ABB MEASUREMENT & ANALYTICS | DATA SHEET

266DRH, 266HRH and 266NRH

Pressure transmitters with seals

Measurement made easy
Engineered solutions for all applications

Base accuracy
- from 0.06 % of calibrated span

Reliable sensing system coupled with very latest digital technologies
- provides large turn down ratio up to 60:1

Comprehensive sensor choice
- optimize in-use total performance and stability

Flexible configuration facilities
- provided locally via local LCD keypad

TTG (Through-The-Glass) keypad technology
- allows quick and easy local configuration without opening the cover, even in explosion proof environments

IEC 61508 certification
- version for SIL2 (1oo1) and SIL3 (1oo2) applications

PED compliance to Sound Engineering Practice (SEP)

All welded constructions
- grant economically feasible and technically sound solutions
- ensuring total reliability at line pressure down to full vacuum

Wide range of seal types, fill fluids, materials and options

Special designed seals for tailored solutions

WirelessHART version
- the battery powered solution compliant to IEC 62591

Best-in-class battery life
- up to 10 years @ 32 s update time
- in-field replaceable

Product in compliance with Directive 2011/65/UE (RoHS II)

In-built advanced diagnostics

General description

Models detailed in this data sheet apply for those transmitters which include one or two remote seal(s) connected via a capillary to the transmitter sensor.
Depending on the selected ordering code the following models are available:
a) model 266DRH which allows a differential measurement using either

- two remote seals of same type and size or
- one direct mount seal on positive side and one remote seal on negative side, of same type and size or
- one remote seal on positive side and a standard threaded connection direct 1/4 in – 18 NPT on flange or 1/2 in – 14 NPT through adapter, for the wet or dry leg on negative side opposite to seal, or
- one direct mount seal on positive side and a standard threaded connection direct 1/4 in – 18 NPT on flange or 1/2 in – 14 NPT through adapter, for the wet or dry leg on negative side.

b) model 266HRH or 266NRH have the remote or direct mount seall on the positive side and the user can select the suitable code for having the reference at armospheric or vacuum pressure respectively for gauge or absolute measure.
Direct mount seal is integral to the transducer by a short capillary connection inside a protective rigid tube. This construction forms a standalone single assembly suitable to be mounted to the process by the seal(s) mounting facilities.
All data apply for identical characteristics of the two sides when the transmitter is differential with two seals.

Remote Seals Overview

The S26 seals are used in combination with 2600T transmitters, allowing differential, gauge or absolute pressure measurements.
Connection of the seal(s) to the relevant transmitter can be achieved as follows :

- directly mounted with a short capillary connecting the „integral“ seal to the transmitter sensor;
- through a capillary system which link the transmitter sensor to a „remote“ seal of any version.

Using seals the transmitter can be selected with

- two seals using same fill fluid, capillary and diaphragm size
- one seal having the other side configured with a process flange for wet/dry leg connection or a blind flange providing vacuum or atmospheric reference.

Model 266HRH/NRH transmitters have always one remote seal only, with a selectable reference to atmosphere or vacuum respectively for gauge or absolute pressure measurements.

The S26 Series Seal System is a protective device used to isolate 2600T series transmitters from the process fluid.
The seal system provides a flexible diaphragm seal between the process fluid and a liquid filled capillary tube connected to the body of the transmitter. The diaphragm isolates the process fluid while the filled capillary tube hydraulically transmits the process pressure to the transmitter sensor. The capillary of remote seal is corrosion-resistant with robust costruction in stainless steel with spiral armour protection, also PVC jacket; PVC protection is always recommended except for high temperature application, where stainless steel armour is suggested. The all welded construction assures reliable operation over the widest range of operating temperature and under vacuum conditions.
For certain applications, use of seal is necessary to prevent the process fluid from leaving its enclosure, due to reasons such as :

- the process fluid has solids in suspension or is highly viscous and can foul impulse lines.
- the process fluid can solidify in impulse lines or the transmitter.
- the process fluid is too hazardous to enter the control area where the transmitter is located.
- the process temperature exceeds the recommended limits for the transmitter.
- the application is interface level or density measurement.
- the transmitter must be located away from the process for easier maintenance.

Remote seals offer the required constant and equal specific gravity of the pressure transfer fluid on the high and low sides of the transmitter.
The S26 series is available with process connections for ASME, EN or JIS pipe flanges, wedge flow elements, chemical tees, and threaded pipe fittings. Extended diaphragm remote seals, suitable for connection to 2 in, 3 in or 4 in flanged tank nozzles or flanged tees, permit the seal diaphragm to be located flush with the inside of a tank or pipe. Sanitary type seals meet the stringent requirements of sanitary food, dairy, pharmaceutical and BioTech applications, offering FDA approved fillings and compliance with 3-A Sanitary Standards. Fill fluids with FDA are defined as food fills and are Generally Recognized As Safe (GRAS) by the US Food and Drug Administration (FDA).

Seal system selection criteria

Application of an S26 system in direct mount or remote seal configuration to 2600T transmitters affects performances of original devices. Effects are evident in:

- accuracy
- temperature effects
- dynamic response

Accuracy is only marginally affected when seal diaphragm stiffness is relevant compared with sensor stiffness.
This is the only characteristic of the S26 system which has role on accuracy performance. High stiffness of diaphragm associated with low URL might produce increased errors of linearity, hysteresis, and long term stability; when diaphragm stiffness is accuracy related also temperature effects are significantly affected.
Some basic considerations on diaphragm stiffness help understanding effects introduced by S26 system associated with transmitters. This is physically defined by the ratio between the pressure variation applied to the diaphragm and the corresponding volume variation. The stiffness is not linear along the whole diaphragm volumetric displacement, but the S26 design is such to maintain the system linear within the service conditions of the transmitter such as:

- operating pressure range
- operating static pressure (for differential transmitters)
- ambient and process temperature limits

Diaphragm stiffness is a function of material and thickness (elastic coefficient), diameter (type), convolution shape and geometry (design defined).
S26 system has effect on temperature performance of the complete transmitter. This effect is mostly on zero of the instrument and is produced by the expansion of the fill fluid into the closed volume formed by the transmitter flange cavity the capillary volume and the remote seal volume. This volume filled with a fluid with specific expansion coefficient; change in temperature of the measuring device produce a volume variation which is absorbe by the remote diaphragm, whose stiffness produces a change in the fluid pressure: this is the zero error. In real application the transmitter/seal system is not the same and stable temperature. Therefore the errors referred in this document for each type of diaphragm and different fluids should be taken as a reference for qualitatively evaluation and not a true behaviour in normal application conditions. Should again be recognized that the stiffness of diaphragm and in this case, the thermal coefficient of fluid are the parameter to take into account.

Application of S26 seal to transmitters increases the original time response. The amount of the increase depends from the number of elements and condition of the instrument as follow:

- transmitter sensor range
- physical configuration (i.e. a remote seal on other side)
- type of measure/number of seal (one or two)
- fill fluid viscosity of the S26 system applied
- ambient temperature (affects the transmitter and the capillary) and process temperature on the seal diaphragm
- capillary length

The delay introduced by the seal may be considered as an added constant time to the one of the associated transmitter.
For obtaining the best application solution:

- choose sensor code with URL closest to application SPAN
- select largest diameter diaphragm seal related to URL.
- keep the capillary length as short as possible
- select the fill fluid that suits the most extreme process conditions expected (highest temperature and lowest pressure) and it is compatible with the process fluid.
- In vacuum application, choose always the all welded version and mount the transmitter primary 30 cm/12 inches or more below the bottom seal connection.
- In a two-seal system use the same diaphragm size, capillary length and fill fluid on each side of the transmitter

Temperature errors optimization (option code DE)
Additional enhanced optimization performed during the production process allows to reduce errors caused by temperature changes on seal. Values detailed in relevant tables can be considered divided by 4 for the following conditions

- difference of capillary errors (per metre) when the two sides have different lengths
- difference of seal errors (process) when the two sides are equipped with different S26 types
- difference of system errors (ambient) when the transmitter uses one direct mount seal and one remote seal.

Ordering Information

The transmitter and each seal system are each identified by a product code number. These code numbers are stamped on the transmitter nameplate and each character identifies specific product features. Refer to ordering information for a detailed explanation of the product code numbers.
Industrial application in chemical, sanitary, food and any other process industries may require seal configurations and/or process connection different from those reported in this document. Each “special” should be evaluated by ABB to check the correctness and its level of functionality. Ask for the “S26 series seal form” to define precisely the measuring problem and application requirements.
ABB can also cooperate with you by developing a special remote seal for problems requiring individual solutions.

PLEASE CONTACT YOUR LOCAL ABB OFFICE OR REPRESENTATIVE FOR ADDITIONAL INFORMATION, SPECIFIC SEAL DATA AND APPLICABILITY.

The following table shows the types of seals available as remote.
According to the combination SEAL/TRANSMITTER SENSOR the table details the MAXIMUM CAPILLARY LENGTH.
The mnemonics will be used as shortest cross references in the following pages of the data sheet.

Seal model	Seal type	Seal diaphragm size (thickness) [flange type]	Two seals construction								One seal construction									Mnemonic
			SENSOR								SENSOR									
			B	E	F	H	M	P	Q	S	E	F	H	M	P	Q	S	W	Z	
S26WA S26WE	Wafer (ASME and EN standards)	1.5 in. /DN 40	-	-	1	4	5	5	5	5	-	-	3	5	5	5	5	5	-	P1.5
		2 in. / DN 50	-	1	3	8	8	10	10	10	-	2	6	8	8	8	8	8	-	P2
		3 in. / DN 80	1.5	3	6	8	16	16	16	16	1	4	10	10	10	10	10	10	-	P3
		1.5 in. /DN 40 (low)	-	1	3	6	6	8	8	8	-	-	4	6	6	6	6	6	-	F1.5
		2 in. / DN 50 (low)	1	2	4	8	12	16	16	16	1	3	8	12	16	16	16	16	-	F2
		3 in. / DN 80 (low)	2	5	8	10	16	16	16	16	2	6	10	16	16	16	16	16	-	F3
S26FA S26FE S26RA S26RE	Flanged flush diaphragm (ASME and EN standards)	2 in. / DN 50	-	1	3	8	8	8	8	8	-	2	6	8	8	8	8	8	-	P2
		3 in. / DN 80	1.5	3	6	10	16	16	16	16	1	4	10	10	10	10	10	10	-	P3
		4 in. / DN 100	1.5	3	6	10	16	16	16	16	1	4	10	10	10	10	10	10	-	P3
		2 in. / DN 50 (low)	1	2	4	10	12	16	16	16	1	3	8	12	16	16	16	16	-	F2
		3 in. / DN 80 (low)	2	5	8	12	16	16	16	16	2	6	10	16	16	16	16	16	-	F3
		4 in. / DN 100 (low)	2	5	8	12	16	16	16	16	2	6	10	16	16	16	16	16	-	F3
	Flanged extended diaphragm (ASME and EN standards)	2 in. / DN 50	-	1	3	6	6	8	8	-	-	1	4	6	6	6	-	-	-	E2
		3 in. / DN 80	1	2	4	8	12	12	12	-	-	3	8	10	10	10	-	-	-	E3
		4 in. / DN 100	1.5	3	6	8	16	16	16	16	1	4	10	10	10	10	10	10	-	P3
		2 in. / DN 50 [fixed]	-	1	3	6	6	8	8	8	-	-	4	6	6	6	6	-	-	F1.5
		3 in. / DN 80 [fixed]	2	5	8	10	12	12	12	12	2	6	10	12	12	12	12	-	-	F2.5
		4 in. / DN100 [fixed]	2	5	8	10	12	12	12	12	2	6	10	12	12	12	12	-	-	F2.5
S26RJ	Flanged flush diaphragm (JIS standards)	A 50	-	-	3	8	8	8	8	8	-	2	6	8	8	8	8	-	-	P2
		A 80	1.5	3	6	8	16	16	16	16	1	4	10	10	10	10	10	-	-	P3
		A 100	1.5	3	6	8	16	16	16	16	1	4	10	10	10	10	10	-	-	P3
S26RR	Flanged flush diaphragm (Ring Joint ASME standard)	1.5 in.	-	-	-	4	5	5	5	5	-	-	3	5	5	5	5	5	-	P1.5
		2 in.	-	1	3	8	8	8	8	8	-	2	6	8	8	8	8	8	-	P2
		3 in.	1.5	3	6	8	16	16	16	16	1	4	10	10	10	10	10	10	-	P3
S26RH	Flanged to ISO 10423 flush diaphragm (API)	1 13/16 in.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	5	H1.5
		2 1/16 in.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	8	P1.5
S26TT	Threaded off-line flanged	2 1/2 in.	1	2	4	8	12	12	12	12	2	3	8	8	8	8	8	8	-	T2.5
S26MA S26ME	Off-line flanged (ASME and EN standards)	2 1/2 in.	1	2	4	8	12	12	12	12	2	3	8	8	8	8	8	-	-	T2.5
S26SS	Union nut, Triclamp, Sanitary, Aseptic	2 in. / F50	-	-	1	3	6	6	6	-	-	1	3	6	6	6	-	-	-	S2
		3 in. / 4 in. / F80	1.5	3	6	10	10	10	10	-	3	6	10	10	10	10	-	-	-	S3
	Cherry Burrell, Cherry Burrell Aseptic	2 in.	-	-	1	3	6	6	6	-	-	1	3	6	6	6	-	-	-	S2.5
		3 in. / 4 in.	1.5	3	6	10	10	10	10	-	3	6	10	10	10	10	-	-	-	S3.5
S26BN	Button type	1 in.	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3	-	B1
S26PN	Urea service flanged	1 1/2 in.	-	-	-	-	-	-	-	-	-	-	5	5	5	5	5	5	-	U1.5
		2 1/2 in.	-	-	3	6	6	6	6	6	-	3	6	6	6	6	6	6	-	U2.5

...Seal system selection criteria

The following table shows the types of seals available as direct mount.
According to the combination SEAL/TRANSMITTER SENSOR the table details the compatibility for one direct mount seal construction and the MAXIMUM CAPILLARY LENGTH when a second seal is selected as remote.
The mnemonics will be used as shortest cross references in the following pages of the data sheet.

Seal model	Seal type	Seal diaphragm size (thickness) [flange type]	One direct mount seal									One DM plus one remote seal								Mnemonic
			SENSOR									SENSOR								
			E	F	H	M	P	Q	S	W	Z	B	E	F	H	M	P	Q	S	
S26FA S26FE S26RA S26RE	Flanged flush diaphragm (ASME and EN standards)	2 in. / DN 50	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	1	3	5	8	8	8	8	P2
		3 in. / DN 80	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	3	5	10	10	10	10	10	P3
		4 in. / DN 100	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	3	5	10	10	10	10	10	P3
		2 in. / DN 50 (low)	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	2	4	8	12	16	16	16	F2
		3 in. / DN 80 (low)	Y	Y	Y	Y	Y	Y	Y	Y	Y	2	4	6	12	16	16	16	16	F3
		4 in. / DN 100 (low)	Y	Y	Y	Y	Y	Y	Y	Y	Y	2	4	6	12	16	16	16	16	F3
	Flanged extended diaphragm (ASME and EN standards)	2 in. / DN 50	-	-	Y	Y	Y	Y	-	-	-	-	-	-	4	6	6	6	-	E2
		3 in. / DN 80	Y	Y	Y	Y	Y	Y	-	-	-	-	2	3	8	10	10	10	-	E3
		4 in. / DN 100	Y	Y	Y	Y	Y	Y	-	-	-	-	3	5	10	10	10	10	-	P3
		2 in. / DN 50 [fixed]	-	-	Y	Y	Y	Y	Y	-	-	-	-	-	3	6	6	6	6	F1.5
		3 in. / DN 80 [fixed]	Y	Y	Y	Y	Y	Y	Y	-	-	-	2	6	10	12	12	12	12	F2.5
		4 in. / DN100 [fixed]	Y	Y	Y	Y	Y	Y	Y	-	-	-	2	6	10	12	12	12	12	F2.5
S26RJ	Flanged flush diaphragm (JIS standards)	A 50	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	1	3	5	8	8	8	8	P2
		A 80	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	3	5	10	10	10	10	10	P3
		A 100	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	3	5	10	10	10	10	10	P3
S26RR	Flanged flush diaphragm (Ring Joint ASME standard)	1.5 in.	-	-	Y	Y	Y	Y	Y	Y	Y	-	-	-	3	5	5	5	5	P1.5
		2 in.	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	1	3	5	8	8	8	8	P2
		3 in.	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	3	5	10	10	10	10	10	P3
S26RH	Flanged to ISO 10423 flush diaphragm (API)	1 13/16 in.	-	-	-	-	-	-	-	Y	Y	-	-	-	-	-	-	-	-	H1.5
		2 1/16 in.	-	-	-	-	-	-	-	Y	Y	-	-	-	-	-	-	-	-	P1.5
S26TT	Threaded off-line flanged	2 1/2 in.	Y	Y	Y	Y	Y	Y	Y	Y	-	-	2	4	8	8	10	10	10	T2.5
S26MA S26ME	Off-line flanged (ASME and EN standards)	2 1/2 in.	Y	Y	Y	Y	Y	Y	Y	Y	-	-	2	4	8	8	10	10	10	T2.5
S26SS	Union nut, Triclamp, Sanitary, Aseptic	2 in. / F50	-	-	Y	Y	Y	Y	-	-	-	-	-	-	3	6	6	6	-	S2
		3 in. / 4 in. / F80	Y	Y	Y	Y	Y	Y	-	-	-	-	3	4	8	8	8	8	-	S3
	Cherry Burrell, Cherry Burrell Aseptic	2 in.	-	-	Y	Y	Y	Y	-	-	-	-	-	-	3	6	6	6	-	S2.5
		3 in. / 4 in.	Y	Y	Y	Y	Y	Y	-	-	-	-	3	4	8	8	8	8	-	S3.5
	Beverage	1 1/2 in.	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	K1.5
S26KN	Pulp & Paper application specific (ONLY DIRECT MOUNT WITH 266HRH / 266NRH)	1 in. ball valve (266HRH only)	-	-	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	Y1
		1 in. (gasketed)	-	-	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	M1
		1 in. (NPT, Gas)	-	-	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	M1
		1 1/2 in. (gasketed)	-	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	M1.5
		1 1/2 in. (NPT - Gas)	-	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	M1.5A
		1 1/2 in. (M44 thread)	-	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	M1.5B

Specification – functional

Range and span limits

Sensor Code	Upper Range Limit (URL)	Lower Range Limit (LRL)				Minimum span	
		266DRH differential	266DRH gauge	266HRH gauge	266NRH absolute	basic	266HRH or 266NRH with S26KN
	4 kPa	–4 kPa				0.2 kPa	
B	40 mbar	–40 mbar				2 mbar	
	16 inH2O	–16 inH2O				0.8 inH2O	
	16 kPa	–16 kPa	–16 kPa			0.8 kPa	
E	160 mbar	–160 mbar	–160 mbar			8 mbar	
	64 inH2O	–64 inH2O	–64 inH2O			3.2 inH2O	
	40 kPa	–40 kPa	–40 kPa	–40 kPa		0.67 kPa	1.34 kPa
F	400 mbar	–400 mbar	–400 mbar	–400 mbar	0 abs	6.7 mbar	13.4 mbar
	160 inH2O	–160 inH2O	–160 inH2O	–160 inH2O		2.67 inH2O	5.34 inH2O
	160 kPa	–160 kPa	–100 kPa	–100 kPa		2.67 kPa	5.34 kPa
H	1600 mbar	–1600 mbar	–1 bar	–1 bar	0 abs	26.7 mbar	53.4 mbar
	642 inH2O	–642 inH2O	–14.5 psi	–14.5 psi		10.7 inH2O	21.4 inH2O
	600 kPa	–600 kPa	–100 kPa	–100 kPa		10kPa	20 kPa
M	6 bar	–6 bar	–1 bar	–1 bar	0 abs	0.1 bar	0.2 bar
	87 psi	–87 psi	–14.5 psi	–14.5 psi		1.45 psi	2.9 psi
	2400 kPa	–2400 kPa	–100 kPa	–100 kPa		40 kPa	80 kPa
P	24 bar	–24 bar	–1 bar	–1 bar	0 abs	0.4 bar	0.8 bar
	348 psi	–348 psi	–14.5 psi	–14.5 psi		5.8 psi	11.6 psi
	8000 kPa	–8000 kPa	–100 kPa	–100 kPa		134 kPa	267 kPa
Q	80 bar	–80 bar	–1 bar	–1 bar	0 abs	1.34 bar	2.67 bar
	1160 psi	–1160 psi	–14.5 psi	–14.5 psi		19.4 psi	38.7 psi
	16000 kPa	–16000 kPa	–100 kPa	–100 kPa		267 kPa	534 kPa
S	160 bar	–160 bar	–1 bar	–1 bar	0 abs	2.67 bar	5.34 bar
	2320 psi	–2320 psi	–14.5 psi	–14.5 psi		38.7 psi	77.4 psi
	70000 kPa			–100 kPa		1400 kPa	
W	700 bar			–1 bar		14 bar	
	10150 psi			–14.5 psi		203 psi	
	105000 kPa			–100 kPa		10500 kPa	
Z	1050 bar			–1 bar		105 bar	
	15225 psi			–14.5 psi		1522 psi	

Span limits

Maximum span = URL

IT IS RECOMMENDED TO SELECT THE TRANSMITTER SENSOR CODE PROVIDING THE TURNDOWN VALUE AS LOWEST AS POSSIBLE TO OPTIMIZE PERFORMANCE CHARACTERISTICS.

Zero suppression and elevation

Zero and span can be adjusted to any value within the range limits detailed in the table as long as:

– calibrated span ≥ minimum span

Damping (feature not available for WirelessHART version)

Selectable time constant : between 0 and 60 s

This is in addition to sensor response time.

Turn on time

Operation within specification in less than 10 s with minimum damping.

Insulation resistance

> 100 MΩ at 500 V DC (terminals to earth)

Specification – operative limits

REFER ALSO TO S26X DATA PAGES FOR POSSIBLE FURTHER LIMITATIONS DUE TO SEAL VARIANTS

Pressure limits

Overpressure limits

Model 266DRH	Fill fluid	Overpressure limits
Sensor F to S	Silicone oil	0.07 kPa abs, 0.7 mbar abs, 0.5 mmHg and 21 MPa, 210 bar, 3045 psi *
Sensor E	Silicone oil	0.07 kPa abs, 0.7 mbar abs, 0.5 mmHg and 16 MPa, 160 bar, 2320 psi
Sensor B (266DRH only)	Silicone oil	0.07 kPa abs, 0.7 mbar abs, 0.5 mmHg and 7 MPa, 70 bar, 1015 psi
Sensor F to S	Inert (Galden)	0.135 kPa abs, 1.35 mbar abs, 1 mmHg and 21 MPa, 210 bar, 3045 psi *
Sensor E	Inert (Galden)	0.135 kPa abs, 1.35 mbar abs, 1 mmHg and 16 MPa, 160 bar, 2320 psi

* 16 MPa, 160 bar, 2320 psi for AISI 316 ss NACE “exposed bolting“

Models 266HRH and 266NRH	Fill fluid	Overpressure limits
Sensor P, Q, S	Silicone oil	0.07 kPa abs, 0.7 mbar abs, 0.5 mmHg and 21 MPa, 210 bar, 3045 psi
Sensor F, H, M	Silicone oil	0.07 kPa abs, 0.7 mbar abs, 0.5 mmHg and 14 MPa, 140 bar, 2030 psi
Sensor P, Q, S	Inert (Galden)	0.135 kPa abs, 1.35 mbar abs, 1 mmHg and 21 MPa, 210 bar, 3045 psi
Sensor F, H, M	Inert (Galden)	0.135 kPa abs, 1.35 mbar abs, 1 mmHg and 14 MPa, 140 bar, 2030 psi
Sensor W (266HRH only)	Silicone oil	0.07 kPa abs, 0.7 mbar abs, 0.5 mmHg and 105 MPa, 1050 bar, 15225 psi
Sensor Z (266HRH only)	No filling	0.07 kPa abs, 0.7 mbar abs, 0.5 mmHg and 135 MPa, 1350 bar, 19570 psi

Static pressure limits

The differential pressure transmitters, models 266DRH work within specifications between the following limits:

Sensors	Static pressure limits
Sensor F to S with 2 seals	0.07 kPa abs, 0.7 mbar abs, 0.5 mmHg and 21 MPa, 210 bar, 3045 psi *
Sensor F to S with 1 seal	1.3 kPa abs, 13 mbar abs, 0.2 psia and 21 MPa, 210 bar, 3045 psi *
Sensor E with 2 seals	0.07 kPa abs, 0.7 mbar abs, 0.5 mmHg and 16 MPa, 160 bar, 2320 psi
Sensor E with 1 seal	1.3 kPa abs, 13 mbar abs, 0.2 psia and 16 MPa, 160 bar, 2320 psi
Sensor B with 2 seals	0.07 kPa abs, 0.7 mbar abs, 0.5 mmHg and 7 MPa, 70 bar, 1015 psi
Sensor B with 1 seal	1.3 kPa abs, 13 mbar abs, 0.2 psia and 7 MPa, 70 bar, 1015 psi

* 16 MPa, 160 bar, 2320 psi for AISI 316 ss NACE “exposed bolting“

Proof pressure

The transmitter can be exposed without leaking to line pressure of up to

Model	Sensor	Proof pressure
266DRH	Sensor F to S	40.25 MPa, 402.5 bar, 5836 psi
	Sensor E	31.5 MPa, 315 bar, 4567 psi
	Sensor B	14 MPa, 140 bar, 2030 psi
266HRH 266NRH	Sensor F, H, M	28 MPa, 280 bar, 4060 psi
	Sensor P, Q, S	40.25 MPa, 402.5 bar, 5836 psi
266HRH	Sensor W	171.5 MPa, 1715 bar, 24868 psi
	Sensor Z	210.5 MPa, 2105 bar, 30522 psi

or two times the flange rating of seal, whichever is less. Meet ANSI/ISA–S 82.03 hydrostatic test requirements.

Flushing ring gasket material	Process limits		
	Pressure (max.)	Temperature	P x T
Garlock	6.9 MPa, 69 bar, 1000 psi	–73 and 204 °C (–100 and 400 °F)	250000 (°F x psi)
Graphite	2.5 MPa, 25 bar, 362 psi	–100 and 380 °C (–148 and 716 °F)	
PTFE	6 MPa, 60 bar, 870 psi	–100 and 250 °C (–148 and 482 °F)	

Vacuum service for seals

Full vacuum subject to fill fluid limits.
Refer to FILL FLUID CHARACTERISTICS table.
Minimum pressure with seal tantalum diaphragm is 1 kPa abs, 10 mbar abs, 0.15 psia.

Temperature limits °C (°F)

Ambient

is the operating temperature

Models 266DRH	Ambient temperature limits
Silicone oil for sensor F to S	–40 and 85 °C (–40 and 185 °F)
Silicone oil for sensor B and E	–25 and 85 °C (–13 and 185 °F)
Inert (Galden) for sensor F to S	–20 and 85 °C (–4 and 185 °F)
Inert (Galden) for sensor E	–10 and 85 °C (14 and 185 °F)

Models 266HRH - 266NRH	Ambient temperature limits
Silicone oil for sensor F to W	–40 and 85 °C (–40 and 185 °F)
Inert (Galden) for sensor F to S	–20 and 85 °C (–4 and 185 °F)
Sensor Z without filling	–40 and 85 °C (–40 and 185 °F)

Models 266XRH	Ambient temperature limits
LCD integral display	–40 and 85 °C (–40 and 185 °F)

LCD display may be affected in visibility below -20°C (-4°F) or above +70°C (+185°F).
Transmitters with ambient temperature limit of -50°C (-58° F) are available through special option.
This special option is not compatible with communicatin protocol option “7”

IMPORTANT

For Hazardous Atmosphere applications see the temperature range specified on the certificate/approval relevant to the aimed type of protection

Process

Models 266DRH (side without seal)	Process temperature limits
Silicone oil for sensor F to S	–40 and 121 °C (–40 and 250 °F) *
Silicone oil for sensor B and E	–25 and 121 °C (–13 and 250 °F) *
Inert (Galden) for sensor F to S	–20 and 100 °C (–4 and 212 °F) **
Inert (Galden) for sensor E	–10 and 100 °C (14 and 212 °F) **
Viton gasket	–20 and 121 °C (–4 and 250 °F)

* 100 °C (212 °F) for application below atmospheric pressure
** 65 °C (150 °F) for application below atmospheric pressure

...Specification – operative limits

Process - seal

Refer to the following FILL FLUID CHARACTERISTICS table detailing characteristics of fill fluids when used in transmitters with seal(s) and further limitation for specific models and/or variants.

Fill fluid (application)	Process temperature and pressure limits				Specifications @ 25 °C (77°F)		
	Tmax °C (°F) @ Pabs > of	Pmin mbar abs (mmHg)	Tmax °C (°F) @ Pmin	Tmin °C (°F)	Specific gravity (kg/dm3)	Kinematic viscosity (cst)	Thermal expansion (x 10-3 /°C)
Silicone oil PMX 200 10 cSt	250 (480) @ 385 mbar	0.7 (0.5)	130 (266)	-40 (-40)	0.934	10	1.08
Silicone oil Baysilone PD5 5 cSt	250 (480) @ 900 mbar	0.7 (0.5)	45 (113)	-85 (-121)	0.923	5	0.98
Inert oil Galden G5 (oxygen service)	160 (320) @ 1 bar	2.1 (1.52)	60 (140)	-20 (-4)	1.82	4.4	1.1
Silicone polymer Syltherm XLT (cryogenic service)	100 (212) @ 118 mbar	2.1 (1.52)	20 (68)	-100 (-148)	0.852	1.4	1
Silicone oil for high temperature (for REMOTE SEAL)	375 (707) @ 1 bar	0.7 (0.5)	220 (428)	-10 (14)	1.07	39	0.77
Silicone oil for high temperature (for DIRECT MOUNT SEAL)	250 (480) @ 3.5 mbar	0.7 (0.5)	220 (428)	-10 (14)	1.07	39	0.77
Vegetable oil Neobee M-20 (food - sanitary) FDA approved	200 (390) @ 1 bar	10 (7.2)	20 (68)	-18 (0)	0.92	9.8	1.2
Mineral oil Esso Marcol 152 (food - sanitary) FDA approved	250 (480) @ 630 mbar	0.7 (0.5)	110 (230)	-6 (21)	0.86	30	0.80
Glycerin Water 70% (food - sanitary) FDA approved	93 (200) @ 1 bar	1000 (760)	93 (200)	-7 (20)	1.08	2	0.36

Absolute viscosity (cP) = Kinematic Viscosity (cSt) x Specific gravity at specified temperature.
The absolute viscosity value is used for response time calculation.

Storage

Models 266xRH	Storage temperature limits
Storage limits	–50 and 85 °C (–58 and 185 °F)
LCD integral display	–40 and 85 °C (–40 and 185 °F)

Environmental limits

Electromagnetic compatibility (EMC)

Comply with 2014/30/UE to standards EN 61326-1:2013.
For IEC 61508 SIL certified transmitter to
EN 61326-3-1:2008.
For transmitter with option “YE” to NAMUR NE 021 (2004).
Surge immunity level (with surge protector): 4 kV
(according to IEC 61000-4–5 EN 61000–4–5)

Pressure equipment directive (PED)

Comply with 2014/68/UE to standards
ANSI/ISA 61010-1:2012
Category III Module H for PS ≥ than 20 MPa, 200 bar
Sound Engineering Practice (SEP) for PS < 20 MPa, 200 bar

Humidity

Relative humidity: up to 100 %
Condensing, icing: admissible

Vibration resistance

Accelerations up to 2 g at frequency up to 1000 Hz
(according to IEC 60068–2–6)

Shock resistance

Acceleration: 50 g
Duration: 11 ms
(according to IEC 60068–2–27)

Wet and dust-laden atmospheres

The transmitter is dust and sand tight and protected against immersion effects as defined by IEC 60529 (2001) to IP 67 (IP 68 on request) or by NEMA Type 4X.
IP65 with Harting Han connector.
Aluminium and AISI housings as barrel version also comply to IP 66 as defined by IEC 60529 (2001).
IP66W/IP67W/IP68W as standard for Inmetro certification.

Vibration resistance

Accelerations up to 2 g at frequency up to 1000 Hz
(according to IEC 60068–2–6)

Shock resistance

Acceleration: 50 g
Duration: 11 ms
(according to IEC 60068–2–27)

Wet and dust-laden atmospheres

The transmitter is dust and sand tight and protected against immersion effects as defined by IEC 60529 (2001) to IP 67 (IP 68 on request) or by NEMA Type 4X.
IP65 with Harting Han connector.
Aluminium and AISI housings as barrel version also comply to IP 66 as defined by IEC 60529 (2001).
IP66W/IP67W/IP68W as standard for Inmetro certification.

...Specification – operative limits

Hazardous atmospheres
(FOR ALL VERSIONS EXCEPT WirelessHART)
With or without integral display
INTRINSIC SAFETY Ex ia:

- ATEX Europe (code E1) approval
  II 1 G Ex ia IIC T6...T4 Ga, II 1/2 G Ex ia IIC T6...T4 Ga/Gb,
  II 1 D Ex ia IIIC T85 °C Da, II 1/2 D Ex ia IIIC T85 °C Da;
  IP66, IP67.
- IECEx (code E8) approval
  Ex ia IIC T6...T4 Ga/Gb, Ex ia IIIC T85 °C Da; IP66, IP67.
- NEPSI China (code EY)
  Ex ia IIC T4/T5/T6 Ga, Ex ia IIC T4/T5/T6 Ga/Gb,
  Ex iaD 20 T85/T100/T135, Ex iaD 20/21 T85/T100/T135.

EXPLOSION PROOF:

- ATEX Europe (code E2) approval
  II 1/2 G Ex db IIC T6 Ga/Gb Ta=–50 °C to +75 °C,
  II 1/2 D Ex tb IIIC T85 °C Db Ta = –50 °C to +75 °C;
  IP66, IP67.
- IECEx (code E9) approval
  Ex db IIC T6 Ga/Gb Ta=–50 °C to +75 °C,
  Ex tb IIIC T85 °C Db Ta = –50 °C to +75 °C; IP66, IP67.
- NEPSI China (code EZ)
  Ex d IIC T6 Gb, Ex tD A21 IP67 T85 °C.

INTRINSIC SAFETY Ex ic:

- ATEX Europe (code E3) type examination
  II 3 G Ex ic IIC T6...T4 Gc,
  II 3 D Ex tc IIIC T85 °C Dc; IP66, IP67.
- IECEx (code ER) type examination
  Ex ic IIC T6...T4 Gc, Ex tc IIIC T85 °C Dc; IP66, IP67.
- NEPSI China (code ES) type examination
  Ex ic IIC T4~T6 Gc, Ex nA IIC T4~T6 Gc,
  Ex tD A22 IP67 T85 °C.

FM Approvals US (code E6) and
FM Approvals Canada (code E4):

- Explosionproof (US): Class I, Division 1,
  Groups A, B, C, D; T5
- Explosionproof (Canada): Class I, Division 1,
  Groups B, C, D; T5
- Dust-ignitionproof: Class II, Division 1, Groups E, F, G;
  Class III, Div. 1; T5
- Flameproof (US): Class I, Zone 1 AEx d IIC T4 Gb
- Flameproof (Canada): Class I, Zone 1 Ex d IIC T4 Gb
- Nonincendive: Class I, Division 2, Groups A, B, C, D T6...T4
- Energy limited (US): Class I, Zone 2 AEx nC IIC T6...T4
- Energy limited (Canada): Class I, Zone 2 Ex nC IIC T6...T4
- Intrinsically safe: Class I, II, III, Division 1,
  Groups A, B, C, D, E, F, G T6...T4
  Class I, Zone 0 AEx ia IIC T6...T4 (US)
  Class I, Zone 0 Ex ia IIC T6...T4 (Canada)

Type 4X, IP66, IP67 for all above markings.

COMBINED FM Approvals US and Canada

- Intrinsically safe (code EA)

COMBINED ATEX, FM and IECEx Approvals (code EN)
Technical Regulations Customs Union EAC (Russia, Kazakhstan, Belarus), Inmetro (Brazil), Kosha (Korea)
(ONLY FOR WirelessHART VERSION)
With or without integral display
INTRINSIC SAFETY Ex ia:

- ATEX Europe (code E1) approval
  II 1 G Ex ia IIC T4 and II 1/2 G Ex ia IIC T4, IP67.
- IECEx (code E8) approval
  Ex ia IIC T4

FM Approvals US and FM Approvals Canada:

- Intrinsically safe: Class I, Division 1, Groups A, B, C, D; T4
  Class I, Zone 0 AEx ia IIC T4 Gb (US)
  Class I, Zone 0 Ex ia IIC T4 Gb (Canada)

IP67 for all above markings.

FM Approvals Canada (code EB):

- Explosionproof (US): Class I, Division 1,
  Groups A, B, C, D; T5
- Explosionproof (Canada): Class I, Division 1,
  Groups B, C, D; T5
- Dust-ignitionproof: Class II, Division 1, Groups E, F, G;
  Class III, Div. 1; T5
- Flameproof (US): Class I, Zone 1 AEx d IIC T4 Gb
- Flameproof (Canada): Class I, Zone 1 Ex d IIC T4 Gb

IMPORTANT
REFER TO CERTIFICATES FOR AMBIENT TEMPERATURE RANGES RELATED TO THE DIFFERENT TEMPERATURE CLASSES.

Specification - Electrical Characteristics and Options

Optional indicators

Integrated digital display
(code LS; only with HART standard functionality)

Wide screen LCD, 128 x 64 pixel,
52.5 x 27.2 mm (2.06 x 1.07 in.) dot matrix.
Two keys for zero/span or without front push buttons when ordered with R1 external pushbuttons option
Display may also indicate static pressure, sensor temperature and diagnostic messages.

Integral display with integral keypad
(code L1; not with HART standard functionality)

Wide screen LCD, 128 x 64 pixel,
52.5 x 27.2 mm (2.06 x 1.07 in.) dot matrix.
Multilanguage. Four keys for configuration and management of device.
Easy setup for quick commissioning.
User selectable application-specific visualizations.
Totalized and instantaneous flow indication.
Display may also indicate static pressure, sensor temperature and diagnostic messages and provides configuration facilities.

Integral display with Through-The-Glass (TTG) activated keypad (code L5; not with HART standard functionality)

As above integral display but equipped with the innovative TTG keypad allowing the activation of the configuration and management menus of the device without the need of removing the transmitter housing cover. TTG keypad is protected against accidental activations.

Optional surge protection

Up to 4kV

- voltage 1.2 μs rise time / 50 μs delay time to half value
- current 8 μs rise time / 20 μs delay time to half value

Process diagnostics (PILD)

Plugged impulse line detection (PILD) generates a warning via communication (HART, PA, FF). The device can be configured to drive the output to “Alarm current” or set a status “BAD”.

HART® digital communication and 4 to 20 mA output – Standard and Advanced functionality

Device type: $1a06_{hex}$ (listed with HCF)

Power supply

The transmitter operates from 10.5 to 42 V DC (12 to 42 V DC for DDS version) with no load and is protected against reverse polarity connection
(additional load allows operations over 42 V DC).
For Ex ia and other intrinsically safe approval power supply must not exceed 30 V DC.
Except for DDS version: Minimum operating voltage increases to 12.3 V DC with optional surge protector or to 10.8 V DC with optional conformity to NAMUR NE 21 (2004).

Ripple

20 mV max on a 250 Ω load as per HART specifications.

Load limitations

4 to 20 mA and HART total loop resistance :

$$R\ (k\Omega) = \frac{\text{Supply voltage} - \text{min. operating voltage (V DC)}}{22\ \text{mA}}$$

A minimum of 250 Ω is required for HART communication.

Output signal

Two–wire 4 to 20 mA, user-selectable for linear or square root output, power of $^3/_2$ or $^5/_2$, square root for bidirectional flow, 22 points linearization table (i.e. for horizontal or spherical tank level measurement). HART® communication provides digital process variable superimposed on 4 to 20 mA signal, with protocol based on Bell 202 FSK standard.
HART revision 7 is the default HART output.
HART revision 5 is selectable on request.

Output current limits (to NAMUR NE 43 standard)

Overload condition

- Lower limit: 3.8 mA (configurable from 3.8 to 4 mA)
- Upper limit: 20.5 mA (configurable from 20 to 21 mA)

Alarm current

- Lower limit: 3.6 mA (configurable from 3.6 to 4 mA)
- Upper limit: 21 mA (configurable from 20 to 23 mA, limited to 22 mA for HART Safety; apply for electronics release 7.1.15 or later)

Factory setting: high alarm current.

...Specification - Electrical Characteristics and Options

IEC 62591 WirelessHART® output

Device type: 1a06hex (listed with HCF)
Network ID: ABBhex (2747 decimal)
Join keys: 57495245$_{hex}$ (1464422981) 4c455353$_{hex}$ (1279611731) 4649454c$_{hex}$ (1179206988) 444b4559$_{hex}$ (1145783641).

Power Supply

1x D-cell size lithium-thionyl chloride battery.
Battery life: 10 years at 32 sec. update time, 8 years at 16 sec. update time or 5 years at 8 sec. update time.
(at reference conditions of 25 ± 2 °C ambient temperature, data routed from 3 additional devices, LCD off).
THE BATTERY CAN BE REPLACED IN FIELD, ALSO IN HAZARDOUS CLASSIFIED AREA.

Output signal

IEC 62591 WirelessHART Version 7.5 (IEEE 802.15.4-2006);
Frequency band: 2.4 GHz DSSS
Update rate: user selectable from 1 sec. to 60 min.

Integrated adjustable omnidirectional antenna

– Output radio frequency: maximum 10 mW (10 dBm) EIRP
– Range: up to 300 m. (328 yds.)
Minimum distance between antenna and person is 0.2 m. (8 in.)

Telecommunications directive

Every wireless measuring device must be certified in accordance with the telecommunications directive, in this case the frequency range. This certification is country-specific.

European directives

Radio Equipment & Telecommunications Terminal Equipment Directive 2014/53/UE to standards EN 60950-1:2013,
EN 62311:2008, EN 301 489-1 V1.9.2, EN 301 489-17 V2.2.1, EN 300 328 v1.8.1.
In Europe, use of the 2400 - 2483.5 MHz frequency band is not harmonized. Country-specific regulations must be observed.

Restrictions for Norway

Operation not permitted within a radius of 20 km around Ny-Alesund in Svalbard. For more information, see www.npt.no Norway Posts and Telecommunications site

Extra-european radio frequency licences

USA to FCC Part 15.247:2009;
Canada to IC RSS-210 and ICES-003;
Argentina; United Arab Emirates (UAE); India; Mexico.

PROFIBUS® PA output

Device type

Pressure transmitter compliant to Profiles 3.0.1
Identification number: 3450 (hex)

Power supply

The transmitter operates from 9 to 32 V DC , polarity independent, with or without surge protector.
For Ex ia approval power supply must not exceed 17.5 V DC.
Intrinsic safety installation according to FISCO model.

Current consumption

operating (quiescent): 15 mA
fault current limiting: 20 mA max.

Output signal

Physical layer in compliance to IEC 1158–2/EN 61158–2 with transmission to Manchester II modulation, at 31.25 kbit/s.

Output interface

PROFIBUS PA communication according to Profibus DP50170 Part 2/DIN 19245 part 1–3.

Output update time

25 ms

Data blocks

3 analog input, 1 physical.

Additional blocks

1 Pressure with calibration transducer block
1 Advanced Diagnostics transducer block including Plugged Input Line Detection
1 Local Display transducer block

Transmitter failure mode

On gross transmitter failure condition, detected by self-diagnostics, the output signal can be driven to defined conditions, selectable by the user as safe, last valid or calculated value.
If electronic failure or short circuit occur the transmitter consumption is electronically limited at a defined value (20 mA approx), for safety of the network.

FOUNDATION Fieldbus™ output

Device type

LINK MASTER DEVICE
Link Active Scheduler (LAS) capability implemented.
Manufacturer code: 000320_{hex}
Device type code: 0007_{hex}

Power supply

The transmitter operates from 9 to 32 V DC, polarity independent, with or without surge protector.
For Ex ia approval power supply must not exceed 24 V DC (FF–816 certification) or 17.5 V DC (FISCO certification).

Current consumption

operating (quiescent): 15 mA
fault current limiting: 20 mA max.

Output signal

Physical layer in compliance to IEC 61158–2/EN 61158–2.
Transmission to Manchester II modulation, at 31.25 kbit/s.

Function blocks/execution period

3 enhanced Analog Input blocks/25 ms max (each)
1 enhanced PID block/40 ms max.
1 standard ARitmetic block/25 ms
1 standard Input Selector block/25 ms
1 standard Control Selector block/25 ms
1 standard Signal Characterization block/25 ms
1 standard Integrator/Totalizer block/25 ms

Additional blocks

1 enhanced Resource block,
1 custom Pressure with calibration transducer block
1 custom Advanced Diagnostics transducer block including Plugged Input Line Detection
1 custom Local Display transducer block

Number of link objects

35

Number of VCRs

35

Output interface

FOUNDATION fieldbus digital communication protocol to standard H1, compliant to specification V. 1.7.

Transmitter failure mode

The output signal is “frozen” to the last valid value on gross transmitter failure condition, detected by self-diagnostics which also indicate a BAD conditions. If electronic failure or short circuit occur the transmitter consumption is electronically limited at a defined value (20 mA approx), for safety of the network.

Digital Diaphragm Seal (DDS)

Figure 1 Digital Diaphragm Seal

DDS is the next-gen in differential pressure measurement for ambient-temperature affected installations.
By replacing the oil-filled capillary with electronic cables, DDS leverages data from two independent gauge devices to calculate DP. This technical solution not only zeroes the so called “head-effect” error, but it also takes away the delays in signals driven by traditional measures.
With up to 95% (Versus a traditional solution) faster response time, DDS provides advantages in costs of installation (i.e., simpler mounting) and maintenance (i.e., lower cost due to modular replacements)

Main Features

- No oil-based capillary
- Contemporary single-device and combined-devices data
- Independent Primary & Secondary devices
- Modular components’ structure
- Single 2-wire 4-20mA loop with single zeroing and calibration
- Opportunity for extra long cabling (up to 150 mt)
- Highest pressure (1050 bar) and overpressure limit (1575 bar)

Specification – performance

Stated at reference condition to IEC 60770 ambient temperature of 20 °C (68 °F), relative humidity of 65 %, atmospheric pressure of 1013 hPa (1013 mbar), mounting position with vertical diaphragm and zero based range for transmitter with isolating diaphragms in AISI 316 L ss or Hastelloy and silicone oil fill and HART digital trim values equal to 4 mA and to 20 mA span end points, in linear mode.
Unless otherwise specified, errors are quoted as % of span.
Some performance referring to the Upper Range Limit are affected by the actual turndown (TD) as ratio between Upper Range Limit (URL) and calibrated span.
IT IS RECOMMENDED TO SELECT THE TRANSMITTER SENSOR CODE PROVIDING THE TURNDOWN VALUE AS LOWEST AS POSSIBLE TO OPTIMIZE PERFORMANCE CHARACTERISTICS.

Accuracy rating

% of calibrated span, including combined effects of terminal based linearity, hysteresis and repeatability.
For fieldbus versions SPAN refer to analog input function block outscale range

Model	Sensor	for TD	
266DRH with seal(s) mnemonic P3, F3, E3, S3, F2	F	from 1:1 to 10:1	± 0.06 %
	F	from 10:1 to 60:1	± (0.006 x TD) %
	H to S	from 1:1 to 10:1	± 0.075 %
	H to S	from 10:1 to 60:1	± (0.0075 x TD) %
	E and B	from 1:1 to 5:1	± 0.10 %
	E and B	from 5:1 to 20:1	± (0.02 x TD) %
266DRH with seal(s) mnemonic different from above	F to S	from 1:1 to 10:1	± 0.10 %
	F to S	from 10:1 to 60:1	± (0.01 x TD) %
	E and B	from 1:1 to 5:1	± 0.15 %
	E and B	from 5:1 to 20:1	± (0.03 x TD) %
266HRH with seal mnemonic P3, F3, E3, S3, F2, K1.5	M and P	from 1:1 to 10:1	± 0.06 %
		from 10:1 to 60:1	± (0.006 x TD) %
	F, H, Q, S	from 1:1 to 10:1	± 0.075 %
		from 10:1 to 60:1	± (0.0075 x TD) %
	W	from 1:1	± 0.075 %
		from 2:1 to 50:1	± (0.050 + 0.025 x TD) %
	Z	from 1:1 to 5:1	± 0.15 %
		from 5:1 to 10:1	± (0.03 x TD) %
266HRH with seal mnemonic Y1	H and M	from 1:1 to 5:1	± 0.15 %
		from 5:1 to 30:1	± (0.03 x TD) %
	P, Q	from 1:1 to 5:1	± 0.075 %
		from 5:1 to 30:1	± (0.015 x TD) %
266HRH with seal mnemonic M1	H and M	from 1:1 to 5:1	± 0.15 %
		from 5:1 to 30:1	± (0.03 x TD) %
	P, Q, S	from 1:1 to 5:1	± 0.075 %
		from 5:1 to 30:1	± (0.015 x TD) %
266HRH with seal mnemonic M1.5, M1.5B	F, H, M, P, Q	from 1:1 to 5:1	± 0.075 %
		from 5:1 to 30:1	± (0.015 x TD) %
266HRH with seal mnemonic M1.5A	F, H, M, P, Q, S	from 1:1 to 5:1	± 0.075 %
		from 5:1 to 30:1	± (0.015 x TD) %
266HRH with seal different from above	F, H, M, P, Q, S	from 1:1 to 10:1	± 0.10 %
		from 10:1 to 60:1	± (0.01 x TD) %
	W	from 1:1	± 0.075 %
		from 2:1 to 50:1	± (0.050 + 0.025 x TD) %
	Z	from 1:1 to 5:1	± 0.20 %
		from 5:1 to 10:1	± (0.04 x TD) %
266NRH with seal mnmonic P3, F3, E3, S3, F2, K1.5	F to S	from 1:1 to 10:1	± 0.10 %
		from 10:1 to 60:1	± (0.01 x TD) %
266NRH with seal mnemonic M1	H and M	from 1:1 to 5:1	± 0.20 %
		from 5:1 to 30:1	± (0.04 x TD) %
	P, Q, S	from 1:1 to 5:1	± 0.10 %
		from 5:1 to 30:1	± (0.02 x TD) %
266NRH with seal mnemonic M1.5, M1.5B	F, H, M, P, Q	from 1:1 to 5:1	± 0.10 %
		from 5:1 to 30:1	± (0.02 x TD) %
266NRH with seal mnemonic M1.5A	F, H, M, P, Q, S	from 1:1 to 5:1	± 0.10 %
		from 5:1 to 30:1	± (0.02 x TD) %
266NRH with seal different from above	F to S	from 1:1 to 10:1	± 0.15 %
		from 10:1 to 60:1	± (0.015 x TD) %

(*)Value calculated over the base transmitter model (266xSH) and under stable reference conditions according to IEC 60770 ambient temperature of 20 °C (68 °F), relative humidity of 65 %, atmospheric pressure of 1013 hPa (1013 mbar).

Accuracy rating for DDS version

Model	Sensor	for TD	
266HRH with seal mnemonic P3, F3, E3, S3, F2, K1.5	M and P	from 1:1 to 10:1	± 0.085 %
	F, H, Q, S	from 1:1 to 10:1	± 0.1 %
	W	from 1:1 to 5:1	± 0.1 %
	Z	from 1:1 to 5:1	± 0.2 %
266HRH with seal mnemonic Y1	H and M	from 1:1 to 5:1	± 0.2 %
	P, Q	from 1:1 to 5:1	± 0.1 %
266HRH with seal mnemonic M1	H and M	from 1:1 to 5:1	± 0.2 %
	P, Q, S	from 1:1 to 5:1	± 0.1 %
266HRH with seal mnemonic M1.5, M1.5B	F, H, M, P, Q	from 1:1 to 5:1	± 0.1 %
266HRH with seal mnemonic M1.5A	F, H, M, P, Q, S	from 1:1 to 5:1	± 0.1 %
266HRH with seal different from above	F, H, M, P, Q, S	from 1:1 to 10:1	± 0.15 %
	W	from 1:1 to 5:1	± 0.15 %
	Z	from 1:1 to 5:1	± 0.30 %

Stability

±0.15 % of URL over a ten years period*

Ambient temperature

per 20K change between the limits of –40 °C to +85 °C (per 36 °F change between the limits of –40 to +185 °F):

Model	Sensor	for TD up to	
266DRH	E to S	10 : 1	± (0.04 % URL + 0.065 % span)
	B	10 : 1	± (0.06 % URL + 0.10 % span)
266HRH	F to W	10 : 1	± (0.04 % URL + 0.065 % span)
	Z	10 : 1	± (0.06 % URL + 0.10 % span)
266NRH	F to S	10 : 1	± (0.08 % URL + 0.13 % span)

Ambient temperature for DDS version

for an ambient temperature change from –10 °C to +60 °C (+14 to +140 °F):

Model	Sensor	for TD up to	
266HRH	F to Q	10:1	± 0.08 % URL
	E and S	10:1	± 0.11 % URL
	W	5:1	± 0.11 % URL
	Z	5:1	± 0.15 % URL

per 10K change between the limits of –40 °C to –10 °C or +60° to +85 °C (per 18 °F change between the limits of –40 to +14 °F or +140° to +185 °F):

Model	Sensor	for TD up to	
266HRH	F to Q	10:1	± 0.04 % URL
	E and S	10:1	± 0.055 % URL
	W	5:1	± 0.055 % URL
	Z	5:1	± 0.1 % URL

REFER TO S26 SEALS ERRORS IN THE S26 DATASHEET FOR TEMPERATURE ADDITIONAL EFFECTS OF REMOTE/ DIRECT MOUNT SEAL(S)

Static pressure

(zero errors can be calibrated out at line pressure)
per 2 MPa, 20 bar or 290 psi for all sensors except B
with remote seal(s)

- zero error: ±0.25% of URL
- span error: ±0.25% of reading

with direct mount seal only

- zero error: ±0.15% of URL
- span error: ±0.15% of reading

with direct mount plus remote seal

- zero error: ±0.20% of URL
- span error: ±0.20% of reading

per 2 MPa, 20 bar or 290 psi for sensor B only
with remote seal(s) or with direct mount plus remote seal

- zero error: ±0.30% of URL
- span error: ±0.30% of reading

Model 266DRH with direct mount seal only

- zero error: ±0.25% of URL
- span error: ±0.25% of reading

Supply voltage

Within voltage/load specified limits the total effect is less than 0.005 % of URL per volt.

Load

Within load/voltage specified limits the total effect is negligible.

Electromagnetic field

Meets all the requirements of EN 61326 for surge immunity level (of NAMUR NE 21 on request).

Common mode interference

No effect from 100Vrms @ 50Hz, or 50 V DC

Specification – physical

(Refer to ordering information pages for variant availability related to specific model or versions code)

Model 266DRH only - materials of side without seal

Process isolating diaphragms (*)

AISI 316 L ss; Hastelloy® C-276; Monel 400®; Tantalum.
A remote seal can be selected with required diaphragm material (refer to high pressure side).

Process flanges, adapters, plugs and drain/vent valves (*)

AISI 316 L ss [(1)]; Hastelloy® C-276 [(2)]; Monel 400® [(3)].

Bolts and nuts

AISI 316 ss bolts Class A4–80 and nuts Class A4-70 per ISO 3506;
AISI 316 ss bolts and nuts Class A4–50 per ISO 3506, in compliance with NACE MR0175 Class II (std. static only).

Gaskets (*)

Viton®; PTFE.

Electronic housing and covers

Aluminium alloy (copper content ≤ 0.3 %) with baked epoxy finish (colour RAL9002); AISI 316 L ss.

Covers O-ring

Buna N.

Local adjustments (zero, span and write protect)

For Standard HART version:

- Internal for zero and span (on connection board)
- External non-intrusive for zero, span and write protect in glass filled polyphenylene oxyde, removable (code R1).

For all other versions:

- External non-intrusive for zero, span and write protect in glass filled polyphenylene oxyde, removable.

Plates

Transmitter nameplate: AISI 316 ss screwed to the electronics housing.
Certification plate and optional tag/calibration plate: self-adhesive attached to the electronics housing or AISI 316 ss fastened to the electronics housing with rivets or screws.
Optional wired-on customer data plate: AISI 316 ss.
Laser printing on metal or thermal printing on self-adhesive.
For AISI 316 L ss housing it is mandatory to select option I2 or I3 for plates in AISI 316 ss.
Optional wired-on customer data plate can be populated with customized data (4 lines of 32 characters 4 mm/0.16 in high).
Customized data have to be provided separately: in case of no data, the wired-on plate will be delivered blank.

Calibration

Standard: at maximum span, zero based range, ambient temperature and pressure;
Optional: at specified range and ambient conditions.
Device is delivered with a standard 4-point calibration record.

(*) Wetted parts of the transmitter.
(**) U-bolt material: high-strength alloy steel or AISI 316 L ss; bolts/nuts material: high-strength alloy steel or AISI 316 ss.
(1) Supplied as AISI 316 L or as ASTM A351 Grade CF-3M
(2) Supplied as Hastelloy C-276 or as ASTM A494 alloy CW-12MW
(3) Supplied as Monel 400 or as ASTM A494 Grade M-35-1

Optional extras

Mounting brackets (code Bx)

For vertical and horizontal 60mm. (2in) pipes or wall mounting.

Display (code Lx)

L1/L5: 4 position (90° steps) user orientable
LS: fixed position

Optional plates (code Ix)

Code I2: AISI 316 ss plate with laser printed tag (up to 32 characters - long) and calibration details (up to 31 characters: lower and upper range values and engineering unit) fixed onto transmitter housing.
Code I1: AISI 316 ss wired-on plate with laser printed customized data (4 lines of 32 characters with 4 mm/0.16 in. height).

Surge protection (code S2)

Test Certificates (test, design, calibration, material traceability) (codes Cx and Hx)

Tag and manual language (codes Tx and Mx)

Process connections 266DRH only - side without seal

on conventional flanges : 1/4 in. – 18 NPT on process axis
on adapters : 1/2 in. – 14 NPT on process axis
fixing threads: 7/16 in. – 20 UNF at 41.3mm centre distance

Refer to S26 pages for process connection variants through diaphragm seal.

Gasket seat finish for seals

Smooth (polished finish for ASME or EN): 0.8 μm (Ra)
Serrated (to ASME 16.5 flange standard): 3.2 to 6.3 μm (Ra)
Serrated (to EN 1092-1 Type B1): 3.2 to 12.5 μm (Ra)
Serrated (to EN 1092-1 Type D and E): according to standard

(*) Bolts and nuts, gasket and mating flange supplied by customer.

Electrical connections

Two 1/2 in. – 14 NPT or M20x1.5 threaded conduit entries, direct on housing. Only M20x1.5 for WirelessHART with one port used for antenna.
One certified stainless steel plug (supplied loose with thread according to housing entries) available as option.

Terminal block

HART version: three terminals for signal/external meter wiring up to 2.5 mm2 (14 AWG), also connection points for test and communication purposes.
WirelessHART version: connection points for test and communication purposes; additional fast connection for external harvesting unit.
Fieldbus versions: two terminals for signal wiring (bus connection) up to 2.5 mm2 (14 AWG)

Grounding

Internal and external 6 mm^2 (10 AWG) ground termination points are provided.

Mounting position

Transmitter can be mounted in any position. Electronics housing may be rotated to any position. A positive stop prevents over travel.
In applications where a dynamic inclined installation is required (e.g. naval applications), the maximum error (excluding capillary effects) can be up to 3 mbar for 266DRH, 1,5 mbar for 266HRH and 5 mbar for 266NRH
Such error might be resulting in a deviation from the standard accuracy with percentual magnitude depending on the range of the selected device.
In case of non-dynamic inclined installations, this effect can be eliminated by performing a zero calibration in the field.
Please contact ABB to assess more in details on the installation effects

Mass (without options and seals)

models 266DRH: 4 kg approx (8.8 lb)
models 266HRH, 266NRH: 2 kg approx (4.4 lb)
Add 1.5 kg (3.4 lb) for AISI housing.
Add 650 g (1.5 lb) for packing.
Consider additional weight up to 50 kg (up to 110 lb) for seals.

Packing

Carton.

Specification – configuration

Transmitter with HART communication and 4 to 20 mA

Standard configuration

Transmitters are factory calibrated to customer's specified range. Calibrated range and tag number are stamped on the tag plate. If a calibration range and tag data are not specified, the transmitter will be supplied with the plate left blank and configured as follows:

Engineering Unit	kPa
4 mA	Zero
20 mA	Upper Range Limit (URL)
Output	Linear
Damping	1 s
Transmitter failure mode	Upscale
Tag	Blank (up to 32 alphanumeric characters - long; only 8 visible on display - short)
Optional LCD display	PV in kPa; output in mA and in percentage on bargraph

Any or all the above configurable parameters, including Lower range–value and Upper range-value which must be the same unit of measure, can be easily changed using the HART hand–held communicator or by a PC running the configuration software with DTM for 266 models. The transmitter database is customized with specified flange type and material, O–ring and drain/vent materials and meter code option.

Tag and Calibration

Tag and/or specific calibrated span can be requested when configuring the device.
Two tag types are available: Short Tag and Long Tag.
See below table for details about tag type applicability / presence:

Type	Max Length	On Display	On Certification	On Device Label
Short Tag	8 digits	YES	YES	NO
Long Tag	32 digits	NO	YES	YES

In case no specific indication will be given about the tag type, data will be considered as Long Tag by default.
In case tag is required on the optional wired-on customer data plate (optional digits I1, I3) specific indication needs to be given.

Custom configuration (option N6)

The following data may be specified in addition to the standard configuration parameters:

Descriptor	16 alphanumeric characters
Message	32 alphanumeric characters
Date	Day, month, year

For HART protocol available engineering units of pressure measure are :
Pa, kPa, MPa
inH2O@4 °C, mmH2O@4 °C, psi
inH2O@68 °F, ftH2O@68 °F, mmH2O@68 °F
inHg, mmHg, Torr
g/cm^2, kg/cm^2, atm
mbar, bar
These and others are available for PROFIBUS and FOUNDATION Fieldbus.

Transmitter with WirelessHART communication

Standard configuration

Transmitters are factory calibrated to customer's specified range. Calibrated range and tag number are stamped on the tag plate. If a calibration range and tag data are not specified, the transmitter will be supplied with the plate left blank and configured as follows:

Engineering Unit	kPa
Output scale 0 %	Lower Range Limit (LRL)
Output scale 100 %	Upper Range Limit (URL)
Output	Linear
Update time	16 s
Tag	Blank (up to 32 alphanumeric characters - long; only 8 visible on display - short)
Optional LCD display	PV in kPa; output in percentage on bargraph

Any or all the above configurable parameters, including Lower range–value and Upper range-value which must be the same unit of measure, can be easily changed using the HART hand–held communicator or by a PC running the configuration software with DTM for 266 models. The transmitter database is customized with specified flange type and material, O–ring and drain/vent materials and meter code option.

Custom configuration (option N6)

The following data may be specified in addition to the standard configuration parameters:

Descriptor	16 alphanumeric characters
Message	32 alphanumeric characters
Date	Day, month, year

Transmitter with PROFIBUS PA communication

Standard configuration

Transmitters are factory calibrated to customer's specified range. Calibrated range and tag number are stamped on the tag plate. If a calibration range and tag data are not specified, the transmitter will be supplied with the plate left blank and configured as follows:

Measure Profile	Pressure
Engineering Unit	kPa
Output scale 0 %	Lower Range Limit (LRL)
Output scale 100 %	Upper Range Limit (URL)
Output	Linear
Hi-Hi Limit	Upper Range Limit (URL)
Hi Limit	Upper Range Limit (URL)
Low Limit	Lower Range Limit (LRL)
Low-Low Limit	Lower Range Limit (LRL)
Limits hysteresis	0.5 % of output scale
PV filter	0 s
Address (set by local key)	126
Tag	PI000 (up to 32 alphanumeric characters; only 8 visible on display)
Optional LCD display	PV in kPa; output in percentage on bargraph

Any or all the above configurable parameters, including the range values which must be the same unit of measure, can be easily changed by a PC running the configuration software with DTM for 266 models.The transmitter database is customized with specified flange type and material, O–ring and drain/vent materials and meter code option.

Custom configuration (option N6)

The following data may be specified in addition to the standard configuration parameters:

Descriptor	32 alphanumeric characters
Message	32 alphanumeric characters
Date	Day, month, year

...Specification – configuration

Transmitter with FOUNDATION Fieldbus communication

Standard configuration

Transmitters are factory calibrated to customer's specified range. Calibrated range and tag number are stamped on the tag plate. If a calibration range and tag data are not specified, the transmitter will be supplied with the plate left blank and the analog input function block FB1 is configured as follows:

Measure Profile	Pressure
Engineering Unit	kPa
Output scale 0 %	Lower Range Limit (LRL)
Output scale 100 %	Upper Range Limit (URL)
Output	Linear
Hi-Hi Limit	Upper Range Limit (URL)
Hi Limit :	Upper Range Limit (URL)
Low Limit	Lower Range Limit (LRL)
Low-Low Limit	Lower Range Limit (LRL)
Limits hysteresis	0.5 % of output scale
PV filter time	0 s
Tag	PI000 (up to 32 alphanumeric characters; only 8 visible on display)
Optional LCD display	PV in kPa; output in percentage on bargraph

The analog input function block FB2 and FB3 are configured respectively for the sensor temperature measured in °C and for the static pressure measured in MPa.

Any or all the above configurable parameters, including the range values, can be changed using any host compliant to FOUNDATION fieldbus. The transmitter database is customized with specified flange type and material, O–ring and drain/vent materials and meter code option.

Custom configuration (option N6)

The following data may be specified in addition to the standard configuration parameters:

Descriptor	32 alphanumeric characters
Message	32 alphanumeric characters
Date	Day, month, year

Dimensions

(not for construction unless certified) – dimensions in mm. (in.)

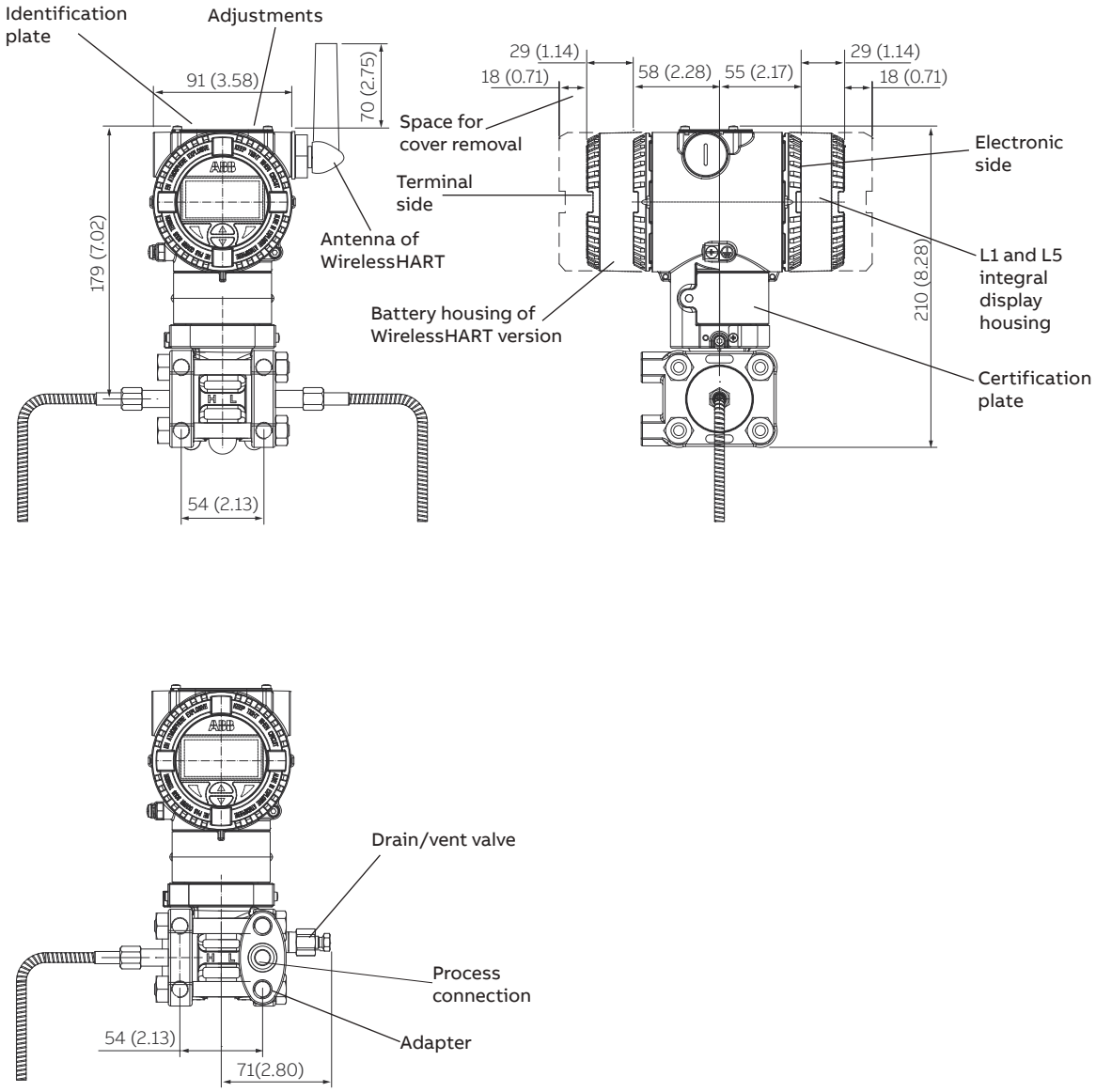


Figure 2 266DRH with barrel housing and remote seal(s)

NOTE

For 266DRH using one seal only, the threaded connection (1/4 in. – 18 NPT direct or 1/2 in. – 14 NPT through adapter) of conventional flange, gasket groove and gaskets are in accordance with IEC 61518.

Bolting threads for fixing adapter or other devices (i.e. manifold etc.) on process flange is 7/16 – 20 UNF.

Negative side of gauge measurement version 266DSHxP is provided with a removable filter, granting protection to the atmospheric pressure reference.

...Dimensions

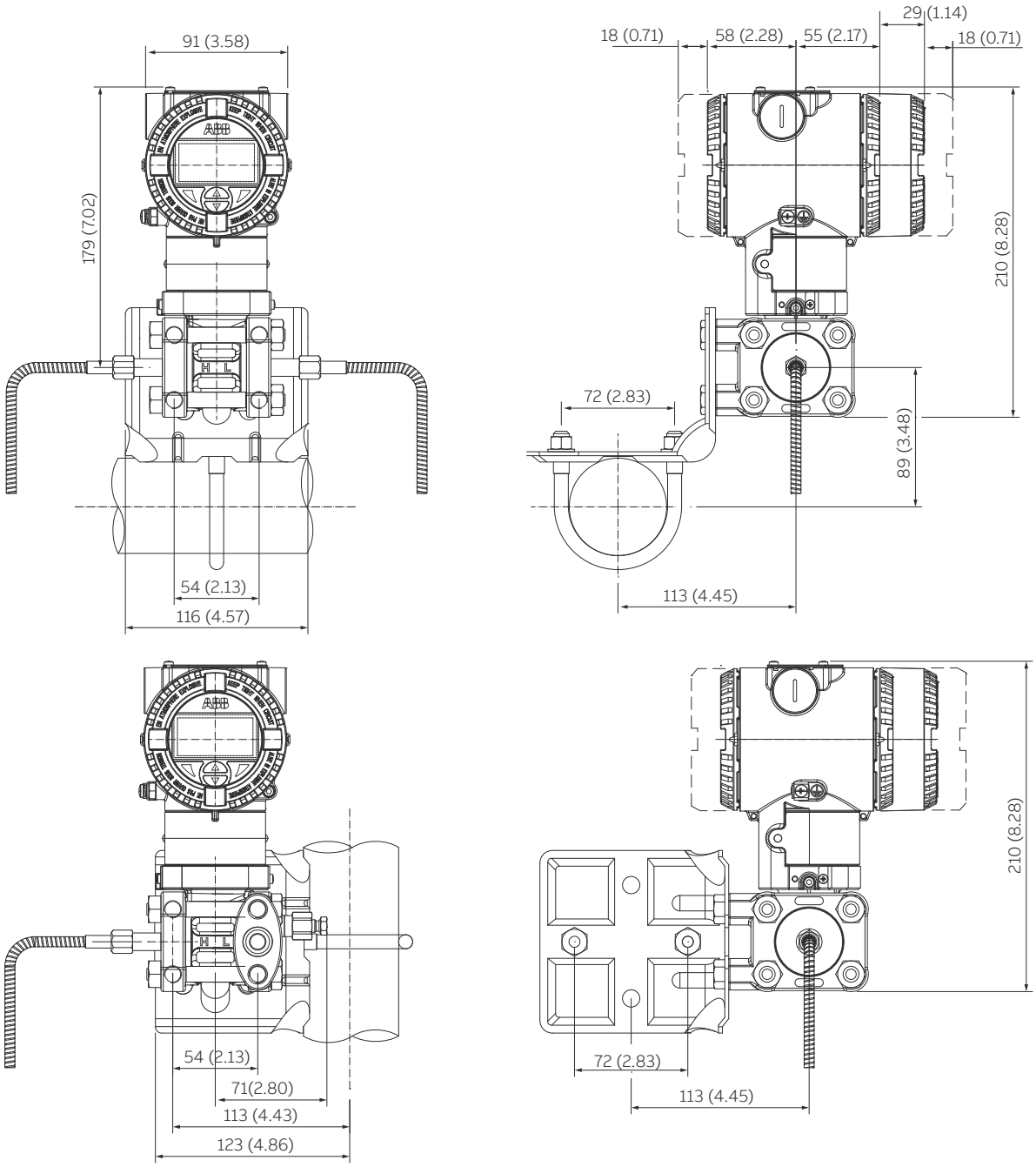


Figure 3 266DRH with barrel housing and remote seal(s) on bracket for vertical or horizontal 60 mm. (2 in.) pipe

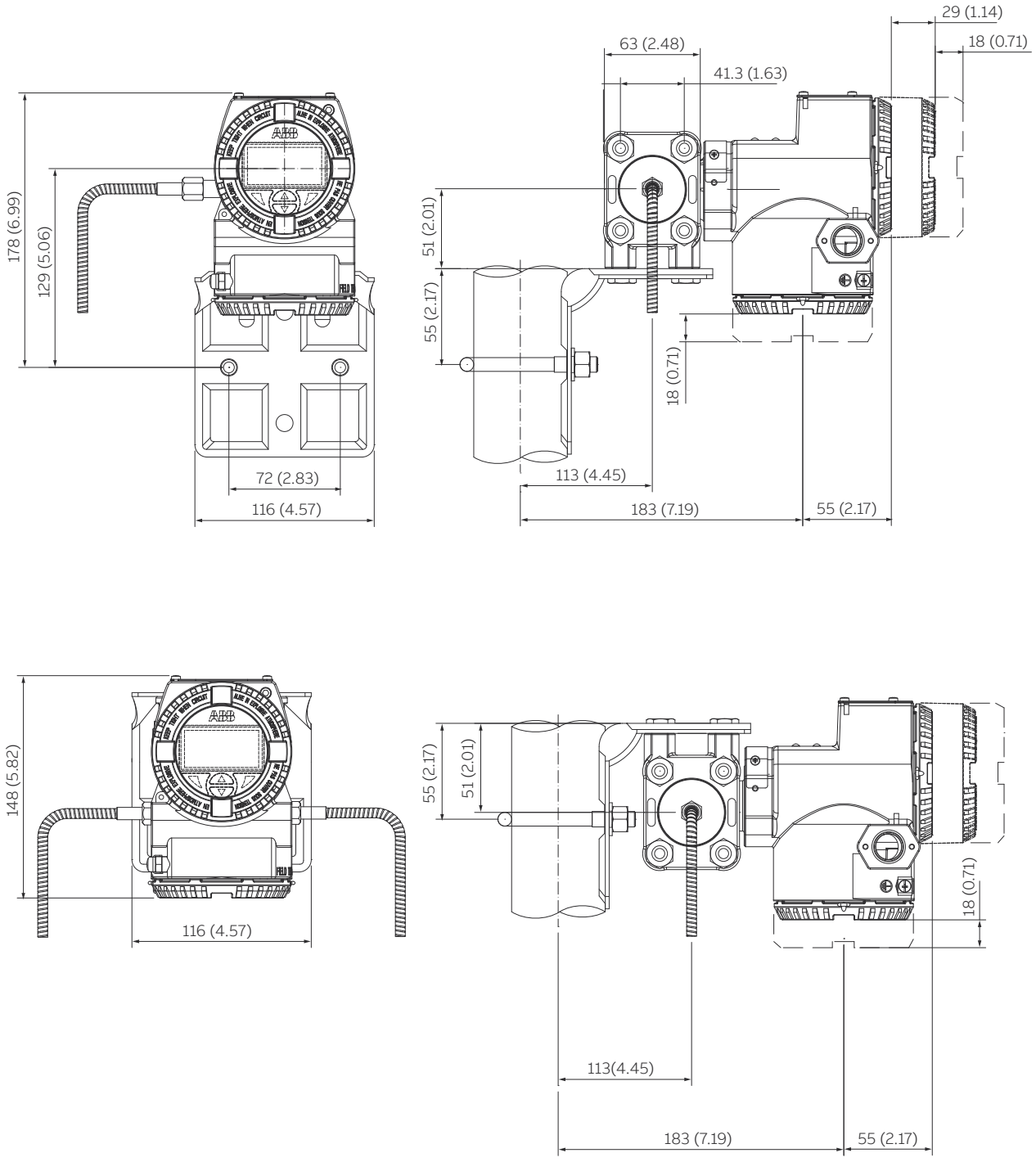


Figure 4 266DRH with DIN housing and remote seal(s) on bracket for vertical or horizontal 60 mm. (2 in.) pipe

...Dimensions

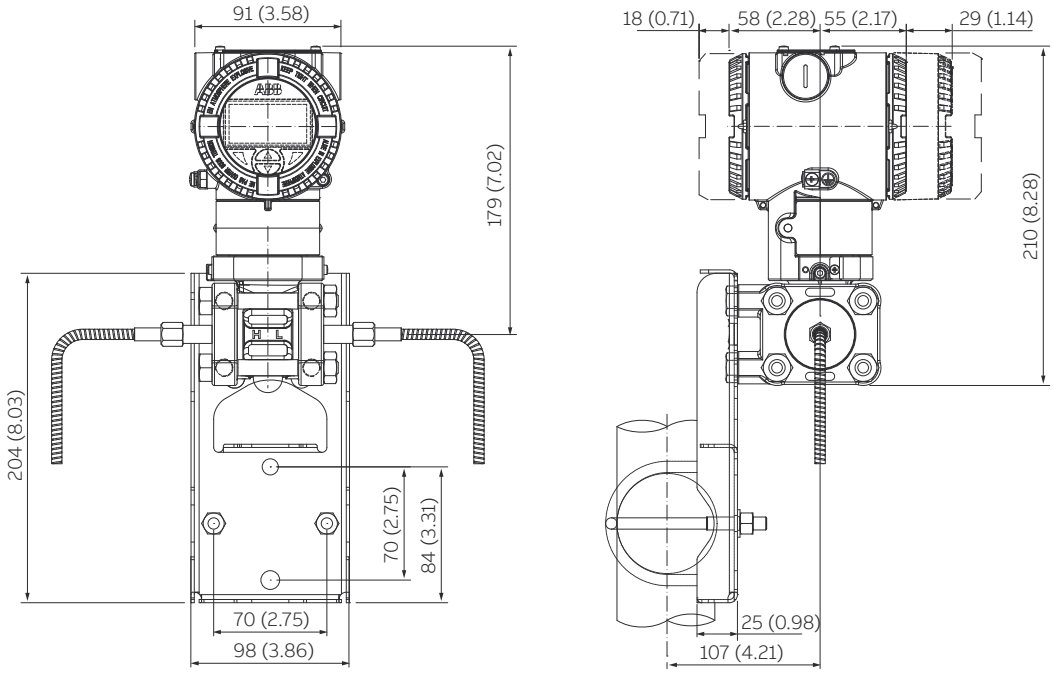


Figure 5 266DRH with barrel housing and remote seal(s) on flat bracket for vertical or horizontal 60 mm. (2 in.) pipe

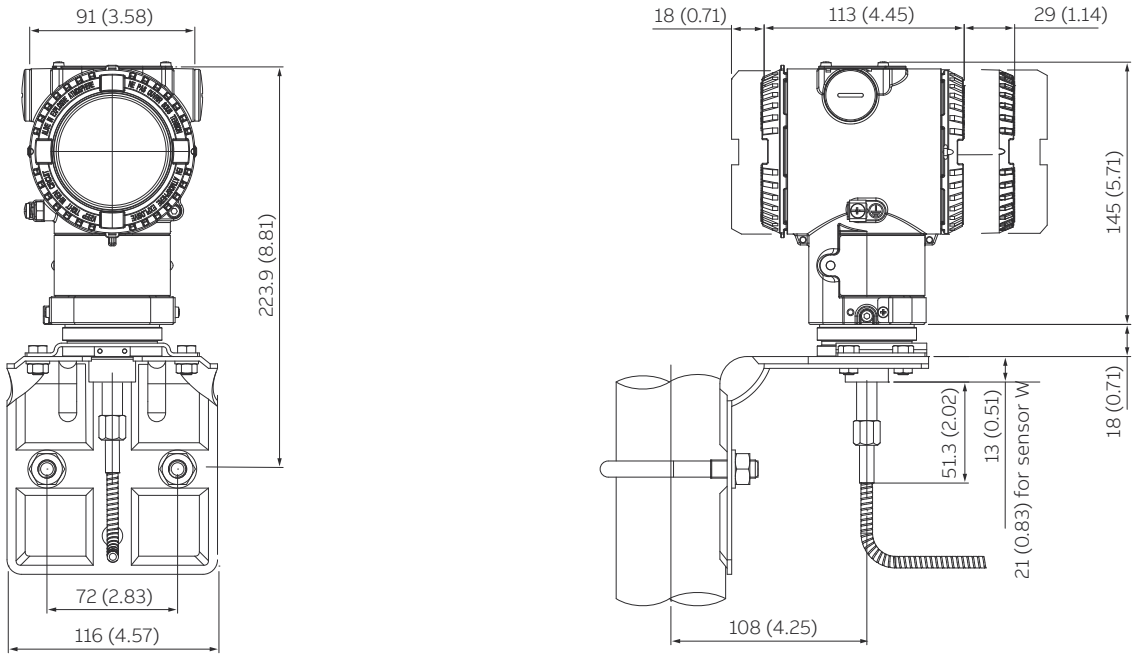


Figure 6 266HRH, 266NRH with barrel housing and remote seal(s) on bracket for vertical or horizontal 60 mm. (2 in.) pipe sensors F, H, M, P, Q, S, W

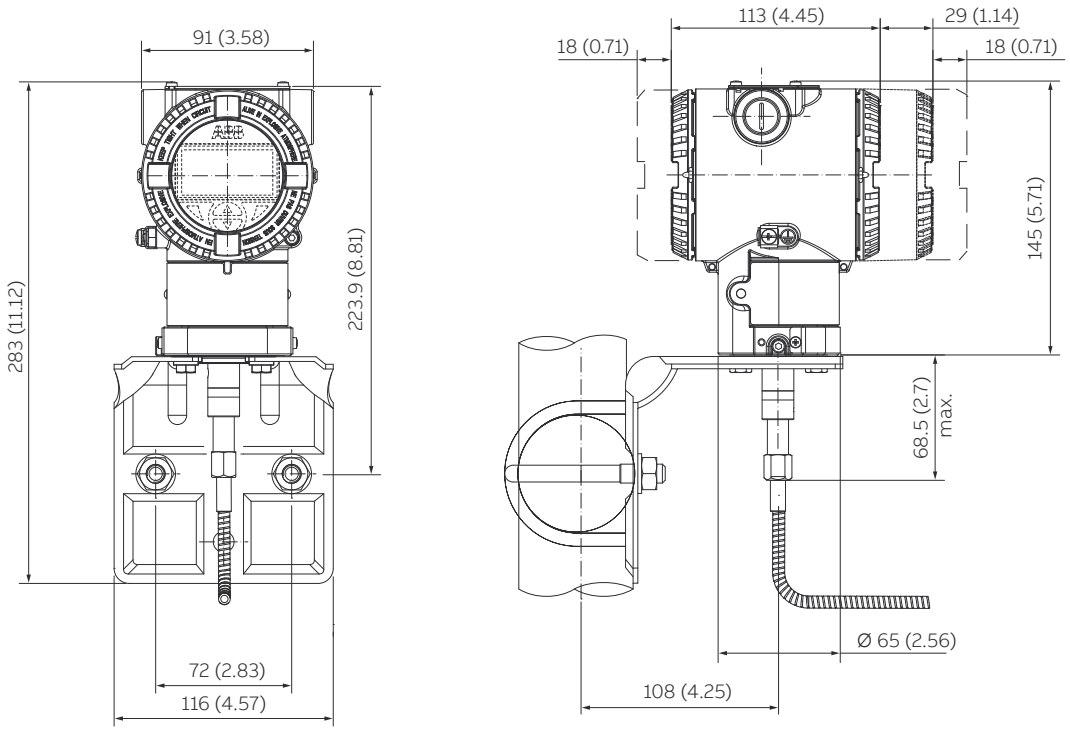


Figure 7 266HRH, 266NRH with barrel housing and remote seal(s) on bracket for vertical or horizontal 60 mm. (2 in.) pipe sensors Z

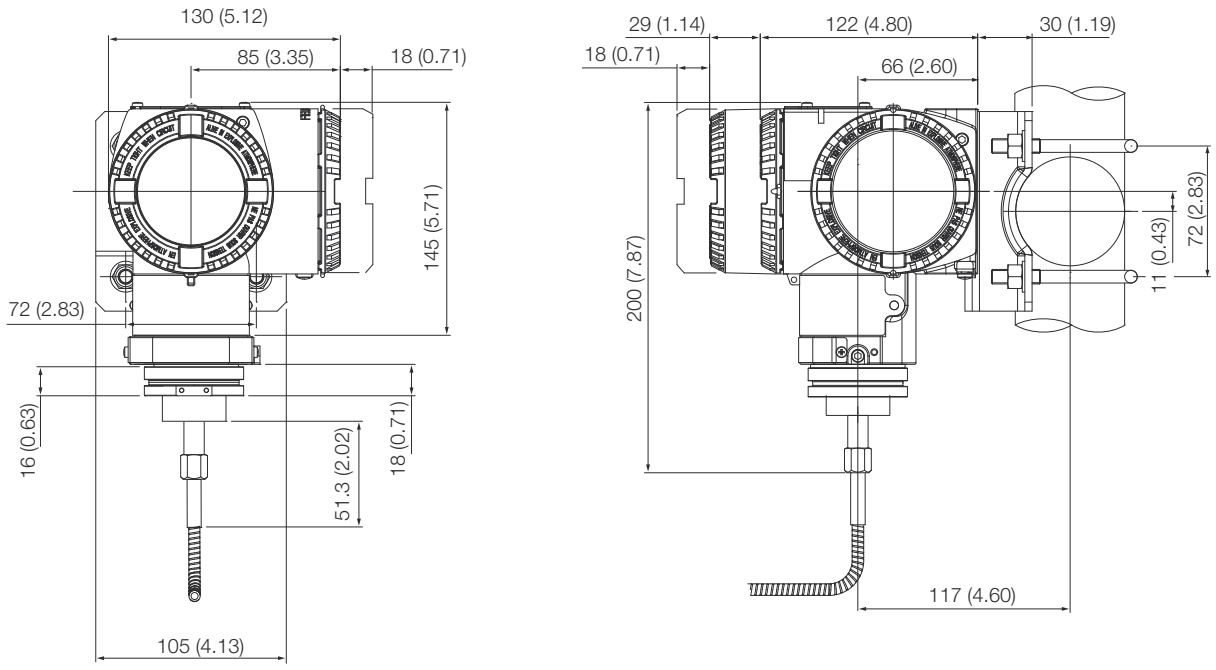


Figure 8 266HRH, 266NRH with DIN housing and remote seal(s) on bracket for vertical or horizontal 60 mm. (2 in.) pipe sensors F, H, M, P, Q, S, W

...Dimensions

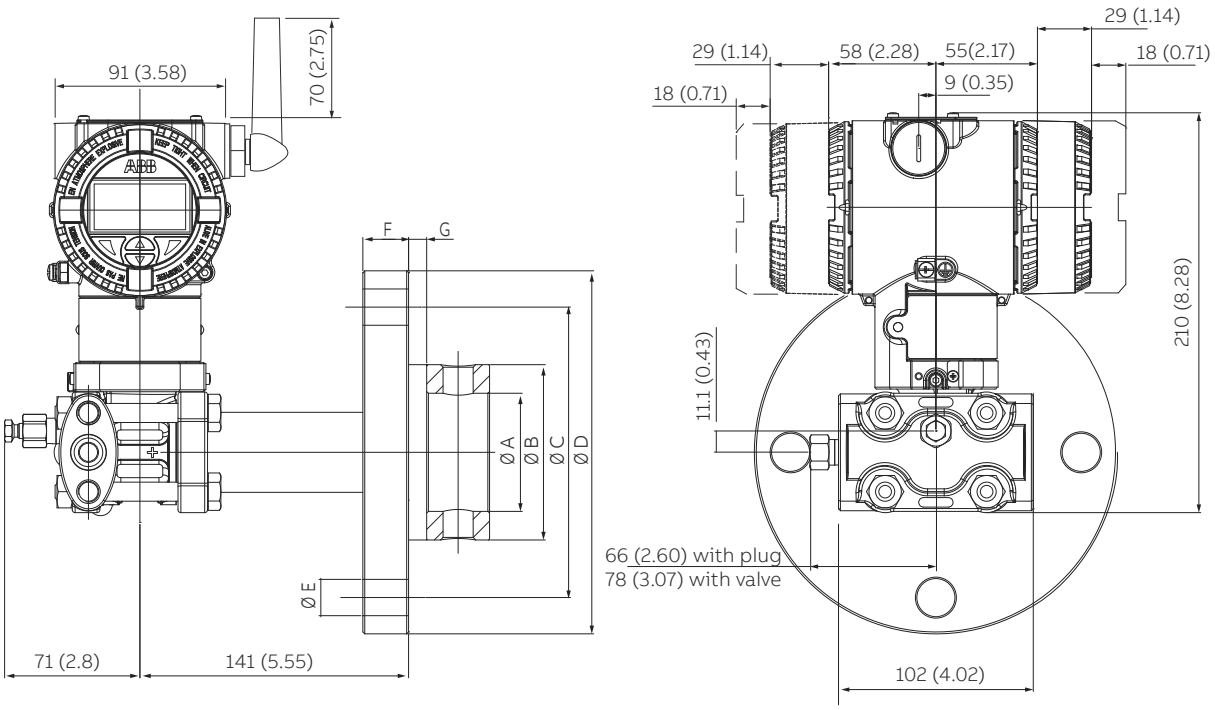


Figure 9 266DRH with barrel housing and direct mount seal S26RA/S26RE/S26RJ rotating flange Raised Face flush diaphragm (For dimensions of S26 seals refer to the S26 datasheet)

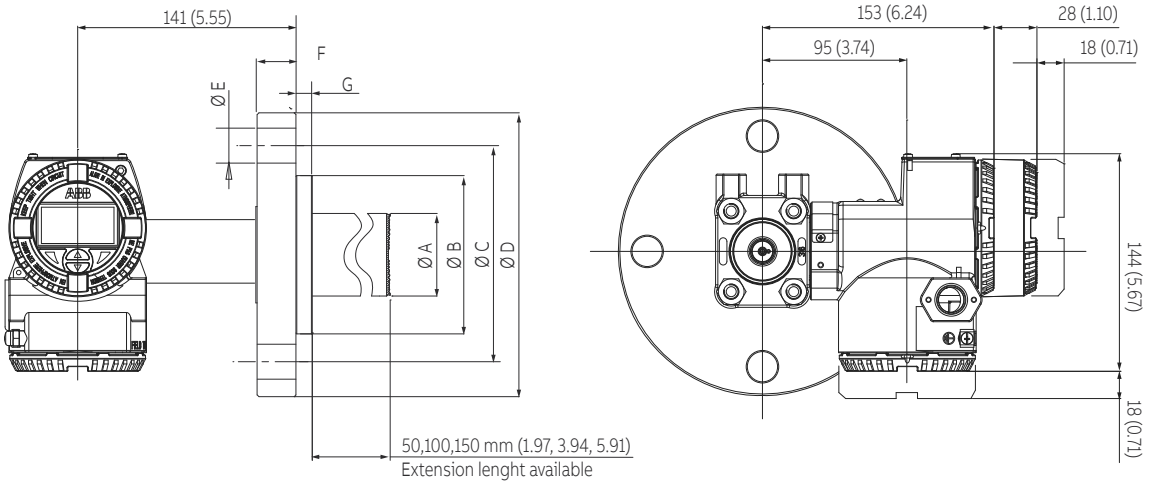


Figure 10 266DRH with DIN housing and direct mount seal S26RA/S26RE/S26RJ rotating flange Raised Face extended diaphragm (For dimensions of S26 seals refer to the S26 datasheet)

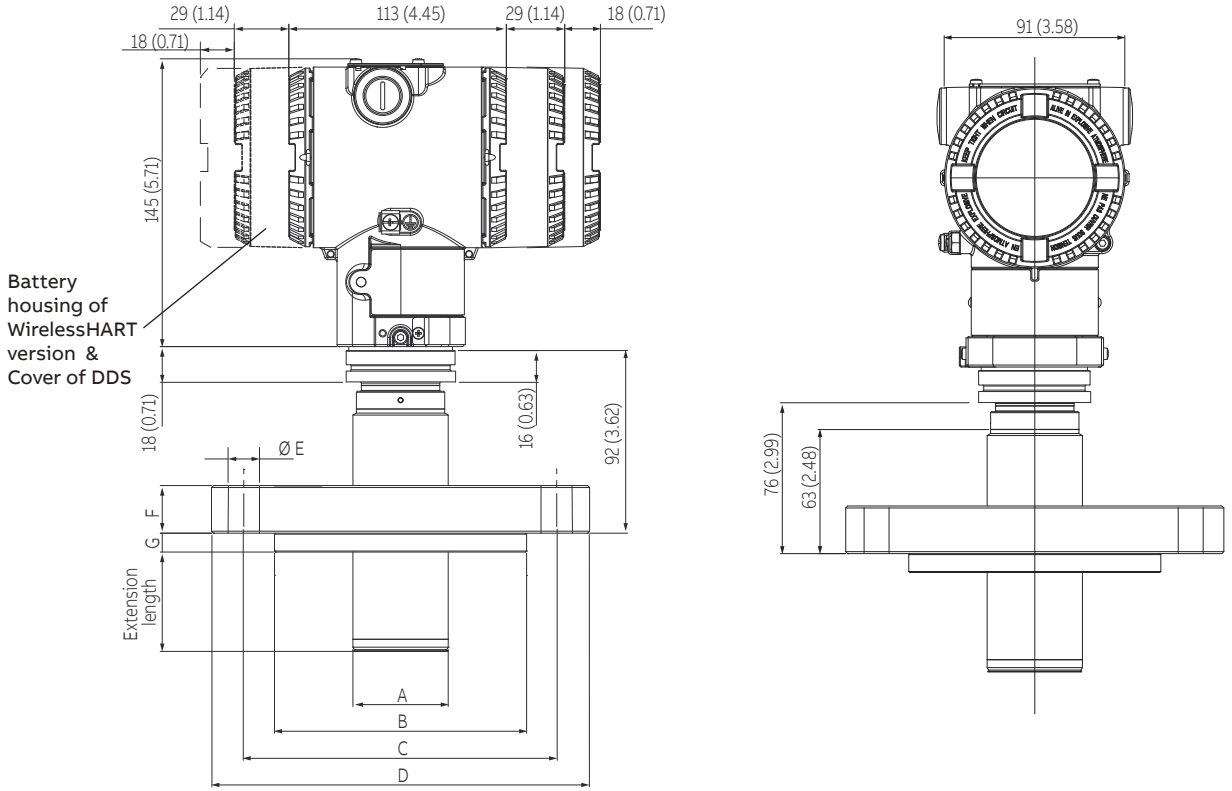


Figure 11 266HRH/266NRH with barrel housing and direct mount seal S26RA/S26RE/S26RJ flanged Raised Face extended diaphragm (For dimensions of S26 seals refer to the S26 datasheet)

...Dimensions

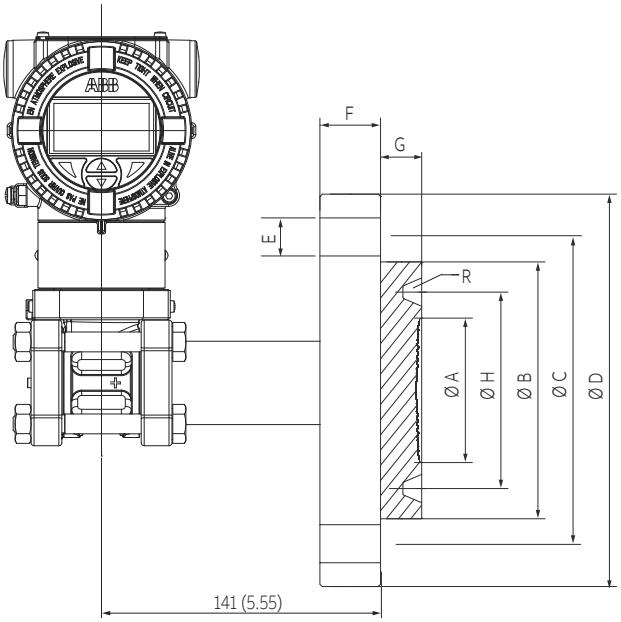


Figure 12 **266DRH with barrel housing and direct mount seal S26RR flanged Ring Joint flush diaphragm (For dimensions of S26 seals refer to the S26 datasheet)**

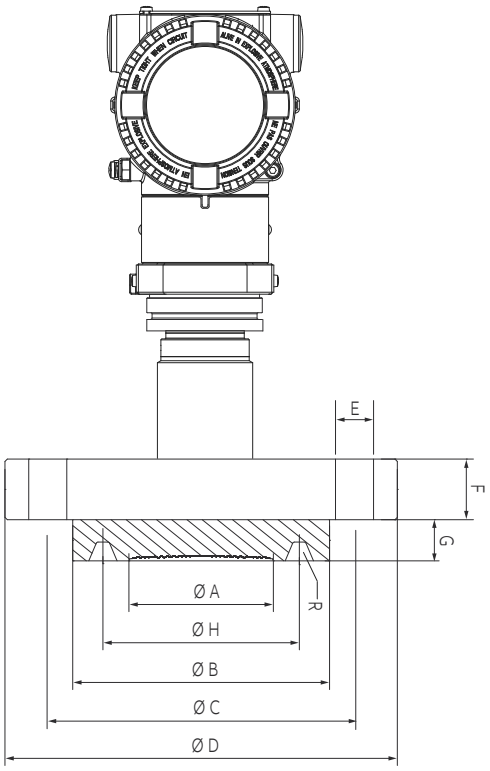


Figure 13 **266HRH / 266NRH with barrel housing and direct mount seal S26RR flanged Ring Joint flush diaphragm (For dimensions of S26 seals refer to the S26 datasheet)**

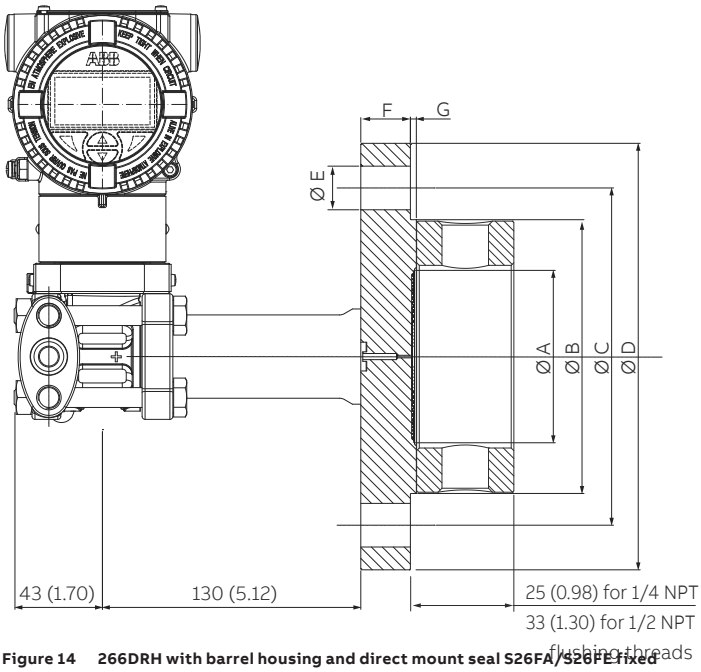


Figure 14 **266DRH with barrel housing and direct mount seal S26FA/S26FE fixed flange Raised Face flush diaphragm ASME and EN 1092/1 smooth and Form B1 (flushing ring as option, only for flush version); Form E (For dimensions of S26 seals refer to the S26 datasheet)**

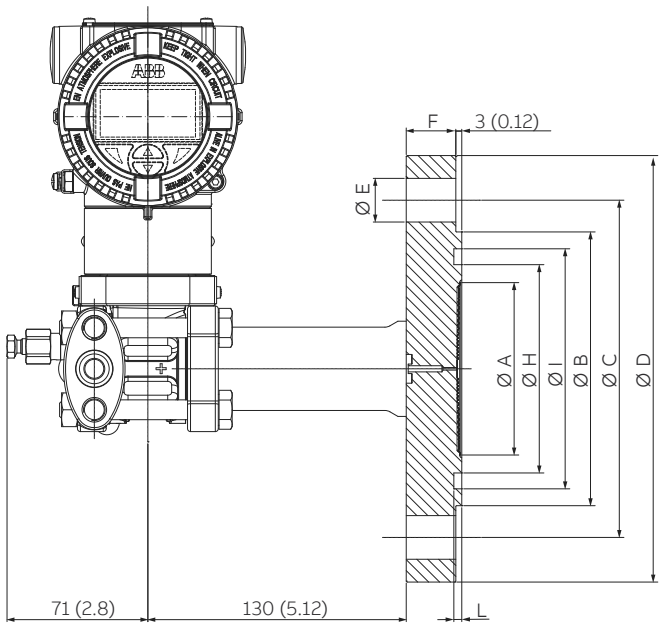


Figure 15 **266DRH with barrel housing and direct mount seal S26FE fixed flange Raised Face flush diaphragm EN 1092/1 Form D (For dimensions of S26 seals refer to the S26 datasheet)**

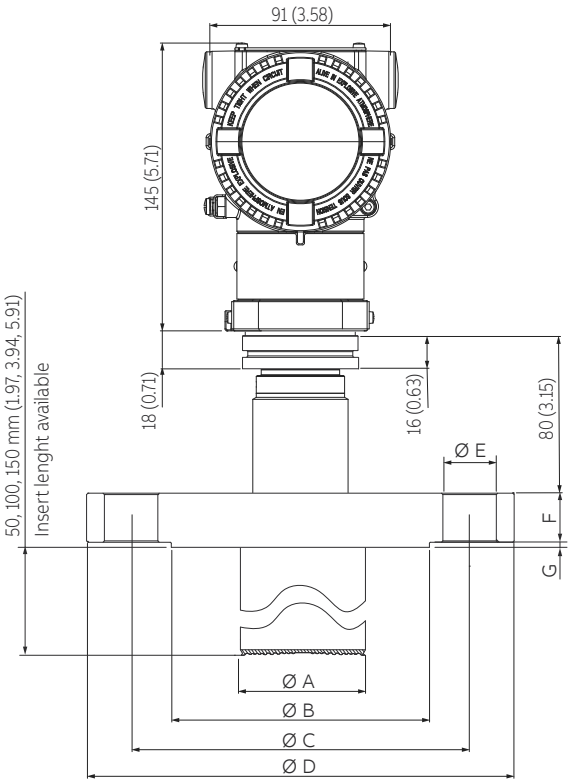


Figure 16 **266HRH/266NRH with barrel housing and direct mount seal S26FA/S26FE fixed flange Raised Face ASME and EN 1092/1 smooth and Form B1; S26FE Form E (extension not available). (For dimensions of S26 seals refer to the S26 datasheet)**

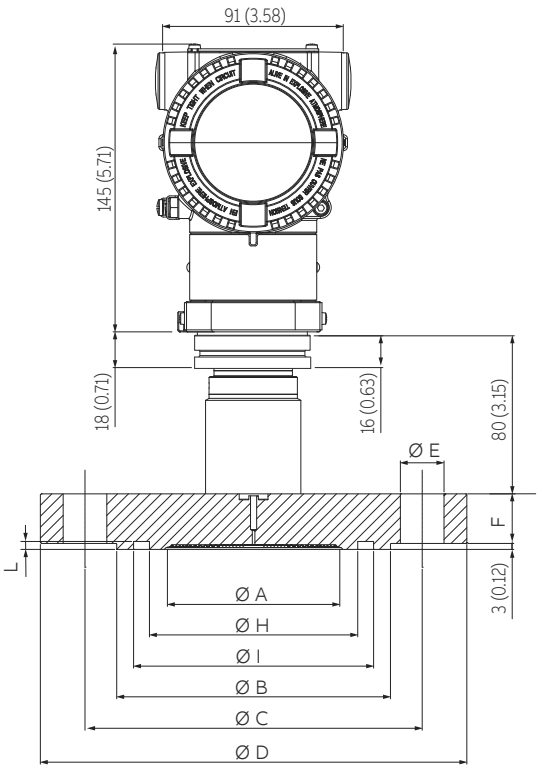


Figure 17 **266HRH/266NRH with barrel housing and direct mount seal S26FE fixed flange Raised Face EN 1092/1 Form D (For dimensions of S26 seals refer to the S26 datasheet)**

...Dimensions

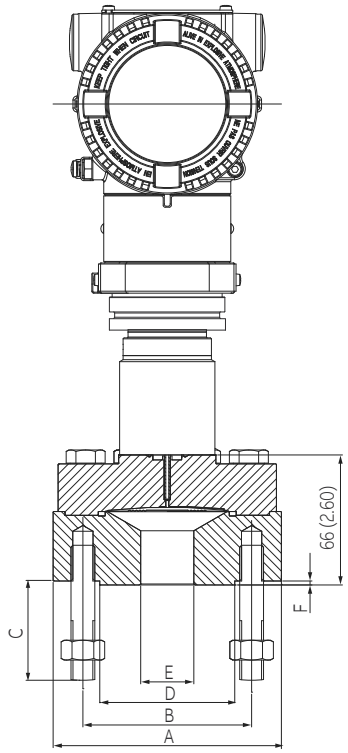


Figure 19 266HRH / 266NRH with barrel housing and direct mount seal S26Mx off-line flanged (For dimensions of S26 seals refer to the S26 datasheet)

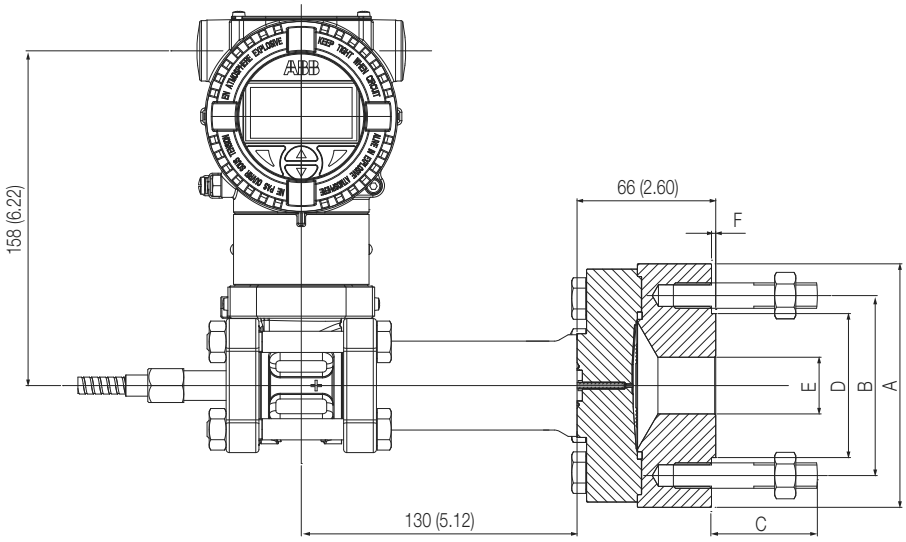


Figure 18 266DRH with barrel housing and direct mount seal S26Mx off-line flanged (For dimensions of S26 seals refer to the S26 datasheet)

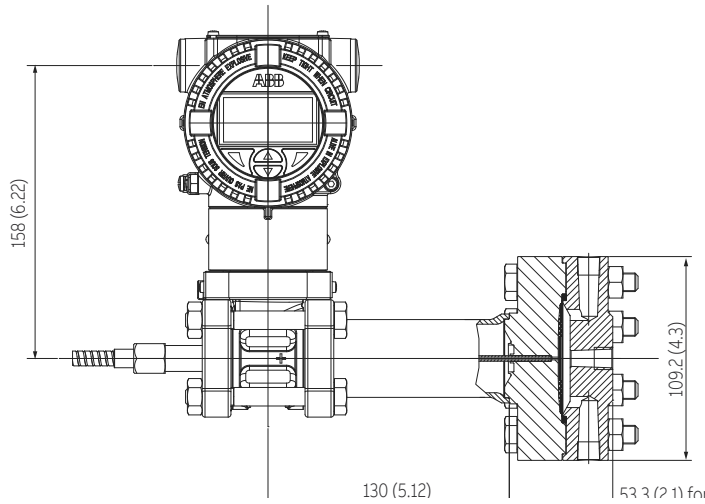


Figure 20 266DRH with barrel housing and direct mount seal S26TT off-line threaded flange

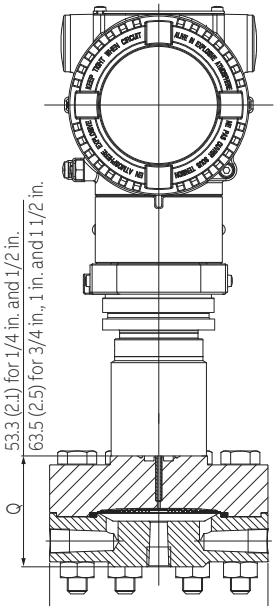


Figure 21 266HRH / 266NRH with barrel housing and direct mount seal S26TT off-line threaded flange

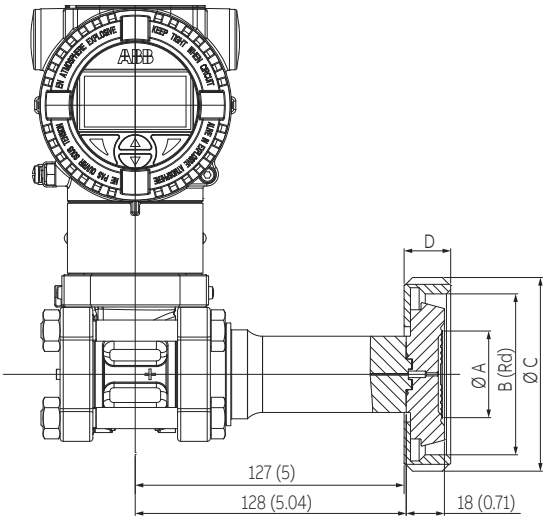


Figure 22 266DRH with barrel housing and direct mount seal S26SS Union Nut (For dimensions of S26 seals refer to the S26 datasheet)

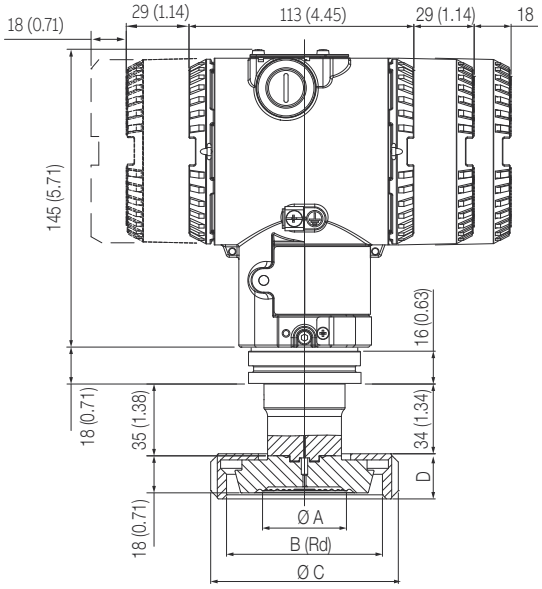


Figure 23 266HRH / 266NRH with barrel housing and direct mount seal S26SS Union Nut (For dimensions of S26 seals refer to the S26 datasheet)

...Dimensions

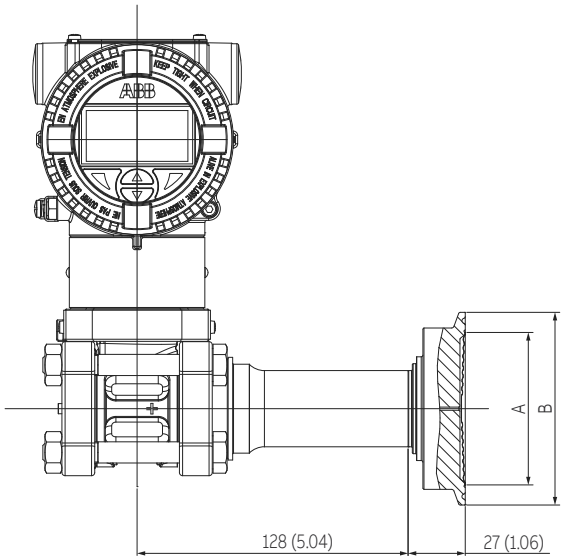


Figure 24 266DRH with barrel housing and direct mount seal S26SS Triclamp (For dimensions of S26 seals refer to the S26 datasheet)

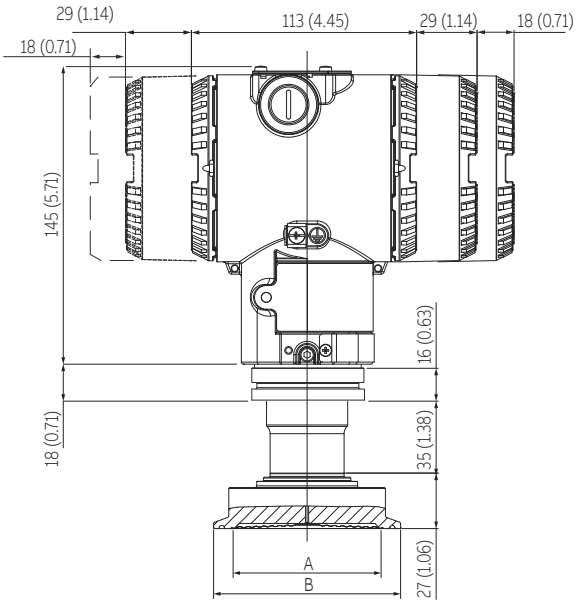


Figure 25 266HRH / 266NRH with barrel housing and direct mount seal S26SS Triclamp (For dimensions of S26 seals refer to the S26 datasheet)

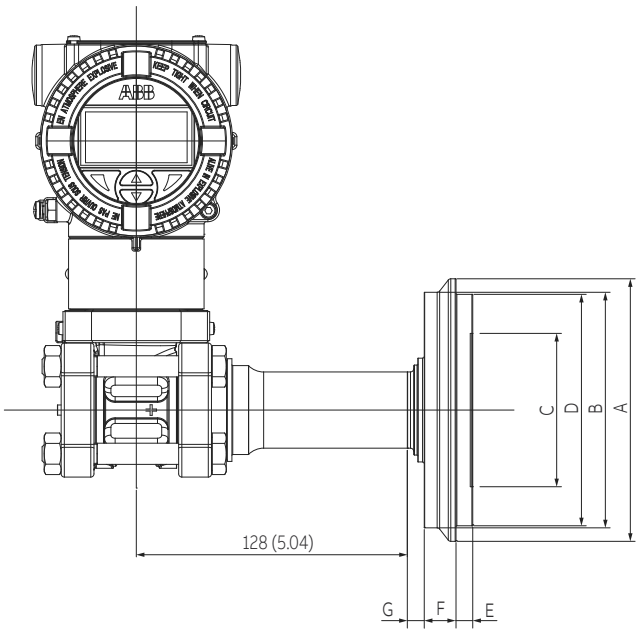


Figure 26 266DRH with barrel housing and direct mount seal S26SS Cherry Burrell (For dimensions of S26 seals refer to the S26 datasheet)

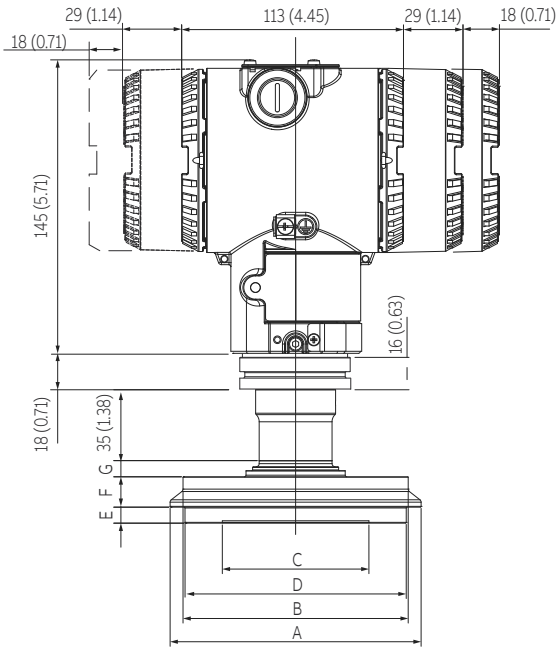


Figure 27 266HRH / 266NRH with barrel housing and direct mount seal S26SS Cherry Burrell (For dimensions of S26 seals refer to the S26 datasheet)

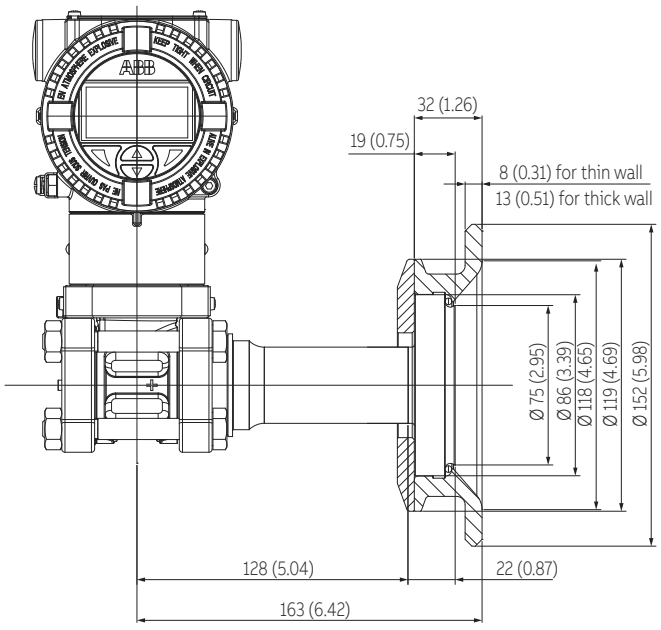


Figure 28 266DRH with barrel housing and direct mount seal S26SS Sanitary flush (For dimensions of S26 seals refer to the S26 datasheet)

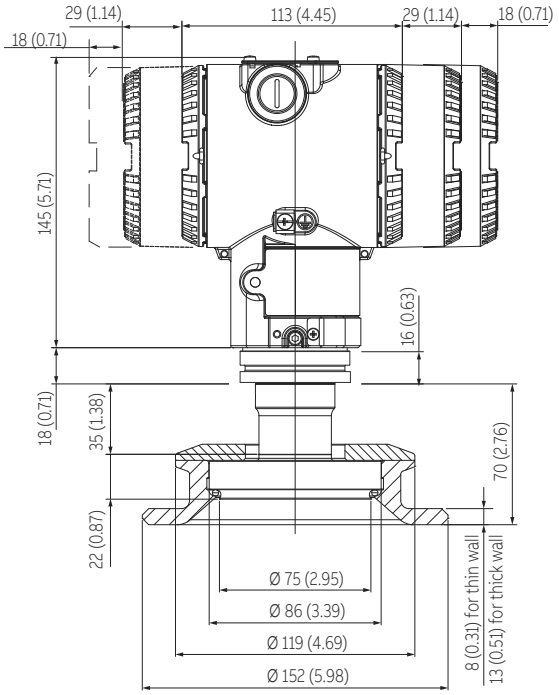


Figure 29 266HRH / 266NRH with barrel housing and direct mount seal S26SS Sanitary flush (For dimensions of S26 seals refer to the S26 datasheet)

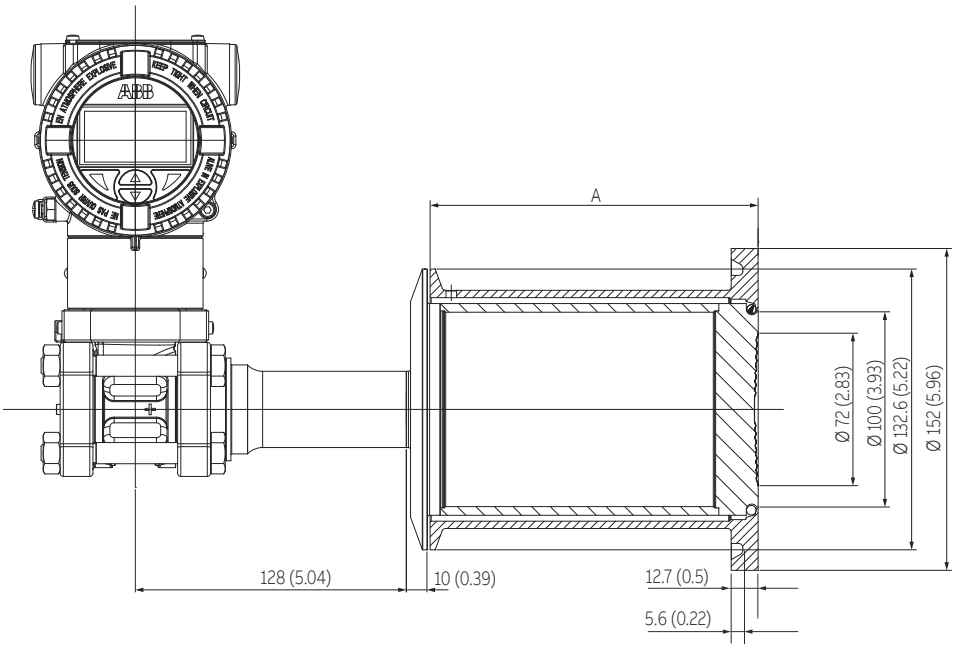


Figure 30 266DRH with barrel housing and direct mount seal S26SS Sanitary extended (For dimensions of S26 seals refer to the S26 datasheet)

...Dimensions

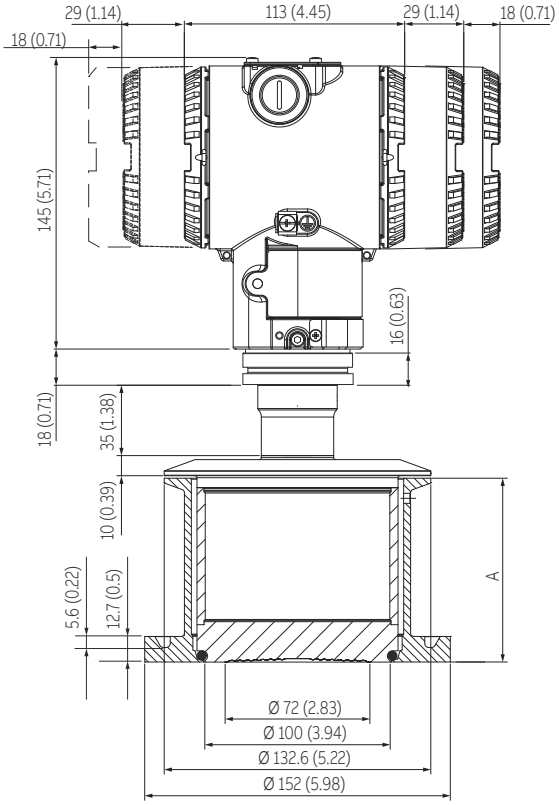


Figure 31 266HRH / 266NRH with barrel housing and direct mount seal S26SS Sanitary extended

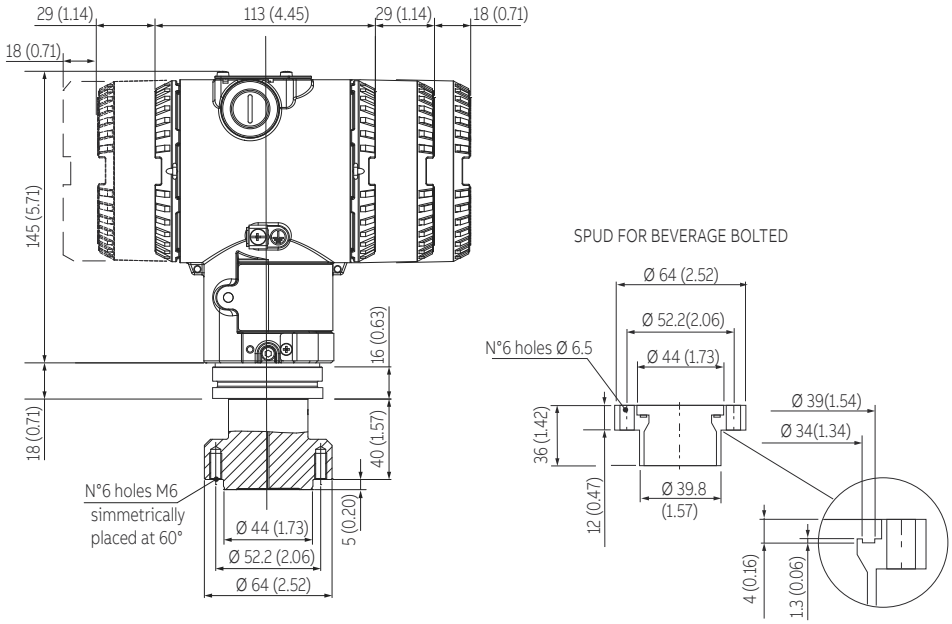


Figure 32 266HRH / 266NRH with barrel housing and direct mount seal S26SS beverage bolted

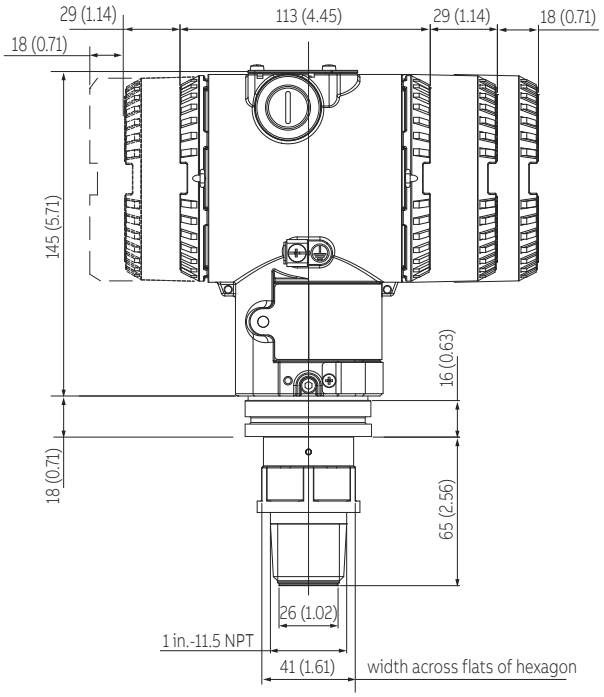


Figure 33 266HRH / 266NRH with barrel housing and direct mount seal S26KN pulp and paper 1 in. NPT threaded connections

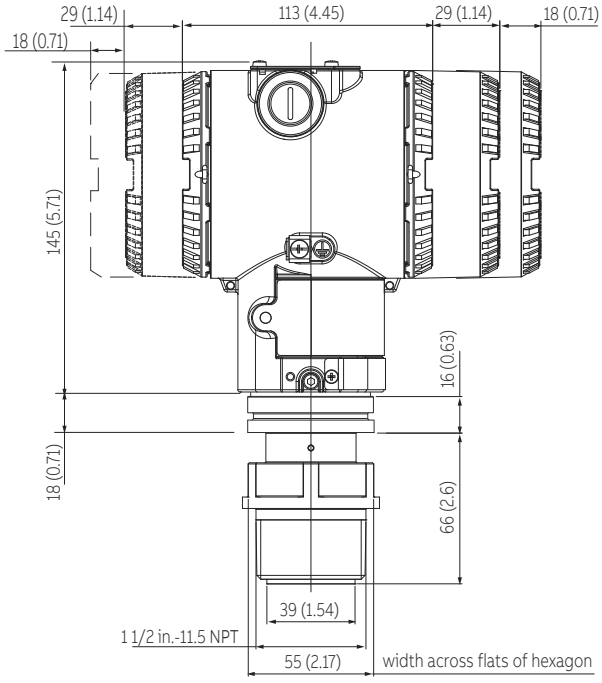


Figure 35 266HRH / 266NRH with barrel housing and direct mount seal S26KN pulp and paper 1 1/2 in. NPT threaded connections

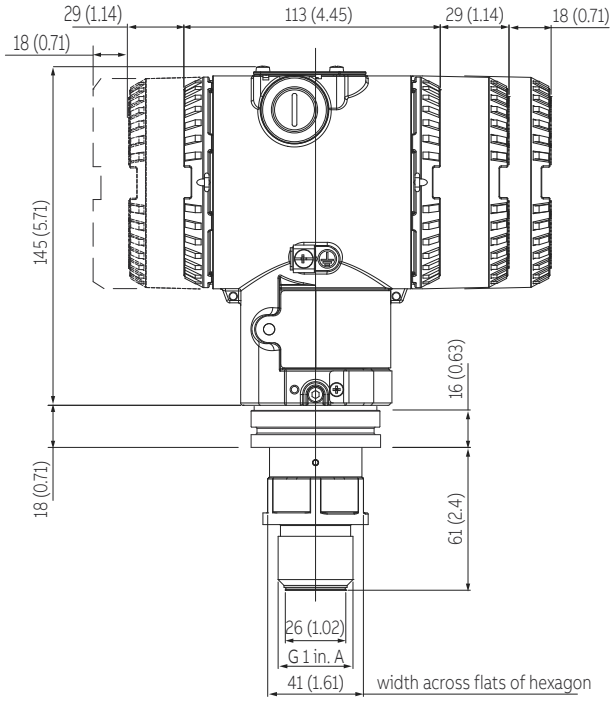


Figure 34 266HRH / 266NRH with barrel housing and direct mount seal S26KN pulp and paper 1 in. Gas threaded connections

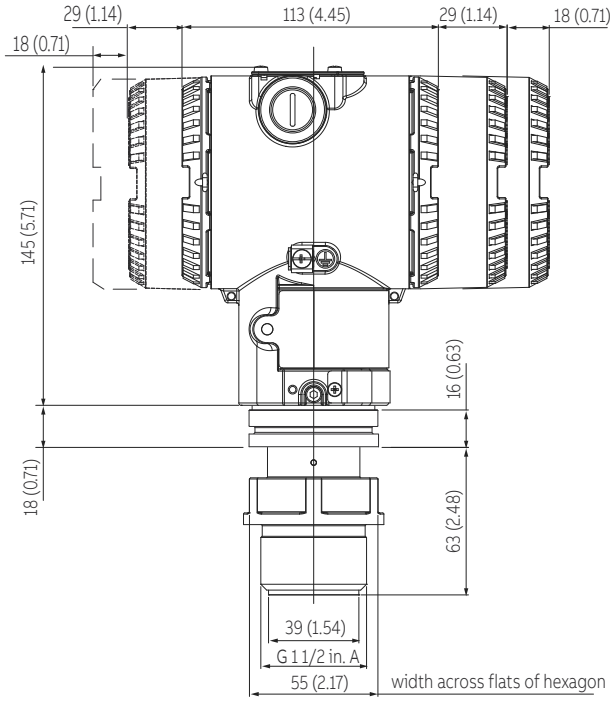


Figure 36 266HRH / 266NRH with barrel housing and direct mount seal S26KN pulp and paper 1 1/2 in. Gas threaded connections

...Dimensions

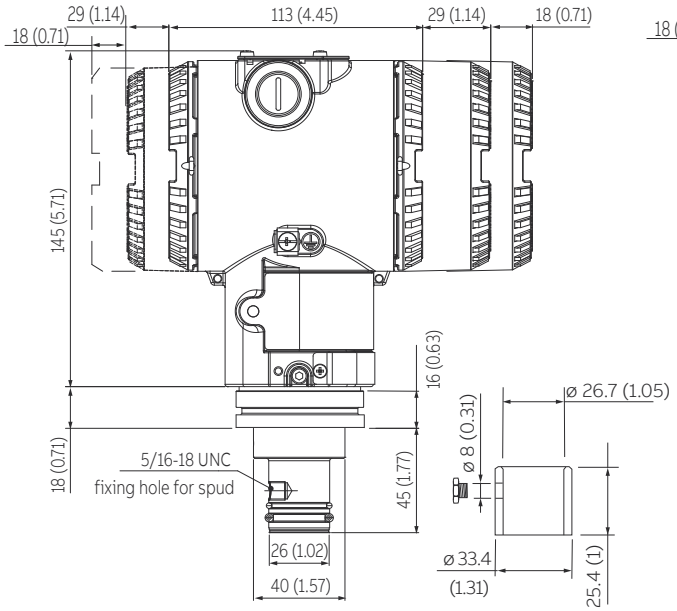


Figure 37 266HRH / 266NRH with barrel housing and direct mount seal S26KN pulp and paper 1 in. sealing with gasket

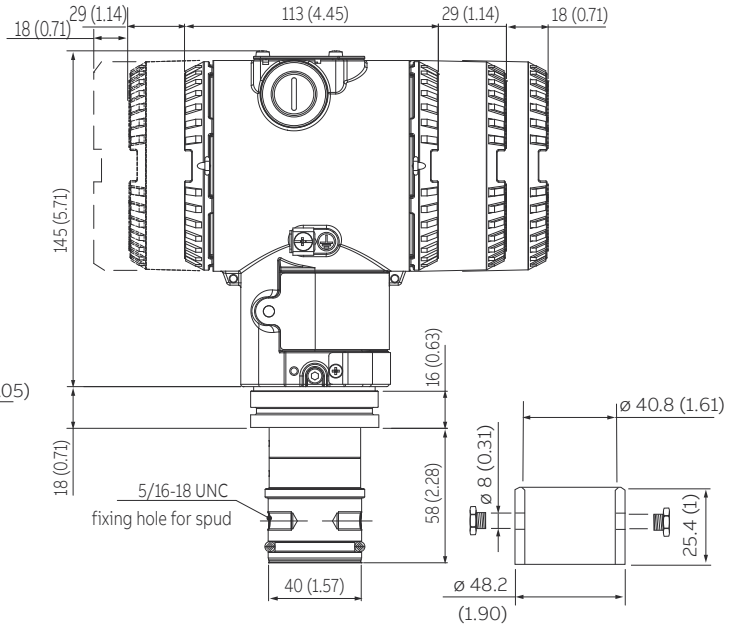


Figure 39 266HRH / 266NRH with barrel housing and direct mount seal S26KN pulp and paper 1 1/2 in. sealing with gasket

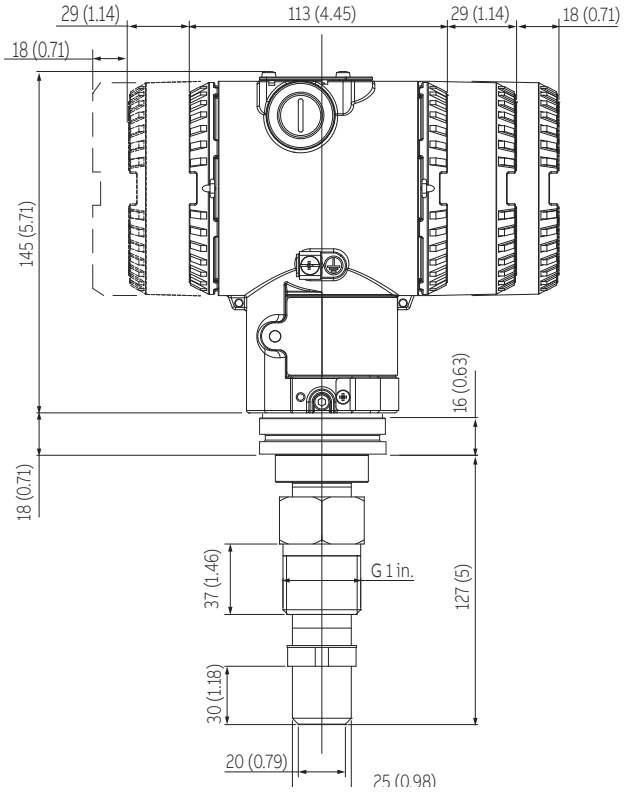


Figure 38 266HRH / 266NRH with barrel housing and direct mount seal S26KN pulp and paper ball valve connections

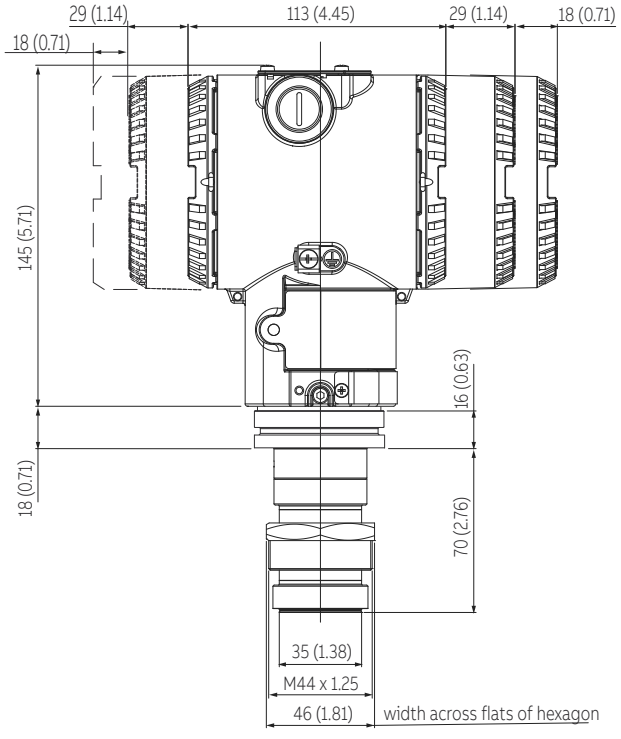
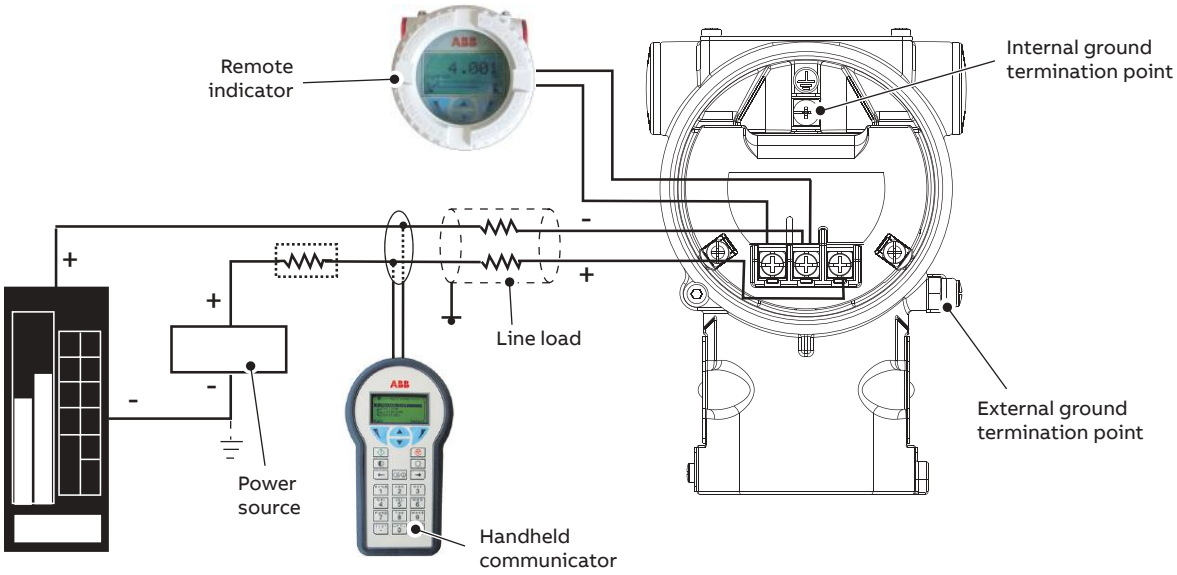


Figure 40 266HRH / 266NRH with barrel housing and direct mount seal S26KN pulp and paper to threaded spud

Electrical connections



HART hand-held communicator may be connected at any wiring termination point in the loop, providing the minimum resistance is 250 ohm. If this is less than 250 ohm, additional resistance should be added to allow communications. Maximum voltage drop on external remote indicator is 0.7 V DC.

Figure 41 HART Version

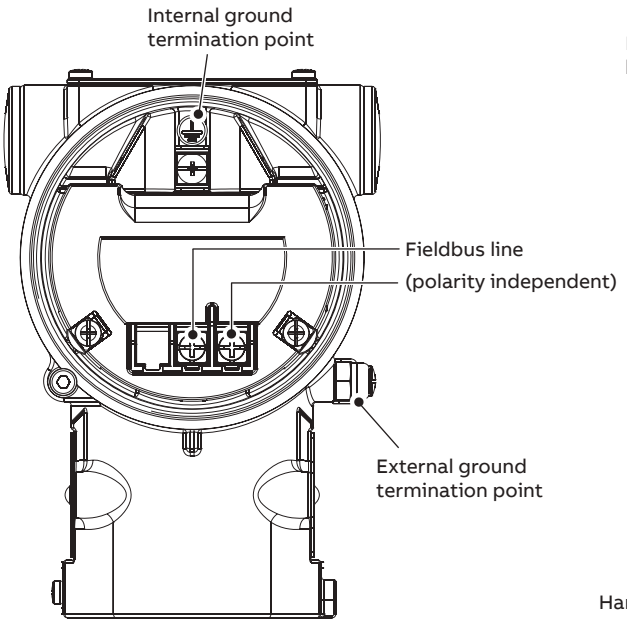


Figure 42 FIELDBUS Versions

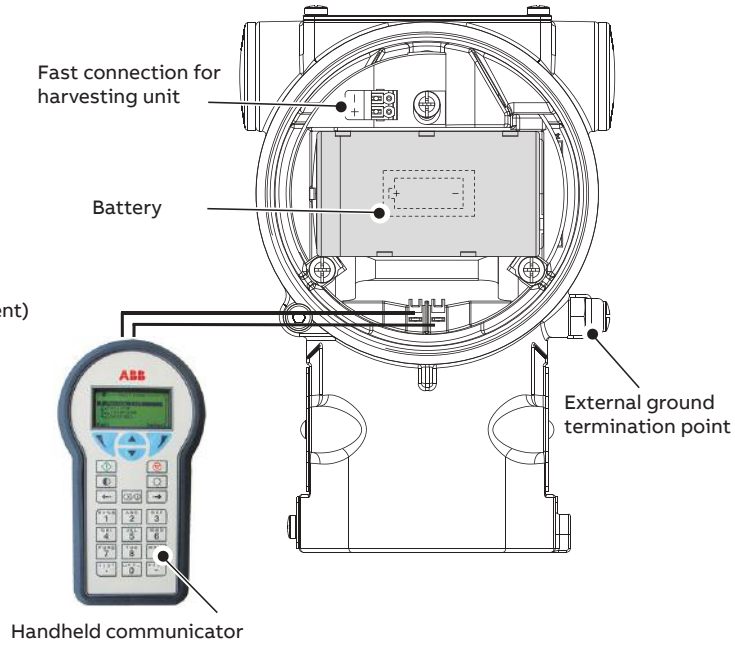


Figure 43 WirelessHART version

...Electrical connections

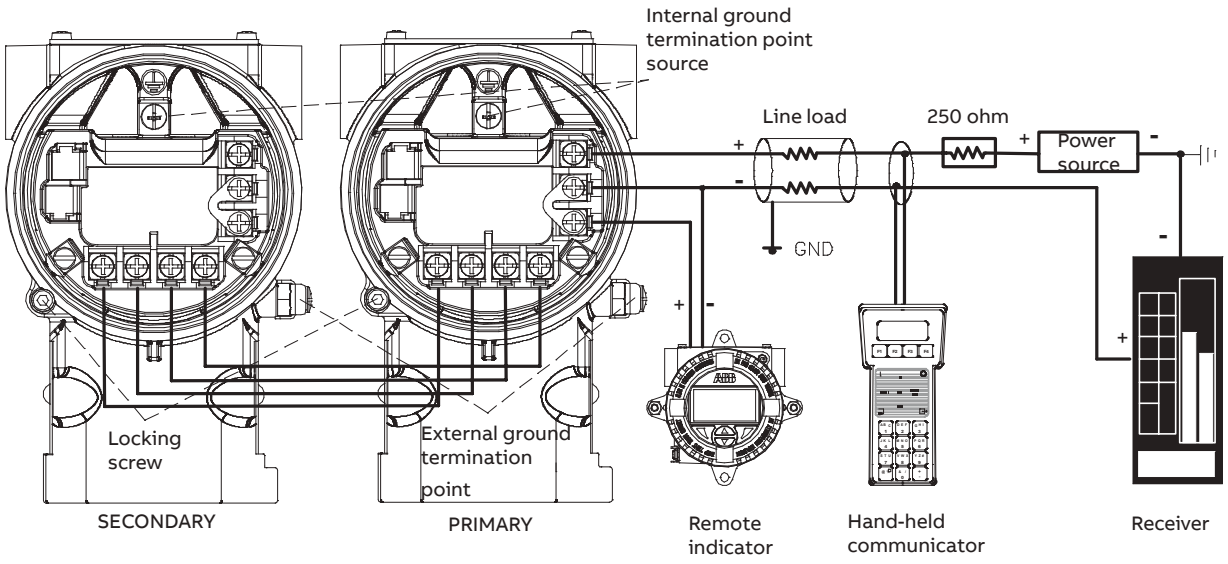


Figure 44 DDS Version

DDS Entity Parameters

Here below the cable parameters to be respected when selecting a connection cable to connect primary and the secondary units.

CABLE PARAMETERS (maximum allowed)

	Ex - i	Ex - d	GP
C/C [nF]	10	10	10
C/S [nF]	20	20	20
L [uH]	100	100	100
l [m]	80	50	150

C/C = Capacitance C/C (Mutual) ; C/S = Mutual Capacitance C/S (Core to Shield); L = Inductance; l = cable length; GP = general purpose;

Ordering Information

Basic ordering information for model 266DRH Differential Pressure Transmitter with remote seal

Select one character or set of characters from each category and specify complete catalog number.

Refer to additional ordering information and specify one or more codes for each transmitter if additional options are required.

BASE MODEL - 1st to 6th characters			**2 6 6 D R H**	**X**	**X**	**X**	**X**	**X**	**X**	**X**
Differential Pressure Transmitter with remote seal– BASE ACCURACY 0.06 %										
SENSOR - Span limits - 7th character										
0.2 and 4 kPa	2 and 40 mbar	0.8 and 16 inH2O		B						
0.8 and 16 kPa	8 and 160 mbar	3.2 and 64 inH2O		E						
0.67 and 40 kPa	6.7 and 400 mbar	2.67 and 160 inH2O		F						
2.67 and 160 kPa	26.7 and 1600 mbar	10.7 and 642 inH2O		H						
10 and 600 kPa	0.1 and 6 bar	1.45 and 87 psi		M						
40 and 2400 kPa	0.4 and 24 bar	5.8 and 348 psi		P						
134 and 8000 kPa	1.34 and 80 bar	19.4 and 1160 psi		Q						
267 and 16000 kPa	2.67 and 160 bar	38.7 and 2320 psi		S						
Application - 8th character										
Differential measurement at standard static pressure					S					
Gauge measurement			(Note 3)		P					
Diaphragm material / Fill fluid (wetted parts) - 9th character										
AISI 316 L ss	Silicone oil	(one seal only to be quoted)	(Note 3)			NACE	S			
Hastelloy® C-276	Silicone oil	(one seal only to be quoted)	(Notes 3, 19)			NACE	K			
Tantalum	Silicone oil	(one seal only to be quoted)	(Notes 3, 19)			NACE	T			
AISI 316 L ss	Inert fluid - Galden	(one seal only to be quoted)	(Notes 1, 3)			NACE	A			
Hastelloy® C-276	Inert fluid - Galden	(one seal only to be quoted)	(Notes 1, 3, 19)			NACE	F			
Tantalum	Inert fluid - Galden	(one seal only to be quoted)	(Notes 1, 3, 19)			NACE	D			
AISI 316 L ss (not wetted)	Silicone oil	(two seals to be quoted)	(Notes 2, 19)			NACE	R			
AISI 316 L ss (not wetted)	Inert fluid - Galden	(two seals to be quoted)	(Notes 1, 3, 19)			NACE	2			

continued
see next page

...Ordering Information

Basic ordering information for model 266DRH Differential Pressure Transmitter with remote seal

BASIC ORDERING INFORMATION model 266DRH Differential Pressure Transmitter		**2 6 6 D R H X X X**			**X**	**X**	**X**	**X**
Process flanges/adapters material and connection (wetted parts) - 10th character								
AISI 316 L ss for two seals construction		(Notes 4, 19)	NACE		R			
AISI 316 L ss (Horizontal connection)	1/4 in. – 18 NPT-f direct	(Note 5)	NACE		A			
AISI 316 L ss (Horizontal connection)	1/2 in. – 14 NPT-f through adapter	(Notes 5, 19)	NACE		B			
Hastelloy® C-276 (Horizontal connection)	1/4 in. – 18 NPT-f direct	(Notes 5, 6, 19)	NACE		D			
Hastelloy® C-276 (Horizontal connection)	1/2 in. – 14 NPT-f through adapter	(Notes 5, 6, 19)	NACE		E			
Bolts/Gasket (wetted parts) - 11th character								
AISI 316 ss for standard static without gaskets for two seals construction (MWP = 16 MPa)		(Notes 4, 19)	NACE			R		
AISI 316 ss without gaskets for two seals construction		(Notes 4, 19)	NACE (non exposed)			S		
AISI 316 ss	Viton®	(Note 5)	NACE (non exposed)			1		
AISI 316 ss	PTFE	(Notes 1, 5, 19)	NACE (non exposed)			2		
AISI 316 ss (NACE) – (MWP = 16 MPa)	Viton®	(Note 5)	NACE			3		
AISI 316 ss (NACE) – (MWP = 16 MPa)	PTFE	(Notes 1, 5, 19)	NACE			4		
Housing material and electrical connection - 12th character								
Aluminium alloy (barrel version)	1/2 in. – 14 NPT			(Note 14)			A	
Aluminium alloy (barrel version)	M20 x 1.5 (CM 20)	(TO BE USED for WirelessHART)					B	
AISI 316 L ss (barrel version) (I2 or I3 required)	1/2 in. – 14 NPT			(Note 14)			S	
AISI 316 L ss (barrel version) (I2 or I3 required)	M20 x 1.5 (CM20)	(TO BE USED for WirelessHART)					T	
Aluminium alloy (DIN version)	M20 x 1.5 (CM20)	(not Ex d or XP)		(Note 14)			J	
Output/Additional options - 13th character								
HART and 4 to 20 mA - Standard functionality								7
HART and 4 to 20 mA - Advanced functionality (includes option R1)								1
PROFIBUS PA (includes option R1)								2
FOUNDATION Fieldbus (includes option R1)								3
HART and 4 to 20 mA Safety, certified to IEC 61508 (includes option R1)								8
WirelessHART (includes option R1)					(Note 13)			9

NOTE - Option R1 represents the external pushbuttons

Additional ordering information for model 266DRH Differential Pressure Transmitter

Add one or more 2–digit code(s) after the basic ordering information to select all required options.

					XX	XX	XX
Improved performance							
Temperature errors optimization					DE		
Drain/vent valve (material and position) (wetted parts)							
AISI 316 L ss	on process axis	(Note 7)	NACE			V1	
AISI 316 L ss	on flange side top	(Note 7)	NACE			V2	
AISI 316 L ss	on flange side bottom	(Note 7)	NACE			V3	
Hastelloy® C-276	on process axis	(Note 8)	NACE			V4	
Hastelloy® C-276	on flange side top	(Note 8)	NACE			V5	
Hastelloy® C-276	on flange side bottom	(Note 8)	NACE			V6	
Hazardous area certifications (see relevant paragraph for complete detailed markings)							
ATEX Intrinsic Safety Ex ia							E1
ATEX Explosion Proof Ex db_tb				(Notes 10, 14)			E2
ATEX Intrinsic Safety Ex ic_tc				(Note 14)			E3
Combined ATEX, IECEx, FM Approvals (USA) and FM Approvals (Canada)				(Notes 10, 14)			EN
FM Approvals (Canada) approval (XP, DIP, IS, NI, Type N)				(Notes 10, 14)			E4
FM Approvals (USA) approval (XP, DIP, IS, NI, Type N)				(Notes 10, 14)			E6
FM Approvals (USA and Canada) Intrinsic Safety							EA
IECEx Intrinsic Safety Ex ia							E8
IECEx Explosion Proof Ex db_tb				(Notes 10, 14)			E9
IECEx Intrinsic Safety Ex ic_tc				(Note 14)			ER
NEPSI Intrinsic Safety Ex ia				(Note 14)			EY
NEPSI Explosion Proof Ex d				(Notes 10, 14)			EZ
NEPSI Intrinsic Safety Ex ic				(Note 14)			ES

...Ordering information

Additional ordering information for model 266DRH Differential Pressure Transmitter

		XX	XX	XX	XX	XX
Other hazardous area certifications (ONLY AS ALTERNATIVE TO BASIC CERTIFICATION CODE Ex)						
For TR CU EAC Ex ia for Russia (incl. GOST Metrologic Approval)	(Notes 14, 21)	W1				
For TR CU EAC Ex d for Russia (incl. GOST Metrologic Approval)	(Notes 10, 14, 22)	W2				
For TR CU EAC combined Ex ia and Ex d for Russia (incl. GOST Metrologic Approval)	(Notes 10, 14)	WC				
For TR CU EAC Ex ia for Kazakhstan (incl. GOST Metrologic Approval)	(Notes 14, 21)	W3				
For TR CU EAC Ex ia for Kazakhstan (incl. GOST Metrologic Approval)	(Notes 10, 14, 22)	W4				
For TR CU EAC combined Ex ia and Ex d for Kazakhstan (incl. GOST Metrologic Approval)	(Notes 10, 14)	WD				
Inmetro (Brazil) Intrinsic Safety Ex ia	(Note 14)	W5				
Inmetro (Brazil) Explosion Proof Ex d	(Notes 10, 14)	W6				
Inmetro (Brazil) Intrinsic Safety Ex ic	(Note 14)	W7				
Combined Inmetro (Brazil) - Intrinsic Safety Ex ia, Explosion Proof and Intrinsic Safety Ex ic	(Notes 10, 14)	W8				
For TR CU EAC Ex ia for Belarus (incl. GOST Metrologic Approval)	(Notes 14, 21)	WF				
For TR CU EAC Ex d for Belarus (incl. GOST Metrologic Approval)	(Notes 10, 14, 22)	WG				
For TR CU EAC combined Ex ia and Ex d for Belarus (incl. GOST Metrologic Approval)	(Notes 10, 14)	WH				
Kosha (Korea) Intrinsic Safety Ex ia IIC T6, IP67	(Notes 12, 14)	WM				
Kosha (Korea) Explosion Proof Ex d IIC T6, IP67	(Notes 10, 12, 14)	WN				
Combined Kosha (Korea) - Intrinsic Safety and Explosion Proof	(Notes 10, 12, 14)	WP				
Integral LCD						
Digital LCD integral display	(Note 12)		L1			
TTG (Through-The-Glass) digital LCD controlled display	(Note 12)		L5			
Integrated digital LCD display (ONLY SELECTABLE WITH OUTPUT CODE 7)	(Note 17)		LS			
External non intrusive Z, S and WP pushbuttons						
Transmitters with external pushbutton (ONLY SELECTABLE WITH OUTPUT CODE 7)				R1		
Mounting bracket (shape and material)						
For pipe/wall mounting - Carbon steel	(Not suitable for AISI housing)				B1	
For pipe/wall mounting - AISI 316 L ss					B2	
Flat type for box - AISI 316 ss					B5	
Surge						
Surge/Transient Protector	(Note 14)					S2

		XX	XX	XX	XX	XX
Operating manual (multiple selection allowed)						
German (FOR HART, WirelessHART and PROFIBUS VERSIONS)		M1				
Italian (ONLY FOR HART VERSIONS)		M2				
Spanish (FOR HART, WirelessHART and FOUNDATION Fieldbus VERSIONS)		M3				
French (ONLY FOR HART VERSIONS)		M4				
English		M5				
Portuguese (ONLY FOR HART VERSIONS)		MA				
Russian (ONLY FOR HART VERSIONS)		MB				
Plates language						
German			T1			
Italian			T2			
Spanish			T3			
French			T4			
Additional tag plate						
Supplemental wired-on stainless steel plate				I1		
Tag and certification stainless steel plates (laser printed)				I2		
Tag, certification and supplemental wired-on stainless steel plates (laser printed)				I3		
Configuration						
Standard – Pressure = inH2O/ psi at 68 °F; Temperature = deg. F					N2	
Standard – Pressure = inH2O/ psi at 39.2 °F; Temperature = deg. F					N3	
Standard – Pressure = inH2O/ psi at 20 °C; Temperature = deg. C					N4	
Standard – Pressure = inH2O/ psi at 4 °C; Temperature = deg. C					N5	
Custom					N6	
Configured for HART revision 5	(Note 20)				NH	
Certificates (multiple selection allowed)						
Inspection certificate EN 10204–3.1 of calibration (9-point)						C1
Inspection certificate EN 10204–3.1 of helium leakage test of the sensor module						C4
Inspection certificate EN 10204–3.1 of the pressure test						C5
Certificate of compliance with the order EN 10204–2.1 of instrument design						C6
PMI test of wetted parts						CT

...Ordering information

Additional ordering information for model 266DRH Differential Pressure Transmitter

			XX	XX	XX	XX	XX
Approvals							
Metrologic Pattern for Russia	(NOT APPLICABLE WITH ANY HAZARDOUS AREA CERTIFICATION)		Y1				
Metrologic Pattern for Kazakhstan	(NOT APPLICABLE WITH ANY HAZARDOUS AREA CERTIFICATION)		Y2				
Metrologic Pattern for Belarus	(NOT APPLICABLE WITH ANY HAZARDOUS AREA CERTIFICATION)		Y4				
Chinese pattern	(NOT APPLICABLE WITH ANY HAZARDOUS AREA CERTIFICATION)		Y5				
DNV GL		(Notes 14, 24)		YA			
Conformity to NAMUR NE 021 (2004)	(NOT APPLICABLE WITH SURGE PROTECTOR CODE "S2")	(Notes 12, 14, 16, 18)		YE			
CRN (Canadian Registration Number 0F14838.5C)				YR			
American Bureau of Shipping (ABS)		(Note 24, 25)		YS			
Lloyd's Register Group Ltd. (LR)		(Note 24, 25)		YB			
Combined Naval approvals (DNV / ABS / LLR)		(Note 24, 25)		YM			
Material traceability							
Inspection certificate EN 10204–3.1 of process wetted parts (not for gaskets)					H3		
Test report EN 10204–2.2 of pressure bearing and process wetted parts (not for gaskets)					H4		
National radio frequency licence							
Basic countries (Europe, USA, Canada)		(Note 15)				FB	
Argentina		(Note 15)				FA	
United Arab Emirates		(Note 15)				FG	
India		(Note 15)				FI	
Mexico		(Note 15)				FM	
Electrical connection plug							
One certified (ATEX) 316/316L Dual grade stainless steel plug		(Note 23)					Z1

Note 1: Suitable for oxygen service
Note 2: Not wetted – Hastelloy C276 on AISI seat for sensor code B
Note 3: Not available with sensor code B
Note 4: Not available with low side diaphragm code S, K, M, T, A, F, C, D, L, P, 4, 5
Note 5: Not available with low side diaphragm code R, 2, W
Note 6: Not available with diaphragm material/fill fluid code S, A, L
Note 7: Not available with Process flanges/adapters code D, E, G, H, R
Note 8: Not available with Process flanges/adapters code A, B, G, H, R
Note 9: Not available with Process flanges/adapters code A, B, D, E, R
Note 10: Not available with Housing code J
Note 12: Not available with Output code 7
Note 13: Not available with Housing code A, S, J
Note 14: Not available with Output code 9
Note 15: Not available with Output code 1, 2, 3, 7, 8
Note 16: Not available with Output code 2, 3
Note 17: Not available with Hazardous area certification code WM, WN, WP
Note 18: Not available with Hazardous area certification code EN, E4, E6, EA, EY, EZ, ES, W1, W2, WC, W3, W4, WD, W5, W6, W7, W8, WF, WG, WH, WM, WN, WP
Note 19: Not available with Application code P (gauge measurement)
Note 20: Not available with Output code 2, 3, 9
Note 21: The ambient temperature lower limit is -55 degrees C
Note 22: The ambient temperature lower limit is -52 degrees C
Note 23: Supplied loose with thread according to housing entries – M20 Hex type plug, ½ NPT Allen key type plug
Note 24: Not available with Approval code YE
Note 25: Not available with Sensor codes B,E,F,H. Not available with Output code 7

Standard delivery items (can be differently specified by additional ordering code)

- Adapter supplied loose
- Plug on axis of horizontal connection flange
- General purpose (no electrical certification)
- No display, no mounting bracket, no surge protection
- Short-form leaflet instruction and labels in English (metal nameplate; self-adhesive certification and tag)
- Configuration with kPa and deg. C units
- No test, inspection or material traceability certificates

Ordering Information

Basic ordering information for model 266HRH Gauge Pressure Transmitter with remote seal

Select one character or set of characters from each category and specify complete catalog number.

Refer to additional ordering information and specify one or more codes for each transmitter if additional options are required.

BASE MODEL - 1st to 6th characters				**266HRH**		**X**	**X**	**X**	**X**	**X**
Gauge Pressure Transmitter with remote seal – BASE ACCURACY 0.06 %										
SENSOR - Span limits - 7th character										
0.67 and 40 kPa	6.7 and 400 mbar	2.67 and 160 inH2O				F				
2.67 and 160 kPa	26.7 and 1600 mbar	10.7 and 642 inH2O				H				
10 and 600 kPa	0.1 and 6 bar	1.45 and 87 psi				M				
40 and 2400 kPa	0.4 and 24 bar	5.8 and 348 psi				P				
134 and 8000 kPa	1.34 and 80 bar	19.4 and 1160 psi				Q				
267 and 16000 kPa	2.67 and 160 bar	38.7 and 2320 psi				S				
1400 and 70000 kPa	14 and 700 bar	203 and 10150 psi	(Note 18)			W				
10500 and 105000 kPa	105 and 1050 bar	1522 and 15225 psi				Z				
Diaphragm material / Fill fluid - 8th character										
AISI 316 L ss		Silicone oil	(Note 5)		NACE		R			
AISI 316 L ss		Inert fluid - Galden	(Notes 1, 2, 5)		NACE		2			
Inconel® 718		No filling	(Notes 2, 6)				U			
Process connection - 9th character										
Remote or direct mount seal		(one seal to be quoted separately)						R		
Housing material and electrical connection - 10th character										
Aluminium alloy (barrel version)		1/2 in. – 14 NPT				(Note 8)			A	
Aluminium alloy (barrel version)		M20 x 1.5 (CM 20)	(TO BE USED for WirelessHART)						B	
AISI 316 L ss (barrel version) (I2 or I3 required)		1/2 in. – 14 NPT				(Note 8)			S	
AISI 316 L ss (barrel version) (I2 or I3 required)		M20 x 1.5 (CM20)	(TO BE USED for WirelessHART)						T	
Aluminium alloy (DIN version)		M20 x 1.5 (CM20)	(not Ex d or XP)			(Note 8)			J	
Output/Additional options - 11th character										
HART and 4 to 20 mA - Standard functionality					(Notes 2, 5)					7
HART and 4 to 20 mA - Advanced functionality (includes option R1)										1
PROFIBUS PA (includes option R1)										2
FOUNDATION Fieldbus (includes option R1)										3
HART and 4 to 20 mA Safety, certified to IEC 61508 (includes option R1)										8
WirelessHART (includes option R1)					(Notes 2, 5, 7)					9
Digital Diaphragm Seal, 4-20 mA + HART (Mandatory to select one Primary or Secondary device)					(Notes 20)					D

NOTE - Option R1 represents the external pushbuttons

...Ordering Information

...Basic ordering information for model 266HRH Gauge Pressure Transmitter with remote seal

		XX	XX
Hazardous area certifications (see relevant paragraph for complete detailed markings)			
ATEX Intrinsic Safety Ex ia		E1	
ATEX Explosion Proof Ex db_tb	(Notes 3, 8, 21)	E2	
ATEX Intrinsic Safety Ex ic_tc	(Note 8)	E3	
Combined ATEX, IECEx, FM Approvals (USA) and FM Approvals (Canada)	(Notes, 3, 8)	EN	
FM Approvals (Canada) approval (XP, DIP, IS, NI, Type N)	(Notes, 3, 8)	E4	
FM Approvals (USA) approval (XP, DIP, IS, NI, Type N)	(Notes, 3, 8)	E6	
FM Approvals (USA and Canada) Intrinsic Safety		EA	
FM Approvals (USA and Canada) Explosionproof	(Notes, 3, 8, 21)	EB	
IECEx Intrinsic Safety Ex ia		E8	
IECEx Explosion Proof Ex db_tb	(Notes 3, 8, 21)	E9	
IECEx Intrinsic Safety Ex ic_tc	(Note 8)	ER	
NEPSI Intrinsic Safety Ex ia	(Note 8)	EY	
NEPSI Explosion Proof Ex d	(Notes 3, 8)	EZ	
NEPSI Intrinsic Safety Ex ic	(Note 8)	ES	
Other hazardous area certifications (ONLY AS ALTERNATIVE TO BASIC CERTIFICATION CODE Ex)			
For TR CU EAC Ex ia for Russia (incl. GOST Metrologic Approval)	(Notes 8,14)		W1
For TR CU EAC Ex d for Russia (incl. GOST Metrologic Approval)	(Notes, 3, 8, 15)		W2
For TR CU EAC combined Ex ia and Ex d for Russia (incl. GOST Metrologic Approval)	(Notes, 3, 8)		WC
For TR CU EAC Ex ia for Kazakhstan (incl. GOST Metrologic Approval)	(Notes 8, 14)		W3
For TR CU EAC Ex d for Kazakhstan (incl. GOST Metrologic Approval)	(Notes, 3, 8, 15)		W4
For TR CU EAC combined Ex ia and Ex d for Kazakhstan (incl. GOST Metrologic Approval)	(Notes, 3, 8)		WD
Inmetro (Brazil) Intrinsic Safety Ex ia	(Note 8)		W5
Inmetro (Brazil) Explosion Proof Ex d	(Notes, 3, 8)		W6
Inmetro (Brazil) Intrinsic Safety Ex ic	(Note 8)		W7
Combined Inmetro (Brazil) - Intrinsic Safety Ex ia, Explosion Proof and Intrinsic Safety Ex ic	(Notes, 3, 8)		W8
For TR CU EAC Ex ia for Belarus (incl. GOST Metrologic Approval)	(Notes 8, 14)		WF
For TR CU EAC Ex d for Belarus (incl. GOST Metrologic Approval)	(Notes 3, 8, 15)		WG
For TR CU EAC combined Ex ia and Ex d for Belarus (incl. GOST Metrologic Approval)	(Notes, 3, 8)		WH
Kosha (Korea) Intrinsic Safety Ex ia IIC T6, IP67	(Notes 2, 4, 8)		WM
Kosha (Korea) Explosion Proof Ex d IIC T6, IP67	(Notes 2, 3, 4, 8)		WN
Combined Kosha (Korea) - Intrinsic Safety and Explosion Proof	(Notes 2, 3, 4, 8)		WP

Additional ordering information for model 266HRH Gauge Pressure Transmitter with remote seal

			XX	XX	XX	XX	XX	XX	XX	XX	XX
Integral LCD											
Digital LCD integral display		(Note 4)	L1								
TTG (Through-The-Glass) digital LCD controlled display		(Note 4)	L5								
Integrated digital LCD display (ONLY SELECTABLE WITH OUTPUT CODE 7)		(Note 11)	LS								
External non intrusive Z, S and WP pushbuttons											
Transmitters with external pushbutton (ONLY SELECTABLE WITH OUTPUT CODE 7)				R1							
Mounting bracket (shape and material)											
For pipe/wall mounting - Carbon steel	(Not suitable for AISI housing)				B6						
For pipe/wall mounting - AISI 316 L ss					B7						
Surge											
Surge/Transient Protector		(Note 8)				S2					
Operating manual (multiple selection allowed)											
German (FOR HART, WirelessHART and PROFIBUS VERSIONS)							M1				
Italian (ONLY FOR HART VERSIONS)							M2				
Spanish (FOR HART, WirelessHART and FOUNDATION Fieldbus VERSIONS)							M3				
French (ONLY FOR HART VERSIONS)							M4				
English							M5				
Portuguese (ONLY FOR HART VERSIONS)							MA				
Russian (ONLY FOR HART VERSIONS)							MB				
Plates language											
German								T1			
Italian								T2			
Spanish								T3			
French								T4			
Additional tag plate											
Supplemental wired-on stainless steel plate									I1		
Tag and certification stainless steel plates (laser printed)									I2		
Tag, certification and supplemental wired-on stainless steel plates (laser printed)									I3		
Configuration											
DDS Primary unit		(Note 23, 24, 28)								NM	
DDS Secondary unit		(Note 23, 26, 29)								NS	
DDS single item Primary unit		(Note 23, 25, 28)								NF	
DDS single item Secondary unit		(Note 23, 27, 29)								NG	
Standard – Pressure = inH2O/ psi at 68 °F; Temperature = deg. F										N2	
Standard – Pressure = inH2O/ psi at 39.2 °F; Temperature = deg. F										N3	
Standard – Pressure = inH2O/ psi at 20 °C; Temperature = deg. C										N4	
Standard – Pressure = inH2O/ psi at 4 °C; Temperature = deg. C										N5	
Custom										N6	
Configured for HART revision 5		(Note 13, 22)								NH	
Certificates (multiple selection allowed)											
Inspection certificate EN 10204–3.1 of calibration (9-point)		(Note 30)									C1
Inspection certificate EN 10204–3.1 of the pressure test											C5
Certificate of compliance with the order EN 10204–2.1 of instrument design											C6
PMI test of wetted parts											CT

...Ordering Information

...Additional ordering information for model 266HRH Gauge Pressure Transmitter with remote seal

			XX	XX	XX	XX	XX
Approvals							
Metrologic Pattern for Russia	(NOT APPLICABLE WITH ANY HAZARDOUS AREA CERTIFICATION)		Y1				
Metrologic Pattern for Kazakhstan	(NOT APPLICABLE WITH ANY HAZARDOUS AREA CERTIFICATION)		Y2				
Metrologic Pattern for Belarus	(NOT APPLICABLE WITH ANY HAZARDOUS AREA CERTIFICATION)		Y4				
Chinese pattern	(NOT APPLICABLE WITH ANY HAZARDOUS AREA CERTIFICATION)		Y5				
DNV GL		(Notes 5, 8, 17)		YA			
Conformity to NAMUR NE 021 (2004)	(NOT APPLICABLE WITH SURGE PROTECTOR CODE "S2")	(Notes 2, 4, 5, 8, 10, 12)		YE			
CRN (Canadian Registration Number 0F14838.5C)				YR			
American Bureau of Shipping (ABS)		(Notes 17, 19)		YS			
Lloyd's Register Group Ltd. (LR)		(Notes 17, 19)		YB			
Combined Naval (DNV / ABS / LLR)		(Notes 17, 19)		YM			
Material traceability							
Inspection certificate EN 10204–3.1 of process wetted parts (not for gaskets)					H3		
Test report EN 10204–2.2 of pressure bearing and process wetted parts (not for gaskets)					H4		
National radio frequency licence							
Basic countries (Europe, USA, Canada)		(Note 9)				FB	
Argentina		(Note 9)				FA	
United Arab Emirates		(Note 9)				FG	
India		(Note 9)				FI	
Mexico		(Note 9)				FM	
Electrical connection plug							
One certified (ATEX) 316/316L Dual grade stainless steel plug		(Note 16)				Z1	

Note 1: Suitable for oxygen service
Note 2: Not available with Sensor code W
Note 3: Not available with Housing code J
Note 4: Not available with Output code 7
Note 5: Not available with Sensor code Z
Note 6: Not available with Sensor code F to S
Note 7: Not available with Housing code A, S, J
Note 8: Not available with Output code 9
Note 9: Not available with Output code 1, 2, 3, 7, 8
Note 10: Not available with Output code 2, 3
Note 11: Not available with Hazardous area certification code WM, WN, WP
Note 12: Not available with Hazardous area certification code EN, E4, E6, EA, EY, EZ, ES, W1, W2, WC, W3, W4, WD, W5, W6, W7, W8, WF, WG, WH, WM, WN, WP
Note 13: Not available with Output code 2, 3, 9
Note 14: The ambient temperature lower limit is -55 degrees C
Note 15: The ambient temperature lower limit is -52 degrees C
Note 16: Supplied loose with thread according to housing entries – M20 Hex type plug, ½ NPT Allen key type plug
Note 17: Not available with Approval code YE
Note 18: Compatible with YA option only in combination with Output code 7
Note 19: Not available with Sensor codes F,H,Z,W. Not available with Output code 7
Note 20: Not available with Housing code J. Not available with Mounting bracket codes B6, B7. Not available with Hazardous area certifications except E2 and E9. Not available with Other hazardous area certifications codes and Approvals except code YR
Note 21: Available with Output codes D only if combined with Housing codes S, T
Note 22: Not available with Output code D
Note 23: Only available with Output code D
Note 24: Not available with Configuration codes NH, NS, NF, NG
Note 25: Not available with Configuration codes NH,NS,NM,NG
Note 26: Not available with Configuration codes NH,NM,NF,NG,N2,N3,N4,N5
Note 27: Not available with Configuration codes NH,NS,NF,NM,N2,N3,N4,N5
Note 28: Not available with Display code L5
Note 29: Not available with any Display codes
Note 30: Not available with Configuration codes NS,NG

Standard delivery items (can be differently specified by additional ordering code)

- General purpose (no electrical certification)
- No display, no mounting bracket, no surge protection
- Short-form leaflet instruction and labels in English (metal nameplate; self-adhesive certification and tag)
- Configuration with kPa and deg. C units
- No test, inspection or material traceability certificates

Ordering Information

Basic ordering information for model 266NRH Absolute Pressure Transmitter with remote seal
Select one character or set of characters from each category and specify complete catalog number.
Refer to additional ordering information and specify one or more codes for each transmitter if additional options are required.

BASE MODEL - 1st to 6th characters				**2 6 6 N R H**		**X**	**X**	**X**	**X**	**X**
Absolute Pressure Transmitter with remote seal – BASE ACCURACY 0.10 %										
SENSOR - Span limits - 7th character										
0.67 and 40 kPa	6.7 and 400 mbar	5 and 300 mmHg				F				
2.67 and 160 kPa	26.7 and 1600 mbar	10.7 and 642 inH2O				H				
10 and 600 kPa	0.1 and 6 bar	1.45 and 87 psi				M				
40 and 2400 kPa	0.4 and 24 bar	5.8 and 348 psi				P				
134 and 8000 kPa	1.34 and 80 bar	19.4 and 1160 psi				Q				
267 and 16000 kPa	2.67 and 160 bar	38.7 and 2320 psi				S				
Diaphragm material / Fill fluid - 8th character										
AISI 316 L ss		Silicone oil			NACE		R			
AISI 316 L ss		Inert fluid - Galden		(Note 1)	NACE		2			
Process connection - 9th character										
Remote or direct mount seal			(one seal to be quoted separately)					R		
Housing material and electrical connection - 10th character										
Aluminium alloy (barrel version)		1/2 in. – 14 NPT			(Note 5)				A	
Aluminium alloy (barrel version)		M20 x 1.5 (CM 20)	(TO BE USED for WirelessHART)						B	
AISI 316 L ss (barrel version) (I2 or I3 required)		1/2 in. – 14 NPT			(Note 5)				S	
AISI 316 L ss (barrel version) (I2 or I3 required)		M20 x 1.5 (CM20)	(TO BE USED for WirelessHART)						T	
Aluminium alloy (DIN version)		M20 x 1.5 (CM20)	(not Ex d or XP)		(Note 5)				J	
Output/Additional options - 11th character										
HART and 4 to 20 mA - Standard functionality										7
HART and 4 to 20 mA - Advanced functionality (includes option R1)										1
PROFIBUS PA (includes option R1)										2
FOUNDATION Fieldbus (includes option R1)										3
HART and 4 to 20 mA Safety, certified to IEC 61508 (includes option R1)										8
WirelessHART (includes option R1)					(Note 4)					9

NOTE - Option R1 represents the external pushbuttons

...Ordering Information

Additional ordering information for model 266NRH Absolute Pressure Transmitter with remote seal
Add one or more 2–digit code(s) after the basic ordering information to select all required options.

			XX
Hazardous area certifications (see relevant paragraph for complete detailed markings)			
ATEX Intrinsic Safety Ex ia		E1	
ATEX Explosion Proof Ex db_tb	(Notes, 2, 5)	E2	
ATEX Intrinsic Safety Ex ic_tc	(Note 5)	E3	
Combined ATEX, IECEx, FM Approvals (USA) and FM Approvals (Canada)	(Notes, 2, 5)	EN	
FM Approvals (Canada) approval (XP, DIP, IS, NI, Type N)	(Notes, 2, 5)	E4	
FM Approvals (USA) approval (XP, DIP, IS, NI, Type N)	(Notes, 2, 5)	E6	
FM Approvals (USA and Canada) Intrinsic Safety		EA	
IECEx Intrinsic Safety Ex ia		E8	
IECEx Explosion Proof Ex db_tb	(Notes, 2, 5)	E9	
IECEx Intrinsic Safety Ex ic_tc	(Note 5)	ER	
NEPSI Intrinsic Safety Ex ia	(Note 5)	EY	
NEPSI Explosion Proof Ex d	(Notes, 2, 5)	EZ	
NEPSI Intrinsic Safety Ex ic	(Note 5)	ES	
Other hazardous area certifications (ONLY AS ALTERNATIVE TO BASIC CERTIFICATION CODE Ex)			
For TR CU EAC Ex ia for Russia (incl. GOST Metrologic Approval)	(Notes 5, 12)		W1
For TR CU EAC Ex d for Russia (incl. GOST Metrologic Approval)	(Notes, 2, 5, 13)		W2
For TR CU EAC combined Ex ia and Ex d for Russia (incl. GOST Metrologic Approval)	(Notes, 2, 5)		WC
For TR CU EAC Ex ia for Kazakhstan (incl. GOST Metrologic Approval)	(Notes 5, 12)		W3
For TR CU EAC Ex d for Kazakhstan (incl. GOST Metrologic Approval)	(Notes 2, 5, 13)		W4
For TR CU EAC combined Ex ia and Ex d for Kazakhstan (incl. GOST Metrologic Approval)	(Notes, 2, 5)		WD
Inmetro (Brazil) Intrinsic Safety Ex ia	(Note 5)		W5
Inmetro (Brazil) Explosion Proof Ex d	(Notes, 2, 5)		W6
Inmetro (Brazil) Intrinsic Safety Ex ic	(Notes, 5)		W7
Combined Inmetro (Brazil) - Intrinsic Safety Ex ia, Explosion Proof and Intrinsic Safety Ex ic	(Notes, 2, 5)		W8
For TR CU EAC Ex ia for Belarus (incl. GOST Metrologic Approval)	(Notes 5, 12)		WF
For TR CU EAC Ex d for Belarus (incl. GOST Metrologic Approval)	(Notes 2, 5, 13)		WG
For TR CU EAC combined Ex ia and Ex d for Belarus (incl. GOST Metrologic Approval)	(Notes, 2, 5)		WH
Kosha (Korea) Intrinsic Safety Ex ia IIC T6, IP67	(Notes, 3, 5)		WM
Kosha (Korea) Explosion Proof Ex d IIC T6, IP67	(Notes, 2, 3, 5)		WN
Combined Kosha (Korea) - Intrinsic Safety and Explosion Proof	(Notes, 2, 3, 5)		WP

		XX	XX	XX	XX	XX	XX	XX	XX
Integral LCD									
Digital LCD integral display	(Note 3)	L1							
TTG (Through-The-Glass) digital LCD controlled display	(Note 3)	L5							
Integrated digital LCD display (ONLY SELECTABLE WITH OUTPUT CODE 7)	(Note 8)	LS							
External non intrusive Z, S and WP pushbuttons									
Transmitters with external pushbutton (ONLY SELECTABLE WITH OUTPUT CODE 7)			R1						
Mounting bracket (shape and material)									
For pipe/wall mounting - Carbon steel	(Not suitable for AISI housing)			B6					
For pipe/wall mounting - AISI 316 L ss				B7					
Surge									
Surge/Transient Protector	(Note 5)				S2				
Operating manual (multiple selection allowed)									
German (FOR HART, WirelessHART and PROFIBUS VERSIONS)						M1			
Italian (ONLY FOR HART VERSIONS)						M2			
Spanish (FOR HART, WirelessHART and FOUNDATION Fieldbus VERSIONS)						M3			
French (ONLY FOR HART VERSIONS)						M4			
English						M5			
Portuguese (ONLY FOR HART VERSIONS)						MA			
Russian (ONLY FOR HART VERSIONS)						MB			
Plates language									
German							T1		
Italian							T2		
Spanish							T3		
French							T4		
Additional tag plate									
Supplemental wired-on stainless steel plate								I1	
Tag and certification stainless steel plates (laser printed)								I2	
Tag, certification and supplemental wired-on stainless steel plates (laser printed)								I3	
Configuration									
Standard – Pressure = inH2O/ psi at 68 °F; Temperature = deg. F									N2
Standard – Pressure = inH2O/ psi at 39.2 °F; Temperature = deg. F									N3
Standard – Pressure = inH2O/ psi at 20 °C; Temperature = deg. C									N4
Standard – Pressure = inH2O/ psi at 4 °C; Temperature = deg. C									N5
Custom									N6
Configured for HART revision 5	(Note 10)								NH

...Ordering Information

... Additional ordering information for model 266NRH Absolute Pressure Transmitter with remote seal

			XX	XX	XX	XX	XX	XX
Certificates (multiple selection allowed)								
Inspection certificate EN 10204–3.1 of calibration (9-point)			C1					
Inspection certificate EN 10204–3.1 of the pressure test			C5					
Certificate of compliance with the order EN 10204–2.1 of instrument design			C6					
PMI test of wetted parts			CT					
Approvals								
Metrologic Pattern for Russia	(NOT APPLICABLE WITH ANY HAZARDOUS AREA CERTIFICATION)			Y1				
Metrologic Pattern for Kazakhstan	(NOT APPLICABLE WITH ANY HAZARDOUS AREA CERTIFICATION)			Y2				
Metrologic Pattern for Belarus	(NOT APPLICABLE WITH ANY HAZARDOUS AREA CERTIFICATION)			Y4				
Chinese pattern	(NOT APPLICABLE WITH ANY HAZARDOUS AREA CERTIFICATION)			Y5				
DNV GL		(Notes 5, 14)			YA			
Conformity to NAMUR NE 021 (2004)	(NOT APPLICABLE WITH SURGE PROTECTOR CODE “S2”)	(Notes 3, 5, 7, 9)			YE			
CRN (Canadian Registration Number 0F14838.5C)					YR			
American Bureau of Shipping (ABS)		(Notes 14, 15)			YS			
Lloyd's Register Group Ltd. (LR) approval		(Notes 14, 15)			YB			
Combined Naval approvals (DNV / ABS / LLR)		(Notes 14, 15)			YM			
Material traceability								
Inspection certificate EN 10204–3.1 of process wetted parts (not for gaskets)						H3		
Test report EN 10204–2.2 of pressure bearing and process wetted parts (not for gaskets)						H4		
National radio frequency licence								
Basic countries (Europe, USA, Canada)		(Note 6)					FB	
Argentina		(Note 6)					FA	
United Arab Emirates		(Note 6)					FG	
India		(Note 6)					FI	
Mexico		(Note 6)					FM	
Electrical connection plug								
One certified (ATEX) 316/316L Dual grade stainless steel plug		(Note 11)						Z1

Note 1: Suitable for oxygen service
Note 2: Not available with Housing code J
Note 3: Not available with Output code 7
Note 4: Not available with Housing code A, S, J
Note 5: Not available with Output code 9
Note 6: Not available with Output code 1, 2, 3, 7, 8
Note 7: Not available with Output code 2, 3
Note 8: Not available with Hazardous area certification code WM, WN, WP
Note 9: Not available with Hazardous area certification code EN, E4, E6, EA, EY, EZ, ES, W1, W2, WC, W3, W4, WD, W5, W6, W7, W8, WF, WG, WH, WM, WN, WP
Note 10: Not available with Output code 2, 3, 9
Note 11: Supplied loose with thread according to housing entries – M20 Hex type plug, ½ NPT Allen key type plug
Note 12: The ambient temperature lower limit is -55 degrees C
Note 13: The ambient temperature lower limit is -52 degrees C
Note 14: Not available with option code YE
Note 15: Not available with Sensor codes F,H,M. Not available with Output code 7

Standard delivery items (can be differently specified by additional ordering code)

- General purpose (no electrical certification)
- No display, no mounting bracket, no surge protection
- Short-form leaflet instruction and labels in English (metal nameplate; self-adhesive certification and tag)
- Configuration with kPa and deg. C units
- No test, inspection or material traceability certificates

ABB Measure ment & Analytics

For your local ABB contact, visit:
www.abb.com/contacts

For more product information, visit:
www.abb.com/pressure

We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail.
ABB does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of ABB.

© Copyright 2022 ABB
All rights reserved

3KXP200016R1001

DS/266XRH-EN Rev. V 04.2022