

# HyVision and SafeVision

Valve Position Monitoring



- *Kwik Set switch position setting*
- *High visibility visual indication*
- *Eliminates additional Junction Boxes*
- *Suitable for bus communication*
- *Corrosion Resistant*

**HYTORK** 

  
**EMERSON**<sup>™</sup>  
Process Management

# HyVision and SafeVision

## Engineered Valve Position Monitoring integrated with your actuator

### Rugged & Corrosion Resistant

To meet the challenges of today's process environments, both enclosures are manufactured from state-of-the-art materials that provide superior strength and maximum resistance to attack from corrosives.

### Visual Indication

HYTORK's visual indication is the largest, most easily seen indicator available. Protected by the virtually unbreakable polycarbonate cover, accurate position indication can be viewed from almost any angle.

### Switches

Both enclosures accept a large choice of switch designs, including hermetically sealed reed switches, V3 micro switches, proximity sensors, plus other control accessories. Up to four switches and other feedback devices can be installed. *The right choice for your application.*

### Easy Switch Position Setting

Both enclosures feature Kwik Set Cam adjustment for easy, precision position indication and calibration.

### Superior Sealing

"O" ring seals are used to provide reliable protection against the ingress of solids and liquids.

### A Multiple Use Junction Box

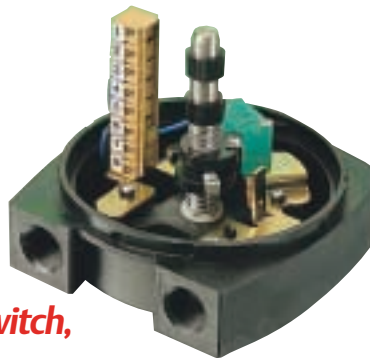
Both enclosures are available with multiple conduit entries and multiple internal terminal wiring strips. Efficient use of the housings eliminates the need for separate electrical junction boxes. Solenoid valves, limit switches and other feedback devices can all be wired in this one single enclosure. *A real cost and time saver.*

### VDI/VDE Accessory Mounting

All HYTORK enclosures meet the VDI/VDE international accessory mounting standards for ease of assembly and application. An universal VDI/VDE accessory mounting platform is available.

### Bus Communication

Both enclosures are suitable for bus communication technologies (AS-interface, Profibus DP and PA).



### ■ Micro switch,

**Proximity Sensor, Reed switch, and Pneumatic switch options**

### ■ High visibility visual indication

### ■ Flow path monitoring for multiport valves

### ■ Eliminates additional Junction Boxes

### ■ Kwik Set switch position setting

### ■ Suitable for bus communication

### ■ Corrosion Resistant



### HyVision

*A rugged, corrosion resistant enclosure for environments that require a weatherproof IP66 rating. The base is manufactured from composite resin and the indicator cover from high impact polycarbonate. Available with up to 3 conduit entries and switch wiring for up to 16 terminals. HYVision Zone 2 (EEx N IIC T6) utilises specially rated components and is certified to CENELEC Zone 2 Specifications.*



### SafeVision

*A rugged, explosion proof enclosure, designed to meet CENELEC EN 50 018 Code EExd requirements. A two part epoxy coating provides a corrosion resistant exterior to the aluminium housing. Also available in COMMANDO bonded coating for more aggressive environments. The indicator cover is manufactured from high impact polycarbonate. Also available without visual indication. Available with up to 4 conduit entries and switch wiring for up to 20 terminals. The unique split shaft design allows the cover and visual indicator to be removed as a complete unit within the smallest possible space.*

# Specifications

## General Specifications

### Temperature Range:

Standard: -40°C to 100°C (-40°F - 212°F)

### Visual Indicator Options:

0° to 90°

0° to 180°

Many Flow Path Monitoring Options.

Alternative Colours and Languages

available on request.



### Standard Electrical Thread Forms:

Standard: M20

Optional: M25

1/2" & 3/4" NPT Threads

PG13.5 European

### Compatible Switch Options:

Standard: 2 x V3 SPDT

Mechanical Micro Switches

Optional: 1 - 4 Switches

- Proximity Sensors

- DPDT Switches

- Reed Switches

- Pneumatic Switches

### Mechanical Switches

### Electrical Ratings (Resistive Loads)

SPDT			DPDT	
AMPs	VAC	VDC	AMPs	VAC
15	125	-	10	125
15	250	-	10	250
0.5	-	125	-	-
0.25	-	250	-	-

## Hazardous area selection guide

Area Class	Classification Division	Method of Protection	US (NEC 500)	Hytorch product
I	I	Intrinsically Safe	I/S	HyVision or SafeVision
I/II	I	Explosion Proof	Class I, Div I&II, Groups C & D Class I, Div I&II, Groups E,F & G Class I, Div II, Groups A & B	Explosion Proof SafeVision UL listed (Cert.No.Ex 030496-100737)
Ingress Protection		Dust & Waterjet protected	NEMA 4, 4X	HyVision or SafeVision

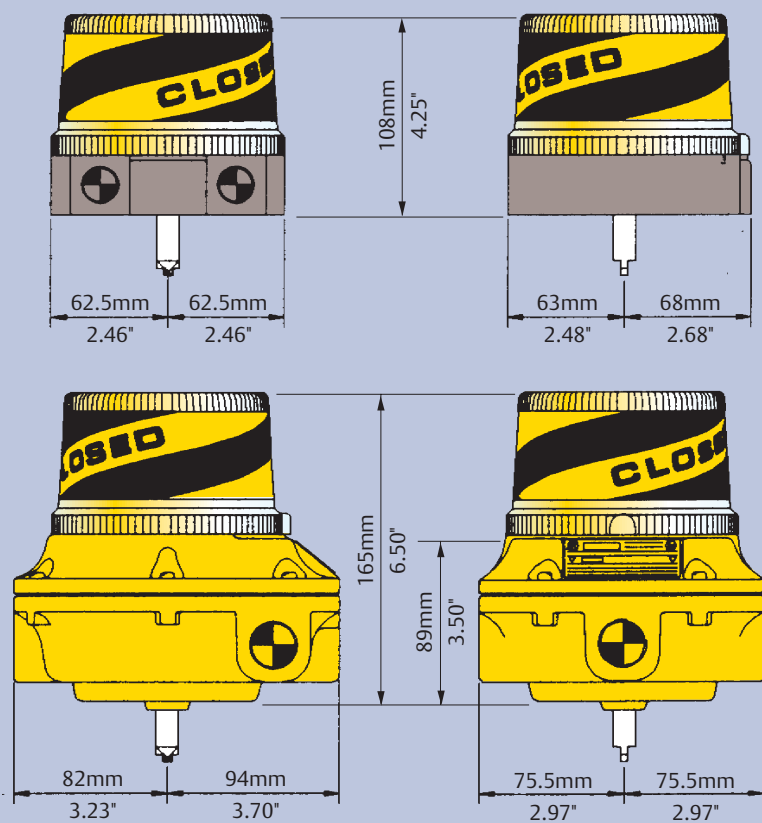


## Specifications Bus components

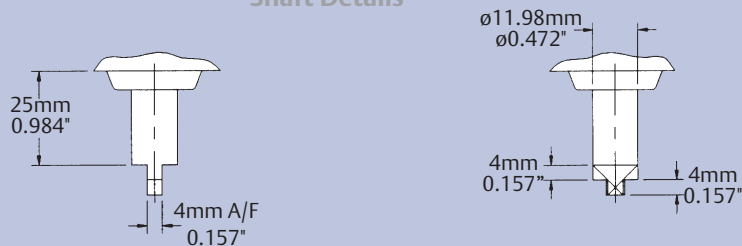


Specification	HyVision Profibus® DP	HyVision Profibus® PA	HyVision ASI
<b>Fieldbus Card:</b>			
I/O Input	2 for position indication	2 for position indication	2 for position indication
Output	2 for one or two solenoids	2 for one or two solenoids	1 for the solenoid valve
Operating temperature	-25° to +80°C -13° to +176°F	-25° to +80°C -13° to +176°F	-25° to +80°C -13° to +176°F
Power supply	24VDC	By the bus system	By the bus system
Max.current	252mA	16mA (inc.solenoid)	100mA
Isolation	Galvanic	-/-	-/-
<b>Solenoid:</b>			
Type	Single or dual coil	Single or dual coil solenoid	Single coil
Supply	24 VDC, 2.6 W max.	with piezotronic component	24 VDC, 2.6 W max.

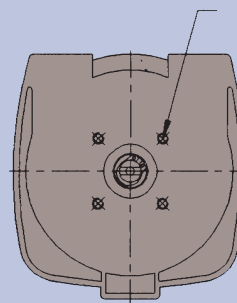
## Dimensions



## Shaft Details

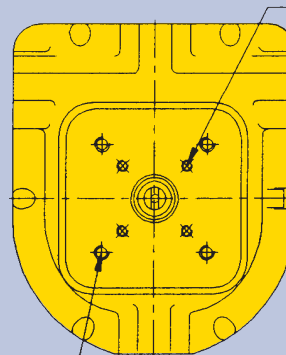


## Mounting Details



**Metric**  
4 holes  
M6 x12mm  
deep equi-spaced  
on a 50mm PCD

**Imperial**  
4 holes  
1/4"-20UNCx 5/8"  
deep equi-spaced  
on a 1.968" PCD



**Metric**  
4 holes  
M6 x12mm  
deep equi-spaced  
on a 50mm PCD

**Imperial**  
4 holes  
1/4"-20UNCx 5/8"  
deep equi-spaced  
on a 1.968" PCD

**Metric**  
4 holes  
M8 x10mm  
deep on a 2.25"  
(57.15mm) square

**Imperial**  
4 holes  
3/8"-18UNCx 3/8"  
deep on a  
2.25" square

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[www.hytork.com](http://www.hytork.com)

**HYTORK**



**EMERSON**  
Process Management



# XL Pneumatic Actuators

High on Quality... High on Reliability... High on Service





- Reduce capital cost
- Reduce installation cost
- Reduce maintenance cost
- Increase plant uptime
- Increased plant and operator safety

**“Hytork has combined quality with reliability and economy in a single package”**

**“Heavy duty cast construction provides maximum protection for harsh service”**

**“Only three moving parts make operation highly dependable”**

## Hytork –High on Quality

The XL actuator range of actuators is the result of Hytork’s 30-plus years of field-proven experience. The actuators have numerous features that add reliability. Its rugged heavy duty body is made from a high strength LM25 aluminum casting designed to prevent damage from dents, shock or fatigue. The XL is modular in design and is field convertible from double-acting to spring-return configurations and vice versa.

### 1 NAMUR Mounting

This mounting configuration allows standardization of mounting hardware for a wide range of accessories.

### 2 CERAMIGARD

The spring chambers of spring return actuators often have an open connection to the environment. To protect the bore and other internals against wear and corrosion, all XL actuator bodies have a hard corrosion resistant ceramic-like finish of Di-Aluminum Tri-oxide ( $Al_2O_3$ ).

### 3 Large Internal Air Passages

This feature maximizes valve operating speeds and adds reliability by reducing potential blockage.

### 4 DURASTRIP Bearings

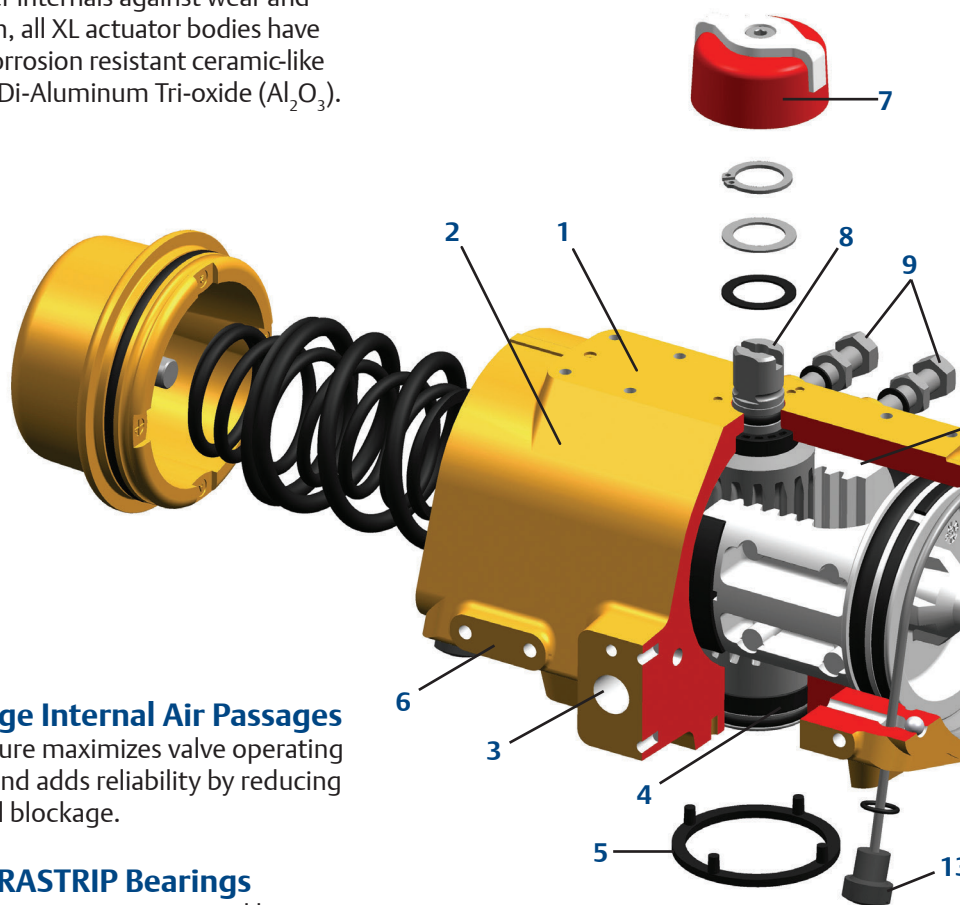
All moving parts are protected by permanently lubricated and long-lasting DURASTRIP bearings. It reduces friction and leads to longer life.

### 5 ISO 5211 Mounting Pad

Hytork XL actuator pinion drives are manufactured to ISO 5211 with a star drive to provide extra flexibility and simplicity for direct mounting to a valve.

### 6 Accessory Mounting Holes

On the smaller sizes there are extra mounting holes near NAMUR solenoid pad to facilitate filter/regulator bracket installation.



# Hytork –High on Reliability

## 7 Visual Position Indicator

The visual position indicator is designed for indication at a glance and can easily be converted from across-line to in-line indication.

## 8 Corrosion Resistant Pinion

Plated with cobalt zinc, the steel pinion is protected from corrosion. Actuator has experienced a salt spray test up to 1,000 hours. The pinion also features a unique stop design.

## 9 Bi-Directional Travel Stops

XL actuators have two travel stops. (See page 4)

## 10 Rack and Pinion Design

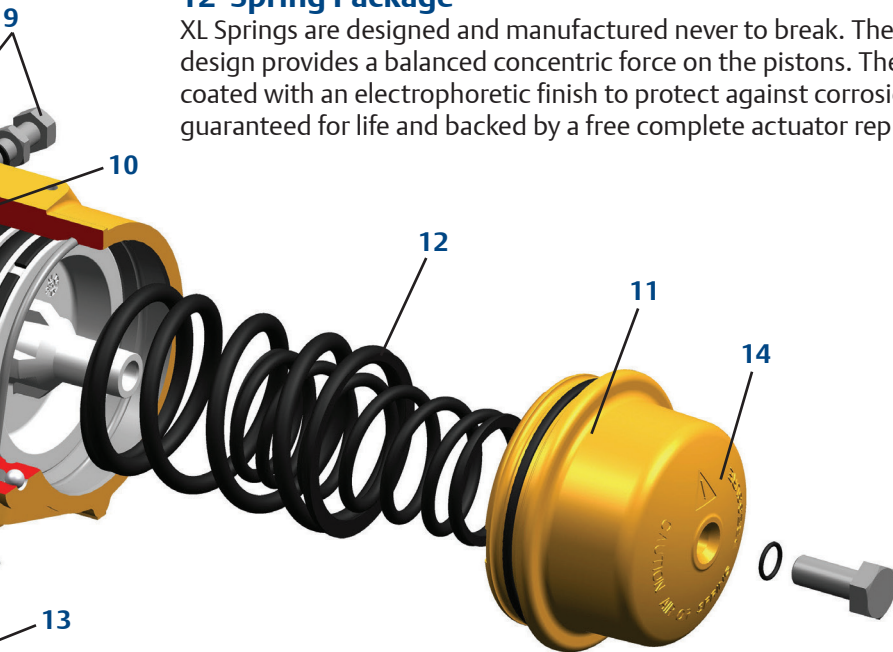
Extra large rack and pinion tooth design promotes full tooth engagement. Assists gear tooth life by reducing stress and having precise gear tooth mesh.

## 11 End Caps

A polyester powder-coated surface treatment as standard on end caps and housing provides extra protection against aggressive environments. (See page 4)

## 12 Spring Package

XL Springs are designed and manufactured never to break. The nested design provides a balanced concentric force on the pistons. They are coated with an electrophoretic finish to protect against corrosion, are guaranteed for life and backed by a free complete actuator replacement.



## 13 SAFEKEY System

The patented SAFEKEY method of end cap assembly to the actuator eliminates dangerous disassembly. (See page 4)

## 14 Cast-in identification

The unique cast body and end caps allow cast-in identification model numbers, port identifications and safety instructions and are therefore permanently readable. No lost identification due to weathering or paint.

## Superior design and construction

The XL series is engineered and manufactured to the highest quality and tolerance standards. Site proven DURASTRIP bearings protect all moving parts for guaranteed high cycle life. Unbreakable Springs, with a unique lifetime warranty, assure Fail Safe action when it is needed. **Increase process safety and plant uptime.**

## Easy maintenance

Change a solenoid or positioner, adjust a switch, alter a spring rating or install a new set of bearings and seals (never a spring set) – in just minutes. **Lower maintenance costs.**

## Safety first

Hytork XL actuators comply to the European safety and health requirements as required by the ATEX, PED and Machine Directives. Rugged, heavy duty body casting, patented SAFEKEY, unbreakable springs and HYTORK'S safety retractor rod system for disassembly of spring return actuators. All these features provide **increased personnel and plant safety.** Hytork XL actuators are only intended for use in large-scale fixed installations excluded from the scope of Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS 2).

## Wide torque range

Hytork's 12 actuator sizes cover a wide torque range (19 to 3232 Nm @ 5.5 Barg; 167 to 28500 in./lbs @ 80 PSIG). With up to 7 spring sets per actuator size, this allows the correct selection of the actuator size you need, all to **reduce procurement costs.**

## Additional Hytork XL features

All the Hytork XL features provide:

**Reduced capital cost**

**Reduced installation cost**

**Reduced maintenance cost**

**Reduced assembly cost**

**Increased process safety**

**Increased plant uptime**

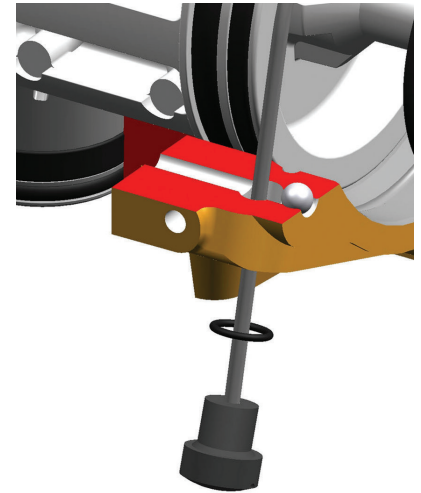
**Increased plant and operator safety**

# Hytorc –High on Service

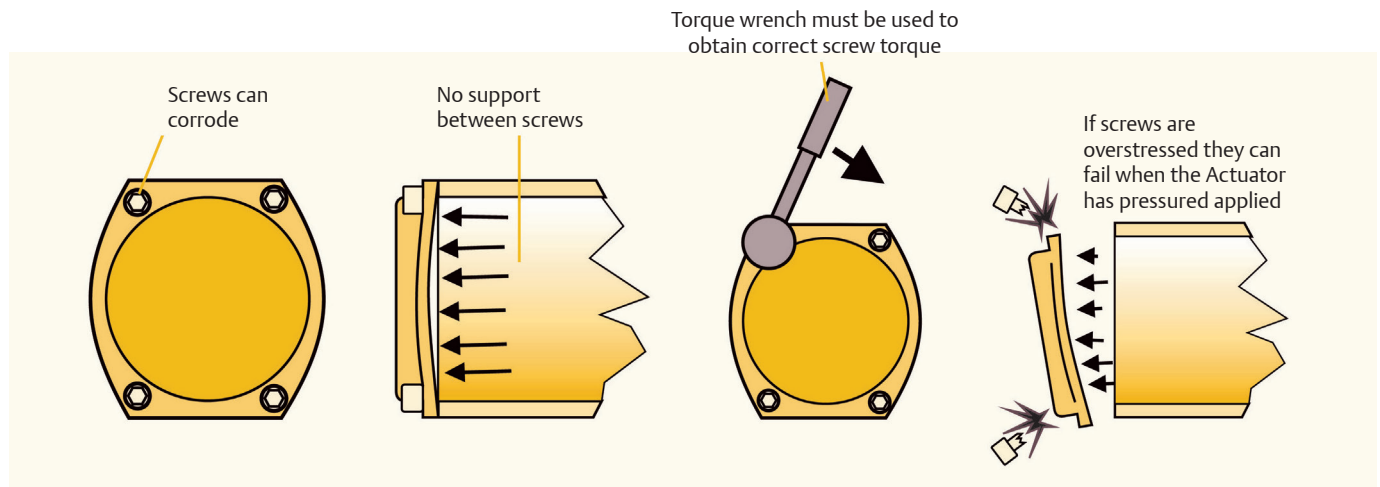
## SAFEKEY System

The SAFEKEY system (patented) uses a flexible stainless steel key in an internal machined keyway. Completely sealed with o-rings to prevent external contamination, the SAFEKEY system eliminates stress concentrations caused by point loading. It is stronger than conventional bolting and is impossible to remove when pressurized or with springs under tension. It is a proven means of eliminating potentially dangerous disassembly.

With the SAFEKEY method, cap screws are not needed to retain the end caps to the actuator body. With other methods, galling can occur and fasteners can break. Competitor models often use Helicoils™ that can turn out or rip out if over-torqued. SAFEKEY is yet another Hytorc advantage.

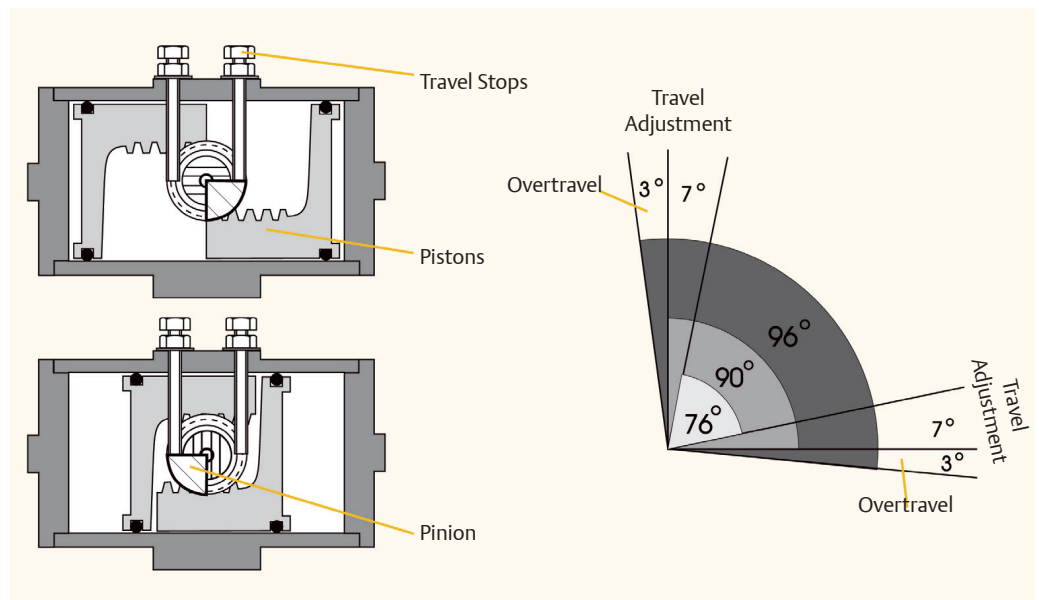


### SAFEKEY System eliminates conventional screws and tierods.



## Bi-Directional Travel Stops

Hytorc XL actuators are provided with bi-directional travel stops. This feature provides rotational adjustment on the actuator in both travel directions. The stops provide precise travel control. This is particularly important when used with special duty, high precision valves, such as metal seated or high performance butterfly valves needing exact rotation stopping. Models XL2586 and XL4581 have a bottom mounted travel stop plate.







## Valvetop T-Series

- **Rugged enclosures for demanding environments**
  - NEMA 4, 4X / IP66/67
  - UL Certification C1 Div 1 Grps C,D
  - TVA, Composite Resin
  - TXP, Aluminium
  - TXS, Stainless Steel
- **Stainless Steel Shaft & Fasteners**
- **Variety of integral pilot valves available**
  - Low-Power Solenoid
  - Single Coil
  - High flow rate of 1.0 Cv
  - Integrally mounted for extra protection
- **Low-profile impact resistant poly carbonate visual display, available with intuitive colors and customizable to your application**
- **Suitable for extreme operating temperatures from -50°C to 80°C (-58°F to 176°F)**

## Valvetop D-Series

- **Rugged enclosures for demanding environments**
  - NEMA Type 4, 4X, 7 plus IP66/67
  - DXP, Tropicalized Aluminium
  - DXS, 316L Stainless Steel
  - DXR, Composite Resin
- **Stainless Steel Shaft & Fasteners**
- **Variety of integral pilot valves available**
  - Aluminium, 304, 316 Stainless Steel
  - Low-Power Solenoid or Ultra-Low Power Piezo
  - Single or Dual Coil
  - High flow rates of 1.2 Cv or 3.0 Cv
- **Impact resistant poly carbonate visual display, available with intuitive colors and customizable to your application**
- **Suitable for extreme operating temperatures from -50°C to 80°C (-58°F to 176°F)**



## Value-Added Accessories

### Hytork XL with Valvetop™ Discrete Valve Controllers

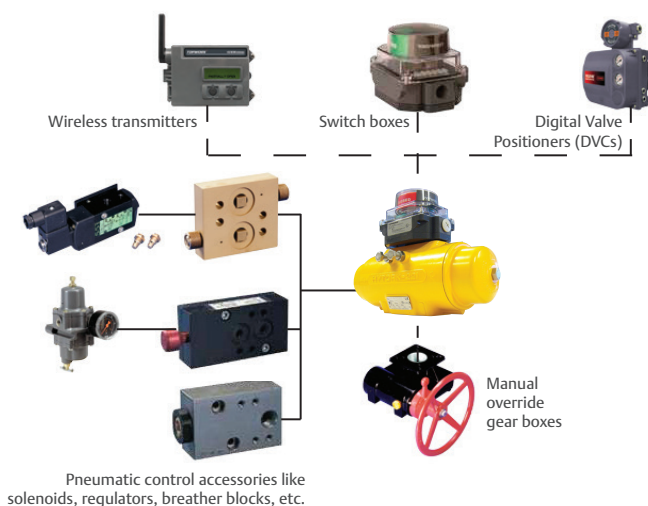
Valvetop Discrete Valve Controllers from TopWorx™ are engineered to provide superior performance in the most demanding conditions. With a variety of bus networking and sensor options such as FOUNDATION™ fieldbus, DeviceNet, AS-interface, Profibus, HART, GO Switch, and inductive proximity and mechanical switches, Valvetop is flexible enough for any valve application.

Each Valvetop model carries global certifications such as IECEx, ATEX, UL, CSA, NEPSI, KOSHA, InMetro, and GOST, allowing them to be used anywhere in the world.

### Hytork XL the starting point for Valve Operating System™ (VOS)

Hytork XL actuators come with solenoid and accessory mounting interfaces that comply with internationally accepted standards like EN15714-3 and VDE/VDI 3845 (NAMUR). Due to these standardized interfaces, Hytork XL actuators can be packaged together with a range of control and feedback accessories.

Emerson, with all its control and feedback accessories, makes sure you have a reliable (VOS) from a single source supplier.



# XL Commando for Corrosion Resistance



The XL Commando range solves aggressive corrosion problems. It works where stainless doesn't. A proprietary heat treatment with CG941 fluoropolymer impregnates the body making it impervious to corrosion. The steel pinion is also fluoropolymer coated. Field service has shown that the Commando actuators outperform other actuators in corrosive environments.

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