

# SDNRV

## Gimpel® Swing Disc Non-return Valves

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.

### General

Dresser-Rand Gimpel® swing disc non-return valve (SDNRV) has a “free swinging” disc that is designed to close when a steam flow reversal is sensed. In an extraction operation, flow reversal occurs during an emergency shut-down when the steam pressure in the extraction steam header is higher than the steam pressure at the corresponding extraction connection located on the turbine casing. The non-return valve is designed to “sense” this condition and close to prevent the back-flow of steam into the turbine. Non-return valves are used to prevent this back-flow into the turbine during an emergency shut-down.

The non-return valve is furnished with a hydraulic or pneumatic operating cylinder designed to provide assistance in closing the valve during an emergency shut-down by overcoming friction in the valve shaft. The operating cylinder does not produce sufficient force to close the valve against steam flow.

### Types of Swing Disc Non-return Valves

Swing disc extraction non-return valves (SDEXT) are used at controlled extraction points (on main process compressors driving steam turbines operating in chemical plants, petrochemical plants, and refineries) and at uncontrolled extraction points (on steam turbine generators operating in regenerative power cycles) to prevent the back-flow of steam or water into the turbine during an emergency shut-down. The globe-style body allows the disc to open to approximately 55-60 degrees, enabling full flow.

Swing disc induction non-return valves (SDIND) are used at secondary turbine inlet connections, and open approximately 80 degrees from the closed position.

Swing disc extraction / induction non-return valves (SDMIX) are commonly used on steam turbine generators operating in combined cycle power generation facilities where steam is extracted and inducted into the turbine at the same point based on the operating mode of the unit.

Dresser-Rand recommends installing non-return valves as close as possible to the corresponding connection on the turbine casing to reduce the residual energy after an emergency shut down.

### Standard Features

- Free swinging disc design
- Cast alloy steel globe type valve body with “rabbit fit” steel plate cover
- Vertical valve seat orientation for reduced pressure loss and increased sensitivity
- Raised face (RF) flange and weld end body connections
- Hardened sleeve bushings with leak off connections and soft, spring-backed shaft packing
- Seat contact surfaces inlaid with stainless steel
- Externally adjustable counter weight
- Hydraulic and pneumatic operating cylinders available, vertically oriented, with right- or left-side mounting
- Internal valve components can be removed through the valve cover opening without breaking the steam piping
- Factory hydrostatic test of finish machined valve body and cover for strength, porosity, and seat leakage
- Factory operational test (without steam)
- Final surface inspection



For more information on **Gimpel valves** please contact the following location:

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**Optional Features**

- Contact seating surfaces inlaid with stellite
- RF flange valve body drain connection
- RF flange leak off connections for hardened sleeve bushing designs
- Limit switches to indicate valve closed and open positions
- Three-way solenoid powered “dump” valve to relieve the oil or air supply pressure to the non-return valve during an emergency shut-down
- Three-way, manually-operated, spring-return test valve to partially stroke the operating cylinder piston to check freedom of movement of valve tripping
- Three-way relay valve to provide valve operation and tripping from two different oil pressure sources.

**SDNRV Features**

