Fuji Electric

FCX-AII

ABSOLUTE, DIFFERENTIAL AND GAUGE PRESSURE TRANSMITTER FOR REMOTE SEAL(S)

DATA SHEET **FKB, FKD, FKM...F**

FKB, FKD and FKM models of FCX-AII V5 series of pressure transmitters accurately measure a gauge, differential or absolute pressure and transmit a proportional 4-20 mA output signal. The transmitters use an 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.

FEATURES

1. High accuracy
The Fuji Electric's micro-capacitive sillicon sensor provides in standard ±0.065% accuracy for differential and gauge transmitter models and ±0.2% accuracy for the absolute transmitter model, for all elavated or supressed calibration ranges without additional adjustments.

2. Minimum inventory and design
Electronics unit, local indicators and electronics housing are interchageable among all FCX-AII transmitters.
Fuji Electric remote seals design are based on a welded conception that provides a reduced and optimized volume flange to guarantee a perfect vaccum tightness and high pressure services.

3. Minimum environmental influence
The Advanced Floating Cell technology provides a high immunity against temperature variations and overpressure commonly found in the process industry and substantially reduces the overall measurement error.

4. HART/Fuji Electric communication protocols
FCX-AII V5 series of pressure transmitters can communicate using either the universal HART or the proprietary and faster Fuji Electric communication protocol.
By the use of Device Description files, HART compatible devices can communicate with any FCX-AII V5 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
- Analog or 5 digits local indicator with engineering unit
- Stainless steel electronics housing
- Wide selection of materials
- High temperature, high vacuum seals

6. Programmable output Linearization Function
The output signal can be linearized using up to 14 pair-points.

7. Burnout current flexibility
The burnout current value can be adjusted in the ranges of [3.2 ; 4.0] and [20.0 ; 22.5] mA and can be compliant with NAMUR NE43 recommandations.

FUNCTIONAL SPECIFICATIONS

Type:
- FKD : differential pressure transmitter with remote seal(s)
- FKB : gauge pressure transmitter with remote seal
- FKM : absolute pressure transmitter with remote seal

Service :
Liquid, gas, or vapour

Span, range, and overrange limit :

Model	Span limits Minimum	Span limits Maximum	Range limits
	FKD		
	(mbar)	(mbar)	(mbar)
F□D□ □3	3.2	320	± 320
F□D□ □5	13	1300	± 1300
F□D□ □6	50	5000	± 5000
F□D□ □8	300	30000	± 30000
F□D□ □9*	2000	200000	±200000
	FKB		
	(bar)	(bar)	(bar)
F□B□ □1	0.013	1,3	-1 to + 1,3
F□B□ □2	0.05	5	-1 to + 5
F□B□ □3	0.3	30	-1 to + 30
F□B□ □4	1	100	-1 to + 100
F□B□ □5	5	500	-1 to + 500
	FKM		
	(bar abs)	(bar abs)	(bar abs)
F□M□ □1	0.016	0.16	0 to +0,16
F□M□ □2	0.013	1,3	0 to +1,3
F□M□ □3	0.05	5	0 to +5
F□M□ □4	0,3	30	0 to +30
F□M□ □5	1	100	0 to +100

Remark : To minimize environmental influence, span should be greater than 1/40 of the max. span in most applications.

Important : For FKD#49, maximum possible overload pressure on LP side must be ≤ 100 bar. The accuracy is not guaranteed when used at negative DP.

Output signal :

4-20 mA with digital signal superimposed on the analog signal.

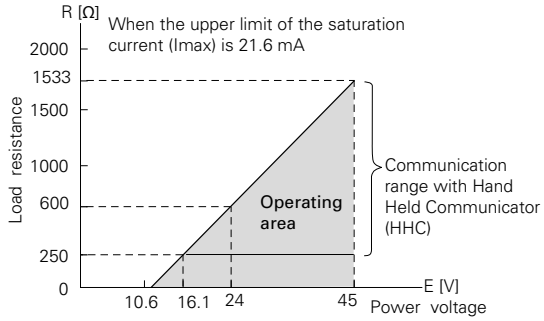
Power supply :

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]

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

Note 2 : For communication with HHC (FXW model), a minimum load of 250 Ω is required.

Hazardous locations :

Marking (Digit 10 =)		Protection type
ATEX		Intrinsic Safety "i" :
		Ex II 1G/D
		Ex ia IIC T4 Ga (-40°C ≤ Ta ≤ +70°C)
		Ex ia IIC T5 Ga (-40°C ≤ Ta ≤ +50°C)
	(K)	Ex ia IIIC T135°C Da (-40°C ≤ Ta ≤ +70°C)
		Ex ia IIIC T100°C Da (-40°C ≤ Ta ≤ +50°C)
		IP 66/67
		Electrical Parameters :
		Ui ≤ 28 Vdc, Ii ≤ 94.3 mA, Pi ≤ 0.66 W
		Ci = 26 nF(1) / 36 nF(2), Li = 0.6 mH(3) / 0.7 mH(4)
		Flameproof Enclosure "d":
		Ex II 2G/D
		Ex d IIC T5 Gb (-40°C ≤ Ta ≤ +85°C)
	(X)	Ex d IIC T6 Gb (-40°C ≤ Ta ≤ +65°C)
		Ex tb IIIC T100°C Db (-40°C ≤ Ta ≤ +85°C)
		Ex tb IIIC T85°C Db (-40°C ≤ Ta ≤ +65°C)
		45 Vdc max
		Increased Safety "e" :
		Ex II 3G/D
	(P)	Ex ec IIC T5 Gc (-40°C ≤ Ta ≤ +70°C)
		Ex tc IIIC T100°C Dc (-40°C ≤ Ta ≤ +70°C)
		45 Vdc max
	(M)	Combination (K) + (X)
IECEx		Intrinsic Safety "i":
		Ex ia IIC T4 Ga (-40°C ≤ Ta ≤ +70°C)
		Ex ia IIC T5 Ga (-40°C ≤ Ta ≤ +50°C)
		Ex ia IIIC T135°C Da (-40°C ≤ Ta ≤ +70°C)
	(T)	Ex ia IIIC T100°C Da (-40°C ≤ Ta ≤ +50°C)
		IP 66/67
		Electrical Parameters :
		Ui ≤ 28 Vdc, Ii ≤ 94.3 mA, Pi ≤ 0.66 W
		Ci = 26 nF(1) / 36 nF(2), Li = 0.6 mH(3) / 0.7 mH(4)
		Flameproof Enclosure "d":
		Ex d IIC T5 Gb (-40°C ≤ Ta ≤ +85°C)
		Ex d IIC T6 Gb (-40°C ≤ Ta ≤ +65°C)
	(R)	Ex tb IIIC T100°C Db (-40°C ≤ Ta ≤ +85°C)
		Ex tb IIIC T85°C Db (-40°C ≤ Ta ≤ +65°C)
		45 Vdc max
		Increased Safety "e" :
		Ex ec IIC T5 Gc (-40°C ≤ Ta ≤ +70°C)
	(Q)	Ex tc IIIC T100°C Dc (-40°C ≤ Ta ≤ +70°C)
		45 Vdc max
	(N)	Combination (T) + (R)
ATEX **IECEx** **cCSAus**	(W)	Combination (K) + (X) + (T) + (R) + (J) + (E)
cCSAus		Intrinsic safety / Non Incendive / Class 1 Division 2 :
		IS Class I Division 1, Groups ABCD Ex ia
		Class II Groups EFG; Class III
		NI Class I Division 2, Groups ABCD
	(J)	(Per control drawing TC522873)
		Class I Division 2, Groups ABCD
		T4 (-40°C ≤ Ta ≤ +70°C)
		T5 (-40°C ≤ Ta ≤ +50°C)
		Ui ≤ 28 Vdc, Ii ≤ 94.3 mA, Pi ≤ 0.66 W
		Ci = 26nF(1) / 36 nF(2), Li = 0.6 mH(3) / 0.7 mH(4)
		Explosion proof
		XP Class I Division 1, Groups CD
	(E)	Class II Groups EFG; Class III
		T5 (-40°C ≤ Ta ≤ +85°C)
		T6 (-40°C ≤ Ta ≤ +65°C)
		Vmax = 42.4 Vdc
	(L)	Combination (J) + (E)

(1) Without optional arrester
(2) With optional arrester
(3) Without analog indicator
(4) With analog indicator

Configuration :

Configuration of the FCX-AII V5 series of pressure transmitters can be carried out by either using a Hand Held Terminal (ie. Fuji Electric FXW or third party HART terminal) or the 3 push-buttons optional indicator.

A third party HART hand held communicator can be used in combination with Fuji Electric FCX-AII V5 HART Device Description files (https://fieldcommgroup.org).

Functions		Fuji Electric FXW		Third party HART HHC		3 push buttons optional indicator	
		Display	Set	Display	Set	Display	Set
Tag Nb		*v*	*v*	*v*	*v*	*v*	*v*
Model Nb		*v*	*v*	*v*	*v*	*v*	*v*
Serial Nb & Software revision		*v*	—	*v*	—	*v*	—
Engineering units		*v*	*v*	*v*	*v*	*v*	*v*
Upper Range Value		*v*	—	*v*	—	*v*	—
Measuring Range		*v*	*v*	*v*	*v*	*v*	*v*
Damping		*v*	*v*	*v*	*v*	*v*	*v*
Output signal type	Linear	*v*	*v*	*v*	*v*	*v*	*v*
	Square Root	*v*	*v*	*v*	*v*	*v*	*v*
Burnout current		*v*	*v*	*v*	*v*	*v*	*v*
Calibration		*v*	*v*	*v*	*v*	*v*	*v*
Output Adjust		—	*v*	—	*v*	—	*v*
Measuring Value		*v*	—	*v*	—	*v*	—
Self Diagnosis		*v*	—	*v*	—	*v*	—
Printer (option)		*v*	—	—	—	—	—
External Adj Screw Lock		*v*	*v*	*v*	*v*	*v*	*v*
Transmitter Display		*v*	*v*	*v*	*v*	*v*	*v*
Linearization		—	—	*v*	*v*	*v*	*v*
Rerange		*v*	*v*	*v*	*v*	*v*	*v*
Saturation Current		*v*	*v*	*v*	*v*	*v*	*v*
Write Protect		*v*	*v*	*v*	*v*	*v*	*v*
History – Calibration History – Ambient T° History		 *v* *v*	 *v* —	 *v* *v*	 *v* —	 *v* *v*	 *v* —

Note 1 : The FXW firmware revision must be higher than 7.0 in order to address FCX-AII V5 "Saturation current", "Write protect" and "History" functions.

Note 2 : The "Linearization" function is not accessible throught the 3 puh-buttons optional indicator.

Damping :

The damping time constant can be adjusted within the range of [0.06 to 32] seconds.

Zero and span adjustment :

Zero and span are ajustable remotly with a Hand Held Communicator or locally with the external adjustment screw.

Zero elevation/suppression :

±100 % of the URL for FKD models

-1 bar to +100 % of the URL for FKB models

0 kPa abs to +100 % of the URL for FKM models

Normal/reverse action :

Selectable from a Hand Held Communicator.

Burnout and saturation currets :

If 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 last value just before the failure happens.

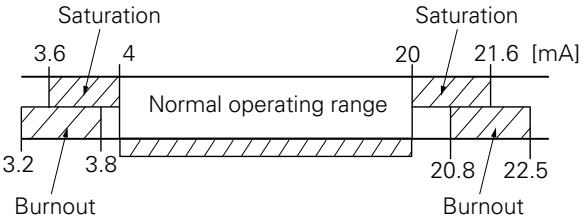
When “Output Overscale” :

The output signal is set within the range of [20.0 to 22.5] mA

When “Output Underscale” :

The output signal is set within the range of [3.2 to 4.0] mA

Both burnout and saturation current can be adjusted within the range of [3.2 ; 4.0] and [20.0 ; 22.5] mA



Loop-check / fixed output currents :

The transmitter can be configured to provide a constant output signal from 3.2 up to 22.5 mA.

Temperature limit :

Ambient :

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

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

Process :

Refer to the seal specifications and the specific temperature conditions.

Storage :

- 40 to +90°C

Humidity limit :

0 to 100% RH (Relative Humidity)

PERFORMANCE SPECIFICATIONS

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

Accuracy rating : (including linearity, hysteresis, and repeatability)

For span > 1/10 of URL :

± 0.065% of calibrated span (FKB & FKD models)
± 0.1% of calibrated span for FKB□□5VF model
± 0,2% of calibrated span for FKM model

For span < 1/10 of URL :

± (0.015 + 0.005 x URL/span) % of span (FKB & FKD model)
± (0.1+ 0.01 x URL/span) % of span (FKM model)

Stability :

± 0.2% of upper range limit (URL) for 10 years.

Linearity :

0.05% of calibrated span (FKB & FKD models)
0.1% of calibrated span (FKM model)

Temperature effect :

Effect per 28°C change within the range of - 40°C and +85°C

FKM model :

Zero shift :
±(0.125 + 0.1 x URL/span) % of URL
Total effect :
±(0.15 + 0.1 x URL/span) % f URL

FKB & FKD models :

Zero shift :
±(0.075 + 0.0125% URL/span) % of URL
Total effect :
±(0.095 + 0.0125 URL/span) % of URL

Static pressure effect (FKD model) :

Zero shift :
± 0.035% of URL for 100 bar

Overrange effect (FKB & FKM models) :

Zero shift :
0.2% of URL, for any overrange pressures (limited to the max. overrange pressure)

Overrange effect (FKD model) :

Zero shift : ± 0.15% of URL / 160 bar limit

Supply voltage effect :

Less than 0.005% of calibrated span per 1 V

RFI effect :

< 0,2% of the URL for the frequencies from 20 up to 1000 MHz with an electrical field strength of 10 V/m and housing covers in place. (Classification : 2-abc : 0.2% of span according SAMA PMC 33.1)

Update rate :

60 msec

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

Time constant :
300 msec (FKD span code “3“)
Time constant :
200 msec (others spans and FKB, FKM)
Dead time :
300 msec
Response time = time constant + dead time

Mounting position effect :

Zero shift :
< 12 mm CE for 10° incline in any position.
This shift can be corrected with the zero adjustment.
This effect is doubled for fluorinated oil filling.
No influence on span adjustment.

Vibration effect :

< ±0.25% of span for spans greater than 1/10 of URL.
Frequency 10 to 150 Hz, acceleration 39.2 m/sec^2 .
These informations are available only for capillary mounting.

Material fatigue :

Please consult Fuji Electric

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 / 500 V DC.

Internal resistance for external field indicator :

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

Pressure equipment directive (PED) 2014/68/EU

FKD : According to Article 4.3
FKB : Digit 6 code 1, 2, 3, 4 according to Article 4.3
Digit 6 code 5 : Category III model H1
FKM : According to Article 4.3

PHYSICAL SPECIFICATIONS

Conduit connections :
1/2”-14 NPT, Pg13.5 or M20x1.5

Process-wetted parts material :
Diaphragm :
SS 316L, Hastelloy-C, Monel, Tantalum, Titanium or Zirconium
Flange face :
SS 316L, Hastelloy-C, Monel, Tantalum, Titanium or Zirconium
Extension :
SS 316L, Hastelloy-C (refer to “Model code”)

Non-wetted parts material :
Electronics housing :
Low copper die-cast aluminum alloy finished with polyester coating (standard), or SS 316 (option).
Bolts and nuts :
Standard :
Cr-Mo alloy
Option :
SS 316 (L) for pressure ≤ 100 bar or
SS 660 for pressure > 100 bar
Filling fluid :
Standard :
Silicone oil
Option :
Fluorinated oil
Mounting bracket :
SS 304L or SS 316L

Environmental protection :
IEC IP66/IP67 and Type 4X

Mounting bracket:
Without : direct mounting
With (option) : On 50 mm (2”) pipe or direct wall mounting

Mass {weight} :
Refer to outline dimensions page 12 to 17.

Diaphragm seal(s) :
A comprehensive selection of seals can be chosen in accordance with the specific seal (see datasheet).

OPTIONAL FEATURES

Local indicator :
A plug-in analog indicator (2.5% accuracy) can be mounted into the electronics compartment or the terminal box of the housing.
An optional 5 digit indicator with engineering units is also available.

Local configuration with the 3 push-buttons indicator :
A local configuration can be carried out with the optional 3 push-buttons 5-digits indicator.

Arrester :
A built-in arrester protects the electronics from lightning surges.
Lightning surge immunity :
±4 kV (1.2 × 50 µs)

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 plate for customer tag data is wired to the transmitter.

Vacuum service : See Fig.1
Special silicone oil and filling procedure are applied.

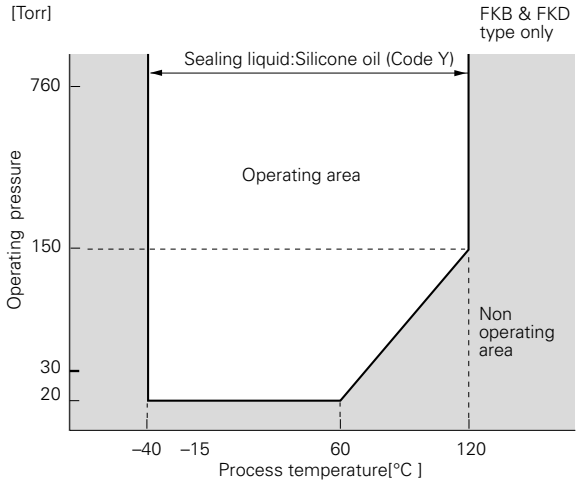


Fig. 1
Relation between process temperature and operating pressure

ACCESSORIES

Hand held communicator :
FXW model, refer to datasheet No.EDS 8-47

MODEL CODE SYMBOLS - FKB

1	2	3	4	5	6	7	8		9	10	11	12	13		DESCRIPTION		
F	K	B				V	F	-					Y				
															Type		
															Gauge pressure transmitter with remote seal - Smart, 4-20 mA + HART/Fuji Electric communication protocol		
															Conduit connection	**Enclosure type**	
			T												1/2 - 14 NPT	"L" shape	
			V												Pg13.5		
			W												M20 x 1.5		
			5												G 1/2	"T" shape	
			6												1/2 - 14 NPT		
			7												Pg13.5		
			8												M20 x 1.5		
														(*3)	**Diaphragm seal rating**		
				2											PN 25		
				4											PN 20 - 150 lbs		
				6											PN 50 - 300 lbs		
				8											PN 40		
				9											PN 16		
				L											PN 100 - 600 lbs		
				M											PN 150 - 900 lbs		
				N											PN 250 - 1500 lbs		
				P											PN 420 - 2500 lbs		
														(*1)	**Measuring range**		
					1									(*2)	0.013 to 1.3 bar		
					2									(*2)	0.05 to 5 bar		
					3										0.3 to 30 bar		
					4										1 to 100 bar		
					5									(*3)	5 to 500 bar		
						V	F	-	A						**Indicator**	**Arrester**	
						V	F	-	B					(*5)	None	None	
						V	F	-	D					(*5)	Analog, 0-100% linear scale		
						V	F	-	J					(*5)	Analog, Custom scale		
						V	F	-	E						Analog, double scale		
						V	F	-	F						None	Yes	
						V	F	-	H					(*5)	Analog, 0-100% linear scale		
						V	F	-	K					(*5)	Analog, Custom scale		
						V	F	-	L					(*5)	Analog, double scale		
						V	F	-	P						Digital, 0-100%	None	
						V	F	-	Q						Digital, Custom scale		
						V	F	-	S						Digital, 0-100%	Yes	
						V	F	-	1						Digital, Custom scale		
						V	F	-	2						Digital, 0-100% with push button	None	
						V	F	-	4						Digital, Custom scale with push button		
						V	F	-	5						Digital, 0-100% with push button	Yes	
															Digital, Custom scale with push button		
												A			**Hazardous location approvals**		
												A			None		
												X		(*7)	ATEX - Flameproof		
												K			ATEX - Intrinsic Safety		
												P			ATEX - Increased Safety		
												M		(*7)	ATEX - Combination Flameproof and Intrinsic Safety		
												E		(*7)	cCSAus - Explosion proof		
												J			cCSAus - Intrinsic Safety and Non Incendive		
												L		(*7)	cCSAus -Combination Explosion proof, Intrinsic Safety and Non Incendive		
												R		(*7)	IECEx - Flameproof		
												T			IECEx - Intrinsic Safety		
												Q			IECEx - Increased Safety		
												N		(*7)	IECEx - Combination Flameproof and Intrinsic Safety		
												W		(*7)	IECEx - ATEX - cCSAus - Explosion/Flameproof, Intrinsic Safety and Non Incendive		
														(*4)	**Mounting design**	**Ambiant temperature correction**	
													B		Capillary	Transmitter and diaphragm seal assembly	
													L	(*10)	Rigid - Long design (in line)		
													M	(*10)	Rigid - Short design (90°)		
													G		Capillary	Transmitter	
													S	(*10)	Rigid - Long design (in line)		
													T	(*10)	Rigid - Short design (90°)		
														(*6)	**Cell flange design**	**Stainless steel parts**	
															Operating pressure	**Bolts/nuts**	**Tag plate**	**Housing**
													1	Y	(*10)	p ≤ 50 bar	None	None	None
													2	Y	(*10)			Yes	
													3	Y	(*9) (*10)			None	Yes
													4	Y	(*9) (*10)			Yes	
													Y	Y		50 bar < p ≤ 500 bar	Carbon steel	None	None
													B	Y				Yes	
													C	Y	(*9)			None	Yes
													E	Y	(*9)			Yes	
													A	Y		50 bar < p ≤ 100 bar	SS 316L	None	None
													D	Y				Yes	
													F	Y	(*9)			None	Yes
													G	Y	(*9)			Yes	
													H	Y	(*8)	50 bar < p ≤ 500 bar	SS 660	None	None
													J	Y	(*8)			Yes	
													K	Y	(*8) (*9)			None	Yes
													L	Y	(*8) (*9)			Yes	

Notes* :

1- Turn down ratio of 100 is possible but span greater than 1/40 of the the URL is recommended for better performances.
2- For DN<50, please consult Fuji Electric regarding the process conditions
3- The flange rating is according to the Maximum Working Pressure. For PN > 150 bar, please consult Fuji Electric
4- For capillary version, the standard mounting bracket is provided. No mounting bracket with rigid mounting version.
5- Except digit 10 = "P", "Q"
6- Standard cell filling fluid = silicone oil. Other filling fluids upon request.
7- Only with digit 4 = "T", "W", "6", "8"
8- SS 660 bolts/nuts are in conformity with NACE MR0175/ISO 15156
9- SS 316L enclosure not available for "T" shape version
10- For rigid assembling, bolts and nuts are required. Please specify bolts and nuts material (digit 12), even if P < 50 bar

MODEL CODE SYMBOLS - FKD

1	2	3	4	5	6	7	8		9	10	11	12	13			DESCRIPTION
F	K	D				V	F	-					Y			
																Type
																Differential pressure transmitter with remote seals - Smart, 4-20 mA + HART/Fuji Electric communication protocol
																Conduit connection / **Enclosure type**
			T													1/2 - 14 NPT / "L" shape
			V													Pg13.5 / "L" shape
			W													M20 x 1.5 / "L" shape
			5													G 1/2 / "T" shape
			6													1/2 - 14 NPT / "T" shape
			7													Pg13.5 / "T" shape
			8													M20 x 1.5 / "T" shape
														(*11)		**Diaphragm seal rating**
				2												PN 25
				4												PN 20 - 150 lbs
				6												PN 50 - 300 lbs
				8												PN 40
				9												PN 16
				L												PN 100 - 600 lbs
				M												PN 150 - 900 lbs
				N										(*9)		PN 250 - 1500 lbs
				P										(*9)		PN 420 - 2500 lbs
														(*1)		**Measuring range**
					3									(*2)		3,2 to 320 mbar
					5									(*2)		0,013 to 1,3 bar
					6											0,05 to 5 bar
					8											0,3 to 30 bar
					9											2 to 200 bar
																Indicator / **Arrester**
						V	F	-	A							None / None
						V	F	-	B					(*4)		Analog, 0-100% linear scale / None
						V	F	-	C					(*4)		Analog, 0-100% √ / None
						V	F	-	D					(*4)		Analog, Custom scale / None
						V	F	-	J					(*4)		Analog, double scale / None
						V	F	-	E							None / Yes
						V	F	-	F					(*4)		Analog, 0-100% linear scale / Yes
						V	F	-	G					(*4)		Analog, 0-100% √ / Yes
						V	F	-	H					(*4)		Analog, Custom scale / Yes
						V	F	-	K					(*4)		Analog, double scale / Yes
						V	F	-	L							Digital, 0-100% / None
						V	F	-	M							Digital, 0-100% √ / None
						V	F	-	P							Digital, Custom scale / None
						V	F	-	Q							Digital, 0-100% / Yes
						V	F	-	N							Digital, 0-100% √ / Yes
						V	F	-	S							Digital, Custom scale / Yes
						V	F	-	1							Digital, 0-100% with push buttons / None
						V	F	-	2							Digital, Custom scale with push buttons / None
						V	F	-	3							Digital, 0-100% √ with push buttons / None
						V	F	-	4							Digital, 0-100% with push buttons / Yes
						V	F	-	5							Digital, Custom scale with push buttons / Yes
						V	F	-	6							Digital, 0-100% √ with push buttons / Yes
										A						**Hazardous location approvals**
										A						None
										X				(*7)		ATEX - Flameproof
										K						ATEX - Intrinsic Safety
										P						ATEX - Increased Safety
										M				(*7)		ATEX - Combination Flameproof and Intrinsic Safety
										E				(*7)		cCSAus - Explosion proof
										J						cCSAus - Intrinsic Safety and Non Incendive
										L				(*7)		cCSAus -Combination Explosion proof, Intrinsic Safety and Non Incendive
										R				(*7)		IECEx - Flameproof
										T						IECEx - Intrinsic Safety
										Q						IECEx - Increased Safety
										N				(*7)		IECEx - Combination Flameproof and Intrinsic Safety
										W				(*7)		IECEx - ATEX - cCSAus - Explosion/flameproof, Intrinsic Safety and Non Incendive
														(*3)	(*6)	**Mounting design** / **Ambiant temperature correction**
											B					Capillary on HP side / Transmitter and diaphragm seal assembly
											C					Capillary on HP & LP side / Transmitter and diaphragm seal assembly
											E				(*12)	Rigid short design on HP, capillary on LP side / Transmitter and diaphragm seal assembly
											G					Capillary on HP side / Transmitter
											H					Capillary on HP & LP side / Transmitter
															(*5)	**Cell flange design** / **Stainless steel parts**
																Operating pressure / **Bolts/nuts** / **Tag plate** / **Housing**
												1	Y		(*12)	p ≤ 50 bar / None / None / None
												2	Y		(*12)	p ≤ 50 bar / None / Yes / None
												3	Y	(*10)	(*12)	p ≤ 50 bar / None / None / Yes
												4	Y	(*10)	(*12)	p ≤ 50 bar / None / Yes / Yes
												Y	Y			50 bar < p ≤ 420 bar / Carbon steel / None / None
												B	Y			50 bar < p ≤ 420 bar / Carbon steel / Yes / None
												C	Y		(*10)	50 bar < p ≤ 420 bar / Carbon steel / None / Yes
												E	Y		(*10)	50 bar < p ≤ 420 bar / Carbon steel / Yes / Yes
												A	Y			50 bar < p ≤ 160 bar / SS 316L / None / None
												D	Y			50 bar < p ≤ 160 bar / SS 316L / Yes / None
												F	Y		(*10)	50 bar < p ≤ 160 bar / SS 316L / None / Yes
												G	Y		(*10)	50 bar < p ≤ 160 bar / SS 316L / Yes / Yes
												H	Y		(*8)	50 bar < p ≤ 420 bar / SS 660 / None / None
												J	Y		(*8)	50 bar < p ≤ 420 bar / SS 660 / Yes / None
												K	Y	(*8)	(*10)	50 bar < p ≤ 420 bar / SS 660 / None / Yes
												L	Y	(*8)	(*10)	50 bar < p ≤ 420 bar / SS 660 / Yes / Yes

Notes* :

1- Turn down ration of 100 is possible but span greater than 1/40 of the the URL is recommended for better performances.
2- For DN<50, please consult Fuji Electric regarding the process conditions
3- For capillary version, the standard mounting bracket is provided. No mounting bracket with rigid mounting version.
4- Except Digit 10 = "P", "Q"
5- Standard cell filling fluid = silicone oil. Other filling fluids upon request.
6- Temperature correction must be done when diaphragm seals or capillarity lengths are different between HP and LP
7- Only with Digit 4 = "T", "W", "6", "8"
8- SS 660 bolts/nuts are in conformity with NACE MR0175/ISO 15156
9- High static pressure cell is mandatory.
10- SS 316L enclosure not available for "T" shape version
11- The flange rating is according to the Maximum Working Pressure
12- For rigid assembling, bolts and nuts are required. Please specify bolts and nuts material (digit 12), even if P < 50 bar

MODEL CODE SYMBOLS - FKM

1	2	3	4	5	6	7	8		9	10	11	12	13		DESCRIPTION
F	K	M				V	F	-					Y		
															Type
															Absolute pressure transmitter with remote seal - Smart, 4-20 mA + HART/Fuji Electric communication protocol
															Conduit connection / **Enclosure type**
			T												1/2 - 14 NPT / "L" shape
			V												Pg13.5 / "L" shape
			W												M20 x 1.5 / "L" shape
			5												G 1/2 / "T" shape
			6												1/2 - 14 NPT / "T" shape
			7												Pg13.5 / "T" shape
			8												M20 x 1.5 / "T" shape
														(*9)	**Diaphragm seal rating**
				2											PN 25
				4											PN 20 - 150 lbs
				6											PN 50 - 300 lbs
				8											PN 40
				9											PN 16
														(*1)	**Measuring range**
					1									(*2)	0.016 to 0.16 bar abs
					2									(*2)	0.013 to 1.3 bar abs
					3										0.05 to 5 bar abs
					4										0.3 to 30 bar abs
					5										1 to 100 bar abs
															Indicator / **Arrester**
						V	F	-	A						None / None
						V	F	-	B					(*4)	Analog, 0-100% linear scale / None
						V	F	-	D					(*4)	Analog, Custom scale / None
						V	F	-	J					(*4)	Analog, double scale / None
						V	F	-	E						None / Yes
						V	F	-	F					(*4)	Analog, 0-100% linear scale / Yes
						V	F	-	H					(*4)	Analog, Custom scale / Yes
						V	F	-	K					(*4)	Analog, double scale / Yes
						V	F	-	L						Digital, 0-100% / None
						V	F	-	P						Digital, Custom scale / None
						V	F	-	Q						Digital, 0-100% / Yes
						V	F	-	S						Digital, Custom scale / Yes
						V	F	-	1						Digital, 0-100% with push buttons / None
						V	F	-	2						Digital, Custom scale with push buttons / None
						V	F	-	4						Digital, 0-100% with push buttons / Yes
						V	F	-	5						Digital, Custom scale with push buttons / Yes
										A					**Hazardous location approvals**
										A					None
										X				(*6)	ATEX - Flameproof
										K					ATEX - Intrinsic Safety
										P					ATEX - Increased Safety
										M				(*6)	ATEX - Combination Flameproof and Intrinsic Safety
										E				(*6)	cCSAus - Explosion proof
										J					cCSAus - Intrinsic Safety and Non Incendive
										L				(*6)	cCSAus -Combination Explosion proof, Intrinsic Safety and Non Incendive
										R				(*6)	IECEx - Flameproof
										T					IECEx - Intrinsic Safety
										Q					IECEx - Increased Safety
										N				(*6)	IECEx - Combination Flameproof and Intrinsic Safety
										W				(*6)	IECEx - ATEX - cCSAus - Explosion/flameproof, Intrinsic Safety and Non Incendive
														(*3)	**Mounting design** / **Ambiant temperature correction**
											B				Capillary / Transmitter and diaphragm seal assembly
											L			(*10)	Rigid - Long design (in line) / Transmitter and diaphragm seal assembly
											M			(*10)	Rigid - Short design (90°) / Transmitter and diaphragm seal assembly
											G				Capillary / Transmitter
											S			(*10)	Rigid - Long design (in line) / Transmitter
											T			(*10)	Rigid - Short design (90°) / Transmitter
														(*5)	**Cell flange design** / **Stainless steel parts**
															Operating pressure / **Bolts/nuts** / **Tag plate** / **Housing**
												1	Y	(*10)	p ≤ 50 bar / None / None / None
												2	Y	(*10)	p ≤ 50 bar / None / Yes / None
												3	Y	(*8)(*10)	p ≤ 50 bar / None / None / Yes
												4	Y	(*8)(*10)	p ≤ 50 bar / None / Yes / Yes
												Y	Y		50 bar < p ≤ 100 bar / Carbon steel / None / None
												B	Y		50 bar < p ≤ 100 bar / Carbon steel / Yes / None
												C	Y	(*8)	50 bar < p ≤ 100 bar / Carbon steel / None / Yes
												E	Y	(*8)	50 bar < p ≤ 100 bar / Carbon steel / Yes / Yes
												A	Y		50 bar < p ≤ 100 bar / SS 316L / None / None
												D	Y		50 bar < p ≤ 100 bar / SS 316L / Yes / None
												F	Y	(*8)	50 bar < p ≤ 100 bar / SS 316L / None / Yes
												G	Y	(*8)	50 bar < p ≤ 100 bar / SS 316L / Yes / Yes
												H	Y	(*7)	50 bar < p ≤ 100 bar / SS 660 / None / None
												J	Y	(*7)	50 bar < p ≤ 100 bar / SS 660 / Yes / None
												K	Y	(*7)(*8)	50 bar < p ≤ 100 bar / SS 660 / None / Yes
												L	Y	(*7)(*8)	50 bar < p ≤ 100 bar / SS 660 / Yes / Yes

Notes* :

1- Turn down ration of 100 is possible but span greater than 1/40 of the the URL is recommended for better performances.
2- Please consult Fuji Electric regarding the process conditions
3- For capillary version, the standard mounting bracket is provided. No mounting bracket with rigid mounting version.
4- Except Digit 10 = "P", "Q"
5- Standard cell filling fluid = silicone oil. Other filling fluids upon request.
6- Only with Digit 4 = "T", "W", "6", "8"
7- SS 660 bolts/nuts are in conformity with NACE MR0175/ISO 15156
8- SS 316L enclosure not available for "T" shape version
9- The flange rating is according to the Maximum Working Pressure
10- For rigid assembling, bolts and nuts are required. Please specify bolts and nuts material (digit 12), even if P < 50 bar

SEAL DIAPHRAGMS

Fuji Electric seal diaphragms are dedicated to accurately measure level and density on open and closed tanks, flow and line pressure in pipes in heavy process conditions.
The use of remote seal diaphragms avoids the measuring cell to be directly in contact with the process conditions.
The various diaphragm architectures and the welded seal construction provide to the Fuji Electric remote seal diaphragm offer an excellent reliability in harsh processing conditions such as high static pressure, temperature or corrosiveness as weel as viscous, crystallizable or abrasive process.

FEATURES

1- Construction

Connection of the remote seal to the measuring cell diaphragms can be done either by a rigid (direct) or capillary architectures.
The full welded Fuji Electric design allows a free of gasket path between the remote seal and the differential, gauge or absolute measuring cell of the FCX-AII V5 pressure transmitters.
Depending the nature of the process, specific filling fluids are available to ensure the optimal transmission of the process pressure to the measuring cell.

2- Operating principle

The pressure is applied on the remote seal and transferred by the filling fluid through the capillary path to the measuring cell of the pressure transmitter.

3- Wide variety of materials selection

Depending the process conditions, wetted or non-wetted parts and filling fluids can be selected thanks to the model code definition.
Wetted parts :
AISI 316L, Tantalum, Hastelloy, Monel, Titanum, Zirconium, AISI 316L with Gold or PFA coating.
Non wetted parts :
AISI 316L
Filling fluids :
Standard silicone, fluorinated, alimentary, high temperature, and vacuum specific oils.
For specific process conditions, please consult Fuji Electric.

4- Diaphragm seal types

According to the mounting and operating conditions different seal types can be useful :
Flush mounting design from DN40 to DN100.
Seals with extensions (50 to 200 mm).
Flanged, screwed or welded neck adapters
Seals for sanitary applications according DIN, SMS or Tri-Clamp standards.
For specifics seals, please consult Fuji Electric.

FUNCTIONAL SPECIFICATIONS

Remote seal diaphragm assembling :

The remote seal can be assembled on the transmiter either by a direct (rigid) connection (as for level measurement at the bottom of a tank) or by capillary (distant measuring point, high temperature process).
The rigid assembling can be either “long design” (in line) or “short design” (90°) as shown in the outline dimension drawings.

	Rigid mounting	Capillary mounting
FKB	short or long design	HP side
FKM	short or long design	HP side
FKD	Refer to FKR level transmitter technical datasheet	HP and LP side HP side LP side

Capillary tube specifications :

Standard capillary lengthes :
1.5 / 3 / 6 m (other upon request)
Inside diameter :
1 mm standard
2 mm for vacuum service, high process temperature applications, short response time requirements
Smallest bending radius of the capillary : 100 mm

Capillary tube shealding possibilities :

Temperature limit :
PVC sleeve :
-10 to 80°C
Stainless steel sheald :
-40 to 350°C

Process connection possibilities :

The remote seal diaphragms can be :
- For flush mounting
- With extension
- With mounting adapters mounting (flanged, screwed or welded neck).

The mounting adapter is dedicated to either adapt the remote seal to a specific process connection or increase the sensibilty of the transmitter with special process conditions.

Temperature limits :

Ambiant temperature :

-40 to 85°C for transmitter

Process temperature :

-40 to 150°C for rigid mounting, 0 to 350°C for capillary design, and high temperature filling fluid.

Pressure limits :

Working pressure :

Limited by by the smallest value between the nominal flange rating of the seal diaphragm and the maximum working pressure of the transmitter.

Vacuum limit :

Depends on the limit of the measuring cell and the filling fluid of the remote seal. For the differential or gauge pressure transmitter, the vacuum limit is 20 Torr or 27 mbar abs.

Only the absolute pressure transmitter can be used till absolute zero (FKM).

For process pressure < 20 Torr, please consult Fuji Electric.

PERFORMANCE SPECIFICATIONS

To evaluate the global performances, both the transmitter and the remote seal diaphragm performances must be considered under the reference conditions : standard silicone oil filling, SS 316L seal diaphragm, 4-20 mA output in linear mode.

Accuracy :

Assembling 1 or 2 remote seal diaphragms on a transmitter increases the accuracy error at reference conditions by 0,1% of the span.

Ambiant temperature effect :

Effect when only transmitter is corrected.
(See digit 11 code G, S, T of the FKB and FKM model codes and code G, H of the FKD model code).

Transmitters / Seals	Effect (mbar/10°C)			
	FKB/FKM Gauge / Abs. pressure	Capillary (m)	FKD Differential pressure	Capillary (m)
DN 50 / 2" - SS 316L diaphragm	2.03	1.5	0.48	0.32
DN 80 / 3" - SS 316L diaphragm	0.11	0.08	0.04	0.03
DN80 / 3" - other diaphragm materials	0.22	0.2	0.05	0.07
DN100 / 4" - SS 316L diaphragm	0.04	0.03	0.02	0.01
Adaptor - SS 316L diaphragm	0.11	0.08	0.04	0.03

Note : the indicated values are in mbar/10°C for capillary length of 1m and internal capillary tube ø of 1 mm

Effect when both the transmitter and the seal assembly are corrected. (See codes B,C,L,M digit 11 of the FKB, FKD and FKM model codes).

The correction of the zero drift can be done at factory level on the complete system (transmitter and remote seals) by an additional temperature correction operation..

A thermal isolation or a heating of the capillaries minimises the ambient temperature effect.

Process temperature effect :

Transmitters / Seals	Effect (mbar/10°C)	
	FKB/FKM Gauge/absolute pressure	FKD differential pressure
DN50 / 2" SS 316L diaphragm	1.24	0.5
DN80 / 3" SS 316L diaphragm	0.17	0.09
DN80 / 3" other diaphragm materials	0.73	0.22
DN100 / 4" SS 316L diaphragm	0.08	0.05
Adaptor SS 316L diaphragm	0.17	0.09

Static pressure effect for ΔP transmitter with stainless steel diaphragms (FKD transmitter with DN80 and DN100 seals) :

Zero shift :

± 0,2% of URL for flange rating, up to 40 bar or 300 lbs

Response time : (mean values)

Oil filling	Code digit 7	Response time	
		0 to 320 mbar	0 to 1.3 bar
Std silicone oil	Y, G	0.15	0.037
Fluorinated oil	W,A,D	0.17	0.04
Oil for vaccum or high temperature	U, X	0.25	0.065

The indicated values are in seconds per meter of capillary length with internal tube diameter Ø 1 mm.

The indicated response time is based on a pressure change of 0 to 100% of the calibrated span at reference temperature of 20°C.

The indicated values do not include the response time of the transmitter.

Filling fluid of the diaphragm seals :

Code digit 7	Designation	Temperature resistance (°C)		Density (25°C)
		P abs ≥ 1 bar	P abs < 1 bar	
Y	Silicone oil	-40 to 180	-40 to 120	0.95
W	Fluorinated oil	-20 to 200	-20 to 120	1.84
F	Sanitary fill fluide	-10 to 250	-10 to 120	0.94
V	Silicone oil		20 to 200	1.07
U	Silicone oil	0 to 300	20 to 200	1.07
X	Silicone oil	-10 to 350	20 to 200	1.09

The indicated values and limits are indicated for the most common applications (standard filling fluids).

Please consult Fuji Electric for special applications indicating your temperature, pressure and vacuum conditions (vacuum and temperature can occure together).

Other filling fluids can be used for your applications.

MODEL CODE SYMBOLS - S

1	2	3	4	5	6	7		8			DESCRIPTION		
S							-				**Remote seal diaphragms**		
											Flange / Capillary connection		
	A										Axial		
	R										Radial - Not possible with rigid assembling design (digit 6 = "R")		
	W										Wafer type - Not possible with rigid assembling design (digit 6 ="R")		
										(*1)	**Flanges RF (flange size and rating)**		
		4									ANSI-150 Lbs 3" / ISO PN20 DN80		
		5									ANSI-150 Lbs 4" / ISO PN20 DN100		
		6									ANSI-300 lLbs 3" / ISO PN50 DN80		
		7									ANSI-300 Lbs 4" / ISO PN50 DN100		
		8									DIN PN40 DN80		
		9									DIN PN16 DN100		
		H								(*2)	ANSI-150 lbs 2" / ISO PN20 DN50		
		J								(*2)	ANSI-300 lbs 2" / ISO PN50 DN50		
		G								(*2)	DIN PN40 DN50		
		K								(*11)	G 2" screwed seal		
		L								(*11)	G 1 1/2" screwed seal		
		U									PN25 DN50 - coupling nuts	DIN 11851	Digit 4 = "V" only
		V									PN40 DN50 - coupling nuts	SMS	Digit 4 = "V" only
		W									PN40 DN50 - seal only	Clamp	Digit 4 = "V" only
		X									No dead volume	Sanitary	Digit 4 = "V" only
		A								(*3)	Flange adapter PN40 DN25		Digit 4 = "V" only - others upon request
		B								(*3)	Flange adapter ISO PN20 DN25 (1"-150 ANSI)		Digit 4 = "V" only - others upon request
		C								(*3)	Flange adapter ISO PN50 DN25 (1"- 300 ANSI)		Digit 4 = "V" only - others upon request
		D								(*3)	Flange adapter PN40 DN40		Digit 4 = "V" only - others upon request
		E								(*3)	Flange adapter ISO PN20 DN40 (1"1/2 - 150 ANSI)		Digit 4 = "V" only - others upon request
		F								(*3)	Flange adapter ISO PN50 DN40 (1"1/2 - 300 ANSI)		Digit 4 = "V" only - others upon request
		S								(*3)	Screwed 1/2 NPTE		Digit 4 = "V" only - others upon request
		T								(*3)	To be welded (2"1/2 pipe)		Digit 4 = "V" only - others upon request

											Seal diaphragm design		
											Diaphragm	**Seal land surface**	**Flange**
			V							(*4)	SS 316L	SS 316L	SS 316L
			H								Hastelloy-C	Hastelloy-C	
			B								Monel	Monel	
			T								Tantalum	Tantalum	
			P							(*9)	Titanium	Titanium	
			R							(*9)	Zirconium	Zirconium	
			C								SS 316L + gold coating	SS 316L	
			F							(*5)	SS 316L + PFA lining	SS 316L + PFA lining	

											Seal diaphragm design	
										Y		Flush mounting
										A	(*6)	Diaphragm extension 50 mm — Digit 4 = "V"
										B	(*6)	Diaphragm extension 100 mm — Digit 4 = "V"
										C	(*6)	Diaphragm extension 150 mm — Digit 4 = "V"
										D	(*6)	Diaphragm extension 200 mm — Digit 4 = "V"
										E	(*6)	Diaphragm extension 50 mm — Digit 4 = "H"
										F	(*6)	Diaphragm extension 100 mm — Digit 4 = "H"
										G	(*6)	Diaphragm extension 150 mm — Digit 4 = "H"
										H	(*6)	Diaphragm extension 200 mm — Digit 4 = "H"
										J	(*6)	Diaphragm extension 50 mm — Digit 4 = "B"
										K	(*6)	Diaphragm extension 100 mm — Digit 4 = "B"
										L	(*6)	Diaphragm extension 150 mm — Digit 4 = "B"
										M	(*6)	Diaphragm extension 200 mm — Digit 4 = "B"
										P	(*6)	Diaphragm extension 50 mm — Digit 4 = "T"
										R	(*6)	Diaphragm extension 100 mm — Digit 4 = "T"
										S	(*6)	Diaphragm extension 150 mm — Digit 4 = "T"
										T	(*6)	Diaphragm extension 200 mm — Digit 4 = "T"

											Remote seal assembling characteristics		
											Mounting assembly	**Length**	**Protection**
										A	Capillary	1,5 m	PVC sleeve
										B		3 m	
										C		6 m	
										D		Upon request	
										G		1,5 m	Stainless steel sleeve
										H		3 m	
										K		6 m	
										L		Upon request	
										R	Rigid assembly for FKB, FKD & FKM - Not possible with digit 2 = "R", "W" - Maximum process temperature: 150 °C		
										R	Rigid assembly for FKP & FKH - Not possible with digit 2 = "R", "W" - Maximum process temperature: 150 °C		

											Specific applications and filling fluids for the remote seal	
											Treatment	**Filling fluids**
										Y	None (standard)	Silicone oil
										W	None (standard)	Fluorinated oil
										F	None (standard)	Sanitary fill fluid
										D	Chlorine service	Fluorinated oil
										G	Degreasing	Silicone oil
										A	Oxygen service	Fluorinated oil - Digit 4 = "V" only
										N	NACE MR 0175 / ISO 15156	Silicone oil
										V	Vacuum service - maximum T° 200°C	Silicone oil
										U	(*8) Very high temperature (0 to 300°C) - No vacuum	
										X	(*8) Very high temperature (20 to 350°C) - No vacuum	

											Special options
								-	*	(*10)	Special, no code available

* Notes :

1- Standard seal land surface finishing (stock finish). Other finishing (recess, groove…) : please consult Fuji Electric.
For material codes H, B, T, P, R, F : smooth finishing
2- Only available for P > 1 bar. Please consult Fuji Electric regarding the process conditions
3- Only for axial seal diaphragm connection - No extension possible
4- SS 316L for DN50, 80, 100 and flange adapter
5- Not possible with digit 7 = "V", "U" and "X"
6- All wetted parts in the same material (diaphragm, extension and seal land surface). Available for digit 3 = 4, 5, 6, 7, 8, 9, H, J, G - Other remote seal on demand
7- Vacuum service and high temperature > 120 °C : internal capillary diameter = 2 mm
8- Please consult Fuji Electric regarding the process conditions (minimum pressure, maximum temperature)
9- Maximum process temperature : 150°C
10- When no code can be found in the current model code, place "*" in the corresponding digit code as well as in the 16th digit
11- Only for FKP, FKH and rigid assembly. P > 1.3 bar

ELECTROMAGNETIC COMPATIBILITY

All FCX-AII series of pressure transmitters are in conformity with the provision of the EMC Directive 2014/30/EU on the harmonization of the laws of the Members States relating to electromagnetic compatibility.

All these models of pressure transmitters are in accordance with the following harmonized standards :

• **EN 61326-1** *(Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements).*

• **EN 61326-2-3** *(Particular requirements - Test configuration, operational conditions and performance criteria for tranducers with integrated or remote signal conditioning).*

Emission limits (according to EN 55011 / CISPR 11, Group 1 Class A)

Frequency range (MHz)	Limits	Result
30 to 230	40 dB (µV/m) quasi peack, measured at 10 m distance	Passed
230 to 1000	47 dB (µV/m) quasi peack, measured at 10 m distance	

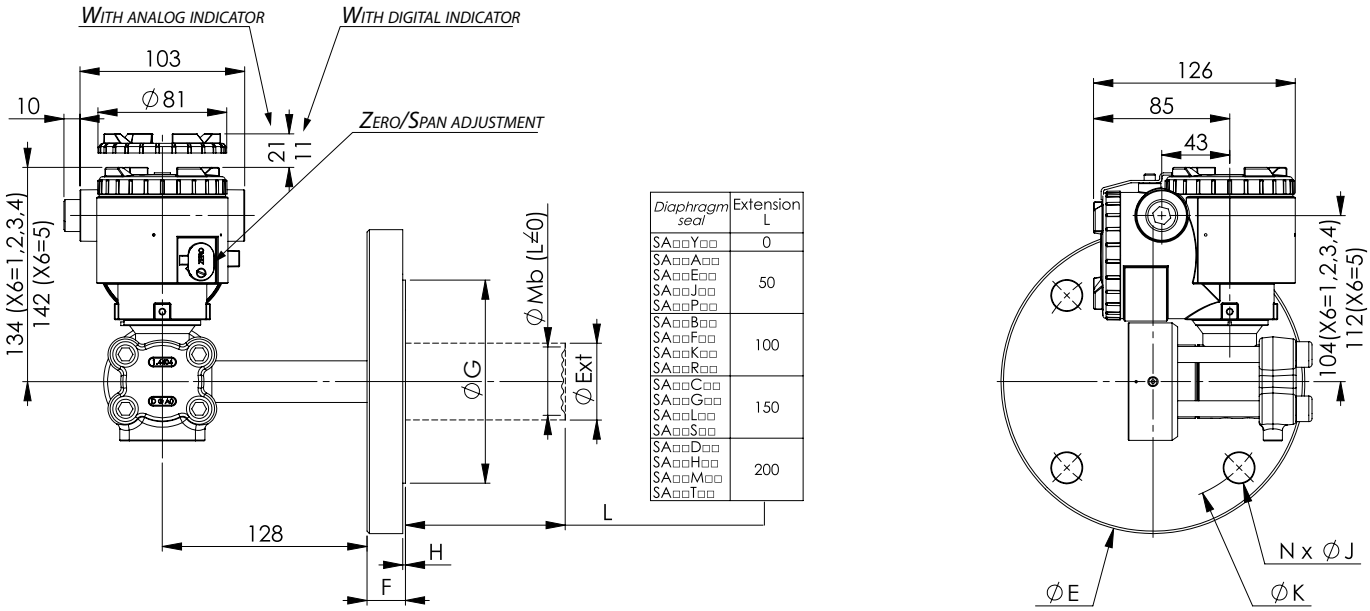
Immunity

Phenomenon	Test value	Standard	Required Performance criteria	Result of criteria
Electrostatic Discharge	±4 kV (Contact) ±8 kV (Air)	EN/IEC 61000-4-2	**B**	**A**
Radiated, Electromagnetic Field	10 V/m (0.08 to 1.0 GHz) 3 V/m (1.4 to 2.0 GHz) 1 V/m (2.0 to 2.7 GHz)	EN/IEC 61000-4-3	**A**	**A**
Fast transients (burst)	2 kV (5/50 ns, 5 kHz	EN/IEC 61000-4-4	**B**	**A**
Surge Transients	1 kV Line to line 2 kV Line to ground	EN/IEC 61000-4-5	**B**	**A**
Conducted RF Disturbances	3 Vrms (150 kHz to 80 MHz) 80% AM @ 1 kHz	EN/IEC 61000-4-6	**A**	**A**
Power Frequency Magnetic Field	30 A/m (50 Hz, 60 Hz)	EN/IEC 61000-4-8	**A**	**A**

Performance criteria (A & B): according to IEC 61326

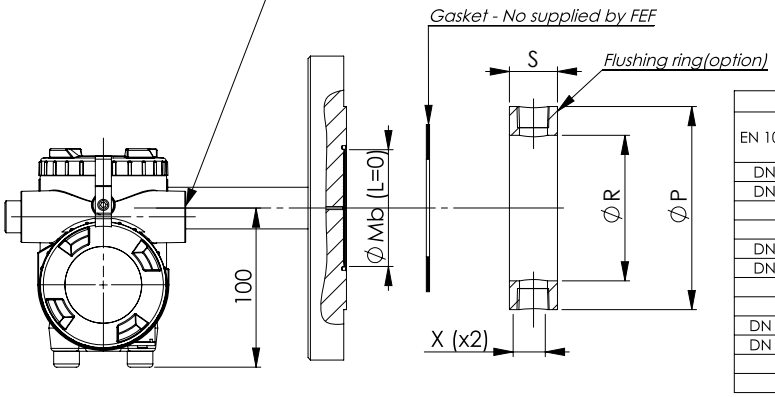
OUTLINE DIMENSIONS FOR RIGID MOUNTED DIAPHRAGM SEAL ON A GAUGE OR AN ABSOLUTE PRESSURE TRANSMITTER (units : mm) - Dimensions of seals - Refer to page 18 and 19

Short mounting design



Diaphragm seal	Extension L
SA□□Y□□	0
SA□□A□□ SA□□E□□ SA□□J□□ SA□□P□□	50
SA□□B□□ SA□□F□□ SA□□K□□ SA□□R□□	100
SA□□C□□ SA□□G□□ SA□□L□□ SA□□S□□	150
SA□□D□□ SA□□H□□ SA□□M□□ SA□□T□□	200

code X4	CONDUIT CONNECTION
T	1/2 - 14 NPT
V	Pg 13,5
W	M20 X 1,5



WEIGHT :

TRANSMITTER ONLY : - 4 KG (WITHOUT OPTION)

ADD : - FLANGES WEIGHT (SEE TABLE)
- 0,3 KG FOR INDICATOR OPTION
- 2 KG FOR STAINLESS STEEL HOUSING OPTION

FLUSHING RINGS DIMENSIONS

EN 1092-1	EN 1759-1	TROUS / HOLES X	ØP	ØR	S
DN 50		1/4-18 NPT	102	70	30
DN 50		1/2-14 NPT	102	70	30
	NPS 2"	1/4-18 NPT	92	70	30
	NPS 2"	1/2-14 NPT	92	65	30
DN 80		1/4-18 NPT	138	91	30
DN 80		1/2-14 NPT	138	91	30
	NPS 3"	1/2-14 NPT	127	91	30
	NPS 3"	1/4-18 NPT	127	91	30
DN 100		1/4-18 NPT	162	116	30
DN 100		1/2-14 NPT	162	116	30
	NPS 4"	1/4-18 NPT	157	116	30
	NPS 4"	1/2-14 NPT	157	116	30

ØMb = Ø diaphragm
ØExt = extension
Wetted parts material

FLANGES DIMENSIONS ACCORDING TO EN 1092-1 & EN 1759-1										SS 316L		Exotic material	
diaphragm seal	EN 1092-1	EN 1759-1	ØE	F min	ØG	H	N x ØJ	ØK	Weight (kg)	L=0 ØMb	L≠0 ØExt=ØMb	L=0 ØMb	L≠0 ØExt(ØMb)
SAG□□□□	DN50 PN40		165	20	102	2	4 x 18	125	3,3	59	48	59	48,3 (47)
SAH□□□□		2" CLASS 150	152	21	92	1,6	4 x 19	120,6	2,7	59	48	59	48,3 (47)
SAJ□□□□		2" CLASS 300	165	22,5	92	1,6	8 x 19	127	3.7	59	48	59	48,3 (47)
SA8□□□□	DN80 PN40		200	24	138	2	8 x 18	160	5,8	73	73	89	76 (72)
SA4□□□□		3" CLASS 150	190	24	127	1,6	4 x 19	152,4	5,3	73	73	89	76 (72)
SA6□□□□		3" CLASS 300	210	28,5	127	1,6	8 x 22,2	168,3	7,8	73	73	89	76 (72)
SA9□□□□	DN100 PN16		220	22	158	2	8 x 18	180	5,9	96	96	89	94 (89)
SA5□□□□		4" CLASS 150	229	24	157	1,6	8 x 19	190,5	7,7	96	96	89	94 (89)
SA7□□□□		4" CLASS 300	254	32	157	1,6	8 x 22,2	200	12,7	96	96	89	94 (89)

X_1 X_2 X_3 X_4 X_5 X_6 X_7 X_8 - X_9 X_{10} X_{11} X_{12} X_{13}

F K B □□□ V F - □□□□ Y

X_{11} = M, T

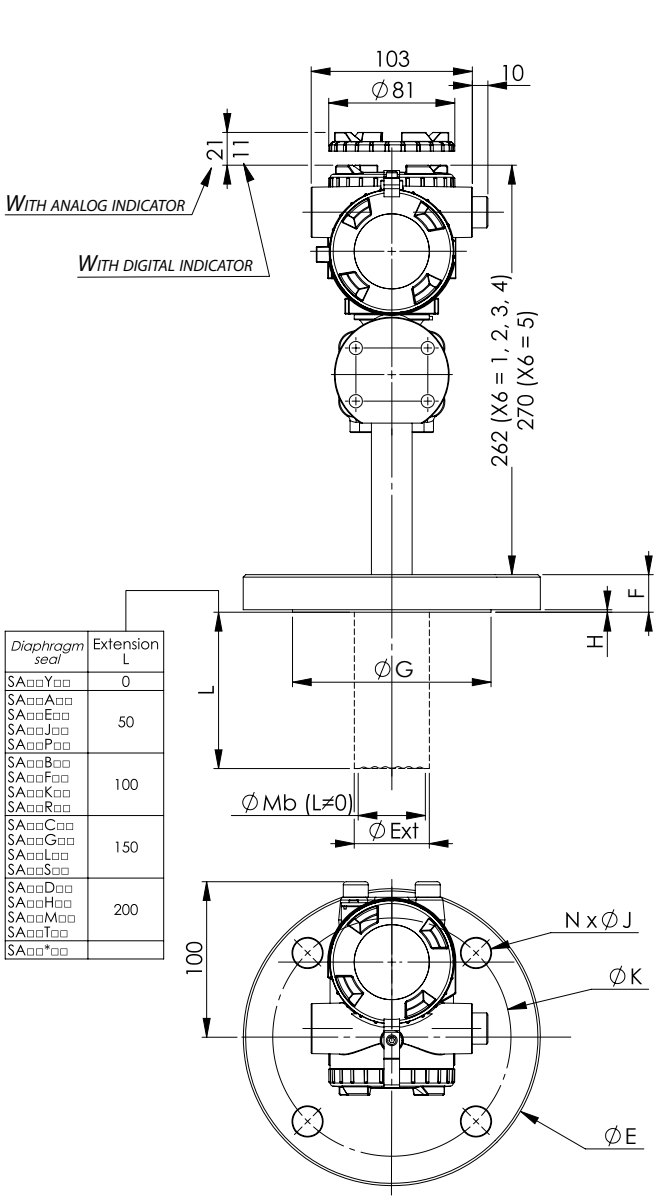
Seal diaphragm

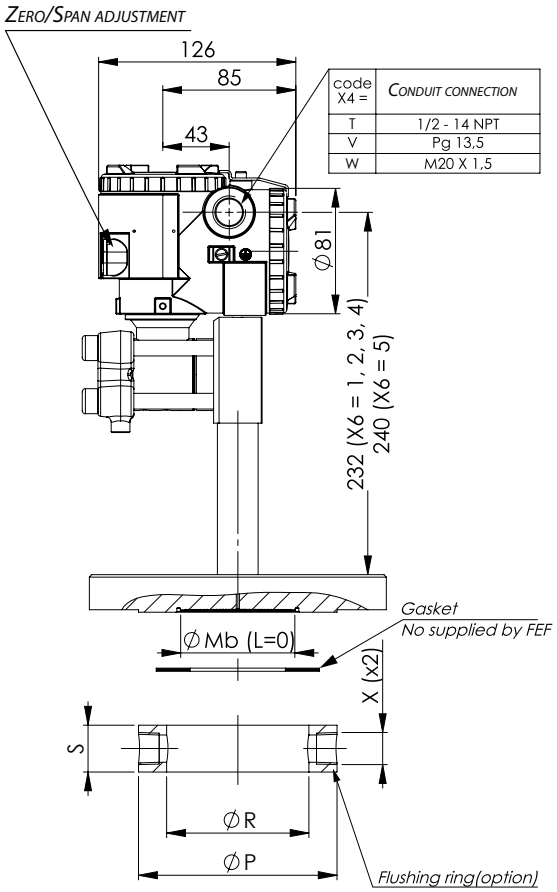
X_1 X_2 X_3 X_4 X_5 X_6 X_7

S A □□□ R □

	SPAN LIMIT	
	Min.	Max.
FKB□□1	1,3 kPa (0,013 bar)	100 kPa (1,3 bar)
FKB□□2	5 kPa (0,05 bar)	500 kPa (5 bar)
FKB□□3	30 kPa (0,3 bar)	3 MPa (30 bar)
FKB□□4	100 kPa (1 bar)	10 MPa (100 bar)
FKB□□5	500 kPa (5 bar)	50 MPa (500 bar)

Long mounting design





code X4 =	CONDUIT CONNECTION
T	1/2 - 14 NPT
V	Pg 13,5
W	M20 X 1,5

Diaphragm seal	Extension L
SA□□Y□□	0
SA□□A□□ SA□□E□□ SA□□J□□ SA□□P□□	50
SA□□B□□ SA□□F□□ SA□□K□□ SA□□R□□	100
SA□□C□□ SA□□G□□ SA□□L□□ SA□□S□□	150
SA□□D□□ SA□□H□□ SA□□M□□ SA□□T□□	200
SA□□*□□	

FLUSHING RINGS DIMENSIONS

EN 1092-1	EN 1759-1	HOLES X	ØP	ØR	S
DN 50		1/4-18 NPT	102	70	30
DN 50		1/2-14 NPT	102	70	30
	NPS 2"	1/4-18 NPT	92	65	30
	NPS 2"	1/2-14 NPT	92	65	30
DN 80		1/4-18 NPT	138	91	30
DN 80		1/2-14 NPT	138	91	30
	NPS 3"	1/2-14 NPT	127	91	30
	NPS 3"	1/4-18 NPT	127	91	30
DN 100		1/4-18 NPT	162	116	30
DN 100		1/2-14 NPT	162	116	30
	NPS 4"	1/4-18 NPT	157	116	30
	NPS 4"	1/2-14 NPT	157	116	30

FLANGES DIMENSIONS ACCORDING TO EN 1092-1 & EN 1759-1

diaphragm seal	EN 1092-1	EN 1759-1	ØE	F min	ØG	H	N x ØJ	ØK	Weight (kg)	SS 316L L=0 ØMb	SS 316L L≠0 ØExt=ØMb	Exotic material L=0 ØMb	Exotic material L≠0 ØExt(ØMb)
SAG□□□□	DN50 PN40		165	20	102	2	4 x 18	125	3,3	59	48	59	48,3 (47)
SAH□□□□		2" CLASS 150	152	21	92	1,6	4 x 19	120,6	2,7	59	48	59	48,3 (47)
SAJ□□□□		2" CLASS 300	165	22,5	92	1,6	8 x 19	127	3.7	59	48	59	48,3 (47)
SA8□□□□	DN80 PN40		200	24	138	2	8 x 18	160	5,8	73	73	89	76 (72)
SA4□□□□		3" CLASS 150	190	24	127	1,6	4 x 19	152,4	5,3	73	73	89	76 (72)
SA6□□□□		3" CLASS 300	210	28,5	127	1,6	8 x 22,2	168,3	7,8	73	73	89	76 (72)
SA9□□□□	DN100 PN16		220	22	158	2	8 x 18	180	5,9	96	96	89	94 (89)
SA5□□□□		4" CLASS 150	229	24	157	1,6	8 x 19	190,5	7,7	96	96	89	94 (89)
SA7□□□□		4" CLASS 300	254	32	157	1,6	8 x 22,2	200	12,7	96	96	89	94 (89)

Wetted parts material

ØMb = *Ø diaphragm*

ØExt = extension

WEIGHT :

TRANSMITTER ONLY : - *4 KG (WITHOUT OPTION)*

ADD : - *FLANGES WEIGHT (SEE TABLE)*

- *0,3 KG FOR INDICATOR OPTION*
- *2 KG FOR STAINLESS STEEL HOUSING OPTION*

X_1 X_2 X_3 X_4 X_5 X_6 X_7 X_8- X_9 $X_{10}$$X_{11}$$X_{12}$$X_{13}$

F K B □□□ V F -□□□□□ Y

X_{11} = L, S

Seal diaphragm :

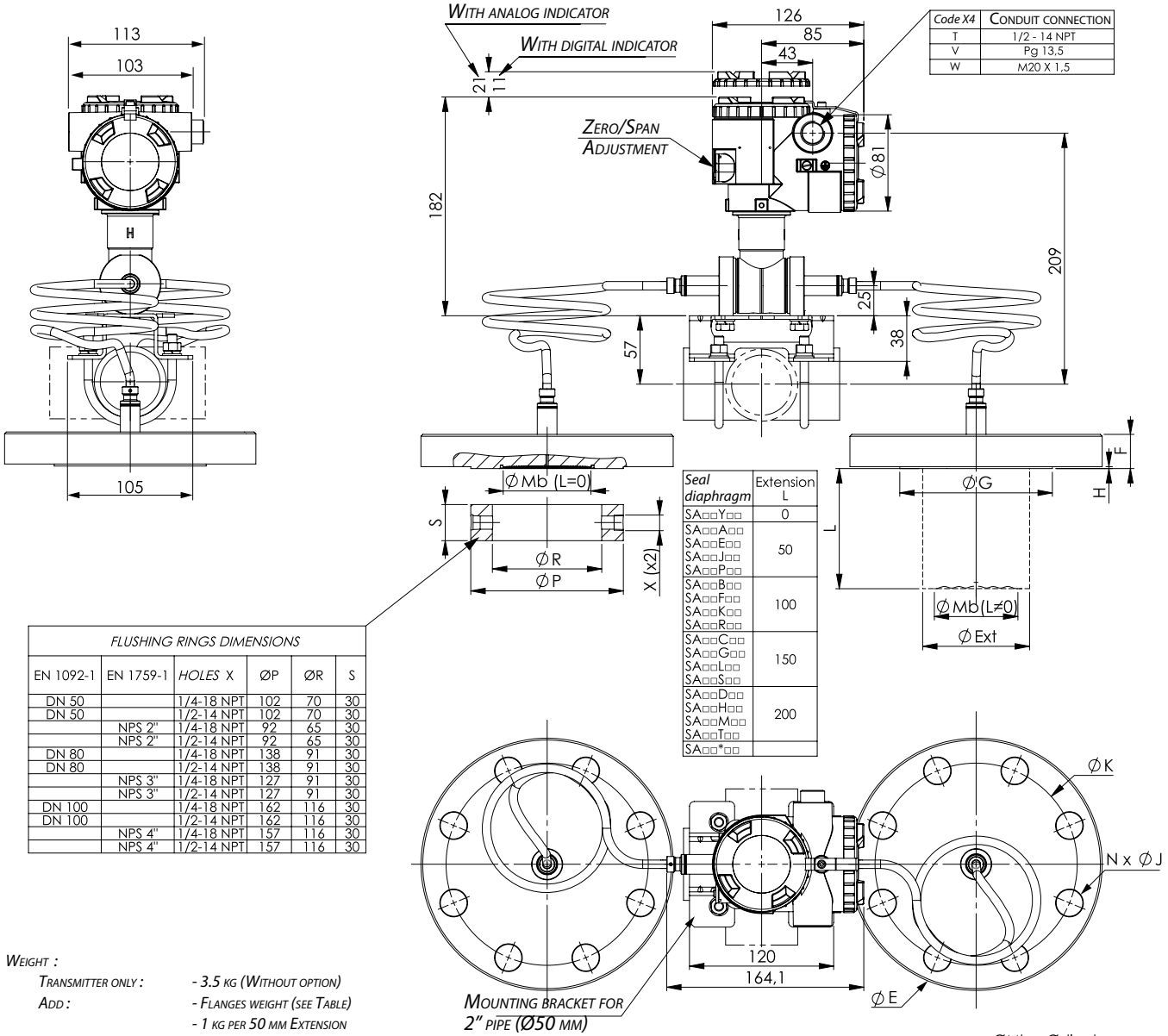
X_1 X_2 X_3 X_4 X_5 X_6 X_7

S A □□□□□

	SPAN LIMIT Min.	SPAN LIMIT Max.
FKB□□1	1,3 kPa (0,013 bar)	100 kPa (1,3 bar)
FKB□□2	5 kPa (0,05 bar)	500 kPa (5 bar)
FKB□□3	30 kPa (0,3 bar)	3 MPa (30 bar)
FKB□□4	100 kPa (1 bar)	10 MPa (100 bar)
FKB□□5	500 kPa (5 bar)	50 MPa (500 bar)

OUTLINE DIMENSIONS FOR CAPILLARY MOUNTED DIAPHRAGM SEAL(S) ON A DIFFERENTIAL PRESSURE TRANSMITTER (units : mm) - Dimensions of seals - Refer to page 18 and 19

For PN ≤ 50bar : reduced volume flanges are welded on the measuring cell



Code X4	CONDUIT CONNECTION
T	1/2 - 14 NPT
V	Pg 13,5
W	M20 X 1,5

Seal diaphragm	Extension L
SA□□Y□□	0
SA□□A□□ SA□□E□□ SA□□J□□ SA□□P□□	50
SA□□B□□ SA□□F□□ SA□□K□□ SA□□R□□	100
SA□□C□□ SA□□G□□ SA□□L□□ SA□□S□□	150
SA□□D□□ SA□□H□□ SA□□M□□ SA□□T□□	200
SA□□*□□	

FLUSHING RINGS DIMENSIONS					
EN 1092-1	EN 1759-1	HOLES X	ØP	ØR	S
DN 50		1/4-18 NPT	102	70	30
DN 50		1/2-14 NPT	102	70	30
	NPS 2"	1/4-18 NPT	92	65	30
	NPS 2"	1/2-14 NPT	92	65	30
DN 80		1/4-18 NPT	138	91	30
DN 80		1/2-14 NPT	138	91	30
	NPS 3"	1/4-18 NPT	127	91	30
	NPS 3"	1/2-14 NPT	127	91	30
DN 100		1/4-18 NPT	162	116	30
DN 100		1/2-14 NPT	162	116	30
	NPS 4"	1/4-18 NPT	157	116	30
	NPS 4"	1/2-14 NPT	157	116	30

WEIGHT :

TRANSMITTER ONLY : - 3.5 KG (WITHOUT OPTION)

ADD :
- FLANGES WEIGHT (SEE TABLE)
- 1 KG PER 50 MM EXTENSION
- 0.3 KG FOR INDICATOR OPTION
- 2 KG FOR STAINLESS STEEL HOUSING OPTION

ØMb= Ødiaphragm
ØExt = Ø extension

Wetted parts material

FLANGES DIMENSIONS ACCORDING TO EN 1092-1 & EN 1759-1										SS 316L		Exotic material	
Seal diaphragms	EN 1092-1	EN 1759-1	ØE	F min	ØG	H	N x ØJ	ØK	Weight (kg)	L=0 ØMb	L≠0 ØExt=ØMb	L=0 ØMb	L≠0 ØExt(ØMb)
SAG□□□□	DN50 PN40		165	20	102	2	4 x 18	125	3,3	59	48	59	48,3 (47)
SAH□□□□		2" CLASS 150	152	21	92	1,6	4 x 19	120,6	2,7	59	48	59	48,3 (47)
SAJ□□□□		2" CLASS 300	165	22,5	92	1,6	8 x 19	127	3.7	59	48	59	48,3 (47)
SA8□□□□	DN80 PN40		200	24	138	2	8 x 18	160	5,8	73	73	89	76 (72)
SA4□□□□		3" CLASS 150	190	24	127	1,6	4 x 19	152,4	5,3	73	73	89	76 (72)
SA6□□□□		3" CLASS 300	210	28,5	127	1,6	8 x 22,2	168,3	7,8	73	73	89	76 (72)
SA9□□□□	DN100 PN16		220	22	158	2	8 x 18	180	5,9	96	96	89	94 (89)
SA5□□□□		4" CLASS 150	229	24	157	1,6	8 x 19	190,5	7,7	96	96	89	94 (89)
SA7□□□□		4" CLASS 300	254	32	157	1,6	8 x 22,2	200	12,7	96	96	89	94 (89)

$X_1\ X_2\ X_3\ X_4\ X_5\ X_6\ X_7\ X_8 - X_9\ X_{10} X_{11} X_{12} X_{13}$

F K D□□□V F -□□□□Y

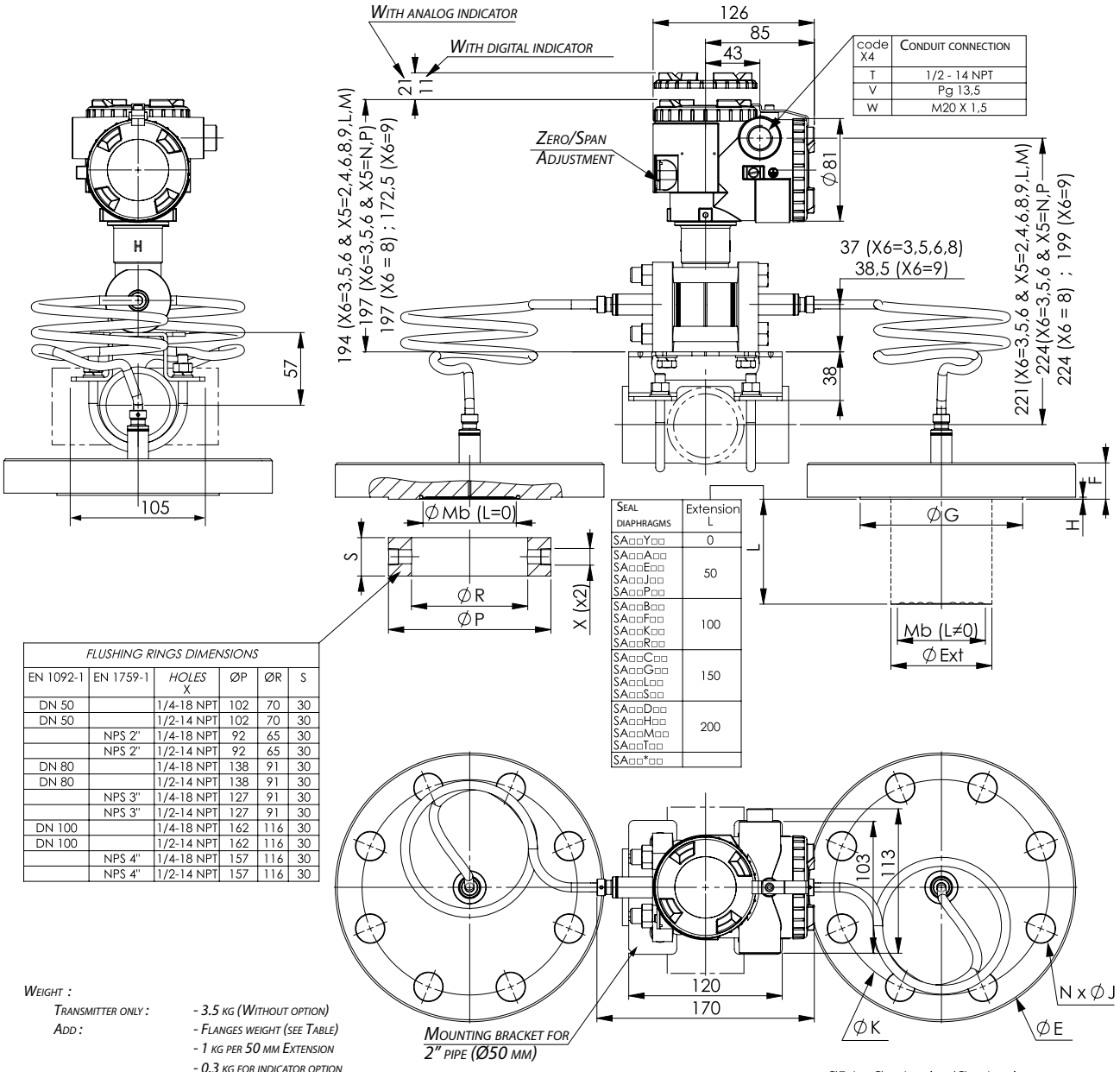
X5 = 2, 4, 6, 8, 9 — X11 = C, H

SEAL DIAPHRAGMS

HP	LP
$X_1\ X_2 X_3 X_4 X_5 X_6 X_7$	$X_1\ X_2 X_3 X_4 X_5 X_6 X_7$
S A□□□□□	S A□□□□□

	SPAN LIMIT	
	Min.	Max.
FKD□□3	0,32 KPa (3,2 mbar)	32 KPa (320 mbar)
FKD□□5	1,3 KPa (13 mbar)	130 KPa (1,3 bar)
FKD□□6	5 KPa (50 mbar)	500 KPa (5 bar)

For PN > 50bar : reduced volume flanges are welded and bolted on the measuring cell



code X4	CONDUIT CONNECTION
T	1/2 - 14 NPT
V	Pg 13,5
W	M20 X 1,5

SEAL DIAPHRAGMS	Extension L
SA□□Y□□	0
SA□□A□□ SA□□E□□ SA□□J□□ SA□□P□□	50
SA□□B□□ SA□□F□□ SA□□K□□ SA□□R□□	100
SA□□C□□ SA□□G□□ SA□□L□□ SA□□S□□	150
SA□□D□□ SA□□H□□ SA□□M□□ SA□□T□□	200
SA□□*□□	

FLUSHING RINGS DIMENSIONS

EN 1092-1	EN 1759-1	HOLES X	ØP	ØR	S
DN 50		1/4-18 NPT	102	70	30
DN 50		1/2-14 NPT	102	70	30
	NPS 2"	1/4-18 NPT	92	65	30
	NPS 2"	1/2-14 NPT	92	65	30
DN 80		1/4-18 NPT	138	91	30
DN 80		1/2-14 NPT	138	91	30
	NPS 3"	1/4-18 NPT	127	91	30
	NPS 3"	1/2-14 NPT	127	91	30
DN 100		1/4-18 NPT	162	116	30
DN 100		1/2-14 NPT	162	116	30
	NPS 4"	1/4-18 NPT	157	116	30
	NPS 4"	1/2-14 NPT	157	116	30

WEIGHT :

TRANSMITTER ONLY : - 3.5 KG (WITHOUT OPTION)

ADD :
- FLANGES WEIGHT (SEE TABLE)
- 1 KG PER 50 MM EXTENSION
- 0.3 KG FOR INDICATOR OPTION
- 2 KG FOR STAINLESS STEEL HOUSING OPTION

ØExt = Ø extension/Ø extension

Wetted parts material

FLANGES DIMENSIONS ACCORDING TO EN 1092-1 & EN 1759-1

Seal diaphragms	EN 1092-1	EN 1759-1	ØE	F min	ØG	H	N x ØJ	ØK	Weight (kg)	SS 316L L=0 ØMb	SS 316L L≠0 ØExt=ØMb	Exotic material L=0 ØMb	Exotic material L≠0 ØExt(ØMb)
SAG□□□□	DN50 PN40		165	20	102	2	4 x 18	125	3,3	59	48	59	48,3 (47)
SAH□□□□		2" CLASS 150	152	21	92	1,6	4 x 19	120,6	2,7	59	48	59	48,3 (47)
SAJ□□□□		2" CLASS 300	165	22,5	92	1,6	8 x 19	127	3.7	59	48	59	48,3 (47)
SA8□□□□	DN80 PN40		200	24	138	2	8 x 18	160	5,8	73	73	89	76 (72)
SA4□□□□		3" CLASS 150	190	24	127	1,6	4 x 19	152,4	5,3	73	73	89	76 (72)
SA6□□□□		3" CLASS 300	210	28,5	127	1,6	8 x 22,2	168,3	7,8	73	73	89	76 (72)
SA9□□□□	DN100 PN16		220	22	158	2	8 x 18	180	5,9	96	96	89	94 (89)
SA5□□□□		4" CLASS 150	229	24	157	1,6	8 x 19	190,5	7,7	96	96	89	94 (89)
SA7□□□□		4" CLASS 300	254	32	157	1,6	8 x 22,2	200	12,7	96	96	89	94 (89)

$X_1\ X_2\ X_3\ X_4\ X_5\ X_6\ X_7\ X_8$- $X_9\ X_{10} X_{11} X_{12} X_{13}$

F K D□□□V F -□□□□Y

X11 = C, H

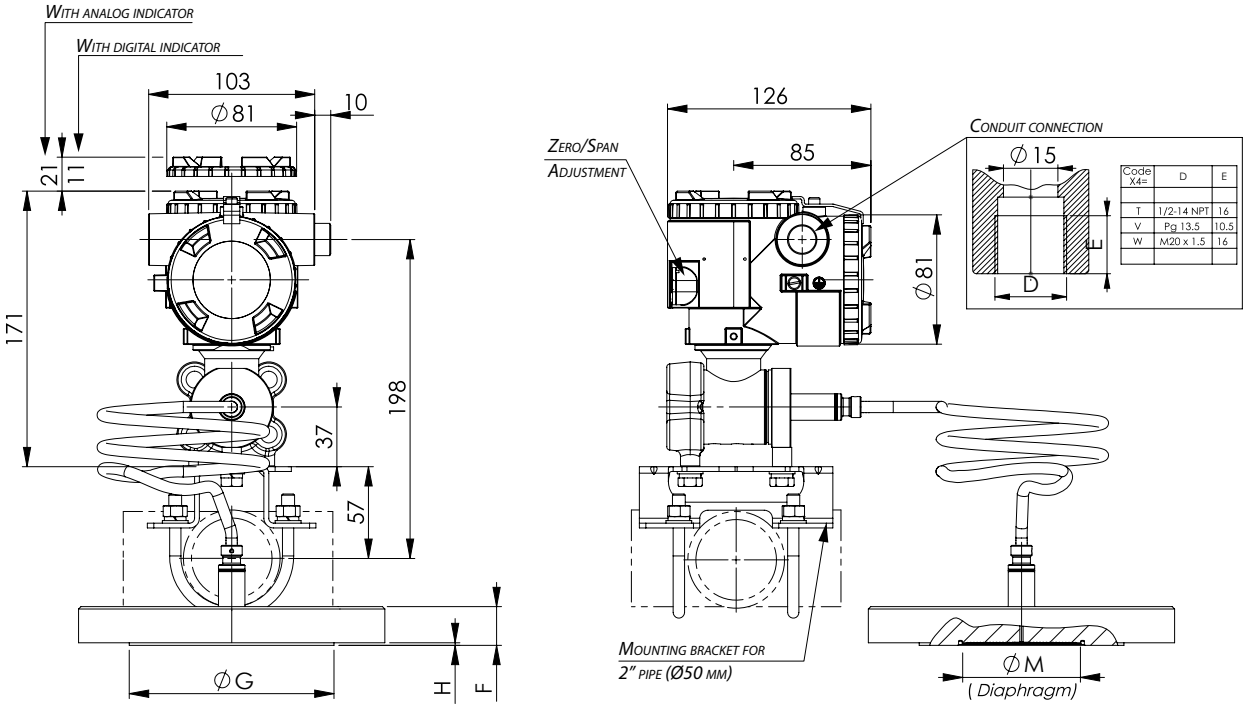
SEAL DIAPHRAGMS

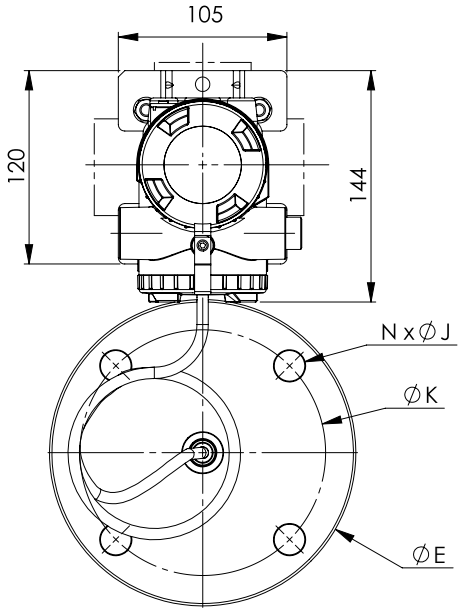
HP	LP
$X_1 X_2 X_3 X_4 X_5 X_6 X_7$	$X_1 X_2 X_3 X_4 X_5 X_6 X_7$
S A□□□□□□	S A□□□□□□

	SPAN LIMIT Min.	SPAN LIMIT Max.
FKD□□3	0,32 KPa (3,2 mbar)	32 KPa (320 mbar)
FKD□□5	1,3 KPa (13 mbar)	130 KPa (1,3 bar)
FKD□□6	5 KPa (50 mbar)	500 KPa (5 bar)
FKD□□8	30 KPa (300 mbar)	3 MPa (30 bar)

OUTLINE DIMENSIONS FOR CAPILLARY MOUNTED DIAPHRAGM SEAL(S) ON A GAUGE OR AN ABSOLUTE PRESSURE TRANSMITTER (units : mm) - Dimensions of seals - Refer to page 18 and 19

For PN ≤ 50bar : reduced volume flanges are welded on the measuring cell





WEIGHT :

TRANSMITTER ONLY : - *3.5 KG (WITHOUT OPTION)*

ADD : - *FLANGES WEIGHT (SEE TABLE)*
- *0.3 KG FOR INDICATOR OPTION*
- *2 KG FOR STAINLESS STEEL HOUSING OPTION*

FLANGES DIMENSIONS ACCORDING TO EN 1092-1 & EN 1759-1										
Seal diaphragms	EN 1092-1	EN 1759-1	ØE	F min	ØG	H	N x ØJ	ØK	ØM	*Weight* (kg)
S A G V Y □ □	DN 50 PN 10/40		165	20	102	2	4 x 18	125	59	3,3
S A H V Y □ □		NPS 2" CLASS 150	152	21	92	1,6	4 x 19	120,6	59	2,7
S A J V Y □ □		NPS 2" CLASS 300	165	22,5	92	1,6	8 x 19	127	59	3.7
S A 8 V Y □ □	DN 80 PN 40		200	24	138	2	8 x 18	160	73	5,8
S A 4 V Y □ □		NPS 3" CLASS 150	190	24	127	1,6	4 x 19	152,4	73	5,3
S A 6 V Y □ □		NPS 3" CLASS 300	210	28,5	127	1,6	8 x 22,2	168,3	73	7,8
S A 9 V Y □ □	DN 100 PN 16		220	22	158	2	8 x 18	180	96	5,9
S A 5 V Y □ □		NPS 4" CLASS 150	229	24	157	1,6	8 x 19	190,5	96	7,7
S A 7 V Y □ □		NPS 4" CLASS 300	254	32	157	1,6	8 x 22,2	200	96	12,7

X_1 X_2 X_3 X_4 X_5 X_6 X_7 X_8- X_9 $X_{10}$$X_{11}$$X_{12}$$X_{13}$
F K B □□□ V F -□□□□ Y

Seal diaphragms
X_1 X_2 X_3 X_4 X_5 X_6 X_7
S A□ V Y□□

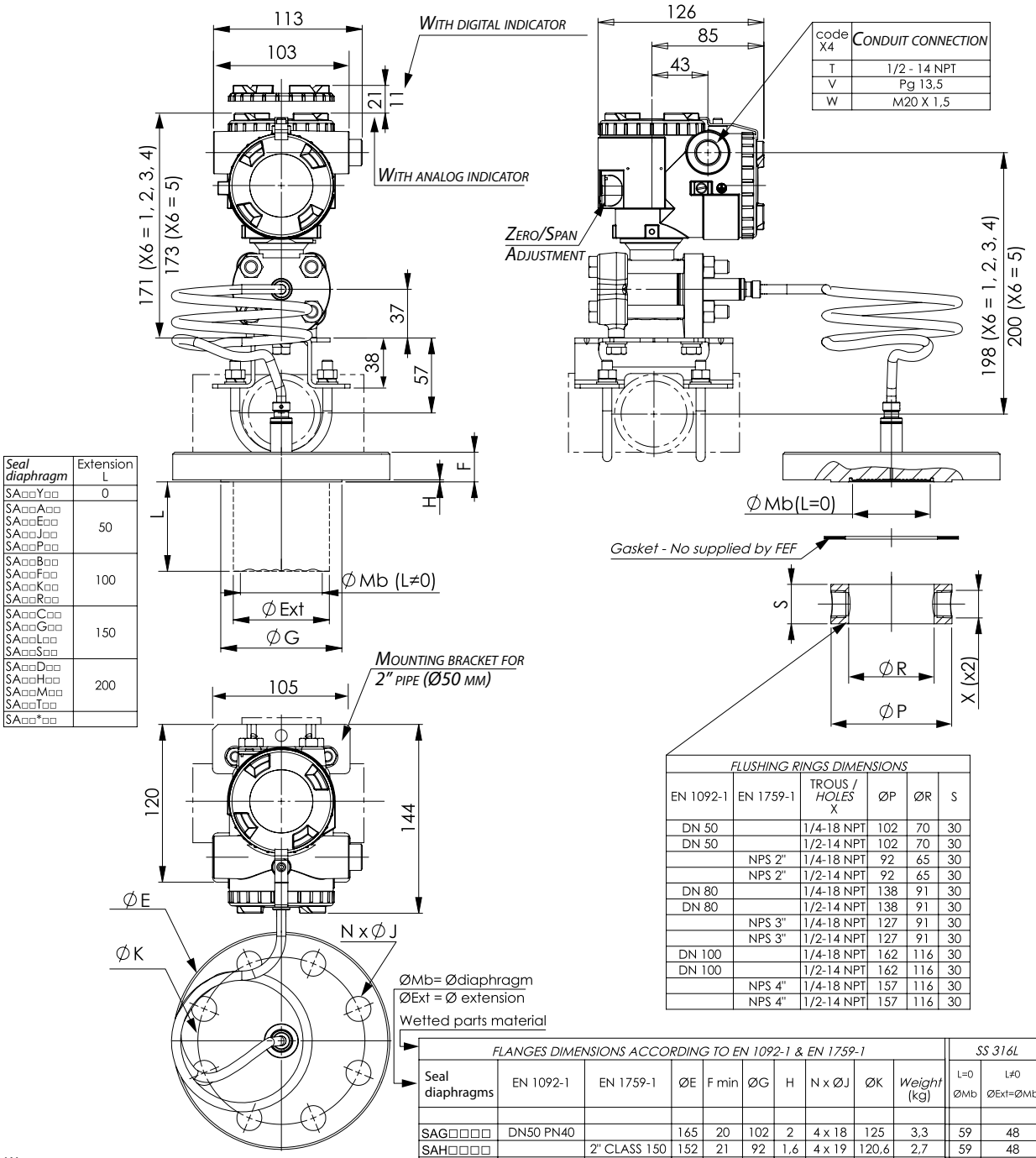
	SPAN LIMIT	
	Min.	Max.
FKB□□1	1,3 kPa (0,013 bar)	100 kPa (1,3 bar)
FKB□□2	5 kPa (0,05 bar)	500 kPa (5 bar)
FKB□□3	30 kPa (0,3 bar)	3 MPa (30 bar)

X_1 X_2 X_3 X_4 X_5 X_6 X_7 X_8- X_9 $X_{10}$$X_{11}$$X_{12}$$X_{13}$
F K M □□□ V F -□□□□ Y

Seal diaphragms
X_1 X_2 X_3 X_4 X_5 X_6 X_7
S A□ V Y□□

	SPAN LIMIT	
	Min.	Max.
FKM□□1	0,016 bar abs	0,16 bar abs
FKM□□2	0,013 bar abs	1,3 bar abs
FKM□□3	0,05 bar abs	5 bar abs
FKM□□4	0,3 bar abs	30 bar abs

For PN > 50bar : reduced volume flanges are welded and bolted on the measuring cell



Seal diaphragm	Extension L
SA□□Y□□	0
SA□□A□□ SA□□E□□ SA□□J□□ SA□□P□□	50
SA□□B□□ SA□□F□□ SA□□K□□ SA□□R□□	100
SA□□C□□ SA□□G□□ SA□□L□□ SA□□S□□	150
SA□□D□□ SA□□H□□ SA□□M□□ SA□□T□□	200
SA□□*□□	

FLUSHING RINGS DIMENSIONS

EN 1092-1	EN 1759-1	TROUS / HOLES X	ØP	ØR	S
DN 50		1/4-18 NPT	102	70	30
DN 50		1/2-14 NPT	102	70	30
	NPS 2"	1/4-18 NPT	92	65	30
	NPS 2"	1/2-14 NPT	92	65	30
DN 80		1/4-18 NPT	138	91	30
DN 80		1/2-14 NPT	138	91	30
	NPS 3"	1/4-18 NPT	127	91	30
	NPS 3"	1/2-14 NPT	127	91	30
DN 100		1/4-18 NPT	162	116	30
DN 100		1/2-14 NPT	162	116	30
	NPS 4"	1/4-18 NPT	157	116	30
	NPS 4"	1/2-14 NPT	157	116	30

FLANGES DIMENSIONS ACCORDING TO EN 1092-1 & EN 1759-1

Seal diaphragms	EN 1092-1	EN 1759-1	ØE	F min	ØG	H	N x ØJ	ØK	Weight (kg)	SS 316L L=0 ØMb	SS 316L L≠0 ØExt=ØMb	Exotic material L=0 ØMb	Exotic material L≠0 ØExt(ØMb)
SAG□□□□	DN50 PN40		165	20	102	2	4 x 18	125	3,3	59	48	59	48,3 (47)
SAH□□□□		2" CLASS 150	152	21	92	1,6	4 x 19	120,6	2,7	59	48	59	48,3 (47)
SAJ□□□□		2" CLASS 300	165	22,5	92	1,6	8 x 19	127	3.7	59	48	59	48,3 (47)
SA8□□□□	DN80 PN40		200	24	138	2	8 x 18	160	5,8	73	73	89	76 (72)
SA4□□□□		3" CLASS 150	190	24	127	1,6	4 x 19	152,4	5,3	73	73	89	76 (72)
SA6□□□□		3" CLASS 300	210	28,5	127	1,6	8 x 22,2	168,3	7,8	73	73	89	76 (72)
SA9□□□□	DN100 PN16		220	22	158	2	8 x 18	180	5,9	96	96	89	94 (89)
SA5□□□□		4" CLASS 150	229	24	157	1,6	8 x 19	190,5	7,7	96	96	89	94 (89)
SA7□□□□		4" CLASS 300	254	32	157	1,6	8 x 22,2	200	12,7	96	96	89	94 (89)

WEIGHT :

TRANSMITTER ONLY : - 3.5 KG (WITHOUT OPTION)

ADD :
- FLANGES WEIGHT (SEE TABLE)
- 1 KG PER 50 MM EXTENSION
- 0.3 KG FOR INDICATOR OPTION
- 2 KG FOR STAINLESS STEEL HOUSING OPTION

X_1 X_2 X_3 X_4 X_5 X_6 X_7 X_8- X_9 $X_{10}$$X_{11}$$X_{12}$$X_{13}$
F K B □□□ V F -□□□□ Y
X_{11} = B, G

Seal diaphragms
X_1 X_2 X_3 X_4 X_5 X_6 X_7
S A □□□□□

	SPAN LIMIT Min.	SPAN LIMIT Max.
FKB□□1	1,3 kPa (0,013 bar)	100 kPa (1,3 bar)
FKB□□2	5 kPa (0,05 bar)	500 kPa (5 bar)
FKB□□3	30 kPa (0,3 bar)	3 MPa (30 bar)
FKB□□4	100 kPa (1 bar)	10 MPa (100 bar)
FKB□□5	500 kPa (5 bar)	50 MPa (500 bar)

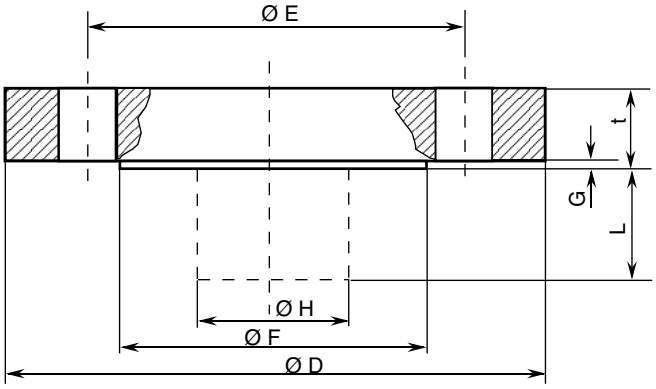
X_1 X_2 X_3 X_4 X_5 X_6 X_7 X_8- X_9 $X_{10}$$X_{11}$$X_{12}$$X_{13}$
F K M □□□ V F -□□□□ Y

Diaphragm seal :
X_1 X_2 X_3 X_4 X_5 X_6 X_7
S A□V Y□□

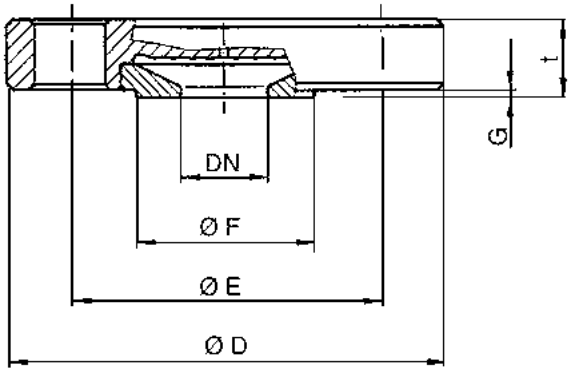
	SPAN LIMIT Min.	SPAN LIMIT Max.
FKM□□1	0,016 bar abs	0,16 bar abs
FKM□□2	0,013 bar abs	1,3 bar abs
FKM□□3	0,05 bar abs	5 bar abs
FKM□□4	0,3 bar abs	30 bar abs
FKM□□5	1 bar abs	100 bar abs

OUTLINE DIMENSIONS OF THE STANDARD DIAPHRAGM SEALS - FLUSH / EXTENSION (units : mm)

DN 50, 80, 100



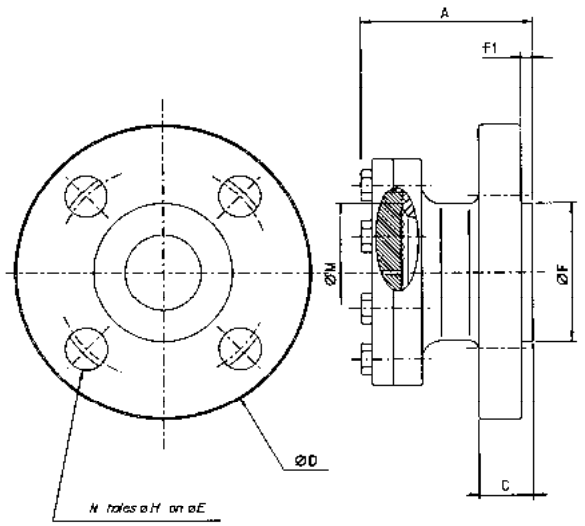
DN ≤ 25 or 1”



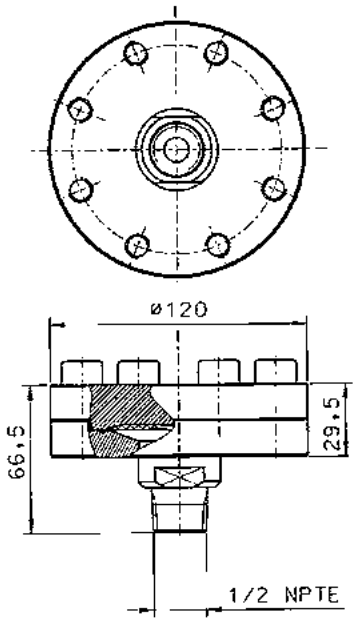
FLANGE DIMENSIONS ACCORDING DIN 2501 ET B16.5										
DIN / ISO		ANSI								
PN	DN	NP	NW	ØD	ØE	ØF	G	ØH	t	N x Øh
40	15			95	65	45	2		22	4 x 14
40	20			105	75	58	2		22	4 x 14
40	25			115	85	68	2		22	4 x 14
40	50			165	125	102	3	48	20	4 x 18
40	80			200	160	138	3	73	20	8 x 18
16	100			220	180	158	3	96	20	8 x 18
20	15	150 lbs	1/2”	95	60,5	35	2		22	4 x 16
20	20	150 lbs	3/4”	100	70	43	2		22	4 x 16
20	25	150 lbs	1”	110	79,5	51	2		22	4 x 16
50	15	300 lbs	1/2”	95	66,5	35	2		22	4 x 16
50	20	300 lbs	3/4”	120	82,5	43	2		22	4 x 20
50	25	300 lbs	1”	125	89	51	2		22	4 x 20
20	50	150 lbs	2”	150	120,5	92	1,6	48	20	4 x 20
20	80	150 lbs	3”	190	152,5	127	1,6	73	24	4 x 20
20	100	150 lbs	4”	230	190,5	158	1,6	96	24	8 x 20
50	50	300 lbs	2”	165	127	92	1,6	48	22,5	8 x 20
50	80	300 lbs	3”	210	168,5	127	1,6	73	29	8 x 22
50	100	300 lbs	4”	255	200	158	1,6	96	32	8 x 22

OUTLINE DIMENSIONS OF DIAPHRAGM SEALS WITH ADAPTORS (units : mm)

Flange adaptor



Screwed adaptor



FLANGES DIMENSIONS												
DIN		AINSI		ØD	ØE			ØF	Cmin	f1	A	ØM
PN	DN	Pe	DN			N	ØH					
40	25			115	85	4	14	68	18	2	83	72,2
20	25	150	1”	108	79,5	4	15,8	50,8	16	1,6	81	72,2
50	25	300	1”	124	89	4	19	50,8	17,5	1,6	86	72,2
40	40			150	110	4	18	88	18	3	85	72,2
20	40	150	1 1/2”	127	98,4	4	15,8	73	18	16	85	72,2
50	40	300	1 1/2”	156	114,3	4	22,2	73	21	1,6	91	72,2

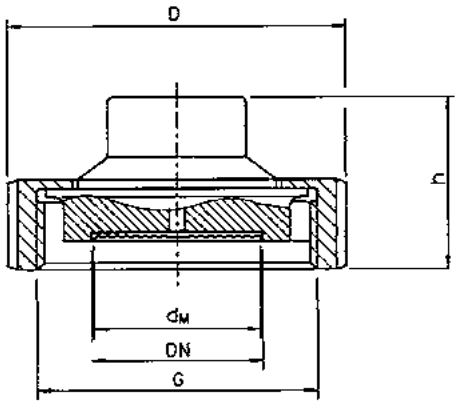
OUTLINE DIMENSIONS OF SANITARY DIAPHRAGM (units : mm)

The seals for the sanitary and pharmaceutical applications are available DIN, SMS and Tri Clamp standards

Seals according DIN 11851 and SMS standard

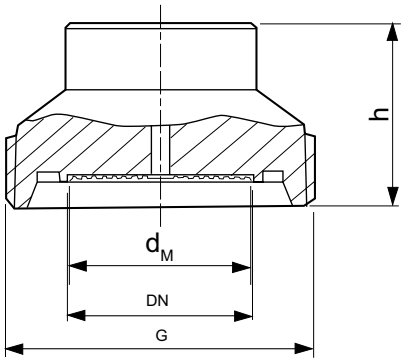
2 different designs exist for DIN 11851 and SMS : (d_M = diaphragm actif diameter)

Coupling nut design



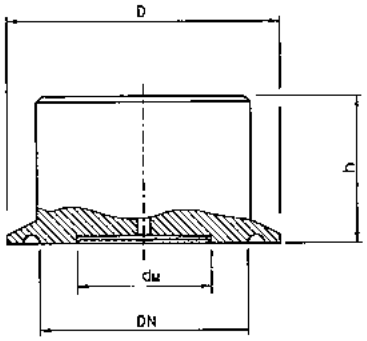
DIN 11851					
DN	PN (Max)	D	h	d_M	G
25	40	63	36	25	Rd 52 x 1/6
32	40	70	36	32	Rd 58 x 1/6
40	40	78	36	40	Rd 65 x 1/6
50	40	112	36	52	Rd 78 x 1/6
65	40	112	36	65	Rd 95 x 1/6
80	40	127	36	76	Rd110 x 1/4

Male thread design



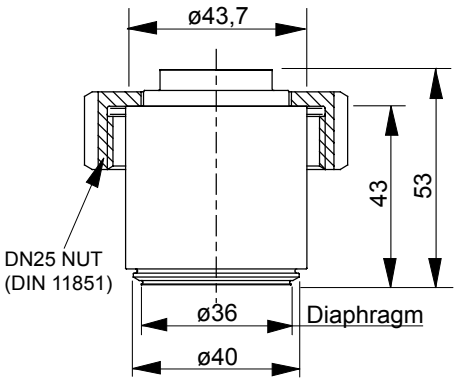
SMS					
DN	PN (Max)	D	h	d_M	G
25	40	51	38	25	Rd 40 x 1/6
32	40	60	38	32	Rd 48 x 1/6
38	40	74	38	40	Rd 60 x 1/6
51	40	84	38	52	Rd 70 x 1/6
63.5	40	100	38	65	Rd 85 x 1/6
76	40	114	38	76	Rd 98 x 1/4

Tri Clamp design

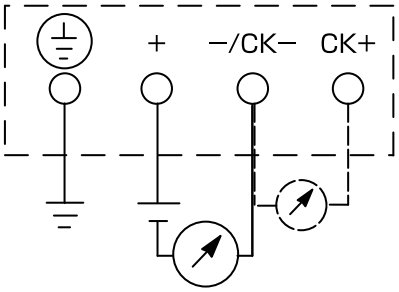


DN	PN (Max)	D	h	d_M
1“1/2	40	50,5	35	32
2“	40	64	35	40
2“1/2	40	77,5	35	50
3“	40	91	35	65

Dead volume seal



CONNECTION DIAGRAM



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