



Schneider, Flow [Coriolis]

Metering Technology	Clean liquid	Dirty liquid	Corrosive liquid	Low conductivity < 5 µS/cm	High (> 150°C) Temperature	Low (< -40°C) Temperature	Low velocity	High viscosity	Abrasive slurries	Fibrous slurries	Clean Gas	Dirty Gas	Steam	Semi-filled pipe
Coriolis	Good	Good	Limited	Good	Limited	Good	Good	Good	Limited	Good	Good	Limited	No	Limited
Electro Magnetic	Good	Good	Good	No	Limited	Limited	Good	Good	Good	Good	No	No	No	Limited
Vortex	Good	Limited	Limited	Good	Good	Limited	No	No	No	No	Good	Limited	Good	No
Integral Flow (dP)	Good	Limited	Limited	Good	Good	Limited	No	No	No	No	Good	Limited	Limited	No
Orifice Plate (dP)	Good	Limited	Limited	Good	Good	Limited	No	No	No	No	Good	Limited	Good	No
Averaging Pitot tube (dP)	Good	Limited	Limited	Good	Good	Limited	No	No	No	No	Good	Limited	Good	No
Venturi (dP)	Good	Good	Limited	Good	Good	Limited	No	No	Limited	Limited	Good	Good	Good	No
V-Cone (dP)	Good	Good	Limited	Good	Good	Limited	No	No	Limited	Limited	Good	Good	Good	No
Wedge (dP)	Good	Good	Limited	Good	Good	Limited	No	No	Good	Good	Good	Good	Good	No
Flow Nozzles (dP)	Good	Limited	Limited	Good	Good	Limited	No	No	No	No	Good	Good	Good	No
Thermal Mass	Good	Limited	Limited	Good	Limited	No	Good	Limited	Limited	Limited	Good	Limited	Good	No
Positive Displacement	Good	No	Limited	Good	Limited	Limited	Good	Limited	No	No	Good	Limited	No	No
Turbine	Good	No	Limited	Good	Limited	Limited	No	No	No	No	Good	Limited	Good	No
Ultrasonic (transit time)	Good	Limited	Limited	Good	No	Limited	Limited	Limited	No	No	Good	Limited	No	No
Ultrasonic (doppler)	No	Good	Limited	Good	No	Limited	Limited	Limited	Limited	Limited	No	Limited	No	No
Ultrasonic (multibeam)	Good	Limited	Limited	Good	No	Limited	Limited	Limited	No	No	Good	Good	Limited	No
Variable Area	Good	No	Limited	Good	Limited	No	No	No	No	No	Good	No	No	No

SCHNEIDER CORIOLIS

Why Mass Flow?

Mass Flow

Primary Unit of Flow Measurement

Key Attributes

High Accuracy
Low Maintenance
Independent of Flow Profile
Bidirectional Measurement
Discrete & Continuous Measurement

Unaffected By:

Viscosity
Density
Conductivity
Pressure
Temperature

Four Sensor Models



CFS300



CFT34
Transmitter



CFS600



CFS400



CFS700

SCHNEIDER CORIOLIS

CFS300A: General Purpose Meter

Applications: Separator measurement, allocation, Net Oil, Truck loading

CFS300A General Purpose

1/2-in through 4-in

Don't Size By Line Size!!

But By Flowrate & Process Conditions



Twin Tube Design

Mass Liquid Accuracy:	+/- 0.15%
Mass Gas Accuracy:	+/- 0.5%
Density Accuracy S15	+/- .005 g/cc
Optional on-site :	+/- .002 g/cc
Density Accuracy S25..50	+/- .002 g/cc
Optional on-site :	+/- .0005 g/cc
Temperature Accuracy	+/- 1.8 deg F
Process Temperature Range:	-40...+266 deg F
Max Pressure:	1,450 psi
Pressure effect on flow	+0.001% per PSI

- * Twin Straight Tube Design
- * NACE Compliant, option
- * Measuring tube S31803 Duplex SS
- * Spigots and Flanges 316/316L SS
- * Hazardous Area
- * Hygienic approvals, 3A and EHEDG
- * CT Approvals: NTEP, Measu. Canada
- * Secondary Containment
- * Heating Jacket and Purge Port option

Stainless Steel S31803

Process Temperature Range -40...+266 deg F

Size	S15 (30H)	S25 (301)	S40 (31H)	S50 (302)
Flange Sizes (ANSI 150-600)	.5", 0.75", 1"	1", 1.5", 2"	1.5", 2", 3"	2", 3", 4"
Zero Stability (lb/min)	0.024	0.099	0.294	0.625
Min- Max (lb/min)	1.7 - 239	7.39 - 992	22 - 2,940	46 - 6,246
Max Rate @ 14.7 PSI water (lb/min)	176	735	2204	4593
Min - Max (bbl/d)	7.3 - 983	30 - 4,098	91 - 12,098	189 - 25,712
Max Rate @ 14.7 PSI Water (bbl/d)	725	3,026	9,069	18,907

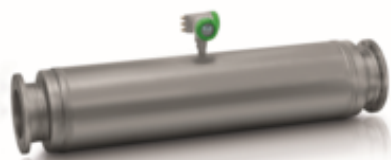
Applications: Custody Transfer, LACT, Pipeline, large line sizes

Don't Size By Line Size!!

But By Flowrate & Process Conditions

CFS400A Large Sizes

4-in through 16-in



Dual/Quad Tube

Mass Liquid Accuracy:	+/- 0.1%
Mass Liq. Accuracy (optional)	+/- 0.05%
Mass Gas Accuracy:	+/- 0.35%
Density Accuracy	+/- .001 g/cc
Optional on-site :	+/- .0002 g/cc
Temperature Accuracy	+/- 1.8 deg F
Process Temperature Range:	-49...+266 deg F
Max . Pressure:	2610 psi
Pressure effect on flow	+.000014% per PSI*
Nace Compliant	

Liquid Repeatability:	0.05%
Optional Repeatability	0.025%
Gas Repeatability:	0.2%

- * No pressure compensation required
- * Twin or Quad Straight Tube
- * Duplex and Super Duplex Measuring Tube
- * Flanges in 316/316L, Duplex or Super Duplex SS
- * Hazardous Area
- * Custody Transfer Approvals
- * Internal Pressure Effect Compensation
- * Secondary Containment, Standard
- * Heating Jacket and Purge Port option

Stainless, Duplex, Super Duplex	Process Temperature:	-49...+266 deg F						
Size	S100 (404)	S100 Premium (404)	S150 (406)	S150 Premium (406)	S250 (410)	S250 Premium (410)	S400 (416)	S400 Premium (416)
Flange Sizes (ANSI 150 - 1500)	4", 6"	4", 6"	6", 8"	6", 8"	8", 10", 12"	8", 10", 12"	12", 14", 16"	12", 14", 16"
Zero Stability (lb/min)	0.40	0.40	0.92	0.92	2.20	2.20	4.41	4.41
Min- Max (lb/min)	57 - 15,432	57 - 15,432	146 - 33,070	146 - 33,070	404 - 84,511	404 - 84,511	845 - 169,022	845 - 169,022
Max Rate @ 14.7 PSI water (lb/min)	8,084	8,084	18,372	18,372	44,092	44,092	88,185	88,185
Min - Max (bbl/d)	235 - 63,526	235 - 63,526	601 - 136,132	601 - 136,132	1,663 - 347,888	1,663 - 347,888	3,478 - 695,777	3,478 - 695,777
Max Rate @ 14.7 PSI Water (bbl/d)	33,278	33,278	75,628	75,628	181,504	181,504	363,012	363,012

SCHNEIDER CORIOLIS

CFS600A: High Accuracy, Extreme Process Conditions

Applications: Premium Performance, Custody Transfer, LACT, Pipeline, Net Oil, High accuracy.

CFS600A High Accuracy and Extreme Process Conditions



Dual Bent Tube

Mass Liq. Accuracy:	$\pm 0.1\%$
Mass Liq. Accuracy (optional)	Flat Line $\pm 0.05\%$
Mass Gas Accuracy:	$\pm 0.35\%$
Density Accuracy:	$\pm 0.001 \text{ g/cc}$
Optional on-site:	$\pm 0.0002 \text{ g/cc}$
Temperature Accuracy	$\pm 0.9 \text{ deg F}$ or $\pm 0.5\%$ of reading
Cryogenic Temperature Range:	$-328...+104 \text{ deg F}$
High Temperature Range:	$-50...+752 \text{ deg F}$
Standard Temperature Range:	$-50...+446 \text{ deg F}$
Hygienic Temperature Range:	$-50...+302 \text{ deg F}$
Max. Pressure:	2900 psi

Liquid Repeatability:	• Nace Compliant
Optional Repeatability	• 316/316L Dual Certified Stainless Steel
Gas Repeatability:	• Hastelloy C-22
	• Duplex Stainless Steel (UNS S31803)
	• Flange Ratings ANSI 150, 300, 600, 900, 1500
	• Hazardous Area
	• Custody Transfer Approvals
	• Secondary Containment, Standard
	• Heating Jacket and Purge Port option

Don't Size By Line Size!!
But By Flowrate & Process Conditions

Don't Have ALL Sizes for ALL Materials

316/316 L Dual Certified Stainless Steel	Process Temperature Range: $-328...+752 \text{ deg F}$		(Cryogenic, & High Temperature models Available)		Standard Temperature Range : $-58...+302 \text{ deg F}$				
Size	S08 (60Q)	S10 (63E)	S15 (60H)	S25 (601)	S50 (602)	S80 (603)	S100 (604)	S150 (606)	S200 (608)
Flange Sizes (ANSI 150 - 600)	1/2"	1/2"	1/2", 3/4", 1"	1", 1.5"	1.5", 2"	2", 3"	3", 4"	4", 6"	6", 8"
Standard Temp -Zero Stability (lb/min)	0.0011	0.0022	0.0070	0.0349	0.0643	0.143	0.3215	0.5879	1.0105
High Temp -Zero Stability (lb/min)	0.0176	0.0035	0.0112	0.0559	0.1029	0.236	0.5144	0.9406	1.6167
Min- Max (lb/min)	.18 - 33	.33 - 66.10	1.06 - 209.43	5.36 - 1,047.20	9.921 - 1,929	22 - 4,299	46 - 9,645	90 - 17,636	155 - 30,314
Max Rate @ 14.7 PSI water (lb/min)	22	44	139	698	1,286	2,866	6,430	11,758	20,209
Min - Max (bbl/d)	.75 - 137	1.37 - 275	4.41 - 871	22 - 4,357	41.2 - 8,026	91 - 17,887	191 - 40,131	374 - 17,936	644 - 125,133
Max Rate @ 14.7 PSI Water (bbl/d)	92	183	578	2,904	5,351	11,925	26,755	48,924	84,087
Hastelloy C-22	Process Temperature Range: $-321...+752 \text{ deg F}$		(Cryogenic, & High Temperature models Available)		Standard Temperature Range : $-58...+302 \text{ deg F}$				
Size	S08 (60Q)	S10 (63E)	S15 (60H)	S25 (601)	S50 (602)	S80 (603)			
Flange Sizes (ANSI 150 - 1500)*	1/2"	1/2"	1/2", 3/4", 1"	1", 1.5"	1.5", 2"	2", 3"			
Standard Temp -Zero Stability (lb/min)	0.0011	0.0022	0.0070	0.0349	0.0643	0.143			
High Temp -Zero Stability (lb/min)	0.0176	0.0035	0.0112	0.0559	0.1029	0.236			
Max Rate @ 14.7 PSI water (lb/min)	22	44	139	698	1,286	2,866			
Min - Max (bbl/d)	.75 - 137	1.37 - 275	4.41 - 871	22 - 4,357	41.2 - 8,026	91 - 17,887			
Max Rate @ 14.7 PSI Water (bbl/d)	92	183	578	2,904	5,351	11,925			
Duplex Stainless (UNS S31803)	Process Temperature Range: $-58...+466 \text{ deg F}$		Standard Temperature Range : $-58...+302 \text{ deg F}$						
Size							S100 (604)	S150 (606)	S200 (608)
Flange Sizes (ANSI 900 - 1500)							3", 4"	4", 6"	6", 8"
Standard Temp -Zero Stability (lb/min)							0.3215	0.5879	1.0105
High Temp -Zero Stability (lb/min)							0.5144	0.9406	1.6167
Min- Max (lb/min)							46 - 9,645	90 - 17,636	155 - 30,314
Max Rate @ 14.7 PSI water (lb/min)							6,430	11,758	20,209
Min - Max (bbl/d)							191 - 40,131	374 - 17,936	644 - 125,133
Max Rate @ 14.7 PSI Water (bbl/d)							26,755	48,924	84,087

*Pressure ratings not available on all flange sizes

SCHNEIDER CORIOLIS

CFS700A: Exotic Materials

Applications: Exotic materials for harsh chemicals and processes, single, straight tube design where plugging can be an issue.

CFS700A Exotic Materials

1/2-in through 4-in



Single Straight Tube

Mass Liquid Accuracy:	+/- 0.1%	
Mass Gas Accuracy:	+/- 0.35%	* Duplex SS, Hastelloy C, Titanium, Tantalum
Density Accuracy	+/- .002 g/cc	* Hazardous Area, Hygenic and Custody Transfer Approvals
Optional on-site :	+/- .0005 g/cc	* Best for demanding applications
Temperature Accuracy	+/- 1.8 deg F	* Lowest Pressure Drop
Pressure effect on flow	0.000076% per PSI	

NACE Compliant

Titanium		Process Temperature Range: -40...+302 deg F						
Size		70Q (T06)	73E (T10)	70H (T15)	701 (T25)	71H (T40)	702 (T50)	703 (T80)
Flange Sizes (ANSI 150 - 600)		0.5"	0.5"	0.5", 0.75", 1"	1", 1.5"	1.5", 2"	2", 3"	3", 4"
Zero Stability (lb/min)		0.0018	0.0052	0.0214	0.0658	0.176	0.344	0.823
Min- Max (lb/min)		.349 - 45.2	.992 - 128	4.13 - 536	12 - 1,646	33 - 4,409	66 - 8,598	158 - 20,577
Max Rate @ 14.7 PSI water (lb/min)		35	102	422	1,327	3,405	6,570	14,390
Min - Max (bbl/d)		1.4 - 186	4 - 527	17 - 2,208	50 - 6,776	136 - 18,150	271 - 35,394	650 - 84,704
Max Rate @ 14.7 PSI Water (bbl/d)		145.31	419.88	1,737.16	5,462.58	14,016.63	27,045.31	59,236.23
Hastelloy C22		Process Temperature Range: +32...+212 deg F						
Size		73E (H10)	70H (H15)	701 (H25)	71H (H40)	702 (H50)	703 (H80)	
Flange Sizes (ANSI 150 - 600)		0.5"	.5", .75", 1"	1", 1.5"	1.5", 2"	2", 3"	3", 4"	
Zero Stability (lb/min)		0.0192	0.0804	0.2469	0.661	1.290	3.086	
Min- Max (lb/min)		.992 - 128	4.13 - 536	12 - 1,646	33 - 4,409	66 - 8,598	158 - 20,577	
Max Rate @ 14.7 PSI water (lb/min)		102	422	1,327	3,405	6,570	14,390	
Min - Max (bbl/d)		4 - 527	17 - 2,208	50 - 6,776	136 - 18,150	271 - 35,394	650 - 84,704	
Max Rate @ 14.7 PSI Water (bbl/d)		419.88	1,737.16	5,462.58	14,016.63	27,045.31	59,236.23	
Duplex Stainless (UNS S31803)		Process Temperature Range: +32...+212 deg F (32...266degF with Extended range, S25-S80, hygenic connections only)						
Size		70Q (S06)	73E (S10)	70H (S15)	701 (S25)	71H (S40)	702 (S50)	
Flange Sizes (ANSI 150 - 600)		.5"	0.5"	.5", .75", 1"	1", 1.5"	1.5", 2"	2", 3"	
Zero Stability (lb/min)		0.0018	0.0192	0.0804	0.2469	0.661	1.290	
Min- Max (lb/min)		.349 - 45.2	.992 - 128	4.13 - 536	12 - 1,646	33 - 4,409	66 - 8,598	
Max Rate @ 14.7 PSI water (lb/min)		35	102	422	1,327	3,405	6,570	
Min - Max (bbl/d)		1.4 - 186	4 - 527	17 - 2,208	50 - 6,776	136 - 18,150	271 - 35,394	
Max Rate @ 14.7 PSI Water (bbl/d)		145.31	419.88	1,737.16	5,462.58	14,016.63	27,045.31	
Tantalum		Process Temperature Range: +32...+212 deg F						
Size		73E (A10)	70H (A15)	701 (A25)	71H (A40)	702 (A50)		
Flange Sizes (ANSI 150 - 600)		0.5"	.5", .75", 1"	1", 1.5"	1.5", 2"	2", 3"		
Zero Stability (lb/min)		0.0192	0.0804	0.2469	0.661	1.290		
Min- Max (lb/min)		.992 - 128	4.13 - 536	12 - 1,646	33 - 4,409	66 - 8,598		
Max Rate @ 14.7 PSI water (lb/min)		102	422	1,327	3,405	6,570		
Min - Max (bbl/d)		4 - 527	17 - 2,208	50 - 6,776	136 - 18,150	271 - 35,394		
Max Rate @ 14.7 PSI Water (bbl/d)		419.88	1,737.16	5,462.58	14,016.63	27,045.31		

Don't Size By Line Size!!
But By Flowrate & Process Conditions

Single Tube Design
Not Split Tube
Limits Plugging