

860 Series Angle Valves



Description

The 860 series cage-guided valve is specially designed using advanced control valve technology. This angle-type control valve is used to control a wide variety of relatively clean liquids and gases at high pressure differentials. Configured with either flow-to-open or flow-to-close trims, the valve is well suited for steam, gas or liquids, where flow-to-close is typically used for liquid service, and flow-to-open for steam and gas.

The design of the 860H (drilled-hole-cage) valve is primarily used for severe service applications requiring anti-cavitation or low-noise trim. In most cases, high pressure drop in process conditions may cause erosion, noise or vibration, which can affect process control. The 860H is a good solution to this severe service application.

The 860F valve is a fit-for-purpose design for severe flashing applications such as boiler blowdown, heater drain valves. This anti-flashing valve is designed to improve valve service life by adopting a special trim design, velocity and vibration control, and hardened trim material. The 860F valve helps reduce safety concerns and total cost of ownership.

Key Features

The 860 series valve is flexible, allowing a variety of trim types to be installed in the angle body. In addition, its cage guided construction reduces plug vibration and provides stable performance throughout travel. All 860 trims have a quick change design to guarantee convenient maintenance and easy trim replacement.

Multi-spring

- Multi-spring design allows very low hysteresis and dead band

Proven trim design

- Single P-port, multi-step, V-notch type cage, flashing service trim

Fail mode

- Fail to close on loss of air is standard
- Fail to open on loss of air is also available
- Diaphragm, piston, hydraulic and electric actuation available

Quick change trim

- All internal parts can be inspected easily by removing bonnet and cage

Accessories

- A full range are available to meet all requirements

Benefits

Tight shut-off

A variety of shutoff classes from ANSI IV through VI are available to meet application requirements.

Simple to change capacity and characteristics

A simple cage change is all that is required to change between reduced and full-sized capacity trims or between linear and equal percentage characteristics.

Easy maintenance

Top-entry design and a cage-retained seat ring allow for quick inspection or trim change.

Sour gas/corrosive fluid capable

The wide choice of body and trim materials allows the 860 valve series to be applied to corrosive/ sour gas/ flashing services with full compliance to NACE requirements.

Product Specification

| Valve Size | Flow Characterisation | Temperature range (general) |
|---|---|--|
| 1" through 20" | Linear on equal percentage to suit application | 1/2" - 4" -30°C ~ 300°C (Standard) -196°C ~ 565°C (Ext. bonnet) |
| Ratings | Seat leakage | 6" - 20" -30°C ~ 300°C (Standard) -196°C ~ 565°C (Ext. bonnet) |
| ANSI class 150-2500 (DIN and JIS available) | Standard ANSI class IV, option-ANSI class V or VI | |
| End connections | | |
| Raised face flange, weld ends (BW and SW) | | |

Applications

Power

- Nuclear, combined cycle, coal fired power plants, combined heat & power, district heating

Oil and gas

- Onshore, offshore, refinery
- Cryogenic for LNG

Chemical

- Dyes, cosmetics, caprolaktam

Petrochemical

- NCC, ethylene, BTX, PS, SM, VCM, PVC, LDPE, HDPE

Fine-chem

- HCL, H₂SO₄, NHO₃, acetic acid, PTA, AN, NH₃, pulp & paper

Flashing services in all industries

Materials

| Part | Material |
|-----------------|--|
| Body and bonnet | Carbon steel, stainless steel, alloy steel, monel, hastelloy B/C, alloy 20, titanium, bronze, al-bronze, duplex nickel, casting, forged material |
| Trim | 316SS, 316L, A20, 410SS, UNS31803, hastelloy B/C, 17-4PH, monel, ni-alloy, al-bronze, titanium |
| Gasket | Spiral wound: 304 or 316SS with teflon, grafoil Flat> Teflon, grafoil, soft filters |
| Balance seal | Glass filled TFE, EPDM, vilton, graphite, inconel, carbon |
| Packing | V-TFE, glass filled teflon, graphite, bellows seal |

Other materials available upon request

Drilled hole cage

The 860 Drilled-Hole-Cage trim provides proven performance in high pressure drop applications without cavitation, noise, erosion and vibration.

Anti-erosion

Cavitation is the sudden growth and collapse of vapour bubbles (cavities) in downstream liquid. To avoid the associated noise and vibration the right number of multi-stage and multi-path trim design should be adopted.

Low-noise

High mass flow and/or pressure drop in compressible fluids like gas or steam is a major source of noise and accompanies vibration in the system. The right source treatment depends on the right multi-path, multi-stage trim. IMI CCI Drilled hole cage design provides noise attenuation in a modular design.

Flashing trim

Flashing applications are subject to severe valve erosion in two phase mixture fluid processes, which results in unplanned repairs, increasing concerns about costs and safety. The 860 Flashing Guardian trim enables the flashing valves to control better and last longer at optimised ownership costs.

Anti-erosion

The 860F trim design offers an integrated solution that is to protect the valve from severe erosion. The special seat design maintains seat tightness to minimise leakage and for a longer service life. The multi-stage trim design applied in the plug moves the flashing point away from the seating area, controlling kinetic energy more effectively. Applying hardened trim material such as 440C SS or solid Stellite™ also increases valve resistance to erosion.

Quick change trim

According to the Practical Guide to Control Valves edited by the Instrument Society of America (ISA):

"Valve Trim shall be of the Quick Change type for ease of maintenance, no internal components shall be screwed or welded into the valve bodies or bonnets. Trim shall be designed to provide equal pressurisation around the plug in order to minimise vibration and prevent any potential problem from binding."

Americas

imiccsales.americas@imi-critical.com

IMI CCI Brazil
Tel: +55 11 2691 3361

IMI CCI Houston
Tel: +1 832 467 7200

IMI CCI RSM
Tel: +1 949 858 1877

Asia-Pacific

imiccsales.apac@imi-critical.com

IMI Critical Australia
Tel: +61 3 9213 0800

IMI Critical Japan
Tel: +81 78 322 1220

IMI Critical Korea
Tel: +82 31 980 9800

IMI Critical Malaysia
Tel: +60 3 6412 3500

IMI Critical Singapore
Tel: +65 6653 7000

Greater China

imiccsales.china@imi-critical.com

IMI Critical Greater China
Tel: +86 21 3973 8000

Europe

imiccsales.europe@imi-critical.com

IMI CCI Austria
Tel: +43 1 869 27 40

IMI CCI Brno
Tel: +420 511 188 288

IMI CCI Italy
Tel: +39 02 4345 8611

IMI CCI Sweden
Tel: +46 533 689 600

IMI CCI Switzerland
Tel: +41 52 264 9500

IMI CCI United Kingdom
Tel: +44 (0)161 655 1680

India

imiccsales.india@imi-critical.com

IMI CCI Bangalore
Tel: +91 80 4030 3500

IMI CCI SriCity
Tel: +91 85 7639 8000

Middle East and Africa

imiccsales.mea@imi-critical.com

IMI Critical MEA
Tel: +971 4 807 3111

Other

imicci.sales@imi-critical.com

01092.01-21en