

PRINCIPAL PARTICULARS

LENGTH	(D. A)	approx. 180.00 M
LENGTH	(B. P)	172.00 M
BREADTH	(M.L.D.)	30.00 M
DEPTH	(M.L.D.) UPPER DECK	14.70 M
DRAFT	(DESIGNED)	9.50 M
	(SCANTLING)	approx. 9.80 M
DEADWEIGHT	(at D L W L)	approx. 32,000 MT
	(at SCANTLING DRAFT)	approx. 33,500 MT
MAIN ENGINE		B&W 5SS0MC-C7
	(at MCR)	7,900 kW x 127.0 RPM
	(at NCR)	6,715 kW x 120.3 RPM
SERVICE SPEED	(at SCANTLING DRAFT)	
	(NCR with 15% S.M)	abt. 14.0 KTS
COMPLEMENT		25P+6

CLASSIFICATION	KR
+KRSI-Bulk Carrier 'ESP', CSR, BC-A (HOLD Nos.2 & 4 may be empty), GRAB (20) LI, IWS, +KRMI-UWA, STM	

SURFACE ROUGHNESS
ISO 1302 (Rd)

MICRON	OLD	NEW
50		N12/
25	▽	N11/
12.5		N10/
6.3		N9/
3.2	▽▽	N8/
1.6		N7/
0.8		N6/
0.4	▽▽▽	N5/
0.2		N4/
0.1		N3/
0.05	▽▽▽▽	N2/
0.025		N1/



THIS DRAWING OR DOCUMENT IS THE PROPERTY OF
THE SAMJIN SHIPBUILDING INDUSTRIES CO., LTD.
AND MUST NOT BE PARTIALLY OR WHOLLY COPIED
OR USED FOR ANY OTHER PURPOSE WITHOUT PRIOR
WRITTEN PERMISSION OF SAMJIN SHIPBUILDING
INDUSTRIES CO., LTD

图纸 分发

分发处		分发数	
汉字	ENGLISH	FW	FC
综合设计	Integrated Design Division		
船体构造设计	Hull Structure Team	1	1
船体生产设计	Hull Production Team		
船装设计	Hull Outfitting Design	1	1
船室设计	Accommodation Design		
机装详细设计	Machinery Detail Design	1	1
机装生产设计	Machinery Production Design		
电装设计	Electrical Design		
先行舾装	Preoutfitting Division		2
E/R 舾装	E/R Outfitting		2
船室生产	Accommodation Production		
试航部	Trial Cruise Division		
采购管理 2	Procurement Team 2		
品质经营	Quality Assurance		2
搭载管理	Erection Team		
精度管理	Technical Specification Team		
品质物流(镇海)	Logistics Team (Jinhae)		
轴舵设计(保管)	Shaft & Rudder Design	1	1
合计 (Total)		4	10
<input type="checkbox"/>	For Working		
<input type="checkbox"/>	For Construction		
<input checked="" type="checkbox"/>	For Revision		

HULL NO.

1009~1012,
1031~1032

PROJECT

TPC KOREA
33,5K DWT LOG / BULK CARRIER

TITLE

RUDDER PINTLE &
RUDDER STOCK

APPR BY

M. Y Park

CHKD BY

J. S Lee

DWN BY

J. H Park
(Ext. : 0226)

TEL

+86) 0631-538-0204

TOTAL 10 SHEET(S) WITH COVER

DEPT

RUDDER & SHAFT
DESIGN TEAM

DWG NO.

DA312D001

SCALE

EACH

DATE

SEPT. 18. 2008

REV. NO.

3



Samjin Shipbuilding
Industries Co., Ltd.



PLAN HISTORY

HULL NO.

1009~1012
1031~1032

2

DWG. NO.

DA312D001

10

REV. NO.	DATE	DESCRIPTION	DWG	CHKD	APPD
A	2008.09.18.	SUBMITTED TO OWNER AND CLASS FOR APPROVAL.	J.H PARK	//	//
	2008.10.08.	BECAUSE WE DELIVERED THE WRONG DRAWING TO CLASS. SO WE NEED TO DELIVER AGAIN.	J.H PARK	//	//
B	2008.10.10.	APPROVED BY OWNER WITHOUT COMMENT.	J.H PARK	//	//
	2008.11.03.	APPROVED BY CLASS WITHOUT COMMENT.	J.H PARK	//	//
0	2008.11.08.	ISSUED FOR CONSTRUCTION.	J.H PARK	//	//
1	2009.01.16.	a) CHANGED FOR DIAMETER OF RUDDER STOCK SLEEVE □-RING Ø22 TO Ø20 ON 4, 5, 8 / 10 PAGE.	J.H PARK	//	//
		b) CHANGED FOR LENGTH OF RUDDER STOCK SLEEVE 580mm TO 585mm AND CONER OF SLEEVE ON 5, 6, 7 / 10 PAGE.	J.H PARK	//	//
		c) CHANGED FOR LENGTH OF RUDDER PINTLE SLEEVE 545mm TO 555mm AND CONER OF SLEEVE ON 9 / 10 PAGE.	J.H PARK	//	//
		ISSUED FOR REVISION.	J.H PARK	//	//
2	2009.02.12.	a) CHANGED FOR HYD.NUT ITEM NUMBER (15) TO (14) ON 10/10 PAGE.	J.H PARK	//	//
		b) ADDED TO DETAIL DIMENSION OF EPOXY PUTTY FOR PINTLE SLEEVE ON 9/10 PAGE.	J.H PARK	//	//
3	2009.03.25.	CHANGED FOR HEIGHT OF STOPPER FOR TILLER NUT (15) 157 TO 200 ON 5/10 PAGE.	J.H PARK	//	//
	2009.09.19.	ISSUED FOR REVISION.	J.H PARK	//	//



RUDDER PINTLE & RUDDER STOCK

HULL NO. 1009~1012
1031~1032
DWG. NO. DA312D001

3
10

GENERAL NOTES

1. CLASSIFICATION (船级社) : KR
2. RUDDER STOCK AND PINTLE TO BE SUBJECT TO CLASS REQUIREMENTS.
(舵杆和舵栓需遵守船级社的要求.)
3. ULTRASONIC OR OTHER N.D.T. INSPECTION AS REQUIRED TO BE CARRIED OUT FOR FORGED STEEL BY MANUFACTURER. (锻钢的超声检测与无损探伤检测应按要求由制造商进行)
4. THE RUDDER STOCK AND PINTLE TO BE CAREFULLY MANUFACTURED AND MACHINED FOR THE ALIGNMENT WITH SHIP CENTER LINE. (舵杆和舵栓应仔细的加工并与船的中心线校正.) STOCK AND PINTLE CENTER LINE AND KEY WAY CENTER LINE TO BE MARKED.
(舵杆和舵栓中心线以及主要中心线应被标注.)
5. DIMENSIONS IN () INDICATE MACHINING ALLOWANCE OR REFERENCE.
(括号 () 中的尺寸表示加工余量或参考.)
6. RUDDER STOCK AND PINTLE TO BE PAINTED FOR ANTI-CORROSION AFTER FINAL MACHINE CUT.
(舵杆和舵栓在最后加工剪切后进行防腐涂装.)
7. THE FOLLOWING DOCUMENTS TO BE SUBMITTED TO SHIPYARD BY MANUFACTURER.
(以下资料将由制造商提供给船厂.)
(ALL TESTS TO BE WITNESSED BY SHIP OWNER) ((所有测试需由船东参加))
A) DIMENSION CHECK SHEETS (尺寸核查表)
B) INSPECTION REPORTS (检查报告)
C) CERTIFICATES (证书)
8. STEEL FORGING (钢锻件)

1) CHEMICAL COMPOSITION (化学成分)

CARBON	SILICON	MANGANESE	SULPHUR	PHOSPHORUS	RESIDUAL ELEMENTS
MAX. 0.23%	MAX. 0.45%	0.3 - 1.2%	MAX. 0.035%	MAX. 0.035%	MAX. 0.80%

2) MECHANICAL PROPERTIES (机械性质)

T. S. (N/mm ²)	Y. S. (N/mm ²)	EL. (%)		R. A. (%)	
		LONGITUDINAL	TRANSVERSE	LONGITUDINAL	TRANSVERSE
MIN. 415.0 N/mm ² (42.3 KG/mm ²)	MIN. 235.0 N/mm ² (24.0 KG/mm ²)	MIN. 24	MIN. 20	MIN. 36	MIN. 29

9. REFERENCE DWG. (参考图纸)

- A) RUDDER CONSTRUCTION (DWG. NO. DA311D002)
- B) RUDDER CARRIER (DWG. NO. DA312D002)
- C) STERN FRAME & RUDDER HORN CONSTRUCTION (DWG. NO. DA124H100)

FITTING INFORMATION (安装信息)

ITEM	PULL-UP DISTANCE (MM)	PULL-UP FORCE (KN)
STOCK TO GUDGEON (OIL INJECTION METHOD WITHOUT KEY)	4.78 ~ 6.57	3622 ~ 5283
PINTLE TO GUDGEON (OIL INJECTION METHOD WITHOUT KEY)	2.71 ~ 6.02	1522 ~ 3466

THE PULL FORCE SHALL BE CONSIDERED AS REFERENCE. (拉力做为参考考虑.)



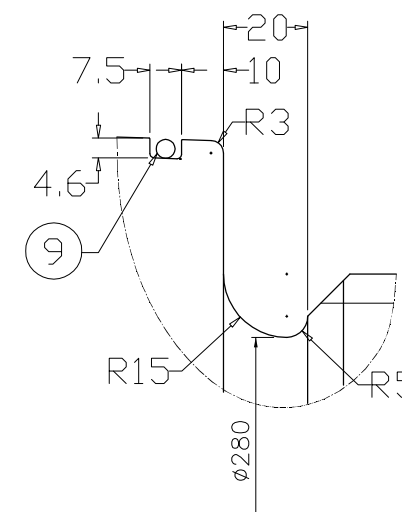
1009~1012
1031~1032

10

DA312D001

	TOTAL WEIGHT	8244.6
<u>NOTES</u>		
1. * MARK : CLASS MATERIAL CERTIFICATE SHALL BE SUBMITTED.		
2. ** MARK : MANUFACTURER'S WORK CERTIFICATE SHALL BE SUBMITTED.		
3. THE MATERIAL SYMBOL IS BASED ON JIS.		

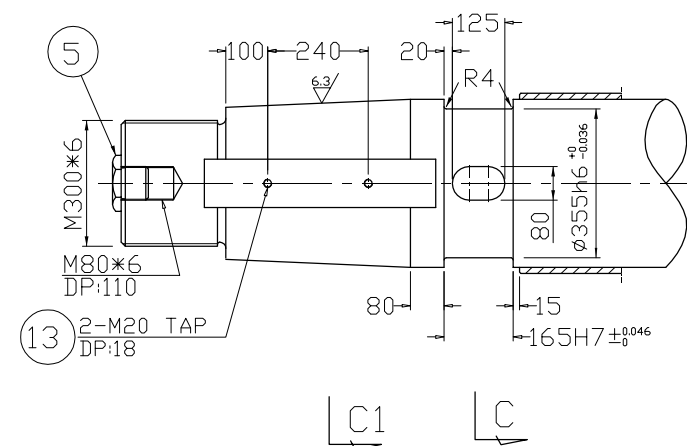
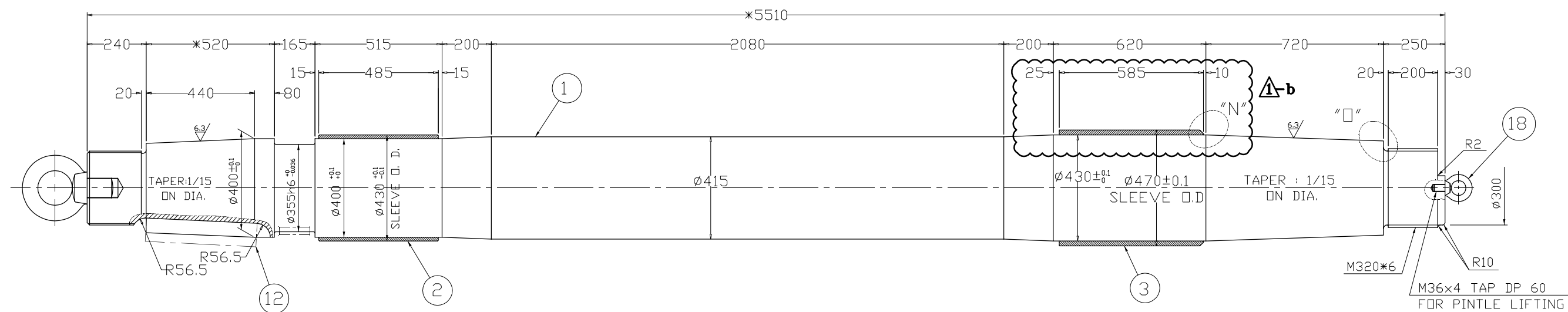
S : 1/20



HULL NO.	1009~1012 1031~1032	<div> <div> <div>RUDDER PINTLE &</div> <div>RUDDER STOCK</div> </div> </div>
DWG. NO.	DA312D001	
SCALE	1/20	



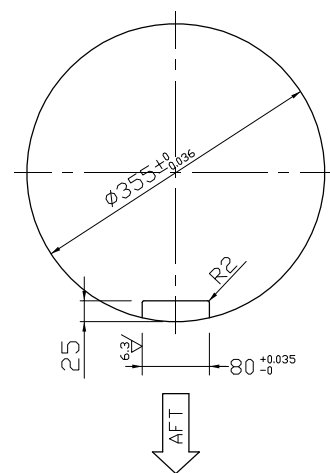
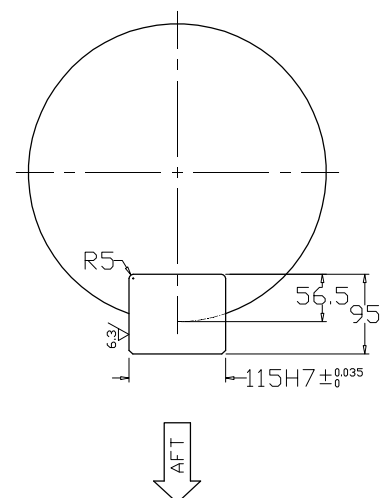
RUDDER STOCK

 ∇ 12.5/ ∇ 6.3/ S : 1/20

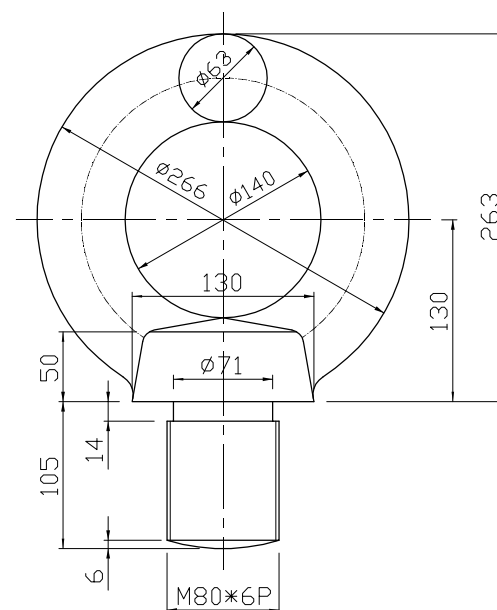
C1 C

SECTION C1

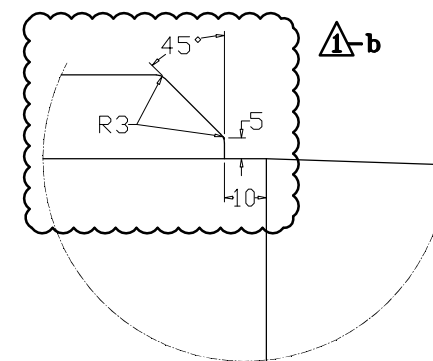
SECTION C



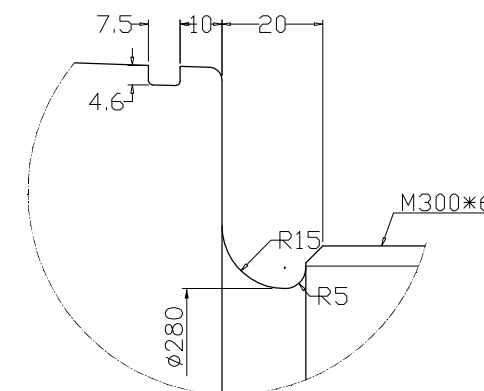
4 EYE BOLT



DET. "N"

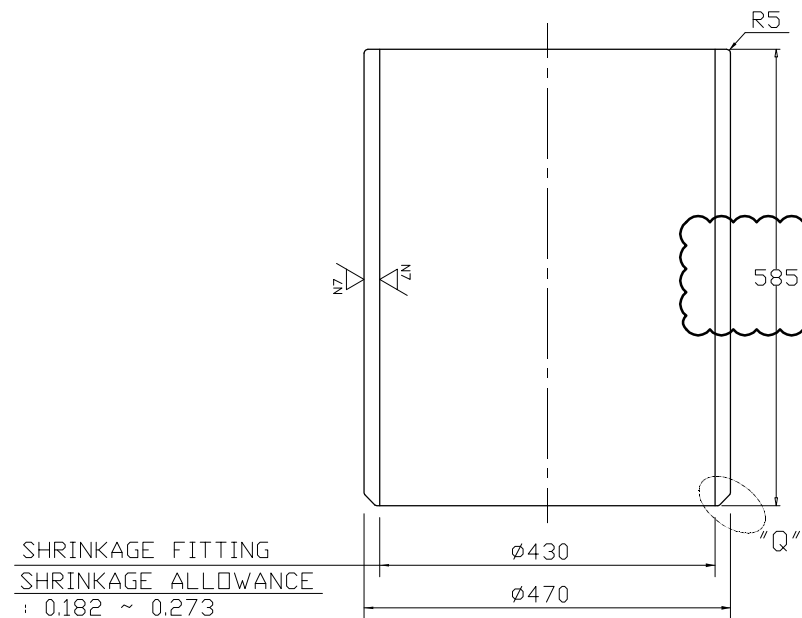


DET. "O"

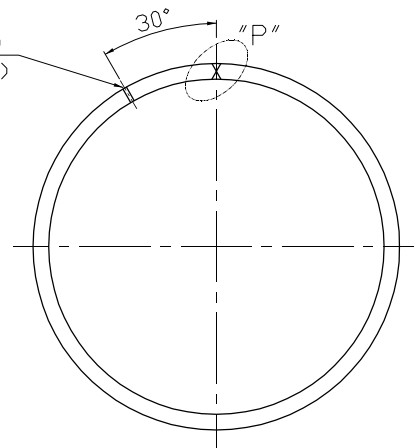


HULL NO.	1009~1012 1031~1032
DWG. NO.	DA312D001
SCALE	1/20

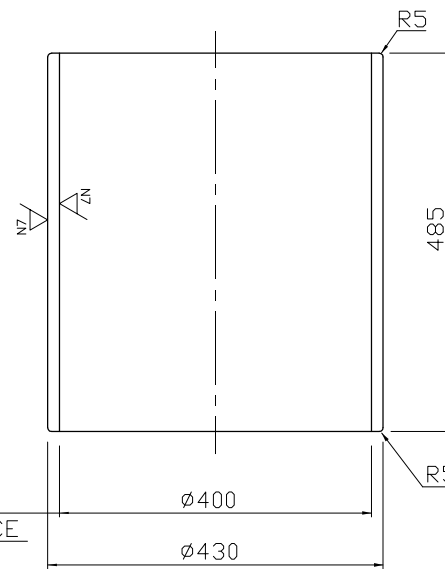
RUDDER PINTLE &
RUDDER STOCK



VENT HOLE (P. ONLY)
DET. "M" (PAGE 5/10)

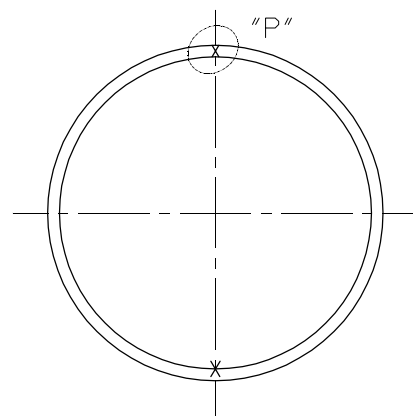
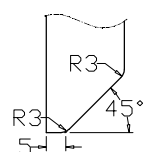


SHRINKAGE FITTING
SHRINKAGE ALLOWANCE
: 0.180~0.270

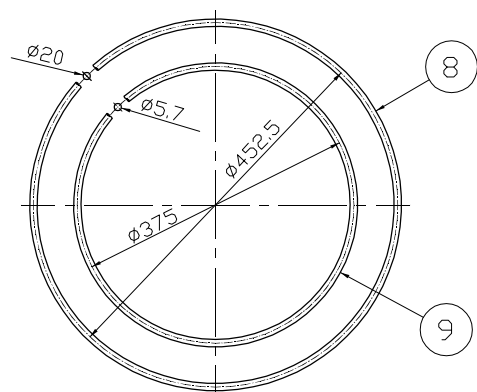


1-b

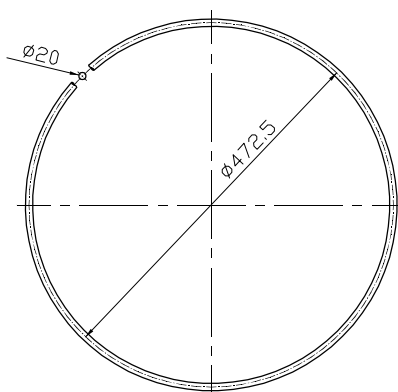
DET. "Q"



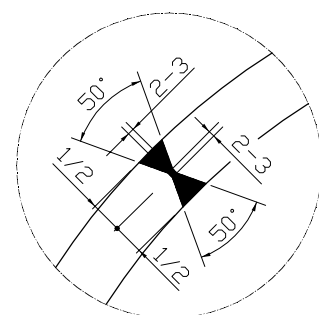
□ RING
N. T. S.



⑫ □ RING
N. T. S.



DET. "P"



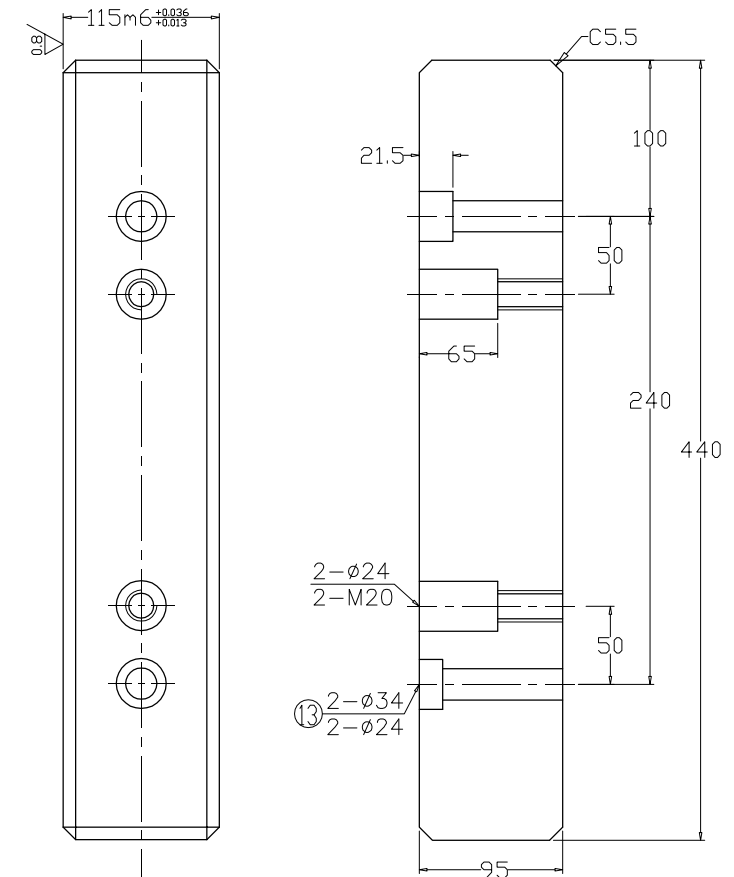
NOTE

*115^{+0.146}_{-0.100} BE DECIDED BY MATCHING WITH KEYWAY OF RUDDER STOCK AND TILLER
(115^{+0.146}_{-0.100} 通过舵杆和舵柄的键沟加工确定.)

OVERSIZE BETWEEN KEY AND KEYWAY OF RUDDER STOCK IS WITHIN 0.005 - 0.015mm
(键和舵杆键沟之间的最大距离在 0.005 - 0.015mm 之间.)

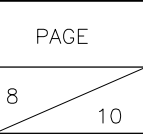
OVERSIZE BETWEEN KEY AND KEYWAY OF TILLER IS WITHIN -0.005 - +0.015mm
(键和舵柄键沟之间的最大距离在 -0.005 - +0.015mm 之间.)

CONTACT AREA BETWEEN KEY AND KEYWAY TO BE NOT LESS THAN 70%
(键与键沟的连接区域不少于 70%.)



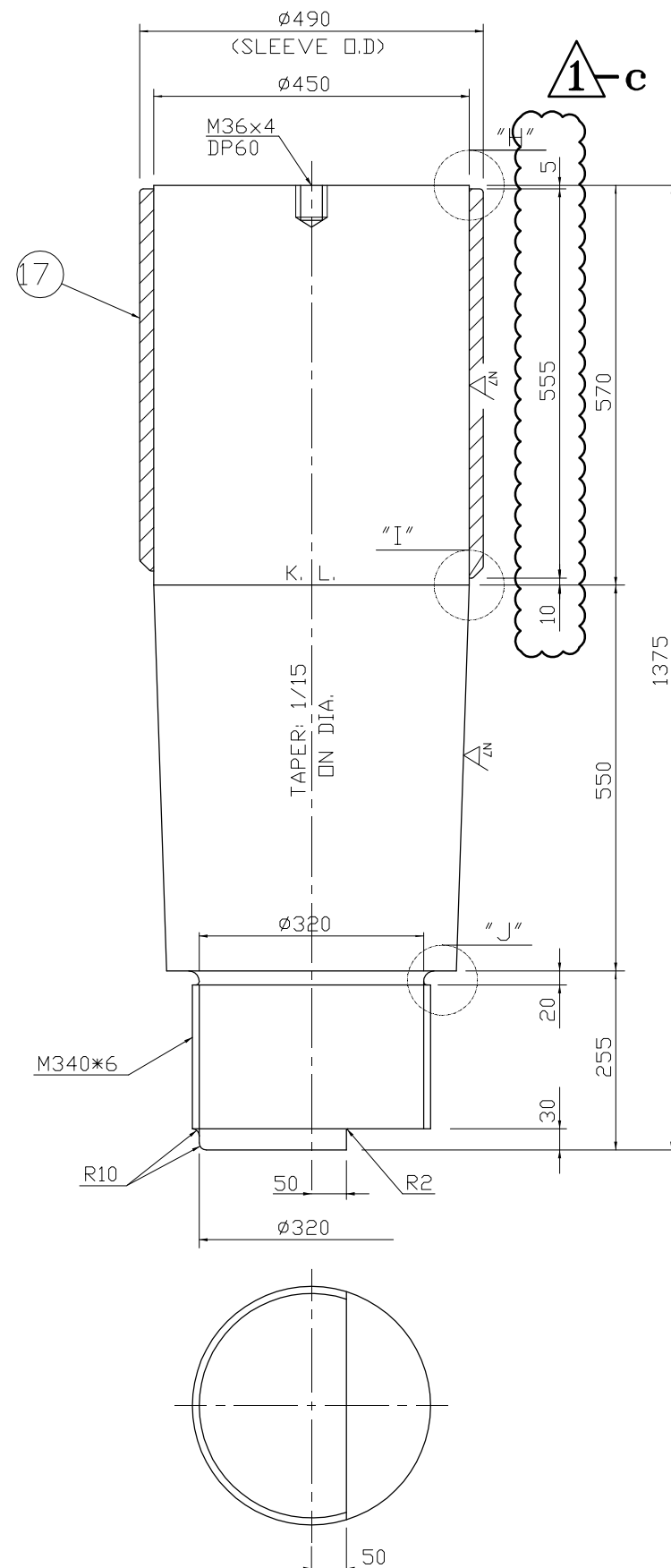
HULL NO.	1009~1012 1031~1032
DWG. NO.	DA312D001
SCALE	1/10

RUDDER PINTLE &
RUDDER STOCK

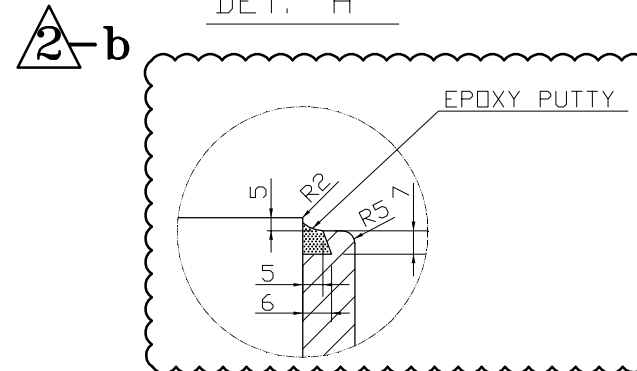


RUDDER PINTLE &
RUDDER STOCK

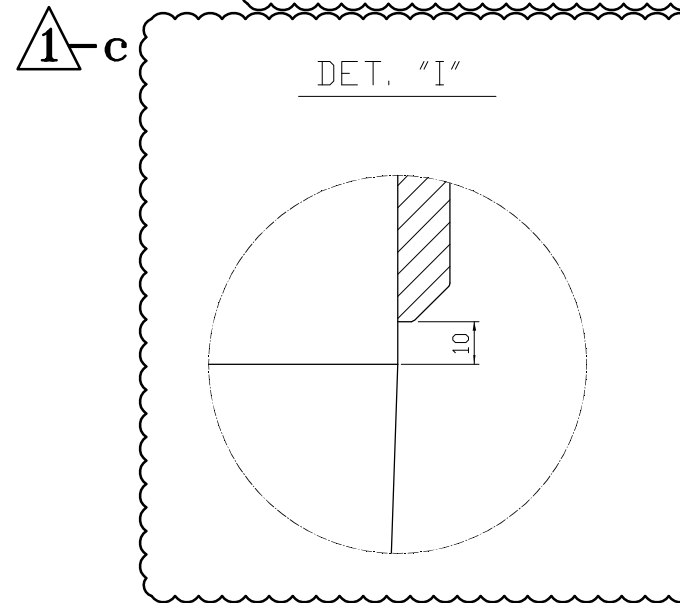
16 PINTLE
S : 1/10



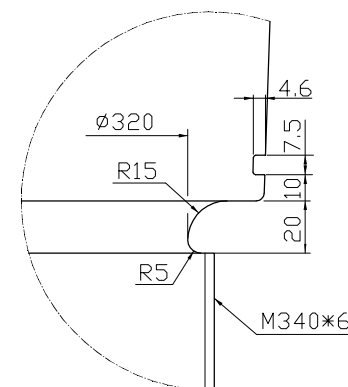
DET. "H"



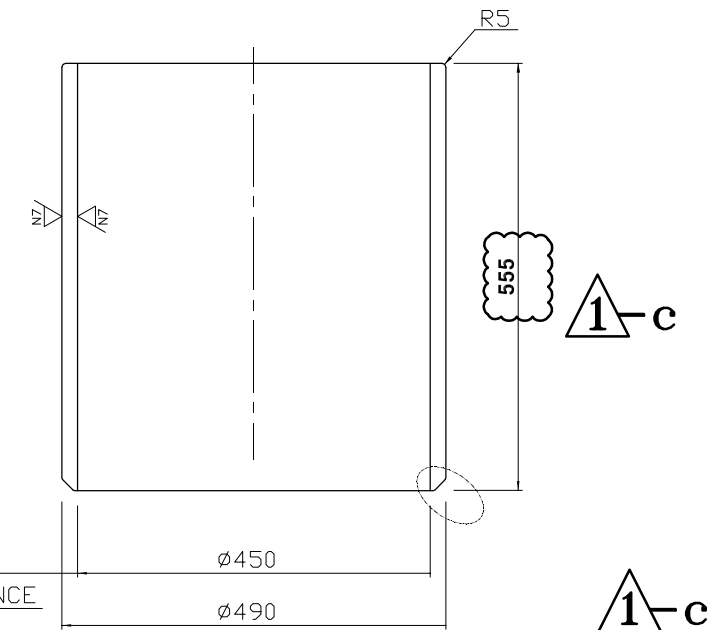
DET. "I"



DET. "J"

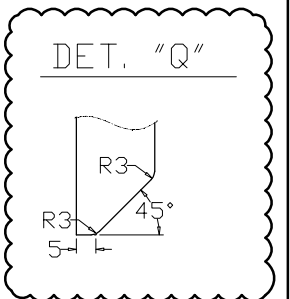


⑪ SLEEVE FOR PINTLE

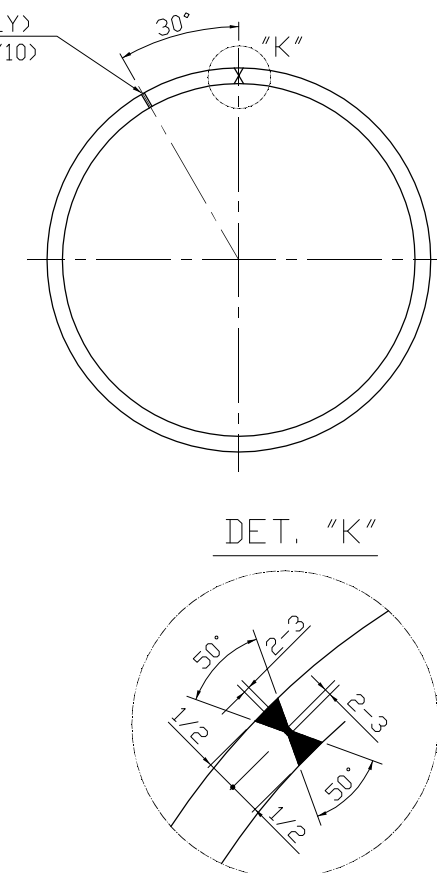


SHRINKAGE FITTING
SHRINKAGE ALLOWANCE
: 0.172 ~ 0.258

DET. "Q"



DET. "K"



FITTING INFORMATION FOR PINTLE TO RUDDER

	MIN.	MAX.
ESTIMATED PUSH UP FORCE	1522 kN	3466 kN
PUSH UP DISTANCE	2.71 mm	6.02 mm

* FITTING METHOD : HYD. WET FITTING

* PUSH UP DISTANCE IS IMPORTANT & PUSH UP FORCE IS ONLY REFERENCE.

HULL NO.	1009~1012 1031~1032	<div> <div> RUDDER PINTLE & RUDDER STOCK </div> </div>
DWG. NO.	DA312D001	
SCALE	1/10	



ITEM	M	A	B	C	D	E	F	G	H	REMARK
6	M320*6	540	470	390	200	65	55	35	215.0	FOR R/STOCK
14	M300*6	520	440	360	200	65	55	35	200.0	FOR R/STOCK
20	M340*6	590	520	430	210	65	55	35	237.5	FOR PINTLE



6/16-9	BOLT	SS400	2	M6*1.5
6/16-8	STOPPER	SS400	2	60*50*5.0t
6/16-7	PLUG	S35C	2	PT 3/8
6/16-6	BACK-UP RING	PTFE	2	THK=3.0mm
6/16-5	O-RING	NBR	2	ø8.4
6/16-4	BACK-UP RING	PTFE	2	THK=3.0mm
6/16-3	O-RING	NBR	2	ø8.4
6/16-2	LOADING RING	SF45	1	
6/16-1	NUT BODY	SF45	1	C < 0.23%
MARK	DESCRIPTION	MATERIAL	Q'TY	REMARK

HULL NO.	1009~1012 1031~1032	RUDDER PINTLE & RUDDER STOCK
DWG. NO.	DA312D001	
SCALE	1/10	

RUDDER PINTLE &
RUDDER STOCK