

**Remote Mechanical Valve Actuators (RMVA)** operate hard-to-reach valves located in inaccessible or hazardous environments, applications including; naval, nuclear, chemical and petro-chemical or wherever remote operation is required. Each assembly uses a minimum number of moving parts to provide a maintenance-free system that reduces weight and increases reliability.

### Operator Station Actuator

Input torque at the operator station turns a pinion shaft that drives a cable gear. Operator stations are available in a variety of gear ratios accommodating a wide range of torque requirements.

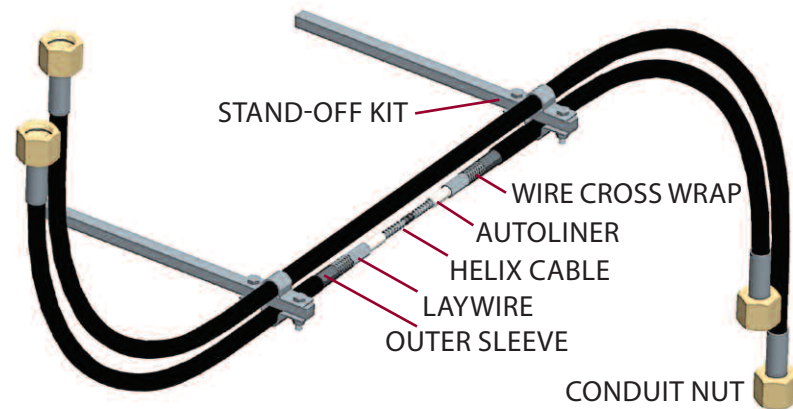
- System component which receives input torque
- Multiple designs to accommodate any mounting requirements
- Available in stainless steel, bronze, ductile iron or zinc alloy



### Indicator



- Provides positive indication of valve position



### Helix Cable/Conduit Assembly

The helix cable is precision-manufactured using a core of high-tensile-strength steel wires with an outer wire helically wrapped to have a pitch that matches the cable gear. World Class quality control standards assure the accuracy of the pitch.

- Highly flexible and durable
- Helix cable converts rotary torque into linear motion and efficiently transmits this motion over long distances and through multiple bends
- Conduit supports and protects the helix cable in many hostile environments

### Valve Station Actuator

The valve station serves as the torque-producing component located at the valve end of the mechanical RVO system. Linear motion of the steel helix cable is converted back into rotary motion at the valve station. The helical cable engages 180° around the valve station cable gear, producing rotary motion for valve actuation.

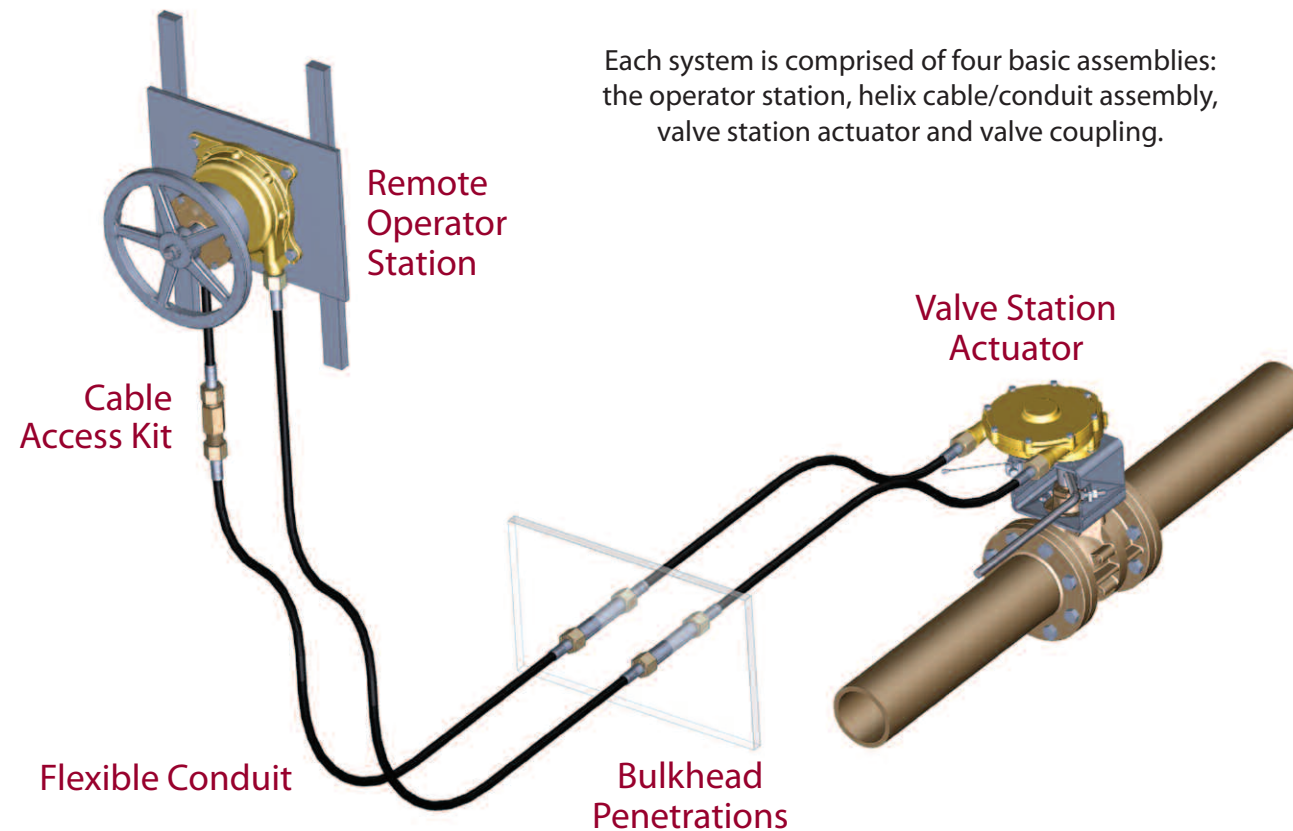
- Torque producing component
- Available in multiple gear ratio configurations
- Available in stainless steel, bronze, ductile iron or zinc alloy



### Valve Couplings

The valve coupling serves as the interface component between the RVO system and the valve. We developed numerous valve coupling configurations to solve virtually every valve application. Available with or without a quick disconnect feature to allow for local valve operation.

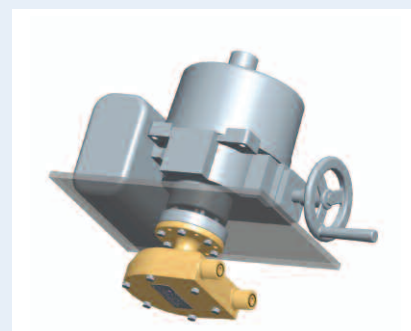
- Interface component with valve
- Available with or without a quick disconnect feature
- Designs to accommodate virtually any valve
- Constructed from noncorrosive materials
- Positive stops
- Manual local operation
- No hot work required



Each system is comprised of four basic assemblies: the operator station, helix cable/conduit assembly, valve station actuator and valve coupling.

### Electromechanical Remote Valve Operation

- Provides automated damage control capabilities**
- Compliments move towards reduced manning
  - Takes advantage of existing infrastructure
  - Compatible with a wide range of electric actuators
  - NAVSEA qualified and supported





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# VALVE ACTUATOR SYSTEMS

## SYSTEM DESIGN FACTORS

	Continuous Loop RMVA (6" Drive Gear)	Standard RMVA (4" Drive Gear)
Maximum Torque	Based on the maximum input torque of 80 ft lbf [108 N m] the max. output torque using a 4:1 valve station is 300 ft lbf [406 N m]	Based on the maximum input torque of 80 ft lbf [108 N m] the max. output torque using a 4:1 valve station is 170 ft lbf [230 N m]
Min System Length	2 feet [610mm]	1.2 ft [366mm] ft per full turn req. at valve
Max System Length	200 feet [61 meters]	
Min Bend Radius	12 inches [300mm]	
Max Degrees of Bend	540° total system	
Minimum Life Cycles	20,000 at full load	
Operating Temp	-65°F [54°C] min to +400°F [204°C] max Operating at 0 to 100% relative humidity	
Corrosion	All components exhibit no noticeable corrosion after being exposed to 10,000 hours salt fog test per MIL-SPEC-810C, 590.1.	
Maintenance	Does not require scheduled maintenance other than visually checking the system for damage or loose components.	
Materials	Actuators are available in stainless steel, bronze, ductile iron, zinc alloy.	

## VALUE-ADDED SERVICES

Triumph Controls offers you Value-Added Services from design to installation including:

- Design and Installation Assistance
- Installation Training
- Installation Manual
- Training Manual
- Tooling List
- Full ILS Documentation
- Pre-Installation Survey
- Sign-off Post Installation
- Reliability and Maintainability History
- NATO Coding (if necessary)

Every Mechanical Remote Valve Operator (RVO) system is designed and assembled according to specific application requirements. For this reason system configuration is a critical element in the design process.



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