

SITRANS F flowmeters

SITRANS F US

SONOFLO SONO 3300/3000 Industry

Overview



The combination of sensor SONO 3300 sensor and SONO 3000 transmitter is ideal for applications within the general industry. Measurements are independent of liquid temperature, density, pressure and conductivity. Transducers cannot be changed.

Benefits

- Compact / remote design
- Robust design for industrial applications
- Measures all liquids less than 350 cSt, conductive or non conductive
- No pressure drop
- Reliable and accurate flow measurements
- Long time stability

Application

The main application for SONO 3300 / 3000 ultrasonic flowmeter is measurement of volume.

SONO 3300 / 3000 can be used for water and treated waste water, oil and liquid gases, hot water / cooling systems.

Design

The SONO 3300 / 3000 consists of a casted sensor (DN 50 ... 150 (2" ... 6")), welded pipes (DN 200 ... 300 (8" ... 12")) and the transmitter SONO 3000.

The transmitter can be compact or wall mounted.

The signal cables from transducers to transmitter are highly protected from aggressive environment by protection of stainless steel pipes.

Sensor installation

See system information

Technical specifications

2-track sensor with flanges and integrated transducers

Error in measurement

Error in measurement at reference conditions; % of measured value	$v > 0.5 \dots 10 \text{ m/s}$, $\leq \pm 0.5\%$ of rate ($v = \text{flow speed}$)
	SONO 3300 DN 50 and DN 65: For Reynolds numbers $1000 < R_e < 5000$: $\pm 1.5\%$
Max. flow velocity	10 m/s (32 ft/s)
Nominal size	DN 50, DN 65, DN 80, DN 100, DN 125, DN 150, DN 200 (2" ... 8") DN 250, DN 300 (10" ... 12")
Liquid temperature	Separate version: $-10 \dots +160^\circ\text{C}$ (14 ... 320 °F) Compact version: $-10 \dots +120^\circ\text{C}$ (14 ... 248 °F) Compact EEx d: $-10 \dots 160^\circ\text{C}$ (14 ... 320 °F)
Ambient temperature	Separate version: $-40 \dots +160^\circ\text{C}$ (-40 ... +320 °F) Compact version: $-20 \dots +55^\circ\text{C}$ (-4 ... +131 °F) Storage: $-40 \dots +85^\circ\text{C}$ (-40 ... 185 °F)
Enclosure	Standard version: IP67 (NEMA 4X/6)

Process connections

PN designated EN 1092-1-type 11,B	• DN 50 ... DN 300 (2" ... 12"), PN 40 • DN 100 ... DN 300 (4" ... 12"), PN 16 • DN 200 ... DN 300 (8" ... 12"), PN 10
Class designated EN 1759-1-type 11,B	• DN 125 ... DN 300 (5" ... 12"), class 150 • DN 50 ... DN 300 (2" ... 12"), class 300
Transducer	Integrated version welded into pipe

Materials

Pipe	• DN 50 ... DN 150 (2" ... 6"): Steel EN 1.113145-16Mn5 • DN 200 ... DN 300 (8" ... 12"): Steel EN 1.0345-P235GH
Flange	• DN 50 ... DN 300 (2" ... 12"): EN 1.0025-S235JRG2
Class	ASTM A105
Transducer	Stainless steel AISI 316 or similar

Certificates and approvals

Ex approval sensor	• Ex version: Compact EEx de [ia/ib] IIC T5-T6, no ATEX • Ex version: Separate EEx de IIC T3-T6, no ATEX
Material certificate	The sensor is supplied as standard with a Siemens Flow Instruments certificate of conformity. Material certificate on wetted parts on request
NDT examination report	Available on request

The sensors are approved according to EU directive 97/23/EF dated 29 May 1997 regarding fluid group 1, classified in category III. Design according to EN 13480 (PED Directive).

Coaxial cable between sensor and transmitter

Coaxial cable (75 Ω) for SONO 3300/3000

1 x $\varnothing$ 0.8 mm (0.03") copper conductor with shield

Diameter	5.8 mm (0.23")
Length	Max. 250 m (820 ft) between sensor and transmitter
Material (outside jacket)	Black PE
Ambient temperature	-10 ... +75 °C (+14 ... +167 °F)



1 x $\varnothing$ 0.65 mm (0.026") copper conductor with shield

Diameter	5.3 mm (0.21")
Length	Max. 100 m (328 ft) between sensor and transmitter
Material (outside jacket)	Brown FEP (Teflon)
Ambient temperature	-200 ... +200 °C (-328 ... +392 °F)

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Standard FDK number available

All 2-track, painted steel, flanges, AISI 316 transducers, wet calibrated.

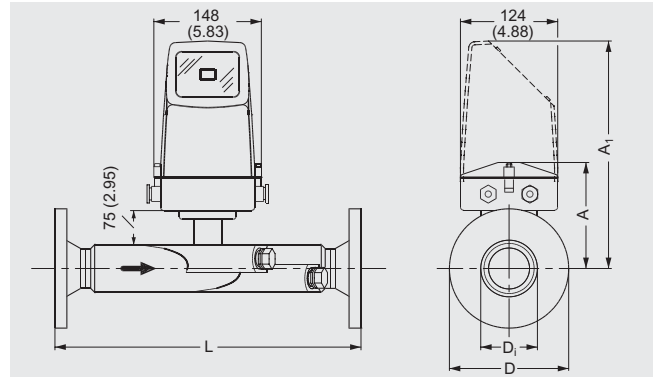
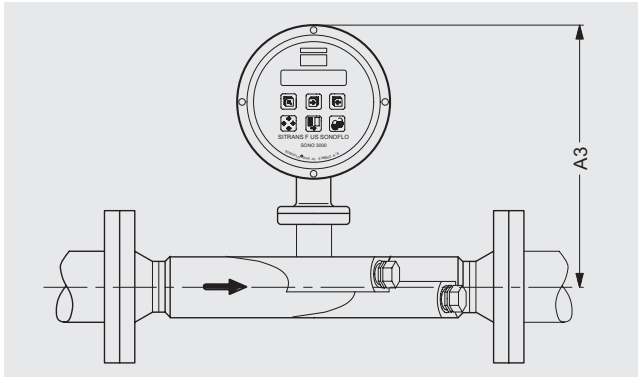
Sensor enclosure	Certifi-cates	Pressure	Size								
			DN 50	DN 65	DN 80	DN 100	DN 125	DN 150	DN 200	DN 250	DN 300
			FDK-	FDK-	FDK-	FDK-	FDK-	FDK-	FDK-	FDK-	FDK-
IP67 ¹⁾ standard	Certificate of conformity	PN 10							085L3020	085L3025	085L3030
		PN 16			085L3125	085L3012	085L3013	085L3014	085L3021	085L3026	085L3031
		PN 40	085L3000	085L3001	085L3002	085L3003	085L3004	085L3005	085L3022	085L3027	085L3032
		ANSI class 150	085L3121		085L3182	085L3131	085L3015	085L3016	085L3023	085L3028	085L3033
		ANSI class 300	085L3006	085L3007	085L3008	085L3009	085L3010	085L3011	085L3024	085L3029	085L3034
	Material certificate	PN 10									085L3174
		PN 16			085L3140	085L3116	085L3135	085L3136	085L3134		085L3171
		PN 40	085L3141	085L3128	085L3129	085L3145	085L3122	085L3146	085L3132	085L3144	
		ANSI class 150				085L3179		085L3161			
		ANSI class 300							085L3166		085L3165
	Material certificate + welding inspection	PN 16			085L3151	085L3152	085L3153	085L3154	085L3120		085L3155
		PN 40	085L3149	085L3150	085L3163	085L3130			085L3138		085L3158
		ANSI class 150				085L3123					
	Certificate of conformity	PN 10							085L3100	085L3105	085L3110
		PN 16			085L3137	085L3092	085L3093	085L3094	085L3101	085L3106	085L3111
		PN 40	085L3080	085L3081	085L3082	085L3083	085L3084	085L3085	085L3102	085L3107	085L3112
		ANSI class 150	085L3156		085L3178	085L3139	085L3095	085L3096	085L3103	085L3108	085L3113
		ANSI class 300	085L3086	085L3087	085L3088	085L3089	085L3090	085L3091	085L3104	085L3109	085L3114
	Material certificate	PN 16				085L3126			085L3118		
		PN 40			085L3169			085L3160			085L3168
		ANSI class 150				085L3177					
		ANSI class 300				085L3147					
	Material certificate + welding inspection	ANSI class 300									085L3127
IP67 ²⁾ , Ex de IIC T3-T6, no ATEX	Certificate of conformity	PN 10							085L3060	085L3065	085L3070
		PN 16			085L3164	085L3052	085L3053	085L3054	085L3061	085L3066	085L3071
		PN 40	085L3040	085L3041	085L3042	085L3043	085L3044	085L3045	085L3062	085L3067	085L3072
		ANSI class 150	085L3124	085L3119	085L3142	085L3143	085L3055	085L3056	085L3063	085L3068	085L3073
		ANSI class 300	085L3046	085L3047	085L3048	085L3049	085L3050	085L3051	085L3064	085L3069	085L3074
	Material certificate	PN 40				085L3115					
		ANSI class 150	085L3173		085L3172	085L3175		085L3159			085L3167
		ANSI class 300				085L3176		085L3180	085L3181		085L3157
	Material certificate + welding inspection	PN 40			085L3170						
IP67 ³⁾ , Ex de [ia/ib] IIC T5-T6, no ATEX	Certificate of conformity	PN 10							085L3060	085L3065	085L3070
		PN 16			085L3164	085L3052	085L3053	085L3054	085L3061	085L3066	085L3071
		PN 40	085L3040	085L3041	085L3042	085L3043	085L3044	085L3045	085L3062	085L3067	085L3072
		ANSI class 150	085L3124	085L3119	085L3142	085L3143	085L3055	085L3056	085L3063	085L3068	085L3073
		ANSI class 300	085L3046	085L3047	085L3048	085L3049	085L3050	085L3051	085L3064	085L3069	085L3074
	Material certificate	PN 40				085L3115					
		ANSI class 150	085L3173		085L3172	085L3175		085L3159			085L3167
		ANSI class 300				085L3176		085L3180	085L3181		085L3157
	Material certificate + welding inspection	PN 40			085L3170						

¹⁾ Transmitter SONO 3000 IP67(NEMA 4X/ 6) can be mounted compact, other transmitter remote mounted.
Transmitter, cables and IP67 (NEMA 4X/6) wall mounting kit have to be ordered separately

²⁾ Transmitter SONO 3000 remote mounted in safe area or SONO 3000 Ex d wall mounted
Transmitter, cables and IP67 (NEMA 4X/6) wall mounting kit have to be ordered separately

³⁾ Transmitter SONO 3000 Ex d inclusive and compact mounted on the sensor

Dimensional drawings



SONO 3300/3000 industry

DN	DIN 2632 / DIN 2633 / DIN 2635																	
	PN 10						PN 16						PN 40					
	L		D		D _i		L		D		D _i		L		D		D _i	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
50													475	18.70	165	6.50	52.60	2.07
65													475	18.70	185	7.28	62.70	2.47
80							380	14.96	200	7.87	78.00	3.07	400	15.75	200	7.87	78.00	3.07
100							355	14.72	220	8.66	102.40	4.00	400	15.75	235	9.25	102.40	4.00
125							375	14.72	250	9.84	128.30	5.05	400	15.75	270	10.63	128.30	5.05
150							360	14.17	285	11.22	154.20	6.07	400	15.75	300	11.81	154.20	6.07
200	400	15.75	340	13.39	207.30	8.16	400	15.75	340	13.39	207.30	8.16	450	17.72	375	14.76	206.50	8.13
250	400	15.75	395	15.55	260.40	10.25	400	15.75	405	15.94	260.40	10.25	500	19.69	450	17.72	258.80	10.19
300	400	15.75	445	17.52	309.70	12.19	420	16.54	460	18.11	309.70	12.19	500	19.69	515	20.28	307.90	12.12

DN	ANSI												without SONO 3000		with SONO 3000		Weight ¹⁾	
	150 lb						300 lb						A		A1		A3	
	L		D		D _i		L		D		D _i		mm		mm		mm	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	kg	lbs
50	510	20.08	152	5.98	52.6	2.07	520	20.47	165	6.50	52.6	2.07	180	7.09	272	10.71	234	9.21
65	510	20.08	178	7.01	62.7	2.47	520	20.47	190	7.48	62.7	2.47	186	7.32	278	10.94	240	9.45
80	420	16.54	191	7.52	78.0	3.07	440	17.32	210	8.27	78.0	3.07	193	7.60	283	11.14	245	9.65
100	420	16.54	229	9.01	102.4	4.03	440	17.32	254	10	102.4	4.03	205	8.07	297	11.69	259	10.20
125	440	17.32	254	10.00	128.3	5.05	460	18.11	279	10.98	128.3	5.05	218	8.58	310	12.20	272	10.71
150	430	16.93	279	10.98	154.2	6.07	450	17.71	318	12.52	154.2	6.07	232	9.13	324	12.76	286	11.26
200	480	18.90	343	13.50	202.7	7.98	500	19.69	381	15	202.7	7.98	256	10.08	348	13.70	310	12.20
250	490	19.29	406	15.98	254.5	10.02	520	20.47	444	17.48	254.5	10.03	283	11.14	375	14.76	337	13.27
300	550	21.65	483	19.02	306.3	12.06	580	22.83	521	20.51	306.3	12.06	309	12.17	401	15.79	363	14.49

¹⁾ When mounting the transmitter, the weight increases by 2 kg (4.4 lb), with the EEx transmitter, the weight increases by 10 kg (48.5 lb).

SITRANS F flowmeters

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SONOFLO SONO 3100/FUS060 Industry

Overview



The SONO 3100 sensor and the FUS060 transmitter is an ideal combination for applications where process shut down is impossible during service and where there is a need for extreme high/low temperatures and pressures.

Transducers can easily be changed without interrupting operation. SONO 3100 can be delivered in 4-track solution for absolute best performance and accuracy.

Benefits

- Replaceable transducers under pressure
- Measure on all liquids less than 350 Cst, conductive or non conductive
- No pressure drop
- Reliable and accurate flow measurements
- Long time stability
- On request:
 - Special sensor material, e.g. Duplex
 - High/low temperature sensor version: +250 °C (+482 °F) / -200 °C (-382 °F) sensors
 - Pressure rating 430 bar (6235 psi)
 - 4 track sensor technology

Application

The main application for SONO 3100 in combination with FUS060 ultrasonic flowmeter is to measure volume within.

- Petrochemical industry
- Power engineering
- Water and waste water
- Oil and liquid gases

SITRANS FUS060 holds ATEX for hazardous areas, HART and PROFIBUS PA. SONO 3100 holds ATEX Ex approval.

Design

The SONO 3100 in combination with FUS060 consists of a SONO 3100 sensor, transducers with O-rings or flanges depending on selection - and a FUS060 transmitter. SONO 3100 is basically supplied in a 2-track solution with and without flanges in sizes from DN 100 to DN 1200.

4 track version is available on request.

SONO 3100 is as standard available in carbon/stainless steel from DN 100 to DN 1200.

FUS060 is designed for wall mounting only.

Technical specifications

2-track sensor fitted with four SONO 3200 transducers

Error in measurement

Error in measurement at reference conditions; % of measured value	$v > 0.5 \dots 10 \text{ m/s}$, $\pm 0.5\%$ of rate ($v = \text{flow speed}$)
Max flow velocity	10 m/s (32 ft)
Nominal size	DN 100 ... DN 1200 (4" ... 48")
Liquid temperature	-10 °C ... +200 °C (14 ... 392 °F)
Ambient temperature	-20 °C ... +200 °C (-4 ... +392 °F)
Enclosure	IP68 (NEMA 6)

Process connections

PN designated, EN 1092-1-type II, B

Pipe material carbon steel	• DN 200 ... DN 1200 (8" ... 48") PN 10 • DN 100 ... DN 1200 (4" ... 48") PN 16 • DN 200 ... DN 1000 (8" ... 40") PN 25 • DN 100 ... DN 500 (4" ... 20") PN 40
Pipe material stainless steel	• DN 200 ... DN 300 (8" ... 12") PN 10 and PN 25 • DN 100 ... DN 300 (4" ... 12") PN 16 and PN 40

Class designated, EN 1759-1-type II, B

Pipe material carbon steel	• DN 100 ... DN 600 (4" ... 24") Class 150 • DN 100 ... DN 300 (4" ... 12") Class 300
Pipe material stainless steel	• DN 100 ... DN 300 (4" ... 12") Class 150 and Class 300
<u>Without flanges,</u> only in carbon steel	• DN 100 ... DN 1200 (4" ... 48") PN 16 • DN 200 ... DN 1000 (8" ... 40") PN 25 • DN 100 ... DN 500 (4" ... 20") PN 40
Transducer SONO 3200	O-ring or flange versions

2-track sensor fitted with four SONO 3200 transducers

Materials

Pipe	Steel EN 1.0345-P235GH or stainless steel EN 1.4404 - AISI 316L
Flange	
PN	EN 10025-S235JRG2, 1E1 or stainless steel EN 10222-5-1.4404, 13E0
Class	ASTM A105, 1,1 or stainless steel ASTM F316L, 2,3
Transducer body	Stainless steel AISI 316 or similar
Transducer terminal house	Stainless steel AISI 316 or plastic PA 6.6

Certificates and approvals

Ex approval sensor	ATEX Ex i IIC T3
Material certificates	The sensor is supplied as standard with a Siemens Certificate of Conformity. Material certificate on wetted parts on request.
NDT examination report	Available on request
The sensors are approved according to EU directive 97/23/EF, dated 29 May 1997, regarding fluid group 1, classified in category III. Design EN 13480 (PED directive)	

Selection and Ordering data		Order-No.	Order code
SITRANS F US SONO 3100 sensor 2-track		7 ME 3 1 0 0 -	
Diameter	Qn [m³/h]		
DN 100 / 4"	28	1 N	
DN 100 / 4"	100	1 P	
DN 100 / 4"	220	1 R	
DN 125 / 5"	44	1 S	
DN 125 / 5"	150	1 T	
DN 125 / 5"	350	1 V	
DN 150 / 6"	64	2 A	
DN 150 / 6"	220	2 B	
DN 150 / 6"	500	2 D	
DN 200 / 8"	110	2 E	
DN 200 / 8"	380	2 F	
DN 200 / 8"	900	2 H	
DN 250 / 10"	180	2 J	
DN 250 / 10"	600	2 K	
DN 250 / 10"	1300	2 M	
DN 300 / 12"	250	2 N	
DN 300 / 12"	850	2 P	
DN 300 / 12"	2000	2 R	
DN 350 / 14"	350	2 S	
DN 350 / 14"	1000	2 T	
DN 350 / 14"	2800	2 V	
DN 400 / 16"	450	3 A	
DN 400 / 16"	1300	3 B	
DN 400 / 16"	3600	3 D	
DN 500 / 20"	1300	3 J	
DN 500 / 20"	2200	3 K	
DN 500 / 20"	4200	3 M	
DN 600 / 24"	1300	3 S	
DN 600 / 24"	3200	3 T	
DN 600 / 24"	4200	3 V	
DN 700 / 28"	2000	4 E	
DN 700 / 28"	4200	4 F	
DN 800 / 32"	4200	4 N	
DN 800 / 32"	5500	4 P	
DN 900 / 36"	4200	5 A	
DN 900 / 36"	7500	5 B	
DN 1000 / 40"	4200	5 J	
DN 1000 / 40"	9000	5 K	
DN 1200 / 48"	4200	5 S	
DN 1200 / 48"	13200	5 T	
Flange norm and pressure rating (All sizes are not available in all pressure ratings)			
<u>EN 1092-1</u>			
PN 10		B	
PN 16		C	
PN 25		D	
PN 40		E	
<u>ANSI B16.5</u>			
class 150		H	
class 300		J	
<u>pipe without flanges</u>			
PN 10		P	
PN 16		Q	
PN 25		R	
PN 40		S	

Selection and Ordering data		Order-No.	Order code
SITRANS F US SONO 3100 sensor 2-track		7 ME 3 1 0 0 -	
Pipe and flange material			
Carbon steel		1	
Stainless steel		2	
Transducer type and approval			
IP67 (NEMA 4X/6) PA housing, PN 40, O-ring, 50 mm, 100 °C (212 °F)		1	
IP68 SS housing, PN 40, O-ring, 50 mm, 200 °C (392 °F)		2	
IP67 (NEMA 4X/6) PA housing, PN 40, flange, 88 mm, 100 °C (212 °F)		4	
IP68 SS housing, PN 40, flange, 88 mm, 200 °C (392 °F)		5	
IP68 SS housing, PN 40, O-ring, 50 mm, 190 °C (374 °F), EEx i IIC T3, M20 gland, ATEX approval		7	
IP68 SS housing, PN 40, flange, 88 mm, 190 °C (374 °F), EEx i IIC T3, M20 gland, ATEX approval		8	
Cable gland entires			
Cable glands M20 in transducers and in transmitter M25/20/16 x 1.5		1	
Cable glands ½" NPT in transducers and in transmitter		2	
Transmitter SITRANS FUS060			
IP65 (NEMA 4), 120/230 V AC		N	
IP65 (NEMA 4), 24 V AC/DC		P	
IP65 (NEMA 4), 24 V AC/DC ATEX Ex-d		Q	
Module			
HART, 1 pulse output, 1 relay			B
HART EEx e, 1 pulse output, 1 relay			C
PROFIBUS PA, 1 pulse/frequency			D
PROFIBUS PA, EEx [ia], 1 pulse/frequency			E
Transducer coax cable			
4 x 3 meter, max. 70 °C (158 °F)			0
4 x 15 meter, max. 70 °C (158 °F)			1
Teflon cable 4 x 3 meter, max. 200 °C (392 °F)			7
Teflon cable 4 x 15 meter, max. 200 °C (392 °F)			8

Please also see www.siemens.com/SITRANSOrdering for practical examples of ordering

SITRANS F flowmeters

SITRANS F US

SONOFLO SONO 3100/FUS060 Industry

Selection and Ordering data

Order code

Additional information

Please add „-Z“ to Order No. and specify Order code(s) and plain text.

Calibration

Production calibration DN 100 ... DN 1200

Theoretical calibration DN 500 ... DN 1200

Match pair calibration 2 x 3 points

Max. flow 250 ... 1300 m³/h depending on dimension (DN 100 ... DN 500)

Match pair calibration 2 x 3 points

Max. flow 1400 ... 4200 m³/h depending on dimension (DN 300 ... DN 700)

Match pair calibration 2 x 3 points

Max. flow 4200 m³/h depending on dimension (DN 800 ... DN 1200)

Accredited Siemens ISO/IEC 17025 calibration

Max. flow 250 ... 1300 m³/h depending on dimension (DN 100 ... DN 500)

Accredited Siemens ISO/IEC 17025 calibration

Max. flow 1400 ... 4200 m³/h depending on dimension (DN 300 ... DN 700)

Accredited Siemens ISO/IEC 17025 calibration

Max. flow 4200 m³/h depending on dimension (DN 800 ... DN 1200)

Accredited - Third party ISO/IEC 17025 calibration

Max. flow 250...1300 m³/h depending on dimension (DN 100 ... DN 500)

Accredited - Third party ISO/IEC 17025 calibration

Max. flow 1400...4200 m³/h depending on dimension (DN 300 ... DN 700)

Accredited - Third party ISO/IEC 17025 calibration

Max. flow 4300...7000 m³/h depending on dimension (DN 800 ... DN 1200)

EN 10204-3.1.B

EN 10204-3.1.B and 100% NDT on weldings, DN 100 ... DN 400

EN 10204-3.1.B and 100% NDT on weldings, DN 500 ... DN 700

EN 10204-3.1.B and 100% NDT on weldings, DN 800 ... DN 1200

Pressure certificate

EN 10204-2.3

Tag name plate

Stainless steel tag with 12 mm characters, max. 15 characters (add plain text)

Self-adhesive plastic tag with 8 mm characters, max. 15 characters (add plain text)

Included

D03

D06

D07

D08

D21

D22

D23

D31

D32

D33

F10

F11

F12

F13

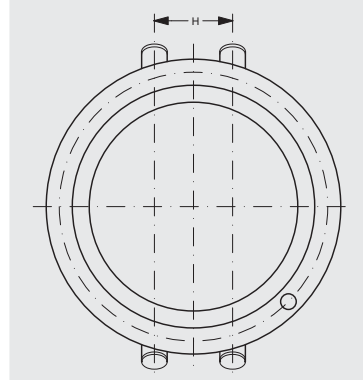
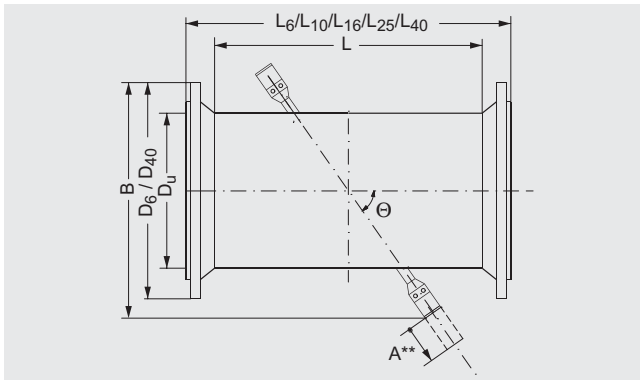
F21

Y17

Y18

Please also see www.siemens.com/SITRANSForndering for practical examples of ordering

Dimensional drawings



EN 1092-1

DN	Du	L	B	q	H	PN10			PN16			PN25			PN40		
						W ₁₀ ¹⁾	D ₁₀ Flange dia.	L ₁₀	W ₁₆ ¹⁾	D ₁₆ Flange dia.	L ₁₆	W ₂₅ ¹⁾	D ₂₅ Flange dia.	L ₂₅	W ₄₀ ¹⁾	D ₄₀ Flange dia.	L ₄₀
	[mm]	[mm]	[mm]	[°]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
100	114.3	860	305	30	48.2	3.6	220	960	3.6	220	960	3.6	235	990	3.6	235	990
125	139.7	862	325	30	59.3	4.0	250	970	4.0	250	970	4.0	270	990	4.0	270	990
150	168.3	862	350	30	71.7	4.5	285	970	4.5	285	970	4.5	300	1010	4.5	300	1010
200	219.1	668	430	45	92.9	6.3	340	790	6.3	340	790	6.3	360	820	6.3	375	840
250	273.0	714	480	45	117.2	6.3	395	850	6.3	405	850	7.1	425	890	7.1	450	920
300	323.9	607	525	45	139.4	7.1	445	740	7.1	460	760	8.0	485	790	8.0	515	830
350	355.6	639	550	45	152.8	8.0	405	770	8.0	520	800	8.0	555	840	8.8	580	880
400	406.4	703	600	45	175.7	8.0	565	850	8.0	580	875	8.8	620	925	11.1	660	975
500	508.0	797	690	45	222.2	7.1	670	950	8.0	715	980	10.0	730	1050	14.2	755	1080
600	610.0	912	705	60	268.1	7.1	780	1075	8.8	840	1105	11.0	845	1165	-	-	-
700	711.0	937	895	60	312.8	8.0	895	1100	8.8	910	1140	12.5	960	1190	-	-	-
800	813.0	967	985	60	358.7	8.0	1015	1150	10.0	1025	1180	14.2	1085	1240	-	-	-
900	914.0	1007	1070	60	402.3	10.0	1115	1200	10.0	1125	1230	16.0	1185	1300	-	-	-
1000	1016.0	1060	1160	60	448.2	10.0	1230	1250	10.0	1255	1300	17.5	1320	1370	-	-	-
1200	1220.0	1100	1350	60	539.1	11.0	1455	1330	12.5	1485	1360	-	-	-	-	-	-

¹⁾ Wall thickness

SONO 3100, 2-track

Nominal diam.	Weight [kg] ([lbs])			
DN	PN 10	PN 16	PN 25	PN 40
100	32 (70.5)	32 (70.5)	35 (77.2)	35 (77.2)
125	38 (83.8)	38 (83.8)	44 (97.0)	44 (97.0)
150	45 (99.2)	45 (99.2)	52 (114.6)	52 (114.6)
200	59 (130.0)	58 (127.9)	70 (154.3)	79 (174.2)
250	73 (161.0)	75 (163.3)	96 (211.6)	117 (257.9)
300	83 (183.0)	92 (202.8)	114 (251.3)	151 (332.9)
350	98 (216.0)	113 (249.1)	145 (322.9)	191 (421.1)
400	119 (262.4)	141 (310.9)	191 (421.1)	275 (606.3)
500	153 (337.3)	207 (456.4)	284 (626.0)	379 (836.0)
600	193 (425.5)	276 (608.5)	363 (800.3)	-
700	262 (577.6)	303 (668.0)	480 (1058)	-
800	329 (725.3)	400 (881.8)	650 (1433)	-
900	428 (943.6)	475 (1047)	835 (1841)	-
1000	500 (1002)	594 (1010)	1078 (2377)	-
1200	732 (1614)	902 (1989)	-	-