





TD-106-1 Rev No. 5  Form No.		<b>PRODUCT STANDARD</b> <b>PULVERISERS</b> <b>HYDERABAD</b>		<b>Product</b> <b>STD NO.</b>	<b>BA 50054</b>																
				Rev No 06																	
				Page 1 of 5																	
<div style="display: flex;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); padding: 5px;">         COPYRIGHT AND CONFIDENTIAL          The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED,          It must not be used directly or indirectly in any way detrimental to the interest of the company.       </div> <div style="flex-grow: 1; padding: 10px;"> <p style="text-align: center;"><b><u>TECHNICAL SPECIFICATION FOR B.F SHUT OFF GATE WITH ELECTRICAL ACTUATOR</u></b></p> <p><b>1.0 PURPOSE</b>          This technical specification is for manufacture and supply of ball feeding shut off gate(B.F.Gate) with electrical actuator to be used in ball tube mills. These gates are also called slide gates.</p> <p><b>2.0 DESIGN REQUIREMENT &amp; OPERATING PRINCIPLE</b>          These slide gates are installed in the ball feeding assembly of ball tube mills as shut off gates.          The system consist of          1 no of container          2 nos of slow opening shut off gates.</p> <p>When it is planned to add the balls, the top shut off gate is opened &amp; the balls are dropped into the lock. Then the top shut off gate is closed and the bottom shut off gate is opened so as to let the balls drop gently into the mill through the normal coal feed opening.</p> <p><b>3.0 GENERAL RECOMMENDATIONS</b></p> <p>3.1 These shut off gates shall be electric actuator driven.</p> <p>3.2 Particular care should be taken with the tightness of these shutoff gates, as the grinding circuit is under pressure.</p> <p>3.3 The bottom shut off gates must withstand the impact of the balls as they are loaded into the lock.</p> <p>3.4 Electric actuator should be as per product standard BA54088 ,if separately procured by BHEL then, the same will be delivered to shut off gate supplier. After assembling the actuator and testing the gate, the assembly should be supplied together to BHEL.</p> <p><b>4.0 OPERATING DATA</b>          The ball feeding gate should be resistant to ball impact.</p> <table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;"><b><u>PARAMETER</u></b></th> <th style="text-align: left;"><b><u>VALUE</u></b></th> </tr> </thead> <tbody> <tr> <td>Size (Diameter)</td> <td>250 mm</td> </tr> <tr> <td>Temperature ( Max) *</td> <td>100 Deg. C</td> </tr> <tr> <td>Pressure</td> <td>1000 mm wc</td> </tr> <tr> <td>Degree of tightness</td> <td>100 %</td> </tr> <tr> <td>Type of flow control</td> <td>open / shut</td> </tr> <tr> <td>Speed of operation</td> <td>120 to 150 (Sec)</td> </tr> <tr> <td>Method of operation</td> <td>Electric Actuator.</td> </tr> </tbody> </table> <p>*Normally 100 Deg. C, but accidental temperature can reach 300 Deg. C</p> </div> </div>						<b><u>PARAMETER</u></b>	<b><u>VALUE</u></b>	Size (Diameter)	250 mm	Temperature ( Max) *	100 Deg. C	Pressure	1000 mm wc	Degree of tightness	100 %	Type of flow control	open / shut	Speed of operation	120 to 150 (Sec)	Method of operation	Electric Actuator.
<b><u>PARAMETER</u></b>	<b><u>VALUE</u></b>																				
Size (Diameter)	250 mm																				
Temperature ( Max) *	100 Deg. C																				
Pressure	1000 mm wc																				
Degree of tightness	100 %																				
Type of flow control	open / shut																				
Speed of operation	120 to 150 (Sec)																				
Method of operation	Electric Actuator.																				
<b>Revisions:</b>  <b>Refer to record of revisions:</b>		<b>Prepared:</b> TMR	<b>Approved:</b> JGK	<b>Date:</b> 05.02.04																	

TD-106-1 Rev No. 5		Form No.	<div></div> <div><b>PRODUCT STANDARD</b> <b>PULVERISERS</b> <b>HYDERABAD</b></div>	Product STD no. BA 50054	
Rev No. 06					
Page 2 of 5					
<div><div><div>COPYRIGHT AND CONFIDENTIAL</div><div>The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED, It must not be used directly or indirectly in any way detrimental to the interest of the company.</div></div><div><div>5.0</div><div><b><u>SCOPE OF SUPPLY</u></b></div><div>Completely assembled dia 250 mm ball feeding slide shut off gates with electrical actuator, fixing bolts, nuts &amp; washers as per drawing no. 1-00-620-50230.(All required part details to be worked out by sub vendor to suit the final assembly dimensions.)</div><div>6.0</div><div><b><u>LIMITS OF SUPPLY</u></b></div><div><div><div>- Up to and including connecting flanges with <u>connecting fasteners</u>.</div><div>- Up to and including connecting flanges for electric actuators.</div><div>- Up to and including cover for mechanical parts.</div><div>- Corrosion protection &amp; painting, and spare packing paste for commissioning.</div><div>- Shut off gates and actuator fixing fasteners.</div><div>- Electric Actuators + nuts for spindle.</div></div><div>7.0</div><div><b><u>TECHNICAL SPECIFICATIONS</u></b></div><div><div><div><div>7.1 Body Material</div><div>BS 1452 Gr 220 Cast Iron</div></div><div><div>7.2 Body Thickness</div><div>68 mm</div></div><div><div>7.3 Blade material</div><div>ASTM A240 TYPE 304 SS</div></div><div><div>7.4 Blade Thickness</div><div>10 mm</div></div><div><div>7.5 Insert</div><div>No</div></div><div><div>7.6 Body Seal Material</div><div>Viton</div></div><div><div>7.7 Body Seal Diameter</div><div>6.4 mm</div></div><div><div>7.8 Transverse Seal Material</div><div>Viton</div></div><div><div>7.9 Transverse Seal Type</div><div>Double Type B</div></div><div><div>7.10 Scraper for Traverse Seal material</div><div>BS 2875 CZ 121 Brass</div></div><div><div>7.11 Scraper for Traverse Seal Size</div><div>10 mm x 5 mm</div></div><div><div>7.12 Packing</div><div>Silicon Grease + Mineral Fibre</div></div><div><div>7.13 Spindle Material</div><div>BS970 EN56 AM Chrome Steel</div></div><div><div>7.14 Spindle diameter</div><div>30 mm</div></div><div><div>7.15 Piller material</div><div>BS970 (EN 1B)</div></div><div><div>7.16 Top plate material</div><div>BS970 (EN 1A)</div></div><div><div>7.17 NFPA (0, 35 MPA)</div><div>Yes</div></div><div><div>7.18 Thrust with safety factor</div><div>900 Da N</div></div><div><div>7.19 Minimum Motor Torque</div><div>3.6 Da Nm</div></div><div><div>7.20 Limit switches</div><div>Two Limit Switches per gate for open and closed positions.</div></div></div></div></div><div>Sealing to environment 100% against P.F. ingress for all the valves.</div></div></div>					

TD-106-1 Rev No. 5	Form No.		<b>PRODUCT STANDARD</b> <b>PULVERISERS</b> <b>HYDERABAD</b>	Product STD no.	BA 50054
				Rev No. 06	
				Page 3 of 5	

**8.0     QUALITY**

8.1The vendor has to strictly follow the   Quality Plan enclosed for the actuator   and

TD-106-1 Rev No. 5  Form No.		<b>PRODUCT STANDARD</b> <b>PULVERISERS</b> <b>HYDERABAD</b>		Product STD no.	BA 50054
				Rev No. 06	
				Page 4 of 5	

COPYRIGHT AND CONFIDENTIAL  
 The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED,  
 It must not be used directly or indirectly to the interest of the company.

**11.0 DOCUMENTS**

The following documents shall be submitted within two months from placement of purchase order.

- A. General literature of electric actuator and shut off gate – 4 copies
- B. Operation & maintenance manual - 4 copies.
- C. Literature and O&M manuals on Electronic-media (2 nos. of CD's)
- D. List of recommended spares.

**12.0 PACKING & DESPATCH**

The shut off gate and electric actuator should be dispatched separately, but proper match marking with proper identification shall be given on each set.


The valve spindle shall be pre greased prior to dispatch and both flanges to be covered with hard board covers.

**13.0 QUALITY PLAN**

Manufacture and supply as per quality plan No. QP.No. HYQA/BM/159  
 Enclosed as annexure A.

**LIST OF ITEM VARIANTS**

VAR	ITEM DISCRIPTION	MATERIAL CODE
01	B.F.GATE	BA9750054016
02	B.F. GATE SPINDLE	BA9750054024
03	B.F.GATE DRIVE BUSH	BA9750054032
04	B.F.GATE LOCATOR BUSH	BA9750054040
05	B.F.GATE BLADE	BA9750054059
06	B.F.GATE VITON RUBBER SEAL	BA9750054067
07	B.F.GATE ACTUATOR LIMIT SWITCH	BA9750054075
08	SHUT OFF GATE FOR BALL FEEDING SYSTEM AS PER SPEC. BA50054 WIH ELECTRICAL ACTUATOR AS PER SPEC. BA54088	BA9750054083

TD-106-1 Rev No. 5  Form No.		<b>PRODUCT STANDARD</b> <b>PULVERISERS</b> <b>HYDERABAD</b>		Product STD no.	BA 50054																														
				Rev No. 06																															
				Page 5 of 5																															
<b><u>RECORD OF REVISIONS</u></b>																																			
<table border="1"> <thead> <tr> <th>REV. NO.</th> <th>Date</th> <th>Revision details</th> <th>Revised</th> <th>Approved</th> </tr> </thead> <tbody> <tr> <td>02</td> <td>15/06/99</td> <td>List of item variants &amp; variant sheet added.</td> <td>TMR</td> <td></td> </tr> <tr> <td>03</td> <td>17/1/03</td> <td>Annexure A – Quality plan added.</td> <td>Pavan</td> <td>TMR</td> </tr> <tr> <td>04</td> <td>15.05.03</td> <td>Electric actuator specification changed to BA54087</td> <td>T. Mohan Rao</td> <td>J.G.Kulkarni.</td> </tr> <tr> <td>05</td> <td>29.09.03</td> <td>In Page 5 item no. column removed. (Var.01 material code changed to BA9750054016)</td> <td>Pavan</td> <td>T.Mohan Rao</td> </tr> <tr> <td>06</td> <td>05.02.04</td> <td>Var.08 corrected. In point 3.4 spec. was BA54087.</td> <td>Pavan</td> <td>T.Mohan Rao</td> </tr> </tbody> </table>						REV. NO.	Date	Revision details	Revised	Approved	02	15/06/99	List of item variants & variant sheet added.	TMR		03	17/1/03	Annexure A – Quality plan added.	Pavan	TMR	04	15.05.03	Electric actuator specification changed to BA54087	T. Mohan Rao	J.G.Kulkarni.	05	29.09.03	In Page 5 item no. column removed. (Var.01 material code changed to BA9750054016)	Pavan	T.Mohan Rao	06	05.02.04	Var.08 corrected. In point 3.4 spec. was BA54087.	Pavan	T.Mohan Rao
REV. NO.	Date	Revision details	Revised	Approved																															
02	15/06/99	List of item variants & variant sheet added.	TMR																																
03	17/1/03	Annexure A – Quality plan added.	Pavan	TMR																															
04	15.05.03	Electric actuator specification changed to BA54087	T. Mohan Rao	J.G.Kulkarni.																															
05	29.09.03	In Page 5 item no. column removed. (Var.01 material code changed to BA9750054016)	Pavan	T.Mohan Rao																															
06	05.02.04	Var.08 corrected. In point 3.4 spec. was BA54087.	Pavan	T.Mohan Rao																															

COPYRIGHT AND CONFIDENTIAL  
 The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED,  
 It must not be used directly or indirectly in any way detrimental to the interest of the company.