

BERZICO
INDUSTRIAL AUTOMATION



BSY SERIES

PNEUMATIC ACTUATOR

WE ARE VALVE SOLUTIONS

GENERAL BROCHURE



WHO ARE WE?

Berzico Industrial Valve Automation provides efficient solutions for industries requiring actuation.

The Berzico brand is widely recognized in the industry as a leader in quality and innovation. Combined with our knowledge and experience we can offer the optimum actuator for any application.

The standard range consists of a wide selection of torque values and flange connections together with special options to further extend the application capability and provide a configuration to suit almost any service.

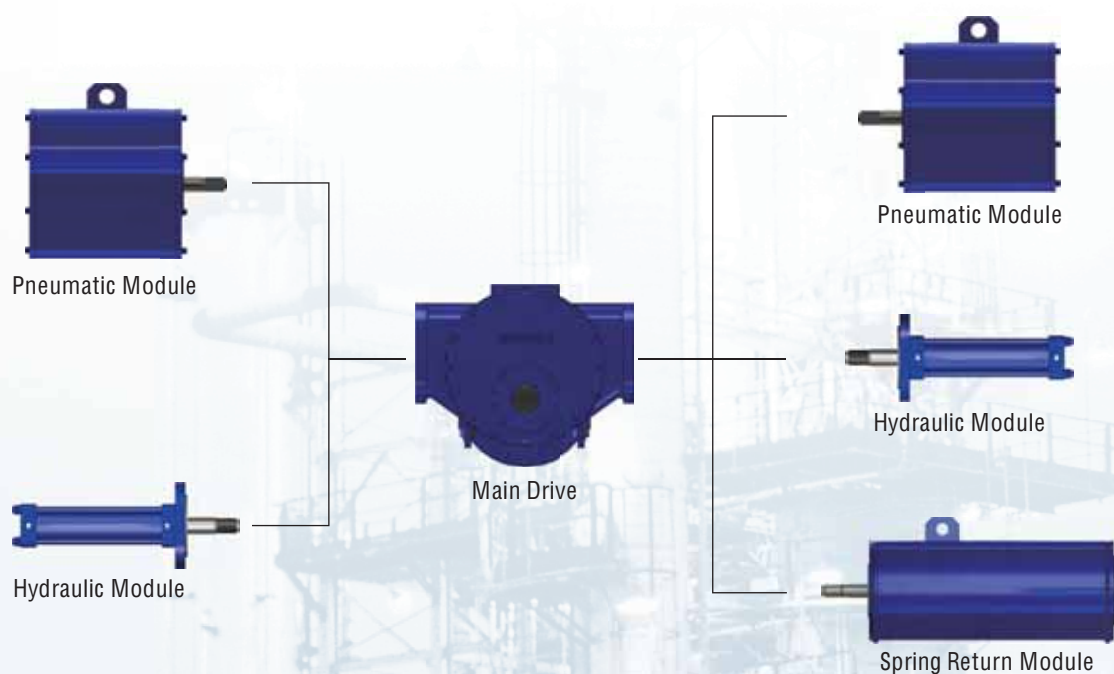
Berzico actuators are installed on valves such as Ball, Butterfly, Plug, etc. in industrial applications such as Petrochemical, Food and Beverage, Pharmaceutical, Automotive, Waste Treatment Plants, Process Industry, etc.

We provide a quality product with superior service, ultimately to provide the owner with a dependable product they can count on.

We welcome the opportunity to be of service.

MODULAR DESIGN

The BSY Series adds an extra measure of versatility with its field serviceable modular configuration. It can be altered from a single acting to a double-acting and add a hydraulic manual override after installation. The modules are removable without the need of special tools or disassembly of the complete actuator.



Manual Override

- Declutchable Gear



- Jack Screw



- Gear



- Hydraulic Pump



General Application

The Berzico BSY Series are designed for years of reliable service with a corrosion resistance polyurethane paint finish and an advanced water ingress design. The lightweight and compact design are ideally suited for automating any quarter turn valve. With a wide selection of options, the BSY series will meet your most demanding valve automation needs.

Technical Data

Supply Media: air, nitrogen, etc.

Torque Outputs (guaranteed)

Double-acting: 1,965 - 2,352,719 in.lbs (222- 257,281 Nm)

Spring-return end torques: In excess of 1,138,413 in.lbs (128,641 Nm)

Operating Pressures:

- Pneumatic: 40-200 PSIG (3-12 BAR)
- Hydraulic: To 5,000 PSIG (345 BAR)

Operating Temperatures:

- Standard Temperature: -20°C to +80°C (-4°F to +176°F)
- High Temperature: -15°C to +160°C (5°F to +320°F)
- Low Temperature: -40°C to + 80°C (-40°F to +176°F)
- Extreme Low Temperature: -60°C to + 80°C (-76°F to +176°F)
- Hydraulic Standard Temperature: -20°C to +80°C (-4°F to +176°F)
- Hydraulic Low Temperature: -40°C to + 80°C (-40°F to +176°F)



Symmetric or Canted Yoke

BSY Series actuators, with their scotch yoke design, are available with either symmetric or canted yokes, depending on break torque requirements.

Symmetrical

The symmetrical yoke provides a balanced torque output curve. Ideal in applications where similar seat break-away and end position torque are required. The output torque curve is symmetrical at the mid-point rotation.

Canted

The torque requirements of some valve models are not the same at the break-away and end points. These applications call for optimizing the torque output versus shaft angle curve and the canted yoke option shifts the torque output curve. The torque output is matched to the application requirements.



Symmetric Yoke



Canted Yoke

DESIGN AND INNOVATION



Modular Versatility

The BSY Series actuators are available with field serviceable drive, power, spring and override modules. Different module configurations can be mounted on either or both sides of the main drive. All modules can be assembled or disassembled without the need of special tools.

Manual Override Options

A dependable manual override is important for many valve and actuator applications. BSY Series actuators have a variety of override options available to meet virtually any requirement. Available options include open or enclosed jackscrews for both gear reducer and declutchable versions, as well as hydraulic override solutions.



Complete Control Solutions

Berzico has extensive experience in the design and assembly of all types of fluid power control systems to satisfy customer requirements for on/off, modulating or ESD service. Packages can be assembled on a panel or in a cabinet and mounted either on the actuator or at a remote location. Berzico offers components from all leading industrial suppliers as well as those of our own design including limit switch box, quick exhaust valves, pneumatic and hydraulic manifolds, shuttle valves, linebreak safety systems and torque limit devices.

Fire Protection Solutions

BSY Series actuators and control systems can be customized to withstand exposure to fire and very high environmental temperatures. A range of fire-proof systems are available, including flexible protective jackets, intumescent coatings and rigid enclosure systems.

Features and Advantages



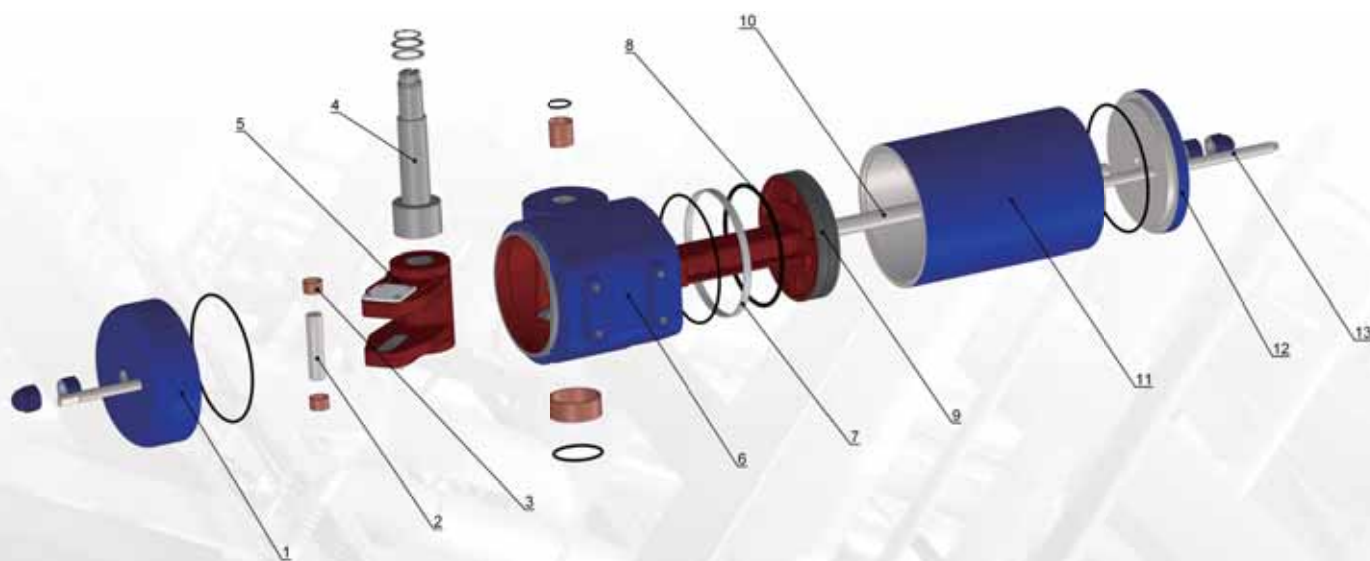
- **Water Ingress Protection** – The BSY Series actuator meets both IP66 and IP67M specifications for submerged and high pressure water deluge test, offering a superior water ingress and corrosion protection. The tight seal of the internal parts of the drive unit and the module is achieved by using only o-rings and not gaskets.
- **ISO/DIN Actuator/Valve Interface** – The BSY Series has an ISO/DIN mounting configuration. This interface allows for close coupling or direct mounting of the actuator on to the valve.
- **Efficient All Bearing Design** – The BSY Series piston has three field replaceable bearings, a TFE piston head bearing and PTFE / bronze bearings on either end of the piston and on the yoke pin. These bearings help to assure smooth and consistent torque output, while enhancing total life cycle capabilities.
- **Center Bar and Torque Shaft** – Utilizes a proprietary surface conversion process, producing an extremely hard surface with excellent wear and corrosion resistance. The center bar guides the piston throughout its full stroke, preventing metal to metal contact with the cylinder bore.
- **NAMUR Top Mounting** – The BSY Series is designed with a NAMUR mounting configuration that allows easy installation of hardware accessories.
- **Bi-directional Travel Stops** – Dual stops allowing 80° to 100° travel adjustment. This feature provides a travel range to assist in prolonged valve seat integrity.
- **Travel Stop (ETS)** – Allows 0° to 100° travel adjustment capability and can be used as a lockout device. Consult factory for further information.
- **Torque Shaft Bearing** – The torque shaft features field replaceable upper and lower PTFE-coated / copper-clad metallic bearings.

DESIGN AND INNOVATION



- **Safety** – BSY Series actuators allows for safe installation and removal of the spring eliminating the accidental release of the spring force under compression and reducing the risk for incorrect installation or operation.
- **Corrosion Resistant Spring Module** – Fully enclosed and supported with self-lubricated bearings prevents the risk of personnel injury or equipment damage. Corrosion resistance to harsh environments.
- **Better Sealing – Vent Checks** – Two drive module vent checks releases pressure for better sealing, preventing damage from dust, corrosive atmospheres and water ingress. The lower vent isolates any valve stem leakage and provides a means for installing fugitive emissions monitoring devices.
- **Reduced Tubing Exposure** – Internal ports minimizes exposure of supply tubing, reducing the risk for mechanical damage on spring-return units. Consult factory for options.

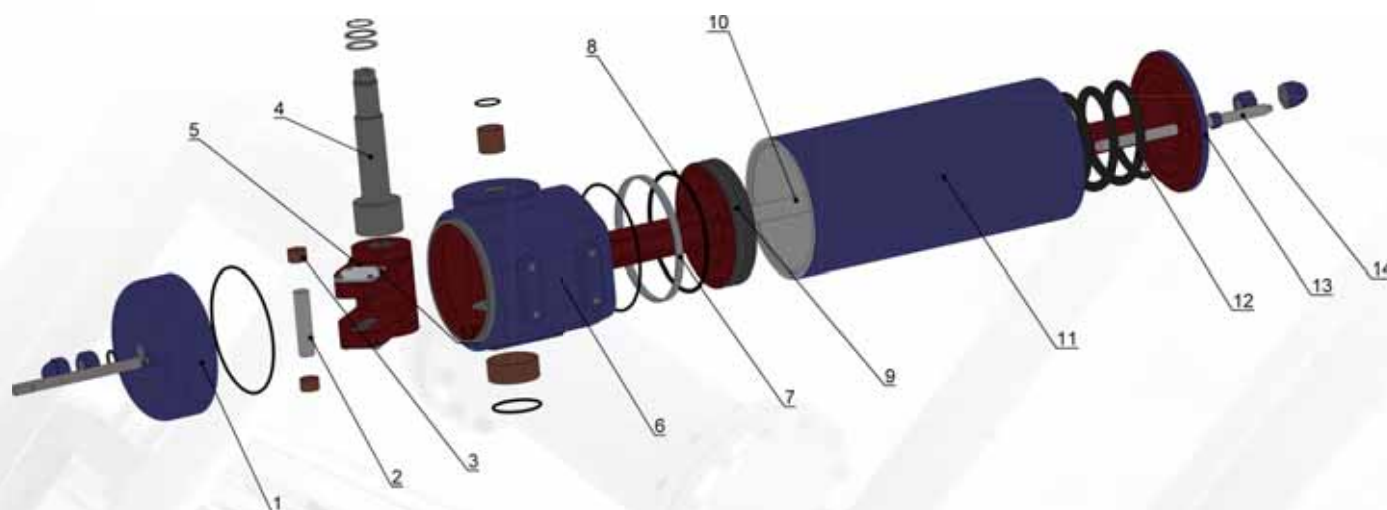




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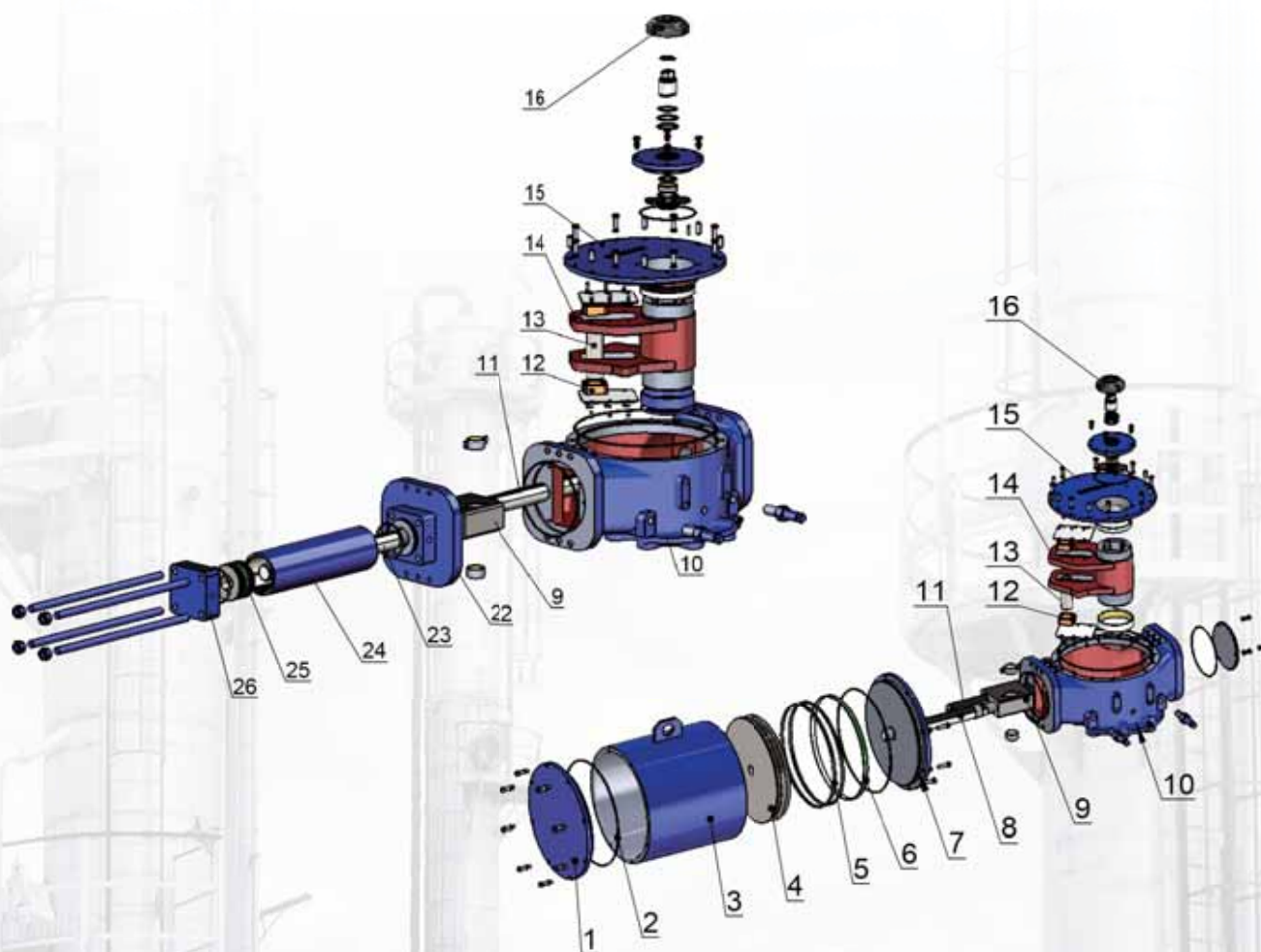
No.	Part Name	Qty.	Material	Optional
1	End Cap	1	Ductile Iron	
2	Yoke Spring Pin	1	Steel Alloy	
3	Bearing	2	Bronze	
4	Shaft	1	Steel Alloy	
5	Yoke	1	Ductile Iron	
6	Yoke Housing	1	Ductile Iron	
7	Wear Ring	1	PTFE	
8	O-Ring	2	NBR	HNBR, VMQ, FVMQ
9	Piston	1	Ductile Iron	
10	Rod	1	Steel Alloy	
11	Barrel	1	Steel Alloy	
12	End Cover	1	Steel Alloy	
13	Stop Adjustment Screw	1	Steel Alloy	

PARTS AND MATERIALS



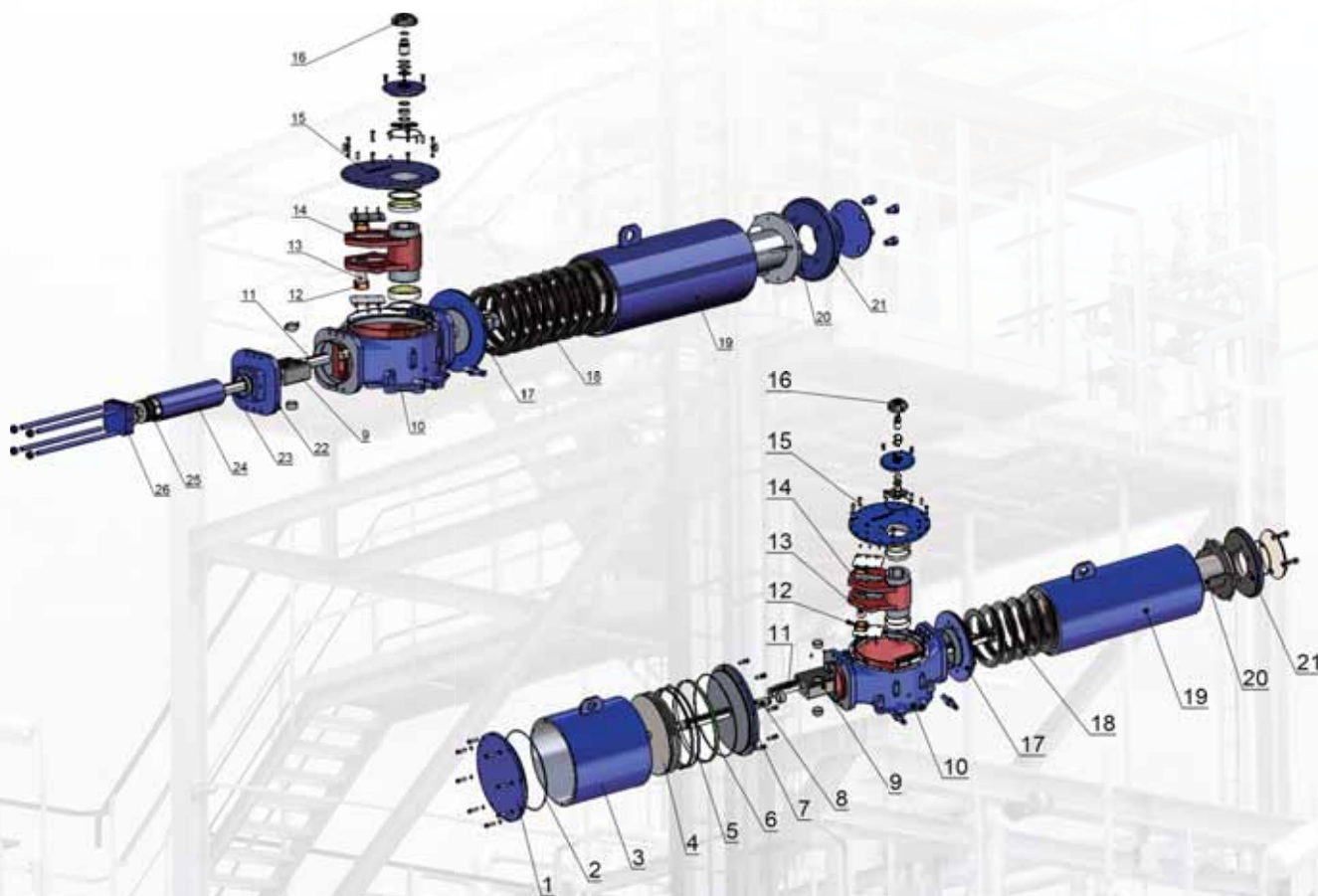
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No.	Part Name	Qty.	Material	Optional
1	End Cap	1	Ductile Iron	
2	Yoke Spring Pin	1	Steel Alloy	
3	Bearing	2	Bronze	
4	Shaft	1	Steel Alloy	
5	Yoke	1	Ductile Iron	
6	Yoke Housing	1	Ductile Iron	
7	Wear Ring	1	PTFE	
8	O-Ring	2	NBR	HNBR, VMQ, FVMQ
9	Piston	1	Ductile Iron	
10	Rod	1	Steel Alloy	
11	Barrel	1	Steel Alloy	
12	Spring	1	Steel Alloy	
13	End Cover	1	Ductile Iron	
14	Stop Adjustment Screw	2	Steel Alloy	



No.	Name	Qty.	Material	Optional
1	Cylinder Cap	1	Ductile Iron	Steel Alloy
2	O-ring	2	NBR	HNBR, VMQ, FVMQ
3	Cylinder	1	Steel	
4	Piston	1	Ductile Iron	Carbon Steel
5	O-ring	2	NBR	HNBR, VMQ, FVMQ
6	Wear Ring	1	Plastic	
7	Adaptor (Pressure Module)	1	Ductile Iron	Steel Alloy
8	Piston Rod	1	Steel	
9	Guide Block	1	Steel	
10	Housing	1	Ductile Iron	Steel Alloy
11	Guide Rod	1	Steel	
12	Bearing	2	Bronze	
13	Yoke spring Pin	1	Alloy Steel	
14	Yoke	1	Ductile Iron	Steel Alloy
15	Housing Cover	1	Ductile Iron	Steel Alloy
16	Indicator	1	Plastic	
22	Adaptor (Hydraulic)	1	Steel	
23	Piston Rod (Hydraulic)	1	Steel	
24	Cylinder (Hydraulic)	1	Steel	
25	Piston (Hydraulic)	1	Steel	
26	Cylinder Cap (Hydraulic)	1	Steel	

PARTS AND MATERIALS



NO.	Name	Qty.	Materials	Optional
1	Cylinder Cap	1	Ductile Iron	Steel Alloy
2	O-ring	2	NBR	HNBR, VMQ, FVMQ
3	Cylinder	1	Steel	
4	Piston	1	Ductile Iron	Carbon Steel
5	O-ring	2	NBR	HNBR, VMQ, FVMQ
6	Wear Ring	1	Plastic	
7	Adaptor (Pressure Module)	1	Ductile Iron	Steel Alloy
8	Piston Rod	1	Steel	
9	Bearing	1	Steel	
10	Housing	1	Ductile Iron	Steel Alloy
11	Guide Rod	1	Steel	
12	Bearing	2	Bronze	
13	Yoke Spring Pin	1	Alloy Steel	
14	Yoke	1	Ductile Iron	Steel Alloy
15	Housing Cover	1	Ductile Iron	Steel Alloy
16	Indicator	1	Plastic	
17	Adaptor (Spring Module)	1	Steel	
18	Spring	1	Alloy Steel	
19	Pipe	1	Steel	
20	Spring Guide	1	Steel	
21	End Cap	1	Steel	
22	Adaptor (Hydraulic)	1	Steel	
23	Piston Rod (Hydraulic)	1	Steel	
24	Cylinder (Hydraulic)	1	Steel	
25	Piston (Hydraulic)	1	Steel	
26	Cylinder Cap (Hydraulic)	1	Steel	

A large industrial facility, possibly a refinery or chemical plant, is shown at sunset. Two prominent tall smokestacks are visible; one has red and white horizontal stripes. The sky is filled with colorful clouds in shades of orange, yellow, and blue. The foreground shows complex piping and structural elements of the plant.

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