



DIFFERENTIAL PRESSURE SWITCHES D-SERIES



- **STURDY, ROBUST AND PRECISE**
- **HIGH STATIC PRESSURE**
- **WIDE PRESSURE RANGES**
- **CHOICE OF DIAPHRAGM MATERIAL**

D-Series Differential Pressure Switches are designed for low or high differential pressure ranges from 12.5 to 250 mm H₂O to 4.2 to 42 Kg/Cm² (Table 'C'). The low range differential pressure switches are diaphragm actuated where process pressure acts on both sides of a diaphragm and ensures true response. The high range Differential pressure switch consists of two identical calibrated pistons which are sealed from the process by diaphragms.

The rugged diaphragm sealed piston actuator provides setpoint repeatability of ±0.5%. The enclosure is die-cast Aluminium and is available in weatherproof and flameproof versions (Table 'A'). A wide variety of SPDT (Single) and 2 × SPDT (Dual) snap action switches are available to meet many electrical load requirements (Table 'B').

Applications include : Pumps, Compressors, Heat Exchangers, Boilers, Marine Equipment, Lube Systems, Filters, Degreasers, Evaporators, Heat Recovery System, Ground Support Equipments, Textile Machinery, Heating & Air Conditioning Systems, Food Processing, Heat Tracing, Fire Fighting, Bottling, Bulk Conveying, Packing & Filling, Furnace, Blowers and Air Dryers, etc.,

GENERAL SPECIFICATION

| | |
|----------------------|---|
| Ranges | 12.5 ~ 250 mm H ₂ O to 4.2 ~ 42 Kg/Cm ² , various split-up ranges |
| Deadband | Fixed or Narrow adjustable deadband |
| No. of Microswitches | 1 or 2 SPDT (Form C) |
| Repeatability | ±0.5% FSR |
| Sensor | Diaphragm Sealed Piston Actuator |
| Actuator Seal | Buna-N, Viton®, Teflon®, 316SS diaphragm |

Material of Pressure Housing (wetted part)

| | |
|----------------------------|--|
| mm H ₂ O Ranges | 304 SS Std. for Buna-N, Viton, Teflon Sensor; 316 SS optional |
| | 316 SS Std. for Stainless Steel Sensor |
| Other Ranges | 316 SS Std. for all Sensors |
| Process Connection | 1/4" NPTF – Standard Others through adaptors |
| Electrical Connection | D4 : 3/4" NPTF Std. 1/2" NPTF optional D7 : 1/2" NPTF Std. |
| Conformity | Generally to BS 6134 : 1991 |

* Viton® is a registered trademark of DuPont Dow Elastomers
Teflon® is a registered trademark of E.I. DuPont de Nemours and Company



ORDERING MATRIX

| A | ENCLOSURE |
|---|--|
| Code | Description |
| D4 | Differential Pressure Switch in Type 400 weatherproof enclosure to meet IP:66 as per IS:13947 (Part I) 1993. |
| D7 | Differential Pressure Switch Type 700 flameproof enclosure to meet to gas Gr.IIA, IIB & IIC as per IS:2148:2004. |
| <i>Ambient operating limit (-)30°C to 65°C for all switches</i> | |

ORDERING MATRIX Contd.,

| B | | SWITCH TYPE | | |
|--------|--------|---|-----------------------|----------------------------------|
| Code | | Type | Electrical Rating | |
| 1 SPDT | 2 SPDT | | AC | DC |
| 20 | 61 | Low Differential | 15A 125 / 250V / 480V | N.R. |
| 24 | 64 | General Purpose | 15A 125 / 250 / 480V | 0.4A 125V; 0.2A 250V; 6A 30V (R) |
| 26 | 62 | Sealed Environment Proof | 5A 125 / 250V | 3A(R) / 2A(I) 24V |
| 31 | 70 | Gold Plated Contacts | 1A 125V | 0.5A(R) / 0.25A(I) 24V |
| 32S | 68S | Hermetically Sealed Inert Gas filled Silver alloy contact | 5A125 / 250V | 5A(R) / 3A(I) 24V |
| 42S | 71S | Hermetically Sealed Inert Gas filled Gold alloy contact | N.R. | 1A(R) / 0.5A(I) 24V |
| 50 | N.A. | Variable Deadband (Narrow band) | 15A 125 / 250V | N.A. |

N.R. – Not Recommended; N.A. – Not Available; (R) – Resistive Load (I) – Inductive Load

| C | SEAL TYPE AND ADJUSTABLE RANGE |
|---|--------------------------------|
|---|--------------------------------|

| Range Code | Range | Seal (Diaphragm) Type | | | | | Max. Working Pressure |
|----------------------|--------------------------------|-----------------------|--------|-------|--------|-----------------------------|-----------------------|
| | | Seal Code | B | V | T | S (1) | |
| | | Material | Buna-N | Viton | Teflon | 316 SS | |
| | | Max. Temp. | 65°C | 150°C | 150°C | 150°C | |
| Low Pressure | | | | | | | |
| L1 | 12.5 to 250 mmH ₂ O | ✓ | ✓ | ✓ | ✓ | 3800 mmH ₂ O (3) | |
| L2 | 75 to 750 mmH ₂ O | ✓ | ✓ | ✓ | ✓ | | |
| L3 | 150 to 1500 mmH ₂ O | ✓ | ✓ | ✓ | ✓ | | |
| L4 | 250 to 2500 mmH ₂ O | ✓ | ✓ | ✓ | ✓ | | |
| L5 | 375 to 3750 mmH ₂ O | ✓ | ✓ | ✓ | ✓ | | |
| High Pressure | | | | | | | |
| H1 | 0.1 to 1 Kg/Cm ² | ✓ | ✓ | ✓ | ✓ | 33 Kg/Cm ² | |
| H2 | 0.2 to 2 Kg/Cm ² | ✓ | ✓ | ✓ | ✓ | | |
| H3 | 0.4 to 4 Kg/Cm ² | ✓ | ✓ | ✓ | ✓ | | |
| H4 | 0.6 to 6 Kg/Cm ² | ✓ | ✓ | ✓ | ✓ | | |
| H5 | 0.7 to 7 Kg/Cm ² | ✓ | ✓ | ✓ | N.A. | 65 Kg/Cm ² | |
| H6 | 1.4 to 14 Kg/Cm ² | ✓ | ✓ | ✓ | N.A. | | |
| H7 | 2.8 to 28 Kg/Cm ² | ✓ | ✓ | ✓ | N.A. | | |
| H8 | 4.2 to 42 Kg/Cm ² | ✓ | ✓ | ✓ | N.A. | 130 Kg/Cm ² | |

NOTES :

1. 316 SS diaphragm is available for
 - * Ranges L1 to L5 (12.5~250 to 375~3750 mmH₂O) with Viton gasket.
 - * Ranges H1 to H4 (0.1~1.0 to 0.6~6.0 Kg / Cm²)
2. Buna-N, Viton & Teflon diaphragms are available in all ranges.
3. Order option "XHX" for MWP of 2.8 Kg/Cm² for ranges L1 to L5 (12.5~250 to 375~3750 mmH₂O)
4. Proof pressure is 1.5 times of the MWP.
5. "CSD" Chemical seal available in Kg/Cm² ranges only. Consult Sales for details.
6. Other diaphragm material like 316LSS, Monel can be provided on request in certain ranges. Consult Sales for details.

| D | OPTIONS / ACCESSORIES |
|---|-----------------------|
|---|-----------------------|

| Code | Description | Code | Description |
|------|--|------|---|
| CSD | Chemical Seal | XCJ | Nickel Plated Brass flameproof Gr.IIA / IIB / IIC Cable gland |
| XHX | High Static Pressure for mmH ₂ O ranges only | XCL | 304 SS flameproof Gr.IIA / IIB / IIC Cable gland |
| XJL | 1/2" NPT Aluminium Cable Entry adaptor for weatherproof enclosure only | XPC | Plug in Connector 7 or 9 PIN |
| XJM | 1/2" NPT 304 SS Cable Entry adaptor for weatherproof enclosure only | XSN | Snubber |
| XBP | Wall Mounting Bracket (for mmH ₂ O ranges) | X6B | Oxygen Cleaning |
| XTM | 2" Pipe Mounting Brackets with bolts & Nuts | XSP | 304 SS Cable Entry Plug |
| XNH | 304 SS Tag Plate | XIS | Range Indicating Scale |
| XSC | SS Adaptor for Process Connection | X3GC | 3 Way Gauge Cock |
| XCG | Nickel Plated Brass Weatherproof Cable gland | X3VM | 3 Valve Manifold |
| XCI | 304 SS Weatherproof Cable gland | X5VM | 5 Valve Manifold |
| | | X2NV | 2 Way Needle Valve |

Differential Pressure Switches Deadband Chart for D4 / D7 Switches with BUNA-N Diaphragm

| Range Code | Range | Microswitches | | | | | | | | | |
|--------------------|--------------------------------|----------------------|------|--------|-------|--------|------|--------|-------|-----------------|------|
| | | 1 SPDT | | | | 2 SPDT | | | | 1 SPDT | |
| | | 20 | 26 | 24, 31 | 32,42 | 61 | 62 | 64, 70 | 68,71 | 50 (Adj. Diff.) | |
| | | Maximum Deadband | | | | | | | | Min | Max. |
| Low Pressure Range | | mmH ₂ O | | | | | | | | | |
| L1 | 12.5 to 250 mmH ₂ O | 13 | 26 | 51 | 72 | 21 | 33 | 81 | 114 | 9 | 38 |
| L2 | 75 to 750 mmH ₂ O | 15 | 30 | 64 | 89 | 25 | 38 | 102 | 142 | 11 | 51 |
| L3 | 150 to 1500 mmH ₂ O | 33 | 66 | 89 | 127 | 53 | 83 | 142 | 203 | 23 | 64 |
| L4 | 250 to 2500 mmH ₂ O | 41 | 82 | 140 | 196 | 64 | 103 | 224 | 305 | 27 | 102 |
| L5 | 375 to 3750 mmH ₂ O | 64 | 128 | 216 | 305 | 102 | 160 | 330 | 483 | 46 | 165 |
| Pressure Range | | Kg / Cm ² | | | | | | | | | |
| H1 | 0.1 to 1 Kg/Cm ² | 0.07 | 0.15 | 0.35 | 0.5 | 0.11 | 0.18 | 0.6 | 0.8 | 0.05 | 0.25 |
| H2 | 0.2 to 2 Kg/Cm ² | 0.14 | 0.3 | 0.35 | 0.5 | 0.25 | 0.35 | 0.6 | 0.8 | 0.11 | 0.25 |
| H3 | 0.4 to 4 Kg/Cm ² | 0.3 | 0.6 | 0.4 | 0.60 | 0.45 | 0.2 | 0.7 | 0.92 | 0.21 | 0.32 |
| H4 | 0.6 to 6 Kg/Cm ² | 0.5 | 1.0 | 1.0 | 1.45 | 0.82 | 1.3 | 2.2 | 3.0 | 0.4 | 0.76 |
| H5 | 0.7 to 7 Kg/Cm ² | 0.7 | 1.4 | 1.4 | 2.0 | 1.0 | 1.8 | 2.3 | 3.0 | 0.5 | 1.0 |
| H6 | 1.4 to 14 Kg/Cm ² | 1.0 | 2.2 | 2.8 | 3.9 | 1.7 | 2.8 | 4.5 | 6.3 | 0.7 | 1.8 |
| H7 | 2.8 to 28 Kg/Cm ² | 1.4 | 2.8 | 4.2 | 6.0 | 2.3 | 3.5 | 6.8 | 9.4 | 1.0 | 2.8 |
| H8 | 4.2 to 42 Kg/Cm ² | 2.8 | 5.6 | 10.6 | 14.8 | 4.5 | 7.0 | 17.0 | 24.0 | 2.0 | 8.0 |

Notes :

- Deadbands for optional diaphragms for :
 Multiply Buna-N value by: 1.4 for Viton
 1.2 for Teflon and
 1.7 for 316SS and Monel.
- Switches may generally be set between 15% and 100% of nominal range on increasing pressure and 5% and 90% of nominal range on falling pressure.
- The set and reset points must fall within the adjustable range.

ORDERING

How to order : Select the desired features in the form shown below to arrive at Model Number :

| | |
|--|---|
| | Enclosure Code Refer Table 'A' – Enclosure |
| | Switch Code Refer Table 'B' – Switch Type |
| | Seal Type Refer Table 'C' – Seal (Diaphragm) material |
| | Range Code Refer Table 'C' – Adjustable Range |
| | Options & Accessories Refer Table 'D' – Options & Accessories |

D4 20 B H3 XCG

Example : D4 20 B H3 XCG

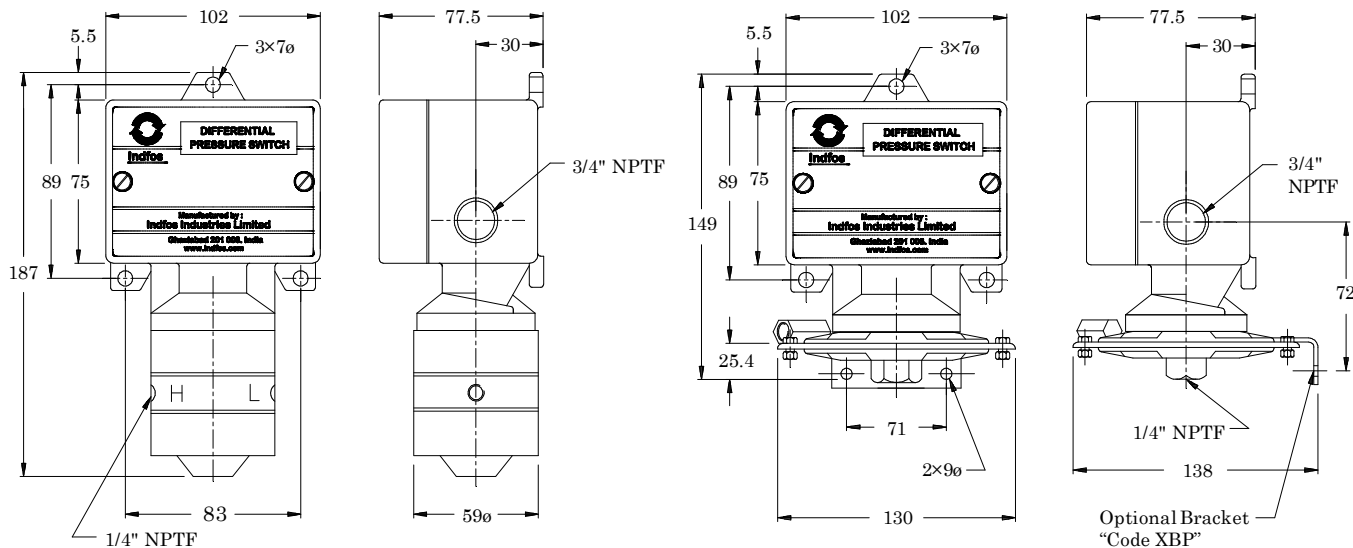
- D4** Type 400 Weatherproof Enclosure
- 20** SPDT 15A 250V AC
- B** Buna N diaphragm
- H3** 0.4 to 4.0 Kg / Cm²
- XCG** Nickel Plated Brass Weatherproof Cable gland

MOUNTING DIMENSIONS

Type 400 — Weatherproof Enclosure

Kg / Cm² Range

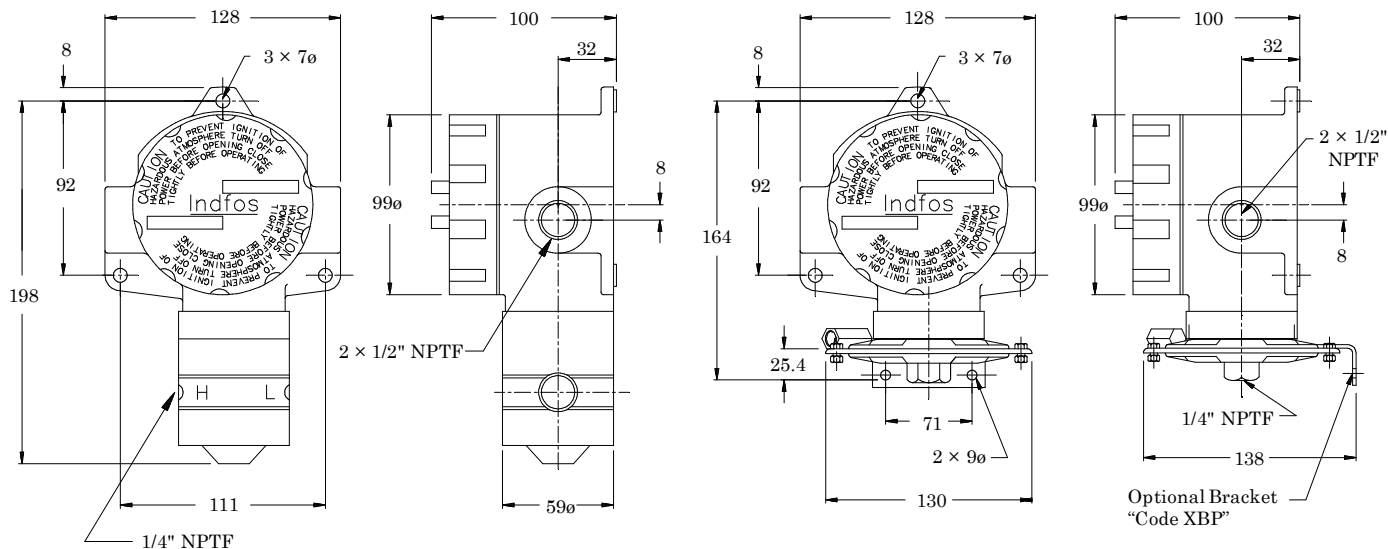
mmH₂O Range



Type 700 — Flameproof Enclosure

Kg / Cm² Range

mmH₂O Range



All dimensions are in mm

This is not a contractual document. Prior notification of changes in specifications is impracticable due to continuous improvement



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| SALES | E-MAIL | PHONE | FAX |
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| Coimbatore | | 9486191368 | |
| Delhi | delhi@indfos.com | 011-2589 7296 | 011-4500 9460 |
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