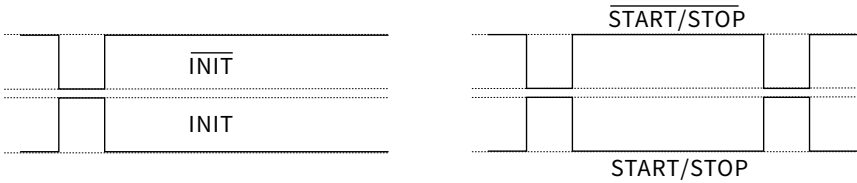




T3F - Start/Stop

T-Series III

Data Sheet



- + Updated new generation: stronger performance
- + Stroke length up to 20 m
- + The highest temperature endurance of electronics housing up to 120°C , adaptable in coking industry



THE NEW

III

GENERATION



Double
anti-interference



High
performance chip



Wide operating
voltage



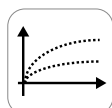
Reverse polarity
protection



Shock/vibration
resistant

TECHNICAL PARAMETER

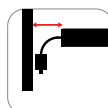
TECHNOLOGY PERCEIVES THE FUTURE



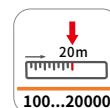
Linear/Curve measurement



Compact for transport and storage

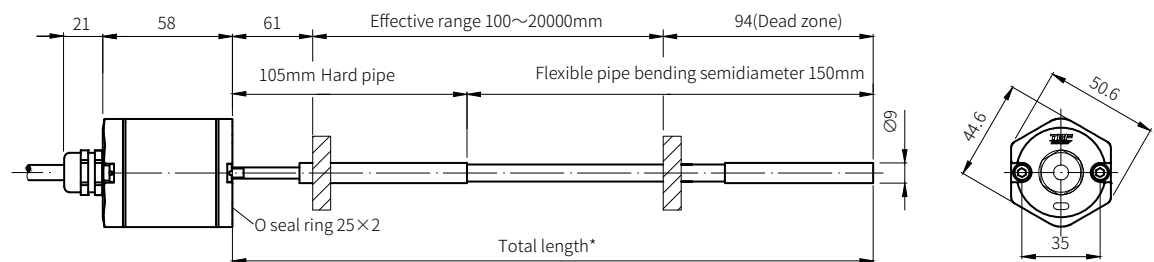
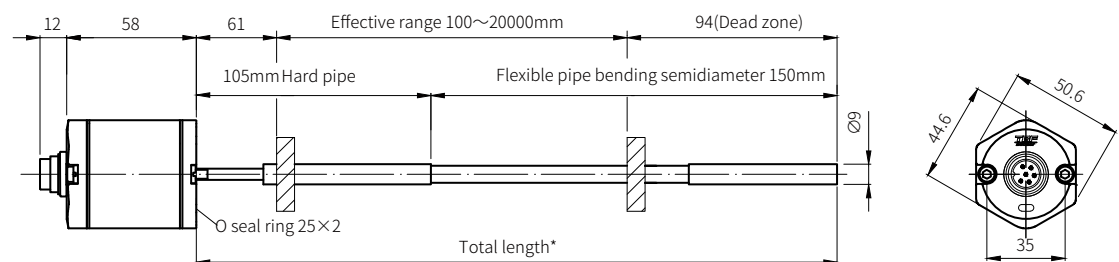
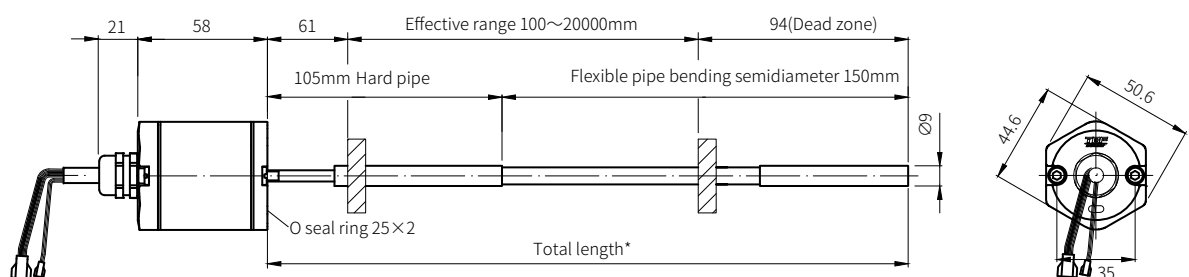


Confined space installation



Wider stroke length range

Input	Measured data	Position
	Measurement range	100mm...20000mm
Output	Digital	Start/Stop pulse, DPI/IP mode supportive
Resolution	Resolution	Depends on controller
	None-Linearity	$< \pm 0.02\% \text{F.S. (min. } \pm 100\mu\text{m)}$
	Repeatability	$< \pm 0.001\% \text{F.S.}$
	Update time	Depends on controller
	Temperature coefficient	$< 30\text{ppm}/^\circ\text{C}$
Mounting	Mounting position	Any
	Pressure resistance outer tube	Thread metric M18×1.5, 3/4"-16UNF-3A etc.
Design/ Material	Electronics housing	Aluminum alloy/Zinc alloy
	Magnet	Stainless soft pipe (Teflon skin), min. bending semidiameter 150mm, shipping semidiameter 500mm
Electrical connection	Wiring connection	Straight out cable or aviation plug
	Operating voltage	9VDC...36VDC
	Polarity protection	Up to -36VDC
	Overvoltage protection	Up to +36VDC
	Power consumption	$< 80\text{mA}$ (varies with range size)
	Dielectric strength	500 VDC (DC ground to machine ground)
Operating conditions	Loop velocity	Any
	Operating temperature	-40...120°C (DPI mode only)/-40...105°C (DPI/IP mode)
	Humidity	90 % relative humidity, no condensation
	Ingress protection	IP67 installed into pressure pipe (top IP68)
	Shock	100 g/11 ms, IEC standard 60068-2-27
	Vibration	5 g/10...2000 Hz, IEC standard 60068-2-6 (resonant frequencies exclusive)
	EMC	Flexible sensor installed into pressure pipe Electromagnetic emission according to EN 61000-6-4 Electromagnetic immunity according to EN 61000-6-2
ITEM	CATEGORY	PARAMETER

T3F-____- **RP** -____ Straight out cable
T3F-____- **RT** -____
 T3F-____- **D616** -____ Aviation plug
T3F-____- **D716** -____T3F-____- **D816** -____T3F-____- **D812** -____
 T3F-____- **ST** -____ Quick plug


*Total length < 7600mm, error 0/+8mm; > 7600mm, error +15mm /-5mm;

Total length error has no impact on effective range.

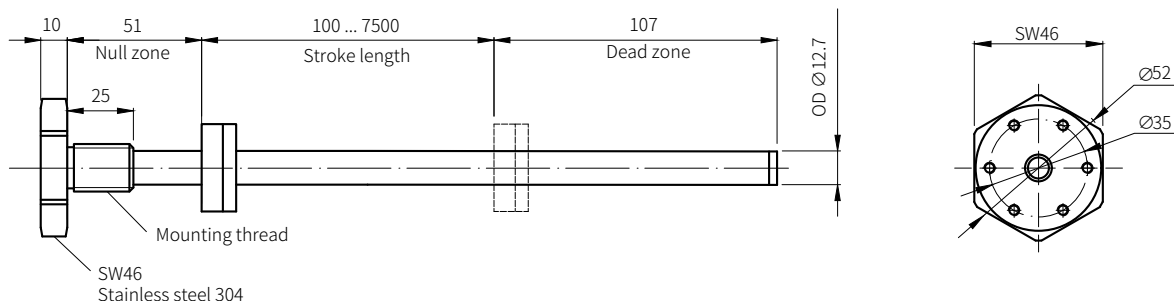
DRAWING

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Pressure pipe

Continuous pressure tolerance of the pressure pipe is 35MPa (70MPa peak).

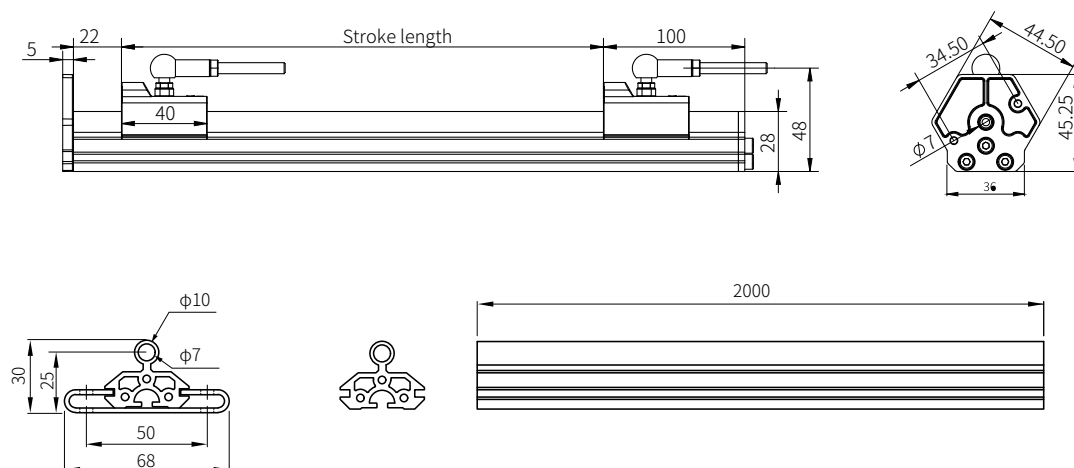
T3F flexible sensor is installed into pressure pipe, straight out cable IP68, aviation plug IP67.



ORDER CODE

HD	M	
		Stroke length
		0100...7500mm (5mm increments)
		Thread
		M Metric M18x1.5
		V Metric M20x1.5
		S 3/4"-16UNF-3A
		W Metric M24x1
		If not selected, thread M18x1.5 by default.

Aluminum profile



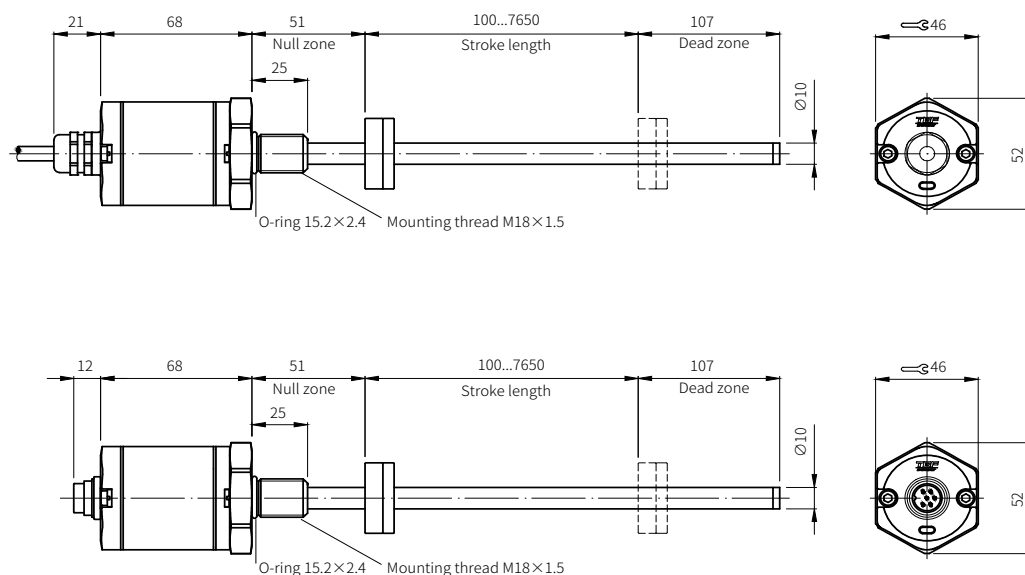
ORDER CODE

H3P	M	
		Stroke length
		0025...5600mm (5mm increments)
		Magnet
		S Magnet slider joint at top
		V Magnet slider joint at front
		F Suspension magnet
		U U- magnet

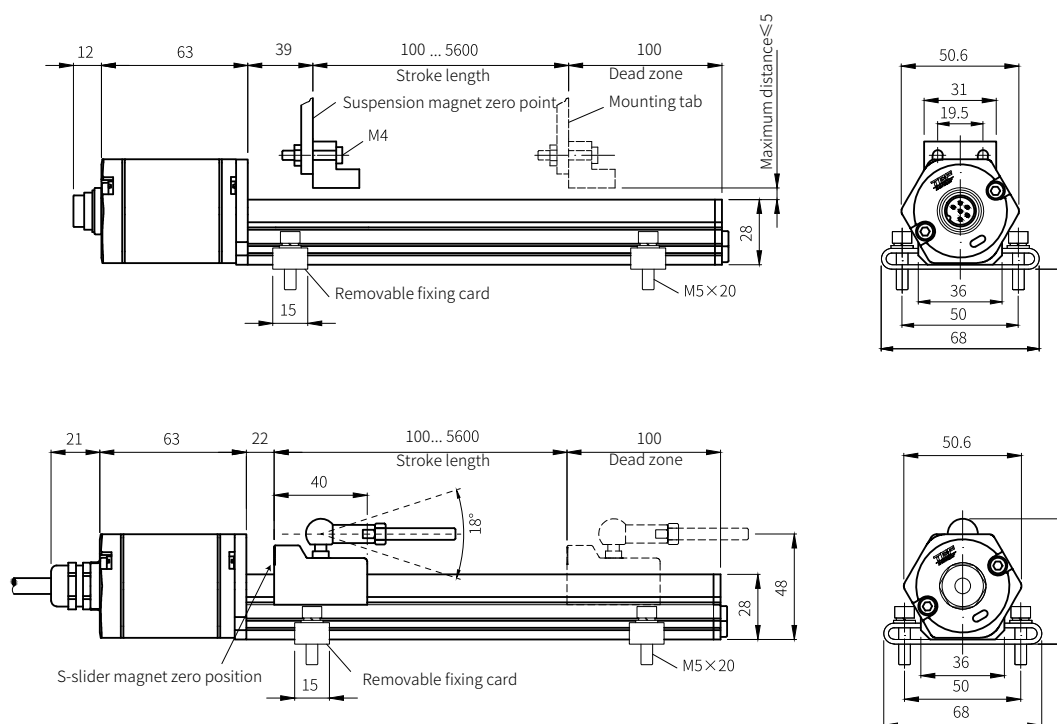
Combination example drawings

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Flexible sensor installed into pressure pipe



Flexible sensor installed into aluminum profile



MOUNTING DRAWING

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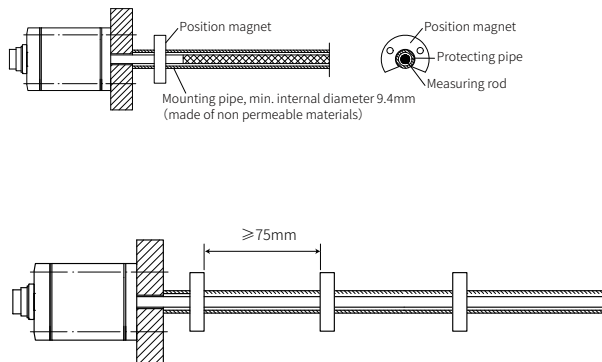
T3FH type of installation diagram

Electronics housing for T3F flexible sensor employs two M4x60 non permeable screws for installation.

When arc measurement is adopted, the flexible pipe can be bended into required shape with min. bending semidiameter 150mm.

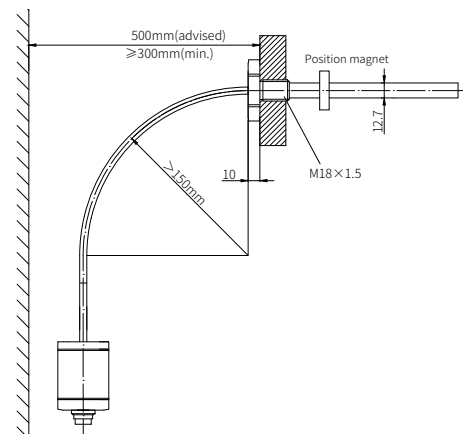
With long range sensor, pipes made of non permeable materials can be used as support. In addition, pressure pipe with flange can also be ordered to support and protect the sensor.

Linear measurement



Spacing between multiple magnets shall be $\geq 75\text{ mm}$

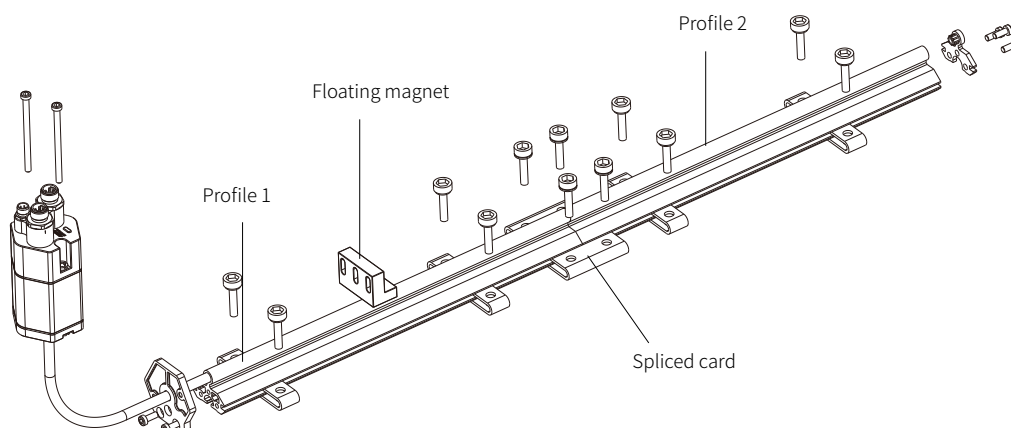
Pressure pipe



T3FP type of installation diagram

T series external guide rail sensors are fixed with removable fixing cards. The distance between the cards should be with in 500mm.

When the sensors are used under extremely severe shock and vibration conditions, it is recommended to configure a removable fixing card every 250mm.



For spliced profiles:

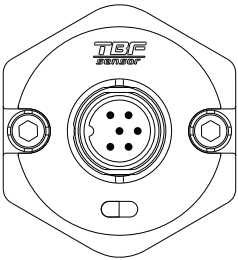
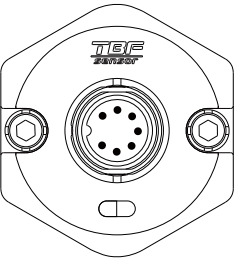
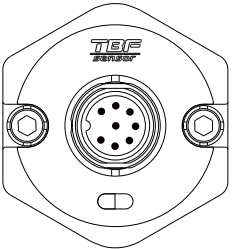
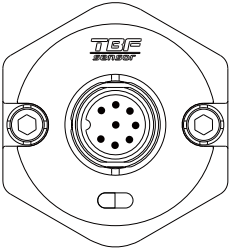
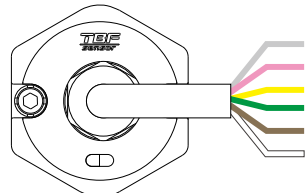


Ensure the joints are flush.

Only compatible with floating magnets or U-shaped magnets.

FUNCTION

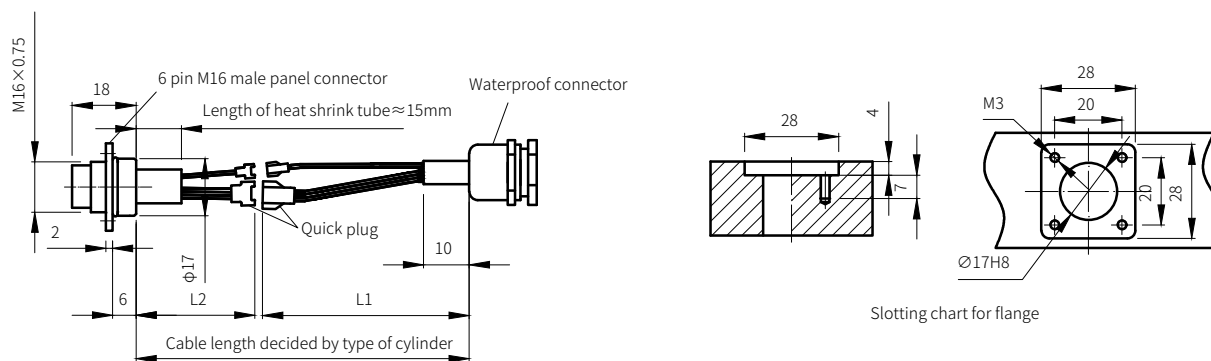
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6 pin M16 connector	D616	PIN	Function
	 View on sensor	1	Start/Stop-
		2	Start/Stop+
		3	Init+
		4	Init-
		5	9VDC...36VDC
		6	0 VDC(GND)
7 pin M16 connector	D716	PIN	Function
	 View on sensor	1	Init+
		2	Start/Stop+
		3	Init-
		4	NC
		5	Start/Stop-
		6	0 VDC(GND)
		7	9VDC...36VDC
8 pin M12 connector	D812	PIN	Function
	 View on sensor	1	Init+
		2	Start/Stop+
		3	Init-
		4	NC
		5	Start/Stop-
		6	0 VDC(GND)
		7	9VDC...36VDC
		8	NC
8 pin M16 connector	D816	PIN	Function
	 View on sensor	1	Init+
		2	Start/Stop+
		3	Init-
		4	NC
		5	Data-
		6	0 VDC(GND)
		7	9VDC...36VDC
		8	NC
Straight out cable		Color	Function
		Gray	Start/Stop-
		Pink	Start/Stop+
		Yellow	Init+
		Green	Init-
		Brown	9VDC...36VDC
		White	0 VDC(GND)

ORDER CODE

TECHNOLOGY PERCEIVES THE FUTURE

Quick plug connecting definition



ST[1][2] Electronics housing outlet high temperature wire (L1)_ _mm, 6 pin M16 male panel connector outlet wire (L2)_ _mm.

[1] L1 length [2] L2 length

- | | |
|----------------|---------|
| 1 50mm | 2 120mm |
| 3 170mm | 4 200mm |
| 5 230mm | 6 350mm |
| 0 Customizable | |

T3F - - - M- - - -

Pipe mounting	Stroke length	Connection type	Output
C Basic structure	00100...20000mm (< 1000: 50mm increments)	RP/T_ _ Straight out _ _m high performance /high temperature cable (Fill in zero if less than 2 places)	(Output Code)
M Thread M18×1.5 with pressure pipe	> 1000: 250mm increments) Max. range 7500mm (pressure pipe installed)	D616 6 pin M16 connector	
S 3/4"-16UNF-3A with pressure pipe		D716 7 pin M16 connector	
		D816 8 pin M16 connector	
		D812 8 pin M12 connector	
		ST_ _ Electronics housing outlet wire (L1)_ _mm, 6 pin M16 connector outlet wire (L2)_ _mm (Quick plug connecting definition)	

Start/Stop Output Code	[1][2]-[3][4]
	[1][2] Output [3][4] Magnet
	SS DPI mode only 01 one magnet
	SD DPI/IP mode 02 two magnets

Model selection | Model: T3F-M-00600M-ST21-SS-01

Explanation: T series III generation, T3F flexible sensor, installed inside pressure pipe, mounting thread metric M18x1.5, stroke length 600mm, quick plug connected, high temperature cable, electronics housing outlet wire(L1)120mm, panel connector wire (L2) 50mm, Start/Stop output, DPI mode only, single magnet.

■ Please contact us for more customized products.

ORDER CODE

TECHNOLOGY PERCEIVES THE FUTURE

Basic structure

T3F - - - - M- - - - -			
Pipe mounting	Stroke length	Connection type	Output
C Basic structure	00100...20000mm (< 1000: 50mm increments) > 1000: 250mm increments) Max. range 7500mm (pressure pipe installed)	RP/T_ _ Straight out _ _m high performance /high temperature cable (Fill in zero if less than 2 places) D616 6 pin M16 connector D716 7 pin M16 connector D816 8 pin M16 connector D812 8 pin M12 connector ST_ _ Electronics housing outlet wire (L1)_ _mm, 6 pin M16 connector outlet wire (L2)_ _mm (Quick plug connecting definition)	(Output Code)

Flexible sensor installed into pressure pipe

T3F - - - - M- - - - -			
Pipe mounting	Stroke length	Connection type	Output
M Thread M18×1.5 with pressure pipe S 3/4"-16UNF-3A with pressure pipe	00100...7500mm	Same as above	(Output Code)

Flexible sensor installed into aluminum profile

T3FP - - - - M- - - - -			
Magnet	Stroke length	Connection type	Output
S Magnet slider joint at top V Magnet slider joint at front F Suspension magnet U U- magnet	00100...5600mm (5mm increments)	Same as above	(Output Code)

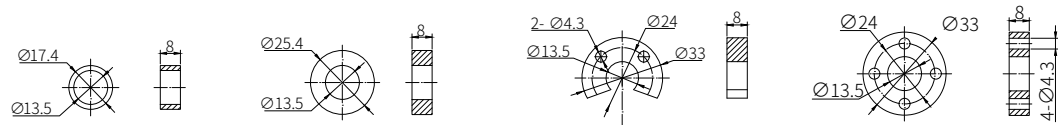
Start/Stop Output Code	[1][2]-[3][4]	
	[1][2] Output	[3][4] Magnet
	SS DPI mode only	01 one magnet
	SD DPI/IP mode	02 two magnets

Model selection	Model: T3F-M-00600M-ST21-SS-01
	Explanation: T series III generation, T3F flexible sensor, installed inside pressure pipe, mounting thread metric M18x1.5, stroke length 600mm, quick plug connected, high temperature cable, electronics housing outlet wire(L1)120mm, panel connector wire (L2) 50mm, Start/Stop output, DPI mode only, single magnet.

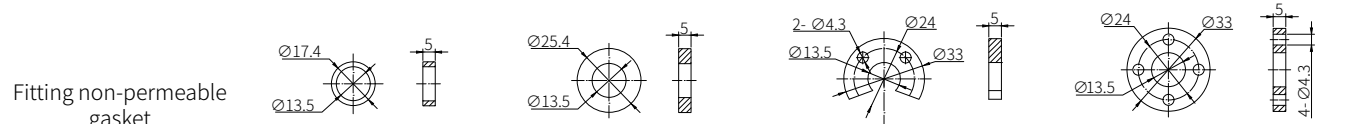
■ Please contact us
for more customized
products.

PARTS SELECTION

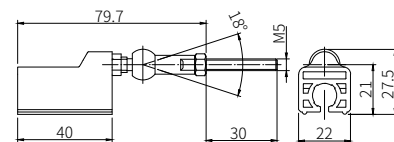
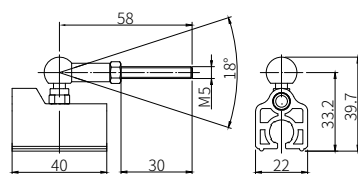
TECHNOLOGY PERCEIVES THE FUTURE



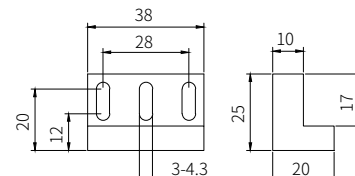
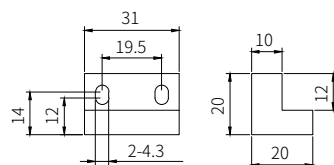
Name	Ring magnet	Ring magnet	U-magnet	Ring magnet
Operating temperature	-40...125°C			
Order code	12-1032	12-1019	12-1017	12-1001



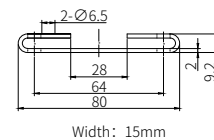
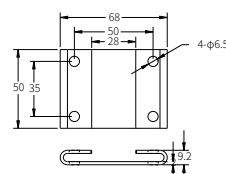
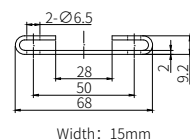
Name	Non-permeable gasket	Non-permeable gasket	Non-permeable gasket	Non-permeable gasket
Operating temperature	-40...125°C			
Order code	12-1037	12-1021	12-1018	12-1008



Name	Magnet slider S, joint at top	Magnet slider V, joint at front
Operating temperature	-40...105°C	
Order code	12-1114	12-1115

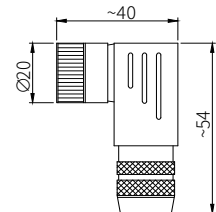
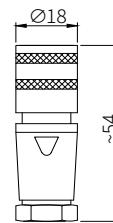
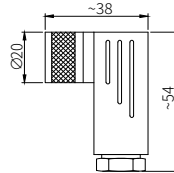
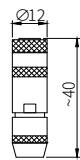
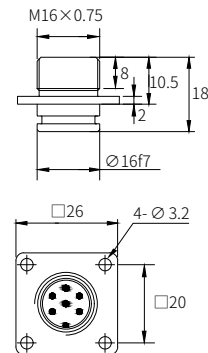


Name	Suspension magnet 31x20	Suspension magnet 38x25
Operating temperature	-40...105°C	
Order code	12-1010	12-1009

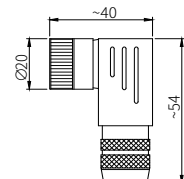
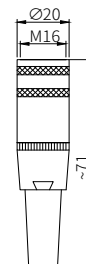
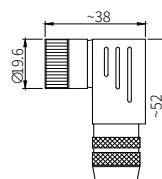
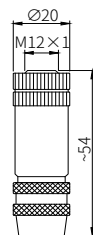


Name	Removable fixing card	Splicing Fixing Clip	Removable fixing card
Order code	11-1003	11-1058	11-1004

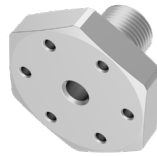
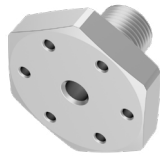
Name	6 pin M16 male panel connector
End view drawing	
Material	Galvanized nickel
Connection	Welding
Order code	18-3006



Name	6 pin M16 female connector	6 pin M16 female connector (90 degree angle)	7 pin M16 female connector	7 pin M16 female connector (90 degree angle)
End view drawing				
Material	Galvanized nickel			
Fitting diameter	4...6mm	6...8mm	6...8mm	6...8mm
Connection	Welding			
Order code	18-3001	18-3003	18-4001	18-4002



Name	8 pin M12 female connector	8 pin M12 female connector (90 degree angle)	8 pin M16 female connector	8 pin M16 female connector (90 degree angle)
End view drawing				
Material	Galvanized nickel			
Fitting diameter	8...10mm	6...8mm	6...9mm	6...8mm
Connection	Threaded		Welding	
Order code	18-5004	18-5005	18-5002	18-5003



Name	Threaded flange M18×1.5-6g	Threaded flange 3/4"-16UNF-3A	Pressure rod with threaded flange M18×1.5-6g	Pressure rod with threaded flange 3/4"-16UNF-3A
Material	Stainless steel 304/316L			
Order code	11-1075	11-1076	HD-XXXXM-M	HD-XXXXM-S



Name	Profile with flange length ≤ 5600mm	Profile length: 2000mm
Material	Aluminum alloy, Zinc alloy	Aluminum alloy
Order code	H3P-XXXXM-X	11-1077

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