

OOTTV

Gimpel® Oil Operated Trip Throttle Valve (Offset Body)

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Dresser-Rand acquired the Gimpel valve business in April, 2007. Gimpel products include a line of trip, trip throttle, and non-return valves to protect steam turbines and related equipment in industrial and marine applications
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The Dresser-Rand Gimpel® oil operated trip throttle valve (OOTTV) is designed to close (trip) after a loss of oil supply pressure, and not reopen until oil pressure has been re-established.

The OOTTV (offset body) is recommended for steam turbines driving the main process compressors in API-612 critical service applications in chemical and petrochemical plants, refineries, and synchronous generators in power generation facilities with normal inlet steam pressure above 900 psig (63.4 kg/cm²g). The offset body provides a more streamlined flow path than a globe body valve, resulting in reduced turbine inlet throttling loss. (Offset is defined as the separation dimension between the horizontal center-lines of the inlet and outlet connections of the valve body.)

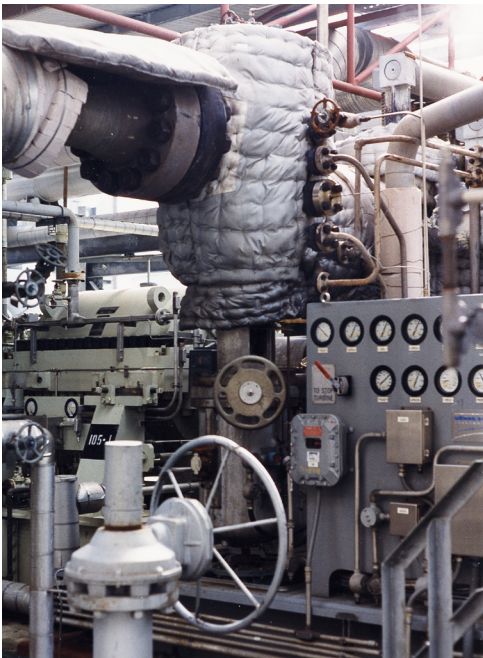
The OOTTV is designed to use hydraulic pressure supplied by the turbine control oil system to compress a fully enclosed, large diameter trip spring. This trip spring allows an OOTTV to typically produce four to 10 times the closing force of a mechanical latch-type trip throttle valve during tripping. The OOTTV is designed with pull-to-close operation and features a back-seated stem that results in no continuous valve stem leakage when the valve is operating in its normal, fully-open position. The OOTTV can be furnished in several body styles and assembly arrangements, and is normally installed with the valve stem in a vertical position.

The design incorporates more than 25 years of experience with proven features and technology including:

- ANSI nominal pipe sizes (NPS) four to 20 and pressure classes 1500 and 2500
- Steam temperature up to 1004°F (540°C)
- Tripping in 0.3 second, or less
- Poppet design with pilot valve capable of opening against full differential steam pressure
- Cast alloy steel, offset valve body with bolted cover available in straight-through, corner body, and top inlet flow arrangements
- Raised face (RF) and RTJ (ring-type joint) inlet and outlet connections available
- RF and RTJ valve body drain connections available
- RF flange valve stem leak off connections standard
- Chrome moly steel main disc and valve seat – seating contact surfaces overlaid with stellite
- Stainless steel, integral, replaceable, steam strainer basket
- Handwheel provides throttling during start-up
- Low pressure (100 – 200 psig) and high pressure (1,100 – 1,600 psig) hydraulic actuators available
- Factory hydrostatic test for strength, porosity, and seat leakage
- Factory operational test without steam
- Final surface inspection

Optional features include:

- Limit switches to monitor valve stem positions
- Solenoid exerciser for remote, on-line exercising
- Electric actuator for remote valve operation
- Protective cover (for harsh climate installations)
- Temporary start-up screen with spare cover gasket
- Blowdown kits



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OOTV — Offset Body Features

Cover provides easy access to internals without removal (neither from line nor of actuator).

Pilot design reduces opening thrust required with stellite sealing surfaces.

Before and after seat drains featured.

Back seat design reduces steam loss when valve is normally open (removable back seat available).

Non-rotating coupling eliminates wear and provides non-rotating stem.

Gimpel hydraulic actuators are integral to the valve unit.

Spring pulls "inverted" disk closed in 0.3 second or less.

Special relay controls valve-opening pressure on piston and prevents "pop-up" of disk if oil pressure is re-established before resetting.

Double relay design enables fast and consistent tripping.

Field adjustable throttling screw balances disk for stable operation.

Drilled strainer protects sealing surfaces from debris and protects the turbine.

Stellite disks and seat reduce erosion and enhance sealing longevity.

Stems and bushings are precision ground and honed for smooth, low-friction operation and minimal stem leakage (low- and high-pressure leak-off connections are provided).

Beveled gear handwheel provides throttling operation during turbine start-up, manual closing, and resetting after trip; indicator shows position.

Key joins the shaft to the screw which moves up and down depending on the handwheel.

Lever-operated exerciser strokes valve at full-load without reducing steam flow.

Balanced piston allows easy, low-torque operation of handwheel for large and small valves.

