



CVS Series 35, 50, 60, 70, 83, 123 Scotch Yoke Hydraulic Actuators

Introduction

The CVS Hydraulic Actuator uses a scotch yoke mechanism to convert linear piston motion to a 90 degree rotation. The actuator incorporates key materials for construction, such as aluminum drive case, fiber wound cylinders, and do not use brass or bronze components to allow for use in sour gas applications.

The CVS Scotch Yoke Hydraulic actuator is well suited for operating plug, ball, butterfly, dampers and other devices requiring 90° turn rotation.

(±4° of additional angle adjustment)



Head Office

3900 101 Street
Edmonton, Alberta
T6E 0A5
Canada

Office: (780) 437-3055
Fax: (780) 436-5461

Calgary Sales Office

3516 114 Avenue SE
Calgary, Alberta
T2Z 3V6
Canada

Office: (403) 250-1416
Fax: (403) 291 9487

Features

- Scotch Yoke Mechanism, high breakaway and reseat torque
- $\pm 4^\circ$ of additional angle adjustment
- Can be used for fail open, or closed
- Lightweight Aluminum Drive Case
- Light weight and durable Fiber Wound Cylinders
- Standard operating temperature range: -50°C to $+80^\circ\text{C}$ (-58°F to $+176^\circ\text{F}$)
- Safe reliable spring cartridges to allow removal for field service
- Stainless Steel Stem and Drive Rod components
- Fully Serviceable

Installation

Align actuator and valve in the same position, open or closed. Check mounting surfaces and orientation of the actuator to the valve for any misalignment. Set actuator into position on valve, and install all bolts and nuts. Align actuator and valve stem; tighten mounting bolts evenly to torque specifications (Table 3, Pg. 6).

The CVS scotch yoke actuator is tested and set to fully open or fully closed positions at point of manufacturing. Refer to the **Adjustments** portion of this manual should there be further adjustments required.

The following instructions refer to Series 35DSRM100 assembly. Though the process is the same, the item numbers indicated may be different for 50, 60 and 70 Series. Cross reference with corresponding assembly drawing as required.

Determine Fail Safe Action

With the actuator horizontal, cylinders extended to the sides, and the drive stem closest to you (vertical), a spring side housing (long cylinder) to the right will indicate a “fail open”, while a spring side housing to the left will indicate a “fail closed”

Maintenance

O-ring, gasket, and bushing replacement are the only expected servicing that may be required under normal operating conditions. Contact your CVS Controls representative for service and repair kits. Specify model and serial number when ordering.

Disassembly

- Ensure no hydraulic pressure is being applied to the actuator. Disconnect all piping and remove the actuator from the valve.
- Remove jam nut (28), flat washer (27), and o-ring (26) from both end caps (22), remove end stop (25)
- Place actuator with cylinders extended to the side

Spring Side Disassembly

- Carefully release preload of spring side cylinder (20b) by evenly loosening the four stay rod nuts (24)

Disassembly Continued,

- Completely remove stay rod nuts(24) and lock washers (23)
- Remove end cap (22), which allows for removal of spring cartridge

***Note: Do not disassemble spring cartridge . This is a self-contained unit under compression, and may cause injury if disassembled incorrectly.**

- Remove spring side cylinder (20B)
- Remove stay rods (21)

Piston Side Disassembly

- Remove cylinder bolts (37), and lock washers (23) from piston side
- Take end cap (22) off of piston cylinder
- Carefully slide piston cylinder (20) off of piston
- Remove lock nut (18) to allow for removal of piston (15), piston seal (17), and o-ring (16)
- Remove cylinder plate (12), gasket (19), drive rod guide (13), and drive rod seal (14)

Drive Case Disassembly

- Remove drive rod (4) and roller assembly (5 thru 7). Remove snap rings (7), rollers (6) and drive pin (5) from drive rod (4)
- Remove cover screws (10) and cover (2)
- Remove indicator (11) after marking original position. Drive yoke pin (3c) out of stem. (pin must be driven out of yoke towards markings stamped on the yoke

itself as the yoke pin is tapered and can only be removed one way)

- Remove snap rings (3d), stem will now be ready to slide out of case and yoke will be free to take out of case
- Remove o-rings (9) from stem
- Remove bushings (3d) from drive case

Inspection and Cleaning

Inspect o-rings, bushings and gaskets for damage and replace if necessary. Check cylinder bore for scoring. Inspect metal components for wear, corrosion or damage. All parts excluding gaskets (19), may be cleaned with varsol or equivalent as required.

After cleaning, lubricate yoke slots, drive pin, rollers, bushings and guides with a light coat of grease. Apply lubrication to all o-rings.

Assembly

- Install bushings (8) into drive case (1)
- Install o-rings (14) into cylinder plate (12) prior to installing drive rod guide (13)
- Install one o-ring (9) onto stem (3b) and install into case (1) through yoke (3)
- Install another o-ring (9) on stem (3b), and install snap rings (3d) on stem (3b)

Assembly Continued,

- Align stem (3b) with yoke (3) and ensure yoke pin (3c) will line up correctly as the pin is tapered and will only correctly install in one direction, install yoke pin (3c) by gently tapping into yoke (3) and stem (3b) with a hammer
- Make up drive rod assembly by installing drive pin (5), slide drive rollers (6) onto pin (5) and install two snap rings (7)
- Slide completed drive rod assembly through case (1) and position rollers between yoke arms
- Lubricate yoke, drive rod assembly and stem

Spring side cylinder assembly

- Install cylinder plate (12) over drive rod assembly on both sides of case (1), ensure vent holes are in same position on both sides
- Install piston center o-ring (16) on both sides of drive rod assembly
- Install piston (15), (15b) onto drive rod assembly using piston lock nut (18)
- Insert four stay rods (21) into case and tighten
- Place cylinder gasket (19) on cylinder plate (12) and end cap (22)
- Install spring side cylinder (20b)
- Place spring assembly in spring side cylinder (20b)
- Install end cap (22) over stay rods (21), vent hole on end cap (22) should be

opposite the vent hole of cylinder plate (12)

- Using four lock washers (23) and four stay rod nuts (24), evenly tighten end cap (22) over spring side cylinder (20b), ensure proper alignment of cylinder
- Torque stay rod nuts (24) to 27 ft lbs.

Piston side cylinder assembly

- Install piston o-ring (17) onto piston (15)
- Place gasket (19) on cylinder plate (12) and end cap (22)
- Slide piston side cylinder (20) over piston (15)
- Install end cap (22) using four cylinder bolts (37) and four lock washers (23), ensure vent hole on end cap (22) is opposite vent hole of cylinder plate (12)
- Torque cylinder bolts (37) to 27 ft lbs.
- Install cover (2) by first applying a silicone sealant around edge of cover, inside bolt pattern to ensure a weather proof seal, install four cover screws (10)

End Stop Installation and Adjustments

- Install end stop (25) into center hole of end caps (22), slide end stop o-ring (26) over end stop, place end stop washer (27) over end stop and install jam nut (28)
- Tighten or loosen end stop (25) to adjust travel for fully open or closed operation, tighten jam nut when set.

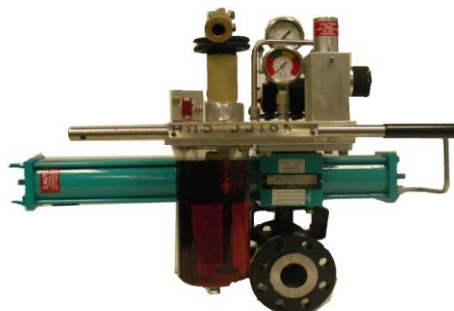
Operating Torques

Actuator Model	Min. Operating Pressure (PSIG)	Max. operating Pressure (PSIG)	Calculated Spring Unloading Torque (in.lb) Starting	Calculated Spring Unloading Torque (in.lb) Mid-Stroke	Calculated Spring Unloading Torque (in.lb) Ending	Calculated Hyd. Loading Torque at Min. Operating Pres. (in.lb) Starting	Calculated Hyd. Loading Torque at Min. Operating Pres. (in.lb) Mid-Stroke	Calculated Hyd. Loading Torque at Min. Operating Pres. (in.lb) Ending
Series 35	200	275	2730	1060	1530	2710	1050	1500
Series 50	800	2000	9770	3870	5700	8440	3200	4370
Series 60	1000	2000	16300	6440	9420	12200	4630	5280
Series 70	800	2000	27700	10900	15800	25800	9910	13800
Series 83	1500	1500	35600	14000	20400	50000	21200	34800
Series 123	1150	1500	78700	30700	44100	82300	32500	47800

Table 1: Torques

Testing and Trouble Shooting

- With pressure applied to the actuator check gaskets and end stops with soap and water or other leak detecting fluid. A leak may indicate that fasteners may need to be tightened or gaskets/o-rings may need to be replaced.
- Check for leakage from opposite side of the piston. A leak may indicate the necessity to replace the o-rings.
- If the actuator has not been operated for a long period of time, some leakage past piston seals may be observed upon start up. Cycling the actuator a few times may cause the o-rings to regain their resiliency and stop this leakage. Should leak continue, o-rings/gaskets may need to be replaced.



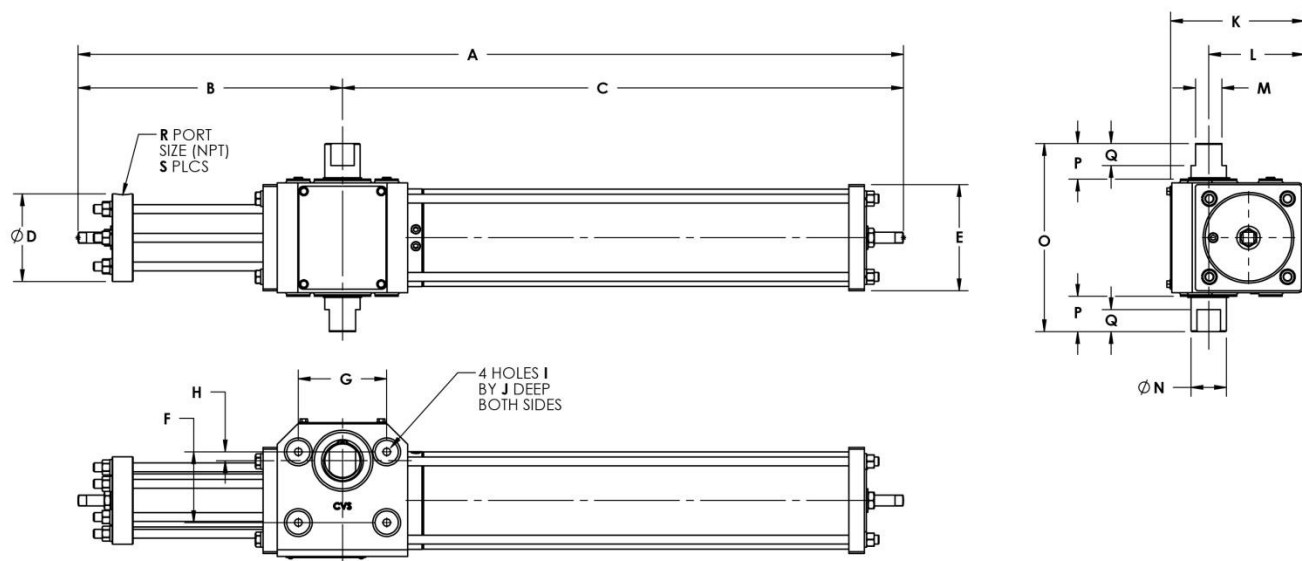
CVS Series 35DSRM100 with CVS Self Contained Hydraulic Pump, CVS 500 Limit Switch, and CVS Ball Valve.

Torque Specifications – CVS Series 35 through 70

Item Description	Item #	Torque ft-lb	Item #	Torque ft-lb	Item #	Torque ft-lb	Item #	Torque ft-lb
	Series 35		Series 50		Series 60		Series 70	
Cover Screws	10	10	18	10	4	10	4	10
Stay Rod-Nuts/Bolts	21, 24	20-30	15, 47	50	44, 51	80	17, 55	80-100
Piston Nut	18	80	32	100	28	100	34	100
Cylinder Bolts	37	20-30	47	50	43	50	44	50
Mounting Bolts- Not Supplied	3/8-16 UNC X 1-1/4" 20-30 ft lbs		1/2-13 UNC X 1-1/2" 50 ft lbs		5/8-11 UNC X 1" 80 ft lbs		3/4-10 UNC X 1-1/4 100 ft lbs	

Table 3: Torque Specifications

CVS Scotch Yoke Actuator – Dimensional Data Size 35 through 70



MODEL	DIMENSIONS (IN.)																	WEIGHT (LB.)	ACTUATOR DISPLACEMENT	NOMINAL STROKE	CYLINDER BORE
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q				
35DSRM	31-3/4	10-3/8	21-3/8	4-1/4	4-1/4	4-1/4	3	7/8	3/8-16UNC	1-1/4	6	4-1/4	7/8	1-1/4	7-3/8	1-3/8	1	35	26.5	2-3/4	3-1/2
50DSRH	48-1/2	16	32-1/2	5	6	4	5	1/2	1/2-13UNC	1-1/2	7-1/2	5-3/8	1-1/2	2	10-5/8	2	1-1/4	90	22.1	4-1/2	2-1/2
60DSRH	54	18	36	5-1/2	7	5-3/8	5-3/4	1/2	5/8-11UNC	1	9-3/8	6-1/2	1-3/4	2-1/4	12-9/16	2-1/4	1-3/4	150	38.9	5-1/2	3
70DSRH	65-3/4	21	44-3/4	5-5/8	8-1/4	6	7	1/2	3/4-10UNC	1-1/4	11	7-2/4	2	2-1/2	14-1/2	2-1/2	2	285	64.9	6-3/4	3-1/2

CVS Series 35 SRM100 Actuator Assembly

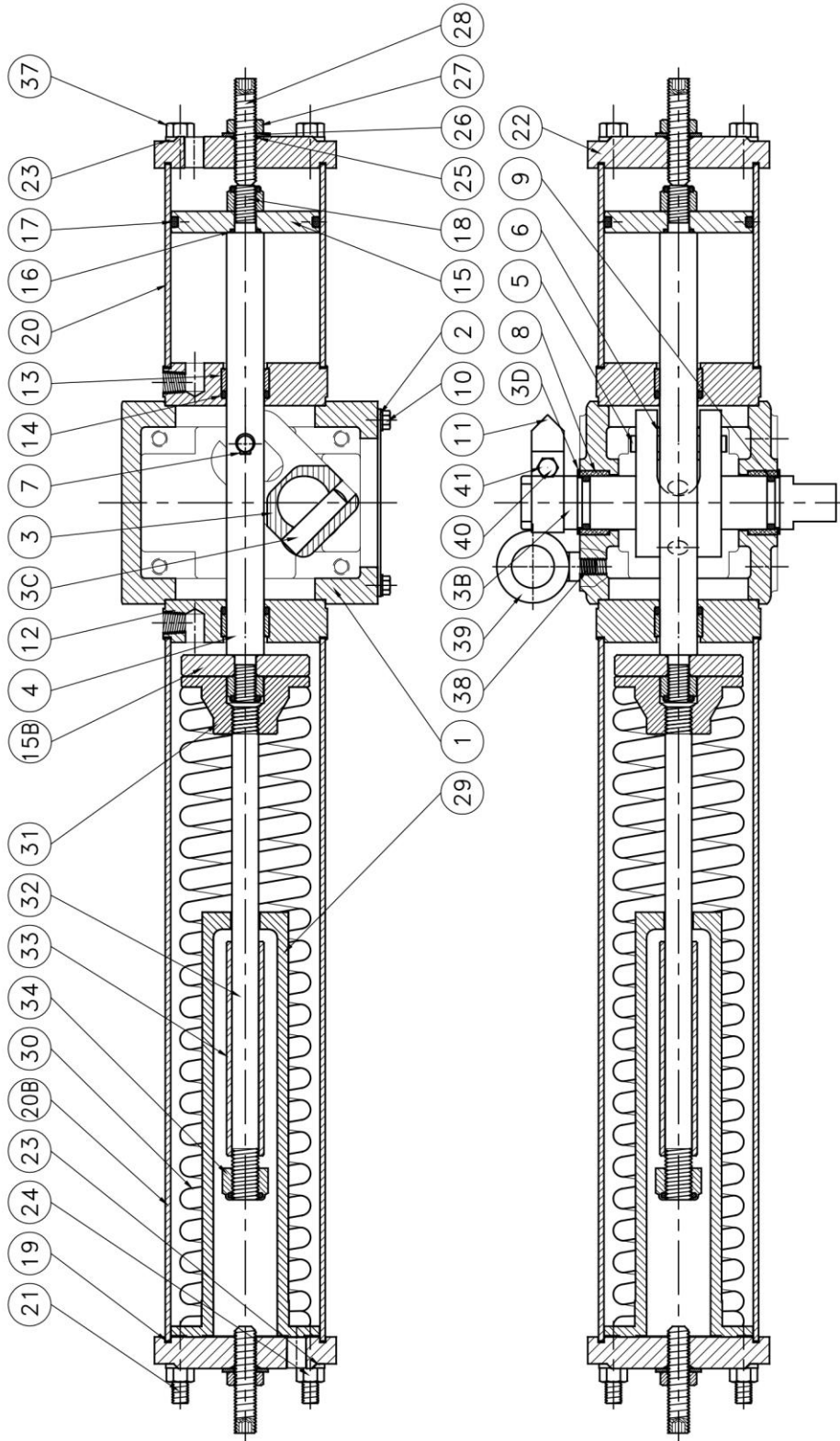


Figure 2: CVS Series 35 SRM100 Assembly

CVS Series 35D SRM100 Parts Listing

Item	Qty	Material Description, Part Number
1	1	Drive Case, CVS 35D0001
2	1	Cover, CVS 35D0002
3	1	Yoke, CVS 35D0003
3B	1	Stem, CVS 35D0003B
3C	1	Yoke Pin, CVS 35D0003C
3D	2	Snap Ring, CVS 35D0003D
4	1	Drive Rod, CVS 35D0004
5	1	Drive Pin, CVS 35D0005
6	2	Drive Roller, CVS 35D0006
7	2	Snap Ring, CVS 35D0007
8	2	Bushing, CVS 35D0008
*9	2	O-Ring, CVS 35D0009
10	4	Cover Screw, CVS 35D0010
11	1	Indicator, CVS 35D0011
12	2	Cylinder Plate, CVS 35D0012
13	2	Drive Rod Guide, CVS 35D0013
*14	2	Drive Rod Seal, CVS 35D0014
15	1	Piston, CVS 35D0015
15B	1	Piston, CVS 35D0015B
*16	2	Piston Center O-ring, CVS 35D0016
*17	1	Piston O-ring, CVS 35D0017
18	2	Piston Lock Nut, CVS 35D0018
*19	4	Cylinder Gasket, CVS 35D0019
20	1	Cylinder, CVS 35D0020
20B	1	Cylinder, CVS 35D0020B
21	4	Stay Rod, CVS 35D0021
22	2	End Cap, CVS 35D0022
23	8	Lock Washer, CVS 35D0023
24	4	Stay Rod Nut, CVS 35D0024
25	2	End Stop, CVS 35D0025
*26	2	End Stop O-ring, CVS 35D0026
27	2	End Stop Washer, CVS 35D0027
28	2	Jam Nut, CVS 35D0028
29	1	Barrel, CVS 35D0029
30	1	Spring, CVS 35D0030
31	1	Retainer, CVS 35D0031
32	1	Rod, CVS 35D0032
33	1	Spacer, CVS 35D0033
34	1	Lock Nut, CVS 35D0034
37	4	Cylinder Bolt, CVS 35D0037
38	3	Set Screw, CVS 35D0038
39	1	Eye Bolt 3/8", CVS 35D00030
40	1	Indicator Screw 1/4, CVS 35D0040
41	1	Indicator Nut 1/4, CVS 35D0041

*Recommended Spare Parts

Table 2: 35D SRM100 Parts Listing



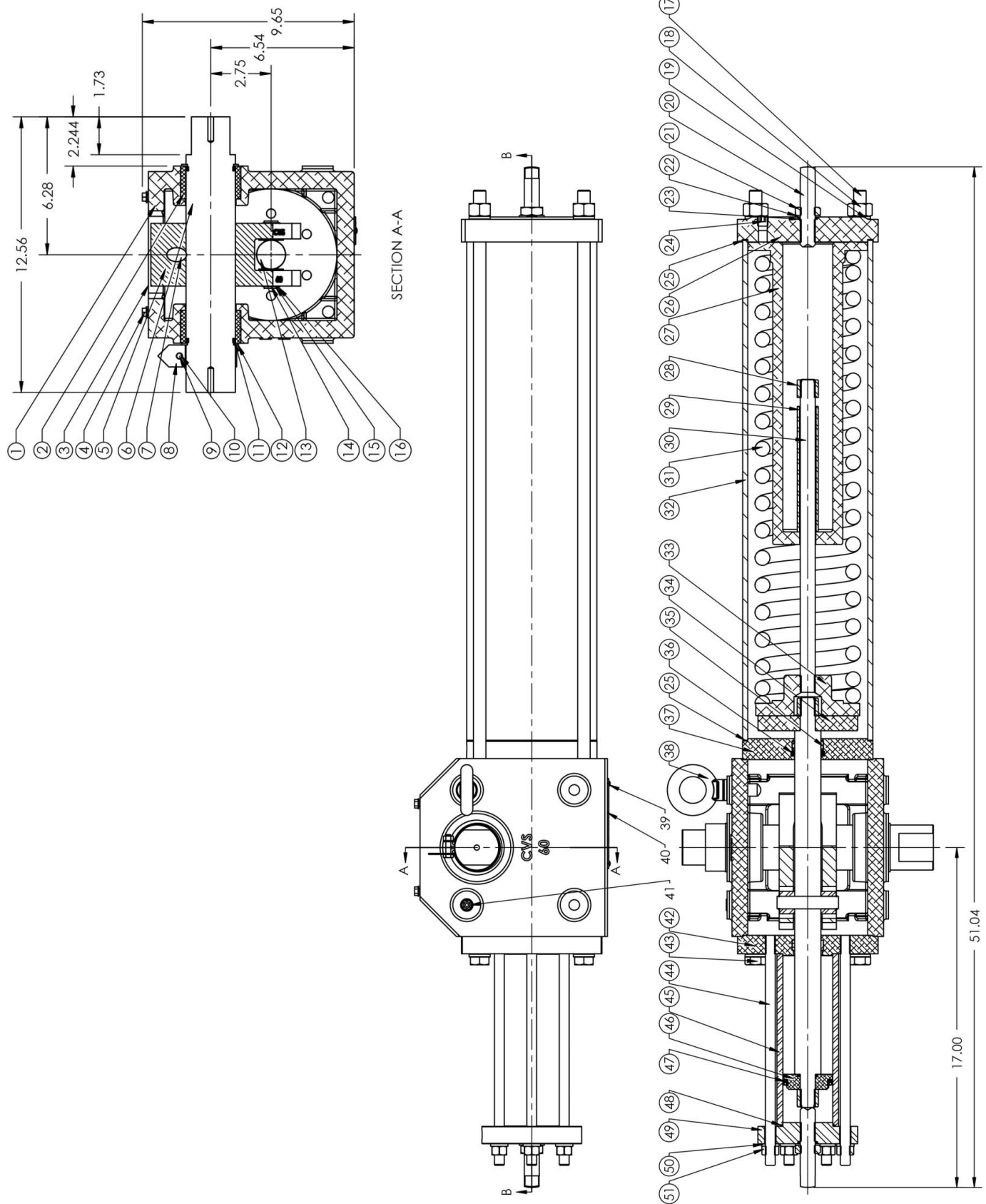
CVS Series 50D SRH Parts Listing

ITEM	PART NUMBER	QTY.	DESCRIPTION
1	CVS 50DSRH100-001	1	DRIVE HOUSING, ALUMINUM
2	CVS 50DSRH100-002	2	BUSHING, DRIVE HOUSING, NYLON
3	CVS 50DSRH100-003	1	YOKE, D65-45-12
4	CVS 50DSRH100-004	1	DRIVEN SHAFT, 1045
5	CVS 50DSRH100-005	1	PIN, 1018
6	CVS 50DSRH100-006	2	DRIVE ROLLER, 1045
7	CVS 50DSRH100-007	1	DRIVE PIN, 1045
8	CVS 50DSRH100-041	2	RETAINING RING, .50
9	CVS 50DSRH100-008	1	DRIVE ROD, 1045
*10	CVS 50DSRH100-015	2	O-RING 2-132, NITRILE
11	CVS 50DSRH100-017	2	RETAINING RING, 2.00
12	CVS 50DSRH100-010	1	COVER, ALUMINUM
13	CVS 50DSRH100-044	3	PLUG, 1/4 NPT
14	CVS 50DSRH100-040	1	EYE BOLT, 1/2"
15	CVS 50DSRH100-020	4	STAY ROD SPRING SIDE, 1018
16	CVS 50DSRH100-036	2	WASHER, 5/8"
17	CVS 50DSRH100-035	2	JAM NUT, 5/8"
18	CVS 50DSRH100-042	4	SCREW, 1/4"x0.50
19	CVS 50DSRH100-014	1	INDICATER, 304 SST
20	CVS 50DSRH100-046	1	BOLT, 1/4" x 1.00
21	CVS 50DSRH100-047	1	HEX NUT, 1/4"
22	CVS 50DSRH100-045	3	SET SCREW, 1/2" x .50
23	CVS 50DSRH100-030	1	END CAP, SPRING SIDE, ALUMINUM
*24	CVS 50DSRH100-037	3	O-RING, 2-208, NITRILE
25	CVS 50DSRH100-025	2	END STOP, 1018
26	CVS 50DSRH100-027	1	SPRING CYLINDER, POLYSIGHT
27	CVS 50DSRH100-033	1	SPACER, .875 x .635 TUBING
28	CVS 50DSRH100-029	1	SPRING BARREL, ALUMINUM
29	CVS 50DSRH100-024	1	SPRING, SPRING STEEL
30	CVS 50DSRH100-032	1	PRECOMPRESSION ROD, 1018
31	CVS 50DSRH100-031	1	SPRING SEAT, ALUMINUM
32	CVS 50DSRH100-034	3	SELF-LOCKING NUT, 5/8"
33	CVS 50DSRH100-009	1	PUSH PLATE, ALUMINUM
34	CVS 50DSRH100-026	1	ADAPTOR FLANGE, ALUMINUM
*35	CVS 50DSRH100-019	2	GASKET, NON ASBESTOS
*36	CVS 50DSRH100-016	1	O-RING, 2-321, NITRILE
37	CVS 50DSRH100-011	2	BUSHING, NYLON
38	CVS 50DSRH100-013	1	PLATE, PISTON SIDE, ALUMINUM
39	CVS 50DSRH100-038	14	LOCK WASHER, 1/2"
40	CVS 50DSRH100-043	4	BOLT, 1/2" x 2.00"
41	CVS 50DSRH100-012	1	PISTON, ALUMINUM
*42	CVS 50DSRH100-018	1	PISTON SEAL, SPRING LOADED, 2.00 x 2.50 x .25

ITEM	PART NUMBER	QTY	DESCRIPTION
43	CVS 50DSRH100-023	6	STAY ROD, CYLINDER SIDE, 1018
44	CVS 50DSRH100-021	1	CYLINDER, 1045
*45	CVS 50DSRH100-028	1	O-RING CYLINDER, 2-144
46	CVS 50DSRH100-022	1	END CAP, CYLINDER SIDE, 1018
47	CVS 50DSRH100-039	10	JAM NUT, 1/2"
48	CVS 1C379026232S	1	1/2" - 1/4" NPT ADAPTER, 316 SST
49	CVS 50DSRH100-048	1	NAME PLATE, 316 SST GAGE NO. 25
50	CVS 50DSRH100-049	2	DRIVE RIVET, 3/32" x .125

* Recommended Spare Parts

CVS Series 60D SRH Actuator Assembly



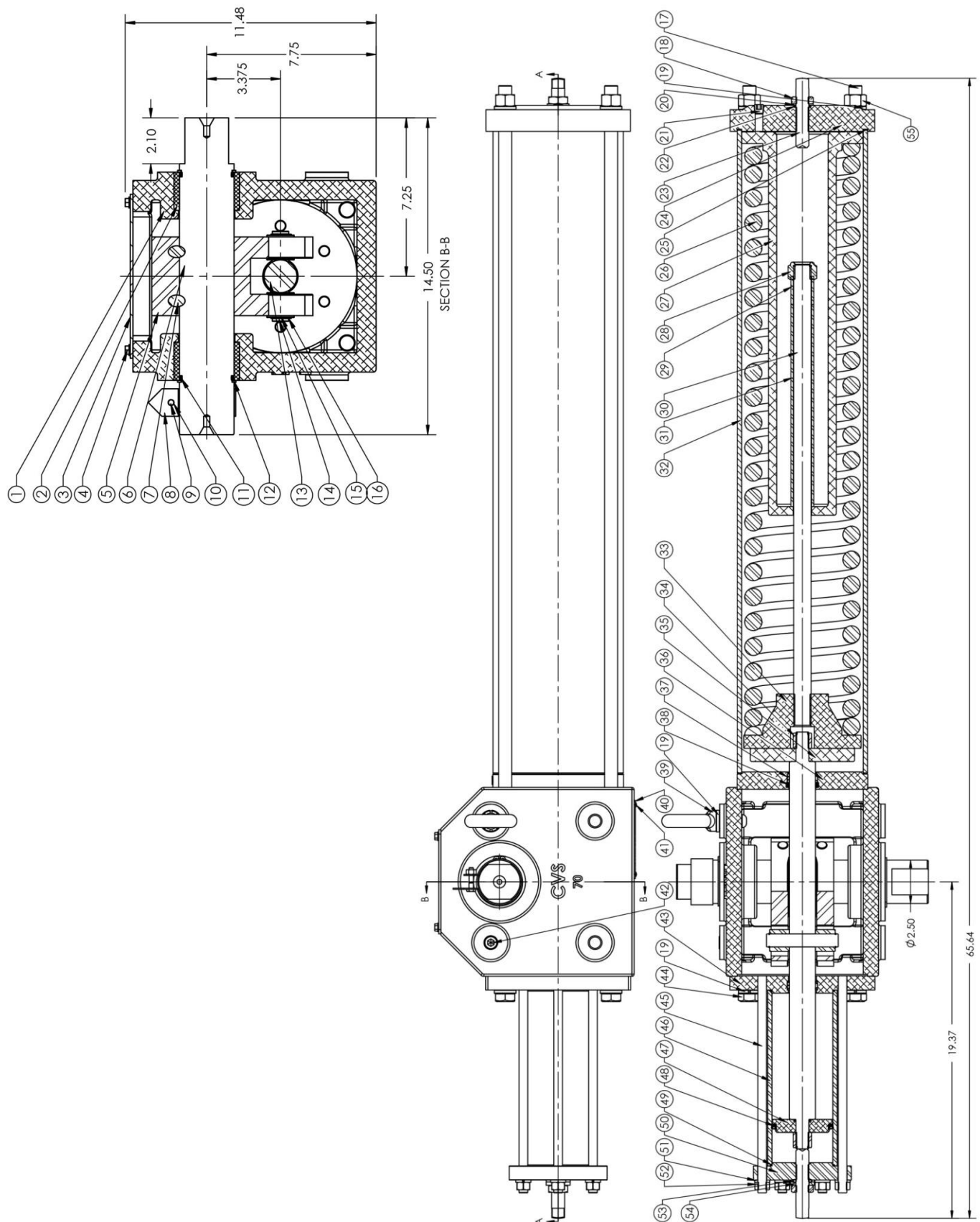
CVS Series 60D SRH Parts Listing

ITEM	PART NUMBER	QTY.	DESCRIPTION
1	CVS 60DSRH100-001	1	DRIVE HOUSING, ALUMINUM
2	CVS 60DSRH100-002	2	BUSHING, DRIVE HOUSING, NYLON
3	CVS 60DSRH100-003	1	COVER, ALUMINUM
4	CVS 50DSRH100-042	4	SCREW, 1/4" X .50
5	CVS 60DSRH100-003	1	YOKE, D65-45-12
6	CVS 60DSRH100-004	1	DRIVEN SHAFT, 1045
7	CVS 60DSRH100-005	1	TAPER PIN, NO. 10, 1018
8	CVS 60DSRH100-014	1	INDICATOR, 304 SST
9	CVS 60DSRH100-043	1	BOLT, 1/4" x 1.00"
10	CVS 50DSRH100-047	1	HEX NUT, 1/4"
*11	CVS 60DSRH100-015	2	O-RING, 2-227, NITRILE
12	CVS 60DSRH100-017	2	RETAINING RING, 2.25
13	CVS 60DSRH100-008	1	DRIVE ROD, 1045
14	CVS 60DSRH100-006	2	DRIVE ROLLER, 1045
15	CVS 60DSRH100-007	1	DRIVE PIN, 1045
16	CVS 60DSRH100-040	2	RETAINING RING, 5/8"
17	CVS 60DSRH100-020	4	STAY ROD, SPRING SIDE, 1018
18	CVS 60DSRH100-035	4	HEX NUT, 5/8"
19	CVS 60DSRH100-038	9	LOCKWASHER, 5/8"
20	CVS 70DSRH100-025	2	END STOP, 1018
21	CVS 70DSRH100-035	2	HEX NUT, 3/4"
22	CVS 70DSRH100-036	2	WASHER, 1018
*23	CVS 70DSRH100-037	3	O-RING, 2-210, NITRILE
24	CVS 50DSRH100-044	1	PLUG, 1/4-18 NPT
*25	CVS 60DSRH100-019	2	GASKET, NON ASBESTOS
26	CVS 60DSRH100-030	1	END CAP, SPRING SIDE, 6061
27	CVS 60DSRH100-029	1	SPRING BARREL, ALUMINUM
28	CVS 70DSRH100-034	3	SELF LOCK NUT, 3/4"
29	CVS 60DSRH100-033	1	SPACER, 3/4" SCH40
30	CVS 60DSRH100-032	1	PRECOMPRESSION ROD, 1018
31	CVS 60DSRH100-024	1	RETURN SPRING, STEEL
32	CVS 60DSRH100-027	1	SPRING CYLINDER, POLYSIGHT
33	CVS 60DSRH100-031	1	SPRING SEAT, 6061
34	CVS 60DSRH100-009	1	PUSH PLATE, 6061
35	CVS 60DSRH100-011	2	BUSHING, DRIVE ROD, NYLON
*36	CVS 60DSRH100-016	1	O-RING, 2-323, NITRILE
37	CVS 60DSRH100-026	1	ADAPTOR FLANGE, SPRING SIDE, 6061
38	CVS 60DSRH100-039	1	EYE BOLT, 5/8" x 1-3/4"
39	CVS 50DSRH100-048	1	NAME PLATE, 316 SST
40	CVS 50DSRH100-049	2	DRIVE RIVET, 3/32" x .125"
41	CVS 60DSRH100-042	1	SET SCREW, 5/8 x 3/4"
42	CVS 60DSRH100-013	1	PLATE, PISTON SIDE, 6061

ITEM	PART NUMBER	QTY	DESCRIPTION
43	CVS 60DSRH100-041	4	BOLT, 5/8" x 2.00"
44	CVS 60DSRH100-023	6	STAY ROD, PISTON SIDE, 1018
45	CVS 60DSRH100-028	1	CYLINDER, 1045
46	CVS 60DSRH100-012	1	PISTON, 6061
*47	CVS 60DSRH100-039	1	PISTON SEAL, SPRING LOADED, 2.5 x 1.98 x .25"
*48	CVS 60DSRH100-028	1	O-RING, NITRILE
49	CVS 60DSRH100-022	1	END CAP, CYLINDER SIDE, 1018
50	CVS 50DSRH100-038	6	SPRING WASHER, 1/2"
51	CVS 50DSRH100-039	6	JAM NUT, 1/2"

*** Recommended Spare Parts**

CVS Series 70D SRH Actuator Assembly



CVS Series 70D SRH Parts Listing

ITEM	PART NUMBER	QTY.	DESCRIPTION
1	CVS 70DSRH100-001	1	DRIVE HOUSING, ALUMINUM
2	CVS 70DSRH100-002	2	BUSHING, DRIVE HOUSING, NYLON
3	CVS 70DSRH100-010	1	COVER, ALUMINUM
4	CVS 50DSRH100-042	4	SCREW, 1/4" X .50
5	CVS 70DSRH100-003	1	YOKE, D65-45-12
6	CVS 70DSRH100-004	1	DRIVEN SHAFT, 1045
7	CVS 70DSRH100-005	2	TAPER PIN, NO. 9, 1018
8	CVS 70DSRH100-014	1	INDICATOR, 304 SST
9	CVS 70DSRH100-043	1	BOLT, 1/4" x 1.25", 1018
10	CVS 50DSRH100-047	1	HEX NUT, 1/4"
*11	CVS 70DSRH100-015	2	O-RING, 2-228, NITRILE
12	CVS 70DSRH100-017	2	RETAINING RING, 2.50
13	CVS 70DSRH100-008	1	DRIVE ROD, 1045
14	CVS 70DSRH100-006	2	DRIVE ROLLER, 1045
15	CVS 70DSRH100-007	1	DRIVE PIN, 1045
16	CVS 70DSRH100-040	2	RETAINING RING, .75
17	CVS 70DSRH100-020	4	STAY ROD, SPRING SIDE, 1018
18	CVS 70DSRH100-035	2	JAM NUT, 3/4"
19	CVS 70DSRH100-038	9	LOCKWASHER, 3/4"
20	CVS 70DSRH100-036	2	WASHER, .75, 1018
21	CVS 50DSRH100-044	2	PLUG, 1/4" NPT
*22	CVS 70DSRH100-037	2	O-RING, 2-210, NITRILE
23	CVS 70DSRH100-025	2	END STOP, 1018
24	CVS 70DSRH100-030	1	END CAP, SPRING SIDE, 6061
*25	CVS 70DSRH100-019	2	GASKET, NON ASBESTOS
26	CVS 70DSRH100-024	1	RETURN SPRING, STEEL
27	CVS 70DSRH100-029	1	SPRING BARREL, ALUMINUM
28	CVS 70DSRH100-046	1	SELF LOCKING NUT, 1"
29	CVS 70DSRH100-044	1	SPACER, SHORT, 1"
30	CVS 70DSRH100-032	1	PRECOMPRESSION ROD, 1018
31	CVS 70DSRH100-033	1	SPACER, LONG, 1"
32	CVS 70DSRH100-027	1	SPRING CYLINDER, POLYSIGHT
33	CVS 70DSRH100-031	1	SPRING SEAT, 6061
34	CVS 70DSRH100-034	2	SELF LOCKING NUT, 3/4"
35	CVS 70DSRH100-009	1	PUSH PLATE, 6061
36	CVS 70DSRH100-026	1	ADAPTOR FLANGE, SPRING SIDE, 6061
37	CVS 70DSRH100-011	2	BUSHING, DRIVE ROD, NYLON
*38	CVS 70DSRH100-016	1	O-RING, NITRILE, 2-325
39	CVS 70DSRH100-039	1	EYE BOLT, 3/4"X 1.75
40	CVS 50DSRH100-048	1	NAME PLATE, 316SST
41	CVS 50DSRH100-049	2	DRIVE RIVET, 3/32" x 1.25
42	CVS 70DSRH100-042	1	SET SCREW, 3/4" x 1"

ITEM	PART NUMBER	QTY	DESCRIPTION
43	CVS 70DSRH100-013	1	PLATE, PISTON SIDE, 6061
44	CVS 70DSRH100-041	4	BOLT, 3/4" x 2.25
45	CVS 70DSRH100-023	6	STAY ROD, PISTON SIDE
46	CVS 70DSRH100-021	1	CYLINDER, 1045
47	CVS 70DSRH100-012	1	PISTON, 6061
*48	CVS 70DSRH100-018	1	PISTON SEAL, SPRING LOADED
*49	CVS 70DSRH100-028	2	O-RING, NITRILE, 2-153
50	CVS 70DSRH100-022	1	END CAP, CYLINDER SIDE
51	CVS 50DSRH100-038	6	SPRING WASHER, 1/2"
52	CVS 50DSRH100-039	6	HEX NUT, 1/2"
53	CVS 70DSRH100-048	1	WASHER w/O-RING, 3/4"
54	CVS 70DSRH100-045	1	WASHER, 1018
55	CVS 70DSRH100-049	4	HEX NUT, 3/4", 1018

*** Recommended Spare Parts**



Head Office

3900 101 Street
Edmonton, Alberta
T6E 0A5
Canada
Office: (780) 437-3055
Fax: (780) 436 5461

Calgary Sales Office

205, 2323 – 32 Avenue NE
Calgary, Alberta
T2E 6Z3
Canada
Office: (403) 250-1416
Fax: (403) 291-9487

Website: www.cvs-controls.com

Email: info@cvs-controls.com

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