

## General Specifications

# Combination Small Connections

Direct Mount H.P side / Capillary Mount L.H side

## Specification

### Type CS

#### Application

Primarily used in Petroleum-Chemical processes, and particularly useful when small connection sizes are required for measuring pressure, level and flow.

#### Configuration

Differential pressure only. The high pressure side has the Diaphragm Seal direct mounted to the transmitter and a compensation capillary is added for zero stability. The low pressure side has the Diaphragm Seal connected to the transmitter via capillary. A Low Volume cover flange must be fitted to all DP transmitters to reduce fill quantities and therefore reduce errors induced by ambient temperature change.

#### Process Connection

ANSI, ANSI RTJ, Din, ANSI Large Tongue, ANSI Large Groove, Table & JIS

#### Process Connection Size

DN15 (1/2") 8 Bolt Seal, DN20 (3/4") 8 Bolt Seal, DN25 (1") 8 Bolt Seal, DN40 (1-1/2") 8 Bolt Seal, For Larger sizes refer to **GS CL**

#### Seal Construction

Machined from Forged Bar.  
Diaphragm in Upper housing.  
The Upper and Lower chamber are bolted together with 8, 304 Stainless Steel bolts and sealed with a Viton O-ring.

#### Packing Surface Finish:

To connection standard.

#### Wetted Materials

316/316L Dual Certified Stainless Steel (standard)  
Other materials available upon request.

#### Capillary

Available in 1 to 10 metre lengths.

#### Capillary Armour

PVC coated 304 Stainless Steel (standard)  
For processes with temperatures over 100°C or sanitary specification systems spiral wound 304 Stainless Steel.

#### Zero Stability

Stability will be affected by the instrument configuration, ambient temperature, process temperature, connection size (diaphragm size) and the measuring range.  
Please contact to discuss temperature effects and instrument accuracy.

#### Dimensional Drawings & System Configuration

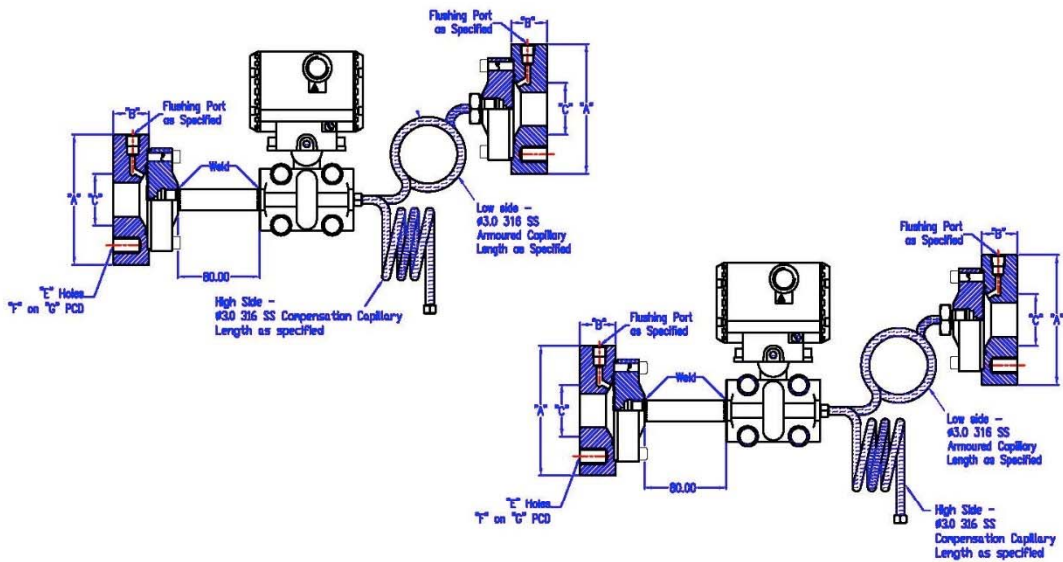
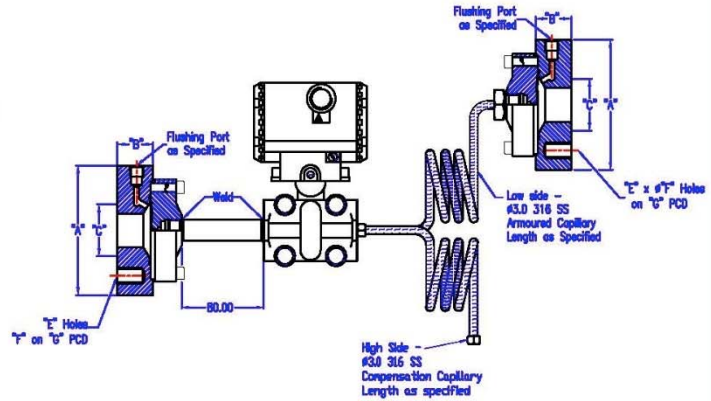
Refer to Dimensional Drawings.



## General Specifications

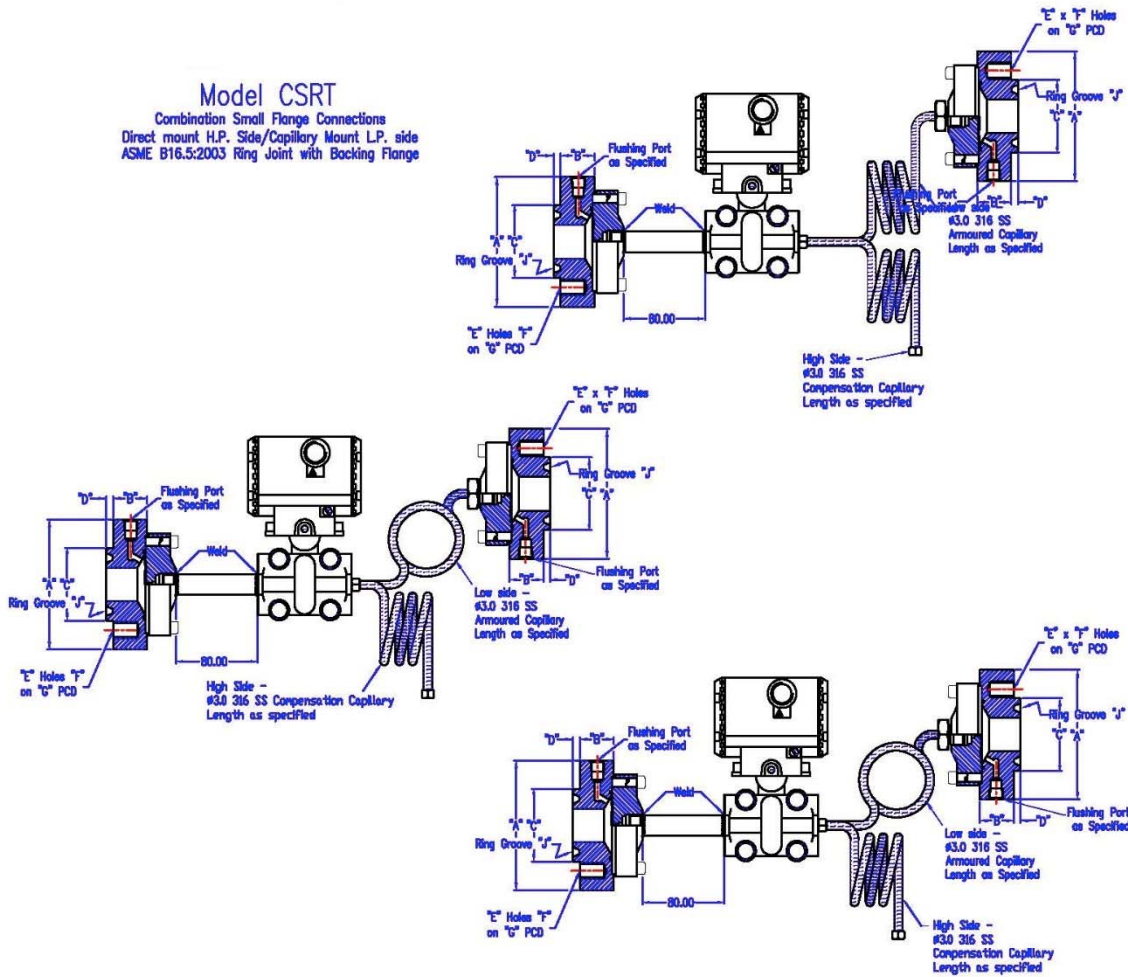
<b>Combination Small Flange Connection (8 Bolt) – Type CS</b>		<b>Suffix Code</b>
<b>Process Connection</b>	Combination Small Flange	CS
<b>Connection Type</b>	ASME B16.5 Raised Face	AR
	ASME B16.5 Flat Face	AF
	ASME B16.5 Ring Type Joint (RTJ)	RT
	DIN (EN1092-1)	DN
	JIS B 2220	JI
	Table AS2129	TB
	NPT Female	NF
	BSPT Female	TF
Special	XX	
<b>Connection Size</b>	DN15 (1/2")	04
	DN20 (3/4")	06
	DN25 (1")	08
	DN40 (1-1/2")	12
	Special	XX
<b>Connection Rating</b>	Threaded Connection	0
	ASME 150lb, Table E	1
	ASME 300lb, DIN PN10-16, JIS 10K, Table F	2
	ASME 600lb, DIN PN25-40, JIS 16K, Table H	3
	ASME 900lb, DIN PN64, JIS20K Table J (ASME 900lb for DN80 (3") & above)	4
	ASME 1500lb, DIN PN100, JIS 30K, Table K	5
<b>Diaphragm Material</b>	316/316L Stainless Steel	S
	304/304L Stainless Steel	A
	Hastelloy C-276 (MUST have the same Wetted parts)	H
	Monel 400 (MUST have the same Top & Wetted parts)	M
	Titanium Grade 2 (MUST have the same Top & Wetted parts)	I
	Tantalum	T
	PFA (316/316L Stainless Steel coated)	F
	Gold Plated 316/316L Stainless Steel	G
	Duplex 2205	U
	Special	X
<b>Wetted Parts</b>	316/316L Stainless Steel	S
	304/304L Stainless Steel	A
	Hastelloy C-276 (MUST have the same Diaphragm Material)	H
	Monel 400 (MUST have the same Top & Diaphragm Material)	M
	Titanium Grade 2 (MUST have the same Top & Diaphragm Material)	I
	Duplex 2205	U
	PFA (316/316L Stainless Steel coated)	F
	Special	X
<b>Flushing Ports LP &amp; HP sides</b>	None	0
	1 x 1/4" NPT = 2 Ports supplied with 1 Plug	1
	2 x 1/4" NPT Ports	2
	1 x 1/2" NPT = 2 Ports supplied with 1 Plug	3
	2 x 1/2" NPT Ports	4
<b>System Configuration High Side</b>	Direct Mount Standoff with Compensation Capillary	A
	Special	X
<b>System Configuration /Low side</b>	1 Metre	01
	2 Metres	02
	3 Metres	03
	4 Metres	04
	5 Metres	05
	6 Metres	06
	7 Metres	07
	8 Metres	08
	9 Metres	09
	10 Metres	10
<b>Fill Liquid</b>	KN32 704 Silicon Oil 30cs (-10°C to +300°C)	A
	KN22 Silicon Oil 100cs (-40°C to +290°C)	B
	KN33 705 Silicon Oil 320cs (-10°C to +400°C)	C
	KN21 Fluorolube 7cs (-20°C to +120°C)	D
	KN55 Ethylene Glycol (-13°C to +196°C)	E
	KN17 Silicon Oil 2cs (-90°C to +80°C for less than 1Bar. -90°C to +180°C for greater than 1Bar)	L
	Special	X

**Model CSTB**  
 Combination Small Flange Connections  
 Direct Mount & Capillary Mount with Compensation  
 AS2129:2004 with Backing Flange



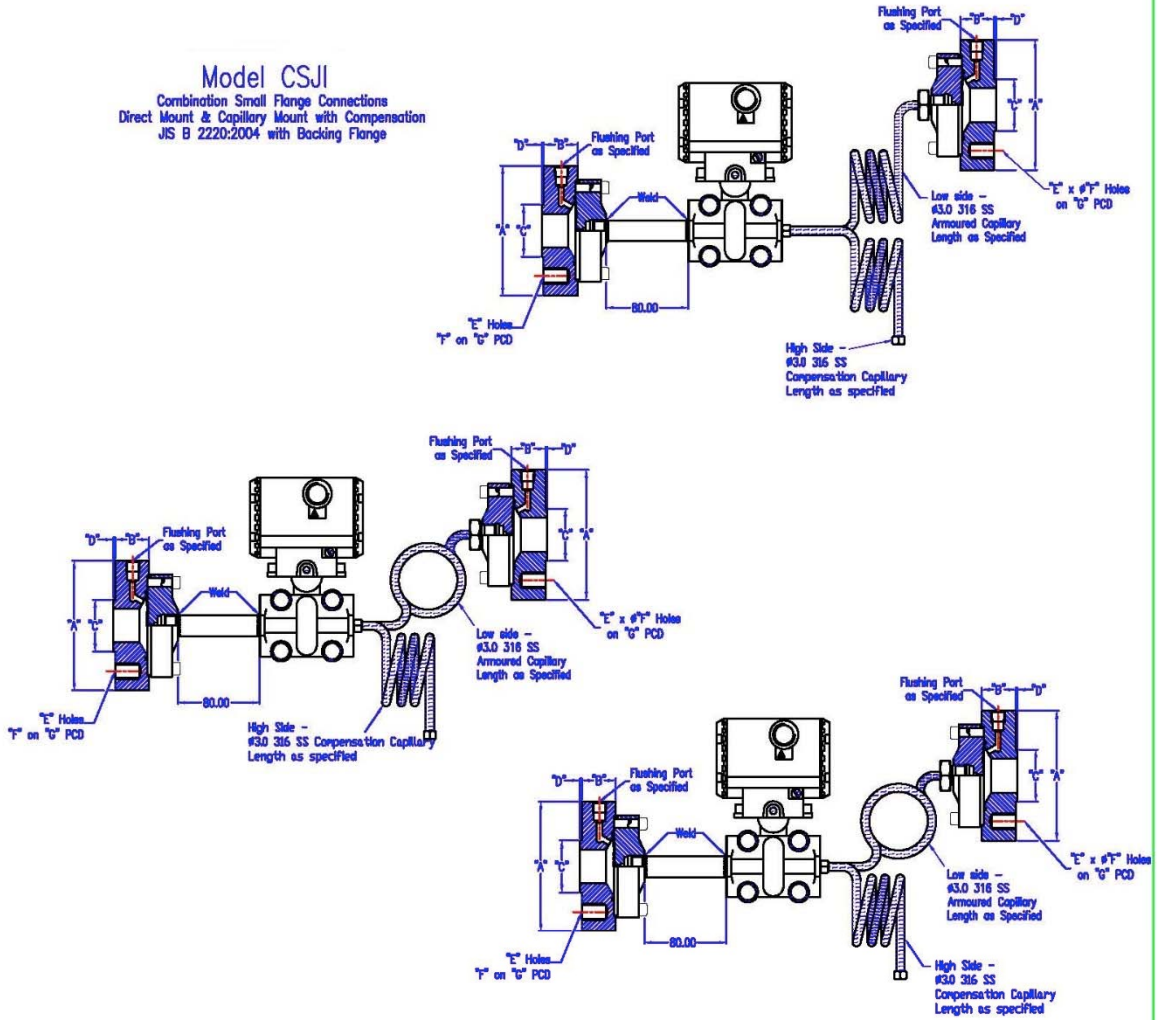
Size	Rating	"A"	"B"	"C"	"E"	"F"	"G"
1/2"	Table E-F	100.0		47.0	4	M12	67.0
	Table H-J	115.0	32.0	57.0		M16	83.0
	Table K	115.0		64.0		M16	83.0
3/4"	Table E-F	100.0		53.0	4	M12	73.0
	Table H-J	115.0	32.0	57.0		M16	83.0
	Table K	115.0		64.0		M16	83.0
1"	Table E	115.0		63.0	4	M12	83.0
	Table F	120.0	32.0	63.0		M16	87.0
	Table H-J	120.0		64.0		M16	87.0
	Table K	125.0		76.0		M16	95.0
1-1/2"	Table E	135.0		78.0	4	M12	98.0
	Table F	140.0	32.0	81.0		M16	105.0
	Table H-J	140.0		83.0		M16	105.0
	Table K	150.0	35.0	89.0		M20	114.0

**Model CSRT**  
 Combination Small Flange Connections  
 Direct mount H.P. Side/Capillary Mount L.P. side  
 ASME B16.5:2003 Ring Joint with Backing Flange



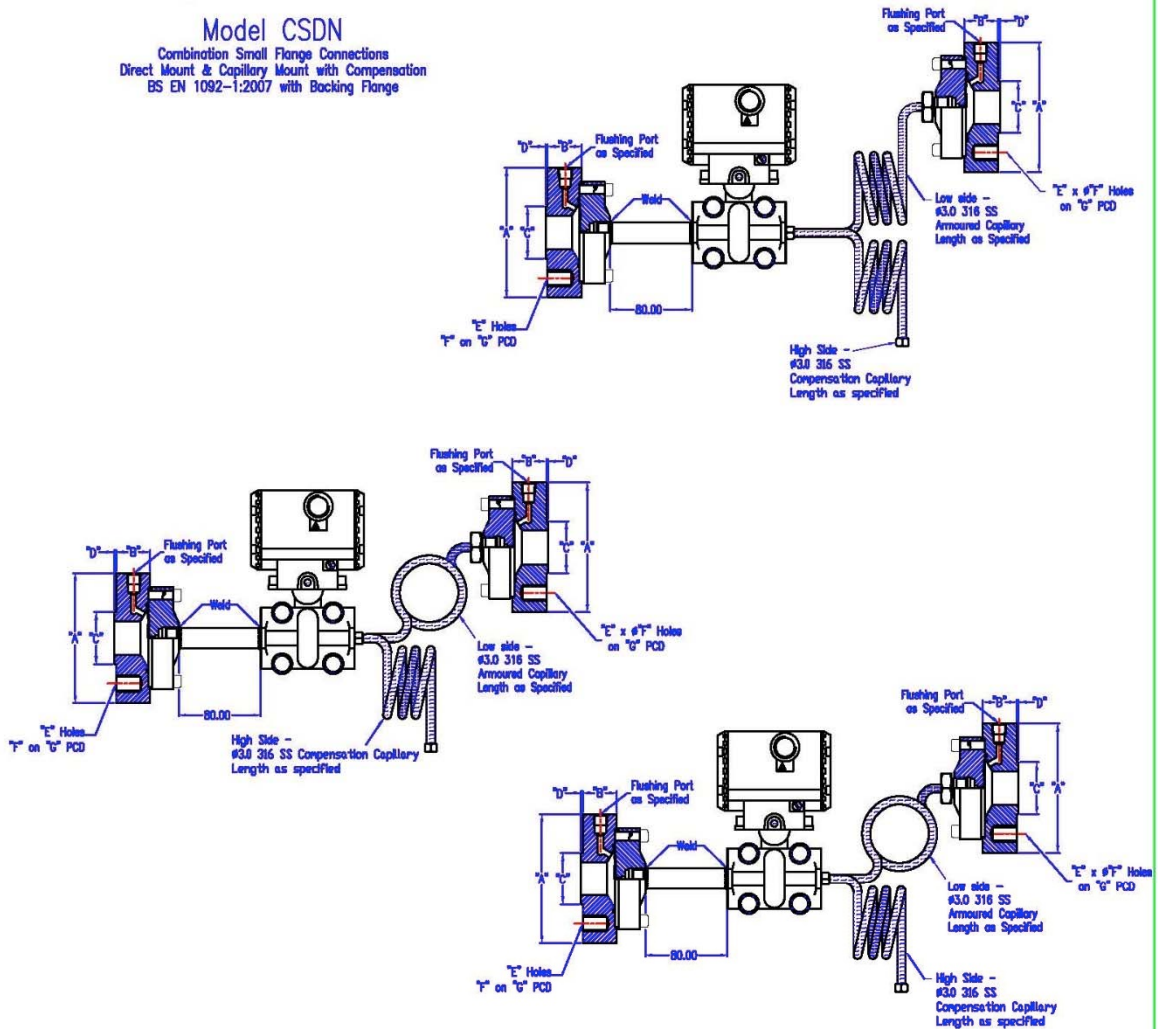
Size	Rating	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"J"
1/2"	#300/#600	100.0	30.0	51.0	5.6	4	1/2" UNC	66.7	R11
	#900/1500	120.0	34.0	60.5	6.4		3/4" UNC	82.6	R12
	#2500	135.0	34.0	65.0	6.4		3/4" UNC	88.9	R13
3/4"	#300/#600	115.0	34.0	63.5	6.4	4	5/8" UNC	82.6	R13
	#900/#1500	130.0	34.0	66.5	6.4		3/4" UNC	88.9	R14
	#2500	140.0	34.0	73.0	6.4		3/4" UNC	95.25	R16
1"	#150	110.0	30.0	63.5	6.4	4	1/2" UNC	79.4	R15
	#300/#600	124.0	34.0	70.0	6.4		5/8" UNC	88.9	R16
	#900/#1500	149.5	42.0	71.5	6.4		7/8" UNC	101.6	R16
	#2500	159.0	42.0	82.5	6.4		7/8" UNC	108.0	R18
1-1/2"	#150	127.0	30.0	82.5	6.4	4	1/2" UNC	98.4	R19
	#300/#600	156.0	34.0	90.5	6.4		3/4" UNC	114.3	R20
	#900/#1500	180.0	46.0	92.0	6.4		1" UNC	123.8	R20
	#2500	203.0	46.0	114.3	8.0		1-1/8" UNC	146.0	R23

**Model CSJI**  
 Combination Small Flange Connections  
 Direct Mount & Capillary Mount with Compensation  
 JS B 2220:2004 with Backing Flange



Size	Rating	"A"	"B"	"C"	"D"	"E"	"F"	"G"
DN15	5K	100.0		44.0	1.0	4	M10	60.0
	10K-20K	100.0	32.0	46.0			M12	70.0
	30K	115.0		52.0			M16	80.0
DN20	5K	100.0		49.0	1.0	4	M10	65.0
	10K-20K	100.0	32.0	51.0			M12	75.0
	30K	120.0		55.0			M16	85.0
DN25	5K	100.0		59.0	1.0	4	M10	75.0
	10K-20K	125.0	32.0	67.0			M16	90.0
	30K	130.0		70.0			M16	95.0
DN40	5K	120.0	32.0	75.0	2.0	4	M12	95.0
	10K-20K	140.0		81.0			M16	105.0
	30K	160.0	35.0	90.0			M20	120.0

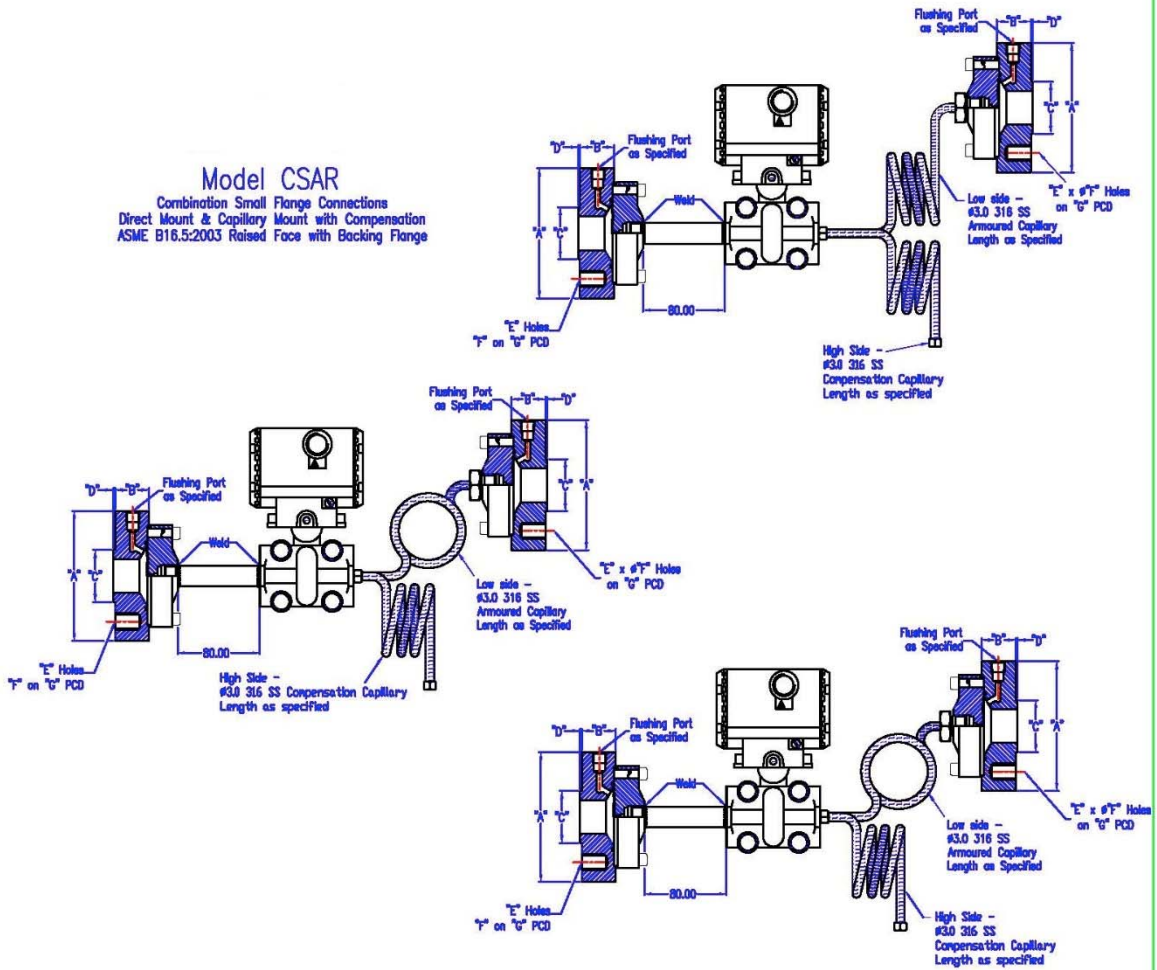
Model CSDN  
 Combination Small Flange Connections  
 Direct Mount & Capillary Mount with Compensation  
 BS EN 1092-1:2007 with Backing Flange



Size	Rating	"a"	"b"	"c"	"d"	"e"	"f"	"g"
DN15	PN10-40	100.0	32.0				M12	65.0
	PN63-160	105.0	32.0	45.0	2.0	4	M12	75.0
DN20	PN10-40	105.0	32.0				M12	75.0
	PN63-160	130.0	32.0	58.0	2.0	4	M16	90.0
DN25	PN10-40	115.0	32.0				M12	85.0
	PN63-160	140.0	32.0	68.0	2.0	4	M16	100.0
DN40	PN10-40	150.0	32.0				M16	110.0
	PN63-160	170.0	35.0	88.0	3.0	4	M20	125.0

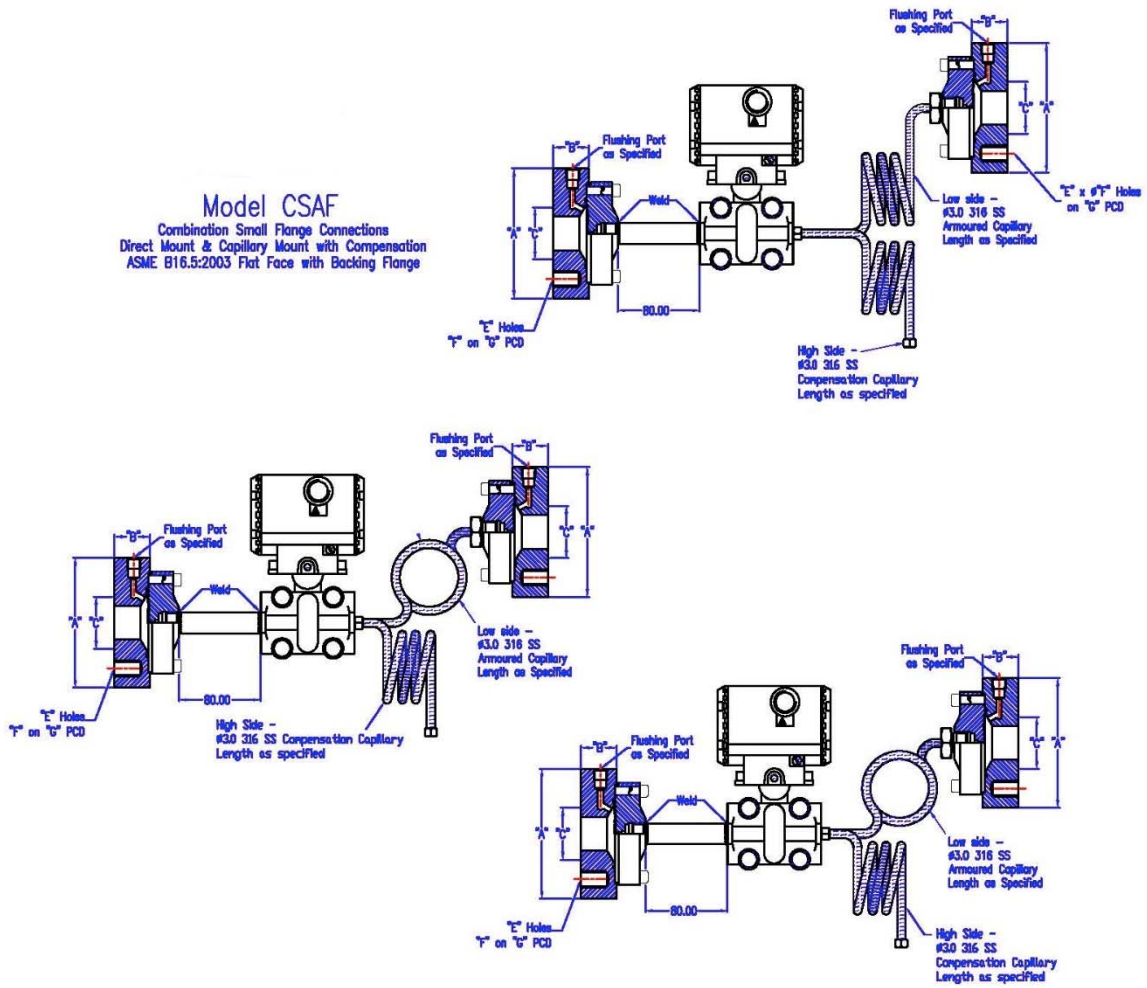
## Model CSAR

Combination Small Flange Connections  
 Direct Mount & Capillary Mount with Compensation  
 ASME B16.5:2003 Raised Face with Backing Flange



Size	Rating	"A"	"B"	"C"	"D"	"E"	"F"	"G"
1/2"	#150	100.0	30.0	35.0	2.0	4	1/2" UNC	60.3
	#300	100.0	30.0				1/2" UNC	66.7
	#600	100.0	31.0		1/2" UNC		66.7	
	#900/1500	120.0	33.0		3/4" UNC		82.6	
	#2500	135.0	33.0		3/4" UNC		89.0	
3/4"	#150	100.0	30.0	43.0	2.0	4	1/2" UNC	69.9
	#300	115.0	33.0				5/8" UNC	82.6
	#600	115.0	33.0		5/8" UNC		82.6	
	#900/1500	130.0	33.0		3/4" UNC		88.9	
	#2500	140.0	33.0		3/4" UNC		95.25	
1"	#150	110.0	30.0	50.8	2.0	4	1/2" UNC	79.4
	#300	125.0	33.0				5/8" UNC	88.9
	#600	125.0	33.0		5/8" UNC		88.9	
	#900/1500	150.0	41.0		7/8" UNC		101.6	
	#2500	160.0	41.0		7/8" UNC		108.0	
1-1/2"	#150	125.0	30.0	73.0	2.0	4	1/2" UNC	98.4
	#300	155.0	33.0				3/4" UNC	114.3
	#600	155.0	33.0		3/4" UNC		114.3	
	#900/1500	160.0	46.0		1" UNC		123.8	
	#2500	205.0	46.0		1-1/8" UNC		146.0	

**Model CSAF**  
 Combination Small Flange Connections  
 Direct Mount & Capillary Mount with Compensation  
 ASME B16.5:2003 Flat Face with Backing Flange

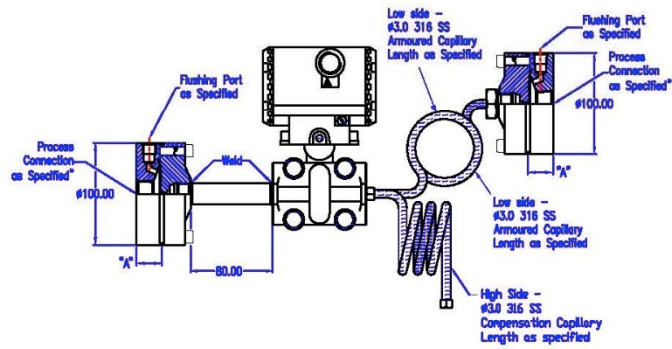
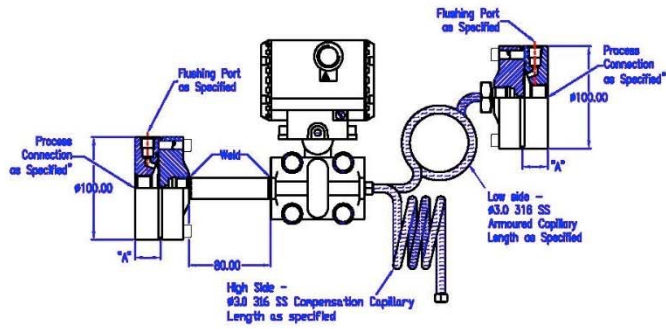
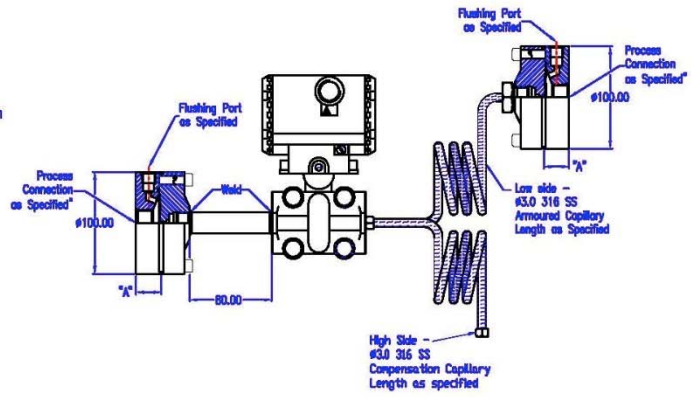


Size	Rating	"A"	"B"	"C"	"E"	"F"	"G"
1/2"	#150	100.0	32.0	35.0	4	1/2" UNC	60.3
	#300	100.0	32.0			1/2" UNC	66.7
	#600	100.0	38.0			1/2" UNC	66.7
	#900/1500	120.0	40.0			3/4" UNC	82.6
	#2500	135.0	40.0			3/4" UNC	89.0
3/4"	#150	100.0	32.0	43.0	4	1/2" UNC	69.9
	#300	115.0	35.0			5/8" UNC	82.6
	#600	115.0	40.0			5/8" UNC	82.6
	#900/1500	130.0	40.0			3/4" UNC	88.9
	#2500	140.0	40.0			3/4" UNC	95.25
1"	#150	110.0	32.0	50.8	4	1/2" UNC	79.4
	#300	125.0	35.0			5/8" UNC	88.9
	#600	125.0	40.0			5/8" UNC	88.9
	#900/1500	150.0	48.0			7/8" UNC	101.6
	#2500	160.0	48.0			7/8" UNC	108.0
1-1/2"	#150	125.0	32.0	73.0	4	1/2" UNC	98.4
	#300	155.0	35.0			3/4" UNC	114.3
	#600	155.0	40.0			3/4" UNC	114.3
	#900/1500	160.0	53.0			1" UNC	123.8
	#2500	205.0	53.0			1-1/8" UNC	146.0

\* Dimension "C" indicates Gasket Grip Major Diameter



**Model CSTF**  
 Combination Small Flange Connections  
 Direct Mount & Capillary Mount with Compensation



Flushing Port Size	"A"
1/4" NPT	25.0
1/2" NPT	30.0
3/4" NPT	35.0