

TECHNICAL DATA SHEET AND PRODUCT BROCHURE

SK735X

Surge Anticipating Valve

Automatic hydraulic protection for pump-discharge pressure transients

MECH BRAND

DIAPHRAGM TYPE



ACTUAL PRODUCT IMAGE

Designed to anticipate surge before it arrives.

The MECH SK735X is a hydraulically operated diaphragm control valve that helps protect a pipeline from pressure surges associated with a sudden pump stop or power failure. It opens when line pressure falls below the low-surge pilot set point, so it is already open when the returning high-pressure surge reaches the system. It also opens if line pressure exceeds the high-surge pilot setting.

**Anticipates the event**

Opens on the low-pressure condition caused by sudden pump stoppage.

**Dissipates high surge**

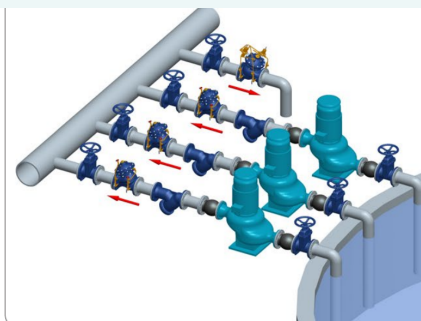
Provides a controlled relief path when the high-pressure surge returns.

**Hydraulically operated**

Uses pipeline pressure and a pilot circuit; no external power is required for the valve action.

Typical installation

SOURCE INSTALLATION ILLUSTRATION



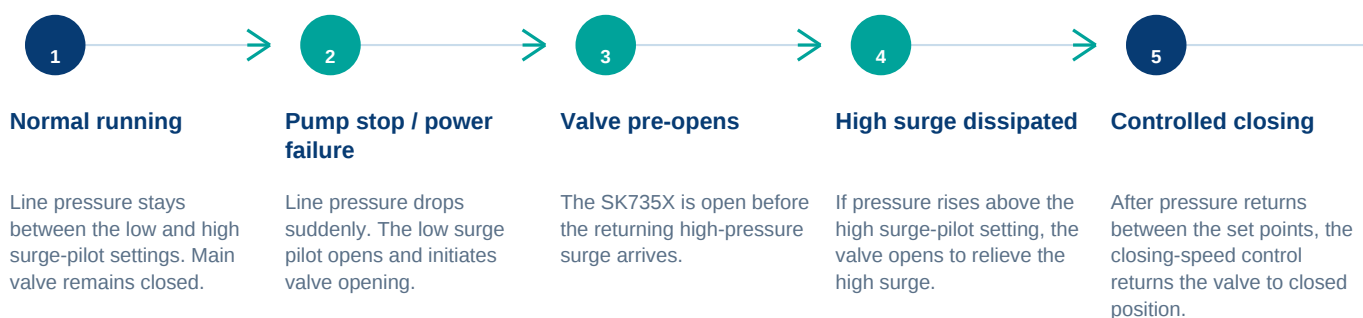
The supplied illustration shows a typical multi-pump, manifold-style installation. Final piping, discharge routing, supports, and valve settings must follow the approved project design.

ENGINEERING NOTE

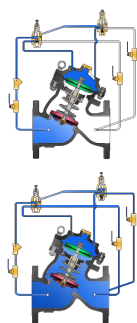
Select the valve size, pressure class, pilot set points, discharge arrangement, and pipe supports based on the actual surge analysis and approved project design.

How the SK735X protects the pipeline

The main valve is held closed while line pressure remains between the two pilot set points. The pilot circuit controls pressure in the bonnet chamber; when a pilot opens, bonnet pressure is relieved faster than it is replenished, allowing the main diaphragm valve to open.



Valve operation cutaway



The supplied cutaway illustrations show the diaphragm valve, bonnet chamber, and pilot tubing arrangement used to control opening and closing.

Documented design advantages

- Automatic hydraulic operation using pipeline pressure.
- Dual-cavity design for controlled opening and closing.
- Straight-flow passage designed to reduce friction loss and turbulence.
- Supported diaphragm and long-stroke stem arrangement for stable movement.
- Ductile iron base-valve casting with corrosion-resistant internal materials and fusion-bonded epoxy coating described by the manufacturer.

Technical data - confirm during submittal

Valve type	Hydraulic diaphragm surge anticipating valve
Normal status	Closed while line pressure is between the two pilot set points
Low-pressure response	Opens when line pressure falls below the low-surge pilot setting
High-pressure response	Opens when line pressure rises above the high-surge pilot setting
Primary duty	Dissipate surge associated with sudden pump stopping or power failure
Set points	Project-specific; coordinate with surge study / approved hydraulic design
Size, rating, connection	Project-specific; confirm exact DN/NPS, pressure class, and flange standard before ordering
Installation / discharge	Project-specific; provide safe, engineered discharge and drainage route

Application and service guidance

Use the SK735X as part of an engineered surge-control strategy. The valve, pilot settings, discharge path, controls, and testing method must be coordinated with the complete pump-system design.

Pre-installation checklist

- Confirm duty point, pipeline pressure profile, and pump-stop scenario.
- Confirm valve size, pressure class, flange drilling, materials, and pilot set points.
- Provide a safe discharge location with adequate piping support and drainage.
- Install isolation, strainer, gauges, and test points in accordance with the approved drawing.
- Flush the line before commissioning to protect pilot passages and the strainer.

Commissioning sequence

1. Verify pipeline is filled, vented, and safe for the approved test.
2. Inspect pilot tubing, fittings, strainer, and closing-speed control for correct installation and cleanliness.
3. Set and record low- and high-surge pilot values as specified by the approved design.
4. Conduct a controlled functional test that simulates the applicable pump-stop / pressure event.
5. Record upstream and downstream pressures, valve response, closing time, and observations.

Troubleshooting reference

Main valve does not open under low pressure	The pressure drop at pump failure may not be large enough to operate the low-surge pilot. If there is no significant pressure fluctuation, this may be expected; confirm against the surge study.
Main valve does not open under high pressure	Verify that the high-surge pilot setting is below the actual high-surge condition that should initiate valve opening.
Main valve does not close	Check the pilot-to-main-valve fitting. If there is no leakage, inspect the inlet strainer and needle valve for blockage.
Main valve does not close and leakage is present	Inspect the diaphragm, disc, seat, and main-valve flow path for damage, obstruction, or contamination.

SAFETY AND ORDERING NOTE

Installation, adjustment, testing, and maintenance must be completed by qualified personnel using the approved project documents and applicable local requirements. Before opening the pilot circuit or removing components, isolate and depressurize the system in accordance with the site safety procedure. For quotation or submittal, provide the required size, pressure class, connection standard, fluid, normal / low / high pressure data, discharge arrangement, and target closing behavior.

Source basis: supplied MECH SK735X Surge Anticipating Valve literature. Prepared for product presentation and preliminary technical reference.