



MARSH AUTOMATION PVT. LTD.



marshautomation.com



MARSH marsh automation pvt. ltd.



We are pleased to introduce ourselves as the manufacturers and suppliers of various types Electrical Actuators / Electric Actuators, Linear Actuators, Compact Actuators, Pneumatic Actuators with Motorized Valves / Motorized Dampers.

Marsh has been in the field for manufacturing and supply of various types of Valve Actuators from last 25 years, for Electrical Actuators we are having German technology.

We are an ISI-Indian Standards Institute certified company having an installed base of around 17,000 units in the last 25 years in India & its neighbouring countries.

Marsh has installations in Steel, Sugar, Cement, Power, Water, Paper, Basic Metals like-Aluminium, Copper etc & related sectors.

We have been twice awarded National Productivity Award by the President of India.

Our manufacturing facilities consist of basic mechanical assembly, testing & manufacturing at Unit I, having 10,000 sq. feet area. Electronic & Electrical Interface card assembly, testing & Product Development activities at Unit II.

APPROVALS



INSPECTION





NASHIK MUNICIPAL CORPORATION, NASHIK

Rajeev Gandhi Bhavan, Sharanpur Road, (Post Box No. 12.) NASHIK - 422 002.

Visit us at: www.nashikcorporation.com E-mail: eeplanning@dataone.in

Water supply department
No. NMC WSD 208/2008.
Date:- 8 / 7 / 2008.

CERTIFICATE

To Whom so ever It May Concern:

This is to certify that Marsh/Emtork make actuators were installed at our Shivajinagar and Gandhinagar Water Treatment Plants. All above actuators are working satisfactorily since last 5 to 6 years.

This certificate has been issued as per their request.

Executive Engineer (Mech)
Nashik Municipal Corporation

P.B.X. : 2575631, 2575632, 2575633, 2575634, 2577921, 2577923,
2571479, 2571872, 2577952, 2315967, 2581252 ■ Fax : (0253) 2577936, 2315704

MAHARASHTRA INDUSTRIAL DEVELOPMENT CORPORATION
(A Government of Maharashtra Undertaking)

No. DE/ANR/M/1085/2008
Office of the Deputy Engineer,
MIDC, Maintenance Sub Division,
AHMEDNAGAR.
DATE: 5/6/08

To,
M/s Marsh Engineer,
98A/25A Hadapsar indl. estate,
Pune 13

Sub : Performance of electrical actuator installed @ WTP A'nagar.

Ref : Your letter no. ME/AVG/0306/08-09 dt. 03.06.08

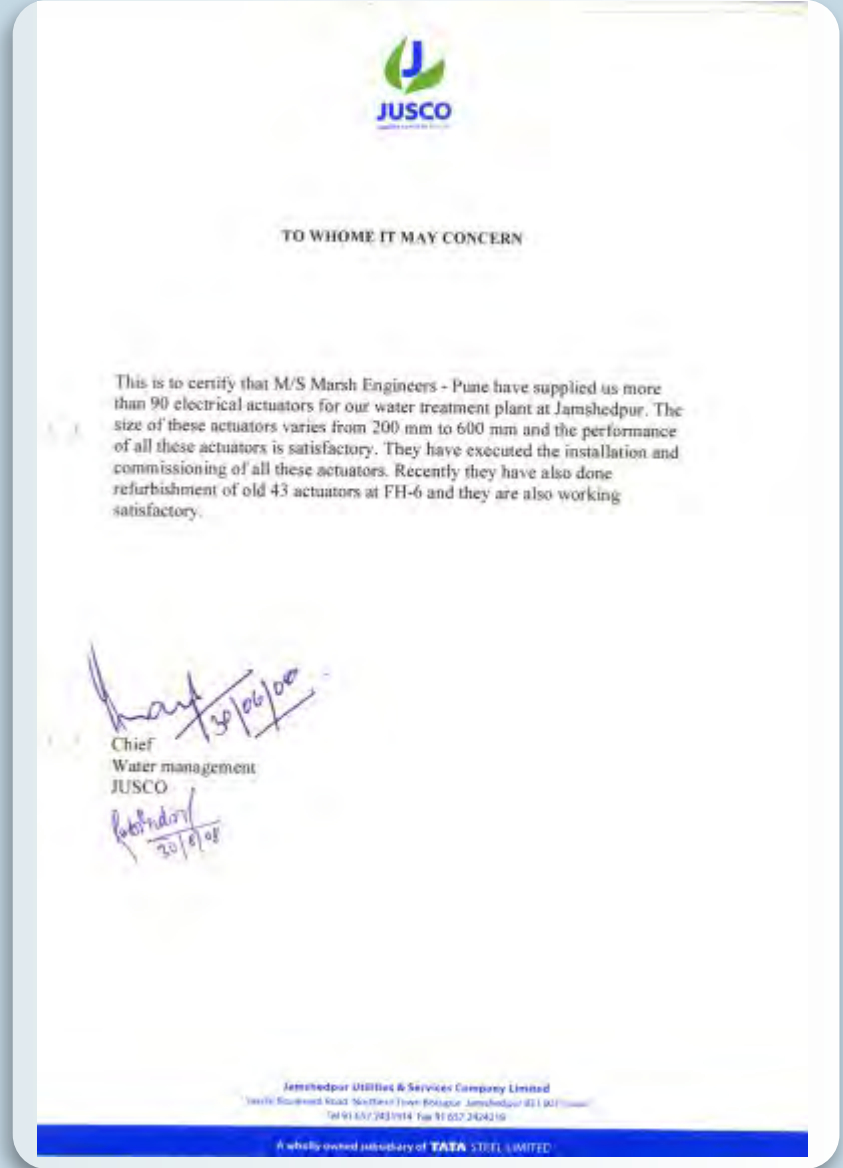
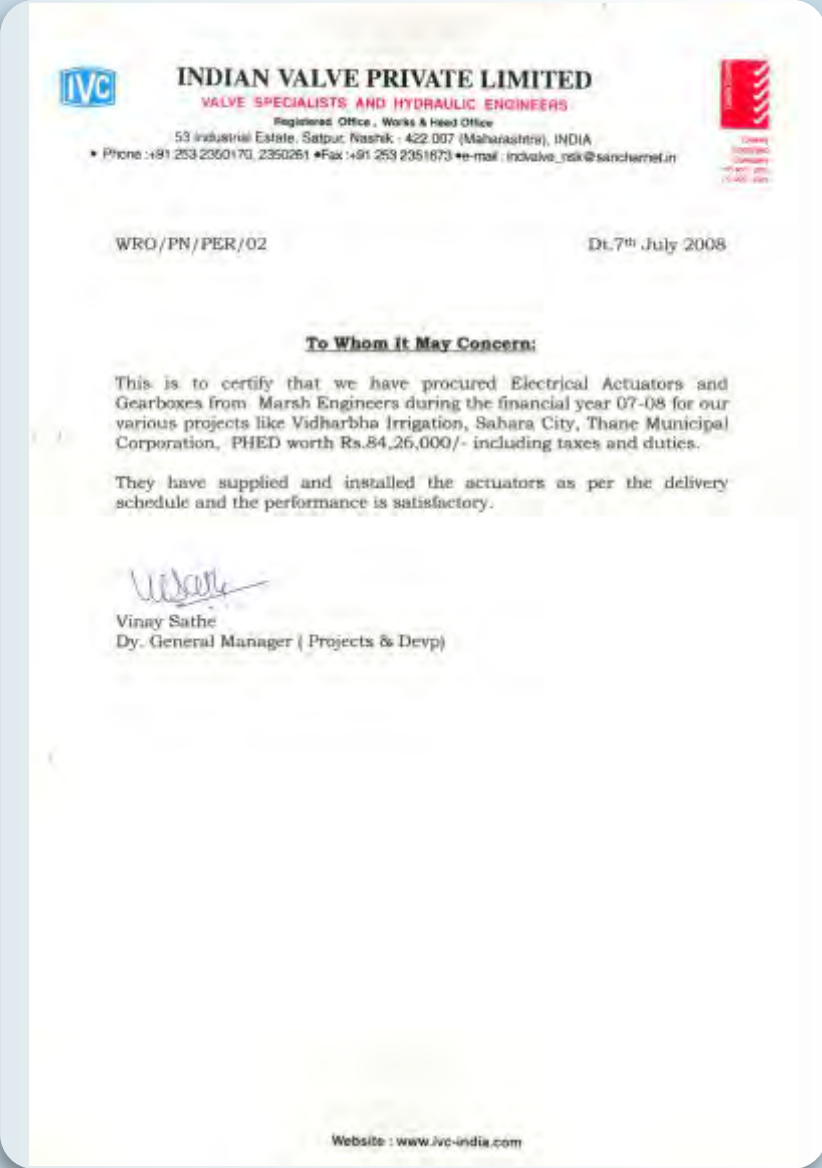
Sir,

In context to the above it is to inform you that the electrical actuators installed @ our WTP during the month of January 2008 are working satisfactory till date.

This is for favour of information please.

Yours Faithfully,

Deputy Engineer/
MIDC, (M)Sub Dn.
Ahmednagar.



MSDS: 756 (X1) (MS) each of 300 pp) 8-03



पुणे नगरपालिका
पुणे पुरवठा
पुरवठा महासंचालकालय

Pune Cantonment Water Works
Pune Municipal Corporation.

6561598 / 6361934

No: P/1043/1546/5-24/07

Date: 27/4/2007

TO WHOM SO EVER IT MAY CONCERN

This is to certify that Marsh Engineers, 98A/25A, Hadapsar Industrial Estate, Pune-411 013 have completed Installation & Commissioning of Electrical Actuators manufactured by them. The total value of the Work Order amounting to Rs.24.93 Lacs, The same is working satisfactorily against following Tenders/Work Orders:

Tender No: 243/2004-05	-	Rs.5,00,000=00
Work Order No.453/2006-07	-	Rs.1,64,921=25
Work Order No.503/2006-07	-	Rs.8,91,714=03
Tender No.710/2006-07	-	<u>Rs.9,36,616=00</u>
Total		Rs.24,93,251=28

P. Kale
Asst. Engineer
Cantonment Water Works,
Pune Municipal Corporation

cemechid_nsk@sanchamnet.in
क.मु.आय.एम.संचालक/१२/०२/०७/२०७ १२०७ /०७



मूळ अभियंता (यांत्रिकी)
जलसंधारण विभाग, नाशिक-२
यांत्रिकी कार्यालय.
दिनांक: २६ / ४ / २००७

प्रति,
उपरोक्त अभियंता
यांत्रिकी मंडळ (उ.मं.),
पुणे/नाशिक/नाशिक/कोल्हापूर
(कारे) पुणे.

विषय :- मान्यता प्राप्त उत्पादक यादीमध्ये मे.मार्श इंजिनियर्स कंपनीचा समावेश करणे
बाबत.....

संदर्भ :- मे.मार्श इंजिनियर्स, पॉस्ट इंग्ली पत्र क्र.एणर्स/ वॉटर/०७ दि. १२.२००७.

विषयवस्तु प्रकृती संबंधित घडामोडी मे.मार्श इंजिनियर्स कंपनीचा मान्यता प्राप्त उत्पादक यादीमध्ये समावेश करण्याबाबत किर्ती करण्यात आली होती. यानुषंगाने उपरोक्त यादीच्या प्रयोग मॉनिटरिंगसाठी स्वरुप कंपनीच्या मॅन्ट्रॉन्ग व्हॉल्व व इलेक्ट्रिकल व्हेर्युफायरिंग (IS: 9034-1996) यांचे या कार्यालयामध्ये एकदली व्यवस्था करण्याबाबत येत आहे. तसे आपले मंडळांतर्गत तयार करण्यात येणा-या निविदांमध्ये मे.मार्श इंजिनियर्स कंपनीचा मान्यताप्राप्त उत्पादकांचे यादीत समावेश करण्यात यावा.

स्वक्षरता म.४ (यां) यांनी मंगूर व्हॉल्वे ऑफ
सोपेत : संपन्न.

[Signature]
राज.मूळ अभियंता (यां)
जलसंधारण विभाग, नाशिक-२
कारिता

प्रत :- मा. उपसंच (जलसंधारण), जलसंधारण विभाग, मंत्रालय, मुंबई-२२ यांना मंडळांतर्गत सविनय सादर.
प्रत :- मे.मार्श इंजिनियर्स, ९८/२५/अ, हडपसर, पुणे-४११ ०१३ यांना माहितीसाठी.

MUNICIPAL CORPORATION OF GREATER MUMBAI
(HYDRAULIC ENGINEER'S DEPARTMENT)


Office of the: -

Executive Engineer
(Maint) Meter Workshop
566, N. M. Joshi Marg,
Byculla (W),
Mumbai - 400 011.

To,
M/s. Marsh Automation Private Limited,
98A / 25A,
Hadapsar Industrial Estate,
Pune - 411 013.

CERTIFICATE OF PERFORMANCE

THIS IS TO CERTIFY THAT THE ELECTRICAL ACTUATORS MANUFACTURED BY M/S MARSH AUTOMATION PRIVATE LIMITED ARE TESTED AT THEIR WORKS AT HADAPSAR, PUNE AND FOUND IN ACCORDANCE WITH M.C.G.M.'S SPECIFICATIONS. ASLO THEY FULFILL ALL THE REQUIREMENTS OF M.C.G.M. REGARDING MANUFACTURING OF ELECTRICAL ACTUATORS.


Executive Engineer
(Maint.) Meter Workshop



ELECTRICAL ACTUATORS

- Emtork Actuators
- Regeltek Actuators
- QT (Quarter Turn Actuators)
- Electrical Thrusters
- Accessories

MOTORIZED VALVES

DAMPERS

GEARBOXES

- Multiturn
- Quarterturn



German technology



marsh automation

A New Generation Direct Mounted
Single Phase Quarter Turn Actuators

Electric Actuators For Valves & Dampers

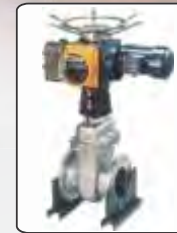
Regeltek

Made with World Class Technology
From Germany

www.marshautomation.com



MARSH Automation Pvt. Ltd. manufacture wide range of Electric Actuators & allied Process control equipment for over 30 year. The Product range covers almost the entire requirements of operations of the final control elements in the process industries and service sectors such as water, sewage, steel etc. The products are suitable for various types & sizes of valves & dampers for ON/OFF or Regulating duty operations & for safe or Hazardous areas



'Emtork' Multi-turn three phase actuator mounted on sluice valve. Other rotary models available for higher size sluice, Gate & Globe Valves.



'Emtork' Quarter-turn Three Phase actuator mounted on Butterfly valve. Other quarter turn models available for different sizes of Butterfly, Ball, Plug Valves & Dampers.



'Emtork' Linear three-phase actuator mounted on globe Valve. Other linear models available for different sizes of Globe Valves & dampers.



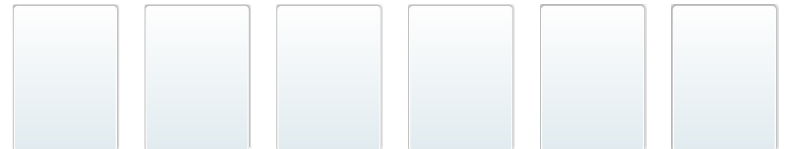
'Emtork' Quarter turn three phase actuator with linkages, other models available for damper operations.



'Emtork' Multi-turn three phase actuator with supplementary Spur Gear Box.



'Emtork' Quarter turn three phase actuator with supplementary Worm Gear Box.



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Modes, Types & Models of Electric Actuators - Emtork, Regeltek & QT/MT Series

Modes	Types	Models			
		Single Phase 220 V AC	Range	Three Phase 415 V AC	Range
ON-OFF / Isolating	Multiturn	MT	Torque : Up to 20 Kgm. Speed : 1 to 50 RPM.	M0, M1, M2, M/SG	Torque : Up to 300 Kgm. Speed 1 to 365 RPM
Modulating / Regulating	Quarter Turn	QT	Torque : Up to 40 Kgm. Speed : 0.75 RPM	DM0, DM1, M/WG	Torque : Up to 8100 Kgm. Speed : Average 45 Sec/90°
Safe Area Flame / Explosion Proof Area	Linear	ST	Thrust : Up to 600 Kgs. Speed : 0.26 to 0.8 mm / Sec.	LM0/LM1	Thrust : Up to 4000 Kgm. Speed : 1 to 20 mm / Sec.



'Emtork' Multi-turn three-phase actuator with Integral starter and Positioner mounted on Sluice Valve.



'QT' series single phase quarter turn actuator mounted on butterfly valve.



'QT' series single phase quarter turn actuator mounted on larger size butterfly valve.



'Regeltek' Linear single-phase actuator mounted on Globe Valve for control application.



'Regeltek' Linear single-phase actuator mounted on larger size Globe Valve for control application.



Explosion / Flameproof-Regeltek actuator suitable for Gas Groups I, IIA, IIB & IIC.



'Regeltek' actuator mounted on V-notch Ball valve for special application such as 'Basis Weight Control' in paper industry.



'Regeltek' actuator mounted on Butterfly valve for control application.



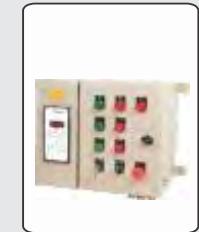
'Regeltek' actuator mounted on multi-louver damper.



Electronic positioner unit to operate the actuator as per 4-20mA control signal.



Position transmitter unit to give a two-wire system feedback signal proportional to the mechanical position of the valve.



Control panel to operate the Emtork three phase actuator in Auto or Manual modes.

- Specialised in Retrofitting jobs in Existing Plants
- First in India to produce Explosion proof Actuators for Gas Groups I, IIA, IIB & IIC
- Prompt after sales service
- Can offer motorised Valves / Dampers.



ELECTRICAL ACTUATORS

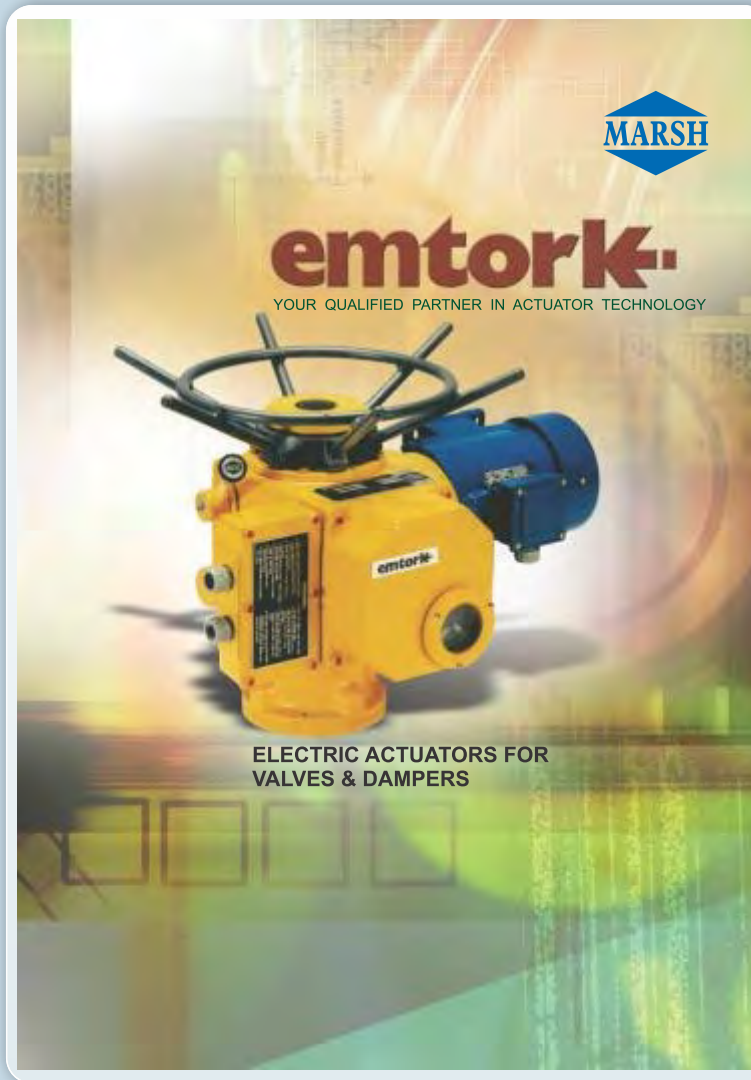
- Emtork Actuators
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emtork Electric Actuators for Valves & Dampers.

The "Emtork" Electric Actuators are electromechanical units used for operating the final control elements like valves or dampers to control the flow of fluids flowing thru the pipes or ducts. The specific advantages of using these units are :

- Ease of operation.
- Remote control facility.
- Proportional action of final control element in close loop system.
- Attaining & holding the desired preset position of the valve/damper.
- Various indications & alarms are available on the remote control panel & also on the unit.
- Emergency manual operation possible in case of power failure.
- Works on most convenient & easily available source of energy i.e. electricity.
- Models available to cover wide range of valves & dampers.
- Units with Integral starter will save cost of cables.
- Units with Electronic controller will facilitate field programming.

application

The Basic design of the Emtork Actuator consists of an electric motor, reduction gear unit and control compartment.

Various models have been developed to suit operating torque, speed, process parameters, area of operation etc.

Additional supplementary spur and worm gear boxes are offered to get higher operating torques and quarter turn motion.

Linear motion actuators have been developed to impart the required thrust to operate globe valves. The models are available for on / off and regulating duty and also for hazardous area application.

Modes, Types & Models of Emtork Actuators :

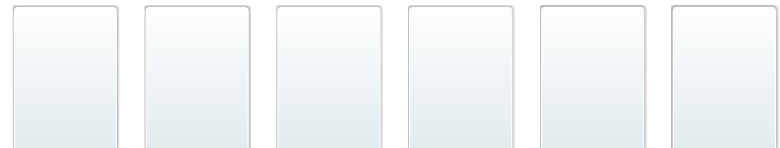
Modes	Types	Models
On/Off-Isolating	<ul style="list-style-type: none"> Multiturn Quarterturn Linear 	M30, M60, M80, M120, M150, M200, M250, M300, M500, M600, Also with supplementary spur gear boxes.
Modulating/ Regulating		QM0, QM1, Rotary actuator with supplementary worm gear boxes Also TM0/WG & TM1/WG
Safe Area		LM0, LM1 & Rotary actuator with attachment for linear motion
Flame/Explosion Proof		

Features of Emtork Actuators :
Standard Features

- Electric motor TEFC, 3ph, S-1 Duty
- Insulation class 'F'
- Travel limits switches -2 Nos (1NO + 1 NC)
- Torque limits switches -2 Nos(1NO + 1 NC)
- Continuous type local position indicator
- Handwheel with clutch mechanism
- Protection class IP 65
- Various types of output couplings viz A/B/C/D/E as per DIN 3210
- Hammer-blow effect

Optional Features

- Electric motor- TESC 3ph, S2 OR S4 Duty
- Better class of insulation for motor
- Travel limits switches 2 NO+2 NC in place of 1 NO+1 NC-2 Nos
- Torque limits switch 2 NO + 2 NC in place of 1NO+1NC-2Nos
- Additional Travel limit switches (1 NO + 1 NC)-4Nos(Extra) -or 2No. +2NC -2 Nos. extra
- Feed back potentiometer
- Remote position indicators-Analogue / Digital / Bar graph
- Space heater
- Electromagnetic, Electronic brake for the motor
- Protection class IP67/IP68
- Various types of local & remote panels
- Foot mounting brackets
- Set of linkages
- Tailor made accessories to suit customer's specific requirements
- Thermostats in motor winding
- Field / Panel mounted source to Convert 220VAC to 24 VDC required for transmitter
- Supplementary Spur Worm gear boxes
- Attachment for linear motion
- Retrofitting



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Details of features of actuators

Drive motor:
Emtork actuators are equipped with three phase, squirrel cage induction motor having high starting torque. These motors comply with IS-325 specifications.

Supply condition : 415 VAC, 3ph / 380VAC, 3ph / 220VAC, 1ph
Enclosure : TEFC/TESC
Class of insulation : std. F
Class of protection : IP55/65/67/68
Duty : std. S1/optional S2 or S4
Ambient temp - 50°c

Travel limit switches:
These switches are provided to cut off the actuator supply at the end of the preset travel in either direction. These switches are operated by cams which can be reset at site. Additional travel switches can be provided to get feed back of various valve positions

Torque limit switches:
These switches cut off the actuator supply in case the torque developed in the system is more than the desired preset value, in either direction. Torque switch in closing direction can also be set to achieve leak-proof / tight shut off of the valve.

Local indicator:
A continuous type mechanical local position indicator is provided on the actuator to show the actual mechanical position of the final control element.

Handwheel with motor overriding feature:
Emtork actuator is provided with a handwheel for emergency manual operation. The selector fork lever when put on to 'hand-position', disconnects the motor drive and connects to hand wheel drive so that desired operation can be done by hand wheel. When the motor is switched on, the hand wheel connection gets disengaged automatically and the operation is carried out by electric power.

Weather protection:
The emtork actuators are supplied with IP65/IP67/IP68 class of protection as per IS-4691 & IS-2147 duly certified by concerned authorities. The ingress of dust and water is prevented to protect the inside mechanism.

Output shaft designs:
The basic rotary actuators are supplied with output shaft couplings types A, B, C, D, E as per DIN 3210.

Hammer blow effect:
An inbuilt feature of the 'emtork' actuator and is achieved thru 'lost motion principle' and by using higher starting torque motor.

Feed back potentiometer / transmitter:
A feed back signal, in terms of change in resistance or current, proportional to the valve position, is available thru potentiometer or transmitter. A non-contact LVDT type transmitter can also be provided.

Remote indicators:
The signal coming from potentiometer is converted thru stabilised power source and read by analogue/digital on remote panel

Space heater:
An anti-condensation heater can be provided in the switching compartment while using the actuator in humid/damp environment.

Brake:
Electromagnetic or electronic brake can be provided for the motor to stop the actuator instantly

Control panels:
Various types of control panels can be provided for local, remote and combined local plus remote operations of the actuator.

Positioner:
Panel or field mounted electronic positioner can be supplied which can accept a control command of 4-20mA and position the final control element accordingly. 4-20 mA feed back signal is also available from the positioner.

Integral panel - electrical hardware logic - model LP 601:
A reversing starter consisting of push buttons, indicating lamps, contactors, O/L relay etc. can be supplied as an integral part of the actuator. This will save a major cost of cabling. A parallel operation & monitoring from remote station is also possible. A field mounted valve positioner unit can also be supplied in the integral panel. (refer separate catalogue for integral panel)

Integral panel - electronic PCB logic - model LP 602:
Field programming thru electronic logic is possible by this integral panel. In addition to the electrical hardware various PCBs are provided to select the parameters such as inching / noninching operation, closing by torque switch etc. Parallel functions from remote station are also possible.

Blinker transmitter:
An actuator mounted transmitter can be supplied which will indicate that the actuator is in running condition, thru a blinking lamp on control panel.

Foot mounting brackets & set of linkages:
These items can be supplied to suit various site conditions so that the final control element can be operated from a distant location.

Thermostats in motor:
These are embedded in the motor winding so as to protect the motor from burning due to overheating of motor winding.

Source:
A field / panel mounted source can be supplied for converting 220 VAC to 12/24/36 VDC supply, which is normally required to energize a two wire transmitter.

Supplementary spur gear boxes:
To increase the output torque of rotary actuators various types of spur gear boxes can be supplied. These gear boxes have variety of reduction ratios & output couplings viz A/B/C/D/E as per DIN 3210.

Supplementary worm gear boxes:
Worm gear boxes can be supplied to convert the output motion of rotary actuator in to quarter-turn movement to suit the operations of butterfly, ball & plug valves. Various models are available with different reduction ratios. Out put coupling for these models will be normally 'E' for direct mounting & 'D' for mounting thru brackets & linkages.

Linear attachment:
To convert rotary motion into linear to suit globe valves, a linear attachment is provided for the actuator. Various thrust values are available to suit the applications.

Retrofitting:
To convert the existing manually operated valves into 'motor-operated', retrofitting services are offered; which includes, site study, selection of equipment, spot measurement, designing & manufacturing mounting brackets, couplers, cabling etc. and installation and commissioning of equipment on turnkey basis. This will also cover the services of comparing / synchronizing the system with control parameters of other instruments.

Ordering Specifications :

I) Basic models with supplementary spur & worm gear boxes

M	SG	WG	OUTPUT COUPLING TYPE
M30 M60 M80(M0) M120 M150 M200 (M1) M250 M300 M500 M600	OUTPUT SPEED RPM 010 015 020 030 040 065 090 120 150	SUPPLEMENTARY SPUR GEAR BOXES NOT REQD SG00 REQD SG02 SG04 SG06 SG08 SG12	SUPPLEMENTARY WORM GEAR BOXES NOT REQD WG000 REQD WG030 WG050 WG075 WG100 WG200 WG250 WG400 WG700 WG1000 WG1500

II) Technical and ordering specifications for QM0 & QM1 Quarterturn actuators :

Model	Output torque Nm	Output speed RPM	Time of operation Sec/90°	Motor Details	
				Rated power Kw	Rated speed RPM
QM0/001/E	200	1.2	12	0.75	1405
QM0/002/E	200	2.1	7	0.75	1405
QM1/001/E	350	0.4	38	0.75	1405
QM1/002/E	350	0.7	22	0.75	1405

III) Technical & ordering specifications for LMO & LM1 Linear actuators :

Model	Output Thrust Kgs	*Output speed of basic unit-RPM	Linear speed of operation mm/sec	stroke Length mm	Motor Details
LM0 /*-75	3000	10 TO 365	1 TO 36.5	75	Refer motor details of basic MO & M1 models for respective speeds
LM1 /*-100	4000	10 TO 120	1 TO 12	100	

Notes : 1) LMO models are available with all the output speeds of basic MO model.
2) LM1 models are available with all the output speeds of basic M1 model.
3) The linear travel in both the models is 6mm/ revolution.
4) Attachment for linear motion is available for other rotary models

IV) Flame / Explosion Proof Actuators :

- Add the prefix 'F' to all the above model specifications when ordering for Flame / Explosion proof units.

Example : FM1 / 010 / SG00 / WG030 / E.



Torque Switch arrangement



Travel Switch arrangement



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Technical Specifications of basic actuator models

Model	Output Data			Actuator Self Locking	Motor Data				Eff. % (FL)	Mounting Base As per IS 9334
	Output Speed RPM (Approx.)	Output Torque Nm Rated	Adj Range		Rated Power HP	No. of Poles	Rated Current AMP (Approx.)	Power Factor FL		
M30	10,15,20	30	10-30	Yes	0.16	4	0.42	0.75	53	F10
	30,40			Yes	0.25	2	0.57	0.76	58	
	65, 90			Yes	0.35	2	0.71	0.79	62	
M60	10,15,20	60	20-60	Yes	0.16	4	0.42	0.75	53	F10
	30,40			Yes	0.25	2	0.57	0.76	58	
	65, 90			Yes	0.50	2	1.00	0.78	67	
M80 (M0)	10 to 70	80	25-80	Yes	1.00	4	1.80	0.78	76	F10
	80 to 140			Yes	3.00	2	4.55	0.83	81	
	190 to 365			No	3.00	2	4.55	0.83	81	
M120	10,15,20	120	40-120	Yes	0.25	4	0.58	0.75	58	F10
	30,40			Yes	0.50	2	1.00	0.78	67	
	65, 90			Yes	1.00	2	1.70	0.82	75	
M150	10,15,20	150	50-150	Yes	0.35	4	0.77	0.74	61	F10
	30,40			Yes	0.75	2	1.33	0.79	73	
	65, 90			Yes	1.50	2	2.40	0.82	79	
M200 (M1)	10 to 30	200	60-200	Yes	1.00	4	1.80	0.78	76	F14
	40 to 60			No	2.00	4	3.30	0.80	78	
	80 to 120			No	3.00	2	4.55	0.83	81	
M250	10,15,20	250	80-250	Yes	0.50	4	1.04	0.72	69	F14
	30,40			Yes	1.00	2	1.70	0.82	75	
	65, 90			Yes	2.00	2	3.10	0.86	78	
M300	10,15,20	300	100-300	Yes	0.75	4	1.40	0.78	72	F14
	30,40			Yes	1.50	2	2.40	0.82	79	
	65, 90			Yes	3.00	2	4.55	0.83	81	
M500	10,15,20	500	160-500	Yes	1.00	4	1.80	0.78	76	F14
	30,40			Yes	2.00	2	3.10	0.86	78	
	65, 90			Yes	5.00	2	7.20	0.87	82	
M600	10,15,20	600	200-600	Yes	1.50	4	2.50	0.81	76	F14
	30,40			Yes	3.00	2	4.55	0.83	81	
	65, 90			Yes	5.00	2	7.20	0.87	82	
	120, 150	No	7.50	2	10.20	0.89	84			

Note : 1) At higher speeds the rated output torque may get reduced slightly.
 2) For regulating Duty models the output speed of the actuator should be restricted up-to 40RPM to avoid inertia problems
 3) Additional details for regulating duty models will be available on request



■ QMO Actuator with linkage

■ Actuator with Spur gear box

■ Actuator with worm gear box

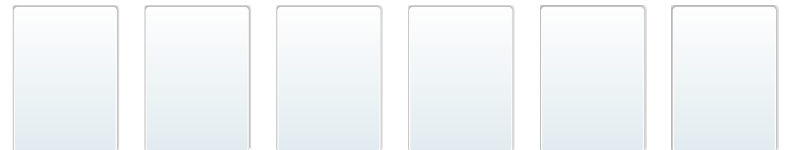
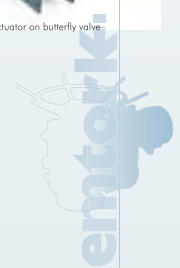
■ Actuator with Integral Starter

■ Flame proof actuator

■ Actuator on butterfly valve

■ Actuator on Globe valve

■ Actuator on sluice valve



ELECTRICAL ACTUATORS

- Emtork Actuators
- Regeltek Actuators
- QT (Quarter Turn Actuators)
- Electrical Thrusters
- Accessories

MOTORIZED VALVES

DAMPERS

GEARBOXES

- Multiturn
- Quarterturn

**YOUR QUALIFIED PARTNER IN
ACTUATOR TECHNOLOGY**

MARSH
emtork

MOTORIZED DAMPERS, ELECTRIC THRUSTERS

www.marshautomation.com

Motorised dampers

Marsh offers various types & sizes of Electrically operated dampers to control the flow of air, gases required in the process industries.

Electrical Actuators are designed to operate the dampers or gates for different types of applications such as :
 Linear motion Thrusters
 Quarter turn Actuators for single & multi louver dampers
 Multi turn Actuators for Rising Stem Gates

The Actuators operate on either 415 V AC 3 Phase or 220 V AC 1 phase supply depending upon requirements and also can be supplied for ON-OFF or Regulating duty application. For Hazardous area applications specially developed flame-proof / explosion-proof & for special requirements pneumatically operated dampers can also be supplied.

Emtork electric thrusters

Emtork Thrust unit actuators are Positioning Devices suitable for operating large size dampers, flaps, shutters, fan blades etc. from a remote control station in ON/ OFF and Regulating modes. The Thruster units swivel either in one or two axes while imparting the Thrust, so as to achieve correct alignment with the final control element.



Marsh Offers :

- 2 Types 1 Axes / 2 Axes movement units.
- 5 Models Thrust rating up to 5000 Kg force
- Stroke length up to 1000 mm.
- Large variety of operating speeds.
- ON/OFF & Regulating duty models.
- Area of Operation Safe or Hazardous.
- Manual Operation with motor over riding provision.
- Weather proof construction .
- Provision for Integral starter.
- Self locking Units.
- Various Accessories available on demand.

Optional Features :

- Electric motor TESC,3 Phase, S2 or S4 Duty
- Protection class IP 67 /IP 68.
- Better class of insulation for motor.
- Travel limits switches 2 NO + 2NC in place of 1 NO + 1 NC-2 Nos.
- Torque limits switch 2 NO + 2NC in place of 1 NO + 1 NC-2 Nos.
- Additional limits switch (1 NO + 1NC) 4 NOS. (Extra)
- Feed back potentiometer
- Feed back Transmitter.
- Remote position indicator Analogue / Digital
- Space heater.
- Valve positioner.
- Various types of local & remote panels
- Set of linkages.
- Tailor made accessories to suit customer's requirements.

Features of emtork electric thrusters:

- Standard Features:**
- Electric motor TEFC, 3 phase, S- 1 Duty.
 - Insulation class 'F'
 - Travel limit switches 2 Nos (1 NO +1 NC)
 - Torque limit switches 2 Nos (1NO +1 NC)
 - Continuous type local position indicator.
 - Hand wheel with clutch mechanism.
 - Protection class IP 65
 - Hammer blow effect



ELECTRICAL ACTUATORS

- Emtork Actuators
- Regeltek Actuators
- QT (Quarter Turn Actuators)
- Electrical Thrusters
- Accessories

MOTORIZED VALVES

DAMPERS

GEARBOXES

- Multiturn
- Quarterturn





Technology from Regeltechnik GmbH, Germany

Over 150 Installations in India in the last 15 Years



MOTORISED BASIS WEIGHT CONTROL VALVE

PACKAGE FOR PULP & PAPER INDUSTRY

V- Notch Ball Valve.
High Resolution Electrical Actuator
Interfacing Electronic Accessories.
Electronic Control Panel.

V- NOTCH BALL VALVE

- V-notch contour offers an equal percentage characteristics for control.
- Valve sizes from 25 to 300 mm.
- Ideally suitable for throttling of fibrous pulp.

HIGH RESOLUTION ELECTRICAL ACTUATOR

- Actuator movement 280 sec. /90° or 306 sec. /90°
- Standard pulse width 0.01 sec.
- 27400 or 30600 steps /90° - valve movement.
- Can be directly hooked to DCS or QCS systems.

INTERFACING ELECTRONIC ACCESSORIES.

- Valve positioner to accept 4-20 mA or 0-10VDC signal from controller.
- Feedback potentiometer to give ohms output.
- Electronic position transmitter to give an output signal of 4-20mA.

ELECTRONIC CONTROL PANEL.

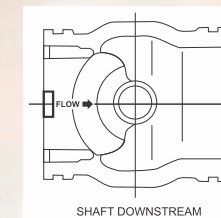
- Digital Valve Position indicator.
- Open / Close push buttons for manual operation.
- Auto / Manual Selector switch.

Typical Valve Specifications / Features

Valve Type	V-notch / Segment Ball Valve
Size	DN - 25 40 50 75 100 150 200 250 & 300
End Connections	Flange less / Flanged - Optional
Leakage Class	Metal to Metal Seated - ANSI Class IV Soft Seated - Teflon - ANSI Class VI
Body rating	ANSI 150 and ANSI 300
Characteristics	Equal Percentage - Approx.
Body	316 SS / Carbon Steel / Titanium
Ball / Segment	317 SS / Hard chrome plated Steel
Seat	316 SS / Teflon
Packing	Teflon - V - rings / PTFE

Electric Actuator Specifications

Description	Specification	
Models	ST - 5102 - S	ST 5103 - S
To suit Valves - Size DN	25 40 50 75 & 100	150 200 250 & 300
Operation time Sec/90°	280	306
Torque developed - Nm	150	375
Degree of Protection	IP - 55	
Switching frequency- Operations / hour	7000	
Standard pulse width	0.01 sec.	
Resolution steps /90°	27400	30600
Input Signal	230 /110 V AC Pulses from DCS / QCS OR 4-20 mA / 0-10 VDC Control Signal from Controller	
Motor Type	Non blocking - Stall Duty A. C. Motor	
Supply Voltage	220/110 VAC 50 / 60 Hz 1 Phase	
Motor rating - watts	4.7	23.6
Class of Insulation	F	F



ACCESSORIES

- **STANDARD** •
 - Travel limit switches - 2 Nos. (1 NO + 1NC)
 - Hand wheel for manual operation.
 - Local position indicator
- **OPTIONAL** •
 - Additional limit switches 2 Nos. (1 NO + 1NC)
 - Feedback potentiometer
 - Two / Four wire transmitter
 - Remote position indicator - digital Control panel
 - Positioner to accept 4-20 mA / 0-10VDC

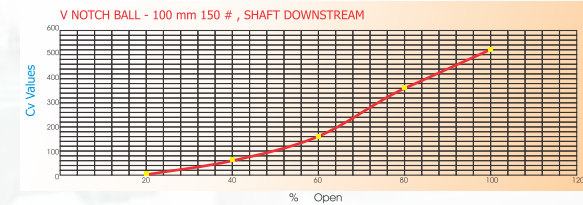
VALVE TYPE :
Shear Stream

BODY RATING :
Class 150-600

TRIM CHARACTERISTIC :
Shaft down stream

FLOW COEFFICIENT - Cv

Valve Size DN	Cv at degrees open									
	10	20	30	40	50	60	70	80	90	
25	0.1	0.72	1.6	3.5	5.7	8.9	12.4	17.6	25	
40	0.21	1.4	3.7	7.4	12.3	18.9	28	40	57	
50	0.5	3.2	7.2	13.2	21	32	47	70	110	
75	7	19	34	56	85	124	185	239	280	
100	13	33	59	94	140	195	271	361	462	
150	19	54	110	176	260	371	519	716	945	
200	45	104	185	291	425	589	825	1122	1675	
250	92	220	354	572	835	1150	1620	2250	3180	
300	120	287	461	746	1090	1500	2120	2940	4150	



ELECTRICAL ACTUATORS

- Emtork Actuators
- Regeltek Actuators
- QT (Quarter Turn Actuators)
- Electrical Thrusters
- Accessories

MOTORIZED VALVES

DAMPERS

GEARBOXES

- Multiturn
- Quarterturn

Made With World Class German Technology

Also Available in Flame / Explosion Proof Version in Gas Groups I, IIA, IIB, IIC, as per IS/IEC 60079-1 : 2007

Regeltek

Regeltek Electric Actuators are manufactured with the Technical know-how from the world renowned actuator manufacturers M/s. Regeltechnik Kornwestheim GmbH Germany. These units are most suitable for control/regulating duty applications of various types of valves such as Globe, V-notch ball, butterfly, diaphragm and single/multi louver dampers.

The actuators are supplied with various types of accessories & can directly work on the control signal of 4-20 mA & also give feed back signal of 4-20 mA with respect to the actual mechanical position of the final control element.

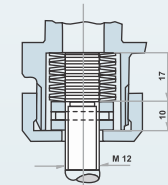
Regeltek
Linear Electric Actuators Model ST 5102 / 5103

Technical Data & Specifications

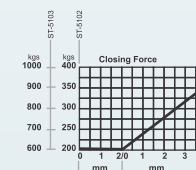
Model	Stroke Length mm	Operating Speed mm/sec	Rated Actuating force kgs.	Max Closing force kgs.	Switching frequency Operations / Hour		Motor Details					Degree of Protection	Weight kgs.
					Short time	Normal	Supply	Out Put Watt	Nominal Current mA (220V)	Class of Insulation	Amb. Temp °C		
ST-5102-32	40	0.26	200	350	7000	1800	220/110 VAC 50/60 PH 1PH	3.14	40.5	B	45	IP55	4.5
ST-5102-33	40	0.52	200	300									
ST-5102-34	60	0.52	200	300									
ST-5102-35	40/60	2	75	100									
ST-5103-61	60	0.45	600	900									
ST-5103-76	60/75	0.8	600	750	16.5	133	E	45	10.5				

Accessories

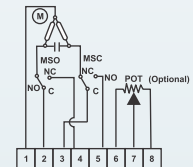
- i) Standard -- Travel limit switches (1 NO. + 1 NC) --2 Nos., Hand wheel, Local position indicator
- ii) Optional -- Auxiliary limit switches (1 NO. + 1NC) -- 2 Nos.
 - Feed back potentiometer -- 2 Nos. (Max)
 - Valve positioner - field / panel mounted Input -- 4-20 mA/ 0-10 V.D.C. Output - Proportional
 - Two wire transmitter - field/ panel mounted Input - From potentiometer in the actuator. Output -- 4-20 mA
 - Remote position indicator with Power source -- Analogue/Digital
 - Space heater.
 - Linkages to operate dampers or butterfly valves.
 - Special accessories on request.



Out-put Coupling Arrangement



Actuating Force



Connection Diagram



ELECTRICAL ACTUATORS

- Emtork Actuators
- Regeltek Actuators
- QT (Quarter Turn Actuators)
- Electrical Thrusters
- Accessories

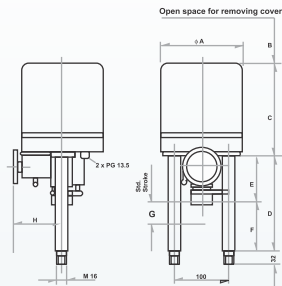
MOTORIZED VALVES

DAMPERS

GEARBOXES

- Multiturn
- Quarterturn

Dimensional Drawing

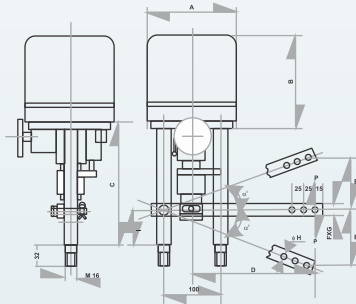


Dimensional Details

Model	Dimensions							
	A	B	C	D	E	F	G	H
ST-5102	150	120	162	200	98	102	40	90
ST-5103	205	200	225	238	118	120	60	133

Regeltek
Demper Actuators Model ST-5102D/5103D

Dimensional Drawing



Dimensional Details

Type	A	B	C	D	E	F	G	H	I	α max.
ST5102-D-32	150	162	245	200	90	20	6	10	95	20°
ST5102-D-33	205	225	300	300	180	30	10	15	108	30°

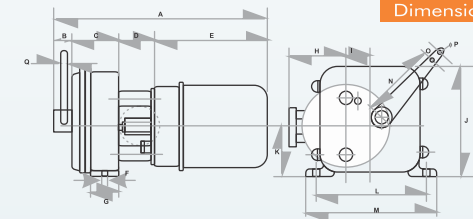
Technical Data & Specifications

Model	ST-5102 D-32	ST-5102 D-33	ST-5103 D-61	ST-5103 D-76
Input Supply	220/110V 50Hz AC	220/110V 50Hz AC	220/110V 50Hz AC	220/110V 50Hz AC
Output force P' (Kgs.)				
Actuating	40	40	85	65
Closing	60	60	130	100
Output Torque (kgm)				
Actuating	8	8	25	20
Closing	12	12	37.5	30
Stroke (mm)				
(max.) (2E)	180	180	360	360
Time of Operation (minutes)				
(for max. stroke)	2.4	1.2	2.2	1.2

Note - for other details refer basic model specification.

Regeltek
Damper Actuators Model RTD 5102/RTD 5103

Dimensional Drawing



Dimensional Details

Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
RTD 5102	333	30	75	60	168	14	48	90	41	192	90	180	210	125	25	10	6
RTD* 5103	465	30	90	120	225	14	54	140	53	212	103	205	235	125	25	15	10

*Provisional

Technical Data & Specifications

Model	RTD 5102	RTD 5103*
Input Supply	220/110 V AC 50/60 Hz:1Ph	220/110 V AC 50/60 Hz:1Ph
Output force Kgs. -		
Actuating	40	75
Closing	60	110
Out put torque Kgm.		
Actuating	6	11
Closing	8	16
Angle of rotation	adjustable 10° to 340°	
Time of operation Sec@90°	45	45

Note - For other details refer basic model specification.



ELECTRICAL ACTUATORS

- Emtork Actuators
- Regeltek Actuators
- QT (Quarter Turn Actuators)
- Electrical Thrusters
- Accessories

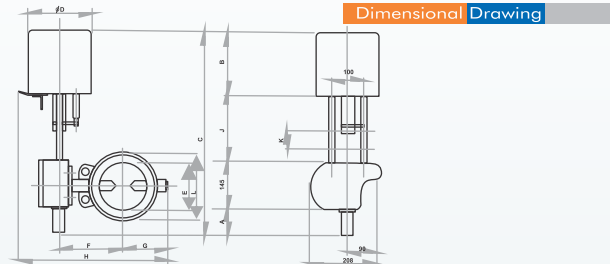
MOTORIZED VALVES

DAMPERS

GEARBOXES

- Multiturn
- Quarterturn

Regeltek
Actuators On Butterfly / Ball Valve Model QST 5102/5103



Valve Size	Actuator Model	Dimensions										
		A	B	C	D	∅E	F	G	H	J	K	L
100	QST5102	58	162	565	150	100	161	103	354	200	32	160
300	QST5103	80	225	688	205	300	280	122	535	238	60	380

Regeltek Quarter-turn Electric Actuators For control Application

Technical Data & Specifications

Description	Model	
	QST-5102	QST-5103
Rated actuating torque Kgm.	4	22.5
Max. closing torque Kgm.	7	34
Time of operation - Sec/90°	120	130
Switching Frequency		
Operations/hour - Short time	7000	7000
- Normal	1800	1800
Degree of protection	IP 55	IP55
Supply	220/110 V AC - 50/60 Hz 1 Phase	
Motor Type	Non blocking A. C. Motor	
Out put power Watt	3.14	16.5
Nominal current at 220 V-mA	40.5	133
Class of insulation	B	E
Ambient temp °C	45	45
Weight kgs	8.3	14.7

Note-For standard and optional accessories Refer data given under Regeltek Linear Electric Actuators.

Regeltek Actuators for Diaphragm Valves :

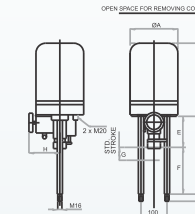
Regeltek series actuators can be used for Diaphragm valves for ON/OFF and Regulating duty. These can be directly mounted, as shown in the photograph, so as to give linear motion to the valve stem. Following table can be used as a guide line for the actuator selection, however, it is advisable to confirm the exact requirement of thrust values from the valve manufacturers for the proper selection of the actuators.

Actuator selection chart-Diaphragm Valve-Line Pressure : 10 BAR

S.N.	Valve Size NB	Actuator Model	Power Supply
1	15	} ST-5102-32	220/110 V AC 50/60 Hz, 1 Phase
2	25		
3	40		
4	50		
5	65	} ST-5103-61	220/110 V AC 50/60 Hz, 1 Phase
6	80		
7	100		

Regeltek
Flame/ Explosion Proof Actuators

Dimensional Drawing



All above actuator models with their accessories can be offered for flame/explosion proof version duly tested & certified for Gas Groups I, IIA, IIB, & IIC as per latest Indian Standard No. IS/IEC 60079-1: 2007 & IS 13346: 2004 IEC 60079-0 (2000)

Dimensional Details & Approx. Weight

Model	A	B	C	D	E	F	G	H	Weight kgs
FST-5102	170	150	180	200	98	102	40	90	20
FST-5103	225	220	240	238	118	120	60	133	40

ACCESSORIES FOR REGELEK ACTUATORS

Following optional extra accessories are available for all models of Regeltek actuators.



Travel Limit Switches - 1NO + 1NC - 2nos. Changeover type

Feedback Potentiometer - 2 nos. max.

Two Wire Position Transmitter - Model PPT 200 - This unit converts O/P from the potentiometer to corresponding 4 - 20mA feedback signal.

Space Heater - This is provided to reduce moisture effect in actuator housing.

Panel Mounted Electronic Positioner Model PP 503 SP for safe Area/Hazardous Area.

This unit helps in achieving the exact mechanical position of the actuator output spindle with respect to the incoming control signal of

- 1) 4-20 mA
- 2) 0-20 mA
- 3) 0-10VDC
- 4) 0-5VDC

The Unit has following features

- Auto / Manual Selector Switch** - In Auto mode actuator operates as per the incoming control signal & in Manual mode it can be operated manually by toggle switch given on positioner.
- Digital Indicator** - 3 & 1/2 digit indicator indicates percentage opening of the final control element.
- LED Indications for** - Opened, Closed, F.B. Fault, I/P Fault.
- Span, Zero & Dead Band adjustments.
- 4-20mA Rx (Retransmission) o/p for customer use.
- Actuator control signal fail to Open / Close.



ELECTRICAL ACTUATORS

- Emtork Actuators
- Regeltek Actuators
- QT (Quarter Turn Actuators)
- Electrical Thrusters
- Accessories

MOTORIZED VALVES

DAMPERS

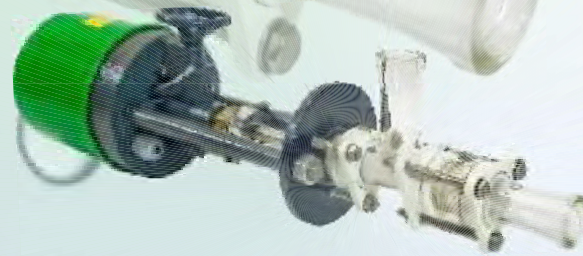
GEARBOXES

- Multiturn
- Quarterturn

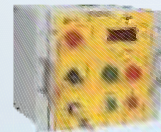
Motorized Glass Control Valves



**Application : Pickling Plant.
Sector : Steel.**



'Marsh' introduces new range of Motorized Glass Valves for controlling flow of Acid in an Acid Regeneration Plant specially used in Pickling Plant to recycle waste Acid.



THE PACKAGE MAINLY CONSISTS OF

- Glass Valve
- High Resolution Electrical Actuator
- Accessories

• Brief Description

Waste from pickling process which mainly consists of Hydrochloric Acid, Suspended Iron Particles & Water along with CNG and Air is feed to a reactor in controlled manner through motorized Glass Valve. This acid gets converted to gaseous form in the reactor which is again converted to acid in an absorption column.

The Glass Valve is made of Borosilicate glass and PTFE plugs. Glass Valve allows visual checking to monitor flow of acid and see that crystallization does not take place. The Valve has to be washed periodically with water to remove iron particles if any.

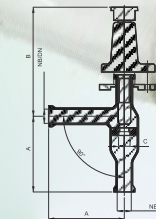
Glass Valve Specification

Valve Size in NB	25, 40, 50
End Connections	Flanged
Material	Borosilicate Glass.
Plug	PTFE.
Max. Temperature	200°C.
Media	Hydrochloric Acid.
Valve Types	Straight Through Valves, Drain Valves, Angle Valves, Vent /Vacuum Valves, Bottom Outlet Valves etc.

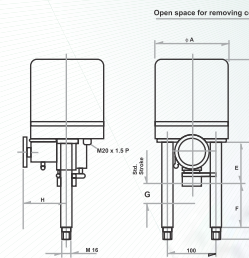
Dimensional Drawing

A Typical Dimensional Details of an Angle Valve is shown below:

Valve Ref. No	NB / DN	A	B	C
RP 1	25	100	175	18
RP 1.5	40	150	200	26
RP 2	50	150	220	38



Dimensional Drawing



HIGH RESOLUTION ELECTRICAL ACTUATOR SPECIFICATION

Description	Specification of an Electrical Actuator	Standard Accessories
Model	ST 5102 - G	1. Travel Limit Switches
Glass Valve - Size NB	25, 40, 50	1NO+1NC - 2 Nos.
Operation time in sec	18 - 20 approx.	2. Hand Wheel for Manual Operation
Linear Speed mm/sec	0.26 / 0.52	3. Local Position Indicator
Rated Thrust Kg's	200	
Maximum Closing Thrust in Kg's	350	
Degree Of Protection	IP - 55 / 65	Optional Accessories
Switching frequency Short Time / Normal	7000 / 1800	Auxiliary Switches
Input Signal	4-20 mA, 230 / 110 VAC relay signal	Space Heater
Motor Type	Non blocking - Step Synchronous Motor	Feedback Potentiometer
Supply Voltage V AC	220 / 110	2/4 Wire Position Transmitter
Frequency	50 Hz	Digital Indicator
Motor Rating - Watts	4.7	Panel Mounted Positioner to accept 4-20mA / 0 - 10 V DC
Class of Insulation	F	

Dimensional Details

Model	Dimensions							
	A	B	C	D	E	F	G	H
ST-5102-G	150	120	162	200	98	102	40	90



ELECTRICAL ACTUATORS

- Emtork Actuators
- Regeltek Actuators
- QT (Quarter Turn Actuators)
- Electrical Thrusters
- Accessories

MOTORIZED VALVES

DAMPERS

GEARBOXES

- Multiturn
- Quarterturn



Single Flap Butterfly
Round



Multi Louvers Dampers
Round



Slide Gates
Rectangular

DAMPERS



Poppet Dampers

Damper Users @

- Thermax Ltd.
- Rieco Industries Ltd.
- DustVen Pvt. Ltd.
- Promac Engineering Industries Ltd.
- JSW Energy Ltd.





USERS



WATER
JUSCO
MIDC
PHED - Rajasthan
PHED - West Bengal
Lucknow Municipal Corporation
TWAD - Coimbatore
GWSSB

POWER
RELIANCE
JINDAL
APGENCD
ADANI
NTPC
TNSEB

STEEL
TATA
SAIL
JINDAL
VSP
MONNET ISPAT
ESSAR

OIL & GAS
RIL
HPCL
ESSAR
BHARAT OMAN

PAPER
West Coast
Khanna
Bilt
3M
N.R. Agarwal

CEMENT
ACC
BINANI
JK
L&T
Ultratech
Zauri

SUGAR
Bannari Amman
Ugar
Renuka
DSCL
EID Parry



USERS



MARSH

Quality Control Organisations Chart

Q.C. Engineer

Q.C. Supervisor

Inspector

Inspector



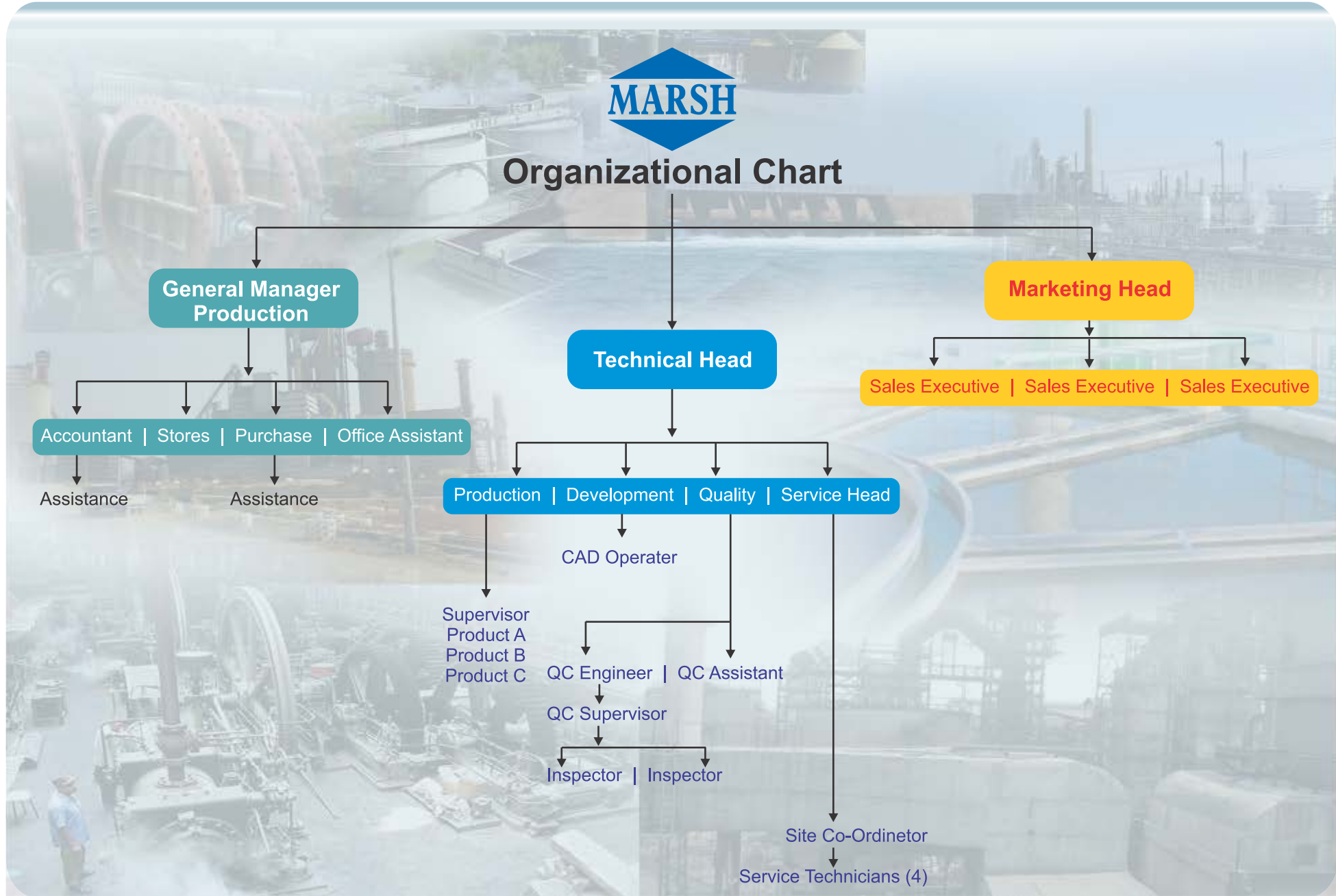


FACILITY





Organizational Chart



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● **DELHI**

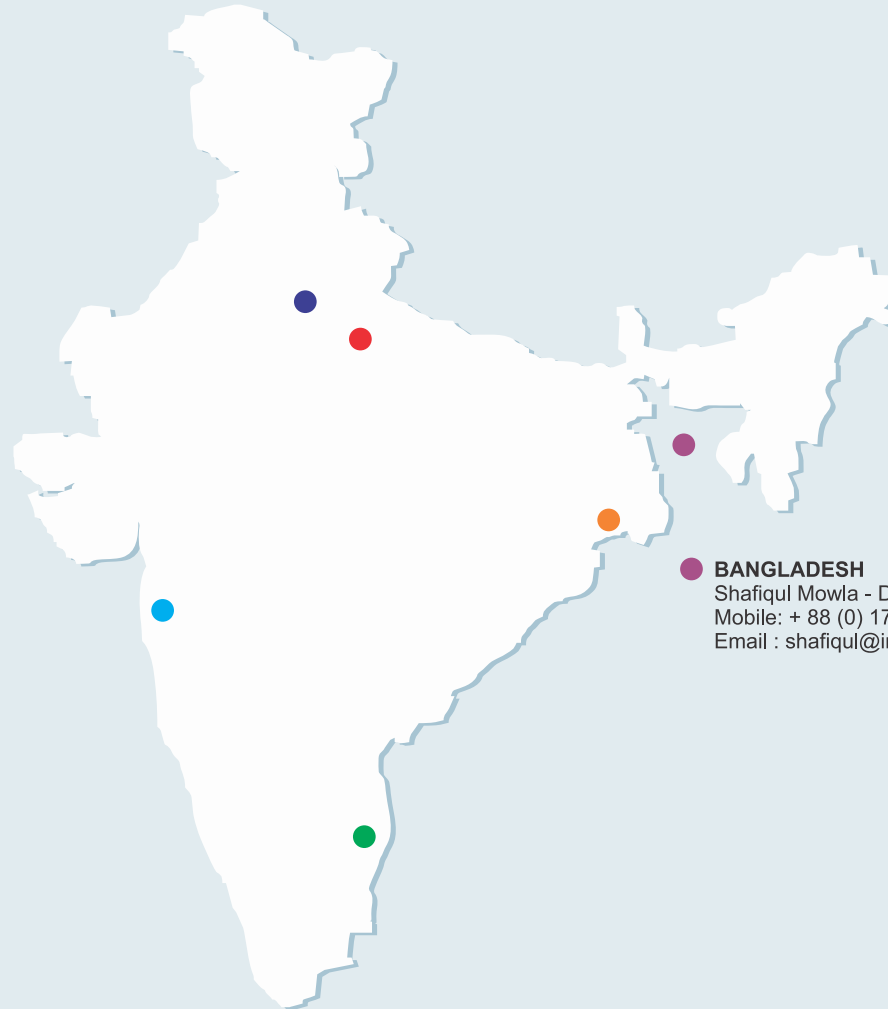
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● **KOLKATA**

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