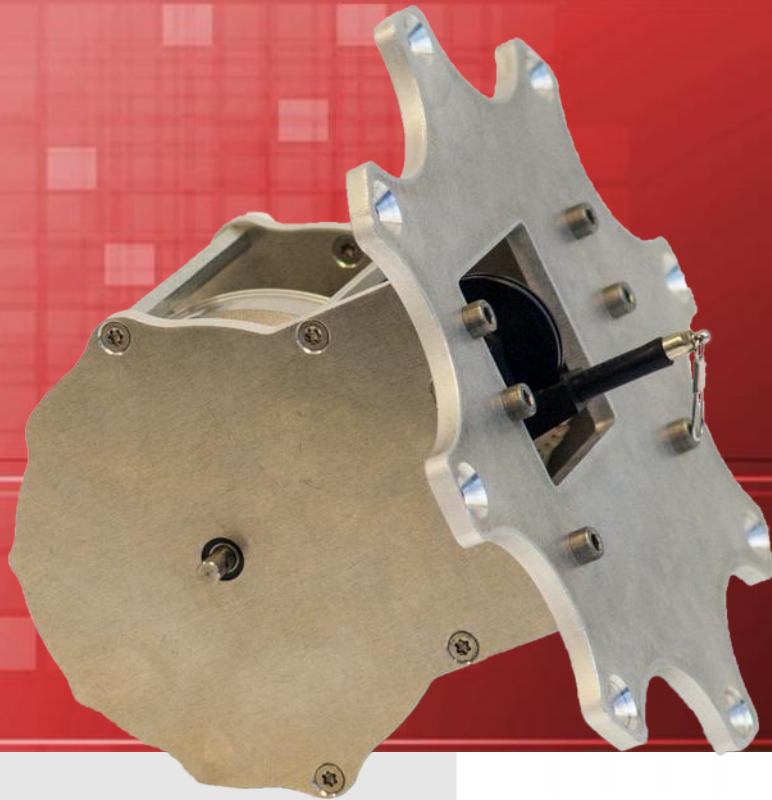


DRAW WIRE SENSOR



Series SX200

Content:

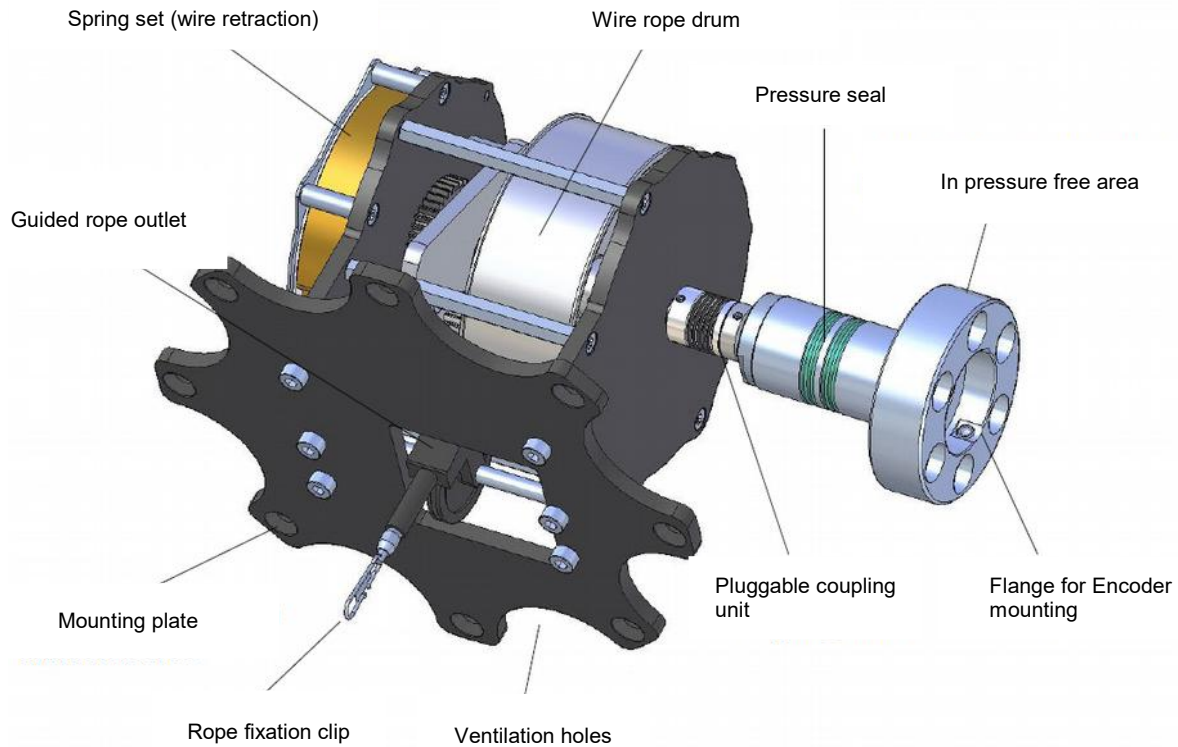
Product Description2
Technical Data3
Dimensions4
Installation6
Accessories & Order Code7

- Draw wire position transducer for direct installation in hydraulic cylinders
- Sensor element: digital encoder
- Output signal: SSI, Profibus, CANopen, Profinet, EtherCAT, incremental signals (e.g. TTL)
- Pressure-sealed up to 300 bar
- Measurement ranges up to 12 meters
- Unpressurised encoder

PRODUCT DESCRIPTION

The WayCon SX200 Draw Wire Sensor is designed for an installation directly in the head of a hydraulic cylinder. The sensor reliably determines the exact position of the cylinder's piston and emits an equivalent output signal by its sensor element. The draw wire mechanics gets installed in the pressurised area whereas the sensor element (an absolute encoder) is attached at the outside of the cylinder.

The SX200 is particularly suitable for long stroke cylinders and telescope cylinders with pressurised oil filled housings. By giving feedback signals to a machine control unit it is possible to control the position of a cylinder, to program specific movements, or to manage synchronous movements of several cylinders. Due to its small overall size, its short assembly time and its possible customisation, this sensor technology is a cost-effective and flexible solution for a wide range of industrial applications.



Measurement Principle

A constant spring force coils the measuring rope accurately single-layered on an ultralight rope drum, so that the linear motion is converted into rotation. This rotation is guided to the external flange by a coupling through a pressure seal.

The sensor element (rotary absolute encoder) provides the output signal (e.g. SSI, Profibus.).

Due to the dynamics of the draw wire transducer high motion speeds and fast accelerations of the cylinder piston can be measured.

TYPICAL APPLICATIONS

- hydraulic gates for dam control
- synchronous run of more than one cylinder
- sluice gate control
- cylinder acceleration and speed control
- stroke control of fairground ride applications

TECHNICAL DATA TRANSDUCER

Measurement range	up to maximum 12 m
Temperature range	-20...+70 °C
Circumference rope drum	333.3 mm
Linearity	±0.05 % (depending on the used encoder)
Housing	aluminium ENAW-5754, steel 1.4301
Hydraulic fluid	hydraulic oil
Pressure seal	suitable for hydraulic oils, pressure-tight up to 300 bar
Piston travel speed	maximum 3 m/s (in air)*
Weight	5 kg
Rope tension (for 12 m range sensor)	start of range: 4.0...4.6 N end of range: 8.0...9.0 N
Encoder type	clamping flange diameter 36 mm shaft length 20 mm shaft diameter 10 mm

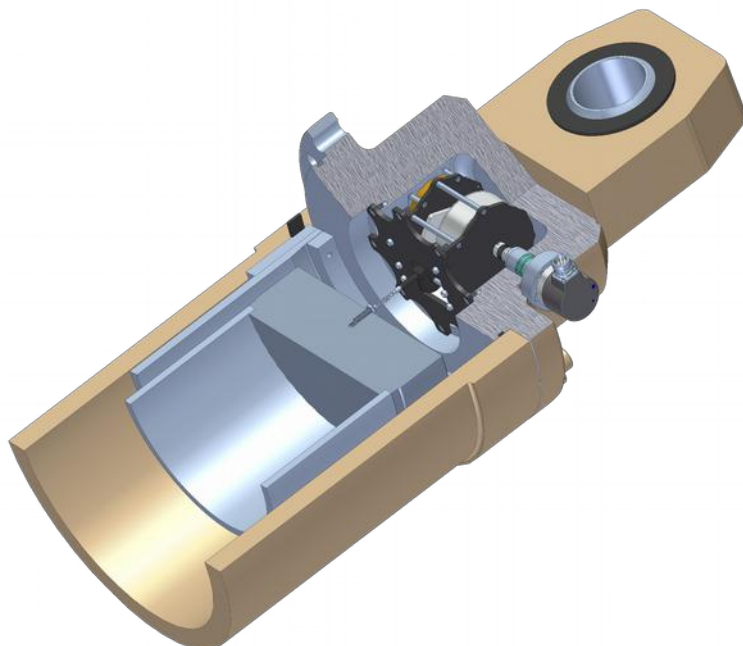
*identified laboratory value without hydraulic fluid



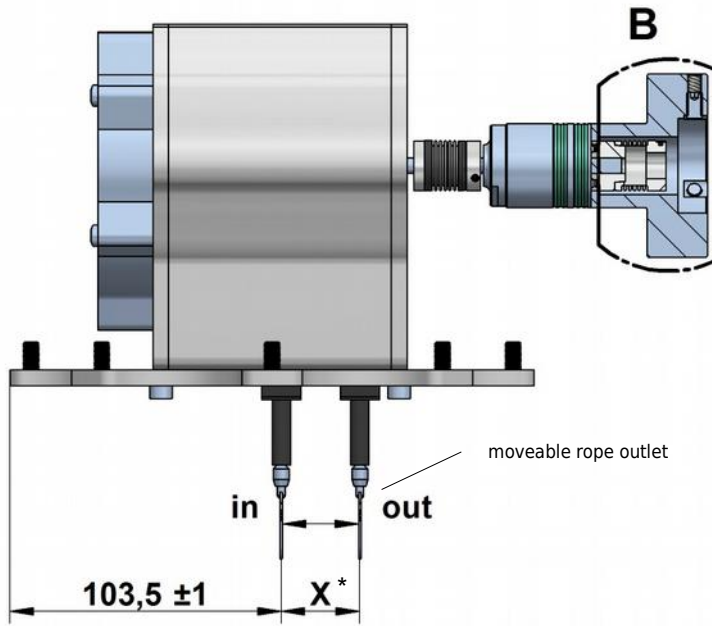
TECHNICAL DATA ENCODER

		CANopen	SSI	Profibus-DP	EtherCAT	Profinet
Linearity	[%]	0.05, independent of the measurement range				
Resolution scalable (by Software)		yes	no	yes	yes	yes
Standard resolution	[Pulses/mm]	24.58	24.58	24.58	24.58	24.58
	[Bit]	13	12	13	13	13
Maximum resolution	[Pulses/mm]	196.61	-	196.61	196.61	196.61
	[Bit]	16	-	16	16	16
Sensor element		Multiturn-Absolute-Encoder (with optical code disk)				
Connection *		cable gland radial	1 x connector M23	cable gland radial	3 x connector M12	3 x connector M12
		2 x	radial, 12 poles	3 x	4 pole, radial	4 pole, radial
Power supply	[VDC]	10...30 (reverse polarity protection of the power supply)				
Current consumption (no load, 24 V)	[mA]	max. 100	max. 50	max. 120	max. 120	max. 200
Protection class		IP65, optional IP67				
Humidity		max. 90 % relative, no condensation				
Temperature	[°C]	-20...+80				
Special cables needed		yes	yes	yes	yes	yes

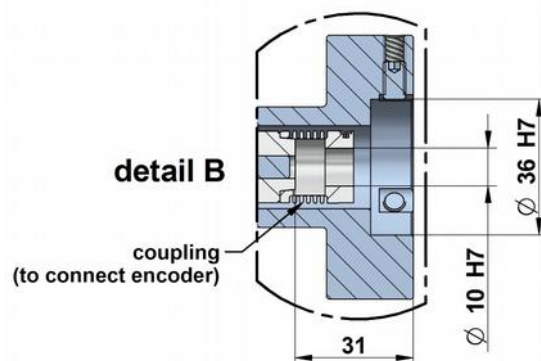
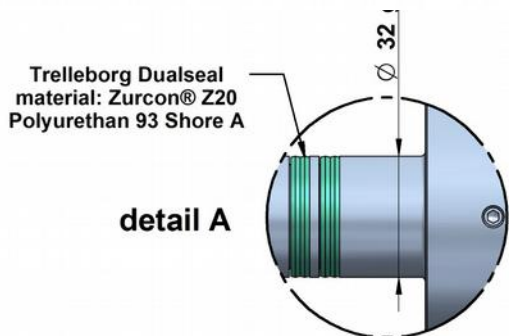
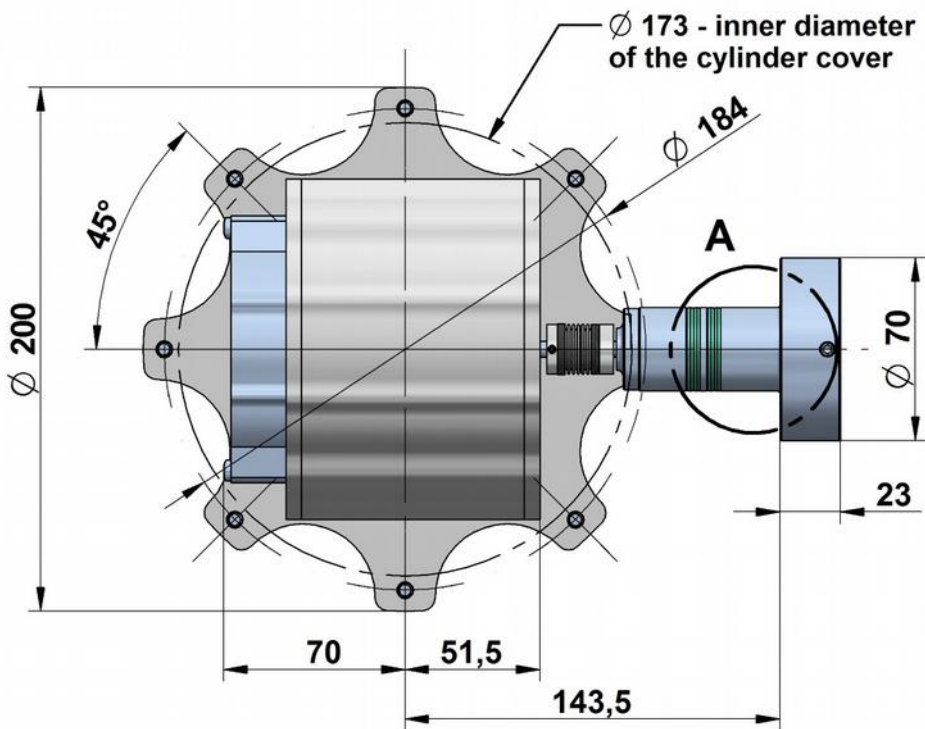
* others on request



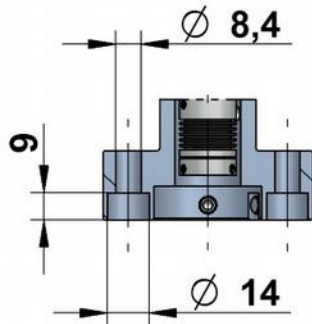
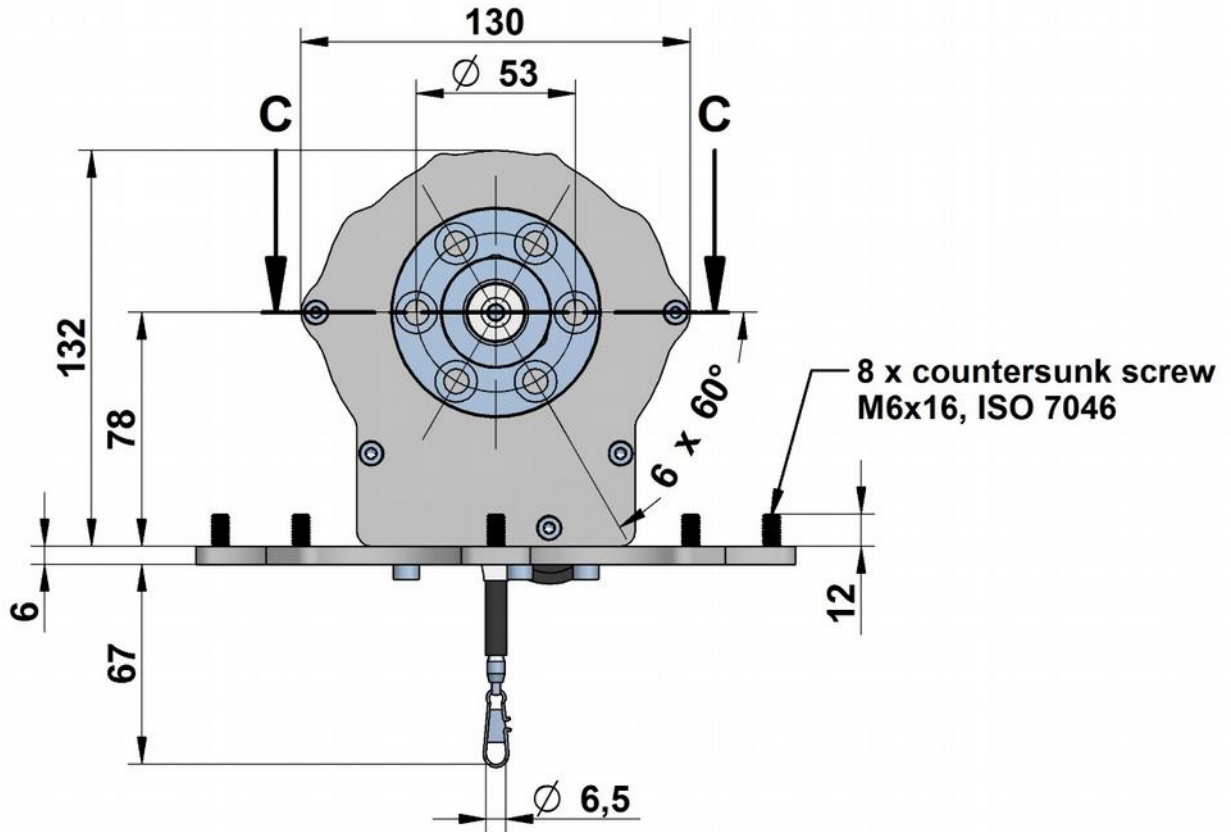
TECHNICAL DRAWING



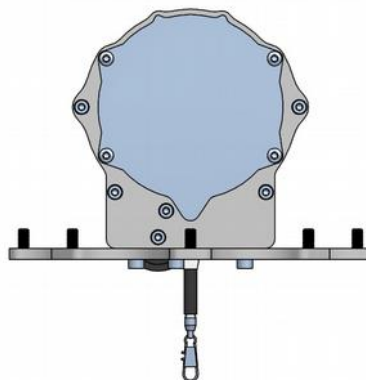
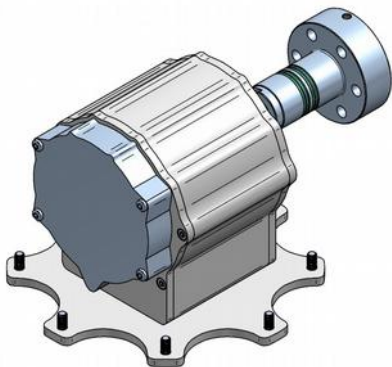
*position of rope outlet	8 m	10 m	12 m
start of meas. range (mm)	$103,5 \pm 1$	$103,5 \pm 1$	$103,5 \pm 1$
end of meas. range (mm)	$115,5 \pm 1$	$118,5 \pm 1$	$121,5 \pm 1$



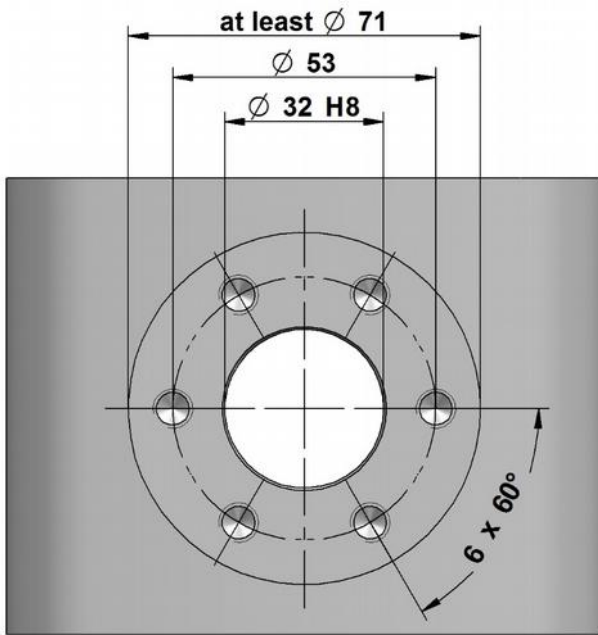
TECHNICAL DRAWING



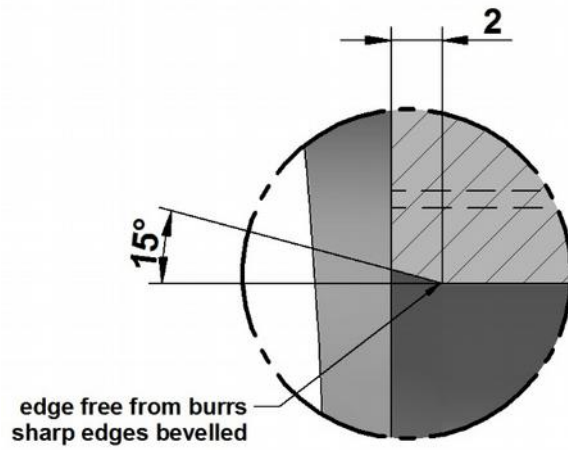
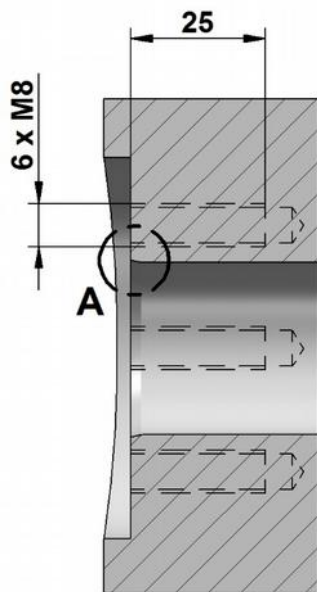
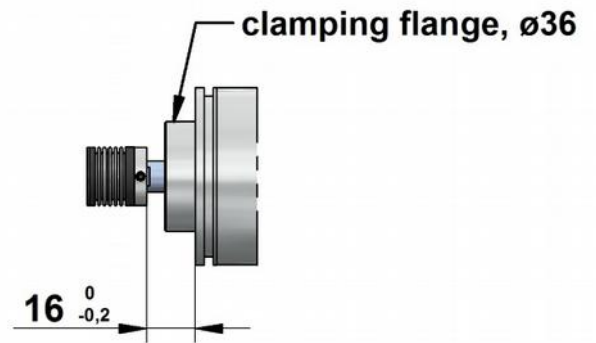
sectional view C-C



DIMENSIONS CUT-OUT



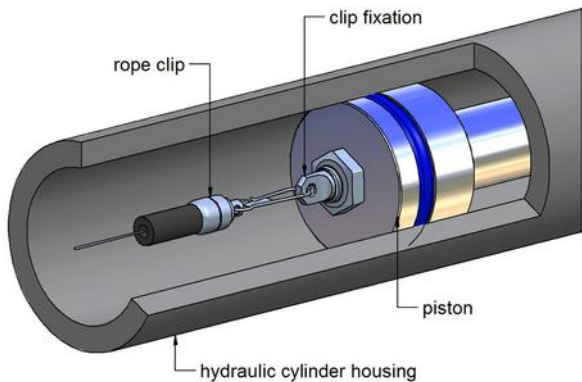
assembly: encoder-coupling



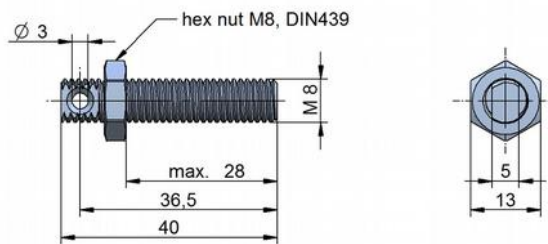
DETAIL A
chamfer for seals

ACCESSORIES

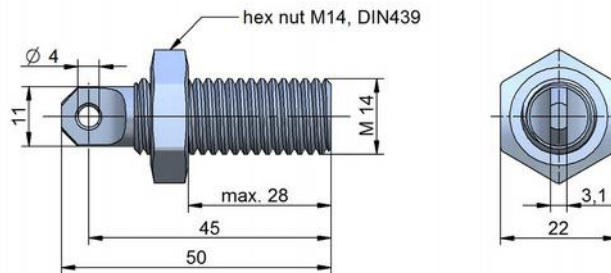
Piston wire fixation



Clipfixation M8



Clipfixation M14



ORDER CODE

SX200 - [] - [] - []

Measurement Range	
8 m	8
10 m	10
12 m	12

Other measurement ranges ≤ 12 m are available on request.

Transducer with encoder	
SSI	SSI
CANopen	CAN
Profibus DP	PRO
EtherCAT	CAT
Profinet	NET
Transducer without encoder	
draw wire mechanics, for encoder assembly *	F58K

* Encoder requirements:
clamping flange diameter 36 mm,
shaft length 20 mm, shaft diameter 10 mm

Connection	
F58K type	-
connector output M23, 12 poles, radial (SSI)	SR23
cable output, radial, 1 m, PVC (SSI)	KR01
cable gland, radial, removable	KVBH
bus terminal cover (CAN, PRO)	
connector output 2 x M12, 5 poles, radial (CAN)	SR12
connector output 3 x M12, 5 poles, radial (PRO)	SR12
connector output 3 x M12, 4 poles radial (CAT, NET)	SR12

Subject to change without prior notice.

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