MEASUREMENT & ANALYTICS

Pressure Product Line

Measurement made easy in space, on the ocean floor and everywhere in between

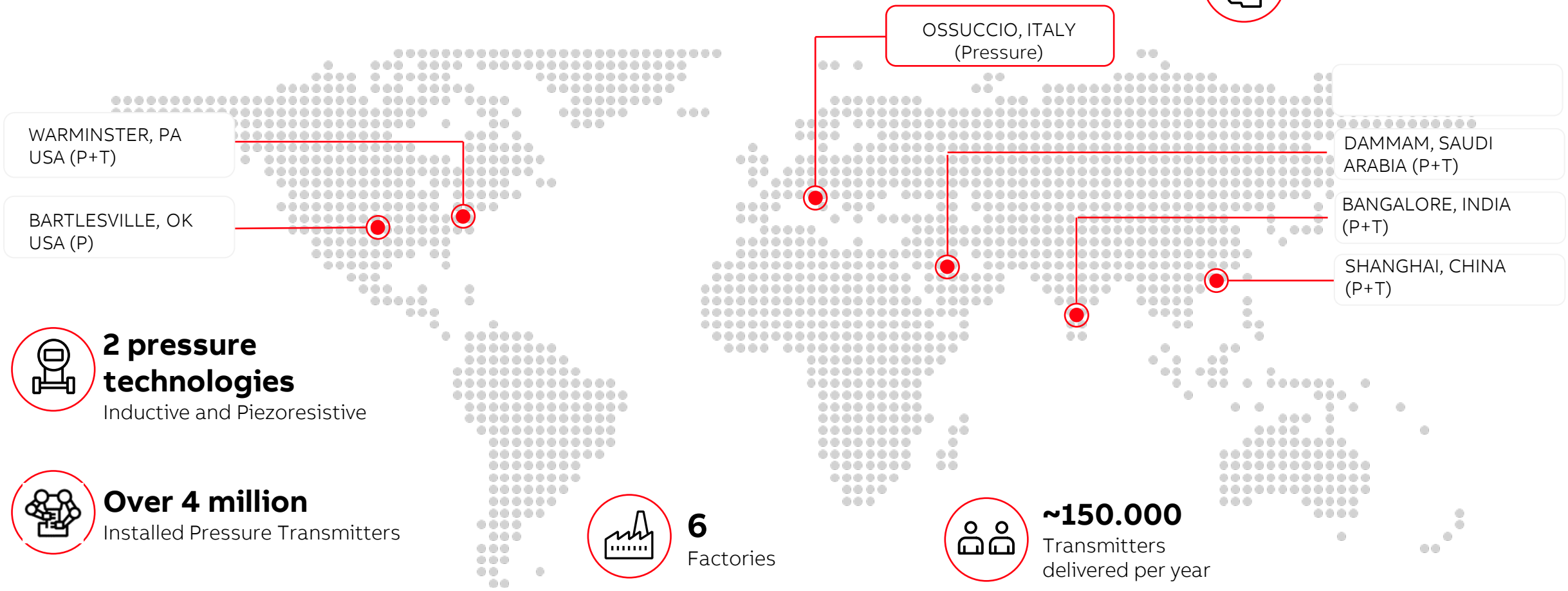
Product Line Overview

ABB Measurement & Analytics

Pressure Product Line - Key facts

80+ years
of experience

Collaboration
S&OP through IBP



2 pressure technologies
Inductive and Piezoresistive

Over 4 million
Installed Pressure Transmitters

6
Factories

~150.000
Transmitters
delivered per year

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ABB Measurement & Analytics – Pressure Portfolio

Value for customer

266 MV

Up to 0,04% Accuracy
Piezo Tech
Resonant Inductive & Piezo Tech
Level / Flow Internal Calculations
10 mbar – 100 bar
Full Remote Seal portfolio
HART, Modbus

266xxT

Up to 0,04% Accuracy (opt. 0,025%) Accuracy
Piezo Tech
AP, GP, DP
10mbar – 600 bar
Full Remote Seal portfolio
HART, FF, PA

266xxH

Up to 0,06% Accuracy
Resonant Inductive Tech
AP, GP, DP
10mbar – 1050 bar
Full Remote Seal portfolio
HART, FF, PA, Wireless, 1..5V

Pxx100

Up to 0,075% Accuracy
Piezo Tech - AP, GP
600 mbar – 100 bar
S26 Remote seal portfolio
Dedicated F&B models
4…20mA , HART 7

261(*)

Up to 0,1% Accuracy
Piezo Tech - AP, GP
60 mbar – 600 bar
Specific Remote Seals
HART

Product Performance

Portfolio Features & Benefits

4 in 1
3 process variables: Pressure, Static and Temp + Compensated Flow/Level

Diaflex seal treatment

Through The Glass

Predictive maintenance through PILD

Wi: Fast connection to any existing net with 10y of std battery

SIL2/SIL 3 for safety loop applications

Top Accuracy (up to 0,025%) & High Static

All welded remote seal technology

NOTES
AP, GP, DP: Absolute, Gauge and Differential Pressure
* 261 series is in Limited phase from Janury 2023

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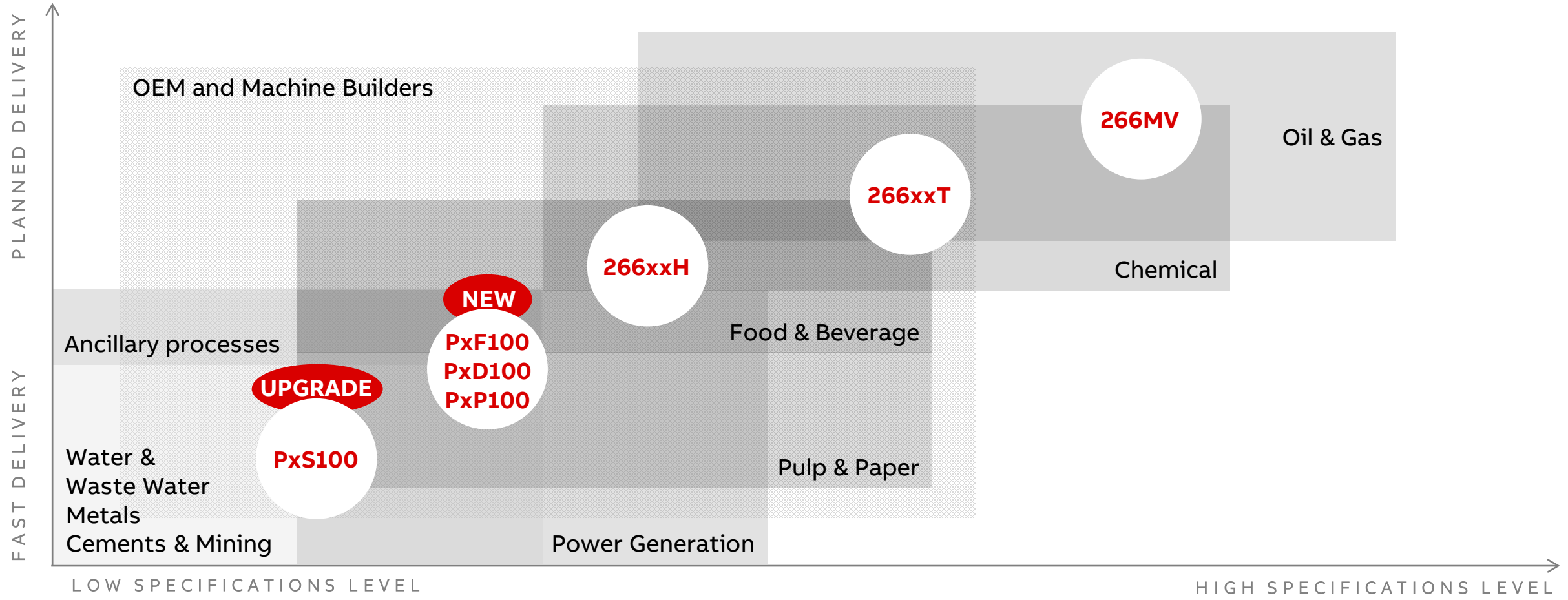
ABB Measurement & Analytics – Pressure Portfolio

Positioning Outlook



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Pressure Portfolio – Model outlook

4 Multi Variable models

4 Multi Sensor Models

6 "T" Top Accuracy models

6 "H" High Accuracy models

7 "261" models

6 "Pxx100" models

		Pxx100 SERIES		261 SERIES (**)		266 SERIES				
		ABSOLUTE	GAUGE	ABSOLUTE	GAUGE	ABSOLUTE	GAUGE (*)	DIFFERENTIAL	MULTI SENSOR	MULTI VARIABLE
Standard Installation		PAS100	PGS100	261AS	261GS	266AST	266GST	266MST	266JST	266CST
						266NSH	266HSH	266DSH	266JSH	266CSH
Remote Seal Installation		PAF100	PGF100	261AC	261GR	266ART	266GRT	266MRT	266JRT	266CRT
		PAD100	PGD100		261GG	266NRH	266HRH	266DRH	266JRH	266CRH
					261GC					
					261GN					

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*Include optional digit code for Digital Diaphragm Seal system

** 261 series is in Limited phase from Janury 2023

266 Series Deep Dive

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2600T Pressure Product Main Specifications

- Gauge and absolute pressure, diff. pressure, level, flow rate.
- Base Accuracy – 0.065% & 0,04% of set span (optional 0.025%)
- DP measurement with simultaneous measurement of P stat. (absolute pressure)
- 10 year stability - 0.15% of the URL
- Large turndown ratio of up to 100:1
- Extensive, understandable diagnostic options according to NE107 (including PILD - detection of clogged impulse lines)
- Local configuration via control buttons on the LCD display (HMI) with Easy Setup function and optional TTG button technology
- TÜV certified according to IEC 61508 for safety-critical applications (SIL2 /SIL3)
- DP nominal pressure up to PN 600
- Wireless Hart device with long standing battery aboard (10 years)
- Traditional and Digital Diagram Seal system with extensive range of seals (S26) made “in-house”

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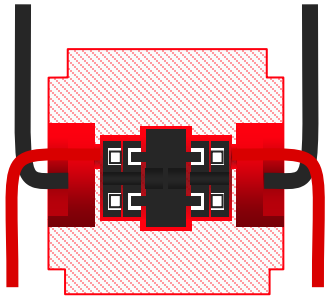
Pressure Measurement Made Easy – Technologies

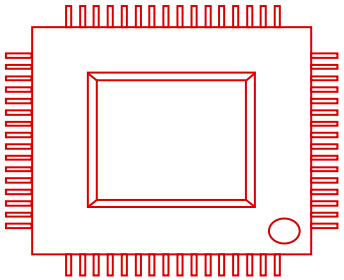
Resonant Inductive



Resonant Inductive Sensor:

- First integral digital sensor
- Intrinsically protected against pressure overloads

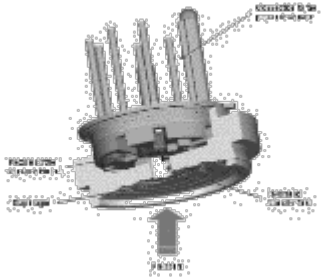
Multi-Sensor Piezo-resistive



Multi-Sensor Piezo-resistive:

- High performance
- Measures both differential and absolute pressure
- Multivariable platform

Piezo-resistive



Piezo-resistive sensor:

- Gauge and absolute pressure

ABB can offer the best fitting solution depending on the application as different technologies .

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Pressure Measurement Made Easy – Standards

Design standards

- IEC
- EN
- ISO
- ISA
- ANSI
- NEMA
- NAMUR
- NORSOK
- 3A Sanitary Standard
- Hart
- Fieldbus Foundation
- Profibus PA
- FCC
- IC

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Pressure Measurement Made Easy – Approvals

Approval standards

- SIL2 (1oo1) and SIL3 (1oo2) for ranges up to 15.000 psi (1034 bar).(SFF) : 93%, (DC) : 85%, λDU : 67 FIT, PFDavg : 2.93 x 10-3 10 y
- Hazardous area (explosion proof and intrinsic safe) approvals for use in every part of the world:
  - ATEX (Europe)
  - cFMus (Canada & US)
  - IECEx (world wide)
  - InMetro (Brazil)
  - NEPSI (China)
  - EAC (Russia, Kazak, Belarus)
  - PESO (India)

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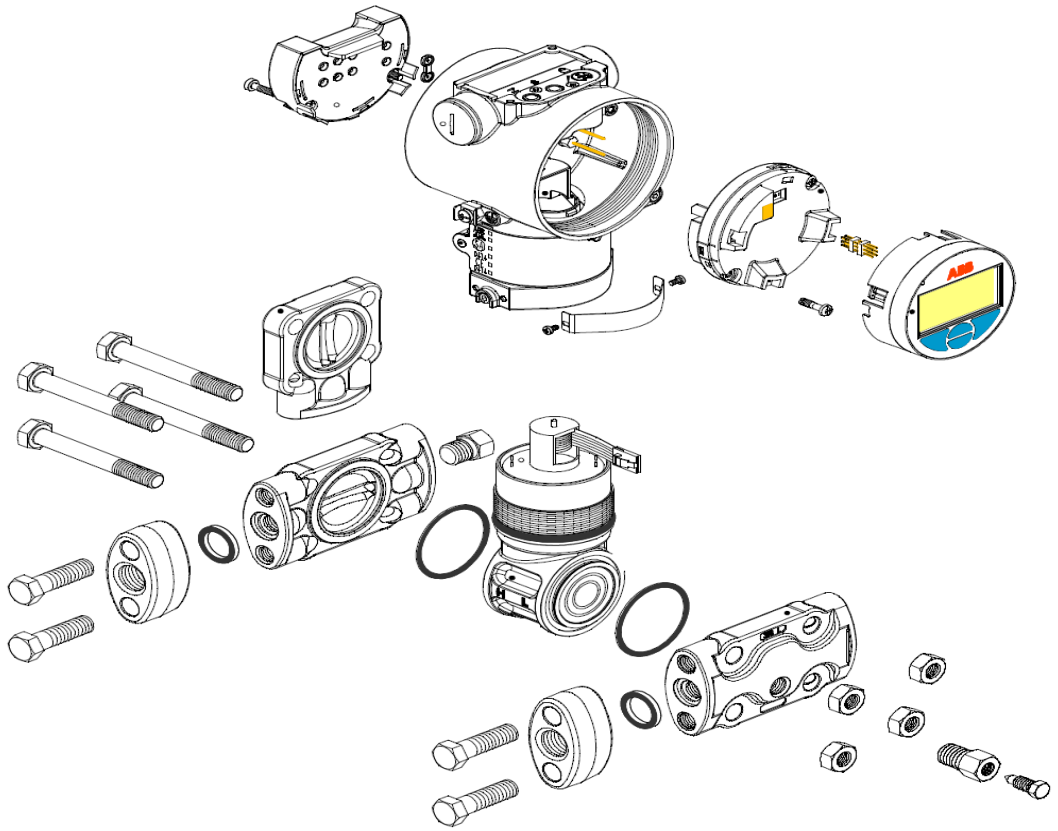
Pressure Measurement Made Easy – Top Quality Design

Advanced Construction Concept and Validation Tests

Tests and verifications:

- Hydrostatic pressure test
- Helium leakage test
- Dye penetrant test
- PMI
- Huey test (Urea application)
- EN 10204 - 3.1b material traceability



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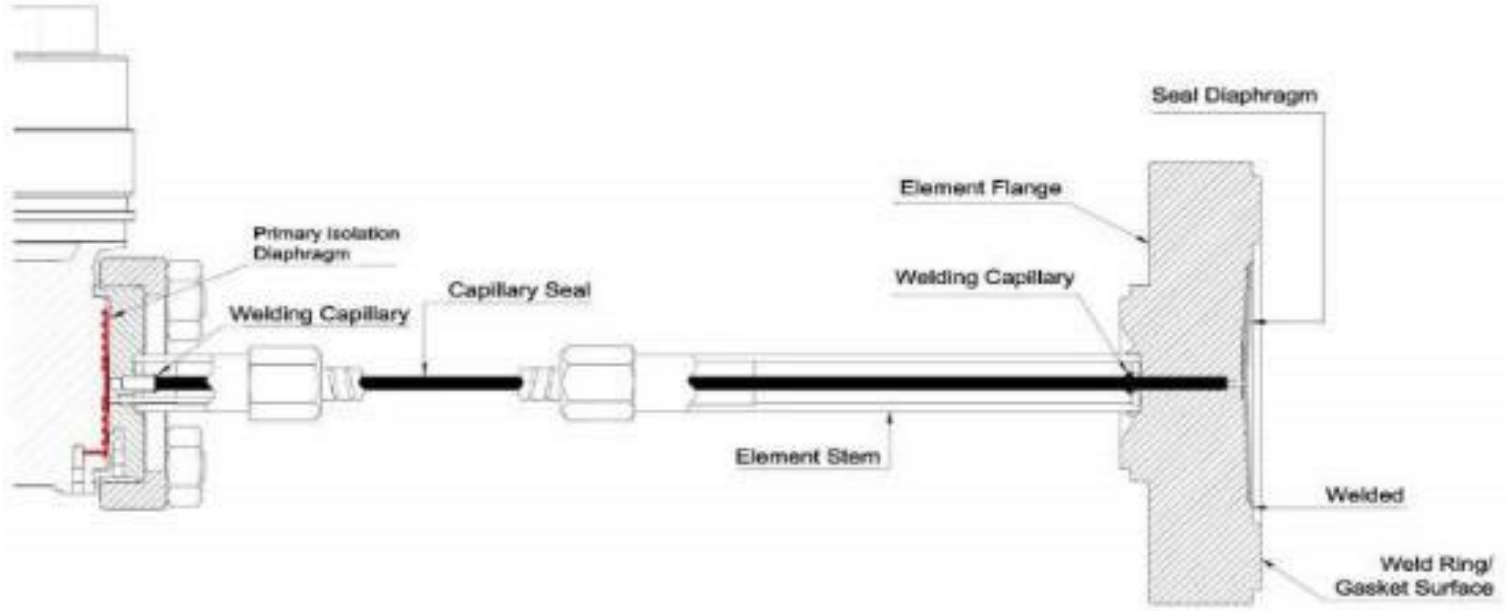
Pressure Measurement Made Easy – Top Quality Design

Remote Seals

- The entire assembly sensor-capillary-diaphragm seal does not feature gaskets or threaded joints
- All welded parts and hydraulic circuits are helium leakage tested
- The "**All-welded technology**" is worldwide recognized for delivering performance stability over time and delivered by default at no extra-price



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Pressure Measurement Made Easy – Top Quality Design

Own Manufactured & Engineered Diaphragm Seals

- Stainless Steel 316L
- Hastelloy C276
- Tantalum
- Hastelloy C2000
- Super Duplex UNS S32750 to ASTM SA479
- Inconel 625
- Inconel 718
- Monel 400
- Stainless Steel PFA (Teflon) Coated
- Stainless Steel Gold plated
- Diaflex (anti abrasion treatment)
- Tailor-made design items

FLANGES ACCORDING TO:	Diaphragm seal with fixed flange	Diaphragm seal with offline flange	Diaphragm seal with rotating flange	Wafer / Pancake style diaphragm seal with side handle.	Ring Joint Connection flanged diaphragm seal
ASME	S26FA	S26MA	S26RA	S2WA	S26RR
EN	S26FE	S26ME	S26RE	S26WE	
JIS			S26RJ		
ISO			S26RH		

Button diaphragm seal	Chemical tee diaphragm seal	In-line diaphragm seal	Urea service diaphragm seal	Threaded diaphragm seals for Pulp & Paper applications	Sanitary diaphragm seal according to 3-A.	Off-line threaded diaphragm seal.	Union Connection diaphragm seal	Off-line Socket and Saddle diaphragm seal
S26BN	S26CN	S26JN	S26PN	S26KN	S26SS	S26TT	S26UN	S26VN

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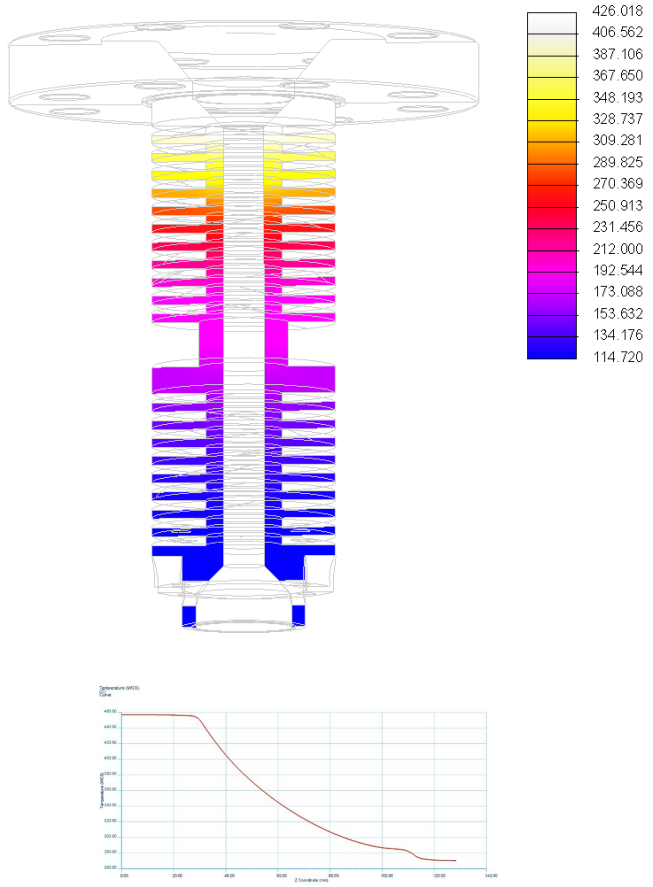
Pressure Measurement Made Easy – Top Quality Design

Cooling System

The Cooling System acts as a barrier to protect the electronics of the transmitter from a high process temperature. Some of the benefits are the following:

- Prevents the transmitter from becoming overheated
- Maintains fill fluid within operating viscosity and temperature limits.
- Sustains pressure transmitter overall high performance capabilities.
- Averts down-time due to extreme temperature related failures.



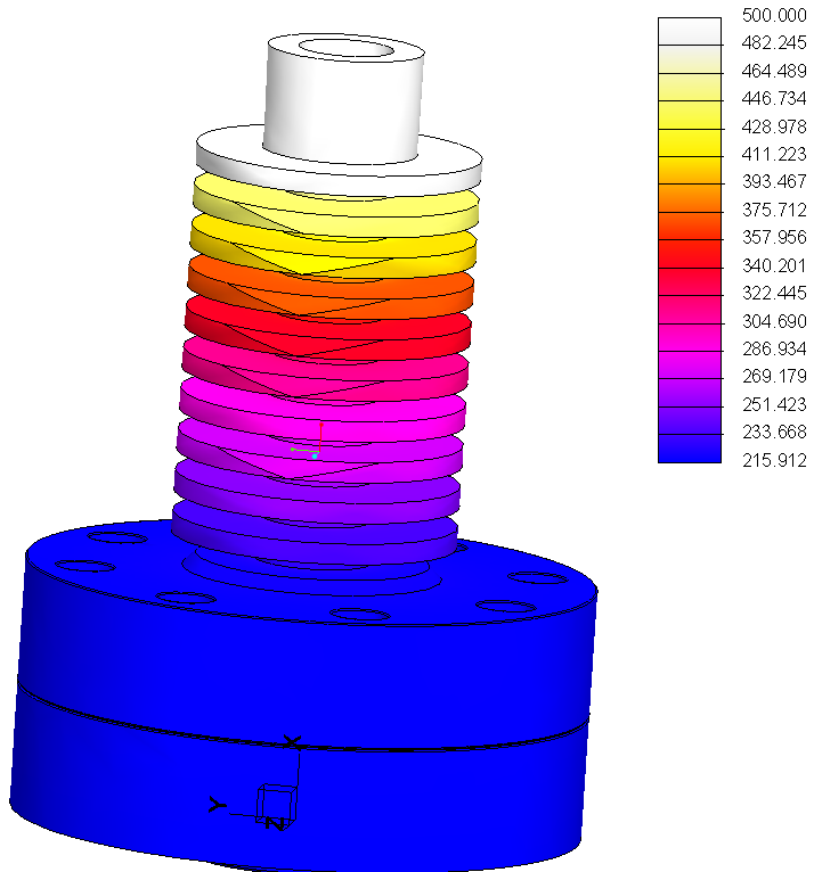


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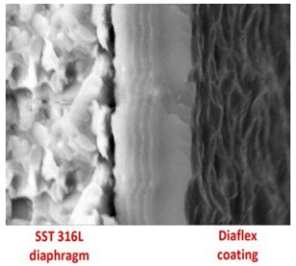
ABB unique technologies

Diaflex

Extremely high hardness and low friction mechanical characteristics:

- Stable up to 600°C.
- Nano-structured coating
- Titanium base composite
- PVD Physical Vapor Deposition - LARC technology
- Thickness : 3-4 µm
- 4000 HV rating on Vicker Hardness scale

Diaflex is available on front bonded connection, either with AISI or HC diaphragm substrate.



H-Shield

Extremely high resistance against Hydrogen permeation effect:

- Temperature up to 420°C.
- Nano-structured coating
- Titanium composite
- PVD Physical Vapor Deposition - LARC technology
- Thickness : 2-5 µm

H-shield (*) is available on the front bonded connection and double threaded ½ NPT F & M on PGS100.

Material	Ppm @ 230°C	Ppm @ 350°C	Ppm @ 420°C
HC	0,0011	0,0091	0,0199
AU	0,0009	0,006	0,0133
HSHI	0,00	0,00	0,0005

Elevate performances of ABB technologies grant device's longer operational life

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* AVAILABLE IN THE REMOTE SEAL CONFIGURATION VIA SR

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Pressure Measurement Made Easy – Top Quality Design

PFA

The red PFA coating is suitable for

- anti-stick and anti-corrosion effect
- superior chemical resistance at H-temperatures 482°F/250°C
- Advanced technology of PFA coating allows to apply a thickness up to 160µm

The grey PFA coating is suitable for:

- an anti-stick effect. it is applied on an AISI 316 L ss or Hastelloy C-276
- Outstanding properties of dry lubrication and surface hardness
- Thickness up to 25µm

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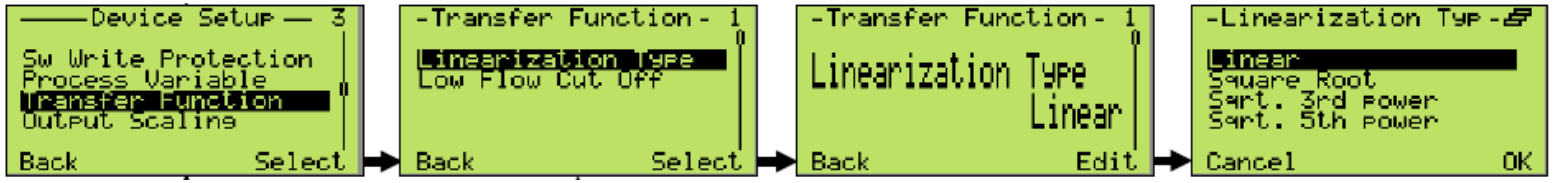
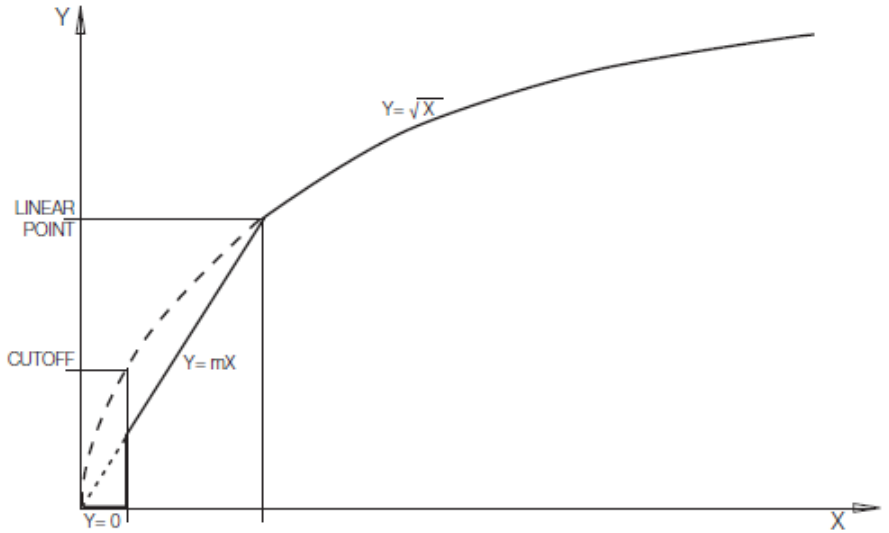
Pressure Measurement Made Easy – Functionalities

Available functions

- Linear for differential, gauge and absolute pressure or level measurements
- Sq. Root (x) for flow measurements using restriction type primary element, like orifice plate, integral orifice, Venturi or Dall tube and similar
- Sq. Root (x3/x5) for open channel flow measurements using rectangular or trapezoidal weir / V-notch (triangular) weir
- Bidirectional Flow
- 22 points custom linearization table
- Cylindrical lying tank
- Spherical tank





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Pressure Measurement Made Easy – In Field Diagnostics

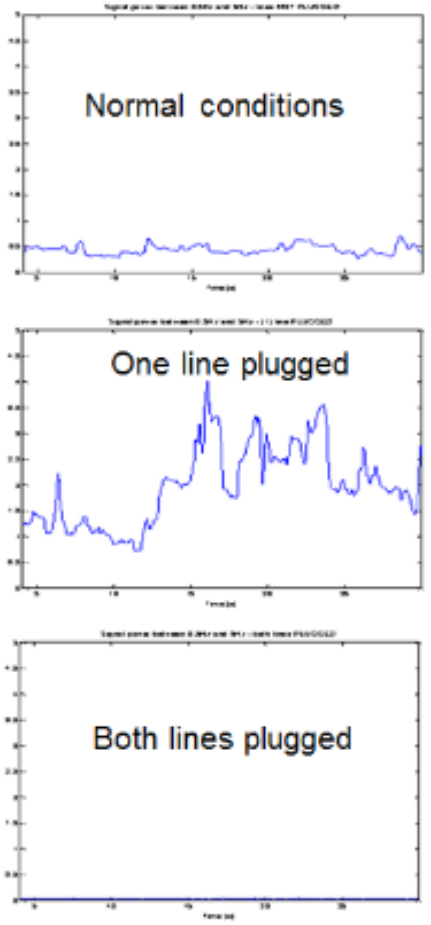
PILD – A predictive function for optimized maintenance

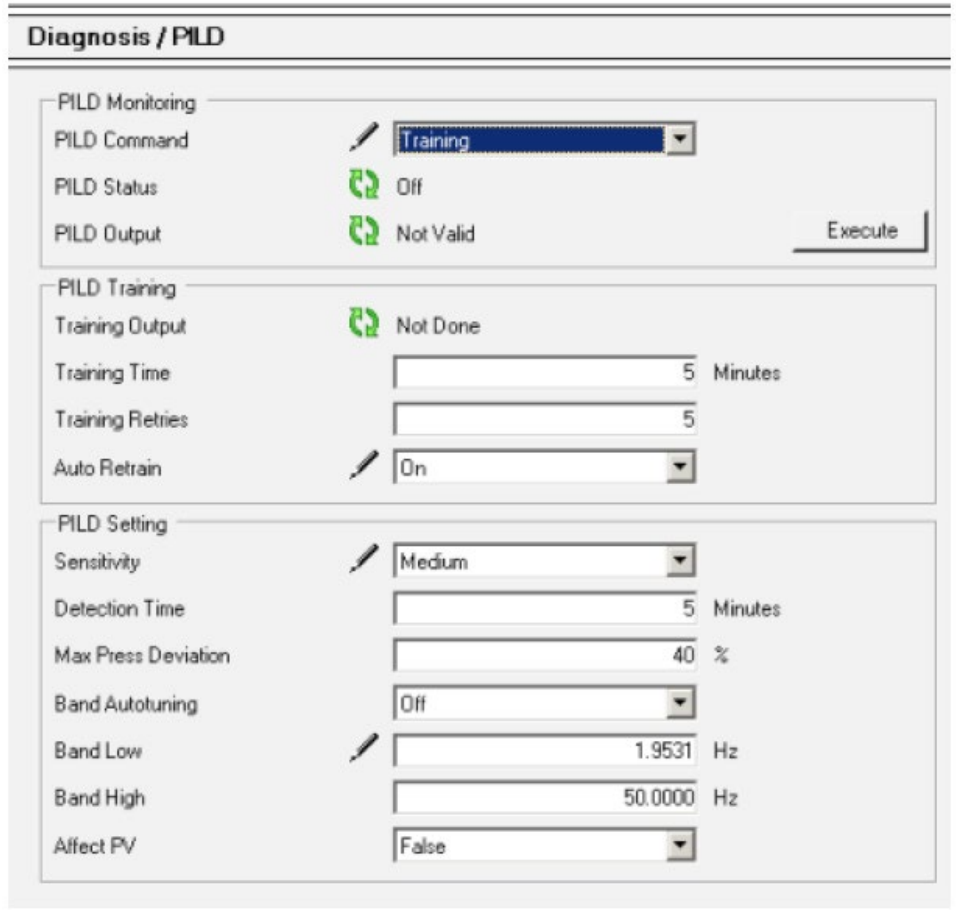
266 line has built-in advanced diagnostic functions to detect blockages in impulse lines called PILD (Plugged Impulse Line Diagnostic) for all communication protocols.

The transmitter will register an alarm and send a digital message or analogue alert when a preset blockage level is reached, in accordance to NAMUR standard.

Impulse lines can be blocked by solids in the process, increase in viscosity or the process freezing

Blocked impulse lines can result in expensive plant shutdowns





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Pressure Measurement Made Easy – In Field Diagnostics

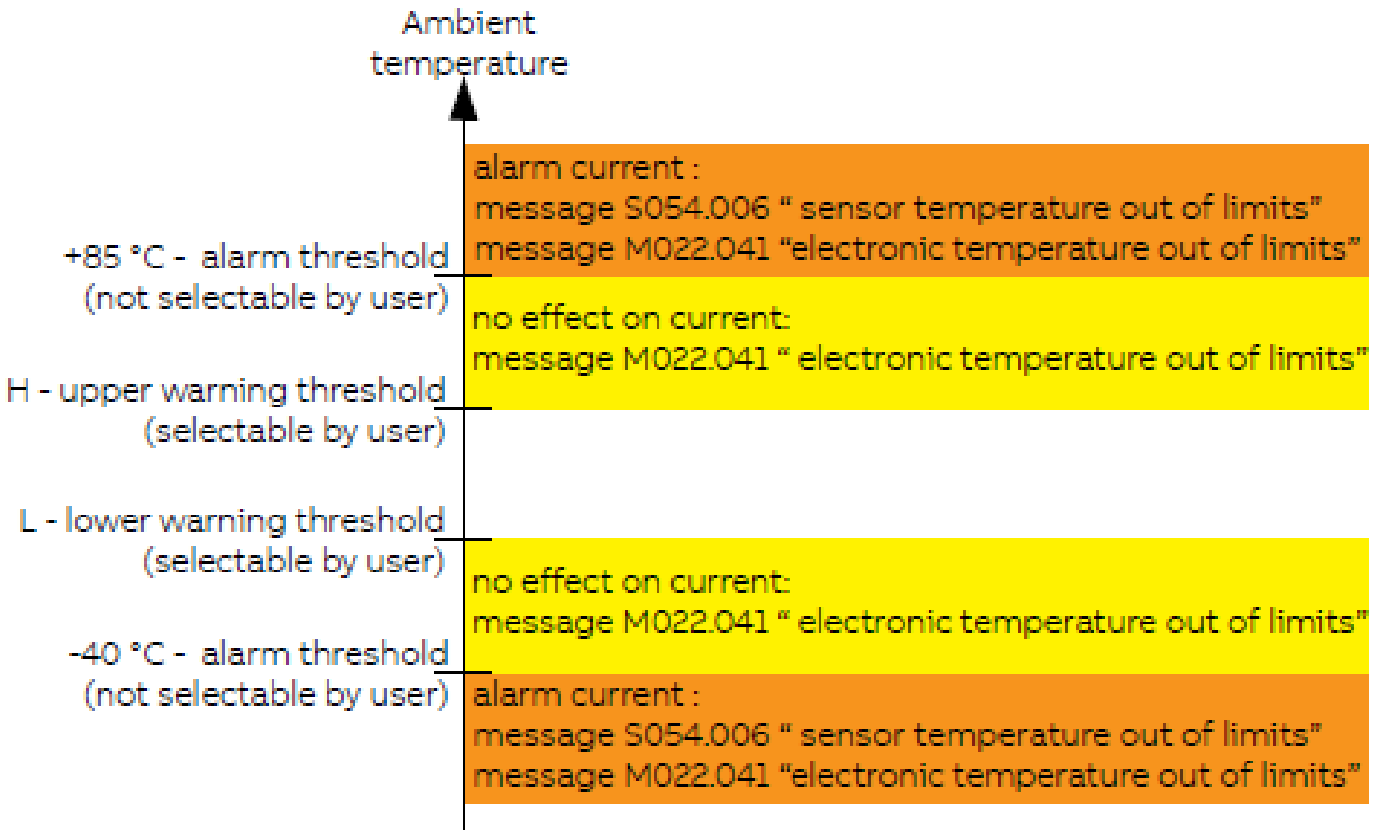
266 Additional Temperature Check

ABB 2600T devices certified by TUV are capable to retain functional safety capabilities after exposure to ambient temperature lower or higher than the functional limits (-40 / +85°C) with improved diagnostic:

Example:

- HART signal to send diagnostic alert message (example -10°C).
- ABB SIL 2/3 devices drives signal into alarm condition threshold are exceeded -40°C (or +85°C).

Performance always recovers stated accuracy when device return within standard operating conditions.



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266 Series - All-Rounder Pressure Transmitter

Software features

- Additional temperature check
- Embedded transfer functions
- Predictive maintenance through PILD

Wide environmental & measurement conditions:

- Multiple HazLoc Certifications
- Diaflex and H-Shield* seal nano-coating
- SIL2/SIL 3 for safety loop applications)
- All-welded remote seal tech & tailor made designs (SR)

S26

Functional advantages

- True DP dual sensor (Static)
- Up to 600bar static pressure resistance
- Ultra / Top Accuracy (0,025% / 0,04%)
- Low Voltage structure

Configuration features

- Through The Glass
- Easy set up, even via external pushbuttons
- Multiple communication protocols & modular electronics

Customer benefits

- Low maintenance cost due to modular electronic and easy access terminal boards. Less operator time spent in the field
- Higher productivity from capability to configure in field via TTG or external pushbuttons (R1) even in hazardous areas
- Lower cost of ownership thanks to process resistance (Diaflex/H-Shield, all welded remote seals, SR designs)
- Improved productivity as failures can be anticipated/avoided (PILD, additional Temp check)

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* AVAILABLE IN THE REMOTE SEAL CONFIGURATION VIA SR

266 DDS - Digital Diaphragm Seal

Meeting customer needs

"The response time for the remote seals is too high for my critical applications."

"I would like more info from my devices, so I can put more process monitoring and control in place."

"When the ambient temperature changes, I see a drift in the measure I need."

"In case there is a failure on a tank, if the measure is done with DP remote seal, I have to change the entire capillary system."

"Since my installations are in places with high temperature swings, I need to heat trace capillaries to ensure the correctness of measures (i.e. head effect)."

"Installing a remote seal on a vessel requires a lot of time and effort: you always have to be careful about the capillary position."

ABB's Value Proposition

DDS – Digital Diaphragm Seals

Improved Performances

Product Features:

- No oil-based capillary
- Capability of extra long cable (up to 150 mt) for tall vessels
- Highest pressure (1050 bar) and overpressure limit (1575 bar)
- Contemporary single-device and combined-devices data

Customer Benefits:

- Up to 95% lower response time
- Minimized temperature effects impacts (higher accuracy, no head effect)
- Increase data availability for deeper monitoring opportunity
- No wet/dry leg maintenance

Minimized Cost Impact

Product Features:

- Independent Primary & Secondary devices
- Modular components' structure
- Single 2-wire 4-20mA loop with single zeroing and calibration

Customer Benefits:

- Lower installation cost (no heat tracing, less operator time)
- Lower maintenance cost (i.e single items intervention)
- Lower operator time in installation and commissioning
- Economy of scale and flexibility on cable provision

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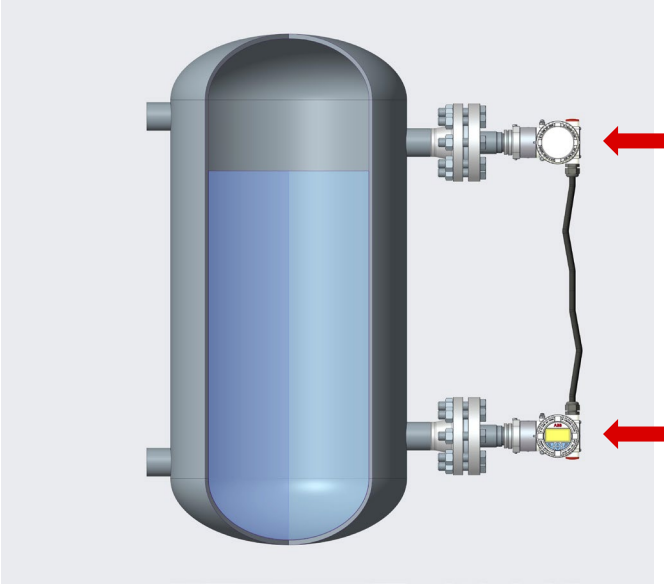
Product Look and Feel

DDS – Digital Diaphragm Seals

Overall specs

- Extension of the 266 available portfolio
- L1 display with common HMI
- Hazardous Area Certified (ATEX , IECEx, FM)
- IP66 & IP67 protection
- SIL certified*
- C5 compliant stainless-steel housing
- Additional external push-button for haz-loc configuration
- Wide seal portfolio available
- ABB unique coatings available: Diaflex, H-Shield, PFA
- Possibility of custom connection via Engineering to Order (SR)

Technical Solution: combined P devices



- Gauge Secondary device
- Blind transmitter

- Gauge Primary device
- Display available
- Calculation embedded in the electronics

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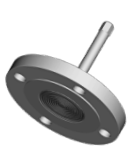
* SIL certified version pending.

An overview on the seals offering - Materials

DDS – Digital Diaphragm Seals




DIRECT MOUNT CONNNECTIONS ACCORDING TO:	Diaphragm seal with fixed flange	Diaphragm seal with offline flange	Diaphragm seal with rotating flange	Ring Joint Connection flanged diaphragm seal
ASME	S26FA	S26MA	S26RA	S26RR
EN	S26FE	S26ME	S26RE	
JIS			S26RJ	
ISO			S26RH	



ABB OWN DESIGNS CONNECTIONS:	Threaded diaphragm seals for Pulp & Paper applications	Sanitary diaphragm seal according to 3-A.	Off-line threaded diaphragm seal.
	S26KN	S26SS	S26TT

Available Materials for the connections:

- Stainless Steel 316L
- Hastelloy C276
- Coated Stainless Steel (Gold plated / Anti-stick / Anti-corrosion)
- Diaflex and H-Shield
- Tantalum
- Monel 400
- Hastelloy C2000
- Super Duplex UNS S32750 to ASTM SA479
- Inconel 625 / 718

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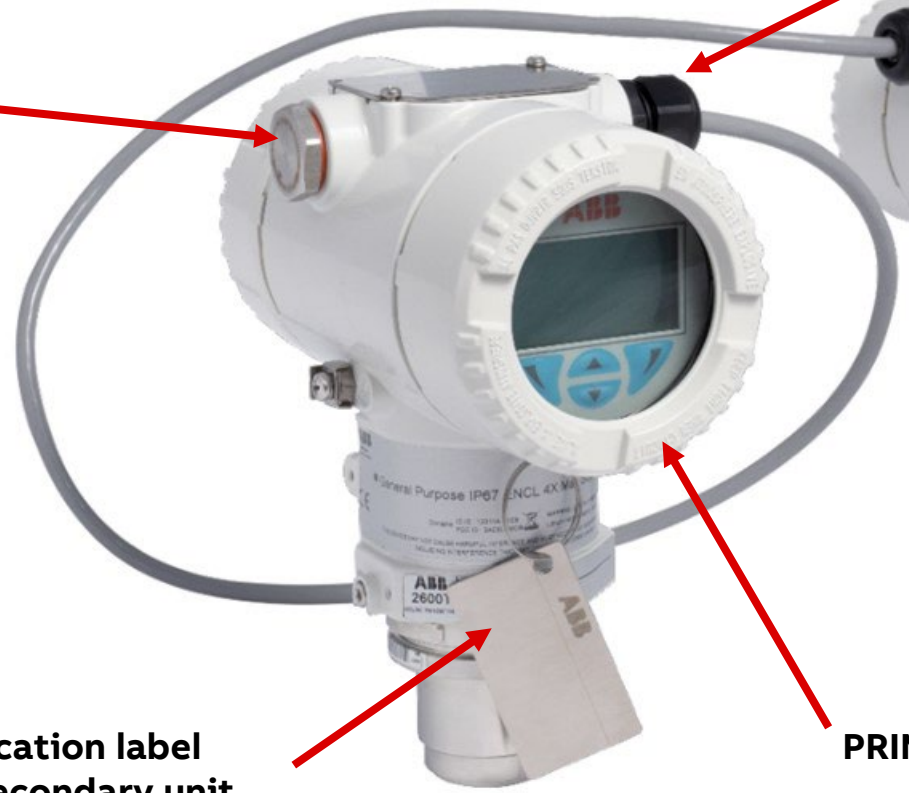
Product look and feel

How does an installed DDS system look like?



Cable gland*

Conduit metal plug*

SECONDARY UNIT

Primary / Secondary communication cable*

Identification label (with Secondary unit Serial & common Tag)

PRIMARY UNIT

Identification label (with Primary unit Serial & common Tag)

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*Accessory are not included and mounted in standard delivery

DDS – Accessory List

Which compatible accessories do we have with DDS?

Cable glands:

- M20x1,5 Ex ia cable gland
- M20x1,5 Ex d cable gland
- ½ NPT Ex ia cable gland
- ½ NPT Ex d cable gland

AISI plugs:

- M20x1.5 stainless steel plug (Ex d)
- 1/2 NPT stainless steel plug (Ex d)

Electronic cables:

- Cable for general purpose installations
- Cable for hazardous areas installations

When ordering cables, please remember that unit of measure is meters!

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Target Markets and Potential Applications

DDS – Digital Diaphragm Seals

- DDS are though for specific markets:
  - Oil & Gas
  - Refining
  - Chemical
  - Less frequent: F&B, Power Generation

- These markets in fact require applications, mainly level measurement, where performance of standard remote seal are sometimes not enough.

- These application can be:
  - Chemical components storage tanks
  - Separation tanks (oil from water and gas)
  - Pressurized heater-treaters
  - Crude / Processed Oil storage tanks
  - Exhaust pressure of flue gas
  - Pipeline pressure in dairies
  - Steam pressure control
  - Pressure monitoring in LNG tanks

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How does it work? Comparison with a traditional remote seal

Base case: 266MRT with direct mount and 4mt capillary seal

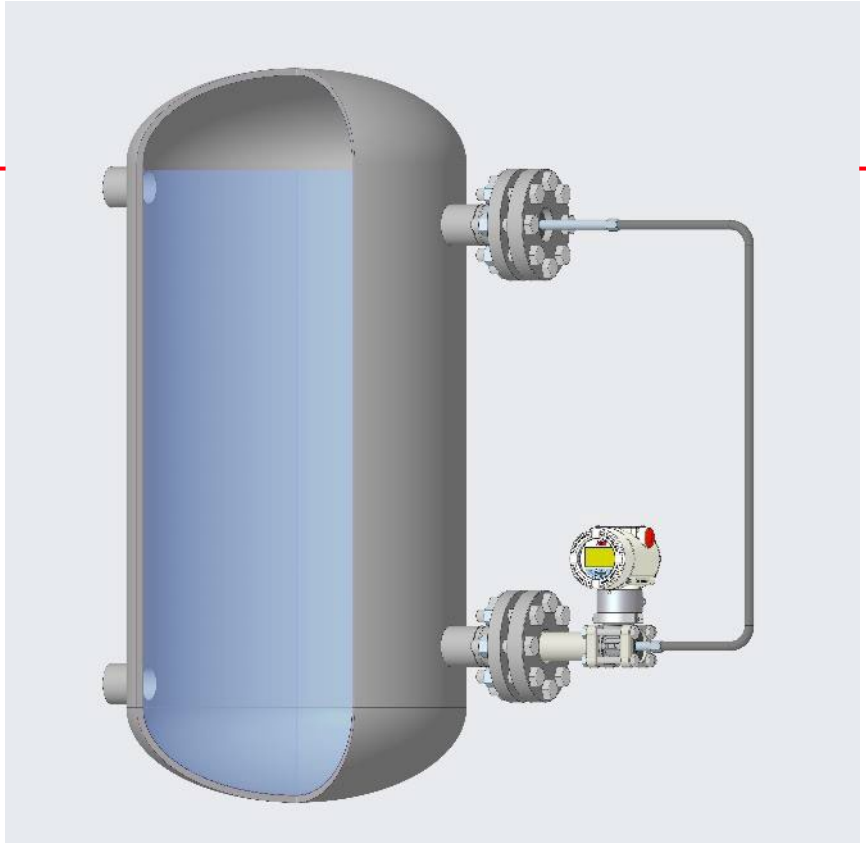
Installation

→ **Conditions:**

- 8 mt pressurized tank (Static pressure = 2 bar)
- DP level: 250 mbar
- Ambient temperature: -10° C to +10°C
- Distance between the taps: 4 mts

→ **Model configuration:**

- 266MRT with 400 mbar sensor
- Calibration: 0-250mbar
- Capillary: silicon filling
- Connection: one direct + one remote
- Size:2” stainless steel flush flange as per the specs of the S26FA seal model.



Performance

TPE: **0,470%**
Response time: **1,84 sec.**
Head effect: **3,099%**
Total Error: 3,569%

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How does it work? Comparison with a traditional remote seal

Base case: 266MRT with two 4mt capillary seal

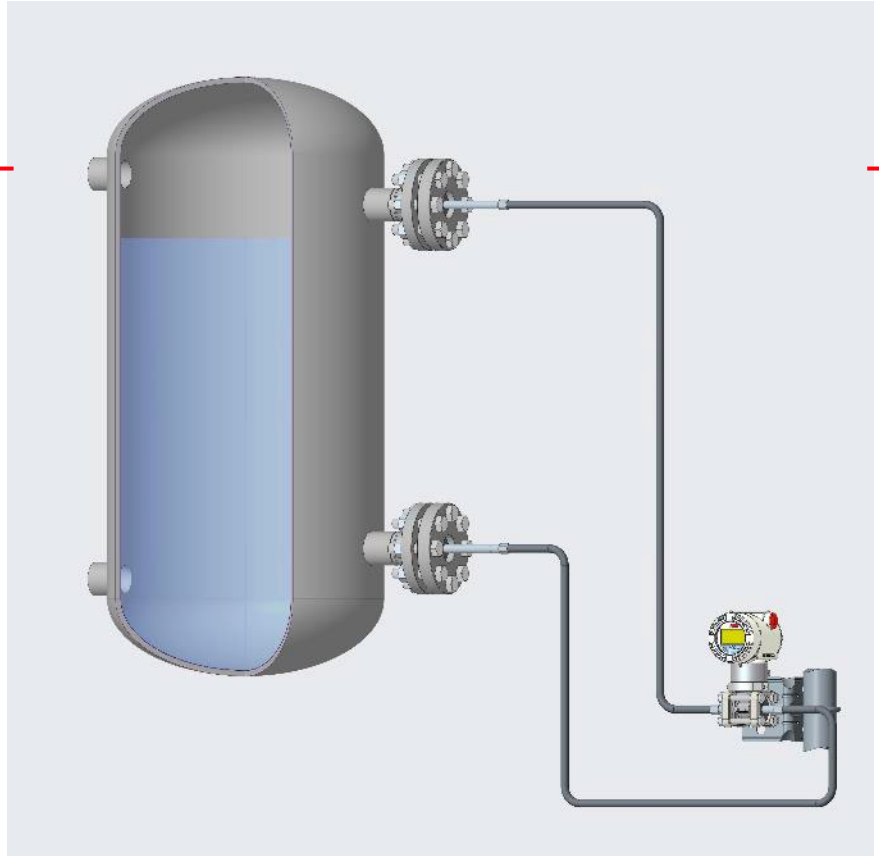
Installation

Conditions:

- 8 mt pressurized tank (Static pressure = 2 bar)
- DP level: 250 mbar
- Ambient temperature: -10° C to +10°C
- Distance between the taps: 4 mts

Model configuration:

- 266MRT with 400 mbar sensor
- Calibration: 0-250mbar
- Capillary: silicon filling
- Connection: two remote
- Size:2” stainless steel flush flange as per the specs of the S26FA seal model.



Performance

TPE: **0,163%**
Response time: **3,11 sec.**
Head effect: **3,099%**
Total Error: 3, 262%

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How does it work? Comparison with a traditional remote seal

DDS case: two 266GRT direct mount

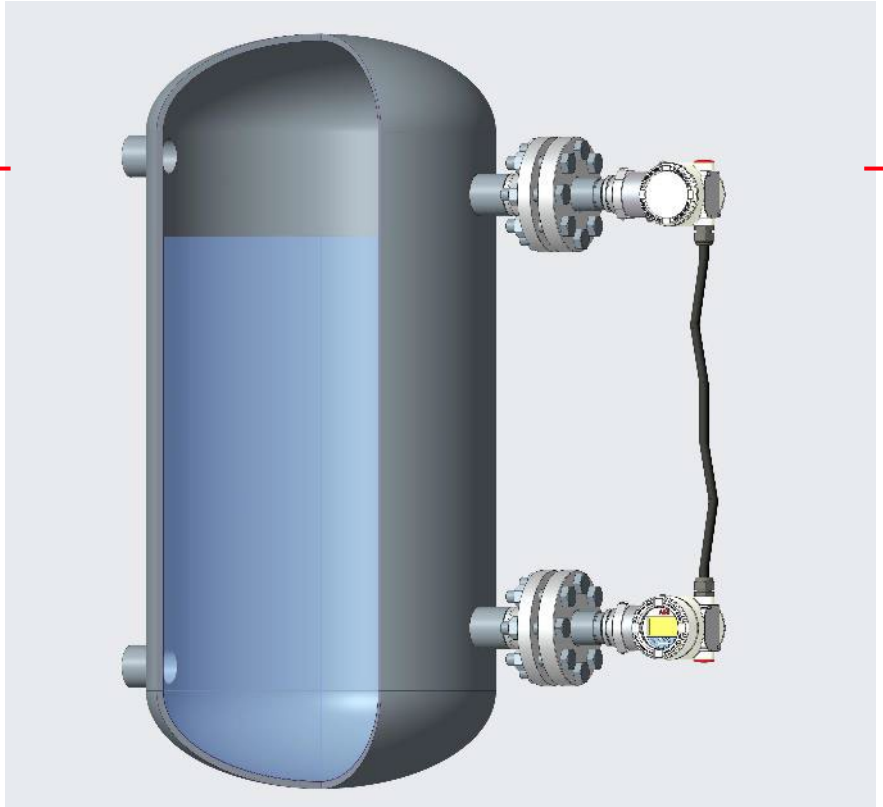
Installation

Conditions:

- 8 mt pressurized tank (Static pressure = 2 bar)
- DP level: 250 mbar
- Ambient temperature: -10° C to +10°C
- Distance between the taps: 4 mts

Model configuration:

- 2x 266GRT with 2500 mbar sensor
- Primary device Calibration: 0-250 mbar
- Secondary device Calibration: 0-2500 mbar
- Capillary: silicon filling
- Connection: direct mount
- Size:2” stainless steel flush flange as per the specs of the S26FA seal model.



Pefomance Comparison

266 GRT Digital Diagphram Seals

TPE: **0,655%**
Response time: **0,84 sec.**
Head effect: **NO**
Total Error: 0,655%

266MRT Direct & Remote Seals

TPE: **0,470%**
Response time: **1,84 sec.**
Head effect: **3,099%**
Total Error: 3,569%

266MRT Remote Seals

TPE: **0,163%**
Response time: **3,11 sec.**
Head effect: **3,099%**
Total Error: 3, 262%

©ABB

ABB Measurement & Analytics

266 Series - Digital Diaphragm Seal (DDS)

Functional advantages

Cable length up to 150 mt

Modular construction

Electronic pressure measure data transfer

Wide environmental & measurement conditions:

Multiple HazLoc Certifications

Diaflex and H-Shield* seal nano-coating

Wide process temperature range

Communication protocols

4...20 mA

HART

fFieldbus

Configure & Communication

DD & DTM

4...20 mA / HART

Full local configuration via display

Customer benefits

- Reduced maintenance costs due to modular construction of the DDS solution (2 coupled devices).
- Reduced total operational costs due to elimination of temperature-drive drifts and lower installation costs.
- Improved performances thanks to reduced response time & increased accuracy
- Increased flexibility thanks to widest URLs span & longest sensor cable
- Improved productivity in case of substitution of old standard oil-filled capillary remote seal

266 Wireless Deep Dive

ABB WirelessHART Transmitter

ABB's Wireless Measurement Technology

Under pressure

- Modern “Resonant Inductive” Technology
- Electronic optimized for ultra low power operation
- Easy on-site operation – due to large LC display
- Available for gauge, absolute and differential pressure
- Available with S26 diaphragm line
- Hardware and software write protection
- Power supply with standard battery
- Intrinsic safety for hazardous areas

Wireless Pressure Measurement – 2600T

WirelessHART

©ABB

ABB WirelessHART Transmitter

Why Choose ABB?

Easy operating concept

- The ABB WirelessHART transmitter uses the standard display of measurement and analysis technology.
- The entire device can be commissioned through the display – from the sensor to the antenna.
- To save energy, the display is deactivated after a short period of inactivity and can be activated at the device at any time.
- The local HART interface allows you to use the device with usual configuration tools.

Maximum usability with minimum training.

©ABB

ABB WirelessHART Transmitter

Why Choose ABB?

The battery is the key

Batteries make the WirelessHART transmitter easy and quick to install. The use of batteries offers

Benefits

+ Sufficient power
+ Cheap
– Finite energy reserves

Drawbacks:

– Total maintenance costs for battery replacement
  ➔ Procure, exchange and document.

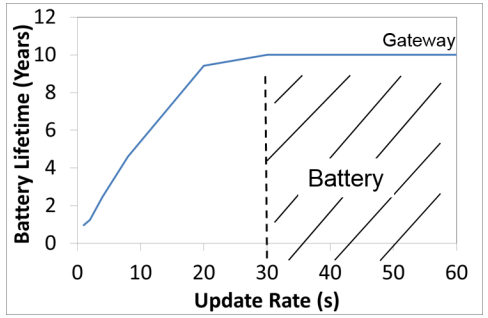
Unique:

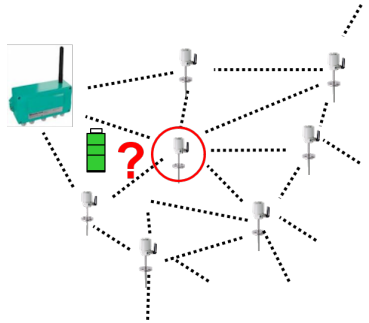
The ABB WirelessHART transmitter reduces the replacement interval of the battery to a minimum.

Maximum service life with minimum maintenance.

State of the art

Battery life	Update rate
5 years	8 seconds
8 years	16 seconds
10 years	32 seconds





©ABB

ABB WirelessHART Transmitter

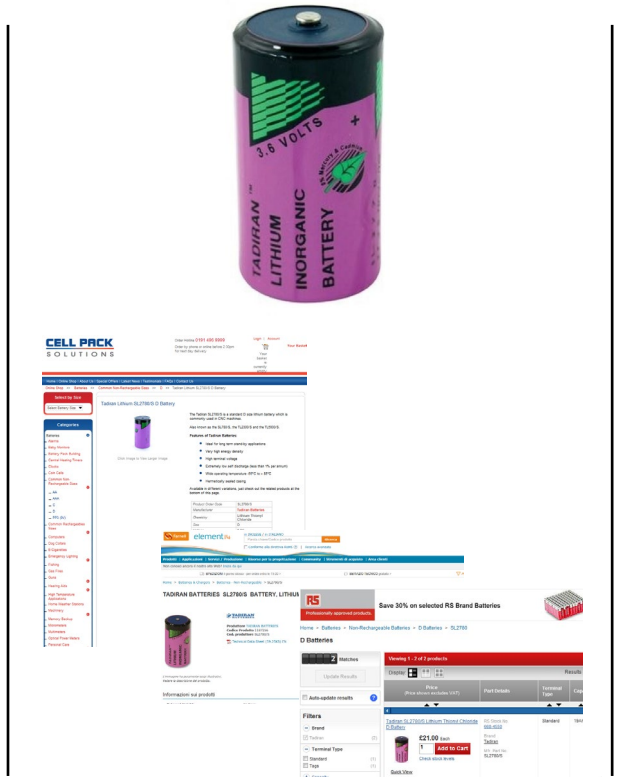
Why Choose ABB?

Easy to procure standard batteries

- The ABB WirelessHART transmitters use standard D-cells instead of special batteries.
- Standard D-cells are widely available.

- D-cells for use in potentially explosive atmospheres must be purchased from ABB.
- D-cells for use in potentially explosive atmospheres are intrinsically safe and may be hot-swapped in Zone 0.

Maximum availability at minimum cost.



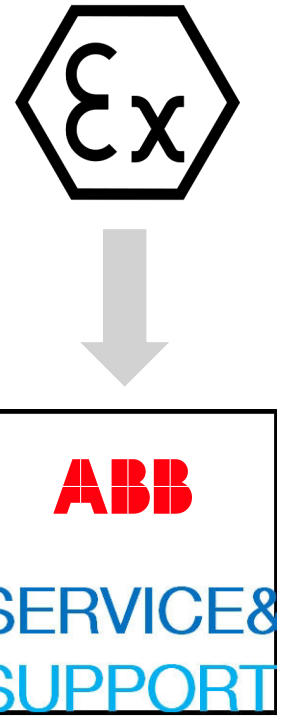


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ABB WirelessHART Transmitter

Why Choose ABB?

Complete wireless offer

ABB offers

- wireless transmitters,
- wireless condition monitoring,
- wireless I/O and IP networks,
- seamless integration with ABB control systems and therefore a complete system offer.

Project execution and system integration expertise

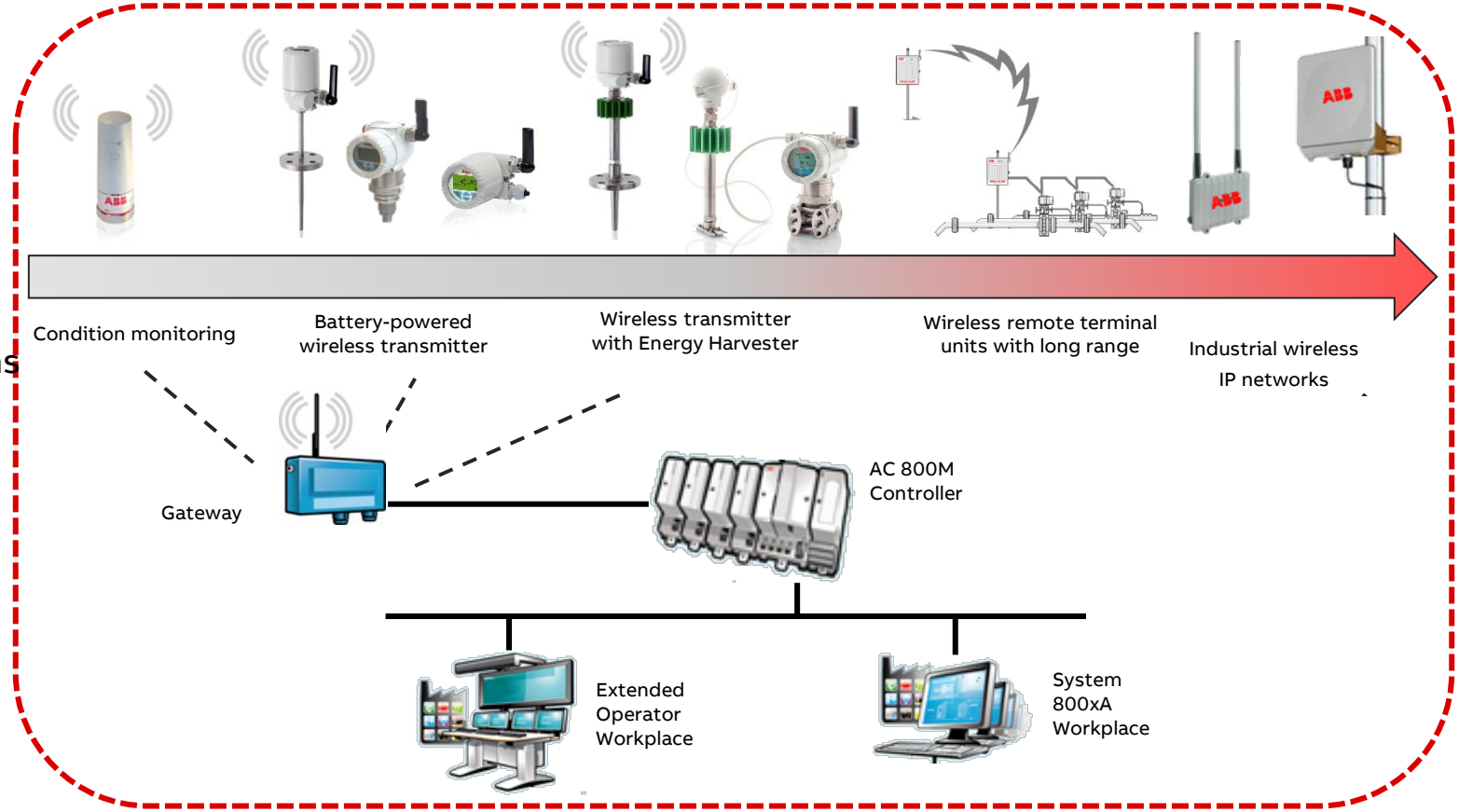

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ABB Measurement & Analytics

266 Series - Wireless Pressure Transmitter

Multiple power options

10 years of standard battery

Harvester compatible*

Wide environmental & measurement conditions:

Ex Intrinsically safe

Diaflex and H-Shield*** seal nano-coating

Multiple Pressure measurement (Abs, Gauge and Differential)

Installation – fast & easy

Fast connection to any existing net

Retrofitting & no electrical background needed

Configuration features

Through The Glass

FIM, DD & DTM

Customer benefits

- Longest battery life in the market resulting in lower cost of ownership
- Standard battery D-Cell type resulting in lower cost of ownership
- No need for cables % related activities, resulting in lower cost of ownership (30% lower**)
- Plug & Play behavior in installation allow operators to increase their productivity. Even in HazLoc!

©ABB

* AVAILABLE VIA SPECIAL REQUEST
**FOR A 30 A/I INSTALLATION AND DATA COLLECTION IN GP AREA
*** AVAILABLE IN THE REMOTE SEAL CONFIGURATION VIA SR

266 Multivariable Deep Dive

ABB Measurement & Analytics

266 Series - Multivariable Transmitter

The 4-in-1 solution

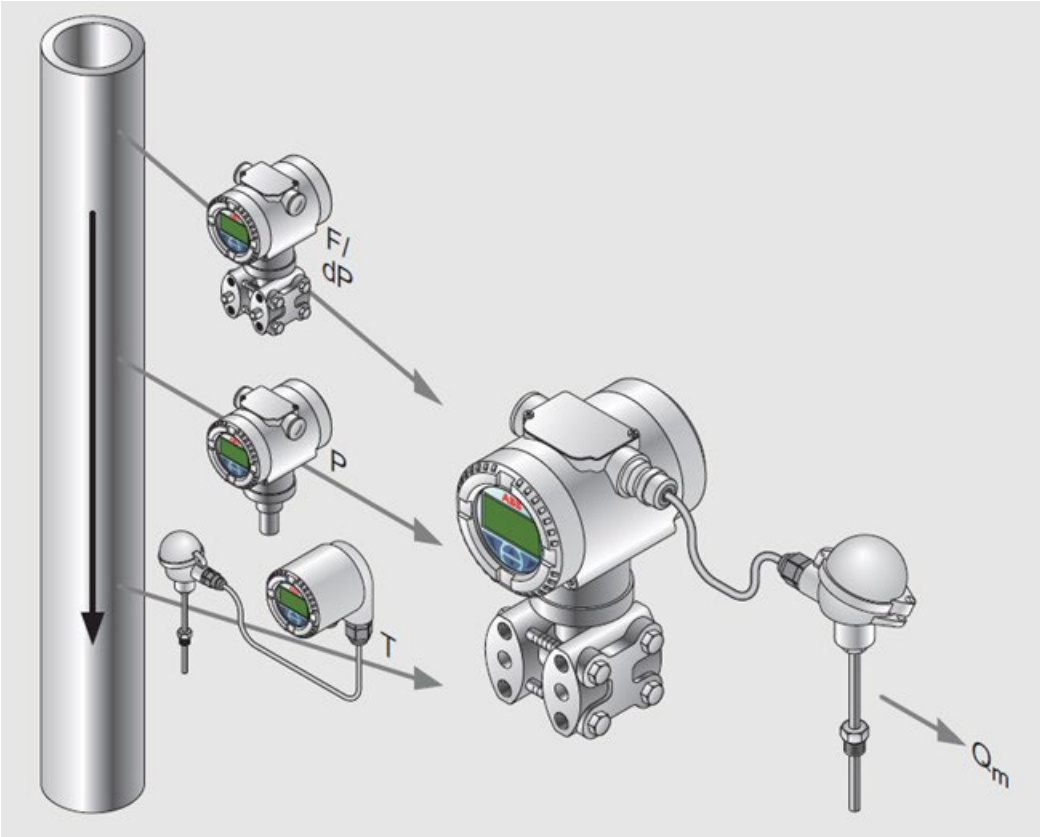
Measurement of 3 process values

- Differential pressure
- Absolute pressure
- Temperature

Integrated calculation functionality of a flow computer

- Calculation of flow with compensation
- Compensated level measurement for gases, steam and liquids

DP accuracy up to 0,04%
Pabs accuracy of 0,1%



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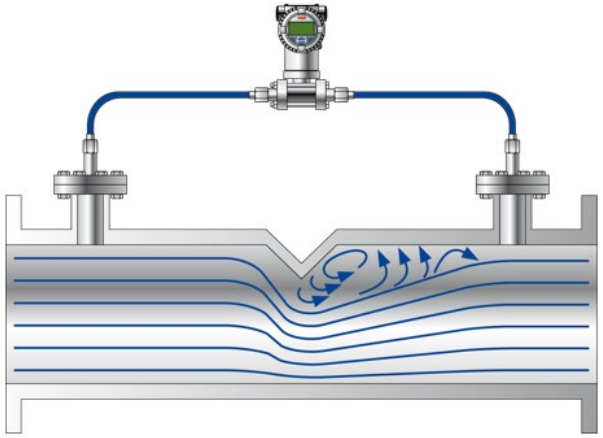
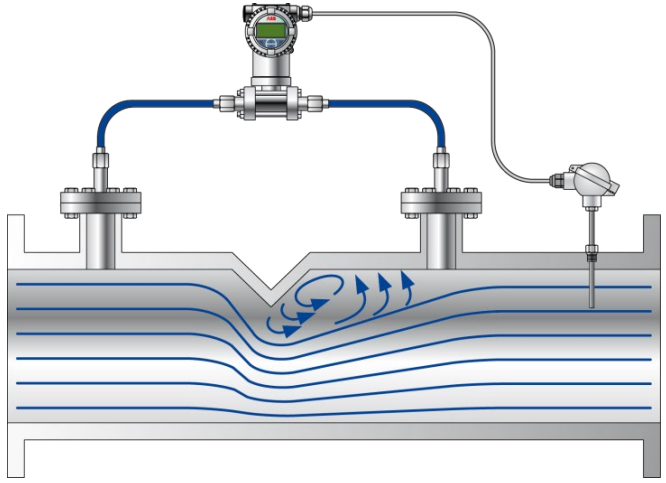
266 Series - Multivariable Transmitter – Difference with DP

Volumetric Flow



$$Q_V = K\sqrt{DP}$$

Mass Flow



$$Q_m \sim C \cdot E \cdot \varepsilon \cdot d^2 \sqrt{dp \cdot \rho}$$

Volumetric flow does not take into account density, which is the main contributor to inaccurate measurement

ABB Measurement & Analytics

266 Series – Multivariable Transmitter – Density impact

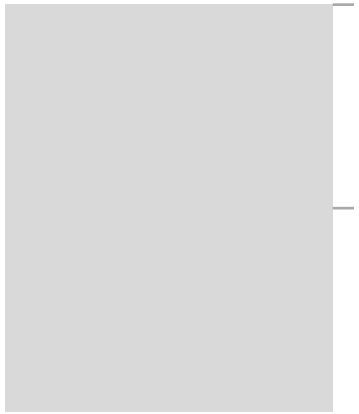
Base Condition

Pressure
(Mass constant)

1 bar / 14,5 psi

Temperature

20 °C / 68 °F



Volume

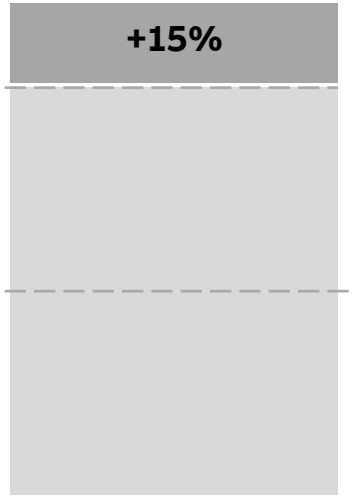
Temperature Variation

Pressure
(Mass constant)

1 bar / 14,5 psi

Temperature

60 °C / 140 °F



Volume

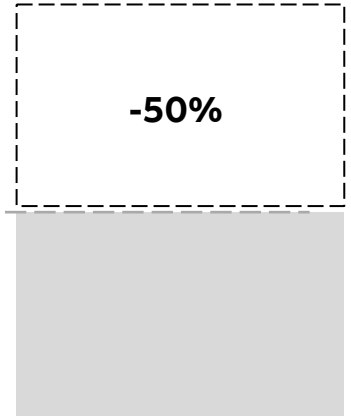
Pressure Variation

Pressure
(Mass constant)

2 bar / 29 psi

Temperature

20 °C / 68 °F



Volume

The density of gases changes with temperature and pressure.

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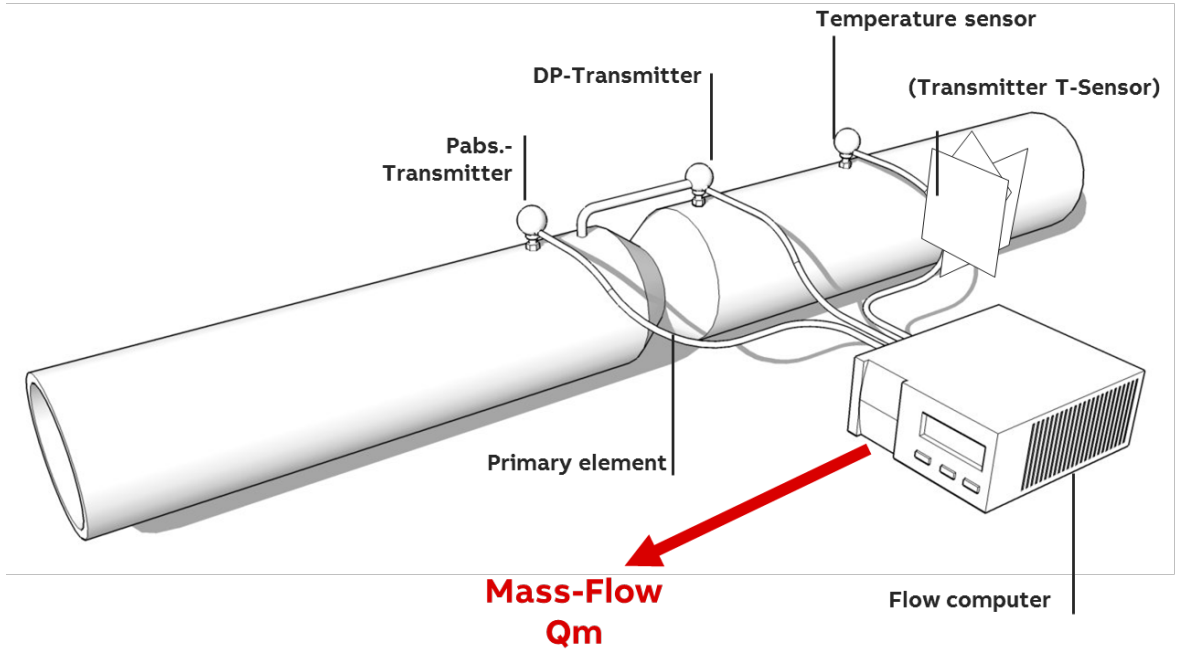
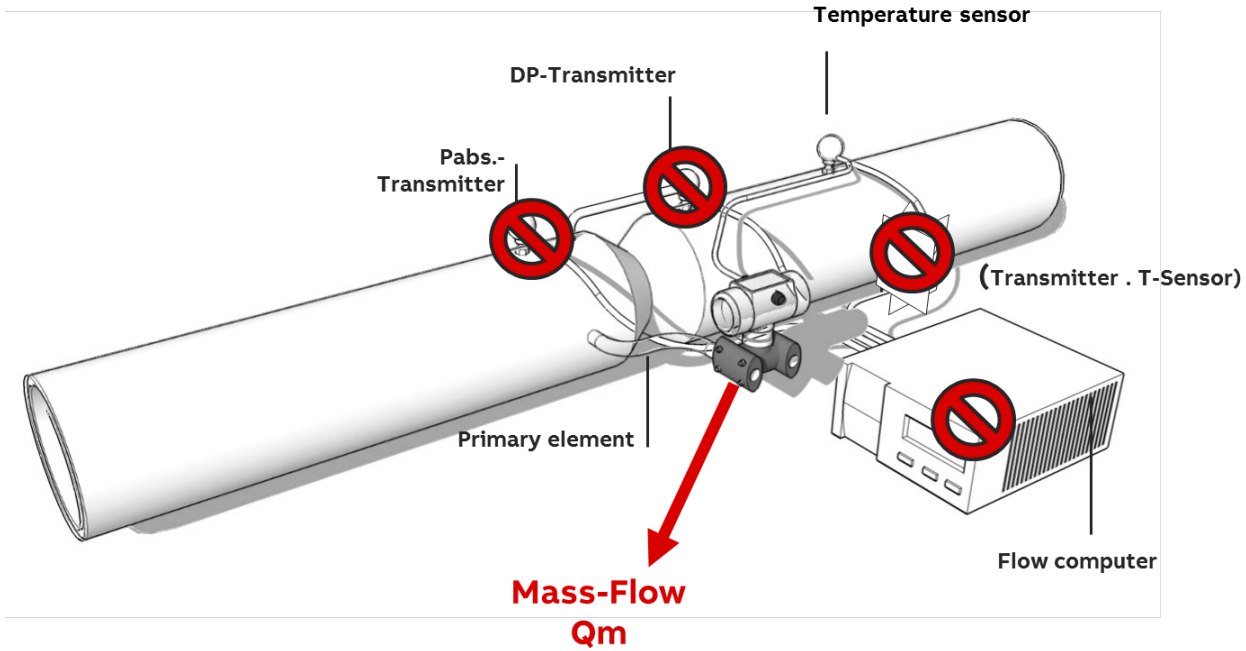
266 Series – Multivariable Transmitter – Installation

Standard approach to flow measurement



Multivariable approach to flow measurement



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266 Series – Multivariable Transmitter – An example of the accuracy advantage

Errors from normal to max flow (750 to 1000 SCFM)

Source of error	Error without compensation	Error with dynamic compensation
Transmitter	0,22%	0,22%
Primary Element	1,2%	0,6%
P,T Variation	2,8%	0,35%
	4,22%	1,17%

Performance and accuracy are improved using 266 Multivariable transmitter

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ABB Measurement & Analytics

266 Series - Multivariable Transmitter

ABB Models offering

266Jxx (3 in 1 solution without calculation)

- Multiple measurement of process values
- Differential pressure
- Absolute (line) pressure
- Process temperature

266Cxx Calculation functionality (flow computer) included

- Mass flow for gases, steam, and liquids by means of dynamic compensation
- Heat flow for water and steam
- Level measurement with density compensation
- Boiler drum level

Measuring ranges

Process variable	Measured value
DP	0.05 kPa to 10 MPa 0.2 inch H2O to 1450 psi
P	up to 41MPa / 5945 psi
$T_{Process}$	-200 °C to 850 °C -328 °F to 1562 °F

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ABB Measurement & Analytics

266 Series - Multivariable Transmitter

OGP & Chemical

Pulp & Paper

Food & Beverage

Power

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ABB Measurement & Analytics

266 Series - Multivariable Transmitter advantages

Accurate, reliable and convenient

Combined with manifold, connection hardware and/or primary elements into a single package, it reduces capital expenditures by 55%

Simplicity with reduced costs

Simplifies the piping and greatly reduces the number of leak paths, by as much as 70%

"Right first time" installations

Factory assembled, tested, configured and provided with a factory calibration certificate

Simple to use with easy features

User friendly HMI, allowing "Through-the-glass' control

Reliable measurements

Process diagnostics continuously monitor for impulse line plugging or freezing

Safety by design

Product is designed according to safety principles, both from mechanical and FW point of view, such as the SIL or the Explosion proof requirements.

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ABB Measurement & Analytics

266 Series - Multivariable Transmitter

Communication protocols

4...20 mA

HART

Modbus

Wide environmental & measurement conditions:

Multiple HazLoc Certifications

Diaflex and H-Shield* seal nano-coating

SIL2/SIL 3 for safety loop applications)

Functional advantages

3 process variables: Pressure, Static and Temperature

Compensated calculation of Flow and Level

Q_m / L

Top Accuracy (0,04%) & High Static (up to 41 Mpa)

Predictive maintenance through PILD

Configuration features

Through The Glass

FIM, DD & DTM

Customer benefits

- Reduced cost of ownership and installation due to multiple transmitter avoidance. As well all accessory costs (i.e. valves, wet legs, electrical connections) for standard flow/level calculation are zeroed.
- Lower commissioning cost due to full local configurability and hence potential HHT avoidance.
- Increased productivity of plant delivering high performances in demanding applications like high static line pressure pipes, high temperature processes or hazardous locations.
- Increase productivity thanks to advanced issue detection by PILD and longer seal life with Diaflex on abrasive, sticky or hard processes.

©ABB

* AVAILABLE IN THE REMOTE SEAL CONFIGURATION VIA SR

Pxx100 Series Deep Dive

PxS100 – The Standard Essential transmitter

PxS100 – The Essential Pressure Transmitter

Positioning Outlook | Target markets for PxS100 are:

WATER & WASTEWATER

CEMENT & MINING

PULP & PAPER*

ANCILLARY (POWER&METALS)

OEM & MACHINE BUILDERS

*together with PxP100 dedicated model

PxS100 – The Essential Pressure Transmitter

Features and Benefits

Configuration and interoperability

ABB unique technologies against abrasion and permeation

High visibility touch HMI with backlight option

Easy operation

Flexible process connections

Wide choice of pressure ranges

Compact Stainless-Steel housing

Fast delivery

Robust front-bonded connection

©ABB

PxS100 – The Essential Pressure Transmitter

New high visibility HMI with backlit display

The new HMI has:

- high visibility thanks to
  - Wide display dimensions (2 inches)
  - Backlight option
- improved touch response for best interaction

Display menu is constructed with intuitive and easy interaction logic similar to the existing ABB navigation standards.

On top, the multiple-teeth HMI board grants full flexibility in setting any position for display readability, with a +180°/-180° rotation available.

©ABB

PxS100 – The Essential Pressure Transmitter

Flexible process connections: Threaded Adapters Modularity

Double threaded connection

Threaded adapters

Equivalent models

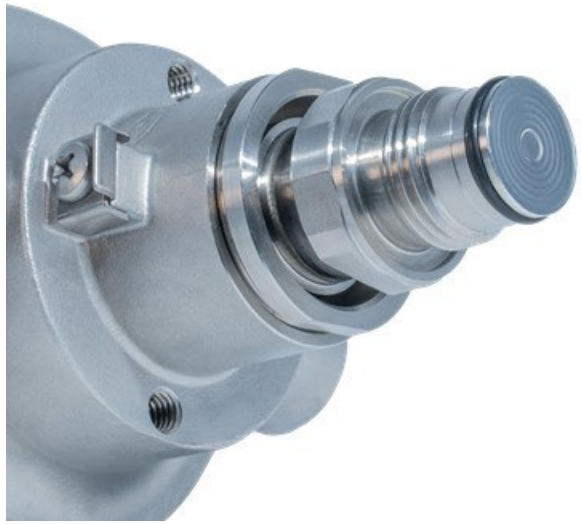
One single sensor can drive up to more than 300 equivalent models combining adapters, turndown and certification options

©ABB

PxS100 – The Essential Pressure Transmitter

Flexible process connections: Threaded Flanges Modularity

Front bonded connection



Threaded flanges

Direct mount seal equivalent models

One single sensor can drive up to more than 400 equivalent direct mount seals combining flanges, turndown and certification options

©ABB

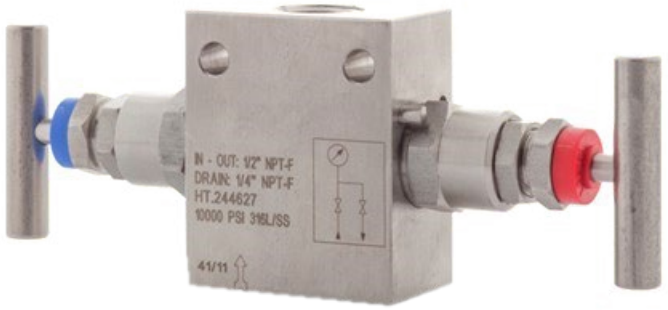
PxS100 – The Essential Pressure Transmitter

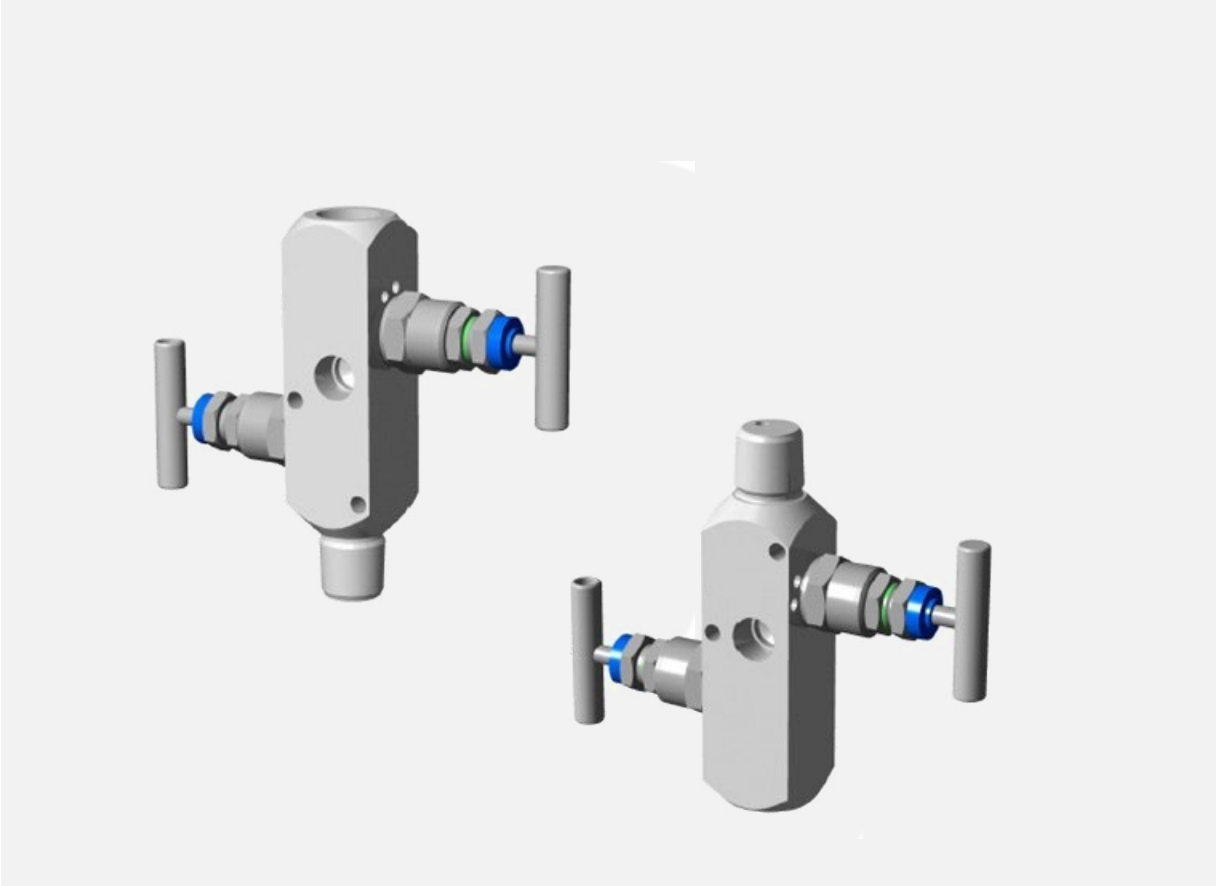
How to maximize the capability to fit different processes?

M26 COMPATIBILITY

PxS100 with NPT process connection can be coupled with manifolds to ease up process management and maintenance.

Leverage the materials and performances of the consolidated offering of ABB M26 selection.





©ABB

PxS100 – The Essential Pressure Transmitter

Compact Stainless-Steel housing

PxS100 housing has been designed in stainless steel to be:

- Compact
- Sturdy
- Corrosion resistant
- Easy to clean (IP69K – Cleaning in Place)

On top, PxS100 has been tested and successfully delivers:

IP66 / IP67 / IP68 / IP69K

©ABB

PxS100 – The Essential Pressure Transmitter

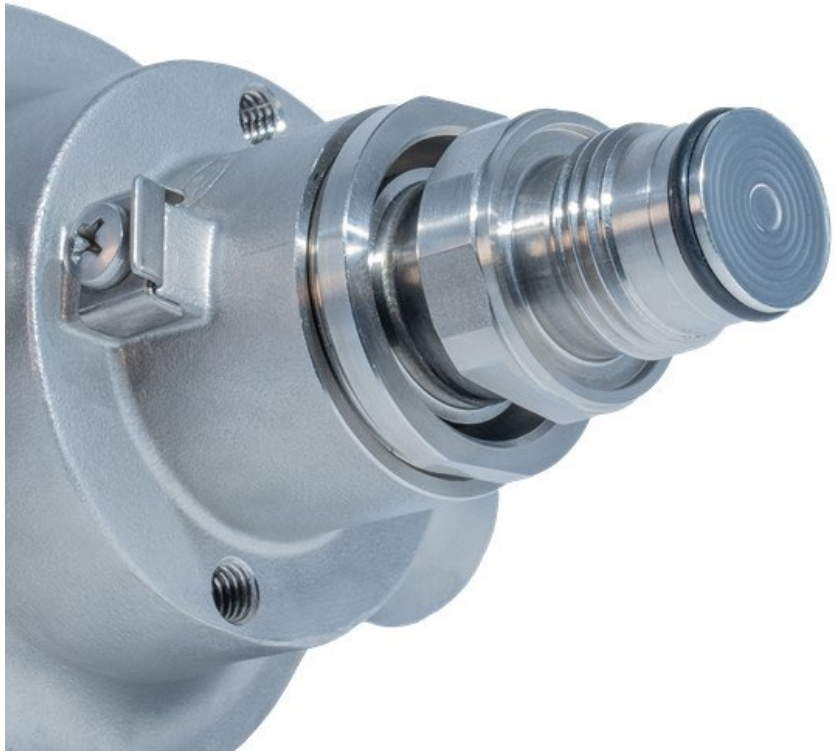
Robust front-bonded connection

Front bonded process connection is perfectly fitting in:

- Pulp & Paper
- Viscous processes

PxS100 front bonded connection will have:

- Stainless steel design
- Compact and robust geometry
- Broad range of measuring cells applicability
- AISI and HC diaphragm materials
- Availability of H-shield coating on AISI
- Availability of Diaflex coating on AISI and HC



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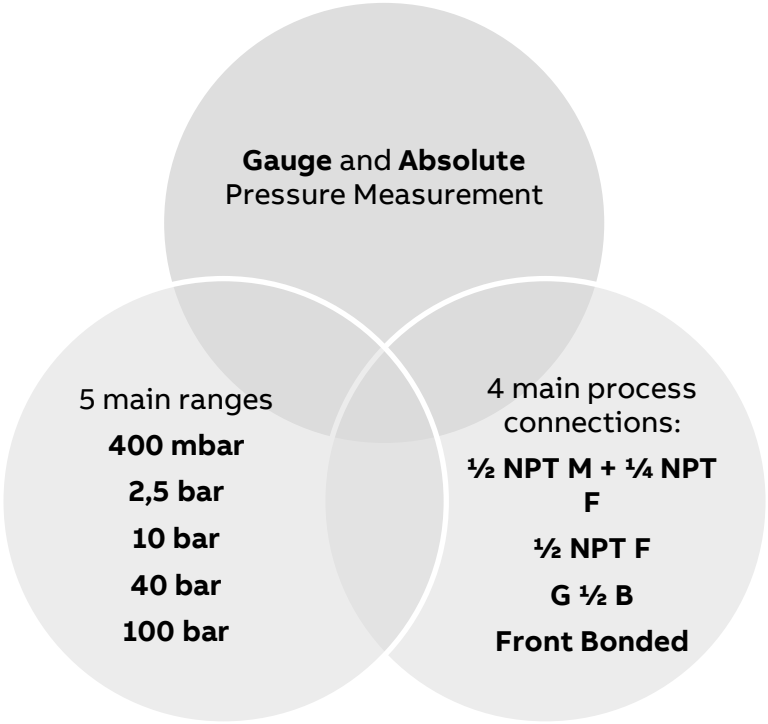
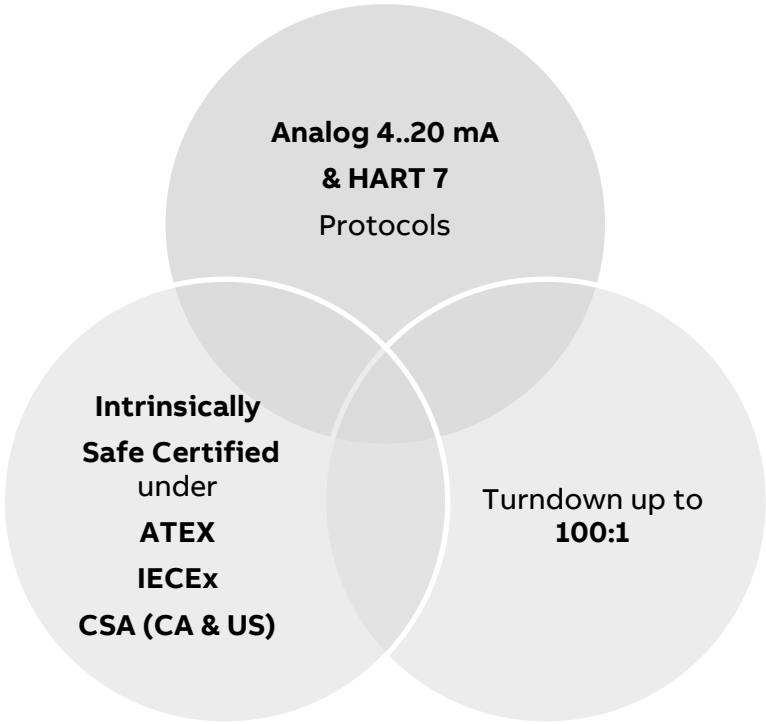
PxS100 – The Essential Pressure Transmitter

Wide choice of pressure ranges





All the specifications of PxS100 enable a perfect fit on essential measurement points

PxS100 – The essential pressure transmitter

Safety & Performances

DRINKING WATER APPROVALS

In municipalities and applications where water is made available for people to be consumed, country approvals for drinking compatibility as sign of quality and safety.
PxS100 is compliant with 2 country standards:

- **DM 174 (Italy)**
- **WRAS (UK)**

FDA APPROVED FILLING

FDA approval is the American standard that a filling fluid for a pressure device needs to comply with so as protect people health in case of contact. PxS100 is equipped with Mineral FDA-approved oil option.

EXTRA ACCURACY

Possibility of extended accuracy options in case of more accurate process measure requirements:

- **0,1% of measured span**
- **0,075% of measured span**

©ABB

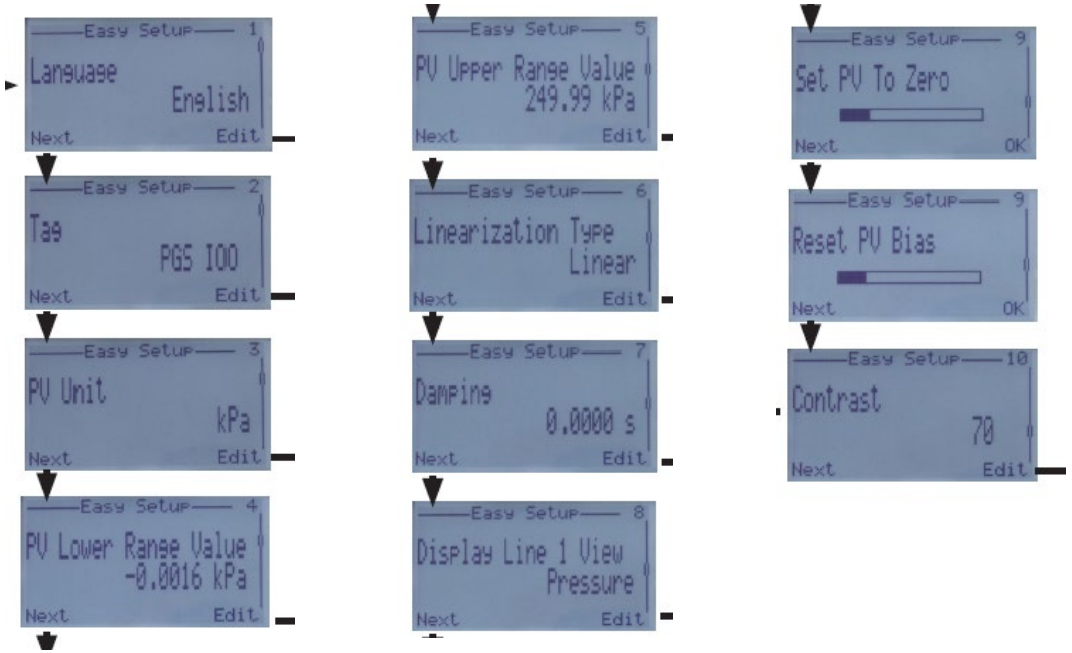
PxS100 – The Essential Pressure Transmitter

Easy operation

Easy Set up menu

A simple, smartphone-like approach, for the configuration menu*.

Essential and of easy interpretation.



QR code functionalities

3 QR codes available for advanced operation on the device:

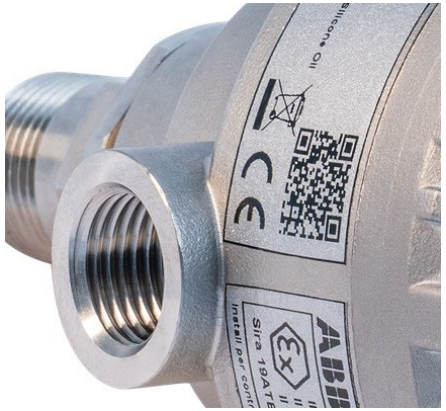
- Documentation QR Code
- DAD – Digital Advanced Diagnostic QR Code
- Channel Partner QR Code

*Easy Set up menu available on the HART version

PxS100 – The Essential Pressure Transmitter

Easy operation

Documentation QR Code



The QR code on the product nameplate grants a direct access to PxS100 webpage.

No more paper manuals or time losses to look for a detail on ABB documents: direct access to correct content!

Digital Advance Diagnostics

In case of failure / warning, a QR code will pop up. Upon scan, it will lead to an on-line doc with:

- **Resolution tips**
- **Condition details and potential causes**

The specific set of info is constructed to provide more insights to on-field operators, reducing resolution time.

Channel Partner Support QR Code

When purchased through ABB Channel Partners*, customers can find CP's contact details by accessing this QR code* inside the Easy Set Up menu.

Availability of such details (i.e name, address, phone, mail, etc.) make the difference when in need for immediate support.

*Please ask your ABB Channel Partner contact if the option is available from their end.

©ABB

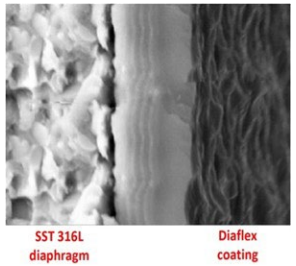
PxS100 – The Essential Pressure Transmitter

ABB unique technologies

Diaflex

Extremely high hardness and low friction mechanical characteristics:

- Stable up to 600°C.
- Nano-structured coating
- Titanium base composite
- PVD Physical Vapor Deposition - LARC technology
- Thickness : 3-4 µm
- 4000 HV rating on Vicker Hardness scale



Diaflex is available on front bonded connection, either with AISI or HC diaphragm substrate.

H-Shield

Extremely high resistance against Hydrogen permeation effect:

- Temperature up to 420°C.
- Nano-structured coating
- Titanium composite
- PVD Physical Vapor Deposition - LARC technology
- Thickness : 2-5 µm

Material	Ppm @ 230°C	Ppm @ 350°C	Ppm @ 420°C
HC	0,0011	0,0091	0,0199
AU	0,0009	0,006	0,0133
HSHI	0,00	0,00	0,0005

H-shield is available on the front bonded connection, the double threaded one and the ½ NPT Female

Elevate performances of ABB technologies grant device's longer operational life

©ABB

PxS100 – The Essential Pressure Transmitter

Interoperability - Configurability options

HMI

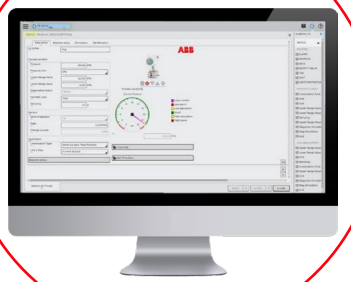
Setting via 2 button touch display

Setting via internal push buttons (Zero/Span) + SW write protect

HANDHELD

Handheld Terminals (HART Transmitter)

SOFTWARE / PC



- FIM
- DTM
- Any third-party Frame featuring ABB DD

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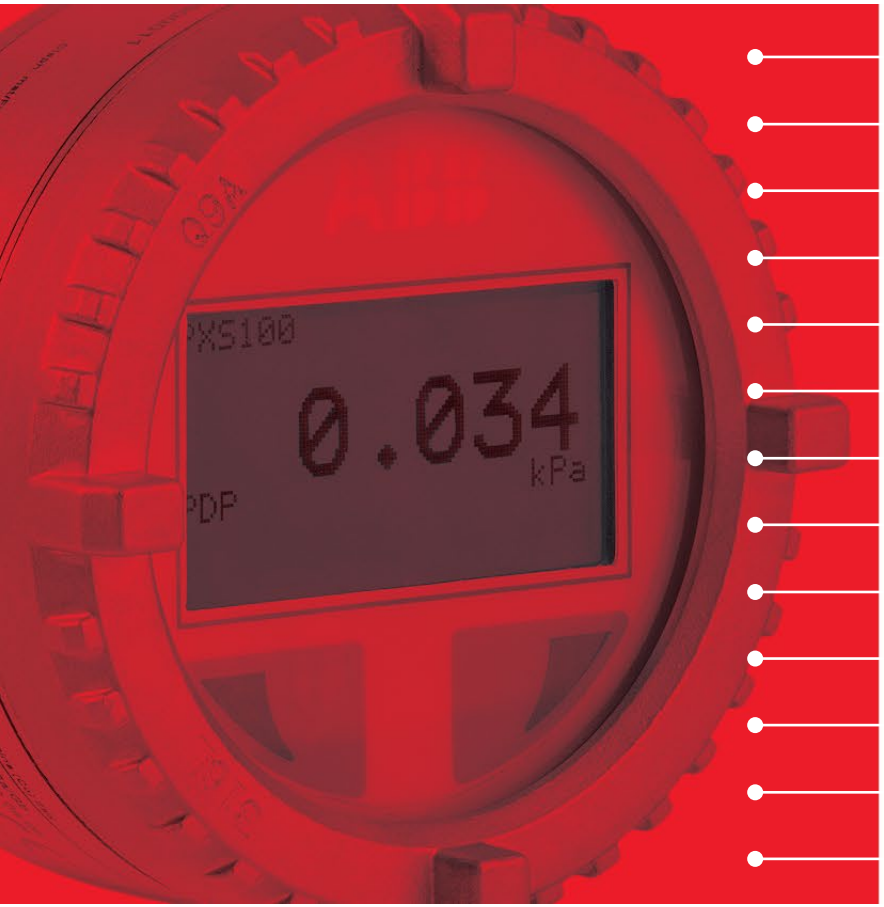
PxS100 – The essential pressure transmitter

Main Specifications summary



Consolidated coding logic in line with ABB Global Guidelines (i.e. PGS100 / PAS100)

Improved design: still compact but increased size for better usability

True entry level product with essential specs (0,25% base accuracy – 0,1% & 0,075% optional)

Two main measurement types: **Absolute and Gauge**

5 main sensor ranges: 60 mbar / 400mb / 2,5 bar / 10 bar / 40 bar / 100 bar (20:1 TD)

5 main diaphragm materials: **316L, HC, Diaflex (on 316L / HC276), H-Shield**

AISI process connection with Silicon, FDA and Inert fillings (O2 service option available)

Multiple process connections: combined ½ NPT Male - ¼ NPT Female, ½ NPT Female, G ½ B, Front Bonded

1 **SS Housing**: M16, ½ NPT*, M20x1,5* & 1 PBT **Plastic housing ****

3 communication protocols: 4..20 mA analog output, 4..20 mA + HART7 output, I/O Link**

Blind, Touch-Display and **Backlight Touch-Display** HMI

Ex ia Certifications (ATEX, CSA, IECEx, INMETRO, NEPSI) & SIL 2/3**

M26 Manifold compatibility

* Through adapter
** * Pending.

ABB Measurement & Analytics

Pxx100 Series – The essential Pressure transmitter

Functional advantages

Backlit Touch display

Digital Access Diagnostics (Dynamic QR Code)

Label QR code for easier documentation access

Wide environmental & measurement conditions:

Ex Intrinsically safe

Diaflex and H-Shield* seal nano-coating

IP66/67/68/69K, sturdy and compact AISI Housing

Go-to-Market Advantages

Double-threaded connection

Threaded NPT adapters

Threaded G Flanges for direct mount seal-equivalent installation

Configure & communication

FIM, DD & DTM

4...20 mA / HART

Full local configuration via display

Customer benefits

Higher competitiveness thanks to the targeted price / feature ratio fitting even aggressive price tiers.

Lower cost of ownership due to ABB nano coatings increasing resistance to abrasion and diaphragm inflation

Increased productivity thanks to the flexibility in process connections coupled to standard off-shelf device

Increased productivity thanks to the fast availability on the market and Digital Access Diagnostics

©ABB

PxF100 – The Essential transmitter for F&B applications

PxF100 – The Essential Pressure Transmitter in F&B

Safety & Performances

3A

The 3-A Sanitary Standards are American standards related to the design and production of equipment intended for contact with food.

FDA APPROVED FILLING

FDA approval is the American standard that a filling fluid for a pressure device needs to comply with so as protect people health in case of contact. PxF100 is equipped with Mineral & Vegetal FDA-approved oil option.

EHEDG

EHEDG (European Hygienic Engineering and Design Group) is a European-based certification that can be obtained if a product is designed and produced according to hygienic principles.

1935/2004

1935/2004 is a regulation of the European Parliament and and of the Council on materials and articles intended to come into contact with food

PxF100 – The Essential Pressure Transmitter in F&B

Environmental conditions

RESISTENT & STURDY

PxF100 housing has been designed in AISI to be:

Compact

Sturdy

Corrosion resistant

Easy to clean

PxF100 has been tested and successfully delivers:

IP66 / IP67 / IP68 / IP69K

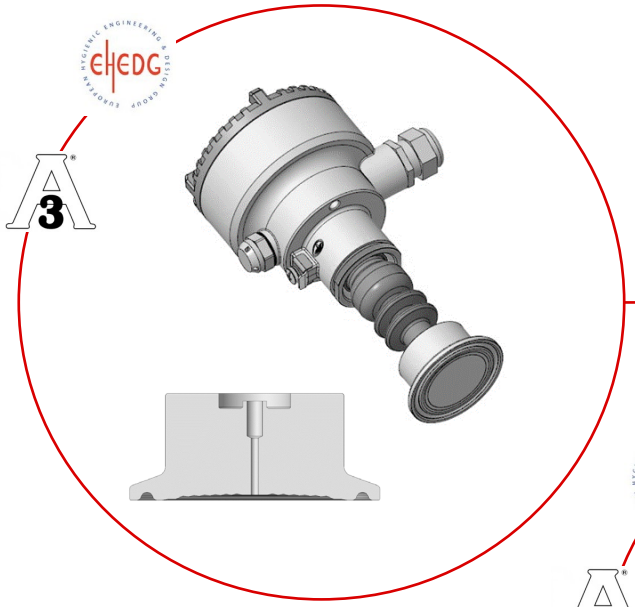
PxF100 features an option to ensure proper performances during vacuum conditions.

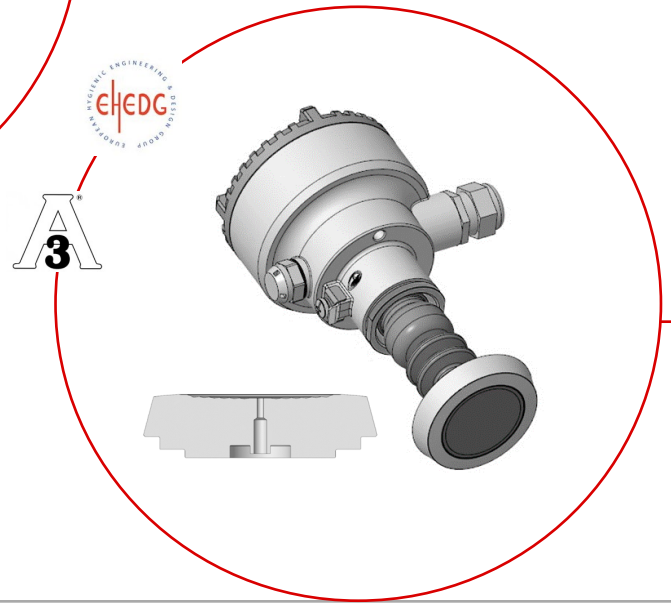
PxF100 metal components (e.g., process connection) are processed in a vacuum oven to remove any gaseous element that might be released by vacuum conditions and affect fill fluid behavior

©ABB

PxF100 – The Essential Pressure Transmitter in F&B

Specific fittings





TRI-CLAMPS

Tri-Clamp ISO2852 DN 25 (1 in), DIN32676 DN25 32
Tri-Clamp ISO2852 DN 38 (1 1/2 in), DIN 32676 DN40
Tri-Clamp ISO2852 DN 51 (2 in), DIN 32676 DN 50
Tri-Clamp ISO2852 DN 76.1 (3 in), DIN 32676 DN65*
Tri-Clamp ISO2852 DN 101.6 (4 in) DIN 32676 DN 100*

DAIRY 11851

Diary 11851 DN40 PN40
Diary 11851 DN50 PN25

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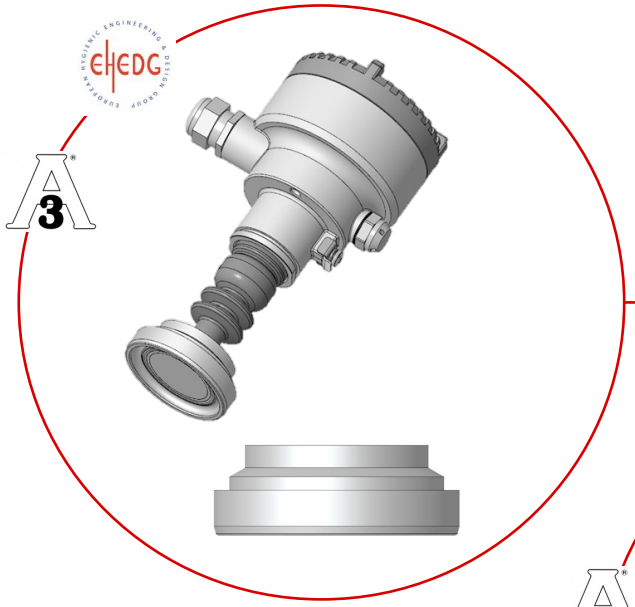
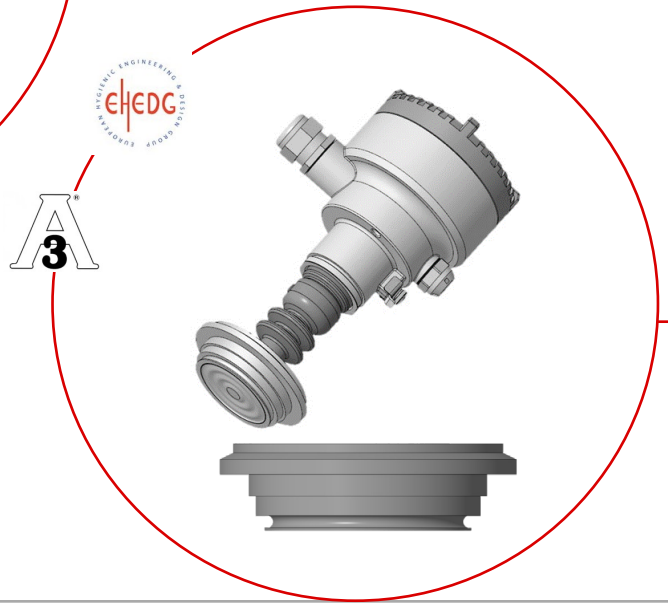
PxF100 – The Essential Pressure Transmitter in F&B

Specific fittings





DAIRY 11864

Dairy DIN 11864-1 type A DN40 PN16
Dairy DIN 11864-1 type A DN50 PN16

VARINLINE

Varinline® F DN25
Varinline® N DN40

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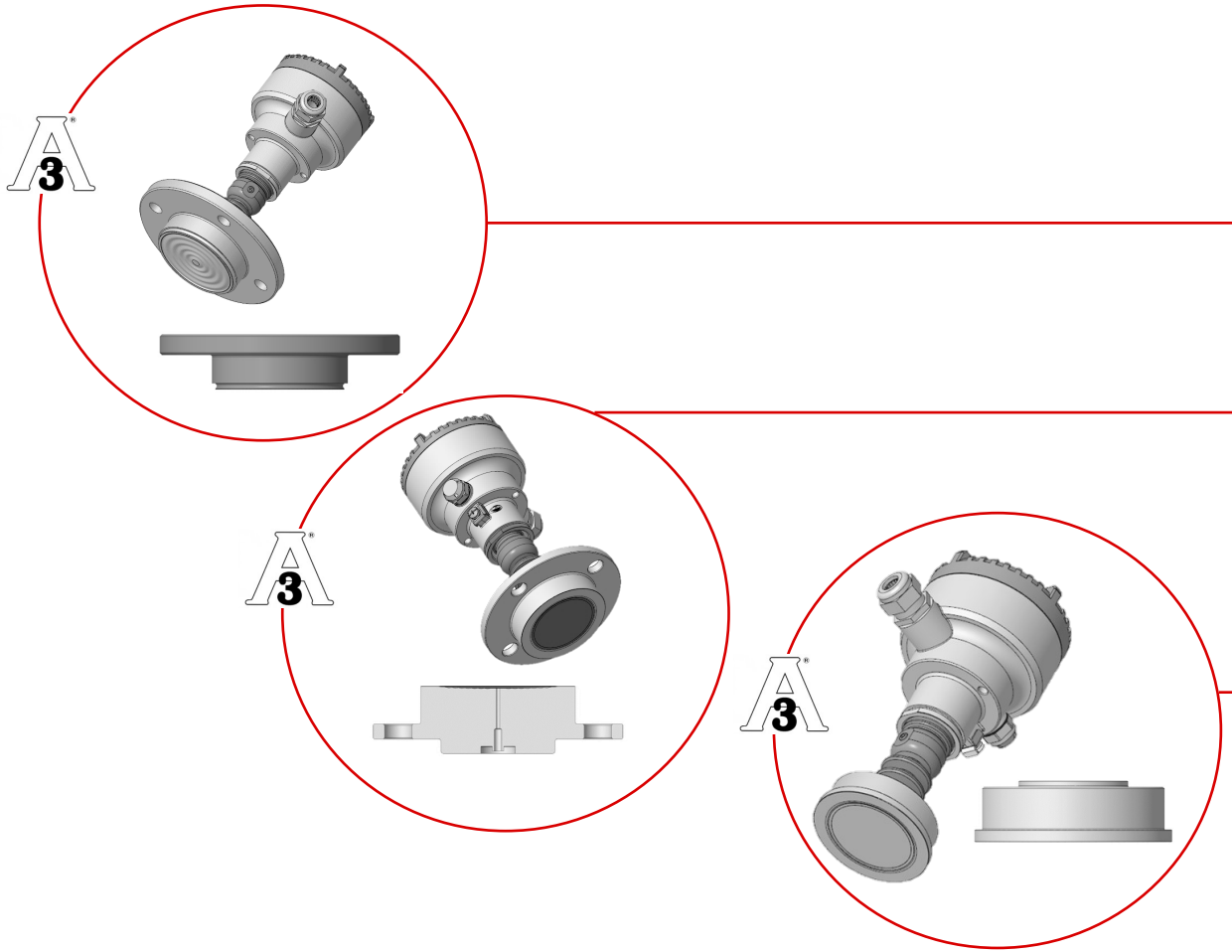
PxF100 – The Essential Pressure Transmitter in F&B

Specific fittings



NEUMO

Neumo Biocontrol® D50
Neumo Biocontrol® D65

DRD

DRD 65mm (DN 50)

SMS

SMS 1 1/2 in PN40 (diameter 35)
SMS 2 in PN40 (diameter 45)

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PxF100 – The Essential Pressure Transmitter in F&B

Abrasion resistance

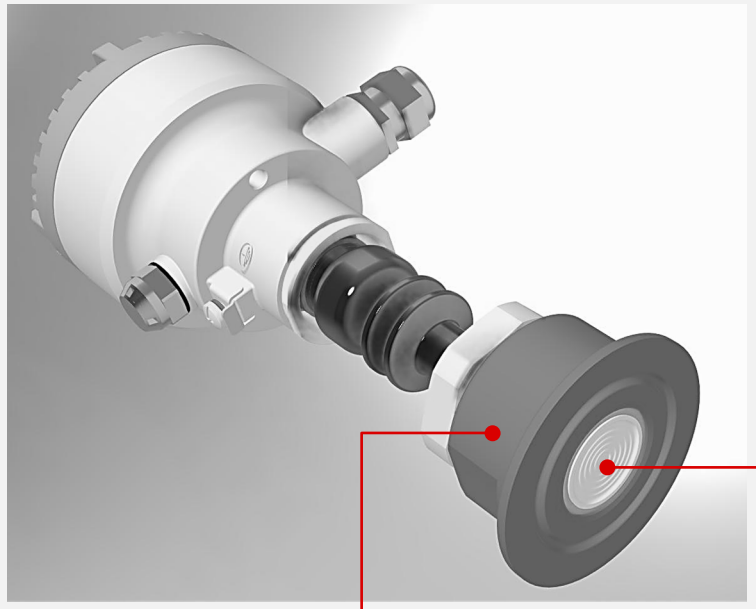
DIAFLEX

ABB's unique technology solution.

Extremely high hardness and low friction mechanical characteristics:

- Stable up to 600°C.
- Nano-structured coating
- Titanium base composite
- PVD Physical Vapor Deposition - LARC technology
- Thickness : 3-4 µm
- 4000 HV rating on Vicker Hardness scale

Diaflex is available on front bonded connection, either with AISI or HC diaphragm substrate. Diaflex has been tested against the requirements of 1935/2004 for food contact



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PxF100 – The Essential Pressure Transmitter in F&B

Cleaning & Sanitization

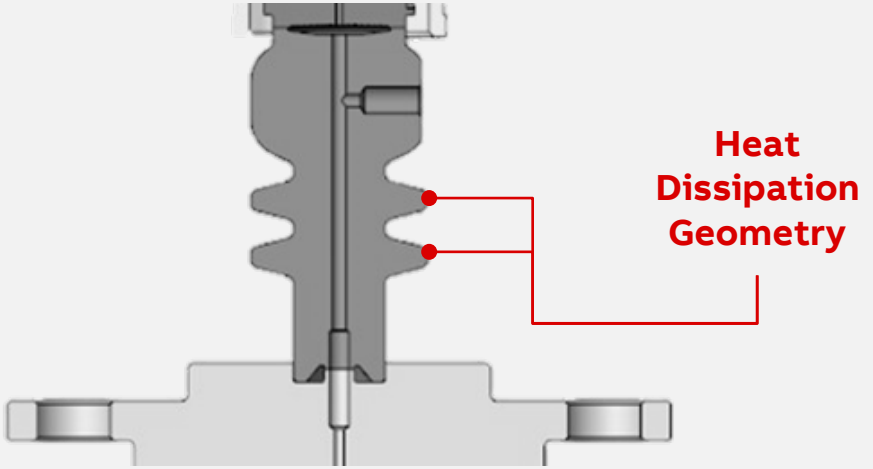
TEMPERATURE RESISTANCE FOR CIP/SIP

As per Wikipedia:

- «Clean-in-place **(CIP)** is a method of automated cleaning the interior surfaces of pipes, vessels, equipment, filters and associated fittings, without major disassembly. CIP is commonly used for equipment such as piping, tanks, and fillers….Industries that rely heavily on CIP are those requiring ***high levels of hygiene, and include dairy, beverage, brewing, processed foods***, pharmaceutical, and cosmetics."
- Sanitization in place **(SIP)** involves also the use of steam and both cleaning methods are needed to ensure the correct hygiene level of a plant / machinery.

As a result, a device that needs to be suitable for such a process, mainly in relation to the temperature that it can withstand, usually between 100° C and 150°C.

PxF100 has been designed to withstand process media temperatures up to 180°C in its standard configuration thanks to temperature dissipation neck.



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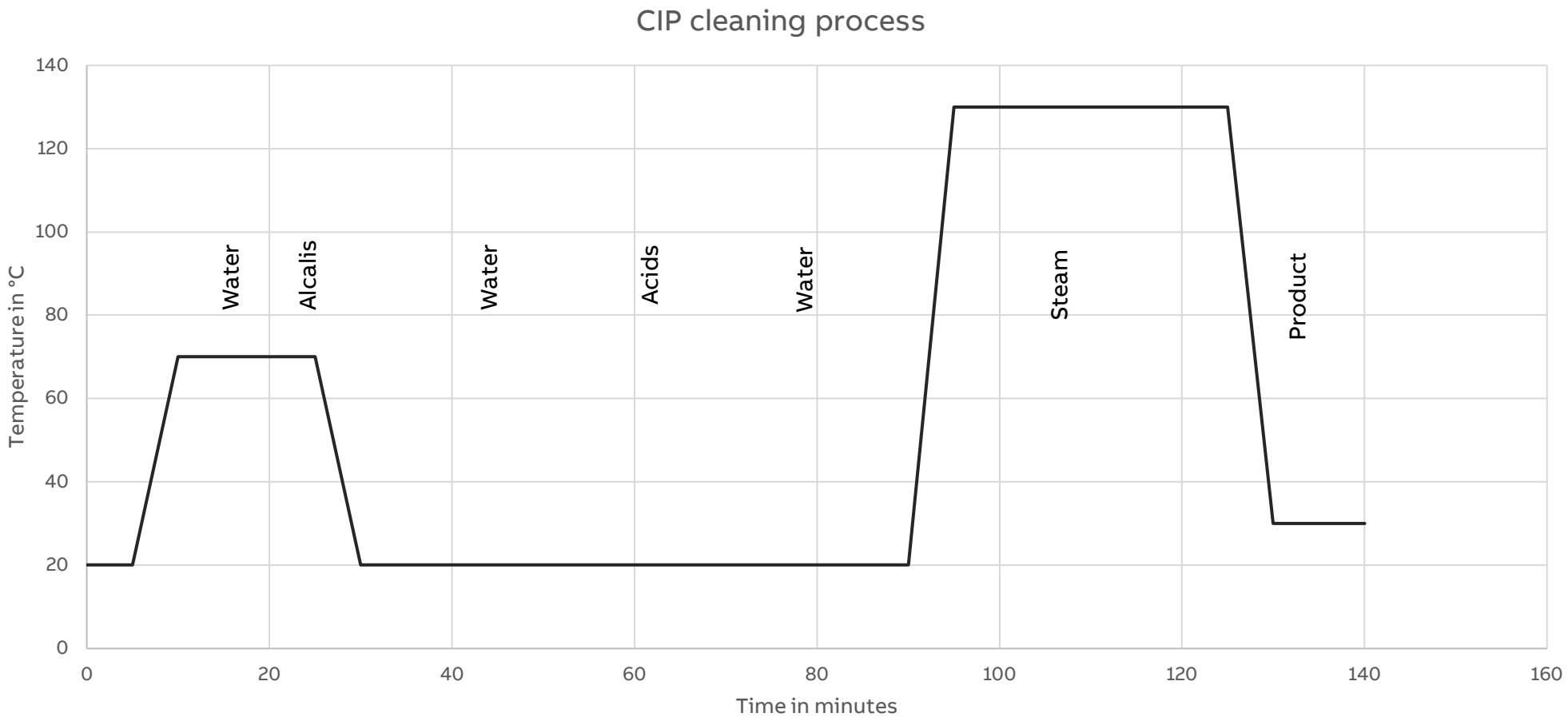
PxF100 – The Essential Pressure Transmitter in F&B

Cleaning & Sanitization - Temperature behavior example



PxF100 – The Essential Pressure Transmitter in F&B

Flexibility

COST OPTIMIZATION AND INCREASED AVAILABILITY

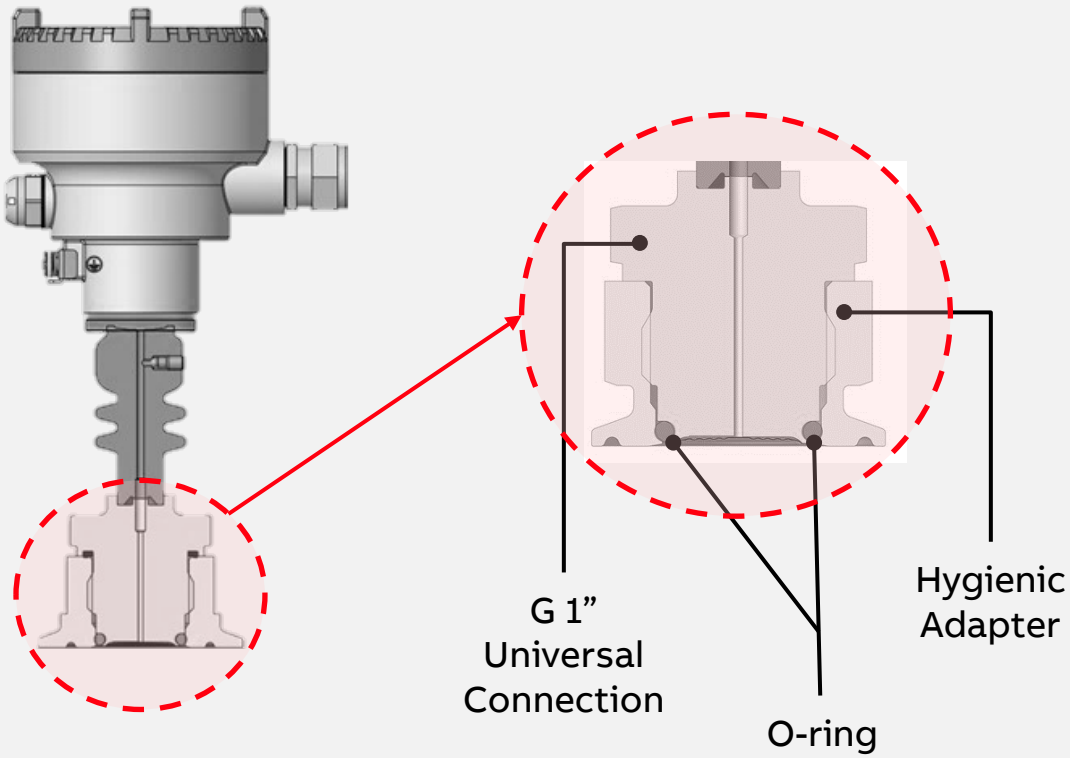
Front bonded universal connection has been designed fit multiple hygienic adapters to minimize the number of devices on stock and flexibly manage installations.

Universal connection can be ordered with diaphragm in:

- AISI 316L
- HC 276
- Diaflex on AISI
- Diaflex on HC

The combination of Universal Connection and ABB hygienic adapters is approved under 3A and EHEDG.*

ABB hygienic adapters can be ordered as single items like PxS100's flanges and threaded adapters



©ABB

- Universal connection fulfill 3A approvals when coupled with relevant gaskets (digit RF,RK,RN) and Hygienic adapters.
- Hygienic adapters and process connections pending (Ordering Code PZH)

PxF100 – The Essential Pressure Transmitter in F&B

Features and Benefits

FUNCTIONAL ADVANTAGES

Backlit Touch display

Digital Access Diagnostics (Dynamic QR Code) & documentation QR code

3A, EHEDG, FDA, 1935/2004 compliant connections

GO-TO-MARKET ADVANTAGES

Universal connection and hygienic adapters for CIP/SIP for up to 180 °C

Robust Stainless-steel housing and competitive plastic housing

Standard accuracy of 0,1% and 0,075% extended option

WIDE ENVIRONMENTAL & MEASUREMENT CONDITIONS:

Ex Intrinsically safe & SIL 2/3

Diaflex nano-coating

IP66/67/68/69K, sturdy and compact AISI Housing

CONFIGURATION AND COMMUNICATION

FIM, DD & DTM

4...20 mA / HART& I/O Link protocol

Full local configuration via display

CUSTOMER BENEFITS

Longer transmitter lifetime thanks to stainless steel housing and resistance to CIP / SIP

Lower cost of ownership due to ABB nano coating, high resistance to abrasion and opportunity for competitiveness on plastic housing

Increased productivity thanks to the flexibility delivered by hygienic adapters coupled to the universal connections

Increased productivity thanks to Digital Access Diagnostics and availability of I/O Link protocol

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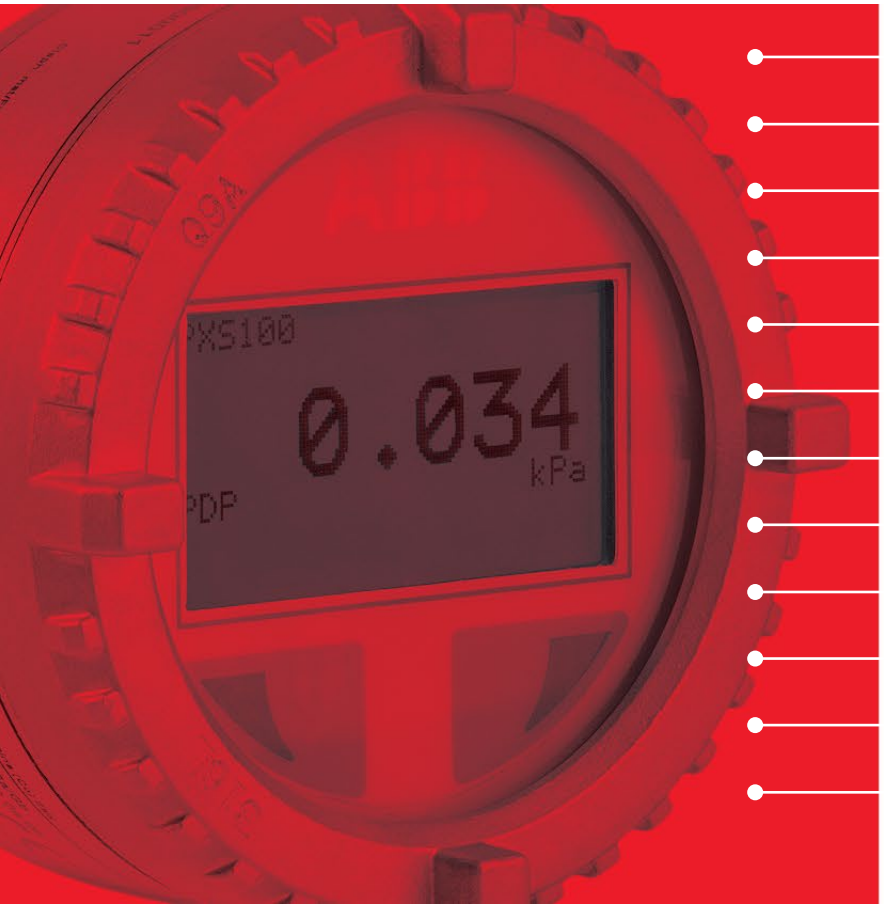
PxF100 – The Essential Pressure Transmitter in F&B

Main Specifications summary



3A & EHEDG approved designs

Improved design: still compact but increased size for better usability

Tailored accuracy on F&B segment (0,1% base accuracy – 0,075% optional)

Two main measurement types: **Absolute and Gauge**

5 main sensor ranges: 60mbar / 400mb / 2,5 bar / 10 bar / 40 bar / 100 bar (20:1 TD)

5 main diaphragm materials: **316L, HC, Diaflex (on 316L / HC276), H-Shield**

AISI process connection with FDA-approved (Mineral & Vegetal), silicon and inert fillings

Large number of hygienic connections, including the universal one to be fitted on the approved adapters

1 **SS Housing**: M16, ½ NPT*, M20x1,5* & 1 PBT **Plastic housing****

3 communication protocols: 4..20 mA analog output, 4..20 mA + HART7 output, I/O Link**

Blind, Touch-Display and **Backlight Touch-Display** HMI

Ex ia Certifications (ATEX, CSA, IECEx) & SIL 2/3**

©ABB

* Through adapter
** * Pending.

Pxx100 – The Essential Pressure Transmitter

Interoperability – I/O Link Protocol

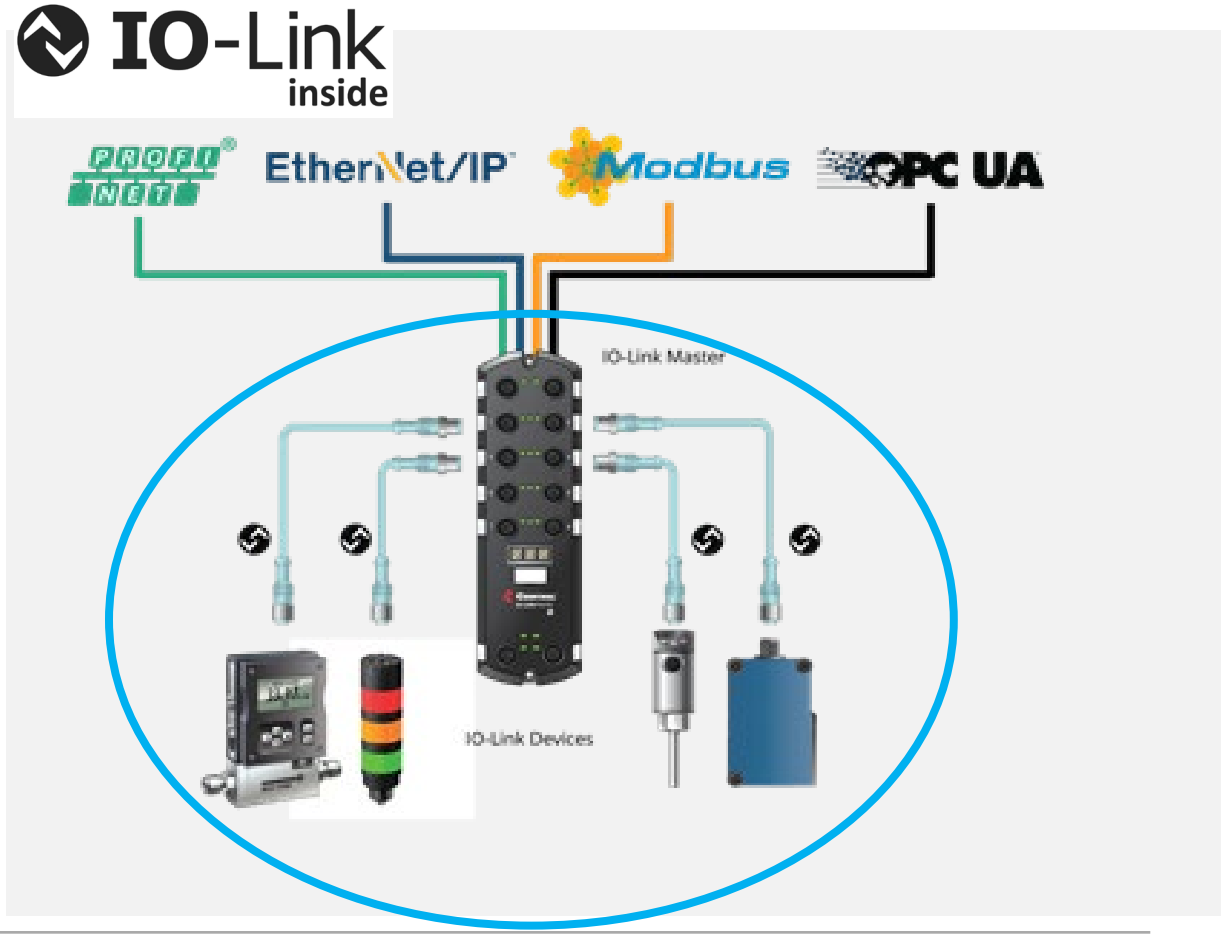
COMING SOON

I/O LINK COMMUNICATION PROTOCOL ADVANTAGES

- Simplicity to use in comparison to FF or PA
- Standard cabling VS expensive cables used in FF or PA
- Quick connection trough the embedded M12 connection
- High speed communication allows better process control
- Real time availability of process and diagnostic information

Pxx100 WITH I/O LINK ADVANTAGES

- Possibility to retrofit and substitute old devices (binary sensor usage) while benefitting local configuration
- Additional outputs (4..20 mA and secondary digital output)
- Additional functionalities on output configurations
- Advanced backlight configurability (ON/OFF, alarm blinking, dependance from Digital Output, etc)



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PxD100 – The Essential transmitter for remote seal installations

PxD100 – The Essential Remote Seal Pressure Transmitter

What is PxD100?

PxD100 is the compact remote or direct seal solution leveraging the advantages of the Pxx100 series and the efficiency of the S26 seals connections.

©ABB

PxD100 – The Essential Remote Seal Pressure Transmitter

Extended Performances and Competitiveness

FDA APPROVED FILLING

FDA approval is the American standard that a filling fluid for a pressure device needs to comply with so as protect people health in case of contact. PxS100 is equipped with Mineral FDA-approved oil option.

EXTRA ACCURACY

Possibility of extended accuracy options in case of more accurate process measure requirements:

- **0,1% of measured span**
- **0,075% of measured span**

SAFETY

Capability of being installed in safety loops thanks to the SIL 2/3 certification*

©ABB

** SIL 2/3 approval pending

PxD100 – The Essential Remote Seal Pressure Transmitter

Product Look and Feel

©ABB

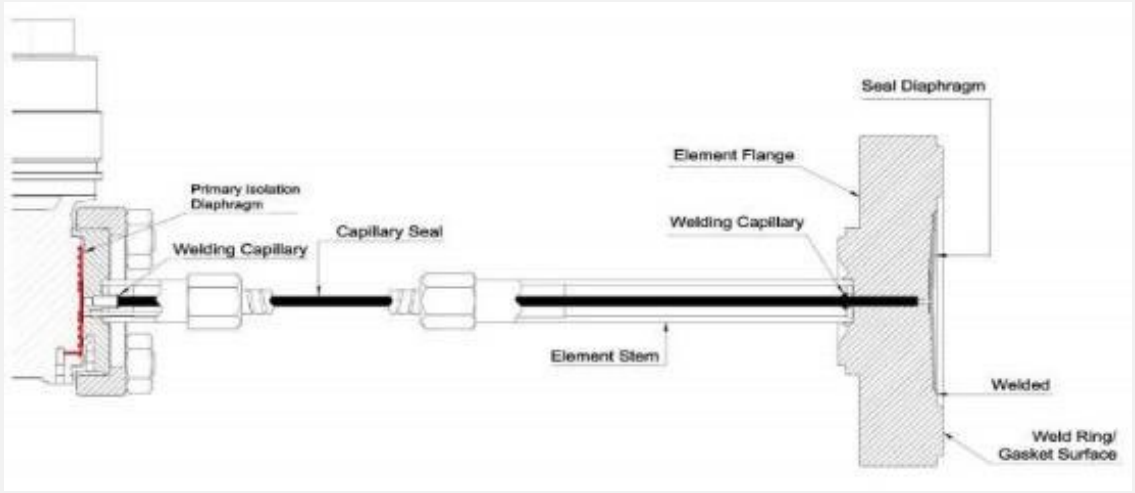
PxD100 – The Essential Remote Seal Pressure Transmitter

Superior construction technology

The entire assembly sensor-capillary-diaphragm seal does not feature gaskets or threaded joints

All welded parts and hydraulic circuits are helium leakage tested

The "All-welded technology" is worldwide recognized for delivering performance stability over time and delivered by default at no extra-price



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PxD100 – The Essential Remote Seal Pressure Transmitter

Superior construction technology

MATERIALS & AVAILABLE GEOMETRIES

Stainless Steel 316L

Hastelloy C276

Tantalum

Hastelloy C2000

Super Duplex UNS S32750 to ASTM SA479

Inconel 625

Monel 400

Stainless Steel PFA (Teflon) Coated

Stainless Steel Gold plated

Diaflex (anti abrasion treatment)

Tailor-made design items

FLANGES ACCORDING TO:	Diaphragm seal with fixed flange	Diaphragm seal with rotating flange	Wafer / Pancake style diaphragm seal with side handle.
ASME	S26FA	S26RA	S2WA
EN	S26FE	S26RE	S26WE

©ABB

PxD100 – The Essential Remote Seal Pressure Transmitter

Abrasion resistance

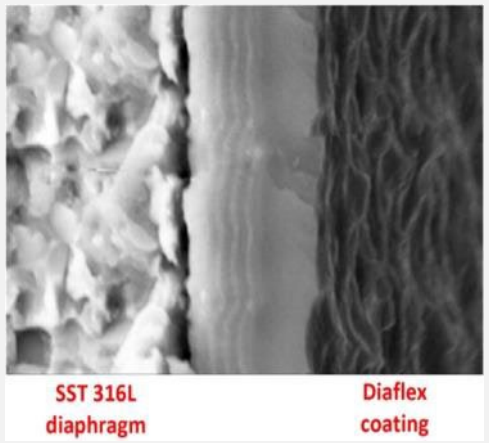
DIAFLEX

ABB's unique technology solution.

Extremely high hardness and low friction mechanical characteristics:

- Stable up to 600°C.
- Nano-structured coating
- Titanium base composite
- PVD Physical Vapor Deposition - LARC technology
- Thickness : 3-4 µm
- 4000 HV rating on Vicker Hardness scale

Diaflex is available on front bonded connection, either with AISI or HC diaphragm substrate.



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PxD100 – The Essential Remote Seal Pressure Transmitter

Hydrogen permeation resistance

H-SHIELD

ABB's unique technology solution.

Extremely high resistance against Hydrogen permeation effect:

- Temperature up to 420°C.
- Nano-structured coating
- Titanium composite
- PVD Physical Vapor Deposition - LARC technology
- Thickness : 2-5 µm

H-shield is available on the front bonded connection, the double threaded one and the ½ NPT Female one.

Material	Ppm @ 230°C	Ppm @ 350°C	Ppm @ 420°C
HC	0,0011	0,0091	0,0199
AU	0,0009	0,006	0,0133
HSHI	0,00	0,00	0,0005

©ABB

PxD100 – The Essential Remote Seal Pressure Transmitter

Viscous fluids

PFA

The red PFA coating is suitable for

- anti-stick and anti-corrosion effect
- superior chemical resistance at H-temperatures 482°F/250°C
- Advanced technology of PFA coating allows to apply a thickness up to 160µm

The grey PFA coating is suitable for:

- an anti-stick effect. it is applied on an AISI 316 L ss or Hastelloy C-276
- Outstanding properties of dry lubrication and surface hardness
- Thickness up to 25µm

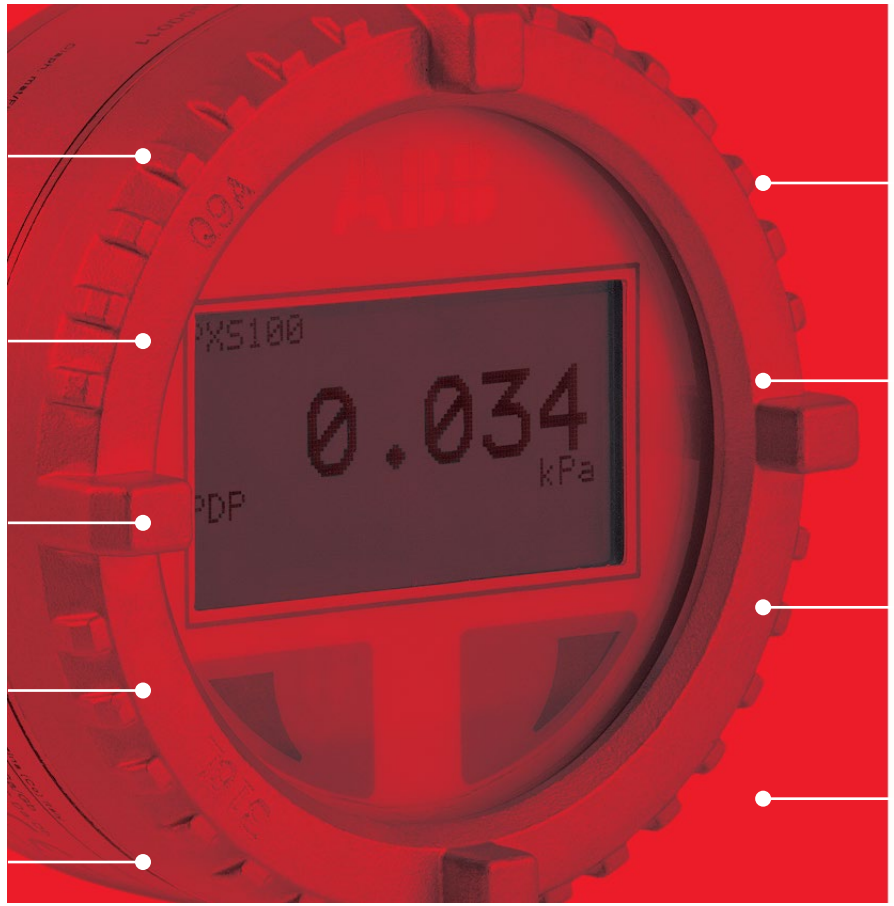
©ABB

PxD100 – The Essential Remote Seal Pressure Transmitter

What is PxD100?

Pxx100 FEATURES

- High resistance stainless steel housing
- HMI on Backlit display
- High Interoperability
- Digital diagnostics & support
- Extended performances & competitiveness



S26 FEATURES

- All-welded leakage-free technology
- Wide selection of geometries
- Wide selection of materials and fillings
- Possibility of customization (Special Requests)

PxP100 – The Essential transmitter for P&P applications

PxP100 – The Essential transmitter for P&P applications

COMING SOON

What is PxP100?

Model PxP100 is the new gauge pressure transmitter from ABB featuring various Pulp & Paper process connections. Its compact stainless steel housing grants robustness, resistance to harsh environment, humidity and vibration, while incorporating the high visibility display with backlight option. Tailored accuracy on P&P segment (0,1% base accuracy, 0,075% optional). The combination of various process connections with diaphragm materials are available thorough a well-know and proved ABB seal type, S26KN. Unique wetted parts material over the most common one like SST 316 L, Hastelloy-C are available, Duplex and Diaflex. The ABB All-Welded design is still the technology to achieve unrelieved performances. Threaded flush design process connections provide solutions beyond P&P. They are proven in Wastewater and sludge applications where dead-space plugging can be an issue.

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PxP100 – The Essential Pressure Transmitter in P&P

COMING SOON

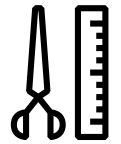
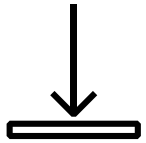
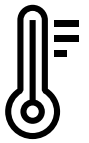
Product Look and Feel

©ABB

PxP100 – The Essential Pressure Transmitter for P&P

COMING SOON

Industry critical requirements

	CRITICALITY	SOLUTION	
SPECIFIC FITTINGS	Different pulp & paper processes require different fitting.	Threaded diaphragm seals for Pulp & Paper applications	
ABRASIVE PROCESS	Suspended particles in high velocity media	Diaflex (ABB unique anti-abrasive coating)	
VIBRATION RESISTANCE	Vibration often leads to device failure	Stainless steel housing with IP66/7/8/9K rating	

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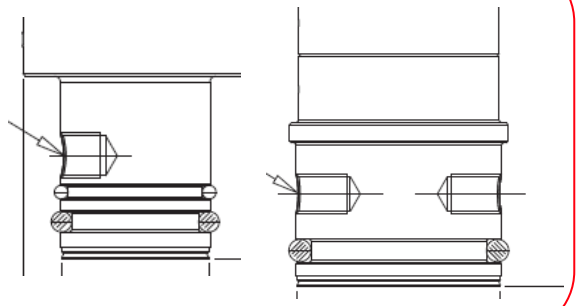
PxP100 – The Essential Pressure Transmitter in P&P

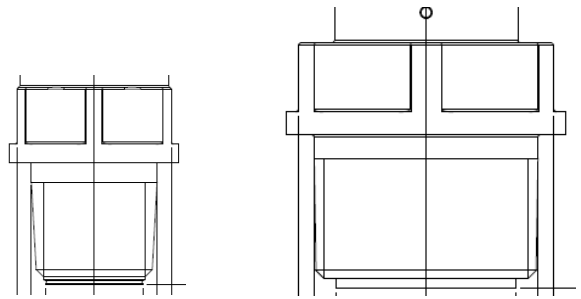
Specific connections to maximize efficiency

COMING SOON

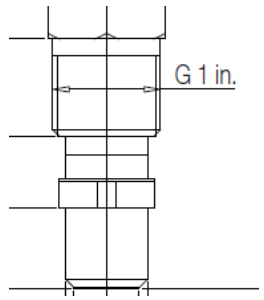
1” / 1 ½” sealing with gasket to spud

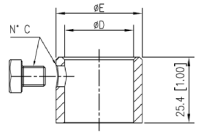


1” / 1 ½” NPT male threaded

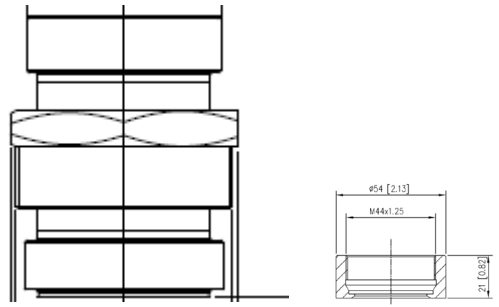


1 in. G with ball valve connection

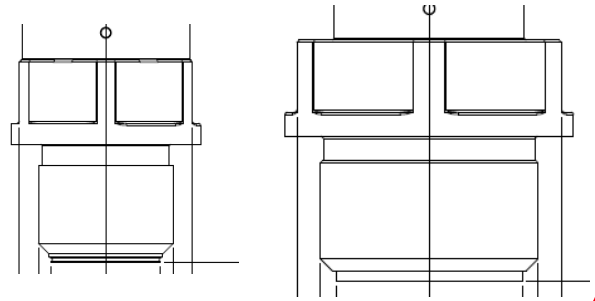




1-1/2 in. sealing connection to threaded spud (M44 x 1.25)



1” / 1 ½” G male threaded



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PxP100 – The Essential Pressure Transmitter for P&P

Superior construction technology

COMING SOON

MATERIALS & AVAILABLE GEOMETRIES

Stainless Steel 316L

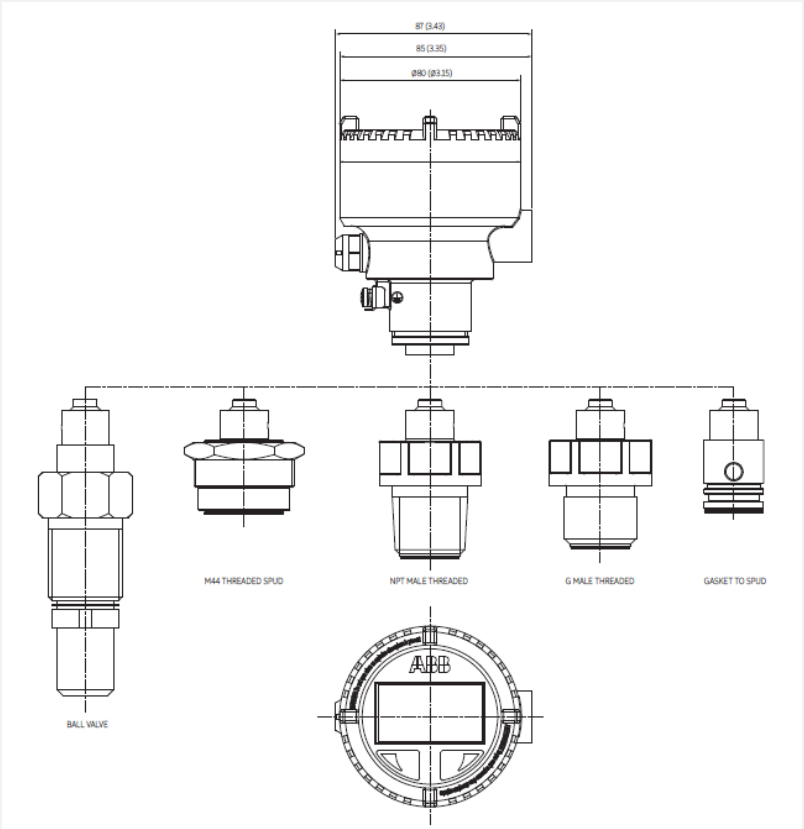
Hastelloy C276

Diaflex antiabrasion coating on AISI 316 L ss

Diaflex antiabrasion coating on Hastelloy C-276

Duplex (pending)

Threaded diaphragm seals
for Pulp & Paper applications



PxP100 – The Essential Pressure Transmitter for P&P

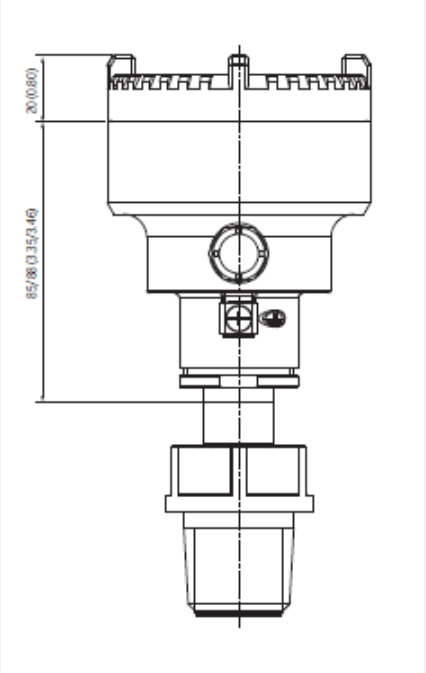
Superior construction technology

COMING SOON

The entire assembly does not feature gaskets or threaded joints.

All welded parts and hydraulic circuits are helium leakage tested

The "All-welded technology" is worldwide recognized for delivering performance stability over time and delivered by default at no extra-price



PxP100 – The Essential Pressure Transmitter in P&P

Pressure Measurement Made Easy – Top Quality Design

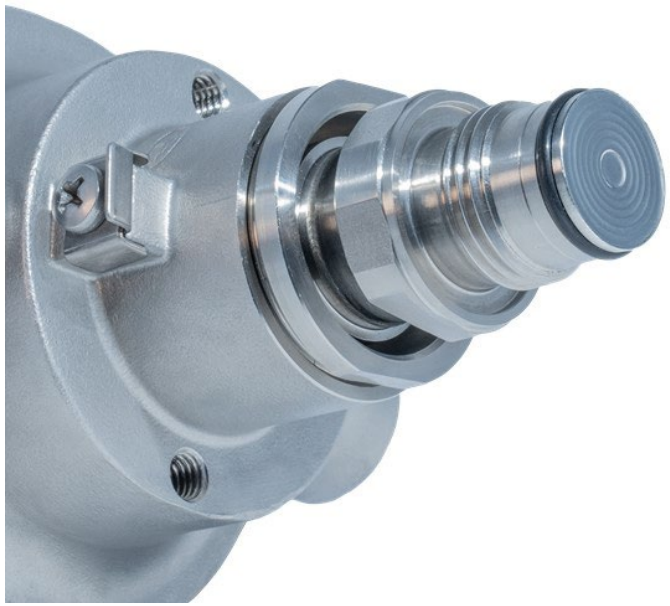
COMING SOON

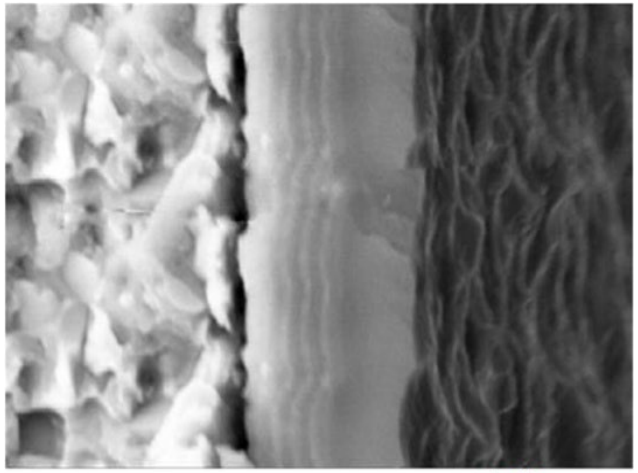
Diaflex

Innovative solution: extremely high hardness and low friction mechanical characteristics:

- Stable up to 600°C
- Nano-structured coating
- Titanium base composite
- PVD Physical Vapor Deposition - Larc technology
- Thickness : 3-4 µm
- 4000 HV rating on Vicker Hardness scale

Proven to extend transmitter service life in harsh pulp blending applications across all S26 seal types. Now available in an economical industry specific package.





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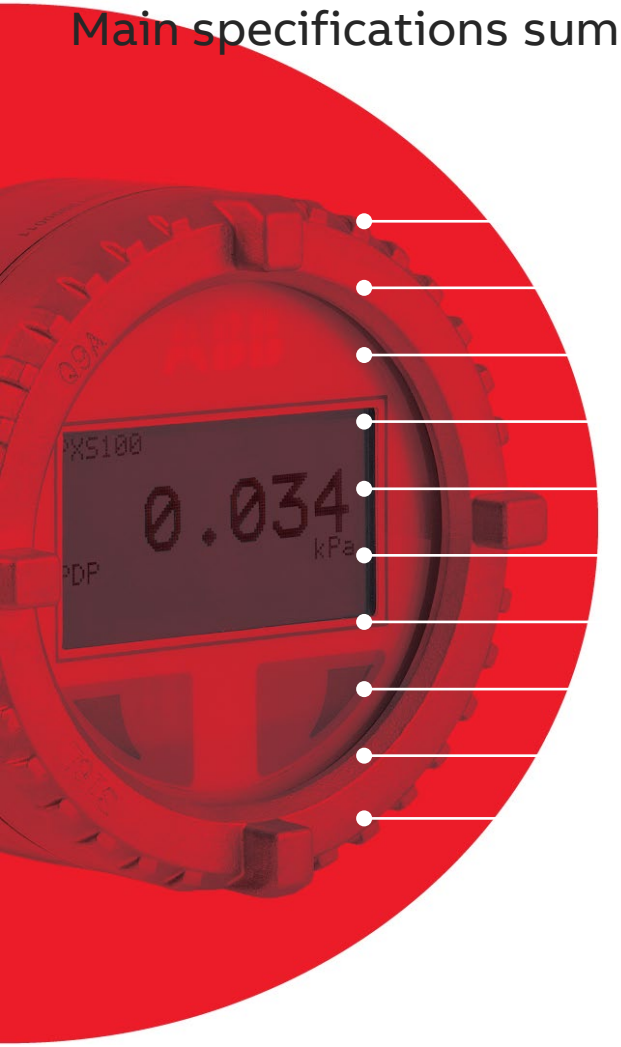
PxP100 – The Essential Pressure Transmitter in P&P

COMING SOON

Main specifications summary



Improved design: still compact but increased size for better usability

Tailored accuracy on P&P segment (0,1% base accuracy – 0,075%optional)

Large number of specific connections

5 main diaphragm materials: **316L, HC, Diaflex (on 316L / HC276), Duplex**

Two main measurement types: **Absolute and Gauge**

5 main sensor ranges: 400mb / 2,5 bar / 10 bar / 40 bar / 100 bar (20:1 TD)

1 **SS Housing** & 1 **plastic housing** ** with 3 threads: M16, ½ NPT*, M20x1,5*

3 communication protocols: 4..20 mA analog output, 4..20 mA + HART7 output, I/O Link **

Blind, Touch-Display and **Backlight Touch-Display** HMI

Ex ia Certifications (ATEX, CSA, IECEx) & SIL 2/3 **

©ABB

* Through adapter
** * Pending.

Remote Indicators Deep Dive

ABB Measurement & Analytics

JDF200 - Analog Remote indicator

Remote indicator

Indication accuracy

– Digital: ±0,10% of span (16 mA) ± 1 digit
– Bar graph: ±1% Resolution
– 16 bit conversion Ambient temperature effect
– ±0,15% of span (16 mA)

By applying an appropriate input scaling, JDF200 shows:

- Current
- Pressure
- Temperature
- Level
- Mass and Volume Flow
- Heat Transfer Rate
- Custom variable

©ABB

ABB Measurement & Analytics

JDF300 – Multivariable FOUNDATION™ Fieldbus Field Indicator

Macro specs

- 2600T family look and feel
- L1 display with common HMI operational logics, including Easy Setup
- Hazardous Area Certified
  - ATEX
  - IECEx
  - FM
- IP67 protection
- C4 corrosion protection painting
- Additional external push-button for haz-loc configuration

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JDF300 – Features details

Remote Visibility

Multivariable display visibility

- Up to 8 variables, including measure goodness
- Single variable (P) displayed multiple times
- Set of variables (P, T, flow) displayed in sequence

Local display configuration

- Tailored for specific visualization

Multipurpose bracket system

- One bracket for wall & pipe installation

Delocalized Control

Library of function block available

- 1 Arithmetic (+, -, average, etc)
- 1 Input selector (returns output based on rules on input received)
- 1 Control selector (as 'input selector' but with input from control blocks)
- 2 PID (Proportional, integral, derivative)

Backup LAS capability (Link Active Scheduler)

- JDF300 is able to auto-activate schedule of the planned activities on the network

FF Network Fit

FOUNDATION™ Fieldbus architecture

allows JDF300 to process/receive any variable from existing FF network devices including:

- Pressure
- Temperature
- Flow
- Setpoint
- PID output (control variable %)

From both ABB and competitors' products

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JDF300 – Customer benefits

Cost Saving

- Lower operating cost: monitoring system can be designed in a simpler way
- Lower installation cost: store one bracket code for pipe and wall installation
- Lower cost of ownership: combined certification and modular spare parts reduce immobilized capital

Improved Control

- Faster in field diagnostic improved by multiple simultaneously available data
- System failure recovery and stops avoidance through LAS capability

Enhanced Productivity

- No operators running around: more data in the same place
- No costs for training: operating the devices is the same as ABB 266 models
- Improved operators' safety level due to elimination of need to reach difficult measurement points

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ABB offering in a nutshell…

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ABB Offering Differentiators

266 Series Multivariable:
- High static – 410 bar
- Lowest draft range – 10 mbar
- Compensated level and flow in one device

- Calculated flow as safety function (SIL)
- In factory full configuration
- Enthalpy calculation

The Best in Class

266 Series Differential, Gauge and Absolute PT:
- True dual sensor (Static sensor)
- 600bar static pressure limit
- Modular electronic
- Combination of single players features
- Diaflex and H-Shield

- Intrinsically protected on overpressure
- Standard Battery with 10 years lifetime
- Tailor made designs-ready (SR Engineering process)
- Digital Diaphragm Seal “One solution, twice the data, three main benefits”

The All-Rounder

261 Gauge and Absolute PT:
- Safer: SIL, IP69K and protected electronic
- Hard and resistant SS housing
- Configurable via FIM
- Wide process connection offering

The Value Adder

Pxx100 Series Gauge and Absolute PT:
- Wide choice of pressure ranges
- Backlight touch HMI
- QR codes for advanced operation
- Wide range of connections (3A, EHEDG approved)

- Diaflex and H-Shield
- Robust and resistant stainless-steel housing
- Universal connection and adapters/accessories for mechanical modularity
- Drinking water approvals

The Essential

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