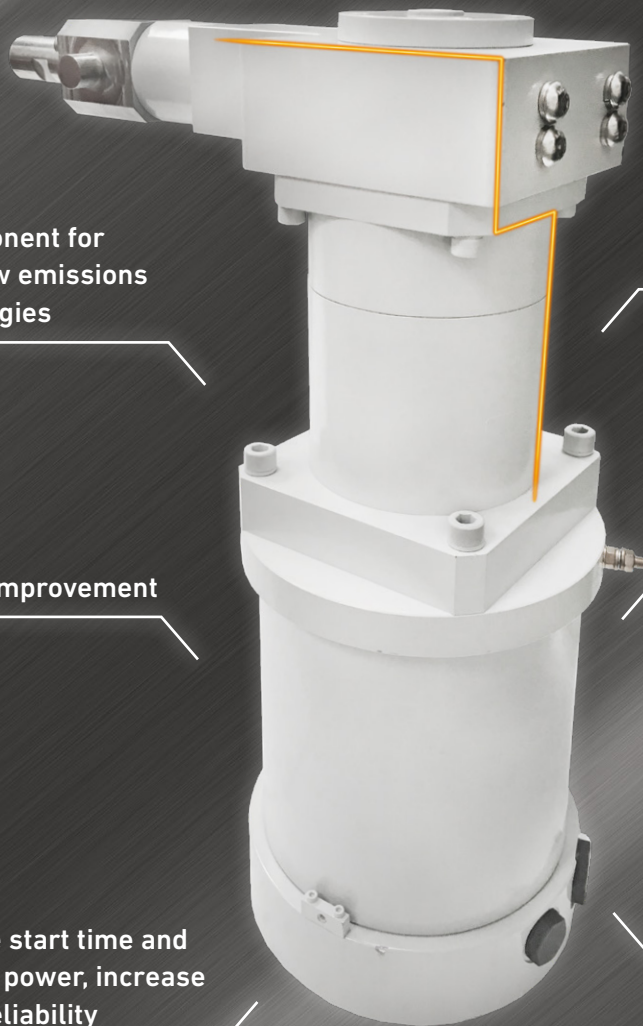


Competitive solutions for all small-medium sized turbines

GAS TURBINE AIR CONTROLS

Fast, accurate, state of the art technology



Essential component for
part load dry low emissions
operating strategies

Part load efficiency and
exhaust heat improvement

Load rejection improvement

Independently
ATEX certified for Zone 1
(Division 1) hazardous areas

Reduce start time and
starter power, increase
start reliability

24 VDC power required
black start capable

AIR CONTROLS

FOR GAS TURBINES

Air controls are important to improve the starting reliability and load flexibility of gas turbines. These parameters have become very important to turbine operators, as they reduce their costs for relatively little increase in overhead.

In the last ten years HEINZMANN has supplied hundreds of electric guide vane servo systems to a gas turbine OEM in Europe for machines from 4 through 20 MW shaft power. HEINZMANN UK now offers electric bleed air control valves for the same range of turbines based on its high performance electric actuation technology.

Air bleed and variable geometry compressor design will help control ignition parameters under any ambient conditions to improve ignition reliability and reduce the power requirements and length of engagement time of the starter system.

PRODUCT OVERVIEW

When running at part load, air controls may be employed to reduce the flow of air supplied by the gas turbine compressor which in turn will reduce the power required to drive it and therefore improve fuel efficiency. Similarly the temperature at the gas turbine exhaust can be increased which will improve the efficiency of heat recovery boilers etc. which is desirable in combined heat and power and combined cycle plant.

When shedding load in a generator application, the fast and proportional reaction of the air bleed valve helps to control power turbine overspeed of multi-shaft gas turbine by venting off excess compressor discharge air.

- ▶ VGV-L Linear Guide Vane Actuator
- ▶ VGV-R Rotary Guide Vane Actuator
- ▶ RBV-80 Rotary Bleed Valve

VGV-L

LINEAR GUIDE VANE ACTUATOR

The VGV-L is a position servo assembly consisting of a digital electronic controller, rotary servo motor and rotary to linear gearbox. In application, the unit is usually mounted in trunnions and connected by a spherical jointed coupling to a mechanism which transfers the linear motion to rotate several stages of variable inlet stator blades on an axial compressor.



The unit receives a 4-20 mA process demand signal and positions its output shaft in direct proportion to it. The unit returns 4-20 mA process feedback signals in proportion to actual position and output force. Output force up to ± 4500 N may be maintained and the unit only requires standard 24 VDC nominal battery supplies to operate. The unit is independently certified explosion proof for use in hazardous areas.

Only 24 VDC nominal battery power supplies are required, making the application very convenient and safe compared to competitive high voltage systems.

KEY FEATURES

- ▶ Stroke configurable up to 50 mm (at the time of ordering)
- ▶ Force up to ± 4500 N
- ▶ Mounting options to suit most applications
- ▶ Process feedback of position and force
- ▶ Highly efficient gearhead optimises utilisation of electrical power
- ▶ 24 VDC, 4-20 mA control

This is a position servo assembly consisting of a digital electronic controller, rotary servo motor and rotary to linear gearbox. In application, the unit is usually mounted in trunnions and connected by a spherical jointed coupling to a mechanism which transfers the linear motion to rotate several stages of variable inlet stator blades on an axial compressor.



VGV-R

ROTARY GUIDE VANE ACTUATOR

With the growing requirement for increased position accuracy and speed, multiple rotary VGV actuators are being fitted. Two or three actuators moving less VGVs means accuracy and speed. This is a position servo assembly consisting of a digital electronic controller, rotary servo motor and rotary gearbox. High accuracy position and feedback. Various mounting applications are available to suit customer specification by application.



KEY FEATURES

- ▶ Any Rotary Positioning applications
- ▶ Force up to 350 Nm
- ▶ Mounting options to suit most applications
- ▶ Process feedback of position and force
- ▶ Highly efficient gearhead optimises utilisation of electrical power
- ▶ 24 VDC, 4-20 mA control

RBV-80

ROTARY BLEED VALVE

RBV-80 is a servo assembly complete with a valve which provides fast and precise bleeding of gas turbine compressor discharge air.



KEY FEATURES

- ▶ Electric rotary positioning servo
- ▶ Valve specified for high temperature and pressure with low leakage
- ▶ Direct connection to 80 mm butterfly valve
- ▶ Precise, drift-free operation
- ▶ 24 VDC, 4-20 mA control

The RBV-80 servo assembly assists with:

1. Dry low emission fuel systems
2. Improving part load compressor efficiency of single shaft gas turbines
3. Increasing part load exhaust temperatures for combined cycle power generation systems
4. Improving power turbine overspeed limitation on multi-shaft gas turbines

In application the valve is usually connected between the gas turbine compressor discharge and the exhaust. The unit accepts a 4-20 mA process demand signal from the turbine governor and positions the butterfly valve in direct proportion to the demand. When the valve is closed, the servo system forces the butterfly against the valve seal

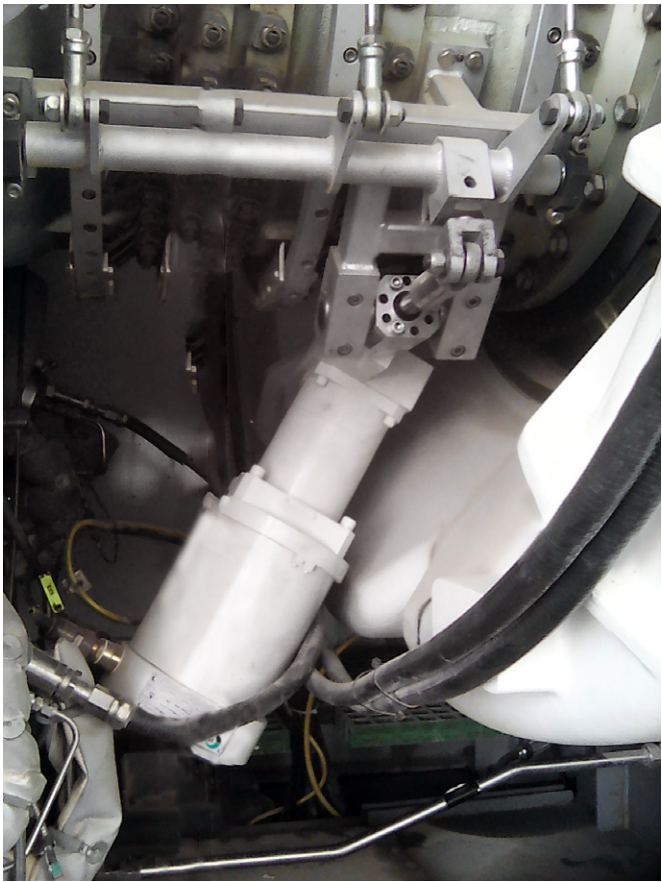
thus providing positive shut off of the compressor discharge air thus maintaining compressor performance.

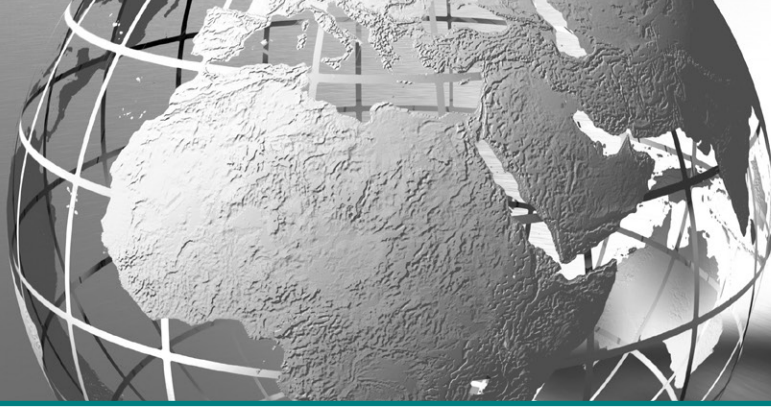
Metso type LM valves are specified with temperature and pressure ratings to exceed the conditions pertaining at the discharge of modern high-pressure ratio gas turbine compressors.

To help with limitation of overspeed on load rejection on multi-shaft turbines, the unit is very responsive in operation. A multi-turn digital encoder provides precise drift free positioning of the valve.

The unit is independently certified for use in hazardous areas to ATEX standards (CSA pending).

Only 24 VDC nominal battery supply is required which makes application very convenient and safe compared to competitive high-voltage systems.





HEINZMANN GROUP - THINKING IN DRIVE AND CONTROL

HEINZMANN is a globally active family business founded in 1897 with its headquarters in Schöna (Germany), in the Black Forest.

Today, in the field of engine management HEINZMANN is one of the leading suppliers of components and systems for industrial combustion engines, generators and turbines. As a specialist and development partner, HEINZMANN is committed to developing exactly the right solution for increasing efficiency and reducing emissions.

In the Electric Drives division, HEINZMANN also demonstrates innovative strength and development expertise in engine technologies of the future. The company has established itself as a reliable partner and system provider for electric drive systems.

Our collaborative interaction with more than 40 globally active subsidiaries and sales companies characterizes the spirit within the HEINZMANN group of companies and makes us a reliable partner.

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