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Bid Receiving Public Works and Government
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1713 Bedford Row
Halifax, N.S./Halifax, (N.É.)
Halifax
Nova Scotia
B3J 1T3
Bid Fax: (902) 496-5016

Revision to a Request for a Standing Offer

Révision à une demande d'offre à commandes

National Individual Standing Offer (NISO)

Offre à commandes individuelle nationale (OCIN)

The referenced document is hereby revised; unless
otherwise indicated, all other terms and conditions of
the Offer remain the same.

Ce document est par la présente révisé; sauf
indication contraire, les modalités de l'offre demeurent
les mêmes.

Comments - Commentaires

Vendor/Firm Name and Address

Raison sociale et adresse du
fournisseur/de l'entrepreneur

Issuing Office - Bureau de distribution

Atlantic Region Acquisitions/Région de l'Atlantique
Acquisitions
1713 Bedford Row
Halifax, N.S./Halifax, (N.É.)
Halifax
Nova Scot
B3J 1T3

Title - Sujet Mooring Hardware & Anchors		
Solicitation No. - N° de l'invitation F7047-200123/A		Date 2021-04-08
Client Reference No. - N° de référence du client F7047-20-0123		Amendment No. - N° modif. 001
File No. - N° de dossier HAL-0-84071 (122)	CCC No./N° CCC - FMS No./N° VME	
GETS Reference No. - N° de référence de SEAG PW-\$HAL-122-6144		
Date of Original Request for Standing Offer		2021-04-06
Date de la demande de l'offre à commandes originale		
Solicitation Closes - L'invitation prend fin at - à 02:00 PM Atlantic Standard Time AST on - le 2021-05-13 Heure Normale de l'Atlantique HNA		
Address Enquiries to: - Adresser toutes questions à: Chinye (HAL), Chukwudi		Buyer Id - Id de l'acheteur hal122
Telephone No. - N° de téléphone (902) 401-7604 ()		FAX No. - N° de FAX (902) 496-5016
Delivery Required - Livraison exigée		
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction:		
Security - Sécurité This revision does not change the security requirements of the Offer. Cette révision ne change pas les besoins en matière de sécurité de la présente offre.		

Instructions: See Herein

Instructions: Voir aux présentes

Acknowledgement copy required Accusé de réception requis	Yes - Oui <input type="checkbox"/>	No - Non <input type="checkbox"/>
The Offeror hereby acknowledges this revision to its Offer. Le proposant constate, par la présente, cette révision à son offre.		
Signature	Date	
Name and title of person authorized to sign on behalf of offeror. (type or print) Nom et titre de la personne autorisée à signer au nom du proposant. (taper ou écrire en caractères d'imprimerie)		
For the Minister - Pour le Ministre		

Solicitation No. - N° de l'invitation
F7047-200123/A
Client Ref. No. - N° de réf. du client
F7047-200123

Amd. No. - N° de la modif.
amd001
File No. - N° du dossier
HAL-0-84071

Buyer ID - Id de l'acheteur
ha1122
CCC No./N° CCC - FMS No./N° VME

Amendment 001 is raised to answer the question below and incorporate the change below.

Question 1: The files for British Columbia, Charlottetown and Dartmouth appear to all be in French. Are English files available?

Answer to Question 1: Attached are Annex B-Basis of Payment for British Columbia, Charlottetown and Dartmouth

Solicitation No. - N° de l'invitation
F7047-200123/A
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F7047-200123

Amd. No. - N° de la modif.
amd001
File No. - N° du dossier
HAL-0-84071

Buyer ID - Id de l'acheteur
hal122
CCC No./N° CCC - FMS No./N° VME

Annex A
Insert
Statement of Work

All Other Terms and Conditions Remain the Same.

Integrated Technical Services



Safety First, Service Always



Mooring Hardware and Anchor for Aids to Navigation

Annex A

Technical Statement of Requirements

Table of Contents

Section 1	General.....	1
1.1	Purpose	1
1.2	Definition	1
1.3	Applicable Standards	1
1.4	Technical Data Sheets and Technical Drawings.....	1
Section 2	Requirements for Mooring Hardware.....	2
2.1	General.....	2
2.2	Materials	2
2.3	Dimensions and Tolerances	2
2.4	Mooring Hardware Assembly	2
2.5	Swivels.....	2
2.6	Shackles.....	2
2.7	Mooring Hardware Finish	2
2.8	Mechanical strength	3
2.9	Markings.....	3
Section 3	Requirements for Anchors	4
3.1	General.....	4
3.2	Materials	4
3.3	Heat Treatment.....	4
3.4	Mass, Dimensions and Tolerances.....	4
3.5	Lifting Link	4
3.6	Markings.....	4
Section 4	Quality Assurance, Inspection and Testing.....	6
4.1	General.....	6
4.2	Cracks	6
4.3	Workmanship and Finish – Anchors	6
4.4	Inspection and Testing – Mooring Hardware	6
4.5	Inspection and Testing – Anchors.....	6
4.6	Certificate.....	7
Appendix A	TDS and Technical Drawings – Steel Grade U2	A-1
Appendix B	TDS and Technical Drawings – Steel Grade U3	B-1
Appendix C	Test Procedure.....	C-1

List of Tables

Table 1	Applicable Standards	1
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List of Figures

Figure C-1	Sideways blow to apex of lifting link.....	C-2
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Section 1 GENERAL

1.1 PURPOSE

- 1.1.1 This Technical Statement of Requirements (TSoR) states the requirements of the Department of Fisheries and Oceans, Canadian Coast Guard (CCG) for Mooring Hardware and Anchors used to hold the position of CCG's floating aids to navigation.

1.2 DEFINITION

- 1.2.1 **Mooring Hardware** is referred herein/defined as standard links, end-links, long links, bridle rings, counterweight/sinker links, shackle assembly, swivel assembly, counterweights, bridle and chain assemblies, and all combinations thereof.
- 1.2.2 **Anchor** is referred herein/defined as counterweights, serrated sinkers and serrated anchors.
- 1.2.3 **Lifting link** is referred herein/defined as counterweight/sinker lifting link and anchor lifting link.

1.3 APPLICABLE STANDARDS

- 1.3.1 The Contractor must perform all work in accordance with the TSoR and the standards listed in Table 1.

Table 1 Applicable Standards

Source	Document	Version
Lloyd's Register (LR)	Rules and Regulations for the Classification of Ships, Part 2: Rules for the Manufacture, Testing and Certification of Materials, referred herein as LR Rules Part 2 .	July 2020
ASTM International (ASTM)	ASTM A48/A48M – Standard Specification for Gray Iron Castings, referred herein as ASTM A48 .	2003 (Reapproved 2016)

1.4 TECHNICAL DATA SHEETS AND TECHNICAL DRAWINGS

- 1.4.1 Mooring Hardware, Anchors and Lifting Links must be sized and formed in accordance with the relevant Technical Data Sheets (TDS) and Technical Drawings of:
- Appendix A: TDS and Technical Drawings - Steel grade U2
 - Appendix B: TDS and Technical Drawings - Steel grade U3

Section 2 REQUIREMENTS FOR MOORING HARDWARE

2.1 GENERAL

- 2.1.1 Mooring Hardware must be manufactured in accordance with the requirements of this TSoR.
- 2.1.2 Mooring Hardware must be manufactured in accordance with the LR Rules Part 2 (Chapter 10, Section 2).
- 2.1.3 Mooring Hardware must be manufactured by a Lloyd's Register Approved Manufacturer of Cable and Fittings for Cable. This manufacturer must be approved for Grades U2 and U3 chain cable and fittings.

2.2 MATERIALS

- 2.2.1 All materials used in the manufacture of Mooring Hardware, except for the shackle cotter keys, must be of uniform quality Grade **U2 or U3** steel and must comply with LR Rules Part 2 (Chapter 3, Section 9; and Chapter 10, Section 2).
- 2.2.2 All shackle cotter keys (TDS 201-CK and 202-CK) must be manufactured with stainless steel meeting the requirements of American Iron and Steel Institute (AISI) standard of type 316.

2.3 DIMENSIONS AND TOLERANCES

- 2.3.1 Mooring Hardware must conform to the shapes, dimensions, and tolerances shown on the TDS (Appendices A and B).

2.4 MOORING HARDWARE ASSEMBLY

- 2.4.1 Mooring Hardware (TDS 200, 300, 400 and 500 series) must be delivered to Canada fully assembled.

2.5 SWIVELS

- 2.5.1 Swivels must be formed by upset forging, and welding a solid sleeve onto the swivel pin.
- 2.5.2 The welded swivel design and fabrication process must conform to the LR Rules Part 2.
- 2.5.3 Each swivel must rotate freely.
- 2.5.4 Each swivel must not be made using a threading nor a pinning manufacturing process.

2.6 SHACKLES

- 2.6.1 Each shackle must not be made with a welded pin construction.

2.7 MOORING HARDWARE FINISH

- 2.7.1 All burrs must be removed.
- 2.7.2 All exposed edges must be trimmed or rounded to a radius between 3 mm and 4 mm.

2.8 MECHANICAL STRENGTH

- 2.8.1 Mooring Hardware must be capable of withstanding the proof loads as specified in Appendices A and B, without rupture or deformation as per the LR Rules Part 2.
- 2.8.2 Mooring Hardware must be capable of withstanding the breaking loads specified in Appendices A and B, for a minimum of 30 seconds, without rupture as per the LR Rules Part 2.

2.9 MARKINGS

- 2.9.1 Mooring Hardware must be stamped with the following identification marks:
- 1) Contractor ID (e.g., ABCD)
 - 2) Year of manufacture (e.g., 2020)
 - 3) Steel grade (U2 or U3)
 - 4) Length of chain assembly (e.g. XX.Xm)
 - 5) Diameter of standard link or long link (e.g. XXmm)
- 2.9.2 Markings must be legibly and permanently stamped with 5 mm high lettering in Bold Arial Font.
- 2.9.3 Markings must be stamped on:
- shackle assemblies (**TDS 200 serie**)
 - end-links (**TDS 102**) of swivel assemblies (**TDS 300 serie**)
 - end-links (**TDS 102**) of chain assemblies (**TDS 400 serie**)
 - end-links (**TDS 102**) of bridle assemblies (**TDS 500 serie**)

Section 3 REQUIREMENTS FOR ANCHORS

3.1 GENERAL

- 3.1.1 Anchors must be manufactured in accordance with the requirements of this TSoR and with LR Rules Part 2.
- 3.1.2 A "batch", quantity of goods forming a set, must contain up to a maximum of **10** Anchors.

3.2 MATERIALS

- 3.2.1 Each Anchor body must be made from one uniform, continuous pour of grey cast iron conforming to LR Rules Part 2 (Chapter 7, Sections 1 and 2) or ASTM A48 (Class No. 200B).
- 3.2.2 The Lifting Link must be made from new, U2 steel round bar material conforming to LR Rules Part 2 (Chapter 3, Section 9).
- 3.2.3 With the exception of the Lifting Link, wrought steel structural shapes or foreign material must not be introduced during the casting process.

3.3 HEAT TREATMENT

- 3.3.1 A thermal history report containing as minimum the temperature and duration during heat treatment must be prepared for each batch.
- 3.3.2 All heat treatments must be carried out in accordance with LR Rules Part 2.
- 3.3.3 The Lifting Link must be evenly heated to 200°C prior to the pouring of the grey cast iron.

3.4 MASS, DIMENSIONS AND TOLERANCES

- 3.4.1 Anchors must conform to the mass, shapes, dimensions, and tolerances shown on the Technical Drawings.

3.5 LIFTING LINK

- 3.5.1 The Lifting Link must conform to the dimensions and tolerances shown on the TDS and Technical Drawings.
- 3.5.2 The Lifting Link must be cast into the Anchor body so that the body and Lifting Link form a single unit.
- 3.5.3 Welding of the Lifting Link must be done in accordance with LR Rules Part 2.

3.6 MARKINGS

- 3.6.1 The following markings must be cast into the Anchor body in raised block letters (in Bold Arial Font) as indicated on the Technical Drawings.
- Anchor mass (e.g. 4000 KG);
 - Contractor ID (ABCD);

MOORING HARDWARE AND ANCHOR FOR AIDS TO NAVIGATION – TECHNICAL STATEMENT OF REQUIREMENTS
Requirements for Anchors

- Batch number (BN: XXXX);
- Year of manufacture.

3.6.2 Painting or stenciling must not be used.

Section 4 QUALITY ASSURANCE, INSPECTION AND TESTING

4.1 GENERAL

- 4.1.1 All quality assurance inspection and testing must be done in accordance with LR Rules Part 2.
- 4.1.2 The Contractor must correct all defects found during these inspections and tests, and must eliminate the cause of the defects from the Mooring Hardware and Anchor production process.
- 4.1.3 The results of all the tests and inspections described in this section must be delivered to Canada upon request.

4.2 CRACKS

- 4.2.1 Mooring Hardware as listed in the TDS (Appendices A and B) must be free from cracks. A crack is defined as a linear defect that has a length of more than three times its width.

4.3 WORKMANSHIP AND FINISH – ANCHORS

- 4.3.1 Anchor surfaces must be free of adhering sand, scale, and any other foreign material.
- 4.3.2 Anchor surfaces must be free of cracks and hot tears.
- 4.3.3 Anchor surfaces must be smooth and free from defects or protrusions that might adversely affect the serviceability and handling.
- 4.3.4 Anchor surfaces must not be repaired by plugging or welding.
- 4.3.5 After casting, all surface slag and projecting edges must be removed.
- 4.3.6 All sharp edges must be ground, and the casting must be left clean.
- 4.3.7 Anchors must not be painted nor coated.

4.4 INSPECTION AND TESTING – MOORING HARDWARE

- 4.4.1 The Contractor must perform all inspections and testing necessary in accordance with LR Rules part 2 to ensure that the Mooring Hardware conforms to the requirements of this TSoR.
- 4.4.2 Mechanical properties testing must be carried out by the Contractor on Mooring Hardware in accordance with the LR Rules part 2 (Chapter 10 Section 2).
- 4.4.3 Mooring Hardware must be Proof Load and Breaking Load tested and passed in accordance with the LR Rules Part 2 (Chapter 10 Section 2). The Mooring Hardware must conform to the Proof Loads and the Breaking Loads indicated in Appendices A and B.
- 4.4.4 A dimensional inspection must be performed by the Contractor on 10% on Mooring Hardware in accordance with the LR Rules Part 2 (Chapter 10 Section 2). The results of this inspection must include measured values and variance, and must be delivered to Canada upon request.

4.5 INSPECTION AND TESTING – ANCHORS

- 4.5.1 The Contractor must weigh each Anchor and ensure that each Anchor conforms to the tolerances listed on the TDS and Technical Drawings.

MOORING HARDWARE AND ANCHOR FOR AIDS TO NAVIGATION – TECHNICAL STATEMENT OF REQUIREMENTS
Quality Assurance, Inspection and Testing

- 4.5.2 The Contractor must perform one (1) freefall impact test and one (1) hammer blow test on one (1) Anchor of each batch, as described in Appendix C.
- 4.5.3 For each Anchor batch, the Contractor must perform a mechanical test on one (1) grey cast-iron sample as per LR Rules Part 2 (Chapter 7 Sections 1 and 2). The tensile strength must not be less than 200 N/mm².
- 4.5.4 For steel used in the manufacture of the Lifting Link, the Contractor must perform a mechanical test on bars as per LR Rules Part 2 (Chapter 3 Section 9).
- 4.5.5 The Contractor must maintain the traceability of steel throughout the manufacturing, testing, and inspection process for Anchors.
- 4.5.6 Each component must be traceable through the batch number to the heat of steel from which it was made.

4.6 CERTIFICATE

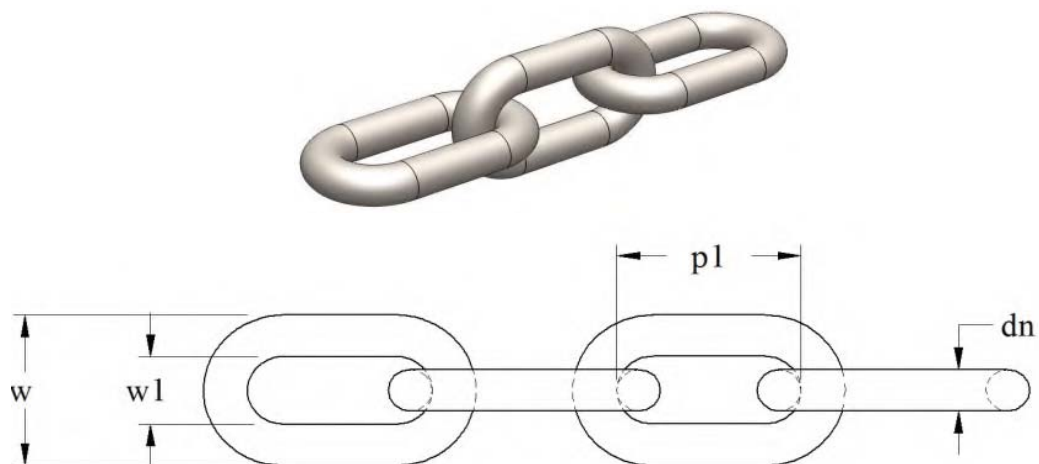
- 4.6.1 In accordance with the LR Rules Part 2, the Contractor must provide Canada with a certificate issued by Lloyds Register that all Mooring Hardware and all Anchors conform to this TSoR, TDS, Technical Drawings and Applicable standards.
- 4.6.2 One (1) certificate must be issued for each Mooring Hardware batch and each Anchor batch.
- 4.6.3 The certificate must include the following information for all Mooring Hardware:
 - 1) Contractor's name;
 - 2) Date of certificate issuance;
 - 3) Description and dimensions;
 - 4) Identification mark;
 - 5) Details of heat treatment;
 - 6) Proof Load and Breaking Load test results, per Section 4.4.3; and
 - 7) Dimensional inspection results, per Section 4.4.4.
 - 8) Details of each Weight test, per Section 4.5.1;
 - 9) Details of each Batch test, per Section 4.5.2;
 - 10) Material certificate from the steel mill for steel used to manufacture the **Mooring Hardware** and **Lifting Link**, which include:
 - a) Material heat number
 - b) Mechanical test results (yield stress, tensile strength, elongation and Charpy V-notch impact tests), as per Section 4.5.4
 - c) Grade of steel (U2 or U3)
 - d) Chemical composition
 - 11) Material certificate for grey cast iron used to manufacture the **Anchors**, which includes:
 - a) Batch number;

- b) Mechanical test results (yield stress, tensile strength, elongation, and Charpy V-notch impact tests), as per Section 4.5.3.

Appendix A TDS AND TECHNICAL DRAWINGS – STEEL GRADE U2

TDS #	Description
100 serie : Components	
101	Standard Link
102	End-Link
103	Long Link
104	Bridle Ring
105	Counterweight / Sinker Lifting Link
200 serie: Shackle Assembly	
201	Chain Shackle
202	Bow Shackle
203	Clinch Shackle
300 serie: Swivel Assembly	
301	Swivel
400 serie: Chain Assembly	
401	Standard Link Chain
402	Long Link Chain
500 serie: Bridle Assembly	
501	V Bridle Assembly
502	Y Bridle Assembly
600 serie: Anchors	
601	Counterweight
602	Serrated Sinker
603	Serrated Anchor

No.101



		Standard Link						
		Dimension (mm)				Proof and Breaking Loads (kN)		
Linear Mass (kg/m)	Catalog Number	Bar Diameter	Pitch of Chain	Inside Width	Outside Width	Safe Working Load	Proof Load	Breaking Load
		dn	p1	w1	w(ref)			
3.6	101-14	14	56	20	48	23	82	115
4.7	101-16	16	64	22	54	30	107	150
7.3	101-20	20	80	28	68	47	166	233
12.3	101-26	26	104	36	88	78	278	389
18.7	101-32	32	128	45	109	117	416	583
26.4	101-38	38	152	53	129	162	580	812

Dimensional Notes:

- Fabrication tolerances dimensions: $\pm 2.5\%$
All measurements are to be taken after proof testing.

Material Notes:

- Remove all sharp edges and burrs

TECHNICAL DATA SHEET

Standard Link

Grade

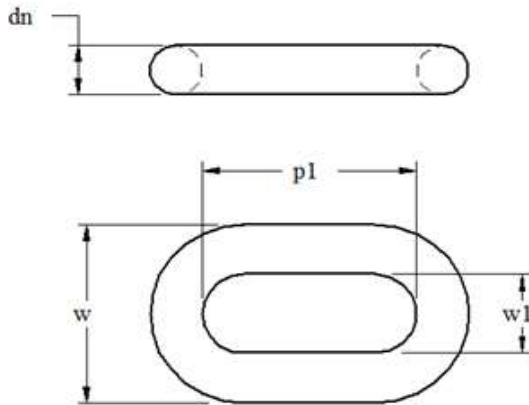
U2

Data Sheet 101

Sheet 1 of 1

Rev 2020.09.03

No. 102



End-Link								
Dimensions (mm)						Proof and Breaking Loads (kN)		
Catalog Number	For use with chain diameter	Bar Diameter	Pitch of Chain	Inside Width	Outside Width	Safe Working Load	Proof Load	Breaking Load
		dn	p1	w1	w(ref)			
102-18	14	18	72	23	59	23	82	115
102-20	16	20	80	26	66	30	107	150
102-24	20	24	96	31	79	47	166	233
102-32	26	32	128	42	106	78	278	389
102-38	32	38	152	49	125	117	416	583
102-46	38	46	184	60	152	162	580	812

Dimensional Notes:

- Fabrication tolerances dimensions: $\pm 2.5\%$
- All measurements are to be taken after proof testing.

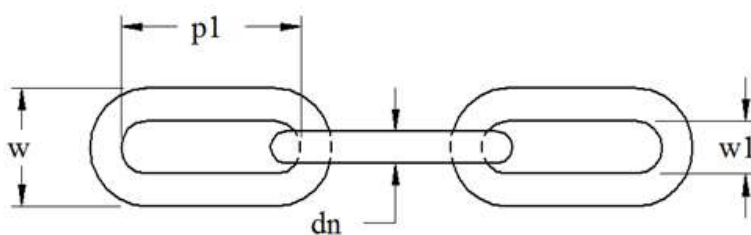
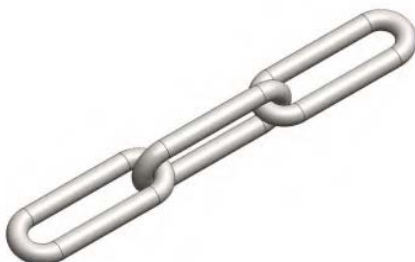
Material Notes:

- Remove all sharp edges and burrs

TECHNICAL DATA SHEET

End-Link	Grade	Data Sheet 102
	U2	Sheet 1 of 1
		Rev 2020.09.03

No. 103



		Long Link						
		Dimensions (mm)				Proof and Breaking Loads (kN)		
Linear Mass (kg/m)	Catalog Number	Bar Diameter	Pitch of Chain	Inside Width	Outside Width	Safe Working Load	Proof Load	Breaking Load
		dn	p1	w1	w (ref)			
3.2	103-14	14	98	20	48	23	82	115
6.9	103-20	20	140	28	68	47	166	233
11.3	103-26	26	182	36	88	78	278	389
17.6	103-32	32	224	45	109	117	416	583
23.6	103-38	38	266	53	129	162	580	812

Dimensional Notes:

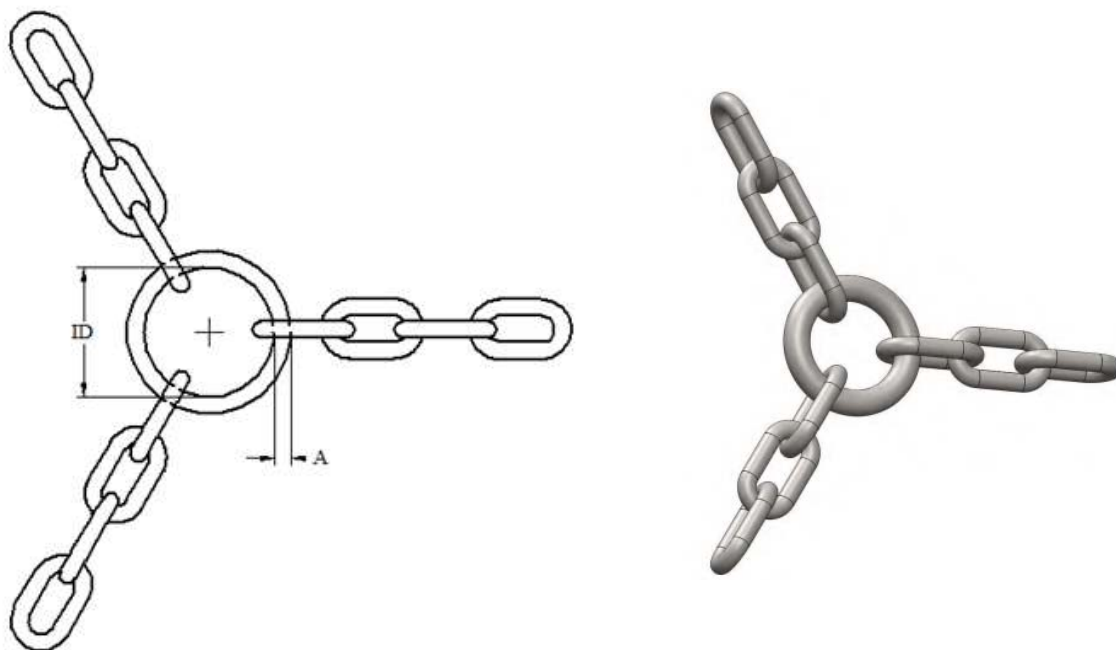
- Fabrication tolerances dimensions: $\pm 2.5\%$

All measurements are to be taken after proof testing.

TECHNICAL DATA SHEET

Long Link	Grade	Data Sheet 103
	U2	Sheet 1 of 1
		Rev 2020.09.03

No. 104



Bridle Ring						
Dimensions (mm)				Proof and Breaking Loads (kN)		
Catalog Number	For use with chain diameter	Bar Diameter	Inside Ring Diameter	Safe Working Load	Proof Load	Breaking Load
		A	ID			
104-20	14	20.0	70	23	82	115
104-28	20	28.0	100	47	166	233
104-36	26	36.0	130	78	278	389
104-45	32	45.0	160	117	416	583
104-53	38	53.0	190	162	580	812

Dimensional Notes:

- Fabrication tolerances dimensions: $\pm 2.5\%$
All measurements are to be taken after proof testing.
- kN = Kilonewton

Fiche Technique

Bridle Ring

Grade

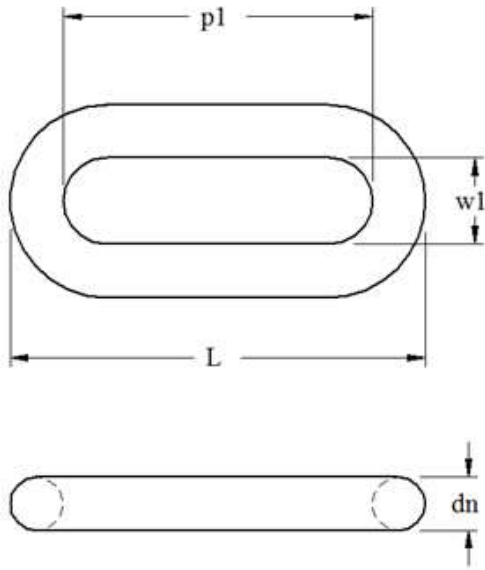
U2

Data Sheet 104

Sheet 1 of 1

Rev 2020.09.03

No. 105



Counterweight / Sinker lifting Link							
Catalog Number	Dimensions (mm)				Proof and Breaking Loads (kN)		
	Bar Diameter	Pitch	Inside Width	Outside Length	Safe Working Load	Proof Load	Breaking Load
	dn	p1	w1	L (ref)			
105-14	14	140	38	168	23	82	115
105-26	26	250	80	302	78	278	389
105-32	32	380	76	444	93	416	583
105-38	38	450	100	526	162	580	812
105-44	44	565	100	653	215	769	1076
105-60	60	835	120	955	388	1384	1938

Dimensional Notes:

- Fabrication tolerances dimensions: $\pm 2.5\%$
- All measurements are to be taken after proof testing.

TECHNICAL DATA SHEET

Counterweight / Sinker lifting Link

Grade

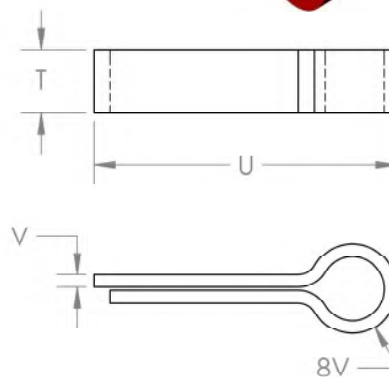
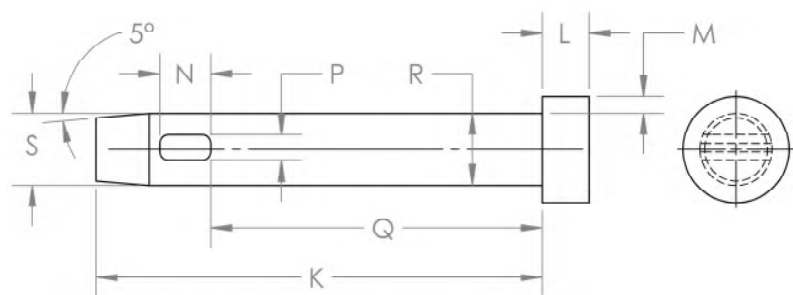
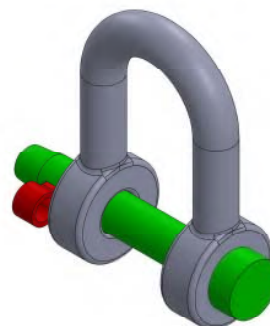
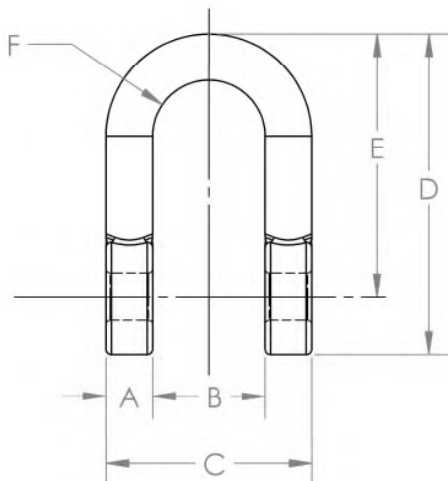
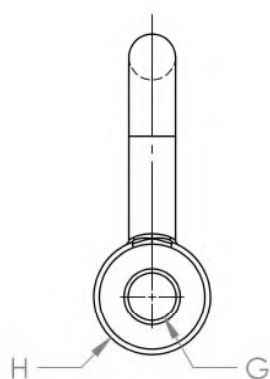
U2

Data Sheet 105

Sheet 1 of 1

Rev 2020.09.03

No. 201



TECHNICAL DATA SHEET

Chain Shackle

Grade

U2

Data Sheet 201

page 1 / 2

Rev 2020.09.03

Shackle Assembly												
Shackle												
Dimensions (mm)										Proof and Breaking Loads (kN)		
Catalog Number	For use with chain diameter	Bar Size A	B	C	D	E	F(rad)	G (dia)	H (dia)	Safe Working Load	Proof Load	Breaking Load
201-18	14	18	44	80	118.0	98	22.0	19	40	23	82	115
201-20	16	20	56	96	150.0	125	28.0	21	50	30	107	150
201-24	20	24	65	113	180.0	150	32.5	25	60	47	166	233
201-32	26	32	80	144	230.0	190	40.0	33	80	78	278	389
201-38	32	38	85	161	249.5	202	42.5	39	95	117	416	583
201-46	38	46	120	212	329.5	272	60.0	47	115	162	580	812
Pins									Cotter Keys			
Dimensions (mm)									Dimensions (mm)			
Catalog Number	K	L	M	N	P	Q	R(dia)	S(dia)	Catalog Number	T	U	V
201-18P	120	19	6	24	6	81	18	16	201-CK1	20	90	2
201-20P	140	19	6	24	10	97	20	18	201-CK2	20	90	4
201-24P	160	19	6	24	12	114	24	22				
201-32P	195	22	8	24	12	145	32	29				
201-38P	225	22	8	30	12	162	38	34	201-CK3	26	110	5
201-46P	270	36	8	30	12	213	46	42				

Dimensional Notes:

- Dimension tolerances:

Bar Size A: + 5%, - 0%

Pin diameter G: + 0%, - 2.5%

Hole diameter C: + 2.5%, - 0%

- Welded pin construction will not be accepted

TECHNICAL DATA SHEET

Chain Shackle

Grade

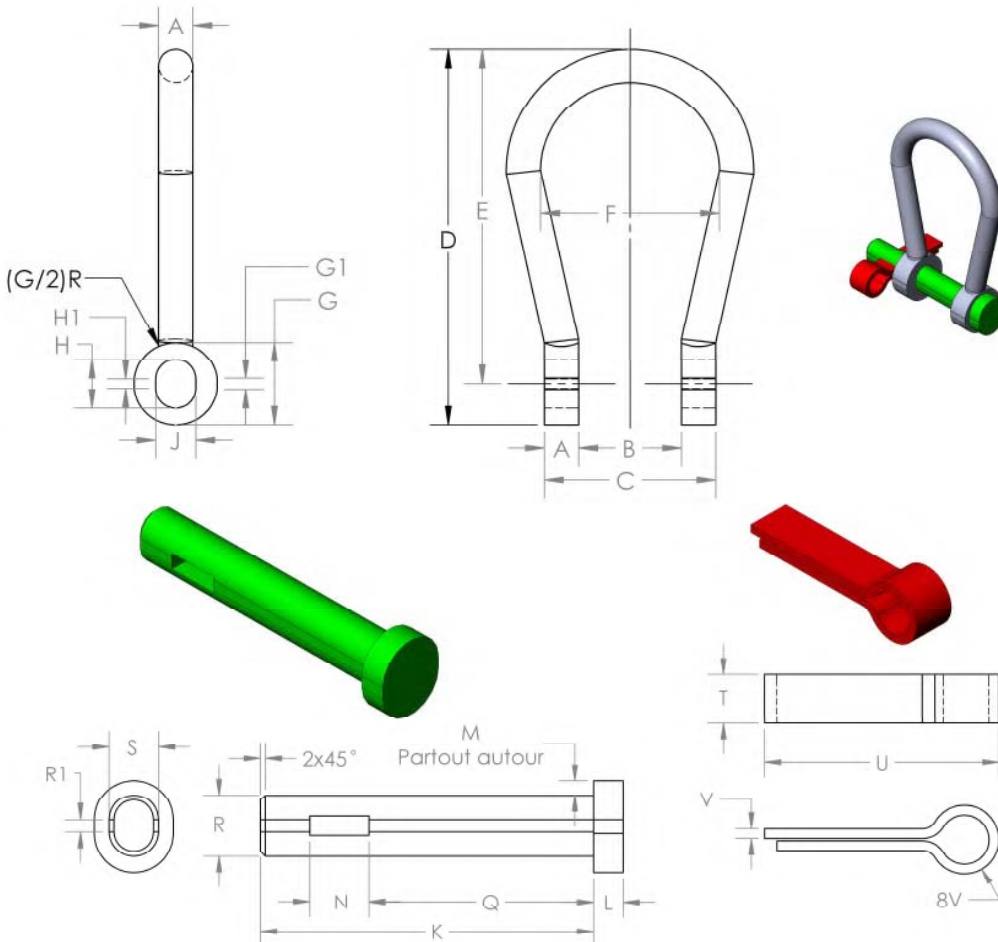
U2

Data Sheet 201

page 2 / 2

Rev 2020.09.03

No. 202



Fiche Technique

Bow Shackle

Grade

U2

Data Sheet 202

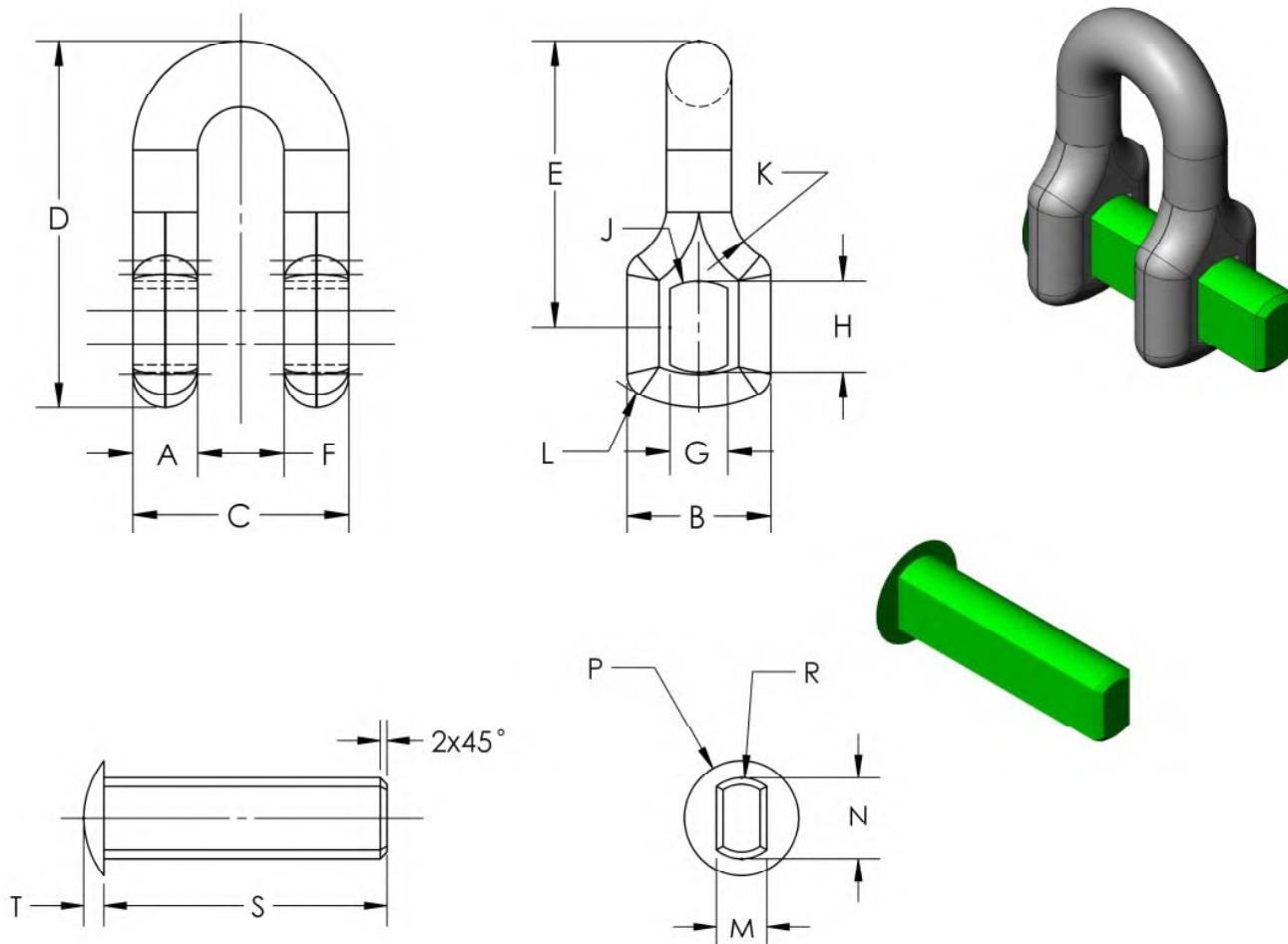
page 1 / 2

Rev 2020.09.03

Shackle Assembly															
Shackle															
Dimensions (mm)													Proof and Breaking Loads (kN)		
Catalog Number	For use with chain diameter	Bar Size A	B	C	D	E	F	G	G1	H	H1	J	Safe Working Load	Proof Load	Breaking Load
202-18	14	18	54	90	200	178	94	44	6	26	5	21	23	82	115
202-20	16	20	58	98	250	226	98	48	6	28	5	23	30	107	150
202-24	20	24	62	110	257	232	100	50	6	29	5	24	47	166	233
202-32	26	32	56	120	272	240	100	64	6	37	6	31	78	278	389
202-38	32	38	64	140	320	281	105	78	13	48	13	35	117	416	583
202-46	38	46	58	150	340	294	105	92	19	59	19	40	162	580	812
Pins										Cotter Keys					
Dimensions (mm)										Dimensions (mm)					
Catalog Number	K	L	M	N	P	Q	R	R1	S	Catalog Number	T	U	V		
202-18P	135	12	6	24	8	91	25	5	20	202-CK1	20	90	2		
202-20P	140	12	6	24	10	99	27	5	22						
202-24P	160	12	6	30	12	111	28	5	23	202-CK2	26	110	4		
202-32P	170	12	8	30	12	121	36	6	30						
202-38P	190	12	8	30	12	141	47	13	34	202-CK3	32	140	5		
202-46P	205	19	8	36	12	151	58	19	39						

</

No. 203



TECHNICAL DATA SHEET

Clinch Shackle

Grade

U2

Data Sheet 203

page 1 / 2

Rev 2020.09.03

Shackle Assembly															
Shackle															
Dimensions (mm)													Proof and Breaking Loads (kN)		
Catalog Number	For use with chain diameter	Bar Size A	B	C	D	E	F	G	H	J (rad)	K (rad)	L	Safe Working Load	Proof Load	Breaking Load
203-20	14	20	40	64	100	78	24	16	25	13	17	22	23	82	115
203-28	20	28	58	90	145	116	34	22	35	18	25	29	47	166	233
203-36	26	36	75	116	190	149	44	28	45	23	32	41	78	278	389
203-45	32	45	92	144	235	183	54	34	55	28	39	52	117	416	583
203-53	38	53	110	170	275	216	64	41	65	33	47	59	162	580	812
Pins															
Dimensions (mm)															
Catalog Number	M	N	P (dia)	R	S	T									
203-20P	15	24	34	12	84	6									
203-22P	16	26	35	13	91	6									
203-28P	21	34	44	17	110	8									
203-36P	27	44	54	22	136	8									
203-45P	33	54	66	27	164	9									
203-53P	40	64	76	32	190	9									

Dimensional

- Dimension tolerances:

Bar Size A: + 5%, - 0%

Pin diameter G: + 0%, - 2.5%

Hole diameter C: + 2.5%, - 0%

Other dimensions: ± 2.5%

- Pin must pass freely through holes in shackle during assembly

- Pins shall be straight with no curvature. Head and pin body shall be concentric

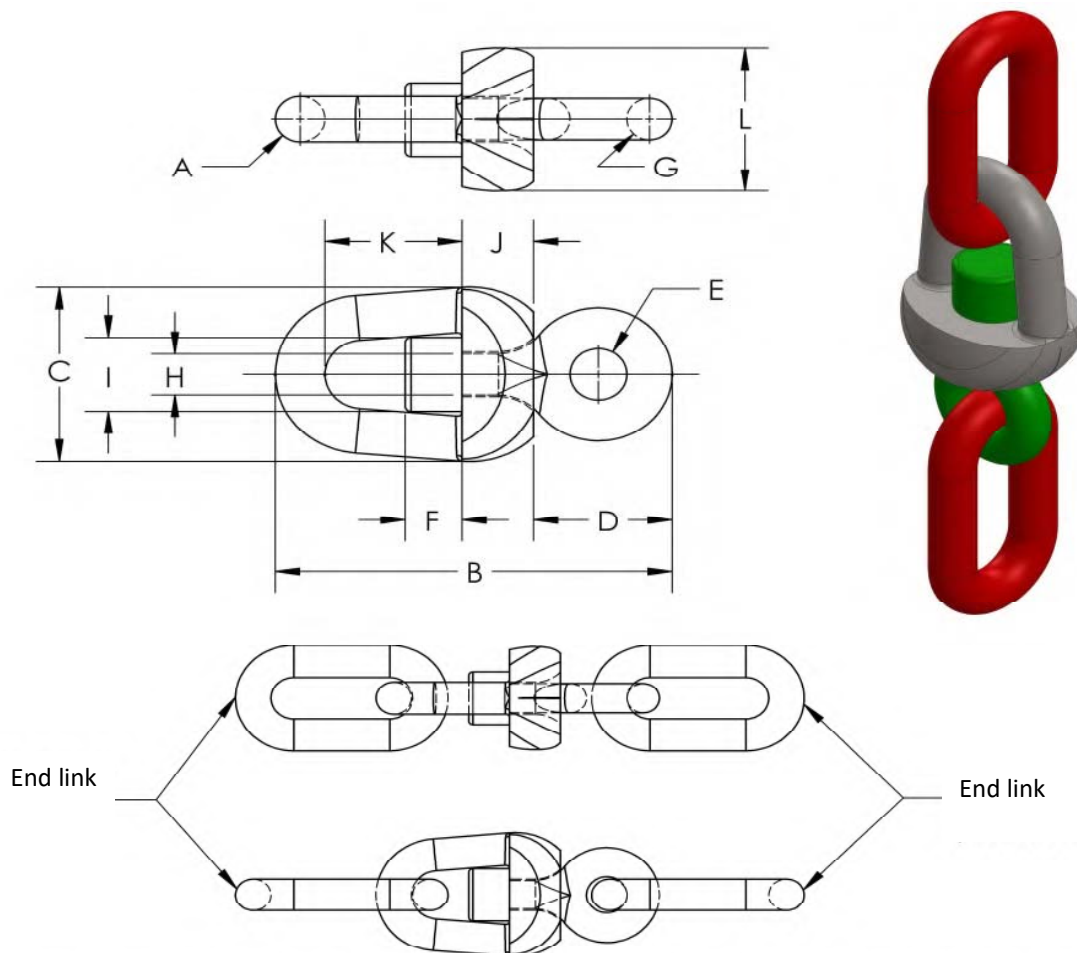
- Remove all sharp edges and burrs

Material Notes:

- Welded pin construction will not be accepted

TECHNICAL DATA SHEET		
Clinch Shackle	Grade	Data Sheet 203
	U2	page 2 / 2
		Rev 2020.09.03

No. 301



The assembly must be completed with one end link at each extremity

TECHNICAL DATA SHEET

Swivel	Grade	Data Sheet 301
	U2	page 1/2
		Rev 2020.09.03

Swivel Assembly									
Swivel									
Dimensions (mm)									
Catalog Number	End link	For use with chain diameter	A	B	C	D	E	F	G
301-18	102-18	14	18	137	66	48	20	20	15
301-20	102-20	16	20	155	75	54	22	22	18
301-24	102-24	20	24	194	94	68	28	28	22
301-32	102-32	26	32	252	122	88	36	36	29
301-38	102-38	32	38	310	150	109	45	45	35
301-46	102-46	38	46	369	179	129	53	53	42
Dimensions (mm)						Proof and Breaking Loads (kN)			
Catalog Number	H	I	J	K	L	Safe Working Load	Proof Load	Breaking Load	
301-18	17	28	25	47	48	23	82	115	
301-20	19	32	28	54	54	30	107	150	
301-24	24	40	35	67	68	47	166	233	
301-32	31	52	46	87	88	78	278	389	
301-38	38	64	56	107	109	117	416	583	
301-46	46	76	67	127	129	162	580	812	

Dimensional Notes :

- Swivel assembly includes two installed end links
- Dimensions tolerances:
Bar Size A : + 5%, -0%
Other dimensions : $\pm 2.5\%$
- All End links to conform to catalogue #102

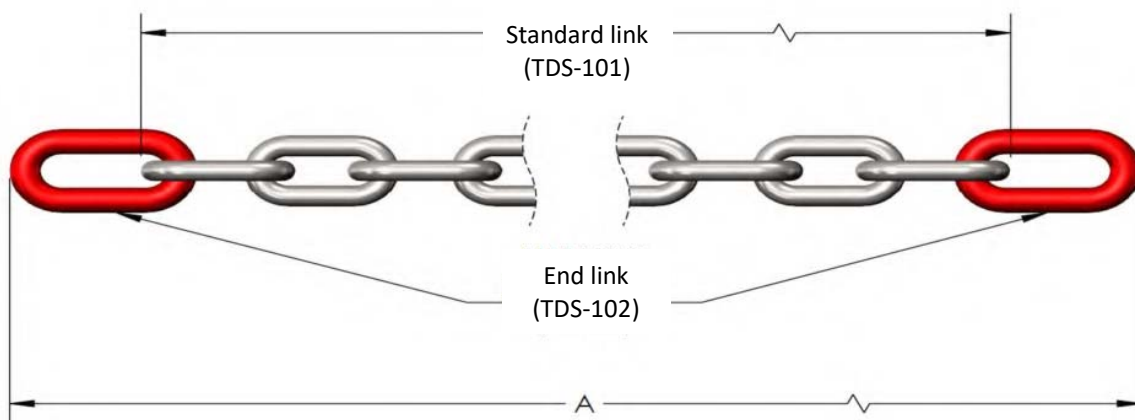
Material notes :

- Clearance between eyepiece and swivel shall not exceed 1 mm
- The swivel pin must be formed by upsetting or forged with eye-piece
- Threading and pinning will not be acceptable
- Remove all sharp edges and burrs

TECHNICAL DATA SHEET

Swivel	Grade	Data Sheet 301
	U2	page 2/2
		Rev 2020.09.03

No. 401



			Standard Link Chain				
			Dimension		Proof and Breaking Loads (kN)		
Mass (kg)	Catalog Number	End link	A (m)	Chain (mm)	Safe Working Load	Proof Load	Breaking Load
66.2	401-18.5-14	102-18	18.5	14	23	82	115
86.5	401-18.5-16	102-20		16	30	107	150
135.1	401-18.5-20	102-24		20	47	166	233
228.4	401-18.5-26	102-32		26	78	278	389
345.9	401-18.5-32	102-38		32	117	416	583
487.8	401-18.5-38	102-46		38	162	580	812
98.4	401-27.5-14	102-18	27.5	14	23	82	115
128.6	401-27.5-16	102-20		16	30	107	150
200.9	401-27.5-20	102-24		20	47	166	233
339.5	401-27.5-26	102-32		26	78	278	389
514.2	401-27.5-32	102-38		32	117	416	583
725.1	401-27.5-38	102-46		38	162	580	812

Dimensional Notes:

- Chain can be of two different length (dimension A)

Material Notes:

- All mooring accessories must conform to their FT

TECHNICAL DATA SHEET

Standard Link Chain

Grade

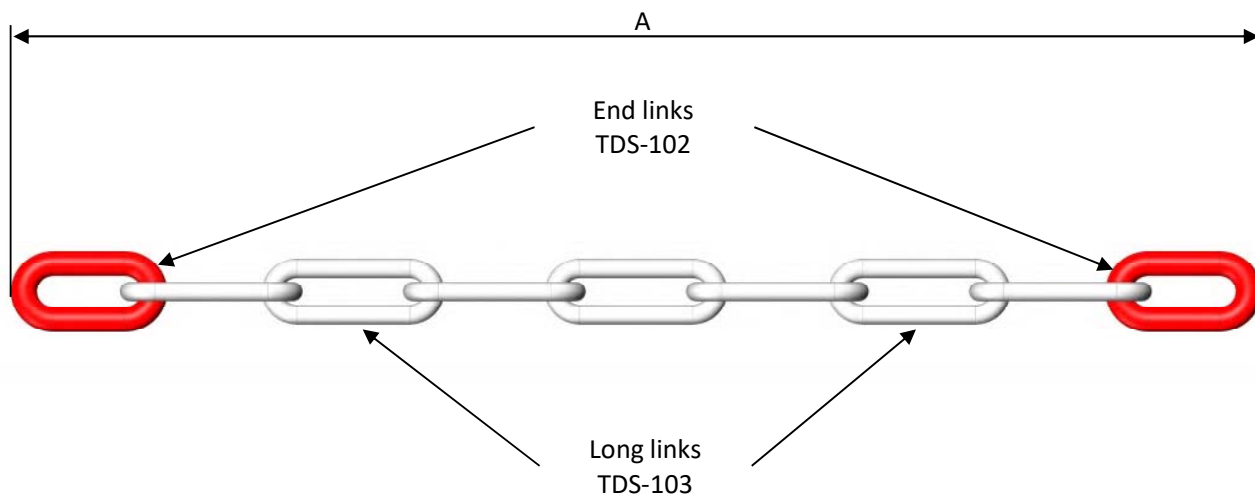
U2

Data Sheet 401

Sheet 1 of 1

Rev 2020.09.03

No. 402



			Long Link Chain				
			Dimension		Proof and Breaking Loads (kN)		
Mass (kg)	Catalog Number	End links	A (m)	Chain (mm)	Safe Working Load	Proof Load	Breaking Load
60.0	402-18.5-14	102-18	18.5	14	23	82	115
127.2	402-18.5-20	102-20		20	47	166	233
209.6	402-18.5-26	102-24		26	78	278	389
325.7	402-18.5-32	102-32		32	117	416	583
436.3	402-18.5-38	102-38		38	162	580	812
89.2	402-27.5-14	102-18	27.5	14	23	82	115
189.1	402-27.5-20	102-20		20	47	166	233
311.6	402-27.5-26	102-24		26	78	278	389
484.1	402-27.5-32	102-32		32	117	416	583
648.5	402-27.5-38	102-38		38	162	580	812

Dimensional Notes:

- Chain can be of two different length (dimension A)

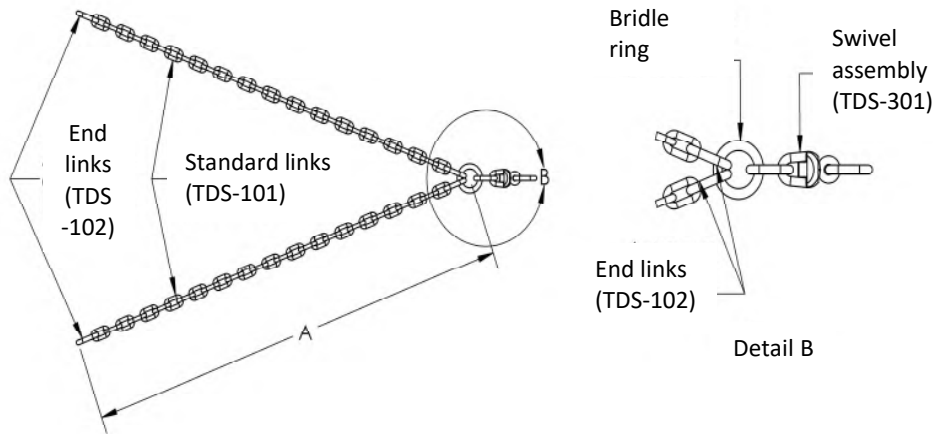
Material Notes:

- All mooring accessories must conform to their FT

TECHNICAL DATA SHEET

Long Link Chain	Grade	Data Sheet 402
	U2	Sheet 1 of 1
		Rev 2020.09.03

No. 501



- The two principal chains must have a odd number of links
- The two principal chains must have the same length
- All mooring accessories must be conform to their TDS

Dimensions

Catalog Number	A (m)	Standard Link	End-Link	Bridle Ring	Swivel
501-1	2.5	101-20	102-24	104-28	301-24
501-2	3.5	101-26	102-32	104-36	301-32
501-3	4	101-38	102-46	104-53	301-46

Notes:

- Dimension tolerances:
 - Bar Size A: + 5%, - 0%
 - Weight Tolerance: + 5.0%, - 2.5%
 - Other dimensions: $\pm 2.5\%$

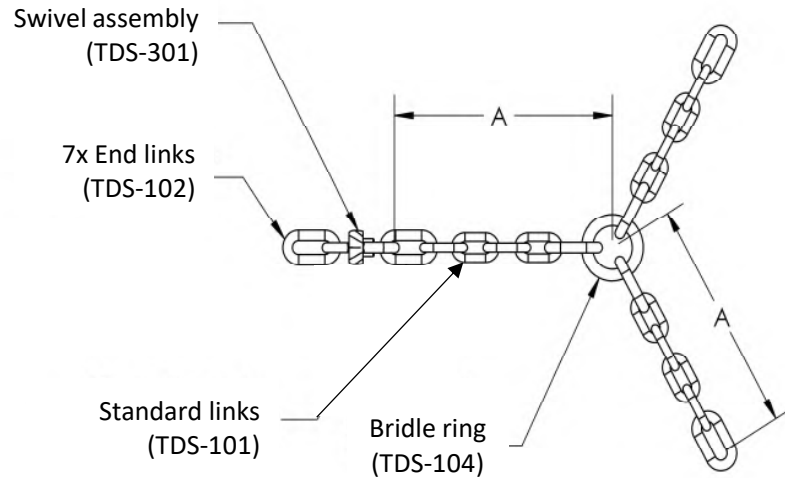
Material Notes:

- All dimensions to be symmetrical about center lines.

TECHNICAL DATA SHEET

V Bridle Assembly	Grade	Data Sheet 501
	U2	Sheet 1 of 1
		Rev 2020.09.03

No. 502



- All mooring accessories must conform to their TDS

Dimensions					
Catalog Number	A (m)	Standard Link	End-Link	Bridle Ring	Swivel
502-1	2.5	101-20	102-24	104-28	301-24
502-2	3	101-26	102-32	104-36	301-32
502-3	4.5	101-32	102-38	104-45	301-38
502-4	3	101-38	102-46	104-53	301-46
502-5	4	101-38	102-46	104-53	301-46

Dimensional

- Dimension tolerances:

Bar Size A: + 5%, - 0%

Weight Tolerance: + 5.0%, - 2.5%

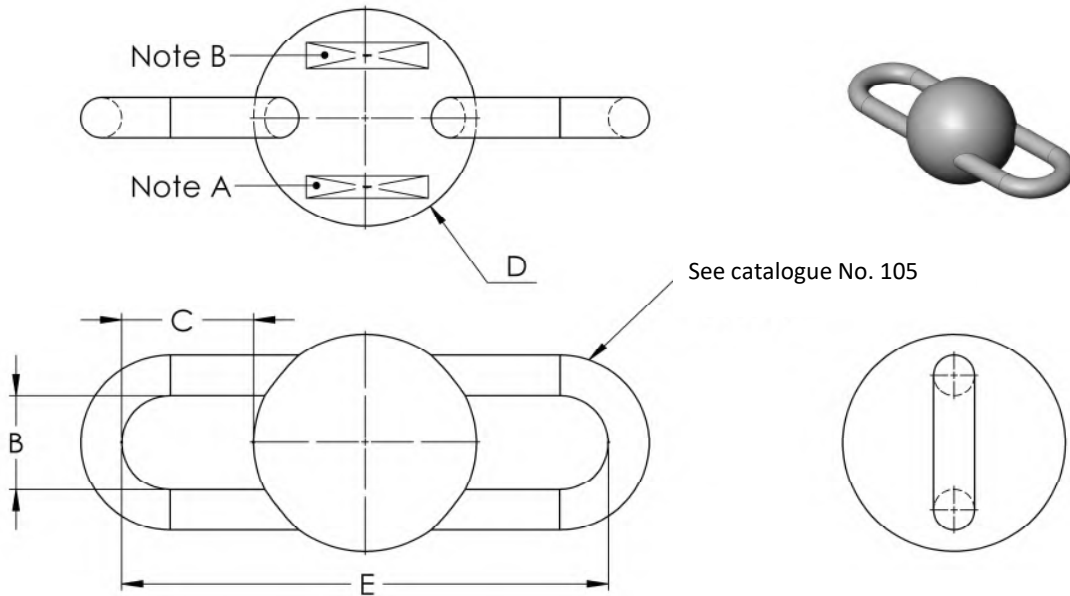
Other dimensions: $\pm 2.5\%$

Material Notes:

-Note: All material must meet the requirements of Lloyds registry grade U2 rolled steel bar.

TECHNICAL DATA SHEET		
Y Bridle Assembly	Grade	Data Sheet 502
	U2	Sheet 1 of 1
		Rev 2020.09.03

No. 601



Catalog Number	Weight (kg)	Dimensions (mm)				
		Link Catalog No.	B	C	D (ref)	E
601-0025	25	105-32	76	103.0	174	380
601-0050	50			75.0	230	
601-0075	75	105-44	100	156.5	252	565
601-0100	100			140.0	285	
601-0200	200			97.5	370	
601-0400	400	105-60	100	186.5	462	835
601-0750	750			127.5	580	
601-1000	1000			96.5	642	

Dimensional Notes:

- Dimension tolerances:

Bar Size A: + 5%, - 0%

Weight Tolerance: + 5.0%, - 2.5%

Other dimensions: $\pm 2.5\%$

Material Notes:

- The link shall be manufactured with material meeting the requirements of Lloyd's Register Grade U2 rolled steel bar.

- The balls shall be manufactured with cast iron

-Note A: Manufacturer ID (ABCD),Batch Number (BN (XXXX) and Year Date (ex. 2010) in raised cast lettering 25 mm.

-Note B: Mass given in Kilograms in raised cast letters 50 mm high.

-All dimensions to be symmetrical about center lines.

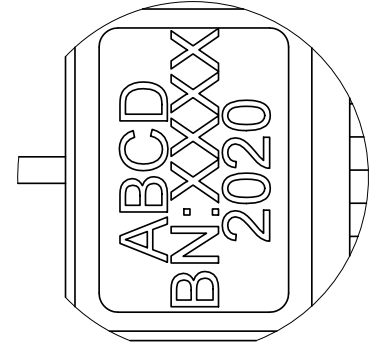
TECHNICAL DATA SHEET

Counterweight

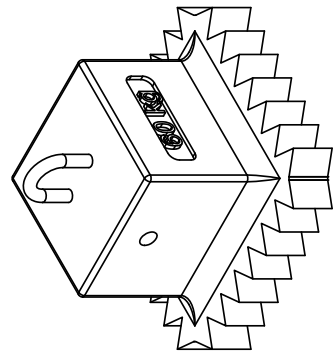
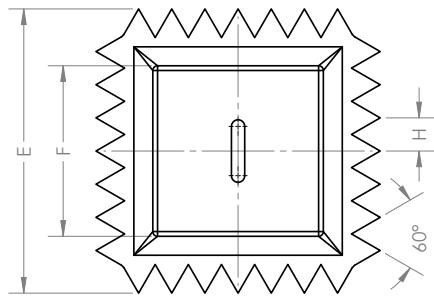
Data Sheet 601

Sheet 1 of 1

Rev 2020.09.03

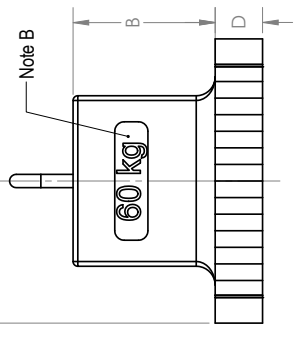
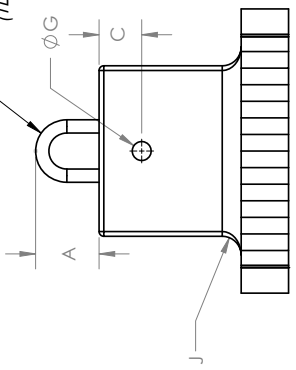
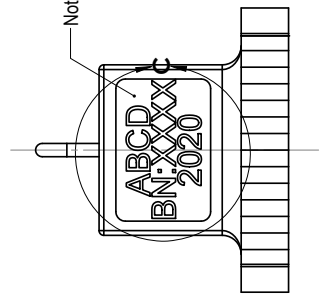


DÉTAIL/Detail/C



Mailon de levage contrepoind/crapauds

Counterweight / Sinker lifting link
(TDS 105)

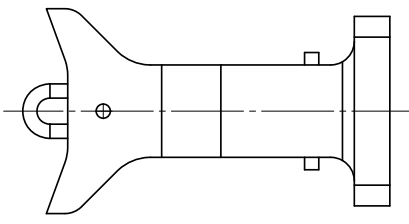
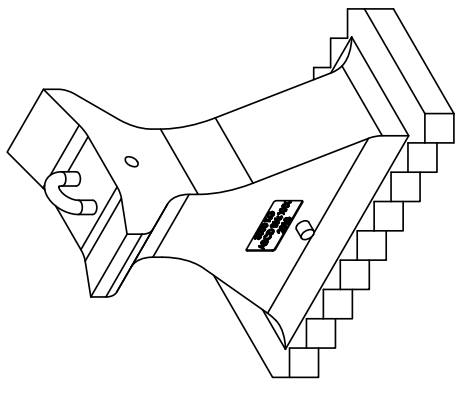
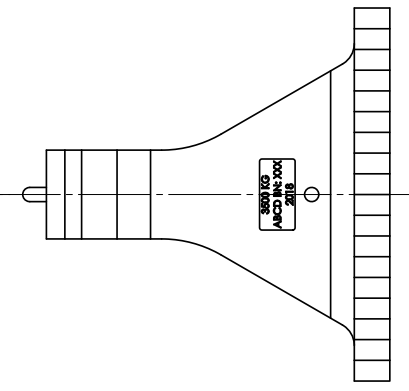
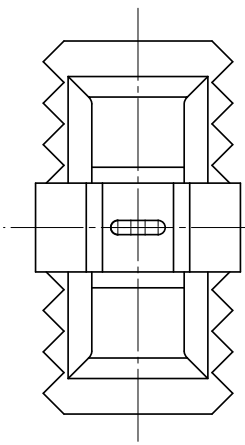


rev	description	by	date
0	ORIGINAL	GSP	yy-mm-dd

Asset - A-21

Drawing - Dessin
FT/TDS #602
Crapaud Dentelé
Serrated Sinker

designed - conception	date
drawn - dessiné	date
G. ST-PIERRE	2020-09-03
checked - vérifié	date
P.L. DELAGE	yyyy-mm-dd
approved - approuvé	date
P.L. DELAGE	yyyy-mm-dd
material - matériau	scale - échelle
	1:5
drawing no. - no. dessin	sheet/feuille
	1 / 2
	0



Notes

- 1) Fabrication d'ancres / *Anchor fabrication*
 - Chaque arête extérieur coulée doit être arrondi et avoir un rayon d'au moins 10mm et être libre de rebords aigus
 - *All external cast edges shall be rounded to a minimum 10 mm round and be free of sharp edges*
- 2) Marquage / *Marking*
 - Toutes marques doivent être fait en lettrage Arial de 50mm de hauteur tel qu'indiqué sur le dessin
 - *All markings must be in raised 50mm Arial Font lettering as indicated on the drawing*
- 3) Tolérances / *Tolerances*
 - Toutes tolérances dimensionnelles doivent suivre les pratiques exemplaires de l'industrie
 - *All tolerances must conform to industry norms*
 - Poids / *Weight* +5%, -0%

Note: Toutes les dimensions sont symétriques à partir des lignes médianes / *All dimensions are symmetrical about centerlines*



Fisheries and Oceans
Canada
Pêches et Océans
Canada
Coast Guard
Gardiennage
Costero

0	ORIGINAL	GSP	yyyy-mm-dd
rev	description	by	date
Asset - Asset			

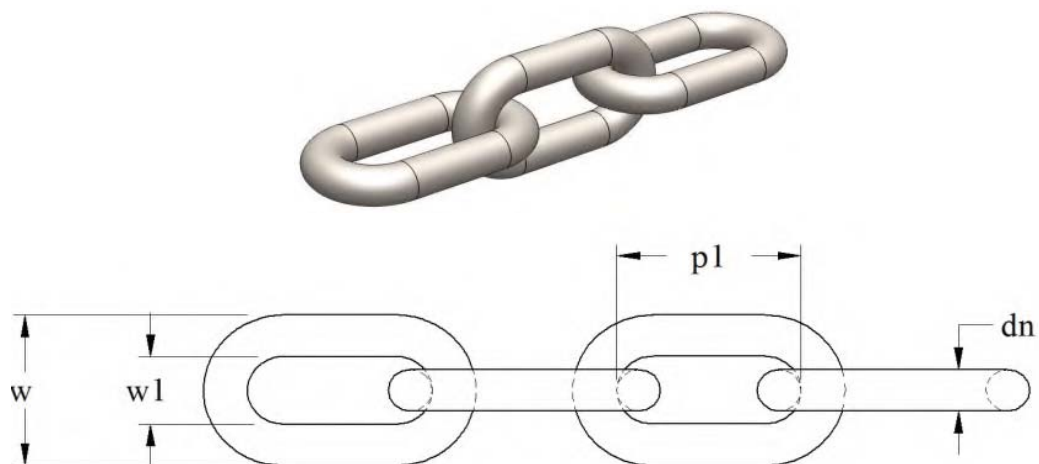
Drawing - Dessin
FT/IDS #603
Ancre dentelée
Serrated Anchor

designed - conception	date
Designby	yyyy-mm-dd
drawn - dessin	date
G. ST-PIERRE	2020-09-03
checked - vérifié	date
P.L. DELAGE	yyyy-mm-dd
approved - approuvé	date
P.L. DELAGE	yyyy-mm-dd
material - matériau	scale - échelle
	1:20
drawing no. - no. dessin	sheet/feuille
	1 / 3
	0

Appendix B TDS AND TECHNICAL DRAWINGS – STEEL GRADE U3

TDS #	Description
100 serie : Components	
101-U3	Standard Link
102-U3	End-Link
103-U3	Long Link
104-U3	Bridle Ring
200 serie: Shackle Assembly	
201-U3	Chain Shackle
202-U3	Bow Shackle
203-U3	Clinch Shackle
300 serie: Swivel Assembly	
301-U3	Swivel
400 serie: Chain Assembly	
401-U3	Standard Link Chain
402-U3	Long Link Chain
500 serie: Bridle Assembly	
501-U3	V Bridle Assembly
502-U3	Y Bridle Assembly

No.101-U3



		Maillon standard						
		Dimension (mm)				Charges d'épreuve et de rupture (kN)		
Masse linéaire (kg/m)	Numéro de catalogue	Diamètre de la barre	Pas de chaîne	Largeur int.	Largeur ext.	Charge d'utilisation	Charge d'épreuve	Charge de rupture
		dn	p1	w1	w(ref)			
3.6	101-U3-14	14	56	20	48	33	115	165
4.7	101-U3-16	16	64	22	54	30	150	150
7.3	101-U3-20	20	80	28	68	67	233	333
12.3	101-U3-26	26	104	36	88	111	389	556
18.7	101-U3-32	32	128	45	109	166	583	832
26.4	101-U3-38	38	152	53	129	232	812	1160

Notes de dimensions :

- Les tolérances de fabrication sont de $\pm 2,5 \%$
- Toutes les mesures doivent être prise après le test de charge d'épreuve.

Notes de matériaux :

- Enlever tous bords et toutes barbes tranchantes

Fiche technique

Maillon standard

Grade

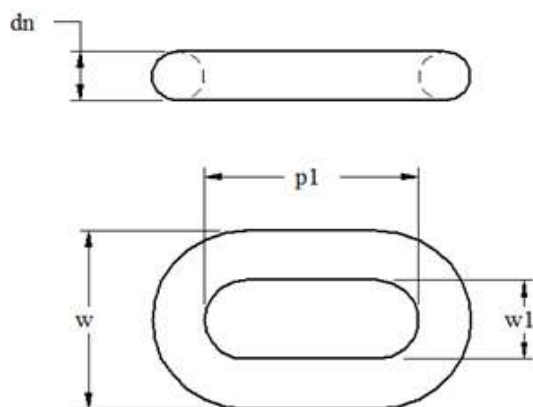
U3

Fiche technique 101-U3

page 1 de 1

Rév 2020.09.03

No. 102-U3



Maillon d'extrémité								
Numéro de catalogue	Utilise avec la chaîne de diamètre	Dimensions (mm)				Charges d'épreuve et de rupture (kN)		
		Diamètre de la barre	Pas de chaîne	Largeur int.	Largeur ext.	Charge d'utilisation	Charge d'épreuve	Charge de rupture
		dn	$p1$	$w1$	$w(ref)$			
102-U3-18	14	18	72	23	59	33	115	165
102-U3-20	16	20	80	26	66	30	150	150
102-U3-24	20	24	96	31	79	67	233	333
102-U3-32	26	32	128	42	106	111	389	556
102-U3-38	32	38	152	49	125	166	583	832
102-U3-46	38	46	184	60	152	232	812	1160

Notes de dimensions :

- Les tolérances de fabrication sont de $\pm 2,5 \%$
- Toutes les mesures doivent être prise après le test de charge d'épreuve.

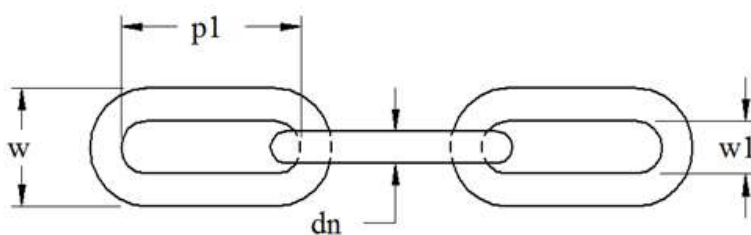
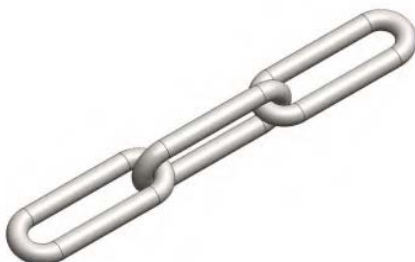
Notes de matériaux :

- Enlever tous bords et toutes barbes tranchantes

Fiche technique

Maillon d'extrémité	Grade	Fiche technique 102-U3
	U3	page 1 de 1
		Rév 2020.09.03

No. 103-U3



		Maillon long						
		Dimensions (mm)				Charges d'épreuve et de rupture (kN)		
Masse linéaire (kg/m)	Numéro de catalogue	Diamètre de la barre	Pas de chaîne	Largeur int.	Largeur ext.	Charge d'utilisation	Charge d'épreuve	Charge de rupture
		dn	p1	w1	w (ref)			
3.2	103-U3-14	14	98	20	48	33	115	165
6.9	103-U3-20	20	140	28	68	67	233	333
11.3	103-U3-26	26	182	36	88	111	389	556
17.6	103-U3-32	32	224	45	109	166	583	832
23.6	103-U3-38	38	266	53	129	232	812	1160

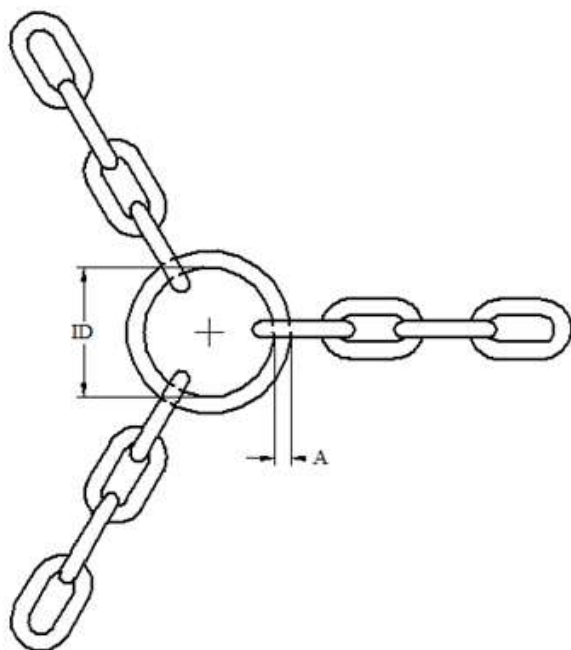
Notes de dimensions :

- Les tolérances de fabrication sont de $\pm 2,5\%$
- Toutes les mesures doivent être prise après le test de charge d'épreuve.

Fiche technique

Maillon long	Grade	Fiche technique 103-U3
	U3	page 1 de 1
		Rév 2020.09.03

No. 104-U3



Anneau de bride						
Dimensions (mm)				Charges d'épreuve et de rupture (kN)		
Numéro de catalogue	Utilise avec la chaîne de diamètre	Diamètre de la barre	Diamètre d'anneau in.	Charge d'utilisation	Charge d'épreuve	Charge de rupture
		A	ID			
104-U3-20	14	20.0	70	33	115	165
104-U3-28	20	28.0	100	67	233	333
104-U3-36	26	36.0	130	111	389	556
104-U3-45	32	45.0	160	166	583	832
104-U3-53	38	53.0	190	232	812	1160

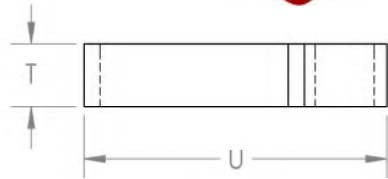
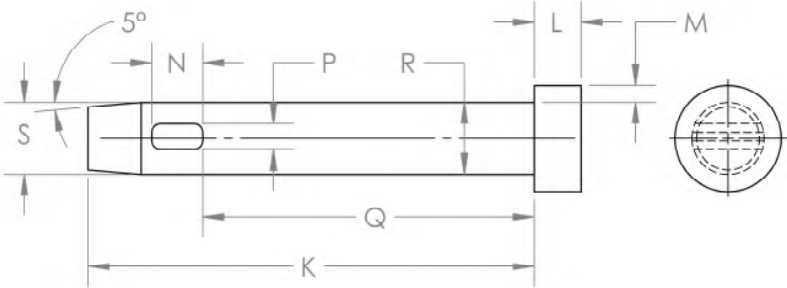
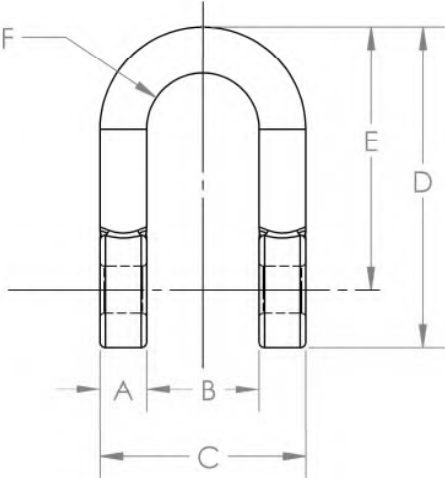
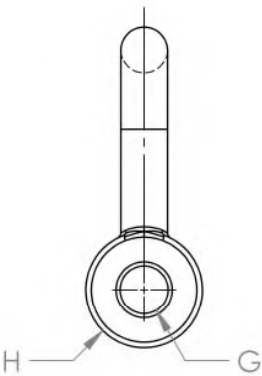
Notes de dimensions :

- Les tolérances de fabrication sont de $\pm 2,5 \%$
Toutes les mesures doivent être prise après le test de charge d'épreuve.
- kN = Kilonewton

Fiche Technique

Anneau de bride	Grade	Fiche technique 104-U3
	U3	page 1 de 1
		Rév 2020.09.03

No. 201-U3



Fiche technique

Manille de chaîne

Grade
U3

Fiche technique 201-U3
page 1 / 2
Rév 2020.09.03

Ensemble de manille												
Manille												
Dimensions (mm)										Charges d'épreuve et de rupture (kN)		
Numéro de catalogue	Utilise avec la chaîne de diamètre	Dimensions de la barre A	B	C	D	E	F(rad)	G (dia)	H (dia)	Charge d'utilisation	Charge d'épreuve	Charge de rupture
201-U3-18	14	18	44	80	118.0	98	22.0	19	40	33	115	165
201-U3-20	16	20	56	96	150.0	125	28.0	21	50	30	150	150
201-U3-24	20	24	65	113	180.0	150	32.5	25	60	67	233	333
201-U3-32	26	32	80	144	230.0	190	40.0	33	80	111	389	556
201-U3-38	32	38	85	161	249.5	202	42.5	39	95	166	583	832
201-U3-46	38	46	120	212	329.5	272	60.0	47	115	232	812	1160
Goupilles									Clavettes			
Dimensions (mm)									Dimensions (mm)			
Numéro de catalogue	K	L	M	N	P	Q	R(dia)	S(dia)	Numéro de catalogue	T	U	V
201-U3-18P	120	19	6	24	6	81	18	16	201-CK1	20	90	2
201-U3-20P	140	19	6	24	10	97	20	18	201-CK2	20	90	4
201-U3-24P	160	19	6	24	12	114	24	22				
201-U3-32P	195	22	8	24	12	145	32	29				
201-U3-38P	225	22	8	30	12	162	38	34	201-CK3	26	110	5
201-U3-46P	270	36	8	30	12	213	46	42				

Notes de dimensions :

- Les tolérances de dimension :

Dimensions de la barre : + 5 %, - 0 %

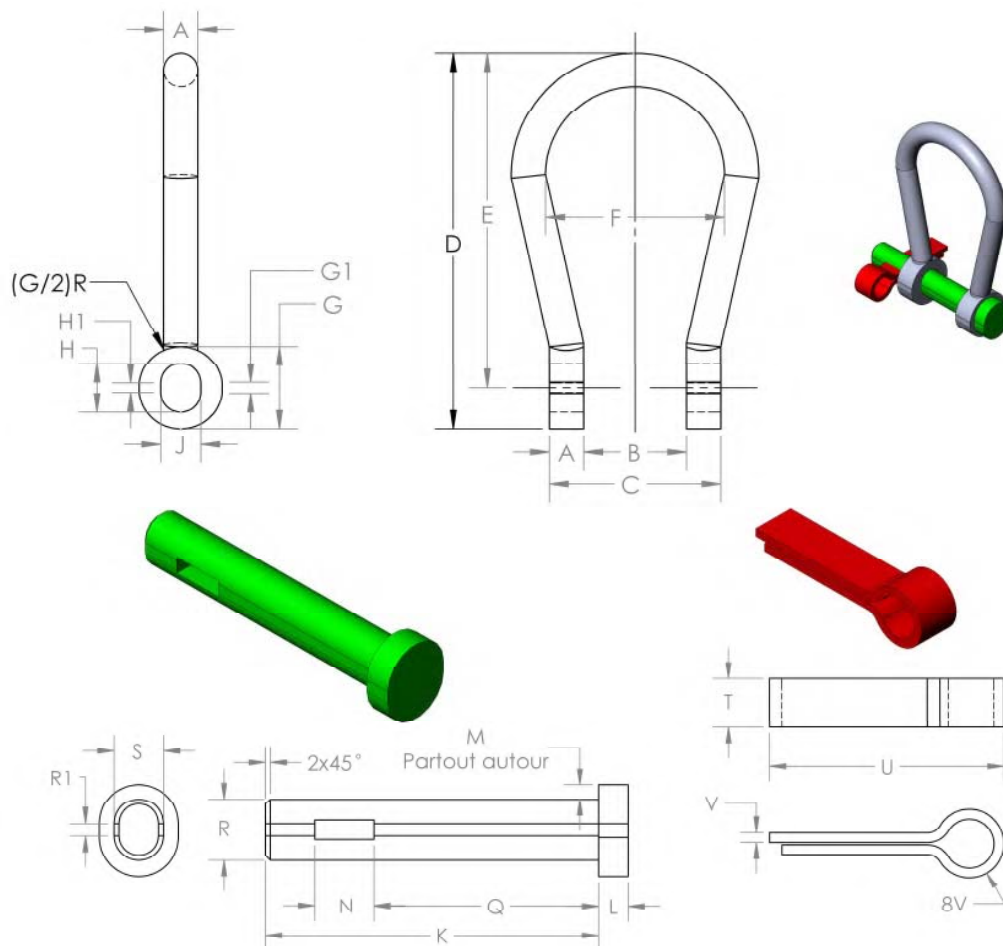
Goupille: + 0 %, - 2,5 %

Trou : + 2,5 %, -0 %

- Aucune soudure n'est permise sur les goupilles

Fiche technique		
Manille de chaîne	Grade	Fiche technique 201-U3
	U3	page 2 / 2
		Rév 2020.09.03

No. 202-U3



Fiche Technique

Manille lyre

Grade

U3

Fiche technique 202-U3

page 1 / 2

Rév 2020.09.03

Ensemble de manille															
Manille															
Dimensions (mm)													Charges d'épreuve et de rupture (kN)		
Numéro de catalogue	Utilise avec la chaîne de diamètre	Dimensions de la barre A	B	C	D	E	F	G	G1	H	H1	J	Charge d'utilisation	Charge d'épreuve	Charge de rupture
202-U3-18	14	18	54	90	200	178	94	44	6	26	5	21	33	115	165
202-U3-20	16	20	58	98	250	226	98	48	6	28	5	23	30	150	150
202-U3-24	20	24	62	110	257	232	100	50	6	29	5	24	67	233	333
202-U3-32	26	32	56	120	272	240	100	64	6	37	6	31	111	389	556
202-U3-38	32	38	64	140	320	281	105	78	13	48	13	35	166	583	832
202-U3-46	38	46	58	150	340	294	105	92	19	59	19	40	232	812	1160
Goupilles										Clavettes					
Dimensions (mm)										Dimensions (mm)					
Numéro de catalogue	K	L	M	N	P	Q	R	R1	S	Numéro de catalogue	T	U	V		
202-U3-18P	135	12	6	24	8	91	25	5	20	202-CK1	20	90	2		
202-U3-20P	140	12	6	24	10	99	27	5	22						
202-U3-24P	160	12	6	30	12	111	28	5	23						
202-U3-32P	170	12	8	30	12	121	36	6	30	202-CK2	26	110	4		
202-U3-38P	190	12	8	30	12	141	47	13	34						
202-U3-46P	205	19	8	36	12	151	58	19	39	202-CK3	32	140	5		

Notes de dimensions :

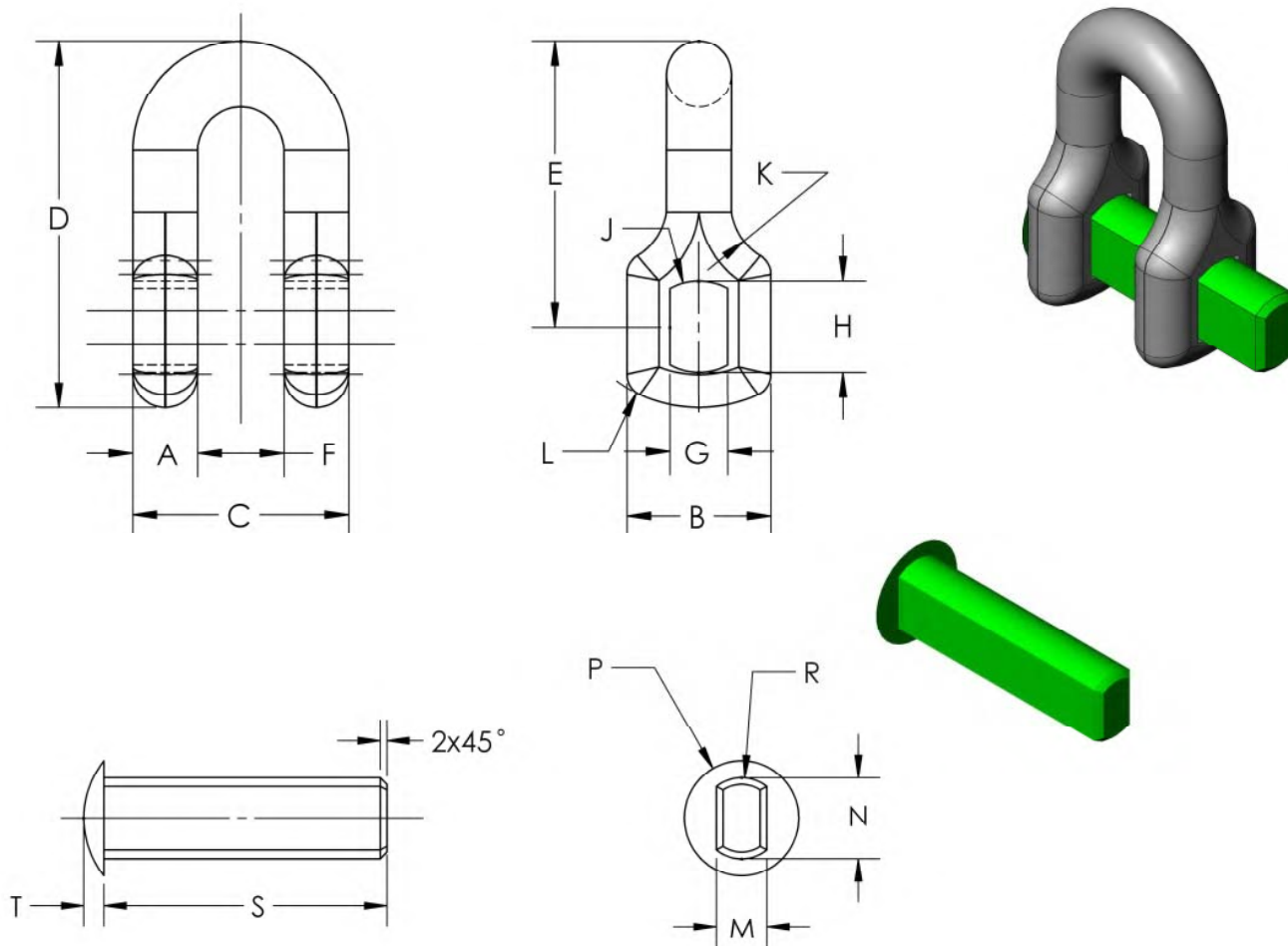
- La manille comprend la goupille et la clavette appropriées.
- Les tolérances de dimension :
 - Dimensions de la barre : + 5 %, - 0 %
 - Goupille: + 0 %, - 2,5 %
 - Trou : + 2,5 %, -0 %
 - Autres dimensions : ± 2,5 %
- À l'assemblage, la goupille doit passer librement dans le trou de la manille
- Enlever tous bords et toutes barbes tranchantes
- Les goupilles doivent être droite; les courbures sont inadmissibles. Le tête et le corps de la goupille doivent être concentrique de l'une a l'autre.

Notes de matériaux :

- Aucune soudure n'est permise sur les goupilles

Fiche Technique		
Manille lyre	Grade	Fiche technique 202-U3
	U3	page 2 / 2
		Rév 2020.09.03

No. 203-U3



Fiche technique

Manille à rivet

Grade

Fiche technique 203-U3

U3

page 1 / 2

Rév 2020.09.03

Ensemble de manille

Manille

Dimensions (mm)													Charges d'épreuve et de rupture (kN)		
Numéro de catalogue	Utilise avec la chaîne de diamètre	Dimensions de la barre A	B	C	D	E	F	G	H	J (rad)	K (rad)	L	Charge d'utilisation	Charge d'épreuve	Charge de rupture
203-U3-20	14	20	40	64	100	78	24	16	25	13	17	22	33	115	165
203-U3-28	20	28	58	90	145	116	34	22	35	18	25	29	67	233	333
203-U3-36	26	36	75	116	190	149	44	28	45	23	32	41	111	389	556
203-U3-45	32	45	92	144	235	183	54	34	55	28	39	52	166	583	832
203-U3-53	38	53	110	170	275	216	64	41	65	33	47	59	232	812	1160

Goupilles

Dimensions (mm)

Numéro de catalogue	M	N	P (dia)	R	S	T
203-U3-20P	15	24	34	12	84	6
203-U3-22P	16	26	35	13	91	6
203-U3-28P	21	34	44	17	110	8
203-U3-36P	27	44	54	22	136	8
203-U3-45P	33	54	66	27	164	9
203-U3-53P	40	64	76	32	190	9

Notes de

- Les tolérances de dimension :

Dimensions de la barre : + 5 %, - 0 %

Goupille: + 0 %, - 2,5 %

Trou : + 2,5 %, -0 %

Autres dimensions : ± 2,5 %

-À l'assemblage, la goupille doit passer librement dans le trou de la manille

-Les goupilles doivent être droite; les courbures sont inadmissibles. Le tête et le corps de la goupille doivent être concentrique de l'une a l'autre.

-Enlever tous bords et toutes barbes tranchantes

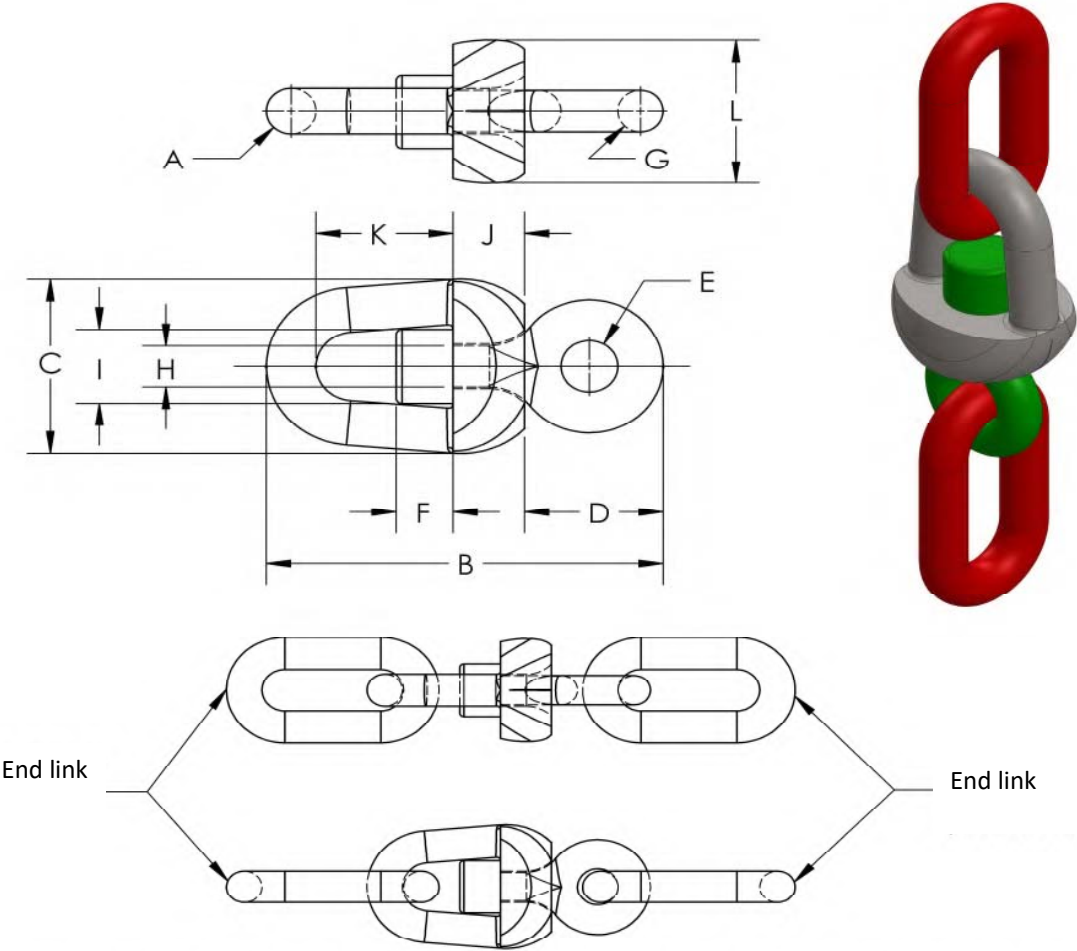
Notes de matériaux :

- Aucune soudure n'est permise sur les goupilles

Fiche technique

Manille à rivet	Grade	Fiche technique 203-U3
	U3	page 2 / 2
		Rév 2020.09.03

No. 301-U3



The assembly must be completed with one end link at each extremity

Fiche technique

Émerillon	Grade	Fiche technique 301-U3
	U3	page 1/2
		Rév 2020.09.03

Ensemble d'émerillon									
Émerillon									
Dimensions (mm)									
Numéro de catalogue	End link	Utilise avec la chaîne de diamètre	A	B	C	D	E	F	G
301-U3-18	102-U3-18	14	18	137	66	48	20	20	15
301-U3-20	102-U3-20	16	20	155	75	54	22	22	18
301-U3-24	102-U3-24	20	24	194	94	68	28	28	22
301-U3-32	102-U3-32	26	32	252	122	88	36	36	29
301-U3-38	102-U3-38	32	38	310	150	109	45	45	35
301-U3-46	102-U3-46	38	46	369	179	129	53	53	42
Dimensions (mm)						Charges d'épreuve et de rupture (kN)			
Numéro de catalogue	H	I	J	K	L	Charge d'utilisation	Charge d'épreuve	Charge de rupture	
301-U3-18	17	28	25	47	48	33	115	165	
301-U3-20	19	32	28	54	54	30	150	150	
301-U3-24	24	40	35	67	68	67	233	333	
301-U3-32	31	52	46	87	88	111	389	556	
301-U3-38	38	64	56	107	109	166	583	832	
301-U3-46	46	76	67	127	129	232	812	1160	

Dimensional Notes :

- Swivel assembly includes two installed end links
- Dimensions tolerances:
Bar Size A : + 5%, -0%
Other dimensions : $\pm 2.5\%$
- All End links to conform to catalogue #102

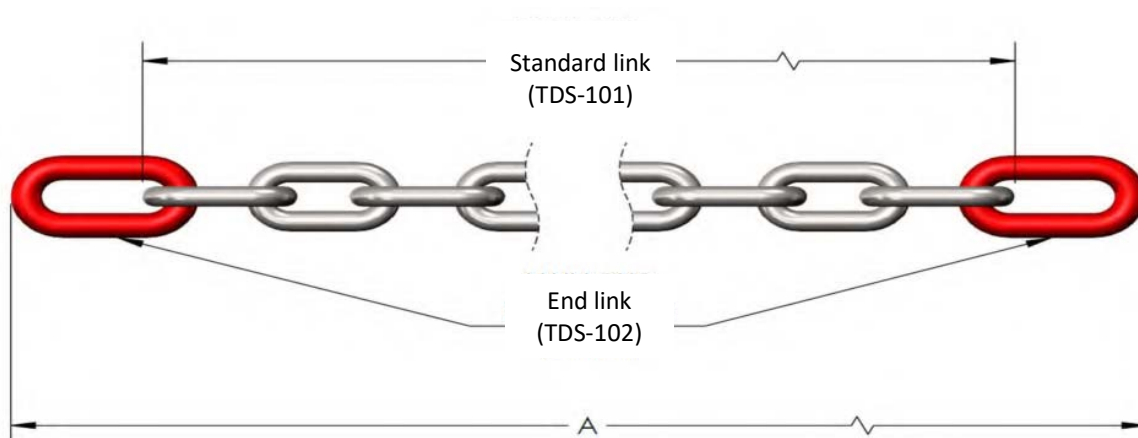
Material notes :

- Clearance between eyepiece and swivel shall not exceed 1 mm
- The swivel pin must be formed by upsetting or forged with eye-piece
- Threading and pinning will not be acceptable
- Remove all sharp edges and burrs

Fiche technique

Émerillon	Grade	Fiche technique 301-U3
	U3	page 2/2
		Rév 2020.09.03

No. 401-U3



Chaîne à maillons standards							
			Dimension		Charges d'épreuve et de rupture (kN)		
Mass (kg)	Numéro de catalogue	End link	A (m)	Chain (mm)	Charge d'utilisation	Charge d'épreuve	Charge de rupture
66.2	401-U3-18.5-14	102-U3-18	18.5	14	33	115	165
86.5	401-U3-18.5-16	102-U3-20		16	30	150	150
135.1	401-U3-18.5-20	102-U3-24		20	67	233	333
228.4	401-U3-18.5-26	102-U3-32		26	111	389	556
345.9	401-U3-18.5-32	102-U3-38		32	166	583	832
487.8	401-U3-18.5-38	102-U3-46		38	232	812	1160
98.4	401-U3-27.5-14	102-U3-18	27.5	14	33	115	165
128.6	401-U3-27.5-16	102-U3-20		16	30	150	150
200.9	401-U3-27.5-20	102-U3-24		20	67	233	333
339.5	401-U3-27.5-26	102-U3-32		26	111	389	556
514.2	401-U3-27.5-32	102-U3-38		32	166	583	832
725.1	401-U3-27.5-38	102-U3-46		38	232	812	1160

Notes de dimensions :

- La chaîne est disponible en deux différentes longueurs (dimension A)

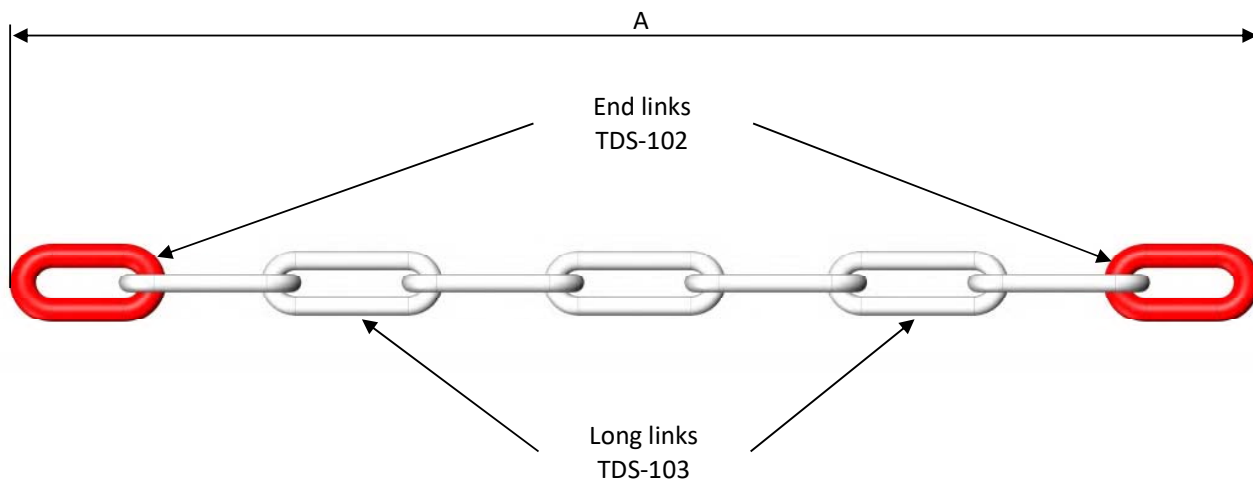
Notes de matériaux :

- Tous les composants d'amarrage doivent être conformes à leur FT.

Fiche technique

Chaîne à maillons standards	Grade	Fiche technique 401-U3
	U3	page 1 de 1
		Rév 2020.09.03

No. 402-U3



			Chaîne à maillons longs				
			Dimension		Charges d'épreuve et de rupture (kN)		
Mass (kg)	Número de catalogue	End links	A (m)	Chain (mm)	Charge d'utilisation	Charge d'épreuve	Charge de rupture
60.0	402-U3-18.5-14	102-U3-18	18.5	14	33	115	165
127.2	402-U3-18.5-20	102-U3-20		20	67	233	333
209.6	402-U3-18.5-26	102-U3-24		26	111	389	556
325.7	402-U3-18.5-32	102-U3-32		32	166	583	832
436.3	402-U3-18.5-38	102-U3-38		38	232	812	1160
89.2	402-U3-27.5-14	102-U3-18	27.5	14	33	115	165
189.1	402-U3-27.5-20	102-U3-20		20	67	233	333
311.6	402-U3-27.5-26	102-U3-24		26	111	389	556
484.1	402-U3-27.5-32	102-U3-32		32	166	583	832
648.5	402-U3-27.5-38	102-U3-38		38	232	812	1160

Notes de dimensions :

- La chaîne est disponible en deux différentes longueurs (dimension A)

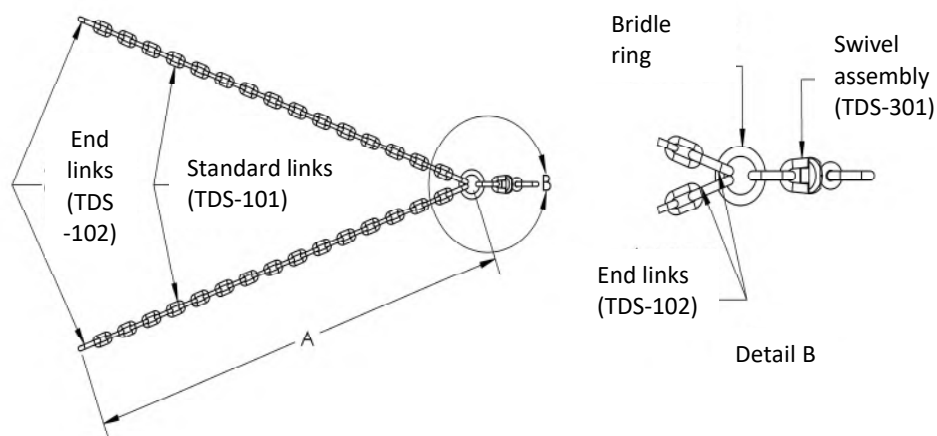
Notes de matériaux :

- Tous les composants d'amarrage doivent être conformes à leur FT.

Fiche technique

Chaîne à maillons longs	Grade	Fiche technique 402-U3
	U3	page 1 de 1
		Rév 2020.09.03

No. 501-U3



- The two principal chains must have a odd number of links
- The two principal chains must have the same length
- All mooring accessories must be conform to their TDS

Dimensions					
Numéro de catalogue	A (m)	Maillon standard	Maillon d'extrémité	Anneau de bride	Émerillon
501-U3-1	2.5	101-U3-20	102-U3-24	104-U3-28	301-U3-24
501-U3-2	3.5	101-U3-26	102-U3-32	104-U3-36	301-U3-32
501-U3-3	4	101-U3-38	102-U3-46	104-U3-53	301-U3-46

dimensions :

- Les tolérances de dimension :
 - Dimensions de la barre : + 5 %, - 0 %
 - Tolerance de poids: + 5.0%, - 2.5%
 - Autres dimensions : $\pm 2,5$ %

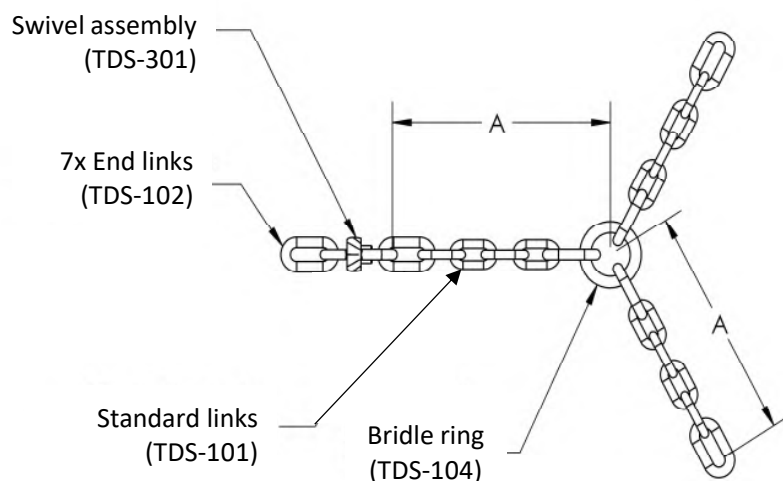
Notes de matériaux :

- Toutes les dimensions doit être symétriques a partir des lignes de centre.

Fiche technique

Assemblage de bride en V	Grade	Fiche technique 501-U3
	U3	page 1 de 1
		Rév 2020.09.03

No. 502-U3



- All mooring accessories must conform to their TDS

Dimensions					
Numéro de catalogue	A (m)	Maillon standard	Maillon d'extrémité	Anneau de bride	Émerillon
502-U3-1	2.5	101-U3-20	102-U3-24	104-U3-28	301-U3-24
502-U3-2	3	101-U3-26	102-U3-32	104-U3-36	301-U3-32
502-U3-3	4.5	101-U3-32	102-U3-38	104-U3-45	301-U3-38
502-U3-4	3	101-U3-38	102-U3-46	104-U3-53	301-U3-46
502-U3-5	4	101-U3-38	102-U3-46	104-U3-53	301-U3-46

Notes de

- Les tolérances de dimension :

Dimensions de la barre : + 5 %, - 0 %

Tolerance de poids: + 5.0%, - 2.5%

Autres dimensions : ± 2,5 %

Notes de matériaux :

-Note: Tous les matériaux doivent satisfaire aux exigences de la barre d'acier laminée U2 de la classe de registre Lloyds.

Fiche technique		
Assemblage de bride en Y	Grade	Fiche technique 502-U3
	U3	page 1 de 1
		Rév 2020.09.03

Appendix C TEST PROCEDURE

The following tests must be performed per each Anchor batch.

C.1 FREE FALL IMPACT TEST

C.1.1 Step 1: Pre-test Visual Inspection

The Anchor body must be visually inspected to see if there are any existing cracks prior to test. Any cracks must be noted.

C.1.2 Step 2: Freefall Drop Test

Anchor must be dropped from a height of 2 meters onto a hard surface. Two meters is measured from the underside of the Anchor to the top of the hard surface.

The hard surface will consist of a minimum 20 mm thick steel plate over concrete or asphalt.

C.1.3 Step 3: Post-test Visual Inspection

The Anchor body must be visually inspected to determine if the drop test resulted in any new cracks on the body. In the event that a piece of Anchor body has broken off, it must be re-weighed.

C.1.4 Step 4: Pass or Fail Criteria

If the reweighed Anchor still meets its nominal weight, it must be deemed a PASS. If the reweighed Anchor falls below its nominal weight, it must be deemed a FAIL and rejected.

C.2 HAMMER BLOW TEST

C.2.1 Step 1: Pre-test Visual Inspection

Anchor must be visually inspected in the area where the lifting link emerges out of the cast body.

The two areas to be inspected must consist of a 360 degree circumferential check of the lifting link where it emerges out of the cast body.

Any significant rust or dirt must be cleaned prior to inspection.

C.2.2 Step 2: Hammer Blow Test #1

Using a 10 lb (4 kg) sledge, each link must receive a sideways blow with the sledge hammer, delivered perpendicular to the apex of the arc (see Figure C-1).

C.2.3 Step 3: Post-test Visual Inspection

The lifting link of the Anchor must be examined as per C.2.1. The lifting link may bend slightly but must not break nor exhibit cracks after the test.

C.2.4 Step 4: Pass / Fail Criteria

If the lifting eye exhibits any fracturing, cracks, flaws, or deformation during this test, it will be rejected. Although bending of the lifting link is permissible, no cracks will be allowed.

C.2.5 Step 5: Hammer Blow Test #2

From the opposite side of the lifting link, deliver a hammer blow to the apex of the arc.

C.2.6 Step 6: Post-test Visual Inspection

The lifting link must be examined as per C.2.1. The lifting link may bend slightly but must not break nor exhibit cracks after the test.

C.2.7 Step 7: Pass or Fail Criteria

If the lifting eye exhibits any fracturing, cracks, flaws, or deformation during this test, it will be rejected. Although bending of the lifting link is permissible, no cracks will be allowed.

NOTE: If at the end of the testing, the above deleterious conditions are not found, then the Anchor will be deemed suitable for use and a certificate of compliancy can be issued.

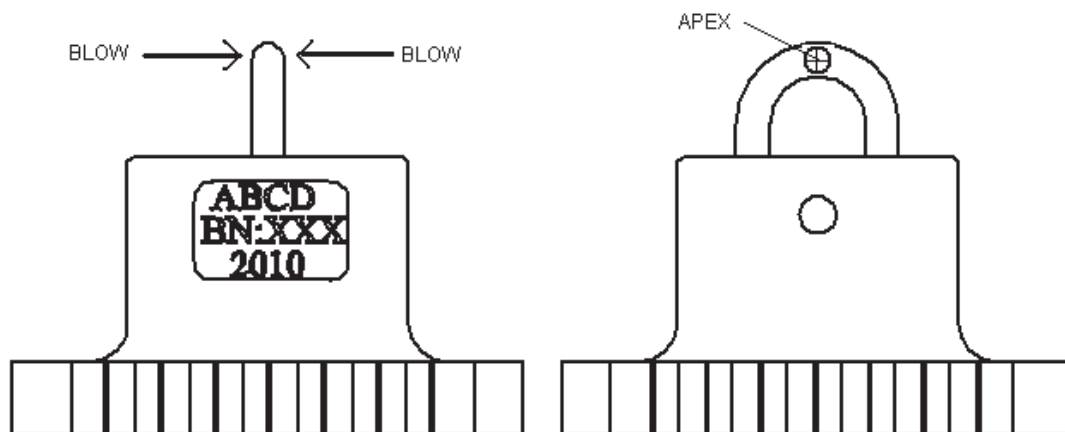


Figure C-1 Sideways blow to apex of lifting link