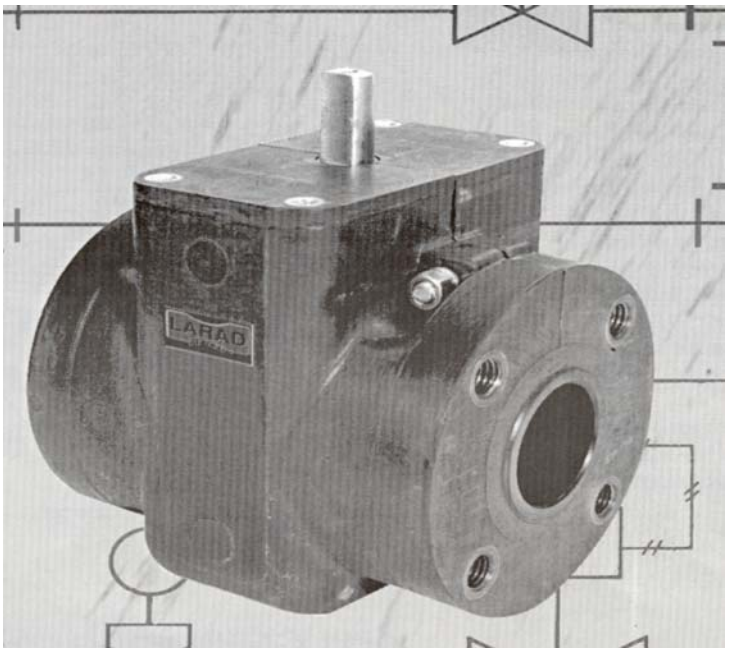
CLARK
Series 22 Dia-Cam Pinch Valve

1/2"to 3" Sizes, Manual or Motorized Actuation , Quarter Turn

DESCRIPTION

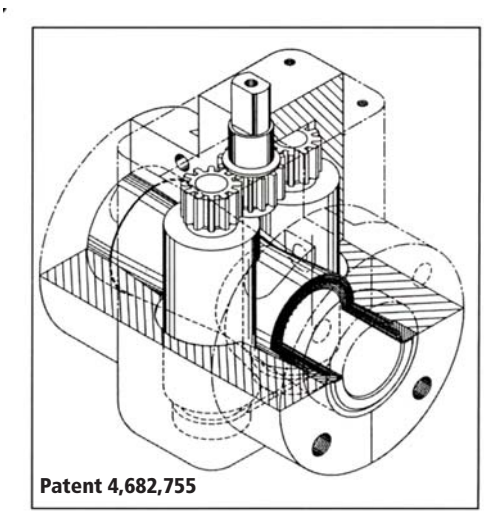


The Series-22 Quarter-Turn Dia-Cam valve is a high flow capacity pinch valve, designed, for hard-to handle fluids, especially slurries. The valve interior consists of a fabric reinforced elastomeric or PTFE-lined Diaphragm Spool... the only wetted component of the valve. Two opposing gear-driven cams, contained in a flanged split vinylester-fiberglass body, act on the Diaphragm Spool, providing flow control over the entire 90 degrees of valve stem travel. The valve exhibits negligible pressure drop in the open position and bubble- tight closure even around solids in the closed position. Where solids in the slurry make operation of other types of valves such as ball, plug and butterfly valves , extremely problematic, the Series-22 Dia-Cam valve is ideally suited for slurries since there are no "dead zones" in the valve internals.

The valve ID mates to Schedule 40 piping systems and installs without flange gaskets. The valve is utilized in either ON-OFF or FLOW CONTROL applications.

Manual operation of the valve is accomplished with a 6-position notched detent plate and spring-loaded lever assembly. Automated Operation is achieved by Specifying a Clark RE series electric quarter-turn actuator. Pneumatic actuators are available on request

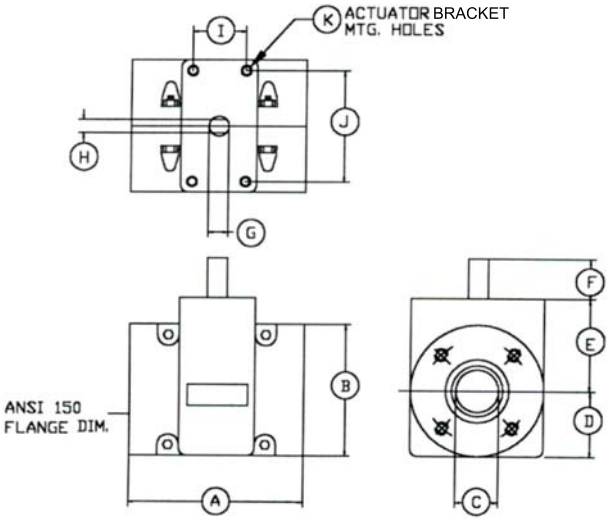
Maximum working pressure for all sizes is 125 psig. Operating temperature is -40 to 275°F depending on the elastomer system used in the valve. For throttling applications, proper valve sizing involves determining the Cv required, taking into consideration fluid viscosity, pipeline size and cavitation potential. Consult Factory for sizing verification.



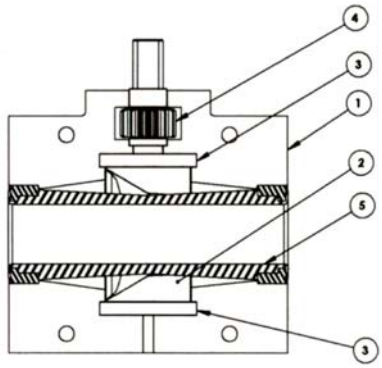
Patent 4,682,755

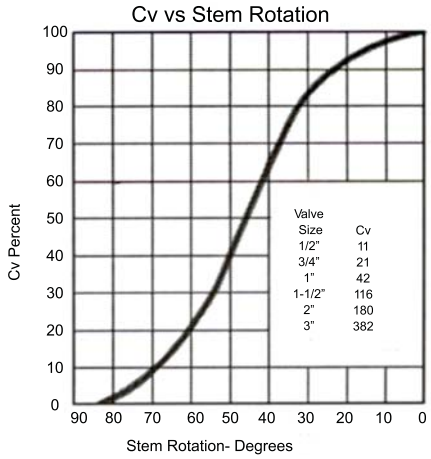
FEATURES	APPLICATIONS
-Flow-Thru Design	
-NO "Dead Zones"	-Lime slurry, FGD scrubber fluids
-Only ONE Wetted Part	-Limestone, titanium dioxide slurries
-No Flange Gaskets Required	-Pulp, resin-fiber slurries
-Closes bubble-tight on solids	-Sewage treatment fluids, grit
-On-Off or Flow Control Service	-Powders, plastic pellets
-Lever Detent Assembly for Manual Operation	-Paints, pigments, glues
-Actuated with Any Quarter-Turn Pneumatic or Electric Control Package	-Corrosive gels, brine
	-pH control chemicals, precipitates
-Corrosion-Resistant Vinylester-Fiberglass Construction	-Sand-water muds, resin-fiber slurry
-Molded-In Steel Inserts for Flange Bolts and Actuator Mounting Bolts	-Pet foods, candies, cereals
	-Metallic sludge, paper stock
-Face-to-Face Dimensions per ANSI B16.10, Class 150	-Photographic chemicals, alumina
-Flange Dimensions per ANSI B16.5, Class 150	-Soda ash, caustic soda
-Diaphragm spool materials available in many Standard and Food Grade Elastomers and PTFE-Lined	-Personal care products

DIMENSIONS, CONNECTIONS & WEIGHT



Dimension	Valve Size/Dimensions (inches)					
	1/2"	3/4"	1"	1-1/2"	2"	3"
A	4.25	4.63	5.00	6.55	7.05	8.05
B	3.50	3.88	4.25	5.00	6.00	7.50
C	0.62	0.82	1.04	1.61	2.07	3.07
D	1.77	2.03	2.03	2.50	3.00	3.75
E	2.16	2.50	2.50	3.50	4.23	5.00
F	1.13	1.31	1.31	1.50	1.50	2.16
G	0.56	0.56	0.56	0.75	1.00	1.125
H	0.38	0.38	0.38	0.50	0.50	0.69
I	1.38	1.40	1.40	2.00	2.37	2.88
J	2.88	3.48	3.48	4.20	5.03	5.25
K	10-24 .25 dp	10-24 .25 dp	10-24 .25 dp	5/16-18 .64 dp	5/16-18 .64 dp	3/8-16 .75 dp
WT (LBS)	3.25	5.00	5.50	9.38	14.50	22.75





Construction Materials			
Part	Quantity	Name	Material
1	2	Body Half	Vinylester-Fiberglass Composite
2	2	Closure Cam	Vinylester-Fiberglass Composite with Molded-in Carbon Steel Gears
3	4	Closure Cam Bearing	UHMWPE, Nylon
4	1	Stem Gear Assembly	Plated Carbon Steel With Nylon Bushings
5	1	Diaphragm Spool Assembly	Fabric-reinforced Elastomer or PTFE-lined with FRP Rings

Valve Size	Torque Required (Inch Pounds) at Process Pressure				
	0 PSIG	30 PSIG	60 PSIG	90 PSIG	120 PSIG
1/2"	80	110	140	190	220
3/4"	125	175	225	312	350
1"	125	175	225	312	350
1-1/2"	400	575	720	800	930
2"	750	970	1150	1630	1900
3"	1400	1800	2200	2900	3500

RE REVERSING ELECTRONIC NEMA 4/4X ACTUATORS FOR SERIES 22 PINCH VALVES

On-Off. Tri-State & Modulating Control

Model RE electric/electronic actuators are ideal for Series 22 valve applications . The actuators are available with torque ratings from 150 in-lbs to 10,200 in-lbs. They incorporate current limiting as a means of protecting the actuator for over-torque situations and do not depend on torque switches or thermal overload sensing. The current limiting feature activates a light (and an optional relay) upon exceeding the current limit set, to allow for easy field diagnostics.

All actuators accept 24 VAC or VDC power and 120 or 220 VAC with the addition of a transformer. All actuators have field adjustable speed control as a standard feature. Actuators are designed for temperatures ranging from -40 °F to 150 °F (-40 °C to 65 °C). For temperatures below 32 °F (0 °C), outdoor applications, high humidity or wet locations the actuators can be supplied with an electric heater and thermostat.

All actuators have a solid state braking system, which works with or without power, (rated to 1-1/4 times the torque rating of the actuator). All units are equipped with a manual override, which will allow the actuator to be rotated in the clockwise or counter-clockwise direction. Optional solid cast aluminum override handwheels are available (spoked handwheels are not acceptable due to safety issues).

The actuator housing is a high strength aluminum casting with an exterior grade polyurethane enamel coating for excellent wear, corrosion, impact and UV resistance. The actuators are NEMA 4/4X type minimum. All cover fasteners are stainless steel. All actuators have a position indicator with the angle of rotation clearly marked. All actuators used in outdoor applications have white covers to lessen the solar heat load.

Model RE is capable of accepting 4-20 mA with 250 Ohms impedance, 0-10 VDC or 2-10 VDC signals. Input signal isolation is provided to isolate the input signal from the actuator power so that the signal and power can come from different sources, without the need for exterior isolation modules.

Specifications	RE3.0F - RE6.0F	RE3.0G - RE6.0TG	RE10F - RE15TF	RE10G - RE15TG
Power supply	12 VDC, 24 VAC or DC, 120 VAC, 50/60 Hz			
Transformer sizing**	30 VA(class 2 power source required)		50 VA(class 2 power source required)	
Electrical connection	dual conduit entry (1/2")		dual conduit entry (3/4")	
Control signal	two-position/tri-state*	0-10 VDC 4-20 mA	two-position/tri-state*	0-10 VDC 4-20 mA
Input Impepance	250 Ohms for 4-20 mA			
Operating range	0 to 10 VDC, 2 to 10 VDC, 4 to 20 mA, & custom signal ranges available			
Fedback output	0 to 10 VDC standard, 4 to 20 mA optional			
Manual override	de-clutching shaft with flats, optional override handwheel			
Angle of rotation	Typically 90º - 320º			
Minimum torque	depends on model, see RE actuator selection table			
Direction of rotation	standard: increase signal = CCW (jumper selectable)			
Position indication	visual mechanical position indicator			
Gear train	heat treated metal gears, permanently lubricated			
Brakes	solid state braking system			
Duty cycle/Life	100%/2000 hours actual drive time			
– Auxiliary switches	cam operated, 1 standard, up to 3 optional			
Switch	form C; SPDT			
Range usage	0-320º			
Factory setting	none			
Ratings	125/250 VAC: 10 Amp, 1/3 hp 125 VDC: 0.5 Amps 250 VDC: 0.25 Amps			
Switch Connections	male quick connect type tabs			
Control signal Adjustment: Offset	-	0-3Vdc	-	0-3VDC
Factory Setting	-	0-10 VDC or 4-20 mA	-	0-10 VDC or 4-20 mA
Span	-	adjustable	-	adjustable
Running time for 90º	adjustable- see RE actuator selection table			
Humidity	95% RH noncondensing			
Housing type	NEMA type 4/4x (pending UL, CSA approval)			
Housing material	cast aluminum			
Operating temperature †	-40°F to 150°F (-40°C to 65°C)			
Noise level	max. 20 dBA	20 dBA	<45 dBA running	
Servicing	maintenance free			
Agency ratings	UL 873 or UL60730 listed, CE-UL certified to CSA C22.2 No. 24-93 (pending CE approval for plenum models)			
Options: Heater & Thermostat †	for outdoor & harsh environments			
Override Handwheel	non-spoked for safety			
Over current Alarm Relay	output rating: 130 mA max., 9-130 VAC/DC			
Weight	17 lb		25 lbs‡	

* Input signal range from 9-130 VAC or VDC

** Does not include line loss. Add 16 VA if heater and stat (H/S) is used

†Optional heater and stat required for low temperatures, high humidity, extreme condensation or outdoor applications.

‡For "T" versions add 38 & 78 lbs respectively for the Torque Maximizer.

RE Actuator Selection				
Pinch Valve	Actuator Model No.	in-lb	N-m	Speed* sec/90°
2-Position On-Off				
1/2"	RE3.0F1	300	34	10-25
3/4"	RE6.0F1	600	68	10-25
1"	RE6.0F1	600	68	10-25
1-1/2"	RE10F1	1000	114	35-75
2"	RE20F1	2000	227	35-70
3"	**RE15TF1	3825	434	35-70
Modulating (0-10 V or 4-20 mA				
1/2"	RE3.0G1	300	34	10-25
3/4"	RE6.0G1	600	68	10-25
1"	RE6.0G1	600	68	10-25
1-1/2"	RE10G1	1000	114	35-70
2"	RE20G1	2000	227	35-70
3"	RE15TG1**	3825	434	35-70

* speed is adjustable and varies slightly with load.
** Requires optional torque maximizer (added gear reduction between actuator & valve

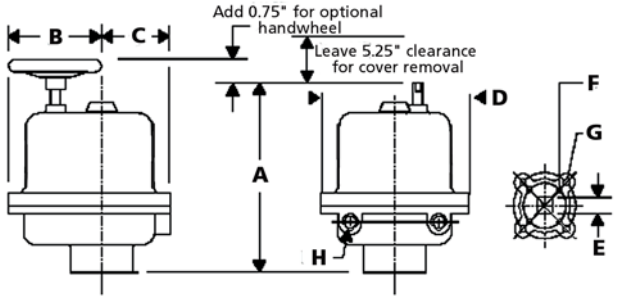
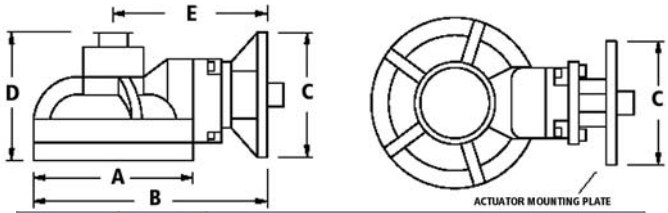


Table 2 RE Dimensions (inches)								
Actuator Model No.	A	S	C	D	E	F	G	H
RE3 - RE6	9.93	5.15	3.48	7.42	0.75 sq. 0.63 deep	N/A	5/16-16UNC-2B 0.625 deep BC: 3.25	1/2"NPT
RE10 - RE20	11.65	6.07	4.40	9.75	1.00 sq. 2.00 deep	3/8-16UNC-2B 1.12 deep BC: 4.00	7/16-16UNC-2B 1.50 deep BC: 4.965	3/4"NPT

Torque Maximizer for 3" pinch valves

The Torque Maximizer permits Model RE actuators to operate at required torques up to 10,200 in-lbs. It also allows the actuator to be mounted in applications with space or location limitations.

The Torque Maximizer provides added gear reduction between the actuator and the valve, thereby increasing the torque of the actuator. This product is 85% efficient in transferring the torque from the input to output drive shaft. This unit bolts directly onto the base of the RE actuator, then the combined actuator/gear operator unit is mounted to the valve.



Model Option	Weight (lbs)	Torque Maximizer Dimensions (inches)				
		A	B	C	D	E
T (used for 3" size pinch valves)	38	7.25	10.63	5.25	4.63	7.00

ORDERING INFORMATION

BUILD PART NUMBER FROM BELOW VALVE MATRIX: A-B-C-D-E-F-G-H-I

EXAMPLE: 22-1/2"-01-08-01-AP-OF-RE-OH-CUL

A Valve Series	B Size	C Diaphragm Spool Material	D Body Material	E Connections	F Actuation	G Application	H Actuator
22	1/2" 3/4" 1" 1-1/2" 2" 3"	00= Natural Rubber 01= Neoprene 02= Buna-N 04= Hypalon 05= EPDM 06= Chlorobutyl 07= Viton 15= PTFE/EPDM	08= Vinylester fiberglass composite	01= ANSI Class 150 Flange Dim.	NO= None (bare stem) HK= Handle Kit AP= Automation Package (see columns G,H & I)	0F= On-Off Control FC= Proportional/Modulating Flow Control; FC option uses a thicker diaphragm spool and modified closure cams. Purchase of a spare diaphragm spool is recommended for FC.	- = None RE= RE Electric Actuator Assembled to Valve (See RE Actuator Selection Table if ordering separate from Pinch Valve)

I Actuator Options
AS(2,3)= Auxiliary Switch(es)
HT= Heater/thermostat (Outdoor Applications
OH= Overide Handwheel
AR= Over Current Alarm Relay
cUL= cUL Certification (must be ordered with actuator if required)

PNEUMATIC ACTUATORS ARE ALSO AVAILABLE, PLEASE CALL US TO DISCUSS YOUR APPLICATION