

# ***Automax***

## ***RG Series Heavy Duty Actuator***

***Double Acting or Spring Return Scotch Yoke Actuator***

*IP67M Approved*

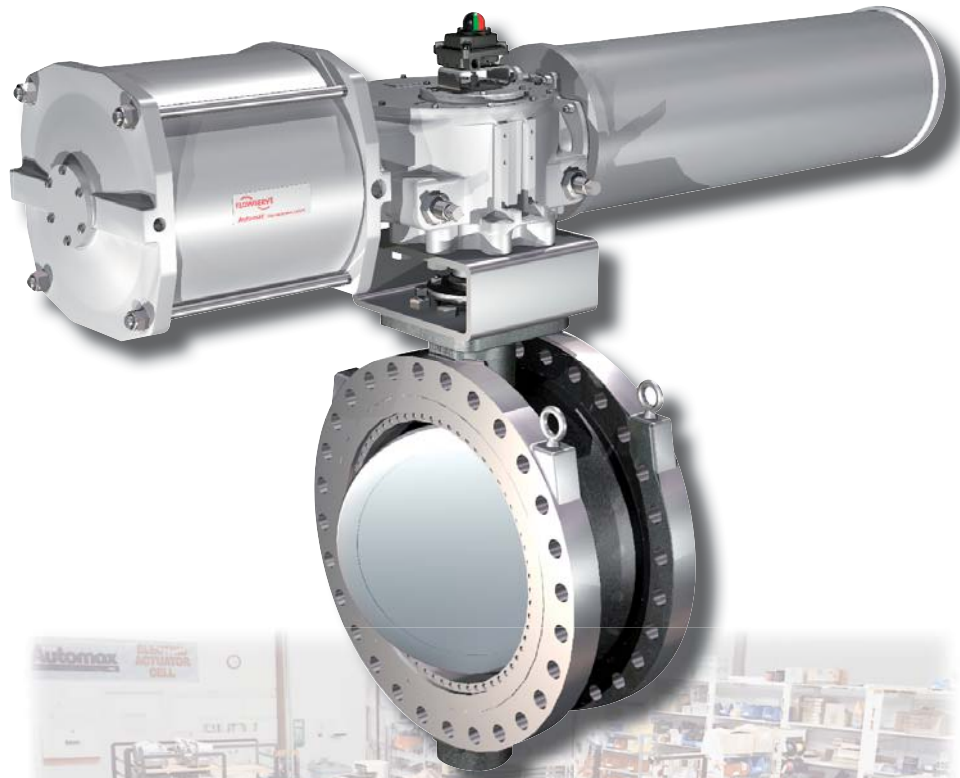


*SIL 3 Capable*

*ATEX Approved*

## ***Flow Control Division Automax Valve Automation Systems***

**F**lowserve Corporation's Automax Valve Automation Systems provides complete valve and damper automation to the worldwide processing industries. We provide maximum value to the end user through a broad offering of products, services, application engineering and our systematic approach to automation.



### ***Quality, Dependability and Productivity***

Recognized as the leader in valve automation systems, Automax pneumatic actuators can automate valves with torque values from 2.8 - 248600Nm (25 to 2.2 million in-lbs). Actuators are available in a wide range of materials suitable for use in the most demanding applications. Flowserve also offers a comprehensive range of NAMUR Controls and accessories such as lockout modules and gear overrides. To complete the package Flowserve can provide engineering design services for Mounting hardware.

# *Automax*

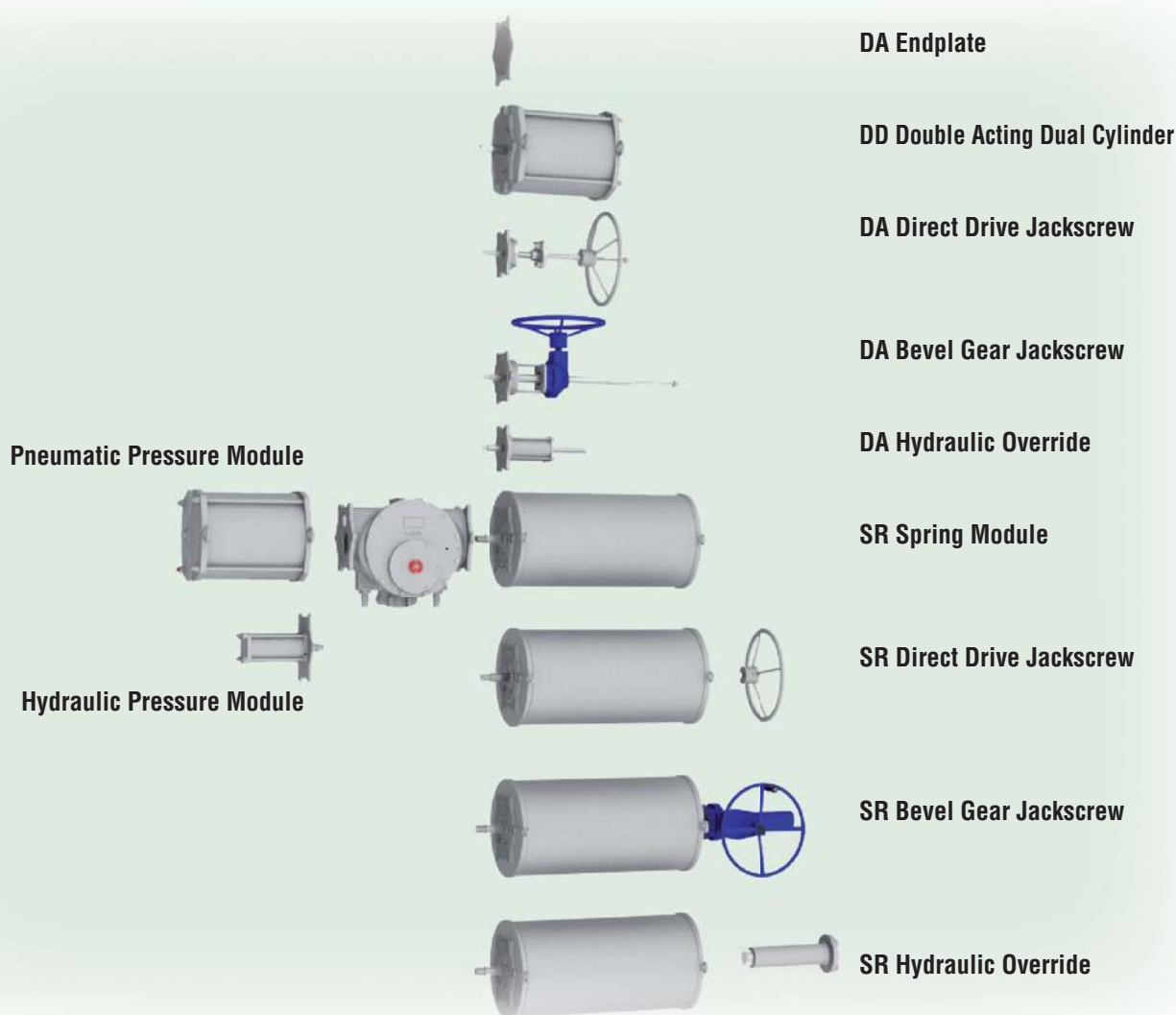
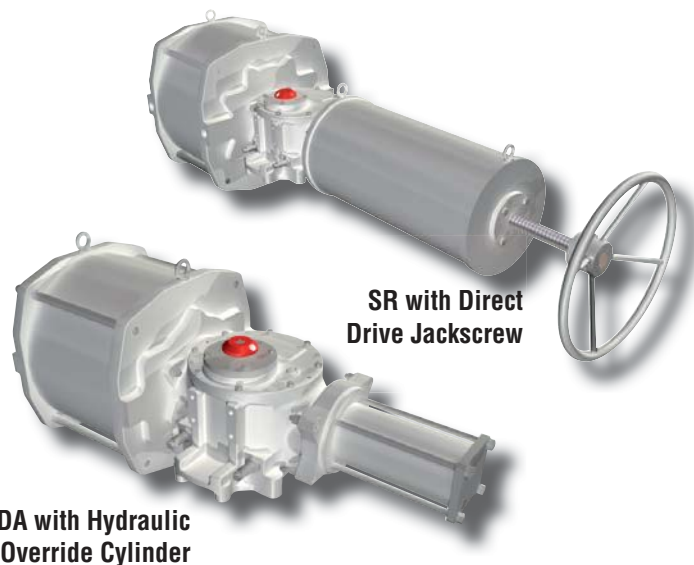
## Accessories

# RG Series

## Heavy-Duty Scotch Yoke Actuator

### Modular Construction

- Double Acting or Spring Return (FCW or FCCW)
- Pneumatic or Hydraulic Pressure Modules
- Torque Module with symmetrical or canted yokes
- Override Options – Direct Drive Jackscrew, Bevel Gear Jackscrew or Hydraulic Override





# RG Series

## Heavy-Duty Scotch Yoke Actuator

**T**he Automax RG Series provides up to 248,000 Nm of heavy-duty Scotch yoke torque. Enhanced performance is achieved by using a superior yoke support system that significantly reduces transverse loads.



### Features

- True Modular Design
- On-Off, Multi-Position and Throttling
- Pneumatic, Gas and Hydraulic Models
- Spring Return “Fail Safe” and Double Acting
- Torque Outputs:
  - DA – 248000 Nm (2.2M in-lbs)
  - SR – 124000 Nm (1.2M in-lbs)
- Operating Pressures:
  - Pneumatic: 2.8-10 bar
  - Hydraulic: 34-207 bar

### IP67M Ingress Protection

O-Rings or dynamic quad seals are utilized to conform to IP67M specifications, ensuring optimal ingress protection.

### Modular Construction

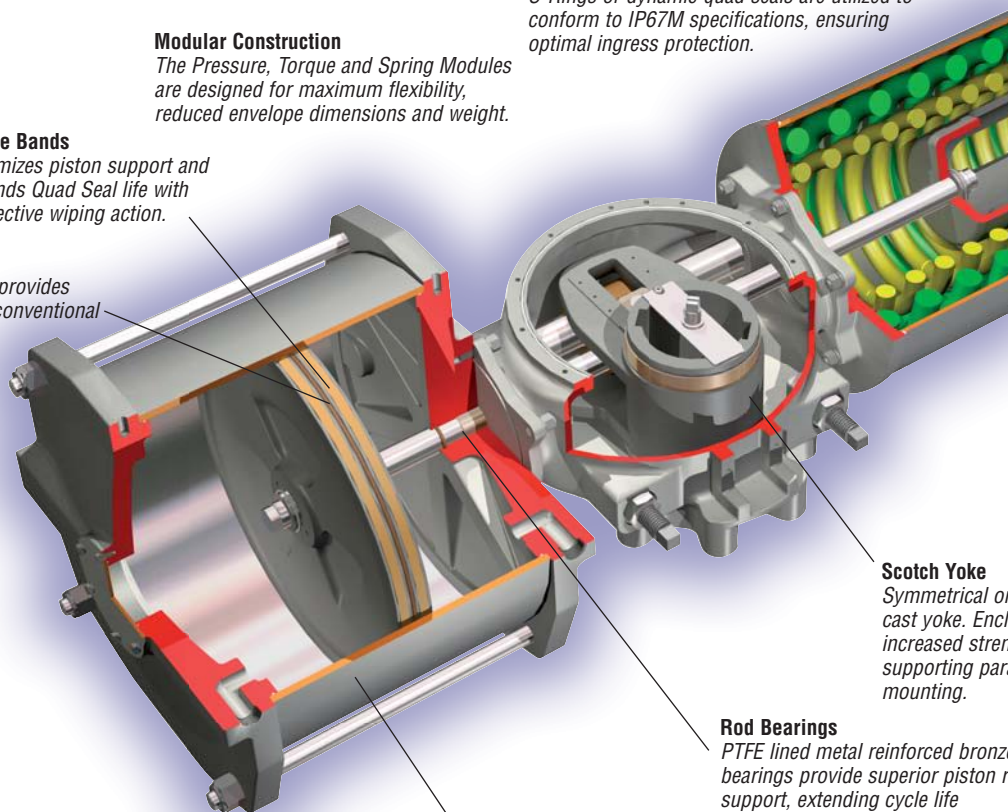
The Pressure, Torque and Spring Modules are designed for maximum flexibility, reduced envelope dimensions and weight.

### Guide Bands

Optimizes piston support and extends Quad Seal life with protective wiping action.

### Piston Seals

Dynamic Quad Seal design provides enhanced cycle life versus conventional O-Rings.



### Scotch Yoke

Symmetrical or canted ductile iron cast yoke. Enclosed yoke slot for increased strength with 2 keyways supporting parallel or perpendicular mounting.

### Rod Bearings

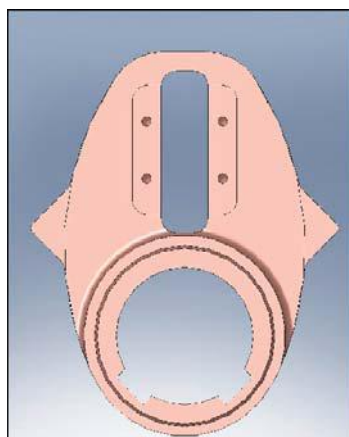
PTFE lined metal reinforced bronze bearings provide superior piston rod support, extending cycle life

### Cylinder

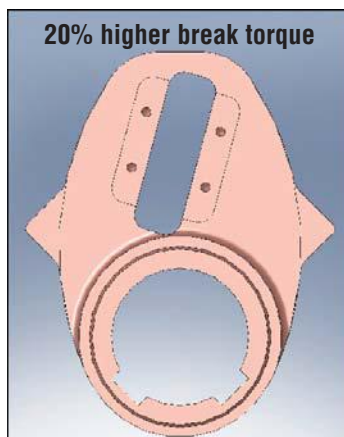
Heavy wall cylinders provide increased “job site” durability. Interior surface is honed and hard chrome plated to provide superior corrosion and wear resistance.

# RG Series

## Heavy-Duty Scotch Yoke Actuator



Symmetrical Yoke



Canted Yoke

### Features

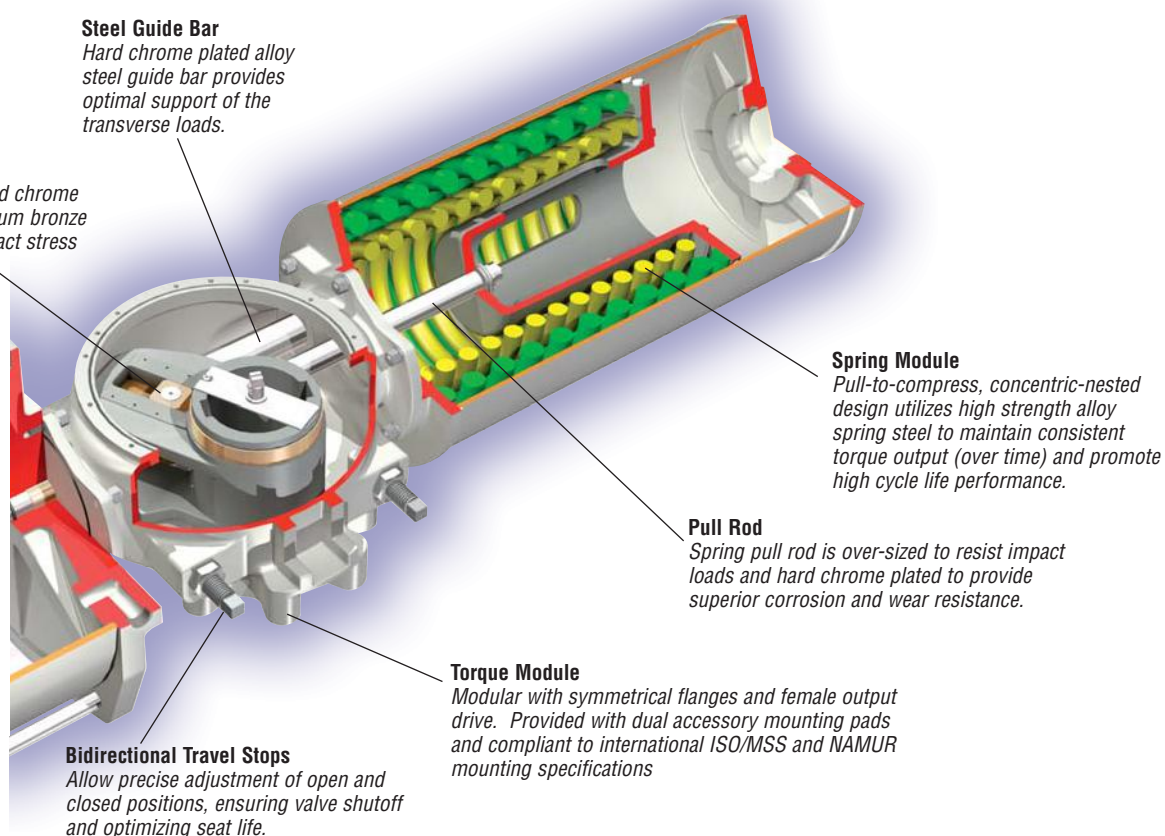
- Hard Chrome Plated Cylinder Walls
- Symmetrical and Canted Yoke
- Guide Bar Yoke Support
- Dual DD Cylinder Option
- Field Reversible Action
- Overrides, Line Break and Special Controls
- ESD Performance

### Override Options

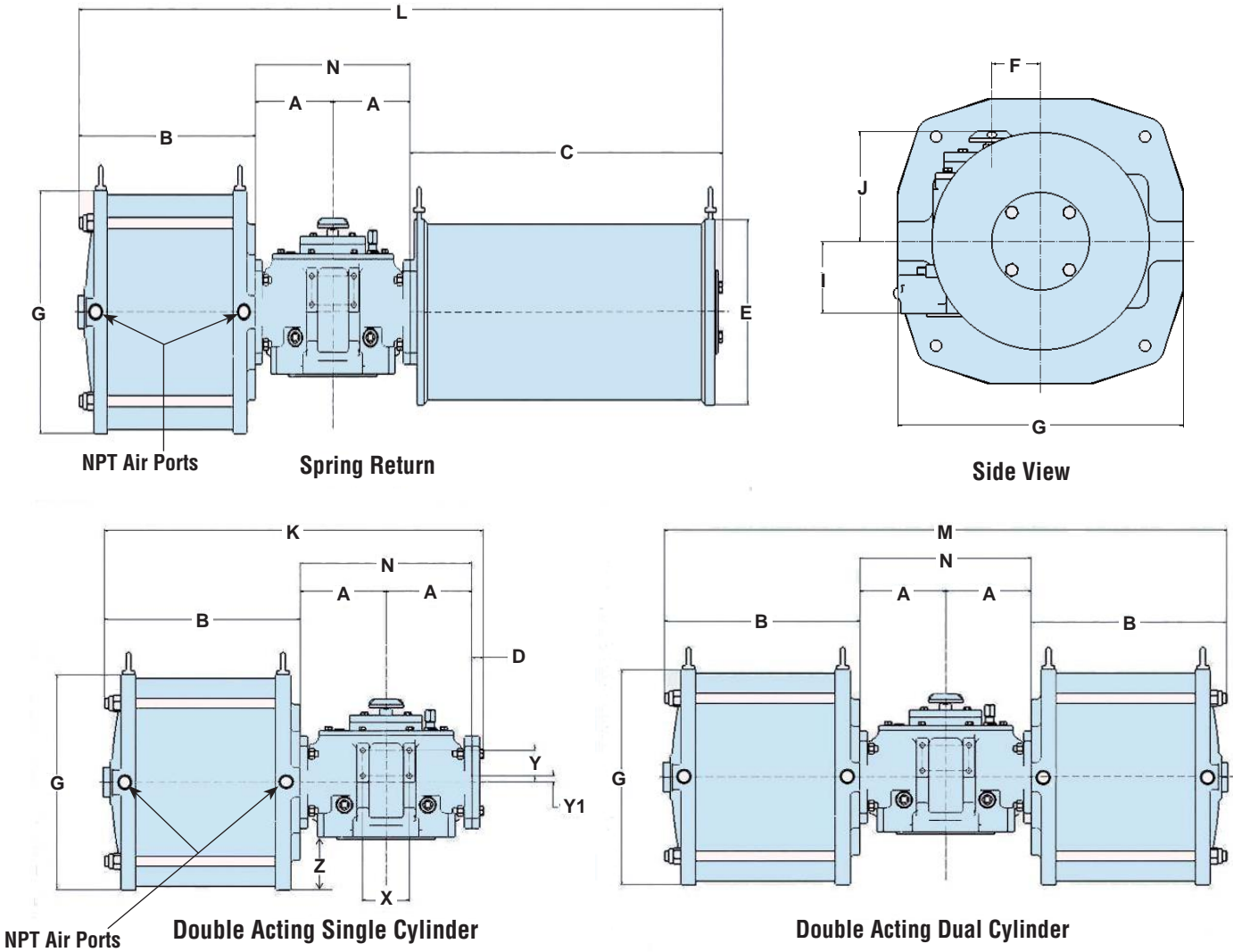
Spring Module design facilitates field retrofitting of jackscrew or hydraulic overrides

### Interchangeable Yoke System

- Ductile iron casting
- Totally enclosed yoke slot for increased strength and cycle life
- Canted yoke results in approx. 20% higher break torque
- 2 keyway provision for flexibility of parallel or perpendicular mounting



**Dimensions**

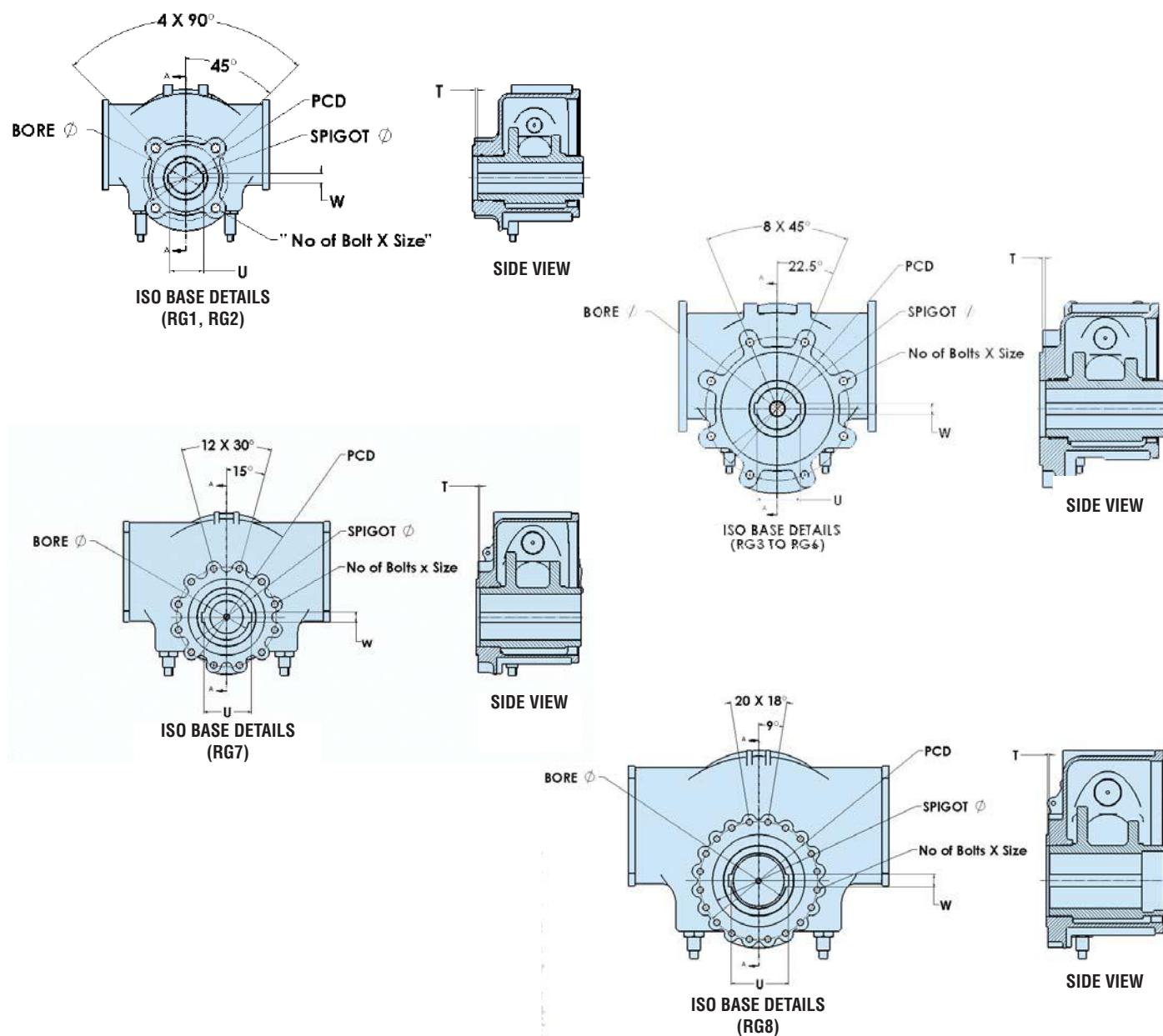


Actuator Dimensions, mm (inch)															
SERIES	A	B	C	D	E	F	I	J	K	L	M	N	X	Y	Y1
RG1	141 (5.55)	310 (12.20)	498 (19.61)	18,5 (0.73)	264 (10.39)	55 (2.17)	99 (3.90)	129 (5.08)	610,5 (24.04)	1090 (42.91)	902 (35.51)	282 (11.10)	68 (2.68)	60 (3.36)	30 (1.18)
RG2	162 (6.38)	368 (14.49)	586 (23.07)	20 (0.79)	322 (12.68)	65 (2.56)	116 (4.57)	144 (5.67)	712 (28.03)	1278 (50.31)	1060 (41.73)	324 (12.76)	68 (2.68)	60 (3.36)	30 (1.18)
RG3	175 (6.98)	444 (17.48)	706 (27.80)	23 (0.91)	380 (14.96)	75 (2.95)	111 (4.37)	151 (5.94)	817 (32.17)	1500 (59.06)	1238 (48.74)	350 (13.78)	95 (3.74)	52 (2.05)	13 (0.51)
RG4	243 (9.57)	565 (22.24)	868 (34.17)	23 (0.91)	467 (18.39)	91 (3.58)	145 (5.71)	175 (6.89)	1074 (42.28)	1919 (75.55)	1616 (63.62)	486 (19.13)	95 (3.74)	60 (3.36)	30 (1.18)
RG5	312 (12.28)	716 (28.19)	1008 (39.69)	26 (1.02)	568 (22.36)	145 (5.71)	175,5 (6.91)	189,5 (7.46)	1366 (53.78)	2348 (92.44)	2056 (80.94)	624 (24.57)	95 (3.74)	60 (3.36)	30 (1.18)
RG6	394 (15.51)	756 (29.76)	1640 (64.57)	28 (1.10)	600 (23.62)	185 (7.28)	208 (8.19)	218 (8.58)	1572 (61.89)	3184 (125.35)	2300 (90.55)	788 (31.02)	95 (3.74)	60 (3.36)	30 (1.18)
RG7	500 (19.69)	810 (31.89)	2030 (79.92)	50 (1.97)	615 (24.21)	220 (8.66)	265 (10.43)	310 (12.20)	1860 (73.23)	3840 (151.18)	2620 (103.18)	1000 (39.37)	95 (3.74)	100 (3.94)	30 (1.18)
RG8	665 (26.18)	860 (33.86)	2600 (102.36)	55 (2.17)	680 (26.77)	280 (11.02)	306 (12.05)	360 (14.17)	2245 (88.39)	4790 (188.58)	3050 (120.08)	1330 (52.36)	95 (3.74)	100 (3.94)	30 (1.18)

Cylinder Size	5"	6"	7"	8"	9"	10"	12"	14"	16"	18"	20"	22"	24"	28"	32"	36"	40"
G	178 (7.01)	178 (7.01)	196 (7.72)	222 (8.74)	248 (9.76)	274 (10.79)	324 (12.76)	375 (14.76)	438 (17.24)	486 (19.13)	532 (20.94)	588 (23.15)	648 (25.51)	865 (34.06)	967 (38.07)	1069 (42.09)	1170 (46.06)
Port Size NPT	3/8"	3/8"	3/8"	3/8"	3/8"	1/2"	3/4"	3/4"	3/4"	1"	1"	1"	1"	1½"	1½"	1½"	2"

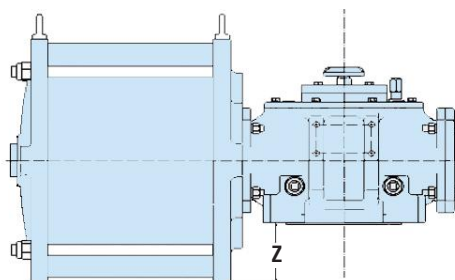


## Dimensions



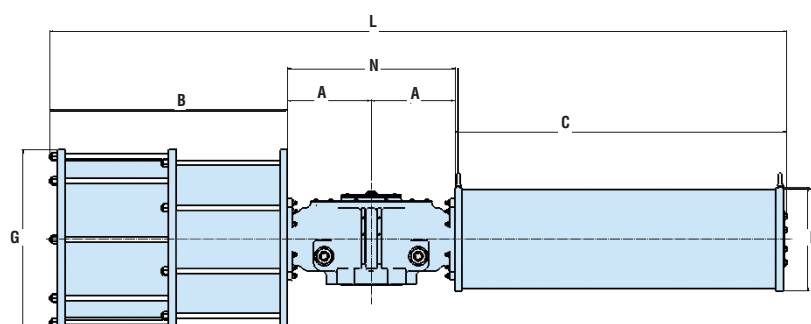
Mounting Base Details & Dimensions, mm (inch)											
SERIES	ISO BASE	SPIGOT Ø	PCD	BORE Ø	BORE Tol	W	W Tol	No of Bolt X Size	T	U	U Tol
RG1	F14	100 (3.94)	140 (5.51)	48 (1.89)	H9	14 (0.55)	+0.12/+0.05	4 X M16	5 (0.20)	51,8 (2.04)	+0.2/+0.0
RG2	F16	130 (5.12)	165 (6.50)	60 (2.36)	H9	18 (0.71)	+0.15/+0.07	4 X M20	5 (0.20)	64,4 (2.54)	+0.2/+0.0
RG3	F25	200 (7.87)	254 (10.0)	72 (2.83)	H9	20 (0.79)	+0.15/+0.07	8 X M16	5 (0.20)	76,9 (3.03)	+0.2/+0.0
RG4	F30	230 (9.06)	298 (11.73)	98 (3.86)	H9	28 (1.10)	+0.15/+0.07	8 X M20	5 (0.20)	104,4 (4.11)	+0.2/+0.0
RG5	F35	260 (10.24)	356 (14.02)	160 (6.30)	H9	40 (1.57)	+0.18/+0.08	8 X M30	5 (0.20)	169,4 (6.67)	+0.2/+0.0
RG6	F40	300 (11.81)	406 (15.98)	180 (7.09)	H9	45 (1.77)	+0.18/+0.08	8 X M36	8 (0.20)	190,4 (5.50)	+0.2/+0.0
RG7	F48	370 (14.57)	483 (19.02)	220 (8.66)	H9	50 (1.97)	+0.18/+0.08	12 X M36	8 (0.20)	231,4 (9.11)	+0.3/+0.0
RG8	F60	470 (18.5)	603 (23.74)	280 (11.02)	H9	63 (2.48)	+0.22/+0.10	20 X M36	8 (0.20)	292,4 (11.51)	+0.3/+0.0

## Dimensions



Double Acting Single Cylinder

SERIES	Dimension Z, mm (inch)																
	5"	6"	7"	8"	9"	10"	12"	14"	16"	18"	20"	22"	24"	28"	32"	36"	40"
RG1	-10 (-0.39)	-10 (-0.39)	1 (0.04)	12 (0.47)	25 (0.98)	38 (1.50)	63 (2.48)	-	-	-	-	-	-	-	-	-	-
RG2	-	-	-	5 (0.20)	8 (0.31)	21 (0.83)	46 (1.81)	71,5 (2.81)	103 (4.06)	-	-	-	-	-	-	-	-
RG3	-	-	-	-	-	26 (1.02)	51 (2.01)	76,5 (3.01)	108 (4.25)	132 (5.20)	155 (6.10)	-	-	-	-	-	-
RG4	-	-	-	-	-	-	-	42,5 (1.67)	74 (2.91)	98 (3.86)	121 (4.76)	149 (5.87)	179 (7.05)	-	-	-	-
RG5	-	-	-	-	-	-	-	-	43,5 (1.71)	67,5 (2.66)	90,5 (3.56)	118,5 (4.67)	148,5 (5.85)	257 (10.12)	-	-	-
RG6	-	-	-	-	-	-	-	-	-	35 (1.38)	58 (2.28)	86 (3.39)	116 (4.57)	224,5 (8.84)	275,5 (10.85)	326,5 (12.85)	-
RG7	-	-	-	-	-	-	-	-	-	-	-	-	59 (2.32)	167,5 (6.59)	218,5 (8.6)	269,5 (10.61)	320 (12.60)
RG8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	177,5 (6.99)	228,5 (9.00)	279 (10.98)



Double Acting Tandem Cylinder

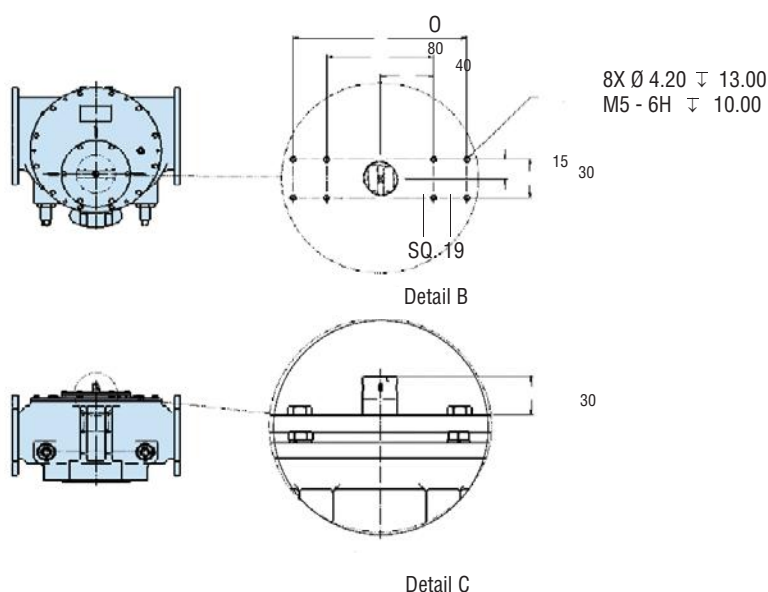
Dimensions for Spring Return Tandem Cylinders, mm (inch)							
SERIES	A	B	C	E	G	N	L
RG8 32-32	665 (26.18)	1715 (67.52)	2600 (102.36)	680 (26.77)	1170 (46.06)	1330 (52.36)	5645 (222.24)
RG836-36	665 (26.18)	1740 (68.50)	2600 (102.36)	680 (26.77)	1170 (46.06)	1330 (52.36)	5670 (223.23)



## Module Weights

Module Weights, kg (Lbs)																														
Model	Torque Module	Pressure Module																Spring Module												
		5	6	7	8	9	10	12	14	16	18	20	22	24	28	32	36	40	1	2	3	4	5	6	7	8				
RG1	31 (68)	14 (31)	16 (35)	22 (47)	24 (53)	30 (66)	43 (94)	63 (139)	—	—	—	—	—	—	—	—	—	—	40 (88)	44 (97)	46 (101)	47 (103)	48 (106)	52 (114)	54 (119)	54 (119)				
RG2	45 (99)	—	—	—	25 (56)	32 (69)	45 (99)	65 (143)	95 (209)	145 (320)	—	—	—	—	—	—	—	—	58 (128)	66 (145)	70 (154)	72 (158)	72 (158)	78 (172)	82 (180)	85 (186)				
RG3	65 (143)	—	—	—	—	—	45 (100)	64 (142)	91 (200)	145 (318)	185 (406)	255 (561)	—	—	—	—	—	—	103 (226)	118 (260)	121 (267)	122 (269)	125 (276)	150 (330)	146 (321)	—				
RG4	134 (295)	—	—	—	—	—	—	—	99 (217)	154 (339)	194 (427)	266 (586)	337 (741)	428 (942)	—	—	—	—	183 (402)	201 (442)	210 (462)	217 (477)	232 (510)	248 (545)	257 (565)	254 (561)				
RG5	231 (510)	—	—	—	—	—	—	—	—	162 (356)	207 (455)	277 (610)	388 (853)	452 (994)	743 (1634)	—	—	—	290 (639)	335 (737)	350 (770)	356 (783)	410 (901)	434 (955)	—	—				
RG6	423 (933)	—	—	—	—	—	—	—	—	—	224 (493)	280 (616)	391 (861)	478 (1051)	787 (1732)	1055 (2321)	1384 (3044)	—	583 (1283)	790 (1738)	760 (1671)	787 (1730)	937 (2061)	907 (1995)	—	—				
RG7	853 (1881)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	829 (1824)	1096 (2411)	1435 (3156)	1779 (3913)	1038 (2283)	1339 (2946)	1383 (3043)	1444 (3177)	1650 (3630)	1686 (3709)	—	—			
RG8	1686 (3718)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	984 (2165)	1282 (2819)	1533 (3372)	1891 (4159)	2103 (4627)	2367 (5800)	2779 (6113)	2830 (6227)	3232 (7111)	3374 (7423)	—	—

## NAMUR shaft height and bracket mounting details



Series	0
RG1	-
RG2	-
RG3	-
RG4	130
RG5	130
RG6	130
RG7	130
RG8	130

## Agency & Environmental Approvals

- IP67M (1 meter depth for 30 minutes)
- IEC 61508 SIL 3 Suitable
- ATEX Certified

### Standard Paint Specification

The standard external surface treatment consists of a 2 pack primer and 2 pack epoxy coating. This international marine coating is suitable for chemical, coastal and offshore environments providing superior corrosion resistance.

**Primer Coat:** Akzo Nobel Intergard 251, anticorrosive zinc phosphate epoxy primer, 75 microns DFT, color: KGA902-Red.  
**Top Coat:** Akzo Nobel Intergard 740 epoxy finish, 2 mills DFT  
**Finished Color:** ECK724 – Storm Grey, High Gloss

## Product Specification

- Actuator shall be designed in accordance with EN15714-3 to define minimum cycle life performance and designed for on-off and modulating service.
- Actuator output shall meet ISO rated torque compliance to provide safe mounting interface and comply with ISO 5211/MSS SP-101 mounting standards and NAMUR VDI/VDE standards for accessory mounting.
- Actuator shall have a symmetrical torque module to simplify field service and interchangeability of spring and air modules. Manual overrides and mounting is consistent for both spring and torque module to simplify mounting.
- The actuator torque module shall utilize an interchangeable yoke system to allow simple field conversion of symmetrical and canted yokes.
- The spring module shall use a pull-to-compress motion with single or concentric-nested springs that are internally supported and guided and weld secured for safety.
- The spring module shall be designed for minimum length and weight to improve the center of gravity, reduce material stress and assembly support requirements.
- The actuator shall have hard chrome plated cylinder walls to provide superior corrosion and wear resistance.
- The actuator piston sealing should use advanced Quad Seal technology to provide enhanced cycle life compared to conventional O-Rings.
- The internal support guide rods, spring rods and piston rods shall be hard chrome plated for superior corrosion and wear resistance.
- The pneumatic cylinder shall use external retention rods to provide visual confirmation and inspection of rod integrity for increased safety.

## Actuator Model Designation

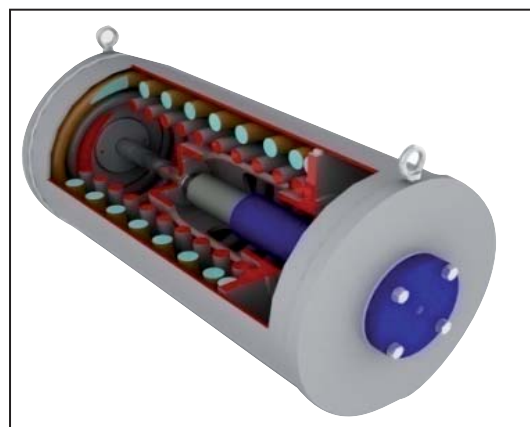
Actuator Model Designation										
How to Order										MEA - BEC - RE - 01 REV-01
Series	Body Size	Cylinder Size Refer Table below for Max Cyl Size	Action	Spring Module	Torque Pattern (Yoke)	Sealing/Temp	Manual Override	Coatings	Options	
	1	05 06 07 08 09 10 12	DA- Double Acting Single Cylinder	0	S- Symmetrical C- Canted	N- Nitrile, -20° to 180° F  V- Viton, 0° to 300° F  L- Low Temp, Upto -55° to 180°F  E- Low Temp, Below than -55° to 180°F	0- None  S- S Series Sandwich Declutch Gbox A- A Series Sandwich Declutch Gbox J- Jackscrew D- Gear Drive Jackscrew H- Hydraulic	PO- Primer Only GE- Grey Epoxy WE- White Epoxy SP- Special Paint	00- None TC- Extended Stopper -CW TO- Extended Stopper -CCW TB- Extended Stopper -Both Dir S xxx- Specials code	
	2	08 09 10 12 14 16	DD- Double Acting Dual Cylinder							
	3	10 12 14 16 18 20	SR- Spring Return Fail CW SO- Spring Return Fail CCW	1						
	4	14 16 18 20 22 24		2						
	5	16 18 20 22 24 28		3						
	6	18 20 22 24 28 32 36		4						
	7	24 28 32 36 40		5						
	8	28 32 36 40 32T 36T		6						
			7							
			8							
Model Code Example:										
RG	5	22	SR	6	C	N	S	GE	TC	

## Manual Override Options

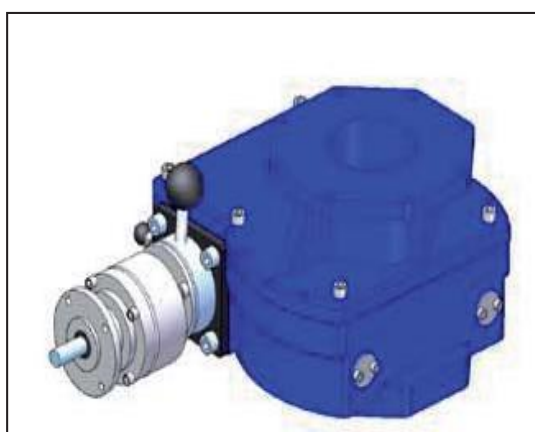
**Jackscrew**



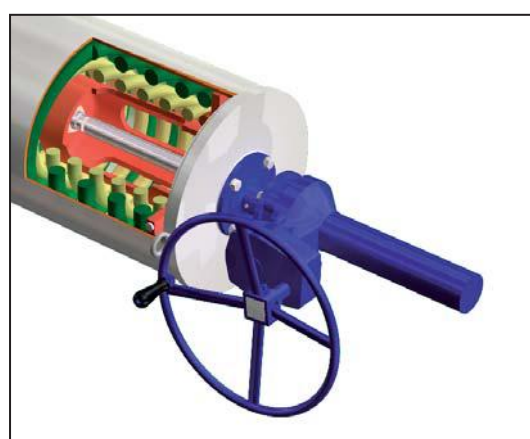
**Hydraulic**



**Sandwich Gear**



**Bevel Gear**



Model	ISO Mounting	Torque		DA				SR			
		N-m	in-lb	Jackscrew		Sandwich Declutchable Gear	Hydraulic	Jackscrew		Sandwich Declutchable Gear	Hydraulic
				Direct Operation	Bevel Gear			Direct Operator	Bevel Gear		
RG1	F14	2000	17702	✓	–	✓	–	✓	–	✓	–
RG2	F16	4000	35404	✓	–	✓	–	✓	–	✓	–
RG3	F25	8001	70808	✓	✓	✓	✓	✓	✓	✓	✓
RG4	F30	16002	141616	–	✓	✓	✓	–	✓	✓	✓
RG5	F35	32005	283232	–	✓	✓	✓	–	✓	✓	✓
RG6	F40	63010	557613	–	–	–	✓	–	–	–	✓
RG7	F48	125020	1106375	–	–	–	✓	–	–	–	✓
RG8	F60	248600	2212750	–	–	–	✓	–	–	–	✓

**S**ales and service facilities are strategically located in industrial centers throughout the world.

### Controls & Accessories

The actuator is the heart of an automation system, but control accessories are important in creating a complete system to meet increasingly sophisticated customer requirements. Solenoid valves and related accessories with NAMUR interfaces provide direct, modular mounting on actuator. Switches, Positioners, Gear Overrides and Lockout Modules can also be integrated into the assembly. Automation mounting brackets, "AutoBrakit" with mounting hardware are engineered to assure consistency and proper alignment

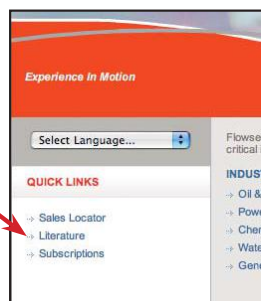
## To Access Literature Online

Every item in this catalog has a brochure containing a great deal of technical product detail. It's easy to find... it's free... and you do not need a password.

### Do This:

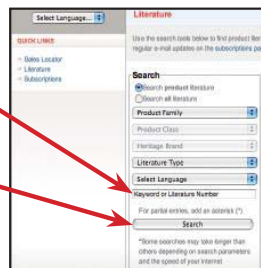
- 1 Go to [www.flowserve.com](http://www.flowserve.com)

- 2 Click in the box that says "Literature"



- 3 Enter keyword or literature number

- 4 Click on "Search"



The most recent version of each product bulletin will be available on this site.

Once you have the PDF, you can:

- read it
- print it
- download it
- even e-mail it

**Flowserve Flow Control (UK) Ltd.**  
Burrell Road  
Haywards Heath  
West Sussex United Kingdom  
RH16 1TL  
Phone: +44 1444 314400  
Fax: +44 1444 314401

**Flowserve Flow Control Benelux BV**  
Rechtzaad 17  
4703 RC Roosendaal NB  
Netherlands  
Phone: +31 165 598 800  
Fax: +31 165 555 670

**Flowserve Corporation  
Flow Control Division**  
1978 Foreman Drive  
Cookeville, Tennessee 38501 USA  
Phone: +931 432 4021  
Fax: +931 432 5518  
[www.flowserve.com](http://www.flowserve.com)

**Flowserve Flow Control GmbH**  
Rudolf Plank Str. 2  
D-76275 Ettlingen  
Germany  
Phone: +49 (0)7243 103 0  
Fax: +49 (0)7243 103 222

**Flowserve Flow Control GmbH**  
Automax Valve Automation  
Im grossen Rohr 2  
D-65549 Limburg  
Germany  
Phone: +49 (0)6431 96610  
Fax: +49 (0)6431 966130

**Flowserve S.R.L.**  
Via Prealpi 30  
Cormano MI Italy I - 20032  
Phone: +39 02 663251  
Fax: +39 02 6151863

**Flowserve Ahaus GmbH**  
von-Braun-Str. 19a  
48683 Ahaus  
Phone: +49 2561 686-119  
Fax: +49 2561 686-109

**Flowserve Corporation  
Flow Control Division**  
1350 North Mountain Springs Parkway  
Springville, Utah 84663-0913 USA  
Phone: +801 373 3028  
Fax: +801 489 2228

**Flowserve Corporation**  
No. 35, Baiyu Road  
Suzhou Industrial Park  
Suzhou 215021, Jiangsu Province, PRC  
Phone: +86-512-6288-1688  
Fax: +86-512-6288-8737

**Flowserve Australia Pty Ltd**  
Flow Control Division  
14 Dalmore Drive  
Scoresby, Victoria 3179  
Australia  
Phone: +61 3 9759 3300  
Fax: +61 3 9759 3301

**Flowserve Pte Ltd**  
No. 12 Tuas Avenue 20  
Singapore 638824  
Phone: +65 6879 8900  
Fax: +65 6862 4940

**Unit 01/02/06/07 9F**  
China Fortune Tower  
No. 1568, Century Avenue, Pudong  
Shanghai China 200122  
Phone: +86 21 38654800  
Fax: +86 21 50811781

**Flowserve do Brasil Ltda**  
Rua Tocantins, 128 - Bairro Nova Gerti  
São Caetano do Sul,  
São Paulo 09580-130 Brazil  
Phone: +5511 4231 6300  
Fax: +5511 4231 6329 - 423

Flowserve Corporation has established industry leadership in the design and manufacture of its products. When properly selected this Flowserve product is designed to perform its intended function safely during its useful life. However, the purchaser or user of Flowserve products should be aware that Flowserve products might be used in numerous applications under a wide variety of industrial service conditions. Although Flowserve can (and often does) provide general guidelines, it cannot provide specific data and warnings for all possible applications. The purchaser/user must therefore assume the ultimate responsibility for the proper sizing and selection, installation, operation, and maintenance of Flowserve products. The purchaser/user should read and understand the Installation Operation Maintenance (IOM) instructions included with the product, and train its employees and contractors in the safe use of Flowserve products in connection with the specific application.

While the information and specifications contained in this literature are believed to be accurate they are supplied for informative purposes only and should not be considered certified or as a guarantee of satisfactory results by reliance thereon. Nothing contained herein is to be construed as a warranty or guarantee, expressed or implied, regarding any matter with respect to this product. Because Flowserve is continually improving and upgrading its product design, the specifications, dimensions and information contained herein are subject to change without notice. Should any question arise concerning these provisions, the purchaser/user should contact Flowserve Corporation at any one of its worldwide operations or offices.