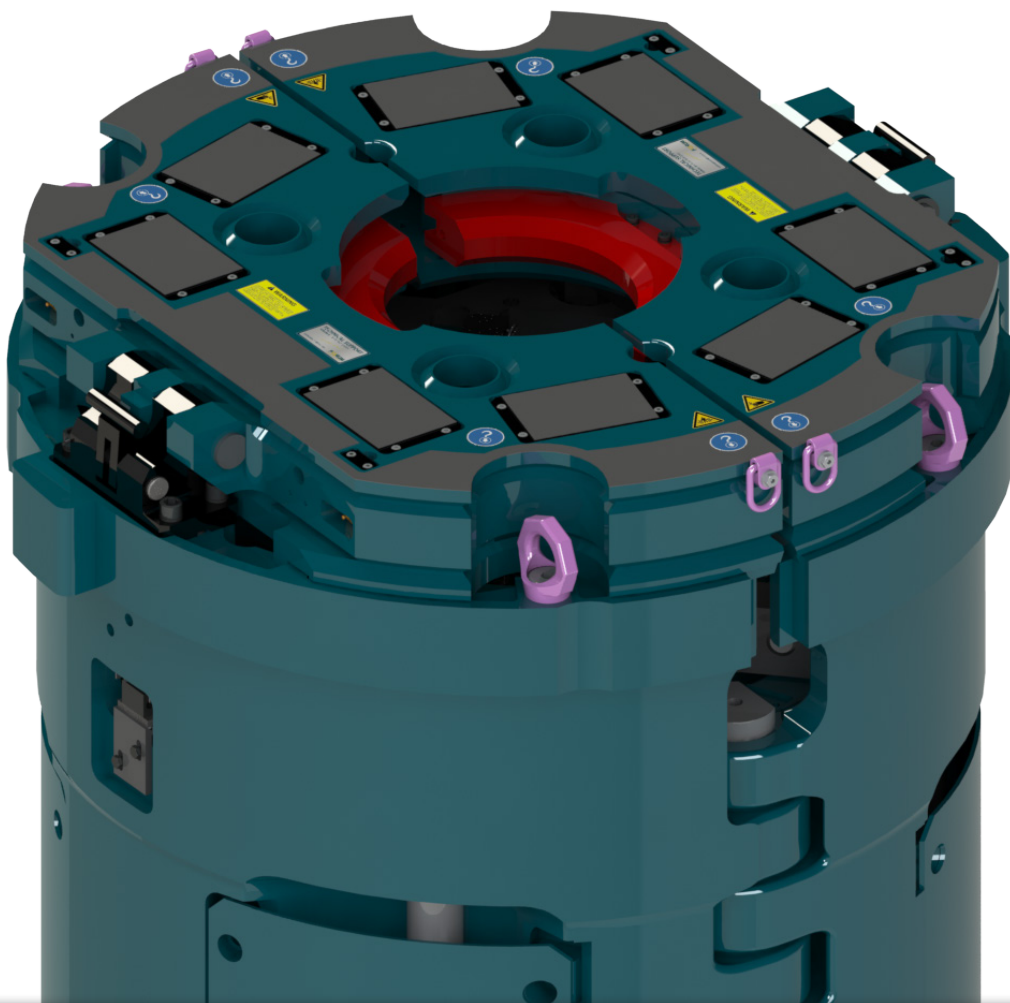


Power Slip Type Series

PS 1250

Operating Instructions

Original Operating Instructions



Manual PN 774000-D Revision: 02, 08-2017

FORUM Handling Tools

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02	08-2017	FORUM Handling Tools, SS	New Layout

Document Approval

Version	Author	Eng. Check	Approval Check
01,02	FORUM Handling Tools MH 07 / 14	FORUM Handling Tools AR 07 / 14	FORUM Handling Tools FS 07 / 14

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DESCRIPTION

SAFETY

TRANSPORT

COMMISSIONING /
OPERATION

SERVICE

INSPECTION /
MAINTENANCE

STORAGE

APPENDIX

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A. General

I Basic Information

This operating manual refers to the Power Slip 1250 (hereinafter called PS 1250) Type Series manufactured and sold by FORUM Handling Tools for use on oil drilling platforms and rigs.

The permissible range of application is specified in the technical data.

This manual covers several different FORUM Handling Tools models from the PS 1250 type series that are all common in use and operation. Most assembly, disassembly, and inspection procedures are the same for all models.

However, where there are differences, they are called out separately within the manual.

When installed in potentially explosive atmospheres, the instructions that follow the Ex symbol must be followed. Personal injury and/or Equipment damage may occur if these instructions are not followed.

This operating manual is intended for the operator of the PS 1250. It is intended to ensure safe operation and must be read carefully and kept where it is accessible for PS 1250 users at all times.

This operating manual contains all information on safe and proper operation of the PS 1250. Observance of these instructions is required for safe operation.

In addition, it is necessary to observe all applicable national and local regulations (e.g. accident prevention regulations and environmental regulations) as well as the company's own internal safety regulations.

For installation, maintenance and repair work and proper training of the operating personnel, FORUM Handling Tools recommends requesting service from FORUM Handling Tools itself.

II Intended Use

Intended Use

The PS 1250 is designed for arresting and holding vertical drill strings with a diameter of 3 1/2" to 14" and total weight of up to 1250 short tons (≈ 1133 metric tons) in 49 1/2" rotary tables. The traveling motions for opening and closing are accomplished by remote control with hydraulic cylinders. In addition to observing all instructions in this operating manual, intended use also includes observing all prescribed assembly, disassembly, startup, operating, repair and maintenance work at the specified intervals as well as all safety precautions. The operation of the PS 1250 is allowed for its intended use only.

INFO



General conventions in this manual:

the abbreviation **t** and the word **ton** are used to describe short tons. If the metric ton is referred it will explicit be named in the text.

1 sh ton	= 2000 lb	= 907,19 kg
1 metric ton	= 2204,62 lb	= 1000 kg

III Improper Use

INFO



Improper use of the Equipment releases FORUM Handling Tools from any liability for personal injury or property damage resulting therefrom.

The PS 1250 is intended exclusively for arresting and holding the specified pipes. Always observe the specifications in Chapter refer to section 1.3 "Technical Data" on page 19.

The following is specifically prohibited:

- Installation and operation in environments for which use is not specified.
- Exceeding the load rating of the PS 1250.
- Any use of the PS 1250 which is not intended.
- Holding pipe with diameter >14".
- Holding pipe with diameter <3 1/2".
- Holding weights > 1,250 t.
- Use of insert slips, guide plates and carriers with pipe sizes for which use is not specified.
- Use of landing stings with less than 92% RBW.

Moreover, operation of the PS 1250 is prohibited under the following conditions:

- When the Equipment is used for applications other than intended.
- When the Equipment, or parts thereof, are damaged or when the additional Equipment is not installed properly.
- When protective or safety Equipment is damaged, unusable, improperly installed or not present.
- When the PS 1250 is not operating properly.
- When humans, foreign objects or personnel are located in the hazard area of the PS 1250.
- When conversions or modifications have been performed without previous, written approval by FORUM Handling Tools.
- When tools not approved by FORUM Handling Tools are used.
- When the prescribed maintenance intervals have been exceeded.
- When replacement parts not approved by FORUM Handling Tools are used.
- When repair or service work has been performed on the Equipment by companies not authorized by FORUM Handling Tools.

Observe also the chapter "Warranty and Liability".

IV Potential Misuse

This manual contains information and warnings on procedures that address hazardous conditions and could cause personal injury but cannot reflect all fashions in which hazardous consequences may occur due to service and/or operation. All personnel using this Equipment or service procedures contained within this manual must be completely satisfied that personal and/or Equipment safety will not be compromised.

Common methods of MISUSE include but are not limited to:

1. Use without ALL warning and identification labels present. This can cause operating personnel to misunderstand the areas of the Equipment that can cause serious injury.
2. Use with insufficient and/or worn assemblies and parts. This can cause failure causing a suspended hazard which can result in serious injury or death. .
3. Use of the Power Slip 1250 in methods not intended. The PS 1250 should be used ONLY in the methods described in this manual.

V Warranty and Liability

Liability

The technical information, data and instructions for operation contained in this operating manual correspond to the status at the time of print and are provided according to the best of our knowledge in consideration of our previous experience and know-how.

We reserve all rights to make technical modifications within the scope of technical development of the Power Slip 1250 treated in this operating manual. Claims or entitlements cannot be deduced or derived from information, illustrations and /or descriptions in this operating manual.

FORUM Handling Tools is liable for all warranty obligations made within the scope of the contract for any faults or omissions on our part, excluding further claims. Claims for damages suffered are excluded regardless of the legal grounds.

Translations are complete according to best knowledge. We cannot assume any liability for translation errors, even when the translation was performed at our order. Only the original text is binding. The original text language for FORUM Handling Tools documents and manual is English.

The descriptions and illustrations do not necessarily reflect the scope of delivery or any parts orders. The drawings and illustrations are not to scale.

Warranty

FORUM Handling Tools general terms of purchase and delivery apply. Purchasers recognize these conditions on the day the contract is signed, at the latest.

The terms and duration of FORUM Handling Tools warranty are specified in the sales documents as well as the order confirmation. These will be submitted to the operating company as information at the time the contract is signed, at the latest.

The manufacturer assumes no warranty whatsoever for damage or interruptions in operation resulting from failure to observe the operating instructions.

The operating manual is to be supplemented by the operating company with operating instructions based on existing national regulations on accident and environmental protection, including information on supervisory and reporting obligations taking into consideration operating peculiarities, e.g. in regard to work organization.

Warranty claims/complaints within the scope of the guarantee and liability for personal injury and property damage are excluded, when such result from any of the following causes:

- Any use other than intended;
- Improper installation, operation, maintenance or repair;
- Operation with defective, improperly attached or non-operational safety and/or protective Equipment or devices;
- Failure to observe the instructions in the operating manual regarding safe conduct;
- Impermissible structural and/or functional modifications;
- Use of replacement parts not approved by FORUM Handling Tools;
- Normal wear or insufficient inspection of components subject to wear;
- External effects or force majeure;
- Lubricating the Power Slip 1250 with lubricants other than those recommended by FORUM Handling Tools.

Info



Any structural or functional modification to the Equipment by the operating company requires previous written approval by FORUM Handling Tools . Failure to obtain such approval voids the warranty as well as the declaration of conformity and releases FORUM Handling Tools from any product liability.

Following modifications or installation of optional equipment, all safety Equipment must be reinstalled and checked by the operator for proper function.

VI Obligations of the Operating Company

Planning and Checking Safety Measures

The obligation of the operating company to due diligence includes planning safety measures and supervising their observance.

All personnel performing work on and with the PS 1250 must be trained by the operating company for the work performed on and with the PS 1250.

All personnel must have read and understood the operating manual.

Minimizing Risk of Injury

The following principles apply to minimize the risk of injury:

- Ensure that work on the PS 1250 is performed only by qualified personnel.
- The personnel must be authorized for such work by the operating company.
- The personnel must wear the prescribed protective equipment.
- Procedures, competencies and responsibilities must be clearly defined and established in the area of the PS 1250. Proper behavior in the event of a malfunction must be clear for everyone. The personnel must be given regular training.
- All WARNING signs and information on the PS 1250 must be complete and easily legible. For this purpose WARNING signs and information are to be cleaned regularly and replaced as required.

Trouble-free Operation

The following principles apply for trouble-free operation:

- Keep the complete operating manual at the location where the PS 1250 is in operation where it is easily accessible for everyone and in an easily legible condition.
- Use the PS 1250 exclusively for its intended purpose.
- Use the PS 1250 only when it is in a perfect operating state.
- Before starting work, check to ensure that it is in a safe operating state and functioning properly.

Requirements for Operator

Basic knowledge of safe handling and use of the PS 1250 includes knowledge of the general safety precautions.

Ensure that the PS 1250 is operated only in compliance with the general safety precautions and other instructions in this manual.

Training

The operating company is obligated to organize and hold regular training to ensure that all personnel involved with transporting, installing, operating and/or servicing the PS 1250 is familiar with the required procedures and safety precautions.

Minimum Qualifications

All work on the Equipment requires special knowledge and qualifications on the part of the operating personnel.

All personnel working on PS 1250 must have the following qualifications:

- Personal suitability for the work performed.
- Suitable qualifications for the work performed.
- Familiarity with the safety Equipment and its function.
- Familiarity with this operating manual—particularly the safety precautions—and all chapters relevant for the work to be performed.
- Familiarity with the elementary instructions on operating safety and accident prevention.

In general, all employees must have one of the following minimum qualifications:

- Technical training for independent work on the PS 1250.
- Sufficient qualifications for working on the PS 1250 under supervision and at the instructions of a trained specialist.

VII User Groups

This operating manual is subdivided into the following user groups:

Personnel	Qualifications
Operating personnel	Sufficiently trained in: • Functional procedures on the equipment • Operating procedures Knowledge: • Competency and responsibility in regard to the work to be performed • Behavior in emergencies
Service personnel	Basic knowledge of: • Mechanics • Hydraulic Authorizations (according to standards of safety engineering): • Starting up equipment • Grounding equipment • Marking of equipment • Basic knowledge of installation and operation of the PS 1250.

Special Technical Knowledge

The following work should be performed only by specially trained personnel:

Work Performed	Qualifications
Work on hydraulic system	Special knowledge and experience with work on hydraulic systems.
Work on mechanical parts	Personnel qualified or trained in industrial mechanics; work is to be performed only under supervision and on instructions of a person qualified in accordance with generally accepted codes of practice in industrial mechanics.

VIII Safety Symbols

The safety precautions in this document contain standardized depictions and symbols. Four hazard classes are distinguished depending on the probability of occurrence and severity of the consequences.

Selection of the warning category depends on the probability of occurrence and the possible extent of damage.

⚠ NOTE

Situations which could result in damage to the PS 1250, to its surroundings or to Equipment are distinguished in this manner, supplemented, where applicable, by a pictograph.



⚠ CAUTION

Indication of recognizable hazard for humans or possible property damage.

Failure to observe can lead to reversible injuries or property damage!

- » The symbol as specified in ANSI Z535.6 emphasizes the cause.
- » Measures for avoiding are listed.



⚠ WARNING

Indication of recognizable hazard for humans.

Failure to observe can lead to irreversible injuries!

- » The symbol as specified in ANSI Z535.6 emphasizes the cause.
- » Measures for avoiding are listed.



⚠ DANGER

Indication of imminent hazard for humans.

Failure to observe can lead to irreversible or lethal injuries!

- » The symbol as specified in ANSI Z535.6 emphasizes the cause.
- » Measures for avoiding are listed.

Preliminary Safety Precautions

Safety precautions are given in the preceding form at the beginning of complete chapters or sections. They apply for the entire chapter or the entire subsequent section.

Safety Precautions Relevant for Action

If a safety precaution applies only for one single action or a short series of actions, it is integrated into the text preceding the possible hazard point.

For example:

1. Attach hoisting gear to eye bolts in cover.

⚠ CAUTION Danger of pinching/crushing hands! The cover can fall shut when the retainer is not engaged. Never open the cover by hand.

2. Open the cover with a crane and suitable hoisting gear.
3. Unscrew the M10 bolts on the hydraulic assembly with a 17 mm box wrench.
4. ..

Instructions for Safe Procedure

Special work steps to ensure Safe Procedure are depicted as follows (example):

Safe Procedure

1. Shut off Equipment.
2. Disconnect supply lines.
3. Attach Equipment to crane.
4. ..

Linguistic Conventions

This documentation uses terms and symbols intended to help you find information more easily, perform work steps more effectively and recognize dangerous situations more quickly. These symbols and terms are explained below:

All important text sections are printed in bold face.

- Lists without any necessary sequence are marked with a dash (-) at the left side of the column.
- Individual activities to be performed are indicated by a dot (•) to the left of the column.

Relevant consequences of an action or work step are marked with an arrow (→) in the left margin.

Enumerations in a certain sequence (e.g. a series of work steps) are indicated by sequential numbers (1, 2, 3,...) in the left margin.

For example:

1. Unscrew nuts on Equipment feet.
2. Lift Equipment.

For greater clarity, the illustrations are located in the right column with the text opposite or directly below the associated text section. Larger illustrations extending over the entire width of the page are located before the explanatory text. The illustrations are provided with captions in telegraph style.



Fig. 1: Illustration Example

IX Personal Protective Equipment (PPE)

The following symbols located at appropriate points in the operating manual indicate that it is mandatory to wear personal protective equipment:



WEAR PROTECTIVE GLOVES!



WEAR EYE PROTECTION!



WEAR SAFETY SHOES!



WEAR PROTECTIVE HELMET!



WEAR EAR PROTECTION!

INFO



Additional information and relationships requiring special attention are distinguished in this manner.

X Conformity

The PS 1250 satisfies all requirements in applicable directives and standards.
For applicable type series members a sample of the EC Declaration of Conformity is given in the appendix.

INFO



This operating manual is a part of the technical documentation of the PS 1250.

An EC Declaration of Conformity is delivered together with the PS 1250, if applicable and needed.

Keep these instructions and the associated documents for later use.

XI Contact FORUM Handling Tools Worldwide

In the event of problems that cannot be solved with the aid of this manual, please contact one of the following addresses.

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United Arab Emirates	Singapore
Oilfields Supply Center Building B-45 Jebel Ali Free Zone Dubai UAE Tel: + 971.4.883.5266	No 51 Benoi Road #06-00 Liang Huat Industrial Complex 629908 Tel: + 65.6465.4850 Fax: + 65.6465.4851 Out of hours + 65.913.898.12

XII Online Technical Document access

a. Information via homepage

INFO



For further and actual information you can also visit our homepage in the Internet.

A digital version of the operation instructions for this product as well as the operation instructions, safety- and update notes for other FORUM Handling Tools products can be reached via the blohmvooss-oiltools homepage. To join our Internet Technical Documentation service with the latest updates on new technical documentation in a free and easy way, you must register to our service with your email-address and name in the customer-login area ❶ on www.blohmvooss-oiltools.com.



Technical Documentations
Safety Notes and Product Updates



EXHIBITIONS

Sep.08 – Sep.11, 2015 Offshore Europe / Aberdeen, UK

Copyright by FORUM B + V Oil Tools GmbH					© 2015 Imprint/Disclaimer As of: Jul.21, 2015				
Quality	Products	Slip Lifter	Bushings	Company	Quality	Products	Slip Lifter	Bushings	Company
Engineering	Links	Floorhand	Manual Slips	Jobs	Engineering	Links	Floorhand	Manual Slips	Jobs
Service	Elevators	Pipe Spinner	Safety Clamps	Contact	Service	Elevators	Pipe Spinner	Safety Clamps	Contact
Sales	Elevator / Spiders	Power Slips	Dual Elevator System	Imprint	Sales	Elevator / Spiders	Power Slips	Dual Elevator System	Imprint
		Manual Tongs	Spare Parts				Manual Tongs	Spare Parts	

Fig. 2: Illustration Service–Homepage

DESCRIPTION

DESCRIPTION

1 Description

The PS 1250 is a equipment to handle vertical drill strings and can be used in all common 49 1/2" rotary tables. Adapter rings for various drilling table versions can be ordered as optional items for the basic unit. The use of replaceable inserts and carrier enables the PS 1250 For use with a various tubular in size and style, such as casing, drill collars and tubing. A description of the optional accessories is given in the following chapters and in the parts lists. The materials used and the production processes satisfy API 7K standards. The equipment is approved for operation in explosion hazard areas.

Features

- Hydraulic operated Power Slip.
- Rapid changing of pipe sizes by means of Insert Carrier and Slip Assemblies.
- Material and manufacturing standard in according to API 7K.
- Central Slip Grease System.
- Hydraulic system is completely integrated and covered into the PS 1250 body.
- Protector and centralizer can be used when Slip Assembly (without Insert Carrier) has been lifted.
- A hydraulic feedback signal is available, which shows that the Slip Assembly has been set.
- Hydraulic Centering Guide System (can be switched off if not needed).
- Use of standard Bit Breaker plates possible.

Type Series Options

- » The power slip is available with two different guide mounts.
 - On the standard guide mount the guide plates are inserted and fastened with bolts.
 - On the modified guide mount the guide plates are pushed into a keyed joint.

Rotary tables overview

Rotary tables Configuration	Part number
National	774000-N
Emsco	774000-E
Wirth	774000-W
Oilwell/Wirth	774000-OW

1.1 Assemblies and Components

In the ready-to-operate state the PS 1250 consists primarily of the assemblies described below.

Info



Please note that this illustration does not reflect the scope of delivery (refer to section 3.1.1 "Scope of Delivery" on page 44). FORUM Handling Tools offers Carrier assemblies and guide plates as accessories to match the specific pipe diameters.

For parts catalogue with complete general drawings and parts lists refer to section 5.3 "Drawing, Parts List and Spare Parts" on page 86 of this manual.

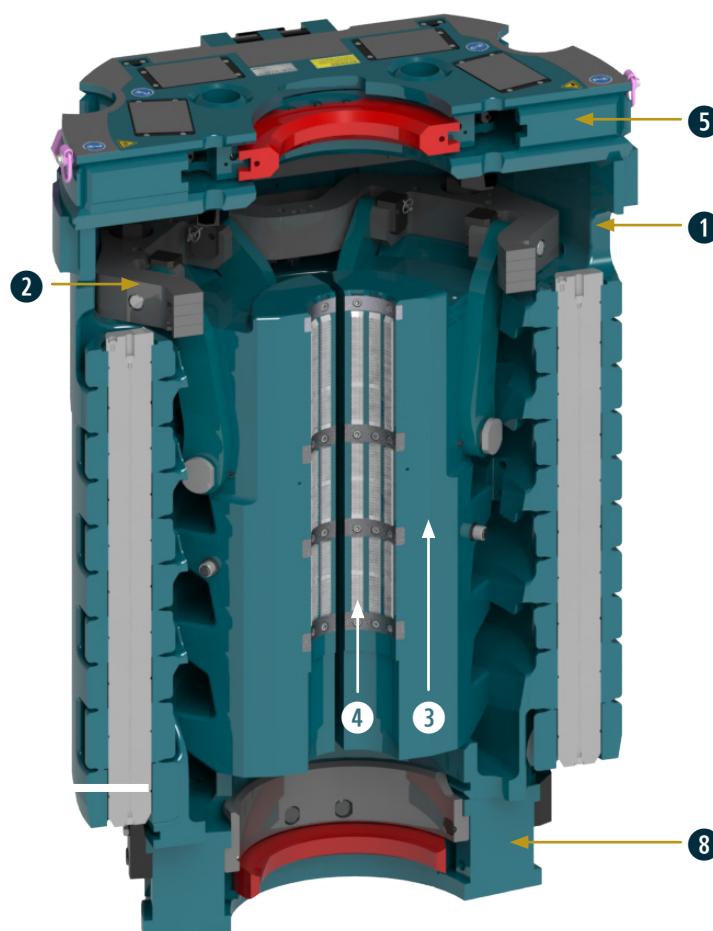


Fig. 3: PS 1250 with Slip, Carrier and Bottom Guide Assembly

No.	Name	No.	Name
1	Body including Greasing System	6*	Hydraulic Assembly
2	Lifting Assembly including Feedback	7*	Hook Up Kit
3	Carrier Assembly	8	Bottom Guide Assembly including Guide Plates
4	Inserts	9*	Grease Pump
5	Hydraulic Centering System including Guide Plates	10*	Transport box

* not illustrated

Body

The body is the basic element of the PS 1250. It consists of two cast steel half-shells, connected with one another by hinge pins. One of the hinge pins can be pulled to open the body; the second serves as a hinge running in a slide bushing. All other components on the PS 1250 are attached to the body so that they are either free to move or stationary. When lifting and lowering, the slip assembly or insert slip assembly is guided in the circumferential, conical fillets.



Fig. 4: Clam Shell Body with Hinge Pins

Lifting Assembly

The lifting assembly consists of the carrier ring, to which the slip assembly or insert slip assembly is fastened, and the hydraulic cylinders for the lifting and lowering motions for opening and setting the slip with the carriers or insert slips. The feedback assembly provides a hydraulic signal indicating that the lifting assembly is in the upper end position ('slips open') or lower end position ('slips set').



Fig. 5: Lifting Assembly with Hydraulic Cylinders

Slip Assembly ①

The slip assembly represents the support unit for the carrier. It consists of four separate slips, each of which is suspended from the lifting assembly with hinges.

Insert Carrier ②

Four Insert Carriers are installed to the Lifting Assembly of the PS 1250. Insert Carriers are lifted or lowered simultaneously. Insert carriers transfer loads to the PS body according to their geometry.

⚠ CAUTION Ensure that the matching Carrier is used for each pipe size.

Insert Slip Assembly

The insert slip assembly is designed especially for use of landing strings. Here the inserts are installed directly in the slip. The present insert surface is matched to the slip-proof section on the landing strings.

Hydraulic Centering System (HCS)

On the one hand the HCS centers the pipe before setting the slip while also guiding the drill string with guide plates in the open state (with slips open) to prevent the drill string from hitting against the inserts.

The HCS consists of two identical halves in which the guide plates are guided eccentrically in a dove-tail groove. This prevents the guide plates from falling out even when not fastened properly.

When the HCS is opened each of the halves are locked automatically by a special mechanical safety device. This lock can only be released manually by the operator.

The guide plates are opened and closed by hydraulic cylinders.

⚠ CAUTION Always ensure that the right size guide plates are installed for each pipe diameter.

The hydraulic centering system can be switched on and off as required using a control valve in the upper section of the body.

Hydraulic Assembly

Double acting hydraulic cylinders center the pipe as well as open and set the slips.

For this purpose it is necessary to supply pressure alternately to hydraulic connection

A - to "center and set the slips" and

B - to "open the slips".

In addition, an output pressure signal is present at connection "C" when the slips are set or opened.

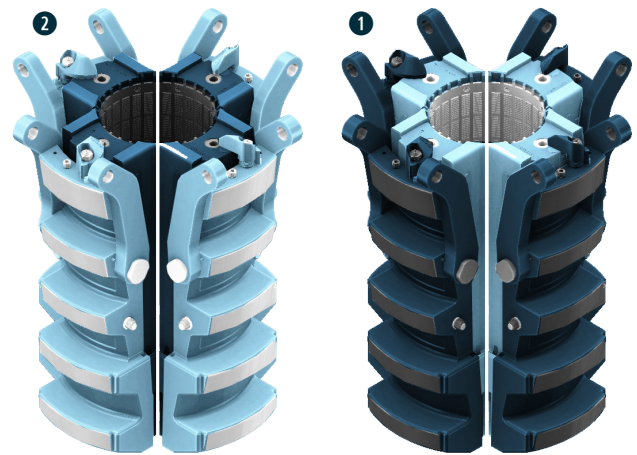


Fig. 6: Slip Assembly with Carriers (Illustrated for 14" Pipe)

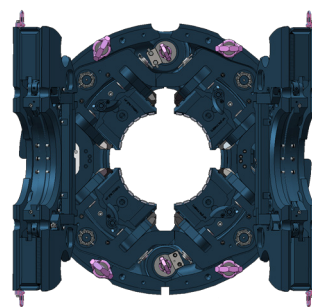


Fig. 7: Insert Slip Assembly



Fig. 8: HCS Assembly, Open

Lubrication System

The PS 1250 has an automatic lubrication system for lubricating the slip surfaces.

The grease is applied to the slip surfaces by compressed air. The grease pump (P/N 774001) can be adjusted so that the slip surface is cleaned with compressed air before greasing. It is necessary to connect

- connection G to the grease pump and
- connection L to the pneumatic supply (see also „Connecting the Hydraulic System“).

The lubrication time and lubrication intervals can be set on an optional grease counter.

⚠ Note Use the grease supplied with the Grease Pump for lubrication.

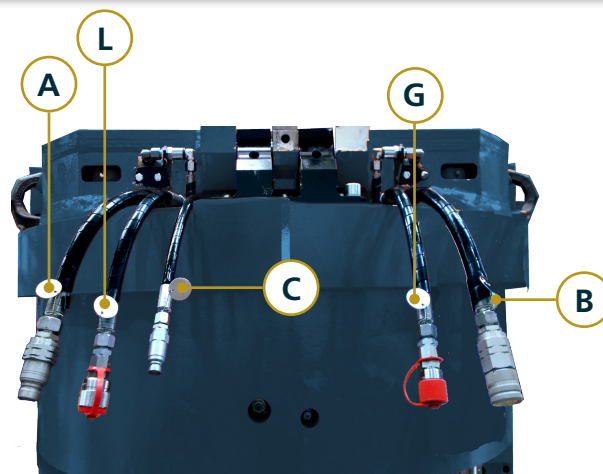


Fig. 9: Hydraulic and grease Connections

Grease Pump

The grease pump (P/N 774001) consists of the pneumatic system (including hoses) and the grease barrels (2 x 50 kg barrel).



Fig. 10: Grease Pump

Transportbox

The transport box is used to guarantee a safe transport to final destination, to ease rearrangement transport and provide a safe stand during break in use.



Fig. 11: Transport box PS 1250

1.2 Optional Equipment and Upgrade Kits

Following Optional Equipment is available from FORUM Handling Tools for the PS 1250. Please contact your local FORUM Handling Tools representative for detailed information regarding conversion, use and installation on your PS 1250.

- **Bottom Guide Assembly (P/N 774960)**

The Bottom Guide Assembly guides the drill string inside the body in addition to the HCS.

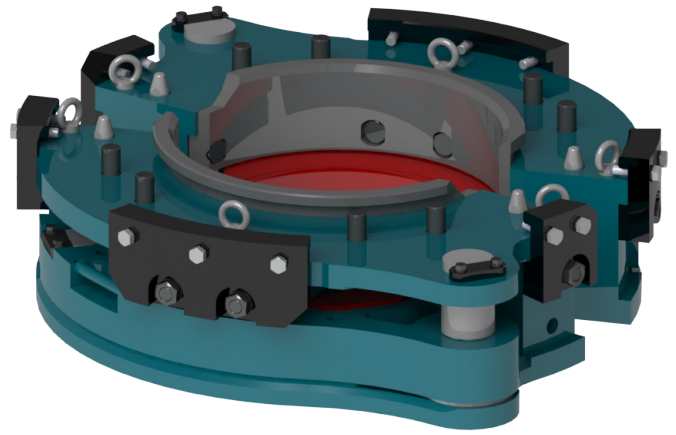


Fig. 12: Bottom Guide Assembly

- **Adapter for Drilling Table Contours**

- Wirth 49 1/2" RT (P/N 774008)
- Emsco 49 1/2" RT (P/N 774007)

- **Adapter for Drilling Table Sizes**

- Split Adapter 75 1/2" x 49 1/2".
NOV/NOV (P/N 55285)
- Solid Adapter 60 1/2" x 49 1/2".
NOV/NOV (P/N 55220)
- Hinged Adapter 60 1/2" x 49 1/2".
NOV/NOV (P/N 55230)
- Split Adapter 60 1/2" x 49 1/2".
NOV/NOV (P/N 55290)

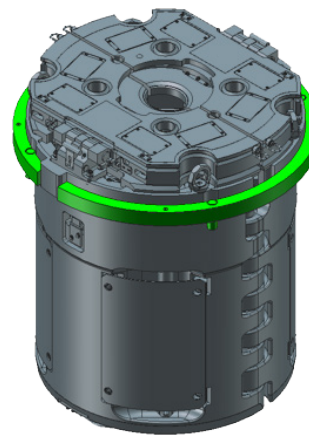


Fig. 13: Adapter for Wirth 49.1/2" RT

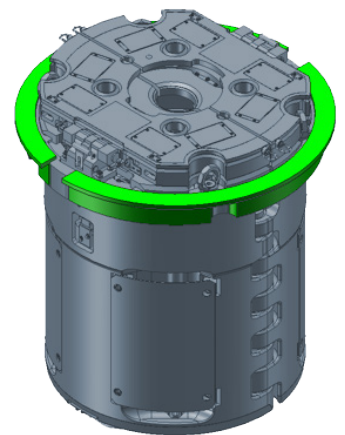


Fig. 14: Adapter for Emsco 49.1/2" RT

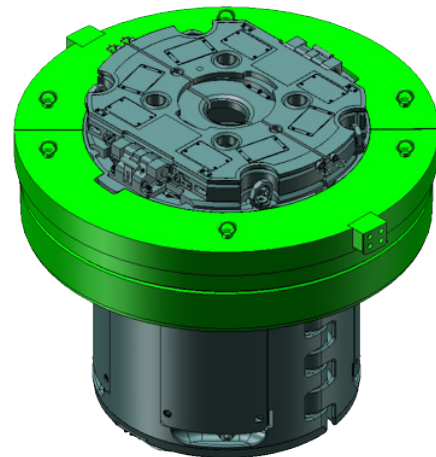


Fig. 15: Solid Adapter 60.1/2" x 49.1/2".NOV/NOV

1.3 Technical Data

General

Maximum permissible operating load:	1250 short tons
Material and Production Standard:	API 7k
Pipe diameter:	3 1/2" to 14"
Rotary table diameter:	49 1/2"

Hydraulic system

Operating pressure	Min 160 bars (2.321 Psi), Max 210 bars (3.040 Psi)
Maximum permissible pressure	300 bars (4.350 Psi)
Volumetric current	Min 18.9 l/m (5 Gpm) Max 37.9 l/m (10 Gpm)
Hydraulic lines for operation	A + B
Hydraulic lines for feedback	C
Minimum purity class	NAS 9
Maximum permissible temperature	+60 °C (+140 °F)

Pneumatic system

Operating pressure	6 bars (87 psi)
Pneumatic connection for operation	L
Grease connection for lubrication system	G

Ambient Conditions

Temperature range	- 20 °C to + 40 °C (- 4 °F to + 104 °F)
-------------------	--

1.3.1 Scope of Delivery

Standard Delivery	P/N	Description
Basic Device Drill Pipe - Assemblies and Weights	774000-N	PS 1250 Hydraulic operated Power Slip - Pipe Range 3 1/2" - 14" for 49 1/2" National RT, 1250 ton, c/w Hydraulic Guide System, less Slips, Insert Carrier and Guide Plates, API 7K (Acc. to PSL2).
	774000-W	PS 1250 Hydraulic operated Power Slip - Pipe Range 3 1/2" - 14" for 49 1/2" Wirth RT, 1250 ton, c/w Hydraulic Guide System, less Slips, Insert Carrier and Guide Plates, API 7K.
Slip Assembly	774020	Slip Assembly for PS 1250 Frame 1, Pipe Range 3 1/2" - 14" less Insert Carrier.
Insert Slip	774060-112	Insert Slip 7" x 6.906" Slip Proof Section.
Carrier for DP and CSG	774070-BC	Insert Carrier Assembly for PS 1250.
Carrier for DC	774090-BC	Insert Carrier Assembly for PS 1250.
Hydraulic Guide Assembly	7748XX	Guide Plate Assembly for Ps 1250.
Accessories	774000-HUK	Hook Up Kit for PS 1250 including steel transport box.
	774001	Grease pump Assembly for PS 1250.
	774003	Transport Rack for PS 1250.
Optional Delivery	P/N	Description
Bottom Guide System	774960	Bottom wear guide System for PS 1250.
Bottom Guide Plate Assembly	7749XX	Bottom Guide Plate Assembly for PS 1250.
Control unit	755105-16	Control Unit for the air operated Grease System (greasing counter). Ex-proofed for Group II Zone 1 Gas - Ex II 2 G, IP 65 Main Power Supply: 24 V DC if used without FORUM Handling Tools control unit Output Signal: 24 V DC. Ambient Temperature: 0 °C to + 45 °C.

1.3.2 Weights

Basic Device	kg [lb]
Body Assembly	6500 [14330]
Slip Assembly	1168 [2575]
Bottom Guide System w/o Guide Plate	663 [1461,7]

Assemblies weights	Drill Pipe							Landing String
Range	3 1/2"	4"	4 1/2"	5"	5 1/2"	5 7/8"	6 5/8"	6,906"
Carrier Assembly								
P/N	774070-105	774070-106	774070-107	774070-109	774070-111	774070-115	774070-114	774070-112
Weight kg[lb]	1496,4 [3299]	1470,8 [3242,6]	1462 [3223,2]	1435,1 [3163,9]	1421,2 [3133,2]	1372,4 [3025,6]	1352,1 [2980,9]	2498,8 [5508,9]
Hydraulic Guide Assembly								
P/N	774805	774806	774807	774809	774811	774812	774815	774815
Weight kg[lb]	79,1 [174,4]	78 [172]	76,4 [168,4]	74,4 [164]	73,4 [161,8]	71,9 [158,5]	67,8 [149,5]	67,8 [149,5]
Bottom Guide Assembly								
P/N	774905	774906	774907	774909	774911	774912	774915	774915
Weight kg[lb]	163,8 [361,1]	162,3 [357,8]	160 [352,7]	157,4 [347]	156,2 [344,4]	154,2 [340]	149,2 [328,9]	149,2 [328,9]

Assemblies weights	Casing							
Range	6 5/8"	7"	7 5/8"	7 3/4"	8 5/8"	9 5/8"	9 7/8"	10"
Carrier Assembly								
P/N	774070-228	774070-229	774070-231	774070-269	774070-234	774070-236	774070-265	774070-237
Weight kg[lb]	1340,8 [2956]	1328,6 [2929,1]	1306 [2879,2]	1301,6 [2869,5]	1203,2 [2652,6]	1158,4 [2553,8]	1108 [2442,7]	1101,6 [2428,6]
Hydraulic Guide Assembly								
P/N	774815	774815	774819	774819	774824	774827	774827	774827
Weight kg[lb]	67,8 [149,5]	67,8 [149,5]	63,1 [139,1]	63,1 [139,1]	58,6 [129,2]	52,4 [115,5]	52,4 [115,5]	52,4 [115,5]
Bottom Guide Assembly								
P/N	774915	774915	774919	774919	774924	774927	774927	774927
Weight kg[lb]	149,2 [328,9]	149,2 [328,9]	143,5 [316,4]	143,5 [316,4]	138,3 [304,9]	131 [288,8]	131 [288,8]	131 [288,8]
Range	10 3/4"	11 3/4"	11 7/8"	12 3/4"	13 3/8"	13 1/2"	13 5/8"	14"
Carrier Assembly								
P/N	774070-238	774070-239	774070-262	774070-241	774070-243	774070-270	774070-259	774070-255
Weight kg[lb]	1061,2 [2339,5]	924,8 [2038,8]	916,8 [2021,2]	862 [1900,4]	757,6 [1670,2]	749,6 [1652,6]	741,6 [1634,9]	718,4 [1583,8]
Hydraulic Guide Assembly								
P/N	774832	774833	774833	774835	774836	774836	774836	774839
Weight kg[lb]	46 [101,4]	39 [86]	39 [86]	31,4 [69,2]	25,1 [55,3]	25,1 [55,3]	25,1 [55,3]	22 [48,5]
Bottom Guide Assembly								
P/N	774932	774933	774933	774935	774936	774936	774936	774939
Weight kg[lb]	123,7 [272,7]	115,8 [255,3]	115,8 [255,3]	107,3 [236,6]	104,1 [229,5]	104,1 [229,5]	104,1 [229,5]	98 [216,1]

Assemblies weights		Drill Collar with Zip Groove							
Range		4 3/4"	5 1/4"	6 1/4"	6 1/2"	6 3/4"	7"	8"	8 1/4"
Carrier Assembly									
P/N		774090-182	774090-183	774090-187	774090-188	774090-189	774090-190	774090-194	774090-195
Weight kg[lb]		1419,3 [3129]	1370,5 [3021,4]	1299,5 [2864,9]	1297,2 [2859,8]	1295,5 [2856,1]	1293,2 [2851]	1175,3 [2591,1]	1172,6 [2585,1]
Hydraulic Guide Assembly									
P/N		774809	774809	774813	774815	774815	774815	774819	774822
Weight kg[lb]		74,4 [164]	74,4 [164]	70 [154,3]	67,8 [149,5]	67,8 [149,5]	67,8 [149,5]	63,1 [139,1]	60,3 [132,9]
Bottom Guide Assembly									
P/N		774909	774909	774913	774915	774915	774915	774919	774922
Weight kg[lb]		157,4 [347]	157,4 [347]	152 [335,1]	149,2 [328,9]	149,2 [328,9]	149,2 [328,9]	143,5 [316,4]	140,3 [309,3]
Range		8 1/2"	8 3/4"	9"	9 1/2"	9 3/4"	10"	-	
Carrier Assembly									
P/N		774090-196	774090-197	774090-198	774090-199	774090-203	774090-202		
Weight kg[lb]		1169,6 [2578,5]	1166,8 [2572,4]	1091,4 [2406,1]	1084,7 [2391,4]	1080,8 [2382,8]	1077,6 [2375,7]		
Hydraulic Guide Assembly									
P/N		774822	774824	774826	774827	774827	774827		
Weight kg[lb]		60,3 [132,9]	58,6 [129,2]	56,9 [125,4]	52,4 [115,5]	52,4 [115,5]	52,4 [115,5]		
Bottom Guide Assembly									
P/N		774922	774924	774926	774927	774927	774927		
Weight kg[lb]		140,3 [309,3]	138,3 [304,9]	136,3 [300,5]	131 [288,8]	131 [288,8]	131 [288,8]		

Assemblies weights		Drill Collar without Zip Groove								
Range		4 3/4"	6 1/4"	6 1/2"	6 3/4"	8"	8 1/4"	8 1/2"	9"	9 1/2"
Carrier Assembly										
P/N		774090-276	774090-284	774090-286	774090-287	774090-293	774090-295	774090-296	774090-297	774090-298
Weight kg[lb]		1373,2 [3027,4]	1295,2 [2855,4]	1293,2 [2851]	1291,2 [2846,6]	1169,6 [2578,5]	1166,8 [2572,4]	1164,4 [2567,1]	1084,4 [2390,7]	1077,6 [2375,7]
Hydraulic Guide Assembly										
P/N		774809	774813	774815	774815	774819	774822	774822	774826	774827
Weight kg[lb]		74,4 [164]	70,1 [154,5]	67,8 [149,5]	67,8 [149,5]	63,1 [139,1]	60,3 [132,9]	60,3 [132,9]	56,9 [125,4]	52,4 [115,5]
Bottom Guide Assembly										
P/N		774909	774913	774915	774915	774919	774922	774922	774926	774927
Weight kg[lb]		157,4 [347]	152 [335,1]	194,2 [428,1]	194,2 [428,1]	143,5 [316,4]	140,3 [309,3]	140,3 [309,3]	136,3 [300,5]	131 [288,8]

1.3.3 Main Dimensions

DESCRIPTION

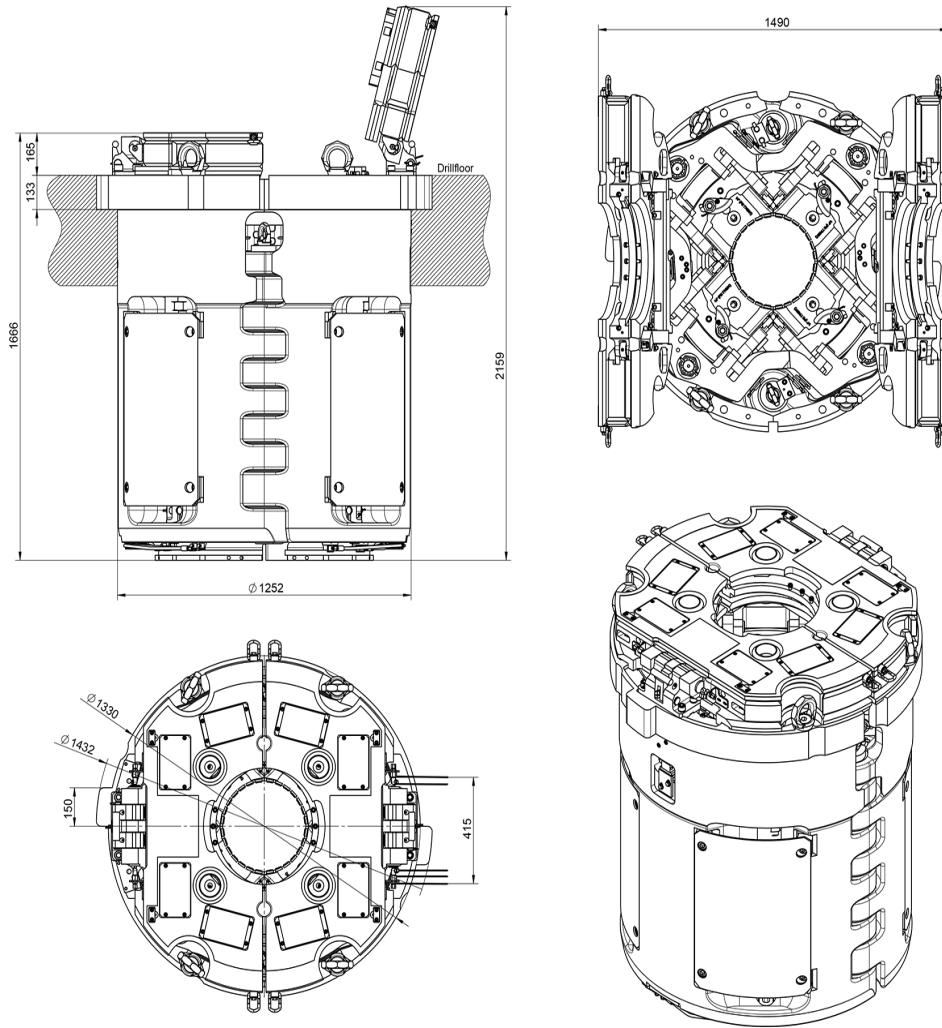


Fig. 16: Primary Dimensions (National 49 ½" RT)

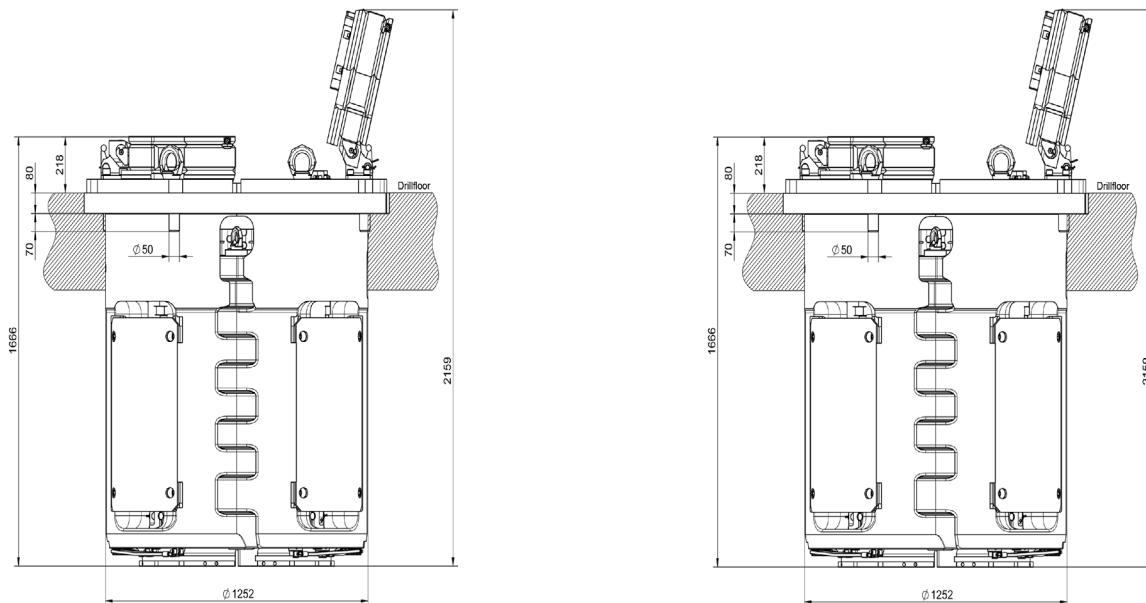


Fig. 17: Primary Dimensions (Emsco 49 ½" RT)

Fig. 18: Primary Dimensions (Wirth 49 ½" RT)

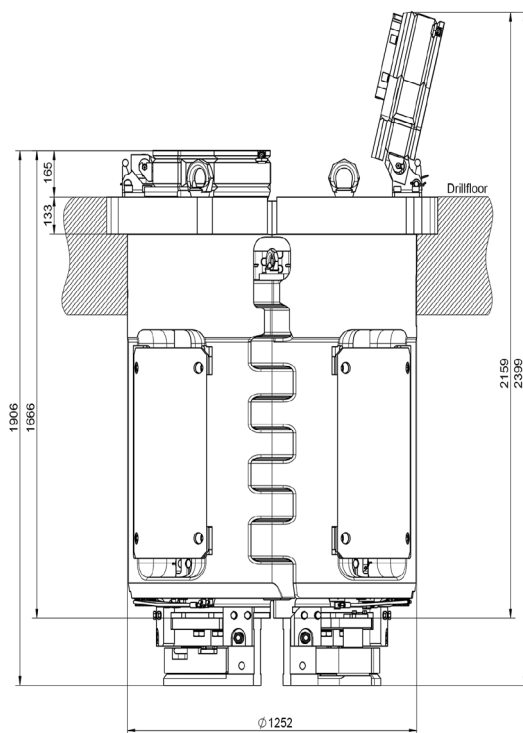


Fig. 19: Primary dimensions (National 49 1/2" RT with Bottom Guide)

1.3.4 Carrier/Insert Slip Opening Width

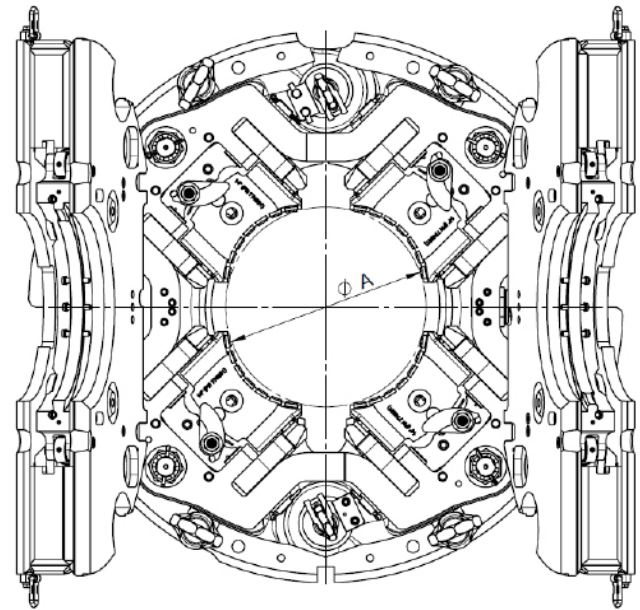


Fig. 20: Maximum opening diameter A for various pipe diameters

Pipe diameter	Max. opening diameter	
	Inches	mm
3 1/2"	9.10	231.3
4"	9.62	244.5
4 1/2"	10.12	257.2
5"	10.44	265.4
5 1/2"	10.94	277.9
5 7/8"	11.33	287.8
6 5/8"	11.63	295.3
6.906"	11.91	302.4
7"	12.20	309.9
7 5/8"	12.93	328.5
7 3/4"	12.89	327.6
8 5/8"	13.83	351.4
9 5/8"	14.81	376.3
9 7/8"	14.94	379.5
10"	15.07	383.0
10 3/4"	15.81	401.8
11 3/4"	16.76	425.8
11 7/8"	16.88	428.9
12 3/4"	17.75	450.9
13 3/8"	18.37	466.6
13 1/2"	18.51	470.2
13 5/8"	18.63	473.3
14"	19	482.6

1.3.5 Control Line Opening Dimension

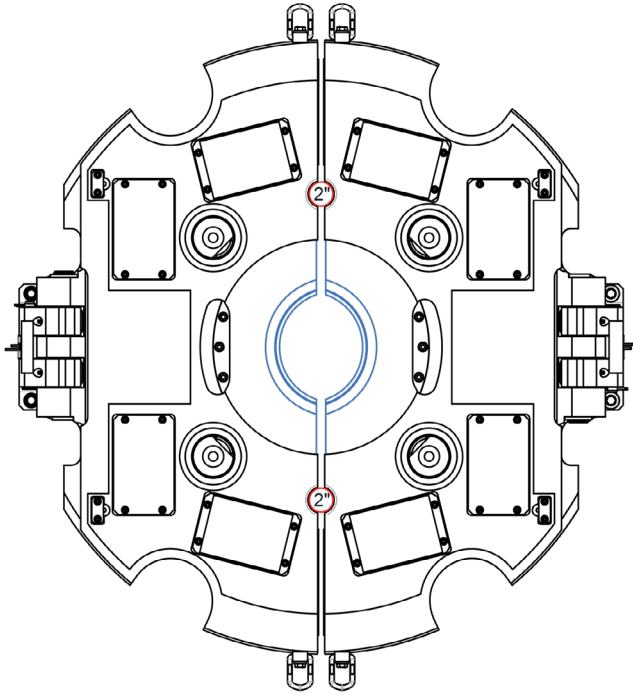


Fig. 21: Control Line Opening Dimension

1.3.6 Body Opening Dimension

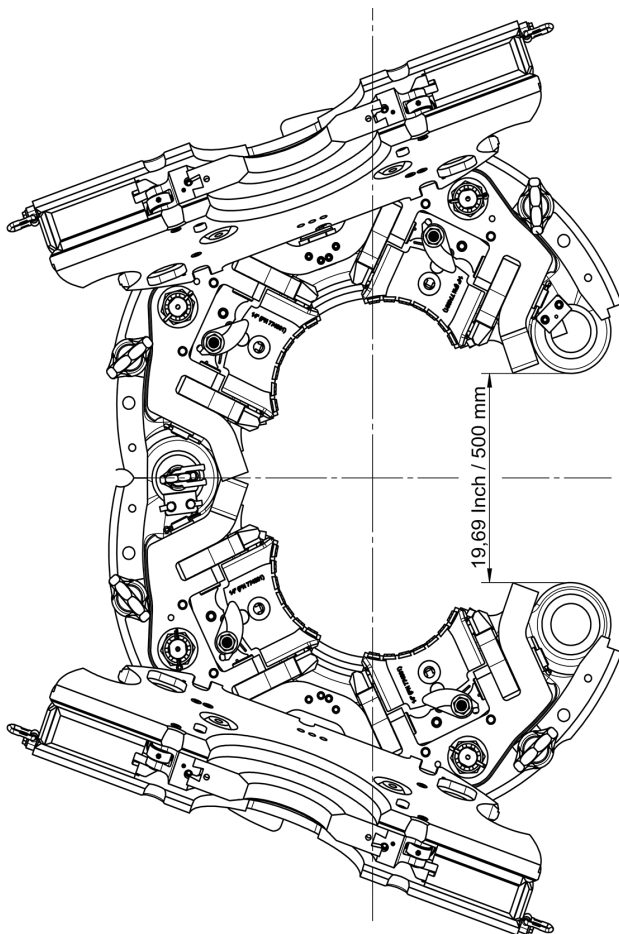


Fig. 22: Body Opening Dimension

1.3.7 Body Passage Dimension (without Carrier/Slips)

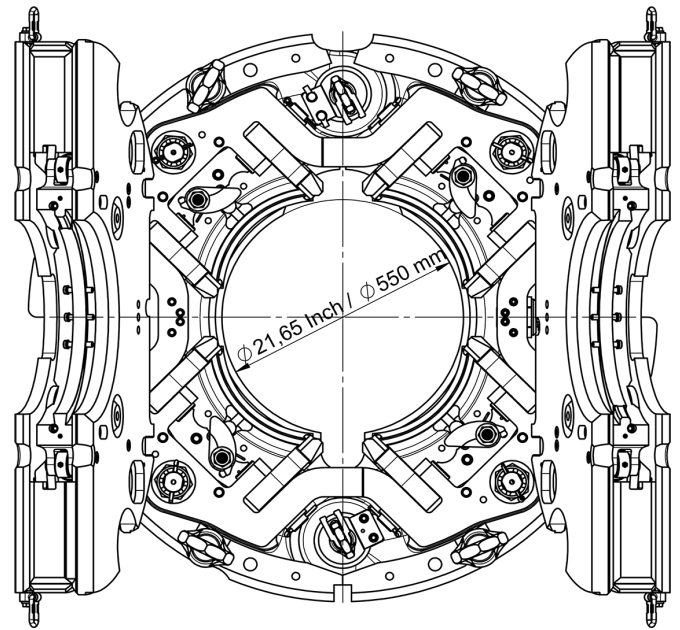


Fig. 23: Standard inner diameter

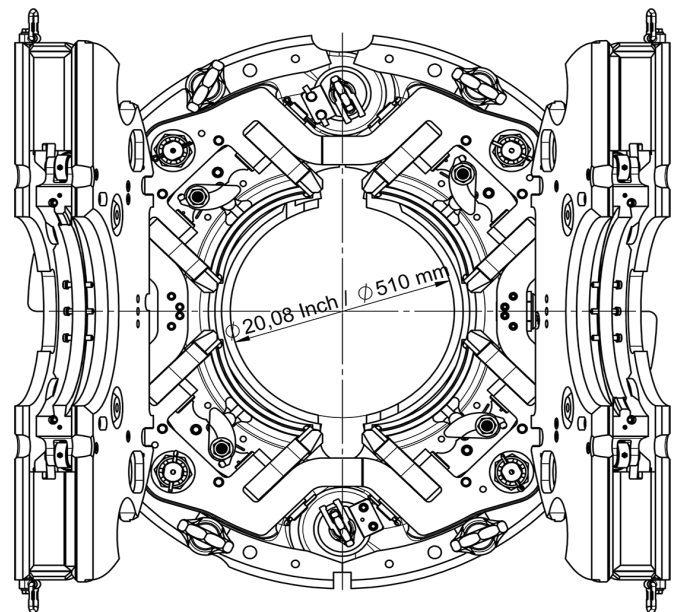


Fig. 24: Inner Diameter with Bottom Guide System (optional)

1.3.8 Insert length for Carriers

Drill Pipe and Casing

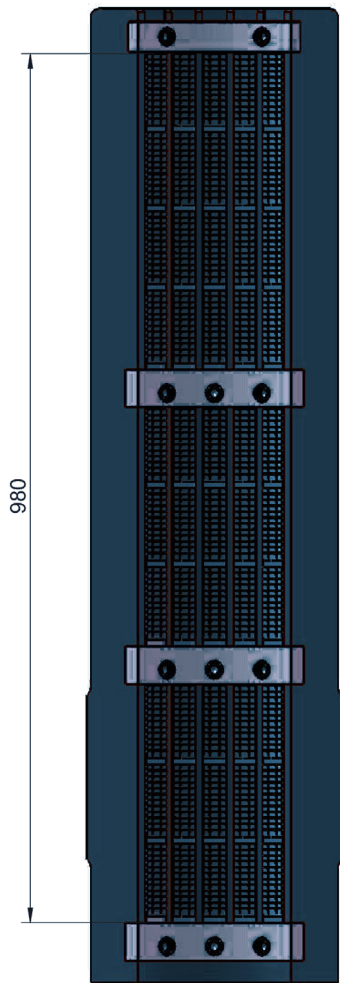


Fig. 25: Insert lengths for Drill Pipe and Casing

Drill Collar

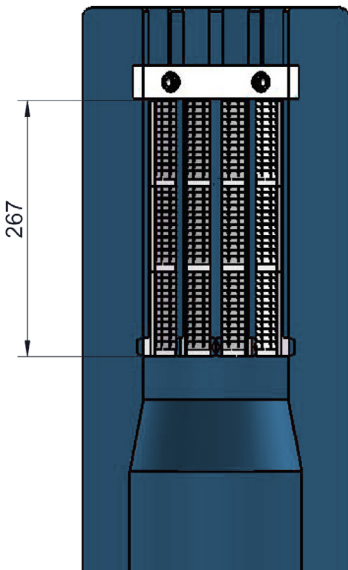


Fig. 26: Insert lengths for Drill Collar

1.3.9 Insert lengths for Insert Slips

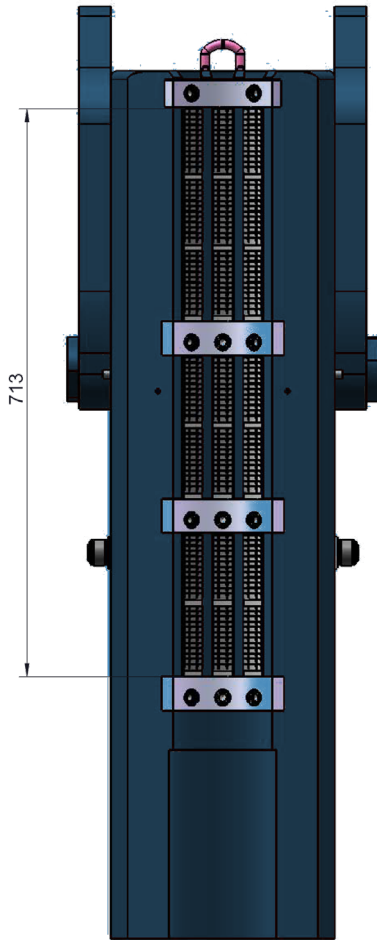


Fig. 27: Insert lengths for Insert Slips

1.4 Optional Accessories

To ease the handling and to support the device functions following accessories are available from FORUM Handling Tools for the PS 1250. Please contact your local FORUM Handling Tools representative for detailed information.

- **Grease Pump , manual** PN 755667-3
Manual grease pump to apply grease on the device grease points.
- **Grease Pump , air operated** PN 775810
Air operated grease pump to apply grease on the device grease points.
- **Control Unit** available on request.
The Control Unit allows simple and convenient control of the PS 1250. The control unit contains all controls and regulating elements required for operation of the equipment.
The following versions of the control unit are available:
 - Electrical Control Unit P/N 757107
 - Pneumatic Control Unit P/N 755107
 - Manual Control Unit P/N 755108
 - Manual Stand Alone P/N 757160
 - Grease Counter, 230VAC supp. P/N 755105-7
 - Grease Counter, VDC supp. P/N 755105-8 24



Fig. 28: Manual Grease Pump



Fig. 29: 1 Air Operated Grease Pump

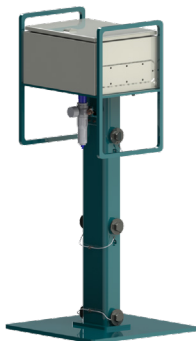


Fig. 30: Control Unit

1.4.1 Recommended Hydraulic Fluid

FORUM Handling Tools recommends use of the following hydraulic fluids under various ambient conditions:

Brand	Flash point [°F/(°C)]	Above – 4 °F (-20 °C)	Flash point [°F/(°C)]
Aral	435.2 (224)	Aral Vitam GF 46	392 (200)
Castrol	392 (200)	Hyspin AWS-46	366.8 (186)
Gulf	410 (210)	Harmony 46AW	395.6 (202)
Shell	424.4 (218)	Tellus Tonna	408.2 (209)
Finke	572 (300)	Aviaticon HY-HE-46	509 (265)
Fuchs	428 (220)	Renolin MR 10	410 (210)

1.4.2 Recommended Lubricants

FORUM Handling Tools recommends use of the following lubricants for effective lubrication under various ambient conditions:

Brand	Name	Temperature range*	Remarks
Finke	Aviaticon XRF Low-Viscosity Grease	-20. . +29 °C (-4. . +84.2 °F)	NLGI 0
Fuchs	NESSOS SFO EP grease for non-oil tight gear trains	-20. . +29 °C (-4. . +84.2 °F)	NLGI 0 DIN 51826 GPOF-25 DIN 51502 GPOF-25
Castrol	MP grease	-20. . +29 °C (-4. . +84.2 °F)	
Chevron	Avi-Motive W	-20. . +29 °C (-4. . +84.2 °F)	
Exxon	Lidok EP2	-20. . +29 °C (-4. . +84.2 °F)	
Gulf	Gulfcrown EP@	-20. . +29 °C (-4. . +84.2 °F)	
Mobil	Mobilux EP2	-20. . +29 °C (-4. . +84.2 °F)	
Shell	Alvania EP2	-20. . +29 °C (-4. . +84.2 °F)	
Texaco	Multifak EP2	-20. . +29 °C (-4. . +84.2 °F)	
Union	Unoba EP2	-20. . +29 °C (-4. . +84.2 °F)	

* For temperatures above +30 °C (+86 °F)
FORUM Handling Tools recommends using the specified lubricants in consistency class NLGI 2.

1.4.3 Hook Up Kit

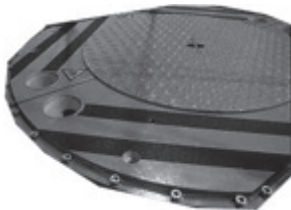
The Hook Up Kit (P/N 757000-HUK) for the PS 1250 contains all equipment required by the customer for transport, setup and startup. The Hook Up Kit consists of following Items.

Picture
Qty. Name



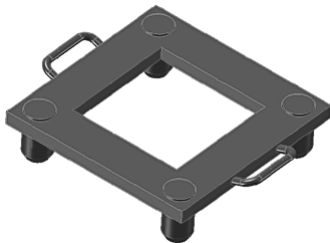
1 Carrier Lifting Equipment

Picture
Qty. Name



1 Cover Plate for HCD

Picture
Qty. Name



1 Bit Breaker Adapter Plate



1 Opening Equipment



1 Toolkit for PS



1 Wire Rotator Tong



1 Service-Box for Hook Up Kit



1 Point Chain for Slip Assembly



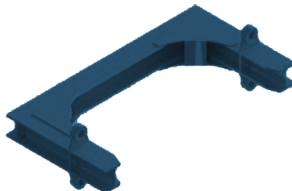
1 Lifting slings



1 Toolset for Power Slips;



1 Hose Assembly (Set)



1Lift beam traverse

1.5 Functional Description

The Power Slip 1250 locates and holds drill strings with a total weight of up to 1250 short ton. It operates hydraulically and centers the pipe hydraulically before the Slips are set.

The centering system opens either when the slips have set or just immediately before the slips open as required.

When the slips are set and are holding the pipe, the hydraulic signal "Slips set" is output.

When the slips are opened a hydraulic signal "Slips open" is also output upon reaching the end position.

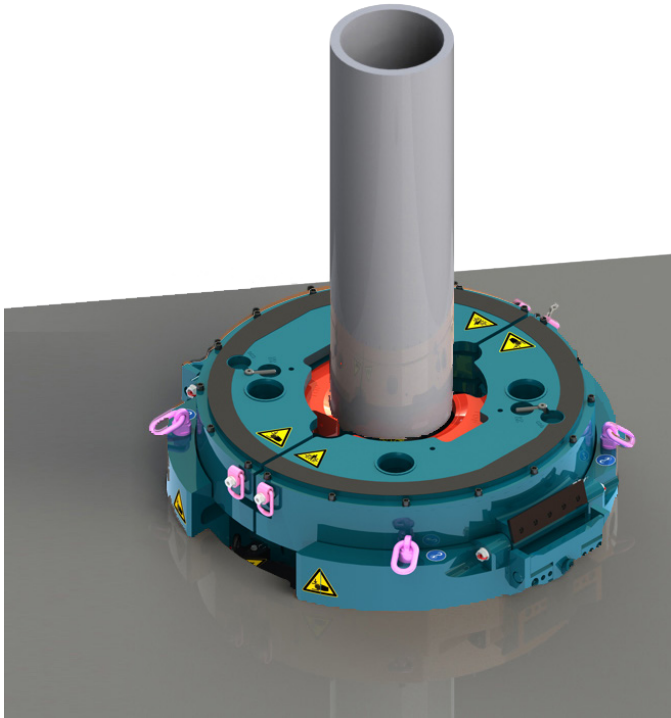


Fig. 31: Functional overview - PS in Rotary Table.

Functional hydraulic system description

- Set slips** To set the slips the hydraulic connection A is pressurized. First the Centering system closes and centers the pipe. Then the slip assembly will be set and can take the load of the pipe. When the slips are fully set a plunger is actuated. The plunger release an hydraulic signal C to the driller as an indication that the slips are set.
- Raise slips** To raise the slips the hydraulic connection B is pressurized. The Slip Assembly raises and releases the pipe.
- Feedback** The feedback signal shall only occur when both line A and B are pressurized.

1.6 Operational Environment

The PS 1250 is designed and constructed for use in the drilling industry on ships and platforms. The equipment is approved for operation in explosion hazard areas. For equipments containing any hydraulic powered parts, the directive 2014 / 34 / EU "Equipment and protective systems in potentially explosive atmospheres " applies. The corresponding ATEX certificates are present in the Data book. The Classification according to CE (with reference to the ATEX guideline) is as followed:

CE **Ex** II 2G IIB T5 for hydraulicl equipment

Explanation

CE	CE- marking (with reference to the ATEX guideline)
Ex	Marking of the equipment for the Ex- range
II	Equipment Group (II)
2	Equipment Category
G	For explosive mixtures of air and combustible gases, mists or vapors (G)
IIB	Category for Gases
T5	Temperature class

1.7 Equipment Markings

The markings are generally used for traceability and provide general information about the component/ device. All markings are in compliance to the latest API 7K 6th Edition and at least include the following information:

General Markings according to API 7K 6th Edition

- API Stamp (API monogram, spec, license)
- Manufacturer's specifications (FORUM logo)
- Production Date (Month / Year)
- Part number (marking P/N before the part number)
- Serial number (marking S/N before the serial number)
- Load Rating
- Own weight
- Maximum weight in kg, if the weight increases by attachments
- CE-ATEX marking (CE Ex II 2G IIB T5 / T6)
- Country of manufacture
- Slip taper (a taper of 3 or 4 in./ft are stamped as 3.00 or 4.00 TPF)

Supplementary Requirements - SR

Supplementary Requirements, abbreviated by "SR", are labeled beside the general markings, if additionally ordered. Supplementary Requirements in according to API 7K 6th Edition are:

- SR 1 - Proof Load Testing
- SR 2 - Low-temperature Testing
- SR 3 - Data Book
- SR 4 - Additional Volumetric Examination of Castings
- SR 5 - Volumetric Examination of Wrought Material

1.8 Component Sizes and Drill Strings

The pipe diameters and matching components for the PS 1250 are listed with part numbers. To order components please contact the FORUM Handling Tools Service Department at the address given under Contact.

⚠ CAUTION always ensure that the correct size guide plates, carriers and inserts are installed for a defined pipe diameter.

Drill Pipe - Component Sizes and Quantity

Pipe -Diameter	Body x pipe	Carrier Part number	Inserts Part number	Quantity	Guide Part number
3 1/2"	3 1/2" x 3 1/2"	774070-105	350103	80	774805
	4 1/2" x 3 1/2"	774070-105-1	350903	80	774805
4"	4 1/2" x 4"	774070-106	350504	80	774806
4 1/2"	4 1/2" x 4 1/2"	774070-107	350105	80	774807
	5 1/2" x 4 1/2"	774070-107-1	350905	120	774807
5"	5 1/2" x 5"	774070-109	350506	120	774809
5 1/2"	5 1/2" x 5 1/2"	774070-111	350107	120	774811
5 7/8"	7" x 5 7/8"	774070-115	351008	120	774812
6 5/8"	7" x 6 5/8"	774070-114	350409	120	774815

Landing String - Component Sizes and Quantity

Pipe -Diameter	Body x pipe	Carrier Part number	Inserts Part number	Quantity	Guide Part number
6,906"	7" x 6.906"	774060-112	350210	84	774815

Casing - Component Sizes and Quantity

Pipe -Diameter	Body x pipe	Carrier Part number	Inserts Part number	Quantity	Guide Part number
6 5/8"	7 5/8" x 6 5/8"	774070-228	350909	160	774815
7"	7" x 7"	774070-229-1	350110	120	774815
	7 5/8" x 7"	774070-229	350610	160	774815
7 5/8"	7 5/8" x 7 5/8"	774070-231	340111	160	774819
7 3/4"	7 5/8" x 7 3/4"	774070-269	350011	160	774819
8 5/8"	9 5/8" x 8 5/8"	774070-234	350911	200	774824
9 5/8"	9 5/8" x 9 5/8"	774070-236	350111	200	774827
	10 3/4" x 9 5/8"	774070-236-1	350011	240	774827
9 7/8"	10 3/4" x 9 7/8"	774070-265	350811	240	774827
10"	10 3/4" x 10"	774070-237	350712	240	774827
10 3/4"	10 3/4" x 10 3/4"	774070-238	350112	240	774832
11 3/4"	12 3/4" x 11 3/4"	774070-239	350912	280	774833
11 7/8"	12 3/4" x 11 7/8"	774070-262	350812	280	774833
12 3/4"	12 3/4" x 12 3/4"	774070-241	350112	280	774835
	14" x 12 3/4"	774070-241-1	351112	280	774835
13 3/8"	14" x 13 3/8"	774070-243	350612	280	774836
13 1/2"	14" x 13 1/2"	774070-270	350513	280	774836
13 5/8"	14" x 13 5/8"	774070-259	350413	280	774836
14"	14" x 14"	774070-255	350113	280	774839

Drill Collar with Zip Groove - Components and Quantity

Pipe -Diameter	Body x pipe	Carrier Part number	Inserts Part number	Quantity	Guide Part number
4 3/4"	4 1/2" x 4 3/8" zip (4 3/4" DC)	774090-182	350205	24	774809
5 1/4"	5 1/2" x 5 1/8" zip (5 1/4" DC)	774090-183	350406	36	774809
6 1/4"	6 3/4" x 5 3/4" zip (6 1/4" DC)	774090-187	350910	36	774813
6 1/2"	6 3/4" x 6" zip (6 1/2" DC)	774090-188	350710	36	774815
6 3/4"	6 3/4" x 6 1/4" zip (6 3/4" DC)	774090-189	350510	36	774815
7"	6 3/4" x 6 1/2" zip (7" DC)	774090-190	350310	36	774815
8"	8 1/2" x 7 1/2" zip (8" DC)	774090-194	350911	48	774819
8 1/4"	8 1/2" x 7 3/4" zip (8 1/4" DC)	774090-195	350711	48	774822
8 1/2"	8 1/2" x 8" zip (8 1/2" DC)	774090-196	350511	48	774822
8 3/4"	8 1/2" x 8 1/4" zip (8 3/4" DC)	774090-197	350311	48	774824
9"	9 1/2" x 8 1/2" zip (9" DC)	774090-198	350911	60	774826
9 1/2"	9 1/2" x 9" zip (9 1/2" DC)	774090-199	350511	60	774827
9 3/4"	9 1/2" x 9 1/4" zip (9 3/4" DC)	774090-203	350311	60	774827
10"	9 1/2" x 9 1/2" zip (10" DC)	774090-202	350111	60	774827

Drill Collar without Zip Groove - Components and Quantity

Pipe -Diameter	Body x pipe	Carrier Part number	Inserts Part number	Quantity	Guide Part number
3.1/8"	3.1/2" x 3.1/8" plain	774090-308	350403	24	774805
3.3/8"	3.1/2" x 3.3/8" plain	774090-309	350203	24	774805
4.3/4"	5.1/2" x 4.3/4" plain	774090-276	350706	36	774809
6.1/4"	6.3/4" x 6.1/4" plain	774090-284	350510	36	774813
6.1/2"	6.3/4" x 6.1/2" plain	774090-286	350310	36	774815
6.3/4"	6.3/4" x 6.3/4" plain	774090-287	350110	36	774815
8"	8.1/2" x 8" plain	774090-293	350511	48	774819
8.1/4"	8.1/2" x 8.1/4" plain	774090-295	350311	48	774822
8.1/2"	8.1/2" x 8.1/2" plain	774090-296	350111	48	774822
9"	9.1/2" x 9" plain	774090-297	350511	60	774826
9.1/2"	9.1/2" x 9.1/2" plain	774090-298	350111	60	774827
9.1/2"	9.1/2" x 9" zip (9.1/2" DC)	774090-199	350511	60	774827
9.3/4"	9.1/2" x 9.1/4" zip (9.3/4" DC)	774090-203	350311	60	774827
10"	9.1/2" x 9.1/2" zip (10" DC)	774090-202	350111	60	774827

1.9 RFID-Chip Equipped Handling Equipment

INFO



For further information, you may access the Forum/IC Database from the FET Website or at www.infochip.com

FORUM Handling Tools outfits/supplies certain equipment with patent pending RFID Technology. This technology allows for easy real-time access to pertinent equipment information and technical documentation anytime, anywhere. The database is accessible via the internet or mobile application.

Tier I Access – General Access

As standard, the customer will be assigned and issued login information to the database provided for their assets/equipment. Once logged into the database, customers will be able to see all assets assigned to them. Attached to each asset is complete documentation including all contents of databook related to that specific asset. The customer will be able to view, download and print all documents associated with their particular assets.

Tier II Access – User Access

Customers opting for improved access as a system user will have the full functionality of Tier I Access but will be able to manipulate their assets. Additional functionality includes but is not limited to:

- Assigning Inspection and Certification due dates and reminders.
- Attaching Internal Inspection Checklists/Documentation.
- Managing Asset Locations.
- Assigning Internal Asset/Serial Numbers.

INFO



For detailed RFID instruction, please refer to Forum Document 1155081, FORUM RFID User Manual (refer to section XII „Online Technical Document access“ on page 12).

Frequently Asked Questions (FAQ)

- How do I know if my equipment has RFID?
 - » RFID tags are embedded and clearly marked (“RFID”) on equipment in inconspicuous locations generally at the upper visible part of the equipment.
- What type of RFID tag are we using?
 - » The RFID tags used in FORUM equipment operate on the UHF Frequency.
- How can I scan the tag?
 - » Standard NFC UHF Frequency Reader (available through Forum).
- What is on the tag/chip?
 - » The chip identification number is the only information physically on the chip. All other information is stored on the cloud-based database associated with the chip identification number.
- Whom do I contact to get Tier I access or to inquire about Tier II access?
 - » Forum Sales personnel can help with basic access and upgrade information.

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SAFETY

SAFETY

2 Safety

The PS 1250 was designed and produced according to the state-of-the-art and in consideration of all required safety precautions. Failure to observe the safety precautions and operating instructions specified in the present operating manual, can lead to hazardous situations when operating the machine. Notwithstanding the fact that it is not possible to completely exclude hazardous situations during operation. Use the machine only for the intended purpose when it is in a technical safe state. Rectify all faults immediately which could have a negative effect on the machine safety.

2.1 General Safety Precautions

Ensure that work on the machine, particularly installation, maintenance and repair work, is performed only by personnel with the necessary qualifications and who are familiar with the associated risks (see Chapter „Obligations of the Operating Company“ on page 7).

For safe and proper operation of the machine it is essential that all personnel working on the machine take the prescribed safety measures and observe the safety precautions specified in this operating manual.

Before switching on and before working on the machine always ensure that no one is put in a hazardous situation.

All safety features must be installed completely before switching on the machine.

Safety features may be released only when:

1. The entire machine is switched off and
2. switching back on unintentionally is not possible.

The machine contains components subject to wear (e.g. guide plates, inserts and hoisting equipment). After longer periods of operation the safety can be reduced due to wear. Service the machine regularly in compliance with the maintenance chart (refer to section 6.2 “Inspections” on page 118) to ensure that all safety requirements are always fulfilled. Check the specified wear limits regularly. Replace worn or defective parts immediately with new parts. If safe operation is no longer guaranteed, switch off the machine and secure it against being switched back on unintentionally. Advise the responsible service organization. Rectify every fault, which affects the safety, immediately.

NOTE

The operating company is responsible for ensuring safe and correct use of the equipment within the sense of the hazard and risk analysis.

The operating company is also obligated to issue and supervise observance of operating instructions on safe use as well as to observe the instructions in this operating manual.



Hazardous Locations



Warning

Reuse of safety components can cause accidents.

Never reuse safety-relevant parts (such as securing cables or plates, discs or washers).

- » Replace such components with new safety parts.



2.2 Safety Equipment

The PS 1250 is equipped with various safety features for protection of the operating personnel:

- During operation all moving parts are secured against reaching in by screwed covers.
- When not in operation the PS 1250 is closed by the cover plate (P/N 755670).
- The hydraulic lines are connected to the PS 1250 with safety quick-release couplings.
- Hazard points on the machine are marked with warning signs, indicating the type and consequences of a hazard as well as measures to prevent it.
- The slips are held in the open position by a counter-balance valve and can set by themselves when setting the drill string and cannot set when pulling the drill string.
- When the slips are in lower the end position, not the entire force of the cylinder is transferred to the slip in the event of unforeseen incidents.
- The HCS latches automatically when opening for conversion, maintenance or repair work and can only be released (closed) manually.
- All components, particularly parts requiring replacement during conversion work when changing pipe sizes, are equipped with threaded holes for screwing in load bolts or with fixed load bolts.
- The PS 1250 is delivered in a transport rack (P/N 774003) to ensure secure transport and stable standing.
- External hoses are provided with a chafe guard.

Never put the safety equipment out of operation or replace it with equipment not approved by FORUM Handling Tools. Failure to observe can lead to hazardous situations, for which FORUM Handling Tools cannot be held responsible. Always keep all safety equipment in perfect condition and check regularly.

Warning Signs

The safety precautions in this operating manual are indicated using standardized depictions and symbols.



⚠ DANGER

Suspended load!

This indicates injury risks from transporting heavy components.



⚠ DANGER

Tipping hazard for components!

This indicates injury risks from tipping components.



⚠ WARNING

Danger of pinching/crushing hands!

This indicates injury risks from moving parts, which pose a hazard of pinching or crushing hands.



⚠ WARNING

Danger of pinching/crushing feet!

This indicates injury risks from moving parts, which pose a hazard of pinching or crushing feet.



⚠ WARNING

Danger of pinching/crushing body!

This indicates injury risks from moving parts, which pose a hazard of pinching or crushing the body.



⚠ WARNING

Separated hydraulic lines pose an injury hazard!

This symbol is used to mark areas where injuries are possible from disconnecting hydraulic lines in which the pressure has NOT been relieved.



⚠ WARNING

Defective hydraulic lines pose an injury hazard!

This symbol is used to mark areas where injuries are possible from defective hydraulic lines.



⚠ WARNING

Health hazards from service products!

This symbol warns of health hazards resulting from contact of service products (e.g. lubricants, hydraulic fluids) with the skin, mucous membranes, eyes and respiratory paths.



⚠ Caution

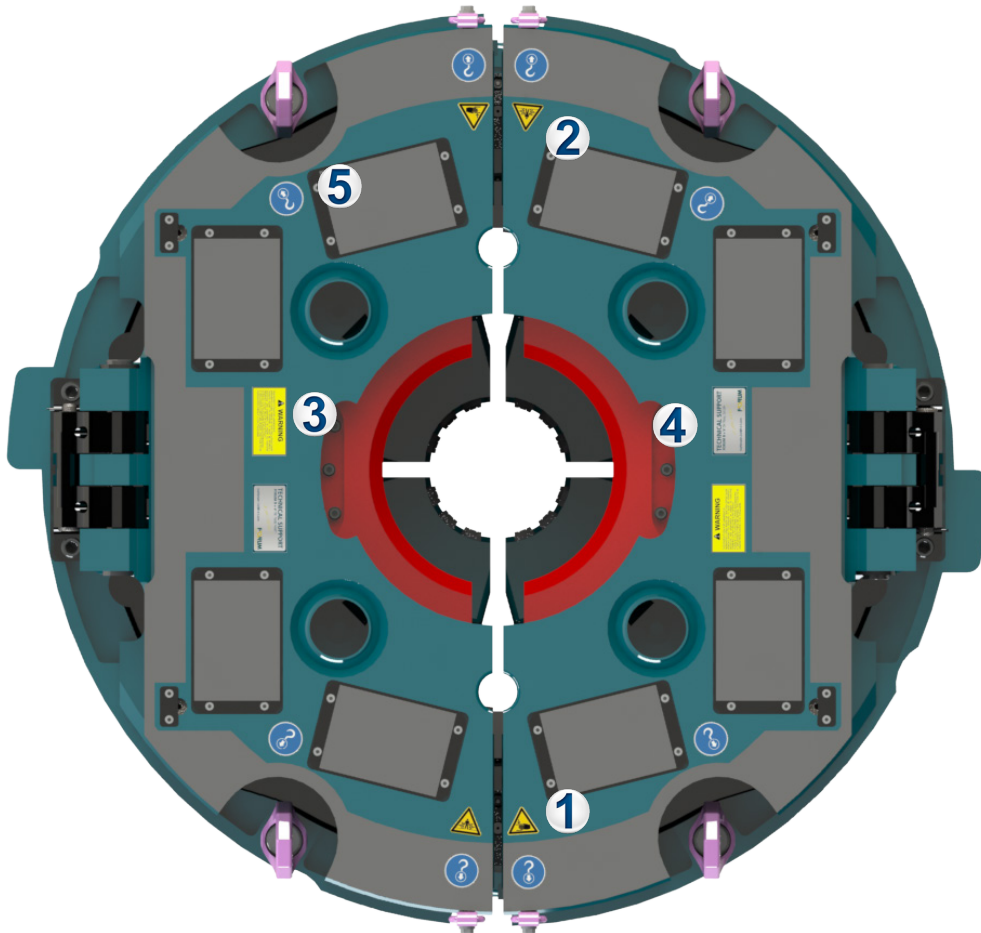
Risk of stumbling/tripping!

This symbol warns of tripping hazards, which can lead to stumbling resulting in injuries.

2.3 Warning and Safety Instructions on Power Slip 1250

Hazard points are indicated by special stickers on the machine.

Ensure that these are always kept in an easily legible state and replaced as required.



⚠ WARNING

1



Danger of pinching/
crushing hands!

Keep clear of moving parts
during operation.

WARNING sign
"Hazard – Hand Injury"
ANSI Z535.4 P/N 671640-1

⚠ WARNING

2



Danger of pinching/
crushing body!

This indicates injury risks
from moving parts, which
pose a hazard of pinching
or crushing the body.

WARNING sign
"Body Crushing"
ANSI Z535.4 - P/N 671641

⚠ NOTE

5



Lifting point locations are
marked on the device,
where slings can be
securely fastened. Thus,
the safe transport of
FORUM Handling Tools
equipment is ensured.

WARNING

3

THIS PRODUCT COULD BE HAZARDOUS IF
IMPROPERLY USED. MISUSE OF THIS TOOL COULD CAUSE
SERIOUS INJURY TO PERSONNEL. THIS MUST BE PROPERLY
INSTALLED AND MAINTAINED IN FIRST CLASS CONDITION.
DO NOT REMOVE OR ALTER ANY PARTS. DO NOT WELD OR
ALTER WITHOUT FACTORY AUTHORIZATION. ALL REPLACEMENT
PARTS MUST BE OF BLOHM & VOSS MANUFACTURE.

General WARNING - PN 671638

TECHNICAL SUPPORT FORUM HANDLING TOOLS

4

...at your service !

FORUM
ENERGY TECHNOLOGIES

roaftersales.bvr@f-e-t.com

Support sticker PN 613129

2.4 Organizational Measures

The operating company is responsible for ensuring that all legally and officially prescribed approvals for operation of the machine are present in compliance with national laws and regulations.

The required personal protective equipment (see Chapter „Personal Protective Equipment (PPE)“ on page 10) must be provided by the company operating the machine.

All safety features present must be checked regularly in compliance with national and local requirements.

Warning signs and safety notices on the machine must be easily legible at all times and replaced as required.

The operating instructions must be kept so that they are available to those operating the machine at all times.

Personal Protective Equipment

The required **P**ersonal **P**rotective **E**quipment (PPE) must be used when operating the machine. This is to be provided by the operating company.

The following PPE is recommended:

- Oil resistant protective clothing,
- Protective gloves,
- Eye protection,
- Safety shoes,
- Protective helmet.

All parts of the protective equipment must be checked regularly for damage in compliance with the specific national regulations and replaced as required.

2.5 Safety Precautions for Protection against Remaining Hazards

This machine was designed and produced according to the state-of-the-art in consideration of the safety precautions specified in EC Directive 2006 / 42 / EC on Machinery.

The machine may be used only for:

- Its intended purpose („Description“ on page 14).
- When it is in a technically safe state.

Nevertheless it is not possible to completely exclude all hazardous situations which could arise when the machine is used. Reference is made to these remaining risks at the beginning of each chapter and at the corresponding points in the description and measures for avoiding these risks are explained.

WARNING

Mechanically generated sparks

Metal tools (e.g. hammers) may generate sparks when used.

- » The use of metal tools in explosive areas has to be prohibited by the operator.
- » Only tools approved for use in potentially explosive atmospheres may be used.



Info



The operating company is responsible for ensuring that all personnel working on the machine is familiar with the remaining risks and observe the appropriate safety precautions.

2.5.1 Risk of Stumbling/Tripping



⚠ **Caution**

Risk of stumbling/tripping!

When Power Slip is installed and lines are routed openly.

- » DO NOT run.

The PS 1250 is designed so that it is nearly flush with the rig floor in the installed state. Nevertheless the HCS as well as incoming and outgoing hydraulic lines pose a stumbling/tripping hazard. Never run during work. Always close the top adapter with the cover plate during operating breaks.

2.5.2 Danger of Pinching/Crushing



⚠ **WARNING**

Danger of pinching/crushing hands!

Moving parts pose a hazard during assembly, set-up and conversion work as well as during operation.

- » NEVER reach between moving components.



⚠ **WARNING**

Danger of pinching/crushing feet!

Moving parts pose a hazard during assembly, set-up and conversion work as well as during operation.

- » NEVER stand below moving components.



⚠ **WARNING**

Danger of pinching/crushing body!

Moving parts pose a hazard during assembly, set-up and conversion work as well as during operation.

- » NEVER stand between moving components.

During assembly, set-up and conversion work as well as during operation pinching/crushing hazards can be posed by

- Opening the body,
- Inserting the PS 1250 into the drilling table,
- Opening or closing the HCS
- Opening or closing the guide plates
- Installing and removing slips, carrier and guide plates.

Pay attention to hands, feet and body when performing the work specified. Always ensure that no one is in a hazardous position. Always wear your personal protective equipment.

2.5.3 Incorrect Handling of Hydraulic Equipment



⚠ **WARNING**

Defective hydraulic lines pose an injury hazard!

Route hydraulic lines safely and check regularly for damage.

- » Provide lines with chafe protection.
- » Replace defective lines immediately.



⚠ **WARNING**

Separated hydraulic lines pose an injury hazard!

Hydraulic fluid can escape under high pressure.

- » Always relieve pressure in hydraulic equipment before working on PS 1250.
- » Check hydraulic connections regularly to ensure that they are properly fastened.



⚠ **WARNING**

Hydraulic fluid can pose a health hazard!

Hydraulic fluids can lead to skin and eye injury and poisoning symptoms upon contact.

- » Avoid direct contact with hydraulic fluids.



WEAR EYE PROTECTION!



WEAR PROTECTIVE GLOVES!

Hydraulic lines which are weakened due to incorrect routing or damage can burst under load. The hydraulic fluid then escapes under pressure resulting in a powerful jet, which can lead to skin or eye injury.

For this reason always

- Lay hydraulic lines so that they are not kinked or pinched.
- Secure against whipping.
- Check regularly for damage and replace as required.

Always wear your personal protective equipment.



⚠ Caution

Danger of stumbling and machine defects!

Before turning the drilling table ensure that the supply lines for the PS 1250 are disconnected, to prevent the hoses from tearing.

2.5.4 Human Error

Ignorance of hazards, inattentiveness and limited reactions can lead to hazard situations while working with the PS 1250.

Safe Work

1. All personnel working on the machines are responsible for paying attention to their colleagues.
2. Consumption of alcohol and drugs is prohibited.
3. Work on the Power Slip is not permissible after taking medication which reduces reactions.
4. AT LEAST visual contact must exist between the operator in the doghouse and the personnel at the Power Slip, to allow communication via hand signals.
5. The personal protective equipment must always be kept and used in perfect condition.
6. All personnel working on the PS 1250, must be familiar with and observe the safety precautions in this instruction manual and on the machine.
7. The instructions for handling and maintenance intervals specified in this operating manual must be observed.
8. Keep a copy of this operating manual in the vicinity of the machine, where it is accessible at all times.

2.6 Accidents, Fire



⚠ WARNING

Health endangering hydraulic fluids / lubricants!

BEFORE performing first-aid following contact with service products observe the safety data sheet published by the manufacturer.

Basic rules in event of accidents or fire

1. Move accident victims out of hazard area and switch off machine immediately.
2. Administer first-aid.
3. Alarm rescue services and fire department immediately and inform supervisor.

In addition all national, local and internal plant regulations for fire fighting in explosion hazard areas apply.

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TRANSPORT/ SETUP

TRANSPORT/
SETUP

3 Transport / Setup



Ensure that setup and installation work are accomplished only by sufficiently qualified and trained personnel.



Read these instructions carefully before setting up the machine and putting it into service.

3.1 Delivery

The PS 1250 will be shipped in a transport rack. Instructions for safe transport are attached to the transport rack. Transport the packed machine as specified in these instructions.

3.1.1 Scope of Delivery

Info



The contract documents and shipment papers specify the precise scope of delivery. Check these documents carefully on delivery. In the event of any discrepancies please contact FORUM Handling Tools representative specified in Chapter „Contact Worldwide“ on page 11 immediately.

The scope of delivery includes all components required for the intended operation of the PS 1250:

- Power Slip 1250 as described in Chapter refer to section 1 “Description” on page 14.
- Guide Plate Assembly.
- Insert Slip Assembly and Slip Assembly with Carrier.
- Grease Pump Assembly.
- Hook Up Kit (P/N 774000-HUK).

3.1.2 Unpacking and Disposal of Packing Material

Remove the transport packaging and transport aids before hoisting the Power Slip 1250.

NOTE

- Do not remove transport retainers.
- The transport retainers should be removed only at the installation site just before startup.

Check scope of delivery

1. Is any transport damage visible?
2. Is the shipment complete? Compare the scope of delivery with the specifications in the shipping documents.



Fig. 32: Typical transport packaging of the PS 1250

If the PS 1250 has been damaged during transport or the shipment is incomplete, please notify the manufacturer immediately (see Chapter „Contact Worldwide“ on page 11). Dispose of the packaging material ecologically in compliance with all applicable regulations.

3.1.3 Intermediate Storage

If intermediate storage of the machine is necessary, observe the following:

- Leave the PS 1250 in its transport packaging. This provides sufficient protection against external influences.
- Secure the PS 1250 to prevent it from slipping or falling due to motion.

3.2 Transport

DANGER

Suspended load!

The falling load can cause severe, even lethal injuries.

- » NEVER loiter beneath or in the swing area of lifted loads or loads suspended from a crane.



WEAR PROTECTIVE HELMET!



WEAR PROTECTIVE GLOVES!



WEAR SAFETY SHOES!

Principles for transport

1. Ensure that transport routes are sufficiently dimensioned.
2. Always use pallets for longer transport distances.
3. The total weight (object to be transported + means of transport, e.g. forklift) must not exceed the supporting capacity of the subsurface.
4. Ensure that such work is performed only by sufficiently qualified personnel.
5. Always shut off machine before transport and secure against starting back up unintentionally. Start deinstallation only after residual energy has been dissipated.
6. Ensure that visual and audio contact exists between the crane operator and operating personnel.
7. Use only approved slinging and transport equipment, which is in perfect condition and suitable for the intended purpose. Observe specified load limits.
8. Secure the area against unauthorized entry. If necessary mark the area with information signs to warn of maintenance and repair work.
9. Secure moving parts in suitable manner
10. Secure machine against slipping/sliding. Observe machine weight. Observe center of gravity.
11. Never loiter under suspended loads.
12. Transport the machine carefully. Do not fasten, lift or pull machine on parts, that could be damaged. Avoid sudden stops.
13. Always use hoisting equipment (slings, hoisting cables, shackles, etc.), which has been inspected and is sufficiently dimensioned.
14. Ensure that all installation and hoisting procedures are accomplished in compliance with recognized rules of practice and industrial standards.

Weights

Components	Weight [lbs (kg)]
PS 1250 WITHOUT Slip, Carrier Assembly, Guide Plates and Bottom Guide System	14,330 (6500)
PS 1250 in Transport Rack WITHOUT Slip, Carrier Assembly, Guide Plates and Bottom Guide System	18,298 (8300)
PS 1250 WITH Slip, Carrier Assembly, Guide Plates and Bottom Guide System	22,157 (10050) (maximum weight)

- Detailed weight specifications are given in the Chapter "Technical Data".

Transport to Installation Site

Hoist the PS 1250 safely

1. Use the transport rack for transporting the PS 1250 to the location for use.
2. Attach the PS 1250 only at the hoisting eyes provided for transport or using the transport rack use the lifting eyes of the transport rack only.
3. Attach the hoisting cables so that they are tensioned straight without kinks.
4. Use hoisting cables and load hooks with sufficient supporting capacity.

Info



The transport rack (P/N 774003) is an optional component and not included in the Hook Up Kit.

1. Position the hoisting gear so it is centered above the PS 1250 with transport rack.
2. Fasten the load hooks in the transport hoisting eyes on the transport rack.
3. Lift the transport rack slightly to tension the hoisting cables.

⚠ WARNING Danger of collision with swinging loads! Ensure that no one is present in the swing range of the machine.

4. Lift the PS 1250 with the transport rack.
5. Move the PS 1250 to the installation location.
6. Set the PS 1250 transport rack down carefully on a suitable subsurface.

Attachment points

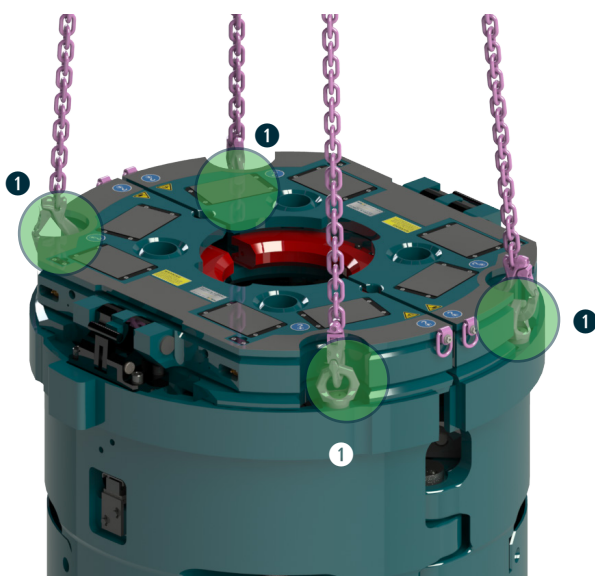


Fig. 33: Attachment points for PS 1250 Transport

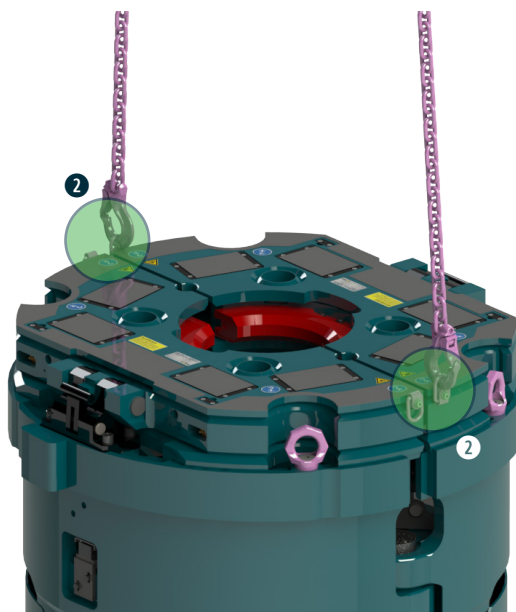


Fig. 34: Attachments points for HCS

NOTE

- Only attach the Power Slip 1250 at the attachment points marked with ①.
- The attachment points marked with ②, are only for opening / transporting the HCS.

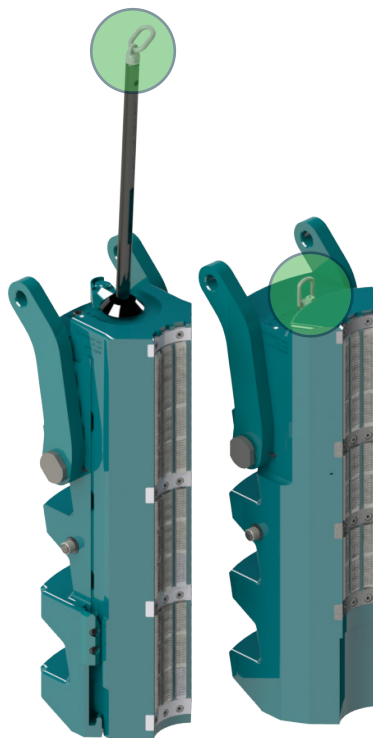


Fig. 35: Attachments point for a Carrier (Left) / Slip (Right)

3.3 Setup

The PS 1250 is completely preassembled before shipment, so that it can be installed immediately after unpacking at the installation site. The PS 1250 is ready for operation after connecting to the hydraulic system and installing the appropriate carriers and guide plates and insert slips.

3.3.1 Requirements at Setup Site

The basic version of the PS 1250 is designed for the 49.1/2" drilling table from the National Company. It is necessary to install an adapter ring for the 49.1/2" drilling tables from Wirth and Emsco. The adapter rings are included in the scope of delivery when ordered appropriately for a desired rotary table.

- PS 1250 for 49.1/2" drilling table (Wirth) - 774000-W
- PS 1250 for 49.1/2" drilling table (Emsco) - 774000-E

3.3.2 Space Requirement

During operation the PS 1250 is almost completely recessed in the rotary table. A free space of approx. 20 m² is required for work requiring the PS 1250 to be pulled out of the rotary table (e.g. maintenance work).

3.3.3 Supply Connections

- Hydraulic operating pressure 160 - 210 bars (2321 - 3040 psi)
- Volumetric flow 37.87 l/min (10 GPM)
- Pneumatic operating pressure 6 bars (87 psi)

3.3.4 Installing and Removing from Drilling Table

DANGER

Suspended load!

The falling load can cause severe, even lethal injuries.

- » NEVER stand under suspended loads.
- » NEVER stand in the swing area of suspended loads.

WARNING

Pinching/crushing hazard from lowering body!

Severe pinching/crushing up to loss of limbs.

- » NEVER step over edge of rotary table with feet.



WEAR PROTECTIVE HELMET!



WEAR PROTECTIVE GLOVES!



WEAR SAFETY SHOES!

Preparations

1. Lift the PS 1250 from the transport rack using the lifting eyes of the PS 1250.
2. Remove transport retainers.
3. If necessary install matching adapter ring.
 - Wirth Adapter 774008
 - Emsco Adapter 774007
4. The adapter rings consist of two halves. Position the halves in the drilling table so that the lugs on the adapter fit into the holes in the table.

⚠ WARNING Pinching hazard! Do NOT guide the machine manually when lowering. Use cables to align Power Slip.

Safe PS 1250 Installation to the Rotary Table

1. Use the transport slings from the Hook up Kit to attach the PS 1250 to the crane.
2. Attach the PS 1250 only at the hoisting eyes only, the transport slings must be tensioned straight without kinks.
3. Attach the PS 1250 to the crane.
4. Lift the PS 1250 and swing over center of rotary table.
5. Guide the PS 1250 in the groove so that the lugs engage in the corresponding grooves in the rotary table or adapter ring.
6. When the PS 1250 is steady, remove hoisting cables.

Safe PS 1250 Removal from the Rotary Table

1. Use the transport slings from the Hook up Kit to attach the PS 1250 to the crane.
2. Attach the PS 1250 only at the hoisting eyes only.
3. Attach the transport slings so that they are tensioned straight without kinks.
4. Attach the PS 1250 to the crane.
5. Lift PS 1250 slowly out of rotary table.
6. Pivot PS 1250 away from rotary table.
7. Set the PS 1250 down carefully on a suitable surface.
8. When the PS 1250 is steady, remove hoisting cables.

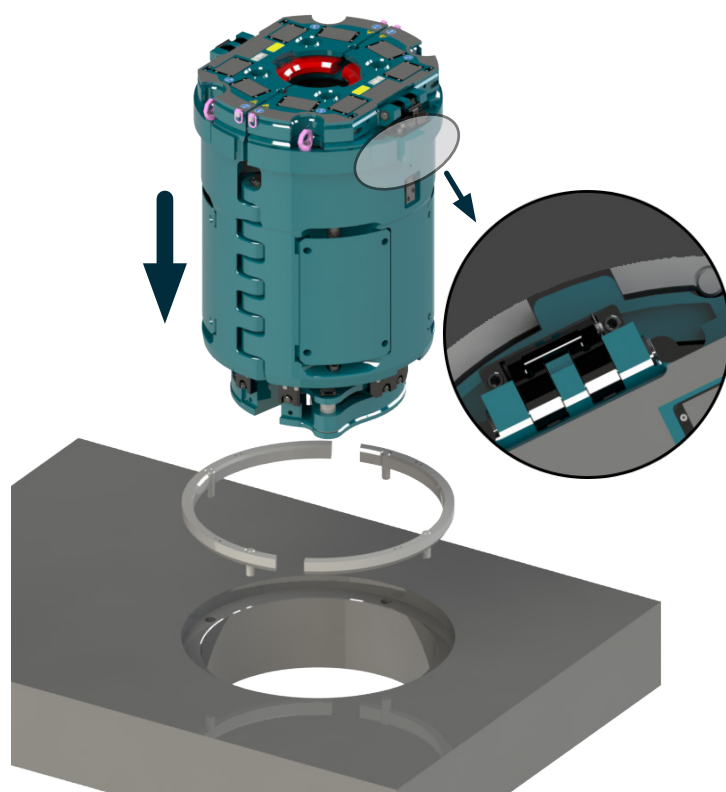


Fig. 36: Insert Rotary Table adapter

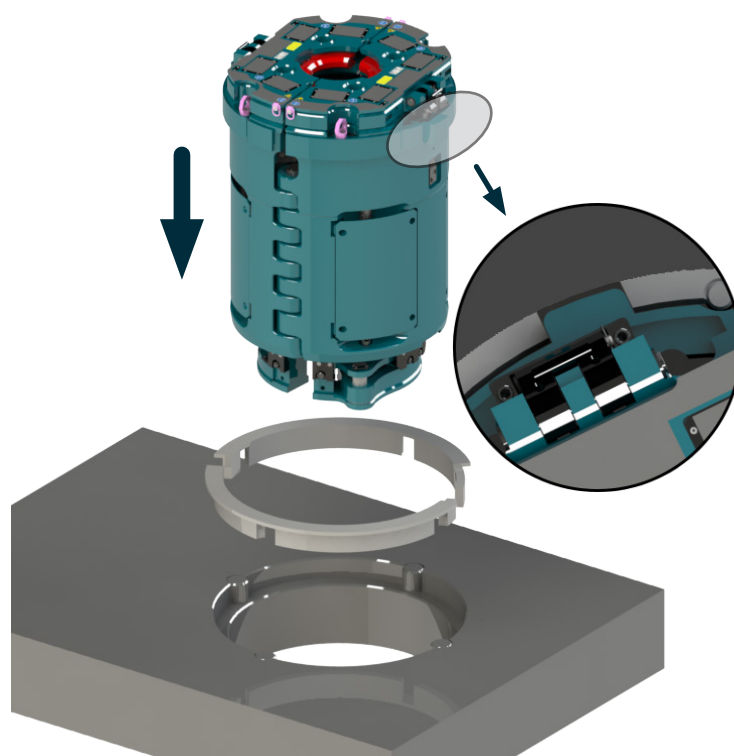


Fig. 37: Align Lugs on PS 1250 with Grooves on Rotary Table / Adapter

3.3.5 Arrangement of Hydraulic Connections

Ensure that the hydraulic connections are arranged so that damage cannot be caused by external effects.

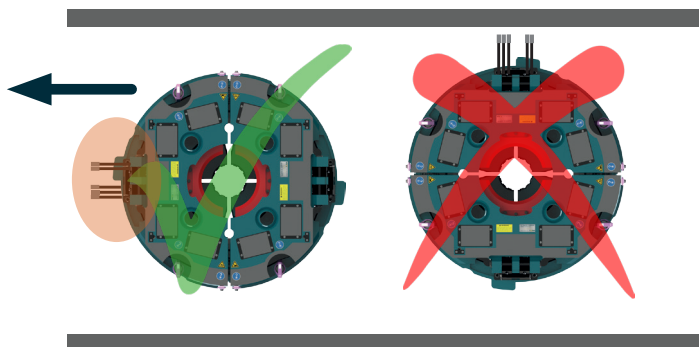


Fig. 38: Correct Installation on Drill Floor

NOTE

Make sure that all hydraulic lines are routed according to the left figure. This arrangement reduces the risk of tripping.

3.4 Connecting the Hydraulic System



Ensure that work on the hydraulic system is performed only by personnel trained for such work and conscious of the risks involved.



Read these instructions carefully before performing any work on the hydraulic system.

WARNING

Hydraulic fluid can pose a health hazard!

Hydraulic fluid can injure the skin, mucous membranes or eyes on contact.

- » Do NOT touch hydraulic fluids.
- » ALWAYS wear appropriate protective equipment.



WEAR EYE PROTECTION!



WEAR PROTECTIVE GLOVES!

NOTE

During installation, when setting up and taking down as well as during operation of the PS 1250 ensure that the hydraulic lines do not chafe. If necessary provide hydraulic lines with chafe guard.

Info



Bleeding

The hydraulic system in the PS 1250 is bled at the factory. Ensure that the rig's own supply connections are bled before connecting the PS 1250.

Installation Schematics

Connection	Function
A	Slip assembly down
B	Slip assembly up
C	Feedback signal
G	Pneumatic connection, Grease Pump
L	Grease Pump

Connect rig supply lines to quick-release couplings for PS 1250 as specified in table.

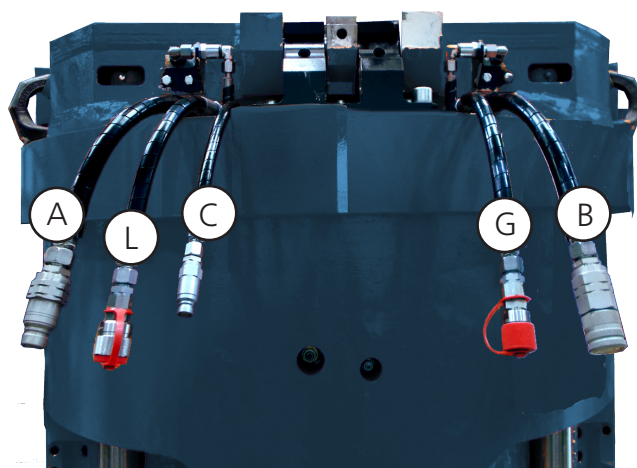


Fig. 40: Hydraulic connections

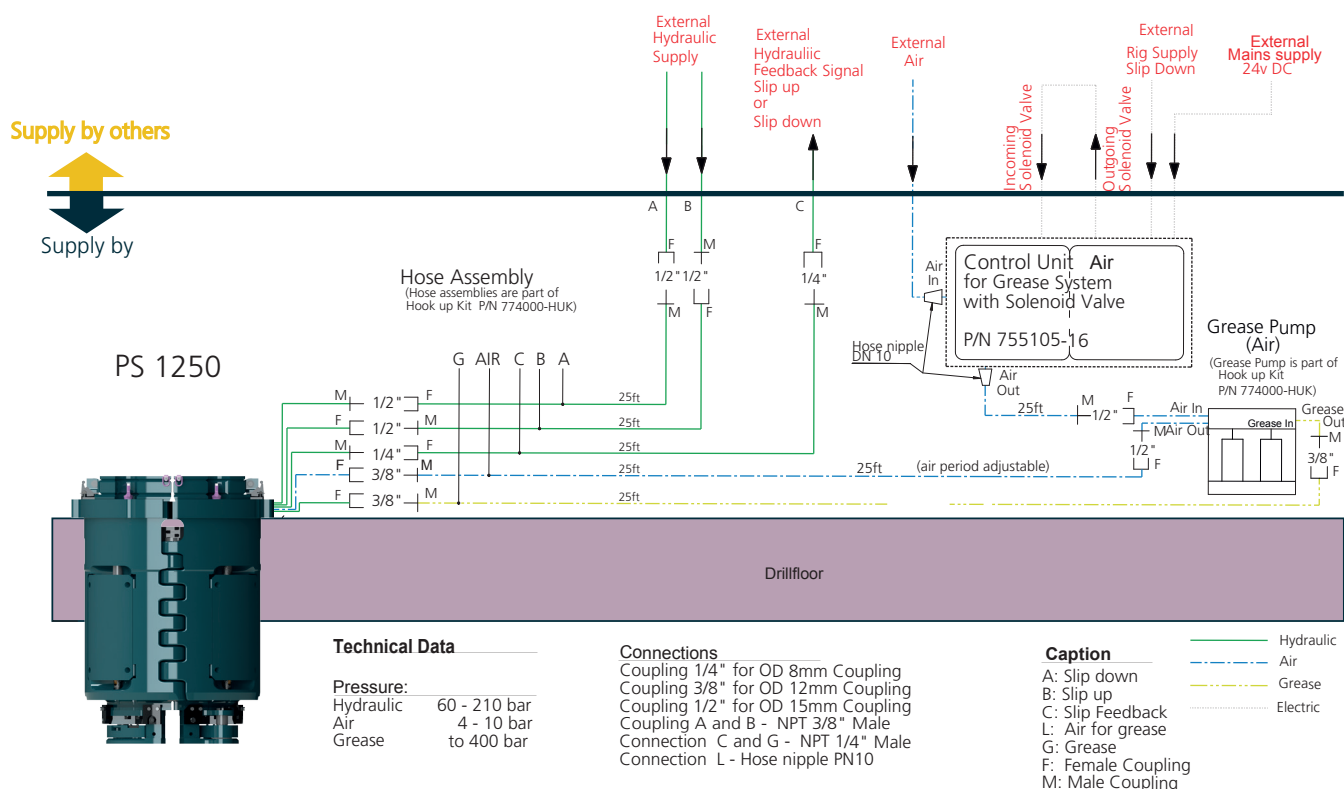


Fig. 39: Hydraulic and Pneumatic Connections PS 1250

Recommended Hydraulic Fluids

Brand	Flash point [°F/(°C)]	Above -4 °F (-20 °C)	Flash point [°F/(°C)]	Below -4 °F (-20 °C)
Aral	435.2 (224)	Aral Vitam GF 46	392 (200)	Aral Vitam GF 32
Castrol	392 (200)	Hyspin AWS-46	366.8 (186)	Hyspin AWS-32
Gulf	410 (210)	Harmony 46AW	395.6 (202)	Harmony 32AW
Shell	424.4 (218)	Tellus 46	408.2 (209)	Tellus 32
Finke	572 (300)	Aviaticon HY-HE-46	509 (265)	Aviaticon HY-HE-32
Fuchs	428 (220)	Renolin MR 10	410 (210)	Renolin MR 15

3.5 Connecting the Grease System



Ensure that work on the hydraulic system is performed only by personnel trained for such work and conscious of the risks involved.



Read these instructions carefully before performing any work on the hydraulic system.



WEAR EYE PROTECTION!



WEAR PROTECTIVE GLOVES!

Installation Schematic

Connection	Function
Air In	① Pressured Air for Grease Pump
Air Out	② Pressured Air for Grease System
Grease In	③ Grease Supply for the PS 1250
Grease Out	④ Grease Supply for the PS 1250

Connect rig supply lines to quick-release couplings for PS 1250 as specified in table.



Fig. 41: Grease connections

3.6 Installation of Optional Accessories

Installation of Bottom Guide Assembly

The bottom guide assembly (BGA) is installed below the PS 1250. Together with the cover assembly guide plates, the BGA guide plates guide the pipe string and prevent the pipe from hitting against the insert dies. Installation of the BGA beneath the PS 1250 is described below. Refer to Chapter 6.3.8 on page 123 for wear limits and procedure for changing guide plates.

Tools

The following tools are required to install the bottom guide assembly:

- Crane
- Suitable hoisting cables for hoisting the PS 1250
- Wrench 16 mm
- Wrench 24 mm, Percussion drill socket, 24 mm
- Wrench 27 mm
- Wrench 36 mm, Percussion drill socket, 36 mm



WEAR PROTECTIVE HELMET!



WEAR PROTECTIVE GLOVES!



WEAR SAFETY SHOES!



⚠ DANGER

Injury hazard when body tips!

During installation of the bottom guide assembly the PS 1250 is PRONE TO TIPPING.

- » Leave the PS 1250 connected to the crane during the entire installation procedure.



⚠ WARNING

Danger of pinching/crushing hands!

Severe pinching/crushing up to loss of limbs.

- » NEVER reach between body and bottom guide assembly when setting down.



⚠ WARNING

Pinching/crushing hazard from lowering body!

Severe pinching/crushing up to loss of limbs.

- » NEVER step beneath the PS 1250 with feet.

⚠ DANGER

Suspended load!

The falling load can cause severe, even lethal injuries.

- » NEVER loiter under suspended loads.
- » NEVER loiter in the swing area of suspended loads.



Preparation

To install the Bottom Guide Assembly (BGA) it is not necessary to separate the two halves of the PS 1250 from each other.

1. Position each of the BGA on a level, supporting surface.

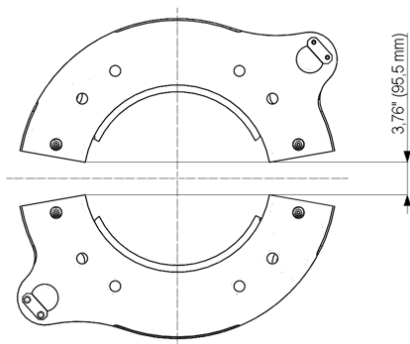


Fig. 42: Position BGA

2. Lift the PS 1250 with a cross bar and crane.
 3. Pivot the PS 1250 so that it is centered above the BGA and the halves of the BGA and body are opposite one another.
 4. Slowly lower the body onto the BGA so that the tapered pins ❶ slide into the corresponding holes in the lower body collar.
 5. Fasten all Clamp Devices ❷.
- » The BGA is now installed. See Chapter 4 "Installation" for installation of the corresponding guide plates.



Fig. 43: Installation step I

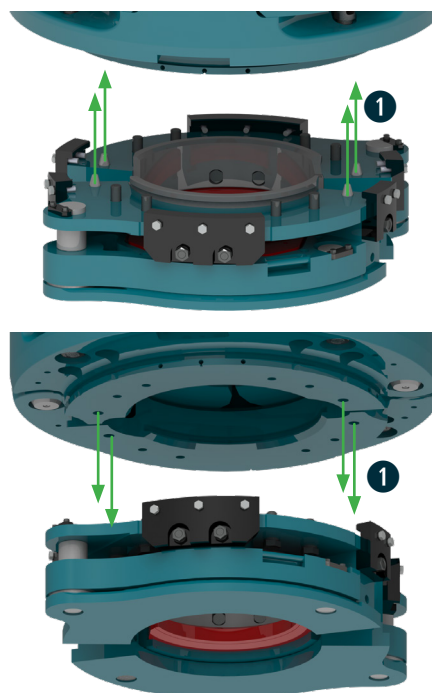


Fig. 44: Installation step II

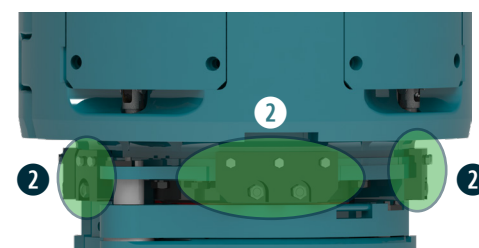


Fig. 45: Installation step III

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COMMISSIONING / OPERATION

COMMISSIONING
OPERATION

4 Operation



Ensure that the Power Slip 1250 is operated only by personnel trained for this work and familiar with the risks involved in operating the machine.



Read these instructions carefully before setting up the machine and putting it into service.

4.1 Initial Operation

Safety checks before initial operation

1. All covers attached and completely screwed down.
2. All screw connections tightened properly.
3. All screw retainers present.
4. Insert slips respectively carriers correspond to type/size of pipe used and are secured.
5. Serial numbers of insert slips and carriers identical (matched pairs).
6. Guide plates correspond to type/size of pipe used.
7. Slip assembly installed correctly and screwed down securely.
8. HCS closed and secured.
9. All hydraulic connections correctly connected and securely laid.
10. No hydraulic lines damaged.
11. Upper guide plates open.
12. Lifting assembly located in upper position.
13. All lubrication points lubricated properly (refer to Chapter „Lubrication“ on page 115).



WEAR EYE PROTECTION!

Safety checks before initial operation

- Remedy all defects noted during checks.



Caution Never attempt to start up when defective.

- Activate hydraulic system.

Perform following function tests:

1. Raise and lower the insert slips respectively the carrier.
 - » Are end positions reached smoothly and properly?
 - » Is feedback signal present in every end position?
2. Open and close the hydraulic guide plates.
 - » Do the hydraulic guide plates move smoothly and properly to end positions?

Ensure that required operating data is observed:

- **Operating pressure** **160 - 210 bars**
[2.321 - 3.040 PSI]
- **Volumetric flow** **37.85 l/min**
[10 GPM]

Info



FORUM Handling Tools recommends having the machine put into service by FORUM Handling Tools.

4.2 Proper Shutdown

Proceed as follows to shut down the machine for maintenance work or breaks in operation.

1. Relieve the PS 1250.

NOTE Ensure that the drill string is held securely (e.g. by elevator).

2. Move the slip assembly to the upper end position.
3. Move the drill string out of the PS 1250.
4. Close the PS 1250 with the cover plate.
(Part of the Hook Up Kit P/N 774000-HUK)
5. Switch off pressure to the PS 1250.

4.3 Emergency Stop

No provisions have been made for equipping the PS 1250 with its own emergency stop switch.

For safe operation it is necessary to incorporate it into the emergency stop circuit in the rig's own hydraulic control.

4.4 Starting Back Up

4.4.1 Starting Back Up Normally

Proceed as follows to put machine back into service following maintenance work or breaks in operation:

1. Perform the safety checks and function tests described in Chapter 4.1.
2. Activate hydraulic system.

4.4.2 Starting Back Up Following an Emergency Stop

Proceed as follows to put the machine back into service following an emergency stop:

1. Ensure that the cause for the emergency stop has been remedied.
2. Check whether the drill string is held by the elevator securely.
3. Ensure that the hydraulic system is operating properly.
4. Ensure that no one is in a hazardous position.
5. Release the emergency stop switch.
6. Perform the safety checks and function tests described in Chapter 4.1.
7. Activate hydraulic system.

4.5 Operating the PS 1250

Operational Safety

1. Do not touch the PS 1250 while in operation.
2. Never raise the slips when the pipe load is still suspended by the slips
3. All screw retainers present.
4. Make sure that ALL hydraulic lines are isolated before any work is carried out in the PS 1250.
5. It is recommended to have the PS 1250 operated by the driller.
6. For smooth operation, it is recommended to slightly lower the pipe with the elevator while setting the PS 1250 slips.
7. Check slips/carriers are set on correct section of the pipe.
8. Set the PS 1250 before releasing the elevator.
9. The PS 1250 is set when the slips down feedback signal comes on.
10. Uncouple the quick disconnects on the PS 1250 prior rotating the rotary table.
11. Always use all 4 lifting eyes placing the PS 1250 in the rotary table
12. With the pipe string being suspended by the PS 1250 slips, make up or break the upper stand or joint, and handle it.
13. Pick up the weight of the pipe string with the elevator, before raising the PS 1250 slips
14. Set the slips of the PS 1250 and then release the elevator.
15. For smooth operation, it is recommended to slightly raise the pipe with the elevator while releasing the PS 1250 slips.
16. The rotary locks in the outside of the PS 1250 may only be needed on semisubmersible rigs or while floating in pipe when there is a chance the PS could come out of the rotary table

4.5.1 Handling Drill String

Operational Safety

1. NEVER raise the slip assembly under load.
Before raising the slip assembly, make sure that an elevator suspends the weight of the pipe.
2. The slip assembly can bear the load of the pipe if the slips are set and the PS 1250 is mounted in the rotary table.
3. Never operate the Slip Assembly with the door open.
4. Never set the Slips as long as the Elevator/Top Drive is still lifting or lowering the pipe.
5. When using the hydraulic centring system there is a danger of persons getting jammed between the guide plates and the pipe.
6. Always use the cover plate (p/n 775780).
With the power slip installed in the rotary table there is the risk of small parts falling into the Power Slip or bore hole.

Safety precautions

1. Be particularly careful in these situations.
2. Ensure that visual contact is always present between the deck personnel, and the operator in the doghouse.

Setting Slip

1. Move the drill string through the PS 1250, until it is held by the insert slips or carriers.
2. Activate hydraulic line A.
 - » Close guide plates.
 - » Move slips down until the feedback assembly indicates that the lower end position has been reached.
 - » The drill string is held.
 - » Open guide plates.

Opening Slip

3. Secure drill string from falling with elevator.
4. Activate hydraulic line B.
5. Move slips up until feedback assembly indicates that upper end position has been reached.
 - » The drill string is released and operation can continue.

4.5.2 Opening and Closing Hydraulic Centering System (HCS)



⚠ WARNING

Danger of pinching/crushing hands!

Cover assembly can fall shut.

- » DO NOT reach into the open, unsecured cover assembly.



⚠ WARNING

Danger of pinching/crushing feet!

Cover assembly can fall shut.

- » DO NOT set down on upper collar of PS 1250.

For some operations it is necessary to open the HCS:

- Changing and replacing components in the PS 1250 required when changing the type/size of pipe used.
- Changing the hydraulic guide.
- Lubricating the Carrier Securing Assembly
- Maintenance work, repair or inspection of the PS 1250.

Tools

- Hoisting equipment with minimum hoisting capacity of approx. 600 kg.

Info



The hoisting eyes and slings are included in the optional Hook Up Kit (P/N 774000-HUK), available from FORUM Handling Tools.

Opening Procedure

1. Attach the hoisting eyes on the side of one half of the cover assembly to the crane.

⚠ WARNING Pinching hazard for hands when cover assembly falls shut! DO NOT open cover assembly manually. ALWAYS use a crane.

2. Lift the cover assembly with the crane until the retainer arrests audibly.
 - » The cover assembly is secured against falling shut.
3. Repeat this procedure on the other side.

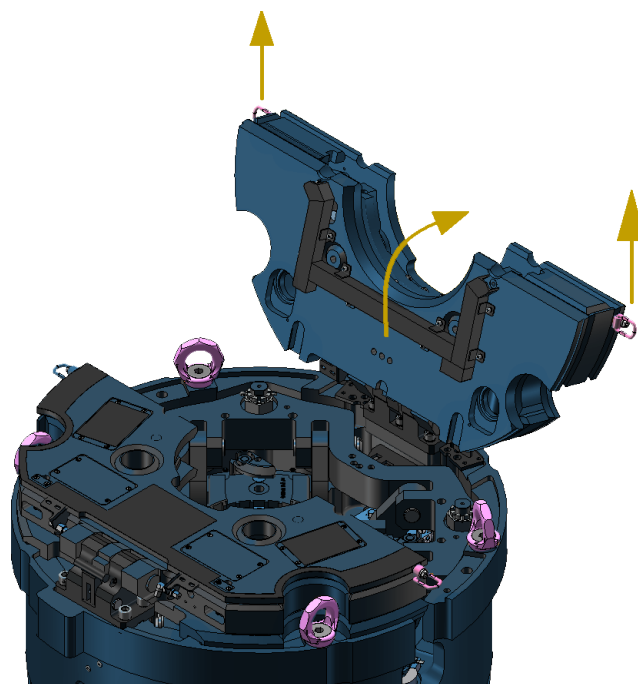


Fig. 46: Open Cover Assembly

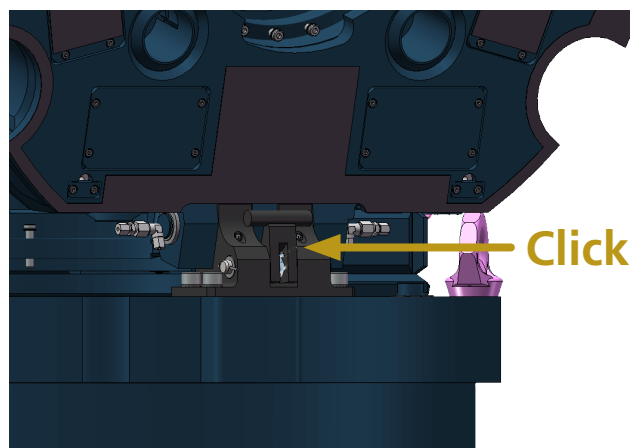


Fig. 47: Arresting the Lock

Closing Procedure:

1. Attach the hoisting eyes on the side of one half of the cover assembly to the crane.
2. Release the lock by pressing it toward the body and holding.
 - » The retainer is released.

⚠ WARNING Pinching hazard for feet when cover assembly falls shut! DO NOT close cover assembly manually. ALWAYS use a crane. DO NOT stand down on upper collar of PS 1250.

3. Lower the cover assembly with the crane until it makes secure contact with the PS.
4. Remove the hoisting cables.
5. Repeat this procedure on the other side.

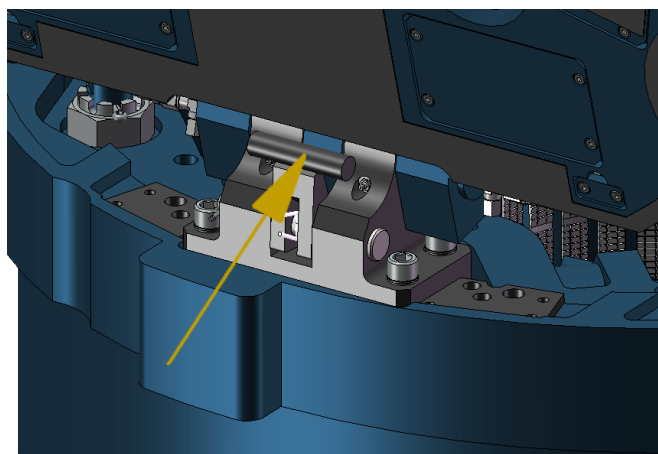


Fig. 48: Detach Retainer

4.5.3 Opening Body



⚠ WARNING

Danger of pinching/crushing body!

The body may fall shut.

- » DO NOT step between the unsecured shells of the open body.
- » DO NOT remove the spreading tool BEFORE closing the body and securing it with the hinge pin.



⚠ WARNING

Danger of pinching/crushing feet!

Transporting and setting down heavy components.

- » NEVER step below moving machine parts.



⚠ WARNING

Separated hydraulic lines pose an injury hazard!

This symbol is used to mark areas where injuries are possible from disconnecting hydraulic lines in which the pressure has NOT been relieved.



⚠ WARNING

Defective hydraulic lines pose an injury hazard!

This symbol is used to mark areas where injuries are possible from defective hydraulic lines.



⚠ WARNING

Health hazards from service products!

This symbol warns of health hazards resulting from contact of service products (e.g. lubricants, hydraulic fluids) with the skin, mucous membranes, eyes and respiratory paths.



WEAR PROTECTIVE GLOVES!



WEAR PROTECTIVE HELMET!

Tools

- Opening Tool (P/N 774002)
- Hook Up Kit (P/N 774000-HUK)
- Allen wrench, 10 mm

Prerequisites for Starting Work

- Pressure relieved in all hydraulic lines.

Procedure

1. Open HSC as described in Chapter 4.5.2 on page 58.
2. Make sure to select the correct HInge Pin to open the Body.
3. Loosen Retaining Screws and Remove Retainer hex. head bolts (2) in the retaining block (1) for the hinge pin with an 10 mm Allen wrench.

⚠ NOTE

When closing body ensure that retainer is reinstalled!

4. Attach hinge pin (3) to crane with suitable hoisting gear on hoisting eye.

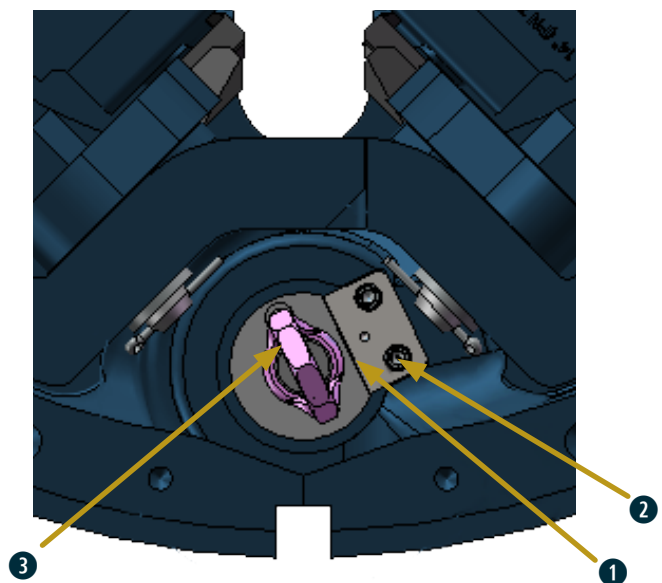


Fig. 49: Loosen retraining screws and remove retainer.

5. Pull the hinge pin completely out and place it securely to the side.

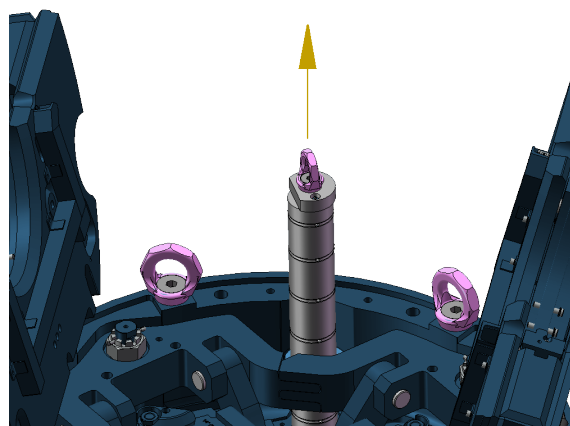


Fig. 50: Pulling Hinge Pin

6. Attach the opening tool to the crane using the hoisting eye and lift it over the body.
7. Attach the opening tool to the body by screwing the hex. head bolts into the threaded bushings.

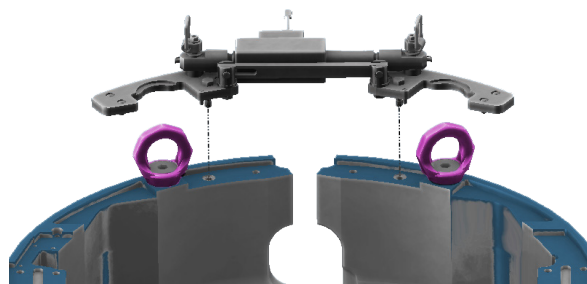


Fig. 51: Install Opening Tool

8. Open the body with the opening tool by moving the lever back and forth.

⚠ NOTE

When spreading body pay attention to mechanical stop!

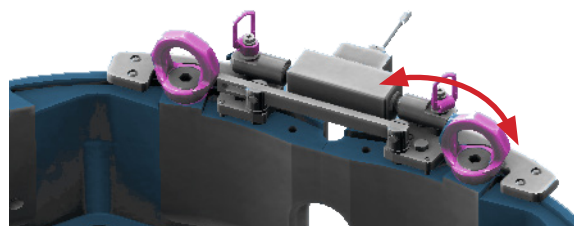


Fig. 52: Spreading Body with Opening Tool

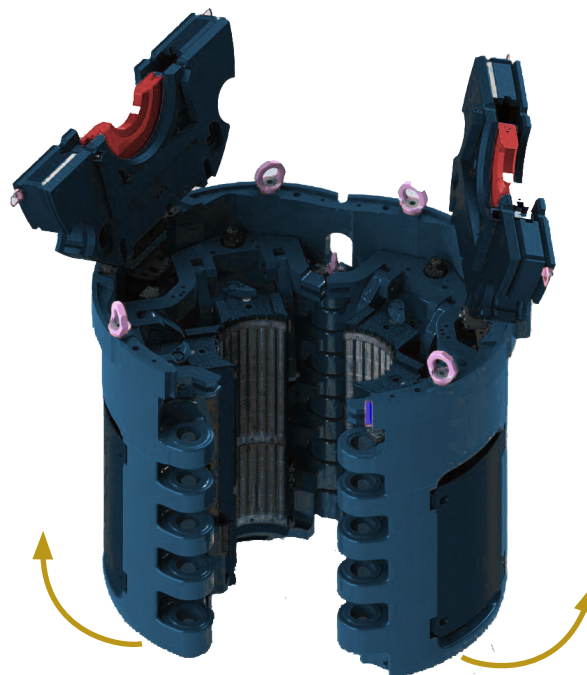


Fig. 53: Spreading Body

4.5.4 Removing Power Slip from Drill String

⚠ DANGER

Suspended load!

The falling load can cause severe, even lethal injuries.

NEVER loiter under suspended loads.

NEVER loiter in the swing area of suspended loads.



WEAR PROTECTIVE HELMET!



WEAR PROTECTIVE GLOVES!



WEAR SAFETY SHOES!

It is necessary to pull off the PS 1250 for the following user operations:

- Changing and replacing components in the PS 1250 required when changing the type/size of pipe used.
- Maintenance work, repair or inspection of the PS 1250.

Safety precautions for pulling machine from drill string

1. Be particularly careful in these situations.
2. Ensure that visual contact is always present between the deck personnel, and the operator in the doghouse.

Tools

The following tools are required to pull the PS 1250 from the drill string running through:

- Crane incl. lifting slings (P/N 774004)
- Opening tool (P/N 774002)
- Hook Up Kit (P/N 774000-HUK)
- Socket wrench, 18 mm

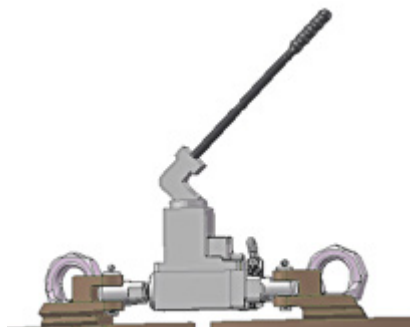


Fig. 54: View of Opening Tool

Info



The hoisting eyes and slings are included in the optional Hook Up Kit (P/N 774000-HUK), available from FORUM Handling Tools.

4.5.5 Removing Power Slip from Drill String

⚠ DANGER

Suspended load!

The falling load can cause severe, even lethal injuries.

- » NEVER loiter under suspended loads.
- » NEVER loiter in the swing area of suspended loads.



WEAR PROTECTIVE HELMET!



WEAR PROTECTIVE GLOVES!



WEAR SAFETY SHOES!

It is necessary to pull off the PS 1250 for the following user operations:

- Changing and replacing components in the PS 1250 required when changing the type/size of pipe used.
- Maintenance work, repair or inspection of the PS 1250.

Safety precautions for pulling machine from drill string

1. Be particularly careful in these situations.
2. Ensure that visual contact is always present between the deck personnel, and the operator in the doghouse.

Tools

The following tools are required to pull the PS 1250 from the drill string running through:

- Crane incl. lifting slings (P/N 774004)
- Opening tool (P/N 774002)
- Hook Up Kit (P/N 774000-HUK)
- Socket wrench, 18 mm

Info



The hoisting eyes and slings are included in the optional Hook Up Kit (P/N 774000-HUK), available from FORUM Handling Tools.

Procedure

Proceed as follows to pull the PS 1250 from the drill string running through:

1. Ensure that the drill string is held securely (e.g. by elevator).
2. Move the slip assembly to the top position.
3. Switch off the hydraulic system.
4. Separate the PS 1250 from the hydraulic system.
5. Open the HCS (see Chapter 4.5.2 on page 58).

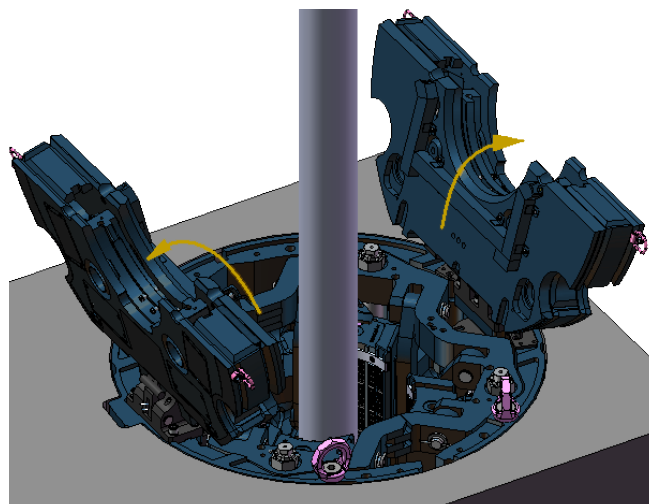


Fig. 55: Opening HCS

6. Pull correct hinge pin out of body (see Chapter 4.5.3 on page 60).

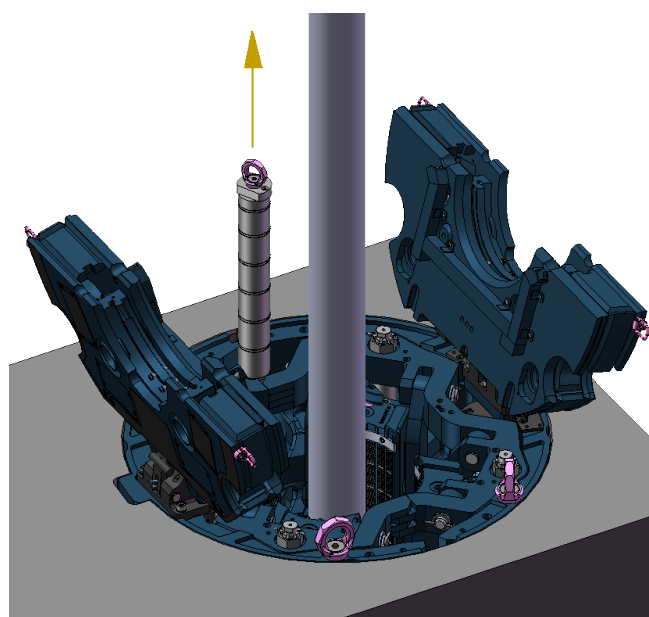


Fig. 56: Pulling Hinge Pin

7. Attach lifting sling to eye bolt on each side of PS 1250 .

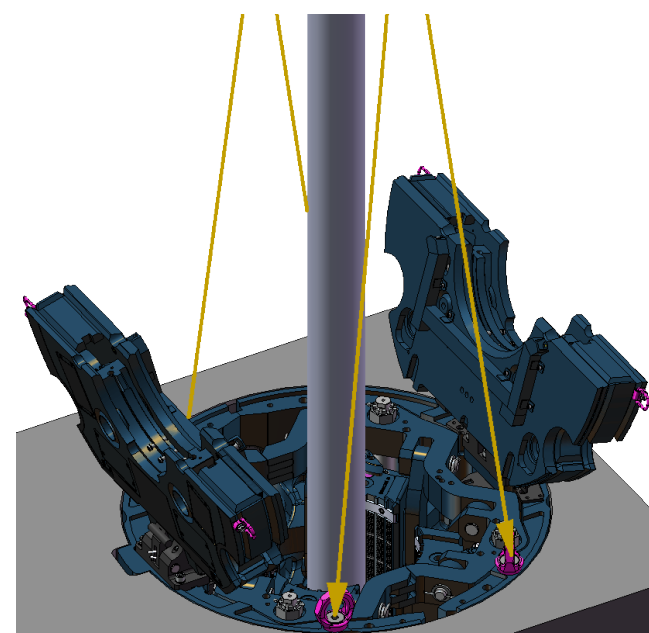


Fig. 57: Lifting PS 1250

8. Spread the Body as described in chapter 4.5.3 on page 60 .
9. Slowly lift PS 1250 out of drilling table until it hangs free.

⚠ WARNING The PS 1250 might swing back and forth in slings. Guide Machine with ropes.

10. Open the body with the opening tool by moving the lever back and forth.

⚠ NOTE

When spreading body pay attention to mechanical stop!

11. Pull PS 1250 completely from the drill string and put down securely.

⚠ NOTE

Leave Spreading tool on body to prevent automatic closing of the Body while moving!

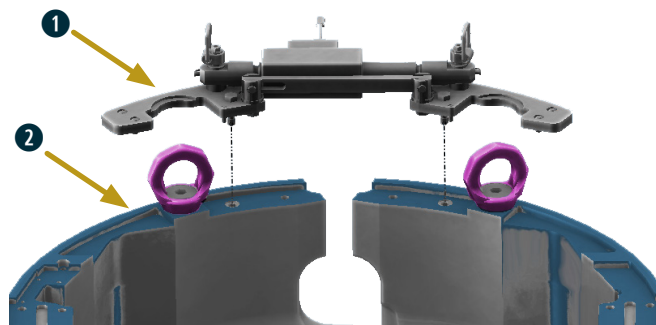


Fig. 58: Install Opening Tool

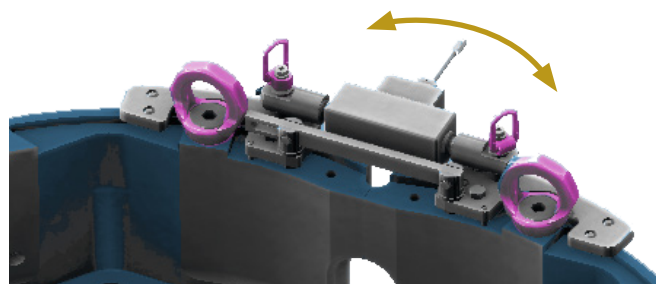


Fig. 59: Spreading Body with Opening Tool

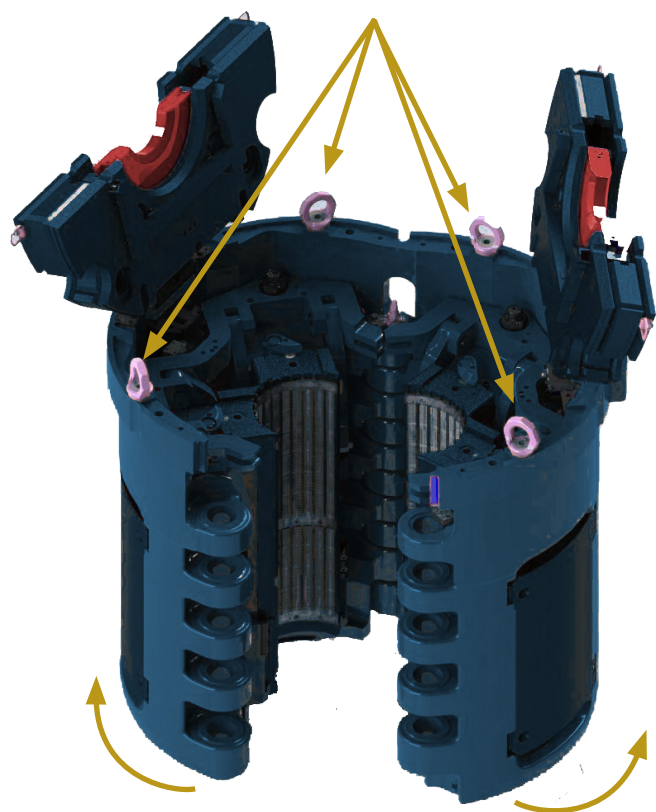


Fig. 60: Spreading Body

4.5.6 Conversion for Landing Strings

⚠ DANGER

Suspended load!

The falling load can cause severe, even lethal injuries.

- » NEVER loiter under suspended loads.
- » NEVER loiter in the swing area of suspended loads.

⚠ WARNING

Danger of pinching/crushing hands!

Cover assembly can fall shut.

- » DO NOT open cover assembly manually.
- » ALWAYS open the cover assembly so that the safety engages.



WEAR PROTECTIVE HELMET!



WEAR PROTECTIVE GLOVES!



WEAR SAFETY SHOES!

It is necessary to convert the PS 1250 for operation with landing strings. For this purpose it is necessary to replace the slip assembly.

Convert the PS 1250 as follows:

- Disconnect from hydraulic system,
- Lift out of rotary table,
- Remove carriers and
- Open.

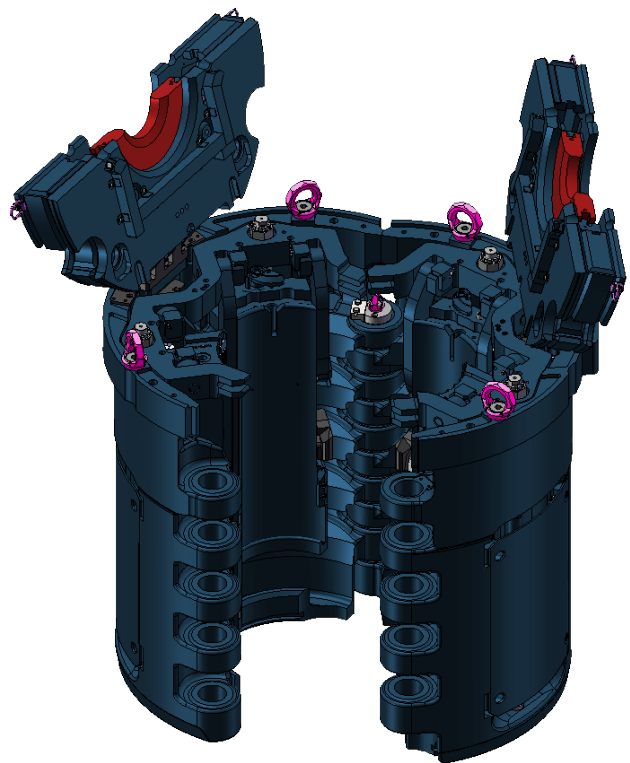


Fig. 61: PS 1250 Prepared for Changing Slip Assembly

Tools and Accessories

- Eye bolts
- 2 point slings

Info



The hoisting eyes and slings are included in the optional Hook Up Kit (P/N 774000-HUK), available from FORUM Handling Tools.

4.5.7 Removal of Slip Assembly

Perform following steps on all four slips.

Proceed as follows to remove the slip assembly from the PS 1250:

12. Screw the hoisting eyes into the appropriate holes in the slip.
13. Attach the slip to the crane using the hoisting eyes.
14. Raise the slip until the weight is held by the crane, when the pins are removed.

15. Pull the cotter pins (1) out of the pins (2).

16. Pull the latch (3) out of the slip assembly mount.
17. Repeat steps 4. and 5. on second slip assembly mount.

18. Before pulling out lower slips and pivot to center with crane. This procedure frees the slip guiding rods from slip guide to retain the from the body.
19. Pull the slip out of the body and place it securely to the side.

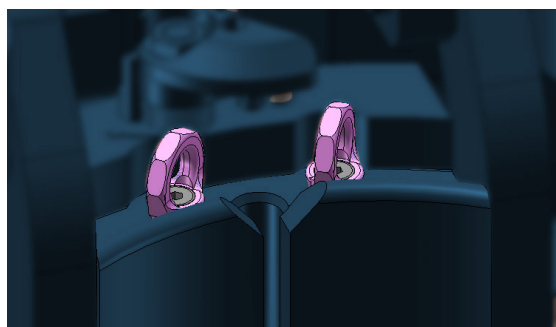


Fig. 62: Screw in Hoisting Eyes

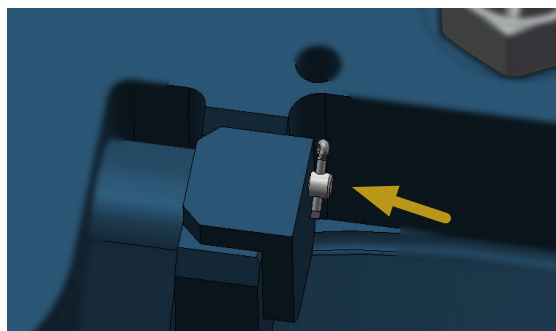


Fig. 63: Pull Cotter pin out of Pin

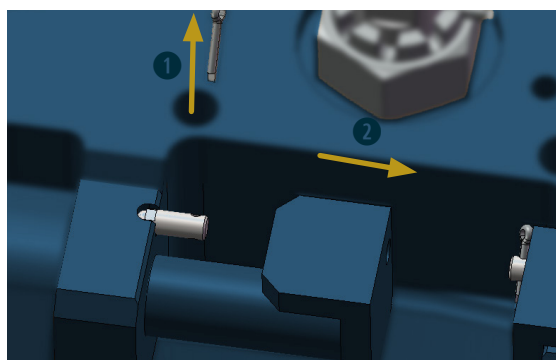


Fig. 64: Opening Latch

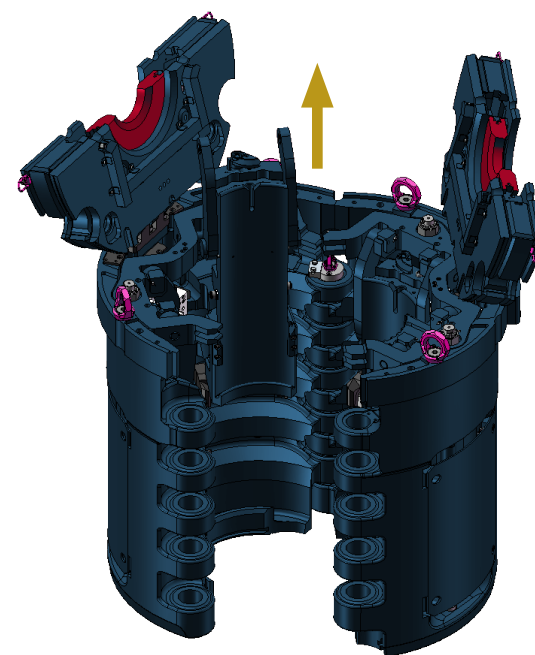


Fig. 65: Lift slip Out of Body

4.5.8 Installing Insert Slips

After removing all slips, the insert slip assembly can be installed.

1. Clean and lubricate body.
2. Attach one insert slip to the crane and lift it over the PS 1250.

⚠ WARNING Danger of pinching/crushing hands! NEVER reach between slip and body.

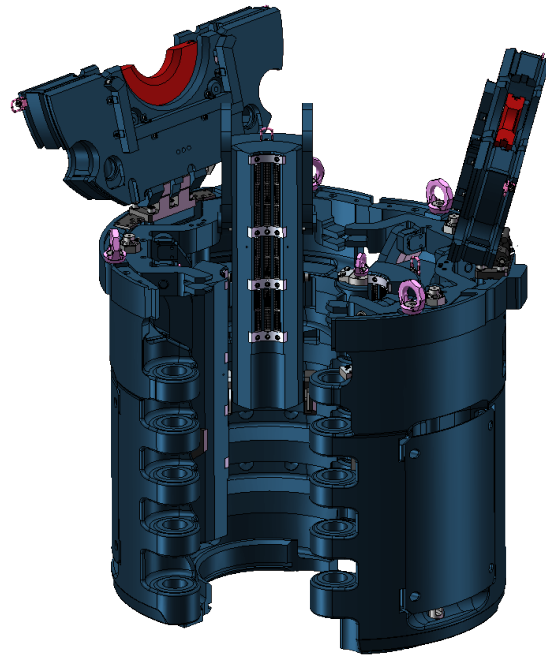


Fig. 66: Install Insert Slips I

3. Lower the insert slip slowly into the body center point. Guide the guide rollers into the slip by pivoting to the outside.
4. Align the connecting rods on the slip one after another with the bores in the lifting assembly.

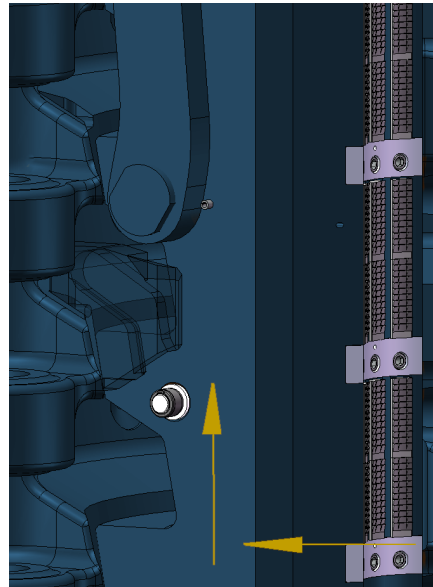


Fig. 67: Install Insert Slips II

5. Insert the pins all the way into the holes.
6. Repeat this procedure on all slips.
7. Close the body with the opening tool, lock with hinge pin and resecure. (see Chapter 4.5.3 on page 60).

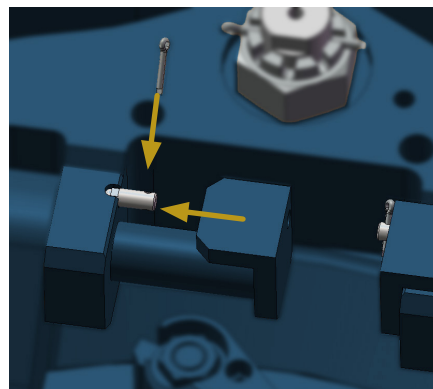


Fig. 68: Insert Cotter Pin and Secure

4.5.9 Replacing Inserts

⚠ WARNING**Danger of pinching/crushing hands!**

Hands can be pinched if inserts fall back into guide rails. Cover assembly can fall shut.

- » NEVER open cover assembly manually.
- » ALWAYS open the cover assembly so that the safety catch engages.

⚠ WARNING**Splinter hazard for eyes!**

The heat developed during operation makes the inserts very hard and brittle.

When changing the inserts always wear eye protection (protective goggles/glasses).

- » Never pound on the inserts with a hammer or similar hard object.



WEAR PROTECTIVE GLOVES!



WEAR EYE PROTECTION!

Replace slip inserts when worn.

To change the inserts, it is necessary to remove the slip assembly or insert slip assembly (see Chapters 4.9 and 4.10).

⚠ NOTE

ALWAYS replace ALL inserts. Unequal wear to the inserts poses a hazard for safe use of the PS 1250.

⚠ NOTE

Ensure that inserts of the correct size are used. Otherwise safe operation is not guaranteed.

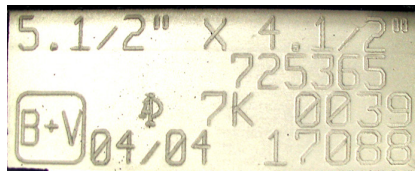


Fig. 69: Plate on Carrier Assembly

Procedure

1. Loosen and remove bolts in upper cover plate.
2. Remove cover plate.

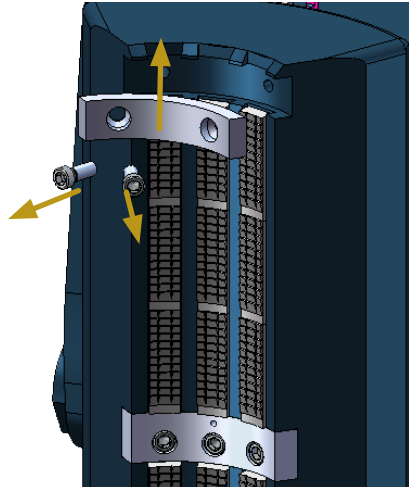


Fig. 70: Removing Cover / Retaining Plate

3. Push inserts upward in guide manually out of carrier / insert slip.
4. Repeat steps 1. and 2. on remaining insert fields.

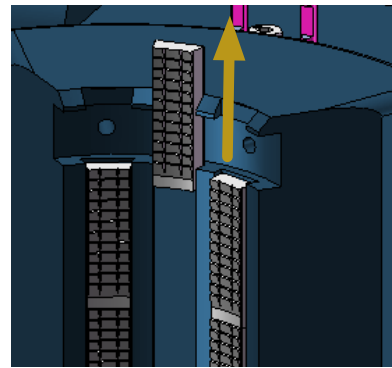


Fig. 71: Remove Inserts

5. Clean and lubricate guide rails for inserts with light machine oil.

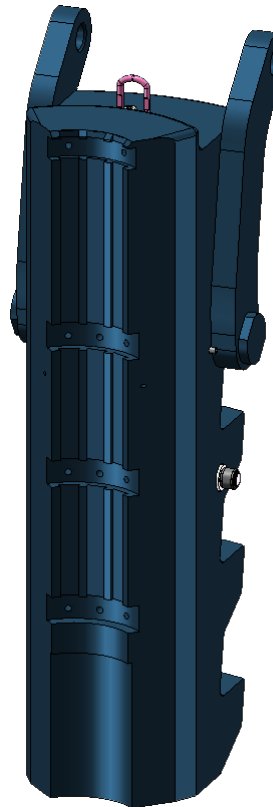


Fig. 72: Oil Guide Rails

6. Position new inserts in guide from above.

⚠ CAUTION Ensure that inserts fit properly. The guide and insert have a slightly conical shape matching one another. If the insert does not slide into the guide with a good tight fit, tap lightly with a brass or non-metallic rod. If more than slight force is required to install, do not use insert.

7. Slide the new inserts into the dovetail-shaped insert slots, taking care to ensure that the inserts are oriented properly see Detail (the buttress-shaped tooth must be oriented upwardly).



Fig. 73: Correct Installation

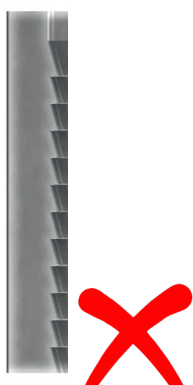


Fig. 74: Wrong Installation

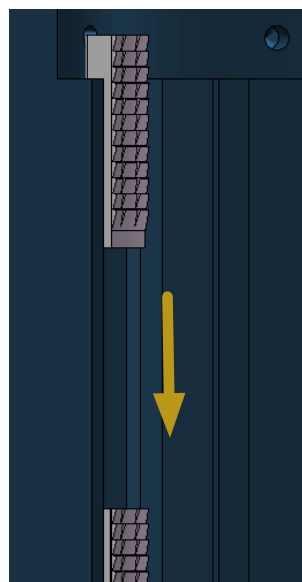


Fig. 75: Insert Inserts

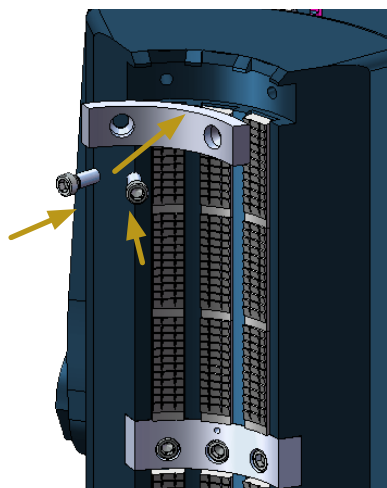


Fig. 76: Installing Cover / Retaining Plate

8. Install cover / retaining plates and secure with bolts with a tightening torque of 100 Nm / 74 ft lb.
9. Repeat steps 6. and 8. on remaining insert fields.

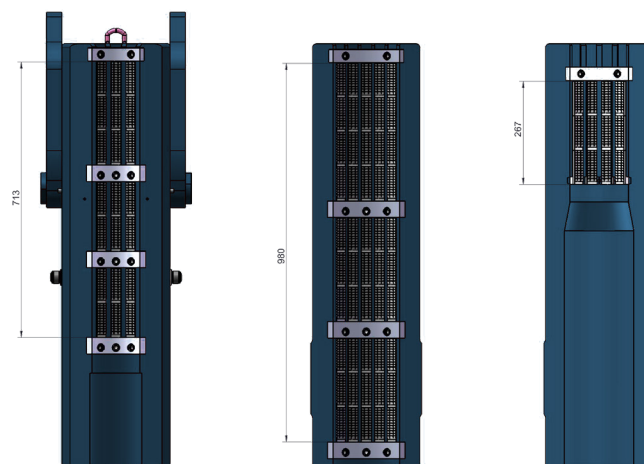


Fig. 77: Overview of Slips / Insert Slips

4.6 Replacing Carrier



⚠ WARNING

Danger of pinching/crushing hands!

Cover assembly can fall shut.

- » NEVER open cover assembly manually.
- » ALWAYS open the cover assembly so that the safety engages.



WEAR PROTECTIVE GLOVES!

Replace carriers if worn or if a different pipe diameter is to be held.

⚠ NOTE

ALWAYS replace ALL Carriers. Unequal wear to the carriers poses a hazard for safe use of the machine.

⚠ NOTE

Ensure that all carriers have the same serial number. Otherwise safe operation is not guaranteed.

The pipe diameter and serial number are embossed on the top of the carriers.

Tools and Accessories

- Sling Assy P/N 774004-1
- Lifting tool for carriers (P/N 774009)



Fig. 78: Specification of Serial Number and Pipe Diameter on Carrier

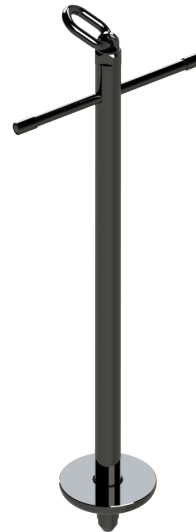


Fig. 79: Lifting Tool (P/N 774009)

Removing/Installing Carrier

1. Screw lifting tool into thread in carrier.
» The lock is released.
2. Attach lifting tool to crane with hoisting eye.

⚠ CAUTION Injury hazard for back. DO NOT lift carriers out of slips manually. ALWAYS use a crane.

3. Lift carrier out of guide and place to side.
4. Clean contact surfaces on slip assembly.

⚠ CAUTION DO NOT Slip/carrier contact surface.

5. Screw lifting tool into new carrier.
6. Lift the carrier to the proper position above the slip assembly with the crane.

NOTE

Before installing ensure that the serial number and pipe diameter are at the top of the carrier. Ensure that all carriers bear the same serial number. Otherwise safe operation of the PS 1250 is not guaranteed.

7. Position the new carrier in the guides on the slip.

NOTE Ensure that the rails on the slip engage in the corresponding guide grooves in the carrier.

8. Unscrew the lifting tool.
» The lock closes.

⚠ CAUTION If the lock on the slip is not closed it is possible to loose the drill string.
Always check to ensure that the corresponding guide grooves fit properly on the carrier and repeat installation, if required.

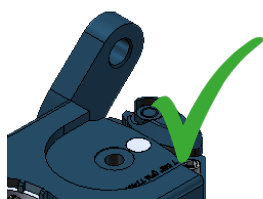


Fig. 80: Lock Open

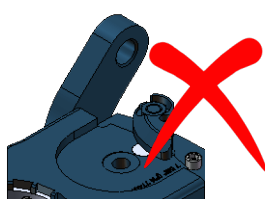


Fig. 81: Lock Closed

9. Repeat this procedure for all carriers.

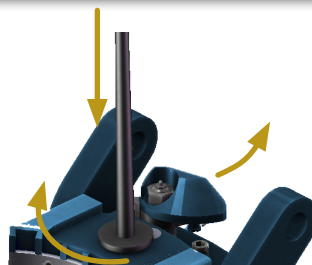


Fig. 82: Screw Lifting Tool into Carrier



Fig. 83: Lift carrier out with Crane on Lifting Tool

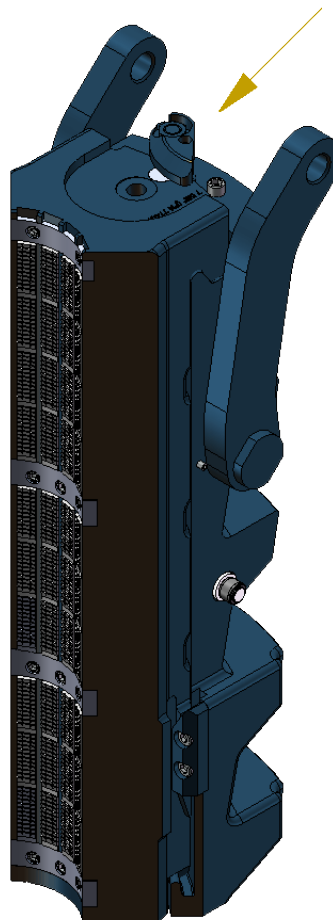


Fig. 84: When Installing New Carrier Ensure that It Is Guided Cleanly in Grooves

4.7 Replacing Guide Plates in HCS

⚠ WARNING

Danger of pinching/crushing hands!

Cover assembly can fall shut.

- » NEVER open cover assembly manually.
- » ALWAYS open the cover assembly so that the safety engages.



WEAR PROTECTIVE GLOVES!

Replace guide plates if worn or if a different pipe diameter is to be held.

⚠ NOTE

ALWAYS replace ALL guide plates. Unequal wear to the guide plates poses a hazard for safe use of the PS 1250. The part number in the stamp field indicates the proper guide plates for use.

Tools and Accessories

- Sling Assembly P/N 774004-1
- Hoisting eyes for guide plates (P/N 755719)

Info



The hoisting eyes and slings are included in the optional Hook Up Kit (P/N 774000-HUK), available from FORUM Handling Tools.

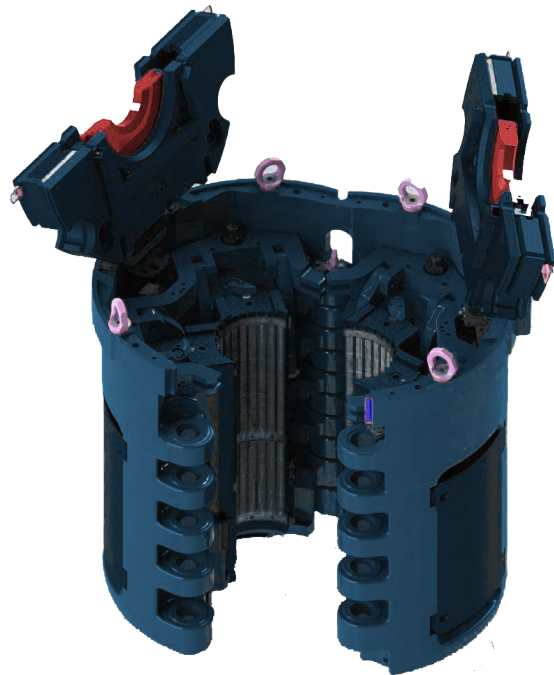


Fig. 85: PS 1250 Position of Guide Plates in HCS

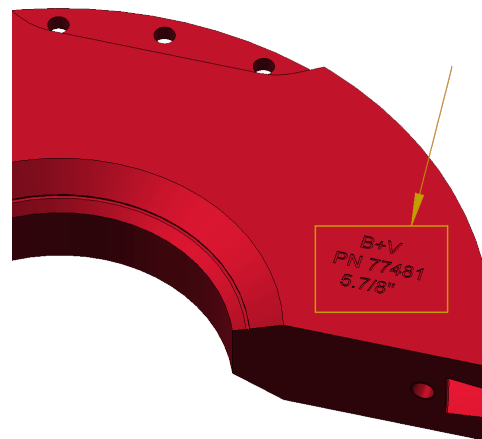


Fig. 86: PS 1250 Stamp Field on Guide Plates

Procedure

1. Open the HCS as described in Chapter 4.5.2.
2. Screw hoisting eyes (P/N 755719) into holes provided in guide plates.
3. Unscrew the three mounting bolts (DIN 7984 M12x60) with an 8 mm Allen wrench.
4. Attach the hoisting eyes on the guide plate to the crane without tensioning the hoisting cables.
5. Turn the guide plate in any desired direction to remove it from the guide. Carefully guide the guide plate out of the guide groove by hand.

⚠ CAUTION Injury hazard for back. Do not lift guide plate out of slip manually. Support lifting out with crane.

6. Lift guide plate out of guide and place to side.
7. Grease contact surfaces of guide rail and guide plate.
8. Unscrew hoisting eyes from guide plate and screw into new guide plate.
9. Check the stamp to ensure you have the right guide plate.

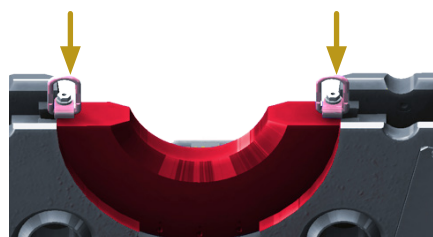


Fig. 87: Screw Hoisting Eyes into Guide Plates

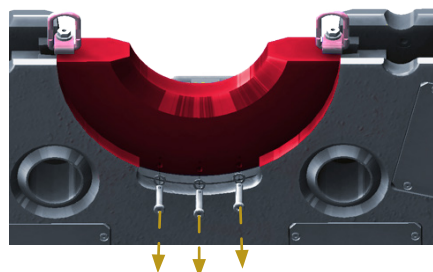


Fig. 88: Loosen and Remove Mounting Bolts and Washers



Fig. 89: Turn Guide Plate Out of Guide

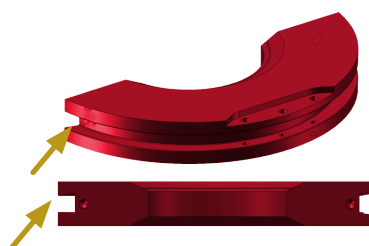


Fig. 90: Cleaning and Greasing Guide Plate

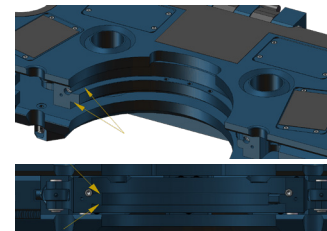


Fig. 91: Cleaning and Greasing Guide Plate Guide

10. Lift new guide plate over PS 1250 with crane.
11. Turn the groove in the guide plate by hand until it is over the HCS rail.

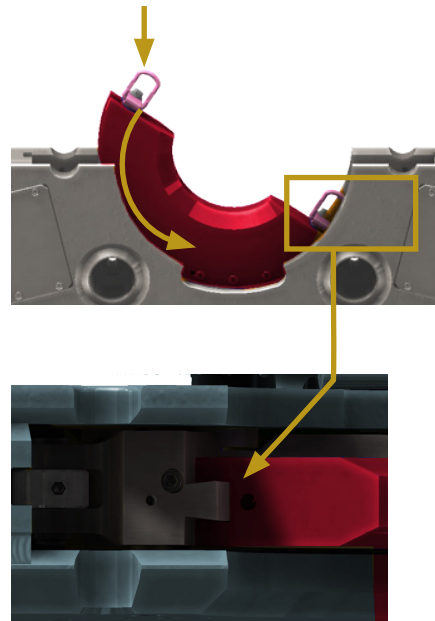


Fig. 92: Turn Guide Plate in Guide Rail

12. Align the holes in the guide plate and the cover assembly with one another.
 13. Screw three mounting bolts back in together with washers using the Allen wrench.
- » The guide plate is now fixed.
14. Unscrew hoisting eyes from guide plate.
 15. Repeat procedure on second guide plate on opposite side.

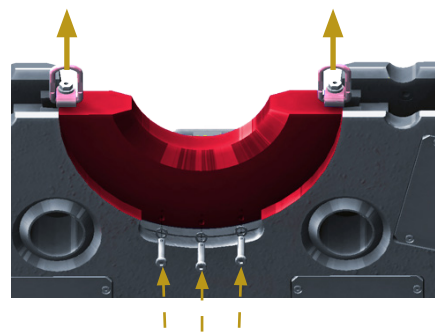


Fig. 93: Fasten Guide Plate with Mounting Bolts and Washers; Unscrew Hoisting Eyes

4.8 Replacing Guide Plate Bottom Guide Assembly

⚠ WARNING

Danger of pinching/crushing hands!

Cover assembly can fall shut.

- » NEVER open cover assembly manually.
- » ALWAYS open the cover assembly so that the safety engages.



WEAR PROTECTIVE GLOVES!

Replace guide plates if worn or if a different pipe diameter is to be held.

⚠ NOTE

ALWAYS replace ALL guide plates. Unequal wear to the guide plates poses a hazard for safe use of the PS 1250. The part number in the stamp field indicates the proper guide plates for use.

Tools and Accessories

- Sling Assy P/N 774004-1
- Hoisting eyes for guide plates (P/N 755719)

Info



The hoisting eyes and slings are included in the optional Hook Up Kit (P/N 774000-HUK), available from FORUM Handling Tools.

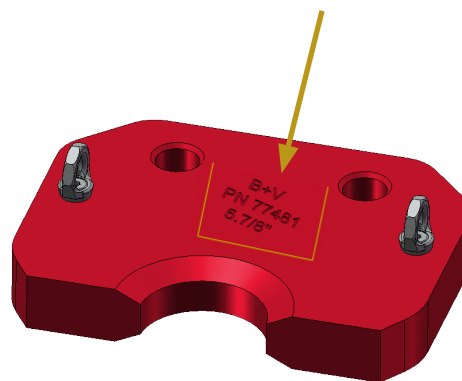


Fig. 94: PS 1250 Stamp Field on Guide Plates

Installing and Removing Bottom Guide Plates

It is necessary to remove the PS 1250 from the drilling table to change the guide plates in the bottom guide assembly.

Perform following steps on both sides.

1. Unscrew hex. head bolts (1) for locking plate (2) on locking pin and remove locking plate.

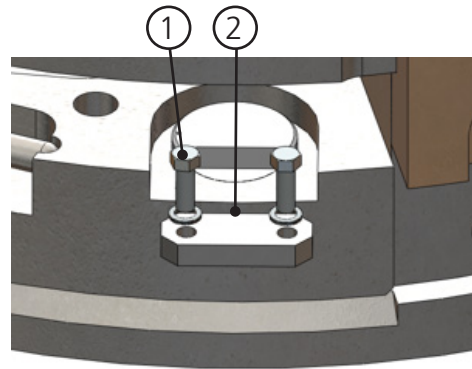


Fig. 95: Detach PS 1250 retaining plate

2. Pull locking pin (3) up as far as possible.

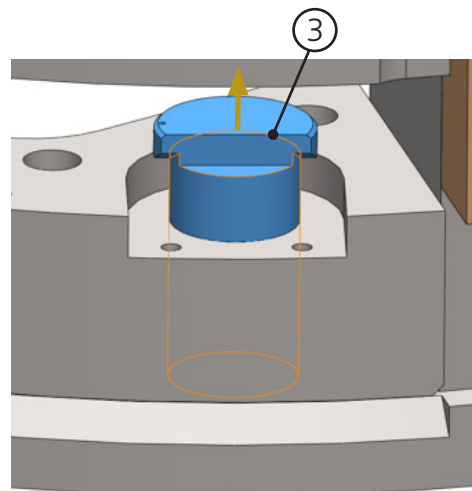


Fig. 96: PS 1250 Pulling locking bolt

3. Pivot quick release mount for BGS by pulling on handle.

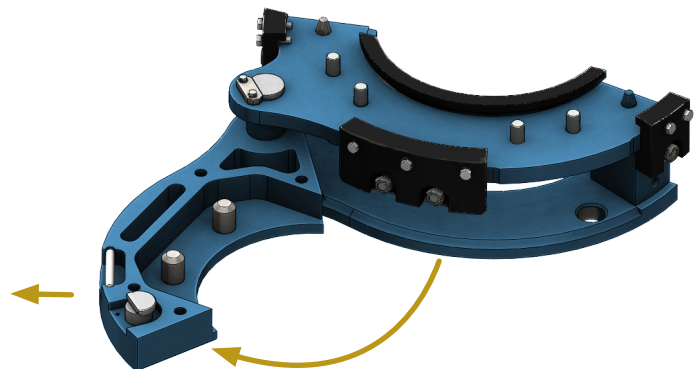


Fig. 97: Opening PS 1250 BGA

4. Screw hoisting eyes into bottom guide plate.

⚠ CAUTION Injury hazard for back. Do not lift guide plate out of slip manually. ALWAYS lift it with crane.

5. Fasten the guide plate to the crane, lift it out of the drawer and put it down securely.
6. Screw the eye bolts into the new guide plate, fasten it to the crane and lift it over the mount.
7. Lower the guide plate into the drawer so that the pins slide into the holes.
8. Detach the guide plate from the crane and unscrew the eye bolts.
9. Close the drawer.
10. Check whether the locking pins slide into the correct position. If not, slide them back manually into the correct position. The head of the pin must make full contact.
11. Install the lock by positioning the locking plate and screwing in the hex. head bolts with washers.
12. Tighten hex. head bolts.

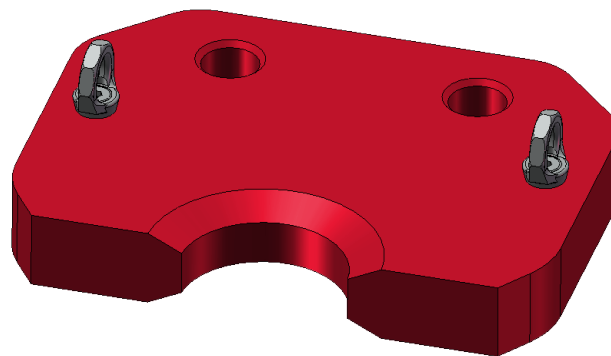


Fig. 98: Screw in PS 1250 BGA guide plate eye bolts

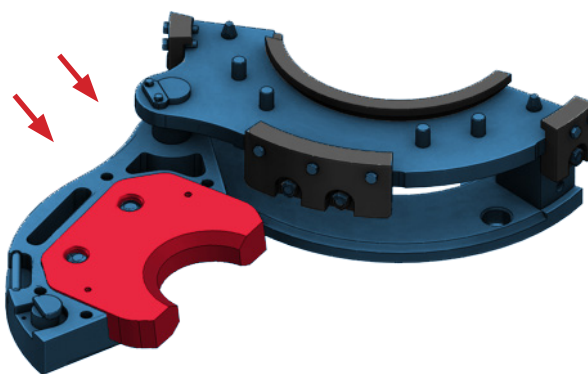


Fig. 99: Screw in PS 1250 BGA guide plate eye bolts

4.9 Adjustment Work on Hydraulic System



⚠ WARNING

Separated hydraulic lines pose an injury hazard!

Hydraulic fluid can escape under high pressure.

- » Always relieve pressure in hydraulic equipment before working on machine.



⚠ WARNING

Hydraulic fluid can pose a health hazard!

Hydraulic fluids can lead to skin and eye injury and poisoning symptoms upon contact.

- » Avoid direct contact with hydraulic fluids.



WEAR EYE PROTECTION!



WEAR PROTECTIVE GLOVES!

⚠ NOTE

Ensure that work on the hydraulic equipment of the machine is performed only by personnel trained specifically for this purpose.

The following adjustments can be made on the hydraulic equipment:

- Switch off the hydraulic centering system
 - Change the operating sequences
 - Open the hydraulic guide after setting the slips or
 - Open the hydraulic guide before setting the slips
 - Adjust anti-lowering valve (1)
 - Adjust pressure sequence valve (2)
- Re-adjustment is only necessary after major works or replacements to restore factory settings.

4.9.1 Preparation

The following is required to adjust the valves:

- PS 1250 is lifted out of rotary table.
- The PS 1250 must be open (Chapter 4.9).

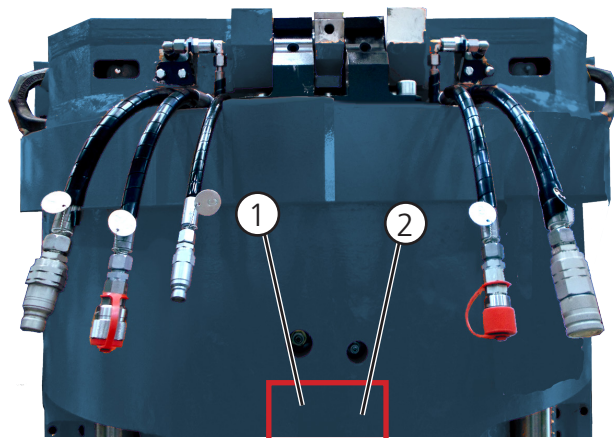


Fig. 100: Position Anti-lowering Valve and Sequence Valve on Side of Body

4.9.2 Switching Hydraulic System On and Off

To switch off the hydraulic system of the HCS:

13. Open the HCS (see chapter „Opening and Closing Hydraulic Centering System (HCS)“ on page 58).
 14. Turn adjustment screw (3) with socket wrench P/N 775812:
 - to LEFT to switch on hydraulic system (P/N 775910)
 - to RIGHT to switch off hydraulic system.
- » The indicator arrow on the adjustment screw indicates the current state of the hydraulic system.

4.9.3 Changing the hydraulic guide process-flow

The factory setting for the hydraulic guides is set in way that the guides open again after the slips are set (feedback signal „slips are set“).

To change these settings (i.e. the guides remain closed and open immediately before the slips are opened again) perform following steps:

1. Open the HCS (see chapter „Opening and Closing Hydraulic Centering System (HCS)“ on page 58).
2. Turn adjustment screw (4) with socket wrench P/N 775812 fully to RIGHT.

4.9.4 Adjusting Anti-lowering Valve

Proceed as follows to adjust the anti-lowering valve:

1. Open the HCS (see chapter „Opening and Closing Hydraulic Centering System (HCS)“ on page 58).
2. Turn valve screw counter-clockwise with a socket wrench. Always start with 1/4 turn.
3. Check whether adjustment made is sufficient.
4. If necessary, repeat procedure to increase actuation pressure.

4.9.5 Adjusting Pressure Sequence Valve

Proceed as follows to adjust the sequence valve:

1. Open the HCS (see chapter „Opening and Closing Hydraulic Centering System (HCS)“ on page 58).
2. Turn valve screw (5) with socket wrench.
 - » Turning clockwise increases the pressure.
 - » Turning counter-clockwise decreases the pressure.
3. Check whether adjustment made is sufficient.

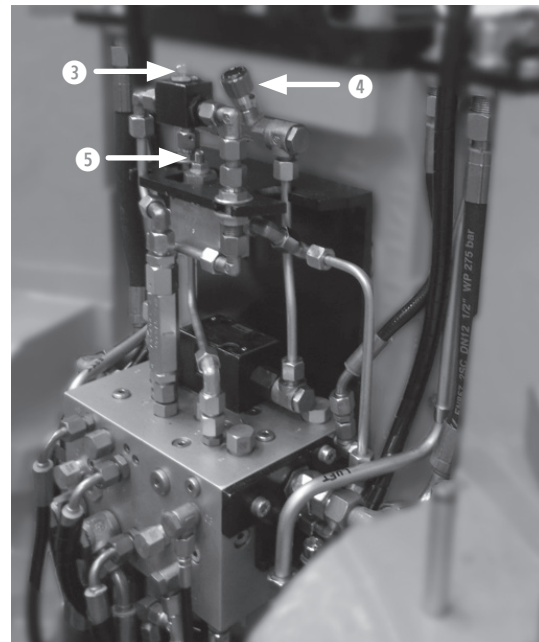


Fig. 101: Position of Adjustment Valves in Body

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SERVICE

SERVICE

5 Service

INFO



Operational safety and readiness of the PS 1250 do not only depend on your skills, but also on maintenance and servicing of the PS 1250. Insist on using original spare parts when carrying out maintenance and repair work. This ensures operational safety and readiness of your Equipment, and maintains its value.

5.1 Malfunction

If a malfunction occurs or the PS 1250 does not operate as expected, troubleshoot as follows:

If the cause of the malfunction cannot be determined and remedied, contact FORUM Handling Tools Technical Support.

1. Check hydraulic connections and hydraulic lines.
2. Check the present necessary hydraulic pressure.
3. Check that the required components correspond to the used pipe size.
4. Check for proper lubrication of the PS 1250.
5. Check feedback for proper function.
6. Collect all information on the malfunction and define the problem.
7. Attempt to find a quick solution to the problem.
8. Check the last changes/modifications.
9. Isolate the problem.
10. Replace any defective components.

INFO



In the event of problems, which cannot be remedied with the aid of this manual, please contact the FORUM Handling Tools Technical Support or one of the authorized service companies (refer to section XI "Contact Worldwide" on page 11).

5.2 Repair

5.2.1 Repair by Customer

It is only permissible for the customer/company operating the Equipment to replace defective parts with OEM (Original Equipment Manufacturer) parts approved by FORUM Handling Tools in conformance with the present operating instructions.

Use of parts not approved by FORUM Handling Tools voids the warranty.

5.2.2 Repair by Manufacturer

Ensure that any repair work required on the PS 1250 is performed only by FORUM Handling Tools or an authorized service company.

INFO



Please contact the FORUM Handling Tools Technical Support or one of the authorized service companies refer to section XI "Contact Worldwide" on page 11) to perform repair or maintenance work.

5.2.3 Securing Screws with Wedge-Locking washers

Wedge-Lock style bolt securing systems use geometry to safely lock bolted joints in the most critical applications. The key is the difference in angles. Since the cam angle „ α “ is larger than the thread pitch „ β “, the pair of washers expands more than the corresponding pitch of the thread. Any attempt from the bolt/nut to rotate loose is blocked by the wedge effect of the cams.

When the pushed movements of the equipment will get in contact with the under surface of the securing plate, this surface contact will secure the plate and prevents any motion in the axial direction.

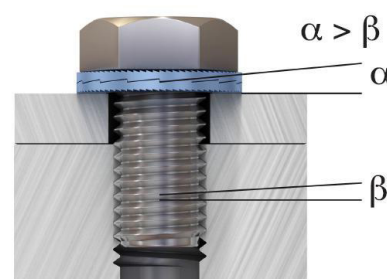


Fig. 102: Wedge-Locking Washer principle illustration

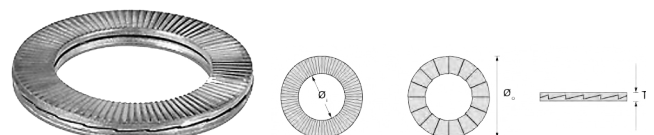


Fig. 103: Wedge-Locking Washer detailed illustration

Wedge-Locking Washer specified torques

Several Wedge-Locking style bolt securing systems are used on the PS 1250 to generate safely locked bolted joints. Regarding the fact that different sizes and grades are used detailed information is given in the annex (refer to section B "Third Party Documents" on page 132) to generate safe maintenance by the user.

If the tightening torque needed to fasten a screw/nut is not explicitly written in this manual, please check the screw/nut head and refer to the annex in order to find the required fastening torque.

The grade and make of the bolt can be seen on top or on the side of the bolt / nut. The tightening torques can be found via third party document in the annex.

⚠ WARNING Please pay extra attention to the method of tightening as the tightening torques may vary on the methods.

INFO



As a result from tests, the Wedge-Locking style washers were safely secured even after reuse 30 times. Make visual inspection of the washers during every maintenance. Make sure that the cams (cam tops) are not damaged or rounded and that the teeth are not worn off. Lubricate the joint and the mating surfaces if possible so that the friction conditions do not change. When reassembling, care should be taken that the two washer halves are mated correctly. If all these criteria are met, the washers can be safely reused.

5.3 Drawing, Parts List and Spare Parts

5.3.1 774000-N Component Overview

Keine aktuelle Zeichnung vorhanden!

Fig. 104: PS 1250 Main Assemblies

Parts list

Pos.	Qty.	P/N	Description
1	2	774005R	Body for PS 1250asting
2	2	774010	Pin Assembly
3	1	774300	Hydraulic Centering System
4	1	774400	Lifting Assembly
5	1	774500	Hydraulic Assembly
6	1	774550	Hydraulic Connection Assembly
7	1	774600	Feedback Assembly
8	1	774650	Feedback Assembly
9	1	774700	Grease Assembly
10	1	774013	Safe Block
11	1	774014	Safe Block
12	4	774015	Bushing for PS 1250
13	4	774015-1	Ring
14	4	774016	Bushing
15	1	774017	Bushing
16	2	774420	Slip Guide
17	2	774420-1	Slip Guide
18	2	774421	Slip Guide
19	2	774421-1	Slip Guide
20	4	774030	Cylinder Cover
21	4	774031-1	Ring bolt
22	2	753059	Screw
23	2	792104	Washer
24	2	645026	Retaining ring
25	1	645037	Rope
26	16	792116	Screw
27	16	792110	Washer
28	16	774038	Screw
29	16	774035	Screw
30	16	792111	Washer
31	2	774014-1	Screw
32	4	792999	Washer
33	2	645683	Washer
34	2	645028	Screw
35	2	725443	Washer
36	2	774032	Screw
37	2	643801-1	Rope Clamp
38	1	643801	Wire line
39	1	660414-1	Eye Screw
40	4	792999	Washer
41	2	774002-12	Distance plate
42	1	774002-4	Arm Right
43	1	774002-5	Arm Left
44	2	774012	Ring bolt

5.3.2 774020 Slip Assembly

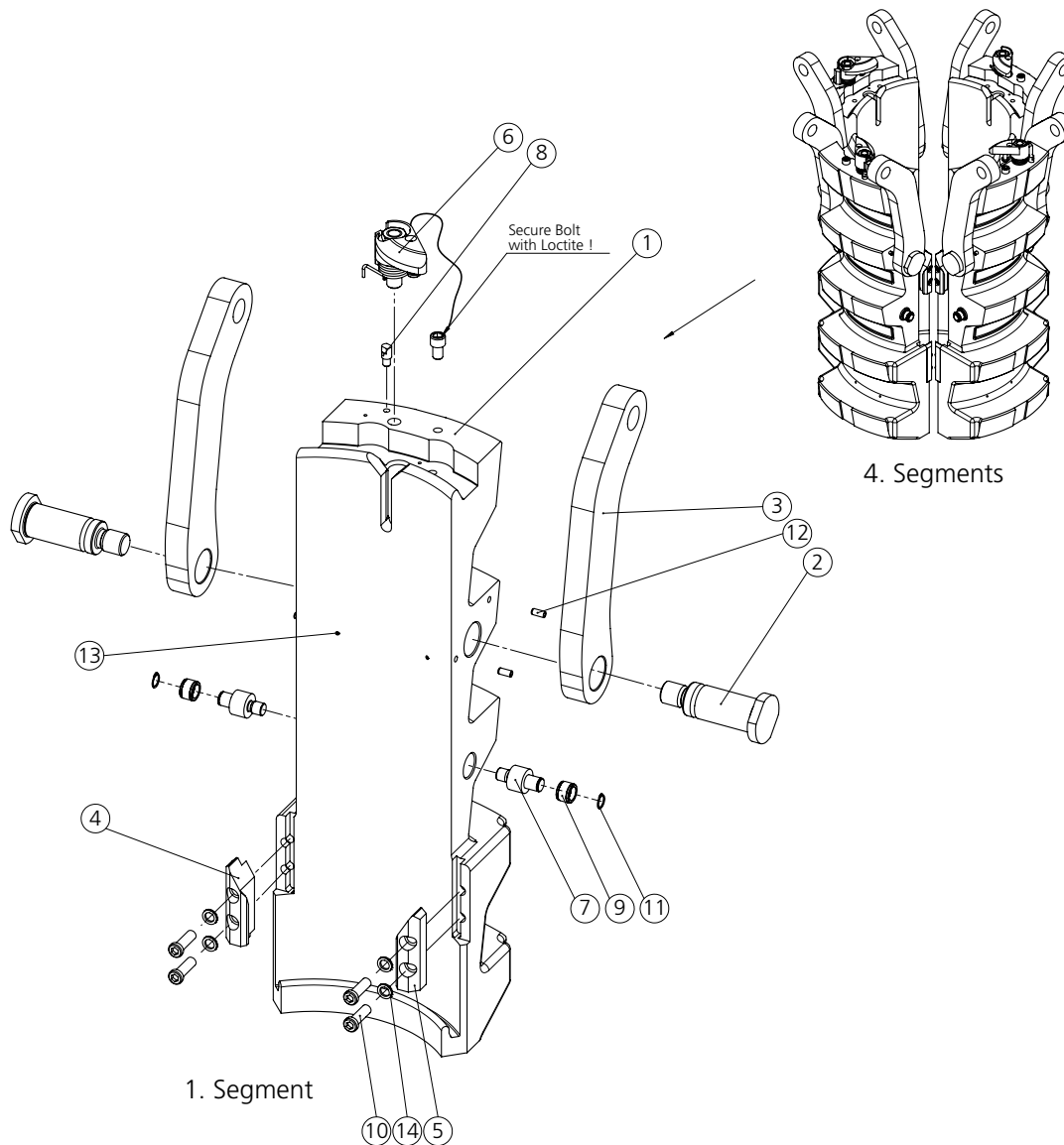


Fig. 105: 774020 Slip Assembly

Parts list

Pos.	Qty.	P/N	Description
1	1	774020-BF	Slip
2	8	774022	Bolt
3	8	774023-1	Connecting Rod
4	4	774024	Carrier Guide
5	4	774025	Carrier Guide
6	4	774027	Carrier Securing Assembly
7	8	775096-4	Bolt for Center Slip
8	4	775029-1	Stopper Pin
9	8	752210	Roller
10	16	645602-11	Screw
11	8	613720-1	Retaining ring
12	16	774026	Dowel Pin
13	8	622516	Spring-type straight pin
14	16	792106	Washer

5.3.3 774060-112* Insert Slip Assembly Landing String

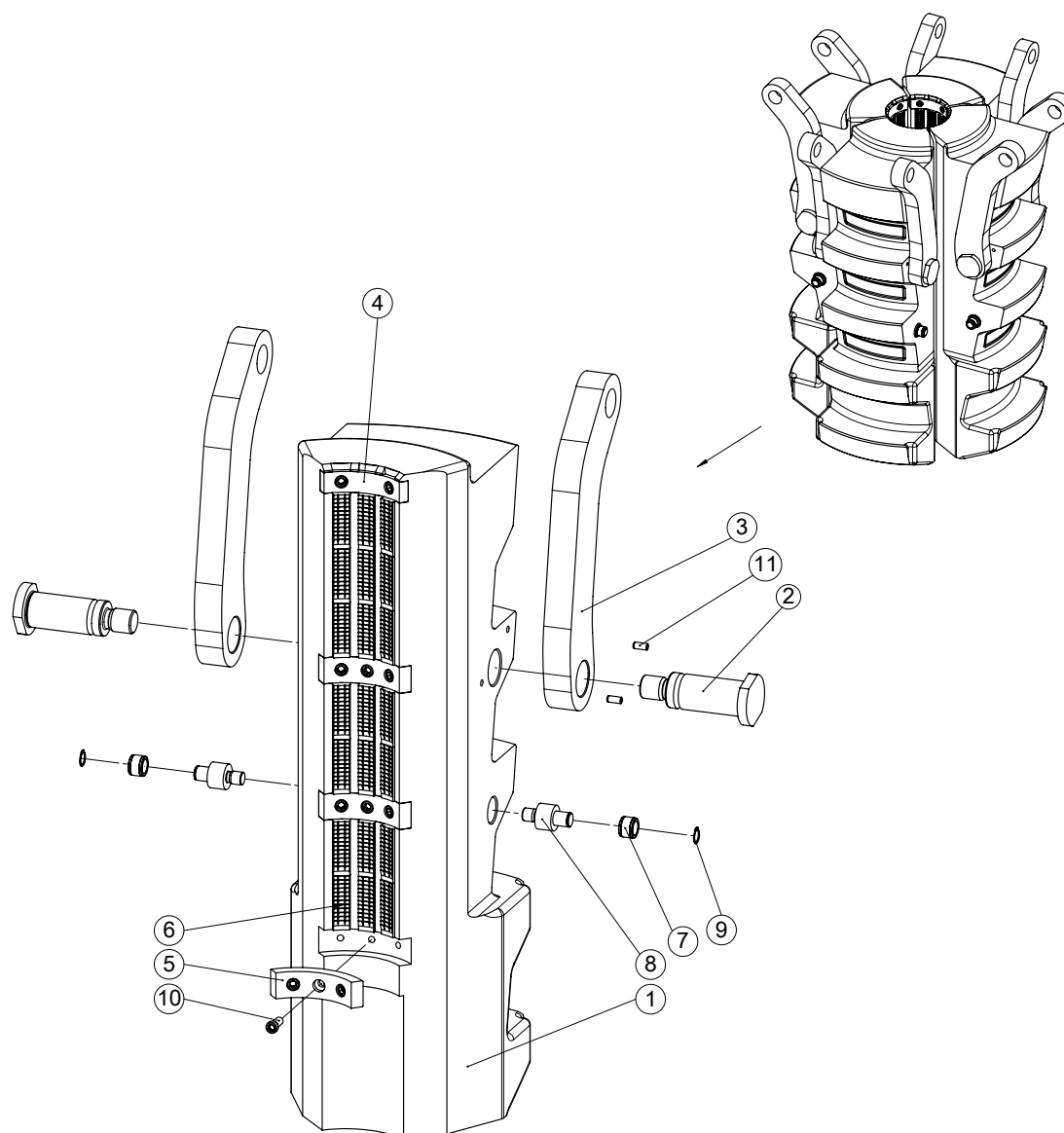


Fig. 106: 774060-112* Insert Slip Assembly Landing String

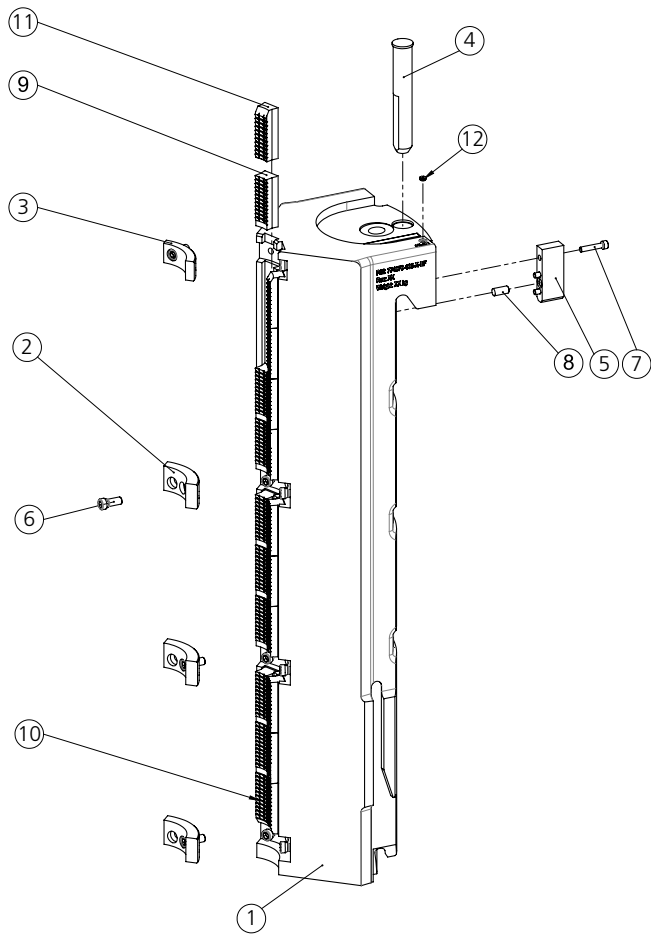
Parts list

Pos.	Qty.	P/N	Description
1	1	774060-229-BF	Insert Slip
2	8	774023-1	Connecting Rod
3	8	774022	Bolt
4	4	774076-1	Insert Retainer
5	12	774076-2	Load Carrying Ring
6	84	350210	Reducing Insert
7	8	752210	Roller
8	8	775096-4	Bolt for Center Slip
9	8	613720-1	Retaining Ring
10	44	775056	Screw
11	16	774026	Dowel Pin
12	4	755834	Lifting eye
13	8	641591	Spring-type straight pin

* B+V Bore Code

5.3.4 774070-BC* Carrier Assembly Drill Pipe and Casing

Carrier with Reducing Inserts



Carrier with Basic Inserts

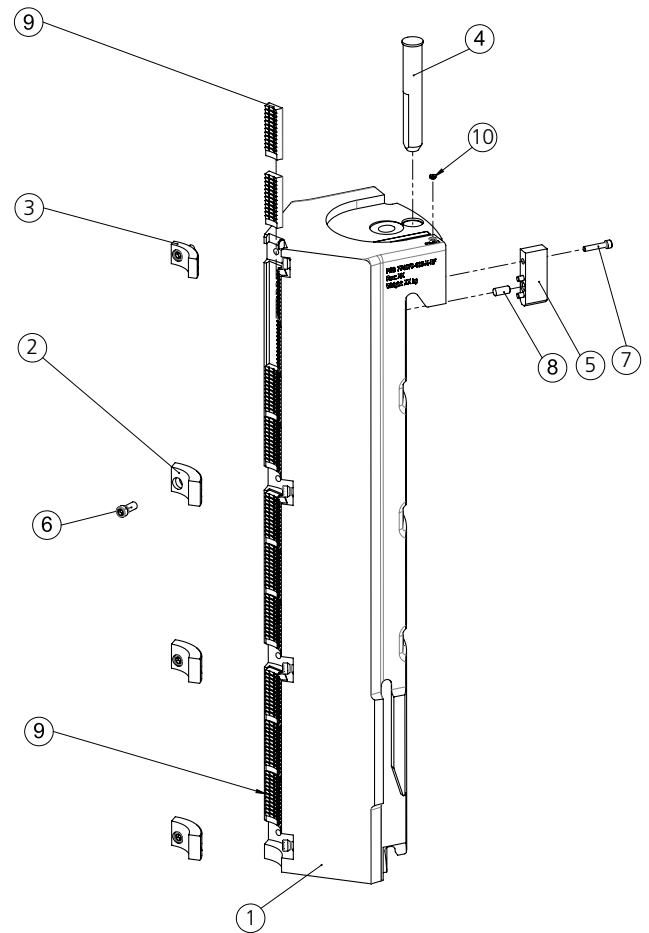


Fig. 107: 774070-BC* Carrier Assembly Drill Pipe and Casing

* Bore Code

Parts lists for Drill Pipe Carrier Assemblies with Basic Inserts

Size		774070-105-X 3 1/2" x 3 1/2"		774070-107-X 4 1/2" x 3 1/2"		774070-111-X 4 1/2" x 4"	
Pos.	Name	P/N	Qty.	P/N	Qty.	P/N	Qty.
1	Insert Carrier	774070-105-BF	1	774070-107-X-BF	1	774070-111-X-BF	1
2	Load Carrying Ring	774073-2	12	774074-2	12	774075-2	12
3	Insert Retainer	774073-1	4	774074-1	4	774075-1	4
4	Bolt	774085	4	774085	4	774085	4
5	Plate	774086	4	774086	4	774086	4
6	Screw	775056	32	775056	44	775056	44
7	Screw	756725	12	756725	12	756725	12
8	Cylinder Pin	553474-3	4	553474-3	4	553474-3	4
9	Basic Insert	350103	80	350105	80	350107	120
10	RFID Plug 9.5-UHF-001	1150376	1	1150376	1	1150376	1

Parts lists for Drill Pipe Carrier Assemblies with Reducing Inserts

Size		774070-105-1-X 4 1/2" x 3 1/2"		774070-106-X 4 1/2" x 4"		774070-107-1-X 5 1/2" x 4 1/2"	
Pos.	Name	P/N	Qty.	P/N	Qty.	P/N	Qty.
1	Insert Carrier	774070-107-X-BF	1	774070-107-X-BF	1	774070-111-X-BF	1
2	Load Carrying Ring	774074-2	12	774074-2	12	774075-2	12
3	Insert Retainer	774074-1	4	774074-1	4	774075-1	4
4	Bolt	774085	4	774085	4	774085	4
5	Plate	774086	4	774086	4	774086	4
6	Screw	775056	44	775056	44	775056	44
7	Screw	756725	12	756725	12	756725	12
8	Cylinder Pin	553474-3	4	553474-3	4	553474-3	4
9	Reducing Insert	350903	64	350504	64	350905	96
10	Reducing Insert Beveled Bottom	350903B	8	350504B	8	350905B	12
11	Reducing Insert Beveled Top	350903T	8	350504T	8	350905T	12
12	RFID Plug 9.5-UHF-001	1150376	1	1150376	1	1150376	1

Size		774070-109-X 5 1/2" x 5"		774070-114-X 7" x 6 5/8"		774070-115-X 7" x 5 7/8"	
Pos.	Name	P/N	Qty.	P/N	Qty.	P/N	Qty.
1	Insert Carrier	774070-111-X-BF	1	774070-229-X-BF	1	774070-229-X-BF	1
2	Load Carrying Ring	774075-2	12	774075-2	12	774075-2	12
3	Insert Retainer	774075-1	4	774075-1	4	774075-1	4
4	Bolt	774085	4	774085	4	774085	4
5	Plate	774086	4	774086	4	774086	4
6	Screw	775056	44	775056	44	775056	44
7	Screw	756725	12	756725	12	756725	12
8	Cylinder Pin	553474-3	4	553474-3	4	553474-3	4
9	Reducing Insert	350506	96	350506	96	350506	96
10	Reducing Insert Beveled Bottom	350506B	12	350506B	12	350506B	12
11	Reducing Insert Beveled Top	350506T	12	350506T	12	350506T	12
12	RFID Plug 9.5-UHF-001	1150376	1	1150376	1	1150376	1

Parts lists - Basic Insert Version

Size		774070-229-1-X 7" x 7"		774070-231-X 7 5/8" x 7 5/8"		774070-269-X 7 5/8" x 7 3/4"	
Pos.	Name	P/N	Qty.	P/N	Qty.	P/N	Qty.
1	Insert Carrier	774070-229-X-BF	1	774070-231-X-BF	1	774070-231-X-BF	1
2	Load Carrying Ring	774076-2	12	774077-2	12	774077-2	12
3	Insert Retainer	774076-1	4	774077-1	4	774077-1	4
4	Bolt	774085	4	774085	4	774085	4
5	Plate	774086	4	774086	4	774086	4
6	Screw	775056	44	775056	44	775056	44
7	Screw	756725	12	756725	12	756725	12
8	Cylinder Pin	553474-3	4	553474-3	4	553474-3	4
9	Basic Insert	350110	120	350111	160	350111	160
10	RFID Plug 9.5-UHF-001	1150376	1	1150376	1	1150376	1

Size		774070-236-X 9 5/8" x 9 5/8"		774070-238-X 10 3/4" x 10 3/4"		774070-241-X 12 3/4" x 12 3/4"	
Pos.	Name	P/N	Qty.	P/N	Qty.	P/N	Qty.
1	Insert Carrier	774070-236-X-BF	1	774070-238-X-BF	1	774070-241-X-BF	1
2	Load Carrying Ring	774078-2	12	774079-2	12	774080-2	8
3	Insert Retainer	774078-1	4	774079-1	4	774080-1	4
4	Bolt	774085	4	774085	4	774085	4
5	Plate	774086	4	774086	4	774086	4
6	Screw	775056	44	775056	44	775056	32
7	Screw	756725	12	756725	12	756725	12
8	Cylinder Pin	553474-3	4	553474-3	4	553474-3	4
9	Basic Insert	350111	200	350112	240	350112	280
10	RFID Plug 9.5-UHF-001	1150376	1	1150376	1	1150376	1

Size		774070-255-X 14" x 14"	
Pos.	Name	P/N	Qty.
1	Insert Carrier	774070-255-X-BF	1
2	Load Carrying Ring	774081-2	8
3	Insert Retainer	774081-1	4
4	Bolt	774085	4
5	Plate	774086	4
6	Screw	775056	32
7	Screw	756725	12
8	Cylinder Pin	553474-3	4
9	Basic Insert	350113	280
10	RFID Plug 9.5-UHF-001	1150376	1

Parts lists - Reducing Insert Version

Size		774070-228-X 7 5/8" x 6 5/8"		774070-229-X 7 5/8" x 7"		774070-234-X 9 5/8" x 8 5/8"	
Pos.	Name	P/N	Qty.	P/N	Qty.	P/N	Qty.
1	Insert Carrier	774070-231-X-BF	1	774070-231-X-BF	1	774070-236-X-BF	1
2	Load Carrying Ring	774077-2	12	774077-2	12	774078-2	12
3	Insert Retainer	774077-1	4	774077-1	4	774078-1	4
4	Bolt	774085	4	774085	4	774085	4
5	Plate	774086	4	774086	4	774086	4
6	Screw	775056	44	775056	44	775056	44
7	Screw	756725	12	756725	12	756725	12
8	Cylinder Pin	553474-3	4	553474-3	4	553474-3	4
9	Reducing Insert	350909	128	350610	128	350911	160
10	Reducing Insert Beveled Bottom	350909B	16	350610B	16	350911B	20
11	Reducing Insert Beveled Top	350909T	16	350610T	16	350911T	20
12	RFID Plug 9.5-UHF-001	1150376	1	1150376	1	1150376	1

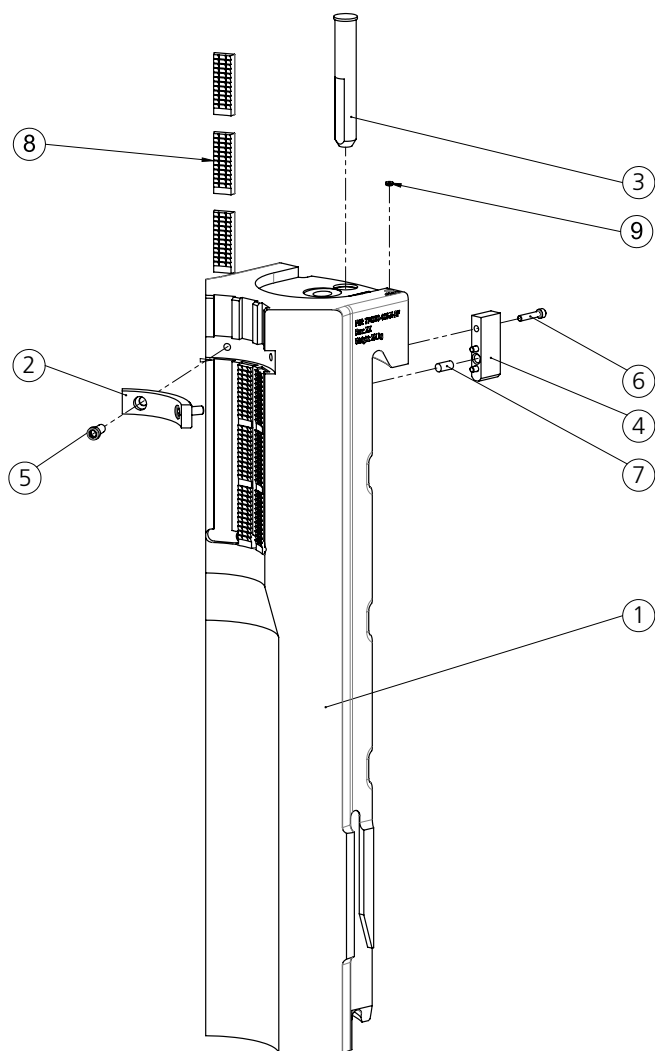
Size		774070-236-1-X 10 3/4" x 9 5/8"		774070-265-X 10 3/4" x 9 7/8"		774070-237-X 10 3/4" x 10"	
Pos.	Name	P/N	Qty.	P/N	Qty.	P/N	Qty.
1	Insert Carrier	774070-238-X-BF	1	774070-238-X-BF	1	774070-238-X-BF	1
2	Load Carrying Ring	774079-2	12	774079-2	12	774079-2	12
3	Insert Retainer	774079-1	4	774079-1	4	774079-1	4
4	Bolt	774085	4	774085	4	774085	4
5	Plate	774086	4	774086	4	774086	4
6	Screw	775056	44	775056	44	775056	44
7	Screw	756725	12	756725	12	756725	12
8	Cylinder Pin	553474-3	4	553474-3	4	553474-3	4
9	Reducing Insert	351011	192	350811	192	350712	192
10	Reducing Insert Beveled Bottom	351011B	24	350811B	24	350712B	24
11	Reducing Insert Beveled Top	351011T	24	350811T	24	350712T	24
12	RFID Plug 9.5-UHF-001	1150376	1	1150376	1	1150376	1

Size		774070-239-X 12 3/4" x 11 3/4"		774070-262-X 12 3/4" x 11 7/8"		774070-241-1-X 14" x 12 3/4"	
Pos.	Name	P/N	Qty.	P/N	Qty.	P/N	Qty.
1	Insert Carrier	774070-241-X-BF	1	774070-241-X-BF	1	774070-255-X-BF	1
2	Load Carrying Ring	774080-2	8	774080-2	8	774081-2	8
3	Insert Retainer	774080-1	4	774080-1	4	774081-1	4
4	Bolt	774085	4	774085	4	774085	4
5	Plate	774086	4	774086	4	774086	4
6	Screw	775056	32	775056	32	775056	32
7	Screw	756725	12	756725	12	756725	12
8	Cylinder Pin	553474-3	4	553474-3	4	553474-3	4
9	Reducing Insert	350912	224	350812	224	351112	224
10	Reducing Insert Beveled Bottom	350912B	28	350812B	28	351112B	28
11	Reducing Insert Beveled Top	350912T	28	350812T	28	351112T	28
12	RFID Plug 9.5-UHF-001	1150376	1	1150376	1	1150376	1

Size		774070-243-X 14" x 13 3/8"		774070-270-X 14" x 13 1/2"		774070-259-X 14" x 13 5/8"	
Pos.	Name	P/N	Qty.	P/N	Qty.	P/N	Qty.
1	Insert Carrier	774070-255-X-BF	1	774070-255-X-BF	1	774070-255-X-BF	1
2	Load Carrying Ring	774081-2	8	774081-2	8	774081-2	8
3	Insert Retainer	774081-1	4	774081-1	4	774081-1	4
4	Bolt	774085	4	774085	4	774085	4
5	Plate	774086	4	774086	4	774086	4
6	Screw	775056	32	775056	32	775056	32
7	Screw	756725	12	756725	12	756725	12
8	Cylinder Pin	553474-3	4	553474-3	4	553474-3	4
9	Reducing Insert	350612	224	350513	224	350413	224
10	Reducing Insert Beveled Bottom	350612B	28	350513B	28	350413B	28
11	Reducing Insert Beveled Top	350612T	28	350513T	28	350413T	28
12	RFID Plug 9.5-UHF-001	1150376	1	1150376	1	1150376	1

5.3.5 774090-BC* Carrier Assembly Drill Collar without Zip Groove

Carrier with Basic Inserts



Carrier with Reducing Inserts

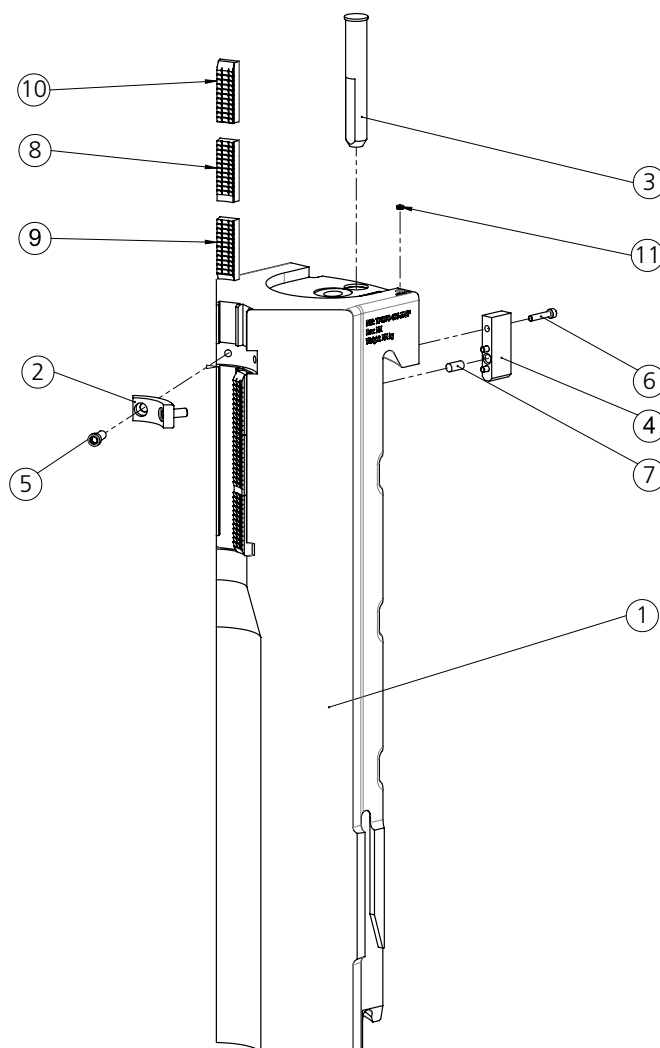


Fig. 108: 774090-BC* Carrier Assembly Drill Collar without Zip Groove

* Bore Code

Parts lists - Basic Inserts Version

Size		774070-287-X 6 3/4" x 6 3/4"		774070-296-X 8 1/2" x 8 1/2"		774090-298-X 9 1/2" x 9 1/2"	
Pos.	Name	P/N	Qty.	P/N	Qty.	P/N	Qty.
1	Carrier Segment Set	774090-189-X-BF	1	774090-196-X-BF	1	774090-199-X-BF	1
2	Insert Retainer	774096-1	4	774097-1	4	774098-1	4
3	Bolt	774085	4	774085	4	774085	4
4	Plate	774086	4	774086	4	774086	4
5	Screw	775056	8	775056	8	775056	8
6	Screw	756725	12	756725	12	756725	12
7	Cylinder Pin	553474-3	4	553474-3	4	553474-3	4
8	Reducing Insert	350110	36	350111	48	350111	60
9	Reducing Insert	1150376	1	1150376	1	1150376	1

Parts lists - Reducing Inserts Version

Size		774070-308-X 3 1/2" x 3 1/8"		774070-309-X 3 1/2" x 3 3/8"		774090-276-X 5 1/2" x 4 3/4"	
Pos.	Name	P/N	Qty.	P/N	Qty.	P/N	Qty.
1	Carrier Segment Set	774090-208-X-BF	1	774090-208-X-BF	1	774090-184-X-BF	1
2	Insert Retainer	774073-1	4	774073-1	4	774075-1	4
3	Bolt	774085	4	774085	4	774085	4
4	Plate	774086	4	774086	4	774086	4
5	Screw	775056	8	775056	8	775056	8
6	Screw	756725	12	756725	12	756725	12
7	Cylinder Pin	553474-3	4	553474-3	4	553474-3	4
8	Reducing Insert	350403	8	350203	8	350706	12
9	Reducing Insert	350403B	8	350203B	8	350706B	12
10	Reducing Insert	350403T	8	350203T	8	350706T	12
11	RFID Plug 9.5-UHF-001	1150376	1	1150376	1	1150376	1

Size		774070-284-X 6 3/4" x 6 1/4"		774070-286-X 6 3/4" x 6 1/2"		774090-293-X 8 1/2" x 8"	
Pos.	Name	P/N	Qty.	P/N	Qty.	P/N	Qty.
1	Carrier Segment Set	774090-189-X-BF	1	774090-189-X-BF	1	774090-196-X-BF	1
2	Insert Retainer	774096-1	4	774096-1	4	774097-1	4
3	Bolt	774085	4	774085	4	774085	4
4	Plate	774086	4	774086	4	774086	4
5	Screw	775056	8	775056	8	775056	8
6	Screw	756725	12	756725	12	756725	12
7	Cylinder Pin	553474-3	4	553474-3	4	553474-3	4
8	Reducing Insert	350510	12	350310	12	350511	16
9	Reducing Insert	350510B	12	350310B	12	350511B	16
10	Reducing Insert	350510T	12	350310T	12	350511T	16
11	RFID Plug 9.5-UHF-001	1150376	1	1150376	1	1150376	1

Size		774070-295-X 8 1/2" x 8 1/4"		774070-297-X 9 1/2" x 9"	
Pos.	Name	P/N	Qty.	P/N	Qty.
1	Carrier Segment Set	774090-196-X-BF	1	774090-199-X-BF	1
2	Insert Retainer	774097-1	4	774098-1	4
3	Bolt	774085	4	774085	4
4	Plate	774086	4	774086	4
5	Screw	775056	8	775056	8
6	Screw	756725	12	756725	12
7	Cylinder Pin	553474-3	4	553474-3	4
8	Reducing Insert	350311	16	350511	20
9	Reducing Insert	350311B	16	350511B	20
10	Reducing Insert	350311T	16	350511T	20
11	RFID Plug 9.5-UHF-001	1150376	1	1150376	1

5.3.6 774090-BC* Parts list Carrier Assembly Drill Collar with Zip Groove

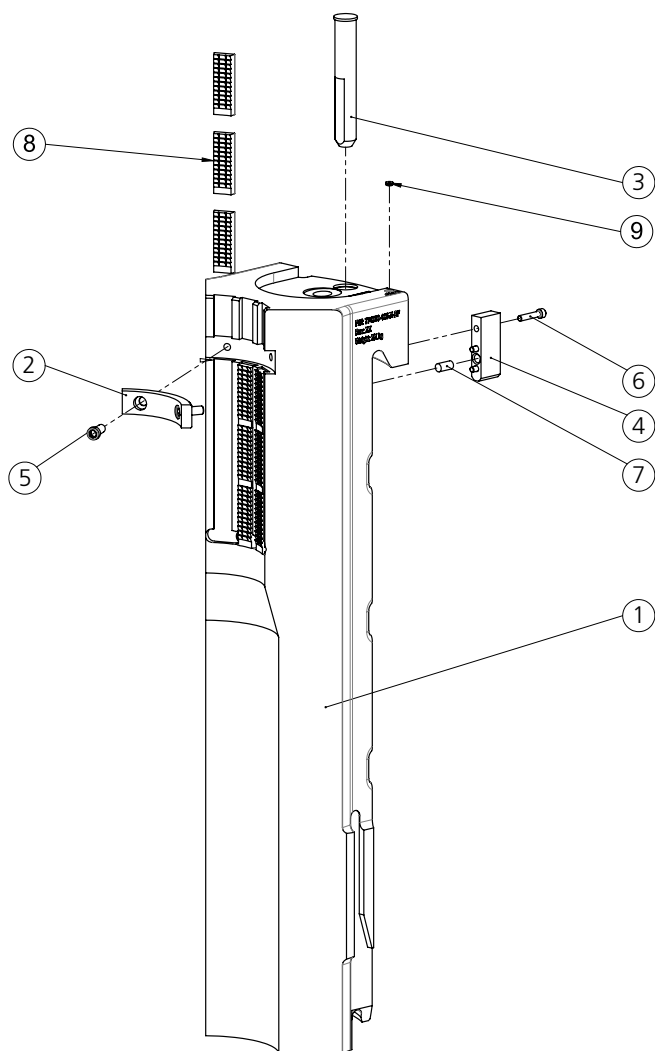
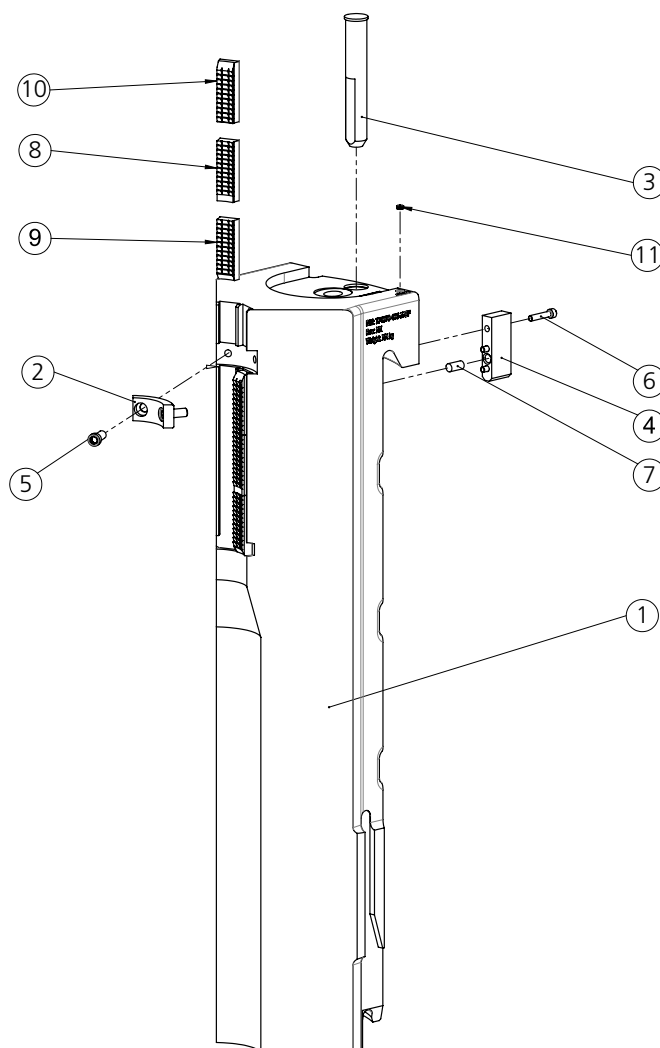
Carrier with Basic Inserts

Carrier with Reducing Inserts


Fig. 109: 774090-BC* Parts list Carrier Assembly Drill Collar with Zip Groove

* Bore Code

Parts lists - Basic Inserts Version

Size		774090-202-X 9 1/2" x 9 1/2"	
Pos.	Name	P/N	Qty.
1	Insert Carrier	774090-199-X-BF	1
2	Insert Retainer	774098-1	4
3	Bolt	774085	4
4	Plate	774086	4
5	Screw	775056	8
6	Screw	756725	12
7	Cylinder Pin	553474-3	4
8	Basic Insert	350111	60
9	RFID Plug 9.5-UHF-001	1150376	1

Parts lists - Reducing Inserts Version

Size		774090-182-X 4 1/2" x 4 3/8"	
Pos.	Name	P/N	Qty.
1	Carrier Segment Set	774090-211-X-BF	1
2	Insert Retainer	774074-1	4
3	Bolt	774085	4
4	Plate	774086	4
5	Screw	775056	8
6	Screw	756725	12
7	Cylinder Pin	553474-3	4
8	Reducing Insert	350205	12
9	Reducing Insert	350205B	12
10	Reducing Insert	350205T	12
11	RFID Plug 9.5-UHF-001	1150376	1

Size		774070-183-X 5 1/2" x 5 1/8"		774090-187-X 6 3/4" x 5 3/4"		774090-188-X 6 3/4" x 6"	
Pos.	Name	P/N	Qty.	P/N	Qty.	P/N	Qty.
1	Carrier Segment Set	774090-184-X-BF	1	774090-189-X-BF	1	774090-189-X-BF	1
2	Insert Retainer	774075-1	4	774096-1	4	774096-1	4
3	Bolt	774085	4	774085	4	774085	4
4	Plate	774086	4	774086	4	774086	4
5	Screw	775056	8	775056	8	775056	8
6	Screw	756725	12	756725	12	756725	12
7	Cylinder Pin	553474-3	4	553474-3	4	553474-3	4
8	Reducing Insert	350406	12	350910	12	350710	12
9	Reducing Insert	350406B	12	350910B	12	350710B	12
10	Reducing Insert	350406T	12	350910T	12	350710T	12
11	RFID Plug 9.5-UHF-001	1150376	1	1150376	1	1150376	1

Size		774070-189-X 6 3/4" x 6 1/4"		774090-190-X 6 3/4" x 6 1/2"		774090-194-X 8 1/2" x 7 1/2"	
Pos.	Name	P/N	Qty.	P/N	Qty.	P/N	Qty.
1	Carrier Segment Set	774090-189-X-BF	1	774090-189-X-BF	1	774090-196-X-BF	1
2	Insert Retainer	774096-1	4	774096-1	4	774097-1	4
3	Bolt	774085	4	774085	4	774085	4
4	Plate	774086	4	774086	4	774086	4
5	Screw	775056	8	775056	8	775056	8
6	Screw	756725	12	756725	12	756725	12
7	Cylinder Pin	553474-3	4	553474-3	4	553474-3	4
8	Reducing Insert	350510	12	350310	12	350911	16
9	Reducing Insert	350510B	12	350310B	12	350911B	16
10	Reducing Insert	350510T	12	350310T	12	350911T	16
11	RFID Plug 9.5-UHF-001	1150376	1	1150376	1	1150376	1

Size		774070-195-X 8 1/2" x 7 3/4"		774090-196-X 8 1/2" x 8"		774090-197-X 8 1/2" x 8 1/4"	
Pos.	Name	P/N	Qty.	P/N	Qty.	P/N	Qty.
1	Carrier Segment Set	774090-196-X-BF	1	774090-196-X-BF	1	774090-196-X-BF	1
2	Insert Retainer	774097-1	4	774097-1	4	774097-1	4
3	Bolt	774085	4	774085	4	774085	4
4	Plate	774086	4	774086	4	774086	4
5	Screw	775056	8	775056	8	775056	8
6	Screw	756725	12	756725	12	756725	12
7	Cylinder Pin	553474-3	4	553474-3	4	553474-3	4
8	Reducing Insert	350711	16	350511	16	350311	16
9	Reducing Insert	350711B	16	350511B	16	350311B	16
10	Reducing Insert	350711T	16	350511T	16	350311T	16
11	RFID Plug 9.5-UHF-001	1150376	1	1150376	1	1150376	1

Size		774070-198-X 9 1/2" x 8 1/2"		774090-199-X 9 1/2" x 9"		774090-203-X 9 3/4" x 9 1/4"	
Pos.	Name	P/N	Qty.	P/N	Qty.	P/N	Qty.
1	Carrier Segment Set	774090-199-X-BF	1	774090-199-X-BF	1	774090-199-X-BF	1
2	Insert Retainer	774098-1	4	774098-1	4	774098-1	4
3	Bolt	774085	4	774085	4	774085	4
4	Plate	774086	4	774086	4	774086	4
5	Screw	775056	8	775056	8	775056	8
6	Screw	756725	12	756725	12	756725	12
7	Cylinder Pin	553474-3	4	553474-3	4	553474-3	4
8	Reducing Insert	350911	20	350511	20	350311	20
9	Reducing Insert	350911B	20	350511B	20	350311B	20
10	Reducing Insert	350911T	20	350511T	20	350311T	20
11	RFID Plug 9.5-UHF-001	1150376	1	1150376	1	1150376	1

5.3.7 774300 - Hydraulic Centering System

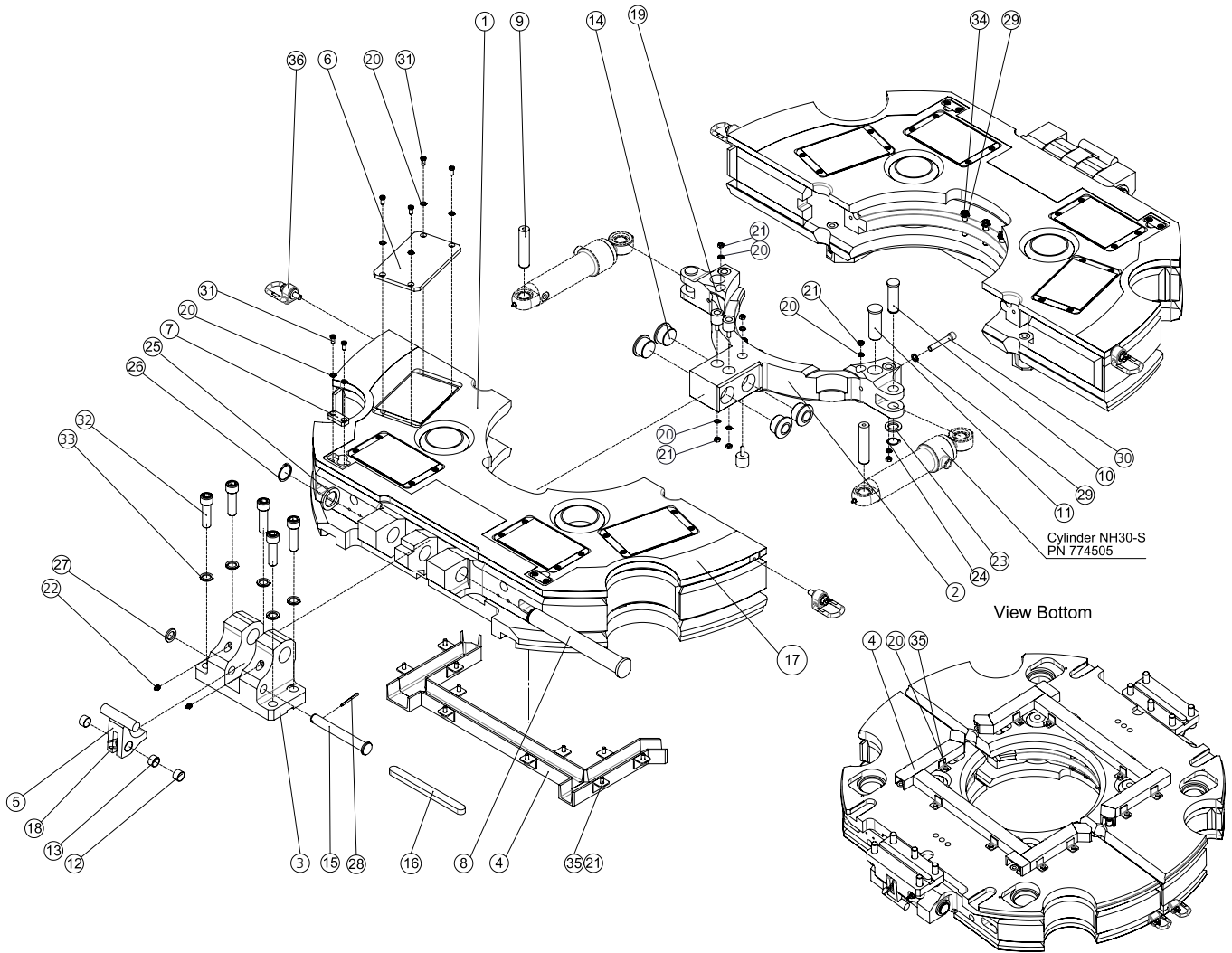


Fig. 110: 774300 - Hydraulic Centering System

Parts list

Pos.	Qty.	P/N	Description
1	2	774301	Welding Assembly
2	2	774302	Lever
3	2	774303	Block
4	2	774304	Cover
5	2	774305	Cover Stopper
6	8	774306	Plate 1
7	4	774307	Plate 2
8	2	774308	Bolt 1
9	4	774309	Bolt 2
10	4	774310	Bolt 3
11	4	774311	Bolt 4
12	4	774314	Slide Bushing
13	2	774315	Distance Bushing
14	8	774316	Roller
15	2	774317	Clevis Pin with Head
16	2	774318	Parallel key
17	0	774320	Step Protection
18	2	775065	Spring
19	14	755703-1	Roller
20	4	755834	Lifting eye
21	84	792112	Washer
22	20	613633	Nut
23	6	70064	Grease Nipple
24	4	774312	Washer
25	4	641511	Retaining ring
26	2	774410	Washer
27	2	612603	Retaining ring
28	2	613717	Washer
29	2	775017	Split Pin
30	4	792104	Washer
31	4	650218-6	Screw
32	4	726218	Screw
33	10	792132	Screw
34	10	792108	Washer
35	6	757410	Screw
36	20	613640	Screw

5.3.8 774400 - Lifting Assembly

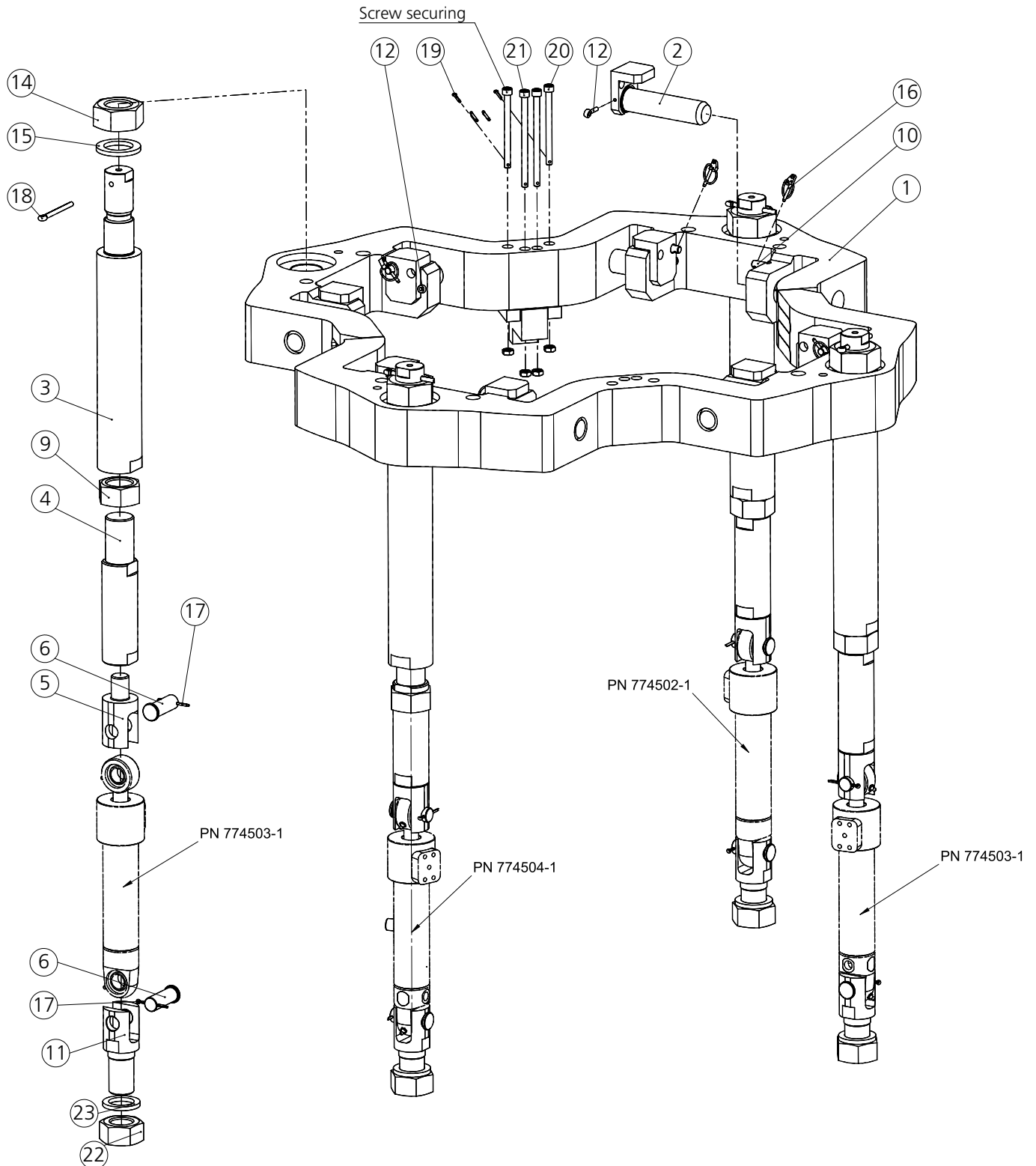


Fig. 111: 774400 - Lifting Assembly

Parts list

Pos.	Qty.	P/N	Description
1	2	774401	Lifting Plate
2	8	774402	Bolt 1
3	4	774403	Guide
4	4	774404-1	Bracket
5	8	774405	Bolt2
6	1	774409	Adapter 1
7	1	774412	Adapter 2
8	4	774419	Distance Part
9	2	774413	Screw
10	2	774414	Screw
11	4	774423	Nut
12	4	611009	Split Pin
13	4	735846	Nut
14	4	774416	Nut
15	4	792195	Washer
16	4	755334	Split Pin
17	8	774402-3	Bolt Lock
18	4	70864	Split Pin
19	8	645035	locking pin
20	8	660414-1	Eye Screw
21	4	774551-1	Cylinder Bracket
22	4	774514	Nut
23	4	792197	Washer

5.3.9 774550 - Hydraulic Connections

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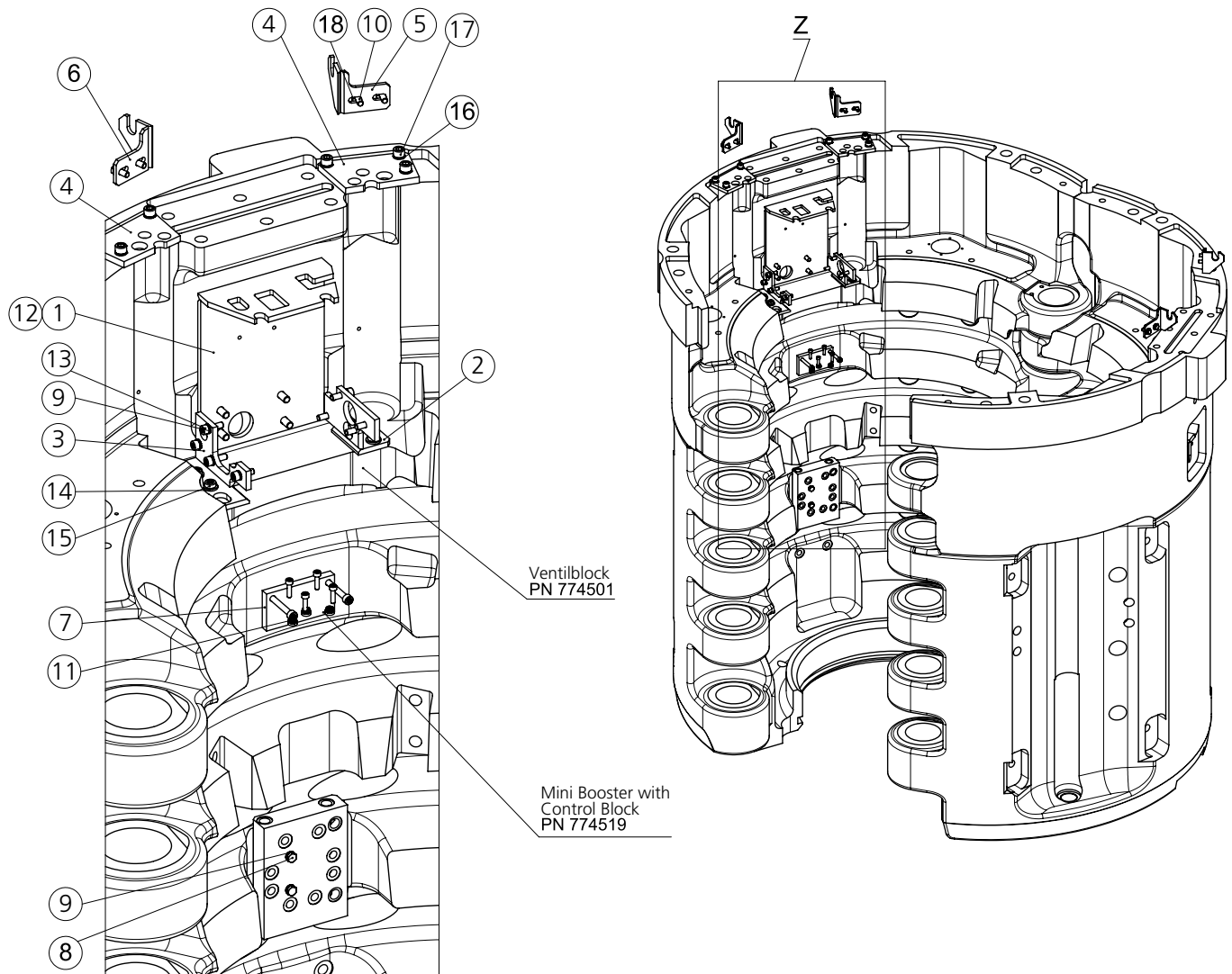


Fig. 112: 774550 - Hydraulic Connections

Parts list

Pos.	Qty.	P/N	Description
1	1	774552	Hydraulic Plate
2	1	774553	Bloc Plate
3	1	774554	Bloc Plate 02
4	2	774557	Fitting Plate 01
5	2	774559	Safe Plate 01
6	2	774560	Safe Plate 02
7	1	774564	Distance Plate
8	2	775099	Screw
9	12	792112	Washer
10	8	643779-1	Screw
11	2	755328	Screw
12	4	612517	Screw
13	8	613905-7	Screw
14	4	792103-1	Washer
15	4	612577	Screw
16	6	792103	Washer
17	6	615145	Screw
18	8	792112-1	Washer

5.3.10 774500 - Hydraulic Assembly

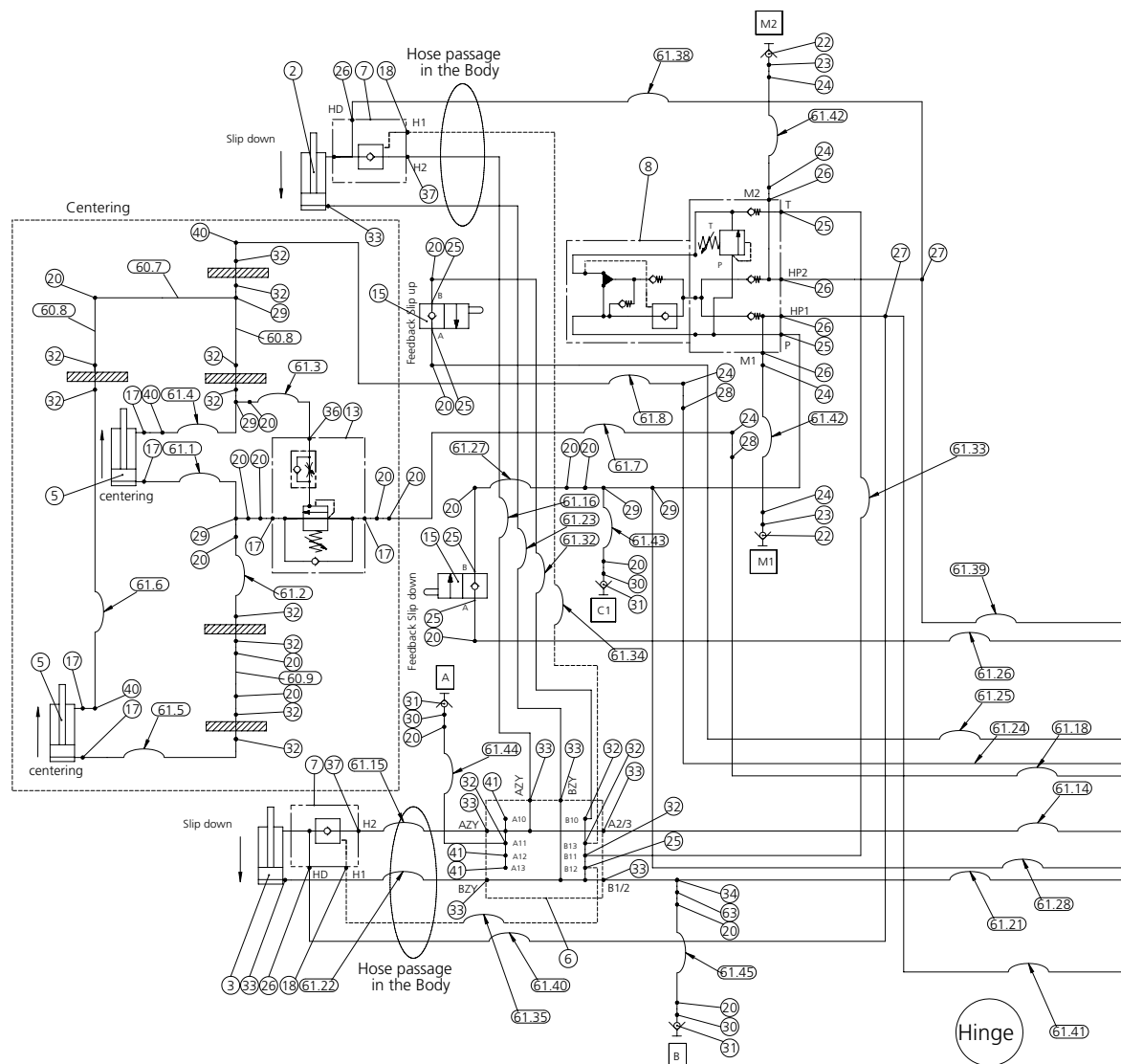


Fig. 113: Hydraulic connection plan I

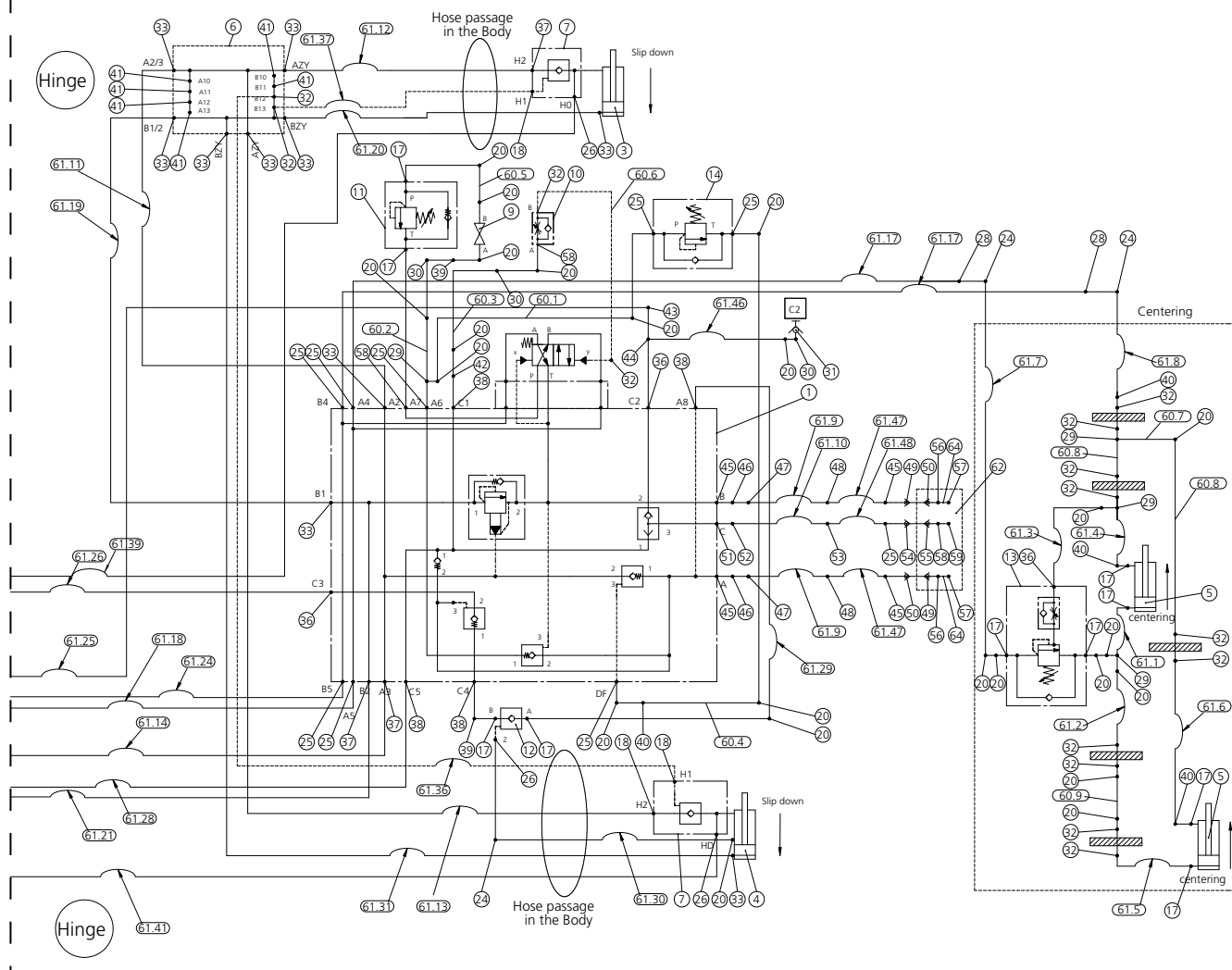


Fig. 114: Hydraulic connection plan II

Parts list

Pos.	Qty.	P/N	Description
1	1	774501	Valve block for PS 1250
2	1	774502-1	Hydraulic Cylinder
3	2	774503-1	Hydraulic Cylinder
4	1	774504-1	Hydraulic Cylinder
5	4	774505	Cylinder for Hydr. Centering System
6	2	774515	Valve Block
7	4	774518	Cylinder Flange Block
8	1	774519	Mini Booster with Control Block
9	1	645099	Stop-cock Valve
10	1	612934	Throttle
11	1	790109	Pressure Control Valve
12	1	726303	Pilot operated check valve
13	2	2058	Load holding Valve
14	1	2059	Pressure Sequence Valve
15	2	87997	2/2 way directional control valve
17	11	613943	Straight Male Stud Coupling
18	4	774534	Screw in Fitting
20	31	645096	L-Adapter
22	2	774526	Measuring Connection
23	2	774527	Bulkhead
24	9	774530	Fitting, degree 90°
25	16	612944	Straight Connection 8L-1/4"
26	8	774531	Screw-in Fitting
27	2	774529	Adjustable direction fitting, L shaped
28	4	774507	Elbow bulkhead ball bearing rotary union
29	6	645095	Adjustable Stud Barrel Tee
30	6	645105	Straight Bulkhead Coupling
31	4	755361	Pressure Coupling
32	13	613945	Swivelling Screw Fitting 90°
33	17	755365	Banjo Coupling
34	1	756318	Adjustable direction fitting, L shaped
36	3	775094-2	Fitting 90°
37	6	755373	Straight Male Stud Coupling
38	4	710653	Straight Male Stud Coupling
39	2	612945	Straight Connection 8L-8L
40	4	774510	Adjustable 45° Connector
41	10	612929	Locking screw
42	1	613569	Straight Connection 8L-8L
43	1	775094-3	Adjustable Stud Elbow
44	1	670737	Adjustable direction fitting, L shaped
45	4	790170	Straight Connection
46	2	774512	Distance adaptor DA 15L
47	2	752808	L-Adapter
48	2	752820	Elbow Bulkhead lead in Fitting
49	2	645834	Coupling, Flat Face
50	2	645833	Coupling, Flat Face
51	1	710643	Swivel Connection
52	1	735112	Adapter straight
53	1	645106	Connection
54	1	612965	Coupling, Flat Face, male
55	1	612966	Coupling, Flat Face, female
56	2	752821	Straight Connection
57	2	774536	Direct Pipe Fitting
58	3	613946	straight connection
59	1	645117	Direct Pipe Fitting
60	1	774523	Set of Pipe Assembly
61	1	774524	Set of Hose Assembly
62	1	775301-1	Bag
63	1	755367	L-Adapter
64	2	774537	Straight Connection 8L-8L
65	1	774535	Screw in Fitting

5.3.11 774600- Feedback Assembly

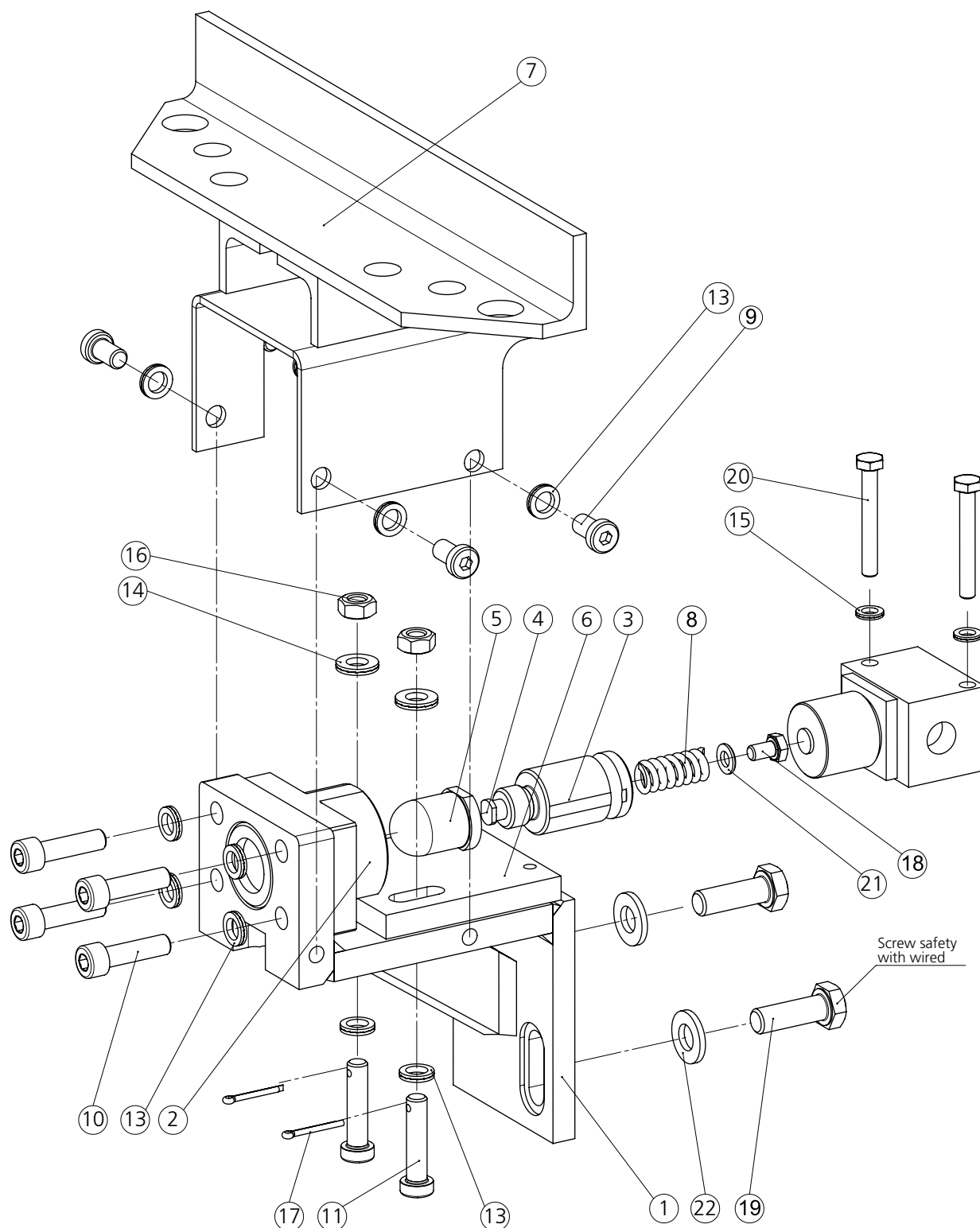


Fig. 115: 774600- Feedback Assembly

Parts list

Pos.	Qty.	P/N	Description
1	1	774601	Welding Assembly
2	1	774602	Feedback Sleeve
3	1	774603	Feedback Pin 1
4	1	774604	Feedback Pin 2
5	1	774605	Feedback - Bowl
6	1	774606	Connection Plate
7	1	774614	Feedback Cover
8	1	752219	Overload Spring
9	3	755248	Washer
10	2	613633	Nut
11	2	620609	Split Pin
12	4	775089	Screw
13	2	792111	Washer
14	2	792103-1	Washer
15	2	774611	Screw
16	8	792112	Washer
17	2	87805	Screw
18	4	757680-12	Screw
19	1	725135	Screw
20	2	645195	Screw
21	4	792112-1	Washer

5.3.12 774960 - Bottom Guide Assembly

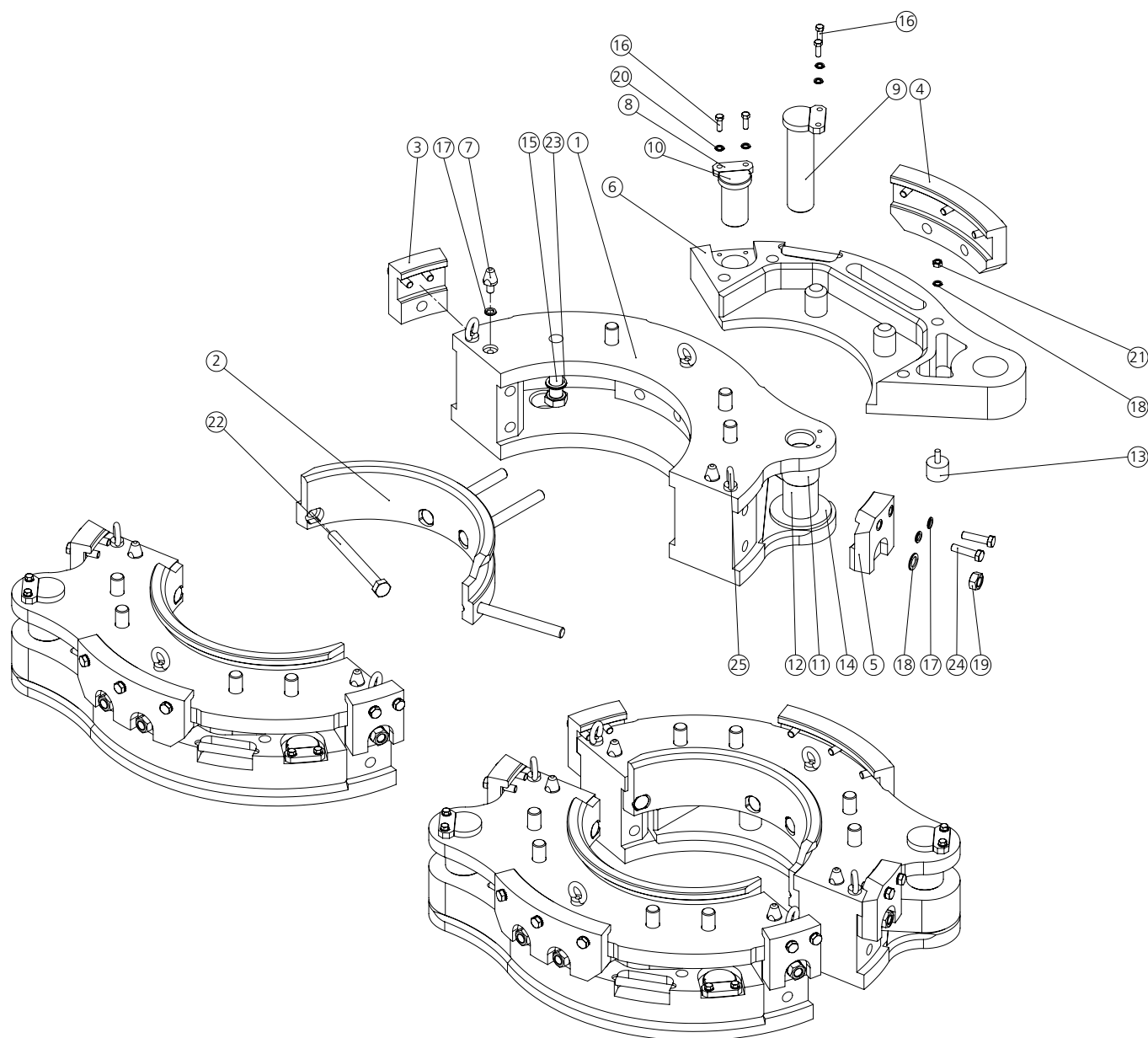


Fig. 116: 774960 - Bottom Guide Assembly

Parts list

Pos.	Qty.	P/N	Description
1	2	774961	Bottom Guide Housing
2	2	774962	Inner Ring
3	2	774963	Fix device 2
4	2	774964	Clamp device 1
5	2	774965	Clamp device 3
6	2	774966	Guide Plate Holder
7	4	774968	Centering
8	4	774970	Plate
9	2	774972	Bolt
10	2	774973	Securing Bolt
11	2	774974	Bushing
12	2	774975	Bushing
13	8	774978	Roller
14	2	774979	Shim
15	8	774980	Screw
16	8	774981	Screw
17	16	792104	Washer
18	18	792106	Washer
19	8	792110	Washer
20	8	792113	Washer
21	8	792137	Nut
22	8	774976	Screw
23	8	775015-1	Nut
24	14	621430-11	Screw
25	6	755719	Lifting eye bolt

5.3.13 774010 Pin Assembly

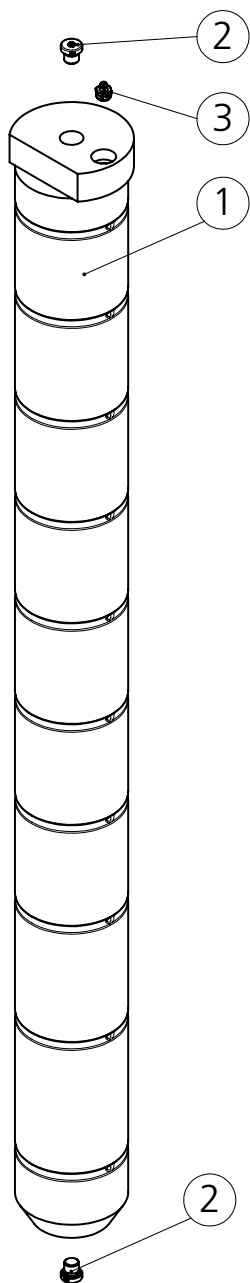


Fig. 117: 774010 Pin Assembly

Parts list

Pos.	Qty.	P/N	Description
1	1	774011	Hinge Pin
2	2	612929	Blind Screw
3	1	612515	Grease Nipple

5.4 Spare Parts Lists

5.4.1 774000-RSP

Pos.	Qty.	P/N	Description	Located at chapter
1	4	774015	Bushing	5.3.1
2	8	774402	Bolt 1	5.3.8
3	16	70864	Split Pin	5.3.8
4	8	774405	Bolt2	5.3.8
5	10	612603	Retaining ring	5.3.7
6	4	774309	Bolt 2	5.3.7
7	4	774310	Bolt 3	5.3.7
8	4	774312	Washer	5.3.7
9	4	641511	Retaining ring	5.3.7
10	4	774311	Bolt 4	5.3.7
11	2	774308	Bolt 1	5.3.7
12	2	774410	Washer	5.3.7
13	2	774317	Clevis Pin	5.3.7
14	2	613717	Washer	5.3.7
15	2	775017	Split Pin	5.3.7
16	2	774605	Feedback - Bowl	5.3.11
17	4	70064	Grease Nipple	5.3.7
18	4	774016	Bushing	5.3.1
19	1	774017	Bushing	5.3.1
20	2	774027	Carrier Securing Assembly	5.3.2
21	8	645035	locking pin	5.3.8
22	4	650218-6	Screw	5.3.7
23	4	792104	Washer	5.3.1
30	4	792104	Washer	5.3.7
24	8	755334	Split Pin	5.3.8

5.4.2 774000-RSP-H

Pos.	Qty.	P/N	Description
1	1	774598	Spare Parts for Hose Assembly
2	2	774599	Spare Parts for Valve

INSPECTION / MAINTENANCE

INSPECTION
MAINTENANCE

6 Inspection / Maintenance



Ensure that setup and installation work are accomplished only by sufficiently qualified and trained personnel.



Read these instructions carefully before setting up the machine and putting it into service.

⚠ WARNING

Separated hydraulic lines pose an injury hazard!



Hydraulic fluid can escape under high pressure.

- » ALWAYS relieve pressure in machine before performing maintenance work.



WEAR EYE PROTECTION!



WEAR PROTECTIVE HELMET!



WEAR PROTECTIVE GLOVES!



WEAR SAFETY SHOES!

Instructions for inspection and maintenance

1. In the event of visible damage or excessive wear contact the FORUM Handling Tools Service Department or an authorized repair company.
2. Ensure that welding work on cast parts is performed exclusively by the FORUM Handling Tools Service Department or an authorized repair company observing the FORUM Handling Tools welding instructions.
3. Ensure that all other maintenance work is performed only by personnel trained for this work and familiar with the risks involved in operating the machine.
4. Ensure that all repair work not performed by FORUM Handling Tools is nevertheless accomplished in compliance with the manufacturer's specifications and instructions.
5. Small cracks and irregularities, which do not affect the safety or proper operation of the PS 1250 can be removed by grinding (see Critical Areas).
6. After repair always check the repaired part in a suitable manner to ensure that the defect has been remedied.

Prerequisites for maintenance work

1. Ensure that the PS 1250 is set down on a good supporting surface so that it cannot tip.
2. Provide for sufficient lighting at the workplace.
3. The PS 1250 must be removed from the rotary table.
4. Ensure that machine is disconnected from hydraulic system.

6.1 Lubrication



⚠ WARNING

Lubricants can pose a health hazard!

Lubricants irritate skin and eyes.

» Avoid contact with lubricants.



WEAR EYE PROTECTION!



WEAR PROTECTIVE GLOVES!

The PS 1250 has an internal system of Pneumatic lubricant passages to supply lubricant to the sliding surfaces on the body and slip assembly as well as the feedback valve. Other machine parts are supplied with lubricating grease manually by a Pneumatic grease gun through lubrication nipples.

6.1.1 Lubricants

FORUM Handling Tools recommends use of the following lubricants for effective lubrication under various ambient conditions:

Lubricants for manual Lubrication

Designation:	Temperature range*	Remarks
AVIATICON XRF Low-Viscosity Grease	- 20 to + 29 °C (- 4 to + 84.2 °F)	NLGI 0
NESSOS SFO EP grease for non-oil tight gear trains	- 20 to + 29 °C (- 4 to + 84.2 °F)	NLGI 0 DIN 51826 GPOF-25 DIN 51502 GPOF-25

* For temperatures above +30 °C (+86 °F) B+V recommends using the specified lubricants in consistency class NLGI 2.

Lubricants for automatic Lubrication

Designation:	Temperature range*	Remarks
AVIATICON GX - FL -Viscosity Grease	- 30 to + 120 °C (- 22 to + 248 °F)	NLGI 2

6.1.2 Lubrication Intervals

Areas of the PS 1250 marked with GREASE DAILY must be lubricated at least once each day with one of the specified lubricants. The lubrication requirement can be higher depending on the conditions of use. For the PS 1250 the optimized greasing interval can be set with the optional grease counter. The duration of the greasing (in seconds) and the frequency (number of „slip open“- processes) can be set. The definition depends on the working-intervals on site.

⚠ CAUTION If the lubrication of the PS 1250 is insufficient, slip could jam.

Info



The specified lubricants can be obtained through FORUM Handling Tools. Contact your local representative.

6.1.3 Manual Lubrication

Tools

- Grease gun (P/N 778510)
- Pneumatic lubrication device (optional)

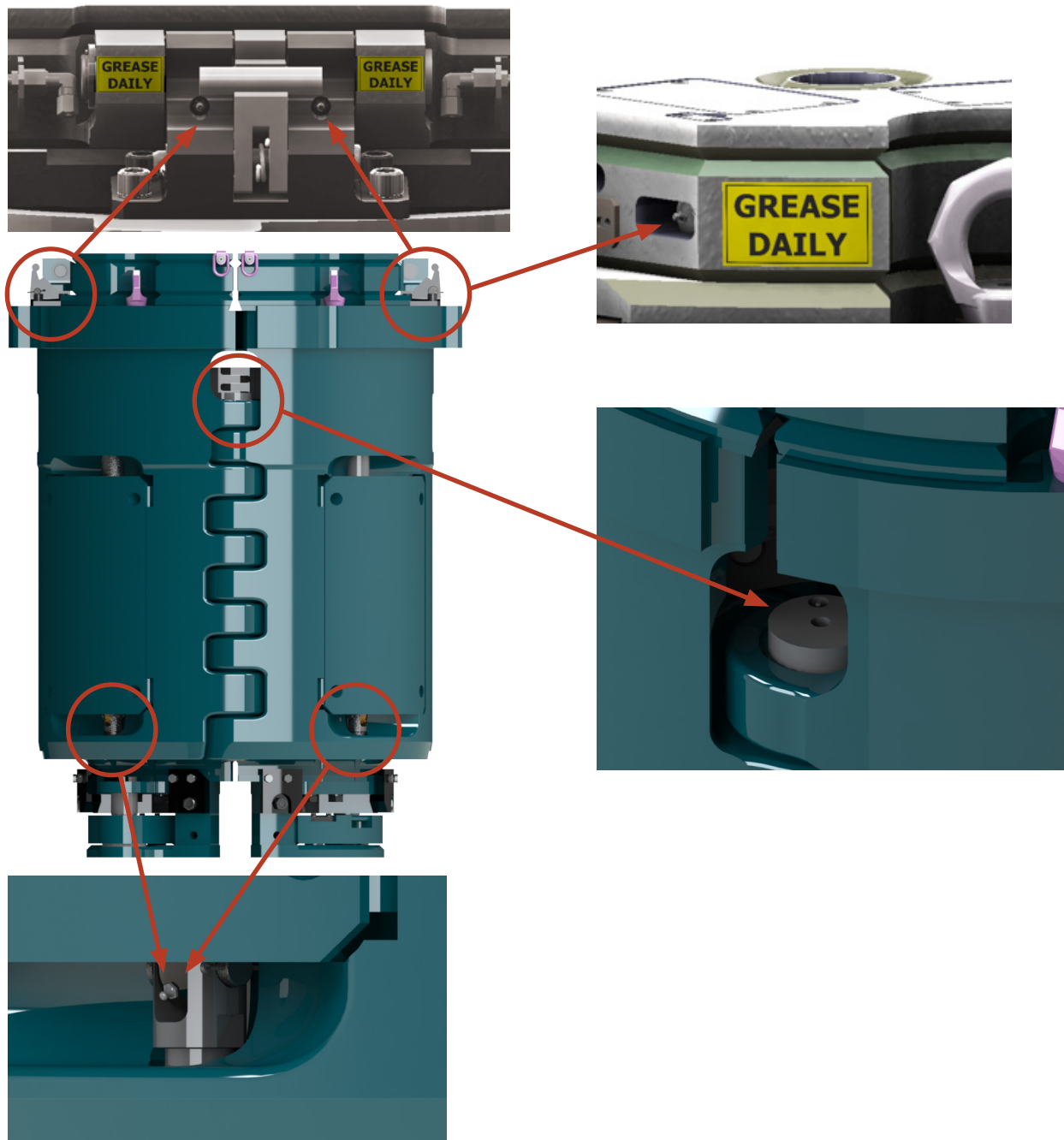


Fig. 118: Lubrication Points on Machine

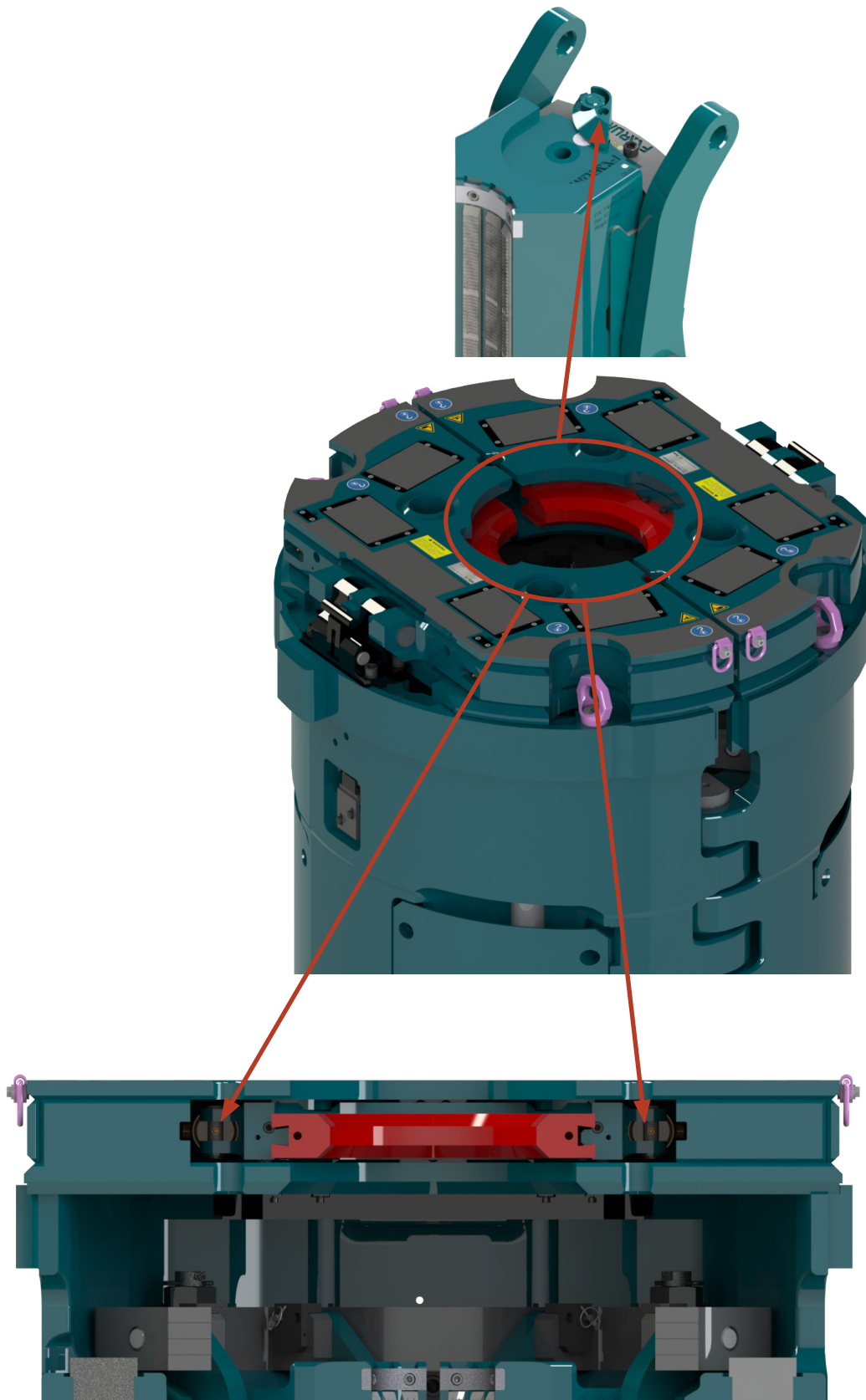


Fig. 119: Lubrication Points in Machine

6.2 Inspections

Perform inspections in compliance with API RP 7L at specified intervals and in inspection categories. Otherwise the frequency of required inspections is dependent on the conditions of use of the equipment.

Prior to inspection, remove all foreign material such as dirt, paint, lubricants and oil from the affected parts. Use suitable methods such as stripping off paint, steam cleaning and sand blasting.

After an operating inspection, the scope and results of the tests performed should be documented and retained.

Periodic inspections and inspections following critical assignments should be performed at the operating location by the operators under the supervision of a supervisor.

In the event of cracks, excessive wear, etc. contact FORUM Handling Tools or an authorized service company.

INFO

Specified maintenance intervals are recommended for the Power Slip 1250 during its service life. The necessity of inspections depends primarily on the following conditions:



- Ambient conditions
- Load cycles
- Regulatory requirements
- Period of use
- Tests
- Repairs
- Overhauls

Inspection Intervals

Category	Interval	Preparatory measures
I	Daily	- PS 1250 in working environment
II	Weekly	- PS 1250 on work location
III	Semi-annually	- PS 1250 on work location - PS 1250 disassembled
IV	Annually	- PS 1250 on work location - PS 1250 disassembled

6.2.1 Inspection of Hydraulic Equipment

Check the hydraulic equipment daily for leakage. If unacceptably high leakage occurs internally or externally contact FORUM Handling Tools or an authorized service company.

6.2.2 Inspection Following Critical Loads

Perform an inspection IMMEDIATELY following any critical or unexpected loads. Critical loads could be:

- Loads resulting from shock when the drill pipe sets.
- Pulling wedged drill strings.
- Holding heavy drill pipes / drill strings.
- Jarring.

6.2.3 Inspection Following Removal

Generally the PS 1250 should be inspected immediately after it is taken out of service temporarily or it is stored. Moreover, it should be inspected prior to being put back into service.

- It is necessary to disassemble the Power Slip 1250 in an appropriately equipped workshop to check for excessive wear, deformation, cracks and other damage.
- Perform repair work only in compliance with the manufacturer's recommendations. These are available from FORUM Handling Tools.
- Ensure that welding work on critical parts is performed only by FORUM Handling Tools or an authorized service company in compliance with the welding specifications issued by FORUM Handling Tools.
- If the field inspection indicates that further inspection work is required, remove the Power Slip 1250 and have it inspected in an appropriately equipped workshop.
- Check carefully for visible wear and material fatigue.

6.3 Inspection Categories

Always perform a complete inspection according to the instructions in Categories III or IV before AND after critical loads.

INFO



Inspection categories in accordance with API RP 7L.

6.3.1 Inspection Category I

This category consists of observing the equipment during operation for signs of inadequate operation.

Scope/Prerequisites

- During operation, check the equipment daily for visible damage such as cracks, breaks, loose connecting elements and obvious signs of wear.

Procedure:

- Visual check.
- Check for proper function.
- Ensure that this check is performed by a person with appropriate technical knowledge.

6.3.2 Inspection Category II

Category II includes additional tests not included in, but in addition to Category I inspections.

Scope/Prerequisites

- Check for signs of corrosion, deformation, loose or missing parts, aging processes, proper lubrication, externally visible cracks and adjustment work.

Procedure:

- Category II inspections may require removal of certain parts to assess the wear limits according to the specified tolerances.

6.3.3 Inspection Category III

Category III includes additional tests not included in, but in addition to Category II inspections.

Scope/Prerequisites

- Before inspection remove all foreign material such as dirt, paint, lubricants, oil, abrasion, etc. from the affected parts. Use suitable methods such as stripping off paint, steam cleaning, sand blasting, etc.

Procedure:

- Non-destructive testing (NDT) is required in critical areas as well as removal of certain parts to determine the wear limits according to the specified tolerances for designated areas).

6.3.4 Inspection Category IV

In addition to the inspections in Category III, Category IV includes removal of all primary, load-bearing parts for non-destructive testing (NDT).

Scope/Prerequisites

- Appropriately equipped workshop
- Remove all primary load-bearing parts or parts critical for operation to such an extent that complete inspection is possible.
- Inspect all parts for excessive wear, cracks, deformation and other damage.
- Inspect critical areas as well as removal of certain parts to determine the wear limits according to the specified tolerances.

Procedure:

- Ensure that all tests are performed according to the manufacturer's specifications.

Before inspection remove all foreign material such as dirt, paint, lubricants, oil etc. from the affected parts. Use suitable methods such as stripping off paint, steam cleaning, sand blasting, etc.

6.3.5 Inspection tasks list able

Pos.	Task / Interval	Daily	Weekly	Semi-annually	Annually
1	Ongoing observation - Ongoing cleaning. - Check visible surface of body for damages. - Check for loose fittings, pipes, valves and leaks. - Visual check for correct size of the Slip/Carrier Assembly and guide plates. - Visual Check check for availability and good readability of placards.	✓	✓	✓	✓
2	Grease all grease points and check state of lubrication	✓	✓	✓	✓
3	Check function of - Slip/Carrier Assembly. - Lifting Assembly. - Feedback.	!	✓	✓	✓
4	Check for loose items, especially on: Shafts, bolts, retainers, screws, nuts, washers, springs, lock wire.	!	✓	✓	✓
5.	Visual check for Cracks, Breaks, Elongation, Corrosion, Damages or wear on - Hinges and Pins in Cover, Body and Guide Plates. - Lifting Eyes. - Inserts. » Change all defective parts/ components.	✗	!	✓	✓
6.	Visual Check of hydraulic system - Check all lines and couplings/ components for tightness and condition. - Check for leakages of lines. » Change all defective parts/ components.	✗	!	✓	✓
7.	Check presence and condition of centering buttons and dies.	✗	✗	!	✓
8.	Check parts for wear according to allowable tolerances.	✗	✗	!	✓
9.	Hydraulic system replacement/ check - Replace all hoses and fittings. - Check condition of valves and cylinder and replace, if required. - Check condition of pipes and replace, if required.	✗	✗	✗	!
10.	Perform NDT testing on all primary-load carrying components	✗	✗	✗	!



Necessary



Safety task! Take out of Service for repair, if NOK!



Not necessary



⚠ WARNING

Separated hydraulic lines pose an injury hazard!

Hydraulic fluid can escape under high pressure.

- » ALWAYS relieve pressure in equipment before performing maintenance work.



Ensure that maintenance work is accomplished only by sufficiently qualified and trained personnel.

6.3.6 Inspections cover sheet

INFO

The following check lists serve as copy templates for inspections to be performed in compliance with API RP 7L and are required to file performed inspections as defined in the user manual.



Ensure that maintenance work is accomplished only by sufficiently qualified and trained personnel.

Type: _____

Serial number: _____

Part number: _____

☐ **Inspection Category I**

Date / Place of Inspection	Checked		Name of Inspection Operator / Supervisor	Sign.
	OK	NOK		
	☐	☐		

Remarks: _____

☐ **Inspection Category II**

Date / Place of Inspection	Checked		Name of Inspection Operator / Supervisor	Sign.
	OK	NOK		
	☐	☐		

Remarks: _____

☐ **Inspection Category III**

Date / Place of Inspection	Checked		Name of Inspection Operator / Supervisor	Sign.
	OK	NOK		
	☐	☐		

Remarks: _____

☐ **Inspection Category IV**

Date / Place of Inspection	Checked		Name of Inspection Operator / Supervisor	Sign.
	OK	NOK		
	☐	☐		

Remarks: _____

6.3.7 Overview: Critical Areas

Check critical areas shown according to inspection check lists.

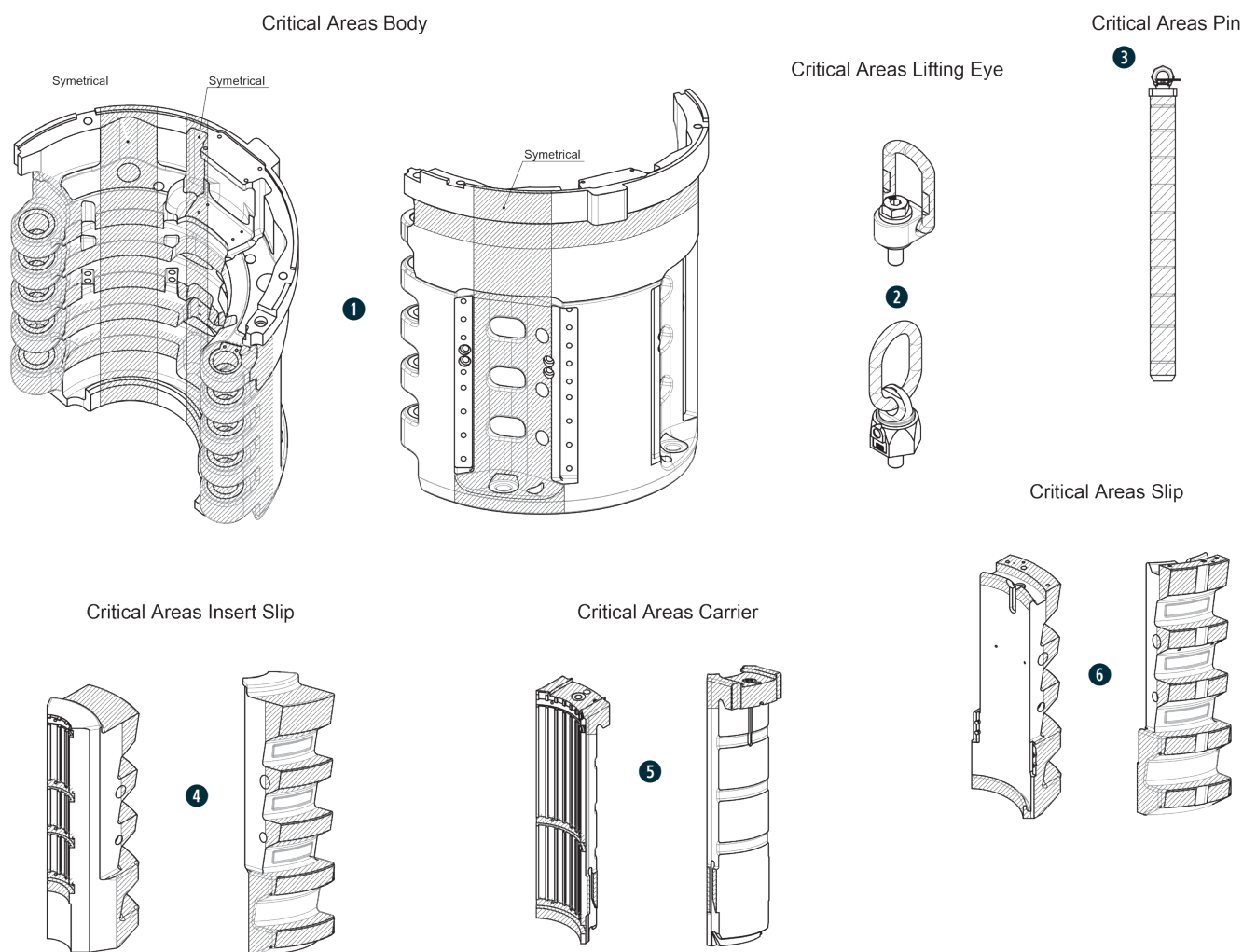


Fig. 120: Critical Areas (cf. Inspection Check Lists): ❶ Body, ❷ Lifting Eyes, ❸ Hinge Pin, ❹ Insert Slip, ❺ Carrier, ❻ Slip

6.3.8 Wear Limits

Check the wear limits as specified in the inspection check lists.

Hinge Pin and Hinge Bores in Body

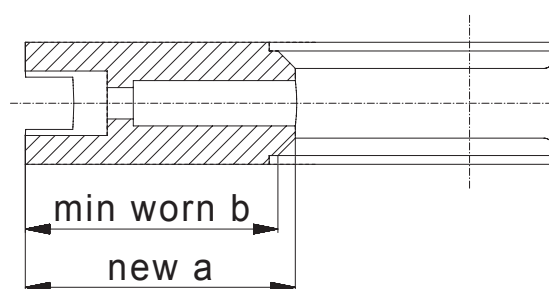
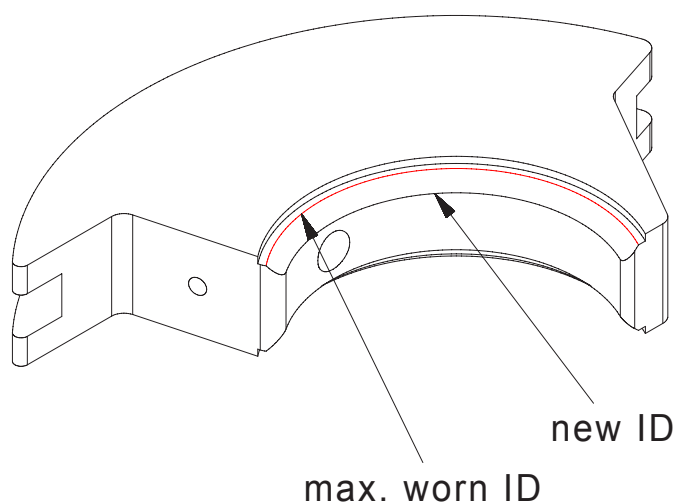
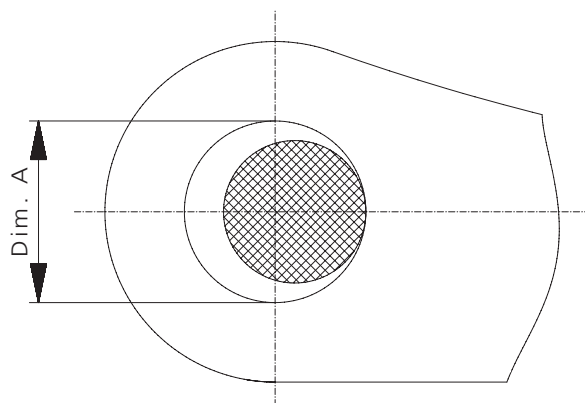
Hinge pin diameter new	79.804 mm (3.142")
Bore diameter (dim. A) new	80.106 mm (3.154")
Bore diameter (dim. A) worn	81.120 mm (3.194")

Upper Guide Plates

Guide Plate P/N	New a (mm)	Worn b (mm)
774805	185	175
774806	179,5	169,5
774807	172	162
774809	164	154
774811	160,5	150,5
774812	155	145
774813	149	139
774815	142	132
774819	129	119
774822	122	112
774824	118	108
774826	114	104
774827	104	94
774832	91	81
774833	78	68
774835	65	55
774836	56	46
774839	50	40

Bottom Guide Plates

Guide Plate P/N	New a (mm)	Worn b (mm)
774905		
774906		
774907		
774909		
774911		
774912		
774913		
774915		
774919		
774922		
774924		
774926		
774927		
774932		
774933		
774935		
774936		
774939		



6.4 Cleaning

⚠ WARNING



Health hazards from service products!

Splashes of diluted drilling mud and small parts.

- » ALWAYS wear your personal protective equipment.



WEAR EYE PROTECTION!



WEAR PROTECTIVE GLOVES!

The operating conditions and operating environment result in contamination on the PS 1250. Remove this contamination regularly to prevent incrustation and ensure safe operation of the machine. To clean shut off the PS 1250, disconnect from hydraulic system and lift out of rotary table. Remove upper ring and slip assembly. Clean contamination from drilling from the PS 1250 regularly. The machine should be cleaned thoroughly at the end of each shift at the latest. FORUM Handling Tools recommends cleaning the PS 1250 with a high pressure steam cleaner. Use it to clean the body and slip/carrier assembly thoroughly from inside and outside.

STORAGE / DISPOSAL

STORAGE /
DISPOSAL

7 Storage / Disposal

This chapter deals with procedures and techniques to be taken to the storage after the decommissioning of the Power Slip 1250. The aim is to protect the PS 1250, the environment and people from damages. Therefore FORUM Handling Tools recommends to read and implement the following procedure accurately.

7.1 Storage

Storage procedure

1. Clean the Power Slip 1250. FORUM Handling Tools recommends the use of a high pressure cleaner.
2. Store the PS 1250 on a pallet located on an even, supporting surface. Observe the weight specifications in the technical data.
3. Ensure that the PS 1250 is stored so that no one can be injured by moving parts or sharp edges.
4. Secure the PS 1250 with tensioning cables or in another manner to prevent it from slipping or tipping when moved.
5. Grease the PS 1250 as described.
6. Conserve all not painted metal surfaces. FORUM Handling Tools recommends the use of a lubricant or Tectyl.
 - » These surfaces should be checked periodically to be sure that no corrosion has occurred.
7. Protect the PS 1250 against water penetration with a plastic tarp.

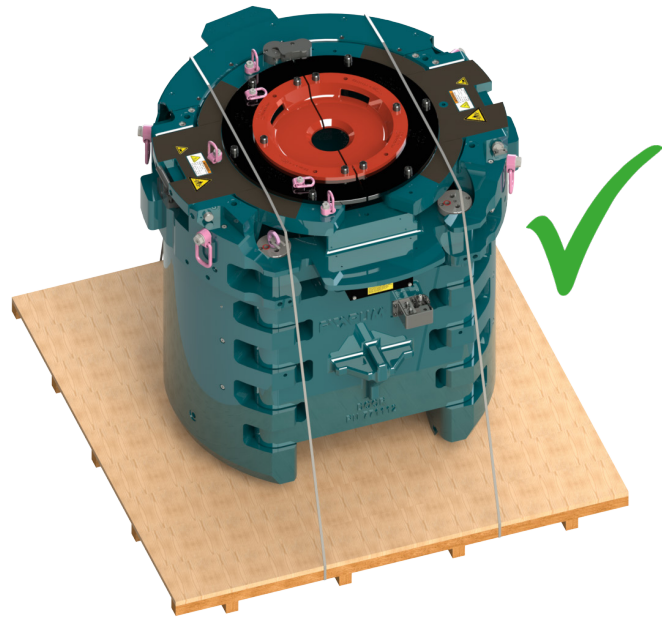


Fig. 121: Correct Storage of a Power Slip

Intermediate Storage

Protection of tools	• Apply lubricant to all bare surfaces (sliding surfaces at the back of each PS 1250 segment). • Protect all other bare surfaces with Tectyl Type 864 or an equivalent agent. • Place PS 1250s only on surrounded pallets and secure them with tensioning cables and anti-slip mat.
Ambient Conditions	• Store in dry surroundings (maximum humidity 80%).

Longer Storage

Protection of tools	• Apply lubricant to all bare surfaces (sliding surfaces at the back of each PS 1250 segment). • Protect all other bare surfaces with Tectyl Type 864 or an equivalent agent. • Place PS 1250s only on surrounded pallets and secure them with tensioning cables and anti-slip mat. • Protect the PS 1250 against water penetration with a plastic tarp.
Ambient Conditions	• Store in dry surroundings (maximum humidity 80%).



Fig. 122: Correct Storage of Carrier

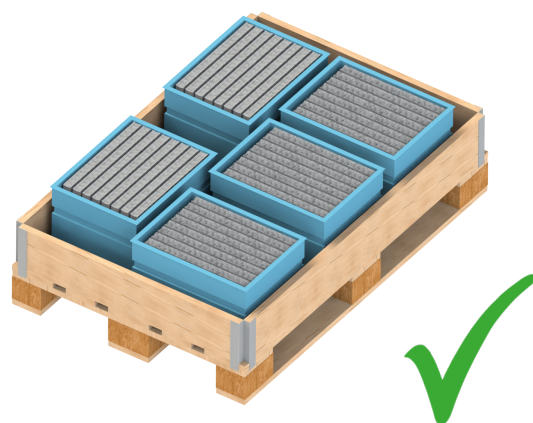


Fig. 125: Correct Storage of Inserts



Fig. 123: Correct Storage of Pins

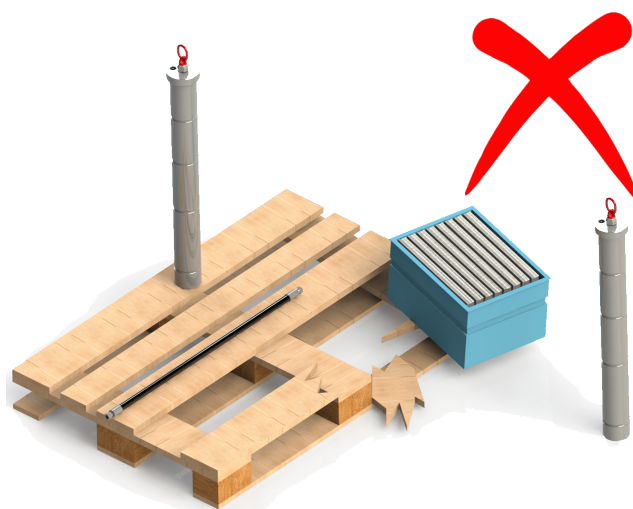


Fig. 126: Correct Storage Guide Plates



Fig. 124: Correct Storage Guide Plates

7.2 Disposal

When used properly the PS 1250 does not pose any hazard for users or the environment. However, operation of the PS 1250 requires use of lubricants and cleaning agents, which can pollute the environment. For this reason always ensure that such substances are disposed of properly according to international, national and local regulations. Never dispose greases, oily cleaning rags or oily water together with industrial or domestic wastes. Observe the safety data sheets published by the manufacturers on environmental hazards and disposal of the service and operating products used. Ensure that all service and operating products as well as replacement parts are disposed of safely and ecologically. Please note specifically that is not obligated to take back used equipment.

List of Service Products Used

The Safety Data Sheets on the service products used are included in the appendix to this operating manual.

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APPENDIX

APPENDIX

8 Appendix

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A. Sample of EC Declaration



FORUM B + V Oil Tools GmbH

EC-DECLARATION OF CONFORMITY

We,

**FORUM B + V Oil Tools GmbH
Hermann-Blohm-Strasse 2
20457 Hamburg / Germany**

declare that the products:

Hydraulic Operated Power Slips PS 250 / 350 / 500 / 750 / 1000 / 1250

which is the subject of this declaration, fulfils all of the relevant requirements of:

2006/42/EC	Machinery Directive
2014/34/EC	ATEX Directive of Equipment for use in hazardous areas

Amongst others following harmonized and technical standards and specifications were used:

API 7K, 6. Edition	Specification for Drilling and Well Servicing Equipment
DIN EN ISO 13535	Petroleum and natural gas industries - Drilling and well-servicing equipment
DIN EN ISO 12100	Safety of machinery, Risk assessment and Risk Reduction
DIN EN ISO 80079-36	Non-electrical equipment for use in potentially explosive atmospheres

Description of Product:

The following named lifting accessory will be described in more detail in the accompanying Data Book and/or certificate and the associated Technical Documentation

Product / Device Type: [refer to data book]
 Rated Capacity: [refer to data book]
 Part Number: [refer to data book]
 Serial Number: [refer to data book]
 Delivery date: [refer to data book]
 Order No.: [refer to data book]
 Marking: **CE**  II 2G T5

The Engineering Manager of FORUM B + V Oil Tools GmbH, Hermann-Blohm-Strasse 2, 20457 Hamburg, Germany, is authorized to compile the technical files. Documents in accordance to Directive 2014/34/EU Article 13 (1) b) ii) have been deposited at the notified body IBExU - Institut für Sicherheitstechnik GmbH, Fuchsmühlenweg 7, D-09599 Freiberg, Notified Body No. 0637, reference IB-14-6-001/200, Archive-No. 219/14. FORUM B + V Oil Tools has established a quality assurance system in accordance to ISO 9001 and API 01 approved by API Quality Registrar, Washington D.C./USA, Registration No. 2850 + 01-2769.

Hamburg, issued on

Authorized Representative

Name
Position


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 Managing Director

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Managing Directors: Matthias Theiss, Dr. Uwe Wagner, James W. Harris
 Commercial Register: District Court of Hamburg, HRB 125 890
 Tax-No.: 46/722/02375, VAT-ID. No.: DE 294 745 990
 Banking: HSBC Trinkaus & Burkhardt AG
 BIC / SWIFT: TUBD DE 33 033
 EUR-Acc.: IBAN: DE73 3003 0880 0012 8350 19
 USD-Acc.: 401 / 2835 / 006 / IBAN: DE50 3003 0880 4012 8350 06
 14.09.2017

Fig. 127: EC Certificate of Conformity Sample

B. Third Party Documents

I Safety Data-Sheet

[Aerosol] Krylon Paint Aerosols



[Aerosol] Rust O Leum Paint Aerosols



[Hydraulic Fluid] Aral Vitam GF 32



[Hydraulic Fluid] Citgo AW 68



[Hydraulic Fluid] Conoco Megaflow AW 32 68



[Hydraulic Fluid] Shell Tellus S2 M 32



[Hydraulic Fluid] Shell Tellus S2 M 68



[Hydraulic Fluid] Shell Tellus S2 V 15



[Hydraulic Fluid] Shell Tonna S2 M 68



[Lubricant] Buster 2007



[Lubricant] AVIATICON FETT XRF



[Lubricant] KO5



[Lubricant] Lubrimatic Multipurpose Lithium



[Lubricant] MasterPro Hi Temp WB



[Lubricant] Mobil CM L



[Lubricant] Mystik JT 6 Multi purpose #2



[Lubricant] Permatex 767 Anti Seize Lubricant



[Lubricant] Shell Gadus S2 V220 2



[Lubricant] Shell Stamina RLS 2



[Lubricant] Sprayon LU 100 White Lithium



[Lubricant] Super S Hi Temp Red



[Lubricant] Thermaplex Hi Temp Bearings



[Paint] Paint Gallon	
[Paint] Paint Marker	
[Paint] Paint Marking Ink	
[Paint] Ruthless Paint and Varnish Remover	
[Paint] Startex Paint Thinner	
[Paint] Uni Paint Markers	
[Safety adhesive] Loctite 242 Threadlocker	
[Safety adhesive] Loctite 262 (High Strength)	
[Safety adhesive] Loctite 515 Gasket Eliminator	
[Safety adhesive] Loctite Clover Compound	
[Safety adhesive] Loctite Silver Grade Anti Seize	

II Components

Component Name	Link to file
[Safety Washer] NordLock	
[Lifting] RUD VRS Starpoint	
[Lifting] RUD VLBG Load Ring	

Our goal is to become the leading provider of mission critical oilfield products and related services in terms of customer satisfaction, safety and financial performance.

Our experienced management team and employees are dedicated to solving our customers' problems. We invest in long term relationships and cooperate on product development with our clients, we consider them our partners.

OUR CORE VALUES

- Integrity:** In everything we do, in every interaction, both internally and externally, we strive to operate with the upmost integrity and mutual respect.
- Customer focused:** Our products enhance our customer's performance and we listen to their needs and work with them to solve their challenges.
- Good place to work:** We are committed to creating a workplace that fosters innovation, teamwork and pride. Every team member is integral to our success and is treated equally and fairly.
- No one gets hurt:** The safety of our employees and customers is our first priority coupled with a healthy respect for the environment.



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