

## TITAN VACUUM

### VF266 ATEX/IECEX Exd, Exia & INDUSTRIAL VACUUM SWITCH

This range has been used to monitor filter blockage and air movement through ducting and has been specified extensively for offshore applications.

Incorporating a diaphragm and two sealing Belloframs when vacuum is required to be sensed the switch offers reliable switching action. Resistors can be incorporated for 'end of line' and short circuit monitoring.



## VACUUM

## FEATURES

- ✓ 316 stainless steel or black anodised aluminium switchcase to IP66 standards.
- ✓ Settings from -0.25 mbar to -950 mbar.
- ✓ Wetted parts NACE MR-01-75 compliant.
- ✓ ATEX/IECEX Flameproof version  
CE II2G Exd IIB + H2 T6...T2 Gb  
Tam -60 to +75°C...90°C
- ✓ Internal adjustment scale.
- ✓ Single or dual microswitch option.
- ✓ SIL2 - IEC61508 proven reliability.
- ✓ ATEX/IECEX Intrinsically safe version  
CE II1G Exia IIC T6...T2 Ga  
Tam -50 to +78°C...128°C

ADJUSTMENT RANGE (mbar g)	MINIMUM WORKING PRESSURE (bar)	MAXIMUM WORKING PRESSURE (bar g)	DEADBAND FIXED (mbar g)	SPRING CODE	DIAPHRAGM CODE
-300 to -950	-1	14	40 - 90	R	01SB
-125 to -725	-1	7	10 - 75	G	02SB
-50 to -250	-1	7	5.0 - 27.5	G	03SB
-25 to -75	-1	7	4.2 - 7.5	T	03SB
-15 to -55	-0.35	0.35	0.75 - 3.0	B	08SB
-4 to -16	-0.35	0.35	0.75 - 2.0	R	08SB
-1 to -5	-0.35	0.35	0.4 - 0.75	T	08SB
-0.4 to -4.4	Viton Diaphragm -0.35	0.35	0.05 - 0.50	T	48SB
*-0.25 to -4.25	Nitrile Diaphragm -0.35	0.35	0.05 - 0.50	T	28SB

\*with dual microswitches range is -1.5 to -4.25 mbar

#### Temperature Limitations

**Diaphragm code** : 01SB

**Viton** : -20 to +150°C

**Nitrile** : -30 to +100°C

**Diaphragm code** : 02SB, 03SB & 08SB

**Viton** : -20 to +150°C

**Nitrile** : -30 to +100°C

#### Wetted Parts - Metallic

316 stainless steel

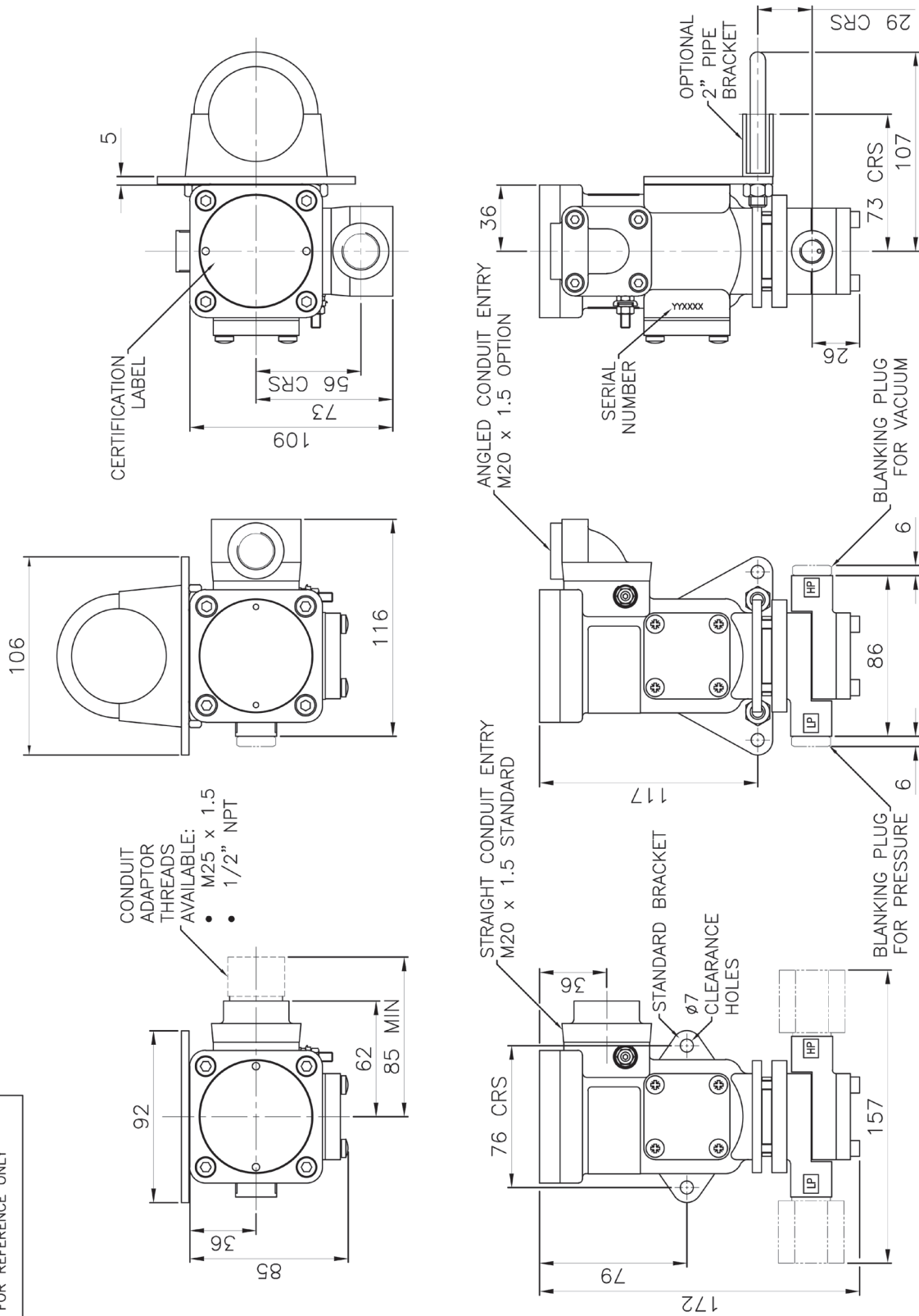
**Process Connections** : Diaphragm codes 01SB, 02SB & 03SB : 1/4" OR 1/2" BSP.P or NPT Female

Diaphragm codes 08SB, 48SB & 28SB as table below

PART NUMBER BREAKDOWN - VF266					
<b>B</b> = ATEX/IECEx Exd CERTIFIED <b>O</b> = ATEX/IECEx Exia CERTIFIED <b>A</b> = INDUSTRIAL  <b>A</b> = ALUMINIUM CASE <b>S</b> = ST. STEEL CASE  <b>VF266</b> VACUUM		<b>DIAPHRAGM MATERIAL</b> <b>A</b> = NITRILE <b>B</b> = VITON  <b>SPRING CODE</b> (SEE RANGE TABLE)		<b>A</b> = BRACKET FOR 01 DIAPHRAGM CODE <b>E</b> = 2" PIPE BRCKT FOR 01 DIA CODE <b>G</b> = BRACKET FOR 02 & 03 DIA CODE <b>P</b> = 2" PIPE BRCKT FOR 02 & 03 DIA CODE <b>W</b> = BRACKET FOR 08 DIA CODE <b>T</b> = 2" PIPE BRCKT FOR 08 DIA CODE <b>M</b> = DP286 REPLACEMENT FOR 01 DIA CODE <b>L</b> = 2" POST MOUNTING (SPARES ONLY)	
<div><div><div>V</div><div>F</div><div>2</div><div>6</div><div>6</div><div>S</div><div>1</div><div>B</div><div>/</div><div>B</div><div>R</div><div>F</div><div>0</div><div>1</div><div>S</div><div>B</div><div>6</div><div>/</div><div>A</div><div>A</div></div></div>				<b>ELECTRICAL ENTRY</b> <b>A</b> = M20 STRAIGHT <b>B</b> = M20 ANGLED <b>C</b> = 1/2" NPT STR. <b>F</b> = M25 STRAIGHT	
<b>1</b> = 1 x SPDT SWITCH <b>2</b> = 2 x SPDT SWITCH  DUAL SWITCHES ARE MECHANICALLY LINKED TO PROVIDE DPDT SWITCHING ACTION		<b>DIAPHRAGM CODE</b> <b>F01SB</b> = 01 DIAPHRAGM CODE <b>F02SB</b> = 02 DIAPHRAGM CODE <b>F03SB</b> = 03 DIAPHRAGM CODE <b>F08SB</b> = 08 DIAPHRAGM CODE  SEE RANGE SHEET		<b>PROCESS CONNECTIONS</b> DIAPHRAGM CODES 01SB, 02SB & 03SB (FEMALE) <b>5</b> = 1/4" BSP.P <b>6</b> = 1/4" NPT <b>B</b> = 1/2" BSP.P <b>D</b> = 1/2" NPT	
<b>PROCESS CONNECTIONS</b> DIAPHRAGM CODE 08SB, 28SB AND 48SB  <div><div><div><b>5</b> = 1/4" O/D TUBE POSI. ELBOW VAC</div><div><b>9</b> = SPECIAL</div><div><b>B</b> = 6mm O/D TUBE VAC</div><div><b>D</b> = 8mm O/D TUBE VAC</div><div><b>F</b> = 10mm O/D TUBE VAC</div></div><div><div><b>H</b> = 12mm O/D TUBE VAC</div><div><b>K</b> = 1/4" BSP.P FEMALE STRAIGHT VAC</div><div><b>M</b> = 1/4" BSP.T FEMALE STRAIGHT VAC</div><div><b>P</b> = 1/4" BSP.P MALE STRAIGHT VAC</div><div><b>R</b> = 1/4" NPT FEMALE STRAIGHT VAC</div><div><b>T</b> = 1/4" NPT MALE STRAIGHT VAC</div><div><b>V</b> = 1/2" NPT FEMALE STRAIGHT/VAC</div></div></div>					

TYPICAL ARRANGEMENT DRAWING  
FOR REFERENCE ONLY

DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED



#### FEMALE PROCESS ENTRY

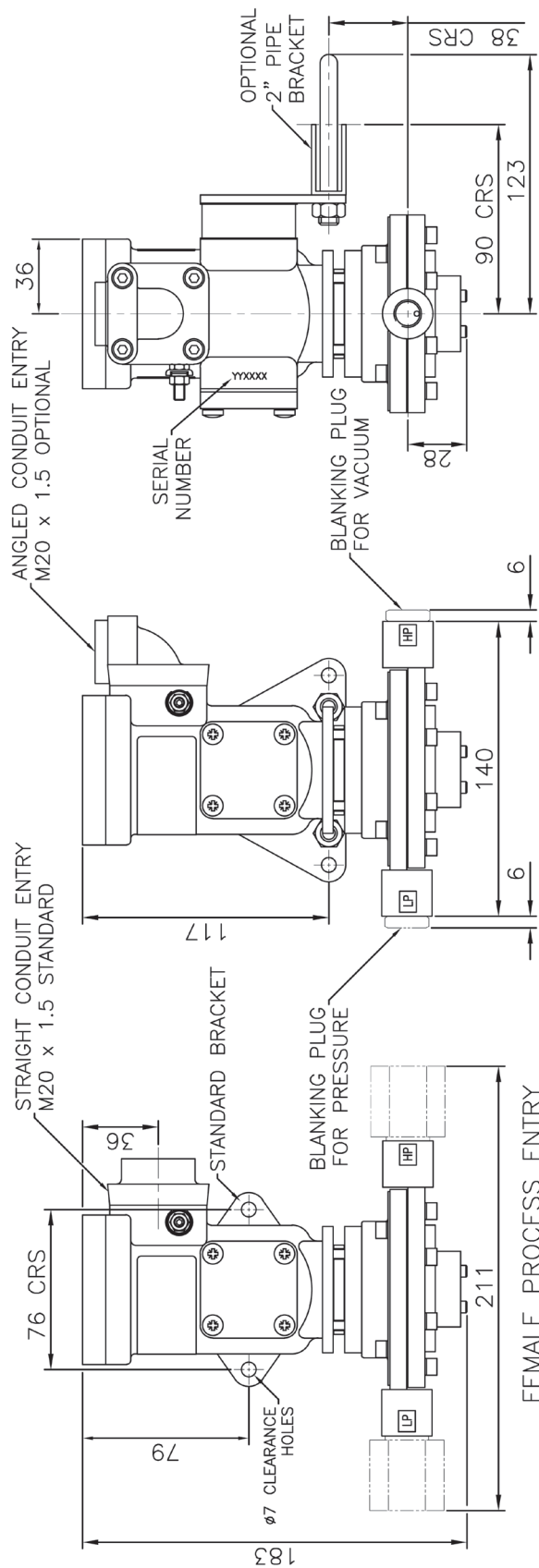
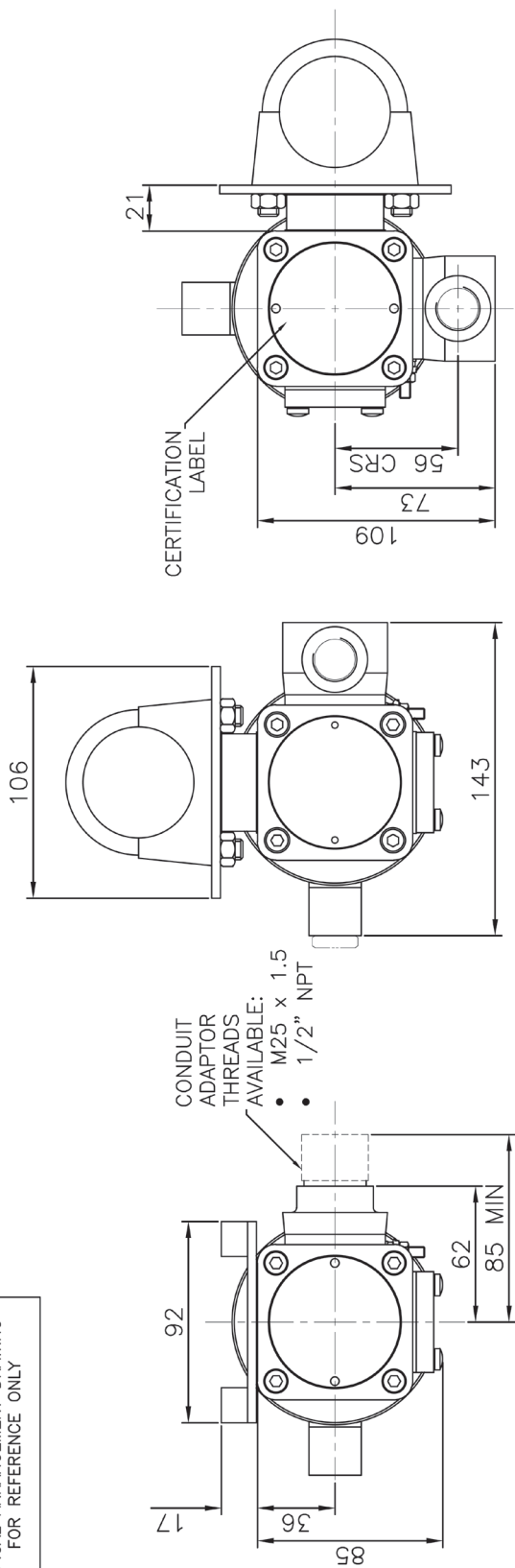
- 1/4" BSP.P
- 1/4" NPT
- 1/2" BSP.P (VIA ADAPTOR)
- 1/2" NPT (VIA ADAPTOR)

1" DIFFERENTIAL PRESSURE, LOW PRESSURE AND VACUUM

DRAWING REF: 1764/A1

TYPICAL ARRANGEMENT DRAWING  
FOR REFERENCE ONLY

DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED



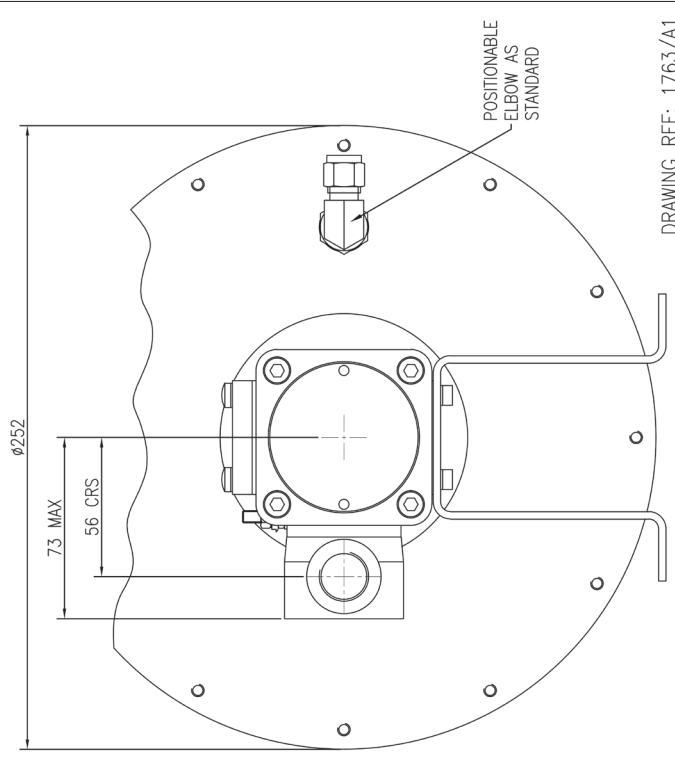
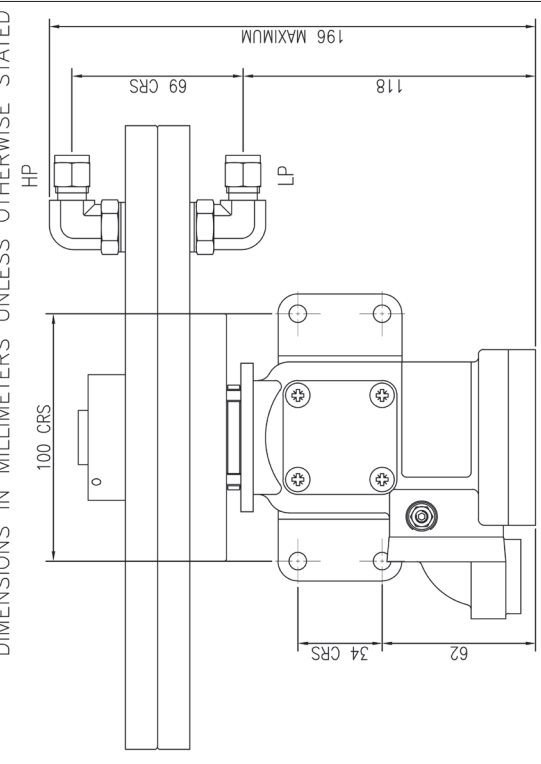
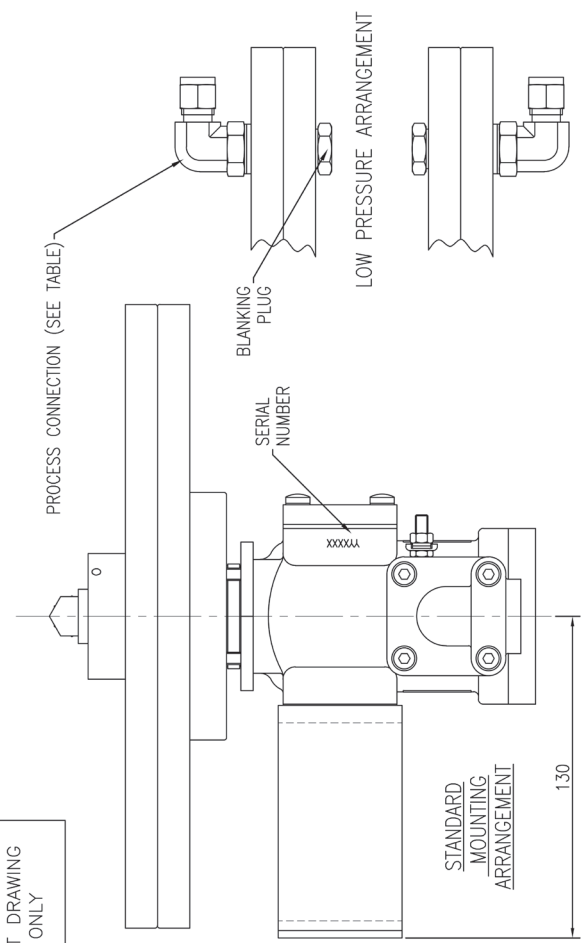
2" AND 3" DIFFERENTIAL PRESSURE, LOW PRESSURE AND VACUUM

DRAWING REF: A1/M/6763

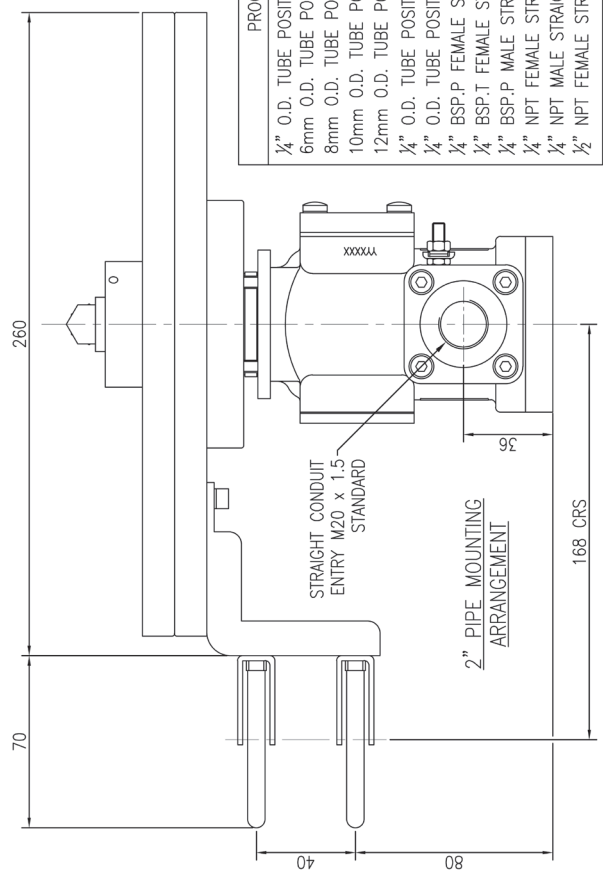
DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE STATED

TYPICAL ARRANGEMENT DRAWING FOR REFERENCE ONLY

PLEASE NOTE: SWITCHES MUST BE MOUNTED INVERTED AS SHOWN



PROCESS CONNECTIONS	
1/4" O.D. TUBE POSITIONABLE ELBOW	NOT SHOWN; DETAILS ARE AVAILABLE UPON REQUEST
6mm O.D. TUBE POSITIONABLE ELBOW	
8mm O.D. TUBE POSITIONABLE ELBOW	
10mm O.D. TUBE POSITIONABLE ELBOW	
12mm O.D. TUBE POSITIONABLE ELBOW	
1/4" O.D. TUBE POSITIONABLE BRANCH TEE	
1/4" O.D. TUBE POSITIONABLE RUN TEE	
1/4" BSP.P FEMALE STRAIGHT	
1/4" BSP.T FEMALE STRAIGHT	
1/4" BSP.P MALE STRAIGHT	
1/4" NPT FEMALE STRAIGHT	
1/4" NPT MALE STRAIGHT	
1/2" NPT FEMALE STRAIGHT	



DRAWING REF: 1763/A1

# TITAN (XPB) ATEX & IECEx Exd, Exia

## INDUSTRIAL SWITCHES

### INTRODUCTION

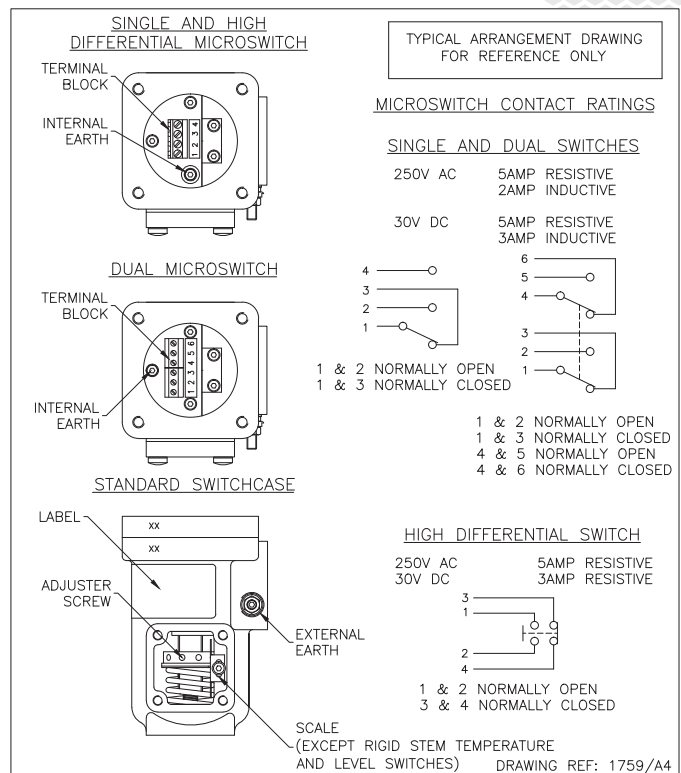
The Titan **pressure, differential pressure, temperature, level and flow** switches are designed for use in environments where explosive gases can be present (e.g. Gas fields, Oil rigs and Chemical plants etc.) and have been ATEX and IECEx certified as detailed overleaf. (SIL 2 - IEC61508 proven reliability).

These switches are manufactured from a high quality casting which offers robust construction and protection to IP66 for use within heavily polluted industrial and marine environments. A special feature of the instruments is the separation of the flameproof and adjustment compartments allowing for safe on-site adjustment of the set point with power on and the switch in operation.

The TITAN Exd certified switches must be installed in accordance with BS EN 60079-14. The certification allows for mounting against a wall or bulkhead with the minimum flamepath distances specified not being applicable.

### CALIBRATION

The design features a simple form of calibration adjustment against a scale plate. This allows users to either order units with a specific setting, or stock a mid range setting and then adjust to suit the application. This can be set safely with the switch supply live. On removal of the adjustment cover the adjusting ring can be turned with a small Tommy bar or Allen key. The setting is read from the centre of the red pointer ring against the calibrated scale plate. Rotation to the left will increase the set point and to the right decrease the set point. The adjustment mechanism incorporates a friction device to ensure set point will not change under vibration conditions.





# TECHNICAL SPECIFICATION

**Switchcase and covers:** 316 stainless steel or black anodised aluminium.

**Microswitch:** 1 x SPCO/SPDT or 2 x SPCO/SPDT gold flashed silver contacts. Dual switches are mechanically linked to provide DPDT switching action, reset of switches could be up to 3% apart. Dual microswitches may increase deadband by a factor of two.

**Microswitch rating :** 5 Amps @ 250 VAC resistive, 2 Amps @ 250 VAC inductive.  
5 Amps @ 30 VDC resistive, 3 Amps @ 30 VDC inductive.

**Electrical connections :** Terminals suitable for cable 0.5 - 2.5 mm<sup>2</sup>.  
(Max 1.5mm<sup>2</sup> for dual microswitch version)

**Electrical Conduit Entry:** M20 x 1.5 straight or angled entry. ½" NPT via adaptors

**Environmental Protection:** IP66 in accordance with BS EN 60529

**Vibration and shock parameters:** Switches were subjected to Ministry of Defence Type Approval System Test Vibration DGS 350 Paras 0602 & 0603. Shock – BR3021

**Temperature Limitations:** Pressure, Vacuum and Differential Pressure.

**Process:** Diaphragm actuated (unless otherwise stated) -30 to +100°C (Nitrile) or -20 to +150°C (Viton). Piston actuated -30 to +100°C (Nitrile) or -20 to +150°C (Viton), -40 to 150°C (PTFE) or -35 to +100°C (EPDM).

**Ambient:** -50 to +85°C (standard). Storage : -60 to +85° Deg C.

(For temperature, level and flow switches please refer to specific pages).

**Certification:** Switches can be supplied for gas environments (dust must be specified at time of enquiry).

**ATEX/IECEX certified Exd Flameproof** - Gas (with or without resistors)

CE Ex II2G Exd IIB + H2T6 Ta -60 to +75°C, T5 Ta +90°C

Special conditions for safe use. 1) No modifications must be made to the flamepaths of the unit without consultation of the drawings listed on the certificate. 2) Suitably rated cable must be selected based on t Class shown above. 3) Fasteners of yield strength 240Nmm<sup>2</sup> or greater are to be utilised. 4) Only suitably certified Ex d IIC Gb cable glands are to be used.

**ATEX/IECEX certified Exia Intrinsically Safe** - Gas

CE Ex II1G Exia IIC T6 Ta -50 to +78°C, T5 Ta +93°C, T4 Ta +128°

CE Ex II1G Exia IIC T5 Ta -50 to +72°C, T4 Ta +122°C (with resistors)

Special conditions for safe use. (Category 1, Zone 0) Aluminium may only be used when the ignition hazardous assessment shows that there is no risk of ignition from incandive, impact or abraision sparks.

**Accuracy:** +/-1% at 20°C

Continuous development may result in changes to specifications without prior notice.

## ABOUT PYROPRESS

Our products are designed to work in demanding and hazardous environments which require fast and cost effective solutions in instrumentation and control.

Pyropress control sensors provide safe and reliable electrical switching of alarm or control circuits in response to changes in temperature, pressure, differential pressure, vacuum, flow and level conditions.

## QUALITY

To support the design of state of the art products the company has invested heavily in the latest CNC technology.

We are able to produce our own components to a high degree of accuracy assuring a reliable and consistent quality product.