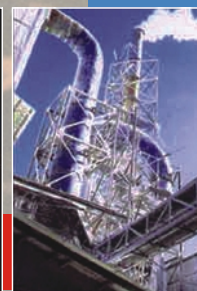


Virgo Automation

More than 1,50,000 Valve Automation Systems in various process industries live up to the reputation that Virgo Engineers has built for itself.



Virgo... Lifeline to your process





Virgo Valve Automation Systems

Virgo Engineers, with over 20 years of experience in designing and building both Valve Automation Systems and world-class Ball & Butterfly Valves have put together a Total Valve Automation System perfectly suitable for the application.

Virgo assumes single point responsibility for the whole system, leading not only to better process control, lower costs and timely deliveries but also more satisfied customers.

The Virgo Offer

Virgo valve automation systems consist of Quarter Turn Valves (ball, plug & butterfly valves) with pneumatic, electric, electro-hydraulic, gas hydraulic and gas over oil actuators for both on-off and modulating duties. The Virgo range includes, besides conventional Remote Operated Valves (ROV), special products such as

- Shut Down Valves
- Emergency Shut Down Valves
- Blow Down Valves
- Gas / Gas Over Oil Actuator System
- Double Block & Bleed Valves
- Line Break Systems
- Extra Quick Closing and Controlled Opening Valves

Actuators and Controls for corrosive, extreme climatic (low temperature or sour) and hazardous environs also form part of the Virgo range.

In addition to its range of Quarter Turn Ball and Butterfly Valves, Virgo offers Automated Valves for specialty services such as

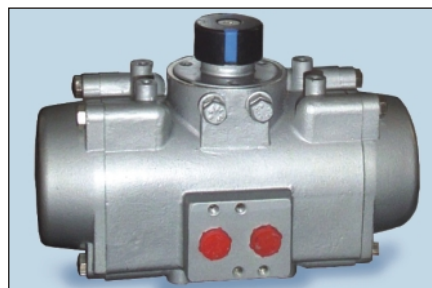
- Severe Service Metal Seated or Ceramic Ball Valves
- High Temperature Metal Seated Ball & Butterfly Valves
- Cryogenic Valves
- Top Entry Ball Valves
- Sleeved or Lined Ball, Plug or Butterfly Valves for corrosive service



Heavy Duty Actuators
Torque Output: Up to 500,000 Nm
(Air / Gas / Hydraulic)



Compact Aluminium Actuators
Torque Output: Up to 4000 Nm for both
90° and 180° operations.



Compact Stainless Steel Actuators
For Corrosive and hazardous environs



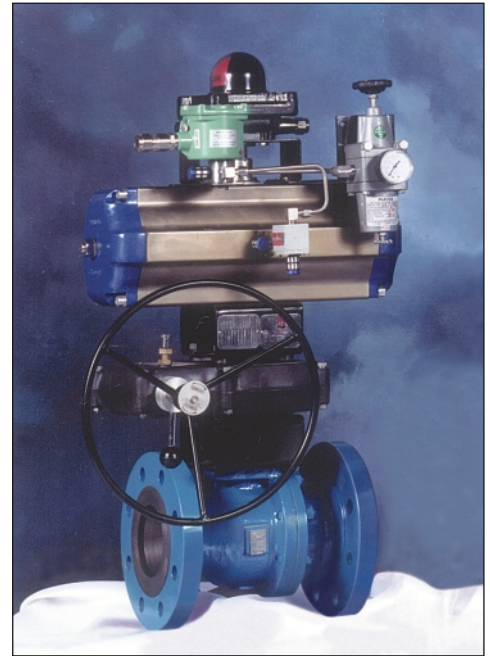
Fire Proof Enclosures
Lloyds Certified. Protects actuator control systems
against hydro-carbon fires.



Virgo Quarter-Turn Automation Solutions

Remote Operated Valves / Shut Down Valves

- Remote on / off service
- Options :
 - Positioner (Pneumatic, Electro-Pneumatic or Intelligent type) for modulating duty
 - Local operation
 - Manual override (Declutchable Lever or Gear Box, Jack Screw or Hydraulic Type) for emergency operation
 - Air Tank for actuator operation in case of pneumatic supply failure
 - Hydraulic Actuation
 - Fire safe execution (Valve, Actuator & Control Accessories) to meet the Hydro Carbon Fire Curve requirements
 - Compatibility to bus systems like ASi, Device Net, Foundation Field Bus, Profi Bus etc.



A typical 3" #300 ROV for LPG service

Emergency Shut Down Valves (ESDV)

- Remote on / off service
- Quick closing type
- Options :
 - Local operation
 - Manual override (Declutchable Gear Box, Jack Screw or Hydraulic Type) for emergency operation
 - Partial Stroking System
 - Air Tank for actuator operation in case of pneumatic supply failure
 - Gas or Nitrogen as actuating medium
 - Line Break (Mechanical or Electronic type) Systems
 - High Pilot Closing
 - Low Pilot Closing
 - Hi Lo pilot Closing
 - Fire safe execution (Valve, Actuator & Control Accessories) to meet the Hydro Carbon Fire Curve requirements



20" #150 FB Ball Valve with Pneumatic Spring Return Actuator for ESD service with Partial Stroking System

Motor Operated Valves (MOV)

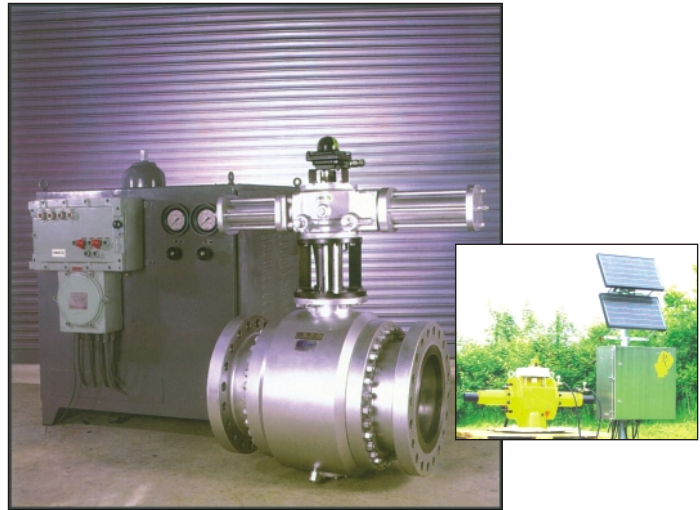
- Remote on / off service
- Options :
 - Modulating duty
 - Manual override
 - Fail safe configuration
 - Any other customer specific requirements not listed above



24" #150 FB Ball Valve with Rotork Intelligent Actuators

Hydraulically Operated Valves

- Local & Remote on / off service
- Options :
 - Hydraulic Power Packs (Individual or central units)
 - Emergency operation by hand pump
 - Nitrogen Accumulator for emergency operation
 - Solar powered electro-hydraulic actuation systems
 - Fail safe configuration
 - Any other customer specific requirements not listed above



14" #600 FB Ball Valve with Electro Hydraulic Actuator
Inset :
Solar Powered Electro Hydraulic System

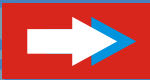
Gas Operated Valves

- Line gas is used as the actuating medium
- Local & Remote on / off service
- Emergency manual operation by means of hand pump
- Options :
 - Direct Gas Actuator
 - Remote operation by momentary signals from satellite
 - Hydraulic actuation by means of Gas Over Oil Systems
 - Torque limiting device
 - Remote opening prevention against differential pressure
 - Gas storage tank for remote emergency operation in case of gas supply failure
 - Line Break Systems
 - High Pilot Closing
 - Low Pilot Closing
 - Hi Lo Pilot Closing
 - Fail close configuration



Inset:
18" # 600 FB Ball Valve complete with Direct Gas Actuator with Local & Remote Operation

24" # 600 Ball Valve with extension pups for buried service complete with Gas Over Oil Actuator.



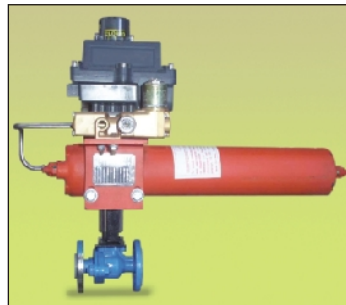
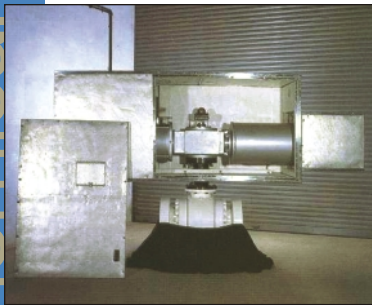
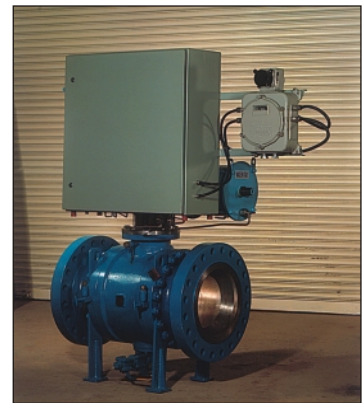
The Virgo Difference

Customised Valve Automation Systems is the most unique feature of the Virgo Offer...the feature that sets Virgo apart from the rest of manufacturers.

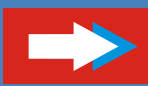
Virgo's design and application engineering teams, thrive on challenging fluid handling problems, study the application parameters and recommend optimised solutions.

Virgo's track record of successfully implemented Valve Automation Systems in numerous industries, lend credence to Virgo's claim to provide a lifeline to your process.

Look at the array of such systems in prestigious projects...



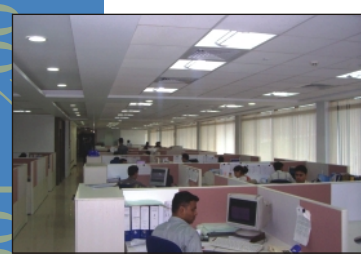
ISO 9001 : 2000
 API 6D Q1
 GOST
 PED
 ATEX
 ISO 9001 : 2000
 API 6D Q1
 GOST
 PED
 ATEX



Manufacturing Technology at its Best

Employing the latest manufacturing techniques, Virgo valves and automation components are produced in our modern plants located all across the globe.

Computer Aided Designing (CAD), Finite Element Analysis (FEA), State-of-the-art manufacturing technologies, Special Purpose Machines and Machining Centers, Modern Quality Management Methods and Competent ERP Systems ensure efficient production processes. Which, in turn, lead to consistently high quality standards.



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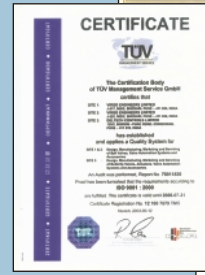
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Quality Systems / Certifications

ISO 9001 : 2000, API 6D Q1, PED, ATEX and GOST



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