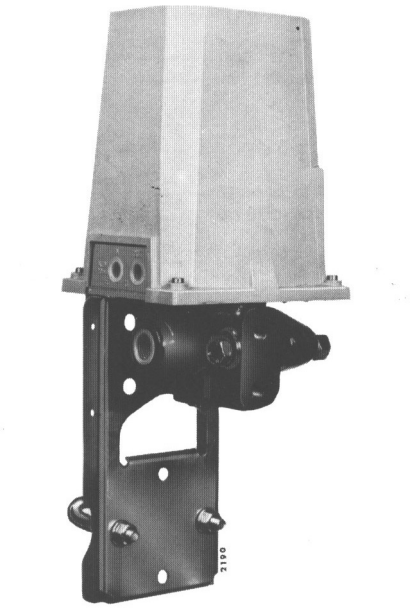
Data Sheet DS/NDA-EN Rev. H

Model NDA
Differential pressure transmitter

Deltapi N Series
A complete range of pneumatic pressure transmitters



Introduction

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

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DESCRIPTION

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, clamped in the main body forging by means of a flange. The bellows unit releves the differential pressure between the negative and positive connection ports; it can withstand the maximum rated static pressure on either 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.
The sum of the zero suppression value (S) plus the calibrated span cannot exceed the upper range limit (M) suitable by the diaphragm capsule : S + span ≤ M (see table).

Air filter regulator can be directly mounted on the transmitter, with or without pressure gauge, and connected with piping and fittings either in stainless steel or copper.
Special versions of air filter regulator and gauges, in stainless steel, are available on request.

Oxygen measurements a special degreasing and final test operations can be required on the oxygen measuring transmitter.

SPECIFICATIONS

The data were obtained from laboratory tests on standard instruments with:
carbon steel or AISI 316L body and flange; AISI 316L bellows unit; gasket: 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	SPAN LIMITS min. and max.	RANGE LIMITS lower and upper (M)	MAXIMUM ZERO SUPPRESSION (S)	MAXIMUM ZERO ELEVATION	STATIC PRESSURE LIMITS Full vacuum and
A	170 and 1700 kPa 1.7 and 17 bar	-2500 and +2500 kPa -25 and +25 bar	2330 kPa 23.3 bar	2500 kPa 25 bar	2.5 MPa (•) 25 bar (•)
B	350 and 3500 kPa 3.5 and 35 bar	-5000 and +5000 kPa -50 and +50 bar	4650 kPa 46.5 bar	5000 kPa 50 bar	5 MPa (•) 50 bar (•)
C	700 and 7000 kPa 7 and 70 bar	-10000 and +10000 kPa -100 and +100 bar	9300 kPa 93 bar	10000 kPa 100 bar	10 MPa (•) 100 bar (•)
D	1400 and 10000 kPa 14 and 100 bar	-10000 and +10000 kPa -100 and +100 bar	8600 kPa 86 bar	10000 kPa 100 bar	10 MPa (•) 100 bar (•)

(•) Equal to Maximum Working pressure as well as Overrange Limit

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/cm^2

Static air consumption
350 Nl/h

Maximum output flow
- with rising output pressure: 30 Nl/min.
- with falling output pressure: 40 Nl/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): 0.6%/10°C
- span 340 to 1700 kPa (3.4 to 17 bar): 0.3%/10°C

Bellows B
- span 350 to 700 kPa (3.5 to 7 bar): 0.6%/10°C
- span 700 to 3500 kPa (7 to 35 bar): 0.3%/10°C

Bellows C
- span 700 to 1400 kPa (7 to 14 bar): 0.8%/10°C
- span 1400 to 7000 kPa (14 to 70 bar): 0.4%/10°C

Bellows D
- span 1400 to 2800 kPa (14 to 28 bar): 1%/10°C
- span 2800 to 10000 kPa (28 to 100 bar): 0.5%/10°C

Pressure effect for variation of
- Bellows A - 1.75 MPa (17.5 bar): 0.25%
- Bellows B - 3.5 MPa (35 bar): 0.25%
- Bellows C - 5 MPa (50 bar): 0.3%
- Bellows D - 5 MPa (50 bar): 0.3%

Degree of protection in accordance with IEC 529
IP55

Ambient temperature limits
-40 and + 120°C

Body and flange material
Carbon steel, AISI 316 L, Monel

Body bolts and nuts material
high tensile carbon steel;
AISI 316 Class A4-70 per ISO3506;
high tensile stainless steel, in compliance with NACE MR0175

Measuring bellows material
AISI 316 L

Gasket material
PTFE, Viton

Cover material
thermoplastic resin

Surface protections
- carbon steel body and flange: zinc plating and chrome passivation
- AISI 316 L body and flange: no protection

Process connections (see figure ref. D and E)
1/2 in NPT-F

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

Pressure gauge
Brass with stainless steel case (all stainless steel on request) external diameter 51 mm; 0-200 kPa, 0-2 bar and 0-30 psi indication on 82 mm/260° scale.

Air filter regulator
with copper or stainless steel piping, as specified.
Die cast aluminium alloy with light grey epoxy finish.

Net weight (maximum)
7 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
GASKETS
OUTPUT
EXTRAS

abc **BASE MODEL**

	Code
Differential pressure transmitter	NDA

de **VERSION**

Standard with body bolts and nuts in high tensile carbon steel	01
Standard with body bolts and nuts in AISI 316	11
Standard with body bolts and nuts in high tensile stainless steel	21

fg **BODY AND FLANGE**

Carbon steel / Carbon steel	01
AISI 316 L / AISI 316 L	11
Monel / Monel	21

hi **MEASURING ELEMENT**

Bellows material	Range limits kPa - psi		Span limits kPa (psi) - (Note 1)	
AISI 316 L	± 2500	± 362	170 and 1700 (24.6 and 246)	01
AISI 316 L	± 5000	± 725	350 and 3500 (50.7 and 507)	02
AISI 316 L	± 10000	± 1450	700 and 7000 (101.5 and 1015)	03
AISI 316 L	± 10000	± 1450	1400 and 10000 (203 and 1450)	04
AISI 316 L (*)	± 2500	± 362	170 and 1700 (24.6 and 246)	41
AISI 316 L (*)	± 5000	± 725	350 and 3500 (50.7 and 507)	42

Note 1: Multiply by 10 the value in kPa (MPa) to obtain mbar (bar).
(*) Suitable for oxygen service

j **GASKETS**

Measuring element seal	Fulcrum diaphragm seal	
Viton	Viton	2
PTFE (*)	PTFE (*)	3

(*) Suitable for oxygen service

k **OUTPUT**

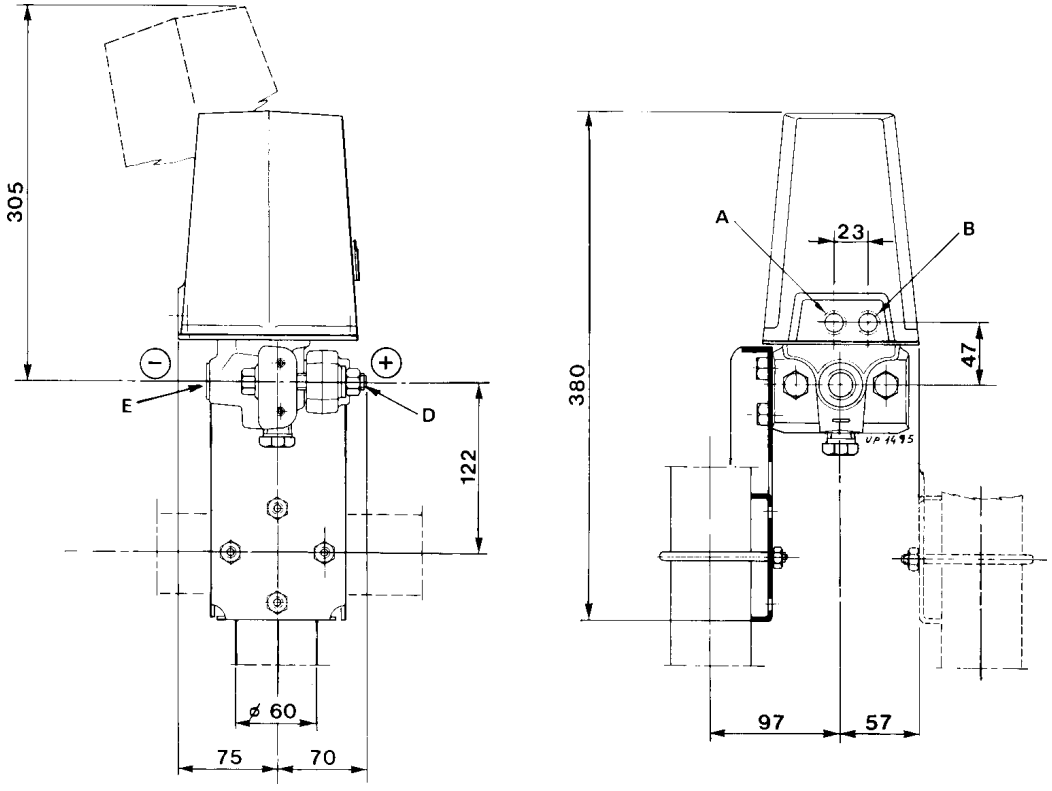
3 to 15 psi	According to ANSI/ISA S 51.1-1979 standard terminology	1
3 to 15 psi with zero elevation device		2
3 to 15 psi with zero suppression device		3
0.2 to 1.0 kg/cm^2		4
0.2 to 1.0 kg/cm^2 with zero elevation device		5
0.2 to 1.0 kg/cm^2 with zero suppression device		6
20 to 100 kPa / 0.2 to 1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

lm **EXTRAS**

Identification tag material	Piping material	Air filter regulator	Pressure gauge	
Stainless Steel	- -	- -	- -	02
Stainless Steel	Stainless Steel	with	- -	10
Stainless Steel	Copper	with	- -	11
Stainless Steel	Stainless Steel	with	with	13
Stainless Steel	Copper	with	with	14

■ Compliance to NACE class II bolting, according to specification MR0175, latest revision

MOUNTING DIMENSIONS



Contact us

ABB Ltd.
Process Automation
Howard Road
St. Neots
Cambridgeshire PE19 8EU
UK
Tel: +44 (0)1480 475321
Fax: +44 (0)1480 217948

ABB Inc.
Process Automation
125 E. County Line Road
Warminster
PA 18974
USA
Tel: +1 215 674 6000
Fax: +1 215 674 7183

ABB Automation Products GmbH
Process Automation
Schillerstr. 72
32425 Minden
Germany
Tel: +49 551 905 534
Fax: +49 551 905 555

ABB S.p.A.
Process Automation
Via Statale 113
22016 Lenno (CO)
Italy
Tel: +39 0344 58111
Fax: +39 0344 56278

www.abb.com

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