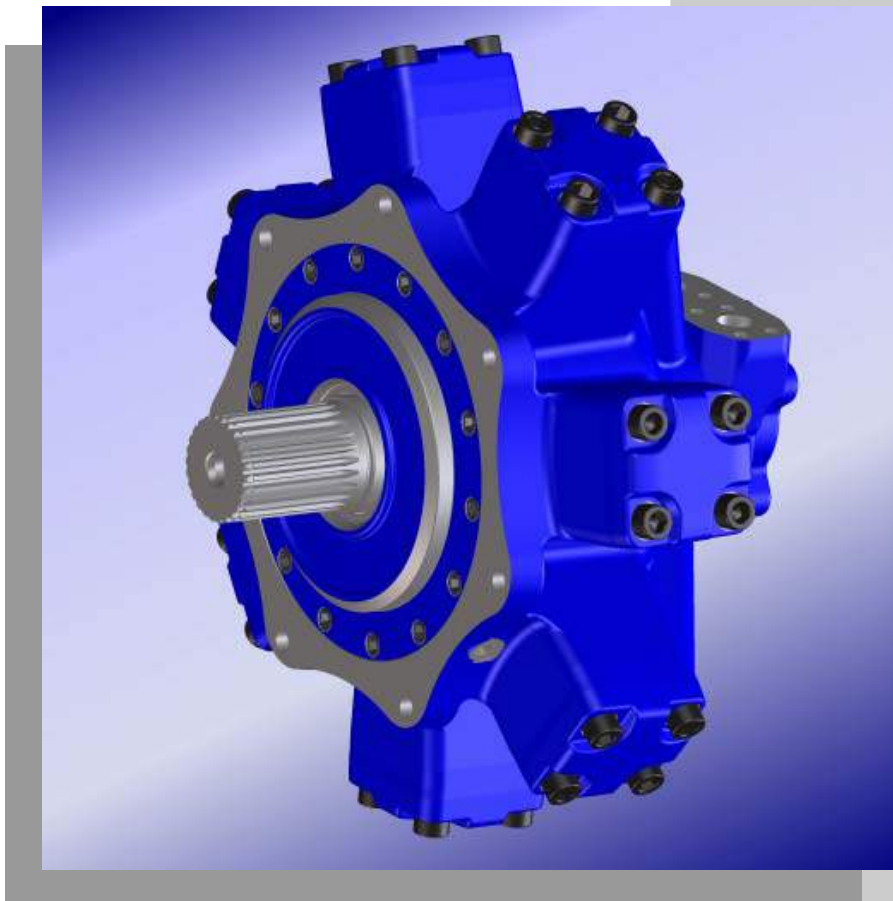
Düsterloh Fluidtechnik GmbH

Im Vogelsang 105
D-45527 Hattingen

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e-mail: info@duesterloh.de
Internet: www.duesterloh.de



Radial Piston Motors

with fixed displacement

Series RM 1000X - RM 5000X

$V_g = 1047 \text{ ccm/rev} - 5278 \text{ ccm/rev}$

HYDRAULIC-MOTORS

Features:

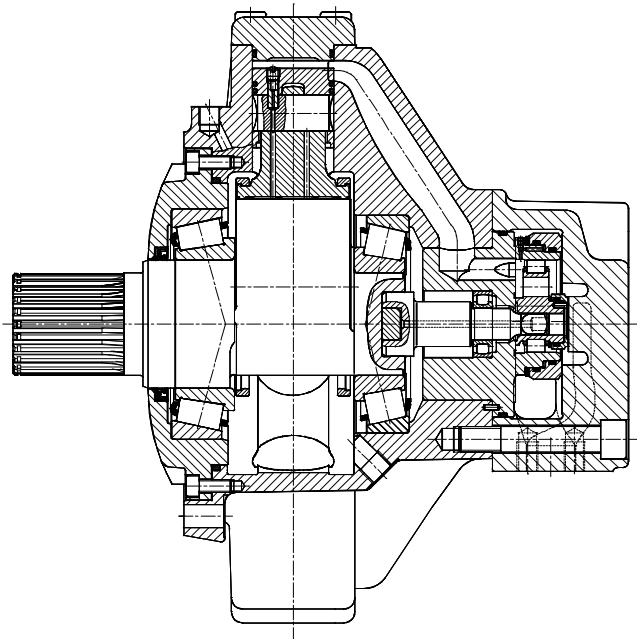
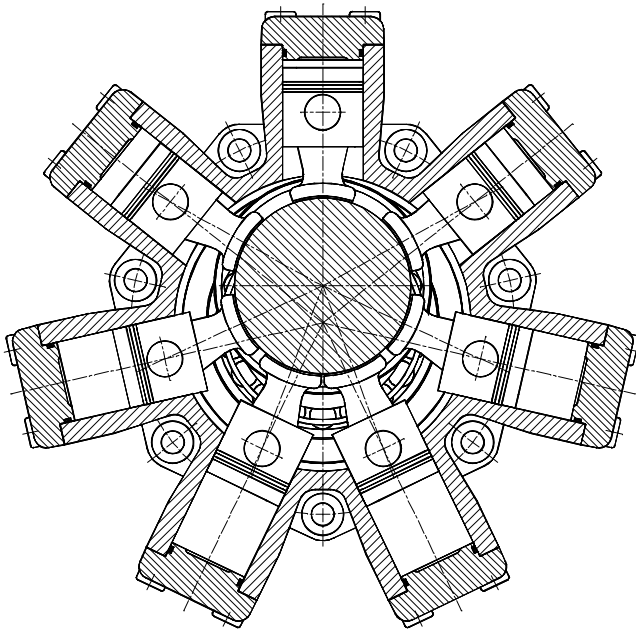
- many displacements for all applications
- very high starting torque
- high efficiencies, high constant power
- smooth running at all speeds
- high resistance to temperature shock
- reversible
- suitable for automatic control engineering
- suitable for inflammable and biologically degradable liquids
- bearings for very long life
- quiet running properties
- design with:
 - instrument shaft
 - brake and / or gearbox
 - valve assembly

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Radial Piston Motor with inner piston support and components hydrostatically discharged.

RM 1000X; RM 1250X; RM 2500X; RM 3150X; RM 4000X; RM 4500X; RM 5000X in 7-cylinder-design
RM 1600X; RM 1800X; RM 2000X in 5-cylinder-design

**FUNCTION:**

Pressurised fluid to either ports 1 or 2 fills the respective cylinder chambers, forcing the motor to rotate. As the motor rotates the cylinder moves from the pressure, to the return port of the distributor, returning the fluid to tank.

MOTOR DRIVE:

The drive shaft is supported in two large taper roller bearings, capable of accepting high radial and axial loads.

Torque is developed by the pistons acting upon the eccentric camshaft through rigid piston pins and hydrostatically balanced bronze con-rods.

High efficiencies are achieved due the hydrostatic balance of moving parts; also approximately 50% of the pistons are pressurised at any one time.

DISTRIBUTION UNITS:

The eccentric axial distribution system controls the flow to the cylinder bores and is hydrostatically balanced. This results in low leakage and minimal friction losses. The distribution system guarantees automatic compensation of pressure and temperature. It is insensitive to contamination and is shock resistant to temperature, giving a longer life. Furthermore, it offers very good low speed performance, and quiet running at high speed.

LEAKAGE:

The low leakage at the pistons and distributor system helps cooling and lubrication of the motor. This necessary internal leakage is carried away to the tank via one of the drain connections.

FLUSHING:

At higher continuous power, a case drain flushing is necessary to carry away the heat of rods/crankshaft for a longer life.

Radial Piston Motor

RM		X		A1			
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Displacement nominal size

1047 ccm/rev = 1000
 1266 ccm/rev = **1250**
 1608 ccm/rev = 1600
 1810 ccm/rev = 1800
 2011 ccm/rev = **2000**
 2533 ccm/rev = 2500
 3167 ccm/rev = **3150**
 4013 ccm/rev = 4000
 4508 ccm/rev = 4500
 5278 ccm/rev = **5000**

Series type - motor

actual series type = **X**

Drive shaft

cylindrical with key acc. to DIN 6885 = **Z**
 male involute splined shaft acc. to DIN 5480 = **K**
 female involute splined shaft acc. to DIN 5480 = **H**
 (not available for RM 4000X; RM 4500X and RM 5000X)

Hydraulic ports

Flange connection radial SAE J518C 1½" - 6000 PSI = **A1**

Sealing material

NBR, suitable for: HLP - mineral oils to DIN 51524 part 2 = *****
 FPM / FKM, suitable for: phosphoric acid-ester and high temperatures = **V**

2nd shaft end

without 2nd shaft end = *****
 cylindrical instrument shaft $\varnothing 10_{h6}$ for measuring device = **M**

Additional data

Brakes / gearboxes / decoder / special installation-situations / higher leakage pressures etc. = **detailed description**

Bold written Motor-types or Standard-types with shorter times of delivery and lower prices!

* = no indication in type key

Example for ordering:

RM 1000 X K A1 M

Additional data
 Instrument shaft $\varnothing 10_{h6}$
 Sealing material: NBR
 Flange: SAE J518C 1½" - 6000 PSI
 Drive shaft: male involute splined shaft acc. to DIN 5480
 Series type: X
 Displacement: $V_g = 1047$ ccm/rev
 Radial Piston Motor

All characteristic quantities at $v = 36 \text{ mm}^2/\text{s}$; $\Theta = 50^\circ\text{C}$; $p_{\text{outlet}} = \text{without pressure}$

Nominal size			1000	1250	1600	1800	2000
Displacement	V_g	ccm/rev	1047	1266	1608	1810	2011
Theor. specific torque	$T_{\text{spec.theor.}}$	Nm/bar	16,6	20,1	25,6	28,8	32,0
Average specific torque	$T_{\text{spec.aver.}}$	Nm/bar	15,3	18,5	23,6	26,5	29,4
Min. starting torque / theor. torque		%	89,5	91	91	92	92,5
Inlet pressure, max. continuous	$p_{\text{cont.}}$	bar	250				
intermittent	$p_{\text{interm.}}$	bar	315				
peak	p_{peak}	bar	400				
Total pressure, max. in port A+B	p_{total}	bar	400				
Leakage pressure, max.	p_{Leak}	bar	1,5				
Operating speed range	n	rpm	5-650	5-540	5-430	5-390	5-350
Continuous power, max.	$P_{\text{cont.}}$	kW	125	125	130	130	130
Intermittent power, max.	$P_{\text{interm.}}$	kW	150	150	160	160	160
Moment of inertia	J	kgm ²	0,0423	0,0451	0,0932	0,0977	0,1035
Mass	m	kg	154	154	255	255	255
Temperature range of pressure medium Θ		°C	-30 up to +80				
Viscosity range	v	mm ² /s	18 up to 1000, recommended: 30 up to 50				

Nominal size			2500	3150	4000	4500	5000
Displacement	V_g	ccm/rev	2533	3167	4013	4508	5278
Theor. specific torque	$T_{\text{spec.theor.}}$	Nm/bar	40,3	50,4	63,9	71,7	84,0
Average specific torque	$T_{\text{spec.aver.}}$	Nm/bar	37,1	46,3	58,8	66,0	77,3
Min. starting torque / theor. torque		%	90	92,5	90	91,5	93
Inlet pressure, max. continuous	p_{cont}	bar	250				
intermittent	$p_{\text{interm.}}$	bar	315				
peak	p_{peak}	bar	400				
Total pressure, max. in port A+B	p_{total}	bar	400				
Leakage pressure, max.	p_{leak}	bar	1,5				
Operating speed range	n	rpm	3-310	3-250	2-200	2-175	2-150
Continuous power, max.	P_{cont}	kW	145	145	150	150	150
Intermittent power, max.	$P_{\text{interm.}}$	kW	180	180	190	190	190
Moment of inertia	J	kgm ²	0,1192	0,1285	0,2569	0,2628	0,2848
Mass	m	kg	318	318	500	500	500
Temperature range of pressure medium Θ		°C	-30 up to +80				
Viscosity range	v	mm ² /s	18 up to 1000, recommended: 30 up to 50				

p_{cont} = admissible continuous pressure at limitation to $P_{\text{cont.}}$

p_{max} = maximal admissible operating pressure at limitation to $P_{\text{intermit.}}$

p_{peak} = peak pressure, where the components remain safe in function.

P_{cont} = Continuous power (at maximal 10 bar outlet pressure).

Motor flushing must be carried out above $P_{\text{cont.}}$

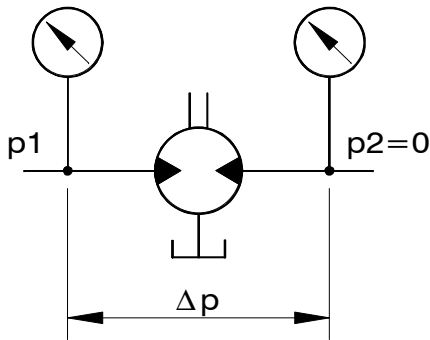
$P_{\text{interm.}}$ = Power, which may be demanded temporarily (max. 10% duty cycle / hour).

Power, speed and bearing life may be increased when flushing with 5 - 8 liters flushing oil.

For queries, please look at page 24.

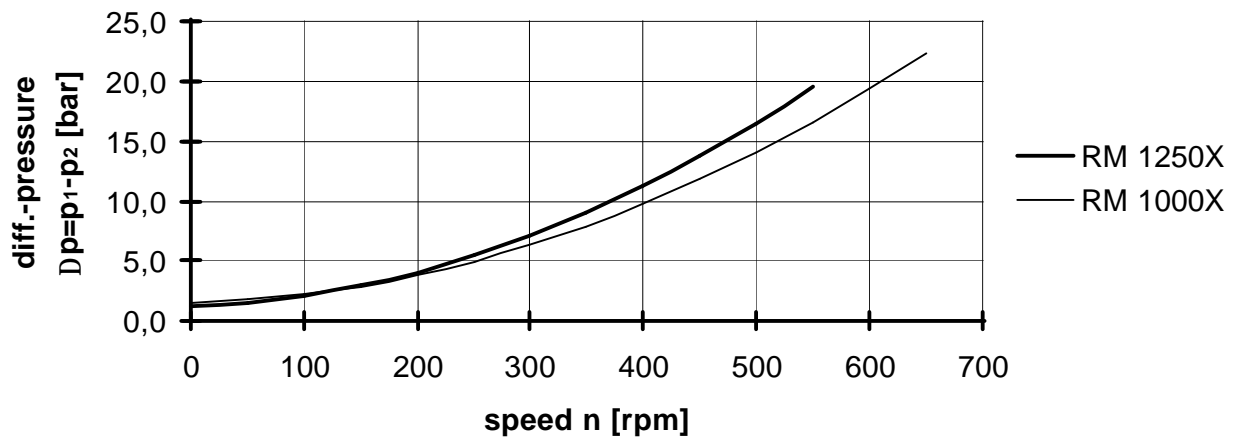
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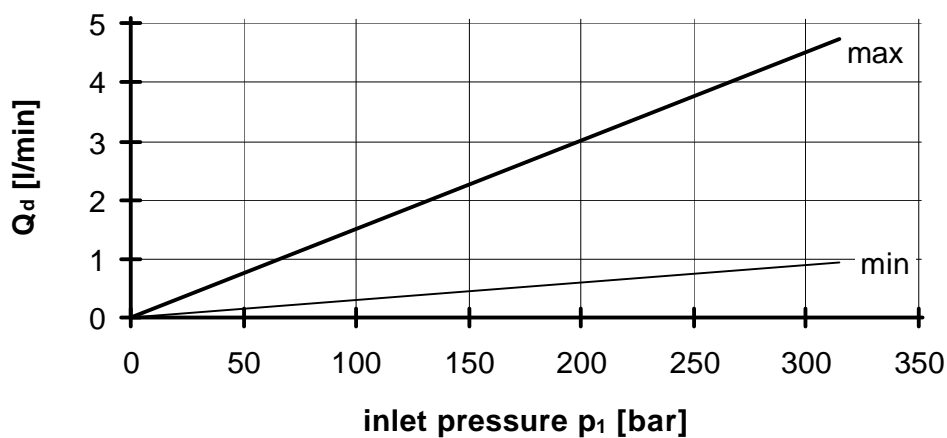


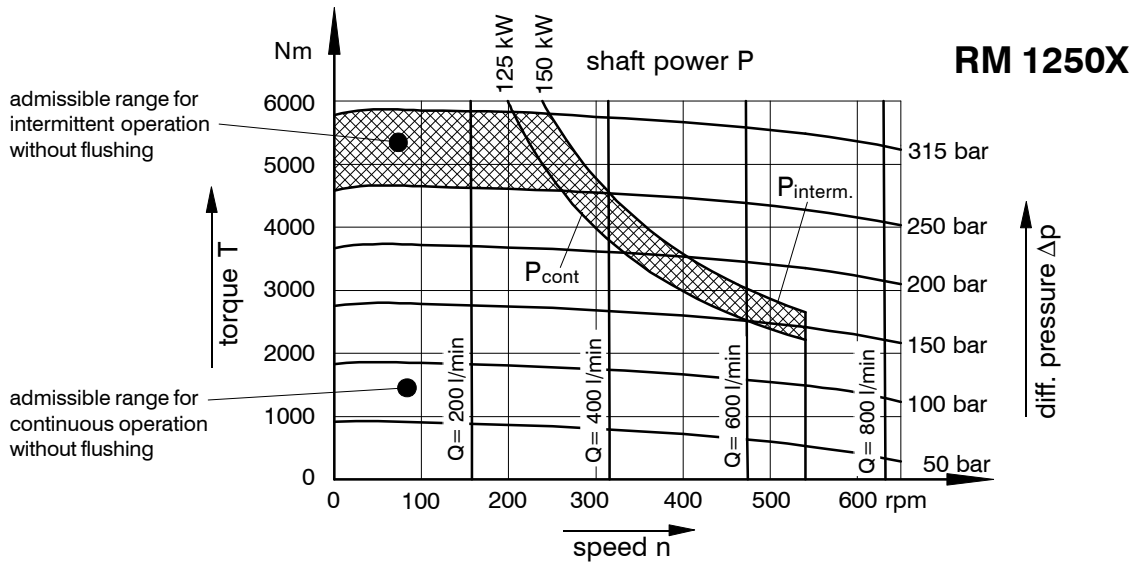
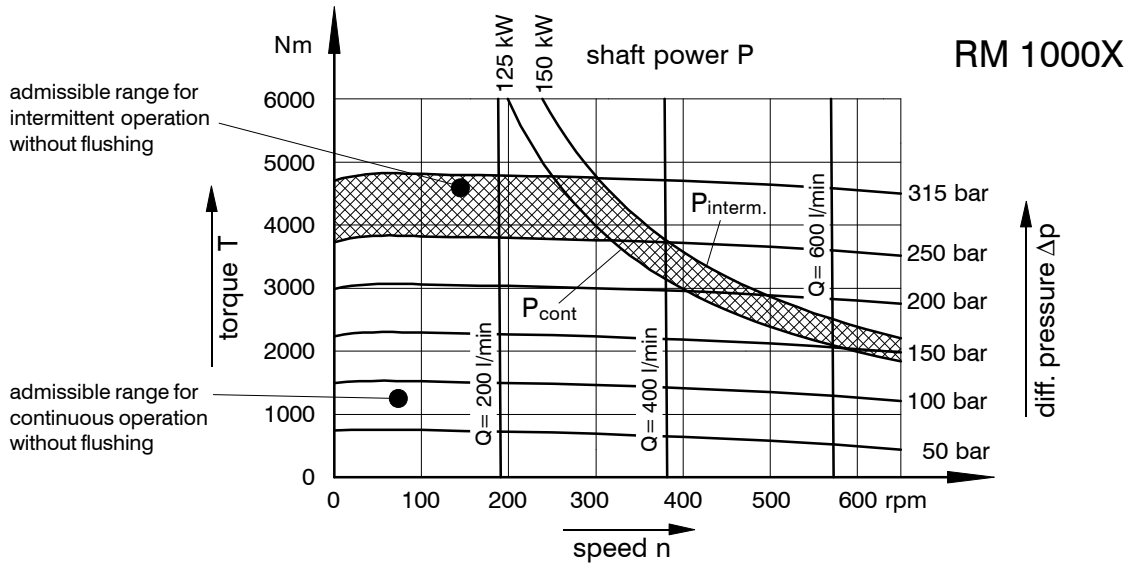
Outlet pressure $p_2 = 0$ bar
 Temperature $\Theta = 50^\circ \text{C}$
 Viscosity $\nu = 36 \text{ mm}^2/\text{s}$

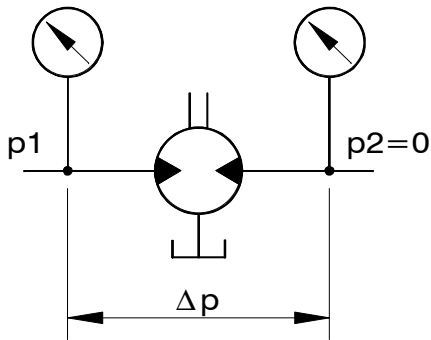
idling characteristics



total leakage (internal + external)

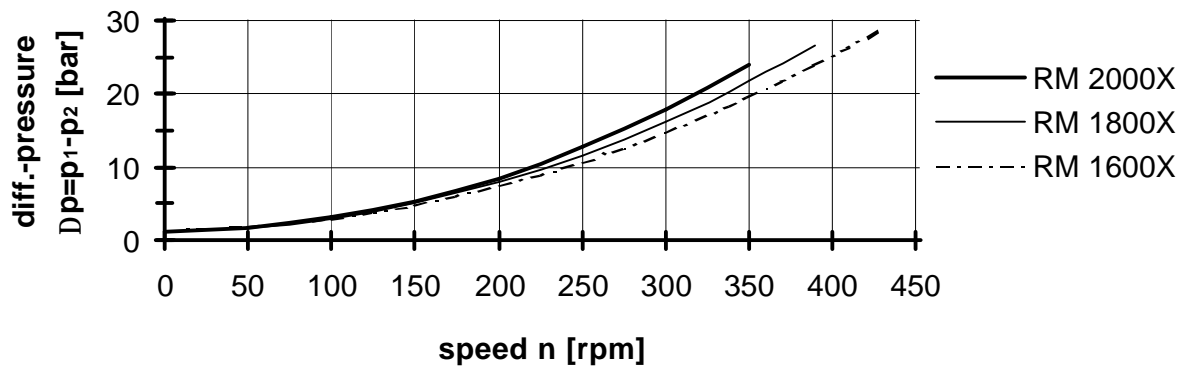




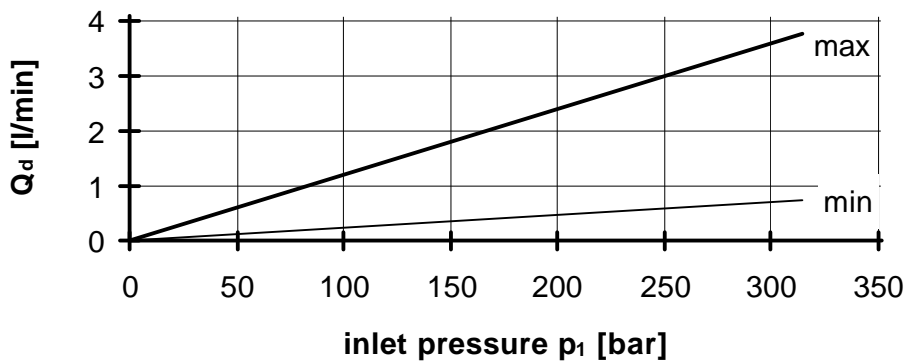


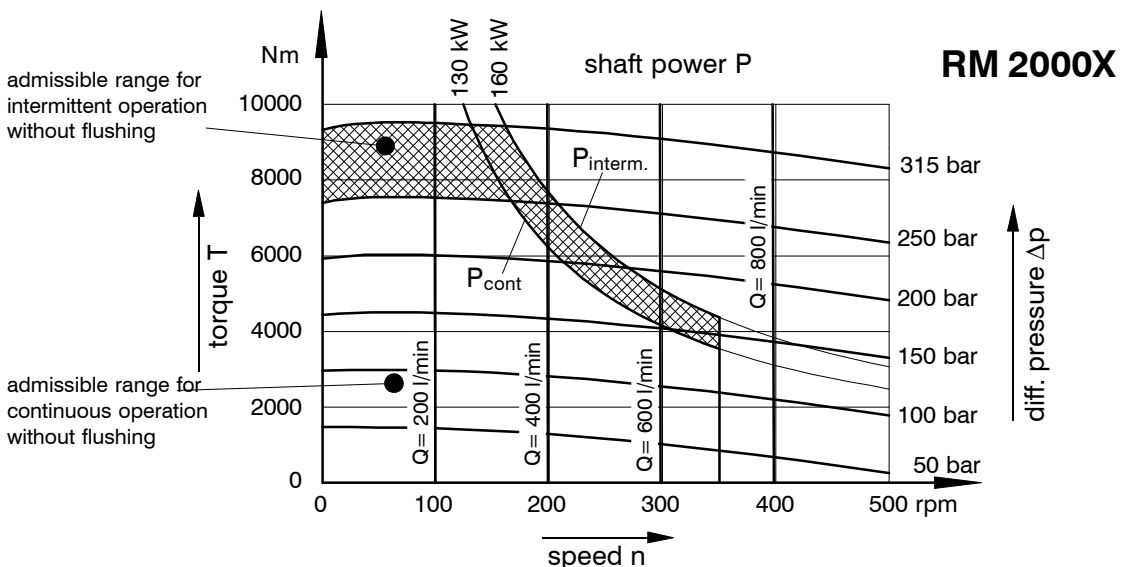
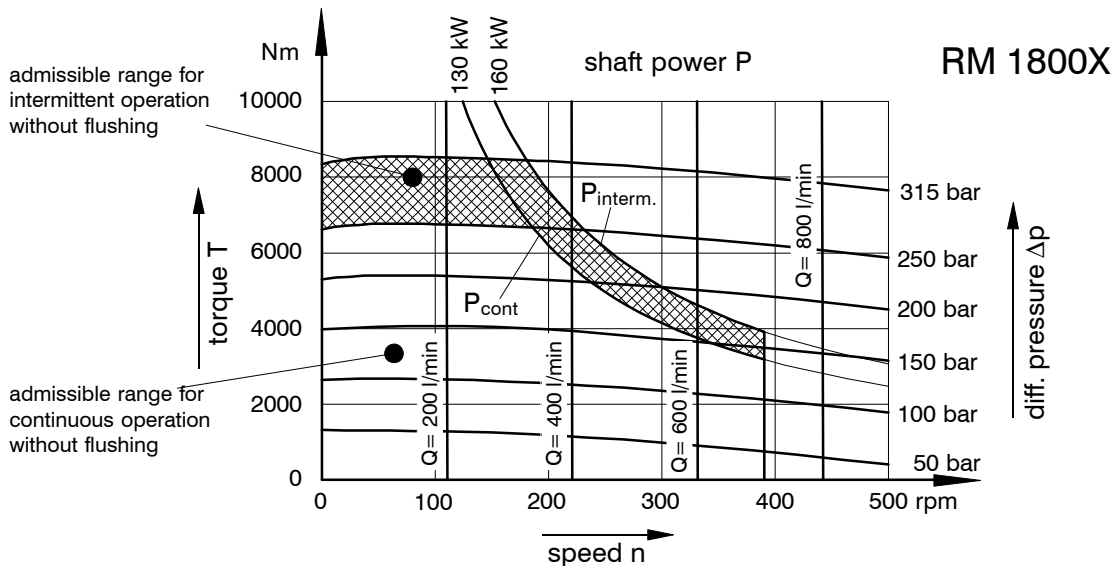
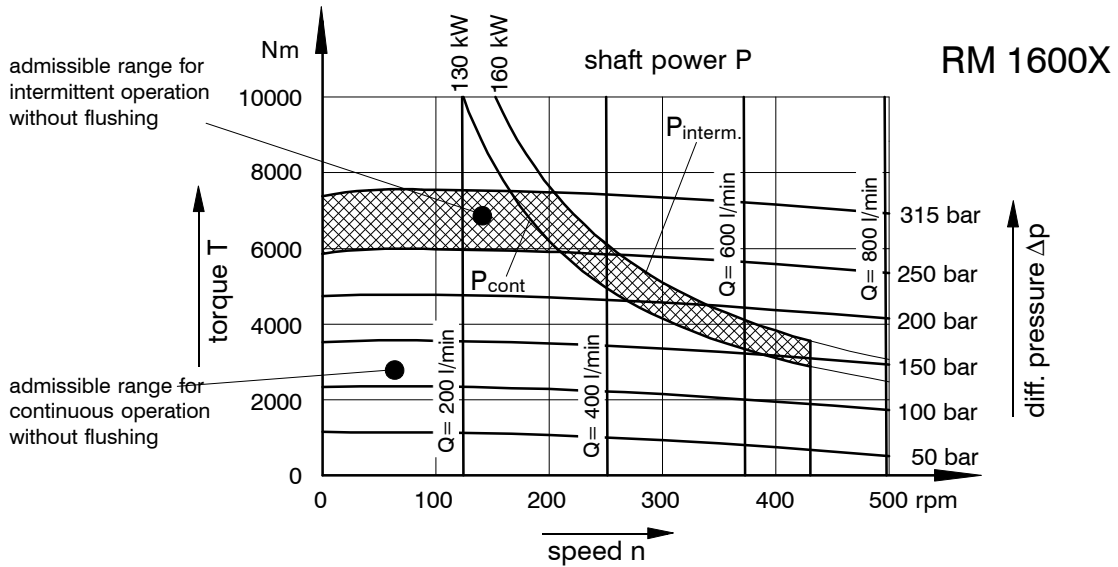
Outlet pressure $p_2 = 0$ bar
Temperature $\Theta = 50^\circ \text{C}$
Viscosity $\nu = 36 \text{ mm}^2/\text{s}$

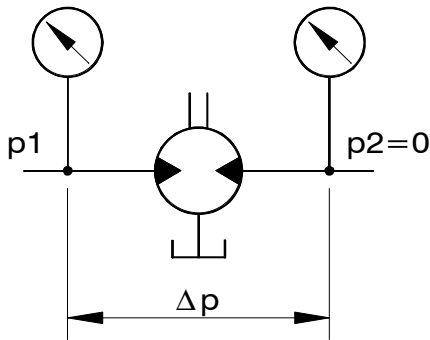
idling characteristics



total leakage (internal + external)

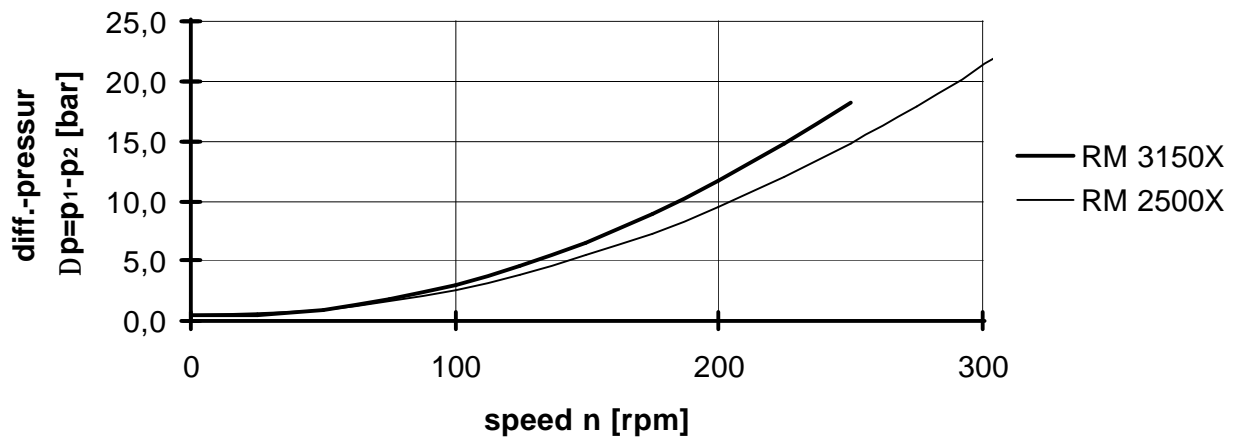




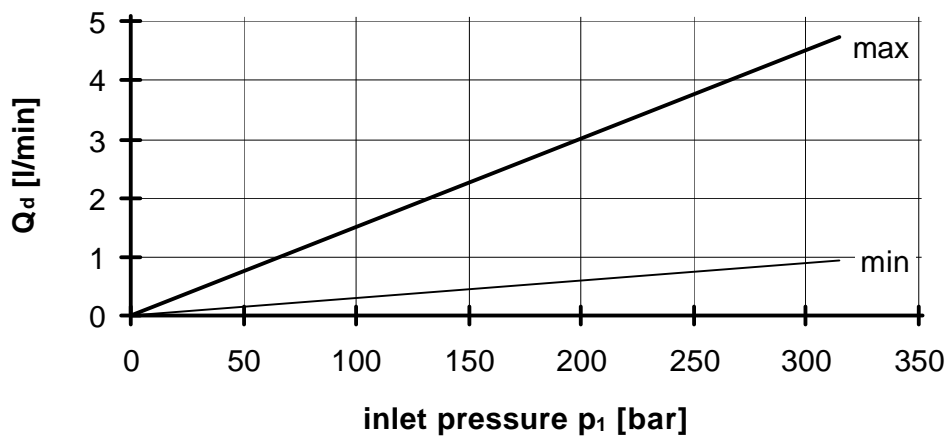


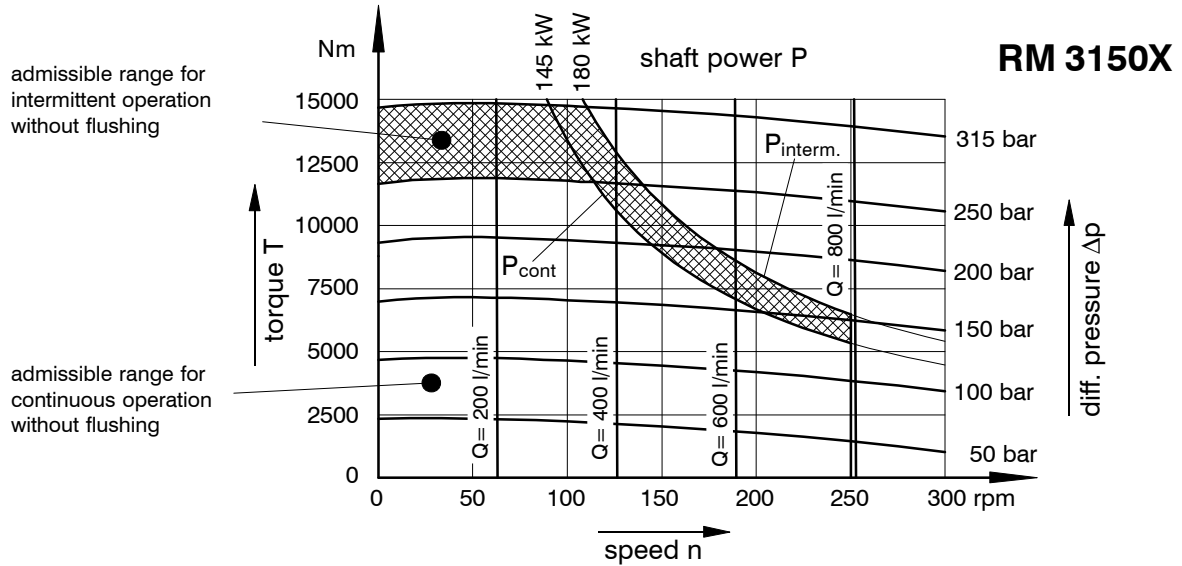
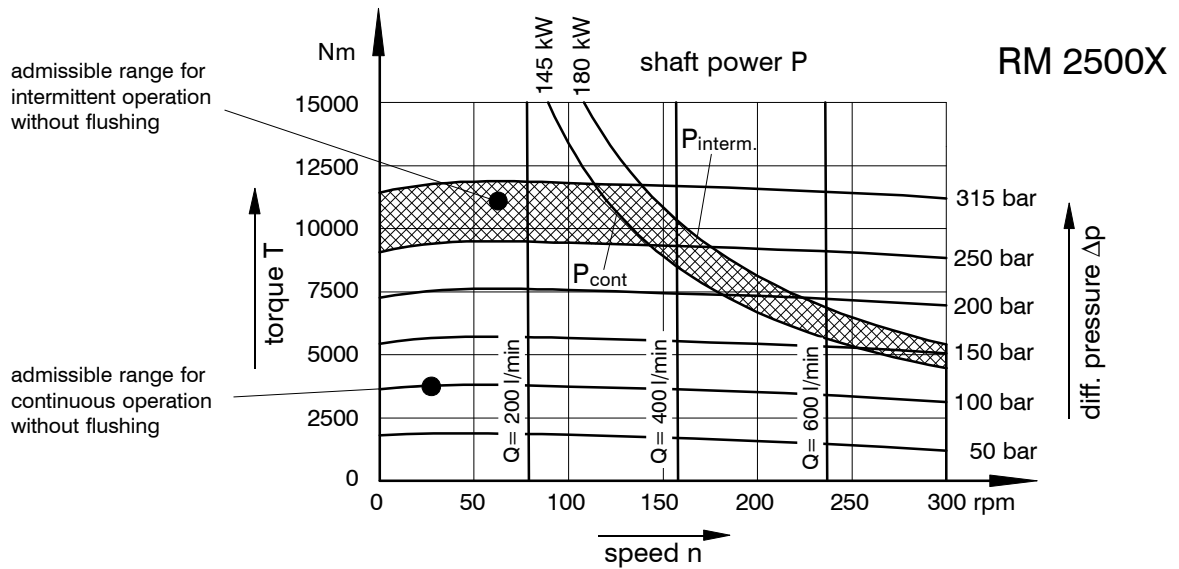
Outlet pressure $p_2 = 0$ bar
Temperature $\Theta = 50^\circ \text{C}$
Viscosity $\nu = 36 \text{ mm}^2/\text{s}$

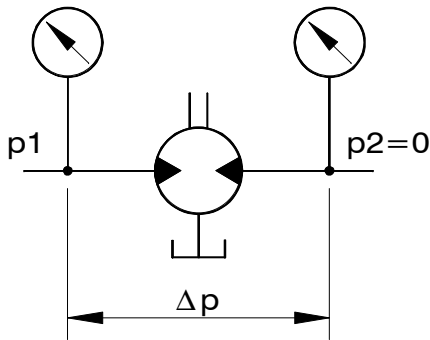
idling characteristics



total leakage (internal + external)

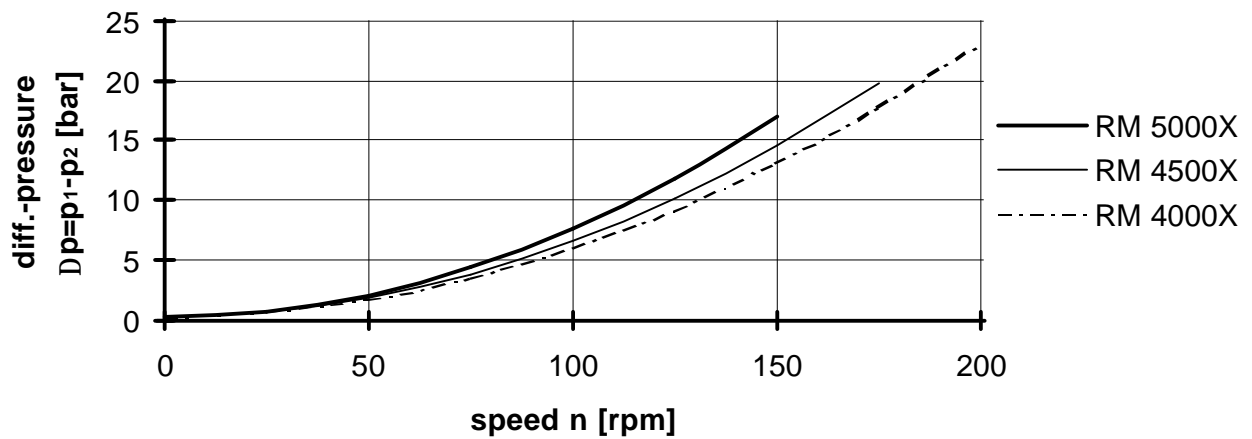




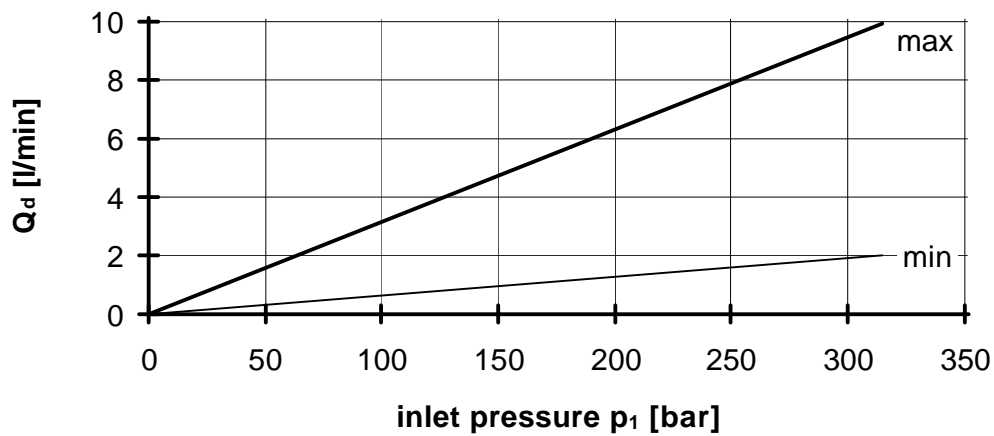


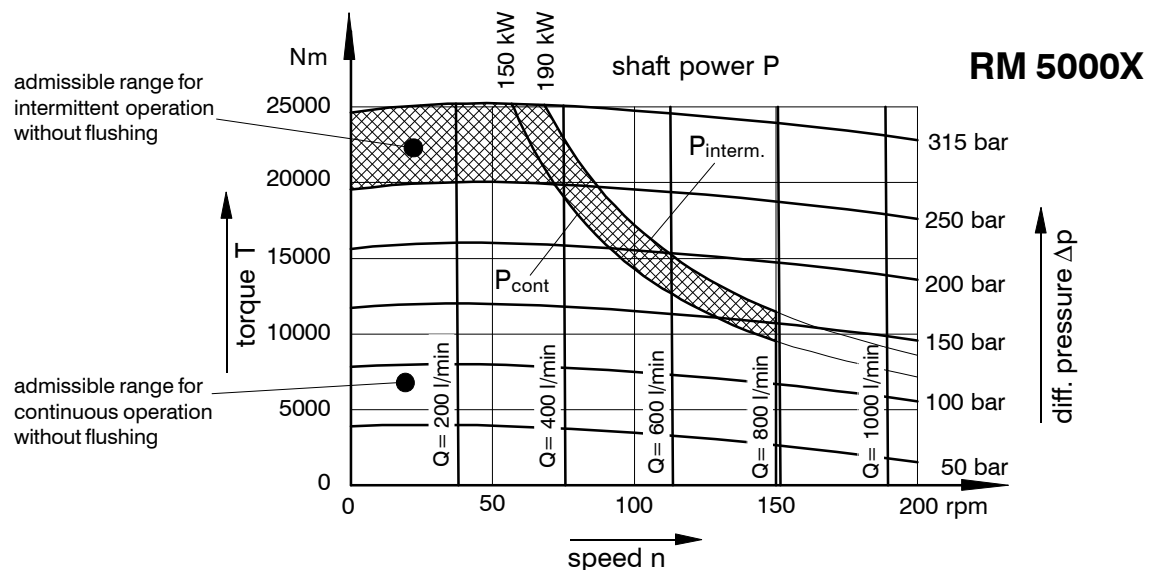
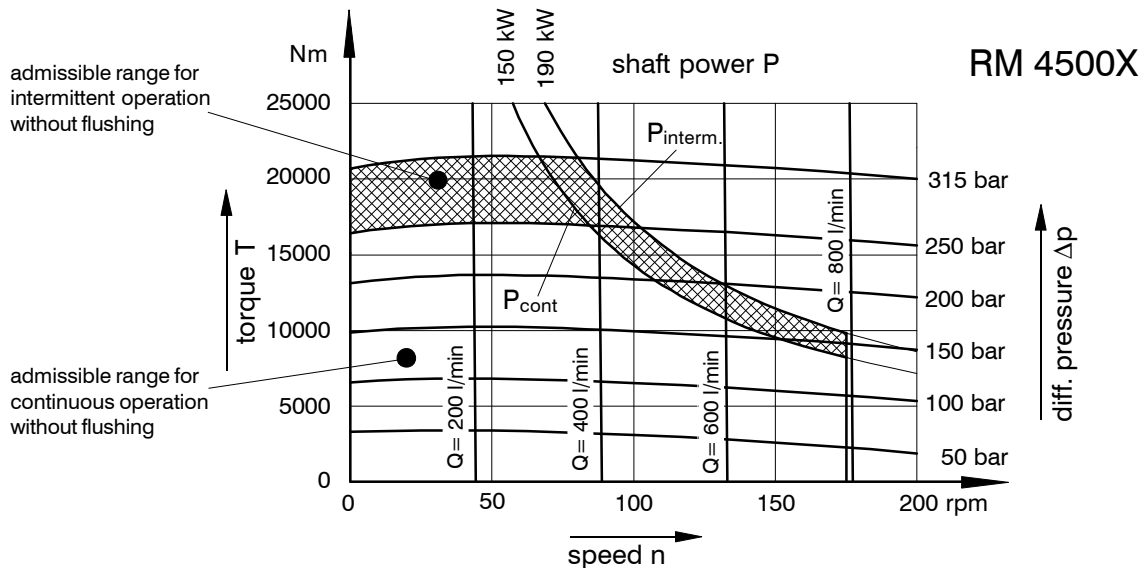
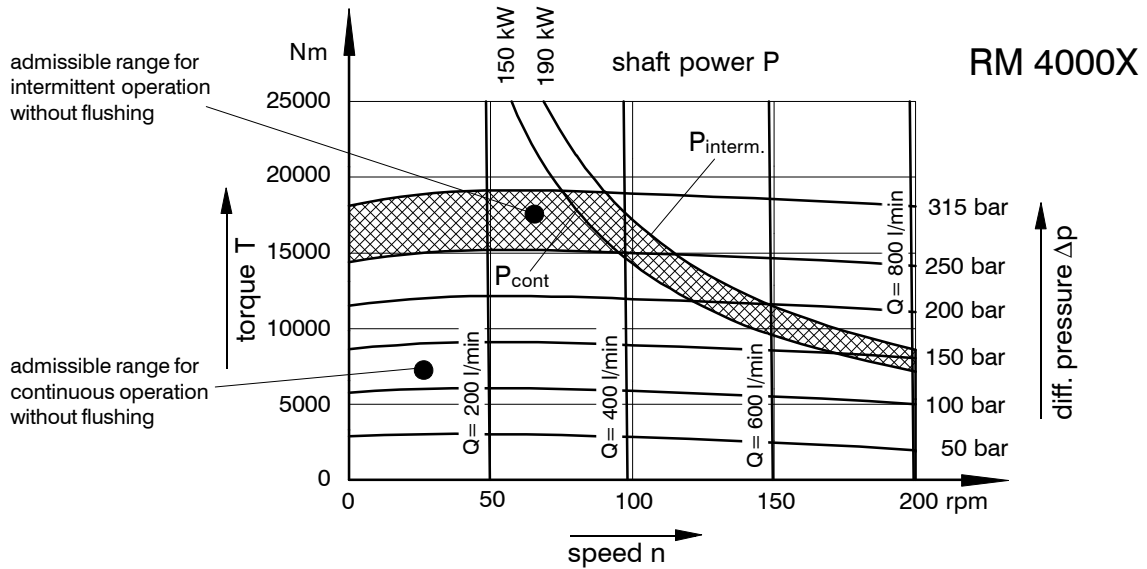
Outlet pressure $p_2 = 0$ bar
Temperature $\Theta = 50^\circ \text{C}$
Viscosity $\nu = 36 \text{ mm}^2/\text{s}$

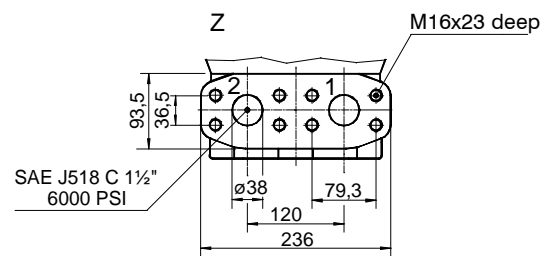
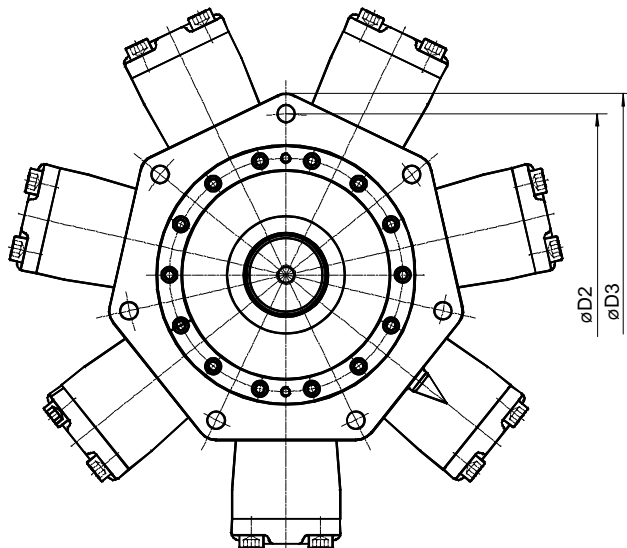
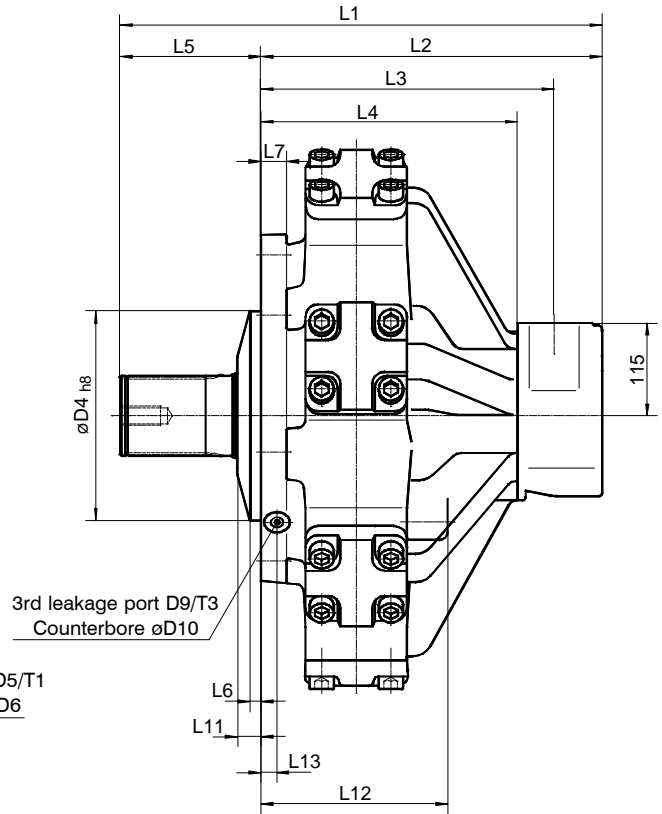
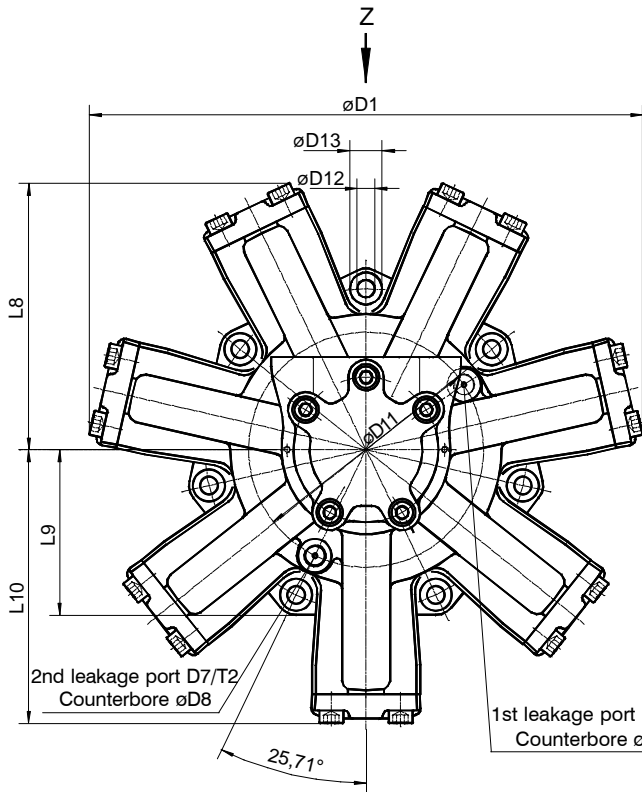
idling characteristics



total leakage (internal + external)





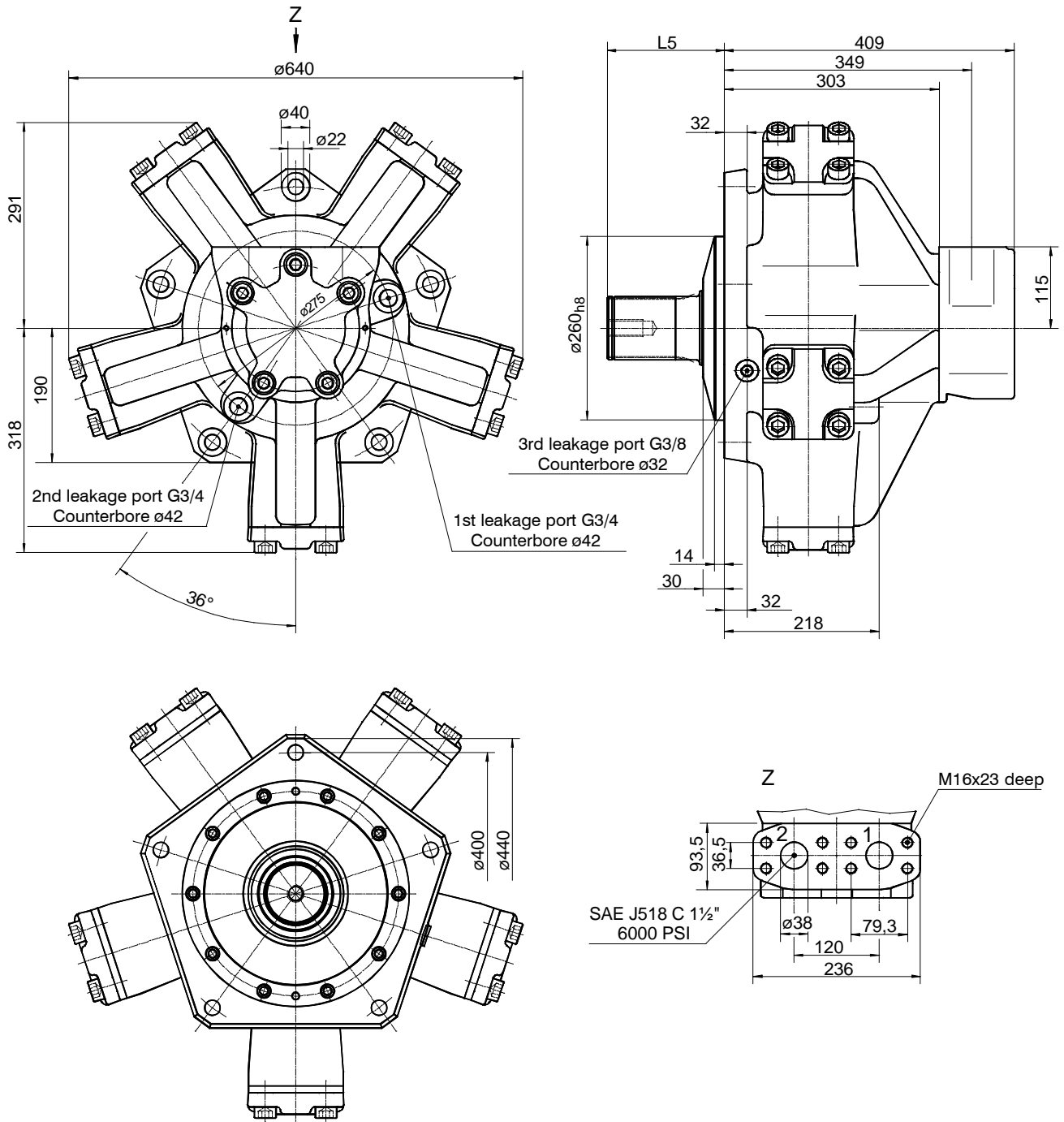


Sense of rotation at sight onto shaft front side:
clockwise: at flow from port 2 to port 1
anticlockwise: at flow from port 1 to port 2

Connection of the leakage lines: please observe assembly and initiation instructions page 23.



	RM 1000X	RM 1250X	RM 2500X	RM 3150X	RM 4000X	RM 4500X	RM 5000X
L1	478	478	599	599	633	633	633
L2	345	345	424	424	455	455	455
L3	285	285	364	364	395	395	395
L4	240	240	319	319	349	349	349
L5	133	133	175	175	179	179	179
L6	9	9	14	14	16	16	16
L7	32	32	32	32	40	40	40
L8	239	239	331	331	384	384	384
L9	155	155	205	205	262	262	262
L10	244	244	340	340	394	394	394
L11	30	30	29	29	26	26	26
L12	155	155	232	232	282	282	282
L13	20	20	32	32	32	32	32
øD1	495	495	689	689	799	799	799
øD2	300	300	400	400	520	520	520
øD3	340	340	450	450	570	570	570
øD4	250 _{h8}	250 _{h8}	260 _{h8}	260 _{h8}	320 _{h8}	320 _{h8}	320 _{h8}
øD5	G 1/2	G 1/2	G 3/4	G 3/4	G 3/4	G 3/4	G 3/4
T1	17	17	19	19	19	19	19
øD6	34	34	42	42	42	42	42
øD7	G 1/2	G 1/2	G 3/4	G 3/4	G 3/4	G 3/4	G 3/4
T2	17	17	19	19	19	19	19
øD8	34	34	42	42	42	42	42
øD9	G 3/8	G 3/8	G 3/8	G 3/8	G 1/2	G 1/2	G 1/2
T3	14	14	14	14	14	14	14
øD10	29	29	32	32	32	32	32
øD11	236	236	292	292	348	348	348
øD12	18	18	22	22	22	22	22
øD13	33	33	40	40	40	40	40

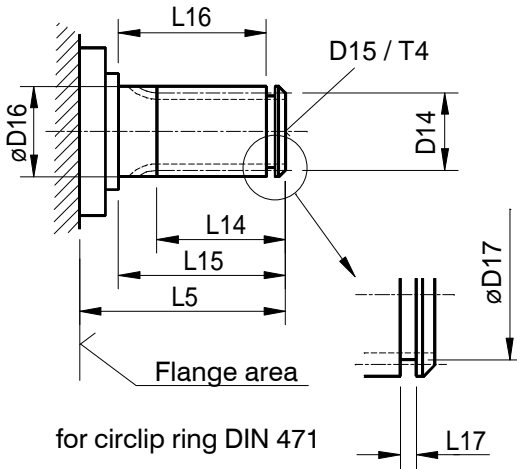


Sense of rotation at sight onto shaft front side:
clockwise: at flow from port 2 to port 1
anticlockwise: at flow from port 1 to port 2

Connection of the leakage lines: please observe assembly and initiation instructions page 23.

Shaft type „K“

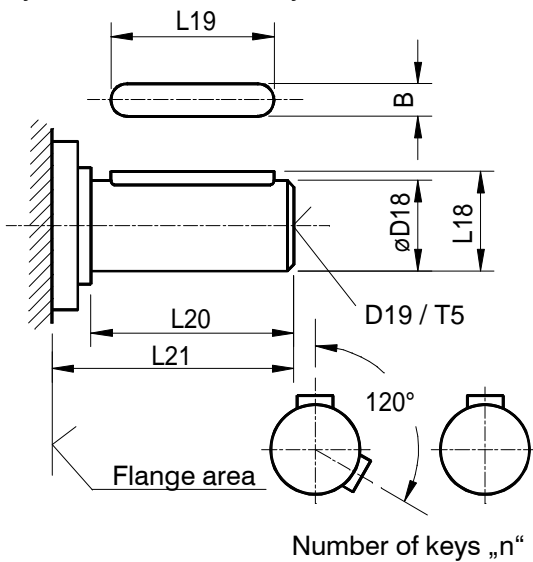
male splined shaft, DIN 5480 quality 7h



Type	RM 1000X RM 1250X	RM 1600X RM 1800X RM 2000X	RM 2500X RM 3150X	RM 4000X RM 4500X RM 5000X
D14	W80x3x25	W90x4x21	W100x4x24	W110x4x26
D15	M20	M24	M24	M24
øD16	80 _{j6}	90 _{j6}	100 _{j6}	110 _{j6}
øD17	76,5	86,5	96,5	106
L5	133	165	175	179
L14	69	95	105	115
L15	101	130	140	150
L16	95	120	130	140
L17	2,65	3,15	3,15	4,15
T4	42	50	50	50

Shaft type „Z“

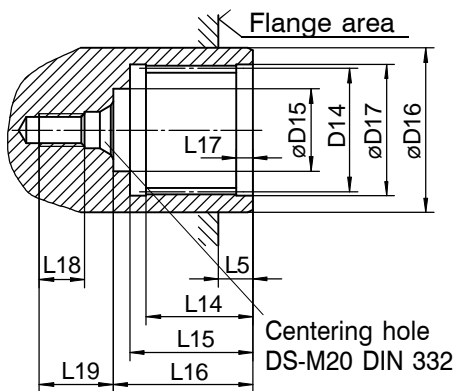
cylindrical shaft with key acc. to DIN 6885



B	22	25	28	28
øD18	80 _{m6}	90 _{m6}	100 _{m6}	110 _{m6}
D19	M20	M24	M24	M24
L18	85	95	106	116
L19	110	160	160	200
L20	130	170	170	210
L21	162	205	205	239
T5	42	50	50	50
n	2	1	2	2

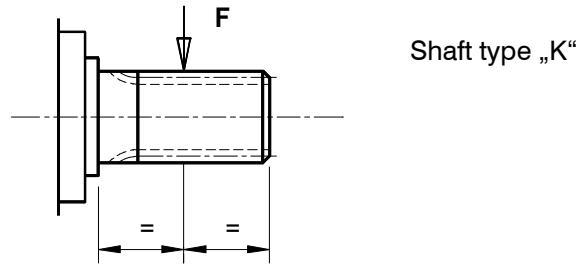
Shaft type „H“

female splined shaft, DIN 5480 quality 9H

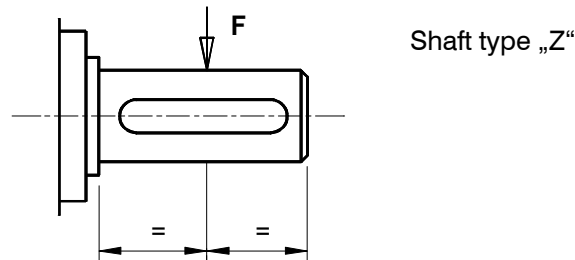


D14	N70x3x22	N85x3x27	N85x3x27
øD15	63 ^{H7}	50 ^{H7}	50 ^{H7}
øD16	100	105	105
øD17	70 ^{H7}	85 ^{H7}	85 ^{H7}
L5	31,5±1	35±1	35±1
L14	41	55	57
L15	49	65	65
L16	60	76	76
L17	7	10	10
L18	15	15	15
L19	42	42	42

Not available



Motor type	Admissible (short-time) radial force at max. operating pressure [F in kN ¹⁾]	Max. admissible shaft load in the middle of the shaft end, based on L _{nah10} = 8000 hours			at speed [n in rpm]
		Differential pressure D _p = 100 bar [F in kN ²⁾]	Differential pressure D _p = 150 bar [F in kN ²⁾]	Differential pressure D _p = 200 bar [F in kN ²⁾]	
RM 1000XK	84	37,1	30,5	20,6	325
RM 1250XK	70	38,5	32,1	22,6	270
RM 1600XK	71	49,3	42,3	32,1	215
RM 1800XK	61	50,2	43,3	33,3	195
RM 2000XK	50	51,2	44,4	34,7	175
RM 2500XK	54	64,5	51,8	31,9	155
RM 3150XK	45	67,4	55,1	36,3	125
RM 4000XK	80	81,4	57,3	-	100
RM 4500XK	66	83,9	60,4	11,0	87,5
RM 5000XK	50	87,2	64,5	22,1	75



Motor type	Admissible (short-time) radial force at max. operating pressure [F in kN ¹⁾]	Max. admissible shaft load in the middle of the shaft end, based on L _{nah10} = 8000 hours			at speed [n in rpm]
		Differential pressure D _p = 100 bar [F in kN ²⁾]	Differential pressure D _p = 150 bar [F in kN ²⁾]	Differential pressure D _p = 200 bar [F in kN ²⁾]	
RM 1000XZ	74	34,8	28,7	19,3	325
RM 1250XZ	62	36,1	30,2	21,2	270
RM 1600XZ	63	46,1	39,6	30,1	215
RM 1800XZ	54	47,0	40,5	31,2	195
RM 2000XZ	44	48,0	41,6	32,5	175
RM 2500XZ	48	61,6	49,4	30,4	155
RM 3150XZ	40	64,3	52,6	34,7	125
RM 4000XZ	66	74,8	52,6	-	100
RM 4500XZ	55	77,1	55,5	10,1	87,5
RM 5000XZ	41	80,1	59,3	20,3	75

1) Admissible (short-time) radial force in the middle of the shaft end at p_{max} = 315 bar and safety factor v = 1.

2) Max. admissible radial force in the middle of the shaft end at a given bearing life of 8000 h and different operating pressures. The speed is inversely proportional to bearing life.

Changes reserved!

Bearing life without shaft load F_R ($L_{nah 10}$).

For various pressure drops at half speed, without shaft load.

The speed is inversely proportional to bearing life.

Motor type	at Dp=100 bar h	at Dp=150 bar h	at Dp=200 bar h	at Dp=250 bar h	at Dp=300 bar h	Speed [n in rpm]
RM 1000X	154.600	40.000	15.300	7.300	4.000	325
RM 1250X	170.200	44.000	16.900	8.000	4.400	270
RM 1600X	213.600	55.300	21.200	10.100	5.500	215
RM 1800X	224.600	58.100	22.300	10.600	5.800	195
RM 2000X	237.600	61.500	23.600	11.200	6.100	175
RM 2500X	133.000	34.400	13.200	6.300	3.400	155
RM 3150X	148.600	38.500	14.700	7.000	3.800	125
RM 4000X	77.900	20.200	7.700	3.700	2.000	100
RM 4500X	83.500	21.600	8.300	3.900	2.100	87,5
RM 5000X	90.400	23.400	9.000	4.300	2.300	75

Bearing life with shaft load F_R ($L_{nah 10}$).

Shaft type „K“, shaft load in the middle of the shaft end (see page 18).

For various pressure drops at half speed, and shaft load F_R .

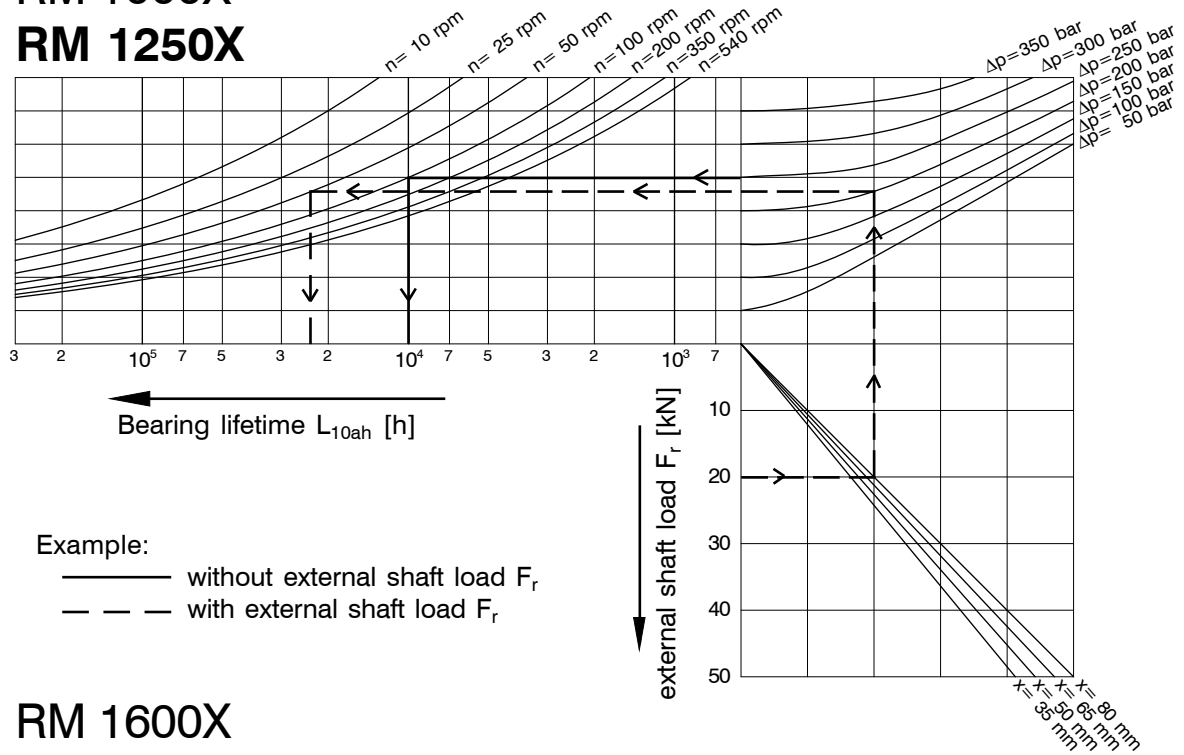
The speed is inversely proportional to bearing life.

Motor type	at Dp=100 bar h	at Dp=150 bar h	at Dp=200 bar h	at Dp=250 bar h	at Dp=300 bar h	Shaft load F_R in N	Speed [n in rpm]
RM 1000X	13.200	8.100	5.000	3.100	2.100	30.000	325
RM 1250X	14.600	8.900	5.500	3.500	2.300	30.000	270
RM 1600X	13.500	8.800	5.700	3.700	2.500	40.000	215
RM 1800X	14.200	9.200	6.000	3.900	2.700	40.000	195
RM 2000X	15.100	9.800	6.300	4.200	2.800	40.000	175
RM 2500X	11.100	6.800	4.200	2.700	1.800	56.000	155
RM 3150X	12.500	7.700	4.700	3.000	2.000	56.000	125
RM 4000X	13.600	7.000	3.800	2.200	1.400	63.000	100
RM 4500X	14.600	7.500	4.100	2.400	1.500	63.000	87,5
RM 5000X	15.900	8.100	4.400	2.600	1.600	63.000	75

If calculations are requested, please fill in the form at page 22.

RM 1000X

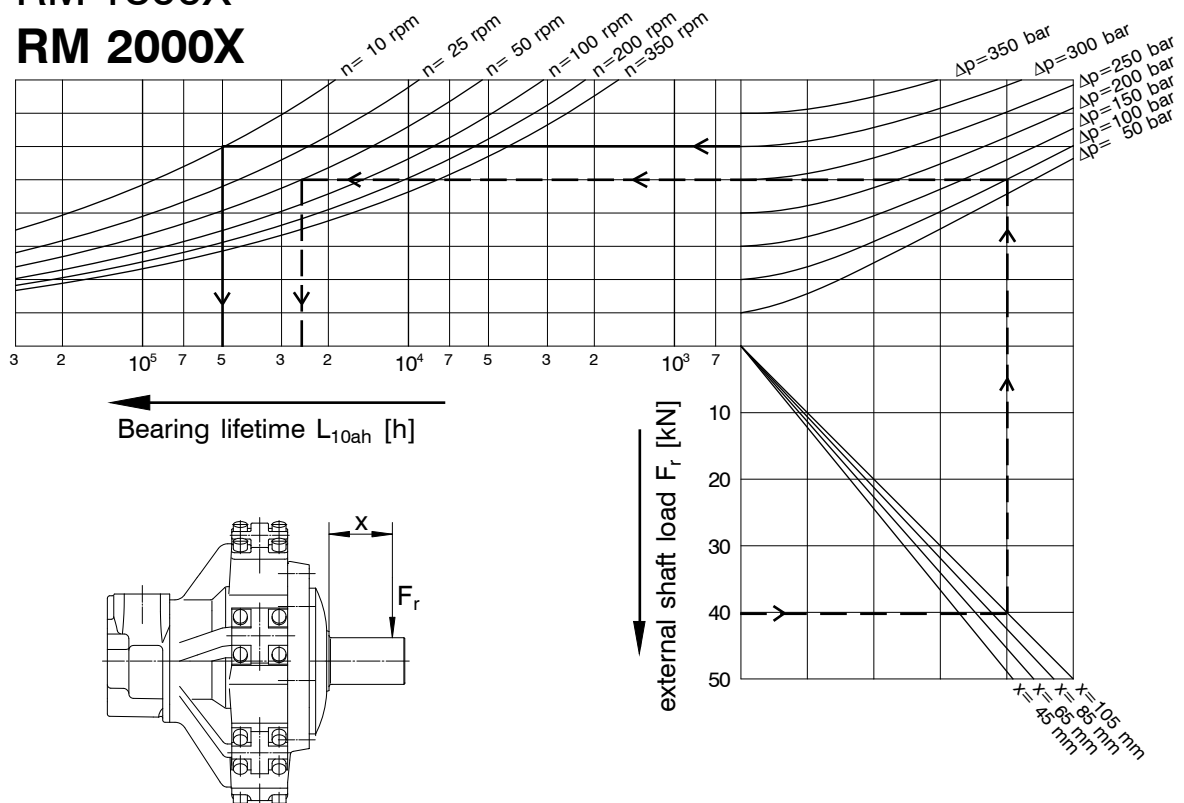
RM 1250X



RM 1600X

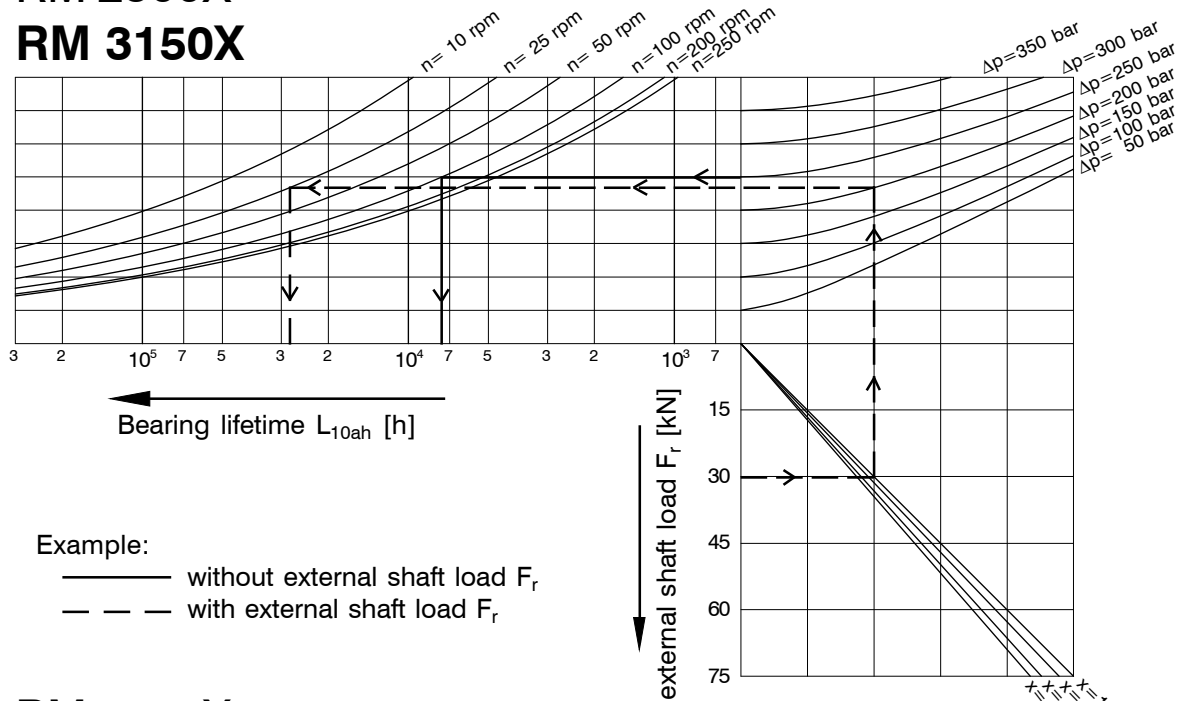
RM 1800X

RM 2000X



RM 2500X

RM 3150X



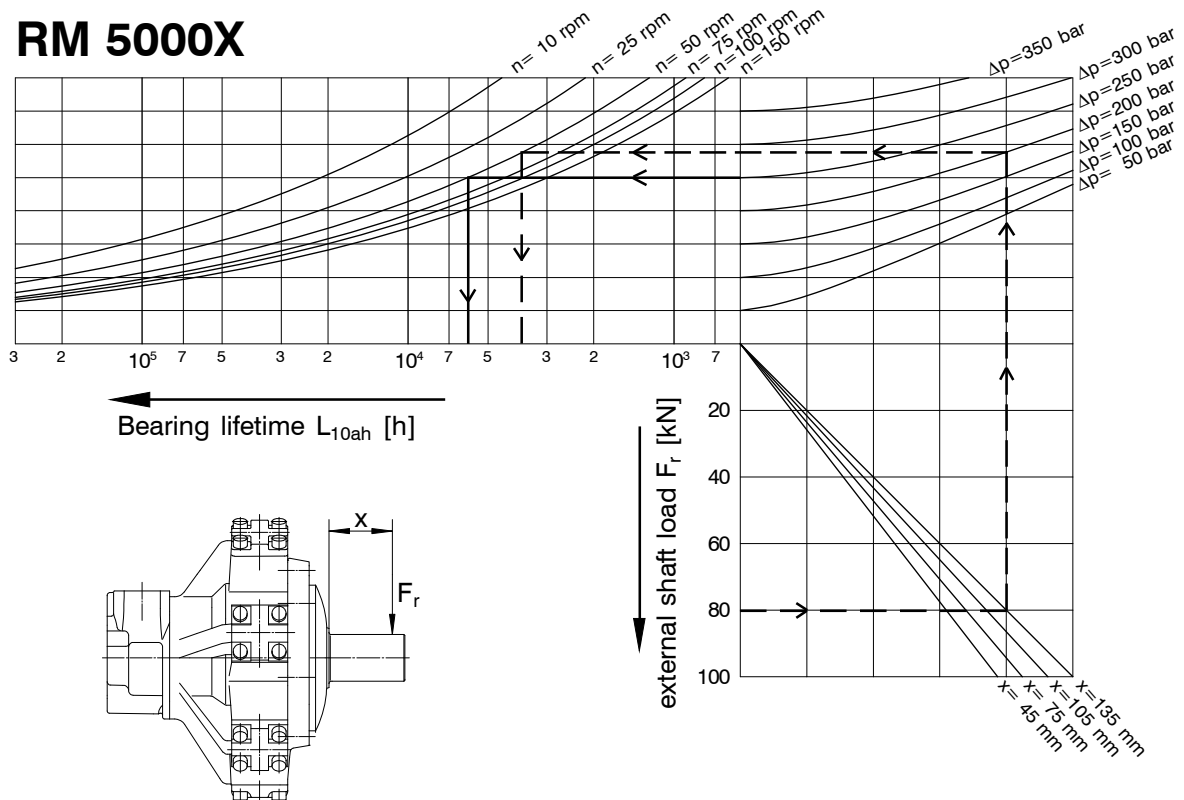
Example:

- without external shaft load F_r
- - - with external shaft load F_r

RM 4000X

RM 4500X

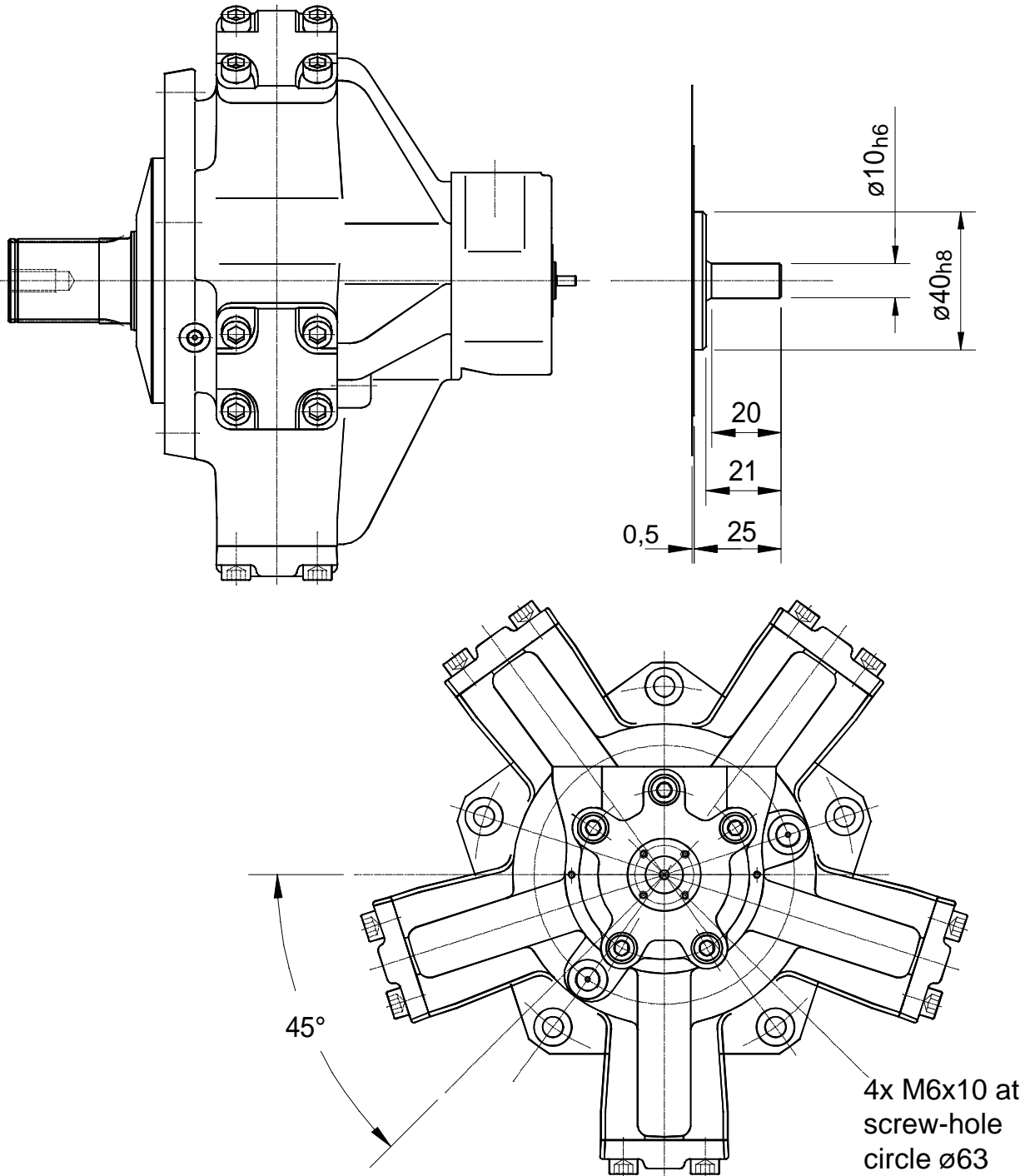
RM 5000X



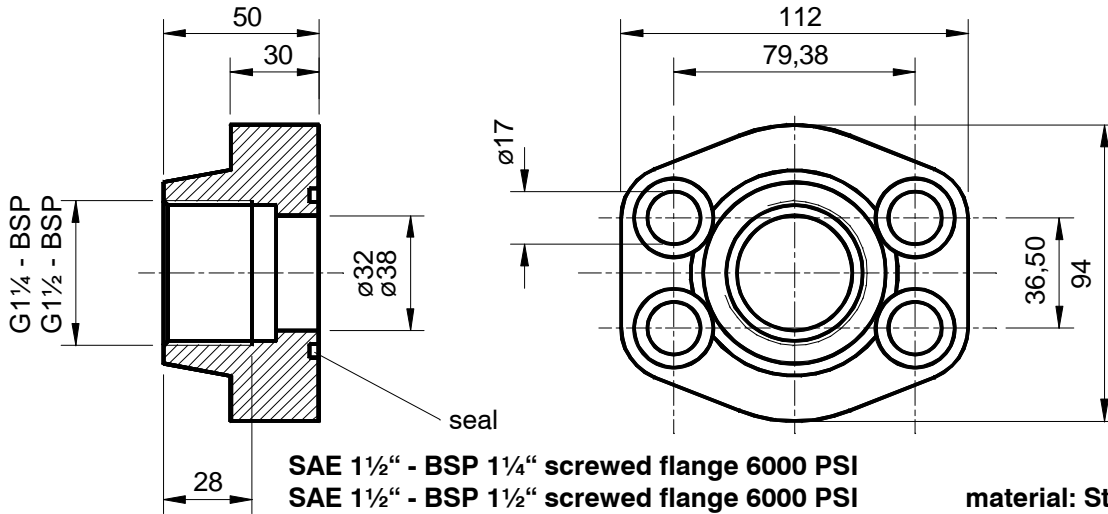
All radial piston motors with type mark „M“ are equipped with an instrument shaft.

The instrument shaft transmits a maximal torque of 5 Nm.

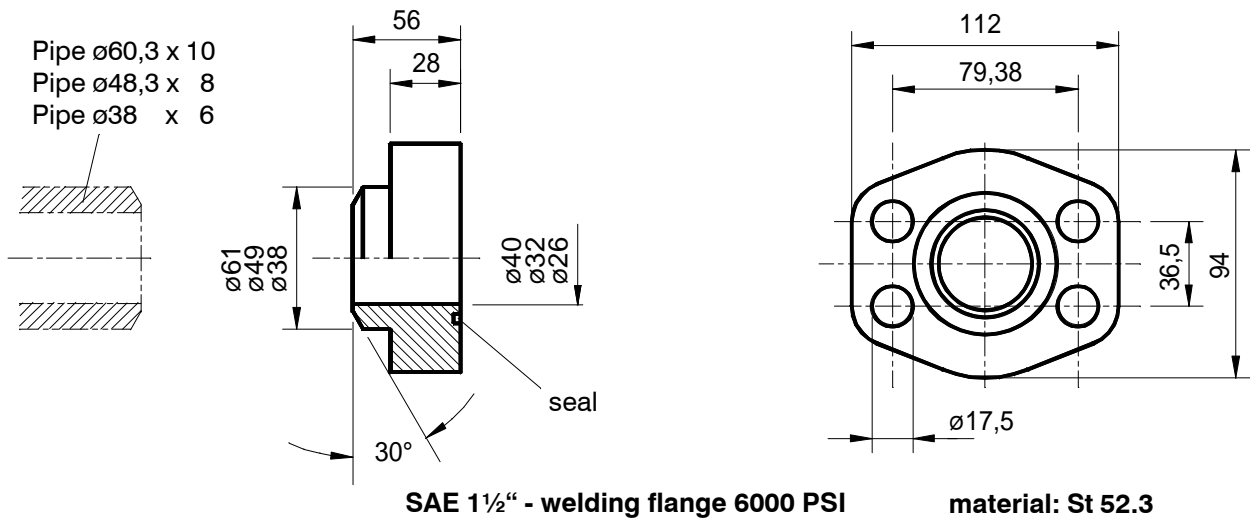
On request further documentation is available relating to installation of tacho-generators for registration of speed and incremental encoders for registration of turning angle up to 3600 impulses per revolution.



For every radial piston motor 2 flanges, 2 o-ring seals and 8 bolts are required.



Designation	Seal-material	Thread DIN ISO 228/1	Order-No.
1 SAE 1 1/2" - screwed flange complete, metric 6000 PSI with BSP-thread, with 4 bolts M16 x 50 DIN 912 - 8.8 and 1 o-ring 47,22 x 3,53	NBR	G1 1/4	59.0000.03
	FPM	G1 1/4	59.0000.04
	NBR	G1 1/2	59.0000.05
	FPM	G1 1/2	59.0000.06



Designation	Seal-material	Pipe	Order-No.
1 SAE 1 1/2" - welding flange complete, metric 6000 PSI with 4 bolts M16 x 50 DIN 912 - 8.8 and 1 o-ring 47,22 x 3,53	NBR	$\varnothing 38 \times 6$	59.0000.13
	FPM	$\varnothing 38 \times 6$	59.0000.14
	NBR	$\varnothing 48,3 \times 8$	59.0000.15
	FPM	$\varnothing 48,3 \times 8$	59.0000.16
	NBR	$\varnothing 60,3 \times 10$	59.0000.17
	FPM	$\varnothing 60,3 \times 10$	59.0000.18

You know your product, we know our radial piston motors! Give us your conditions, we will calculate all important data for the suitable drive.

1. **Company** _____ **For attention of** _____
Street / P.O.Box _____ **Department** _____
Postal code / City _____ **Phone No.** _____
Country _____ **Fax No.** _____

2. **Operating data: secondary drive**

2.1 Machine type: _____ project: _____

2.2 Machine operating factor at gearboxes $k =$ _____

2.3 Installation position: horizontal vertical
 drive shaft upwards drive shaft downwards

2.4 Forces onto drive shaft: pressure tension
radial: _____ N axial: _____ N

2.5 Nominal torque $T_N =$ _____ Nm speed n _____ min⁻¹ time _____ min

2.6 Continuous torque $T_{cont} =$ _____ Nm speed n _____ min⁻¹ time _____ min

2.7 Maximum torque $T_{max} =$ _____ Nm speed n _____ min⁻¹ time _____ min

2.8 Minimum torque $T_{min} =$ _____ Nm speed n _____ min⁻¹ time _____ min

2.9 Maximum speed $n_{max} =$ _____ min⁻¹ time t _____ min

2.10 Minimum speed $n_{min} =$ _____ min⁻¹ time t _____ min

2.11 Information about working cycle: _____

2.12 Secondary drive with valve assembly on the motor

2.13 Control drive with proportional- / servo valve

2.14 Maximum power: $P_{max} =$ _____ kW continuous power: $P_{cont} =$ _____ kW

2.15 one-shift-operation two-shift-operation three-shift-operation

2.16 Desired bearing life: $L_{h10} =$ _____ hours

2.17 Remarks: _____

3. **Operating data: primary drive**

Hydraulic fluid: _____ operating temperature: $\Theta =$ _____ °C

Delivery volume of pump $Q_P =$ _____ l/min

opened circuit closed circuit

Feeding pressure $p_F =$ _____ bar

System pressure $p_{Sys} =$ _____ bar

Desired operating pressure at T_N $p_N \sim$ _____ bar

Hydraulic fluids:

HLP Mineral oil to DIN 51524 part 2.
Biologically degradable fluids (gaskets NBR / FPM to clarify with supplier of fluid).

HFC Reduce pressure to about 70%, re-calculate bearing life.

HFD Phosphoric acid-ester, FPM- / FKM -seals are necessary.

Filtering:

Max. admissible contamination degree of the fluid to NAS 1638 class 9,
filter recommendation with a minimum retaining value of $\beta_{10} \geq 100$.

For a long life NAS 1638 class 8, filter recommendation with a minimum retaining value of $\beta_5 \geq 100$.

Assembly / attachment:

Installation position optional, leakage oil outlet see below.

Motor align exactly, fastening screws min. 10.9.

For frequent reversing, 2 fastening screws to be used as dowel screws.

Coupling:

Install the coupling with a screw (not with a hammer).

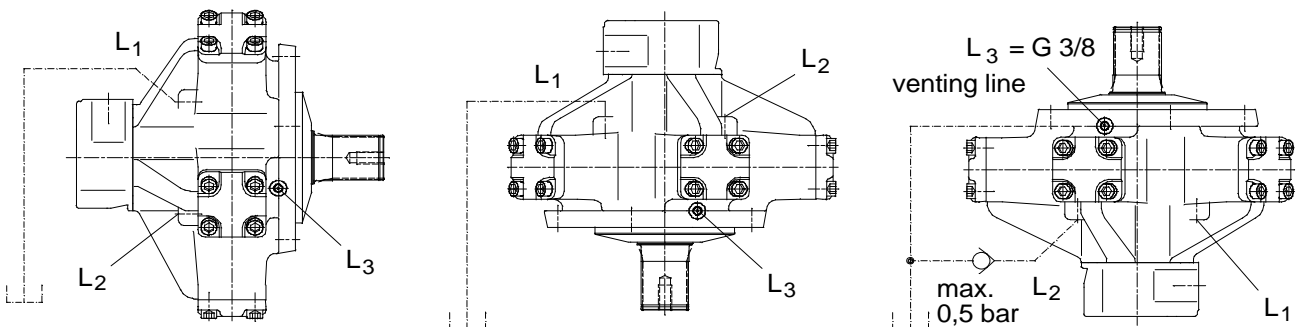
Pipelines:

The motor has flange connections SAE J518C 1½" - 6000 PSI.

Use flange acc. to page 21.

Leakage line:

Before starting fill the motor with hydraulic fluid. Lay the leakage line in a way that the motor cannot drain off and no big air bubble builds up within the housing.

**Flushing:**

Connect the flushing line (with about 5 - 8 liters/minute, 1.5 bar maximum) in that way that the oil inlet enters at the lowest leakage connection L₁ / L₂. The drain L₃ may be connected into L₁ or L₂, which ever is the return line, via a small 0.5 bar check valve.

Changes reserved!



DÜSTERLOH Fluidtechnik GmbH

Im Vogelsang 105

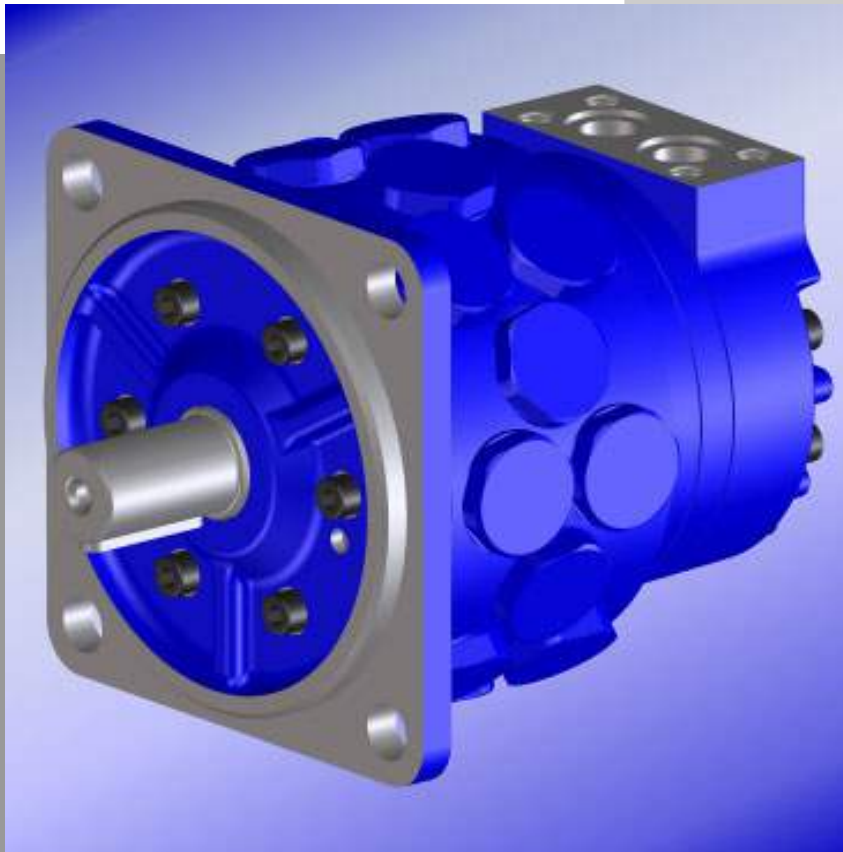
D-45527 Hattingen

Phone : +49 (0) 23 24 / 709-0

Fax : +49 (0) 23 24 / 709-110

E-Mail : info@duesterloh.de

Internet : <http://www.duesterloh.de>



Radial Piston Motors

precision drives

with fixed displacement

series KM 11... - RM 250N...

$V_g = 11 \text{ ccm/rev} - 251 \text{ ccm/rev}$

HYDRAULIC-MOTORS

Product overview	4
Ordering information	5
Functional description KM 11, RM 11	6
Functional description KM 22 - KM 110	7
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Technical data KM 63	16
Characteristics KM 63	17
Technical data KM 90	18
Characteristics KM 90	19
Technical data KM 110	20
Characteristics KM 110	21
Functional description RM 80N - RM 250N	22
Technical data RM 80N	24
Characteristics RM 80N	25
Technical data RM 125N	26
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Technical data RM 160N	28
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Technical data RM 250N	30
Characteristics RM 250N	31
Measuring shaft, 2nd shaft, KM 11 - KM 110	32
Shaft K; attachment F3, KM 22 - KM 110	33
Measuring shaft, RM 80N - RM 250N	34
Notes	35

Have a close look at our motors ...

- long service life on account of mature design
- shaft end able to support large radial and axial forces
- small number of components in drive
- extremely low moment of inertia
- measuring shaft can be fitted as a standard option
- low leakage thanks to play self-adjustment design feature
- translationally operating control valve with play adjustment control
- resistant to temperature shocks
- suitable for use with liquids with low combustion properties
- maintenance free
- quiet running
- wide speed range
- with SAE flange connections
- 100 % torque throughout the entire speed range
- uniform running properties even at extremely low speed
- immediately reversible
- high starting torque
- no counterpressure required for motor operation
- can be used as pump if feed is available
- very suitable for applications as a control
- feed and discharge control possible
- may be operated in series
- total efficiency of up to 96%
- direct valve construction available as a standard option

Fixed displacement motor (constant hydraulic displacement)

Motor Typ		Displacement V_g cm ³ /rev	Torque		Speed n		Cont. operating pressure p_{cont} bar	Maximum operating pressure p_{max} bar	Peak pressure p_{peak} bar	Output	
KM	RM		$T_{spec. aver.}$ Nm/bar	T_{max} Nm	n_{min}^* rpm	n_{max} rpm				P_{cont} kW	$P_{intermit.}$ kW
11		11	0,15	31,5	10	3000	140	210	250	3,5	4,3
	11	11	0,15	37,5	5	3600	160	250	315	4,7	5,8
22		22	0,31	77,9	10	2250	160	250	315	6,0	7,5
32		33	0,47	118	10	1500	160	250	315	6,0	7,5
45		44	0,62	156	5	1800	160	250	315	9,5	11
63		66	0,95	236	5	1200	160	250	315	9,5	11
90		89	1,27	267	5	900	140	210	250	8,5	10
110		110	1,59	333	5	750	140	210	250	8,5	10
	80N	81	1,15	363	5	800	250	315	400	12	15
	125N	126	1,80	567	5	600	200	315	350	12	15
	160N	160	2,36	742	5	800	250	315	400	24	30
	250N	251	3,68	1159	5	600	200	315	350	24	30

* extremely low speeds of below 1 rpm can be reached using built-on servo-valves.

p_{cont} if limited to P_{cont}
 p_{max} if limited to $P_{intermit.}$ operating for a maximum duration of 10 % in every hour
 p_{peak} highest pressure at which the components will remain functional
 P_{cont} continuous output (at a return pressure of 10 bar); if this output is constantly exceeded, the drive must be flushed
 $P_{intermit.}$ output with which the motor can be run intermittently (for an operating time of max 10 % in every hour)

Radial Piston Motor

--	--	--	--	--	--	--	--

control

with clearance seal
in the control **KM**
NG 11, 22, 32, 45, 63, 90, 110

with play self-adjustment **RM**
NG 11, 80N, 125N, 160N, 250N

Additional information

Designation
E2 = Actuator quality
NG 22, 32, 45, 63, 90, 110
S99 = Flush connection
T = larger clearance for
highest speeds and at
very high temperatures

Displacement Rated Size NG

11 cm ³ /rev	=	11
22 cm ³ /rev	=	22
33 cm ³ /rev	=	32
44 cm ³ /rev	=	45
66 cm ³ /rev	=	63
81 cm ³ /rev	=	80N
89 cm ³ /rev	=	90
110 cm ³ /rev	=	110
126 cm ³ /rev	=	125N
161 cm ³ /rev	=	160N
251 cm ³ /rev	=	250N

Flange dimensions

Designation
Attachment to the face
***** = NG 22, 32, 45, 63, 90, 110
S = \varnothing 80 K = \varnothing 100
***** = NG 80N, 125N, 160N, 250N
ISO 3019/3
S = \varnothing 125 K = \varnothing 160
F3 = NG 22, 32, 45, 63, 90, 110
S = \varnothing 120 K = \varnothing 140
Flange connection
F = NG 11
ISO 3019/2
S = \varnothing 125 K = \varnothing 160
F = NG 22, 32, 45, 63, 90, 110
ISO 3019/2
S = \varnothing 160 K = \varnothing 200
F = NG 80N, 125N, 160N, 250N
S = \varnothing 140 K = \varnothing 200
(S = diameter of the centring ring)
(K = circle diameter for screw holes)

Drive Shaft

Cylindrical Keyway
DIN 6885 T1 = **Z**
Male involute splined shaft
DIN 5480 = **K**
NG 22 bis 250N
Female involute splined shaft
DIN 5480 = **H**
NG 80N, 125N, 160N, 250N

Connections

Threaded connection, radial
NG 11, 22, 32, 45, 63, 90, 110
G 1/2 DIN ISO 228-1 = **A**
Threaded connection, radial
NG 80N, 125N, 160N, 250N
G 1 DIN ISO 228-1 = **A**
Flange connection, radial
NG 11, 22, 32, 45, 63, 90, 110
Duesterloh standard
(for mounting the valve) = **A1**
Flange connection, radial
NG 80N, 125N, 160N, 250N
SAE J 518 3/4" Standard 3000 psi = **A1**
Threaded connection, axial
NG 22, 32, 45, 63, 90, 110
G 3/4 DIN ISO 228-1 = **B5**

Second shaft end

Designation
***** = without second shaft end
M = cylindrical measuring shaft
 \varnothing 10_{h6} for sensor
(incremental speed sensor etc.)
M10 = second driven shaft
W28x1,25x30x21-7h DIN 5480
NG 22, 32, 45, 63, 90, 110

Sealing material

Designation
***** = NBR seals, suitable for HLP mineral
oils according to DIN 51524 part 2
V = FPM (Viton) seals, suitable for ester
of phosphoric acid (HFD)

* No information given in the type key number.

We reserve the right to make modifications

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1. General properties and features

Design:

hydrostatic radial piston motor

Purpose:

transformation of hydraulic power to drive power.

High efficiency, also suitable for very low speeds, low moment of inertia, rapidly reversible, capable of supporting high total loads, four-quadrant operation possible, very suitable for applications as a control, extremely quiet operation.

2. Structure and function

2.1 Drive unit

Design:

Internal piston support

Method of functioning:

Seven radial pistons (14.1) load the crankshaft via a heptagon ring with a needle bearing cage.

Drive details

Seven radial pistons (14.1) load the crankshaft via a heptagon ring with a needle bearing cage.

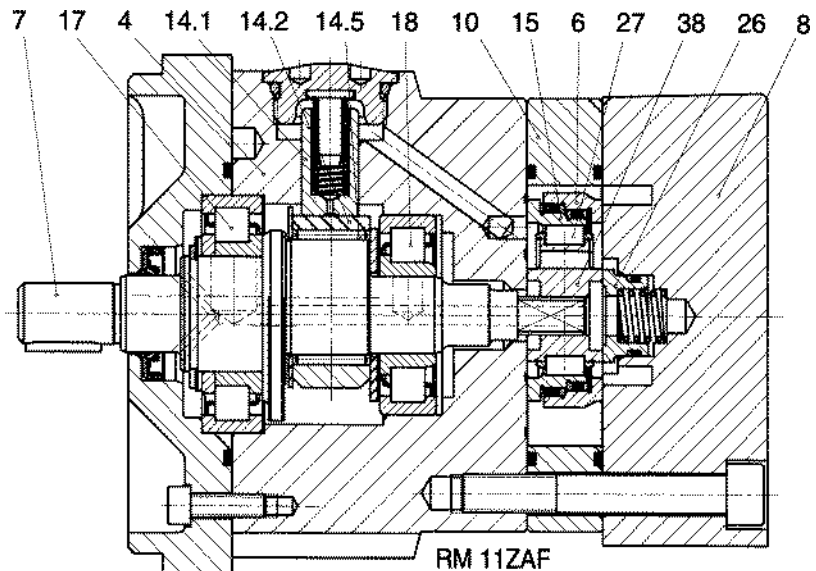
Drive details

Crankshaft bearing: cylinder roller bearing (17, 18) partially balanced crankshaft.

transmission of force between the pistons (14.1) and the crankshaft (7):

Low frictional losses, very long service life, relatively insensitive to

dirt, also suitable for extremely high pressure and speed, high starting torque, no stick-slip effect at low speeds, only minor leakage (necessary for the lubrication and cooling of the drive), high efficiency.



2.2 Control RM 11

Design:

Planar translational distribution valve with play adjustment

Purpose:

Distribution of the volume feed to the 7 cylinders, collection of the return volume flow

Method of functioning:

Control rings (6/15) with the external ring (10) and with the eccentric (38) form an external and an internal ring space.

By moving the control rings (6/15) between the motor housing (4) and the end cover (8) by means of the eccentric (38)

which is fixed to the crankshaft (7), the internal and the external ring spaces are connected to the cylinders in turn. The ring spaces themselves are connected to the outside through pressure connections to the motor.

Control details

Roller bearing between the control rings (6/15) and the eccentric (38)

The control rings mainly move translationally, however, rotation is possible (2 degrees of freedom) – this means small frictional losses at the control rings (6/15) and a cleaning effect in the sealing gap, approximately equal relative speeds of the sealing faces, sinusoidal opening function for the control openings – this means smooth running even at low speeds and quiet running at high speeds, large volume flow diameters between the rollers (27) in the roller bearing.

Adjustment of the play on the control rings (6/15) and the flats on the eccentric:

Hydrostatic, low control ring (6/15) force against the flats, spring-supported pressure by means of spring washers (for zero pressure and low pressure situations), hydrostatic re-adjustment of the eccentric flats by means of a pressure thrust piece (26) supported by a helical spring.

Very low leakage and small frictional losses, automatic compensation for pressure and temperature influences (temperature shocks among others), relatively insensitive to dirt.

2.3 Control KM 11

The control corresponds to series KM 22 to KM 110.

We reserve the right to make modifications

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1. General properties and features

Design:

Hydrostatic radial piston motor.

Purpose:

transformation of hydraulic power to drive power.
High efficiency, also suitable for very low speeds, low moment of inertia, rapidly reversible, capable of supporting high total loads, four-quadrant operation possible, very suitable for applications as a control, extremely quiet operation.

2. Structure and function

2.1 Drive unit

Design:

Internal piston support

Method of functioning:

Seven, fourteen or twenty-one radial pistons (14) load the crankshaft (7) via heptagon rings (15) with needle bearing cages (4).

Drive details

Crankshaft bearing: Pre-loaded, large taper roller bearings (17,18), in X arrangement.

Precise guidance, therefore quiet running, high radial and axial loading capacity (e.g. if a gear wheel is mounted at the shaft end). Transmission of force between the pistons (14) and the crankshaft (7): via heptagon ring (15) with needle bearing cage (4).

Low frictional losses, very long service life, relatively insensitive to dirt, also suitable for extremely high pressure and speed, high starting torque, no stick-slip effect at low speeds, only minor leakage (necessary for the lubrication and cooling of the drive), high efficiency.

2.2 Control

Design:

Planar translationally moving distributor with clearance seal to prevent internal leakage and with play self-adjusting seal to prevent leakage to the outside.

Purpose:

Distribution of the volume feed to the cylinders, collection of the return volume flow

Method of functioning:

The control disc (6) has an integrated internal ring space and forms an external ring space in conjunction with ring (10). By moving the control disc (6) between the motor housing (1) and the end cover (8) by means of the eccentric (5) which is fixed to the crankshaft (7), the internal and the external ring spaces are connected to the cylinders in turn. The ring spaces themselves are connected to the outside through pressure connections to the motor.

Control details

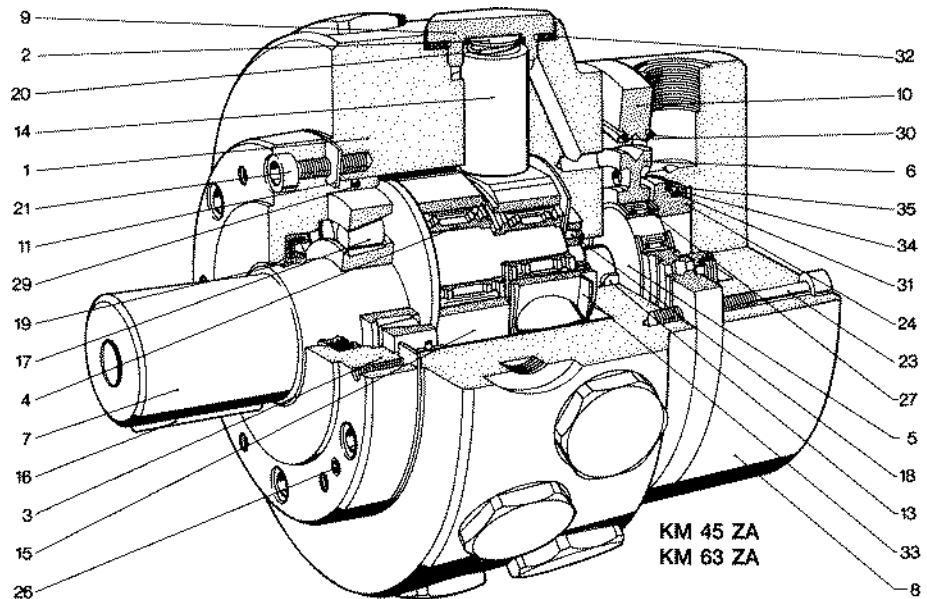
Needle bearing cage (27) between control disc (6) and eccentric (5):

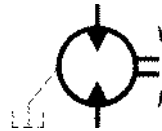
The control disc (6) mainly moves translationally, however, rotation is possible (2 degrees of freedom) – this means small frictional losses at the control disc (6) and a cleaning effect in the sealing gap, approximately equal relative speeds of the sealing faces, sinusoidal opening function for the control openings – this means smooth running even at low speeds and quiet running at high speeds, large volume flow diameters between the rollers (27) in the roller bearing.

Play self-adjusting seal against leakage to the outside:

Low hydrostatic force of the thrust piece (24) against the control disc (6) supported by the spring washer (35).

Reduction in the leakage to the outside at only low frictional losses, automatic compensation for pressure or temperature influences, relatively insensitive to dirt.





Flange
DIN-ISO 3019/2

KM 11 ZAF

Hydraulic characteristic values

Geometr. displacement	[cm ³ /rev]	11
Theor. spec. torque	[Nm/bar]	0,17
Average spec. torque	[Nm/bar]	0,15
Peak pressure*	[bar]	250 315
Max. operating pressure**	[bar]	210 250
Continuous pressure	[bar]	140 160
Max. operating torque	[Nm]	31,5 37,5
Continuous torque	[Nm]	21 24
Drain line pressure	[bar]	max. 1
Hydraulic fluid temperature range	[K]	243 - 363
	[°C]	- 30 - + 90
Viscosity range	[mm ² /s]	20 - 150
	(max. 1000 mm ² /s at start)	

Pressure fluids:

HM and HV, definition to CETOP RP 75 H (mineral oil based fluids).
Mineral oil H-LP in conformity with DIN 51424 part 2.
Bio-degradable fluids available on request.

* Definition according to DIN 24 312.

Peak pressure = Pressure exceeding the maximum operating pressure for a short time at which the motor remains able to function.

** If the sum of inlet pressure and outlet pressure is higher than the peak pressure, please consult the manufacturer.

HFC	Reduce HFC pressure to 70 % Check the bearing service life	Definition to CETOP RP 77 H
HFD	Viton seals are required	ISO/DIS 6071

Filtering

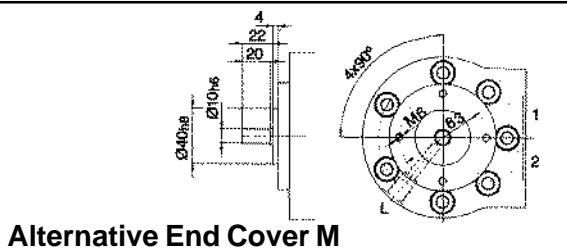
Max. permissible degree of contamination of the pressure fluid according to NAS 1638 class 9.

We recommend filters with a minimum retention rate of $\beta_{10} \geq 100$

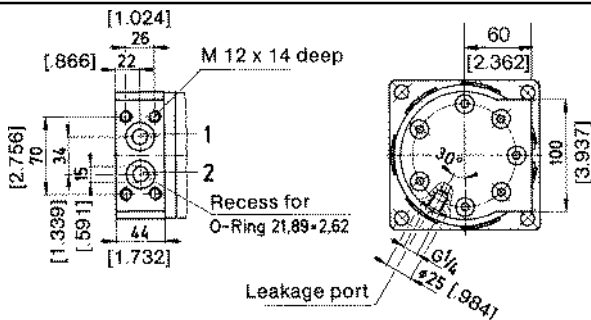
For a long service life we recommend filtering acc. to NAS 1638 class 8 and filters with a minimum retention rate of $\beta_3 \geq 100$.

Characteristic values according to VDI 3278

Weight:	[kg]	12,0
Mounting position:	as required	
Direction of rotation, if viewed at the shaft end		
clockwise:	flow from connection 2 to connection 1	
anti-clockwise:	flow from connection 1 to connection 2	
Operating speed range:	[rpm]	10 ÷ 3000 5 ÷ 3600
Moment of inertia:	[kgm ²]	0,000263
Continuous power:	[kW]	3,5 4,7
Intermittent power:	[kW]	4,3 5,8

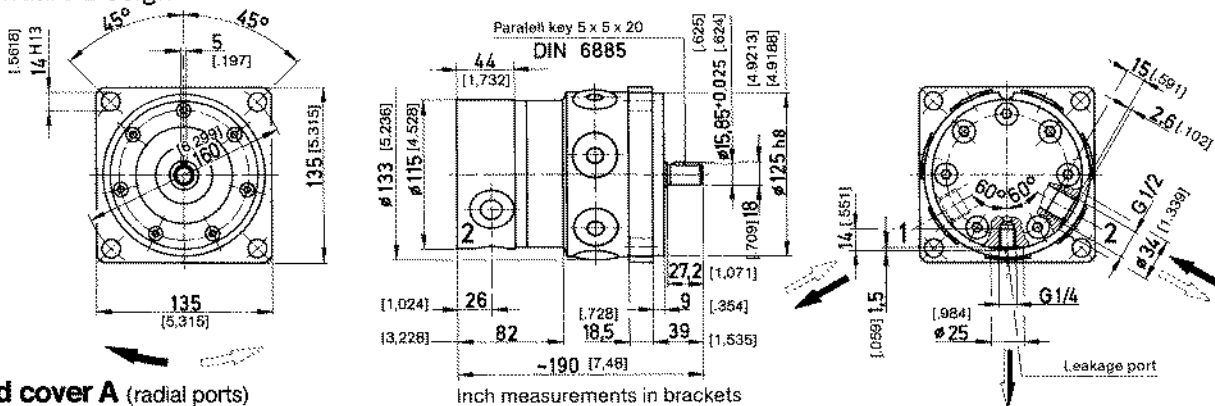


Alternative End Cover M



Alternative end cover A1 (valve mounting face)

Standard Design



End cover A (radial ports)

Inch measurements in brackets

Type number key for radial piston motor KM 11 ; RM 11

Radial Piston Motor	Size 11	Shaft end Keyway Z	End cover Radial ports A Valve face A1	Seal NBR V Viton V	Instrument shaft without with M	Flange ISO 3019/2 F	additional specs.
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KM = motor control with clearance seal

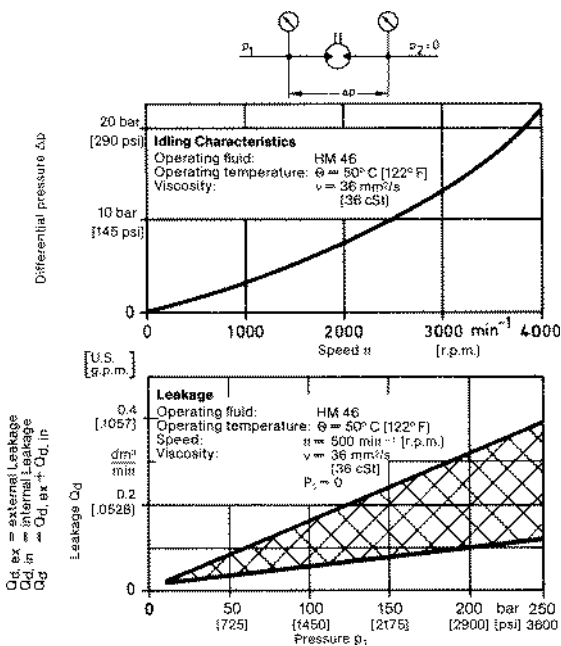
RM = play self-adjusting motor control (the motor is 10mm longer, dimension 82 becomes 92)

We reserve the right to make modifications

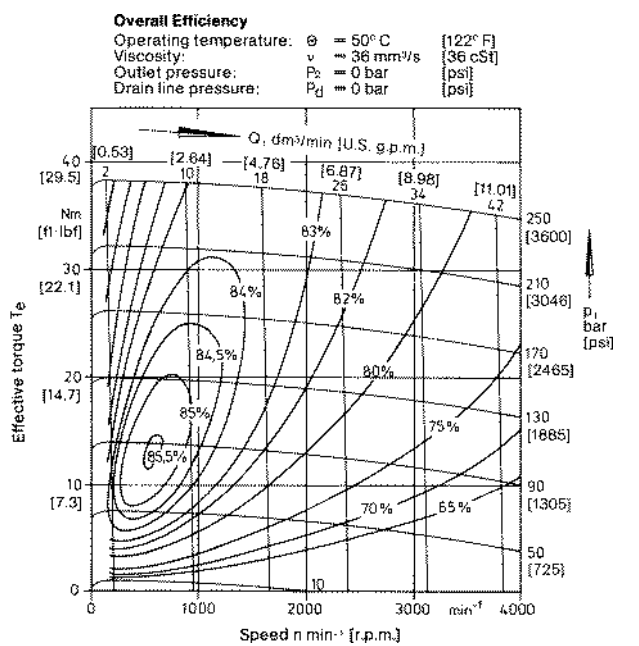
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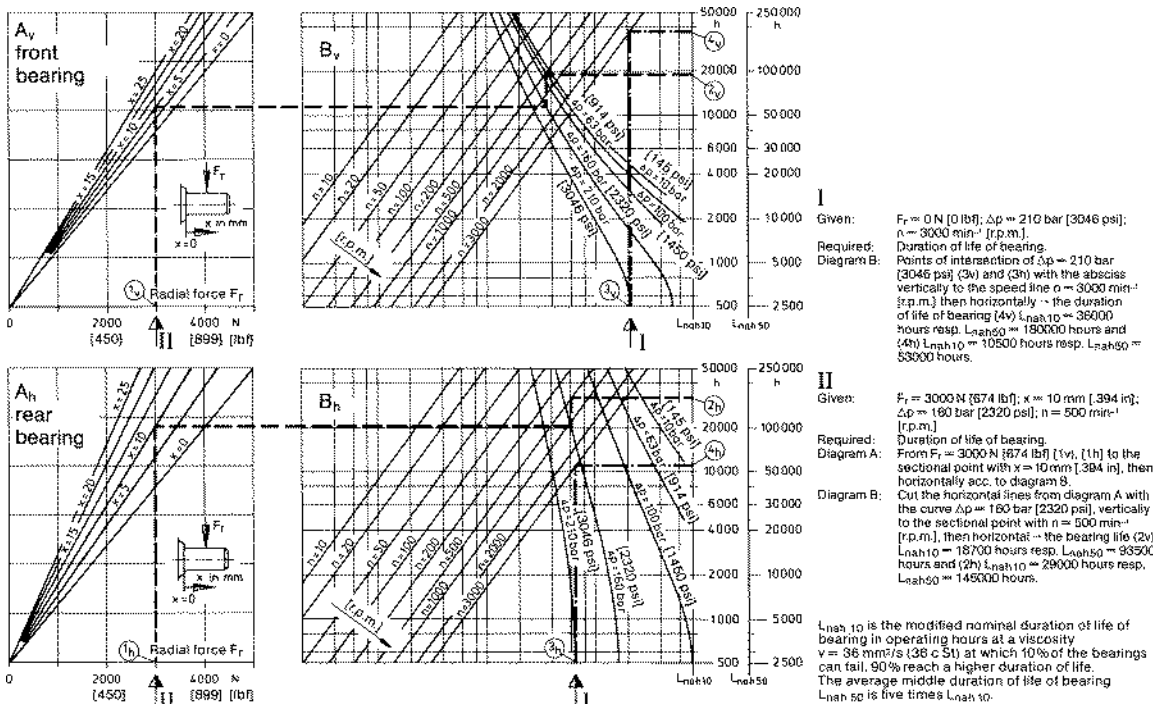
Characteristics



Characteristic performance functions according to ISO

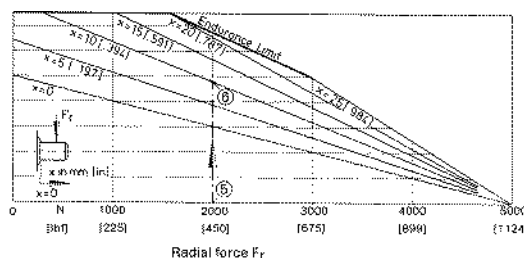


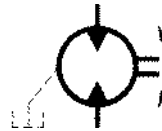
Service life of the roller bearings



Strength of the shaft

Example:
Given: $F_r = 2000 \text{ N}$ [674 lbf] $x = 10 \text{ mm}$ [394 in]
Required: Shaft strength
Make a vertical line of (5) $F_r = 2000 \text{ N}$ [674 lbf] to the distance (6) $x = 10 \text{ mm}$ [394 in]
Lies the point of intersection in the diagram so the shaft is constantly strong. Admissible axial forces calculate the works on request.





Flange
DIN-ISO 3019/2

KM 22 ZAF

Hydraulic characteristic values

Geometr. displacement	[cm ³ /rev]	22
Theor. spec. torque	[Nm/bar]	0,35
Average spec. torque	[Nm/bar]	0,32
Peak pressure*	[bar]	315
Max. operating pressure**	[bar]	250
Continuous pressure	[bar]	160
Max. operating torque	[Nm]	78
Continuous torque	[Nm]	50
Drain line pressure	[bar]	max. 1
Hydraulic fluid temperature range	[K]	243 - 363
	[°C]	- 30 - + 90
Viscosity range	[mm ² /s]	20 - 150
	(max. 1000 mm ² /s at start)	

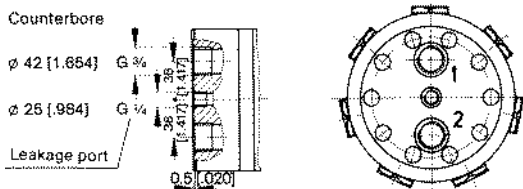
Pressure fluids:

HM and HV, definition to CETOP RP 75 H (mineral oil based fluids).
Mineral oil H-LP in conformity with DIN 51424 part 2.
Bio-degradable fluids available on request.

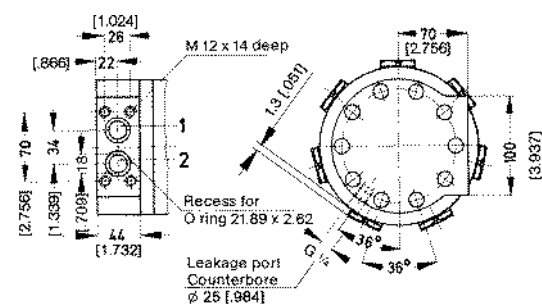
* Definition according to DIN 24 312.

Peak pressure = Pressure exceeding the maximum operating pressure for a short time at which the motor remains able to function.

** If the sum of inlet pressure and outlet pressure is higher than the peak pressure, please consult the manufacturer.



Alternative end cover B5



Alternative end cover A1

HFC	Reduce HFC pressure to 70 % Check the bearing service life	Definition to CETOP RP 77 H ISO/DIS 6071
HFD	Viton seals are required	

Filtering

Max. permissible degree of contamination of the pressure fluid according to NAS 1638 class 9.

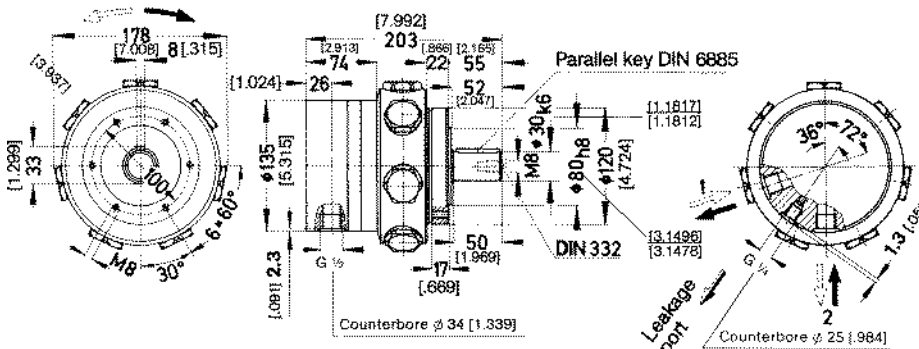
We recommend filters with a minimum retention rate of $\beta_{10} \geq 100$

For a long service life we recommend filtering acc. to NAS 1638 class 8 and filters with a minimum retention rate of $\beta_3 \geq 100$.

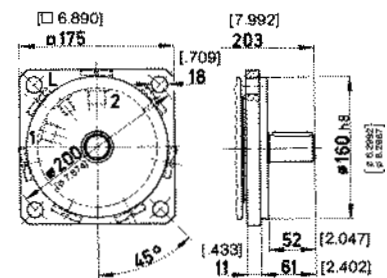
Characteristic values according to VDI 3278

Weight:	[kg]	17,4
Mounting position:	as required	
Direction of rotation, if viewed at the shaft end		
clockwise:	flow from connection 2 to connection 1	
anti-clockwise:	flow from connection 1 to connection 2	
Operating speed range:	[rpm]	10 ÷ 2250
Moment of inertia:	[kgm ²]	0,00028
Continuous power:	[kW]	6,0
Intermittent power:	[kW]	7,5

Standard Design



Mounting Flange F
ISO 3019/2



End cover A

Inch measurements in brackets

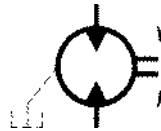
Type number key for radial piston motor KM 22

Motor type	Size	Shaft end	End cover	Seal	Second shaft ¹⁾	Flange	additional specs.
KM Radial Piston Motor	22	Keyway Z K	Radial ports Valve face Axial ports A A1 B5	NBR Viton V	without Instrument Driving M M10	normal ISO 3019/2 F	

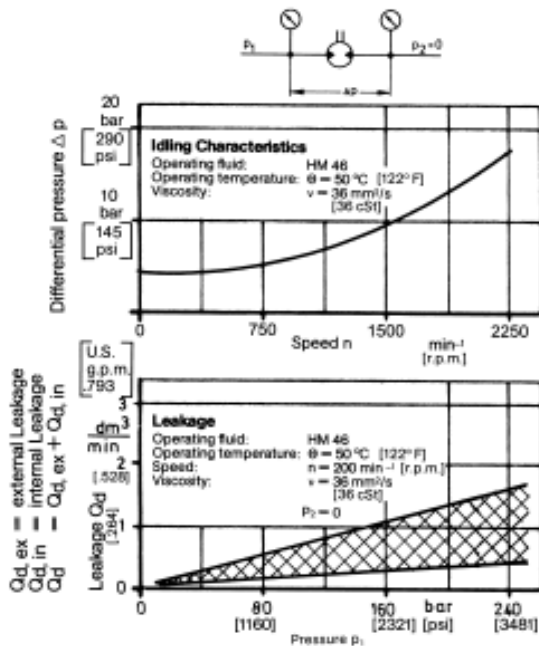
¹⁾ With end cover version B5 a 2nd shaft is not possible.

We reserve the right to make modifications

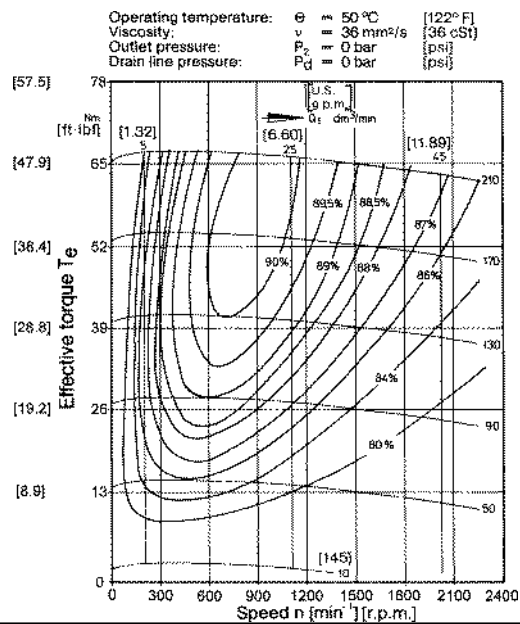
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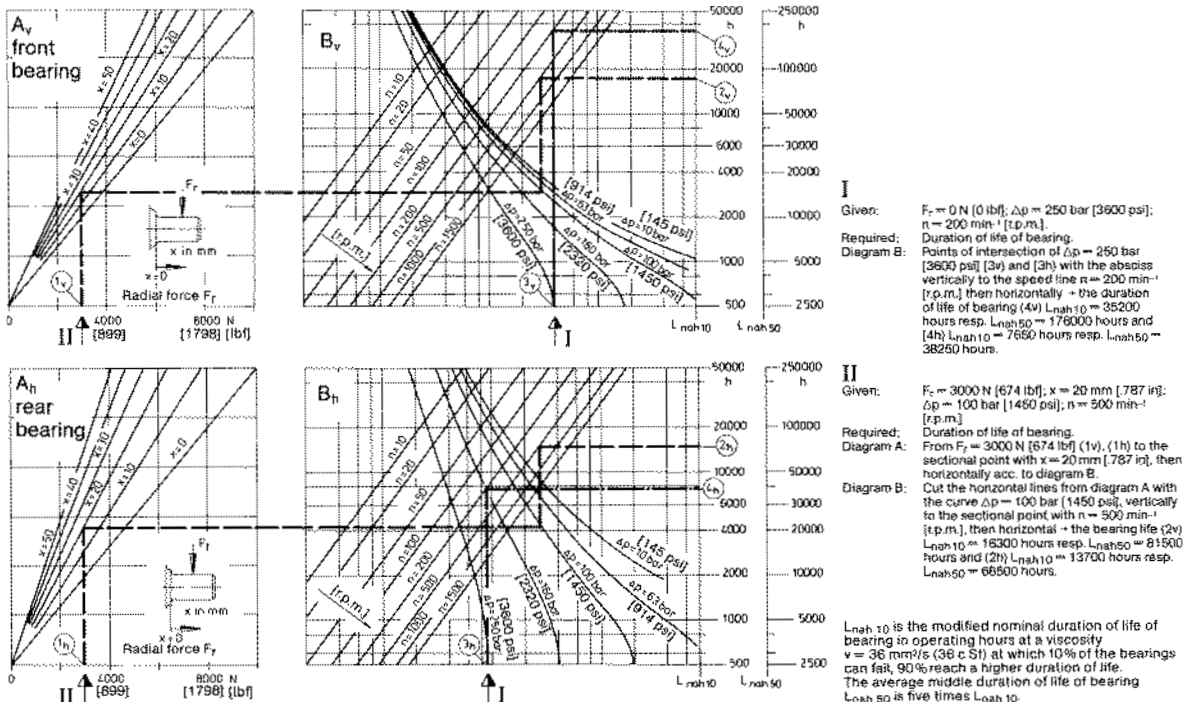
Characteristics



Characteristic performance functions according to ISO

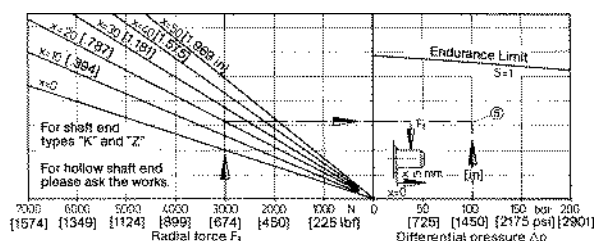


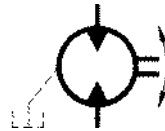
Service life of the roller bearings



Strength of the shaft

Example:
Given values: $F_r = 3000 \text{ N}$ [674 lbf] $x = 20 \text{ mm}$ [0.787 in]
 $\Delta p = 100 \text{ bar}$ [1450 psi]
Required value: Shaft strength
Draw a vertical line from $F_r = 3000 \text{ N}$ [674 lbf] to distance $x = 20 \text{ mm}$ [0.787 in] and a straight horizontal line from there.
If the intersection of the horizontal with the vertical line of $\Delta p = 100 \text{ bar}$ [1450 psi] is below curve the shaft has sufficient fatigue strength.
Allowable axial forces will be provided on request.





**Flange
DIN-ISO 3019/2**

KM 32 ZAF

Hydraulic characteristic values

Geometr. displacement	[cm ³ /rev]	33
Theor. spec. torque	[Nm/bar]	0,52
Average spec. torque	[Nm/bar]	0,48
Peak pressure*	[bar]	315
Max. operating pressure**	[bar]	250
Continuous pressure	[bar]	160
Max. operating torque	[Nm]	120
Continuous torque	[Nm]	76,8
Drain line pressure	[bar]	max. 1
Hydraulic fluid temperature range	[K]	243 - 363
	[°C]	- 30 - + 90
Viscosity range	[mm ² /s]	20 - 150
	(max. 1000 mm ² /s at start)	

Pressure fluids:

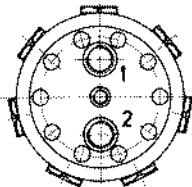
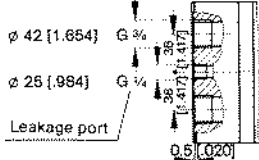
HM and HV, definition to CETOP RP 75 H (mineral oil based fluids).
Mineral oil H-LP in conformity with DIN 51424 part 2.
Bio-degradable fluids available on request.

* Definition according to DIN 24 312.

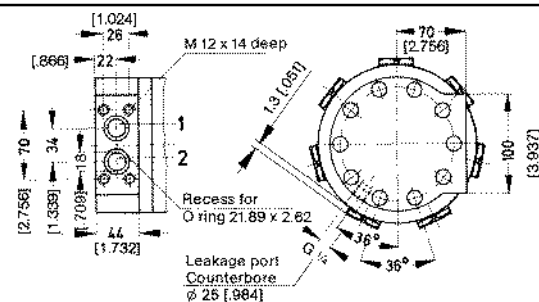
Peak pressure = Pressure exceeding the maximum operating pressure for a short time at which the motor remains able to function.

** If the sum of inlet pressure and outlet pressure is higher than the peak pressure, please consult the manufacturer.

Counterbore

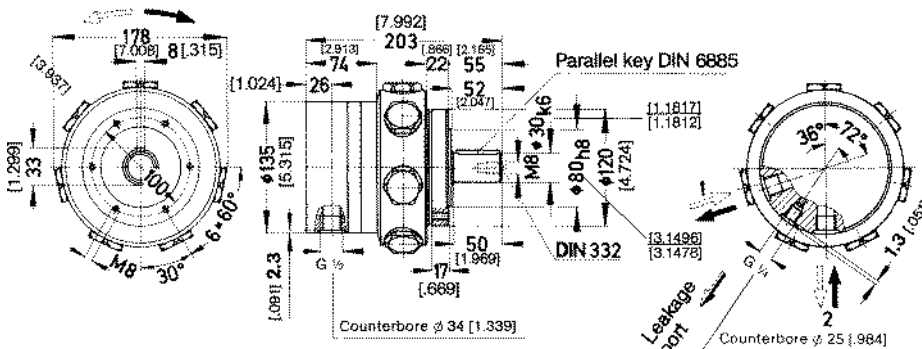


Alternative end cover B5

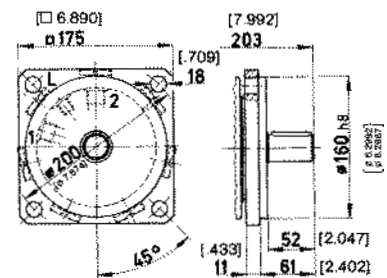


Alternative end cover A1

Standard Design



Mounting Flange F ISO 3019/2



End cover A

Inch measurements in brackets

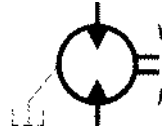
Type number key for radial piston motor KM 32

Motor type	Size	Shaft end	End cover	Seal	Second shaft ¹⁾	Flange	additional specs.
KM Radial Piston Motor	32	Keyway Z K	Radial ports A A1 Axial ports B5	NBR Viton V	without Instrument Driving M M10	normal ISO 3019/2 F	

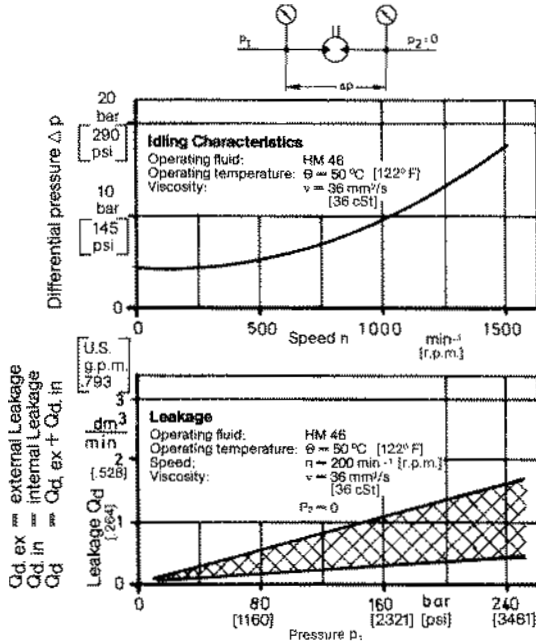
¹⁾ With end cover version B5 a 2nd shaft is not possible.

We reserve the right to make modifications

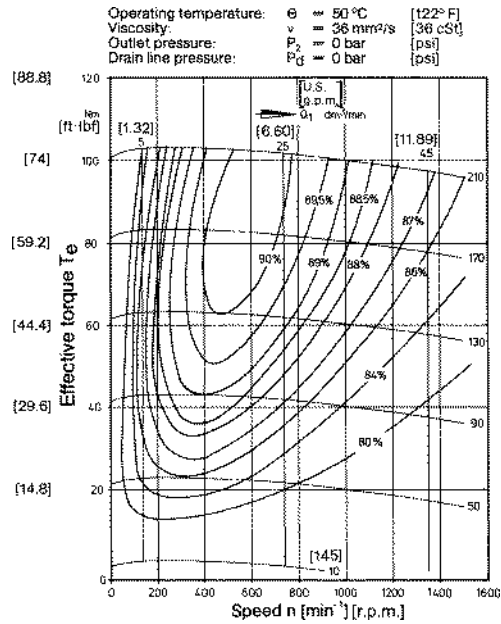
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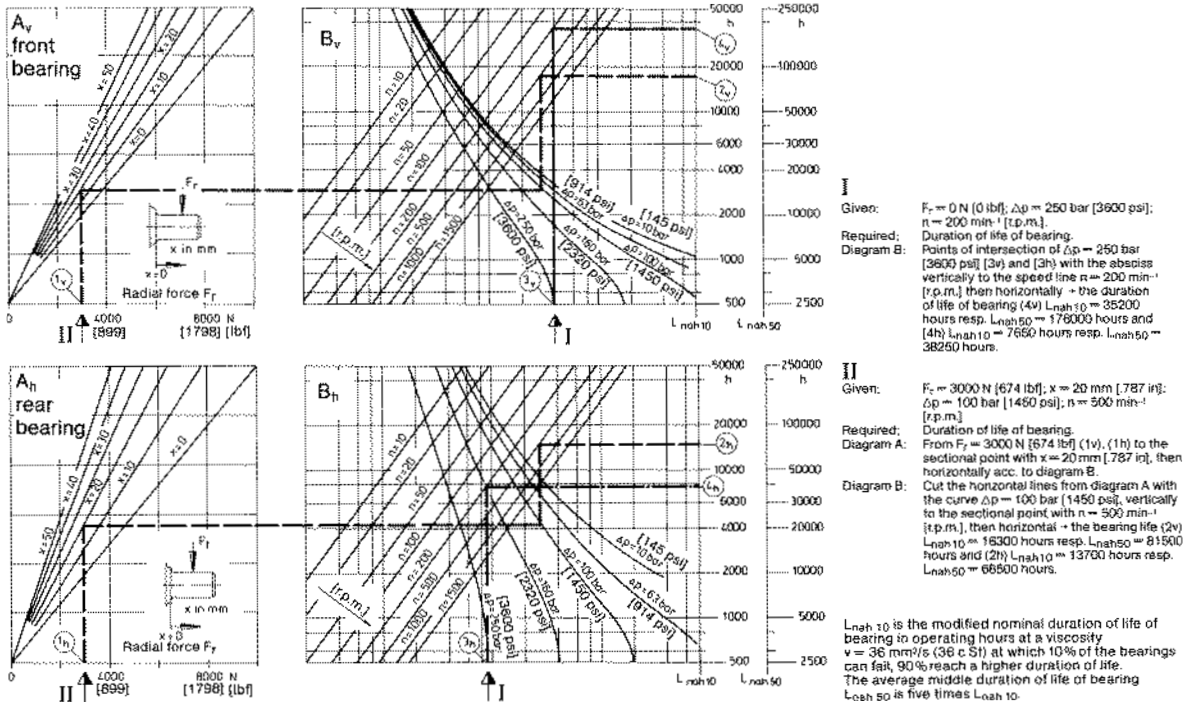
Characteristics



Characteristic performance functions according to ISO

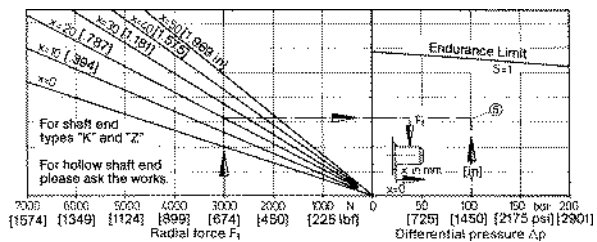


Service life of the roller bearings



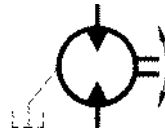
Strength of the shaft

Example:
Given values: $F_r = 3000\text{ N}$ [674 lbf] $x = 20\text{ mm}$ [0.787 in]
 $\Delta p = 100\text{ bar}$ [1450 psi]
Required value: Shaft strength
Draw a vertical line from $F_r = 3000\text{ N}$ [674 lbf] to distance $x = 20\text{ mm}$ [0.787 in] and a straight horizontal line from there.
If the intersection of the horizontal with the vertical line of $\Delta p = 100\text{ bar}$ [1450 psi] is below curve the shaft has sufficient fatigue strength.
Allowable axial forces will be provided on request.



We reserve the right to make modifications

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Flange
DIN-ISO 3019/2

KM 45 ZAF

Hydraulic characteristic values

Geometr. displacement	[cm ³ /rev]	44
Theor. spec. torque	[Nm/bar]	0,70
Average spec. torque	[Nm/bar]	0,63
Peak pressure*	[bar]	315
Max. operating pressure**	[bar]	250
Continuous pressure	[bar]	160
Max. operating torque	[Nm]	157
Continuous torque	[Nm]	100
Drain line pressure	[bar]	max. 1
Hydraulic fluid temperature range	[K]	243 - 363
	[°C]	- 30 - + 90
Viscosity range	[mm ² /s]	20 - 150
	(max. 1000 mm ² /s at start)	

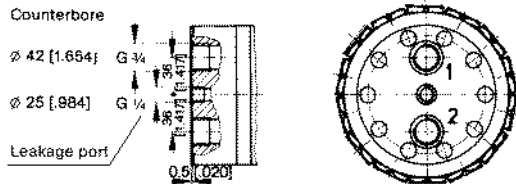
Pressure fluids:

HM and HV, definition to CETOP RP 75 H (mineral oil based fluids).
Mineral oil H-LP in conformity with DIN 51424 part 2.
Bio-degradable fluids available on request.

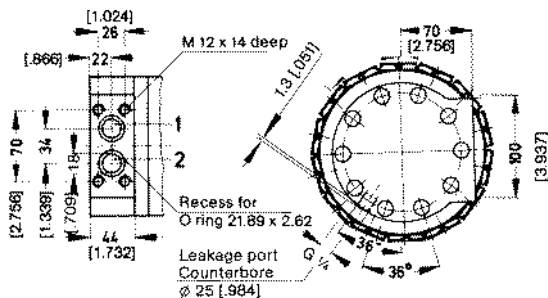
* Definition according to DIN 24 312.

Peak pressure = Pressure exceeding the maximum operating pressure for a short time at which the motor remains able to function.

** If the sum of inlet pressure and outlet pressure is higher than the peak pressure, please consult the manufacturer.



Alternative end cover B5



Alternative end cover A1

HFC	Reduce HFC pressure to 70 % Check the bearing service life	Definition to CETOP RP 77 H ISO/DIS 6071
HFD	Viton seals are required	

Filtering

Max. permissible degree of contamination of the pressure fluid according to NAS 1638 class 9.

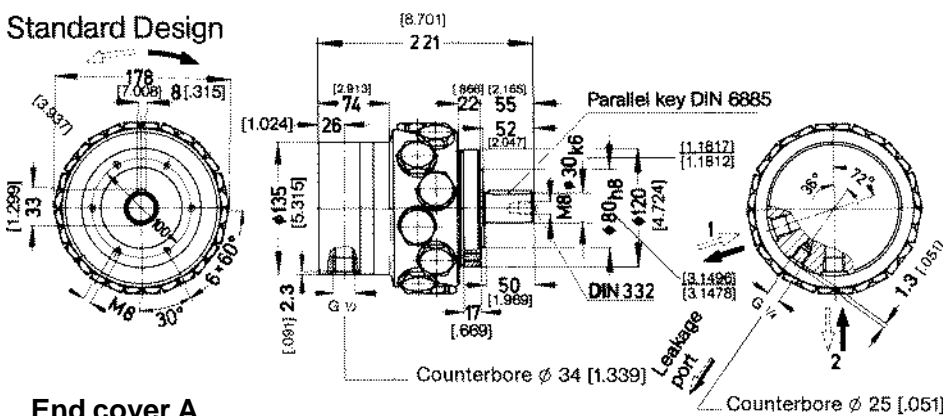
We recommend filters with a minimum retention rate of $\beta_{10} \geq 100$

For a long service life we recommend filtering acc. to NAS 1638 class 8 and filters with a minimum retention rate of $\beta_3 \geq 100$.

Characteristic values according to VDI 3278

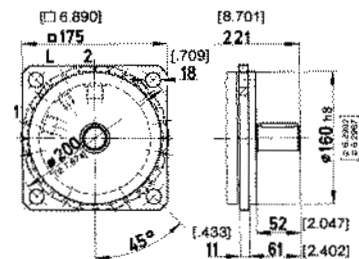
Weight:	[kg]	18,8
Mounting position:	as required	
Direction of rotation, if viewed at the shaft end		
clockwise:	flow from connection 2 to connection 1	
anti-clockwise:	flow from connection 1 to connection 2	
Operating speed range:	[rpm]	5 ÷ 1800
Moment of inertia:	[kgm ²]	0,00033
Continuous power:	[kW]	9,5
Intermittent power:	[kW]	11,0

Standard Design



End cover A

Mounting Flange F ISO 3019/2



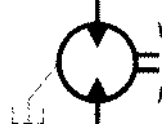
Type number key for radial piston motor KM 45

Motor type	Size	Shaft end	End cover	Seal	Second shaft ¹⁾	Flange	additional specs.
KM	45						
Radial Piston Motor		Keyway Z K	Radial ports Valve face Axial ports A A1 B5	NBR Viton V	without Instrument Driving M M10	normal ISO 3019/2 F	

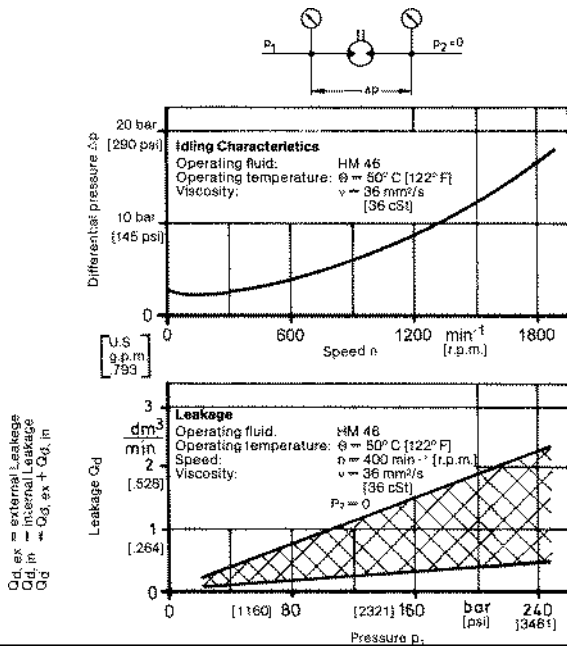
¹⁾ With end cover version B5 a 2nd shaft is not possible.

We reserve the right to make modifications

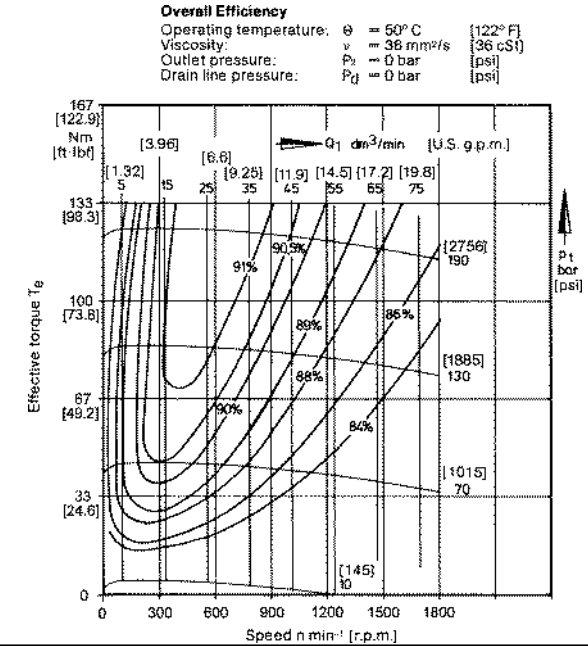
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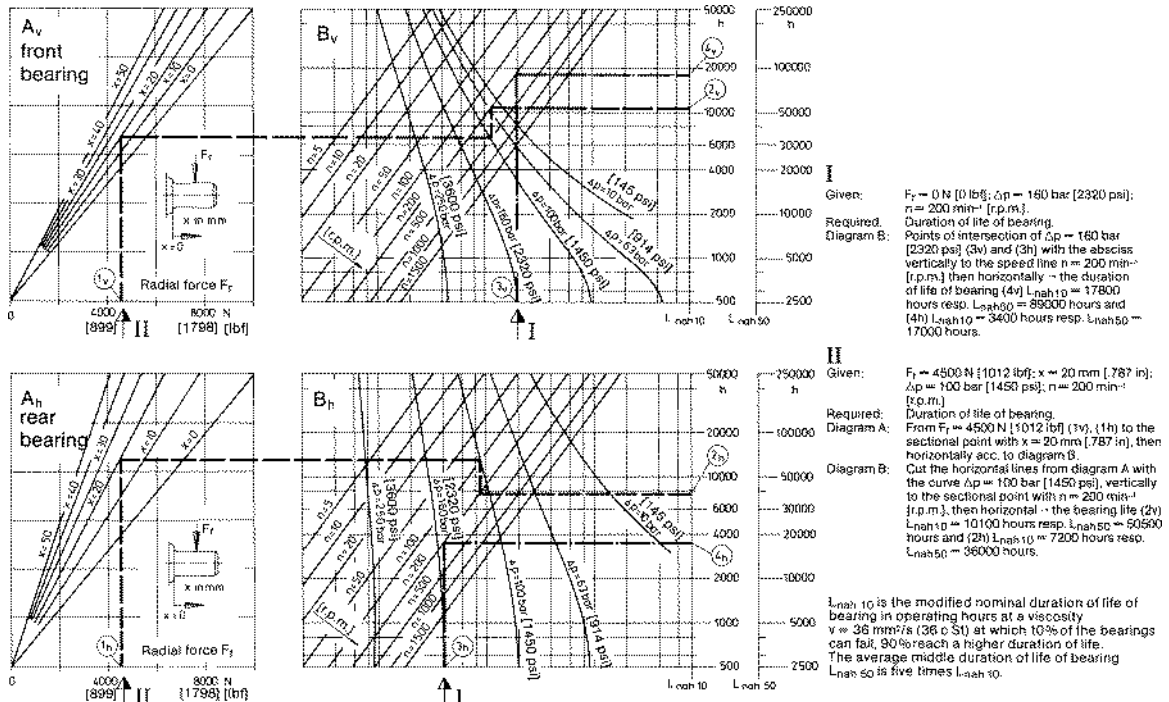
Characteristics



Characteristic performance functions according to ISO

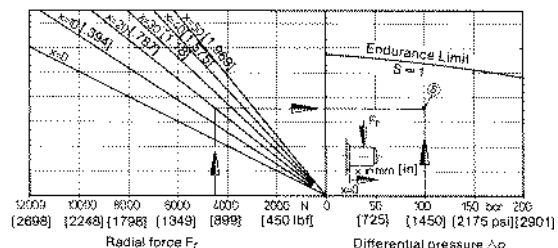


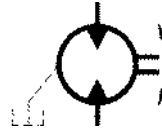
Service life of the roller bearings



Strength of the shaft

Example:
Given values: $F_r = 4500\text{ N}$ [1012 lbf] $x = 20\text{ mm}$ [0.787 in]
 $\Delta p = 100\text{ bar}$ [1450 psi]
Required value: Shaft strength
Draw a vertical line from $F_r = 4500\text{ N}$ [1012 lbf] to distance $x = 20\text{ mm}$ [0.787 in] and a straight horizontal line from there.
If the intersection of the horizontal with the vertical line of $\Delta p = 100\text{ bar}$ [1450 psi] is below curve the shaft has sufficient fatigue strength.
Allowable axial forces will be provided on request.





Flange
DIN-ISO 3019/2

KM 63 ZAF

Hydraulic characteristic values

Geometr. displacement	[cm ³ /rev]	66
Theor. spec. torque	[Nm/bar]	1,05
Average spec. torque	[Nm/bar]	0,95
Peak pressure*	[bar]	315
Max. operating pressure**	[bar]	250
Continuous pressure	[bar]	160
Max. operating torque	[Nm]	237
Continuous torque	[Nm]	152
Drain line pressure	[bar]	max. 1
Hydraulic fluid temperature range	[K]	243 - 363
	[°C]	- 30 - + 90
Viscosity range	[mm ² /s]	20 - 150
	(max. 1000 mm ² /s at start)	

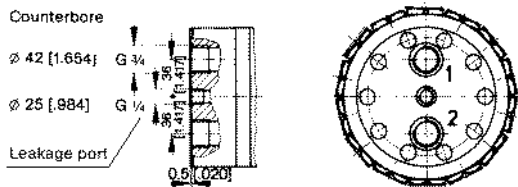
Pressure fluids:

HM and HV, definition to CETOP RP 75 H (mineral oil based fluids).
Mineral oil H-LP in conformity with DIN 51424 part 2.
Bio-degradable fluids available on request.

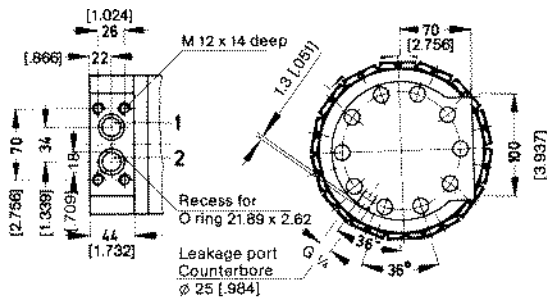
* Definition according to DIN 24 312.

Peak pressure = Pressure exceeding the maximum operating pressure for a short time at which the motor remains able to function.

** If the sum of inlet pressure and outlet pressure is higher than the peak pressure, please consult the manufacturer.



Alternative end cover B5



Alternative end cover A1

HFC	Reduce HFC pressure to 70 % Check the bearing service life	Definition to CETOP RP 77 H ISO/DIS 6071
HFD	Viton seals are required	

Filtering

Max. permissible degree of contamination of the pressure fluid according to NAS 1638 class 9.

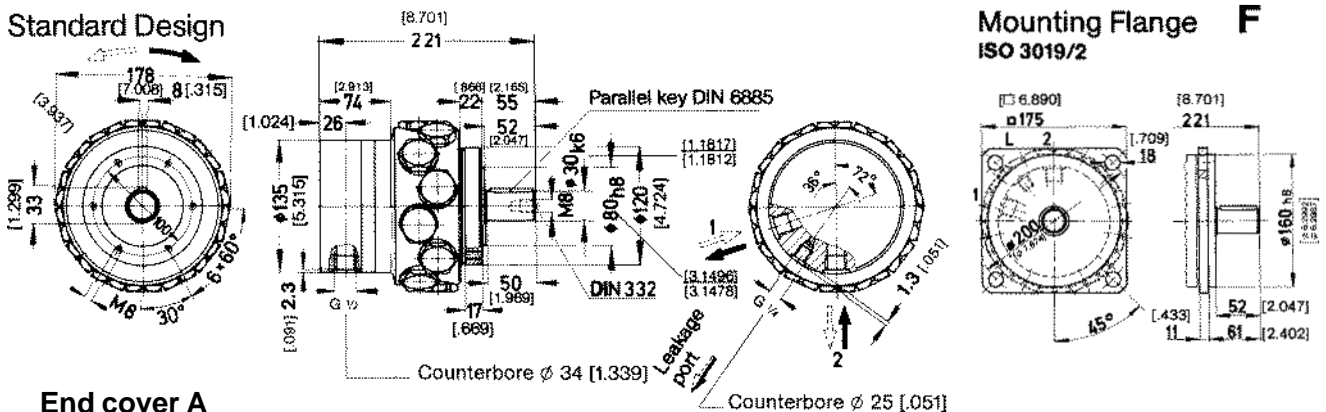
We recommend filters with a minimum retention rate of $\beta_{10} \geq 100$

For a long service life we recommend filtering acc. to NAS 1638 class 8 and filters with a minimum retention rate of $\beta_3 \geq 100$.

Characteristic values according to VDI 3278

Weight:	[kg]	18,8
Mounting position:	as required	
Direction of rotation, if viewed at the shaft end		
clockwise:	flow from connection 2 to connection 1	
anti-clockwise:	flow from connection 1 to connection 2	
Operating speed range:	[rpm]	5 ÷ 1200
Moment of inertia:	[kgm ²]	0,00033
Continuous power:	[kW]	9,5
Intermittent power:	[kW]	11,0

Standard Design



End cover A

Mounting Flange F
ISO 3019/2

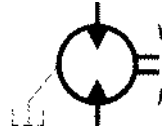
Type number key for radial piston motor KM 63

Motor type	Size	Shaft end	End cover	Seal	Second shaft ¹⁾	Flange	additional specs.
KM	63						
Radial Piston Motor		Keyway Z K	Radial ports Valve face Axial ports A A1 B5	NBR Viton V	without Instrument Driving M M10	normal ISO 3019/2 F	

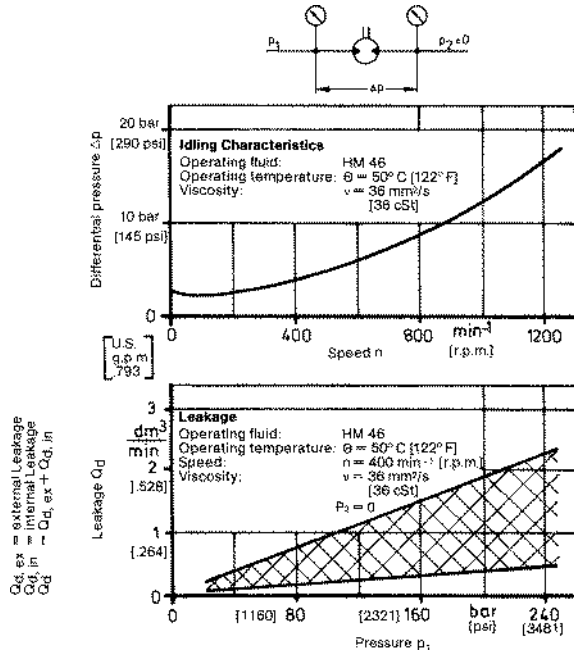
¹⁾ With end cover version B5 a 2nd shaft is not possible.

We reserve the right to make modifications

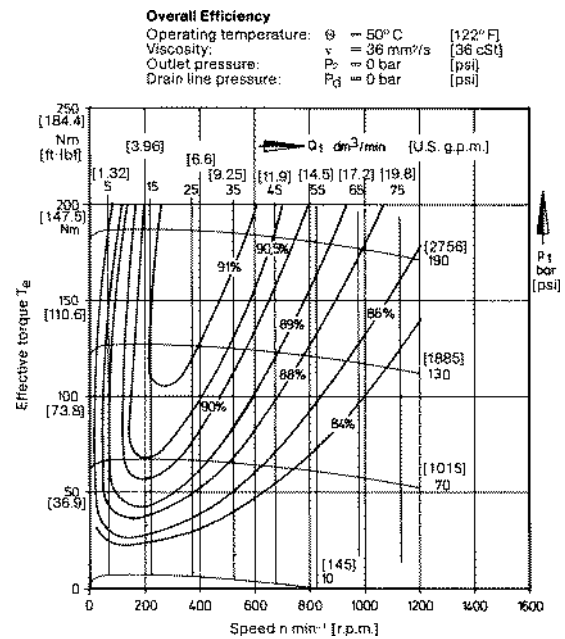
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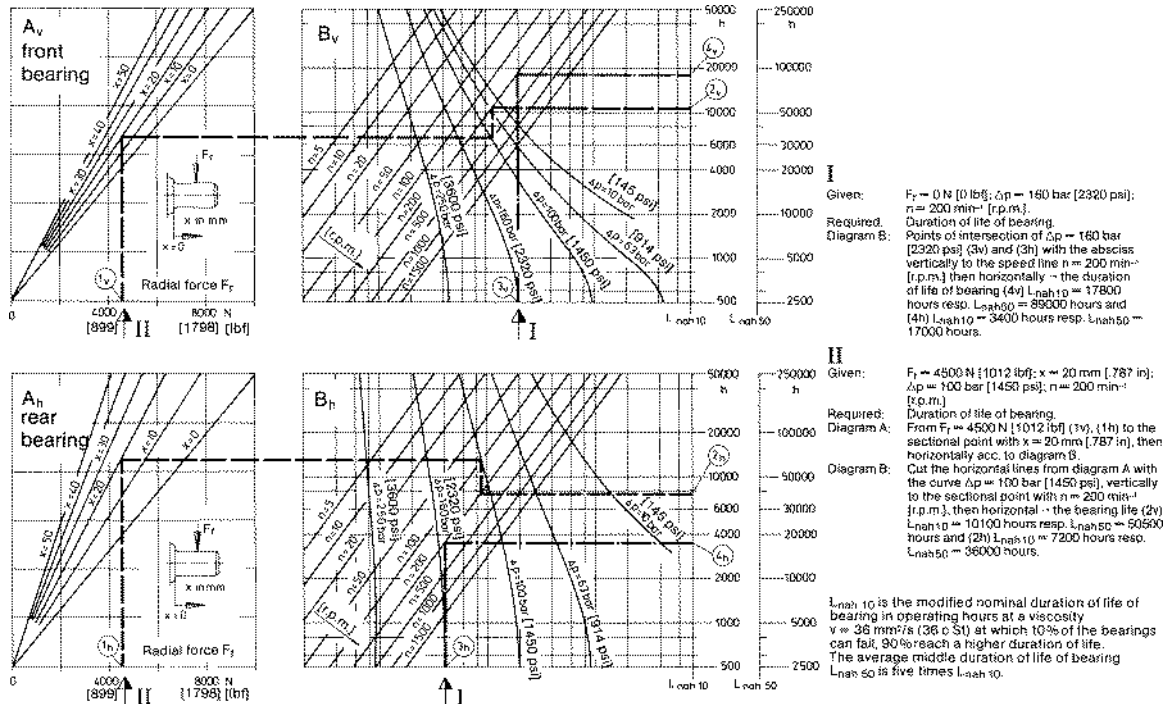
Characteristics



Characteristic performance functions according to ISO

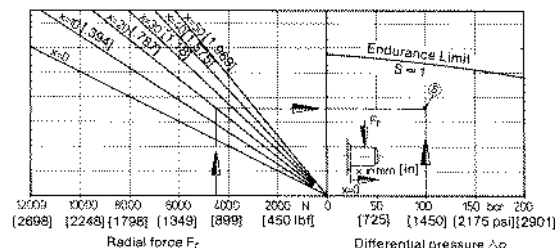


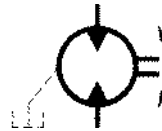
Service life of the roller bearings



Strength of the shaft

Example:
Given values: $F_r = 4500\text{ N}$ [1012 lbf] $x = 20\text{ mm}$ [787 in]
 $\Delta p = 100\text{ bar}$ [1450 psi]
Required value: Shaft strength
Draw a vertical line from $F_r = 4500\text{ N}$ [1012 lbf] to distance $x = 20\text{ mm}$ [787 in] and a straight horizontal line from there.
If the intersection of the horizontal with the vertical line of $\Delta p = 100\text{ bar}$ [1450 psi] is below curve the shaft has sufficient fatigue strength.
Allowable axial forces will be provided on request.





Flange
DIN-ISO 3019/2

KM 90 ZAF

Hydraulic characteristic values

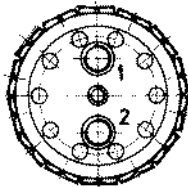
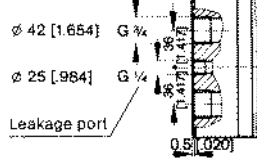
Geometr. displacement	[cm ³ /rev]	89
Theor. spec. torque	[Nm/bar]	1,41
Average spec. torque	[Nm/bar]	1,27
Peak pressure*	[bar]	250
Max. operating pressure**	[bar]	210
Continuous pressure	[bar]	140
Max. operating torque	[Nm]	266
Continuous torque	[Nm]	178
Drain line pressure	[bar]	max. 1
Hydraulic fluid temperature range	[K]	243 - 363
	[°C]	- 30 - + 90
Viscosity range	[mm ² /s]	20 - 150
	(max. 1000 mm ² /s at start)	

Pressure fluids:

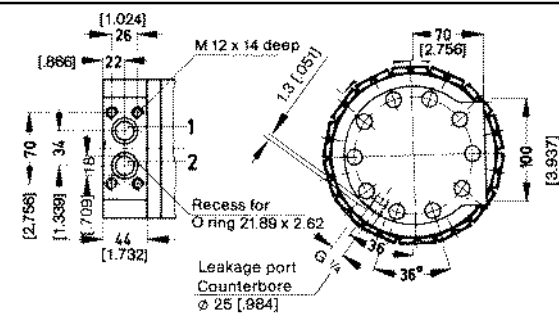
HM and HV, definition to CETOP RP 75 H (mineral oil based fluids).
Mineral oil H-LP in conformity with DIN 51424 part 2.
Bio-degradable fluids available on request.

* Definition according to DIN 24 312.
Peak pressure = Pressure exceeding the maximum operating pressure for a short time at which the motor remains able to function.
** If the sum of inlet pressure and outlet pressure is higher than the peak pressure, please consult the manufacturer.

Counterbore



Alternative end cover B5



Alternative end cover A1

HFC	Reduce HFC pressure to 70 % Check the bearing service life	Definition to CETOP RP 77 H ISO/DIS 6071
HFD	Viton seals are required	

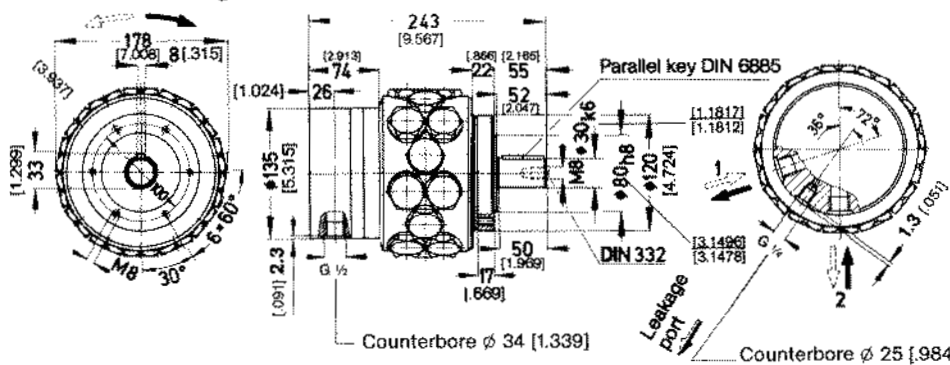
Filtering

Max. permissible degree of contamination of the pressure fluid according to NAS 1638 class 9.
We recommend filters with a minimum retention rate of $\beta_{10} \geq 100$
For a long service life we recommend filtering acc. to NAS 1638 class 8 and filters with a minimum retention rate of $\beta_3 \geq 100$.

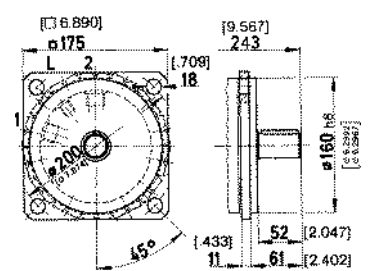
Characteristic values according to VDI 3278

Weight:	[kg]	21,4
Mounting position:	as required	
Direction of rotation, if viewed at the shaft end		
clockwise:	flow from connection 2 to connection 1	
anti-clockwise:	flow from connection 1 to connection 2	
Operating speed range:	[rpm]	5 ÷ 900
Moment of inertia:	[kgm ²]	0,00039
Continuous power:	[kW]	8,5
Intermittent power:	[kW]	10,0

Standard Design



Mounting Flange F
ISO 3019/2



End cover A

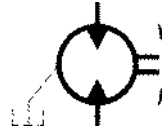
Type number key for radial piston motor KM 90

Motor type	Size	Shaft end	End cover	Seal	Second shaft ¹⁾	Flange	additional specs.
KM	90						
Radial Piston Motor		Keyway Z K	Radial ports Valve face Axial ports A A1 B5	NBR Viton V	without Instrument Driving M M10	normal ISO 3019/2 F	

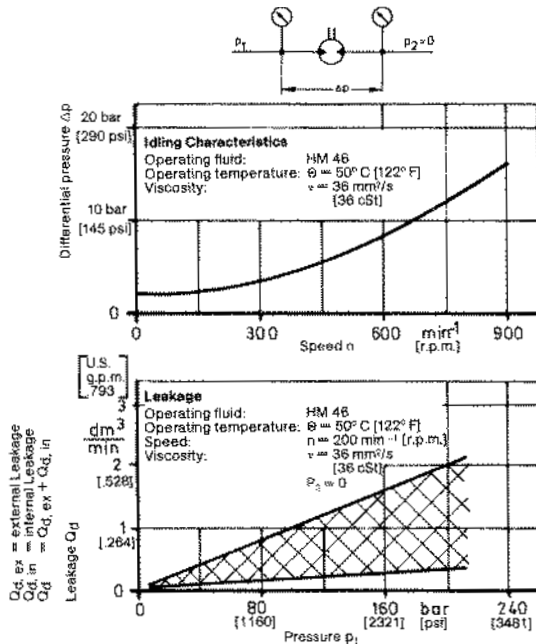
¹⁾ With end cover version B5 a 2nd shaft is not possible.

We reserve the right to make modifications

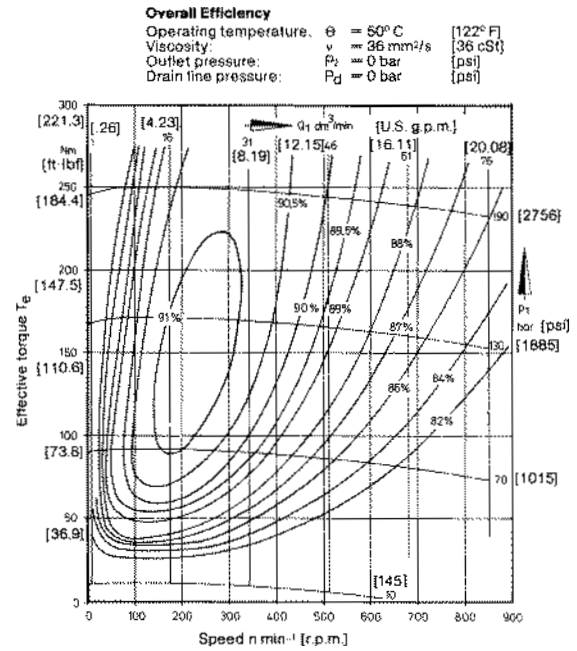
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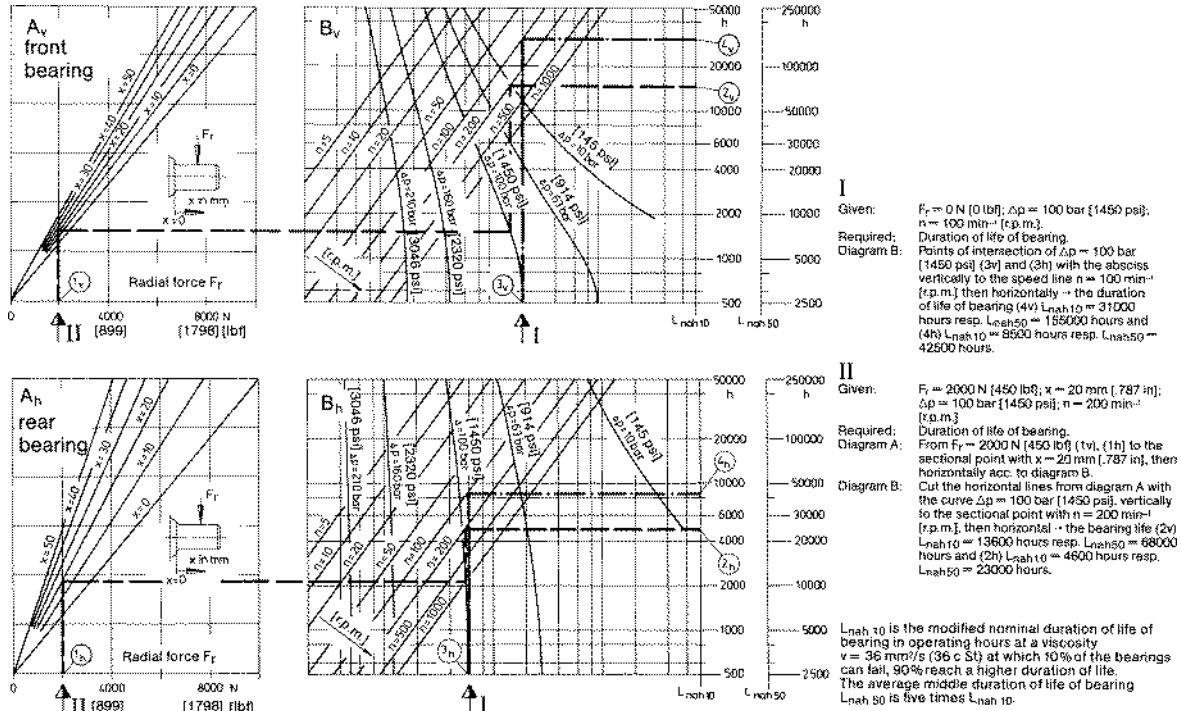
Characteristics



Characteristic performance functions according to ISO

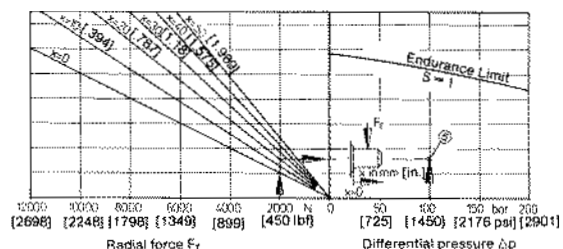


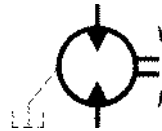
Service life of the roller bearings



Strength of the shaft

Example:
Given values: $F_r = 2000\text{ N}$ [450 lbf] $x = 20\text{ mm}$ [.787 in]
 $\Delta p = 100\text{ bar}$ [1450 psi]
Required value: Shaft strength
Draw a vertical line from $F_r = 2000\text{ N}$ [450 lbf] to distance $x = 20\text{ mm}$ [.787 in] and a straight horizontal line from there.
If the intersection \odot of the horizontal with the vertical line of $\Delta p = 100\text{ bar}$ [1450 psi] is below curve the shaft has sufficient fatigue strength.
Allowable axial forces will be provided on request.





Flange
DIN-ISO 3019/2

KM 110 ZAF

Hydraulic characteristic values

Geometr. displacement	[cm ³ /rev]	110
Theor. spec. torque	[Nm/bar]	1,75
Average spec. torque	[Nm/bar]	1,59
Peak pressure*	[bar]	250
Max. operating pressure**	[bar]	210
Continuous pressure	[bar]	140
Max. operating torque	[Nm]	334
Continuous torque	[Nm]	223
Drain line pressure	[bar]	max. 1
Hydraulic fluid temperature range	[K]	243 - 363
	[°C]	- 30 - + 90
Viscosity range	[mm ² /s]	20 - 150
	(max. 1000 mm ² /s at start)	

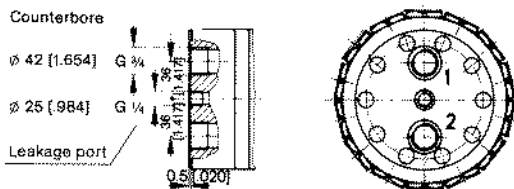
Pressure fluids:

HM and HV, definition to CETOP RP 75 H (mineral oil based fluids).
Mineral oil H-LP in conformity with DIN 51424 part 2.
Bio-degradable fluids available on request.

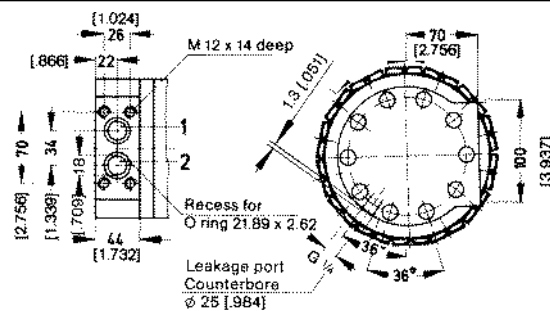
* Definition according to DIN 24 312.

Peak pressure = Pressure exceeding the maximum operating pressure for a short time at which the motor remains able to function.

** If the sum of inlet pressure and outlet pressure is higher than the peak pressure, please consult the manufacturer.



Alternative end cover B5



Alternative end cover A1

HFC	Reduce HFC pressure to 70 % Check the bearing service life	Definition to CETOP RP 77 H ISO/DIS 6071
HFD	Viton seals are required	

Filtering

Max. permissible degree of contamination of the pressure fluid according to NAS 1638 class 9.

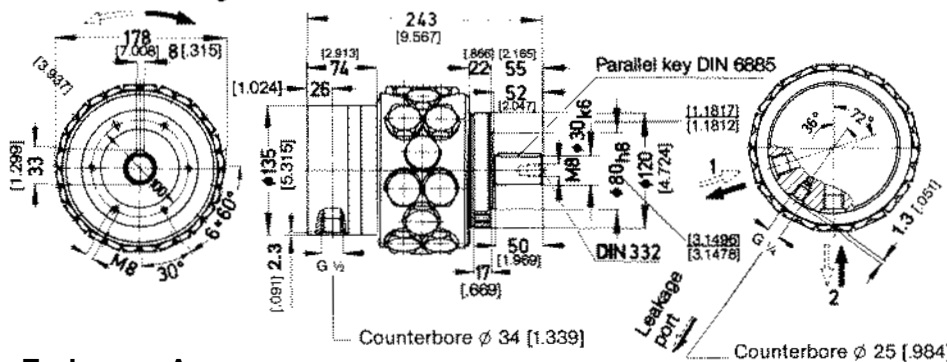
We recommend filters with a minimum retention rate of $\beta_{10} \geq 100$

For a long service life we recommend filtering acc. to NAS 1638 class 8 and filters with a minimum retention rate of $\beta_3 \geq 100$.

Characteristic values according to VDI 3278

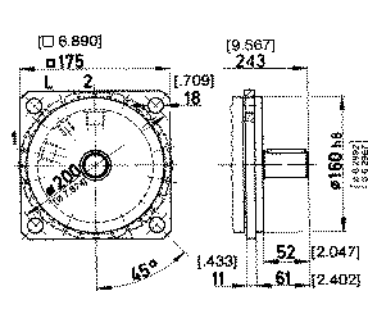
Weight:	[kg]	21,4
Mounting position:	as required	
Direction of rotation, if viewed at the shaft end		
clockwise:	flow from connection 2 to connection 1	
anti-clockwise:	flow from connection 1 to connection 2	
Operating speed range:	[rpm]	5 ÷ 750
Moment of inertia:	[kgm ²]	0,00041
Continuous power:	[kW]	8,5
Intermittent power:	[kW]	10,0

Standard Design



End cover A

Mounting Flange F
ISO 3019/2



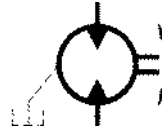
Type number key for radial piston motor KM 110

Motor type	Size	Shaft end	End cover	Seal	Second shaft ¹⁾	Flange	additional specs.
KM	110						
Radial Piston Motor		Keyway Z K	Radial ports Valve face Axial ports A A1 B5	NBR Viton V	without Instrument Driving M M10	normal ISO 3019/2 F	

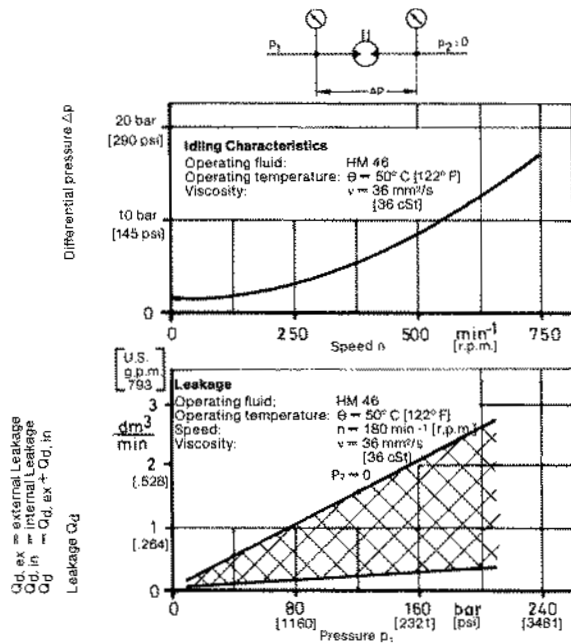
¹⁾ With end cover version B5 a 2nd shaft is not possible.

We reserve the right to make modifications

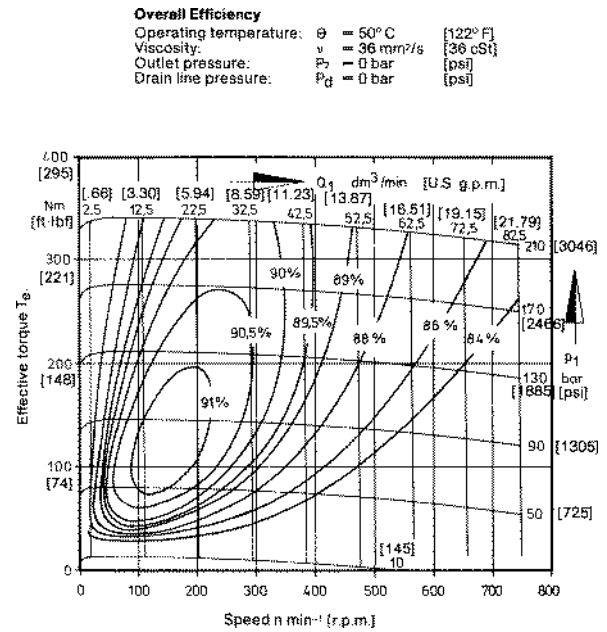
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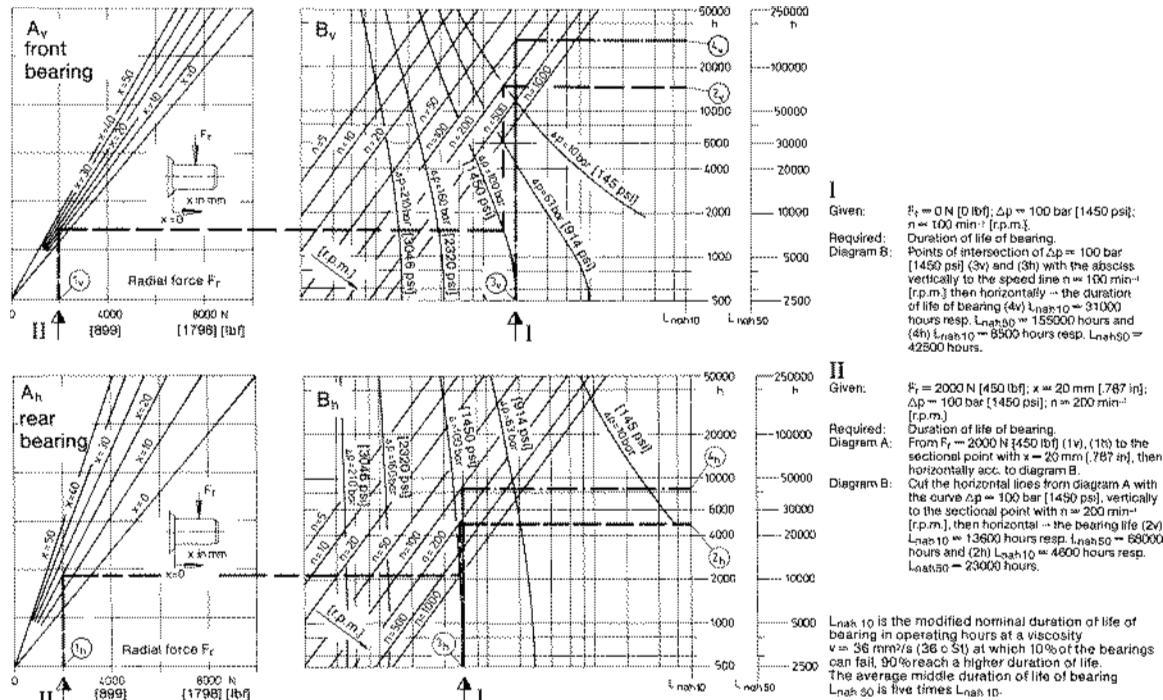
Characteristics



Characteristic performance functions according to ISO

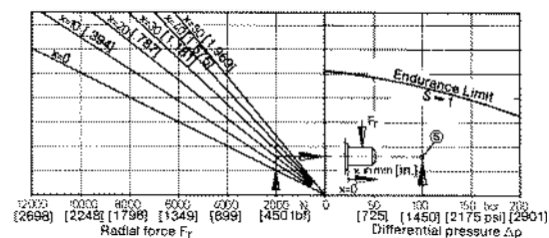


Service life of the roller bearings



Strength of the shaft

Example:
Given values: $F_r = 2000 \text{ N}$ [450 lbf] $x = 20 \text{ mm}$ [0.787 in]
 $\Delta p = 100 \text{ bar}$ [1450 psi]
Required value: Shaft strength
Draw a vertical line from $F_r = 2000 \text{ N}$ [450 lbf] to distance $x = 20 \text{ mm}$ [0.787 in] and a straight horizontal line from there.
If the intersection of the horizontal with the vertical line of $\Delta p = 100 \text{ bar}$ [1450 psi] is below curve the shaft has sufficient fatigue strength.
Allowable axial forces will be provided on request.



1. General properties and features

Design:

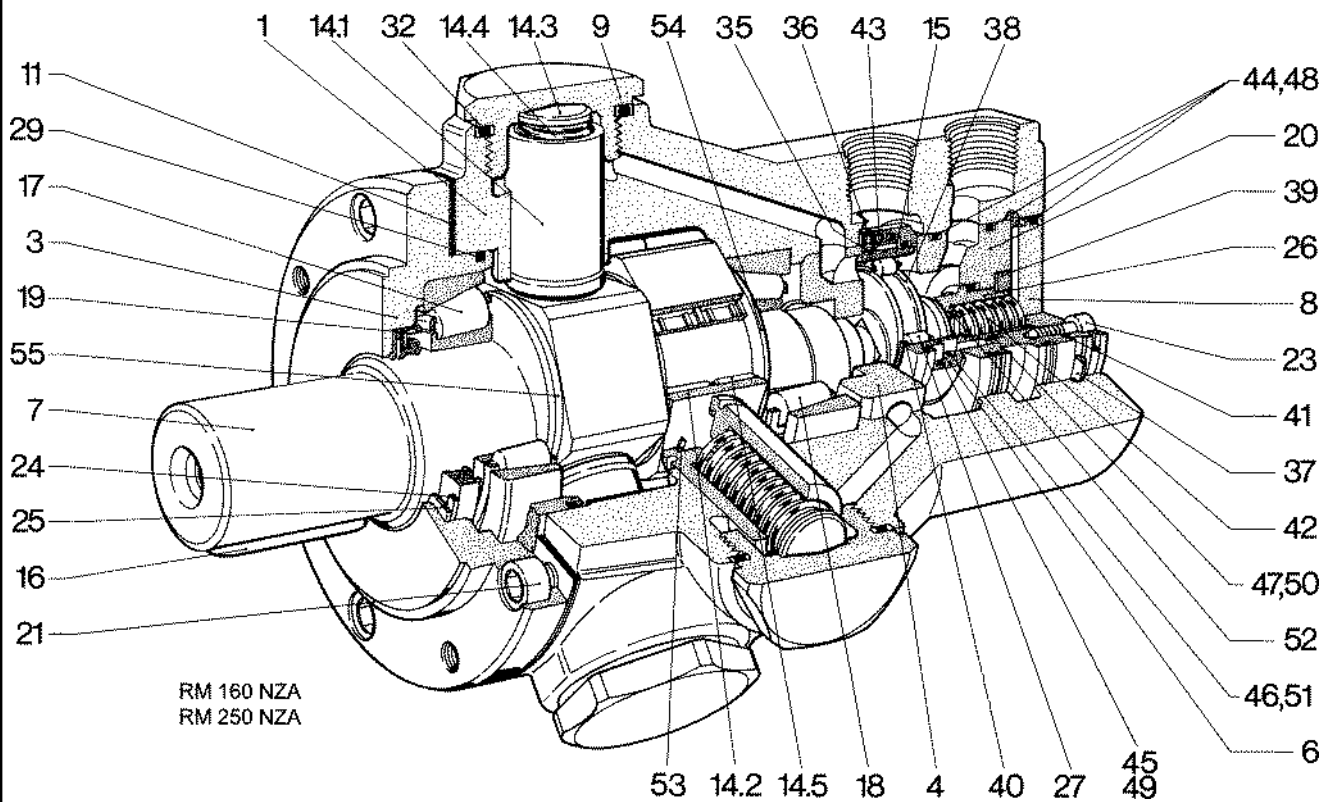
hydrostatic radial piston motor

Purpose:

transformation of hydraulic power to drive power.

High efficiency, also suitable for very low speeds, low moment of inertia, rapidly reversible, capable of supporting high total loads, four-quadrant operation possible, very suitable for applications as a control, extremely quiet operation.

2. Structure and function



2.1 Drive unit

Design:

Internal piston support

Method of functioning:

Five or ten radial pistons (14.1) load the crankshaft via pentagon ring(s) with needle bearing cages (14.5)

Drive details

Crank shaft bearing:

Pre-loaded, large taper roller bearings (17,18), in X arrangement

Precise guidance, therefore quiet running, high radial and axial loading capacity (e.g. if a gear wheel is mounted at the shaft end).

Force transmission: Piston (14.1) – crankshaft (7) via the pentagon ring (14.2) with needle bearing cage (14.5).

Low frictional losses, very long service life, relatively insensitive to dirt, also suitable for extremely high pressure and speed, high starting torque, no stick-slip effect at low speeds, only minor leakage (necessary for the lubrication and cooling of the drive), high efficiency, self-adjusting play to compensate for wear, temperature shock resistant, damping properties of the hydrostatic strain release reduce noise.

Design:

Planar translational distribution valve with play self-adjustment

2.2 Drive unit

Design:

Planar translational distribution valve with play self-adjustment

Purpose:

Distribution of the volume feed to the 5 or 10 cylinders, collection of the return volume flow.

Method of functioning:

Control rings (6/15) with the external ring (1) and with the eccentric (38) form an external and an internal ring space. By moving the control rings (6/15) between the control plate (4) and the liner (20) by means of the eccentric (38) which is fixed to the crankshaft (5), the internal and the external ring spaces are connected to the cylinders in turn. The ring spaces themselves are connected to the outside through pressure connections on the motor.

Control details

Roller bearing between the control rings (6/15) and the eccentric (38)

The control rings mainly move translationally, however, rotation is possible (2 degrees of freedom) – this means small frictional losses at the control rings (6/15) and a cleaning effect in the sealing gap, approximately equal relative speeds of the sealing faces, sinusoidal opening function for the control openings – this means smooth running even at low speeds and quiet running at high speeds, large volume flow diameters between the rollers (27) in the roller bearing.

Adjustment of the play on the control rings (6/15) and the flats on the eccentric:

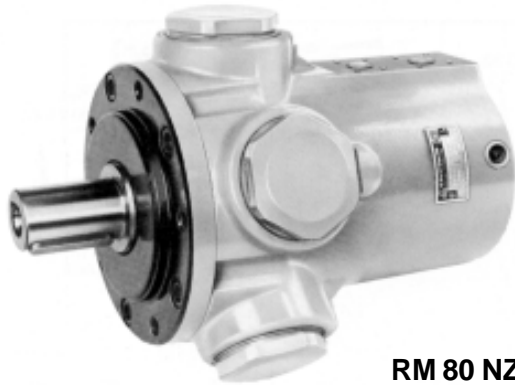
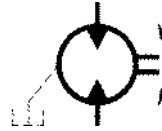
Hydrostatic, low control ring (6/15) force against the flats, pressure supported by spring washers (for zero and low pressure situations), hydrostatic play self-adjustment on the eccentric flats by means of a thrust piece (26) supported by a helical spring.

Very low leakage and small frictional losses, automatic compensation for pressure and temperature influences (temperature shocks among others), relatively insensitive to dirt.

Miniature shuttle valve (35,36):

The effect is that in the ring space between the control rings (6,15), the higher pressure connected to the motor is always effective.

Reliable play self-adjustment even at high reversion frequencies.



RM 80 NZA1

Hydraulic characteristic values

Geometr. displacement	[cm ³ /rev]	81
Theor. spec. torque	[Nm/bar]	1,29
Average spec. torque	[Nm/bar]	1,15
Peak pressure*	[bar]	400
Max. operating pressure**	[bar]	315
Continuous pressure	[bar]	250
Max. operating torque	[Nm]	365
Continuous torque	[Nm]	290
Drain line pressure	[bar]	max. 1
Hydraulic fluid temperature range	[K]	243 - 363
	[°C]	- 30 - + 90
Viscosity range	[mm ² /s]	20 - 150
	(max. 1000 mm ² /s at start)	

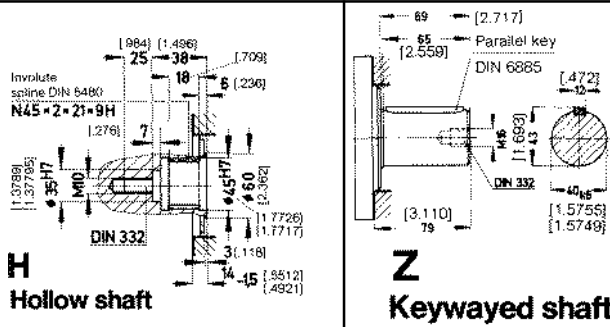
Pressure fluids:

HM and HV, definition to CETOP RP 75 H (mineral oil based fluids).
Mineral oil H-LP in conformity with DIN 51424 part 2.
Bio-degradable fluids available on request.

* Definition according to DIN 24 312.

Peak pressure = Pressure exceeding the maximum operating pressure for a short time at which the motor remains able to function.

** If the sum of inlet pressure and outlet pressure is higher than the peak pressure, please consult the manufacturer.



HFC	Reduce HFC pressure to 70 % Check the bearing service life	Definition to CETOP RP 77 H ISO/DIS 6071
HFD	Viton seals are required	

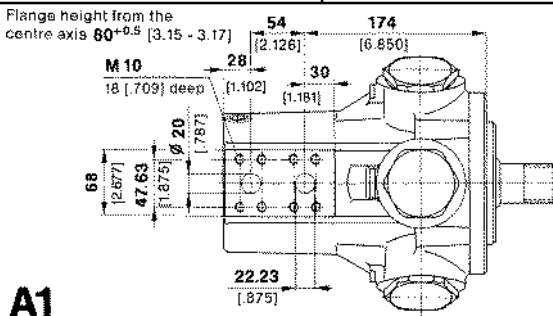
Filtering

Max. permissible degree of contamination of the pressure fluid according to NAS 1638 class 9.

We recommend filters with a minimum retention rate of $\beta_{10} \geq 100$
For a long service life we recommend filtering acc. to NAS 1638 class 8 and filters with a minimum retention rate of $\beta_3 \geq 100$.

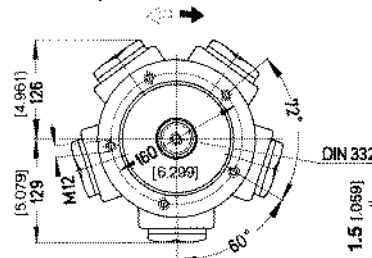
Characteristic values according to VDI 3278

Weight:	[kg]	40,0
Mounting position:	as required	
Direction of rotation, if viewed at the shaft end		
clockwise:	flow from connection 2 to connection 1	
anti-clockwise:	flow from connection 1 to connection 2	
Operating speed range:	[rpm]	5 ÷ 800
Moment of inertia:	[kgm ²]	0,0017
Continuous power:	[kW]	12,0
Intermittent power:	[kW]	15,0



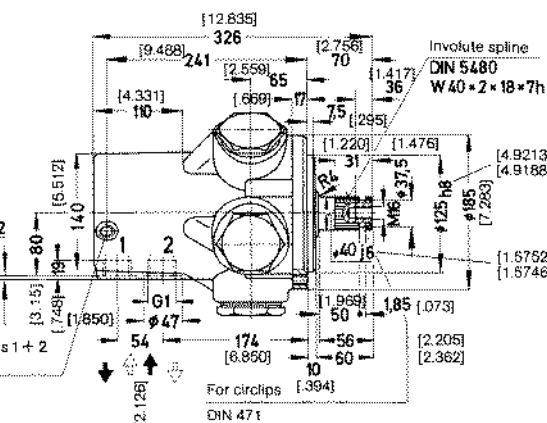
A1
SAE J 518 3/4" Standard 3000 PSI

KA Standard Design with splined shaft

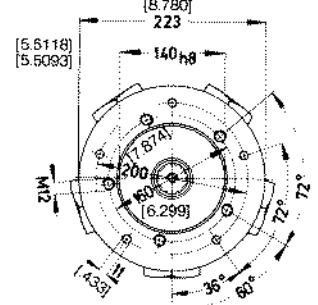


Leakage port G 3/8, 14 deep [5.51] for connections 1 + 2
displaced by 72°
Counterbore \varnothing 28 [1.102] 1.5 deep [0.59]

Zahnwelle



Mounting Flange F with by-pass holes



DIN ISO 3019/3
Inch measurements in brackets

Type number key for radial piston motor RM 80 N

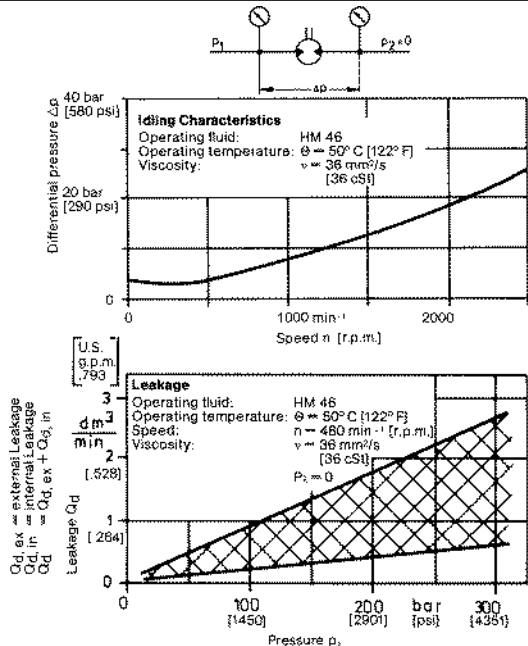
Motor type	Size	Shaft end	End cover	Seal	Second shaft ¹⁾	Flange	additional specs.
RM	80						
Radial Piston Motor	N	Spline Hollow Keyway	Thread G1 SAE J 518 3/4" standard	NBR Viton	without Instrument Driving	normal ISO 3019/2	
		K H Z	A A1		M M10	F	

We reserve the right to make modifications

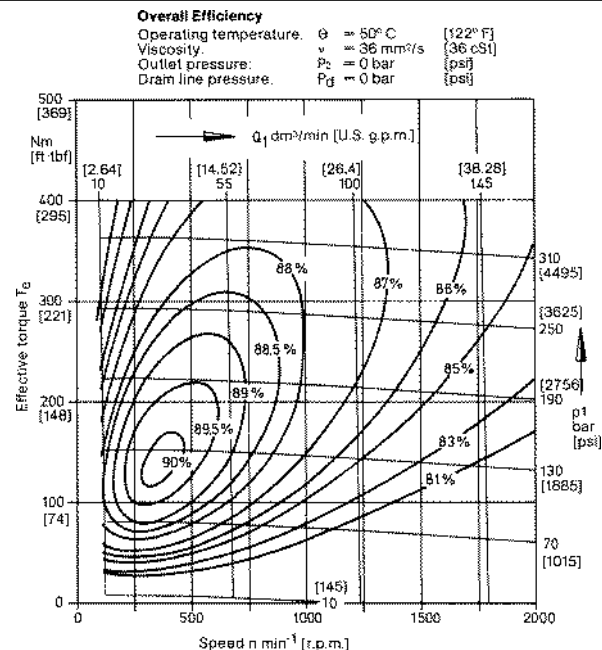
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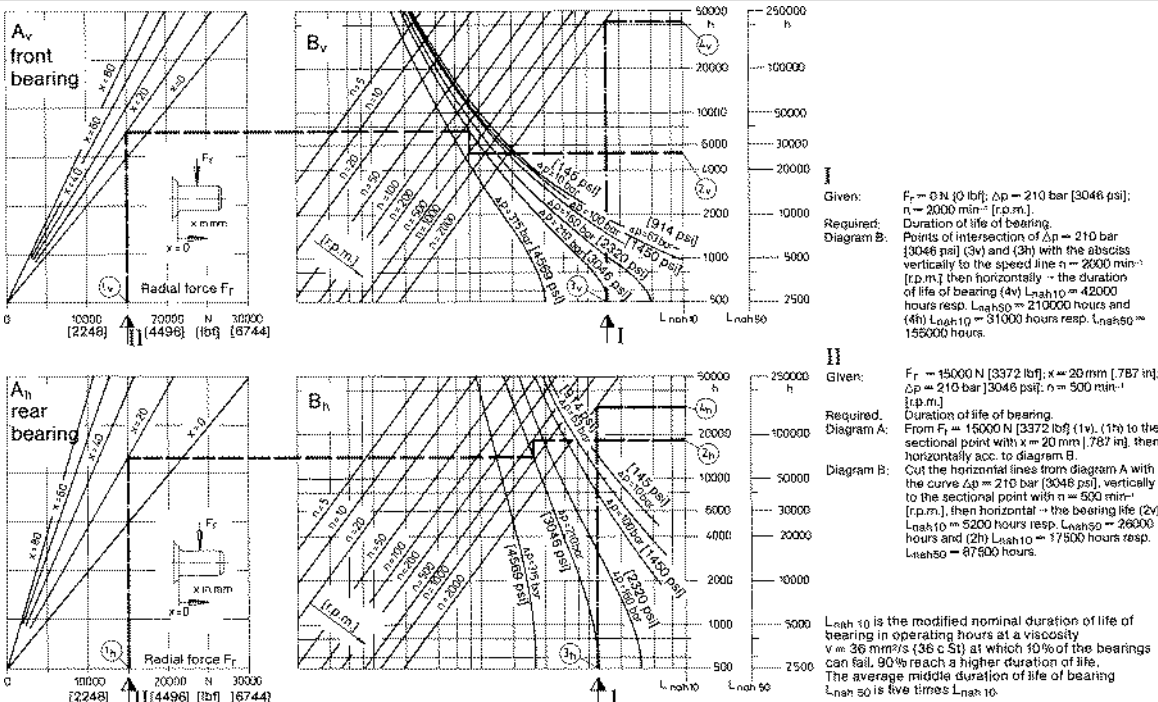
Characteristics



Characteristic performance functions according to ISO

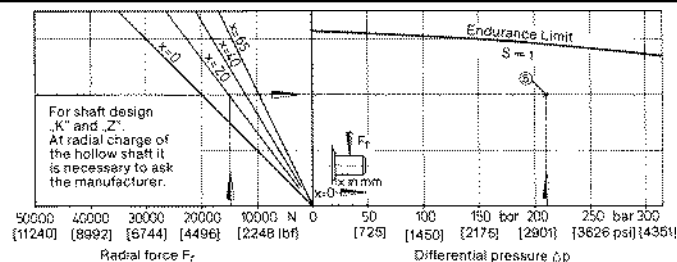


Service life of the roller bearings



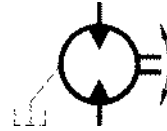
Strength of the shaft

Example:
Given values: $F_r = 15000\text{ N}$ [3372 lbf] $x = 20\text{ mm}$ [787 in]
 $\Delta p = 210\text{ bar}$ [3046 psi]
Required value: Shaft strength
Draw a vertical line from $F_r = 15000\text{ N}$ [3372 lbf] to distance $x = 20\text{ mm}$ [787 in] and a straight horizontal line from there.
If the intersection \textcircled{c} of the horizontal with the vertical line of $\Delta p = 210\text{ bar}$ [3046 psi] is below curve the shaft has sufficient fatigue strength.
Allowable axial forces will be provided on request.



We reserve the right to make modifications

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RM 125 NZA1

Hydraulic characteristic values

Geometr. displacement	[cm ³ /rev]	126
Theor. spec. torque	[Nm/bar]	2,0
Average spec. torque	[Nm/bar]	1,8
Peak pressure*	[bar]	350
Max. operating pressure**	[bar]	315
Continuous pressure	[bar]	200
Max. operating torque	[Nm]	567
Continuous torque	[Nm]	360
Drain line pressure	[bar]	max. 1
Hydraulic fluid temperature range	[K]	243 - 363
	[°C]	- 30 - + 90
Viscosity range	[mm ² /s]	20 - 150
	(max. 1000 mm ² /s at start)	

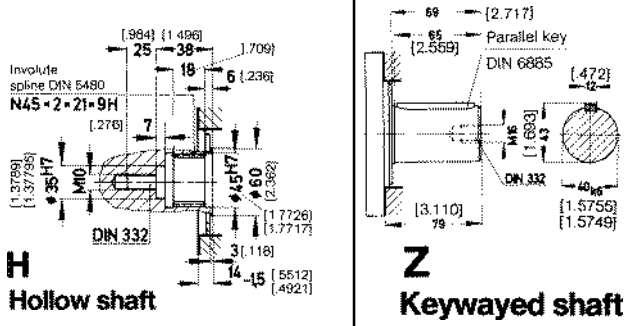
Pressure fluids:

HM and HV, definition to CETOP RP 75 H (mineral oil based fluids).
Mineral oil H-LP in conformity with DIN 51424 part 2.
Bio-degradable fluids available on request.

* Definition according to DIN 24 312.

Peak pressure = Pressure exceeding the maximum operating pressure for a short time at which the motor remains able to function.

** If the sum of inlet pressure and outlet pressure is higher than the peak pressure, please consult the manufacturer.



H
Hollow shaft

Z
Keywayed shaft

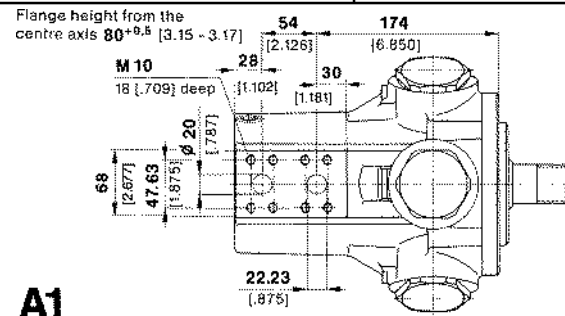
HFC	Reduce HFC pressure to 70 % Check the bearing service life	Definition to CETOP RP 77 H ISO/DIS 6071
HFD	Viton seals are required	

Filtering

Max. permissible degree of contamination of the pressure fluid according to NAS 1638 class 9.

We recommend filters with a minimum retention rate of $\beta_{10} \geq 100$

For a long service life we recommend filtering acc. to NAS 1638 class 8 and filters with a minimum retention rate of $\beta_3 \geq 100$.

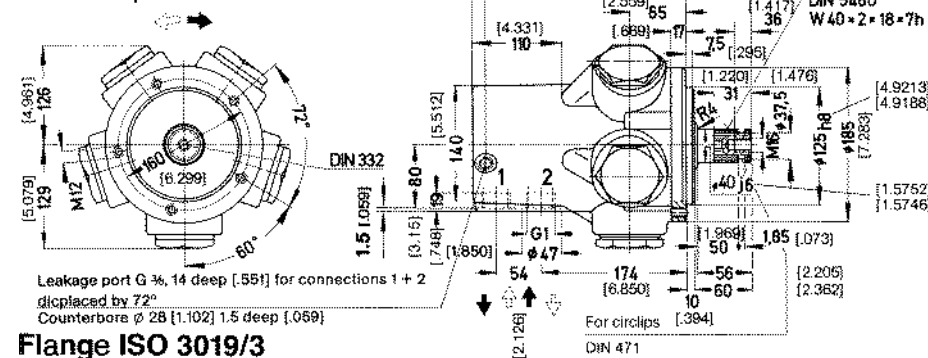


A1
SAE J 518 3/4" Standard 3000 PSI

Characteristic values according to VDI 3278

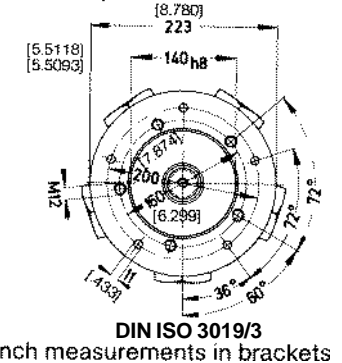
Weight:	[kg]	40,0
Mounting position:	as required	
Direction of rotation, if viewed at the shaft end		
clockwise:	flow from connection 2 to connection 1	
anti-clockwise:	flow from connection 1 to connection 2	
Operating speed range:	[rpm]	5 ÷ 600
Moment of inertia:	[kgm ²]	0,0017
Continuous power:	[kW]	12,0
Intermittent power:	[kW]	15,0

KA Standard Design with splined shaft



Flange ISO 3019/3

Mounting Flange F with by-pass holes



Type number key for radial piston motor RM 125 N

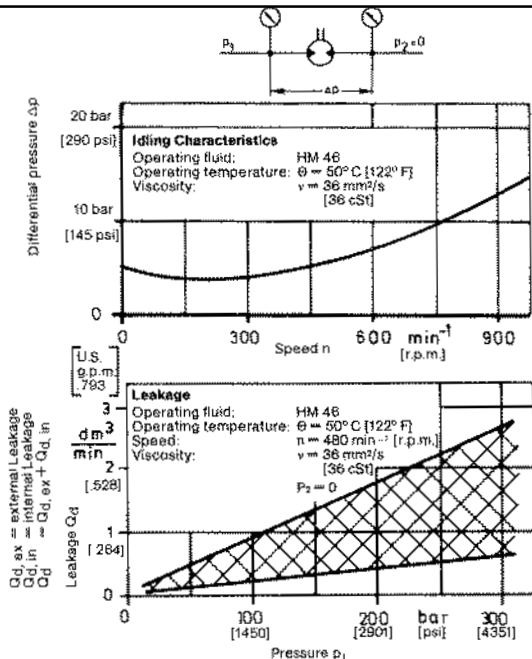
Motor type	Size	Shaft end	End cover	Seal	Second shaft ¹⁾	Flange	additional specs.
RM Radial Piston Motor	125 N	Spline Hollow Keyway	Thread G1 SAE J 518 3/4" standard	NBR Viton	without Instrument Driving	normal ISO 3019/2	
		K H Z	A A1		M M10	F	

We reserve the right to make modifications

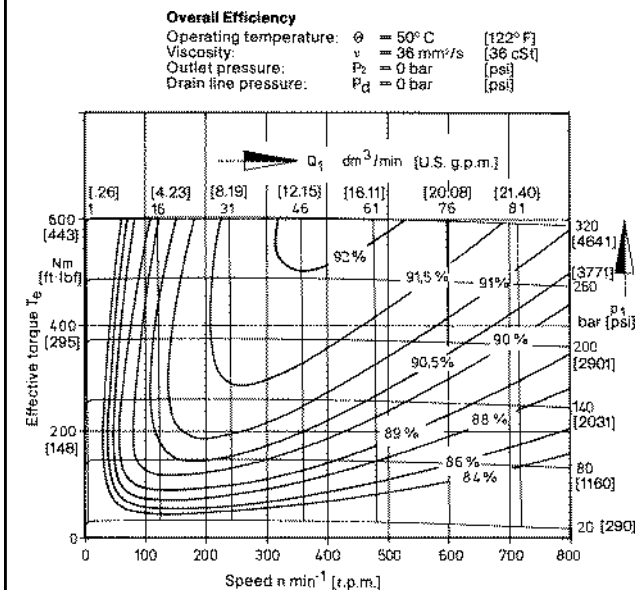
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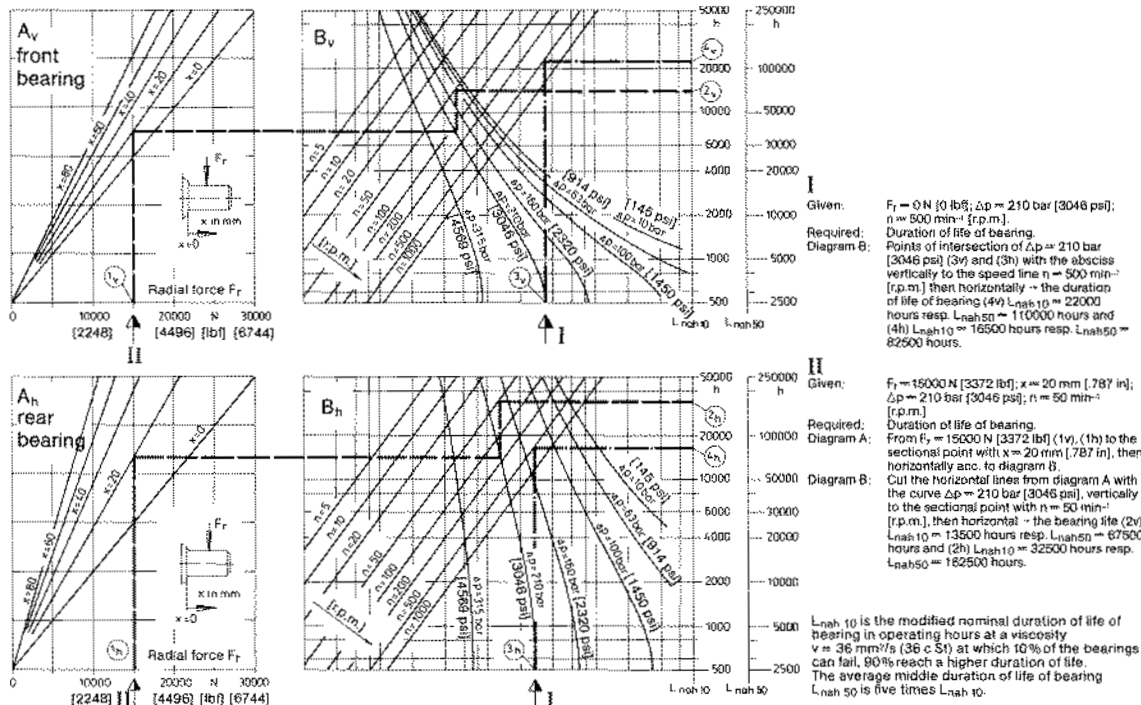
Characteristics



Characteristic performance functions according to ISO

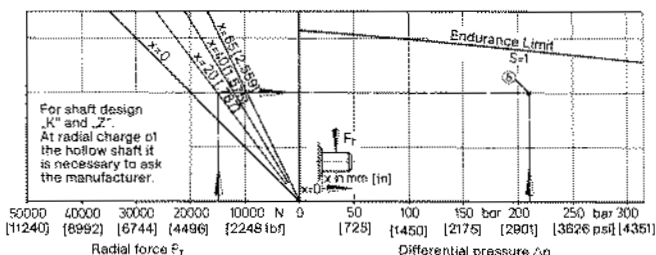


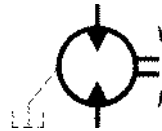
Service life of the roller bearings



Strength of the shaft

Example:
Given values: $F_r = 15000\text{ N}$ [3372 lbf] $x = 20\text{ mm}$ [0.787 in]
 $\Delta p = 210\text{ bar}$ [3046 psi]
Required value: Shaft strength
Draw a vertical line from $F_r = 15000\text{ N}$ [3372 lbf] to distance $x = 20\text{ mm}$ [0.787 in] and a straight horizontal line from there.
If the intersection \textcircled{S} of the horizontal with the vertical line of $\Delta p = 210\text{ bar}$ [3046 psi] is below curve the shaft has sufficient fatigue strength.
Allowable axial forces will be provided on request.





RM 160 NZA1

Hydraulic characteristic values

Geometr. displacement	[cm ³ /rev]	161
Theor. spec. torque	[Nm/bar]	2,56
Average spec. torque	[Nm/bar]	2,36
Peak pressure*	[bar]	400
Max. operating pressure**	[bar]	315
Continuous pressure	[bar]	250
Max. operating torque	[Nm]	750
Continuous torque	[Nm]	595
Drain line pressure	[bar]	max. 1
Hydraulic fluid temperature range	[K]	243 - 363
	[°C]	- 30 - + 90
Viscosity range	[mm ² /s]	20 - 150
	(max. 1000 mm ² /s at start)	

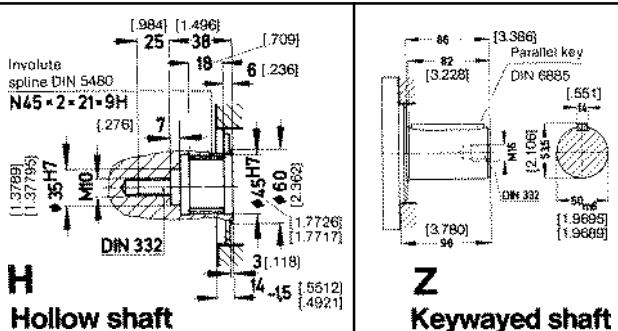
Pressure fluids:

HM and HV, definition to CETOP RP 75 H (mineral oil based fluids).
Mineral oil H-LP in conformity with DIN 51424 part 2.
Bio-degradable fluids available on request.

* Definition according to DIN 24 312.

Peak pressure = Pressure exceeding the maximum operating pressure for a short time at which the motor remains able to function.

** If the sum of inlet pressure and outlet pressure is higher than the peak pressure, please consult the manufacturer.



H
Hollow shaft

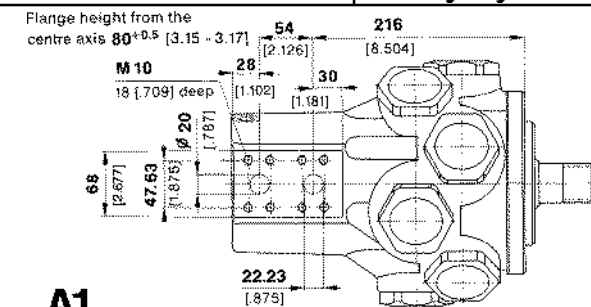
Z
Keywayed shaft

HFC	Reduce HFC pressure to 70 % Check the bearing service life	Definition to CETOP RP 77 H ISO/DIS 6071
HFD	Viton seals are required	

Filtering

Max. permissible degree of contamination of the pressure fluid according to NAS 1638 class 9.

We recommend filters with a minimum retention rate of $\beta_{10} \geq 100$
For a long service life we recommend filtering acc. to NAS 1638 class 8 and filters with a minimum retention rate of $\beta_3 \geq 100$.

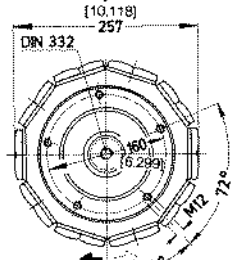


A1
SAE J 518 3/4" Standard 3000 PSI

Characteristic values according to VDI 3278

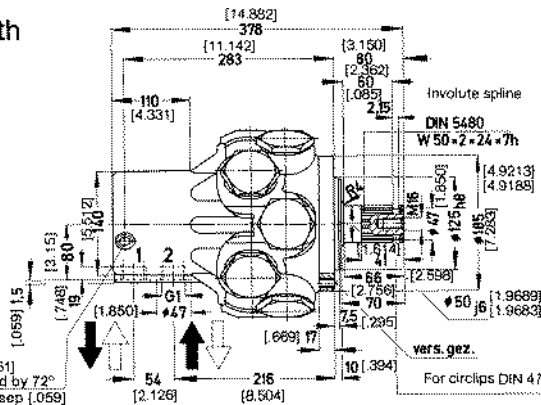
Weight:	[kg]	58,0
Mounting position:	as required	
Direction of rotation, if viewed at the shaft end		
clockwise:	flow from connection 2 to connection 1	
anti-clockwise:	flow from connection 1 to connection 2	
Operating speed range:	[rpm]	5 ÷ 800
Moment of inertia:	[kgm ²]	0,0023
Continuous power:	[kW]	24,0
Intermittent power:	[kW]	30,0

KA Standard Design with shaft splined

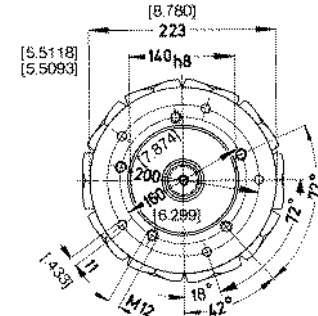


Leakage port G 3/8, 14 deep [551]
for connections 1 + 2 displaced by 72°
Counterbore \varnothing 28 [1.102] 1.5 deep [0.059]

Zahnwelle



Mounting Flange F
with by-pass holes



Inch measurements in brackets

Type number key for radial piston motor RM 160 N

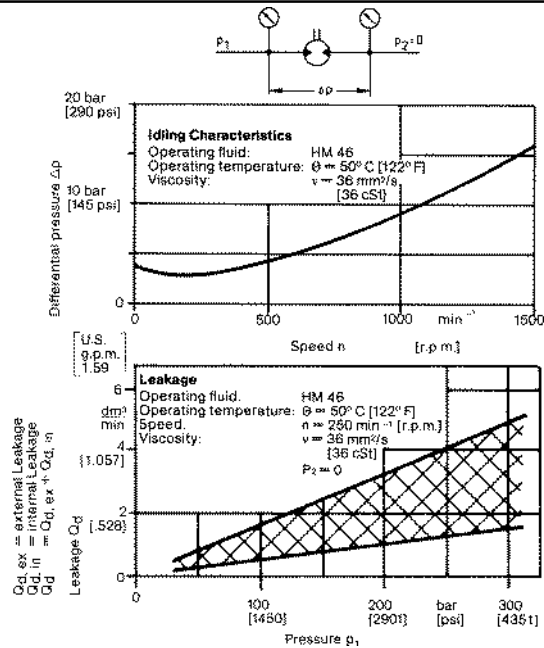
Motor type	Size	Shaft end	End cover	Seal	Second shaft ¹⁾	Flange	additional specs.
RM Radial Piston Motor	160 N	Spline Hollow Keyway	Thread G1 SAE J 518 3/4" standard	NBR Viton	without Instrument Driving	normal ISO 3019/2	
		K H Z	A A1		M M10	F	

We reserve the right to make modifications

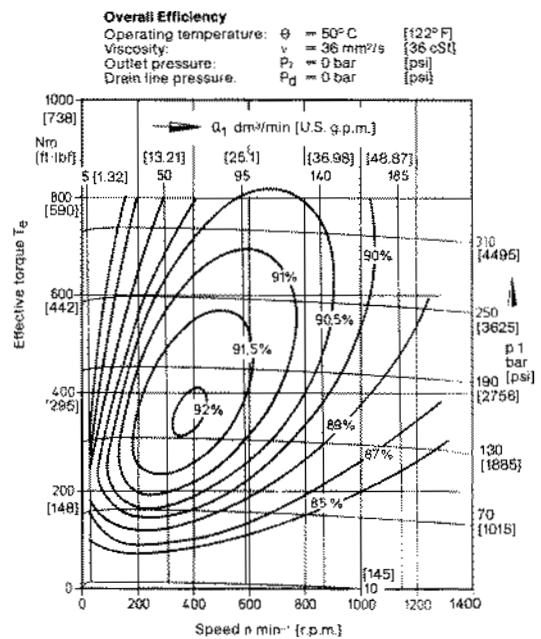
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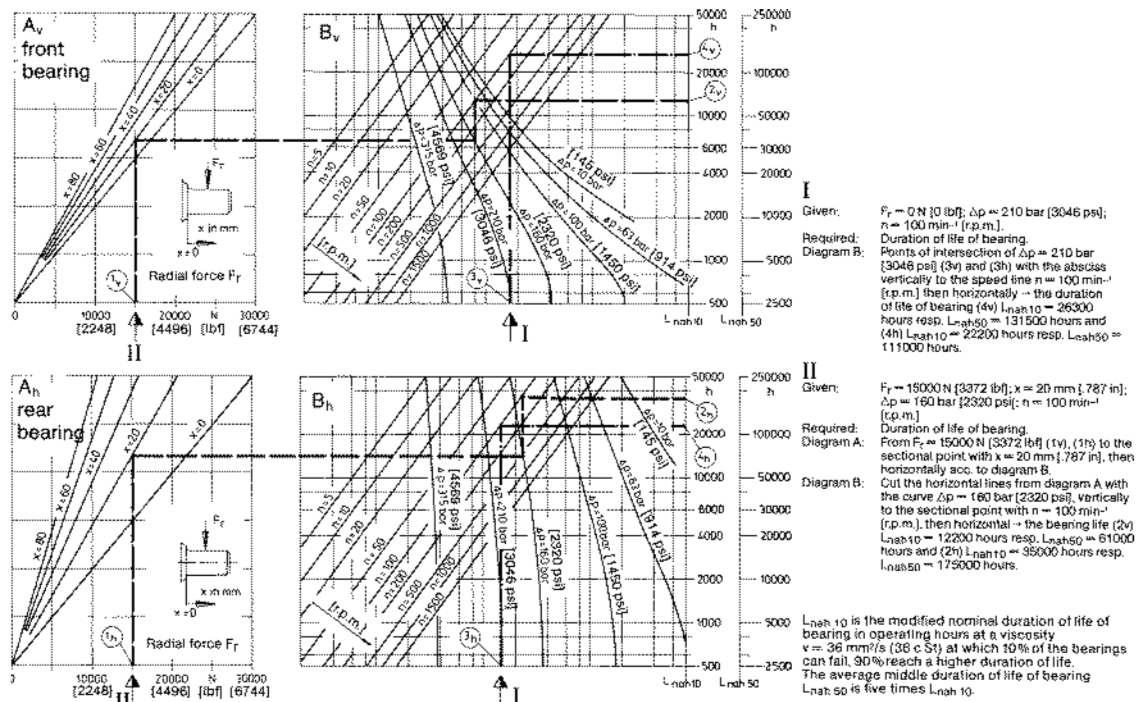
Characteristics



Characteristic performance functions according to ISO

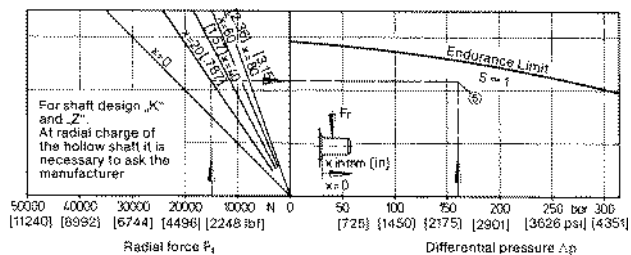


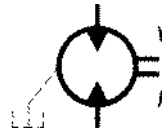
Service life of the roller bearings



Strength of the shaft

Example:
Given values: $F_r = 15000\text{ N}$ [3372 lbf] $x = 20\text{ mm}$ [0.787 in]
 $\Delta p = 160\text{ bar}$ [2321 psi]
Required value: Shaft strength
Draw a vertical line from $F_r = 15000\text{ N}$ [3372 lbf] to distance $x = 20\text{ mm}$ [0.787 in] and a straight horizontal line from there.
If the intersection \otimes of the horizontal with the vertical line of $\Delta p = 160\text{ bar}$ [2321 psi] is below curve the shaft has sufficient fatigue strength.
Allowable axial forces will be provided on request.





RM 250 NZA1

Hydraulic characteristic values

Geometr. displacement	[cm ³ /rev]	251
Theor. spec. torque	[Nm/bar]	4,0
Average spec. torque	[Nm/bar]	3,7
Peak pressure*	[bar]	350
Max. operating pressure**	[bar]	315
Continuous pressure	[bar]	200
Max. operating torque	[Nm]	1165
Continuous torque	[Nm]	740
Drain line pressure	[bar]	max. 1
Hydraulic fluid temperature range	[K]	243 - 363
	[°C]	- 30 - + 90
Viscosity range	[mm ² /s]	20 - 150
	(max. 1000 mm ² /s at start)	

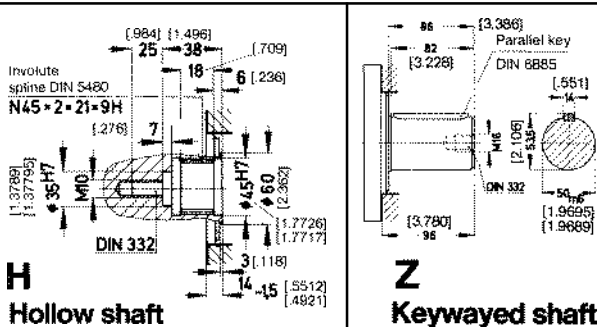
Pressure fluids:

HM and HV, definition to CETOP RP 75 H (mineral oil based fluids).
Mineral oil H-LP in conformity with DIN 51424 part 2.
Bio-degradable fluids available on request.

* Definition according to DIN 24 312.

Peak pressure = Pressure exceeding the maximum operating pressure for a short time at which the motor remains able to function.

** If the sum of inlet pressure and outlet pressure is higher than the peak pressure, please consult the manufacturer.



H
Hollow shaft

Z
Keywayed shaft

HFC	Reduce HFC pressure to 70 % Check the bearing service life	Definition to CETOP RP 77 H ISO/DIS 6071
HFD	Viton seals are required	

Filtering

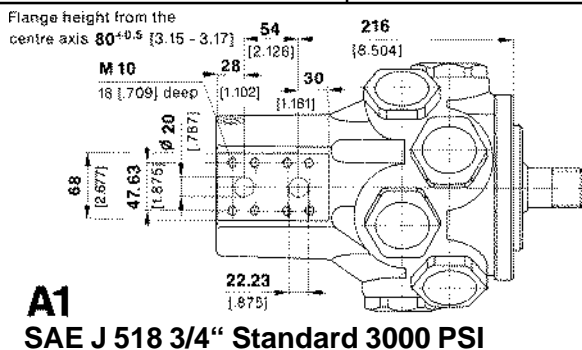
Max. permissible degree of contamination of the pressure fluid according to NAS 1638 class 9.

We recommend filters with a minimum retention rate of $\beta_{10} \geq 100$

For a long service life we recommend filtering acc. to NAS 1638 class 8 and filters with a minimum retention rate of $\beta_3 \geq 100$.

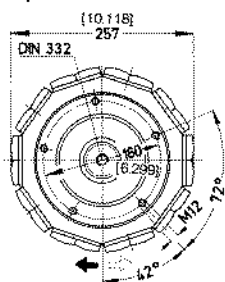
Characteristic values according to VDI 3278

Weight:	[kg]	58,0
Mounting position:	as required	
Direction of rotation, if viewed at the shaft end		
clockwise:	flow from connection 2 to connection 1	
anti-clockwise:	flow from connection 1 to connection 2	
Operating speed range:	[rpm]	5 ÷ 600
Moment of inertia:	[kgm ²]	0,0023
Continuous power:	[kW]	24,0
Intermittent power:	[kW]	30,0

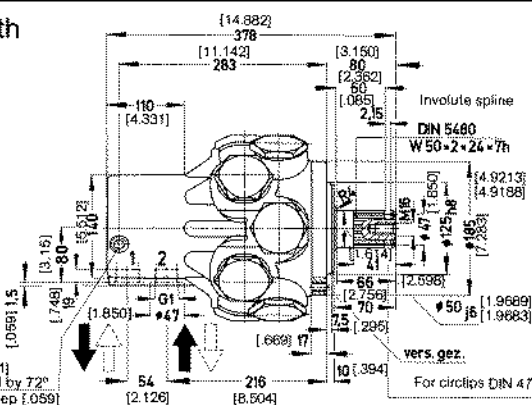


A1
SAE J 518 3/4" Standard 3000 PSI

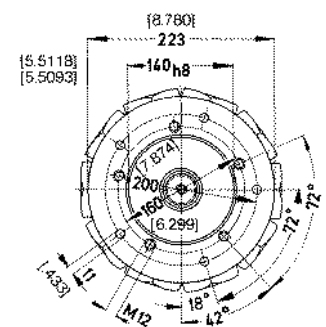
KA Standard Design with splined shaft



Leakage port G 1/4 deep [.551]
for connections 1, + 2 displaced by 72°
Counterbore ø 28 [1.102] 1.5 deep [.059]



Mounting Flange F
with by-pass holes



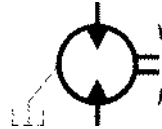
Inch measurements in brackets

Type number key for radial piston motor RM 250 N

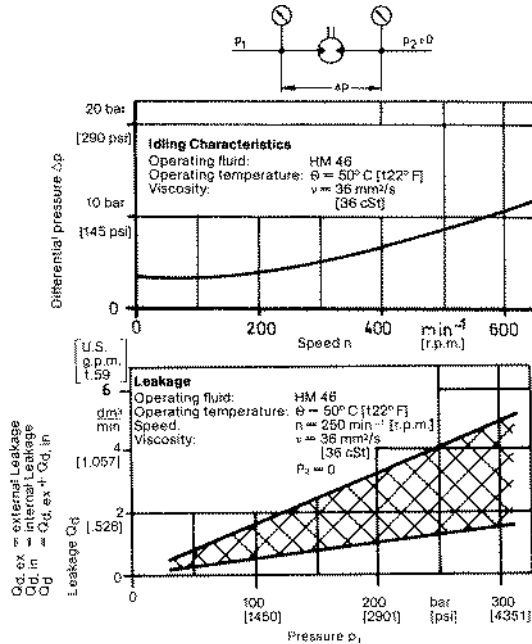
Motor type	Size	Shaft end	End cover	Seal	Second shaft ¹⁾	Flange	additional specs.
RM Radial piston motor	250 N	Spline Hollow Keyway	Thread G1 SAE J 518 3/4" standard	NBR Viton	without Instrument Driving	normal ISO 3019/2	
		K H Z	A A1		M M10	F	

We reserve the right to make modifications

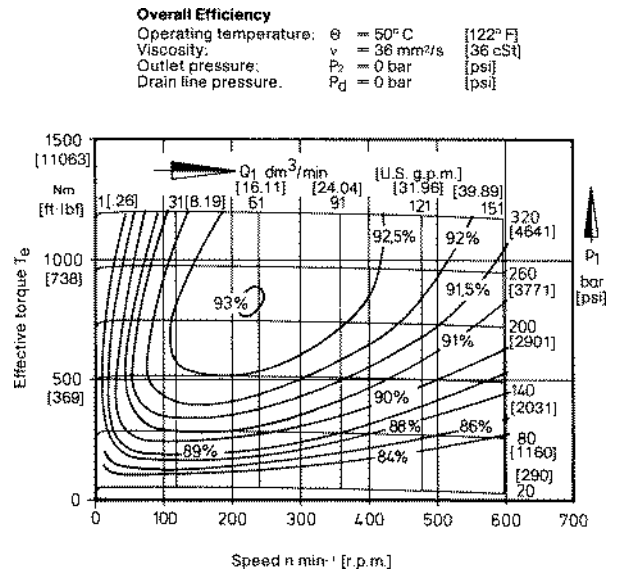
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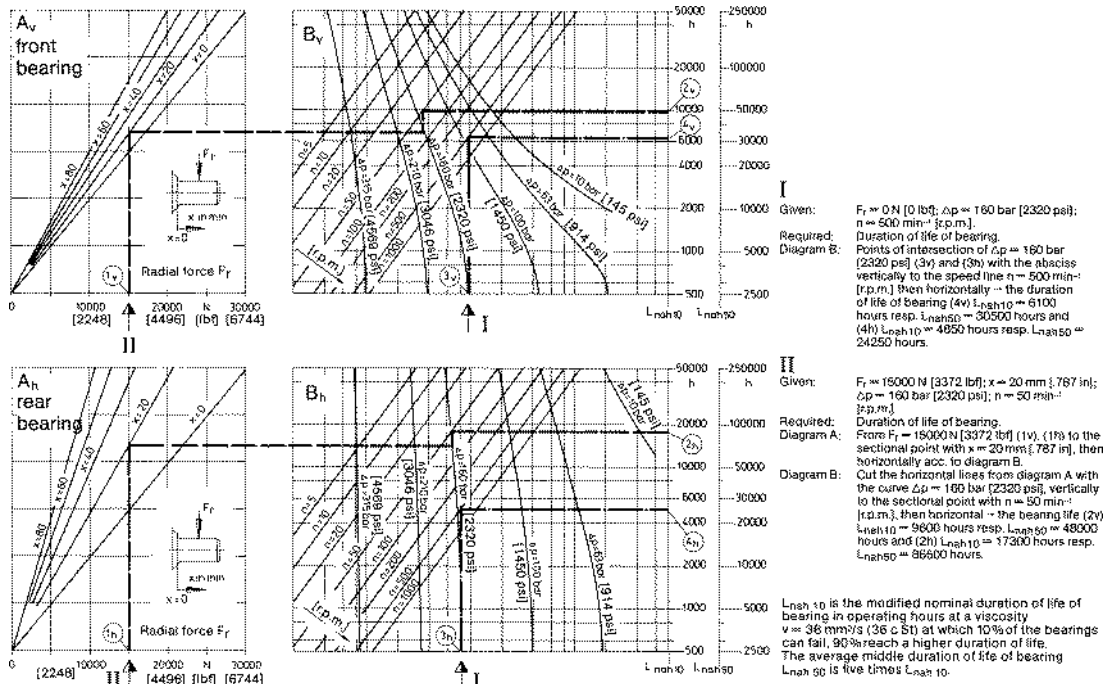
Characteristics



Characteristic performance functions according to ISO

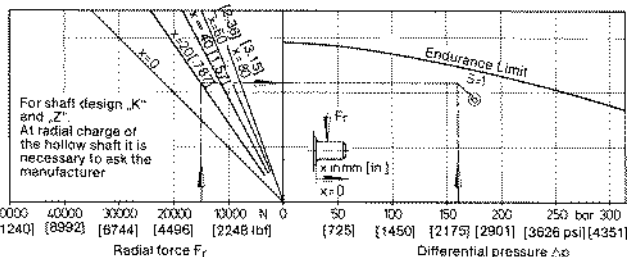


Service life of the roller bearings



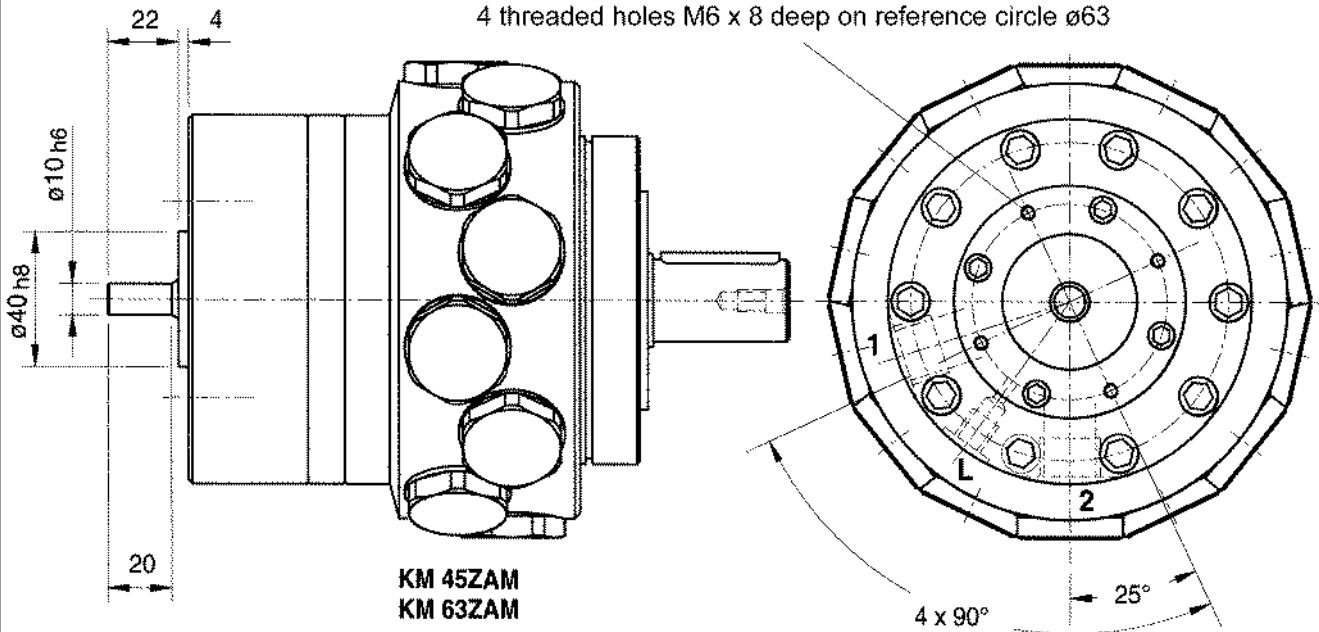
Strength of the shaft

Example:
Given values: $F_r = 15000\text{ N}$ [3372 lbf] $x = 20\text{ mm}$ [.787 in]
 $\Delta p = 160\text{ bar}$ [2321 psi]
Required value: Shaft strength
Draw a vertical line from $F_r = 15000\text{ N}$ [3372 lbf] to distance $x = 20\text{ mm}$ [.787 in] and a straight horizontal line from there.
If the intersection of the horizontal with the vertical line of $\Delta p = 160\text{ bar}$ [2321 psi] is below curve the shaft has sufficient fatigue strength.
Allowable axial forces will be provided on request.



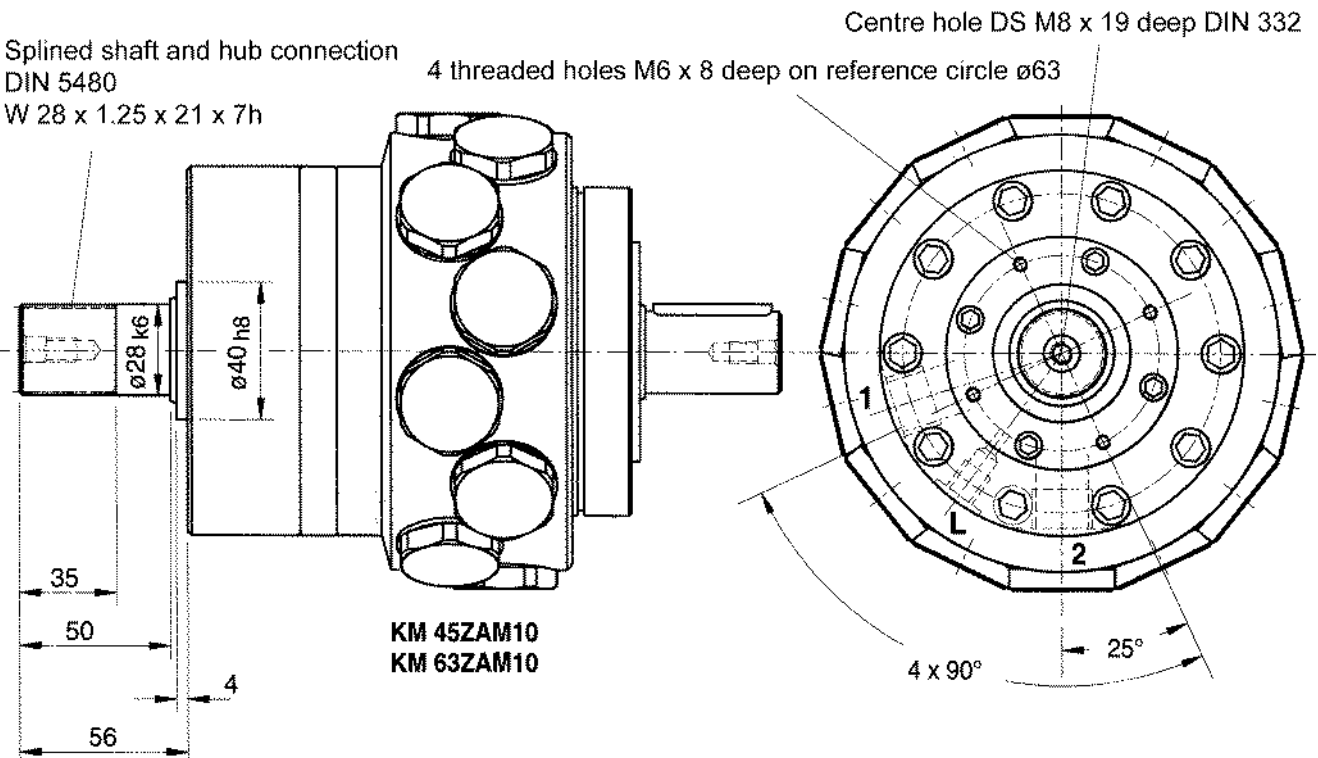
Measuring shaft design: M

Radial piston motors Type Km 11 - KM 110 with the type key "M" are equipped with a measuring shaft to determine the motor speed. The measuring shaft is rigidly connected to the motor-driven shaft and transmits a maximum torque of 5 Nm. If you require a higher torque, please approach the manufacturer or distributor. Please request the documentation on the mounting of the encoder, pulse transmitter and AC transmitters.

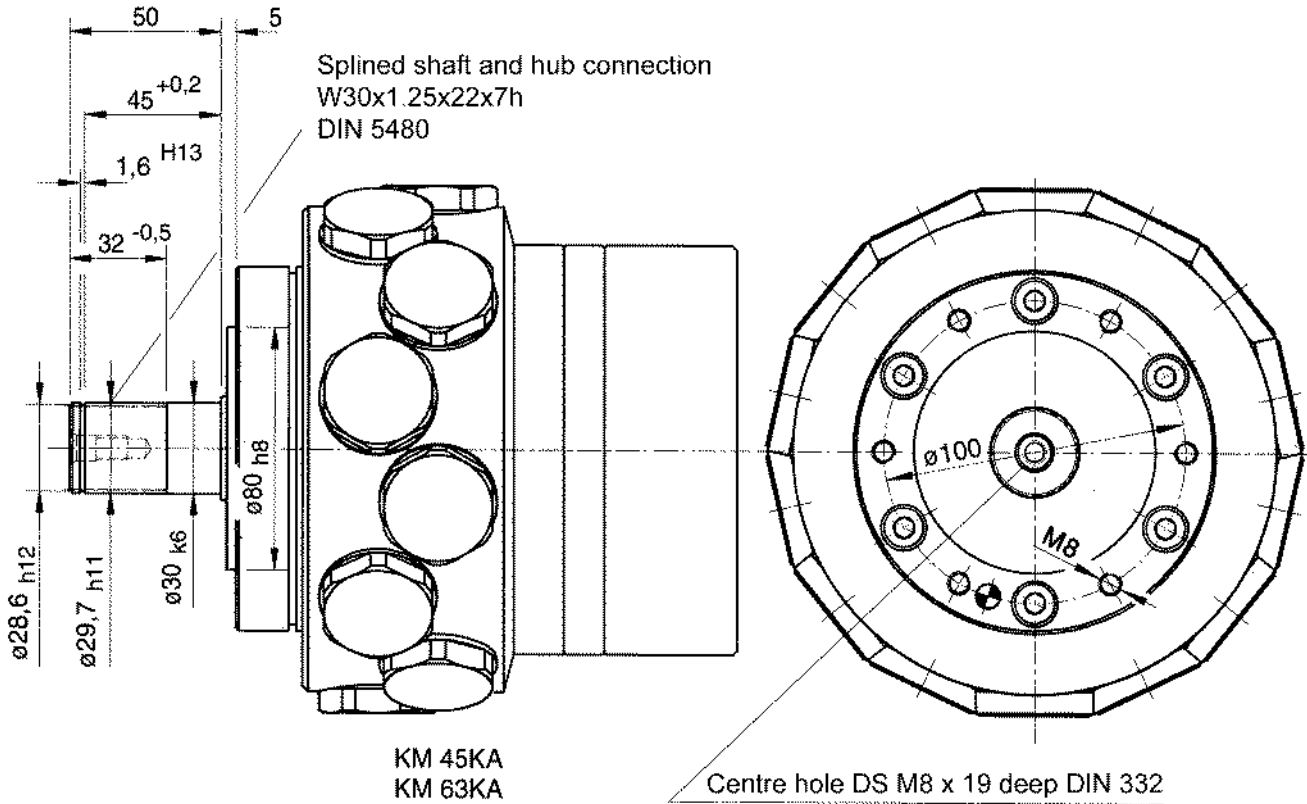


Motors with continuous driven shaft: M10 (only for KM 22 to KM 110)

These radial piston motors can be supplied with a one-piece driven shaft, type designation M10, for the transmission of the full motor torque. Cylindrical shaft design available on request.

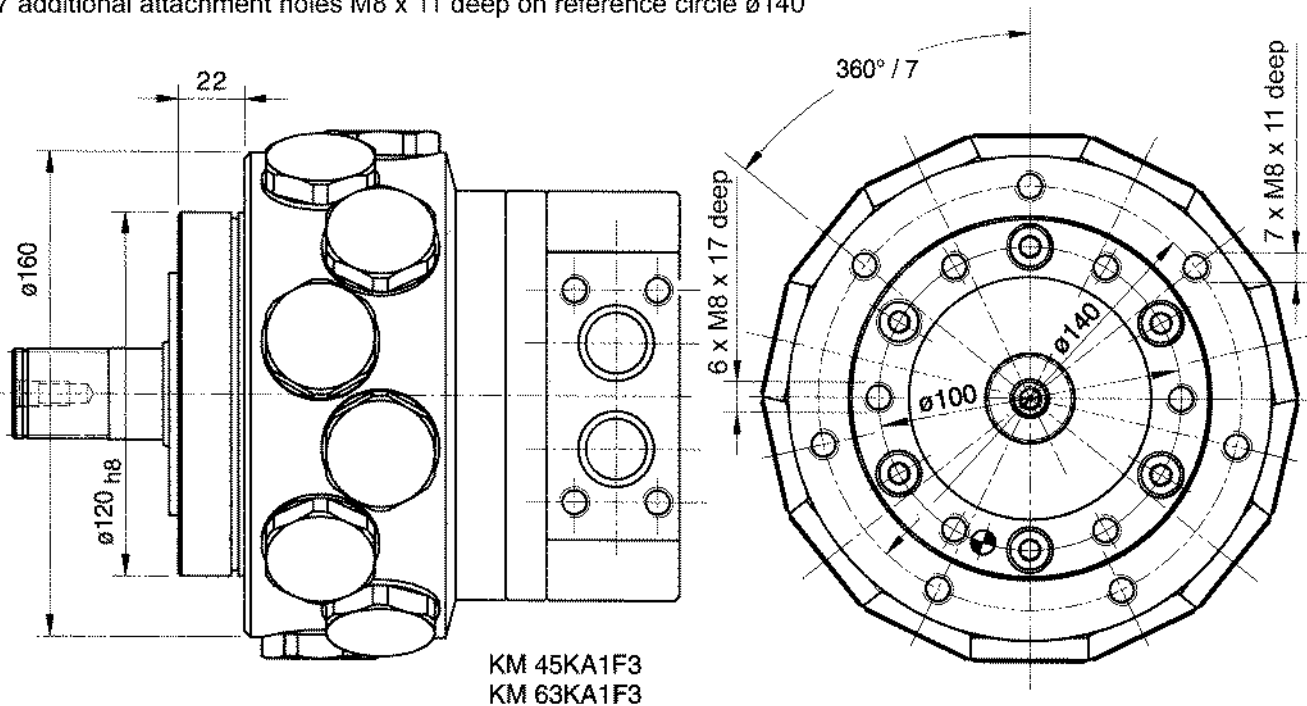


Shaft design : K



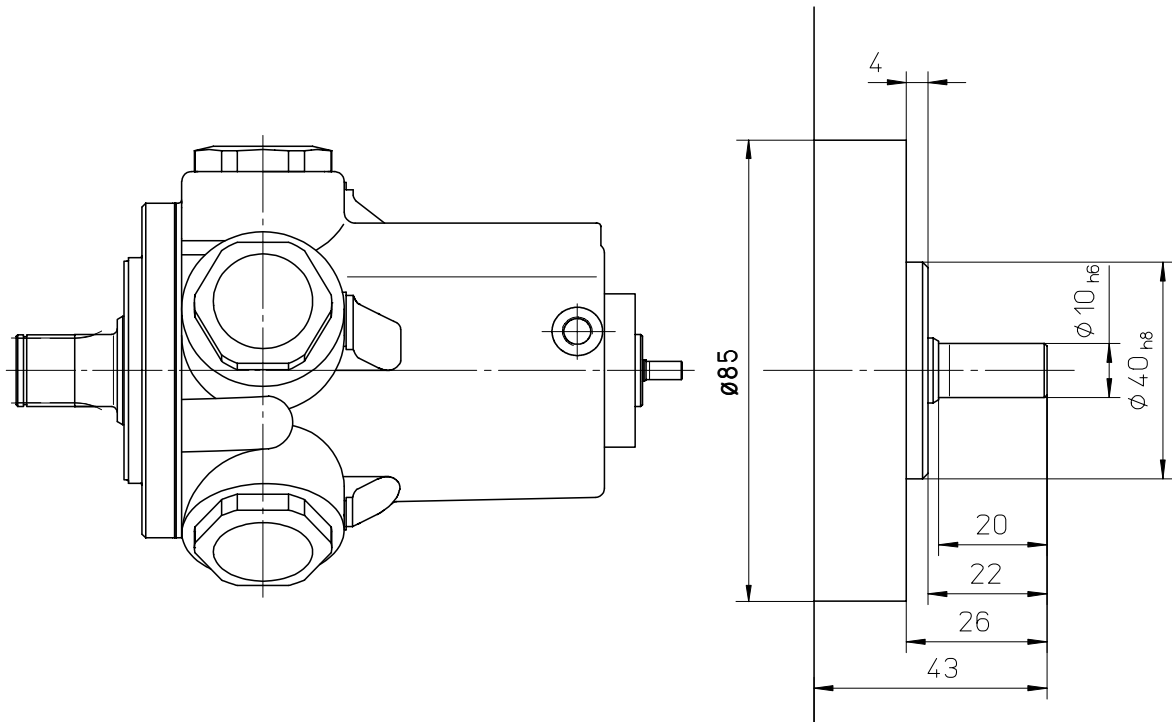
Face attachment : F3

7 additional attachment holes M8 x 11 deep on reference circle $\varnothing 140$

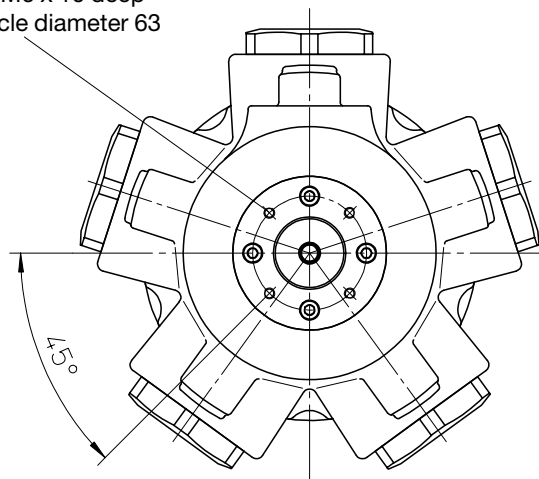


Measuring shaft design: M

Radial piston motors Type RM 80N - RM 250N with the type key "M" are equipped with a measuring shaft to determine the motor speed. The measuring shaft is rigidly connected to the motor-driven shaft and transmits a maximum torque of 5 Nm. If you require a higher torque, please approach the manufacturer or distributor. Please request the documentation on the mounting of the encoder, pulse transmitter and AC transmitters.



4 threaded holes M6 x 10 deep
on screw hole circle diameter 63



System units are radial piston motors with and without multiple disc brakes and mounted valves for control circuits.



The Duesterloh system units consist of radial piston motors ($V_g = 11$ to $110 \text{ cm}^3/\text{rev}$), with or without spring-loaded multiple disc brakes, with or without speed or angle measurement and directly mounted travel proportional and actuator valves. Thanks to their compact shape and the small enclosed oil volume, these system units are particularly suitable for applications in controls.

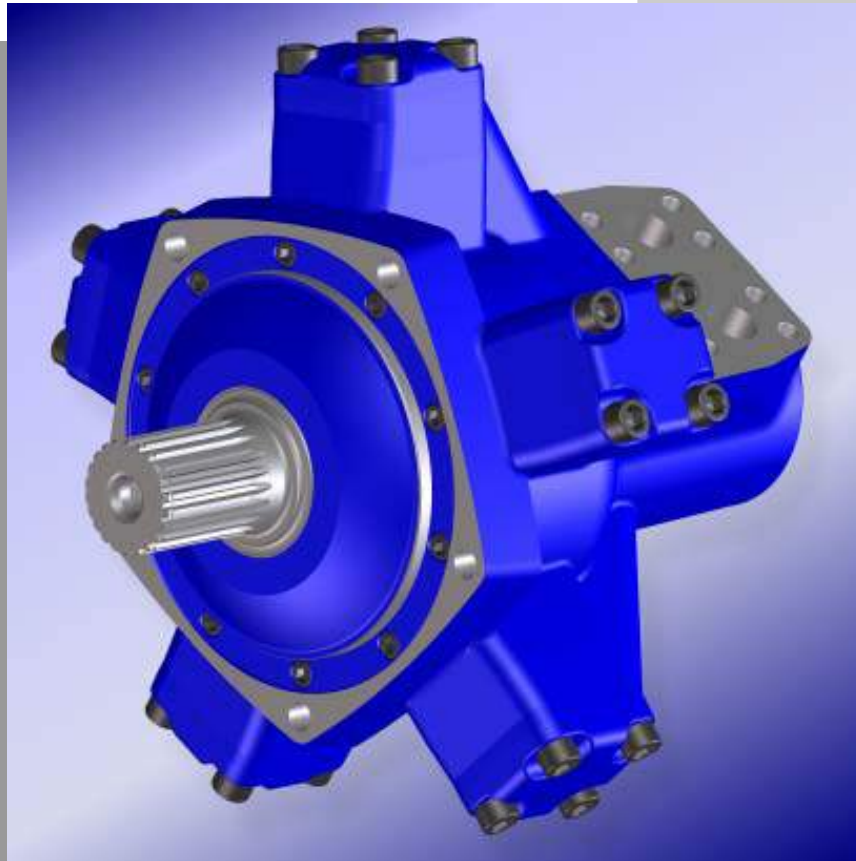
The control block connected in series with integrated extraction, feed and shock valves, as well as the brake control, if required, can be used as a basis for directly mounting all NG 6 and NG10 (CETOP 3 and 5) valves with a master gauge for holes according to DIN 24340. The control can be supplemented by adding further intermediate plates.



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Internet: www.duesterloh.de



Radial Piston Motors

with fixed displacement

RM...X series

$V_g = 255 \text{ ccm/rev} - 904 \text{ ccm/rev}$

HYDRAULIC-MOTORS

Features:

- many displacements for all applications
- very high starting torque
- high efficiencies, high constant power
- smooth running at all speeds
- high resistance to temperature shock
- reversible
- suitable for automatic control engineering
- suitable for inflammable and biologically degradable liquids
- special design - type "S18" with environmentally sealed, grease lubricated bearings, especially for operating with hardly combustible fluids containing water or glycol (HFA, HFB or HFC) available**
- bearings for very long life
- quiet running properties
- design with:
 - instrument shaft
 - brake and / or gearbox
 - valve assembly

Contents

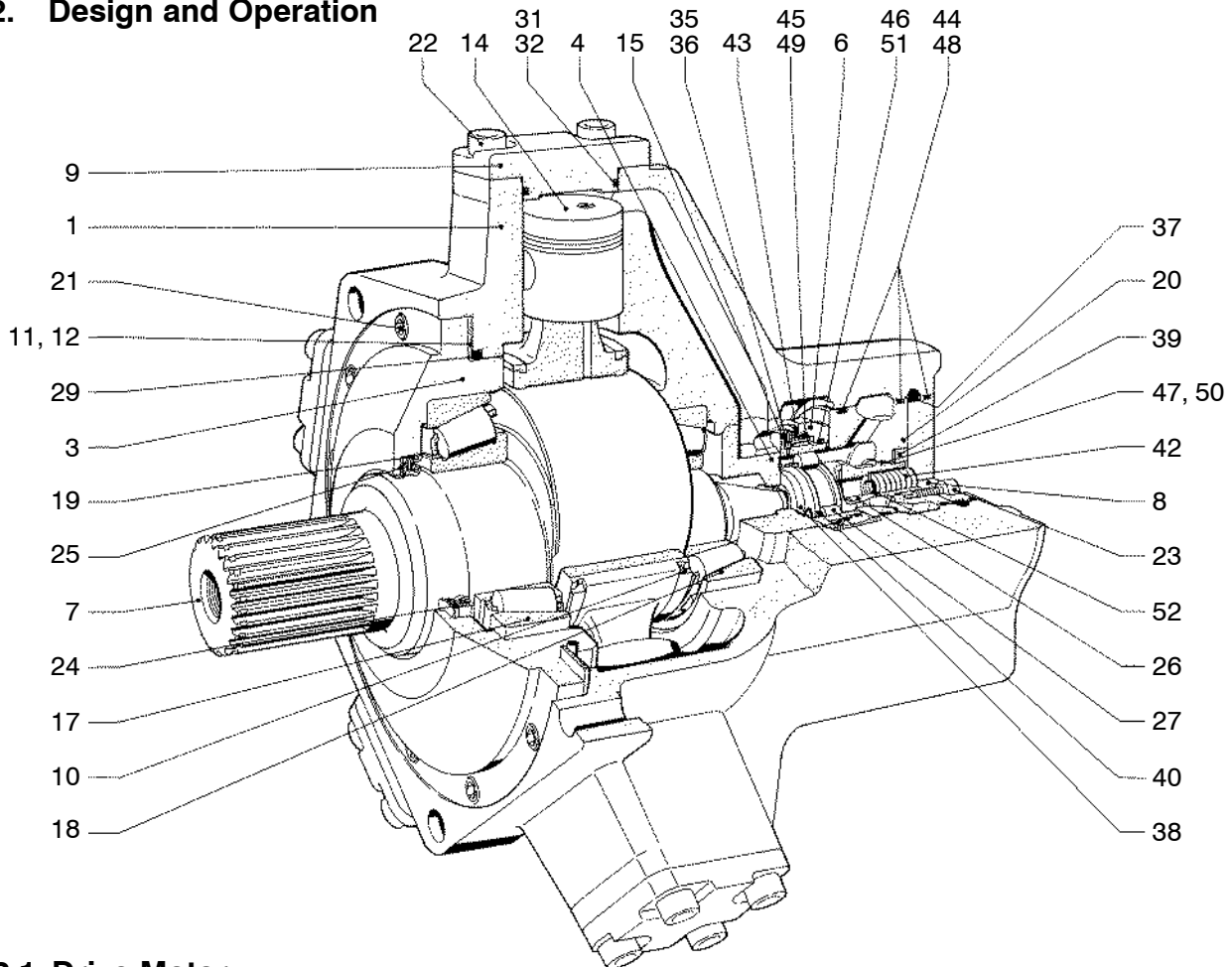
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1. General Characteristics and Features

Design:

The radial piston hydraulic motor has been designed with a high load capacity. It is efficient, has a low moment of inertia, and is capable of very low speeds and has excellent reversing properties. The concept features make it extremely quiet, being suitable for servo control systems with facility to work either as a motor or pump in both directions.

2. Design and Operation



2.1 Drive Motor

Consists of a close grain, high strength, cast iron cylinder block. Eccentric crankshaft concept.

Operating characteristics:

Five radial piston/connecting rod assemblies (14) bear on the crankshaft (7) which is located by heavy duty tapered roller bearings.

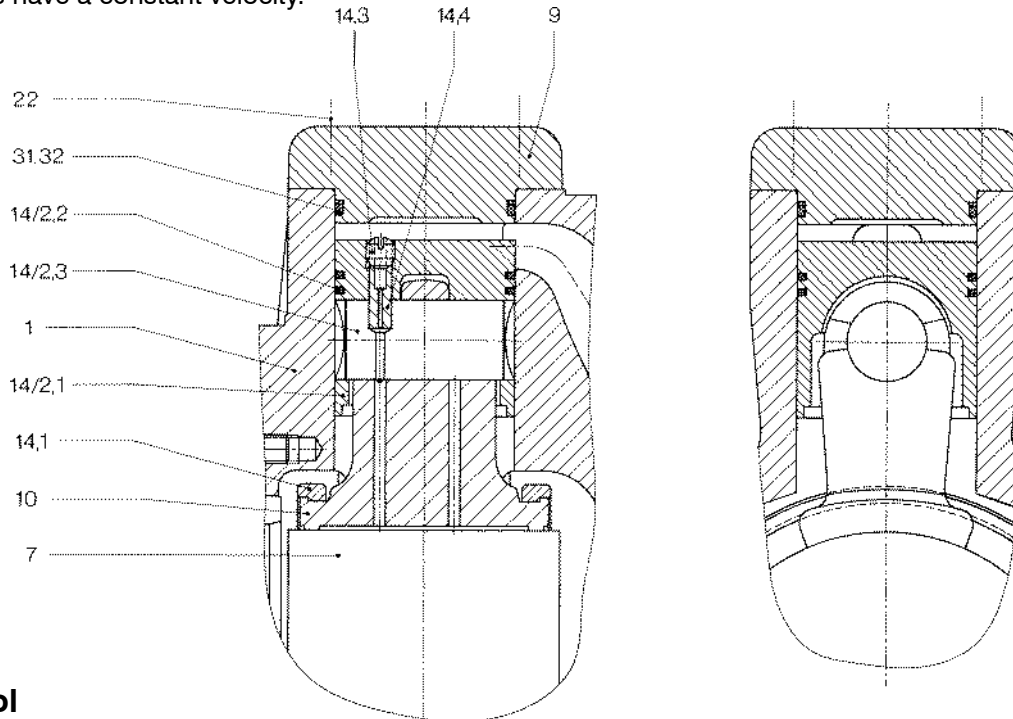
Crankshaft bearings (17 & 18):

Pre-loaded to take the thrust in both axial directions, ensures silent running and allows heavy radial and axial loading on the output shaft (e.g. gear drives).

Connecting Rod (14.1):

The computer optimized design is hydrostatically balanced on the crankshaft with sufficient leakage to ensure lubrication and cooling. Friction losses are reduced to a minimum and, stick slip action is avoided at low speeds. High starting torque and running torque combined with high speeds are important features of the design. Long service life is assured since con-rod slippers are unaffected by contamination and self-adjustable. Non-inflammable fluids have been used with success. Noise generation is also reduced by the cushioning effect of the hydrostatic bearing design.

The force is transmitted from the piston (14) to the connecting rod (14.1) via cylindrical, pressure-lubricated reciprocating bearing. A special design feature is the bending stress relieved gudgeon pin. This design is superior to a ball connection since friction losses are lower and all moving contact surfaces have a constant velocity.



2.2 Control

Design:

The oil flow to and from the cylinders is arranged through a flat faced distributor (4) which operates in the following manner:

Control rings (6 & 15) are mounted on eccentric (38) over roller bearings (27) and, together with the body (1) form two annular passages. When oil pressure is supplied to the motor, the crankshaft (7) and eccentric (38) rotate together, allowing the control rings (6 & 15) to open the inner and outer annular passages to the oil flow. Control rings (6 & 15) are axially loaded by means of wave springs (43) to maintain constant clearance across the face of the distributor block (4) under pressure. The eccentric (38) is also axially loaded by means of the hydraulic compensator (26) and spring (42). The design ensures low friction losses, self cleaning across the distributor face, immunity from the effects of contamination and a low leakage loss. The sinusoidal opening characteristics of the distributor results in smooth and quiet running at all speeds. A twoway shuttle valve (35 & 36) ensures that the inner and outer annular spaces between control rings (6 & 15) are always at the higher pressure applied to the motor.

3. Available Options:

The range is comprehensive, and the following features can be provided:

1. Choice of shafts
2. Double shaft extension
3. Motor and brake combinations
4. Geared motors; gear motor and brake combinations
5. Tachometer and other measuring attachments
6. Couplings, flanges
7. Viton seals
8. Special models for HFB and HFC non-flammable fluids
9. Direct valve assembly possible
10. Connection SAE J 518 High pressure (Typ: A1)

We are prepared to consider special designs.

Changes reserved!

Radial Piston Motor

RM		X		A1			
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Displacement nominal size

255 cm³/rev = **250**
 360 cm³/rev = **355**
 442 cm³/rev = **450**
 491 cm³/rev = **500**
 704 cm³/rev = **710**
 904 cm³/rev = **900**

Series type - motor

Actual series type = **X**

Drive shaft

Cylindrical with key
DIN 6885 = **Z**
 Splined shaft
DIN 5480 = **K**
 Involute splined shaft
DIN 5480 = **H**

Hydraulic ports

Flange connection radial
 SAE J518C 1" - 6000 PSI for nominal size 250 - 500 = **A1**
 SAE J518C 1¼" - 6000 PSI for nominal size 710 - 900 = **A1**

Sealing material

NBR, suitable for:
 HLP - mineral oils to DIN 51524 part 2 = *****
 FPM / FKM, suitable for:
 phosphoric acid-ester and high temperatures = **V**

2nd shaft end

Without 2nd shaft end = *****
 Cylindrical instrument shaft $\varnothing 10_{h6}$ for measuring device = **M**

Additional data

Brakes / gearboxes / decoder / special installation-situations / higher leakage pressures etc. = **detailed description**

* = no indication in type key

Example for ordering:

RM 900 X K A1 M

Additional data
 Instrument shaft $\varnothing 10_{h6}$
 Sealing material: NBR
 Flange: SAE J518C 1¼" - 6000 PSI
 Drive shaft: Splined shaft DIN 5480
 Series type: X
 Displacement: $V_g = 904 \text{ cm}^3/\text{rev}$
 Radial Piston Motor

All characteristic quantities at $v = 36 \text{ mm}^2/\text{s}$; $\Theta = 50^\circ\text{C}$; $p_{\text{outlet}} = \text{without pressure}$

Nominal size			250	355	450	500
Displacement	V_g	cm ³ /rev	255	360	442	491
Theor. specific torque	$T_{\text{spec.theor.}}$	Nm/bar	4,1	5,7	7,0	7,8
Average specific torque	$T_{\text{spec.aver.}}$	Nm/bar	3,7	5,3	6,5	7,2
Min. starting torque / theor. torque		%	89,5	90	90,5	91
Inlet pressure, max. continuous	$p_{\text{cont.}}$	bar	250			
intermittent	$p_{\text{interm.}}$	bar	315			
peak	p_{peak}	bar	400			
Total pressure, max. in port A+B	p_{total}	bar	400			
Leakage pressure, max.	p_{Leak}	bar	1,5			
Operating speed range	n	rpm	5-600	5-550	5-500	5-450
Continuous power, max.	$P_{\text{cont.}}$	kW	28	36	40	40
Intermittent power, max.	$P_{\text{interm.}}$	kW	35	45	50	50
Moment of inertia	J	kgm ²	0,0082	0,0089	0,0096	0,0101
Weight	m	kg	75	75	75	75
Temperature range of pressure medium	Θ	°C	-30 up to +80			
Viscosity range	v	mm ² /s	18 up to 1000, recommended: 30 up to 50			

Nominal size			710	900
Displacement	V_g	cm ³ /rev	704	904
Theor. specific torque	$T_{\text{spec.theor.}}$	Nm/bar	11,2	14,4
Average specific torque	$T_{\text{spec.aver.}}$	Nm/bar	10,3	13,2
Min. starting torque / theor. torque		%	89,5	91
Inlet pressure, max. continuous	$p_{\text{cont.}}$	bar	250	
intermittent	$p_{\text{interm.}}$	bar	315	
peak	p_{peak}	bar	400	
Total pressure, max. in port A+B	p_{total}	bar	400	
Leakage pressure, max.	p_{Leak}	bar	1,5	
Operating speed range	n	rpm	5-550	5-450
Continuous power, max.	$P_{\text{cont.}}$	kW	63	63
Intermittent power, max.	$P_{\text{interm.}}$	kW	80	80
Moment of inertia	J	kgm ²	0,0273	0,0298
Weight	m	kg	132	132
Temperature range of pressure medium	Θ	°C	-30 up to +80	
Viscosity range	v	mm ² /s	18 up to 1000, recommended: 30 up to 50	

p_{cont} = admissible continuous pressure at limitation to $P_{\text{cont.}}$

p_{max} = maximal admissible operating pressure at limitation to $P_{\text{intermit.}}$

p_{peak} = peak pressure, where the components remain safe in function.

P_{cont} = Continuous power (at maximal 10 bar outlet pressure).

Motor flushing must be carried out above $P_{\text{cont.}}$

$P_{\text{interm.}}$ = Power, which may be demanded temporarily (max. 10% duty cycle / hour).

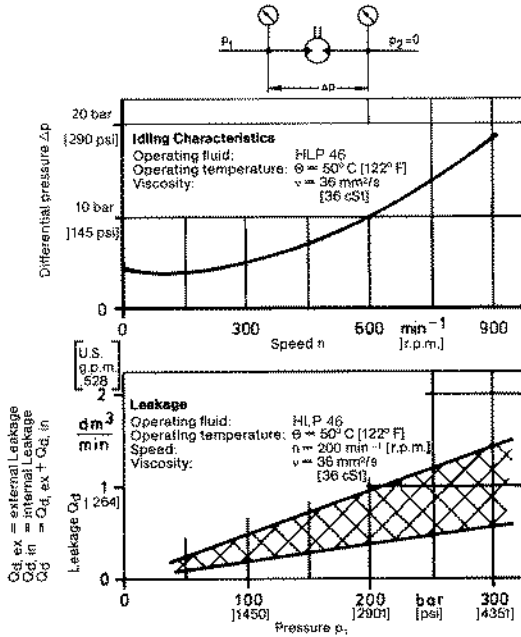
Power, speed and bearing life may be increased when flushing with 3 - 6 liters flushing oil.

For queries, please look at page 22.

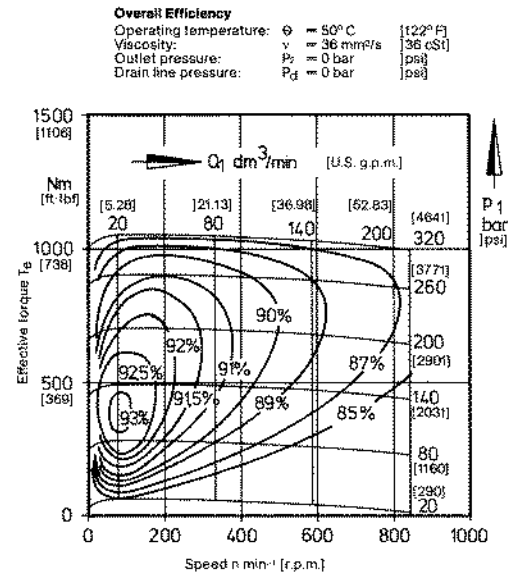
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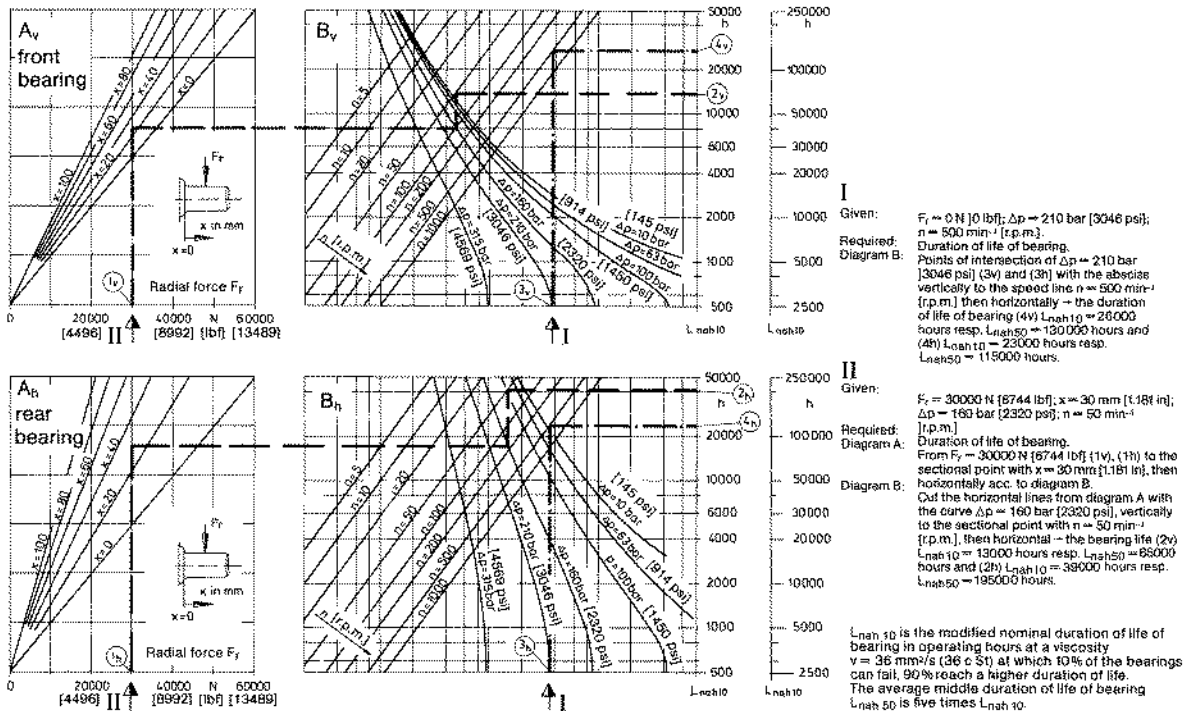
Characteristics



Performance

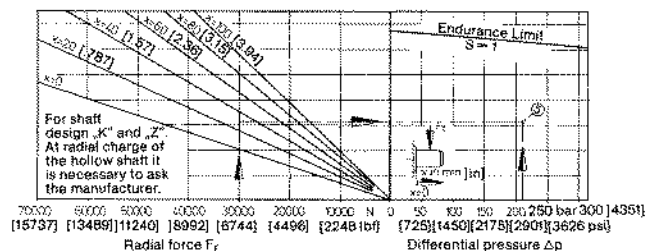


Determination of Bearing Life



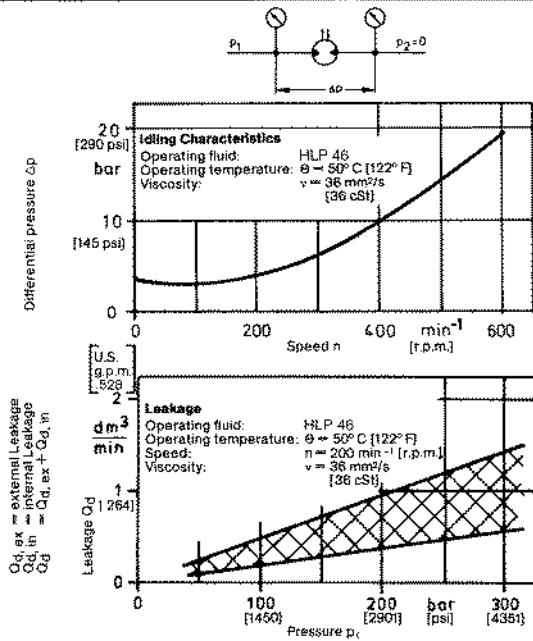
Shaft strength

Example:
Given values: $F_r = 30000\text{ N}$ [6744 lbf] $x = 30\text{ mm}$ [1.181 in]
 $\Delta p = 210\text{ bar}$ [3046 psi]
Required value: Shaft strength
Draw a vertical line from $F_r = 30000\text{ N}$ [6744 lbf] to distance $x = 30\text{ mm}$ [1.181 in] and a straight horizontal line from there.
If the intersection \odot of the horizontal with the vertical line of $\Delta p = 210\text{ bar}$ [3046 psi] is below curve the shaft has sufficient fatigue strength.
Allowable axial forces will be provided on request.

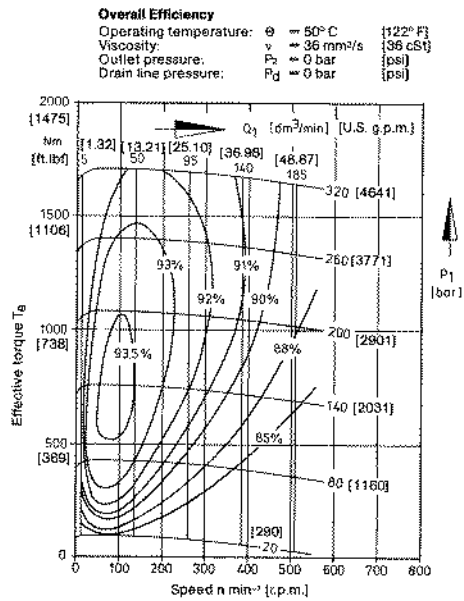


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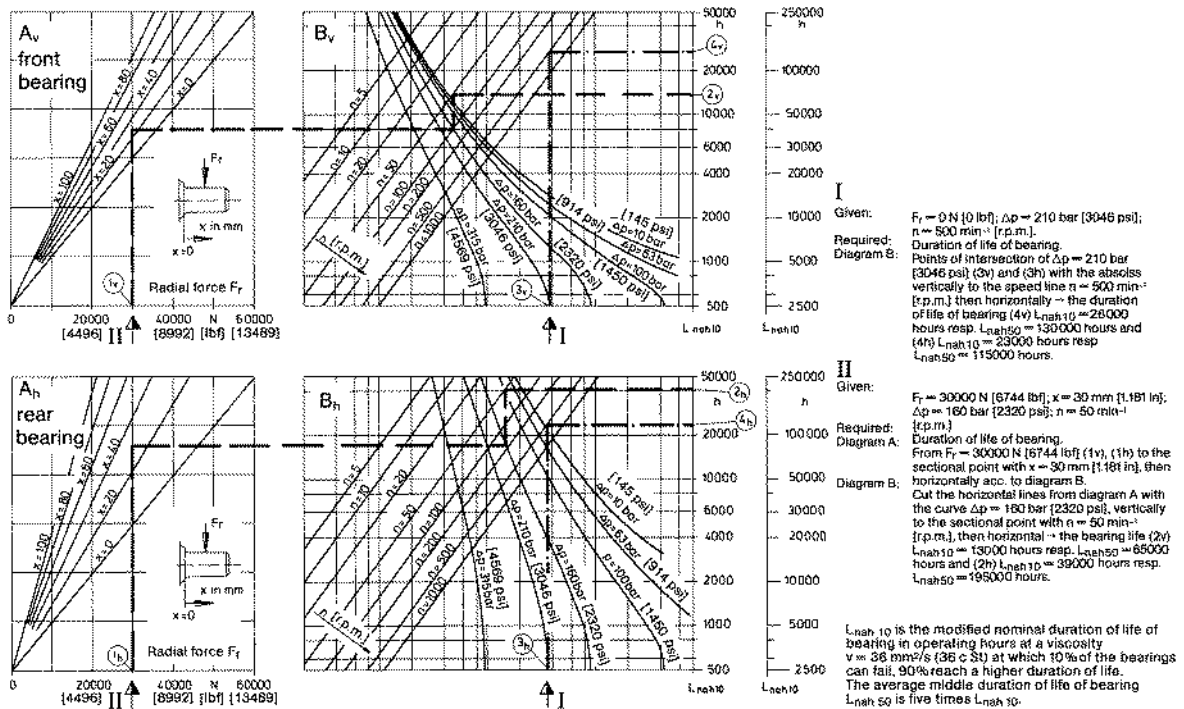
Characteristics



Performance

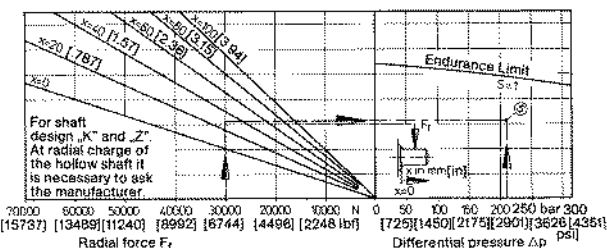


Determination of Bearing Life



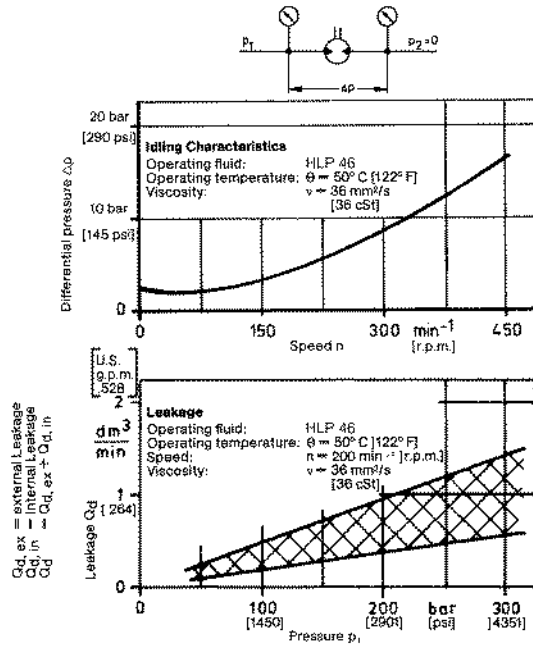
Shaft strength

Example:
Given values: $F_r = 30000\text{ N}$ [6744 lbf] $x = 30\text{ mm}$ [1.181 in]
 $\Delta p = 210\text{ bar}$ [3046 psi]
Required value: Shaft strength
Draw a vertical line from $F_r = 30000\text{ N}$ [6744 lbf] to distance $x = 30\text{ mm}$ [1.181 in] and a straight horizontal line from there.
If the intersection $\textcircled{5}$ of the horizontal with the vertical line of $\Delta p = 210\text{ bar}$ [3046 psi] is below curve the shaft has sufficient fatigue strength.
Allowable axial forces will be provided on request.

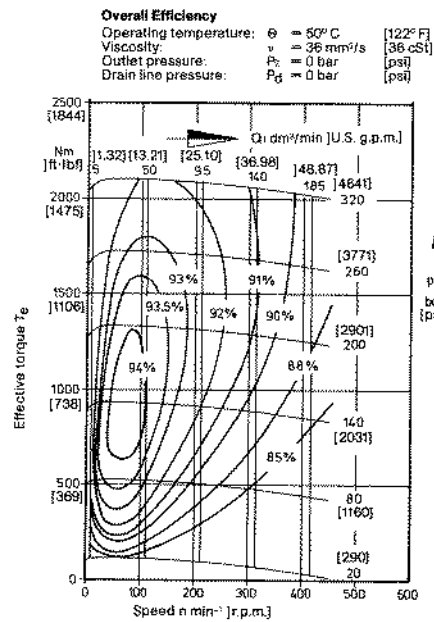


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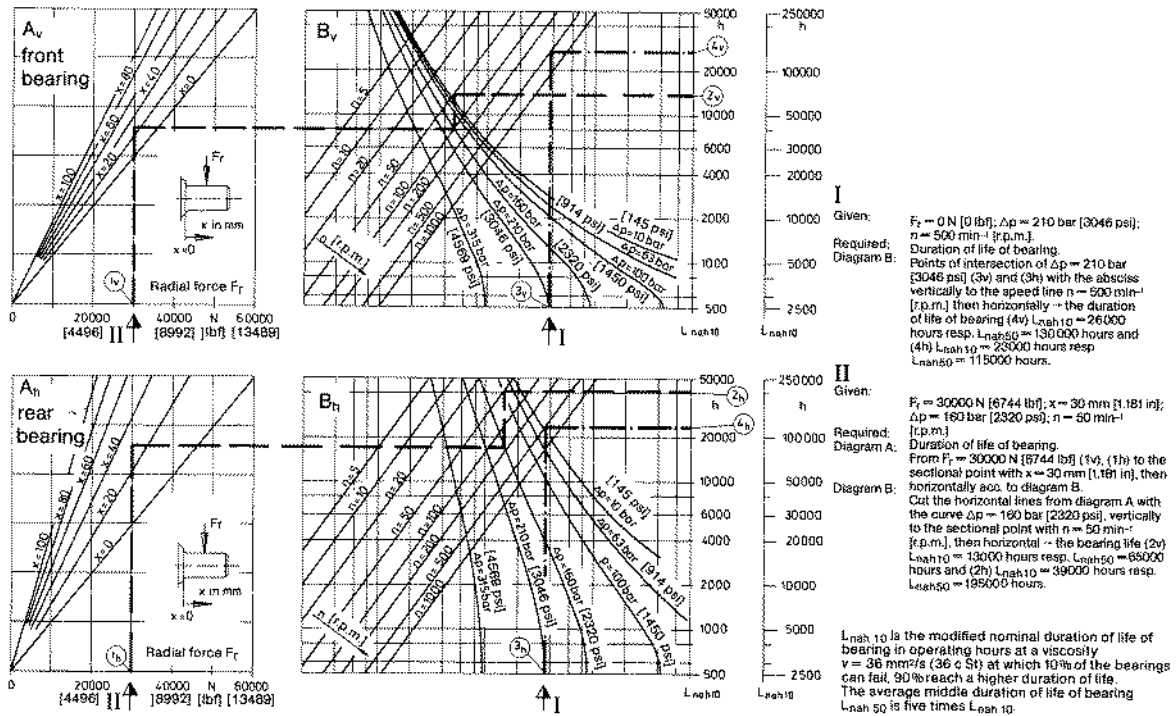
Characteristics



Performance

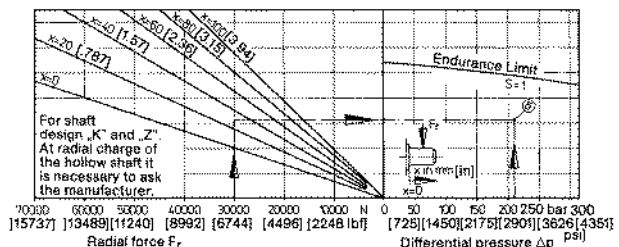


Determination of Bearing Life



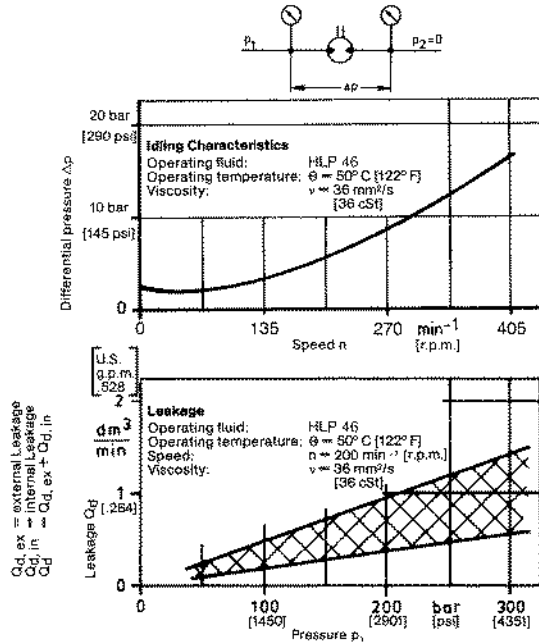
Shaft strength

Example:
Given values: $F_r = 30000\text{ N}$ [6744 lbf] $x = 30\text{ mm}$ [1.181 in]
 $\Delta p = 210\text{ bar}$ [3046 psi]
Required value: Shaft strength
Draw a vertical line from $F_r = 30000\text{ N}$ [6744 lbf] to distance $x = 30\text{ mm}$ [1.181 in] and a straight horizontal line from there.
If the intersection ⑥ of the horizontal with the vertical line of $\Delta p = 210\text{ bar}$ [3046 psi] is below curve the shaft has sufficient fatigue strength.
Allowable axial forces will be provided on request.

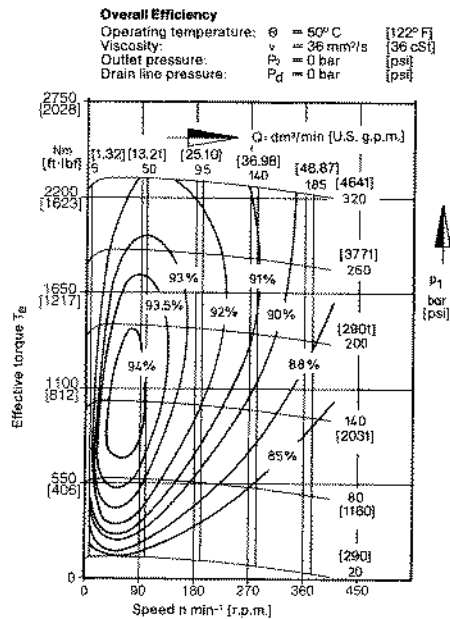


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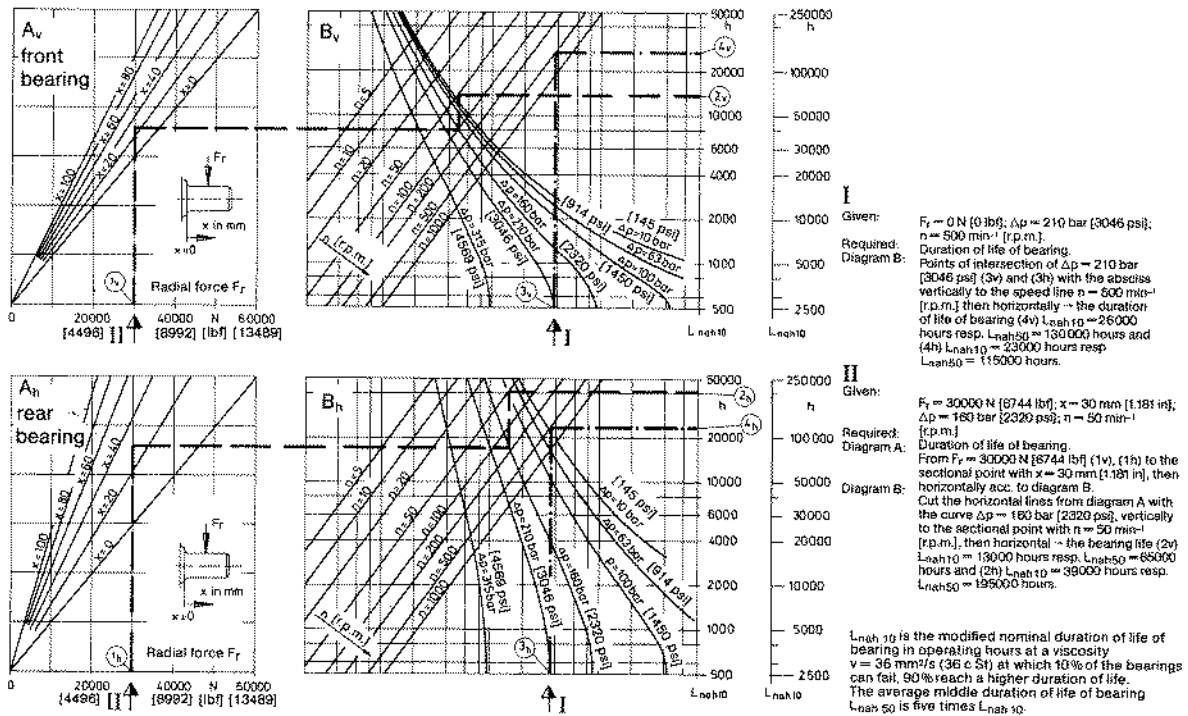
Characteristics



Performance

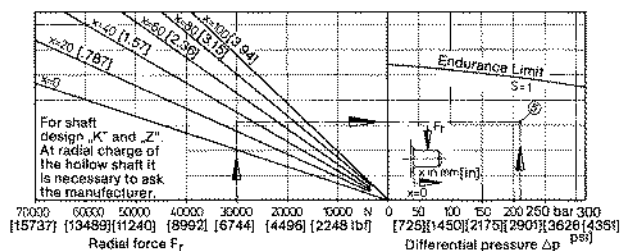


Determination of Bearing Life



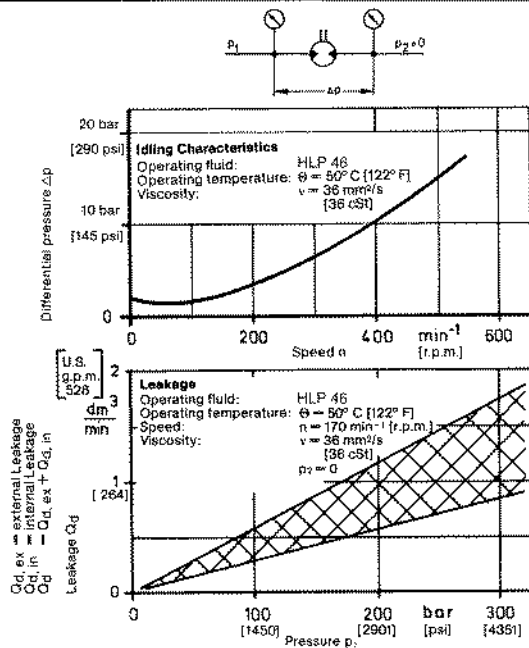
Shaft strength

Example:
Given values: $F_r = 30000\text{ N}$ [6744 lbf] $x = 30\text{ mm}$ [1.181 in]
 $\Delta p = 210\text{ bar}$ [3046 psi]
Required value: Shaft strength
Draw a vertical line from $F_r = 30000\text{ N}$ [6744 lbf] to distance $x = 30\text{ mm}$ [1.181 in] and a straight horizontal line from there.
If the intersection ⑤ of the horizontal with the vertical line of $\Delta p = 210\text{ bar}$ [3046 psi] is below curve the shaft has sufficient fatigue strength.
Allowable axial forces will be provided on request.

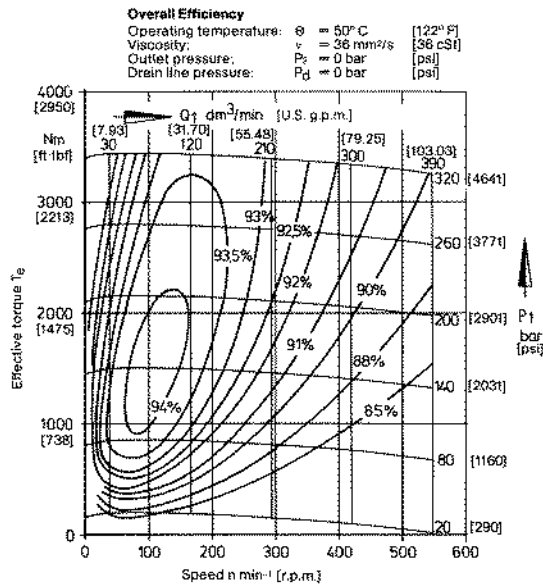


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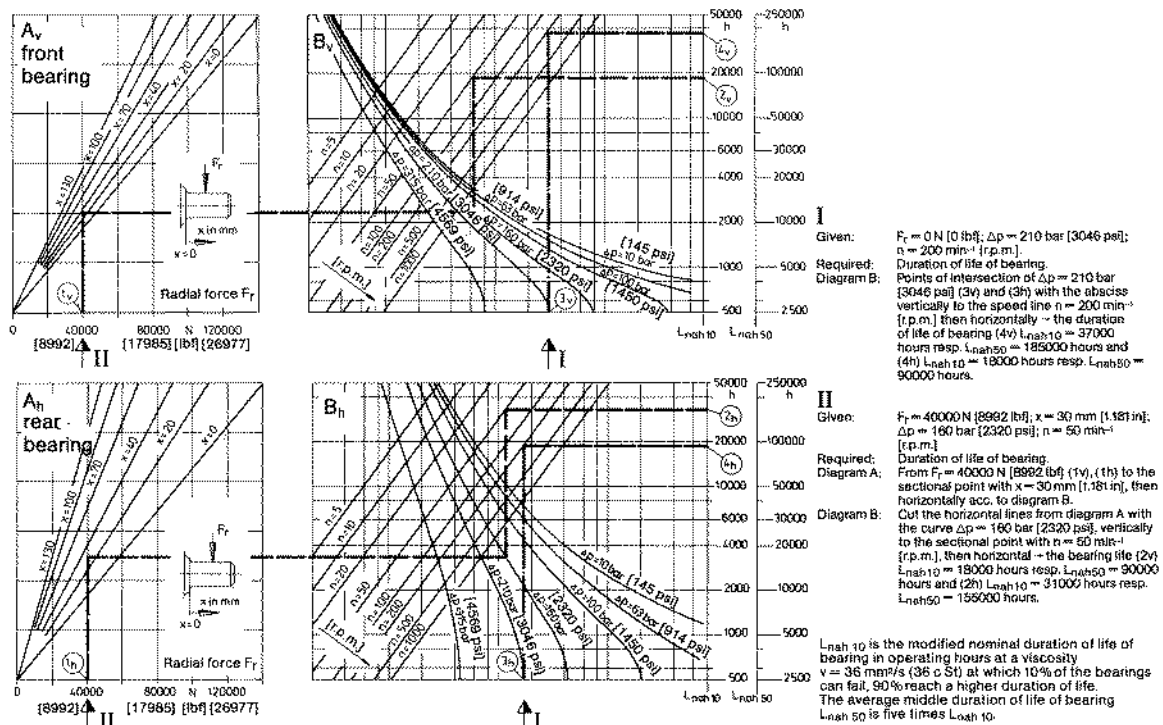
Characteristics



Performance

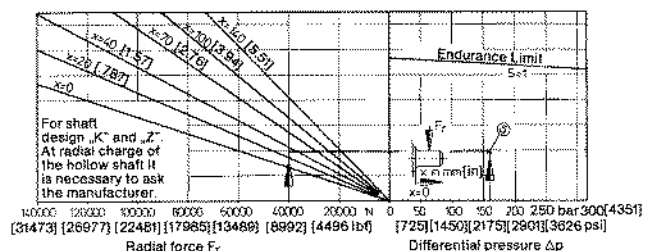


Determination of Bearing Life



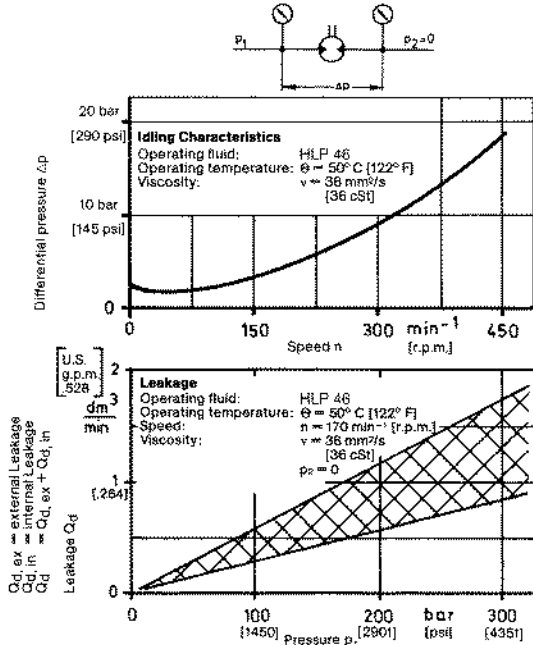
Shaft strength

Example:
Given values: $F_r = 40000 \text{ N}$ [8992 lbf] $x = 30 \text{ mm}$ [1.181 in]
 $\Delta p = 160 \text{ bar}$ [2321 psi]
Required value: Shaft strength
Draw a vertical line from $F_r = 40000 \text{ N}$ [8992 lbf] to distance $x = 30 \text{ mm}$ [1.181 in] and a straight horizontal line from there.
If the intersection \odot of the horizontal with the vertical line of $\Delta p = 160 \text{ bar}$ [2321 psi] is below curve the shaft has sufficient fatigue strength.
Allowable axial forces will be provided on request.

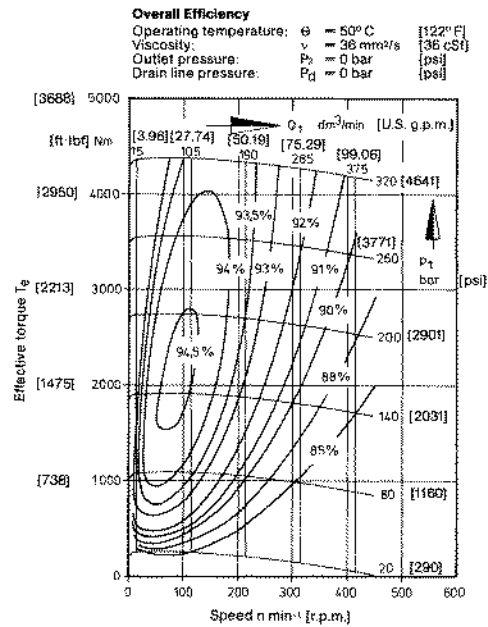


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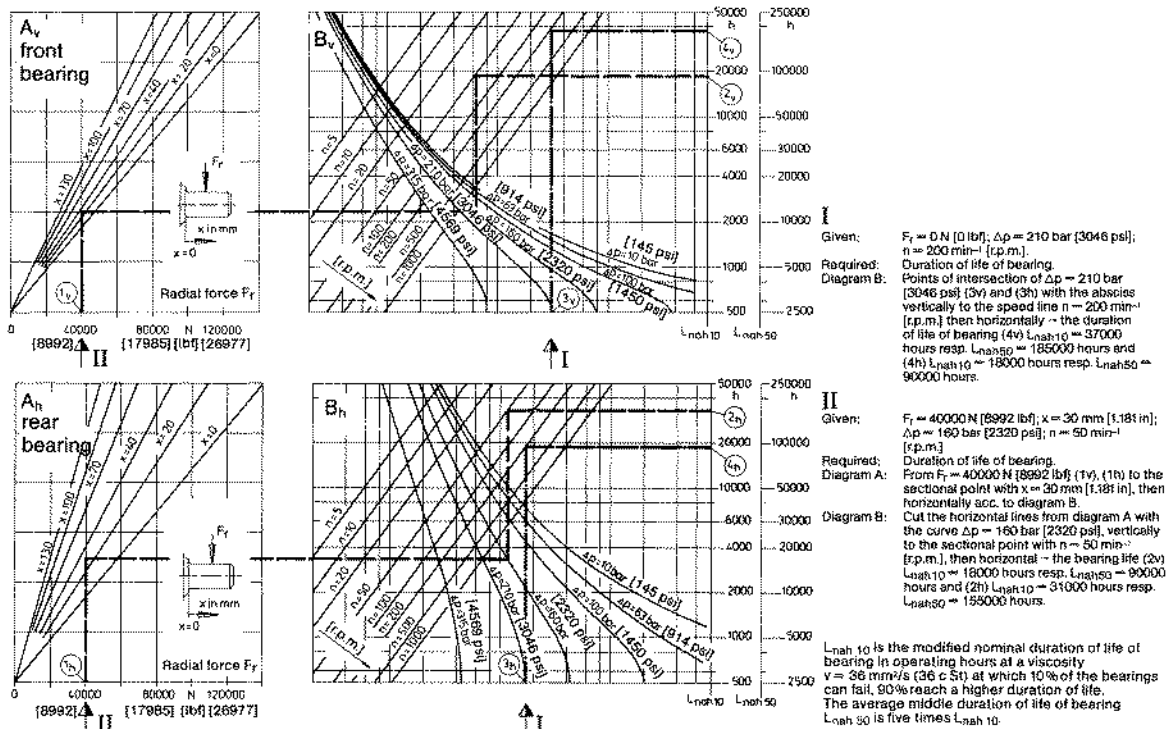
Characteristics



Performance

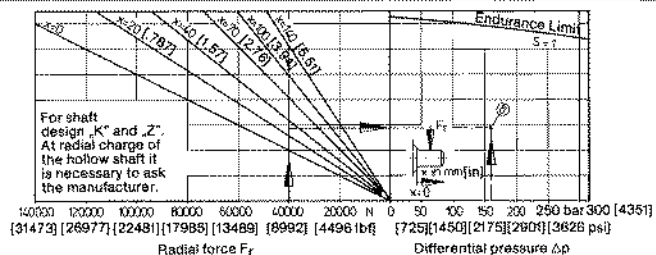


Determination of Bearing Life



Shaft strength

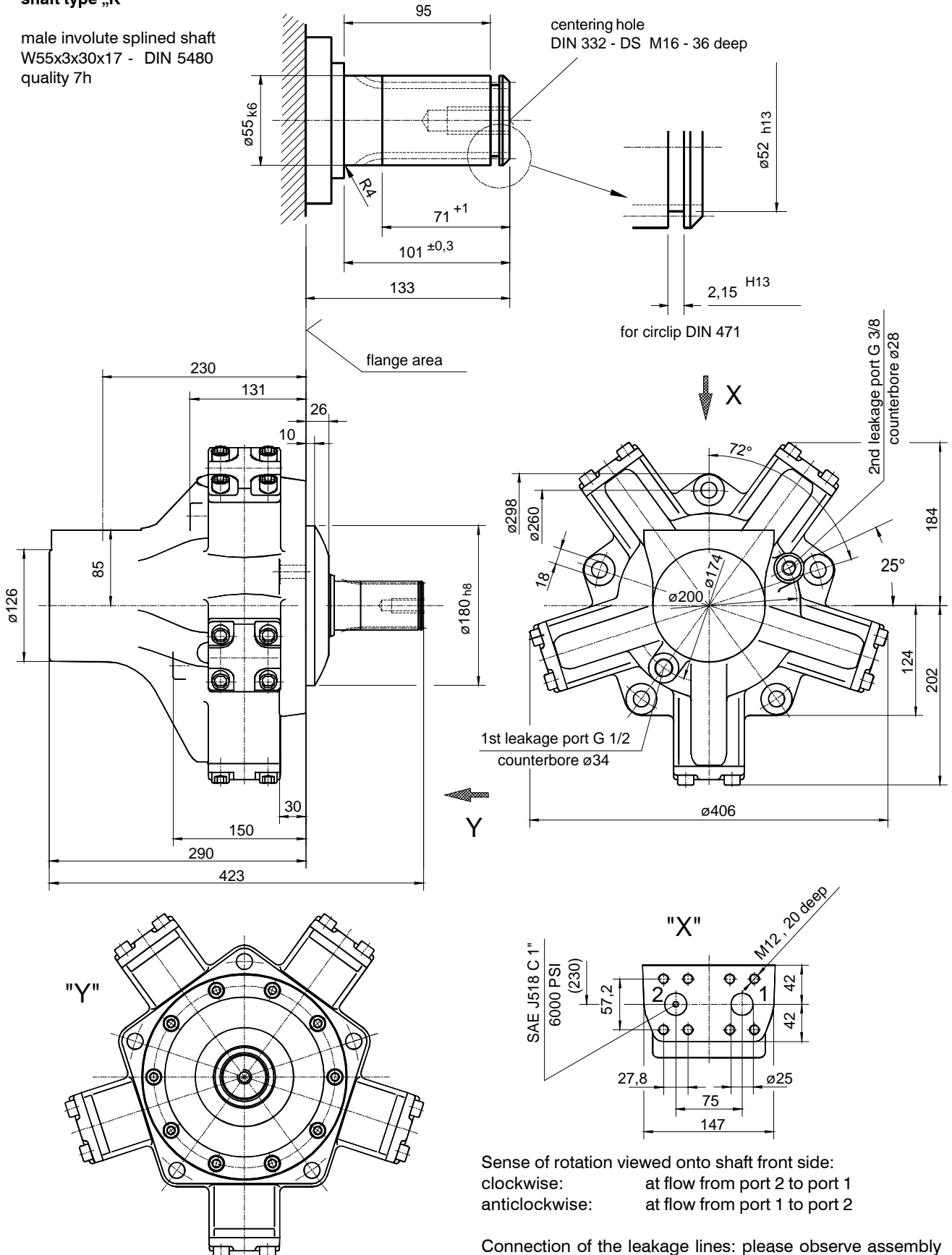
Example:
Given values: $F_r = 40000\text{ N}$ [8992 lbf] $x = 30\text{ mm}$ [1.181 in]
 $\Delta p = 160\text{ bar}$ [2321 psi]
Required value: Shaft strength
Draw a vertical line from $F_r = 40000\text{ N}$ [8992 lbf] to distance $x = 30\text{ mm}$ [1.181 in] and a straight horizontal line from there.
If the intersection \odot of the horizontal with the vertical line of $\Delta p = 160\text{ bar}$ [2321 psi] is below curve the shaft has sufficient fatigue strength.
Allowable axial forces will be provided on request.



Changes reserved!

shaft type „K“

male involute splined shaft
W55x3x30x17 - DIN 5480
quality 7h

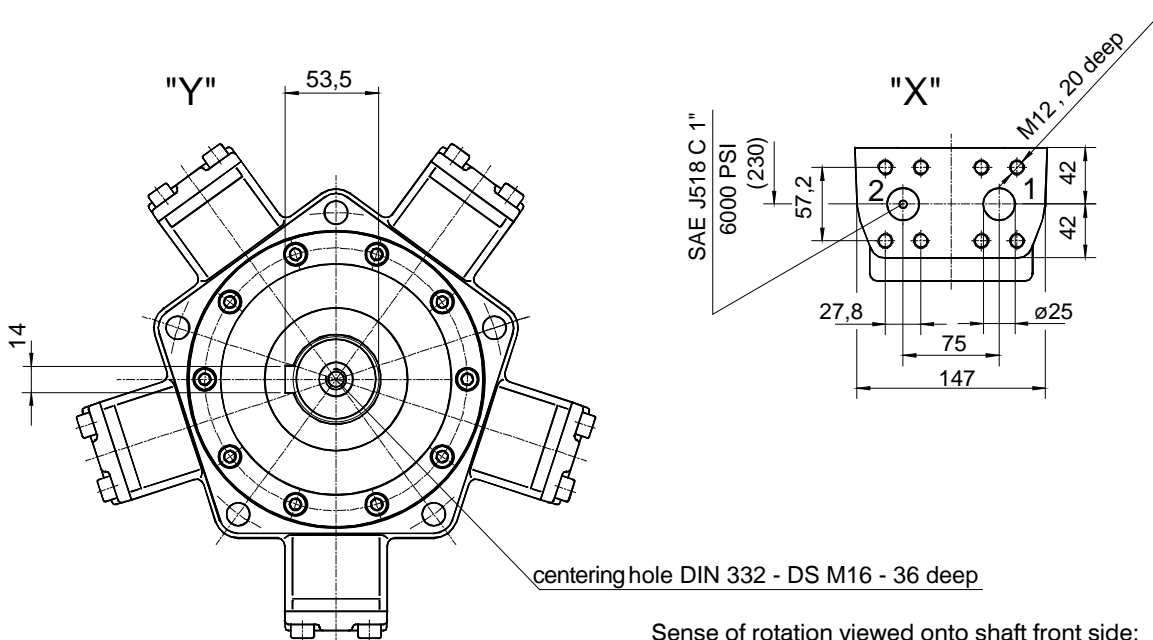
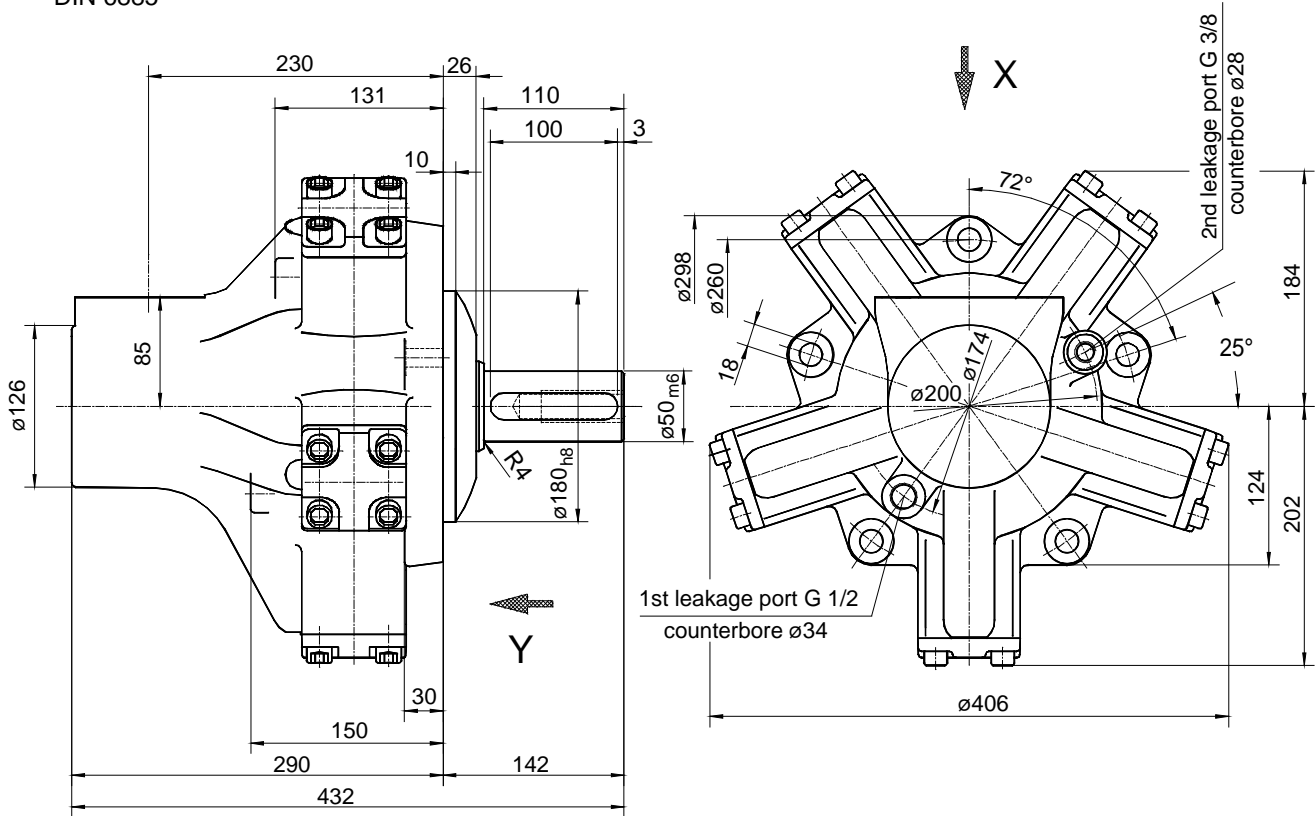


Sense of rotation viewed onto shaft front side:
clockwise: at flow from port 2 to port 1
anticlockwise: at flow from port 1 to port 2

Connection of the leakage lines: please observe assembly and initiation instructions on page 23.

Changes reserved!

shaft type „Z“
feather key
DIN 6885



centering hole DIN 332 - DS M16 - 36 deep

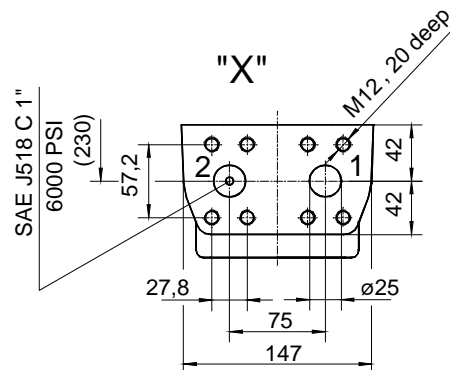
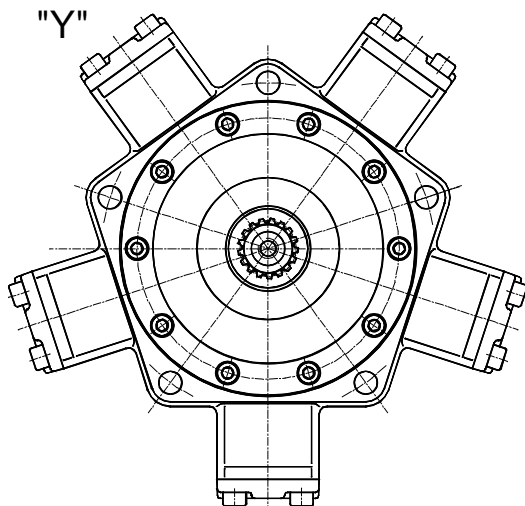
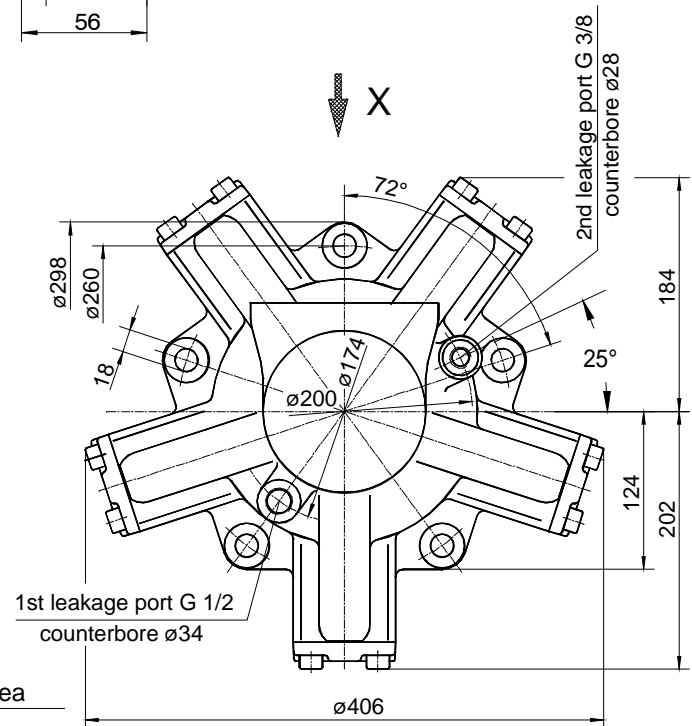
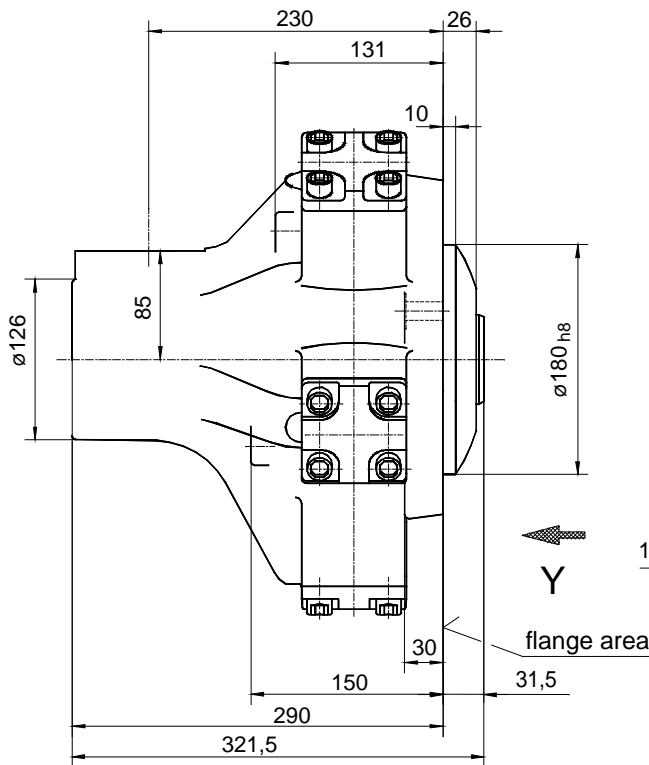
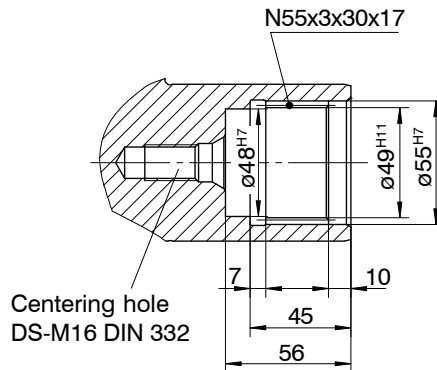
Sense of rotation viewed onto shaft front side:

clockwise: at flow from port 2 to port 1
anticlockwise: at flow from port 1 to port 2

Connection of the leakage lines: please observe assembly and initiation instructions on page 23.

shaft type „H“

female involute splined shaft, DIN 5480 - quality 9H



Sense of rotation viewed onto shaft front side:

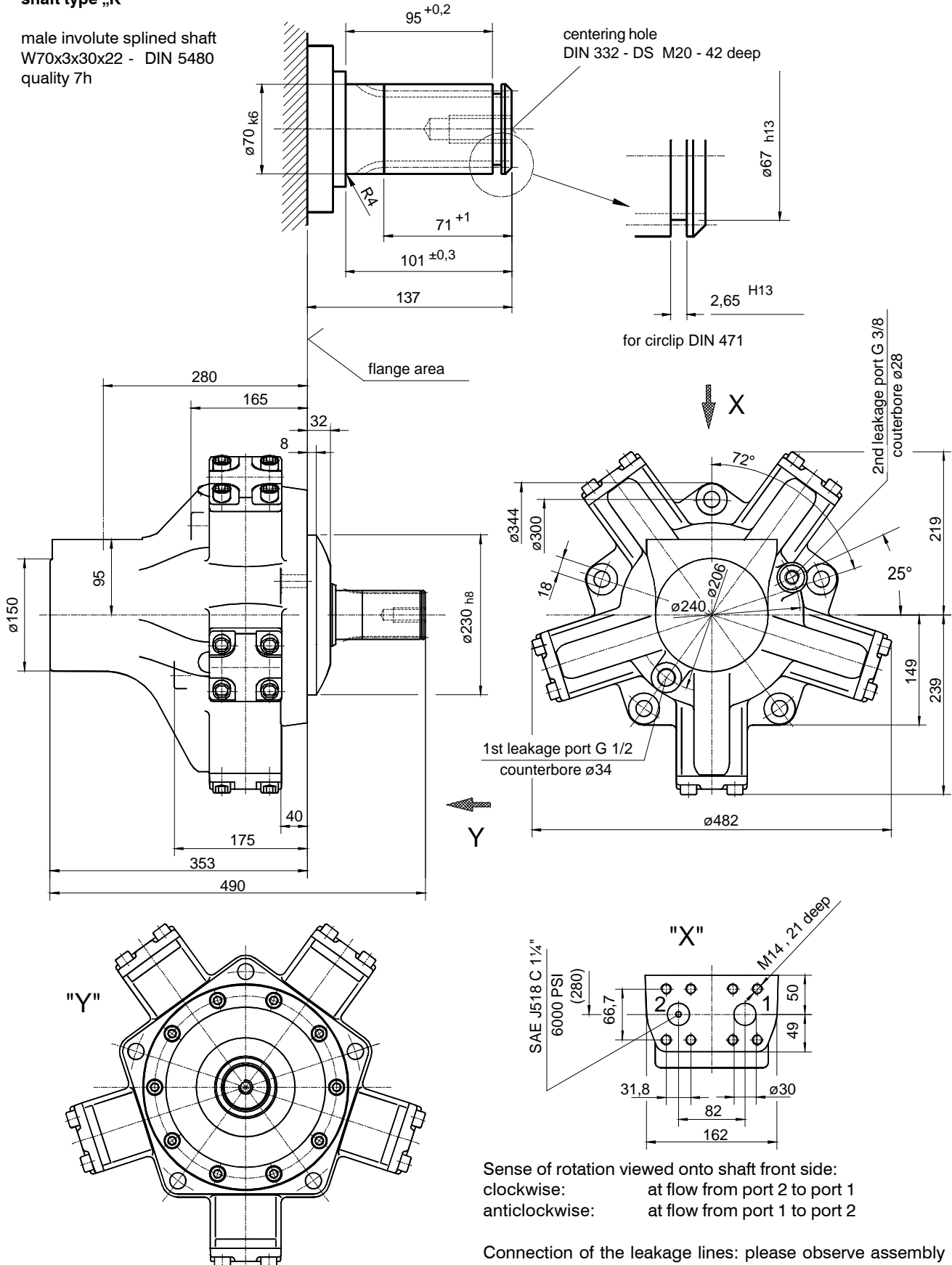
- clockwise: at flow from port 2 to port 1
- anticlockwise: at flow from port 1 to port 2

Connection of the leakage lines: please observe assembly and initiation instructions on page 23.

Changes reserved!

shaft type „K“

male involute splined shaft
W70x3x30x22 - DIN 5480
quality 7h



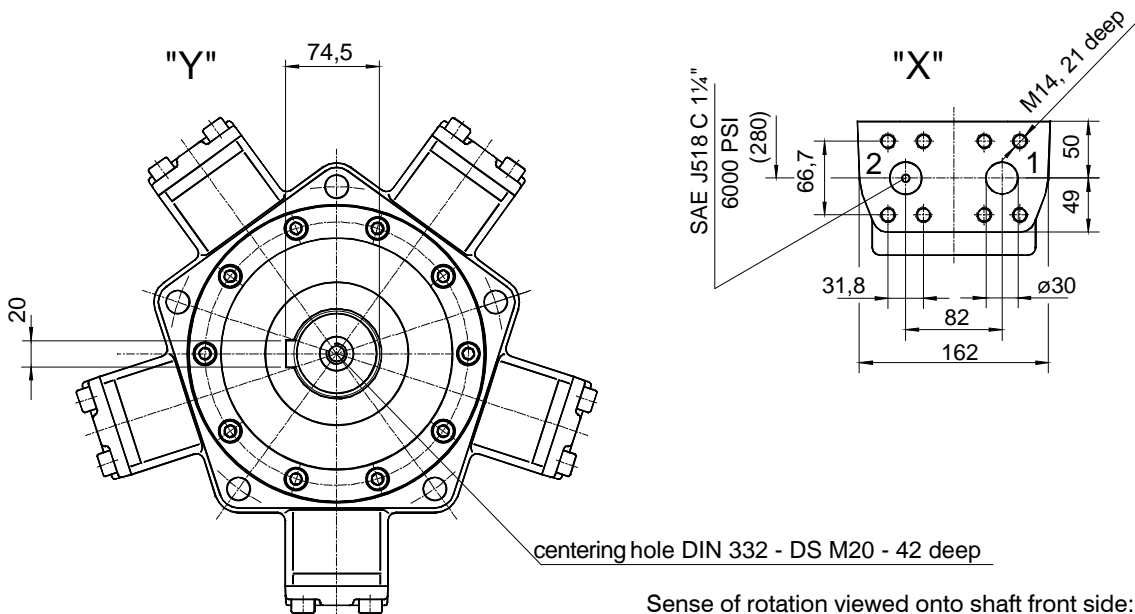
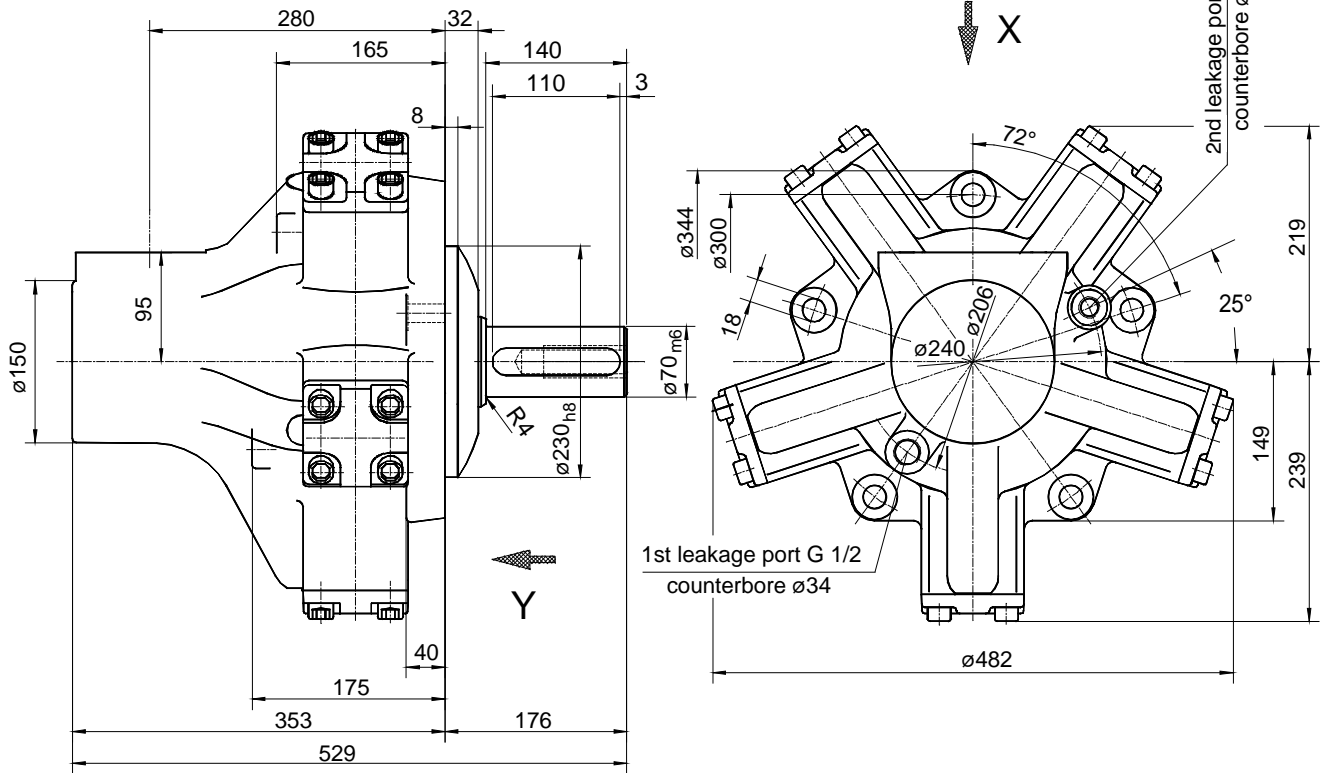
Sense of rotation viewed onto shaft front side:
clockwise: at flow from port 2 to port 1
anticlockwise: at flow from port 1 to port 2

Connection of the leakage lines: please observe assembly and initiation instructions on page 23.

Changes reserved!

shaft type „Z“

feather key
DIN 6885



Sense of rotation viewed onto shaft front side:
clockwise: at flow from port 2 to port 1
anticlockwise: at flow from port 1 to port 2

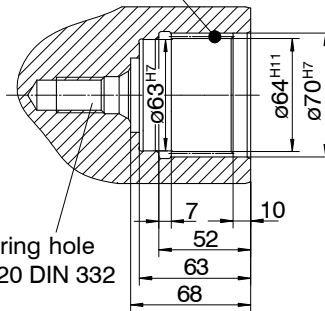
Connection of the leakage lines: please observe assembly and initiation instructions on page 23.

Changes reserved!

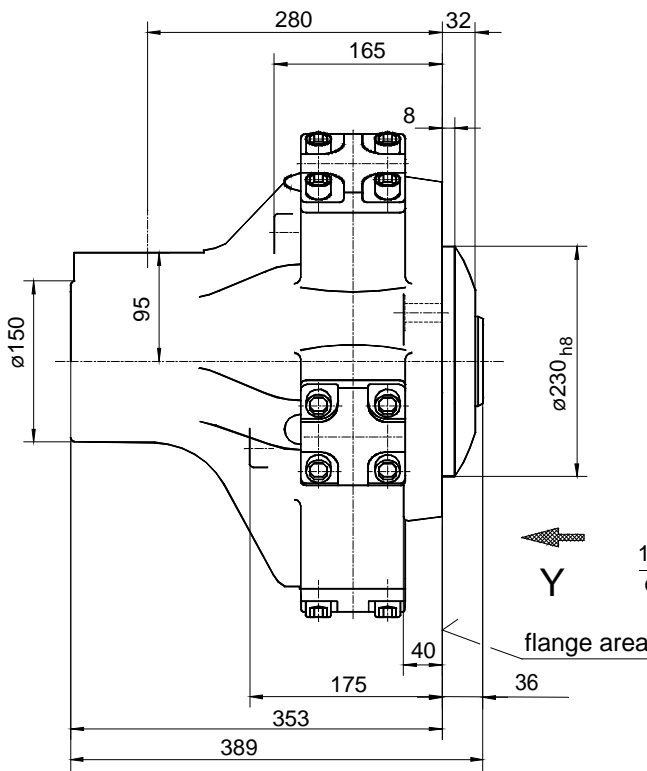
shaft type „H“

female involute splined shaft, DIN 5480 - quality 9H

N70x3x30x22



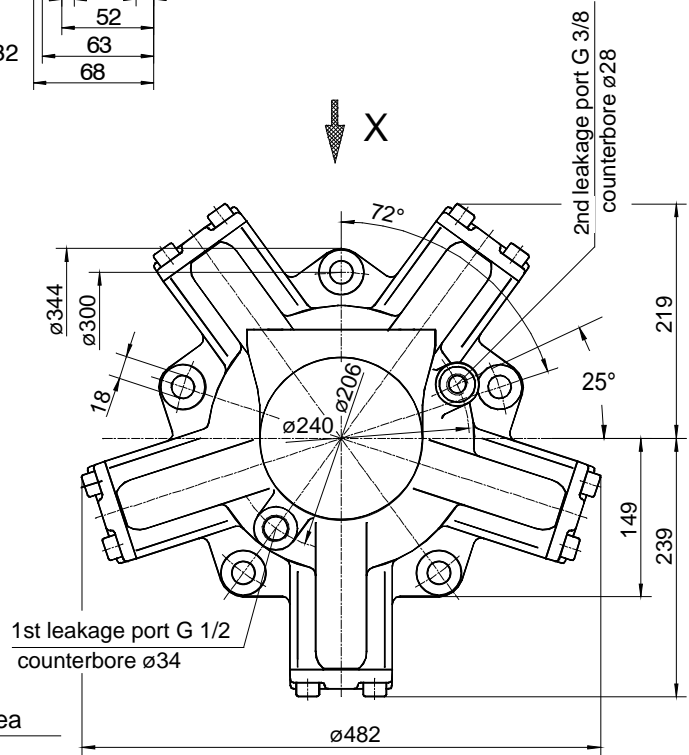
Centering hole
DS-M20 DIN 332



Y

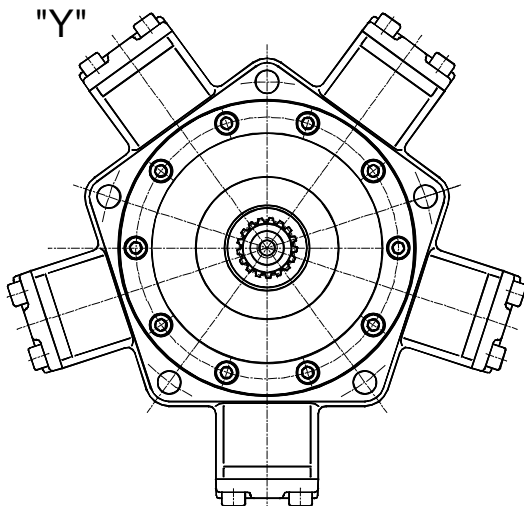
flange area

X



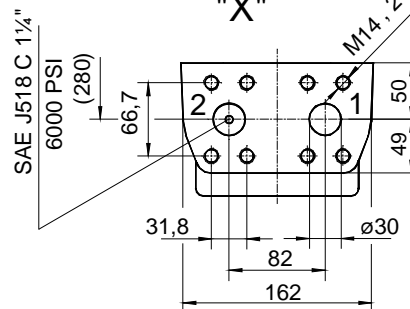
1st leakage port G 1/2
counterbore $\phi 34$

2nd leakage port G 3/8
counterbore $\phi 28$



"Y"

"X"



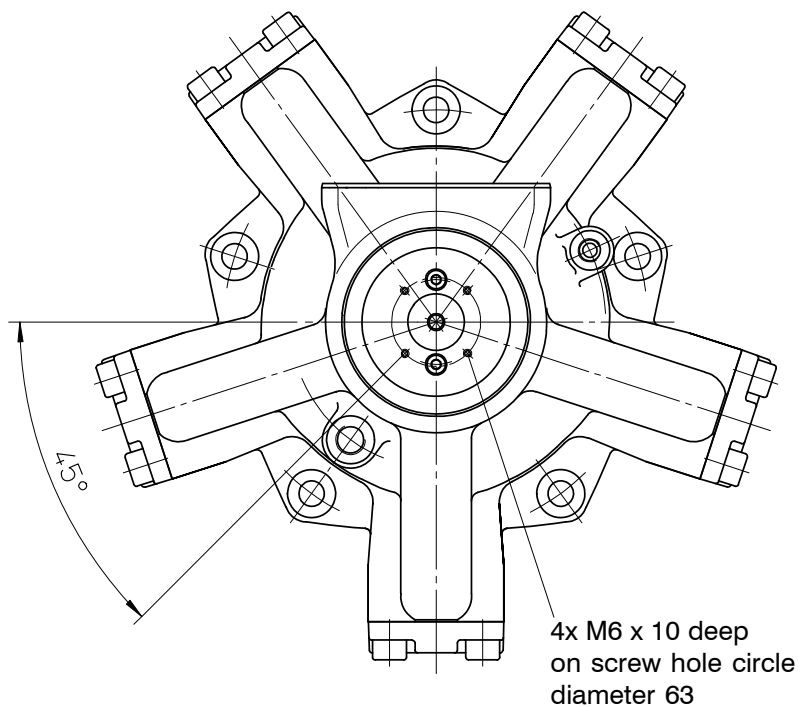
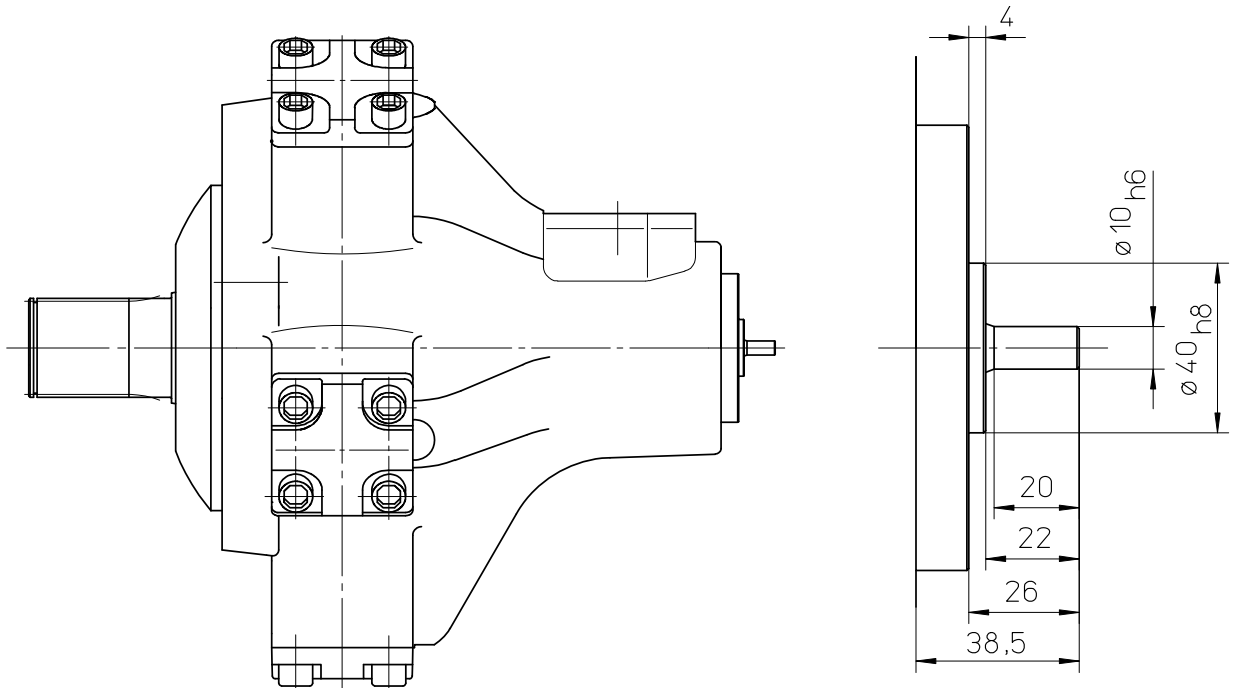
Sense of rotation viewed onto shaft front side:
clockwise: at flow from port 2 to port 1
anticlockwise: at flow from port 1 to port 2

Connection of the leakage lines: please observe assembly and initiation instructions on page 23.

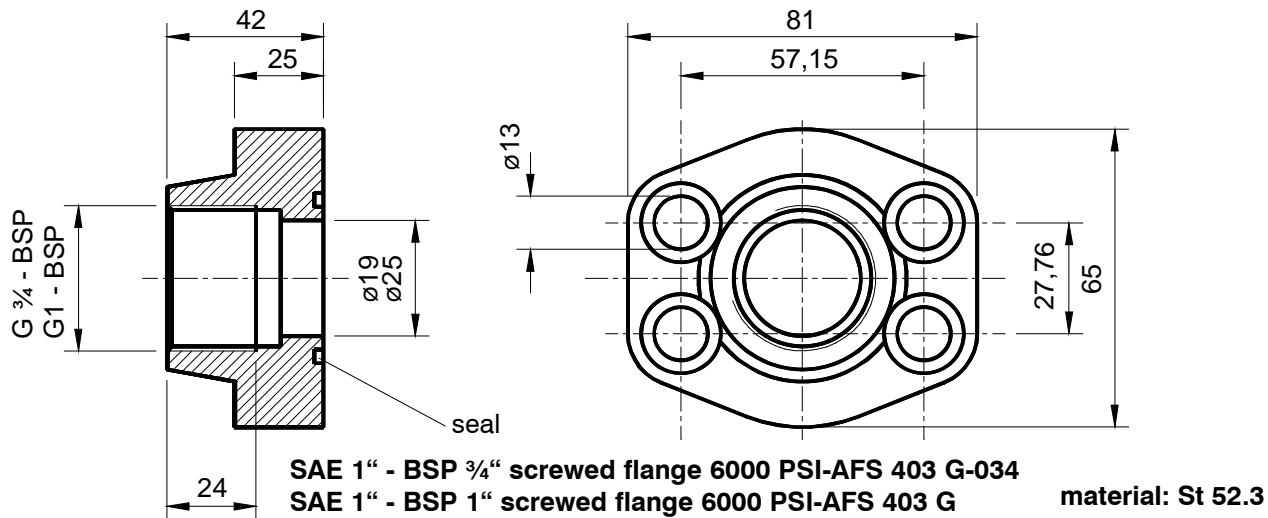
All radial piston motors with type mark „M“ are equipped with an instrument shaft.

The instrument shaft transmits a maximal torque of 5 Nm.

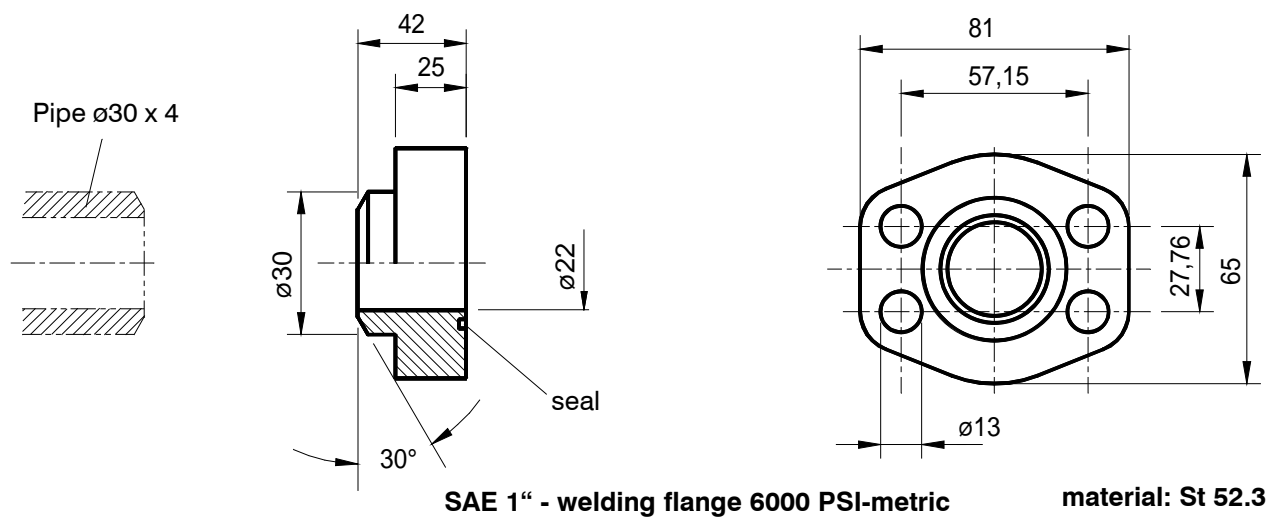
On request further documentation is available relating to installation of tacho-generators for registration of speed and incremental encoders for registration of turning angle up to 3600 impulses per revolution.



For every radial piston motor 2 flanges, 2 o-ring seals and 8 bolts are required.



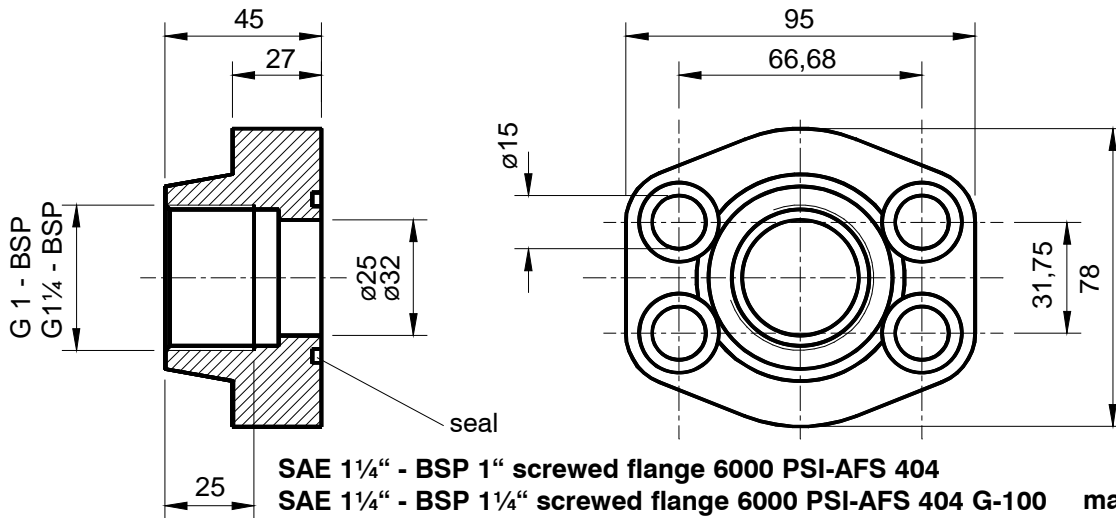
Designation	Seal-material	Thread DIN ISO 228/1	Order-No.
1 piece SAE 1" - screwed flange complete, metric 6000 PSI with BSP-thread, with 4 bolts M12 x 45 DIN 912 - 8.8 and 1 o-ring 32,92 x 3,53	NBR	G 3/4	59.0000.31
	FPM	G 3/4	59.0000.32
	NBR	G 1	59.0000.33
	FPM	G 1	59.0000.34



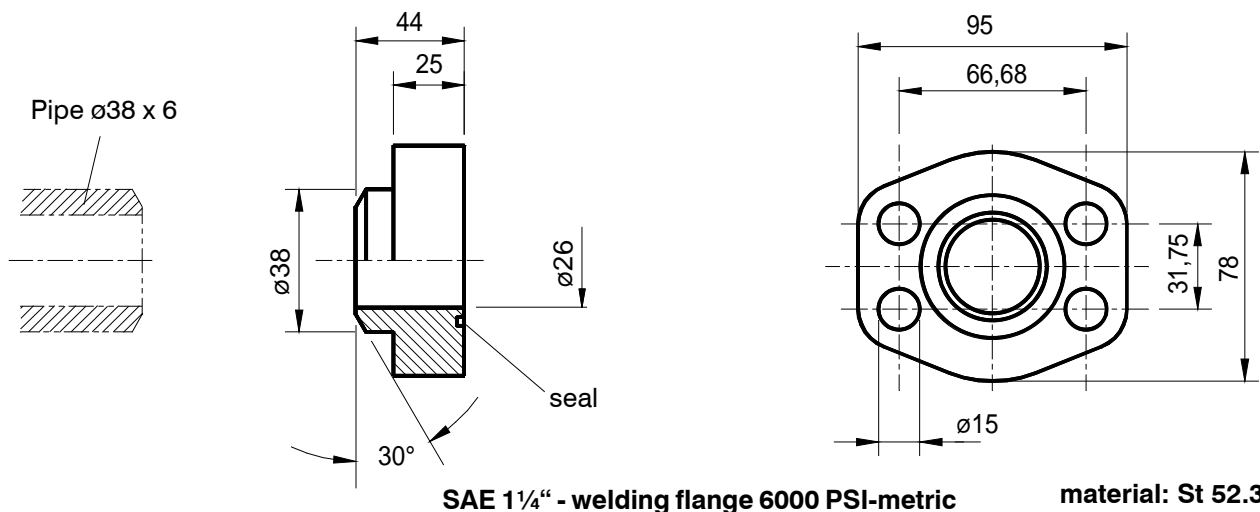
Designation	Seal-material	Pipe	Order-No.
1 piece SAE 1" - welding flange complete, metric 6000 PSI with 4 bolts M12 x 45 DIN 912 - 8.8 and 1 o-ring 32,92 x 3,53	NBR	30 x 4	59.0000.35
	FPM	30 x 4	59.0000.36

Changes reserved!

For every radial piston motor 2 flanges, 2 o-ring seals and 8 bolts are required.



Designation	Seal-material	Thread DIN ISO 228/1	Order-No.
1 piece SAE 1 1/4" - screwed flange complete, metric 6000 PSI with BSP-thread, with 4 bolts M14 x 45 DIN 912 - 8.8 and 1 o-ring 37,7 x 3,53	NBR	G 1	59.0000.21
	FPM	G 1	59.0000.22
	NBR	G 1 1/4	59.0000.23
	FPM	G 1 1/4	59.0000.24



Designation	Seal-material	Pipe	Order-No.
1 piece SAE 1 1/4" - welding flange complete, metric 6000 PSI with 4 bolts M14 x 45 DIN 912 - 8.8 and 1 o-ring 37,7 x 3,53	NBR	38 x 6	59.0000.25
	FPM	38 x 6	59.0000.26

Changes reserved!

You know your product, we know our radial piston motors! Give us your conditions, we will calculate all important data for the suitable drive.

1. **Company** _____ **For attention of** _____
Street / P.O.Box _____ **Department** _____
Postal code / City _____ **Phone No.** _____
Country _____ **Fax No.** _____

2. **Operating data: secondary drive**

2.1 Machine type: _____ project: _____

2.2 Machine operating factor at gearboxes $k =$ _____

2.3 Installation position: horizontal vertical
 drive shaft upwards drive shaft downwards

2.4 Forces onto drive shaft: pressure tension
radial: _____ N axial: _____ N

2.5 Nominal torque $T_N =$ _____ Nm speed n _____ min^{-1} time _____ min

2.6 Continuous torque $T_{\text{cont}} =$ _____ Nm speed n _____ min^{-1} time _____ min

2.7 Maximum torque $T_{\text{max}} =$ _____ Nm speed n _____ min^{-1} time _____ min

2.8 Minimum torque $T_{\text{min}} =$ _____ Nm speed n _____ min^{-1} time _____ min

2.9 Maximum speed $n_{\text{max}} =$ _____ min^{-1} time t _____ min

2.10 Minimum speed $n_{\text{min}} =$ _____ min^{-1} time t _____ min

2.11 Information about working cycle: _____

2.12 Secondary drive with valve assembly on the motor

2.13 Control drive with proportional- / servo valve

2.14 Maximum power: $P_{\text{max}} =$ _____ kW continuous power: $P_{\text{cont}} =$ _____ kW

2.15 one-shift-operation two-shift-operation three-shift-operation

2.16 Desired bearing life: $L_{h10} =$ _____ hours

2.17 Remarks: _____

3. **Operating data: primary drive**

Hydraulic fluid: _____ operating temperature: $\Theta =$ _____ $^{\circ}\text{C}$

Delivery volume of pump $Q_P =$ _____ l/min

opened circuit closed circuit

Feeding pressure $p_F =$ _____ bar

System pressure $p_{\text{Sys}} =$ _____ bar

Desired operating pressure at T_N $p_N \sim$ _____ bar

Pressure liquid:

HLP mineral oil to DIN 51524 part 2.

Biologically degradable fluids (gaskets NBR / FPM to clarify with supplier of fluid).

HFC Reduce pressure to about 70%, re-calculate bearing life.

HFD phosphoric acid-ester, FPM- / FKM- seals are necessary.

Filtering:Max. admissible contamination degree of the fluid to NAS 1638 class 9,
filter recommendation with a minimum retaining value of $\beta_{10} \geq 100$.For a long life NAS 1638 class 8, filter recommendation with a minimum retaining value of $\beta_5 \geq 100$.**Assembly / attachment:**

Installation position optional, leakage oil outlet see below.

Motor align exactly, fastening screws min. 10.9.

For frequent reversing, 2 fastening screws to be used as dowel screws.

Coupling:

Install the coupling with a screw (not with a hammer).

Pipelines:

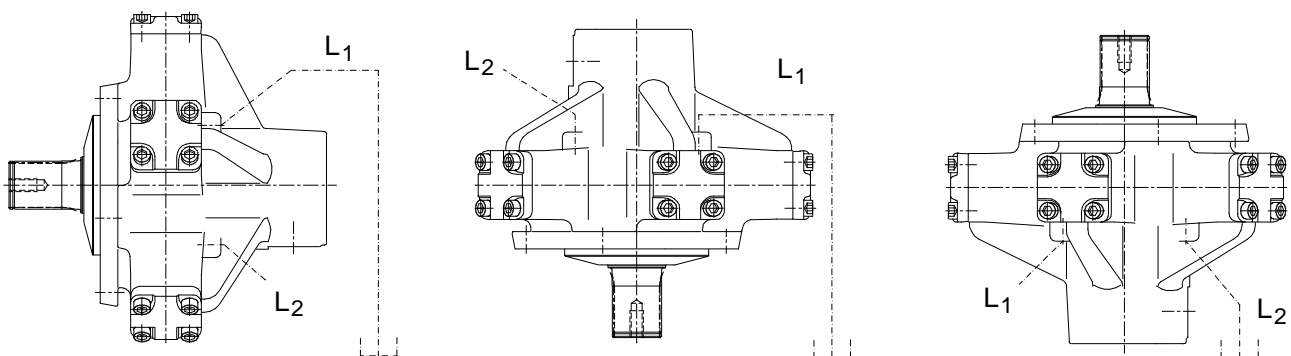
The motor has flange connections SAE J518C 1" - 6000 PSI (RM 250X to RM 500X).

The motor has flange connections SAE J518C 1¼" - 6000 PSI (RM 710X to RM 900X)

Use flange acc. to page 20 and 21.

Leakage line:

Before starting fill the motor with hydraulic fluid. Lay the leakage line in a way that the motor cannot drain off and no big air bubble builds up within the housing.

**Flushing:**Connect the flushing line (with about 3 - 6 liters/minute, 1,5 bar maximum) in that way that the oil inlet enters at the lowest leakage connection L₁ / L₂.

Changes reserved!



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Internet : <http://www.duesterloh.de>