

### Main characteristics

- Optimized mechanical structure
- Strokes from 50 to 2500 mm
- Wide range of connectors for the electrical connection
- Rod, nipple, exagonal flange AISI 316
- Work temperature: -30...+75°C
- Resistance to vibrations (DIN IEC68T2/6 12g)
- Power supply 24Vdc ± 20%
- Protection IP67
- Electromagnetic compatibility EMC 2014/30/EU
- Compliant to the directive RoHS 2011/65/EU

Contactless linear position transducer with HYPERWAVE magnetostrictive technology.

The analog interface, available with various output ranges in voltage or in current, guarantees simpler installation and easier adaptation to existing systems.

The absence of electrical contact on the cursor eliminates all wear and

guarantees almost unlimited life.

High accuracy of the measurement with reference to the non linearity, repeatability and hysteresis. High resistance to vibrations, mechanical shocks for use in a harsh industrial environment.

### TECHNICAL DATA

Model	from 50 to 2500 mm
Measurements	displacement
Position read sampling time (typical)	From 0,5 ms to 3 ms (depending on stroke)
Shock test DIN IEC68T2-27	100g - 11ms - single shock
Vibration DIN IEC68T2-6	12g / 10...2000Hz
Displacement speed	≤ 10 m/s
Max. acceleration	≤ 100 m/s <sup>2</sup> displacement
Resolution	16 bit (max noise 5 mVpp)
Cursor	Floating separate cursor
Working temperature	-30...+75°C
Storage temperature	-40...+100°C
Coefficient of temperature	≤ 0,01% FS/°C
Protection	IP67
Operative pressure	350 bar (peak max. 500 bar)**)

(\*\*) The operating and max. peak pressure, can only be reached by following the installation guide specified on the data sheet (see section "INSTALLATION INSIDE A CYLINDER").

### ELECTRICAL DATA

Output signal	0...10V (A)	4...20mA (E) 0...20mA (G)
Nominal power supply	24 Vdc ±20%	24 Vdc ±20%
Max. power ripple	1Vpp	1Vpp
Max. consumption	70mA	90mA
Load on output	5kΩ	< 500Ω
Max. output noise	< 5mVpp	< 5mVpp
Max. output value	12V	30mA
Alarm output value	10.5V	21mA
Electrical isolation	500V (*)	500V (*)
Protection against polarity inversion	Yes	Yes
Protection against overvoltage	Yes	Yes
Protection against power supply on output	Yes	Yes

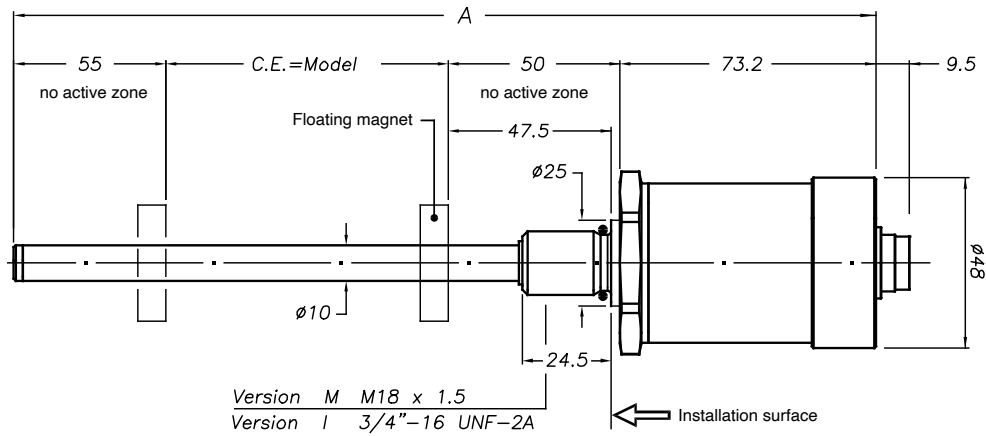
(\*) Using voltage suppressor 30V 0,4J

### ELECTRICAL / MECHANICAL DATA

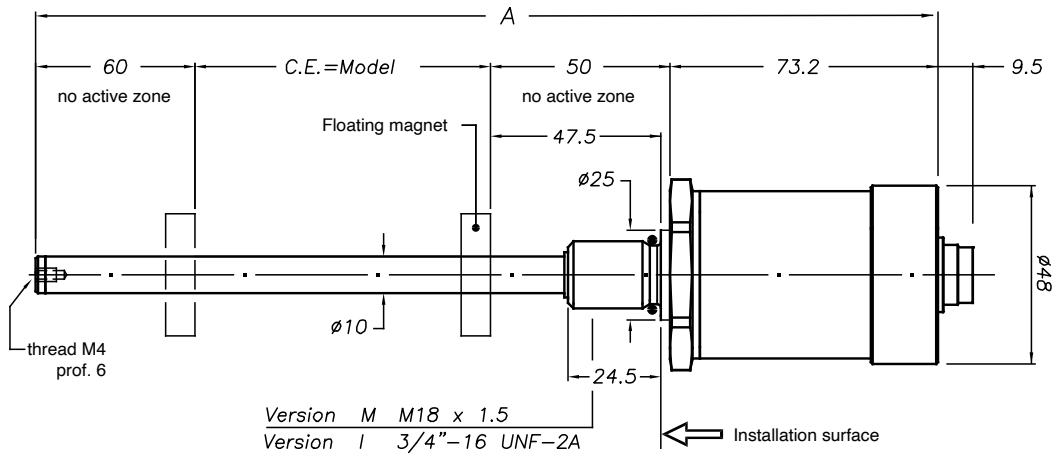
Model		50	100	130	150	200	400	450	500	600	700	750	800	900	1250	1500	1750	2000	2250	2500	
		225	300				1000														
Sampling time	ms	0,5					1					1,5				2					
Dimensions Max. (A)	mm	Model +178,2										Model +183,2									
Electrical stroke	mm	Model																			
Independent linearity	± %/FS	Typical ≤ 0,02% FS (min ± 0,060 mm)																			
Repeatability	mm	Typical ≤ 0,01 (limited by the resolution of the output value)																			
Hysteresis	mm	Typical ≤ 0,02 (limited by the resolution of the output value)																			

## MECHANICAL DIMENSIONS

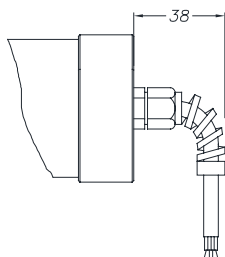
Strokes from 50 to 1000 mm



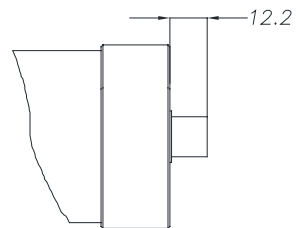
Strokes from 1100 to 2500 mm



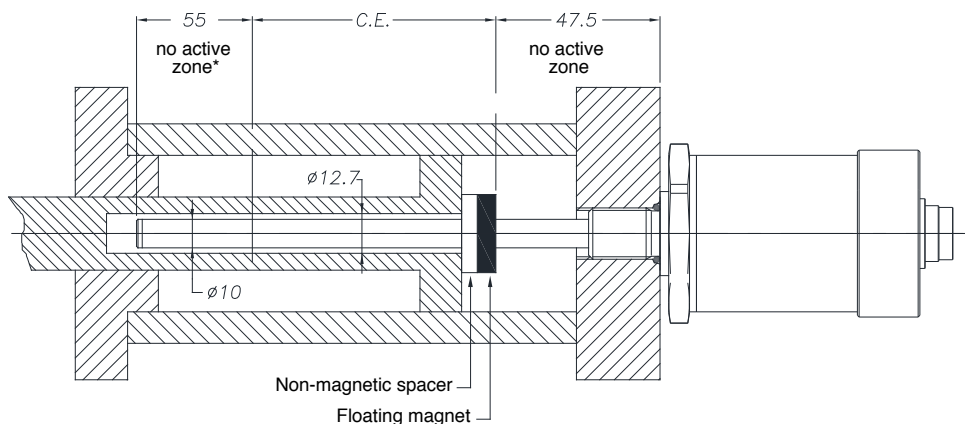
WRP-A-F/R cable output



WRP-A-A/B/C/H connector output

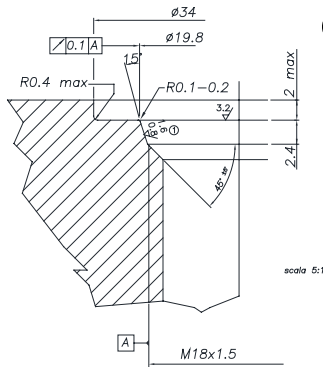


## MOUNTING INSIDE A CYLINDER



\* for stroke up to 1000 mm (included) – over 1000 mm, the non-active zone becomes 60 mm because the tip includes a M4 threaded hole

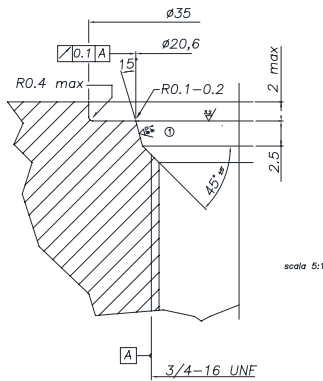
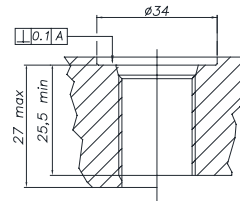
## INSTALLATION INSIDE A CYLINDER



- ① **THREAD M18x1,5**  
 The sealing surface must be free from scratches longitudinal or spiral  
 Ro 1.6  $\mu\text{m}$  for sealing with NON-pulsating pressure  
 Ro 0.8  $\mu\text{m}$  for seals with pulsating pressure

**Suggested o-ring:**

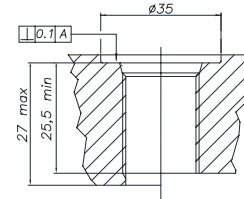
PARKER 6-349 15,4x2,1  
 Material: Viton 90° Shore-A  
 Mixes: PARKER N552-90



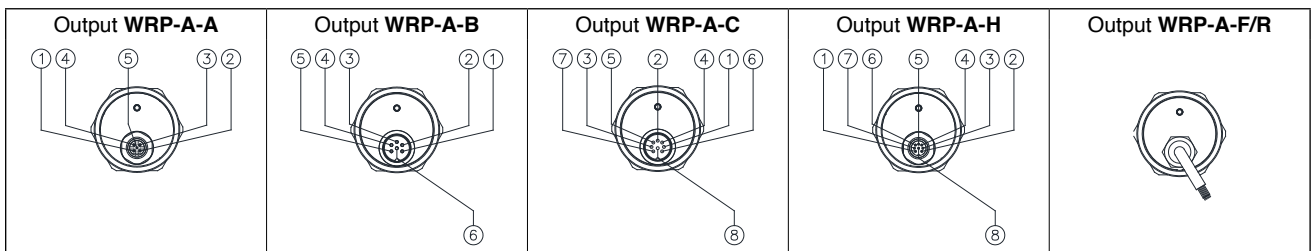
- ① **THREAD 3/4"-16UNF**  
 The sealing surface must be free from scratches longitudinal or spiral  
 Ro 1.6  $\mu\text{m}$  for sealing with NON-pulsating pressure  
 Ro 0.8  $\mu\text{m}$  for seals with pulsating pressure

**Suggested o-ring:**

PARKER 3-908 16,36x2,21  
 Material: Viton 90° Shore-A  
 Mixes: PARKER N552-90



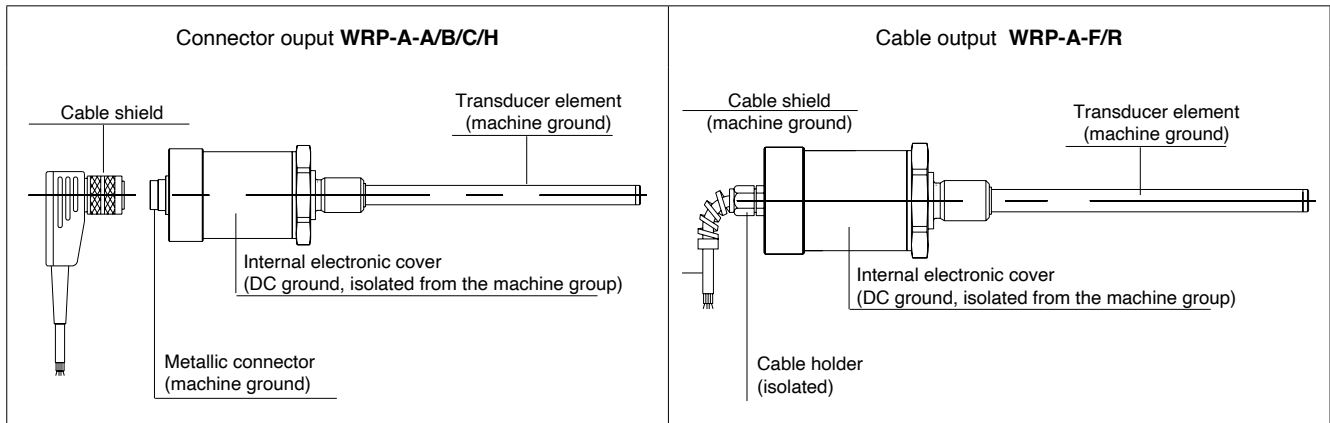
## ELECTRICAL CONNECTIONS



Function	CONNECTORS				CABLES	OPTIONAL CABLES			
	WRP-A-A	WRP-A-B	WRP-A-C	WRP-A-H	WRp-A-F/R	CAV00_	CAV01_ / CAV02_	PCAV_	PCAV_
	5 pin M12	6 pin M16	8 pin M16	8 pin M12	Standard cables	Pre-assembled cable 8 pin WRP-A-H	Pre-assembled cable 5 pin WRP-A-A	Pre-assembled cable 6 pin WRP-A-B	Pre-assembled cable 8 pin WRP-A-C
<b>Output 1 (position)</b> 0...10V 4...20mA 0...20mA	1	1	5 (1*)	5	Grey	Green	Brown	Grey	Brown
<b>GND Output 1 (0V)</b>	2	2	2	1	Pink	Yellow	White	Pink	Pink
<b>Output 2 (inverse position)</b> 10...0V 20...4mA 20...0mA	3	3	3	3	Yellow	Pink	Blue	Yellow	Yellow
<b>GND Output 2 (0V)</b>	2	4	6	2	Green	Grey	White	Green	White
<b>Power supply +</b>	5	5	7	7	Brown	Brown	Grey	Brown	Green
<b>Power supply GND</b>	4	6	8	6	White	Blue	Black	White	Grey
<b>n.c.</b>	-	-	4	4	-	Red	-	-	-
<b>n.c.</b>	-	-	1 (*5)	8	-	White	-	-	-

(\* ) = for version 4...20mA / 0...20mA

## GROUNDING WRP-A



## ANALOG OUTPUT

The signal is proportional to the position of the magnet

0...10V  
10...0V  
4...20mA  
20...4mA  
0...20mA  
20...0mA

max  
0

U/I  
mm

The magnetostrictive transducers of the WRP-A series supply a direct analogue output in voltage (0...10Vdc) and current (4...20mA and 0...20mA). All the outputs can have reverse action (10...0Vdc; 20...4ma; 20...0mA). The outputs are direct, no signal conditioning is required if they are interfaced with a controller or measuring instrument.

## ORDER CODE

**Position transducer**      **W R P A**      **1**      **0 0 0 0 X X X X S**      **0 X X**

Output Connector	
M12 5 pin output connector	<b>A</b>
6 pin DIN 45322 output connector	<b>B</b>
8 pin DIN 45326 output connector	<b>C</b>
M12 8 pin output connector	<b>H</b>
PVC output cable	<b>F</b>
PUR output cable high flexibility	<b>R</b>

<b>MODEL</b>	
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<b>Output</b>	
0...10, 10...0 Vcc	<b>A</b>
4...20, 20...4 mA	<b>E</b>
0...20, 20...0 mA	<b>G</b>

<b>Cable lengths</b>	
Output F/R 1 mt	<b>00</b>
2 mt	<b>02</b>
3 mt	<b>03</b>
4 mt	<b>04</b>
5 mt	<b>05</b>
10 mt	<b>10</b>
15 mt	<b>15</b>
Output A/B/C/H	<b>00</b>

<b>Thread</b>	
M 18x1.5 (standard)	<b>M</b>
3/4" - 16UNF	<b>I</b>

► **Included in the supply**

- Series WR position transducer
- OR 15.4 x 2.1 thread M18 x 1.5      cod: **GUA064**
- OR 16.36 x 2.21 thread 3/4" -16 UNF      cod: **GUA065**

► **Magnetic cursors must be ordered separately**

Mechanical and/or electrical characteristics differing from those in the standard version may be arranged on request.

Ex.: **WRP-A-B-0400-A-1 0000XXXXS00M0XX**  
Transducer model WRP-A, analog output, B connector, model 400mm, 0...10Vdc output, thread M18x1,5

# FLOATING CURSOR



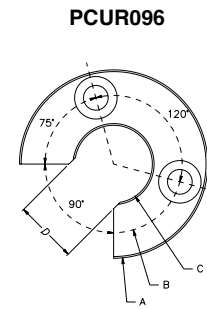
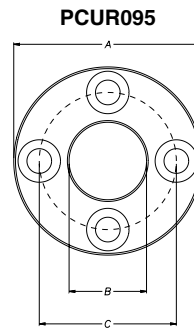
Cursors	
Cursor Diameter 32.8	<b>095</b>
Cursor Diameter 32.8 with 90° slit	<b>096</b>
Cursor Diameter 25.4	<b>097</b>
Floating cursor for liquids with hole diameter 12	<b>098</b>

The **PCUR095** is supplied with:  
 N° 8 Brass nuts M4  
 N° 8 Brass washers D4  
 N° 4 Brass screws M4x25

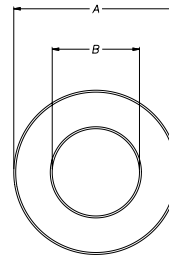
The **PCUR096** is supplied with:  
 N° 4 Brass nuts M4  
 N° 4 Brass washers D4  
 N° 2 Brass screws M4x25

Dimensions	A	B	C	D	Thickness
PCUR095	32.8	13.5	23.9	-	7.9
PCUR096				11	
PCUR097	25.4	13.5		-	

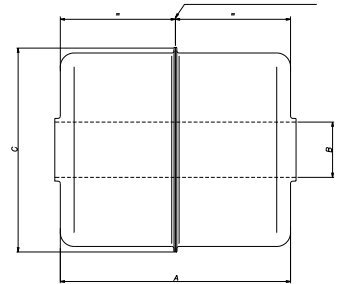
Model		<b>PCUR098</b>
Length A	mm	52.4
Diameter B (hole)	mm	12
Diameter C	mm	44
Material		AISI 316



**PCUR097**



**HEIGHT DETECTION POSITION**



**Note:** PCUR098 is supplied with kit PKIT036 for floating cursor for liquids.

## OPTIONAL FEMALE CONNECTORS

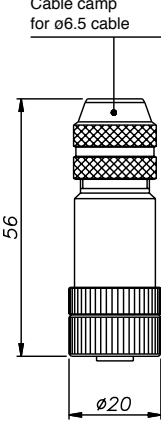
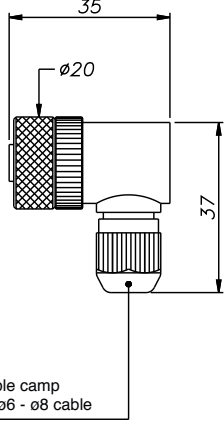
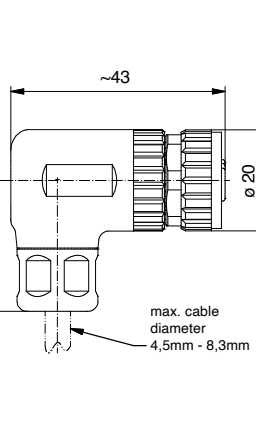
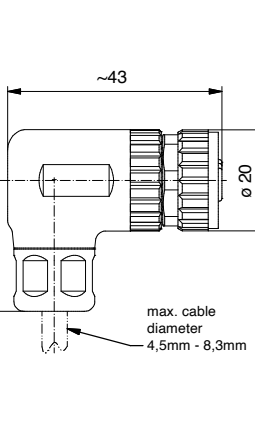
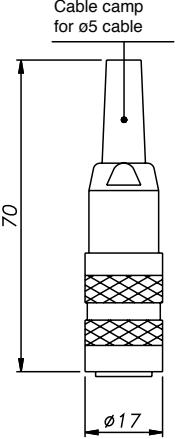
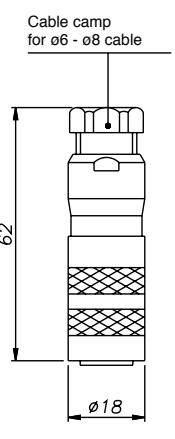
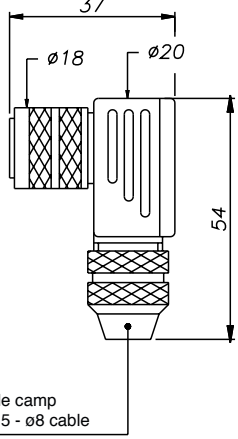
For **WRP-A-A** and **WRP-A-H**, M12 thread connector

Code: **CON031** for 5-pin output (**WRP-A-A**)  
**CON041** for 5-pin output (**WRP-A-A**)\*\*  
**CON125** for 5-pin output (**WRP-A-A**)\*\*  
**CON035** for 8-pin output (**WRP-A-H**)\*\*  
**CON042** for 8-pin output (**WRP-A-H**)\*  
**CON126** for 8-pin output (**WRP-A-H**)\*\*

Connector extraction length: 10mm

For **WRP-A-B** and **WRP-A-C**, M16 thread connector

Code: **CON021** for 6-pin output (**WRP-A-B**)  
**CON022** for 6-pin output (**WRP-A-B**)\*  
**CON023** for 6-pin output (**WRP-A-B**)  
**CON026** for 8-pin output (**WRP-A-C**)  
**CON027** for 8-pin output (**WRP-A-C**)  
**CON028** for 8-pin output (**WRP-A-C**)

			
<p><b>CON031/CON035</b></p>	<p><b>CON041</b>      <b>CON042</b></p>	<p><b>CON125</b></p>	<p><b>CON126</b></p>
<p>IP67 - IEC 48B</p>	<p>IP67</p>	<p>IP67</p>	<p>IP67</p>
<p>-30+85 °C</p>	<p>-25+85 °C      -30+85 °C</p>	<p>-30+85 °C</p>	<p>-30+85 °C</p>
			
<p><b>CON021/CON026</b></p>	<p><b>CON022/CON027</b></p>	<p><b>CON023/CON028</b></p>	
<p>IP40 - EMC</p>	<p>IP67 - EMC</p>	<p>IP67 - EMC</p>	
<p>-30+85 °C</p>	<p>-30+85 °C</p>	<p>-30+85 °C</p>	

\* Not available with UL certification.

\*\* Shielded connector

Note:

1. The IP rating specified in this document normally applies with the suitable female connector plugged-in and properly wired.
2. I valori nominali di temperatura, eccetto dove espressamente indicato, sono da ritenersi applicabili anche in ambito UL
3. Per i cavi di estensione delle applicazioni cULus, si consiglia l'utilizzo di un cavo a 6 poli 26AWG Style 2464.

## OPTIONAL OUTPUT CABLES

For **WRP-A-A**, cable with connector (straight or 90°)  
with M12 thread 5 pin

5-pin cable code		WRP-A-A	
Lenght "L"		CODE	
		Straight cable	Cable to 90°
2	mt	<b>CAV011</b>	<b>CAV021</b>
5	mt	<b>CAV012</b>	<b>CAV022</b>
10	mt	<b>CAV013</b>	<b>CAV023</b>
15	mt	<b>CAV015</b>	<b>CAV024</b>

For **WRP-A-A**, cable with connector (straight or 90°)  
with M12 thread 8 pin

8-pin cable code		WRP-A-H	
Lenght "L"		CODE	
		Straight cable	Cable to 90°
2	mt	<b>CAV002</b>	<b>CAV005</b>
5	mt	<b>CAV003</b>	<b>CAV006</b>
10	mt	<b>CAV004</b>	<b>CAV007</b>
15	mt	<b>CAV009</b>	<b>CAV008</b>

## ACCESSORIES

Non-magnetic spacer for mounting PCUR022 cursor

**CUR022**

Electrical installation requirements and Conformity certificate are available on our web site: [www.gefran.com](http://www.gefran.com)

**GEFRAN spa** reserved the right to make aesthetic or functional changes at any time and without notice.