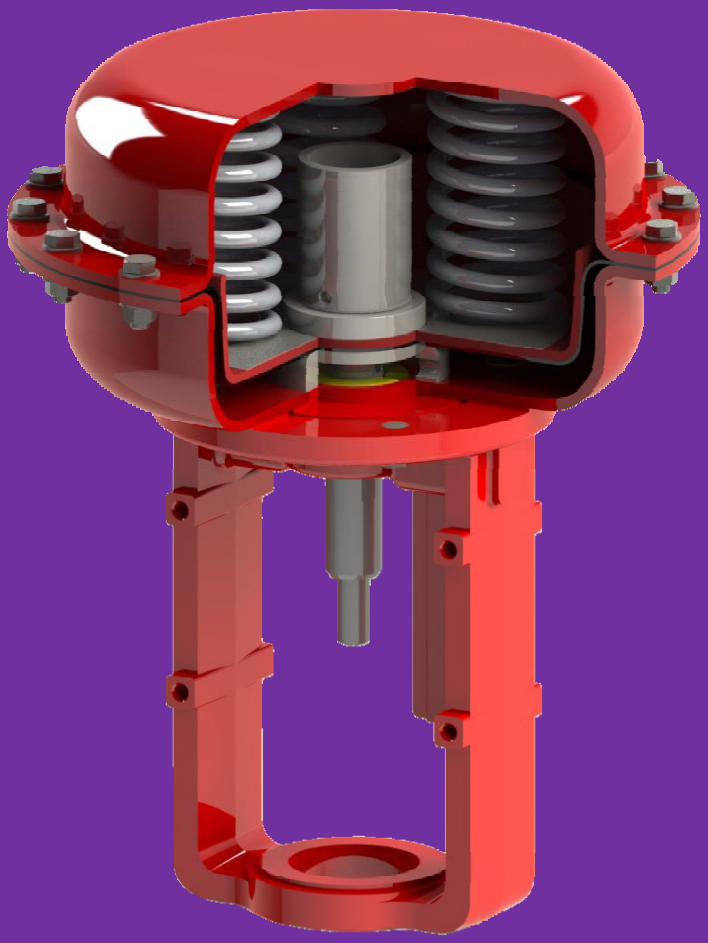
Pneumatic Spring Diaphragm Actuators

DD/DR-Series

Direct Action (DA-series) / Reverse Action(RA-series)



Best Flow Solutions

FEATURES

bFS Model DD-series direct-acting and DR-series reveres-action pneumatic spring diaphragm actuators are designed to provide high performance products features include.

Multiple Spring Design

Four standard spring ranges achievable by varying spring quantity and placement.

Heavy One-piece Yoke

Provides maximum strength and support for reliable performance.

Diaphragm Cases

Pressed steel and lower cases combine lightness high mechanical strength, and protection in the event of overpressurization.

Fast Response

The pressure tight chamber to which air pressure is connected has a small volume for fast response.

Application Flexibility

Five different sizes provide a broad range of stroke and thrust capabilities.

Reliability

Molded elastomer diaphragm with fabric insert provides strength, long life and high sensitivity.

Linearity

The molded rolling diaphragm and deep cases minimize area change, resulting in a linear relationship between travel and air pressure.

2-

Rugged Construction

All parts are engineered and tested for long life under millions of cycles.

CONTENTS

Features & Contents ---------- 2
Specifications---------- ---------- 3
Standard Spring ---------- 3
Air Connection ---------- 3
Materials ---------- 4
Dimensions & Weights ---------- 6
Model Numbering System ---------- 7

SPECIFICATIONS



- Type — Multi-Spring opposed rolling diaphragm
- Action — Direct Action (DD)
  Reverse Action (DR)
- Operating Temp. — -20deg.C to 80deg.C (Neoprene or Buna-N Diaphragm)
  -20deg.C to 120deg.C (EPDM Diaphragm)
- Operating Press.
- Maximum Stroke — 20mm(0.8inch to 130mm (5inch)
- Manual Override — Top mounted / S1. S2. S3.
  Top side gear box / S4. S5.
  Side mounted / Optional.
- Materials — See actuator assembly materials
- Accessories — Positioner, Filter regulator, Solenoid valve, Limit switches, Position transmitter Volume booster, Transducer, 3-way transfer valve, Lock-up valve are available actuator mounting.
- Dimension — See page 7.

Diaphragm Effective Area (sq. cm / sq. in)

Actuator Size	Diaphragm Effective Area	Stem Travel (max)	Max Supply
(mm)	(sq. mm / sq. inch)	(mm / inch)	(bar / psi)
S1 / 250	101.6 / 40	20 / 0.8	3.5 / 60
S2 / 290	152.4 / 60	25 / 1.0	3.5 / 60
S3 / 370	254 / 100	40 / 1.5	3.5 / 60
S4 / 480	406.4 / 160	65 / 2.5	3.5 / 60
S5 / 550	584.2 / 230	130 / 5.0	3.5 / 60

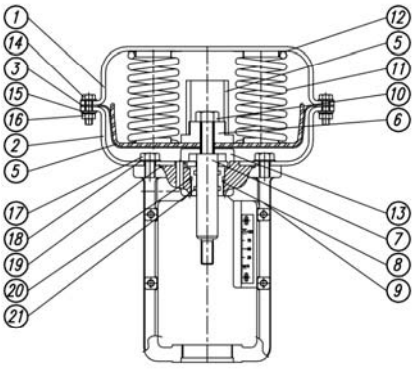
Springs Standard

Actuator Size	Spring Quantity	Spring Range/off balance	Thrust / kgf
S1 / 250	4	0.6bar	157
S2 / 290	4	0.6bar	230
S3 / 370	4	0.6bar	380
S4 / 480	6	0.8bar	843
S5 / 550	6	0.8bar	1170

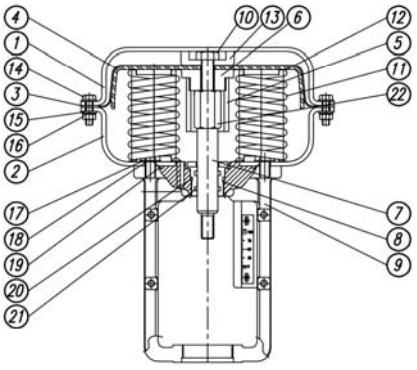
Air Connection

Actuator Size	Standard (inch)	Optional	Air Supply
S1 / 250	1/4"	3/8"	3.5bar
S2 / 290	1/4"	3/8"	3.5bar
S3 / 370	1/4"	3/8"	3.5bar
S4 / 480	3/8"	1/2"	3.5bar
S5 / 550	3/8"	1/2"	3.5bar

Standard Type RA / DA Actuator

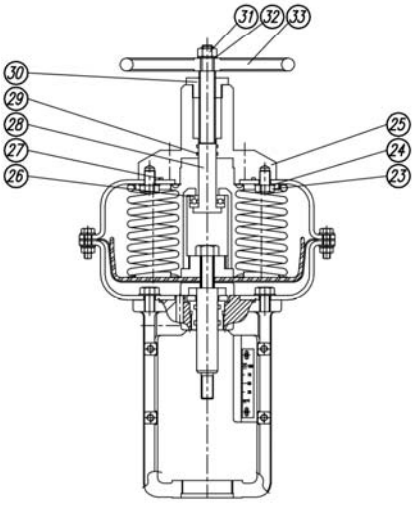


Air to open Actuator

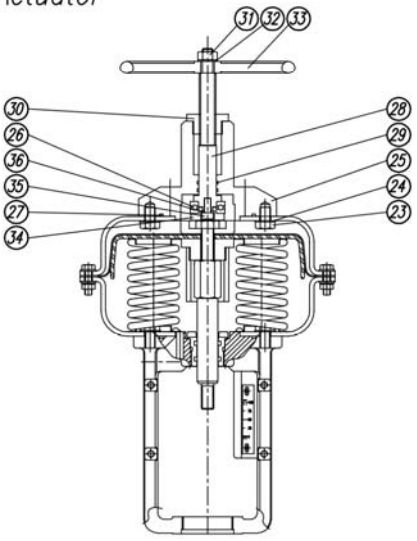


Air to Close Actuator

Top Handle Type RA / DA Actuator

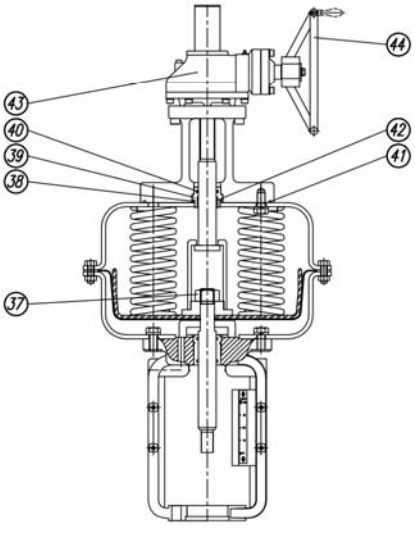


Air to open Actuator

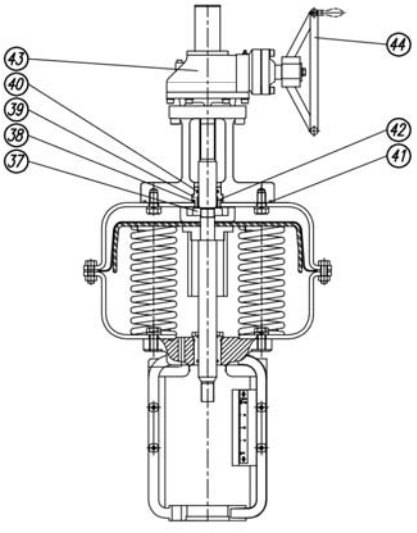


Air to Close Actuator

Top SIde Handle Type RA / DA Actuator



Air to open Actuator



Air to Close Actuator

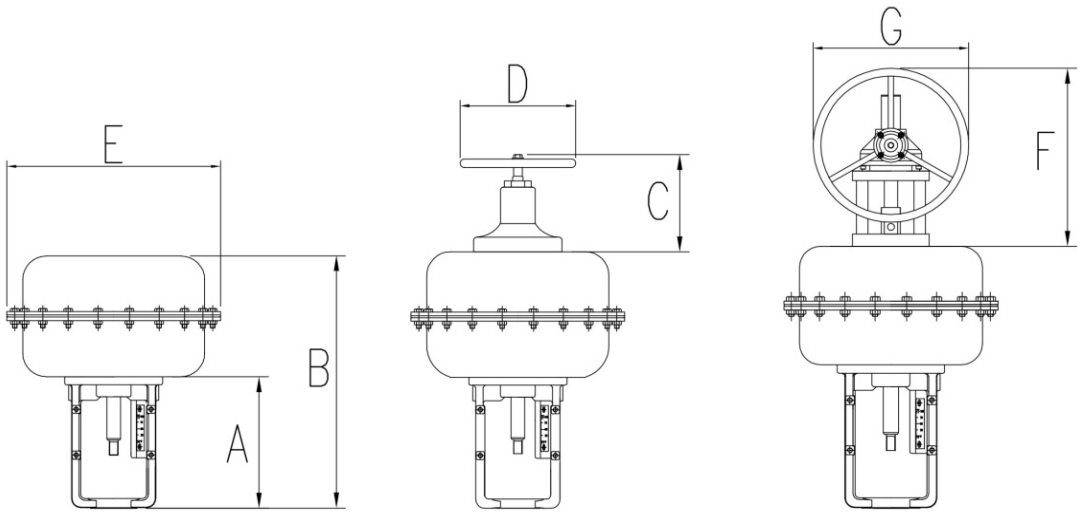
Materials Parts Reference for Spring Diaphragm Actuator

No.	Part Name	Material
1	Top Cover	SS400
2	Bottom Cover	SS400
3	Diaphragm	EPDM
4	Diaphragm Plate	SS400
5	Stopper	304SS
6	Stopper Holder	304SS
7	Stem	304SS
8	Stem Bushing	304SS
9	Yoke	FCD
10	Stem Bolt	304SS
11	Spring	OIL-TEMPERED WIRE
12	Spring Plate	304SS
13	Spacer	304SS
14	Bolt	304SS
15	Spring Washer	304SS
16	Nut	304SS
17	Bolt	304SS
18	Washer	Copper
19	O-ring	EPDM
20	O-ring	EPDM
21	O-ring	EPDM
22	Sub Stem	304SS
23	Bolt	304SS
24	Washer	Copper
25	Handle Yoke	WCB
26	Bearing	304SS
27	O-ring	EPDM
28	Lead Screw	304SS
29	O-ring	EPDM
30	Stroke Nut	Copper
31	Nut	304SS
32	Washer	304SS
33	Handle	FCD
34	Bearing Adapter	304SS
35	Wrench Bolt	304SS
36	Washer	304SS
37	Nut	304SS
38	O-ring	EPDM
39	Bushing	304SS
40	O-ring	EPDM

No.	Part Name	Material
41	O-ring	EPDM
42	DU Bushing	304SS
43	Gear Box	-
44	Handle	FCD



DIMENSION and WEIGHTS



Standard *Top mounted handwheel* *Top side mounted gear box handwheel*

Actuator Size	Actuator Dimensions (mm)							Weights (kg)	
	A	B	C	D	E	F	G	Standard	w/handwheel
S1 / 250	210	340	200	230	250	-	-	14	17
S2 / 290	230	370	200	230	290	-	-	21	28
S3 / 370	230	410	200	230	370	-	-	40	49
S4 / 480	360	630	-	-	480	470	400	97	113
S5 / 550	260	680	-	-	550	470	400	125	149

** Side mounted handweel.*

side mounted handwheels are available for the DD/DR-series actuator. Contact BFS for detail and dimensions.

** Manually operated actuators*

BFS offers handwheel operated actuators for applications where an automated valve is not required or where compressed air service is unavailable DD/DR-series actuators are suitable for both on-off and modulating service.

The DD/DR-series is a pneumatic, spring-opposed diaphragm actuator operating from plant air. Excellent longterm accuracy and reliability is achieved through the use of multiple springs in the actuator.

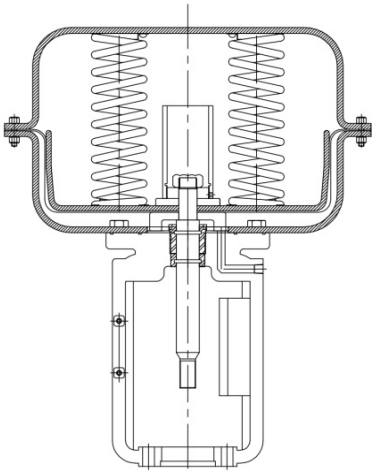
The rugged one-piece yoke, the pressed steel diaphragm case and the special nylon reinforced diaphragm provide dependable, high thrust performance. Additionally, the precision formed diaphragm eliminates friction and reduces variations in the effective area during operation which, in turn, results in exceptional linearity.

An optional top or side-mounted manual override is a available on both direct and reverse acting actuators. Six different sizes of the DD/DR-series actuators with the various accessories can virtually satisfy all application requirement

MODEL NUMBERING SYSTEM

1st. Digit	2nd
Diaphragm	Action

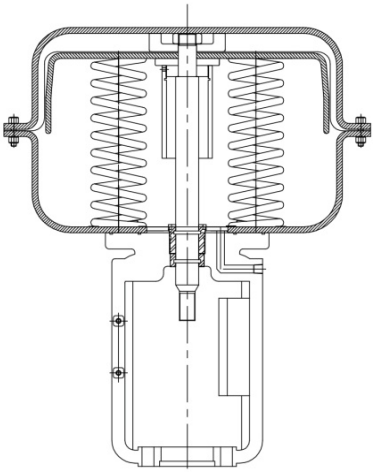
Air to Open



Reverse Action / Air to Retract Stem

DR-series

Air to Close



Direct Action / Air to Extend Stem

DD-series

Model Numbering System

Type	Size	Stroke	Option
DD/Direct Action	**S1**/250mm	**01**/15mm	**SH**/Side mounted hand-wheel
DR/Reverse Action	**S2**/290mm	**02**/20mm	**TH**/Top mounted handwheel
	S3/370mm	**03**/25mm	**GH**/Top side gear-box hand-wheel
	S4/480mm	**04**/40mm	**HH**/ Hydraulic Jack
	S5/550mm	**05**/50mm	
		06/80mm	
		07/100mm	
		08/120mm	
		09/130mm	

Pneumatic Spring Diaphragm Actuators

www.bfsvalve.com

BFS Incorporation
23block-3lot, Gumdan Industrial Complex, 17# 114beon-gil, Gumdan-ro, Seo-gu, Incheon-city, Korea
T/+82-32-329-9142. F/+82-32-329-9148
E-mail / bfsvalve@bfsvalve.com

BFS U.S.A / America headquarters
21175, Tomball, #417, Pkway, Houston, TX, 77070, U.S.A
T/+1-281-379-6070. F/+1-713-851-5572
E-mail / dbeck@bfsvalve.com

Pneumatic Linear Cylinder Actuators

CS/CD/CT-Series

Spring Cylinder & Double Cylinder



FEATURE

BFS Cylinder Linear Actuator

The **bFS** spring cylinder linear actuator is a powerful, high performance pneumatic actuator that provides positive throttling or on-off operation for automatic control valves. Most Cylinder sizes are designed for supply pressure up to 10bar (1Mpa).

Using spring to provide fail-safe operation, this actuator is completely field riverside for air-to-open or air-to-close operation without additional parts. The positioned supplies air to both sides of the piston, providing stiff, precise movement and high-frequency response.

The standard fail-open configuration can be seen in figure 1. Actuators which fail closed or lock in place are also available. A hand-wheel-operated manual override is available for those valve which may require stroking in a power failure condition. The standard actuator includes an integral bypass valve to equalize cylinder pressures when the override is used. Field experience has shown this configuration to be extremely reliable and trouble free for years. The standard materials can be seen table 1.

Thrust Producing Capability

bFS linear Cylinder actuators produce substantially higher thrust than comparable diaphragm actuators because the cylinder operates with supply pressures up to 10bar (1Mpa). Throttling diaphragm actuators are limited to 2.5 – 4bar (0.25-0.4Mpa). Higher actuator air supply, coupled with high-pressure air on both sides of the actuator piston, provide exceptional stiffness for precise throttling control. BFS cylinder actuator stiffness is sufficient to control high pressure drops and to permit the plug to throttle near the seat.

CONTENTS

Feature, Contents & Model Numbering System ---------- 2
Actuator Performance ---------- 3
Material of Construction---------- 4
Hand-wheel ---------- 5
Dimension of Actuators---------- 6
Instrument Tubing Diagram---------- 7

Model Numbering System

Type	**Size**	**Action**	**Stroke**	**Option**
CD/Double cylinder	**20**/200mm	**RA**/Reverse action	**01**/25mm	**SH**/Side handwheel
CS/ Spring cylinder	**25**/250mm	**DA**/Direct action	**02**/50mm	**TH**/Top handwheel
CT/Double cylinder tandem air tank	**30**/300mm	**DD**/Double Action	**03**/80mm	**GH**/Top side gear box handwheel.
	35/350mm		**04**/100mm	**HH**/Hydra. Jack.
	40/400mm		**06**/150mm	
	50/500mm		**08**/200mm	
	00/option		**10**/250mm	
			00/option	

Actuator Performance

Presented here as examples are some data from standard models, and some from ultra-high performance actuators for specially demanding applications. Please note that these values are typical of installed use and are not the laboratory figures.

Static Performance

The static performance criteria relate valve position to the input signal, and are influenced by friction and valve hydraulic loads.

Dead band is the measure of the smallest change in control signal required to achieve any stem movement. It is sometimes referred to as sensitivity.

Resolution in the smallest change in stem position possible, in response to a change in control signal equal to dead band.

Hysteresis is the difference in stem position for the same control signal when approached from upscale and downscale.

Linearity is a measure of the deviation from on ideal straight line along the position versus signal graph.

The values in under table are typical in-service performance criteria for X[iks]-trim valve.

bFS is fully equipped to conduct actuator performance testing, both static and dynamic per ISA S26. Source inspection is also available.

Dynamic Response

Dynamic response parameters measure the valve's position as a function of time when the signal is changing. Common parameters for dynamic response are over or undershoot, or time to stabilize in response to a step input, and frequency response at -3dB for since wave testing. Specifying these parameters is not cost effective unless the dynamic response of the valve is crucial to the rest of the system.

At bFS, if dynamic response requirements are present, a control schematic is designed so as to ensure compliance. Computer simulation of pneumatic actuator response to step and sine wave signals enables our project engineer to meet your control element needs. Because of the custom nature of these schematics no data will be presented here, but your bFS representative can consult the factory about your requirement.

Stroking Speeds

Typical stroking speeds for X[iks]-trim valves very from 7mm/sec. to 50mm/sec. with speeds up to 150mm/sec. in modulating mode and 300mm/sec. in on-off operation. These specification translate into stroke time from less than one second to more than 30seconds. Our computer simulation allows us to select a control circuit to meet the needs of your application.

Fail Mode

Fail mode available include fail-open, fail-closed, and fail in place, with solenoid trip modes including open and closed, plus special circuits for other requirements including redundancy and multiple fail modes.

Standard Materials of Construction

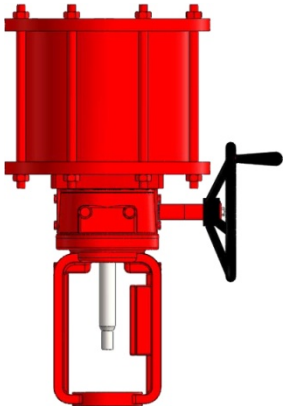
The cylinder and piston are made of Steel or amalgam Polymer cylinder & corrosion resistant anodized aluminum piston. A steel yoke is used to withstand impact. The exposed actuator stem is stainless steel and is guided by iolite bronze bushings. For service in extremely corrosive atmospheric conditions, the yoke, cylinder, clamps and other exposed parts can be supplied in stainless steel or the actuator can be completely coated in requirement painting specification.

HANDWHEELS

Side Mounted Hand-wheels

The bFS side mounted hand-wheel is a continuously connected, de-clutchable design that permits manual operation of linear actuators. The standard for valves with up to 200mm stroke, it is especially convenient during start-up, in emergencies, or due to air failure.

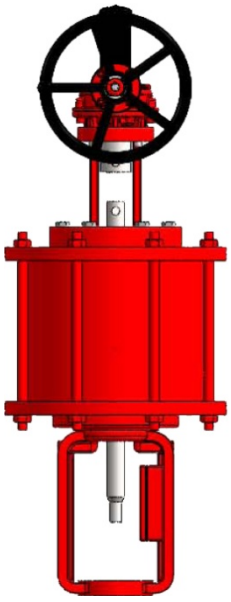
Its efficient design utilize heavy-duty, anti-friction bearing that allow high thrust with low torque on the hand-wheel. The side mounted worm gear hand-wheel provides the mechanical advantage needed for manual operation and an effective means to overcome the fluid forces or friction within the valve during manual operation.



Side mounted Declutch hand-wheel

Factory Adjusted

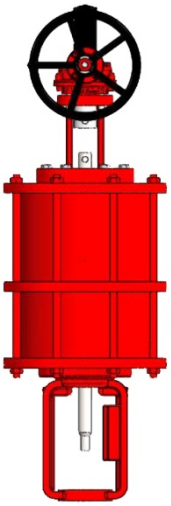
Every actuator built at bFS is fully factory adjusted and inspected before shipment. Positioner travel and gain adjustments are made, as are pressure settings and volume booster and limit switch settings (If the actuator is so equipped). In addition to any customer performance requirements, every actuator is put through our series of operability tests, including stroking speed and fail mode tests. Our commitment to quality ensures a highly reliable product.



Top side mounted gear box hand-wheel

Top Side Mounted Gear Box Hand-wheels.

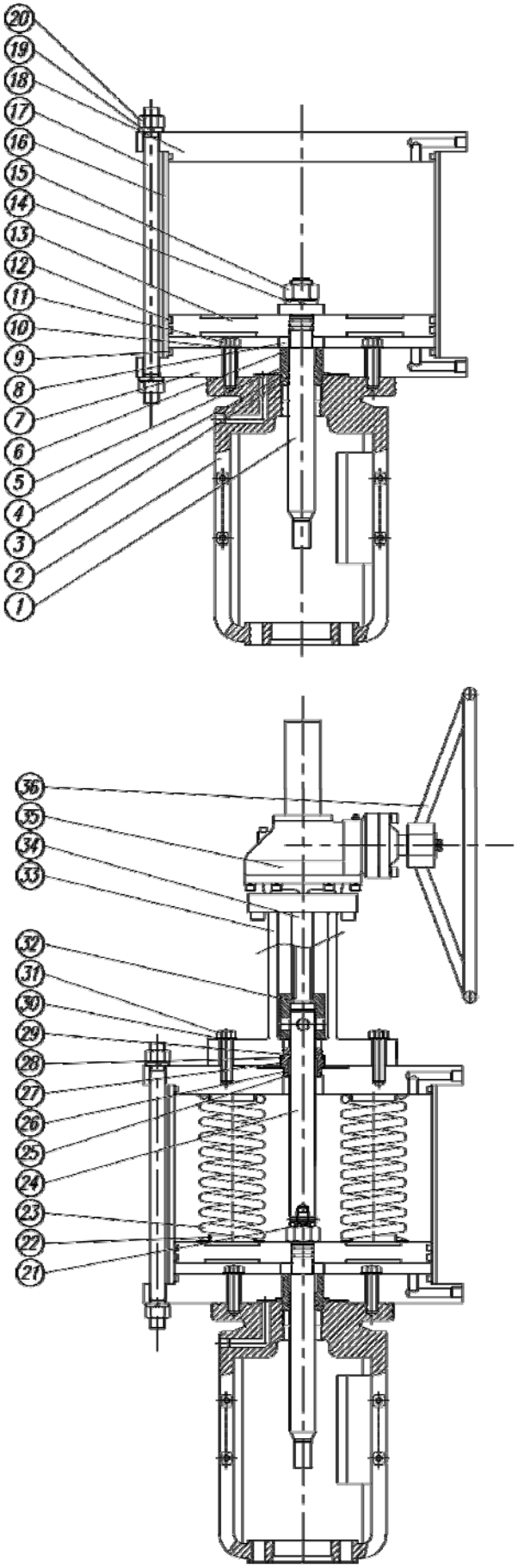
Top-side-mounted gear box hand-wheels can be mounted all of cylinder actuators. This ruggedly built hand-wheel utilizes a precision-made bevel gear sealed in a weatherproof housing to maximize performance. High thrust output can be achieved with low torque input on the hand-wheel. Consult the factory on capacities for specific applications.



Double cylinder with tandem air tank

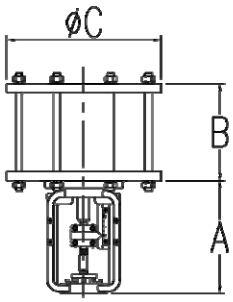
Materials of Construction

No.	Parts Name	Materials
1	Yoke	Carbon steel
2	Clamp	Stainless steel
3	Yoke Clamp bolt	Stainless steel
4	Stem clamp	Stainless steel
5	Stem clamp bolt & nut	Stainless steel
6	Cylinder	Amalgam
		Carbon steel
		Stainless steel
7	Actuator stem	Stainless steel
8	Stem spacer	Stainless steel
9	Actuator stem lock nut	Stainless steel
10	Piston O-ring	EPDM
11	Spring guide	Carbon steel
12	Pistin	Anodized Aluminium
13	Cylinder upper cover	Carbon steel
14	Cylinder lower cover	Carbon steel
15	Cylinder O-ring	EPDM
16	Stroke plate	Stainless steel
17	Accessories Bracket	Carbon steel
		Option/Stainless steel
18	Cylinder stud	Carbon steel
		Option/Stainless steel
19	Handwheel gear box	Carbon steel
20	Handwheel yoke	Carbon steel
21	Handwheel stem	Stainless steel
22	Hydraulic jack	Carbon steel
		Option/Stainless steel
23	Instriment tubing	Stainless steel
24	Positioner	Aluminium
		Option/Stainless steel
25	Air set	Aluminium
		Option/Stainless steel
26	Volume Booster	Aluminium
		Option/Stainless steel
27	Solenoid Valve	Aluminium
		Option/Stainless steel
29	Limit Switch	Aluminium
		Option/Stainless steel
30	3way Transfer valve	Aluminium
		Option/Stainless steel

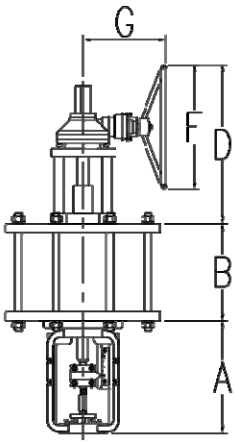


DIMENSIONS

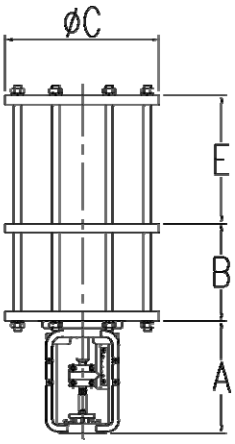
CD/CT-series / Double Acting Spring Less Type



CD-series



CD with Handwheel



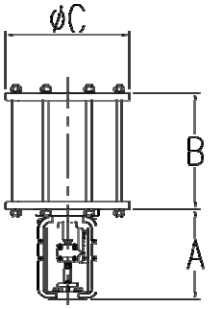
CT-series

unit/mm

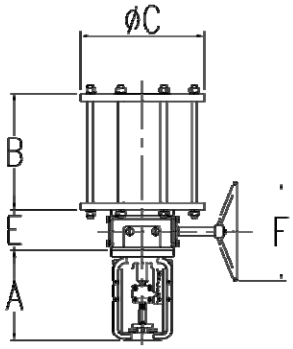
Actuator size	A	B	C	D	E	F	G
CD20/200	230	280	280	500	375	400	215
CD25/250	360	280	340	500	375	400	215
CD30/300	360	280	390	500	375	400	215
CD35/350	490	330	440	600	500	400	215
CD40/400	490	330	490	600	500	400	215
CD50/500	600	380	600	600	500	400	215

** The marked "B" dimension is standard specification. Therefore based on client requirement. This is to be manufactured differehtly as optional specification*

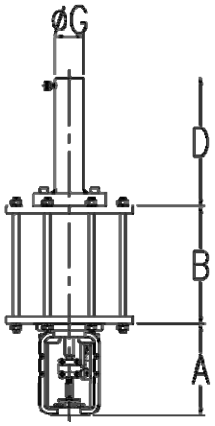
CS-series / Single Acting Spring Return Type



CS-series



CS with Handwheel



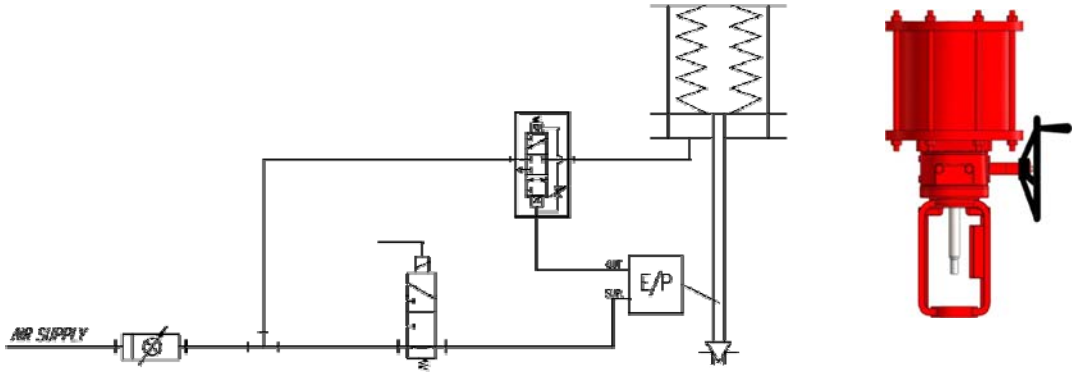
CS with Hydraulic Hand-jack

unit/mm

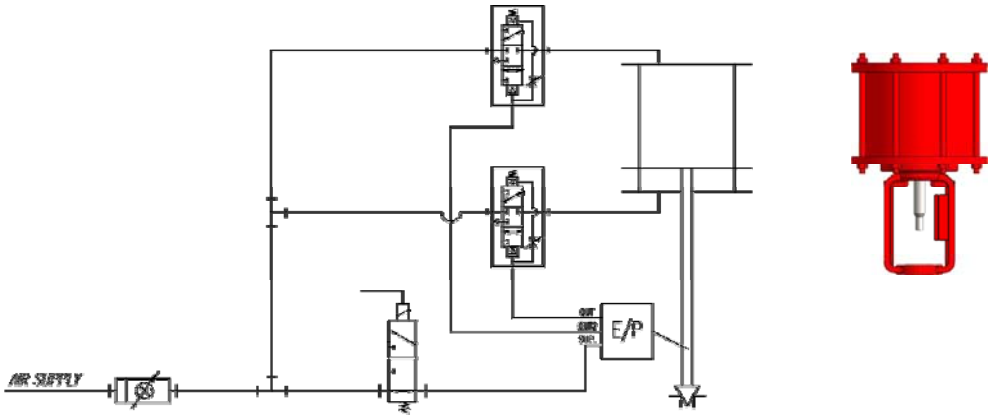
Actuator size	A	B	C	D	E	F	G
CS20/200	230	680	280	-	150	400	-
CS25/250	360	680	340	-	150	400	-
CS30/300	360	680	390	-	150	400	-
CS35/350	490	730	440	-	150	400	-
CS40/400	490	730	490	300	150	400	100
CS50/500	600	780	600	300	150	400	100

** The marked "B" dimension is standard specification. Therefore based on client requirement. This is to be manufactured differehtly as optional specification*

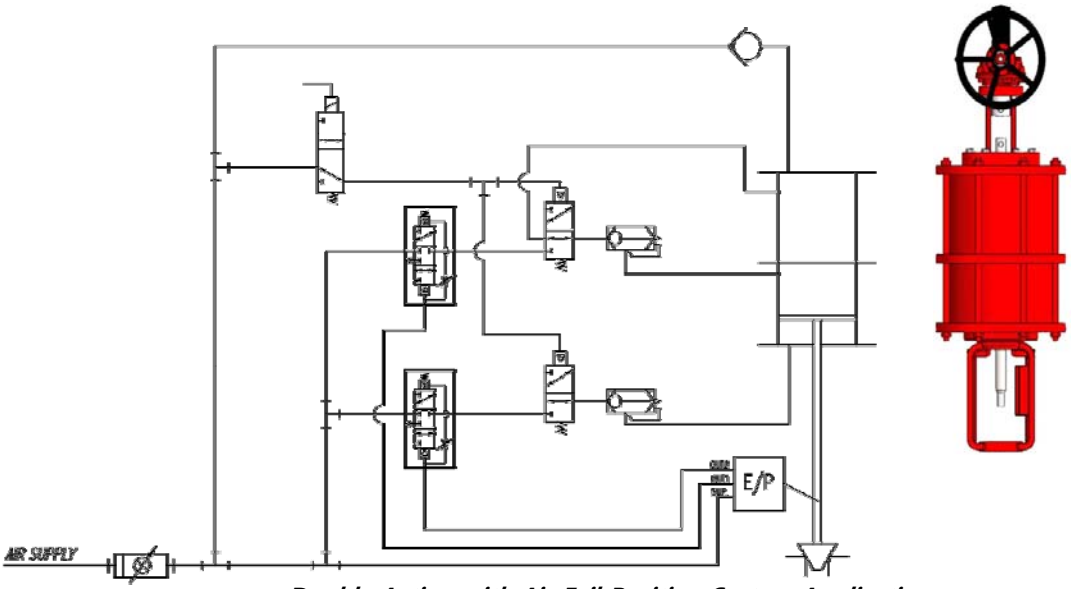
INSTRUMENT TUBING DIAGRAM



Single Acting (Spring Return System) Application



Double Acting Air Fail to Last Position Application



Double Acting with Air Fail Position System Application

Pneumatic Linear Cylinder Actuators

www.bfsvalve.com

BFS Incorporation
34-5, Samjeong-dong, Ojeong-gu, Bucheon-City. Gyeonggi-do, Korea.
T/+82-32-329-9142. F/+82-32-329-9148
E-mail / bfsvalve@bfsvalve.com

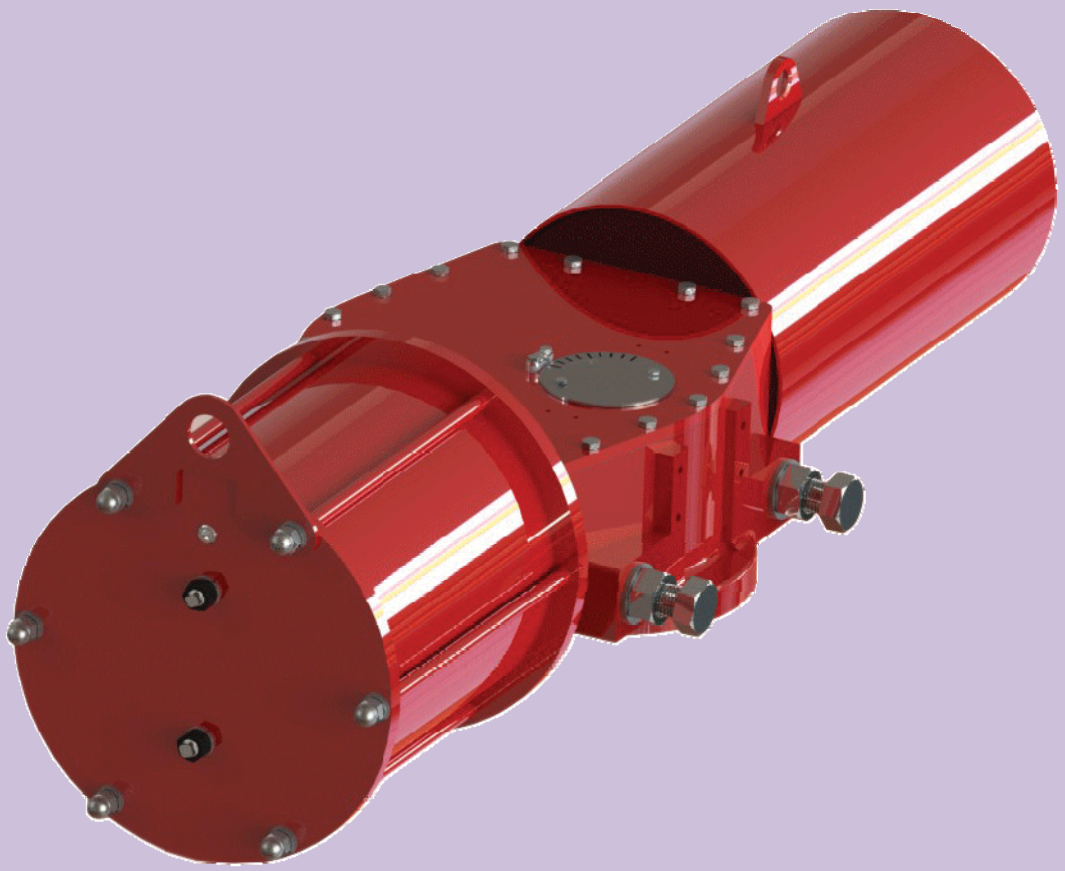
BFS U.S.A / America headquarters
21175, Tomball, #417, Pkway, Houston, TX, 77070, U.S.A
T/+1-281-379-6070. F/+1-713-851-5572
E-mail / dbeck@bfsvalve.com

bFS.
Best Flow Solution

Heavy-Duty Pneumatic Rotary Cylinder Actuator

Symmetric Yoke & Canted Yoke

RDS/RSS/RDC/RSC-Series



Introduction

The RS & RC Series of Heavy-Duty scotch yoke actuators are designed to suit a wide range of valves and damper applications and offer a wide range of torques to enable operation of ball valves, butterfly valves, plug valves and dampers or any device that requires a quarter turn operation for on-off of modulating service.

RSS/RDS-Series has a symmetrical design yoke that produces maximum torque at both ends of the 90° cycle.

RSC/RDC-Series has a canted design yoke that produces maximum torque at either the close or open end.

Both series of actuators have a complete range of options & accessories for control and monitoring, including manual hand-wheel (Jackscrew), Hydraulic Hand Jack, Declutch Gearboxes, Limit Switches, Solenoid Valves, Positioners and other control accessories.

The modular design and construction provides maximum convenience during installation, maintenance and storage.

Contents

Page

Introduction, Model Numbering System ---------- 2
Specification, Feature, Flow Characteristic --------- ---------- 3
Materials of Actuator ---------- 4
RDS/RSS-Series Torque table (Symmetric) ---------- 5
RDC/RDS-Series Torque table (Canted) ---------- 7
Dimension of RDS/RSC-Series ---------- 10
Dimension of RSS/RSC-Series ---------- 11

Model Numbering System

Heavy-Duty Pneumatic Rotary Cylinder Actuators

1	2	3	4	5
Actuator series	**Center Design**	**Cylinder Size**	**Hand-wheel**	**Air Supply Pressure**
Symmetric Yoke	**02/** 20 to 35	**20**-200 (mm)	**XX-**Undefined	Actual Pressure
RSS / Single Acting	**03/** 35 to 43	**25**-250 (mm)	**MH-**Manual Override	(Press. unit / BarG)
RDS / Double Acting	**04/** 43 to 53	**30**-300 (mm)	**DG-**Declutch Gearbox	**55** / 5.5barG
	05/ 53 to 63	**35**-350 (mm)	**HJ-**Hand Jack Pump	
Canted Yoke	**06/** 63 to 73	**38**-380 (mm)	**SN**-See Note	
RSC/Single Acting		43-430 (mm)		
RDC/Double Acting		**48**/480 (mm)		
		53/530 (mm)		
		58/580 (mm)		
		63/630 (mm)		
		73/730 (mm)		
		XX/Option		

1. Specification

- Specification of Heavy-Duty Actuators

Symmetric Yoke Design

; RSS / Single Acting Cylinder Rotary Actuator.

; RDS / Double Acting Cylinder Rotary Actuator

Canted Yoke Design

; RSC / Single Acting Cylinder Rotary Actuator.

; RDC / Double Acting Cylinder Rotary Actuator

- Actuator Size :

; Standard / 200 to 730 (mm)

; Option / over 730 (mm)

; Size Detail / Please see page 6 torque table..

- Housing Construction :

; IP66 for water ingress protection and corrosion resistance.

- Operating Pressure

; Standard / 2.8 to 7 *BarG* (40 to 100 *psiG*)

; Option / Others

- Operating Temperature

; Standard / -20℃ to +80℃

; Option / −30℃ to + 100℃

- Mounting Dimension / Body & Actuator

; Standard / ISO 5211

; Optional. / MSS-Sp 101 or others on request.

- Hand-wheel / Option.

; Manual Hand-wheel

; Declutch Gear Box

; Hydraulic Hand Jack.

2. Feature

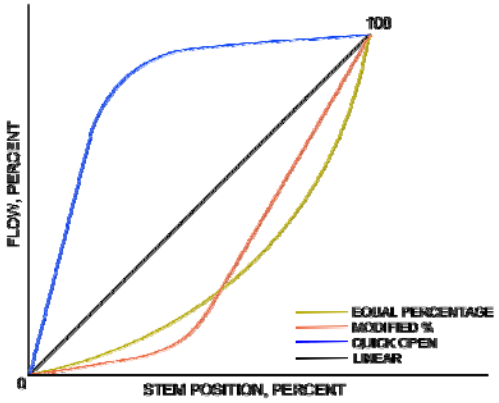
Standard

- Two years standard warranty
- IP66 for water ingress protection and corrosion resistance.
- Interchangeable modular construction - an advantage for inventory, service, maintenance.
- Standard operating pressure : 2.8 to 7barG.
- Standard operating temperature : -20℃ to +80℃ with high and low temperature optional trims available.
- Mounting dimension is to meet with ISO5211.

Optional

- Different temperature range : -30℃ to 100℃
- Different pressure range : Max. 10barG.
- Hydraulic Hand Jack, Declutchable gear box.
- Different mounting dimension : MSS-Sp101 or others on request.

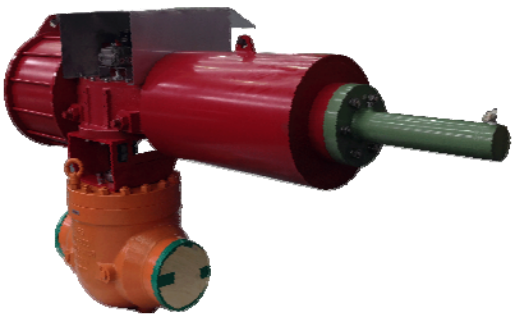
3. Flow Characteristics



Characteristic Curve



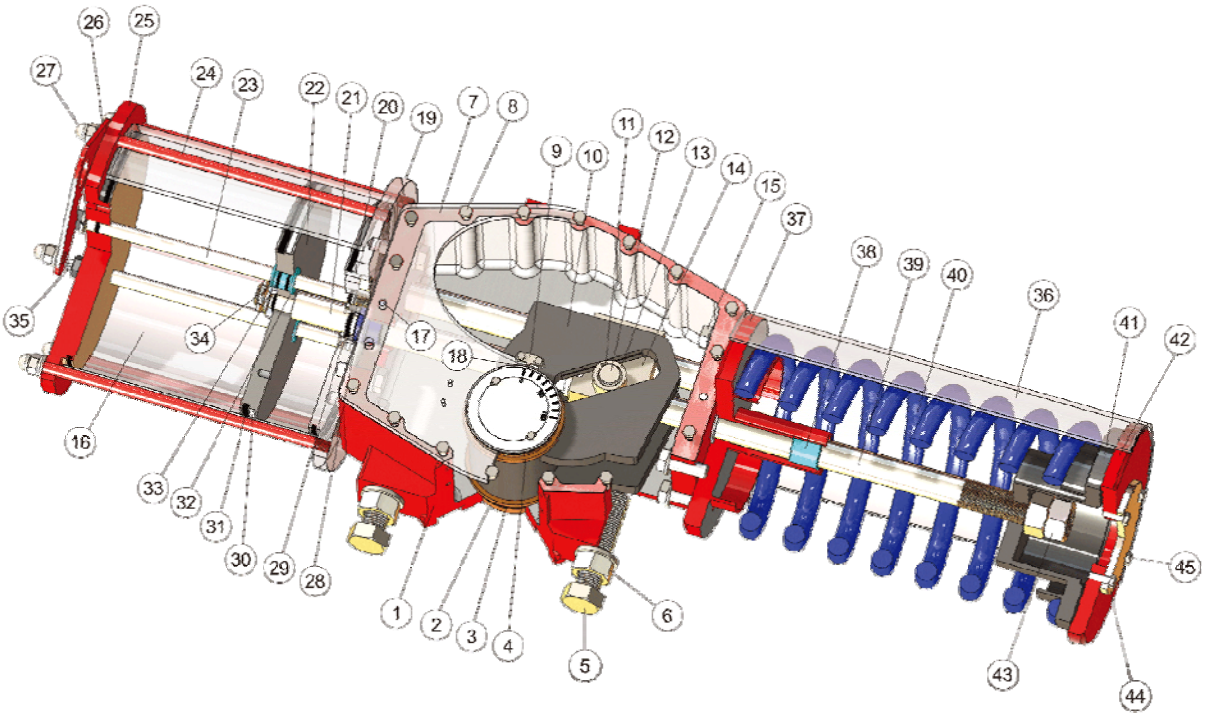
Heavy-Duty Pneumatic Spring Cylinder Actuator
Application Butterfly Valves / RSC-Series



Heavy-Duty Pneumatic Spring Cylinder Actuator
Application Top Entry Ball Valves / RSC-Series

4. Materials

RS/RC-Series / Heavy-Duty Pneumatic Cylinder Actuator



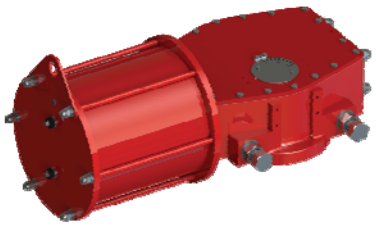
No	DESCRIPTION	MATERIAL
1	Body	A395
2	Lower Bushing	B139
3	O-Ring	NBR
4	Upper Bushing	B139
5	Stopper Bolt	Carbon Steel
6	Stopper Nut	Carbon Steel
7	Center Body Cover	A283
8	Center Body Cover Bolt	Carbon Steel
9	Pointer	A240
10	Yoke	Carbon Steel
11	Snap Ring	Carbon Steel
12	Slide Pin	Carbon Steel
13	Slide Roller	Carbon Steel
14	Slide Block	Carbon Steel
15	Front Cover Bolt	Carbon Steel
16	Cylinder	A53
17	Cover Fixing Pin	Carbon Steel
18	Position Indicator	Carbon Steel
19	Cylinder Front Cover	Carbon Steel
20	Cover O-Ring	NBR
21	Piston Rod	Carbon Steel
22	Piston	Carbon Steel
23	Piston Guide Bar	Carbon Steel

No	DESCRIPTION	MATERIAL
24	Tie Bolt	Carbon Steel
25	Cylinder End Cover	Carbon Steel
26	Lifting Lug	Carbon Steel
27	Tie Bolt Nut	Carbon Steel
28	Front Cover Bushing	Engineering Plastic
29	O-Ring	NBR
30	Back-up Ring	PTFE
31	Piston O-Ring	NBR
32	Piston Guide Bushing	Engineering Plastic
33	Piston Guide Bushing O-Ring	NBR
34	Piston Lock Bolt	Carbon Steel
35	Piston Guide Bar Nut	Carbon Steel
36	Spring Case	A120
37	Spring Case Front Cover	Carbon Steel
38	Spring Rod Guide Bushing	Engineering Plastic
39	Spring Rod.	Carbon Steel
40	Spring	Carbon Steel
41	Spring Retainer	Carbon Steel
42	Spring Case End Cover	Carbon Steel
43	Spring Rod Lock Nut	Carbon Steel
44	Cover	Carbon Steel
45	Cover Bolt	Carbon Steel
46	Paint / Standard	Red / Powder Coat

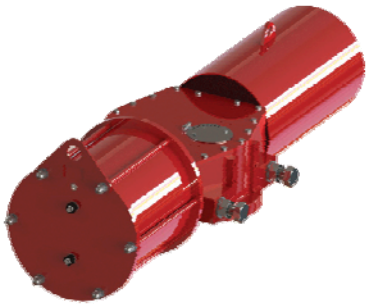
5. Symmetric Yoke Torque Table

5-1. RDS-Series / Double Acting Cylinder Actuator

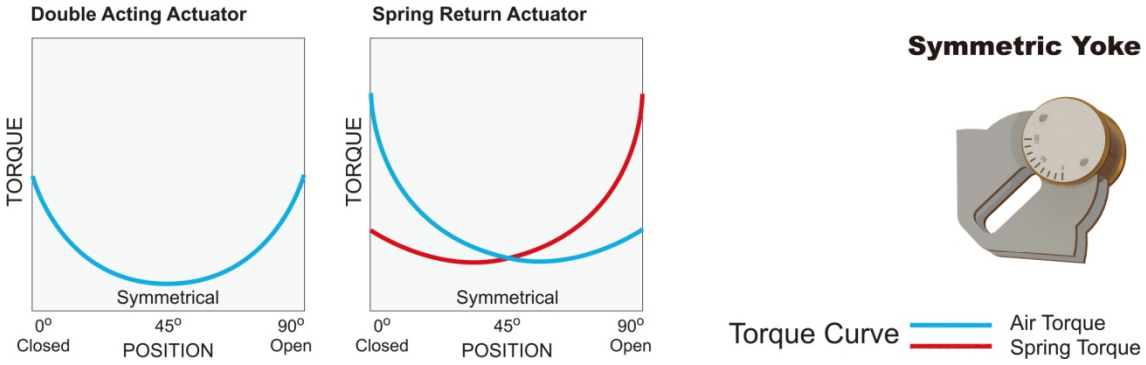
RCS-Series has a **symmetrical** design yoke that produces maximum torque at both ends of the 90³ cycle



Double Acting Cylinder Actuator



Spring Return Cylinder Actuator



Torque table ***Unit/Nm***

Model	2.8Bar			4.2Bar			5.5Bar			7Bar		
	Start	Run	End	Start	Run	End	Start	Run	End	Start	Run	End
RDS 02-20	1418	724	1413	2127	1087	2119	2785	1423	2775	3545	1811	3532
RDS 02-25	2215	1132	2207	3323	1698	3311	4352	2223	4336	5539	2830	5518
RDS 02-30	3190	1630	3178	4785	2445	4768	6267	3202	6243	7976	4075	7946
RDS 02-35	3978	2032	3963	5967	3049	5945	7814	3992	7785	9945	5081	9908
RDS 03-35	4680	2391	4663	7020	3587	6994	9193	4697	9159	11700	5978	11657
RDS 03-38	6181	3158	6159	9272	4737	9238	12142	6203	12097	15453	7895	15396
RDS 03-43	7891	4032	7862	11837	6047	11793	15500	7919	15443	19728	10079	19655
RDS 04-43	10258	5241	10221	15388	7862	15331	20151	10295	20076	25646	13103	25552
RDS 04-48	12752	6515	12705	19128	9773	19058	25049	12798	24957	31881	16288	31763
RDS 04-53	15517	7928	15460	23276	11892	23190	30480	15572	30368	38793	19819	38650
RDS 05-53	19098	9757	19028	28647	14636	28541	37514	19166	37376	47745	24393	47569
RDS 05-58	22834	11666	22750	34252	17499	34125	44853	22919	44688	57086	29166	56876
RDS 05-63	26905	13746	26805	40357	20618	40208	52848	27000	52654	67262	34364	67014
RDS 06-63	33631	17182	33507	50446	25773	50260	66060	33750	65817	84077	42955	83767
RDS 06-68	39135	19994	38991	58703	29992	58487	76873	39275	76590	97839	49986	97478
RDS 06-73	45057	23020	44891	67586	34530	67337	88505	45218	88179	112643	57550	112228

5-2. RSS-Series / Single Acting Cylinder Actuator

RSS/-Series has a **symmetrical** design yoke that produces maximum torque at both ends of the 90³ cycle

Torque table **Unit/Nm**

Model		Spring Torque			Air Torque / Air Supply Pressure											
					2.8 Bar			4.2 Bar			5.5 Bar			7 Bar		
		Start	Run	End	Start	Run	End	Start	Run	End	Start	Run	End	Start	Run	End
RSS02-20	2SA	1022	479	700	696	216	321	1348	535	900	2022	831	1438			
	2SB	1443	677	989				1103	361	554	1742	657	1092	2479	998	1713
	2SC	1825	856	1251				849	203	241	1488	499	779	2225	841	1399
RSS02-25	2SB	1443	677	989	1189	401	627	2264	899	1532	3262	1361	2372			
	2SC	1825	856	1251	935	243	313	2010	741	1218	3008	1203	2059			
	2SD	2180	1022	1495				1774	594	927	2772	1057	1767	3923	1590	2737
	2SE	2710	1271	1858							2419	838	1333	3571	1372	2303
RSS02-30	2SD	2180	1022	1495	1645	535	818	3192	1252	2122	4629	1918	3332			
	2SE	2710	1271	1858	1293	316	384	2840	1033	1687	4277	1699	2897			
	2SF	3422	1605	2346				2366	739	1103	3803	1405	2313	5461	2174	3710
	2SG	3801	1782	2605				2115	583	793	3552	1249	2003	5209	2018	3399
RSS02-35	2SF	3422	1605	2346	1583	376	444	3513	1271	2069	5303	2101	3578			
	2SG	3801	1782	2605				3261	1115	1758	5053	1945	3267			
	2SH	4514	2117	3094				2787	820	1173	4578	1650	2682	6645	2609	4423
RSS03-35	3SA	4388	2006	2807	1817	339	226	4087	1391	2137	6194	2368	3913			
	3SB	5089	2327	3255				3652	1109	1562	5759	2085	3338	8191	3213	5389
	3SC	5579	2551	3569				3348	911	1161	5455	1888	2936	7887	3016	4984
RSS03-38	3SB	5089	2327	3255	2838	731	877	5836	2121	3402	8620	3411	5747			
	3SC	5579	2551	3569	2534	534	476	5532	1924	3000	8316	3214	5345			
	3SD	6569	3004	4203				4917	1525	2188	7701	2816	4533	10913	4304	7238
RSS03-43	3SE	7212	3298	4614	3179	646	533	7006	2420	3757	10560	4067	6750			
	3SF	7982	3650	5106				6528	2110	3125	10082	3757	6118	14183	5658	9572
	3SG	8874	4058	5667				5975	1751	2393	9529	3398	5386	13629	5299	8840
RSS04-43	4SA	8847	3994	5458	4657	1098	1126	9632	3404	5317	14252	5545	9208			
	4SB	10171	4591	6274	3865	572	41	8840	2878	4231	13460	5019	8122	18791	7490	12612
	4SC	11200	5056	6909				8224	2469	3387	12844	4611	7279	18175	7081	11768
RSS04-48	4SB	10171	4591	6274	6284	1693	2078	12469	4560	7287	18212	7222	12124			
	4SC	11200	5056	6909	5668	1284	1234	11853	4151	6443	17596	6813	11281			
	4SD	12141	5480	7490				11290	3777	5672	17033	6439	10509	23659	9511	16090
RSS04-53	4SE	13130	5927	8100	7195	1761	1910	14721	5249	8249	21709	8488	14135			
	4SF	14892	6722	9187	6141	1061	466	13666	4549	6804	20655	7788	12690	28718	11525	18481
	4SG	15511	7002	9569				13296	4303	6297	20284	7542	12182	28348	11279	18974
RSS05-53	5SA	15701	7312	10566	8276	2151	2728	17538	6445	10529	26139	10431	17773			
	5SB	17570	8183	11824				16318	5679	8996	24919	9665	16240	34843	14265	24599
	5SC	19627	9141	13208				14976	4836	7310	23577	8822	14554	33501	13422	22913
RSS05-58	5SB	17570	8183	11824	10680	3065	4248	21755	8198	13575	32038	12965	22237			
	5SC	19627	9141	13208	9338	2223	2561	20412	7356	11889	30696	12122	20550	42562	17622	30544
	5SD	22018	10254	14817				18851	6376	9928	29135	11142	18589	41001	16642	28583
RSS05-63	5SE	25287	11777	17017	9591	1733	1245	22639	7781	12235	34756	13397	22440			
	5SF	27110	12626	18244				21450	7034	10741	33566	12650	20946	47547	19130	32721
	5SG	29317	13654	19730				20009	6129	8930	32125	11745	19136	46106	18225	30911
RSS06-63	6SA	30302	13623	18473	14703	3132	2628	31014	10693	16366	46160	17713	29122			
	6SB	35111	15784	21405				28170	8790	12422	43316	15810	25179	60792	23910	39898
	6SC	37495	16856	22858				26761	7847	10468	41907	14867	23224	59383	22967	37943
RSS06-68	6SB	35111	15784	21405	17199	3705	3182	36180	12502	19168	53805	20672	34013			
	6SC	37495	16856	22858				34770	11559	17213	52395	19729	32058	72731	29154	49186
	6SD	42483	19098	25899				31820	9586	13123	49445	17755	27968	69782	27181	45093
RSS06-73	6SE	45300	20365	27616				38770	12465	18070	59062	21870	35160			
	6SF	46128	20737	28121				38281	12138	17391	58573	21543	34482	81986	32395	54202
	6SG	50288	22607	30657				35821	10492	13980	56113	19897	31071	79527	30749	50791

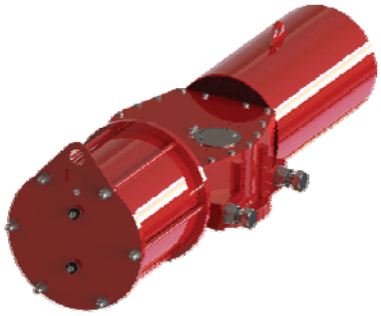
6. Canted Yoke Torque Table

6-1. RDC-Series / Double Acting Cylinder Actuator

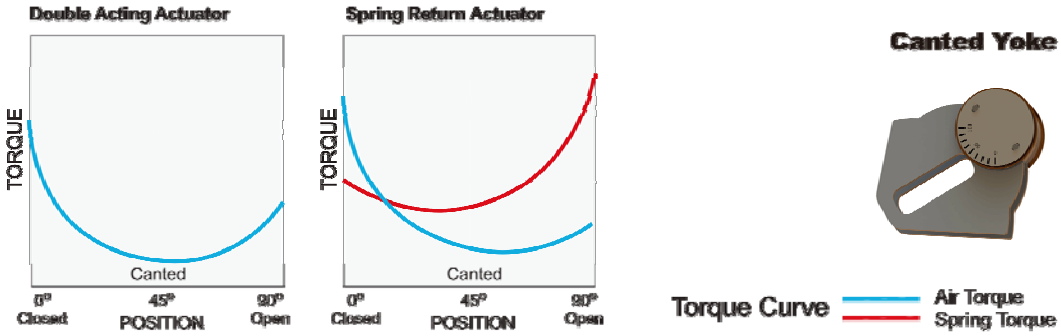
RCC-Series has a **canted** design yoke that produces maximum torque at either the close or open end.



Double Acting Cylinder Actuator



Spring Return Cylinder Actuator



Torque table ***Unit/Nm***

Model	2.8Bar			4.2Bar			5.5Bar			7Bar		
	Start	Run	End	Start	Run	End	Start	R un	End	Start	Run	End
RDC 02-20	2191	654	1104	3287	981	1656	4304	1285	2169	5478	1636	2761
RDC 02-25	3424	1022	1725	5135	1533	2588	6725	2008	3389	8559	2556	4313
RDC 02-30	4930	1472	2484	7395	2208	3727	9684	2891	4880	12325	3680	6211
RDC 02-35	6148	1835	3098	9221	2753	4647	12075	3605	6085	15369	4589	7745
RDC 03-35	7232	2159	3645	10849	3239	5467	14206	4242	7159	18081	5398	9112
RDC 03-38	9552	2852	4814	14329	4278	7221	18764	5602	9456	23881	7130	12035
RDC 03-43	12195	3641	6145	18292	5461	9218	23954	7152	12071	30487	9102	15364
RDC 04-43	15853	4733	7989	23780	7100	11984	31140	9298	15693	39663	11883	19973
RDC 04-48	19707	5884	9931	29560	8826	14879	38710	11558	19508	49267	14710	24828
RDC 04-53	23980	7160	12084	35969	10739	18127	47103	14064	23737	59949	17899	30211
RDC 05-53	29513	8812	14873	44270	13218	22310	57973	17309	29215	73783	22030	37183
RDC 05-58	35288	10536	17783	52932	15804	26675	69315	20696	34931	88219	26340	44458
RDC 05-63	41578	12414	20953	62336	18621	31429	81670	24384	41157	103944	31035	52382
RDC 06-63	51972	15517	26191	77958	23276	39287	102088	30481	51447	129930	38793	65478
RDC 06-68	60479	18057	30478	90718	27086	45717	118798	35470	59868	151197	45143	79195
RDC 06-73	69630	20790	35090	104445	31184	52635	136773	40837	68926	174075	51974	87725
RDC 08-73	66375	21538	37892	99563	32307	56839	130380	42307	74432	165938	53845	94731

6-2. RSC-Series / Single Acting Cylinder Actuator (Spring Return / Fail Closed)

RSC-Series has a **canted** design yoke that produces maximum torque at either the close or open end.

Torque table **Unit/Nm**

Model		Spring Torque			Air Torque / Air Supply Pressure											
					2.8 Bar			4.2 Bar			5.5 Bar			7 Bar		
		Start	Run	End	Start	Run	End	Start	Run	End	Start	Run	End	Start	Run	End
RSC02-20	2CA	830	407	981	1210	247	274	2306	574	826	3323	878	1339			
	2CB	1077	529	1273				2014	452	579	3031	756	1092	4205	1107	1684
	2CC	1265	621	1495							2809	664	904	3983	1015	1496
RSC02-25	2CC	1265	621	1495	1929	401	460	3640	912	1323	5230	1387	2124			
	2CG	1525	748	1802	1622	274	200	3333	785	1063	4923	1260	1864			
	2CD	1921	942	2269				2866	591	667	4456	1066	1468	6290	1614	2392
	2CE	2247	1102	2655							4070	906	1142	5904	1454	2066
RSC02-30	2CG	1525	748	1802	3128	724	959	5593	1460	2202	7882	2143	3355			
	2CE	2247	1102	2655	2275	370	237	4740	1106	1480	7029	1789	2633			
	2CF	3032	1483	3571				3824	725	705	6113	1408	1858	8754	2197	3189
	2CH	3161	1551	3736							5948	1340	1719	8589	2129	3050
RSC02-35	2CE	2247	1102	2655	3493	733	851	6566	1651	2400	9420	2503	3838			
	2CH	3161	1551	3736				5485	1202	1486	8339	2054	2924			
	2CI	3820	1874	4514				4707	879	827	7561	1731	2265	10855	2715	3925
RSC03-35	3CA	3029	1448	3283	3943	711	616	7566	1791	2438	10923	2794	4130			
	3CB	4266	2040	4623				6226	1199	1201	9583	2202	2893	13458	3358	4846
	3CC	3624	1733	3928				6921	1505	1843	10278	2509	3535	14153	3665	5488
RSC03-38	3CC	3624	1733	3928	5624	1119	1190	10401	2545	3597	14836	3869	5832			
	3CD	5050	2415	5473				8856	1863	2171	13291	3187	4406	18408	4715	6985
	3CE	4708	2251	5102				9227	2027	2513	13662	3351	4748	18779	4879	7327
RSC03-43	3CD	4708	2251	5102	7093	1390	1437	13190	3210	4510	18852	4901	7363			
	3CF	5810	2778	6297	5898	863	335	11995	2683	3408	17657	4374	6261	24190	6324	9554
	3CG	6814	3258	7348				10908	2203	2404	16570	3894	5257	23103	5844	8550
RSC04-43	4CA	5849	2813	6468	9385	1920	2140	17312	4287	6135	24672	6485	9844			
	4CB	7810	3756	8637	7216	977	179	15143	3344	4174	22503	5542	7883	30996	8077	12163
	4CC	8619	4146	9532				14248	2954	3365	21608	5152	7074	30101	7687	11354
RSC04-48	4CC	8619	4146	9532	10175	1738	1312	20028	4680	6278	29178	7412	10889			
	4CD	10408	5006	11510				18050	3820	4489	27200	6552	9100	37754	9704	14420
	4CE	11014	5297	12179				17381	3529	3883	26531	6261	8494	37088	9413	13814
RSC04-53	4CE	11014	5297	12179	11801	1863	1070	23790	5442	7113	34924	8767	12723			
	4SF	11991	5768	13261	10719	1392	93	22708	4971	6136	33842	8296	11746	46688	12131	18220
	4CG	13797	6636	15257				20712	4103	4330	31846	7428	9940	44692	11263	16414
RSC05-53	5CA	13375	6416	14657	14856	2396	1498	29613	6802	8935	43316	10893	15840			
	5CB	15746	7553	17255				27015	5665	6564	40718	9756	13469	56528	14477	21437
	5CC	16959	8135	18584				25686	5083	5351	39389	9174	12256	55199	13895	20224
RSC05-58	5CC	16959	8135	18584	16704	2401	824	34348	7669	9716	50731	12561	17972			
	5CD	20809	9982	22804				30128	5822	5866	46511	10714	14122	65415	16385	23649
	5CE	19577	9391	21453				31479	6413	7098	47862	11305	15354	66766	16949	24881
RSC05-63	5CE	19577	9391	21453	20125	3023	1376	40913	9230	11852	60217	14993	21580			
	5CF	21864	10488	23959				38407	8133	9565	57711	13896	19293	79985	20547	30518
	5CG	24755	11755	26853				35513	6866	6674	54817	12629	16402	77091	19280	27627
RSC06-63	6CA	26707	12631	27843				50115	10645	12580	74245	17850	24740			
	6CB	29021	13726	30256				47702	9550	10266	71832	16755	22426	99674	25067	36457
	6CC	32571	15405	33958				44000	7871	6716	68130	15076	18876	95972	23388	32907
RSC06-68	6CC	32571	15405	33958				56760	11681	13146	84840	20065	27297			
	6CD	35678	16874	37197				53521	10212	10039	81601	18596	24190	114000	28269	43517
	6CE	39207	18543	40875				49843	8543	6510	77923	16927	20661	110322	26600	39988
RSC06-73	6CE	39207	18543	40875				63570	12641	13428	95898	22294	29719			
	6CF	42578	20137	44390				60055	11047	10057	92383	20700	26348	129685	31837	45147
	6CG	46418	21953	48393				56052	9231	6217	88380	18884	22508	125682	30021	41307
RSC08-73	8CA	38508	18449	41651				57912	13858	18331	88729	23858	35924	124287	35396	56223

6-3. RSC-Series / Single Acting Cylinder Actuator (Spring Return / Fail Open)

RSC-Series has a **canted** design yoke that produces maximum torque at either the close or open end.

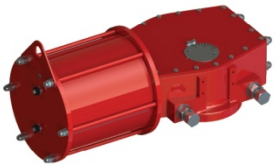
Torque table **Unit/Nm**

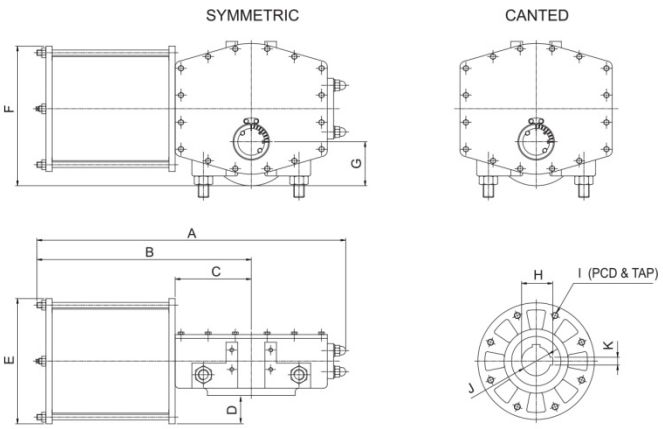
Model		Spring Torque			Air Torque / Air Supply Pressure											
					2.8 Bar			4.2 Bar			5.5 Bar			7 Bar		
		Start	Run	End	Start	Run	End	Start	Run	End	Start	Run	End	Start	Run	End
RSC02-20	2CA	1647	407	494	610	247	544	1162	574	1640	1675	878	2657			
	2CB	2138	529	642	462	125	53	1014	452	1149	1527	756	2166	2119	1107	3340
	2CC	2511	621	753							1416	664	1793	2008	1015	2967
RSC02-25	2CC	2511	621	753	972	401	913	1835	912	2624	2636	1387	4214			
	2CG	3025	748	908	817	274	399	1680	785	2110	2481	1260	3700			
	2CD	3811	942	1144				1444	591	1324	2245	1066	2914	3169	1614	4748
	2CE	4458	1102	1338				1250	431	677	2051	906	2267	2975	1454	4101
RSC02-30	2CG	3025	748	908	1576	724	1905	2819	1460	4370	3972	2143	6659			
	2CE	4458	1102	1338	1146	370	472	2389	1106	2937	3542	1789	5226			
	2CF	5997	1483	1800				1927	725	1398	3080	1408	3687	4411	2197	6328
	2CH	6273	1551	1883				1844	657	1122	2997	1340	3411	4328	2129	6052
RSC02-35	2CE	4458	1102	1338	1760	733	1690	3309	1651	4763	4747	2503	7617			
	2CH	6273	1551	1883				2764	1202	2948	4202	2054	5802	5862	3038	9096
	2CI	7580	1874	2275				2372	879	1641	3810	1731	4495	5470	2715	7789
RSC03-35	3CA	5887	1448	1689	1956	711	1345	3778	1791	4962	5470	2794	8319			
	3CB	8291	2040	2379				3088	1199	2558	4780	2202	5915	6733	3358	9790
	3CC	7043	1733	2021				3446	1506	3806	5138	2509	7163	7091	3665	11038
RSC03-38	3CC	7043	1733	2021	2793	1119	2509	5200	2545	7286	7435	3869	11721			
	3CD	9814	2415	2816				4405	1863	4515	6640	3187	8950	9219	4715	14067
	3CE	9149	2251	2625				4596	2027	5180	6831	3351	9615	9410	4879	14732
RSC03-43	3CD	9149	2251	2625	3520	1390	3046	6593	3210	9143	9446	4901	14805			
	3CF	11530	2778	3173				6045	2683	6762	8898	4374	12424	12191	6324	18957
	3CG	13521	3258	3721				5497	2203	4771	8350	3894	10433	11643	5844	16966
RSC04-43	4CA	11367	3695	3328	4661	1038	4486	8656	3405	12413	12365	5603	19773			
	4CB	15178	4934	4444				7540	2166	8602	11249	4364	15962	15529	6899	24455
	4CC	16751	5446	4905				7079	1654	7029	10788	3852	14389	15068	6387	22882
RSC04-48	4CC	16751	5446	4905	5026	438	2956	9992	3380	12809	14603	6112	21959			
	4CD	20227	6576	5922				8975	2250	9333	13586	4982	18483	18906	8134	29040
	4CE	21404	6958	6267				8630	1868	8156	13241	4600	17306	18561	7752	27863
RSC04-53	4CE	21404	6958	6267	5817	202	2576	11860	3781	14565	17470	7106	25699			
	4SF	23304	7576	6823				11304	3163	12665	16914	6488	23799	23388	10323	36645
	4CG	26813	8717	7851				10276	2022	9156	15886	5347	20290	22360	9182	33136
RSC05-53	5CA	25994	6416	7542	7331	2396	3519	14768	6802	18276	21673	10893	31979			
	5CB	30601	7553	8879				13431	5665	13669	20336	9756	27372	28304	14477	43182
	5CC	32958	8135	9562				12748	5083	11312	19653	9174	25015	27621	13895	40825
RSC05-58	5CC	32958	8135	9562	8221	2401	2330	17113	7669	19974	25369	12561	36357			
	5CD	40441	9982	11734				14941	5822	12491	23197	10714	28874	32724	16358	47778
	5CE	38046	9391	11039				15636	6413	14886	23892	11305	31269	33419	16949	50173
RSC05-63	5CE	38046	9391	11039	9914	3023	3532	20390	9230	24320	30118	14993	43624			
	5CF	42491	10488	12328				19101	8133	19875	28829	13896	39179	40054	20547	61453
	5CG	47622	11755	13817				17612	6866	14744	27340	12629	34048	38565	19280	56322
RSC06-63	6CA	51902	12631	14327	11864	2886	70	24960	10645	26056	37120	17850	50186			
	6CB	56400	13726	15569				23718	9550	21558	35878	16755	45688	49909	25067	73530
	6CC	63300	15405	17473				21814	7871	14658	33974	15076	38788	48005	23388	66630
RSC06-68	6CC	63300	15405	17473				28244	11681	27418	42395	20065	55498	61722	29738	87897
	6CD	69388	16874	19140				26577	10212	21380	40728	18596	49460	60055	28269	81859
	6CE	76195	18543	21033				24684	8543	14523	38835	16927	42603	58162	26600	75002
RSC06-73	6CE	76195	18543	21033				31602	12641	28250	47893	22294	60578	66692	33431	97880
	6CF	82747	20137	22841				29794	11047	21698	46085	20700	54026	64884	31837	91328
	6CG	90209	21953	24901				27734	9231	14236	44025	18884	46564	62824	30021	83866
RSC08-73	8CA	66063	18449	24278				32561	13858	33500	50154	23858	64317	70453	35396	99875

7. Dimension of Double Acting Cylinder

Model : RDS/RDC-Series

< DOUBLE ACTING >





RDS/RSS-Series/Symmetric Yoke **unit/mm**

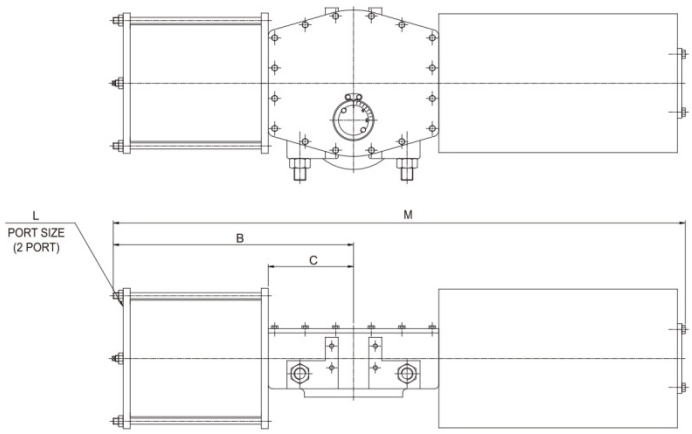
Model	A	B	C	D	E	F	G
RS 02-20	755	516	196	48	272	370	145
RS 02-25	755	516	196	73	322	395	145
RS 02-30	755	516	196	98	373	420	145
RS 02-35	755	516	196	117	410	445	145
RS 03-35	935	653	236	92	410	490	175
RS 03-38	935	653	236	118	461	505	175
RS 03-43	935	653	236	143	512	530	175
RS 04-43	1105	763	287	128	514	640	190
RS 04-48	1105	763	287	153	564	657	190
RS 04-53	1105	763	287	184	625	682	190
RS 05-53	1310	904	343	157	625	710	230
RS 05-58	1310	904	343	183	675	732	230
RS 05-63	1310	904	343	210	730	760	230
RS 06-63	1610	1124	415	192	745	830	260
RS 06-68	1610	1234	415	217	795	850	260
RS 06-73	1610	1234	415	243	847	875	260

RDC/RSC-Series/Canted Yoke **unit/mm**

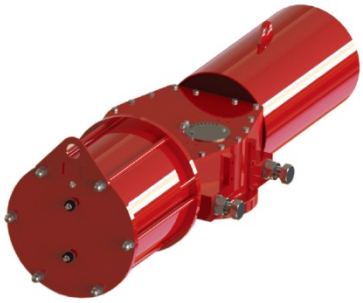
Model	A	B	C	D	E	F	G
RC 02-20	800	516	196	48	272	370	145
RC 02-25	800	516	196	73	322	395	145
RC 02-30	800	516	196	98	373	420	145
RC 02-35	800	516	196	117	410	445	145
RC 03-35	985	653	236	92	410	490	175
RC 03-38	985	653	236	118	461	505	175
RC 03-43	985	653	236	143	512	530	175
RC 04-43	1215	763	287	128	514	640	190
RC 04-48	1215	763	287	153	564	657	190
RC 04-53	1215	763	287	184	625	682	190
RC 05-53	1435	904	343	157	625	710	230
RC 05-58	1435	904	343	183	675	732	230
RC 05-63	1435	904	343	210	730	760	230
RC 06-63	1710	1124	415	192	745	830	260
RC 06-68	1710	1234	415	217	795	850	260
RC 06-73	1710	1234	415	243	847	875	260

8. Dimension of Single Acting Cylinder

Model : RSS/RSC-Series



< SPRING RETURN >



RDS/RSS-Series/Symmetric Yoke **unit/mm**

H	I / PCD	I / TAP	J / DIA	J / DP	K	L	M
54	165	M20/25	50	156	14	1/2" NPT	1280
54	165	M20/25	50	156	14	1/2" NPT	1280
54	165	M20/25	50	156	14	1/2" NPT	1280
54	165	M20/25	50	156	14	1/2" NPT	1280
80/85	254	M16/27	75/80	204	20	1/2" NPT	1475
80/85	254	M16/27	75/80	204	20	1/2" NPT	1475
80/85	254	M16/27	75/80	204	20	1/2" NPT	1475
95.4/105.4	298	M20/34	90/100	234	22	3/4" NPT	1860
95.4/105.4	298	M20/34	90/100	234	22	3/4" NPT	1860
95.4/105.4	298	M20/34	90/100	234	22	3/4" NPT	1860
117.4/127.4/137.4	356	M30/43	110/120/130	279	32	3/4" NPT	2240
117.4/127.4/137.4	356	M30/43	110/120/130	279	32	3/4" NPT	2240
117.4/127.4/137.4	356	M30/43	110/120/130	279	32	3/4" NPT	2240
137.4/147.4/157.4	406	M36/53	130/140/150	326	32	3/4" NPT	2695
137.4/147.4/157.4	406	M36/53	130/140/150	326	32	3/4" NPT	2695
137.4/147.4/157.4	406	M36/53	130/140/150	326	32	3/4" NPT	2695

RDC/RSC-Series / Canted Yoke **unit/mm**

H	I / PCD	I / TAP	J / DIA	J / DP	K	L	M
54	165	M20/25	50	156	14	1/2" NPT	1325
54	165	M20/25	50	156	14	1/2" NPT	1325
54	165	M20/25	50	156	14	1/2" NPT	1325
54	165	M20/25	50	156	14	1/2" NPT	1325
80/85	254	M16/27	75/80	204	20	1/2" NPT	1510
80/85	254	M16/27	75/80	204	20	1/2" NPT	1510
80/85	254	M16/27	75/80	204	20	1/2" NPT	1510
95.4/105.4	298	M20/34	90/100	234	22	3/4" NPT	1935
95.4/105.4	298	M20/34	90/100	234	22	3/4" NPT	1935
95.4/105.4	298	M20/34	90/100	234	22	3/4" NPT	1935
117.4/127.4/137.4	356	M30/43	110/120/130	279	32	3/4" NPT	2320
117.4/127.4/137.4	356	M30/43	110/120/130	279	32	3/4" NPT	2320
117.4/127.4/137.4	356	M30/43	110/120/130	279	32	3/4" NPT	2320
137.4/147.4/157.4	406	M36/53	130/140/150	326	32	3/4" NPT	2750
137.4/147.4/157.4	406	M36/53	130/140/150	326	32	3/4" NPT	2750
137.4/147.4/157.4	406	M36/53	130/140/150	326	32	3/4" NPT	2750

Heavy-Duty Pneumatic Rotary Cylinder Actuators

Best Flow Solution

BFS Incorporation

23block-3lot, Geumdan-Industrial-Complex

#17, 114beongil, Geumdan-ro, Seo-gu, Incheon-city, Korea

T/+82-32-329-9142 F/+82-32-329-9148

www.bfsvalve.com