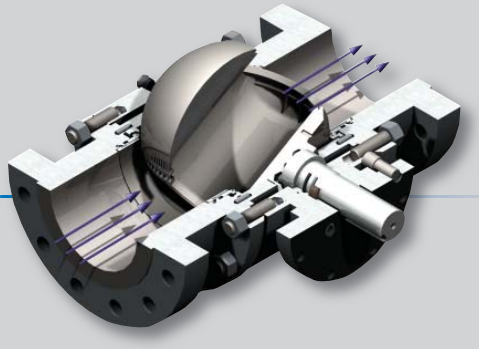
QTCV-T1 Series
Quiet Trim Control Valve



QTCV-T1 Provides Extended Control Capability and Moderate Noise Attenuation at a Competitive Price

Features

- Noise attenuation up to 7 dBa
- High turndown capability up 200:1
- High pressure drop shutoff capability to Class VI
- Bi-Directional Flow Capability (noise reduction in proffered direction)
- Self cleaning design
- Emergency sealant system
- Easy maintenance and repair
- Wide array of configurations
- Equalized break torque and running torque
- Rugged design engineered for pipeline applications

Description

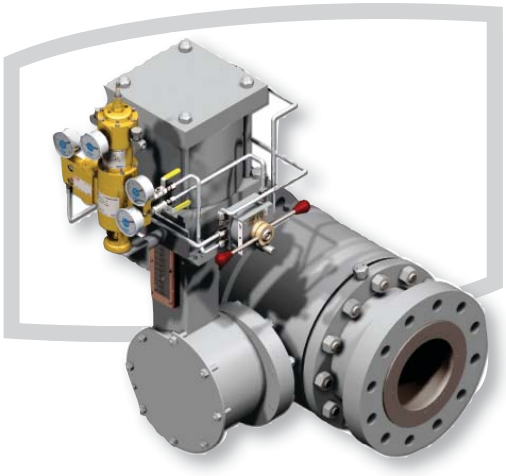
The Becker QTCV-T1 Quiet Trim Control Valve is a trunnion-mounted rotary control valve designed for general control valve service. The QTCV-T1 features a rugged design that provides moderate noise attenuating capabilities with an extended turndown ratio. The QTCV-T1 features a side-entry, forged body, and end closures that allows easy maintenance or repair of the control valve. The QTCV-T1 is ideal for use as a flow control valve or pressure control valve where predicted noise does not pose a problem.

The QTCV-T1 is available in a variety of configurations from 4" (100 mm) bore to 36" (900 mm) bore .

Figure 1 - QCTV-T1 used as primary regulator in power plant

QTCV-T1 provides moderate noise attenuation combined with high flow range ability. Flow range ability is extremely important to ensure proper control during power plant startup when flow volume is minimal. The QTCV-T1 also provides excellent class V shutoff capability. The control valve is equipped with a Becker RPSR actuator and a model VRP-SB-PID power plant controller.

Specifications	
Classification	Control Valve
Valve Type	Rotary trunnion mounted ball
Applications	Monitoring or mild service when installed above ground. Severe service when installed below ground
Noise Attenuation	7 dBa
Maximum Turndown	200:1
Shutoff Class	V, VI Option
Flow Characteristic	Low gain modified equal percentage
Range of Product	
Size Range	4" (100mm) - 36" (900mm) bore
Pressure Ratings	ANSI Class 150-1500
End Connections	RFFE (standard), Weld, RTJ
Compatible Actuators	RPDA Series Actuators RPSR Series Actuators SYDA Series Actuators SYSR Series Actuators



High pressure drop shutoff capability

The rugged design of the QTCV-T1 allows for 80% psig full ANSI rated pressure drop across the control valve at shutoff. The rugged nature of the QTCV-T1 allows implementation in a wide array of demanding applications on natural gas pipeline. QTCV-T1 provides ANSI class V shut-off.

Better turndown capability

The low gain modified equal percentage characteristic of the QTCV-T1 provides high flow capacity combined with low volume control ability. QTCV-T1 can exhibit turndown ratio up to 200:1. It's high turndown capabilities minimizes the number of regulator runs necessary as compared with globe pattern valves.

Minimal pressure drop

The Quiet Trim design features very high flow capacities that provide minimal pressure drop when the control valve is at full-open position.

Clean sweep feature

When installed with control valve stem in horizontal orientation and flow directions from right to left, the QTCV-T1 features a "clean sweep" capability that allows debris to pass through upon even a slight opening of the control valve. The feature prevents debris from scouring the face of the ball element or the control valve seats.

Easy maintenance and repair

The QTCV-T1 features a side-entry, forged body, and end closures that allows easy maintenance or repair of the control valve. Unlike welded-body construction valves, the QTCV-T1 may be easily repaired and returned to service. This is an obvious benefit with respect to efficiency and economy.

Wide array of configurations

The QTCV-T1 features one of the widest arrays of rotary control valve configurations in the natural gas industry. They are available in ANSI ratings from 150-1500, bore sizes from 4" (100 mm) to 36" (900 mm), and a full compliment of end connections and trim materials to suit applications perfectly.

Stem construction

The QTCV-T1 utilizes dual O-ring stem seals that can be serviced even while the control valve is under pressure. Additionally, the dual O-ring design can be utilized with confidence in below ground applications, unlike our competitions' gland type stem seal design.

Equalized break torque and running torque

The ball element of the QTCV-T1 Full Port Control Valve is specially coated and polished and a special seat spring arrangement is implemented on the QTCV-T1 control valve. This ensures smooth operation with equalized break torque and running torque. These characteristics allow for extremely accurate control of the process variable even on the largest bore control valves.

Bi-directional sealing on seat (Piston Effect Principle)

The exclusive design of the QTCV-T1 valve seats provides increased seat sealing capability. The unique "piston effect principle" causes the control valve seats to seal regardless of relative pressure differential. Hence the QTCV-T1 may seal from either the downstream or the upstream side of the control valve. This ensures flow shutoff even in the event that one of the control valve seats is damaged. This feature is exclusive to Becker control valve products.

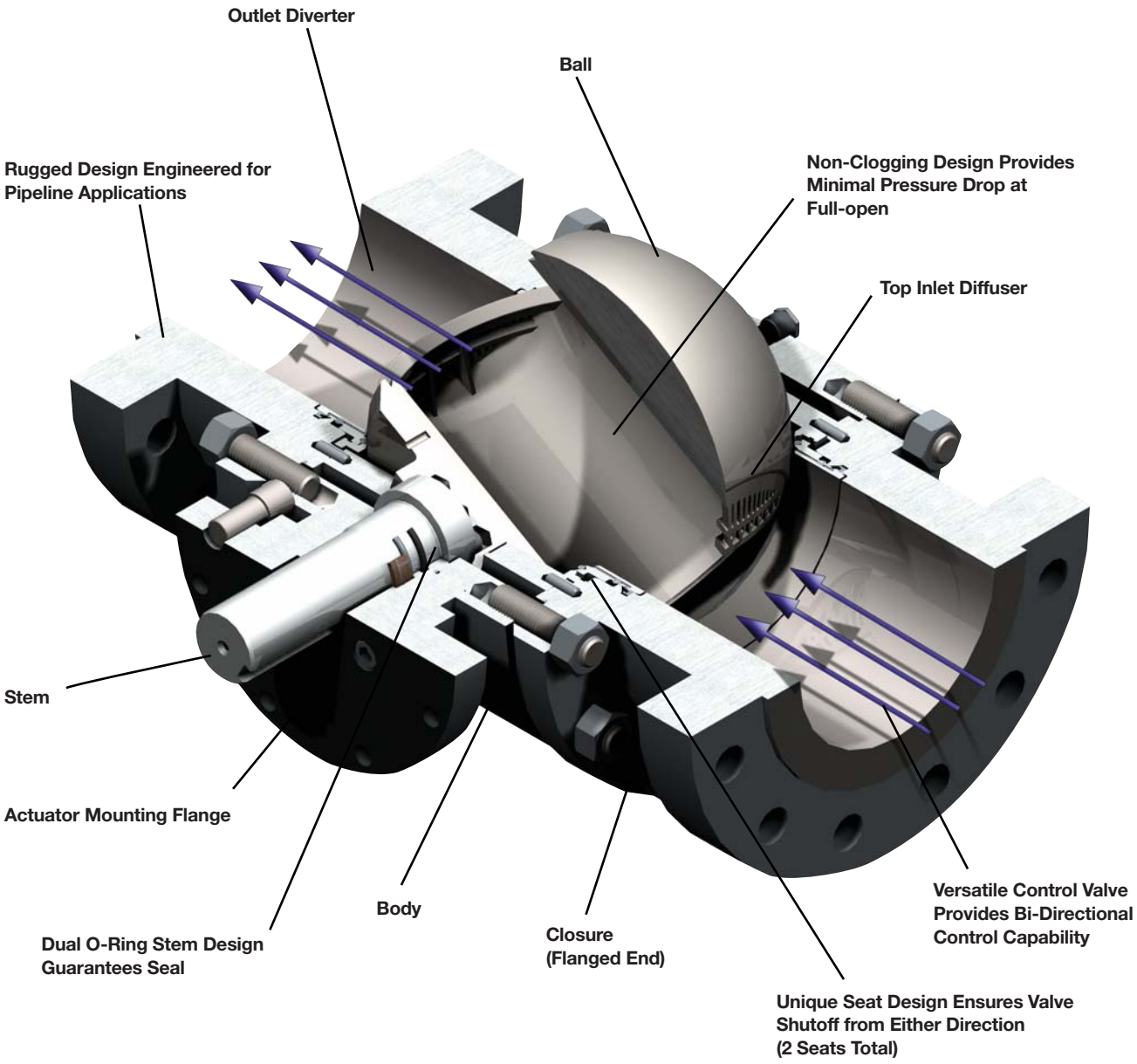
Bi-Directional flow capability

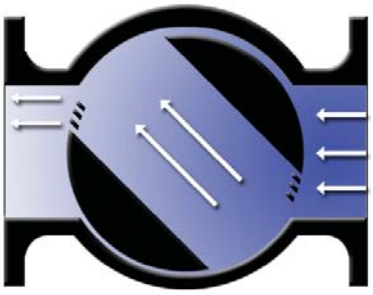
The versatile and rugged design of the QTCV-T1 allows for bi-directional flow across the control valve. It's design allows for equal flow characteristics and pressure drop capabilities in both directions.

Rugged design engineered for pipeline applications

Unlike our competitors, the QTCV-T1 is designed for use in rugged pipeline applications where reliability and ruggedness count. The QTCV-T1 is designed for real world applications that demand a control valve that will provide continuous service with minimal maintenance requirements for many years.

Model QTCV-T1 Quiet Trim Control Valve Provides Versatile Regulation at an Economical Price





QTCV-T1 Quiet Trim Control Valve Features

- Noise attenuation to 7 dBA
- Turndown ratio up to 200:1
- Maximum shut off Class V, Class VI option

Figure 2 - Model QTCV-T1 Cutaway view

Becker QTCV-T1 Quiet Trim Control Valve Components

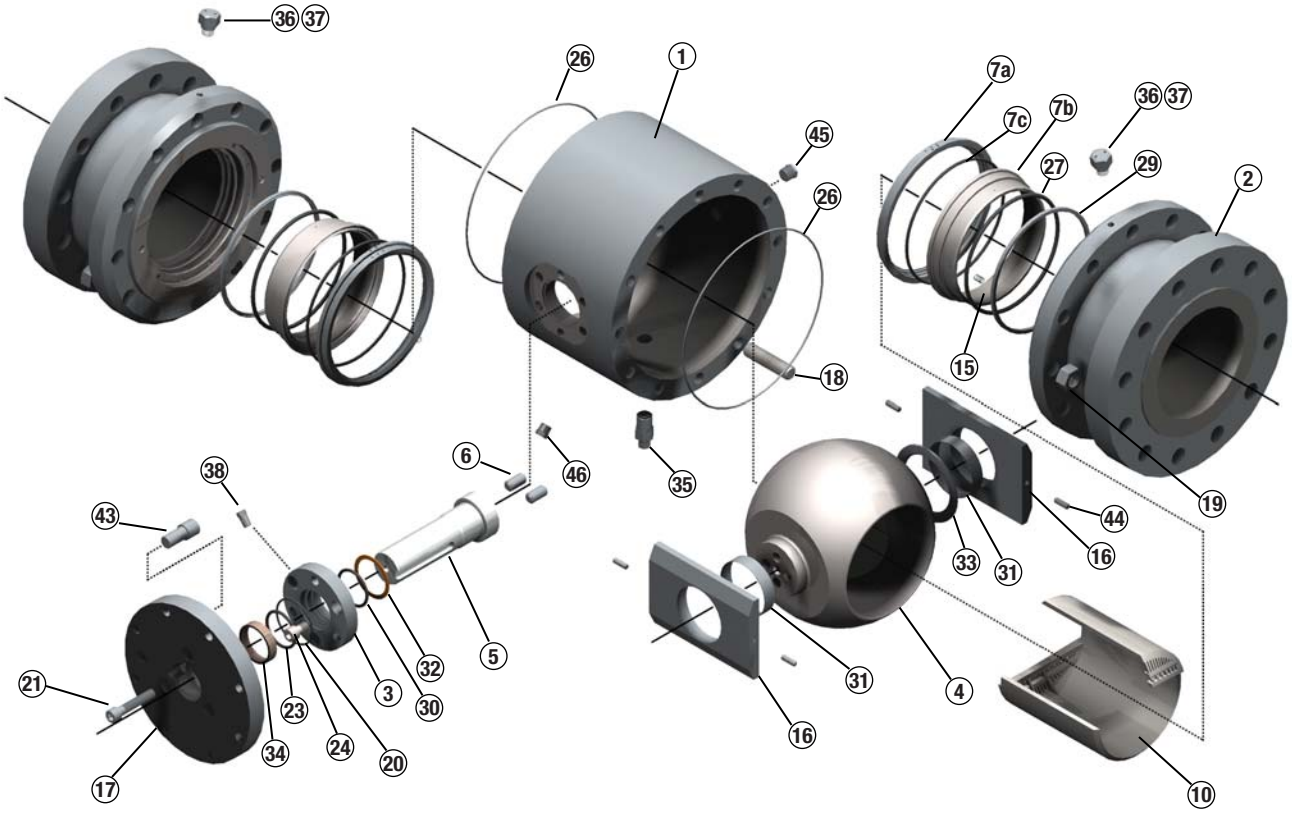


Figure 3 - Model QTCV-T1 Exploded View

Table 1 - Model QTCV-T1 Materials of Construction

Item	Description	Material	Item	Description	Material
1	Body	ASTM A350 LF2	23	O-Ring, Stem	Viton
2b	Closure (RFFE)	ASTM A350 LF2	24	O-Ring, Gland Plate	Viton
3	Gland Plate	ASTM A350 LF2	26	O-Ring, Body	Viton
4	Ball	ASTM A350 LF2	27	O-Ring, Gasket, Seat	Viton
5	Stem	AISI 1018	28	O-Ring, Seat Seal	Viton
6	Stem Pin	AISI 4140	29	Seat U-Cup	Viton
7a	Seat Ring, Inner	ASTM A350 LF2	30	Gland Plate Gasket	Vellumoid
7b	Seat Ring, Outer	ASTM A350 LF2	31	Bearing	Teflon/Steel
7c	Lock Ring	T-304 SS	32	Thrust Washer, Upper	Steel/Ryton
7d	Pin, Seat Lock Ring	SS 300 Series	33	Thrust Washer, Lower	Steel/Ryton
8	Inlet Diverter	17-4 PH SS	34	Gland Bushing	AISI 1015
10	Ball Noise Trim	17-4 PH SS	35	Drain Fitting	AISI 1018
15	Seat Spring	Alloy X-750	36	Check Fitting	AISI 1018
16	Bearing Retainer	ASTM A36	37	Grease Fitting	AISI 1018
17	Adapter Plate	ASTM A36	38	Stem Vent Assembly	AISI 1018
18	Body Stud	ASTM A193 B7M	43	Anchor Pin	AISI 1018
19	Body Nut	ASTM A194 2HM	44	Pin, Bearing Retainer	AISI 4140
20	Capscrew, Gland Plate	ASTM A574M	45	Hex Plug	AISI 1018
21	Capscrew, Adapter Plate	ASTM A574M	46	Body Relief	AISI 1018

Table 2

QTCV-T1 Technical Specifications		
Materials of Construction (Standard Configuration)		
Body Material	Carbon Steel	
Throttling Trim	Carbon Steel Ball 174-ph S.S. Trim	
Seat Seal Material	Viton or Vexon	
Coating	All valves sandblast per SP-10 and standard Becker primer and topcoat	
*Customer specified coatings applied upon request **Note:** Special configurations and materials are available. Please consult factory for your application requirements.		
General Design Specifications		
Maximum Control Cv	95% Max Cv	85° Travel (for all systems)
Minimum Control Cv	0.5% Max Cv	70° Travel (large downstream systems)
	1.5% Max Cv	15° Travel (power plant type systems)
Dowstream Velocity (gas)	100 ft/sec above ground applications 200 ft/sec below ground applications	
Max. Downstream Velocity (liquid)	30 ft/sec	
Face to Face	ANSI B16.10 see Table 5	
Testing	API B16.34	
Shut Off Classification	Class V (full ANSI rating)* Class VI option	
Maximum Recommended Noise	110 dBA	
Maximum Control Pressure	800 psig (primary flow direction) 800 psig (reverse flow direction)	
Maximum Exit Velocity	0.3 Mach (continuous service) 0.5 Mach (occasional service)	
Operating Temperature	-20°F to +350°F (-29°C to 177°C) standard -50°F to +350°F (-46°C to 177°C) optional low temperature trim	

*All QTCV-T1 Quiet Trim control valves are tested and shipped capable of Class V shutoff. If the QTCV-T1 is exposed to high pressure drop, repeated cycling, excessive contaminants, or conditions outside reasonable service the control valve leakage class could degrade.

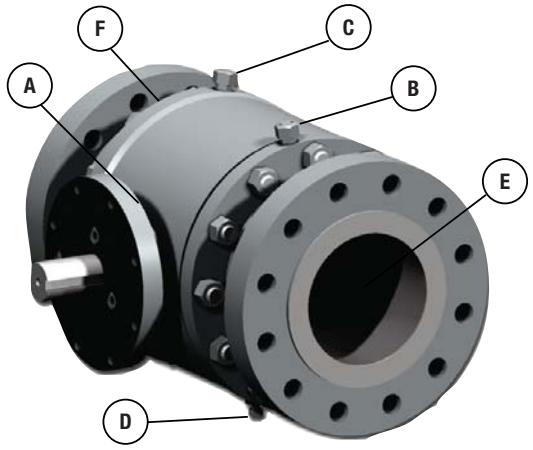


Figure 4 - QTCV-T1 Port Definitions

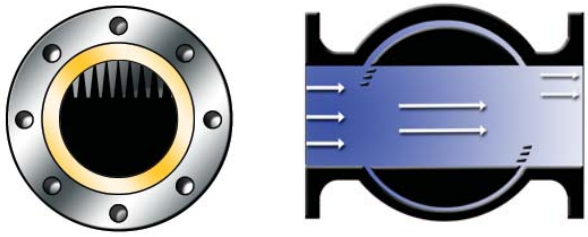


Figure 5.0 - Control valve in full-open position

When the QTCV-T1 is in the full-open position, the diffuser does not engage the flow. The flow media and any impurities can pass with minimal pressure drop. The full-open position provides high flow capacity with low pressure drop across the control valve.

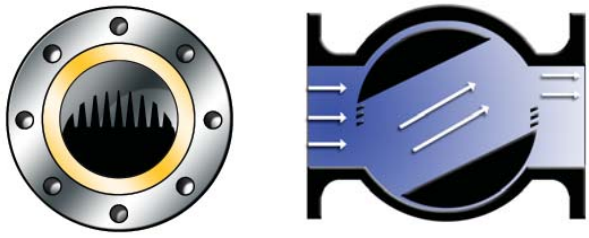


Figure 5.1 - Control valve partially closed

When the QTCV-T1 control valve is partially closed the inlet diffuser and outlet diffuser will begin to engage. The pressure drop across the control valve is taken in two stages, providing optimum noise attenuation. The control valve will still provide high flow capacity combined with optimume noise attenuation in this position.

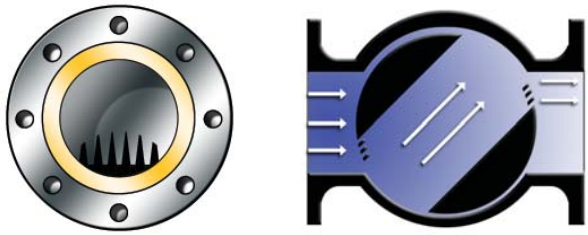


Figure 5.2 - Control valve near closed

When the QTCV-T1 control valve nears the closed position the inlet diffuser and outlet diffuser will fully engage. The flow media must pass through both the inlet diffuser and the outlet diffuser, providing excellent low flow volume control capability.

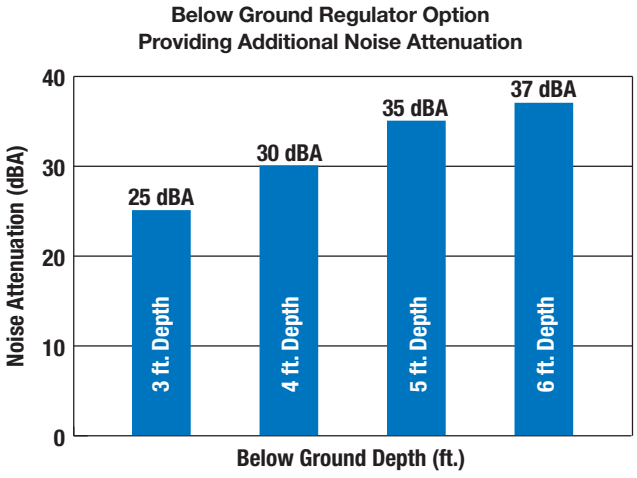
Table 3

QTCV-T1 Technical Specifications		
QTVC-T1 Port Definitions	**Port Information**	**Item**
Stem Lubrication Port	1/4" NPT	A
Upstream Seat Lubrication Port	Buttonhead	B
Downstream Seat Lubrication Port	Buttonhead	C
Body Blow-down Port	1/2" NPT Ball Valve	D
Upstream Valve Inlet Port	RFFE, WE, or RTJ	E
Downstream Valve Inlet Port	RFFE, WE, or RTJ	F

QTCV-T1 Series Control Valve Accessories/Options

Realize Optimum Performance of your QTCV-T1 Control Valve with these Popular Accessories and Options

Figure 6.0 - Installation of Becker Below Ground Ball Valve Regulator.
A natural gas transmission company installed Becker Below Ground Ball Valve Regulators to achieve maximum noise attenuation, minimal maintenance, and optimum cost effectiveness. The Below Ground Regulator can provide up to 37 dBA noise attenuation with minimal additional costs.



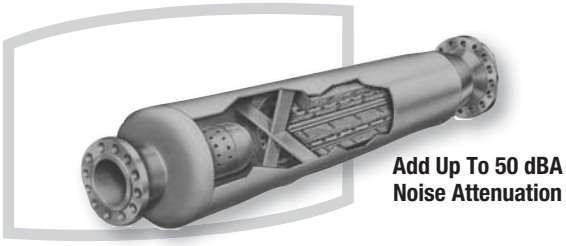
Noise Attenuation as a Factor of Below Ground Depth

Typical below ground depths range from 3 feet burial to 6 feet burial. The below ground depth is measured from centerline of pipe to ground. Below Ground noise attenuation usually provides from 25 dBA to 37 dBA noise attenuation for these buried depths.

The Becker Below Ground Ball Valve Regulator option is unique to Becker and provides a multitude of benefits by direct burial of the control valve itself. The valve actuator, lubrication lines, and drain lines are extended above ground-while the ball valve remains below ground. The primary advantage of Becker Below Ground Regulators is inexpensive noise attenuation in excess of 25 dBA.

- More than 25 dBA noise attenuation
- Less ambient heat loss
- May use smaller adjacent piping diameter
- Smaller station footprint
- Most economical noise attenuation
- May eliminate need for buildings and enclosures by utilizing the fiberglass cabinet
- Below Ground Regulator option may be combined with other noise attenuation solutions

Becker Model CVS Control Valve Silencer



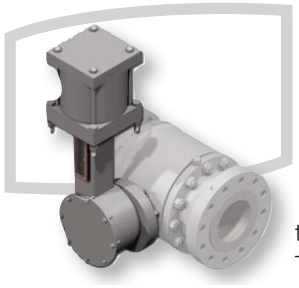
The CVS Control Valve Silencer is a noise attenuating device that is installed immediately downstream of any control valve regulator to provide noise reduction of up to 50 dBA. The CVS is available in a variety of configurations and designs to accommodate almost any natural gas regulation facility. The CVS may be combined with other Becker noise attenuating products in order to provide additional noise reduction.

Becker Model CVD Series Control Valve Diffuser

The CVD Series Control Valve Diffuser is a noise attenuating device that is installed immediately downstream of any control valve regulator to provide noise reduction of up to 15 dBA. The CVD is available in a variety of configurations and designs to accommodate any natural gas regulation facility. The CVD may be combined with other Becker noise attenuating products in order to provide additional noise reduction.

QTCV-T1 Series Control Valve Compatible Actuators

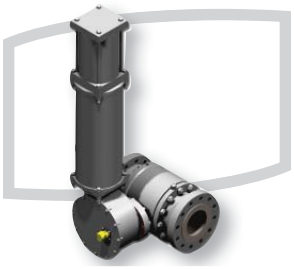
Becker Control Valve Actuators Provide Reliability and Accuracy for all Control Valve Applications



RPDA Rotary Piston Double-Acting Actuator

The RPDA Rotary Piston Double-Acting Actuator is designed for heavy duty control applications that require optimum performance. The RPDA is typically utilized when applications require a "lock last" failure mode. The RPDA incorporates a crank-arm mechanism specifically designed for the rigors of throttling control valve applications. The RPDA can accept high pressure power supply gas up to 400 psig (2758 kPa) enabling the use of smaller actuators or Becker's exclusive Bleed to Pressure System (BPS™) feature.

Specifications	
Actuator Type	Quarter turn (90° rotation)
Mechanism	Crank-arm
Usage	Heavy-duty
Action	Double-acting
Applications	Throttling, On-Off
Maximum Supply Gas	400 psig (2758 kPa)
Bleed to Pressure System	Yes
Below Ground Design	Yes
Maximum Valve Size	42" bore
Minimum Valve Size	2" bore
Stop Adjustment	Internal



RPSR Rotary Piston Spring Return Actuator

The RPSR Rotary Piston Spring Return Actuator is designed for heavy duty control applications the require optimum performance. The RPSR is typically utilized when applications require the control valve to fail-open or fail-closed upon loss of power supply gas. The RPSR incorporates a crank-arm mechanism specifically designed for the rigors of throttling control valve applications. The RPSR can accept high pressure power supply gas up to 400 psig (2758 kPa) enabling the use of smaller actuators or Becker's exclusive Bleed to Pressure System (BPS™) feature.

Specifications	
Actuator Type	Quarter Turn (90° rotation)
Mechanism	Crank-arm
Usage	Heavy-duty
Action	Single-acting, (fail-open or fail-closed)
Applications	Throttling, On-Off, Surge Control
Maximum Supply Gas	400 psig (2758 kPa)
Bleed to Pressure Sys	Yes
Below Ground Design	Yes
Maximum Valve Size	16" bore
Minimum Valve Size	2" bore
Stop Adjustment	Internal

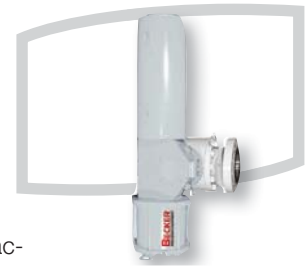
SYDA Scotch Yoke Double-Acting Actuator

The SYDA Scotch Yoke Double-Acting Actuator is designed as an economical actuator for moderate duty control applications. The SYDA is typically utilized when applications require "lock last" failure mode. The SYDA incorporates a scotch-yoke mechanism. The SYDA can accept power supply gas up to 130 psig (896 kPa). The SYDA features a compact design that is convenient when installation space is a premium.

Specifications	
Actuator Type	Quarter Turn (90° rotation)
Mechanism	Scotch Yoke
Usage	Moderate-duty
Action	Double-acting
Applications	Throttling, On-Off
Maximum Supply Gas	130 psig (896 kPa)
Bleed to Pressure System	Limited
Below Ground Design	Not recommended
Maximum Valve Size	42" bore
Minimum Valve Size	2" bore
Stop Adjustment	External

QTCV-T1 Series Control Valve Compatible Actuators (cont.)

SYSR Scotch Yoke Spring Return Actuator



The SYSR Scotch Yoke Spring Return Actuator is designed as an economical actuator for moderate duty control applications. The SYSR is typically utilized when applications require the control valve to fail-open or fail-closed mode. The SYSR incorporates a scotch-yoke mechanism. The SYSR can accept power supply gas up to 130 psig (896 kPa). The SYSR may be easily field configured to reverse failure mode. The SYSR features a compact design that is convenient when installation space is a premium.

Specifications	
Actuator Type:	Quarter Turn (90° rotation)
Mechanism:	Scotch Yoke
Usage:	Moderate-duty
Action:	Single-acting (fail-open or fail-closed)
Applications:	Throttling, On-Off
Maximum Supply Gas:	130 psig (896 kPa)
Bleed to Pressure Sys:	Limited
Below Ground Design:	Not recommended
Maximum Valve Size:	36" bore
Minimum Valve Size:	2" bore
Stop Adjustment:	Internal

Table 4

Model QTCV-T1 Control Valve Flow Coefficients (Cv) Based Upon ISA Sizing Equation Criteria										
Size (mm)	Minimum Controllable Cv.	Valve Degree of Rotation								
		10°	20°	30°	40°	50°	60°	70°	80°	90°
4"(100)	2	2.0	12.0	23.0	40.0	61.0	92.0	232	382	590
6"(150)	4.5	4.6	28.0	52.0	91.0	138	209	552	906	1398
8"(200)	8	8.2	49.0	92.0	163	205	337	875	1401	2148
10"(250)	12.5	12.8	76.0	144	255	384	632	1407	2242	3468
12"(300)	18	18.0	109	208	367	553	835	1788	2875	4749
16"(400)	32	33.0	194	369	651	983	1485	3097	5148.	8222
20"(500)	50.1	51.1	305	577	1018	1536	2320	4776	7721	12595
24"(600)	72	74.0	438	832	1466	2213	3340	6878	11118	18137
30"(750)	113	115	685	1300	2291	3457	5218	10746	17372	28340
36"(900)	162	166	986	1872	3299	4979	7515	15475	25016.	40809
X_t	0.99	0.99	0.95	0.78	0.75	0.64	0.44	0.42	0.40	0.35
F_1	0.94	0.94	0.94	0.90	0.89	0.86	0.82	0.79	0.68	0.55

(1) Flow coefficients (Cv) are based upon ISA sizing equation criteria.
(2) Consult Becker Control Valves for additional information.
(3) Minimum Controllable (Cv) based upon natural gas pipeline systems that do not feed power plants or similar small downstream systems.
(4) For sizing software utilizing ISA criteria, utilize Becker T-Ball Noise Attenuating Ball Valve Sizing Program.
(5) For flow coefficients (Cv) based upon universal gas sizing criteria see bulletin "QTCV-T1 Quiet Trim Control Valve Universal Cv 1001".
(6) For sizing and station design software utilizing universal gas sizing criteria, utilize Becker bpeSize program.
NOTE: Due to Dresser's dedication to new product development and enhancement data provided is subject to change. Please check with our manufacturing facility for the most recent data."

www.dresser.com/becker

Control Valve sizing and station design software is available for free download from our website at www.dresser.com/becker. Contact Becker Control Valves for assistance!

Figure 6 - Comparison of Valve Opening Characteristics for T-Ball Control Valves

Graph provides relative comparison of FPCV-T0, QTCV-T1, QTCV-T2, and QTCV-T4 control valves. Note difference in rate of opening and full-open capacity between each control valve. Data based upon 6" (150mm) FPCV-T0, QTCV-T1, QTCV-T2, and QTCV-T4 control valves.

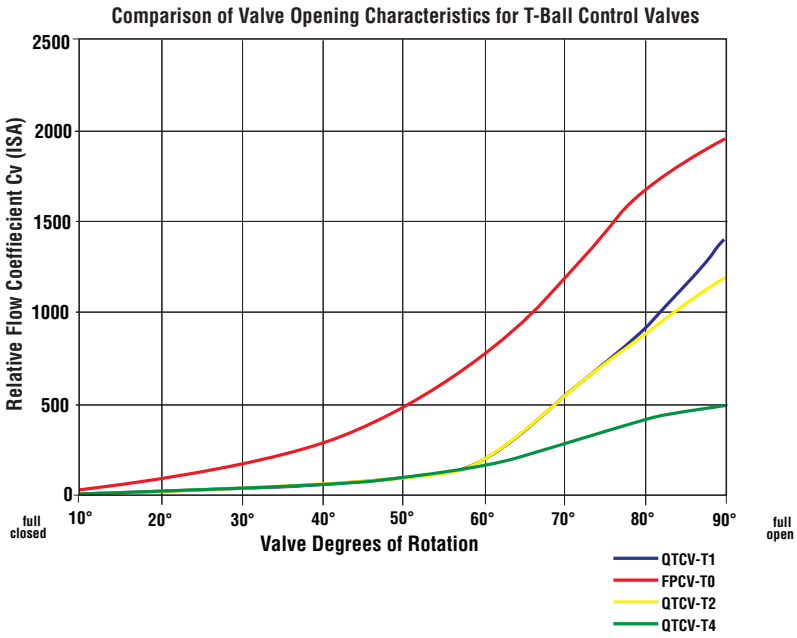


Table 5

Model QTCV-T1 Face to Face Dimensions (RFFE)										
Size	**ANSI 150**		**ANSI 300**		**ANSI 600**		**ANSI 900**		**ANSI 1500**	
Inches (mm)	**Inches**	**mm**	**Inches**	**mm**	**Inches**	**mm**	**Inches**	**mm**	**Inches**	**mm**
4" (100)	9.0	(229)	12.0	(305)	17.0	(432)	18.0	(457)	21.5	(546)
6" (150)	15.5	(394)	15.9	(403)	22.0	(559)	24.0	(610)	27.7	(706)
8" (200)	18.0	(457)	19.7	(502)	26.0	(660)	29.0	(737)	32.7	(833)
10" (250)	21.0	(533)	22.4	(568)	31.0	(787)	33.0	(838)	39.0	(991)
12" (300)	24.0	(610)	25.5	(648)	33.0	(838)	38.0	(965)	44.5	(1,130)
16" (400)	30.0	(762)	33.0	(838)	39.0	(991)	44.5	(1,130)	54.5	(1,384)
20" (500)	36.0	(914)	39.0	(991)	47.0	(1,194)	52.0	(1,321)	N/A	(N/A)
24" (600)	42.0	(1,067)	45.0	(1,143)	55.0	(1,397)	61.0	(1,549)	N/A	(N/A)
30" (750)	51.0	(1,295)	55.0	(1,397)	65.0	(1,651)	74.0	(1,880)	N/A	(N/A)
36" (900)	60.0	(1,524)	68.0	(1,727)	82.0	(2,083)	90.0	(2,286)	N/A	(N/A)

(1) For RTJ and Weld-end connection valves consult Becker Precision Eqiptment for dimensional information.
(2) Consult Becker Control Valves for additional information.

Table 6

Model QTCV-T1 Standard Weights (RFFE)										
Size	**ANSI 150**		**ANSI 300**		**ANSI 600**		**ANSI 900**		**ANSI 1500**	
Inches (mm)	**Lbs.**	**Kg.**	**Lbs.**	**Kg.**	**Lbs.**	**Kg.**	**Lbs.**	**Kg.**	**Lbs.**	**Kg.**
4" (100)	210	(95)	240	(109)	295	(134)	355	(161)	430	(195)
6" (150)	330	(200)	485	(220)	550	(250)	850	(390)	1,270	(575)
8" (200)	610	(350)	825	(375)	975	(440)	1,225	(560)	1,650	(750)
10" (250)	975	(500)	1,175	(535)	1,550	(700)	1,800	(820)	2,620	(1,190)
12" (300)	1,435	(705)	1,675	(760)	2,025	(920)	2,700	(1,230)	3,640	(1,650)
16" (400)	2,250	(1,020)	2,850	(1,295)	3,375	(1,530)	4,420	(2,000)	8,800	(4,000)
20" (500)	4,225	(1,920)	4,575	(2,075)	5,800	(2,630)	7,610	(3,450)	N/A	(N/A)
24" (600)	6,175	(2,800)	6,775	(3,075)	8,700	(3,950)	12,100	(5,490)	N/A	(N/A)
30" (750)	10,600	(4,800)	12,275	(5,575)	14,725	(6,690)	21,000	(9,530)	N/A	(N/A)
36" (900)	16,750	(7,600)	18,525	(8,400)	23,400	(10,620)	29,900	(12,200)	N/A	(N/A)

(1) Weights are for bare-stem valve and do not include; actuator, instrumentation, accessories, or packaging materials.
(2) Non-Standard sizes and reduced port designs available.
(3) Consult Becker Control Valves for additional information.

Table7

Model QTCV-T1 Face to Face Dimensions (RTJ)										
Size	**ANSI 150**		**ANSI 300**		**ANSI 600**		**ANSI 900**		**ANSI 1500**	
Inches (mm)	**Inches**	**mm**	**Inches**	**mm**	**Inches**	**mm**	**Inches**	**mm**	**Inches**	**mm**
4" (100)	N/A	(N/A)	N/A	(N/A)	17.0	(432)	18.0	(457)	21.5	(546)
6" (150)	N/A	(N/A)	N/A	(N/A)	22.0	(559)	24.0	(610)	27.8	(706)
8" (200)	N/A	(N/A)	N/A	(N/A)	26.0	(660)	29.0	(737)	32.8	(833)
10" (250)	N/A	(N/A)	N/A	(N/A)	31.0	(787)	33.0	(838)	39.0	(991)
12" (300)	N/A	(N/A)	N/A	(N/A)	33.0	(838)	38.0	(965)	44.5	(1,130)
16" (400)	N/A	(N/A)	N/A	(N/A)	39.0	(991)	44.5	(1,130)	54.5	(1,384)
20" (500)	N/A	(N/A)	N/A	(N/A)	47.0	(1,194)	52.0	(1,321)	N/A	(N/A)
24" (600)	N/A	(N/A)	N/A	(N/A)	55.0	(1,397)	61.0	(1,540)	N/A	(N/A)
30" (750)	N/A	(N/A)	N/A	(N/A)	65.0	(1,651)	74.0	(1,880)	N/A	(N/A)
36" (900)	N/A	(N/A)	N/A	(N/A)	82.0	(2,083)	90.0	(2,286)	N/A	(N/A)

(1) Consult Becker Control Valves for additional information.

Table 8

Model QTCV-T1 Standard Weights (RTJ)										
Size	**ANSI 150**		**ANSI 300**		**ANSI 600**		**ANSI 900**		**ANSI 1500**	
Inches (mm)	**Lbs.**	**Kg.**	**Lbs.**	**Kg.**	**Lbs.**	**Kg.**	**Lbs.**	**Kg.**	**Lbs.**	**Kg.**
4" (100)	210	(95)	240	(109)	295	(134)	355	(161)	430	(195)
6" (150)	330	(200)	485	(220)	550	(250)	850	(390)	1,270	(575)
8" (200)	610	(350)	825	(375)	975	(440)	1,225	(560)	1,650	(750)
10" (250)	975	(500)	1,175	(535)	1,550	(700)	1,800	(820)	2,620	(1,190)
12" (300)	1,435	(705)	1,675	(760)	2,025	(920)	2,700	(1,230)	3,640	(1,650)
16" (400)	2,250	(1,020)	2,850	(1,295)	3,375	(1,530)	4,420	(2,000)	8,800	(4,000)
20" (500)	4,225	(1,920)	4,575	(2,075)	5,800	(2,630)	7,610	(3,450)	N/A	(N/A)
24" (600)	6,175	(2,800)	6,775	(3,075)	8,700	(3,950)	12,100	(5,490)	N/A	(N/A)
30" (750)	10,600	(4,800)	12,270	(5,575)	14,725	(6,690)	21,000	(9,530)	N/A	(N/A)
36" (900)	16,750	(7,600)	18,525	(8,400)	23,400	(10,620)	29,900	(12,200)	N/A	(N/A)

(1) Weights are for bare-stem valve and do not include actuator, instrumentation, accessories, or packaging materials.
(2) Non-Standard sizes and reduced port designs available.
(3) Consult Becker Control Valves for additional information.

Table 9

Model QTCV-T1 Face to Face Dimensions (Weld End)										
Size	**ANSI 150**		**ANSI 300**		**ANSI 600**		**ANSI 900**		**ANSI 1500**	
Inches (mm)	**Inches**	**mm**	**Inches**	**mm**	**Inches**	**mm**	**Inches**	**mm**	**Inches**	**mm**
4" (100)	12.0	(305)	12.0	(305)	17.0	(432)	18.0	(457)	21.5	(546)
6" (150)	18.0	(457)	18.0	(457)	22.0	(559)	24.0	(610)	27.7	(705)
8" (200)	20.5	(521)	20.5	(521)	26.0	(660)	29.0	(737)	32.7	(832)
10" (250)	22.0	(521)	22.0	(559)	31.0	(787)	33.0	(838)	39.0	(991)
12" (300)	25.0	(559)	25.0	(635)	33.0	(838)	38.0	(965)	44.5	(1,130)
16" (400)	33.0	(838)	33.0	(838)	39.0	(991)	44.5	(1,130)	54.5	(1,384)
20" (500)	39.0	(991)	39.0	(991)	47.0	(1,194)	52.0	(1,321)	N/A	(N/A)
24" (600)	45.0	(1,143)	45.0	(1,143)	55.0	(1,397)	61.0	(1,549)	N/A	(N/A)
30" (750)	55.0	(1,397)	55.0	(1,397)	65.0	(1,651)	74.0	(1,880)	N/A	(N/A)
36" (900)	68.0	(1,727)	68.0	(1,727)	82.0	(2,083)	90.0	(2,286)	N/A	(N/A)

(1) Consult Becker Control Valves for additional information.

Table 10

Model QTCV-T Standard Weights (Weld End)										
Size	**ANSI 150**		**ANSI 300**		**ANSI 600**		**ANSI 900**		**ANSI 1500**	
Inches (mm)	**Lbs.**	**Kg.**	**Lbs.**	**Kg.**	**Lbs.**	**Kg.**	**Lbs.**	**Kg.**	**Lbs.**	**Kg.**
4" (100)	200	(91)	200	(91)	235	(107)	255	(116)	290	(132)
6" (150)	425	(195)	425	(195)	450	(204)	650	(295)	970	(440)
8" (200)	725	(330)	725	(330)	840	(380)	950	(430)	1,190	(540)
10" (250)	1,050	(475)	1,025	(465)	1,250	(570)	1,400	(640)	1,840	(835)
12" (300)	1,450	(660)	1,450	(660)	1,700	(770)	2,200	(1,000)	2,660	(1,210)
16" (400)	2,150	(975)	2,350	(1,065)	2,825	(1,280)	4,420	(1,590)	6,750	(3,070)
20" (500)	4,050	(1,840)	4,050	(1,840)	5,100	(2,310)	7,610	(2,730)	N/A	(N/A)
24" (600)	6,000	(2,730)	6,000	(2,725)	8,025	(3,640)	12,100	(4,150)	N/A	(N/A)
30" (750)	10,400	(4,720)	10,925	(4,960)	13,450	(6,110)	21,000	(7,490)	N/A	(N/A)
36" (900)	16,650	(7,560)	16,650	(7,560)	20,860	(9,380)	29,900	(9,730)	N/A	(N/A)

(1) Weights are for bare-stem valve and do not include actuator, instrumentation, accessories or packaging materials.
(2) Non-Standard sizes and reduced port designs available.
(3) Consult Becker Control Valves for additional information.

Choose the Perfect Rotary Control Valve for Your Application

Becker Control Valves has a wide variety of rotary control valves with a variety of features that ensure the optimum solution for your application needs. Refer to the figures below to assist you in selecting the proper rotary control valve.

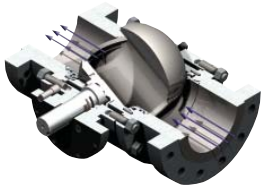
Table 11 - Selection table for Becker Control Valves and Actuators						
	FPCV-T0	QTCV-T1	QTCV-T2	QTCV-T4	CVEZ	CVET
Performance Specifications						
Max. Noise Attenuation	NA	7 dBA	17 dBA	25 dBA	NA	25 dBA
Max. Turndown Ratio	100:1	200:1	300:1	200:1	30:1	30:1
Max. Shutoff Class	VI	V	IV	IV	VI	VI
Control Valve Accessories/Options						
Low Temperature Trim	•	•	•	•	•	•
Surge Control Specs	•	•	•	•	•	•
Alternate Trim Materials	•	•	•	•	•	•
Below Ground Design	•	•	•	•		
CVS Control Valve Silencer	•	•	•	•	•	•
CVD Control Valve Diffuser	•	•	•	•	•	•
Quick Change "Characterize-able" Trims					•	•
Removable Noise Trim					•	•
Compatible Actuators						
RPDA Series	•	•	•	•		
RPSR Series	•	•	•	•		
SYDA Series	•	•	•	•		
SYSR Series	•	•	•	•		
LPDA Series					•	•
LPSR Series					•	•
LD Series					•	•

*CAUTION: This information is intended as a guideline for application of Becker Control Valve products. Dresser strongly recommends consulting Becker Engineering prior to application of any product.

Additional resources are available on our website. Sales literature, sizing software, and technical manuals are available for download at **www.dresser.com/becker**

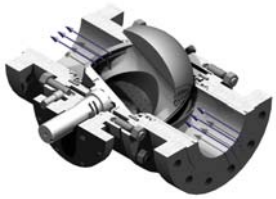
FPCV-T0 Series Quiet Trim Control Valve

- High turndown capability up 100:1
- High pressure drop shutoff capability to Class VI



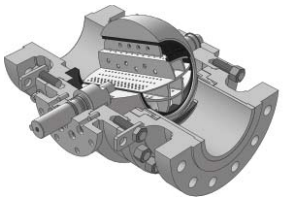
QTCV-T1 Series Quiet Trim Control Valve

- Noise attenuation up to 7 dBA
- High turndown capability up 200:1
- High pressure drop shutoff capability to Class V



QTCV-T2 Series Quiet Trim Control Valve

- Noise attenuation up to 17 dBA
- High turndown capability up 300:1
- High pressure drop shutoff capability to Class IV



QTCV-T4 Series Quiet Trim Control Valve

- Noise attenuation up to 25 dBA
- High turndown capability up 200:1
- High pressure drop shutoff capability to Class IV

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