


Form No:	 PE&SD	BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING & SYSTEMS DIVISION	PY 52 186
		TECHNICAL SPECIFICATION	Rev. No. 01
		MOTOR OPERATED VALVE FOR RSPL	Page 1 of 8

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MOTOR OPERATED VALVE FOR RSPL-3X16.65 MW STG

1.0 SCOPE

This standard specifies the requirements for design, manufacture, factory test and supply of various type of valves with electric actuators.

2.0 APPLICABLE STANDARDS

2.1 Latest edition of following standards shall be applicable for the main/bypass valve (type of valves as applicable & s per requirement of variant no. in Table-1)

Sl. No.	VALVE TYPE	MATERIAL	ANSI Pr. CLASS	BHEL STD.
2.1.1	GATE VALVE	CARBON STEEL	150	PY52164
2.1.2	GATE VALVE	CARBON STEEL	600	PY52183
2.1.3	GATE VALVE	CARBON STEEL	800	PY52163
2.1.4	GATE VALVE	1-1/4CR-1/2MO	600	PY52169
2.1.5	GATE VALVE	1-1/4CR-1/2MO	800	PY52025
2.1.6	GATE VALVE	2-1/4CR-1MO	2500	PY52167
2.1.7	GLOBE VALVE	CARBON STEEL	150	PY52161
2.1.8	GLOBE VALVE	CARBON STEEL	800	PY52160
2.1.9	GLOBE VALVE WITH REG. DISC	CARBON STEEL	150	PY52170
2.1.10	GLOBE VALVE WITH REG. DISC	CARBON STEEL	150	PY52171
2.1.11	GLOBE VALVE WITH REG. DISC	2-1/4CR-1MO	2500	PY52184

2.2 This standard shall be read along with BHEL specification PEMC-06697 for Technical Delivery conditions.

2.3 Specific requirements for motorized valve actuator shall be governed by project **SPEC. NO: 44PS5400-000-JE-02A-0051.**

3.0 GENERAL REQUIREMENTS




3.1 The required type of valve shall have electric actuator assembled.
 Unless noted otherwise in Variant Table-I, the actuator shall be with **integral reversible starter.**


The actuator shall have provision for manual wheel operation & also de-clutching lever.

3.2 Power supply:
 415V-3ph-50Hz (unless noted otherwise in the variant table-I)

3.3 Variation in Power supply:
 Voltage : 415v +/- 6%
 Frequency : 50Hz +/- 3%
 Combined voltage and frequency variation: 9 % (absolute sum)
 The actuator shall be suitable to perform continuously and satisfactorily within this range of Power supply.

3.4 No of start /stop: Minimum 60/hr.

Refer Doc	LAYOUTS & PIPING ENGINEERING	PREPARED	CHECKED	APPROVED	DATE
	PROJECT ENGINEERING & SYSTEMS DIVISION	 IMRAN AHMAD	 DS BARAIK	 SRIKANTH G	24.06.16

Form No:	 PE&SD	BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING & SYSTEMS DIVISION	PY 52 186
		TECHNICAL SPECIFICATION	Rev. No. 01
		MOTOR OPERATED VALVE FOR RSPL	Page 2 of 8

3.5 Weather protection
Unless noted otherwise in Variant Table-I, the actuator unit shall be designed & certified with weather protection Class IP68.

3.6 Explosion proof design
Ref. Table-I, for requirement if any. In case same is applicable, the actuator shall be suitable & certified for operation in hazardous area per NEC-CL I-Div.-II, Group B, C&D (IS2148-Gr IIA, IIB, and IIC).

3.7 Actuator Make: Only reputed & proven designs are acceptable. Unless noted otherwise it shall be of ROTORK / AUMA / LIMITORQUE make.

4.0 DOCUMENTATION

4.1 Required along with the offer:
(Unless same are furnished, the offer will not be considered)

- a) Overall dimensional drawing with its weight and part list.
- b) Type of actuator proposed, including its kW rating, technical catalogue.
- c) One copy of the valve specification signed as “accepted” with all the deviations marked clearly.
- d) If the valve is regretted or has no deviation, the vendor shall write to clearly on valve specification sheet as”Regret” and “No deviation”.
- e) Filled-up DATA SHEETS-as enclosed in this specification. Q.A. Plan (Refer Class 5.0 below).
- f) Deviations - if any, from the specification.

4.2 Required after the Placement of order:

- a) Overall dimensional drawing with its weight and part list etc.
- b) Drawings for valve accessories like motor.
- c) Electrical wiring diagram.

4.3 Required at the time of supply:
(All documents herein noted are to be treated as part of main equipment supply and hence linked commercially.)


- a) All statutory & material test certificates – as per applicable standards mentioned above & also in this specification.
- b) Functional Test certificates (operation with actuator) and inspection reports as per approved Q.A Plan.
- c) Guarantee certificate. (Refer clause 6.0)

4.4 O&M Manual:

- a) It shall contain all applicable drgs, data-sheets, instructions on storage, erection, commissioning operation & maintenance, catalogue information for actuator etc.
- b) Note: - All documents & drawings enclosed shall be computer generated / scanned (whichever applicable).
- c) Required no. of copies-8 (unless noted otherwise in Purchase Order).
- d) Advance copy of O & M MANUAL must get approved by purchaser-three weeks before the scheduled delivery of the items

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Form No:	 PE&SD	BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING & SYSTEMS DIVISION	PY 52 186
		TECHNICAL SPECIFICATION	Rev. No. 01
		MOTOR OPERATED VALVE FOR RSPL	Page 3 of 8

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5.0 PREPARATION FOR SHIPMENT & PACKING

5.1 Marking: The valve shall have SS-nameplate securely fitted. It shall have following details:

a) On valve

- Size of valve, rating & material.
- BHEL material-code no (As per required variant-no in this & specification and BHEL Purchase order)
- Year of manufacture. The valve body shall have embossed marking of its size and material standard.

b) On Actuator:

- Model & Sl. No of the actuator.
- KW, Volts, Phase, frequency, current rating.
- Explosion proof certificate (if applicable)
- Year of manufacture

5.2 The valve assembly shall be packed in wooden crate in such a way, that no damage occurs during transportation & storage. Special care shall be taken in the packing particularly for the actuator area.


5.3 The packing shall have clear marking (un-washable paint) as followings:

- "Upside" marking.
- Equipment name.
- BHEL – P.O. No. & date.
- Consignee's address (& packing number as per unified packing numbering system-whenever applicable.)
- Suppliers packing no. Ref. & date.

6.0 GUARANTEE:

6.1 Vendor shall furnish a guarantee certificate for satisfactory performance of the valve & actuator unit. Unless noted otherwise in the purchase enquiry, the guarantee certificate shall be valid for a period of 12 months from the date of commissioning of 24 months from the date of delivery, whichever is earlier.

6.2 It is to be noted that review/approval from purchaser on vendor's documents does not relieve the vendor from its responsibilities for compliance with all applicable codes, standards & acceptable commercial practices and also for the safe operation of equipment.


Form No:	 PE&SD	BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING & SYSTEMS DIVISION	PY 52 186
		TECHNICAL SPECIFICATION	Rev. No. 01
		MOTOR OPERATED VALVE FOR RSPL	Page 4 of 8

TECHNICAL DATA SHEET OF ELECTRIC ACTUATOR FOR VALVE

(Vendor to fill-up this data sheet and furnish along with offer. REVISIONS carried out if any, at any time later must be submitted to BHEL Hyd.)

Sl.No.	PARAMETERS	VENDOR's RESPONSE	REMARKS
1.0	Designation		
1.1	Valve tag No(s).		
1.2	Quantity		
1.3	Description(Type/Matl./End Details)		
1.4	Valve size/ANSI Pressure Class		
2.0	SERVICE CONDITION		
2.1	Design ambient Temp.	50 Deg. C	
2.2	Altitude (above MSL)	<1000 mtrs	
2.3	Relative humidity	89%	
2.4	Environment	Dusty/tropical /corrosive	
3.0	SYSTEM PARTICULARS		
3.1	Supply voltage / Frequency.	415V +/-6% 50Hz +/-3%	
3.2	Combined voltage and frequency variation	9% (absolute sum)	
3.3	No of phase and wire	3 phase/4 wire	
4.0	SPECIFIC REQUIREMENT		
4.1	Type of motor (Sq. cage/Induction)		
4.2	Integral reversible starter (Clause 3.1)		
4.3	Suitable for short time duty.	15 min	
4.4	Suitable for minimum no. of starts.	150	
4.5	Enclosure protection class for complete actuator unit	IP 68	
4.6	Explosion proof design (Ref. CL 3.6)		
4.7	Motor insulation	Class-F	
4.8	Minimum starting voltage	80%	
4.9	Min. voltage required to operate the actuator	75%	
4.10	MOV position transmitter	LVDT based contactless	
4.11	Auxiliary power supply	Internally derived.	
4.20	Type of bearings (Sealed for life-Type) min. Life	100,000hrs	
4.21	No. of earthing terminal on the body	2	
4.22	End of travel limit switch (4 No.+4NC)	2-nos for each direction of travel	
4.23	Torque limit switches (4 No+4 NC)	1 no. for each direction of travel	
4.24	Intermediate adjustable position limit switches	1 no. for each direction of travel	
4.25	Built-in digital position indicator	One	
4.26	Illuminated mechanical dial position indicator		

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Form No:	 PE&SD	BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING & SYSTEMS DIVISION	PY 52 186
		TECHNICAL SPECIFICATION	Rev. No. 01
		MOTOR OPERATED VALVE FOR RSPL	Page 5 of 8

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4.27	In built electric positioner unit with position transmitter for remote indication-for regulating type of valves.	4 -20 mA isolated output	
4.28	Local push button for open/close/stop facility		
4.29	Emergency stop push button	Mushroom headed stay put type	
4.30	Local-off-remote selectors switch (Lockable)		
4.31	Auto -off -manual selectors switch (Lockable)		
4.32	Contact ratings	5 Amps at 240V AC 0.5 Amps at 110V DC	
4.33	Space heater with thermostat	1 No.	
4.34	Hand wheel (with declutching lever)	1 No.	
4.35	Name plate SS316 material		
4.36	Cable glands (weatherproof) NOTE-7 to below		
4.37	Action of loss of signal	Stay put	
4.38	Motion inhibit feature between actuator movements		
4.39	Protection system provided (against valve jamming, motor winding overheating, single phasing, incorrect phase rotation, thermostat, antihammer protection)		
5.0	MOV parameters (vendor to furnish)		
5.1	Make & Model No.		
5.2	Actuator(Motor)rating (kW)		
5.3	Motor full load current		
5.4	Motor starting current		
5.5	Torque (Nm)		
5.6	Output speed (rpm)		
5.7	Dimensional G.A drawing with part list		
5.8	Electric Wiring diagram No.		

Note:

- Power cable OD 16.84 mm +/- 2mm 1R x 3C x 4 sq.mm Cu XLPE Arm Cable – up to 5.5 kW.
- Power cable OD 18.11mm +/- 2mm 1R x 3C x 6 sq.mm Cu XLPE Arm Cable- 5.5 kW to 7.5 kW.
- Power cable OD 18.30mm +/- 2mm 1R x 3C x 10 sq.mm Cu XLPE Arm Cable- 7.5KW to 8.8KW
- Control cable OD 22mm - 2 nos.
- Signal cable OD 18mm - 1 nos.
- Glands and lugs for power cable and control cable suitable to above mentioned cable dimension at vendor end has to be supplied along with the main equipment.
- Glands for power cable** shall be weather proof double compression type Nickel plated Brass (ET) cable.
- Glands shall be provided with back nut and PVC shroud. (Weatherproof)
- Lugs shall be tinned copper heavy duty lug
- Glands for control and signal cable** shall be of SS 304, weather proof double compression type suitable for armoured cabled and have PVC shrouds.
- Glands shall be provided with back nut and PVC shroud. (Weatherproof)
- Lugs shall be tinned copper heavy duty lug.

Form No:	 PE&SD	BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING & SYSTEMS DIVISION	PY 52 186
		TECHNICAL SPECIFICATION	Rev. No. 01
		MOTOR OPERATED VALVE FOR RSPL	Page 6 of 8

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BHEL Enq. No / Item No.	Name of vendor and seal	Name/sign Prepared by / Date	Name / sign Approved By / Date

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BHARAT HEAVY ELECTRICALS LIMITED
PROJECT ENGINEERING & SYSTEMS DIVISION

TECHNICAL SPECIFICATION


MOTOR OPERATED VALVE FOR RSPL

PY 52 186





Rev. No. 01

Page 7 of 8

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Form No:	 PE&SD	BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING & SYSTEMS DIVISION	PY 52 186
		TECHNICAL SPECIFICATION	Rev. No. 01
		MOTOR OPERATED VALVE FOR RSPL	Page 8 of 8

RECORD OF REVISIONS:

Rev No	Date	Revision Detail	Revised by	Approved by
00	02.05.2016	FIRST ISSUE	 DS BARAIK	 SRIKANTH G
01	24.06.16	DATA SHEET UPDATED.	 DS BARAIK	 SRIKANTH G

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SPECIFICATION NO : 44PS5400-000-JE-02A-0051

TITLE : ELECTRICAL SPECIFICATION FOR MOTORISED VALVE ACTUATOR

PROJECT REFERENCE :

- **JACOBS Project No** : 44PS 5400
- **Project Location** : Jamnagar, Gujarat
- **Project Title** : RSPL CHEMICAL COMPLEX
- **Client** : M/s. RSPL Limited

(WHERE APPLICABLE)

- **Project Manager Authorisation:** **Date:**
- **Client Authorisation** : **Date:**




				APPROVALS		
Rev. No.	Issue Date	Pages	Revision Description	By	Check	Approved
0	03.01.13	9	ISSUED FOR ENQUIRY	SBP	KNS	KNS
A	15.04.13	9	ISSUED FOR ENQUIRY	SBP	KNS	KNS
						
<input checked="" type="checkbox"/> Entire Specification Issued this Revision <input type="checkbox"/> Revised Pages Only Issued this Revision			SPECIFICATION ISSUED FOR: <div> <input type="checkbox"/> In-house Review <input type="checkbox"/> Purchase <input type="checkbox"/> Client Approval <input type="checkbox"/> Construction <input checked="" type="checkbox"/> Enquiry </div>			

TABLE OF CONTENTS

1.0	SCOPE
2.0	STANDARDS
3.0	CLIMATE
4.0	ELECTRICAL SYSTEM
5.0	ACTUATOR SIZING
6.0	CONSTRUCTION
7.0	MOTOR
8.0	MOTOR & ACTUATOR PROTECTION
9.0	GEARING
10.0	HAND WHEEL
11.0	TORQUE & POSITION LIMIT SWITCH
12.0	INTEGRAL STARTER & CONTROL TRANSFORMER
13.0	CABLING, WIRING & TERMINALS
14.0	ENCLOSURE
15.0	TOOLS
16.0	SPARES
17.0	DRAWINGS / DOCUMENTATION
18.0	TESTING AND INSPECTION
19.0	QUALITY ASSURANCE
20.0	DEVIATIONS

1.0 SCOPE

This specification covers design, manufacture, testing and supply of Motorised Valve Actuators for Voltages up to 415 V, 3 phase, 50 Hz. **The actuator shall be complete with motor, integral reversing starter,** necessary control and protections and terminals for remote control and indications. The actuator shall include a device to ensure that motor runs with correct rotation for required direction of valve travel with either phase sequence of 3-phase power supply.

2.0 STANDARDS

All materials, equipment and accessories used in the manufacture shall conform to the relevant Indian / International standards including amendments and Addenda, some of which are listed below :

IS/IEC 60947 (Part IV)-1999	Low-Voltage Switchgear and Controlgear : Contactors and Motor-Starters
IS 13703-1993	LV Fuses for voltages not exceeding 1000 V ac or 1500 V dc
IS 694-2010	Polyvinyl Chloride insulated unsheathed and sheathed cables/cords with rigid and flexible conductor for rated voltages up to and including 450/750 V
IS 325-1996	Specification for three Phase Induction Motors
IS/IEC 60079 (Part I)-2007	Explosive Atmospheres : Equipment Protection by Flameproof Enclosures "d"
IS/IEC 60034 (Part V)-2000	Rotating electrical machines : Degrees of protection provided by the integral design of rotating electrical machines (IP CODE) - Classification
IS/IEC 60034 (Part I)-2004	Rotating electrical machines : Rating and performance
IS 9334-1986	Electric Motor Operated Actuators

In absence of Indian Standards Specifications, International Electro-technical Committee Specifications shall be followed.

3.0 CLIMATE

Climatic conditions and other environmental conditions shall be as specified in the data sheets.

It should be, however, noted in general that the MOV shall be suitable for use in tropical climate with high humidity, heavy rainfall and/or conducive to fungus growth and corrosion.

4.0 ELECTRICAL SYSTEM

4.1 The electrical system voltage, frequency, fault level and circuit ratings shall be as stated in the data sheets.

- 4.2 Three Phase, 4- wire supply shall be made available for the MOV at one point. Any other necessary voltage inside the starter unit if required, shall be derived by using suitable transformer inside the starter by vendor.

5.0 ACTUATOR SIZING

- 5.1 The actuator shall be sized to guarantee valve closure at the specified differential pressure. The safety margin of motor power available for sealing and unsealing the valve shall be sufficient to ensure torque switch trip at maximum valve torque with the supply voltage 10% below normal. The operating speed shall be such as to give closing and opening at approximately 10-12 inches per minute unless otherwise stated in the job specification.
- 5.2 The actuator shall be furnished with drive bushing easily detachable for matching to suit the valve stem or gearbox input shaft. The drive bush shall be positioned in the base of the actuator to facilitate the use of standard length valve stems.

6.0 CONSTRUCTION

- 6.1 MOV body construction shall be as per the requirement.
- 6.2 Actuator enclosure shall have a minimum degree of protection – IP68, to ensure complete protection of the motor and the internal electrical circuitry from the ingress of moisture and dust.

7.0 MOTOR

- 7.1 The motor of the actuator shall be 'High Torque, Low Inertia' single speed, 3 phase squirrel cage induction motor, with a winding insulation of class - 'F' and Temperature rise limited to Class - 'B'.
- 7.2 The motor shall be provided with thermister(s) embedded in hot spot of motor windings.
- 7.3 The motor shall be rated for S2 – 15 minute duty at design ambient temperature or twice the valve stroking time, whichever is longer, at an average load of at least 33% of maximum valve torque. The motor shall conform to IS 325 or equivalent international standard. The stall torque of motor shall be atleast 25% greater than maximum torque required for operation of valve.
- 7.4 The motor shall be able to operate the actuator at 75% of rated voltage.
- 7.5 Approximate enclosure for motor shall be used if the MOV is located in hazardous area.
- 7.6 The motor shall be provided with space heater with thermostat etc.
- 7.7 Two nos. earthing terminals shall be provided on the body.

8.0 MOTOR & ACTUATOR PROTECTION

8.1 Following minimum protections shall be offered for motor:

Valve Jamming

Motor Winding Over – Heating

Single phasing

Protection against incorrect connection of power supply / valve damage due to incorrect motor rotation / phase rotation correction compatibility

Antihammer protection

8.2 Any additional protection for satisfactory operation of motor / MOV shall be specified and included by the Bidder in his offer.

8.3 The Actuator shall be protected against instantaneous reversal.

8.4 The mechanical design of Actuator shall be adequate to trip the motor without damage in case end limit switch fails.

9.0 GEARING

9.1 The actuator gearing shall be totally enclosed in an oil-filled gear-case suitable for operation at any angle. All main drive gearing shall be of metal construction. Where the actuator operates gate valves or large diameter ball or plug valves, the drive shall incorporate a lost motion hammer blow feature. For rising spindle valves, the output shaft shall be hollow to accept a rising stem, and incorporate a thrust base with lubricated bearings of ball or roller type. The design shall be such as to permit the gear-case to be opened for inspection or disassembled without releasing the stem thrust on taking the valve out of service.

10.0 HAND WHEEL

10.1 A Hand wheel shall be provided for emergency operation and it should be possible to select hand operation with Hand / Auto selection lever. Hand/Auto selection lever shall be provided with locking facility for both positions.

10.2 Hand wheel shall get engaged when the motor is declutched, and the drive shall be restored to power automatically by starting the motor. Hand wheel drive shall be mechanically independent of the motor drive and any gearing shall be such as to permit emergency manual operation in a reasonable time. Clockwise rotation of the hand wheel shall give closing movement of the valve, unless otherwise stated elsewhere.

11.0 TORQUE & POSITION LIMIT SWITCH

11.1 Both torque and limit switches shall be provided in the Actuator. These limit switches shall have at least 1 'NO' & 1 'NC' contacts for indication and interlocking. The additional contacts shall be provided for remote indication / interlocking.

11.2 The Actuator shall not trip during starting / in mid-travel against high inertia loads.

11.3 The actuator shall be sized to provide 30% margin over the required torque.

11.4 A digital position indicator shall be included in actuator, which gives a display from fully open to fully closed position. Also illuminated mechanical dial position indicator shall be provided to indicate valve position. Coloured lights corresponding to open, close and intermediate positions shall be included. Continuous monitoring of valve position (open or close) shall also be possible. Additional set of limit switches (min. 2 nos) shall also be provided for any intermediate valve position.

11.5 Provision shall be made for the addition of 2 contact less transmitters to give 4-20mA analogue signal corresponding to valve travel and output torque for remote indication.

12.0 INTEGRAL STARTER & CONTROL TRANSFORMER

12.1 MOV shall be provided with emergency shut down push button, integral reversible starter. Starter shall consist of necessary fuse/fuse switch units, mechanically and electrically interlocked reversible contactors, auxiliary contactors, overload relays, local-off-remote and auto-off-manual selector switch, open-close-stop push buttons, torque limit switches and end limit switches with necessary indication lamp. Solid state reversing controls may be used where feasible.

12.2 Local – off – Remote / Auto – off – Manual selector switch shall be lockable type. Also start control only shall be selective. Stop / Emergency stop control shall be irrespective of mode of operation. Remote control circuit shall use an opto isolator interface.

12.3 MOV shall be suitable for remote operation & wiring remote interlock indication.

- 12.5 Control transformer with necessary ratings, and tapping and protected with easily replaceable type HRC fuses also shall be provided. Control circuit shall operate on 110 volts AC, 1 PH – N, 2 wire supply.
- 12.6 Cable entries for power and control cable shall be separate. 2 no. entries for control cable and 1 no. for power cable shall be provided of appropriate size as specified in the data sheets..
- 12.7 Starter shall be suitable for 60 starts per hour and of rating appropriate to motor size.
- 12.8 Facility for connecting external interlocks to inhibit / enable valve closing / opening operation during local / remote control shall also be provided.
- 12.9 Following monitoring facilities, as a bare minimum, shall be hard wired to DCS.
- Motor stalled / Single phasing / ESD operated.
- Actuator running / open.
- Actuator running / closed.
- Actuator tripped due to high temperature of motor windings.
- Actuator tripped due to overload / any other electrical / mechanical faults.
- Remote control selected.
- Mains failure.
- 12.10 Electrical components including PCB's shall be mounted on withdrawable chassis.
- 13.0 CABLING, WIRING & TERMINALS**
- 13.1 MOV shall be complete with all internal wiring and ready for external cable connection at the outgoing terminals.
- 13.2 All control wiring inside the MOV shall be carried out with tropical grade PVC insulated wires. All wiring shall be ferruled at both ends for easy identification and tracing during maintenance.
- 13.3 Minimum size of conductor for power circuits shall be 2.5 mm² copper or 6 mm² aluminium. Control wiring shall be done by 2.5 mm² copper.

13.4 The terminal compartment shall be separated from the inner electrical components of the actuator by means of watertight seal.

13.5 Durable terminal identification card showing terminal plan, serial number, wiring diagram, terminal layout etc. shall be provided attached to inside of terminal box cover.

14.0 ENCLOSURE

14.1 Actuator shall be O-ring sealed, water tight to NEMA 6, IP 68, and shall at the same time have an inner water tight and dust proof O-ring seal between the terminal compartment and the internal electrical elements of the actuator, fully protecting the motor and all other internal electrical elements of the actuator from ingress of moisture and dust when the internal cover is removed on site for cabling.

14.2 The actuator shall be designed so that all turns and torque output settings and calibrations during commissioning can be effected without access to the actuator main control gear enclosure.

14.3 Enclosures for actuators for hazardous area application shall be suitable for the area classified.

14.4 Anti-condensation space heaters shall also be provided inside the enclosure.

15.0 TOOLS

15.1 One complete set of all special tools, Electrical wiring diagrams, sufficient spare cover screws, seals to make good site losses during installation / commissioning, installation manuals shall be provided per MOV for installation, operation and maintenance of MOV.

16.0 SPARES

The manufacturer shall furnish with his quotation separate priced list of recommended operation and maintenance spares. Lube oil of Indian Oil grade shall be supplied.

17.0 DRAWINGS / DOCUMENTATION

The Vendor shall furnish following drawings / documents as a bare minimum:

Actuator GA drawing with part lists / bill of materials for each actuator.

Electrical wiring diagrams / terminal plans for each type / size of valve.

Catalogues / test certificates for all bought out items.

Installation, commissioning, operation and maintenance manual for actuators.

18.0 TESTING AND INSPECTION

After completion of all work at the manufacturer's works, MOV shall be inspected by the purchaser's representatives. However, stage inspection may be carried out from time to time to check progress of work and workmanship.

The following minimum tests shall be carried out during inspection:

All routine tests specified in the relevant Indian Standard for LT AC squirrel Cage induction motor.

Insulation test with 500V volts megger.

Earth continuity test with a low voltage (6 volts) tester.

Operational tests, current / torque at maximum torque setting.

Actuator output speed / operating time

The vendor shall provide all facilities such as power supply, testing instruments and apparatus required for carrying out the tests. Required copies of certificates for all tests carried out along with copies of type test certificates and certificates from sub-vendor for the components procured from them are to be submitted before despatch of the MOV.

19.0 QUALITY ASSURANCE


19.1 Quality assurance shall follow the requirements of Jacobs Engg. India Pvt. Ltd. Q.A. Documents as applicable


19.2 Q.A. involvement will commence at enquiry and follow through to completion and acceptance. Thus ensuring total conformity to purchaser's requirements.

20.0 DEVIATIONS

20.1 Deviations from the specifications must be stated in writing at the quotation stage.

20.2 In absence of such a statement, it will be assumed that the requirements of the Specifications are met without exception.

	DATA SHEET FOR MOTORISED OPERATING VALVE		DOC. NO.	44PS5400-022-JE-04A-0063			
			SHEET				
			APPD. BY	KNS	KNS	KNS	
	PROJECT NO	44PS 5400	CHKD. BY	KNS	KNS	KNS	
	PROJECT LOCATION	Jamnagar, Gujarat	PRPD. BY	SM	SBP	SBP	
PROJECT TITLE	RSPL CHEMICAL COMPLEX	DATE	15.10.12	04.01.13	15.04.13		
CLIENT	M/s. RSPL Limited	REV.	A	0	B	C	
1 DESIGNATION							
2 SERVICE CONDITIONS							
2.1	DESIGN AMBIENT TEMPERATURE	50 °C					
2.2	ALTITUDE (ABOVE MSL)	<1000 MTRS.					
2.3	RELATIVE HUMIDITY	89 %					
2.5	ENVIRONMENT	DUSTY/TROPICAL/CORROSIVE					
4 SYSTEM PARTICULARS							
4.1	VOLTAGE	415V ± 6%					
4.2	FREQUENCY	50Hz ± 3%					
4.3	NO. OF PHASES / WIRE	3 PHASE/ 4 WIRE					
5 SPECIFIC REQUIREMENT							
5.1	INTEGRAL REVERSIBLE STARTER	REQUIRED					
5.2	MOTOR DUTY	S2-15MINUTES					
5.3	MOV POSITION TRANSMITTER	LVDT BASED CONTACTLESS					
5.4	NUMBER OF POSITION TRANSMITTER	ONE					
5.5	POSITION TRANSMITTER FEEDBACK	4-20mA					
5.6	THERMOSTAT	REQUIRED					
5.7	SPACE HEATER	REQUIRED					
5.8	AUXILIARY POWER SUPPLY	INTERNALLY DERIVED					
5.9	EMERGENCY STOP PUSH BUTTON	MUSHROOM HEADED STAY PUT TYPE					
5.10	LOCAL-OFF-REMOTE SELECTOR SWITCH	LOCKABLE					
5.11	AUTO-OFF-MANUAL SELECTOR SWITCH	LOCKABLE					
5.12	SIZE OF CONTROL WIRING	1.5 SQ.MM					
5.13	ENCLOSURE IP PROTECTION	IP68					
5.14	LOCAL INDICATION	MOV RUNNING STATUS CLOSE/OPEN, MOV TRIP, MOTOR OVERLOAD, MOTOR SINGLE PHASING, MOV TORQUE SWITCH OPERATION, MOV OPEN AND CLOSE STATUS, MOV % POSITION					
5.15	INSTALLATION	SAFE AREA/ HAZARDOUS AREA AS PER HAZARDOUS AREA CLASSIFICATION DRAWING					
5.16	DCS INTERFACE	HARD WIRED					
5.17	FEEDBACK TO DCS STATUS ON COMMUNICATION BUS	LR SWITCH POSITION, MOV RUNNING STATUS, MOV COMMON TRIP, MOV TORQUE SWITCH OPERATION, MOV OPEN AND CLOSE STATUS, MOV % POSITION					
5.18	FEEDBACK FROM DCS STATUS ON COMMUNICATION BUS	AS PER REQUIREMENT					
5.19	GRAPHIC USER INTERFACE FOR SCADA	NOT REQUIRED					
5.20	MODBUS MASTER STATION FOR MOV CONTROL	NOT REQUIRED					
5.21	MODBUS DATA SHEET FOR DCS INTERFACE	VENDOR TO FURNISH					

	DATA SHEET FOR MOTORISED OPERATING VALVE		DOC. NO.	44PS5400-022-JE-04A-0063						
			SHEET							
			APPD. BY		KNS	KNS	KNS	<i>[Signature]</i>		
			CHKD. BY		KNS	KNS	KNS	<i>[Signature]</i>		
	PROJECT NO		44PS 5400		PRPD. BY		SM	SBP	SBP	<i>[Signature]</i>
	PROJECT LOCATION		Jamnagar, Gujarat		DATE		15.10.12	04.01.13	15.04.13	
PROJECT TITLE		RSPL CHEMICAL COMPLEX		REV.		A	0	B	C	
CLIENT		M/s. RSPL Limited								
6 MOV PARAMETERS (Vendor to furnish)										
RATING & PERFORMANCE										
6.1		MAKE & MODEL NO.								
6.2		WIRING DIAGRAM NUMBER								
6.3		OUTPUT TORQUE AT VALVE SHAFT								
6.4		MOTOR RATING								
6.5		CLUTCH FOR HANDWHEEL OPERATION								
6.6		CLUTCH LOCKABLE								
		YES/NO								
6.7		TYPE OF POSITION TRANSMITTER								
6.8		NUMBER OF POSITION TRANSMITTER								
6.9		NUMBER AND TYPE OF CONTACTS FOR LIMIT SWITCHES								
6.10		NUMBER AND TYPE OF CONTACTS FOR TORQUE SWITCHES								
6.11		LOCAL INDICATION								
6.12		FEEDBACK TO DCS								
6.13		FEEDBACK FROM DCS								
6.14		HAZARDOUS AREA CLASSIFICATION								
6.15		CERTIFICATE NUMBER FOR SUITABILITY FOR APPLICATION IN HAZARDOUS AREA								
6.16		CERTIFICATE ISSUING AUTHORITY								