

**REFlex**

**CIRCOR** | **RTK®**

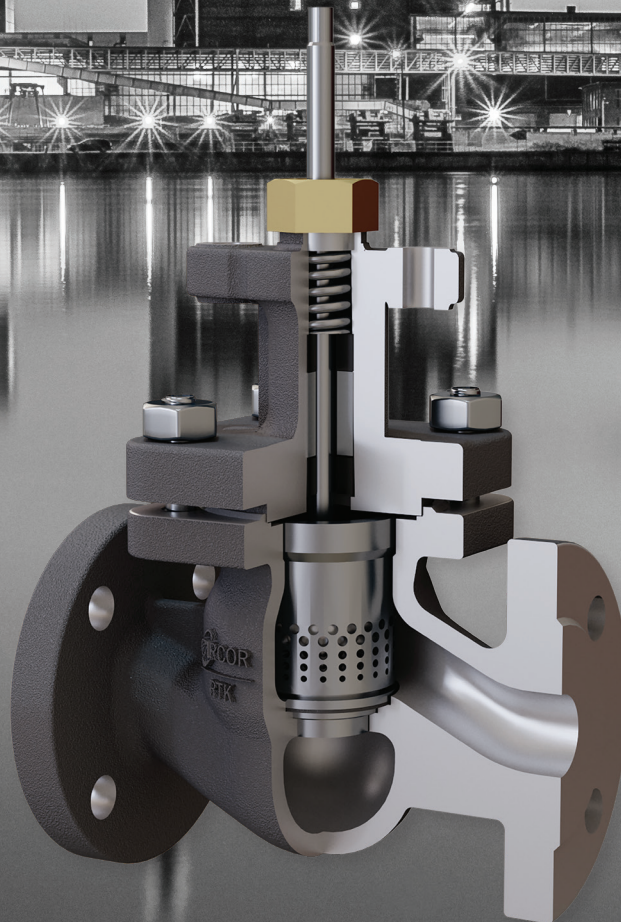
Control and Shut-Off Valves | Variety of Trim Designs in Different Materials | Electric and Pneumatic Actuators as Standard

## Technical Brochure General Stem-Guided Control Valves

NPS ½ - 12 (DN 15 – 300)

CL 150 – 900 (PN 16 – 160)

[www.rtk.de](http://www.rtk.de)



# REflex Control Valve

## Valve Characteristics

### Broadest Range in the Industry

Offers more possibilities than any other valve family in the Industry

### Multiple Trim Options

Offering maximum versatility in flow control applications

### Wide variety of stem packings

Giving the best stem packing for the given application

### Different Trim Materials

Providing significantly longer service life

### All common Body Materials

Ensure long-term use under rough conditions

### High Flow capacities

Promote reduced body velocity and pressure losses

## Options

- Reduced seat sizes for tighter control
- Noise and Cavitation reducing trims
- Soft seat sealing offering Class IV requirements
- Various End Connections

## Applications

Control Systems used in Industries such as

- Power
- Chemical
- Petrochemical
- Pulp & Paper
- Food & Beverages
- And many more

HVAC Systems

Boiler Rooms

Engineered skid packages (OEMs) such as

- thermal fluid systems
- water treatment systems
- And many more

## Actuator Characteristics

### Electric Actuators

- Modular design
- Synchronous and BLDC Motor Technology
- Wide range of actuating forces
- Simple Setup
- Manual operation possible

### Pneumatic Actuators

- Compact and robust design
- Multi spring technology
- Safety positioning
- Various Sizes
- Wide Range of actuating forces

## Options

- Electric and electro pneumatic Positioners
- Diverse Feedback Signals
- Field Bus Systems
- Emergency Power Packages
- Built-in Process Controllers



# REflex Specifications

## Body Assembly Style:

Single seated, top entry bolted bonnet, globe style body, stem guided unbalanced plug

## Sizes and Ratings:

### 2-Way

CL 150 NPS ½ – 12

CL 300 NPS ½ – 12

CL 600 NPS ½ – 12

CL 900 NPS 1 – 10

### 3-Way

CL 150 NPS 1 – 12

CL 300 NPS 1 – 12

Face-to-Face dimensions acc. to

ANSI / ISA-S75.03

## Body Materials:

**Carbon Steel** ASTM A216 WCB

-20°F to 797°F (-29°C to 425°C)

(CL 150 - 900)

**Chrome Moly** ASTM A217 WC6

-20°F to 1000°F (-29°C to 538°C)

(CL 150 – 900)

**Chrome Moly** ASTM A217 WC9

-20°F to 1000°F (-29°C to 538°C)

(CL 600 - 900)

**Stainless Steel** ASTM A351 CF8M

-20°F to 1000°F (-29°C to 538°C)

(CL 150 - 900)

## Bonnet:

Bolted bonnet, bonnet with cooling fins for high temperatures, extended bonnet for bellows seal

## End Connections:

**Flanges** acc. to ANSI B16.5 - 2017 Raised

Face (RF) and Ring Type Joint (RTJ)

**Butt Weld Ends** (BWE) acc. to ASME

B16.25 - 2012

**Threaded Ends** (THD) acc. to ASME

B16.11 – 2016 (2-way only, up to NPS 2)

**Socked Weld Ends** (SWE) acc. to ASME B16.11

– 2016 Class 3000 (2-way only, up to NPS 2)

## Stem Packing:

**PTFE/Graphite** -76°F to 482°F  
(Standard) (-60°C to 250°C)

**Pure graphite** -76°F to 986°F  
(-60°C to 530°C)

**Bellows seal** -76°F to 662°F  
(-60°C to 350°C)

**Chloroprene** -40°F to 212°F  
(-40°C to 110°C)

## Body / Bonnet Gaskets:

Spiral Wound 316L/Graphite

max. 986°F (530°C) (Standard)

**PTFE**, max. 482°F (250°C)

(food & beverage, oxygen, ozone service)

**Grooved gasket** B7A

-328°F to 572°F (-200°C to 300°C)

(refrigeration)

## Trim Types

### Plug & Flow Characteristics:

#### 2-Way

**On/Off Plug** (Quick Opening)

**Parabolic Plug** (Equal Percentage or Linear)

**V-Port Plug** (Equal Percentage or Linear)

**Perforated Plug** (Equal Percentage or Linear)

#### 3-Way

Mixing Plug (Linear)

Diverting Plug (Linear)

## Seat Ring and Special Trims:

**Screwed Seat Ring** (CL 150 – 300)

**Welded Seat Ring** (CL 600 – 900)

**Quick Change Seat** (QCS)

1- and 2-stage (CL 150 – 600)

**Balanced Trim**

1- and 2-stage (CL 150 – 900)

## Trim Materials:

**Plug** 1.4122 (martensitic)

**Stem and Seat** AISI 316 Ti

**QCS Retainer** SA487 CA6NM  
(martensitic)

**Balanced Trim** 440B

### Optional:

- Plug made of AISI 316 Ti
- Parabolic Plug stellited or hardened
- Perforated Plug hardened
- Standard seat ring stellited or hardened
- QCS seat ring hardened
- Balanced Trim hardened

## Shutoff Class (ANSI/FCI 70-2)

**Leakage Class IV**, metal seat (Standard)

**Balanced Trim** 0,05% of nominal flow

**Diverting Plug** Port B Leakage Class III

### Optional:

- Leakage Class V, lapped in metal seat
- Leakage Class VI, soft seat max. 392°F (200°C)
- Balanced Trim with Leakage Class IV, soft sealing max. +392°F (200°C)

## Electric Actuators:

**REact 15** force max. 337 lbs  
(1.5 kN) stroke max. 1¾”  
stem ½”

**REact 30** force max. 675 lbs  
(3 kN) stroke max. 1½”  
stem ½”

**REact 60** force max. 1350 lbs  
(6 kN) stroke max. 2¾”  
stem ½”

**REact 100** force max. 2250 lbs  
(10 kN) stroke max. 3”  
stem ½”

**REact 150** force max. 3370 lbs  
(15 kN) stroke max. 4”  
stem 1¼”

**REact 220** force max. 4946 lbs  
(22 kN) stroke max. 4”  
stem 1¼”

**REact 300** force max. 6744 lbs  
(30 kN) stroke max. 4”  
stem 1¼”

### Optional:

- Additional limit switches as Standard
- Electronic Positioner
- Feedback signal
- Hydraulic emergency closing unit
- Electrical emergency closing unit

## Pneumatic Actuators:

**ST 6135.B6** force max. 495 lbs  
(43 Inch<sup>2</sup>) max. stroke 1¾” stem ½”

**ST 6160.A6** force max. 900 lbs  
(82 Inch<sup>2</sup>) stroke max. 1½” stem ½”

**ST 6160.C6** force max. 720 lbs  
(82 Inch<sup>2</sup>) stroke max. 2¾” stem ½”

**ST 6175.B6** force max. 3600 lbs  
(155 Inch<sup>2</sup>) stroke max. 2¾” stem 1¼”

**ST 6175.C6** force max. 4270 lbs  
(155 Inch<sup>2</sup>) stroke max. 4” stem 1¼”

### Optional:

- Handwheel
- Limit switches
- Solenoid valve
- Pneumatic and electro-pneumatic positioner
- Additional limit switches
- Booster
- Air filter regulator

## Customer Specified Actuators

**Electric** actuator

**Pneumatic** actuator

**Hydraulic** actuator

# REflex Trim Designs

Interchangeable plugs and seats offer maximum versatility in flow control applications.

## 2-Way Valves



### On/Off Plug

Characteristic: On/Off (Quick Opening)  
Flow direction: To open or to close

This plug provides maximum flow with minimum pressure drop and is ideal when large flows are required just after opening.



### V-Port Plug

Characteristic: Linear or Equal Percentage  
Flow direction: To open or to close

This plug is ideally suited when actuator selection is critical, and the shorter stroke means smaller actuators can often be used.



### Parabolic Plug

Characteristic: Linear or Equal Percentage  
Flow direction: To open

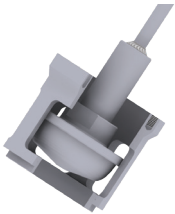
This plug covers all Cv ranges and is especially suitable for low differential pressures. The equal percentage flow characteristic provides excellent low flow control.



### Perforated Plug

Characteristic: Linear or Equal Percentage  
Flow direction: To open or to close

The plug is suitable for use where high differential pressures are present. It can also be used where noise is an issue, typically reducing the noise level by 10 dBA. The hardened version improves life expectancy in cavitation and/or flashing conditions.



### Quick Change Seat (QCS)

This trim offers an easy tool-free seat exchange and is used for high differential pressures to provide cavitation and for noise reduction.

#### 1-Stage

Characteristic: Linear or Equal Percentage  
Flow direction: To open/close  
Rangeability: 30:1 (max 50:1)

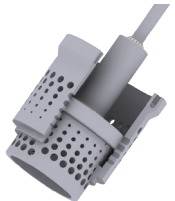


### Balanced Trim

A perforated, pressure balanced design for high differential pressures, rough operating conditions and noisy applications. The trim is interchangeable with QCS.

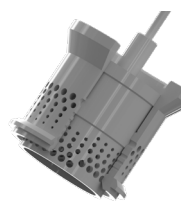
#### 1-Stage

Characteristic: Linear or Equal Percentage  
Flow direction: To close  
Rangeability: 30:1 (max 40:1)



#### 2-Stage

Characteristic: Linear or Equal Percentage  
Flow direction: To close  
Rangeability: 30:1 (max 40:1)



#### 2-Stage

Characteristic: Linear or Equal Percentage  
Flow direction: To close  
Rangeability: 30:1

## 3-Way Valves



### Mixing Plug

Characteristic: Linear  
Flow direction:  $A + B > AB$



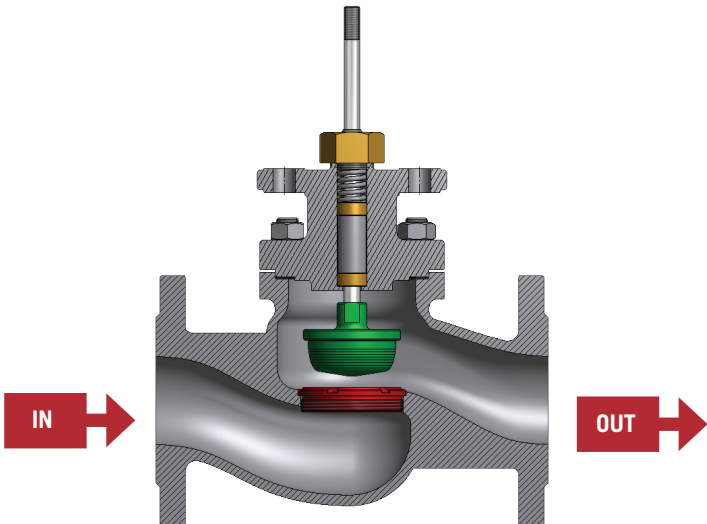
### Diverting Plug

Characteristic: Linear  
Flow direction:  $AB > A + B$

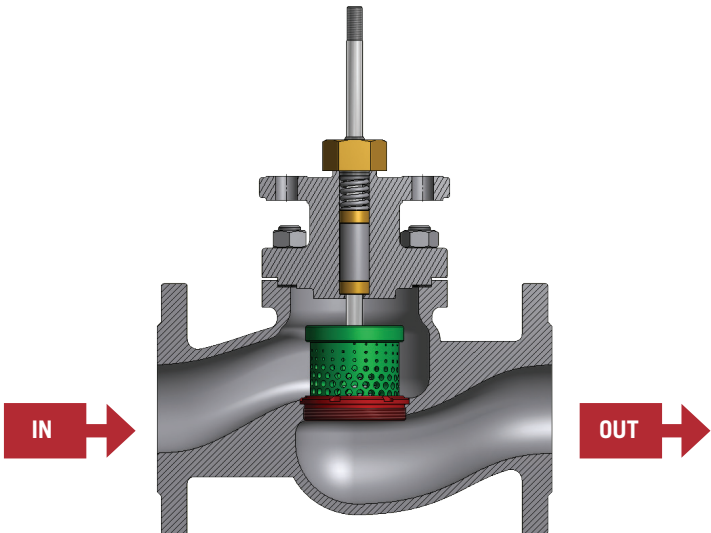
Note – All plugs are available with Soft Seat option, offering Class VI shutoff (Not for Diverting and Balanced Trim)

# REflex Flow Directions

## Flow to Open      Flow to Close

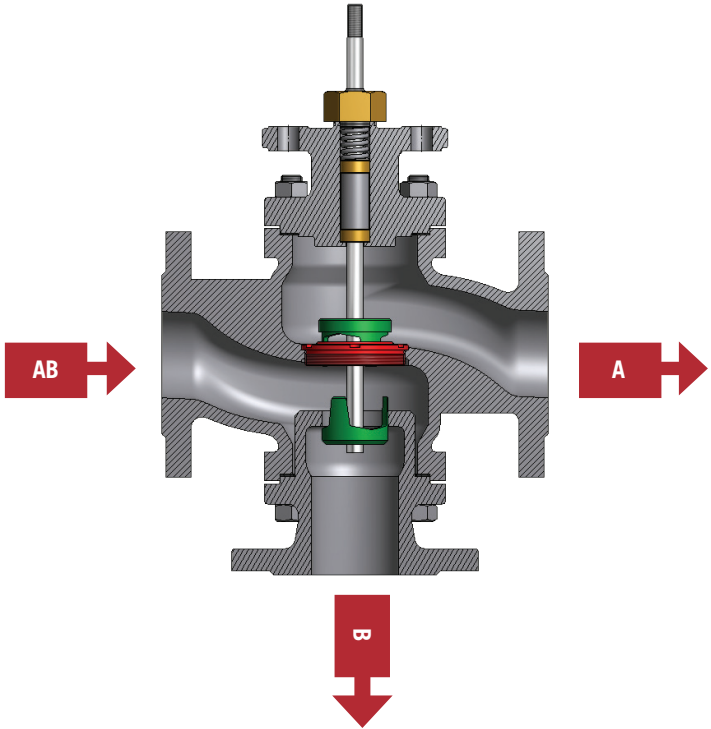
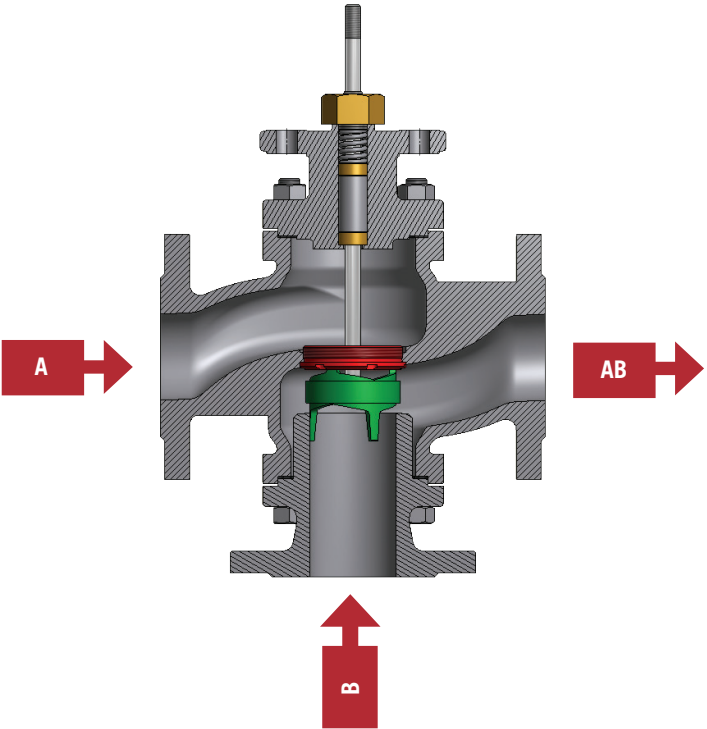


Normal flow direction for parabolic plugs



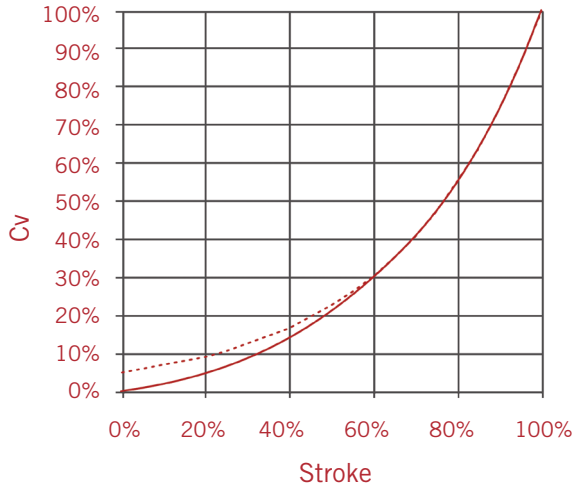
Most commonly used flow direction for On/off, V-port and perforated plugs.

## Mixing      Diverting

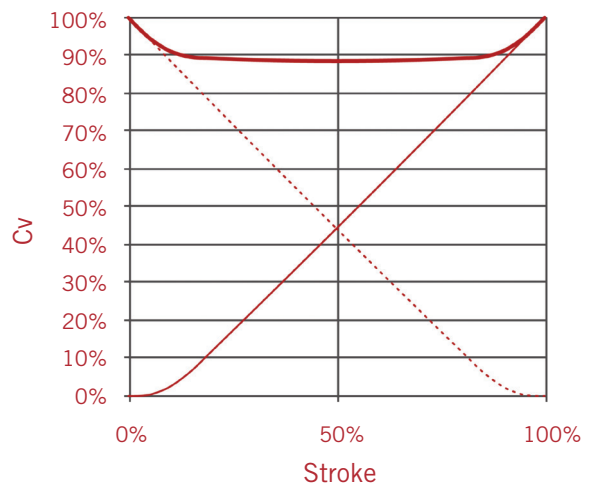


# REFlex Flow Characteristics

### Equal percentage



### Linear

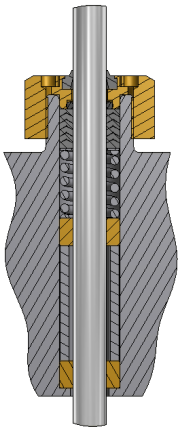


— REFlex  
- - - Theory

— Cv A 2-way valve and 3-way valve port A  
- - - Cv B 3-way valve port B  
— Cv AB = Cv A + Cv B 3-way valve port AB

# REFlex Packing Configurations

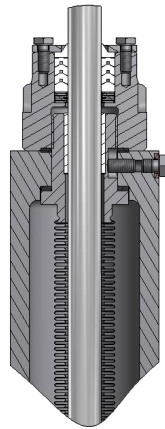
### PTFE/Graphite



**Maintenance free chevron rings with prestressed spring**

- Material: PTFE/Graphite
- Temperature: -76°F to 482°F
- Pressure: up to CL 900
- Application: Water, steam and other media

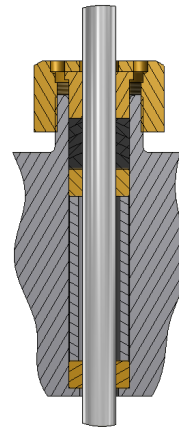
### Bellows Seal



**Maintenance-free metal bellows stem seal with safety packing**

- Material: Stainless Steel
- Temperature: -76°F to 662°F  
Optional up to 797°F
- Pressure: up to CL 300
- Application: Thermal Oil, Ammonia and other media

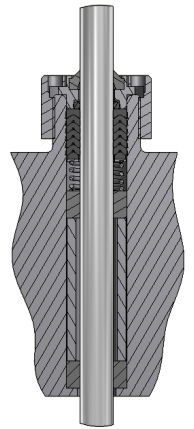
### Pure Graphite



**Pure graphite rings and two anti-extrusion Inconel wire reinforced graphite rings**

- Material: Graphite
- Temperature: -76°F to 986°F
- Pressure: up to CL 900
- Application: Water, steam and other media

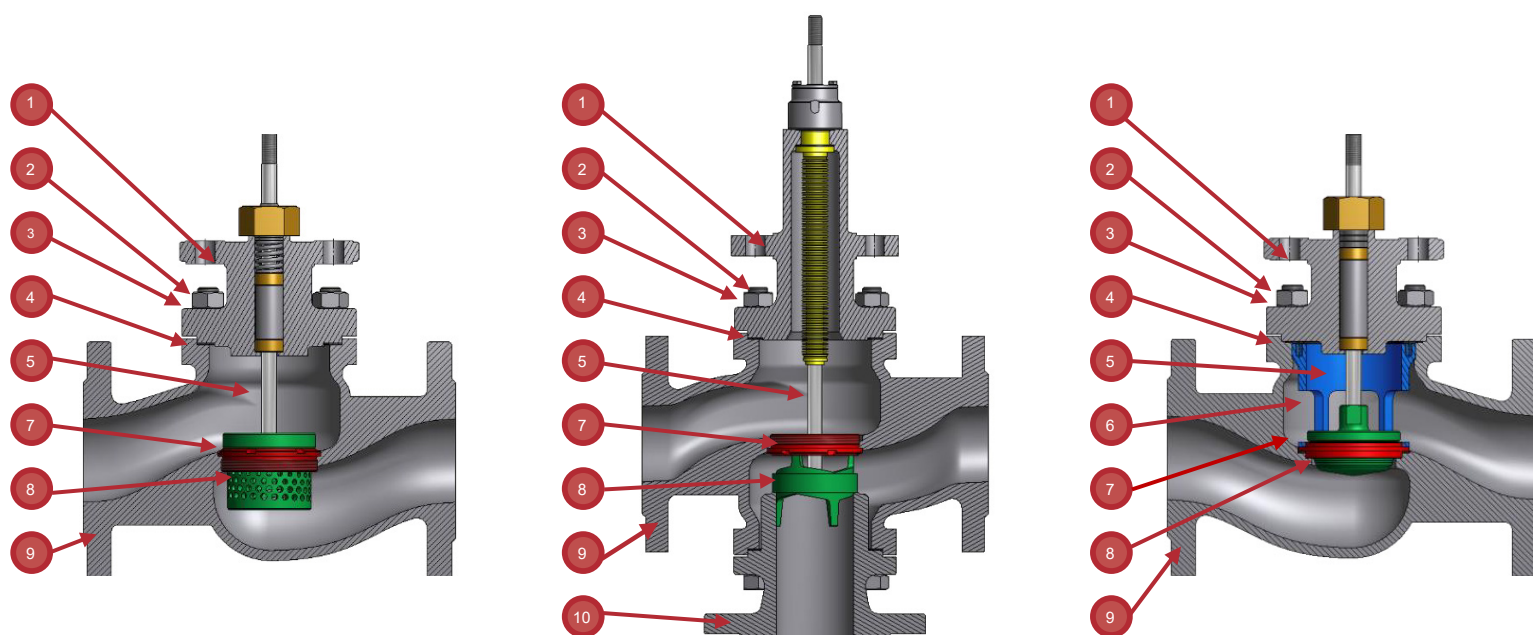
### Chloroprene



**Maintenance free chevron rings with prestressed spring**

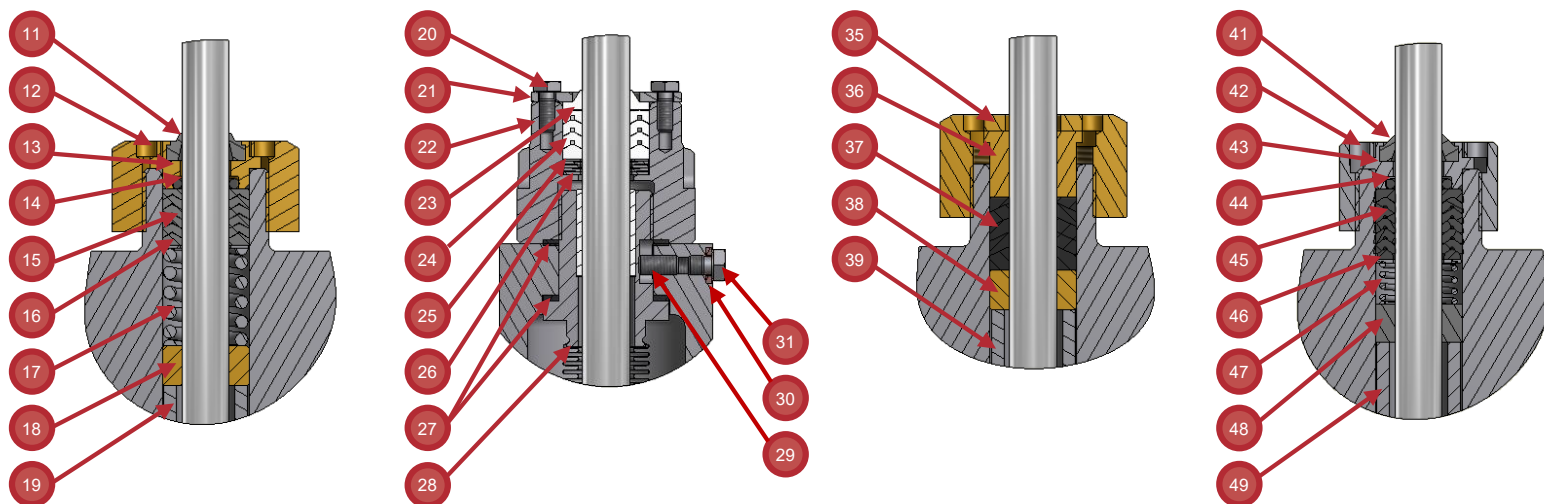
- Material: Chloroprene
- Temperature: -40°F to 212°F
- Pressure: up to CL 300
- Application: Refrigerants, natural gas and other media

# REflex Material Specifications



Item	Description	Material	Material Specs	(ANSI Equivalent)
1	Bonnet	Carbon Steel Stainless Steel Chrome-Moly Steel Chrome-Moly Steel	SA 216 WCB SA 351 CF8M SA 217 WC6 SA 217 WC9	
2	Stud	Carbon Steel Stainless Steel Chrome-Moly Steel	ASTM A 194 Gr. B7 ASTM A 193 Gr. B8M ASTM A 193 Gr. B16	
3	Nut	Carbon Steel Stainless Steel Chrome-Moly Steel	ASTM A 194 Gr. 2H ASTM A 194 Gr. 8M ASTM A 194 Gr. 4	
4	Gasket	Graphite+ Stainless Steel	Graphite + 1.4401	
5	Plug Stem	Stainless Steel	1.4571	(AISI 316Ti)
6	Retainer (QCS)	Chromium-Nickel Steel	ASTM A487 CA6NM	
6	Balanced Trim (Cage)	Chromium-Carbon-Nickel Alloy	440B	
7	Seat Ring	Stainless Steel	1.4571	(AISI 316Ti)
8	Plug Head	Stainless Steel	1.4122	
8	Balanced Trim (Piston / Plug)	Chromium-Carbon-Nickel Alloy	440B	
9	Body	Carbon Steel Stainless Steel Chrome-Moly Steel Chrome-Moly Steel	SA 216 WCB SA 351 CF8M SA 217 WC6 SA 217 WC9	
10	B-Flange	Carbon Steel Stainless Steel Chrome-Moly Steel Chrome-Moly Steel	SA 216 WCB SA 351 CF8M SA 217 WC6 SA 217 WC9	

# REflex Material Specifications (continued)



Item	Description	Material	Material Specs	(ANSI Equivalent)
11	Wiper Ring	Nitrile Butadiene Rubber	NBR 90	
12	Cap Nut	Brass	CuZn39Pb3	(ASTM C38500)
13	Packing Follower	Red Brass	CuSn7Zn4Pb7-C	(ASTM C93200)
14	O Ring	Nitrile Butadiene Rubber	NBR 90	
15	Packing (Chevron rings)	Polytetrafluorethylene Compound	PTFE/Graphite	
16	Washer	Stainless Steel	1.4310	(AISI 301)
17	Spring	Stainless Steel	1.4310	(AISI 301)
18	Guide Bushing	Red Brass	CuSn7Zn4Pb7-C	(ASTM C93200)
19	Space tube	Stainless Steel	1.4301	(AISI 304)
20	Hex bolt	Stainless Steel	1.4301	(AISI 304)
21	Plate	Stainless Steel	1.4301	(AISI 304)
22	Cap Nut	Stainless Steel	1.4104	(AISI 430F)
23	Scraper ring	Polytetrafluorethylene	PTFE/TFM	
24	Packing (Chevron rings)	Polytetrafluorethylene Compound	PTFE/25% glass fiber	
25	Washer	Stainless Steel	1.4301	(AISI 304)
26	Spring washer set	Stainless Steel	1.4310	(AISI 301)
27	gasket	Graphite Polytetrafluorethylene Compound [1]	Graphite Gylon® Style 3501E [1]	
28	Bellow	Stainless Steel	1.4571	(AISI 316Ti)
29	Grub screw	Alloy steel	45H	
30	Seal ring	Aramid fibers with NBR Polytetrafluorethylene Compound [1]	KLINGERSIL® C-4400 L Gylon® Style 3501E [1]	
31	Hex bolt	Stainless Steel	1.4301	(AISI 304)
35	Cap Nut	Brass	CuZn39Pb3	(ASTM C38500)
36	Packing Follower	Red Brass	CuSn7Zn4Pb7-C	(ASTM C93200)
37	Packing	Graphite	Graphite	
38	Guide Bushing	Red Brass	CuSn7Zn4Pb7-C	(ASTM C93200)
39	Space tube	Stainless Steel	1.4301	(AISI 304)
41	Wiper Ring	Nitrile Butadiene Rubber	NBR 90	
42	Cap Nut	Stainless Steel	1.4571	(AISI 316Ti)
43	Packing Follower	Stainless Steel	1.4104	(AISI 430F)
44	O Ring	EPDM rubber	EPDM	
45	Packing (Chevron rings)	Based on Nitrile rubber	NBR	
46	Washer	Stainless Steel	1.4310	(AISI 301)
47	Spring	Stainless Steel	1.4310	(AISI 301)
48	Guide Bushing	Polytetrafluorethylene Compound	PTFE/25% carbon	
49	Space tube	Stainless Steel	1.4301	(AISI 304)

<sup>[1]</sup> For Refrigeration valves

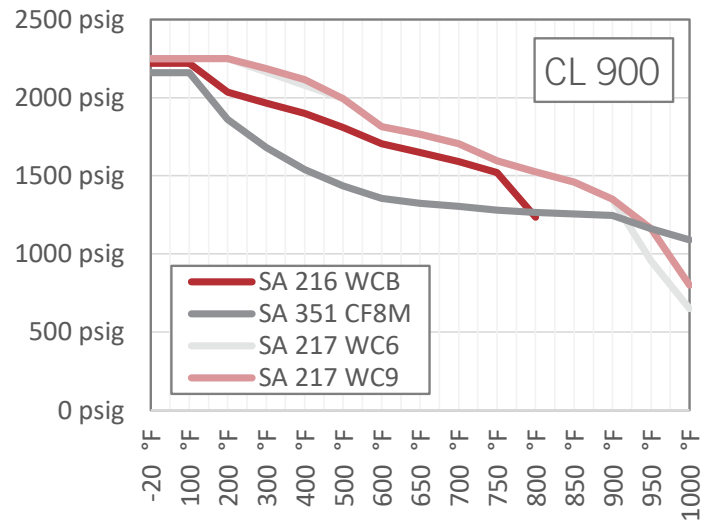
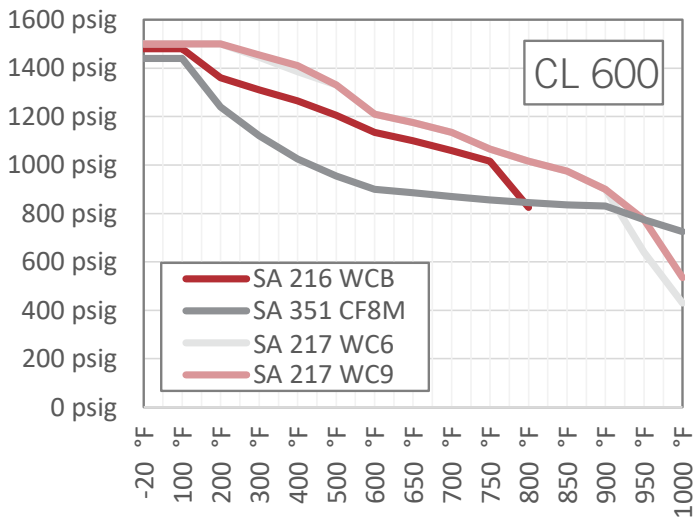
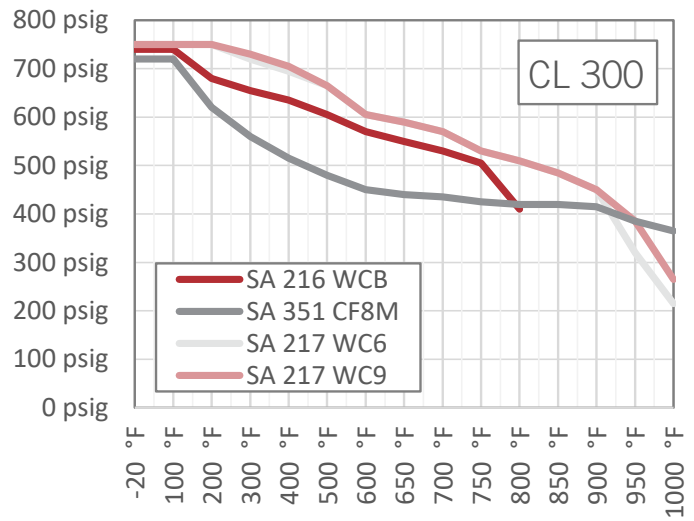
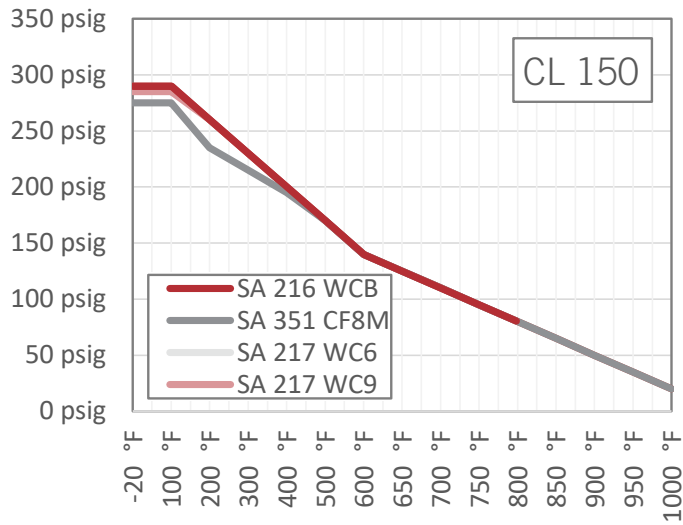


# REflex Pressure-Temperature Ratings

Maximum allowed pressure in psig at specific temperature in °F

CL	Material	Temperature														
		-20	100	200	300	400	500	600	650	700	750	800	850	900	950	1000
150	SA 216 WCB	285	285	260	230	200	170	140	125	110	95	80	-	-	-	-
300		740	740	680	655	635	605	570	550	530	505	410	-	-	-	-
600		1480	1480	1360	1310	1265	1205	1135	1100	1060	1015	825	-	-	-	-
900		2220	2220	2035	1965	1900	1810	1705	1650	1590	1520	1235	-	-	-	-
150	SA 217 WC6	290	290	260	230	200	170	140	125	110	95	80	65	50	35	20
300		750	750	750	720	695	665	605	590	570	530	510	485	450	320	215
600		1500	1500	1500	1445	1385	1330	1210	1175	1135	1065	1015	975	900	640	430
900		2250	2250	2250	2165	2080	1995	1815	1765	1705	1595	1525	1460	1350	955	650
150	SA 217 WC9	290	290	260	230	200	170	140	125	110	95	80	65	50	35	20
300		750	750	750	730	705	665	605	590	570	530	510	485	450	385	265
600		1500	1500	1500	1455	1410	1330	1210	1175	1135	1065	1015	975	900	775	535
900		2250	2250	2250	2185	2115	1995	1815	1765	1705	1595	1525	1460	1350	1160	800
150	SA 351 CF8M1	275	275	235	215	195	170	140	125	110	95	80	65	50	35	20
300		720	720	620	560	515	480	450	440	435	425	420	420	415	385	365
900		2160	2160	1860	1680	1540	1435	1355	1325	1305	1280	1265	1255	1245	1160	1090
600		1440	1440	1240	1120	1025	955	900	885	870	855	845	835	830	775	725

[1] NPS 12 CL 600 CF8M only up to 750 °F



# REflex Cv Values

## Cv Values for Parabolic Plug

ANSI	Seat [Inch]																						
NPS	1/8	1/8	1/8	1/4	1/4	3/8	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	10	12	
1/2	0,01	0,02	0,05	1,2	2,0	2,4	3,1	3,8															
	0,12	0,29	0,58																				
3/4	0,01	0,02	0,05	1,2	2,0	2,9	4,3	4,9	7,0														
	0,12	0,29	0,58																				
1	0,01	0,02	0,05	1,2	2,0	2,9	4,6	6,0	8,7	10,7													
	0,12	0,29	0,58																				
1 1/2	0,12	0,29	0,58	1,2	2,0	2,9	5,1	7,9	13	17	22	28											
2				1,2	2,0	2,9	5,1	7,9	14	21	28	35	43										
2 1/2						2,9	5,1	7,9	14	22	33	43	55	73									
3							7,9	14	22	36	52	67	92	110									
4								14	22	36	56	81	115	140	172								
6											56	87	147	208	272	339	386						
8												87	147	225	325	425	487	687					
10													147	225	350	508	611	866	982	1074			
12														225	350	540	655	943	1133	1306	1546		
Stroke [Inch]	1										1 1/4			1 1/2			2	2 1/2	3	4			

## Cv Values for V-Port Plug [gpm]

ANSI	Seat [Inch]													
NPS	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	
3/4	7,0													
1	8,7	10,7												
1 1/2	13	17	22	28										
2	14	21	28	35	43									
2 1/2		22	33	43	55	73								
3			36	52	67	92	110							
4				56	81	115	140	172						
6						147	208	271	339	386				
8							225	325	425	487	687			
10								350	508	611	866	1074		
12										655	943	1306	1546	
Stroke <sup>1</sup> [Inch]	-	1	1 1/2			1 1/2		1 1/2	1 1/2	2	2 1/2	3 1/2	-	-
Stroke <sup>2</sup> [Inch]	1/2					1	1 1/4	1 1/2	1 1/2	2 1/2	3	4		

1. Stroke for equal percentage

2. Stroke for linear

## Cv Values for Perforated Plug [gpm]

ANSI	Seat [Inch]																					
NPS	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	7	7	8	8	9	9	10	10	12
1/2	1,9	3,0																				
3/4	2,0	3,1	5,3																			
1	2,0	3,1	5,6	8,4																		
1 1/2	2,0	3,1	5,6	8,8	14	22																
2	2,0	3,1	5,6	8,8	14	22	34															
2 1/2			5,6	8,8	15	22	35	57														
3				8,8	15	23	35	60	86													
4				8,8	15	23	35	60	91	110	135											
6						23	35	60	91	110	142	220	303									
8							35	60	91	110	142	220	317	371	435	467	540					
10								60	91	110	142	220	317	371	435	479	564	650	742	791	842	
12									91	110	142	220	317	371	435	479	564	650	742	841	910	1235
Stroke [Inch]	1			1 1/4			1 1/2	2		2 1/2	3		4	3	4	3	4	3	4	3	4	

# REflex Cv Values (continued)

## Cv Values for On/Off Plug [gpm]

ANSI	Seat [Inch]															
NPS	¼	⅜	½	¾	1	1¼	1½	2	2½	3	4	5	6	8	10	12
½	2,0	3,1	3,8													
¾	2,0	4,3	4,9	7,0												
1	2,0	4,7	6,0	8,7	10,7											
1½			7,9	13	17	22	28									
2				14	21	28	35	43								
2½					22	33	43	55	73							
3						36	52	67	92	110						
4							56	81	115	140	172					
6									148	208	271	339	386			
8										225	325	425	487	687		
10											350	508	611	866	1074	
12												540	655	943	1306	1546
Stroke [Inch]	½									1	1¼	1⅝	1½	2⅝	3	4

## Cv Values for 2-Stage Parabolic Plug1

ANSI	Seat [Inch]		
NPS	¼	⅜	½
½	0,8	1,7	2,8
	1,4	2,2	
¾	0,8	2,1	3,5
	1,4	3,1	
1	0,8	2,0	4,2
	1,4	5,0	
1½	0,8	2,0	5,7
	1,4	5,0	
2	0,8	2,0	5,7
	1,4	5,0	
2½	-	2,0	5,7
	-	5,0	
Stroke (Inch)	1		

## Cv Values for Quick Change Seat 2-Stage

ANSI	Seat [Inch]													
NPS	¼	1	1¼	1½	2	2½	3	4	5	6	8	8	10	10
1½	4,0	6,3	9,7											
2	4,0	6,3	9,7	15,5										
2½	4,0	6,3	10,6	16,3	24									
3		6,3	10,6	16,3	24	42								
4		6,3	10,6	16,3	24	42	63							
6				16,3	24	42	63	98	154					
8					24	42	63	100	157	226				
10						42	63	100	157	226	340	400		
12							63	100	157	226	340	400	597	644
Stroke [Inch]	1	1¼			1½	2	2⅝	3	4	3	4	3	4	

### Pressure balanced trim 1-stage

ANSI	Stroke [Inch]																		
NPS	1	1 ¼	1 ¼	1 ¼	1 ½	2 (1 ½)	2 (1 ½)	2 (1 ½)	2 ¾	3 (2 ¾)	3	4 (3)	3	4 (3)	3	4	3	4	4
3	8,8	15	23	35	60	86 <sup>1</sup>													
4	8,8	15	23	35	60	90 <sup>1</sup>	110 <sup>1</sup>	135 <sup>1</sup>											
6			23	35	60	90	110	142	220	303 <sup>1</sup>									
8				35	60	90	110	142	220	317	371	435 <sup>1</sup>	467	539 <sup>1</sup>					
10					60	90	110	142	220	317	371	435	479	564	650	742	791	842	
12						90	110	142	220	317	371	435	479	564	650	742	841	911	1223

### Pressure balanced trim 2-stage<sup>2</sup>

ANSI	Stroke [Inch]																			
NPS	1	1 ¼	1 ¼	1 ¼	1 ½	2 (1 ½)	2	2	2 ¾	3	3	4	3	4	3	4	3	4	3	4
3	6,4	11	16	24	43															
4	6,4	11	16	24	43	64 <sup>1</sup>														
6			16	24	43	64	78	100	157											
8				24	43	64	78	100	157	226	262									
10					43	64	78	100	157	226	262	307	340	400	459	525				
12						64	78	100	157	226	262	307	340	400	459	525	897	644		

<sup>(1)</sup> Stroke in brackets is valid.

<sup>(2)</sup> The Cv values are for incompressible mediums. Values for compressible mediums on request.

### Diverting Plug

ANSI	Stroke [Inch]	Seat [Inch]	Cv [gpm]
NPS			
1	½	1	8,7
1 ½		1 ¼	22
2		1 ½	35
2 ½		2	55
3		2 ½	92
4	1	3	140
6	1 ¾	5	339
8	1 ½	6	487
10	2 ¾	8	867
12	3	10	1306

### Mixing Plug

ANSI	Stroke [Inch]	Seat [Inch]	Cv [gpm]
NPS			
1	½	1 ¼	10,7
1 ½		1 ½	28
2		2	43
2 ½		2 ½	73
3	1	3	110
4	1 ¼	4	172
6	1 ½	6	386
8	2 ¾	8	687
10	3	10	1074
12	4	12	1546

# REflex Shutoff Tables

## Max. Permissible Shutoff Pressures with Electric Actuators (psig) P2 = 0 psig, Flow-to-Open/Close, Stem Packing PTFE/Graphite <sup>[1]</sup>

Plug type	Seat [Inch]	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	7	8	9	10	12	14	16
Parabolic, V-port (eq-%)	Stroke [Inch]	1	1	1	1	1	1	1 1/4	1 1/4	1 1/4	1 3/8	1 3/8	-	1 3/8 2 <sup>[2]</sup>	2	2 3/8	-	3	-	3 4 <sup>[3]</sup>	4	4	4 3/4
V-port (linear)		-	-	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1	-	1 1/4	1 3/8	1 1/2	-	2 3/8	-	3	4	4	4 3/4
Perforated		-	-	1	1	1	1	1 1/4	1 1/4	1 1/4	1 1/2	2	2	2	2 3/8	3	3 4 <sup>[3]</sup>	3 4 <sup>[3]</sup>	3 4 <sup>[3]</sup>	3 4 <sup>[3]</sup>	4	4 3/4	5 7/8
On/off		-	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1	-	1 1/4	1 3/8	1 1/2	-	2 3/8	-	3	4	4	4 3/4
Mixing		-	-	-	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1	-	1 1/4	1 3/8	1 1/2	-	2 3/8	-	3	4	4	4 3/4
Diverting		-	-	-	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	-	1	-	1 3/8	-	1 1/2	-	2 3/8	3	-	-
Actuator		Stroke [Inch]	Shutoff pressure [psig]																				
REact 15	1 3/8 (35mm)	740	740	740	740	435	263	148	85	47	21	-	-	-	-	-	-	-	-	-	-	-	-
REact 30	1 1/2 (40mm)	2220	2220	2220	2046	1127	706	418	258	158	87	53	39	30	-	-	-	-	-	-	-	-	-
REact 60	2 3/8 (60mm)	2220	2220	2220	2220	2220	1593	959	604	379	218	139	108	85	52	34	-	-	-	-	-	-	-
REact 100	3 (80mm)	2220	2220	2220	2220	2220	2220	1680	1066	675	392	255	199	159	99	67	-	-	-	-	-	-	-
REact 150	4 (100mm)	2220	2220	2220	2220	2220	2220	2220	1575	1001	585	382	299	241	151	103	74	55	43	34	23	16	11
REact 220	4 (100mm)	2220	2220	2220	2220	2220	2220	2220	2220	1518	891	584	459	370	234	160	116	88	68	55	37	26	20
REact 300	4 (100mm)	2220	2220	2220	2220	2220	2220	2220	2220	2109	1241	815	641	518	328	226	164	125	98	78	53	38	29

<sup>[1]</sup> Consult factory for shutoff ratings when using other packing types.

<sup>[2]</sup> Stroke 2 Inch for Valves with 1 1/4 Inch Stem

<sup>[3]</sup> Two different strokes available

# REflex Shutoff Tables (continued)

## Max. Permissible Shutoff Pressures with Pneumatic Actuators (psig)

P2 = 0 psig, Spring Closes on Air Failure [Reverse acting], Flow-to-Open, Stem Packing PTFE/Graphite <sup>[1]</sup>

Seat [Inch]	Stroke [Inch]	Parabolic	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	
			1	1	1	1	1	1	1	1 1/4	1 1/4	1 1/4	1 3/8	1 3/8	1 3/8 2 <sup>[2]</sup>	2	2 3/8	3	4	4
Actuator	Air Supply [PSIG]	Parabolic																		
			ST6135. B6-2G  Stroke 1 3/8 Inch Stem 1/2 Inch Spring-range 3 - 15 psi  Actuator Code: BCA_	30	On/Off, V port, Mixing	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1	1 1/4	1 3/8	1 1/2	2 3/8
Diverting								1/2	1/2	1/2	1/2	1/2	1		1 3/8	1 1/2	2 3/8	3		
Perforated					1	1	1	1	1 1/4	1 1/4	1 1/4	1 1/2	2	2	2 3/8	3	4	4	4	4
Parabolic	750	750			346	197	88	41	4											
60	On/Off, V port, Mixing	750		750	667	402	203	115	58	28	10									
	Diverting							115	58	28	10									
	Perforated				346	197	88	41	4											
	Parabolic	750		750	398	230	106	53	4											
90	On/Off, V port, Mixing	750		750	667	402	203	115	58	28	10									
	Diverting							115	58	28	10									
	Perforated				398	230	106	53	4											
	Parabolic	750		750	398	230	106	53	4											
ST6135. B6-6G  Stroke 1 3/8 Inch Stem 1/2 Inch Spring-range 11.6 - 43.5 psi  Actuator Code: BDA_	60	On/Off, V port, Mixing	750	750	750	750	750	750	473	293	180	100	44	19						
		Diverting						750	473	293	180	100	62	25						
		Perforated			750	750	750	618	310	189	114									
		Parabolic	750	750	750	750	750	618	310	189	114	48	27	14						
	90	On/Off, V port, Mixing	750	750	750	750	750	750	473	293	180	100	44	19						
		Diverting						750	473	293	180	100	62	25						
		Perforated			750	750	750	618	310	189	114									
		Parabolic	750	750	750	750	750	618	310	189	114	48	27	14						

<sup>[1]</sup> Consult factory for shutoff ratings when using other packing types.

<sup>[2]</sup> Stroke 2 Inch for Valves with 1 1/4 Inch Stem

# REflex Shutoff Tables (continued)

## Max. Permissible Shutoff Pressures with Pneumatic Actuators (psig)

P2 = 0 psig, Spring Closes on Air Failure [Reverse acting], Flow-to-Open, Stem Packing PTFE/Graphite <sup>(1)</sup>

Seat [Inch]	Stroke [Inch]	Parabolic	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12		
			1	1	1	1	1	1	1 1/4	1 1/4	1 1/4	1 3/8	1 3/8	1 3/8	2	2 3/8	3	4	4		
On/Off, V port, Mixing	Diverting	Perforated	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1	1 1/4	1 3/8	1 1/2	2 3/8	3	4		
									1/2	1/2	1/2	1/2	1		1 3/8	1 1/2	2 3/8	3			
Parabolic	On/Off, V port, Mixing	Diverting	Perforated	1	1	1	1	1 1/4	1 1/4	1 1/4	1 1/2	2	2	2 3/8	3	4	4	4	4		
				Actuator	Air Supply [PSIG]																
ST6160.A6-6G Stroke 1 1/2 Inch Stem 1/2 Inch Spring-range 11.6 - 40.6 psi Actuator Code: CEA_	60	Parabolic	750	750	750	750	750	750	750	750	547	343	161	102	62						
		On/Off, V port, Mixing	750	750	750	750	750	750	750	750	750	491	284	145	76	37	18				
		Diverting							750	750	750	491	284	183	89	46	23				
		Perforated			750	750	750	750	750	547	343	131									
ST6160.C6-3G Stroke 2 3/8 Inch Stem 1/2 Inch Spring-range 4.4-18.9 psi Actuator Code: CFA_	30	Parabolic	750	750	750	750	750	750	418	259	158	76	46	26	5						
		On/Off, V port, Mixing	750	750	750	750	750	750	554	345	214	120	60	30	13	5					
		Diverting							750	554	345	214	120	75	35	16	7				
		Perforated			750	750	750	750	418	259	158	65	24	12							
ST6160.C6-7G Stroke 2 3/8 Inch Stem 1/2 Inch Spring-range 10.2-43.5 psi Actuator Code: CGA_	60	Parabolic	750	750	750	750	750	750	418	259	158	76	46	26	5						
		On/Off, V port, Mixing	750	750	750	750	750	750	554	345	214	120	60	30	13	5					
		Diverting							750	554	345	214	120	75	35	16	7				
		Perforated			750	750	750	750	418	259	158	65	24	12							
ST6160.C6-7G Stroke 2 3/8 Inch Stem 1/2 Inch Spring-range 10.2-43.5 psi Actuator Code: CGA_	90	Parabolic	750	750	750	750	750	750	418	259	158	76	46	26	5						
		On/Off, V port, Mixing	750	750	750	750	750	750	554	345	214	120	60	30	13	5					
		Diverting							750	554	345	214	120	75	35	16	7				
		Perforated			750	750	750	750	418	259	158	65	24	12							
ST6160.C6-7G Stroke 2 3/8 Inch Stem 1/2 Inch Spring-range 10.2-43.5 psi Actuator Code: CGA_	60	Parabolic	750	750	750	750	750	750	750	697	439	227	145	89	33	11					
		On/Off, V port, Mixing	750	750	750	750	750	750	750	750	572	332	183	100	54	31					
		Diverting							750	750	750	572	332	215	113	61	36				
		Perforated			750	750	750	750	750	697	439	201	94	56	19						
ST6160.C6-7G Stroke 2 3/8 Inch Stem 1/2 Inch Spring-range 10.2-43.5 psi Actuator Code: CGA_	90	Parabolic	750	750	750	750	750	750	750	697	439	227	145	89	33	11					
		On/Off, V port, Mixing	750	750	750	750	750	750	750	750	572	332	183	100	54	31					
		Diverting							750	750	750	572	332	215	113	61	36				
		Perforated			750	750	750	750	750	697	439	201	94	56	19						

<sup>(1)</sup> Consult factory for shutoff ratings when using other packing types.

<sup>(2)</sup> Stroke 2 Inch for Valves with 1 1/4 Inch Stem

# REflex Shutoff Tables (continued)

## Max. Permissible Shutoff Pressures with Pneumatic Actuators (psig)

P2 = 0 psig, Spring Closes on Air Failure [Reverse acting], Flow-to-Open, Stem Packing PTFE/Graphite <sup>[1]</sup>

	Seat [Inch]		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12		
	Stroke [Inch]	Parabolic	1	1	1	1	1	1	1 1/4	1 1/4	1 1/4	1 3/8	1 3/8	1 3/8	2	2 3/8	3	4	4		
	Stroke [Inch]	On/Off, V port, Mixing	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1	1 1/4	1 3/8	1 1/2	2 3/8	3	4		
		Diverting						1/2	1/2	1/2	1/2	1/2	1		1 3/8	1 1/2	2 3/8	3			
		Perforated			1	1	1	1	1 1/4	1 1/4	1 1/4	1 1/2	2	2	2 3/8	3	4	4	4		
Actuator	Air Supply [PSIG]																				
ST6175.B6-3D Stroke 2 3/8 Inch Stem 1 1/4 Inch Spring-range 10.2-30.5 psi Actuator Code: DJA_	60	Parabolic									750	742	400	259	162	74	37				
		On/Off, V port, Mixing										750	750	531	303	176	101	62	19		
		Diverting										750	750	531	346	190	110	68	33	10	
		Perforated										750	742	367	195	121	57				
	90	Parabolic										750	742	400	259	162	74	37			
		On/Off, V port, Mixing										750	750	531	303	176	101	62	19		
		Diverting										750	750	531	346	190	110	68	33	10	
		Perforated										750	742	367	195	121	57				
ST6175.B6-7D Stroke 2 3/8 Inch Stem 1 1/4 Inch Spring-range 23.2 - 68.2 psi Actuator Code: DLA	90	Parabolic									750	750	750	671	426	204	111				
		On/Off, V port, Mixing										750	750	750	750	453	269	169	60		
		Diverting										750	750	750	750	481	287	185	93	37	
		Perforated										750	750	750	512	324	163				
ST6175.C6-3D Stroke 4 Inch Stem 1 1/4 Inch Spring-range 11.6 - 30.5 psi Actuator Code: DNA_	60	Parabolic									750	750	520	339	213	116	70	33	13	8	
		On/Off, V port, Mixing										750	750	607	368	222	133	87	37	19	8
		Diverting										750	750	607	397	232	139	91	46	22	12
		Perforated										750	750	498	296	185	104	62	23	13	8
	90	Parabolic										750	750	520	339	213	116	70	33	13	8
		On/Off, V port, Mixing										750	750	607	368	222	133	87	37	19	8
		Diverting										750	750	607	397	232	139	91	46	22	12
		Perforated										750	750	498	296	185	104	62	23	13	8
ST6175.C6-7D Stroke 4 Inch Stem 1 1/4 Inch Spring-range 27.6 - 68.2 psi Actuator Code: DQA_	90	Parabolic									750	750	750	750	541	299	197	90	46	31	
		On/Off, V port, Mixing										750	750	750	750	555	343	230	109	56	31
		Diverting										750	750	750	750	569	352	236	127	68	38
		Perforated										750	750	750	743	472	287	165	74	46	31

<sup>[1]</sup> Consult factory for shutoff ratings when using other packing types.

<sup>[2]</sup> Stroke 2 Inch for Valves with 1 1/4 Inch Stem



# REflex Shutoff Tables (continued)

## Max. Permissible Shutoff Pressures with Pneumatic Actuators (psig)

P2 = 0 psig, Spring Opens on Air Failure [Direct acting], Flow-to-Open, Stem Packing PTFE/Graphite <sup>[1]</sup>

	Seat [Inch]		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12
	Stroke [Inch]	Parabolic	1	1	1	1	1	1	1 1/4	1 1/4	1 1/4	1 3/8	1 3/8	1 3/8	2	2 3/8	3	4	4
		On/Off, V port, Mixing	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1	1 1/4	1 1/8	1 1/2	2 3/8	3	4
		Diverting						1/2	1/2	1/2	1/2	1/2	1		1 1/8	1 1/2	2 3/8	3	
		Perforated			1	1	1	1	1 1/4	1 1/4	1 1/4	1 1/2	2	2	2 3/8	3	4	4	4
Actuator	Air Supply [PSIG]																		
ST6135.B6-2G  Stroke 1 3/8 Inch Stem 1/2 Inch Spring-range 3 - 15 psi  Actuator Code: BCB_	30	Parabolic	750	750	750	750	686	439	235	151	96	50	33	21					
		On/Off, V port, Mixing	750	750	750	750	750	541	330	211	135	80	43	24					
		Diverting					750	541	330	211	135	80	43	24					
		Perforated			750	750	686	439	235	151	96								
	60	Parabolic	750	750	750	750	750	750	750	497	318	181	119	76					
		On/Off, V port, Mixing	750	750	750	750	750	750	750	558	357	211	129	80					
		Diverting					750	750	750	558	357	211	139	83					
		Perforated			750	750	750	750	750	497	318								
	90	Parabolic	750	750	750	750	750	750	750	750	540	312	206	132					
		On/Off, V port, Mixing	750	750	750	750	750	750	750	750	579	342	216	135					
		Diverting					750	750	750	750	579	342	226	138					
		Perforated			750	750	750	750	750	750	540								
ST6135.B6-6G  Stroke 1 3/8 Inch Stem 1/2 Inch Spring-range 11.6 - 43.5 psi  Actuator Code: BDB_	30	Parabolic																	
		On/Off, V port, Mixing	346	87	38	25	14	9											
		Diverting					14	9											
		Perforated																	
	60	Parabolic	750	750	750	750	750	616	290	185	119	50	33	21					
		On/Off, V port, Mixing	750	750	750	750	750	750	547	350	224	132	60	30					
		Diverting					750	750	547	350	224	132	87	39					
		Perforated			750	750	750	616	290	185	119								
	90	Parabolic	750	750	750	750	750	750	750	532	340	181	119	76					
		On/Off, V port, Mixing	750	750	750	750	750	750	750	696	446	264	147	85					
		Diverting					750	750	750	696	446	264	147	94					
		Perforated			750	750	750	750	750	532	340								

<sup>[1]</sup> Consult factory for shutoff ratings when using other packing types.

<sup>[2]</sup> Stroke 2 Inch for Valves with 1 1/4 Inch Stem

# REflex Shutoff Tables (continued)

## Max. Permissible Shutoff Pressures with Pneumatic Actuators (psig)

P2 = 0 psig, Spring Opens on Air Failure [Direct acting], Flow-to-Open, Stem Packing PTFE/Graphite <sup>(1)</sup>

	Seat [Inch]		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	
	Stroke [Inch]	Parabolic	1	1	1	1	1	1	1 1/4	1 1/4	1 1/4	1 3/8	1 3/8	1 3/8 2 <sup>(2)</sup>	2	2 3/8	3	4	4	
		On/Off, V port, Mixing	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1	1 1/4	1 3/8	1 1/2	2 3/8	3	4	
		Diverting						1/2	1/2	1/2	1/2	1/2	1		1 3/8	1 1/2	2 3/8	3		
		Perforated			1	1	1	1	1 1/4	1 1/4	1 1/4	1 1/2	2	2	2 3/8	3	4	4	4	
Actuator	Air Supply [PSIG]																			
ST6160. A6-6G  Stroke 1 1/2 Inch Stem 1/2 Inch Spring-range 11.6 - 40.6 psi  Actuator Code: CEB_	30	Parabolic																		
		On/Off, V port, Mixing	750	750	750	628	353	226	138	88	57	33								
		Diverting					353	226	138	88	57	33	22							
		Perforated																		
	60	Parabolic	750	750	750	750	750	750	750	702	449	287	143	94	60					
		On/Off, V port, Mixing	750	750	750	750	750	750	750	750	666	426	252	130	72	39	22			
		Diverting					750	750	750	666	426	252	166	83	46	27				
		Perforated			750	750	750	750	702	449	287	115								
	90	Parabolic	750	750	750	750	750	750	750	750	657	361	239	153						
		On/Off, V port, Mixing	750	750	750	750	750	750	750	750	750	471	275	164	98	63				
		Diverting					750	750	750	750	750	471	311	176	105	68				
		Perforated			750	750	750	750	750	750	657	334								
ST6160. C6-3G  Stroke 2 3/8 Inch Stem 1/2 Inch Spring-range 4.4 - 18.9 psi  Actuator Code: CFB_	30	Parabolic	750	750	750	750	750	750	476	305	195	107	70	45	21	11				
		On/Off, V port, Mixing	750	750	750	750	750	750	589	377	241	143	82	49	29	18				
		Diverting					750	750	589	377	241	143	94	52	31	20				
		Perforated			750	750	750	750	476	305	195	97	52	34	16					
	60	Parabolic	750	750	750	750	750	750	750	750	564	325	215	137	81	52				
		On/Off, V port, Mixing	750	750	750	750	750	750	750	750	611	361	226	141	88	59				
		Diverting					750	750	750	750	611	361	239	145	90	61				
		Perforated			750	750	750	750	750	750	567	315	197	126	76					
	90	Parabolic	750	750	750	750	750	750	750	750	750	544	359	230	140	94				
		On/Off, V port, Mixing	750	750	750	750	750	750	750	750	750	580	371	233	147	100				
		Diverting					750	750	750	750	750	580	383	237	149	102				
		Perforated			750	750	750	750	750	750	750	534	341	218	135					

<sup>(1)</sup> Consult factory for shutoff ratings when using other packing types.

<sup>(2)</sup> Stroke 2 Inch for Valves with 1 1/4 Inch Stem

# REflex Shutoff Tables (continued)

## Max. Permissible Shutoff Pressures with Pneumatic Actuators (psig)

P2 = 0 psig, Spring Opens on Air Failure [Direct acting], Flow-to-Open, Stem Packing PTFE/Graphite <sup>[1]</sup>

	Seat [Inch]		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12	
	Stroke [Inch]	Parabolic	1	1	1	1	1	1	1 1/4	1 1/4	1 1/4	1 3/8	1 3/8	1 3/8 2 <sup>[2]</sup>	2	2 3/8	3	4	4	
	Stroke [Inch]	On/Off, V port, Mixing	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1	1 1/4	1 3/8	1 1/2	2 3/8	3	4	
		Diverting						1/2	1/2	1/2	1/2	1/2	1		1 3/8	1 1/2	2 3/8	3		
		Perforated			1	1	1	1	1 1/4	1 1/4	1 1/4	1 1/2	2	2	2 3/8	3	4	4	4	
		Actuator	Air Supply [PSIG]																	
ST6160.C6-7G Stroke 2 Inch Stem 1/2 Inch Spring-range 10.2 - 43.5 psi Actuator Code: CGB_	30	Parabolic	750	750	629	402	226	145												
		On/Off, V port, Mixing	750	750	750	750	665	426	260	166	106	63	14							
		Diverting					665	426	260	106	106	63	42	9						
		Perforated					226	145												
	60	Parabolic	750	750	750	750	750	750	750	579	371	198	131	84	37	18				
		On/Off, V port, Mixing	750	750	750	750	750	750	750	743	476	282	158	93	54	33				
		Diverting					750	750	750	743	476	282	186	101	59	37				
		Perforated					750	750	750	579	371	178	89	57	25					
	90	Parabolic	750	750	750	750	750	750	750	750	740	417	275	176	96	59				
		On/Off, V port, Mixing	750	750	750	750	750	750	750	750	750	500	303	185	113	74				
		Diverting					750	750	750	750	750	500	330	194	118	78				
		Perforated			750	750	750	750	750	750	740	396	233	149	84					
ST6175.B6-3D Stroke 2 3/8 Inch Stem 1 1/4 Inch Spring-range 10.2 - 30.5 psi Actuator Code: DJB_	30	Parabolic								443	284	126	83							
		On/Off, V port, Mixing								750	491	290	139	71	34	16				
		Diverting								750	491	290	192	89	45	24	9			
		Perforated								443	284	87								
	60	Parabolic								750	750	750	545	297	190	117				
		On/Off, V port, Mixing								750	750	750	600	366	223	148	66			
		Diverting								750	750	750	653	384	235	155	83	42		
		Perforated								750	750	750	464	297	168					
	90	Parabolic								750	750	750	750	593	379	248				
		On/Off, V port, Mixing								750	750	750	750	662	412	279	140			
		Diverting								750	750	750	750	680	424	286	157	89		
		Perforated								750	750	750	750	593	357					

<sup>[1]</sup> Consult factory for shutoff ratings when using other packing types.

<sup>[2]</sup> Stroke 2 Inch for Valves with 1 1/4 Inch Stem

# REflex Shutoff Tables (continued)

## Max. Permissible Shutoff Pressures with Pneumatic Actuators (psig)

P2 = 0 psig, Spring Opens on Air Failure [Direct acting], Flow-to-Open, Stem Packing PTFE/Graphite <sup>[1]</sup>

	Seat [Inch]		1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12		
	Stroke [Inch]	Parabolic	1	1	1	1	1	1	1 1/4	1 1/4	1 1/4	1 3/8	1 3/8	1 3/8 2 <sup>[2]</sup>	2	2 3/8	3	4	4		
		On/Off, V port, Mixing	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1	1 1/4	1 3/8	1 1/2	2 3/8	3	4		
		Diverting						1/2	1/2	1/2	1/2	1/2	1		1 3/8	1 1/2	2 3/8	3			
		Perforated			1	1	1	1	1 1/4	1 1/4	1 1/4	1 1/2	2	2	2 3/8	3	4	4	4		
Actuator	Air Supply [PSIG]																				
ST6175.B6-7D  Stroke 2 Inch Stem 1 1/4 Inch Spring-range 23.2 - 68.2 psi  Actuator Code: DLB_	60	Parabolic									674	431	168	111							
		On/Off, V port, Mixing									750	750	528	229	108	45	14				
		Diverting									750	750	528	349	146	69	32	8			
		Perforated									674	431	73								
	90	Parabolic									750	750	750	573	251	161	77				
		On/Off, V port, Mixing									750	750	750	690	403	235	145	44			
		Diverting									750	750	750	750	442	258	163	82	28		
		Perforated									750	750	750	393	251	112					
ST6175.C6-3D  Stroke 4 Inch Stem 1 1/4 Inch Spring-range 11.6-30.5 psi  Actuator Code: DNB_	30	Parabolic									637	408	219	144	64	41	20				
		On/Off, V port, Mixing									750	520	308	174	102	59	37	11			
		Diverting									750	520	308	203	112	65	41	21	7		
		Perforated									637	408	196	99	64	28					
	60	Parabolic									750	750	750	606	359	230	151	75	42	29	
		On/Off, V port, Mixing									750	750	750	636	398	248	168	85	48	29	
		Diverting									750	750	750	665	407	254	172	95	54	33	
		Perforated									750	750	750	561	359	218	134	66	42	29	
	90	Parabolic									750	750	750	750	655	419	282	149	89	62	
		On/Off, V port, Mixing									750	750	750	750	693	437	299	159	96	62	
		Diverting									750	750	750	750	703	444	304	168	102	66	
		Perforated									750	750	750	750	655	407	265	140	89	62	
ST6175.C6-7D  Stroke 4 Inch Stem 1 1/4 Inch Spring-range 27.6 - 68.2 psi  Actuator Code: DQB_	60	Parabolic									750	674	357	236	86	55	20				
		On/Off, V port, Mixing									750	750	546	296	168	56	11				
		Diverting									750	750	546	360	189	108	67	32	7		
		Perforated									750	674	301	134	86	28					
	90	Parabolic										750	750	750	697	381	244	151	64	28	19
		On/Off, V port, Mixing										750	750	750	750	464	286	188	85	41	19
		Diverting										750	750	750	750	485	297	198	106	54	29
		Perforated										750	750	750	596	381	218	114	44	28	19

<sup>[1]</sup> Consult factory for shutoff ratings when using other packing types.

<sup>[2]</sup> Stroke 2 Inch for Valves with 1 1/4 Inch Stem

# Reflex Balanced Trim

## Actuator and valve series recommendation<sup>1</sup>

ANSI		Series		Electric and pneumatic actuator					
NPS	CL	MV	PV	Spindle packing PTFE-graphite		Pure graphite packing		Soft sealing for leakage class IV	
3	150 – 300	52 / 53	62 / 63	REact030	ST 6160.A6-6G	REact060	ST 6160.A6-6G	REact060	ST 6160.A6-6G
	600 – 900	52 / 53	62 / 63	REact060	ST 6160.A6-6G	REact060	ST 6160.C6-7G <sup>2</sup>	REact060	ST 6160.C6-7G <sup>2</sup>
4	150 – 300	52 / 53	62 / 63	REact030	ST 6160.A6-6G	REact060	ST 6160.A6-6G	REact060	ST 6160.C6-7G-10
	600 – 900	52 / 53	62 / 63	REact060	ST 6160.C6-7G <sup>2</sup>	REact060	ST 6160.C6-7G <sup>2</sup>	REact100	ST 6160.C6-7G <sup>2</sup>
6	150 – 300	53	63	REact060	ST 6160.C6-7G	REact060	ST 6160.C6-7G	REact100	ST 6160.C6-7G
	600 – 900	54	64	REact150	ST 6175.B6-3D	REact150	ST 6175.B6-3D	REact150	ST 6175.B6-5D
8	150 – 300	54	64	REact150	ST 6175.C6-3D	REact150	ST 6175.C6-5D	REact150	ST 6175.C6-5D
	600 – 900	54	64	REact150	ST 6175.C6-5D <sup>2</sup>	REact220	ST 6175.C6-7D	REact220	ST 6175.C6-7D
10	150 – 300	54	64	REact150	ST 6175.C6-5D	REact150	ST 6175.C6-5D	REact150	ST 6175.C6-5D
	600 – 900	54	64	REact220	ST 6175.C6-7D	REact220	ST 6175.C6-7D	REact220	ST 6175.C6-7D
12	150 – 300	54	64	REact150	ST 6175.C6-5D	REact150	ST 6175.C6-5D	REact150	ST 6175.C6-7D
	600	54	64	REact220	ST 6175.C6-7D	REact220	ST 6175.C6-7D	REact300	ST 6175.C6-7D

## Determination of Actuator

The required actuating force  $F_s$  is determined as follows:

$$F_s = F_M + F_R + F_D$$

$F_M$  : Medium force

$$F_M = F_1 - F_2$$

The values for  $F_1$  and  $F_2$  can be found in the diagrams on the next page. The values fit to the valve series recommendations in the upper table. A safety factor of 1.3 is recommended for  $F_M$ .

$F_R$  : Frictional forces

$$F_R = F_{(R,Sp)} + F_{(R,WD)}$$

$F_{(R,Sp)}$  : Spindle friction force

$$F_{(R,Sp)} = \mu H * D_{Sp} * 57,1$$

$\mu H$  can be taken from data sheet 5000-7060.

$F_{(R,WD)}$  : Friction force of the soft seal (leakage class IV)

$$F_{(R,WD)} = 1,3 * D_{Sp} * 57,1$$

$F_D$  : Seal closing force

$$F_D = DN * 57,1$$

Remark:

All forces in lbf and  $D_{Sp}$  in inch.

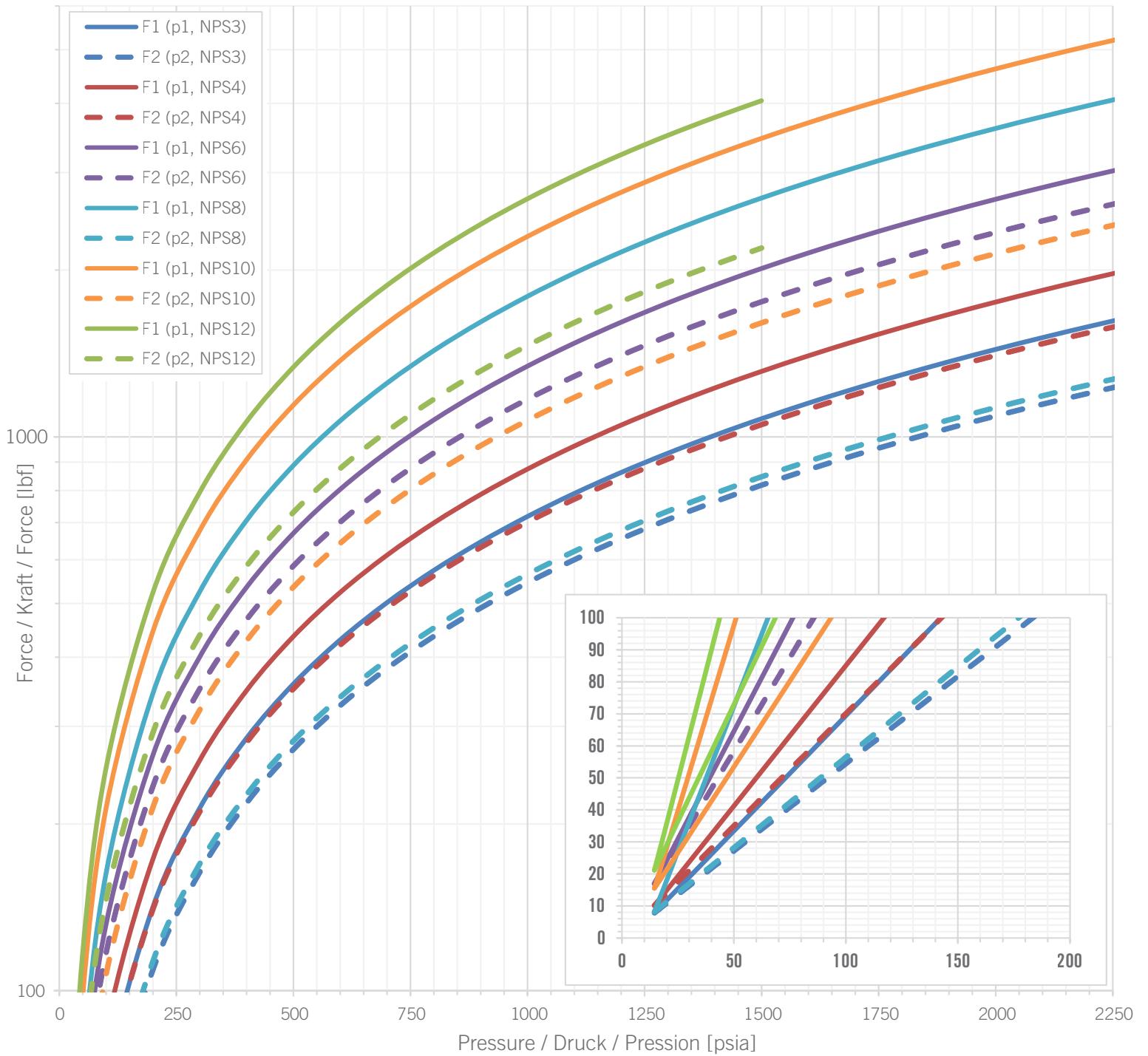
The actuator force  $F_A$  must be higher than  $F_s$ .

1. The recommendations given here fit a wide range of operating data. Deviations may be useful for low pressures or small strokes. A mathematical check is mandatory in this case. For operating data close to the pressure stage limit, for valves of nominal pressure stage CL 900 and for pneumatic actuators, a check should generally be carried out.

2. Actuator prestressed

# Reflex Balanced Trim (continued)

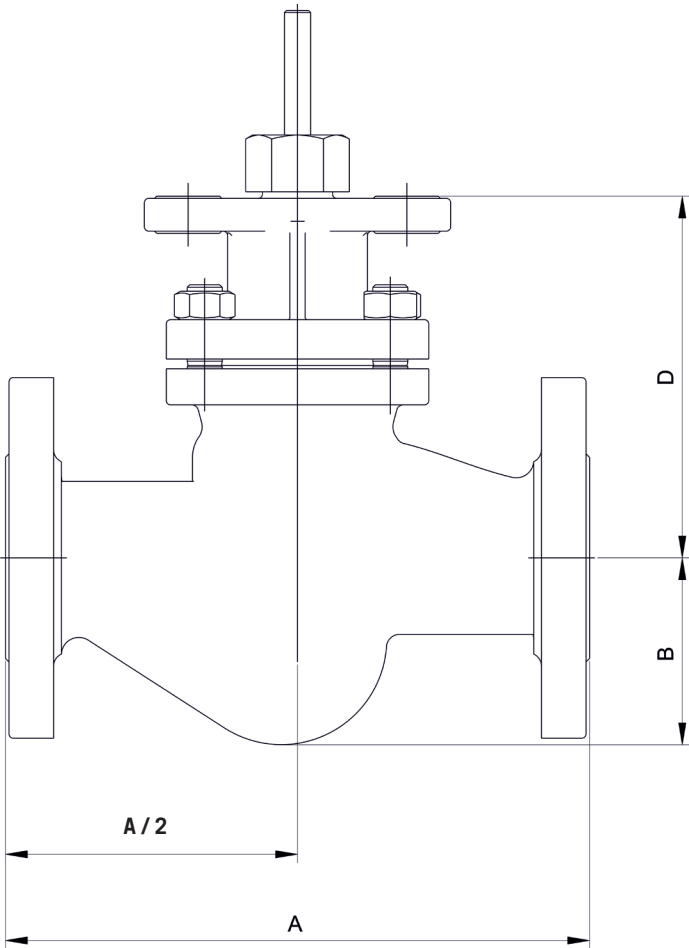
## Diagram to calculate the medium force<sup>1</sup>



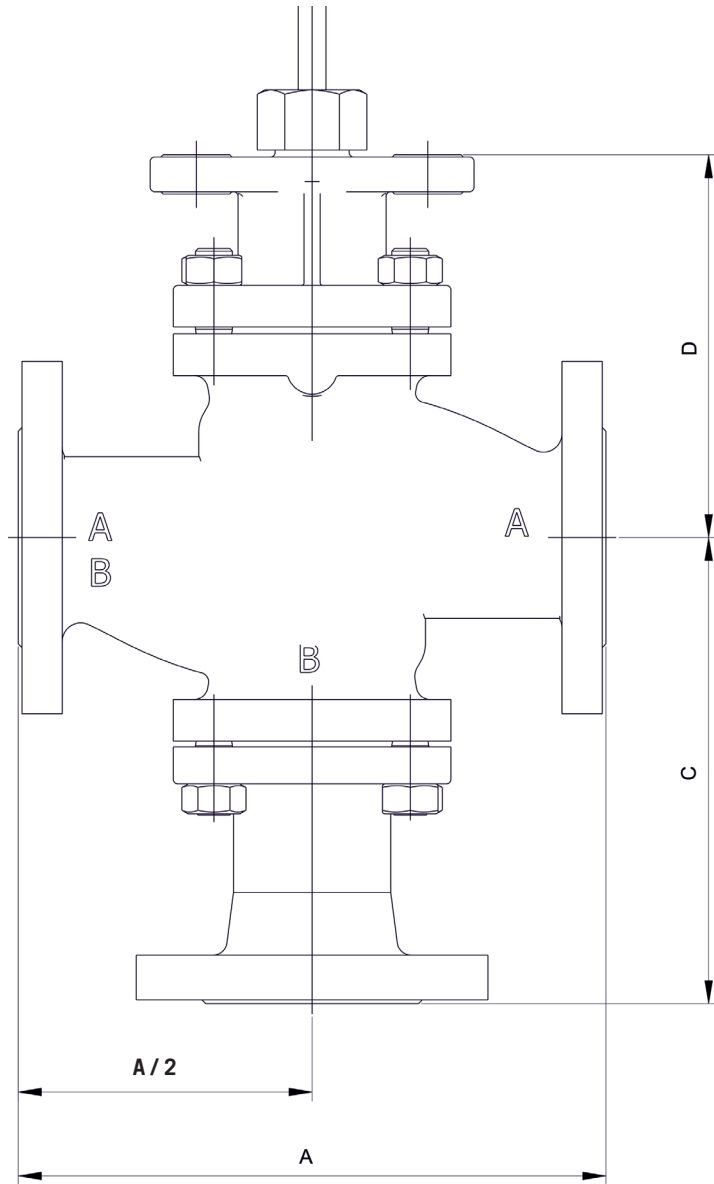
1. The curves show the course of two forces (F1, F2) as a function of the nominal size (NPS) and the inlet (p1) or outlet pressure (p2) of the valve. To calculate the medium force (FM), F2 is subtracted from F1. The curves are based on the valve series recommended in Table 3. Forces for deviating series can be requested from RTK. The calculated medium force always acts against the closing direction!

# REflex Dimensions

## 2-Way Valve



## 3-Way Valve



# REflex Dimensions (continued)

NPS	CL	A								B		C		D			
		RF		RTJ		BWE		THD / SWE		[Inch]	[mm]	[Inch]	[mm]	½" Stem Dia.		1¼" Stem Dia.	
		[Inch]	[mm]	[Inch]	[mm]	[Inch]	[mm]	[Inch]	[mm]					[Inch]	[mm]	[Inch]	[mm]
½	150	7¼	184	-	-	7¾	187	8½	206	1¼	45	-	-	5¾	137	-	-
	300	7½	184	7½	201	7¾	187	8½	206	1⅞	47	-	-	5¾	137	-	-
	600	8	203	8	203	8	203	-	-	1⅞	47	-	-	7¾	194	-	-
	900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
¾	150	7¼	184	-	-	7¾	187	8¼	210	2	50	-	-	5¾	137	-	-
	300	7½	194	8½	207	7¾	187	8¼	210	2¼	57	-	-	5¾	137	-	-
	600	8½	206	8½	206	8½	206	-	-	2¼	57	-	-	7¾	194	-	-
	900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	150	7¼	184	-	-	8¼	210	8¼	210	2½	54	6½	157	5¾	142	-	-
	300	7¼	197	8¼	210	8¼	210	8¼	210	2½	62	6½	164	5¾	142	-	-
	600	8¼	210	8¼	210	8¼	210	-	-	2½	62	-	-	9	227	-	-
	900	11	279	<sup>(1)</sup>	<sup>(1)</sup>	11	279	-	-	3	75	-	-	9	227	-	-
1½	150	8¼	222	-	-	9¾	251	9¾	251	2½	63	7½	190	6¾	169	-	-
	300	9¼	235	9¼	248	9¾	251	9¾	251	3¾	78	7¾	194	6¾	169	-	-
	600	9¾	251	9¾	251	9¾	251	-	-	3	77	-	-	10	254	-	-
	900	13	330	<sup>(1)</sup>	<sup>(1)</sup>	13	330	-	-	3½	90	-	-	10	254	-	-
2	150	10	254	-	-	11¼	286	11¼	286	3	76	7¾	201	6½	165	8½	206
	300	10½	267	11½	283	11¼	286	11¼	286	3¼	82	8¼	208	6½	165	8½	206
	600	11¼	286	11½	289	11¼	286	-	-	3¾	92	-	-	11	278	10½	267
	900	14¾	375	<sup>(1)</sup>	<sup>(1)</sup>	14¾	375	-	-	4¼	107	-	-	11	278	10½	267
2½	150	10¾	276	-	-	12¼	311	-	-	3½	89	8¼	222	6¾	171	8¼	211
	300	11½	292	12½	308	12¼	311	-	-	3¼	95	9	230	6¾	171	8¼	211
	600	12¼	311	12¾	314	12¼	311	-	-	3¾	93	-	-	12¼	310	11½	296
	900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	150	11¼	298	-	-	13¼	337	-	-	3¼	95	8½	207	7¾	198	8¼	222
	300	12½	318	13¾	333	13¼	337	-	-	4¾	105	8½	216	7¾	198	8¼	222
	600	13¼	337	13¾	340	13¼	337	-	-	4¾	124	-	-	13¾	334	12¾	319
	900	18½	460	<sup>(1)</sup>	<sup>(1)</sup>	18½	460	-	-	5	127	-	-	13¾	334	12¾	319
4	150	13¾	353	-	-	15½	394	-	-	4½	114	10¾	258	8¾	224	9½	242
	300	14½	368	15½	384	15½	394	-	-	5	127	10½	266	8¾	224	9½	242
	600	15½	394	15¾	397	15½	394	-	-	5¾	137	-	-	15¾	384	14¾	365
	900	20¾	530	<sup>(1)</sup>	<sup>(1)</sup>	20¾	530	-	-	5¼	145	-	-	15¾	384	14¾	365
6	150	17¾	451	-	-	20	508	-	-	5½	140	12¾	308	12½	316	12¾	328
	300	18¾	473	19¼	489	20	508	-	-	6¼	159	12½	319	12½	316	12¾	328
	600	20	508	20¾	511	20	508	-	-	6¼	160	-	-	16¾	415	16¾	426
8	150	21¾	543	-	-	24	610	-	-	8	200	14¾	374	-	-	17	431
	300	22¾	568	23	584	24	610	-	-	8	200	15¼	386	-	-	17	431
	600	24	610	24¾	612	24	610	-	-	8½	216	-	-	-	-	19¾	498
10	150	26½	673	-	-	29¾	752	-	-	10	252	17¾	446	-	-	20¾	530
	300	27¾	708	28½	724	29¾	752	-	-	10	252	18¾	459	-	-	20¾	530
	600	29¾	752	29¾	754	29¾	752	-	-	10¾	277	-	-	-	-	27½	698
12	150	29	737	-	-	32¼	819	-	-	13¼	335	22¾	562	-	-	26	660
	300	30½	775	31¾	791	32¼	819	-	-	13¼	335	22¾	562	-	-	26	660
	600	32¼	819	32½	824	32¼	819	-	-	13¼	335	-	-	-	-	26	660

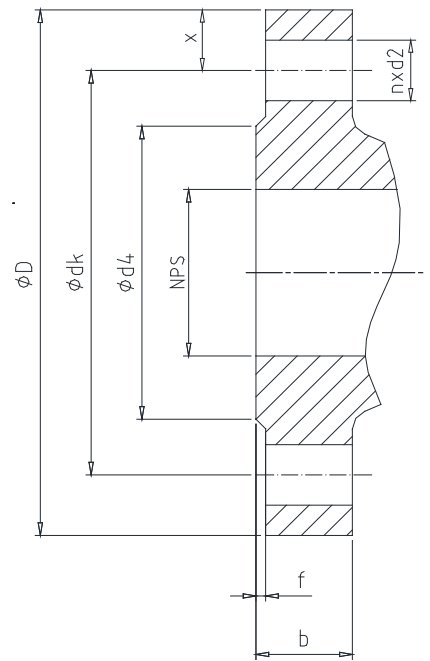
<sup>(1)</sup> Consult factory for RTJ dimensions of CL 900 valves



# REflex Dimensions (continued)

Flanged Ends with Raised Face acc. to ASME B16.5

NPS	CL	D		b		f		dk		D4		D2		n	THD <sup>(1)</sup>	x	
		Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm				
1/2	150	3 1/2	89	3/8	11	1/8	1,6	2 3/8	60	1 3/8	35	3/8	16	4	1/2	3/8	14,5
	300	3 3/4	95	1/2	14	1/8	1,6	2 5/8	67	1 3/8	35	3/8	16	4	1/2	1/2	14
	600	3 3/4	95	3/8	21	1/4	6,4	2 5/8	67	1 3/8	35	3/8	16	4	1/2	1/2	14
3/4	150	3 3/8	98	1/2	13	1/8	1,6	2 3/4	70	1 3/4	43	3/8	16	4	1/2	1/2	14
	300	4 1/2	115	3/8	16	1/8	1,6	3 1/4	83	1 3/4	43	3/4	19	4	3/8	3/8	17
	600	4 1/2	115	3/8	23	1/4	6,4	3 1/4	83	1 3/4	43	3/4	19	4	3/8	3/8	17
1	150	4 1/4	108	1/2	14	1/8	1,6	3 1/8	79	2	51	3/8	16	4	1/2	3/8	14,5
	300	4 5/8	124	3/4	18	1/8	1,6	3 1/2	89	2	51	3/4	19	4	3/8	3/4	17,5
	600	4 5/8	124	1	24	1/4	6,4	3 1/2	89	2	51	3/4	19	4	3/8	3/4	17,5
	900	5 5/8	149	1 3/8	35	1/4	6,4	4	102	2	51	1	25	4	3/8	3/8	23,5
1 1/2	150	5	127	3/4	18	1/8	1,6	3 3/8	98	2 1/8	73	3/8	16	4	1/2	3/8	14,5
	300	6 1/8	156	3/8	21	1/8	1,6	4 1/2	114	2 1/8	73	3/8	22	4	3/4	3/8	21
	600	6 1/2	165	1 1/4	32	1/4	6,4	5	127	3 3/8	92	3/4	19	8	3/8	3/4	19
	900	8 1/2	216	1 3/4	45	1/4	6,4	6 1/2	165	3 3/8	92	1	25	8	3/8	1	25,5
2	150	6	152	3/4	19	1/8	1,6	4 3/4	121	3 3/8	92	3/4	19	4	3/8	3/8	15,5
	300	6 1/2	165	3/8	22	1/8	1,6	5	127	3 3/8	92	3/4	19	8	3/8	3/4	19
	600	6 1/2	165	1 1/4	32	1/4	6,4	5	127	3 3/8	92	3/4	19	8	3/8	3/4	19
	900	8 1/2	216	1 3/4	45	1/4	6,4	6 1/2	165	3 3/8	92	1	25	8	3/8	1	25,5
2 1/2	150	7	178	3/8	22	1/8	1,6	5 1/2	140	4 1/8	105	3/4	19	4	3/8	3/4	19
	300	7 1/2	190	1	25	1/8	1,6	5 3/8	149	4 1/8	105	3/8	22	8	3/4	3/4	20,5
	600	7 1/2	190	1 3/8	35	1/4	6,4	5 3/8	149	4 1/8	105	3/8	22	8	3/4	3/4	20,5
3	150	7 1/2	190	1	24	1/8	1,6	6	152	5	127	3/4	19	4	3/8	3/4	19
	300	8 1/4	210	1 1/8	29	1/8	1,6	6 3/8	168	5	127	3/8	22	8	3/4	3/8	21
	600	8 1/4	210	1 1/2	38	1/4	6,4	6 3/8	168	5	127	3/8	22	8	3/4	3/8	21
	900	10 1/2	267	1 3/4	45	1/4	6,4	8	203	5	127	1 1/4	32	8	3/8	1 1/4	32
4	150	9	229	3/8	23	1/8	1,6	7 1/2	190	6 1/4	158	3/4	19	8	3/8	3/4	19,5
	300	10	254	1 1/4	32	1/8	1,6	7 3/8	200	6 1/4	158	3/8	22	8	3/4	1 1/8	27
	600	10 3/4	273	1 3/4	45	1/4	6,4	8 1/2	216	6 1/4	158	1	25	8	3/8	1 1/8	28,5
	900	11 1/2	292	2	51	1/4	6,4	9 1/4	235	6 1/4	158	1 1/4	32	8	1 1/8	1 1/8	28,5
6	150	11	280	1	25	1/8	1,6	9 1/2	241	8 1/2	216	3/8	22	8	3/4	3/4	19,5
	300	12 1/2	318	1 3/8	36	1/8	1,6	10 3/8	270	8 1/2	216	3/8	22	12	3/4	1	24
	600	14	355	2 1/8	54	1/4	6,4	11 1/2	292	8 1/2	216	1 1/8	28	12	1	1 1/4	31,5
	900	15	381	2 1/2	62	1/4	6,4	12 1/2	318	8 1/2	216	1 1/4	32	12	1 1/8	1 1/4	31,5
8	150	13 1/2	343	1 1/8	28	1/8	1,6	11 3/4	299	10 3/8	270	3/8	22	8	3/4	3/8	22
	300	15	381	1 3/8	41	1/8	1,6	13	330	10 3/8	270	1	25	12	3/8	1	25,5
	600	16 1/2	419	2 1/2	62	1/4	6,4	13 3/8	351	10 3/8	270	1 1/4	32	12	1 1/8	1 3/8	34
10	150	16	406	1 1/8	30	1/8	1,6	14 1/4	362	12 3/4	324	1	25	12	3/8	3/8	22
	300	17 1/2	445	1 3/8	48	1/8	1,6	15 1/4	387	12 3/4	324	1 1/8	28	16	1	1 1/8	29
	600	20	508	2 3/4	70	1/4	6,4	17	432	12 3/4	324	1 3/8	34	16	1 1/4	1 1/2	38
12	150	19	483	1 1/4	32	1/8	1,6	17	432	15	381	1	25	12	3/8	1	25,5
	300	20 1/2	521	2	51	1/8	1,6	17 3/4	450	15	381	1 1/4	32	16	1 1/8	1 3/8	35,5
	600	22	559	2 1/8	73	1/4	6,4	19 1/4	489	15	381	1 3/8	34	20	1 1/4	1 3/8	35

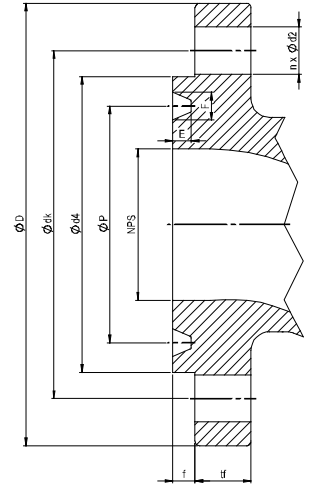


<sup>(1)</sup> Bolt thread

# REflex Dimensions (continued)

## Flanged Ends with Ring Type Joint acc. to ASME B16.5

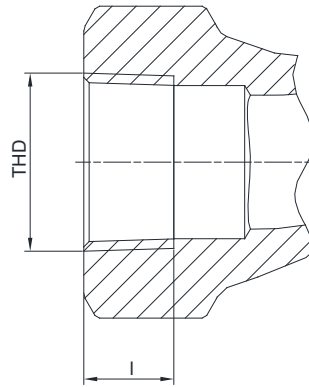
NPS	CL	D		dk		d4		P		f		tf		d2		n	THD <sup>(1)</sup>	E		F		Groove no
		Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm			Inch	mm			
¼	300	3 ¾	95	2 ¾	67	2	51	1 ¾	34,1	¼	7,5	½	12,7	¾	15,7	4	½	¼	5,54	¼	7,14	R11
	600	4 ½	115	3 ¾	83	2 ½	63,5	1 ¾	42,9	¾	7	¾	14,5	¾	19	4	¾	¼	6,35	¾	8,74	R13
¾	300	4 ½	115	3 ¾	83	2 ½	63,5	1 ¾	42,9	¾	8	¾	14,3	¾	19	4	¾	¼	6,35	¾	8,74	R13
	600	5 ½	140	4 ¾	118	3 ½	89	2 ½	63,5	¾	7	¾	17,5	¾	19	4	¾	¼	6,35	¾	8,74	R16
1	300	4 ½	115	3 ¾	83	2 ½	63,5	1 ¾	42,9	¾	8	¾	16	¾	19	4	¾	¼	6,35	¾	8,74	R16
	600	5 ½	140	4 ¾	118	3 ½	89	2 ½	63,5	¾	7	¾	17,5	¾	19	4	¾	¼	6,35	¾	8,74	R20
1½	300	6 ½	156	4 ½	114	3 ¾	90,5	2 ¾	68,3	¾	8	¾	19,1	¾	22,3	4	¾	¼	6,35	¾	8,74	R20
	600	7 ½	190	5 ½	149	4 ¾	127	3 ¾	90,5	¾	7	¾	22,3	¾	22,3	4	¾	¼	6,35	¾	8,74	R23
2	300	6 ½	165	5	127	4 ¾	108	3 ¾	82,6	¾	9,6	¾	20,7	¾	19	8	¾	¼	7,92	½	11,91	R23
	600	7 ½	190	5 ½	149	5	127	4	101,6	¾	8,5	1	25,4	¾	20,3	8	¾	¼	7,92	½	11,91	R26
2½	300	7 ½	190	5 ½	149	5	127	4	101,6	¾	9,6	1	24	¾	20,3	8	¾	¼	7,92	½	11,91	R26
	600	8 ½	210	6 ½	168	5 ¾	146	4 ¾	123,8	¾	8	1 ½	28,6	¾	20,3	8	¾	¼	7,92	½	11,91	R30
3	300	8 ½	210	6 ½	168	5 ¾	146	4 ¾	123,8	¾	9	1 ½	27	¾	22,3	8	¾	¼	7,92	½	11,91	R30
	600	9 ½	240	7 ½	191	6 ¾	175	5 ¾	149,2	¾	8,5	1 ¼	31,8	¾	22,3	8	¾	¼	7,92	½	11,91	R37
4	300	10	254	7 ¾	200	6 ¾	175	5 ¾	149,2	¾	9,6	1 ¼	30,2	¾	22,3	8	¾	¼	7,92	½	11,91	R37
	600	10 ¾	275	8 ¾	216	7 ¾	191	6 ¾	175	¾	8,5	1 ½	38,1	¾	25,5	8	¾	¼	7,92	½	11,91	R45
6	300	12 ½	318	10 ¾	270	9 ¾	241	8 ¾	211,1	¾	9,6	1 ¾	35	¾	22,3	12	¾	¼	7,92	½	11,91	R45
	600	14	355	11 ¾	292	11 ¾	302	10 ¾	269,9	¾	8,5	1 ¾	48	¾	28,5	8	1	¼	7,92	½	11,91	R49
8	300	15	380	13	330	11 ¾	302	10 ¾	269,9	¾	10	1 ¾	40	¾	25,5	12	¾	¼	7,92	½	11,91	R49
	600	16 ½	420	13 ¾	351	12 ¾	330	11 ¾	292	¾	8	2 ¼	56	¾	32	12	1 ¼	¼	7,92	½	11,91	R53
10	300	17 ½	445	15 ¾	387	14	356	12 ¾	323,9	¾	10	1 ¾	46,5	¾	28,5	16	1	¼	7,92	½	11,91	R53
	600	20 ½	510	17	432	16 ¾	413	15	381	¾	8	2 ½	63,5	¾	35	16	1 ¼	¼	7,92	½	11,91	R57
12	300	20 ½	520	17 ¾	451	16 ¾	413	15	381	¾	10	2	50	¾	32	16	1 ¼	¼	7,92	½	11,91	R57
	600	22	560	19 ¼	489	18 ¾	457	16 ¾	381	¾	8	2 ¾	66,7	¾	35	20	1 ¼	¼	7,92	½	11,91	R57



<sup>(1)</sup> Bolt thread

## Threaded Ends acc. to ASME B16.11

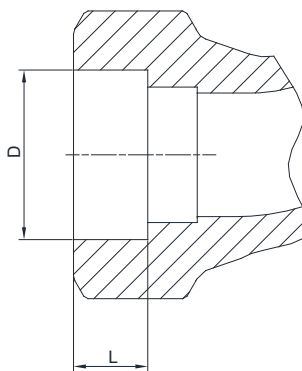
NPS	CL	THD	l	
			Inch	mm
½	150 – 600	½" – 14 NPT	½	13,6
¾	150 – 600	¾" – 14 NPT	½	14
1	150 – 600	1" – 11 ½ NPT	¾	17,3
1½	150 – 600	1 ½" – 11 ½ NPT	¾	18,4
2	150 – 600	2" – 11 ½ NPT	¾	19,2



# REflex Dimensions (continued)

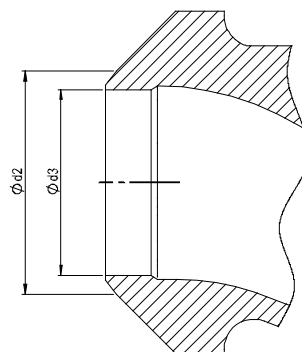
**Socketed Weld Ends acc. to ASME B16.11**

NPS	CL	D		L	
		Inch	mm	Inch	mm
½	150 – 600	7/8	22,2	3/8	10
¾	150 – 600	1 1/8	27,6	5/8	15
1	150 – 600	1 3/8	34,3	5/8	15
1½	150 – 600	1 7/8	49,2	5/8	16
2	150 – 600	2 3/8	61,7	5/8	16



**Butt Weld Ends acc. to ASME B16.25**

NPS	CL	d2		d3		Pipe Schedule acc. to ASME B36.10M
		Inch	mm	Inch	mm	
½	150 – 300	7/8	22	5/8	15,8	40
	600			1/2	13,8	80
¾	150 – 300	1 1/8	27,5	7/8	21	40
	600			3/4	18,9	80
1	150 – 300	1 3/8	34,5	1	26,6	40
	600			1	24,3	80
1½	150 – 300	2	50	1 1/8	40,9	40
	600			1 1/2	38,2	80
2	150 – 300	2 1/2	62	2 1/8	52,5	40
	600			1 7/8	49,2	80
2½	150 – 300	3	75	2 1/2	62,5	40
	600			2 3/4	59	80
3	150 – 300	3 5/8	91	3 1/4	78	40
	600			2 7/8	73,5	80
4	150 – 300	4 5/8	117	4	102	40
	600			3 3/4	97	80
6	150 – 300	6 3/4	172	6 1/4	154	40
	600			5 3/4	146,5	80
8	150 – 300	8 3/4	223	8 1/4	206,5	40
	600			7 3/4	193,5	80
10	150 – 300	11	278	10	254,5	40
	600			9 3/4	243	80
12	150 – 300	13	329	11 3/4	303	40
	600			11 1/2	289	80

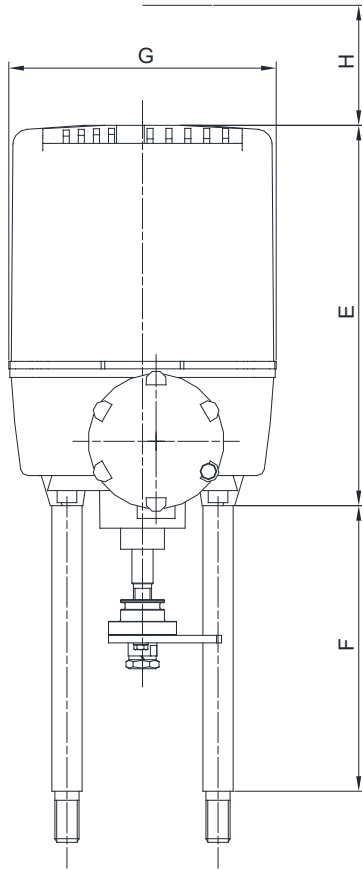


# REflex Weights

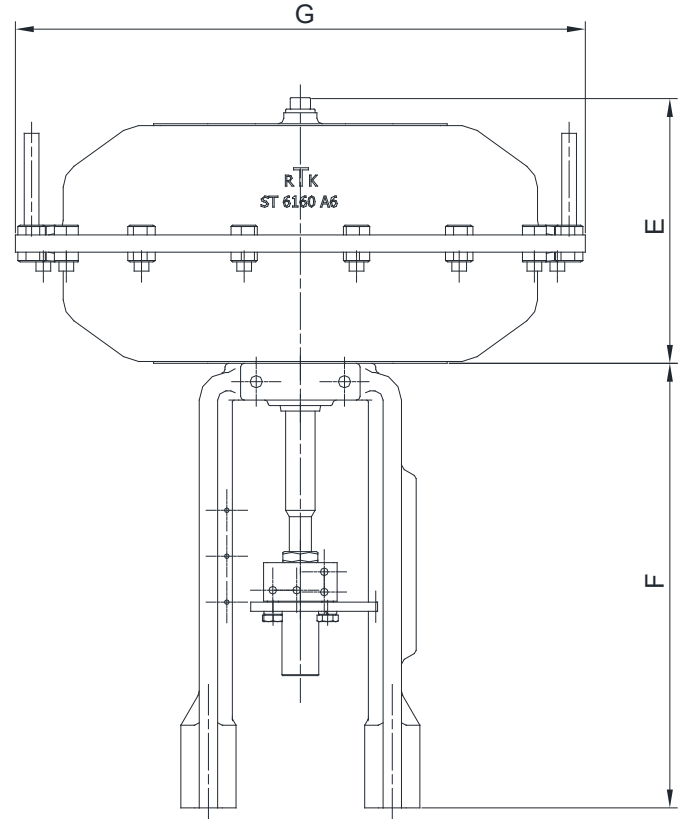
NPS	CL	2-Way Valve								3-Way Valve			
		RF / RTJ				BWE / SWE / THR				RF / RTJ			
		½" Stem Dia.		1¼" Stem Dia.		½" Stem Dia.		1¼" Stem Dia.		½" Stem Dia.		1¼" Stem Dia.	
		[lbs]	[kg]	[lbs]	[kg]	[lbs]	[kg]	[lbs]	[kg]	[lbs]	[kg]	[lbs]	[kg]
½	150	11	5	-	-	10	5	-	-	-	-	-	-
	300	11	5	-	-	10	5	-	-	-	-	-	-
	600	22	10	-	-	21	10	-	-	-	-	-	-
	900	-	-	-	-	-	-	-	-	-	-	-	-
¾	150	13	6	-	-	11	5	-	-	-	-	-	-
	300	13	6	-	-	11	5	-	-	-	-	-	-
	600	24	11	-	-	22	10	-	-	-	-	-	-
	900	-	-	-	-	-	-	-	-	-	-	-	-
1	150	17	8	-	-	14	7	-	-	24	11	-	-
	300	22	10	-	-	19	9	-	-	31	15	-	-
	600	35	16	-	-	32	15	-	-	-	-	-	-
	900	40	19	-	-	37	17	-	-	-	-	-	-
1½	150	29	14	34	16	24	11	29	14	40	19	-	-
	300	35	16	39	18	30	14	34	16	51	24	-	-
	600	55	25	79	36	50	23	74	34	-	-	-	-
	900	60	28	104	48	55	25	99	45	-	-	-	-
2	150	33	15	44	20	28	13	39	18	46	21	-	-
	300	38	18	49	23	33	15	44	20	60	28	-	-
	600	88	40	104	48	83	38	99	45	-	-	-	-
	900	108	49	132	60	103	47	127	58	-	-	-	-
2½	150	46	21	49	23	39	18	42	20	64	30	-	-
	300	55	25	53	25	48	22	46	21	82	38	-	-
	600	125	57	86	40	118	54	79	36	-	-	-	-
	900	-	-	-	-	-	-	-	-	-	-	-	-
3	150	64	30	86	40	55	25	77	35	99	45	102	47
	300	73	34	97	44	64	30	88	40	135	62	112	51
	600	150	69	176	80	141	64	167	76	-	-	-	-
	900	170	78	231	105	161	74	222	101	-	-	-	-
4	150	88	40	123	56	74	34	109	50	143	65	163	74
	300	106	49	141	64	92	42	127	58	161	74	180	82
	600	205	93	242	110	191	87	228	104	-	-	-	-
	900	256	117	302	137	242	110	288	131	-	-	-	-
6	150	181	83	231	105	159	73	209	95	271	123	297	135
	300	203	93	254	116	181	83	232	106	293	133	319	145
	600	418	190	305	139	396	180	283	129	-	-	-	-
	900	522	237	406	185	500	227	384	175	-	-	-	-
8	150	-	-	357	162	-	-	294	134	-	-	487	221
	300	-	-	397	181	-	-	334	152	-	-	537	244
	600	-	-	857	389	-	-	794	361	-	-	-	-
	900	-	-	-	-	-	-	-	-	-	-	-	-
10	150	-	-	569	259	-	-	564	256	-	-	717	326
	300	-	-	646	293	-	-	641	291	-	-	807	366
	600	-	-	1411	640	-	-	1406	638	-	-	-	-
	900	-	-	-	-	-	-	-	-	-	-	-	-
12	150	-	-	754	342	-	-	749	340	-	-	907	412
	300	-	-	853	387	-	-	848	385	-	-	1007	457
	600	-	-	1841	835	-	-	1836	833	-	-	-	-
	900	-	-	-	-	-	-	-	-	-	-	-	-

# Actuator Dimensions and Weights

## Electric Actuator



## Pneumatic Actuator



Actuator	E		F		G		H		Weight	
	[Inch]	[mm]	[Inch]	[mm]	[Inch]	[mm]	[Inch]	[mm]	[lbs]	[kg]
REact 15	7 ¼	184	7 ⅞	180	7 ⅞	186	5 ⅞	130	9	4.2
REact 30	9 ⅞	233	7 ½	190	10 ⅞	262	4 ¾	120	10	4.5
REact 60	9 ⅞	233	11 ⅞	295	10 ⅞	262	4 ¾	120	15	6.7
REact 100	9 ⅞	233	11 ⅞	295	10 ⅞	262	4 ¾	120	15	6.7
REact 150	12 ⅞	307	20 ⅞	525	10 ¼	274	7 ⅞	200	62	28
REact 220	12 ⅞	307	20 ⅞	525	10 ¼	274	7 ⅞	200	75	34
REact 300	12 ⅞	307	20 ⅞	525	10 ¼	274	7 ⅞	200	75	34
ST 6135.B6	5 ⅞	136	8 ¼	211	8 ¼	210	-	-	16.5	7.5
ST 6160.A6	6 ½	166	8 ¼	211	12 ¼	310	-	-	33	15
ST 6160.C6	7 ⅞	186	9 ⅞	231	12 ¼	310	-	-	36.5	16.5
ST 6175.B6	9 ¼	234	11 ¼	285	16 ⅞	430	-	-	105.5	48
ST 6175.C6	14 ¾	374	12 ⅞	320	16 ⅞	430	-	-	147.5	67

Note: For actuators with standard pillars and yokes (Pillars and yokes same length)  
 For length of pillars for valves with bellows seal, fail safe unit, for refrigeration and CL 600 and 900, please contact factory or authorized CIRCOR representative.

# REflex Order Code

Model	Position 1	Plug Type	Position 9
R REflex		A On/Off	
Standard	Position 2	B On/Off soft sealing	
A ANSI		C V-port (LIN)	
Body Style	Position 3	1 V-port (EQ%)	
A 2-Way		D V-port soft sealing (LIN)	
B 3-Way		2 V-port soft sealing (EQ%)	
D Feedwater recirculation		3 V-port hardened (LIN)	
E Bottom blow down		4 V-port hardened (EQ%)	
F Continous blow down		E Parabolic (LIN)	
G Steam converting		F Parabolic (EQ%)	
S Other		G Parabolic soft sealing (LIN)	
Valve Size	Position 4	H Parabolic soft sealing (EQ%)	
C NPS ½		J Parabolic hardened (LIN)	
D NPS ¾		K Parabolic hardened (EQ%)	
E NPS 1		L Perforated (LIN)	
G NPS 1½		M Perforated (EQ%)	
H NPS 2		N Perforated soft sealing (LIN)	
J NPS 2½		P Perforated soft sealing (EQ%)	
K NPS 3		Q Perforated hardened (LIN)	
L NPS 4		R Perforated hardened (EQ%)	
N NPS 6		T Ferro-Titanium (LIN)	
P NPS 8		U Ferro-Titanium (EQ%)	
Q NPS 10		6 Balanced Trim 1stage (LIN)	
R NPS 12		7 Balanced Trim 1stage (EQ%)	
Valve Rating	Position 5	8 Balanced Trim 2stage (LIN)	
1 CL 150		9 Balanced Trim 2stage (EQ%)	
3 CL 300		V Mixing (LIN/LIN)	
6 CL 600		W Diverting (LIN/LIN)	
9 CL 900		S Other	
Body Material	Position 6	Seat Type	Position 10
A SA 216 WCB		A Standard (metallic)	
B SA 351 CF8M		B Stellited	
C SA 217 WC6		C QCS 1-Stage	
D SA 217 WC9		D QCS 1-Stage, hardened Seat	
S Other		E QCS 2-Stage	
		F QCS 2-Stage, hardened Seat	
		S Other	
End Connection	Position 7	Seat Size	Position 11
A Flanges (RF)		A 1/8"	
B Ring Type Joint Flanges (RTJ)		B 1/4"	
C Butt Weld Ends (BWE)		C 3/8"	
D Threaded Ends (THD)		D 1/2"	
E Socket Weld Ends (SWE)		E 3/4"	
S Other		F 1"	
Packing	Position 8	G 1 1/4"	
A PTFE/Graphite		H 1 1/2"	
B PTFE white		J 2"	
C Chloroprene		K 2 1/2"	
D Pure Graphite		L 3"	
E Bellow seal		M 4"	
		N 5"	
		P 6"	
		Q 8"	
		R 10"	
		T 12"	

## REflex Code Selection Example



Actuator Type	Position 12	Actuator Working Direction / Position 14 Actuating Speed	
A ST 6115		A AFC Reverse	
B ST 6135		B AFO Direct	
C ST 6160		C AFC Reverse (w/Handwheel)	
D ST 6175		D AFO Direct (w/Handwheel)	
E REact 30 (ST 5112)		E LLP	
1 React 30 PoP		F 0.47*/min REact 30/60/100	
F REact 60 (ST 5113)		G 0.71*/min REact 15/30/60/100/ST5106	
2 REact 60 PoP		H 0.90*/min REact 15	
G REact 100 (ST 5114)		J 1.06*/min REact 30/60/100	
3 React 100 PoP		K 1.35*/min REact 15	
4 React L		L 1.75*/min REact 30	
H ST 5106		M 2.01*/min REact 30	
J ST 5116		N 2.13*/min REact 60/100/ST5106	
K REact 15 E		P 2.65*/min REact 15/30	
N Manual		Q 4.02*/min REact 60	
S Other		R 4.25*/min ST 5106	
U None (stem 1/2", max. 2250 lbf)		*Not available for 115V	
V None (stem 1/4", max. 13000 lbf)		S Other	
W None (stem 2 3/8", max. 18000 lbf)		X None	
Actuator Spring/ Voltage	Position 13	Actuator Accessories	Position 15
A 13-30 PSIG (A6-3S)		A PS2	
B 12-35 PSIG (C6-4S)		B PS2 w/ Feedback Module	
C 3-15 PSIG (B6-2G)		C PS2 HART	
D 12-44 PSIG (B6-6G)		D PS2 Profibus	
E 12-40 PSIG (A6-6G)		E Foxboro SRP 981 MM	
F 4-20 PSIG (C6-3G)		F PS2 + airfilter	
G 10-45 PSIG (C6-7G)		G PS2 with Feedback Module + airfilter	
H 4-13 PSIG (B6-2S)		H PS2 HART + airfilter	
J 10-30 PSIG (B6-3D)		J PS2 Profibus + airfilter	
K 17-20 PSIG (B6-5D)		K Foxboro SRP 981 MM + airfilter	
L 23-70 PSIG (B6-7D)		L EEx PS2	
M 7-20 PSIG (C6-3S)		M EEx PS2 with Feedback Module	
N 12-30 PSIG (C6-3D)		N EEx PS2 HART	
P 20-50 PSIG (C6-5D)		P EEx PS2 Profibus	
Q 28-70 PSIG (C6-7D)		Q EEx PS2 + airfilter	
R 24 V DC		R EEx PS2 with Feedback Module + airfilter	
T 24 VAC 1-ph		T EEx PS2 HART + airfilter	
U 115 V AC 1-ph		U EEx PS2 Profibus + airfilter	
V 230 V AC 1-ph		1 Feedback poti 1 kOhm	
W 400 V AC 3-ph		2 OUT 4-20mA (REtrans)	
S Other		3 IN/OUT 4-20mA (REpos)	
X None		4 Fail Safe Unit	
		5 Fail Safe Unit & IN/OUT 4-20mA	
		S Other	
		X None	

PNEUMATIC

ELECTRIC

