

### Model 9500A Magnetic Flow Tube



The 9500A magnetic flow tube can be used with IMT30A, IMT31A and IMT33A magnetic flow transmitters.

- ▶ For all water and wastewater applications
- ▶ Wide range of approvals for potable water
- ▶ Robust, fully welded construction with full bore pipe

*Equipment should be installed, operated, serviced, and maintained only by qualified personnel.*

*No responsibility is assumed by Schneider Electric for any consequences arising from the use of this material.*

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## 1.1 Reliable solution for the water and wastewater industry

The 9500A is designed to meet the demands for all water and waste water applications including groundwater, potable water, waste water, sludge and sewage, industry water and salt water.

The 9500A has a field proven and unsurpassed lifetime. This is assured by the fully welded construction, full bore pipe, absence of moving parts and wear resistant liner materials. The flow tube has the widest diameter range available in the market: from DN25 up to DN2000 (DN3000 available on request).



- ① Robust fully welded construction
- ② Diameter range: DN25...DN2000
- ③ Polypropylene and hard rubber liners

**Highlights**

- Rugged liners suitable for any water and wastewater application
- Proven and unsurpassed lifetime, huge installed base
- Tamper proof, fully welded construction, also available in customer specific constructions
- Drinking water approvals
- Suitable for subsoil installation and constant flooding (IP68)
- Bi-directional flow metering
- Standard in house wet calibration of flow tubes up to diameter DN2000
- Easy installation and commissioning
- No grounding rings with virtual reference option on IMT33A
- Extensive diagnostic capabilities
- Maintenance-free

**Industries**

- Water
- Wastewater
- Pulp & Paper
- Minerals & Mining
- Iron, Steel & Metals
- Power

**Applications**

- Water abstraction
- Water purification and desalination
- Drinking water distribution networks
- Leakage detection
- Irrigation
- Industry water
- Cooling water
- Wastewater
- Sewage and sludge
- Sea water

## 1.2 Options

The reliable solution for the water and wastewater industry



From standard to customized

For easy ordering the standard range of the covers all popular sizes, flange materials and connections (ASME, EN, JIS, AWWA).

The is designed to meet the demands for all water and waste water applications including groundwater, potable water, waste water, sludge and sewage, industry water and salt water.

The has a field proven and unsurpassed lifetime assured by the fully welded housing, full bore pipe construction, absence of moving parts and wear resistant liner materials.



Easy installation

Fitting the is easy with the flanged design and standard ISO insertion lengths.

To further ease the operation, the can be installed without filters and straighteners. Even grounding rings are not required with the patented "Virtual Reference" option on the IMT33A signal transmitter

IP68

Installation in measurement chambers subject to (constant) flooding is possible with the IP68 rated version.

### 1.3 Measuring principle

An electrically conductive fluid flows inside an electrically insulated pipe through a magnetic field. This magnetic field is generated by a current, flowing through a pair of field coils.

Inside of the fluid, a voltage  $U$  is generated:

$$U = v * k * B * D$$

in which:

$v$  = mean flow velocity

$k$  = factor correcting for geometry

$B$  = magnetic field strength

$D$  = inner diameter of flowmeter

The signal voltage  $U$  is picked off by electrodes and is proportional to the mean flow velocity  $v$  and thus the flow rate  $Q$ . A signal transmitter is used to amplify the signal voltage, filter it and convert it into signals for totalizing, recording and output processing.

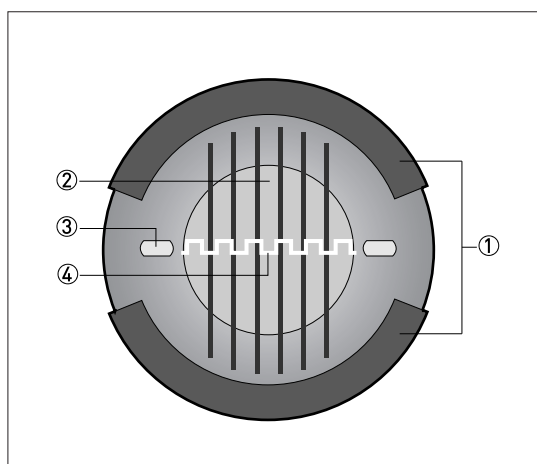


Figure 1-1: Measuring principle

- ① Field coils
- ② Magnetic field
- ③ Electrodes
- ④ Induced voltage (proportional to flow velocity)

## 2.1 Technical data

- The following data is provided for general applications. If you require data that is more relevant to your specific application, please contact us or your local sales office.
- Additional information (certificates, special tools, software,...) and complete product documentation can be downloaded free of charge from the website.

### Measuring system

Measuring principle	Faraday's law of induction
Application range	Electrically conductive fluids
Measured value	
Primary measured value	Flow velocity
Secondary measured value	Volume flow

### Design

Features	Fully welded maintenance-free flow tube.
	Large diameter range DN25...2000
	Rugged liners approved for drinking water.
	Large standard range but also available in customer specific diameter, length and pressure rating.
Modular construction	The measurement system consists of a flow tube and a signal transmitter. It is available as compact and as separate version. Additional information can be found in the documentation of the signal transmitter.
Compact version	With signal transmitter IMT30A: 9500A + IMT30A 4
	With signal transmitter IMT31A: 9500A + IMT31A 4
	With signal transmitter IMT33A: 9500A + IMT33A 4
Remote version	In wall mount version with signal transmitter IMT30A: 9500A + IMT30A N
	In wall mount version with signal transmitter IMT31A: 9500A + IMT31A N
	In field or wall mount version with signal transmitter IMT33A: 9500A + IMT33A N or H
Nominal diameter	With signal transmitter IMT30A: DN25...1200 / 1...48"
	With signal transmitter IMT31A: DN25...1200 / 1...48"
	With signal transmitter IMT33A: DN25...2000 / 1...80"

### Measuring accuracy

Maximum measuring error	IMT30A: down to 0.5% of the measured value $\pm 1$ mm/s
	IMT31A: down to 0.3% of the measured value $\pm 1$ mm/s
	IMT33A: down to 0.2% of the measured value $\pm 1$ mm/s
	The maximum measuring error depends on the installation conditions.
	For detailed information refer to Measuring accuracy on page 14.
Repeatability	$\pm 0.1\%$ of the measured value, minimum 1 mm/s
Calibration / Verification	Standard:
	2 point calibration by a direct volume comparison.

### Operating conditions

Temperature	
For detailed information in pressure / temperature refer to Pressure derating on page 15.	
For Ex versions different temperatures are valid. Please refer to the relevant Ex documentation for details.	
Process temperature	Hard rubber liner: $-5...+80^{\circ}\text{C}$ / $+23...+176^{\circ}\text{F}$
Ambient temperature	Standard (with aluminum signal transmitter housing): standard flanges
	$-20...+65^{\circ}\text{C}$ / $-4...+149^{\circ}\text{F}$
	Option (with aluminum signal transmitter housing): low temperature carbon steel flanges or stainless steel flanges
	$-40...+65^{\circ}\text{C}$ / $-40...+149^{\circ}\text{F}$
	Option (with stainless steel signal transmitter housing): low temperature carbon steel flanges or stainless steel flanges
	$-40...+55^{\circ}\text{C}$ / $-40...+130^{\circ}\text{F}$
Protect electronics against self-heating at ambient temperatures above $+55^{\circ}\text{C}$ / $+131^{\circ}\text{F}$ .	
Storage temperature	$-50...+70^{\circ}\text{C}$ / $-58...+158^{\circ}\text{F}$
Measuring range	$-12...+12$ m/s / $-40...+40$ ft/s



Pressure	
For detailed information in pressure / temperature refer to Pressure derating on page 15.	
EN 1092-1	DN1200...2000: PN 6
	DN200...1000: PN 10
	DN65 and DN100...150: PN 16
	DN25...50 and DN80: PN 40
ASME B16.5	1...24": 150 & 300 lb RF
JIS	DN50...1000 / 2...40": 10 K
	DN25...40 / 1...1½": 20 K
AWWA (class B or D FF)	Option:
	DN700...1000 / 28...40": ≤ 10 bar / 145 psi
	DN1200...2000 / 48...80": ≤ 6 bar / 87 psi
DIN	PN 16 - 6 bar rated; DN700...2000
	PN 10 - 6 bar rated; DN700...2000
	PN 6 - 2 bar rated; DN700...2000
Vacuum load	For detailed information refer to Vacuum load on page 17.
Pressure loss	Negligible
Chemical properties	
Physical condition	Electrically conductive liquids
Electrical conductivity	Standard: ≥ 5 µS/cm
	Demineralised water: ≥ 20 µS/cm
Permissible gas content (volume)	IMT30A: ≤ 3%
	IMT31A: ≤ 3%
	IMT33A: ≤ 5%
Permissible solid content (volume)	IMT30A: ≤ 10%
	IMT31A: ≤ 10%
	IMT33A: ≤ 70%

### Installation conditions

Installation	Assure that the flow tube is always fully filled.
	For detailed information refer to the manual of the flow tube and signal transmitter.
Flow direction	Forward and reverse
	Arrow on flow tube indicates flow direction.
Inlet run	≥ 5 DN
Outlet run	≥ 2 DN
Dimensions and weights	For detailed information refer to Dimensions and weights on page 18.

### Materials

Flow tube housing	Sheet steel
Measuring tube	Austenitic stainless steel
Flanges	Carbon steel
Liner	Standard:
	DN200...2000 / 8...80": hard rubber
	Option:
	DN25...150 / 1...6": hard rubber
Protective coating	On exterior of the meter: flanges, housing, signal transmitter (compact version) and / or connection box (field version)
	Standard coating
	Option: subsoil coating, offshore coating
Connection box	Only for remote versions
	Standard: die-cast aluminum
	Option: stainless steel
Measuring electrodes	Standard: Hastelloy® C
	Option: stainless steel, titanium
Grounding rings	Standard: stainless steel
	Option: Hastelloy® C, titanium, tantalum
	Grounding rings can be omitted with virtual reference option for the signal transmitter IMT33A.
Reference electrode (optional)	Standard: Hastelloy® C
	Option: stainless steel, titanium

### Process connections

Flange	
EN 1092-1	DN25...2000 in PN 2.5...40
ASME	1...24" in 150 & 300 lb RF
JIS	DN25...1000 in 10...20 K
AWWA	DN700...2000 in 6...10 bar
Design of gasket surface	RF

### Electrical connections

For full detail refer to the relevant documentation of the signal transmitter.	
Signal cable (remote versions only)	
Type A (DS)	In combination with the signal transmitter IMT30A, IMT31A and IMT33A
	Standard cable, double shielded. Max. length: 600 m / 1968 ft (depends on electrical conductivity and flow tube)
Type B (BTS)	Only in combination with the signal transmitter IMT33A
	Optional cable, triple shielded. Max. length: 600 m / 1968 ft (depends on electrical conductivity and flow tube)
I/O	For full details of I/O options, including data streams and protocols, see technical datasheet of the relevant signal transmitter.

## Approvals and certificates

CE	
This device fulfils the statutory requirements of the relevant directives. The manufacturer certifies successful testing of the product by applying the conformity mark on the device.	
	For more information on the directives, standards and the approved certifications, please refer to the declaration of conformity supplied with the device or downloadable from the manufacturer's website.
Hazardous area	
ATEX	Please check the relevant Ex documentation for details.
	9500A: FTZU 16 ATEX 0036 X
	II 2G Ex eb ia q IIC T5...T3 Gb (DN25...150); non-PFA
	II 2G Ex eb ia q IIC T6...T3 Gb (DN200...300)
	II 2G Ex eb ia IIC T6...T3 Gb (DN350...2000)
	II 2D Ex tb IIIC T85°C...T180°C Db (DN25...2000)
IECEX	9500A: IECEX FTZU 16.0009 X
	II 2G Ex eb ia q IIC T5...T3 Gb (DN25...150); non-PFA
	II 2G Ex eb ia q IIC T6...T3 Gb (DN200...300)
	II 2G Ex eb ia IIC T6...T3 Gb (DN350...2000)
FM (USA)	9500A-DIV 2; FM 16US 0059X; (with IMT31A N signal transmitter)
	9500A-DIV 2; FM 16 US 0046X; (with IMT33A H signal transmitter)
	Class I, Division 2; Groups ABCD; T6
	Class II, Division 2; Groups FG
FM, CSA (Canada)	Class III, Division 2; T6...T3
	9500A-DIV 2; FM 16 CA 0032X; (with IMT31A N signal transmitter)
	Class I, Division 2; Groups ABCD
	Class II, Division 2; Groups FG
	Class III, Division 2; T6...T3
	9500A-DIV 2; CSA 2916547; (with IMT33A H signal transmitter)
	Class I, Division 2; Groups ABCD
	Class II, Division 2; Groups FG; T6

Other approvals and standards	
Drinking water approvals	Hard rubber liner: H1005 (7)
Protection category acc. to IEC 60529	Standard:
	IP66/67, NEMA 4/4X/6
	Option:
	IP68, NEMA 6P
	IP68 is only available for separate design and with a stainless steel connection box.
Protective coating	Standard; ISO 12944-2:; C3 medium / C4 high Off shore coating; ISO 12944-2: C5I high / C5M high
Random vibration test	IEC 60068-2-64: 20...2000 Hz, ASD 1.0 (m/s <sup>2</sup> ) 2/Hz, RMS a = 4.5 g
	IEC 60068-2-64 / IEC 60721-3-4 Class 4M11: 5...200 Hz, ASD 0.01 (m/s <sup>2</sup> ) 2/Hz
Sinus vibration test	IEC 60068-2-6 / IEC 61298-3
	10...58 Hz: 0.15 mm / 58...1000 Hz, a = 2 g
Shock test	IEC 60068-2-27 / IEC 60721-3-4
	Half sine wave, Class 4M12, 2 g, pulse duration 6 ms

## 2.2 Measuring accuracy

Every electromagnetic flowmeter is calibrated by direct volume comparison. The wet calibration validates the performance of the flowmeter under reference conditions against accuracy limits.

The accuracy limits of electromagnetic flowmeters are typically the result of the combined effect of linearity, zero point stability and calibration uncertainty.

### Reference conditions

- Medium: water
- Temperature: +5...+35°C / +41...+95°F
- Operating pressure: 0.1...5 barg / 1.5...72.5 psig
- Inlet section:  $\geq 5$  DN
- Outlet section:  $\geq 2$  DN

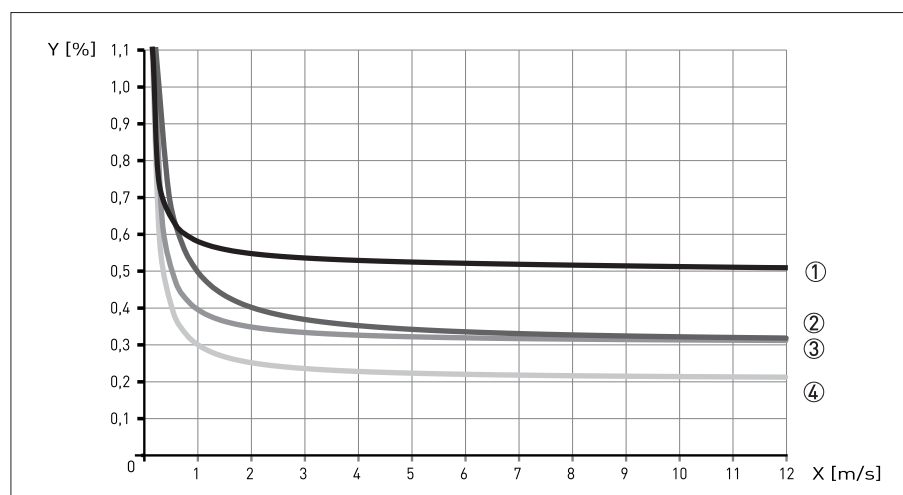


Figure 2-1: Flow velocity vs. accuracy

X [m/s] : flow velocity

Y [%]: deviation from the actual measured value (mv)

### Accuracy

Flow tube diameter	Signal transmitter type	Accuracy	Curve
DN25...1200 / 1...48"	IMT30A	0.5% of mv + 1 mm/s	①
DN25...1200 / 1...48"	IMT31A	0.3% of mv + 1 mm/s	③
DN25...1600 / 1...64"	IMT33A	0.2% of mv + 1 mm/s	④
DN1800...2000 / > 64"	IMT33A	0.3% of mv + 2 mm/s	②

Optionally for IMT30A and IMT31A; extended calibration at 2 points for optimised accuracy. For more details on optimised accuracy, see the concerning transmitter documentation.

## 2.3 Pressure derating

The graphs below refer to the maximum pressure as a function of the temperature for the flanges of the flowmeter (per specified flange material).

Please note that the specified values only refer to the flanges. The maximum value for the flowmeter can further be limited by the maximum value for other materials (i.e. the liner)

For A = Carbon steel A 105 & B = Stainless steel 316L

X/Y axes in all graphs; X = Temperature in [°C] / Y = Pressure in [bar]

x/y axes in all graphs; x = Temperature in [°F] / y = Pressure in [psi]

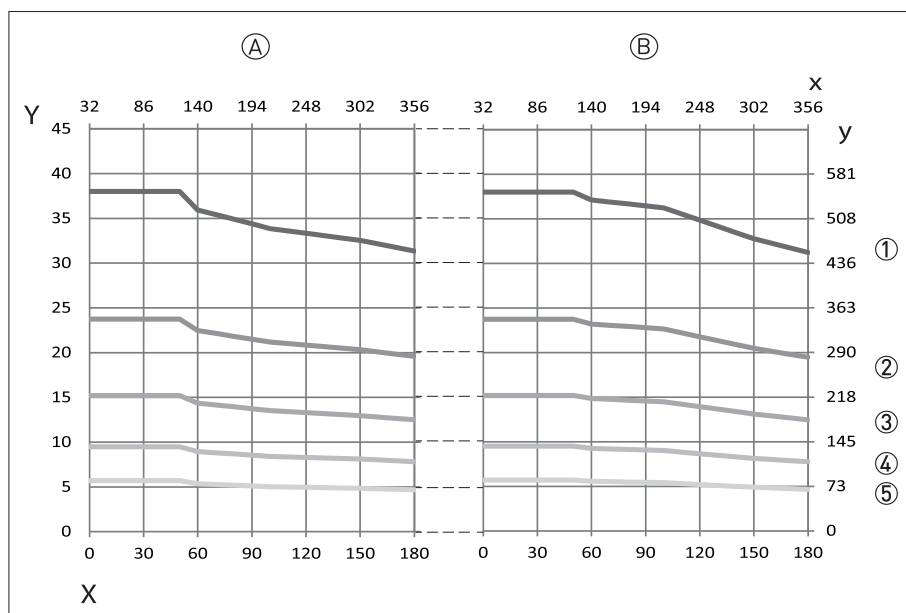


Figure 2-2: Pressure derating; EN 1092-1

- ① PN 40
- ② PN 25
- ③ PN 16
- ④ PN 10
- ⑤ PN 6

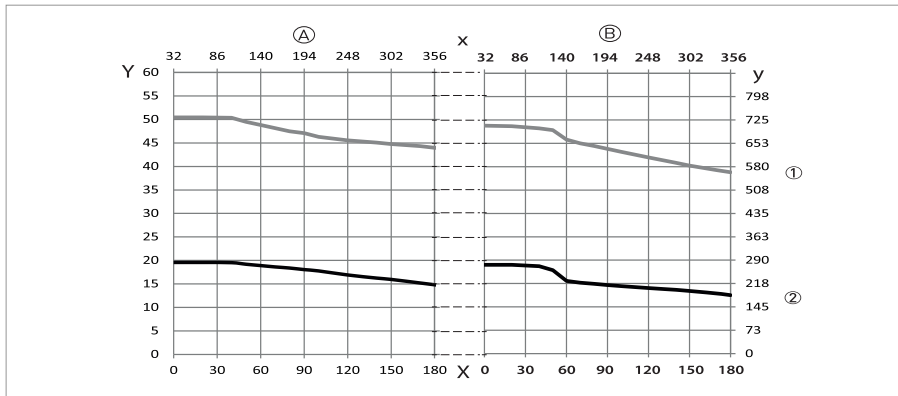


Figure 2-3: Pressure derating; ANSI B16.5

- ① 300 lbs
- ② 150 lbs

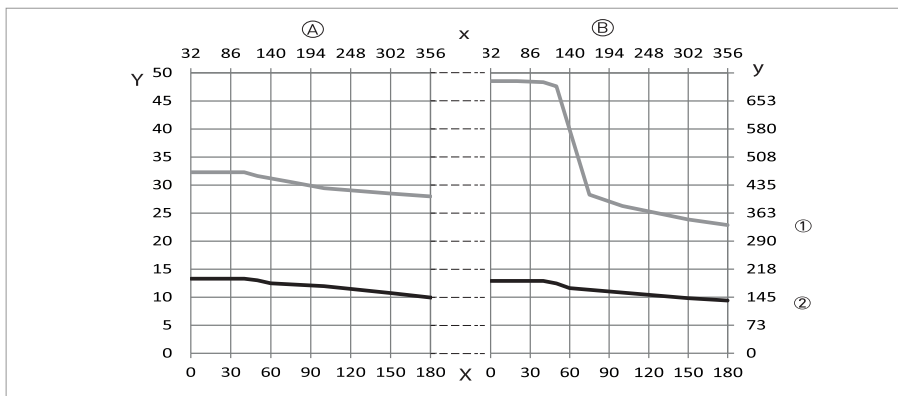


Figure 2-4: Pressure derating; JIS B2220

- ① 20K
- ② 10K

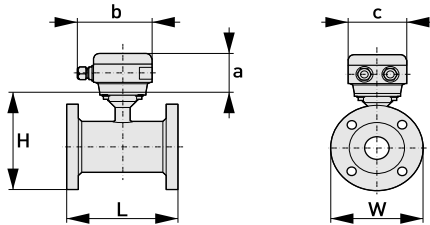
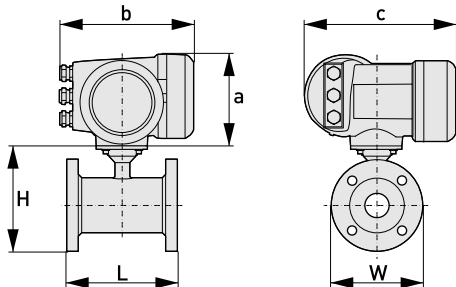
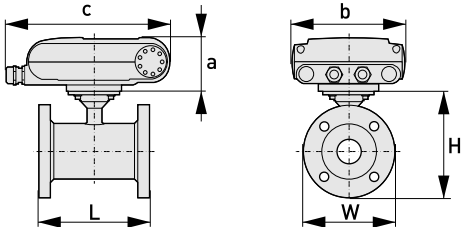
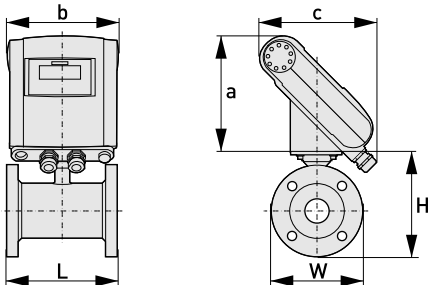


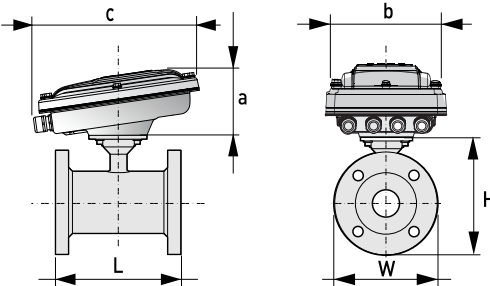
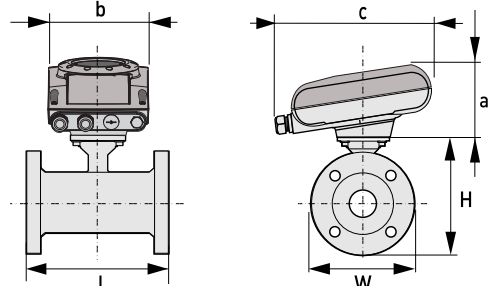
## 2.4 Vacuum load

Diameter	Vacuum load in mbar abs. at a process temperature of			
[mm]	20°C	40°C	60°C	80°C
Hard rubber				
DN25...300	250	250	400	400
DN350...1000	500	500	600	600
DN1200...2000	600	600	750	750

Diameter	Vacuum load in psia at process temperature of			
[inch]	68°F	104°F	140°F	176°F
Hard rubber				
1...12	3.6	3.6	5.8	5.8
14...40	7.3	7.3	8.7	8.7
48...80	8.7	8.7	10.9	10.9

## 2.5 Dimensions and weights

Remote version		<p><math>a = 88 \text{ mm} / 3.5''</math></p> <p><math>b = 139 \text{ mm} / 5.5''</math> ①</p> <p><math>c = 106 \text{ mm} / 4.2''</math></p> <p>Total height = <math>H + a</math></p>
Compact version with: IMT33A		<p><math>a = 155 \text{ mm} / 6.1''</math></p> <p><math>b = 230 \text{ mm} / 9.1''</math> ①</p> <p><math>c = 260 \text{ mm} / 10.2''</math></p> <p>Total height = <math>H + a</math></p>
Compact version with: IMT31A (0°)		<p><math>a = 82 \text{ mm} / 3.2''</math></p> <p><math>b = 161 \text{ mm} / 6.3''</math></p> <p><math>c = 257 \text{ mm} / 10.1''</math> ①</p> <p>Total height = <math>H + a</math></p>
Compact version with: IMT31A (45°)		<p><math>a = 186 \text{ mm} / 7.3''</math></p> <p><math>b = 161 \text{ mm} / 6.3''</math></p> <p><math>c = 184 \text{ mm} / 7.3''</math> ①</p> <p>Total height = <math>H + a</math></p>

Compact version with: stainless steel IMT31A (10°)		$a = 100 \text{ mm} / 4''$ $b = 187 \text{ mm} / 7.36''$ ① $c = 270 \text{ mm} / 10.63''$ Total height = $H + a$
Compact version with: IMT30A (10°)		$a = 101 \text{ mm} / 3.98''$ $b = 157 \text{ mm} / 6.18''$ $c = 260 \text{ mm} / 10.24''$ ① Total height = $H + a$

① The value may vary depending on the used cable glands.

- All data given in the following tables are based on standard versions of the flow tube only.
- Especially for smaller nominal sizes of the flow tube, the signal transmitter can be bigger than the flow tube.
- Note that for other pressure ratings than mentioned, the dimensions may be different.
- For full information on signal transmitter dimensions see relevant documentation.

## EN 1092-1

Nominal size DN [mm]	Dimensions [mm]				Approx. weight [kg]
	Standard length	ISO Insertion length	H	W	
25	150	200	140	115	5
32	150	200	157	140	6
40	150	200	166	150	7
50	200	200	186	165	11
65	200	200	200	185	9
80	200	200	209	200	14
100	250	250	237	220	15
125	250	250	266	250	19
150	300	300	300	285	27
200	350	350	361	340	34
250	400	450	408	395	48
300	500	500	458	445	58
350	500	550	510	505	78
400	600	600	568	565	101
450	600	-	618	615	111
500	600	-	671	670	130
600	600	-	781	780	165
700	700	-	898	895	248
800	800	-	1012	1015	331
900	900	-	1114	1115	430
1000	1000	-	1225	1230	507
1200	1200	-	1417	1405	555
1400	1400	-	1619	1630	765
1600	1600	-	1819	1830	1035
1800	1800	-	2027	2045	1470
2000	2000	-	2259	2265	1860

## ASME B16.5 / 150 lb flanges

Nominal size [inch]	Dimensions [inch]			Approx. weight [lb]
	L	H	W	
1"	5.91	5.39	4.25	9
1¼"	5.91	5.75	4.63	13
1½"	5.91	6.10	5.00	15
2"	7.87	7.05	5.98	18
2½"	7.87	7.72	7	22
3"	7.87	8.03	7.50	26
4"	9.84	9.49	9.00	44
5"	9.84	10.55	10.00	49
6"	11.81	11.69	11.00	64
8"	13.78	14.25	13.50	95
10"	15.75	16.30	16.00	143
12"	19.69	18.78	19.00	207
14"	27.56	20.67	21.00	284
16"	31.50	22.95	23.50	364
18"	31.50	24.72	25.00	410
20"	31.50	26.97	27.50	492
24"	31.50	31.38	32.00	675

## ASME B16.5 / 300 lb flanges

Nominal size [inch]	Dimensions [inch]			Approx. weight [lb]
	L	H	W	
1"	5.91	5.71	4.87	11
1¼"	7.87	6.30	5.25	17
1½"	7.87	6.65	6.13	20
2"	9.84	7.32	6.50	22
2½"	9.84	7.95	7.5	25
3"	9.84	8.43	8.25	31
4"	11.81	10.00	10.00	44
6"	12.60	12.44	12.50	73
8"	15.75	15.04	15.00	157
10"	19.69	17.05	17.50	247
12"	23.62	20.00	20.50	375
14"	27.56	21.65	23.00	474
16"	31.50	23.98	25.50	639
20"	31.50	28.46	30.50	937
24"	31.50	33.39	36.00	1345

## AWWA (D), class D, FF flanges

Nominal size		Dimensions (approximately) ①			Approx. weight [lb]
DN	[inch]	L [inch]	H	W [inch]	
400	18"	23.6	23.6	25.0	265
600	24"	31.5	31.9	32.0	463
650	26"	27.6	34.1	34.3	595
700	28"	27.6	36	36.5	639
750	30"	29.5	38.2	38.7	750
800	32"	31.5	40.7	41.7	926
900	36"	35.4	45.7	46.0	1191
1000	40"	39.4	49.4	50.7	1499
1050	42"	43.3	51.7	53.0	1588
1100	44"	43.3	53.8	55.2	1786
1200	48"	47.2	57.9	59.5	2073
1300	52"	51.2	62.9	64.0	2591
1350	54"	55.1	64.6	66.3	2889
1500	60"	59.1	70.6	73.0	3484
1700	66"	70.9	79.6	80.0	4961
1800	72"	70.9	82.9	86.5	5623
1950	78"	78.7	88.3	93.0	7056
2400	96"	94.5	105.8	113.3	12017

Table 2-1: Dimensions in [mm], ① Exact dimensions on request

## AWWA (D), class D, FF flanges

Nominal size		Dimensions (approximately) ①			Approx. weight [lb]
DN	[inch]	L [inch]	H	W [inch]	
400	18"	23.6	23.6	25.0	265
600	24"	31.5	31.9	32.0	463
650	26"	27.6	34.1	34.3	595
700	28"	27.6	36	36.5	639
750	30"	29.5	38.2	38.7	750
800	32"	31.5	40.7	41.7	926
900	36"	35.4	45.7	46.0	1191
1000	40"	39.4	49.4	50.7	1499
1050	42"	43.3	51.7	53.0	1588
1100	44"	43.3	53.8	55.2	1786
1200	48"	47.2	57.9	59.5	2073
1300	52"	51.2	62.9	64.0	2591
1350	54"	55.1	64.6	66.3	2889
1500	60"	59.1	70.6	73.0	3484
1700	66"	70.9	79.6	80.0	4961
1800	72"	70.9	82.9	86.5	5623
1950	78"	78.7	88.3	93.0	7056
2400	96"	94.5	105.8	113.3	12017

Table 2-2: Dimensions in inch, ① Exact dimensions on request



Model	Description
	Schneider Electric Model 9500A Magnetic Flow Tube
9501A 951QA 951HA 9502A 952HA 9503A 9504A 9505A 9506A 9508A 9510A 9512A 9514A 9516A 9518A 9520A 9524A 9528A 9530A 9532A 9536A 9540A 9544A 9548A 9556A 9564A 9572A 9580A	<b>Nominal diameter and liner</b> DN25,1" Hardrubber DN32,1¼" Hardrubber DN40,1½" Hardrubber DN50,2" Hardrubber DN65,2½" Hardrubber DN80,3" Hardrubber DN100,4" Hardrubber DN125,5" Hardrubber DN150,6" Hardrubber DN200,8" Hardrubber DN250,10" Hardrubber DN300,12" Hardrubber DN350,14" Hardrubber DN400,16" Hardrubber DN450,18" Hardrubber DN500,20" Hardrubber DN600,24" Hardrubber DN700,28" Hardrubber DN750,30" Hardrubber DN800,32" Hardrubber DN900,36" Hardrubber DN1000,40" Hardrubber DN1100,44" Hardrubber DN1200,48" Hardrubber DN1400,56" Hardrubber DN1600,64" Hardrubber DN1800,72" Hardrubber DN2000,80" Hardrubber
-1 -2 -3 -5 -A -B -M -N -4 -W	<b>Nominal pressure</b> PN 6 EN 1092-1 (DN1200-2000) PN 10 EN 1092-1 (DN200-2000) PN 16 EN 1092-1 (DN25... 1000) PN 40 EN 1092-1 (DN25...600) 150 lbs RF ASME B 16.5 (1" ... 24") 300 lbs RF ASME B 16.5 (1" ... 24") JIS 20 K (DN25 ... 40   1" ... 1 1/2") & (DN200 ... 600   8" ... 24") JIS 10 K (DN50 ... 1400   2" ... 56") PN 25 EN 1092-1 (DN200 ... 600) Class D AWWA (DN700 ... 2000   28" ... 80")
0 1 3 5 A C D F T U V W X Y	<b>Ex version ①</b> non Ex EEx zone 1 (for IMT33A compact and field, IMT31A compact and wall only) Ex zone 2 (for IMT33A compact and field only) FM Class I DIV 2 (for IMT33A compact and field, IMT31A compact and wall only) cCSAus OL (for IMT33A compact and field, IMT31A compact and wall only) CSA Class I DIV 2 (for IMT33A compact and field, IMT31A compact and wall only) NEPSI zone 1 (for IMT33A compact and field only) IECEx zone 1 (for IMT33A compact and field, IMT31A compact and wall only) BE-Ex EAC (Belarus IMT33A compact and field, IMT31A compact and wall only) RU-Ex EAC (Russia IMT33A compact and field, IMT31A compact and wall only) KA-Ex EAC (Kazakhstan IMT33A compact and field, IMT31A compact and wall only) RU-EAC ( Russia ) KA-EAC ( Kazakhstan ) BE-EAC ( Belarus )

Model	Description
1	<b>System design</b> Compact/Integral design with aluminum signal transmitter housing/cable connections at the transmitter
2	Compact/Integral design with stainless steel signal transmitter housing/cable connections at the transmitter
3	Modular / without
4	Separate design with aluminum connection box/ ½" NPT cable connections at the transmitter
5	Separate design with aluminum connection box/ PF ½" cable connections
6	Separate design with aluminum connection box/ M20 x 1.5 A cable connections
A	Separate design with stainless steel connection box/ ½" NPT cable connections
B	Separate design with stainless steel connection box/ PF ½" cable connections
C	Separate design with stainless steel connection box/ M20 x 1.5 cable connections
0	<b>Transmitter model</b> without / modular
3	IMT31A (compact design)
4	IMT31A (wall mount version)
C	IMT33A (compact design)
D	IMT33A (field mount version)
E	IMT33A (wall mount version)
K	IMT30A (compact design)
L	IMT30A (wall mount version)
0	<b>Lining</b> Standard (PFA for EEx Zone 1) (Hardrubber 8...80" / DN200 ... 2000)
5	Hardrubber (1...6" / DN25...DN150)
7	Hardrubber H1005 (1...80" / DN25...2000)
8	Hardrubber (1...6" / DN25...150)
1	<b>Electrodes (fixed)</b> Stainless steel DIN 1.4571 316 Ti
3	Hastelloy C4
6	Titanium
B	Hastelloy C22
1	<b>Construction of electrodes</b> fixed
1	<b>Housing- / flange material</b> Housing: steel / Flanges: steel St 37-c22/A105
3	Housing: steel / Flanges: st. steel DIN 1.4404 316 L
4	Housing: steel / Flanges: st. steel: DIN 1.4571/316Ti
A	Housing: 1.4301 304 / Flanges: steel St 37-C22 / Flanges: A 105 (with st.st. conn. box.)
C	Housing: 1.4301 304 / Flanges: st. steel DIN 1.4404/316L (with st.st. conn. box.)
D	Housing: 1.4301 304 / Flanges: st. steel DIN 1.4571 316 Ti (with st.st. conn. box.)
0	<b>Protection class / dimension ( face-to-face )</b> IP66 / 67 / standard dimension
1	IP68 Field / standard dimension (with stainless steel connection box)
2	IP68 Factory / dimension dimension (with stainless steel connection box)
3	IP66 / 67 / ISO 13359 dimension
4	IP68 Field / ISO 13359 dimension (with stainless steel connection box)
5	IP68 Factory / ISO 13359 dimension (with stainless steel connection box)
0	<b>Cable</b> Compact - without / separate DS
1	Separate BTS
2	Separate LIYCY (only for FM / CSA Class 1 DIV 2)
Y	Without

Model	Description
0	<b>Cable length</b>
1	Compact - none / separate - 5 m   15 ft
2	10 m   30 ft
3	15 m   45 ft
4	20 m   60 ft
5	25 m   75 ft
6	30 m   90 ft
7	40 m   120 ft
8	50 m   150 ft
Y	100 m   300 ft
	Without
0	<b>Calibration</b>
2	Standard calibration
3	Standard calibration + 316/1.4401 tag plate (120 x 46 mm)
R	Standard calibration + 316/1.4401 tag plate (67 x 25 mm)
	Extended calibration (only with IMT30A or IMT31A)
0	<b>Ring / Materials</b>
5	Without
6	Ring #1 / Titanium
7	Ring #1 / 1.4404 316 L
E	Ring #1 / Hastelloy C22
N	Ring #3 / 1.4404 316 L
P	Protection ring #2 / Titanium
R	Protection ring #2 / 1.4404 316 L
	Protection ring #2 / Hastelloy C22
0	<b>Construction requirements</b>
	Standard
0	<b>QA / QC requirements</b>
	Standard
0	<b>Ratio of CT-calibration</b>
	Standard, R = 80

① Note: to maintain certification, make sure the transmitter being used is listed in the description

## ORDERING INSTRUCTIONS

1. Model Number.
2. Flow Data:
  - a. Maximum, minimum, and normal flow rate.
  - b. Fluid composition and viscosity at operating temperatures.
  - c. Fluid density or relative density (specific gravity).
  - d. Maximum, minimum and normal operating temperatures.
  - e. Maximum, minimum and normal operating pressures.
  - f. Mating pipe schedule.
  - g. Type and location (distance) of upstream disturbance.
3. Calibration Information (analog output only); maximum flow rate 20 mA output.
4. Electric Classification.
5. Optional Selections and Accessories.
6. Customer Tag Data.

## FLOWEXPERTPRO SIZING APPLICATION

Website  
[www.FlowExpertPro.com](http://www.FlowExpertPro.com)



App Store (Apple®)



Google Play™ Store  
(Android®)



## ADDITIONAL PRODUCTS

These product lines offer a broad range of measurement and instrument products, including solutions for pressure, flow, analytical, temperature, positioning, controlling and recording.

For a list of these offerings, visit our website at:

[www.se.com](http://www.se.com)

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