

Brushless - U3 ServoMotor IE4

La serie U3 è una gamma di servomotori brushless a magneti permanenti a terre rare ad elevate prestazioni. Il brevetto per il montaggio superficiale dei magneti garantisce una alta densità di coppia ed una ridottissima inerzia.

La tendenza a sostituire sistemi di azionamenti tradizionali con servomotori brushless, porta a un nuovo livello di prestazioni del sistema, in termini di tempi di ciclo più brevi, maggiore produttività, maggiore precisione, tempi di assestamento più brevi, maggiore affidabilità, durata e alta efficienza IE4.

Applicazioni:

- Energia eolica (regolazione pitch)
- Pompe servoassistite
- Packaging
- Servoazionamenti compatti
- Estrusori
- Ascensori senza riduttori

CONVERSIONE ROTAZIONE-ROTAZIONE

- Trasmissione con cinghia
- Riduttore con ruote elicoidali e assi paralleli
- Cicloide e riduttore epicicloidale
- Riduttore a vite senza fine
- Riduttore a vite Gleason

CONVERSIONE ROTAZIONE-MOTO LINEARE

- Trasmissione con cinghia
- Rocchetto e cremagliera;
- Cinghia metallica
- Vite a ricircolo di sfere

The U3 series of high performance servo motors, is based on the last generation of rare earth magnets. It embodies the patented surface magnet assembly technology, which endows the motors with the highest torque density and very low inertia.

The trend to replace conventional motor systems with brushless drives yields to a new level of system performance, in terms of shorter cycle times, higher productivity, improved accuracy coupled with shorter settling times, increased reliability, longer life and super premium efficiency IE4.

Applications:

- Wind Energy (pitch axis control)
- Servopump
- Packaging
- Compact servo drive
- Extruders
- Gearless lifts

ROTATION-ROTATION CONVERSION

- Timing belt
- Helical wheels and parallel axes reducers
- Cycloid and epicyclic reducer
- Tangent screw reducer
- Gleason gears

ROTATIONAL-LINEAR MOTION CONVERSION

- Timing belt
- Pinion-rack
- Metallic band
- Ball screw



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Caratteristiche Tecniche:

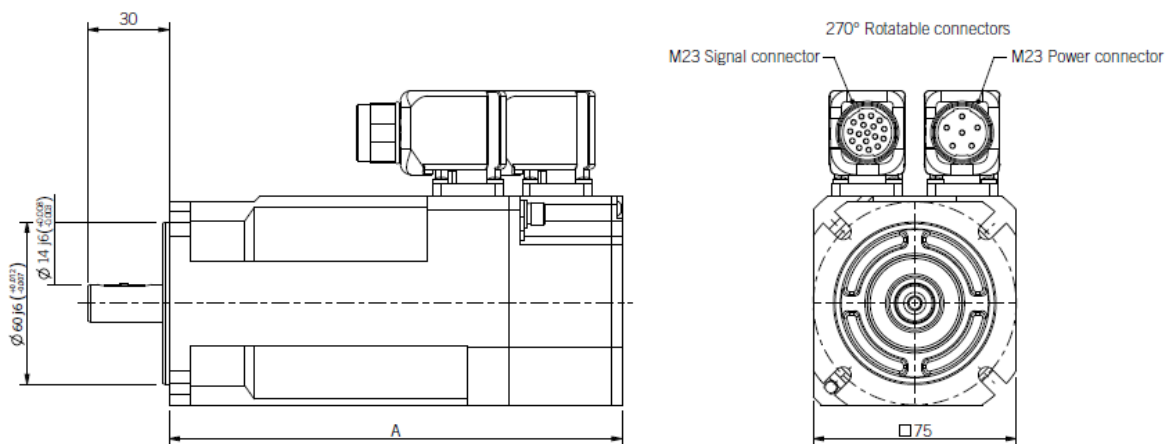
- Efficienza Super Premium IE4
- Albero standard: albero con la sede chiavetta riempita da un inserto rettificato insieme all'albero. In caso di montaggio con calettatore (raccomandato) l'albero è assimilabile ad un albero liscio. Nel caso di uso di chiavetta (sconsigliato ma talvolta inevitabile) al montaggio si rimuove l'inserto e l'albero mostra la sede della chiavetta standard. L'equilibratura dinamica è effettuata con la mezza chiavetta.
- Freni di stazionamento: tutti i motori, ad eccezione del 071040, hanno una cavità interna che consente l'alloggiamento del freno. I freni sono del tipo a magnete permanente a terre rare consentendo di operare senza ferodo ed evitando il problema dell'inquinamento della cavità interna del motore in seguito all'usura del ferodo stesso.
- Inerzie addizionali: nella stessa cavità del freno è possibile il montaggio di una inerzia addizionale per compensare trasmissioni elastiche e giochi tra il motore ed il carico.
- Carcassa liscia monopezzo e protezioni O-Ring su tutti gli accoppiamenti IP65 per consentire lavaggio e sterilizzazione per applicazioni alimentari e chimiche;
- Connettori industriali circolari orientabili a 270° predisposti per cablaggio standard;
- Cuscinetto anteriore maggiorato che consente uscita d'albero diametro 28 (su richiesta);
- Velocità a richiesta (picco 4000 rpm);
- Encoder induttivi Heidenhain assoluti monogiro e multigiri (4096), dotati di interfaccia seriale interamente digitale ENDAT che elimina i problemi di interferenza sui cablaggi analogici, targhetta elettronica con funzione AUTOSET (se utilizzato con gli azionamenti suggeriti), precisione intrinseca 1', risoluzione 17 bit/giro. Lo stesso motore può montare anche resolver (precisione intrinseca 10'), ed encoder ottico sinusoidale assoluto (ERN 1385, precisione 20");
- Sonda termica KTY84: consente monitoraggio continuo della temperatura motore;
- Tenuta a labbro sull'albero standard e accessibile dall'esterno per ricambio;
- Esecuzione flangia ed albero a tolleranza ridotta;
- Feedback ENDAT o HIPERFACE.

Technical Features:

- Super Premium Efficiency IE4
- Standard shaft technology: standard shaft in which a key seat is filled with an insert and the whole set is ground to shaft tolerance. The shaft is therefore round and ready for clamping with conical hubs (recommended). If a key is required (and the corresponding reduced servo performance is accepted) the insert can be removed and a standard key inserted. All shafts are balanced with the insert.
- Safety brake: all motors except UL 071040 have an internal cavity where the PM safety brake can be mounted. The brakes are all rare earth permanent magnet type. This new high power density brake operates without brake pads. As a consequence, the problem of pollution of the motor cavity when the brake is operated incorrectly is avoided.
- Additional inertia: an extra flywheel can be introduced in the brake cavity to compensate for poor mechanical linkages between the motor and the load.
- Single piece extruded frame, smooth, with O-rings on all couplings and IP65 protection to allow flushing and sterilization in food and chemical applications;
- Standard circular connectors, turnable 270 degrees, standard flexibility cables available;
- Oversized front bearings allows 28 mm shaft (on request);
- Rpm on request (Peak speed 4000 rpm);
- Heidenhain absolute magnetic encoders, single or multi turn (4096 turns), with electronic nameplate and AUTOSET function (with suggested drives), accuracy 1', resolution 17 bit/turn, ENDAT full digital serial interface. The motor can also be equipped with sinusoidal optical encoders (Heidenhain ERN 1385, accuracy 20", interpolated resolution 24 bit/rev, or resolver (accuracy 10') for low cost, low performance applications.
- KTY84 linear thermal probe for continuous motor temperature sensing;
- Standard lip seal on shaft accessible from outside for maintenance/replacement;
- Flange and shaft manufactured to Grade R (reduced tolerance IEC 72):
- ENDAT or HIPERFACE feedback.

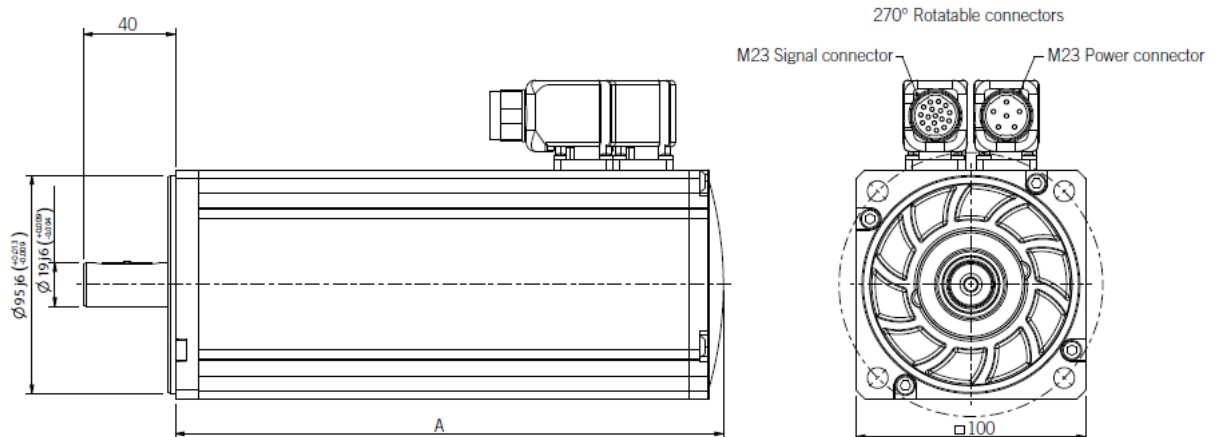
DIMENSIONI E CARATTERISTICHE TECNICHE – DIMENSION AND TECHNICAL FEATURES

U303 MODELS



Motor Type U303			0301	0302	0304
Rated Speed	nM	[rpm]	3000	3000	3000
Rated Torque	MdN	[Nm]	0,94	1,7	2,7
Rated Current	IdN	[A]	0,67	2,1	1,68
Rated Power	PdN	[kW]	0,30	0,53	0,85
Max. Torque	Mmax	[Nm]	5	10	20
Max. Current (peak value)	I _{max}	[A]	4,1	13,5	14,3
Max. Mechanical Speed	n _{max}	[rpm]		6000	
Mass	M	[Kg]	2	3	4
Total Length	A	[mm]	141,4	167,4	223

U305 MODELS

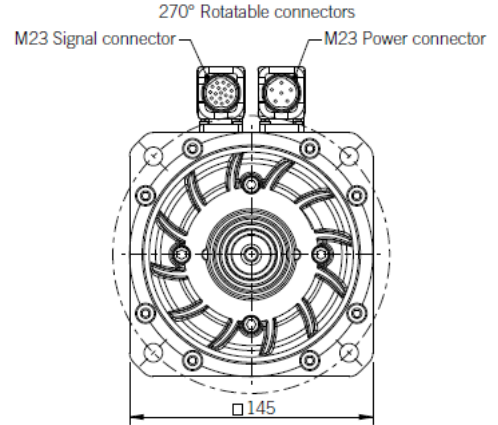
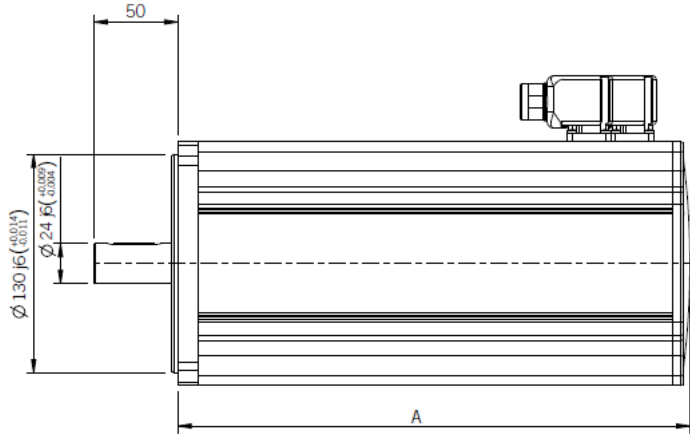


Motor Type U305			0503		0506		0509		0512	
Rated Speed	nM	[rpm]	1500	3000	1500	3000	1500	3000	1500	3000
Rated Torque	MdN	[Nm]	3,5	3,1	7,9	6	10	8,6	13,2	11,4
Rated Current	IdN	[A]	1,3	2,3	2,9	4,3	3,7	6,0	4,7	7,8
Rated Power	PdN	[kW]	0,55	0,97	1,24	1,88	1,57	2,70	2,07	3,58
Max. Torque	Mmax	[Nm]	14		28		42		58	
Max. Current (peak value)	Imax	[A]	6,0	11,8	11,8	23,0	17,9	33,8	23,8	45,7
Max. Mechanical Speed	nmax	[rpm]	6000							
Mass	M	[Kg]	5		7		9		11	
Total Length	A	[mm]	195		239		283		327	

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U307 MODELS



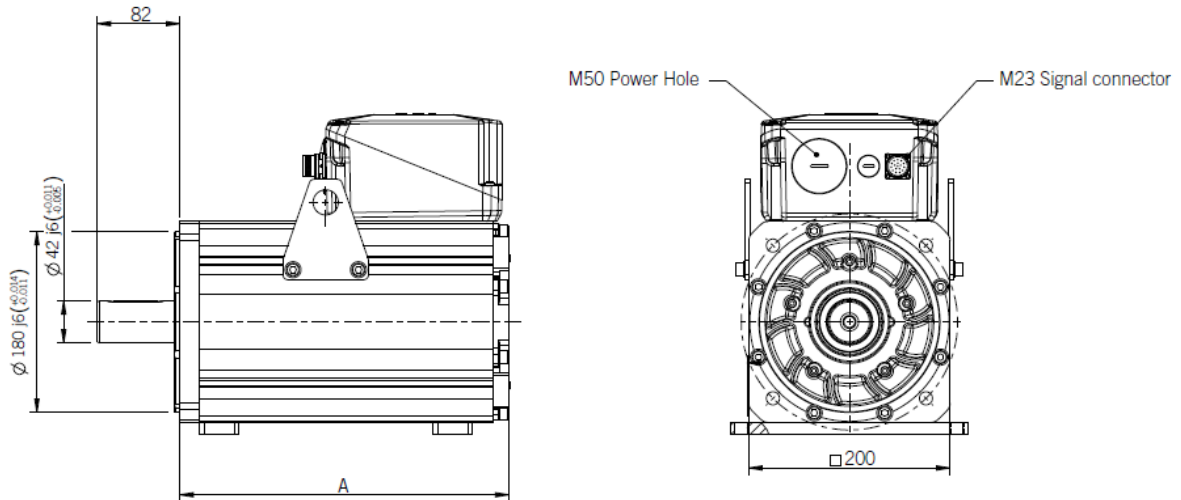
Motor Type U307			0710			0720			0730			0740		
Rated Speed	nM	[rpm]	1500	2000	3000	1500	2000	3000	1500	2000	3000	1500	2000	3000
Rated Torque	MdN	[Nm]	9,1	9	8,5	17	16	11	24	23	18	33	32	26
Rated Current	IdN	[A]	3,1	3,8	5,2	5,4	6,5	6,7	7,4	9,4	13,3	10,1	11,0	17,9
Rated Power	PdN	[kW]	1,4	1,9	2,7	2,7	3,3	3,5	3,8	4,8	5,7	5,2	6,7	8,2
Max. Torque	Mmax	[Nm]	33			65			100			130		
Max. Current (peak value)	Imax	[A]	12	15	22	23	29	44	34	45	81	44	49	98
Max. Mechanical Speed	nmax	[rpm]	6000											
Mass	M	[Kg]	8,5			12			15			19		
Total Length	A	[mm]	208,2			257,2			307,2			358,2		

Motor Type U307C			0720C		0730C		0740C	
Rated Speed	nM	[rpm]	1500	3000	1500	3000	1500	3000
Rated Torque	MdN	[Nm]	33	30	53	50	78	70
Rated Current	IdN	[A]	10	21	18	31	27	48
Rated Power	PdN	[kW]	5	9	8	16	12	22
Max. Torque	Mmax	[Nm]	65		100		130	
Max. Current (peak value)	Imax	[A]	23	49	37	67	49	98
Max. Mechanical Speed	nmax	[rpm]	6000					
Mass	M	[Kg]	12		15		19	
Total Length	A	[mm]	257,2		307,2		358,2	

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U310 MODELS



Motor Type U310			1004			1007			1010			1013		
Rated Speed	nM	[rpm]	1000	2000	3000	1000	2000	3000	1000	2000	3000	1000	2000	3000
Rated Torque	MdN	[Nm]	32	31	27	55	50	30	84	73	32	95	80	45
Rated Current	IdN	[A]	8	13	18	14	23	22	19	30	20	22	38	28
Rated Power	PdN	[kW]	3,3	6	8	6	10	9	9	15	10	10	17	14
Max. Torque	Mmax	[Nm]	105			210			310			410		
Max. Current (peak value)	Imax	[A]	29	48	78	58	108	172	77	141	213	106	212	277
Max. Mechanical Speed	nmax	[rpm]	6000											
Mass	M	[Kg]	41			52			64			75		
Total Length	A	[mm]	255			327			399			471		

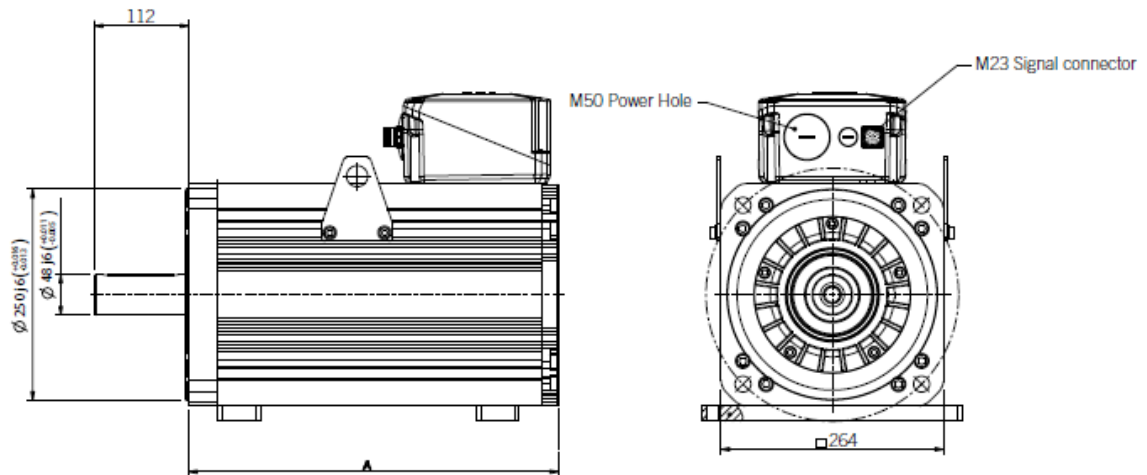
Motor Type U310F			1004F			1007F			1010F			1013F		
Rated Speed	nM	[rpm]	1000	2000	3000	1000	2000	3000	1000	2000	3000	1000	2000	3000
Rated Torque	MdN	[Nm]	42	40	38	74	72	70	100	97	95	149	142	135
Rated Current	IdN	[A]	10	20	25	18	33	51	22	48	59	35	66	82
Rated Power	PdN	[kW]	4	8	12	8	15	22	10	20	30	16	30	42
Max. Torque	Mmax	[Nm]	102			210			310			410		
Max. Current (peak value)	Imax	[A]	23	47	64	49	91	144	65	143	179	89	178	233
Max. Mechanical Speed	nmax	[rpm]	6000											
Mass	M	[Kg]	46			56			70			78		
Total Length	A	[mm]	338,5			410,5			482,5			554,5		

Motor Type U310C			1004C			1007C			1010C			1013C		
Rated Speed	nM	[rpm]	1000	2000	3000	1000	2000	3000	1000	2000	3000	1000	2000	3000
Rated Torque	MdN	[Nm]	54	53	53	109	108	108	164	163	160	219	218	217
Rated Current	IdN	[A]	13	25	34	28	55	76	39	77	109	49	98	156
Rated Power	PdN	[kW]	6	11	17	11	23	34	17	34	50	23	46	68
Max. Torque	Mmax	[Nm]	102			210			310			410		
Max. Current (peak value)	Imax	[A]	26	51	69	56	113	157	78	155	222	89	178	286
Max. Mechanical Speed	nmax	[rpm]	6000											
Mass	M	[Kg]	41			52			64			75		
Total Length	A	[mm]	255			327			399			471		

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U313 MODELS



Motor Type U313			1310			1320			1330			1340		
Rated Speed	nM	[rpm]	1000	2000	3000	1000	2000	3000	1000	2000	3000	1000	2000	3000 (4)
Rated Torque	MdN	[Nm]	95	87	70	170	140	120	240	180	n.a. 4)	270	130	n.a. 4)
Rated Current	IdN	[A]	19	35	42	35	65	74	50	74	n.a. 4)	50	61	n.a. 4)
Rated Power	PdN	[kW]	10	18	22	18	29	38	25	38	n.a. 4)	28	27	n.a. 4)
Max. Torque	Mmax	[Nm]	280			550			830			1100		
Max. Current (peak value)	Imax	[A]	62	123	185	111	250	332	189	377	564	225	564	747
Max. Mechanical Speed	nmax	[rpm]	6000											
Mass	M	[Kg]	50			80			110			140		
Total Length	A	[mm]	332			439			546			653		

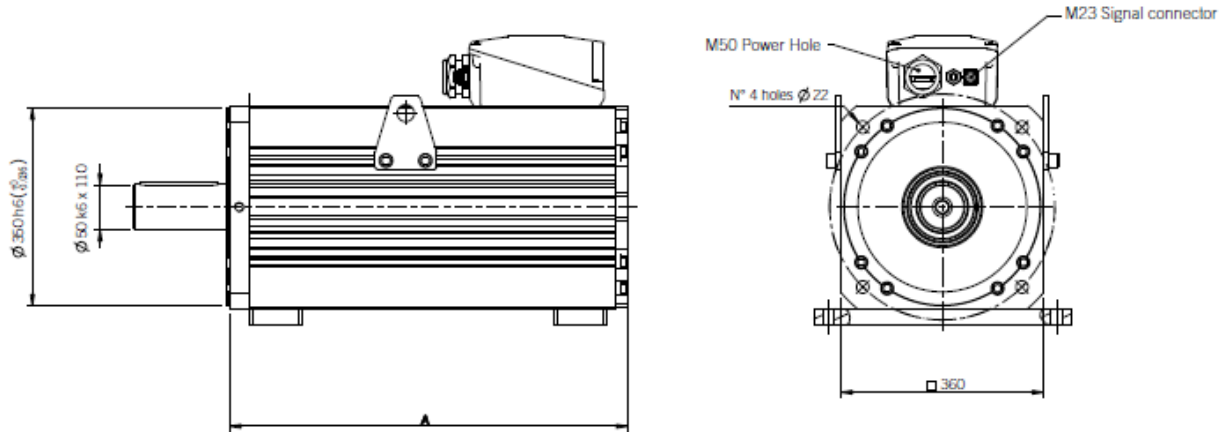
Motor Type U313F			1310F			1320F			1330F			1340F		
Rated Speed	nM	[rpm]	1000	2000	3000	1000	2000	3000	1000	2000	3000	1000	2000	3000 (4)
Rated Torque	MdN	[Nm]	145	135	130	270	260	240	400	380	350	510	480	460
Rated Current	IdN	[A]	31	57	82	59	127	156	87	165	228	124	235	299
Rated Power	PdN	[kW]	15	28	41	28	54	75	42	80	110	53	100	144
Max. Torque	Mmax	[Nm]	325			650			830			1100		
Max. Current (peak value)	Imax	[A]	81	163	244	168	378	502	189	377	564	281	564	747
Max. Mechanical Speed	nmax	[rpm]	6000											
Mass	M	[Kg]	65			100			130			160		
Total Length	A	[mm]	460			567			674			781		

Motor Type U313C			1310C			1320C			1330C			1340C		
Rated Speed	nM	[rpm]	1000	2000	3000	1000	2000	3000	1000	2000	3000	1000	2000	3000
Rated Torque	MdN	[Nm]	179	178	175	357	353	348	539	530	520	715	710	700
Rated Current	IdN	[A]	41	68	100	79	157	205	128	250	306	141	315	412
Rated Power	PdN	[kW]	19	37	55	37	74	109	56	111	163	75	149	220
Max. Torque	Mmax	[Nm]	280			550			830			1100		
Max. Current (peak value)	Imax	[A]	67	112	169	128	257	341	207	412	514	211	475	629
Max. Mechanical Speed	nmax	[rpm]	6000											
Mass	M	[Kg]	50			80			110			140		
Total Length	A	[mm]	332			439			546			653		

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U318 MODELS



Motor Type U318			1835		1870		18100	
Rated Speed	nM	[rpm]	1000	2000	1000	2000	1000	2000
Rated Torque	MdN	[Nm]	200	n.a. 4)	300	n.a. 4)	290	n.a. 4)
Rated Current	IdN	[A]	35	n.a. 4)	53	n.a. 4)	57	n.a. 4)
Rated Power	PdN	[kW]	21	n.a. 4)	31	n.a. 4)	30	n.a. 4)
Max. Torque	Mmax	[Nm]	1300		2500		3500	
Max. Current (peak value)	Imax	[A]	252	504	484	969	762	1529
Max. Mechanical Speed	nmax	[rpm]	4000					
Mass	M	[Kg]	240		425		510	
Total Length (A)		[mm]	515		707		835	

Motor Type U318F			1835F		1870F		18100F	
Rated Speed	nM	[rpm]	1000	2000	1000	2000	1000	2000
Rated Torque	MdN	[Nm]	520	420	890	790	1150	900
Rated Current	IdN	[A]	92	148	157	278	228	357
Rated Power	PdN	[kW]	54	88	93	165	120	188
Max. Torque	Mmax	[Nm]	1300		2500		3500	
Max. Current (peak value)	Imax	[A]	252	504	484	969	762	1529
Max. Mechanical Speed	nmax	[rpm]	4000					
Mass	M	[Kg]	320		380		460	
Total Length	A	[mm]	700		892		1020	

Motor Type U318C			1835C		1870C		18100C	
Rated Speed	nM	[rpm]	1000	2000	1000	2000	1000	2000
Rated Torque	MdN	[Nm]	500	497	1000	980	1540	1480
Rated Current	IdN	[A]	88	175	176	345	305	588
Rated Power	PdN	[kW]	52	104	105	205	161	310
Max. Torque	Mmax	[Nm]	1300		2500		3500	
Max. Current (peak value)	Imax	[A]	252	504	484	969	762	1529
Max. Mechanical Speed	nmax	[rpm]	4000					
Mass	M	[Kg]	240		425		510	
Total Length	A	[mm]	515		707		835	

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