

					92500DWT BULK CARRIER	FINAL DRAWING			
					DETAILS OF HULL CONSTRUCTION 船体结构节点图	SC4475-110-11F			
						COR. MARKS 图样标记		WEIGHT 重量	SCALE 比例
								kg	
						PAGE 页数	1 / 25	TOT. AREA 总面积	1.56 m²
						SHANGHAI MERCHANT SHIP DESIGN & RESEARCH INSTITUTE ,CSSC 中国船舶工业集团公司 上海船舶研究设计院			
旧底图总号	DESIGNED 设 绘	徐勤剑	DATE 日期						
	CHECKED 校 对	陈豪杰	DATE 日期						
	VERIFIED 审 核	邱金成	DATE 日期						
底图总号	APPROVED 批 准		DATE 日期						
	This drawing and the information contained is the exclusive property of SDARI and must not be copied or handed over to third parties without our written permission. 本图（文件）及所含内容的知识产权属于上海船舶研究设计院（SDARI）。未经本院书面许可，任何人不得复制或转交第三方。								

目 录  
CONTENTS

1. 相贯切口与补板. NOTCH AND COLLAR PLATES	
1.1 扁钢的切口及补板型式. NOTCH AND COLLAR PLATES OF FLAT BAR	3
1.2 角钢的切口及补板型式. NOTCH AND COLLAR PLATES OF ANG. BAR	4
1.3 球扁钢的切口及补板型式. NOTCH AND COLLAR PLATES OF BULB PLATE	5
1.4 T型钢的切口及补板型式. NOTCH AND COLLAR PLATES OF T. BAR	6
2. 流水孔、透气孔、通焊孔和止漏孔的型式. DRAIN HOLE, AIR HOLE, WELDING CUT-OUTS & STOP HOLE	
2.1 流水孔的型式. DRAIN HOLE	7
2.2 透气孔的型式. AIR HOLE	8
2.3 通焊孔(或兼流水孔)的型式. WELDING CUT-OUTS(OR DRAIN HOLE)	9
2.4 止漏孔的型式. STOP HOLE	11
3. 型材端部型式. END ATTACHMENT OF PROFILE	
3.1 型材端部覆板和面板都切斜. END SNIP BOTH WEB & FACE PLATE OF PROFILE	12
3.2 型材端部覆板切斜. END SNIP WEB PLATE OF PROFILE	13
3.3 型材端部面板切斜. END SNIP FACE PLATE OF PROFILE	14
3.4 型材端部不切斜. NO END SNIP OF PROFILE	15
4. 支柱连接节点. ATTACHMENT FOR PILLAR	
4.1 支柱垫板形式. DOUBLER FOR PILLAR	16
4.2 支柱上端连接板(H型支柱). INSERT PLATE FOR PILLAR	17
4.3 支柱(H型)端部加强. REINFORCEMENT FOR PILLAR	18
5. 典型节点详图. TYPICAL DETAILS	
5.1 甲板结构. DECK CONSTRUCTION	19
5.2 双层底结构. DOUBLE BOTTOM CONSTRUCTION	22
5.3 舱壁结构. BULKHEAD CONSTRUCTION	23
5.4 开口护栏条结构. MANHOLE GRATINGS	24
5.5 面板过渡 TAPER DOWN	26

旧底图总号
底图总号

1.1 扁钢的切口及补板型式. NOTCH AND COLLAR PLATES OF FLAT BAR

类 型    TYPE	详 图    DETAIL DRAWING	备 注    NOTES
无 补 板 型  WITHOUT COLLAR		<div></div> <p>补板 COLLAR PLATE</p> <p>母板 MOTHER PLATE</p> <p>备注： 1.补板厚度与母板厚度相同。 2.R=0时，施工中R用切口10X10代替，并且切口在安装后填满焊，保证水密。</p> <p>NOTES: 1.THE THICKNESS OF COLLAR PLATES TO BE SAME AS THE MOTHER PLATE. 2.R=0, MEANS THE SLOT TO BE CUT 10X10, AND TO BE FILLED BY WELDING TO GUARANTEE WATERTIGHT.</p>
非 水 密 补 板 型  NON. W.T. COLLAR		
水 密 补 板 型  W.T. COLLAR		

旧底图总号

底图总号

1.2 角钢的切口及补板型式. NOTCH AND COLLAR PLATES OF ANG. BAR

类 型 TYPE	详 图 DETAIL DRAWING	备 注 NOTES
无补板型 WITHOUT COLLAR		
非水密补板型 NON. W.T. COLLAR		<div> <p>补板 COLLAR PLATE</p> <p>母板 MOTHER PLATE</p> </div> <p>备注：1.补板厚度与母板厚度相同。 2.R=0时，施工中R用切口10X10代替，并且切口在安装后填满焊，保证水密。</p>
水密补板型 W.T. COLLAR		<p>NOTES: 1.THE THICKNESS OF COLLAR PLATES TO BE SAME AS THE MOTHER PLATE. 2.R=0, MEANS THE SLOT TO BE CUT 10X10, AND TO BE FILLED BY WELDING TO GUARANTEE WATERTIGHT.</p>

旧底图总号

底图总号

h	R	r	a	e
$h \leq 150$	0	25	35	0
$150 < h < 250$	35	25	35	35
$h \geq 250$	50	35	50	50



1.4 T型钢的切口及补板型式. NOTCH AND COLLAR PLATES OF T. BAR

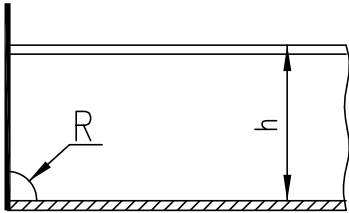
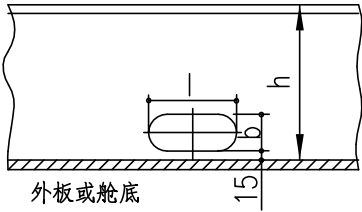
类 型    TYPE	详 图    DETAIL DRAWING	备 注    NOTES
非 水 密 补 板 型  NON. W.T. COLLAR		<div style="text-align: center;"> <p>补板                  母板 COLLAR PLATE        MOTHER PLATE</p> </div> <p>备注： 1.补板厚度与母板厚度相同。 2.R=0时，施工中R用切口10X10代替，并且切口在安装后填满焊，保证水密。</p>
水 密 补 板 型  W.T. COLLAR		<p>NOTES: 1.THE THICKNESS OF COLLAR PLATES TO BE SAME AS THE MOTHER PLATE.</p> <p>2.R=0, MEANS THE SLOT TO BE CUT 10X10, AND TO BE FILLED BY WELDING TO GUARANTEE WATERTIGHT.</p>

h	r	a	e
$h \leq 150$	25	35	0
$150 < h < 250$	25	35	35
$h \geq 250$	35	50	50

旧底图总号

底图总号

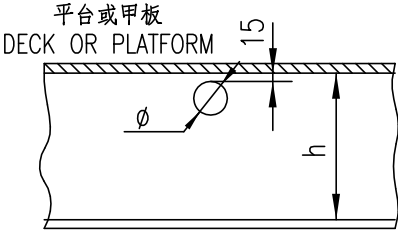
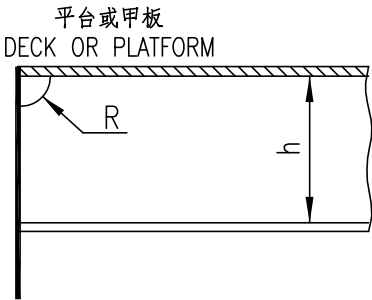
2.1 流水孔的型式. DRAIN HOLE

名 称 name	型式和尺寸 dimension										
圆角流水孔 SCALLOP DRAIN HOLE	<div><table><tr><th>h</th><th>R</th></tr><tr><td>150≤h&lt;200</td><td>35</td></tr><tr><td>200≤h&lt;350</td><td>50</td></tr><tr><td>350≤h&lt;500</td><td>75</td></tr><tr><td>h≥500</td><td>100</td></tr></table><p>外板或舱底 SELL OR TANK BOTTOM</p></div>	h	R	150≤h<200	35	200≤h<350	50	350≤h<500	75	h≥500	100
h	R										
150≤h<200	35										
200≤h<350	50										
350≤h<500	75										
h≥500	100										
腰圆形流水孔 DRAIN HOLE	<div><table><tr><th>h</th><th>lXb</th></tr><tr><td>150≤h&lt;200</td><td>70X35</td></tr><tr><td>200≤h&lt;300</td><td>100X50</td></tr><tr><td>300≤h&lt;500</td><td>150X75</td></tr><tr><td>h≥500</td><td>200X75</td></tr></table><p>外板或舱底 SELL OR TANK BOTTOM</p></div>	h	lXb	150≤h<200	70X35	200≤h<300	100X50	300≤h<500	150X75	h≥500	200X75
h	lXb										
150≤h<200	70X35										
200≤h<300	100X50										
300≤h<500	150X75										
h≥500	200X75										

旧底图总号

底图总号

2.2 透气孔的型式. AIR HOLE

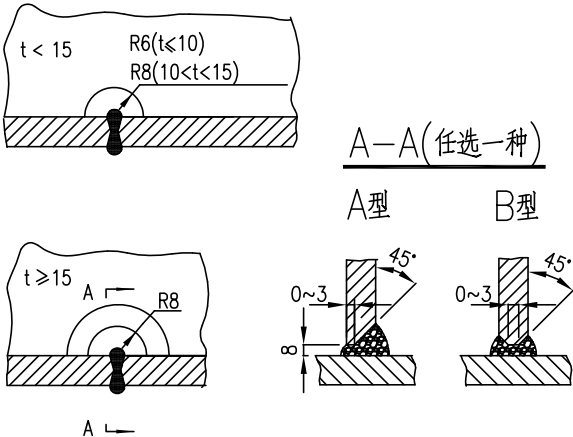
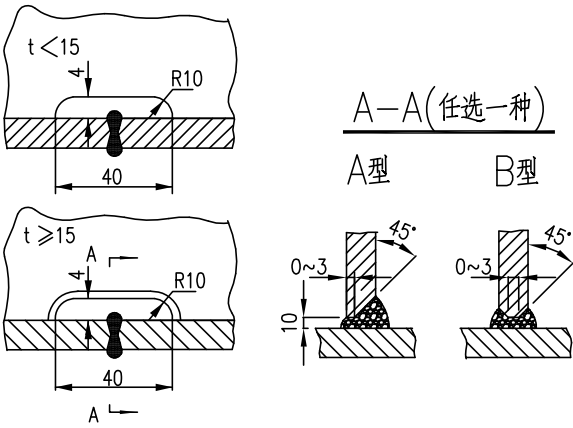
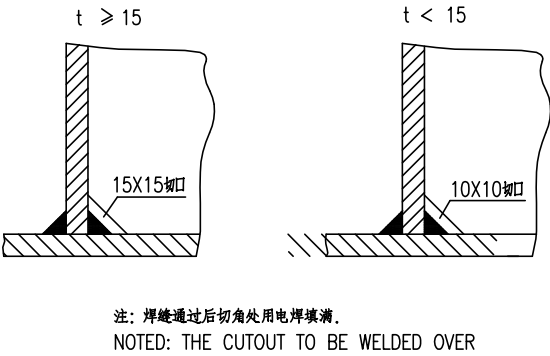
名 称 name	型式和尺寸 dimension								
圆形透气孔 CIRCLE AIR HOLE	<div><div><div>平台或甲板 DECK OR PLATFORM</div><div></div></div><table><tr><td>h</td><td><math>\phi</math></td></tr><tr><td><math>h&lt;150</math></td><td>25</td></tr><tr><td><math>150\leq h&lt;250</math></td><td>35</td></tr><tr><td><math>h\geq 250</math></td><td>50</td></tr></table></div>	h	$\phi$	$h<150$	25	$150\leq h<250$	35	$h\geq 250$	50
h	$\phi$								
$h<150$	25								
$150\leq h<250$	35								
$h\geq 250$	50								
圆角透气孔 SCALLOP AIR HOLE	<div><div><div>平台或甲板 DECK OR PLATFORM</div><div></div></div><table><tr><td>h</td><td>R</td></tr><tr><td><math>h&lt;150</math></td><td>25</td></tr><tr><td><math>150\leq h&lt;250</math></td><td>35</td></tr><tr><td><math>h\geq 250</math></td><td>50</td></tr></table></div>	h	R	$h<150$	25	$150\leq h<250$	35	$h\geq 250$	50
h	R								
$h<150$	25								
$150\leq h<250$	35								
$h\geq 250$	50								

旧底图总号

底图总号

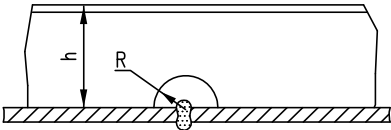
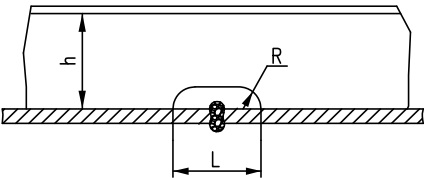



2.3 通焊孔 (或兼流水孔) 的型式.WELDING CUT-OUTS(OR DRAIN HOLE)

名 称 name	型式和尺寸 dimension
水油密半圆形对接缝通焊孔 WATERTIGHT OR OILTIGHT WELDING SCALLOPS	
水油密半腰圆形对接缝通焊孔 WATERTIGHT OR OILTIGHT WELDING SCALLOPS	
水油密角焊缝通焊孔 WATERTIGHT OR OILTIGHT WELDING CUTOUT	

旧底图总号

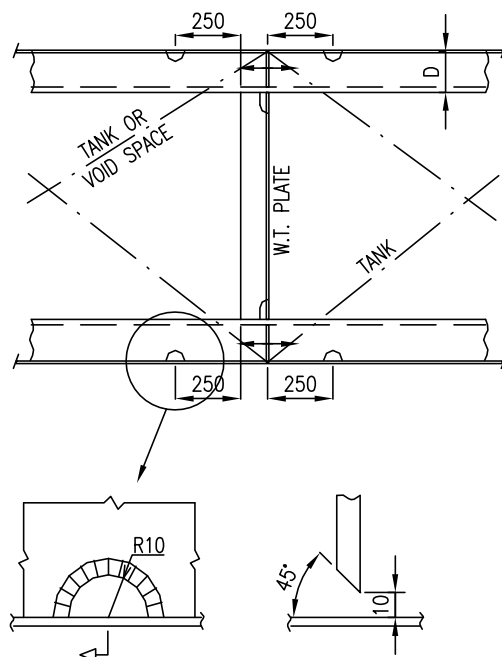
底图总号

名 称 name	型式和尺寸 dimension										
非密半圆形对接缝通焊孔 (兼流水孔) NON-WATERTIGHT WELDING SCALLOPS	 <table><tr><td>h</td><td>R</td></tr><tr><td>150≤h&lt;250</td><td>35</td></tr><tr><td>h≥250</td><td>50</td></tr></table>	h	R	150≤h<250	35	h≥250	50				
h	R										
150≤h<250	35										
h≥250	50										
非密半腰圆形对接缝通焊孔 (兼流水孔) NON-WATERTIGHT WELDING SCALLOPS	 <table><tr><td>h</td><td>LXR</td></tr><tr><td>150≤h&lt;250</td><td>100X35</td></tr><tr><td>h≥250</td><td>100X50</td></tr></table>	h	LXR	150≤h<250	100X35	h≥250	100X50				
h	LXR										
150≤h<250	100X35										
h≥250	100X50										
非密半园形角焊缝通焊孔 (兼流水孔) NON-WATERTIGHT WELDING SCALLOPS	 <table><tr><td>h</td><td>R</td></tr><tr><td>150≤h&lt;200</td><td>35</td></tr><tr><td>200≤h&lt;350</td><td>50</td></tr><tr><td>350≤h&lt;500</td><td>75</td></tr><tr><td>h≥500</td><td>100</td></tr></table>	h	R	150≤h<200	35	200≤h<350	50	350≤h<500	75	h≥500	100
h	R										
150≤h<200	35										
200≤h<350	50										
350≤h<500	75										
h≥500	100										

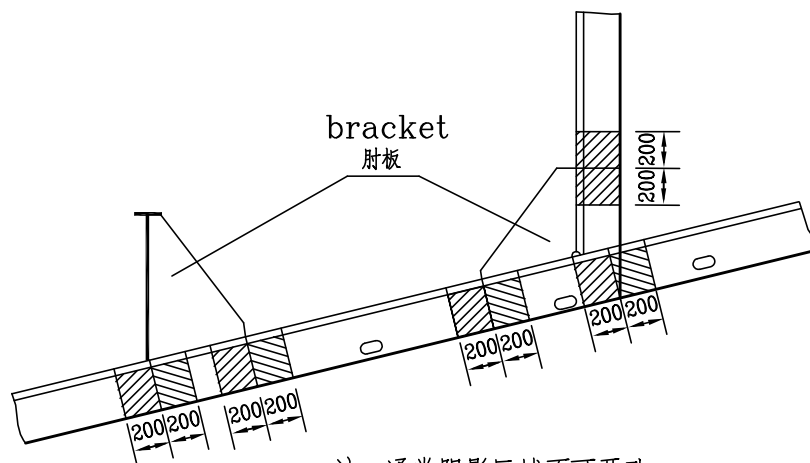
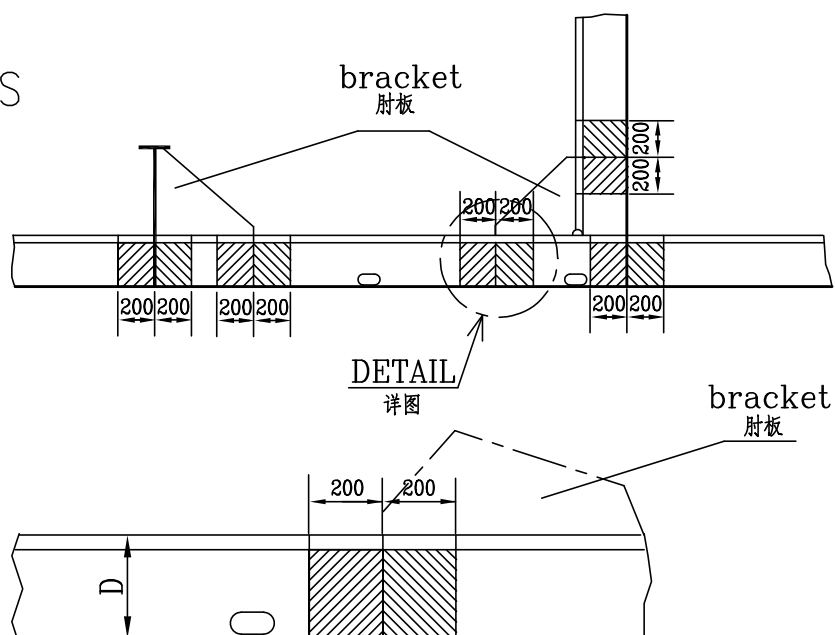
旧底图总号

底图总号

## 2.4 止漏孔的型式. STOP HOLE

NOTE: TO BE WELDED AFTER  
EDGE PREPARATION

## 注意事项 NOTES



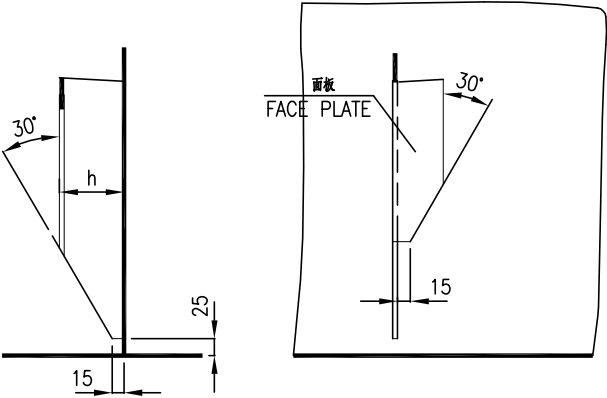
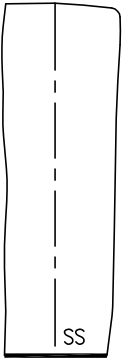
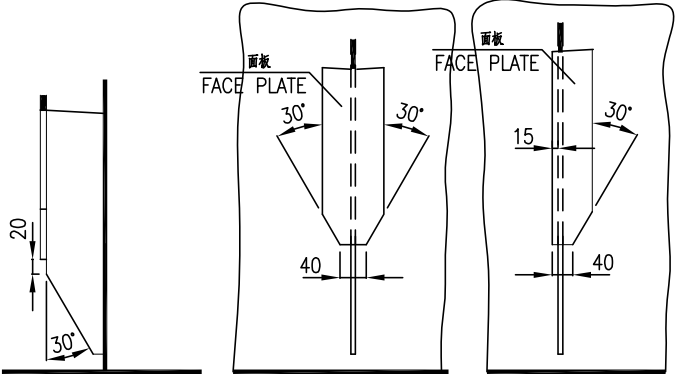
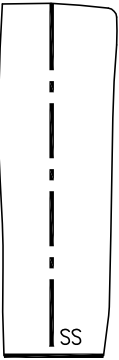
注: 通常阴影区域不可开孔

Note: No opening in shadow areas in general

旧底图总号

底图总号

3.1 型材端部覆板和面板都切斜. END SNIP BOTH WEB & FACE PLATE OF PROFILE

名 称 name	型式和尺寸 dimension	标记图例 shown on drawings
ANGLE BAR, BULB BAR 角钢·折边材		
“┐” BAR, UNBALANCED “┐” BAR ┐型材和不对称┐型材		

旧底图总号

底图总号

3.2 型材端部覆板切斜. END SNIP WEB PLATE OF PROFILE

名 称 name	型式和尺寸 dimension	标记图例 shown on drawings
扁 钢 FLAT BAR		
球扁钢·角钢·折边材 BULB BAR, ANGLE BAR, ANGLE TEE ABR		
“T” 型 材 和 不 对 称 “T” 型 材 “T” BAR, UNSYMMETRIC “T” BAR		

旧底图总号

底图总号

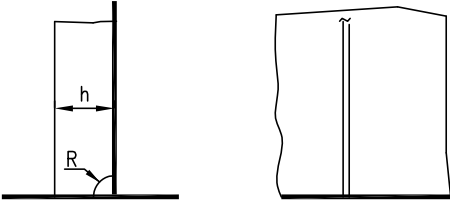
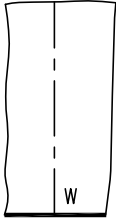
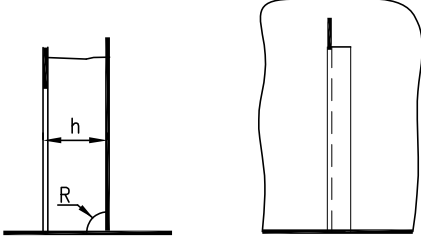
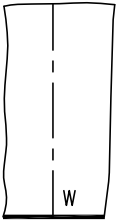
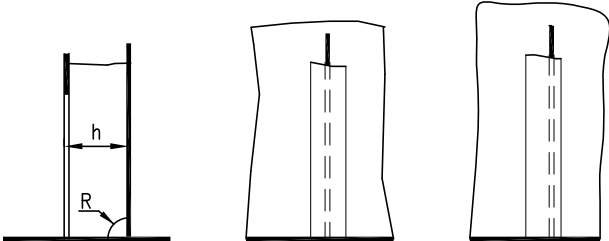
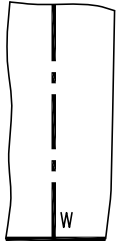
3.3 型材端部面板切斜. END SNIP FACE PLATE OF PROFILE

名称 name	型式和尺寸 dimension		标记图例 shown on drawings
角钢·折边材 ANGLE BAR, ANGLE TEE BAR			
┐型材和不对称┐型材 ┐ BAR, UNSYMMETRIC ┐ BAR			
┐型材和不对称┐型材 ┐ BAR, UNSYMMETRIC ┐ BAR			
h	$h < 150$	$150 \leq h < 250$	$h \geq 250$
R	0	35	50
注: R=0时, R用切口代替. NOTE: R=0, SLOT TO BE SUBSTITUTE FOR R			

旧底图总号

底图总号

3.4 型材端部不切斜. NO END SNIP OF PROFILE

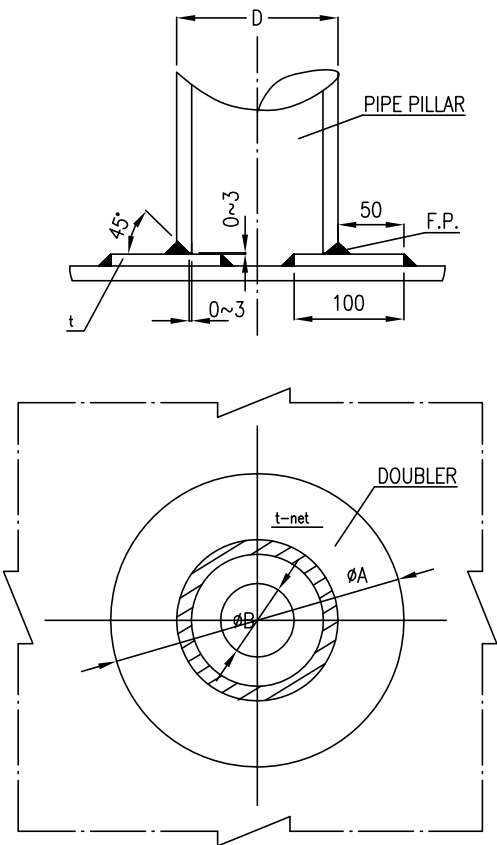
名 称 name	型式和尺寸 dimension		标记图例 shown on drawings
扁 钢 FLAT BAR			
球扁钢·角钢·折边材 BULB BAR, ANGLE BAR, ANGLE TEE ABR			
“┐” 型材和不对称┐型材 BAR, UNSYMMETRIC “┐” BAR			
h	$h<150$	$150\leq h<250$	$h\geq 250$
R	0	35	50
注: R=0时, R用切口代替. NOTE: R=0,SLOT TO BE SUBSTITUTE FOR R			

旧底图总号

底图总号

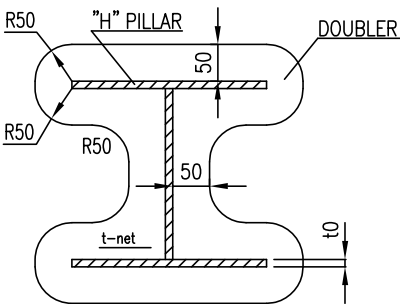
4.1 支柱垫板形式. DOUBLER FOR PILLAR

管形支柱 PIPE PILLAR



注: ①  $D < 219$  时采用圆形复板 ( $\phi B = 0$ ).  
NOTE: IF  $D < 219$ , THEN  $\phi B = 0$ .  
②  $t_{\text{net}} > 1.5 \cdot t_0$   
 $t_0$ : THE NET THICKNESS OF THE PILLAR.  
 $t_{\text{net}}$ : THE NET THICKNESS OF THE DOUBLING PLATE.

工形支柱 "H" PILLAR

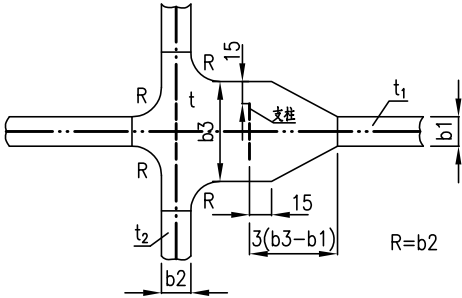
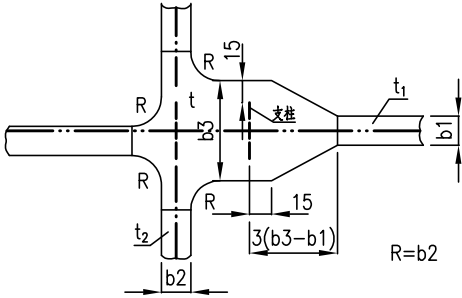
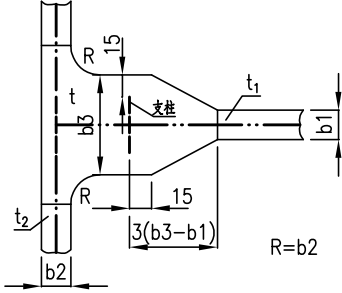
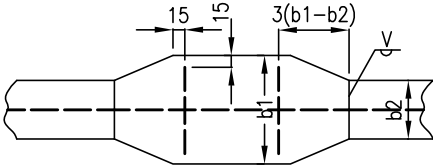


$t_{\text{net}} \geq 1.5 \cdot t_0$   
 $t_0$ : THE NET THICKNESS OF THE PILLAR.  
 $t_{\text{net}}$ : THE NET THICKNESS OF THE DOUBLING PLATE.

旧底图总号
底图总号



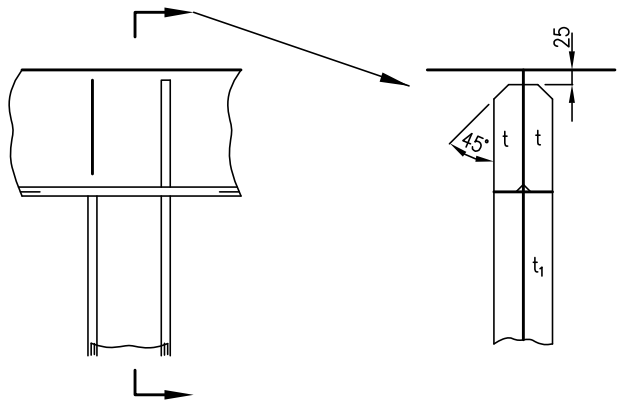
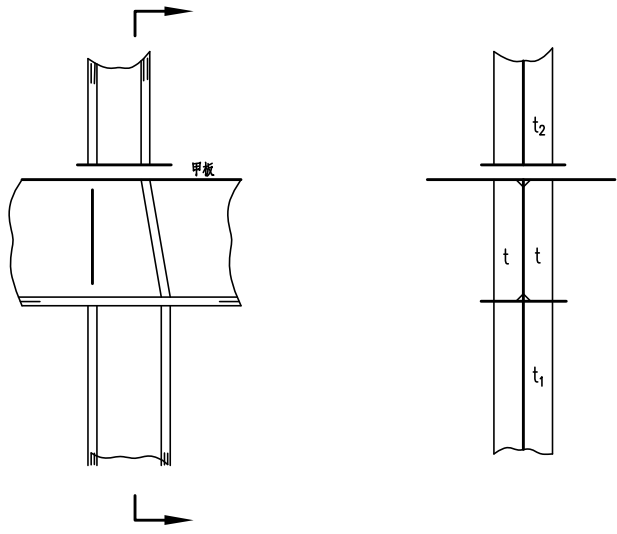
4.2 支柱上端连接板（H型支柱）. INSERT PLATE FOR PILLAR

型式, 尺寸 TYPE	尺寸 SCANTLING
	<p>t 取 t1和 t2 之大者 t to be taken greater of t1 and t2</p>
	<p>t 取 t1和 t2 之大者 t to be taken greater of t1 and t2</p>
	<p>t 取 t1和 t2 之大者 t to be taken greater of t1 and t2</p>
	

旧底图总号

底图总号

4.3 支柱( H型) 端部加强. REINFORCEMENT FOR PILLAR

型式 , 尺寸      TYPE	尺 寸    SCANTLING
	$t=t_1$
	$t=\text{MAX}(t_1,t )_2$

旧底图总号
底图总号

5.1 甲板结构. DECK CONSTRUCTION

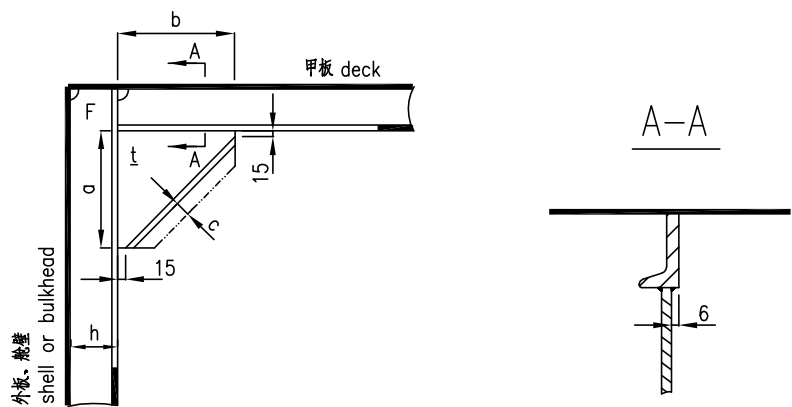
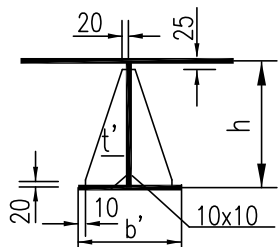


图1 JD001



注: ① 适用于强构件防倾肘板  
TRIPPING BRACKETS FOR WEB MEMBERS  
② t' 同强横梁腹板厚.  
t' IS SAME AS THE WEB PLATE THICKNESS

图2 JD002

旧底图总号
底图总号

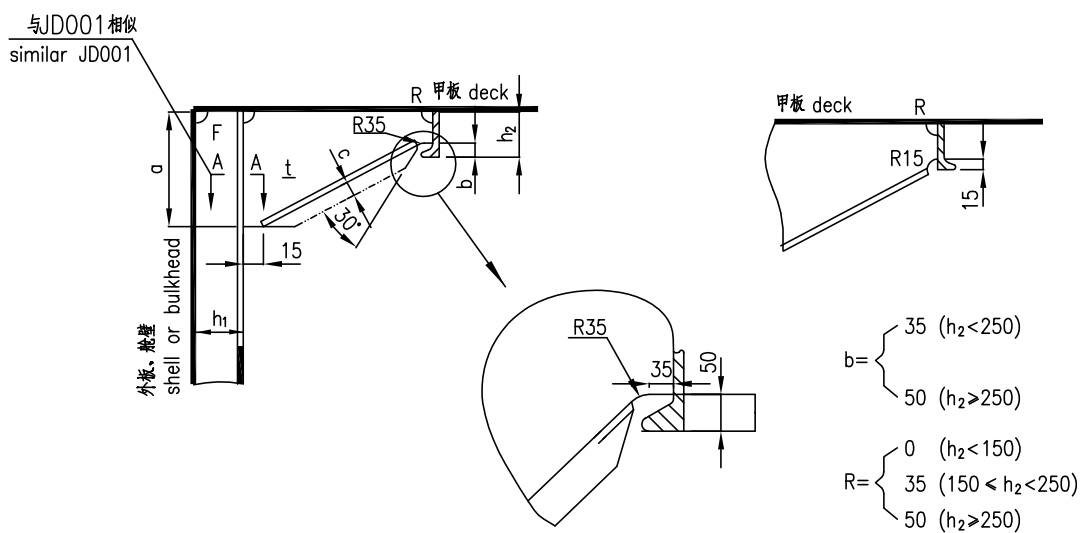


图3 JD003

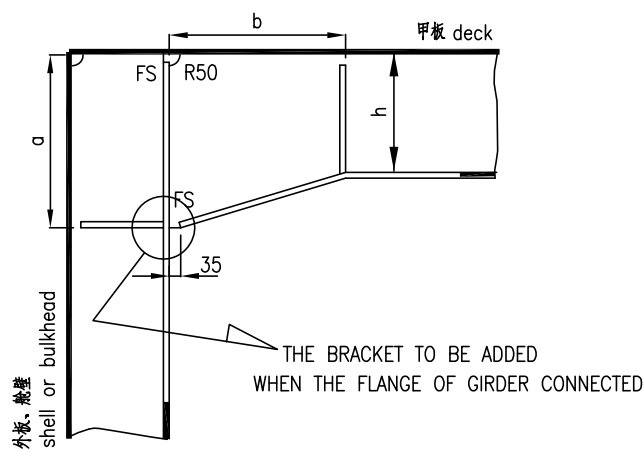
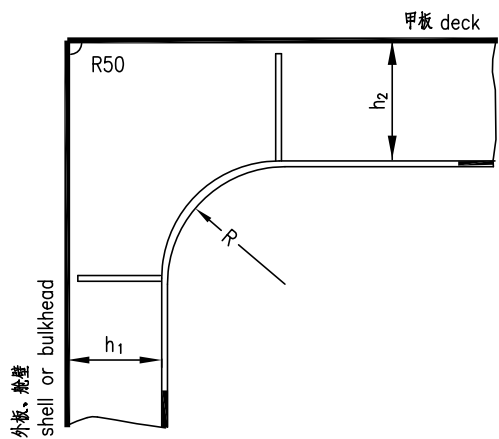


图4 JD004

注: ①  $a=b=1.5h$ .  
② 圆弧切点处防倾肘板按 JD002 设置.  
THE TRIPPING BRACKET DIMENSION IS SIMILAR TO JD002



注: ①  $R=h_0$  ( $h_0$ 为 $h_1$ 、 $h_2$ 中之大者).  
② 圆弧切点处防倾肘板按 JD002 设置.  
THE TRIPPING BRACKET DIMENSION IS SIMILAR TO JD002

图5 JD005

旧底图总号
底图总号

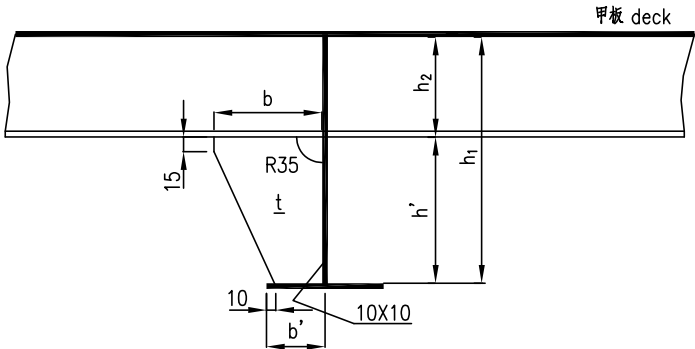


图6 JD006

- 注: ① 本节点适用于  $b' \geq 50$ .  
THIS DETAIL TO BE APPLICABLE FOR  $b' \geq 50$
- ②  $t$  同桁材腹板厚.  
 $t$  IS SAME AS WEB PLATE THICKNESS
- ③  $b \geq 0.85 \cdot \sqrt{St} / t$   
 $St$ : SPACING OF TRIPPING BKT.(m)  
 $t$ : NET THICKNESS OF TRIPPING BKT.(mm)

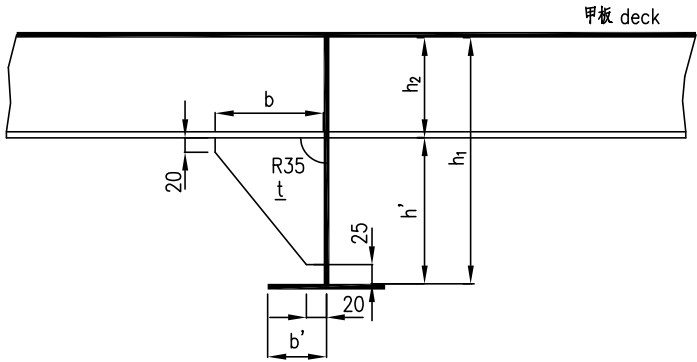


图7 JD007

- 注: ① 本节点适用于  $b' < 50$ .  
THIS DETAIL TO BE APPLICABLE FOR  $b' < 50$
- ②  $t$  同桁材腹板厚.  
 $t$  IS SAME AS WEB PLATE THICKNESS
- ③  $b \geq 85 \cdot \sqrt{St} / t$   
 $St$ : SPACING OF TRIPPING BKT.(m)  
 $t$ : NET THICKNESS OF TRIPPING BKT.(mm)

旧底图总号

底图总号

# 5.2 双层底结构. DOUBLE BOTTOM CONSTRUCTION

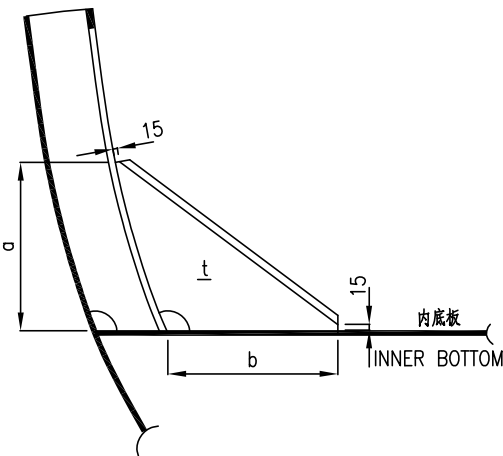


图8 JD008

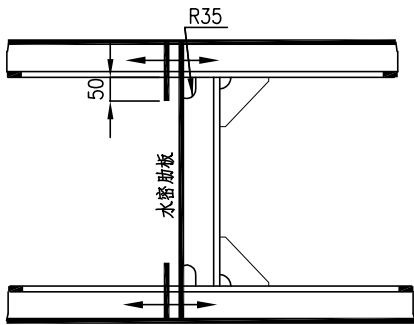


图9 JD009

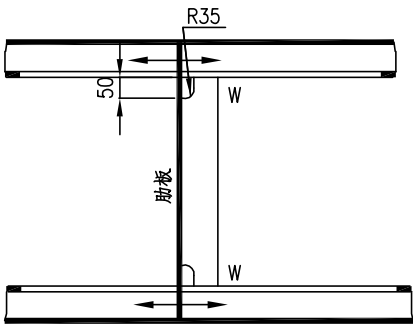


图10 JD0010

注:① 本节点适用于水密肋板.  
THIS DETAIL TO BE FOR WATERTIGHT FLOOR  
② 水密肋板加强筋尺寸按规范要求.  
THE STIFFENER OF W.T. FLOOR TO BE ACCORDING TO CLASS

注: 本节点适用于非水密肋板.  
THIS DETAIL TO BE FOR NON-WATERTIGHT FLOOR

旧底图总号
底图总号

5.3 舱壁结构. BULKHEAD CONSTRUCTION

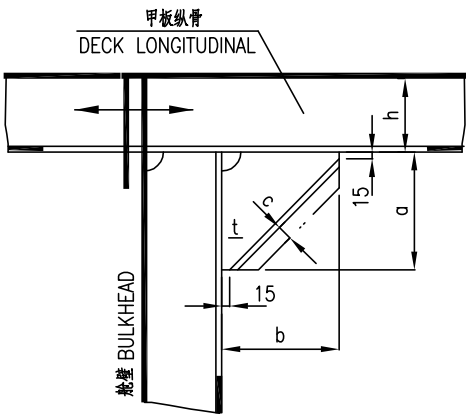


图11a JD0011a

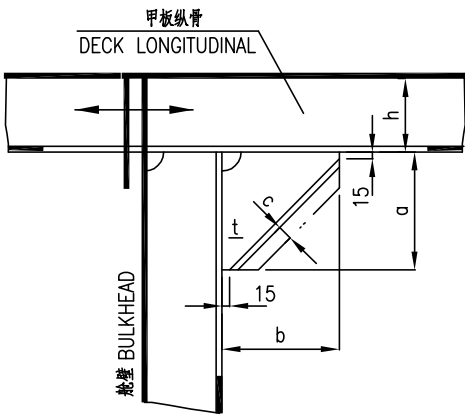


图11b JD0011b

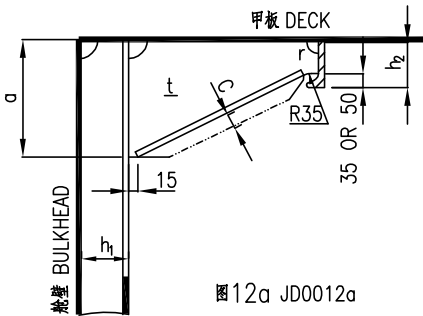


图12a JD0012a

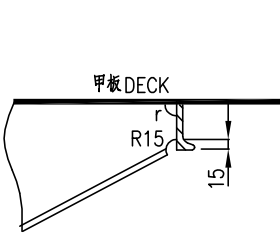


图12b JD0012b

mm			
$h_2$	$h_2 < 200$	$200 \leq h_2 < 300$	$h_2 \geq 300$
$r$	0	35	50

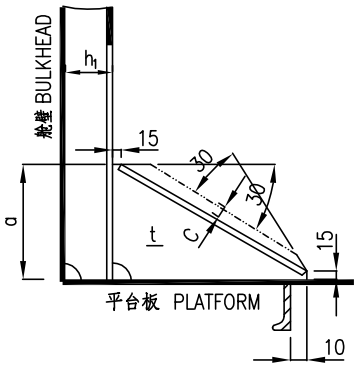
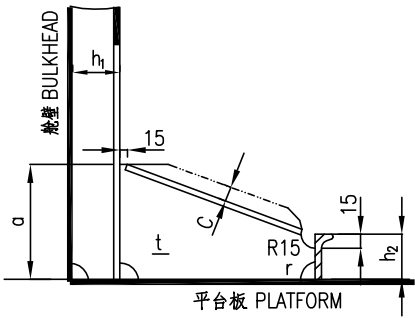


图13 JD0013



mm			
$h_2$	$h_2 < 200$	$200 \leq h_2 < 300$	$h_2 \geq 300$
$r$	0	35	50

旧底图总号
底图总号

# 5.4 开口护栏条结构. MANHOLE GRATING

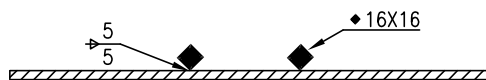
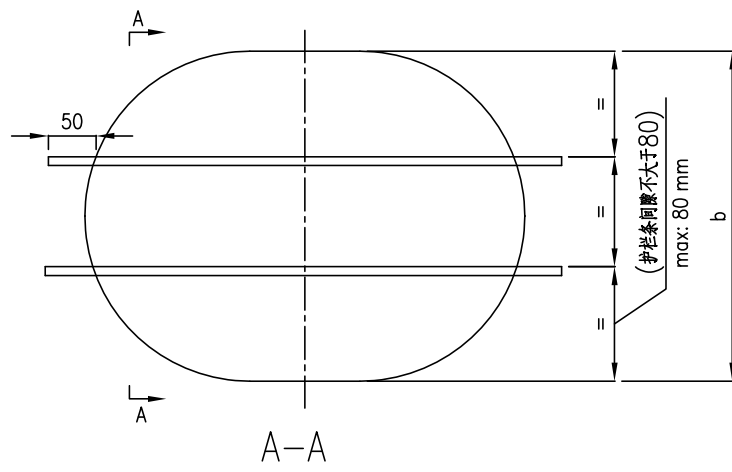


图14 JD0014

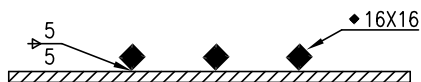
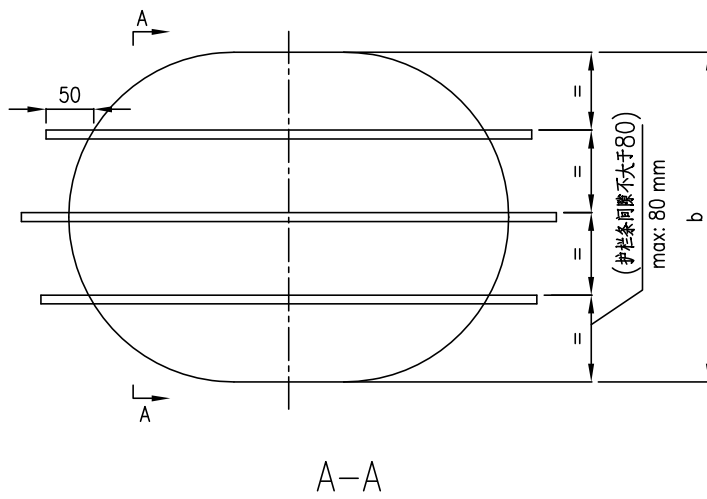
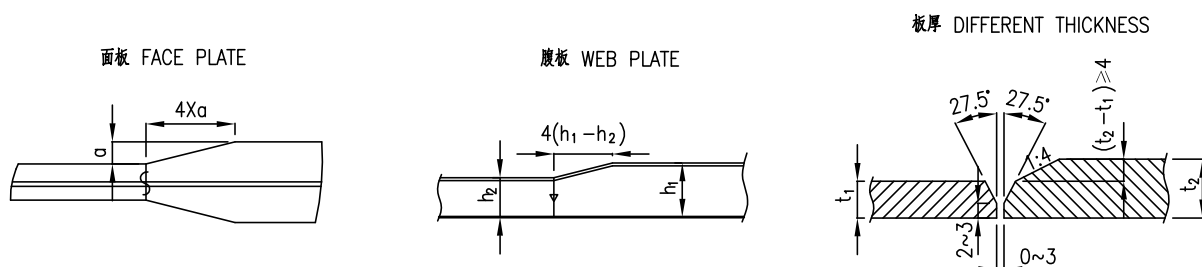


图15 JD0015

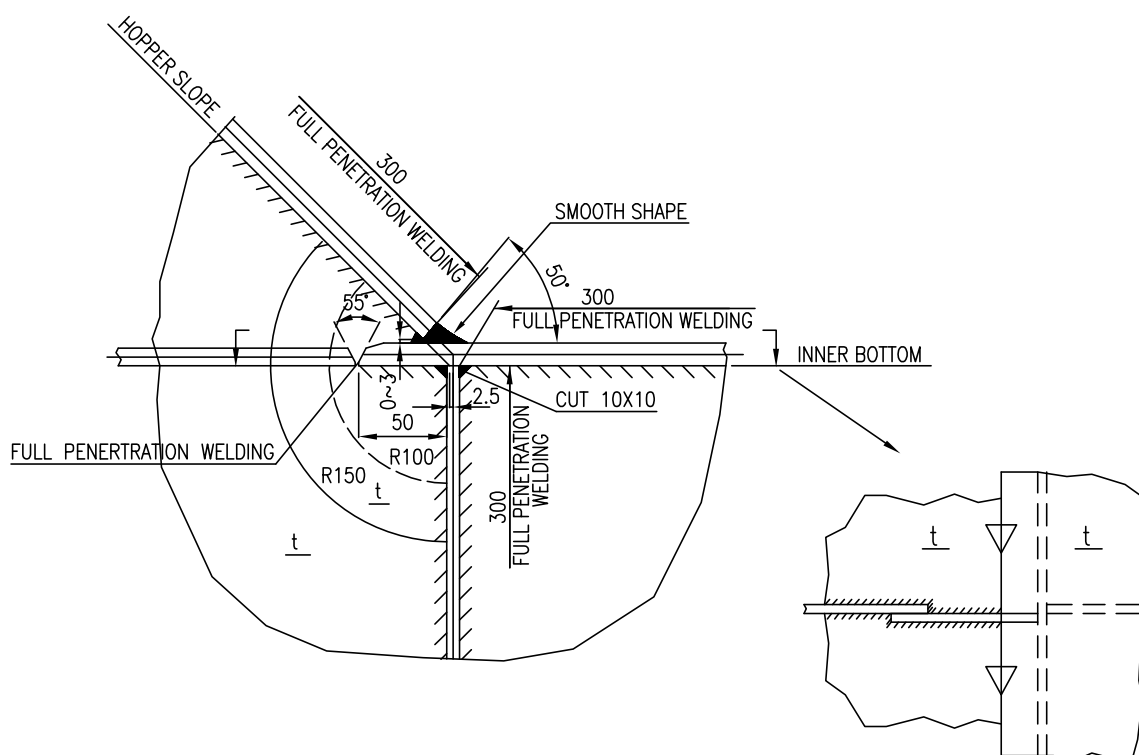
旧底图总号
底图总号



## 5.5 过渡. TAPER DOWN



底边舱斜板与内底的连接形式 THE CONNECTION OF HOPPER TANK SLOPING PLATE WITH INNER BOTTOM



旧底图总号

底图总号