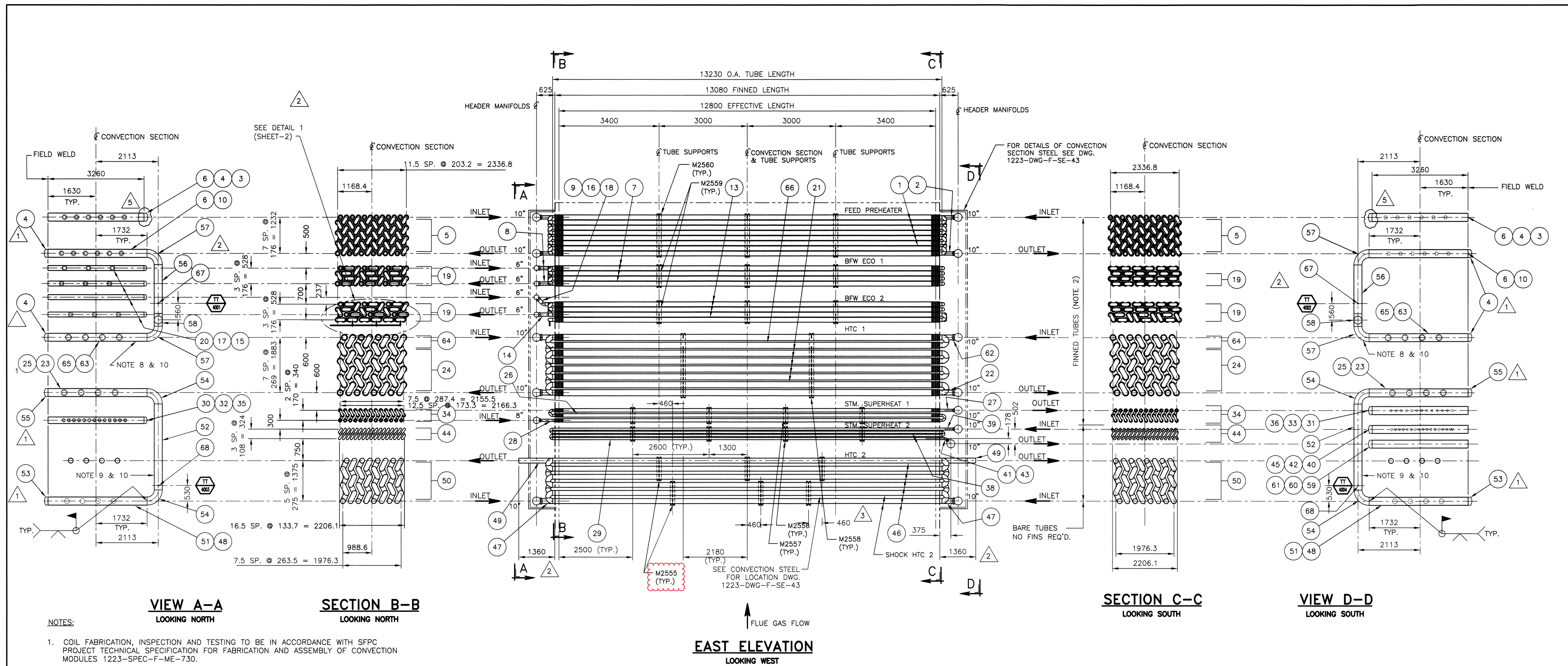




NOTES:

- COIL FABRICATION, INSPECTION AND TESTING TO BE IN ACCORDANCE WITH SFPC PROJECT TECHNICAL SPECIFICATION FOR FABRICATION AND ASSEMBLY OF CONVECTION MODULES 1223-SPEC-F-ME-730.
- FOR FINNED TUBE DETAILS SEE DRAWING 1223-DWG-F-ME-38. SOME BILL OF MATERIAL ITEMS MAY ONLY HAVE FINNING ON PARTIAL QUANTITIES. ACTUAL FINNING QUANTITIES ARE PER 1223-DWG-F-ME-38
- DESIGN CONDITIONS:

	FEED PREHEATER	BFW ECO 1	BFW ECO 2	HTC 1	STEAM SUPERHEAT 1	STEAM SUPERHEAT 2	HTC 2	SHOCK HTC 2
DESIGN TUBE METAL TEMPERATURE (DTMT) [°C]	371	371	371	545	565	545	780	765
DESIGN PRESSURE [BAR G]	9.6	96	96	9.1	94	91	8.6	8.6
MAXIMUM ALLOWABLE WORKING PRESSURE (MAWP) [BAR G]	64.3 @ 340°C	121	121	61.4 @ 340°C	106	119	51.8 @ 491°C	51.8 @ 491°C
SHOP HYDROSTATIC TEST PRESSURE [BAR G]	17.2	182 (NOTE 5)	182 (NOTE 5)	48.3	159 (NOTE 5)	179 (NOTE 5)	84.1	84.1
DESIGN CODE	API 530	ASME I	ASME I	API 530	ASME I	ASME I	API 530	API 530
CODE STAMP REQUIRED	NO	YES	YES	NO	YES	YES	NO	NO

- FOR MORE DETAILS, REER TO 1223-CALC-F-ME-46, "CONVECTION SECTION PRESSURE PART, MAWP & HYDROTEST CALCULATION".
- HYDROSTATIC TEST PRESSURE IS SET BY ASME BPVC SEC. I FOR CALCULATED MAWP.
- FOR INTERMEDIATE TUBE SUPPORTS SEE DRAWING 1223-DWG-F-ME-39.
- "MXXXX" INDICATES TUBE SUPPORT MARK NUMBER.
- 40mm of INSULATION ON JUMPERS FROM FEED PREHEATER TO HTC 1.
- 130mm of INSULATION ON JUMPERS FROM HTC 1 TO HTC 2.
- PIPING INSULATION SHALL BE PROVIDED AND INSTALLED IN THE FIELD BY OTHERS. INSULATION MATERIAL = CALCIUM SILICATE (240 KG/CU. M.).
- XX DENOTES INSTRUMENTATION TAG NUMBERS FOR FURNACE 3H-0101 ONLY. FOR ADDITIONAL FURNACE INSTRUMENT TAG NUMBERS REFER TO PROJECT P&ID.

6	2/7/07	REVISED MAWP AND HYDROTEST PRESSURE FOR ECO1 AND ECO2. REVISED MAWP FOR STEAM SUPERHEAT 1 AND SUPERHEAT 2	A.MCCALL	W. FISCH	S. MUSSER	J. DEISINGER	J. GARLAND
5	12/15/06	REMOVE HOLD ON PIPE CAPS	A.MCCALL	W. FISCH	S. MUSSER	J. DEISINGER	J. GARLAND
4	9/13/06	NOTE 8 & 9 INSULATION THK. WAS 95 AND 130 WAS 170, NOTE 10 INSULATION MAT'L. WAS MINERAL WOOL 140 Kg./CU. M. ITEM 67 & 68 WAS 10" X 3/4" SOCKOLET	R.KAMM	W. FISCH	S. MUSSER	J. DEISINGER	J. GARLAND
3	8/15/06	REVISE LOCATION OF LOWER TUBE SUPPORTS	R.KAMM	R. CLARK	S. MUSSER	J. DEISINGER	J. GARLAND
2	6/20/06	ADD COIL DRAIN, DETAIL 1, REMOVE HOLD ON DIMENSION 1360 ITEM 56 WAS QTY. 4 @ 831 LONG RELOCATE TEE ITEM 58 AND TT-4001, TT-4002	R.KAMM	W. FISCH	S. MUSSER	J. DEISINGER	J. GARLAND
1	4/17/06	ADD ITEMS 4, 53 & 55 IN VIEW A-A & D-D	R.KAMM	W. FISCH	S. MUSSER	J. DEISINGER	J. GARLAND
NO.	DATE	REVISIONS	DRAWN	CHECKED	DES. ENG.	PROJ. MGR.	APPROVED

ENGINEERING STATUS
CERTIFIED

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TITLE: CONVECTION COIL (7) ETHYLENE CRACKING FURNACES TASNEE, LINDE AL-JUBAIL, SAUDI ARABIA				DRAWN: W. FISCH 12/10/06 CHECKED: R. CLARK 12/10/06 MECH. ENG. S. MUSSER 12/10/06 STRUC. ENG. B. BEISCH 12/10/06 PROC. ENG. B. ZHAO 12/10/06 INSTR. ENG. J. DEISINGER 12/10/06 PROJ. MGR. J. DEISINGER 12/10/06 APPROVED: J. GARLAND 12/10/06			
SIZE D CONTRACT NO. 05F-5115				DRAWING NO. 1223-DWG-F-ME-34 SHEET 1 OF 2 REV. 6			

TASNEE ETHYLENE PROJECT

TASNEE
Petrochemicals
بنسوكيهاويات

Al-Jubail, Kingdom of Saudi Arabia



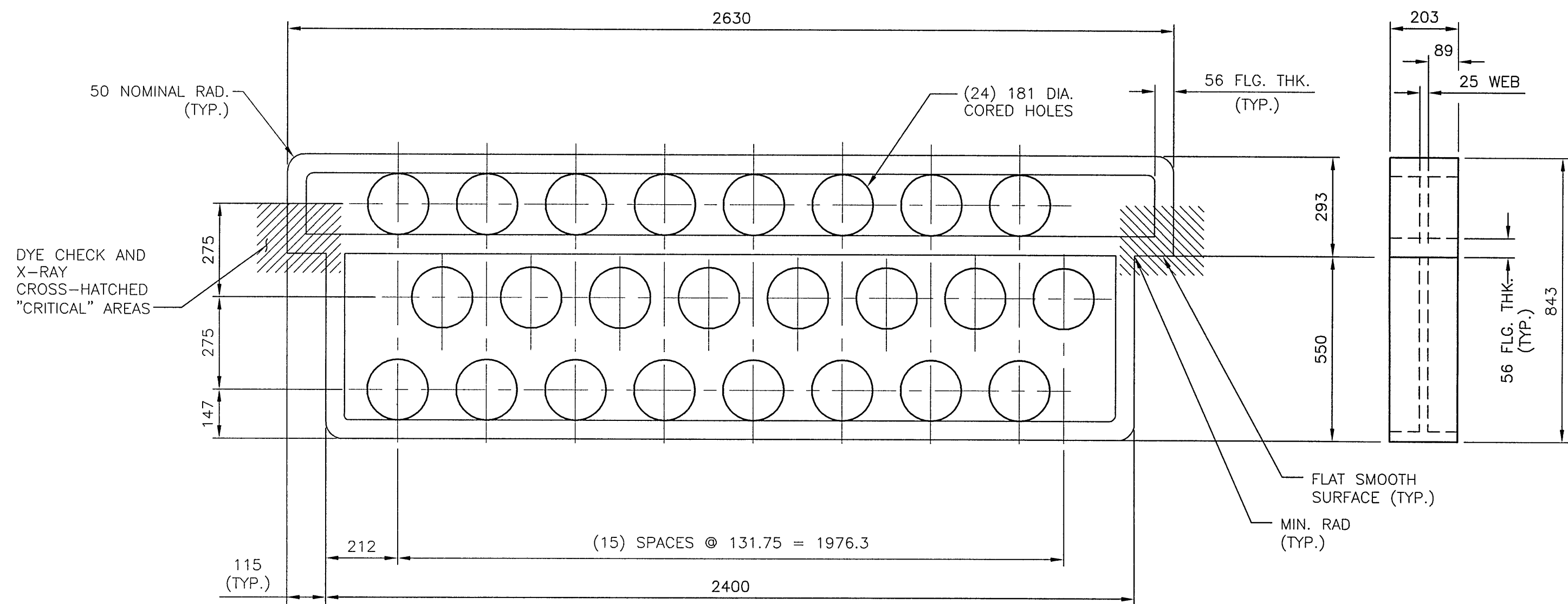
SAMSUNG
ENGINEERING

Samsung Job No.: SC-2060
Samsung Job Name: Tasnee Ethylene Project

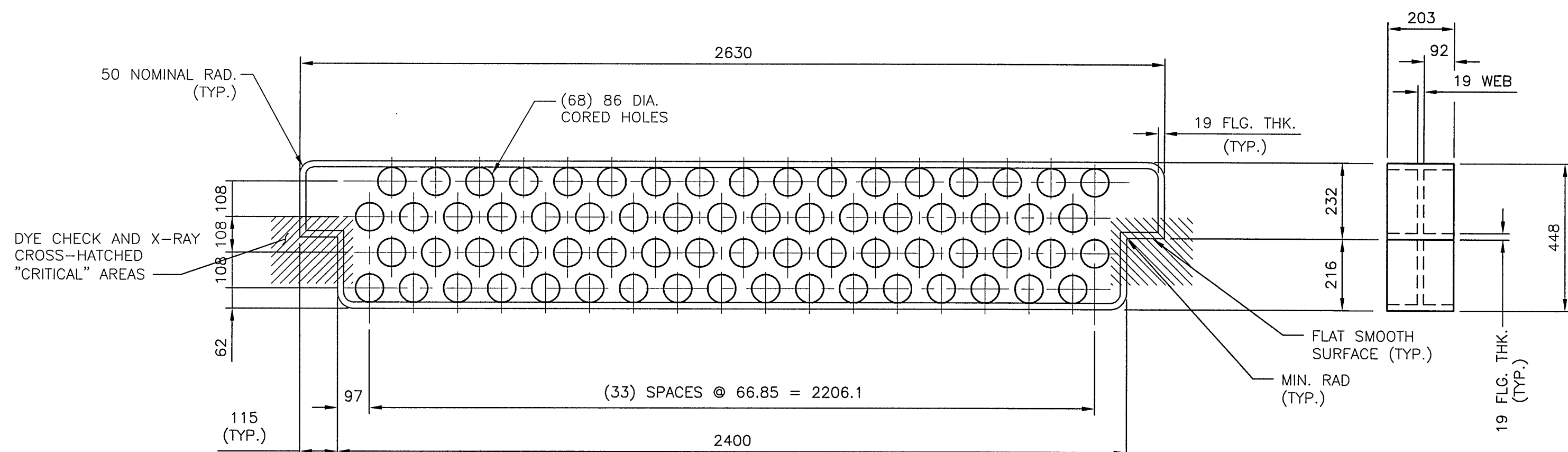


Linde Job No.: 31101199
Linde Job Code: Tasnee

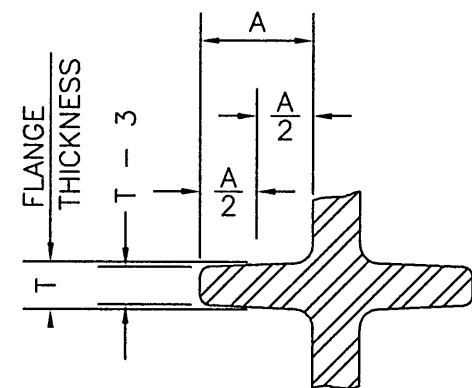
PROJ. DOC. NO. LSFP-B-ZA 0004.001



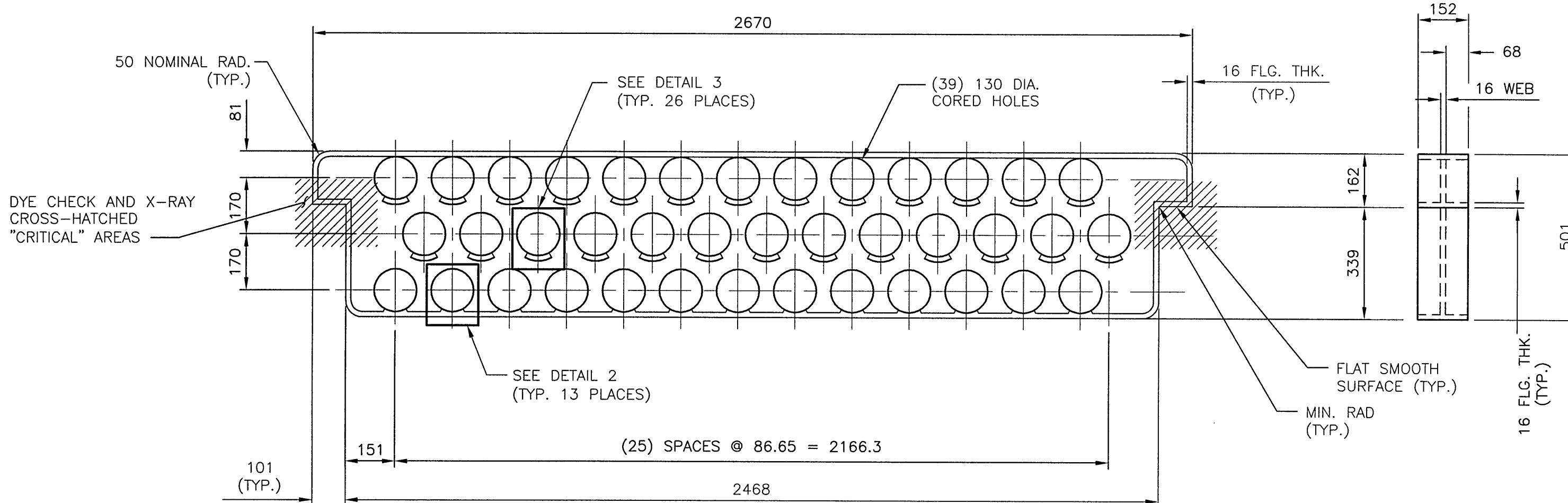
M2555
HTC 2
(6 REQUIRED PER FURNACE)



M2556
STEAM SUPERHEAT 2
(4 REQUIRED PER FURNACE)



TYPICAL FLANGE DETAIL



M2557
STEAM SUPERHEAT 1
(4 REQUIRED PER FURNACE)

BILL OF MATERIAL IS FOR ONE FURNACE (7) REQUIRED				
MARK	QTY	NAME	DESCRIPTION	MATERIAL
M2555	6	TUBE SUPPORT	USE WITH STEAM HTC 2 COIL	28Cr-48Ni-5W
M2556	4	TUBE SUPPORT	USE WITH STEAM SUPERHEAT 2 COIL	25Cr-20Ni A351 Gr. HK40
M2557	4	TUBE SUPPORT	USE WITH STEAM SUPERHEAT 1 COIL	25Cr-12Ni A447 TYPE II
M2558	2	TUBE SUPPORT	USE WITH STEAM HTC 1 COIL	19Cr-9Ni A297 Gr. HF
M2559	6	TUBE SUPPORT	USE WITH BFW ECO 1 AND 2 COILS	CARBON STEEL A216 Gr. WCB
M2560	3	TUBE SUPPORT	USE WITH FEED PREHEAT COIL	CARBON STEEL A216 Gr. WCB
M2561	12	SUPPORT BRACKET	USE WITH M2555	28Cr-48Ni-5W
M2562	8	SUPPORT BRACKET	USE WITH M2556	25Cr-20Ni A351 Gr. HK40
M2563	8	SUPPORT BRACKET	USE WITH M2557	25Cr-12Ni A447 TYPE II
M2564	4	SUPPORT BRACKET	USE WITH M2558	19Cr-9Ni A297 Gr. HF
M2565	18	SUPPORT BRACKET	USE WITH M2559 AND M2560	CARBON STEEL A216 Gr. WCB

NOTES:

- FOR CONVECTION SECTION COIL ARRANGEMENT SEE DRAWING 1223-DWG-F-ME-34.
- CASTING TO BE MANUFACTURED AND INSPECTED IN ACCORDANCE WITH SPECIFICATION SFPC-1223-SPEC-F-ME-601.
- ALL TUBE BEARING SURFACES MUST BE SMOOTH.

**ENGINEERING STATUS
CERTIFIED**

TASNEE ETHYLENE PROJECT

TASNEE
Petrochemicals
Al-Jubail, Kingdom of Saudi Arabia

SAMSUNG SAMSUNG ENGINEERING
Samsung Job No.: SC-2060
Samsung Job Name: Tasnee Ethylene Project

Linde
Linde Job No.: 31101199
Linde Job Code: Tasnee

PROJ. DOC. NO. LSFP-B-ZA 0006.001

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TITLE: CONVECTION CAST TUBE SUPPORTS (7) ETHYLENE CRACKING FURNACES

TASNEE, LINDE AL-JUBAIL, SAUDI ARABIA

SIZE: 05F-5115 DRAWING NO. 1223-DWG-F-ME-39 SHEET 1 OF 3 REV. 2

DATE: 3/27/06 REVISIONS: 2

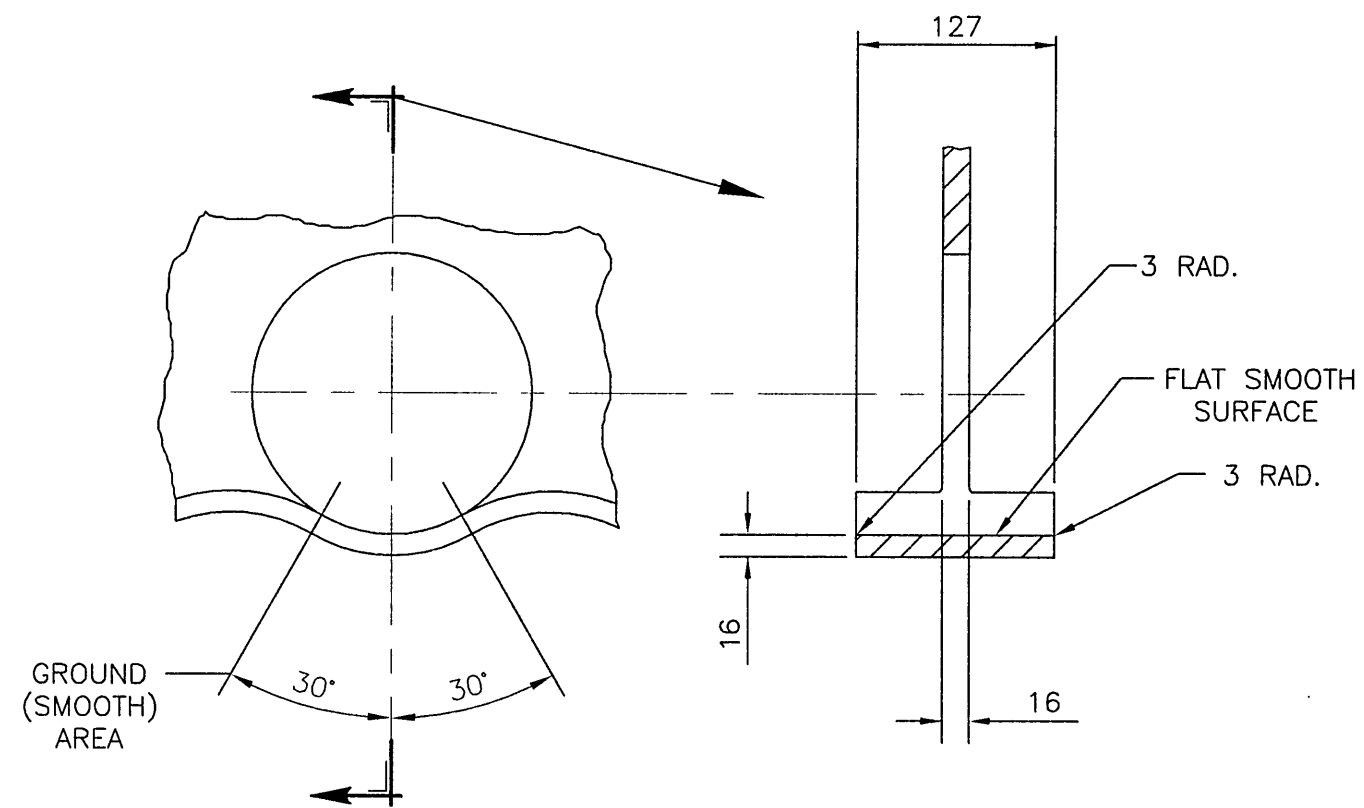
DESIGNER: J. FISCH CHECKED: R. CLARK DES. ENG. PROJ. MGR. APPROVED: J. GARLAND

DRAWN: D. HIGGS 11/22/06 PROC. ENG. B. ZHAO 12/08/06

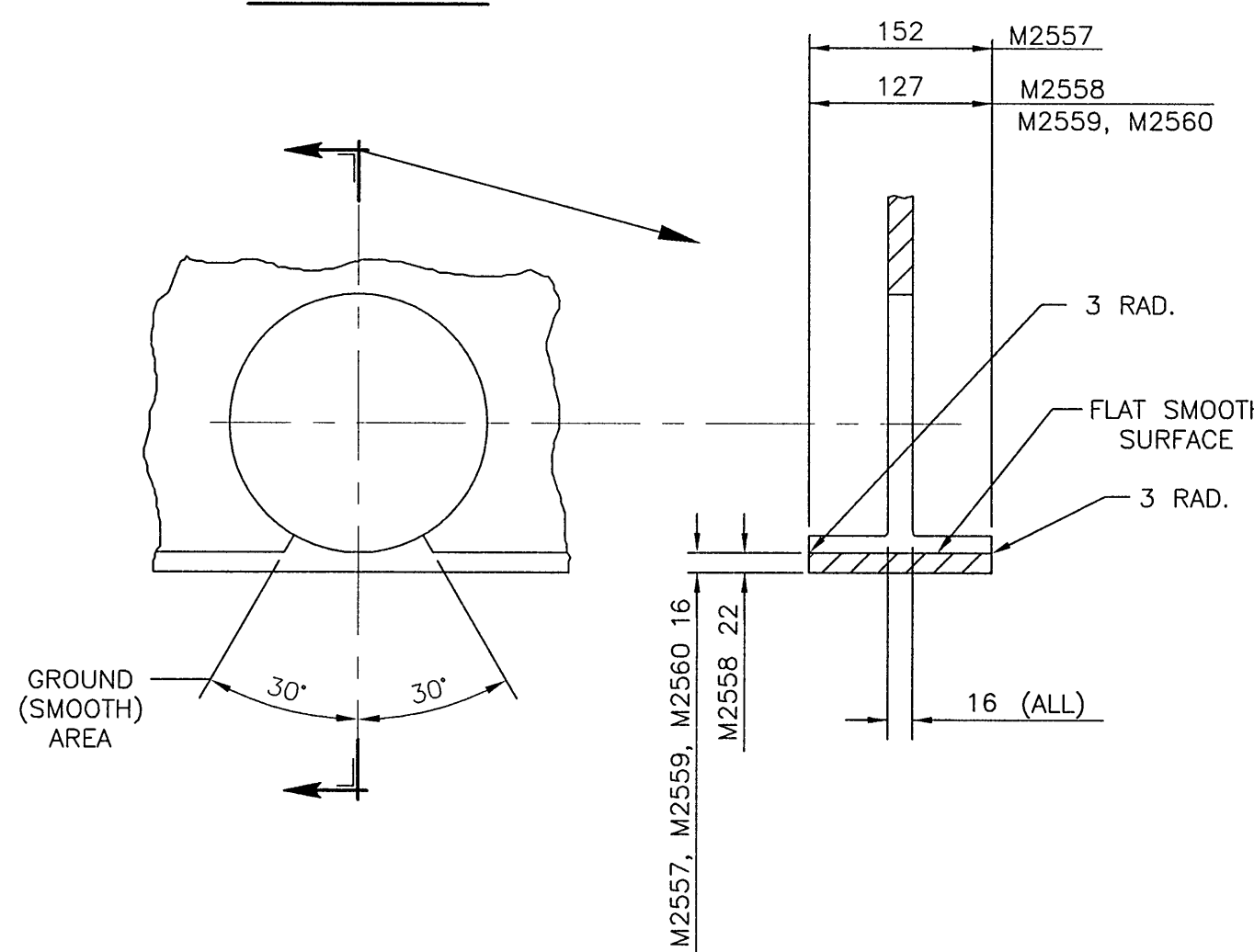
CHECKED: R. CLARK 12/06/06 INSTR. ENG. J. DESINGER 12/08/06

MECH. ENG. J. STOUT 12/06/06 PROJ. MGR. J. DESINGER 12/08/06

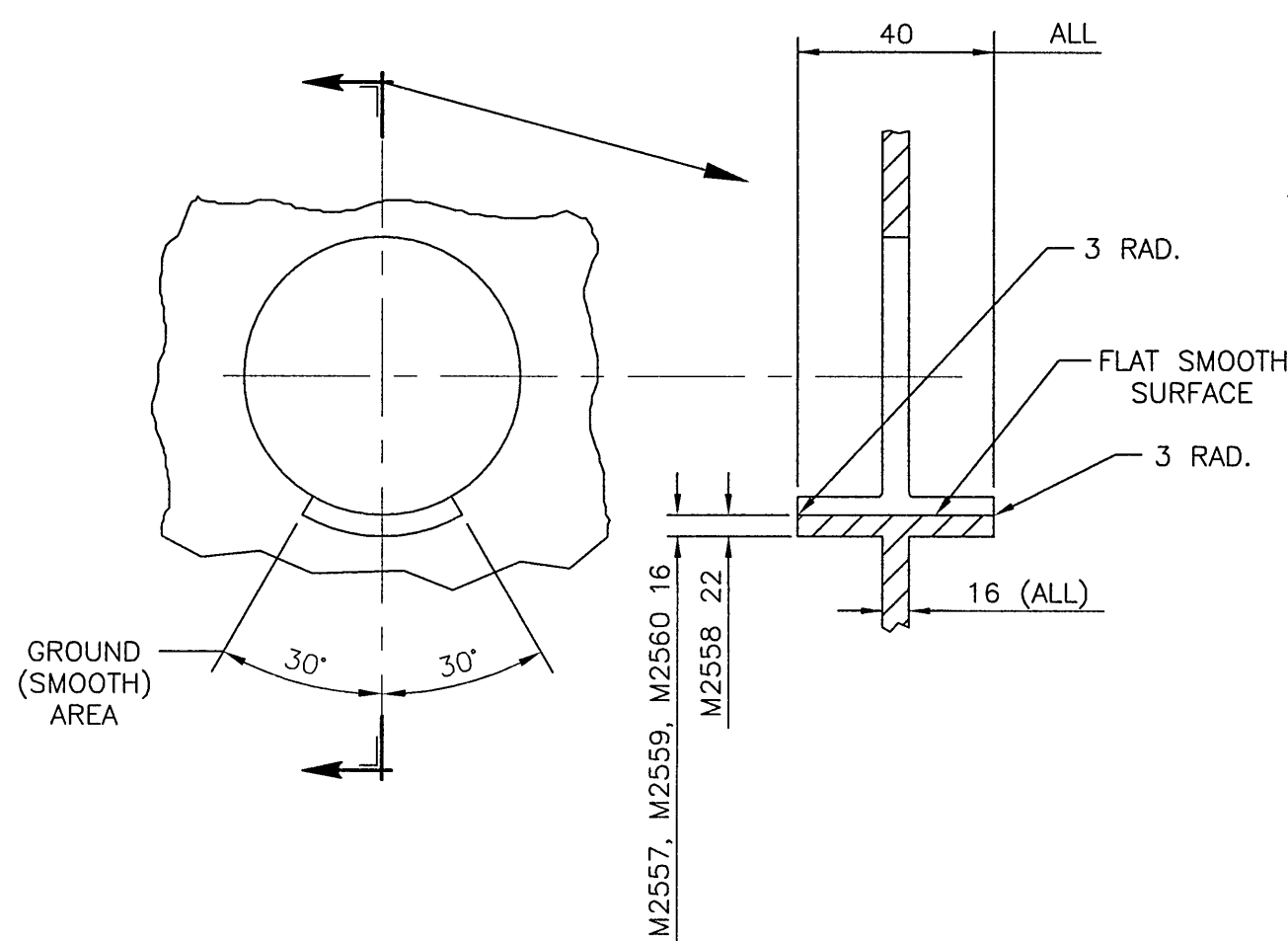
STRUC. ENG. B. BERSCH 12/06/06 APPROVED: J. GARLAND 12/08/06



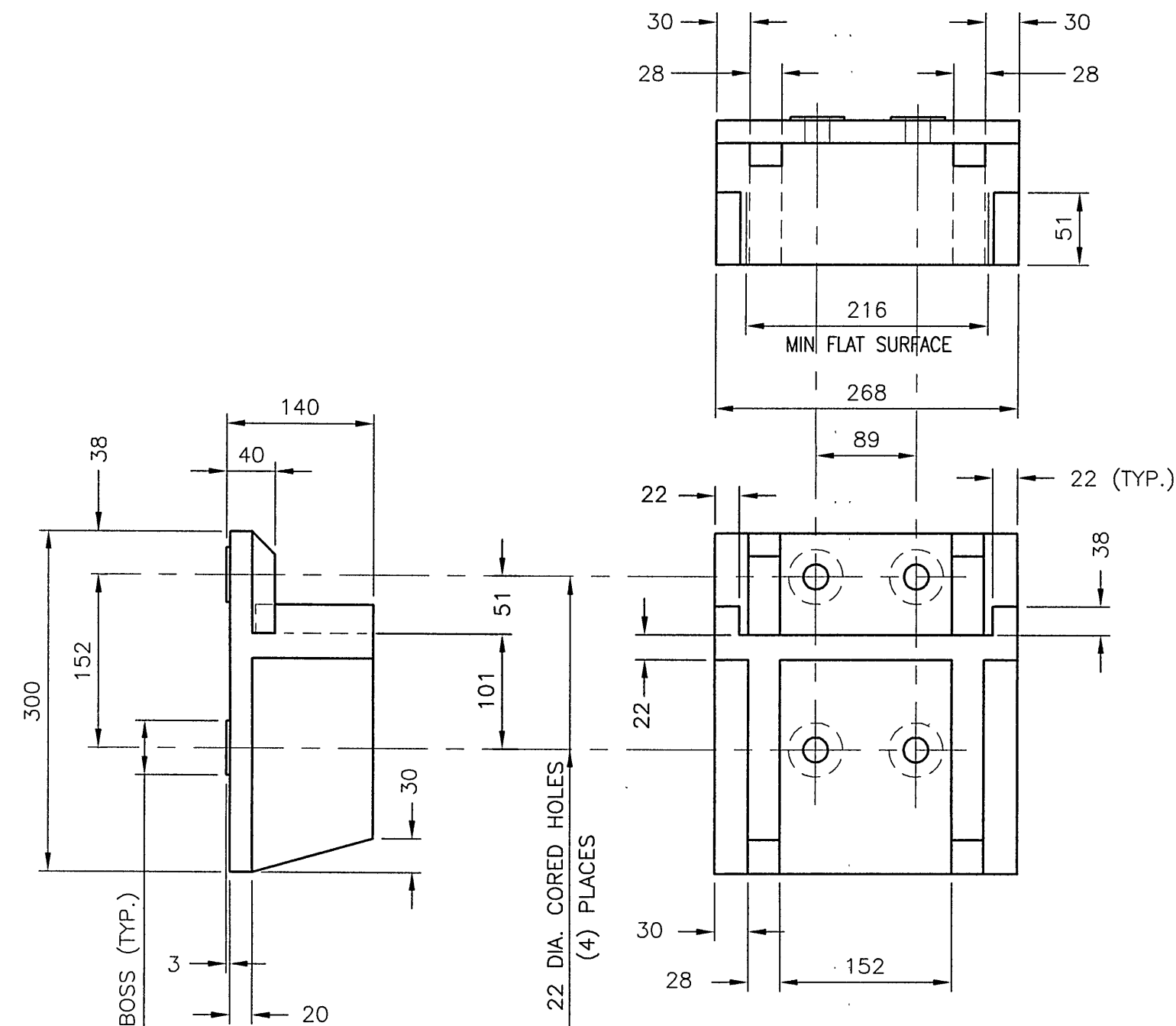
DETAIL 1



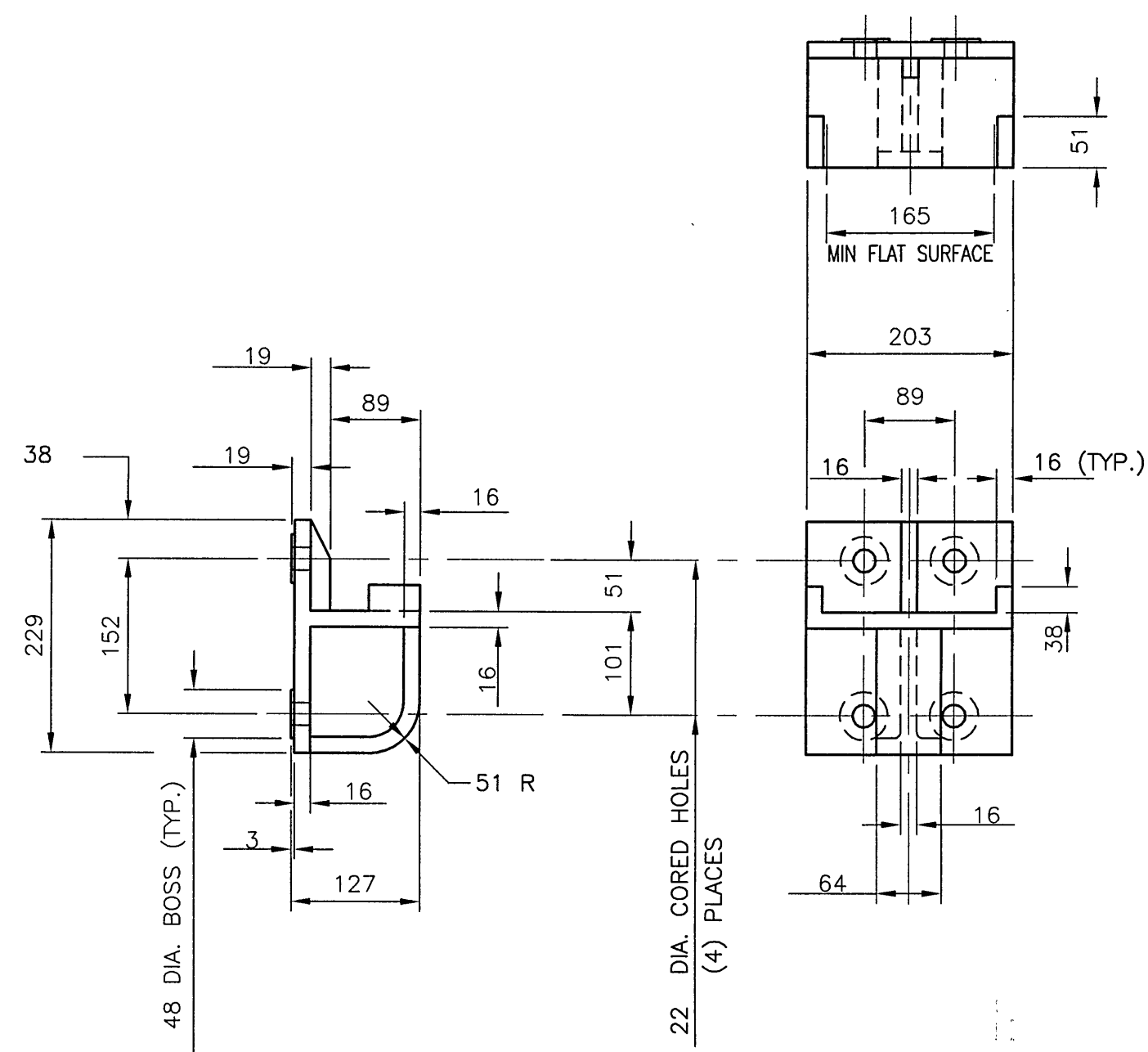
DETAIL 2



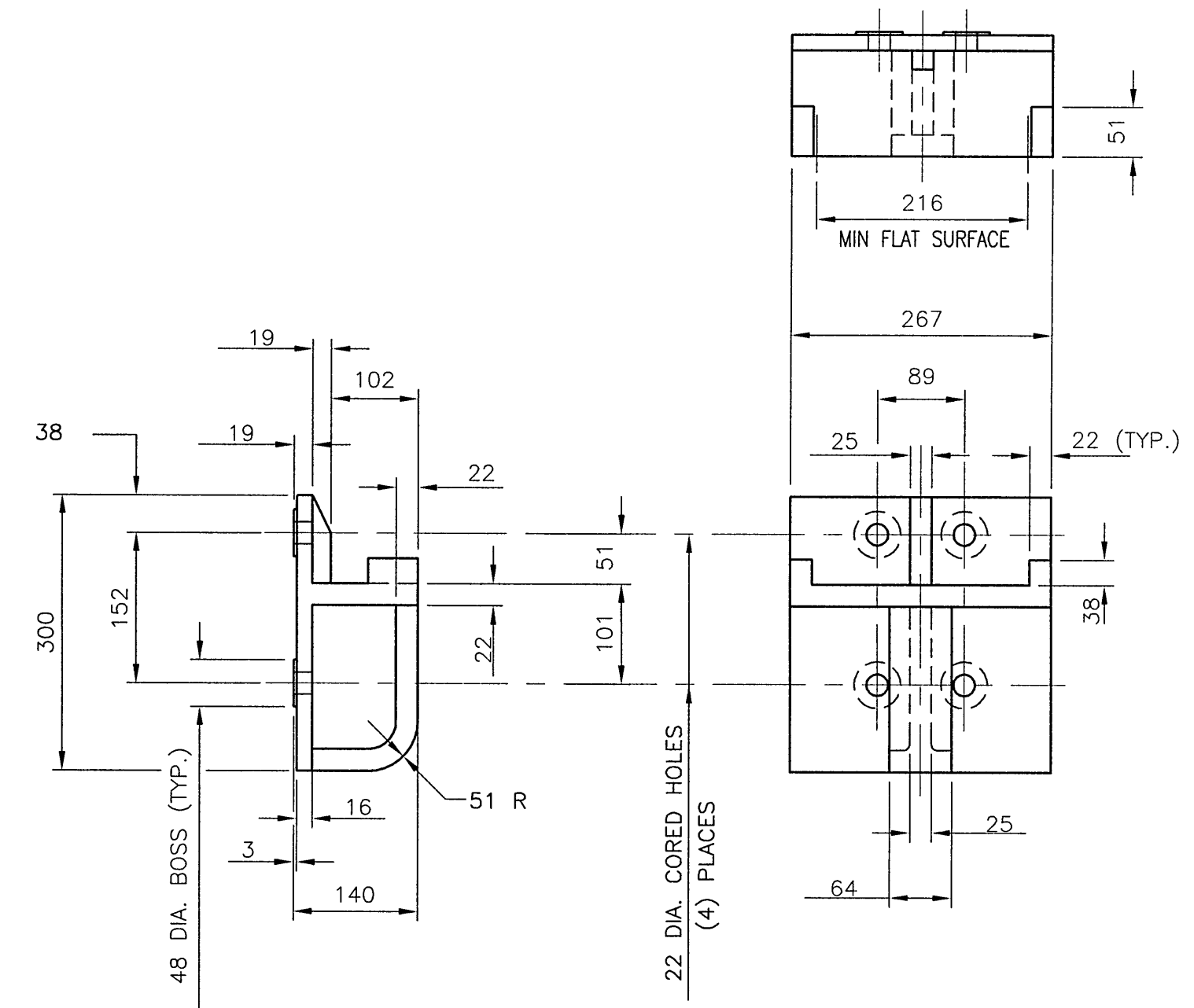
DETAIL 3



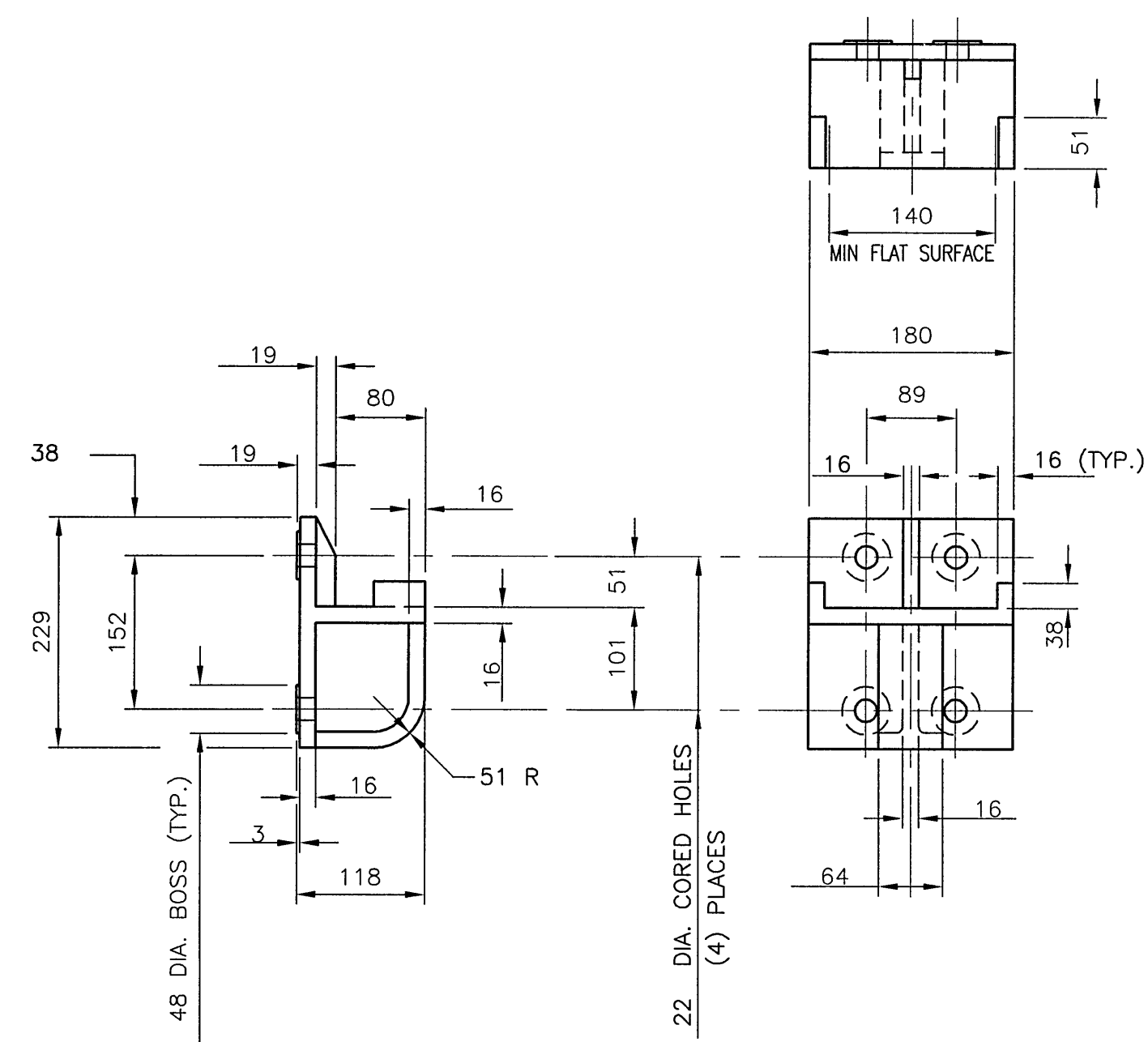
TUBE SUPPORT BRACKET - M2561
(FOR TUBE SUPPORTS STEAM HTC 2 M2555)



TUBE SUPPORT BRACKET - M2563
(FOR TUBE SUPPORTS SUPERHEAT 1 M2557)



TUBE SUPPORT BRACKET - M2562
(FOR TUBE SUPPORTS STEAM SUPERHEAT 2 M2556)



TUBE SUPPORT BRACKET - M2564 AND M2565
(FOR TUBE SUPPORTS HTC 1 M2558, ECO 1, ECO 2 M2559 AND FEED PREHEAT M2560)

TASNEE ETHYLENE PROJECT

TASNEE
Petrochemicals
Al-Jubail, Kingdom of Saudi Arabia

SAMSUNG ENGINEERING
Samsung Job No.: SC-2060
Samsung Job Name: Tasnee Ethylene Project

Linde
Linde Job No.: 31101199
Linde Job Code: Tasnee

PROJ. DOC. NO. LSFP-B-ZA 0006.003

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TITLE:
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(7) ETHYLENE CRACKING FURNACES
TASNEE, LINDE
AL-JUBAIL, SAUDI ARABIA

DRAWN: D.HIGGS 11/22/06
CHECKED:
MECH. ENG.:
APPROVED:

SIZE: D
CONTRACT NO.: 05F-5115
DRAWING NO.: 1223-DWG-F-ME-39

SHEET: 3 OF 3
REV.: 2

NO.	DATE	REVISIONS	DRAWN	CHECKED	DES. ENG.	PROJ. MGR.	APPROVED

SEE SHEET 1