Standardisation of Terminology Used for Yield Strength Standards

Object of Amendment

Rules for the Survey and Construction of Steel Ships Parts K and M Guidance for the Survey and Construction of Steel Ships Part K

Reason for Amendment

Standards for mechanical properties of metallic materials and welded joints are specified in Parts K and M of the Rules for the Survey and Construction of Steel Ships. In addition, methods for determining yield strength values through tensile tests according to whether yield phenomena exist, and tables related to yield strength standards are specified.

The aforementioned tables, however, are not standardised, and various terms, such as "yield stress", "yield point, "proof stress" or "proof strength", are used to describe "yield strength".

Accordingly, relevant requirements are amended to standardise the terminology used for yield strength standards.

Outline of the Amendment

The main details of this amendment are as follows:

- (1) Amends relevant requirements to, in principle, refer to standards for the yield strength of metallic materials and welded joints as "yield point or proof stress".
- (2) Amends relevant requirements for metallic materials for which it is clear that the yield strength is measured by 0.2 % proof stress to refer to standards for yield strength as "proof stress".

Effective Date and Application

Effective date of this amendment is 20 June 2025.

An asterisk (*) after the title of a requirement indicates that there is also relevant information in the corresponding Guidance.

ID:DH24-11

Amended-Original Requirements Comparison Table (S	tandardisation of Terminology Used for Yield Strength	Standards)
Amended	Original	Remarks
RULES FOR THE SURVEY AND	RULES FOR THE SURVEY AND	
CONSTRUCTION OF STEEL SHIPS	CONSTRUCTION OF STEEL SHIPS	
Part KMATERIALS	Part KMATERIALS	
Chapter 2 TEST SPECIMENS AND	Chapter 2 TEST SPECIMENS AND	
MECHANICAL TESTING PROCEDURES	MECHANICAL TESTING PROCEDURES	
2.3 Mechanical Testing Procedures	2.3 Mechanical Testing Procedures	
2.3.1 Tensile Test	2.3.1 Tensile Test	
1 The value of yield point is to be measured at the first	1 The value of yield stress is to be measured at the first	Amend to standardise
peak obtained during yielding.	peak obtained during yielding.	the terminology used for
2 337 11 1 6 1 1 1 1 1 1 1 1 1	2 W/1 11.1.0° 1.1.1.1 1.4.4	yield strength standards.
2 When no well-defined yield phenomena exist, the proof stress is to be the strength of the 0.2% permanent	2 When no well-defined yield phenomena exist, the proof stress is to be the strength of the 0.2% permanent	Amend to manage the case measuring proof
elongation except where otherwise specified.	elongation.	stress by the strength of
crongution except where otherwise specified.	Ciongunon.	the 1.0% permanent
2 371 41 1 6 111 14	2 W 4 1 C 11	elongation.
3 Where the value of yield <u>point</u> or proof stress is measured at tensile test, the test is to be carried out with an	3 Where the value of yield <u>stress</u> or proof stress is measured at tensile test, the test is to be carried out with an	Amend to standardise the terminology used for
elastic stress rate, $2 \sim 20 N/mm^2$ per sec, for a material of	elastic stress rate, $2\sim20N/mm^2$ per sec, for a material of	yield strength standards.
which modulus of longitudinal elasticity is less than	which modulus of longitudinal elasticity is less than	
$150000N/mm^2$ and, $6\sim60N/mm^2$ per sec, for a material of	$150000N/mm^2$ and, $6\sim60N/mm^2$ per sec, for a material of	
which modulus of longitudinal elasticity is not less than	which modulus of longitudinal elasticity is not less than	
$150000N/mm^2$.	$150000N/mm^2$.	
(-4 is omitted.)	(-4 is omitted.)	

Amended	Original	Remarks
Chapter 3 ROLLED STEELS	Chapter 3 ROLLED STEELS	
3.8 High Strength Rolled Steels for Offshore Structures	3.8 High Strength Rolled Steels for Offshore Structures	
3.8.11 Marking Steels which have satisfactorily complied with the required tests are to be marked with identification mark in accordance with the requirements in 1.5.1. In addition, for steels to which the requirements given in the provisions to Notes (5) and (6) in Table K3.30 have been applied, "-YP [new yield point or proof stress value] M" is to be suffixed to the marking in cases where the yield point or proof stress value is changed, and "-TS [new tensile point value] M" is to be suffixed to the marking in cases where the tensile point value is changed. (Example: KA620-YP620M-TS700M)	Steels which have satisfactorily complied with the required tests are to be marked with identification mark in accordance with the requirements in 1.5.1. In addition, for steels to which the requirements given in the provisions to Notes (5) and (6) in Table K3.30 have been applied, "-YP [new yield point or proof stress value] M" is to be suffixed to the marking in cases where the yield point (proof stress) value is changed, and "-TS [new tensile point value] M" is to be suffixed to the marking in cases where the tensile point value is changed. (Example: KA620-YP620M-TS700M)	Amend to standardise the terminology used for yield strength standards.

	Ar	mended			Origi	inal		Remarks
	Chapter 4	STEEL PIPES		C	hapter 4	STEEL PIPES		
4.4 Hea	aders			4.4 Header	rs			
4.4.5	Mechanical Proj	perties		4.4.5 Me	chanical Proper	rties		
			Table K4.24	Tensile Test			_	
	Grade	Symbol	Yield point or proof stress (N/mm²)	Tensile strength (N/mm²)	Elongation (%) $(L = 5.65\sqrt{A})$	Reduction of area(%)		
	Grade 1	KBH-1	205 min.	410 min.	24 min.	38 min.		
	Grade 2	КВН-2	225 min.	450 min.	23 min.	40 min.		
	Grade 3	KBH-3	205 min.	380 min.	22 min.	40 min.		
	Grade 4	KBH-4	205 min.	410 min.	21 min.	40 min.		
	Grade 5	KBH-5	205 min.	410 min.	21 min.	40 min.		
	Grade 6	KBH-6	205 min.	410 min.	21 min.	40 min.		
	tensile strength are	ns are taken at right angle to be as given in the abo Table. The value of reduc	ove Table and the eld	ngation is to take the	value reduced by 5%			Amend to standard the terminology used yield strength standard

Amended-Original Requ	มrements Comp	arison Table	: (Standardisat	tion of Term	inology Used fo	or Yield Strength	Standards)		
	Amended			Original			Remarks		
Chapter 5 5.6 Spheroidal or No			5.6 Sp	Chapter heroidal or N					
5.6.3 Kinds			5.6.3	Kinds					
	Table K5.10	Kinds and Me	echanical Proper	ties of Iron ca	ıstings		Amend to standardise		
		Tensile test		In	npact test		the terminology used for		
Materi grade	((2)	Proof strenrthstress ⁽²⁾ (N/mm ²)	Elongation (%) $(L = 5.65\sqrt{A})$	Testing temperature (°C)	Minimum mean absorbed energy (J)		yield strength standards.		
KFCD:	360	235	17	_	_				
KFCD4	10 390	255	12	_	_				
KFCD4	15 440	285	10		_				
KFCD:	50 490	325	7		_				
KFCD	590	370	3		_				
KFCD'	70 680	420	2	-	—				
KFCDS	780	480	2		_				
KFCD3	6S 350	220	22	20	17(14) ⁽³⁾				
KFCD4	1 <i>S</i> 400	250	18	20	14 (11) ⁽³⁾				
	Notes:								
	• •		e for the test sample						
			with the casting is us	ed, the standards a	pplied are left to the				
	discretion of the	•	4 T 11 ' 1 C	C					
			the Table is shown for		at an animona in loss !:-				
	(3) When the absorbed energy of two or more test specimens among a set of test specimens is less in								
	value than the specified minimum mean absorbed energy or when the absorbed energy of a single test specimen is less in value than shown in brackets in the Table, the test is considered to be								
	failed.	1200 III varae maii b	in ordeness in the	22 24010, 1110 1051 11	constant to ov				

Amended-On	gillai Kequil	ements Comp	alisoli Table (L	<u>Stanuaruisati</u>	on or remino	logy Osed for	rieid Strength Standards)		
	An	nended			O	riginal	Remarks		
	ess Steel Propo echanical Prop	S			inless Steel Prop Mechanical Prop	G			
		-	Table K5.13 Me	chanical Prop	erties		Clarify the requirement		
			Tensile	e test		Impact test(3)	for measuring the proof		
	Grade	0.2% pProof stress (N/mm ²)	Tensile strength (N/mm ²)	Elongation $(L=5 d)$ $(\%)$	Reduction of area (%)	Minimum mean absorbed energy(J)	stress by the strength of the 1.0% permanent elongation.		
	KSCSP1	440 min.	590 min.	15 min. ⁽⁴⁾	30 min.	20			
	KSCSP2	550 min.	750 min.	15 min. ⁽⁴⁾	35 min.	30			
	KSCSP3	540 min.	760 min.	15 min. ⁽⁴⁾	35 min.	30			
	KSCSP4	180 min. ⁽²⁾	440 min.	30 min.	40 min.	20			
	Notes: (1) The requirements specified in this Table apply to specimens cut from propeller casting itself. Where specimens cut from separately-cast samples, the requirements are to be deemed appropriate by the Society. (2) In case where The strength of the 1.0 % permanent elongation may be considered as the proof stress is applied of KSCSP4. In this case, the require proof stress is not less than 205 N/mm² min. (3) This test is required only for propellers of ships with an ice class notation. The test temperature is to be -10°C. For the judgement of the test, Note (1) of Table K5.4 is to be referred to.								
	(4)	For propellers of sl	nips with an ice class n	otation, the elongat	tion is not to be less that	an 19%.			

Amended-Or			parison Table (S	tandardisation	rield Strength	,		
	Ar	mended			Orig	ginal		Remarks
Chap		UMINIUM A		Chapte 8.1 Alumin	er 8 ALU	MINIUM AL		
8.1.5 M	echanical Prop	perties*		8.1.5 Me	chanical Prope	rties*		
	Table	K8.3(a) Temper	r Conditions and M	lechanical Proper	ties(1) (Rolled P	roducts)	_	Amend to standardise
	371				Tensile test			the terminology used for
	Material grade	Temper condition ⁽²⁾	Thickness t (mm)	Proof strengthstress (N/mm²)	Tensile strength (N/mm²)	Elongation(%) ⁽³⁾ $(L = 5.65 \sqrt{A})$		yield strength standards.
			<i>t</i> ≤50	125 min.	275~350	14 min.		
			50 <t≤80< td=""><td>120~195</td><td>275~345</td><td></td><td></td><td></td></t≤80<>	120~195	275~345			
		0	80 <t≤100< td=""><td></td><td>265 min.</td><td>14 min.</td><td></td><td></td></t≤100<>		265 min.	14 min.		
			100 <t≤120< td=""><td>110 min.</td><td>260 min.</td><td>10 .</td><td>12 :</td><td></td></t≤120<>	110 min.	260 min.	10 .	12 :	
			120 <t≤160< td=""><td>105 min.</td><td>255 min.</td><td>12 min.</td><td></td><td></td></t≤160<>	105 min.	255 min.	12 min.		
	5083P		160 <t≤200< td=""><td>100 min.</td><td>250 min.</td><td>10 min.</td><td></td><td></td></t≤200<>	100 min.	250 min.	10 min.		
		H111		125	275~350	14 min.		
		H112	<i>t</i> ≤50	125 min	275 min.	10		
		H116		215 min.	305 min.	10 min.		
		1/221	<i>t</i> ≤50	215~295	305~385	10 min.		
		H321	50 <t≤80< td=""><td>200~295</td><td>285~380</td><td>9 min.</td><td></td><td></td></t≤80<>	200~295	285~380	9 min.		
		0		145	200 min	17 min		
	5383 <i>P</i>	H111	<i>t</i> ≤50	145 min.	290 min.	17 min.		
	33831	H116	1530	220 min.	205 min	10 min		
		H321		220 mm.	305 min.	10 min.		
		0	<i>t</i> ≤50	160 min.	330 min.	24 min.		
		H111	1550	100 mm.	330 IIIII.	24 111111.		
	5059P	<i>U</i> 116	<i>t</i> ≤20	270 min.	370 min.			
	30397	H116	20<1≤50	260 min.	360 min.	10 min.		
			<i>t</i> ≤20	270 min.	370 min.	TO IIIII.		
		H321	20 <t≤50< td=""><td>260 min.</td><td>360 min.</td><td></td><td></td><td></td></t≤50<>	260 min.	360 min.			
	5086P	<i>O H</i> 111	<i>t</i> ≤50	95 min.	240~305	14 min.		
	30001	H112	<i>t</i> ≤12.5	125 min.	250 min.	_		
		11112	1_12.5	123 11111.	230 mm.			

An	nended		Original			
		12.5< <i>t</i> ≤50	105 min.	240 min.		
	H116	<i>t</i> ≤50	195 min.	275 min.	9 min.	
5754P	<i>O</i> <i>H</i> 111	<i>t</i> ≤50	80 min.	190~240	17 min.	
	0	<i>t</i> ≤6.3	130~205	290~365	_	
	H116	<i>t</i> ≤30	230 min.	315 min.		
		30 <t≤40< td=""><td>215 min.</td><td>305 min.</td><td>10 min.</td></t≤40<>	215 min.	305 min.	10 min.	
5456P		40 <t≤50< td=""><td>200 min.</td><td>285 min.</td><td></td></t≤50<>	200 min.	285 min.		
		<i>t</i> ≤12.5	230~315	315~405	—	
	H321	12.5 <t≤40< td=""><td>215~305</td><td>305~385</td><td>10</td></t≤40<>	215~305	305~385	10	
		40< <i>t</i> ≤50	200~295	285~370	10 min.	
6061P	<i>T</i> 6	t≤6.5	245 min.	295 min.	_	

Table K8.3(b) Temper Conditions and Mechanical Properties⁽¹⁾ (Extruded Shapes)

Material	Т		Tensile test				
grade	Temper condition ⁽²⁾	Thickness t (mm)	Proof strengthstress (N/mm²)	Tensile strength (N/mm ²)	Elongation(%) ⁽³⁾ $(L = 5.65 \sqrt{A})$		
		<i>t</i> ≤50	110 min.	270~350	12 min.		
50025	0	50 <t≤130< td=""><td>110 min.</td><td>275~355</td><td></td></t≤130<>	110 min.	275~355			
5083 <i>S</i>	H111	450	165 min.	275 min.	10 min.		
	H112	<i>t</i> ≤50	110 min.	270 min.			
5383 <i>S</i>	<i>O H</i> 111	<i>t</i> ≤50	145 min.	290 min.	17 min.		
	H112	_	190 min.	310 min.	13 min.		
5059S	H112	<i>t</i> ≤50	200 min.	330 min.	10 min.		
	0		95 min.	240~315	12 min.		
5086S	H111	<i>t</i> ≤50	145 min.	250 min.	10 :		
	H112		95 min.	240 min.	10 min.		
	<i>T</i> 5	<i>t</i> ≤50	215	260 :	8 min.		
6005AS	TC	3 <t≤10< td=""><td>215 min.</td><td>260 min.</td><td>_</td></t≤10<>	215 min.	260 min.	_		
	<i>T</i> 6	10 <t≤50< td=""><td>200 min.</td><td>250 min.</td><td>6 min.</td></t≤50<>	200 min.	250 min.	6 min.		
6061S	<i>T</i> 6	<i>t</i> ≤50	240 min.	260 min.	8 min.		
	<i>T</i> 5	<i>t</i> ≤50	230 min.	270 min.	6 min.		
6082S	<i>T</i> 6	3 <t≤5< td=""><td>250 min.</td><td>290 min.</td><td>_</td></t≤5<>	250 min.	290 min.	_		
	10	5 <t≤50< td=""><td>260 min.</td><td>310 min.</td><td>8 min.</td></t≤50<>	260 min.	310 min.	8 min.		

Amend to standardise the terminology used for yield strength standards.

Remarks

in accordance with the provision of Note (1) of Table K8.3 , "-YP", altered value and "M" where proof stress is altered or "-TS", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example, put subsequent to the mark specified in -1, for example, the terminology used for "-YP", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example,	Amended	Original	Remarks
they are approved by the Society. (2) Indication symbols used in temper condition are as follows. Furthermore, although the mechanical properties of O and H111 of rolled products are the same, a separate notation is used to indicate that their qualities are different. O: Annealing H111: Work hardened H112: As manufacturing process H116: Work hardened H321: Stabilizing treatment after work hardened T5: Artificial age hardening treatment after elevated temperature working and succeeding cooling T6: Artificial age hardening treatment after solution treatment (3) The standards for elongation given in this Table applies to the tensile test using the proportional specimen for aluminium alloys whose thickness is more than 12.5 mm. Where test specimens other than the proportional specimens are applied to the tensile test or thickness of aluminium alloys is not more than 12.5 mm, the standards for elongation is subject to the discretion of the Society. 8.1.12 Marking 2 In case of aluminum alloys applied to other standards in accordance with the provision of Note (1) of Table K8.3, "-YP", altered value and "M" where proof stress is altered or "-TS", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example,	Notes:		
(2) Indication symbols used in temper condition are as follows. Furthermore, although the mechanical properties of O and M/11 of rolled products are the same, a separate notation is used to indicate that their qualities are different. O: Annealing H/11: Work hardened H/112: As manufacturing process H/116: Work hardened H/321: Stabilizing treatment after work hardened H/321: Stabilizing treatment after elevated temperature working and succeeding cooling To: Artificial age hardening treatment after elevated temperature working and succeeding cooling To: Artificial age hardening treatment after solution treatment (3) The standards for elongation given in this Table applies to the tensile test using the proportional specimen for aluminium alloys whose thickness is more than 12.5 mm. Where test specimens other than the proportional specimen are applied to the tensile test or thickness of aluminium alloys is not more than 12.5 mm, the standards for elongation is subject to the discretion of the Society. 8.1.12 Marking 2 In case of aluminum alloys applied to other standards in accordance with the provision of Note (1) of Table K8.3, "-YP", altered value and "M" where proof stress is altered or "-TS", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example,	(1) Aluminium alloy may be subject to any other	standards in lieu of the requirements given in this Table where	
properties of O and H111 of rolled products are the same, a separate notation is used to indicate that their qualities are different. O : Annealing H111: Work hardened H112: As manufacturing process H116: Work hardened H132: As manufacturing process H116: Work hardened H132: As manufacturing process H116: Artificial age hardening treatment after elevated temperature working and succeeding cooling T6 : Artificial age hardening treatment after solution treatment (3) The standards for elongation given in this Table applies to the tensile test using the proportional specimen for aluminium alloys whose thickness is more than 12.5 mm. Where test specimens other than the proportional specimens are applied to the tensile test or thickness of aluminium alloys is not more than 12.5 mm, the standards for elongation is subject to the discretion of the Society. 8.1.12 Marking 2 In case of aluminum alloys applied to other standards in accordance with the provision of Note (1) of Table K8.3, "-yP", altered value and "M" where proof strength is altered or "-TS", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example,			
qualities are different. O : Annealing H111: Work hardened H112: As manufacturing process H116: Work hardened H321: Stabilizing treatment after work hardened T5 : Artificial age hardening treatment after solution treatment (3) The standards for elongation given in this Table applies to the tensile test using the proportional specimen for aluminium alloys whose thickness is more than 12.5 mm. Where test specimens other than the proportional specimens are applied to the tensile test or thickness of aluminium alloys is not more than 12.5 mm, the standards for elongation is subject to the discretion of the Society. 8.1.12 Marking 2 In case of aluminum alloys applied to other standards in accordance with the provision of Note (1) of Table K8.3, "-yP", altered value and "M" where proof stress is altered or "-TS", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example,	(2) Indication symbols used in temper condi	tion are as follows. Furthermore, although the mechanical	
O : Annealing H111: Work hardened H112: As manufacturing process H116: Work hardened H321: Stabilizing treatment after work hardened T5 : Artificial age hardening treatment after elevated temperature working and succeeding cooling T6 : Artificial age hardening treatment after solution treatment (3) The standards for elongation given in this Table applies to the tensile test using the proportional specimen for aluminium alloys whose thickness is more than 12.5 mm. Where test specimens other than the proportional specimens are applied to the tensile test or thickness of aluminium alloys is not more than 12.5 mm, the standards for elongation is subject to the discretion of the Society. 8.1.12 Marking 2 In case of aluminum alloys applied to other standards in accordance with the provision of Note (1) of Table K8.3, "-YP", altered value and "M" where proof stress is altered or "-TS", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example,	properties of O and H111 of rolled products	are the same, a separate notation is used to indicate that their	
#111: Work hardened #112: As manufacturing process #116: Work hardened #321: Stabilizing treatment after work hardened #321: Stabilizing treatment after work hardened #321: Artificial age hardening treatment after solution treatment (3) The standards for elongation given in this Table applies to the tensile test using the proportional specimen for aluminium alloys whose thickness is more than 12.5 mm. Where test specimens other than the proportional specimens are applied to the tensile test or thickness of aluminium alloys is not more than 12.5 mm, the standards for elongation is subject to the discretion of the Society. **Standards** **Sta	qualities are different.		
#112: As manufacturing process #116: Work hardened #321: Stabilizing treatment after work hardened #52 : Artificial age hardening treatment after elevated temperature working and succeeding cooling #5 : Artificial age hardening treatment after solution treatment (3) The standards for elongation given in this Table applies to the tensile test using the proportional specimen for aluminium alloys whose thickness is more than 12.5 mm. Where test specimens other than the proportional specimens are applied to the tensile test or thickness of aluminium alloys is not more than 12.5 mm, the standards for elongation is subject to the discretion of the Society. #8.1.12 Marking 2 In case of aluminum alloys applied to other standards in accordance with the provision of Note (1) of Table K8.3, "-yP", altered value and "M" where proof stress is altered or "-TS", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example,	O : Annealing		
##116: Work hardened ##321: Stabilizing treatment after work hardened ##321: Stabilizing treatment after work hardened ##321: Stabilizing treatment after elevated temperature working and succeeding cooling ##321: Stabilizing treatment after elevated temperature working and succeeding cooling ##321: Stabilizing treatment after elevated temperature working and succeeding cooling ##321: Stabilizing treatment after work hardened ##321: Stabilizing treatment after elevated temperature working and succeeding cooling ##321: Stabilizing treatment after elevated temperature working and succeeding cooling ##321: Stabilizing treatment after elevated temperature working and succeeding cooling ##321: Stabilizing treatment after elevated temperature working and succeeding cooling ##321: Stabilizing treatment after elevated temperature working and succeeding cooling ##321: Stabilizing treatment after elevated temperature working and succeeding cooling ##321: Stabilizing treatment after elevated temperature working and succeeding cooling ##321: Stabilizing treatment after elevated temperature working and succeeding cooling ##321: Stabilizing treatment after elevated temperature working and succeeding cooling ##321: Stabilizing treatment after elevate tensile test or the tensile test using the proportional specimen for aluminum alloys where tensile test or thickness of aluminum alloys is not more than 12.5 ##321: Marking ##321: Stabilizing treatment after elevate using the proportional specimen for aluminum alloys in this Table applies to the tensile test or thickness of aluminum alloys is not more than 12.5 ##322: Marking ##322: In case of aluminum alloys applied to other standards in accor	H111 : Work hardened		
#321: Stabilizing treatment after work hardened 75 : Artificial age hardening treatment after elevated temperature working and succeeding cooling 76 : Artificial age hardening treatment after solution treatment (3) The standards for elongation given in this Table applies to the tensile test using the proportional specimen for aluminium alloys whose thickness is more than 12.5 mm. Where test specimens other than the proportional specimens are applied to the tensile test or thickness of aluminium alloys is not more than 12.5 **mm*, the standards for elongation is subject to the discretion of the Society. **8.1.12 Marking 2 In case of aluminum alloys applied to other standards in accordance with the provision of Note (1) of Table K8.3, "-YP", altered value and "M" where proof stress is altered or "-TS", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example, ### Amend to standards in accordance with the provision of Note (1) of Table K8.3, "-YP", altered value and "M" where proof strength is altered or "-TS", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example,			
## 2. Artificial age hardening treatment after elevated temperature working and succeeding cooling ## 76			
The standards for elongation given in this Table applies to the tensile test using the proportional specimen for aluminium alloys whose thickness is more than 12.5 mm. Where test specimens other than the proportional specimens are applied to the tensile test or thickness of aluminium alloys is not more than 12.5 mm, the standards for elongation is subject to the discretion of the Society. 8.1.12 Marking 2 In case of aluminum alloys applied to other standards in accordance with the provision of Note (1) of Table K8.3, "-YP", altered value and "M" where proof stress is altered or "-TS", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example, and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example,			
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for aluminium alloys whose thickness is more than 12.5 mm. Where test specimens other than the proportional specimens are applied to the tensile test or thickness of aluminium alloys is not more than 12.5 mm, the standards for elongation is subject to the discretion of the Society. 8.1.12 Marking 2 In case of aluminum alloys applied to other standards in accordance with the provision of Note (1) of Table K8.3, "-YP", altered value and "M" where proof stress is altered or "-TS", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example, put subsequent to the mark specified in -1, for example,			
8.1.12 Marking 2 In case of aluminum alloys applied to other standards in accordance with the provision of Note (1) of Table K8.3, "-YP", altered value and "M" where proof stress is altered or "-TS", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example,	. , ,		
8.1.12 Marking 2 In case of aluminum alloys applied to other standards in accordance with the provision of Note (1) of Table K8.3, "-YP", altered value and "M" where proof stress is altered or "-TS", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example, 8.1.12 Marking 2 In case of aluminum alloys applied to other standards in accordance with the provision of Note (1) of Table K8.3, "-YP", altered value and "M" where proof strength is altered or "-TS", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example,			
8.1.12 Marking 2 In case of aluminum alloys applied to other standards in accordance with the provision of Note (1) of Table K8.3, "-YP", altered value and "M" where proof stress is altered or "-TS", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example, 8.1.12 Marking 2 In case of aluminum alloys applied to other standards in accordance with the provision of Note (1) of Table K8.3, "-YP", altered value and "M" where proof strength is altered or "-TS", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example,		•	
2 In case of aluminum alloys applied to other standards in accordance with the provision of Note (1) of Table K8.3 , "-YP", altered value and "M" where proof stress is altered or "-TS", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example,	min, the standards for clongation is subject to	of the discretion of the society.	
2 In case of aluminum alloys applied to other standards in accordance with the provision of Note (1) of Table K8.3 , "-YP", altered value and "M" where proof stress is altered or "-TS", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example,			
in accordance with the provision of Note (1) of Table K8.3 , "-YP", altered value and "M" where proof stress is altered or "-TS", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example, the terminology used for "-YP", altered value and "M" where proof strength is to be put subsequent to the mark specified in -1, for example, the terminology used for "-YP", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example,	8.1.12 Marking	8.1.12 Marking	
in accordance with the provision of Note (1) of Table K8.3 , "-YP", altered value and "M" where proof stress is altered or "-TS", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example, the terminology used for "-YP", altered value and "M" where proof strength is to be put subsequent to the mark specified in -1, for example, the terminology used for "-YP", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example,	2 In case of aluminum alloys applied to other standards	2 In case of aluminum alloys applied to other standards	Amend to standardise
"-YP", altered value and "M" where proof stress is altered or "-YP", altered value and "M" where proof strength is altered or "-TS", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example, "put subsequent to the mark specified in -1, for example, "yield strength standards or "-TS", altered value and "M" where proof strength is altered or "-TS", altered value and "M" where proof strength is altered or "-TS", altered value and "M" where proof strength is altered or "-TS", altered value and "M" where proof strength is altered or "-TS", altered value and "M" where proof strength is altered or "-TS", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example,	_ = = -		the terminology used for
"-TS", altered value and "M" where tensile strength is to be put subsequent to the mark specified in -1, for example, put subsequent to the mark specified in -1, for example,	1		yield strength standards.
put subsequent to the mark specified in -1, for example, put subsequent to the mark specified in -1, for example,			
	1		
"6005 AC T5 M VD200M"	"6005 <i>AS-T5-M-YP200M</i> ".	"6005AS-T5-M-YP200M".	

Amenaea			omparison Ta	bie (Stand	ardisatic	on of ter		Jsea for Yiel	a Strength	
		Amended			Original					Remarks
8.2 A 8.2.5	luminium Alloy Mechanical Pa	roperties*	mper Conditions	8	.2.5 N	Techanica	Iloy Pipes Al Properties Extruded pig			Amend to standardise
			•		•	Tensile	` <u> </u>	,	1	the terminology used for
	Material grade	Temper condition ⁽²⁾	Thickness t (mm)	Sectional area (cm²)	streng	roof thstress mm²)	Tensile strength (N/mm²)	Elongation(%) $(L = 50)$		yield strength standards.
I	5083 <i>TE</i>	0	<i>t</i> ≤25	200 max.	110	min.	275~355	14 min.		
	(2) In	ndication symbols O: Annealing	roved by the Society. used in temper condi			operties ⁽¹⁾	(Drawn pipe	es)		Amend to standardise
						Tensile	test			the terminology used for
	Material Tempe grade condition		Thickness	t (mm) stre	Proof ngthstress N/mm²)	Tensile str		ation(%) = 50)		yield strength standards.
	5083 <i>T</i>	TD O	0.6≤t≤	12 1	10 min.	275~3	355 14	min.		
		given in th	n alloy seamless pipe nis Table where they a symbols used in temp	are approved by	the Society.	er standards	in lieu of the req	uirements		

I michaea erigi		Amended				tandardisation of Terminology Used for Yield Strength Original			
DIII I	ES FOR THE S			RULES FOR THE SURVEY AND				Remarks	
CONST	CONSTRUCTION OF STEEL SHIPS				DNSTRUCTI	ON OF STEEL	SHIPS		
	Part M WELDING				Part M	1 WELDING			
Chapter 4 RE	WELDING LATED SPECI	PROCEDURE FICATIONS	AND	Chapt		LDING PROCED SPECIFICATION			
4.2 Tests for	r Butt Welded Joi	ints		4.2 Te	sts for Butt We	lded Joints			
4.2.5 Tens	ile Tests*			4.2.5 Tensile Tests*					
_	T	able M4.7 Tensile	Test Requir	rements for Butt Welded Joint				Amend to standardise	
		Grade of test assembly		Tensile test				the terminology used for yield strength standards.	
	Kind of test assembly				Tensile strength (N/mm^2)	$\frac{0.2 \% \text{ pProof stress}}{(N/mm^2)}$		yield strength standards.	
-					590 min. ⁽¹⁾	375 min.	1		
	Rolled steels for low		L91 ⁽⁷⁾		630 min. ⁽²⁾	3/3 mm. —			
	temperature service	KL9N53, KL9N60	_		660 min. ⁽¹⁾	410 min. (1)			
			$L92^{(7)}$		670 min. ⁽²⁾	—			
	Steel pipes for low	*** 00	L91 ⁽⁷⁾		630 min.	_			
	temperature service	KLP9	L92 ⁽⁷⁾		670 min.	_			
		5086P-H112 ⁽⁴⁾			240 :				
		5086P-H116			240 min.	_			
			5083P-H116		275 min.	_			
	A luminium allove (3)	5083 <i>P-H</i> 321			2/3 IIIII.				
		5383 <i>P-H</i> 116							
		5383 <i>P-H</i> 321			290 min.		ı		
		5456P-H116 ⁽⁶⁾			290 IIIII.	_			
			5456 <i>P</i> - <i>H</i> 321 ⁽⁶⁾					1	

Amended-Origina	al Requirements Comparison Table (S	tandardisation of Te		Yield Strength S			
	Amended		Original		Remarks		
	5059P-H116	220 :					
	5059P-H321	330 min.	_				
	5086S-H111	240 min.	_				
	5383 <i>S-H</i> 112	290 min.	_				
	6061 <i>P-T</i> 6						
	6005 <i>AS-T</i> 5 ⁽⁵⁾ ,6005 <i>AS-T</i> 6 ⁽⁵⁾	170 min.	_				
	6061 <i>S-T</i> 6 ⁽⁵⁾	1 / 0 111111.					
	6082 <i>S-T</i> 5 ⁽⁵⁾ ,6082 <i>S-T</i> 6 ⁽⁵⁾						
	 (2) For test specimen in transverse direction (3) Grades of aluminium alloys have indication grade showing the temper condition. (4) For test assembly thickness not more than 12.5 mm (5) See Notes (13) of Table M4.6. (6) When the thickness is 40 mm or less. (7) The symbols for the welding consumables listed above indicate the materials specified in Table M6.1, Table M6.12 and Table M6.21, and have same mark at the end. (For example, "L91" indicates KMWL91, KAWL91 and KSWL91) 						
Chapter 6	WELDING CONSUMABLES	Chapter 6	WELDING CONSU	MABLES			
	for Manual Arc Welding for Mild and dele Steels and Steels for Low Temperature	6.2 Electrodes for Manual Arc Welding for Mild and High Tensile Steels and Steels for Low Temperature Service					
3 The tensile elongation of each requirements in Telectrodes. Where exceeded, special cof the electrode, taken	ted Metal Tensile Test strength, yield point or proof stress, and he test specimen are to comply with the Table M6.5 appropriate to the kind of the upper limit of tensile strength is consideration will be given to the approval king the other mechanical properties shown and the chemical composition of deposited ration.	6.2.6 Deposited Metal Tensile Test 3 The tensile strength, yield point and elongation of each test specimen are to comply with the requirements in Table M6.5 appropriate to the kind of electrodes. Where the upper limit of tensile strength is exceeded, special consideration will be given to the approval of the electrode, taking the other mechanical properties shown in the test results and the chemical composition of deposited metal into consideration.			Amend to standardise the terminology used for yield strength standards.		

Amended-Origin	al Requirements Com Amended		anuaruisation o	Remarks		
		.5 Tensile Test Requi	rements for Denos	Amend to standardise		
	Grade of electrode	Tensile Strength	Yield point or	Elongation (%)	the terminology used	
	Grade of electrode	Tensile Strength	proof stress	Eloligation (70)		yield strength standards.
		(N/mm^2)	$\frac{p1001 \text{ stress}}{(N/mm^2)}$			
	KMW1	,	,		1	
	KMW2	400~560	305 min.			
	KMW3					
	KMW52					
	KMW53	490~660	375 min.	22 :		
	KMW54			22 min.		
	KMW52Y40					
	KMW53Y40	510~690	400 min.			
	KMW54Y40	310, 5090	400 111111.			
	KMW55Y40					
	KMW63 Y47	570~720	460 min.	19 min.	_	
	KMWL1	400~560	305 min.	22 min.		
	KMWL2	440~610	345 min.		_	
	KMWL3	490~660	375 min.	21 min.		
	KMWL91	590 min.	375 ⁽¹⁾ min.	25 min.		
	KMWL92	660 min.	410 ⁽¹⁾ min.		<u> </u>	
	Note: (1) 0.2% proof stre	SS				
6.3 Automatic Welding Consumables for Mild Steels, High Tensile Steels and Steels for Low Temperature Service				ic Welding Consumab sile Steels and Steels fo		
6.3.6 Deposited Metal Tensile Test with Multi-run Technique 2 The tensile strength, yield point or proof stress, and elongation of the deposited metal are to pass the requirements			deposited metal are to pass the requirements specified in Table			Amend to standardise the terminology used for
*	M6.17 according to the bles. However, welding c			ng to the grade of owever, welding consum	_	yield strength standards.

Amended-Original Requirements Comparison Tabl	e (Stan	idardisation of			
Amended				Remarks	
tensile strength exceeds the upper limit of the requirement may pass the tests by giving consideration to other mechan properties and chemical composition of the deposited metal	ical th	trength exceeds the tests by gibroperties and cho			
Table M6.17 Tensile Test	t Requir	rements for Depo		Amend to standardise	
Grade of welding Tensile str	rength	Yield point or proof stress	Elongation (%)		the terminology used for yield strength standards.
consumable (N/mm	i^2)	(N/mm^2)			
KAW1					
<u>KAW2</u> 400∼5	660	305 min.			
KAW3					
KAW51					
<u>KAW52</u> 490∼6	660	375 min.			
KAW53			22 min.		
<i>KAW</i> 54 <i>KAW</i> 52 <i>Y</i> 40					
KAW52740 KAW53740					
KAW54Y40 510~6	590	400 min.			
KAW55Y40					
KAW63 Y47 570~7	20	460 min.	19 min.		
<i>KAWL</i> 1 400∼5	660	305 min.			
<i>KAWL</i> 2 440∼6	510	345 min.			
<i>KAWL</i> 3 490∼6	660	375 min.	21 min.		
<i>KAWL</i> 91 590 mi	in.	375 ⁽¹⁾ min.	25 min.		
<i>KAWL</i> 92 660 mi	in.	410 ⁽¹⁾ min.			
Note: (1) 0.2% proof stress					
6.4 Semi-automatic Welding Consumables for M Steels, High Tensile Steels and Steels for I Temperature Service		6.4 Semi-automatic Welding Consumables for Mild Steels, High Tensile Steels and Steels for Low Temperature Service			
6.4.6 Deposited Metal Tensile Test		6.4.6 Depos			
2 The tensile strength, yield point or proof stress,		2 The tensile	Amend to standardise		
elongation of each test specimens are to comply with	the te	est specimens ar	the terminology used for		

Amended-Original Requirements Comparison	Standards)							
Amended				Remarks				
requirements in Table M6.24 appropriate to the welding consumables. Where the upper limit of strength is exceeded, special consideration will be gis approval of the semi-automatic welding consumable the other mechanical properties shown in the test return the chemical composition of deposited mechanical consideration.	M6.24 appropriate to the kind of welding consumables. Where the upper limit of tensile strength is exceeded, special consideration will be given to the approval of the semi-automatic welding consumables, taking the other mechanical properties shown in the test results and the chemical composition of deposited metal into consideration.				yield strength standards.			
Table M6.24 Tensi	le Test Regu	uirements	for Deposited M	etal		Amend to standardise		
Grade of welding consumable	Tensile St	trength	Yield point <u>or</u> proof stress (N/mm²)	Elongation (%)		the terminology used for yield strength standards.		
KSW1	(11/1111)	<i>n</i>)	(14/111111)					
KSW2	400~:	~560	305 min.	22 min.				
KSW3								
KSW51		490~660	375 min.					
KSW52	490~							
KSW53								
KSW54								
KSW52Y40								
KSW53Y40	510~	690	400 min.					
KSW54Y40		070	400 IIIII.					
KSW55Y40								
KSW63Y47	570~		460 min.	19 min.				
KSWL1	400~:		305 min.	22 min.				
KSWL2	440~		345 min.					
KSWL3	490~		375 min.	21 min.				
KSWL91	590 min.		375 ⁽¹⁾ min. 410 ⁽¹⁾ min.	25 min.				
KSWL92								
Note:	Note:							
(1) 0.2% proof stress								

Timenaea Originar	Amended	Son Tuore (Star		Tor Trota Strongth	Remarks	
6.5 Electro-slag	and Electro-gas Welding C	Consumables	6.5 Electro-slag a			
to comply with the rethe grade of welding or proof stress, an specimen U1A are to M6.33 according to the upper limit of consideration will be consumables, taking	gth of each test specimen <i>U</i> : equirements in Table M6.32 consumable. Tensile strength d elongation of each long o comply with the requirement the grade of welding consum tensile strength is excee be given to the approval of the other mechanical propert al composition of deposited	according to h, yield point to the tritudinal test and tents in Table contable. Where ded, special the welding gites in the test of the te	6.5.6 Tensile Te 3 Tensile streng to comply with the red the grade of welding of and elongation of each comply with the requiremental end of welding the grade of welding tensile strength is ex- given to the approval other mechanical pro- composition of depos	Amend to standardise the terminology used for yield strength standards.		
	Table M6.33 Grade of welding consumable	Longitudinal T Tensile Strength (N/mm²)	Yield point or proof stress (N/mm²)	Elongation (%)]	Amend to standardise the terminology used for yield strength standards.
	KEW1 KEW2 KEW3	400~560	305 min.			
	KEW51 KEW52 KEW53 KEW54	490~660	375 min.	22 min.		
	KEW52Y40 KEW53Y40 KEW54Y40 KEW55Y40	510~690	400 min.	10		
<i>KEW</i> 63 <i>Y</i> 47 570∼720		3/0 - 120	460 min.	19 min.	J	<u> </u>

Amended	Original Original	Remarks
6.6 One Side Automatic Welding Consumables for Mild Steels, High Tensile Steels and Steels for Low Temperature Service	6.6 One Side Automatic Welding Consumables for Mild Steels, High Tensile Steels and Steels for Low Temperature Service	
6.6.6 Butt Weld Test with One-run and Multi-run Technique	6.6.6 Butt Weld Test with One-run and Multi-run Technique	
3 Tensile strength of $U2A$ or $U2B$ test specimen is to be	1	
as given in Table M6.19 of 6.3.8 according to the grades of	as given in Table M6.19 of 6.3.8 according to the grades of	•
one side automatic welding consumables. Tensile strength,	[for yield strength
<u>yield</u> point or proof stress, and elongation of U1A	<u>yielding</u> point and elongation of $U1A$ longitudinal tensile test	standards.
longitudinal tensile test specimens are to be as given in Table	specimens are to be as given in Table M6.17 of 6.3.8	
M6.17 of 6.3.8 according to the grades of one side automatic	according to the grades of one side automatic welding	
welding consumables. Where the upper limit of tensile	consumables. Where the upper limit of tensile strength is	
strength is exceeded, special consideration will be given to the	exceeded, special consideration will be given to the approval	
approval of the welding consumables, taking the other	of the welding consumables, taking the other mechanical	
mechanical properties shown in the test results and the	properties shown in the test results and the chemical	
chemical composition of deposited metal into consideration.	composition of deposited metal into consideration.	

Amended	-Original Rec		omparison 1	abie (Standa)	tuisation of 1		Used for Yield	u Sirengin	,
	Amended				Original				Remarks
6.7 W	6.7 Welding Consumables for Stainless Steel6.7.7 Deposited Metal Tensile Test				6.7 Welding Consumables for Stainless Steel 6.7.7 Deposited Metal Tensile Test				
01111	z cposicou il				-				
		Table M	16.48 Tensile	Test Requirem	ents for Deposi	ted Metal			Amend to standardise
	Electrode for manual arc welding	TIG and MIG welding consumable	Flux wire for semi-automatic welding	Submerged arc welding consumable	Tensile strength (N/mm²)	0.2% pProof stress (N/mm²)	Elongation (%)		the terminology used for yield strength standards.
	KD308	KY308	KW308	KU308	550 min.	225 min.	35 min.		
	KD308L	KY308L	KW308L	KU308L	510 min.	205 min.	35 min.		
	KD308N2	KY308N2	KW308N2	-	690 min.	375 min.	25 min.		
	KD309	KY309	KW309	KU309	550 min.	225 min.	30 min.		
	KD309L	KY309L	KW309L	KU309L	510 min.	205 min.	30 min.		
	KD309Mo	KY309Mo	KW309Mo	KU309Mo	550 min.	225 min.	30 min.		
	KD309MoL	-	KW309MoL	-	510 min.	205 min.	30 ⁽¹⁾ min.		
	KD310	KY310	KW310	KU310	550 min.	225 min.	30 min.		
	-	KY310S	-	-	550 min.	225 min.	30 min.		
	KD310Mo	-	-	-	550 min.	225 min.	30 min.		
	KD316	KY316	KW316	KU316	550 min.	225 min.	30 min.		
	KD316L	KY316L	KW316L	KU316L	510 min.	205 min.	35 min.		
	KD317	KY317	KW317	KU317	550 min.	225 min.	30 min.		
	KD317L	KY317L	KW317L	KU317L	510 min.	205 min.	30 min.		
	-	KY321	-	-	550 min.	225 min.	30 min.		
	KD329J1	-	-	-	590 min.	390 min.	15 min.		
	KD329J4L	KY329J4L	KW329J4L	-	690 min.	450 min.	15 min.		
	KD2209	KY2209	KW2209	-	690 min.	450 min.	15 min.		
	KD347	KY347	KW347	KU347	550 min.	225 min.	30 min.		
	Note (1) I		9 <i>MoL</i> is not be less	than 20(%).					

Amended	Original	Remarks
6.9 Welding Consumables for High Strength Rolled		
Steels for Offshore Structures	Steels for Offshore Structures	
6.9.6 Deposited Metal Tensile Test	6.9.6 Deposited Metal Tensile Test	
2 The tensile strength, yield point or proof stress, and	2 The tensile strength, yield point (or proof stress) and	Amend to standardise
elongation of each test specimen are to comply with the	elongation of each test specimen are to comply with the	the terminology used for
requirements specified in Table M6.60 according to the grade	requirements specified in Table M6.60 according to the grade	yield strength standards.
of the welding consumables.	of the welding consumables.	

	Amended	•			Origi	nal	Remarks
GUIDANCE FO	R THE S	URVEY AN	ND	GUIDAN			
CONSTRUCTION	CONSTRUCTION OF STEEL SHIPS			CONST	RUCTION	OF STEEL SHIPS	
Part K	Part KMATERIALS						
Annex K1.1.1-2 SEAMLESS FO	Annex K1.1.1-2 GUIDANCE FOR SEAMLESS FORGED STEEL DRUMS			Annex Ki SEAML			
1.3 Mechanical Prope	1.3 Mechanical Properties			1.3 Mechanic			
			Table 2 Tensil	le Tests	Amend to standardis		
	Grade Yield point or proof stress (N/mm^2) Tensile streng (N/mm^2)			Elongation (%) (L=5D)	Reduction of area (%)		the terminology used for yield strength standards.
	KSFB 42	205 min.	410 min.	24 min.	38 min.		
	KSFB 53 255 min. 520 min.			22 min.	40 min.		
		FFFFCTI	VE DATE ANI	O APPLICATIC)N		
1. Effective date of	`this amend						