Data sheet DS/FPD470–EN Rev. A

FPD470 Wedge flowmeter
Differential pressure – primary flow element

Robust, reliable, high performance flow solutions for difficult applications, slurries and high viscosity liquid

Better Measurement
Better Outcomes

Symmetrical robust element for long-term accuracy
- —no sharp edge to wear
- —handles slurries and high solids content
- —capable of bi-directional flow

Accurate performance down to Reynolds number 500
- —0.5 % calibrated accuracy
- —large potential flow range
- —ideally suited to measurement of viscous liquids

Minimum upstream / downstream straight pipe needed
- —handles non-ideal installations

McMENON

FPD470 Wedge flowmeter
Differential pressure – primary flow element

Overview

WEDGE™ flow elements utilize V-shaped restrictions to produce a square root relationship between differential pressure and volumetric flow. Elements are designed for either clean or dirty service and are offered in various materials, pipe sizes, and pressure ratings. The differential pressure is measured by a differential pressure transmitter. Various process connections on the WEDGE are provided for either pneumatic or electronic transmitters or other differential pressure sensing devices. Wedge meters can be flow calibrated and supplied with a factory calibration report, this includes calculations for the user's process when such data is supplied. The differential pressure measurement is used to calculate flow using a standard wedge flow equation.

The flow element consists of a body and wedge flow restriction. This restriction creates a differential pressure in proportion to the square of the volumetric flow rate. The wedge restriction has no critical surface dimensions, or sharp edges, to affect measurement accuracy as the result of normally expected wear.

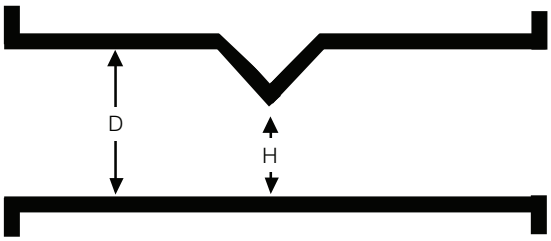

Fig. 1: Primary flow element – restriction schematic

Primary flow element types

Flanged transmitter connections (model FPD470F)

Chemical-tee transmitter connections (model FPD470C)

Pipe-tap transmitter connections (model FPD470P)

Performance specification

Transmitter connections

Connection to the transmitter can be selectable from a range.

FPD470F

2 or 3 in. RF flange (SCH 80 I.D.)

FPD470C

Chemical-tee type – 8-hole mounting pattern

FPD470P

1/2, 3/8, 1/4 in. NPT

WEDGE element standard H/D ratios – see Fig. 1, page 2

This H/D ratio equals the height of the opening under restriction divided by the internal pipe diameter:

0.2, 0.3, 0.4, 0.5, 0.6, 0.7 (restrictions per model code)

PIpe size (in.)	Wedge ratio (H/D)	Accuracy in % of flow rate	
		Calibrated	Un-calibrated
1/2	0.2, 0.3, 0.4, 0.5	0.75 %	+5 %
1 and 1 1/2	0.2, 0.3, 0.4, 0.5	0.5 %	+5 %
2 and 3	0.2, 0.3, 0.4, 0.5	0.5 %	+5 %
4 to 20	0.3, 0.4, 0.5, 0.6, 0.7	0.5 %	+5 %

*Water calibrated in factory flow lab –
refer to calibration report supplied with each calibrated instrument

Table 1: H/D ratios

To determine H/D ratio and differential pressure, refer to SolveDp sizing software.

Process flange connection

— ANSI Class 150 raised face
— ANSI Class 300 raised face
— ANSI Class 600 raised face
(contact McMenon for additional end flange ratings)

Process end connection

McMenon offers a wide range of process end connections including ANSI and DIN flanges.

Internal bore

A range of schedules and wall thicknesses are available to suit specific requirements, these should be selected to ensure the meter is suitable for the design temperature and pressure. The most typical schedule for a WEDGE is schedule 80.

Flange style

— Standard weight pipe is the same as Schedule 40 on 100 to 250 mm (4 to 10 in.) size
— Standard weight wall is 9.5 mm (0.375 in.) on 300 to 600 mm (12 to 24 in.) pipe size
— Standard weight not available on 3 in. and smaller
— X-Strong wall pipe is the same as Schedule 80 on 15 to 200 mm (0.5 to 8 in.) size
— X-Strong wall is 12.7 mm (0.5 in.) on 250 to 600 mm (10 to 24 in.) pipe size
(contact McMenon for information on additional pipe schedules)

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Materials of construction

Process wetted parts

Standard materials of construction are carbon steels and 316 SST but McMenon is able to offer over 30 different materials. Below are examples of a few different available materials:

— 25 % Cr Super Duplex (UNS S32750)
— C276 Alloy (UNS N010276)
— 347H stainless steel

Welding

Pressure retaining welds are completed following the Section IX code and also meet the PED specifications. World-renowned suppliers are used to ensure quality and assurance of welding processes and welding consumable certificates show the mechanical capabilities as well as full traceability of each batch.

Chemical-tee gasket material

Supplied with FPD470C chemical-tee version

Up to 340 ºC (645 ºF) graphite.
Sealability per ASTM F37A (1/32) 0.50 ml/hr
(part no.155S1043 for 2 gasket kit)

Pressure Equipment Directive (PED)

Wedgemeters can fall under the pressure equipment directive, if this option is selected McMenon will perform the calculations per PED Module H and if it falls under the CATII or CATIII classification will create a technical file to facilitate the request.

Physical specification

Accuracy

Calibrated

25 mm (1 in.) or larger: ±0.5 % of actual flow when operated within the calibrated range
15 mm (1/2 in.): ±0.75% of actual flow when operated within the calibrated range

Un-calibrated

±5.0 % of actual flow when using nominal Kd^2 from sizing program. Applies to bi-directional flow

Bi-directional

Same as above when Kd^2 designated as reverse flow coefficient

Repeatability

±0.2 %

Temperature and pressure rating

The temperature and pressure rating is dependent on line schedule, materials of construction and process or tapping connection rating.

Chemical-tee instrument connection

FPD470C chemical-tee is 300 psi max. or the end flange rating per ANSI B16.5, whichever is lower

Flanged instrument connection

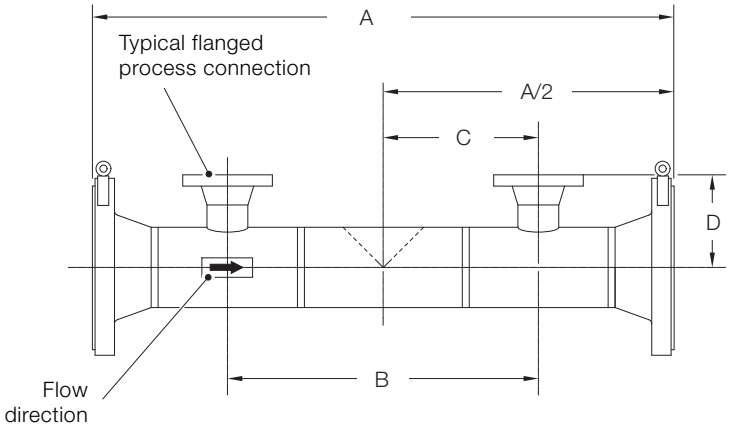
MWP is per ANSI B16.5

Pipe-tap connection

MWP is per ANSI B16.5

Dimensions and weights

Series FPD470F with flanged tappings and RFWN end flanges
Sizes 40, 50 and 80 mm (1½, 2 and 3 in.)



Pipe size mm (in.)	A ±4.58 mm (±0.18 in.)			B	C	D mm (in.)			Approximate weight kg (lbs.)		
	Flange rating					Flange rating			Flange rating		
	150	300	600			150	300	600	150	300	600
40 (1½)	530 (20.86)	543 (21.37)	559 (22)	292 (11.5)	146 (5.75)	207 (8.18)	214 (8.43)	212 (8.37)	25 (55)	28 (61)	32 (71)
50 (2)	546 (21.5)	559 (22)	577 (22.75)	292 (11.5)	146 (5.75)	216 (8.5)	222 (8.75)	231 (9.12)	28 (62)	32 (70)	38 (84)
80 (3)	645 (24.5)	641 (25.25)	660 (26)	311 (12.25)	155 (6.13)	155 (6.13)	166 (6.56)	175 (6.88)	35 (78)	42 (92)	46 (102)

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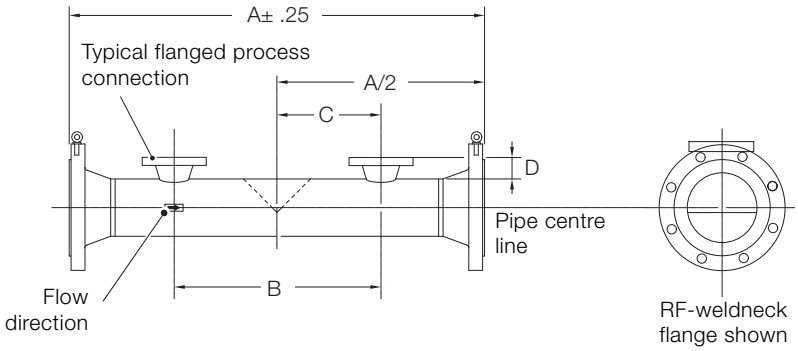
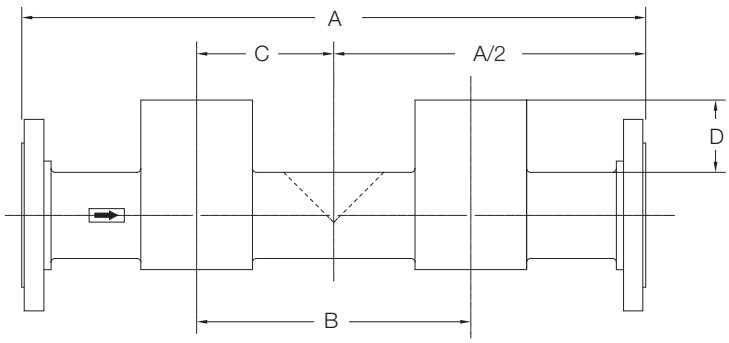
Sizes 100 to 600 mm (4 to 24 in.)



Pipe size mm (in.)	A ±6.35 mm (±0.25 in.)			B	C	D max (ref) mm (in.)			Approximate weight kg (lbs.)		
	Flange rating					Flange rating			Flange rating		
	150	300	600			150	300	600	150	300	600
100	901	920	990	381	190	70	79	89	61	68	79
(4)	(35.5)	(36.25)	(39)	(15)	(7.5)	(2.75)	(3.12)	(3.5)	(135)	(150)	(175)
150	1028	1047	1098	457	228	70	79	89	73	95	122
(6)	(40.5)	(41.25)	(43.25)	(18)	(9)	(2.75)	(3.12)	(3.5)	(160)	(210)	(270)
200	1092	1111	1168	521	260	70	79	89	95	120	166
(8)	(43)	(43.75)	(46)	(20.5)	(10.25)	(2.75)	(3.12)	(3.5)	(210)	(265)	(365)
250	1143	1174	1257	597	298	70	79	89	122	156	238
(10)	(45)	(46.25)	(49.5)	(23.5)	(11.75)	(2.75)	(3.12)	(3.5)	(270)	(345)	(525)
300	1321	1352	1416	673	336	70	79	89	159	181	
(12)	(52)	(53.25)	(55.75)	(26.5)	(13.25)	(2.75)	(3.12)	(3.5)	(350)	(400)	
350	1397	1428	1485	736	356	70	79	89	186	277	
(14)	(55)	(56.25)	(58.5)	(29)	(14)	(2.75)	(3.12)	(3.5)	(410)	(610)	
400	1473	1511	1587	775	387	70	79	89	227	342	
(16)	(58)	(59.5)	(62.5)	(30.5)	(15.25)	(2.75)	(3.12)	(3.5)	(500)	(755)	
450	1574	1613	1676	851	413	70	79	89	227	395	
(18)	(62)	(63.5)	(66 00)	(33.5)	(16.75)	(2.75)	(3.12)	(3.5)	(500)	(870)	
500	1686	1720	1790	940	470	70	79	89	318	499	
(20)	(66.37)	(67.75)	(70.5)	(37)	(18.5)	(2.75)	(3.12)	(3.5)	(700)	(1100)	
600	1854	1886	1968	1066	533	70	79	89	433	594	
(24)	(73)	(74.25)	(77.5)	(42)	(21)	(2.75)	(3.12)	(3.5)	(955)	(1310)	

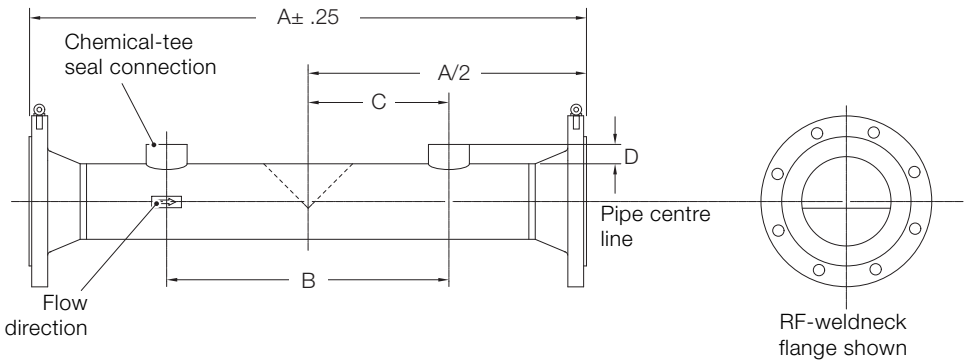
Series FPD470C with chemical-tee tappings and RFSO end flanges
Sizes 15 to 80 mm (½ to 3 in.)



Pipe size mm (in.)	A ±3.3 mm (±0.13 in.)	B mm (in.)	C mm (in.)	D mm (In.)	Approximate weight kg (lbs.) Flange rating 150	300	600
15 (1/2)	457 (18)	165 (6.5)	82.5 (3.25)	25 (1)	10 (23)	10 (23)	10 (23)
25 (1)	482 (19)	179 (7.06)	90 (3.53)	38 (1.5)	11.8 (26)	13 (29)	13.6 (30)
40 (1 1/2)	508 (20)	203 (8)	101 (4)	47 (1.86)	19.5 (43)	22 (49)	23 (51)
50 (2)	533 (21)	213 (8.38)	106 (4.19)	57 (2.25)	23 (51)	25 (55)	27 (59)
80 (3)	609 (24)	263 (10.35)	131 (5.19)	70 (2.75)	31 (69)	36 (79)	38 (84)

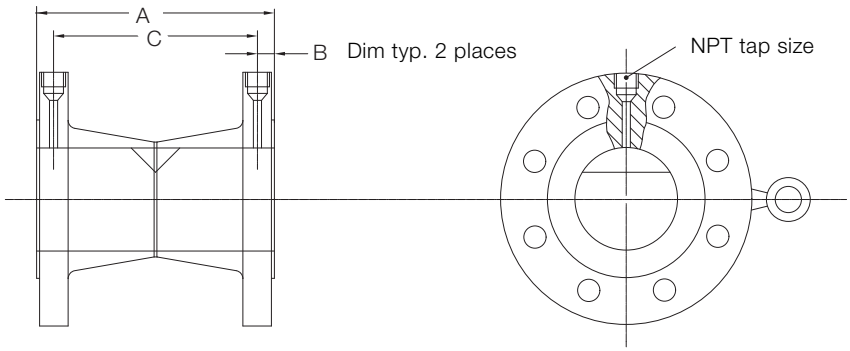
FPD470 Wedge flowmeter
Differential pressure – primary flow element

Series FPD470C with chemical-tee tappings and RFWN end flanges
Sizes 100 to 600 mm (4 to 24 in.)



Pipe size mm (in.)	A ±6.35 mm (±0.25 in.)			B mm (in.)	C mm (in.)	D mm (in.)	Approximate weight kg (lbs.)		
	Flange rating						Flange rating		
	150	300	600				150	300	600
100	901	920	965	381	190	24	29	34	50
(4)	(35.5)	(36.25)	(38)	(15)	(7.5)	(0.94)	(65)	(75)	(110)
150	1028	1047	1098	457	228	24	41	59	88
(6)	(40.5)	(41.25)	(43.25)	(18)	(9)	(0.94)	(90)	(130)	(195)
200	1092	1111	1168	521	260	24	52	79	129
(8)	(43)	(43.75)	(46)	(20.5)	(10.25)	(0.94)	(115)	(175)	(285)
250	1143	1174	1257	597	298	24	75	127	204
(10)	(45)	(46.25)	(49.5)	(23.5)	(11.75)	(0.94)	(165)	(280)	(450)
300	1321	1352	1416	673	336	24	106	172	
(12)	(52)	(53.25)	(55.75)	(26.5)	(13.25)	(0.94)	(235)	(380)	
350	1397	1428	1485	711	356	24	140	283	
(14)	(55)	(56.25)	(58.5)	(28)	(14)	(0.94)	(310)	(625)	
400	1473	1511	1587	775	387	24	186	290	
(16)	(58)	(59.5)	(62.5)	(30.5)	(15.25)	(0.94)	(410)	(640)	
450	1574	1613	1676	851	413	24	227	367	
(18)	(62)	(63.5)	(66 00)	(33.5)	(16.75)	(0.94)	(500)	(810)	
500	1686	1720	1790	940	470	24	286	456	
(20)	(66.37)	(67.75)	(70.5)	(37)	(18.5)	(0.94)	(630)	(1005)	
600	1854	1886	1968	1066	533	24	395	539	
(24)	(73)	(74.25)	(77.5)	(42)	(21)	(0.94)	(870)	(1190)	

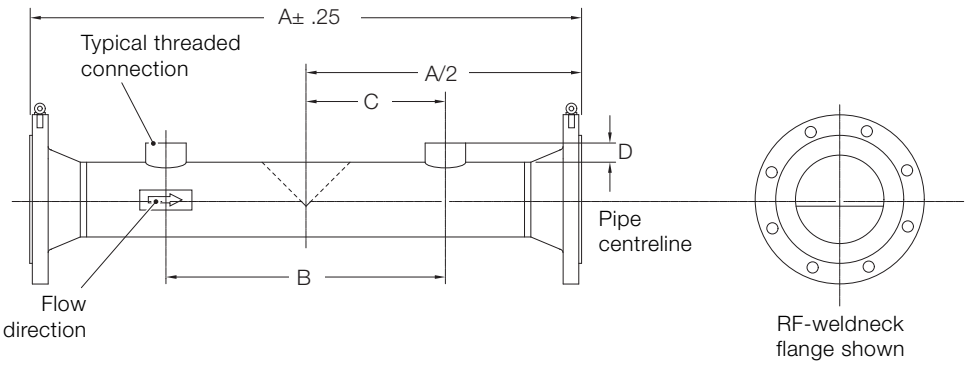
Series FPD470P with RFWN end flanges
Sizes 50 to 150 mm (2 to 6 in.)



Pipe size mm (in.)	A mm (in.)			B mm (in.)			C mm (in.)			NPT tap size (in.)			Approximate weight kg (lbs.)		
	Flange rating			Flange rating			Flange rating			Flange rating			Flange rating		
	150	300	600	150	300	600	150	300	600	150	300	600	150	300	600
50 (2)	127 (5.00)	171 (6.75)	171 (6.75)	11 (0.44)	24 (0.94)	24 (0.94)	105 (4.13)	124 (4.87)	124 (4.87)	1/4	1/2	1/2	6.3 (14)	12.2 (27)	16 (36)
75 (3)	140 (5.50)	178 (7.00)	178 (7.00)	13 (0.52)	24 (0.94)	24 (0.94)	112 (4.44)	130 (5.12)	130 (5.12)	3/8	1/2	1/2	11 (25)	10.4 (23)	23.5 (52)
100 (4)	190 (7.50)	222 (8.75)	254 (10.00)	12.7 (0.50)	24 (0.94)	24 (0.94)	165 (6.50)	174 (6.87)	206 (8.12)	3/8	1/2	1/2	16 (35)	24 (66)	34 (76)
150 (6)	254 (10.00)	276 (10.87)	323 (12.75)	14 (0.56)	24 (0.94)	24 (0.94)	223 (8.80)	228 (9.00)	174 (6.87)	3/8	1/2	1/2	24.5 (54)	48 (106)	50 (110)

FPD470 Wedge flowmeter
Differential pressure – primary flow element

Sizes 200 to 600 mm (8 to 24 in.)



Pipe size mm (in.)	A ±6.35 mm (±0.25 in.)			B mm (in.)	C mm (in.)	D mm (in.)	Approximate weight kg (lbs.)		
	Flange rating						Flange rating		
	150	300	600				150	300	600
200	1092	1111	1168	520	260	24	52	79	129
(8)	(43)	(43.75)	(46)	(20.5)	(10.25)	(0.94)	(115)	(175)	(285)
250	1143	1174	1257	597	298	24	75	127	204
(10)	(45)	(46.25)	(49.5)	(23.5)	(11.75)	(0.94)	(165)	(280)	(450)
300	1320	1352	1416	673	336	24	107	172	
(12)	(52)	(53.25)	(55.75)	(26.5)	(13.25)	(0.94)	(235)	(380)	
350	1397)	1428	1485	711	356	24	140	283	
(14)	(55)	(56.25)	(58.5)	(28)	(14)	(0.94)	(310)	(625)	
400	1473	1511	1587	775	387	24	186	290	
(16)	(58)	(59.5)	(62.5)	(30.5)	(15.25)	(0.94)	(410)	(640)	
450	1575	1612	1676	851	425	24	226	367	
(18)	(62)	(63.5)	(66)	(33.5)	(16.75)	(0.94)	(500)	(810)	
500	1676	1720	1790	940	470	24	286	455	
(20)	(66.37)	(67.75)	(70.5)	(37)	(18.5)	(0.94)	(630)	(1005)	
600	1854	1886	1968	1066	533	24	394	539	
(24)	(73)	(74.25)	(77.5)	(42)	(21)	(0.94)	(870)	(1190)	

Ordering information

WEDGE flowmeter	FPD470	X	XX	XXX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XXX	XXX	XX	XXX	XX	XXX	XXX	XX	XXX
Product design																						
Pipe-tap		P																				
Flanged taps		F																				
Chemical tee taps		C																				
Restriction design																						
Single wedge			W1																			
Line nominal bore																						
DN 15 (1/2 in.)				015																		
DN 20 (3/4 in.)				020																		
DN 25 (1 in.)				025																		
DN 32 (1 1/4 in.)				032																		
DN 40 (1 1/2 in.)				040																		
DN 50 (2 in.)				050																		
DN 65 (2 1/2 in.)				065																		
DN 80 (3 in.)				080																		
DN 90 (3 1/2 in.)				090																		
DN 100 (4 in.)				100																		
DN 125 (5 in.)				125																		
DN 150 (6 in.)				150																		
DN 200 (8 in.)				200																		
DN 250 (10 in.)				250																		
DN 300 (12 in.)				300																		
DN 350 (14 in.)				350																		
DN 400 (16 in.)				400																		
DN 450 (18 in.)				450																		
DN 500 (20 in.)				500																		
DN 550 (22 in.)				550																		
DN 600 (24 in.)				600																		
DN 650 (26 in.)				650																		
DN 700 (28 in.)				700																		
DN 750 (30 in.)				750																		
DN 800 (32 in.)				800																		
DN 850 (34 in.)				850																		
DN 900 (36 in.)				900																		
DN 950 (38 in.)				950																		
DN 1000 (40 in.)				001																		
DN 1050 (42 in.)				051																		
DN 1100 (44 in.)				101																		
DN 1150 (46 in.)				151																		
DN 1200 (48 in.)				201																		
Others				999																		

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WEDGE flowmeter	FPD470	X	XX	XXX	XX	XX	XX	XX	XX	XX	XX	XX	XXX	XXX	XX	XXX	XX	XXX	XXX	XX	XXX
					See page 11																	
Pipe schedule																						
Schedule 5S					S1																	
Schedule 5					S2																	
Schedule 10S					S3																	
Schedule 10					S4																	
Schedule 20					S5																	
Schedule 30					S6																	
Schedule 40S					S7																	
Schedule 40					S8																	
Schedule STD					S9																	
Schedule 60					T1																	
Schedule 80S					T2																	
Schedule 80					T3																	
Schedule XS					T4																	
Schedule 100					T5																	
Schedule 120					T6																	
Schedule 140					T7																	
Schedule 160					T8																	
Schedule XXS					T9																	
Others					Z9																	
					Continued on next page...																		

WEDGE flowmeter	FPD470	X	XX	XXX	XX	XX	XX	XX	XX	XX	XX	XX	XXX	XXX	XX	XXX	XX	XXX	XXX	XX	XXX
		See pages 11			12																
Pipe material																					
Carbon steel	C3																				
316 / 316L stainless steel	S6																				
304 / 304L stainless steel	S4																				
316H stainless steel	H6																				
304H stainless steel	H4																				
Low temperature carbon steel	C4																				
High yield carbon steel (Gr 52)	C5																				
High yield carbon steel (Gr 65)	C6																				
High yield carbon steel (Gr 60)	C7																				
310 stainless steel	S3																				
321 stainless steel	S2																				
321H stainless steel	S1																				
347 stainless steel	S5																				
347H stainless steel	S7																				
317 / 317L stainless steel	S8																				
904L stainless steel	S9																				
22 % Cr Duplex (UNS S31803)	D1																				
25 % Cr Super Duplex (UNS S32750)	D2																				
25 % Cr Super Duplex (UNS S32760)	D3																				
6 % Mo SS (UNS S31254)	M1																				
Alloy 20 (UNS N08020)	U1																				
Alloy 200 (UNS N02200)	U2																				
Alloy 400 (UNS N04400)	M4																				
Alloy 600 (UNS N06600)	U3																				
Alloy 625 (UNS N06625)	N2																				
Alloy 800 (UNS N08800)	U4																				
Alloy 825 (UNS N08825)	U5																				
Alloy C-22 (UNS N06022)	U6																				
Alloy C-276 (UNS N010276)	U7																				
5Cr-$^{1}/_{2}$Mo low alloy F5 (UNS K41545)	F3																				
9Cr-1Mo-V low alloy F91 (UNS K91560)	F7																				
1$^{1}/_{4}$Cr-$^{1}/_{2}$Mo low alloy F11 (UNS K11597)	F4																				
2$^{1}/_{4}$Cr-1Mo low alloy F22 (UNS K21590)	F5																				
90/10 CuNi (UNS C70600)	P2																				
Titanium grade 2	T2																				
Titanium grade 5	T5																				
Tantalum	L1																				
Others	Z9																				

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FPD470 Wedge flowmeter
Differential pressure – primary flow element

WEDGE flowmeter	FPD470	X	XX	XXX	XX	XX	XX	XX	XX	XX	XX	XX	XXX	XXX	XX	XXX	XX	XXX	XXX	XX	XXX
		See pages 11			12	13															
Restriction material																					
316 / 316L stainless steel						S6															
Carbon steel						C3															
316 / 316L stainless steel						S6															
304 / 304L stainless steel						S4															
316H stainless steel						H6															
304H stainless steel						H4															
Low temperature carbon steel						C4															
High yield carbon steel (Gr 52)						C5															
High yield carbon steel (Gr 65)						C6															
High yield carbon steel (Gr 60)						C7															
310 stainless steel						S3															
321 stainless steel						S2															
321H stainless steel						S1															
347 stainless steel						S5															
347H stainless steel						S7															
317 / 317L stainless steel						S8															
904L stainless steel						S9															
22 % Cr Duplex (UNS S31803)						D1															
25 % Cr Super Duplex (UNS S32750)						D2															
25 % Cr Super Duplex (UNS S32760)						D3															
6 % Mo SS (UNS S31254)						M1															
Alloy 20 (UNS N08020)						U1															
Alloy 200 (UNS N02200)						U2															
Alloy 400 (UNS N04400)						M4															
Alloy 600 (UNS N06600)						U3															
Alloy 625 (UNS N06625)						N2															
Alloy 800 (UNS N08800)						U4															
Alloy 825 (UNS N08825)						U5															
Alloy C-22 (UNS N06022)						U6															
Alloy C-276 (UNS N010276)						U7															
5Cr-$^{1}/_{2}$Mo low alloy F5 (UNS K41545)						F3															
9Cr-1Mo-V low alloy F91 (UNS K91560)						F7															
$1^{1}/_{4}$Cr-$^{1}/_{2}$Mo low alloy F11 (UNS K11597)						F4															
$2^{1}/_{4}$Cr-1Mo low alloy F22 (UNS K21590)						F5															
90/10 CuNi (UNS C70600)						P2															
Titanium grade 2						T2															
Titanium grade 5						T5															
Tantalum						L1															
Others						Z9															

Continued on next page...

WEDGE flowmeter	FPD470	X	XX	XXX	XX	XX	XX	XX	XX	XX	XX	XX	XXX	XXX	XX	XXX	XX	XXX	XXX	XX	XXX
		See pages 11			12	13	14														
H/D ratio																					
0.2								H2													
0.3								H3													
0.4								H4													
0.5								H5													
0.6								H6													
0.7								H7													
Others								Z9													
Process connection type																					
Weld prepared ends									P1												
Raised face socket weld flange									S1												
Full face socket weld flange									S2												
Raised face threaded flange									T3												
Full face threaded flange									T4												
Raised face weld neck end flange									R2												
Raised face slip-on flange									R3												
Oval RTJ weld neck end flange									J2												
Octagonal RTJ weld neck end flange									J4												
Flat face weld neck end flange									F2												
Flat face slip-on flange									F3												
DIN tongue and groove flange									D1												
Hub joint									H1												
Compact flange									C1												
Lap joint flange									L1												
Wafer									W1												
Threaded BSPT									T1												
Threaded NPT									T2												
Others									Z9												

Continued on next page...

FPD470 Wedge flowmeter
Differential pressure – primary flow element

WEDGE flowmeter	FPD470	X	XX	XXX	XX	XX	XX	XX	XX	XX	XX	XX	XXX	XXX	XX	XXX	XX	XXX	XXX	XX	XXX
		See pages 11			12	13	14	15													
Process connection rating																					
ASME Class 150	A1																				
ASME Class 300	A3																				
ASME Class 600	A6																				
ASME Class 900	A7																				
ASME Class 1500	A8																				
ASME Class 2500	A9																				
DIN PN 6	D0																				
DIN PN 10	D1																				
DIN PN 16	D2																				
DIN PN 25	D3																				
DIN PN 40	D4																				
DIN PN 63	D5																				
DIN PN 100	D6																				
ISO 7005 PN 6 EN 1092-1	S0																				
ISO 7005 PN 10 EN 1092-1	S1																				
ISO 7005 PN 16 EN 1092-1	S2																				
ISO 7005 PN 25 EN 1092-1	S3																				
ISO 7005 PN 40 EN 1092-1	S4																				
Flanges JIS 7.5K	J0																				
Flanges JIS 10K	J1																				
Flanges JIS 5K	J2																				
Flanges JIS 20K	J3																				
Flanges JIS 30K	J4																				
Tri-Clamp acc. DIN 32676	T1																				
Tri-Clamp acc. ISO 2852	T2																				
Tri-Clamp acc. ASME BPE	T3																				
BS10 TABLE A	B1																				
BS10 TABLE D	B3																				
BS10 TABLE E	B5																				
BS10 TABLE H	B7																				
API 2000 PSI TYPE 6BX	P1																				
API 3000 PSI TYPE 6BX	P2																				
API 5000 PSI TYPE 6BX	P3																				
API 10000 PSI TYPE 6BX	P4																				
API 15000 PSI TYPE 6BX	P5																				
API 20000 PSI TYPE 6BX	P6																				
Others	Z9																				

Continued on next page...

WEDGE flowmeter	FPD470	X	XX	XXX	XX	XX	XX	XX	XX	XX	XX	XX	XXX	XXX	XX	XXX	XX	XXX	XXX	XX	XXX
		See pages 11			12	13	14	15		16											
Tapping type																					
Pipe nipple (butt weld or male tapping)										N1											
Nipolet (butt weld or male tapping)										N2											
Nipoflange RF										N3											
Nipoflange RTJ										N4											
Nipoflange FF										N5											
Socket weld female (rating = Y0)										S1											
Threaded female										T1											
Flanged RF										F1											
Flanged RTJ (not DIN)										F2											
Flanged FF (not DIN)										F3											
3-Valve integral manifold										M1											
5-Valve integral manifold										M2											
3-Valve direct manifold										M3											
5-Valve direct manifold										M4											
Kidney flange (1/2 in. tapping only)										K1											
Chemical-tee										C1											
Others										Z9											
Tapping size																					
1/4 in.											T1										
3/8 in.											T2										
1/2 in.											T3										
3/4 in.											T4										
1 in.											T5										
1 1/2 in.											T6										
2 in.											T7										
3 in.											T8										
4 in.											T9										
5 in. (chemical-tee only)											V1										

Continued on next page...

FPD470 Wedge flowmeter
Differential pressure – primary flow element

WEDGE flowmeter	FPD470	X	XX	XXX	XX	XX	XX	XX	XX	XX	XX	XX	XXX	XXX	XX	XXX	XX	XXX	XXX	XX	XXX
		See pages 11			12	13	14	15		16	17										
Tapping rating																					
Others												Z9									
Socket weld												S1									
Butt weld												B1									
Chemical-tee												C1									
BSPT F												T1									
BSPT M												T2									
NPT F												T3									
NPT M												T4									
ASME Class 150												A1									
ASME Class 300												A3									
ASME Class 600												A6									
ASME Class 900												A7									
ASME Class 1500												A8									
ASME Class 2500												A9									
DIN PN 6												D0									
DIN PN 10												D1									
DIN PN 16												D2									
DIN PN 25												D3									
DIN PN 40												D4									
DIN PN 63												D5									
DIN PN 100												D6									
Flanges JIS 7.5K												J0									
Flanges JIS 10K												J1									
Flanges JIS 5K												J2									
Flanges JIS 20K												J3									
Flanges JIS 30K												J4									
API 2000 PSI TYPE 6BX												P1									
API 3000 PSI TYPE 6BX												P2									
API 5000 PSI TYPE 6BX												P3									
API 10000 PSI TYPE 6BX												P4									
API 15000 PSI TYPE 6BX												P5									
API 20000 PSI TYPE 6BX												P6									
Others												Z9									
Number of tapping sets length and type																					
One set													TN1								
Two sets													TN2								
Three sets													TN3								
Four sets													TN4								
Others													TNZ								
Pipe orientation																					
Horizontal														PNH							
Vertical														PNV							

Continued on next page...

WEDGE flowmeter	FPD470	X	XX	XXX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XXX	XXX	XX	XXX	XX	XXX	XXX	XX	XXX
		See pages 11			12	13	14	15		16	17		See page 18									
Welding code																						
ASME B31.3 cyclic service																K1						
ASME B31.3 category D service																K2						
ASME B31.3 category M service																K3						
ASME B31.4																K4						
ASME B31.5																K5						
PED B3.1 SEP level																K6						
PED B3.1 category H																K7						
Others																K9						
Surface treatment																						
Primer to McMenon standard (primer only)																	HF1					
Painted to McMenon standard (primer and top																	HF2					
coat) Other (specify in detail)																	HFZ					
Certification																						
Material certificates acc. EN 10204 3.1																		C2				
Material certificates acc. EN 10204 3.2																		C3				
Material certificates acc. NACE, latest revision																		CN				
Dye penetrant inspection																		C9				
Radiography																		C8				
Positive material identification (NITRON XRF)																		CA				
100 % dimensional check																		C6				
Others																		CZ				
Testing																						
Impact testing @ –46 °C (–50.8 °F)																			CH1			
Impact testing @ –196 °C (–320.8 °F)																			CH2			
Hardness survey																			CH3			
HIC testing																			CH4			
Magnetic particle inspection																			CH5			
Ultrasonic inspection																			CH6			
Heat treatment trace																			CH7			
Pressure test (internal)																			CH8			
Others																			CHZ			
Calibration																						
Bi-directional flow calibration with water																				RW2		
Others																				RWZ		
Documentation language (default = M5 / English)																						
German																					M1	
Italian																					M2	
Spanish																					M3	
French																					M4	
English																					M5	
Chinese																					M6	
Added requirements																						
Material source limitations apply																						MS1

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