

**FUEL SYSTEMS
PE (BOILERS)****TOS:TSK:005/ REV:01
SHEET 01 OF 28****PART - I: DATASHEET FOR BUTTERFLY TRIP VALVE
COG Boiler Isolation Valve (Tag: COG31) &
COG Main trip Valve (Tag: COG40)**UNITS: Flow-Liquid Cu m/ hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-° C
BHEL Material Code: L143014220010001

O.FLOW DATA		C.SOLENOID PILOT	
1. Line Fluid		1. Make / Type No	
2. Flow Max		2. Style	
3. Normal in pr		3. To Open Main Valve	Energise Solenoid coil
4. Allowable DP		4. To Close Main Valve	De-Energise Solenoid coil
5. Actuator Sizing DP		5. Enclosure	
6. Temp Max		6. Coil Duty	Continuous, for 100° C ambient
7.Flow Temp		7. Coil Rating	24 V DC
8. Flow Sp Gravity		8. Insulation Class	
9. Flow Viscosity		9. Inrush / Hold Wattage	
10. Max Flow Cv		10. Valve Flow Cv	
11. Flap rotation %		11. Body Material	Forged Brass
12. Valve Cv		12. Wetted parts	Stainless Steel
13. Valve Closing Time	Sec.	13. Seating	Resilient for tight shut
14. Valve Opening Time	Sec. Adjustable	14. Valve Ends	
		15. Cable entry	
		16. Terminal Block	Provided
A. VALVE BODY		D. QUICK EXHAUST VL	
1. Make/Type No		1. Make/type No	To meet O.13
2. Line Size	ODxT mm	2. Port Conn	
3. Body/port Size	Nb mm		
4. Flap rotation	degrees		
5. Body Style / Rating	NP	E. FLOW RESTRICTOR	
6. Ends	Flanged to :	To meet O.14	
7. Valve Disc type		1. Make/Type No	
8. Disc Material		2. Port Conn	
9. Body Matl	Carbon Steel	3. Adjustable Time Range	
10. Seat Material			
11. Stem Size /Material		F. AIRSET	
12.Seal Matl		Type No	
13. Seat Leak Class	Bubble tight shut off as per API 598	1. Airset set pressure	
14. Bonnet / packing		2. End Connection	
15. Noise Level		G. LIMIT SWITCHES	
16. Mating flanges	To suit valve & line size		
17. Fasteners for flanges	Qty	1. Make/Type No	off
18. Non-asbestos gaskets	Specify	2. Mounted For	Full open Full close % Open
19. Handwheel material	Cast steel	3. Contacts	Off
		4. Contact Rating	240Ac 10Amp 110 Dc 0.5 Amp
		5. Enclosure	
		6.Cable Entry	
		H. JUNCTION BOX	
		Provided	
		1.Enclosure	
		2. No. of Terminals	
		I.SUPPLY CONDITION	
		1. Assembly – 1	
		2. Assembly – 2	
		3. Pneumatic Terminal	To suit 1/2" SS tubing. Vendor to specify.
		4. Spares	individually tagged and packed
B. ACTUATOR ASSY		IBR	
1. Make/Type No		NO	
2. Style		REF. DOCUMENTS:(SPECIFY DWG/MANUAL REF.Nos.BELOW)	
3. Size/Volume		1.Assy Dimensional Dwg	
4. Spring No/Range		2.Assy Hookup Dwg	
5. Spring to	Close	S.No	ITEM
6. Air to	Open	O & M Manual	Spares identifier
7. Signal pr		Catalog&Spec	
8. Pr port Conn		3	A
9. On Air Failure	Stay Put	4	B
10. Lockup Valve type No		5	B 11
11. Lockup Valve Set pr		6	C
12. Available air pressure	4 kg/sqcm(g)	7	D
		8	E
		9	F
		10	G
PREPARED BY (VENDOR)		DATE	
APPROVED BY (BHEL)		DATE	



PART - II: VENDOR CHECK LIST FOR BUTTERFLY TRIP VALVE

**COG Boiler Isolation Valve (Tag: COG31) &
COG Main trip Valve (Tag: COG40)**

BHEL MATERIAL CODE: L143014220010001

ENQUIRY No.:

UNITS: Flow-Liquid Cu m/ hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-°C

IIB	BHEL SPECIFICATION		VENDOR CONFIRMATION	
J. APPLICABLE STANDARDS:				
1. Control valve sizing equations	ANSI / ISA S75.01			
2. Control valve capacity test procedure	ANSI / ISA S75.02			
3. Seat leakage	API 598			
4. Face to face dimensions.	Vendor to specify			
5. Flange dimensions & drilling	Vendor to specify			
O. FLOW DATA				
1. Line Fluid	Coke Oven Gas (COG)			
2. Flow Max	46000+5% NM ³ /hr			
3. Normal in pr	1200 mm wc			
4. Allowable DP	5 mm wc			
5. Actuator Sizing DP	2000 mm wc			
6. Temp Max	50°C			
7. Flow Temp	27°C			
8. Flow Sp Gravity	0.449			
9. Flow Viscosity	16.492 x 10 ⁻⁶ Ns/Sq.m			
10. Max Flow Cv	Vendor to specify			
11. Flap rotation (%)	Full			
12. Valve Cv	Vendor to specify			
13. Valve Closing Time	<5 sec			
14. Valve Opening Time	6 to 10 sec adjustable			
A. VALVE BODY				
1. Make/Type No	Vendor to specify			
2. Line Size mm	OD 1168 x 10 t			
3. Body / port Size mm	NB 1150 mm			
4. Flap rotation	Vendor to specify			
5. Body Style / Rating	Flanged PN 6 or higher			
6. Ends	Flanged			
7. Valve disc type	Double Eccentric type			
8. Disc Material	Carbon steel			
9. Body Matl	Carbon Steel			
10. Seat Matl	Vendor to specify			
11. Hand wheel Matl	Cast steel			
12. Stem Size / Matl	Vendor to specify / SS			
13. Seal Matl	Vendor to specify			
14. Seat Leak Class	Bubble tight shut-off as per API-598			
15. Bonnet / packing	Std / Extended Specify			
16. Noise Level	< 85 dBA			
17. Valve Internals	Shall not vibrate			
18. Mating flange	To suit valve end & stated line size			
19. Fasteners for End flanges	ASTM A193 GRB			
20. Gaskets	Non asbestos			
BHEL			VENDOR	
PREPARED BY	APPROVED	DATE	PREPARED BY	APPROVED BY
Sairam N	MCHS Gangadhar	27/02/19		



**FUEL SYSTEMS
PE (BOILERS)**

**TOS:TSK:005/ REV:01
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PART - II : VENDOR CHECK LIST FOR BUTTERFLY TRIP VALVE

**COG Boiler Isolation Valve (Tag: COG31) &
COG Main trip Valve (Tag: COG40)**

BHEL MATERIAL CODE: L143014220010001

ENQUIRY No.:

UNITS: Flow-Liquid Cu m/ hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-°C

IIA	BHEL SPECIFICATION	VENDOR CONFIRMATION
B. ACTUATOR ASSY	Spring return piston type (rotary)	
1. Make/Type No	Vendor to specify	
2. Style	Vendor to specify	
3. Size/Volume	Vendor to specify	
4. Spring No/Range	Vendor to specify	
5. Spring to	Close	
6. Air to	Open	
7. Signal pr	Vendor to specify	
8. Pr port Conn	Vendor to specify	
09. On Air Failure	Stay Put	
10. Lockup Valve type No	Vendor to specify	
11. Lockup Valve Set pr	Vendor to specify	
12. Available air pressure	4 kg/sq.cm(g)	
C.SOLENOID PILOT	3Way Single coil 24 V DC	
1. Make / Type No	Vendor to specify	
2. Style	Vendor to specify	
3. To Open Main Valve	Energise Solenoid coil	
4. To Close Main Valve	De-Energise Solenoid coil	
5. Enclosure	NEMA 7 & 9 Explosion Proof	
6. Coil Duty	Continuous, for 100° C ambient	
7. Coil Rating	24 V DC; SINGLE COIL	
8. Insulation Class	Class H	
9. Inrush / Hold Wattage	Vendor to specify	
10. Valve Flow Cv	Vendor to specify	
11. Body Matl	Forged Brass	
12. Wetted parts	Stainless Steel	
13. Seating	Resilient for tight shut	
14. Valve End sizes	To suit open/close time. Vendor to specify	
15. Cable entry	1/2 " conduit	
D. QUICK EXHAUST VALVE	To meet O.13	
1. Make/type No	Vendor to specify	
2. Port Connection	Vendor to specify	
E.FLOW RESTRICTOR	To meet O.14	
1. Make/type No	Vendor to specify	
2. Port Connection	Vendor to specify	
3. Adjustable Time Range	Vendor to specify	
F. AIRSET	Type No – Make & Model	
1. Airset set pr End Conn.	Vendor to specify	
G.LIMIT SWITCHES	2 NOS 1 no Open, 1no Close	
1. Make/Type No	Vendor to specify	
2. Mounted For	Full open Full close % Open	
3. Contacts	DPDT (2NO+2NC)	
4. Contact Rating	240Ac 10Amp 220 Dc 0.25 Amp	
5. Enclosure	NEMA 7 & 9 Explosion Proof	
6.Cable Entry	1/2" - 14 NPSM	
H. PNEUMATIC TERMINAL	To suit 1/2" SS tube. Vendor to specify.	
BHEL	VENDOR	
PREPARED BY	APPROVED	DATE
Sairam N	MCHS Gangadhar	27/02/19
	PREPARED BY	APPROVED BY DATE



PART - II : VENDOR CHECK LIST FOR BUTTERFLY TRIP VALVE

**COG Boiler Isolation Valve (Tag: COG31) &
COG Main trip Valve (Tag: COG40)**

BHEL MATERIAL CODE: L143014220010001

ENQUIRY No.:

UNITS: Flow-Liquid Cu m/ hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-°C

IIA		BHEL SPECIFICATION	VENDOR CONFIRMATION			
I. JUNCTION BOX						
1. Enclosure		NEMA 7 & 9 Explosion Proof				
2. No. of Terminals		Vendor to specify				
3. Spares offer		commissioning / Customer				
REFERENCE DOCUMENTS: (SPECIFY DWG/MANUAL REF. NOS. BELOW)						
1. Assy Dimensional Dwg		Vendor to furnish				
2. Assy Hookup Dwg		Vendor to furnish				
3. Spares Catalogue/DRG No		Vendor to specify				
J. MARKING						
1. S S name plate		Vendor to specify				
2. Spares individually tagged		Vendor to specify				
K. PAINTING						
		Epoxy coated				
L. PACKING						
		Land worthy				
M. TEST CERTIFICATES						
1. Hydraulic test						
2. Seat leak test		Vendor to specify				
3. Material certificates		Vendor to specify				
4. Std. test on Actuator		Vendor to specify				
5. Dimensional test		Vendor to specify				
N. OPR. & INSTRN. MANUALS						
1.6 Hard copies & 1 soft form		Vendor to confirm				
IIB SPECIAL CONTRACT REQUIREMENT, IF ANY						
1. Enclosures for all accessories shall be explosion proof suitable for COG - Class -I, Zone -II, Group-II B T2 to the extent of IS-5572. 2. All counter flanges, fasteners and gaskets shall be in vendor's scope. 3. Valve mounting position shall be suitable for both horizontal and vertical pipe mounting. Vendor to confirm to each point of the special contract requirements. (USE AN ANNEXURE IF THIS SPACE IS INADEQUATE)						
BHEL			VENDOR			
PREPARED BY		APPROVED BY	DATE	PREPARED BY	APPROVED BY	DATE
Sairam N		MCHS Gangadhar	27/02/19			



**FUEL SYSTEMS
PE (BOILERS)**

**TOS:TSK:005/ REV:01
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**PART - I: DATASHEET FOR BUTTERFLY TRIP VALVE
COG C-Header Vent Valve (Tag: COG42A-B)**

UNITS: Flow-Liquid Cu m/ hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-° C
BHEL Material Code: L143014220010002

O.FLOW DATA		C.SOLENOID PILOT	
1. Line Fluid		1. Make / Type No	
2. Flow Max		2. Style	
3. Normal in pr		3. To Open Main Valve	Energise Solenoid coil
4. Allowable DP		4. To Close Main Valve	De-Energise Solenoid coil
5. Actuator Sizing DP		5. Enclosure	
6. Temp Max		6. Coil Duty	Continuous, for 100° C ambient
7.Flow Temp		7. Coil Rating	24 V DC
8. Flow Sp Gravity		8. Insulation Class	
9. Flow Viscosity		9. Inrush / Hold Wattage	
10. Max Flow Cv		10. Valve Flow Cv	
11. Flap rotation %		11. Body Material	Forged Brass
12. Valve Cv		12. Wetted parts	Stainless Steel
13. Valve Closing Time	Sec.	13. Seating	Resilient for tight shut
14. Valve Opening Time	Sec. Adjustable	14. Valve Ends	
		15. Cable entry	
A. VALVE BODY		16. Terminal Block	Provided
1. Make/Type No		D. QUICK EXHAUST VL	To meet O.13
2. Line Size	ODxT mm	1. Make/type No	
3. Body/port Size	Nb mm	2. Port Conn	
4. Flap rotation	degrees		
5. Body Style / Rating	NP	E. FLOW RESTRICTOR	To meet O.14
6. Ends	Flanged to :	1. Make/Type No	
7. Valve Disc type		2. Port Conn	
8. Disc Material		3. Adjustable Time Range	
9. Body Matl	Carbon Steel		
10. Seat Material		F. AIRSET	Type No
11. Stem Size /Material		1. Airset set pressure	
12.Seal Matl		2. End Connection	
13. Seat Leak Class	Bubble tight shut off as per API 598	G. LIMIT SWITCHES	off
14. Bonnet / packing		1. Make/Type No	
15. Noise Level		2. Mounted For	Full open Full close % Open
16. Mating flanges	To suit valve & line size	3. Contacts	Off
17. Fastners for flanges	Qty	4. Contact Rating	240Ac 10Amp 110 Dc 0.5 Amp
18. Non-asbestos gaskets	Specify	5. Enclosure	
19. Handwheel material	Cast steel	6.Cable Entry	
		H. JUNCTION BOX	Provided
		1.Enclosure	
		2. No. of Terminals	
		I.SUPPLY CONDITION	
		1. Assembly – 1	
		2. Assembly – 2	
		3. Pneumatic Terminal	To suit 3/8" SS tubing. Vendor to specify.
B. ACTUATOR ASSY		4. Spares	Individually tagged and packed
1. Make/Type No		IBR	NO
2. Style		REF. DOCUMENTS:(SPECIFY DWG/MANUAL REF.Nos. BELOW)	
3. Size/Volume		1.Assy Dimensional Dwg	
4. Spring No/Range		2.Assy Hookup Dwg	
5. Spring to	Open	S.No	ITEM
6. Air to	Close	O & M Manual	Spares identifier
7. Signal pr		Catalog&Spec	
8. Pr port Conn		3	A
9. On Air Failure	Stay Put	4	B
10. Lockup Valve type No		5	B 11
11. Lockup Valve Set pr		6	C
12. Available air pressure	4 kg/sqcm(g)	7	D
		8	E
		9	F
		10	G
PREPARED BY (VENDOR)	DATE	APPROVED BY (BHEL)	DATE



**FUEL SYSTEMS
PE (BOILERS)**

**TOS:TSK:005/ REV:01
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**PART - II: VENDOR CHECK LIST FOR BUTTERFLY TRIP VALVE
COG C-Header Vent Valve (Tag: COG42A-B)**

BHEL MATERIAL CODE: L143014220010002

ENQUIRY No.:

UNITS: Flow-Liquid Cu m / hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-°C

IIB	BHEL SPECIFICATION		VENDOR CONFIRMATION		
J.APPLICABLE STANDARDS:					
1.Control valve sizing equations	ANSI / ISA S75.01				
2. Control valve capacity test procedure	ANSI / ISA S75.02				
3. Seat leakage	API 598				
4. Face to face dimensions.	Vendor to specify				
5. Flange dimensions & drilling	Vendor to specify				
O.FLOW DATA					
1. Line Fluid	Coke Oven Gas (COG)				
2. Flow Max	23000 NM ³ /hr				
3. Normal in pr	1200 mm wc				
4. Allowable DP	5 mm wc				
5. Actuator Sizing DP	2000 mm wc				
6. Temp Max	50°C				
7.Flow Temp	27°C				
8. Flow Sp Gravity	0.449				
9. Flow Viscosity	16.492 x 10 ⁻⁶ Ns/Sq.m				
10. Max Flow Cv	Vendor to specify				
11. Flap rotation (%)	Full				
12. Valve Cv	Vendor to specify				
13. Valve Closing Time	< 3 Sec.				
14. Valve Opening Time	6 to 10 Sec. Adjustable				
A. VALVE BODY					
1. Make/Type No	Vendor to specify				
2. Line Size mm	OD 323.9 X 5.6 t				
3. Body / port Size mm	NB 300 mm				
4. Flap rotation	Vendor to specify				
5. Body Style / Rating	Flanged PN 6 or higher				
6. Ends	Flanged				
7. Valve disc type	Double Eccentric type				
8. Disc Material	Carbon steel				
9. Body Matl	Carbon Steel				
10. Seat Matl	Vendor to specify				
11. Hand wheel Matl	Cast steel				
12. Stem Size / Matl	Vendor to specify / SS				
13. Seal Matl	Vendor to specify				
14. Seat Leak Class	Bubble tight shut-off as per API 598				
15. Bonnet / packing	Std / Extended Specify.				
16. Noise Level	< 85 dBA				
17. Valve Internals	Shall not vibrate				
18. Mating flange	To suit valve end & stated line size				
19. Fasteners for End flanges	ASTM A193 GRB				
20. Gaskets	Non asbestos				
BHEL			VENDOR		
PREPARED BY	APPROVED	DATE	PREPARED BY	APPROVED BY	DATE
Sairam N	MCHS Gangadhar	27/02/19			



**FUEL SYSTEMS
PE (BOILERS)**

**TOS:TSK:005/ REV:01
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**PART - II: VENDOR CHECK LIST FOR BUTTERFLY TRIP VALVE
COG C-Header Vent Valve (Tag: COG42A-B)**

BHEL MATERIAL CODE: L143014220010002

ENQUIRY No.:

UNITS: Flow-Liquid Cu m / hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-°C

IIA		BHEL SPECIFICATION	VENDOR CONFIRMATION		
B. ACTUATOR ASSY		Spring return piston type (rotary)			
1. Make/Type No		Vendor to specify			
2. Style		Vendor to specify			
3. Size/Volume		Vendor to specify			
4. Spring No/Range		Vendor to specify			
5. Spring to		Open			
6. Air to		Close			
7. Signal pr		Vendor to specify			
8. Pr port Conn		Vendor to specify			
09. On Air Failure		Stay Put			
10. Lockup Valve type No		Vendor to specify			
11. Lockup Valve Set pr		Vendor to specify			
12. Available air pressure		4 kg/sq.cm(g)			
C.SOLENOID PILOT		3Way Single coil 24 V DC			
1. Make / Type No		Vendor to specify			
2. Style		Vendor to specify			
3. To Open Main Valve		Energise Solenoid coil			
4. To Close Main Valve		De- Energise Solenoid coil			
5. Enclosure		NEMA 7 & 9 Explosion Proof			
6. Coil Duty		Continuous, for 100° C ambient			
7. Coil Rating		24 V DC ; SINGLE COIL			
8. Insulation Class		Class H			
9. Inrush / Hold Wattage		Vendor to specify			
10. Valve Flow Cv		Vendor to specify			
11. Body Matl		Forged Brass			
12. Wetted parts		Stainless Steel			
13. Seating		Resilient for tight shut			
14. Valve End sizes		To suit open/close time. Vendor to specify			
15. Cable entry		1/2 " conduit			
D. QUICK EXHAUST VALVE		To meet O.13			
1. Make/type No		Vendor to specify			
2. Port Connection		Vendor to specify			
E.FLOW RESTRICTOR		To meet O.14			
1. Make/type No		Vendor to specify			
2. Port Connection		Vendor to specify			
3. Adjustable Time Range		Vendor to specify			
F. AIRSET		Type No – Make & Model			
1. Airset set pr End Conn.		Vendor to specify			
G.LIMIT SWITCHES		2 NOS 1 no Open, 1no Close			
1. Make/Type No		Vendor to specify			
2. Mounted For		Full open Full close % Open			
3. Contacts		DPDT (2NO+2NC)			
4. Contact Rating		240Ac 10Amp 220 Dc 0.25 Amp			
5. Enclosure		NEMA 7 & 9 Explosion Proof			
6.Cable Entry		1/2" - 14 NPSM			
H. PNEUMATIC TERMINAL		To suit 3/8" SS tube. Vendor to specify.			
BHEL			VENDOR		
PREPARED BY	APPROVED	DATE	PREPARED BY	APPROVED BY	DATE
Sairam N	MCHS Gangadhar	27/02/19			



**FUEL SYSTEMS
PE (BOILERS)**

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**PART - II: VENDOR CHECK LIST FOR BUTTERFLY TRIP VALVE
COG C-Header Vent Valve (Tag: COG42A-B)**

BHEL MATERIAL CODE: L143014220010002

ENQUIRY No.:

UNITS: Flow-Liquid Cu m/ hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-°C

IIA	BHEL SPECIFICATION	VENDOR CONFIRMATION
I. JUNCTION BOX		
1.Enclosure	NEMA 7 & 9 Explosion Proof	
2. No. of Terminals	Vendor to specify	
3.Spares offer	commissioning / Customer	
REFERENCE DOCUMENTS:(SPECIFY DWG/MANUAL REF.NOs.BELOW)		
1. Assy Dimensional Dwg	Vendor to furnish	
2. Assy Hookup Dwg	Vendor to furnish	
3.Spares Catalogue/DRG No	Vendor to specify	
J.MARKING		
1.S S name plate	Vendor to specify	
2. Spares individually tagged	Vendor to specify	
K. PAINTING		
Epoxy coated		
L.PACKING		
Land worthy		
M.TEST CERTIFICATES		
1.Hydraulic test		
2.Seat leak test	Vendor to specify	
3.Material certificates	Vendor to specify	
4.Std. test on Actuator	Vendor to specify	
5.Dimensiona test	Vendor to specify	
N.OPR. & INSTRN. MANUALS		
1.6 Hard copies & 1 soft form	Vendor to confirm	
IIB	SPECIAL CONTRACT REQUIREMENT, IF ANY	
	1.Enclosures for all accessories shall be explosion proof suitable for COG - Class -I, Zone -II, Group-II B T2 to the extent of IS-5572. 2.All counter flanges, fasteners and gaskets shall be in vendor's scope. 3.Valve mounting position shall be suitable for both horizontal and vertical pipe mounting. Vendor to confirm to each point of the special contract requirements. (USE AN ANNEXURE IF THIS SPACE IS INADEQUATE)	
BHEL		VENDOR
PREPARED BY	APPROVED BY	DATE
Sairam N	MCHS Gangadhar	27/02/19
PREPARED BY	APPROVED BY	DATE



**FUEL SYSTEMS
PE (BOILERS)**

**TOS:TSK:005/ REV:01
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**PART - I: DATASHEET FOR BUTTERFLY TRIP VALVES
COG Burner Trip valves (COG62A-H, COG62J-R, COG63A-D)**

UNITS: Flow-Liquid Cu m/ hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-° C

BHEL Material Code: L143014220010003

O.FLOW DATA		C.SOLENOID PILOT	
1. Line Fluid		1. Make / Type No	
2. Flow Max		2. Style	
3. Normal in pr		3. To Open Main Valve	Energise Solenoid coil
4. Allowable DP		4. To Close Main Valve	De-Energise Solenoid coil
5. Actuator Sizing DP		5. Enclosure	
6. Temp Max		6. Coil Duty	Continuous, for 100° C ambient
7.Flow Temp		7. Coil Rating	24V DC
8. Flow Sp Gravity		8. Insulation Class	
9. Flow Viscosity		9. Inrush / Hold Wattage	
10. Max Flow Cv		10. Valve Flow Cv	
11. Flap rotation %		11. Body Material	Forged Brass
12. Valve Cv		12. Wetted parts	Stainless Steel
13. Valve Closing Time	Sec.	13. Seating	Resilient for tight shut
14. Valve Opening Time	Sec. Adjustable	14. Valve Ends	
A. VALVE BODY		15. Cable entry	
1. Make/Type No		16. Terminal Block	Provided
2. Line Size	ODxT mm	D. QUICK EXHAUST VL	To meet O.13
3. Body/port Size	Nb mm	1. Make/type No	
4. Flap rotation	degrees	2. Port Conn	
5. Body Style / Rating	NP	E. FLOW RESTRICTOR	To meet O.14
6. Ends	Flanged to :	1. Make/Type No	
7. Valve Disc type		2. Port Conn	
8. Disc Material		3. Adjustable Time Range	
9. Body Matl	Carbon Steel	F. AIRSET	Type No
10. Seat Material		1. Airset set pressure	
11. Stem Size /Material		2. End Connection	
12.Seal Matl		G. LIMIT SWITCHES	off
13. Seat Leak Class	Bubble tight shut off as per API 598	1. Make/Type No	
14. Bonnet / packing		2. Mounted For	Full open Full close % Open
15. Noise Level		3. Contacts	Off
16. Mating flanges	To suit valve & line size	4. Contact Rating	240Ac 10Amp 110 Dc 0.5 Amp
17. Fasteners for flanges	Qty	5. Enclosure	
18. Non-asbestos gaskets	Specify	6.Cable Entry	
19. Handwheel material	Cast steel	H. JUNCTION BOX	Provided
		1.Enclosure	
		2. No. of Terminals	
		I.SUPPLY CONDITION	
		1. Assembly – 1	
		2. Assembly – 2	
		3. Pneumatic Terminal	To suit 3/8" SS tubing. Vendor to specify.
		4. Spares	individually tagged and packed
B. ACTUATOR ASSY		IBR	NO
1. Make/Type No		REF. DOCUMENTS:(SPECIFY DWG/MANUAL REF.Nos.BELOW)	
2. Style		1.Assy Dimensional Dwg	
3. Size/Volume		2.Assy Hookup Dwg	
4. Spring No/Range		S.No	ITEM
5. Spring to	Close	O & M Manual	Spares identifier
6. Air to	Open	Catalog&Spec	
7. Signal pr		3	A
8. Pr port Conn		4	B
9. On Air Failure	Stay Put	5	B 11
10. Lockup Valve type No		6	C
11. Lockup Valve Set pr		7	D
12. Available air pressure	4 kg/sqcm(g)	8	E
		9	F
		10	G
PREPARED BY (VENDOR)		DATE	
APPROVED BY (BHEL)		DATE	



**FUEL SYSTEMS
PE (BOILERS)**

**TOS:TSK:005/ REV:01
SHEET 10 OF 28**

**PART - II: VENDOR CHECK LIST FOR BUTTERFLY TRIP VALVE
COG Burner Trip valves (COG62A-H, COG62J-R, COG63A-D)**

BHEL MATERIAL CODE: L143014220010003

ENQUIRY No.:

UNITS: Flow-Liquid Cu m / hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-°C

IIB	BHEL SPECIFICATION	VENDOR CONFIRMATION			
J. APPLICABLE STANDARDS:					
1. Control valve sizing equations	ANSI / ISA S75.01				
2. Control valve capacity test procedure	ANSI / ISA S75.02				
3. Seat leakage	API 598				
4. Face to face dimensions.	Vendor to specify				
5. Flange dimensions & drilling	Vendor to specify				
O. FLOW DATA					
1. Line Fluid	Coke Oven Gas (COG)				
2. Flow Max	5750 NM ³ /hr				
3. Normal in pr	400 mm wc				
4. Allowable DP	5 mm wc				
5. Actuator Sizing DP	2000 mm wc				
6. Temp Max	50°C				
7. Flow Temp	27°C				
8. Flow Sp Gravity	0.449				
9. Flow Viscosity	16.492 x 10 ⁻⁶ Ns/Sq.m				
10. Max Flow Cv	Vendor to specify				
11. Flap rotation (%)	Full				
12. Valve Cv	Vendor to specify				
13. Valve Closing Time	< 3 Sec.				
14. Valve Opening Time	6 to 10 Sec. Adjustable				
A. VALVE BODY					
1. Make/Type No	Vendor to specify				
2. Line Size mm	OD 406.4x 6.3 t				
3. Body / port Size mm	NB 400 mm				
4. Flap rotation	Vendor to specify				
5. Body Style / Rating	Flanged PN6 or higher				
6. Ends	Flanged				
7. Valve disc type	Double Eccentric type				
8. Disc Material	Carbon steel				
9. Body Matl	Carbon Steel				
10. Seat Matl	Vendor to specify				
11. Hand wheel Matl	Cast steel				
12. Stem Size / Matl	Vendor to specify / SS				
13. Seal Matl	Vendor to specify				
14. Seat Leak Class	Bubble tight shut-off as per API 598				
15. Bonnet / packing	Std / Extended Specify				
16. Noise Level	< 85 dBA				
17. Valve Internals	Shall not vibrate				
18. Mating flange	To suit valve end & stated line size				
19. Fasteners for End flanges	ASTM A193 GRB				
20. Gaskets	Non asbestos				
BHEL		VENDOR			
PREPARED BY	APPROVED	DATE	PREPARED BY	APPROVED BY	DATE
Sairam N	MCHS Gangadhar	27/02/19			



**FUEL SYSTEMS
PE (BOILERS)**

**TOS:TSK:005/ REV:01
SHEET 11 OF 28**

**PART - II: VENDOR CHECK LIST FOR BUTTERFLY TRIP VALVE
COG Burner Trip valves (COG62A-H, COG62J-R, COG63A-D)**

BHEL MATERIAL CODE: L143014220010003

ENQUIRY No.:

UNITS: Flow-Liquid Cu m / hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-°C

IIA	BHEL SPECIFICATION		VENDOR CONFIRMATION		
B. ACTUATOR ASSY					
	Spring return piston type (rotary)				
1. Make/Type No	Vendor to specify				
2. Style	Vendor to specify				
3. Size/Volume	Vendor to specify				
4. Spring No/Range	Vendor to specify				
5. Spring to	Close				
6. Air to	Open				
7. Signal pr	Vendor to specify				
8. Pr port Conn	Vendor to specify				
09. On Air Failure	Stay Put				
10. Lockup Valve type No	Vendor to specify				
11. Lockup Valve Set pr	Vendor to specify				
12. Available air pressure	4 kg/sq.cm(g)				
C.SOLENOID PILOT					
	3Way Single coil 24 V DC				
1. Make / Type No	Vendor to specify				
2. Style	Vendor to specify				
3. To Open Main Valve	Energise Solenoid coil				
4. To Close Main Valve	De- Energise Solenoid coil				
5. Enclosure	NEMA 7 & 9 Explosion Proof				
6. Coil Duty	Continuous, for 100° C ambient				
7. Coil Rating	24 V DC; SINGLE COIL				
8. Insulation Class	Class H				
9. Inrush / Hold Wattage	Vendor to specify				
10. Valve Flow Cv	Vendor to specify				
11. Body Matl	Forged Brass				
12. Wetted parts	Stainless Steel				
13. Seating	Resilient for tight shut				
14. Valve End sizes	To suit open/close time. Vendor to specify				
15. Cable entry	1/2 " conduit				
D. QUICK EXHAUST VALVE To meet O.13					
1. Make/type No	Vendor to specify				
2. Port Connection	Vendor to specify				
E.FLOW RESTRICTOR To meet O.14					
1. Make/type No	Vendor to specify				
2. Port Connection	Vendor to specify				
3. Adjustable Time Range	Vendor to specify				
F. AIRSET Type No – Make & Model					
1. Airset set pr	End Conn.	Vendor to specify			
G.LIMIT SWITCHES 2 NOS 1 no Open, 1no Close					
1. Make/Type No	Vendor to specify				
2. Mounted For	Full open	Full close	% Open		
3. Contacts	DPDT (2NO+NC)				
4. Contact Rating	240Ac 10Amp	220 Dc	0.25 Amp		
5. Enclosure	NEMA 7 & 9 Explosion Proof				
6.Cable Entry	1/2" - 14 NPSM				
H. PNEUMATIC TERMINAL To suit 3/8" SS tube. Vendor to specify.					
BHEL			VENDOR		
PREPARED BY	APPROVED	DATE	PREPARED BY	APPROVED BY	DATE
Sairam N	MCHS Gangadhar	27/02/19			



**FUEL SYSTEMS
PE (BOILERS)**

**TOS:TSK:005/ REV:01
SHEET 12 OF 28**

**PART - II: VENDOR CHECK LIST FOR BUTTERFLY TRIP VALVE
COG Burner Trip valves (COG62A-H, COG62J-R, COG63A-D)**

BHEL MATERIAL CODE: L143014220010003

ENQUIRY No.:

UNITS: Flow-Liquid Cu m/ hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-°C

IIA	BHEL SPECIFICATION	VENDOR CONFIRMATION			
I. JUNCTION BOX					
1. Enclosure	NEMA 7 & 9 Explosion Proof				
2. No. of Terminals	Vendor to specify				
3. Spares offer	commissioning / Customer				
REFERENCE DOCUMENTS: (SPECIFY DWG/MANUAL REF. NOs. BELOW)					
1. Assy Dimensional Dwg	Vendor to furnish				
2. Assy Hookup Dwg	Vendor to furnish				
3. Spares Catalogue/DRG No	Vendor to specify				
J. MARKING					
1. S S name plate	Vendor to specify				
2. Spares individually tagged	Vendor to specify				
K. PAINTING					
Epoxy coated					
L. PACKING					
Land worthy					
M. TEST CERTIFICATES					
1. Hydraulic test					
2. Seat leak test	Vendor to specify				
3. Material certificates	Vendor to specify				
4. Std. test on Actuator	Vendor to specify				
5. Dimensional test	Vendor to specify				
N. OPR. & INSTRN. MANUALS					
1. 6 Hard copies & 1 soft form	Vendor to confirm				
IIB	SPECIAL CONTRACT REQUIREMENT, IF ANY				
	1. Enclosures for all accessories shall be explosion proof suitable for COG - Class -I, Zone -II, Group-II B T2 to the extent of IS-5572. 2. All counter flanges, fasteners and gaskets shall be in vendor's scope. 3. Valve mounting position shall be suitable for both horizontal and vertical pipe mounting. Vendor to confirm to each point of the special contract requirements. (USE AN ANNEXURE IF THIS SPACE IS INADEQUATE)				
BHEL		VENDOR			
PREPARED BY	APPROVED BY	DATE	PREPARED BY	APPROVED BY	DATE
Sairam N	MCHS Gangadhar	27/02/19			



**FUEL SYSTEMS
PE (BOILERS)**

**TOS:TSK:005/ REV:01
SHEET 13 OF 28**

**PART - I: DATASHEET FOR BUTTERFLY TRIP VALVE
COG Corner Vent Valve (COG60A-H)**

UNITS: Flow-Liquid Cu m/ hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-° C
BHEL Material Code: L143014220010004

O.FLOW DATA		C.SOLENOID PILOT	
1. Line Fluid		1. Make / Type No	
2. Flow Max		2. Style	
3. Normal in pr		3. To Open Main Valve	Energise Solenoid coil
4. Allowable DP		4. To Close Main Valve	De-Energise Solenoid coil
5. Actuator Sizing DP		5. Enclosure	
6. Temp Max		6. Coil Duty	Continuous, for 100° C ambient
7.Flow Temp		7. Coil Rating	24 V DC
8. Flow Sp Gravity		8. Insulation Class	
9. Flow Viscosity		9. Inrush / Hold Wattage	
10. Max Flow Cv		10. Valve Flow Cv	
11. Flap rotation %		11. Body Material	Forged Brass
12. Valve Cv		12. Wetted parts	Stainless Steel
13. Valve Closing Time	Sec.	13. Seating	Resilient for tight shut
14. Valve Opening Time	Sec. Adjustable	14. Valve Ends	
		15. Cable entry	
		16. Terminal Block	Provided
A. VALVE BODY		D. QUICK EXHAUST VL	
1. Make/Type No		1. Make/type No	To meet O.13
2. Line Size	ODxT mm	2. Port Conn	
3. Body/port Size	Nb mm		
4. Flap rotation	degrees		
5. Body Style / Rating	NP	E. FLOW RESTRICTOR	
6. Ends	Flanged to :	To meet O.14	
7. Valve Disc type		1. Make/Type No	
8. Disc Material		2. Port Conn	
9. Body Matl	Carbon Steel	3. Adjustable Time Range	
10. Seat Material		F. AIRSET	
11. Stem Size /Material		Type No	
12.Seal Matl		1. Airset set pressure	
13. Seat Leak Class	Bubble tight shut off as per API 598	2. End Connection	
14. Bonnet / packing		G. LIMIT SWITCHES	
15. Noise Level		off	
16. Mating flanges	To suit valve & line size	1. Make/Type No	
17. Fasteners for flanges	Qty	2. Mounted For	Full open Full close % Open
18. Non-asbestos gaskets	Specify	3. Contacts	Off
19. Handwheel material	Cast steel	4. Contact Rating	240Ac 10Amp 110 Dc 0.5 Amp
		5. Enclosure	
		6.Cable Entry	
		H. JUNCTION BOX	
		Provided	
		1.Enclosure	
		2. No. of Terminals	
		I.SUPPLY CONDITION	
		1. Assembly – 1	
		2. Assembly – 2	
		3. Pneumatic Terminal	To suit 3/8" tubing. Vendor to specify.
		4. Spares	individually tagged and packed
B. ACTUATOR ASSY		IBR	
1. Make/Type No		NO	
2. Style		REF. DOCUMENTS:(SPECIFY DWG/MANUAL REF.Nos.BELOW)	
3. Size/Volume		1.Assy Dimensional Dwg	
4. Spring No/Range		2.Assy Hookup Dwg	
5. Spring to	Open	S.No	ITEM
6. Air to	Close	O & M Manual	Spares identifier
7. Signal pr		Catalog&Spec	
8. Pr port Conn		3	A
9. On Air Failure	Stay Put	4	B
10. Lockup Valve type No		5	B 11
11. Lockup Valve Set pr		6	C
12. Available air pressure	4 kg/sq.cm(g)	7	D
		8	E
		9	F
		10	G
PREPARED BY (VENDOR)		DATE	
APPROVED BY (BHEL)		DATE	



**FUEL SYSTEMS
PE (BOILERS)**

**TOS:TSK:005/ REV:01
SHEET 14 OF 28**

**PART - II: VENDOR CHECK LIST FOR BUTTERFLY TRIP VALVE
COG Corner Vent Valve (COG60A-H)**

BHEL MATERIAL CODE: L143014220010004

ENQUIRY No.:

UNITS: Flow-Liquid Cu m/ hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-°C

IIB	BHEL SPECIFICATION	VENDOR CONFIRMATION			
I. APPLICABLE STANDARDS:					
1. Control valve sizing equations	ANSI / ISA S75.01				
2. Control valve capacity test procedure	ANSI / ISA S75.02				
3. Seat leakage	API 598				
4. Face to face dimensions.	Vendor to specify				
5. Flange dimensions & drilling	Vendor to specify				
O. FLOW DATA					
1. Line Fluid	Coke Oven Gas (COG)				
2. Flow Max	5750 NM ³ /Hr				
3. Normal in pr	1200 mm wc				
4. Allowable DP	5 mm wc				
5. Actuator Sizing DP	2000 mm wc				
6. Temp Max	50°C				
7. Flow Temp	27°C				
8. Flow Sp Gravity	0.449				
9. Flow Viscosity	16.492 x 10 ⁻⁶ Ns/Sq.m				
10. Max Flow Cv	Vendor to specify				
11. Flap rotation (%)	Full				
12. Valve Cv	Vendor to specify				
13. Valve Closing Time	< 3 Sec.				
14. Valve Opening Time	6 to 10 Sec. Adjustable				
A. VALVE BODY					
1. Make/Type No	Vendor to specify				
2. Line Size mm	OD 168.3 x 7.11 t				
3. Body / port Size mm	NB 150 mm				
4. Flap rotation	Vendor to specify				
5. Body Style / Rating	Flanged PN 6 or higher				
6. Ends	Flanged				
7. Valve disc type	Double Eccentric type				
8. Disc Material	Carbon steel				
9. Body Matl	Carbon Steel				
10. Seat Matl	Vendor to specify				
11. Hand wheel Matl	Cast steel				
12. Stem Size / Matl	Vendor to specify / SS				
13. Seal Matl	Vendor to specify				
14. Seat Leak Class	Bubble tight shut-off as per API 598				
15. Bonnet / packing	Std / Extended Specify				
16. Noise Level	< 85 dBA				
17. Valve Internals	Shall not vibrate				
18. Mating flange	To suit valve end & stated line size				
19. Fasteners for End flanges	ASTM A193 GRB				
20. Gaskets	Non asbestos				
BHEL		VENDOR			
PREPARED BY	APPROVED	DATE	PREPARED BY	APPROVED BY	DATE
Sairam N	MCBS Gangadhar	27/02/19			



**FUEL SYSTEMS
PE (BOILERS)**

**TOS:TSK:005/ REV:01
SHEET 15 OF 28**

**PART - II: VENDOR CHECK LIST FOR BUTTERFLY TRIP VALVE
COG Corner Vent Valve (COG60A-H)**

BHEL MATERIAL CODE: L143014220010004

ENQUIRY No.:

UNITS: Flow-Liquid Cu m/ hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-°C

BHEL SPECIFICATION		VENDOR CONFIRMATION	
B. ACTUATOR ASSY		Spring return piston type (rotary)	
1. Make/Type No	Vendor to specify		
2. Style	Vendor to specify		
3. Size/Volume	Vendor to specify		
4. Spring No/Range	Vendor to specify		
5. Spring to	Open		
6. Air to	Close		
7. Signal pr	Vendor to specify		
8. Pr port Conn	Vendor to specify		
09. On Air Failure	Stay Put		
10. Lockup Valve type No	Vendor to specify		
11. Lockup Valve Set pr	Vendor to specify		
12. Available air pressure	4 kg/sq.cm(g)		
C.SOLENOID PILOT		3Way Single coil 24 V DC	
1. Make / Type No	Vendor to specify		
2. Style	Vendor to specify		
3. To Open Main Valve	Energise Solenoid coil		
4. To Close Main Valve	De- Energise Solenoid coil		
5. Enclosure	NEMA 7 & 9 Explosion Proof		
6. Coil Duty	Continuous, for 100° C ambient		
7. Coil Rating	24 V DC; SINGLE COIL		
8. Insulation Class	Class H		
9. Inrush / Hold Wattage	Vendor to specify		
10. Valve Flow Cv	Vendor to specify		
11. Body Matl	Forged Brass		
12. Wetted parts	Stainless Steel		
13. Seating	Resilient for tight shut		
14. Valve End sizes	To suit open/close time. Vendor to specify		
15. Cable entry	1/2 " conduit		
D. QUICK EXHAUST VALVE		To meet O.13	
1. Make/type No	Vendor to specify		
2. Port Connection	Vendor to specify		
E.FLOW RESTRICTOR		To meet O.14	
1. Make/type No	Vendor to specify		
2. Port Connection	Vendor to specify		
3. Adjustable Time Range	Vendor to specify		
F. AIRSET		Type No – Make & Model	
1. Airset set pr	End Conn.	Vendor to specify	
G.LIMIT SWITCHES		2 NOS 1 no Open, 1no Close	
1. Make/Type No	Vendor to specify		
2. Mounted For	Full open	Full close	% Open
3. Contacts	DPDT (2NO+2NC)		
4. Contact Rating	240Ac 10Amp	220 Dc	0.25 Amp
5. Enclosure	NEMA 7 & 9 Explosion Proof		
6.Cable Entry	1/2" - 14 NPSM		
H. PNEUMATIC TERMINAL		To suit 3/8" SS tube. Vendor to specify.	
BHEL		VENDOR	
PREPARED BY	APPROVED	DATE	PREPARED BY
Sairam N	MCHS Gangadhar	27/02/19	
			APPROVED BY
			DATE



BHEL SPECIFICATION			VENDOR CONFIRMATION		
I. JUNCTION BOX					
1. Enclosure	NEMA 7 & 9 Explosion Proof				
2. No. of Terminals	Vendor to specify				
3. Spares offer	commissioning / Customer				
REFERENCE DOCUMENTS: (SPECIFY DWG/MANUAL REF. NOS. BELOW)					
1. Assy Dimensional Dwg	Vendor to furnish				
2. Assy Hookup Dwg	Vendor to furnish				
3. Spares Catalogue/DRG No	Vendor to specify				
J. MARKING					
1. S S name plate	Vendor to specify				
2. Spares individually tagged	Vendor to specify				
K. PAINTING			Epoxy coated		
L. PACKING			Land worthy		
M. TEST CERTIFICATES					
1. Hydraulic test					
2. Seat leak test	Vendor to specify				
3. Material certificates	Vendor to specify				
4. Std. test on Actuator	Vendor to specify				
5. Dimensional test	Vendor to specify				
N. OPR. & INSTRN. MANUALS					
1. 6 Hard copies & 1 soft form	Vendor to confirm				
IIB	SPECIAL CONTRACT REQUIREMENT, IF ANY				
	1. Enclosures for all accessories shall be explosion proof suitable for COG - Class -I, Zone -II, Group-II B T2 to the extent of IS-5572. 2. All counter flanges, fasteners and gaskets shall be in vendor's scope. 3. Valve mounting position shall be suitable for both horizontal and vertical pipe mounting. Vendor to confirm to each point of the special contract requirements. (USE AN ANNEXURE IF THIS SPACE IS INADEQUATE)				
BHEL			VENDOR		
PREPARED BY	APPROVED BY	DATE	PREPARED BY	APPROVED BY	DATE
Sairam N	MCHS Gangadhar	27/02/19			



**FUEL SYSTEMS
PE (BOILERS)**

**TOS:TSK:005/ REV:01
SHEET 17 OF 28**

**PART - I: DATASHEET FOR BUTTERFLY TRIP VALVE
BFG C-HEADER VENT VALVE (Tag: BG42A-B)**

UNITS: Flow-Liquid Cu m/ hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-° C
BHEL Material Code: L143014220010005

O.FLOW DATA		C.SOLENOID PILOT	
1. Line Fluid		1. Make / Type No	
2. Flow Max		2. Style	
3. Normal in pr		3. To Open Main Valve	De-Energise Solenoid coil
4. Allowable DP		4. To Close Main Valve	Energise Solenoid coil
5. Actuator Sizing DP		5. Enclosure	
6. Temp Max		6. Coil Duty	Continuous, for 100° C ambient
7.Flow Temp		7. Coil Rating	24V DC
8. Flow Sp Gravity		8. Insulation Class	
9. Flow Viscosity		9. Inrush / Hold Wattage	
10. Max Flow Cv		10. Valve Flow Cv	
11. Flap rotation %		11. Body Material	Forged Brass
12. Valve Cv		12. Wetted parts	Stainless Steel
13. Valve Closing Time	Sec.	13. Seating	Resilient for tight shut
14. Valve Opening Time	Sec. Adjustable	14. Valve Ends	
		15. Cable entry	
A. VALVE BODY		16. Terminal Block	Provided
1. Make/Type No		D. QUICK EXHAUST VL	To meet O.13
2. Line Size	ODxT mm	1. Make/type No	
3. Body/port Size	Nb mm	2. Port Conn	
4. Flap rotation	degrees		
5. Body Style / Rating	NP	E. FLOW RESTRICTOR	To meet O.14
6. Ends	Flanged to :	1. Make/Type No	
7. Valve Disc type		2. Port Conn	
8. Disc Material		3. Adjustable Time Range	
9. Body Matl	Carbon Steel		
10. Seat Material		F. AIRSET	Type No
11. Stem Size /Material		1. Airset set pressure	
12.Seal Matl		2. End Connection	
13. Seat Leak Class	Bubble tight shut off as per API 598	G. LIMIT SWITCHES	off
14. Bonnet / packing		1. Make/Type No	
15. Noise Level		2. Mounted For	Full open Full close % Open
16. Mating flanges	To suit valve & line size	3. Contacts	Off
17. Fasteners for flanges	Qty	4. Contact Rating	240Ac 10Amp 110 Dc 0.5 Amp
18. Non-asbestos gaskets	Specify	5. Enclosure	
19. Handwheel material	Cast steel	6.Cable Entry	
		H. JUNCTION BOX	Provided
		1.Enclosure	
		2. No. of Terminals	
		I.SUPPLY CONDITION	
		1. Assembly – 1	
		2. Assembly – 2	
		3. Pneumatic Terminal	To suit 3/8" tubing. Vendor to specify.
		4. Spares	individually tagged and packed
B. ACTUATOR ASSY		IBR	NO
1. Make/Type No		REF. DOCUMENTS:(SPECIFY DWG/MANUAL REF.Nos.BELOW)	
2. Style		1.Assy Dimensional Dwg	
3. Size/Volume		2.Assy Hookup Dwg	
4. Spring No/Range		S.No	ITEM
5. Spring to	Open	O & M Manual	Spares identifier
6. Air to	Close		Catalog&Spec
7. Signal pr		3	A
8. Pr port Conn		4	B
9. On Air Failure	Stay Put	5	B 11
10. Lockup Valve type No		6	C
11. Lockup Valve Set pr		7	D
12. Available air pressure	4 kg/sqcm(g)	8	E
		9	F
		10	G
PREPARED BY (VENDOR)		DATE	APPROVED BY (BHEL)
			DATE



**FUEL SYSTEMS
PE (BOILERS)**

**TOS:TSK:005/ REV:01
SHEET 18 OF 28**

**PART - II: VENDOR CHECK LIST FOR BUTTERFLY TRIP VALVE
BFG C-HEADER VENT VALVE (Tag: BG42A-B)**

BHEL MATERIAL CODE: L143014220010005

ENQUIRY No.:

UNITS: Flow-Liquid Cu m/ hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-°C

IIB	BHEL SPECIFICATION	VENDOR CONFIRMATION			
J.APPLICABLE STANDARDS:					
1.Control valve sizing equations	ANSI / ISA S75.01				
2. Control valve capacity test procedure	ANSI / ISA S75.02				
3. Seat leakage	API 598				
4. Face to face dimensions.	Vendor to specify				
5. Flange dimensions & drilling	Vendor to specify				
O.FLOW DATA					
1. Line Fluid	Blast Furnace Gas (BFG)+LD gas				
2. Flow Max	112500 Nm ³ /hr				
3. Normal in pr	650 mm wc				
4. Allowable DP	5 mm wc				
5. Actuator Sizing DP	1800 mm wc				
6. Temp Max	50°C				
7.Flow Temp	27°C				
8. Flow Sp Gravity	1.011				
9. Flow Viscosity	18.882 x 10 ⁻⁶ Ns/Sq.m				
10. Max Flow Cv	Vendor to specify				
11. Flap rotation (%)	Full				
12. Valve Cv	Vendor to specify				
13. Valve Closing Time	< 3 Sec.				
14. Valve Opening Time	6 to 10 Sec. Adjustable				
A. VALVE BODY					
1. Make/Type No	Vendor to specify				
2. Line Size mm	OD 711 x 8 t				
3. Body / port Size mm	NB700 mm				
4. Flap rotation (degrees)	Vendor to specify				
5. Body Style / Rating	Flanged PN 6 or higher				
6. Ends	Flanged				
7. Valve disc type	Double Eccentric type				
8. Disc Material	Carbon Steel				
9. Body Matl	Carbon Steel				
10. Seat Matl	Vendor to specify				
11. Hand wheel Matl	Cast steel				
12. Stem Size / Matl	Vendor to specify / SS				
13. Seal Matl	Vendor to specify				
14. Seat Leak Class	Bubble tight shut-off as per API 598				
15. Bonnet / packing	Std / Extended Specify				
16. Noise Level	< 85 dBA				
17. Valve Internals	Shall not vibrate				
18. Mating flange	To suit valve end & stated line size				
19. Fasteners for End flanges	ASTM A193 GRB				
20. Gaskets	Non asbestos				
BHEL		VENDOR			
PREPARED BY	APPROVED	DATE	PREPARED BY	APPROVED BY	DATE
Sairam N	MCHS Gangadhar	27/02/19			

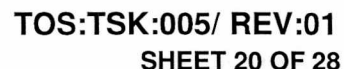


**PART - II: VENDOR CHECK LIST FOR BUTTERFLY TRIP VALVE
BFG C-HEADER VENT VALVE (Tag: BG42A-B)**

BHEL MATERIAL CODE: L143014220010005 ENQUIRY No.:

UNITS: Flow-Liquid Cu m / hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-°C

IIA BHEL SPECIFICATION		VENDOR CONFIRMATION	
B. ACTUATOR ASSY		Spring return piston type (rotary)	
1. Make/Type No	Vendor to specify		
2. Style	Vendor to specify		
3. Size/Volume	Vendor to specify		
4. Spring No/Range	Vendor to specify		
5. Spring to	Open		
6. Air to	Close		
7. Signal pr	Vendor to specify		
8. Pr port Conn	Vendor to specify		
09. On Air Failure	Stay Put		
10. Lockup Valve type No	Vendor to specify		
11. Lockup Valve Set pr	Vendor to specify		
12. Available air pressure	4 kg/sq.cm(g)		
C.SOLENOID PILOT		3Way Single coil 24 V DC	
1. Make / Type No	Vendor to specify		
2. Style	Vendor to specify		
3. To Open Main Valve	De-Energise Solenoid coil		
4. To Close Main Valve	Energise Solenoid coil		
5. Enclosure	NEMA 7 & 9 Explosion Proof		
6. Coil Duty	Continuous, for 100° C ambient		
7. Coil Rating	24V DC; SINGLE COIL		
8. Insulation Class	Class H		
9. Inrush / Hold Wattage	Vendor to specify		
10. Valve Flow Cv	Vendor to specify		
11. Body Matl	Forged Brass		
12. Wetted parts	Stainless Steel		
13. Seating	Resilient for tight shut		
14. Valve End sizes	To suit open/close time. Vendor to specify		
15. Cable entry	1/2 " conduit		
D. QUICK EXHAUST VALVE		To meet O.13	
1. Make/type No	Vendor to specify		
2. Port Connection	Vendor to specify		
E.FLOW RESTRICTOR		To meet O.14	
1. Make/type No	Vendor to specify		
2. Port Connection	Vendor to specify		
3. Adjustable Time Range	Vendor to specify		
F. AIRSET		Type No – Make & Model	
1. Airset set pr	End Conn.	Vendor to specify	
G.LIMIT SWITCHES		2 NOS 1 no Open, 1no Close	
1. Make/Type No	Vendor to specify		
2. Mounted For	Full open	Full close	% Open
3. Contacts	DPDT (2NO+2NC)		
4. Contact Rating	240Ac 10Amp	220 Dc	0.25 Amp
5. Enclosure	NEMA 7 & 9 Explosion Proof		
6.Cable Entry	1/2" - 14 NPSM		
H. PNEUMATIC TERMINAL		To suit 3/8" SS tube. Vendor to specify.	
BHEL		VENDOR	
PREPARED BY	APPROVED	DATE	PREPARED BY
Sairam N	MCHS Gangadhar	27/02/19	
			APPROVED BY
			DATE



UNITS: Flow-Liquid Cu m / hr, Steam-Kg / hr, Gas-NCu m / hr, Pr-kg / cmSq (g), Temp-°C

IIA		BHEL SPECIFICATION	VENDOR CONFIRMATION		
I. JUNCTION BOX					
1.Enclosure		NEMA 7 & 9 Explosion Proof			
2. No. of Terminals		Vendor to specify			
3.Spares offer		commissioning / Customer			
REFERENCE DOCUMENTS:(SPECIFY DWG/MANUAL REF.NOs.BELOW)					
1. Assy Dimensional Dwg		Vendor to furnish			
2. Assy Hookup Dwg		Vendor to furnish			
3.Spares Catalogue/DRG No		Vendor to specify			
J.MARKING					
1.S S name plate		Vendor to specify			
2. Spares individually tagged		Vendor to specify			
K. PAINTING		Epoxy coated			
L.PACKING		Land worthy			
M.TEST CERTIFICATES					
1.Hydraulic test					
2.Seat leak test		Vendor to specify			
3.Material certificates		Vendor to specify			
4.Std. test on Actuator		Vendor to specify			
5.Dimensional test		Vendor to specify			
N.OPR. & INSTRN. MANUALS					
1.6 Hard copies & 1 soft form		Vendor to confirm			
IIB	SPECIAL CONTRACT REQUIREMENT, IF ANY				
	1.Enclosures for all accessories shall be explosion proof suitable for BFG area Class-I, Zone- II, Group- II A, T2 to the extent of IS- 5572. 2.All counter flanges, fasteners and gaskets shall be in vendor's scope. 3.Valve mounting position shall be suitable for both horizontal and vertical pipe mounting. Vendor to confirm to each point of the special contract requirements. (USE AN ANNEXURE IF THIS SPACE IS INADEQUATE)				
BHEL			VENDOR		
PREPARED BY	APPROVED BY	DATE	PREPARED BY	APPROVED BY	DATE
Sairam N	MCHS Gangadhar	27/02/19			



**FUEL SYSTEMS
PE (BOILERS)**

**TOS:TSK:005/ REV:01
SHEET 21 OF 28**

**PART - I: DATASHEET FOR BUTTERFLY TRIP VALVE
BFG BURNER TRIP VALVE (Tag: BG62A--H)**

UNITS: Flow-Liquid Cu m/ hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-° C

BHEL Material Code: L143014220010006

O.FLOW DATA		C.SOLENOID PILOT	
1. Line Fluid		1. Make / Type No	
2. Flow Max		2. Style	
3. Normal in pr		3. To Open Main Valve	Energise Solenoid coil
4. Allowable DP		4. To Close Main Valve	De-Energise Solenoid coil
5. Actuator Sizing DP		5. Enclosure	
6. Temp Max		6. Coil Duty	Continuous, for 100° C ambient
7.Flow Temp		7. Coil Rating	24V DC
8. Flow Sp Gravity		8. Insulation Class	
9. Flow Viscosity		9. Inrush / Hold Wattage	
10. Max Flow Cv		10. Valve Flow Cv	
11. Flap rotation %		11. Body Material	Forged Brass
12. Valve Cv		12. Wetted parts	Stainless Steel
13. Valve Closing Time	Sec.	13. Seating	Resilient for tight shut
14. Valve Opening Time	Sec. Adjustable	14. Valve Ends	
		15. Cable entry	
		16. Terminal Block	Provided
A. VALVE BODY		D. QUICK EXHAUST VL	
1. Make/Type No		1. Make/type No	To meet O.13
2. Line Size	ODxT mm	2. Port Conn	
3. Body/port Size	Nb mm		
4. Flap rotation	degrees		
5. Body Style / Rating	NP	E. FLOW RESTRICTOR	
6. Ends	Flanged to :	To meet O.14	
7. Valve Disc type		1. Make/Type No	
8. Disc Material		2. Port Conn	
9. Body Matl	Carbon Steel	3. Adjustable Time Range	
10. Seat Material		F. AIRSET	
11. Stem Size /Material		Type No	
12.Seal Matl		1. Airset set pressure	
13. Seat Leak Class	Bubble tight shut off as per API 598	2. End Connection	
14. Bonnet / packing		G. LIMIT SWITCHES	
15. Noise Level		1. Make/Type No	off
16. Mating flanges	To suit valve & line size	2. Mounted For	Full open Full close % Open
17. Fasteners for flanges	Qty	3. Contacts	Off
18. Non-asbestos gaskets	Specify	4. Contact Rating	240Ac 10Amp 110 Dc 0.5 Amp
19. Handwheel material	Cast steel	5. Enclosure	
		6.Cable Entry	
		H. JUNCTION BOX	
		Provided	
		1.Enclosure	
		2. No. of Terminals	
		I.SUPPLY CONDITION	
		1. Assembly – 1	
		2. Assembly – 2	
		3. Pneumatic Terminal	To suit ½" SS tubing. Vendor to specify.
		4. Spares	individually tagged and packed
B. ACTUATOR ASSY		IBR	
1. Make/Type No		NO	
2. Style		REF. DOCUMENTS:(SPECIFY DWG/MANUAL REF.Nos.BELOW)	
3. Size/Volume		1.Assy Dimensional Dwg	
4. Spring No/Range		2.Assy Hookup Dwg	
5. Spring to	Close	S.No	ITEM
6. Air to	Open	O & M Manual	Spares identifier
7. Signal pr		Catalog&Spec	
8. Pr port Conn		3	A
9. On Air Failure	Stay Put	4	B
10. Lockup Valve type No		5	B 11
11. Lockup Valve Set pr		6	C
12. Available air pressure	4 kg/sqcm(g)	7	D
		8	E
		9	F
		10	G
PREPARED BY (VENDOR)		DATE	
APPROVED BY (BHEL)		DATE	



**FUEL SYSTEMS
PE (BOILERS)**

**TOS:TSK:005/ REV:01
SHEET 22 OF 28**

**PART - II: VENDOR CHECK LIST FOR BUTTERFLY TRIP VALVE
BFG BURNER TRIP VALVE (Tag: BG62A--H)**

BHEL MATERIAL CODE: L143014220010006

ENQUIRY No.:

UNITS: Flow-Liquid Cu m/ hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-°C

IIB	BHEL SPECIFICATION	VENDOR CONFIRMATION			
J. APPLICABLE STANDARDS:					
1. Control valve sizing equations	ANSI / ISA S75.01				
2. Control valve capacity test procedure	ANSI / ISA S75.02				
3. Seat leakage	API 598				
4. Face to face dimensions.	Vendor to specify				
5. Flange dimensions & drilling	Vendor to specify				
O. FLOW DATA					
1. Line Fluid	Blast Furnace Gas (BFG)+LD gas				
2. Flow Max	56250 Nm ³ /hr				
3. Normal in pr	400 mm wc				
4. Allowable DP	5 mm wc				
5. Actuator Sizing DP	1800 mm wc				
6. Temp Max	50° C				
7. Flow Temp	27° C				
8. Flow Sp Gravity	1.011				
9. Flow Viscosity	18.882 x 10 ⁻⁶ Ns/Sq.m				
10. Max Flow Cv	Vendor to specify				
11. Flap rotation (%)	Full				
12. Valve Cv	Vendor to specify				
13. Valve Closing Time	< 5 Sec.				
14. Valve Opening Time	6 to 10 Sec. Adjustable				
A. VALVE BODY					
1. Make/Type No	Vendor to specify				
2. Line Size mm	OD 1016 X 10 t				
3. Body / port Size mm	NB 1000 mm				
4. Flap rotation (degrees)	Vendor to specify				
5. Body Style / Rating	Flanged PN 6 or higher				
6. Ends	Flanged				
7. Valve disc type	Double Eccentric type				
8. Disc Material	Carbon Steel				
9. Body Matl	Carbon Steel				
10. Seat Matl	Vendor to specify				
11. Hand wheel Matl	Cast steel				
12. Stem Size / Matl	Vendor to specify / SS				
13. Seal Matl	Vendor to specify				
14. Seat Leak Class	Bubble tight shut-off as per API 598				
15. Bonnet / packing	Std / Extended Specify				
16. Noise Level	< 85 dBA				
17. Valve Internals	Shall not vibrate				
18. Mating flange	To suit valve end & stated line size				
19. Fasteners for End flanges	ASTM A193 GRB				
20. Gaskets	Non asbestos				
BHEL		VENDOR			
PREPARED BY	APPROVED	DATE	PREPARED BY	APPROVED BY	DATE
Sairam N	MCHS Gangadhar	27/02/19			



**FUEL SYSTEMS
PE (BOILERS)**

**TOS:TSK:005/ REV:01
SHEET 23 OF 28**

**PART - II: VENDOR CHECK LIST FOR BUTTERFLY TRIP VALVE
BFG BURNER TRIP VALVE (Tag: BG62A--H)**

BHEL MATERIAL CODE: L143014220010006

ENQUIRY No.:

UNITS: Flow-Liquid Cu m/ hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-°C

IIA		BHEL SPECIFICATION		VENDOR CONFIRMATION	
B. ACTUATOR ASSY		Spring return piston type (rotary)			
1. Make/Type No		Vendor to specify			
2. Style		Vendor to specify			
3. Size/Volume		Vendor to specify			
4. Spring No/Range		Vendor to specify			
5. Spring to		Close			
6. Air to		Open			
7. Signal pr		Vendor to specify			
8. Pr port Conn		Vendor to specify			
09. On Air Failure		Stay Put			
10. Lockup Valve type No		Vendor to specify			
11. Lockup Valve Set pr		Vendor to specify			
12. Available air pressure		4 kg/sq.cm(g)			
C.SOLENOID PILOT		3Way Single coil 24 V DC			
1. Make / Type No		Vendor to specify			
2. Style		Vendor to specify			
3. To Open Main Valve		Energise Solenoid coil			
4. To Close Main Valve		De- Energise Solenoid coil			
5. Enclosure		NEMA 7 & 9 Explosion Proof			
6. Coil Duty		Continuous, for 100° C ambient			
7. Coil Rating		24 V DC; SINGLE COIL			
8. Insulation Class		Class H			
9. Inrush / Hold Wattage		Vendor to specify			
10. Valve Flow Cv		Vendor to specify			
11. Body Matl		Forged Brass			
12. Wetted parts		Stainless Steel			
13. Seating		Resilient for tight shut			
14. Valve End size		To suit open/close time. Vendor to specify			
15. Cable entry		1/2 " conduit			
D. QUICK EXHAUST VALVE		To meet O.13			
1. Make/type No		Vendor to specify			
2. Port Connection		Vendor to specify			
E.FLOW RESTRICTOR		To meet O.14			
1. Make/type No		Vendor to specify			
2. Port Connection		Vendor to specify			
3. Adjustable Time Range		Vendor to specify			
F. AIRSET		Type No – Make & Model			
1. Airset set pr End Conn.		Vendor to specify			
G.LIMIT SWITCHES		2 NOS 1 no Open, 1no Close			
1. Make/Type No		Vendor to specify			
2. Mounted For		Full open Full close % Open			
3. Contacts		DPDT (2NO+2NC)			
4. Contact Rating		240Ac 10Amp 220 Dc 0.25 Amp			
5. Enclosure		NEMA 7 & 9 Explosion Proof			
6.Cable Entry		1/2" - 14 NPSM			
H. PNEUMATIC TERMINAL		To suit 1/2" SS tube. Vendor to specify.			
BHEL				VENDOR	
PREPARED BY		APPROVED	DATE	PREPARED BY	APPROVED BY DATE
Sairam N		MCHS Gangadhar	27/02/19		



**FUEL SYSTEMS
PE (BOILERS)**

**TOS:TSK:005/ REV:01
SHEET 24 OF 28**

**PART - II: VENDOR CHECK LIST FOR BUTTERFLY TRIP VALVE
BFG BURNER TRIP VALVE (Tag: BG62A--H)**

BHEL MATERIAL CODE: L143014220010006

ENQUIRY No.:

UNITS: Flow-Liquid Cu m/ hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-°C

IIA		BHEL SPECIFICATION	VENDOR CONFIRMATION		
I. JUNCTION BOX					
1.Enclosure		NEMA 7 & 9 Explosion Proof			
2. No. of Terminals		Vendor to specify			
3.Spares offer		commissioning / Customer			
REFERENCE DOCUMENTS:(SPECIFY DWG/MANUAL REF.NO.s.BELOW)					
1. Assy Dimensional Dwg		Vendor to furnish			
2. Assy Hookup Dwg		Vendor to furnish			
3.Spares Catalogue/DRG No		Vendor to specify			
J.MARKING					
1.S S name plate		Vendor to specify			
2. Spares individually tagged		Vendor to specify			
K. PAINTING		Epoxy coated			
L.PACKING		Land worthy			
M.TEST CERTIFICATES					
1.Hydraulic test					
2.Seat leak test		Vendor to specify			
3.Material certificates		Vendor to specify			
4.Std. test on Actuator		Vendor to specify			
5.Dimensional test		Vendor to specify			
N.OPR. & INSTRN. MANUALS					
1.6 Hard copies & 1 soft form		Vendor to confirm			
IIB SPECIAL CONTRACT REQUIREMENT, IF ANY					
		1.Enclosures for all accessories shall be explosion proof suitable for BFG area Class-I, Zone- II, Group- II A, T2 to the extent of IS- 5572. 2.All counter flanges, fasteners and gaskets shall be in vendor's scope. 3.Valve mounting position shall be suitable for both horizontal and vertical pipe mounting. Vendor to confirm to each point of the special contract requirements.			
		(USE AN ANNEXURE IF THIS SPACE IS INADEQUATE)			
BHEL			VENDOR		
PREPARED BY	APPROVED BY	DATE	PREPARED BY	APPROVED BY	DATE
Sairam N	MCHS Gangadhar	27/02/19			



**FUEL SYSTEMS
PE (BOILERS)**

**TOS:TSK:005/ REV:01
SHEET 25 OF 28**

**PART - I: DATASHEET FOR BUTTERFLY TRIP VALVE
BFG CORNER VENT VALVE (BG60A-D)**

UNITS: Flow-Liquid Cu m/ hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-° C
BHEL Material Code: L143014220010007

O.FLOW DATA		C.SOLENOID PILOT			
1. Line Fluid		1. Make / Type No			
2. Flow Max		2. Style			
3. Normal in pr		3. To Open Main Valve	De-Energise Solenoid coil		
4. Allowable DP		4. To Close Main Valve	Energise Solenoid coil		
5. Actuator Sizing DP		5. Enclosure			
6. Temp Max		6. Coil Duty	Continuous, for 100° C ambient		
7.Flow Temp		7. Coil Rating	24V DC		
8. Flow Sp Gravity		8. Insulation Class			
9. Flow Viscosity		9. Inrush / Hold Wattage			
10. Max Flow Cv		10. Valve Flow Cv			
11. Flap rotation %		11. Body Material	Forged Brass		
12. Valve Cv		12. Wetted parts	Stainless Steel		
13. Valve Closing Time	Sec.	13. Seating	Resilient for tight shut		
14. Valve Opening Time	Sec. Adjustable	14. Valve Ends			
		15. Cable entry			
A. VALVE BODY		16. Terminal Block	Provided		
1. Make/Type No		D. QUICK EXHAUST VL	To meet O.13		
2. Line Size	ODxT mm	1. Make/type No			
3. Body/port Size	Nb mm	2. Port Conn			
4. Flap rotation	degrees				
5. Body Style / Rating	NP	E. FLOW RESTRICTOR	To meet O.14		
6. Ends	Flanged to :	1. Make/Type No			
7. Valve Disc type		2. Port Conn			
8. Disc Material		3. Adjustable Time Range			
9. Body Matl	Carbon Steel				
10. Seat Material		F. AIRSET	Type No		
11. Stem Size /Material		1. Airset set pressure			
12.Seal Matl		2. End Connection			
13. Seat Leak Class	Bubble tight shut off as per API 598	G. LIMIT SWITCHES			off
14. Bonnet / packing		1. Make/Type No			
15. Noise Level		2. Mounted For	Full open	Full close	% Open
16. Mating flanges	To suit valve & line size	3. Contacts			Off
17. Fasteners for flanges	Qty	4. Contact Rating	240Ac 10Amp	110 Dc 0.5 Amp	
18. Non-asbestos gaskets	Specify	5. Enclosure			
19. Handwheel material	Cast steel	6.Cable Entry			
		H. JUNCTION BOX	Provided		
		1.Enclosure			
		2. No. of Terminals			
		I.SUPPLY CONDITION			
		1. Assembly – 1			
		2. Assembly – 2			
		3. Pneumatic Terminal	To suit 3/8" SS tubing. Vendor to specify.		
		4. Spares	individually tagged and packed		
B. ACTUATOR ASSY		IBR	NO		
1. Make/Type No		REF. DOCUMENTS:(SPECIFY DWG/MANUAL REF.Nos.BELOW)			
2. Style		1.Assy Dimensional Dwg			
3. Size/Volume		2.Assy Hookup Dwg			
4. Spring No/Range		S.No	ITEM	O & M Manual	Spares identifier
5. Spring to	Open				Catalog&Spec
6. Air to	Close	3	A		
7. Signal pr		4	B		
8. Pr port Conn		5	B 11		
9. On Air Failure	Stay Put	6	C		
10. Lockup Valve type No		7	D		
11. Lockup Valve Set pr		8	E		
12. Available air pressure	4 kg/sqcm(g)	9	F		
		10	G		
PREPARED BY (VENDOR)		DATE	APPROVED BY (BHEL)		DATE

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**FUEL SYSTEMS
PE (BOILERS)**

**TOS:TSK:005/ REV:01
SHEET 26 OF 28**

**PART - II: VENDOR CHECK LIST FOR BUTTERFLY TRIP VALVE
BFG CORNER VENT VALVE (BG60A-D)**

BHEL MATERIAL CODE: L143014220010007

ENQUIRY No.:

UNITS: Flow-Liquid Cu m/ hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-°C

IIB	BHEL SPECIFICATION	VENDOR CONFIRMATION
J. APPLICABLE STANDARDS:		
1. Control valve sizing equations	ANSI / ISA S75.01	
2. Control valve capacity test procedure	ANSI / ISA S75.02	
3. Seat leakage	API 598	
4. Face to face dimensions.	Vendor to specify	
5. Flange dimensions & drilling	Vendor to specify	
O. FLOW DATA		
1. Line Fluid	Blast Furnace Gas (BFG)+LD gas	
2. Flow Max	56250 Nm ³ /hr	
3. Normal in pr	400 mm wc	
4. Allowable DP	5 mm wc	
5. Actuator Sizing DP	1800 mm wc	
6. Temp Max	50°C	
7. Flow Temp	27°C	
8. Flow Sp Gravity	1.011	
9. Flow Viscosity	18.882 x 10 ⁻⁶ Ns/Sq.m	
10. Max Flow Cv	Vendor to specify	
11. Flap rotation (%)	Full	
12. Valve Cv	Vendor to specify	
13. Valve Closing Time	< 3 Sec.	
14. Valve Opening Time	6 to 10 Sec. Adjustable	
A. VALVE BODY		
1. Make/Type No	Vendor to specify	
2. Line Size mm	OD 406.4 x 6.3 t	
3. Body / port Size mm	NB 400 mm	
4. Flap rotation (degrees)	Vendor to specify	
5. Body Style / Rating	Flanged PN 6 or higher	
6. Ends	Flanged	
7. Valve disc type	Double Eccentric type	
8. Disc Material	Carbon Steel	
9. Body Matl	Carbon Steel	
10. Seat Matl	Vendor to specify	
11. Hand wheel Matl	Cast steel	
12. Stem Size / Matl	Vendor to specify / SS	
13. Seal Matl	Vendor to specify	
14. Seat Leak Class	Bubble tight shut-off as per API 598	
15. Bonnet / packing	Std / Extended Specify	
16. Noise Level	< 85 dBA	
17. Valve Internals	Shall not vibrate	
18. Mating flange	To suit valve end & stated line size	
19. Fasteners for End flanges	ASTM A193 GRB	
20. Gaskets	Non asbestos	
BHEL		VENDOR
PREPARED BY	APPROVED	DATE
Sairam N	MCHS Gangadhar	27/02/19
PREPARED BY	APPROVED BY	DATE



**FUEL SYSTEMS
PE (BOILERS)**

TOS:TSK:005/ REV:01

SHEET 27 OF 28

**PART - II: VENDOR CHECK LIST FOR BUTTERFLY TRIP VALVE
BFG CORNER VENT VALVE (BG60A-D)**

BHEL MATERIAL CODE: L143014220010007

ENQUIRY No.:

UNITS: Flow-Liquid Cu M / hr, Steam-Kg / hr, Gas-NCu / hr, Pr-kg / cmSq (g), Temp-°C

IIA		BHEL SPECIFICATION		VENDOR CONFIRMATION	
B. ACTUATOR ASSY		Spring return piston type (rotary)			
1. Make/Type No		Vendor to specify			
2. Style		Vendor to specify			
3. Size/Volume		Vendor to specify			
4. Spring No/Range		Vendor to specify			
5. Spring to		Open			
6. Air to		Close			
7. Signal pr		Vendor to specify			
8. Pr port Conn		Vendor to specify			
09. On Air Failure		Stay Put			
10. Lockup Valve type No		Vendor to specify			
11. Lockup Valve Set pr		Vendor to specify			
12. Available air pressure		4 kg/sq.cm(g)			
C.SOLENOID PILOT		3Way Single coil 24 V DC			
1. Make / Type No		Vendor to specify			
2. Style		Vendor to specify			
3. To Open Main Valve		De-Energise Solenoid coil			
4. To Close Main Valve		Energise Solenoid coil			
5. Enclosure		NEMA 7 & 9 Explosion Proof			
6. Coil Duty		Continuous, for 100° C ambient			
7. Coil Rating		24V DC; SINGLE COIL			
8. Insulation Class		Class H			
9. Inrush / Hold Wattage		Vendor to specify			
10. Valve Flow Cv		Vendor to specify			
11. Body Matl		Forged Brass			
12. Wetted parts		Stainless Steel			
13. Seating		Resilient for tight shut			
14. Valve End size		To suit open/close time. Vendor to specify			
15. Cable entry		1/2 " conduit			
D. QUICK EXHAUST VALVE		To meet O.13			
1. Make/type No		Vendor to specify			
2. Port Connection		Vendor to specify			
E.FLOW RESTRICTOR		To meet O.14			
1. Make/type No		Vendor to specify			
2. Port Connection		Vendor to specify			
3. Adjustable Time Range		Vendor to specify			
F. AIRSET		Type No – Make & Model			
1. Airset set pr		End Conn.		Vendor to specify	
G.LIMIT SWITCHES		2 NOS 1 no Open, 1no Close			
1. Make/Type No		Vendor to specify			
2. Mounted For		Full open Full close % Open			
3. Contacts		DPDT (2NO+2NC)			
4. Contact Rating		240Ac 10Amp 220 Dc 0.25 Amp			
5. Enclosure		NEMA 7 & 9 Explosion Proof			
6.Cable Entry		1/2" - 14 NPSM			
H. PNEUMATIC TERMINAL		To suit 3/8" SS tube. Vendor to specify.			
BHEL				VENDOR	
PREPARED BY	APPROVED	DATE	PREPARED BY	APPROVED BY	DATE
Sairam N	MCHS Gangadhar	27/02/19			



**FUEL SYSTEMS
PE (BOILERS)**

**TOS:TSK:005/ REV:01
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**PART - II: VENDOR CHECK LIST FOR BUTTERFLY TRIP VALVE
BFG CORNER VENT VALVE (BG60A-D)**

BHEL MATERIAL CODE: L143014220010007

ENQUIRY No.:

UNITS: Flow-Liquid Cu m/ hr, Steam-Kg / hr, Gas-NCu m/ hr, Pr-kg / cmSq (g), Temp-°C

IIA		BHEL SPECIFICATION	VENDOR CONFIRMATION		
I. JUNCTION BOX					
1.Enclosure		NEMA 7 & 9 Explosion Proof			
2. No. of Terminals		Vendor to specify			
3.Spares offer		commissioning / Customer			
REFERENCE DOCUMENTS:(SPECIFY DWG/MANUAL REF.NOs.BELOW)					
1. Assy Dimensional Dwg		Vendor to furnish			
2. Assy Hookup Dwg		Vendor to furnish			
3.Spares Catalogue/DRG No		Vendor to specify			
J.MARKING					
1.S S name plate		Vendor to specify			
2. Spares individually tagged		Vendor to specify			
K. PAINTING		Epoxy coated			
L.PACKING		Land worthy			
M.TEST CERTIFICATES					
1.Hydraulic test					
2.Seat leak test		Vendor to specify			
3.Material certificates		Vendor to specify			
4.Std. test on Actuator		Vendor to specify			
5.Dimensional test		Vendor to specify			
N.OPR. & INSTRN. MANUALS					
1.6 Hard copies & 1 soft form		Vendor to confirm			
IIB SPECIAL CONTRACT REQUIREMENT, IF ANY					
		1.Enclosures for all accessories shall be explosion proof suitable for BFG area Class-I, Zone- II, Group- II A, T2 to the extent of IS- 5572. 2.All counter flanges, fasteners and gaskets shall be in vendor's scope. 3.Valve mounting position shall be suitable for both horizontal and vertical pipe mounting. Vendor to confirm to each point of the special contract requirements. (USE AN ANNEXURE IF THIS SPACE IS INADEQUATE)			
BHEL			VENDOR		
PREPARED BY	APPROVED BY	DATE	PREPARED BY	APPROVED BY	DATE
Sairam N	MCHS Gangadhar	27/02/19			