

Kent-Taylor Deltapi N Series Pneumatic Transmitters Model NDD Gauge pressure transmitter with remote diaphragm seal

GENERAL CHARACTERISTICS

The blind type pressure transmitter, mod. NDD, is used to measure a pressure and convert it into a proportional pneumatic signal.

The instrument works on the force-balance principle and consists of two main units:

the measuring unit comprises a main body which houses a bellows unit, connected via a capillary pipe through the positive connection port to a separator forming one all-welded system filled with a separating liquid. The negative connection port is open to atmosphere. The bellows unit is clamped in the main body forging by means of a flange and it can withstand the maximum overrange on positive side without damage.

the transmission unit converts the differential force applied to the measuring element into a proportional output pneumatic signal.

The output pressure, generated by a flapper nozzle relay, is fed to a feedback bellows with a rising pressure until the bellows force balances that of the measuring element.

Span value continuously adjustable by an internal micrometric screw.

Zero value adjustable by an external screw.

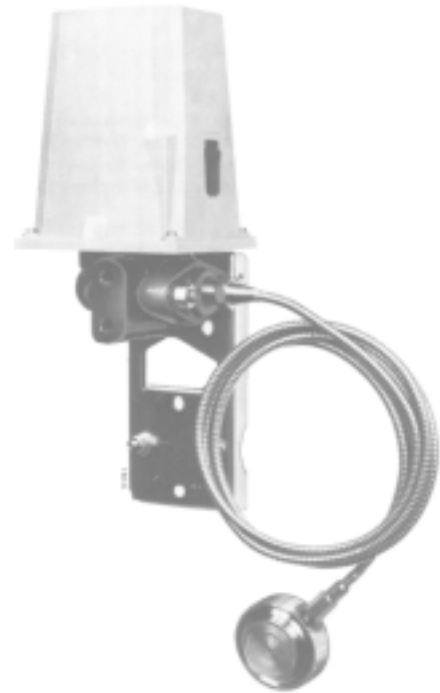
Mounting in a vertical position on 2in diameter pipe by a special bracket.

OPTIONAL EXTRA FEATURES

A zero elevation or suppression device allows to set as a zero of the transmitter a measured variable value different from zero.

Zero suppression value (S) added to the calibrated span must never exceed the upper range limit of measuring element : $S + \text{span} \leq M$ (see table).

Air filter regulator can be directly mounted on the transmitter, with or without output gauge, and connected with piping and fittings either in stainless steel or copper.



SPECIFICATIONS

The data were obtained from laboratory tests on standard instruments with:
carbon steel or AISI 316 body and flange; AISI 316 bellows unit; separator and capillary filling: silicone oil;
measuring bellows seals: PTFE; calibration span: 800 kPa - 8 bar (bellows A), 1700 kPa - 17 bar (bellows B),
3500 kPa - 35 bar (bellows C), 7000 kPa - 70 bar (bellows D).

MEASURING BELLOWS	DIAPHRAGM DIAMETER	SPAN LIMITS min. and max.	RANGE LIMITS	MAXIMUM ZERO SUPPRESSION (S)	MAXIMUM ZERO ELEVATION	OVERRANGE LIMIT
			upper and lower (M)			
A	3in	170 and 1700 kPa 1.7 and 17 bar	-100 and 2500 kPa -1 and 25 bar	2330 kPa 23.3 bar	100 kPa 1 bar	3.5 MPa 35 bar
B	2in	350 and 3500 kPa 3.5 and 35 bar	-100 and 5000 kPa -1 and 50 bar	4650 kPa 46.5 bar	100 kPa 1 bar	7 MPa 70 bar
C	2in	700 and 7000 kPa 7 and 70 bar	-100 and 10000 kPa -1 and 100 bar	9300 kPa 93 bar	100 kPa 1 bar	14 MPa 140 bar
D	2in	1400 and 14000 kPa 14 and 140 bar	-100 and 20000 kPa -1 and 200 bar	18600 kPa 186 bar	100 kPa 1 bar	28 MPa 280 bar

Air supply

nom. 140 kPa (1.4 bar, 20 psi); min. 125 kPa (1.25 bar, 18 psi); max. 175 kPa (1.75 bar, 25 psi)

Output signal

20 to 100 kPa/0.2 to 1 bar, 3 to 15 psi or 0.2 to 1 kg/cm²

Static air consumption

350 NI/h

Maximum output flow:

- with rising output pressure: 30 NI/min.
- with falling output pressure: 40 NI/min.

Accuracy

± 0.5% F.S.D. (typical)

Thermal drift (for ambient temperature variation between -20° C and + 65° C)

Bellows A

- span 170 to 340 kPa (1.7 to 3.4 bar): 1%/10°C
- span 340 to 1700 kPa (3.4 to 17 bar): 0.5%/10°C

Bellows B

- span 350 to 700 kPa (3.5 to 7 bar): 0.8%/10°C
- span 700 to 3500 kPa (7 to 35 bar): 0.4%/10°C

Bellows C

- span 700 to 1400 kPa (7 to 14 bar): 0.6%/10°C
- span 1400 to 7000 kPa (14 to 70 bar): 0.3%/10°C

Bellows D

- span 1400 to 2800 kPa (14 to 28 bar): 0.5%/10°C
- span 2800 to 14000 kPa (28 to 140 bar): 0.2%/10°C

Degree of protection in accordance with IEC 529

IP55

Ambient temperature limits

-40 and + 120°C

Body and flange material

Carbon steel, AISI 316

Separators materials

AISI 316, K Monel, Monel, Duranickel, AISI 316 L, Hastelloy C, Titanium, Tantalum

Separator seal material

Monel, PTFE, Viton

Separators filling / working temperature range

- Silicone oil :-40 to + 200°C
- Santotherm 66 : +200 to + 300°C

Cover material

thermoplastic resin

Surface protections

- carbon steel body and flange: zinc plating and chrome passivation
- AISI 316 body and flange: none

Process connections

- 2in separator suitable for flange: DN 50 UNI up to PN 250 WN (*), DN 2in ANSI up to 1500 RF WN or SW (*)
- 3in separator suitable for flange: DN 65 UNI PN 40/64 (*), DN 2 1/2 in ANSI 300/400 RF (*)

(*) With blind counter flange

Pneumatic connections

- Air supply (in figure ref. A): 1/4 in NPT-F
- Output (in figure ref. B): 1/4 in NPT-F

Net weight (maximum)

8 kg approx

Packing

expanded polythene box

ORDERING INFORMATION

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

PRODUCT CODE

abc de fg hi j k lm

BASE MODEL _____
 VERSION _____
 BODY AND FLANGE _____
 MEASURING ELEMENT _____
 SEALS _____
 OUTPUT _____
 EXTRAS _____

Code

abc **BASE MODEL**
 Gauge pressure transmitter with remote diaphragm seal **NDD**

de **VERSION**
 Standard - 2 m. capillary length **61**

fg **BODY AND FLANGE**
 Carbon steel **01**
 AISI 316 **11**

SEPARATOR

hi	Diaphragm material	Core material	Capsule filling	Size	Range limits 0 and kPa - psi		Span limits kPa (psi)	
	AISI 316	AISI 316	Silicone oil	3 in	2500	362	170 and 1700 (24.6 and 246)	01
	AISI 316	AISI 316	Silicone oil	2 in	5000	725	350 and 3500 (50.7 and 507)	02
	AISI 316	AISI 316	Silicone oil	2 in	10000	1450	700 and 7000 (101.5 and 1015)	03
	AISI 316	AISI 316	Silicone oil	2 in	20000	2900	1400 and 14000 (203 and 2030)	04
	AISI 316	AISI 316	Santotherm 66	3 in	2500	362	170 and 1700 (24.6 and 246)	05
	AISI 316	AISI 316	Santotherm 66	2 in	5000	725	350 and 3500 (50.7 and 507)	06
	AISI 316	AISI 316	Santotherm 66	2 in	10000	1450	700 and 7000 (101.5 and 1015)	07
	AISI 316	AISI 316	Santotherm 66	2 in	20000	2900	1400 and 14000 (203 and 2030)	08
	K. Monel	Monel	Silicone oil	3 in	2500	362	170 and 1700 (24.6 and 246)	23
	K. Monel	Monel	Silicone oil	2 in	5000	725	350 and 3500 (50.7 and 507)	24
	K. Monel	Monel	Silicone oil	2 in	10000	1450	700 and 7000 (101.5 and 1015)	25
	K. Monel	Monel	Silicone oil	2 in	20000	2900	1400 and 14000 (203 and 2030)	26
	K. Monel	Monel	Santotherm 66	3 in	2500	362	170 and 1700 (24.6 and 246)	27
	K. Monel	Monel	Santotherm 66	2 in	5000	725	350 and 3500 (50.7 and 507)	28
	K. Monel	Monel	Santotherm 66	2 in	10000	1450	700 and 7000 (101.5 and 1015)	29
	K. Monel	Monel	Santotherm 66	2 in	20000	2900	1400 and 14000 (203 and 2030)	30
	Duranickel	Nickel	Silicone oil	3 in	2500	362	170 and 1700 (24.6 and 246)	31
	Duranickel	Nickel	Silicone oil	2 in	5000	725	350 and 3500 (50.7 and 507)	32
	Duranickel	Nickel	Silicone oil	2 in	10000	1450	700 and 7000 (101.5 and 1015)	33
	Duranickel	Nickel	Silicone oil	2 in	20000	2900	1400 and 14000 (203 and 2030)	34
	Duranickel	Nickel	Santotherm 66	3 in	2500	362	170 and 1700 (24.6 and 246)	35
	Duranickel	Nickel	Santotherm 66	2 in	5000	725	350 and 3500 (50.7 and 507)	36
	Duranickel	Nickel	Santotherm 66	2 in	10000	1450	700 and 7000 (101.5 and 1015)	37
	Duranickel	Nickel	Santotherm 66	2 in	20000	2900	1400 and 14000 (203 and 2030)	38
	AISI 316L	AISI 316L	Silicone oil	3 in	2500	362	170 and 1700 (24.6 and 246)	39
	AISI 316L	AISI 316L	Silicone oil	2 in	5000	725	350 and 3500 (50.7 and 507)	40
	AISI 316L	AISI 316L	Silicone oil	2 in	10000	1450	700 and 7000 (101.5 and 1015)	41
	AISI 316L	AISI 316L	Silicone oil	2 in	20000	2900	1400 and 14000 (203 and 2030)	42
	AISI 316L	AISI 316L	Santotherm 66	3 in	2500	362	170 and 1700 (24.6 and 246)	43
	AISI 316L	AISI 316L	Santotherm 66	2 in	5000	725	350 and 3500 (50.7 and 507)	44
	AISI 316L	AISI 316L	Santotherm 66	2 in	10000	1450	700 and 7000 (101.5 and 1015)	45
	AISI 316L	AISI 316L	Santotherm 66	2 in	20000	2900	1400 and 14000 (203 and 2030)	46
	Hastelloy C	Hastelloy C	Silicone oil	3 in	2500	362	170 and 1700 (24.6 and 246)	53
	Hastelloy C	Hastelloy C	Silicone oil	2 in	5000	725	350 and 3500 (50.7 and 507)	54
	Hastelloy C	Hastelloy C	Silicone oil	2 in	10000	1450	700 and 7000 (101.5 and 1015)	55
	Hastelloy C	Hastelloy C	Silicone oil	2 in	20000	2900	1400 and 14000 (203 and 2030)	56
	Hastelloy C	Hastelloy C	Santotherm 66	3 in	2500	362	170 and 1700 (24.6 and 246)	57
	Hastelloy C	Hastelloy C	Santotherm 66	2 in	5000	725	350 and 3500 (50.7 and 507)	58
	Hastelloy C	Hastelloy C	Santotherm 66	2 in	10000	1450	700 and 7000 (101.5 and 1015)	59
	Hastelloy C	Hastelloy C	Santotherm 66	2 in	20000	2900	1400 and 14000 (203 and 2030)	60
	Titanium	Titanium	Silicone oil	3 in	2500	362	170 and 1700 (24.6 and 246)	67
	Titanium	Titanium	Silicone oil	2 in	5000	725	350 and 3500 (50.7 and 507)	68
	Titanium	Titanium	Silicone oil	2 in	10000	1450	700 and 7000 (101.5 and 1015)	69
	Titanium	Titanium	Silicone oil	2 in	20000	2900	1400 and 14000 (203 and 2030)	70
	Titanium	Titanium	Santotherm 66	3 in	2500	362	170 and 1700 (24.6 and 246)	71
	Titanium	Titanium	Santotherm 66	2 in	5000	725	350 and 3500 (50.7 and 507)	72
	Titanium	Titanium	Santotherm 66	2 in	10000	1450	700 and 7000 (101.5 and 1015)	73
	Titanium	Titanium	Santotherm 66	2 in	20000	2900	1400 and 14000 (203 and 2030)	74
	Tantalum	Hastelloy C	Silicone oil	3 in	2500	362	170 and 1700 (24.6 and 246)	75
	Tantalum	Hastelloy C	Silicone oil	2 in	5000	725	350 and 3500 (50.7 and 507)	76
	Tantalum	Hastelloy C	Silicone oil	2 in	10000	1450	700 and 7000 (101.5 and 1015)	77
	Tantalum	Hastelloy C	Silicone oil	2 in	20000	2900	1400 and 14000 (203 and 2030)	78
	Tantalum	Hastelloy C	Santotherm 66	3 in	2500	362	170 and 1700 (24.6 and 246)	79
	Tantalum	Hastelloy C	Santotherm 66	2 in	5000	725	350 and 3500 (50.7 and 507)	80
	Tantalum	Hastelloy C	Santotherm 66	2 in	10000	1450	700 and 7000 (101.5 and 1015)	81
	Tantalum	Hastelloy C	Santotherm 66	2 in	20000	2900	1400 and 14000 (203 and 2030)	82

Note: Multiply by 10 the value in kPa (MPa) to obtain mbar (bar).

j SEPARATOR SEALS

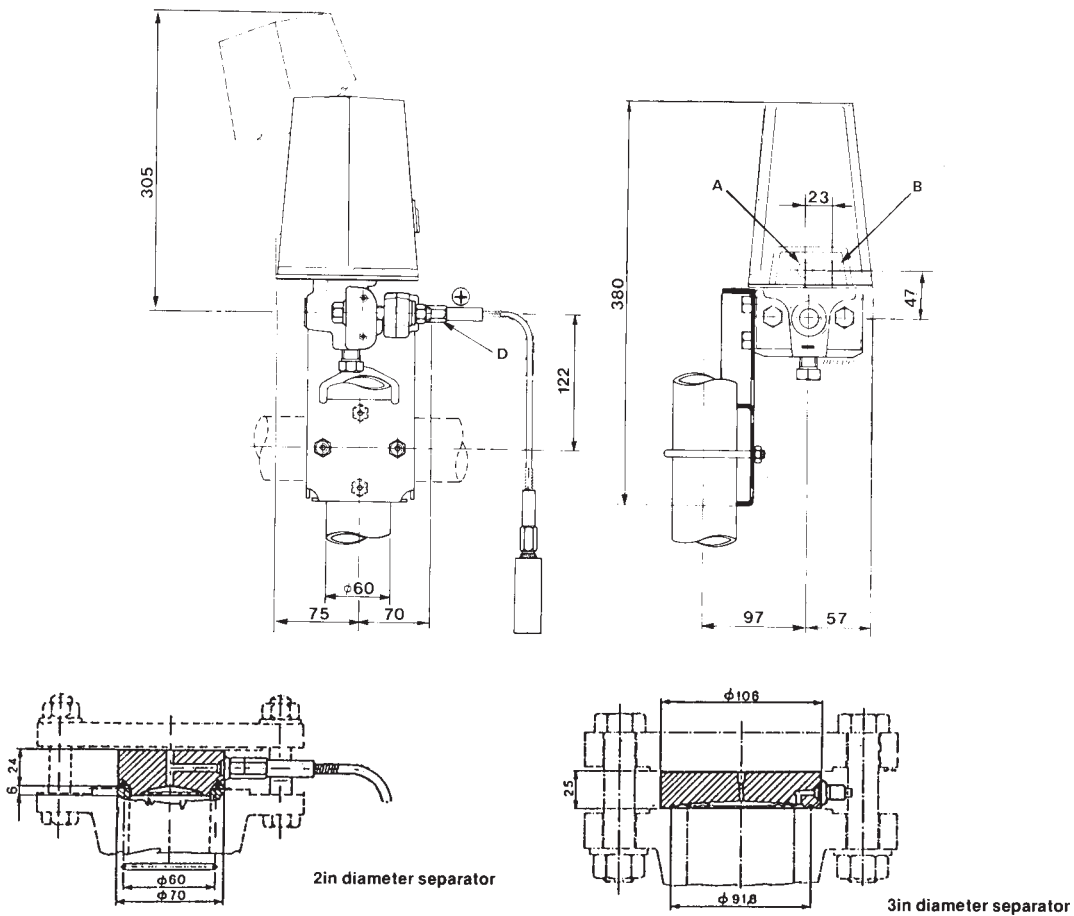
Viton	1
PTFE	2
Monel (Suitable for use with separators filled with Santotherm 66 and to a max working temperature of 300°C)	8

k OUTPUT

3 to 15 psi	According to ANSI/ISA S 51.1-1979 standard terminology	1
3 to 15 psi with zero elevation device		2
3 to 15 psi with zero suppression device		3
0.2 to 1.0 kg/cm ²		4
0.2 to 1.0 kg/cm ² with zero elevation device		5
0.2 to 1.0 kg/cm ² with zero suppression device		6
20 to 100 kPa / 0.2 to 1 bar		7
20 to 100 kPa / 0.2 to 1 bar with zero elevation device		8
20 to 100 kPa / 0.2 to 1 bar with zero suppression device		9

EXTRAS

Im	Identification tag material	Piping material	Air filter regulator	Pressure gauge	
	s.s.	--	--	--	02
	s.s.	s.s.	with	--	10
	s.s.	Copper	with	--	11
	s.s.	s.s.	with	with	13
	s.s.	Copper	with	with	14



The Company's policy is one of continuous product improvement and the right is reserved to modify the specifications contained herein without notice.

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