



Grumek Shackle

OPERATION & MAINTENANCE MANUAL



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1 INTRODUCTION

1.1 GENERAL

The purpose of this document is to provide instructions to safely operate and maintain the Grumek Shackle.

This manual is to be used by competent personnel that have proper training in usage and maintenance of lifting equipment.

2 EQUIPMENT DESCRIPTION

2.1 DIMENSIONS AND WEIGHT

Description	Value
WLL	25Te
Length	615mm
Width (∅)	412mm
Height	415mm
Weight in air	49kg
Weight submerged in water	42kg

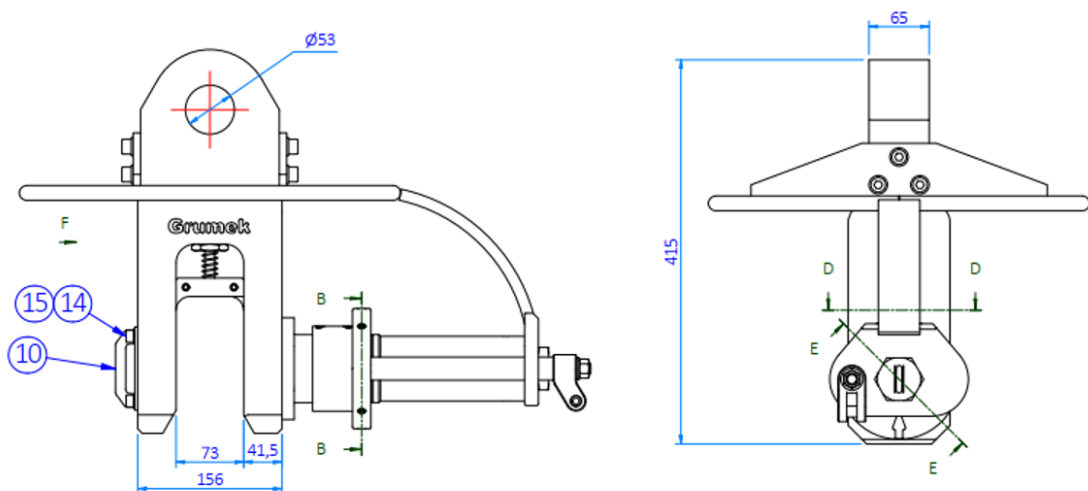
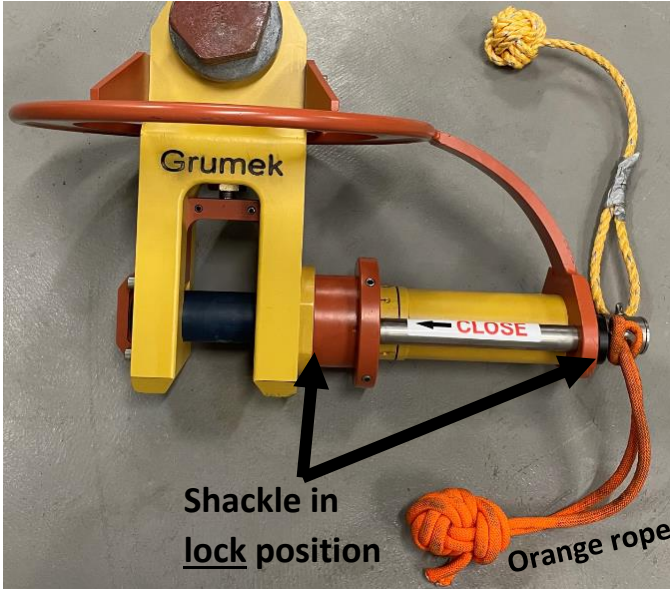


Figure 2-1: Grumek Shackle dimensions

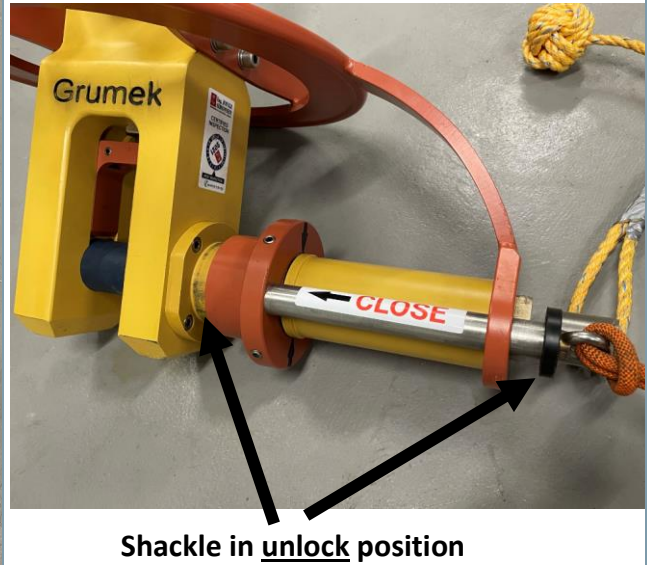
3 OPERATION

Grumek Shackle operation

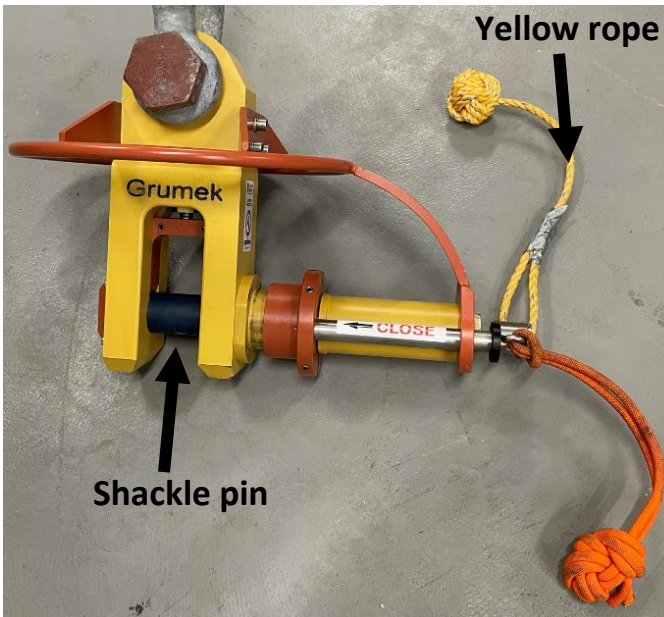
1. Pull **Orange** rope to the right to unlock shackle



2. Shackle lock is open

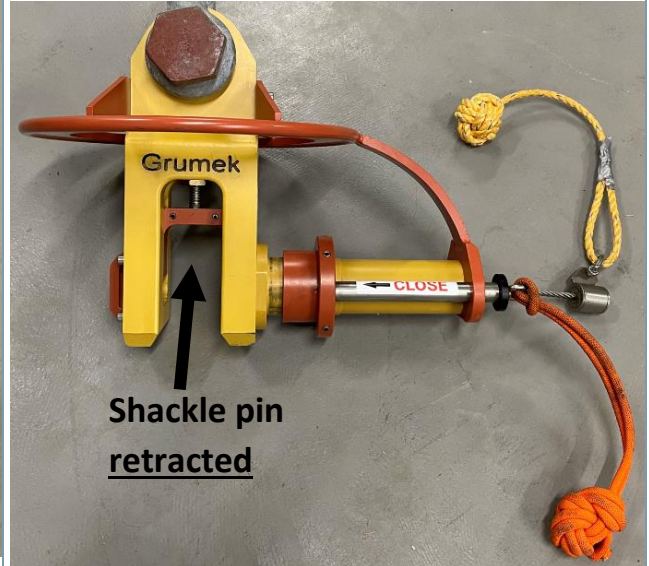


3. Pull on **Yellow** rope to the right to retract shackle pin

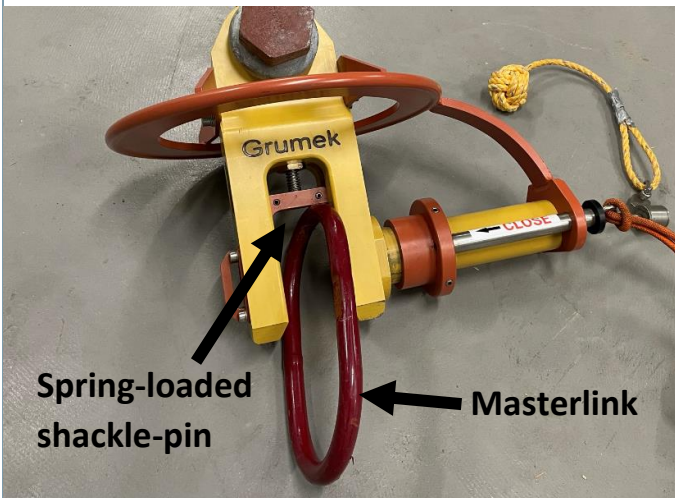


4. Shackle-pin retracted and in position for connection

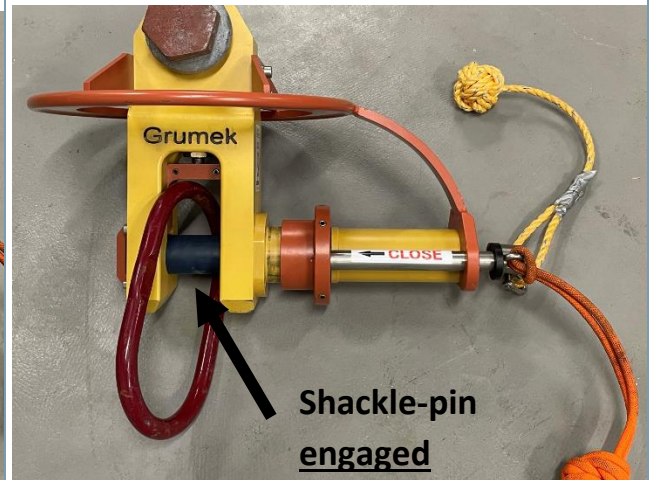
Warning:
Never put hand inside shackle when spring is loaded!



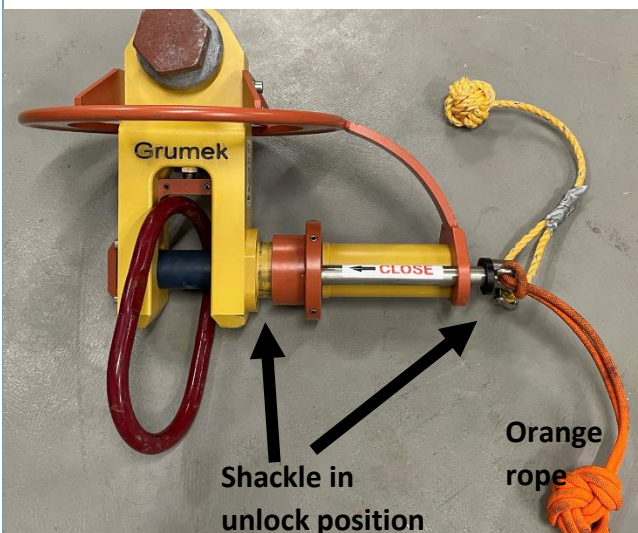
5. Insert Masterlink into shackle and push on the spring-loaded shackle-pin releaser



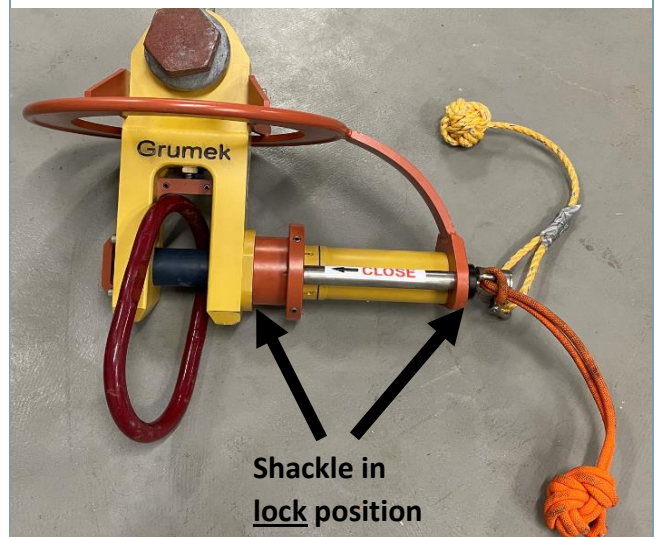
6. Shackle pin is released and engaged



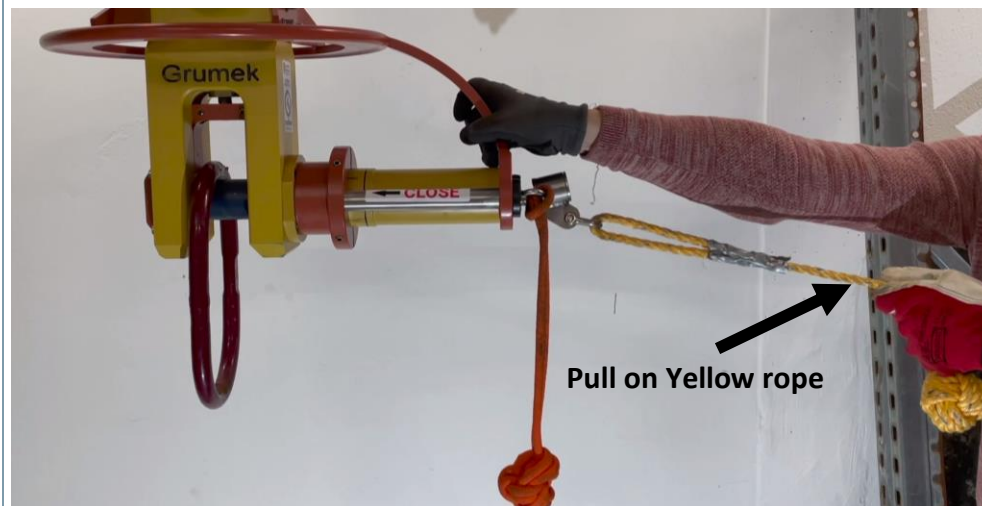
7. Pull Orange rope to the left to lock Shackle



8. Shackle in lock position



9. Pull on Yellow rope to confirm shackle pin is locked. Grumek Shackle is locked and ready for lifting.



4 MAINTENANCE

4.1 GENERAL

Proper care and maintenance of the Grumek Shackle will give a long lifetime and maintain the safety for use of the shackle.

After usage the shackle should always be cleaned, inspected and preserved for future usage.

Always ensure to:

- Flush probably in fresh water, preferably fully submerged in a small tank of fresh water
- Clean out any debris such as sand, mud, marine growth etc.
- Spray moving parts with a corrosion inhibitor such as WD40 or similar

Important: Always store the Grumek Shackle with the shackle-pin engaged (shackle-pin spring is than unloaded), see step 5. This to avoid the spring weaken over time.

4.2 INSPECTION

Prior to and after every usage of the Grumek Shackle, always inspect for any visual damage. Function test all functions to ensure a safe operation.

Important: If any significant damage is found, do not use the shackle before an inspection and/or testing have been carried out by an authorised person. If in doubt, contact Grumek Subsea AS.

Yearly inspection and re-certification is to be carried out by a certified lifting authorised company.

5 APPENDEDIX

5.1 APPENDIX 1

GRUMEK SHACKLE DRAWING – 001-2018-03

Gen. Tol. -
MS-ISO 2788 U.S.O. -m

Gen. Welding -
Tol. NSEN-ISO 13020 U.S.O. -B

Gen. Machined surface -
roughness U.S.O. - 6.3

32	1	ISO 20088-Monkey Pin	A4-80	0.3
34	6	ISO 7089 - 12 - 140 HV	A4-80	0.0
30	6	ISO 4762 - M10 x 25	A4-80	0.2
29	1	ISO 7089 - 12 - 140 HV	A4-80	0.0
28	1	ISO 4032 - M12	A4-80	0.0
27	2	DIN 913 - M12 x 40	Steel, AIG	0.0
26	2	DIN 913 - M12 x 40-MOD-001	Steel, AIG	0.0
25	2	DIN 913 - M8 x 40-MOD-001	Steel, AIG	0.0
24	8	M4x 8/0	A4-70	0.0
23	4	POP nail	Steel, S355	0.0
22	1	ISO 8752 - 12 x 30	Stainless Steel, Austenitic	0.0
21	4	ISO 4762 - M8 x 25	A4-80	0.1
20	1	PL 2, 75 x 75	A4-70	0.1
19	1	Round Bar Ø32 x 358	A4-70	0.1
18	1	2H 2Rk Wire Thread	Steel, S355	0.2
17	1	Round Bar Ø66 x 9	S155VA V1.4413	0.1
16	1	Round Bar Ø47 x 34	A4-70	0.1
15	4	ISO 7089 - 8 - 140 HV	A4-80	0.0
14	4	ISO 4762 - M8 x 20	A4-80	0.1
13	1	PL 30 x 61 x 35	A4-70	0.2
12	1	Achtwiner Spring	Steel, S355	0.0
11	1	Cylinder Spring	Steel, S355	0.1
10	1	Phosphate Rin Protector	Generic	0.3
9	4	K0316.06 (Ø)	Generic	0.0
8	1	Round Bar Ø54 x 74	A4-70	0.8
7	1	Achtwiner Fork	G11-2018-03	0.8
6	1	Round Bar Ø32 x 358	A4-70	0.9
5	1	Round Bar Ø52 x 55	JW/20	2.0
4	1	Round Bar Ø110	G06-2018-03	3.7
3	1	Round Bar Ø55 x 336	S155VA V1.4413	3.8
2	1	ROV Gripper Ring - 25 Te	G06-2018-03	9.3
1	1	Round Bar Ø31 x 4413	G06-2018-03	28.3

Item	Qty	Description	Material	Ref/Comments	Unit (kg)
Sheet 1 Grumek-Subsea AS					
Scale					1:6

25 Te ROV Shackle					
Rev	Descr	Date	Prepared	Appr	Impr
2	1112008	Relocated for DOC			
1	2140008	Issues for DOC			

Drawn	Dim	Check	Appr	Impr	Design

Project No:	001-2018-03
Sheet:	1 of 1

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5.2 APPENDIX 2

LOAD TEST CERTIFICATE