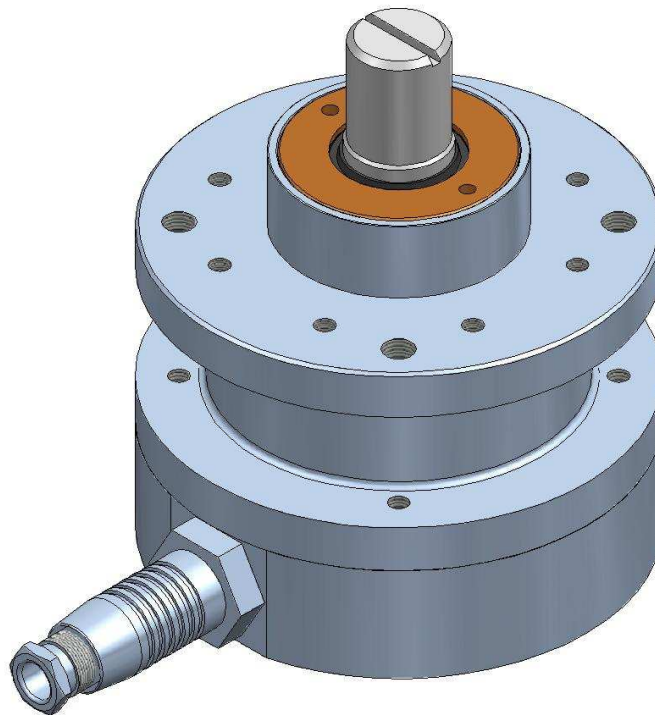


## HOEK-021 SHALLOW WATER ANGLE TRANSMITTER



### Product highlights

- Compact heavy duty shallow water angle transmitter for harsh and abrasive environments.
- Designed for angle measurement of suction tubes, booms and other (dredging) construction parts.
- Depth rate 50 msw.
- Corrosion resistant AISI 316 stainless steel housing and AISI 431 stainless steel shaft.
- Provided with 2 different mounting thread hole patterns.
- Several mounting and coupling accessories are deliverable.
- Available with analog 4...20 mA transmitters for angular ranges from 0 up to (4096 x) 360°.
- Also available with digital absolute encoders for single or multiturn applications.
- Fitted with a heavy duty stainless steel cable gland with integrated hose socket.
- Optionally available with all stainless steel cable gland with integrated penetrator and hose socket, standard metal shell, standard bulkhead or micro bulkhead connector.

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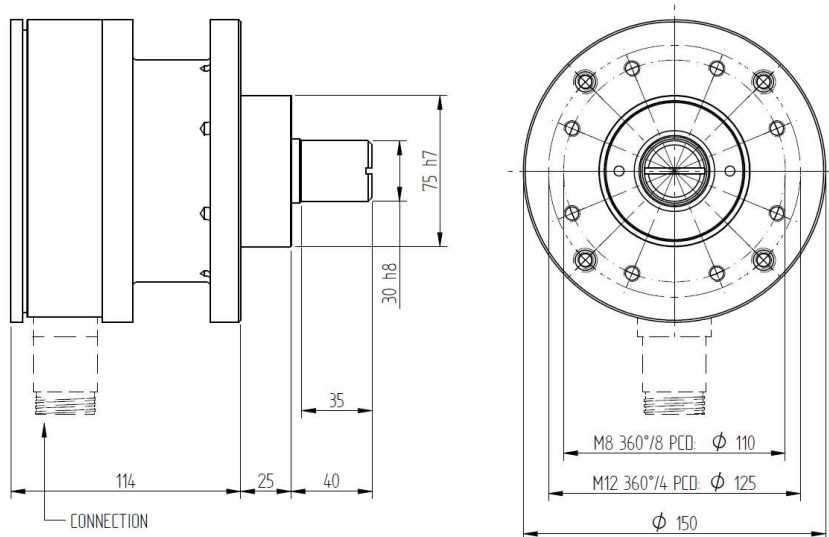
# PRODUCT INFORMATION



## Specifications

### Housing

- Housing material	AISI 316	- Operating temperature	-30..+100 °C
- Shaft material	AISI 431	- Depth rate	50 msw
- Dry weight	Approx. 10 kg		
- Dimensions	See below		



Sensor	<u>ANALOG</u>	<u>ANAPROG12</u>	<u>ANAPROG16</u>	<u>DIGIPROG1612</u>	<u>DIGIPROG1813</u>
- working principle	Potentiometer	Magnetic	Magnetic	Magnetic	Optic
- Measurement range	0...355°	0...200 rev MT 0...360° ST	0...4096 rev MT 0...360° ST	0...4096 rev MT 0...360° ST	0...8192 rev MT 0...360° ST
- Minimum range	0...53°	0...45°			
- Supply voltage	18...28 VDC	8...30 VDC	10...30 VDC	10...30 VDC	10...30 VDC
- Max. load	600 Ω	500 Ω			
- Power consumption	< 31 mA	< 20 mA excl.	< 1.6 W	< 1.6 W	< 2.4 W
- Output	4-20 mA	4-20 mA	4-20 mA	PROFIBUS DP Profile V1.1 Binary	PROFIBUS DP Profile V0 / V2 Binary
- Linearity error	± 0.1 % / 355° <sup>1</sup>	± 0.3 % @ 360°			
- Resolution	0.002 % / 355°	12 bit total <> 9 bit / 45°	16 bit total	16 bit / 360°	18 bit / 360°
- Therm. sens. shift	< 0.01 %/K				
- Accuracy			± 0.1 % @ 25° C	± 0.1°	± 0.01°
- User programmable	None	- set min. angle - set max. angle - rotation sense	- set min. angle - set max. angle	- resolution - preset - offset - rotation sense	- resolution - preset - range - rotation sense - scale
- Operating temp.	-30...+70 °C	-25...+85 °C	-30...+85 °C	-30...+85 °C	-25...+85 °C
- Connections	2	6	6	4 / 8	4/8

<sup>1</sup> At constant temperature. Valid for measurement ranges up to 345 °.

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# PRODUCT INFORMATION



## Connection

- Waterblock
- Cable outer diameter
- Hose inner diameter
- Operating temp.
- Dimensions

## SOCK

- No
- < 12 mm
- 25 mm
- 40...+100 °C
- See below

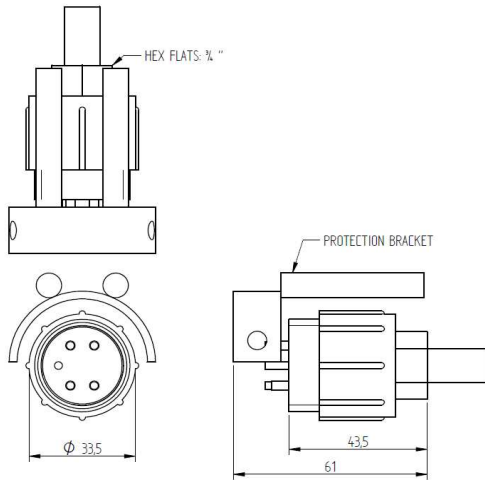
## PENE-x

- Yes
- < 12 mm
- 25 mm
- 40...+100 °C

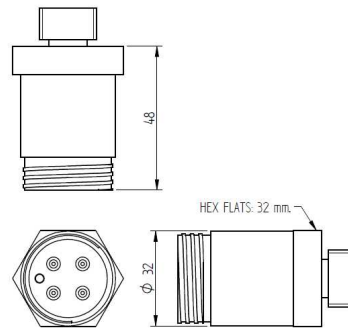
## Bulkheads

- Yes
- N.A.
- N.A.
- 4...+60 °C

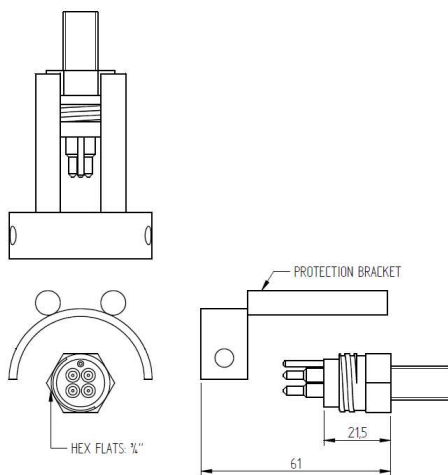
### HOEK-021-BHxMSS (x ≤ 5)



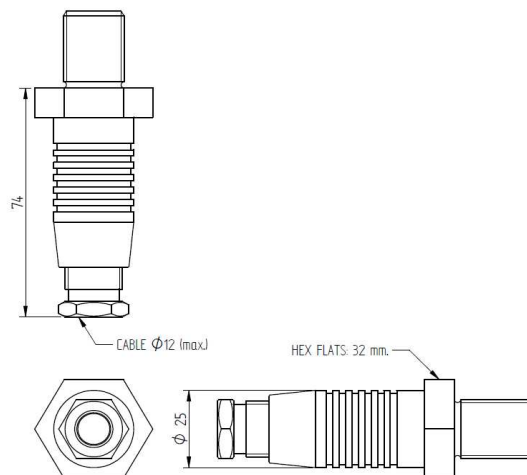
### HOEK-021-BCR200xM (x ≤ 4)



### HOEK-021-MCBHxMSS (x ≤ 8)

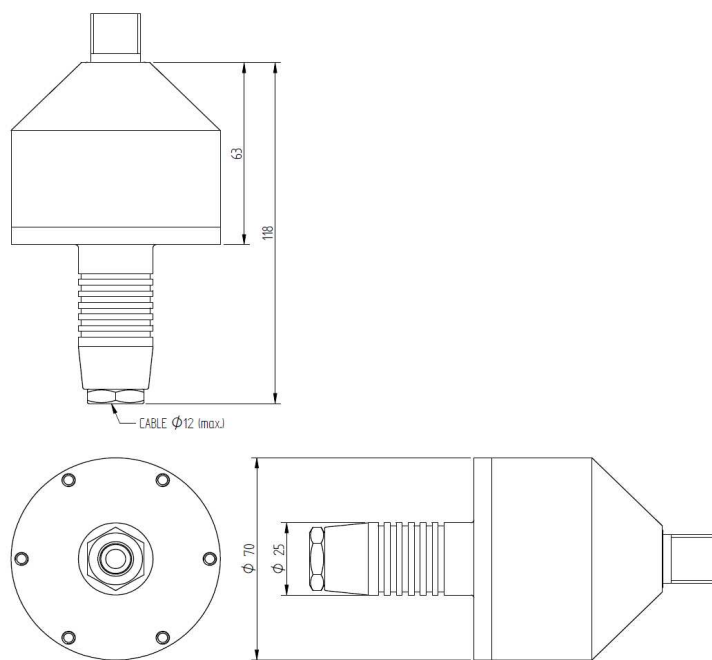


### HOEK-021-SOCK



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## HOEK-021-PENE-x (2/4)



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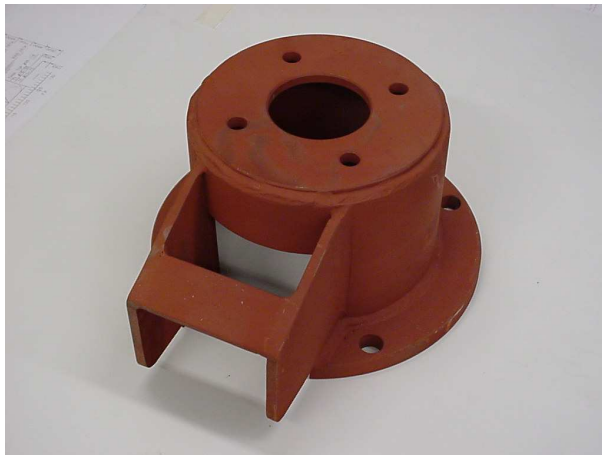
## Type code definition

Type code	Specification	-	Sensor	-	Range	-	Interface	-	Connection
<b>HOEK-021</b>	Shallow water angle transmitter, compact, heavy duty, IP68 < 50 m								
<b>Sensor</b>	Analog Range: 0...355 ° max., 0...53 ° min. Resolution: ∞ Non-linearity: ±0.1 % max. Current output: 4...20 mA Connections: 2	-	<b>ANALOG</b>		0...xxx°	-	4...20 mA		
	Analog programmable Singleturn: 1 rev. Multiturn: 200 rev. User programmable Non-linearity: ±0.3 % max. Current output: 4...20 mA (12 bit) Connections: 6	-	<b>ANAPROG12</b>	-	ST MT		4...20 mA		
	Precision magnetic encoder Multiturn: 4096 rev. User programmable range Accuracy: ±0.1 ° Current output: 4...20 mA (16 bit) Connections: 6		<b>ANAPROG16</b>	-	MT		4...20 mA		
	Precision magnetic encoder Singleturn, resolution: 16 bit Multiturn, res.: 12 bit (4096 rev.) User programmable Accuracy: ±0.1 ° Profibus DP V1.1 Connections: 4/8		<b>DIGIPROG1612</b>	-	ST MT		PROFIBUS		
	High precision optic encoder Singleturn, resolution: 18 bit Multiturn, res.: 13 bit (8192 rev.) User programmable Accuracy ±0.01 ° Profibus DP V0/V2 Connections: 4/8		<b>DIGIPROG1813</b>	-	ST MT		PROFIBUS		
<b>Connection</b>	Standard bulkhead, x (≤ 10) pin (male), stainless steel							-	BHxMSS
	Micro bulkhead, x pin (male), stainless steel							-	MCBHxMSS
	Standard metal shell bulkhead, x (≤ 4) pin (male), stainless steel							-	BCR200xM
	Cable gland + hose socket, stainless steel							-	SOCK
	Penetrator + gland + socket, x (2/4) wire, stainless steel							-	PENE-x
<b>Example</b>	<b>HOEK-021</b>	-	<b>DIGIPROG1612</b>	-	<b>MT</b>	-	<b>PROFIBUS</b>	-	<b>SOCK</b>

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## Optional accessories

For mounting and coupling purposes, various optional accessories are available:



Installation and protection hood.



Standard shaft coupling.



Flexible shaft coupling.

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