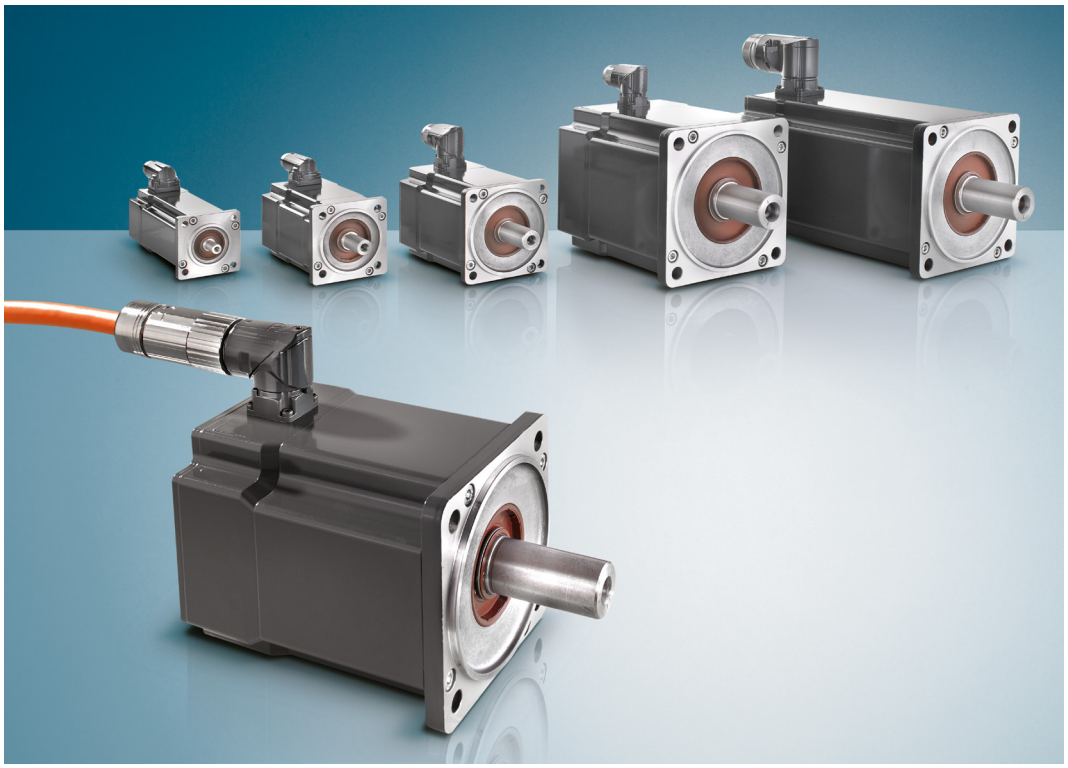


Documentation

Synchronous Servomotor AM8000 and AM8500

Version: 2.2
Date : 2014-06-25

BECKHOFF

Documented motors – AM8000 and AM8500

AM8tuv-wxyz	Standstill torque	Stand still current	Rated speed at rated supply voltage			Rotor moment of inertia		Weight	
			230 V AC	400 V AC	480 V AC	without brake	with brake	without brake	with brake
AM8021-wByz	0.50 Nm	0.85 A	4000 min^{-1}	8000 min^{-1}	9000 min^{-1}	0.134 kg cm²	0.156 kg cm²	1.00 kg	1.10 kg
AM8021-wDyz	0.50 Nm	1.60 A	8000 min^{-1}	9000 min^{-1}	9000 min^{-1}	0.134 kg cm²	0.156 kg cm²	1.00 kg	1.10 kg
AM8022-wDyz	0.80 Nm	1.50 A	4500 min^{-1}	8000 min^{-1}	9000 min^{-1}	0.253 kg cm²	0.276 kg cm²	1.30 kg	1.60 kg
AM8022-wEyz	0.80 Nm	2.44 A	8000 min^{-1}	9000 min^{-1}	9000 min^{-1}	0.253 kg cm²	0.276 kg cm²	1.30 kg	1.60 kg
AM8023-wEyz	1.20 Nm	2.20 A	4500 min^{-1}	8000 min^{-1}	9000 min^{-1}	0.373 kg cm²	0.396 kg cm²	1.70 kg	1.90 kg
AM8023-wFyz	1.20 Nm	3.40 A	8000 min^{-1}	9000 min^{-1}	9000 min^{-1}	0.373 kg cm²	0.396 kg cm²	1.70 kg	1.90 kg
AM8031-wCyz	1.37 Nm	1.00 A	1400 min^{-1}	3000 min^{-1}	3400 min^{-1}	0.462 kg cm²	0.541 kg cm²	1.80 kg	2.20 kg
AM8531-wCyz	1.37 Nm	1.00 A	1400 min^{-1}	3000 min^{-1}	3400 min^{-1}	1.670 kg cm²	1.760 kg cm²	2.40 kg	2.70 kg
AM8031-wDyz	1.38 Nm	1.95 A	3300 min^{-1}	6000 min^{-1}	6800 min^{-1}	0.462 kg cm²	0.541 kg cm²	1.80 kg	2.20 kg
AM8531-wDyz	1.38 Nm	1.95 A	3300 min^{-1}	6000 min^{-1}	6800 min^{-1}	1.670 kg cm²	1.760 kg cm²	2.40 kg	2.70 kg
AM8031-wFyz	1.40 Nm	3.20 A	6000 min^{-1}	9000 min^{-1}	9000 min^{-1}	0.462 kg cm²	0.541 kg cm²	1.80 kg	2.20 kg
AM8531-wFyz	1.40 Nm	3.20 A	6000 min^{-1}	9000 min^{-1}	9000 min^{-1}	1.670 kg cm²	1.760 kg cm²	2.40 kg	2.70 kg
AM8032-wDyz	2.38 Nm	1.70 A	1500 min^{-1}	3000 min^{-1}	3400 min^{-1}	0.842 kg cm²	0.921 kg cm²	2.40 kg	2.80 kg
AM8532-wDyz	2.38 Nm	1.70 A	1500 min^{-1}	3000 min^{-1}	3400 min^{-1}	2.050 kg cm²	2.140 kg cm²	3.00 kg	3.30 kg
AM8032-wEyz	2.37 Nm	2.95 A	3200 min^{-1}	6000 min^{-1}	6800 min^{-1}	0.842 kg cm²	0.921 kg cm²	2.40 kg	2.80 kg
AM8532-wEyz	2.37 Nm	2.95 A	3200 min^{-1}	6000 min^{-1}	6800 min^{-1}	2.050 kg cm²	2.140 kg cm²	3.00 kg	3.30 kg
AM8032-wHyz	2.37 Nm	5.10 A	6000 min^{-1}	9000 min^{-1}	9000 min^{-1}	0.842 kg cm²	0.921 kg cm²	2.40 kg	2.80 kg
AM8532-wHyz	2.37 Nm	5.10 A	6000 min^{-1}	9000 min^{-1}	9000 min^{-1}	2.050 kg cm²	2.140 kg cm²	3.00 kg	3.30 kg
AM8033-wEyz	3.20 Nm	2.10 A	1500 min^{-1}	3000 min^{-1}	3400 min^{-1}	1.220 kg cm²	1.460 kg cm²	3.00 kg	3.60 kg
AM8533-wEyz	3.20 Nm	2.10 A	1500 min^{-1}	3000 min^{-1}	3400 min^{-1}	2.440 kg cm²	----.	3.60 kg	---
AM8033-wFyz	3.22 Nm	4.10 A	3200 min^{-1}	6000 min^{-1}	6800 min^{-1}	1.220 kg cm²	1.460 kg cm²	3.00 kg	3.60 kg
AM8533-wFyz	3.22 Nm	4.10 A	3200 min^{-1}	6000 min^{-1}	6800 min^{-1}	2.440 kg cm²	---	3.60 kg	---
AM8033-wJyz	3.22 Nm	6.80 A	5900 min^{-1}	9000 min^{-1}	9000 min^{-1}	1.220 kg cm²	1.460 kg cm²	3.00 kg	3.60 kg
AM8533-wJyz	3.22 Nm	6.80 A	5900 min^{-1}	9000 min^{-1}	9000 min^{-1}	2.440 kg cm²	---	3.60 kg	---
AM8041-wDyz	2.37 Nm	1.65 A	1700 min^{-1}	3000 min^{-1}	3400 min^{-1}	1.080 kg cm²	1.730 kg cm²	2.80 kg	3.60 kg
AM8541-wDyz	2.37 Nm	1.65 A	1700 min^{-1}	3000 min^{-1}	3400 min^{-1}	4.630 kg cm²	5.270 kg cm²	3.80 kg	4.60 kg
AM8041-wEyz	2.45 Nm	3.00 A	3400 min^{-1}	6000 min^{-1}	6800 min^{-1}	1.080 kg cm²	1.730 kg cm²	2.80 kg	3.60 kg
AM8541-wEyz	2.45 Nm	3.00 A	3400 min^{-1}	6000 min^{-1}	6800 min^{-1}	4.630 kg cm²	5.270 kg cm²	3.80 kg	4.60 kg
AM8041-wHyz	2.40 Nm	5.25 A	6000 min^{-1}	8000 min^{-1}	8000 min^{-1}	1.080 kg cm²	1.730 kg cm²	2.80 kg	3.60 kg
AM8541-wHyz	2.40 Nm	5.25 A	6000 min^{-1}	8000 min^{-1}	8000 min^{-1}	4.630 kg cm²	5.270 kg cm²	3.80 kg	4.60 kg
AM8042-wEyz	4.10 Nm	2.15 A	1400 min^{-1}	2500 min^{-1}	2800 min^{-1}	1.970 kg cm²	2.620 kg cm²	3.80 kg	4.70 kg
AM8542-wEyz	4.10 Nm	2.15 A	1400 min^{-1}	2500 min^{-1}	2800 min^{-1}	5.530 kg cm²	6.160 kg cm²	4.90 kg	5.70 kg
AM8042-wFyz	4.10 Nm	4.10 A	2800 min^{-1}	5000 min^{-1}	5700 min^{-1}	1.970 kg cm²	2.620 kg cm²	3.80 kg	4.70 kg
AM8542-wFyz	4.10 Nm	4.10 A	2800 min^{-1}	5000 min^{-1}	5700 min^{-1}	5.530 kg cm²	6.160 kg cm²	4.90 kg	5.70 kg
AM8042-wJyz	4.10 Nm	6.90 A	5000 min^{-1}	8000 min^{-1}	8000 min^{-1}	1.970 kg cm²	2.620 kg cm²	3.80 kg	4.70 kg

AM8tuv-wxyz	Standstill torque	Stand still current	Rated speed at rated supply voltage			Rotor moment of inertia		Weight	
			230 V AC	400 V AC	480 V AC	without brake	with brake	without brake	with brake
AM8542-wJyz	4.10 Nm	6.90 A	5000 min^{-1}	8000 min^{-1}	8000 min^{-1}	5.530 kg cm²	6.160 kg cm²	4.90 kg	5.70 kg
AM8043-wEyz	5.65 Nm	2.90 A	1400 min^{-1}	2500 min^{-1}	2800 min^{-1}	2.870 kg cm²	3.520 kg cm²	4.90 kg	5.80 kg
AM8543-wEyz	5.65 Nm	2.90 A	1400 min^{-1}	2500 min^{-1}	2800 min^{-1}	6.430 kg cm²	---	6.00 kg	---
AM8043-wHyz	5.65 Nm	5.40 A	2700 min^{-1}	5000 min^{-1}	5700 min^{-1}	2.870 kg cm²	3.520 kg cm²	4.90 kg	5.80 kg
AM8543-wHyz	5.65 Nm	5.40 A	2700 min^{-1}	5000 min^{-1}	5700 min^{-1}	6.430 kg cm²	---	6.00 kg	---
AM8043-wKyz	5.60 Nm	9.30 A	5000 min^{-1}	8000 min^{-1}	8000 min^{-1}	2.870 kg cm²	3.520 kg cm²	4.90 kg	5.80 kg
AM8543-wKyz	5.60 Nm	9.30 A	5000 min^{-1}	8000 min^{-1}	8000 min^{-1}	6.430 kg cm²	---	6.00 kg	---
AM8051-wEyz	4.80 Nm	2.70 A	1400 min^{-1}	2500 min^{-1}	3000 min^{-1}	2.240 kg cm²	2.900 kg cm²	4.10 kg	4.90 kg
AM8551-wEyz	4.80 Nm	2.70 A	1400 min^{-1}	2500 min^{-1}	3000 min^{-1}	8.740 kg cm²	9.400 kg cm²	5.50 kg	6.10 kg
AM8051-wGyz	4.90 Nm	4.75 A	2700 min^{-1}	5000 min^{-1}	5700 min^{-1}	2.240 kg cm²	2.900 kg cm²	4.10 kg	4.90 kg
AM8551-wGyz	4.90 Nm	4.75 A	2700 min^{-1}	5000 min^{-1}	5700 min^{-1}	8.740 kg cm²	9.400 kg cm²	5.50 kg	6.10 kg
AM8051-wKyz	4.90 Nm	8.50 A	5000 min^{-1}	8000 min^{-1}	8000 min^{-1}	2.240 kg cm²	2.900 kg cm²	4.10 kg	4.90 kg
AM8551-wKyz	4.90 Nm	8.50 A	5000 min^{-1}	8000 min^{-1}	8000 min^{-1}	8.740 kg cm²	9.400 kg cm²	5.50 kg	6.10 kg
AM8052-wFyz	8.20 Nm	3.30 A	1100 min^{-1}	2000 min^{-1}	2400 min^{-1}	4.080 kg cm²	4.740 kg cm²	5.70 kg	6.60 kg
AM8552-wFyz	8.20 Nm	3.30 A	1100 min^{-1}	2000 min^{-1}	2400 min^{-1}	10.600 kg cm²	11.200 kg cm²	7.10 kg	7.90 kg
AM8052-wJyz	8.20 Nm	6.30 A	2200 min^{-1}	4000 min^{-1}	4500 min^{-1}	4.080 kg cm²	4.740 kg cm²	5.70 kg	6.60 kg
AM8552-wJyz	8.20 Nm	6.30 A	2200 min^{-1}	4000 min^{-1}	4500 min^{-1}	10.600 kg cm²	11.200 kg cm²	7.10 kg	7.90 kg
AM8052-wLyz	8.20 Nm	11.30 A	4000 min^{-1}	7500 min^{-1}	7500 min^{-1}	4.080 kg cm²	4.740 kg cm²	5.70 kg	6.60 kg
AM8552-wLyz	8.20 Nm	11.30 A	4000 min^{-1}	7500 min^{-1}	7500 min^{-1}	10.600 kg cm²	11.200 kg cm²	7.10 kg	7.90 kg
AM8053-wGyz	11.40 Nm	4.70 A	1100 min^{-1}	2000 min^{-1}	2400 min^{-1}	5.920 kg cm²	7.040 kg cm²	7.30 kg	8.30 kg
AM8553-wGyz	11.40 Nm	4.70 A	1100 min^{-1}	2000 min^{-1}	2400 min^{-1}	12.500 kg cm²	---	8.80 kg	---
AM8053-wKyz	11.40 Nm	8.80 A	2200 min^{-1}	4000 min^{-1}	4500 min^{-1}	5.920 kg cm²	7.040 kg cm²	7.30 kg	8.30 kg
AM8553-wKyz	11.40 Nm	8.80 A	2200 min^{-1}	4000 min^{-1}	4500 min^{-1}	12.500 kg cm²	---	8.80 kg	---
AM8053-wNyz	11.40 Nm	15.60 A	4000 min^{-1}	7000 min^{-1}	7000 min^{-1}	5.920 kg cm²	7.040 kg cm²	7.30 kg	8.30 kg
AM8553-wNyz	11.40 Nm	15.60 A	4000 min^{-1}	7000 min^{-1}	7000 min^{-1}	12.500 kg cm²	---	8.80 kg	---
AM8061-wGyz	12.80 Nm	4.00 A	800 min^{-1}	1500 min^{-1}	1700 min^{-1}	11.100 kg cm²	13.400 kg cm²	9.70 kg	11.30 kg
AM8561-wGyz	12.80 Nm	4.00 A	800 min^{-1}	1500 min^{-1}	1700 min^{-1}	48.200 kg cm²	50.600 kg cm²	13.20 kg	14.80 kg
AM8061-wJyz	12.80 Nm	7.80 A	1600 min^{-1}	3000 min^{-1}	3400 min^{-1}	11.100 kg cm²	13.400 kg cm²	9.70 kg	11.30 kg
AM8561-wJyz	12.80 Nm	7.80 A	1600 min^{-1}	3000 min^{-1}	3400 min^{-1}	48.200 kg cm²	50.600 kg cm²	13.20 kg	14.80 kg
AM8061-wMyz	12.80 Nm	13.10 A	2800 min^{-1}	5000 min^{-1}	5000 min^{-1}	11.100 kg cm²	13.400 kg cm²	9.70 kg	11.30 kg
AM8561-wMyz	12.80 Nm	13.10 A	2800 min^{-1}	5000 min^{-1}	5000 min^{-1}	48.200 kg cm²	50.600 kg cm²	13.20 kg	14.80 kg
AM8062-wJyz	21.10 Nm	6.20 A	800 min^{-1}	1500 min^{-1}	1700 min^{-1}	20.000 kg cm²	22.300 kg cm²	13.60 kg	15.40 kg
AM8562-wJyz	21.10 Nm	6.20 A	800 min^{-1}	1500 min^{-1}	1700 min^{-1}	57.100 kg cm²	59.600 kg cm²	17.00 kg	18.70 kg
AM8062-wLyz	21.10 Nm	12.40 A	1700 min^{-1}	3000 min^{-1}	3400 min^{-1}	20.000 kg cm²	22.300 kg cm²	13.60 kg	15.40 kg
AM8562-wLyz	21.10 Nm	12.40 A	1700 min^{-1}	3000 min^{-1}	3400 min^{-1}	57.100 kg cm²	59.600 kg cm²	17.00 kg	18.70 kg
AM8062-wPyz	21.10 Nm	20.30 A	2800 min^{-1}	5000 min^{-1}	5000 min^{-1}	20.000 kg cm²	22.300 kg cm²	13.60 kg	15.40 kg
AM8562-wPyz	21.10 Nm	20.30 A	2800 min^{-1}	5000 min^{-1}	5000 min^{-1}	57.100 kg cm²	59.600 kg cm²	17.00 kg	18.70 kg

AM8tuv-wxyz	Standstill torque	Stand still current	Rated speed at rated supply voltage			Rotor moment of inertia		Weight	
			230 V AC	400 V AC	480 V AC	without brake	with brake	without brake	with brake
AM8063-wKyz	29.00 Nm	8.70 A	800 min^{-1}	1500 min^{-1}	1700 min^{-1}	29.000 kg cm²	34.900 kg cm²	17.40 kg	20.10 kg
AM8563-wKyz	29.00 Nm	8.70 A	800 min^{-1}	1500 min^{-1}	1700 min^{-1}	66.100 kg cm²	---	20.90 kg	---
AM8063-wNyz	29.00 Nm	17.20 A	1700 min^{-1}	3000 min^{-1}	3400 min^{-1}	29.000 kg cm²	34.900 kg cm²	17.40 kg	20.10 kg
AM8563-wNyz	29.00 Nm	17.20 A	1700 min^{-1}	3000 min^{-1}	3400 min^{-1}	66.100 kg cm²	---	20.90 kg	---
AM8063-wRyz	29.00 Nm	29.50 A	3000 min^{-1}	4000 min^{-1}	4000 min^{-1}	29.000 kg cm²	34.900 kg cm²	17.40 kg	20.10 kg
AM8563-wRyz	29.00 Nm	29.50 A	3000 min^{-1}	4000 min^{-1}	4000 min^{-1}	66.100 kg cm²	---	20.90 kg	---
AM8071-wKyz	31,80 Nm	9,60 A	800 min^{-1}	1500 min^{-1}	1700 min^{-1}	49,600 kg cm²	68,300 kg cm²	23,80 kg	29,30 kg
AM8071-wNyz	31,80 Nm	17,80 A	1500 min^{-1}	3000 min^{-1}	3300 min^{-1}	49,600 kg cm²	68,300 kg cm²	23,80 kg	29,30 kg
AM8071-wRyz	29,00 Nm	28,2 A	3000 min^{-1}	4000 min^{-1}	4500 min^{-1}	49,600 kg cm²	68,300 kg cm²	23,80 kg	29,30 kg
AM8072-wLyz	54,60 Nm	11,10 A	500 min^{-1}	1000 min^{-1}	1100 min^{-1}	92,300 kg cm²	110,90 kg cm²	33,20 kg	38,70 kg
AM8072-wPyz	54,60 Nm	20,60 A	1000 min^{-1}	2000 min^{-1}	2200 min^{-1}	92,300 kg cm²	110,90 kg cm²	33,20 kg	38,70 kg
AM8072-wTyz	50,00 Nm	37,50 A	2000 min^{-1}	3000 min^{-1}	3300 min^{-1}	92,300 kg cm²	110,90 kg cm²	33,20 kg	38,70 kg
AM8073-wNyz	72,60 Nm	14,70°A	500 min^{-1}	1000 min^{-1}	1100 min^{-1}	134,90 kg cm²	153,60 kg cm²	44,80 kg	50,30 kg
AM8073-wQyz	72,60 Nm	27,90 A	1000 min^{-1}	2000 min^{-1}	2200 min^{-1}	134,90 kg cm²	153,60 kg cm²	44,80 kg	50,30 kg
AM8073-wTyz	70,00 Nm	45,60 A	2000 min^{-1}	3000 min^{-1}	3300 min^{-1}	134,90 kg cm²	153,60 kg cm²	44,80 kg	50,30 kg

Chapter Page

Table of contents – AM8000 and AM8500

1 Foreword

1.1 Notes on the documentation

This description is only intended for trained specialists in control, automation and drive engineering who are familiar with the applicable national standards. It is essential that the following notes and explanations are followed when installing and commissioning these components. The "General safety instructions" and "Special safety instructions for AM8000 and AM8500" sections are also essential.

The responsible staff must ensure that the application or use of the products described satisfy all the requirements for safety, including all the relevant laws, regulations, guidelines and standards.

 **CAUTION**	**Danger for persons, the environment or equipment** The motors are operated in the drive system in conjunction with Beckhoff servo drives. Please observe the entire documentation which consists of: – AM8000 and AM8500 documentation (this manual) – Complete documentation (online and paper) for Beckhoff servo drives available at www.beckhoff.com. – Complete machine documentation (provided by the machine manufacturer)

1.2 Disclaimer

This documentation has been prepared with care. The products described are, however, constantly under development.
For this reason, the documentation may not always have been fully checked for consistency with the performance data, standards or other characteristics described.
If it should contain technical or editorial errors, we reserve the right to make changes at any time and without notice.
No claims for the modification of products that have already been supplied may be made on the basis of the data, diagrams and descriptions in this documentation.

1.3 Brands

Beckhoff®, TwinCAT®, EtherCAT®, Safety over EtherCAT®, TwinSAFE® and XFC® are registered and licensed brand names of Beckhoff Automation GmbH.
The use by third parties of other brand names or trademarks contained in this documentation may lead to an infringement of the rights of the respective trademark owner.

1.4 Patents

The TwinCAT technology is patent protected, in particular by the following applications and patents:
EP0851348, US6167425 with the corresponding applications and registrations in various other countries.

1.5 Copyright

1.6 Documentation issue status

Ausgabe	Bemerkung
2.2	**Chapter update** 6.3.5, 6.3.11, 10.5.1, 10.6, 10.7 **New chapter** 6.6
2.1	General update (Series AM8500 added)
2.0	Not published
1.2	**New chapter** 6.3.8 **Chapter update** 10.7.1

1.1	**Chapter update** 8.2.1.1, 8.3, 8.4, 8.5, 8.6
1.0	First issue

1.7 Appropriate use

Synchronous servomotors of the AM8000 and AM8500 series are designed as drives for handling equipment, textile machines, machine tools, packaging machines and similar machines with demanding requirements in terms of dynamics. The motors of the AM8000 and AM8500 series are **exclusively** intended for speed- and/or torque-controlled operation via digital servo drives from Beckhoff.
The thermal protection contact incorporated in the motor windings must be analysed and monitored.

 **WARNING**	**Caution – Risk of injury!** Electronic equipment is not fail-safe. The machine manufacturer is responsible for ensuring that the connected motors and the machine are brought into a safe state in the event of a fault in the drive system.

The servomotors from the AM8000 and AM8500 series are exclusively designed for installation as components in electrical systems or machines and may only be operated as integrated components of the system or machine.
The motors may **only** be operated under the ambient conditions defined in this documentation.

2 Guidelines and Standards

CAUTION	**Danger for persons** Servomotors of the AM8000 and AM8500 series are **not** classified as products within the meaning of the EC Machinery Directive. Operation of the servomotors in machines or systems is only permitted once the machine or system manufacturers has provided evidence of EC conformity of the complete machine or system.

2.1 EC declaration of conformity

We,

Beckhoff Automation GmbH
Eiserstr. 5
33415 Verl
Germany

hereby declare, under our sole responsibility, that the product range

motor series AM8000
(types AM802x, AM803x, AM804x, AM805x, AM806x, AM807x)

motor series AM8500
(types AM853x, AM854x, AM855x, AM856x)

complies with following relevant regulations:

- EC Directive 2004/108/EC
  Electromagnetic compatibility
  Applied harmonised standard EN 61800-3

- EC Directive 2006/95/EC
  Electrical equipment designed for use within certain voltage limits
  Applied harmonised standard EN 61800-5-1

Attachment of the CE marking: 2012

Issued by: Management

H. Beckhoff

Verl, 25.05.2012

3 Safety

3.1 General safety instructions

3.1.1 Personnel qualification

This description is only intended for trained specialists in control, automation and drive engineering who are familiar with the applicable national standards.

3.1.2 Description of safety symbols

The following safety symbols and associated safety instructions are used in this document. These safety instructions must be read and followed.

 **DANGER**	**Serious risk of injury!** **Failure** to follow the safety instructions associated with this symbol directly endangers the life and health of persons.
 **WARNING**	**Caution – Risk of injury!** **Failure** to follow the safety instructions associated with this symbol endangers the life and health of persons.
 **CAUTION**	**Personal injuries!** **Failure** to follow the safety instructions associated with this symbol can lead to injuries to persons.
Attention	**Damage to the environment or devices!** **Failure** to follow the safety instructions associated with this symbol can lead to damage to the environment or equipment.
 **Note**	**Tip or pointer** This symbol indicates information that contributes to better understanding.
	**UL note** This symbol indicates important information regarding UL certification.

3.2 Special safety instructions for AM8000 and AM8500

The safety instructions are designed to avert danger and must be followed during installation, commissioning, production, troubleshooting, maintenance and trial or test assemblies.
The servomotors of the AM8000 and AM8500 series are not designed for stand-alone operation and are always installed in a machine or system. After installation the additional documentation and safety instructions provided by the machine manufacturer must be read and followed.

WARNING

Serious risk of injury through high electrical voltage!

- Never open the servomotor when it is live. The measured voltage between terminals U, V and W must have dropped below 50 V. Opening the device would invalidate any warranty and liability claims against Beckhoff Automation GmbH.
- Negligent, improper handling of the servomotor and bypassing of the safety devices can lead to personal injury or death through electric shock.
- Ensure that the protective conductor is connected properly.
- The machine manufacturer must prepare a hazard analysis for the machine, and must take appropriate measures to ensure that unexpected movements cannot lead to injury to persons or to material damage.
- Power leads may be live, even if the motor is not running. Never undo the electrical connections to the motor when it is live. Under unfavourable conditions arcing may occur, resulting in injury and damage to contacts.
- Disconnect the servomotor from the servo drive and secure it against reconnection before working on electrical parts with a voltage > 50 V.
- The DC link voltage of the servo drive may exceed 890 V_{DC}. Wait until the DC link capacitors are discharged before touching live terminals. The measured voltage between terminals DC+ and DC- (X02) must have dropped below 50 V_{DC}.

WARNING

Serious risk of injury through hot surfaces!

- The surface temperature may exceed 50 °C, resulting in a risk of burns.
- Avoid touching the housing during or shortly after operation.
- Leave the servomotor to cool down for at least 15 minutes after it is switched off.
- Use a thermometer to check whether the surface has cooled down sufficiently.

Attention

Danger for persons

- Carefully read this manual before using the servomotor thoroughly, paying particular attention to the safety instructions. In the event of any uncertainties please notify your sales office immediately and refrain from working on the servomotor.
- Only well trained, qualified electricians with sound knowledge of drive equipment may work on the device.
- During installation it is essential to ensure that the specified ventilation clearances and climatic conditions are adhered to. Further information can be found in the "Technical data" and "Mechanical installation" sections.
- If a servomotor is installed in a machine it must not be commissioned until proof of compliance of the machine with the latest version of the EC Machinery Directive has been provided. This includes all relevant harmonised standards and regulations required for implementation of this Directive in national legislation.

4 Handling

4.1 Transport

- Climate category: 2K3 according to EN 60721
- Transport temperature: -25 °C - +70 °C, max. fluctuation 20 K/hour
- Transport humidity: relative humidity 5% - 95%, non-condensing
- The servomotor may only be transported by qualified personnel and in the manufacturer's original recyclable packaging.
- Avoid hard impacts, particularly at the shaft end.
- If the packaging is damaged, check the motor for visible damage. Inform the transport company and, if necessary, the manufacturer.

4.2 Packaging

- Cardboard packaging

Motor type	Max. stacking height
AM802x	10
AM803x and AM853x	6
AM804x and AM854x	6
AM805x and AM855x	5
AM806x and AM856x	2
AM807x	1

4.3 Storage

- Climate category 2K3 according to EN 60721
- Storage temperature: -25 °C - +70 °C, max. fluctuation 20 K/hour
- Air humidity: relative humidity 5% - 95%, non-condensing
- Max. stacking height: see table Packaging
- Storage time: without limitation
- Store only in the manufacturer’s original recyclable packaging

4.4 Maintenance / Cleaning

- Maintenance and cleaning only by qualified personnel.
- The ball bearings have a grease filling with a service life of 30,000 hours under normal operating conditions. The bearings should be replaced after 30,000 hours of operation under rated conditions.
- Check the motor for bearing noise every 2,500 operating hours or once per year. If any noises are heard, stop the operation of the motor. The bearings must be replaced.
- In motors with optional shaft seal ring the ring must be lubricated every 5,000 hours. We recommend “Mobile FM 222 lubricant”
- Opening the motor invalidates the warranty.
- Clean the housing with isopropanol or similar.

Attention	**Destruction of the servomotor** Never immerse or spray the servomotor.

4.5 Disposal

- In accordance with the WEEE 2002/96/EC Directives we take old devices and accessories back for professional disposal, provided the transport costs are taken over by the sender. Please send the devices to:

  Beckhoff Automation GmbH

  Eiserstrasse 5

  33415 Verl

  Germany

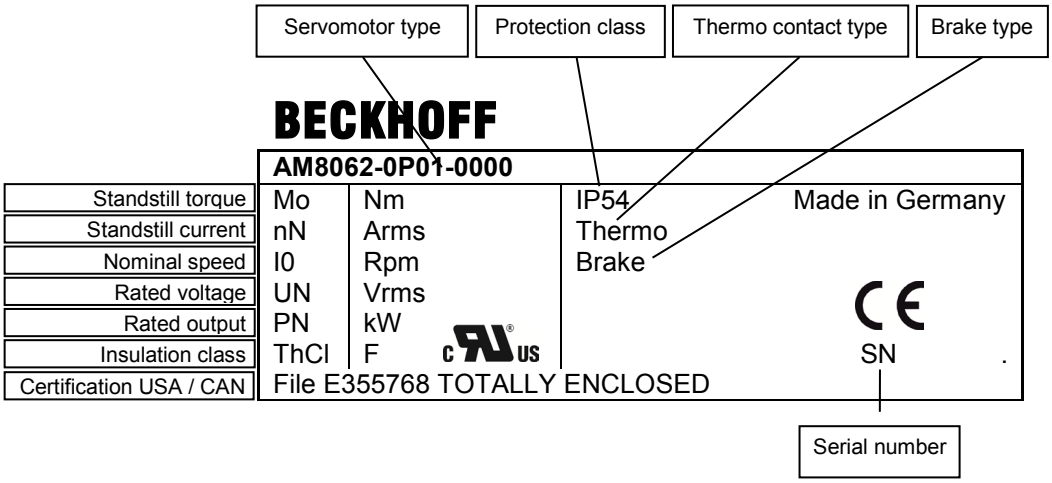
5 Product identification

5.1 AM8000 and AM8500, scope of supply

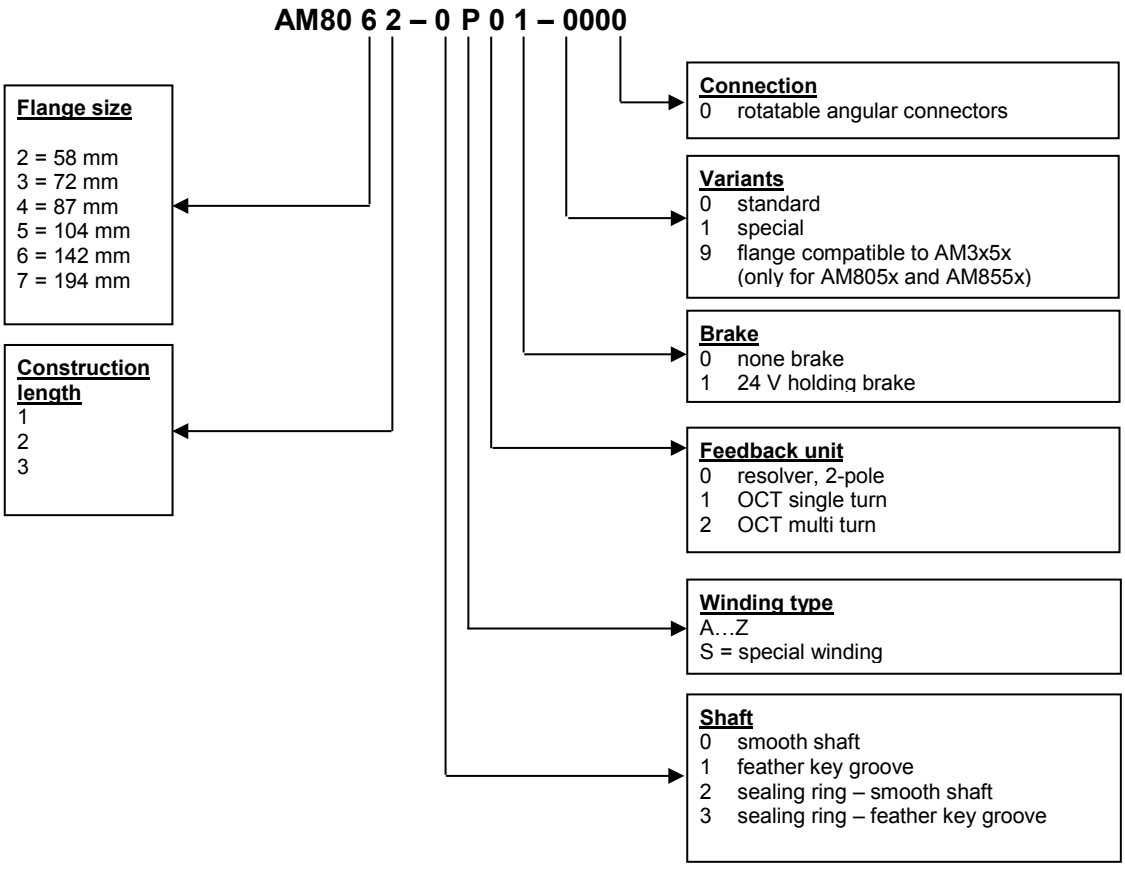
Please check that the delivery includes the following items:

- Motor from the AM8000 or AM8500 series
- Leaflet (short info)

5.2 AM8000 and AM8500 nameplate



5.3 Type key AM8000 and AM8500



6 Technical description

6.1 Design of the motors

The synchronous servomotors of the AM8000 and AM8500 series are brushless three-phase motors for demanding servo-applications. In conjunction with our digital servo drives they are particularly suitable for positioning tasks in industrial robots, machine tools, transfer lines etc. with demanding requirements in terms of dynamics and stability.

The servomotors are equipped with permanent magnets in the rotor. This advanced neodymium magnetic material makes a significant contribution to the motors' exceptional dynamic properties. A three-phase winding is housed in the stator, and this is powered by the servo drive. The motor has no brushes, the commutation being implemented electronically in the servo drive.

The winding temperature is measured with a KTY 84.130 PTC silicon sensor and monitored in the servo drive.

The motors are available with or without built-in holding brake. The brake cannot be retrofitted.

The motors have a matt black powder coating (RAL 7016). The finish is not resistant against solvents (e.g. trichlorethylene, thinners or similar).

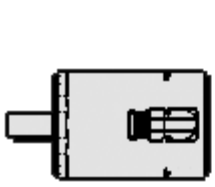
6.2 General technical data

Climate category	3K3 according to EN 60721
Ambient temperature (at rated values)	+5 - +40 °C for site altitudes up to 1000 m amsl It is vital to consult our applications department for ambient temperatures above 40 °C and encapsulated installation of the motors.
Permissible humidity (at rated values)	95% relative humidity, non-condensing
Power derating (currents and torques)	For site altitudes above 1000 m amsl and 40 °C 6% at 2000 m amsl 17% at 3000m amsl 30% at 4000m amsl 55% at 5000m amsl No derating for site altitudes above 1000 m amsl with temperature reduction of 10K / 1000m
Ball bearing service life	≥30.000 operating hours
Technical data	→ see Section 10
Storage and transport data	→ see Section 4

6.3 Standard features

6.3.1 Style

The basic style for the AM8000 and AM8500 synchronous servomotors is IM B5 according to DIN EN 60034-7.



IM B 5 (B5)

IM V 3 (V3)

IM V 1 (V1)

The permitted mounting positions are specified in the technical data.

Attention	**Motor damage** To avoid liquid entry damaging the motor, fluids (i.e. used for cleaning purposes) must be removed from shaft when motor is mounted according to IM V3.

6.3.2 Shaft end, A-side

Load transmission occurs force locked (zero-play) with a clutch on the cylindric end of the shaft A or optionally by keyed connection with feather key groove according to DIN 6885. The lifecycle of the bearings is 30.000 operating hours.

Radial force
If the motors drive via pinions or toothed belts, then high radial forces will occur. The permissible values at the shaft end, depending on the speed, may be read from the diagrams in the Section 10. Please use the force calculation program available from our website for exact calculation of the radial forces.

Axial force
Axial forces arise when assembling pinions or pulleys on the shaft and using angular gearheads, for example. Please use the force calculation program available from our website for exact calculation of the radial forces.

Coupling
Double-coned collets, possibly in association with metal bellows couplings, have proven themselves as excellent, zero backlash coupling elements.

6.3.3 Flange

Flange dimensions according to IEC standard, fit j6, accuracy according to DIN 42955
Tolerance class: **N**

6.3.4 Protection class

Standard version - housing	IP65
Standard version - shaft feedthrough	IP54
Shaft feedthrough with shaft sealing ring	IP65

6.3.5 Overtemperature protection

The standard version of each motor is fitted with a KTY 84.130.
Provided our preassembled motor cable is used, the KTY is integrated into the monitoring system of the digital servo amplifiers. Please configure the servo drive such that a motor temperature warning is issued at 100 °C and the motor is switched off at 140 °C.

6.3.6 Insulation material class

The motors conform to insulation material class F according to IEC 60085 (UL 1446 class F).

6.3.7 Vibration class

The motors are made to vibration class A according to DIN EN 60034-14. For a speed range of 600-3600 rpm and a shaft centre height between 54 - 97 mm, this means that the actual value of the permitted vibration severity is 1.6 mm/s.

Speed [rpm]	Max. rel. vibration displacement [µm]	Max. run-out [µm]
<= 1800	90	23
> 1800	65	16

6.3.8 Vibrations and shocks

OCT, singleturn and multiturn
Vibration according to EN 60068-2-6 50 g / 10…2000 Hz
Shocks according to EN 60068-2-27 100 g / 6 ms

6.3.9 Connection technology

The motors are fitted with rotatable, angular connectors for the power supply and the feedback signals (only resolver).

The mating connectors are not included in the scope of supply. We can supply preassembled feedback (only resolver) and power cables.

6.3.10 Feedback system

Standard	OCT, Singleturn, Multiturn	Optical, Digital
Option	Resolver	Two-pole, hollow shaft

Note

Feedback exchange

The feedback system installed can only be replaced with an identical system. Retrofitting a different system is not possible.

6.3.11 Holding brake

WARNING

Serious risk of injury!

The holding brake is not personal safety. If the brake is released then the rotor can be moved without a remanent torque!

The motors are optionally available with an in-built holding brake. The permanent magnet brake blocks the rotor in de-energised state. **The holding brakes are designed as standstill brakes** and are not suited for repeated operational braking.

The holding brakes can be controlled directly by the servo drive (no personal safety!). The brake voltage is then switched off in the servo drive — no additional wiring is required.

If the holding brake is not controlled directly by the servo drive, additional circuitry (e.g. varistor) is required. Consult our applications department beforehand.

The maximum number of brake cycles is 10 million.

Note

Motor length

The motor length depends on the built-in holding brake, among other factors. It is not possible to fit one at a later date.

6.3.12 Pole number

Motor	Poles	Motor	Poles
AM802x	6	AM805x, AM855x	8
AM803x, AM853x	8	AM806x, AM856x	10
AM804x, AM854x	8	AM807x	10

6.4 Options

Holding brake
The holding brake is integrated in the motor. It increases the motor length.

Radial shaft-sealing ring
Radial shaft-sealing ring (FKM) for sealing against splash water. This increases the protection class of the shaft bushing to IP65.

Feather key
The motors are available with feather key groove and fitted feather key according to DIN6885. The rotor is balanced with half a feather key.

Resolver
This model features a different feedback system in place of the OCT.

Note	**Installation options and reduction of rated values** With the exception of the sealing ring, the options cannot be retrofitted. The option sealing ring can lead to a reduction of the rated data.

6.5 Selection criteria

The three-phase servomotors are designed for operation with servo drives.
Both units together form a speed or torque control loop.

The main selection criteria are:

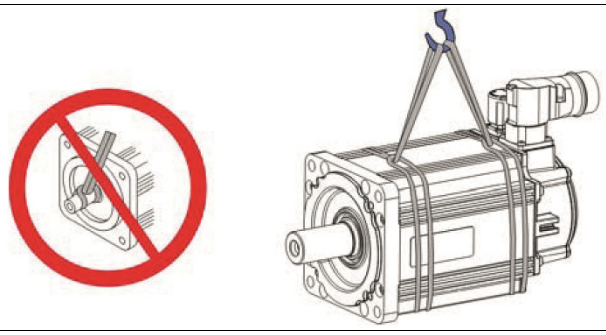
— Standstill torque	**M0 [Nm]**
— Maximal torque	**Mmax [Nm]**
— Rated speed at rated supply voltage	**nn [min-1]**
— Moment of inertia of motor and load	**J [kgcm²]**
— Effective torque (calculated)	**Mrms [Nm]**

The static load **and** the dynamic load (acceleration/braking) must be taken into account in the calculation of the required motors and servo drives. Formulas and calculation example are available from our applications department on request.

6.6 Transport, assembly and disassembly

CAUTION	**Personal injuries!** Protective clothing, protective gloves and safety boots must be worn at all times during transport, assembly and disassembly. Do not step under suspended motors.

The motors of the AM8x1x to AM8x5x series can be moved without auxiliary equipment**.**



The motors of the AM8x6x series can be moved with loop belts.

The motors of the AM8x7x series are equipped with eyebolts as standard. These eyebolts are suitable for crane hooks.

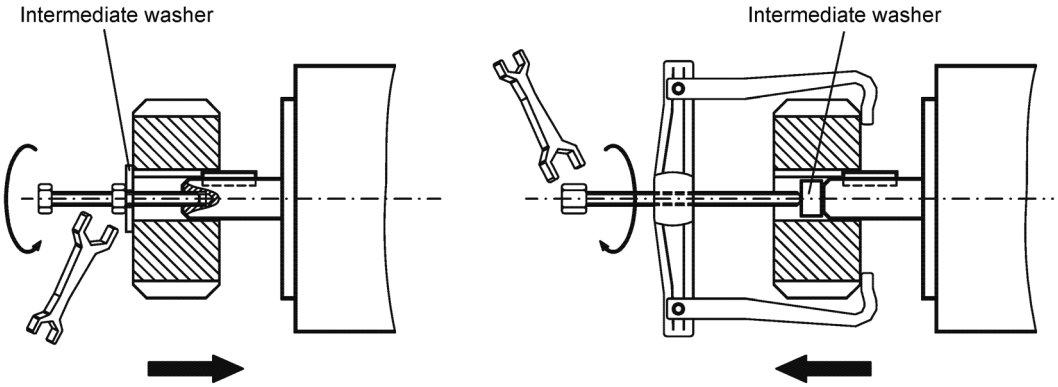
7 Mechanical installation

7.1 Important notes

Attention

Destruction of the motors

- Protect the motors from unacceptable stresses. Take care, especially during transport and handling that components are not bent and that insulation clearances are not altered.
- The site must be free of conductive and aggressive material. For V3-mounting (shaft end upwards), make sure that no liquids can enter the bearings. If an encapsulated assembly is required, please consult our applications department beforehand.
- Ensure unhindered ventilation of the motors and observe the permissible ambient and flange temperatures. For ambient temperatures above 40 °C please consult our applications department beforehand.
- Servomotors are precision devices. The flange and shaft are especially vulnerable during storage and assembly. It is important to use the locking thread which is provided to tighten up couplings, gear wheels or pulleys and warm up the drive components, where possible. Blows or the use of force will lead to damage to the ball bearings, shaft and feedback system.



- Wherever possible, use only backlash-free, frictionally-locking collets or couplings. Ensure correct alignment of the couplings. A displacement will cause unacceptable vibration and the destruction of the ball bearings and the coupling.
- For toothed belts, it is vital to observe the permissible radial forces. An excessive radial load on the shaft will significantly shorten the life of the motor.
- Avoid axial loads on the motor shaft, as far as possible. Axial loading significantly shortens the life of the motor.
- In any case, avoid creating a mechanically constrained motor shaft mounting by using a rigid coupling with additional external bearings (e.g. in a gearbox).
- Take note of the no. of motor poles and the no. of resolver poles and ensure that the correct setting is made in the used servo drives. An incorrect setting can lead to the destruction of the motor, especially with small motors.
- Check compliance the permitted radial and axial loads F_R and F_A. When using a toothed belt drive, the **minimum** permitted diameter of the pinion follows from the equation: $d_{\min} \geq \frac{M_0}{F_R} x2$

8 Electrical installation

8.1 Important notes

DANGER	**Serious risk of injury through electric shock!** • Only staffs qualified and trained in electrical engineering are allowed to wire up the motor. • Check the assignment of the servo drive and the motor. Compare the rated voltage and the rated current of the devices. • Always make sure that the motors are de-energised during assembly and wiring, i.e. no voltage may be switched on for any piece of equipment which is to be connected. Ensure that the control cabinet remains turned off (barrier, warning signs etc.). The individual voltages will only be turned on again during commissioning. • Never undo the electrical connections to the motor when it is live. A dangerous voltage, resulting from residual charge, can be still present on the capacitors 5 minutes after switch-off of the mains supply. Measure the DC link voltage and wait until it has fallen below 50 V_{DC}. Control and power leads may be live, even if the motor is not running.
Attention	**Failure-free operation** • Ensure that the servo drive and the motor are earthed properly. See below for further information regarding EMC shielding and earthing. Earth the mounting plate and motor housing. Further details of connection types can be found in Section 8.2 • Only use cables approved by Beckhoff for operating the AM8000 and AM8500 with the “one-cable technology” (OCT). • Route the power and control cables as separately as possible from one another (separation > 20 cm). This will improve the immunity of the system to electromagnetic interference. If a motor power cable is used which includes integral brake control leads, then these brake control leads must be shielded. The shielding must be connected at both ends (see Section 8.3 – 8.6) • Install all cables carrying a heavy current with an adequate cross-section, as per EN 60204. The recommended cross-section can be found in the technical data. • Wiring: Connect the feedback cable Connect the motor cables Connect shields to shield terminals or EMC connectors at both ends Connect the temperature contact Connect the motor holding brake
Attention	**HF interference** • The ground symbol ⏚, which you will find in the wiring diagrams, indicates that you must provide an electrical connection, with as large a surface area as possible, between the unit indicated and the mounting plate in the control cabinet. This connection is to suppress HF interference and must not be confused with the PE (protective earth) symbol (protective measure according to EN 60204). Follow the instructions in the circuit diagrams in Sections 8.3 to 8.6
Note	**Motor cable length at servo drives up to 25 A** **Motors with max. 400 V rated voltage:** If the length of the motor cable is ≥ 25 m, then a motor choke is required for each motor. **Motors with max. 480 V rated voltage:** If the length of the motor cable is > 20 m, then a motor choke is required for each motor. The control cabinet should then have adequate space for motor chokes. In exceptional cases (sensitive sensors etc.) it can be necessary to use a motor choke even for motor cable lengths < 25 / 20 m. The motor choke is supplied with a connection cable. Do not alter the configuration (cable length, cross-section etc.).

8.2 Connection of motors with pre-assembled cables

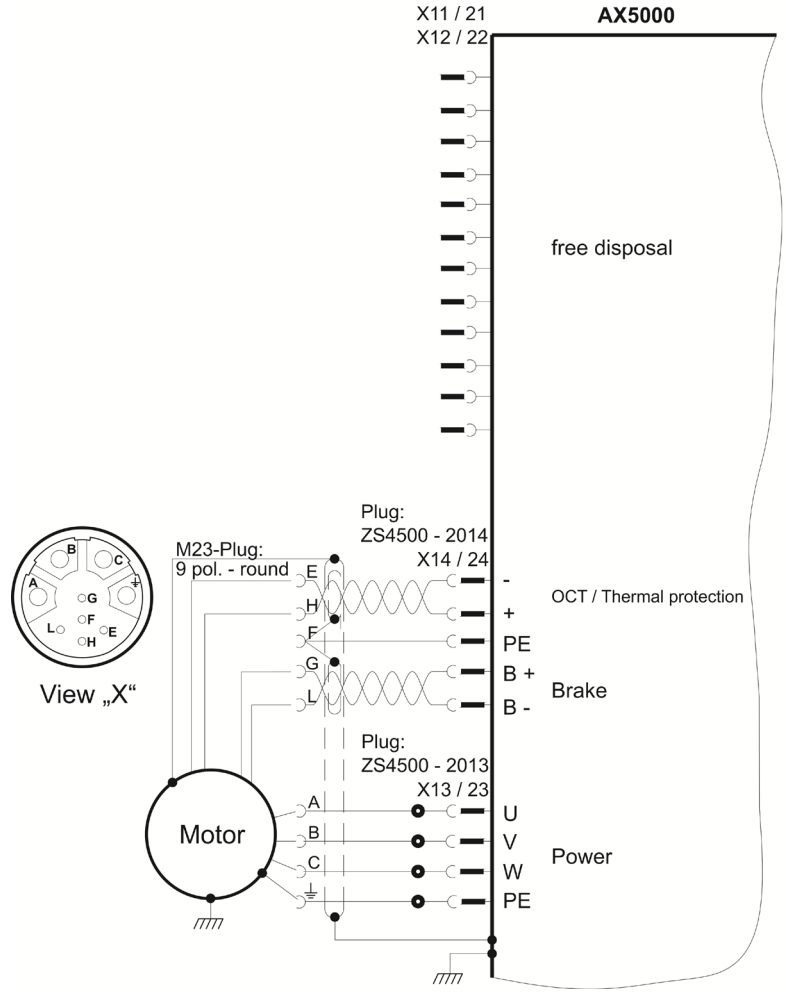
Beckhoff offers preassembled motor and feedback cables for safe, faster and flawless installation of the motors. Beckhoff cables have been tested with regard to the materials, shielding and connectors used. They ensure proper functioning and compliance with statutory regulations such as EMC, UL etc. The use of other cables may lead to unexpected interference and invalidate the warranty.

- Carry out the wiring in accordance with the valid standards and regulations.
- Only use our preassembled shielded cables for the power and feedback connections.
- Connect up the shielding according to the wiring diagrams in sections 8.3 to 8.6. Incorrectly installed shielding inevitably leads to EMC interference.

Detailed specifications of the cables are listed on our homepage
Download→ Documentation→ Drive Technology→ Cable.

8.3 AX5000 connection diagram for motors with OCT-Feedback

Servo drives: AX5101 – AX5125 and AX52xx
Motors : AM804x – AM806x and AM854x – AM856x

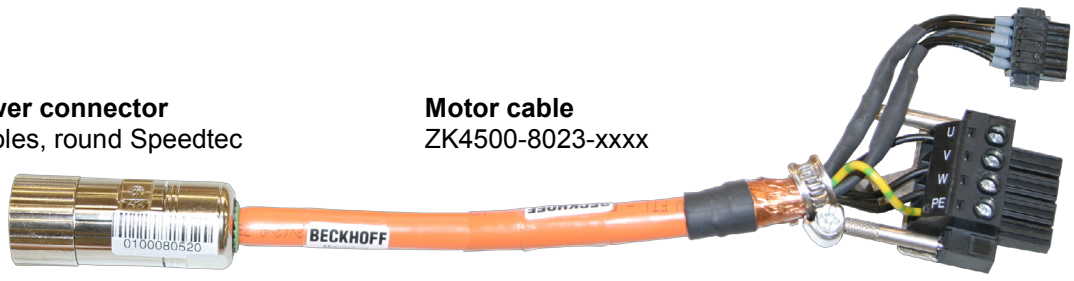


OCT / Thermal protection, Brake

Power connector
9-poles, round Speedtec

Motor cable
ZK4500-8023-xxxx

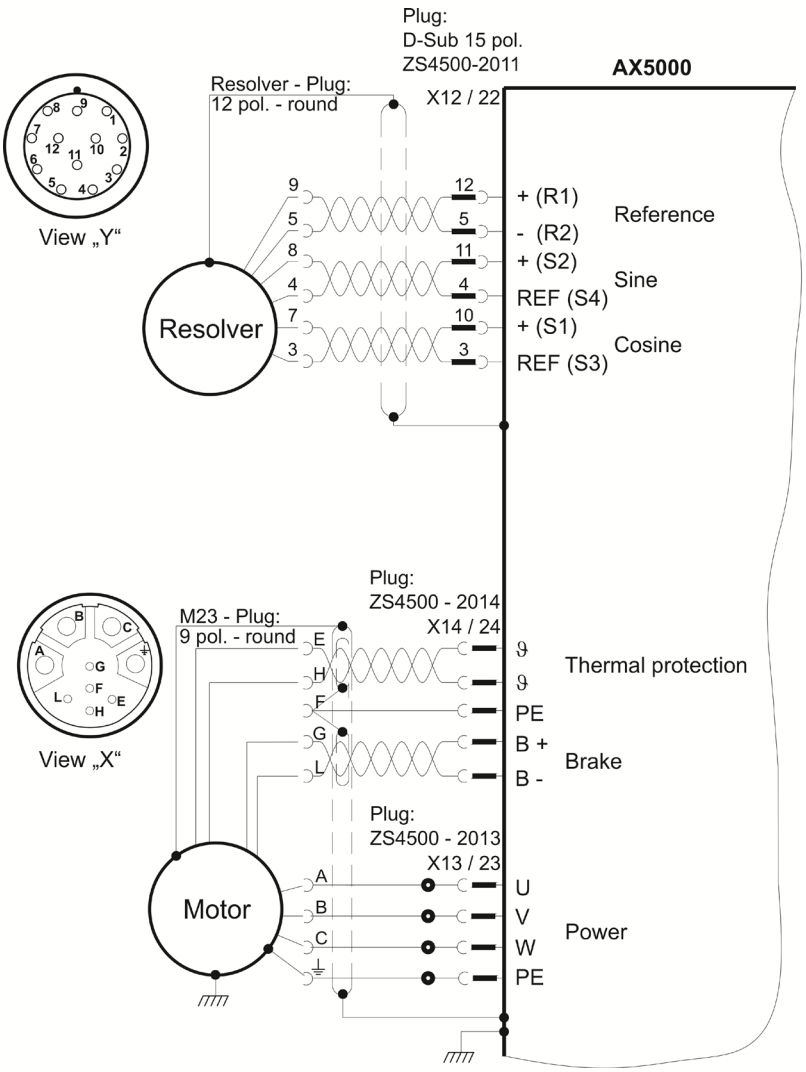
View “X”

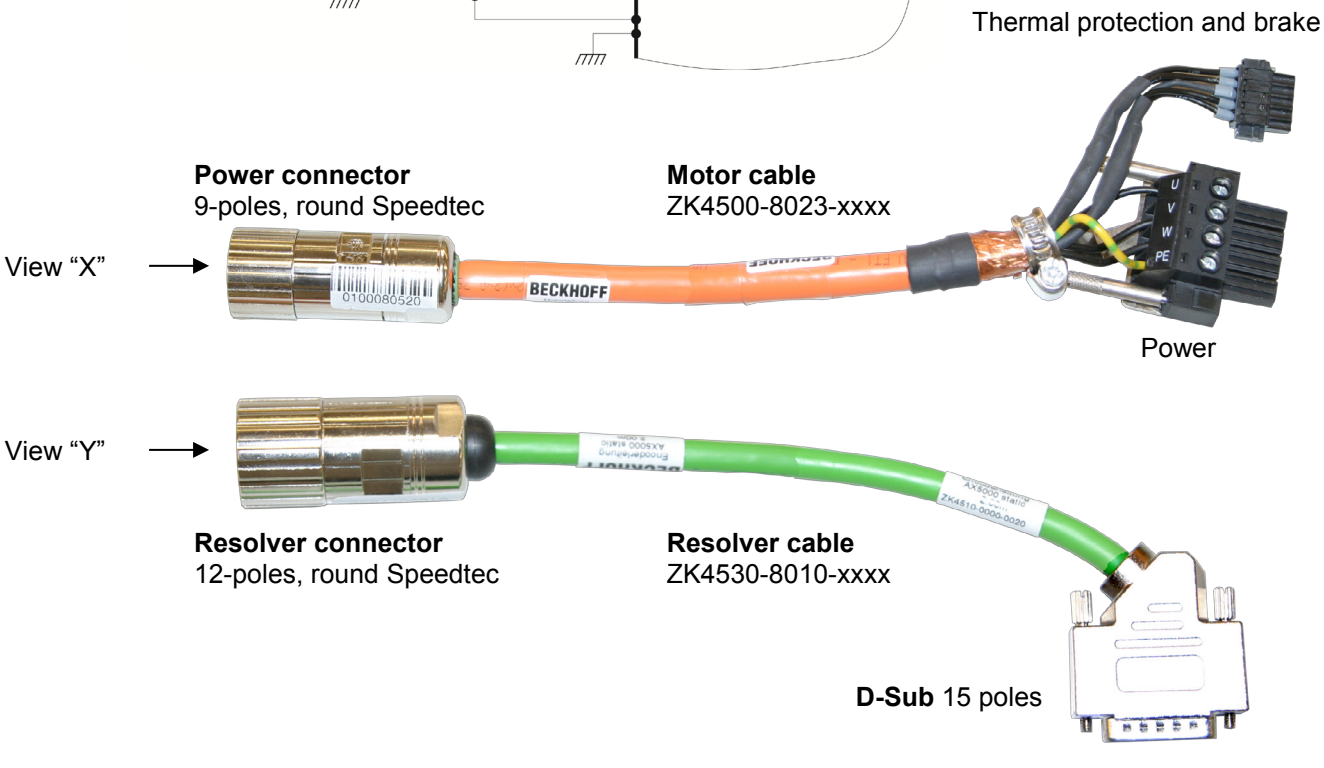


Power

8.4 AX5000 connection diagram for motors with resolver

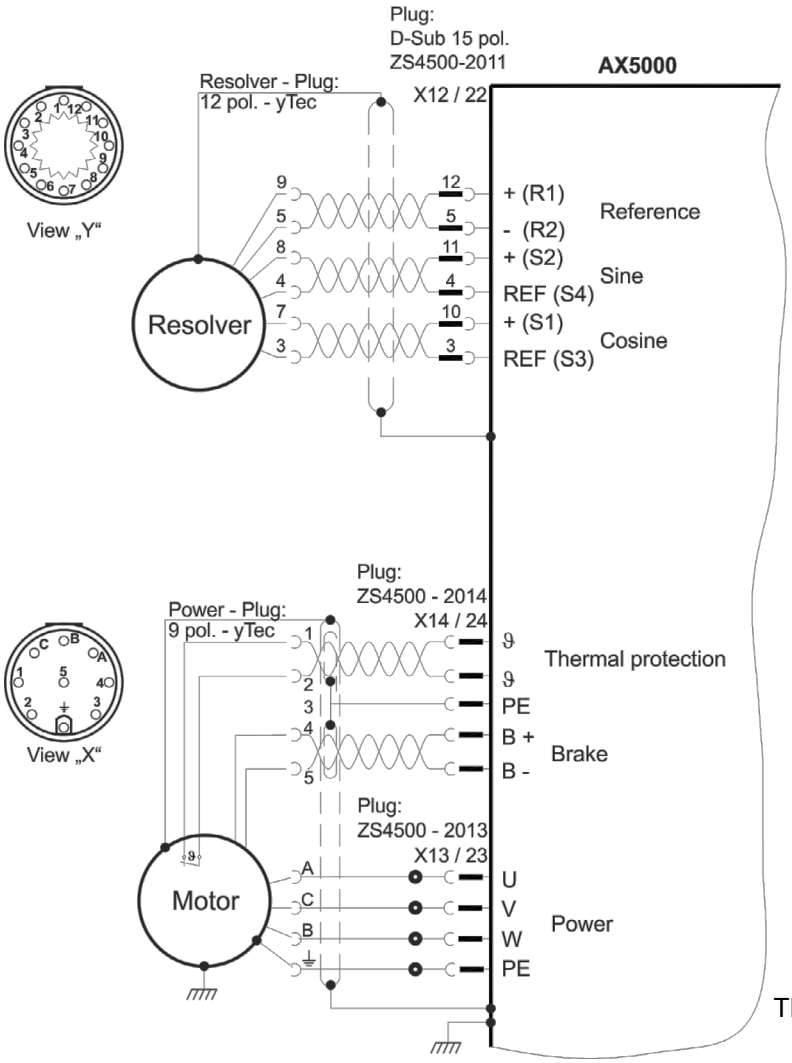
Servo drives: AX5101 – AX5125 and AX52xx
Motors : AM804x – AM806x and AM854x – AM856x





8.5 AX5000 connection diagram for motors with resolver and yTec-plug

Servo drives: AX5101 – AX5112 and AX52xx
Motors : AM802x – AM803x and AM853x



Thermal protection and Brake

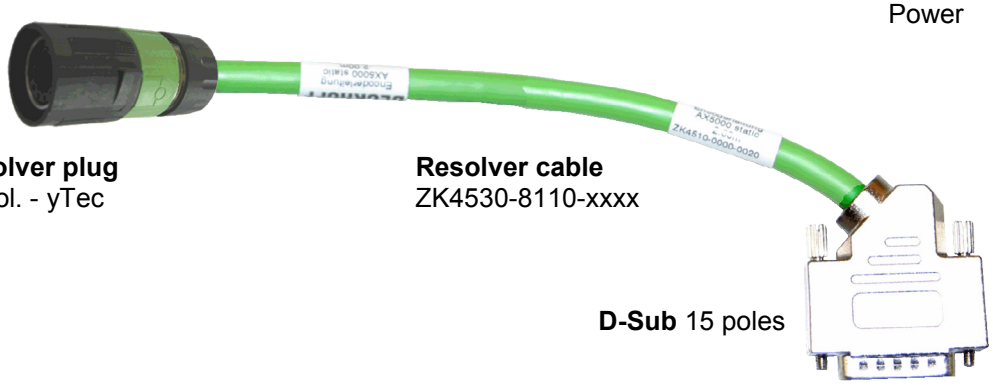
Power plug
9 pol. - yTec

Motor cable
ZK4500-8022-xxxx

View “X” →

Power

View “Y” →



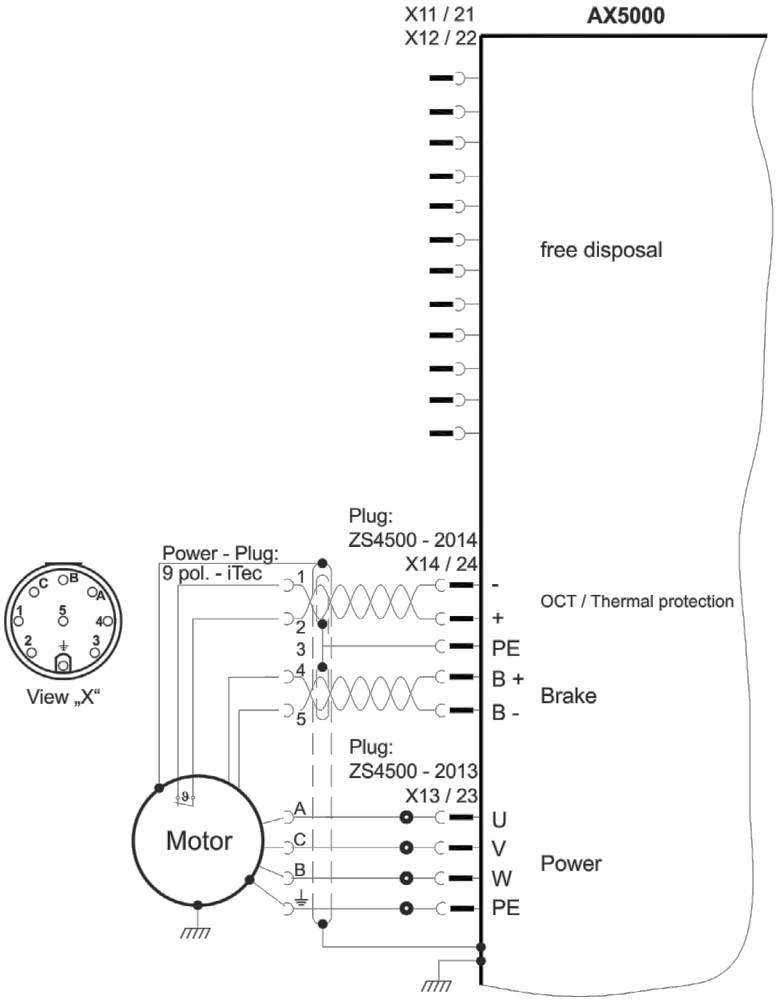
Resolver plug
12 pol. - yTec

Resolver cable
ZK4530-8110-xxxx

D-Sub 15 poles

8.6 AX5000 connection diagram for motors with OCT and iTec-plug

Servo drives: AX5101 – AX5112 and AX52xx
Motors : AM802x – AM803x and AM853x



OCT / Thermal protection, Brake

Power plug
9 pol. - iTec

Motor cable
ZK4500-8022-xxxx

View “X” →

Power

9 Commissioning

9.1 Important notes

 **DANGER**	**Serious risk of injury!** • Only specialist personnel with extensive knowledge in the areas of electrical engineering / drive technology are allowed to install and commission the equipment. • Check that all live connection points are protected against accidental contact. Dangerous voltages can occur, up to 900 V_{DC}. • Never undo the electrical connections to the motor when it is live. The residual charge in the capacitors of the servo drives can produce dangerous voltages up to 5 minutes after the mains supply has been switched off. • The surface temperature of the motor can exceed 100 °C in operation. Check (measure) the temperature of the motor. Wait until the motor has cooled down below 40 °C before touching it. • Make sure that, even if the drive starts to move unintentionally, no danger can result for personnel or machinery.

9.2 Guide for commissioning

The procedure for commissioning is described as an example.
A different method may be appropriate or necessary, depending on the application of the equipment.

- Check the assembly and orientation of the motor.
- Check the drive components (coupling, gear unit, pulley) for the correct seating and setting (observe the permissible radial and axial forces).
- Check the wiring and connections to the motor and the servo drive. Check that the earthing is correct.
- Test the function of the holding brake, if used. (apply 24 V_{DC}, the brake must be released).
- Check whether the rotor of the motor revolves freely (release the brake, if necessary). Listen out for grinding noises.
- Check that all the required measures against accidental contact with live and moving parts have been carried out.
- Carry out any further tests which are specifically required for your system.
- Now commission the drive according to the commissioning instructions for the servo drive.
- In multi-axis systems, individually commission each drive unit (servo drive/motor(s)).

9.3 Troubleshooting

The following table is to be seen as a “First Aid” box. There can be a large number of different reasons for a fault, depending on the particular conditions in your system. The fault causes described below are mostly those which directly influence the motor. Peculiarities which show up in the control behaviour can usually be traced back to an error in the parameterisation of the servo drive. The documentation for the servo drive and the commissioning software provides information on these matters.

For multi-axis systems there may be further hidden reasons for faults.

Our applications department can give you further help with your problems.

Fault	Possible cause	Measures to remove the cause of the fault
Motor doesn't rotate	• Servo drive not enabled • Break in setpoint lead • Motor phases in wrong sequence • Brake not released • Drive is mechanically blocked	• Supply ENABLE signal • Check setpoint lead • Correct the phase sequence • Check brake control • Check mechanism
Motor runs away	• Motor phases in wrong sequence	• Correct the phase sequence
Motor oscillates	• Break in the shielding of the feedback cable • Amplification to high	• Replace feedback cable • Use motor default values
Error message: brake	• Short-circuit in the supply voltage lead to the motor holding brake • Faulty motor holding brake	• Remove the short circuit • Replace motor
Error message: output stage fault	• Motor cable has short circuit or earth leakage • Motor has short circuit or earth leakage	• Replace motor cable • Replace motor
Error message: feedback	• Connector is not properly plugged in • Break in cable, cable crushed or similar	• Check connector • Check cables
Error message: motor temperature	• Motor thermostat has switched • Loose connector or break in cable	• Wait until the motor has cooled down. Then investigate why the motor becomes so hot. • Check connector, replace cable if necessary
Brake does not grip	• Required holding torque too high • Brake faulty	• Check the dimensioning • Replace motor

10 Technical data

All data valid for 40 °C ambient temperature and 100 K overtemperature of the winding.
The data can have a tolerance of +/- 10%.
If a gear unit is attached the power may be reduced by up to 20%. This loss in performance has thermal reasons, since a gear unit that is subject to warming is installed at the motor flange intended for heat dissipation.

10.1 Term definitions

Standstill torque M_0 [Nm]
The standstill torque can be maintained indefinitely at a speed n<100 rpm and rated ambient conditions.

Rated torque M_n [Nm]
The rated torque is produced when the motor is drawing the rated current at the rated speed.
The rated torque can be produced indefinitely at the rated speed in continuous operation (S1).

Standstill current I_{0rms} [A]
The standstill current is the effective sinusoidal current which the motor draws at n<100 rpm to produce the standstill torque.

Peak current (pulse current) I_{0max} [A]
The peak current (effective sinusoidal value) is approximately equivalent to 5-times the rated standstill current (3-times at AM806x, AM807x and AM856x). The peak current of the servo drive used must be smaller.

Torque constant K_{Trms} [Nm/A]
The torque constant defines how much torque in Nm is produced by the motor with 1A r.m.s. current. The relationship is M=I x K_T (up to I = 2 x I_0)

Voltage constant K_{Erms} [mVmin]
The voltage constant defines the induced motor EMF, as an effective sinusoidal value between two terminals, at 20 °C per 1000 rpm.

Rotor moment of inertia J [kgcm²]
The constant J is a measure of the acceleration capability of the motor. For instance, at I_0 the acceleration time t_b from 0 to 3000 rpm is given as:

$$t_b\,[S] = \frac{3000\ x\ 2\pi}{M_0\ x\ 60s}\ x\ \frac{m^2}{10^4\ cm^2}\ x\ J$$

with M_0 in Nm and J in kgcm²

Thermal time constant t_{TH} [min]
The constant t_{TH} defines the time for the cold motor, under a load of I_0 to heat up to an overtemperature of 0.63 x 100 Kelvin.
This temperature rise happens in a much shorter time when the motor is loaded with the peak current.

Release delay time t_{BRH} [ms] / Application delay time t_{BRL} [ms] of the brake
These constants define the response times of the holding brake when operated with the rated voltage from the servo drive.

10.2 AM802x

Technical data		Symbol [Unit]	AM80xx											
			21B	21D	22D	22E	23E	23F						
Electrical data														
	Standstill torque *	M_0 [Nm]	0,50	0,50	0,80	0,80	1,20	1,20						
	Standstill current	I_{orms} [A]	0,85	1,60	1,50	2,44	2,20	3,40						
	Max. mechanical speed	N_{max} [min^{-1}]	12000											
	Max. rated mains voltage	U_N [VAC]	480											
U_N = 115V	**Rated speed**	**N_n [min^{-1}]**	**2000**	**4000**	**1500**	**4000**	**2000**	**4000**						
	Rated torque *	M_n [Nm]	0,50	0,50	0,78	0,76	1,15	1,11						
	Rated output	P_n [kW]	0,10	0,21	0,12	0,32	0,24	0,46						
U_N = 230V	**Rated speed**	**N_n [min^{-1}]**	**4000**	**8000**	**4500**	**8000**	**4500**	**8000**						
	Rated torque *	M_n [Nm]	0,50	0,50	0,75	0,70	1,10	1,00						
	Rated output	P_n [kW]	0,21	0,42	0,35	0,59	0,52	0,84						
U_N = 400V	**Rated speed**	**N_n [min^{-1}]**	**8000**	**9000**	**8000**	**9000**	**8000**	**9000**						
	Rated torque *	M_n [Nm]	0,50	0,50	0,70	0,65	1,00	0,90						
	Rated output	P_n [kW]	0,42	0,47	0,59	0,61	0,84	0,85						
U_N = 480V	**Rated speed**	**N_n [min^{-1}]**	**9000**	**9000**	**9000**	**9000**	**9000**	**9000**						
	Rated torque *	M_n [Nm]	0,50	0,50	0,65	0,65	0,90	0,90						
	Rated output	P_n [kW]	0,47	0,47	0,61	0,61	0,85	0,85						
	Peak current	I_{0max} [A]	4,90	8,60	7,70	12,60	11,40	17,70						
	Peak torque	M_{0max} [Nm]	2,68	2,67	4,18	4,18	6,36	6,37						
	Torque constant	K_{Trms} [Nm/A]	0,56	0,31	0,53	0,33	0,54	0,35						
	Voltage constant	K_{Erms} [mVmin]	42	23	41	25	43	25						
	Winding resistance Ph-PH	R_{20} [Ω]	39,40	12,80	13,20	5,10	8,50	3,60						
	Winding inductance Ph-Ph	L [mH]	82,40	26,50	36,80	14,40	25,20	11,40						

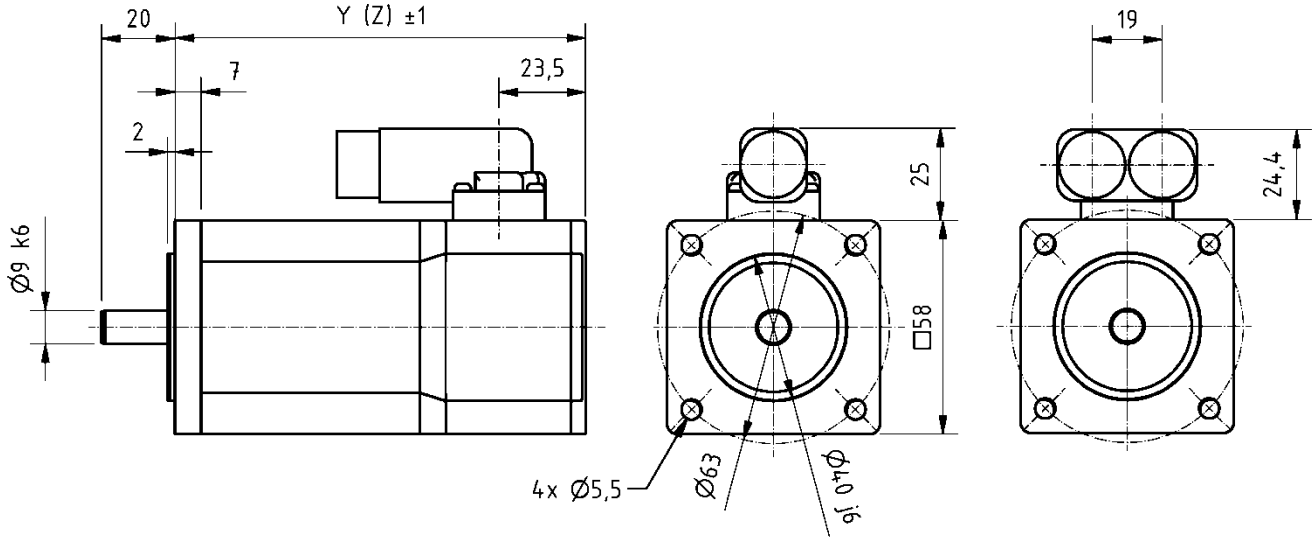
* reference flange aluminium 225 mm x 80 mm x 10 mm
The installation of a shaft seal ring leads to a reduction of the rated values.

Mechanical data		AM8021	AM8022	AM8023
Rotor moment of inertia (without brake)	J [kgcm^2]	0,134	0,253	0,373
Rotor moment of inertia **(with brake)**	J [kgcm^2]	0,156	0,276	0,396
Pole number		6	6	6
Static friction torque	M_R [Nm]	0,002	0,004	0,006
Thermal time constant	t_{TH} [min]	10	13	16
Weight (without brake)	G [kg]	1,00	1,30	1,70
Weight **(with brake)**	G [kg]	1,10	1,60	1,90
Permitted radial force at shaft end	F_R [N]	see 10.2.2		
Permitted axial force	F_A [N]			

Data for optional brake

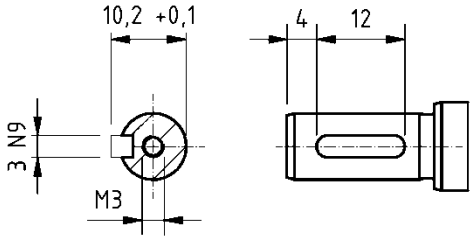
Data	Symbol [Unit]	AM802x
Holding torque at 120 °C	M_{BR} [Nm]	0,8
Supply voltage	U_{BR} [V_{DC}]	24 +6 -10%
Electrical power	P_{BR} [W]	10
Current	I_{on} [A]	0,3
Release delay time	t_{BRH} [ms]	8
Application delay time	t_{BRL} [ms]	12

10.2.1 Dimensional drawing AM802x

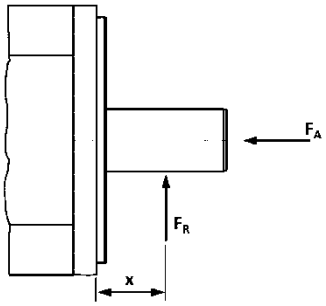


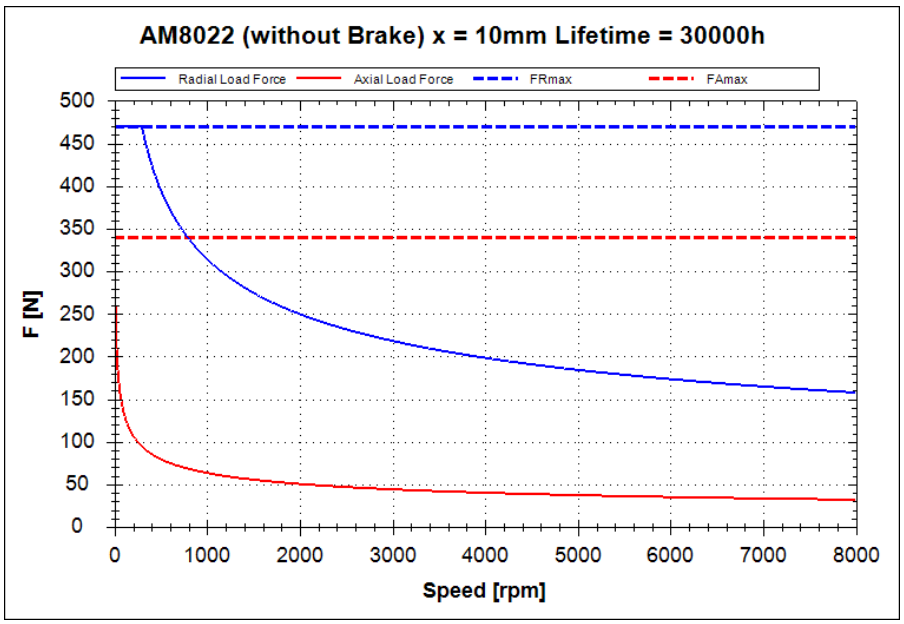
Motor type	Y	Z (brake)
AM8021	111,5	146
AM8022	133,5	168
AM8023	155,5	190

Optional: Feather key



10.2.2 Radial / axial forces at the shaft end





10.2.3 Characteristic torque / speed curves

Characteristic torque / speed curves can be found on the Beckhoff-website under Motion.

10.3 AM803x and AM853x

Technical data		Symbol [Unit]	AM80xx / AM85xx											
			31C	31D	31F	32D	32E	32H	33E	33F	33J			
Electrical data														
	Standstill torque *	M_0 [Nm]	1,37	1,38	1,40	2,38	2,37	2,37	3,20	3,22	3,22			
	Standstill current	I_{orms} [A]	1,00	1,95	3,20	1,70	2,95	5,10	2,10	4,10	6,80			
	Max. mechanical speed	N_{max} [min^{-1}]	10000											
	Max. rated mains voltage	U_N [VAC]	480											
U_N = 115V	**Rated speed**	**N_n [min^{-1}]**	**400**	**1400**	**2700**	**600**	**1400**	**2700**	**600**	**1400**	**2700**			
	Rated torque *	M_n [Nm]	1,36	1,38	1,37	2,37	2,34	2,29	3,15	3,10	3,05			
	Rated output	P_n [kW]	0,06	0,20	0,39	0,15	0,34	0,65	0,20	0,45	0,86			
U_N = 230V	**Rated speed**	**N_n [min^{-1}]**	**1400**	**3300**	**6000**	**1500**	**3200**	**6000**	**1500**	**3200**	**5900**			
	Rated torque *	M_n [Nm]	1,35	1,36	1,34	2,34	2,28	2,10	3,10	3,00	2,70			
	Rated output	P_n [kW]	0,20	0,47	0,84	0,37	0,76	1,32	0,49	1,00	1,67			
U_N = 400V	**Rated speed**	**N_n [min^{-1}]**	**3000**	**6000**	**9000**	**3000**	**6000**	**9000**	**3000**	**6000**	**9000**			
	Rated torque *	M_n [Nm]	1,34	1,33	1,30	2,30	2,20	2,00	2,98	2,70	2,30			
	Rated output	P_n [kW]	0,42	0,84	1,23	0,72	1,38	1,89	0,94	1,70	2,17			
U_N = 480V	**Rated speed**	**N_n [min^{-1}]**	**3400**	**6800**	**9000**	**3400**	**6800**	**9000**	**3400**	**6800**	**9000**			
	Rated torque *	M_n [Nm]	1,33	1,32	1,30	2,26	2,10	2,00	2,95	2,60	2,30			
	Rated output	P_n [kW]	0,47	0,94	1,23	0,80	1,50	1,88	1,05	1,85	2,17			
	Peak current	I_{0max} [A]	5,50	10,70	17,60	9,60	17,20	29,50	12,90	24,60	39,80			
	Peak torque	M_{0max} [Nm]	6,10	6,07	6,07	11,66	11,66	11,65	17,19	17,71	17,22			
	Torque constant	K_{Trms} [Nm/A]	1,35	0,71	0,41	1,39	0,80	0,46	1,50	0,78	0,47			
	Voltage constant	K_{Erms} [mVmin]	99	50	30	100	56	32	106	57	34			
	Winding resistance Ph-PH	R_{20} [Ω]	51,00	12,60	4,50	21,00	6,50	2,20	13,20	3,90	1,35			
	Winding inductance Ph-Ph	L [mH]	185,0	41,80	16,80	101,0	28,50	10,20	60,60	18,80	6,80			

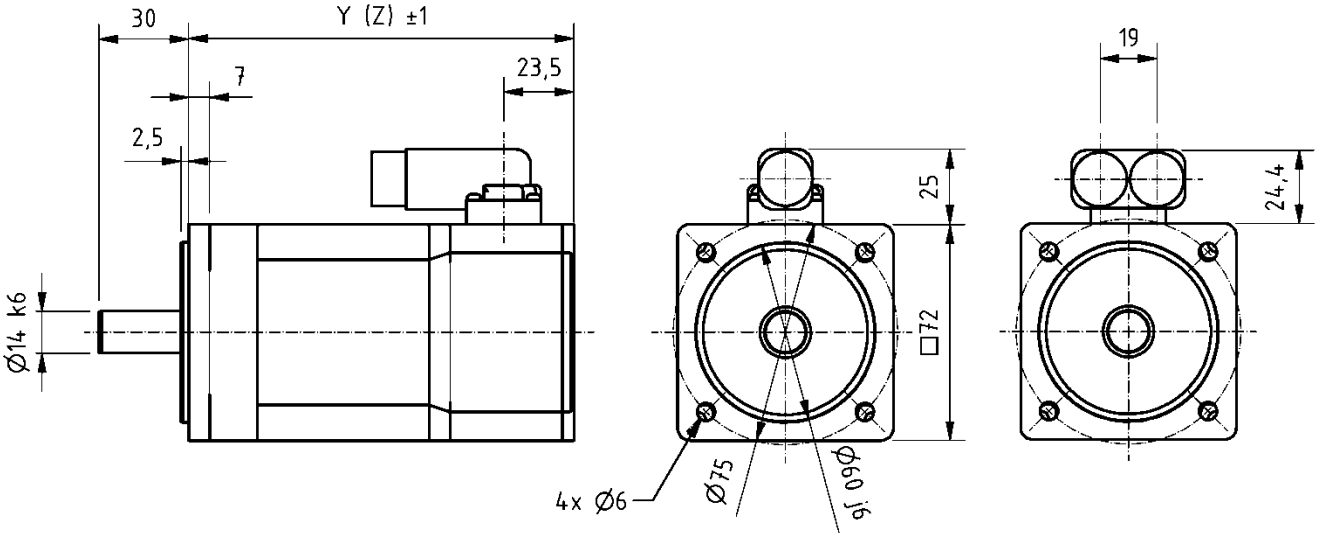
* reference flange aluminium 230 mm x 130 mm x 10 mm
The installation of a shaft seal ring leads to a reduction of the rated values.

Mechanical data		AM8031	AM8531	AM8032	AM8532	AM8033	AM8533
Rotor moment of inertia (without brake)	J [kgcm^2]	0,462	1,670	0,842	2,050	1,220	2,440
Rotor moment of inertia **(with brake)**	J [kgcm^2]	0,541	1,76	0,921	2,140	1,460	---
Pole number		8	8	8	8	8	8
Static friction torque	M_R [Nm]	0,009	0,009	0,015	0,015	0,020	0,020
Thermal time constant	t_{TH} [min]	24	24	26	26	28	28
Weight (without brake)	G [kg]	1,80	2,4	2,40	3,00	3,00	3,6
Weight **(with brake)**	G [kg]	2,20	2,70	2,80	3,30	3,60	---
Permitted radial force at shaft end	F_R [N]	see 10.3.2					
Permitted axial force	F_A [N]						

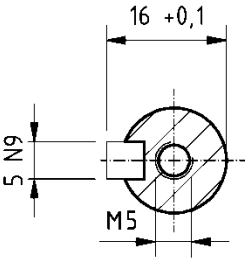
Data for optional brake

Data	Symbol [Unit]	AM8031 / AM8032 AM8531 / AM8532	AM8033
Holding torque at 120 °C	M_{BR} [Nm]	2,0	3,5
Supply voltage	U_{BR} [VDC]	24 +6% -10%	24 +6 -10%
Electrical power	P_{BR} [W]	11	12
Current	I_{on} [A]	0,33	0,36
Release delay time	t_{BRH} [ms]	8	15
Application delay time	t_{BRL} [ms]	25	35

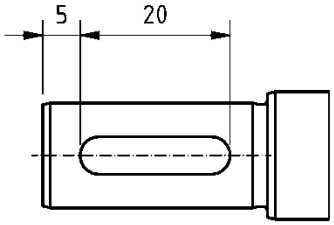
10.3.1 Dimensional drawing AM803x and AM853x



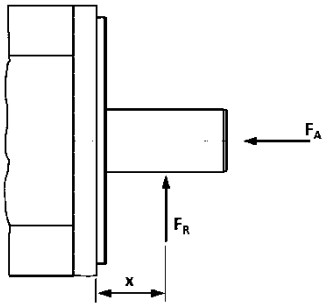
Motor type	Y	Z (brake)
AM8031	129	168
AM8032	154	194
AM8033	180	229
AM8531	168	194
AM8532	194	229
AM8533	229	---

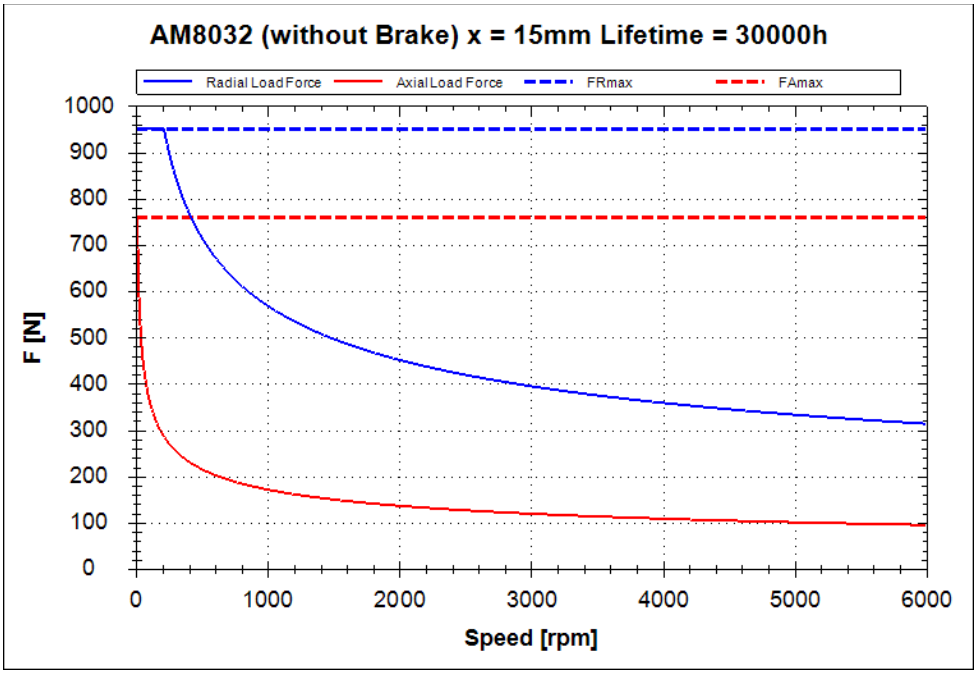


Optional: Feather key



10.3.2 Radial / axial forces at the shaft end





10.3.3 Characteristic torque / speed curves

Characteristic torque / speed curves can be found on the Beckhoff-website under Motion.

10.4 AM804x and AM854x

Technical data		Symbol [Unit]	AM80xx / AM85xx											
			41D	41E	41H	42E	42F	42J	43E	43H	43K			
Electrical data														
	Standstill torque *	M_0 [Nm]	2,37	2,45	2,40	4,10	4,10	4,10	5,65	5,65	5,60			
	Standstill current	I_{orms} [A]	1,65	3,00	5,25	2,15	4,10	6,90	2,90	5,40	9,30			
	Max. mechanical speed	N_{max} [min^{-1}]	9000											
	Max. rated mains voltage	U_N [VAC]	480											
U_N = 115V	**Rated speed**	**N_n [min^{-1}]**	**600**	**1500**	**2800**	**500**	**1300**	**2400**	**600**	**1300**	**2400**			
	Rated torque *	M_n [Nm]	2,35	2,43	2,34	4,05	3,97	3,90	5,58	5,48	5,25			
	Rated output	P_n [kW]	0,15	0,38	0,69	0,21	0,54	0,98	0,35	0,75	1,32			
U_N = 230V	**Rated speed**	**N_n [min^{-1}]**	**1700**	**3400**	**6000**	**1400**	**2800**	**5000**	**1400**	**2700**	**5000**			
	Rated torque *	M_n [Nm]	2,33	2,39	2,27	3,97	3,90	3,70	5,48	5,30	4,90			
	Rated output	P_n [kW]	0,41	0,85	1,43	0,58	1,14	1,94	0,80	1,50	2,57			
U_N = 400V	**Rated speed**	**N_n [min^{-1}]**	**3000**	**6000**	**8000**	**2500**	**5000**	**8000**	**2500**	**5000**	**8000**			
	Rated torque *	M_n [Nm]	2,30	2,31	2,10	3,90	3,70	3,10	5,30	4,90	4,10			
	Rated output	P_n [kW]	0,72	1,45	1,76	1,02	1,94	2,60	1,39	2,57	3,43			
U_N = 480V	**Rated speed**	**N_n [min^{-1}]**	**3400**	**6800**	**8000**	**2800**	**5700**	**8000**	**2800**	**5700**	**8000**			
	Rated torque *	M_n [Nm]	2,29	2,27	2,10	3,87	3,64	3,10	5,30	4,88	4,10			
	Rated output	P_n [kW]	0,82	1,62	1,76	1,13	2,17	2,60	1,55	2,91	3,43			
	Peak current	I_{0max} [A]	8,30	13,6	23,30	11,80	22,70	37,60	16,60	31,00	53,90			
	Peak torque	M_{0max} [Nm]	9,67	9,14	9,14	18,94	18,90	18,89	29,33	29,25	29,25			
	Torque constant	K_{Trms} [Nm/A]	1,43	0,81	0,45	1,88	0,99	0,59	1,94	1,04	0,59			
	Voltage constant	K_{Erms} [mVmin]	101,0	56,00	33,00	128,0	68,00	41,00	131,0	73,00	42,00			
	Winding resistance Ph-PH	R_{20} [Ω]	22,50	6,10	2,21	14,20	3,70	1,40	8,90	2,40	0,83			
	Winding inductance Ph-Ph	L [mH]	98,20	29,50	5,20	81,00	22,20	7,80	59,10	15,80	5,00			

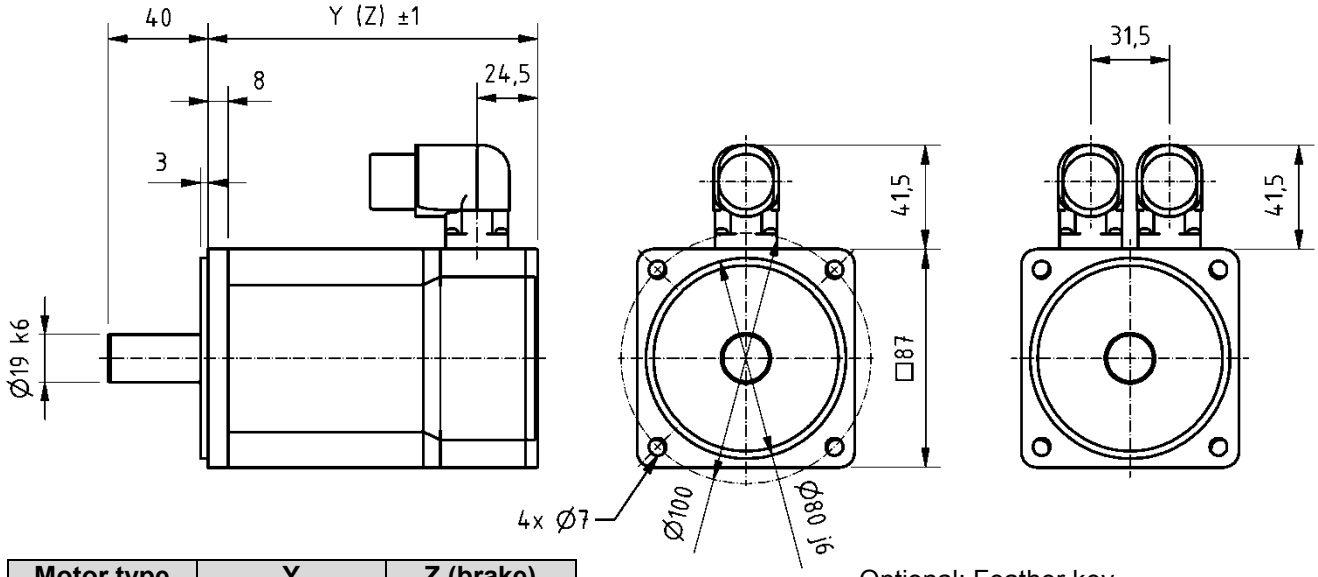
* reference flange aluminium 230 mm x 130 mm x 10 mm
The installation of a shaft seal ring leads to a reduction of the rated values.

Mechanical data		AM8041	AM8541	AM8042	AM8542	AM8043	AM8543
Rotor moment of inertia (without brake)	J [kgcm^2]	1,080	4,630	1,970	5,530	2,870	6,430
Rotor moment of inertia **(with brake)**	J [kgcm^2]	1,730	5,270	2,620	6,160	3,520	---
Pole number		8	8	8	8	8	8
Static friction torque	M_R [Nm]	0,020	0,020	0,027	0,027	0,035	0,035
Thermal time constant	t_{TH} [min]	30	30	33	33	36	36
Weight (without brake)	G [kg]	2,80	3,80	3,80	4,90	4,90	6,00
Weight **(with brake)**	G [kg]	3,60	4,60	4,70	5,70	5,80	---
Permitted radial force at shaft end	F_R [N]	see 10.4.2					
Permitted axial force	F_A [N]						

Data for optional brake

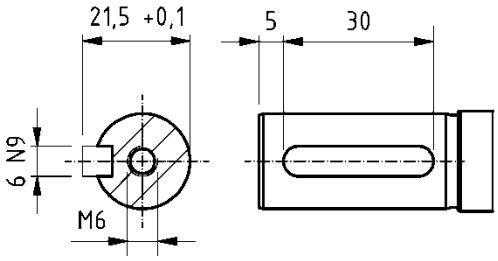
Data	Symbol [Unit]	AM804x / AM854x
Holding torque at 120 °C	M_{BR} [Nm]	9
Supply voltage	U_{BR} [VDC]	24 +6% -10%
Electrical power	P_{BR} [W]	18
Current	I_{on} [A]	0,54
Release delay time	t_{BRH} [ms]	20
Application delay time	t_{BRL} [ms]	40

10.4.1 Dimensional drawing AM804x and AM854x

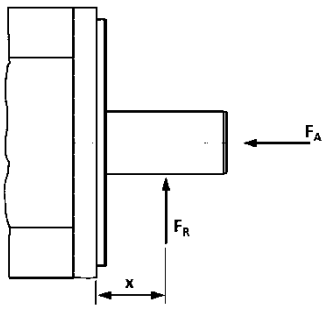


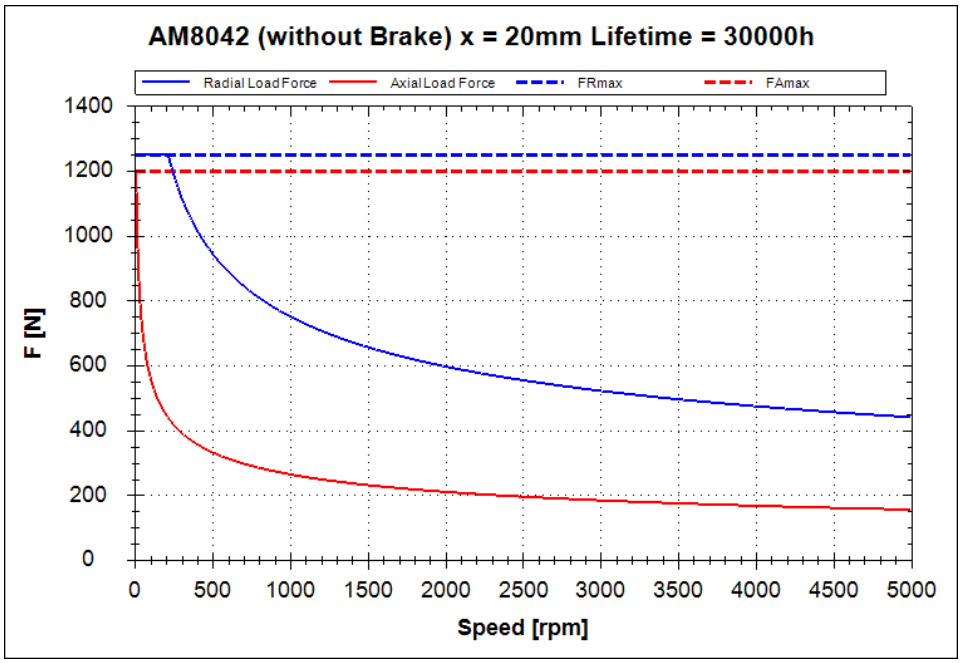
Motor type	Y	Z (brake)
AM8041	132	179,5
AM8042	162	209,5
AM8043	192	239,5
AM8541	179,5	209,5
AM8542	209,5	239,5
AM8543	239,5	---

Optional: Feather key



10.4.2 Radial / axial forces at the shaft end





10.4.3 Characteristic torque / speed curves

Characteristic torque / speed curves can be found on the Beckhoff-website under Motion.

10.5 AM805x and AM855x

Technical data		Symbol [Unit]	AM80xx / AM85xx											
			51E	51G	51K	52F	52J	52L	53G	53K	53N			
Electrical data														
	Standstill torque *	M_0 [Nm]	4,80	4,90	4,90	8,20	8,20	8,20	11,40	11,40	11,40			
	Standstill current	I_{orms} [A]	2,70	4,75	8,50	3,30	6,30	11,30	4,70	8,80	15,60			
	Max. mechanical speed	N_{max} [min^{-1}]	9000											
	Max. rated mains voltage	U_N [VAC]	480											
U_N = 115V	**Rated speed**	**N_n [min^{-1}]**	**500**	**1200**	**2400**	**400**	**1000**	**2000**	**500**	**1000**	**2000**			
	Rated torque *	M_n [Nm]	4,80	4,80	4,65	8,00	7,90	7,55	11,10	10,80	10,00			
	Rated output	P_n [kW]	0,25	0,60	1,17	0,34	0,83	1,58	0,58	1,13	2,09			
U_N = 230V	**Rated speed**	**N_n [min^{-1}]**	**1400**	**2700**	**5000**	**1100**	**2200**	**4000**	**1100**	**2200**	**4000**			
	Rated torque *	M_n [Nm]	4,70	4,65	4,40	7,80	7,50	6,90	10,70	9,90	8,35			
	Rated output	P_n [kW]	0,69	1,31	2,30	0,90	1,73	2,89	1,23	2,28	3,50			
U_N = 400V	**Rated speed**	**N_n [min^{-1}]**	**2500**	**5000**	**8000**	**2000**	**4000**	**7500**	**2000**	**4000**	**7000**			
	Rated torque *	M_n [Nm]	4,60	4,40	3,90	7,50	6,90	5,40	10,00	8,35	4,50			
	Rated output	P_n [kW]	1,69	2,30	4,11	1,57	2,89	4,24	2,09	3,50	3,30			
U_N = 480V	**Rated speed**	**N_n [min^{-1}]**	**3000**	**5700**	**8000**	**2400**	**4500**	**7500**	**2400**	**4500**	**7000**			
	Rated torque *	M_n [Nm]	4,50	4,30	3,90	7,38	6,70	5,40	9,70	7,85	4,50			
	Rated output	P_n [kW]	1,41	2,57	3,27	1,85	3,16	4,24	2,44	3,70	3,30			
	Peak current	I_{0max} [A]	12,10	20,90	37,70	17,90	33,60	60,70	26,90	50,90	89,70			
	Peak torque	M_{0max} [Nm]	17,74	17,76	17,78	35,32	35,34	35,34	53,13	53,13	53,14			
	Torque constant	K_{Trms} [Nm/A]	1,77	1,02	0,57	2,48	1,29	0,72	2,42	1,29	0,72			
	Voltage constant	K_{Erms} [mVmin]	125,0	73,00	40,00	167,0	89,00	49,00	168,0	89,00	51,00			
	Winding resistance Ph-PH	R_{20} [Ω]	11,40	3,60	1,14	8,50	2,30	0,70	5,10	1,40	0,45			
	Winding inductance Ph-Ph	L [mH]	53,70	18,80	6,70	48,6	14,10	4,60	33,20	8,80	3,10			

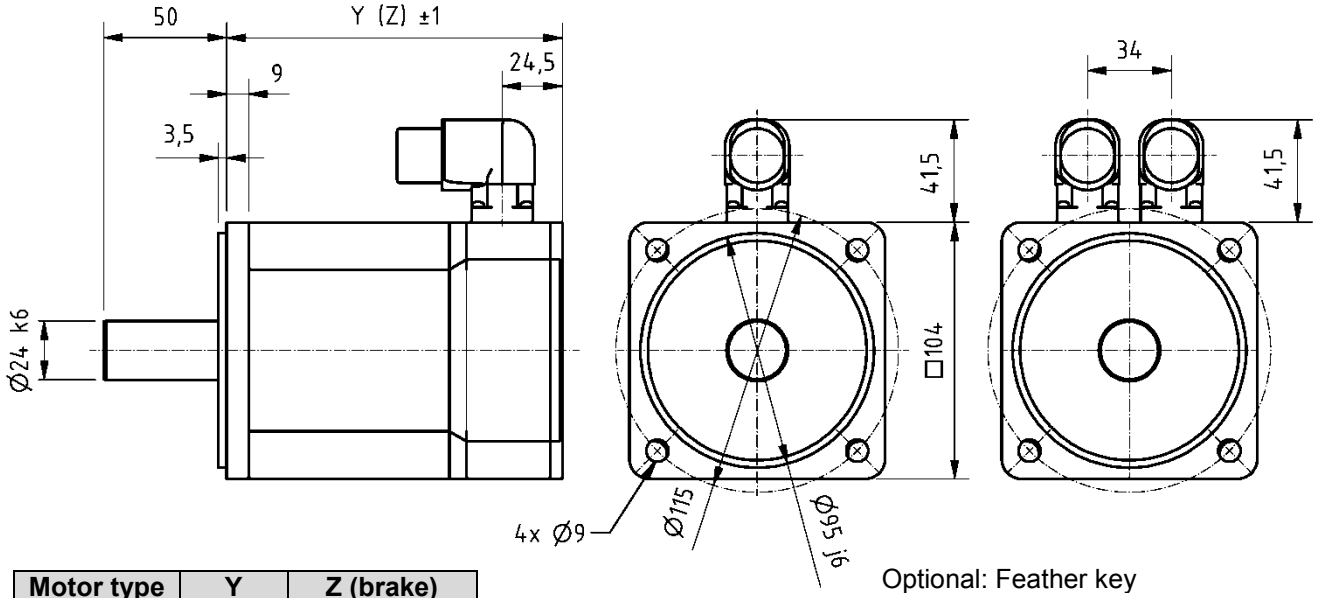
* reference flange aluminium 305 mm x 305 mm x 12,7 mm
The installation of a shaft seal ring leads to a reduction of the rated values.

Mechanical data		AM8051	AM8551	AM8052	AM8552	AM8053	AM8553
Rotor moment of inertia (without brake)	J [kgcm^2]	2,240	8,740	4,080	10,600	5,920	12,500
Rotor moment of inertia **(with brake)**	J [kgcm^2]	2,900	9,400	4,740	11,200	7,040	---
Pole number		8	8	8	8	8	8
Static friction torque	M_R [Nm]	0,021	0,021	0,036	0,036	0,050	0,050
Thermal time constant	t_{TH} [min]	31	31	38	38	40	40
Weight (without brake)	G [kg]	4,10	5,50	5,70	7,10	7,30	8,80
Weight **(with brake)**	G [kg]	4,90	6,10	6,60	7,90	8,30	---
Permitted radial force at shaft end	F_R [N]	see 10.5.2					
Permitted axial force	F_A [N]						

Data for optional brake

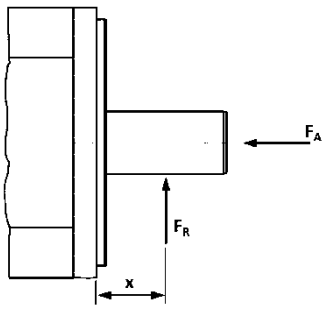
Data	Symbol [Unit]	AM8051 / AM8052 AM8551 / AM8552	AM8053
Holding torque at 120 °C	M_{BR} [Nm]	9	13
Supply voltage	U_{BR} [VDC]	24 +6 -10%	24 +6 -10%
Electrical power	P_{BR} [W]	18	17
Current	I_{on} [A]	0,54	0,51
Release delay time	t_{BRH} [ms]	20	20
Application delay time	t_{BRL} [ms]	40	45

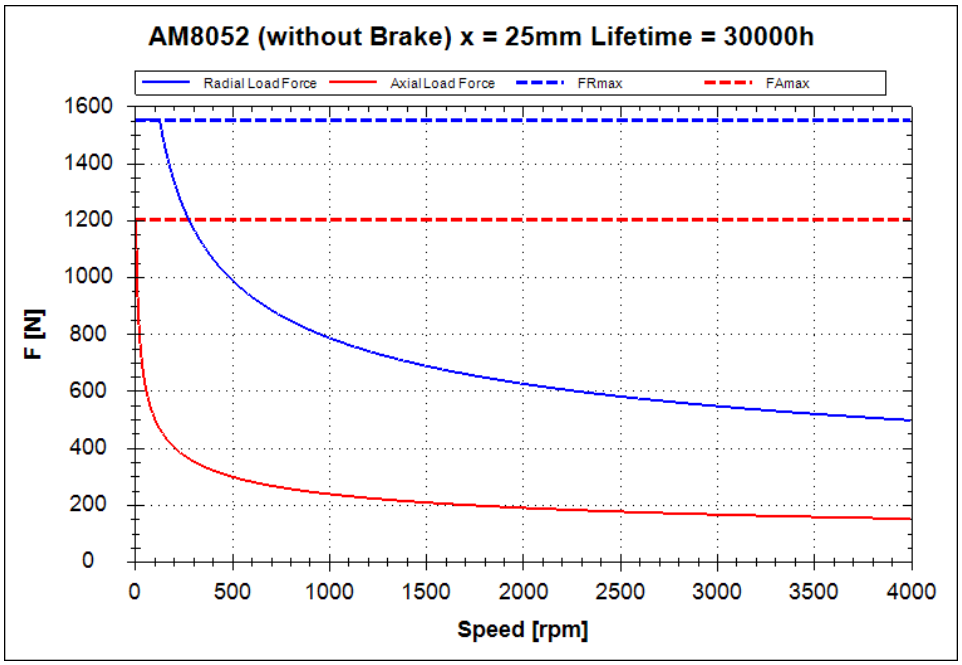
10.5.1 Dimensional drawing AM805x and AM855x



Motor type	Y	Z (brake)
AM8051	136,5	183,5
AM8052	169,5	216,5
AM8053	202,5	251,5
AM8551	183,5	216,5
AM8552	216,5	251,5
AM8553	251,5	284,5

10.5.2 Radial / axial forces at the shaft end





10.5.3 Characteristic torque / speed curves

Characteristic torque / speed curves can be found on the Beckhoff-website under Motion.

10.6 AM806x and AM856x

Technical data		Symbol [Unit]	AM80xx / AM85xx											
			61G	61J	61M	62J	62L	62P	63K	63N	63R			
Electrical data														
	Standstill torque *	M_0 [Nm]	12,80	12,80	12,80	21,10	21,10	21,10	29,00	29,00	29,00			
	Standstill current	I_{orms} [A]	4,00	7,80	13,10	6,20	12,40	20,30	8,70	17,20	29,50			
	Max. mechanical speed	N_{max} [min^{-1}]	6000											
	Max. rated mains voltage	U_N [VAC]	480											
U_N = 115V	**Rated speed**	**N_n [min^{-1}]**	**300**	**750**	**1300**	**300**	**800**	**1400**	**300**	**800**	**1400**			
	Rated torque *	M_n [Nm]	12,60	12,40	12,20	20,70	20,10	18,60	28,20	25,90	22,80			
	Rated output	P_n [kW]	0,40	0,97	1,66	0,65	1,68	2,73	0,89	2,17	3,34			
U_N = 230V	**Rated speed**	**N_n [min^{-1}]**	**800**	**1600**	**2800**	**800**	**1700**	**2800**	**800**	**1700**	**3000**			
	Rated torque *	M_n [Nm]	12,40	12,00	11,10	20,10	18,20	15,30	25,90	21,10	13,20			
	Rated output	P_n [kW]	1,04	2,01	3,25	1,68	3,24	4,49	2,17	3,76	4,15			
U_N = 400V	**Rated speed**	**N_n [min^{-1}]**	**1500**	**3000**	**5000**	**1500**	**3000**	**5000**	**1500**	**3000**	**4000**			
	Rated torque *	M_n [Nm]	12,10	11,00	9,00	18,50	15,20	6,50	22,30	13,20	6,10			
	Rated output	P_n [kW]	1,90	3,46	4,71	2,91	4,78	3,40	3,50	4,15	2,56			
U_N = 480V	**Rated speed**	**N_n [min^{-1}]**	**1700**	**3400**	**5000**	**1700**	**3400**	**5000**	**1700**	**3400**	**4000**			
	Rated torque *	M_n [Nm]	12,00	10,40	9,00	18,20	13,90	6,50	21,10	11,00	6,10			
	Rated output	P_n [kW]	2,14	3,70	4,71	3,24	4,95	3,40	3,76	3,92	2,56			
	Peak current	I_{0max} [A]	13,90	27,00	45,20	27,00	54,00	88,40	38,90	80,90	130,0			
	Peak torque	M_{0max} [Nm]	37,10	37,08	37,07	74,16	74,16	74,17	110,95	110,84	111,11			
	Torque constant	K_{Trms} [Nm/A]	3,19	1,63	0,97	3,39	1,69	1,03	3,33	1,68	0,98			
	Voltage constant	K_{Erms} [mVmin]	223,0	115,0	69,00	234,0	117,0	71,00	240,0	116,0	72,00			
	Winding resistance Ph-PH	R_{20} [Ω]	7,00	1,85	0,66	2,95	0,75	0,28	1,95	0,45	0,18			
	Winding inductance Ph-Ph	L [mH]	65,90	13,90	4,70	35,40	6,60	2,40	25,20	4,20	1,70			

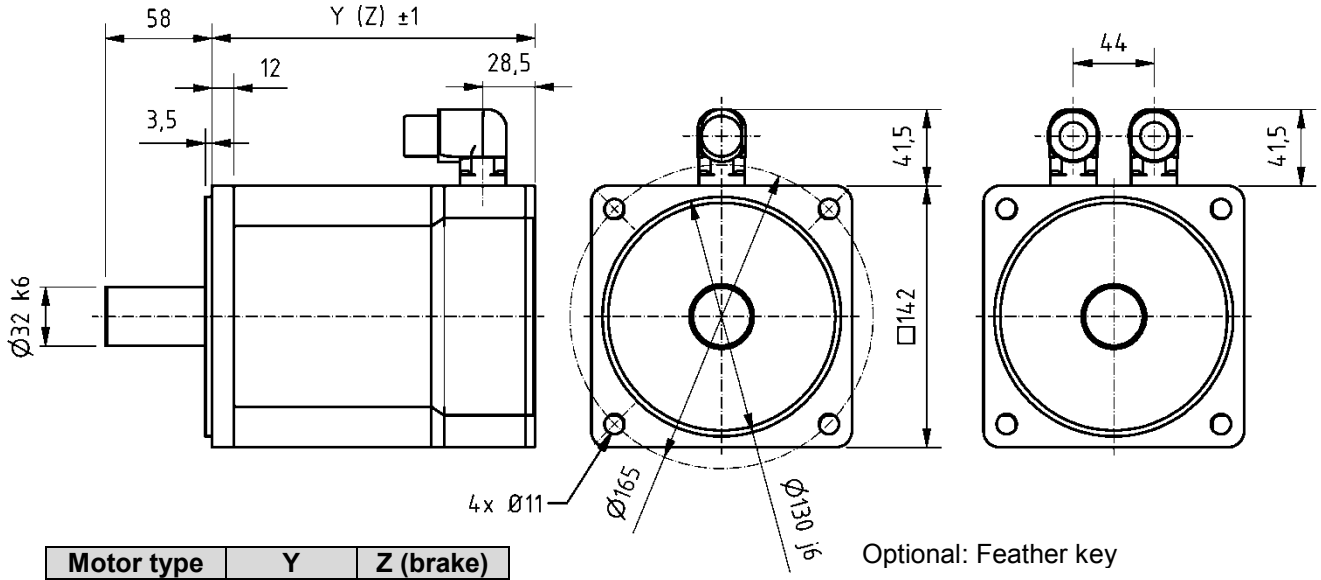
* reference flange aluminium 380 mm x 170 mm x 10 mm
The installation of a shaft seal ring leads to a reduction of the rated values.

Mechanical data		AM8061	AM8561	AM8062	AM8562	AM8063	AM8563
Rotor moment of inertia (without brake)	J [kgcm^2]	11,100	48,200	20,000	57,10	29,000	66,100
Rotor moment of inertia **(with brake)**	J [kgcm^2]	13,400	50,600	22,300	59,600	34,900	---
Pole number		10	10	10	10	10	10
Static friction torque	M_R [Nm]	0,045	0,045	0,102	0,102	0,150	0,150
Thermal time constant	t_{TH} [min]	35	35	38	38	41	41
Weight (without brake)	G [kg]	9,70	13,20	13,60	17,00	17,40	20,90
Weight **(with brake)**	G [kg]	11,30	14,80	15,40	18,70	20,10	---
Permitted radial force at shaft end	F_R [N]	see 10.6.2					
Permitted axial force	F_A [N]						

Data for optional brake

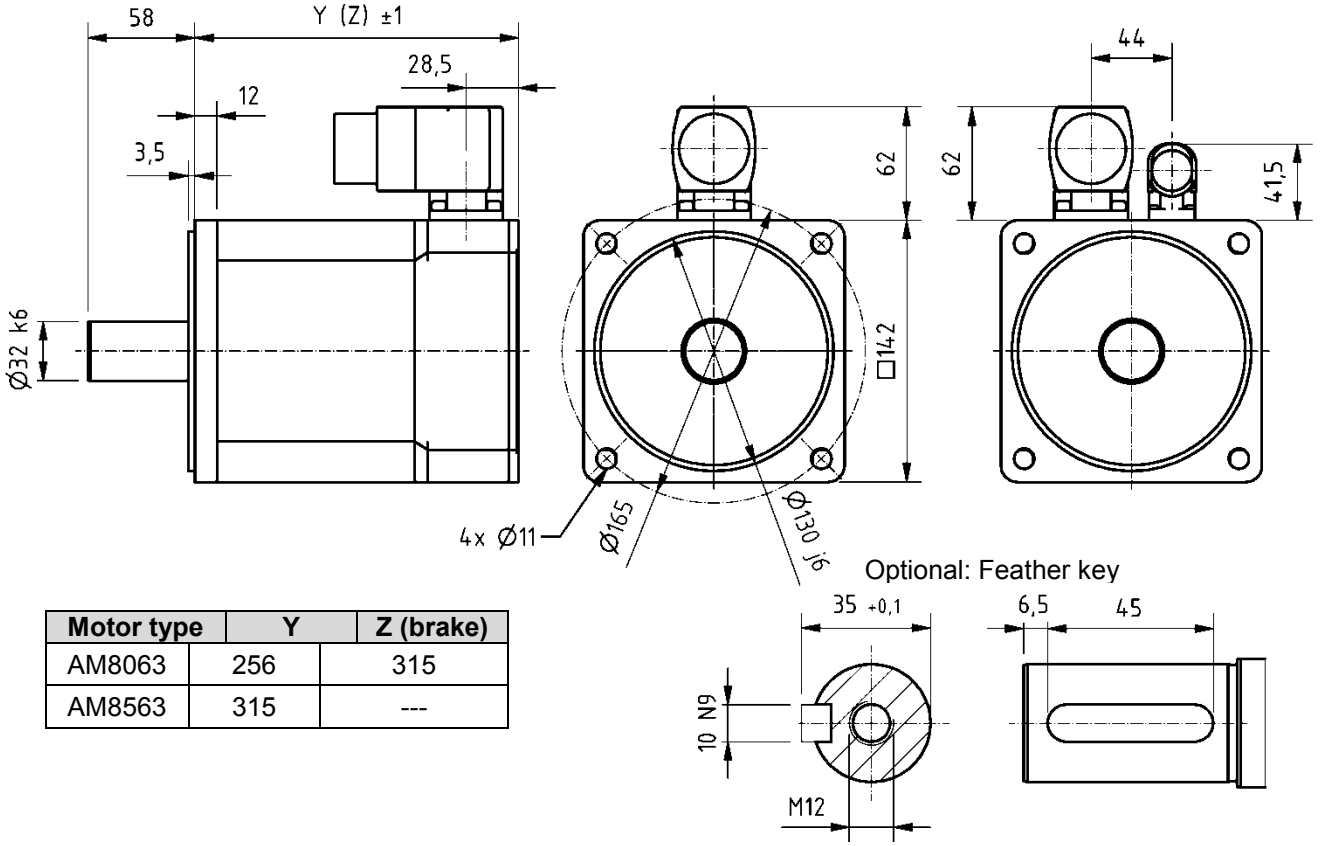
Data	Symbol [Unit]	AM8061 / AM8062 AM8561 / AM8562	AM8063
Holding torque at 120 °C	M_{BR} [Nm]	20	30
Supply voltage	U_{BR} [VDC]	24 +6 -10%	24 +6 -10%
Electrical power	P_{BR} [W]	24	26
Current	I_{on} [A]	0,72	0,79
Release delay time	t_{BRH} [ms]	40	45
Application delay time	t_{BRL} [ms]	60	100

10.6.1 Dimensional drawing AM806x and AM856x



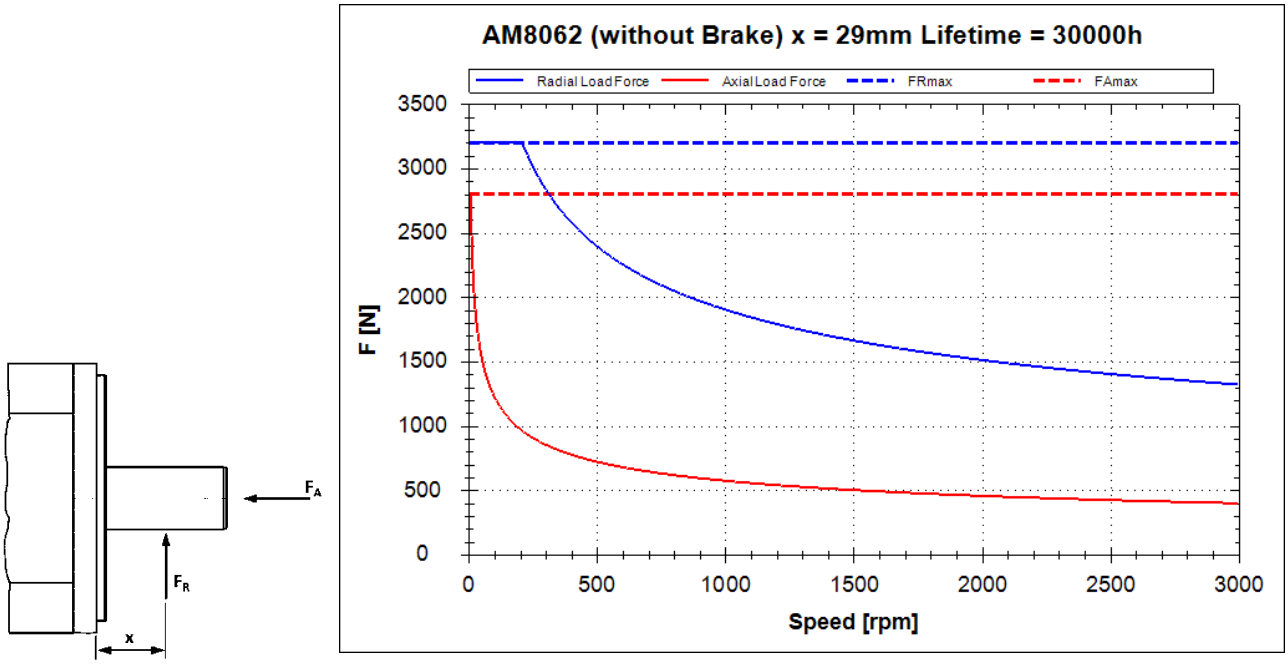
Motor type	Y	Z (brake)
AM8061	176	228
AM8062	216	268
AM8063	256	315
AM8561	228	268
AM8562	268	315
AM8563	315	---

10.6.2 Dimensional drawing AM8063 and AM8563 with R-Winding



Motor type	Y	Z (brake)
AM8063	256	315
AM8563	315	---

10.6.3 Radial / axial forces at the shaft end



10.6.4 Characteristic torque / speed curves

Characteristic torque / speed curves can be found on the Beckhoff-website under Motion.

10.7 AM807x

Technical data		Symbol [Unit]	AM80xx								
			71K	71N	71R	72L	72P	72T	73N	73Q	73T
Electrical data											
	Standstill torque *	M_0 [Nm]	31,8	31,8	29,0	54,6	54,6	50,0	72,6	72,6	70,0
	Standstill current	I_{orms} [A]	9,6	17,8	28,2	11,1	20,6	37,5	14,7	27,9	45,6
	Max. mechanical speed	N_{max} [min^{-1}]	5000								
	Max. rated mains voltage	U_N [VAC]	480								
U_N = 115V	**Rated speed**	**N_n [min^{-1}]**	**350**	**700**	**1400**	**200**	**400**	**1000**	**200**	**500**	**1000**
	Rated torque *	M_n [Nm]	30,6	29,2	22,5	54,5	53,5	41,0	70,5	66,5	48,0
	Rated output	P_n [kW]	1,12	2,14	3,30	1,14	2,24	4,29	1,48	3,48	5,03
U_N = 230V	**Rated speed**	**N_n [min^{-1}]**	**800**	**1500**	**3000**	**500**	**1000**	**2000**	**500**	**1000**	**2000**
	Rated torque *	M_n [Nm]	29,0	26,4	14,0	53,1	48,9	28,0	66,7	58,5	27,4
	Rated output	P_n [kW]	2,43	4,15	4,40	2,78	5,12	5,86	3,49	6,13	5,74
U_N = 400V	**Rated speed**	**N_n [min^{-1}]**	**1500**	**3000**	**4000**	**1000**	**2000**	**3000**	**1000**	**2000**	**3000**
	Rated torque *	M_n [Nm]	26,5	19,5	8,0	48,9	38,2	13,0	58,5	38,8	10,8
	Rated output	P_n [kW]	4,16	6,13	3,35	5,12	8,00	4,08	6,13	8,13	3,39
U_N = 480V	**Rated speed**	**N_n [min^{-1}]**	**1700**	**3300**	**4500**	**1100**	**2200**	**3300**	**1100**	**2200**	**3300**
	Rated torque *	M_n [Nm]	25,7	18,2	5,0	47,6	35,9	8,0	57,0	35,4	6,2
	Rated output	P_n [kW]	4,58	6,29	2,36	5,48	8,27	2,76	6,57	8,16	2,14
	Peak current	I_{0max} [A]	25,9	49,0	105,0	36,3	66,1	116,0	49,0	97,4	147,0
	Peak torque	M_{0max} [Nm]	80,00	79,91	92,15	172,52	172,49	164,21	262,72	275,32	219,74
	Torque constant	K_{Trms} [Nm/A]	3,31	1,78	1,02	4,91	2,65	1,33	4,93	2,60	1,53
	Voltage constant	K_{Erms} [mVmin]	231	122	70	328	180	100	347	183	104
	Winding resistance Ph-PH	R_{20} [Ω]	1,60	0,45	0,14	1,22	0,39	0,12	0,85	0,25	0,07
	Winding inductance Ph-Ph	L [mH]	28,0	7,8	2,6	25,5	7,7	2,2	17,6	4,9	1,1

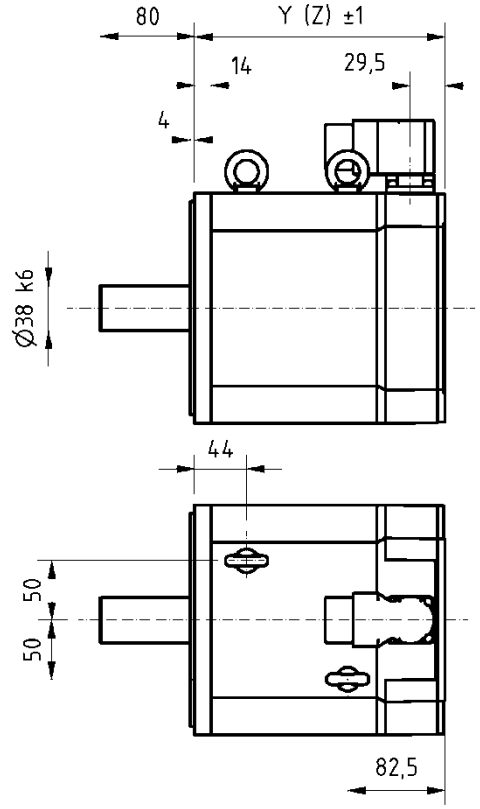
* reference flange steel 375 mm x 601 mm x 10 mm
The installation of a shaft seal ring leads to a reduction of the rated values.

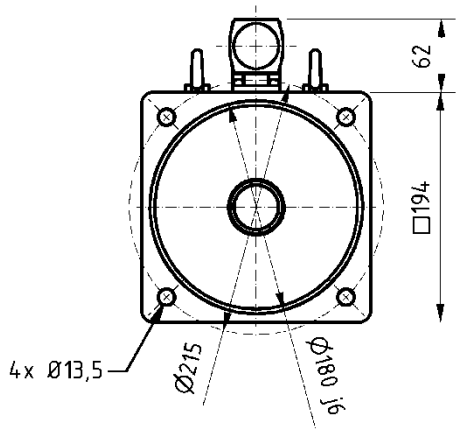
Mechanical data		AM8071	AM8072	AM8073
Rotor moment of inertia (without brake)	J [kgcm^2]	49,600	92,300	134,900
Rotor moment of inertia **(with brake)**	J [kgcm^2]	68,300	110,900	153,600
Pole number		10	10	10
Static friction torque	M_R [Nm]	0,14	0,22	0,30
Thermal time constant	t_{TH} [min]	70	80	90
Weight (without brake)	G [kg]	23,80	33,20	44,80
Weight **(with brake)**	G [kg]	29,30	38,70	50,30
Permitted radial force at shaft end	F_R [N]	see 10.7.2		
Permitted axial force	F_A [N]			

Data for optional brake

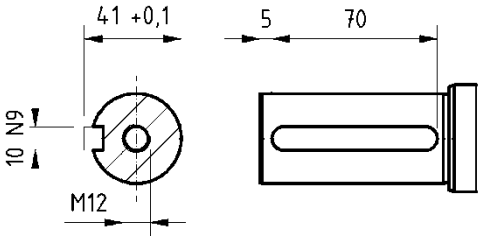
Data	Symbol [Unit]	AM807x
Holding torque at 120 °C	M_{BR} [Nm]	70
Supply voltage	U_{BR} [VDC]	24 +6 -10%
Electrical power	P_{BR} [W]	40
Current	I_{on} [A]	1,21
Release delay time	t_{BRH} [ms]	50
Application delay time	t_{BRL} [ms]	200

10.7.1 Dimensional drawing AM807x

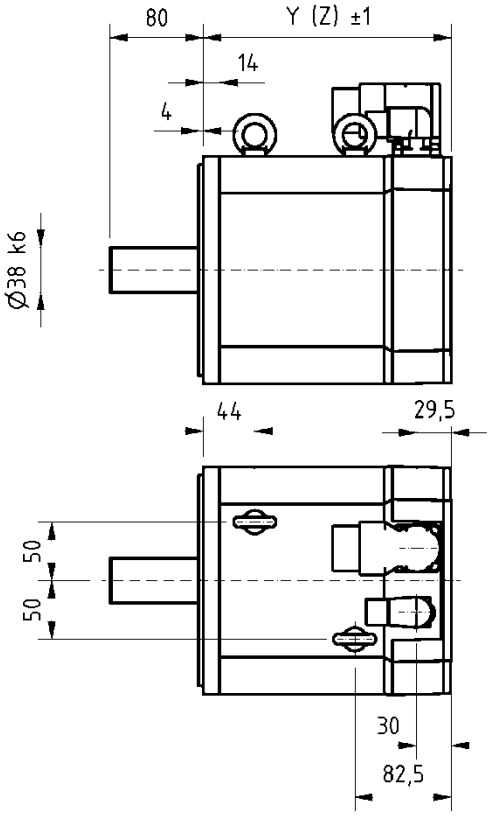


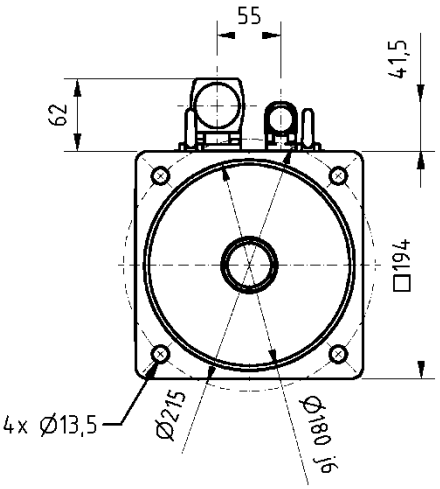


Optional: Feather key

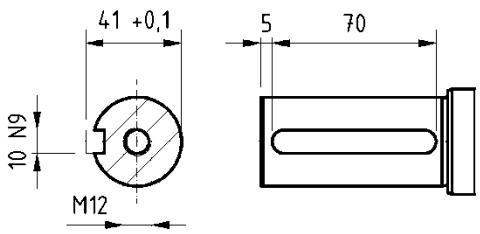


Motor type	Y	Z (brake)
AM8071	212	284,5
AM8072	269	341,5
AM8073	326	398,5

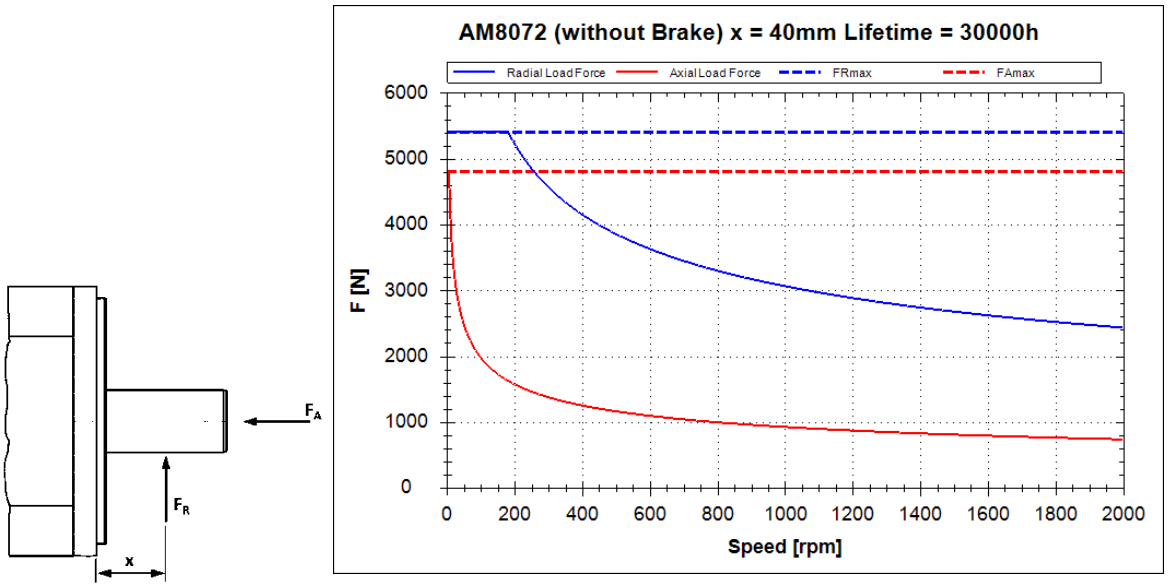




Optional: Feather key



10.7.2 Radial / axial forces at the shaft end



10.7.3 Characteristic torque / speed curves

Characteristic torque / speed curves can be found on the Beckhoff-website under Motion.

11 Appendix

11.1 Support and Service

Beckhoff and their partners around the world offer comprehensive support and service, making available fast and competent assistance with all questions related to Beckhoff products and system solutions.

11.2 Beckhoff's branch offices and representatives

Please contact your Beckhoff branch office or representative for local support and service on Beckhoff products! The addresses of Beckhoff's branch offices and representatives round the world can be found on her internet pages: www.beckhoff.com.
You will also find further documentation for Beckhoff components there.

11.3 Beckhoff headquarters

Beckhoff Automation GmbH
Eiserstr. 5
33415 Verl
Germany

Phone : +49(0)5246/963-0

Fax : +49(0)5246/963-198

e-mail : info@beckhoff.com

11.3.1 Beckhoff Support

Support offers you comprehensive technical assistance, helping you not only with the application of individual Beckhoff products, but also with other, wide-ranging services:

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- design, programming and commissioning of complex automation systems
- and extensive training program for Beckhoff system components

Hotline : +49(0)5246/963-157

Fax : +49(0)5246/963-9157

E-Mail : support@beckhoff.com

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The Beckhoff Service Center supports you in all matters of after-sales service:

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- spare parts service
- hotline service

Hotline : +49(0)5246/963-460

Fax : +49(0)5246/963-479

e-mail: : service@beckhoff.com