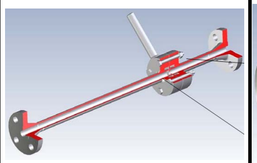
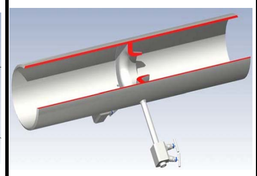
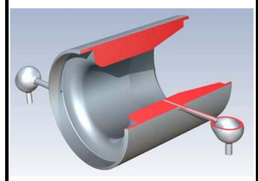
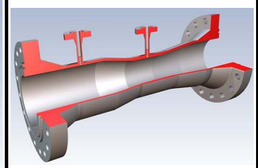
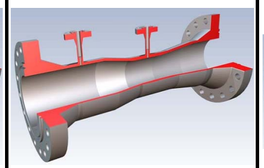
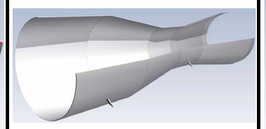
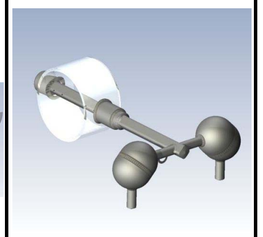
ODS Specialist in debiet meetinstrumentatie

Emco Controls

Primary Flow Element	Orifice plate	Orifice plate metering run	ISA 1932 Nozzle	(High—Low) Long Radius Nozzle	Venturi Nozzle	Venturi Tube As cast	Venturi Tube Machined	Venturi Tube Welded sheet	Averaging Pitot Tube
Example									
Design Standards	ISO 5167—Part 2, ASME MFC-3M, ISA RP 3.2	ISO 5167—part 2, ASME, BS 1042, DIN 19205	ISO 5167-part 3, DIN 19215	ISO 5167-part 3, DIN 19215 ASME MFC-3M	ISO 5167-part 3, DIN 19215	ISO 5167-part 4 ASME MFC-3M	ISO 5167-part 4 ASME MFC-3M	ISO 5167-part 4 ASME MFC-3M	No ISO standard applicable
Sizes	50 mm < D < 1000 mm 2” < D < 40”	DN 10< D < DN 100 3/8” < D < 4”	50 mm < D < 500 mm 2” < D < 20”	50 mm < D < 630 mm 2” < D < 25”	65 mm < D < 500 mm 2,5” < D < 20”	100 mm < D < 800 mm 4” < D < 32”	50 mm < D < 250 mm 2” < D < 10”	200 mm < D < 1200 mm 8” < D < 47”	50 mm < D < 8000 mm 2” < D < 315”
Beta Value (d/D)	0,2 < ß < 0,75	0,2 < ß < 0,75	0,3 < ß < 0,80	0,2 < ß < 0,80	0,316 < ß < 0,775	0,3 < ß < 0,75	0,4 < ß < 0,75	0,4 < ß < 0,70	
Pressure Rating	PN10—400 300—2500 lbs	PN 10—400 150—2500 lbs	PN 10—400 150—2500 lbs	PN 10—400 150—2500 lbs	PN 10—640 150—2500 lbs	PN 10—640 150—2500 lbs	PN 10—640 150—2500 lbs	PN 10—100 150—2500 lbs	PN 16—400 150—2500 lbs
Material	AISI 316, Monel, 6Mo others on request	AISI 316, others on request	CS P250GH, AISI 316, 16Mo3, 13CrMo4-5,10CrMo9-10, X20CrMoV121, F91, F92	AISI 316	CS P250GH, AISI 316, 16Mo3, 13CrMo4-5,10CrMo9-10, X20CrMoV121, F91, F92	CS, AISI 316	CS, AISI 316, Duplex, 254 SMO	CS, AISI 316	SS, CrMo, Hast C, Inconel, Monel, Titanium, PVDF
Mounting Style	Between raised face flanges acc to ANSI B16.36 of DIN 19214	Flanges acc. DIN 2526, 2513 or 2512 RF of RTJ acc to ANSE B 16.5	Weld ends acc EN 9692-1 or ANSI B16.25 Flange connection acc. DIN or ANSI	Between flanges acc to ANSI B16.5, weld ends	Weld ends acc EN 9692-1 or ANSI B16.25 Flange connection acc. DIN or ANSI	Weld ends acc EN 9692-1 or ANSI B16.25 Flange connection acc. DIN or ANSI Grayloc Clamp connection	Weld ends acc EN 9692-1 or ANSI B16.25 Flange connection acc. DIN or ANSI Grayloc Clamp connection	Weld ends acc EN 9692-1 or ANSI B16.25 Flange connection acc. DIN or ANSI Grayloc Clamp connection	Flange according to pressure rating
Tappings	Single pressure tappings	Single pressure tappings Carrier rings	Single pressure tappings Carrier rings	Included in pipe work	Single pressure tappings External annular rings	Single pressure tappings External annular rings	Single pressure tappings External annular rings	Single pressure tappings External annular rings	
Technical Data									
Accuracy	(0,7-ß) % for 0,1<ß<0,2 0,5 % for 0,2<ß<0,6 (1,667xß-0,5) % for 0,6<ß<0,75	0,5 %	0,8 % (ß < 0,6) (2xß-0,4)% (ß > 0,6)	2%	(1,2 + 1,5 x $ß^4$) %	0,7 %	1,0 %	1,5 %	1.0 %
Pressure loss	Ca. 60% of diff. Pressure measured	Ca. 60% of diff. Pressure measured	Ca. 60% of diff. Pressure measured	Ca. 60% of diff. Pressure measured	Ca. 15 % of diff. pressure measured	Ca 10-15 % of diff pressure measured	Ca 10-15 % of diff pressure measured	Ca 10-15 % of diff pressure measured	Ca 5 mbar
Limits for Reynolds No.	Re > 1260 x $ß^2$ x D	Re > 1260 x $ß^2$ x D	$7x10^4 \leq Re(D) \leq 1x10^7$ (0,3≤ ß≤ 0,44) $2x10^4 \leq Re(D) \leq x10^7$ (0,44≤ ß≤ 0,80)	$1x10^4 \leq Re(D) \leq 1 x10^7$	$1,5x10^5 \leq Re(D) \leq 2x10^6$	$2x10^5 \leq Re(D) \leq 2x10^6$	$2x10^5 \leq Re(D) \leq 1x10^6$	$2x10^5 \leq Re(D) \leq 2x10^6$	$1x10^5 \leq Re(D) \leq 2x10^6$

ODS Instrumentatie

klöckner & co multi metal distribution

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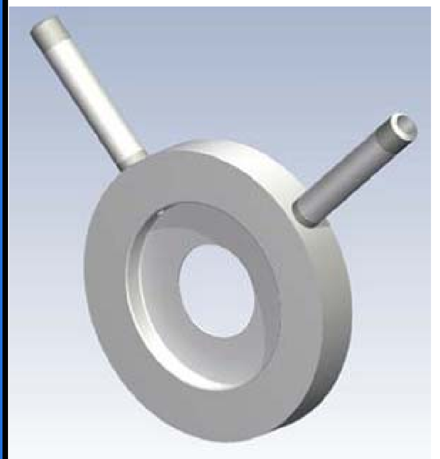
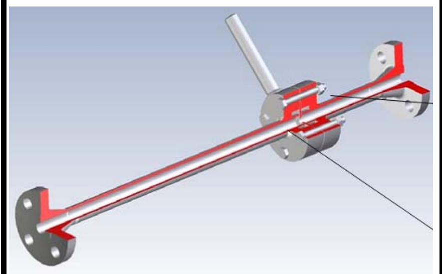
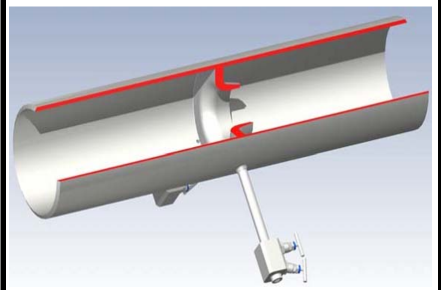
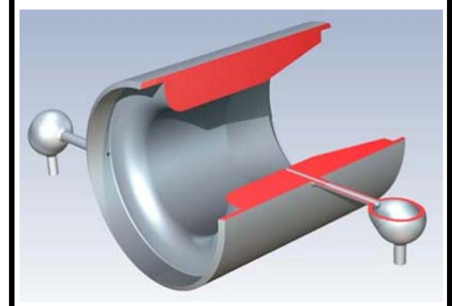
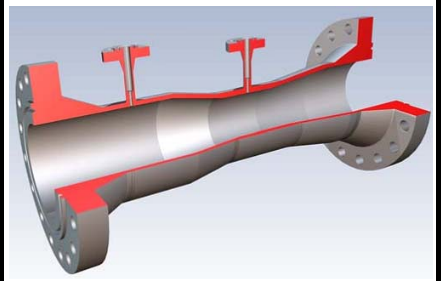
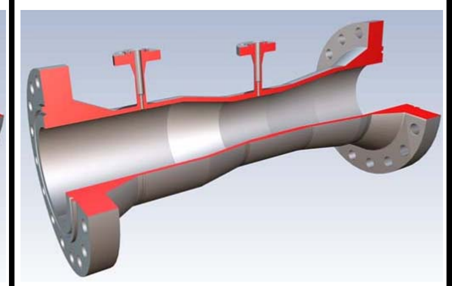
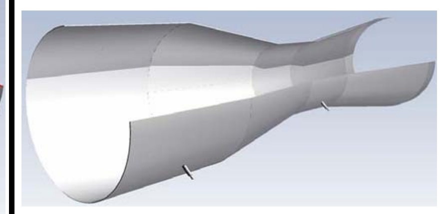
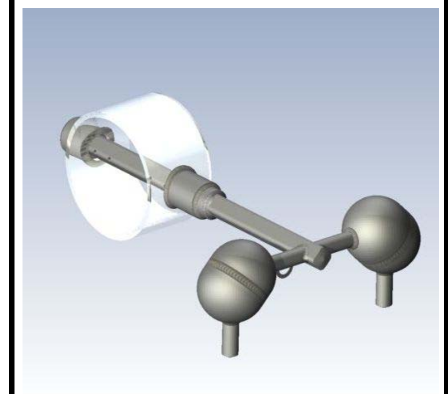
Primary Flow Element	Orifice plate	Orifice plate metering run	ISA 1932 Nozzle	(High—Low) Long Radius Nozzle	Venturi Nozzle	Venturi Tube As cast	Venturi Tube Machined	Venturi Tube Welded sheet	Averaging Pitot Tube
Example									
Installation Requirements : straight runs before / after Measurement									
Single 90° bend	22 x ID (ß=0,5) 42 x ID (ß=0,6)	22 x ID (ß=0,5) 42 x ID (ß=0,6)	10 x ID (ß=0,3) 14 x ID (ß=0,5) 18 x ID (ß=0,6)	10 x ID (ß=0,3) 14 x ID (ß=0,5) 18 x ID (ß=0,6)	10 x ID (ß=0,3) 14 x ID (ß=0,5) 18 x ID (ß=0,6)	8 x ID (ß=0,3) 9 x ID (ß=0,5) 10 x ID (ß=0,6)	8 x ID (ß=0,3) 9 x ID (ß=0,5) 10 x ID (ß=0,6)	8 x ID (ß=0,3) 9 x ID (ß=0,5) 10 x ID (ß=0,6)	9 x D
Two 90° bends	22 x ID (ß=0,5) 42 x ID (ß=0,6)	22 x ID (ß=0,5) 42 x ID (ß=0,6)	16-34 x ID (ß=0,3) 20-40 x ID (ß=0,5) 26-48 x ID (ß=0,6)	16-34 x ID (ß=0,3) 20-40 x ID (ß=0,5) 26-48 x ID (ß=0,6)	16-34 x ID (ß=0,3) 20-40 x ID (ß=0,5) 26-48 x ID (ß=0,6)	8 x ID (ß=0,3) 10 x ID (ß=0,5) 10 x ID (ß=0,6)	8 x ID (ß=0,3) 10 x ID (ß=0,5) 10 x ID (ß=0,6)	8 x ID (ß=0,3) 10 x ID (ß=0,5) 10 x ID (ß=0,6)	14 x D
Reducer	8 x ID (ß=0,5) 9 x ID (ß=0,6)	8 x ID (ß=0,5) 9 x ID (ß=0,6)	5 x ID (ß=0,3) 6 x ID (ß=0,5) 9 x ID (ß=0,6)	5 x ID (ß=0,3) 6 x ID (ß=0,5) 9 x ID (ß=0,6)	5 x ID (ß=0,3) 6 x ID (ß=0,5) 9 x ID (ß=0,6)	4 x ID (ß=0,3) 4 x ID (ß=0,5) 4 x ID (ß=0,6)	4 x ID (ß=0,3) 4 x ID (ß=0,5) 4 x ID (ß=0,6)	4 x ID (ß=0,3) 4 x ID (ß=0,5) 4 x ID (ß=0,6)	
Thermometer Pocket	5 x ID (ß=0,5) 5 x ID (ß=0,6)	5 x ID (ß=0,5) 5 x ID (ß=0,6)	5 x ID (ß=0,3) 5 x ID (ß=0,5) 5 x ID (ß=0,6)	5 x ID (ß=0,3) 5 x ID (ß=0,5) 5 x ID (ß=0,6)	5 x ID (ß=0,3) 5 x ID (ß=0,5) 5 x ID (ß=0,6)				
Downstream	6 x ID (ß=0,5) 7 x ID (ß=0,6)	6 x ID (ß=0,5) 7 x ID (ß=0,6)	5 x ID (ß=0,3) 6 x ID (ß=0,5) 7 x ID (ß=0,6)	5 x ID (ß=0,3) 6 x ID (ß=0,5) 7 x ID (ß=0,6)	5 x ID (ß=0,3) 6 x ID (ß=0,5) 7 x ID (ß=0,6)	4 x throat D	4 x throat D	4 x throat D	3 x D
Pipe Information									
Roughness pipe	see ISO 5167-part 2 Depending on ß value and Re(D) (applicable 10 D upstream)	see ISO 5167-part 2 Depending on ß value and Re(D) (applicable 10 D upstream)	see ISO 5167-part 3 Depending on ß value (applicable 10 D upstream) Ex. ß=0.6 -> Ra/D ≤ $1.4x10^{-4}$	see ISO 5167-part 3 (applicable 10 D upstream) Ra/D <= $3.2x10^{-4}$	see ISO 5167-part 3 Depending on ß value (applicable 10 D upstream) Ex. ß=0.6 -> Ra/D ≤ $1.4x10^{-4}$	see ISO 5167-part 4 (applicable 2 D upstream) Ra/D ≤ $3.2x10^{-4}$	see ISO 5167-part 4 (applicable 2 D upstream) Ra/D ≤ $3.2x10^{-4}$	see ISO 5167-part 4 (applicable 2 D upstream) Ra/D <= $3.2x10^{-4}$	No Info
Circularity of the pipe Cylindricality of the pipe UPSTREAM	• 2xD upstream = better then 0.3 % of D • Between 2xD and 10xD upstream = better then 0.3 % of D • Further then 10 D = better then 2 % of D	• 2xD upstream = better then 0.3 % of D • Between 2xD and 10xD upstream = better then 0.3 % of D • Further then 10 D = better then 2 % of D	• 2xD upstream = better then 0.3 % of D • Between 2xD and 10xD upstream = better then 0.3 % of D • Further then 10 D = better then 2 % of D	• 2xD upstream = better then 0.3 % of D • Between 2xD and 10xD upstream = better then 0.3 % of D • Further then 10 D = better then 2 % of D	• 2xD upstream = better then 0.3 % of D • Between 2xD and 10xD upstream = better then 0.3 % of D • Further then 10 D = better then 2 % of D	2xD upstream = better then 2 % of D	2xD upstream = better then 2 % of D	2xD upstream = better then 2 % of D	No Info
Circularity of the pipe Cylindricality of the pipe DOWNSTREAM	Over at least 2 D = better then 3 % of D	Over at least 2 D = better then 3 % of D	Over at least 2 D = better then 3 % of D	Over at least 2 D = better then 3 % of D	Over at least 2 D = better then 3 % of D	NA	NA	NA	No Info

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