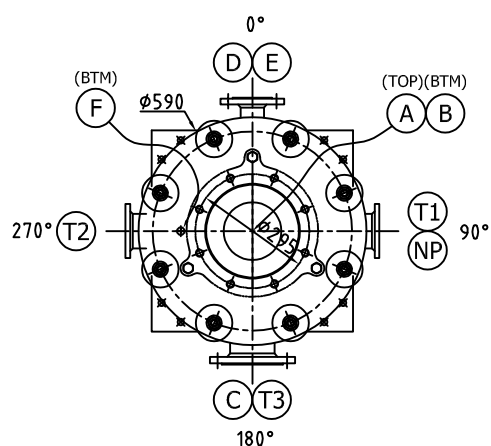


Orientation of nozzles, baffles, assembly alignment grooves, Supports, lifting lugs, nameplate, longitudinal seams, tie rods and screws are shown in plan view

NOZZLE ORIENTATION PLAN VIEW



NAME PLATE ITEM 26

posco

HEAT EXCHANGER

CODE & SPEC. 산업통상자원부 고시 제2023-1호

	SERVICE SIDE	PROCESS SIDE
DESIGN PRESS.	0.6 MPaG	0.6 MPaG
DESIGN TEMP.	165 °C	100 °C
CORR. ALLOW	3.0 mm	0 mm
M.A.W.P	- MPaG	- MPaG
HYDRO.TEST PRESS.	0.9 MPaG	0.9 MPaG
STRESS RELIEF	N/A	N/A
RADIOGRAPH	N/A	N/A
MATERIAL	SA106-B	GRAPHITE
THICKNESS	7.9 mm	1.75 mm
WEIGHT (EMPTY/OPERAT./F.W)	845 kg / 930 kg / 970 kg	
SURFACE AREA	9.0 m ²	P.W.H.T N/A
MANUFACTURER'S SERIAL NO	GM1691F	YEAR BUILT -
MANUFACTURER	CARBON KARAHM LTD. <small>Partner of SGL Carbon</small>	

INSPECTION AGENCY: 한국에너지공단

DESIGN & TEST DATA			
ITEM NO.	HEAT EXCHANGER	TEMA CLASS	"R"
NO. OF SHELLS	ONE (1)	TYPE	V-BEM
CODE	산업통상자원부 고시 제2023-1호		
LOCAL REGULATION	KEA		
SURFACE PER SHELL (M ²)	NOR.: 9.0 / EFF.: 9.0		
	SERVICE SIDE	PROCESS SIDE	
NO. OF PASSES	1	1	
FLUID CIRCULATED	STEAM	HCL 20%	
SPECIFIC GRAV.	-	-	
PRESSURE (MPaG)	DESIGN 0.6	OPERATING 0.6	
TEMP (°C)	DESIGN 165	OPERATING 100	
TEST PRESS (MPaG)	HYDROSTATIC 0.9	PNEUMATIC 0.9	
POST WELD HEAT TREATMENT	NO	NO	
RADIOGRAPHY	NO	NO	
JOINT EFFICIENCY (%)	100	100	
CORROSION ALLOW. (MM)	3.0	0	
INSULATION (MM) (MAT'L: -)	N/A	N/A	
SHOP PAINTING	PREPARATION	SSPC SP-10	
	PRIMER	EPOXY PRIMER 1 COAT, DFT 40um	
	INTERMEDIATE(SUPPORT)	-	
	FINISH	HEATPROOF PAINT, DFT 40um (SILVER)	
WEIGHT PER SHELL (ESTIMATED) (KG)	EMPTY 845	BUNDLE -	
	OPERATING 930	FULL OF WATER 970	

ATTENTION:
NEVER DISMOUNT THE HEAT EXCHANGER IN HORIZONTAL POSITION

- GENERAL NOTES**
- ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE NOTED.
 - ALL WELDS TO BE CONTINUOUS EXCEPT AS NOTED.
 - ALL WELD INSIDE SURFACE OF NOZZLES TO BE FULLY FLUSHED.
 - ALL FLANGE BOLT HOLES SHALL BE STRADDLE NORTH & SOUTH C.L. OR NATURAL HORIZ. & VERT. C.L. OF VESSEL.
 - NOZZLE PROJECTIONS ARE FROM CENTER LINE OF VESSEL OR NEAREST TANGENT LINE TO GASKET FACE OF FLANGE.
 - NOZZLE TO BOTH OF HEADER JOINT : GRAPHITE CEMENTED.
 - WIND VELOCITY : 45 m/s (UBC-97)
 - SEISMIC ZONE : 2A
 - LOCAL REGULATION : KEA

NOZZLE SCHEDULE

MARK	SIZE	Q'TY	SERVICE	RATING	FACING	TORQUE
A	DN150	1	PROCESS INLET	PN10	S.O-R.F	800kgf.cm
B	DN150	1	PROCESS OUTLET	PN10	S.O-R.F	800kgf.cm
C	DN100	1	SERVICE OUTLET	PN10	S.O-R.F	-
D	DN50	1	SERVICE INLET	PN10	S.O-R.F	-
E	1/2"	1	VENT W/PLUG	#3000	NPT	-
F	1/2"	1	DRAIN W/PLUG	#3000	NPT	-
S1-S3	-	3	TRUNNIONS/LIFTING LUG	-	-	-
NP	-	1	NAME PLATE	-	-	-

CONSTRUCTION PARTS LIST PER 1 SET

NO.	DESCRIPTION	DIMENSION	Q'TY	MATERIAL	REMARKS
1	CKL3(24) BLOCK	348x340H	6	DIABON-NS1	GRAPHITE
2	TOP HEADER	348x186H	1	DIABON-NS1	GRAPHITE
3	BOTTOM HEADER	348x164H	1	DIABON-NS1	GRAPHITE
4	GASKET (HEADER+BLOCK)	319x380x5.5T	2	PTFE+GR.	
5	GASKET (BLOCK+BLOCK)	319x380x5.5T	6	PTFE+GR.	
6	GASKET (HEADER+PLATE)	460x251x3T	1	VITON	
7	O-RING	15x1134L	1	VITON	
8	PRESSURE PAD (KLINGER)	342x241x2T	1	NON-ASBESTOS	#C-4243
9	FLOATING END FLANGE	590x246x50T	1	A105	
10	PACKING FLANGE	470x348x25T	1	A105	
11	FLOATING SHELL FLANGE	560x348x50T	1	A105	
12	FIXED SHELL FLANGE	520x390x40T	1	A105	
13	FIXED END FLANGE	520x520x40T	1	A105	
14	FLOATING BOLT/NUT	M22x460L	8	A193-B7	ZN PLATING
15	PACKING BOLT/NUT	M16x75L	8	A193-B7	ZN PLATING
16	FIXED BOLT/NUT	M24x155L	8	A193-B7	ZN PLATING
17	"A" NOZZLE BOLT/NUT	M20x90L	8	A193-B7	ZN PLATING
18	"B" NOZZLE BOLT/NUT	M20x90L	8	A193-B7	ZN PLATING
19	SHELL	406.4x390.6x2153L	1	SA106-B	400A, 7.9T
20	LIFTING LUG	122x120x9T	1	SA516-70	
21	LIFTING TRUNNION	140x1125L	2	SA516-70	
22	EARTH LUG	40x50x6T	2	STS304	
23	CENTERING DISC	90x238x40T	16	SS275	
24	COMPRESSION SPRING	24x62x200	8	SAE9254	
25	NAME PLATE	150x150x1T	1	STS304	
26	PT PLUG	PT1/2	2	304S.S	
27	TEFLON BELLOWS	DIN PN10 150x200L=155	2	PTFE+C.S	

◇					
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◇					
◇	2024.10.25	ISSUED FOR APPROVAL	BJ.JUNG	H.KIM	BJ.YOUN
NO.	DATE	DESCRIPTION	DWN	CHKD	APVD

FOR APPROVAL

NOZZLES	MAX. LOADS lb		MAX. MOMENTS ft-lb	
	F _x	F _y =F _z	M _x	M _y =M _z
GRAPHITE NOZZLES				
A	851	851	117	117
B	851	851	117	117
STEEL NOZZLES				
C	657	659	442	442
D	234	117	111	111

SEISMIC LOAD

WIND	SHARE (KG)	157.1
	MOMENT (KG.M)	197.3
EARTH -QUAKE	SHARE (KG)	165.4
	MOMENT (KG.M)	40.3

CLIENT: **posco**

FABRICATOR: **CARBON KARAHM LTD.**
Partner of SGL Carbon

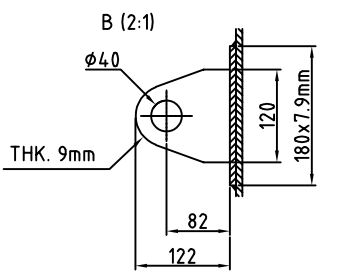
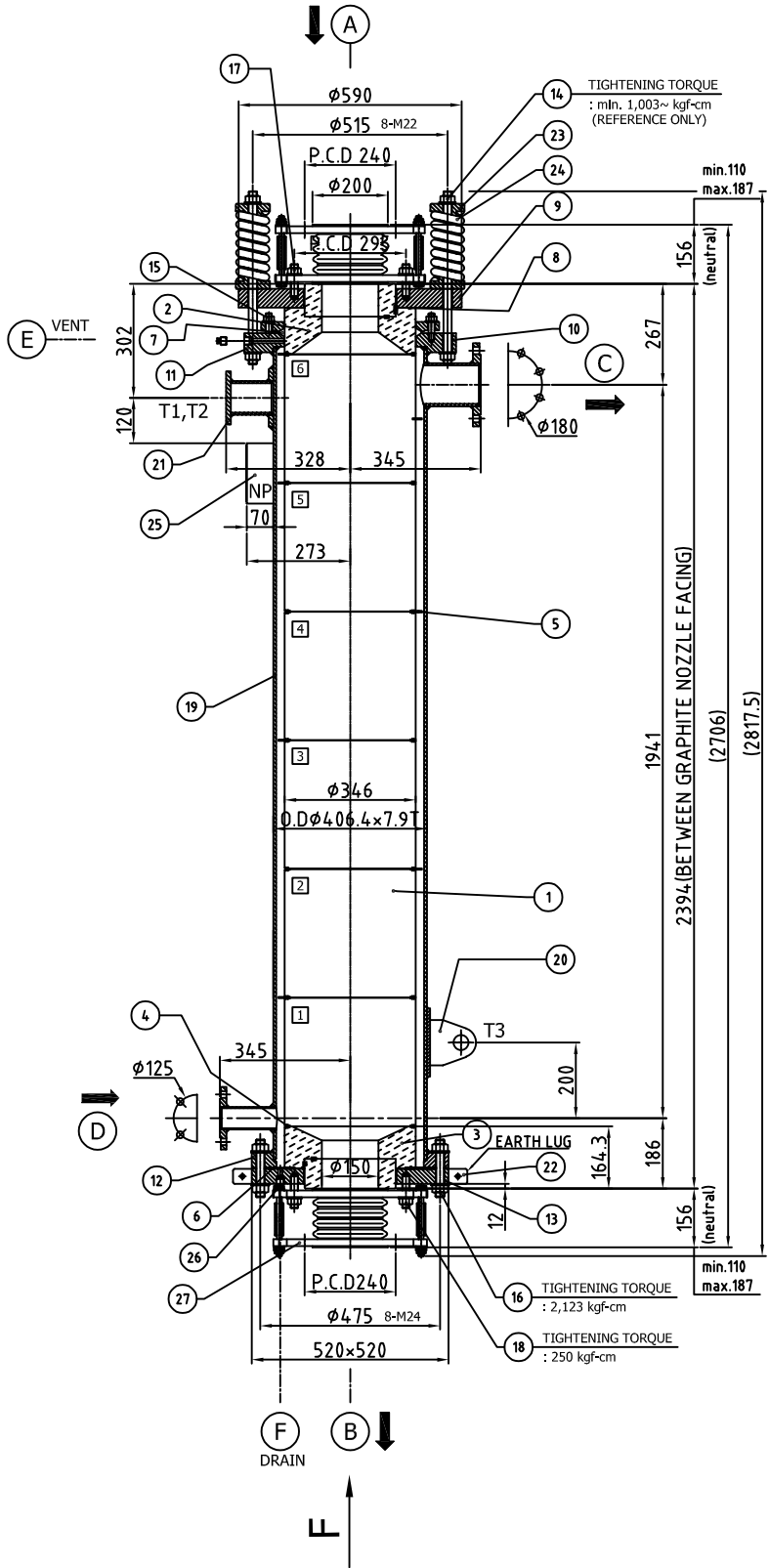
MODEL NAME: **CKL3-24-6-1.1**

TITLE: **HEAT EXCHANGER**

SCALE: 1/1 JOB NO.: -

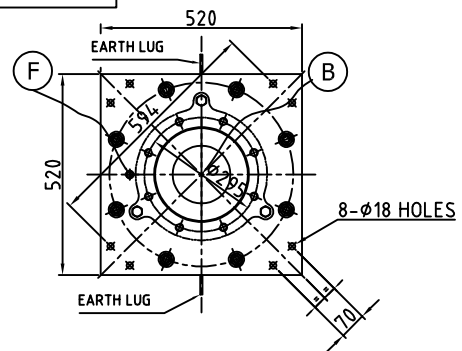
DRAWING NO.: **GM1691F**

REVISION: A



DETAIL OF LIFTING LUG

VIEW ACCORDING TO F BELOW VIEW



ATTENTION :
In case of stop , make sure the heat exchanger has been completely drained to prevent any damaged by freeing.

NOTE :
We recommend the use of PTFE-BELLOWS on graphite nozzles.