

LEVEL TRANSMITTERS

DATA SHEET

FKE...6

The FCX-A IV level transmitter accurately measures liquid levels and transmits a proportional 4-20 mA output signal.

The transmitter uses a unique micro-capacitive silicon sensor in combination with a state-of-the-art digital signal processing to provide exceptional performances in terms of accuracy and stability.

FCX-A IV series of pressure transmitters comply with Safety Integrity Level 2 or 3 according to IEC 61508 and IEC 61511 standards.

FEATURES

1. High accuracy

The Fuji Electric's micro-capacitive sensor provides in standard $\pm 0.165\%$ accuracy for all elevated or suppressed calibration ranges without additional adjustments.

$\pm 0.1\%$ accuracy is available in option.

2. Minimum inventory and design

Electronics parts, local indicators and electronics housing are interchangeable among all FCX-A IV transmitters.

3. Minimum environmental influence

The Advanced Floating Cell technology provides a high immunity against temperature variations, static pressure and overpressure commonly found in the process industry and substantially reduces the overall measurement error.

4. HART 7 communication protocol

FCX-A IV series of pressure transmitters can communicate using the universal HART communication protocol.

By the use of the HART Device Description files, HART compatible devices can communicate with any FCX-A IV transmitter.

5. Application flexibility

Various options are available to address most of the process industry applications, including:

- Full range of hazardous area approvals
- Built-in RFI filter and lightning arrester
- 5 digits local display with engineering units
- Stainless steel electronics housing
- Wide selection of wetted part materials

6. Programmable Output Linearization Function

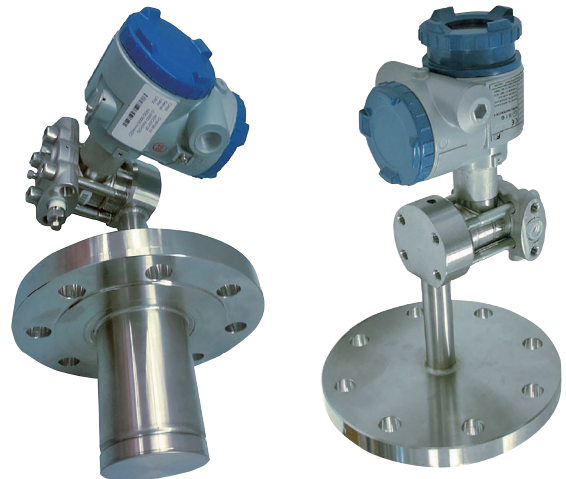
The output signal can be linearized using up to 14 point pairs.

7. Burnout current flexibility

The burnout current value can be adjusted in the ranges of [3.4 ; 3.8] and [20.8 ; 22.5] mA and can be compliant with NAMUR NE43 recommendations.

8. Contactless local adjustment

An optional local configurator with 3 magnetic switches allows to configure the transmitter without opening the indicator cover (flameproof approvals for hazardous locations). The magnetic pen is required to enable the 3 magnetic switches (Please refer to ACCESSORIES).



FUNCTIONAL SPECIFICATIONS

Type:

FKE: Smart, 4-20 mA with HART communication protocol

Service:

Liquids

Static pressure, span, and range limit:

Model	Static pressure	Span limit [kPa] (mmWC)		Range limit [kPa] (mmWC)
		Min.	Max.	
FKE□□2	Up to flange rating	0.1	6	± 6
		10	600	± 600
FKE□□3		0.32	32	± 32
		32	3200	± 3200
FKE□□5		1.3	130	± 130
		130	13000	± 13000
FKE□□6	5	500	± 500	
	500	50000	± 50000	
FKE□□8	30	3000	± 3000	
	3000	300000	± 300000	

Note: Span higher than 1/10 of the URL is recommended for optimal accuracy.

Lower limit of static pressure: (vacuum limit)

Silicone fill sensor: see fig.1

Fluorinated fill sensor:

66kPa abs (500 mmHg abs) at temperature -20 to 60°C (see fig.2)

Overrange limit:

To maximum static pressure limit

Output signal:

4-20 mA with HART communication protocol.

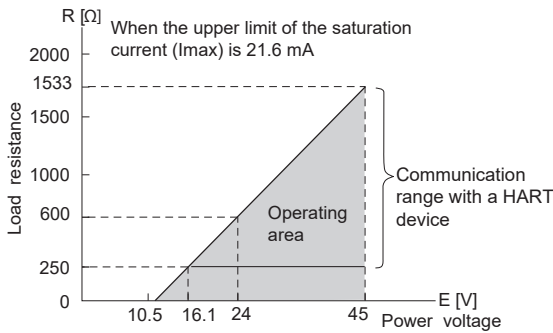
Power supply:

10.5 to 45 V DC at transmitter terminals.

10.5 to 32 V DC with the optional arrester.

Refer to hazardous location table for specific limitations.

Load limitations: see figure below



Note 1 : The load resistance varies with the upper limit of the saturation current [I max]

$$R [\Omega] = \frac{E [V] - 10.5}{(I \text{ max} [\text{mA}] + 0.9) \times 10^{-3}}$$

Note 2 : For communication with a HART device, a minimum load of 250 Ω is required.

Hazardous locations:

Marking (Digit 10 th)	Protection type			
ATEX	K	Intrinsic Safety "i"		
		Ex II1 G/D		
		Ex ia IIC T4 Ga (Ta: -40°C to +60°C)		
		Ex ia IIC T5 Ga (Ta: -40°C to +50°C)		
		Ex ia IIIC T ₂₀₀ 135°C Da (Ta: -40°C to +60°C)		
		Ex ia IIIC T ₂₀₀ 100°C Da (Ta: -40°C to +50°C)		
		Ui = 28Vdc, li = 110mA, Pi = 0.77W		
		Ci = 14.9nF (without optional Arrester)		
		Ci = 26.0nF (with optional Arrester)		
		Li = 0.181mH		
	X	Flameproof Enclosure "d"		
		Ex II2 G		
		Ex db IIC T6... T4 Gb		
		Temperature class	Ambient temperature	Process temperature
		T6	-40°C to +65°C	-40°C to +85°C
		T5	-40°C to +85°C	-40°C to +100°C
		T4	-40°C to +60°C	-40°C to +120°C
	IP66/67			
M	Combination (K) + (X) pending			
IECEx	T	Intrinsic Safety "i"		
		Ex ia IIC T4 Ga (Ta: -40°C to +60°C)		
		Ex ia IIC T5 Ga (Ta: -40°C to +50°C)		
		Ex ia IIIC T ₂₀₀ 135°C Da (Ta: -40°C to +60°C)		
		Ex ia IIIC T ₂₀₀ 100°C Da (Ta: -40°C to +50°C)		
		Ui = 28Vdc, li = 110mA, Pi = 0.77W		
		Ci = 14.9nF (without optional Arrester)		
		Ci = 26.0nF (with optional Arrester)		
		Li = 0.181mH		
		IP66/67		
	R	Flameproof Enclosure "d"		
		Ex db IIC T6... T4 Gb		
		Temperature class	Ambient temperature	Process temperature
		T6	-40°C to +65°C	-40°C to +85°C
		T5	-40°C to +85°C	-40°C to +100°C
		T4	-40°C to +60°C	-40°C to +120°C
		IP66/67		
	N	Combination (T) + (R) pending		

cCSAus pending		Intrinsic Safety/Non-Incendive
		J
	E	Flameproof Enclosure XP Class I Division 1 Groups CD Class II Groups EFG, Class III T6 (-40°C ≤ Ta ≤ +65°C) T5 (-40°C ≤ Ta ≤ +85°C) T4 (-40°C ≤ Ta ≤ +60°C) Vmax = 45Vdc
	L	Combination (J) + (E)

Configuration:

Configuration of the FCX-A IV series of pressure transmitters can be carried out by either using a HART device or the optional local configurator.

A third party HART device can be used in combination with Fuji Electric FCX-A IV HART Device Description files (<https://fieldcommgroup.org>).

Functions	HART Protocol		Local configurator	
	Display	Set	Display	Set
Tag Nb	✓	✓	✓	✓
Model Nb	✓	✓	✓	✓
Serial Nb & Software revision	✓	—	✓	—
Engineering units	✓	✓	✓	✓
Upper Range Value	✓	—	✓	—
Measuring Range	✓	✓	✓	✓
Damping	✓	✓	✓	✓
Output signal type	Linear	✓	✓	✓
	Square Root	✓	✓	✓
Burnout current	✓	✓	✓	✓
Calibration	✓	✓	✓	✓
Output Adjust	—	✓	—	✓
Measuring Value	✓	—	✓	—
Self Diagnosis	✓	—	✓	—
External Adj Screw Lock	✓	✓	✓	✓
Transmitter Display	✓	✓	✓	✓
Linearization	✓	✓	✓	✓
Rerange	✓	✓	✓	✓
Saturation Current	✓	✓	✓	✓
Write Protect	✓	✓	✓	✓
History				
– Calibration History	✓	✓	✓	✓
– Ambient T° History	✓	—	✓	—

Zero and span adjustment:

Zero and span are remotely adjustable by a HART device or locally by the local configurator or the external adjustment screw.

Damping:

The damping time constant can be adjusted within the range of [0.04 to 32] seconds.

Zero elevation/suppression:

±100% of URL

Normal/reverse action:

Selectable by range setting

Local indicator:

Optional 5-digits LCD unit or local configurator with 3 magnetic switches and push-buttons.

A magnetic pen is required to enable this local configurator function.

(Please refer to the ACCESSORIES section.)

Saturation currents:

Lower limit: 3.6 to 4.0mA, Default value: 3.8mA
 Upper limit: 20.0 to 21.6mA, Default value: 20.8mA

Burnout direction and saturation currents:

In the self-diagnostic functions detect a transmitter failure, the burnout function will drive the output signal to either "Output Hold", "Output Overscale" or "Output Underscale" modes.

When "Output Hold":

The output signal is held as the latest value just before the failure happens.

When "Output Overscale":

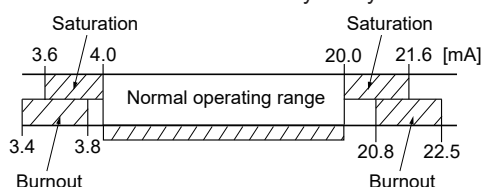
The output signal is set within the range of [20.8 to 22.5] mA, Default value: 21.6mA

When "Output Underscale":

The output signal is set within the range of [3.4 to 3.8] mA, Default value: 3.6mA

IEC 61511 considerations:

For safety applications, the "Output Hold" MUST NOT be used. Only "Output Overscale" and "Output Underscale" must be used to clearly notify a "failure" state.

**Loop-check/fixed output currents:**

The transmitter can be configured to provide a constant output signal from 3.4 up to 22.5 mA.

Temperature limit:

Ambient

- 40 to +85°C
- 20 to +80°C (with LCD indicator)
- 40 to +60°C (with arrester option)

Please refer to the hazardous locations table for ambient temperature limitations according to the standard and type of protection.

Process:

	Code in the 13th digit of "Model code symbols"	Process temperature	Lower limit of static pressure
Fluorinated oil	W, A and D	-20 to 120°C	500 mmHg abs
Silicone oil	Y, G, N and V	-40 to 150°C	20 mmHg abs

Note : For higher process temperature, please consult Fuji Electric.

Storage: -40 to +90°C

Humidity limit:

0 to 100% RH (Relative Humidity)

PERFORMANCE SPECIFICATIONS

Reference conditions, silicone filling oil, SS 316L isolating diaphragms, 4-20 mA analog output.

Accuracy rating:

(including linearity, hysteresis, and repeatability)

Standard:

For spans > 1/10 of URL:
 $\pm 0.165\%$ of span

For < 1/10 of URL:

$$\pm \left(0.065 + 0.01 \frac{\text{URL}}{\text{Span}} \right) \% \text{ of span}$$

Option:

For spans > 1/10 of URL: $\pm 0.1\%$ of span

For spans < 1/10 of URL:

$$\pm \left(0.05 + 0.005 \frac{\text{URL}}{\text{Span}} \right) \% \text{ of span}$$

Stability:

$\pm 0.2\%$ of Upper range limit (URL) for 10 years.

Temperature effect:

Effects per 28°C change between the limits of -40°C and +85°C

Zero shift (transmitter only): ± 0.3 of URL

Zero shift (level kit only): +0.3 mbar / 28°C

Total effect (level kit and transmitter): $\pm 0.3\%$ of URL

Note:

The indicated values are for temperature compensation made on transmitter only, without level kit.

Zero shift is improved (2 to 3 times) by an additional temperature compensation of the complete level transmitter (level kit and transmitter)

Static pressure effect:

Zero shift: $\pm 0.2\%$ of URL / 1MPa

Double the effects for material code (7th digit in the model code) "H", "M", "T", "B", "P" and "R"

Overrange effect:

Zero shift: $\pm 0.15\%$ of URL (160bar max)

Double the effects for material code (7th digit in the model code) "H", "M", "T", "B", "P" and "R"

Supply voltage effect:

Less than 0.005% of calibrated span per 1 V

Update rate:

40 msec

Turn on time:

6 sec

Response time: (63.3% of output signal without damping)

Range code	Time constant (at 23°C)	Dead time
"3"	550 msec	about 0.06sec
"5" to "8"	300 msec	

Response time = time constant + dead time

Electromagnetic compatibility:

FCX-A IV transmitters are in accordance with the following harmonized standards:

- EN 61326-1
- EN 61326-2-3
- EN 61326-3-1

Mounting position effect:

Zero shift:

Less than 30 mmWC for a 10° tilt in any position (no extension). This error can be corrected by adjusting zero.

(Double the effect for fluorinated fill sensor).

No effect on span.

Vibration effect:

< $\pm 0.25\%$ of span for spans greater than 1/10 of URL.

Frequency 10 to 150 Hz, acceleration 29.4 m/sec².

Dielectric strength:

500 V AC, 50/60 Hz 1 min., between circuit and earth (except with the optional arrester).

Insulation resistance:

More than 100 MΩ at 500 V DC.

Internal resistance for external field indicator:

12 Ω Max (connected to test terminal CK+ and CK-)

Pressure equipment directive (PED) 2014/68/EU:

According to Article 4.3

PHYSICAL SPECIFICATIONS

Conduit connections:

1/2-14 NPT, M20 × 1.5 or Pg13.5

Process connections:

LP side:

Standard: 1/4-18 NPT

Option: 1/2-14 NPT with oval flanges

HP side:

ANSI or DIN raised face flange.

Raised face flange machining:

Stockfinish for SS 316L diaphragm

Smooth finish for other diaphragm material

Process-wetted parts material:

Material code (7th digit in model code)	LP side			HP side
	Process cover	Diaphragm	Wetted sensor body	Diaphragm & flange face
V	SS 316L	SS 316L	SS 316L	SS 316L
C	SS 316L	SS 316L	SS 316L	Hastelloy-C
D	SS 316L	SS 316L	SS 316L	Monel
E	SS 316L	SS 316L	SS 316L	Tantalum
H	SS 316L	Hastelloy-C	Hastelloy-C	Hastelloy-C
M	SS 316L	Monel	Monel	Monel
T	SS 316L	Tantalum	Tantalum	Tantalum
A	SS 316L	SS 316L	SS 316L	SS 316L + PFA lining diaphragm
B	SS 316L	SS 316L	SS 316L	SS 316L + Gold coating
P	SS 316L	SS 316L	SS 316L	Titanium
R	SS 316L	SS 316L	SS 316L	Zirconium

Note: Gasket : Viton O-ring or PTFE/15% graphite square section gasket.

Non-wetted parts material:

Electronics housing:

Low copper die-cast aluminum, finished with polyester coating (standard) or SS 316 as specified.

Bolts and nuts:

Carbon steel (standard), SS 316L or SS 660

Filling fluid:

Silicone oil (standard) for the measuring cell and level kit

Silicone oil (standard) for the measuring cell and fluorinated oil (or specific oils upon request) for the level kit.

Mounting flange: SS 316L

Environmental protection:

IEC IP66 & IP67 and Type 4X

Flange mounting:

See drawings

Mass {weight}:

Transmitter: 10.2 to 19.2 kg without options.

Add: 0.2 kg for indicator

2.0 kg for stainless steel housing (option)

1.0 kg per 50 mm extension of diaphragm

OPTIONAL FEATURES

Local indicator:

An optional 5 digits indicator with engineering units is available.

A local configurator can be carried out using the 3 magnetic switches and push-buttons.

A separately ordered magnet pen is required for adjustment using the magnetic switches.

See the accessories section.

Arrester:

A built-in arrester protects the electronics from lightning surges.

Lightning surge immunity: ±4 kV (1.2 × 50 μs)

Oxygen service:

Special cleaning procedures are applied during the manufacturing process to maintain oil free all process wetted part. The filling fluid is fluorinated oil.

Chlorine service:

Same procedures and filling fluid as for oxygen service.

Degreasing:

Process-wetted parts are cleaned and the filling fluid is standard silicone oil. Not for use with oxygen or chlorine presence.

NACE specification:

Metallic materials for all pressure boundary parts comply with NACE MR 0175/ISO 15156.

SS 660 bolts and nuts comply with NACE MR 0175/ISO 15156.

Optional tag plate:

An extra stainless steel tag with customer tag data is wired to the transmitter.

ACCESSORIES

Oval flange (LP side):

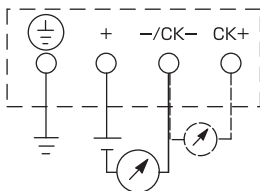
Converts process connection to 1/2-14 NPT

Magnet pen:

To be used with the 3 push-buttons optional indicators.

Order number = ZZP*TQ507742C1

CONNECTION DIAGRAM



Vacuum service:

Special silicone and filling procedure are applied.

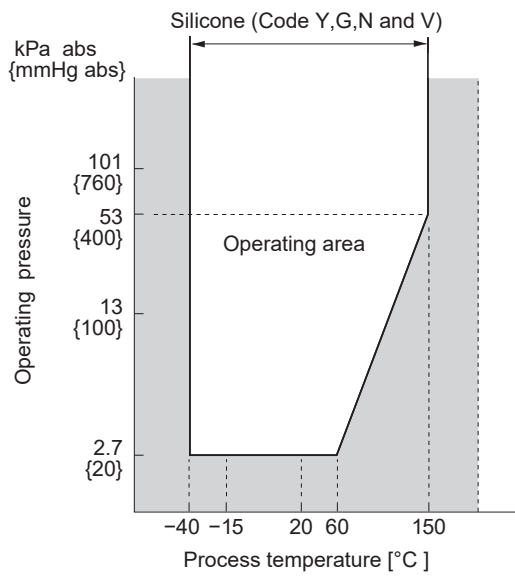


Fig. 1 Relation between process temperature and operating pressure (silicone oil)

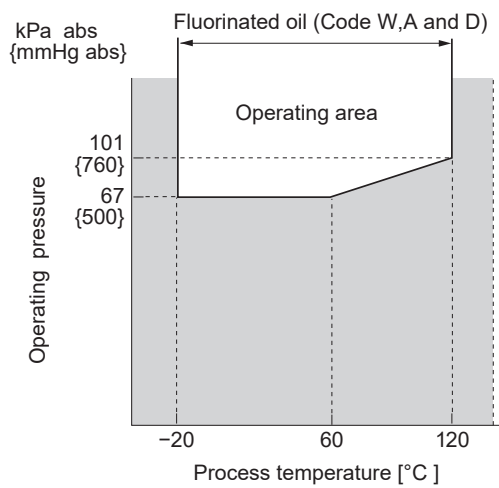


Fig. 2 Relation between process temperature and operating pressure (fluorinated oil)

MODEL CODE SYMBOLS

																DESCRIPTION					
																Type					
																Level transmitter - Smart, 4-20 mA with HART communication protocol					
																Connections					
																LP side connections		Conduit connection	Enclosure type		
																Process	Oval flange screw	M 20x1.5	"L" shape		
																1/4-18 NPT	7/16-20 UNF	1/2-14 NPT			
																		Pg 13.5			
																		M 20x1.5	"T" shape		
																1/4-18 NPT	7/16-20 UNF	1/2-14 NPT			
																		Pg 13.5			
																Mounting flange					
																(*)	Material	Size and rating	Type		
																4 5 8 9 L M P Q	SS 316 L	ANSI CLASS 150, 3- ISO PN 20 DN 80	Long design		
																		ANSI CLASS 150, 4- ISO PN 20 DN 100			
																		DIN PN40 DN80			
																		DIN PN16 DN100			
																		ANSI CLASS 150, 3- ISO PN 20 DN 80	short design		
																		ANSI CLASS 150, 4- ISO PN 20 DN 100			
																DIN PN40 DN80					
																		DIN PN16 DN100			
																(*)2 Measuring range (mmWC)					
																(*)3 0...10 to 600					
																(*)3 0...32 to 3200					
																(*)3 0...130 to 13000					
																(*)3 0...500 to 50000					
																(*)3 0...3000 to 300000					
																Material					
																LP side			HP side		
																Process cover	Diaphragm	Wetted sensor body	Diaphragm	Flange face	
																V C D E H M T A B P R	SS 316L	SS 316L	SS 316L	SS 316 L	SS 316 L
																				Hastelloy-C	Hastelloy-C
																				Monel	Monel
																		SS 316L	SS 316L	Tantalum	Tantalum
																				Hastelloy-C	Hastelloy-C
																				Monel	Monel
																Tantalum	Tantalum	Tantalum	Tantalum		
																SS 316L	SS 316L	SS 316L + PFA lining	SS 316L + PFA lining		
																		SS 316L + gold coat	SS 316L + gold coat		
																		Titanium	Titanium		
																		Zirconium	Zirconium		
																Improvement Symbol					
																Indicator		Arrester			
																None		None			
																None		Yes			
																Digital, 0-100% linear scale		None			
																Digital, Custom scale		None			
																Digital, 0-100% linear scale		Yes			
																Digital, Custom scale		Yes			
																Digital, 0-100% linear scale (Local configurator)		None			
																Digital, custom scale (Local configurator)		None			
																Digital, 0-100% linear scale (Local configurator)		Yes			
																Digital, custom scale (Local configurator)		Yes			
																Hazardous locations approvals					
																None					
																(*)4 ATEX - Flameproof					
																ATEX - Intrinsic Safety					
																(*)4 ATEX - Combination Flameproof and Intrinsic Safety					
																cCSAus - Explosion proof					
																cCSAus - Intrinsic Safety and Non Incendive					
																(*)4 cCSAus -Combination Explosion proof, Intrinsic Safety and Non Incendive					
																(*)4 IECEx - Flameproof					
																IECEx - Intrinsic Safety					
																(*)4 IECEx - Combination Flameproof and Intrinsic Safety					
																(*)4 IECEx - ATEX - cCSAus - Explosion/flameproof, Intrinsic Safety and Non Incendive					

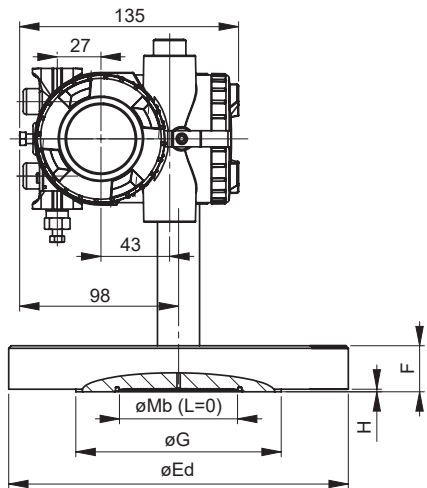
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	DESCRIPTION	
F	K	E					6									(⁵)	Diaphragm extension
Y																	Extension (mm)
A																	Applicable 4th material code
B																	0
C																	Any
D																	50
E																	100
F																	150
G																	200
H																	50
J																	100
K																	150
L																	200
M																	50
P																	100
R																	150
S																	200
T																	
																	Stainless Steel parts
Y																	SS tag plate
B																	SS housing
C																	None
E																	Yes
																	None
																	Yes
																	Special applications and fill fluid (fill fluid of cell = Silicone oil)
Y																	Application
W																	Fill fluid
G																	Standard
A																	Silicone oil
D																	Fluorinated oil
N																	Degreasing
V																	Silicone oil
																	Oxygen service
																	Fluorinated oil cell & seal (Material code "V" only)
																	Chlorine service
																	Fluorinated oil (Material code "H" & "T" only)
																	NACE
																	Silicone oil
																	Vacuum
																	Silicone oil
																	Process cover gasket - Vent /Drain plug - Cell covet bolt materials
L																	Process cover gasket
E																	Vent /Drain plug
J																	Cell covet bolt materials
1																	Square section PTFE with SS flange
2																	Carbone steel Bolt,Nut
3																	SS 316L Bolt, Nut
																	SS 660 Bolt, Nut
																	Carbone steel Bolt, Nut
																	SS 316L Bolt, Nut
																	SS 660 Bolt, Nut
																	Special options
L																	<Special option>
T																	None
F																	High accuracy
G																	Low temperature
																	"H" + "J"
																	(*6) * Special, no code available

Notes* :

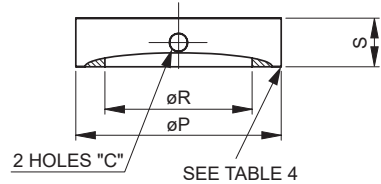
- 1- For mounting flange < 3" (DN80) or specific materials: please consult Fuji Electric.
- 2- A Turn Down Ratio ≤ 10 is recommended for optimal performances.
- 3- Please consult Fuji Electric regarding process conditions.
- 4- Only with M20×1.5 & 1/2-14 NPT electrical conduits.
- 5- All wetted parts in the same material (diaphragm, extension and seal landing surface).
- 6- When no code can be found in the current model code, place "*" in the corresponding digit code as well as in the 16th digit.

OUTLINE DIAGRAM (Unit : mm)

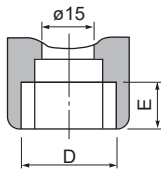
<L SHAPE> <4TH DIGIT CODE: R, T, X AND 5TH DIGIT CODE L, M, P, Q>



TECHNICAL INFORMATION FOR FLUSHING RINGS

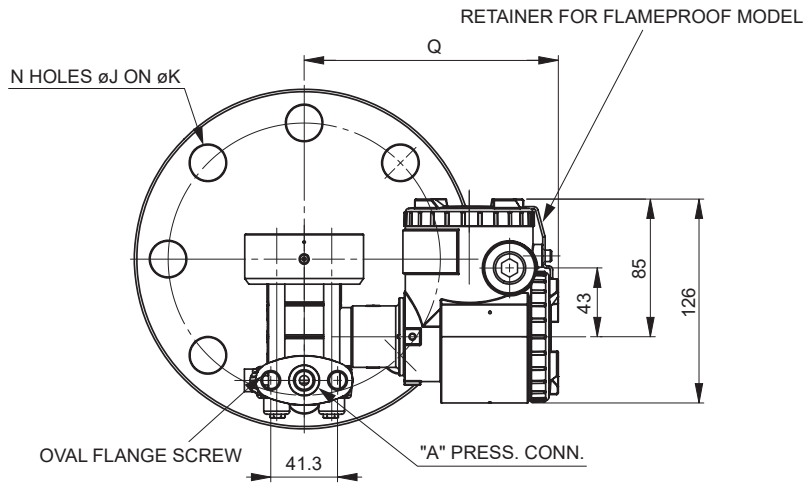
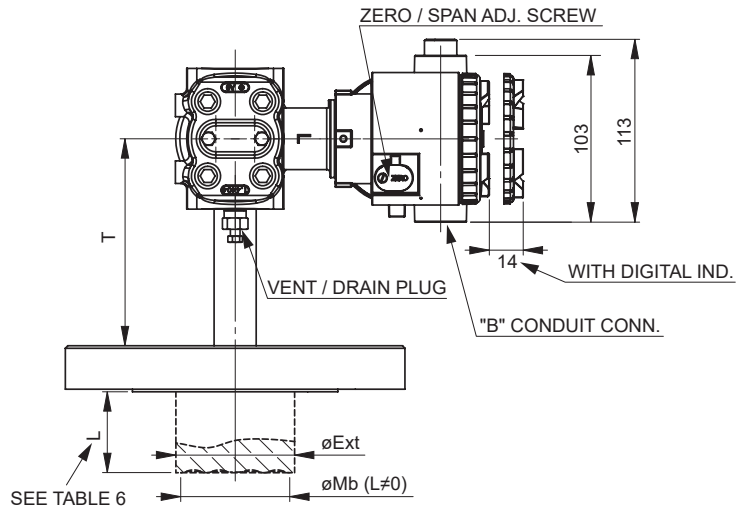
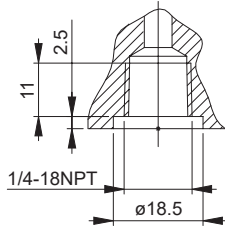


DETAIL "B" (CONDUIT CONN.)



SEE TABLE 1

DETAIL "A" (PRESS. CONN.)



4TH MODEL CODE	CONDUIT CONNECTION		OVAL FLANGE SCREW
	D	E	G
R	M20×1.5	16	7/16-20UNF
T	1/2-14NPT	16	7/16-20UNF
X	Pg13.5	10.5	7/16-20UNF

TABLE 1

FLUSHING RINGS DIMENSIONS					
FLANGE SIZE	HOLES "C"	øP	øR	S	FLANGE STANDARD
DN80	1/4-18NPT	138	91	30	EN 1092-1
	1/2-14NPT				
NPS 3"	1/4-18NPT	127	91	30	EN 1759-1
	1/2-14NPT				
DN100	1/4-18NPT	162	116	30	EN 1092-1
	1/2-14NPT				
NPS 4"	1/4-18NPT	157	116	30	EN 1759-1
	1/2-14NPT				

TABLE 4

5TH MODEL CODE	FLANGE SIZE AND RATING	øEd	F MIN	øG	H	N×øJ	øK	WEIGHT (kg)	FLANGE STANDARD
4, L	ANSI CLASS 150 NPS 3"	190	24	127	1.6	4×19	152.4	5.3	EN 1759-1
5, M	ANSI CLASS 150 NPS 4"	229	24	157	1.6	8×19	190.5	7.7	EN 1759-1
8, P	DIN PN40 DN80	200	24	138	2	8×18	140	3.8	EN 1092-1
9, Q	DIN PN16 DN100	220	22	158	2	8×18	180	5.9	EN 1092-1

TABLE 2

6TH MODEL CODE	T	Q
3, 5, 6	128	157
2, 8	130	160

TABLE 5

5TH MODEL CODE	FLANGE SIZE AND RATING	øMb	øExt{øMb}	øMb	øExt{øMb}
		4, L	ANSI CLASS 150 NPS 3"	73	73{73}
5, M	ANSI CLASS 150 NPS 4"	96	96{96}	89	94{89}
8, P	DIN PN40 DN80	73	73{73}	89	76{72}
9, Q	DIN PN16 DN100	96	96{96}	89	94{89}
CONDITIONS	MATERIAL	SS 316L		EXOTIC MATERIALS	
	7TH MODEL CODE	V,W	V	H,M,T,A,B,P,R	H,M,T
	11TH MODEL CODE	Y	A,B,C,D	Y	E,F,G,H,J,K L,M,P,R,S,T
	(EXTENSION LENGTH)	(L=0)	(L≠0)	(L=0)	(L≠0)

TABLE 3

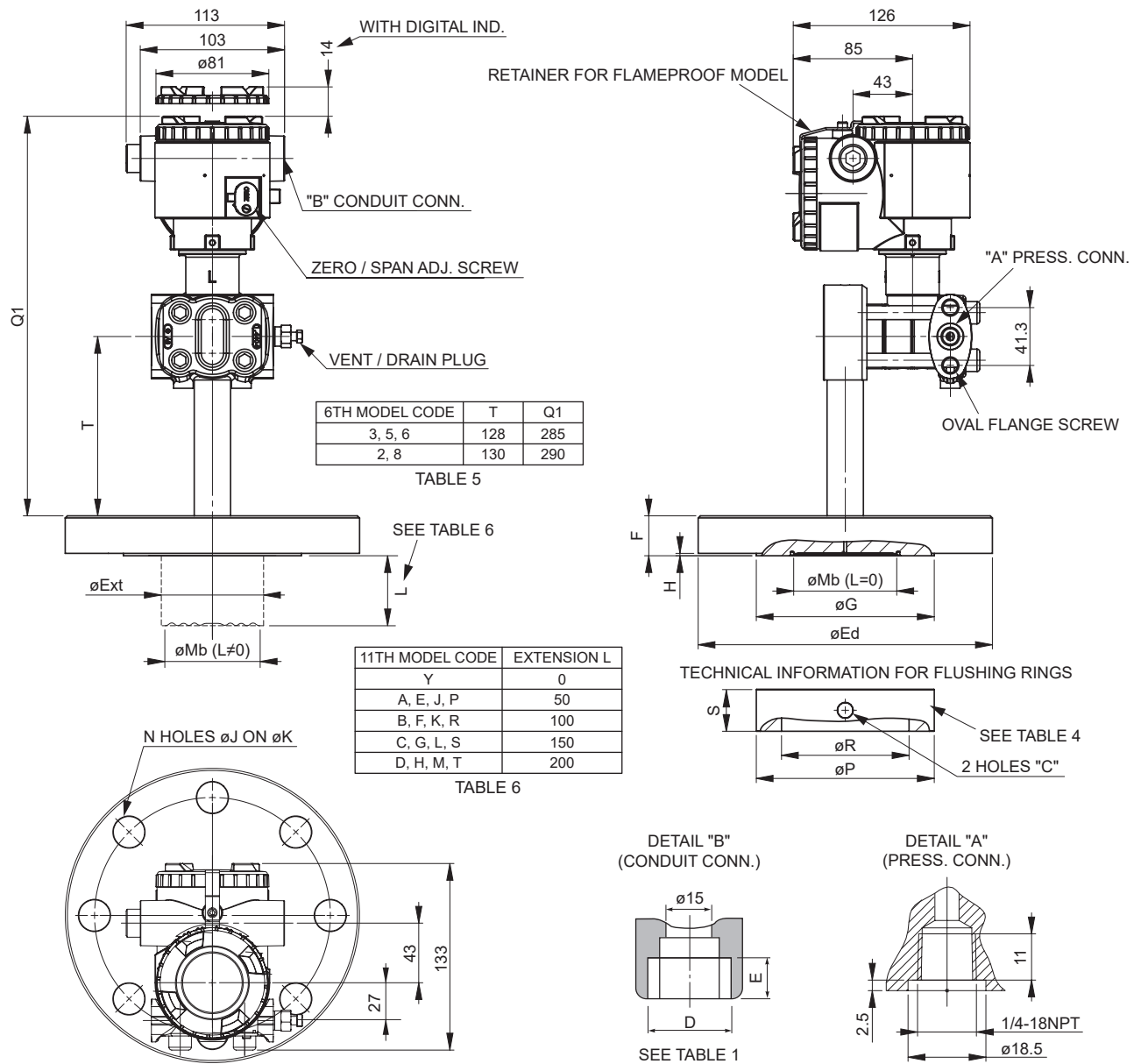
11TH MODEL CODE	EXTENSION L
Y	0
A, E, J, P	50
B, F, K, R	100
C, G, L, S	150
D, H, M, T	200

TABLE 6

- WEIGHT : - 10.2 TO 19.2 kg (WITHOUT OPTION)
 ADD : - 1.0 kg PER 50 mm OF EXTENSION
 - 0.2 kg FOR INDICATOR
 - 2.0 kg FOR STAINLESS STEEL HOUSING (OPTION)

OUTLINE DIAGRAM (Unit : mm)

<L SHAPE> <4TH DIGIT CODE: R, T, X AND 5TH DIGIT CODE 4, 5, 8, 9>



6TH MODEL CODE	T	Q1
3, 5, 6	128	285
2, 8	130	290

TABLE 5

11TH MODEL CODE	EXTENSION L
Y	0
A, E, J, P	50
B, F, K, R	100
C, G, L, S	150
D, H, M, T	200

TABLE 6

5TH MODEL CODE	FLANGE SIZE AND RATING	øEd	F MIN	øG	H	N×øJ	øK	WEIGHT (kg)	FLANGE STANDARD
4, L	ANSI CLASS 150 NPS 3"	190	24	127	1.6	4×19	152.4	5.3	EN 1759-1
5, M	ANSI CLASS 150 NPS 4"	229	24	157	1.6	8×19	190.5	7.7	EN 1759-1
8, P	DIN PN40 DN80	200	24	138	2	8×18	140	3.8	EN 1092-1
9, Q	DIN PN16 DN100	220	22	158	2	8×18	180	5.9	EN 1092-1

TABLE 2

4TH MODEL CODE	CONDUIT CONNECTION		OVAL FLANGE SCREW
	D	E	
R	M20×1.5	16	7/16-20UNF
T	1/2-14NPT	16	7/16-20UNF
X	Pg13.5	10.5	7/16-20UNF

TABLE 1

5TH MODEL CODE	FLANGE SIZE AND RATING	øMb		øExt{øMb}			
		øMb	øExt{øMb}	øMb	øExt{øMb}		
		4, L	ANSI CLASS 150 NPS 3"	73	73{73}	89	76{72}
		5, M	ANSI CLASS 150 NPS 4"	96	96{96}	89	94{89}
8, P	DIN PN40 DN80	73	73{73}	89	76{72}		
9, Q	DIN PN16 DN100	96	96{96}	89	94{89}		
CONDITIONS	MATERIAL	SS 316L		EXOTIC MATERIALS			
	7TH MODEL CODE	V,W	V	H,M,T,A,B,P,R H,M,T			
	11TH MODEL CODE	Y	A,B,C,D	Y	E,F,G,H,J,K L,M,P,R,S,T		
	(EXTENSION LENGTH)	(L=0)	(L≠0)	(L=0)	(L≠0)		

TABLE 3

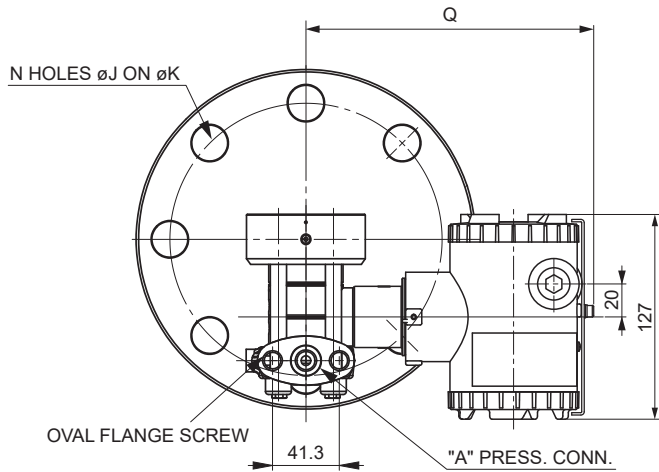
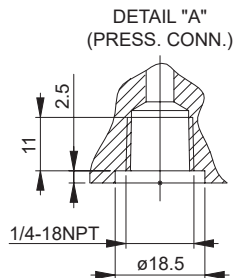
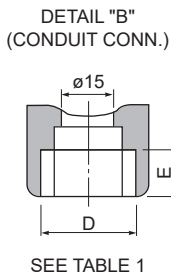
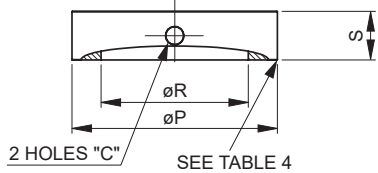
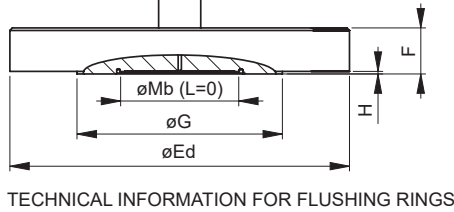
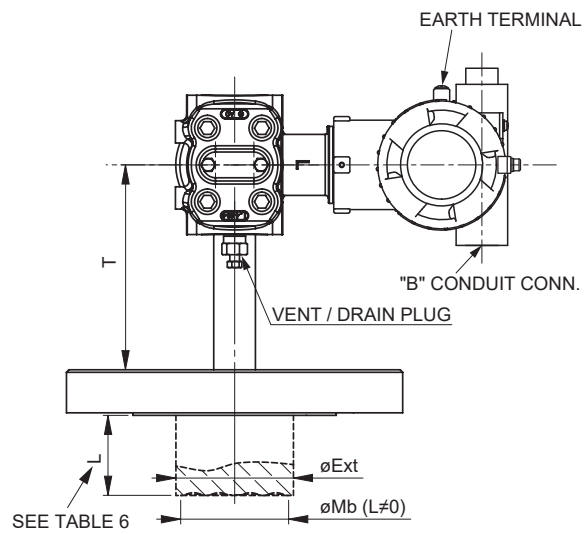
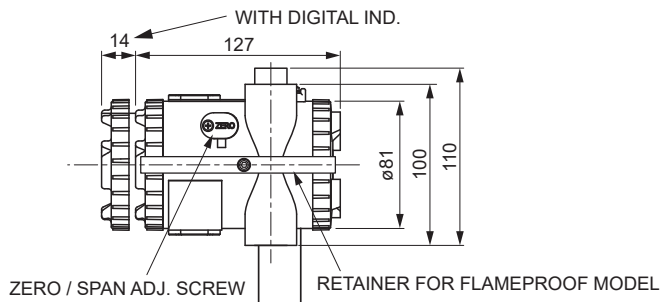
FLUSHING RINGS DIMENSIONS					
FLANGE SIZE	HOLES "C"	øP	øR	S	FLANGE STANDARD
DN80	1/4-18NPT	138	91	30	EN 1092-1
	1/2-14NPT				
NPS 3"	1/4-18NPT	127	91	30	EN 1759-1
	1/2-14NPT				
DN100	1/4-18NPT	162	116	30	EN 1092-1
	1/2-14NPT				
NPS 4"	1/4-18NPT	157	116	30	EN 1759-1
	1/2-14NPT				

TABLE 4

- WEIGHT : - 10.2 TO 19.2 kg (WITHOUT OPTION)
- ADD :
- 1.0 kg PER 50 mm OF EXTENSION
 - 0.2 kg FOR INDICATOR
 - 2.0 kg FOR STAINLESS STEEL HOUSING (OPTION)

OUTLINE DIAGRAM (Unit : mm)

<T SHAPE> <4TH DIGIT CODE: 4, 6, 9 AND 5TH DIGIT CODE L, M, P, Q>



4TH MODEL CODE	CONDUIT CONNECTION		OVAL FLANGE SCREW
	D	E	G
4	M20×1.5	16	7/16-20UNF
6	1/2-14NPT	16	7/16-20UNF
9	Pg13.5	10.5	7/16-20UNF

TABLE 1

FLUSHING RINGS DIMENSIONS					
FLANGE SIZE	HOLES "C"	8P	8R	S	FLANGE STANDARD
DN80	1/4-18NPT	138	91	30	EN 1092-1
	1/2-14NPT				
NPS 3"	1/4-18NPT	127	91	30	EN 1759-1
	1/2-14NPT				
DN100	1/4-18NPT	162	116	30	EN 1092-1
	1/2-14NPT				
NPS 4"	1/4-18NPT	157	116	30	EN 1759-1
	1/2-14NPT				

TABLE 4

5TH MODEL CODE	FLANGE SIZE AND RATING	8Ed	F MIN	8G	H	N×8J	8K	WEIGHT (kg)	FLANGE STANDARD
4, L	ANSI CLASS 150 NPS 3"	190	24	127	1.6	4×19	152.4	5.3	EN 1759-1
5, M	ANSI CLASS 150 NPS 4"	229	24	157	1.6	8×19	190.5	7.7	EN 1759-1
8, P	DIN PN40 DN80	200	24	138	2	8×18	140	3.8	EN 1092-1
9, Q	DIN PN16 DN100	220	22	158	2	8×18	180	5.9	EN 1092-1

TABLE 2

6TH MODEL CODE	T	Q
3, 5, 6	128	178
2, 8	130	181

TABLE 5

5TH MODEL CODE	FLANGE SIZE AND RATING	8Mb	8Ext{8Mb}	8Mb	8Ext{8Mb}
		4, L	ANSI CLASS 150 NPS 3"	73	73{73}
5, M	ANSI CLASS 150 NPS 4"	96	96{96}	89	94{89}
8, P	DIN PN40 DN80	73	73{73}	89	76{72}
9, Q	DIN PN16 DN100	96	96{96}	89	94{89}
CONDITIONS	MATERIAL	SS 316L		EXOTIC MATERIALS	
	7TH MODEL CODE	V,W	V	H,M,T,A,B,P,R	H,M,T
	11TH MODEL CODE	Y	A,B,C,D	Y	E,F,G,H,J,K L,M,P,R,S,T
	(EXTENSION LENGTH)	(L=0)	(L≠0)	(L=0)	(L≠0)

TABLE 3

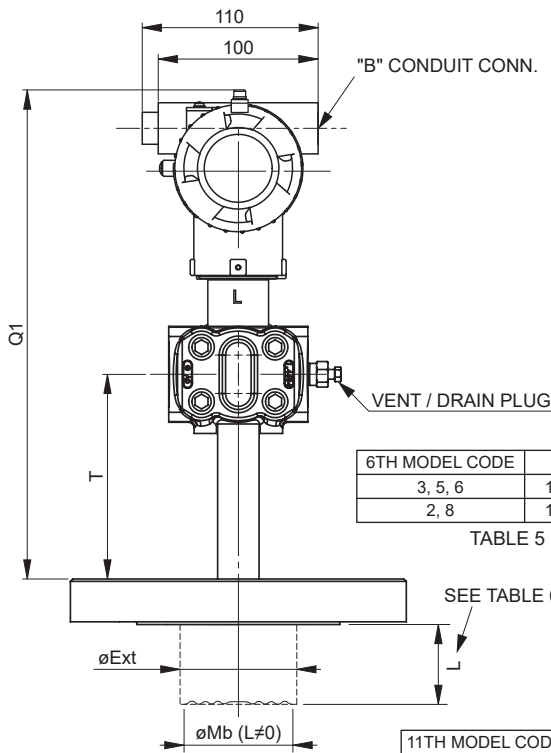
11TH MODEL CODE	EXTENSION L
Y	0
A, E, J, P	50
B, F, K, R	100
C, G, L, S	150
D, H, M, T	200

TABLE 6

- WEIGHT : - 10.2 TO 19.2 kg (WITHOUT OPTION)
 ADD : - 1.0 kg PER 50 mm OF EXTENSION
 - 0.2 kg FOR INDICATOR
 - 2.0 kg FOR STAINLESS STEEL HOUSING (OPTION)

OUTLINE DIAGRAM (Unit : mm)

<T SHAPE> <4TH DIGIT CODE: 4, 6, 9 AND 5TH DIGIT CODE 4, 5, 8, 9>

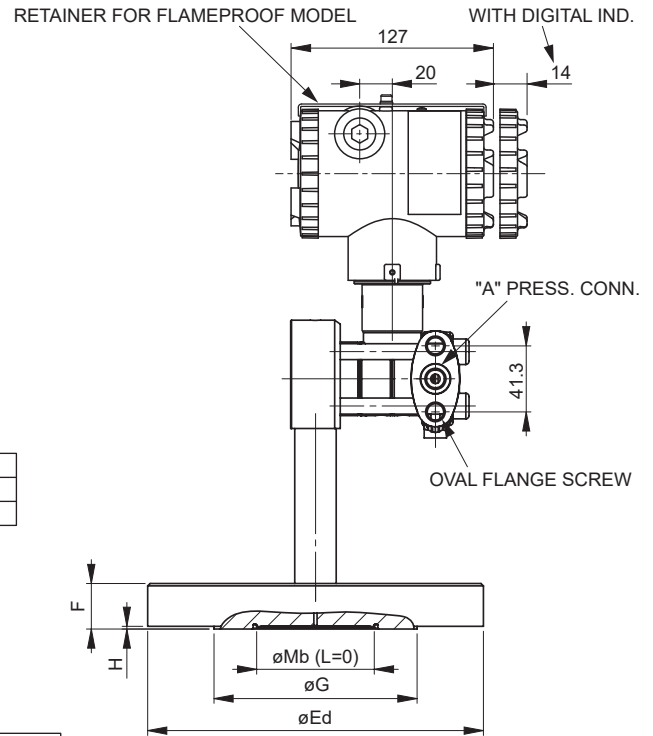
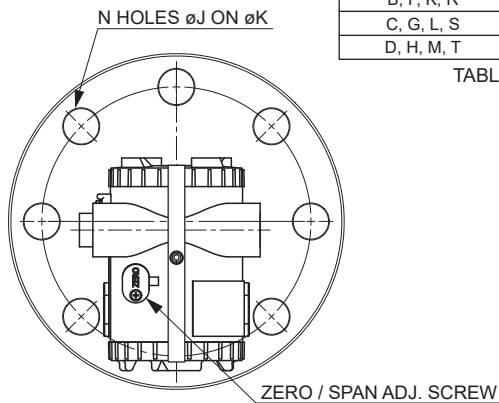


6TH MODEL CODE	T	Q1
3, 5, 6	128	299
2, 8	130	304

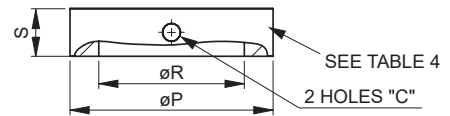
TABLE 5

11TH MODEL CODE	EXTENSION L
Y	0
A, E, J, P	50
B, F, K, R	100
C, G, L, S	150
D, H, M, T	200

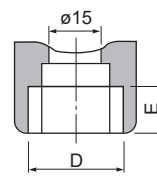
TABLE 6



TECHNICAL INFORMATION FOR FLUSHING RINGS

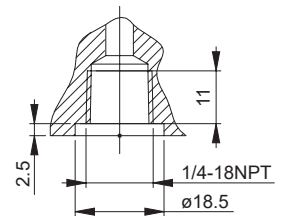


DETAIL "B" (CONDUIT CONN.)



SEE TABLE 1

DETAIL "A" (PRESS. CONN.)



5TH MODEL CODE	FLANGE SIZE AND RATING	øEd	F MIN	øG	H	N×øJ	øK	WEIGHT (kg)	FLANGE STANDARD
4, L	ANSI CLASS 150 NPS 3"	190	24	127	1.6	4×19	152.4	5.3	EN 1759-1
5, M	ANSI CLASS 150 NPS 4"	229	24	157	1.6	8×19	190.5	7.7	EN 1759-1
8, P	DIN PN40 DN80	200	24	138	2	8×18	140	3.8	EN 1092-1
9, Q	DIN PN16 DN100	220	22	158	2	8×18	180	5.9	EN 1092-1

TABLE 2

4TH MODEL CODE	CONDUIT CONNECTION		OVAL FLANGE SCREW
	D	E	
4	M20×1.5	16	7/16-20UNF
6	1/2-14NPT	16	7/16-20UNF
9	Pg13.5	10.5	7/16-20UNF

TABLE 1

5TH MODEL CODE	FLANGE SIZE AND RATING	øMb	øExt{øMb}	øMb	øExt{øMb}
		4, L	ANSI CLASS 150 NPS 3"	73	73{73}
5, M	ANSI CLASS 150 NPS 4"	96	96{96}	89	94{89}
8, P	DIN PN40 DN80	73	73{73}	89	76{72}
9, Q	DIN PN16 DN100	96	96{96}	89	94{89}
CONDITIONS	MATERIAL	SS 316L		EXOTIC MATERIALS	
	7TH MODEL CODE	V,W	V	H,M,T,A,B,P,R	H,M,T
	11TH MODEL CODE	Y	A,B,C,D	Y	E,F,G,H,J,K L,M,P,R,S,T
	(EXTENSION LENGTH)	(L=0)	(L≠0)	(L=0)	(L≠0)

TABLE 3

FLUSHING RINGS DIMENSIONS					
FLANGE SIZE	HOLES "C"	øP	øR	S	FLANGE STANDARD
DN80	1/4-18NPT	138	91	30	EN 1092-1
	1/2-14NPT				
NPS 3"	1/4-18NPT	127	91	30	EN 1759-1
	1/2-14NPT				
DN100	1/4-18NPT	162	116	30	EN 1092-1
	1/2-14NPT				
NPS 4"	1/4-18NPT	157	116	30	EN 1759-1
	1/2-14NPT				

TABLE 4

- WEIGHT : - 10.2 TO 19.2 kg (WITHOUT OPTION)
 ADD : - 1.0 kg PER 50 mm OF EXTENSION
 - 0.2 kg FOR INDICATOR
 - 2.0 kg FOR STAINLESS STEEL HOUSING (OPTION)



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