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**WIRE ROPE GRIPPER WGO135
(without manifold and intensifier)**

PRODUCT CODE No. 980247

**INSTRUCTIONS FOR INSTALLATION,
OPERATION & MAINTENANCE**

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DESCRIPTION

The WGO135 is a gripping tool intended for use on 130/135 diameter wire ropes. It is designed for use in a sub-sea environment and operates hydraulically, with hydraulic motor driven clamp screws for back up where required. The maximum gripping force is 20 Tonne and the tool is designed to sustain a maximum lifting load of 20 Tonne.

1 SAFETY

Before operation, read and understand this operations manual.

Ensure that the tool and all its associated equipment, including shackles, lifting lines and pipework are in good condition.

Before operating the tool hydraulically, ensure that a return hydraulic line is fitted as well as the pressure line. This is to prevent fluid locks and the possibility of generating very high pressures within the system.

Ensure that suitable pressure regulation equipment is used and that the unit is not subjected to pressures higher than those stated in section 2.

If an operator is adjacent to the tool during trials or other tests, ensure that moving parts are shielded to prevent entrapment. Appropriate personal safety equipment should be worn (e.g. Safety glasses, Helmet & Gloves as a minimum)

If in doubt please contact the manufacturer (Allspeeds Ltd) or an authorized distributor for assistance.

2 INSTALLATION

The main cylinder feed which is used to close the jaws is designed to be operated at a pressure of 690 bar. This will generate a gripping force of approximately 20 tonnes.

Please note that this tool has a relief valve fitted which will blow off at approx. 750 bar, DO NOT leave the pressure on so that the relief valve is continually blowing off.

The main cylinder return line which is used to retract the jaws is designed for a maximum pressure of 210 bar.

The motors are designed to be operated at a maximum pressure of 125 bar. The flow should be set to approximately 1 ltr/min to give an output speed of 50 rpm. The pressure should be regulated such that the torque output is enough to overcome frictional forces.

IMPORTANT - Ensure that the correct pressures as stated above are used for each piece of equipment. Do not mix up these connections/pressures.

All end user hydraulic connections as supplied are ¼" BSP.

The feed to the main piston is via the extension piece in the top of the cylinder and the return via the pre-installed hose to the bottom. Please note that the motors may need to be wound down slightly to allow clear access to the top of the cylinder.

Connection to the motors is via the ports in the top faces. Ensure that the common ports to the motors are connected together as shown below.

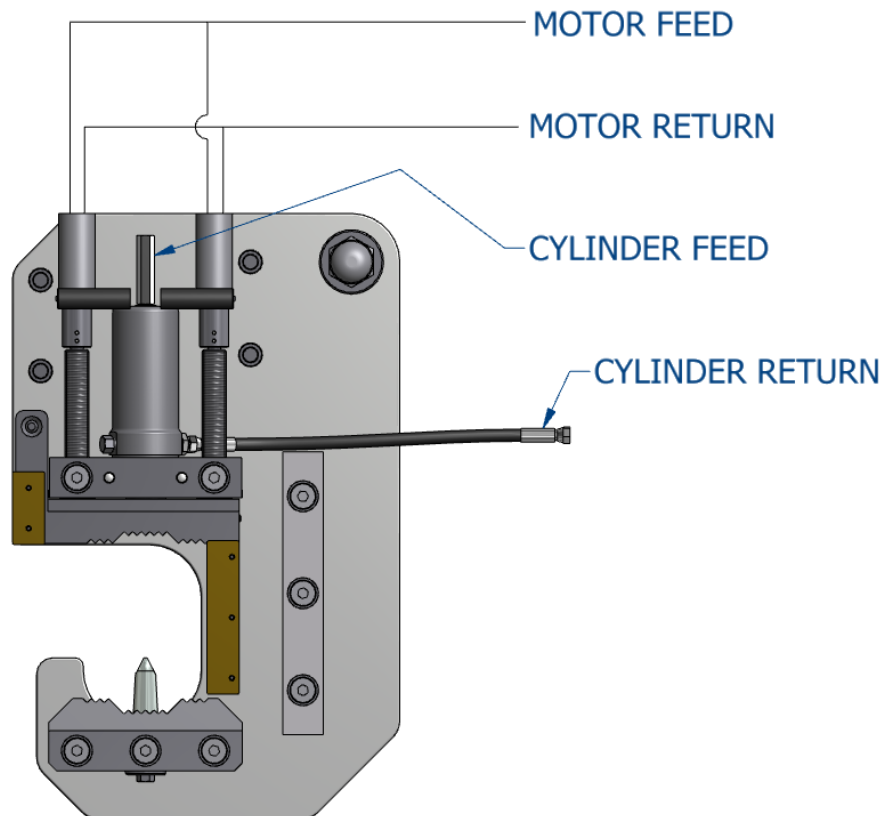


Fig 1 – Hydraulic connection points.

Important: Please note this tool is designed for intermittent subsea use. Please refer to the manufacturer (Allspeeds Ltd) or an authorized distributor should you wish to use this tool subsea for any period over 14 days.

CAUTION – Any modification made to this tool will invalidate the warranty and may lead to equipment failure or personal injury. If in doubt please contact the manufacturer (Allspeeds Ltd) or an authorised distributor for assistance.

LIFTING AND MOUNTING POINTS

The lifting capacity of this tool is 20 tonnes. DO NOT try and lift higher loads than this as this will lead to tool damage and invalidate the warranty of the tool.

Ensure that a suitably rated shackle is used and attached to the main lifting point.

4 off M10 Tapped holes are provided in the body for buoyancy attachment along with additional M12 tapped holes to enable the fitting of rope guide plates if required. See fig 2 below.

DO NOT use these holes for deploying the tool or subsea lifting.

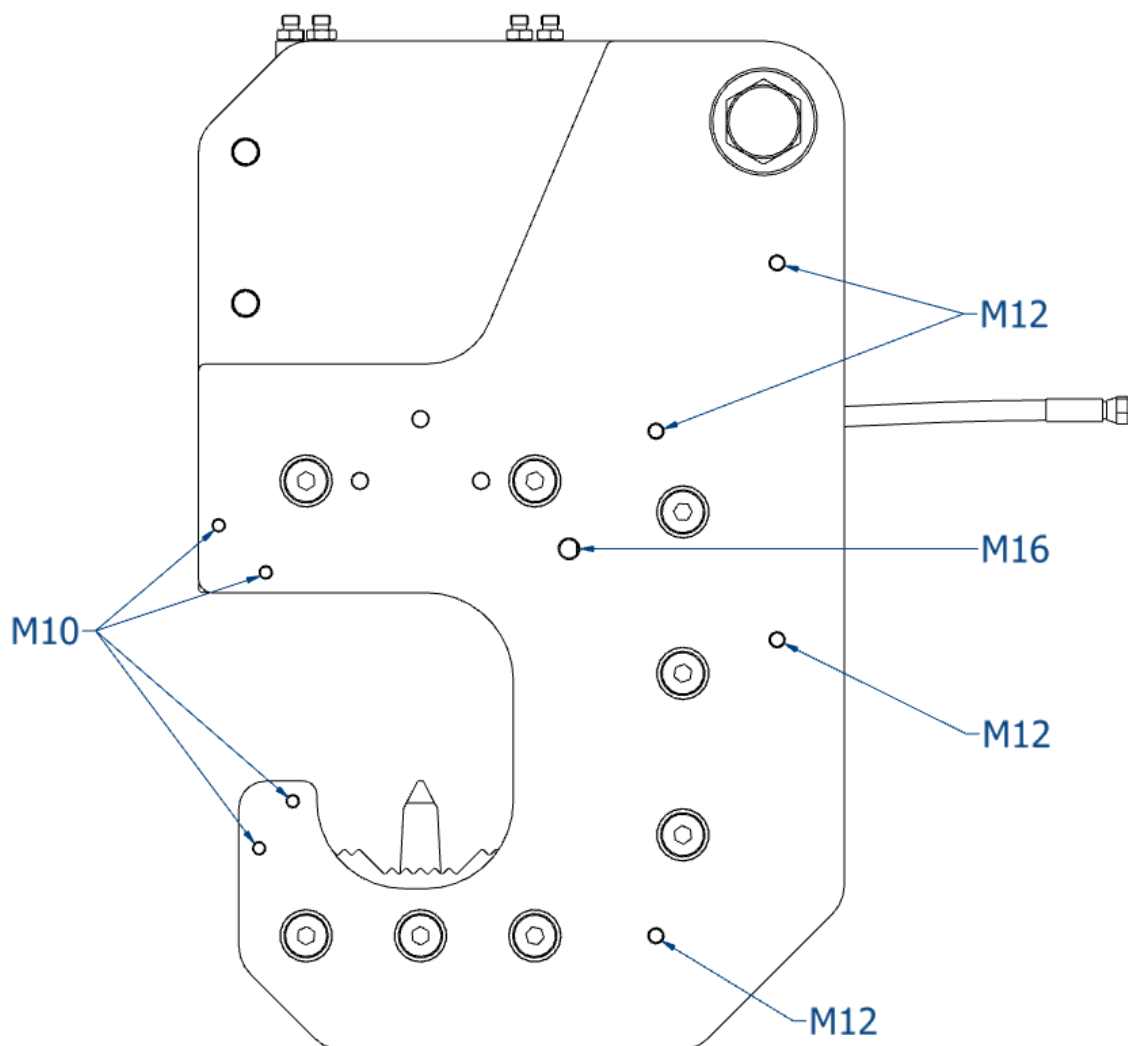


Figure 2 – Lifting and buoyancy points

The optimum lifting method is as shown below in figure 2a, with the lift point located centrally along the length of the wire rope/umbilical. This arrangement allows the lift to utilise the maximum load rating of the tool (20 tonnes)

Lifting arrangements that impart a side load on the jaws of the tool (for example lifting towards the end of a wire rope/umbilical) will severely reduce the lifting capacity of the tool. Please contact Allspeeds for advice before deployment and lifting.

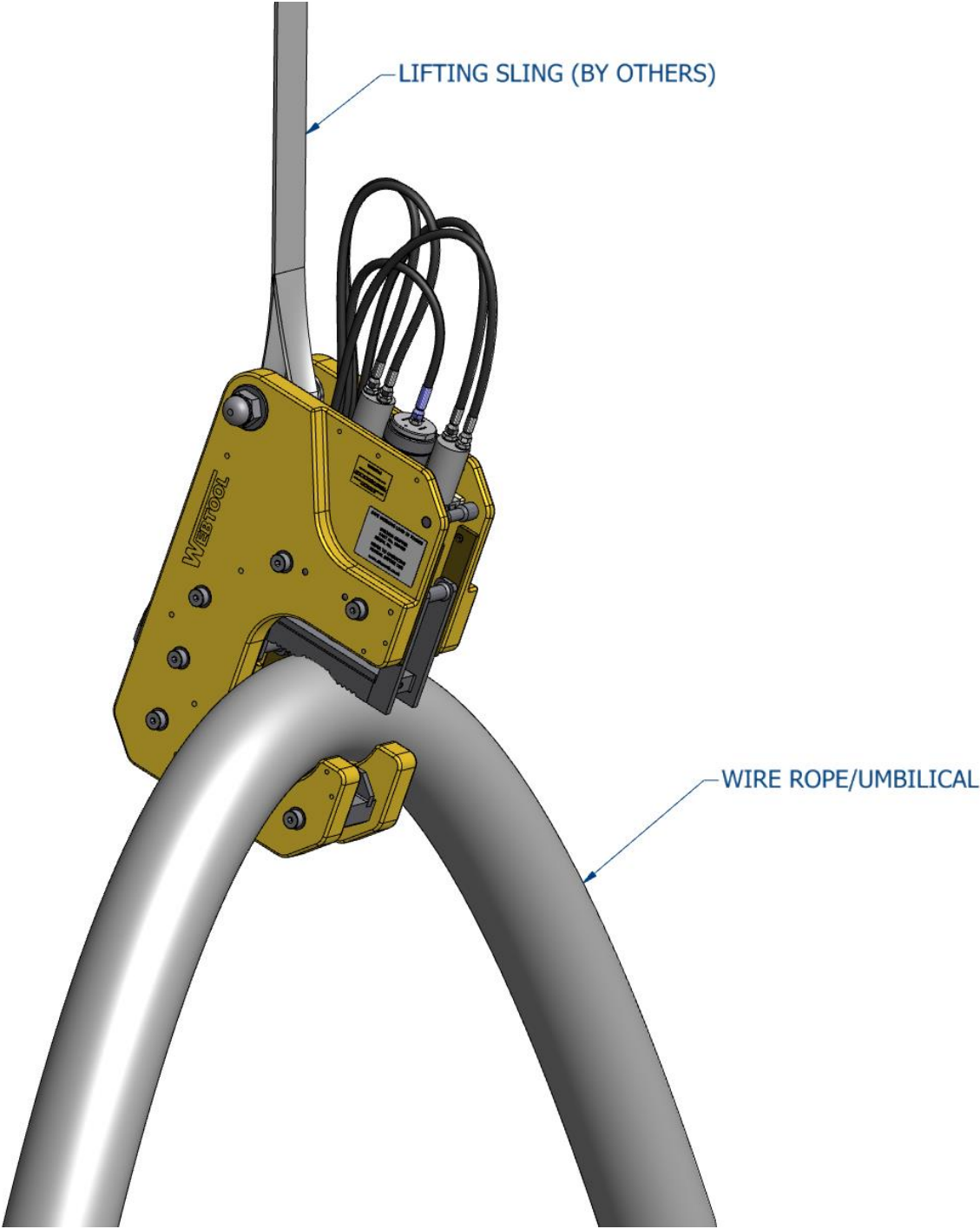


Figure 2a – Optimum lifting arrangement

3 SEQUENCE OF OPERATION

IMPORTANT – Before deployment, function test the tool and ensure that all operators are familiar with this procedure. ROV observation of the tool should be maintained at all times during operation.

Where possible, perform a test grip on a sample of the riser or wire to be lifted to check that the spike will puncture the armour/wire.

The spike is held in place by a single 12mm bolt which can be removed with a 19mm socket. Please note that it is advised that the spike is used where possible, particularly when lifting towards the cut end of a wire rope of riser/umbilical.

DEPLOYMENT

1. Ensure that the cylinder and motor screws are retracted before deployment
2. Deploy the tool and position so that the wire rope is located in the mouth of the gripper, touching the back edge of the throat, as shown in fig 3 below.

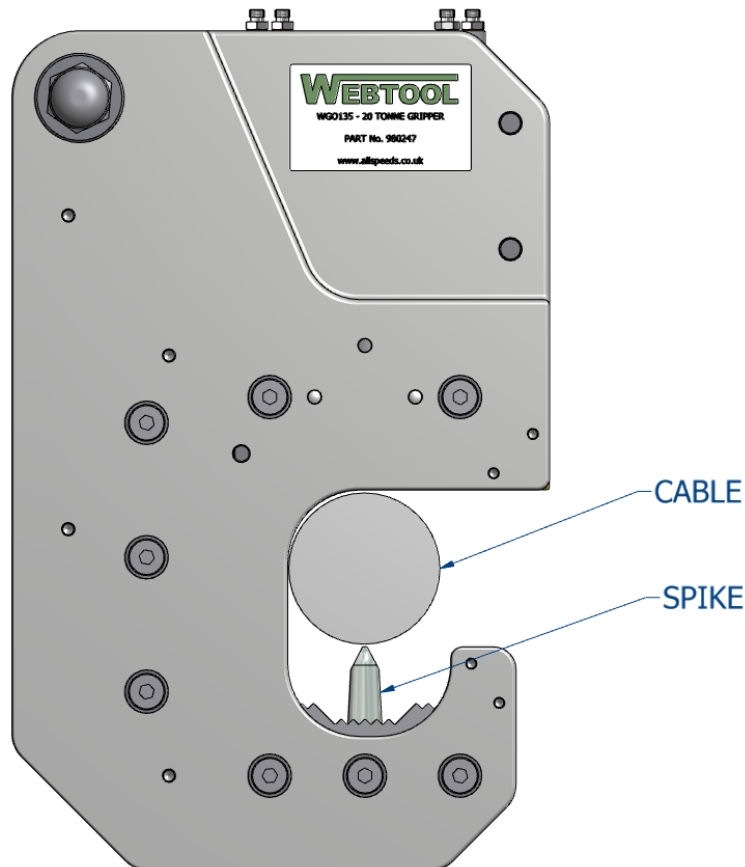


Figure 3 – Cable correctly positioned inside mouth of tool

3. Pressurise the cylinder feed line. This will cause the moving jaw to move downwards. The wire rope will be pushed onto the optional spike (if fitted) which helps to anchor it.

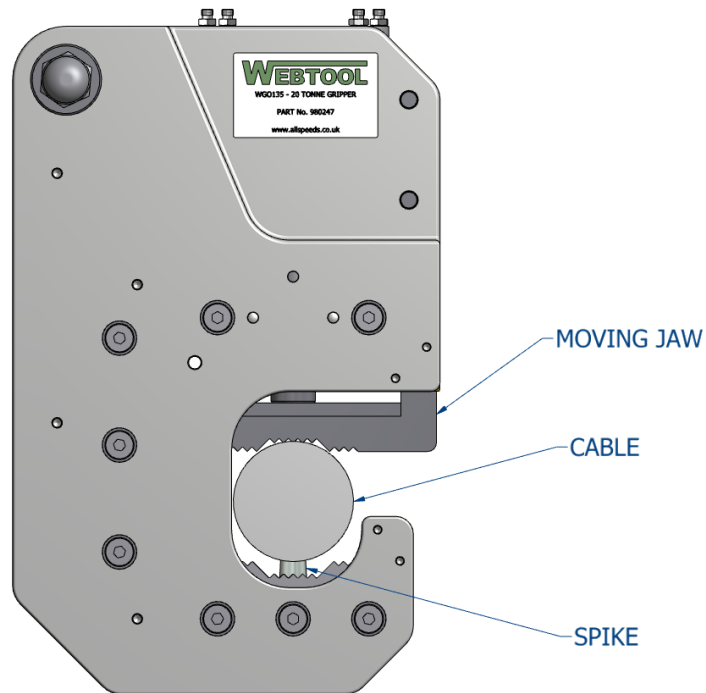


Figure 4 – Cylinder partially extended. Cable is pushed onto spike

4. Keep the cylinder feed pressurised until the moving jaw has fully gripped the wire and will go no further as shown in figure 5. **DO NOT release the pressure on the main cylinder at this time.**

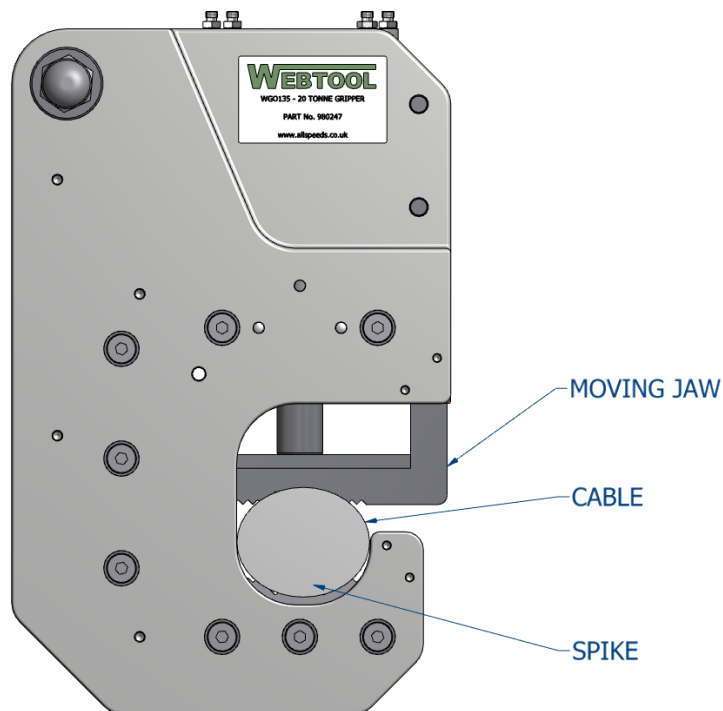


Figure 5 – Wire fully gripped –Moving jaw is no longer moving

5. Whilst maintaining the pressure on the piston feed line, pressurise the motor feed line. This will cause the locking screws to slowly screw downwards towards the moving jaw.
6. Check that the locking screws have bottomed out onto the moving jaw as shown below in figure 6.

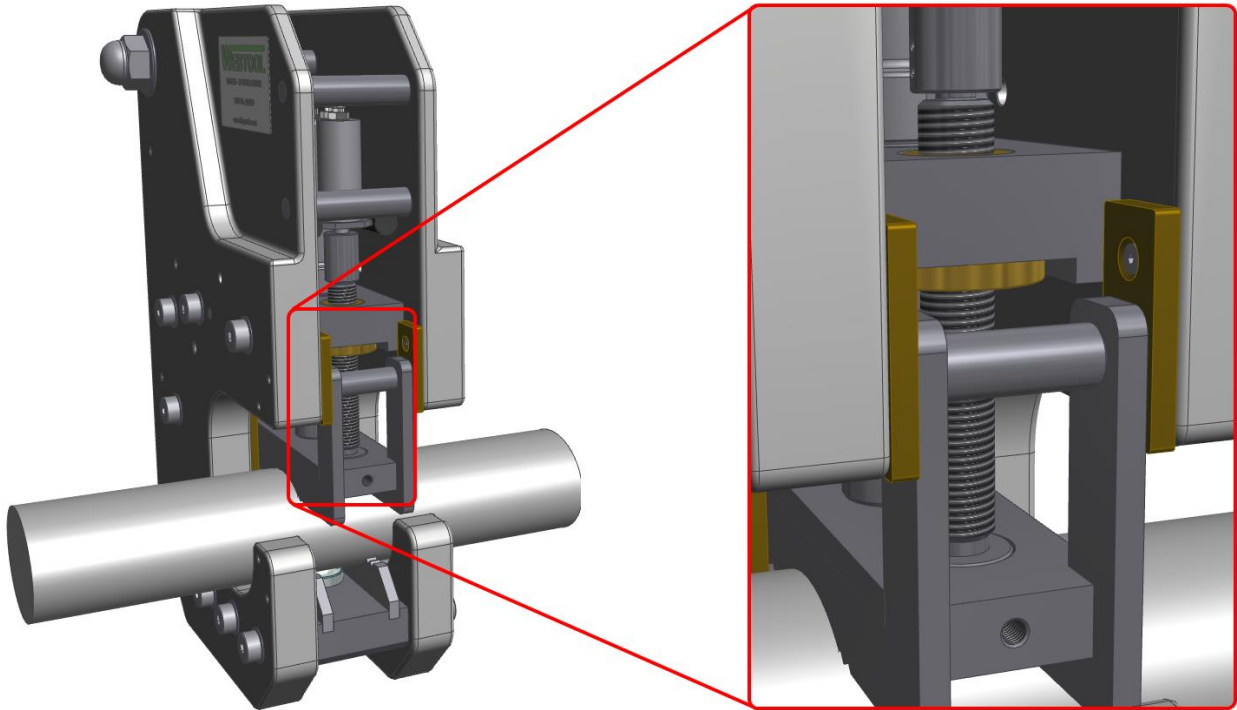


Figure 6 – Locking screws bottomed out onto moving jaw

7. **IMPORTANT** - Release all hydraulic pressure to the tool.

DO NOT ATTEMPT TO LIFT WIRE/CABLE WHILST THE CYLINDER FEED LINE IS STILL PRESSURISED. DOING SO MAY CAUSE FAILURE OF THE TOOL.

LIFTING

8. This pressure must be relieved before the tool is used for lifting, or before the tool is brought back to surface. If the pressure is not relieved there may be a build up of excessive pressure in the main cylinder. Ensure that the screws are fully tightened as described previously. This will ensure that the jaws do not move and maintain their grip.

Using the shackle connected to the main lifting point, slowly lift the tool (and attached wire) vertically

9. The tool may rotate slightly during lifting due to the centre of gravity of the gripper and wire
10. Monitor the lift using the ROV camera
11. Retrieve the tool and wire to deck

RELEASING THE CABLE/WIRE

Ensure that the tool is held in position safely by suitable lifting equipment during this procedure as it may move during wire removal.

12. Pressurise the main cylinder feed line. This will apply gripping force to the wire, and release the tension in the locking screws
13. Pressurise the motor return lines so that the locking screws disengage and release pressure once they are fully retracted
14. Retract the gripper by pressurising the main cylinder return line. Keep this line pressurised until the jaw is fully retracted
15. Ensure that ALL hydraulic pressure to the system is removed
16. If the optional spike has been fitted, the cable/wire may still be captive in the mouth of the tool as it has been impaled during the gripping procedure
17. If required, lever the cable/wire from the spike to release it. Take care not to damage the gripper mouth area during this operation
18. Check for any damage and ensure that the motors and moving jaw are fully retracted before redeploying the gripper.

4 AFTER USE

If the tool has been used in a marine environment it should be hosed down with clean water, allowed to drain and sprayed externally with a de-watering fluid. Before storage inspect the general condition of the tool and make good any damage.

5 SERVICE

It is unlikely that service should be required on the hydraulic components of the tool under normal circumstances; however spare seal kits are available if required. Replacement spikes are available as a spares item. Please quote the tool serial number whenever ordering new parts.

Please note: The hydraulic motors are not user-serviceable.

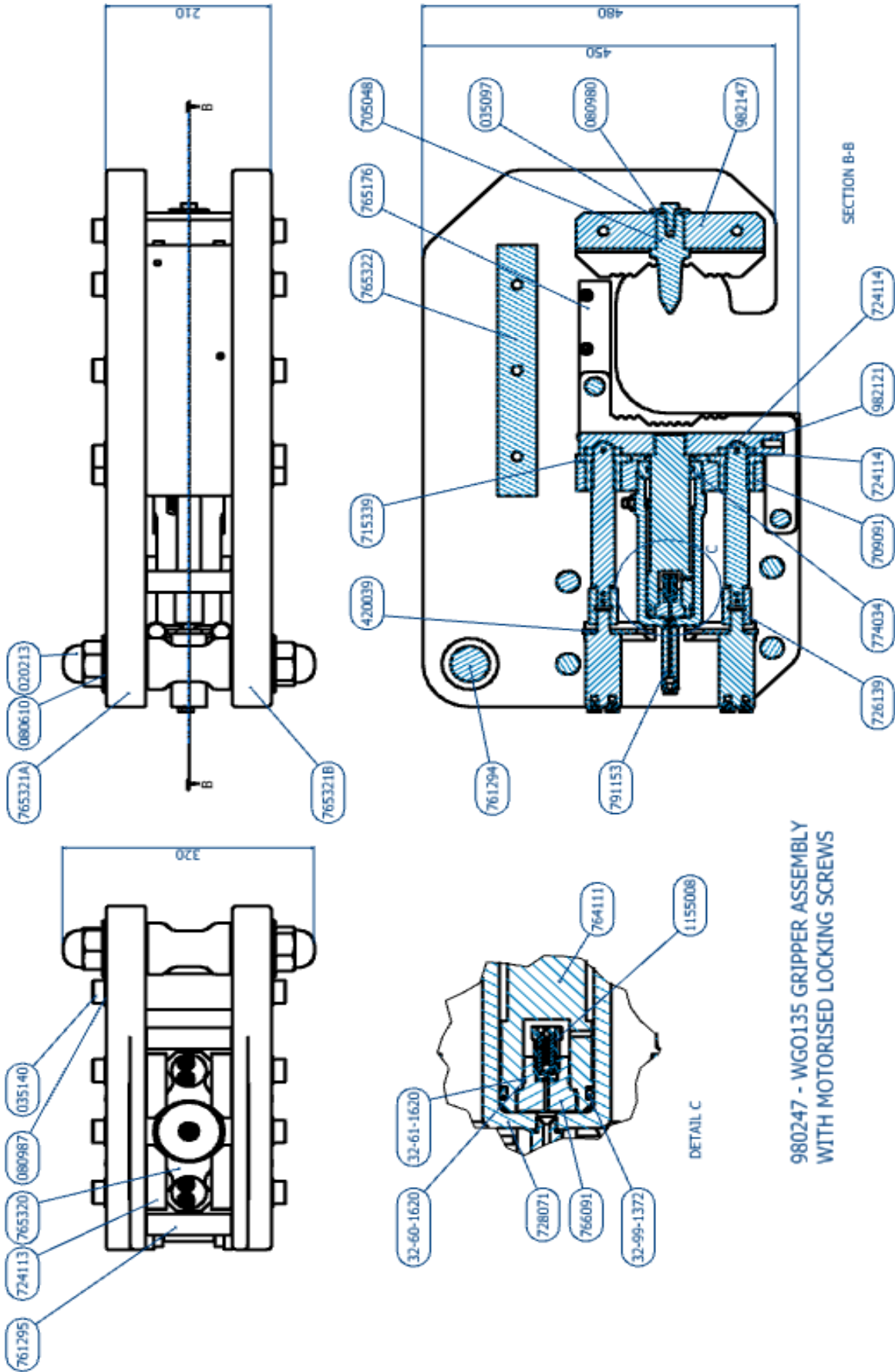
6 CYLINDER PROOF TESTING

If at any time it is necessary to carry out proof tests on the tool, e.g. after service on the hydraulic cylinder, the following procedure should be applied.

- 6.1 A return line as well as a pressure line must be connected at all times, and the tool must be guarded during the test operation.
- 6.2 The proof test pressure should not exceed 125% of the working pressure:
 - $690 \times 1.25 = 863$ bar for the cylinder feed line
 - $210 \times 1.25 = 262.5$ bar for the cylinder return line

Please note - It is not possible to test the cylinder on assembly due to a relief valve being fitted and set to blow off at approx. 750 bar.

- 6.3 The proof test pressure should be applied gradually by means of a handpump, until the maximum test pressure is reached.



980247 - WGO135 GRIPPER ASSEMBLY
WITH MOTORIZED LOCKING SCREWS

Figure 7 – Parts List Identifier

WGO135 PARTS LIST		
PART NUMBER	DESCRIPTION	QTY
020 213	SHACKLE PIN NUT	2
32-60-1620	O-RING	1
32-61-1620	BACKUP RING	1
027 780	DOWEL	4
029 535	SPIROL PIN - Ø5 X 35 LONG	4
030 522	SPRING PIN - 3/16" X 1-3/8"	2
035 097	M12 x 40 HEX HEAD SCREW	1
042 420	M6 x 20 CSK HEAD SCREW	10
035 099	M5 x 20 CSK HEAD SCREW	16
035 107	HYDRAULIC MOTOR SCREW	2
035 140	SHOULDER SCREW	10
035 141	SHOULDER SCREW	6
044 308	M5 x 8 CONE POINT SET SCREW	2
080 610	SHACKLE PIN WASHER	2
080 980	CHISEL CLAMPING WASHER	1
080 987	M20 PLAIN WASHER	16
32-01-0203	O RING	1
32-60-2437	O RING	1
32-67-1201	DOWTY WASHER	1
32-99-1334	ROD SEAL	1
32-99-1372	PISTON SEAL	1
025 562	WIPER SEAL	1
32-07-0035	BONDED SEAL FOR CONNECTIONS	3
420 039	HYDRAULIC MOTOR	2
705 048	SPIKE/CHISEL	1
709 090	JAW BLOCK	1
709 091	CYLINDER BLOCK	1
715 339	SCREWED BUSH	2
724 113	ANTI ROTATION PAD	4
724 114	SCREW RETAINING COLLAR	2
726 139	MOTOR/SCREW COUPLING	2
728 071	CYLINDER	1
761 294	SHACKLE PIN	1
761 295	MOTOR PROTECTION PIN	5
764 111	PISTON	1
765 176	WEAR PLATE	2
765 186	WEAR PLATE	2
765 189	FIXED JAW PLATE	2
765 320	ANTI ROTATION PLATE	2
765 321A	SIDE PLATE - L/H	1
765 321B	SIDE PLATE - R/H	1
765 322	SUPPORT PLATE	1
766 100	BLANKING PLUG	1
766 091	RELIEF VALVE PLUG	1
774 034	BEARING RING	1
752 568	WEBTOOL LABEL	2
752 342	SERIAL NUMBER PLATE	1
791 153	EXTENDED MALE FEMALE ADAPTOR	1
1241050	CYLINDER RETURN HOSE	1
1155008	RELIEF VALVE	1
982 121	MOVING JAW ASSEMBLY	1

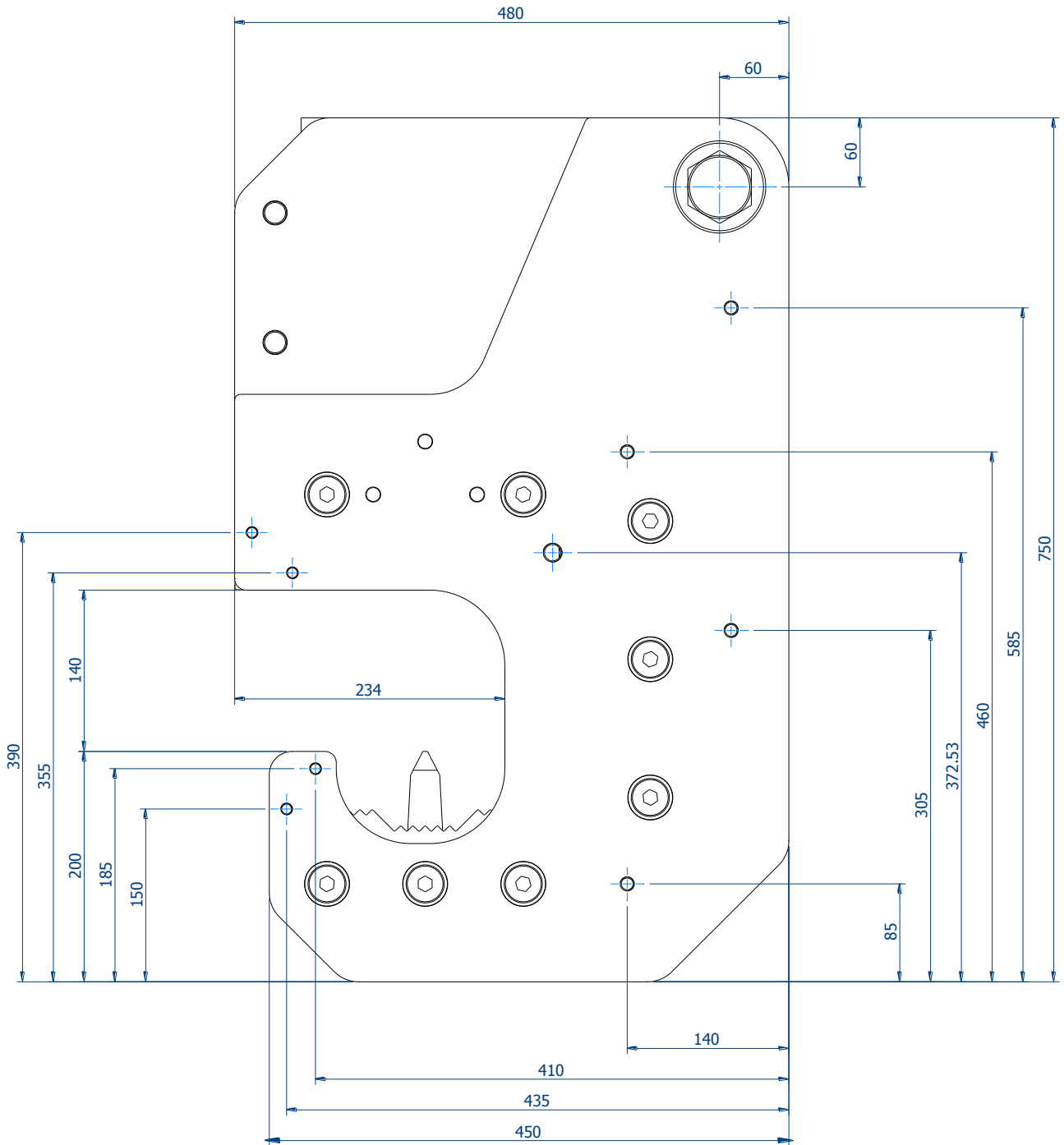
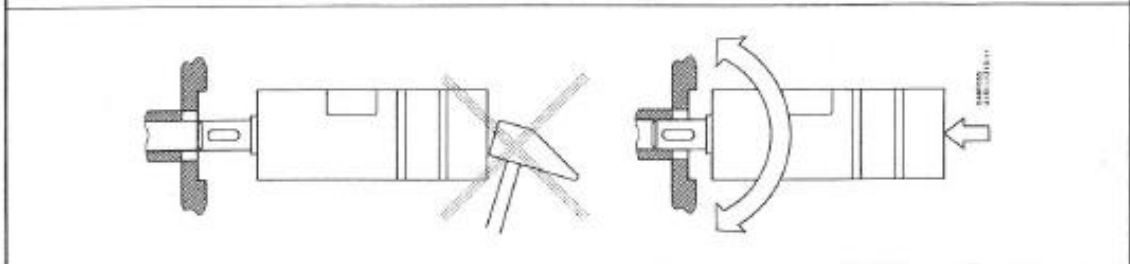
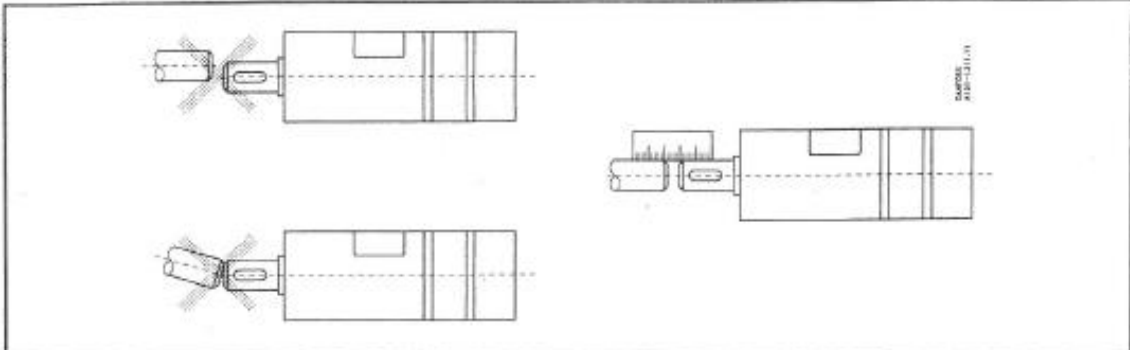


Figure 8 – Overall Dimensions

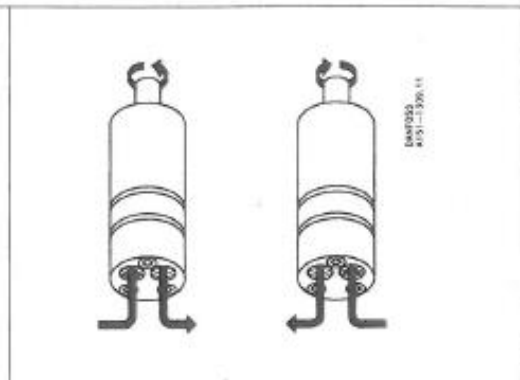
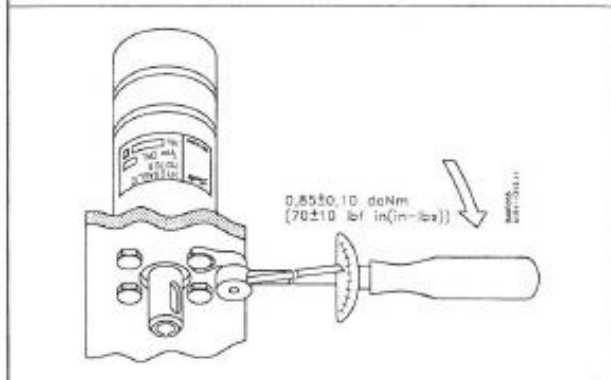
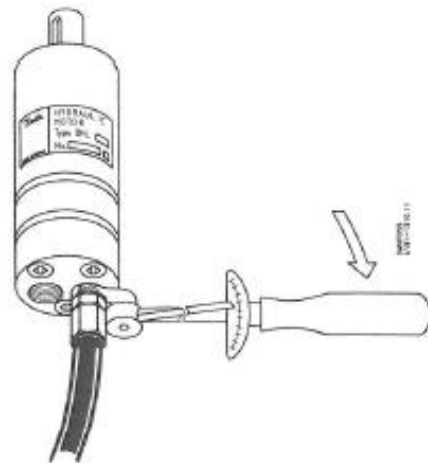


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	Max. tillspændingsmoment Max. tightening torque Max. Anzugsmoment Couple de serrage max.	
	X	Y
Forskræning Screwed connection Verschraubung Raccord	G 3/4	3/8-20 UNF
med stålskive with steel washer mit Stahlscheibe avec rondelle en acier	4,0 daNm (350 lbf in)	
med aluminiumskive with aluminium washer mit Aluminiumscheibe avec rondelle en aluminium	3,0 daNm (270 lbf in)	
med skærekant with cutting edge mit Dichtkante tranchant	4,0 daNm (350 lbf in)	
med O-Ring with O-Ring mit O-Ring avec joint torique		2,0 daNm (280 lbf in) (180 in-lbs)





CUTTING EDGE TECHNOLOGY

Webtool specialises in engineering powerful hydraulic tools for cutting and gripping rope, cable and umbilicals.

Models designed for use in subsea environments by ROV's, and surface applications in hostile environments.

- Wire rope cutters (WCS and WCOS) – capable of cutting steel wire rope up to 75mm diameter
- Wire Rope Cutters (RCV) – capable of cutting steel wire rope up to 190mm diameter
- Cable Cutters (HCV) – capable of cutting cable, umbilical and armoured flexible pipe lines up to 330mm diameter
 - Softline Cutters (SL) – capable of cutting fibre ropes in various sizes
 - Wire Rope / Cable Grippers
 - Wire Rope Clamps

Application specific solutions:

Our in house design and manufacturing capability means we can quickly and efficiently develop a solution to suit your particular application. Contact our engineering department to discuss how we can help.

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