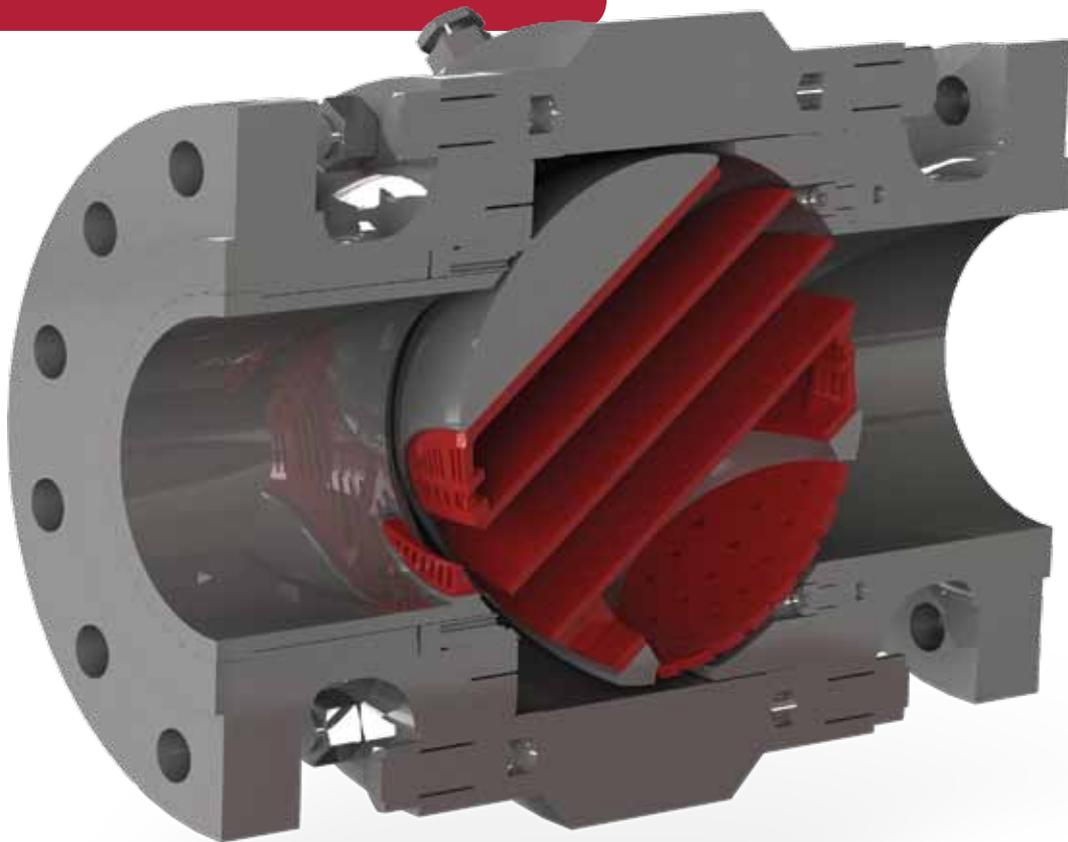


GE Energy

Masoneilan* Valves T-Ball* Control Valve

- Exceptional noise reduction
- Large flow volume capability
- Precise control



imagination at work

Offering exceptional noise reduction, cavitation control, and large flow volume capabilities

Combining advanced product technology with application expertise, GE Energy works to understand your needs and provide you with the right valve for a wide range of industries. The Masoneilan* T-Ball* control valve is well suited for applications requiring low noise, precise control, and large flow volume capability, while reducing cavitation and erosion.

Large flow areas allow the T-Ball valve to effectively handle fluids with entrained particles, while flexible customization capabilities mean valves can be engineered to meet your specific requirements. In addition, the T-Ball valve's compact size helps simplify maintenance and reduce costs, while addressing the needs of high-process yield and field-proven reliability to life cycle cost effectiveness.



Industries

- Oil and Gas Processing
- Oil and Gas Transmission
- Exploration
- Liquid Natural Gas (LNG)
- Floating Production, Storage and Offloading (FPSO)
- Petrochemical Power Plants

Applications

- Two-Phase Particulates
- Rich/Lean Amine Service
- Turret Protection
- Ethane Separation
- High-volume Liquid Flow
- Erosive Service
- Corrosive Service
- High-velocity Noise Abatement
- Condensate Control
- Injection/Withdrawal

Customer Benefits

- Lower installation and maintenance costs
- Increased Flow Rate
- Reduced Envelope Dimensions
- High Rangeability
- Improved Control Performance
- Design Flexibility for Special Applications
- Increased Cycle Life and Reliability
- Noise Reduction (up to 25 dBA)
- Self-cleaning

Increasing simplicity, helping to reduce cost

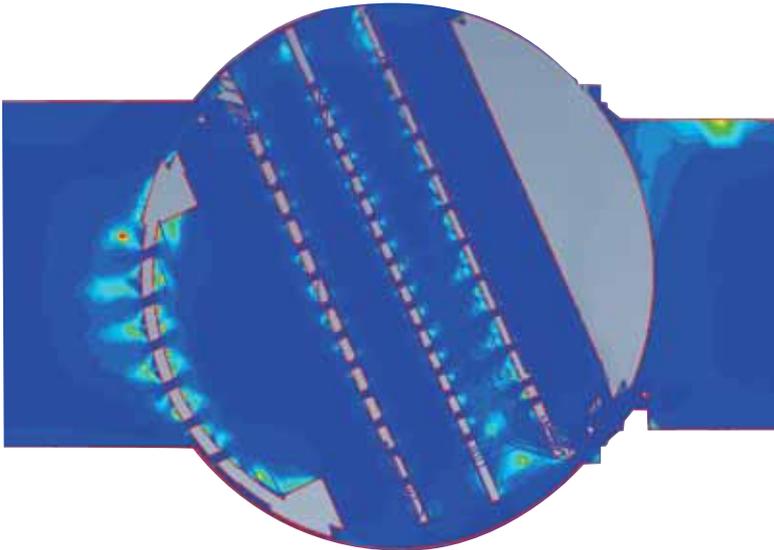
Exceptional Noise Reduction

Designed with a multi-stage, variable resistance trim, the T-Ball valve provides exceptional noise reduction. As fluids and particles flow through the valve, parallel plates gradually reduce pressure and the amount of dissipated energy. As the fluid exits the valve body it travels through an expanded downstream outlet which reduces the flow's velocity. The expanded outlet minimizes excess energy resulting in additional noise attenuation. The custom trim stage within the T-Ball allows for moderate to severe noise attenuation with reduction levels up to 25 dBA. Noise reduction helps improve worker safety and helps meet environmental regulations, and it also helps to reduce the cost of equipment and piping damage caused by high noise vibration.

Enhanced Control

Unlike most other low-noise control valve designs, the T-Ball valve provides an inherent modified equal percentage characteristic resulting in a nearly linear installation in most piping systems, for enhanced control.

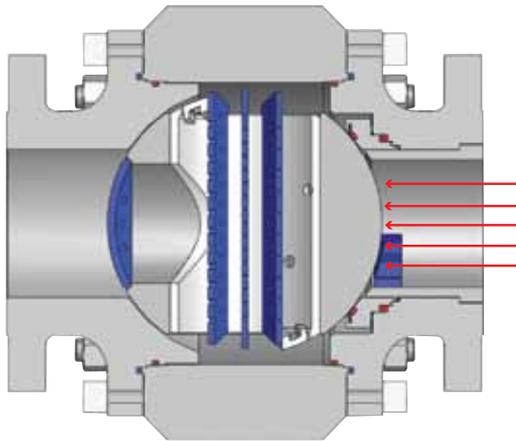
The valve's design provides a low-pressure recovery factor. Torque balancing allows for a simple, yet effective way to increase valve and actuator stability under harsh conditions. Through this approach, the attenuation plate edges are contoured to balance the dynamic flow-induced torque.



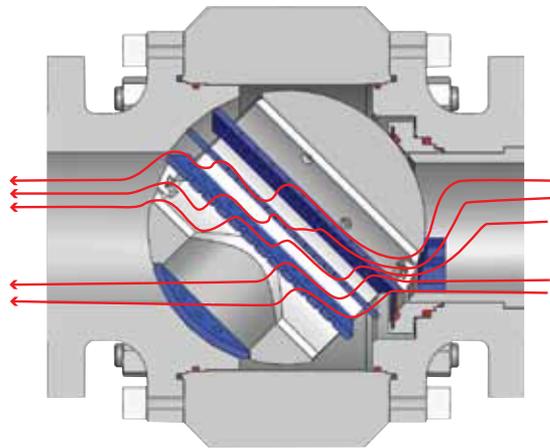
QTCV-T4 Turbulence Intensity

Each of the perforated plates shapes the flow passage to control turbulence, producing a steady flow pattern. There is little fluctuation in turbulent velocity, reducing trim vibration and aerodynamic noise.

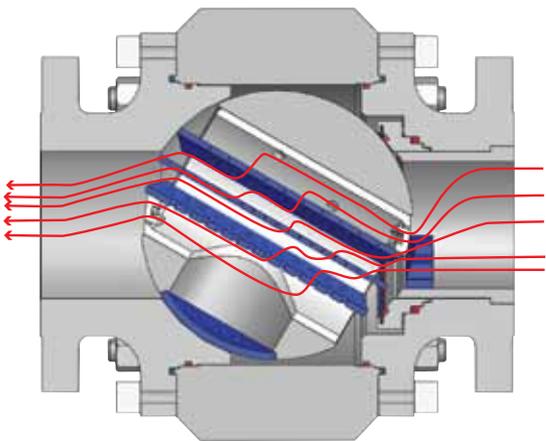
Exceptional noise reduction by design



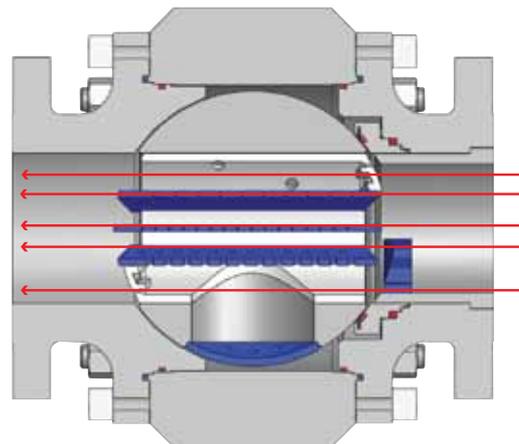
A. Full Closed 0° Travel: Double Piston Effect Seat Ensures Bidirectional Flow Shutoff up to ANSI Class VI in a single seat design.



B. Open 30° Travel: Wide rangeability for excellent control during low-flow operating conditions.



C. In-control 45° Travel: Maximum Noise Attenuation is achieved as the noise attenuator plates are engaged during higher flow rates.



D. Full Open 90° Travel: High Capacity is crucial when up-stream pressure diminishes and flow rates significantly increase, requiring only a low pressure differential.

Large Flow Volume Capability

The T-Ball control valve handles fluids and slurries with solid particles. In addition to its rugged construction, the valve features a non-plugging, rotating trim element designed to “self-clean” as the process fluid flows through the valve, effectively flushing entrained particles away.

Simplified Maintenance

The compact, rotary construction provides a significant reduction in size and weight compared to traditional globe valve designs. These improvements reduce the need for expensive piping support and ease handling during installation and maintenance. The T-Ball valve also features reduced component weight for simplified in-line servicing.

Optimizing performance with customized solutions

The Masoneilan T-Ball valve can be easily customized by GE Energy's experienced engineers to suit your specific application requirements. Available in a full range of trim designs (FPCV-T0, QTCV-T1, QTCV-T2 and QTCV-T4), this valve can be configured to meet your precise flow rate and noise attenuation specifications.

For example, applications that require high mass flow rates without the need for noise attenuation are well suited to

the conventional full port design of the FPCV-T0 mode. Applications that require high-pressure differential and aggressive noise attenuation are ideal for the QTCV-T4 model.

In addition, GE offers optional construction materials, including exotic alloys and hardened overlays, that can increase service life and performance in rugged applications

Trim Selections

To optimize performance and durability, the T-Ball valve is offered in a series of noise attenuating trims.



T-Ball Model	FPCV-T0	QTCV-T1	QTCV-T2	QTCV-T4	Attenujet*
Noise Attenuation	Baseline	7 dBA	17 dBA	25 dBA	20 dBA

High capacity and low noise trim

T-Ball Series Capacity (Cv ratings)

Valve Nominal Size		Cv Max			
NPS	DN	FPCV-T0	QTCV-T1	QTCV-T2	QTCV-T4
2	50	260	-	-	-
3	80	550	-	-	-
4	100	975	590	578	300
6	150	2,600	1,398	1,371	673
8	200	5,250	2,148	2,105	1,157
10	250	8,500	3,468	3,399	1,872
12	300	13,900	4,749	4,655	2,696
16	400	22,500	8,222	8,059	4,792
20	500	38,800	12,595	12,346	7,487
24	600	58,000	18,137	17,778	-
30	750	98,000	28,340	27,779	-
36	915	154,000	40,809	40,001	-
42	1,050	249,000	-	-	-

(1) Flow Coefficients (Cv) are based upon ISA sizing equation criteria.

(2) Due to GE's dedication to new product development and enhancement data is subject to change. Please check with our engineering department for the most recent data.

Providing knowledge and technology

Integrated Smart-engineered Technology

Make the most of the T-Ball control valve's operational benefits with GE's leading microprocessor-based field instrumentation technology. Award-winning HART communicating SVI* and FVP* digital positioners help improve your asset's effectiveness. Using patented tuning methods that optimize valve control performance, our digital positioners help deliver improved process yields and lower maintenance cost.

Flexibility is built into each of GE Energy's digital instrumentation offerings. SVI II and FVP mount on any control valve actuator and interface effectively with HART and Foundation Fieldbus distributed control schemes, respectively (since SVI is only Hart and FVP is only FF).

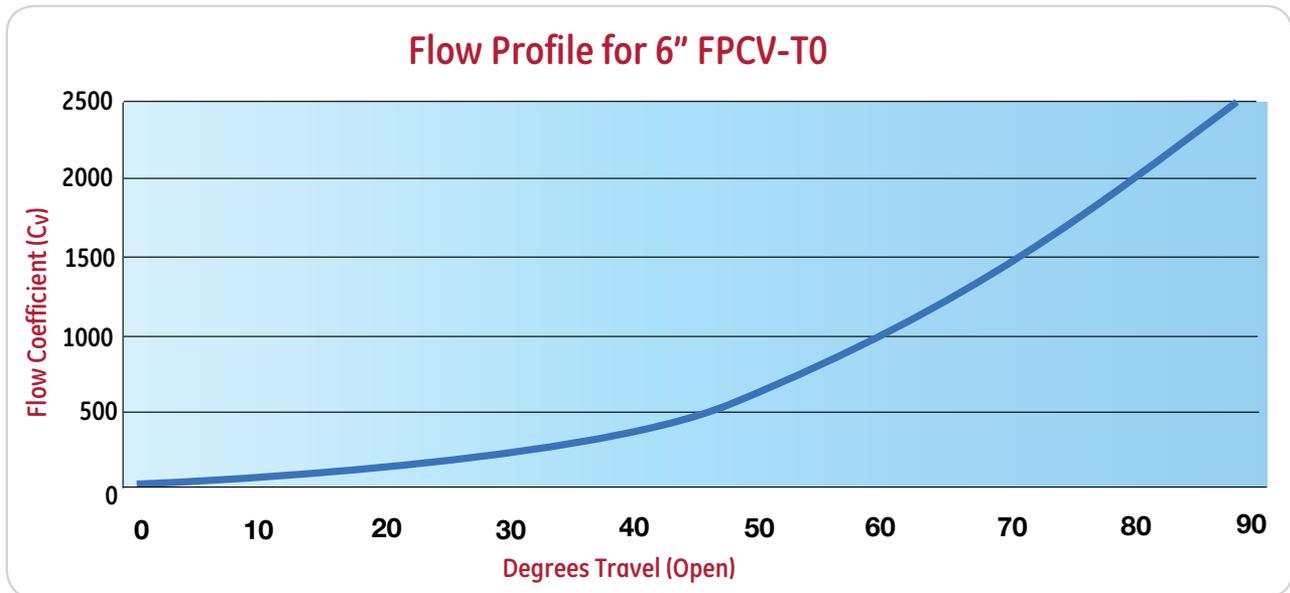
You can further increase flexibility and functionality with GE's smart instrument companion software such as ValVue*, a tool that monitors real-time device status. In addition, ValvKeep* valve database management and AMS Snap-on™ asset management software provide a comprehensive view into valve asset maintenance history

and performance trends. These software support tools, in conjunction with the advanced diagnostic capabilities of smart devices, help to reduce operating costs.

Flexible Solutions for a Wide Range of Applications

GE provides a wide range of control valves and services, supported by a global, integrated network of manufacturing, sales and service offices. Our broad portfolio of products includes general service and severe service control valves, actuators, pressure regulators and valve-mounted smart instrumentation and accessories. GE has the expertise, experience and technology to deliver a better-fit solution for virtually every process control application. Masoneilan designs from GE include products such as the Camflex* rotary control valve, LincolnLog* liquid letdown control valve, butterfly valves and customized solutions including T-Ball parallel plate technology and patented V-LOG* labyrinth trim technology.

Meeting application and control needs



Flow profile for 6" (150) FPCV-T0

The T-Ball valve's modified equal-percentage flow characteristic combines the benefits of both linear and equal-percentage characteristics, offering excellent control in the low-flow ranges and excellent capacity for high flow. This advanced design enables the valve to meet a large variety of application and control needs.

Specifications

Product range

Size: NPS 2 to NPS 42
Rating: ANSI class 150 to 2500
API Rating: 2000 to 7500 psi
End Connections: RFFE, RTJ, Weld End

Materials of construction

Per Customer Requirements**

Carbon Steel
Stainless Steel
Duplex
Inconel 625
Tungsten Carbide Overlay

**Additional materials available upon request

Temperature

-60° C to 176° C
(-76° F to 349° F)

Features

Turndown

Up to 300:1

Noise Attenuation Trim

QTCV-T1: up to 7 dBA
QTCV-T2: up to 17 dBA
QTCV-T4: up to 25 dBA

ANSI Shut Off Rating

Soft Seat – Tested up to Class VI
Metal Seat – Tested up to Class V

Maximum Differential Pressure

FPCV-T0: Full ANSI
QTCV-T1: 1,000 psi (69 bar)
QTCV-T2: 800 psi (55 bar)
QTCV-T4: 1,500 psi (103 bar)

Certifications

ATEX Dir. 94/9/Ec
CRN
GOST-R
NACE MR0175
PED 27/23/EC
RTN
SIL 3 per IEC 61508

Highlighted features

¼ Turn Design Pressure Seal Seating Technology
Low impact automation minimizes emissions
Compact Size
Bidirectional Flow Capability
Wide control range
Self Cleaning Device Resistant to Debris
Minimum pressure loss at fully open position
Double Seat design provides Long, reliable seat tightness
Fire safe approved

Options

Extended stem for buried service
Expanded end connections to match piping size
Low emission stem seal design according to ISO standards

Advanced Material Selection

The material selection for the valve components is based on your specific service conditions. The sizing of the pressure envelope, as well as the drive train, is based on the mechanical properties of the selected material.

In highly corrosive service, sealing areas and other critical parts of the valve can be clouded. For metal seated valves, the ball and seat contact surfaces are hard faced with tungsten carbide or chromium carbide coating to improve resistance to wear and prevent scratching caused by solid particles contained in the process media.

Consult your local GE Energy sales office or manufacturing facility with any questions you may have on valve sizing and material selection.

DIRECT SALES OFFICE LOCATIONS

BELGIUM

Phone: +32-2-344-0970
Fax: +32-2-344-1123

BRAZIL

Phone: +55-11-2146-3600
Fax: +55-11-2146-3610

CHINA

Phone: +86-10-8486-4515
Fax: +86-10-8486-5305

FRANCE

Courbevoie
Phone: +33-1-4904-9000
Fax: +33-1-4904-9010

GERMANY

Viersen
Phone: +49-2162-8170-0
Fax: +49-2162-8170-280

INDIA

Mumbai
Phone: +91-22-8354790
Fax: +91-22-8354791

New Delhi

Phone: +91-11-2-6164175
Fax: +91-11-5-1659635

ITALY

Phone: +39-081-7892-111
Fax: +39-081-7892-208

JAPAN

Chiba
Phone: +81-43-297-9222
Fax: +81-43-299-1115

KOREA

Phone: +82-2-2274-0748
Fax: +82-2-2274-0794

MALAYSIA

Phone: +60-3-2161-0322
Fax: +60-3-2163-6312

MEXICO

Phone: +52-5-310-9863
Fax: +52-5-310-5584

THE NETHERLANDS

Phone: +0031-15-3808666
Fax: +0031-18-1641438

RUSSIA

Veliky Novgorod
Phone: +7-8162-55-7898
Fax: +7-8162-55-7921

Moscow

Phone: +7 495-585-1276
Fax: +7 495-585-1279

SAUDI ARABIA

Phone: +966-3-341-0278
Fax: +966-3-341-7624

SINGAPORE

Phone: +65-6861-6100
Fax: +65-6861-7172

SOUTH AFRICA

Phone: +27-11-452-1550
Fax: +27-11-452-6542

SOUTH & CENTRAL

AMERICA AND THE CARIBBEAN
Phone: +55-12-2134-1201
Fax: +55-12-2134-1238

SPAIN

Phone: +34-93-652-6430
Fax: +34-93-652-6444

UNITED ARAB EMIRATES

Phone: +971-4-8991-777
Fax: +971-4-8991-778

UNITED KINGDOM

Wooburn Green
Phone: +44-1628-536300
Fax: +44-1628-536319

UNITED STATES

Massachusetts
Phone: +1-508-586-4600
Fax: +1-508-427-8971

Corpus Christi, Texas

Phone: +1-361-881-8182
Fax: +1-361-881-8246

Deer Park, Texas

Phone: +1-281-884-1000
Fax: +1-281-884-1010

Houston, Texas

Phone: +1-281-671-1640
Fax: +1-281-671-1735

California

Phone: +1-562-941-7610
Fax: +1-562-941-7810



* Masonellon, T-Ball, Camflex, SVI, FVP, LodB, MARC, ValSpeQ, ValvFAST, ValvKeep, ValScope, ValVue, V-LOG, Attenujet, and LincolnLog are registered trademarks of the General Electric Company.
Other company names and product names used in this document are the registered trademarks or trademarks of their respective owners.

© 2012 General Electric Company. All rights reserved.

GEA19792 04/2012