

**015**

**020**

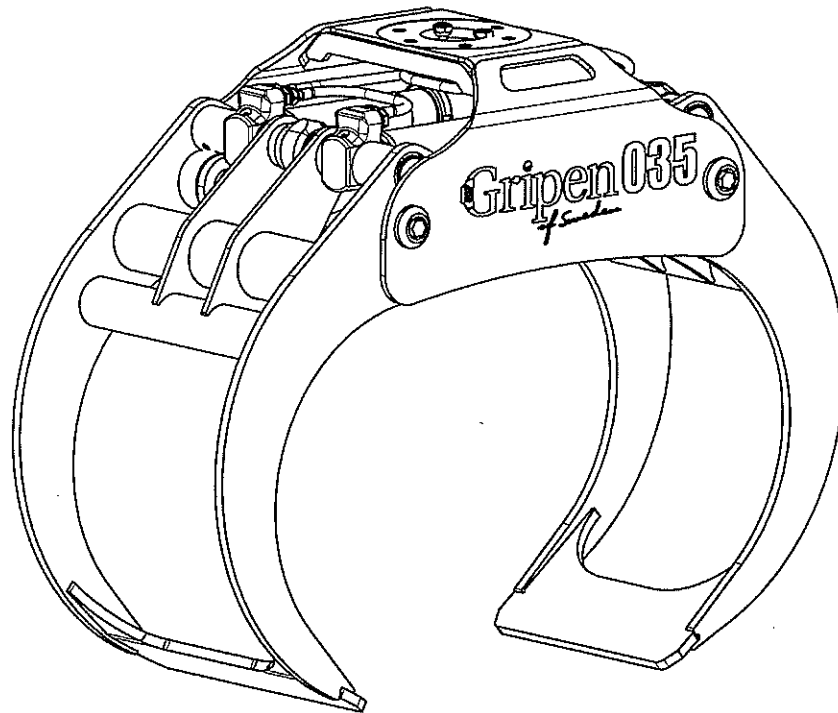
**025**

**028**

**035**

**040**

**055**



**STANDARD**

**HD**

**BIO**

**INDUSTRY**

**DUO**

with serial numbers as of ... **100**

## Introduction

This User Manual contains instructions for correct use and maintenance of the following HSP Gripen grapples (Swedish "gripen" means grapple):

Models: *Standard, Heavy-Duty (HD), Bio, Industry and Duo*

Sizes: *015, 020, 025, 028, 035, 040, 055*

The grapples are only intended for the following applications:

- Standard:** Handling of light-weight and medium heavy logs (e.g., thinning)  
**Heavy-Duty:** Handling of heavy logs (e.g. from final felling)  
**Bio:** Handling of tops, branches and parts of trees  
**Industry:** Handling and sorting of single logs (e.g., at sawmills)  
**Duo:** Two grapples in one, see **Standard** and **Bio**

This User Manual belongs to your Gripen grapple and should always be at hand for all servicing of your grapple

The operator of the Gripen is expected to have the basic knowledge of mechanics and hydraulics necessary for safe use of the grapple.

***For latest updates of this manual and its technical data, you are welcome to contact Hassela Skogsprodukter AB and visit [www.hsp.se](http://www.hsp.se)***

### CE Certification

The Gripen grapple is CE certified, which means that its design, manufacture and specifications are in conformity with applicable EU directives.

If the grapple is modified, supplemented with other products or used in other ways than those described in this manual, our CE certification loses its validity.

### Guarantees and Claims

All warranties, repair work and service measures are based on the assumption that only original Hassela Skogsprodukter AB spare parts are used and that the instructions in this manual are carefully followed.

Only qualified technicians at authorized repair shops are allowed to perform service and repair work on this product.

For any claims, please contact your Gripen dealer.

## Safety

### General Safety Instructions

This section contains a summary of all safety rules and regulations that must be followed when operating the grapple.

These regulations do not release crane operators from their obligation to observe applicable traffic and occupational safety laws and regulations.

To operate the grapple, the operator must be familiar with the operating principles and the safety regulations that apply to the product.

#### ***Use the grapple only for what it is intended for!***

Any use together with other accessories not supplied with or recommended for the product must be approved by Hassela Skogsprodukter AB.

During operation, the operator should be observant of abnormal noise and oil leakage. Any faults detected must be remedied before continued operation if there is a risk of injury or material damage.

***The warnings below point out potential risks and how they can be avoided. If you do not completely understand any of the warnings below, be sure to contact your employer or the manufacturer/distributor of the grapple for a full explanation.***

### Warnings

- **WARNING** Do not attempt to install, use or perform maintenance on the grapple until you have completely read and understood the documentation for the product as well as the machine on which it is to be installed. Pay special attention to the safety regulations.
- **WARNING** Incorrect assembly can jeopardize safety. If you have any doubts regarding the product or how to operate it, be sure to contact your dealer or Hassela Skogsprodukter AB.
- **WARNING** Shut down the machine/hydraulic system and ensure the hydraulic system has been completely depressurized prior to any work on the system.
- **WARNING** Never use your hand to look for leaks in the hydraulic system. Pressurized hydraulic oil can penetrate the skin.
- **WARNING** In case of any doubt with regard to safety devices, be sure to contact your dealer or Hassela Skogsprodukter AB.

### Warning Labels

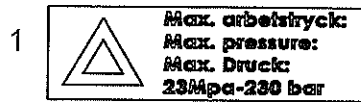
The grapple carries the following warning labels. Make sure you understand their contents and meaning.

Replace damaged labels!

(1)

Max. pressure:

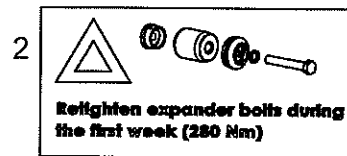
23 Mpa (230 bar)



(2)

Retighten expander bolts

during the first week (280 Nm).



## Installation Instructions

### Hole Pattern

(Fig. 3)

The grapple hole pattern for flange mounted rotators is shown in the figure to the right.

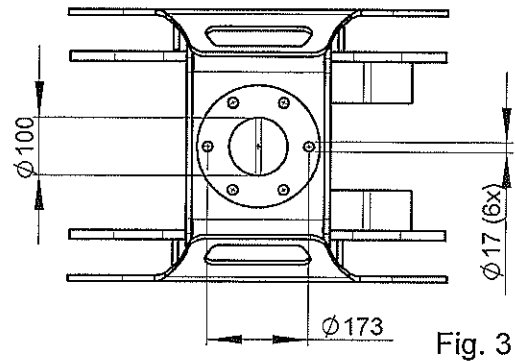


Fig. 3

### Hose Connection

(Fig. 4)

Connect the grapple opening hose marked "O" to the connector marked "O" on the rotator.

Connect the grapple closing hose marked "C" to the connector marked "C" on the rotator.

"O" = OPEN

"C" = CLOSE

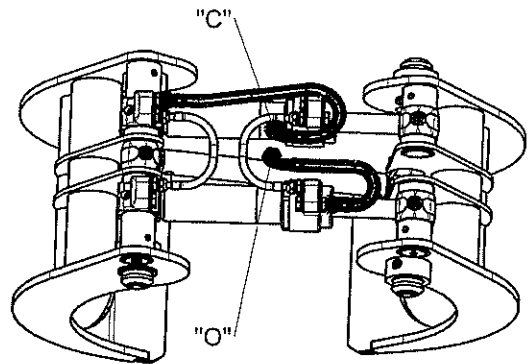


Fig. 4

### Rotator Bolt Assembly

(Fig.5)

See section *Technical Data* for correct torque. Always use a new bolt assembly when replacing the rotator or grapple.

HSP part no. for bolt assembly:  
7150190 (M16)

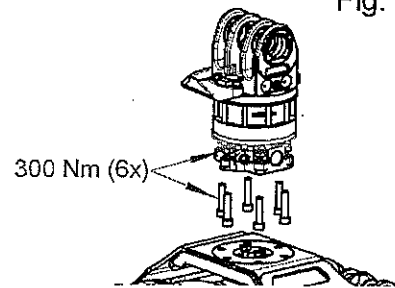


Fig. 5

**Retighten the bolt assembly (300 Nm) between grapple and rotator once a week during the first month of operation.**



### Start-Up

Check and make sure the grapple functions correspond to the joystick movement order.

**Check and retighten the expander bolts (see Fig. 6) during the first week (280 Nm)**

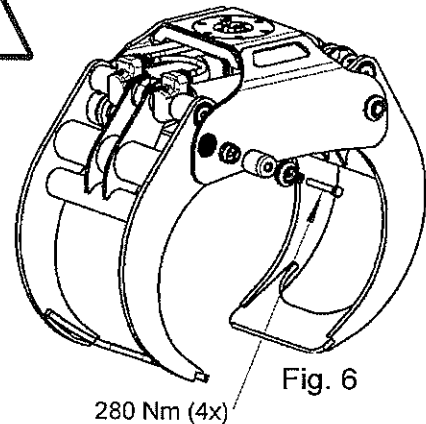


Fig. 6

280 Nm (4x)

## Maintenance

### General

To achieve correct and uninterrupted operation, the grapple requires regular maintenance. Always use original spare parts from Hassela Skogsprodukter AB.

Carefully follow the instructions in this manual. Make it a habit to perform daily inspections of the grapple for correct operation and uncompromised safety.

***Any faults detected must be remedied before continued operation if these involve a risk of injury or material damage.***



### Bolt Assemblies

***Check and retighten the expander bolts during the first week (280 Nm).***



Inspect and retighten the rotator mount and expander bolt assemblies at regular intervals during the first month of operation.

For correct tightening torques, see section *Technical data*.

### Hydraulic Hoses

Replace damaged hydraulic hoses and couplings.

When replacing hydraulic hoses, lubricate the hose coupling nuts.

**Always completely depressurize the hydraulic cylinders before disassembly of hydraulic couplings.**



### Lubricants

Use a slide bearing lubricant, preferably containing a graphite or molybdenum disulphide additive.

For example, SK 12 or S3.

### Lubrication Instructions

(Fig. 7)

The grapple uses bearing sleeves that should be lubricated every 8 hours.

No. of lubricating points: 10.

### Spare Parts

Spare parts are available at your closest dealer.

Be sure to indicate your grapple type and serial no. when ordering spare parts.

Use only original HSP parts. Hassela Skogsprodukter AB cannot be held liable for product functioning and safety if other than original parts are used.

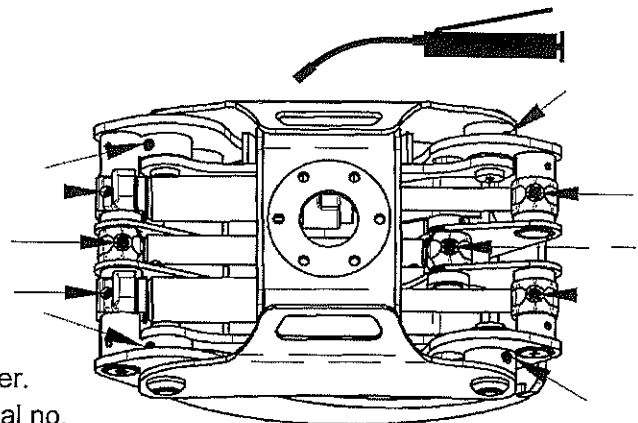
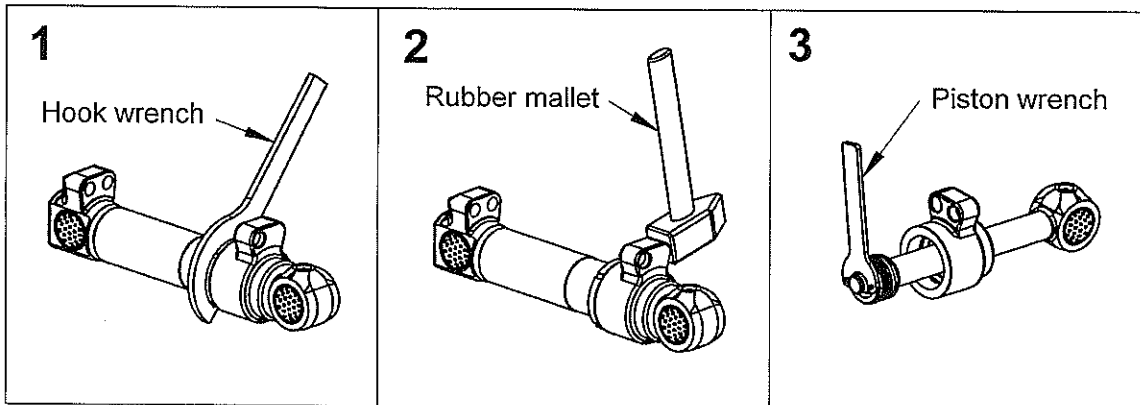


Fig. 7



Item	Part Names
4	Piston gasket
6	Guide ring
7	O-ring
8	Support ring
12	O-ring
13	Support ring
14	Guide ring
15	Piston rod seal
16	Rod wiper

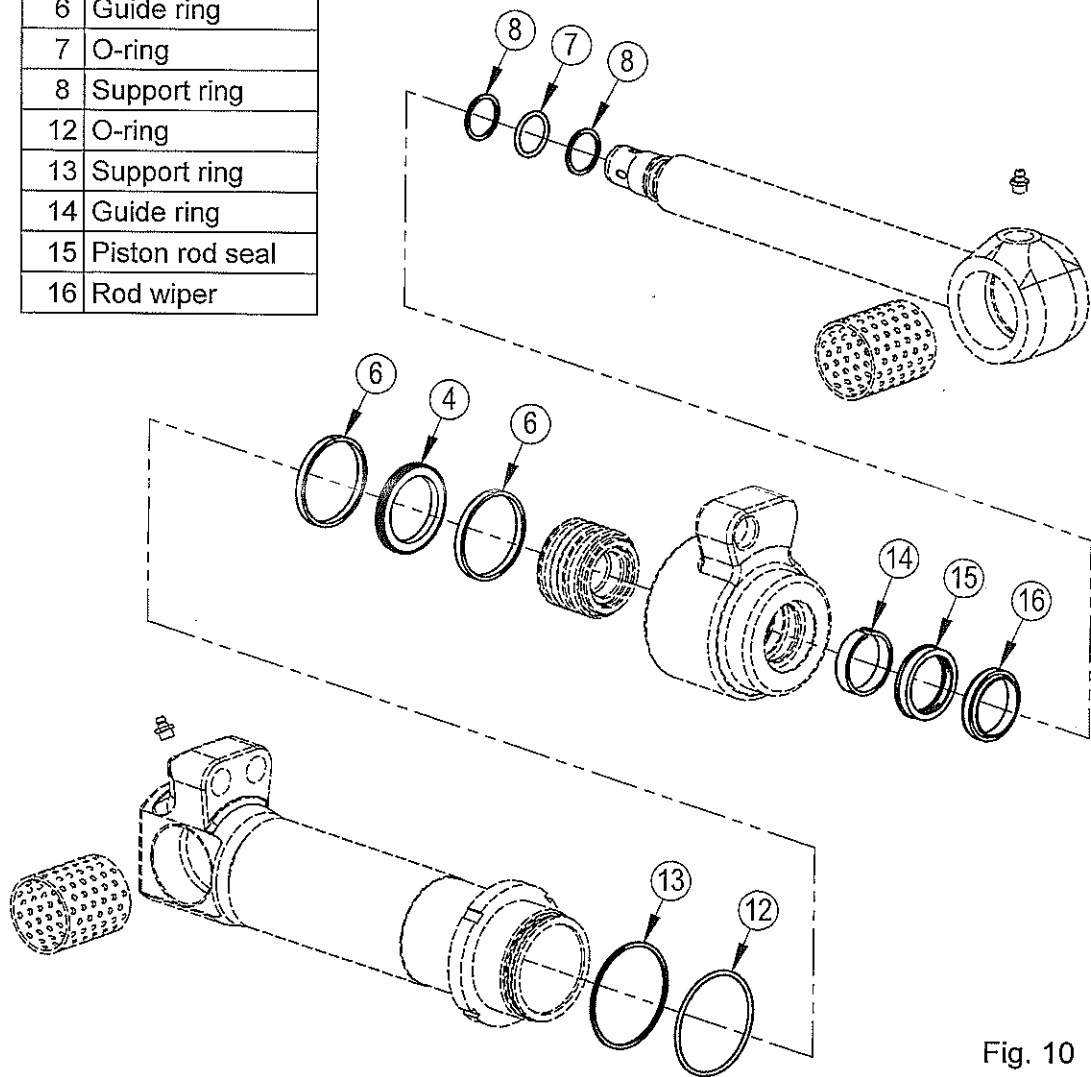


Fig. 10

## Technical data

### Bolt Tightening Torques

(Fig.12)

Rotator mount:

M16 (10.9).....300Nm

Expander bolts.....280 Nm

*Check and retighten expander bolts during the first week (280 Nm).*

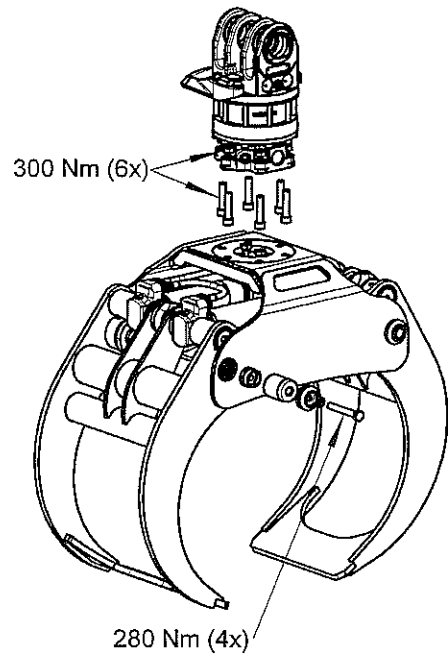


Fig. 12

### Grapple Dimensions (reference sketches)

For measurements, see the data table for your grapple below.

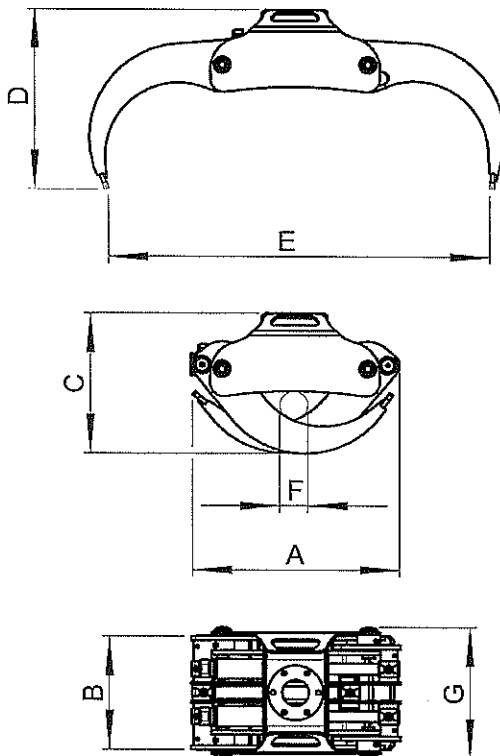


Fig.13



### Bio Grapples

Technical data (for dimensions, also see Fig. 13 above)

Grapple Sizes		015	020	025	028	035	040	055
Operating pressure	Mpa	23	23	23	23	23	23	23
Impact pressure	Mpa	29	29	29	29	29	29	29
Weight	kg	135	145	235	240	265	295	335
Load area, tip-to-tip	m <sup>2</sup>	0.15	0.20	0.25	0.28	0.35	0.40	0.55
Tip force, tip-to-tip	kN	9.3	8.7	17.0	16.7	16.1	16.2	16.0
Opening time at 70l/min	s	0.4	0.4	0.8	0.9	1.0	1.1	1.7
Closing time at 70l/min	s	0.6	0.7	1.4	1.5	1.6	1.7	2.5
Length, grapple closed	A mm	740	780	800	830	885	970	1110
Width, outer claw	B mm	355	355	434	434	472	472	472
Height, grapple closed	C mm	510	510	540	530	565	610	695
Height, grapple open	D mm	685	645	690	635	600	630	715
Max. grapple opening	E mm	1170	1400	1450	1690	1880	2070	2390
Min. load diameter	F mm	90	95	110	110	120	140	160
Max. grapple width	G mm	397	397	488	488	526	526	526
Max. load	kg	2000	2000	3500	3500	5000	5000	5000

### Industry Grapples

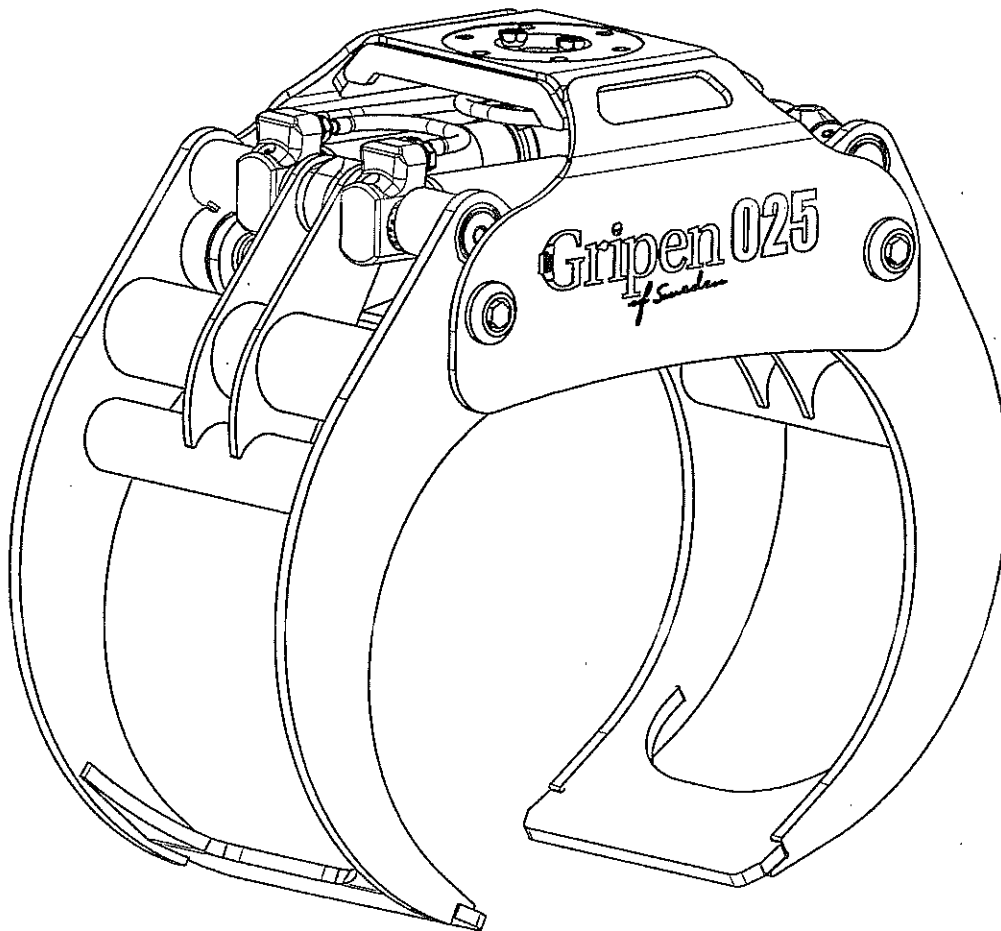
Technical data (for dimensions, also see Fig. 13 above)

Grapple Sizes		015
Operating pressure	Mpa	23
Impact pressure	Mpa	29
Weight	kg	175
Load area, tip-to-tip	m <sup>2</sup>	0.15
Tip force, tip-to-tip	kN	9.3
Opening time at 70l/min	s	0.4
Closing time at 70l/min	s	0.6
Length, grapple closed	A mm	740
Width, outer claw	B mm	310
Height, grapple closed	C mm	510
Height, grapple open	D mm	690
Max. grapple opening	E mm	1210
Min. load diameter	F mm	100
Max. grapple width	G mm	397
Max. load	kg	3500

## Accessories

Hook wrench (Cylinder 635XXXX).....	Part no. 635 2143
Hook wrench (Cylinder 635XXXX-D).....	Part no. 635 2782
Piston wrench.....	Part no. 635 2144
Assembly tool – Duo.....	Part no. 635 3081
Punch for tension pin.....	Part. no.
Mandrel for bearing sleeves.....	Part no.

# ***HSP Gripen 025***



Från tillverkningsnummer.....251093  
From Manufacturing no.....251093  
Gültig ab Herstellungs nr.....251093

Pos	Best.nr. Part no. Best.nr.	Ant. Qty. Anz	Benämning	Description	Benennung	Anmärkning Notes Anmerkung
	6000025		Grip Kpl.	Grapple Compl.	Greifer Kpl.	POS 1 - 22
1	6350813-D	2	Cylinder Kpl.	Cylinder Assy	Zylinder kpl.	63/40 Sid/Page/Seite 7
2	6350140	1	Axel	Shaft	Achse	ø 50
3	6350115	2	Axel	Shaft	Achse	ø 50
4	7150100	5	Spännstift	Bucklepin	Spannstift	FRP 12 x 75
5	6350753	1	Innerklo	Claw Inner	Innen Klaue	
6	7150101	4	Bussning	Bushing	Buchse	60/65 x 60
7	6350763	1	P-Stag	Rod	Gelenk	
8	7150102	2	Bussning	Bushing	Buchse	50/55 x 60
9	6350759	1	Ytterklo	Claw Outer	Aussen Klaue	
10	6350312	2	Axel	Shaft	Achse	ø 50
11	6350748	1	Ok	Stand	Stativ	
12	6350586	4	Axel	Shaft	Achse	ø 60
13	7150103	6	Smörjnippel	Grease Nipple	Schmiernippel	AHKR 1/8"
14	7150238	4	Skruv	Screw	Schraube	M6S 16x110 10.9
15	6350587	4	Bricka	Washer	Teller	
16	7150283	2	Dekal	Decal	Abziehbilde	"HSP Gripen 025"
17	6350589	4	Bricka	Washer	Teller	
18	7150417	6	Låsmutter	Locking nut	Gegenmutter	LM6MH M16
19	7150404	6	Skruv	Screw	Schraube	M6S 16x75 10.9
20	7150398	6	Bricka	Washer	Teller	
21	7150239	4/6	Låsbricka	Locingwasher	Gegenteller	Nordlock
22	7150168	1	Anslutn.sats	Connectionbatch	Anschlussatz	R, BSP. Sid/Page/Seite 5
22	7150169	1	Anslutn.sats	Connectionbatch	Anschlussatz	UNF, JIC. Sid/Page/Seite 5
24	6350588		Axel Kpl.	Shaft Compl.	Achse Kpl.	Pos.12,14,15,17,21#(4)
25	7150190		Skruvsats	Screw batch	Schraubensatz	Pos. 18,19,20,21#(6)

Pos	Best.nr.	Ant.	Benämning	Description	Benennung	Anmärkning
	Part no.	Qty.				Notes
	Best.nr.	Anz				Anmerkung
R, BSP						
	7150168		Anslutningssats	Connectionbatch	Anschlussatz	Pos.1-6
1	7150107	10	Tättningsbricka	Seal Washer	Dichtungsscheibe	Tredo 1/2"
2	7150108	6	Adapter	Adapter	Adapter	BSPP 1/2"x1/2"
3	7150109	4	Propp	Plug	Pfropf	BSPP 1/2"
4	7150110	2	Slang	Hose	Schlauch	C-C 315mm, 1/2"
5	7150149	1	Slang	Hose	Schlauch	C-C 850mm, 1/2"
6	7150126	1	Slang	Hose	Schlauch	C-C 510mm, 1/2"
UNF JIC						
	7150169		Anslutningssats	Connectionbatch	Anschlussatz	Pos.1-6
1	7150107	10	Tättningsbricka	Seal Washer	Dichtungsscheibe	Tredo 1/2"
2	7150164	6	Adapter	Adapter	Adapter	BSPP 1/2"xJIC UNF 7/8"
3	7150109	4	Propp	Plug	Pfropf	BSPP 1/2"
4	7150159	2	Slang	Hose	Schlauch	C-C 315mm, 1/2"
5	7150161	1	Slang	Hose	Schlauch	C-C 850mm, 1/2"
6	7150160	1	Slang	Hose	Schlauch	C-C 510mm, 1/2"

Pos	Best.nr.	Ant.	Benämning	Description	Benennung	Anmärkning
	Part no.	Qty.				Notes
	Best.nr.	Anz				Anmerkung
	7150280		Tätningssats	Seal Kit	Dichtungssatz	Pos. 4,6,7,8,12,13,14,15,16
	6350813-D		Cylinder 63/40	Cylinder 63/40	Zylinder 63/40	Pos. 1-16
1	6350814	1	Cylinderrör	Cylinder Tube	Zylinderrohr	78/63
2	7150103	2	Smörjnippel	Grease Nippel	Schmiernippel	AH KR1/8
3	7150102	2	Lagerbussning	Bushing	Buchse	ø50/55x60
4	7150276	1	Kolvätning	Piston Seal	Dichtungsring	63-47x6,3
5	6352441	1	Kolv	Piston	Kolben	
6	7150277	2	Styrband	Guide Ring	Führungsring	63-58x5,6
7	7150114	1	O-ring	O-ring	O-ring	OR26,2x3
8	7150115	2	Stödring	Support Ring	Stützring	32/27x1,3
9	6350816	1	Kolvstång	Piston Rod	Kolbenstange	ø40
10	6352675	1	Låsmutter	Locking nut	Gegenmutter	M78x2
11	6352440	1	Toppmutter	Head	Führungsmutter	
12	7150278	1	O-ring	O-ring	O-ring	69,5x3
13	7150279	1	Stödring	Support Ring	Stützring	70/75x1,3
14	7150273	1	Styrband	Guide Ring	Führungsring	40/45x9,7
15	7150116	1	Kolvst.tätning	Rod Seal	Dichtungsring	40/50x10
16	7150120	1	Avstrykare	Rod Wiper	Abstreifer	40/50x10