

Annexure-5

VALVE DATASHEETS

PROJECT: 1X370 MW YELAHANKA COMBINED CYCLE
POWER PLANT



Rating	#150	CS BALL VALVE DATA SHEET (FULL BORE, SOFT SEATED)	DOC.NO: GT57066
Size Range	1/2" to 16"		Rev No: 08
Applicable PMS	11A		Annexure- 1
Special requirement	FIRE SAFE, NON IBR		

CONSTRUCTIONAL FEATURES OF BALL VALVE.

APPLICABLE STD.	BS- EN ISO 17292 /API 6D FOR DESIGN, API 607 FOR FIRE SAFE TESTING, API 598 FOR PRESSURE TESTING.
ENDS	FLANGED TO ANSI B16.5 RF,125 AARH (NOTE-5)
DIMENSIONAL STD	ASME B16.10 FOR FLANGED VALVES(EXPECT 10" ONWARDS WHERE FACE TO FACE DIMENSIONS SHALL BE AS PER API 6D LONG PATTERN)
NO. OF PIECES	THREE PIECE UP TO 11/2" & TWO PIECE FROM 2" AND ABOVE
FLOATING BALL	REQUIRED UP TO 8" SIZE
TRUNNION MOUNTED	10" AND ABOVE (Note-2)
OPERATION	GEAR OPERATION SHALL BE PROVIDED FOR THE VALVE SIZES OF 6" & ABOVE. 4" & BELOW BALL VALVES SHALL HAVE LEVER WITH OPEN POSITION INDICATOR WITH LIMIT STOP).
ANTI STATIC DEVICES	REQUIRED
AUTOMATIC CAVITY RELIEF	REQUIRED TO RELIEVE THERMALLY EXPANDED LIQUID CONTAINED IN THE CLOSED BALL VALVE PORT.
ANTI BLOW OUT STEM	REQUIRED.
LOCK OPEN FACILITY	REQUIRED FOR ALL BALL VALVES
LOCK CLOSE FACILITY	REQUIRED IF SPECIFICALLY ASKED IN TENDER.

TEMPERATURE (Deg.C) & PRESSURE (kg/cm2 g) RATINGS (Note-8)

TEMP	-29	38	50	65	100	120	150	175	200	BEYOND 200 DEG CEN. DO NOT USE
PRESS.	19.99	19.99	19.58	19.20	17.93	17.20	####	15.22	7.03	

SERVICE	HSD/NAPHTHA/NG/ ,REFINERY GAS, FLARE, FLUSHING OIL ,BLOW DOWN, SURFACE CONDENSATE, PURE CONDENSATE, ATM. VENTS, CBD VENT TO DEAERATOR, WASH WATER, OWS, NITROGEN, SERVICE AIR, CHEMICAL DRAINS, FLARE LINES
---------	---

NOTES	1. THIS DATA SHEET SHALL BE READ IN CONJUNCTION WITH TECHNICAL NOTES FOR VALVES 2. ALL TRUNNION MOUNTED BALL VALVES SHALL HAVE SPRING LOADED BALL BODY SEAT & DESIGNED FOR UP STREAM SEALING. 3. FLANGED VALVES SHALL HAVE FLANGES INTEGRAL WITH THE BODY. HOW EVER, FORGED VALVES CAN HAVE WELD ON FLANGES WITH 100% RADIOGRAPHY. 4. FIRE SAFE TEST SHALL BE REVIEWED BY THIRD PARTY INSPECTION AGENCY AS APPLICABLE FOR THE PROJECT. 5. EACH BW/SW BALL VALVE SHALL HAVE A 100 MM LONG SEAMLESS PIPE NIPPLE WELDED PRIOR TO ASSEMBLY OF TEFLON SEAT/SEALS. HOW EVER BW / SW OPTION IS APPLICABLE/VALID ONLY IF TENDER CALLS FOR SPECIFICALLY. 6. THE BALL SHALL NOT PROTRUDE OUTSIDE THE END FLANGES OF VALVE. 7. ALL BALL VALVES SHALL BE BIDIRECTIONAL. 8. VENDOR TO CONFIRM SUITABILITY OF SEAT AND BODY SEAL MATERIAL FOR THE PRESSURE, TEM. RATINGS INDICATED.
-------	--

SLNO	Constructional Features					
	DESCRIPTION	CONSTRUCTION	BASIC MATERIAL		VENDOR CLARIFICATION	REMARKS
			FORGED	CAST		
1	Body	Forged / Cast	A105	A216 Gr WCB		
2	Stem	Anti Blowout	13% Cr Steel (SS 316) (No casting)			
3	Ball	Solid	13% Cr Steel (SS 304/SS316)			
4	Body seat		RPTFE with secondary metal to metal contact			
5	Stem seal	Renewable	GRAFOIL			Shall be provided with corrosion inhibitor
6	Body seal		GRAFOIL			
7	Body stud & nut		A193GRB7 & A194GR 2H			
8	Gland	Bolted. Retained by nut & washer	A105 / 13% Cr steel (SS316/314)			
	OTHERS					
9	Requirement of Radiography		As per Technical Specification (Procedure & acceptance criteria as per B16.34)			
10	Spring		INCONEL X750			



Rating #150		CS BALL VALVE DATA SHEET (FULL) BORE, SOFT SEATED)			DOC.NO: GT57066	
Size Range 1/2" to 16"					Rev No: 08	
Applicable PMS 11A					Annexure- 1	
Special requirement FIRE SAFE, NON IBR						
TESTING/Inspection		Testing Fluid	Witness/Review	Remarks		
Shell Test pressure	425 PSIG	*	Witness			
Backseat test pressure	315 PSIG	*	Witness			
High Pressure Closure test	315 PSIG	*	Witness			
Low pressure Closure test	SEAT - 80 PSIG	Air/Inert Gas	Witness			
BOM check			Review			
MPI/DPI			Review if applicable			
Radiography			Review			
Impact Charpy test			NA			
Visual Check & Calibration			Review			
Hardness Test ASTM-E10			Review if applicable			
PMI (for SS & AS alloys)			NA			
IGC			NA			
Helium Leak test (#)			#			
Ultrasonic test for SS parts & Forged body			Review if applicable			
MILL certification			Review if applicable			
Fire Safe			Review			
Material test certificates			Review			

* For shell, High pressure backseat, and high pressure closure test, the test fluid shall be air, inert gas, or a non corrosive liquid with a viscosity not higher than that of water.

Only applicable for H2 services.

• Radiography procedure, areas of casting to be radio graphed and the acceptance criteria shall be as per ASME/ANSI B 16.34. All castings shall be radiographic quality castings.

• Minimum requirement of radiography examination for all materials is as follows:

Class	Size	Qty
150	26" & above	100%
300	18" & above	100%
600 and above	All	100%

SPECIAL REQUIREMENT:

NACE - NA

Any other critical service



Rating	#300	CS BALL VALVE DATA SHEET (FULL BORE, SOFT SEATED)		DOC.NO: GT57066						
Size Range	1/2" to 16"			Rev No: 08						
Applicable PMS	21A			Annexure-2						
Special requirement	FIRE SAFE, NON IBR									
CONSTRUCTIONAL FEATURES OF BALL VALVE.										
APPLICABLE STD.	BS- EN ISO 17292 /API 6D FOR DESIGN, API 607 FOR FIRE SAFE TESTING, API 598 FOR PRESSURE TESTING.									
ENDS	FLANGED TO ANSI B16.5 RF,125 AARH (NOTE-5)									
DIMENSIONAL STD	ASME B16.10 FOR FLANGED VALVES									
NO. OF PIECES	THREE PIECE UP TO 11/2" & TWO PIECE FROM 2" AND ABOVE									
FLOATING BALL	REQUIRED UP TO 4" SIZE									
TRUNNION MOUNTED	6" AND ABOVE (Note-2)									
OPERATION	GEAR OPERATION SHALL BE PROVIDED FOR THE VALVE SIZES OF 6" & ABOVE. 4" & BELOW BALL VALVES SHALL HAVE LEVER WITH OPEN POSITION INDICATOR WITH LIMIT STOP).									
ANTI STATIC DEVICES	REQUIRED									
AUTOMATIC CAVITY RELIEF	REQUIRED TO RELIEVE THERMALLY EXPANDED LIQUID CONTAINED IN THE CLOSED BALL VALVE PORT.									
ANTI BLOW OUT STEM	REQUIRED.									
LOCK OPEN FACILITY	REQUIRED FOR ALL BALL VALVES									
LOCK CLOSE FACILITY	REQUIRED IF SPECIFICALLY ASKED IN TENDER.									
TEMPERATURE (Deg.C) & PRESSURE (kg/cm2 g) RATINGS (NOTE-8)										
TEMP	-29	38	50	65	100	120	150	175	200	BEYOND 200 DEG CEN. DO NOT USE
PRESS.	52.00	52.00	51.02	49.80	41.85	37.30	27.40	19.15	7.03	
SERVICE	HSD/NAPHTHA/NG/ ,REFINERY GAS, FLARE, FLUSHING OIL ,BLOW DOWN, SURFACE CONDENSATE, PURE CONDENSATE, ATM. VENTS, CBD VENT TO DEAERATOR, WASH WATER, OWS, NITROGEN, SERVICE AIR, CHEMICAL DRAINS, FLARE LINES									
NOTES	1. THIS DATA SHEET SHALL BE READ IN CONJUNCTION WITH SPECIFICATION 2. ALL TRUNNION MOUNTED BALL VALVES SHALL HAVE SPRING LOADED BALL BODY SEAT & DESIGNED FOR UP STREAM SEALING. 3. FLANGED VALVES SHALL HAVE FLANGES INTEGRAL WITH THE BODY. HOW EVER, FORGED VALVES CAN HAVE WELD ON FLANGES WITH 100% RADIOGRAPHY. 4. FIRE SAFE TEST SHALL BE REVIEWED BY THIRD PARTY INSPECTION AGENCY AS APPLICABLE FOR THE PROJECT. 5. EACH BW/SW BALL VALVE SHALL HAVE A 100 MM LONG SEAMLESS PIPE NIPPLE WELDED PRIOR TO ASSEMBLY OF TEFLON SEAT/SEALS. HOW EVER BW / SW OPTION IS APPLICABLE/VALID ONLY IF TENDER CALLS FOR SPECIFICALLY. 6. THE BALL SHALL NOT PROTRUDE OUTSIDE THE END FLANGES OF VALVE. 7. ALL BALL VALVES SHALL BE BIDIRECTIONAL. 8. VENDOR TO CONFIRM SUITABILITY OF SEAT AND BODY SEAL MATERIAL FOR THE PRESSURE, TEM. RATINGS INDICATED.									
SL.NO	Constructional Features									
	DESCRIPTION	CONSTRUCTION	BASIC MATERIAL		VENDOR CLARIFICATIONS	REMARKS				
			FORGED	CAST						
1	Body	Forged / Cast	A105	A216 Gr WCB						
2	Stem	Anti Blowout	13% Cr Steel (SS 316) (No casting)							
3	Ball	Solid	13% Cr Steel (SS 304/SS316)							
4	Body seat		RPTFE with secondary metal to metal contact							
5	Stem seal	Renewable	GRAFOIL			Shall be provided with corrosion inhibitor				
6	Body seal		GRAFOIL							
7	Body stud & nut		A193GRB7 & A194GR 2H							
8	Gland	Bolted. Retained by nut & washer	A105 / 13% Cr steel (SS316/314)							
OTHERS										
9	Requirement of Radiography		As per Technical Specification (Procedure & acceptance criteria as per B16.34)							
10	Spring		INCONEL X750							

	TESTING/Inspection		Testing Fluid	Witness/Review	Remarks	
	Shell Test pressure	1125 PSIG	*	Witness		
	Backseat test pressure	825 PSIG	*	Witness		
	High Pressure Closure test	825 PSIG	*	Witness		
	Low pressure Closure test	SEAT - 80 PSIG	Air/Inert Gas	Witness		
	BOM check			Review		
	MPI/DPI			Review if applic		
	Radiography			Review		
	Impact Charpy test			NA		
	Visual Check & Calibration			Review		
	Hardness Test ASTM-E10			Review if applic		
	PMI (for SS & AS alloys)			NA		
	IGC			NA		
	Helium Leak test (#)			#		
	Ultrasonic test for SS parts & Forged body			Review if applic		
	MILL certification			Review if applic		
	Fire Safe			Review		
	Material test certificates			Review		

* For shell, High pressure backseat, and high pressure closure test, the test fluid shall be air, inert gas, or a non corrosive liquid with a viscosity not higher than that of water.

Only applicable for H2 services.

• Radiography procedure, areas of casting to be radio graphed and the acceptance criteria shall be as per ASME/ANSI B 16.34. All castings shall be radiographic quality castings.

• Minimum requirement of radiography examination for all materials is as follows:

Class	Size	Qty
150	26" & above	100%
300	18" & above	100%
600 and above	All	100%

SPECIAL REQUIREMENT:

NACE

Any other critical service



Rating	#600	CS BALL VALVE DATA SHEET (FULL BORE, SOFT SEATED)		DOC.NO: GT57066						
Size Range	1/2" to 16"			Rev No: 08						
Applicable PMS	31A			Annexure-3						
Special requirement	FIRE SAFE, NON IBR									
CONSTRUCTIONAL FEATURES OF BALL VALVE.										
APPLICABLE STD.	BS- EN ISO 17292 /API 6D FOR DESIGN, API 607 FOR FIRE SAFE TESTING, API 598 FOR PRESSURE TESTING.									
ENDS	FLANGED TO ANSI B16.5 RF,125 AARH (NOTE-5)									
DIMENSIONAL STD	ASME B16.10 FOR FLANGED VALVES									
NO. OF PIECES	THREE PIECE UP TO 11/2" & TWO PIECE FROM 2" AND ABOVE									
FLOATING BALL	REQUIRED UP TO 11/2" SIZE									
TRUNNION MOUNTED	2" AND ABOVE (Note-2)									
OPERATION	GEAR OPERATION SHALL BE PROVIDED FOR THE VALVE SIZES OF 4" & ABOVE. 3" & BELOW BALL VALVES SHALL HAVE LEVER WITH OPEN POSITION INDICATOR WITH LIMIT STOP).									
ANTI STATIC DEVICES	REQUIRED									
AUTOMATIC CAVITY RELIEF	REQUIRED TO RELIEVE THERMALLY EXPANDED LIQUID CONTAINED IN THE CLOSED BALL VALVE PORT.									
ANTI BLOW OUT STEM	REQUIRED.									
LOCK OPEN FACILITY	REQUIRED FOR ALL BALL VALVES									
LOCK CLOSE FACILITY	REQUIRED IF SPECIFICALLY ASKED IN TENDER.									
TEMPERATURE (Deg.C) & PRESSURE (kg/cm2 g) RATINGS (Note-8)										
TEMP	-29	38	50	65	100	120	150	175	200	BEYOND 200 DEG CEN. DO NOT USE
PRESS.	104.10	104.10	98.46	91.40	64.61	49.30	38.60	29.68	17.60	
SERVICE	HSD/NAPHTHA/NG/ ,REFINERY GAS, FLARE, FLUSHING OIL ,BLOW DOWN, SURFACE CONDENSATE, PURE CONDENSATE, ATM. VENTS, CBD VENT TO DEAERATOR, WASH WATER, OWS, CHEMICAL DRAINS, FLARE LINES									
NOTES	1. THIS DATA SHEET SHALL BE READ IN CONJUNCTION WITH SPECIFICATION 2. ALL TRUNNION MOUNTED BALL VALVES SHALL HAVE SPRING LOADED BALL BODY SEAT & DESIGNED FOR UP STREAM SEALING. 3. FLANGED VALVES SHALL HAVE FLANGES INTEGRAL WITH THE BODY. HOW EVER, FORGED VALVES CAN HAVE WELD ON FLANGES WITH 100% RADIOGRAPHY. 4. FIRE SAFE TEST SHALL BE REVIEWED BY THIRD PARTY INSPECTION AGENCY AS APPLICABLE FOR THE PROJECT. 5. EACH BW/SW BALL VALVE SHALL HAVE A 100 MM LONG SEAMLESS PIPE NIPPLE WELDED PRIOR TO ASSEMBLY OF TEFLON SEAT/SEALS. HOW EVER BW / SW OPTION IS APPLICABLE/VALID ONLY IF TENDER CALLS FOR SPECIFICALLY. 6. THE BALL SHALL NOT PROTRUDE OUTSIDE THE END FLANGES OF VALVE. 7. ALL BALL VALVES SHALL BE BIDIRECTIONAL. 8. VENDOR TO CONFIRM SUITABILITY OF SEAT AND BODY SEAL MATERIAL FOR THE PRESSURE, TEM. RATINGS INDICATED.									
SL.NO	Constructional Features									
	DESCRIPTION	CONSTRUCTION	BASIC MATERIAL		VENDOR CLARIFICATIONS	REMARKS				
			FORGED	CAST						
1	Body	Forged / Cast	A105	A216 Gr WCB						
2	Stem	Anti Blowout	13% Cr Steel (SS 316) (No casting)							
3	Ball	Solid	13% Cr Steel (SS 304/SS316)							
4	Body seat		RPTFE with secondary metal to metal contact							
5	Stem seal	Renewable	GRAFOIL			Shall be provided with corrosion inhibitor				
6	Body seal		GRAFOIL							
7	Body stud & nut		A193GRB7 & A194GR 2H							
8	Gland	Bolted. Retained by nut & washer	A105 / 13% Cr steel (SS316/314)							
	OTHERS									
9	Requirement of Radiography		As per Technical Specification (Procedure & acceptance criteria as per B16.34)							
10	Spring		INCONEL X750							
	TESTING/Inspection		Testing Fluid	Witness/Review	Remarks					
	Shell Test pressure	2225 PSIG	*	Witness						
	Backseat test pressure	1650 PSIG	*	Witness						
	High Pressure Closure test	1650 PSIG	*	Witness						
	Low pressure Closure test	SEAT - 80 PSIG	Air/Inert Gas	Witness						
	BOM check			Review						
	MPI/DPI			Review if applic						
	Radiography			Review						
	Impact Charpy test			NA						

	Visual Check & Calibration			Review		
	Hardness Test ASTM-E10			Review if applic		
	PMI (for SS & AS alloys)			NA		
	IGC			NA		
	Helium Leak test (#)			#		
	Ultrasonic test for SS parts & Forged body			Review if applic		
	MILL certification			Review if applic		
	Fire Safe			Review		
	Material test certificates			Review		

* For shell, High pressure backseat, and high pressure closure test, the test fluid shall be air, inert gas, or a non corrosive liquid with a viscosity not higher than that of water.

Only applicable for H2 services.

• Radiography procedure, areas of casting to be radio graphed and the acceptance criteria shall be as per ASME/ANSI B 16.34. All castings shall be radiographic quality castings.




• Minimum requirement of radiography examination for all materials is as follows:

Class	Size	Qty
150	26" & above	100%
300	18" & above	100%
600 and above	All	100%

SPECIAL REQUIREMENT:

NACE

Any other critical service

DATA SHEET FOR GATE VALVES																																																																																															
1. MATERIAL:	CARBON STEEL																																																																																														
2. RATING:	ANSI CLASS 150																																																																																														
3. SIZE RANGE:	2" to 42"																																																																																														
4. ENDS:	FLANGED TO B 16.5 RF 125 AARH (WITH CONCENTRIC/SPIRAL GROOVES)																																																																																														
5. Design Standard:	API-600																																																																																														
6. Testing Standard:	API - 598 (upto 24"), BS-6755 Part -I (for sizes 26" and above)																																																																																														
7. Dimensional std.:	ANSI B 16.10																																																																																														
8. Pressure Temp. Rating:	ANSI B 16.34																																																																																														
9. Applicable Services:	HSD/Naphtha/Natural gas/Refinery gas, Flare, Instrument Air, Nitrogen gas,																																																																																														
10. Applicable Piping Material Specification(PMS):	11A																																																																																														
11. Material of Construction																																																																																															
Sl. No.	Description	Construction	Material																																																																																												
a)	Body	Cast	ASTM A 216 WCB																																																																																												
b)	Bonnet	Bolted	ASTM A 216 WCB																																																																																												
c)	Stem	Rising	13% Chrome steel (No casting is acceptable)																																																																																												
d)	Wedge Disc	Solid - Flexible	13% Chrome steel Facing/ 13% chrome steel																																																																																												
e)	Body seat ring	Renewable/Non-renewable	13% Chrome steel Facing/ 13% chrome steel																																																																																												
f)	Stem packing	Renewable with valve open on stream	Graphited with Sacrificial corrosion inhibitor & inconel wire reinforcement																																																																																												
g)	Hand wheel	Non rising	Malleable Iron/ Cast Steel / Fabricatd Steel of Ductile Iron (Strike off whichever is not applicable)																																																																																												
h)	Bonnet Bolts		ASTM A 193 B7																																																																																												
i)	Body Nuts		ASTM A 194 2 H																																																																																												
j)	Bonnet Gasket		Spiral Wound SS 316 – Graphite Filler.																																																																																												
k)	Back seat and shoulder		13% Chrome steel																																																																																												
<p>1. This valve specification shall be read in conjunction with "Technical Notes for valves.</p> <p>2. Gate valves of size 26" and above shall be in accordance with BS-1414 and flange ends shall be in accordance with ANSI B16.47 series B.</p> <p>3. All flanged valves shall have flanges integral with valve body.</p> <p>4. Integral Bypass shall be provided for 350 (14") mm and larger sizes</p>																																																																																															
12 Others																																																																																															
a)	Type	OS& Y																																																																																													
b)	Requirement of gear operation	shall be provided for 350 (14") mm and larger sizes.																																																																																													
c)	Bypass Valve Requirement	As per Technical Notes for valves.																																																																																													
<table border="1"> <thead> <tr> <th>TESTING/Inspection</th> <th></th> <th>Testing Fluid</th> <th>Witness/Review</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>Shell Test pressure</td> <td>425 PSIG</td> <td>*</td> <td>Witness</td> <td></td> </tr> <tr> <td>Backseat test pressure</td> <td>315 PSIG</td> <td>*</td> <td>Witness</td> <td></td> </tr> <tr> <td>High Pressure Closure test</td> <td>315 PSIG</td> <td>*</td> <td>Witness</td> <td></td> </tr> <tr> <td>Low pressure Closure test</td> <td>SEAT - 80</td> <td>Air/Inert Gas</td> <td>Witness</td> <td></td> </tr> <tr> <td>BOM check</td> <td></td> <td></td> <td>Review</td> <td></td> </tr> <tr> <td>MPI/DPI</td> <td></td> <td></td> <td>Review if applicable</td> <td></td> </tr> <tr> <td>Radiography</td> <td></td> <td></td> <td>Review</td> <td></td> </tr> <tr> <td>Impact Charpy test</td> <td></td> <td></td> <td>NA</td> <td></td> </tr> <tr> <td>Visual Check & Calibration</td> <td></td> <td></td> <td>Review</td> <td></td> </tr> <tr> <td>Hardness Test ASTM-E10</td> <td></td> <td></td> <td>Review if applicable</td> <td></td> </tr> <tr> <td>PMI (for SS & AS alloys)</td> <td></td> <td></td> <td>NA</td> <td></td> </tr> <tr> <td>IGC</td> <td></td> <td></td> <td>NA</td> <td></td> </tr> <tr> <td>Helium Leak test (#)</td> <td></td> <td></td> <td>#</td> <td></td> </tr> <tr> <td>Ultrasonic test for SS parts & Forged body</td> <td></td> <td></td> <td>Review if applicable</td> <td></td> </tr> <tr> <td>MILL certification</td> <td></td> <td></td> <td>Review if applicable</td> <td></td> </tr> <tr> <td>Fire Safe</td> <td></td> <td></td> <td>NA</td> <td></td> </tr> <tr> <td>Material test certificates</td> <td></td> <td></td> <td>Review</td> <td></td> </tr> </tbody> </table>						TESTING/Inspection		Testing Fluid	Witness/Review	Remarks	Shell Test pressure	425 PSIG	*	Witness		Backseat test pressure	315 PSIG	*	Witness		High Pressure Closure test	315 PSIG	*	Witness		Low pressure Closure test	SEAT - 80	Air/Inert Gas	Witness		BOM check			Review		MPI/DPI			Review if applicable		Radiography			Review		Impact Charpy test			NA		Visual Check & Calibration			Review		Hardness Test ASTM-E10			Review if applicable		PMI (for SS & AS alloys)			NA		IGC			NA		Helium Leak test (#)			#		Ultrasonic test for SS parts & Forged body			Review if applicable		MILL certification			Review if applicable		Fire Safe			NA		Material test certificates			Review	
TESTING/Inspection		Testing Fluid	Witness/Review	Remarks																																																																																											
Shell Test pressure	425 PSIG	*	Witness																																																																																												
Backseat test pressure	315 PSIG	*	Witness																																																																																												
High Pressure Closure test	315 PSIG	*	Witness																																																																																												
Low pressure Closure test	SEAT - 80	Air/Inert Gas	Witness																																																																																												
BOM check			Review																																																																																												
MPI/DPI			Review if applicable																																																																																												
Radiography			Review																																																																																												
Impact Charpy test			NA																																																																																												
Visual Check & Calibration			Review																																																																																												
Hardness Test ASTM-E10			Review if applicable																																																																																												
PMI (for SS & AS alloys)			NA																																																																																												
IGC			NA																																																																																												
Helium Leak test (#)			#																																																																																												
Ultrasonic test for SS parts & Forged body			Review if applicable																																																																																												
MILL certification			Review if applicable																																																																																												
Fire Safe			NA																																																																																												
Material test certificates			Review																																																																																												
<p>* For shell, High pressure backseat, and high pressure closure test, the test fluid shall be air, inert gas, or a non corrosive liquid with a viscosity not higher than that of water.</p> <p># Only applicable for H2 services.</p> <p>• Radiography procedure, areas of casting to be radio graphed and the acceptance criteria shall be as per ASME/ANSI B 16.34.</p> <p>All castings shall be radiographic quality castings.</p> <p>• Minimum requirement of radiography examination for all materials is as follows:</p> <table border="1"> <thead> <tr> <th>Class</th> <th>Size</th> <th>Qty</th> </tr> </thead> <tbody> <tr> <td>150</td> <td>26" & above</td> <td>100%</td> </tr> <tr> <td>300</td> <td>18" & above</td> <td>100%</td> </tr> <tr> <td>600 and above</td> <td>All</td> <td>100%</td> </tr> </tbody> </table> <p>In addition, 5% valve castings (upto 24") and 100% valve castings(for 26" and above) shall undergo radiographic examination.</p> <p>SPECIAL REQUIREMENT:</p> <p>NACE</p> <p>Any other critical service</p> <p><input type="checkbox"/> DEVIATION <input type="checkbox"/> NO DEVIATION VENDORS SIGNATURES WITH SEAL</p> <table border="1"> <tr> <td></td> <td>PO NO:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>PACKAGE NAME:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td rowspan="3">  BHARAT HEAVY ELECTRICALS LIMTIED PROJECT ENGINEERING DIVISION RC PURAM - HYDERABAD -32 BHEL FOI </td> <td>PACKAGE VENDOR : GAS CONDITIONING SKID</td> <td>DATE</td> <td>PREP</td> <td>CHKD</td> <td>APPD</td> </tr> <tr> <td>PROJECT :</td> <td colspan="3">VENDOR DOC.NO:</td> <td>REV.</td> </tr> <tr> <td>CUSTOMER :</td> <td colspan="4"></td> </tr> <tr> <td colspan="6">SHEET 01 OF 02</td> </tr> </table>						Class	Size	Qty	150	26" & above	100%	300	18" & above	100%	600 and above	All	100%		PO NO:						PACKAGE NAME:					 BHARAT HEAVY ELECTRICALS LIMTIED PROJECT ENGINEERING DIVISION RC PURAM - HYDERABAD -32 BHEL FOI	PACKAGE VENDOR : GAS CONDITIONING SKID	DATE	PREP	CHKD	APPD	PROJECT :	VENDOR DOC.NO:			REV.	CUSTOMER :					SHEET 01 OF 02																																																	
Class	Size	Qty																																																																																													
150	26" & above	100%																																																																																													
300	18" & above	100%																																																																																													
600 and above	All	100%																																																																																													
	PO NO:																																																																																														
	PACKAGE NAME:																																																																																														
 BHARAT HEAVY ELECTRICALS LIMTIED PROJECT ENGINEERING DIVISION RC PURAM - HYDERABAD -32 BHEL FOI	PACKAGE VENDOR : GAS CONDITIONING SKID	DATE	PREP	CHKD	APPD																																																																																										
	PROJECT :	VENDOR DOC.NO:			REV.																																																																																										
	CUSTOMER :																																																																																														
SHEET 01 OF 02																																																																																															

DATA SHEET FOR GATE VALVES																																																										
1. MATERIAL:	CARBON STEEL																																																									
2. RATING:	ANSI CLASS 300																																																									
3. SIZE RANGE:	2" to 42"																																																									
4. ENDS:	FLANGED TO B 16.5 RF 125 AARH (WITH CONCENTRIC/SPIRAL GROOVES)																																																									
5. Design Standard:	API-600																																																									
6. Testing Standard:	API - 598 (upto 24"), BS-6755 Part -I (for sizes 26" and above)																																																									
7. Dimensional std.:	ANSI B 16.10																																																									
8. Pressure Temp. Rating:	ANSI B 16.34																																																									
9. Applicable Services:	HSD/Naphtha/Natural gas/Refinery gas, Flare, Instrument Air, Nitrogen gas,																																																									
10. Applicable Piping	21A																																																									
Material Specification(PMS):																																																										
11. Material of Construction																																																										
Sl. No.	Description	Construction	Material																																																							
a)	Body	Cast	ASTM A 216 WCB																																																							
b)	Bonnet	Bolted	ASTM A 216 WCB																																																							
c)	Stem	Rising	13% Chrome steel (No casting is acceptable)																																																							
d)	Wedge Disc	Solid - Flexible	13% Chrome steel Facing/ 13% chrome steel																																																							
e)	Body seat ring	Renewable/Non-renewable	13% Chrome steel Facing/ 13% chrome steel																																																							
f)	Stem packing	Renewable with valve open on stream	Graphited with Sacrificial corrosion inhibitor & inconel wire reinforcement																																																							
g)	Hand wheel	Non rising	Malleable Iron/ Cast Steel / Fabricatd Steel of Ductile Iron (Strike off whichever is not applicable)																																																							
h)	Bonnet Bolts		ASTM A 193 B7																																																							
i)	Body Nuts		ASTM A 194 2 H																																																							
j)	Bonnet Gasket		Spiral Wound SS 316 – Graphite Filler.																																																							
k)	Back seat and shoulder		13% Chrome steel																																																							
<p>1. This valve specification shall be read in conjunction with "Technical Notes for valves.</p> <p>2. Gate valves of size 26" and above shall be in accordance with BS-1414 and flange ends shall be in accordance with ANSI B16.47 series B.</p> <p>3. All flanged valves shall have flanges integral with valve body.</p> <p>4. Integral Bypass shall be provided for 350 (14") mm and larger sizes</p>																																																										
12 Others																																																										
a)	Type	OS& Y																																																								
b)	Requirement of gear operation	shall be provided for 350 (14") mm and larger sizes.																																																								
c)	Bypass Valve Requirement	As per Technical Notes for valves.																																																								
TESTING/Inspection		Testing Fluid	Witness/Review	Remarks																																																						
Shell Test pressure		1125 PSIG	*	Witness																																																						
Backseat test pressure		825 PSIG	*	Witness																																																						
High Pressure Closure test		825 PSIG	*	Witness																																																						
Low pressure Closure test		SEAT - 80	Air/Inert Gas	Witness																																																						
BOM check				Review																																																						
MPI/DPI				Review if applicable																																																						
Radiography				Review																																																						
Impact Charpy test				NA																																																						
Visual Check & Calibration				Review																																																						
Hardness Test ASTM-E10				Review if applicable																																																						
PMI (for SS & AS alloys)				NA																																																						
IGC				NA																																																						
Helium Leak test (#)				#																																																						
Ultrasonic test for SS parts & Forged body				Review if applicable																																																						
MILL certification				Review if applicable																																																						
Fire Safe				NA																																																						
Material test certificates				Review																																																						
<p>* For shell, High pressure backseat, and high pressure closure test, the test fluid shall be air, inert gas, or a non corrosive liquid with a viscosity not higher than that of water.</p> <p># Only applicable for H2 services.</p> <p>• Radiography procedure, areas of casting to be radio graphed and the acceptance criteria shall be as per ASME/ANSI B 16.34.</p> <p>All castings shall be radiographic quality castings.</p> <p>• Minimum requirement of radiography examination for all materials is as follows:</p> <table border="1"> <thead> <tr> <th>Class</th> <th>Size</th> <th>Qty</th> </tr> </thead> <tbody> <tr> <td>150</td> <td>26" & above</td> <td>100%</td> </tr> <tr> <td>300</td> <td>18" & above</td> <td>100%</td> </tr> <tr> <td>600 and above</td> <td>All</td> <td>100%</td> </tr> </tbody> </table> <p>In addition, 10% valve castings (upto 16") and 100% valve castings(for 18" and above) shall undergo radiographic examination.</p> <p>SPECIAL REQUIREMENT:</p> <p>NACE</p> <p>Any other critical service</p> <p><input type="checkbox"/> DEVIATION <input type="checkbox"/> NO DEVIATION</p> <p style="text-align: right;">VENDORS SIGNATURES WITH SEAL</p> <table border="1"> <tr> <td colspan="2">PO NO:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="2">PACKAGE NAME:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="2">PACKAGE VENDOR :</td> <td>DATE</td> <td>PREP</td> <td>CHKD</td> <td>APPD</td> </tr> <tr> <td colspan="2">GAS CONDITIONING SKID</td> <td colspan="2">VENDOR DOC.NO:</td> <td colspan="2">REV.</td> </tr> <tr> <td colspan="2">PROJECT :</td> <td colspan="4"></td> </tr> <tr> <td colspan="2">CUSTOMER :</td> <td colspan="4"></td> </tr> <tr> <td colspan="6" style="text-align: center;">SHEET 01 OF 02</td> </tr> </table>					Class	Size	Qty	150	26" & above	100%	300	18" & above	100%	600 and above	All	100%	PO NO:						PACKAGE NAME:						PACKAGE VENDOR :		DATE	PREP	CHKD	APPD	GAS CONDITIONING SKID		VENDOR DOC.NO:		REV.		PROJECT :						CUSTOMER :						SHEET 01 OF 02					
Class	Size	Qty																																																								
150	26" & above	100%																																																								
300	18" & above	100%																																																								
600 and above	All	100%																																																								
PO NO:																																																										
PACKAGE NAME:																																																										
PACKAGE VENDOR :		DATE	PREP	CHKD	APPD																																																					
GAS CONDITIONING SKID		VENDOR DOC.NO:		REV.																																																						
PROJECT :																																																										
CUSTOMER :																																																										
SHEET 01 OF 02																																																										

DATA SHEET FOR GATE VALVES															
1. MATERIAL:	CARBON STEEL														
2. RATING:	ANSI CLASS 600														
3. SIZE RANGE:	2" to 42"														
4. ENDS:	FLANGED TO B 16.5 RF 125 AARH (WITH CONCENTRIC/SPIRAL GROOVES)														
5. Design Standard:	API-600														
6. Testing Standard:	API - 598 (upto 24"), BS-6755 Part -I (for sizes 26" and above)														
7. Dimensional std.:	ANSI B 16.10														
8. Pressure Temp. Rating:	ANSI B 16.34														
9. Applicable Services:	HSD/Naphtha/Natural gas/Refinery gas, Flare, Instrument Air, Nitrogen gas,														
10. Applicable Piping	31A														
Material Specification(PMS):															
11. Material of Construction															
Sl. No.	Description	Construction	Material												
a)	Body	Cast	ASTM A 216 WCB												
b)	Bonnet	Bolted	ASTM A 216 WCB												
c)	Stem	Rising	13% Chrome steel (No casting is acceptable)												
d)	Wedge Disc	Solid - Flexible	STELLITED												
e)	Body seat ring	Renewable/Non-renewable	STELLITED												
f)	Stem packing	Renewable with valve open on stream	Graphited with Sacrificial corrosion inhibitor & inconel wire reinforcement												
g)	Hand wheel	Non rising	Malleable Iron/ Cast Steel / Fabricatd Steel of Ductile Iron (Strike off whichever is not applicable)												
h)	Bonnet Bolts		ASTM A 193 B7												
i)	Body Nuts		ASTM A 194 2 H												
j)	Bonnet Gasket		Spiral Wound SS 316 – Graphite Filler.												
k)	Back seat and shoulder		13% Chrome steel												
1. This valve specification shall be read in conjunction with "Technical Notes for valves. 2. Gate valves of size 26" and above shall be in accordance with BS-1414 and flange ends shall be in accordance with ANSI B16.47 series B. 3. All flanged valves shall have flanges integral with valve body. 4. Integral Bypass shall be provided for 200 (8") mm and larger sizes															
12 Others															
a)	Type	OS& Y													
b)	Requirement of gear operation	shall be provided for 200 (8") mm and larger sizes.													
c)	Bypass Valve Requirement	As per Technical Notes for valves.													
TESTING/Inspection															
Shell Test pressure	2225 PSIG	Testing Fluid	* Witness												
Backseat test pressure	1650 PSIG		* Witness												
High Pressure Closure test	1650 PSIG		* Witness												
Low pressure Closure test	SEAT - 80	Air/Inert Gas	Witness												
BOM check			Review												
MPI/DPI			Review if applicable												
Radiography			Review												
Impact Charpy test			NA												
Visual Check & Calibration			Review												
Hardness Test ASTM-E10			Review if applicable												
PMI (for SS & AS alloys)			NA												
IGC			NA												
Helium Leak test (#)			#												
Ultrasonic test for SS parts & Forged body			Review if applicable												
MILL certification			Review if applicable												
Fire Safe			NA												
Material test certificates			Review												
* For shell, High pressure backseat, and high pressure closure test, the test fluid shall be air, inert gas, or a non corrosive liquid with a viscosity not higher than that of water. # Only applicable for H2 services. • Radiography procedure, areas of casting to be radio graphed and the acceptance criteria shall be as per ASME/ANSI B 16.34. All castings shall be radiographic quality castings. • Minimum requirement of radiography examination for all materials is as follows: <table border="1"> <thead> <tr> <th>Class</th> <th>Size</th> <th>Qty</th> </tr> </thead> <tbody> <tr> <td>150</td> <td>26" & above</td> <td>100%</td> </tr> <tr> <td>300</td> <td>18" & above</td> <td>100%</td> </tr> <tr> <td>600 and above</td> <td>All</td> <td>100%</td> </tr> </tbody> </table>				Class	Size	Qty	150	26" & above	100%	300	18" & above	100%	600 and above	All	100%
Class	Size	Qty													
150	26" & above	100%													
300	18" & above	100%													
600 and above	All	100%													
SPECIAL REQUIREMENT:															
NACE															
Any other critical service															
<input type="checkbox"/> DEVIATION <input type="checkbox"/> NO DEVIATION		VENDORS SIGNATURES WITH SEAL													
		PO NO:													
		PACKAGE NAME:													
		PACKAGE VENDOR :													
		GAS CONDITIONING SKID													
		DATE	PREP												
		CHKD	APPD												
		PROJECT :	VENDOR DOC.NO:												
		CUSTOMER :	REV.												
		SHEET 01 OF 02													

DATA SHEET FOR GATE VALVES																		
1.	MATERIAL:	CARBON STEEL																
2.	RATING:	ANSI CLASS 800																
3.	SIZE RANGE:	0.5" to 1.5"																
4.	ENDS:	SW 3000# to B 16.11																
5.	Design Standard:	API-602																
6.	Testing Standard:	API - 598																
7.	Dimensional std.:	ANSI B 16.10																
8.	Pressure Temp. Rating:	ANSI B 16.34																
9.	Applicable Services:	HSD/Naphtha/Natural gas/Refinery gas, Flare, Instrument Air, Nitrogen gas,																
10.	Applicable Piping Material Specification(PMS):																	
11.	Material of Construction																	
	Sl. No.	Description	Construction	Material														
	a)	Body	Forged	ASTM A 105														
	b)	Bonnet	Bolted	ASTM A 105														
	c)	Stem	Rising	13% Chrome steel (No casting is acceptable)														
	d)	Wedge Disc	Solid	Stellited														
	e)	Body seat ring	Renewable	Stellited														
	f)	Stem packing	Renewable with valve open on stream	Graphited with Sacrificial corrosion inhibitor & inconel wire reinforcement														
	g)	Hand wheel	Non rising	Malleable Iron/ Cast Steel / Fabricatd Steel of Ductile Iron (Strike off whichever is not applicable)														
	h)	Bonnet Bolts		ASTM A 193 B7														
	i)	Body Nuts		ASTM A 194 2 H														
	j)	Bonnet Gasket		Spiral Wound SS 316 – Graphite Filler														
	k)	Back seat and shoulder	Integral															
<p>1. This valve specification shall be read in conjunction with "Technical Notes for valves.</p> <p>2. Integral Bypass shall be provided for 200 (8") mm and larger sizes</p> <p>3. Gear operation shall be provided for 200 (8") mm and larger sizes</p>																		
12.	Others																	
	a)	Type	OS& Y															
		TESTING/Inspection	Testing Fluid	Witness/Review	Remarks													
		Shell Test pressure	2975 PSIG	*	Witness													
		Backseat test pressure	2175 PSIG	*	Witness													
		High Pressure Closure test	2175 PSIG	*	Witness													
		Low pressure Closure test	SEAT - 80	Air/Inert Gas	Witness													
		BOM check			Review													
		MPI/DPI			Review if applicable													
		Radiography			Review													
		Impact Charpy test			NA													
		Visual Check & Calibration			Review													
		Hardness Test ASTM-E10			Review if applicable													
		PMI (for SS & AS alloys)			NA													
		IGC			NA													
		Helium Leak test (#)			#													
		Ultrasonic test for SS parts & Forged			Review if applicable													
		MILL certification			Review if applicable													
		Fire Safe			NA													
		Material test certificates			Review													
<p>* For shell, High pressure backseat, and high pressure closure test, the test fluid shall be air, inert gas, or a non corrosive liquid with a viscosity not higher than that of water.</p> <p># Only applicable for H2 services.</p> <p>• Radiography procedure, areas of casting to be radio graphed and the acceptance criteria shall be as per ASME/ANSI B 16.34. All castings shall be radiographic quality castings.</p> <p>• Minimum requirement of radiography examination for all materials is as follows:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Class</td> <td style="width: 33%;">Size</td> <td style="width: 33%;">Qty</td> </tr> <tr> <td>150</td> <td>26" & above</td> <td>100%</td> </tr> <tr> <td>300</td> <td>18" & above</td> <td>100%</td> </tr> <tr> <td>600 and above</td> <td>All</td> <td>100%</td> </tr> </table>							Class	Size	Qty	150	26" & above	100%	300	18" & above	100%	600 and above	All	100%
Class	Size	Qty																
150	26" & above	100%																
300	18" & above	100%																
600 and above	All	100%																
SPECIAL REQUIREMENT:																		
NACE																		
Any other critical service																		
<input type="checkbox"/> DEVIATION <input type="checkbox"/> NO DEVIATION																		
VENDORS SIGNATURES WITH SEAL																		
 BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING DIVISION RC PURAM - HYDERABAD - 32		PO NO:																
		PACKAGE NAME:																
		PACKAGE VENDOR :		DATE	PREP	CHKD	APPD											
		PROJECT :		VENDOR DOC.NO:		REV.												
BHEL FOR		CUSTOMER :																
SHEET 01 OF 02																		

DATA SHEET FOR GATE VALVES																																																																																													
1. MATERIAL:	STAINLESS STEEL																																																																																												
2. RATING:	ANSI CLASS 800																																																																																												
3. SIZE RANGE:	0.5" to 1.5"																																																																																												
4. ENDS:	SW 3000# to B 16.11																																																																																												
5. Design Standard:	API-602																																																																																												
6. Testing Standard:	API - 598																																																																																												
7. Dimensional std.:	ANSI B 16.10																																																																																												
8. Pressure Temp. Rating:	ANSI B 16.34																																																																																												
9. Applicable Services:	HSD/Naphtha/Natural gas/Refinery gas, Flare, Instrument Air, Nitrogen gas,																																																																																												
10. Applicable Piping Material Specification(PMS):	42A																																																																																												
11. Material of Construction																																																																																													
Sl. No.	Description	Construction	Material																																																																																										
a)	Body	Forged	ASTM A 182 F 304																																																																																										
b)	Bonnet	Bolted	ASTM A 182 F 304																																																																																										
c)	Stem	Rising	SS 304 (No casting is acceptable)																																																																																										
d)	Wedge Disc	Solid	Stellited																																																																																										
e)	Body seat ring	Renewable	Stellited																																																																																										
f)	Stem packing	Renewable with valve open on stream	Graphited with Sacrificial corrosion inhibitor & inconel wire reinforcement																																																																																										
g)	Hand wheel	Non rising	Malleable Iron/ Cast Steel / Fabricatd Steel of Ductile Iron (Strike off whichever is not applicable)																																																																																										
h)	Bonnet Bolts		ASTM A 193 B7																																																																																										
i)	Body Nuts		ASTM A 194 2 H																																																																																										
j)	Bonnet Gasket		Spiral Wound SS 316 – Graphite Filler																																																																																										
k)	Back seat and shoulder	Integral																																																																																											
12. Others																																																																																													
a)	Type	OS& Y																																																																																											
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">TESTING/Inspection</th> <th style="width: 10%;"></th> <th style="width: 10%;">Testing Fluid</th> <th style="width: 10%;">Witness/Review</th> <th style="width: 40%;">Remarks</th> </tr> </thead> <tbody> <tr> <td>Shell Test pressure</td> <td>2975 PSIG</td> <td>*</td> <td>Witness</td> <td></td> </tr> <tr> <td>Backseat test pressure</td> <td>2175 PSIG</td> <td>*</td> <td>Witness</td> <td></td> </tr> <tr> <td>High Pressure Closure test</td> <td>2175 PSIG</td> <td>*</td> <td>Witness</td> <td></td> </tr> <tr> <td>Low pressure Closure test</td> <td>SEAT - 80</td> <td>Air/Inert Gas</td> <td>Witness</td> <td></td> </tr> <tr> <td>BOM check</td> <td></td> <td></td> <td>Review</td> <td></td> </tr> <tr> <td>MPI/DPI</td> <td></td> <td></td> <td>Review if applicable</td> <td></td> </tr> <tr> <td>Radiography</td> <td></td> <td></td> <td>Review</td> <td></td> </tr> <tr> <td>Impact Charpy test</td> <td></td> <td></td> <td>NA</td> <td></td> </tr> <tr> <td>Visual Check & Calibration</td> <td></td> <td></td> <td>Review</td> <td></td> </tr> <tr> <td>Hardness Test ASTM-E10</td> <td></td> <td></td> <td>Review if applicable</td> <td></td> </tr> <tr> <td>PMI (for SS & AS alloys)</td> <td></td> <td></td> <td>Review if applicable</td> <td></td> </tr> <tr> <td>IGC</td> <td></td> <td></td> <td>Review if applicable</td> <td></td> </tr> <tr> <td>Helium Leak test (#)</td> <td></td> <td></td> <td>#</td> <td></td> </tr> <tr> <td>Ultrasonic test for SS parts & Forged</td> <td></td> <td></td> <td>Review if applicable</td> <td></td> </tr> <tr> <td>MILL certification</td> <td></td> <td></td> <td>Review if applicable</td> <td></td> </tr> <tr> <td>Fire Safe</td> <td></td> <td></td> <td>NA</td> <td></td> </tr> <tr> <td>Material test certificates</td> <td></td> <td></td> <td>Review</td> <td></td> </tr> </tbody> </table>				TESTING/Inspection		Testing Fluid	Witness/Review	Remarks	Shell Test pressure	2975 PSIG	*	Witness		Backseat test pressure	2175 PSIG	*	Witness		High Pressure Closure test	2175 PSIG	*	Witness		Low pressure Closure test	SEAT - 80	Air/Inert Gas	Witness		BOM check			Review		MPI/DPI			Review if applicable		Radiography			Review		Impact Charpy test			NA		Visual Check & Calibration			Review		Hardness Test ASTM-E10			Review if applicable		PMI (for SS & AS alloys)			Review if applicable		IGC			Review if applicable		Helium Leak test (#)			#		Ultrasonic test for SS parts & Forged			Review if applicable		MILL certification			Review if applicable		Fire Safe			NA		Material test certificates			Review	
TESTING/Inspection		Testing Fluid	Witness/Review	Remarks																																																																																									
Shell Test pressure	2975 PSIG	*	Witness																																																																																										
Backseat test pressure	2175 PSIG	*	Witness																																																																																										
High Pressure Closure test	2175 PSIG	*	Witness																																																																																										
Low pressure Closure test	SEAT - 80	Air/Inert Gas	Witness																																																																																										
BOM check			Review																																																																																										
MPI/DPI			Review if applicable																																																																																										
Radiography			Review																																																																																										
Impact Charpy test			NA																																																																																										
Visual Check & Calibration			Review																																																																																										
Hardness Test ASTM-E10			Review if applicable																																																																																										
PMI (for SS & AS alloys)			Review if applicable																																																																																										
IGC			Review if applicable																																																																																										
Helium Leak test (#)			#																																																																																										
Ultrasonic test for SS parts & Forged			Review if applicable																																																																																										
MILL certification			Review if applicable																																																																																										
Fire Safe			NA																																																																																										
Material test certificates			Review																																																																																										
<p>* For shell, High pressure backseat, and high pressure closure test, the test fluid shall be air, inert gas, or a non corrosive liquid with a viscosity not higher than that of water.</p> <p># Only applicable for H2 services.</p> <p>• Radiography procedure, areas of casting to be radio graphed and the acceptance criteria shall be as per ASME/ANSI B 16.34.</p> <p>All castings shall be radiographic quality castings.</p> <p>• Minimum requirement of radiography examination for all materials is as follows:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Class</td> <td style="width: 30%;">Size</td> <td style="width: 40%;">Qty</td> </tr> <tr> <td>150</td> <td>26" & above</td> <td>100%</td> </tr> <tr> <td>300</td> <td>18" & above</td> <td>100%</td> </tr> <tr> <td>600 and above</td> <td>All</td> <td>100%</td> </tr> </table>				Class	Size	Qty	150	26" & above	100%	300	18" & above	100%	600 and above	All	100%																																																																														
Class	Size	Qty																																																																																											
150	26" & above	100%																																																																																											
300	18" & above	100%																																																																																											
600 and above	All	100%																																																																																											
<p>SPECIAL REQUIREMENT:</p> <p>NACE</p> <p>Any other critical service <input type="checkbox"/> DEVIATION <input type="checkbox"/> NO DEVIATION</p>																																																																																													
		VENDORS SIGNATURES WITH SEAL																																																																																											
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">PO NO:</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>PACKAGE NAME:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PACKAGE VENDOR :</td> <td>DATE</td> <td>PREP</td> <td>CHKD</td> <td>APPD</td> </tr> <tr> <td>PROJECT :</td> <td colspan="3">VENDOR DOC.NO:</td> <td>REV.</td> </tr> <tr> <td>CUSTOMER :</td> <td colspan="4"></td> </tr> </table>		PO NO:					PACKAGE NAME:					PACKAGE VENDOR :	DATE	PREP	CHKD	APPD	PROJECT :	VENDOR DOC.NO:			REV.	CUSTOMER :																																																																					
PO NO:																																																																																													
PACKAGE NAME:																																																																																													
PACKAGE VENDOR :	DATE	PREP	CHKD	APPD																																																																																									
PROJECT :	VENDOR DOC.NO:			REV.																																																																																									
CUSTOMER :																																																																																													
<p>BHARAT HEAVY ELECTRICALS</p> <p>LIMITIED</p> <p>PROJECT ENGINEERING DIVISION</p> <p>RC PURAM - HYDERABAD -32</p>																																																																																													
<p>BHEL FOR</p>																																																																																													
		SHEET 01 OF 02																																																																																											

DATA SHEET FOR GATE VALVES																
1.	MATERIAL:	STAINLESS STEEL														
2.	RATING:	ANSI CLASS 300														
3.	SIZE RANGE:	0.5" to 1.5"														
4.	ENDS:	SW 3000# to B 16.11														
5.	Design Standard:	API-602														
6.	Testing Standard:	API - 598														
7.	Dimensional std.:	ANSI B 16.10														
8.	Pressure Temp. Rating:	ANSI B 16.34														
9.	Applicable Services:	HSD/Naphtha/Natural gas/Refinery gas, Flare, Instrument Air, Nitrogen gas,														
10.	Applicable Piping Material Specification(PMS):	22A														
11.	Material of Construction															
	Sl. No.	Description	Construction	Material												
	a)	Body	Forged	ASTM A 351 GR. CF8												
	b)	Bonnet	Bolted	ASTM A 351 GR. CF8												
	c)	Stem	Rising	SS 304 (No casting is acceptable)												
	d)	Wedge Disc	Solid	SS 304												
	e)	Body seat ring	Renewable	SS 304												
	f)	Stem packing	Renewable with valve open on stream	Graphited with Sacrificial corrosion inhibitor & inconel wire reinforcement												
	g)	Hand wheel	Non rising	Malleable Iron/ Cast Steel / Fabricatd Steel of Ductile Iron (Strike off whichever is not applicable)												
	h)	Bonnet Bolts		ASTM A 193 B7												
	i)	Body Nuts		ASTM A 194 2 H												
	j)	Bonnet Gasket		Spiral Wound SS 316 – Graphite Filler												
	k)	Back seat and shoulder	Integral													
12.	Others															
	a)	Type	OS& Y													
		TESTING/Inspection	Testing Fluid	Witness/Review												
		Shell Test pressure	1125 PSIG	*												
		Backseat test pressure	825 PSIG	*												
		High Pressure Closure test	825 PSIG	*												
		Low pressure Closure test	SEAT - 80 PSIG	Air/Inert Gas												
		BOM check		Witness												
		MPI/DPI		Review												
		Radiography		Review if applicable												
		Impact Charpy test		Review												
		Visual Check & Calibration		NA												
		Hardness Test ASTM-E10		Review												
		PMI (for SS & AS alloys)		Review if applicable												
		IGC		Review if applicable												
		Helium Leak test (#)		#												
		Ultrasonic test for SS parts & Forged		Review if applicable												
		MILL certification		Review if applicable												
		Fire Safe		NA												
		Material test certificates		Review												
<p>* For shell, High pressure backseat, and high pressure closure test, the test fluid shall be air, inert gas, or a non corrosive liquid with a viscosity not higher than that of water.</p> <p># Only applicable for H2 services.</p> <p>• Radiography procedure, areas of casting to be radio graphed and the acceptance criteria shall be as per ASME/ANSI B 16.34.</p> <p>All castings shall be radiographic quality castings.</p> <p>• Minimum requirement of radiography examination for all materials is as follows:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Class</td> <td style="width: 33%;">Size</td> <td style="width: 33%;">Qty</td> </tr> <tr> <td>150</td> <td>26" & above</td> <td>100%</td> </tr> <tr> <td>300</td> <td>18" & above</td> <td>100%</td> </tr> <tr> <td>600 and above</td> <td>All</td> <td>100%</td> </tr> </table>					Class	Size	Qty	150	26" & above	100%	300	18" & above	100%	600 and above	All	100%
Class	Size	Qty														
150	26" & above	100%														
300	18" & above	100%														
600 and above	All	100%														
SPECIAL REQUIREMENT:																
NACE																
Any other critical service																
<input type="checkbox"/> DEVIATION <input type="checkbox"/> NO DEVIATION																
VENDORS SIGNATURES WITH SEAL																
<div style="margin-top: 5px;"> BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING DIVISION RC PURAM - HYDERABAD -32 </div>		PO NO:														
		PACKAGE NAME:														
		PACKAGE VENDOR :														
		PROJECT :														
BHEL FOR		VENDOR DOC.NO:														
		CUSTOMER :														
SHEET 01 OF 02																

DATA SHEET FOR GLOBE VALVES																		
1.	MATERIAL:	CARBON STEEL																
2.	RATING:	ANSI CLASS 150																
3.	SIZE RANGE:	2" to 16"																
4.	ENDS:	FLANGED TO B 16.5 RF 125 AARH (WITH CONCENTRIC/SPIRAL GROOVES)																
5.	Design Standard:	BS-1873																
6.	Testing Standard:	BS-6755 Part-I																
7.	Dimensional std.:	ANSI B 16.10																
8.	Pressure Temp. Rating:	ANSI B 16.34																
9.	Applicable Services:	HSD/Naphtha/Natural gas/Refinery gas, Flare, Instrument Air, Nitrogen gas,																
10.	Applicable Piping Material Specification(PMS):	11A																
TEMP.	-29	38	50	65	100	120	150	175	200									
PRESS.	20	19.992	19.584	19.2	17.93	17.2	16.12	15.22	7.03									
11. Material of Construction																		
Sl. No.	Description	Construction	Material															
a)	Body	Cast	ASTM A 216 WCB															
b)	Bonnet	Bolted	ASTM A 216 WCB															
c)	Stem	Rising	13% Chrome steel (No casting is acceptable)															
d)	Disc	Lose plug type/Ball type	13% Chrome steel/13% Chrome steel facing															
e)	Body seat ring	Renewable/Non-Renewable	13% Chrome steel/13% Chrome steel facing															
f)	Stem packing	Renewable with valve open on stream																
g)	Hand wheel	Rising	Malleable Iron/ Cast Steel / Fabricatd Steel of Ductile Iron (Strike off whichever is not applicable)															
h)	Bonnet Bolts		ASTM A 193 B7															
i)	Body Nuts		ASTM A 194 2 H															
j)	Bonnet Gasket		Spiral Wound SS 316 – Graphite Filler corrugated soft Iron.															
k)	Back seat and shoulder	Integral	13% Chrome steel															
l)	Gear & Integral Bypass arrangement	shall be provided for 350 mm and larger sizes																
12. Others																		
TESTING/Inspection		Testing Fluid	Witness/Review	Remarks														
Shell Test pressure	425 PSIG	*	Witness															
High Pressure Closure test	315 PSIG	*	Witness															
Low Pressure Closure test	315 PSIG	Air/Inert Gas	Witness															
BOM check			Review															
MPI/DPI			Review if applicable															
Radiography			Review															
Visual Check & Calibration			Review															
Hardness Test ASTM-E10			Review if applicable															
PMI (for SS & AS alloys)			NA															
IGC			NA															
Ultrasonic test for SS parts & Forged body			Review if applicable															
MILL certification			NA															
Fire Safe			NA															
Material test			Review															
NOTES:																		
<p>* For shell, High pressure backseat, and high pressure closure test, the test fluid shall be air, inert gas, or a non corrosive liquid with a viscosity not higher than that of water.</p> <p># Only applicable for H2 services.</p> <p>• Radiography procedure, areas of casting to be radio graphed and the acceptance criteria shall be as per ASME/ANSI B 16.34. All castings shall be radiographic quality castings.</p> <p>• Minimum requirement of radiography examination for all materials is as follows:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Class</td> <td style="width: 33%;">Size</td> <td style="width: 33%;">Qty</td> </tr> <tr> <td>150</td> <td>26" & above</td> <td>100%</td> </tr> <tr> <td>300</td> <td>18" & above</td> <td>100%</td> </tr> </table> <p>SPECIAL REQUIREMENT:</p> <p>NACE NA</p> <p>Any other critical service NA</p>										Class	Size	Qty	150	26" & above	100%	300	18" & above	100%
Class	Size	Qty																
150	26" & above	100%																
300	18" & above	100%																
<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> DEVIATION <input type="checkbox"/> NO DEVIATION </div> <div>VENDORS SIGNATURES WITH SEAL</div> </div>																		
BHEL FORMAT NO: PEMC-1009, REV.00		PO NO:																
		PACKAGE NAME: GAS CONDITIONING SYSTEM.																
<div style="text-align: center;"> BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING DIVISION RC PURAM - HYDERABAD -32 </div>	PACKAGE VENDOR :	DATE	PREP	CHKD	APPD													
	PROJECT :	VENDOR DOC.NO:			REV.													
	CUSTOMER :																	
SHEET 01 OF 02																		

DATA SHEET FOR GLOBE VALVES																		
1.	MATERIAL:	CARBON STEEL																
2.	RATING:	ANSI CLASS 150																
3.	SIZE RANGE:	2" to 16"																
4.	ENDS:	FLANGED TO B 16.5 RF 125 AARH (WITH CONCENTRIC/SPIRAL GROOVES)																
5.	Design Standard:	BS-1873																
6.	Testing Standard:	BS-6755 Part-I																
7.	Dimensional std.:	ANSI B 16.10																
8.	Pressure Temp. Rating:	ANSI B 16.34																
9.	Applicable Services:	HSD/Naphtha/Natural gas/Refinery gas, Flare, Instrument Air, Nitrogen gas,																
10.	Applicable Piping Material Specification(PMS):	11A																
TEMP.	-29	38	50	65	100	120	150	175	200									
PRESS.	20	19.992	19.584	19.2	17.93	17.2	16.12	15.22	7.03									
11. Material of Construction																		
Sl. No.	Description	Construction	Material															
a)	Body	Cast	ASTM A 216 WCB															
b)	Bonnet	Bolted	ASTM A 216 WCB															
c)	Stem	Rising	13% Chrome steel (No casting is acceptable)															
d)	Disc	Lose plug type/Ball type	13% Chrome steel/13% Chrome steel facing															
e)	Body seat ring	Renewable/Non-Renewable	13% Chrome steel/13% Chrome steel facing															
f)	Stem packing	Renewable with valve open on stream	Graphite with Sacrificial corrosion inhibitor & inconel wire reinforcement															
g)	Hand wheel	Rising	Malleable Iron/ Cast Steel / Fabricatd Steel of Ductile Iron (Strike off whichever is not applicable)															
h)	Bonnet Bolts		ASTM A 193 B7															
i)	Body Nuts		ASTM A 194 2 H															
j)	Bonnet Gasket		Spiral Wound SS 316 – Graphite Filler corrugated soft Iron.															
k)	Back seat and shoulder	Integral	13% Chrome steel															
l)	Gear & Integral Bypass arrangement	shall be provided for 350 mm and larger sizes																
12. Others																		
TESTING/Inspection		Testing Fluid	Witness/Review	Remarks														
Shell Test pressure	425 PSIG	*	Witness															
High Pressure Closure test	315 PSIG	*	Witness															
Low Pressure Closure test	315 PSIG	Air/Inert Gas	Witness															
BOM check			Review															
MPI/DPI			Review if applicable															
Radiography			Review															
Visual Check & Calibration			Review															
Hardness Test ASTM-E10			Review if applicable															
PMI (for SS & AS alloys)			NA															
IGC			NA															
Ultrasonic test for SS parts & Forged body			Review if applicable															
MILL certification			NA															
Fire Safe			NA															
Material test			Review															
NOTES:																		
<p>* For shell, High pressure backseat, and high pressure closure test, the test fluid shall be air, inert gas, or a non corrosive liquid with a viscosity not higher than that of water.</p> <p># Only applicable for H2 services.</p> <p>• Radiography procedure, areas of casting to be radio graphed and the acceptance criteria shall be as per ASME/ANSI B 16.34. All castings shall be radiographic quality castings.</p> <p>• Minimum requirement of radiography examination for all materials is as follows:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Class</td> <td style="width: 33%;">Size</td> <td style="width: 33%;">Qty</td> </tr> <tr> <td>150</td> <td>26" & above</td> <td>100%</td> </tr> <tr> <td>300</td> <td>18" & above</td> <td>100%</td> </tr> </table> <p>SPECIAL REQUIREMENT:</p> <p>NACE NA</p> <p>Any other critical service NA</p>										Class	Size	Qty	150	26" & above	100%	300	18" & above	100%
Class	Size	Qty																
150	26" & above	100%																
300	18" & above	100%																
<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> DEVIATION <input type="checkbox"/> NO DEVIATION </div> <div>VENDORS SIGNATURES WITH SEAL</div> </div>																		
BHEL FORMAT NO: PEMC-1009, REV.00		PO NO:																
		PACKAGE NAME:																
		GAS CONDITIONING SYSTEM.																
BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING DIVISION RC PURAM - HYDERABAD -32		PACKAGE VENDOR :	DATE	PREP	CHKD	APPD												
		PROJECT :	VENDOR DOC.NO:				REV.											
		CUSTOMER :																
SHEET 01 OF 02																		

- | TEMP. | -29 | 38 | 50 | 65 | 100 | 120 | 150 | 175 | 200 |
|--------|-----|----|-------|------|-------|------|------|-------|------|
| PRESS. | 52 | 52 | 51.02 | 49.8 | 41.85 | 37.3 | 27.4 | 19.15 | 7.03 |

Sl. No.	Description	Construction	Material
a)	Body	Cast	ASTM A 216 WCB
b)	Bonnet	Bolted	ASTM A 216 WCB
c)	Stem	Rising	13% Chrome steel (No casting is acceptable)
d)	Disc	Lose plug type/Ball type	13% Chrome steel/13% Chrome steel facing
e)	Body seat ring	Renewable/Non-Renewable	13% Chrome steel/13% Chrome steel facing
f)	Stem packing	Renewable with valve open on stream	Graphite with Sacrificial corrosion inhibitor & inconel wire reinforcement
g)	Hand wheel	Rising	Malleable Iron/ Cast Steel / Fabricatd Steel of Ductile Iron (Strike off whichever is not applicable)
h)	Bonnet Bolts		ASTM A 193 B7
i)	Body Nuts		ASTM A 194 2 H
j)	Bonnet Gasket		Spiral Wound SS 316 – Graphite Filler corrugated soft Iron.
k)	Back seat and shoulder		13% Chrome steel
l)	Gear & Integral Bypass arrangement	shall be provided for 350 mm and larger sizes	

Owners				
TESTING/Insp ection		Testing Fluid	Witness/Review	Remarks
Shell Test	1125 PSIG	*	Witness	
High Pressure Closure test	825 PSIG	*	Witness	
Low Pressure Closure test	825 PSIG	Air/Inert Gas	Witness	
BOM check			Review	
MPI/DPI			Review if	
Radiography			Review	
Visual Check & Calibration			Review	
Hardness Test ASTM-E10			Review if applicable	
PMI (for SS & AS alloys)			NA	
IGC			NA	
Ultrasonic test for SS parts &			Review if applicable	
MILL			NA	
Fire Safe			NA	
Material test			Review	


* For shell, High pressure backseat, and high pressure closure test, the test fluid shall be air, inert gas, or a non corrosive liquid with a viscosity not higher than that of water.

Only applicable for H2 services.

- Radiography procedure, areas of casting to be radio graphed and the acceptance criteria shall be as per ASME/ANSI B 16.34. All castings shall be radiographic quality castings.
- Minimum requirement of radiography examination for all materials is as follows:

Class	Size	Qty
150	26" & above	100%
300	18" & above	100%

SPECIAL REQUIREMENT:
NACE NA
Any other critical/NA

- DEVIATION - NO DEVIATION		VENDORS SIGNATURES WITH SEAL			
BHEL FORMAT NO: PEMC-1010, REV.00		PO NO:			
BHELAT HEAVY		PACKAGE NAME:			
 ELECTRICALS LIMITED PROJECT ENGINEERING DIVISION	PACKAGE VENDOR :	DATE	PREP	CHKD	
	PROJECT :	VENDOR DOC.NO:			APPD
	CUSTOMER :				REV.
		SHEET 01 OF 02			

DATA SHEET FOR GLOBE VALVES										
1.	MATERIAL:	CARBON STEEL								
2.	RATING:	ANSI CLASS 600								
3.	SIZE RANGE:	2" to 12"								
4.	ENDS:	FLANGED TO B 16.5 RF 125 AARH (WITH CONCENTRIC/SPIRAL GROOVES)								
5.	Design Standard:	BS-1873								
6.	Testing Standard:	BS-6755 Part-I								
7.	Dimensional std.:	ANSI B 16.10								
8.	Pressure Temp. Rating:	ANSI B 16.34								
9.	Applicable Services:	HSD/Naphtha/Natural gas/Refinery gas, Flare, Instrument Air, Nitrogen gas,								
10.	Applicable Piping	31A								
TEMP.	-29	38	50	65	100	120	150	175	200	
PRESS.	104.1	104.1	98.46	91.4	64.61	49.3	38.6	29.68	17.6	

11. Material of Construction			
Sl. No.	Description	Construction	Material
a)	Body	Cast	ASTM A 216 WCB
b)	Bonnet	Bolted	ASTM A 216 WCB
c)	Stem	Rising	13% Chrome steel (No casting is acceptable)
d)	Disc	Lose plug type/Ball type	STELLITED
e)	Body seat ring	Renewable/Non-	STELLITED
f)	Stem packing	Renewable with valve open on stream	Graphite with Sacrificial corrosion inhibitor & inconel wire reinforcement
g)	Hand wheel	Rising	Malleable Iron/ Cast Steel / Fabricatd Steel of Ductile Iron (Strike off whichever is not applicable)
h)	Bonnet Bolts		ASTM A 193 B7
i)	Body Nuts		ASTM A 194 2 H
j)	Bonnet Gasket		Spiral Wound SS 316 – CAF Filler corrugated soft Iron.
k)	Back seat and shoulder		13% Chrome steel
l)	Gear & Integral Bypass	shall be provided for 200 mm and larger sizes	

TESTING/Inspection		Testing Fluid	Witness/Review	Remarks
Shell Test pressure	2225 PSIG	*	Witness	
High Pressure Closure test	1650 PSIG	*	Witness	
Low Pressure Closure test	1650 PSIG	Air/Inert Gas	Witness	
BOM check			Review	
MPI/DPI			Review if	
Radiography			Review	
Visual Check & Calibration			Review	
Hardness Test ASTM-E10			Review if applicable	
PMI (for SS & AS alloys)			NA	
IGC			NA	
Ultrasonic test for SS parts & Forged body			Review if applicable	
MILL certification			NA	
Fire Safe			NA	
Material test certificates			Review	


* For shell, High pressure backseat, and high pressure closure test, the test fluid shall be air, inert gas, or a non corrosive liquid with a viscosity not higher than that of water.

Only applicable for H2 services.

- Radiography procedure, areas of casting to be radio graphed and the acceptance criteria shall be as per ASME/ANSI B 16.34.
- All castings shall be radiographic quality castings.
- Minimum requirement of radiography examination for all materials is as follows:

Class	Size	Qty
150	26" & above	100%
300	18" & above	100%
600 and above	All	100%

VENDORS SIGNATURES WITH SEAL

BHEL FORMAT NO: PEMC-1011, REV.00		PO NO:			
 PROJECT ENGINEERING DIVISION		PACKAGE NAME:			
		PACKAGE VENDOR :	DATE	PREP	CHKD
		PROJECT :	VENDOR DOC.NO:		
		CUSTOMER :			REV.
		SHEET 01 OF 02			

DATA SHEET FOR GLOBE VALVES						
1.	MATERIAL: CARBON STEEL					
2.	RATING: ANSI CLASS 800					
3.	SIZE RANGE: 0.5" to 1.5"					
4.	ENDS: SW 3000# to B 16.11					
5.	Design Standard: BS-5352					
6.	Testing Standard: BS-EN 12266:2012					
7.	Dimensional std.: ANSI B 16.10					
8.	Pressure Temp. RANSI B 16.34					
9.	Applicable Serv: HSD/Naphtha/Natural gas/Refinery gas, Flare, Instrument Air, Nitrogen gas,					
10.	Applicable 11A, 21A, 31A					
TEMP	-29	38	93	149	204	
PRESS.	156.08	156.08	142.37	138.5	133.58	126.2

Material of Construction			
Sl. No.	Description	Construction	Material
a)	Body	Forged	ASTM A 105
b)	Bonnet	Bolted	ASTM A 105
c)	Stem	Rising	13% Chrome steel (No casting is acceptable)
d)	Wedge Disc	Loose plug type	Stellited
e)	Body seat	Renewable/Non renewable	Stellited
f)	Stem packing	Renewable with valve open on stream	Graphite with Sacrificial corrosion inhibitor & inconel wire reinforcement
g)	Hand wheel	Rising	Malleable Iron/ Cast Steel / Fabricatd Steel of Ductile Iron (Strike off whichever is not applicable)
h)	Bonnet Bolts		ASTM A 193 B7
i)	Body Nuts		ASTM A 194 2 H
j)	Bonnet Gasket		Spiral Wound SS 316 – Graphite Filler
k)	Back seat and shoulder	Integral	
k)	Gear & Integral Bypass arrangement	shall be provided for 200 mm and larger sizes	

Others				
TESTING/Inspection		Testing Fluid	Witness/Review	Remarks
Shell Test	2975 PSIG	*	Witness	
High Pressure Closure test	2175 PSIG	*	Witness	
Low Pressure Closure test	2175 PSIG	Air/Inert Gas	Witness	
BOM check			Review	
MPI/DPI			Review if applicable	
Radiography			Review	
Visual Check & Calibration			Review	
Hardness Test ASTM-E10			Review if applicable	
PMI (for SS & AS alloys)			NA	
IGC			NA	
Ultrasonic test for SS parts &			Review if applicable	
MILL			NA	
Fire Safe			NA	
Material test			Review	

NOTES:

* For shell, High pressure backseat, and high pressure closure test, the test fluid shall be air, inert gas, or a non corrosive liquid with a viscosity not higher than that of water.

Only applicable for H2 services.

All castings shall be radiographic quality castings.

- Minimum requirement of radiography examination for all materials is as follows:

Class	Size	Qty
150	26" & above	100%
300	18" & above	100%
600 and above	All	100%

SPECIAL REQUIREMENT:

NACE NA

Any other critical NA

VENDORS SIGNATURES WITH SEAL

BHEL FORMAT NO: PEMC-1012, REV.00		PACKAGE NAME:					
BHUAIKAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING		PACKAGE VENDOR:		DATE	PREP	CHKD	APPD
		PROJECT:		VENDOR DOC.NO:			REV.
		CUSTOMER:		SHEET 01 OF 02			

DATA SHEET FOR GOLBE VALVES

1. **MATERIAL:** STAINLESS STEEL
2. **RATING:** ANSI CLASS 150
3. **SIZE RANGE:** 2" to 16"
4. **ENDS:** FLANGED TO B 16.5 RF 125 AARH (WITH CONCENTRIC/SPIRAL GROOVES)

5. Design Standard: BS-1873
6. Testing Standard: BS-EN 12266:2012
7. Dimensional std.: ANSI B 16.10
8. Pressure Temp. Rating: ANSI B 16.34
9. Applicable Services: HSD/Naphtha/Natural gas/Refinery gas, Flare, Instrument Air, Nitrogen gas,
10. Applicable Piping Material Specification(PMS): 12A

TEM	-29	38	93	149	204	260
PRE	156	156.08	142.37	138.5	133.58	126.2

11. Material of Construction

Sl. No.	Description	Construction	Material
a)	Body	Cast	ASTM A 351 Gr CF8
b)	Bonnet	Bolted	ASTM A 351 Gr CF8
c)	Stem	Rising	SS 304 (No casting is acceptable)
d)	Disc	Loose plug type/Ball type	SS 304
e)	Body seat ring	Renewable/Non-renewable	SS 304
f)	Stem packing	Renewable with valve open on stream	Graphited Asbestos with Sacrificial corrosion inhibitor & inconel wire reinforcement
g)	Hand wheel	Rising	Malleable Iron/ Cast Steel / Fabricatd Steel of Ductile Iron (Strike off whichever is not applicable)
h)	Bonnet Bolts		ASTM A 193 B7
i)	Body Nuts		ASTM A 194 2 H
j)	Bonnet Gasket		Spiral Wound SS 316 – CAF Filler corrugated SS316
k)	Back seat and shoulder		SS 304
l)	Gear & Integral Bypass	shall be provided for 350 mm and larger sizes	

12 Others


a)	Type	OS& Y
b)	Requirement of gear opertion	
c)	Requirement of radiogrphy	1) As per Technical Notes for valves. 2) In addition , 10% valve castings shall undergo radiographic examination
d)	Bypass Valve Requirement	
e)	IGC Test	Required. For details refer to Technical Notes for valves.
f)	Hydrostatic test pressure:	Body- 425 PSIG Seat - 325 PSIG
g)	Test pressure with Air :	80 PSIG

NOTES:

1. This valve specification shall be read in conjunction with Technical requirements of valves vide clause no. 4.9.0 of Spcification.
2. All castings shall be solution heat treated.
3. Weld repairs if any shall be carried out before heat treatment.
4. All flanged valves shall have flanges integral with valve body.

☐ DEVIATION ☐ NO DEVIATION

VENDORS SIGNATURES WITH SEAL

✓ DEVIATION		✓ NO DEVIATION		VENDORS SIGNATURES WITH SEAL			
BHEL FORMAT NO: PEMC-1013, REV.00		PO NO:					
		PACKAGE NAME:					
		GAS CONDITIONING SYSTEM.					
 BHARAT HEAVY ELECTRICALS LIMITIED PROJECT ENGINEERING DIVISION RC PURAM - HYDERABAD -32	PACKAGE VENDOR :	DATE	PREP	CHKD	APPD		
	PROJECT :	VENDOR DOC.NO:			REV.		
	CUSTOMER :						
		SHEET 01 OF 02					

DATA SHEET FOR CHECK VALVES																		
1.	MATERIAL:	CARBON STEEL																
2.	RATING:	ANSI CLASS 150																
3.	SIZE RANGE:	2" to 24"																
4.	ENDS:	FLANGED TO B 16.5 RF 125 AARH (WITH CONCENTRIC/SPIRAL GROOVES)																
5.	Design Standard:	BS-1868																
6.	Testing Standard:	BS-EN 12266:2012																
7.	Dimensional std.:	ANSI B 16.10																
8.	Pressure Temp. Rating:	ANSI B 16.34																
9.	Applicable Services:	HSD/Naphtha/Natural gas/Refinery gas, Flare, Instrument Air, Nitrogen gas,																
10.	Applicable Piping Material Specification(PMS):	A1A																
TEMP.	-29	38	50	65	100	120	150	175	200									
PRESS.	20	19.992	19.584	19.2	17.93	17.2	16.12	15.22	7.03									
11. Material of Construction																		
Sl. No.	Description	Construction	Material															
a)	Body	Cast	ASTM A 216 WCB															
b)	Cover	Bolted	ASTM A 216 WCB															
c)	Disc		13% Chrome steel/13% Chrome steel facing.															
d)	Body seat ring	Renewable/Non-renewable	13% Chrome steel/13% Chrome steel facing.															
e)	Disc Hinge		13% Chrome steel/A216 WCB/A515 Gr. 70															
f)	Hinge pin		13% Chrome steel (No casting is acceptable)															
g)	Cover stud bolt		ASTM A 193 B7															
h)	Cover nut		ASTM A 194 2 H															
i)	Cover Gasket		Spiral Wound SS 316 – GRAPHITE FILLER															
j)	Washer nut pin		13% Chrome steel(No casting is acceptable)/SS 410/SS 304															
12 Others																		
TESTING/Inspection			Testing Fluid	Witness/Review	Remarks													
Shell Test pressure		425 PSIG	*	Witness														
High Pressure Closure test		315 PSIG	*	Witness														
Low Pressure Closure test		315 PSIG	Air/Inert Gas	Witness														
BOM check				Review														
MPI/DPI				Review if applicable														
Radiography				Review														
Visual Check & Calibration				Review														
Hardness Test ASTM-E10				Review if applicable														
PMI (for SS & AS alloys)				NA														
IGC				NA														
Ultrasonic test for SS parts & Forged body				Review if applicable														
MILL certification				NA														
Fire Safe				NA														
Material test				Review														
<p>NOTES:</p> <p>* For shell, High pressure backseat, and high pressure closure test, the test fluid shall be air, inert gas, or a non corrosive liquid with a viscosity not higher than that of water.</p> <p># Only applicable for H2 services.</p> <p>• Radiography procedure, areas of casting to be radio graphed and the acceptance criteria shall be as per ASME/ANSI B 16.34. All castings shall be radiographic quality castings.</p> <p>• Minimum requirement of radiography examination for all materials is as follows:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Class</td> <td style="width: 33%;">Size</td> <td style="width: 33%;">Qty</td> </tr> <tr> <td>150</td> <td>26" & above</td> <td>100%</td> </tr> <tr> <td>300</td> <td>18" & above</td> <td>100%</td> </tr> </table> <p>SPECIAL REQUIREMENT:</p> <p>NACE NA</p> <p>Any other critical service NA</p>										Class	Size	Qty	150	26" & above	100%	300	18" & above	100%
Class	Size	Qty																
150	26" & above	100%																
300	18" & above	100%																
<input type="checkbox"/> DEVIATION <input type="checkbox"/> NO DEVIATION			VENDORS SIGNATURES WITH SEAL															
BHEL FORMAT NO: PEMC-1017, REV.00 BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING DIVISION RC PURAM - HYDERABAD -32			PO NO:															
			PACKAGE NAME: GAS CONDITIONING SYSTEM.															
			PACKAGE VENDOR :		DATE	PREP	CHKD	APPD										
			PROJECT :		VENDOR DOC.NO:													
			CUSTOMER :		REV.													
SHEET 01 OF 01																		

DATA SHEET FOR CHECK VALVES	
-----------------------------	--

1.	MATERIAL:	CARBON STEEL								
2.	RATING:	ANSI CLASS 300								
3.	SIZE RANGE:	2" to 24"								
4.	ENDS:	FLANGED TO B 16.5 RF 125 AARH (WITH CONCENTRIC/SPIRAL GROOVES)								
5.	Design Standard:	BS-1868								
6.	Testing Standard:	BS-EN 12266:2012								
7.	Dimensional std.:	ANSI B 16.10								
8.	Pressure Temp. Rating:	ANSI B 16.34								
9.	Applicable Services:	HSD/Naphtha/Natural gas/Refinery gas, Flare, Instrument Air, Nitrogen gas,								
10.	Applicable Piping Material Specification(PMS):	21A								
TEMP.	-29	38	50	65	100	120	150	175	200	
PRESS.	52	52	51.02	49.8	41.85	37.3	27.4	19.15	7.03	

11.	Material of Construction
-----	---------------------------------

Sl. No.	Description	Construction	Material
a)	Body	Cast	ASTM A 216 WCB
b)	Cover	Bolted	ASTM A 216 WCB
c)	Disc		13% Chrome steel/13% Chrome steel facing.
d)	Body seat ring	Renewable/Non-renewable	13% Chrome steel/13% Chrome steel facing.
e)	Disc Hinge		13% Chrome steel/A216 WCB/A515 Gr. 70
f)	Hinge pin		13% Chrome steel (No casting is acceptable)
g)	Cover stud bolt		ASTM A 193 B7
h)	Cover nut		ASTM A 194 2 H
i)	Cover Gasket		Spiral Wound SS 316 – GRAPHITE FILLER
j)	Washer nut pin		13% Chrome steel(No casting is acceptable)/SS 410/SS 304

12	Others
----	--------

TESTING/Inspection		Testing Fluid	Witness/Review	Remarks
Shell Test pressure	1125 PSIG	*	Witness	
High Pressure Closure test	825 PSIG	*	Witness	
Low Pressure Closure test	825 PSIG	Air/Inert Gas	Witness	
BOM check			Review	
MPI/DPI			Review if applicable	
Radiography			Review	
Visual Check & Calibration			Review	
Hardness Test ASTM-E10			Review if applicable	
PMI (for SS & AS alloys)			NA	
IGC			NA	
Ultrasonic test for SS parts & Forged body			Review if applicable	
MILL certification			NA	
Fire Safe			NA	
Material test certificates			Review	

NOTES:

* For shell, High pressure backseat, and high pressure closure test, the test fluid shall be air, inert gas, or a non corrosive liquid with a viscosity not higher than that of water.

Only applicable for H2 services.

- Minimum requirement of radiography examination for all materials is as follows:

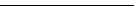
Class	Size	Qty
150	26" & above	100%
300	18" & above	100%
600 and above	All	100%

SPECIAL REQUIREMENT:

NACE	NA
Any other critical service	NA

☐ DEVIATION ☐ NO DEVIATION VENDORS SIGNATURES WITH SEAL

VENDORS SIGNATURES WITH SEAL

		PO NO:					
BHEL FORMAT NO: PEMC-1017, REV.00		PACKAGE NAME: GAS CONDITIONING SYSTEM.					
	BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING DIVISION RC PURAM - HYDERABAD -32	PACKAGE VENDOR :	DATE	PREP	CHKD	APPD	
		PROJECT :	VENDOR DOC.NO:				REV.
		CUSTOMER :					
			SHEET 01 OF 01				

DATA SHEET FOR CHECK VALVES																			
1.	MATERIAL:	CARBON STEEL																	
2.	RATING:	ANSI CLASS 600																	
3.	SIZE RANGE:	2" to 24"																	
4.	ENDS:	FLANGED TO B 16.5 RF 125 AARH (WITH CONCENTRIC/SPIRAL GROOVES)																	
5.	Design Standard:	BS-1868																	
6.	Testing Standard:	BS-EN 12266:2012																	
7.	Dimensional std.:	ANSI B 16.10																	
8.	Pressure Temp. Rating:	ANSI B 16.34																	
9.	Applicable Services:	HSD/Naphtha/Natural gas/Refinery gas, Flare, Instrument Air, Nitrogen gas,																	
10.	Applicable Piping Material Specification(PMS):	31A																	
TEMP.	-29	38	50	65	100	120	150	175	200										
PRESS.	104	104.1	98.46	91.4	64.61	49.3	38.6	29.68	17.6										
11. Material of Construction																			
	Sl. No.	Description	Construction	Material															
	a)	Body	Cast	ASTM A 216 WCB															
	b)	Cover	Bolted	ASTM A 216 WCB															
	c)	Disc		STELLITED															
	d)	Body seat ring	Renewable/Non-renewable	STELLITED															
	e)	Disc Hinge		13% Chrome steel/A216 WCB															
	f)	Hinge pin		13% Chrome steel (No casting is acceptable)															
	g)	Cover stud bolt		ASTM A 193 B7															
	h)	Cover nut		ASTM A 194 2 H															
	i)	Cover Gasket		Spiral Wound SS 316 – GRAPHITE FILLER															
	j)	Washer nut pin		13% Chrome steel(No casting is acceptable)/SS 410/SS 304															
12. Others																			
	TESTING/Inspection			Testing Fluid	Witness/Review	Remarks													
	Shell Test pressure		2225 PSIG	*	Witness														
	High Pressure Closure test		1650 PSIG	*	Witness														
	Low Pressure Closure test		1650 PSIG	Air/Inert Gas	Witness														
	BOM check				Review														
	MPI/DPI				Review if														
	Radiography				Review														
	Visual Check & Calibration				Review														
	Hardness Test ASTM-E10				Review if applicable														
	PMI (for SS & AS alloys)				NA														
	IGC				NA														
	Ultrasonic test for SS parts & Forged body				Review if applicable														
	MILL certification				NA														
	Fire Safe				NA														
	Material test certificates				Review														
NOTES:																			
<p>* For shell, High pressure backseat, and high pressure closure test, the test fluid shall be air, inert gas, or a non corrosive liquid with a viscosity not higher than that of water.</p> <p># Only applicable for H2 services.</p> <p>• Radiography procedure, areas of casting to be radio graphed and the acceptance criteria shall be as per ASME/ANSI B 16.34. All castings shall be radiographic quality castings.</p> <p>• Minimum requirement of radiography examination for all materials is as follows:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Class</td> <td style="width: 33%;">Size</td> <td style="width: 33%;">Qty</td> </tr> <tr> <td>150</td> <td>26" & above</td> <td>100%</td> </tr> <tr> <td>300</td> <td>18" & above</td> <td>100%</td> </tr> </table> <p>SPECIAL REQUIREMENT:</p> <p>NACE NA</p> <p>Any other critical service NA</p>											Class	Size	Qty	150	26" & above	100%	300	18" & above	100%
Class	Size	Qty																	
150	26" & above	100%																	
300	18" & above	100%																	
<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> DEVIATION <input type="checkbox"/> NO DEVIATION </div> <div>VENDORS SIGNATURES WITH SEAL</div> </div>																			
BHEL FORMAT NO: PEMC-1017, REV.00 BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING DIVISION RC PURAM - HYDERABAD -32				PO NO:															
				PACKAGE NAME: GAS CONDITIONING SYSTEM.															
PACKAGE VENDOR : PROJECT : CUSTOMER :				DATE		PREP		CHKD		APPD									
				VENDOR DOC.NO:				REV.											
SHEET 01 OF 02																			

DATA SHEET FOR CHECK VALVES							
1.	MATERIAL:	CARBON STEEL					
2.	RATING:	ANSI CLASS 800					
3.	SIZE RANGE:	0.5" to 1.5"					
4.	ENDS:	SW 3000# to B 16.11					
5.	Design Standard:	BS-1868					
6.	Testing Standard:	BS-EN 12266:2012					
7.	Dimensional std.:	ANSI B 16.10					
8.	Pressure Temp. Rating:	ANSI B 16.34					
9.	Applicable Services:	HSD/Naphtha/Natural gas/Refinery gas, Flare, Instrument Air, Nitrogen gas,					
10.	Applicable Piping						
TEMP	-29	38	93	149	204	260	BEYOND 200 DEG CEN.
PRESS.	156.08	156.08	142.37	138.5	133.58	126.2	DO NOT USE
11.	Material of Construction						
	Sl. No.	Description	Construction	Material			
	a)	Body	Forged	ASTM A 105			
	b)	Cover	Bolted	ASTM A 105			
	c)	Disc Piston		Stellited			
	d)	Body seat ring	Renewable/Non-	Stellited			
	e)	DiscHinge/ Hinge pin					
	g)	Cover stud bolt		ASTM A 193 B7			
	h)	Cover nut		ASTM A 194 2 H			
	i)	Cover Gasket		Spiral Wound SS 316 – CAF Filler corrugated soft			
	j)	Washer nut pin					
12	Others						
	TESTING/Inspection		Testing Fluid	Witness/Review	Remarks		
	Shell Test pressure	2975 PSIG	*	Witness			
	High Pressure Closure	2175 PSIG	*	Witness			
	Low Pressure Closure test	2175 PSIG	Air/Inert Gas	Witness			
	BOM check			Review			
	MPI/DPI			Review if applicable			
	Radiography			Review			
	Visual Check & Calibration			Review			
	Hardness Test ASTM- E10			Review if applicable			
	PMI (for SS & AS			NA			
	IGC			NA			
	Ultrasonic test for SS parts & Forged body			Review if applicable			
	MILL certification			NA			
	Fire Safe			NA			
	Material test			Review			
NOTES:							
* For shell, High pressure backseat, and high pressure closure test, the test fluid shall be air, inert gas, or a non corrosive liquid with a viscosity not higher than that of water.							
# Only applicable for H2 services.							
All castings shall be radiographic quality castings.							
• Minimum requirement of radiography examination for all materials is as follows:							
Class	Size	Qty					
150	26" & above	100%					
300	18" & above	100%					
600 and above	All	100%					
SPECIAL REQUIREMENT:							
NACE	NA						
Any other critical serviceNA							
<input type="checkbox"/> DEVIATION <input type="checkbox"/> NO DEVIATION VENDORS SIGNATURES WITH SEAL							
		PO NO:					
BHEL FORMAT NO: PEMC-1020, REV.00		PACKAGE NAME:					
DEVIATION		PACKAGE VENDOR :	DATE	PREP	CHKD	APPD	
ELECTRICALS LIMITED		PROJECT :	VENDOR DOC.NO:		REV.		
PROJECT ENGINEERING		CUSTOMER :					
DIVISION		SHEET 01 OF 02					

DATA SHEET FOR CHECK VALVES																																																																			
1.	MATERIAL:	CARBON STEEL																																																																	
2.	RATING:	ANSI CLASS 1500																																																																	
3.	SIZE RANGE:	2" to 24"																																																																	
4.	ENDS:	FLANGED TO B 16.5 RF 125 AARH (WITH CONCENTRIC/SPIRAL GROOVES)																																																																	
5.	Design Standard:	BS-1868																																																																	
6.	Testing Standard:	BS-EN 12266:2012																																																																	
7.	Dimensional std.:	ANSI B 16.10																																																																	
8.	Pressure Temp. Rating:	ANSI B 16.34																																																																	
9.	Applicable Services:	HSD/Naphtha/Natural gas/Refinery gas, Flare, Instrument Air, Nitrogen gas,																																																																	
10.	Applicable Piping Material Specification(PMS):	51A																																																																	
TEMP							DEG CEN.																																																												
PRESS.							DO NOT USE																																																												
11. Material of Construction																																																																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">Sl. No.</th> <th style="width: 20%;">Description</th> <th style="width: 30%;">Construction</th> <th style="width: 45%;">Material</th> </tr> </thead> <tbody> <tr> <td>a)</td> <td>Body</td> <td>Cast</td> <td>ASTM A 216 WCB</td> </tr> <tr> <td>b)</td> <td>Cover</td> <td>Bolted</td> <td>ASTM A 216 WCB</td> </tr> <tr> <td>c)</td> <td>Disc</td> <td></td> <td>13% Chrome steel/13% Chrome steel facing.</td> </tr> <tr> <td>d)</td> <td>Body seat ring</td> <td>Renewable/Non-renewable</td> <td>13% Chrome steel/13% Chrome steel facing.</td> </tr> <tr> <td>e)</td> <td>Disc Hinge</td> <td></td> <td>13% Chrome steel/A216 WCB/A515 Gr. 70</td> </tr> <tr> <td>f)</td> <td>Hinge pin</td> <td></td> <td>13% Chrome steel (No casting is acceptable)</td> </tr> <tr> <td>g)</td> <td>Cover stud bolt</td> <td></td> <td>ASTM A 193 B7</td> </tr> <tr> <td>h)</td> <td>Cover nut</td> <td></td> <td>ASTM A 194 2 H</td> </tr> <tr> <td>i)</td> <td>Cover Gasket</td> <td></td> <td>Spiral Wound SS 316 – GRAPHITE FILLER</td> </tr> <tr> <td>j)</td> <td>Washer nut pin</td> <td></td> <td>13% Chrome steel(No casting is acceptable)/SS 410/SS 304</td> </tr> </tbody> </table>								Sl. No.	Description	Construction	Material	a)	Body	Cast	ASTM A 216 WCB	b)	Cover	Bolted	ASTM A 216 WCB	c)	Disc		13% Chrome steel/13% Chrome steel facing.	d)	Body seat ring	Renewable/Non-renewable	13% Chrome steel/13% Chrome steel facing.	e)	Disc Hinge		13% Chrome steel/A216 WCB/A515 Gr. 70	f)	Hinge pin		13% Chrome steel (No casting is acceptable)	g)	Cover stud bolt		ASTM A 193 B7	h)	Cover nut		ASTM A 194 2 H	i)	Cover Gasket		Spiral Wound SS 316 – GRAPHITE FILLER	j)	Washer nut pin		13% Chrome steel (No casting is acceptable) /SS 410/SS 304																
Sl. No.	Description	Construction	Material																																																																
a)	Body	Cast	ASTM A 216 WCB																																																																
b)	Cover	Bolted	ASTM A 216 WCB																																																																
c)	Disc		13% Chrome steel/13% Chrome steel facing.																																																																
d)	Body seat ring	Renewable/Non-renewable	13% Chrome steel/13% Chrome steel facing.																																																																
e)	Disc Hinge		13% Chrome steel/A216 WCB/A515 Gr. 70																																																																
f)	Hinge pin		13% Chrome steel (No casting is acceptable)																																																																
g)	Cover stud bolt		ASTM A 193 B7																																																																
h)	Cover nut		ASTM A 194 2 H																																																																
i)	Cover Gasket		Spiral Wound SS 316 – GRAPHITE FILLER																																																																
j)	Washer nut pin		13% Chrome steel (No casting is acceptable) /SS 410/SS 304																																																																
12. Others																																																																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">TESTING/Inspection</th> <th style="width: 15%;">Testing Fluid</th> <th style="width: 20%;">Witness/Review</th> <th style="width: 45%;">Remarks</th> </tr> </thead> <tbody> <tr> <td>Shell Test pressure</td> <td>2975 PSIG</td> <td>*</td> <td>Witness</td> </tr> <tr> <td>High Pressure Closure test</td> <td>2175 PSIG</td> <td>*</td> <td>Witness</td> </tr> <tr> <td>Low Pressure Closure test</td> <td>2175 PSIG</td> <td>Air/Inert Gas</td> <td>Witness</td> </tr> <tr> <td>BOM check</td> <td></td> <td>Review</td> <td></td> </tr> <tr> <td>MPI/DPI</td> <td></td> <td>Review if applicable</td> <td></td> </tr> <tr> <td>Radiography</td> <td></td> <td>Review</td> <td></td> </tr> <tr> <td>Visual Check & Calibration</td> <td></td> <td>Review</td> <td></td> </tr> <tr> <td>Hardness Test ASTM-E10</td> <td></td> <td>Review if applicable</td> <td></td> </tr> <tr> <td>PMI (for SS & AS alloys)</td> <td></td> <td>NA</td> <td></td> </tr> <tr> <td>IGC</td> <td></td> <td>NA</td> <td></td> </tr> <tr> <td>Ultrasonic test for SS parts & Forged body</td> <td></td> <td>Review if applicable</td> <td></td> </tr> <tr> <td>MILL certification</td> <td></td> <td>NA</td> <td></td> </tr> <tr> <td>Fire Safe</td> <td></td> <td>NA</td> <td></td> </tr> <tr> <td>Material test</td> <td></td> <td>Review</td> <td></td> </tr> </tbody> </table>								TESTING/Inspection	Testing Fluid	Witness/Review	Remarks	Shell Test pressure	2975 PSIG	*	Witness	High Pressure Closure test	2175 PSIG	*	Witness	Low Pressure Closure test	2175 PSIG	Air/Inert Gas	Witness	BOM check		Review		MPI/DPI		Review if applicable		Radiography		Review		Visual Check & Calibration		Review		Hardness Test ASTM-E10		Review if applicable		PMI (for SS & AS alloys)		NA		IGC		NA		Ultrasonic test for SS parts & Forged body		Review if applicable		MILL certification		NA		Fire Safe		NA		Material test		Review	
TESTING/Inspection	Testing Fluid	Witness/Review	Remarks																																																																
Shell Test pressure	2975 PSIG	*	Witness																																																																
High Pressure Closure test	2175 PSIG	*	Witness																																																																
Low Pressure Closure test	2175 PSIG	Air/Inert Gas	Witness																																																																
BOM check		Review																																																																	
MPI/DPI		Review if applicable																																																																	
Radiography		Review																																																																	
Visual Check & Calibration		Review																																																																	
Hardness Test ASTM-E10		Review if applicable																																																																	
PMI (for SS & AS alloys)		NA																																																																	
IGC		NA																																																																	
Ultrasonic test for SS parts & Forged body		Review if applicable																																																																	
MILL certification		NA																																																																	
Fire Safe		NA																																																																	
Material test		Review																																																																	
NOTES:																																																																			
<p>* For shell, High pressure backseat, and high pressure closure test, the test fluid shall be air, inert gas, or a non corrosive liquid with a viscosity not higher than that of water.</p> <p># Only applicable for H2 services.</p> <p>• Radiography procedure, areas of casting to be radio graphed and the acceptance criteria shall be as per ASME/ANSI B 16.34. All castings shall be radiographic quality castings.</p> <p>• Minimum requirement of radiography examination for all materials is as follows:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Class</td> <td style="width: 30%;">Size</td> <td style="width: 40%;">Qty</td> </tr> <tr> <td>150</td> <td>26" & above</td> <td>100%</td> </tr> <tr> <td>300</td> <td>18" & above</td> <td>100%</td> </tr> </table> <p>SPECIAL REQUIREMENT:</p> <p>NACE NA</p> <p>Any other critical service NA</p>								Class	Size	Qty	150	26" & above	100%	300	18" & above	100%																																																			
Class	Size	Qty																																																																	
150	26" & above	100%																																																																	
300	18" & above	100%																																																																	
<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> DEVIATION <input type="checkbox"/> NO DEVIATION </div> <div>VENDORS SIGNATURES WITH SEAL</div> </div>																																																																			
BHEL FORMAT NO: PEMC-1017, REV.00		PO NO:		PACKAGE NAME:		GAS CONDITIONING SYSTEM.																																																													
<div style="text-align: center;"> BHARAT HEAVY ELECTRICALS LIMITED PROJECT ENGINEERING DIVISION RC PURAM - HYDERABAD -32 </div>		PACKAGE VENDOR :		DATE	PREP	CHKD	APPD																																																												
		PROJECT :		VENDOR DOC.NO:																																																															
		CUSTOMER :		REV.																																																															
SHEET 01 OF 02																																																																			

DATA SHEET FOR CHECK VALVES																																																																																		
1.	MATERIAL:	STAINLESS STEEL																																																																																
2.	RATING:	ANSI CLASS 150																																																																																
3.	SIZE RANGE:	2" to 24"																																																																																
4.	ENDS:	FLANGED TO B 16.5 RF 125 AARH (WITH CONCENTRIC/SPIRAL GROOVES)																																																																																
5.	Design Standard:	BS-1868																																																																																
6.	Testing Standard:	BS-EN 12266:2012																																																																																
7.	Dimensional std.:	ANSI B 16.10																																																																																
8.	Pressure Temp. Rating	ANSI B 16.34																																																																																
9.	Applicable Services:	HSD/Naphtha/Natural gas/Refinery gas, Flare, Instrument Air, Nitrogen gas,																																																																																
10.	Applicable Piping	12A																																																																																
		BEYOND 200 DEG CEN.																																																																																
TEMP	-29	38	93	149	204	260																																																																												
PRESS.	156.08	156.08	142.37	138.5	133.58	126.2	DO NOT USE																																																																											
11. Material of Construction <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Sl. No.</th> <th>Description</th> <th>Construction</th> <th>Material</th> </tr> </thead> <tbody> <tr> <td>a)</td> <td>Body</td> <td>Cast</td> <td>ASTM A 351 Gr CF8</td> </tr> <tr> <td>b)</td> <td>Cover</td> <td>Bolted</td> <td>ASTM A 351 Gr CF8</td> </tr> <tr> <td>d)</td> <td>Disc</td> <td></td> <td>SS 304</td> </tr> <tr> <td>e)</td> <td>Body seat</td> <td>Renewable/Non-</td> <td>SS 304</td> </tr> <tr> <td>f)</td> <td>Disc Hinge</td> <td></td> <td>SS 304</td> </tr> <tr> <td>g)</td> <td>Hinge pin</td> <td></td> <td>SS 304 (No casting is acceptable)</td> </tr> <tr> <td>h)</td> <td>Cover stud bolt</td> <td></td> <td>ASTM A 193 B7</td> </tr> <tr> <td>i)</td> <td>Cover Nut</td> <td></td> <td>ASTM A 194 2 H</td> </tr> <tr> <td>j)</td> <td>Cover</td> <td></td> <td>Spiral Wound SS 316 – Graphite Filler corrugated SS316</td> </tr> <tr> <td>k)</td> <td>Washer Nut Pin</td> <td></td> <td>SS 304 (No casting is acceptable)</td> </tr> </tbody> </table>								Sl. No.	Description	Construction	Material	a)	Body	Cast	ASTM A 351 Gr CF8	b)	Cover	Bolted	ASTM A 351 Gr CF8	d)	Disc		SS 304	e)	Body seat	Renewable/Non-	SS 304	f)	Disc Hinge		SS 304	g)	Hinge pin		SS 304 (No casting is acceptable)	h)	Cover stud bolt		ASTM A 193 B7	i)	Cover Nut		ASTM A 194 2 H	j)	Cover		Spiral Wound SS 316 – Graphite Filler corrugated SS316	k)	Washer Nut Pin		SS 304 (No casting is acceptable)																															
Sl. No.	Description	Construction	Material																																																																															
a)	Body	Cast	ASTM A 351 Gr CF8																																																																															
b)	Cover	Bolted	ASTM A 351 Gr CF8																																																																															
d)	Disc		SS 304																																																																															
e)	Body seat	Renewable/Non-	SS 304																																																																															
f)	Disc Hinge		SS 304																																																																															
g)	Hinge pin		SS 304 (No casting is acceptable)																																																																															
h)	Cover stud bolt		ASTM A 193 B7																																																																															
i)	Cover Nut		ASTM A 194 2 H																																																																															
j)	Cover		Spiral Wound SS 316 – Graphite Filler corrugated SS316																																																																															
k)	Washer Nut Pin		SS 304 (No casting is acceptable)																																																																															
12. Others <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>TESTING/Inspection</th> <th></th> <th>Testing Fluid</th> <th>Witness/Review</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>Shell Test pressure</td> <td>425 PSIG</td> <td>*</td> <td>Witness</td> <td></td> </tr> <tr> <td>High Pressure</td> <td>315 PSIG</td> <td>*</td> <td>Witness</td> <td></td> </tr> <tr> <td>Low Pressure Closure</td> <td>315 PSIG</td> <td>Air/Inert Gas</td> <td>Witness</td> <td></td> </tr> <tr> <td>BOM check</td> <td></td> <td></td> <td>Review</td> <td></td> </tr> <tr> <td>MPI/DPI</td> <td></td> <td></td> <td>Review if applicable</td> <td></td> </tr> <tr> <td>Radiography</td> <td></td> <td></td> <td>Review</td> <td></td> </tr> <tr> <td>Visual Check &</td> <td></td> <td></td> <td>Review</td> <td></td> </tr> <tr> <td>Hardness Test ASTM-E10</td> <td></td> <td></td> <td>Review if applicable</td> <td></td> </tr> <tr> <td>PMI (for SS & AS</td> <td></td> <td></td> <td>NA</td> <td></td> </tr> <tr> <td>IGC</td> <td></td> <td></td> <td>NA</td> <td></td> </tr> <tr> <td>Ultrasonic test for SS parts & Forged body</td> <td></td> <td></td> <td>Review if applicable</td> <td></td> </tr> <tr> <td>MILL certification</td> <td></td> <td></td> <td>Review if applicable</td> <td></td> </tr> <tr> <td>Fire Safe</td> <td></td> <td></td> <td>NA</td> <td></td> </tr> <tr> <td>Material test</td> <td></td> <td></td> <td>Review</td> <td></td> </tr> </tbody> </table>								TESTING/Inspection		Testing Fluid	Witness/Review	Remarks	Shell Test pressure	425 PSIG	*	Witness		High Pressure	315 PSIG	*	Witness		Low Pressure Closure	315 PSIG	Air/Inert Gas	Witness		BOM check			Review		MPI/DPI			Review if applicable		Radiography			Review		Visual Check &			Review		Hardness Test ASTM-E10			Review if applicable		PMI (for SS & AS			NA		IGC			NA		Ultrasonic test for SS parts & Forged body			Review if applicable		MILL certification			Review if applicable		Fire Safe			NA		Material test			Review	
TESTING/Inspection		Testing Fluid	Witness/Review	Remarks																																																																														
Shell Test pressure	425 PSIG	*	Witness																																																																															
High Pressure	315 PSIG	*	Witness																																																																															
Low Pressure Closure	315 PSIG	Air/Inert Gas	Witness																																																																															
BOM check			Review																																																																															
MPI/DPI			Review if applicable																																																																															
Radiography			Review																																																																															
Visual Check &			Review																																																																															
Hardness Test ASTM-E10			Review if applicable																																																																															
PMI (for SS & AS			NA																																																																															
IGC			NA																																																																															
Ultrasonic test for SS parts & Forged body			Review if applicable																																																																															
MILL certification			Review if applicable																																																																															
Fire Safe			NA																																																																															
Material test			Review																																																																															
NOTES: <ul style="list-style-type: none"> * For shell, High pressure backseat, and high pressure closure test, the test fluid shall be air, inert gas, or a non corrosive liquid with a viscosity not higher than that of water. # Only applicable for H2 services. • Radiography procedure, areas of casting to be radio graphed and the acceptance criteria shall be as per ASME/ANSI B 16.34. All castings shall be radiographic quality castings. • Minimum requirement of radiography examination for all materials is as follows: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Class</td> <td style="width: 33%;">Size</td> <td style="width: 33%;">Qty</td> </tr> <tr> <td>150</td> <td>26" & above</td> <td>100%</td> </tr> <tr> <td>300</td> <td>18" & above</td> <td>100%</td> </tr> <tr> <td>600 and above</td> <td>All</td> <td>100%</td> </tr> </table> <p>SPECIAL REQUIREMENT:</p> <p>NACE NA</p> <p>Any other critical serviNA</p> <p><input type="checkbox"/> DEVIATION <input type="checkbox"/> NO DEVIATION</p>								Class	Size	Qty	150	26" & above	100%	300	18" & above	100%	600 and above	All	100%																																																															
Class	Size	Qty																																																																																
150	26" & above	100%																																																																																
300	18" & above	100%																																																																																
600 and above	All	100%																																																																																
BHEL FORMAT NO: PEMC-1021, REV.00 ELECTRICALS LIMITED PROJECT ENGINEERING DIVISION		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">PO NO:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="2">PACKAGE NAME:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="2">PACKAGE VENDOR :</td> <td>DATE</td> <td>PREP</td> <td>CHKD</td> <td>APPD</td> </tr> <tr> <td colspan="2">PROJECT :</td> <td colspan="2">VENDOR DOC.NO:</td> <td colspan="2">REV.</td> </tr> <tr> <td colspan="2">CUSTOMER :</td> <td colspan="4"></td> </tr> <tr> <td colspan="6" style="text-align: center;">SHEET 01 OF 02</td> </tr> </table>						PO NO:						PACKAGE NAME:						PACKAGE VENDOR :		DATE	PREP	CHKD	APPD	PROJECT :		VENDOR DOC.NO:		REV.		CUSTOMER :						SHEET 01 OF 02																																												
PO NO:																																																																																		
PACKAGE NAME:																																																																																		
PACKAGE VENDOR :		DATE	PREP	CHKD	APPD																																																																													
PROJECT :		VENDOR DOC.NO:		REV.																																																																														
CUSTOMER :																																																																																		
SHEET 01 OF 02																																																																																		

DATA SHEET FOR CHECK VALVES																																																																																					
1.	MATERIAL:	STAINLESS STEEL																																																																																			
2.	RATING:	ANSI CLASS 300																																																																																			
3.	SIZE RANGE:	2" to 24"																																																																																			
4.	ENDS:	FLANGED TO B 16.5 RF 125 AARH (WITH CONCENTRIC/SPIRAL																																																																																			
5.	Design Standard:	BS-1868																																																																																			
6.	Testing Standard:	BS-EN 12266:2012																																																																																			
7.	Dimensional std.:	ANSI B 16.10																																																																																			
8.	Pressure Temp. Rating:	ANSI B 16.34																																																																																			
9.	Applicable Services:	HSD/Naphtha/Natural gas/Refinery gas, Flare, Instrument Air, Nitrogen gas,																																																																																			
10.	Applicable Piping	22A																																																																																			
TEMP.	-29	38	50	65	100	120	150	175	200	BEYOND 200 DEG CEN.																																																																											
PRESS.	52	52	51.02	49.8	41.85	37.3	27.4	19.15	7.03	DO NOT USE																																																																											
11. Material of Construction <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th style="width: 5%;">Sl. No.</th> <th style="width: 20%;">Description</th> <th style="width: 20%;">Construction</th> <th style="width: 55%;">Material</th> </tr> </thead> <tbody> <tr><td>a)</td><td>Body</td><td>Cast</td><td>ASTM A 351 Gr CF8</td></tr> <tr><td>b)</td><td>Cover</td><td>Bolted</td><td>ASTM A 351 Gr CF8</td></tr> <tr><td>d)</td><td>Disc</td><td></td><td>SS 304</td></tr> <tr><td>e)</td><td>Body seat ring</td><td>Renewable/Non-</td><td>SS 304</td></tr> <tr><td>f)</td><td>Disc Hinge</td><td></td><td>SS 304</td></tr> <tr><td>g)</td><td>Hinge pin</td><td></td><td>SS 304 (No casting is acceptable)</td></tr> <tr><td>h)</td><td>Cover stud bolt</td><td></td><td>ASTM A 193 B7</td></tr> <tr><td>i)</td><td>Cover Nut</td><td></td><td>ASTM A 194 2 H</td></tr> <tr><td>j)</td><td>Cover Gasket</td><td></td><td>Spiral Wound SS 316 – Graphite Filler corrugated</td></tr> <tr><td>k)</td><td>Washer Nut</td><td></td><td>SS 304 (No casting is acceptable)</td></tr> </tbody> </table>											Sl. No.	Description	Construction	Material	a)	Body	Cast	ASTM A 351 Gr CF8	b)	Cover	Bolted	ASTM A 351 Gr CF8	d)	Disc		SS 304	e)	Body seat ring	Renewable/Non-	SS 304	f)	Disc Hinge		SS 304	g)	Hinge pin		SS 304 (No casting is acceptable)	h)	Cover stud bolt		ASTM A 193 B7	i)	Cover Nut		ASTM A 194 2 H	j)	Cover Gasket		Spiral Wound SS 316 – Graphite Filler corrugated	k)	Washer Nut		SS 304 (No casting is acceptable)																															
Sl. No.	Description	Construction	Material																																																																																		
a)	Body	Cast	ASTM A 351 Gr CF8																																																																																		
b)	Cover	Bolted	ASTM A 351 Gr CF8																																																																																		
d)	Disc		SS 304																																																																																		
e)	Body seat ring	Renewable/Non-	SS 304																																																																																		
f)	Disc Hinge		SS 304																																																																																		
g)	Hinge pin		SS 304 (No casting is acceptable)																																																																																		
h)	Cover stud bolt		ASTM A 193 B7																																																																																		
i)	Cover Nut		ASTM A 194 2 H																																																																																		
j)	Cover Gasket		Spiral Wound SS 316 – Graphite Filler corrugated																																																																																		
k)	Washer Nut		SS 304 (No casting is acceptable)																																																																																		
12. Others <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th style="width: 20%;">TESTING/Inspection</th> <th style="width: 10%;"></th> <th style="width: 10%;">Testing Fluid</th> <th style="width: 15%;">Witness/Review</th> <th style="width: 45%;">Remarks</th> </tr> </thead> <tbody> <tr><td>Shell Test pressure</td><td>1125 PSIG</td><td>*</td><td>Witness</td><td></td></tr> <tr><td>High Pressure Closure test</td><td>825 PSIG</td><td>*</td><td>Witness</td><td></td></tr> <tr><td>Low Pressure Closure test</td><td>825 PSIG</td><td>Air/Inert Gas</td><td>Witness</td><td></td></tr> <tr><td>BOM check</td><td></td><td></td><td>Review</td><td></td></tr> <tr><td>MPI/DPI</td><td></td><td></td><td>Review if</td><td></td></tr> <tr><td>Radiography</td><td></td><td></td><td>Review</td><td></td></tr> <tr><td>Visual Check & Calibration</td><td></td><td></td><td>Review</td><td></td></tr> <tr><td>Hardness Test ASTM-E10</td><td></td><td></td><td>Review if applicable</td><td></td></tr> <tr><td>PMI (for SS & AS alloys)</td><td></td><td></td><td>NA</td><td></td></tr> <tr><td>IGC</td><td></td><td></td><td>NA</td><td></td></tr> <tr><td>Ultrasonic test for SS parts & Forged body</td><td></td><td></td><td>Review if applicable</td><td></td></tr> <tr><td>MILL certification</td><td></td><td></td><td>Review if applicable</td><td></td></tr> <tr><td>Fire Safe</td><td></td><td></td><td>NA</td><td></td></tr> <tr><td>Material test</td><td></td><td></td><td>Review</td><td></td></tr> </tbody> </table>											TESTING/Inspection		Testing Fluid	Witness/Review	Remarks	Shell Test pressure	1125 PSIG	*	Witness		High Pressure Closure test	825 PSIG	*	Witness		Low Pressure Closure test	825 PSIG	Air/Inert Gas	Witness		BOM check			Review		MPI/DPI			Review if		Radiography			Review		Visual Check & Calibration			Review		Hardness Test ASTM-E10			Review if applicable		PMI (for SS & AS alloys)			NA		IGC			NA		Ultrasonic test for SS parts & Forged body			Review if applicable		MILL certification			Review if applicable		Fire Safe			NA		Material test			Review	
TESTING/Inspection		Testing Fluid	Witness/Review	Remarks																																																																																	
Shell Test pressure	1125 PSIG	*	Witness																																																																																		
High Pressure Closure test	825 PSIG	*	Witness																																																																																		
Low Pressure Closure test	825 PSIG	Air/Inert Gas	Witness																																																																																		
BOM check			Review																																																																																		
MPI/DPI			Review if																																																																																		
Radiography			Review																																																																																		
Visual Check & Calibration			Review																																																																																		
Hardness Test ASTM-E10			Review if applicable																																																																																		
PMI (for SS & AS alloys)			NA																																																																																		
IGC			NA																																																																																		
Ultrasonic test for SS parts & Forged body			Review if applicable																																																																																		
MILL certification			Review if applicable																																																																																		
Fire Safe			NA																																																																																		
Material test			Review																																																																																		
NOTES: * For shell, High pressure backseat, and high pressure closure test, the test fluid shall be air, inert gas, or a non corrosive liquid with a viscosity not higher than that of water. # Only applicable for H2 services. • Radiography procedure, areas of casting to be radio graphed and the acceptance criteria shall be as per ASME/ANSI B 16.34. All castings shall be radiographic quality castings. • Minimum requirement of radiography examination for all materials is as follows: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Class</td> <td style="width: 30%;">Size</td> <td style="width: 40%;">Qty</td> </tr> <tr> <td>150</td> <td>26" & above</td> <td>100%</td> </tr> <tr> <td>300</td> <td>18" & above</td> <td>100%</td> </tr> </table> SPECIAL REQUIREMENT: NACE NA Any other critical service: NA <input type="checkbox"/> DEVIATION <input type="checkbox"/> NO DEVIATION VENDORS SIGNATURES WITH SEAL											Class	Size	Qty	150	26" & above	100%	300	18" & above	100%																																																																		
Class	Size	Qty																																																																																			
150	26" & above	100%																																																																																			
300	18" & above	100%																																																																																			
BHEL FORMAT NO: PEMC-1022, REV.00 ELECTRICALS LIMITED PROJECT ENGINEERING DIVISION		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">PO NO:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="2">PACKAGE NAME:</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="2">PACKAGE VENDOR :</td> <td>DATE</td> <td>PREP</td> <td>CHKD</td> <td>APPD</td> </tr> <tr> <td colspan="2">PROJECT :</td> <td colspan="2">VENDOR DOC.NO:</td> <td colspan="2">REV.</td> </tr> <tr> <td colspan="2">CUSTOMER :</td> <td colspan="4"></td> </tr> </table>									PO NO:						PACKAGE NAME:						PACKAGE VENDOR :		DATE	PREP	CHKD	APPD	PROJECT :		VENDOR DOC.NO:		REV.		CUSTOMER :																																																		
PO NO:																																																																																					
PACKAGE NAME:																																																																																					
PACKAGE VENDOR :		DATE	PREP	CHKD	APPD																																																																																
PROJECT :		VENDOR DOC.NO:		REV.																																																																																	
CUSTOMER :																																																																																					
SHEET 01 OF 02																																																																																					

DATA SHEET FOR CHECK VALVES

1. **MATERIAL:** STAINLESS STEEL
2. **RATING:** ANSI CLASS 800
3. **SIZE RANGE:** 0.5" to 1.5"
4. **ENDS:** SW 3000# to B 16.11
5. Design Standard: BS-5352
6. Testing Standard: BS-EN 12266:2012
7. Dimensional std.: ANSI B 16.10
8. Pressure Temp. Rating: ANSI B 16.34
9. Applicable Services: HSD/Naphtha/Natural gas/Refinery gas, Flare, Instrument Air, Nitrogen gas,
10. Applicable Piping: 12A, 22A, 32A

TEMP	-29	38	93	149	204	260	BEYOND 200 DEG
PRESS.	156.08	156.08	142.37	138.5	133.58	126.2	DO NOT USE

11. Material of Construction

Sl. No.	Description	Construction	Material
a)	Body	Forged	ASTM A 182 F 304
b)	Cover	Bolted	ASTM A 182 F 304
d)	Disc Piston		Stellited
e)	Body seat ring	Renewable/Non-renewable	Stellited
f)	Disc Hinge/Hinge pin		
h)	Cover stud bolt		ASTM A 193 B7
i)	Cover Nut		ASTM A 194 2 H
j)	Cover Gasket		Spiral Wound SS 316 – Graphoil Filler corrugated
k)	Washer Nut Pin		

12. Others

TESTING/Inspection		Testing Fluid	Witness/Review	Remarks
Shell Test pressure	2900 PSIG	*	Witness	
High Pressure Closure	2125 PSIG	*	Witness	
Low Pressure Closure test	2125 PSIG	Air/Inert Gas	Witness	
BOM check			Review	
MPI/DPI			Review if applicable	
Radiography			Review	
Visual Check & Calibration			Review	
Hardness Test ASTM-E10			Review if applicable	
PMI (for SS & AS			NA	
IGC			NA	
Ultrasonic test for SS parts & Forged body			Review if applicable	
MILL certification			Review if applicable	
Fire Safe			NA	
Material test			Review	

NOTES:

* For shell, High pressure backseat, and high pressure closure test, the test fluid shall be air, inert gas, or a non corrosive liquid with a viscosity not higher than that of water.

Only applicable for H2 services.

castings shall be radiographic quality castings.

• Minimum requirement of radiography examination for all materials is as follows:

Class	Size	Qty
150	26" & above	100%
300	18" & above	100%
600 and above	All	100%

SPECIAL REQUIREMENT:

NACE NA

Any other critical servc NA

☐ DEVIATION ☐ NO DEVIATION

VENDORS SIGNATURES WITH SEAL

BHEL FORMAT NO: PEMC-1024, REV.00		PO NO:					
BHEL		PACKAGE NAME:					
ELECTRICALS LMTIED		PACKAGE VENDOR :		DATE	PREP	CHKD	APPD
PROJECT ENGINEERING		PROJECT :		VENDOR DOC.NO:			REV.
DIVISION		CUSTOMER :					
SHEET 01 OF 02							