FISCHER Elektromotoren

# TI Torque Motor – Inner Rotor

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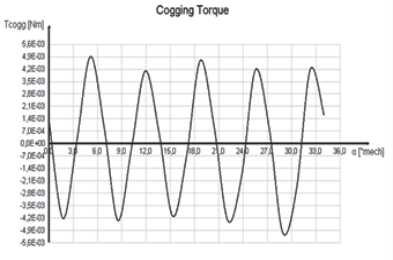
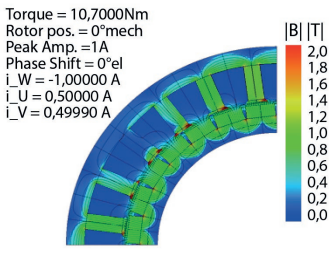
# Contents



Development & construction of inner rotors are calculated and issued with special programs. Mechanical and thermal simulations are possible and can be incorporated into further constructions.




Qualitätsmanagement ISO 9001:2008
▶ Regelmäßige freiwillige Überwachung
DEKRA Certification
DEKRA zertifiziert

# Foreword

## The specialist for direct drives

With innovative drive solutions for all industries and any application in the automobile, wood and food industries and all other industrial sectors.

Solutions, products and systems from the company Fischer Elektromotoren are used everywhere - worldwide.

## Always the right solution

Due to the number of drive variations, we offer our customers the best conditions for the right drive and therefore the most efficient solutions to requirements.

With our own developments, production and assembly, as well as commissioning (or other services) if required, the maximum flexibility at the highest quality is achieved.

The following is available for the production of prototypes for instance:

- Our own tool-making
- State-of-the-art CNC milling and processing machines
- State-of-the-art 3D measurement machine
- Numerous wire eroding machines
- Laser cutting system
- Laser welding centre
- Our own test bay

With our bundled expertise we are able to calculate, construct and manufacture prototypes for our customers within the shortest possible time.

We are certified in accordance with ISO9001:2008, as well as according to the UL insulation system.

## The right partner

Our flexible product range and our services make the company Fischer Elektromotoren GmbH your partner for solutions to demanding tasks in the area of "direct" drive technology.

# 5 Design, Setup, Functions Electrical connections

## Design

The company Fischer Elektromotoren is a specialist for linear and rotating direct drives. **Series products** and **customised** drive solutions are developed and produced. Our own development works with the latest computer-assisted systems such as FEM calculation and 3D CAD programs. This means the motor geometrics and motor parameters can be optimally adapted to your applications. The latest manufacturing and test methods according to the status of technology ensure that Fischer Elektromotoren GmbH can also meet unusual customer requests. We manufacture in individual, small and large series. All motors are measured, tested and data records produced on the test bay.

## Layout

It is not only possible to create a rotation movement with the torque motor, but it is also possible to position or run defined step cycles. A gear unit is not required. The design of the winding can be customised to the user.

## Functions

If a conductor loop is moved in a magnetic field, a voltage is induced in the conductor loop. A coil with a current flowing through produces a time-variable electrical field, which has a reciprocal effect with the constant magnetic field of the secondary part. The resulting force is used to generate the linear movement. A linear motor consists of two components: the primary part with coils and the secondary part with permanent magnets. A differentiation is made between grooved, grooveless and ironless direct drives. The linear motor allows a high force at a defined speed range. The distance between the primary part and the secondary part (air gap) decides on the force level. A steady bearing system guarantees a constant air gap. A measurement system is used to be able to detect the motor position at all times.

## Electrical connections

The type of electrical connection option is versatile and can be customised.

- Cable with plug - variable cable lengths
- Open cable outlet with strand end sleeves - variable cable lengths
- Plug on motor housing

A second cable outlet is necessary depending on the complexity of additional components such as the measurement system and temperature sensors.

# 6 Winding-related parameters, Thermal motor protection

## Winding-related parameters

The nominal speed of the torque motor can be adjusted by the DC-Bus voltage and the winding data. A voltage is induced in the coils as soon as the rotor is moved. This voltage (BEMF) works against the DC-Bus voltage of a field-orientated servo-converter and is proportional to the speed. The BEMF must initially be overcome to be able to store the current necessary for the force in the coils. The result is: the lower the BEMF is, the higher speeds are possible. The working point of the torque motor is determined by the correlation between the winding speed, torque and rotation speed.

## Thermal motor protection

Direct drives are mainly operated at their thermal limit and the temperature must be constantly monitored. Temperature-related resistances are installed in torque motors to protect against thermal overload. The following temperature sensors are available:

- PTC (thermistor)
- KTY
- Triplet switch (Klixon)

In order to protect the motor against thermal overload, three PTCs can be switched in sequence. Each PTC measures the temperature of one phase. This means that temperature monitoring is even guaranteed when the motor has to maintain its position at a standstill and an asymmetrical current supply occurs. The resistance value of the PTC increases heavily once the nominal temperature is overcome. This means that the overall resistance of row switching also changes rapidly. If a resistance changes, safe shutdown of the motor by the motor protection trigger device (FIMO TA 03) is guaranteed before thermal destruction. The motor protection trigger device also identifies if resistance is too low, signalling a possible defect in the monitoring circuit. The PTC temperature sensor is not suitable for accurate temperature measurement. A KTY temperature sensor is used to measure a temperature sequence exactly.  This semiconductor resistance reacts linear to the temperature. This is why a shutdown limit is defined to protect the motor against thermal overload. Because the KTY only monitors the temperature of one phase, the motor can overheat if heating is asymmetrical.


Figure 1: Temperature sensors circuit diagram

**FIMO TA 03**

# 7 Water cooling, Measurement technology

## Water cooling

Not only losses of copper cause the motor temperature to increase. More re-magnetising losses and eddy current losses occur at a higher frequency. Water cooling is used in order to be able to channel the produced heat away as well as possible. When using water cooling, the nominal torque can almost be doubled in comparison to an air cooled motor. An increase of the peak torque is not possible with water cooling. Water cooling is necessary if:

- The drive is only used in the load and brake cycle.
- No rest periods are available
- No temperature should be lost in the machine system.
- There are high outputs

## Measurement technology

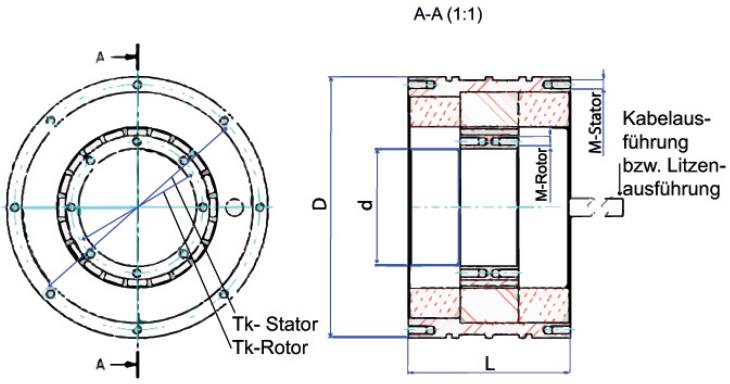
Motors from Firma Fischer Elektromotoren GmbH are tested in accordance with the EC guideline 73/23/EEC and the norms EN 50178 and EN 60204. The motors go through these various test procedures before they are delivered.

- High-voltage test
- Partial discharge test
- Insulation test (VDE measurement)
- Pole test
- Resistance measurement for faces and temperature sensors
- Inductivity measurement
- EMF measurement

Furthermore, the motor is measured on the test bench with state-of-the-art measurement technology. The parameter records for commissioning and the peak and nominal values of the motor are established here. All mechanically installed components are measured with the latest measurement technologies such as 3D and a height measurement machine. This allows housings and parts with complex constructions to be measured.

# Torque motor - inner rotor dimensions

## Dimensions - technical data




## Legend (example)

Type classification:
TI 038-024-XXX

- Iron length (mm)
- Air gap diameter (mm)
- Outer diameter of stator (mm)
- Motor type: I = inner rotor

- An adjustment of the speed can be made on request.
- Other DC-Bus voltages are also possible.
- Special lengths are possible on request.

| | Air cooling | | Water cooling | | Rotor | | Stator | |
|---|---|---|---|---|---|---|---|---|
| Size | d | D | d | D | TK | M | TK | M |
| TI 038-024-XXX | 12,5 | 47 | 12,5 | 47 | --- | --- | 42,5 | M 3 |
| TI 050-033-XXX | 18 | 59 | 18 | 59 | 23 | M 3 | 55 | M 3 |
| TI 060-033-XXX | 17 | 69 | 17 | 69 | 22,4 | M 3 | 64 | M 3 |
| TI 070-049-XXX | 32 | 82 | 32 | 82 | 38 | M 4 | 76 | M 4 |
| TI 086-058-XXX | 35 | 95 | 35 | 95 | 42 | M 4 | 90 | M 3 |
| TI 095-066-XXX | 40 | 108 | 40 | 108 | 47 | M 4 | 101 | M 4 |
| TI 100-070-XXX | 51 | 113 | 51 | 113 | 57 | M 4 | 106 | M 4 |
| TI 110-078-XXX | 60 | 123 | 60 | 123 | 65 | M 4 | 115 | M 4 |
| TI 118-073-XXX | 55 | 130 | 55 | 130 | 60 | M 4 | 107 | M 4 |
| TI 130-090-XXX | 60 | 150 | 60 | 150 | 68 | M 5 | 140 | M 5 |
| TI 140-089-XXX | 60 | 160 | 60 | 160 | 70 | M 5 | 150 | M 5 |
| TI 150-109-XXX | 85 | 163 | 85 | 163 | 91,5 | M 4 | 156 | M 4 |
| TI 175-119-XXX | 90 | 198 | 90 | 198 | 100 | M 5 | 185 | M 5 |
| TI 200-162-XXX | 136 | 220 | 136 | 220 | 145 | M 5 | 210 | M 5 |
| TI 212-169-XXX | 140 | 230 | 140 | 230 | 150 | M 5 | 220 | M 5 |
| TI 240-181-XXX | 155 | 260 | 155 | 260 | 164 | M 5 | 250 | M 5 |
| TI 260-206-XXX | 175 | 285 | 175 | 285 | 187 | M 5 | 275 | M 5 |
| TI 292-249-XXX | 220 | 310 | 220 | 310 | 232 | M 5 | 300 | M 5 |
| TI 325-270-XXX | 235 | 350 | 235 | 350 | 248 | M 6 | 337 | M 6 |
| TI 360-298-XXX | 265 | 385 | 265 | 385 | 277 | M 6 | 370 | M 6 |
| TI 400-340-XXX | 305 | 425 | 305 | 425 | 318 | M 6 | 412 | M 6 |
| TI 435-370-XXX | 340 | 460 | 340 | 460 | 350 | M 6 | 447 | M 6 |
| TI 530-460-XXX | 420 | 565 | 420 | 565 | 432 | M 8 | 548 | M 8 |

# Technical data

| Name | L | Torque | | | | | | Idling speed | DC-Bus voltage |
|---|---|---|---|---|---|---|---|---|---|
| | | Air cooling | | Water cooling | | Peak | | | |
| | | M [Nm] | I [Aeff] | M [Nm] | I [Aeff] | M [Nm] | I [Aeff] | n [rpm] | U [VDC] |
| TI038-024-010-07B2S-05N01AO2 | 32 | 0,06 | 0,33 | 0,15 | 0,83 | 0,28 | 1,65 | 1480 | 24 |
| TI038-024-020-07B2S-05N01AU2 | 42 | 0,12 | 0,66 | 0,29 | 1,66 | 0,55 | 3,31 | 1520 | 24 |
| TI038-024-030-07B2S-05N01AX2 | 52 | 0,17 | 0,95 | 0,42 | 2,39 | 0,81 | 4,77 | 1490 | 24 |
| TI038-024-040-07B2S-05N01BA2 | 62 | 0,24 | 1,32 | 0,58 | 3,31 | 1,13 | 6,62 | 1490 | 24 |
| TI050-033-020-07S3O-04N01AO2 | 50 | 0,2 | 0,33 | 0,51 | 0,83 | 0,95 | 1,54 | 870 | 48 |
| TI050-033-040-07S3O-04N01AU2 | 70 | 0,41 | 0,66 | 1,03 | 1,66 | 2,04 | 3,31 | 860 | 48 |
| TI050-033-060-07S3O-04N02AS2 | 90 | 0,64 | 1,06 | 1,59 | 2,64 | 3,16 | 5,29 | 890 | 48 |
| TI050-033-080-07S3O-04N02AU2 | 110 | 0,82 | 1,33 | 2,05 | 3,31 | 4,09 | 6,63 | 860 | 48 |
| TI060-033-020-07S2O-08N01AS2 | 53 | 0,3 | 0,5 | 0,8 | 1,3 | 1,3 | 2,1 | 850 | 48 |
| TI060-033-040-07S2O-08N01AY2 | 73 | 0,7 | 1,1 | 1,6 | 2,7 | 2,9 | 5 | 860 | 48 |
| TI060-033-060-07S2O-08N02AV2 | 93 | 1 | 1,5 | 2,4 | 3,8 | 4,5 | 7,5 | 830 | 48 |
| TI060-033-080-07S2O-08N02AY2 | 113 | 1,3 | 2,1 | 3,2 | 5,3 | 6,1 | 10,6 | 860 | 48 |
| TI070-049-020-08S2O-05N01AV2 | 53 | 0,5 | 0,8 | 1,4 | 1,9 | 2,7 | 3,8 | 730 | 48 |
| TI070-049-040-08S2O-05N01BB2 | 73 | 1,1 | 1,5 | 2,7 | 3,7 | 5,3 | 7,4 | 730 | 48 |
| TI070-049-060-08S2O-05N02AZ2 | 93 | 1,7 | 2,4 | 4,1 | 5,9 | 8,2 | 11,8 | 750 | 48 |
| TI070-049-080-08S2O-05N02BB2 | 113 | 2,1 | 3 | 5,3 | 7,4 | 10,5 | 14,8 | 730 | 48 |
| TI086-058-025-08S4O-06N01BF2 | 57 | 1,5 | 2,1 | 3,8 | 5,3 | 7,4 | 10,6 | 740 | 48 |
| TI086-058-050-08S4O-06N02BF2 | 82 | 3 | 4,2 | 7,5 | 10,6 | 14,9 | 21,2 | 740 | 48 |
| TI086-058-075-08S4O-06N02BI2 | 107 | 4,3 | 6 | 10,6 | 15,1 | 21 | 30,2 | 750 | 48 |
| TI086-058-100-08S4O-06N02BL2 | 132 | 6 | 8,5 | 14,8 | 21,3 | 29,3 | 42,5 | 760 | 48 |
| TI095-066-025-08S2O-07N01AO2 | 65 | 2 | 0,3 | 4,9 | 0,8 | 9,4 | 1,7 | 590 | 320 |
| TI095-066-050-08S2O-07N01AU2 | 90 | 3,9 | 0,7 | 9,8 | 1,7 | 18,9 | 3,3 | 590 | 320 |
| TI095-066-075-08S2O-07N01AX2 | 115 | 5,7 | 1 | 14,2 | 2,4 | 27,4 | 4,8 | 590 | 320 |
| TI095-066-100-08S2O-07N02AU2 | 140 | 7,9 | 1,3 | 19,6 | 3,3 | 37,7 | 6,6 | 590 | 320 |
| TI100-070-025-10S2O-08N01AO2 | 70 | 2 | 0,3 | 4,9 | 0,8 | 9,8 | 1,7 | 590 | 320 |
| TI100-070-050-10S2O-08N01AU2 | 95 | 4 | 0,7 | 10 | 1,7 | 19,6 | 3,3 | 590 | 320 |
| TI100-070-075-10S2O-08N02AR2 | 120 | 5,7 | 0,9 | 14,2 | 2,3 | 28,1 | 4,7 | 590 | 320 |
| TI100-070-100-10S2O-08N02AU2 | 145 | 8 | 1,3 | 19,9 | 3,3 | 39,4 | 6,6 | 590 | 320 |
| TI110-078-025-11S4O-06N01AR2 | 70 | 3,1 | 0,5 | 7,6 | 1,2 | 14,7 | 2,3 | 540 | 320 |
| TI110-078-050-11S4O-06N01AX2 | 95 | 6,2 | 1 | 15,5 | 2,4 | 30 | 4,8 | 540 | 320 |
| TI110-078-075-11S4O-06N01BA2 | 120 | 8,7 | 1,3 | 21,6 | 3,3 | 42,1 | 6,6 | 540 | 320 |
| TI110-078-100-11S4O-06N02AX2 | 145 | 12,5 | 1,9 | 31 | 4,8 | 60 | 9,5 | 540 | 320 |
| TI118-073-025-10S3O-06N01AV2 | 70 | 4,6 | 0,8 | 9,1 | 1,5 | 16,2 | 3 | 580 | 320 |
| TI118-073-050-10S3O-06N01BB2 | 95 | 9 | 1,5 | 17,8 | 3 | 31,9 | 5,9 | 580 | 320 |
| TI118-073-075-10S3O-06N02AY2 | 120 | 13 | 2,1 | 25,8 | 4,3 | 46,8 | 8,5 | 580 | 320 |
| TI118-073-100-10S3O-06N02BB2 | 145 | 17,9 | 3 | 35,5 | 5,9 | 64 | 11,8 | 580 | 320 |
| TI130-090-025-08S2O-09N01AS2 | 70 | 4,4 | 0,5 | 10,9 | 1,3 | 21,1 | 2,6 | 750 | 560 |
| TI130-090-050-08S2O-09N01AY2 | 95 | 8,8 | 1,1 | 22 | 2,7 | 42,1 | 5,3 | 750 | 560 |
| TI130-090-075-08S2O-09N02AW2 | 120 | 14 | 1,7 | 34,8 | 4,3 | 66 | 8,5 | 750 | 560 |
| TI130-090-100-08S2O-09N02AY2 | 145 | 17,6 | 2,1 | 43,9 | 5,3 | 84 | 10,6 | 750 | 560 |
| TI140-089-025-11S3O-08N01AS2 | 70 | 6,7 | 0,6 | 13,3 | 1,2 | 20,5 | 2 | 540 | 560 |
| TI140-089-050-11S3O-08N01AZ2 | 95 | 13,3 | 1,2 | 26 | 2,4 | 40,5 | 3,9 | 550 | 560 |
| TI140-089-075-11S3O-08N01BD2 | 120 | 20,9 | 1,9 | 40,9 | 3,7 | 63 | 6,2 | 550 | 560 |
| TI140-089-100-11S3O-08N02AZ2 | 145 | 26,5 | 2,4 | 52 | 4,7 | 81 | 7,9 | 550 | 560 |

# Technical data

| Name | L | Torque | | | | | | Idling speed | DC-Bus voltage |
|---|---|---|---|---|---|---|---|---|---|
| | | Air cooling | | Water cooling | | Peak | | | |
| | | M [Nm] | I [Aeff] | M [Nm] | I [Aeff] | M [Nm] | I [Aeff] | n [rpm] | U [VDC] |
| TI150-109-025-14S2O-09N01AQ2 | 70 | 6,2 | 0,4 | 15,4 | 1,1 | 30,7 | 2,1 | 420 | 560 |
| TI150-109-050-14S2O-09N02AQ2 | 95 | 12,4 | 0,8 | 30,9 | 2,1 | 61 | 4,2 | 420 | 560 |
| TI150-109-075-14S2O-09N02AU2 | 120 | 19,2 | 1,3 | 47,9 | 3,3 | 95 | 6,6 | 430 | 560 |
| TI150-109-100-14S2O-09N04AQ2 | 145 | 24,8 | 1,7 | 62 | 4,2 | 123 | 8,5 | 420 | 560 |
| TI175-119-025-11S2O-09N01AY2 | 75 | 12,1 | 1,1 | 23,8 | 2,1 | 40 | 3,9 | 540 | 560 |
| TI175-119-050-11S2O-09N02AY2 | 100 | 24,2 | 2,1 | 47,7 | 4,3 | 80 | 7,8 | 540 | 560 |
| TI175-119-075-11S2O-09N02BB2 | 125 | 33,8 | 3 | 67 | 5,9 | 114 | 10,8 | 540 | 560 |
| TI175-119-100-11S2O-09N02BE2 | 150 | 45,6 | 4 | 90 | 8 | 153 | 14,6 | 540 | 560 |
| TI175-119-125-11S2O-09N02BH2 | 175 | 60 | 5,3 | 119 | 10,6 | 200 | 19,4 | 540 | 560 |
| TI175-119-150-11S2O-09N02BI2 | 200 | 69 | 6 | 136 | 12,1 | 230 | 22,1 | 540 | 560 |
| TI200-162-025-21S2O-09N01AU2 | 70 | 14 | 0,7 | 34,8 | 1,7 | 68 | 3,3 | 290 | 560 |
| TI200-162-050-21S2O-09N01BA2 | 95 | 27,7 | 1,3 | 69 | 3,3 | 135 | 6,6 | 290 | 560 |
| TI200-162-075-21S2O-09N03AU2 | 120 | 41,9 | 2 | 104 | 5 | 205 | 9,9 | 290 | 560 |
| TI200-162-100-21S2O-09N02BA2 | 145 | 56 | 2,6 | 139 | 6,6 | 273 | 13,2 | 290 | 560 |
| TI200-162-125-21S2O-09N06AS2 | 170 | 67 | 3,2 | 167 | 7,9 | 328 | 15,9 | 290 | 560 |
| TI200-162-150-21S2O-09N03BA2 | 195 | 84 | 4 | 209 | 9,9 | 409 | 19,9 | 290 | 560 |
| TI212-169-020-21S3O-09N01AS2 | 65 | 12 | 0,5 | 30 | 1,3 | 59 | 2,6 | 270 | 560 |
| TI212-169-040-21S3O-09N02AS2 | 85 | 24,1 | 1,1 | 60 | 2,6 | 118 | 5,3 | 270 | 560 |
| TI212-169-060-21S3O-09N03AS2 | 105 | 36,1 | 1,6 | 90 | 4 | 176 | 7,9 | 270 | 560 |
| TI212-169-080-21S3O-09N02AY2 | 125 | 48,4 | 2,1 | 121 | 5,3 | 236 | 10,6 | 270 | 560 |
| TI212-169-100-21S3O-09N06AR2 | 145 | 63 | 2,8 | 158 | 7 | 307 | 14 | 270 | 560 |
| TI212-169-120-21S3O-09N06AS2 | 165 | 72 | 3,2 | 180 | 7,9 | 352 | 15,9 | 270 | 560 |
| TI212-169-140-21S3O-09N06AU2 | 185 | 90 | 4 | 225 | 9,9 | 434 | 19,9 | 270 | 560 |
| TI212-169-160-21S3O-09N06AV2 | 200 | 103 | 4,5 | 257 | 11,3 | 497 | 22,6 | 270 | 560 |
| TI240-181-025-21S2O-10N01BA2 | 65 | 26,4 | 1,3 | 66 | 3,3 | 105 | 5,5 | 310 | 560 |
| TI240-181-050-21S2O-10N01BH2 | 90 | 53 | 2,7 | 132 | 6,6 | 211 | 11 | 310 | 560 |
| TI240-181-075-21S2O-10N02BD2 | 115 | 79 | 3,7 | 197 | 9,4 | 315 | 15,6 | 290 | 560 |
| TI240-181-100-21S2O-10N02BH2 | 140 | 106 | 5,3 | 263 | 13,3 | 421 | 22,1 | 310 | 560 |
| TI240-181-125-21S2O-10N03BF2 | 165 | 132 | 6,3 | 329 | 15,9 | 526 | 26,4 | 300 | 560 |
| TI240-181-150-21S2O-10N03BH2 | 190 | 159 | 8 | 396 | 19,9 | 632 | 33,1 | 310 | 560 |
| TI240-181-175-21S2O-10N06BB2 | 215 | 185 | 8,9 | 461 | 22,2 | 736 | 36,9 | 290 | 560 |
| TI240-181-200-21S2O-10N06BC2 | 240 | 211 | 10,2 | 527 | 25,4 | 842 | 42,4 | 300 | 560 |
| TI260-206-025-20S2O-08N01BB2 | 65 | 31,3 | 1,5 | 78 | 3,7 | 126 | 6,2 | 290 | 560 |
| TI260-206-050-20S2O-08N02BB2 | 90 | 63 | 3 | 156 | 7,4 | 251 | 12,3 | 290 | 560 |
| TI260-206-075-20S2O-08N02BG2 | 115 | 97 | 4,8 | 240 | 11,9 | 384 | 19,8 | 300 | 560 |
| TI260-206-100-20S2O-08N04BB2 | 140 | 125 | 5,9 | 313 | 14,8 | 502 | 24,6 | 290 | 560 |
| TI260-206-125-20S2O-08N04BD2 | 165 | 157 | 7,5 | 390 | 18,7 | 627 | 31,2 | 290 | 560 |
| TI260-206-150-20S2O-08N04BG2 | 190 | 193 | 9,5 | 481 | 23,8 | 769 | 39,6 | 300 | 560 |
| TI260-206-175-20S2O-08N04BH2 | 215 | 223 | 10,6 | 557 | 26,5 | 892 | 44,2 | 290 | 560 |
| TI260-206-200-20S2O-08N04BI2 | 240 | 255 | 12,1 | 634 | 30,2 | 1017 | 50 | 290 | 560 |
| TI292-249-025-24S2O-10N01BA2 | 70 | 33,5 | 1,3 | 83 | 3,3 | 163 | 6,6 | 240 | 560 |
| TI292-249-050-24S2O-10N01BH2 | 95 | 66 | 2,7 | 165 | 6,6 | 323 | 13,3 | 240 | 560 |
| TI292-249-075-24S2O-10N03BA2 | 120 | 100 | 4 | 250 | 9,9 | 488 | 19,9 | 240 | 560 |

# Technical data

| Name | L | Torque | | | | | | Idling speed | DC-Bus voltage |
|---|---|---|---|---|---|---|---|---|---|
| | | Air cooling | | Water cooling | | Peak | | | |
| | | M [Nm] | I [Aeff] | M [Nm] | I [Aeff] | M [Nm] | I [Aeff] | n [rpm] | U [VDC] |
| TI292-249-100-24S2O-10N03BC2 | 145 | 128 | 5,1 | 319 | 12,7 | 625 | 25,4 | 240 | 560 |
| TI292-249-125-24S2O-10N03BF2 | 170 | 160 | 6,3 | 398 | 15,9 | 780 | 31,7 | 240 | 560 |
| TI292-249-150-24S2O-10N03BH2 | 195 | 200 | 8 | 496 | 19,9 | 970 | 39,8 | 240 | 560 |
| TI292-249-175-24S2O-10N03BI2 | 220 | 229 | 9 | 569 | 22,6 | 1111 | 45,2 | 240 | 560 |
| TI292-249-200-24S2O-10N03BJ2 | 245 | 257 | 10,2 | 641 | 25,5 | 1256 | 51 | 240 | 560 |
| TI325-270-025-28S3O-10N02AW2 | 75 | 56 | 1,9 | 139 | 4,8 | 217 | 8 | 210 | 560 |
| TI325-270-050-28S3O-10N02BC2 | 100 | 112 | 4 | 278 | 10 | 434 | 16,6 | 220 | 560 |
| TI325-270-075-28S3O-10N04BA2 | 125 | 169 | 5,9 | 417 | 14,8 | 652 | 24,6 | 210 | 560 |
| TI325-270-100-28S3O-10N04BC2 | 150 | 225 | 8 | 555 | 19,9 | 868 | 33,2 | 220 | 560 |
| TI325-270-125-28S3O-10N04BF2 | 175 | 280 | 9,5 | 693 | 23,8 | 1081 | 39,6 | 210 | 560 |
| TI325-270-150-28S3O-10N08BA2 | 200 | 335 | 12,1 | 830 | 30,2 | 1296 | 50 | 220 | 560 |
| TI325-270-175-28S3O-10N08BB2 | 225 | 391 | 13,6 | 968 | 34 | 1514 | 57 | 210 | 560 |
| TI325-270-200-28S3O-10N08BC2 | 250 | 448 | 15,3 | 1110 | 38,2 | 1733 | 64 | 210 | 560 |
| TI360-298-025-28S3O-10N02BA2 | 85 | 77 | 2,6 | 190 | 6,6 | 329 | 13,2 | 210 | 560 |
| TI360-298-050-28S3O-10N04BA2 | 110 | 154 | 5,3 | 380 | 13,2 | 658 | 26,5 | 210 | 560 |
| TI360-298-075-28S3O-10N04BE2 | 135 | 234 | 8 | 577 | 19,9 | 994 | 39,8 | 210 | 560 |
| TI360-298-100-28S3O-10N04BH2 | 160 | 311 | 10,6 | 767 | 26,5 | 1324 | 53 | 210 | 560 |
| TI360-298-125-28S3O-10N08BC2 | 185 | 395 | 13,6 | 973 | 33,9 | 1670 | 68 | 210 | 560 |
| TI360-298-150-28S3O-10N08BE2 | 210 | 468 | 15,9 | 1155 | 39,8 | 1992 | 80 | 210 | 560 |
| TI360-298-175-28S3O-10N08BG2 | 235 | 555 | 19 | 1366 | 47,5 | 2346 | 95 | 210 | 560 |
| TI360-298-200-28S3O-10N08BH2 | 260 | 618 | 21,2 | 1523 | 53 | 2633 | 106 | 210 | 560 |
| TI400-340-025-28S3O-10N02BC2 | 80 | 102 | 3,4 | 252 | 8,5 | 398 | 14,7 | 200 | 560 |
| TI400-340-050-28S3O-10N04BC2 | 105 | 204 | 6,8 | 504 | 17 | 795 | 29,4 | 200 | 560 |
| TI400-340-075-28S3O-10N04BG2 | 130 | 286 | 9,5 | 710 | 23,8 | 1135 | 41,2 | 200 | 560 |
| TI400-340-100-28S3O-10N08BC2 | 155 | 409 | 13,6 | 1007 | 33,9 | 1591 | 59 | 200 | 560 |
| TI400-340-125-28S3O-10N08BF2 | 180 | 502 | 16,9 | 1236 | 42,3 | 1962 | 73 | 210 | 560 |
| TI400-340-150-28S3O-10N08BG2 | 205 | 574 | 19 | 1421 | 47,5 | 2274 | 82 | 200 | 560 |
| TI400-340-175-28S3O-10N08BI2 | 230 | 715 | 24,1 | 1761 | 60 | 2780 | 105 | 210 | 560 |
| TI400-340-200-28S3O-10N08BJ2 | 255 | 817 | 27,2 | 2013 | 68 | 3183 | 118 | 200 | 560 |
| TI435-370-025-33S3O-13N02BC2 | 85 | 118 | 3,4 | 292 | 8,5 | 522 | 17 | 170 | 560 |
| TI435-370-050-33S3O-13N03BG2 | 110 | 244 | 7,1 | 604 | 17,8 | 1064 | 35,6 | 180 | 560 |
| TI435-370-075-33S3O-13N06BC2 | 135 | 354 | 10,2 | 878 | 25,4 | 1567 | 51 | 170 | 560 |
| TI435-370-100-33S3O-13N06BG2 | 160 | 489 | 14,3 | 1208 | 35,6 | 2137 | 71 | 180 | 560 |
| TI435-370-125-33S3O-13N06BI2 | 185 | 602 | 18,1 | 1490 | 45,2 | 2644 | 90 | 180 | 560 |
| TI435-370-150-33S3O-13N06BJ2 | 210 | 711 | 20,4 | 1761 | 51 | 3142 | 102 | 170 | 560 |
| TI435-370-175-33S3O-13N06BK2 | 235 | 809 | 22,9 | 2005 | 57 | 3603 | 115 | 170 | 560 |
| TI435-370-200-33S3O-13N06BL2 | 260 | 903 | 25,5 | 2246 | 64 | 4067 | 128 | 170 | 560 |
| TI530-460-025-35S6O-13N02BK2 | 85 | 205 | 5,3 | 548 | 13,3 | 886 | 26,5 | 150 | 560 |
| TI530-460-050-35S6O-13N05BI2 | 110 | 409 | 10,6 | 1097 | 26,5 | 1774 | 53 | 150 | 560 |
| TI530-460-075-35S6O-13N05BM2 | 135 | 615 | 15,1 | 1648 | 37,7 | 2666 | 75 | 150 | 560 |
| TI530-460-100-35S6O-13N05BO2 | 160 | 814 | 21,3 | 2181 | 53 | 3534 | 106 | 150 | 560 |
| TI530-460-125-35S6O-13N10BK2 | 185 | 1023 | 26,5 | 2740 | 66 | 4434 | 132 | 150 | 560 |
| TI530-460-150-35S6O-13N10BM2 | 210 | 1230 | 32,8 | 3295 | 82 | 5328 | 164 | 150 | 560 |
| TI530-460-175-35S6O-13N10BN2 | 235 | 1432 | 36,8 | 3837 | 92 | 6207 | 184 | 150 | 560 |
| TI530-460-200-35S6O-13N10BO2 | 260 | 1628 | 41,4 | 4362 | 103 | 7066 | 205 | 150 | 560 |

# Specification book for motor design

Please send response to
info@fischer-elektromotoren.de
or fax: 0049-6265-9222-22

| Your contact details: | |
|---|---|
| Company: | |
| Name: | |
| Tel. no.: | |
| Email: | |
| Project name: | |

## Specification book for motor design

| | | | |
|---|---|---|---|
| Tasks of the motor | | | |
| **Application** | | | |
| Positioning-accuracy [°] | | | |
| Rotation - speed [rpm] | | | |
| **Required torques** | | | |
| Nominal torque [Nm] | | | |
| Acceleration torque [Nm] | | | |
| **Connected load** | | | |
| Intermediate circuit voltageg [VDC] | | | |
| max. current [Aeff] | | | |
| **Motor size** | | | |
| Diameter x length [mm] | | | |
| Weight [kg] | | | |
| **Construction type** | | | |
| Housing | ○ Air cooled | ○ Water cooled | ○ None, (installation kit) |
| **Environmental conditions** | | | |
| Environmental conditions [°C] | | | |
| Protection type (only with housing) | | | |
| **Cable version** | | | |
| Version | ○ Cable | ○ Single strands | ○ Industrial plug |
| **Winding protection** | | | |
| Sensors | ○ KTY84-130 | ○ PTC (thermistor) | ○ Klixon (switch) |
| Other/comments | | | |

# Note

# Note

# Note

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March 2015 - EN


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