RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

RULES

Part M Welding

2011 AMENDMENT NO.1

Rule No.27 30th June 2011

Resolved by Technical Committee on 3rd February 2011

Approved by Board of Directors on 25th February 2011

Rule No.27 30th June 2011
AMENDMENT TO THE RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

“Rules for the survey and construction of steel ships” has been partly amended as follows:

Part M WELDING

Amendment 1-1

Chapter 4 WELDING PROCEDURE AND RELATED SPECIFICATIONS

4.2 Tests for Butt Welded Joints

Table M4.4 has been amended as follows.

Table M4.4 Kinds of Butt Welded Joint Test and Number of Specimens

Kind and grade of test assembly			Kinds of test and number of specimens [1]						
			Visual inspection	Tensile test	Bend test	Impact test [2]	Macro-Structure inspection	Hardness test	Non-destructive inspection [3]
Rolled steel for hull	*KA*, *KB*, *KD*, *KE* *KA*32, *KD*32, *KE*32, *KF*32, *KA*36, *KD*36, *KE*36, *KF*36, *KA*40, *KD*40, *KE*40, *KF*40		Whole length of welding joints	2	4[5]	3～8<*a*,*b*,*c*,*d*,*e* >[7]	1	1[10]	Whole length of welding joints
Rolled steels for lower temperature service	*KL*24*A*, *KL*24*B*, *KL*27, *KL*33, *KL*37, *KL*2*N*30, *KL*3*N*32, *KL*5*N*43					5 <*A*,*B*,*C*,*D*,*E*>[8]		—	
	*KL*9*N*53, *KL*9*N*60			4[4]	2[6]				
Steel pipes for low temperature service	*KLPA*, *KLPB*, *KLPC*, *KLP*2, *KLP*3, *KLP*9			2	4				
Quenched and tempered high tensile rolled steel for structure	*KA*420, *KD*420, *KE*420, *KF*420, *KA*460, *KD*460, *KE*460, *KF*460, *KA*500, *KD*500, *KE*500, *KF*500, *KA*550, *KD*550, *KE*550, *KF*550, *KA*620, *KD*620, *KE*620, *KF*620, *KA*690, *KD*690, *KE*690, *KF*690				4[5]	3～8<*a*,*b*,*c*,*d*,*e* >[7]		1	
Rolled stainless steels	*KSUS*304, *KSUS*304*L*, *KSUS*304*N*1, *KSUS*304*N*2, *KSUS*304*LN*, *KSUS*309*S*, *KSUS*310*S*, *KSUS*316, *KSUS*316*L*, *KSUS*316*N*, *KSUS*316*LN*, *KSUS*317, *KSUS*317*L*, *KSUS*317*LN*, *KSUS*321, *KSUS*329*J*1, *KSUS*329*J*3*L*, *KSUS*329*J*4*L*, *KSUS*347					[9]		—	
Stainless steel pipes	*K*304*TP*, *K*304*LTP*, *K*309*STP*, *K*310*STP*, *K*316*TP*, *K*316*LTP*, *K*317*TP*, *K*317*LTP*, *K*321*TP*, *K*329*J*1*TP*, *K*329*J*3*LTP*, *K*329*J*4*LTP*, *K*347*TP*				4				
Aluminium alloys [11]	5000 Series	5754*P*, 5086*P*, 5086*S*[12], 5083*P*, 5083*S*[12] 5383*P*, 5383*S*[12], 5059*P*, 5059*S*[12], 5456*P*			4[5]	—			
	6000 Series	6005*AS*[13], 6061*P*, 6061*S*[13], 6082*S*[13]							

Notes:

(1) Where found necessary by the Society, deposited metal tensile test, microscopic test and tests other than those may be required.

(2) In this Table, the mark in < > specifies position of notch given in **Fig. M4.2** through **Fig. M4.4**.

(3) Internal inspections by radiographic examination or ultrasonic examination and surface inspections by magnetic particle examination or liquid penetrant examination are to be carried out.

(4) Two specimens are to be taken longitudinally and transversely respectively. (See **Fig. M4.1(D)**)

(5) Two specimens are to be taken from root bend and face bend respectively. (See **Fig. M4.1(A)** , **(E)** and **(F)**)

(6) The specimens are to be taken longitudinally. (See **Fig. M4.1(D)**).

(7) The specimens are to be taken in accordance with **Fig. M4.2** and **M4.3**.

(8) The position of notch for the specimen is to be shown in **Fig. M4.4**.

(9) Where found necessary by the Society, impact tests up to steels specially used for may be required.

(10) For *KA*36, *KD*36, *KE*36, *KF*36, *KA*40, *KD*40, *KE*40 and *KF*40, the tests are to be carried out.

(11) All temper conditions indicated with grades are to be included (See **Table K8.3**).

(12) Rolled products which have the same grade and temper condition may be used.

(13) Other rolled aluminium alloys of 6000 series with tensile strength 260 N/mm^2 and above may be used.

EFFECTIVE DATE AND APPLICATION (Amendment 1-1)

1. The effective date of the amendments is 30 June 2011.

2. Notwithstanding the amendments to the Rules, the current requirements may apply to welding procedure other than those for which the application for approval is submitted to the Society on or after the effective date.

Amendment 1-2

Chapter 6 WELDING CONSUMABLES

6.7 Welding Consumables for Stainless Steel

Table M6.40 has been amended as follows.

Table M6.40 Grades and Marks of Welding Consumables

Electrode for manual arc welding	Consumable for *TIG* and *MIG* welding	Flux wire semi-automatic welding	Consumable for submerged arc welding
*KD*308	*KY*308	*KW*308	*KU*308
*KD*308*L*	*KY*308*L*	*KW*308*L*	*KU*308*L*
*KD*308*N2*	*KY*308*N2*	*KW*308*N2*	—
*KD*309	*KY*309	*KW*309	*KU*309
*KD*309*L*	*KY*309*L*	*KW*309*L*	*KU*309*L*
*KD*309*Mo*	*KY*309*Mo*	*KW*309*Mo*	*KU*309*Mo*
*KD*309*MoL*	—	*KW*309*MoL*	—
*KD*310	*KY*310	*KW*310	*KU*310
—	*KY*310*S*	—	—
*KD*310*Mo*	-	—	—
*KD*316	*KY*316	*KW*316	*KU*316
*KD*316*L*	*KY*316*L*	*KW*316*L*	*KU*316*L*
*KD*317	*KY*317	*KW*317	*KU*317
*KD*317*L*	*KY*317*L*	*KW*317*L*	*KU*317*L*
—	*KY*321	—	—
*KD*329*J*1	—	—	—
*KD*329*J*4*L*	*KY*329*J*4*L*	*KW*329*J*4*L*	—
*KD*2209	*KY*2209	*KW*2209	—
*KD*347	*KY*347	*KW*347	*KU*347

Table M6.43 has been amended as follows.

Table M6.43 Grades of Steel for Test Assembly

Grade of welding consumable	Grade of steel for test assembly
*KD*308, *KY*308, *KW*308, *KU*308	*KSUS*304, *KSUS*304*L*
*KD*308*L*, *KY*308*L*, *KW*308*L*, *KU*308*L*	
*KD*308*N2*, *KY*308*N2*, *KW*308*N2*	*KSUS*304*N2*
*KD*309, *KY*309, *KW*309, *KU*309	*KSUS*309*S*
*KD*309*L*, *KY*309*L*, *KW*309*L*, *KU*309*L*	
*KD*309*Mo*, *KY*309*Mo*, *KW*309*Mo*, *KU*309*Mo*	
*KD*309*MoL*, *KW*309*MoL*	
*KD*310, *KY*310, *KW*310, *KU*310	*KSUS*310*S*
*KY*310*S*	
*KD*310*Mo*	
*KD*316, *KY*316, *KW*316, *KU*316	*KSUS*316, *KSUS*316*L*
*KD*316*L*, *KY*316*L*, *KW*316*L*, *KU*316*L*	
*KD*317, *KY*317, *KW*317, *KU*317	*KSUS*317, *KSUS*317*L*
*KD*317*L*, *KY*317*L*, *KW*317*L*, *KU*317*L*	
*KY*321	*KSUS*321
*KD*329*J*1	*KSUS*329*J*1
*KD*329*J*4*L*, *KY*329*J*4*L*, *KW*329*J*4*L*	*KSUS*329*J*4*L*
*KD*2209, *KY*2209, *KW*2209	*KSUS*329*J*3*L*
*KD*347, *KY*347, *KW*347, *KU*347	*KSUS*321, *KSUS*347

Note:

Notwithstanding the requirements in this table, mild steel or high tensile steel may be used for deposited metal test assembly. In this case, appropriate buttering is to be carried out for test assembly.

Table M6.44 has been amended as follows.

Table M6.44 Chemical Composition of Deposited Metal for Electrodes

Grade	Chemical composition of deposited metal (%)								
	C	*Si*	*Mn*	*P*	*S*	*Ni*	*Cr*	*Mo*	Others
*KD*308	0.08 max.	0.90 max.	2.50 max.	0.04 max.	0.03 max.	9.0~11.0	18.0~21.0	—	—
*KD*308*L*	0.04 max.	0.90 max.	2.50 max.	0.04 max.	0.03 max.	9.0~12.0	18.0~21.0	—	—
*KD*308*N2*	0.10 max.	0.90 max.	1.00~4.00	0.04 max.	0.03 max.	7.0~11.0	20.0~25.0	—	*N* 0.12 ~0.30
*KD*309	0.15 max.	0.90 max.	2.50 max.	0.04 max.	0.03 max.	12.0~14.0	22.0~25.0	—	—
*KD*309*L*	0.04 max.	0.90 max.	2.50 max.	0.04 max.	0.03 max.	12.0~16.0	22.5~25.0	—	—
*KD*309*Mo*	0.12 max.	0.90 max.	2.50 max.	0.04 max.	0.03 max.	12.0~14.0	22.0~25.0	2.0~3.0	—
*KD*309*MoL*	0.04 max.	0.90 max.	2.50 max.	0.04 max.	0.03 max.	12.0~14.0	22.0~25.0	2.0~3.0	—
*KD*310	0.20 max.	0.75 max.	2.50 max.	0.03 max.	0.03 max.	20.0~22.0	25.0~28.0	—	—
*KD*310*Mo*	0.12 max.	0.75 max.	2.50 max.	0.03 max.	0.03 max.	20.0~22.0	25.0~28.0	2.0~3.0	—
*KD*316	0.08 max.	0.90 max.	2.50 max.	0.04 max.	0.03 max.	11.0~14.0	17.0~20.0	2.0~2.75	—
*KD*316*L*	0.04 max.	0.90 max.	2.50 max.	0.04 max.	0.03 max.	11.0~16.0	17.0~20.0	2.0~2.75	—
*KD*317	0.08 max.	0.90 max.	2.50 max.	0.04 max.	0.03 max.	12.0~14.0	18.0~21.0	3.0~4.0	—
*KD*317*L*	0.04 max.	0.90 max.	2.50 max.	0.04 max.	0.03 max.	12.0~16.0	18.0~21.0	3.0~4.0	—
*KD*329*J*1	0.08 max.	0.90 max.	1.50 max.	0.04 max.	0.03 max.	6.0~8.0	23.0~28.0	1.0~3.0	—
*KD*329*J4L*	0.04 max.	1.00 max.	0.5~2.5	0.04 max.	0.03 max.	8.0~11.0	23.0~27.0	3.0~4.5	*Cu*: 1.0 max. *N* : 0.08~0.30 *W*: 2.5 max.
*KD*2209	0.04 max.	1.00 max.	0.5~2.0	0.04 max.	0.03 max.	7.5~10.5	21.5~23.5	2.5~3.5	*Cu*: 0.75 max. *N*: 0.08~0.20
*KD*347	0.08 max.	0.90 max.	2.50 max.	0.04 max.	0.03 max.	9.0~11.0	18.0~21.0	—	*Nb*8× *C*(%)~1.0

Table M6.45 has been amended as follows.

Table M6.45 Chemical Composition of Deposited Metal for *TIG* Electrodes or *MIG* Wires

Grade	Chemical composition of deposited metal (%)								
	C	*Si*	*Mn*	*P*	*S*	*Ni*	*Cr*	*Mo*	Others
*KY*308	0.08 max.	0.65 max. (1)	1.0~2.5	0.03 max.	0.03 max.	9.0~11.0	19.5~22.0	—	—
*KY*308*L*	0.03 max.	0.65 max. (1)	1.0~2.5	0.03 max.	0.03 max.	9.0~11.0	19.5~22.0	—	—
*KY*308*N2*	0.10 max.	0.90 max.	1.0~4.0	0.03 max.	0.03 max.	7.0~11.0	20.0~25.0	—	*N* 0.12 ~0.30
*KY*309	0.12 max.	0.65 max. (1)	1.0~2.5	0.03 max.	0.03 max.	12.0~14.0	23.0~25.0	—	—
*KY*309*L*	0.03 max.	0.65 max.	1.0~2.5	0.03 max.	0.03 max.	12.0~14.0	23.0~25.0	—	—
*KY*309*Mo*	0.12 max.	0.65 max.	1.0~2.5	0.03 max.	0.03 max.	12.0~14.0	23.0~25.0	2.0~3.0	—
*KY*310	0.15 max.	0.65 max.	1.0~2.5	0.03 max.	0.03 max.	20.0~22.5	25.0~28.0	—	—
*KY*310*S*	0.08 max.	0.65 max.	1.0~2.5	0.03 max.	0.03 max.	20.0~22.5	25.0~28.0	—	—
*KY*316	0.08 max.	0.65 max. (1)	1.0~2.5	0.03 max.	0.03 max.	11.0~14.0	18.0~20.0	2.0~3.0	—
*KY*316*L*	0.03 max.	0.65 max. (1)	1.0~2.5	0.03 max.	0.03 max.	11.0~14.0	18.0~20.0	2.0~3.0	—
*KY*317	0.08 max.	0.65 max.	1.0~2.5	0.03 max.	0.03 max.	13.0~15.0	18.0~20.5	3.0~4.0	—
*KY*317*L*	0.03 max.	0.65 max.	1.0~2.5	0.03 max.	0.03 max.	13.0~15.0	18.0~20.5	3.0~4.0	—
*KY*321	0.08 max.	0.65 max.	1.0~2.5	0.03 max.	0.03 max.	9.0~10.5	18.0~20.5	-	*Ti*9× *C*(%)~1.0
*KY*329*J4L*	0.03 max.	0.90 max.	0.5~2.5	0.03 max.	0.03 max.	8.0~11.0	23.0~27.0	3.0~4.5	*Cu*: 1.0 max. *N*: 0.08~0.30
*KY*2209	0.03 max.	0.90 max.	0.5~2.0	0.03 max.	0.03 max.	7.5~9.5	21.5~23.5	2.5~3.5	*Cu*: 0.75 max. *N*: 0.08~0.20
*KY*347	0.08 max.	0.65 max. (1)	1.0~2.5	0.03 max.	0.03 max.	9.0~11.0	19.0~21.5	—	*Nb*10× *C*(%)~1.0

Note:

(1) Where approved by the Society, the value of *Si* may be taken to be greater than 0.65% but not greater than 1.00%.

Table M6.46 has been amended as follows.

Table M6.46 Chemical Composition of Deposited Metal for Semi-automatic Welding

(a)With Gas

Grade	Chemical composition of deposited metal (%)								
	C	*Si*	*Mn*	*P*	*S*	*Ni*	*Cr*	*Mo*	Others
*KW*308	0.08 max.	1.0 max.	0.5~2.5	0.04 max.	0.03 max.	9.0~11.0	18.0~21.0	—	—
*KW*308*L*	0.04 max.	1.0 max.	0.5~2.5	0.04 max.	0.03 max.	9.0~12.0	18.0~21.0	—	—
*KW*308*N2*	0.10 max.	1.0 max.	1.0~4.0	0.04 max.	0.03 max.	7.0~11.0	20.0~25.0	—	*N* 0.12 ~0.30
*KW*309	0.10 max.	1.0 max.	0.5~2.5	0.04 max.	0.03 max.	12.0~14.0	22.0~25.0	—	—
*KW*309*L*	0.04 max.	1.0 max.	0.5~2.5	0.04 max.	0.03 max.	12.0~14.0	22.0~25.0	—	—
*KW*309*Mo*	0.12 max.	1.0 max.	0.5~2.5	0.04 max.	0.03 max.	12.0~14.0	22.0~25.0	2.0~3.0	—
*KW*309*MoL*	0.04 max.	1.0 max.	0.5~2.5	0.04 max.	0.03 max.	12.0~14.0	22.0~25.0	2.0~3.0	—
*KW*310	0.20 max.	1.0 max.	0.5~2.5	0.04 max.	0.03 max.	20.0~22.0	25.0~28.0	—	—
*KW*316	0.08 max.	1.0 max.	0.5~2.5	0.04 max.	0.03 max.	11.0~14.0	17.0~20.0	2.0~3.0	—
*KW*316*L*	0.04 max.	1.0 max.	0.5~2.5	0.04 max.	0.03 max.	11.0~14.0	17.0~20.0	2.0~3.0	—
*KW*317	0.08 max.	1.0 max.	0.5~2.5	0.04 max.	0.03 max.	12.0~14.0	18.0~21.0	3.0~4.0	—
*KW*317*L*	0.04 max.	1.0 max.	0.5~2.5	0.04 max.	0.03 max.	12.0~16.0	18.0~21.0	3.0~4.0	—
*KW*329*J4L*	0.04 max.	1.0 max.	0.5~2.0	0.04 max.	0.03 max.	8.0~11.0	23.0~27.0	2.5~4.0	*Cu*: 1.0 max. *N*: 0.08~0.30
*KW*2209	0.04 max.	1.0 max.	0.5~2.0	0.04 max.	0.03 max.	7.5~10.0	21.0~24.0	2.5~4.0	*Cu*: 0.5 max. *N*: 0.08~0.20
*KW*347	0.08 max.	1.0 max.	0.5~2.5	0.04 max.	0.03 max.	9.0~11.0	18.0~21.0	—	*Nb* 8× *C* (%)~1.0

(b)Without Gas

Grade	Chemical composition of deposited metal (%)								
	C	*Si*	*Mn*	*P*	*S*	*Ni*	*Cr*	*Mo*	Others
*KW*308	0.08 max.	1.0 max.	0.5~2.5	0.04 max.	0.03 max.	9.0~11.0	19.5~22.0	—	—
*KW*308*L*	0.04 max.	1.0 max.	0.5~2.5	0.04 max.	0.03 max.	9.0~12.0	19.5~22.0	—	—
*KW*308*N2*	0.10 max.	1.0 max.	1.0~4.0	0.04 max.	0.03 max.	7.0~11.0	20.0~25.0	—	*N* 0.12 ~0.30
*KW*309	0.10 max.	1.0 max.	0.5~2.5	0.04 max.	0.03 max.	12.0~14.0	23.0~25.5	—	—
*KW*309*L*	0.04 max.	1.0 max.	0.5~2.5	0.04 max.	0.03 max.	12.0~14.0	23.0~25.5	—	—
*KW*309*Mo*	0.12 max.	1.0 max.	0.5~2.5	0.04 max.	0.03 max.	12.0~14.0	22.0~25.0	2.0~3.0	—
*KW*309*MoL*	0.04 max.	1.0 max.	0.5~2.5	0.04 max.	0.03 max.	12.0~14.0	22.0~25.0	2.0~3.0	—
*KW*310	0.20 max.	1.0 max.	0.5~2.5	0.04 max.	0.03 max.	20.0~22.0	25.0~28.0	-	—
*KW*316	0.08 max.	1.0 max.	0.5~2.5	0.04 max.	0.03 max.	11.0~14.0	18.0~20.5	2.0~3.0	—
*KW*316*L*	0.04 max.	1.0 max.	0.5~2.5	0.04 max.	0.03 max.	11.0~14.0	18.0~20.5	2.0~3.0	—
*KW*317	0.08 max.	1.0 max.	0.5~2.5	0.04 max.	0.03 max.	13.0~15.0	18.5~21.0	3.0~4.0	—
*KW*317*L*	0.04 max.	1.0 max.	0.5~2.5	0.04 max.	0.03 max.	13.0~15.0	18.5~21.0	3.0~4.0	—
*KW*2209	0.04 max.	1.0 max.	0.5~2.0	0.04 max.	0.03 max.	7.5~10.0	21.0~24.0	2.5~4.0	*Cu*: 0.5 max. *N*: 0.08~0.20
*KW*347	0.08 max.	1.0 max.	0.5~2.5	0.04 max.	0.03 max.	9.0~11.0	19.0~21.5	—	*Nb* 8× *C* (%)~1.0

Table M6.48 has been amended as follows.

Table M6.48 Tensile Test Requirements for Deposited Metal

Electrode for manual arc welding	*TIG* and *MIG* welding consumable	Flux wire for semi-automatic welding	Submerged arc welding consumable	Tensile strength (N/mm^2)	0.2%proof stress (N/mm^2)	Elongation (%)
*KD*308	*KY*308	*KW*308	*KU*308	550 min.	225 min.	35 min.
*KD*308*L*	*KY*308*L*	*KW*308*L*	*KU*308*L*	510 min.	205 min.	35 min.
*KD*308*N2*	*KY*308*N2*	*KW*308*N2*	—	690 min.	375 min.	25 min.
*KD*309	*KY*309	*KW*309	*KU*309	550 min.	225 min.	30 min.
*KD*309*L*	*KY*309*L*	*KW*309*L*	*KU*309*L*	510 min.	205 min.	30 min.
*KD*309*Mo*	*KY*309*Mo*	*KW*309*Mo*	*KU*309*Mo*	550 min.	225 min.	30 min.
*KD*309*MoL*	—	*KW*309*MoL*	—	510 min.	205 min.	30[(1)]min.
*KD*310	*KY*310	*KW*310	*KU*310	550 min.	225 min.	30 min.
—	*KY*310*S*	—	—	550 min.	225 min.	30 min.
*KD*310*Mo*	—	—	—	550 min.	225 min.	30 min.
*KD*316	*KY*316	*KW*316	*KU*316	550 min.	225 min.	30 min.
*KD*316*L*	*KY*316*L*	*KW*316*L*	*KU*316*L*	510 min.	205 min.	35 min.
*KD*317	*KY*317	*KW*317	*KU*317	550 min.	225 min.	30 min.
*KD*317*L*	*KY*317*L*	*KW*317*L*	*KU*317*L*	510 min.	205 min.	30 min.
—	*KY*321	—	—	550 min.	225 min.	30 min.
*KD*329*J*1	—	—	—	590 min.	390 min.	15 min.
*KD*329*J*4*L*	*KY*329*J*4*L*	*KW*329*J*4*L*	—	690 min.	450 min.	15 min.
*KD*2209	*KY*2209	*KW*2209	—	690 min.	450 min.	15 min.
*KD*347	*KY*347	*KW*347	*KU*347	550 min.	225 min.	30 min.

Note:

(1) Elongation of *KW*309*MoL* is not to be less than 20(%).

Table M6.49 has been amended as follows.

Table M6.49 Tensile Test Requirements for Butt Weld

Electrode for manual arc welding	*TIG* and *MIG* welding consumable	Flux wire for semi-automatic welding	Submerged arc welding consumable	Tensile strength (N/mm^2)
*KD*308	*KY*308	*KW*308	*KU*308	520 min. (1)
*KD*308*L*	*KY*308*L*	*KW*308*L*	*KU*308*L*	520 min. (1)
*KD*308*N2*	*KY*308*N2*	*KW*308*N2*	—	690 min.
*KD*309	*KY*309	*KW*309	*KU*309	520 min.
*KD*309*L*	*KY*309*L*	*KW*309*L*	*KU*309*L*	520 min.
*KD*309*Mo*	*KY*309*Mo*	*KW*309*Mo*	*KU*309*Mo*	520 min.
*KD*309*MoL*	—	*KW*309*MoL*	—	520 min.
*KD*310	*KY*310	*KW*310	*KU*310	520 min.
—	*KY*310*S*	—	—	520 min.
*KD*310*Mo*	—	—	—	520 min.
*KD*316	*KY*316	*KW*316	*KU*316	520 min. (1)
*KD*316*L*	*KY*316*L*	*KW*316*L*	*KU*316*L*	520 min. (1)
*KD*317	*KY*317	*KW*317	*KU*317	520 min. (1)
*KD*317*L*	*KY*317*L*	*KW*317*L*	*KU*317*L*	520 min. (1)
—	*KY*321	—	—	520 min.
*KD*329*J*1	—	—	—	590 min.
*KD*329*J*4*L*	*KY*329*J*4*L*	*KW*329*J*4*L*	—	620 min.
*KD*2209	*KY*2209	*KW*2209	—	620 min.
*KD*347	*KY*347	*KW*347	*KU*347	520 min.

Note:

(1) Where the test assembly is made of *KSU*304*L*, *KSU*316*L* or *KSU*317*L*, the tensile strength is not to be less than $480 N/mm^2$.

EFFECTIVE DATE AND APPLICATION (Amendment 1-2)

1. The effective date of the amendments is 30 June 2011.

2. Notwithstanding the amendments to the Rules, the current requirements may apply to welding consumables other than those for which the application for approval is submitted to the Society on or after the effective date.

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

Part M Welding

GUIDANCE

2011 AMENDMENT NO.1

Notice No.41 30th June 2011

Resolved by Technical Committee on 3rd February 2011

Notice No.41　30th June 2011
AMENDMENT TO THE GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

"Guidance for the survey and construction of steel ships" has been partly amended as follows:

Part M WELDING

M2 WELDING WORKS

M2.1 General

M2.1.1 Application

Sub-paragraph -2 has been amended as follows.

2 Rolled Stainless Steel
(1) The ~~selection of~~ welding consumable corresponding to the kind of the steel materials is, in principle, to be ~~as specified in~~ selected in accordance with **Table M2.1.1-1**.
(2) For welded joints of steels of which the minimum proof stress is specified to greater value in accordance with **3.5.5-1, Part K of the Rules**, the welding consumables of which the specified minimum proof stress is equivalent to or greater than the steels are to be used.

Table M2.1.1-1 has been amended as follows.

Table M2.1.1-1　Application of Welding Consumables（Rolled Stainless Steel）

Kind and grade of base plates	Grade of applicable welding consumables
*KSUS*304	*KD*308, *KY*308, *KW*308, *KU*308
*KSUS*304*L*	*KD*308*L*, *KY*308*L*, *KW*308*L*, *KU*308*L*
*KSUS*316	*KD*316, *KY*316, *KW*316, *KU*316
*KSUS*316*L*	*KD*316*L*, *KY*316*L*, *KW*316*L*, *KU*316*L*
*KSUS*317	*KD*317, *KY*317, *KW*317, *KU*317
*KSUS*317*L*	*KD*317*L*, *KY*317*L*, *KW*317*L*, *KU*317*L*
*KSUS*329*J*1	*KD*329*J*1
*KSUS*329*J*3*L*	*KD*2209, *KY*2209, *KW*2209
*KSUS*329*J*4*L*	*KD*329*J*4*L*, *KY*329*J*4*L*, *KW*329*J*4*L*

M2.4 Welding Process

Paragraph M2.4.1 has been amended as follows.

M2.4.1 Selection of Welding Consumables

1 With respect to the provisions of **2.4.1**, **Part M of the Rules**, semi-automatic welding consumables may be used in automatic welding work.

~~**1**~~**2** "It is deemed to be appropriate by the Society" specified in **2.4.1(2)(c)**, **Part M of the Rules** is, in principle, to be as provided below:

(1) The steel materials are to be in accordance with the followings:
   (a) The steel materials are to be *KA*32, *KD*32, *KA*36 or *KD*36 of *TMCP* not exceeding 25*mm* in thickness.
   (b) The carbon equivalent (C_{eq}) of steel materials is to be calculated in accordance with **Note (3)** of **Table M2.4.3-1** and to be not more than 0.36%.

(2) The welding method is to be one pass horizontal fillet welding either by manual welding or gravity welding, and to have been approved by the Society in accordance with the requirements in **M4.3.1**.

(3) Approval is to have been obtained form the Society for electrodes as being the non-low hydrogen electrodes for high tensile steel in accordance with the requirements in **M6.2.1**.

(4) Notwithstanding the requirement in preceding **(3)**, low hydrogen electrodes are to be used for repair welding.

~~**2**~~**3** Backing flux used for submerged arc one side automatic welding is not included in the backing specified in **2.4.1-2**, **Part M of the Rules**

EFFECTIVE DATE AND APPLICATION

1. The effective date of the amendments is 30 June 2011.