

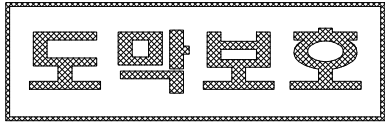
# PLAN HISTORY

DATE	REV. NO.	DESCRIPTION	DRAWN	CHKD	APPRD
2023.02.10	ORG.	ORIGINALLEY PREPARED FOR SHIP NO. 8170	임 종 길	김 태 환	김 상 형

## ◇ NOTE ◇

1. TOTAL WEIGHT : 963.2 kg
2. P.O.R NO. : TG1-01
3. 제작시 문제점은 당 설계사와 협의 후 제작 할 것.
4. 제작시공 요령 및 각 FITTING류 상세는 당부서 표준서  
"GRATING, LADDER, HANDRAIL 작업표준도(HS(D)-F8-715)에 준함.

(주)한진기공



### CAUTION

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A3: 6  
A4: 12 ( 18 SHEETS WITH A COVER)

DEP'T NO. B125	SHIP NO. 8170	SHIP TYPE 174,000 CBM CLASS LNG CARRIER	
TEL. NO. 4430	SHIP DESIGN OFFICE MACHINERY OUTFITTING DESIGN DEP'T	SHIP NAME	
APPROVED BY 김 상 형 <div></div>		TITLE PC'S OF GRATING, LADDER HANDRAIL IN E/R (H31C BLOCK, 선행)	
CHECKED BY 김 태 환 <div></div>			
DRAWN BY 임 종 길 <div></div>			
<div></div> HYUNDAI SAMHO HEAVY INDUSTRIES CO., LTD. SAMHO SHIPYARD, KOREA		SCALE NONE	DWG NO. H31C0C30512M-0
		DATE 2023.02.10	CONSOLIDATED NO.

	<div>PIECE LIST</div>				SHIP NO.	8170
					DWG NO.	H31C0C30512M

NO.	STAGE	ITEM	PIECE NO.	Q'TY	WEIGHT (kg)	REMARK
1	H31C0-C30-000	GRATING FRAME & CHECKERED PLATE	H31C-52-GC01	1	187.4	TG1-01
		HANDRAIL	H31C-52-HR01 ~ 08 H31C-52-WS01 ~ 08	16	643.8	TG1-02
		VERTICAL LADDER	H31C-52-VL01 ~ 02	2	112	TG1-03
		VERTICAL LADDER STEP	H31C-52-VL02 PC'S에 설치입고	1	20	TG1-04

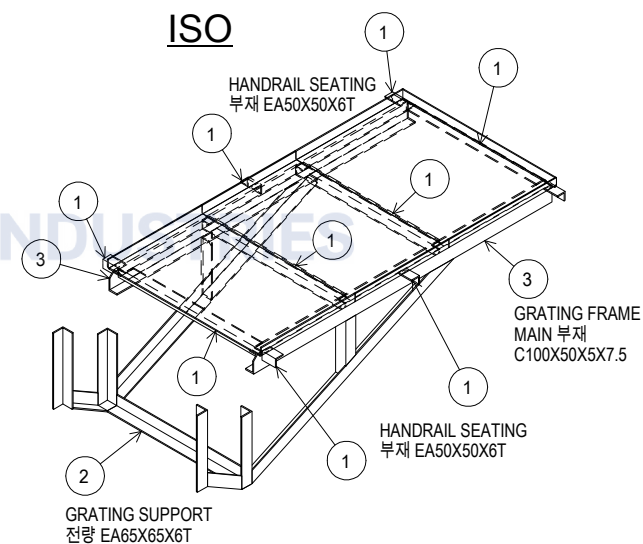
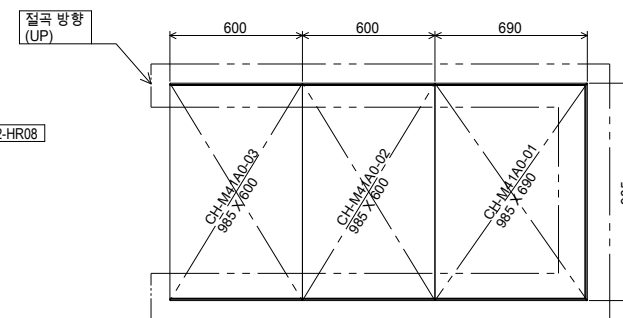
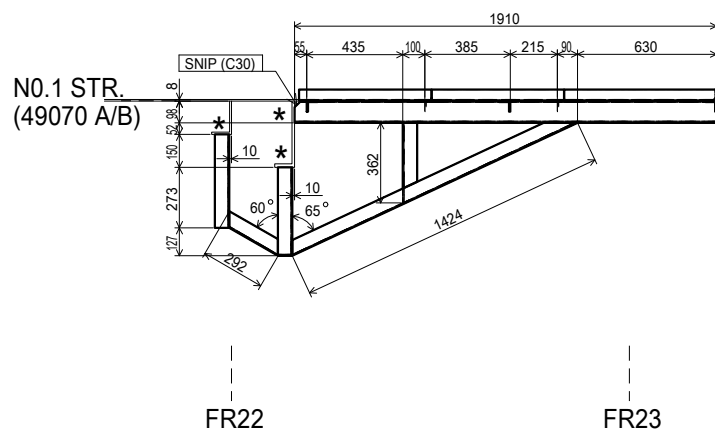
TOTAL WEIGHT : 963.2 kg



M8170T-TRAF-H31C-52-LIST

SEC.

ISO

ELEV.

\*\*\* NOTE \*\*\*  
HAND RAIL 은 별도 제작도 참조설치

SHIP	8170	MATERIAL LIST	NO.	DESCRIPTION	DIMENSION	MAT'L	Q'TY	HDS NO.	WEIGHT	REMARK
DWG NO.	H31C0C30512M		1	ANGLE	50x50x6T	SS400		-	18.1kg	L=4170
AREA NO.	FUNNEL		2	ANGLE	65x65x6T	SS400		-	37.9kg	L=6597
설치위치	H31C0		3	CHANNEL	100X50X5/7.5	SS400		-	34.7kg	L=3820
ITEM	GRAT'G		4	CHECKERED PLATE	도면 참조	SS400	3 SH	-	96.7kg	
PIECE NO.	H31C-52-GC01		5	HAND RAIL	제작도면 참조	SS400	2 ST	-		
Q'TY	1 EA		6					-		
TOTAL WEIGHT	187.4 kg		7							
			8							
HYD.TEST	kg/cm <sup>2</sup>	NOTE	1) GRAT'G FRAME, SUPPORT : "EM"							
PAINT SYMBOL	EM/U1		2) CHECKERED PLATE UPPER SIDE : "U1", UNDER SIDE : "U1"							



# E/R HAND RAIL PIECE

DWG

SHIP NO.

8170

DWG NO.

H31C0C30512M

Painting: EM

40A ANGLE TYPE HANDRAIL  
(40X40X5t E.A)

TOP/MIDDLE  
END PLATE  
(REF. HDS D12K-752)

1480

800

680

"A"

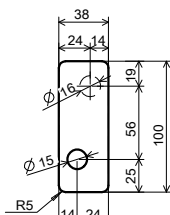
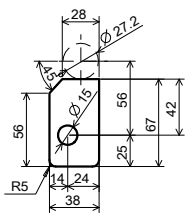
"A"

STOPPER  
BOLTING 하여 입고  
(M8X30 2EA)

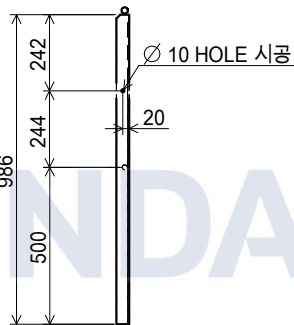
HDS 5602 5-3

TOP END PLATE

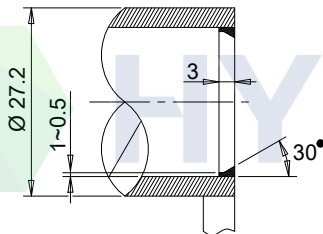
MIDDLE END PALTE



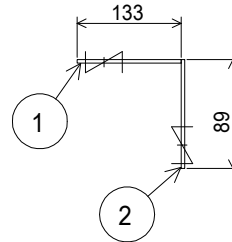
VIEW "A"- "A"



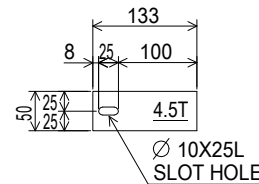
RAIL END PLATE



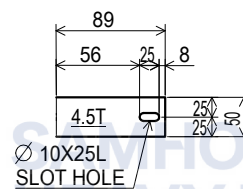
STOPPER DETAIL



① DETAIL



② DETAIL



Weight: 11.3 Kg

PIECE NO. H31C-52-HR01

20A PIPE 1.7 M

16D RB 1.7 M

Middle Stanchion 1 EA

End Stanchion 1 EA

STOPPER (4.5T PLATE) 2 EA

BOLT/NUT (M8X30) 2 EA

Top. End Plate 1 EA

Mid. End Plate 1 EA

Qty 1 ST

Bending Radius R 125

POSITION

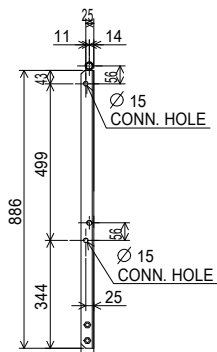
FR: 22 - 511

LG: 1 - 156

Painting: EM

40A ANGLE TYPE HANDRAIL  
(40X40X5t E.A)

CONNECTION HOLE DETAIL



1717

767

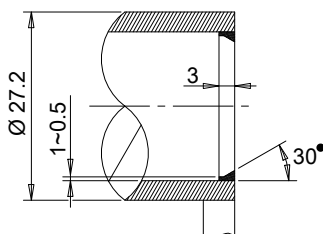
850

412

TOP/MIDDLE  
END PLATE  
(REF. HDS D12K-752)

2-Ø15 CONNECTION HOLES  
(REF. HDS D12K-752)

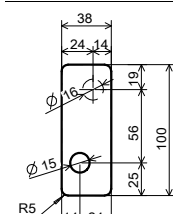
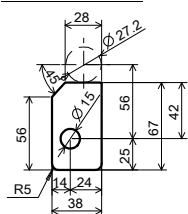
RAIL END PLATE



HDS 5602 5-3

TOP END PLATE

MIDDLE END PALTE



Weight: 12.3 Kg

PIECE NO. H31C-52-HR02

20A PIPE 2.0 M

16D RB 2.0 M

Middle Stanchion 2 EA

End Stanchion 0 EA

Connector 0 EA

Top End Plate 1 EA

Middle End Plate 1 EA

Qty 1 ST

Bending Radius R 125

POSITION

FR: 21 + 340

LG: 2 - 112

# E/R HAND RAIL PIECE

DWG

SHIP NO.

8170

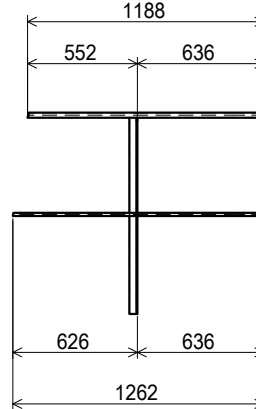
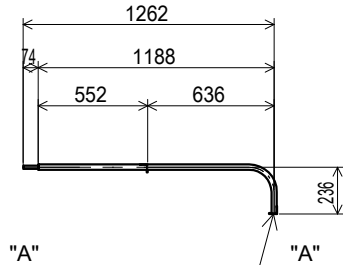
DWG NO.

H31C0C30512M

Painting: EM

40A ANGLE TYPE HANDRAIL  
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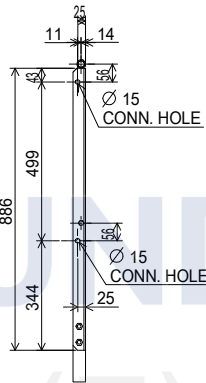
VIEW "A"-"A"



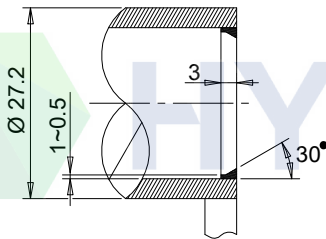
(TOP RAIL / MID RAIL 길이 상이함)

2-Ø15 CONNECTION HOLES  
(REF. HDS D12K-752)

CONNECTION HOLE DETAIL



RAIL END PLATE



Weight: 10.4 Kg

PIECE NO. H31C-52-HR03

20A PIPE 1.4 M

16D RB 1.5 M

Middle Stanchion 2 EA

End Stanchion 0 EA

Connector 0 EA

Top End Plate 0 EA

Middle End Plate 0 EA

Qty 1 ST

Bending Radius R 125

POSITION

FR: 21 - 488

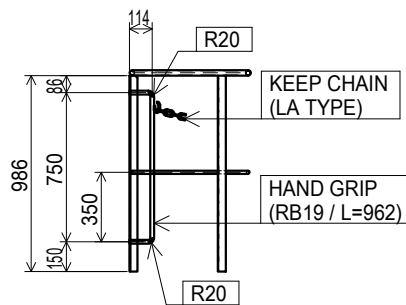
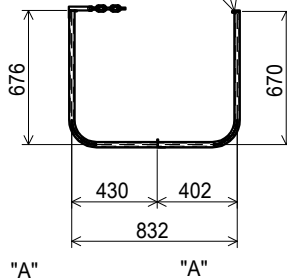
LG: 3 - 67

Painting: EM

40A ANGLE TYPE HANDRAIL  
(40X40X5t E.A)

VIEW "A"-"A"

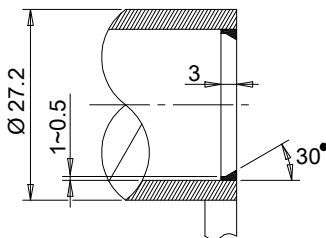
TOP/MIDDLE  
END PLATE  
(REF. HDS D12K-752)



"A"

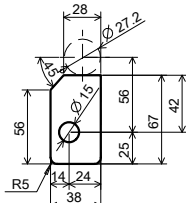
"A"

RAIL END PLATE

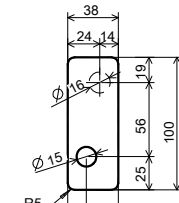


HDS 5602 5-3

TOP END PLATE



MIDDLE END PALTE



Weight: 16.2 Kg

PIECE NO. H31C-52-HR04

20A PIPE 2.3 M

16D RB 2.3 M

Middle Stanchion 2 EA

End Stanchion 1 EA

19D RB 1.0 M

KEEP CHAIN (LA TYPE) 1 EA

Top. End Plate 1 EA

Mid. End Plate 1 EA

Qty 1 ST

Bending Radius R 125

POSITION

FR: 22 - 721

LG: -1 - 42

# E/R HAND RAIL PIECE

DWG

SHIP NO.

8170

DWG NO.

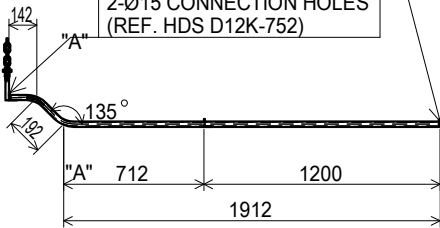
H31C0C30512M

Painting: EM

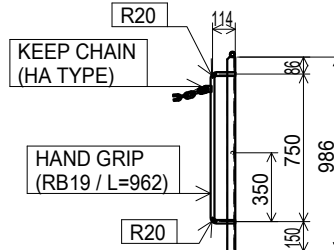
40A ANGLE TYPE HANDRAIL  
(40X40X5t E.A)

TOP/MIDDLE  
END PLATE  
(REF. HDS D12K-752)

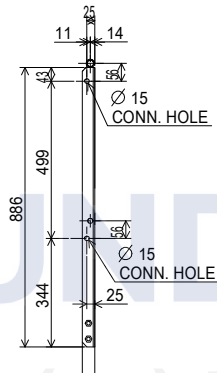
2-Ø15 CONNECTION HOLES  
(REF. HDS D12K-752)



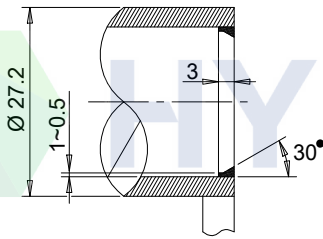
VIEW "A"- "A"



CONNECTION HOLE DETAIL



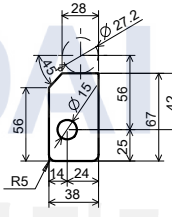
RAIL END PLATE



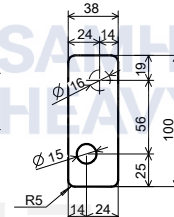
Weight: 13.1 Kg

HDS 5602 5-3

TOP END PLATE



MIDDLE END PALTE



POSITION

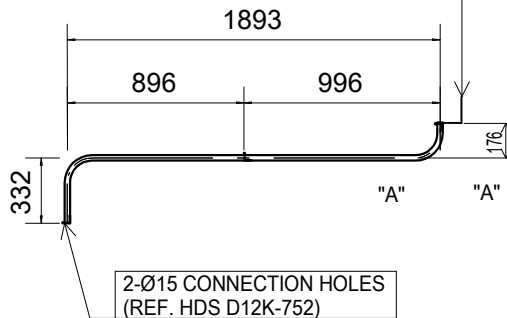
FR: 21 + 65

LG: -3 + 380

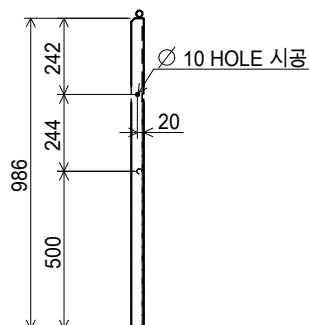
Painting: EM

40A ANGLE TYPE HANDRAIL  
(40X40X5t E.A)

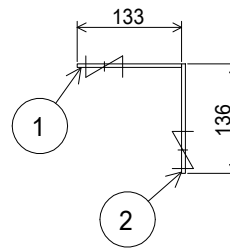
STOPPER  
BOLTING 하여 입고  
(M8X30 2EA)



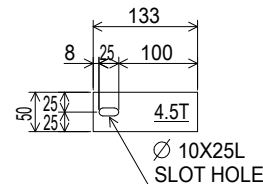
VIEW "A"- "A"



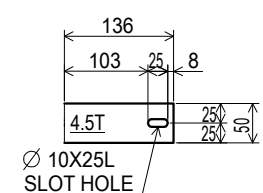
STOPPER DETAIL



① DETAIL



② DETAIL



Weight: 16.2 Kg

PIECE NO. H31C-52-HR06

20A PIPE 2.3 M

16D RB 2.3 M

Middle Stanchion 2 EA

End Stanchion 1 EA

STOPPER (4.5T PLATE) 2 EA

BOLT/NUT (M8X30) 2 EA

Top. End Plate 1 EA

Mid. End Plate 1 EA

Qty 1 ST

Bending Radius R 125

POSITION

FR: 22 - 721

LG: -1 - 42



# E/R HAND RAIL PIECE

DWG

SHIP NO.

8170

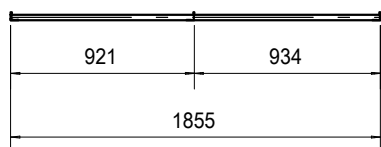
DWG NO.

H31C0C30512M

Painting: EM

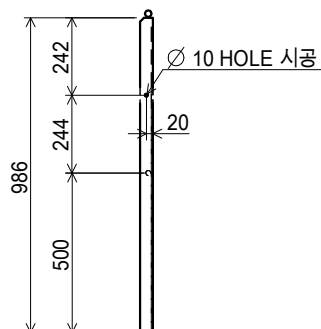
40A ANGLE TYPE HANDRAIL  
(40X40X5t E.A)

"A"

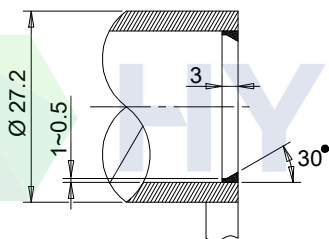


"A"

VIEW "A"-"A"



RAIL END PLATE



Weight: 14.8 Kg

PIECE NO.

H31C-52-HR07

20A PIPE

1.9 M

16D RB

1.9 M

Middle  
Stanchion

1 EA

End  
Stanchion

2 EA

Connector

0 EA

Top  
End Plate

0 EA

Middle  
End Plate

0 EA

Qty

1 ST

Bending  
Radius

POSITION

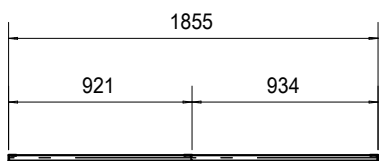
FR: 23 - 532

LG: -1 + 325

Painting: EM

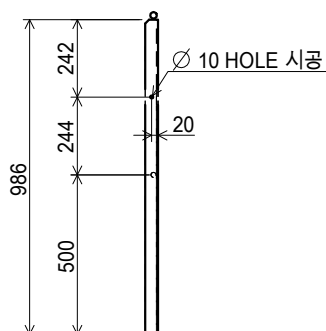
40A ANGLE TYPE HANDRAIL  
(40X40X5t E.A)

"A"

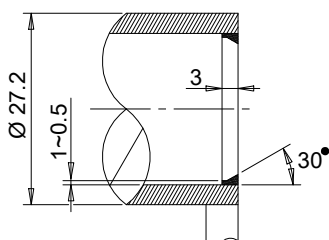


"A"

VIEW "A"-"A"



RAIL END PLATE



Weight: 14.8 Kg

PIECE NO.

H31C-52-HR08

20A PIPE

1.9 M

16D RB

1.9 M

Middle  
Stanchion

1 EA

End  
Stanchion

2 EA

Connector

0 EA

Top  
End Plate

0 EA

Middle  
End Plate

0 EA

Qty

1 ST

Bending  
Radius

POSITION

FR: 23 - 532

LG: 1 - 400

SHIP NO.

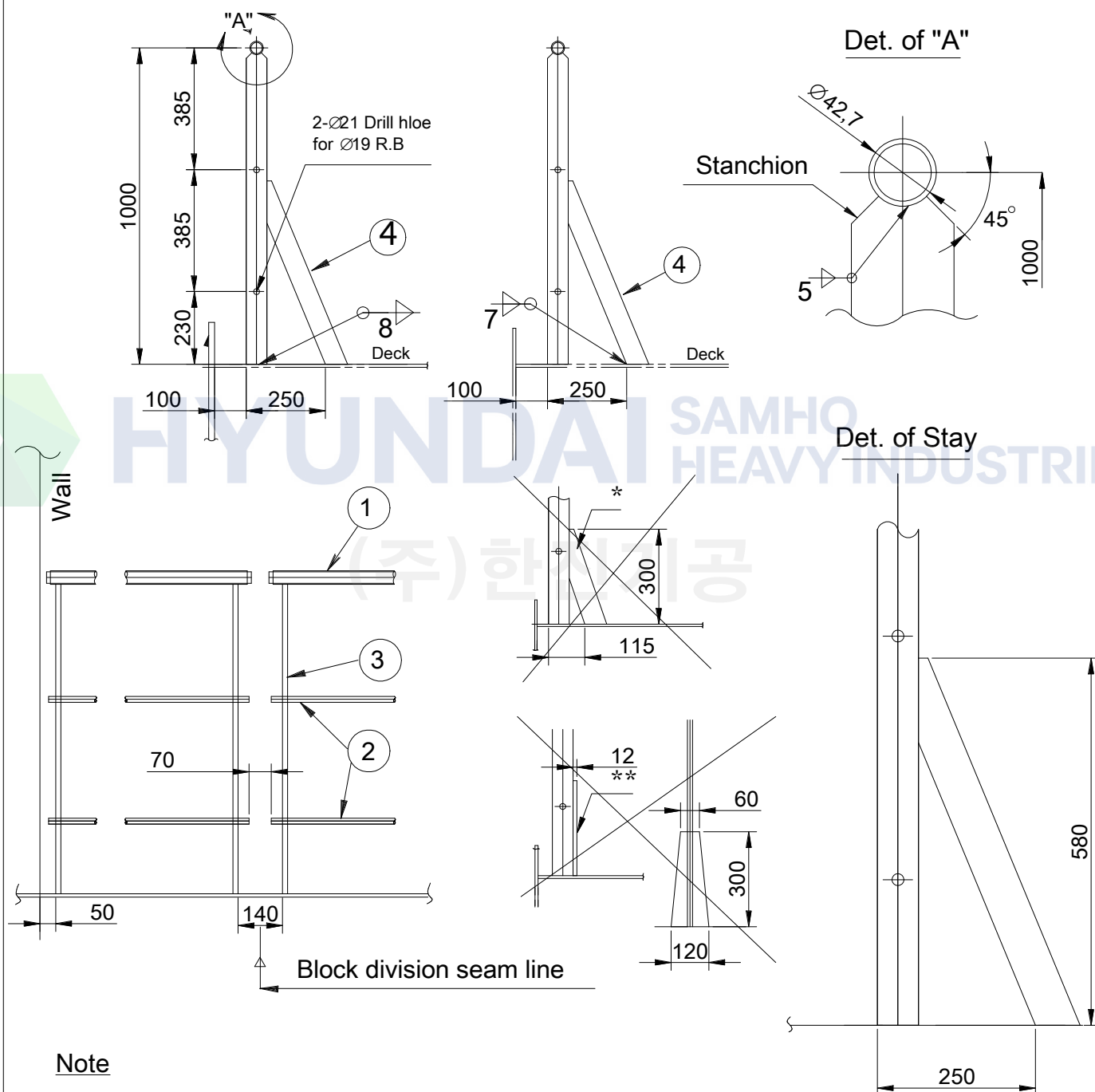
8170

DWG NO.

H31C0C30511M

## Handrail (Type-A1)

No.	Description	Size	Material	Q'ty	Weight	Remark
1	Top rail	32A PIPE	S.P.P	1	3.14kg/m	
2	Mid rail	Ø 19 R.B	SS400 or SS275	2	2.23kg/m	
3	Stanchion	65 X 16t F.B	SS400 or SS275	1	8.16kg/m	
4	Stay	65 X 12t F.B or 12t S/Pl	SS400 or SS275	1	6.12kg/m	

**Note**

1. Stanchion space ; Abt. 1500mm interval.
2. Stay space ; At every third stanchion pitch.
3. Application ; Ship side area on weather deck, Safety access to bow.
4. (\* or \*\* Mark) Stay shall be applied in way of narrow passageway space.  
(Stay space ; Two stanchion pitch)





## HAND RAIL PIECE DRAWING

SHIP NO.

DWG NO.

TOTAL WEIGHT (kg)

PAINT SYMBOL

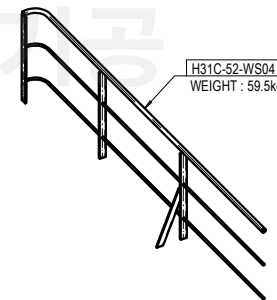
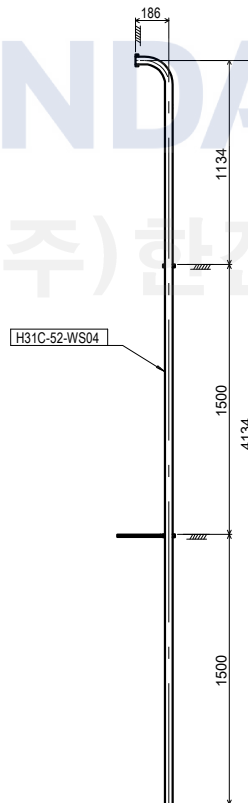
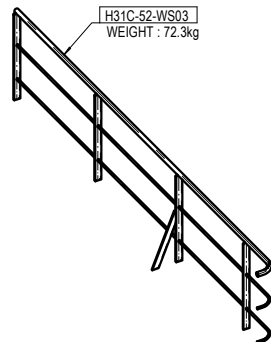
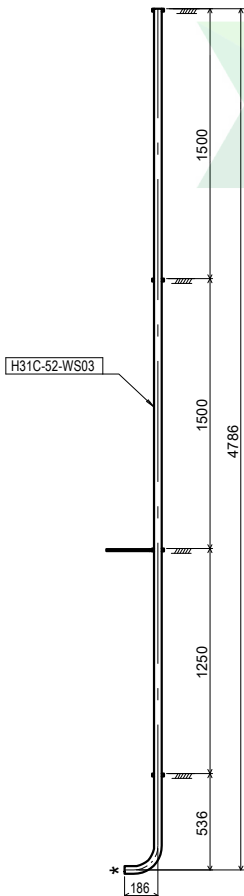
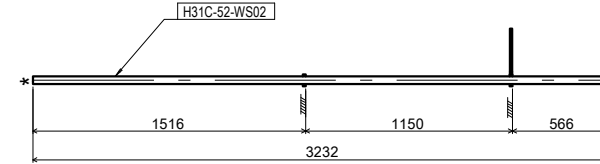
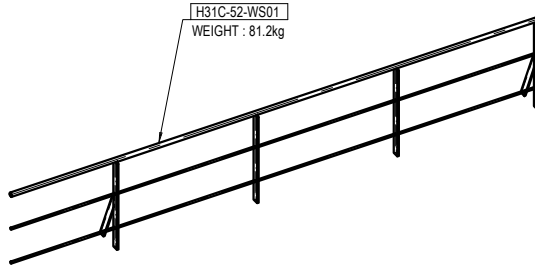
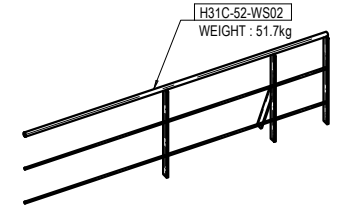
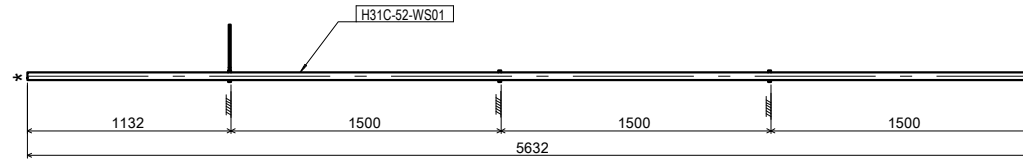
8170

H31C0C30512M

264.7

"EE"

H31C-52-WS01~ WS04

선장 타입 적용. 참조도면(TYPE-A1)  
PAINT CODE : "EE"

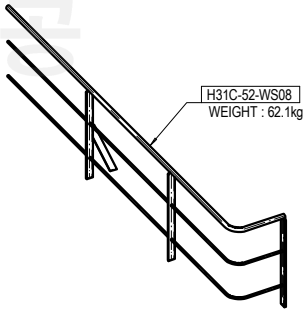
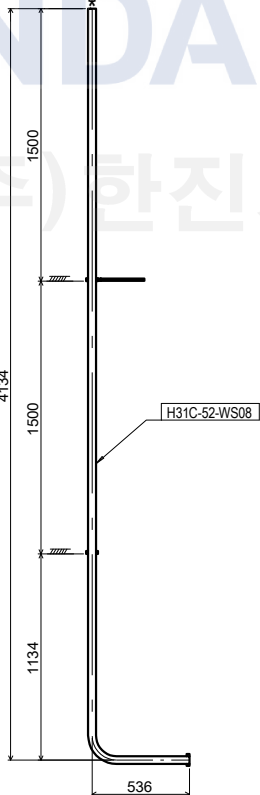
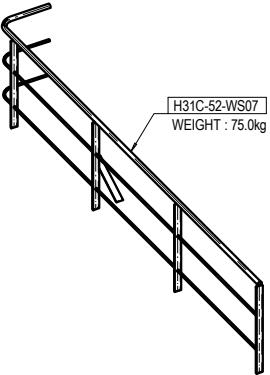
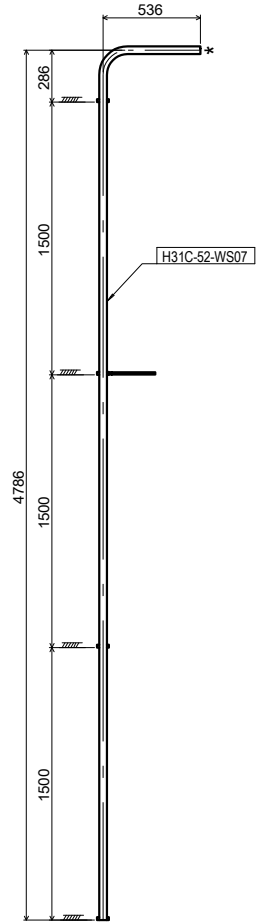
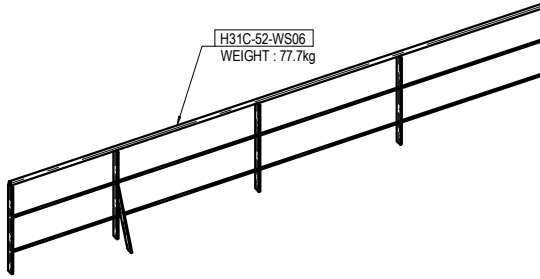
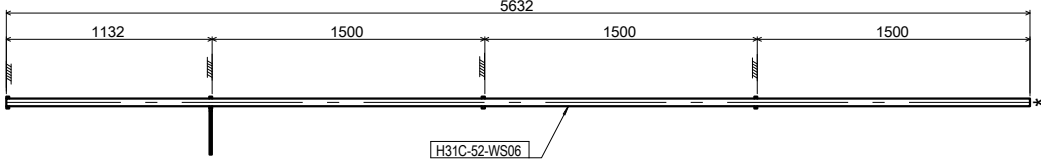
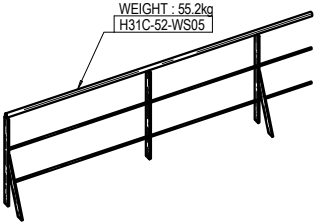
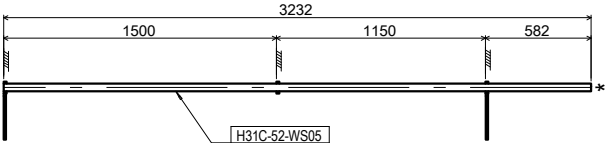
8				
7				
6				
5				
4	H31C-52-WS04	1	59.5	-
3	H31C-52-WS03	1	72.3	-
2	H31C-52-WS02	1	51.7	-
1	H31C-52-WS01	1	81.2	-
NO.	PIECE NO.	Q'TY	WGT (kg)	REMARK



HAND RAIL PIECE DRAWING

SHIP NO.	DWG NO.	TOTAL WEIGHT (kg)	PAINT SYMBOL
8170	H31C0C30512M	270	"EE"

H31C-52-WS05 ~ WS08  
선장 타입 적용. 참조도면(TYPE-A1)  
PAINT CODE : "EE"



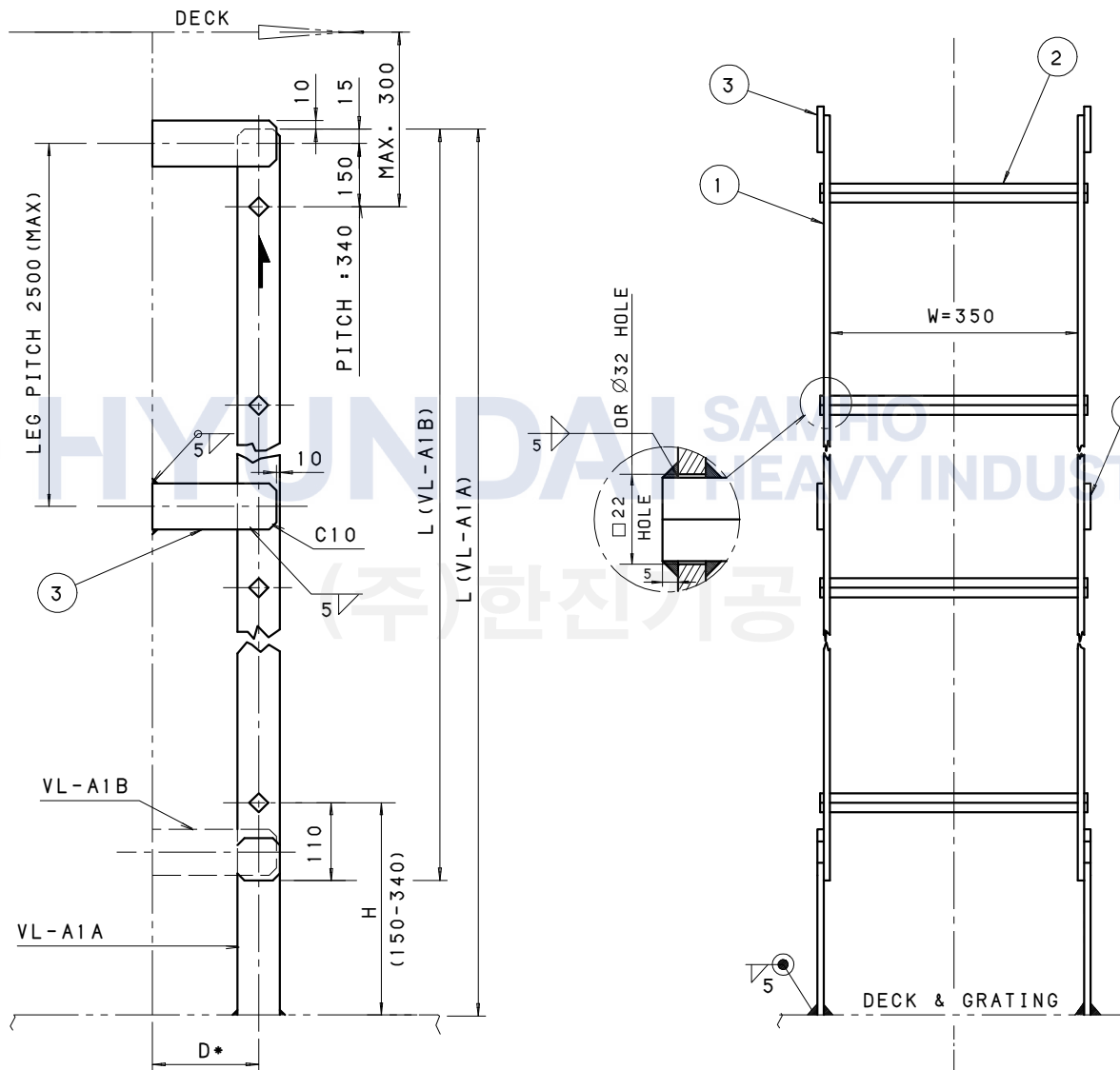
8				
7				
6				
5				
4	H31C-52-WS08	1	62.1	-
3	H31C-52-WS07	1	75	-
2	H31C-52-WS06	1	77.7	-
1	H31C-52-WS05	1	55.2	-
NO.	PIECE NO.	Q'TY	WGT (kg)	REMARK

M81701-TRAF-H31C-52-HR02

# VERTICAL LADDER (VL-A1)

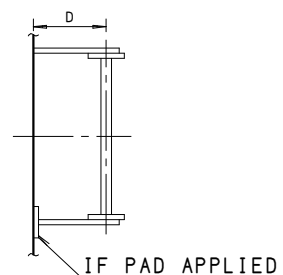
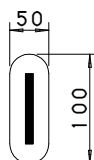
NO.	DESCRIPTION	DIMENSION	MAT'L	Q'TY	WEIGHT (kg)	REMARK
1	SIDE FRAME	65X9t FLAT BAR	SS400	2	4.59/m	PAINTED
2	STEP	22 SQUARE BAR	SS400	-	3.80/m	PAINTED
3	LEG	65X9t FLAT BAR	SS400	-	0.98/EA	PAINTED
4	PAD	10t	SS400	-	0.35/EA	PAINTED

Unit : mm



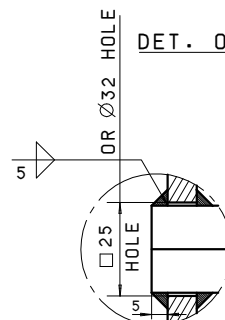
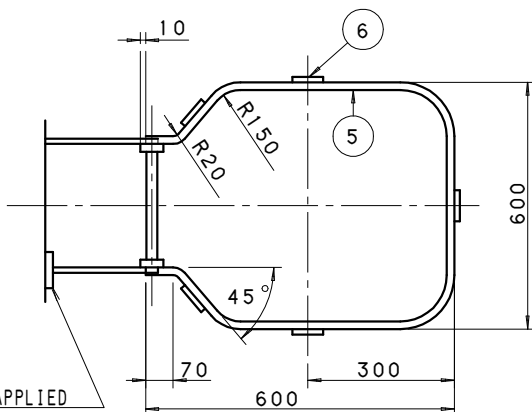
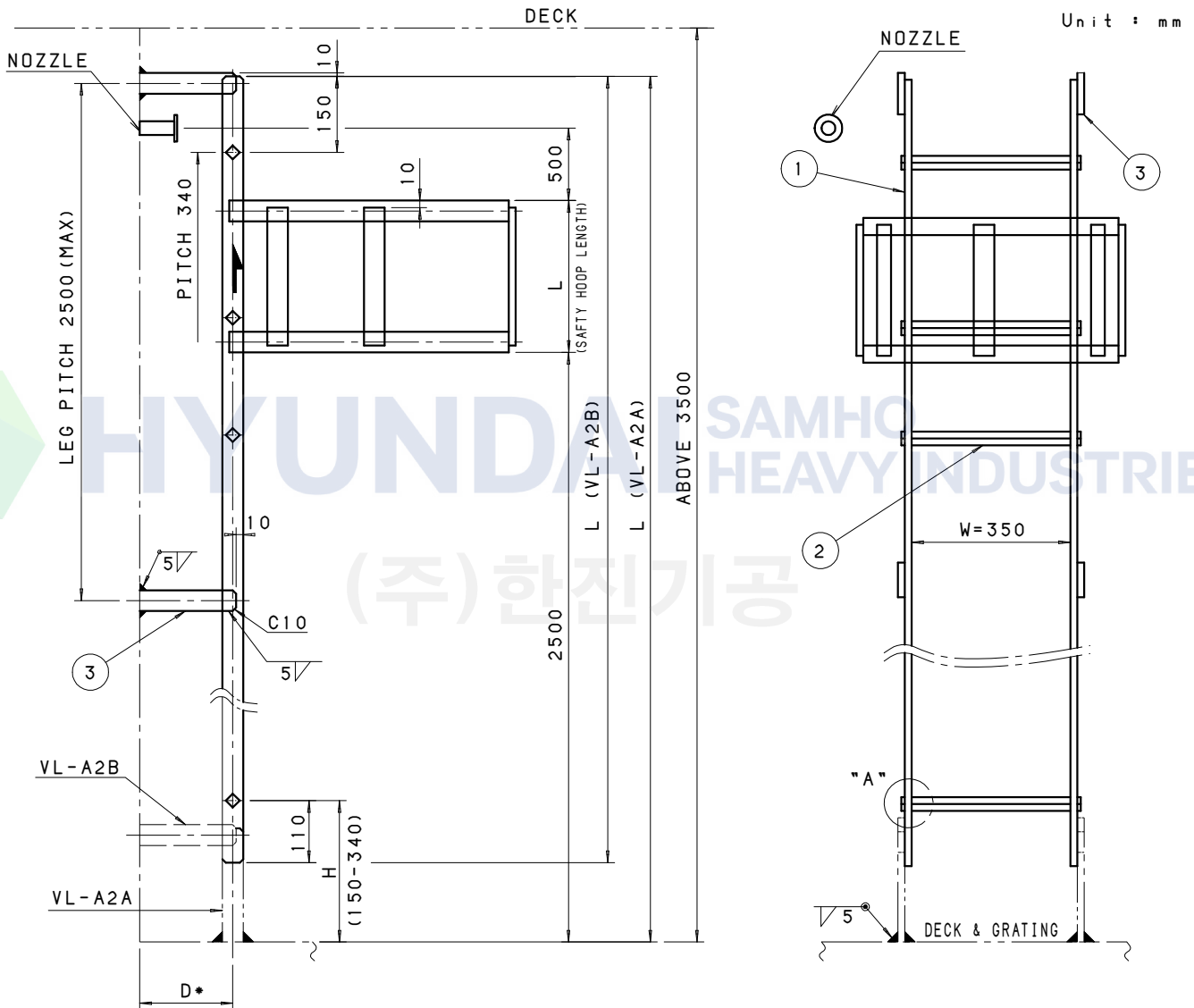
D\* : 180 = FOR INSULATION  
 : 150 = FOR WALL OR BHD  
 : 100 = FOR GENERAL

DET. OF PAD  
(IF APPLIED)

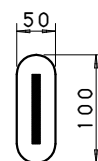


VERTICAL LADDER WITH SAFETY HOOP  
FOR HULL TANK ( VL-A2 )

NO.	DESCRIPTION	DIMENSION	MAT'L	Q'TY	WEIGHT (kg)	REMARK
1	SIDE FRAME	65X9t FLAT BAR	SS400	2	4.59/m	PAINTED
2	STEP	22 SQUARE BAR	SS400	-	3.80/m	PAINTED
3	LEG	65X9t FLAT BAR	SS400	-	0.98/EA	PAINTED
4	PAD	10t	SS400	-	0.35/EA	PAINTED
5	BACK BAND	65X9t FLAT BAR	SS400	2	19.49 kg	PAINTED
6	VERTICAL PLATE	65X9t F.B.	SS400	5	9.74 kg	PAINTED



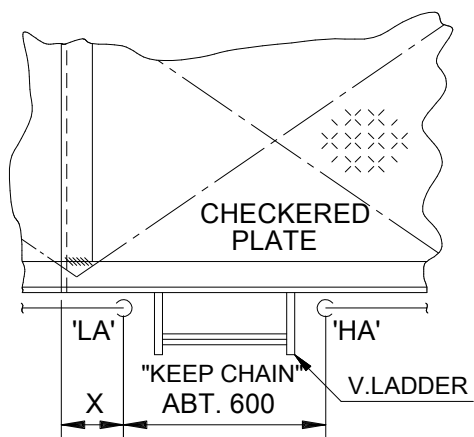
DET. OF PAD  
(IF APPLIED)



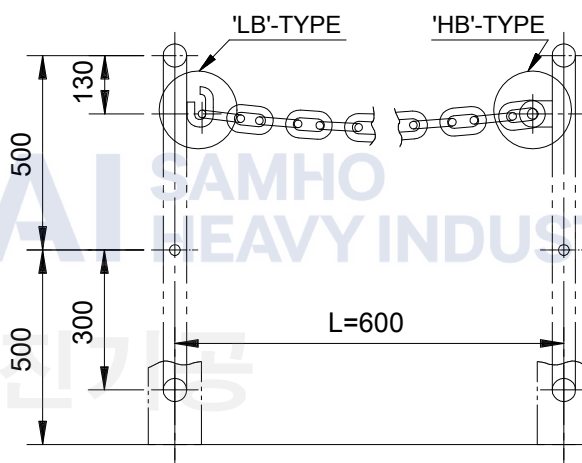
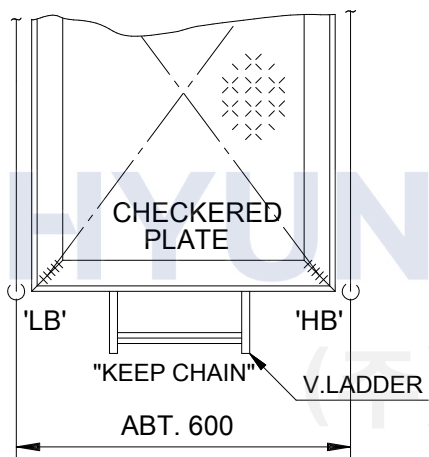
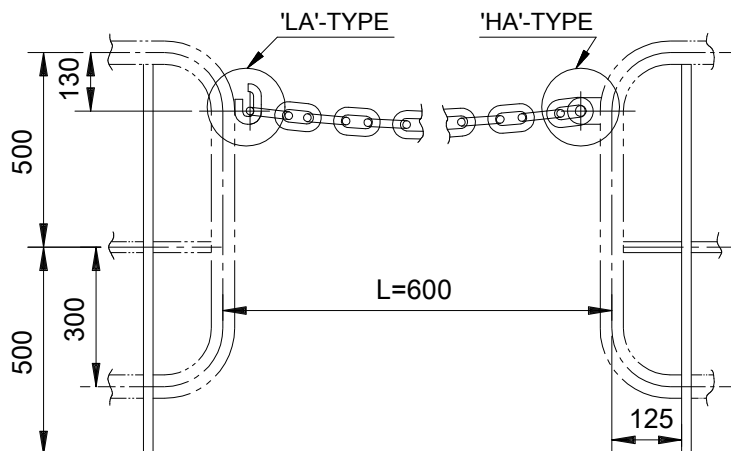
D\* : 180 = FOR INSULATION  
: 150 = FOR WALL OR BHD  
: 100 = FOR GENERAL

SCALE	NONE	SHIP NO	8170	HDS NO.	5701	13	17		
 HYUNDAI	LOOP & HANGER FOR KEEP CHAIN			DATE	'94	'99	'00	'01	
					6 1	5 14	9 16	5 29	

TYPICAL DWG(도면표시)

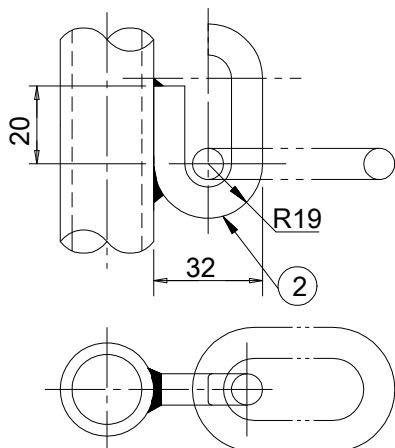


시공요령

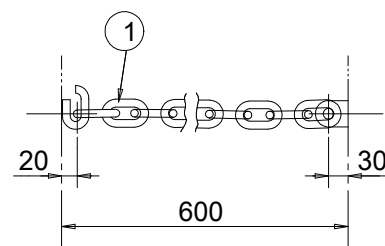
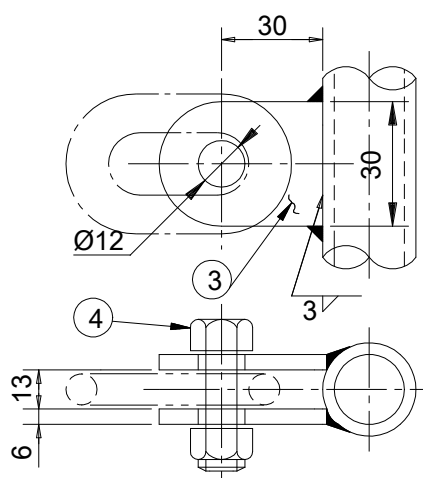


LOOP &amp; HANGER DETAIL

LOOP DETAIL



HANGER DETAIL



NOTES

'LA'= LOOP 'A'-TYPE  
'HA'= HANGER 'A'-TYPE  
'LB'= LOOP 'B'-TYPE  
'HB'= HANGER 'B'-TYPE

UNIT : MM

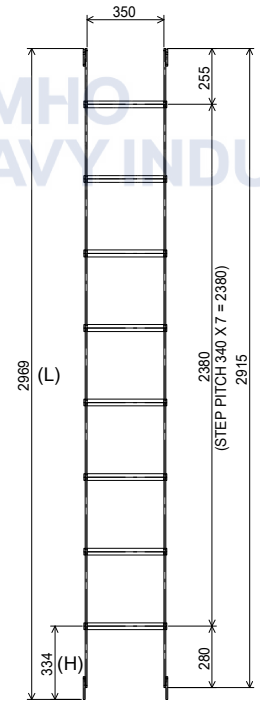
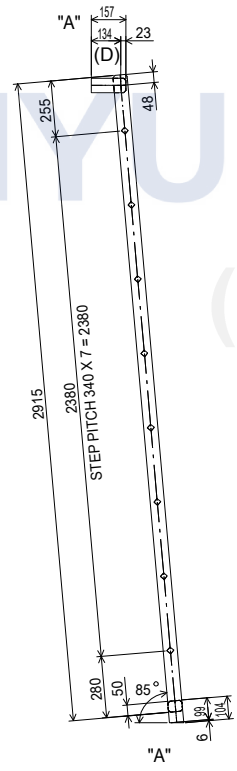
4	HEX. BOLT & NUT	M10 X 40L	SS400 (GAL'V)	1	
3	HANGER	6T	SS400 (GAL'V)	2	
2	LOOP	Ø9	SS400 (GAL'V)	1	
1	CHAIN	Ø9	SS400 (GAL'V)	1	
NO.	DESCRIPTION	DIMENSION	MAT'L	Q'TY	REMARK

PAINT : EM

H31C-52-VL01

ELEVATION

VIEW "A"- "A"

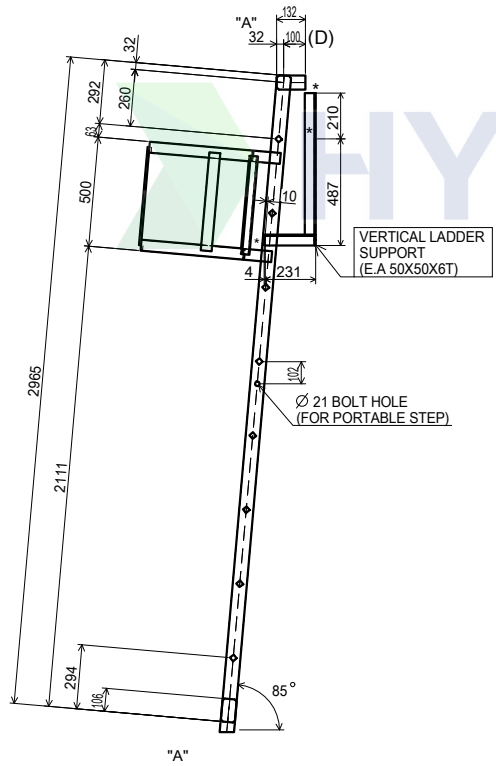


SHIP NO.	8170
VERTICAL LADDER 제작도 (H31C-52-VL01)	
DWG NO.	H31C0C30512M

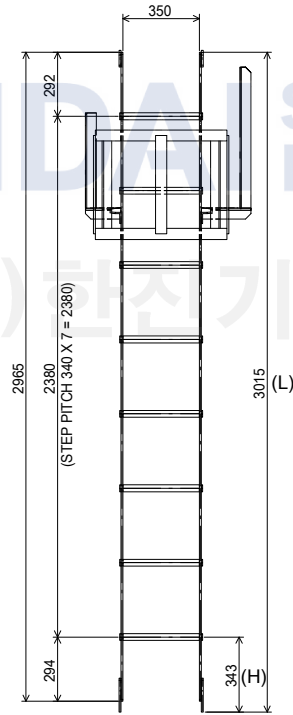
PAINT : EM

H31C-52-VL02

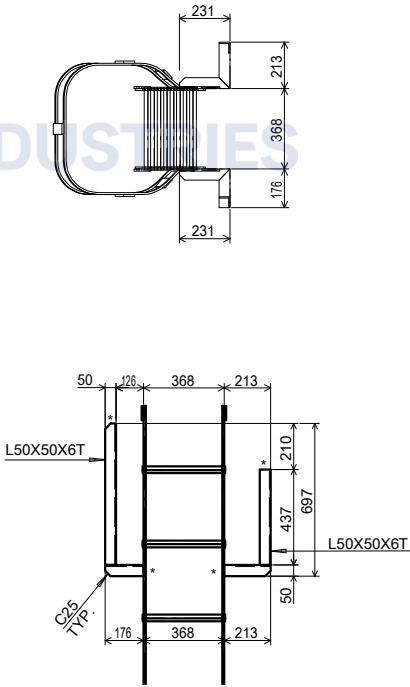
ELEVATION



VIEW "A"- "A"



SUP'T DETAIL



SHIP NO. 8170

VERTICAL LADDER 제작도  
(H31C-52-VL02)

DWG NO. H31C0C30512M



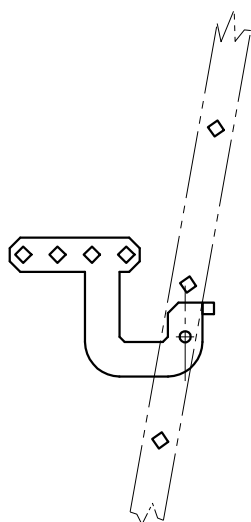
# DETAIL OF VERTICAL LADDER STEP

SHIP NO. 8170

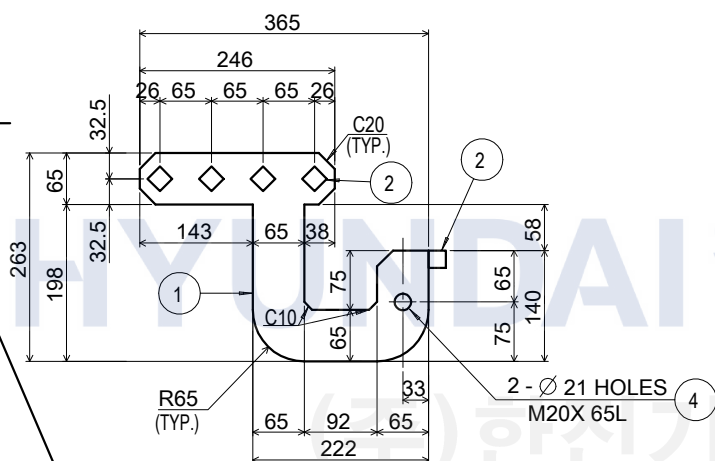
DWG NO. H31C0C30512M

수량: 1EA  
중량: 20KG

H31C-52-VL02 PC'S에 설치입고

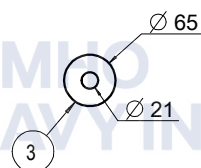


## ELEVATION

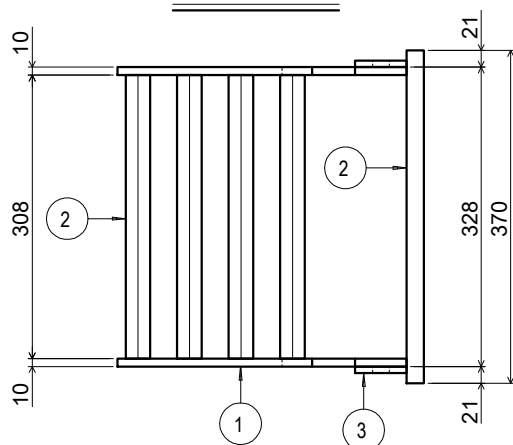


## DETAIL OF ③

2 SET 공급요.



## PLAN



M8170T-TRAF-H31C-52-VL04

4	HEX.BOLT & NUT	M20X 65L	SS400	2	1	
3	STEEL PLATE	8 t	SS400	2	1	
2	STEP	22 SQ BAR	SS400	5	5	
1	STEEL PLATE	10t	SS400	2	7	
NO.	DESCRIPTION	DIMENSION	MAT'L	Q'TY	WGT (kg)	



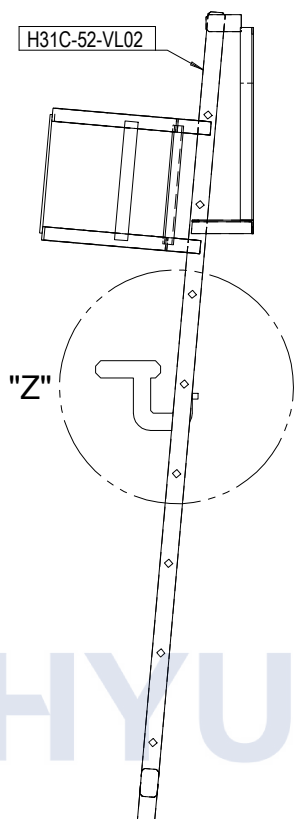


# DETAIL OF VERTICAL LADDER STEP

SHIP NO. 8170

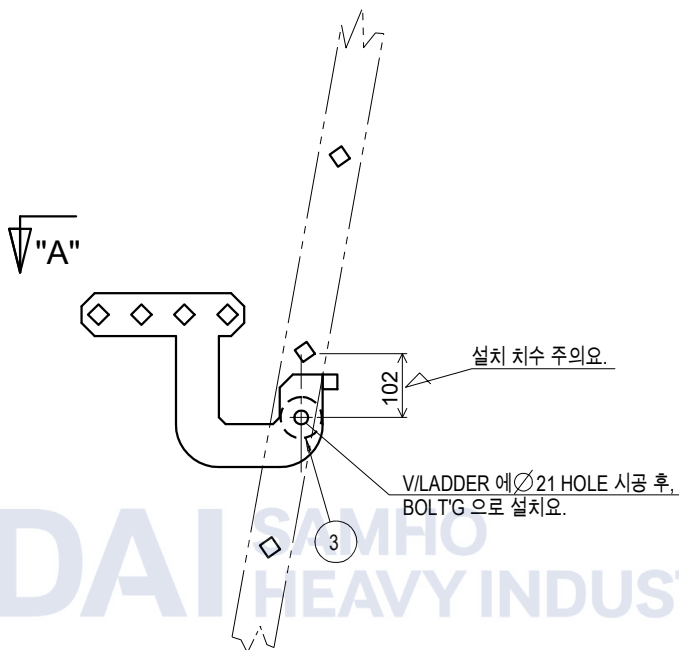
DWG NO. H31C0C30512M

## ELEVATION



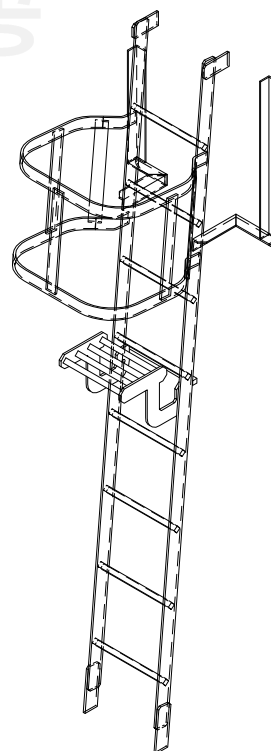
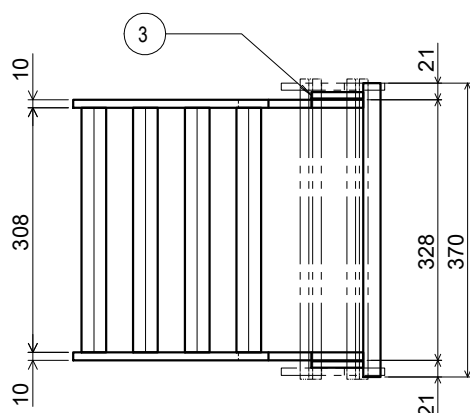
설치 정도 주의요.  
설치시에 작동 유무 확인 후  
BOL HOLE 시공요.

## DETAIL OF "Z"

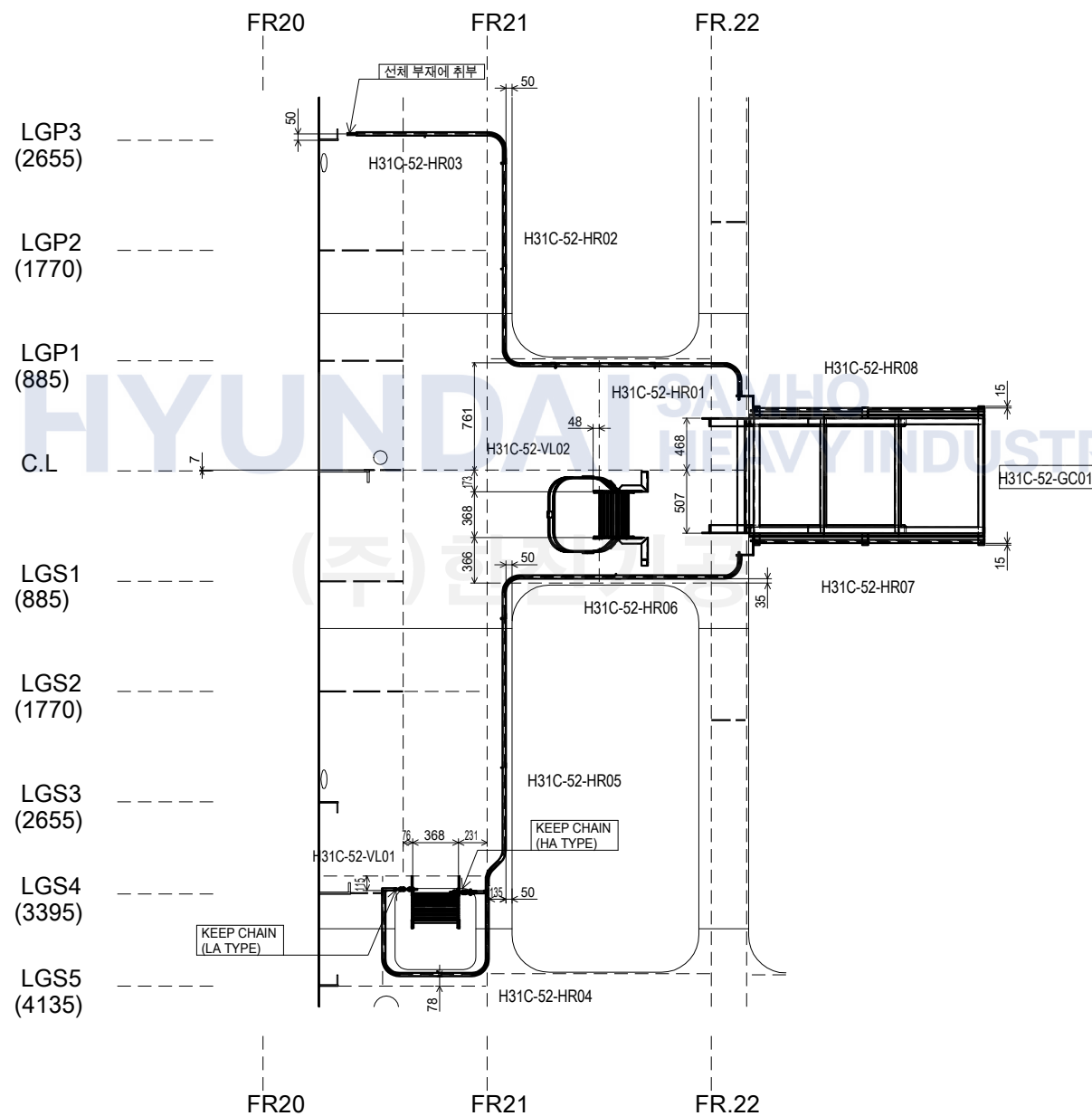


## VIEW "A"

NO.3 ITEM - V/LADDER와 STEP사이에 설치요



1. V/LADDER에 STEP을 설치하기 위한 HOLE 2 POINT 시공요. (HOLE SIZE =  $\varnothing 21$ )
2. STEP과 V/LADDER사이에 ITEM ③ 을 넣고 BOLTING 조치요.



SHIP NO.	8170
FUNNEL TRAFFIC 설치도	
DWG NO.	