

QTCV-T2 Series Quiet Trim Control Valve

QTCV-T2 Provides Extended Control Capability and Increased Noise Attenuation for Demanding Applications

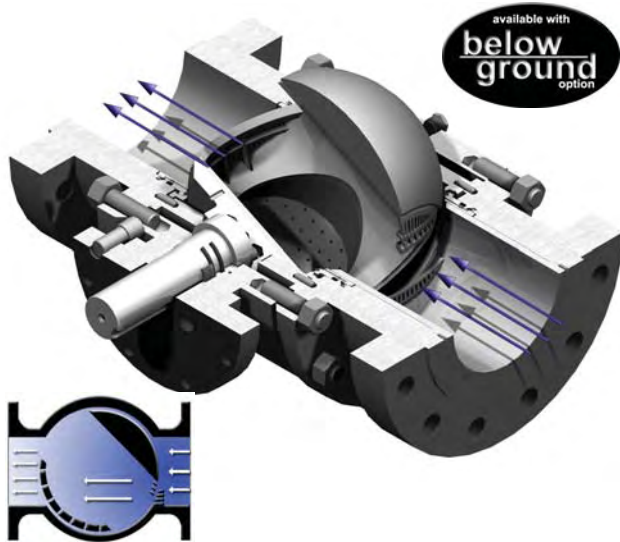


Figure 1 - Becker Model QTCV-T2 Ball Control Valve

Description

The Becker QTCV-T2 Quiet Trim Control Valve is a trunnion-mounted rotary control valve designed for moderate to severe service. The QTCV-T2 features a rugged design that provides very good noise attenuating capabilities, up to 17 dBA, with extended turndown ratio (300:1). The QTCV-T2 features a side-entry, forged body, and end closures that allow easy maintenance or repair of the control valve. The QTCV-T2 is ideal for use as a pressure control valve where noise may be a problem. The QTCV-T2 is available in a variety of configurations from 4" (100 mm) bore to 36" (900 mm) bore.

Features

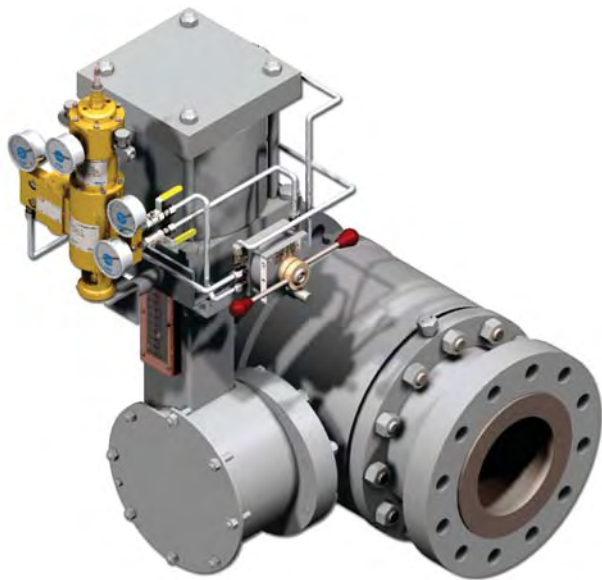
- Noise attenuation up to 17 dBA
- High turndown capability up 300:1
- High pressure drop shutoff capability to Class IV
- Bi-directional flow capability (noise reduction in proffered direction)
- Self cleaning design
- Emergency sealant system
- Easy maintenance and repair
- Wide array of configurations
- Equalized break torque and running torque
- Rugged design engineered for pipeline applications

Specifications	
Classification	Control valve
Valve Type	Rotary trunnion mounted ball
Applications	Monitoring or mild service when installed above ground and severe service when installed below ground
Noise Attenuation	17 dBA
Maximum Turndown	300:1
Shutoff Class	IV
Flow Characteristic	Hyperbolic
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



Figure 2 - The Ultimate in Noise Attenuation

The Becker Model QTCV-T2 provides up to 17 dBA of noise attenuation. The design of the QTCV-T2 exhibits high flow capacity combined with low flow control-ability with turndown ratios up to 300:1. The QTCV-T2 may be combined with other noise attenuation technologies in order to achieve additional noise attenuation. The regulators shown above incorporate Becker's unique below ground design for a total noise reduction up to 40 dBA.



High pressure drop shutoff capability

The QTCV-T2 design allows for 80% ANSI rated pressure drop across the control valve at shutoff. The rugged nature of the QTCV-T2 allows implementation in a wide array of demanding natural gas pipeline applications. QTCV-T2 provides ANSI Class IV flow shutoff.

Superior turndown capability

The modified equal percentage characteristic of the QTCV-T2 provides high flow capacity combined with low volume control ability. QTCV-T2 can exhibit turndown ratio up to 300:1. This high turndown capability minimizes the number of regulator runs necessary as compared with globe pattern valves.

Minimal pressure drop

The design of the QTCV-T2 features high flow capacities which 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, the QTCV-T2 features a “clean sweep” capability that allows debris to pass through even a slight opening of the control valve. This feature prevents debris from scouring the face of the ball element or the control valve seat.

Easy maintenance and repair

The QTCV-T2 features a side-entry, forged body, and end closures that allows easy maintenance or repair. Unlike welded-body construction valves, the QTCV-T2 may be easily repaired and returned to service.

Wide array of configurations

The QTCV-T2 features one of the widest arrays of rotary control valve configurations in the natural gas industry. QTCV-T2's 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 for application customization.

Stem construction

The QTCV-T2 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 competitors' gland type stem seal design.

Equalized break torque and running torque

The ball element of the QTCV-T2 is specially coated and polished and a seat spring arrangement is implemented. This ensures smooth operation with equalized break 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-T2 valve seat provides increased seat sealing capability. The unique “piston effect principle” causes the control valve seat to seal regardless of relative pressure differential. Hence the QTCV-T2 may seal from either the upstream or downstream side of the valve seat. This feature is exclusive to Becker control valve products.

Bi-direction flow capability

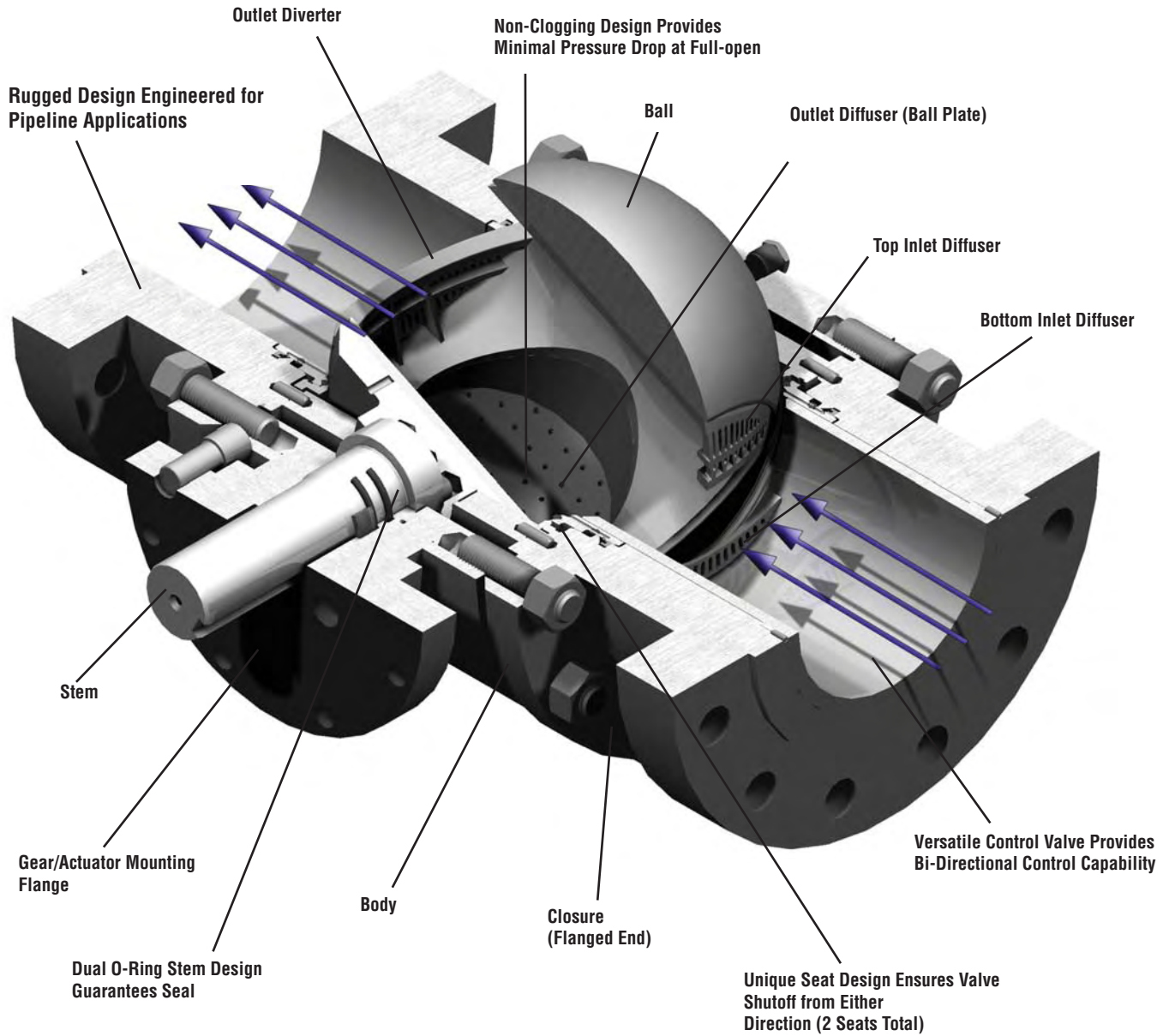
The versatile and rugged design of the QTCV-T2 allows for bi-directional flow across the control valve. Note that pressure drop capabilities across the valve are reduced to reverse flow.

Rugged design engineered for pipeline applications

The QTCV-T2 is designed for rugged pipeline applications that demand a control valve that will provide continuous service with minimal maintenance for many years.

Model QTCV-T2 Full Port Control Valve Provides Versatile Regulation at an Economical Price

Figure 3 - Model QTCV-T2 Cutaway view



QTCV-T2 Quiet Trim Control Valve Features:

- Noise attenuation to 17 dBA
- Turndown ratio up to 300:1
- Maximum shut off Class IV

Becker QTCV-T2 Quiet Trim Control Valve Components

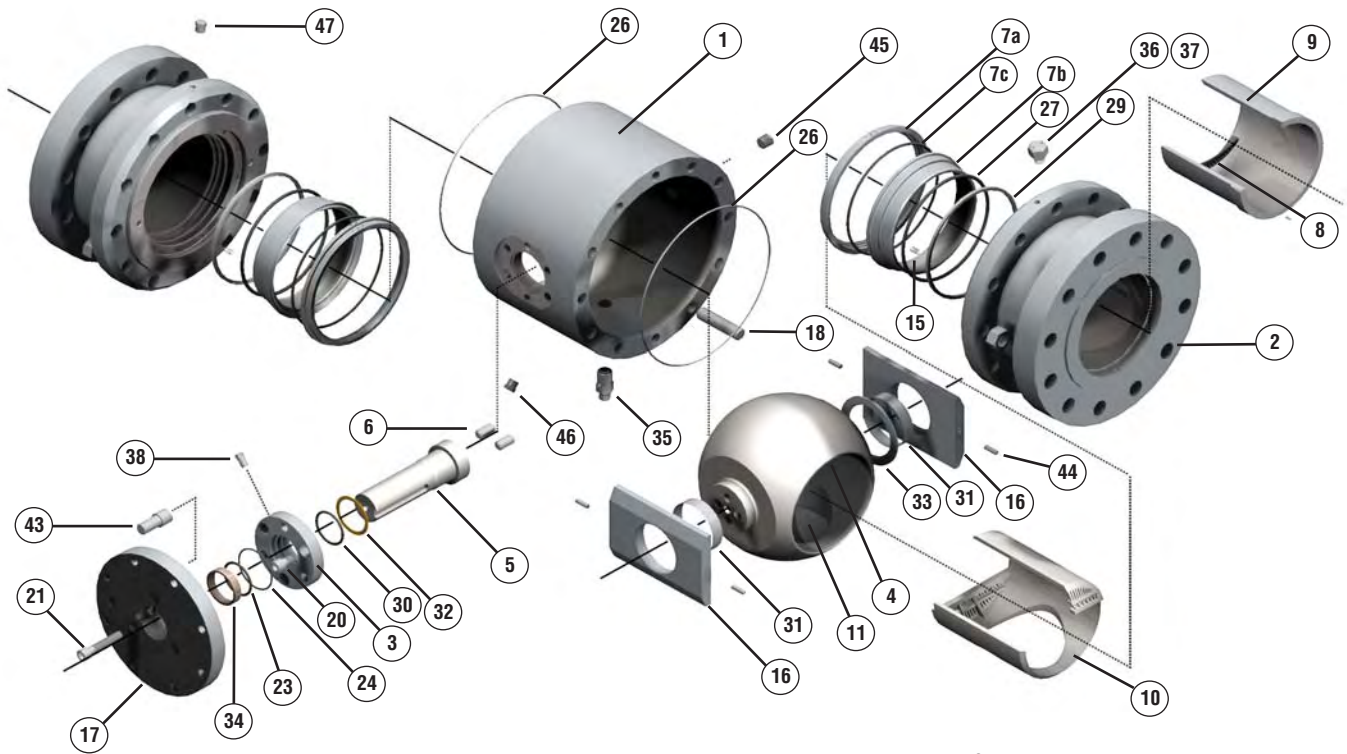


Figure 5 - Model FPCV-T2 Exploded View

Table 1 - Model QTCV-T2 Materials of Construction

Item	Description	Material	Item	Description	Material
1	Body	ASTM A350 LF2	23	O-Ring, Stem	Viton
2	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
9	Inlet Diverter Sleeve		35	Drain Fitting	AISI 1018
10	Ball Noise Trim	17-4 PH SS	36	Check Fitting	AISI 1018
11	Ball Plate	17-4 PH SS	37	Grease Fitting	AISI 1018
15	Seat Spring	Alloy X-750	38	Stem Vent Assembly	AISI 1018
16	Bearing Retainer	ASTM A36	43	Anchor Pin	AISI 1018
17	Adapter Plate	ASTM A36	44	Pin, Bearing Retainer	AISI 4140
18	Body Stud	ASTM A193 B7M	45	Hex Plug	AISI 1018
19	Body Nut	ASTM A194 2HM	46	Body Relief	AISI 1018
20	Capscrew, Gland Plate	ASTM A574M	47	Hex Plug	AISI 1018
21	Capscrew, Adapter Plate	ASTM A574M			

Table 2 - QTCV-T2 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 & 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)
Downstream 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	
Testing	API 6D	
Shut Off Classification	Class IV (Full ANSI Rating)*	
Maximum Noise	110 dBA	
Max. Control ΔP	800 psig (primary flow direction) 800 psig (reverse flow direction)	
Max. 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-T2s are tested and shipped capable of Class IV shutoff. If the QTCV-T2 is exposed to high pressure drop, repeated cycling, excessive contaminants, or conditions outside reasonable service the control valve leakage class could degrade.		

Figure 7 - QTCV-T2 Port Definitions

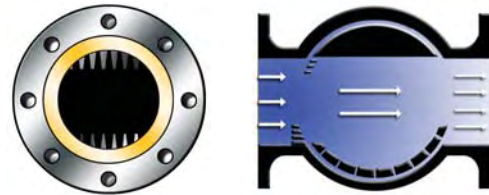
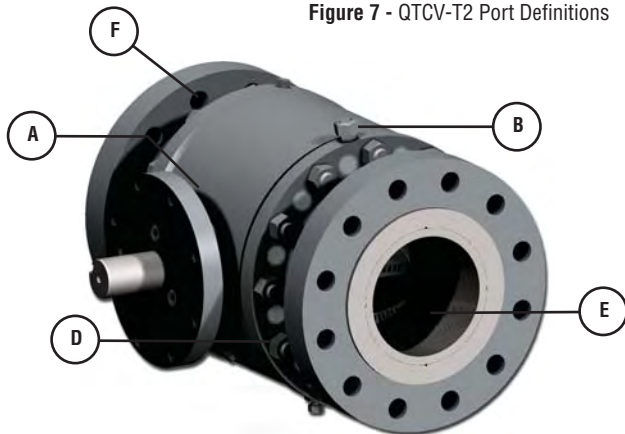


Figure 6.0 - Control valve in full-open position

When the QTCV-T2 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.

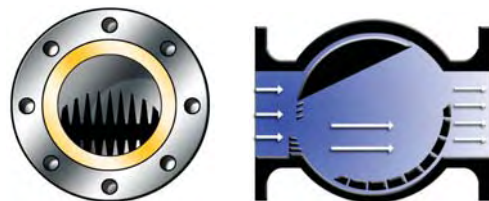


Figure 6.1 - Control valve partially closed

When the QTCV-T2 is partially closed the inlet 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 optimum noise attenuation in this position.

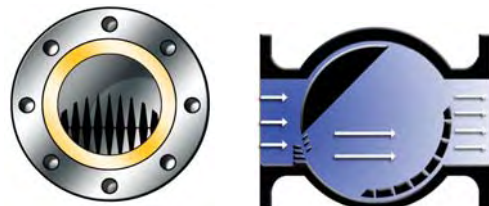


Figure 6.2 - Control valve near closed

When the QTCV-T2 nears the closed position the inlet and outlet diffuser will fully engage. The flow media must pass through both the inlet and outlet diffuser, providing excellent low flow volume control capability.

Table 3 - QTCV-T2 Technical Specifications

QTCV-T2 Port Definitions	Port Info	Item
Stem Lubrication Port	1/4" NPT	A
Upstream Seat Lubrication Port	Buttonhead	B
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-T2 Series Control Valve Accessories/Options

Realize Optimum Performance of your QTCV-T2 Control Valve with these popular accessories/options!

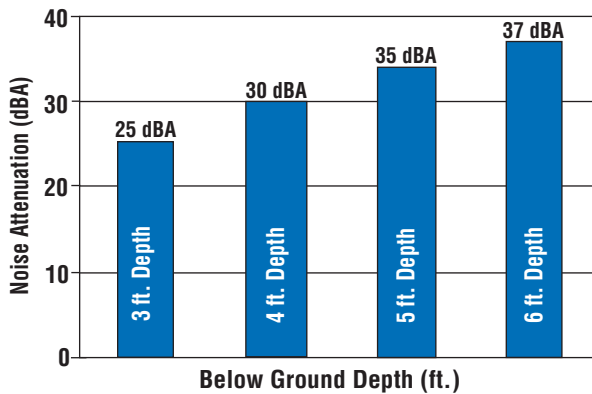


**Add up to 37 dBA
Noise Attenuation**

Figure 8 - 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.

Below Ground Regulator Option Providing Additional Noise Attenuation



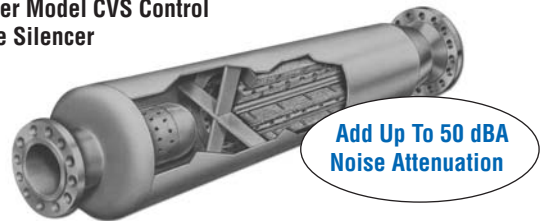
Noise Attenuation as a Factor of Below Ground Depth

Typical below ground depths range from 3 feet to 6 feet. 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.

The **Becker Below Ground Ball Valve Regulator** option provides a multitude of benefits by direct burial of the control valve. The valve actuator, lubrication lines, and drain lines are extended above ground while the ball valve remains below ground. The primary advantage of Below Ground Regulators is inexpensive noise attenuation up to 37 dBA.

- More than 25 dBA noise attenuation
- Less ambient heat loss
- May use smaller adjacent piping diameter
- Smaller station footprint
- Economical noise attenuation
- Eliminates need for buildings and enclosures by utilizing the Fiberglass Cabinet
- Below Ground Regulators may be combined with other noise attenuation solutions

Becker Model CVS Control Valve Silencer



**Add Up To 50 dBA
Noise Attenuation**

The **CVS Control Valve Silencer** is a noise attenuating device that is installed immediately downstream of any control valve regulator to provide up to 50 dBA noise reduction. 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



**Add Up To 15 dBA
Noise Attenuation**

The **CVD Series Control Valve Diffuser** is a noise attenuating device that is installed immediately downstream of any control valve regulator to provide up to 15 dBA noise reduction. 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-T2 Series Control Valve Compatible Actuators

Becker control valve actuators provide reliability and accuracy for all of your 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 500 psig (3447 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:	500 psig (3447 kPa)
Bleed to Pressure Sys:	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 that 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 500 psig (3447 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:	500 psig (3447 kPa)
Bleed to Pressure:	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:	Limited
Below Ground Design:	Not recommended
Maximum Valve Size:	42" bore
Minimum Valve Size:	2" bore
Stop Adjustment:	External



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 closed failure mode. The SYSR incorporates a scotch yoke mechanism. The SYSR can accept power supply gas up to 130 psig (896 kPa). The SYSR Actuator 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

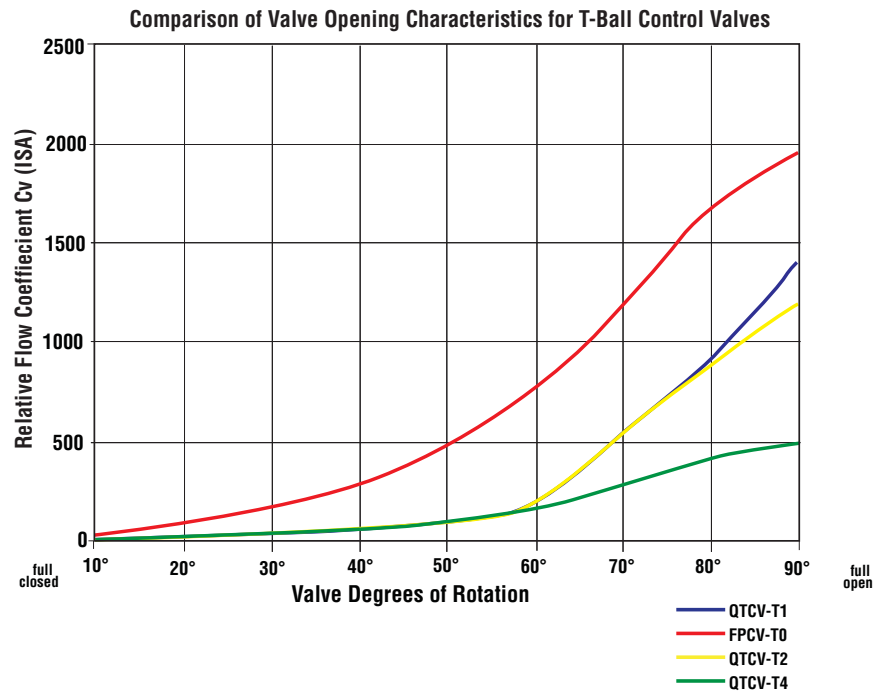
Actuator Type:	Quarter turn (90° rotation)
Mechanism:	Scotch yoke
Usage:	Moderate-duty
Action:	Single-acting (fail-open or fail-closed)
Applications:	Throttling, On-Off
Maximum Supply Gas:	130 psig (896 kPa)
Bleed to Pressure:	Limited
Below Ground Design:	Not recommended
Maximum Valve Size:	36" bore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

Table 4 - Model QTCV-T2 Control Valve Flow Coefficients (Cv) Based Upon ISA Sizing Equation Criteria

Size inch (mm)	Minimum Controllable Cv.	Valve Degree of Rotation								
		10°	20°	30°	40°	50°	60°	70°	80°	90°
4" (100)	2.0	2.0	9.9	17.0	31.0	50.0	83.0	228.0	374.0	578.0
6" (150)	4.5	4.5	22.0	39.0	69.0	113.0	186.0	541.0	888.0	1,371.0
8" (200)	8.0	8.0	40.0	70.0	123.0	201.0	331.0	858.0	1373.0	2,105.0
10" (250)	12.5	12.5	62.0	109.0	192.0	214.0	517.0	1,380.0	2,198.0	3,399.0
12" (300)	18.0	18.0	89.0	157.0	276.0	452.0	744.0	1,752.0	2,818.0	4,655.0
16" (400)	32.0	32.0	159.0	279.0	491.0	803.0	1,323.0	3,036.0	5,046.0	8,059.0
20" (500)	50.1	50.1	249.0	436.0	768.0	1255.0	2,067.0	4,682.0	7,568.0	1,2346.0
24" (600)	72.0	72.0	358.0	627.0	1,106.0	1807.0	2,976.0	6,742.0	10,898.0	17,778.0
30" (750)	113.0	113.0	559.0	980.0	1,728.0	2824.0	4,651.0	10,534.0	17,028.0	27,779.0
36" (900)	162.0	162.0	805.0	1,411.0	2,488.0	4067.0	6,697.0	15,168.0	24,520.0	40,001.0
X _t	0.99	0.99	0.95	0.78	0.75	0.64	0.44	0.42	0.40	0.35
F ₁	0.96	0.96	0.96	0.94	0.92	0.87	0.83	0.80	0.70	0.59

- (1) Flow coefficients (Cv) are based upon ISA sizing equation criteria.
- (2) Consult Becker Precision Equipment 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 sizing criteria see bulletin "QTCV-T2 Quiet Trim Control Valve Universal Cv 1001".
- (6) For sizing and station design software utilizing universal gas sizing criteria, utilize Becker bpeSize program.

Figure 9 - Comparison of Valve Opening Characteristics for T-Ball Control Valves
 Graph provides relative comparison of FPCV-T0, QTCV-T1, QTCV-T2, and QTCV-T4. Note difference in rate of opening and full-open capacity between each control valve. Data based upon 6" (150 mm) FPCV-T0, QTCV-T1, QTCV-T2, and QTCV-T4.



www.dresser.com/becker

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

Table 5 - Model QTCV-T2 Face to Face Dimensions (RFFE)

Size Inches (mm)	ANSI 150		ANSI 300		ANSI 600		ANSI 900		ANSI 1500	
	Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
4" (100)	9.000	(229)	12.000	(305)	17.000	(432)	18.000	(457)	21.500	(546)
6" (150)	15.500	(394)	15.900	(403)	22.000	(559)	24.000	(610)	27.800	(705)
8" (200)	18.000	(457)	19.800	(502)	26.000	(660)	29.000	(737)	32.800	(832)
10" (250)	21.000	(533)	22.400	(568)	31.000	(787)	33.000	(838)	39.000	(991)
12" (300)	24.000	(610)	25.500	(648)	33.000	(838)	38.000	(965)	44.500	(1,130)
16" (400)	30.000	(762)	33.000	(838)	39.000	(991)	44.500	(1,130)	54.500	(1,384)
20" (500)	36.000	(914)	39.000	(991)	47.000	(1,194)	52.000	(1,321)	65.500	(1,664)
24" (600)	42.000	(1,067)	45.000	(1,143)	55.000	(1,397)	61.000	(1,549)	80.500	(2,045)
30" (750)	51.000	(1,295)	55.000	(1,397)	65.000	(1,651)	74.000	(1,880)	N/A	(N/A)
36" (900)	60.000	(1,524)	68.000	(1,727)	82.000	(2,083)	90.000	(2,286)	N/A	(N/A)

(1) Consult Becker Precision Equipment for additional information.

Table 6 - Model QTCV-T2 Standard Weights (RFFE)

Size (mm)	ANSI 150		ANSI 300		ANSI 600		ANSI 900		ANSI 1500	
	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	(57)
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 Precision Equipment for additional information.

Table 7 - Model QTCV-T2 Face to Face Dimensions (RTJ)

Size Inches (mm)	ANSI 150		ANSI 300		ANSI 600		ANSI 900		ANSI 1500	
	Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
4" (100)	N/A	(N/A)	N/A	(N/A)	17.100	(435)	18.100	(460)	21.600	(549)
6" (150)	N/A	(N/A)	N/A	(N/A)	22.100	(562)	24.100	(613)	28.000	(711)
8" (200)	N/A	(N/A)	N/A	(N/A)	26.100	(664)	29.100	(740)	33.100	(841)
10" (250)	N/A	(N/A)	N/A	(N/A)	31.100	(791)	33.100	(841)	39.400	(1,000)
12" (300)	N/A	(N/A)	N/A	(N/A)	33.100	(841)	38.100	(968)	45.100	(1,146)
16" (400)	N/A	(N/A)	N/A	(N/A)	39.100	(994)	44.900	(1,140)	55.400	(1,407)
20" (500)	N/A	(N/A)	N/A	(N/A)	47.300	(1,200)	52.500	(1,334)	N/A	(N/A)
24" (600)	N/A	(N/A)	N/A	(N/A)	55.400	(1,407)	61.800	(1,568)	N/A	(N/A)
30" (750)	N/A	(N/A)	N/A	(N/A)	29.100	(1,740)	74.900	(1,902)	N/A	(N/A)
36" (900)	N/A	(N/A)	N/A	(N/A)	82.600	(2,099)	91.100	(2,315)	N/A	(N/A)

(1) Consult Becker Precision Equipment for additional information.

Table 8 - Model QTCV-T2 Standard Weights (RTJ)

Size (mm)	ANSI 150		ANSI 300		ANSI 600		ANSI 900		ANSI 1500	
	Lbs.	(Kg.)	Lbs.	(Kg.)	Lbs.	(Kg.)	Lbs.	(Kg.)	Lbs.	(Kg.)
4" (100)	N/A	(N/A)	N/A	(N/A)	295	(134)	355	(161)	430	(195)
6" (150)	N/A	(N/A)	N/A	(N/A)	550	(249)	850	(386)	1,270	(576)
8" (200)	N/A	(N/A)	N/A	(N/A)	975	(442)	1,225	(556)	1,650	(748)
10" (250)	N/A	(N/A)	N/A	(N/A)	1,550	(703)	1,800	(816)	2,620	(1,188)
12" (300)	N/A	(N/A)	N/A	(N/A)	2,025	(919)	2,700	(1,225)	3,640	(1,651)
16" (400)	N/A	(N/A)	N/A	(N/A)	3,375	(1,531)	4,420	(2,005)	8,800	(3,992)
20" (500)	N/A	(N/A)	N/A	(N/A)	5,800	(2,631)	7,610	(3,452)	N/A	(N/A)
24" (600)	N/A	(N/A)	N/A	(N/A)	8,700	(3,946)	12,100	(5,488)	N/A	(N/A)
30" (750)	N/A	(N/A)	N/A	(N/A)	14,725	(6,679)	21,000	(9,525)	N/A	(N/A)
36" (900)	N/A	(N/A)	N/A	(N/A)	23,400	(10,614)	29,900	(13,562)	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 Precision Equipment for additional information.

Table 9 - Model QTCV-T2 Face to Face Dimensions (Weld End)

Size Inches (mm)	ANSI 150		ANSI 300		ANSI 600		ANSI 900		ANSI 1500	
	Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)	Inches	(mm)
4" (100)	12.000	(305)	12.000	(305)	17.0	(432)	18.000	(457)	21.600	(549)
6" (150)	18.000	(457)	18.000	(457)	22.0	(559)	24.000	(610)	27.800	(705)
8" (200)	20.500	(521)	20.500	(521)	26.0	(660)	29.000	(737)	32.800	(832)
10" (250)	22.000	(559)	22.000	(559)	31.0	(787)	33.000	(838)	39.000	(991)
12" (300)	25.000	(635)	25.000	(635)	33.0	(838)	38.000	(965)	44.500	(1,130)
16" (400)	33.000	(838)	33.000	(838)	39.0	(991)	44.500	(1,130)	54.500	(1,384)
20" (500)	39.000	(991)	39.000	(991)	47.0	(1,194)	52.000	(1,321)	N/A	(N/A)
24" (600)	45.000	(1,143)	45.000	(1,143)	55.0	(1,397)	61.000	(1,549)	N/A	(N/A)
30" (750)	55.000	(1,397)	55.000	(1,397)	65.0	(1,651)	74.000	(1,880)	N/A	(N/A)
36" (900)	68.000	(1,727)	68.000	(1,727)	82.0	(2,083)	90.000	(2,286)	N/A	(N/A)

(1) Consult Becker Precision Equipment for additional information.

Table 10 - Model QTCV-T2 Standard Weights (Weld End)

Size (mm)	ANSI 150		ANSI 300		ANSI 600		ANSI 900		ANSI 1500	
	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	(193)	425	(193)	450	(204)	650	(295)	970	(440)
8" (200)	725	(329)	725	(329)	840	(381)	950	(431)	1,190	(540)
10" (250)	1,050	(476)	1,025	(465)	1,250	(567)	1,400	(635)	1,840	(835)
12" (300)	1,450	(658)	1,450	(658)	1,700	(771)	2,200	(998)	2,660	(1,207)
16" (400)	2,150	(975)	2,350	(1,066)	2,825	(1,281)	3,500	(1,588)	6,750	(3,062)
20" (500)	4,050	(1,837)	4,050	(1,837)	5,100	(2,313)	6,020	(2,731)	N/A	(N/A)
24" (600)	6,000	(2,722)	6,000	(2,722)	8,025	(3,640)	9,140	(4,146)	N/A	(N/A)
30" (750)	10,400	(4,717)	10,925	(4,955)	13,450	(6,101)	16,500	(7,484)	N/A	(N/A)
36" (900)	16,650	(7,552)	16,650	(7,552)	20,860	(9,462)	24,500	(11,113)	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 Precision Equipment for additional information.

Choose the Perfect Rotary Control Valve for Your Application

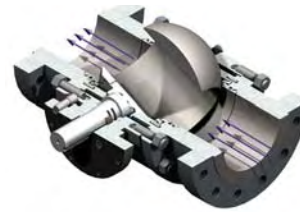
Becker Precision Equipment has a wide variety of rotary control valves with a variety of features that ensure the optimum solution for your application needs. Refer to the figures below to assist you in selecting the proper rotary control valve.

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	•	•	•	•	•	•
Quik Change "Characterize-able" Trims					•	•
Removable Noise Trim					•	•
Compatible Actuators						
RPDA Series	•	•	•	•		
RPSR Series	•	•	•	•		
SYDA Series	•	•	•	•		
SYSR Series	•	•	•	•		
LPDA Series					•	•
LPSR Series					•	•
LD Series					•	•

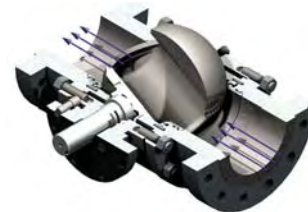
*CAUTION: This information is intended as a guideline for application of Becker Precision Equipment products. Becker strongly recommends consulting Becker Engineering prior to application of any product.

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



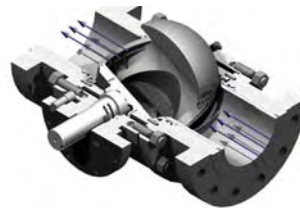
FPCV-T0 Series Quiet Trim Control Valve:

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



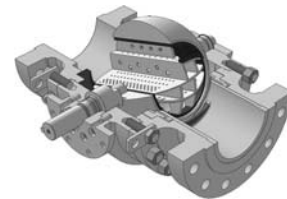
QTCV-T1 Series Quiet Trim Control Valve:

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

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