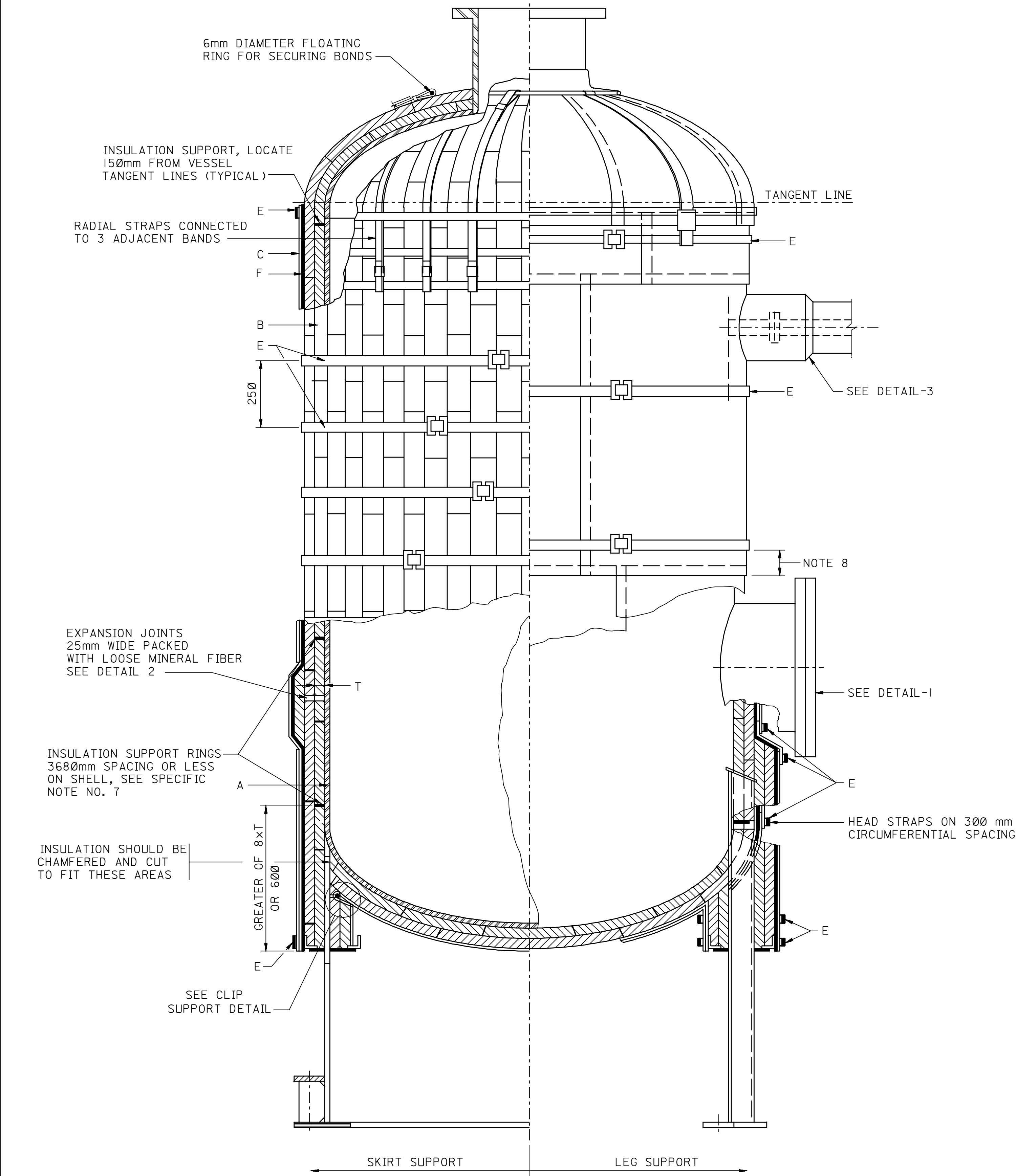
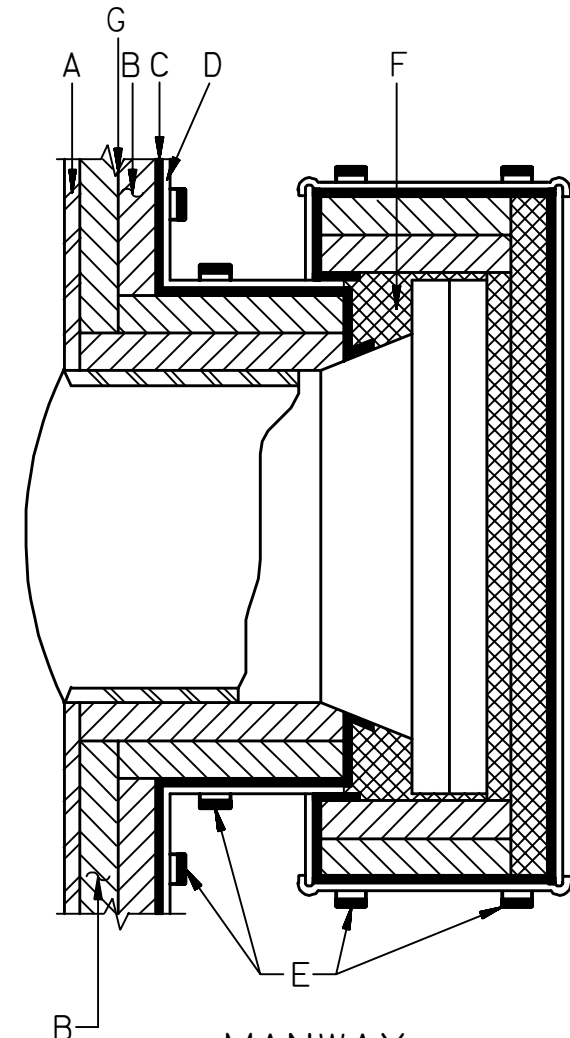
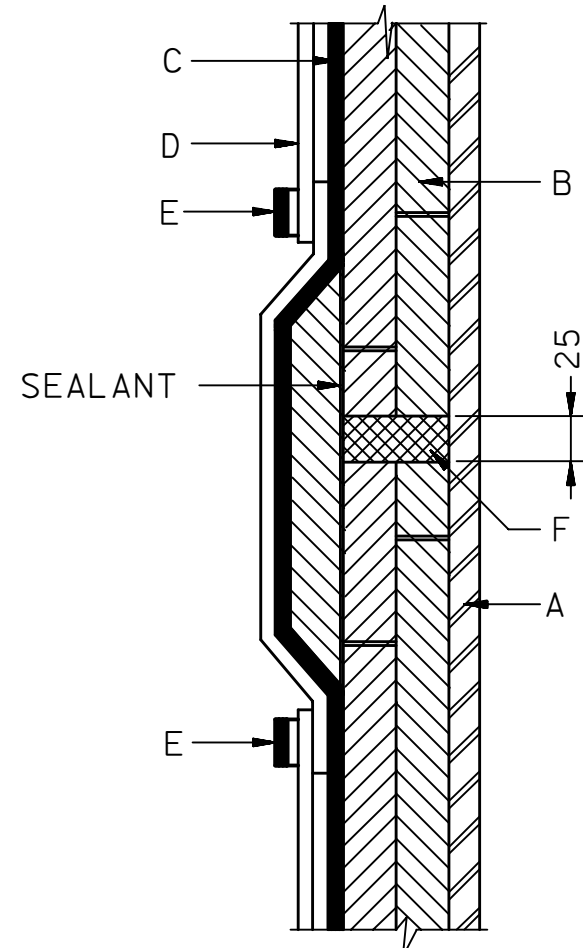




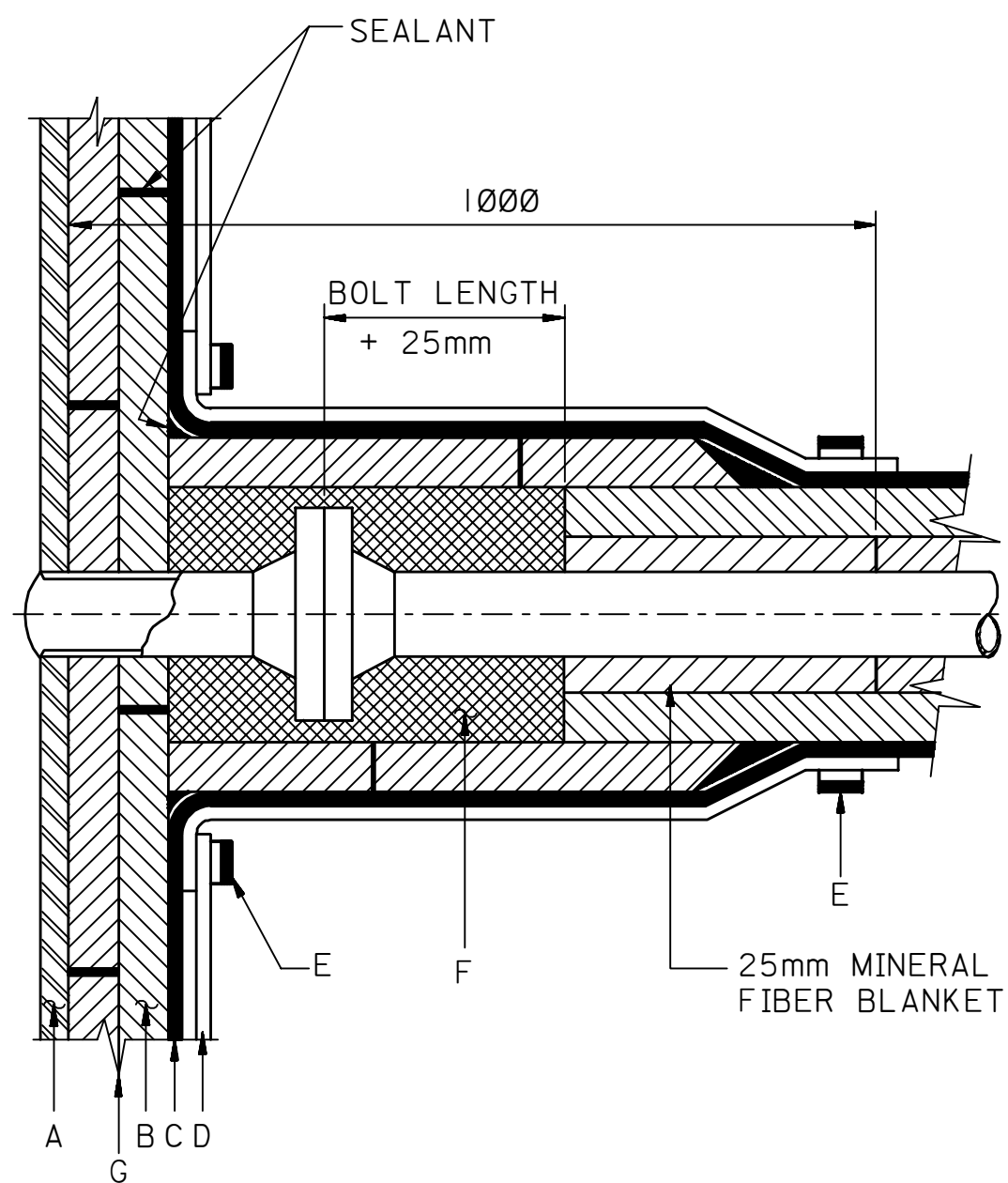
TYPICAL DETAILS - BLOCK INSULATION
DETAILS AS SHOWN APPLY ALSO TO HORIZONTAL VESSELS (EXCEPT THAT HORIZONTAL VESSELS DO NOT REQUIRE INSULATION SUPPORTS WELDED ON SHELL)



**MANWAY
DETAIL-1**



**TYPICAL DETAIL OF
EXPANSION JOINT
DETAIL-2**



**PIPE CONNECTION
DETAIL-3**

INSULATION AND ASSOCIATED MATERIALS				
MATERIAL	TYPE, PRODUCT & THICKNESS	TEMP. LIMIT °C & SPECIFIC NOTES	DESIGN LIMITATIONS	SAMS STOCK NUMBER
INSULATION				
INSULATION	CELLULAR GLASS (FOAMGLASS)	-268	ALL SIZES	32-196 SERIES 32-208 SERIES
INSULATION	ELASTOMERIC	-40	SEE NOTE 1 ON GENERAL NOTES	32-217 SERIES 32-218 SERIES
MINERAL FIBER	LOOSE FILL			32-194 SERIES
SEALANT	PITTSEAL 444	NOTES 4 & 5		
ACCESSORIES				
STAINLESS STEEL A167 TYPE 304	STRAP 12 x 0.4 20 x 0.5	NOTES 1 & 6	< 36" NPS > 36" NPS ALL METAL JACKETS	08-898 SERIES 08-900 SERIES
STAINLESS STEEL A167 TYPE 316	STRAP 12 x 0.4 20 x 0.5	NOTES 2 & 6	< 36" NPS > 36" NPS ALL METAL JACKETS	
WEATHERPROOFING METAL JACKETS				
ALUMINUM ASTM B209 ALLOY 3003-14	SHT. 0.5 (0.020) THK SHT. 0.6 (0.024) THK SHT. 0.8 (0.032) THK	NOTE 5	< 6" NPS 6" TO 20" NPS > 20" NPS	12-123 SERIES
ALUMINUM ASTM B209 ALLOY 6061	SHT. 0.5 (0.020) THK SHT. 0.6 (0.024) THK SHT. 0.8 (0.032) THK	NOTE 5	< 6" NPS 6" TO 20" NPS > 20" NPS	12-123 SERIES
ALUMINIZED STEEL ASTM A463 TYPE 1-40	SHT. 0.45 (0.018) SHT. 0.6 (0.024)	NOTE 5	< 36" NPS > 36" NPS	
STAINLESS STEEL ASTM 167 TYPE 304	SHT. 0.25 (0.01)	NOTES 1 & 5	ALL SIZES	
STAINLESS STEEL ASTM 167 TYPE 316	SHT. 0.25 (0.01)	NOTE 5	ALL SIZES	
VAPOR BARRIERS (NON-METALLIC WEATHERPROOFING)				
ASPHALTS				32-166 SERIES
ELASTOMERIC		NOTE 3		32-240 SERIES
PVC				
VAPOR BARRIER REINFORCEMENT				
GLASS FABRIC	20x10 MESH			32-165 SERIES
GLASS CLOTH	10x10 OR 10x4 MESH			09-275-043

- GENERAL NOTES**
- THE MATERIALS SPECIFIED FOR INSULATION, WEATHERPROOFING, AND ACCESSORIES ARE MANDATORY. ALTERNATE MATERIALS MUST MEET THE GENERIC DESCRIPTIONS SPECIFIED IN THE SAUDI ARAMCO MATERIAL STOCK DESCRIPTION (SAMS).
 - THE INSTALLATION DETAILS SHOWN ARE TYPICAL. ALTERNATIVE INSTALLATION DETAILS ARE ACCEPTABLE PROVIDED THEY COMPLY WITH THE SPECIFIC NOTES.
 - CONVENTIONAL UNITS OF MEASUREMENTS MAY BE USED IN LIEU OF THE METRIC MEASUREMENTS SHOWN.
 - INSULATION THICKNESSES ARE TO BE IN ACCORDANCE WITH SAES-N-001.
 - INSULATION FOR AIR CONDITIONING UNITS AND CHILLED WATER SERVICES SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

- SPECIFIC NOTES**
- NOT TO BE USED IN COASTAL AND EQUIPMENT OFFSHORE APPLICATIONS.
 - USE FOR FIREPROOFING APPLICATIONS.
 - MASTIC OR ELASTOMERIC VAPOR BARRIER SHALL HAVE A MINIMUM DRY FILM THICKNESS OF 0.08mm (0.03") WHEN USED WITH CELLULAR GLASS INSULATION.
 - ALL OUTER JOINTS ON WEATHERPROOFING OVERLAPS SHALL BE SEALED WITH JOINT SEALANT.
 - ALL JOINTS IN WEATHERPROOFING SHALL BE OVERLAPED 50mm ARRANGED TO DRAIN WATER AND SEALED WITH A SEALANT.
 - ONE STRAP TO BE LOCATED A MAXIMUM OF 100mm FROM EDGE OF OUTER WEATHERPROOFING SHEET.
 - INSULATION SUPPORT RINGS TO BE DESIGNED TO ALLOW FOR CIRCUMFERENTIAL CONTRACTION.

COLD INSULATION LEGEND

- A - VESSEL
B - INSULATION
C - GLASS CLOTH SANDWICHED BETWEEN VAPOR BARRIERS
D - WEATHERPROOFING
E - STRAPS
F - MINERAL FIBER
G - VAPOR BARRIER

DRAWING RESPONSIBILITY:						
VESSEL STANDARDS COMMITTEE						
02	07-31-90	ESSD WAS	REVISED & UPDATED			
REV. NO.	DATE	BY	JO/EWO	DESCRIPTION	CHKD.	CERT. APPD.
SAUDI ARABIAN OIL COMPANY						
DRAWN BY _____ CHECKED BY _____ SCALE: NONE						
DATE STARTED _____ DATE COMPLETED _____						
OPR'G. DEPT. _____ ENG. DEPT. _____						
APP'D. FOR CONST. _____						
THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION OR FOR ORDERING MATERIAL UNTIL CERTIFIED AND DATED				CERTIFIED BY _____ DATE _____		
INSULATION DETAILS FOR COLD VESSELS						
STD. DWG. METRIC						
PLANT NO.	INDEX	DRAWING NUMBER			SHT. NO.	REV. NO.
990	N	AA-036913			002	02