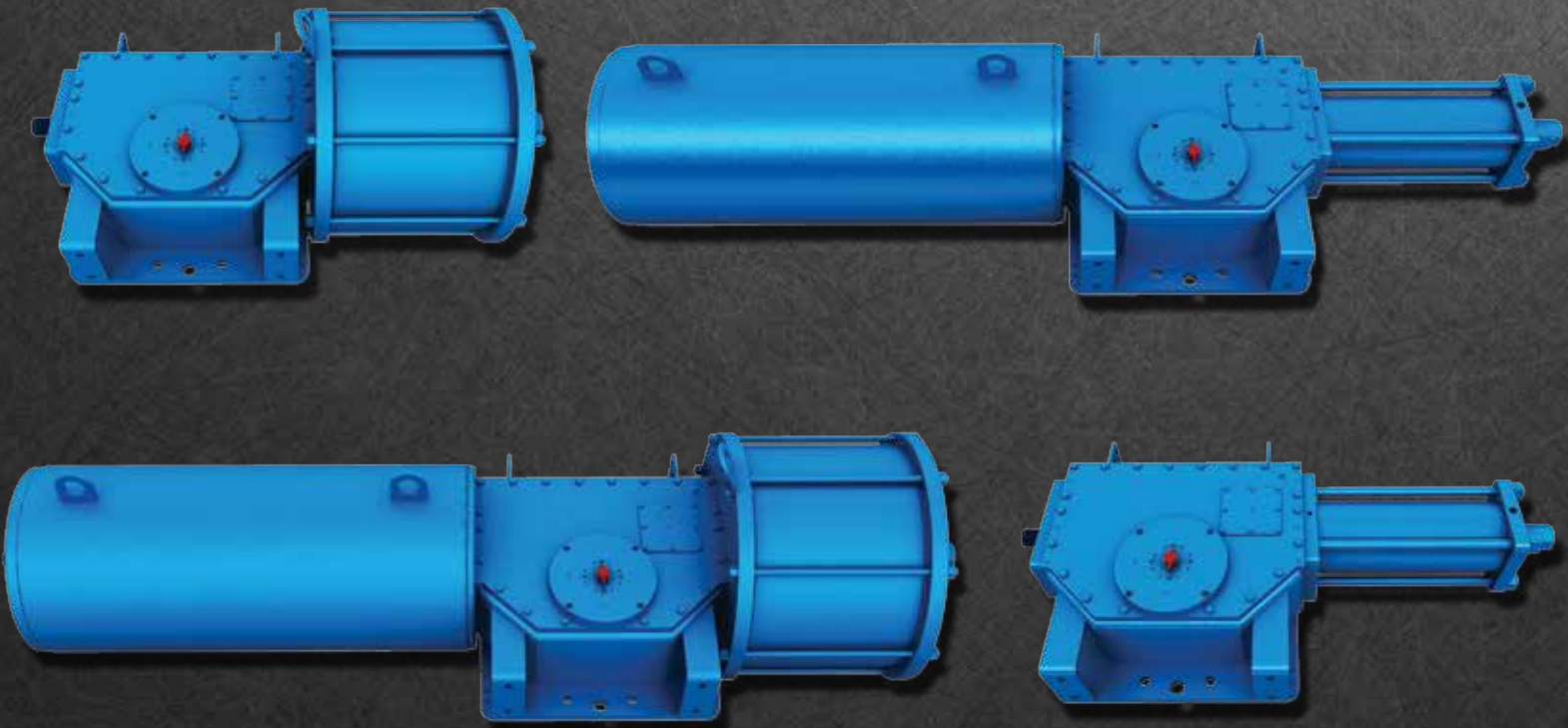


LEDEEN SY Series

Pneumatic and Hydraulic Actuators

TECHNOLOGY



LEDEEN® SY Series

TYPICAL APPLICATION

For on/off or modulating control of any quarter-turn operated valve.

MODULAR ASSEMBLY

Consistent engineering design and efficient modular assembly allows increased flexibility to be achieved. Double acting, spring fail close/open or manual override operations are combinations that are readily obtainable on the pneumatic and hydraulic products.



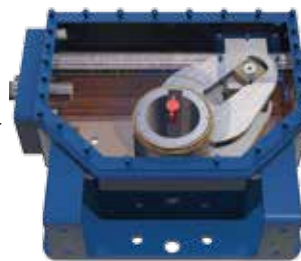
Pneumatic Quarter-turn Actuator



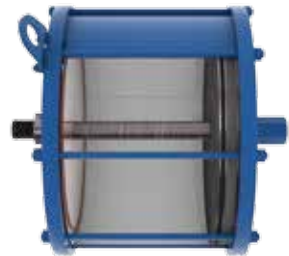
Hydraulic Quarter-turn Actuator



Spring Cartridge



Frame



Pneumatic Cylinder



Hydraulic Cylinder



Symmetric Yoke



Canted Yoke

STANDARD FEATURES

- All models available as double acting or spring return configurations
- Torque outputs to 3,600,000 in-lb (400,000 N·m)
- Open and close travel stops provide ± 3 degrees minimum
- Scotch yoke mechanism generates powerful opening and closing torque outputs
- Steel fabricated frame provides rugged foundation of modular assemblies
- Chrome-plated side load bar with guide block for effective elimination of piston rod deflection
- Bronze bushing interfaces provide low-friction support of sliding and rotating components
- Aluminum bronze sliding blocks for a low-friction, low-stress pin connection
- Steel cylinder assembly provides robust pressure containment for all conditions
- Nickel-plated cylinder ID ensures sealing surface with excellent corrosion resistance
- Buna piston seal configurations specifically designed for pneumatic and hydraulic applications
- Composite guide band on piston provides low-friction guidance and support
- Steel spring cartridge is fully enclosed from environmental conditions
- Epoxy-coated prestressed springs provide consistent performance with corrosion protection
- Seal-welded design construction provides improved personnel safety



Pneumatic Spring Return Actuator

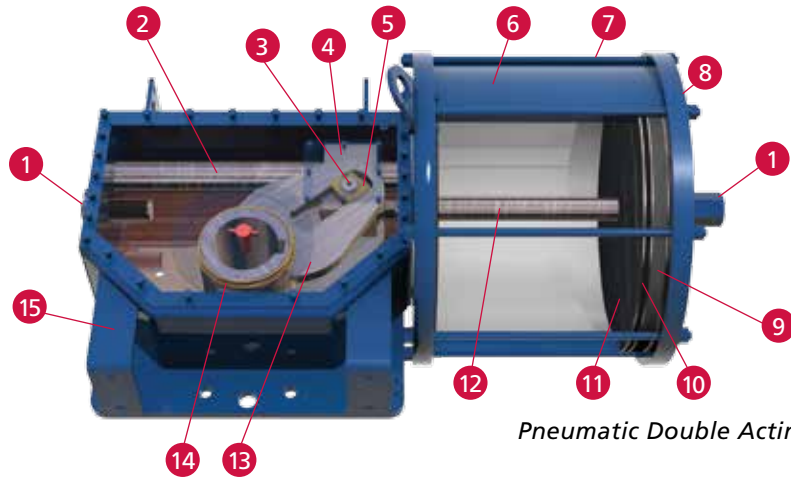


Hydraulic Spring Return Actuator

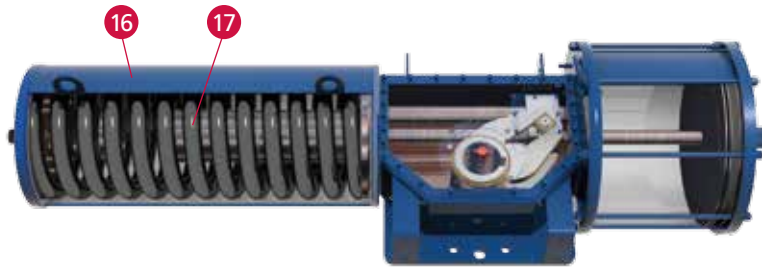
STANDARD PRODUCT CHARACTERISTICS

TYPE	TEMPERATURE RANGE	PRESSURE RANGE
Pneumatic	-22° F to 212° F (-30° C to 100° C)	40 to 175 psig (3 to 12 barg)
Hydraulic		145 to 3000 psig (10 to 202 barg)

PNEUMATIC ACTUATOR STANDARD CONSTRUCTION



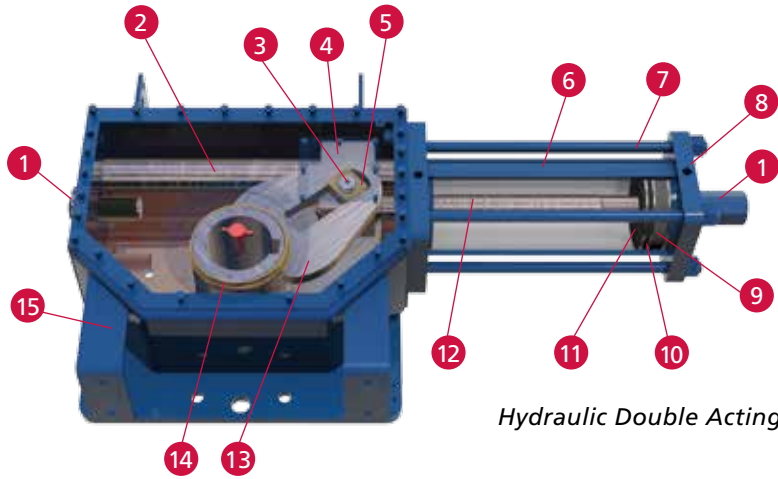
Pneumatic Double Acting Actuator



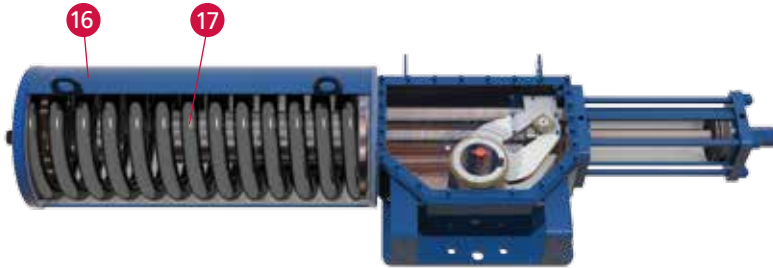
Pneumatic Spring Return Actuator

Item	Description	Material
1	Travel Stop	Alloy Steel
2	Guide Bar	Alloy Steel/Chrome Plated
3	Pin	Alloy Steel
4	Guide Block	Carbon Steel
5	Sliding Block	Aluminum Bronze
6	Cylinder	Carbon Steel
7	Tie Rod	Alloy Steel
8	Flange	Carbon Steel
9	Guide Band	Teflon and Graphite
10	Seal	Buna O-ring
11	Piston	Carbon Steel
12	Piston Rod	Alloy Steel
13	Scotch Yoke	Alloy Steel
14	Bushing	Bronze
15	Frame	Carbon Steel
16	Spring Cartridge	Carbon Steel
17	Spring	Alloy Steel

HYDRAULIC ACTUATOR STANDARD CONSTRUCTION



Hydraulic Double Acting Actuator

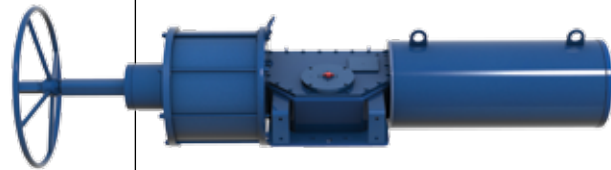


Hydraulic Spring Return Actuator

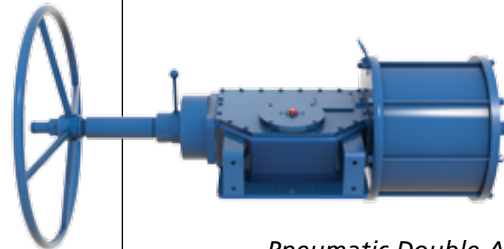
Item	Description	Material
1	Travel Stop	Alloy Steel
2	Guide Bar	Alloy Steel/Chrome Plated
3	Pin	Alloy Steel
4	Guide Block	Carbon Steel
5	Sliding Block	Aluminum Bronze
6	Cylinder	Carbon Steel
7	Tie Rod	Alloy Steel
8	Flange	Carbon Steel
9	Guide Band	Teflon and Graphite
10	Seal	Buna Quad-ring
11	Piston	Carbon Steel
12	Piston Rod	Alloy Steel
13	Scotch Yoke	Alloy Steel
14	Bushing	Bronze
15	Frame	Carbon Steel
16	Spring Cartridge	Carbon Steel
17	Spring	Alloy Steel

STANDARD OPTIONS

- Jackscrew override
- Hand pump override
- Fluorosilicone seals for low-temperature applications to -76° F (-60° C)
- Viton® seals for high-temperature applications to 392° F (200° C)



Pneumatic Spring Return Actuator with Jackscrew Override



Pneumatic Double Acting Actuator with Jackscrew Override



Pneumatic Double Acting Actuator with Hand Pump Override

CERTIFICATIONS

Cameron's LEDEEN SY Series of actuators comply with many industry standards.

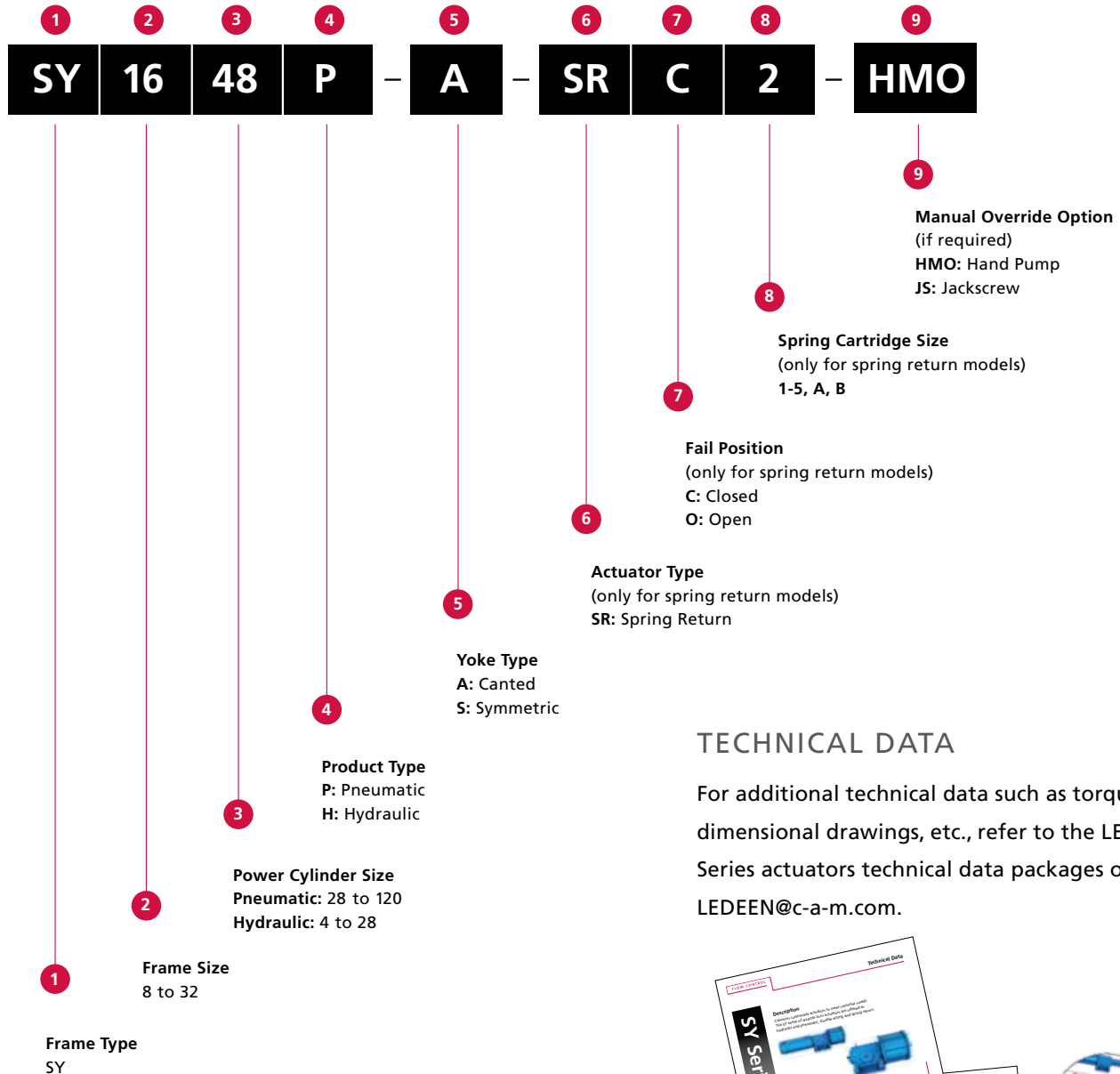
- ISO 9001:2000, Quality
- PED 97/23/EC, Design
- SI 825, Safety
- IEC 61508:2000, Integrity (TUV/SIL3)
- TR CU, Safety and Quality



MODEL NUMBER DESIGNATION

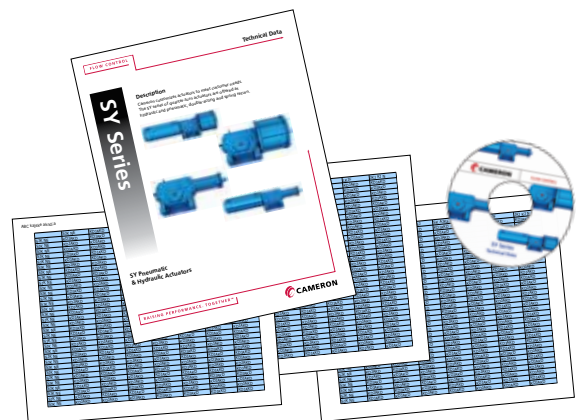
Cameron offers customizable actuators from the frame type to the override options. A sample of the actuator selection process is shown below. Starting with Step 1, Frame Type,

the actuator components needed to fit the customer's requirements are built. An example model number is shown below, which specifically identifies each variable for selection.



TECHNICAL DATA

For additional technical data such as torque charts, dimensional drawings, etc., refer to the LEDEEN SY Series actuators technical data packages or contact LEDEEN@c-a-m.com.



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HSE Policy Statement

At Cameron, we are committed ethically, financially and personally to a working environment where no one gets hurt and nothing gets harmed.