



TD-106-1 Rev No. 5 Form No.		PRODUCT STANDARD PULVERISERS HYDERABAD		Product STD NO.	BA 50073
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<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;"><u>TECHNICAL SPECIFICATION FOR P.F SHUT- OFF GATES WITH ELECTRIC ACTUATOR</u></p> <p><u>SCOPE:</u></p> <ol style="list-style-type: none"> The standard covers the requirement and recommendations concerning the selection and Purchase of tight Pulverized coal shut off gates with matched electric actuator to equip a grinding installation using tube mills for direct firing. <p>2.0 <u>GENERAL</u> :</p> <p>2.1 The slide gates are installed in between P.F Outlet Box and P.F Piping for Tube Mills as shut-off gates.</p> <p>When the mill is in operation the P.F Shut off gates are kept fully open. So that the Pulverized coal – Air mixture flows through the gate and then, through the fuel piping it goes to Furnace. When the mill is not in operation the P.F Shut off Gates are closed fully so that the milling system is isolated from the furnace system.</p> <p><u>2.2 PURPOSE:</u></p> <p>The technical specification is for manufacturing and supply of slide gates along with matched Electrical actuators.</p> <p>These gates are fitted at both the mill outlets and are directly mounted on the P.F Outlet box of Classifier.</p> <p>They ensure the tightness and complete isolation of the mill from the P.F pipes, the Burners and the boiler or the tightness of one mill side, the other side being in operation.</p> <p>These gates should be designed to operate in extremely abrasive media achieving a perfect tightness by seal air introduction.</p> </div> </div>					
Revisions: Refer to record of revisions:		Prepared:	Approved:	Date:	

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2.3 GENERAL RECOMMENDATIONS:

These shut off gates shall be motor driven. Control shall be electric.

Particular care must be taken with the tightness of these shut-off gates as the system is under Pressure.

The list of applicable drawings is enclosed.

The spindle will be pre-greased prior to the dispatch and both flanges are to be covered with Hard Board covers.

All the machined surfaces and threaded portions shall be greased and protected suitably.

Electric actuator shall be as per product standard no: BA54087.

3.0 SIZING:

3.1 OPERATING DATA :

Temperature	100 ° C Usually, 350 ° C Exceptionally	

Pressure	10 KPA	

DEGREE OF TIGHTNESS	UP / DOWN STREAM	100 %
	INTL. EXTERNAL	100%

SHUT OFF GATE OPERATING TIME	15 SEC	

3.2 SIZING

The Design pressure shall be taken as equal to
0.35 MPA = 3.5 kg/ cm ²

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4.0 MATERIALS

The following materials are to be used and their certificates shall be furnished.

- | | |
|-------------------------|--|
| - Guillotine plate | - ASTM A 240 TYPE-316 L OR EQUIVALENT |
| - Control Bar (Spindle) | - En 19 Condition 'S' |
| - Guide Rods | - ASTM A 276 Type 304 |
| - Liners | - ASTM A 514 Gr. B. |
| - Guide Bush | - Brass : IS 318 LTB-II |
| - Fasteners | - 1364 P.8.8 Property Class |
| - Scrapers | - Brass : IS 318 LTB-II |
| - Wear Plates | - BS 970 – PART-5 250 –A58 or equivalent
(Spring steel) |
| - Body | - IS 2062 |

5.0 INSPECTION


The following Inspection shall be performed on each shut off gate.


5.1 MECHANICAL INSPECTIONS

Dimensions of each shut off gate, surface finish & tolerances to be strictly maintained as per drgs. including flanges to be checked and recorded.

5.2 MECHANICAL INSPECTIONS

- Tests in the Horizontal position with support if necessary
- 100 Cycles shall be performed on one shut off gate per order as a type test.
- Checking of clearance between slide gate and liner before and after testing.
- Rest of gates 10 cycles shall be performed as routine test.

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		<p>5.3 <u>TIGHTNESS INSPECTIONS</u></p> <p>Tightness tests with shut off gates : The gates opening portion flanges to be closed by suitable blank plates on either sides of the gate and compartment should be pressurized, then the soap babul test to be conducted. Provision to be made to mount pressure gauge on blank plate in order to check the Chamber pressure at the time of test and to be recorded. Air is introduced at the flange located on the upper plate.</p> <p style="padding-left: 40px;">Maximum Pressure : 15 KPa Minimum Pressure : 10 KPa</p> <p>6.0 <u>EXPERIENCE</u></p> <p>The supplier should give the reference list of similar shut off gates and actuators Manufactured by him along with performance details.</p> <p>7.0 <u>QUALITY :</u></p> <p>The standard quality plan no:HYQA/BM/160 enclosed as Annexure-A for the shut off gate. The Manufacturer should follow the same.</p> <p>8.0 <u>THE SUPPLIER SHOULD SUBMIT THE FOLLOWING DETAILS:</u></p> <p style="padding-left: 40px;">8.1 Chemical and Mechanical properties test certificates.</p> <p style="padding-left: 40px;">8.2 Test protocol.</p> <p style="padding-left: 40px;">8.3 Dimensional Reports</p> <p style="padding-left: 40px;">8.4 Heat treatment charts.</p> <p>9.0 The supplier shall submit the following within two months from the placement of order.</p> <p style="padding-left: 40px;">9.1 General Literature of Electric actuator and shut off gate – 10 copies</p> <p style="padding-left: 40px;">9.2 O&M Manuals – 10 copies & in electronic media two no of CD's</p> <p style="padding-left: 40px;">9.3 Recommended spares list with price validity for two year operation.</p>			

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10.0 PACKING AND DESPATCH

10.1 The P.F Shut off gate and Actuator should be match marked and packed separately for easy handling and dispatch.

10.2 Dispatch details and consignee address shall be given later.

The Vendor shall submit Quality plan for the electric actuator. BHEL will give Their comments and hold points on Quality plan.


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ANNEXURE

LIST OF DRAWINGS

BHEL DRG.NO.	DESCRIPTION
0-62-308-50407	P.F.SHUT OFF GATE PART-I
0-62-308-50408	P.F.SHUT OFF GATE PART-II
0-62-308-50409	P.F.SHUT OFF GATE
0-62-308-50410	P.F.SHUT OFF GATE BODY UPPER PARTS
0-62-308-50411	P.F.SHUT OFF GATE ELEMENTS
0-62-308-50412	P.F.SHUT OFF GATE GUILLOTINE
0-62-308-50413	P.F.SHUT OFF GATE COVERING
0-62-308-50414	P.F.SHUT OFF GATE COVER
1-62-308-50298	P.F.SHUT OFF GATE LINERS & ELEMENTS
1-62-308-50299	P.F.SHUT OFF GATE ELEMENTS
3-62-308-50218	P.F.SHUT OFF GATE GASKETS
3-62-308-50219	P.F.SHUT OFF GATE METAFARM

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LIST OF ITEM VARIANTS

VAR	ITEM DESCRIPTION	ITEM	MAT.CODE
01	P.F. GATE BODY	001	BA9750073010
02	P.F.GATE BODY UPPER PART-I	002	BA9750073029
03	P.F.GATE BODY UPPER PART-II	003	BA9750073037
04	P.F. GATE STUD M12x 270	004	BA9750073045
10	P.F. GATE UPPER LINER	010	BA9750073100
11	P.F. GATE LOWER LINER	011	BA9750073118
12	P.F. GATE SIDE LINER	012	BA9750073126
14	P.F. GATE SCRAPER-I	014	BA9750073142
15	P.F. GATE SCRAPER-II	015	BA9750073150
16	P.F. GATE LEAF SPRING 600 LG	016	BA9750073169
17	P.F. GATE LEAF SPRING 140 LG	017	BA9750073177
26	P.F. GATE GUILLOTINE (GATE)	026	BA9750073266
27	P.F. GATE TIGHTNESS TONGUE	027	BA9750073274
29	P.F. GATE VALVE ASSLY (AIR VENT)	029	BA9750073290
30	P.F. GATE SPINDLE WITH NUT	030	BA9750073304
31	P.F. GATE GUIDE	031	BA9750073312
32	P.F. GATE GUIDE BUSH WITH CIRCLIPS	032	BA9750073320
34	P.F GATE LOCATING SCREW	034	BA9750073347
35	P.F. GATE GUIDE BAR	035	BA9750073355
39	P.F. GATE DOOR	039	BA9750073398
40	P.F. GATE CLEVIS WITH PIN	040	BA9750073401
41	P.F. GATE SLIDE GATE	041	BA9750073410
42	P.F. GATE ACTUATOR DRIVE BUSH	042	BA9750073428
43	P.F. GATE ACTUATOR LIMIT SWITCH	043	BA9750073436
44	P.F.SHUT- OFF GATE ASSY.	00	BA9750073002
99	P.F.SHUT OFF GATE ASSY. AS PER BA50073 WITH ELECTRICAL ACTUATOR AS PER SPEC. BA54087.	00	BA9750073991



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RECORD OF REVISIONS

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