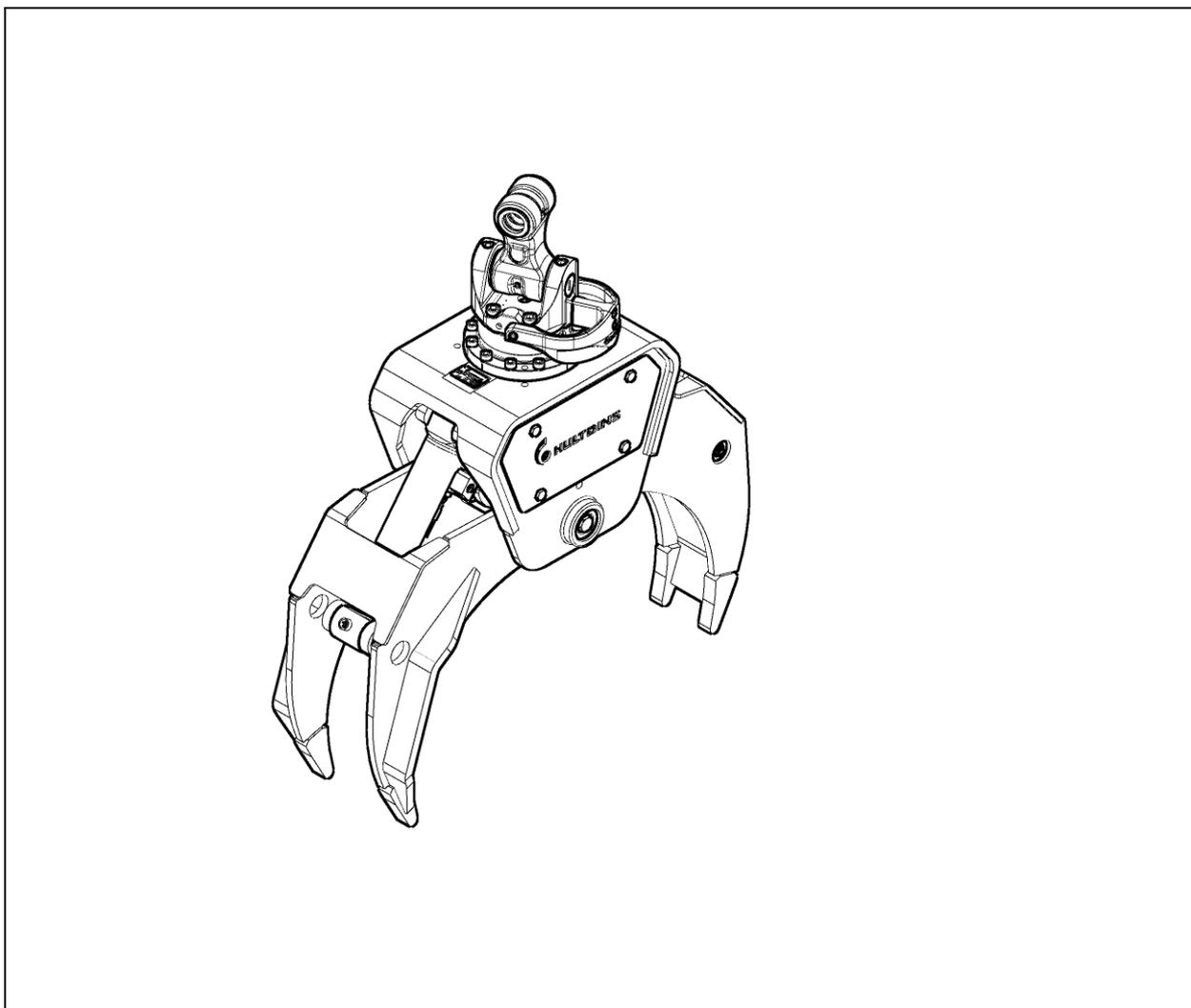


HULTDINS *SuperGrip*TM



This publication contains instructions for the installation and handling of the *SuperGrip TL* grapples. The instructions cover both general information for all models, and procedures or specifications applicable to individual models. If doubt should arise concerning the validity of the instructions please consult the nearest dealer for more detailed information.

Illustrations, technical information and specifications were, as far as we have been able to judge, correct at the time of print. However, we reserve the right to, without prior notice, revise specifications, instructions, equipment, etc. as a result of ongoing product improvement activities.

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Caution!

The parts and components used in HULTDIN SYSTEM AB's products are specifically chosen. Therefore original spare parts are always the best alternative in a possible need of repairs or upgrading.

All service and repairs should be carried out by qualified service personnel or an authorized repair shop with suitable tools and lifting devices.

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This publication applies to the following models:

TL 430	S/N 034-0190 and up
TL 480	S/N 036-0259 and up
TL 520	S/N 039-0129 and up
TL 580	S/N 038-0018 and up

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Safety instructions

General safety

- This page describes important safety instructions, which the operator should have a good knowledge of before the equipment is used.
- This product should only be used by operators with proper knowledge and training.
- The owner and the operator are responsible for following all safety regulations and that the machine is safely equipped.
- The owner and the operator are responsible for following National and local laws, regulations and other instructions when using the product.
- The owner and the operator are responsible for replacing damaged parts and/or unreadable warning signs.
- The manual should be available at all times so that the operator is able to follow safety regulations and the procedures of maintenance activities.



Meaning of safety messages



Danger!

Danger indicates a hazard with a high level of risk which, if not avoided, will result in death, serious injury and/or serious property damage.



Warning!

Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death, serious injury and/or serious property damage.



Caution!

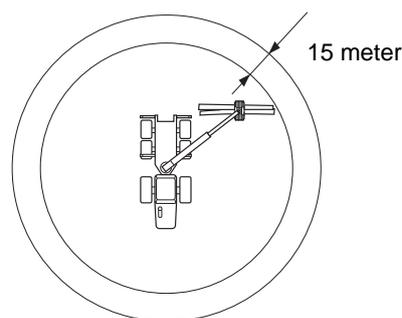
Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury and/or property damage

Operational Safety

- Check the grapple for damages at the beginning of each shift. Tighten all fasteners regularly.
- Make sure that the hydraulic pressure in the grapple cylinder is adjusted according to the specifications. If the pressure is too low the grapple will not be able to carry its load. If the pressure is too high, the grapple will be overloaded, which could cause a structural failure, resulting in injury and/or property damage.
- The grapple must not be used for lifting personnel.
- The grapple is not designed for handling rocks, heavy spare parts, etc.
- The grapple arms on the SuperGrip II-A must NOT be used to dig up stumps and rocks.

If used as described above the grapple arms or other parts of the grapple could fail, resulting in injury and/or property damage.

- The load of the grapple must not exceed the recommended maximum rating as structural failure could occur, resulting in injury and/or property damage.
- When operating this equipment ensure all unauthorized persons remain at least 15 meters clear of the machine.
- The operator must immediately evict unauthorized persons who are in the danger zone or are heading towards the danger zone
- Personnel inside the danger zone must be well protected against falling load.
- Personnel inside the danger zone must keep clear of hanging load.
- The operator should be aware that the load, or parts of the load, could fall from the grapple at any time.



Maintenance safety

- The machine's condition must be checked regularly, daily inspections shall be performed and any deficiencies must be corrected. The machine shall be maintained in such condition that the operator or other persons not exposed to danger or accidents.
- Never commit any service on the equipment without proper knowledge. All service and repairs in electrical and hydraulic systems should be carried out by qualified personnel only.
- Repair any damages immediate when discovered. Do not use the equipment until any damages are rectified.
- Before performing any maintenance or service work, lower the grapple to the ground and shut off the engine. Turn off any master shut-offs and do not allow personnel in the cab.
- Use safety glasses and protective gloves when servicing the equipment. Hydraulic oil or lubricants in contact with skin or eyes may cause irritations or allergies.
- Use hard hat and safety boots when servicing the equipment. Leakage of hydraulic oil or lubricants will increase the risk of slipping or falling.
- The grapple has sharp edges. Use proper wrenches and protective gloves when working on the grapple
- Hydraulic hoses and adapters may be pressurized even with the engine shut off. Loosen any parts with caution.
- Always make sure that the system is depressurized before committing any service on the equipment.
- Always secure movable parts mechanically before any hydraulic hose is loosened.
- Never try to stop a leakage in the hydraulic system with you hand. Pressurized hydraulic oil can be injected under the skin and cause death or severe damage.



Welding

In case of a structural repair of the equipment, when welding may be needed, consult the dealer for recommended instructions.

When welding on the grapple the following steps must be taken:

- Make sure that fire-extinguishing equipment is available.
- Clean the area around the welding area to eliminate any fire hazard.
- Connect the ground wire so the welding current does not pass over any bushings.
- Place the ground wire as close to the welding area as possible.
- When welding close to bushings, disassemble the bushings as they are made of a plastic compound-material which high temperatures may damage.

Modifying the equipment

It is not approved to:

- Modify the grapple without the consent of HULTDIN SYSTEM AB.
- Alter the function of the grapple without the consent of HULTDIN SYSTEM AB.
- Use spare parts other than original HULTDINS parts.

Main parts

The *SuperGrip TL* is made up of the following main parts.
All parts are replaceable.

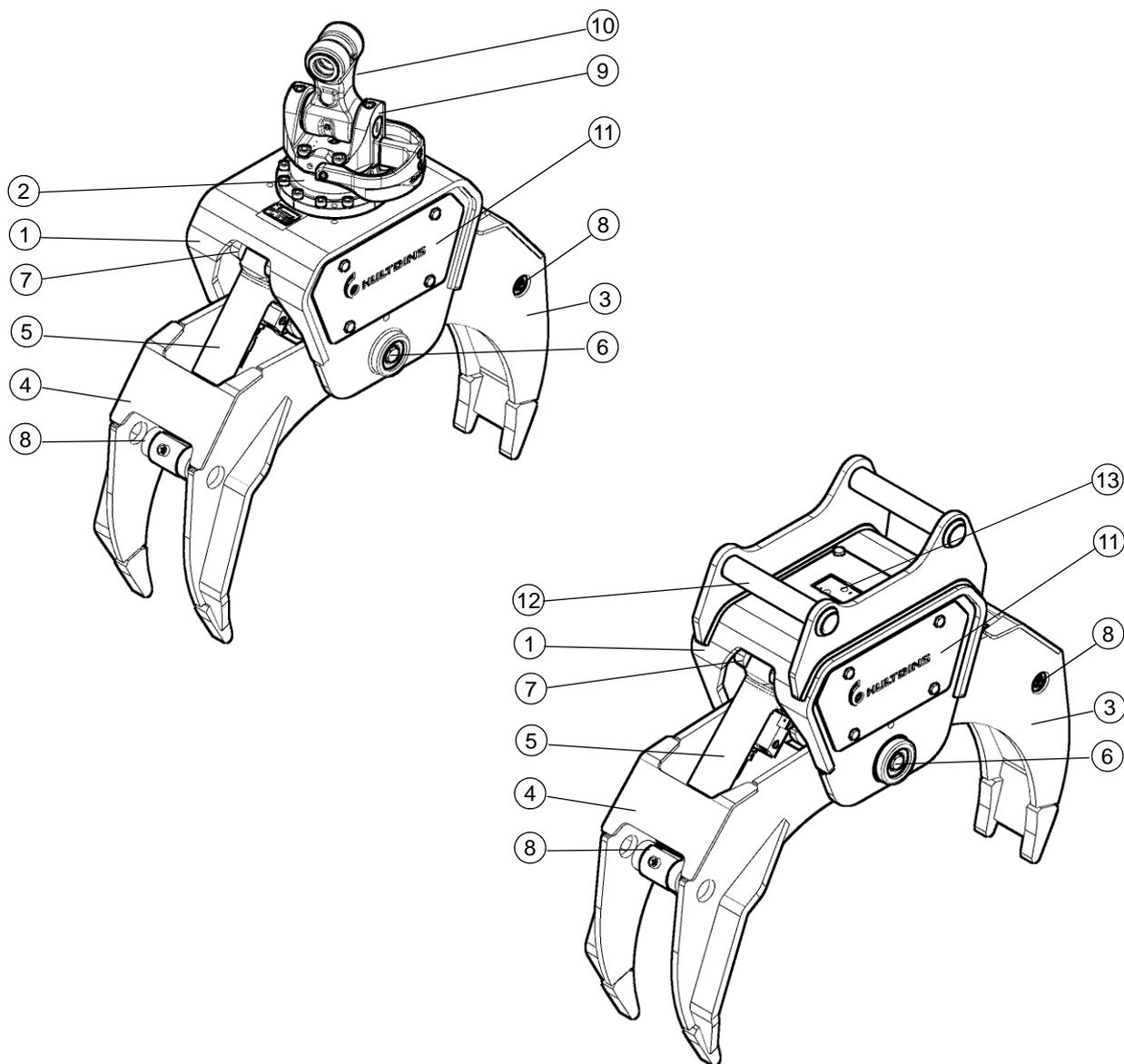


Fig. 1 Main parts

- | | |
|---|--|
| 1 Frame | 8 Pin-joint system, grapple arm-rod-hydraulic cylinder |
| 2 Rotator | 9 Rotator attachment |
| 3 Male grapple arm | 10 Upper link |
| 4 Female grapple arm | 11 Cover plate |
| 5 Hydraulic cylinder | 12 Excavator bracket |
| 6 Pin-joint system, frame-grapple arm (2 pcs. on TL580) | 13 Hydraulic manifold |
| 7 Pin-joint system, frame-hydraulic cylinder | |

Product description

SuperGrip TL is a grapple that is generally mounted on excavators. *SuperGrip TL* is intended to be used for demolition of masonry and timber structures. *SuperGrip TL* is also intended to be used for sorting and loading of timber-, cut-to-length, whole-tree-and waste wood systems.

Labeling

SuperGrip TL is labeled with serial number, model number, max.load, max.pressure and a CE-label according to the following figure.

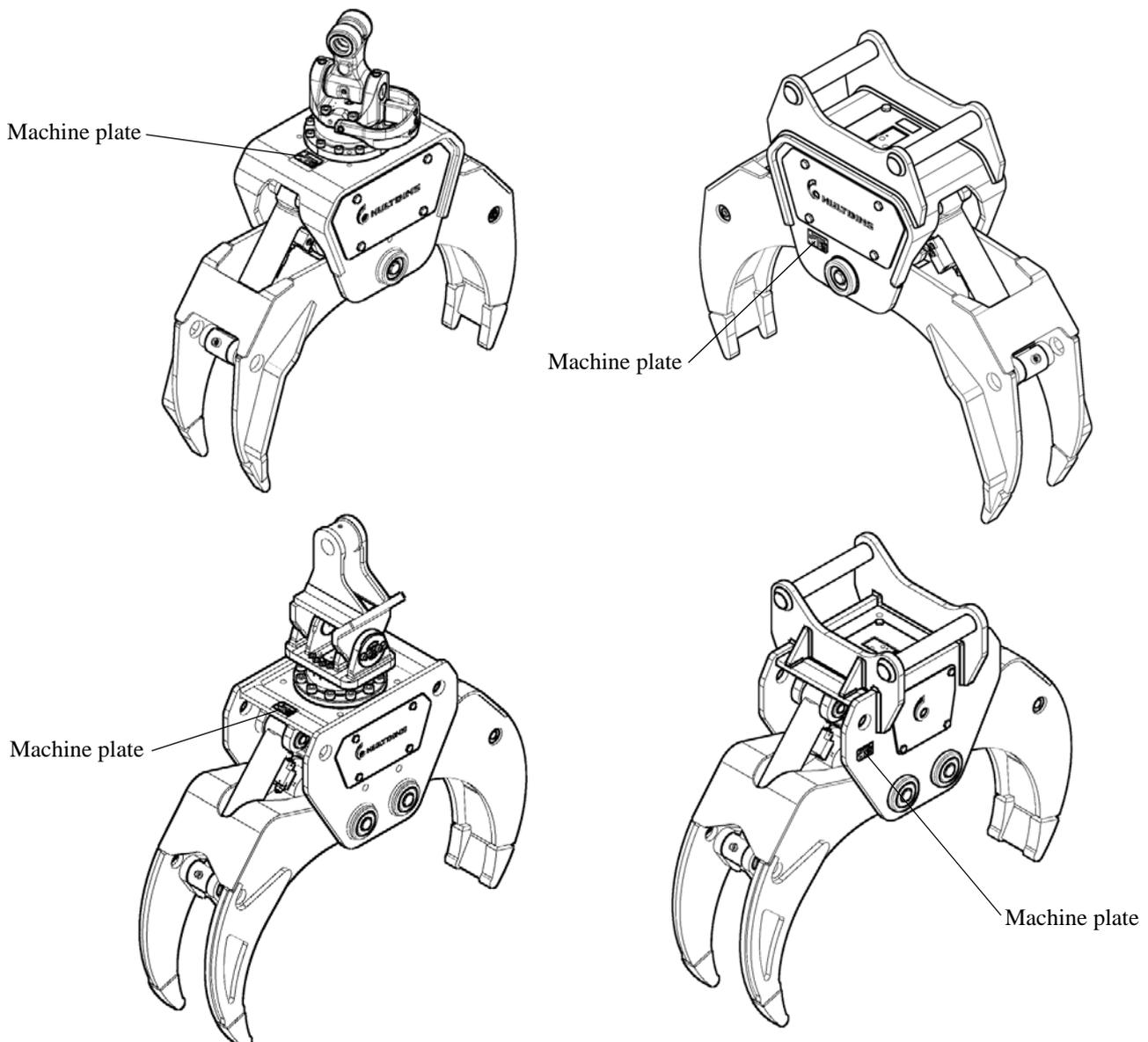


Fig. 2 Labeling

Technical data

SuperGrip TL

Special tools

Description	Diam.	Order No.
Mandrel, pin-joint system.....	50 mm	0660 207
	70 mm	0660 208
	80 mm	0683 011
	100 mm	0698 006

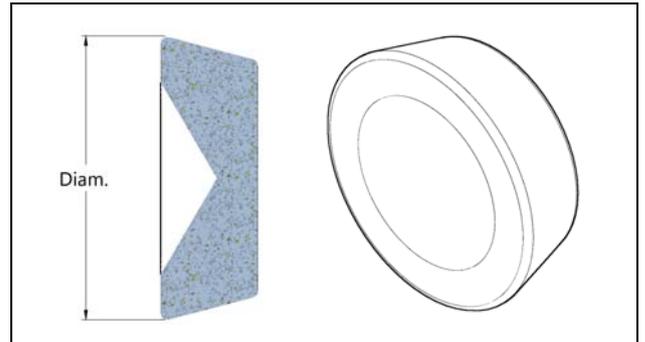


Fig. 3 Mandrel, Pin-joint system

Mandrel, bushings	0698 010
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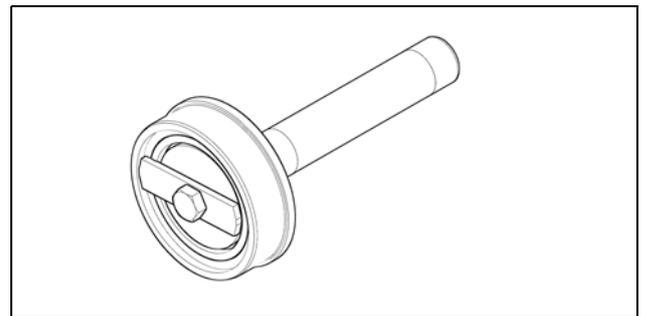


Fig. 4 Mandrel, bushings

Grease

Grease Use a mineral oil based grease thickened with, or mixable with a lithium soap. The grease should be classified as L-XCCIB2 according to ISO 6743-9. Molybdendisulfid content max 3 %. Base fluid viscosity 170 to 220 cSt at 40°C. NLGI class 1-2.

Greasing interval

Every 1000 hours of use. Rotator attachment and upper link every 50 hours of use

Hydraulic hoses

The cylinder hoses should be 1/2" (13,0 mm) according to DIN 20022; SAE 100 R2AT rating. Hose assemblies should be sized for burst pressure with at least a triple safety factor (three times the working pressure).

Operating pressure

Max. operating pressure 30 MPa

Torque and socket/wrench sizes

			Torque	Socket/wrench size
MC6S	8	12.9	40 Nm	6 mm
MC6S	16	12.9	330 Nm	14 mm
M6S	20	8.8	385 Nm	30 mm
MC6S	20	12.9	500 Nm	17 mm
M6S	24	8.8	665 Nm	36 mm
MC6S	24	12.9	1120 Nm	19 mm
M6S	30	8.8	1310 Nm	46 mm
Piston ø80.....			800 Nm	-
Piston ø100			600 Nm	-
Gland ø80.....			800 Nm	-
Gland ø100.....			600 Nm	-

TL, Rotator and link

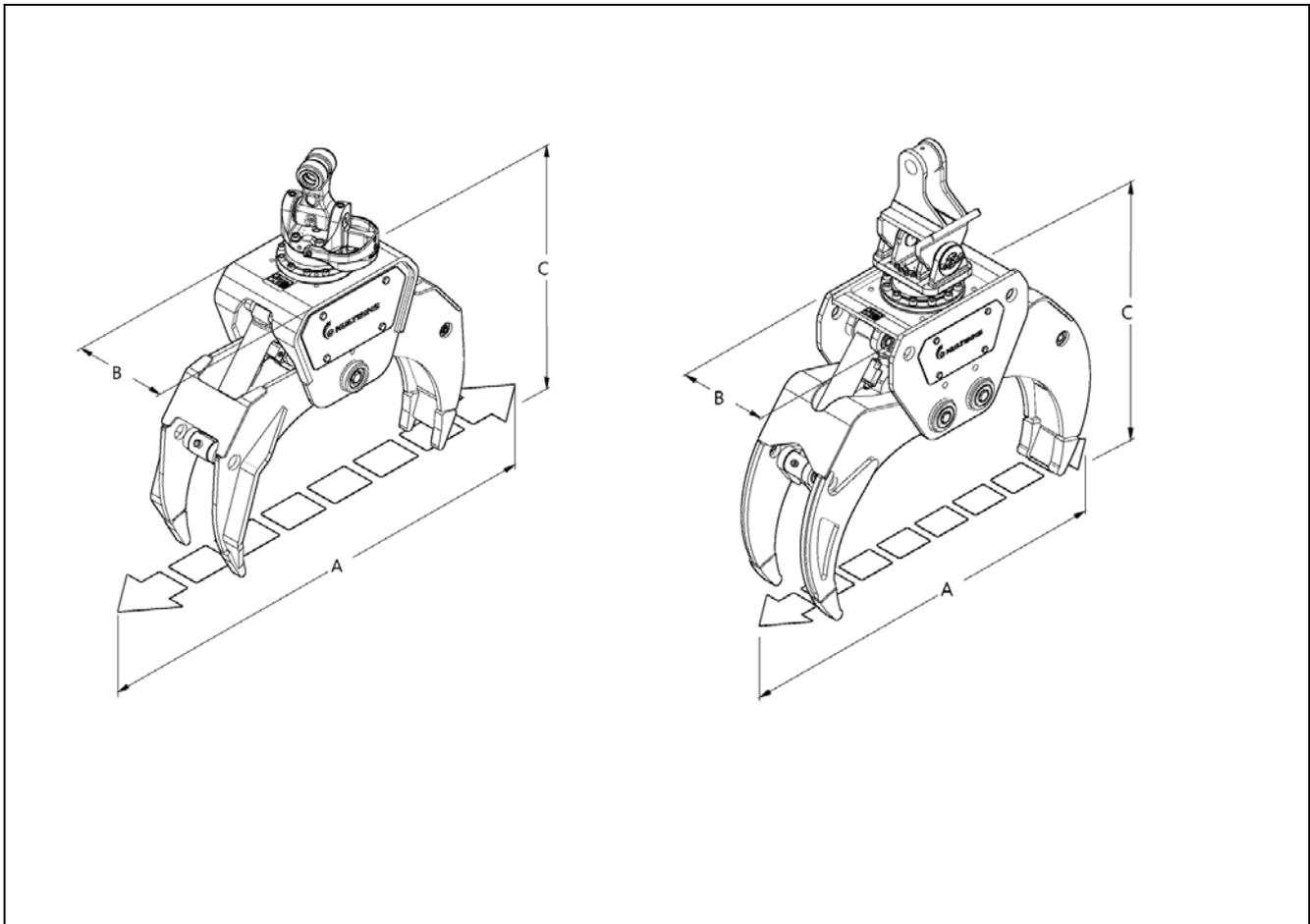


Fig. 5 Dimensions

		TL 430	TL 480	TL 520	TL 580
Weight with. rotator and link.....	kg	620	635	680	1 275
Max. gripping width (A).....	mm	1 110	1 235	1 375	1 520
Min. gripping diameter.....	mm	85	80	162	180
Max. load.....	kg	5 000	6 000	7 000	10 000
Height, max gripping width (C)	mm	1 335	1 390	1 405	1 660
Height, arms tip-tip (C)	mm	1 125	1 145	1 090	1 435
Max. width (B)	mm	430	430	430	500
Cylinder size.....		80/56	80/56	80/56	100/63
Max. working pressure	MPa	30	30	30	30
Rotator		IR12	IR12	IR12	IR22
Link, length c/c.....	mm	210 / 305	210 / 305	210 / 305	480

TL, Excavator bracket

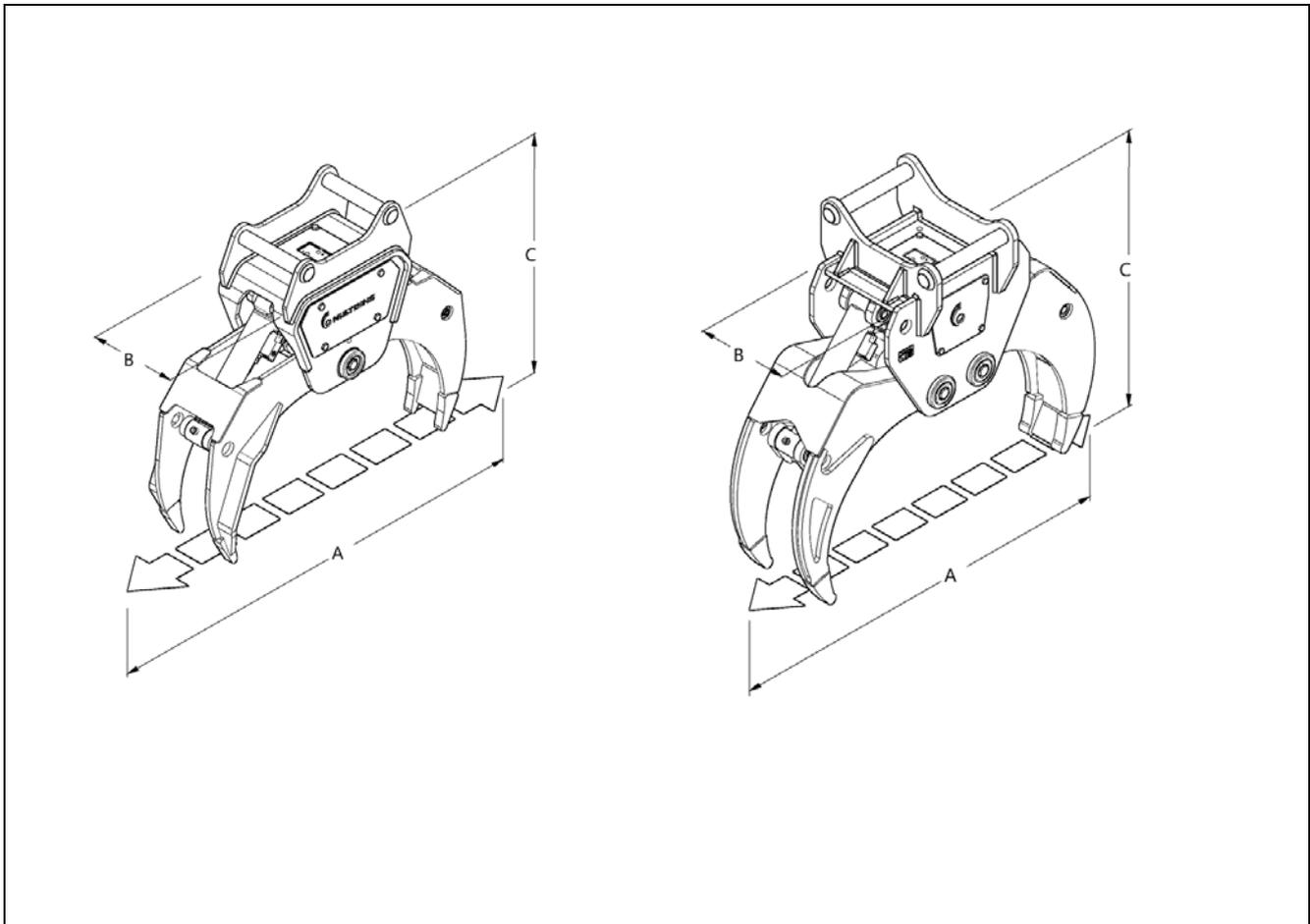


Fig. 6 Dimensions

		TL 430	TL 480	TL 520	TL 580
Weight with. rotator and link.....	kg	530	545	600	1 180
Max. gripping width (A).....	mm	1 110	1 235	1 375	1 520
Min. gripping diameter.....	mm	85	80	162	180
Max. load.....	kg	5 000	6 000	7 000	10 000
Height, max gripping width (C)	mm	1 335	1 390	1 405	1 660
Height, arms tip-tip (C)	mm	1 125	1 145	1 090	1 435
Max. width (B)	mm	430	430	430	500
Cylinder size.....		80/56	80/56	80/56	100/63
Max. working pressure	MPa	30	30	30	30
Bracket.....		S60/S70 OQ60/OQ70	S60/S70 OQ60/OQ70	S60/S70 OQ60/OQ70	S70/S80 OQ70/OQ80

Functional description

The *SuperGrip TL* is made up of one frame (1) and two grapple arms, female grapple arm (4) and male grapple arm (3). The frame and the grapple arms are fixed together in a pin-joint system (6).

Two cylinders (5) transfers power to the grapple arms.

The hydraulic cylinder is equipped with hydraulic dampening for "Soft Stop" to eliminate shock loads. The hydraulic cylinders are mounted in pin-joint systems on the barrel side (7) and the piston rod side (8).

The cylinders works as mechanical stop for both max. and min. opening of the grapple arms.

The *SuperGrip TL* is, in it's standard version, equipped with an Indexator IR rotator (2). *SuperGrip TL* can also be equipped with an excavator bracket (12) integrated in the main frame.

All bushings in the grapple are made from a plastic compound-material with self-lubricating abilities. The bushings are designed with a built in lip seal for an effective protection against dust and dirt.

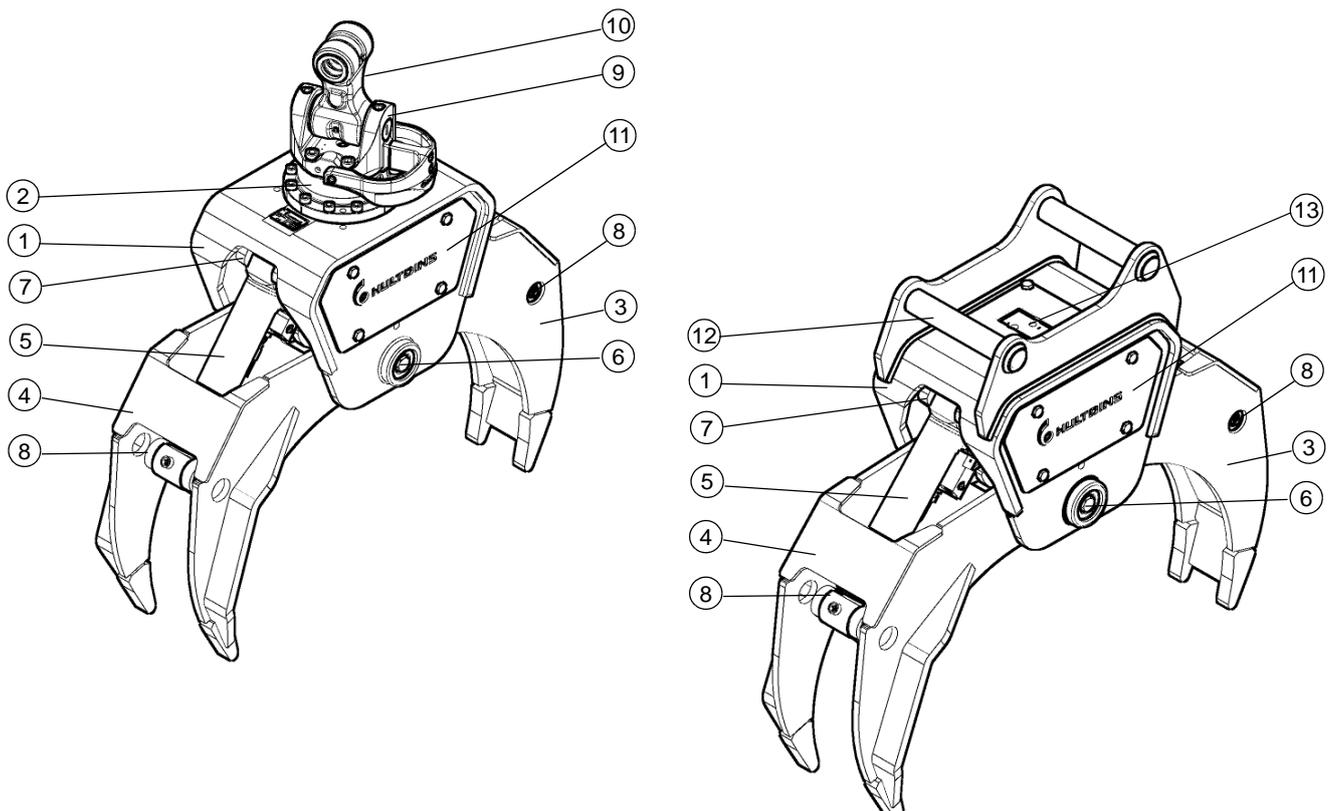


Fig. 7 Design

- | | | |
|----------------------|---|-----------------------|
| 1 Frame | 6 Pin-joint system, main frame-grapple arms (2 pcs. on TL580) | 9 Rotator attachment |
| 2 Rotator | 7 Pin-joint system, main frame-hydraulic cylinder | 10 Upper link |
| 3 Male grapple arm | 8 Pin-joint system, grapple arm-piston rod | 11 Cover plate |
| 4 Female grapple arm | | 12 Excavator bracket |
| 5 Hydraulic cylinder | | 13 Hydraulic manifold |

Installation

 **Caution!**

All service and repairs should be carried out by qualified personnel or an authorized repair shop with suitable tools and lifting devices.

Hydraulic installation of SuperGrip TL

 **Warning!**

The grapple has sharp edges. Use proper wrenches and protective gloves when working on the grapple.

1. Make sure that the operating pressures on the machine for the grapple and rotate function do not exceed the maximum specified in *Technical data*.
2. Connect the hydraulic hoses for the grapple and rotate function.
 - 1 Connect the hose for clock-wise rotation to port stamped 'RR'. (only models with rotator)
 - 2 Connect the hose for counter clock-wise rotation to port stamped 'RL'. (only models with rotator)
 - 3 Connect the hose for grapple-close to port stamped 'G'. (on rotator or hydraulic manifold)
 - 4 Connect the hose for grapple-open to port stamped 'G0'. (on rotator or hydraulic manifold).
3. Make sure that the grapple and rotator functions correspond to the joystick controls.
4. Start the machine and cautiously operate the grapple functions to ensure everything is operating normally.

 **Caution!**

For service instructions on the rotator, refer to Indexator service information

Maintenance instructions

Warning!

Close the grapple and place it solid on the ground and shut down the machine or power source that normally operates the grapple before commencing service.

Warning!

The grapple has sharp steel edges. Use protective gloves, and proper wrench sizes when working on the grapple.

Warning!

Never touch or stand close to the pressurized cylinder and its hydraulic hoses.

Regular maintenance

Daily maintenance

Make sure that:

- Nothing abnormal has happened to the grapple regarding fastener joints and hydraulic hoses.
- No damages or cracking have occurred on the grapple.
- There is no leakage on the grapple.

Tighten any loose items and repair any damages.

Every 250 hours of operation

Make sure that:

- No fasteners are loose.
- The hydraulic hoses are not damaged.
- No damages or cracking have occurred on the grapple.
- There is no leakage on the grapple.

Tighten any loose items and repair any damages.

Lubrication

The grapple should be lubricated every 1000 hours of operation as the figure here shows.

The upper link, rotator and the rotator attachment should be lubricated according to Indexator service information.

Note! Use a mineral oil based grease thickened with, or mixable with a lithium soap. The grease should be classified as L-XCCIB2 according to ISO 6743-9. Molybdenisulfid content max 3 %. Base fluid viscosity 170 to 220 cSt at 40°C. NLGI class 1-2.

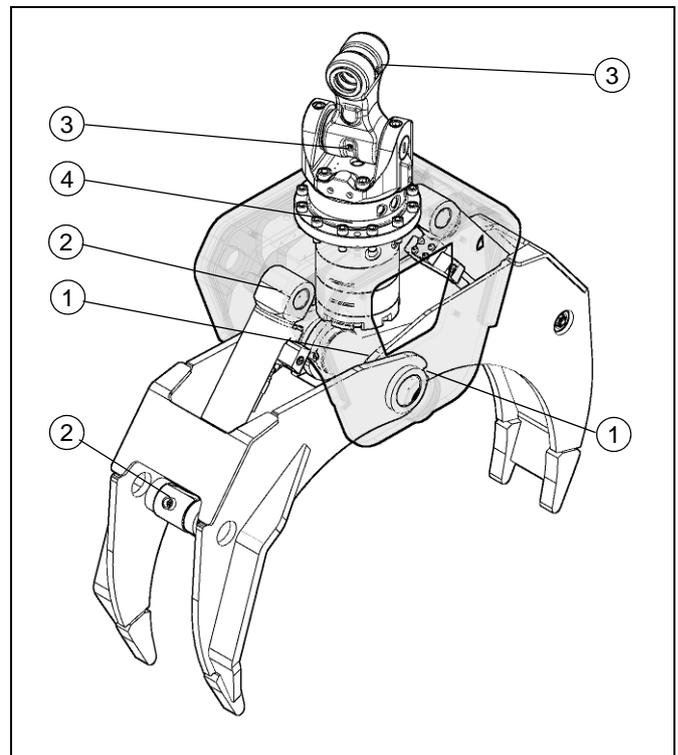


Fig. 8 Lubrication points

- 1 Grapple arms, 4 pcs
- 2 Cylinders, 4 pcs
- 3 Upper link, 2 pcs
- 4 Rotator, 1 pcs.

Fastener joints and hydraulic hoses

Make sure at daily maintenance of the crane/boom that nothing abnormal has occurred with the grapple regarding fastener joints and hydraulic hoses.

The first month of operation

Fasteners

Tightening of the rotator fasteners should be made once a week during the first month of operation.

See *Technical data* regarding wrench size and torque.

HULTDINS
SuperGrip™



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