Precision angle sensor PWG series

PWG 79 S 120 (120°)
PWG 79 S 200 (200°)
PWG 79 S 350 (350°)

The angle sensor is developed for rough operation under extreme environmental conditions in mobile applications. Angle ranges of ±60°, ±100° or ±175° can be recorded.

The main application is the measurement of the steering angle in safety related electronic-hydraulic steering systems direct on the wheel boogie.

Equipped with a conductive plastic resistance element and a long term stabile multiple finger wiper, the angle sensor is suitable for durable operation even under challenging conditions.

A tough full metal housing, continuous stainless steel shaft with double ball bearing and a large distance of the bearing places as well as an interlocking top cover protect the wiper from outer force effects. Hermetic sealing as well as the accuracy and reliability of the absolute analog angle measurement are further special characteristics.

The massive and compact construction allows the direct installation at the axle without additional protective measures.

The stabile shaft allows a direct steering via a strong lever or tappet.

Special features

- Extreme tough design
- Absolute potentiometric measuring system with highest lifetime.
- Increased corrosion protection by shaft made of stainless steel and anodized housing made out of massive aluminum.
- Accurate execution with very good linearity and temperature reliability.
- Absolute splash-proof
- With connector or PG gland available.
- Very high life time even at high vibration places.
- High resolution
- No mechanical turning limit

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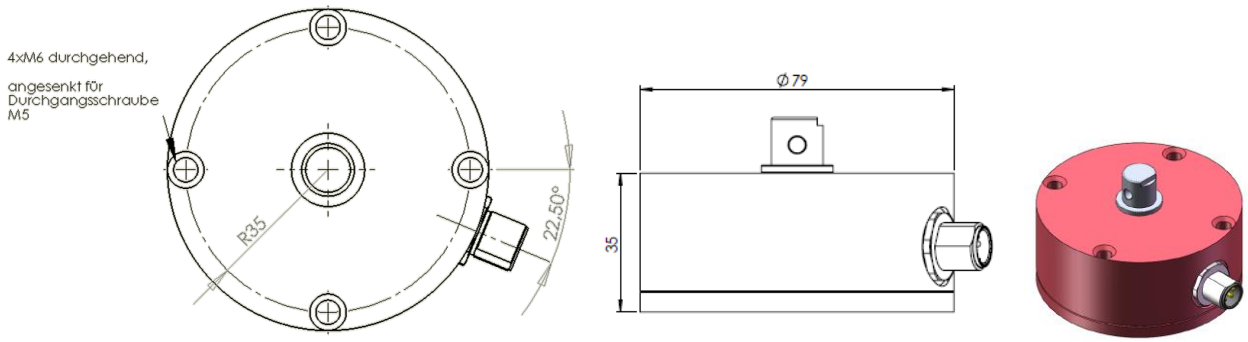
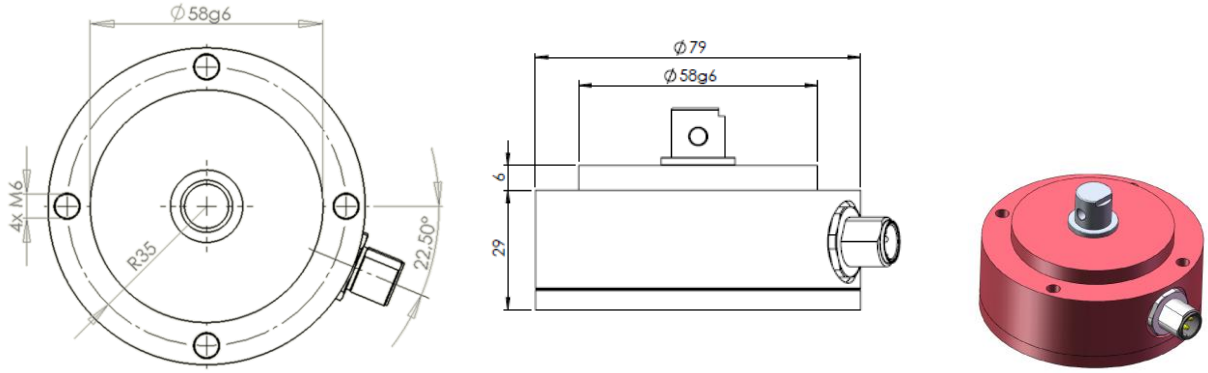
Housing variants

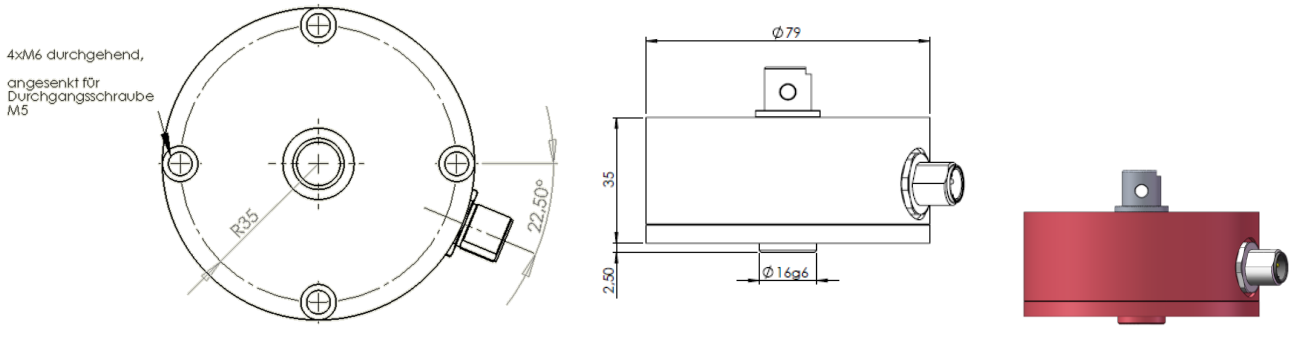
Standard



Centring flange Ø58g6



Spigot Ø16g6



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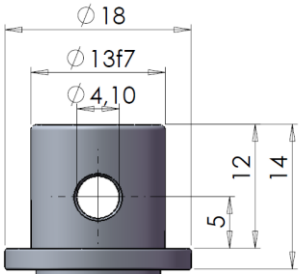
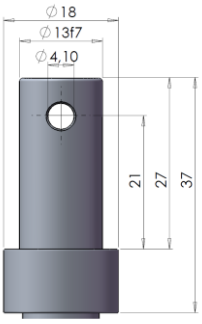
Shaft types

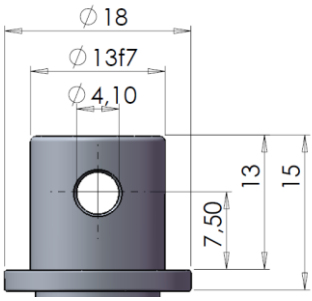
Shaft 1



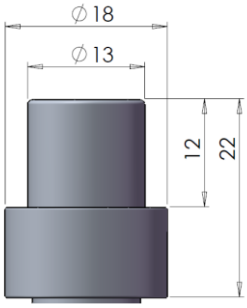
Shaft 2



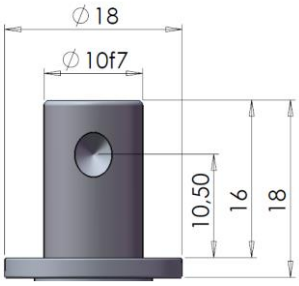
Shaft 3



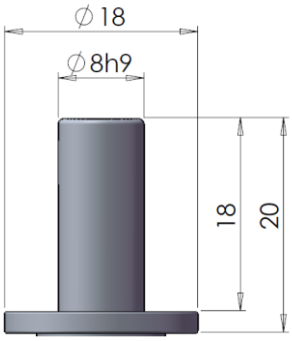
Shaft 4



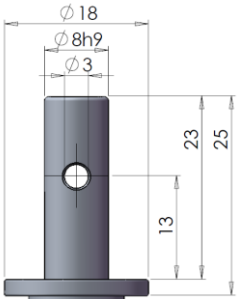
Shaft 5



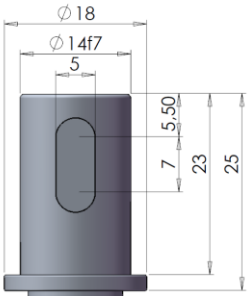
Shaft 6



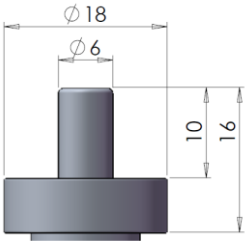
Shaft 7



Shaft 8



Shaft 9



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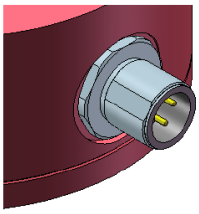
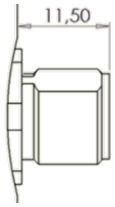
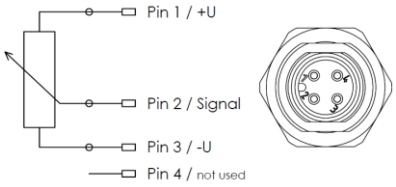
Electrical connections / accessories

Connector M12

Line type: A
Connector: 01

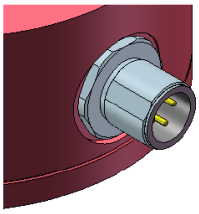


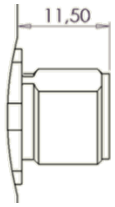


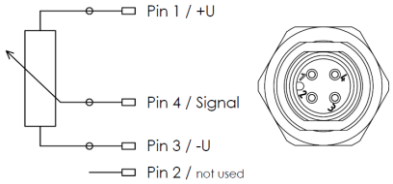


Connector M12

Line type: A
Connector: 02

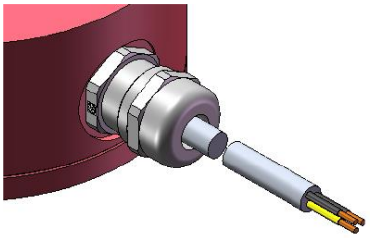


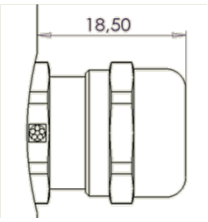


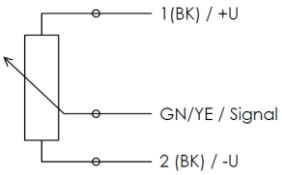


Direct cable outlet

Line type C,
connector 00

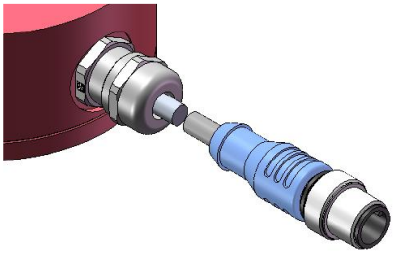


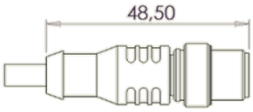


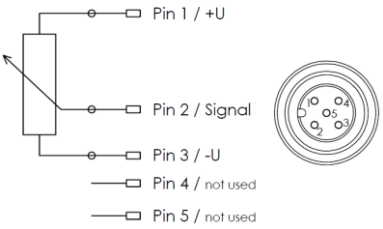


Cable + M12 connector

Line type F,
connector 01

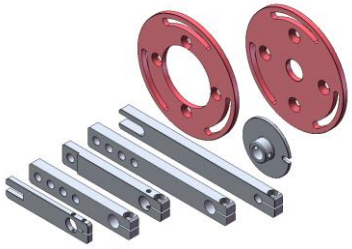






Accessory

An extensive program of accessories enables a professional assembling in all imaginable installation circumstances.



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Technical data

Electrical data

	PWG 79 S 120	PWG 79 S 200	PWG 79 S 350
Electrical function angle	120° ±2°	200° ±2°	350° ±2°
Nominal resistance	2kΩ	2kΩ	5kΩ
Independent linearity	≤±0,2%	≤±0,15	≤±0,1
Nominal resistance tolerance	±15%		
Micro linearity	≤±0,1%		
Resolution	infinite		
Temperature coefficient	5 ppm/°C (typ.)		
Wiper rated current	10µA		
Max. permissible wiper current	10mA (not for continuous operation)		
Max. power loss at +70°C	3W		
Max. permissible supply voltage (+U)	42V		
Isolation resistance	>100 MΩ at 500VDC		
Disruptive strength	1000 Vrms, 3000Vrms with POM-shaft		

Mechanical data

Permissible operation and storage temp.	-40°C to +100°C
Protection mode	IP 67 with connector IP 69 with PG gland
Life time	> 100 x 10^6 movements
Mechanical angle	360° rotatable
Max. adjustment speed	50Hz
Vibration IEC 60068-2-6	5…2000Hz, $A_{max} = 0{,}75mm$, $a_{max} = 5g$
Shock IEC 60068-2-27	50G/6ms
MTTF	429 years
Max. axial load	300N
Max. radial load	400N
Max. torque	4Ncm (0,04Nm)
Corrosion resistance shaft	stainless steel V2A (1.4305)
Corrosion resistance housing	Red anodized aluminium, sea water resistant
Weight	0,5kg

Order code

PWG □□ □ □□□ - □ □□ □ - □ □□ - □ □□

housing
79 - Ø79x35

type
S - Single
R - Redundant (SIL3)

electrical function angle
120 - 120°
200 - 200°
350 - 350°

centring
0 - without centring
1 - centring flange
2 - spigot

shaft
01 - Ø13x12 06 - Ø8x18
02 - Ø13x27 07 - Ø8x23
03 - Ø13x13 08 - Ø14x23 (flute)
04 - Ø13x12 09 - Ø6x10
05 - Ø10x16

shaft material
0 - stainless steel V2A (1.4305)
1 - POM

Line type
A - without cable (connector on housing)
B - Ölflex FD 810 CY (3x0,5mm²),permanently laid
C - Ölflex FD 855 CP (3x0,5mm²), flexible
D - Ölflex FD 855 CP (3x0,5mm²), flexible, shield on housing
E - LiFQ-PUR lengthwise waterproof (6x0,5mm²)
F - WASS-PUR (4x0,34mm²)
G - Ployflex FLRY11Y (6x0,5mm²)

connector
00 - without connector
01 - M12 (pin 1-2-3)
02 - M12 (pin 1-3-4)
03 - M12 (pin 1-2-3-4), half red. (SIL2)
11 - APD DIN 72585 (4-pin), non-redundant
12 - APD DIN 72585 (4-pin), half red. (SIL2)
13 - APD DIN 72585 (7-pin), fully red. (SIL3)

cable protection
0 - without cable protection
1 - corrugated tube, NW10
2 - hydraulic hose, DN12
3 - armored conduit

cable length
01 - 1m
02 - 2m
05 - 5m
08 - 8m
10 - 10m
15 - 15m

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