

GENERAL NOTES FOR TOPSIDES MODULES, JACKET AND BRIDGE WELDING DETAILS:

1. a) ALL WELDS SHALL BE CONTINUOUS.
b) WHERE ACCESS IS POSSIBLE, ALL WELD SHALL BE DOUBLE SIDED UNLESS SPECIFICALLY NOTED ON THE DRAWINGS OR APPROVED BY COMPANY REPRESENTATIVE.
c) FULL PENETRATION GROOVE WELD SHALL BE USED UNLESS NOTED OTHERWISE OR APPROVED BY COMPANY REPRESENTATIVE.
d) CONTRACTOR SHALL PERFORM THE NECESSARY DETAILED DESIGN TO DERIVE THE FILLET WELD SIZE IN PARTICULAR FOR THE WPG WEB TO FLANGE CONNECTION, AND FOR THE WEB AND /OR FLANGE STIFFENERS.
2. ALL T K Y JOINTS SHALL BE WELDED IN ACCORDANCE WITH DETAILS SHOWN ON FOLD 2 AND/OR FOLD 3
WHICH ARE BASED ON API RP 2A AND COMPANY SPECIFICATIONS:
 - GS STR 200 MATERIAL FOR OFFSHORE STEEL STRUCTURE
 - GS STR 300 FABRICATION FOR OFFSHORE STEEL STRUCTURE
 - GS STR 304 FABRICATION OF WELDED PLATE GIRDERS (WPG)
3. T K Y JOINTS SPECIFIED FOR WELD PROFILE CONTROL SHALL BE TESTED AS INDICATED ON THE DRAWINGS FOLD 2 AND/OR FOLD 3.
4. WELDS SPECIFIED FOR WELD PROFILE CONTROL SHALL RECEIVE MAGNETIC PARTICLE INSPECTION (MPI) FOR SURFACE AND WEAR SURFACE DISCONTINUITIES.
5. PEENING OTHER THAN TO REMOVE WELD SPATTER OR SLAG SHALL NOT BE ALLOWED.
6. REQUIRED WELD PROFILES SHALL BE MAINTAINED EVEN FOR WELDS THAT ARE HIDDEN (i.e. WELDS UNDER OVERLAPPING BRACES OR DIAPHRAGMS)
7. WELD PASSES TO BE DEPOSITED IN A BALANCED MANNER TO MINIMIZE DISTORTION. ROOT PASS PLUS SUFFICIENT NUMBER OF SUBSEQUENT PASSES TO BE COMPLETED BEFORE ASSEMBLY IS TURNED.
8. ALL WELDS TO BE BACK-GROUDED AND/OR GROUND TO BRIGHT METAL AND BACK WELDED WHERE ACCESS PERMITS.
9. ALL DIAPHRAGMS WILL BE WELDED FROM BOTH SIDES UNLESS NOTED OTHERWISE ON THE DRAWINGS. THIS APPLIES TO BOTH FILLET AND FULL PENETRATION WELDS.
10. MINIMUM PREHEATING AND INTERPASS TEMPERATURES MUST BE MAINTAINED DURING THE ENTIRE WELDING PROCESS FOR RESTRAINED OR CRITICAL CONNECTIONS, SUCH AS DIAPHRAGM PLATES.
11. THE FABRICATOR IS TO ADHERE TO THE TYPICAL FRAMING DETAIL UNLESS SHOWN OR NOTED OTHERWISE ON THE DRAWINGS.
12. A- LONGITUDINAL SEAMS TO BE STAGGERED AS SHOWN ON DRAWINGS FOLD 4 AND/OR FOLD 5 AND GENERAL SPECIFICATIONS GS-STR-301 TYPICAL AT ALL GIRTH WELDS.
B- LOCATE LONGITUDINAL SEAM WELDS 90 DEGREES MIN APART WHERE POSSIBLE, WITH 250mm MIN. APART AT ADJACENT CANS.
C- MULTIPLE SECTION CANS ARE THOSE THAT REQUIRE THE SPLICING OF TWO CANS TO MAKE-UP THE COMPLETE CAN LENGTH.
D- AT NODE/LOCATE LONGITUDINAL SEAM WELDS AT LEAST 75mm CLEAR FROM EACH FRAMING MEMBER.
13. MINIMUM DISTANCE BETWEEN GIRTH WELDS SHALL BE (SEE GS-STR-301)
 - ONE PIPE DIAMETER OR 900mm WHICHEVER IS LESS.
 - TWO PIPE DIAMETER OR 2 METERS, WHICHEVER IS LESS FOR PILES.NO MORE THAN TWO GIRTH WELDS IN ANY 3 METER INTERVAL OF PIPES.

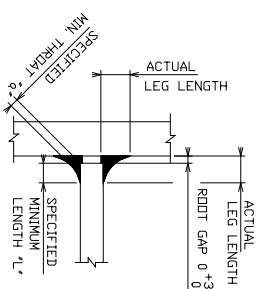


FIGURE 1.1.
FILLET WELD WITH ROOT GAP
(SEE WELDING GENERAL NOTE 6.)

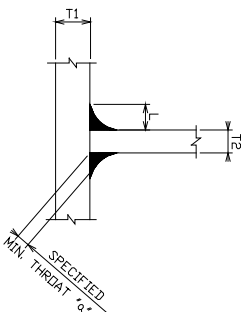


FIGURE 2.1
FILLET WELD WITHOUT ROOT GAP

GENERAL NOTES FOR WELDING :

1. ALL WELDING PROCEDURES ARE TO COMPLY WITH AWS D1-1:2004 UNLESS SUPERSEDED BY COMPANY SPECIFICATION GS STR 301.
 2. ALL WELDS SHALL BE CONTINUOUS. IN PARTICULAR FOR WELDS OF JOISTS TO PLATING.
 3. ALL WELDS SHALL BE FULLY SEAL WELDED EXCEPT FOR THOSE INDICATED OTHERWISE IN MODART GRATING AND MOVABLE PARTS.
 4. DOUBLER PLATES SHALL BE PROVIDED FOR ALL SUPPORTS WELDED ON SPECIAL AND FIRST CATEGORY STEELS.
- AS SPECIFIED IN PARAGRAPH 8.41 OF COMPANY SPECIFICATIONS GS-STR-102 THAT THE MIN THROAT IS MET.
- MINIMUM LEG SIZE OF FILLET WELDS TO BE L=6mm FOR CYCLICALLY LOADED STRUCTURE, FOR SPECIAL AND FIRST CATEGORY MEMBERS.
- OTHERWISE MINIMUM LEG OF FILLET WELDS TO BE AS FOLLOWS (SEE FIGURE 2)

t , 12 mm	MIN. LEG (L)	MIN. THROAT (a)
12 < t ≤ 20 mm	5 mm	3.5 mm
t > 20 mm	6 mm	4.2 mm
	8 mm	5.7 mm

- UNLESS NOTED OTHERWISE ON DRAWINGS, OR WITHOUT DETAILED CALCULATION, DOUBLE SIDE FILLET WELDS FOR SPECIAL & FIRST CATEGORY TO BE(SEE FIGURE 2)

$$L = 0.7t, \text{ WITH } t = \text{MIN. } (t1, t2)$$

6. THE MINIMUM SPECIFIED LEG LENGTH OF FILLET WELD SHALL BE THE DIFFERENCE OF ACTUAL WELD LENGTH AND THE ACTUAL ROOT GAP. (SEE FIGURE 1)
7. MINIMUM GAP BETWEEN BRACING FOOTPRINTS IS 75mm.
8. MINIMUM GAP BETWEEN WELD TOES IS 50mm.
9. WHERE ACHIEVED GAP BETWEEN WELD TOES IS BETWEEN 25 AND 50mm, LOCAL GRINDING AND MPI ARE REQUIRED IN ORDER TO AVOID LOCAL UNDER-CUT AND TO GET A SMOOTH WELD PROFILE.
10. WHEN ACCESS IS LIMITED FABRICATION TO PROVIDE 100mm CLEARANCE FOR WELDING. (SEE FIGURE 3)
11. TEMPORARY RAT HOLES SHALL BE PROVIDED ONLY TO PERFORM THE THROUGH WELD. (SEE FIGURE 4)
12. THE EDGES OF THE RAT HOLES SHALL BE CHAMFERED AT 45 DEGREES. THE RADIUS OF THE RAT HOLES SHALL BE 20mm.
13. NO PERMANENT RAT HOLES SHALL BE USED UNLESS STRUCTURE IS SUBMERGED IN SEAWATER AND CATHODICALLY PROTECTED.
14. ALL BEVELS SHALL BE INDIVIDUALLY 20°, 30°, 45° WITH REGARD TO THE UT INSPECTION SURFACE.

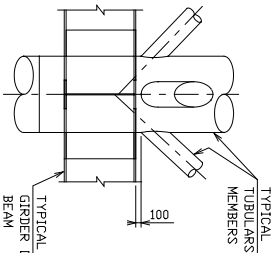


FIGURE 3.1
CLEARANCE FOR LIMITED ACCESS

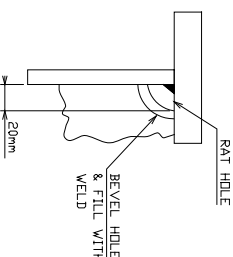


FIGURE 4.1
RAT HOLE

WINDOW GUIDELINES :

1. ALL WINDOWS SHALL BE MADE ONLY WHEN DEEMED NECESSARY. THEY ALWAYS SHALL HAVE PRIOR APPROVAL OF THE COMPANY, AS WELL AS FOR THEIR LOCATIONS AND SIZES. (REFER TO GS-STR-301).
2. WINDOW SHALL BE ORIENTATED PARALLEL TO THE CENTRELINE OF THE BRACE.
3. CORNERS SHALL HAVE MINIMUM RADIUS CUT OF 100mm OR 4 TIMES THE PLATES THICKNESS, WHICH EVER IS GREATER.
4. CERAMIC BACK-UP BARS MAY BE USED WITH PRIOR APPROVAL OF THE COMPANY. THE MAXIMUM WIDTH OF BACK-UP BAR WILL BE 5mm AND THE MINIMUM THICKNESS WILL BE 6.4mm.
5. ALL WELDS SHALL BE COMPLETE JOINT PENETRATION.
6. ALL WINDOWS SHALL BE WELDED IN SEQUENCE BY 2 WELDERS WORKING SIMULTANEOUSLY ON OPPOSITE SECTORS, STARTING BY THE 2 SECTORS PERPENDICULAR TO THE BRACE CENTRELINE. THE DETAILED WELDING PROCEDURE AND SEQUENCE SHALL HAVE PRIOR APPROVAL OF THE COMPANY.
7. ALL WINDOW WELDS WILL BE INSPECTED BY ULTRASOUND AND MPI.