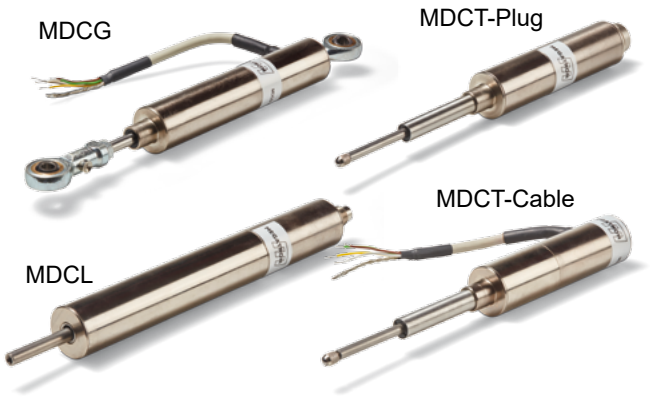
Data Sheet for Linear Sensors

Inductive Linear Transducer (with electronics) — Series MDC



- With integrated electronics
- Probe, ball joints, loose push rod (loose core)
- Measuring strokes from 2 to 200 mm
- Cable or plug connection
- Supply voltage ± 15 V or 24 V
- Output signals: 0..5 V / ± 5 V / 0..10 V / ± 10 V / 0..20 mA / 4..20 mA
- Protection grade IP65 (optional IP67/68)

The MDC series consists of three designs: MDCG with ball joints, MDCT as a probe with spring return and MDCL with a loose push rod.

Electrical Data	MDC-2	MDC-5	MDC-10	MDC-20	MDC-50	MDC-100	MDC-200
Effective electrical travel **MDCG** (ball joints) in mm 1.)	±1 (2)	±2.5 (5)	±5 (10)	±10 (20)	±25 (50)	±50 (100)	±100 (200)
Effective electrical travel **MDCL** (loose core) in mm 1.)	±1 (2)	±2.5 (5)	±5 (10)	±10 (20)	±25 (50)	±50 (100)	±100 (200)
Effective electrical travel **MDCT** (as a probe) in mm 1.)	±1 (2)	±2.5 (5)	±5 (10)	±10 (20)	±25 (50)	--	--
Independent linearity (best straight line) 1.)	±0.5% (±0.25%)					±1%	
Output signal	0..5 V / ±5 V / 0..10 V / ±10 V / 0..20 mA / 4..20 mA						
Limit frequency	100 Hz						
Supply voltage	24 V (±20 %) / ±15 V (±5 %)						
Power consumption (no load)	±20 / 20 mA (±40 / 40 mA @ current output)						
Output load	> 10 kOhm (voltage output) / <500 Ohm (current output)						
Temperature coefficient	±0.4 % F.S./10K						
Ripple	< 10 mV RMS						

Mechanical Data, Environmental Conditions, Miscellaneous	MDC-2	MDC-5	MDC-10	MDC-20	MDC-50	MDC-100	MDC-200
Operational temperature	0..+70°C (MDCG) / 0..+60°C (MDCT und MDCL)						
Storage temperature	-30 °C up to +80 °C						
Protection grade (IEC60529)	IP65 (optional IP67 / IP 68 for MDCG and MDCL)						
Vibration (IEC 68-2-6, Test Fc)	10 g (2..2000 Hz)						
Shock (IEC 68-2-27, Test Ea)	100 g, 2 ms						
Sensor length **MDCG**	76 mm	87 mm	101 mm	140 mm	185 mm	320 mm	490 mm
Sensor length **MDCL**	76 mm	87 mm	101 mm	140 mm	185 mm	327 mm	497 mm
Sensor length **MDCT**	76 mm	87 mm	101 mm	140 mm	185 mm	--	--
Mass **MDCG** (cable 1 m ca.)	155 g	180 g	198 g	245 g	305 g	510 g	620 g
Mass **MDCL** (cable 1 m/plug ca.)	110/65 g	125/100 g	151/125 g	215/190 g	280/255 g	480/455 g	710/685 g
Mass **MDCT** (cable 1 m/plug ca.)	130/110 g	145/130 g	165/145 g	215/195 g	285/265 g	--	--
Material housing	Steel nickel plated						
Material push rod / Core material	Stainless steel / Nickel-Iron-Alloy						
Electrical connection	Round cable 1 m / plug 5-pin (not for MDCG)						
Mounting parts (included in delivery)	2 pc. ball joints (MDCG), probe (MDCT), loose push rod (MDCL)						

1.) According IEC 60393
2.) Determined by climatic conditions according to IEC 68-1, para. 5.3.1 without load collectives

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Order Code

Description	Selection: **standard=black/bold**, possible *options=grey/italic*							
Series:	**MDC**							
Design:								
With ball joints		**G**						
With loose core		**L**						
As a probe		**T**						
Effective electrical travel:								
2 mm			**2**					
5 mm			**5**					
10 mm			**10**					
20 mm			**20**					
50 mm			**50**					
100 mm (not version T)			**100**					
200 mm (not version T)			**200**					
Electrical connection:								
Plug 5-pole (not version G)				**S**				
Cable 1 m				**K**				
Option cable 2 m				*K2*				
Option cable length in m				*Kxx*				
Supply voltage								
±15 V					**15**			
24 V					**24**			
Output signal:								
0..5 V						**05**		
0..10 V						**10**		
±5 V						**55**		
0..20 mA						**20**		
4..20 mA						**42**		
Option ±10 V						*11*		
Independent linearity:								
±0,5% / ±1% (depends on electrical travel)							**-**	
Option ±0.25 (not for ≥100 mm)							*L0,25*	
Protection class:								
Standard IP65								**-**
Option IP67 (not for version T)								*IP67*
Option IP68 (not for version T)								*IP68*

Accessory (not included in delivery):
- Mating connector (STEM16) #110906: M16 thread, 5-pole, IP67, straight, shielded (STE M16 5POL IP67 G S)
- Mating connector (STEM16) #114462: M16 thread, 5-pole, IP67, angled, shielded (STE M16 5POL IP67 W S)
- Mating connector with cable (STKM16) #127664: M16 thread, 5-pole, IP67, straight, shielded, 2 m (STK M16 5POL IP67 G GS 2M AWG24)
- Mating connector with cable (STKM16) #127665: M16 thread, 5-pole, IP67, angled, shielded, 2 m (STK M16 5POL IP67 W GS 2M AWG24)
- Mounting bracket #106656: take a look at drawing in document
- Mounting flange - take a look at drawing in document
- Extension for armature (50..315 mm) - take a look at drawing in document

More connectors with and without cable on request. Take a look at data sheet STEM16 for connector without cable or STKM16 for connector with cable.

For higher quantities or on-going demand, additional options are available as described below on request for example:
- Cable assemblies with and without connector, for example version „KD“ (cable connection with through hole - only for design L in IP65)
- Special probe, special axis length and much mores
- Extended temperature range (-25°C .. +85°C)

Please note for the type with >100 mm displacement: For a horizontal installation, the sensor housing must be stabilized additionally. An axial alignment must be ensured. Otherwise the sensor could bend due to its own weight! We recommend to use 3 mounting brackets.

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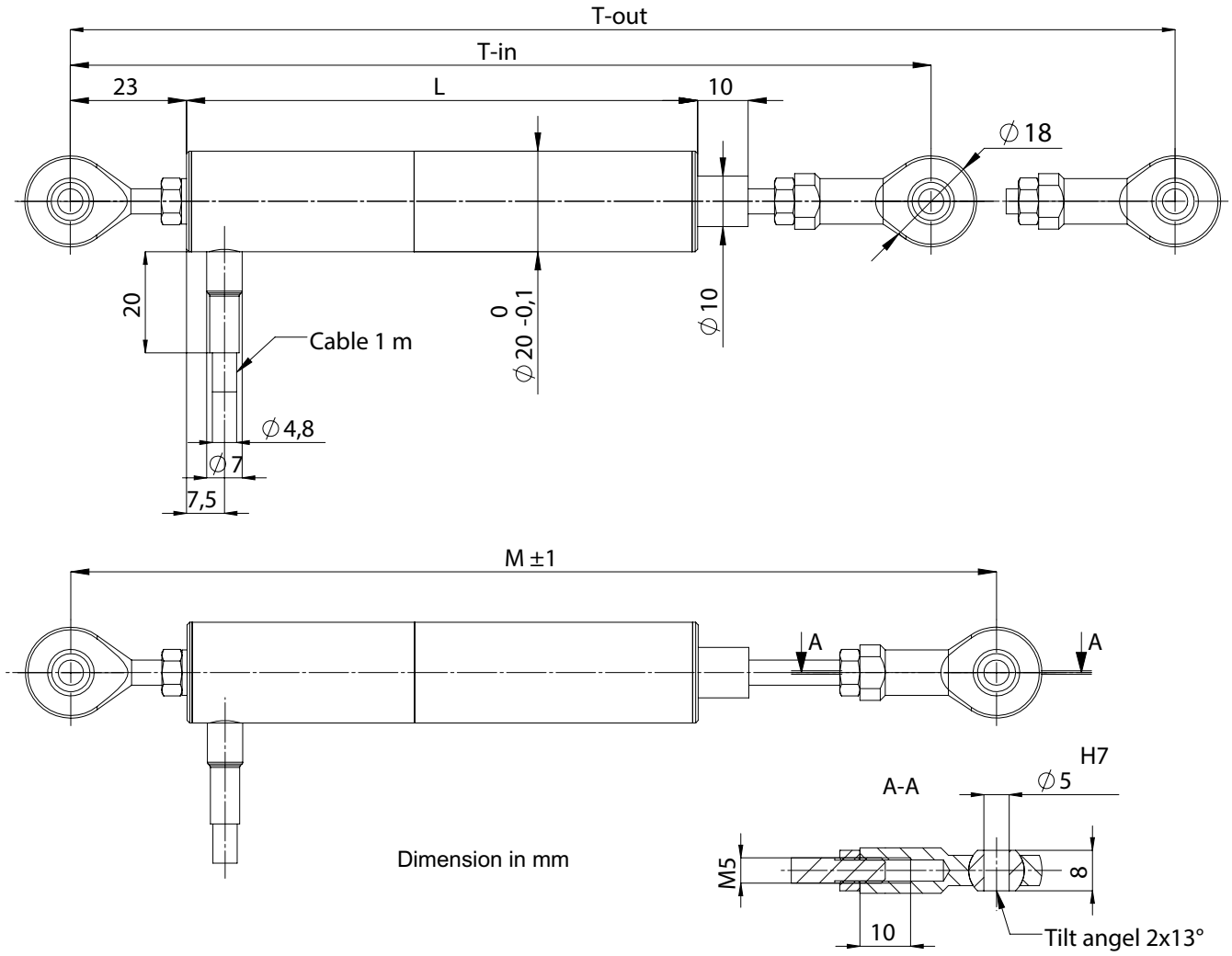
Drawing

MDC G

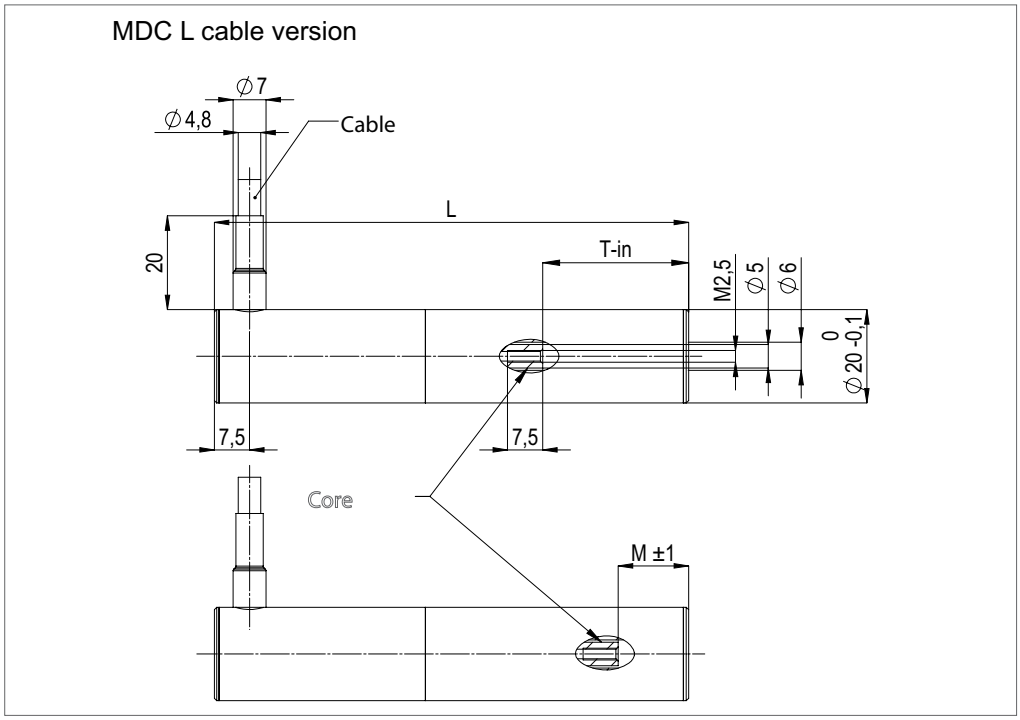


Sensor	MDC G	MDC G	MDC G	MDC G	MDC G	MDC G	MDC G
M [elec. zero position]	164 mm	173 mm	183 mm	219 mm	280 mm	443 mm	678 mm
T-in		163 mm	170 mm	204 mm	250 mm	384 mm	570 mm
T-out		182 mm	196 mm	235 mm	310 mm	515 mm	785 mm
L	76 mm	87 mm	101 mm	140 mm	185 mm	320 mm	490 mm
Stroke	±1 mm	±2,5 mm	±5 mm	±10 mm	±25 mm	±50 mm	±100 mm

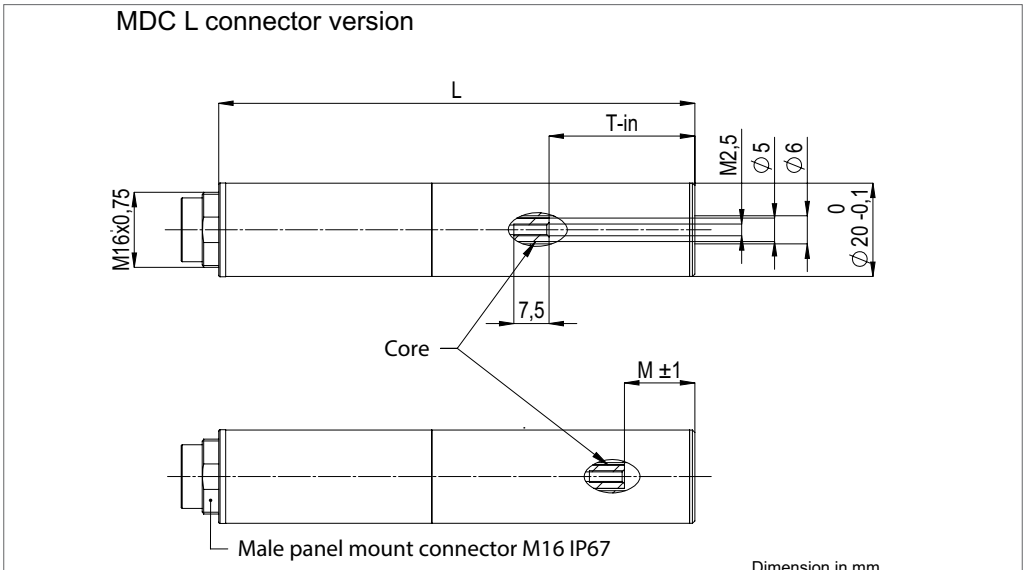
Connection		
Color of cable	Supply voltage ±15 V	Supply voltage 24 V
Yellow	- 15 V	N.C.
Brown	+ 15 V	+ 24 V
White	Signal GND	
Green	Output	
Grey	Excitation GND	
Shield	Housing	

Drawing

MDC L cable version



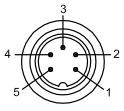
MDC L connector version



Dimension in mm

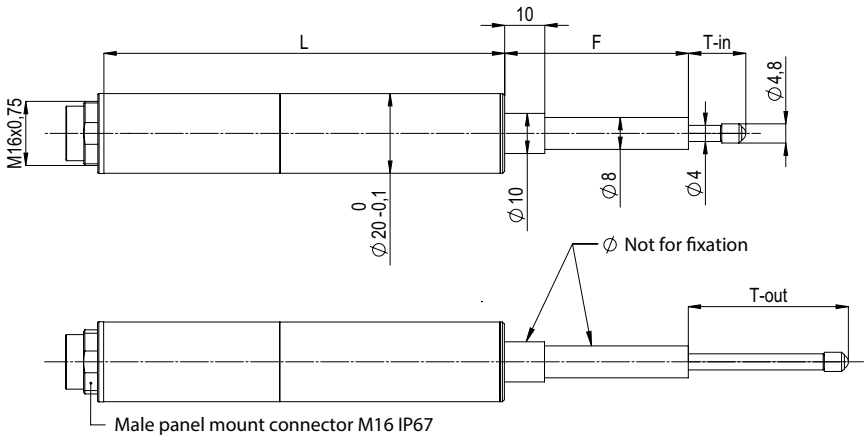
Sensor	MDC L	MDC L	MDC L	MDC L	MDC L	MDC L	MDC L
M [elec. zero position]	9 mm	11,5 mm	15 mm	18 mm	32 mm	81 mm	116 mm
L	76 mm	87 mm	101 mm	140 mm	185 mm	327 mm	497 mm
T-in	17 mm	23 mm	30 mm	62 mm	80 mm	130 mm	230 mm
Stroke	±1 mm	±2,5 mm	±5 mm	±10 mm	±25 mm	±50 mm	±100 mm

Connection			
Pin number	Color of cable	Supply voltage ±15 V	Supply voltage 24 V
1	Yellow	- 15 V	N.C.
2	Brown	+ 15 V	+ 24 V
3	White	Signal GND	
4	Green	Output	
5	Grey	Excitation GND	
	Shield	Housing	

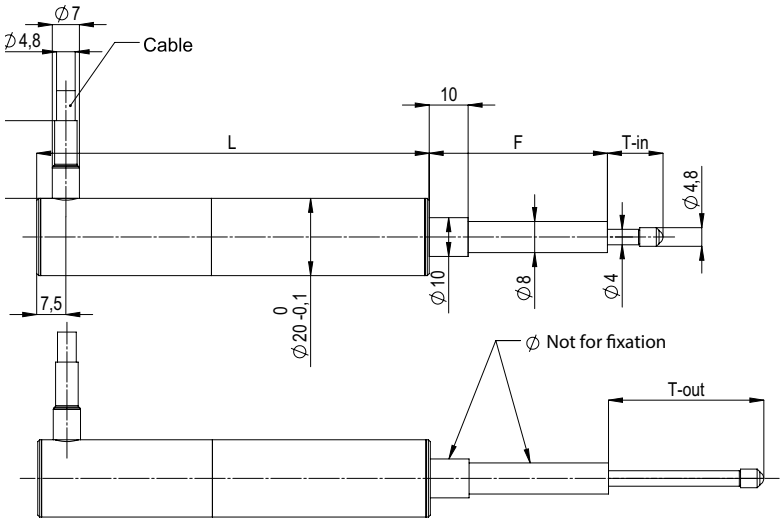


Drawing

MDC T connector version

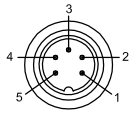


MDC T cable version



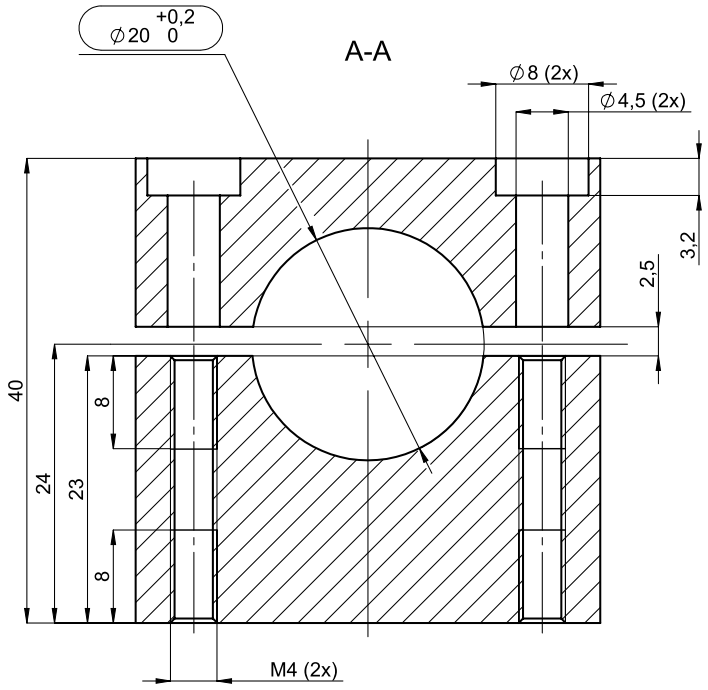
Sensor	MDC T	MDC T	MDC T	MDC T	MDC T
M [elec. zero position]	26 mm	23,5 mm	20 mm	16,5 mm	40 mm
L	76 mm	87 mm	101 mm	140 mm	185 mm
F	46 mm	46 mm	46 mm	46 mm	83 mm
T-out	40 mm	40 mm	40 mm	40 mm	77 mm
T-in	25,5 mm	21,5 mm	14,5 mm	7,5 mm	17,5 mm
Stroke	±1 mm	±2,5 mm	±5 mm	±10 mm	±25 mm

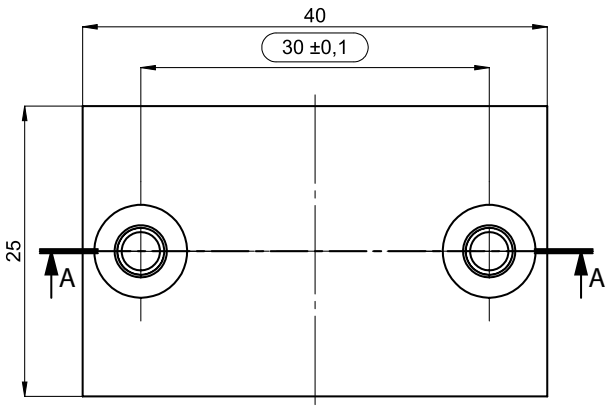
Connection			
Pin number	Color of cable	Supply voltage ±15 V	Supply voltage 24 V
1	Yellow	- 15 V	N.C.
2	Brown	+ 15 V	+ 24 V
3	White	Signal GND	
4	Green	Output	
5	Grey	Excitation GND	
	Shield	Housing	



Dimension in mm

Drawing mounting bracket





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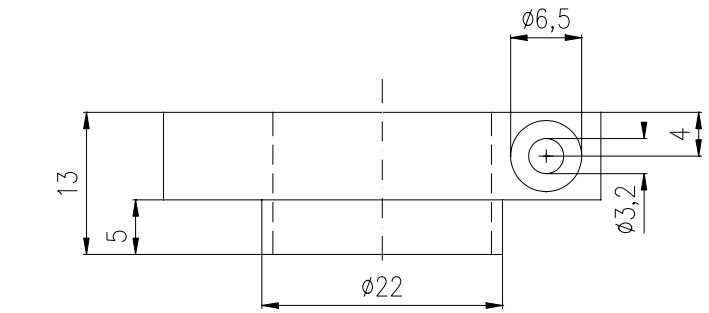
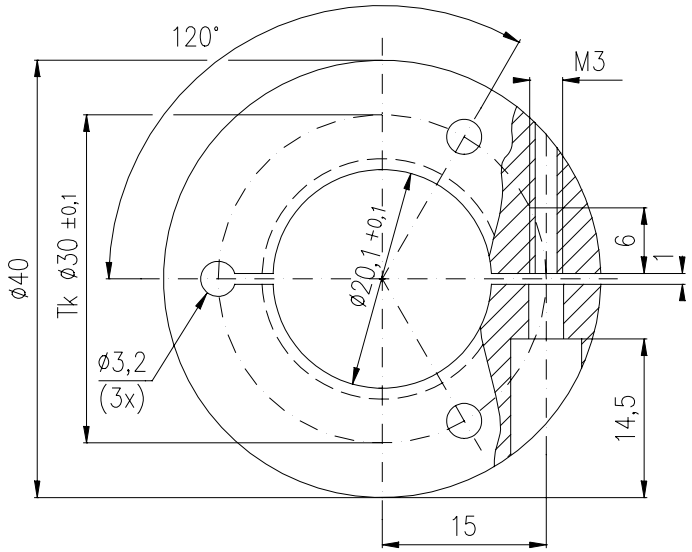
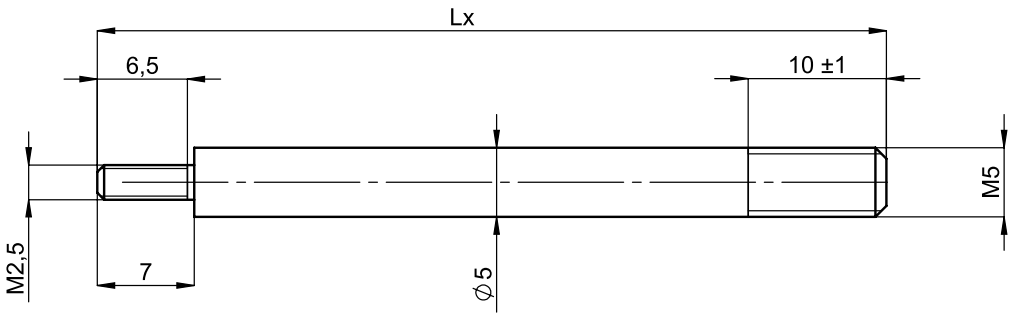
Drawing mounting flange





Drawing extension for armature



Lx
57
77
87
94
157
257
322

Dimensions in mm