



Technical Data

Compact Line Module
CV 064-01-000

Description of the Compact Module

The Compact Module contains an efficiency-optimized high-performance servo motor.

The Compact Module is designed with two different **tool holders**:

1. **Tool holder ER 20 (collet)**, dimension sheet see chapter "Dimension sheet Compact Module with one ER 20 tool holder".
2. **BO 20 saw blade holder (optionally with BO 30 conversion kit)**, for dimension sheet, see chapter "Dimension module Compact Module with a saw blade holder".

Identificaten plate

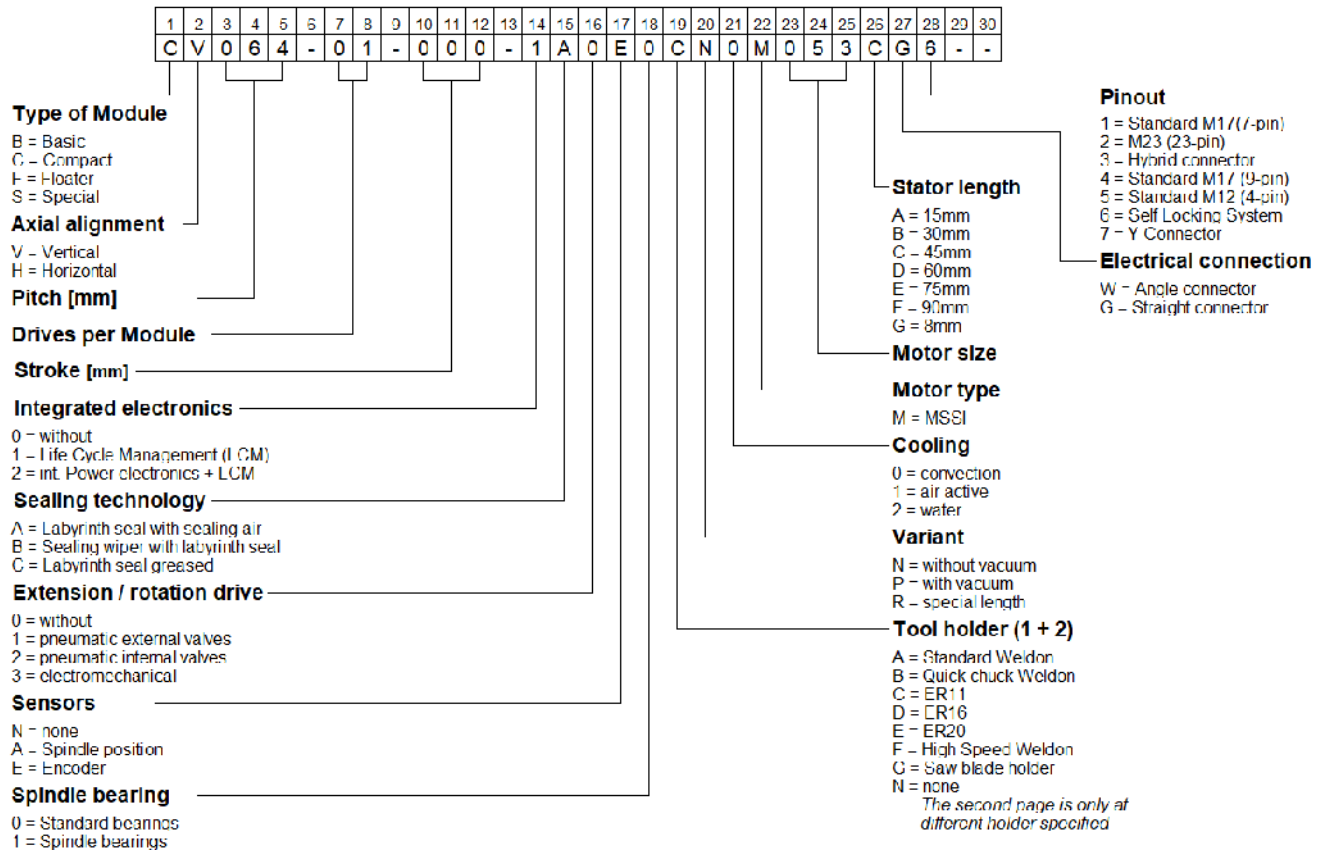
A nameplate is located on each Compact Module housing and provides detailed information about its properties.

Identificaten plate		Description	
<p>The image shows a rectangular identification plate with the ToolDrives logo and 'intelligent services for smart processes' at the top. Below the logo, there is a grid of technical data. Callouts A through L point to specific parts of the plate: A points to the logo, B to the number of spindles, C to the max. rotational speed, D to the terminal voltage, E to the manufacturer address, F to the serial number, G to the max. power, H to the degree of protection, I to the item code, J to the direction of rotation, K to the max. current, and L to the operating pressure.</p>		A	Type code (see chapter 3.2)
		B	Number of motor spindles
		C	Max. rotational speed
		D	Terminal voltage (peak value)
		E	Manufacturer address
		F	Serial number
		G	Max. power
		H	Degree of protection
		I	Item code
		J	Direction of motor rotation
		K	Max. Current
		L	Operating pressure sealing air

Tbl: Identificaten plate

Type code

The structure and functionality of the module is described in the type code.



Order code

Number	Order Code CV064-01-000-	ER20	Saw	Encoder	Power Link M17	Power Self Lock	Encoder Self Lock	Y-Connector	W-Angle- connector	G-straight connector	Special
30000047	0A0N0EN0M053CG4	X			X					X	Length 150mm
30000089	0A0E0GN0M053CG6		X	X		X	X			X	
30000090	0A0E0EN0M053CG6	X		X		X	X			X	
30000107	0A0N0EN0M053CG6	X				X				X	
30000110	0A0N0GN0M053CG6		X			X				X	
30000111	0A0E0GN0M053CW7		X	X				X			
30000112	0A0E0EN0M053CW7	X		X				X			
30000114	0A0E0GN0M053CG6		X	X		X	X			X	560V/14Krpm
30000126	0A0N0EN0M053CW6	X				X			X		Connector side +90°
30000127	0A0N0EN0M053CW6	X				X			X		560V/14Krpm +90°
30000128	0A0N0GN0M053CG6		X			X				X	560V/14Krpm
40023587	0A0N0GN0M053CG4		X		X						
40023629	0A0N0EN0M053CG4	X			X						

Technical data

Type code		Saw Module	ER20 Module
Tool holder		Saw blade (BO 20)	ER 20 (collet)
Direction of motor rotation rotation (against clockwise with a view of the tool holder)		Counterclockwise rotation (ccw)	Left / right rotating field (ccw & cw)
Max. Acceleration during operation	m/s ²	19,6 (2G)	
Max. Radial force on the motor spindle	N	305	
Hight	mm	63,8	
Width	mm	63,8	
Length	mm	170,2 (+5 with Encoder)	168,25 (+5 with Encoder)
Weight	Kg	2,3	2,2
Housing temperature	°C	< 86	
Degree of protection		IP 54	
Operating and environmental conditions			
Ambient temperature	°C	+15 bis +40	
Relative humidity not condensing		≤ 85%	
Use over NN	m	≤ 1000	

Tbl: Technical data

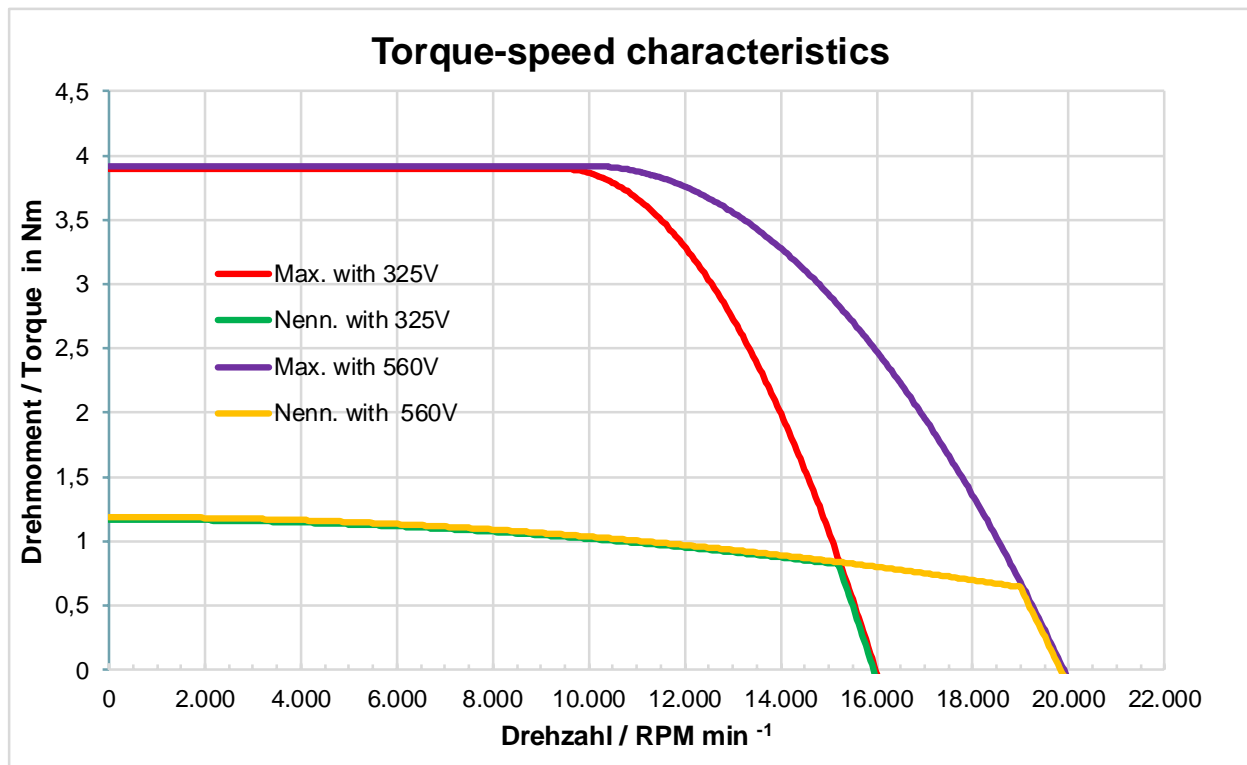
Sealing air> (specification)

Connector for sealing air hose outside diameter 4mm

Description	Unit	Data
Operating pressure on the input side of the connector	bar	0,3 - 1,5
Sealing air quality DIN ISO 8573-1		free of dirt, oil and water
Filter class 1 DIN ISO 8573-1	µm	0,01
Sealing air volume flow Q _N	l/min	25

Tbl: Sealing air specification

Motor data



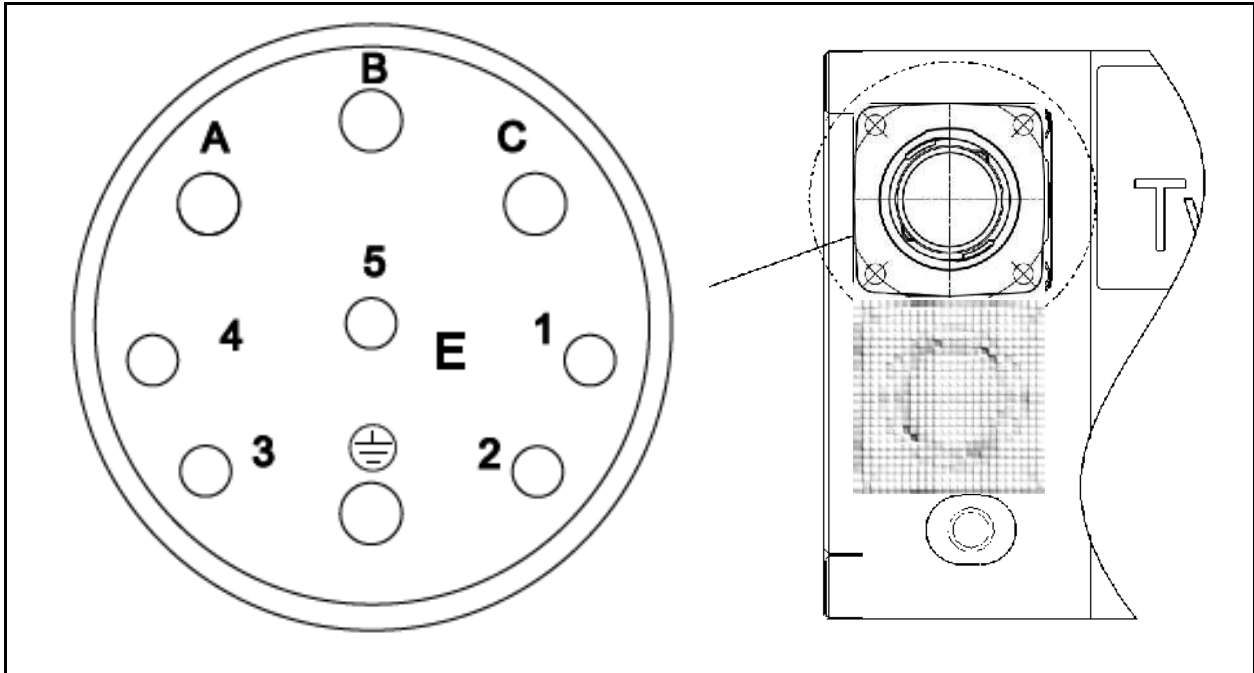
Description	Unit	Performance Data
Motor type		Three-phase synchronous motor
DC link voltage U_{zk}	V	325 (560)
Max. Power P_{max} (short-term)	W	3,9
Max. Current I_{max} (short-term)	A_{eff}	17
Max. Torque M_{max} (short-term)	Nm	4
Max. Speed n_{max}	min^{-1}	16.000 ^{*1} / 20.000 ^{*2}
Nominal current I_{nenn}	A_{eff}	3,37
Nominal torque M_{nenn}	Nm	0,80 ^{*1} / 0,64 ^{*2}
Nominal speed n_{nenn} *	min^{-1}	15.000 ^{*1} / 19.000 ^{*2}
Frequency at n_{nenn}		1.000 bei 15.000 min^{-1} / 1.267 bei 19.005 min^{-1}
Connection resistance R_{tt} (Phase - Phase)	Ω	2,05
Connection inductance L_{tt} (Phase - Phase)	mH	2,346
Torque constant K_t	Nm/A	0,236
Number of pole pairs p		4

*1 = 325V usage; *2 = 560V usage

Tbl-8: Motor data

Pin assignment motor connector M17 – 9-pin (on Compact Module side)

- ▶ Manufacturer: Intercontec
- ▶ Order No. connector M 17 9-pin (3 +PE; 5 signal) EEG A 201 NN 00 0500 000
- ▶ 4x contact pin 61.231.11 & 2x contact pin 61.232.11
- ▶ Pin assignment also valid when using Y and / or angled plugs



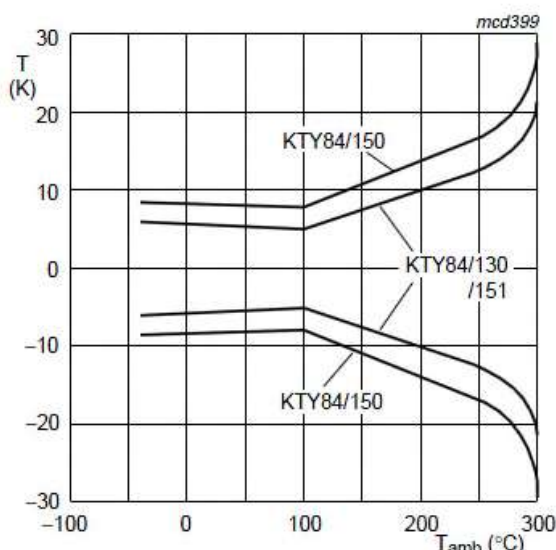
Pin	Assignment
A	Motor / Phase U red
B	Motor / Phase V white
C	Motor / Phase W black
⊕	PE
1	Temperature sensor (KTY) red
2	Temperature sensor (KTY) blue
3	option break+
4	option break-
5	not assigned

Tbl: Pin assignment motor connector M17 – 9-pin (on Compact Module side)

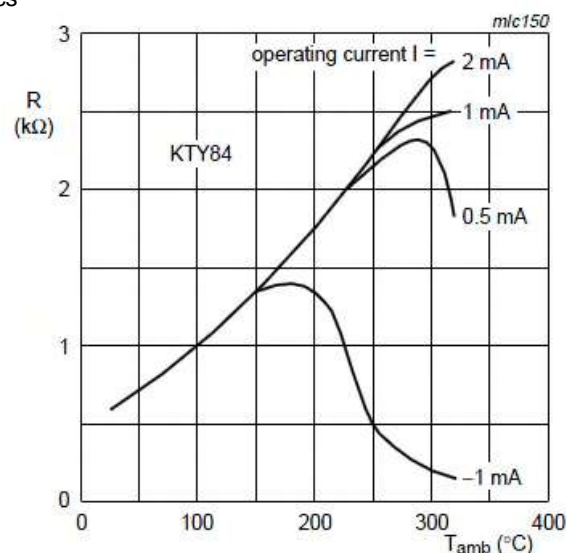
Motor protection characteristic (KTY) Silicon temperature sensor KTY84-130

Charakteristiken	
Sensor resistance R_{100}	970 Ω - 1030 Ω
Temperature range T_{amb}	-40 $^{\circ}\text{C}$ / +300 $^{\circ}\text{C}$
Power $I_{cont} = \text{max.}$	10mA

Tbl: Characteristics



Maximum temperature error (ΔT)



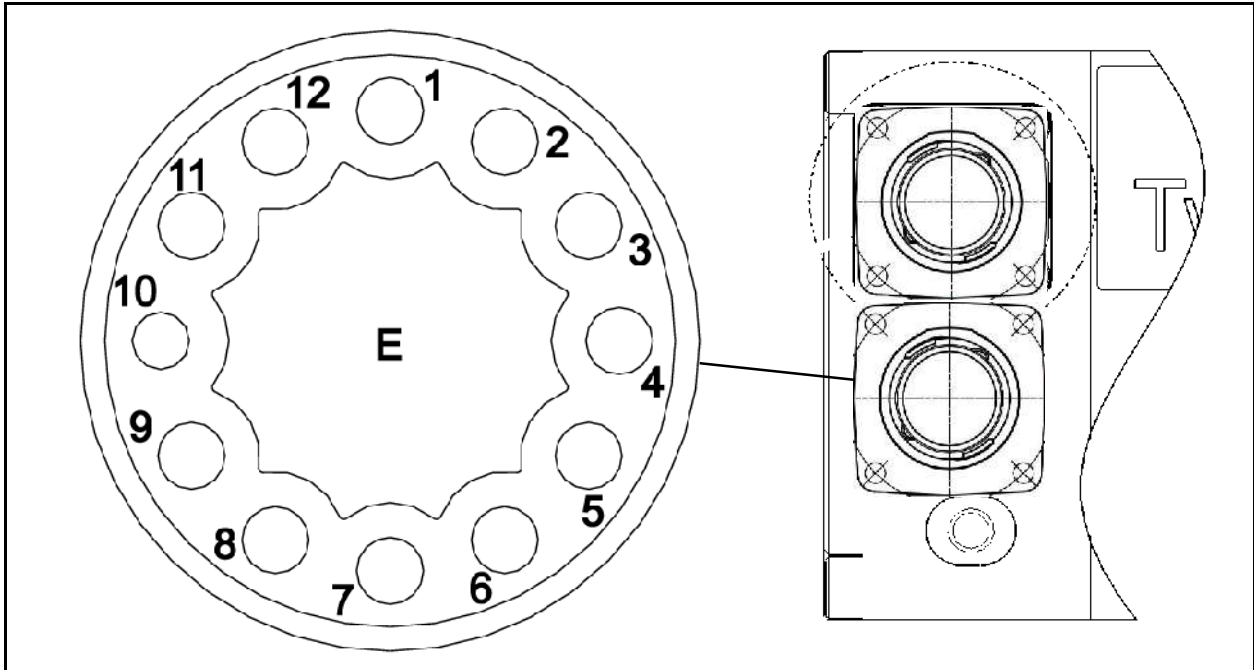
Sensor resistance depending on the ambient temperature (average values)

Ambient temperature ($^{\circ}\text{C}$)	Temp. Coefficient (% / K)	Resistor (Ω)			Temp. error (K)
		Min.	Type	Max.	
-40	0,84	340	359	379	$\pm 6,48$
-30	0,83	370	391	411	$\pm 6,36$
-20	0,82	403	424	446	$\pm 6,26$
-10	0,80	437	460	483	$\pm 6,16$
0	0,79	474	498	522	$\pm 6,07$
10	0,77	514	538	563	$\pm 5,98$
20	0,75	555	581	607	$\pm 5,89$
30	0,73	599	626	652	$\pm 5,79$
40	0,71	645	672	700	$\pm 5,69$
50	0,70	694	722	750	$\pm 5,59$
60	0,68	744	773	801	$\pm 5,47$
70	0,66	797	826	855	$\pm 5,34$
80	0,64	852	882	912	$\pm 5,21$
90	0,63	910	940	970	$\pm 5,06$
100	0,61	970	1000	1030	$\pm 4,90$
110	0,60	1029	1062	1096	$\pm 5,31$
120	0,58	1089	1127	1164	$\pm 5,73$
130	0,57	1152	1194	1235	$\pm 6,17$
140	0,55	1216	1262	1309	$\pm 6,63$
150	0,54	1282	1334	1385	$\pm 7,10$
160	0,53	1350	1407	1463	$\pm 7,59$
170	0,52	1420	1482	1544	$\pm 8,10$
180	0,51	1492	1560	1628	$\pm 8,62$

Tbl: Temperature - resistance values

Pin assignment of signal connector M17 – 12-pin (on Compact Module side)

- ▶ Additional connector for Compact Module with encoder.
- ▶ Manufacturer: Intercontec
- ▶ Order No. Connector M 17 12-pin (12 signal) EEG A 001 NN 00 0001 000
- ▶ 8 x contact pin 61.232.11
- ▶ Pin assignment also valid when using Y and / or angled plugs



Pin	Assignment
1	V _{dd} red
2	GDN blur
3	A grew
4	B green
5	Z white
6	A- pink
7	B- yellow
8	Z- brown
9	not assigned
10	not assigned
11	not assigned
12	not assigned

Tbl: Pin assignment of signal connector M17 – 12-pin (on Compact Module side)

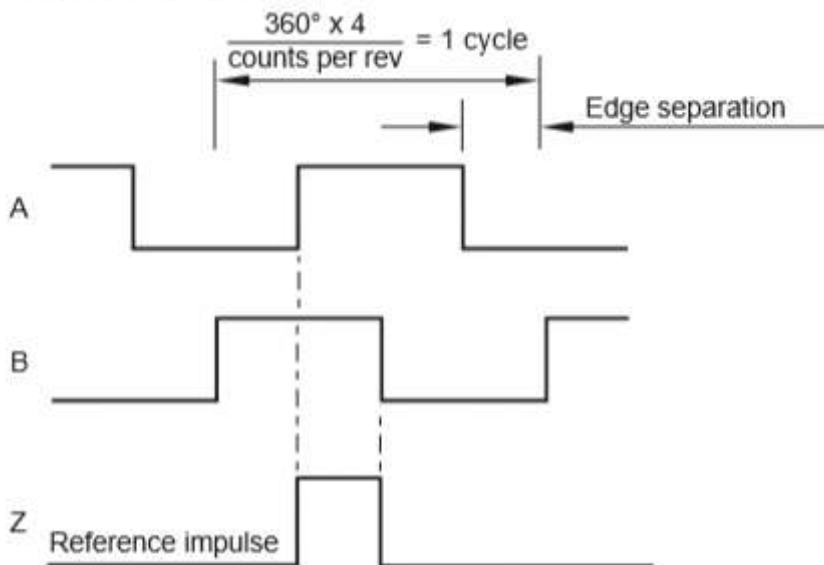
Specification Encoder

- ▶ Manufacturer: Renishaw
- ▶ Model RM44IC encoder
- ▶ Model RM44A3 giver

Characteristics	
Power Supply	$V_{dd} = 5\text{ V} \pm 5\%$
Power consumption	-Max. 35mA
Output signals	A, B, Z, A-, B-, Z- (RS422)
Accuracy	Typ. ± 0.5
Hysteresis	0.18°
Encoder line count	1024
Maximum speed	30,000 rpm
Maximum cable length	50 m
Operating temperature	$-40\text{ }^\circ\text{C}$ to $+125\text{ }^\circ\text{C}$ (IP64) $-40\text{ }^\circ\text{C}$ to $+85\text{ }^\circ\text{C}$ (IP68)

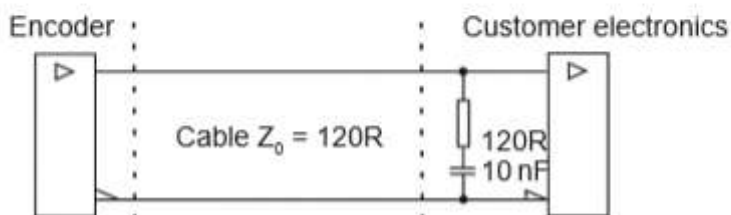
Timing diagram

Complementary signals not shown



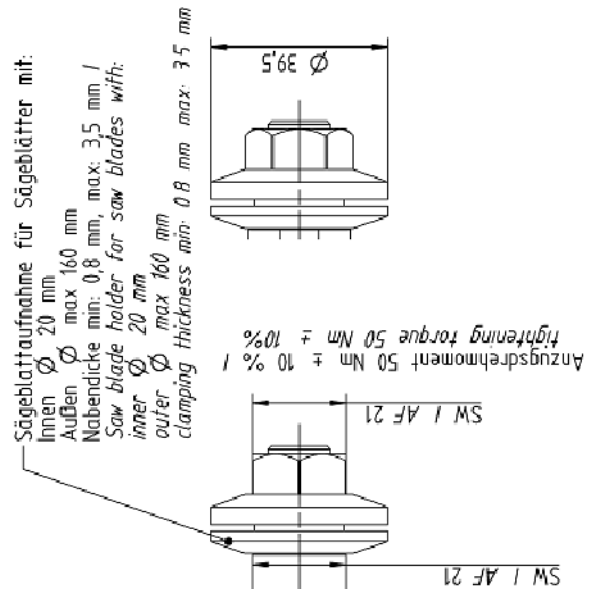
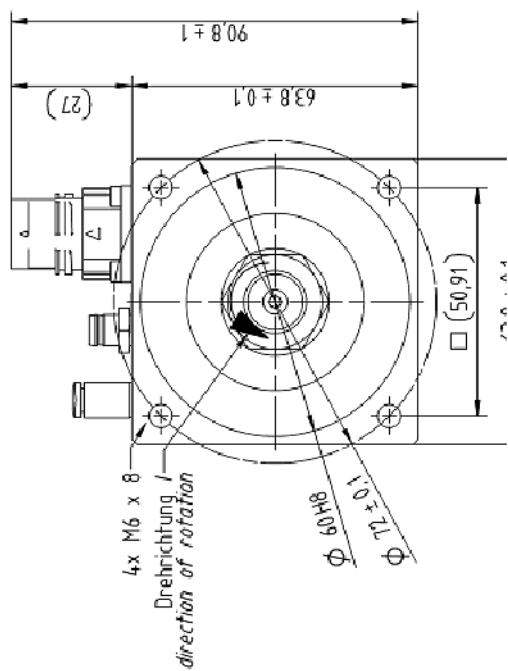
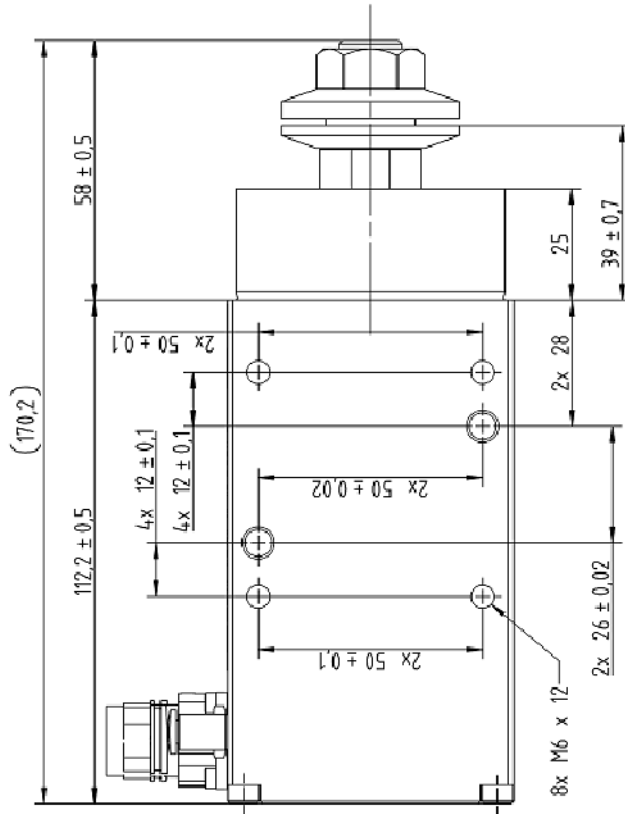
B leads A for clockwise rotation of magnetic actuator.

Recommended signal termination

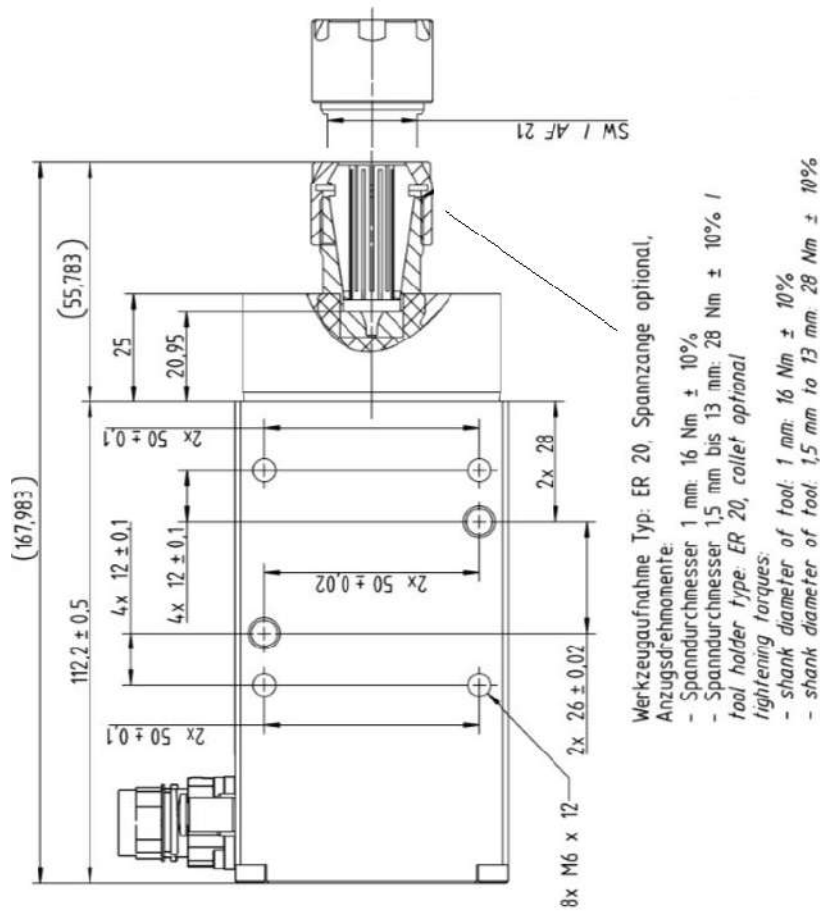


Dimension sheets

Dimension sheet Compact Module with saw blade



Dimension sheet ER20 (collet)



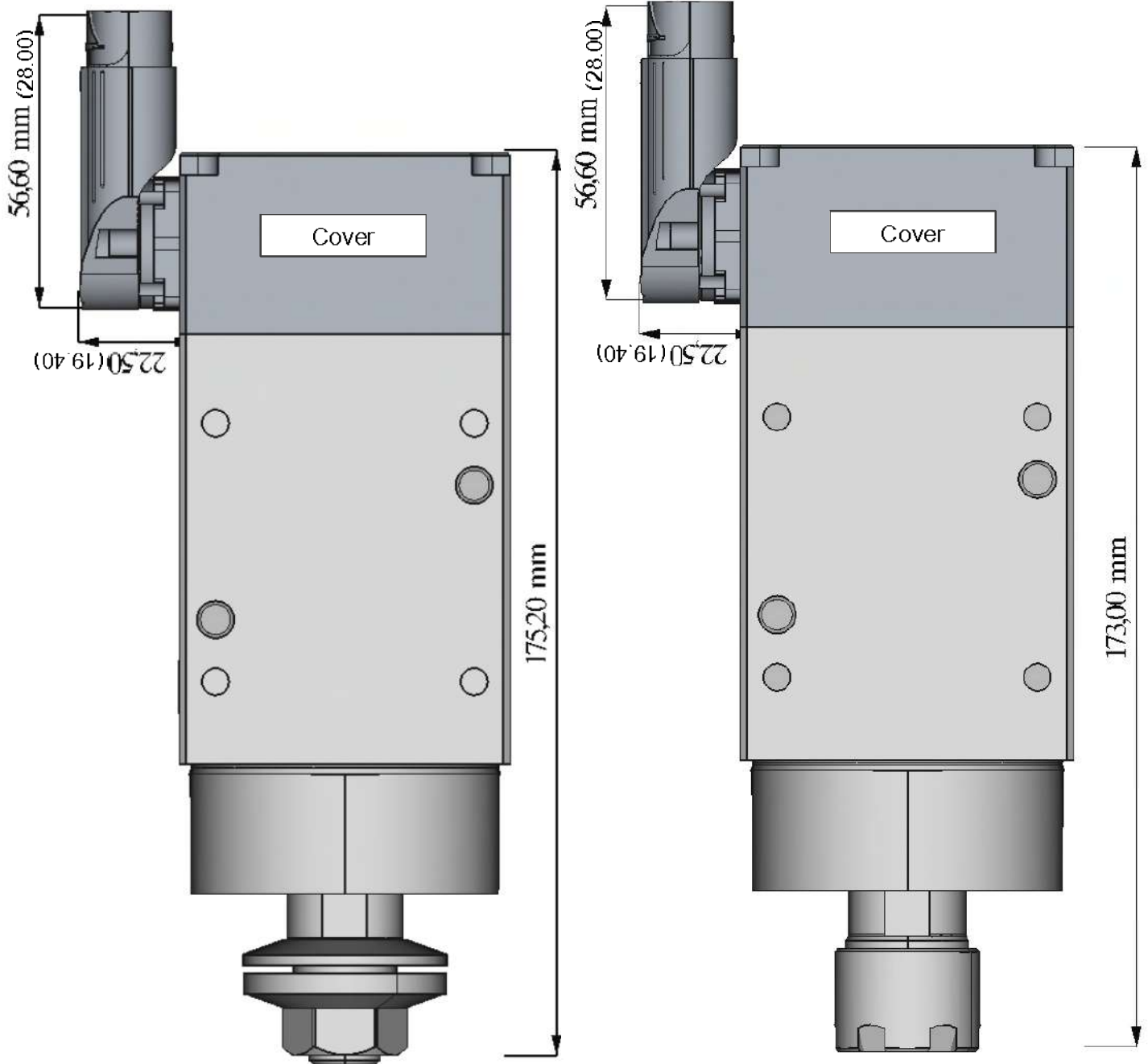
Dimension sheet encoder versionen

For Compact Module with encoder the length dimension changes by enlarging the cover by **+5mm**.

The flange holes and other dimensions remain identical. See following page for dimensions of connectors.

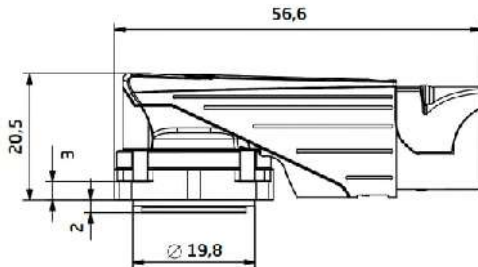
Saw Module

ER20 Module

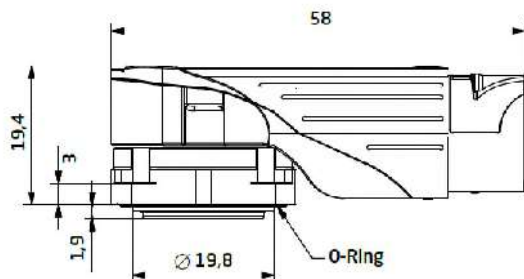


Dimension sheet straight- und angle connector

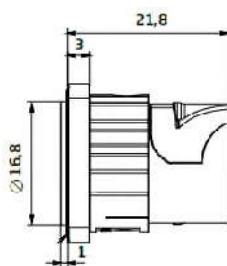
Angle connector for Compact Module without encoder (Self Lock)



Angle connector for Compact Module with encoder (Self Lock)



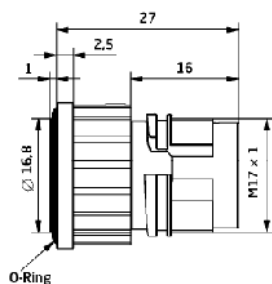
Straight connector for Compact Module with and without encoder (Self Lock)



(mit Encoder)



Straight connector for Compact Module without encoder (Drive Power Link M17)



The order codes on page 3 shows the connector variants in the table.

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