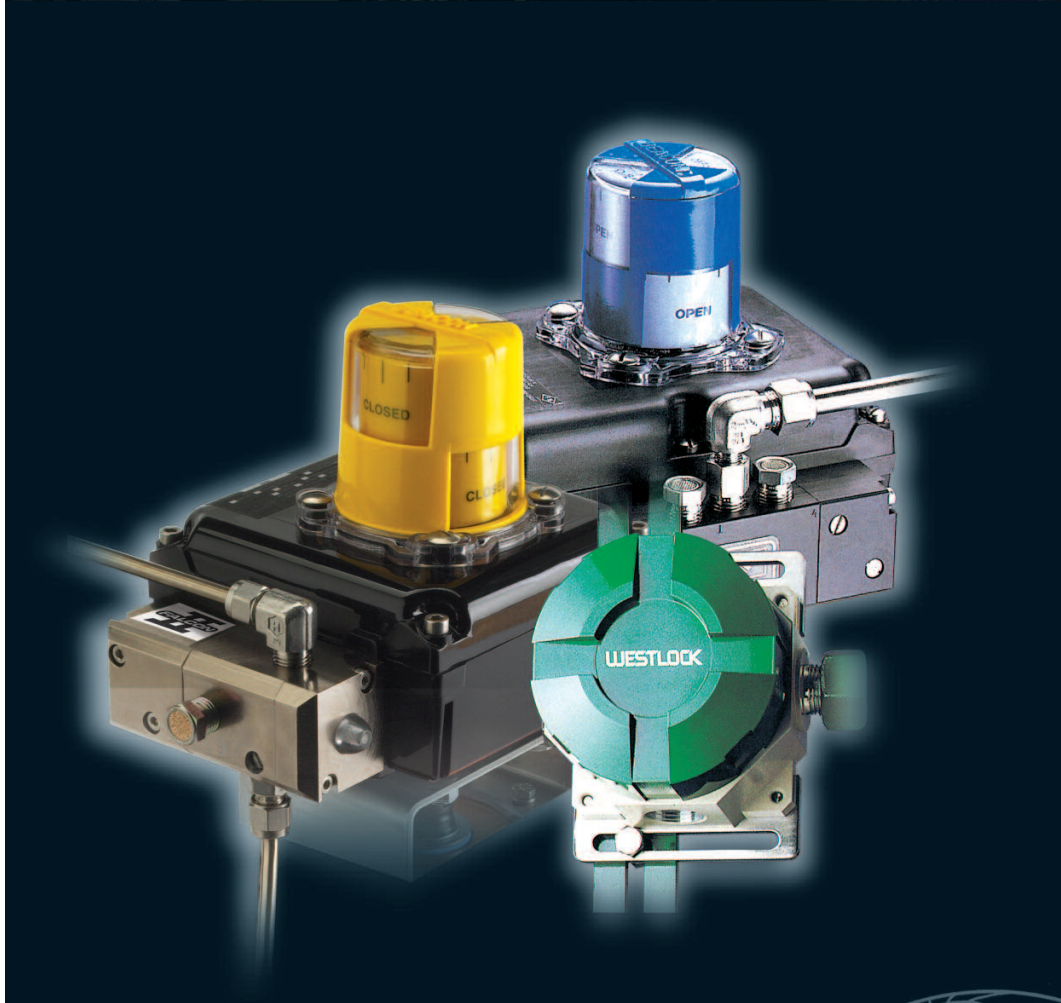
WESTLOCK
CONTROLS

HEKTO®
Mühendislik & Otomasyon

Westlock Global Offices



WESTLOCK
CONTROLS

Knowledge based solutions

As increasingly sophisticated flow control systems are installed to improve productivity and reduce maintenance downtime, stringent requirements are evolving within the process industry for reliable monitoring and control systems.

Established in 1984, Westlock has been committed to the development of innovative solutions for the monitoring and control of process control valves.

Westlock's commitment to leading edge technology remains second only to its dedication to producing products of quality. By anticipating the changing needs of the process industry, Westlock's development team is focused on implementing technological advancement of valve monitoring, control and diagnostic systems which satisfy the latest international standards and a wide array of process conditions.

Since its formation, Westlock has supplied more than 1,250,000 devices which have been installed throughout the world in the chemical, oil, gas, pharmaceutical, food, beverage, power and paper industries.

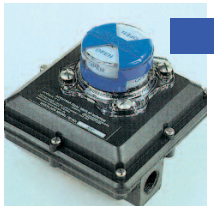
Serving the...

Chemical Industry | Food and Beverage Industry | Power Industry | Paper Industry | Oil and Gas Industry | Pharmaceutical Industry

WESTLOCK
CONTROLS

Knowledge based solutions

Accutrak®

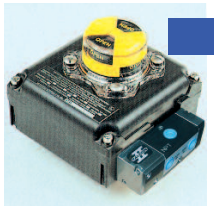


Rotary and Linear Valve Position Monitors

Designed around a unique self-locking spring-loaded TouchSet cam mechanism attached to a stainless steel shaft and housed in a weatherproof rated aluminium, stainless steel or engineered resin enclosure, the Accutrak utilised bushings at both ends to assure concentric turning of the cams.

For digital signalling to lights, motors, micro processors or peripheral equipment, two position sensors are standardly housed within the enclosure. The requirement for tools to adjust cam settings is unnecessary. The self-locking TouchSet cam mechanism allows for a quick and simple hand operation in the setting of both sensors. Additionally, the Accutrak is specifically designed for ease of wiring by the incorporation of abundant working space and a direct wire-feed terminal block. All that is necessary to make the unit operational is the bringing in of electrical leads to a single juncture.

Quantum®



Control Monitors

Addressing the increasing demand for low power monitoring and control of automation process valves, the Westlock Quantum LP integrates position sensors, low power energy solenoid valves, and fugitive emissions monitors into a single unit meeting the specific standards set by international approval agencies. Engineered and certified to meet Weatherproof and HAZARDOUS location requirements and ATEX category 1, 2 or 3 areas, the Quantum LP elevates the integration of sensors and controls to a new level.

Intellis®

Network Monitors

By integrating an I/O card within the Quantum Control Monitor, Westlock has created the capability for networking field devices. The merging of field devices and I/O results in the elimination of remote I/O cabinents, reduction of wiring costs, and efficient on-line predictive and maintenance diagnostic programs.

Network Protocol include As-i, Devilenet, Modbus, Profibus and Foundation Fieldbus.

Accutrak®

Rotary and Linear Valve Position Monitors

Linear Accutrak™ 9900 Series — Zytel Resin Diaphragm Enclosure

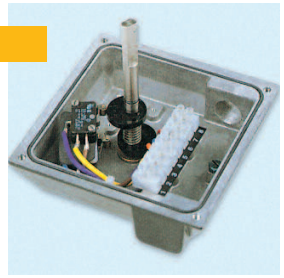
Zytel engineered resin high impact strength and chemical resistance weatherproof enclosure for non hazardous or intrinsically safe applications. (Category 2 & 3)

Switches: 1 or 2 x V3 SPDT mechanical switches.
1 or 2 x V3 SPDT gold plated mechanical switches.
1 or 2 x Inductive Proximity sensors.
1 or 2 x Magnum XT90 Hermetically sealed.

Conduit Entry: 1 or 2 x ½" NPT, M20.

Solenoid: RGS-Falcon (see page 7 for options).

Rotary Accutrak™ 2100 Series — Small Aluminium Enclosure



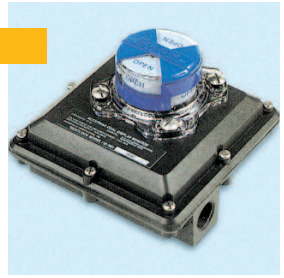
Aluminium weatherproof Enclosure for Non Hazardous or Intrinsically Safe Applications. (Category 2 & 3)

Switches: 1 or 2 x V3 SPDT or DPDT mechanical switches.
1 or 2 x V3 SPDT Gold Plated mechanical switches. (Simple Apparatus) EExia
1 or 2 x Inductive proximity sensors. (Intrinsically Safe) EExia
1 or 2 x Magnum XT90 hermetically sealed. (Simple Apparatus - EExia)

Conduit Entry: 1 or 2 x M20, PG13.5, ½" NPT, ¾" NPT.

Position Transmitters: RS, CS.

Rotary Accutrak™ 3000 Series — Small Zytel Enclosure



Ex II 2G D – EExia IIC T6 – 05 ATEX 2242 X

Zytel engineered resin high impact strength and chemical resistance weatherproof enclosure for Non Hazardous or Intrinsically Safe Applications. (Category 2 & 3)

Switches: 1 or 2 x V3 SPDT or mechanical switches.
1 or 2 x V3 SPDT Gold Plated mechanical switches. (Simple Apparatus - EExia)
1 or 2 x Inductive proximity. (Intrinsically Safe EExia)
1 or 2 x Magnum XT90 hermetically sealed. (Simple Apparatus - EExia)

Conduit Entry: 1 or 2 x M20, PG13.5, ½" NPT, ¾" NPT.

Rotary Accutrak™ 2200 Series — EExd IIB Aluminium Enclosure

Ex II 2G D – EExd IIB T6 – 03 ATEX 134361X

Aluminium explosionproof enclosure for category 2 & 3 Hazardous Area Applications.

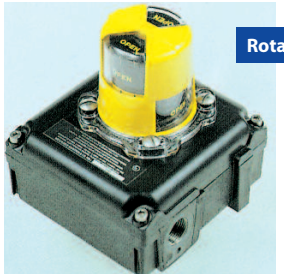
Switches: 1, 2, 3 or 4 x V3 SPDT mechanical switches.
1 or 2 x DPDT mechanical switches.
1, 2, 3 or 4 x Inductive proximity sensors.
1, 2, 3 or 4 x Magnum XT90 hermetically sealed.

Conduit Entry: 2, 3 or 4 x M20, M25, ¾" NPT.

Position Transmitters: RS, CS.

Accutrak®

Rotary and Linear Valve Position Monitors



Rotary Accutrak™ 3400 Series — LZ1 Enclosure

Ex II 2G D – EExme II T6 – 03 ATEX 135109X.

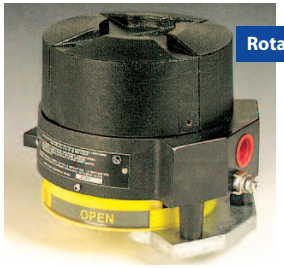
Material Options: Grilamid, Anodised Aluminium, Stainless Steel.
Switches: 1 or 2 Magnum XT90 sensors.
Terminal Block: 9 point Exe.
Conduit Entry: 1, 2 or 3 x M20, M25, ¾" NPT
Alternative Enclosure Materials: 316 Stainless Steel, Aluminium, NAB.

Ex II 1G D – EExia IIC T6 – 03 ATEX 136624X.

Material Options: Anodised Aluminium or Stainless Steel.

Ex II 2G D – EExia IIC T6 – 03 ATEX 136624X.

Material Options: Grilamid.
Switches: 1, 2, 3 or 4 x V3 SPDT gold plated mechanical switches.
1, 2, 3 or 4 x inductive proximity sensors.
1, 2, 3 or 4 x Magnum XT90 hermetically sealed.
Conduit Entry: 1, 2 or 3 x M20, M25, ¾" NPT.
Network Options: Foundation Fieldbus.

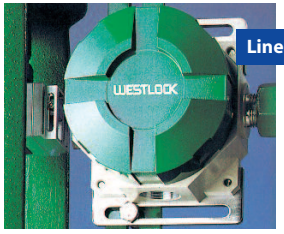


Rotary Accutrak™ 2600 Series — EExd IIC Enclosure

Ex II 2G D – EExd IIC T5/T6 – 02 ATEX 133287X.

Aluminium explosionproof enclosure for category 2 or 3 Hazardous Applications.

Material Options: Anodised Aluminium or Stainless Steel.
Switches: 1, 2, 3 or 4 x V3 SPDT mechanical switches.
1 or 2 x DPDT mechanical switches.
1 or 2 x Inductive proximity.
1, 2, 3 or 4 x Magnum XT90 hermetically sealed.
Conduit Entry: 1 or 2 x M20, M25, ¾" NPT.
Alternative Enclosure Materials: 316 Stainless Steel.

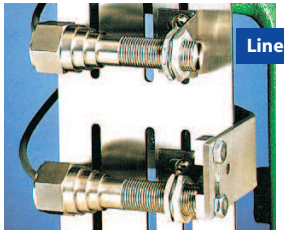


Linear Accutrak™ 2800 Series — EExd IIC Linear Enclosure

Ex II 2G D – EExd IIC T6 – 03 ATEX 135478X.

Aluminium explosionproof enclosure for Linear Monitoring Approved category 2 or 3 Hazardous Area Applications.

Material: Grilamid.
Switches: 1, 2, 3 or 4x Magnum XT90 hermetically sealed.
Conduit Entry: 1, 2 or 3 x M20, M25, ¾" NPT.
Solenoid: RGS-Falcon (see page 7 for options).



Linear Silver Bullet™ — 316 Proximity Sensor

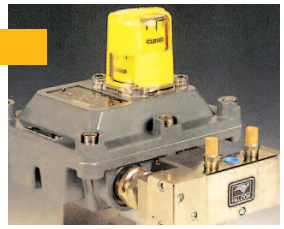
Ex II 2G – EExd IIC T6 – 03 ATEX 134002X.

Magnum hermetically sealed proximity sensors with 316 stainless steel enclosure for corrosion resistant linear monitoring. Approved for category 2 or 3 Hazardous Areas.

Switches: Hermetically sealed.
Rating: 3amps@120vac, 2 amps@24vdc, 1.5amps@240vac
Conduit Entry: M20, ¾" NPT.
Contacts: SPDT or DPDT.

Quantum®

Control Monitors



Quantum™ 2200 Series — EExd IIB Aluminium Housing

Ex II 2G D – EExd IIB T6 – 03 ATEX 134234X.

Aluminium explosionproof enclosure for category 2 & 3 Hazardous Area Applications.

Switches: 1, 2, 3 or 4 x V3 SPDT mechanical switches.
1, 2, 3 or 4 x Magnum XT90 hermetically sealed.
Conduit Entry: 1, 2 or 3 x M20, M25, PG13.5, PG16, PG21, ½" NPT or ¾" NPT.
Solenoid: RGS-Falcon (See page 7 for options).
Network Options: As-i, Devicenet, ModBus.

Quantum™ 3600 Series — EExia Aluminium Enclosure

Ex II 1G D – EExia IIC T6 – 02 ATEX 133287X.

Aluminium enclosure for category 1 Hazardous Area Applications.

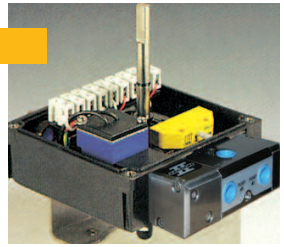
Switches: 1 or 2 x V3 SPDT gold plated mechanical switches.
1 or 2 x Inductive proximity.
1 or 2 Magnum XT90 hermetically sealed.
Conduit Entry: 1 or 2 x M20, M25, PG13.5, PG16, PG21, ½" NPT or ¾" NPT.
Solenoid: RGS-Falcon (See page 7 for options).
Network Options: Foundation Fieldbus.

Quantum™ 3600 Series — EExia Resin Enclosure

Ex II 2G D – EExia IIC T6 – 02 ATEX 133287X.

Grilamid resin enclosure with high corrosion resistance for category 2 or 3 Hazardous Area Applications.

Alternative Enclosure Materials: 316 Stainless Steel. (As shown)
Switches: 1, or 2 x V3 SPDT gold plated mechanical switches.
1 or 2 x Inductive proximity.
1, 2, 3 or 4 Magnum XT90 hermetically sealed.
Conduit Entry: 1 or 2 x M20, M25, PG13.5, PG16, PG21, ½" NPT or ¾" NPT.
Solenoid: RGS-Falcon (See page 7 for options).



Quantum™ 3700 Series — EExme Resin Enclosure

Ex II 2G D – EExme II T6 – 03 ATEX 135110X.

Grilamid resin enclosure with high corrosion resistance for category 2 or 3 Hazardous Area Applications. Alternative Enclosure.

Materials: 316 Stainless steel, Aluminium.
Switches: 1 or 2 Magnum XT90 hermetically sealed.
Terminal Block: 9 point Exe.
Conduit Entry: 1 or 2 x M20, M25, PG13.5, PG16, PG21, ½" NPT or ¾" NPT.
Solenoid: RGS-Falcon (See page 7 for options).

Quantum™ 3800 Series — General Purpose Resin Enclosure

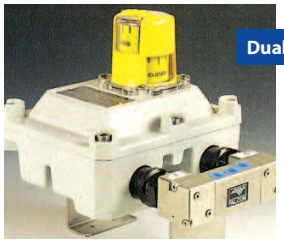
For Non Hazardous Applications.

Grilamid resin enclosure with high corrosion resistance.

Switches: 1 or 2 x V3 mechanical switches.
1 or 2 x Magnum XT90 hermetically sealed.
Conduit Entry: 1 or 2 x M20, M25, PG13.5, PG16, PG21, ½" NPT or ¾" NPT.
Solenoid: Reflex (Contact sales office for information).

Dual Coil Quantum®

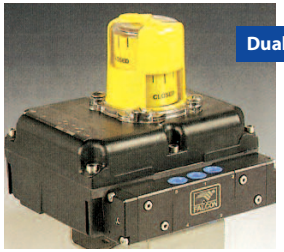
Low Power Control Monitors



Dual Coil Quantum™ — EExd Aluminium Enclosure

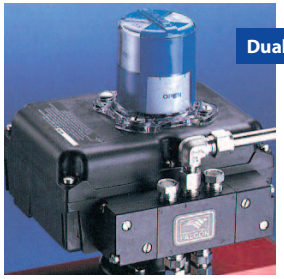
EExd IIB T6 Approved Cert#98E.124294X – Cenelec Approved.
Aluminium explosionproof enclosure for Zone 1 or 2 Hazardous Area Applications.

Switches: 1, 2, 3 or 4 x V3 SPDT mechanical switches.
1, 2, 3 or 4 x Magnum XT90 hermetically sealed.
Options: Dual coil or double solenoid configuration.
Conduit Entry: 1, 2 or 3 x M20, M25, ¾" NPT, PG16 or PG21.
Solenoid: RGS-Falcon (See page 7 for options).



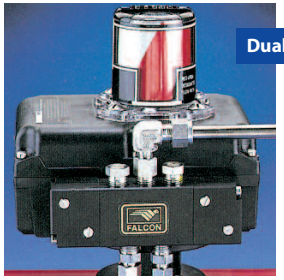
Dual Coil Quantum™ 8600 Series — EExia Resin Enclosure

Ex II 2G 3D – EExia IIC T6 – 04 ATEX 136325X.
Material: Grilamid.
Switches: 1, 2, or 3 x V3 SPDT gold plated mechanical switches.
1, 2 or 3 x Inductive proximity.
1, 2 or 3 x Magnum XT90 hermetically sealed.
Options: Dual coil or double solenoid configuration.
Conduit Entry: 1 or 2 x M20, M25, PG13.5, PG16, PG21, ½" NPT or ¾" NPT.
Solenoid: RGS-Falcon (See page 7 for options).
Ex II 1G D – EExia IIC T6 – 04 ATEX 136325X.
Material Options: Anodised Aluminium or Stainless Steel.



Dual Coil Quantum™ 8700 Series — EExme Resin Enclosure

Ex II 2G 3D – EExme II T6 – 03 ATEX 136268X.
Material Options: Grilamid, Anodised Aluminium or Stainless Steel.
Switches: 1,2 or 3 x Magnum XT90 hermetically sealed.
Terminal Block: 12 Point Exe.
Options: Dual coil or double solenoid configuration.
Conduit Entry: 1 or 2 x M20, M25, PG13.5, PG16, PG21, ½" NPT or ¾" NPT.
Solenoid: RGS-Falcon (See page 7 for options).



Dual Coil Quantum™ 8800 Series — General Purpose Resin Enclosure

For Non Hazardous Applications.
Zytel engineered resin enclosure with high corrosion resistance.
Switches: 1, 2 or 3 x V3 SPDT mechanical switches.
1, 2 or 3 x Magnum XT90 hermetically sealed.
Options: Dual coil or double solenoid configuration.
Conduit Entry: 1 or 2 x M20, M25, PG13.5, PG16, PG21, ½" NPT or ¾" NPT.
Solenoid: RGS-Falcon (See page 7 for options).

Falcon®

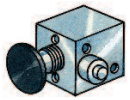
Solenoid Configurations

Coils	CV	Body	Action	
24 VDC 48 VDC 110/120 V AC 110 VDC 125 V AC 220/240V AC	1.1 CV	Nickel Plated Brass	3/2	5/2
		Anodised Aluminium	3/2	5/2
		316 Stainless Steel	3/2	5/2
	3.5 CV	Anodised Aluminium	3/2	5/2

Note: Dual Coil only available 5/2 way body

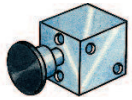
Falcon Manual Override Solenoid Valves

N – No-Voltage Release (Latching)



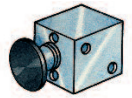
With the coil de-energized and the valve in manual override operation, a secondary press button latches the palm button 'down' to maintain operation. Reapplied manual pressure on the palm button will release the latch allowing return to the original position. With the palm button depressed and latched (valve operated energy now applied to the coil will unlatch the button (both visually and audibly)) but to maintain operation de-energising the coil returns the valve to the original position.

Energy applied to the coil will have no effect towards operating the valve until the palm button is manually depressed, causing the valve to operate. Operation is maintained until the coil is de-energised. **(Note – latching of the palm button in the 'coil energised' condition does NOT maintain valve operation if the coil is de-energised).**



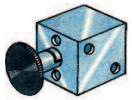
M – Momentary Override

With the coil de-energised, the palm button may be depressed and held to operate the valve. Release of the button will return the valve to the original position.



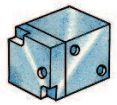
R – No-Voltage Release (Non Latching)

With the coil first energised, the palm button is then manually moved. The inward movement of the palm button causes the valve to shift. When the coil is de-energised, the valve automatically returns to its original position.



L – Falcon Manual Locking Override

With the coil de-energised, the palm button may be depressed to operate the valve clockwise rotation of depressing palm button will maintain operated condition until manually disengaged allowing return to the original position. **Note - in the overridden position the coil status will not affect the operated valve.**



H - Hex. Drive Maintained Override

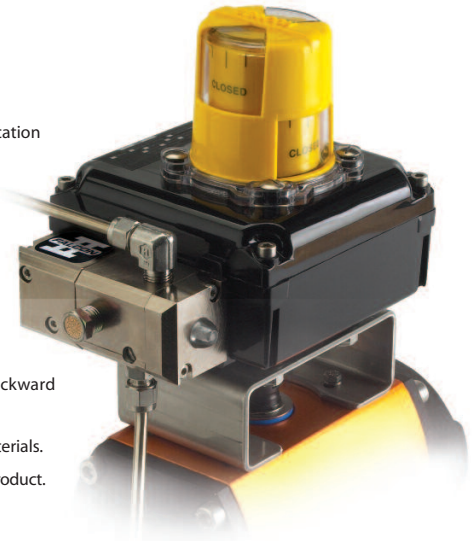
When coil de-energised insert Allen key and rotate Hex. Head screw clockwise to operate valve. Valve will stay put until hex head screw is rotated anticlockwise (4-5 turns) back to original position.

E - External Pilot

The ⅛" NPT external pilot connection requires a separate auxiliary pressure line to the valve. This feature should be used when the controlled pressure is below the minimum 45 psi operating pressure.

Falcon II®

Control Monitors



- Falcon II offers increased product performance and specification over the Falcon 1.
- Increased Cv of the existing valve to the market standard (greater than 0.7) to meet competition on an equal footing.
- Offer speed control to meet lower Cv requirements where necessary.
- Improved the durability of the spool movement indicator.
- Offers a fully non-venting valve to the market.
- The unit, is fitted to existing coil bases and therefore is backward compatible with previous Falcon I units.
- Reduced the material & landed cost of the product in all materials.
- Enhanced offering in line with market feedback on previous product.
- Obsolescence strategy for Falcon I.

Falcon II Standard Product Line

Materials

The Falcon II is available in the following materials: Anodised Aluminium, Nickel Plated Brass, 316 Stainless Steel.

303 Stainless Steel is not offered in this range due to the competitive costs offered on the 316 Stainless Steel, rendering this material redundant.

Valve Flow Rates

In line with customer feedback the Falcon II offers as standard (without speed control) a Cv of 1.1. This will meet the majority of applications in the industries that are currently supplied, the 3.5Cv Falcon I will continue to meet high flow applications.

Valve Port Tapping

The Falcon II is available in both NPT and BSP thread tapping for the standard valve to meet European and American standards. All threads are ¼" size to industry standards with any External Pilot options being offered with ⅛" size tapping. The tapping machined into any valve body (or pilot end) will be marked (machined) into the body (or pilot end) marked as either NPT (or "N") or BSP (or "B").

Internal Venting

The Falcon II range of pneumatic valves is designed with all venting to be done within the valve and exhausted by the standard exhaust port. This means that all pilot exhaust, pilot piston exhaust, and indicator chamber relief is sealed and ported to port 3 below the fitting level.

Falcon II®

Control Monitors

Optional Falcon II Solenoid Valve offering

- Existing Manual Override version as supplied on Falcon 1 – Momentary, Maintained Latching, No Voltage Release Latching and Non Latching, Allen Key Latching
- External Pilot
- Optional Seals for High or Low Temperature applications
- ETS (Exhaust to Springs) – See page 10 for explanation
- 3/2 Normally Open
- 5/3 Way Varients / Choice of all Ports open or all ports closed in unenergised state

Falcon II Material Specifications

Components	Aluminium Valve body	316 SS Valve Body	Ni-plated Brass Valve Body
Valve Body	Black anodised Aluminium	Passivated 316 Stainless Steel	Ni-plated Brass
Pilot Piston End Cap	Black anodised Aluminium	Passivated 316 Stainless Steel	Ni-plated Brass
Spring End Cap	Black anodised Aluminium	Passivated 316 Stainless Steel	Ni-plated Brass
Spool	PTFE impregnated, hard anodised aluminium	303 Stainless Steel	PTFE impregnated, hard anodised aluminium
Seals (Std operating temp.)	Nitrile	Nitrile	Nitrile
Bushes	Brass	Brass	Brass
Spring	Stainless Steel	Stainless Steel	Stainless Steel

The Operation and Benefits of Exhaust to Spring (ETS)

The conventional operation of a spring return actuator would be through the use of a 3/2 valve controlling the air supply to the pressure side of the actuator. *But the spring side is left to breathe atmospheric air and potentially contamination during each cycle.*

Fig. 10.1. Solenoid De-Energised

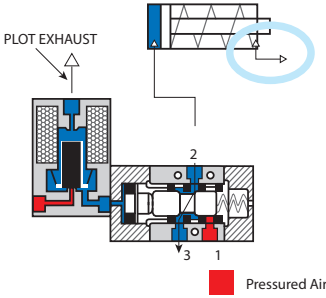
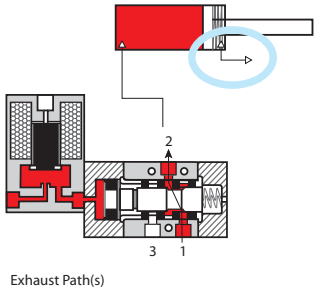


Fig. 10.2. Solenoid Energised



Pressured Air Exhaust Path(s)

Exhaust to Spring (ETS)

By internal connections within the solenoid valve, Westlock, is now able to provide the functionality of ETS in the Falcon II range of solenoid valves, as illustrated below.

The air drawn into the spring space of the actuator is at atmospheric pressure, but is of the same quality as the compressed air supply feeding the pressure side of the actuator.

The ETS port is internally connected within the valve to exhaust port 3

Fig. 10.1. Solenoid De-Energised

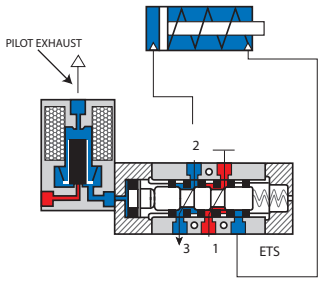
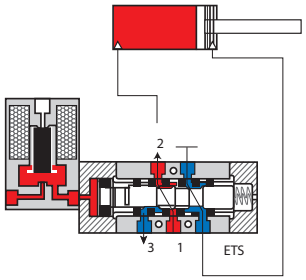


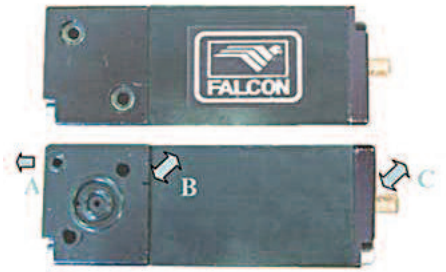
Fig. 10.2. Solenoid Energised



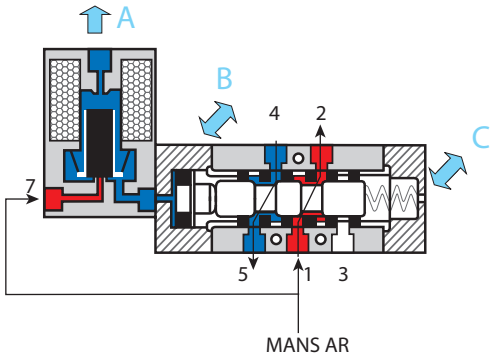
Pressured Air Exhaust Path(s)

Internal Venting

Falcon 1



Falcon II



In Falcon 1 there are 3 exhaust points to atmosphere:

A) Solenoid exhaust

B) Breather for space behind the pilot piston

C) Breather for the spring space

In Falcon II all 3 of these exhaust points are eliminated, as these areas of the solenoid valve all vent into the exhaust ports of the main spool valve.

Note: 1.2cv version of Falcon I has 2 exhaust points to atmosphere either side of outlet ports. These are eliminated within Falcon II design

Sensors and Transmitters

Mechanical Switch

SPDT Form C, DPDT Form ZZ UL/CSA

Electrical Rating (SPDT)
15 amps/125/250 VAC
.5 amps/125 VDC
6 amps/24 VDC
.25 amps/250 VDC
5 amps/125 VAC

Electrical Rating (DPDT)
10 amps/125 VAC
10 amps/250 VAC

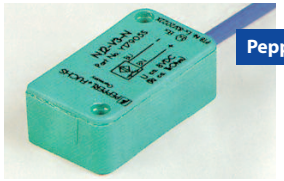
Operating Temp.
-25°C to +148°C

Magnum XT-90

High Current Proximity Sensor SPDT Form C "Hermetically Sealed" UL/CSA

Contacts: Pure Tungsten or Rhodium
Initial Contact Resistance: 50ohms (max)
Housing (Flame Retardant Valox©)
Operating Temp: -29°C to 93°C
Operational Life: 600,000 Cycles
(full rated load)
Rhodium: SPST/SPDT Form C (Normally Open), 0.295 amps/120 VAC, 0.15 amps/240 VAC, 1 amp/24 VDC
Tungsten: SPST/SPDT Form C (Normally Open), 3 amps/120 VAC, 1.5 amps/240 VAC, 2 amps/24 VDC
ATTENTION: For very low power sensing applications, Power ≤ 240 mW (24 VDC @ 10mA for example) Magnum sensors with Rhodium contacts MUST be used.

ATTENTION: Magnum and Proximity Sensors Only. PLC input modules utilize capacitors to filter out electrical noise. Newer, more sensitive designs have higher input impedances and lower operating currents and thus require higher values of capacitance for filtration. If the DI card Capacitance ≥ 0.01 mfd. a resistor of appropriate size MUST be used in series with the switch contacts to prevent the capacitive discharge from damaging the switch contacts. As an alternative, specify the MagPAC. Please consult factory for resistor sizing, a procedure to measure the capacitance of your DI card and/or additional information.



Pepperl + Fuchs NJ2-V3-N

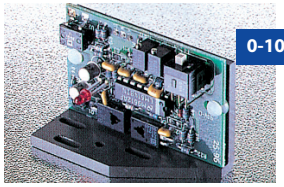
Proximity Type (Solid State)
Intrinsically Safe, BASEEFA, ATEX, PTB, UL, CSA
Sensing Range: 2mm
Electrical Version: DC Voltage 2 wire in accordance with DIN19234 (NAMUR)
Hysteresis: Approx. 5%

Switching Frequency: 1 KHz
Nominal Voltage: 8 VDC
Output/Current Consumption:
≥ 1mA ≤ 3mA
Operating Temp: -25°C to 100°C
Input Voltage Range: 5-25 VDC

Silver Bullet

High Current Proximity Sensor SPDT Form C, DPDT Form CC "Hermetically Sealed" UL, CSA
Stainless steel housing meets all NEMA 4, 4x, 7 x 9 requirements.
Class 1, Groups A, B, C, and D
Class II, Groups E, F and G

Divisions 1 and 2
Cenelec EExd IIC Certified
Electrical Rating:
3 amps/120 VAC
1.5 amps/240 VAC
2 amps/24 VDC



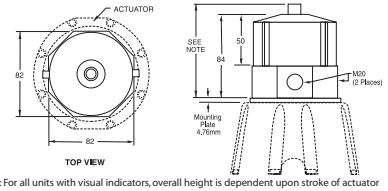
0-100% Position Transmitters

RS: A 1000 or 10,000 ohm analog resistive output proportional to valve position.
CS: A 4-20 mA, or 10-50 mA. analog current output proportional to valve position.

DT: Absolute encoder sensing technology with loop powered analog position transmission.
420R: A non-contact 4-20 mA. analog current output proportional to valve position.

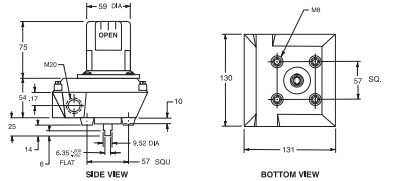
Technical Specifications

Zytel Resin Diaphragm Enclosure

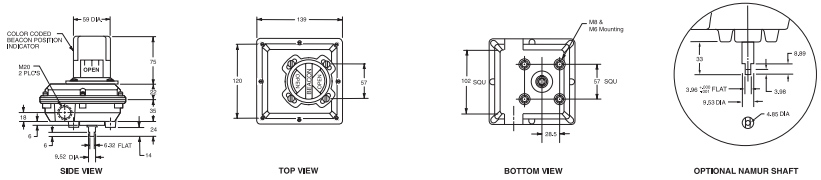


NOTE: For all units with visual indicators, overall height is dependent upon stroke of actuator

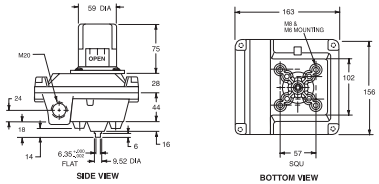
Small Aluminium Enclosure



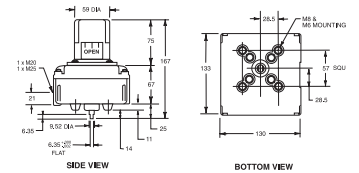
Small Zytel Enclosure



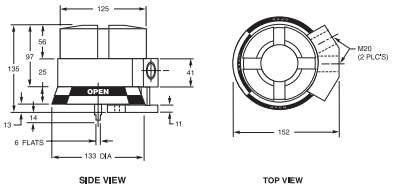
EExd IIB Aluminium Enclosure

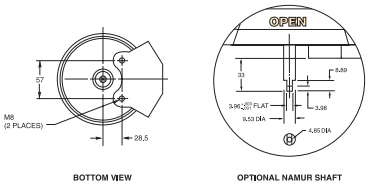


LZ1 Enclosure

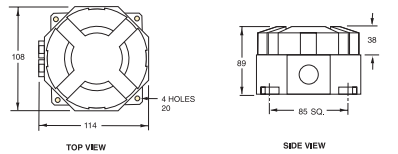


EExd IIC Enclosure

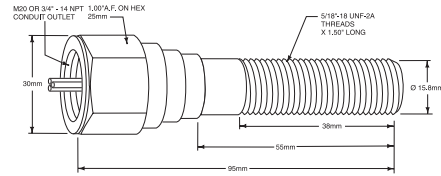




EExd IIC Enclosure



316 Proximity Sensor

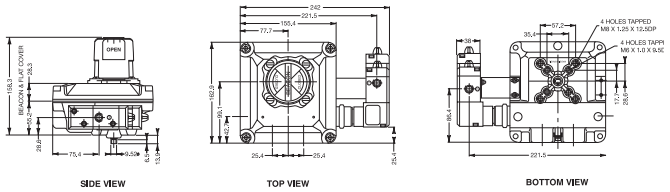


Measurements shown are in millimetres

Technical Specifications

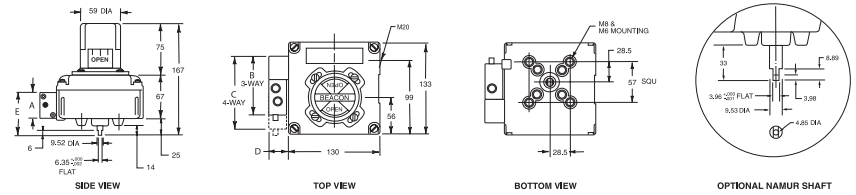
EExd IIB Quantum Housing

Solenoid Valve	Dimensions			
	A	B (3-Way)	C (4-Way)	D
.3 & .5 Cv	1.50	3.31	4.06	2.72
1.2 Cv	2.00	4.44	5.25	3.15
3.5 Cv	2.75	5.25	6.56	3.47



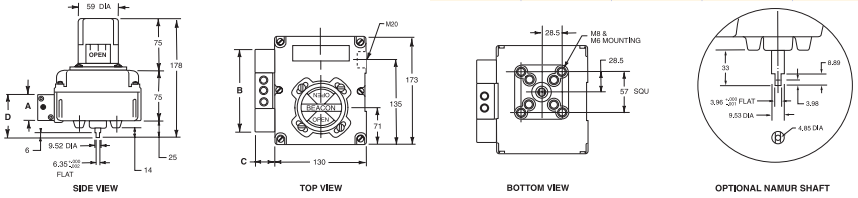
LZ1 Quantum Housing

Solenoid Valve	Dimensions				
	A	B (3-Way)	C (4-Way)	D	E
.3 & .5 Cv	1.50	3.31	4.06	1.13	2.62
1.2 Cv	2.00	4.44	5.25	1.38	2.78
3.5 Cv	2.75	5.25	6.56	1.88	3.28



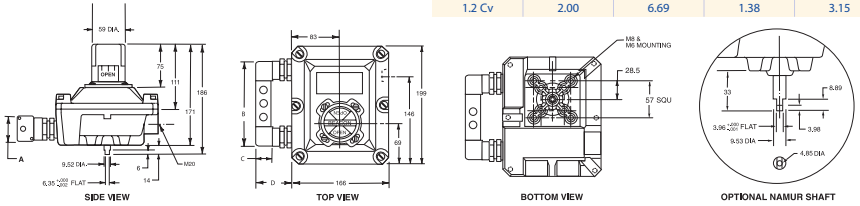
LZ2 Quantum Housing

Solenoid Valve	Dimensions			
	A	B (3-Way)	C (4-Way)	D
.3 & .5 Cv	1.50	5.13	1.13	2.62
1.2 Cv	2.00	6.69	2.05	2.87
3.5 Cv	2.75	7.75	2.65	3.28



EExd Dual Coil Quantum Housing

Solenoid Valve	Dimensions			
	A	B (3-Way)	C (4-Way)	D
.3 & .5 Cv	1.50	5.13	1.13	2.72
1.2 Cv	2.00	6.69	1.38	3.15



Measurements shown are in millimetres

Atex

Approvals and Certification

Area	Category of Equipment	Presence or duration of Explosive Atmosphere	Inflammable Substances	Level of Protection Faults to Allow for	Comparison with Previous Practice
Equipment Group II (Surface)	1	Continuous Presence Long Periods Frequent	Gas, vapours, mist, dust	**Very high level of protection:** 2 types of protection or 2 independent faults	Group II **Zone 0 (gas)** Zone 20 (dust)
	2	Likely to occur	Gas, vapours, mist, dust	**High level of protection:** 1 type of protection. Habitual frequent malfunction	Group II **Zone 1 (gas)** Zone 21 (dust)
	3	Unlikely to occur Present for a short period	Gas, vapours, mist, dust	**Normal protection:** Required level of protection	Group II **Zone 2 (gas)** Zone 22 (dust)

Simple Apparatus

Simple electrical apparatus and components (eg thermocouples, photocells, junction boxes) may be used in intrinsically safe systems without certification provided that they do not generate or store more than 1.2V, 0.1A, 10µ, and 25mW in the intrinsically safe system in the normal or fault conditions.

Simple apparatus shall conform to all the relevant requirements of Intrinsically Safe Standard EN50020, but need not be certified and need not comply with clause 12 (marking).

Other Test and approval organisations for Hazardous Locations with certified Monitors

UL	Underwriters Laboratories	North America
FM	Factory Mutual Research	North America
CSA	Canadian Standards Association	Canada
SAA	Standard Australia	Australia
JIS	Japanese Industrial Standard	Japan
INMETRO	Instituto Nacional De Metrologia	Brazil
IECEx	IEC Scheme for Certification to standards for Safety of Electrical Equipment for Explosive Atmospheres	Global

Westlock reserve the right to change the dimensions of any product without prior warning.