



# ALDPT

## Pressure & Differential Pressure Transmitter

### ALDPT 3051 Series

#### GENERAL

The ALDP-3051 is an intelligent differential pressure transmitter that combines proven capacitive sensor measuring techniques (piezoresistive sensors for absolute pressure models) with advanced microprocessor technology. The ALPD-3051 smart pressure transmitter is capable of differential, gage, or absolute pressure measurement. By making use of advanced microprocessor technology, the ALPD-3051 is able to offer features that include self-diagnostics, field parameter adjustment, auto-zeroing, and digital communication capabilities; all for about one half of the price of competitive models. The ALDP-3051 smart pressure transmitter can utilize traditional flanges as well as many other standard industrial process connections for pressure, flow and level applications. Available output options include 4-20mA or 1-5V<sub>DC</sub> with HART protocol, Profibus, or Foundation fieldbus. The versatility and wide array of options offered by ALPD-3051 smart pressure transmitter make it suitable for almost any application.

#### FEATURES

- High accuracy, minimal temperature drift ( $\pm 0.15\%FS/10^{\circ}C$ )
- 100:1 Turn-down
- Security lock- parameters
- Advanced diagnostic capabilities
- Large measuring range
- Software compensation
- Available in 316SS, Tantalum and other exotic materials
- Available in either Intrinsically Safe ExIICT6 or Explosion Proof ExdIICT6
- Auto-zero adjustment
- Analog 4~20 mA DC two wire linear output
- HART protocol, Profibus, or foundation fieldbus; PDA option available

#### SPECIFICATIONS

- Measuring range:
  - Differential: 0~0.16 kPa to 0~10 MPa
  - Absolute max. 0~25 MPa, min. 0~20 KPa
  - Relative max 0~40 MPa min 0~0.16 KPa
- Fluids: liquid, gas and steam
- Temperature: -40°C~100°C
  - Drift (zero) 0.5%FS/50°C
  - Drift (span) 0.7%FS/50°C
- Accuracy grades: 0.075 grade, 0.2 grade, 0.5 grade
- Turn-down 100:1
- Drift (Micro): 0.02%FS/year
- Standard: 0.025%FS/year
- Relative humidity: 0~100% RH
- O ring material: Fluorine rubber, nitrile rubber
- Filled fluid: Silicon oil or inert oil
- Start time 2 seconds after power up
- Storage temp: -40 ~ 100 °C
- Start time: < 2 s
- Damping time: 2s
- Bolt: stainless steel
- Shell: low copper Aluminum alloy shell
- Approvals: ExdIIBT5 or ExdIICT6  
ExdIIBT5 or ExdIICT6
- Output signal: 4 mA~20 mA<sub>DC</sub>, two wire
- Working Voltage: (16.4 ~45 )V<sub>DC</sub>,  
(16.4 ~30 ) V<sub>DC</sub> intrinsic safety type
- Communications distance: 2 km when using CEV cable  
Load capacitance: below 0.22  $\mu$ F  
Load inductance: below 3.3 mH  
Space with power line: above 15 cm  
Resolution: 0.05% of range
- Field indication: 100% indicating meter, LED, LCD
- Effect of environmental temperature: zero drift: 0.5%FS/50°C  
Range drift: 0.7%FS/50°C
- Effect of supply voltage variation:  $\pm 0.005\%$  FS/V
- Protection: IP67
- Weight: 3.5 kg does not include options



#### SmartMeasurement

10437 Innovation Drive, Suite 315, Milwaukee, WI 53226 USA

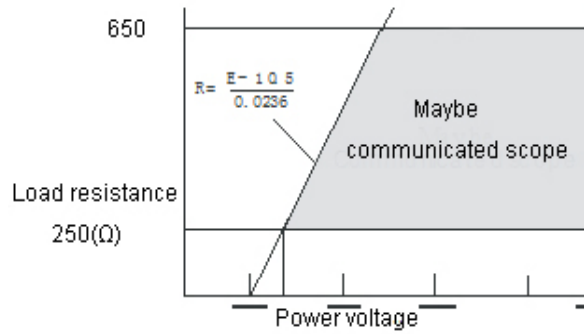
TEL : +1-414-299-3896 FAX : +1-414-433-1606

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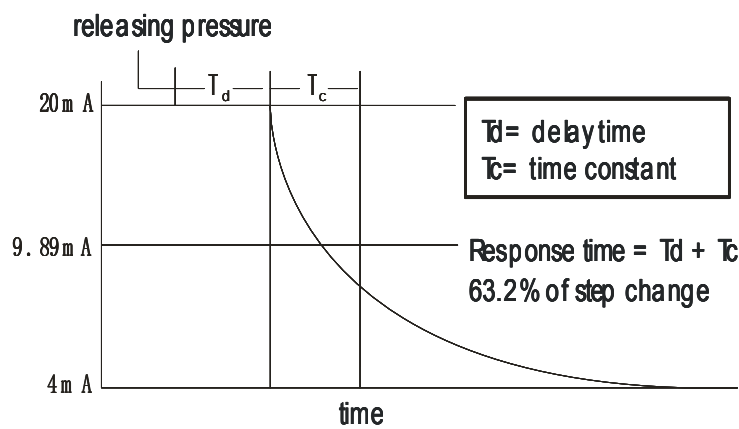
URL : <http://www.smartmeasurement.com>

E-mail: [sales@smartmeasurement.com](mailto:sales@smartmeasurement.com)

➤ **LOAD CHARACTERISTICS**



*Relationship between supply voltage and load resistance*



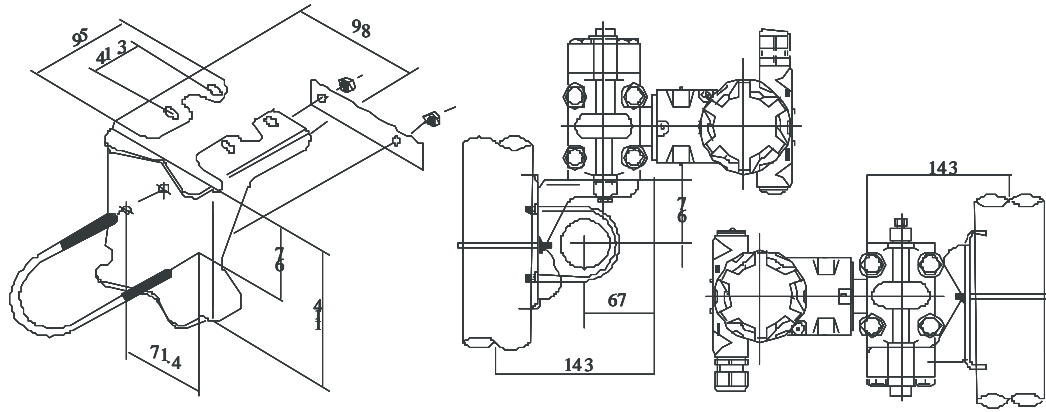
*Typical response time of intelligent transmitter*

➤ **OUTLINE DIMENSION**

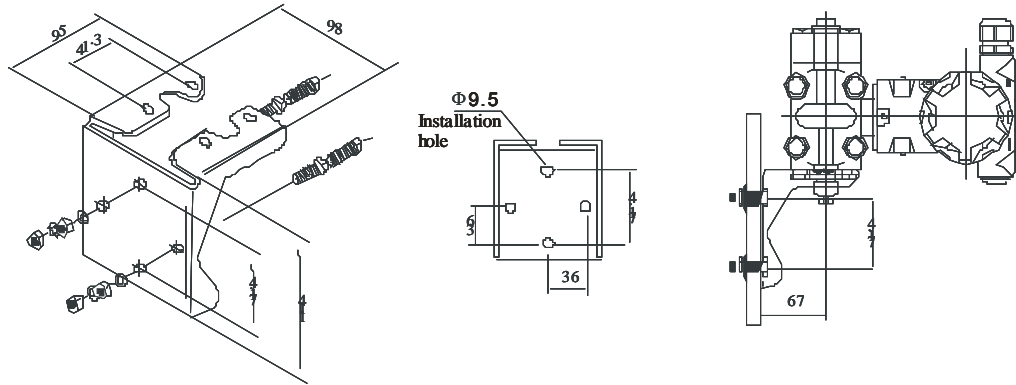


Measuring range (Mpa)	0~0.001 to 0~0.006	0~0.16 to 0~1	0~0.4 to 0~2.5	0~1.6 to 0~10	0~4 to 0~25
	0~0.006 to 0~0.04				
	0~0.04 to 0~0.20				
A(mm)	54	55.2	55.6	57.2	57.6

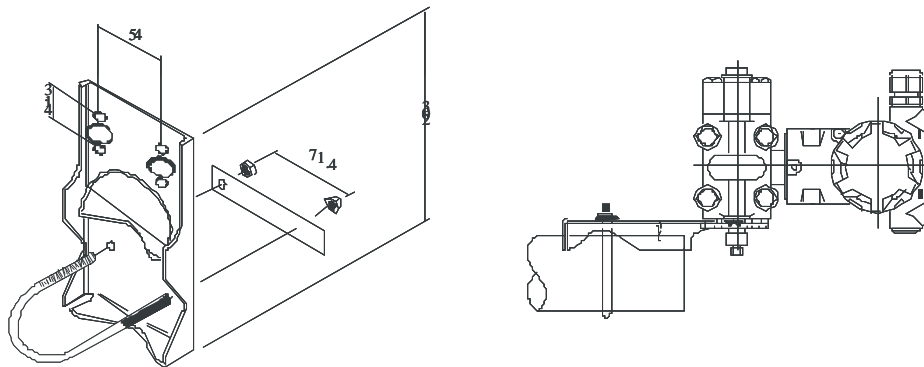
➤ OTHER ACCESSORIES



Pipe-mounting bended support



disk-mounting bended support



Pipe-mounting flat support

**ALDPT**

Pressure Transmitter

**\*\* Please contact your local SMC application engineer**

**You also need to provide the following information:**

Type of Fluid	We need the name of your fluid, including operating density and viscosity
Process Pressure and Temperature	Working temperature and pressure measure range.
Type of Electronics	output and connections
Pipe Material	We need the name of your pipe material

**➤ Model Selection Guide - Gauge Pressure Transducer**

ALDPT												
Example 1: ALDPT-BGP-3-E-12-M1-B1-S-5												
ALDPT-	**_	**_	**_	**_	**_	**_	**_	**_	**_	**_	**_	Description
pressure transmitter	-BGP										Function	
intelligent pressure transmitter	-BAGP										Function	
0~1~6KPa	3									Measuring Range		
0~6~40KPa	4											
0~40~200KPa	5											
0~160~1000KPa	6											
0~0.4~2.5MPa	7											
0~1.6~10MPa	8											
0~4~25MPa	9											
0~6~40MPa	0											
General analog type ( 4~20)mA <sub>DC</sub> with adjustable damping			E								Output	
Standard data type(4~20)mA <sub>DC</sub> with keystroke set up			S									
Standard intelligent(4~20)mA <sub>DC</sub> with keystroke and HART protocol)			I									
<b>Flanged joint</b>	<b>Drain/vent valve</b>	<b>Isolation diaphragm</b>								Construction material		
Carbon steel cadmium plated	316 Stainless Steel	316 Stainless Steel	12									
316 SST	316 Stainless Steel	316 Stainless Steel	22									
316 SST	316 Stainless Steel	Hastalloy C <sup>®</sup>	23									
linear indicator (0~100% scale)			M1								Display	
LCD digital range display			M3									
LED digital range display			M4									
0~100% of range LCD digital display			M5									
0~100% of range LED digital display			M6									
LCD digital range display with back light			M7									
LCD digital range display without back light			M8									
90° bracket for pipe installation (2" pipe)			B1								Install Options	
90° bracket for panel installation			B2									
side drain/vent valve on top of flange			D1									
side drain/vent valve under the flange			D2									
¼-18 NPTF female pipe thread			P									
"J" type joint: positive thread of m20×1.5 and back welded lead-pressure pipe (ss)			J									
N-type joint: ½-14 NPTF female pipe thread			N									
½-14 NPTF lead pressure transition joint and back welded lead pressure pipe (ss)			C12									
Standard (w/o explosion proof)			S									Explosion
Isolated explosion-proof ExdIIBT5 or ExdIICT6			D									
Intrinsically safe ExiaIICT6 or ExibiIICT6 (commonly choice)			I									
0.20%			2								Accuracy	
0.50%			5									
0.075%(Intelligent option)			7									
Special requirement			**								Options	

➤ Model Selection Guide - Absolute Pressure Transmitter

ALDPT											
Example 1: ALDPT-BAP-4-E-12-M1-B1-S-5											
ALDPT-	**_	**_	**_	**_	**_	**_	**_	**_	**_	**	Description
absolute pressure transmitter	-BAP									Function	
intelligent absolute pressure transmitter	-BAAP									Function	
0~6~40KPa	4								Measuring Range		
0~40~200KPa	5										
0~160~1000KPa	6										
0~0.4~2.5MPa	7										
0~1.6~10MPa	8										
General analog type ( 4~20)mA <sub>DC</sub> with adjustable damping			E							Output	
Standard data type(4~20)mA <sub>DC</sub> with keystroke set up			S								
Standard intelligent(4~20)mA <sub>DC</sub> with keystroke and HART protocol)			I								
<b>Flanged joint</b>	<b>Drain/vent valve</b>	<b>Isolation diaphragm</b>								Construction material	
Carbon steel cadmium plated	316 Stainless Steel	316 Stainless Steel	12								
Carbon steel cadmium plated	Hastalloy C <sup>®</sup>	Hastalloy C <sup>®</sup>	13								
Carbon steel cadmium plated	Monel <sup>®</sup> steel	Monel <sup>®</sup> steel	14								
Carbon steel cadmium plated	316 Stainless Steel	Tantalum	15								
316 SST	316 Stainless Steel	316 Stainless Steel	22								
316 SST	316 Stainless Steel	Hastalloy C <sup>®</sup>	23								
316 SST	316 Stainless Steel	Monel <sup>®</sup> steel	24								
316 SST	316 Stainless Steel	Tantalum	25								
Halloy C	Hastalloy C <sup>®</sup>	Hastalloy C <sup>®</sup>	33								
Halloy C	Hastalloy C <sup>®</sup>	Tantalum	35								
Monel metal	Monel <sup>®</sup> steel	Monel <sup>®</sup> steel	44								
linear indicator (0~100% scale)						M1				Display	
LCD digital range display						M3					
LED digital range display						M4					
0~100% of range LCD digital display						M5					
0~100% of range LED digital display						M6					
LCD digital range display with back light						M7					
LCD digital range display without back light						M8					
90° bracket for pipe installation (2" pipe)						B1					
90° bracket for panel installation						B2					
Flat bracket for pipe installation (2" pipe)						B3					
Drain/vent valve at the face of flanged back						D0					
side drain/vent valve on top of flange						D1					
side drain/vent valve under the flange						D2					
¼-18 NPTF female pipe thread						P					
"J" type joint: positive thread of m20×1.5 and back welded lead-pressure pipe (ss)						J					
N-type joint: ½-14 NPTF female pipe thread						N					
½-14 NPTF lead pressure transition joint and back welded lead pressure pipe (ss)						C12					
Standard (w/o explosion proof)							S				Explosion
Isolated explosion-proof ExdIIBT5 or ExdIICT6							D				
Intrinsically safe ExialIICT6 or ExibIICT6 (commonly choice)							I				
0.20%							2				Accuracy
0.50%							5				
0.075%(Intelligent option)							7				
Special requirement							**				Options

➤ Model Selection Guide - Micro Differential Pressure Transducer

ALDPT												
Example 1: ALDPT-BDR-2A-E-12-M1-B1-S-5												
ALDPT-	**_	**_	**_	**_	**_	**_	**_	**_	**_	**_	Description	
micro Δ pressure transmitter	-BDR									Function		
intelligent micro Δ pressure transmitter	-BADR									Function		
0~0.16~1.0KPa	Static pressure: 1MPa	2A									Measuring Range	
0~0.16~1.0KPa	Static pressure: 2.5MPa	2B										
0~0.16~1.0KPa	Static pressure: 4MPa	2C										
General analog type (4~20)mA <sub>DC</sub> with adjustable damping		E									Output	
Standard data type(4~20)mA <sub>DC</sub> with keystroke set up		S										
Standard intelligent(4~20)mA <sub>DC</sub> with keystroke and HART protocol)		I										
Standard intelligent (4~20mA <sub>DC</sub> output is $\sqrt{\Delta P}$ with adjustable damping)		J										
<b>Flanged joint</b>	<b>Drain/vent valve</b>	<b>Isolation diaphragm</b>									Construction material	
Carbon steel cadmium plated	316 Stainless Steel	316 Stainless Steel	12									
Carbon steel cadmium plated	Hastalloy C <sup>®</sup>	Hastalloy C <sup>®</sup>	13									
Carbon steel cadmium plated	Monel <sup>®</sup> steel	Monel <sup>®</sup> steel	14									
Carbon steel cadmium plated	316 Stainless Steel	Tantalum	15									
316 SST	316 Stainless Steel	316 Stainless Steel	22									
316 SST	316 Stainless Steel	Hastalloy C <sup>®</sup>	23									
316 SST	316 Stainless Steel	Monel metal	24									
316 SST	316 Stainless Steel	Tantalum	25									
Halloy C	Hastalloy C <sup>®</sup>	Hastalloy C <sup>®</sup>	33									
Halloy C	Hastalloy C <sup>®</sup>	Tantalum	35									
Monel metal	Monel <sup>®</sup> steel	Monel <sup>®</sup> steel	44									
linear indicator (0~100% scale)		M1									Display	
LCD digital range display (liquid crystal)		M3										
LED digital range display (numeral tube)		M4										
0~100% of range LCD digital display		M5										
0~100% of range LED digital display		M6										
LCD digital range display with back light		M7										
LCD digital range display without back light		M8										
90° bracket for pipe installation (2" pipe)		B1										Install Options
90° bracket for panel installation		B2										
Flat bracket for pipe installation (2" pipe)		B3										
Drain/vent valve at the face of flanged back		D0										
side drain/vent valve on top of flange		D1										
side drain/vent valve under the flange		D2										
½-18 NPTF female pipe thread		P										
"J" type joint: positive thread of m20×1.5 and back welded lead-pressure pipe (ss)		J										
N-type joint: ½-14 NPTF female pipe thread		N										
½-14 NPTF lead pressure transition joint and back welded lead pressure pipe (ss)		C12										
Standard (w/o explosion proof)		S									Explosion	
Isolated explosion-proof ExdIIBT5 or ExdIICT6		D										
Intrinsically safe ExialICT6 or ExibIICT6 (commonly choice)		I										
0.20%		2									Accuracy	
0.50%		5										
0.075%(Intelligent option)		7										
Special requirement		**									Options	

➤ Model Selection Guide - Medium & High Differential Pressure Transmitter

ALDPT											
Example 1: ALDPT-BDP-3D-E-12-M1-B1-S-5											
ALDPT-	**_	**_	**_	**_	**_	**_	**_	**_	**_	**_	Description
low, medium and high Δpressure transmitter	-BDP									Function	
low, medium and high Δpressure transmitter	-BADP									Function	
0~1~6KPa	Static pressure: 4MPa	3D									Measuring Range
0~6~40KPa	Static pressure: 10MPa	4D									
0~40~200KPa	Static pressure: 10MPa	5D									
0~160~1000KPa	Static pressure: 10MPa	6D									
0~0.4~2.5MPa	Static pressure: 10MPa	7D									
0~1.6~10MPa	Static pressure: 10MPa	8D									
General analog type ( 4~20)mA <sub>DC</sub> with adjustable damping		E									
Standard data type(4~20)mA <sub>DC</sub> with keystroke set up		S									
Standard intelligent(4~20)mA <sub>DC</sub> with keystroke and HART protocol)		I									
Standard intelligent (4~20mA <sub>DC</sub> output is $\sqrt{\Delta P}$ with adjustable damping)		J									
<b>Flanged joint</b>	<b>Drain/vent valve</b>	<b>Isolation diaphragm</b>									Construction material
Carbon steel cadmium plated	316 Stainless Steel	316 Stainless Steel	12								
Carbon steel cadmium plated	Hastalloy C <sup>®</sup>	Hastalloy C <sup>®</sup>	13								
Carbon steel cadmium plated	Monel <sup>®</sup> steel	Monel <sup>®</sup> steel	14								
Carbon steel cadmium plated	316 Stainless Steel	Tantalum	15								
316 SST	316 Stainless Steel	316 Stainless Steel	22								
316 SST	316 Stainless Steel	Hastalloy C <sup>®</sup>	23								
316 SST	316 Stainless Steel	Monel <sup>®</sup> steel	24								
316 SST	316 Stainless Steel	Tantalum	25								
Halloy C	Hastalloy C <sup>®</sup>	Hastalloy C <sup>®</sup>	33								
Halloy C	Hastalloy C <sup>®</sup>	Tantalum	35								
Monel metal	Monel <sup>®</sup> steel	Monel <sup>®</sup> steel	44								
linear indicator (0~100% scale)		M1									
LCD digital range display (liquid crystal)		M3									
LED digital range display (numeral tube)		M4									
0~100% of range LCD digital display		M5									
0~100% of range LED digital display		M6									
LCD digital range display with back light		M7									
LCD digital range display without back light		M8									
90° bracket for pipe installation (2" pipe)		B1									Install Options
90° bracket for panel installation		B2									
Flat bracket for pipe installation (2"pipe)		B3									
Drain/vent valve at the face of flanged back		D0									
side drain/vent valve on the top of flange		D1									
side drain/vent valve under of the flange		D2									
N-type joint: ½-14 NPTF female pipe thread		N									
½-14 NPTF lead pressure transition joint and back welded lead pressure pipe (ss)		C12									
Standard (without explosion proof)		S									Explosion
Isolated explosion-proof ExdIICT5 or ExdIICT6		D									
Intrinsically safe ExialICT6 or ExibIICT6 (commonly choice)		I									
0.20%		2									Accuracy
0.50%		5									
0.075%(Intelligent option)		7									
Special requirement		**									Options

➤ Model Selection Guide - High Pressure Differential Pressure Transmitter

ALDPT											
Example 1: ALDPT-BHP-3A-E-12-M1-B1-S-5											
ALDPT-	**_	**_	**_	**_	**_	**_	**_	**_	**_	**_	Description
high static pressure $\Delta$ pressure transmitter	-BHP									Function	
Intelligent high static pressure $\Delta$ pressure transmitter	-BAHP									Function	
0~1~6KPa	Static pressure: 10MPa	3A									Measuring Range
0~6~40KPa	Static pressure: 25MPa	4A									
0~40~200KPa	Static pressure: 25MPa	5A									
0~160~1MPa	Static pressure: 25MPa	6A									
0~0.4~2.5MPa	Static pressure: 25MPa	7A									
0~6~40.0KPa	Static pressure: 32MPa	4B									
0~40~200KPa	Static pressure: 32MPa	5B									
General analog type ( 4~20)mA <sub>DC</sub> with adjustable damping		E									Output
Standard data type(4~20)mA <sub>DC</sub> with keystroke set up		S									
Standard intelligent(4~20)mA <sub>DC</sub> with keystroke and HART protocol)		I									
Standard intelligent (4~20mA <sub>DC</sub> output is $\sqrt{\Delta P}$ with adjustable damping)		J									
<b>Flanged joint</b>	<b>Drain/vent valve</b>	<b>Isolation diaphragm</b>									Construction material
Carbon steel cadmium plated	316 Stainless Steel	316 Stainless Steel	12								
Carbon steel cadmium plated	Hastalloy C <sup>®</sup>	Hastalloy C <sup>®</sup>	13								
Carbon steel cadmium plated	Monel <sup>®</sup> steel	Monel <sup>®</sup> steel	14								
Carbon steel cadmium plated	316 Stainless Steel	Tantalum	15								
316 SST	316 Stainless Steel	316 Stainless Steel	22								
316 SST	316 Stainless Steel	Halloy C	23								
316 SST	316 Stainless Steel	Monel <sup>®</sup> steel	24								
316 SST	316 Stainless Steel	Tantalum	25								
Halloy C	Hastalloy C <sup>®</sup>	Hastalloy C <sup>®</sup>	33								
Halloy C	Hastalloy C <sup>®</sup>	Tantalum	35								
Monel metal	Monel <sup>®</sup> steel	Monel <sup>®</sup> steel	44								
linear indicator (0~100% scale)		M1									Display
LCD digital range display (liquid crystal)		M3									
LED digital range display (numeral tube)		M4									
0~100% of range LCD digital display		M5									
0~100% of range LED digital display		M6									
LCD digital range display with back light		M7									
LCD digital range display without back light		M8									
90° bracket for pipe installation (2" pipe)		B1									
90° bracket for panel installation		B2									
Flat bracket for pipe installation (2"pipe)		B3									
Drain/vent valve at the face of flanged back		D0									
"J" type joint: positive thread of m20×1.5 and back welded lead-pressure pipe (ss)		J									
N-type joint: ½-14 NPTF female pipe thread		N									
½-14 NPTF lead pressure transition joint and back welded lead pressure pipe (ss)		C12									
Standard (w/o explosion proof)		S									Explosion
Isolated explosion-proof ExdIICT5 or ExdIICT6		D									
Intrinsically safe ExiaIICT6 or ExibIICT6 (commonly choice)		I									
0.20%		2									Accuracy
0.50%		5									
0.075%(Intelligent option)		7									
Special requirement		**									Options