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

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

CIRCOR | RTK®

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 – 4

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 (Standard)	-76°F to 482°F (-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)

Plug Types & 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)

Trim Types:

Screwed Seat Ring (Standard)
(CL 150 – 300)
Welded Seat Ring (Standard)
(CL 600 – 900)

Optional:

- Quick Change Seat (QCS) 1-Stage (CL 150 – 600)
- Quick Change Seat (QCS) 2-Stage (CL 150 – 600)

Trim Materials:

Plug 1.4122 (Martensitic)

Stem and Seat AISI 316 Ti

QCS Retainer ASTM A487 CA6NM (iron-chromium-nickel-molybdenum alloy)

Optional:

- Plug made of AISI 316 Ti
- Parabolic Plug stellited or hardened
- Perforated Plug hardened
- Seat ring stellited* or hardened
  *not in combination with QCS

Shutoff Class (ANSI/FCI 70-2)

Leakage Class IV, metal seat (Standard)
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)

Electric Actuators:

REact 15 (1.5 kN)	force max. 337 lbs stroke max. 1⅜" stem ½"
REact 30 (3 kN)	force max. 675 lbs stroke max. 1½" stem ½"
REact 60 (6 kN)	force max. 1350 lbs stroke max. 2⅜" stem ½"
REact 100 (10 kN)	force max. 2250 lbs stroke max. 3" stem ½"
REact 150 (15 kN)	force max. 3370 lbs stroke max. 4" stem 1¼"
REact 220 (22 kN)	force max. 4946 lbs stroke max. 4" stem 1¼"
REact 300 (30 kN)	force max. 6744 lbs 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 (43 Inch²)	force max. 495 lbs max. stroke 1⅜" stem ½"
ST 6160.A6 (82 Inch²)	force max. 900 lbs stroke max. 1½" stem ½"
ST 6160.C6 (82 Inch²)	force max. 720 lbs stroke max. 2⅜" stem ½"
ST 6175.B6 (155 Inch²)	force max. 3600 lbs stroke max. 2⅜" stem 1¼"
ST 6175.C6 (155 Inch²)	force max. 4270 lbs 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

CIRCOR | RTK®

REflex Trim Designs

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

2-Way Valves

On/Off

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

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

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

Parabolic

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

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

Perforated

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

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) 1-Stage

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

This trim offers an easy tool-free seat exchange and can be combined with all on/off, parabolic, perforated and V-port plugs.

Quick Change Seat (QCS) 2-Stage

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

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

3-Way Valves

Mixing

Characteristic: Linear
Flow direction: A + B > AB
Rangeability: 30:1 (max 50:1)

Diverting

Characteristic: Linear
Flow direction: AB > A + B
Rangeability: 30:1

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

REflex Flow Directions

Flow to Open

Normal flow direction for parabolic plugs

Flow to Close

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

Mixing

Diverting

CIRCOR | RTK®

REflex Flow Characteristics

Equal percentage

REflex
Theory

Linear

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

CIRCOR | RTK®

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	
7	Seat Ring	Stainless Steel	1.4571	(AISI 316Ti)
8	Plug Head	Stainless Steel	1.4122	
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 Cv Values

Cv Values for Parabolic Plug

ANSI	Seat [Inch]																					
NPS	⅛	⅛	⅛	¼	¼	⅜	⅜	½	¾	1	1¼	1½	2	2½	3	4	5	6	8	10	10	12
½	0,01	0,02	0,05	1,2	2,0	2,4	3,1	3,8														
	0,12	0,29	0,58																			
¾	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																			
1½	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									
2½						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										1¼			1⅜			2	2⅜	3		4	

Cv Values for V-Port Plug [gpm]

ANSI	Seat [Inch]												
NPS	¾	1	1¼	1½	2	2½	3	4	5	6	8	10	12
¾	7,0												
1	8,7	10,7											
1½	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						147	208	271	339	386			
8							225	325	425	487	687		
10								350	508	611	866	1074	
12										655	943	1306	1546
Stroke[1] [Inch]	-	1	1⅛			1⅜		1⅝	2	2⅜	3⅛	-	-
Stroke[2] [Inch]	½						1	1¼	1⅜	1½	2⅜	3	4

1. Stroke for equal percentage 2. Stroke for linear

Cv Values for Perforated Plug [gpm]

ANSI	Seat [Inch]																					
NPS	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	7	7	8	8	9	9	10	10	12
½	1,9	3,0																				
¾	2,0	3,1	5,3																			
1	2,0	3,1	5,6	8,4																		
1½	2,0	3,1	5,6	8,8	14	22																
2	2,0	3,1	5,6	8,8	14	22	34															
2½			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	1223
Stroke [Inch]	1				1¼			1½	2			2⅜	3		4	3	4	3	4	3	4	

CIRCOR | RTK®

REflex Shutoff Tables

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

Plug type	Seat [Inch]	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	5	6	7	8	9	10	12	14	16
Parabolic, V-port (eq-%)	Stroke [Inch]	1	1	1	1	1	1	1¼	1¼	1¼	1⅜	1⅜	-	1⅜ 2 [2]	2	2⅜	-	3	-	3 4[3]	4	4	4¾
V-port (linear)		-	-	½	½	½	½	½	½	½	½	1	-	1¼	1⅜	1½	-	2⅜	-	3	4	4	4¾
Perforated		-	-	1	1	1	1	1¼	1¼	1¼	1½	2	2	2	2⅜	3	3 4[3]	3 4[3]	3 4[3]	3 4[3]	4	4¾	5⅞
On/off		-	½	½	½	½	½	½	½	½	½	1	-	1¼	1⅜	1½	-	2⅜	-	3	4	4	4¾
Mixing		-	-	-	½	½	½	½	½	½	½	1	-	1¼	1⅜	1½	-	2⅜	-	3	4	4	4¾
Diverting		-	-	-	½	½	½	½	½	½	½	½	-	1	-	1⅜	-	1½	-	2⅜	3	-	-
Actuator	**Stroke [Inch]**	**Shutoff pressure [psig]**																					
REact 15	1⅜ (35mm)	740	740	740	740	435	263	148	85	47	21	-	-	-	-	-	-	-	-	-	-	-	-
REact 30	1½ (40mm)	2220	2220	2220	2046	1127	706	418	258	158	87	53	39	30	-	-	-	-	-	-	-	-	-
REact 60	2⅜ (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

[1] Consult factory for shutoff ratings when using other packing types.
[2] Stroke 2 Inch for Valves with 1¼ Inch Stem
[3] Two different strokes available

REflex Dimensions

2-Way Valve

3-Way Valve

REflex Dimensions (continued)

NPS	CL	A								B		C		D			
		RF		RTJ		BWE		THD / SWE						½" Stem Dia.		1¼" Stem Dia.	
		[Inch]	[mm]	[Inch]	[mm]	[Inch]	[mm]	[Inch]	[mm]	[Inch]	[mm]	[Inch]	[mm]	[Inch]	[mm]	[Inch]	[mm]
½	150	7¼	184	-	-	7⅜	187	8⅛	206	1¾	45	-	-	5⅜	137	-	-
	300	7½	184	7⅞	201	7⅜	187	8⅛	206	1⅞	47	-	-	5⅜	137	-	-
	600	8	203	8	203	8	203	-	-	1⅞	47	-	-	7⅝	194	-	-
	900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
¾	150	7¼	184	-	-	7⅜	187	8¼	210	2	50	-	-	5⅜	137	-	-
	300	7⅝	194	8⅛	207	7⅜	187	8¼	210	2¼	57	-	-	5⅜	137	-	-
	600	8⅛	206	8⅛	206	8⅛	206	-	-	2¼	57	-	-	7⅝	194	-	-
	900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	150	7¼	184	-	-	8¼	210	8¼	210	2⅛	54	6⅛	157	5⅝	142	-	-
	300	7¾	197	8¼	210	8¼	210	8¼	210	2½	62	6½	164	5⅝	142	-	-
	600	8¼	210	8¼	210	8¼	210	-	-	2½	62	-	-	9	227	-	-
	900	11	279	[1]	[1]	11	279	-	-	3	75	-	-	9	227	-	-
1½	150	8¾	222	-	-	9⅞	251	9⅞	251	2½	63	7½	190	6⅝	169	-	-
	300	9¼	235	9¾	248	9⅞	251	9⅞	251	3⅛	78	7⅝	194	6⅝	169	-	-
	600	9⅞	251	9⅞	251	9⅞	251	-	-	3	77	-	-	10	254	-	-
	900	13	330	[1]	[1]	13	330	-	-	3½	90	-	-	10	254	-	-
2	150	10	254	-	-	11¼	286	11¼	286	3	76	7⅞	201	6½	165	8⅛	206
	300	10½	267	11⅛	283	11¼	286	11¼	286	3¼	82	8¼	208	6½	165	8⅛	206
	600	11¼	286	11⅜	289	11¼	286	-	-	3⅝	92	-	-	11	278	10½	267
	900	14¾	375	[1]	[1]	14¾	375	-	-	4¼	107	-	-	11	278	10½	267
2½	150	10⅞	276	-	-	12¼	311	-	-	3½	89	8¾	222	6¾	171	8¼	211
	300	11½	292	12⅛	308	12¼	311	-	-	3¾	95	9	230	6¾	171	8¼	211
	600	12¼	311	12⅜	314	12¼	311	-	-	3⅝	93	-	-	12¼	310	11⅝	296
	900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	150	11¾	298	-	-	13¼	337	-	-	3¾	95	8⅛	207	7¾	198	8¾	222
	300	12½	318	13⅛	333	13¼	337	-	-	4⅛	105	8½	216	7¾	198	8¾	222
	600	13¼	337	13⅜	340	13¼	337	-	-	4⅞	124	-	-	13⅛	334	12⅝	319
	900	18⅛	460	[1]	[1]	18⅛	460	-	-	5	127	-	-	13⅛	334	12⅝	319
4	150	13⅞	353	-	-	15½	394	-	-	4½	114	10⅛	258	8⅞	224	9½	242
	300	14½	368	15⅛	384	15½	394	-	-	5	127	10½	266	8⅞	224	9½	242
	600	15½	394	15⅝	397	15½	394	-	-	5⅜	137	-	-	15⅛	384	14⅜	365
	900	20⅞	530	[1]	[1]	20⅞	530	-	-	5¾	145	-	-	15⅛	384	14⅜	365
6	150	17¾	451	-	-	20	508	-	-	5½	140	12⅛	308	12½	316	12⅞	328
	300	18⅝	473	19¼	489	20	508	-	-	6¼	159	12½	319	12½	316	12⅞	328
	600	20	508	20⅛	511	20	508	-	-	6¼	160	-	-	16⅜	415	16¾	426
8	150	21⅜	543	-	-	24	610	-	-	8	200	14¾	374	-	-	17	431
	300	22⅝	568	23	584	24	610	-	-	8	200	15¼	386	-	-	17	431
	600	24	610	24⅛	612	24	610	-	-	8½	216	-	-	-	-	19⅝	498
10	150	26½	673	-	-	29⅝	752	-	-	10	252	17⅝	446	-	-	20⅞	530
	300	27⅞	708	28½	724	29⅝	752	-	-	10	252	18⅛	459	-	-	20⅞	530
	600	29⅝	752	29⅝	754	29⅝	752	-	-	10⅞	277	-	-	-	-	27½	698
12	150	29	737	-	-	32¼	819	-	-	13¼	335	22⅛	562	-	-	26	660
	300	30½	775	31⅛	791	32¼	819	-	-	13¼	335	22⅛	562	-	-	26	660
	600	32¼	819	32½	824	32¼	819	-	-	13¼	335	-	-	-	-	26	660

[1] Consult factory for RTJ dimensions of CL 900 valves

CIRCOR | RTK®

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 ⅛	180	7 ⅜	186	5 ⅛	130	9	4.2
REact 30	9 ⅛	233	7 ½	190	10 ⅜	262	4 ¾	120	10	4.5
REact 60	9 ⅛	233	11 ⅝	295	10 ⅜	262	4 ¾	120	15	6.7
REact 100	9 ⅛	233	11 ⅝	295	10 ⅜	262	4 ¾	120	15	6.7
REact 150	12 ⅛	307	20 ⅝	525	10 ¾	274	7 ⅞	200	62	28
REact 220	12 ⅛	307	20 ⅝	525	10 ¾	274	7 ⅞	200	75	34
REact 300	12 ⅛	307	20 ⅝	525	10 ¾	274	7 ⅞	200	75	34
ST 6135.B6	5 ⅜	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 ⅜	186	9 ⅛	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 ⅝	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.

CIRCOR | RTK®

REflex Order Code

Model	Position 1
R REflex	

Standard	Position 2
A ANSI	

Body Style	Position 3
A 2-Way	
B 3-Way	
D Feedwater recirculation	
E Bottom blow down	
F Continous blow down	
G Steam converting	
S Other	

Valve Size	Position 4
C NPS ½	
D NPS ¾	
E NPS 1	
G NPS 1½	
H NPS 2	
J NPS 2½	
K NPS 3	
L NPS 4	
N NPS 6	
P NPS 8	
Q NPS 10	
R NPS 12	

Valve Rating	Position 5
1 CL 150	
3 CL 300	
6 CL 600	
9 CL 900	

Body Material	Position 6
A SA 216 WCB	
B SA 351 CF8M	
C SA 217 WC6	
D SA 217 WC9	
S Other	

End Connection	Position 7
A Flanges (RF)	
B Ring Type Joint Flanges (RTJ)	
C Butt Weld Ends (BWE)	
D Threaded Ends (THD)	
E Socket Weld Ends (SWE)	
S Other	

Packing	Position 8
A PTFE/Graphite	
B PTFE white	
C Chloroprene	
D Pure Graphite	
E Bellow seal	

Plug Type	Position 9
A On/Off	
B On/Off soft sealing	
C V-port (LIN)	
1 V-port (EQ%)	
D V-port soft sealing (LIN)	
2 V-port soft sealing (EQ%)	
3 V-port hardened (LIN)	
4 V-port hardened (EQ%)	
E Parabolic (LIN)	
F Parabolic (EQ%)	
G Parabolic soft sealing (LIN)	
H Parabolic soft sealing (EQ%)	
J Parabolic hardened (LIN)	
K Parabolic hardened (EQ%)	
L Perforated (LIN)	
M Perforated (EQ%)	
N Perforated soft sealing (LIN)	
P Perforated soft sealing (EQ%)	
Q Perforated hardened (LIN)	
R Perforated hardened (EQ%)	
T Ferro-Titanium (LIN)	
U Ferro-Titanium (EQ%)	
V Mixing (LIN/LIN)	
W Diverting (LIN/LIN)	
S Other	

Seat Type	Position 10
A Standard (metallic)	
B Stellited	
C QCS 1-Stage	
D QCS 1-Stage, hardened Seat	
E QCS 2-Stage	
F QCS 2-Stage, hardened Seat	
S Other	

Seat Size	Position 11
A 1/8"	
B ¼"	
C 3/8"	
D ½"	
E ¾"	
F 1"	
G 1¼"	
H 1½"	
J 2"	
K 2½"	
L 3"	
M 4"	
N 5"	
P 6"	
Q 8"	
R 10"	
T 12"	

REflex Code Selection Example

Code Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Model	Standard	Body Style	Valve Size	Valve Rating	Body Material	End Connection	Packing	Plug Type	Seat Type	Seat Size	Actuator Type	Actuator Spring/Voltage	Working Direction / Actuating Speed"	Accessories
	R	A	A	E	1	A	A	A	A	A	A	A	A	A	A

Actuator Type	Position 12
A ST 6115	
B ST 6135	
C ST 6160	
D ST 6175	
E REact 30 (ST 5112)	
1 React 30 PoP	
F REact 60 (ST 5113)	
2 REact 60 PoP	
G REact 100 (ST 5114)	
3 React 100 PoP	
4 React L	
H ST 5106	
J ST 5116	
K REact 15 E	
N Manual	
S Other	
U None (stem ½", max. 2250 lbf)	
V None (stem 1¼", max. 13000 lbf)	
W None (stem 2⅜", max. 18000 lbf)	

Actuator Spring/ Voltage	Position 13
A 13-30 PSIG (A6-3S)	
B 12-35 PSIG (C6-4S)	
C 3-15 PSIG (B6-2G)	
D 12-44 PSIG (B6-6G)	
E 12-40 PSIG (A6-6G)	
F 4-20 PSIG (C6-3G)	
G 10-45 PSIG (C6-7G)	
H 4-13 PSIG (B6-2S)	
J 10-30 PSIG (B6-3D)	
K 17-20 PSIG (B6-5D)	
L 23-70 PSIG (B6-7D)	
M 7-20 PSIG (C6-3S)	
N 12-30 PSIG (C6-3D)	
P 20-50 PSIG (C6-5D)	
Q 28-70 PSIG (C6-7D)	
R 24 V DC	
T 24 VAC 1-ph	
U 115 V AC 1-ph	
V 230 V AC 1-ph	
W 400 V AC 3-ph	
S Other	
X None	

Actuator Working Direction / Position 14 Actuating Speed	
A AFC Reverse	
B AFO Direct	
C AFC Reverse (w/Handwheel)	
D AFO Direct (w/Handwheel)	
E LLP	
F 0.47"/min	REact 30/60/100
G 0.71"/min	REact 15/30/60/100/ST5106
H 0.90"/min	REact 15
J 1.06"/min	REact 30/60/100
K 1.35"/min	REact 15
L 1.75"/min	REact 30
M 2.01"/min	REact 30
N 2.13"/min	REact 60/100/ST5106
P 2.65"/min	REact 15/30
Q 4.02"/min	REact 60
R 4.25"/min	ST 5106
*Not available for 115V	
S Other	
X None	

Actuator Accessories	Position 15	
A PS2		PNEUMATIC
B PS2 w/ Feedback Module		PNEUMATIC
C PS2 HART		PNEUMATIC
D PS2 Profibus		PNEUMATIC
E Foxboro SRP 981 MM		PNEUMATIC
F PS2 + airfilter		PNEUMATIC
G PS2 with Feedback Module + airfilter		PNEUMATIC
H PS2 HART + airfilter		PNEUMATIC
J PS2 Profibus + airfilter		PNEUMATIC
K Foxboro SRP 981 MM + airfilter		PNEUMATIC
L EEx PS2		PNEUMATIC
M EEx PS2 with Feedback Module		PNEUMATIC
N EEx PS2 HART		PNEUMATIC
P EEx PS2 Profibus		PNEUMATIC
Q EEx PS2 + airfilter		PNEUMATIC
R EEx PS2 with Feedback Module + airfilter		PNEUMATIC
T EEx PS2 HART + airfilter		PNEUMATIC
U EEx PS2 Profibus + airfilter		PNEUMATIC
1 Feedback poti 1 kOhm		ELECTRIC
2 OUT 4-20mA (REtrans)		ELECTRIC
3 IN/OUT 4-20mA (REpos)		ELECTRIC
4 Fail Safe Unit		ELECTRIC
5 Fail Safe Unit & IN/OUT 4-20mA		ELECTRIC
S Other		
X None		

CIRCOR | RTK®