

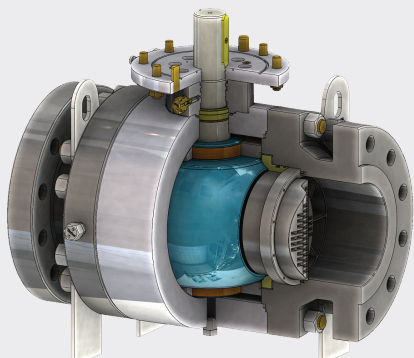


dBX Shield™

Safe, Quiet Rotary
Control Valve

dBX Shield™ Benefits

- Low noise
- Low vibration
- High rangeability
- High capacity
- Exceptional control
- Ease of maintenance



Reliability | Reduced capital cost | Increased safety

There is an ever-growing need for natural gas. It generates our electricity, fuels our homes, and is transported for world-wide use. As suburban populations continue to grow, and neighborhoods expand into the countryside, people are closer to critical, noisy pipeline assets. This makes it even more important for pipeline operators to meet the required noise levels and eliminate possible gas leaks .

Limiting high levels of noise is a major challenge for pipeline operators using antiquated valve technology. Pipeline operators have had to resort to very expensive measures to attenuate noise. Burying valves and using the earth to attenuate the noise can create problems in expensive maintenance programs when unearthing the valves, and utilizing noise attenuation in buildings means a high capital cost, while degrading over time in changing weather conditions.

IMI CCI's low noise DRAG® technology is considered one of the landmark innovations in the severe service control valve industry. DRAG® is a high technology source treatment designed for controlling kinetic energy, noise, and velocity.

The design consists of economically packed torturous paths made up from a variable number of right-angle turns that allows the process fluid to cascade through each passageway, reducing pressure at each right-angled turn, controlling the pressure drop, velocity, noise, and energy absorbed from the reductions in pressure. This technology controls noise, reduces vibration, and improves both control and reliability, and is beneficial in the following applications:

Midstream

- Pipeline pressure letdown stations (control & monitor)
- Compressor anti-surge
- Pressure & flow control

LNG

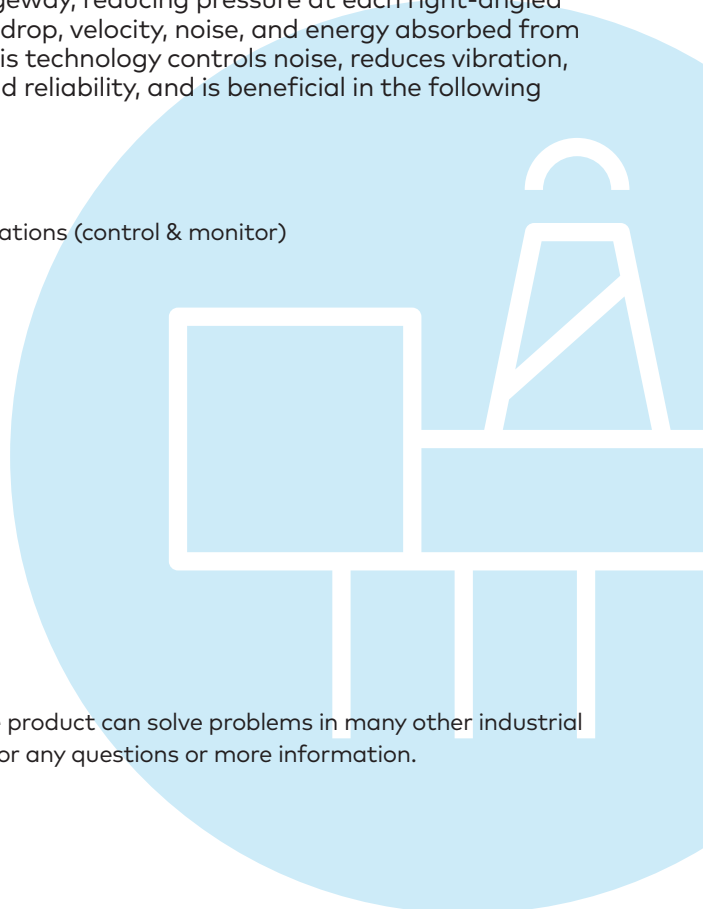
- Feed gas control
- Depressurizing / flare
- Compressor hot gas bypass

Petrochemical / refining

- Compressor anti-surge
- Depressurizing / flare

Other major industries

The IMI Critical dBX Shield™ valve product can solve problems in many other industrial applications. Please contact us for any questions or more information.



DRAG® Concept

The dBX Shield™ DRAG® trim is built from discrete passageways that direct flow through a torturous path. The path turns the flow through a series of right-angle turns. Turning the flow reduces the pressure at each turn, which controls the noise, velocity, and kinetic energy. By adding more turns, the noise, velocity, and kinetic energy can be controlled to the required limits.



DRAG® element



High rangeability dBX Shield™ design

The IMI Critical dBX Shield™ trim is mounted horizontally in the port of the ball or behind the downstream seat, depending on valve size. The advantage in these designs is the ability to have rangeability in excess of 1000:1.

The dBX Shield™ design configurations and flexible manufacturing techniques deliver precise control at both low flow and high flow conditions. The DRAG® design can be built with a varying number of discrete passageways and right angle turns that vary axially down the length of the trim and across the face of the trim. The design allows for complete customization of the trim to suit any flow regime where the application may require 20 turns as the ball begins to open to control noise $\leq 60\text{dBA}$ at a velocity $\leq 0.3 \text{ MACH}$ as recommended by ISA S75.017 / EN 60534-8-3. With an increasing flow rate and pressure differential, the passageways can reduce across the face as the ball turns to its next position, still controlling within the previous parameters for noise and velocity.

The number of turns required can reduce to zero leaving a portion of the port fully open for high flow, low differential pressure, maximizing the flowrate while staying within a reduced sized valve body.

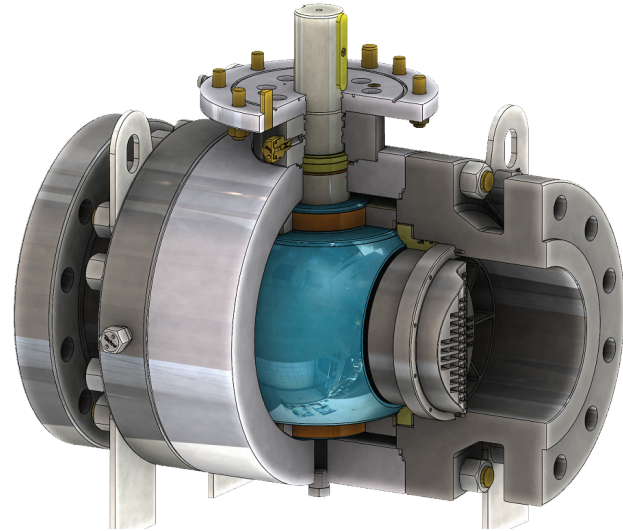
Tight shut-off

When closed, tight shutoff prevents unwanted gas leakage into the downstream piping. A leaky control valve can lead to serious problems in process control. Unlike other manufacturers' designs, IMI Critical dBX Shield™ valve's shutoff seat is completely isolated from the throttling area; guaranteeing repeatable shutoff and minimizing the risk of seat trim erosion.

dBX Shield™ size range & materials

Size range*	Pressure class ²
2 in. (DN50)	150 - 2500
3 in. (DN80)	150 - 2500
4 in. (DN100)	150 - 2500
6 in. (DN150)	150 - 2500
8 in. (DN200)	150 - 2500
10 in. (DN250)	150 - 2500
12 in. (DN300)	150 - 2500
14 in. (DN350)	150 - 2500
16 in. (DN400)	150 - 2500
18 in. (DN450)	150 - 2500
20 in. (DN500)	150 - 2500
24 in. (DN600)	150 - 2500
30 in. (DN750)	150 - 1500
36 in. (DN900)	150 - 1500

* Natural gas pipeline valves are 8 in. to 24 in. ANSI Class 600



Description	Materials	
Body ¹³	ASTM A350 LF2	ASTM A182 F 316
Ball ¹³	ASTM A182 F6a	ASTM A182 F 316
Stem ¹³	17-4PH	Nitronic 50
Soft seat ³	PTFE or PEEK	PTFE or PEEK
Metal seat ¹³	ASTM A182 F6a + HVOFCC	ASTM A316 + HVOFCC
Bolting ³	A193-B7 / A320 L7	A193 B8M
Soft seals ³	VITON O-ring & SS316 + graphite	

¹ NACE MR0175 materials available on request.

² Other sizes and pressure classes available on request

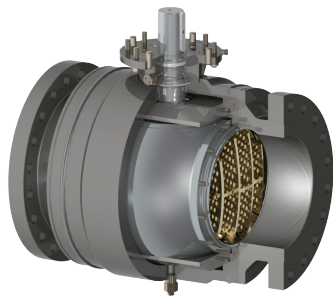
³ Other materials available



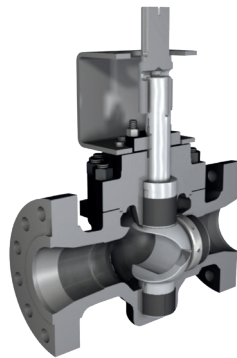
Ball valve pedigree

IMI Truflo Italy is an international leader, and a center of excellence, specializing in the engineering and manufacture of dedicated ball valves for oil, gas, chemical, and petrochemical industries with additional experience within PTA (purified terephthalic acid) plants, and LNG ships, plants and terminals.

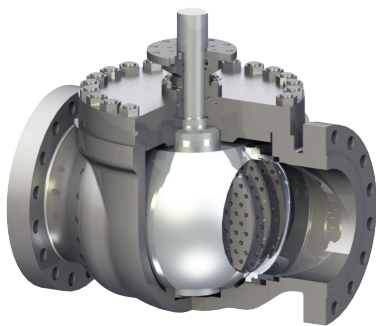
Customers use IMI Truflo Italy valves in the most severe service applications, where safety, integrity, and performance are critical.



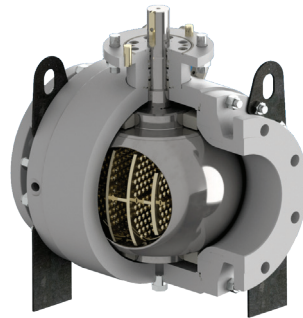
Fully welded



Eccentric



Top entry



Side entry

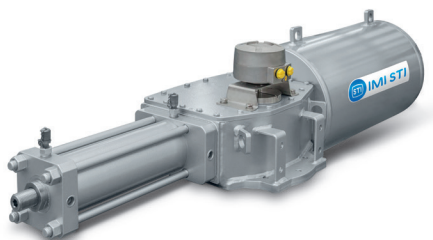


Size- Isolation	Type	Certifications	Design standards
1" (DN25) – 60" (DN1500)	Side entry	ISO 9001:20015	API 6D
ANSI 150 – 2500	Top entry	ISO TS29001:2007	ASME B16.34
API 5000 – 20000	Fully welded body	API Q1 9th edition	ISO 17292:2015
	Eccentric	ISO 10497 / API 607	
		ISO 61508 – SIL III	



Actuators and controls

IMI STI is an international leader in valve actuation. We design and manufacture complete actuation systems, which can be fully customized to meet customer needs, to operate industrial valves for the most demanding applications and processes. We offer a diverse range of valve actuation products including linear and quarter turn actuators, smart and traditional positioners, and a full range of accessories.



Hydraulic actuators



Pneumatic actuators
Gas operated actuators



Advanced smart positioner
Precise, high capacity, diagnostics



Accessories



Size	Type	Certifications	Design standards
DA : 29ft/lb to 4,425 ft/lb	Double acting	PED 2014/68/EU	IP66/67M
	Spring return	ATEX 2014/34/EU	
SR : 29ft/lb to 1844ft/lb	Pneumatic	EN 15714-3	2006/42/EC
	Hydraulic	ISO 61508 – SIL III	

Aftermarket service and support - a partner you can trust



Valves are some of the most abundant and critical components supporting the safe and efficient operation of energy process and conversion plants. Productivity, profitability and, most importantly, process safety can be quickly compromised when valves fail to perform to industry and factory specifications.

With so much at stake, you need quality, experience and performance you can trust.

IMI Critical has over 50 years of experience in serving the energy industry with solutions that improve our customers' bottom line.

Customers around the globe continue to entrust the performance and profitability of their plants to IMI Critical with confidence; knowing our in-depth system

analyses and cutting-edge technological solutions are tailor-made to their unique operational needs.

We have installed over 50,000 severe service valves in applications ranging from oil and gas to power generation. This wellhead of experience feeds our product innovation, helping us to push the envelope of severe service valve performance.

We take pride in ourselves for robust integration of preventative maintenance and economical system reliability improvements from the outset. As your strategic lifecycle partner, IMI Critical's aftermarket team can:

- Help facilitate smooth facility start-ups and run-times with customized preventative maintenance plans
- Achieve improved valve reliability through detailed system examination
- Recommend new upgrades to meet ever-increasing performance demands based on the latest technological improvements
- Eliminate leakage through root-cause analysis.

Invest today to reduce risk tomorrow

Minimizing risk and establishing predictable maintenance costs are critical components in maximizing the productivity of your plant. Long Term Service Agreements (LTSAs) can help you anticipate the total cost of life cycle maintenance and break it down into a low monthly payment. Leveraging years of industry experience, IMI Critical will develop a customized maintenance plan to minimize your risk. You will benefit from 24-hour access to priority service from our most senior technicians.

We are committed to achieving and maintaining optimum valve reliability and performance throughout the lifecycle of your plant with our highly trained and experienced aftermarket field teams, state-of-the-art repair centers infused with the most advanced technology and on-going research and product development. We believe establishing a partnership approach from day one is critical to achieving predictable and reliable valve performance – and ultimately a robust bottom line.

Field service

With over 200 highly trained field service technicians and six dedicated repair centers located strategically around the globe, IMI Critical is always close by and ready to meet your service and repair needs at a moment's notice.

With exclusive access to the original factory drawings and specifications, the field service technicians at IMI Critical are capable of conducting a critical dimension analysis (CDA) to ensure safety and efficiency. Once the valves have been inspected by a trained IMI Critical technician, the field service team can install the repair, replace or upgraded components as necessary to safeguard your investment.



Contact us at dbxshield@imi-critical.com or visit www.dbxshield.com for more information



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