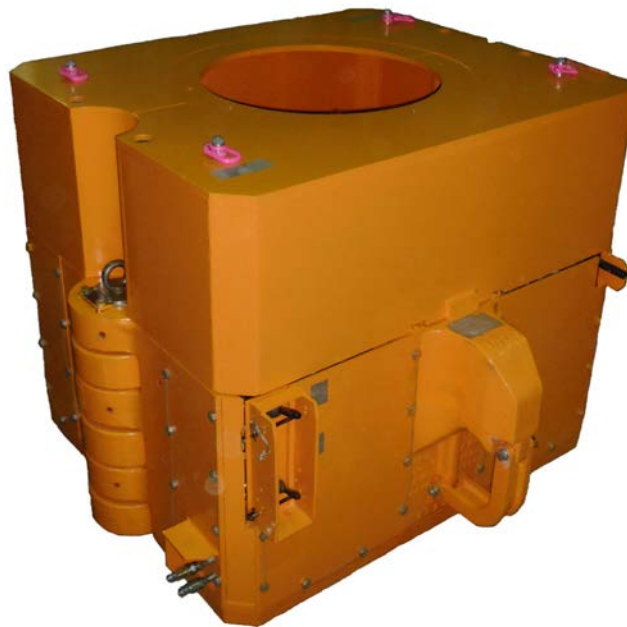


Blohm + Voss Pipe Handling Equipment
Hydraulic Operated Elevator / Spider
BVE / BVS 750-2 16" – 24.1/2"
Technical Documentation
Original Instructions



Manual PN 712000-Y-H-D Rev 001, February 2012

Blohm + Voss Oil Tools



GENERAL INFORMATION

Warnings and Note

WARNING: A "WARNING" INDICATES A DEFINITE RISK OF EQUIPMENT DAMAGE OR DANGER TO PERSONNEL. FAILURE TO OBSERVE AND FOLLOW PROPER PROCEDURES COULD RESULT IN SERIOUS OR FATAL INJURY TO PERSONNEL, SIGNIFICANT PROPERTY LOSS, OR SIGNIFICANT EQUIPMENT DAMAGE.

NOTE: A "note" indicates that additional information is provided about the current topics.

WARNING: THIS TECHNICAL DOCUMENTATION CONTAINS INSTRUCTIONS ON SAFETY, INSTALLATION, OPERATION AND MAINTENANCE FOR THE BLOHM + VOSS OIL TOOLS TOOL. IT MUST BE STUDIED BEFORE WORKING WITH THE TOOL.

Improper / Unsafe Use

The tool must only be used for the designated purpose. When using the tool, the rated load must never be exceeded.

Intended use of this manual

This manual is intended for use by field service, engineering, installation, operation, and repair personnel. Every effort has been made to ensure the accuracy of the information contained herein. Blohm + Voss Oil Tools, will not be held liable for errors in this material, or for consequences arising from misuse of this material. Anyone using service procedures or tools, whether or not recommended by Blohm + Voss Oil Tools, must be thoroughly satisfied that neither personal safety nor equipment safety will be jeopardized.

Intellectual property

All rights retained. No part of this document may be reproduced in any form (print, photocopy, microfilm or any other procedure) or be processed using an electronic system without written approval of Blohm + Voss Oil Tools.

All information contained in this manual is based upon the latest product information available at any time of printing.

Dependent on ongoing technical improvements (ISO 9001) "Blohm + Voss Oil Tools" reserves the right to change the design and specifications without announcement.

The values specified in this manual represent the nominal values of a unit produced in series. Slight deviations in the case of the individual devices are possible.

NOTE: In the event of problems that cannot be solved with the aid of this manual, please contact one of the addresses listed below.

CE Marking

The tool complies with the Machinery Directive 98/37/EC and 2006/42/EC

For machines containing any hydraulic or pneumatic powered parts, the Directive 94/9/EC "Equipment and protective systems in potentially explosive atmospheres" applies. The marking is as follows: CE Ex II 2G T5 (hydraulic tools) or CE Ex II 2G T6 (pneumatic tools).

Limited Warranty

The warranty provided will be void if the tool is either:

1. Repaired or serviced by a service facility which was not authorised by Blohm + Voss Oil Tools.
2. Replacement parts not manufactured by Blohm + Voss Oil Tools are used.
3. Modifications were made to the tool which were not approved by Blohm + Voss Oil Tools.

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enquiries@mtqpremier.com.sg

General safety issues

WARNING: One should avoid creating ignition sources, like heat, as a result of the use of the tool with other tools or equipment.

WARNING: Do not use the tool for any other purpose than given in this document within its specification.

WARNING: Failure to conduct routine maintenance could result in equipment damage or injury to personnel.

WARNING: Wear personal protection equipment while working with the equipment.

WARNING: If any safety elements (like safety ropes, safety sheets, plates or washers) were disassembled due to maintenance work, do **NOT** re-use them. Always replace them with new safety elements.

WARNING: All warning plates, signs and labels attached to the equipment must be observed. The warning plates, signs and labels must be present on the tool. Do not remove the labels. If they are missing, replacing is mandatory.

WARNING: Any modification to the tool carried out without the approval of Blohm + Voss Oil Tools will void any warranty.

WARNING: Using the tool with damaged or worn parts can create serious incidents.

WARNING: It is not allowed to use any components which are of "non-B+V" origine, or use "non-OEM" parts which are not approved by B+V. It will void any warranty and may effect the correct functioning of the tool and its safety features.

WARNING: The company operating the tool is responsible for evaluating safe and proper use of the tool in a hazard analysis.

WARNING: The operating company is obligated to issue working instructions for safe use and supervise observance of these working instructions.

WARNING: Every employee, which operates, services, inspects or otherwise involved with the use of the tool in other areas has to ensure, that these actions are done by trained and by an Blohm + Voss Oil Tools authorized personnel, and should complete regular courses of training, to ensure proper use as well as safe operation, correct maintenance and inspection.

WARNING: If necessary, a reasonable, additional supervisor should be appointed during operation.

WARNING: Stay away from the tool during operation. In case it is remote operated it may make movements without warning.

Safe handling

WARNING HANDLES/GRIP POINTS ARE MARKED BY GREEN PAINT. DURING OPERATIONS THESE GRIPS ARE THE ONLY PLACES THE TOOL CAN BE HANDLED SAFELY. IN ALL NON-GREEN MARKED PLACES THERE IS A RISK FOR INJURY. AUTOMATIC/ REMOTE OPERATED TOOLS MAY NOT HAVE ANY GREEN PAINTED GRIP-POINTS. IN THIS CASE IT IS NOT ALLOWED TO TOUCH THE TOOL WHILE OPERATING.



Safe gripping points



Warning sign PN 671638
General warning



Warning sign PN 671642
Pay attention: Apply grease at least once a day.



Warning sign PN 611524
Danger: Do not touch.



Warning sign PN 671640-1
Pay attention: Do not place your hands between moving parts.



Warning sign PN 671641
Pay attention: Risk of crushing.

Safety issues Spiders/ Elevators

WARNING: ALWAYS ENSURE THE SLIP SEGMENTS ARE LABELLED WITH THE SAME SERIAL NUMBER. NEVER USE SEGMENTS WITH DIFFERENT NUMBERS AS THEY MAY CAUSE THE PIPE TO DROP DUE TO DIFFERENT WEAR PATTERNS.

WARNING: UNDER NO CIRCUMSTANCES SHOULD THE SLIP ASSEMBLY BE RAISED WHILE SUPPORTING LOAD. IF THE SLIP ASSEMBLY IS LOWERED IN PLACE, THE TOOL CAN BEAR THE LOAD OF THE TUBULAR. BEFORE RAISING THE SLIP ASSEMBLY, MAKE SURE THAT THE TUBULAR LOAD IS SUPPORTED. THE SLIP ASSEMBLY MUST BE RELEASED FROM ANY LOAD BEFORE RAISING IT.

WARNING: YOU MUST NEITHER ASSEMBLE NOR DISASSEMBLE SLIPS, GUIDES, INSERTS, ETC. WHEN THE TOOL IS PLACED IN THE ROTARY TABLE.

WARNING: NEVER USE THE POWER SLIP/SPIDER/ELEVATOR WITHOUT GUIDE PLATES. THIS CAN CAUSE DAMAGE TO THE SLIPS AND LEAD TO LOSS OF PIPES/TUBULAR.

WARNING: IT MUST BE ENSURED AND CONTROLLED REGULARLY THAT THE BACK SIDE OF THE SLIPS ARE LUBRICATED WITH ENOUGH GREASE. THE QUANTITY OF GREASE MUST BE RELATED TO THE TYPE OF OPERATION AND TYPE OF MUD. FAILURE TO GREASE PROPERLY MAY LEAD TO STICKING SLIPS.

WARNING: DO NEVER UNLATCH/ OPEN THE TOOL WHILE A PIPE IS SUSPENDED IN THE TOOL; THE PIPE WILL BE LOST!

WARNING: MAKE SURE ALL SLIP SEGMENTS ARE FREE IN THE UP POSITION WHEN LATCHING THE ELEVATOR. IF ANY OF THE SEGMENTS ARE STUCK IN THE DOWN POSITION, THE ELEVATOR MAY NOT CLOSE PROPERLY.

WARNING: THE LIFTING OF VERTICAL PIPES IS TO BE PERFORMED CAREFULLY AND MUST BE MONITORED. THE PICKING UP OF HORIZONTAL OR TILTED PIPES IS DANGEROUS AND NOT PERMITTED BY THE MANUFACTURER.

WARNING: IF THE OPERATOR CONSIDERS TO USE THE ELEVATOR FOR OTHER OPERATIONS THAN THE INTENDED USE (FOR EXAMPLE HANDLING OF HORIZONTAL PIPES), IT IS MANDATORY TO MAKE AN ADDITIONAL RISK ANALYSIS.

Safety issues automatic Spiders/Elevators

WARNING: ENSURE THE CONNECTORS ARE FROM A MALE AND FEMALE TYPE TO PREVENT FAULTY CONNECTIONS.

WARNING: HYDRAULIC ONLY BEFORE ANY MAINTENANCE WORK IS CARRIED OUT, MAKE SURE THAT NO PRESSURE IS APPLIED TO THE EQUIPMENT AND THAT THE CONNECTING LINES ARE DISCONNECTED (IF APPLICABLE).

Safety issues Spiders

WARNING: YOU MUST NEITHER ASSEMBLE NOR DISASSEMBLE SLIPS, GUIDES, INSERTS, ETC. WHEN THE TOOL IS PLACED ABOVE THE WELL CENTER.

Safety issues hydraulic elevators

WARNING: DO NOT CLOSE THE ELEVATOR MANUALLY.

WARNING: HYDRAULIC ONLY BEFORE ANY MAINTENANCE WORK IS CARRIED OUT, MAKE SURE THAT NO PRESSURE IS APPLIED TO THE ELEVATOR AND THAT THE CONNECTING LINES ARE DISCONNECTED (IF APPLICABLE).

EC-DECLARATION OF CONFORMITY

We,

Blohm + Voss Oil Tools
Hermann-Blohm-Strasse 2
20457 Hamburg
Phone:+49(0)40 3119-1139
Fax:+49(0)40 3119-3305

declare that the product

B+V Type BVE/S (Elevator / Spider), Load rating 250 to 750 ton , Hydraulic operated

which is the subject of this declaration, is in conformity with the following standard(s) or normative documents

98/37/EC:	Machinery Directive
2006/42/EC:	Machinery Directive from 31 December 2009.
DIN EN ISO 12100 :	Safety of machinery, part 1 and 2
DIN EN ISO 14121-1:	Safety of machinery, Risk assessment
Directive 2014/34/EU:	Devices and protection systems for intended use in explosive areas
DIN EN 13463-1:2009-07:	Non-electrical equipment for use in potentially explosive atmospheres
ISO 13535:2002/API 8C:	Petroleum and natural gas industries-Drilling and production equipment-Hoisting equipment

Marking:   II 2G T5

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TABLE OF CONTENTS	DESCRIPTION	COMMISSIONING	INSTALLATION	OPERATION	MAINTENANCE & INSPECTION	SIZE COMPONENTS	DRAWINGS
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DESCRIPTION

DESCRIPTION

1. DESCRIPTION

General

The Blohm + Voss 750 tons Elevator / Spider is designed with strength and safety factors in accordance with API Section 8C - Regulations and will be used for handling long, heavy strings of casings. These tools are convertible for use as casing spiders or casing elevators, and can be operated easily by one man due to unitized slip assemblies and a positive locking mechanism.

The unitized design of the slip assemblies allows the tool to grip casing with uniform radial pressure, ensuring a safe hold while minimizing the possibility of damage to the pipe. This model is for hydraulic operation.

It is possible to get a hydraulic feedback signal for "Slips are up" and "Slips are down".

The slip assembly will be mechanically locked automatically in both UP and DOWN position, and must be unlocked by the hydraulic system.

The BVE/S can handle pipes from 16" through 24.1/2" O.D. On all slip body sizes, reducing inserts are installed simply and rapidly, permitting the handling of pipes with an O.D. up to 1" smaller than the slip body size without changing slips.

When configured as an elevator, the tool includes a bottom guide plate and a casing guide bell, which automatically centers the pipe for positive locking of the slips. Auxiliary equipment needed to use the tool as a spider includes a spider adapter plate, which sits on the rotary table to provide a secure platform for the tool, and an upper guide assembly, which functions as a pipe centring device.

Both models feature double-hinges, which permits them to be rapidly installed on casing, or removed.

ELEVATOR

Slip assembly

Body assembly

Bottom Guide

Casing Guide Bell

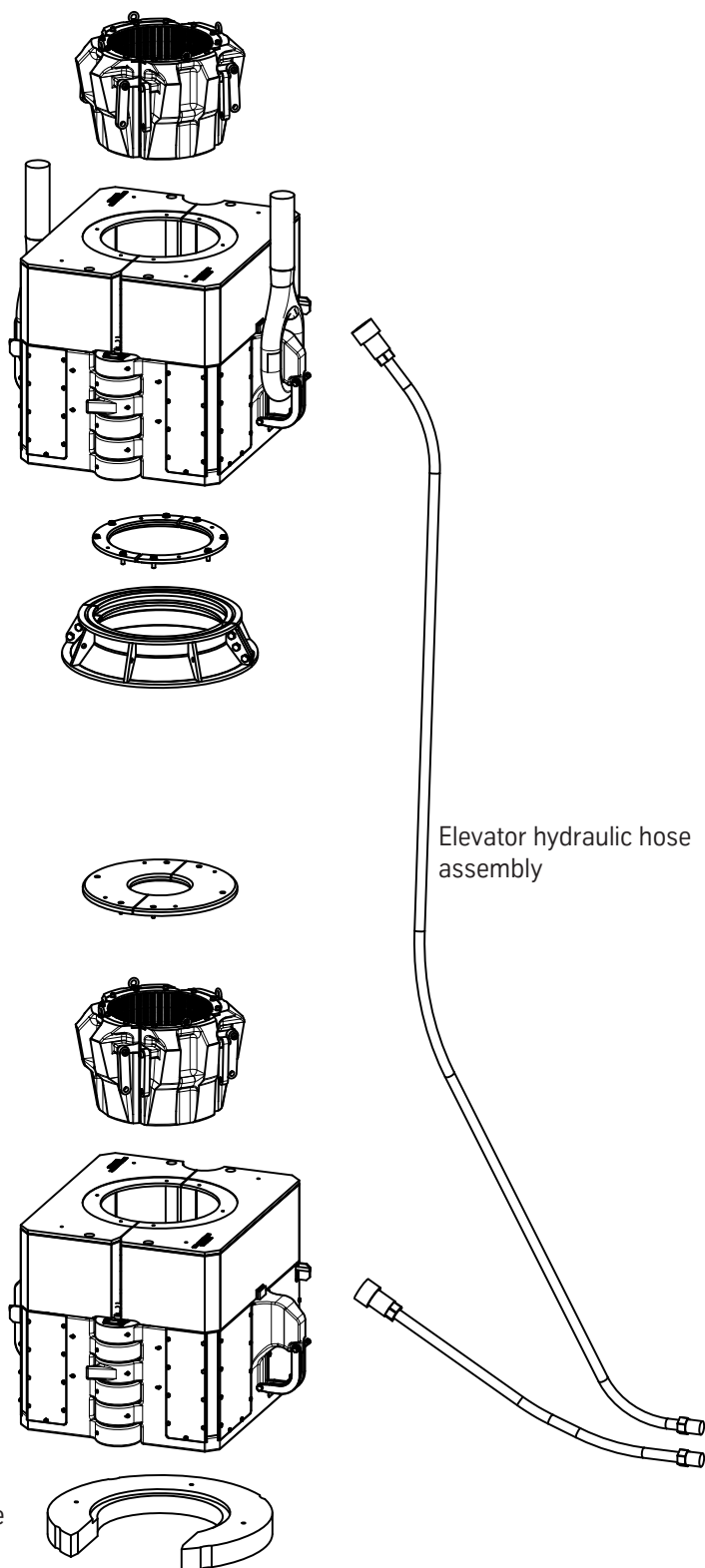
SPIDER

Upper guide

Slip assembly

Body assembly

Spider adapter plate





By locking the manual operation, the BVE/S-750 can be operated by remote control.

Intend of use

The Blohm + Voss 750 tons Elevator / Spider is designed with strength and safety factors in accordance with API Section 8C - Regulations and will be used for vertical handling long, heavy strings of casings. These tools are convertible for use as casing spiders or casing elevators

Improper / Unsafe Use

When using the BVE / BVS 750, the load of 750 sh tons must never be exceeded.

Unit Identification

The identification area clearly identifies the BVE / BVS area (manufacturer, type, material, part number, serial number, date of manufacture). It is important to keep this information ready for the purpose of servicing and repair work.

Slip Identification

The slips identification is stamped in the slips

Limited Warranty

The warranty provided will be void if the Elevator/Spider is either:

- Repaired or serviced by a service facility which was not authorised by Blohm + Voss Oil Tools.
- Replacement parts not manufactured by Blohm + Voss Oil Tools are used.
- Modifications were made to the Elevator/Spider which were not approved by Blohm + Voss Oil Tools.

Technical Data

Maximum allowable working load	750 sh tons
API test load	1125 sh tons
Pipe size range (i.e. Drill pipe, casing, tubing and drill collar)	16" to 24.1/2"
Weight (w/o Slip assembly)	6.250 kg (13.780 lbs)
Feedbacksignal	Hydraulic, shows slip assembly is set or raised
Working pressure	Min 180 bar (2600 Psi), Max 250 bar (3600 Psi)
Oil Flow rate	30-45 l/min (6-10 gal/min)
Temperature working range ambient	- 20° C to + 60° C - 4° F to 176° F

*If not otherwise stated in the Databook

Elevator Links

Size	Rating
4.3/4"	750 t
5.1/2"	1000 t

Weights

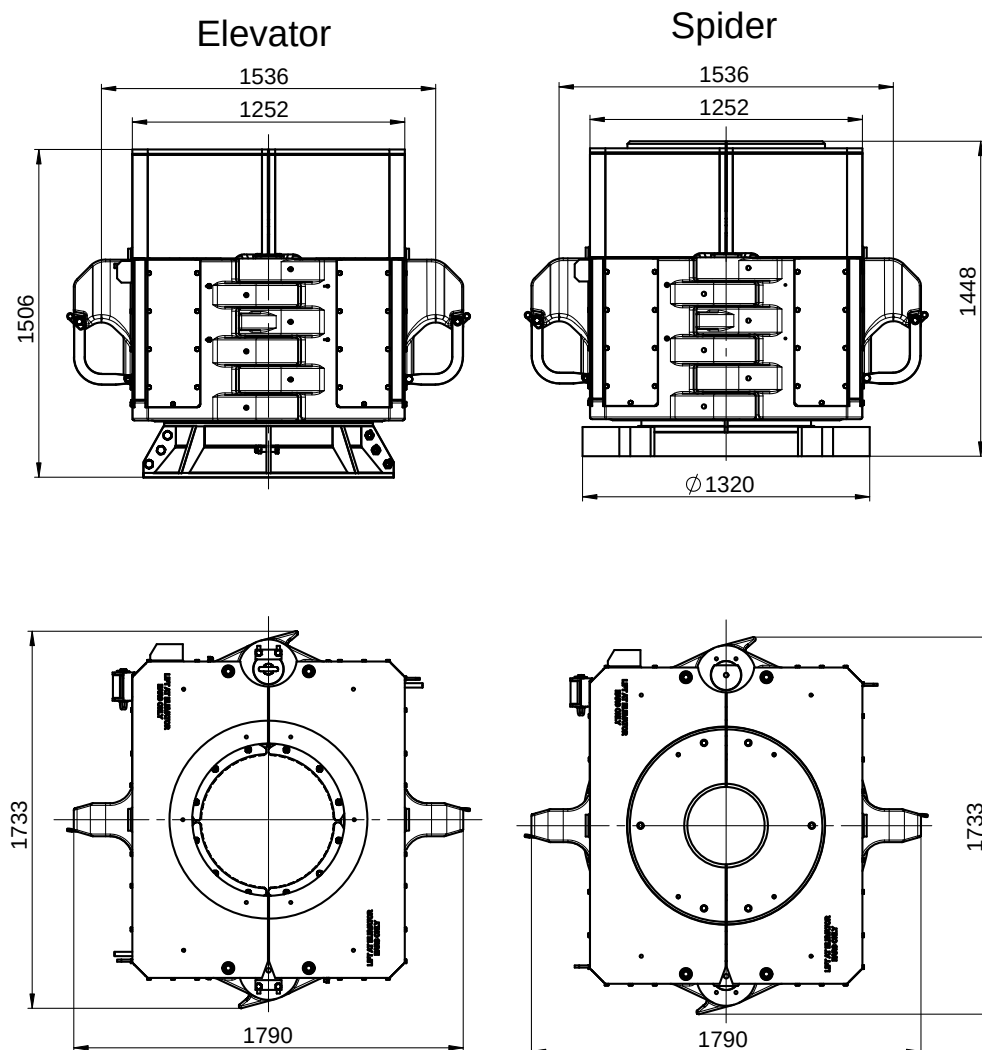
Pipe size	18.5/8"	20"	24"
Body ass'y w/o Slips and Guide Plates	PN 712000-Y-H 6.250 kg / 13.780 lbs		
PN Slip ass'y	PN 712100-248 1025 kg / 2258 lbs	PN 712100-249 974 kg / 2150 lbs	PN 712100-251 910 kg / 2005 lbs
Casing Guide Bell	PN 753600 236 kg / 520 lbs		
Bottom Guide Plate ass'y	PN 712044 59 kg / 130 lbs	PN 712045 51 kg / 112 Lbs	PN 712047 25 kg / 55 Lbs
Spider adapter plate	PN 753765 745 kg / 1642 lbs		
Upper guide ass'y	PN 753731 125 kg / 276 lbs	PN 753736 115 kg / 254 lbs	PN 753746 83 kg / 183 lbs

Contents of delivery

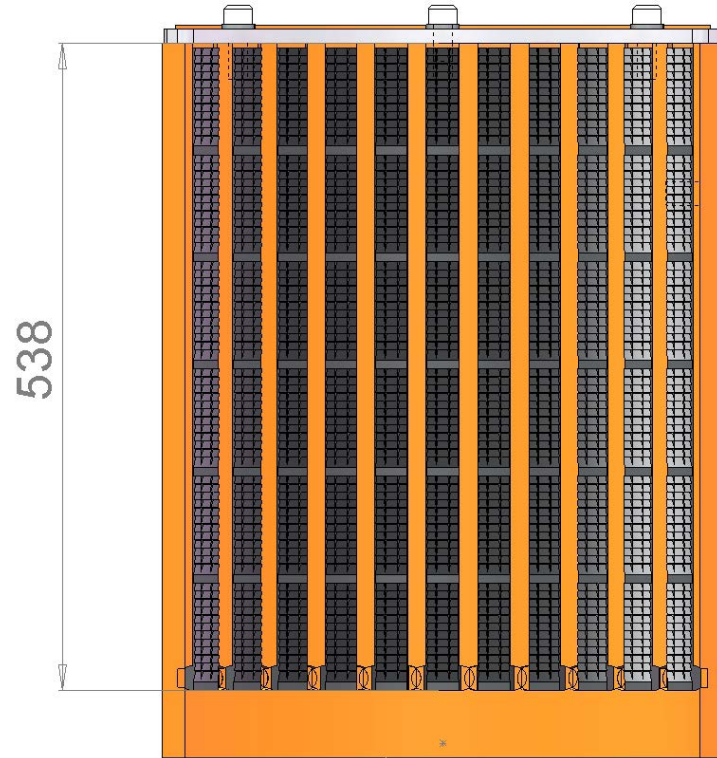
BVE 750 Frame 2 - Elevator	Qty	Part Number
Body Assembly	1	712000-Y-H
Slip Assembly	1	see chapter „Size Components“
Casing Guide Bell	1	753600
Bottom Guide Plate Assembly	1	see chapter „Size Components“
Elevator Hose Assembly	1	710082

BVS 750 Frame 2 - Spider	Qty	Part Number
Body Assembly	1	712000-Y-H
Slip Assembly	1	see chapter „Size Components“
Spider Adapter Plate	1	753765 for 49.1/2" RT
Upper guide Assembly	1	see chapter „Size Components“
Spider Hose Assembly	1	710083

Main Dimensions

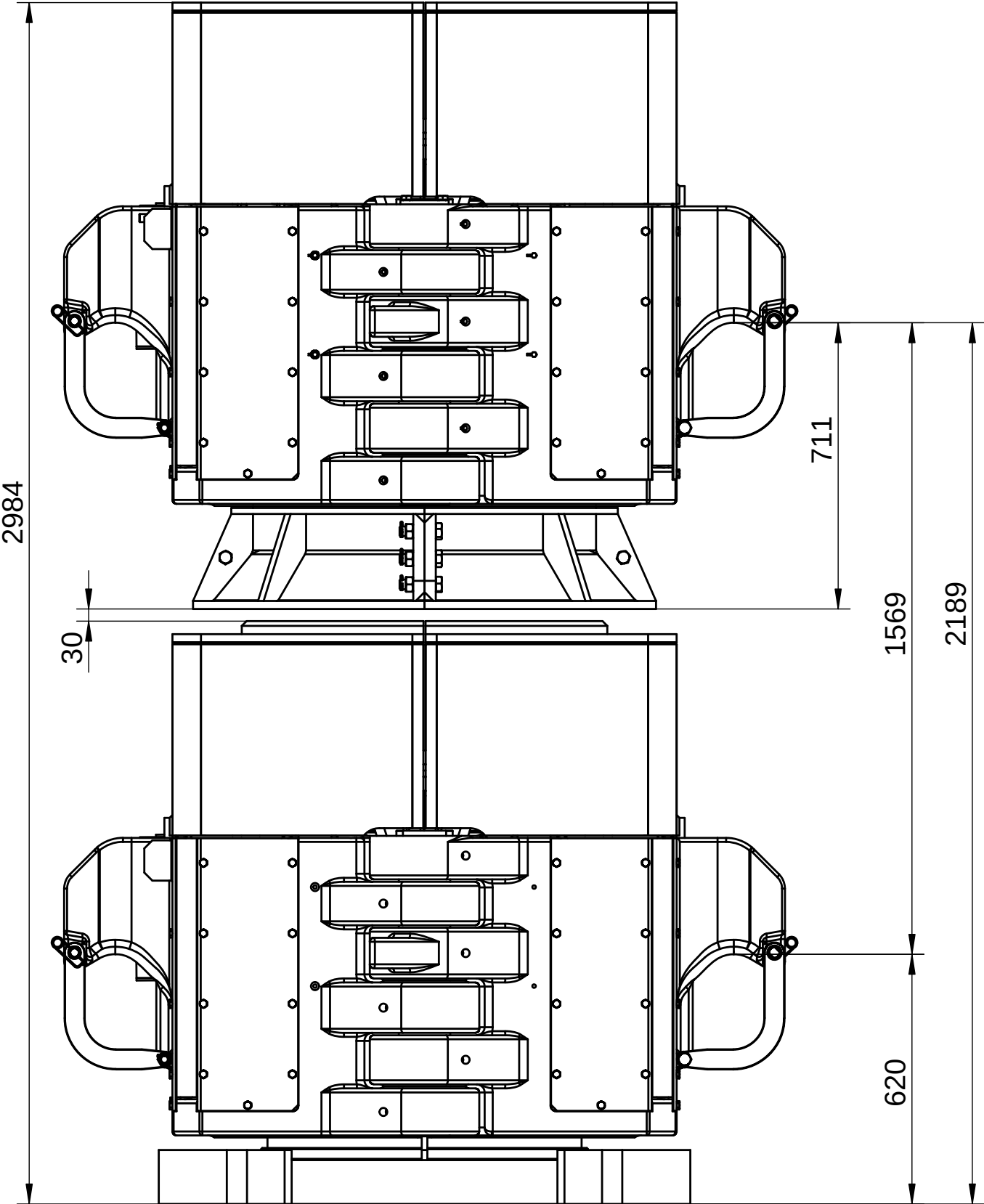


Insert grip length



Height Dimensions

DESCRIPTION



COMMISSIONING

2. COMMISSIONING

Commissioning BVE / BVS 750-2

Blohm + Voss strongly recommends to accomplish the BVE / BVS commissioning with the Blohm + Voss Commissioning Service.

OK	☐	Operating personnel is aware of all danger that depends on handling the B+V tool (see manual first)!
----	--------------------------	--

Prior to use of the Blohm+Voss Elevator / Spider following checks must be carried out:

Scope of supply

OK	☐	Cross check of all delivered parts.
----	--------------------------	-------------------------------------

Hydraulic Characteristics

OK	☐	Operating pressure	210 bar (3450 PSI)
----	--------------------------	--------------------	--------------------

OK	☐	Volumetric flow	30-45 l/min
----	--------------------------	-----------------	-------------

Check and Lubrication

OK	☐	Check for correct seating of Hinge Pins.
----	--------------------------	--

OK	☐	Apply grease to all greasing Points (see manual) until grease is visibly coming out of the bores.
----	--------------------------	--

OK	☐	Check Bottom guide plate, casing guide bell and securing handle on the elevator are installed and fixed properly.
----	--------------------------	---

OK	☐	Check Upper guide plates on spider are installed and fixed properly.
----	--------------------------	--

OK	☐	Check slips are properly installed.
----	--------------------------	-------------------------------------

OK	☐	Check slips,insert dies and guide plates are in the correct size and same serial number.
----	--------------------------	--

For manual operation

OK	☐	Link blocks are closed.
----	--------------------------	-------------------------

OK	☐	Slip Assembly opens, when Lock Lever stands in „LOCK ON“ Position and Slip Lever in „SLIP UP“ Position.
----	--------------------------	---

OK	☐	Slip Assembly closes, when Lock Lever stands in „LOCK OFF“ Position and Slip Lever in „SLIP DOWN“.
----	--------------------------	--

For Remote operation

For Operation of BVE/BVS 750 with Remote Control the Slip-control-lever must be in “SLIP DOWN”-Position and the Lock-control-lever must be in “LOCK OFF”-Position.

OK	☐	Slip Assembly raising, when Pressure apply at Connection B feedback signal indicates: Elevator is open.
----	--------------------------	---

OK	☐	Slip Assembly setting, when Pressure apply at Connection A feedback signal indicates: Elevator is closed.
----	--------------------------	---

INSTALLATION

3. INSTALLATION

Lifting and transport

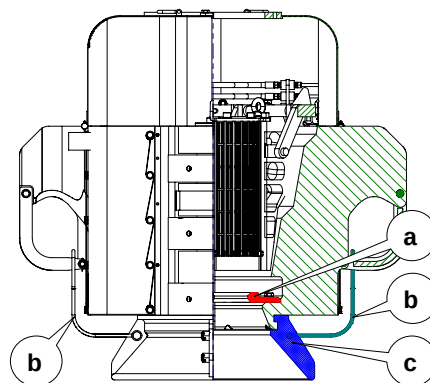
WARNING: *LIFT THE BVE/BVS ELEVATOR/SPIDER ON THE LIFTING EARS ONLY.*

WARNING: *WEAR YOUR PERSONAL PROTECTION EQUIPMENT AT ALL TIMES.*

Installing Elevator

Mounting the elevator

Make sure that the Bottom Guide Plate „a“, Securing Handle „b“ and the Casing Guide Bell „c“ are installed and are of the correct size. The Upper Guide Plate must not be installed.





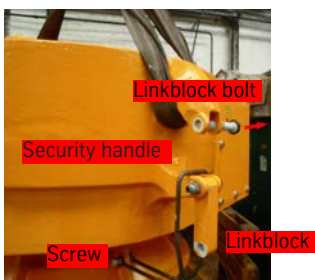
Picture 1



Picture 2



Picture 3



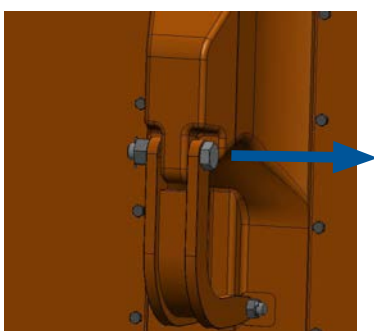
Picture 4



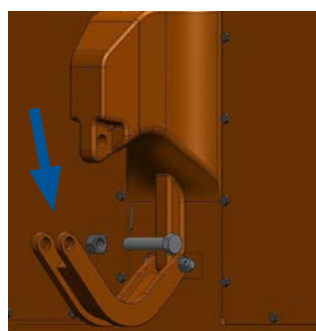
Picture 5

Installation casing guide bell

1. Disconnect the screw and open the two halves. (Picture 1)
2. Position the recess of the body into the casing guide bell. (Picture 2)
3. Tighten the two halves with six screws. (Picture 3)
4. Remove the link block bolts and allow the link block to swing open. (Picture 4)
5. Tighten the security handle with the screw on the casing guide bell and depose the security handle above the link block. (Picture 4)
6. Close the link block and tighten it with link block bolts. (Picture 5)



Elevator



Open the link block

Installation links

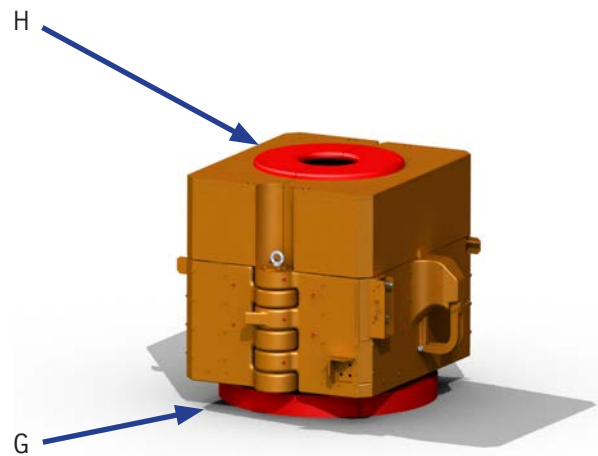
1. Remove the link block bolts.
2. Allow the link block assembly to swing open.
3. Place the links in the now open assembly and secure the link block by replacing the bolt removed in step 1.

Installing Spider

Mounting the spider

1. It is necessary to place the spider adapter plate „G“ at well center.
2. Make sure that the Upper Guide Plate „H“ is installed. The Bottom Guide Plate and the Casing Guide Bell must not be installed.

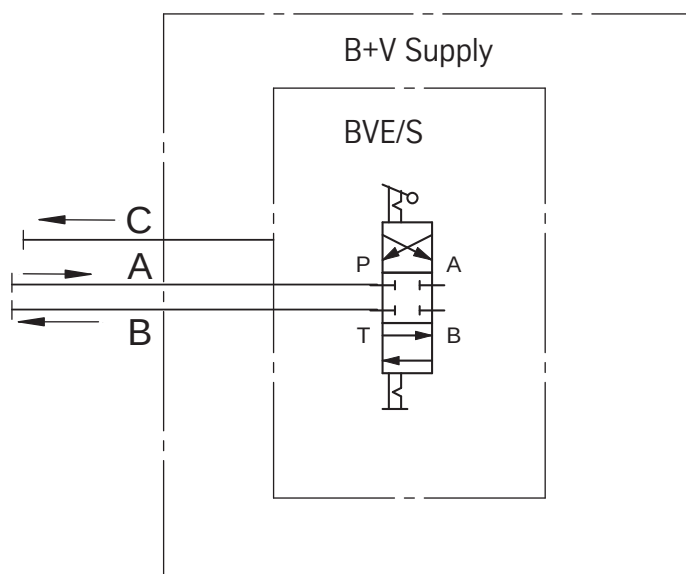
WARNING: KEEP DISTANCE FROM THE ELEVATOR DURING OPERATION AND TRIALS.



Hydraulic connection

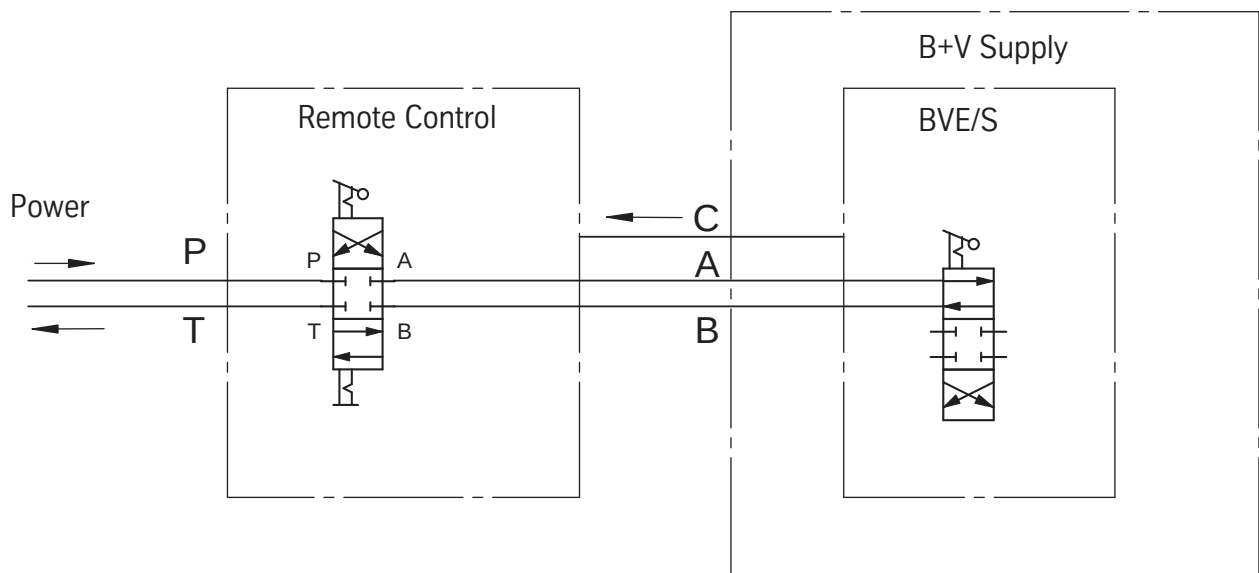
Connection for manual control

- A: Power supply
B: Return / Tank
C: Feedback „Slips are up or down“



Connection for remote control

- A: Slip down
- B: Slip up
- C: Feedback

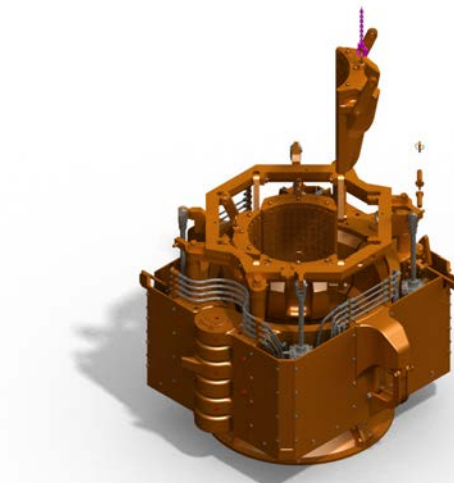
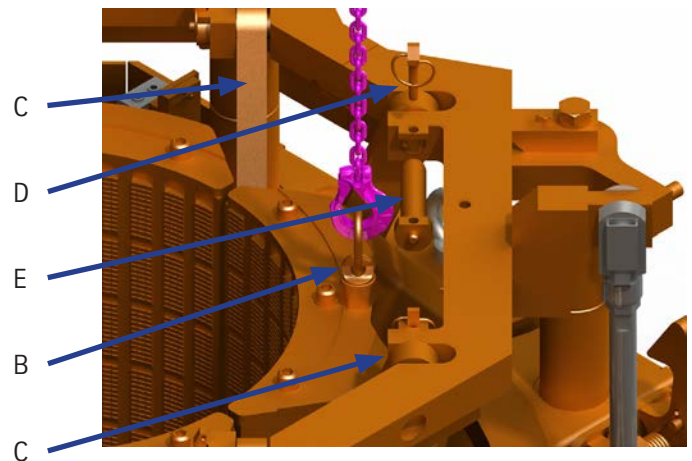
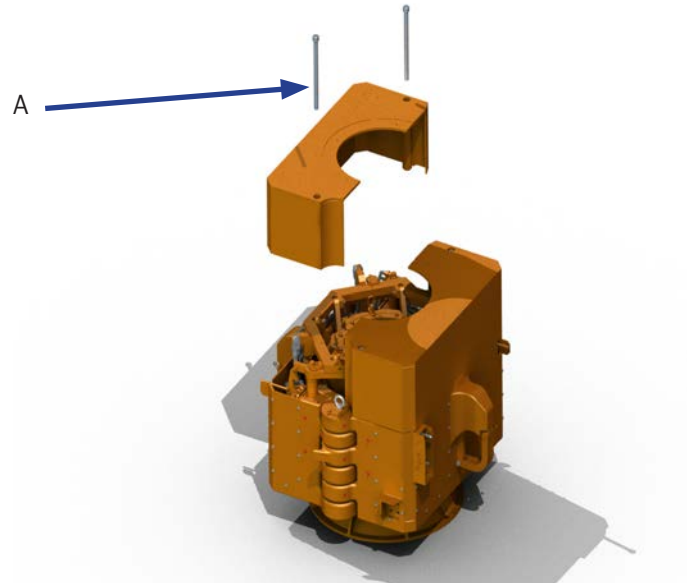


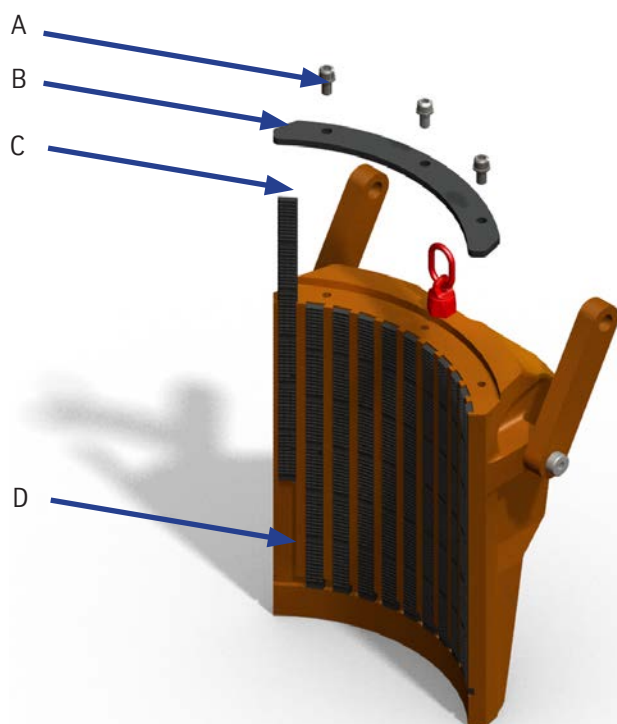
Changing slips

WARNING: For changing the SLIPS, the BVE/BVS 750 MUST BE REMOVED FROM THE WELL CENTER TO AVOID THE RISK OF SMALL PARTS FALLING INTO THE BORE HOLE.

WARNING: UNDER NO CIRCUMSTANCES THE SLIP ASSEMBLY MAY BE LIFTED UNDER LOAD.

1. Remove the two screws A from the top of the Cover and open both Covers to expose the slip support plate.
2. Raise the slips and confirm that the slip locks are engaged.
3. Install a forged steel eyebolt B into the slip.
4. Support the weight of the slip by attaching an overhead lifting device (1 ton minimum capacity) to the eyebolt B. Raise the slip by using the forged steel eyebolt until the Slip Link C is horizontal.
5. Remove the Cotter Pins D from the slip support pins E and while supporting the slip links remove the Slip Support Pins.
6. Lift the slip clear of the elevator/spider and place it aside.
7. Repeat for the remaining slips.





Changing inserts

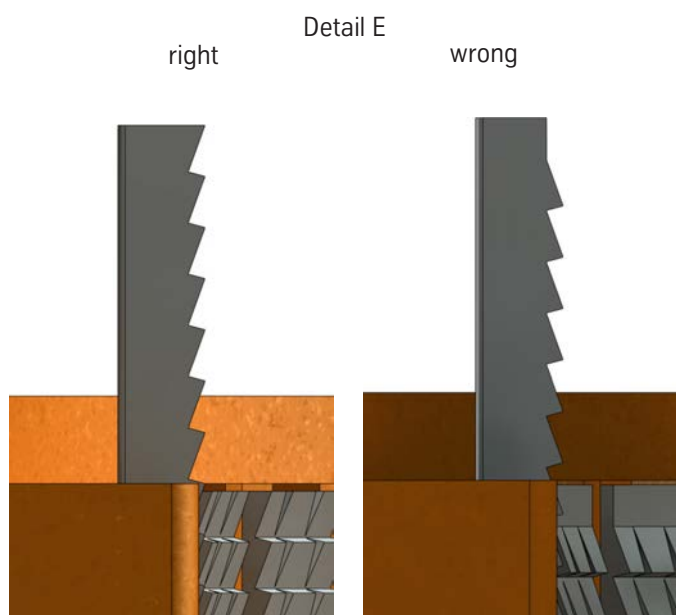
On all slip body sizes, reducing inserts are installed simply and rapidly, permitting the handling of pipes with an O.D. up to 1" smaller than the slip body Size without changing slips.

WARNING: FOR CHANGING THE INSERTS, THE SLIP ASSEMBLY MUST BE REMOVED OF THE BVE/BVS 750 TO AVOID THE RISK OF SMALL PARTS FALLING INTO THE BVE/BVS OR BORE HOLE.

1. Open the Cover and remove the slip assembly out of the BVE/BVS 750. (See chapter Changing slips)
2. Unlock and remove the screws A then take off the Insert Retainer B.
3. Remove the inserts C.
4. Grease the insert slots D with a lithium based grease.
5. Slide the new inserts into the dovetail-shaped insert slots, taking care to ensure that the inserts are oriented properly (the buttress-shaped tooth form must be oriented upwardly).
6. Continue to fill the slip with inserts C until all slots are filled. If the inserts do not slide readily into the slots, it may be necessary to lightly tap them in using a brass or non-metallic rod. If more than a light force is required, do not use the insert.
7. Install the insert retainer B by using the screws A. Secure bolts with wire.
8. Change the designation of the slip assembly. The slip assembly must always have the right markings for the installed inserts.

WARNING: WHEN ASSEMBLING SLIPS, ALWAYS WEAR EYE PROTECTION AND NEVER STRIKE THE DIES WITH A HAMMER OR OTHER HARD OBJECT. FAILURE TO OBSERVE THESE SAFETY PRECAUTIONS COULD RESULT IN SERIOUS INJURY TO PERSONNEL.

WARNING: WHEN REINSTALLING INSERTS, MAKE SURE THE INSERT SLOTS ARE GREASED AND THE INSERTS TEETH ARE POINTING UPWARD.

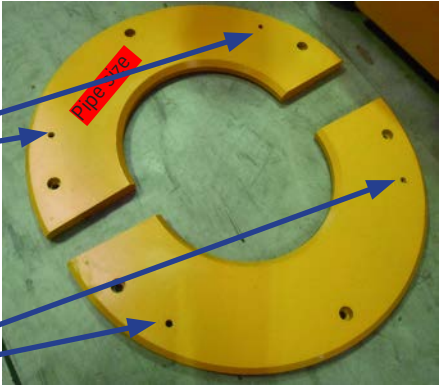


Checking Elevator and Spider tools

Prior to operation, inspect the guide plates for body and door and the guide bell with security handle on the elevator as well as the upper guard and guide plates on the spider. Making sure they are tightly secured to tool bodies and are of the right size for the casings to be handled. Also ensure that the inserts are properly installed and that they are of the correct size for the slip bodies.

two thread for Lifting eye

two thread for Lifting eye



Guide plate



Casing guide bell

Installation Checklist BVE/BVS elevator/spider

Basically the BVE / BVS has to be installed as shown in the manual.

OK	☐	Make sure the required slips are installed.
OK	☐	Make sure the required Guide Plates are installed before first use.
OK	☐	The Guide Plates are fixed with the screws.
OK	☐	Cover is closed.
OK	☐	Door is closed.

Hydraulic Connections

OK	☐	The controls are connected to the Power Supply.
OK	☐	All Hydraulic Lines are connected.

Function test

There are two possibilities to carry out the function test:

1. BVE/BVS Elevator/Spider standing on the floor
2. BVE/BVS Elevator/Spider installed in the links

OK	☐	Close elevator / spider.
OK	☐	Open elevator / spider.
OK	☐	Check signal elevator / spider closed if present (if applicable).

OPERATIONS

4. OPERATIONS

Safety

WARNING: *KEEP DISTANCE FROM THE ELEVATOR DURING OPERATION AND TRIALS.*

WARNING: *DO NOT TOUCH THE BVE/BVS ELEVATOR/SPIDER, APART FROM HANDLES FOR OPERATION UNLESS HYDRAULIC POWER IS DISCONNECTED.*

WARNING: *NEVER OPEN THE ELEVATOR/SPIDER WHEN THE PIPE LOAD IS STILL SUSPENDED BY THE ELEVATOR/SPIDER.*

The hydraulic slips are activated with a remote control valve, which may be actuated by hand or foot depending on the type of valve. Make sure that ALL hydraulic lines are isolated before any work is carried out in the BVE/BVS elevator/spider.

General Operation

The driller, derrick man and floor man must coordinate operation of the slips in the elevator and spider so one tool is engaged around the casing before the other is disengaged. Thus, one or both tools continuously suspend the casing during all stages of casing handling operations.

After the first joint has been set in the spider, follow this operating procedure:

1. The floor man attaches the top end of the casing pick-up line to the lower locking arm of the hook. The pick-up line must be long enough to attach to the next joint in the V-door when the elevator is lowered to the spider.
2. In lifting the casing joint into the V-door, the floor man can use the cat line or an oil-wrench, or a crewman can use a hydraulic pick-up machine, if available.
3. The floor man attaches a single-joint elevator to the bottom end of the pick-up line, then he attaches the single-joint elevator to the joint in the V-door so the joint can be maneuvered to the spider for make-up.
4. The power tong operator then makes up the joint.
5. The derrick man removes the single-joint elevator or pick-up line from the top of the joint.
6. The derrick man guides the elevator over the top end of the joint while the driller lowers the elevator into position approximately six inches below the joint collar.
7. The driller or derrick man then sets the elevator slips.
8. A signal is given to the driller when the slips are closed.
9. Simultaneously, the driller picks up the elevator while the driller or floorman raises the spider slips.
10. The driller then lowers the joint through the spider stopping the elevator guide bell approximately six inches above the spider.
11. The driller sets the spider slips.
12. The driller slacks off on the elevator so its slips can be released.
13. The driller raises the elevator slips.
14. The driller picks up the elevator to clear the next joint of casing while the floor man repeats Step 3 for the next joint.

WARNING: *BE CAREFUL NOT TO HIT THE SPIDER TOP GUARD WITH THE ELEVATOR GUIDE BELL. DOING SO WILL CREATE A HAZARD FOR PERSONNEL AND COULD DAMAGE THE EQUIPMENT.*

Lock control lever

Slip control lever



Manual control lever position



Lock control lever

Slip control lever



Manual control lever position

Manual Operation

Raising slips without remote control

1. To raise the slips, the lock control lever is moved to the „Unlock“ position.
2. The slip control lever is moved to the „SLIP UP“ position .
3. Until the slips are raised the slip control lever must remain in the “Unlock” position.
4. The slips will automatically lock in the upper position, by a mechanical locking system.

Setting slips without remote control

1. To lower the slips, throw the slip control lever to the „SLIP UP“ position.
2. When the slip is raised, the lock control lever must shift to the „LOCK“ position and hold there.
3. Now the slip control lever must throw to the „SLIP DOWN“ position.
4. The slips will automatically lock in the lower position, by a mechanical locking system.

Remote Operation

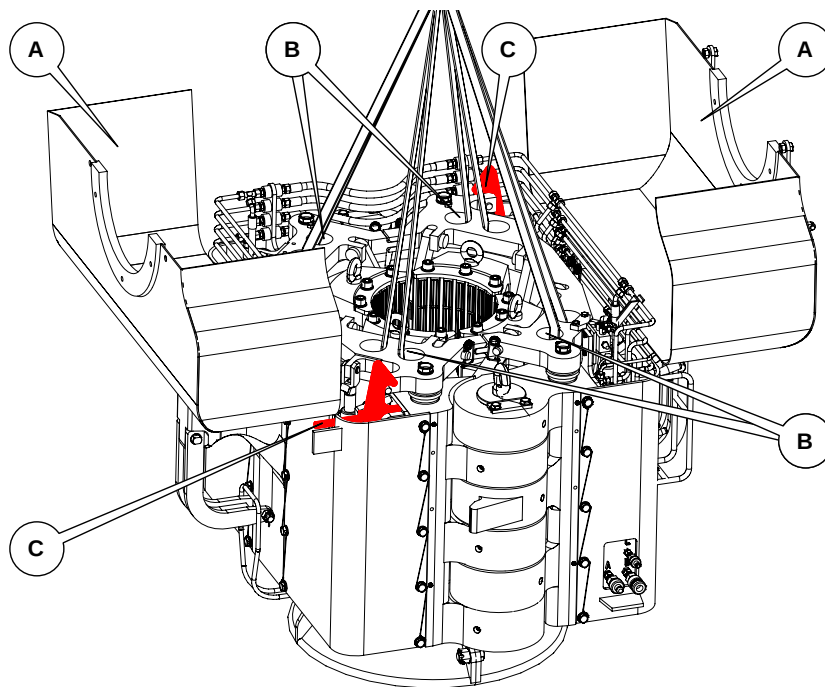
For Operation of BVE/S 750 with Contol Unit, the Slip-Control-Lever must be in „SLIP DOWN“ Position and the Lock-Control-Lever must be in „Lock“ Position.

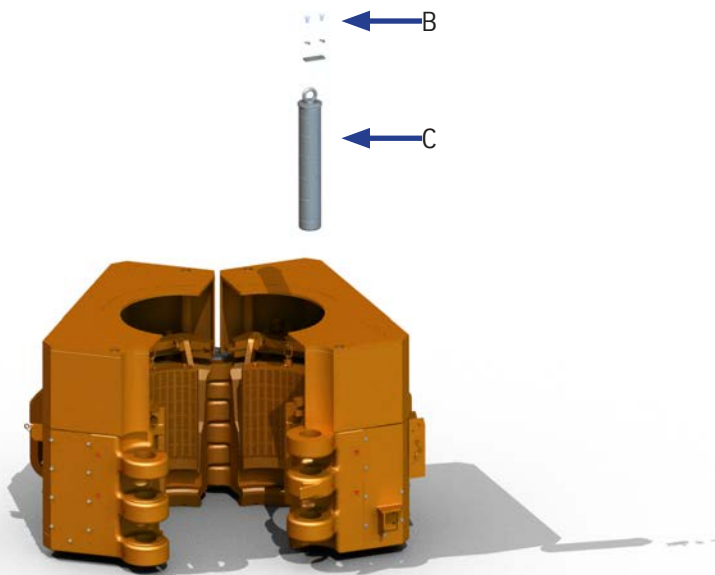
Emergency Operation

1. In case of an hydraulic failure, the slips can be raised manually. First it will be necessary to open the Cover (A) and attach four straps of a 1 Tons capacity or more to the hole(B) of each slip support plate directly behind the slip. Then push the two latches(C) out and raise the straps and slips until the requested high is reached. To lock the slips in upper Position support the Slip Support Plate with suitable objects.

To lower the slips lift the slips only enough to remove the supporting objects. Then lower the slips. The slips will automatically lock in lower position.

2. In case of rig-hydraulic supply failure the slips only can raised one time with an handoperated pump. First open hydraulic connection A and shift the hydraulic control lever to "SLIP DOWN" and "LOCK OFF". Then connect the Hand operated pump with Connection B and pump the slips up.





Opening the BVE/BVS 750

If it becomes necessary, the BVE/BVS can be removed from the pipe from the side.

WARNING: To PREVENT ACCIDENTS
MAKE SURE THAT THE ELEVATOR / SPIDER IS
DISCONNECTED FROM THE REMOTE CONTROL
OR HYDRAULIC POWER SUPPLY.

1. Raise the slips.
2. Disassemble the casing guide bell (if installed).
3. Unscrew the two screws and the hinge pin securing plate „B“.
4. Remove the exposed hinge pin by pulling upwardly on the eyebolt „C“.
5. Spread the body halves apart until the elevator/spider can be withdrawn from the pipe.

MAINTENANCE & INSPECTION

MAINTENANCE
& INSPECTION

5. MAINTENANCE AND INSPECTION

General

If cracks, excessive wear etc. is recognised, contact Blohm + Voss Oil Tools or an authorised service company.

Weldings of the castings should be done only by Blohm + Voss Oil Tools or an authorised service company in according to Blohm + Voss welding procedure. A regular preventative maintenance program should be established for all elevators / spiders. These written maintenance procedures should be given to the crew or maintenance personnel.

WARNING: For Service and Maintenance
DISCONNECT THE HYDRAULIC SUPPLY.

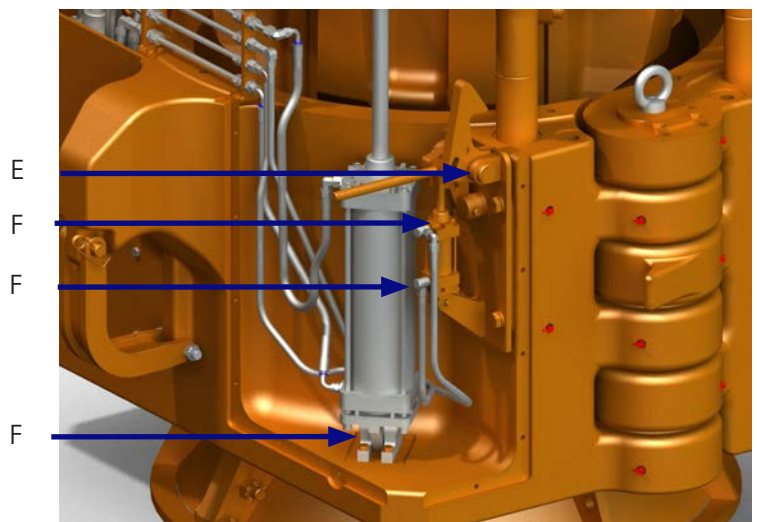
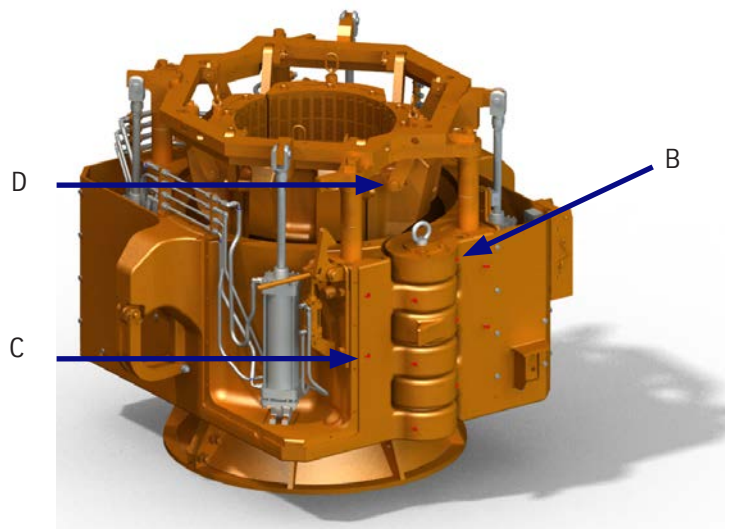
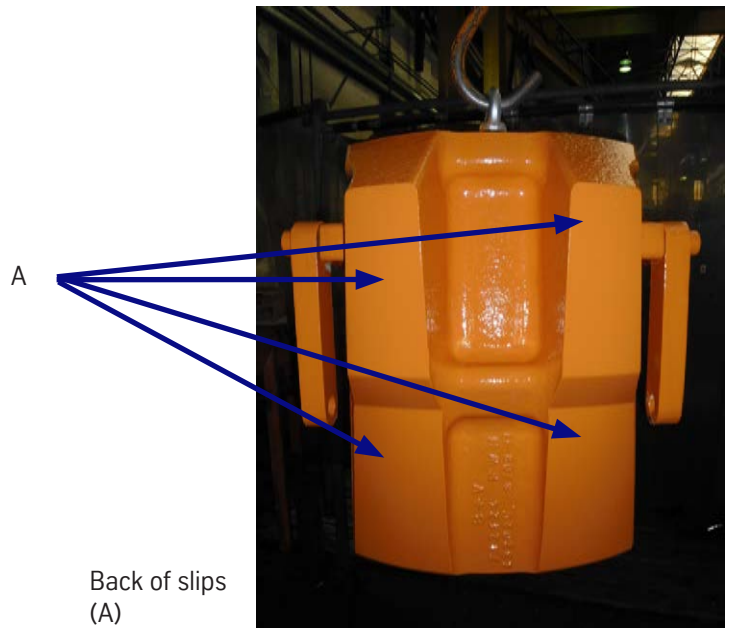
Daily Lubrication

When the tool is in use, the following lubrication procedure should be performed daily, or as inspection indicates:

1. Lubricate the back of the slips "A" with heavy grease.
2. Apply an extreme-pressure lubricant through the grease fittings on the two hinge pins "B" (12 greasing points).
3. Grease the four slip guides "C" (8 greasing points).
4. Grease all Bolts of Slip assembly "D".

Lubrication during dismantling Inspection

1. Grease all bolts, springs and all slides of the two latch-assemblies "E" once a month.
2. Grease the lower cylinder-eyes (4 greasing points) weekly "F".
3. Inspect the dies periodically and replace them if necessary. Always grease the slots when installing dies. Failure to routinely grease the slots will cause the dies to stick.





Warning Sign



Recommended grease gun (for info only).

Grease quality

In order to achieve efficient greasing even at different ambient temperatures, we recommend the following grease types should be used (obtainable from Blohm + Voss Oil Tools):

Low-Viscosity grease

Type AVIATICON Grease XRF

NLGI 0

Alternatively; use EP gear lubricating grease for greasing "non-oil tight gear trains"

NESSOS SF0

NLGI 0

DIN 51 826 GPOF-25

DIN 51 502 GPOF-25

For higher ambient temperature up to 30° Celsius / 86° Fahrenheit we recommend to use NLGI 2

Daily Inspection

Inspect the inserts and replace if necessary (see insert dies changing). Always grease the insert slots when installing inserts. Failure to routinely grease insert slots will cause the inserts to stick.

Locking of screws

All Screws are normally secured by a mechanical bolt lock or with a safety wire. All other screws are secured by metal adhesive (Loctite).

Inspection categories acc. to API RP 8B

Category I

This category involves observing the equipment during operation for indications of inadequate performance. When in use, equipment shall be visually inspected on a daily basis for cracks, loose fits or connections, elongation of part, and other signs of wear, corrosion or overloading. Any parts found to show cracks, excessive wear, etc., shall be removed from service for further examination. The equipment shall be visually inspected by a person knowledgeable in that equipment and its function.

Category II

This is Category I inspection plus further inspection for corrosion, deformation, loose or missing components, deterioration, proper lubrication, visible external cracks, and adjustment.

Category II may involve some disassembly to access specific components and to identify wear that exceeds the allowable tolerances.

Category III

This is Category II inspection plus further inspection, which should include NDT of critical areas and may involve some disassembly to access specific components and to identify wear that exceeds the allowable tolerances.

Prior to inspection, all foreign material such as dirt, paint, grease, oil, scale, etc. shall be removed from the concerned parts by a suitable method (e.g. paint-stripping, steam-cleaning, grit-blasting).

Category IV

This is Category III inspection plus further inspection for which the equipment is disassembled to the extent necessary to conduct NDT of all primary-load-carrying components.

Equipment shall be:

- disassembled in a suitable-equipped facility to the extent necessary to permit full inspection of all primary-load-carrying components and other components that are critical to the equipment.
- inspected for excessive wear, cracks, flaws and deformation.

Procedure:

- Corrections shall be made in accordance with the manufacturer's recommendations.
- Prior to inspection, all foreign material such as dirt, paint, grease, oil, scale, etc. shall be removed from the concerned parts by a suitable method (e.g. paint-stripping, steam-cleaning, grit-blasting)

Frequency

Periodic inspection

The recommended schedule for inspection of all kind of

- Elevators:

Ongoing:	I
Daily:	II
6 Monthly:	III
1 Year:	IV

- Spiders:

Ongoing:	I
Weekly:	II
6 Monthly:	III
1 Year:	IV

The recommended frequencies apply for equipment in use during the specified period.

The inspection frequencies are only recommendations. The schedule of inspection heavily depends on the following factors:

- environment

- load cycles
- regulatory requirements
- operating time
- testing
- repairs
- re manufacture

Non-periodic inspection

A complete, on-job, shut-down inspection equivalent to the periodical Category III or Category IV should be made before (if anticipated) and after critical jobs (e.g., running heavy casing / drill strings, jarring, pulling on stuck pipes and/or operating at extreme low temperatures) <-20° C (<-4° F).

Inspection

A thorough inspection should be carried out periodically (every 3 months) or as special circumstances may require. Before starting an inspection disconnect any hydraulic/pneumatic system and remove all foreign materials (dirt, paint, grease Oil, scale, etc.) from surface by a suitable method. After a field inspection, it is advisable to record the extent of testing and testing results. Conduct the periodic or critical load inspection in the field by the crew with the supervisor. If cracks, excessive wear etc. is recognized, contact Blohm + Voss Oil Tools or an authorized service company.

Inspection of Hydraulic/Pneumatic System

Check for leakage every day. Should internal or external leakage reach an unacceptable high level, contact Blohm + Voss Oil Tools or an authorized service company.

Critical Load Inspection

Critical loads may occur. For example: impact loads such as jarring, pulling on stuck pipe, etc. If critical loads occurred unexpectedly, conduct the inspection immediately.

Dismantling Inspection

Generally, when the equipment returns to base, warehouse, etc. Carry out the Tool inspection, immediately. Furthermore, control it prior to its being sent on the next job.

- The Tool should be dismantled and inspected in a suitably equipped facility for excessive wear, cracks, flaws or deformations.
- Corrections should be made in accordance with recommendations which can be obtained from Blohm + Voss Oil Tools.
- Weldings at the castings should be done only by Blohm + Voss Oil Tools or an authorized service company in accordance with Blohm + Voss welding procedure.
- When need is shown in a field inspection, dismantle the Tool and arrange an inspection in a suitably equipped facility.
- Springs should be carefully visually inspected for excessive wear and obvious weakness.

Inspection check lists

CHECK LIST FRONT PAGE

TYPE OF EQUIPMENT

SERIAL NUMBER

PART NUMBER

SUPERVISOR

DATE OF INSPECTION

INSPECTION CATEGORY

PLACE OF INSPECTION

Check List Category I

(During operation - Elevator-spider is placed on top of the Rotary Table)

GENERAL		
DESCRIPTION	CHECKED	SIGNATURE
1 Complete front page of check list for the records	OK	
2 Check for correct size of slips and guide plates	OK	
3 Check correct function of slips	OK	
4 Check function of feedback signal (slips set / raised) (if applicable)	OK	
Remarks		

CHECK FOR LOOSE ITEMS, ESPECIALLY FOR:

DESCRIPTION	CHECKED	SIGNATURE
1 Hinges and bolts of cover assembly	OK	
3 Fixation of guide plates	OK	
4 Top cover screws	OK	
Remarks		

CHECK FOR CRACKS, ELONGATION, DAMAGE AND CORROSION, ESPECIALLY FOR:

DESCRIPTION	CHECKED	SIGNATURE
1 Hinges of Cover Assembly	OK	
2 Hinges and bolts of cover assembly	OK	
3 Cover Locking device (if applicable)	OK	
4 Guide plates	OK	
5 Lifting eyes for Cover Assembly	OK	
Remarks		

SUPERVISOR

DATE

Hydraulic

DESCRIPTION		CHECKED	SIGNATURE
1	Check for loose fittings, pipes, valves	OK	
2	Check for hydraulic leaks (hoses, valves and cylinders)	OK	
3	Check condition of hydraulic couplings and connection hoses	OK	
Remarks			

SUPERVISOR

DATE

Check List Category II

(Elevator-spider is out of Rotary Table)

GENERAL		
DESCRIPTION	CHECKED	SIGNATURE
1 Complete front page of check list for the records	OK	
2 Check for correct size of slips and guide plates	OK	
3 Check correct function of Slips	OK	
4 Check function of feedback signals (slips set / raised) (if applicable)	OK	
Remarks		

CHECK FOR LOOSE ITEMS, ESPECIALLY FOR:

DESCRIPTION	CHECKED	SIGNATURE
1 Hinges and bolts of cover assembly	OK	
2 Cover Locking device (if applicable)	OK	
3 Fixation of guide plates	OK	
4 Top cover screws	OK	
5 Securing at Door	OK	
6 Fixation of Hydraulic Cylinder	OK	
7 Fixation of Hydraulic Hoses below Cover Assembly	OK	
Remarks		

GREASING

DESCRIPTION	CHECKED	SIGNATURE
1 Check that grease system and grease points get grease to all needed areas (as far as observable) – especially for:	OK	
2 Slip Assembly – back side	OK	
3 Slip Assembly – Carrier Securing Assembly	OK	
4 Cover Assembly – Hinges	OK	
5 Cover Assembly – Locking Device (if applicable)	OK	
6 Feedback signal (if applicable)	OK	
7 Door – Hinges at Door and Body	OK	
Remarks		

CHECK FOR CRACKS, ELONGATION, DAMAGE AND CORROSION, ESPECIALLY FOR:

DESCRIPTION	CHECKED	SIGNATURE
1 Body – Hinges of Hydraulic Cylinder	OK	
2 Body – Hinges of Cover Assembly	OK	
3 Body – Outside Body surface	OK	
4 Hinges and bolts of cover assembly	OK	
5 Cover Locking device (if applicable)	OK	
6 Guide plates	OK	
7 Slip Assembly – Check condition of Insert Retainer Plates and Screws	OK	
8 Slip Assembly – Check teeth of insert dies	OK	
9 Slip Assembly – Check load recess at bottom	OK	
10 Slip Assembly – Hinges for hydraulic Cylinder	OK	
11 Slip Assembly – Hinges and bolts between Center/Left/Right-segments	OK	
12 Slip Assembly – Load recess at bottom (Slip Assembly is disassembled)	OK	
13 Slip Assembly – Carrier Securing Assembly	OK	
Remarks		

HYDRAULIC

DESCRIPTION	CHECKED	SIGNATURE
1 Check for loose fittings, pipes, valves	OK	
2 Check for hydraulic leaks of all hoses, valves and cylinders	OK	
3 Check condition of hydraulic couplings and connection hoses	OK	
4 Check hydraulic fittings and hoses	OK	
Remarks		

SUPERVISOR

DATE

Check List Category III

USE CHECK LIST OF CATEGORY II WITH FOLLOWING ADDITIONAL ITEMS:

DESCRIPTION		CHECKED	SIGNATURE
GENERAL			
1	Check completeness and condition of warning plates and labels	OK	
2	Check condition of identification plate (serial number, part number, date of manufacture etc.)	OK	
3	Clean tool thoroughly	OK	
NDT - INSPECTION			
	NDT all critical areas with die penetrant	OK	
	Remarks		

SUPERVISOR

DATE _____

Check List Category IV

USE CHECK LIST OF CATEGORY III WITH FOLLOWING ADDITIONAL ITEMS:

PNEUMATIC		CHECKED	SIGNATURE
1	Change all hydraulic hoses and fittings	OK	
2	Check condition of hydraulic valves and replace if necessary	OK	
3	Check condition of hydraulic pipes and replace if necessary	OK	
Remarks			

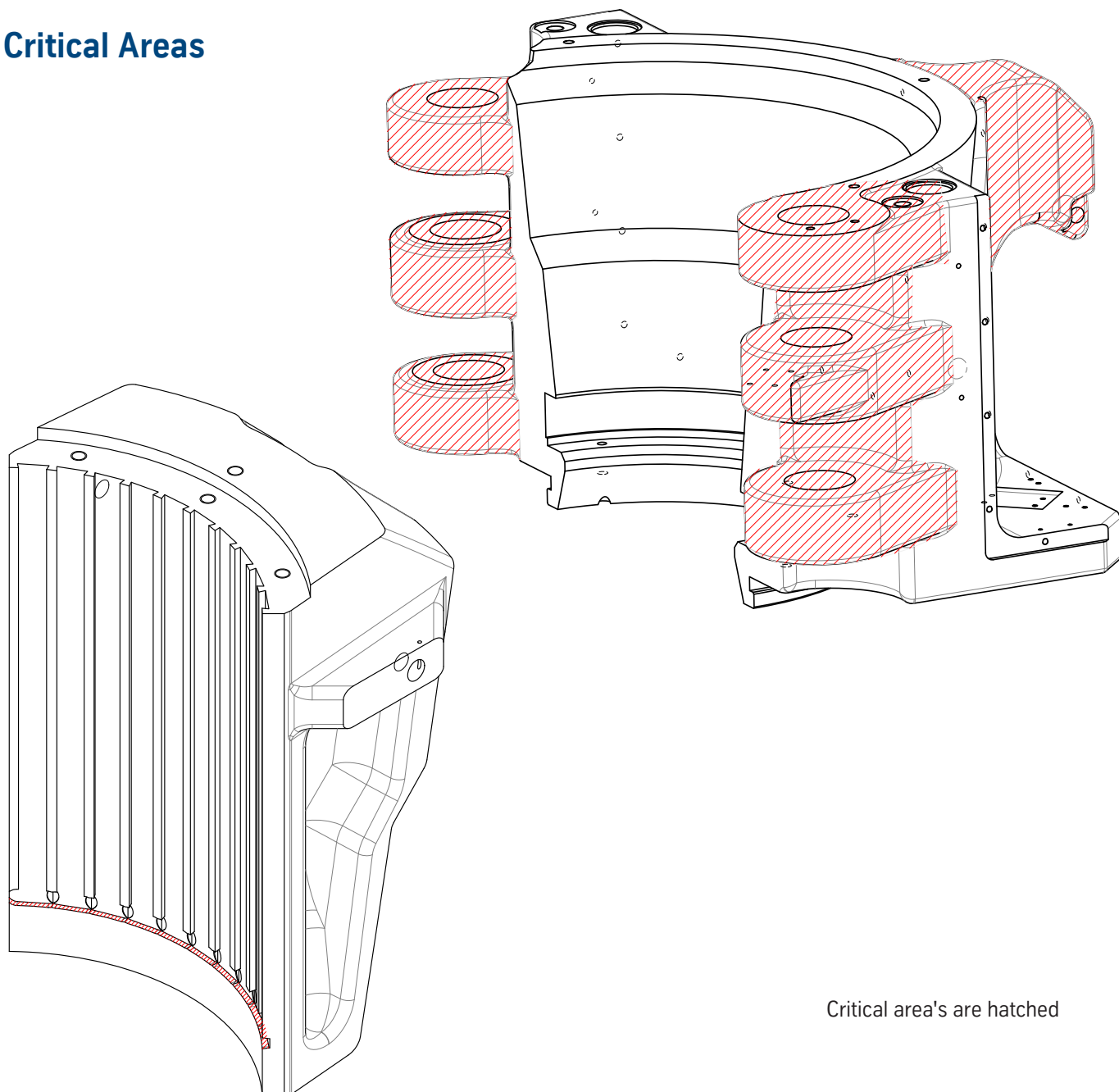
SUPERVISOR

DATE

Wear data criteria

Part	Dimensions
Hinge Pin Body/Door	
Hinge Pin Min. DIA new	127,6 mm / 5,024 inch
Bore Max. DIA new	128 mm / 5,039 inch
Bore Max. DIA worn	128,7 mm / 5,067 inch
Hinge Pin Slips	
Hinge Pin Min. DIA new	81,5 mm / 3,209 inch
Bore Max. DIA new	82,5 mm / 3,248 inch
Bore Max. DIA worn	83,1 mm / 3,272 inch

Critical Areas



Critical area's are hatched

Handling, storage and transport

Storage

Storage of the tool requires the following measures to be taken:

- Ensure the tool is protected from water ingress
- Ensure the tool is stored in such a way, that personnel cannot be wounded by moving parts or sharp edges. If needed, secure the tool with ropes or otherwise in order to protect it from sliding due to ship movements.

Short term storage after use and less than 3 months

Preserve the tool: Grease all blank surfaces with grease: Cylinders

Preserve all other blank surfaces with Tectyl Type 864 or equivalent

Storage: Store in a dry environment with humidity max 80%.

Commissioning: Not needed

Long term storage over 3 months

Preserve the tool: Grease all blank surfaces with grease: Cylinders

Preserve all other blank surfaces with Tectyl Type 864 or equivalent

Storage: Store in a dry environment with humidity max 80%

Commissioning: As per procedure in the User Manual

Handling

Lift the tool by its lifting ears only.

Transport

When the tool is in its original crate, use a fork lift for lifting the crate only.

The weight of the tool is indicated on the identification area of the tool, and also on its original transporting crate.

SIZE COMPONENTS

6. SIZE COMPONENTS

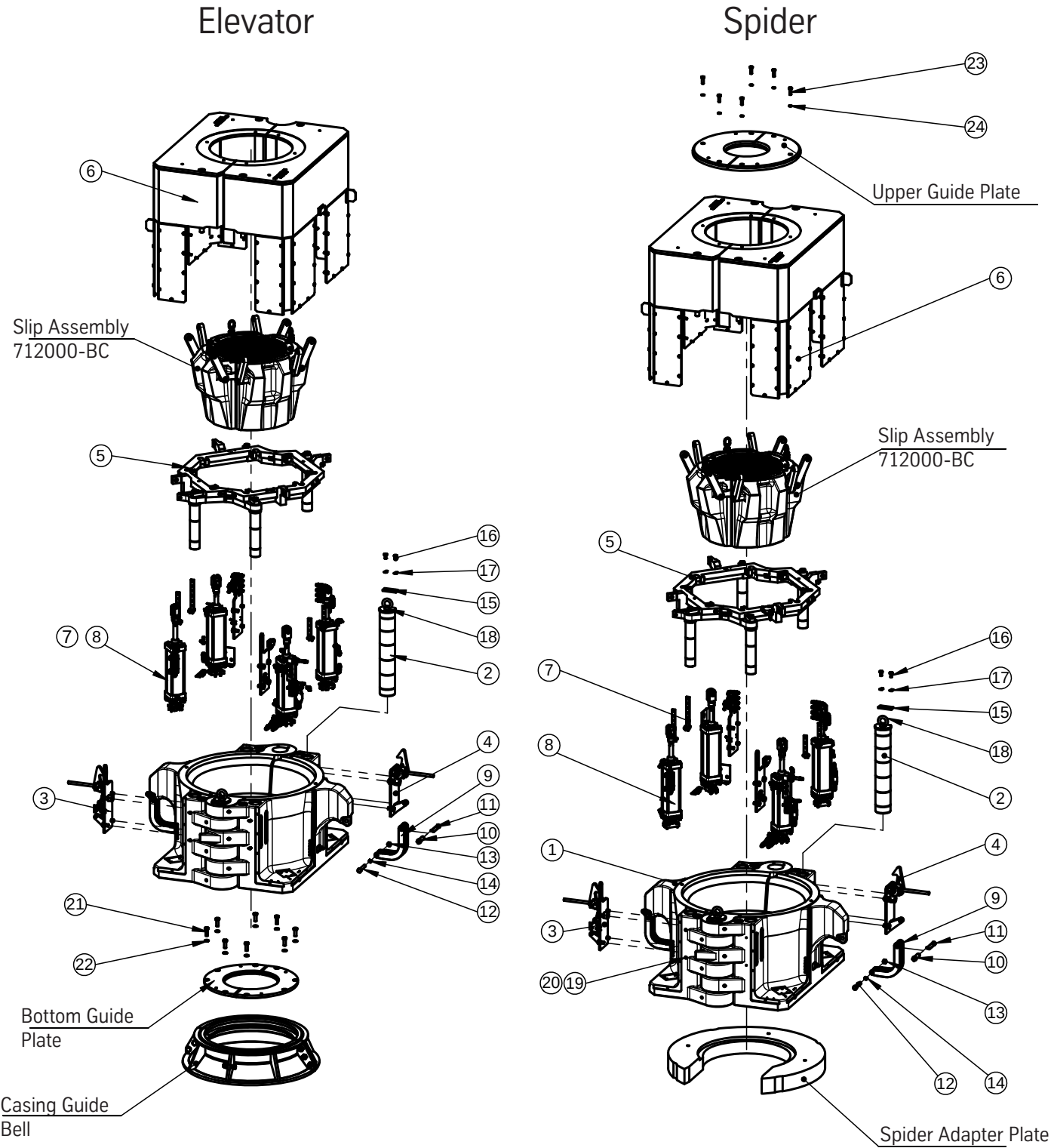
Slips, Inserts, Guide Plates

API	Slip Assemblies		Inserts	Elevator Guide Plates			Spider Guide Plates			
Pipe Size	Size	P/N	P/N-Qty	Guide P/N	Screw P/N	Washer P/N	Guide P/N	Screw P/N	Washer P/N	Diameter
16"	17"	712100-245	350913-192	712041	612554-1	710543	753726	752333	752325	ø450
18.5/8"	20"	712100-248	351213-240	712044			753731			ø517
20"	20"	712100-249	350113-240	712045			753736			ø552
22"	22"	712100-261	350113-240	712046			753741			ø603
24"	24"	712100-254	350113-264	712047			753746			ø653

DRAWINGS & SPARE PARTS

7. DRAWINGS AND SPARE PARTS

712000-Y-H BVE/S 750-2

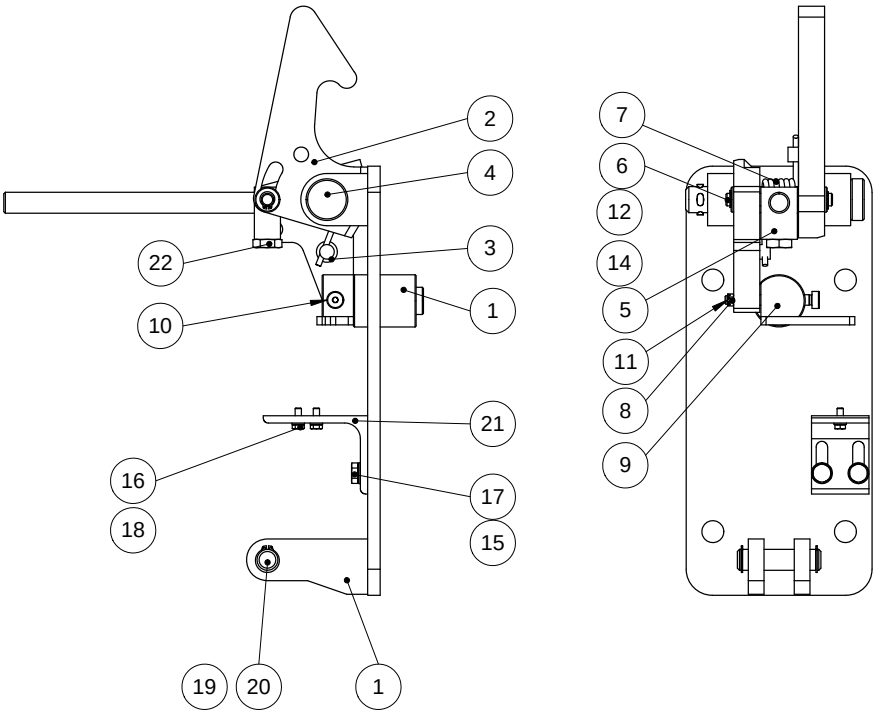


712000-Y-H Parts list

Pos.	Quantity	Part no.	Description
1	1	712010-BF	BVE/S-750/2 Body
2	2	710013	Hinge Pin
4	1	710300-1	Latch Assembly hydraulic
3	1	712300	Latch Assembly Hydraulic
5	1	712200-1	Lifting Assembly, hydraulic
6	1	712800-1	Cover Assembly, hydraulic
7	1	712700	Hydraulic Assembly BVES-750-2
8	1	712650-1	Connection Assembly
9	2	712019	Link Block
10	2	710025	Screw
11	2	752331	Cotter Pin
12	2	735111	Screw
13	2	735110	Nut
14	2	752339	Cotter Pin
15	2	617518	Plate
16	4	617519	Screw
17	4	617520	Safety sheet
18	2	710020	Ring Screw
19	20	70064	Grease Nipple
20	20	612518	Protection Cap
21	8	710026	Screw
22	8	792107	Washer
23	8	752333	Screw
24	8	792106	Washer
25	2	671640	Warning sign "Hands" - sticker
26	4	671641	Warning sign "squeeze danger"
27	8	671642	Warning sign "GREASE DAILY"
28	3	671638	Warning sign Blohm + Voss
29	1	613129	Sticker Hotline

*Spare parts

712300 Latch Assembly Hydraulic

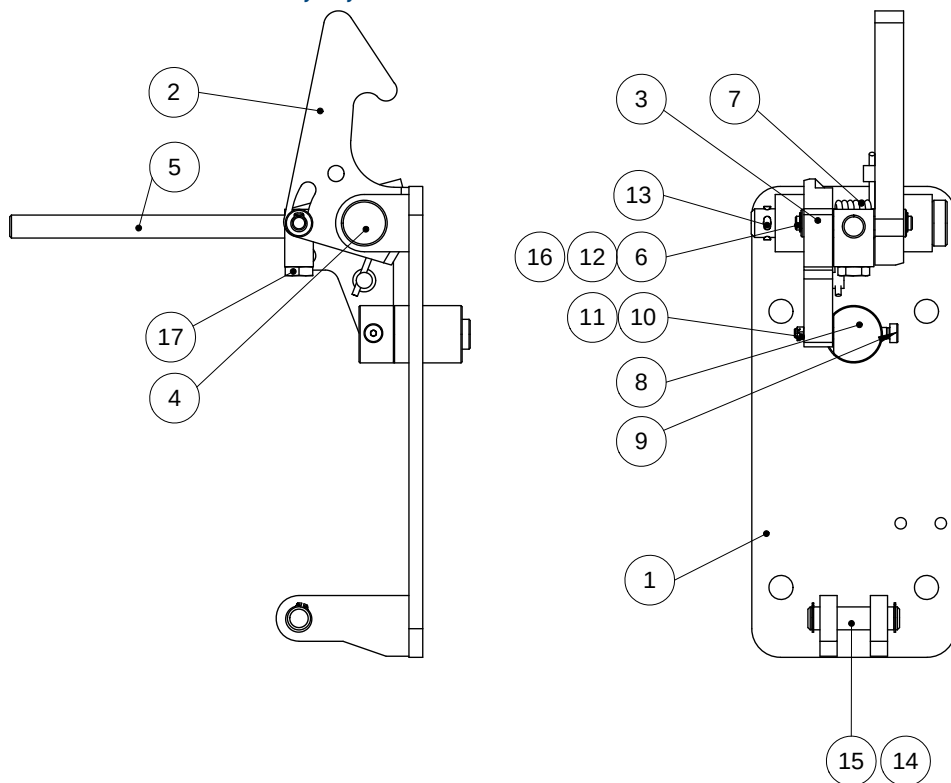


712300 Parts list

Pos.	Quantity	Part no.	Description
1	1	712305	Latch lock Plate Mounting
2	1	710320	Latch;
3	1	710325	Cam
4	1	710310*	Latch Pin
5	1	712901-1	Knuckle
6	1	710350*	Pin
7	1	710335*	Latch Spring
8	1	710315*	Plunger
9	2	710353*	Shoulder Screw
10	1	710354*	Castle Nut
11	4	620609*	Cotter Pin
12	2	650218-3*	Washer
13	1	710347*	Cotter Pin
14	2	611523*	Retaining Ring
15	4	752309*	Lock Washer
16	4	710349*	Screw
17	2	725443*	Washer
18	2	612671*	Screw
19	2	645198*	Screw
20	2	755248*	Washer
21	2	613720*	Retaining Ring
22	1	710713*	Link Bolt
23	1	710352	Valve Mounting
24	1	710348*	Nut

*Spare parts

710300-1 Latch Assembly Hydraulic

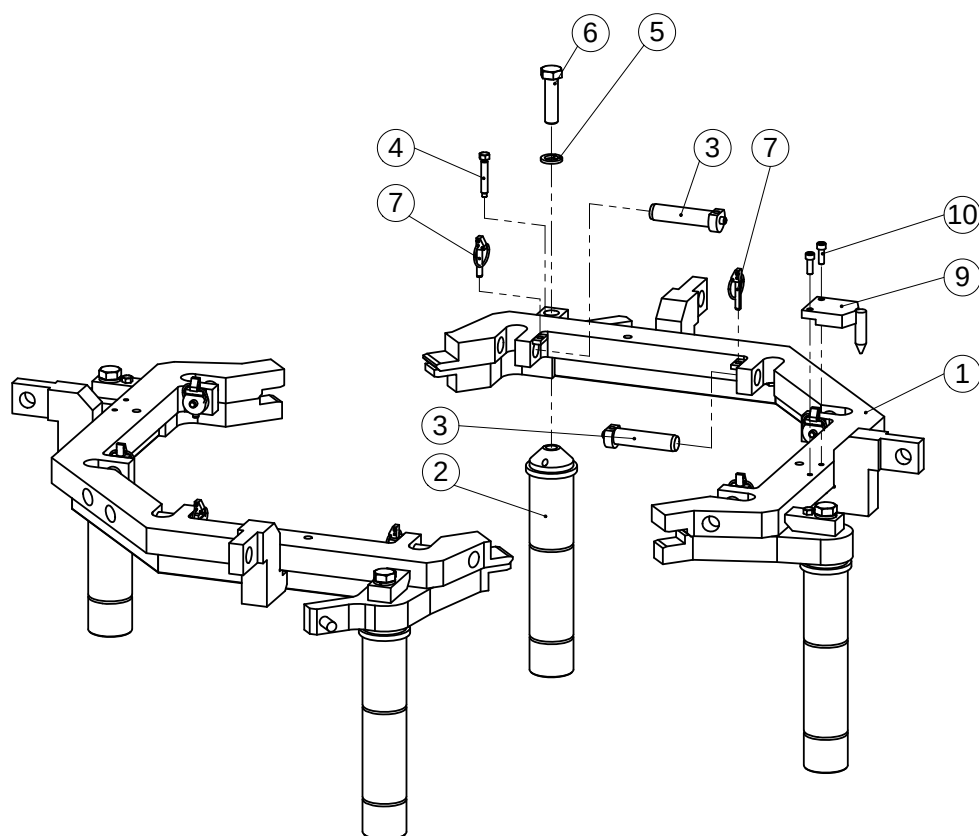


710300-1 Parts list

Pos.	Quantity	Part no.	Description
1	1	712305	Latch lock Plate Mounting
2	1	710320	Latch;
3	1	710325	Cam
4	1	710310*	Latch Pin
5	1	712901-1	Knuckle
6	1	710350*	Pin
7	1	710335*	Latch Spring
8	1	710316*	Plunger
9	1	710353*	Shoulder Screw
10	1	710354*	Castle Nut
11	1	620609*	Cotter Pin
12	1	650218-3*	Washer
13	2	710347*	Cotter Pin
14	1	613720*	Retaining Ring
15	2	710713*	Link Bolt
16	4	611523*	Retaining Ring
17	4	710348*	Nut

*Spare parts

712200 Lifting Assembly

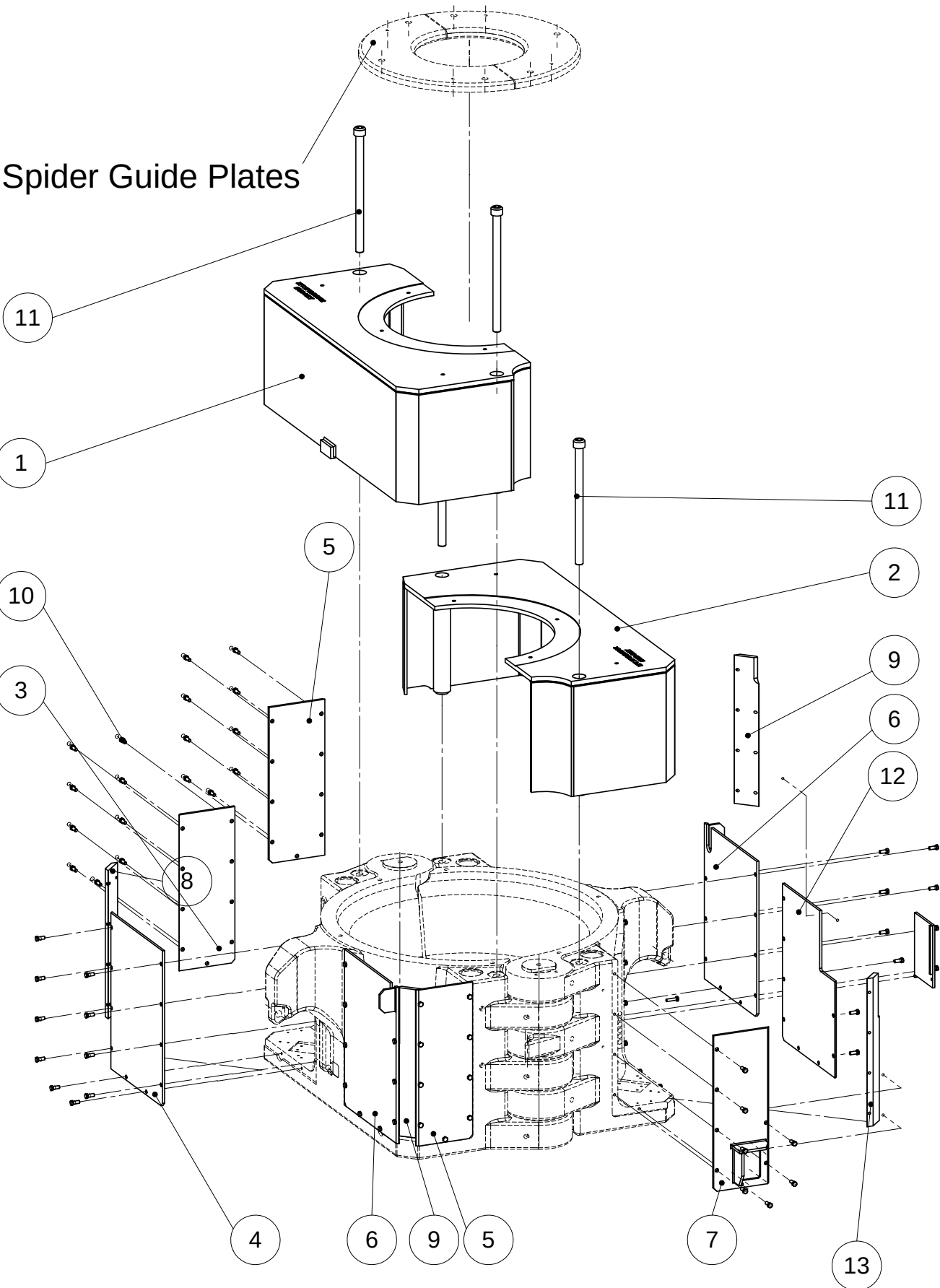


712200 Parts list

Pos.	Quantity	Part no.	Description
1	2	712201	Slip Support Plate
2	4	710410	Slip Stanchion
3	8	712202*	Slip Support Pin
4	4	712205*	Screw
5	4	710433*	Split Washer
6	4	712206*	Screw
7	8	712207*	Linch Pin
8	1	712204	Indexing Bolt
9	2	615145*	Screw

*Spare Parts

712800-1 Cover Assembly, hydraulic

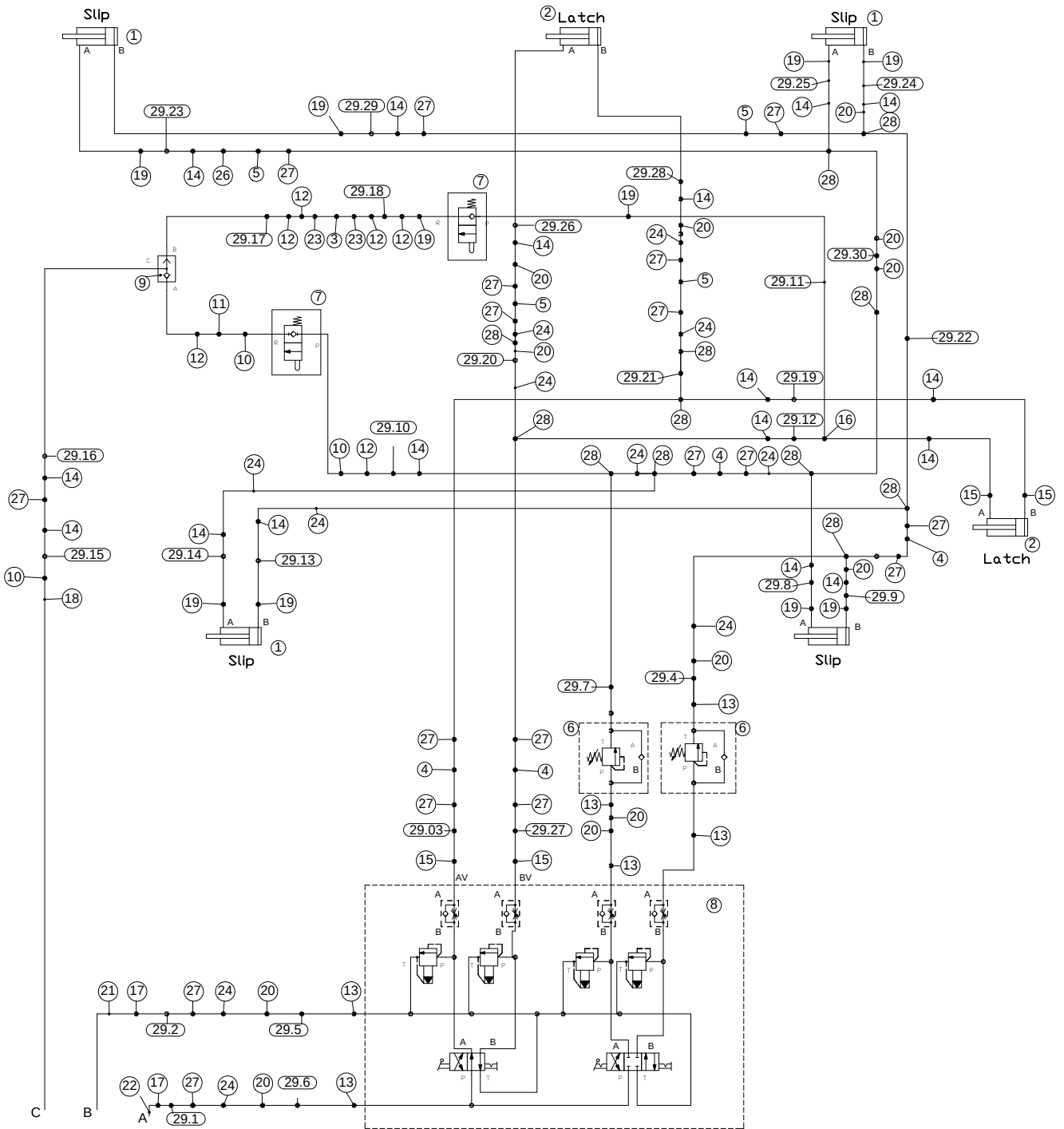


712800-1 Parts list

Pos.	Quantity	Part no.	Description
1	70	735326*	Screw
2	1	712801	Top Cover left;
3	1	712802	Top Cover right;
4	1	712803	Cover sheet 1
5	1	712804	Cover sheet 2
6	2	712805	Cover sheet 3
7	2	712806	Cover sheet 4
8	1	712807	Cover sheet 5
9	1	712821	Cover sheet 6;;
10	1	712810	Connecting corner 1
11	2	712811	Connecting corner 2
12	4	712813*	Screw
13	1	712820	Connecting corner 1;
14	1	712822	Operating Door;
15	1	753049*	Screw

*Spare Parts

712700 Hydraulic Assembly



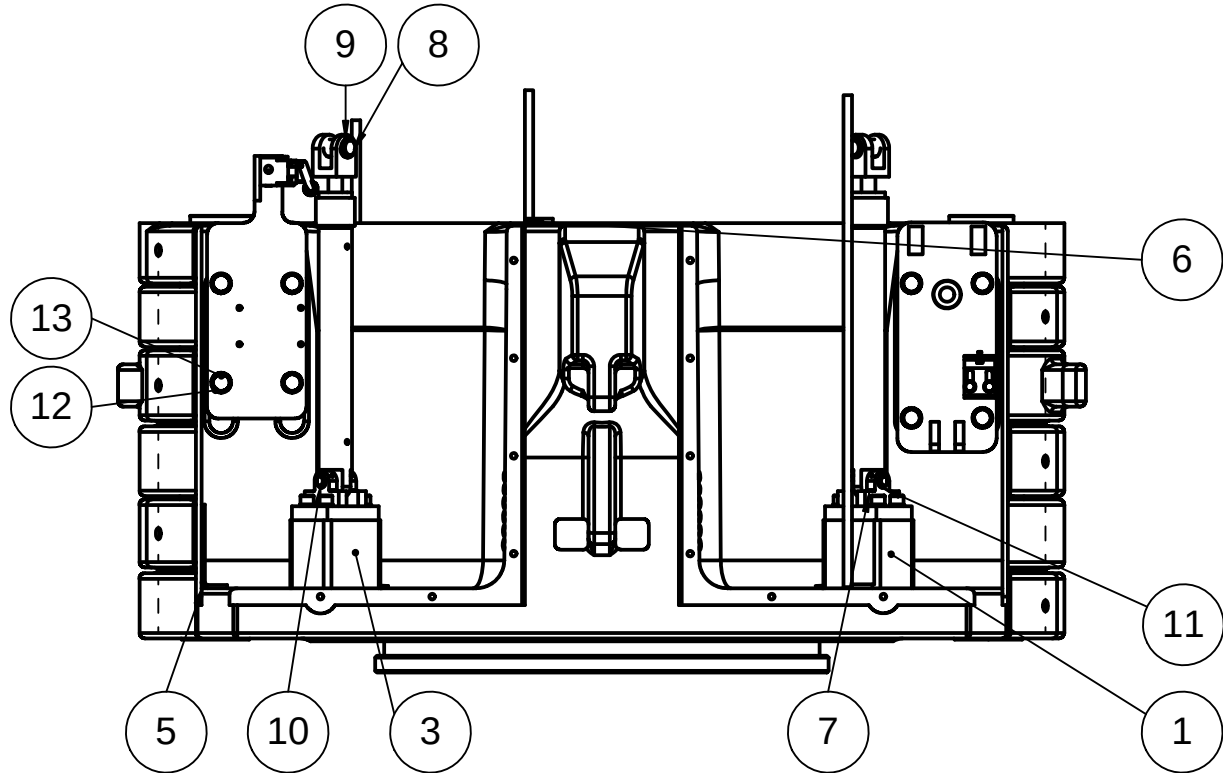
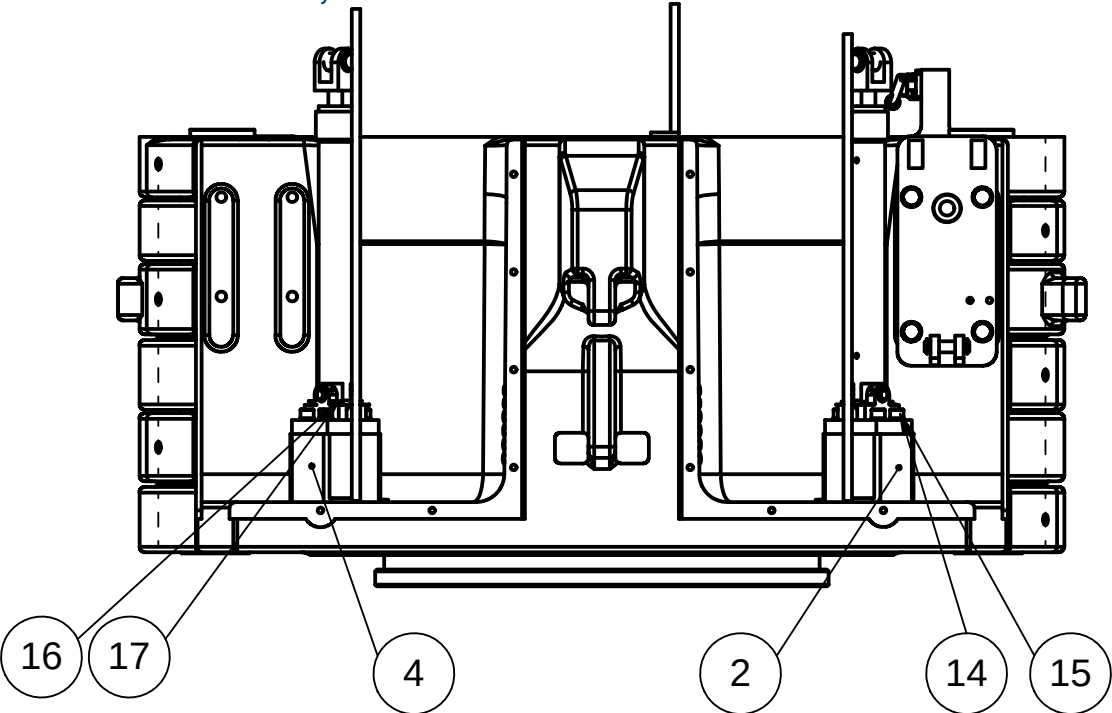
712700 Parts list

Pos.	Quantity	Part no.	Description
1	4	712707	Cylinder
2	2	710708	Cylinder
4	1	712372	Hydraulic Tube
3	4	712371	Hydraulic Tube
5	4	712373	Hydraulic Tube
6	2	612948-T	Sequence Valve
7	2	775088*	Directional Poppet Valve
8	1	710701	Valve Block Assy.
9	1	756320*	Alternating Check Valve
10	3	613941	Straight Connection
11	1	612945	Straight Connection 8L-8L
12	6	645096	L-Adapter
13	5	755373	Straight Male Stud Coupling
14	17	755372	Standpipe Reducer
15	4	755365	Banjo Coupling
16	1	645095	Adjustable Stud Barrel Tee
17	2	613949	Adapter
18	1	612965	Coupling, Flat Face, male
19	10	613945	Swivelling Screw Fitting
20	12	755367	Adjustable Stud Elbow
21	1	612936	Coupling, Flat Face, male
22	1	612937	Coupling, Flat Face, female
23	2	645105	Straight Bulkhead Coupling
24	11	755364	Swivel Reducer
25	1	612951-T	Swage nipple;
26	1	755369	Elbow Bulkhead Coupling
27	18	755370	Straight Bulkhead Coupling
28	12	755368	Equal Tee
29	1	712700-40*	Set of Hydraulic Hose Assembly
29.01	1	712700-01	Hydraulic Hose "A" 300mm, DN10
29.02	1	712700-02	Hydraulic Hose "B" 300mm, DN10
29.03	1	712700-03	Hydraulic Hose "AV" 650mm, DN10
29.04	1	712700-04	Hydraulic Hose "B1" 880mm, DN10
29.05	1	712700-05	Hydraulic Hose "T1" 280mm, DN10
29.06	1	712700-06	Hydraulic Hose "P1" 280mm, DN10
29.07	1	712700-07	Hydraulic Hose "A1" 960mm, DN10
29.08	1	712700-08	Hydraulic Hose "A2" 730mm, DN6
29.09	1	712700-09	Hydraulic Hose "B2" 630mm, DN6
29.10	1	712700-10	Hydraulic Hose "P2" 380mm, DN6
29.11	1	712700-11	Hydraulic Hose "P3" 800mm, DN6
29.12	1	712700-12	Hydraulic Hose "BV2" 790mm, DN6
29.13	1	712700-13	Hydraulic Hose "B4" 530mm, DN6
29.14	1	712700-14	Hydraulic Hose "A4" 600mm, DN6
29.15	1	712700-15	Hydraulic Hose "C" 300mm, DN6
29.16	1	712700-16	Hydraulic Hose "R1" 940mm, DN6
29.17	1	712700-17	Hydraulic Hose "B1" 880mm, DN10

29.18	1	712700-18	Hydraulic Hose "R4" 620mm, DN6
29.19	1	712700-19	Hydraulic Hose "AV2" 880mm, DN6
29.20	1	712700-20	Hydraulic Hose "BV3" 1700mm, DN10
29.21	1	712700-21	Hydraulic Hose "AV3" 1580mm, DN10
29.22	1	712700-22	Hydraulic Hose "B5" 1540mm, DN10
29.23	1	712700-23	Hydraulic Hose "A8" 600mm, DN6
29.24	1	712700-24	Hydraulic Hose "B6" 640mm, DN6
29.25	1	712700-25	Hydraulic Hose "A6" 790mm, DN6
29.26	1	712700-26	Hydraulic Hose "BV5" 990mm, DN6
29.27	1	712700-27	Hydraulic Hose "B1" 880mm, DN10
29.28	1	712700-28	Hydraulic Hose "AV5" 990mm, DN6
29.29	1	712700-29	Hydraulic Hose "B8" 530mm, DN6
29.30	1	712700-30	Hydraulic Hose "A5" 1730mm, DN10
30	2	755354*	Plastic protective coil sleeve
31	1	755355*	Plastic protective coil sleeve

*Spare Parts

712650-1 Connection Assembly

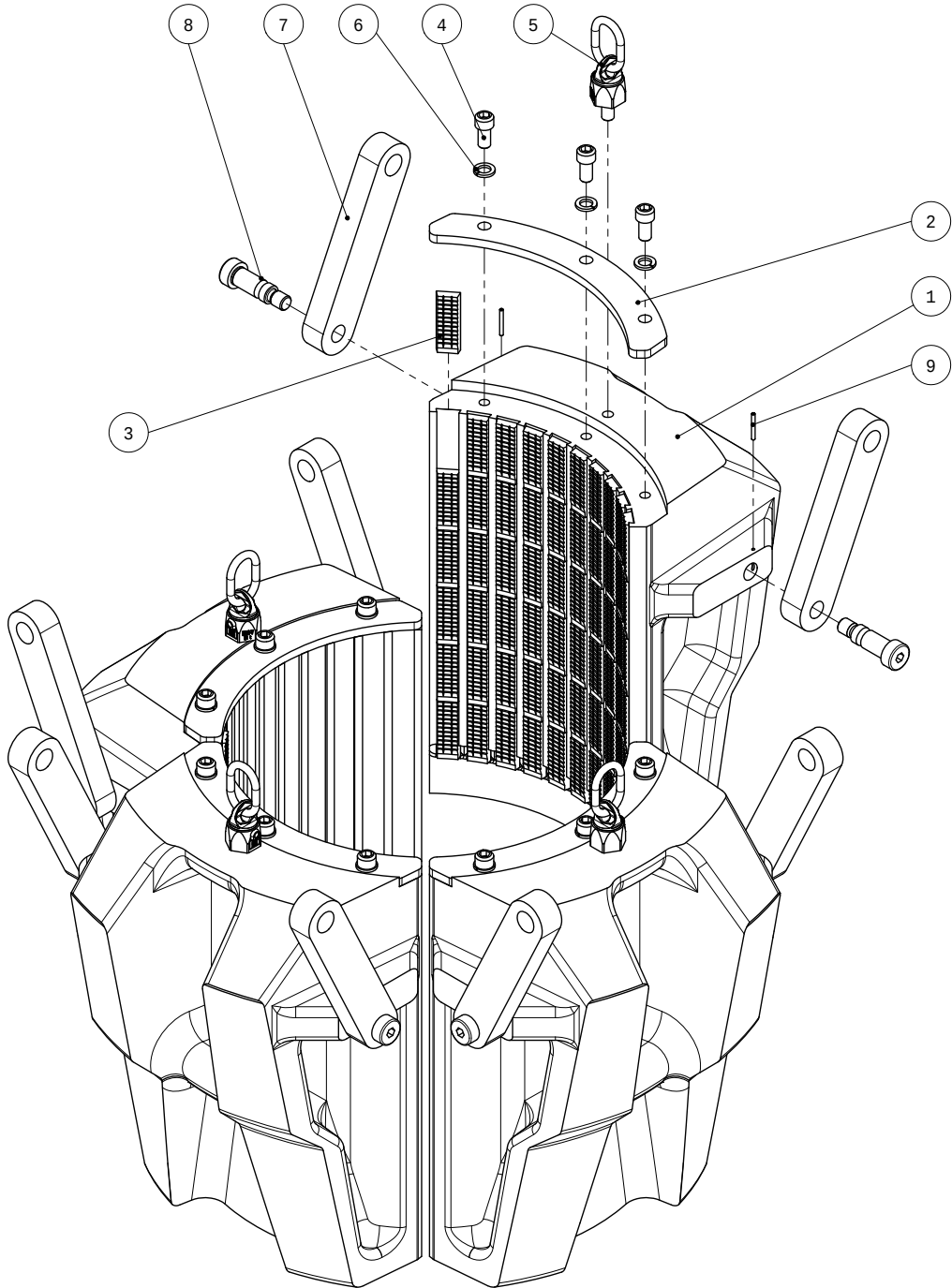


712650-1 Parts list

Pos.	Quantity	Part no.	Description
1	1	712710-1	Cylinder Mounting
2	1	712710-2	Mounting Plate for Beating Block
3	1	712710-3	Cylinder Mounting
4	1	712710-4	Cylinder Mounting
5	1	712610	Holder for Connection
6	1	710710-4	Mounting Plate for Hydraulic
7	8	710709	Beating Block f. Cylinder
8	4	712714	Link Bolt
9	8	643770_1	Retaining Ring
10	4	710713	Link Bolt
11	8	613720	Retaining Ring
12	12	752309	Lock Washer
13	12	710349	Screw
14	16	712659	Screw
15	16	792106	Washer
16	16	735854	Washer
17	16	753049	Screw

*Spare Parts

712100 Slip Assembly



712100-245 Parts list Slip Assembly 17"x17"

Pos.	Quantity	Part no.	Description
1	1	712100-245-BF	Slip Assembly 17" for;BVE/S 750/2
2	4	712117-1	Insert retainer
3	192	350913	Reducing insert 17" x 16" & 16" x 15"
4	12	612554-1	Screw
5	4	753005-1	Lifting Eye
6	12	710543	Splint Washer
7	8	712130	Slip link
8	8	712131	Shoulder screw
9	8	88240-4	Dowel Pin

712100-247 Parts list Slip Assembly 18.5/8"x18.5/8"

Pos.	Quantity	Part no.	Description
1	1	712100-245-BF	Slip Assembly 18.5/8" for;BVE/S 750/2
2	4	712118-1	Insert Retainer 18 5/8" BVES 750-2
3	216	350613	Reducing insert 18 5/8" x 18"
4	12	612554-1	Screw
5	4	753005-1	Lifting Eye
6	12	710543	Splint Washer
7	8	712130	Slip link
8	8	712131	Shoulder screw
9	8	88240-4	Dowel Pin

712100-248 Parts list Slip Assembly 20x18.5/8"

Pos.	Quantity	Part no.	Description
1	1	712100-248-BF	Slip Assembly 20" x 18.5/8" for;BVE/S 750
2	4	712120-1	Insert retainer
3	240	351213	Reducing insert 20" x 18 5/8";replaces 75
4	12	612554-1	Screw
5	4	753005-1	Lifting Eye
6	12	710543	Splint Washer
7	8	712130	Slip link
8	8	712131	Shoulder screw
9	8	88240-4	Dowel Pin

712100-249 Parts list Slip Assembly 20"x20"

Pos.	Quantity	Part no.	Description
1	1	712100-248-BF	Slip Assembly 20" x 18.5/8" for;BVE/S 750
2	4	712120-1	Insert retainer
3	240	350113	Basic insert 24 1/2", 24", 22", 20", 18 5
4	12	612554-1	Screw
5	4	753005-1	Lifting Eye
6	12	710543	Splint Washer
7	8	712130	Slip link
8	8	712131	Shoulder screw
9	8	88240-4	Dowel Pin

712100-254 Parts list Slip Assembly 24"x24"

Pos.	Quantity	Part no.	Description
1	1	712100-254-BF	Slip Assembly 24" for;BVE/S 750/2
2	4	712124-1	Insert retainer
3	264	350113	Basic insert 24 1/2", 24", 22", 20", 18 5
4	12	612554-1	Screw
5	4	753005-1	Lifting Eye
6	12	710543	Splint Washer
7	8	712130	Slip link
8	8	712131	Shoulder screw
9	8	88240-4	Dowel Pin

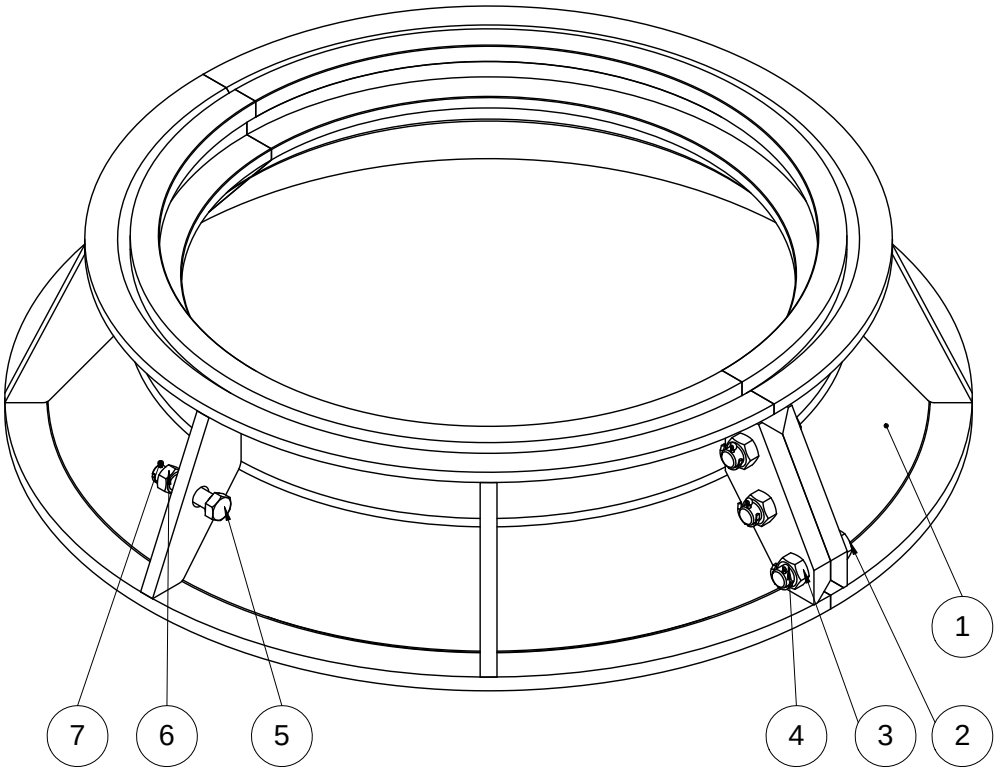
712100-261 Parts list Slip Assembly 22"x22"

Pos.	Quantity	Part no.	Description
1	1	712100-261-BF	Slip Assembly 22" for;BVE/S 750/2
2	4	712122-1	Insert Retainer 22" BVES 750-2
3	240	350113	Basic insert 24 1/2", 24", 22", 20", 18 5
4	12	612554-1	Screw
5	4	753005-1	Lifting Eye
6	12	710543	Splint Washer
7	8	712130	Slip link
8	8	712131	Shoulder screw
9	8	88240-4	Dowel Pin

712100-251 Parts list Slip Assembly 24.1/2"

Pos.	Quantity	Part no.	Description
1	1	712100-251-BF	Slip Assembly 24.1/2" for;BVE/S 750/2
2	4	712124-1	Insert retainer
3	264	350113	Basic insert 24 1/2", 24", 22", 20", 18 5
4	12	612554-1	Screw
5	4	753005-1	Lifting Eye
6	12	710543	Splint Washer
7	8	712130	Slip link
8	8	712131	Shoulder screw
9	8	88240-4	Dowel Pin

753600 Casing Guide Bell

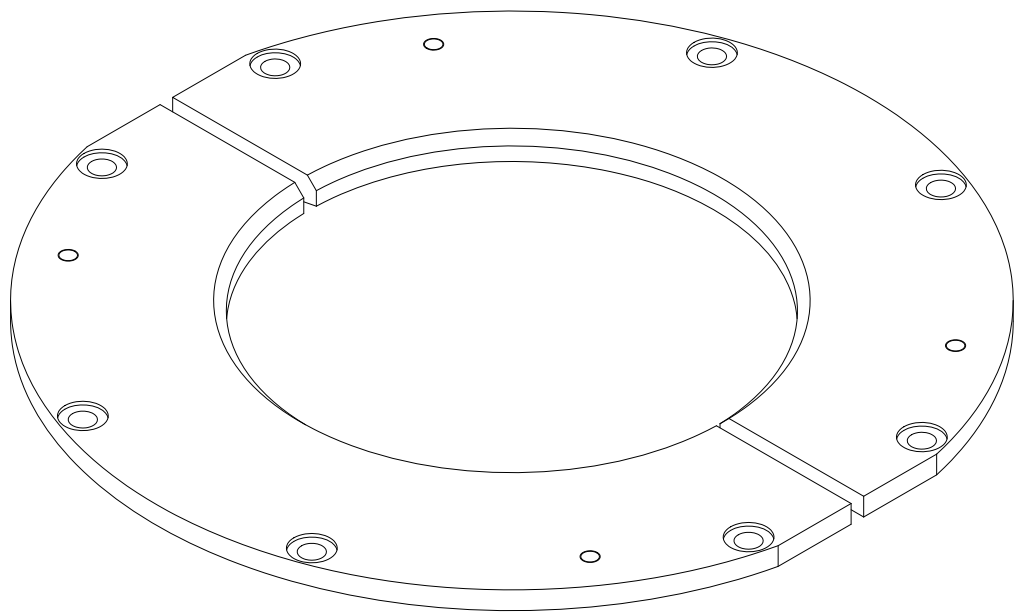


753600 Parts list

Pos.	Quantity	Part no.	Description
1	2	753601	Guide Bell
2	6	712206*	Screw
3	6	775015-1*	Nut
4	6	753600-12*	Cotter Pin
5	2	613623-11*	Screw
6	2	613556-41*	Nut
7	2	752339*	Cotter Pin

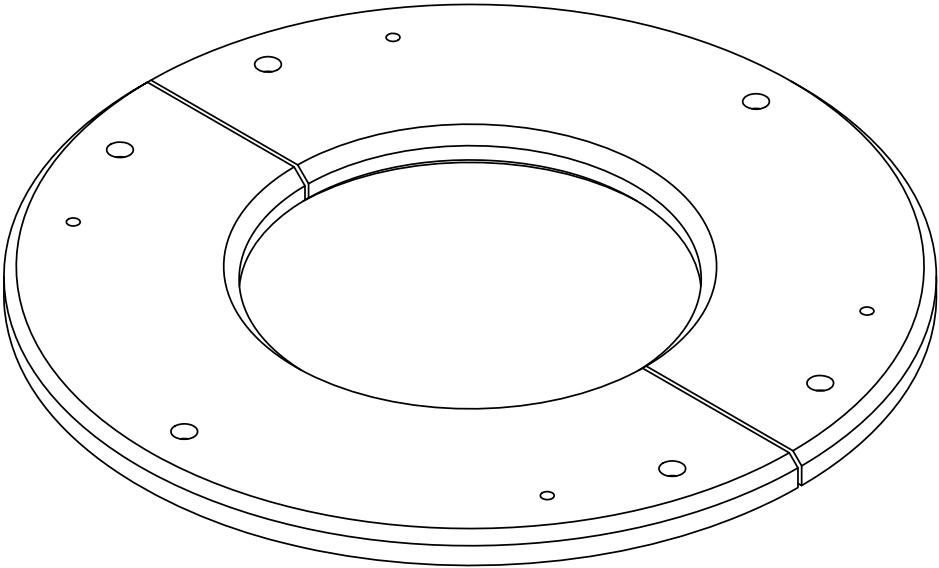
*Spare Parts

Elevator Guide Plate



Pipe Size	Elevator Guide Guide P/N	Diameter
16"	712041	ø450
18.5/8"	712044	ø517
20"	712045	ø552
22"	712046	ø603
24"	712047	ø653
24.1/2"		

Spider Guide Plate



Pipe Size	Spider Guide Plate P/N	Diameter
16"	753726	ø450
18.5/8"	753731	ø517
20"	753736	ø552
22"	753741	ø603
24"	753746	ø653
24.1/2"		

Spare Parts

712000-Y-H-RSP Parts list

Pos.	Quantity	Part no.	Description
10	2	710025	Screw
11	10	752331	Cotter pin
12	2	735111	Screw
13	2	735110	Nut
14	10	752339	Cotter Pin
15	2	617518	Plate
16	4	617519	Screw
17	4	617520	Safety sheet
18	2	710020	Ring Screw
19	20	70064	Grease Nipple
20	20	612518	Protection Cap
21	6	671640	Warning sign "Hands" - sticker
22	12	671641	Warning sign "squeeze danger"
23	24	671642	Warning sign "GREASE DAILY"
24	9	671638	Warning sign Blohm + Voss
25	3	613129	Sticker Hotline
	1	712300-RSP	Spare Parts for Latch Assembly Hydraulic
	1	712300-1-RSP	Spare Parts for Latch Assembly Hydraulic
	1	712200-1-RSP	Spare Parts for Lifting Assembly, hydraulic
	1	712800-1-RSP	Spare Parts for Cover Assembly, hydraulic
	1	712700-RSP	Spare Parts for Hydraulic Assembly
	1	712650-1-RSP	Spare Parts for Connection Assembly

712300-RSP Parts list

Pos.	Quantity	Part no.	Description
4	1	710310	Latch Pin
6	1	710350	Pin
7	1	710335	Latch Spring
8	1	710315	Plunger
9	2	710353	Shoulder Screw
10	1	710354	Castle Nut
11	10	620609	Cotter Pin
12	2	650218-3	Washer
13	10	710347	Cotter Pin
14	10	611523	Retaining Ring
15	4	752309	Lock Washer
16	4	710349	Screw
17	2	725443	Washer
18	2	612671	Screw
19	2	645198	Screw
20	2	755248	Washer
21	10	613720	Retaining Ring
22	1	710713	Link Bolt
24	1	710348	Nut

712300-1-RSP Parts list

Pos.	Quantity	Part no.	Description
4	1	710310	Latch Pin
6	1	710350	Pin
7	1	710335	Latch Spring
8	1	710316	Plunger
9	1	710353	Shoulder Screw
10	1	710354	Castle Nut
11	10	620609	Cotter Pin
12	2	650218-3	Washer
13	10	710347	Cotter Pin
14	5	613720	Retaining Ring
15	2	710713	Link Bolt
16	5	611523	Retaining Ring
17	4	710348	Nut

712200 Spare Parts Parts list

Pos.	Quantity	Part no.	Description
3	8	712202	Slip Support Pin
4	4	712205	Screw
5	4	710433	Split Washer
6	4	712206	Screw
7	8	712207	Linch Pin
9	2	615145	Screw

712800-1-RSP Parts list

Pos.	Quantity	Part no.	Description
1	70	735326	Screw
12	4	712813	Screw
15	1	753049	Screw

712700-RSP Parts list

Pos.	Quantity	Part no.	Description
7	2	775088	Directional Poppet Valve
9	1	756320	Alternating Check Valve
29	1	712700-40	Set of Hydraulic Hose Assembly for BVES 7
30	2	755354	Plastic protective coil sleeve
31	1	755355	Plastic protective coil sleeve

712650-1-RSP Parts list

Pos.	Quantity	Part no.	Description
8	4	712714	Link Bolt
9	20	643770_1	Retaining Ring
10	4	710713	Link Bolt
11	20	613720	Retaining Ring
12	12	752309	Lock Washer
13	12	710349	Screw

753600-RSP Parts list

Pos.	Quantity	Part no.	Description
2	6	712206	Screw
3	6	775015-1	Nut
4	6	753600-12	Cotter Pin
5	2	613623-11	Screw
6	2	613556-41	Nut
7	10	752339	Cotter Pin