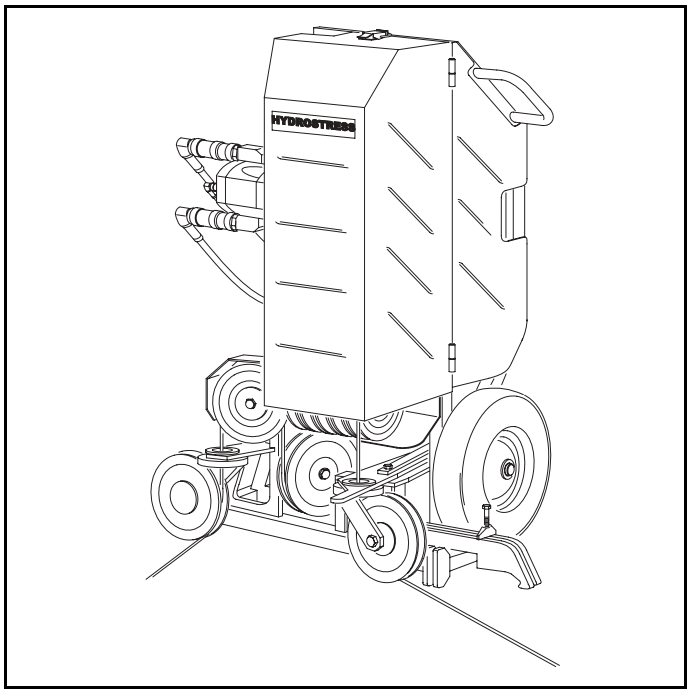
HYDROSTRESS®



SB Wire Sawing System

Index 000

Operating Manual

Spare Parts List

0.1 Introduction

Dear Customer

You have decided to buy a HYDROSTRESS system and have thus acquired a highly sophisticated and reliable state-of-the-art unit.

Due to our special efforts in the field of quality assurance, the SB wire sawing system is another top-of-the-range Swiss product with the following properties:

Unprecedented power-to-weight ratio
Reliable operation
High mobility
Easy handling
Low maintenance costs

The exclusive use of genuine HYDROSTRESS spare parts ensures quality and interchangeability.

In the case of neglected or inappropriate maintenance, we refuse to accept any warranty commitment as specified in our terms of delivery.

Any repair work is to be carried out by trained specialist personnel only.

Should you need more details concerning your HYDROSTRESS system in order to keep it in perfect condition, please contact our after-sales service for further information.

We hope that you will not experience any difficulties while working with your
HYDROSTRESS system.

HYDROSTRESS AG
Management

HYDROSTRESS AG
Witzbergstrasse 18
CH-8330 Pfäffikon
Switzerland
Phone 0041 1 950 10 74
Fax 0041 1 950 10 18

0.2 Validity of this operating manual

This operating manual is only valid for the following system:

SB Wire Sawing System, Index 000

0.3 Delimitation of the system

This manual only describes the SB Wire Sawing System (hereafter only referred to by "SB") without connectable equipment (drives).

0.4 Operating instructions for connectable equipment

Notes in this manual referring to the operation of connectable equipment are designed to increase the safety of the operating personnel. In order to operate this equipment safely, the relevant operating instructions have to be followed as well.

0.5 Table of contents

1 Safety instructions

1.1 Fundamentals

Qualification of operating personnel

Machining concrete is neither simple nor without risk. Material assets on the site, the machine itself and the safety of people are at stake.

The operating personnel must therefore be trained by experienced specialists. HYDROSTRESS can support you in your training.

Only specially trained and qualified personnel may carry out maintenance and repair work and any other work on the following components:

- Electrical equipment
- Hydraulic equipment

Read the manual and inform your staff!

This operating manual contains important information on how to operate the machine safely and efficiently.

The owner of the machine must make sure that the instructions in this manual are followed by every person having anything to do with the machine, or with the respective auxiliary and operating resources.

The operating manual must be accessible on the site at all times.

Hazards on the building site

The machine has been built in accordance with state-of-the-art standards and the recognized safety regulations. Nevertheless, its use may constitute a risk to the life and limb of the user or of third parties, or cause damage to the machine and to other property.

Pay attention to the special working conditions on the building site. Protect yourself and others within your responsibility against the many hazards!

Noise pollution (sound level)

Depending on the working environment, the machine can cause excessive noise during operation.

The noise can permanently damage the hearing of operating personnel and of other people nearby within a very short time.

Ear protectors must therefore always be worn during machining.

Recognize the safety warnings!

Pay attention to the following words, their symbols and their meaning:

Danger:

Special information to prevent personal injury

Warning:

Special information to prevent damage to the machine

Important:

Special information on how to use the machine most efficiently

Safety clothing

Safety clothing must always be worn when drilling, sawing, crushing or bursting concrete or stone in order to protect against the following hazards:

Hazard	Safety clothing
Falling parts:	Helmet, steel-capped (safety) shoes
Moving, sharp-edged parts:	Safety gloves
Flying pieces of concrete and stone:	Safety glasses
Flying sparks:	Safety glasses
Slipping:	Antislip shoes
Noise:	Ear protectors
Contamination of respiratory tracts:	Mask

Materials which may be machined

Only the following materials may be machined with HYDROSTRESS equipment:

- Reinforced concrete
- Natural stone
- Masonry

Other materials are not to be machined. Especially avoid machining:

- Wood
- Plastic
- Glass

The following work may only be carried out with the SB:

- The sawing of parting cuts
- Flush cutting
- Angular cuts

Connectable devices

Only use the machine together with the recommended connectable devices (see "Connectable devices" in this manual)

Accident prevention regulations in your country

Observe the general and special accident prevention regulations of the trade associations in your country!

1.2 Inherent dangers of wire saws

Dangers caused by electrical drive units and rotating pulleys are adequately described in the respective wire sawing equipment operating manuals. Other dangers must be strictly avoided by protecting the operating personnel and other persons not involved in sawing work.

Wire cracks

Wire cracks can be prevented by selecting large contact angles. In spite of this wire cracks can never be 100% excluded. Therefore all the protective equipment must always be installed.

Flung-off diamond beads

A cracked wire can fling off a loose diamond bead if it strikes against something.

The wire normally runs at between 15 and 25 m/s, which means that a loose diamond bead could be flung off at up to 100 m/s. Suitable protective equipment must be installed to catch such diamond beads when they are flung off.

Precautionary measures

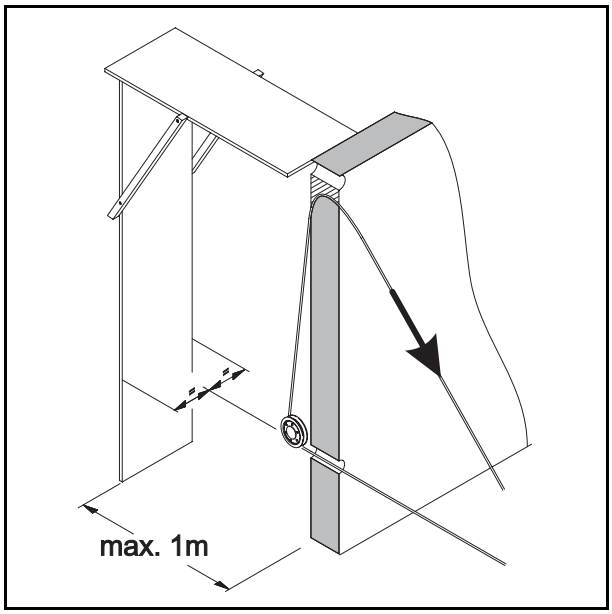
- Only use high quality diamond wire and beads
- Make sure that the operating personnel know how the wires are safely connected
- Make sure that the operating personnel know that high wire tensions can cause wire cracks

Protective measures

- Only use the protective measures recommended by the manufacturer
- Ensure that all zones are protected into which a flung-off diamond bead can fly
- In any case install all possible guards around the danger zone

Protective measures could be:

- Wood (min. 20mm)
- Sheet metal (aluminium, min. 3 mm, steel, min. 2 mm)



The cost of safety

Safety never comes free. The setting up of wire sawing operations must always include the setting up of all the protective equipment as described above. The time and material for these installations must be taken into account when preparing quotations for the customers.

1.3 Intended purpose

The intended purpose of the wire saw is the sawing of the materials described above with an 11 mm diameter diamond wire (sintered) and 10 mm (electro-plated). Any other use can lead to dangers and will exclude any possibility of liability being accepted by HYDROSTRESS / TYROLIT.

Cut-out parts

These can be very heavy:

Example:
A one metre square cube weighs about 2.5 tonnes.

Make sure that such parts do not fall outside the restricted zone.

Drives and accessories

Only use the machine with the recommended drives and their respective accessories.

1.4 Before starting work

Emergency stop

Make sure that the machine can quickly stop in the event of an emergency (see "Emergency stop" in the operating instructions for the drive being used)!

First aid in the event of accidents

Find out how you can obtain fast help in the event of an accident!

Water, gas and electricity lines

Make sure that any such lines, which are in the vicinity of your cut, are out of operation! Find out if the lines can safely be cut through.

Reinforcement steel

Find out if all types of reinforcement steel in your cutting zone or your hole can be cut through. If necessary the cut may have to be relocated by agreement with the customer.

Organization of your working area

Organize your workplace well! This will significantly reduce the risk of accidents!

Workplace lighting

Make sure that your working area is well lit.

Safe standing area for operator and third parties

The machine is designed for operation by one single person.

During operation third parties must stand at a safe distance from the machine.

The drive unit must be positioned such that all the control elements can be easily reached.

In particular it must be possible to stop the machine quickly and safely (see "Emergency stop" in the operating instructions for the drive being used).

Motorized feed

Machines with motorized feed are not automatic machines. They have to be constantly monitored during operation. An emergency stop must be possible at any time.

Rotating and moving parts

So that you cannot be caught up by rotating or moving parts always wear tightly-fitting clothing and a hair net if you have long hair!

1.5 After work

Pull out mains plug

After work always pull out the mains plug of the drive being used to prevent it from being unintentionally switched on again!

Removal of concrete and stone sections

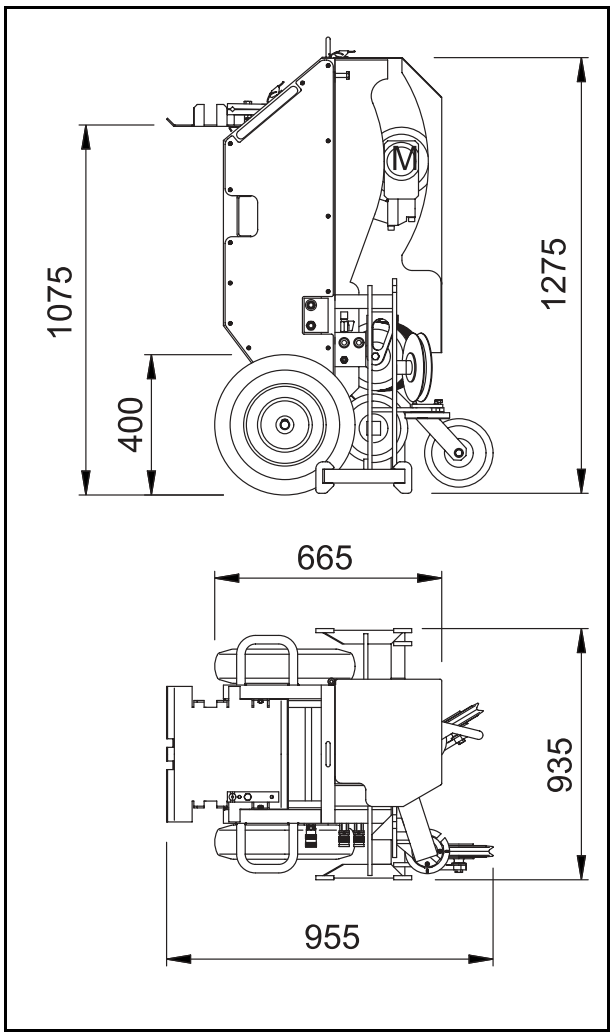
Use suitable lifting equipment for the removal of these sections in order to avoid injuries.

2 Technical data

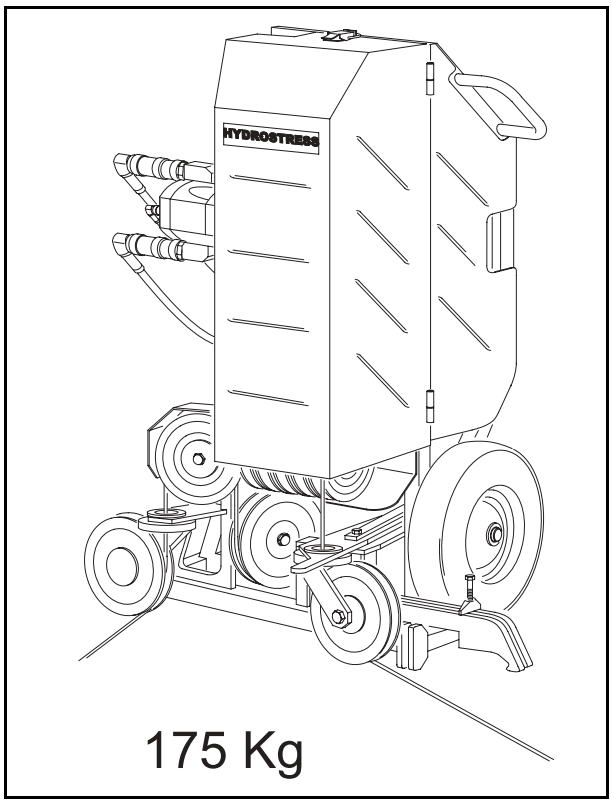
2.1 Possible cutting capacity

The cutting capacity of the SB, when driven by a high-performance drive unit (e.g. RD-S / RD-S RC) can be up to 3.5 m^2 of concrete per hour according to the amount of reinforcement steel and the aggregate materials.

2.2 Dimensions



2.3 Weight



2.4 Wire drive

Hydraulic drive

Hydraulic motors with size 3 connections.

Absorption volumes: 20, 25 and 31 ccm.

2.5 Connectable drives

All types of hydraulic drives with at least one hydraulic feed can be connected.

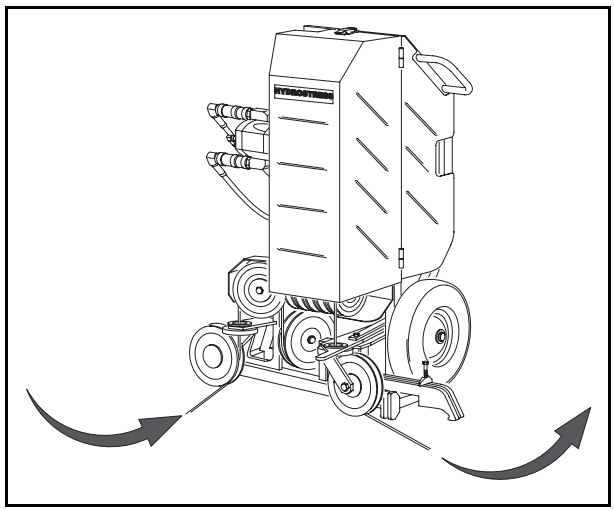
We recommend high-performance drives with a power of at least 20 kW to achieve the expected cutting capacity of the SB.

HYDROSTRESS drives:

- CR-3
- CR-5 RC
- DK USA
- AD-S
- AD-S2
- AD-S3
- AD-S4
- AD-S4 RC
- RD
- RD-2
- RD-S
- RD-S RC

2.6 Wire running direction

The running direction of the wire is preset by the direction of movement of the hydraulic motor and the design of the drive pulley (free-running) and cannot be changed.



2.7 Wire cutting speed

The optimum cutting speed for standard applications is 20-25 m/s (values in bold type).

You can set the correct wire cutting speed with the correct choice of litre flow rate (with multi-stage drives) and the hydraulic motor. In this way you can achieve:

- Optimum sawing performance
- The best service life for the wire
- Less wire cracks

Reduction in wire cutting speed

If there is a lot of steel reinforcement or if hard aggregates are found the wire cutting speed should be reduced.

Multi-stage drive

Switch back by one stage

This causes the wire cutting speed to be reduced by 4-5 m/s.

Exchange the hydraulic motor

With single-stage drives, the hydraulic motor can be changed (use larger motor).

This causes the wire cutting speed to be reduced by 4-5 m/s.

Wire cutting speeds with CR-3 and CR-5 RC

Motor	Stage 1 33 l/min	Stage 2 40 l/min	Stage 3 50 l/min	Stage 4 60 l/min
20 ccm 976164	16 m/s	19 m/s	**24 m/s**	28 m/s
25 ccm 976165	12 m/s	15 m/s	19 m/s	**23 m/s**
31 ccm 976166	10 m/s	12 m/s	15 m/s	18 m/s

Wire cutting speeds with AD-S4 and AD-S4 RC

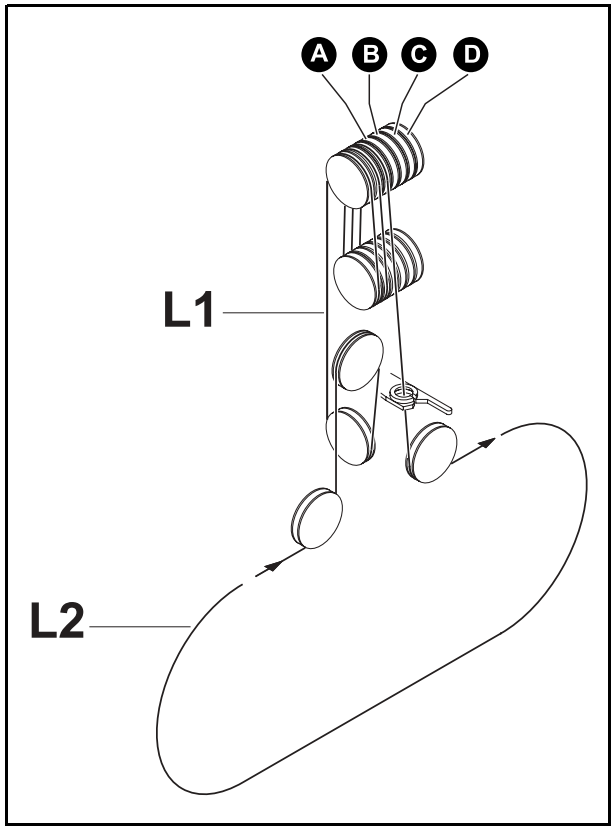
Motor	Stage 1 45 l/min	Stage 2 55 l/min	Stage 3 63 l/min	Stage 4 73 l/min
20 ccm 976164	**21 m/s**	**26 m/s**	30 m/s	34 m/s
25 ccm 976165	17 m/s	**21 m/s**	**24 m/s**	28 m/s
31 ccm 976166	14 m/s	17 m/s	19 m/s	22 m/s

Wire cutting speeds with RD-S and RD-S RC

Motor	Stage 1 65 l/min	Stage 2 75 l/min	Stage 3 80 l/min	Stage 4 90 l/min
20 ccm 976164	31 m/s	35 m/s	38 m/s	42 m/s
25 ccm 976165	**25 m/s**	**28 m/s**	30 m/s	34 m/s
31 ccm 976166	**20 m/s**	**23 m/s**	**24 m/s**	**27 m/s**

2.8 Wire lengths

The forward feed movement takes place with the drawing in of the wire into the machine. For this purpose the rocker with the driving pulleys is swivelled upwards. The wire lengths, which are thereby drawn into the machine are shown in the "Wire lengths" table.



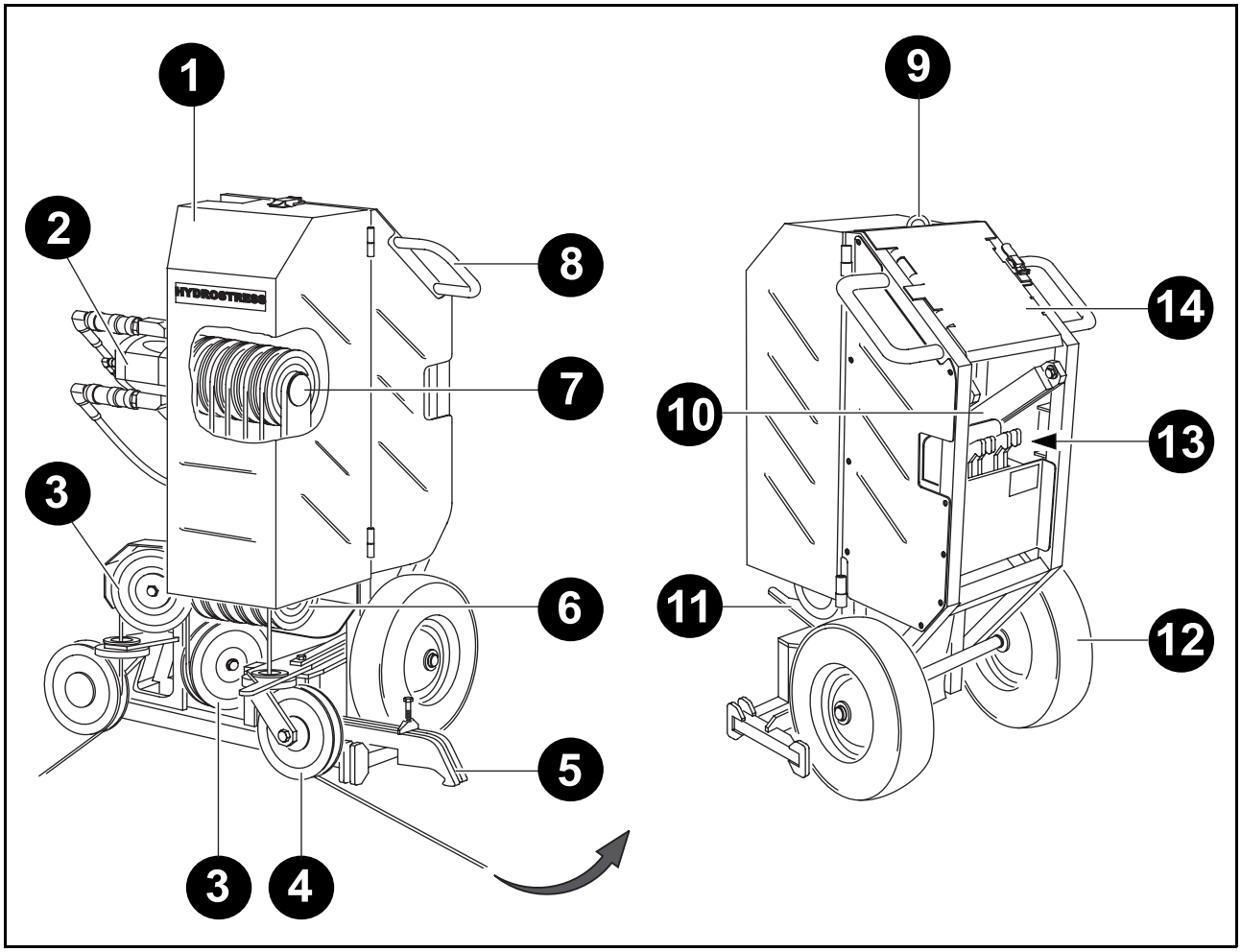
Wire lengths				
	Storage	**Rocker at bottom**	**+Draw-in L2** (Rocker in top position)	**= Total length**
L1	Without storage	5.50 m	2.00 m	(L1 + L2) = 7.50 m
L1	+ Storage A	7.50 m	+ 2.00 m = 4.00 m	(L1 + L2) = 9.50 m
L1	+ Storage B	9.50 m	+ 2.00 m = 6.00 m	(L1 + L2) = 11.50 m
L1	+ Storage C	11.50 m	+ 2.00 m = 8.00 m	(= L1 + L2) = 13.50 m
L1	+ Storage D	13.50 m	+ 2.00 m = **10.00 m**	(= L1 + L2) = **15.50 m**

3 Safe and efficient operation

To achieve a safe and efficient operation, we recommend that you proceed as follows:

Task	Reference
Read safety instructions	See “1.2, Inherent dangers of wire saws” on Page 6
Transport machine	See “15.1, Transport” on Page 42
Set up the SB machine	See “7, Applicational advice” on Page 18
Sequence of cuts	See “7, Applicational advice” on Page 18
Establish wire lengths	See “2.8, Wire lengths” on Page 13
Connect SB	See “8, Connection of hydraulics and water” on Page 22
Connect wire	See “9.4, Connect wire” on Page 31
Insert wire	See “10.1, Insert wire, general.” on Page 33
Store wire	See “11.1, Store wire, 1st step” on Page 35
Determine wire cutting speed	See “2.7, Wire cutting speed” on Page 12
Run up wire saw	See “12, Run up wire saw” on Page 36
Interrupt cut	See “12.6, Interruption of cut” on Page 38
Stop work	See “12.8, Terminate operation” on Page 38
Maintenance	See “14.1, Maintenance table” on Page 41
Putting out of operation and storage	See “15.2, Putting out of operation, storage” on Page 42

4 Construction

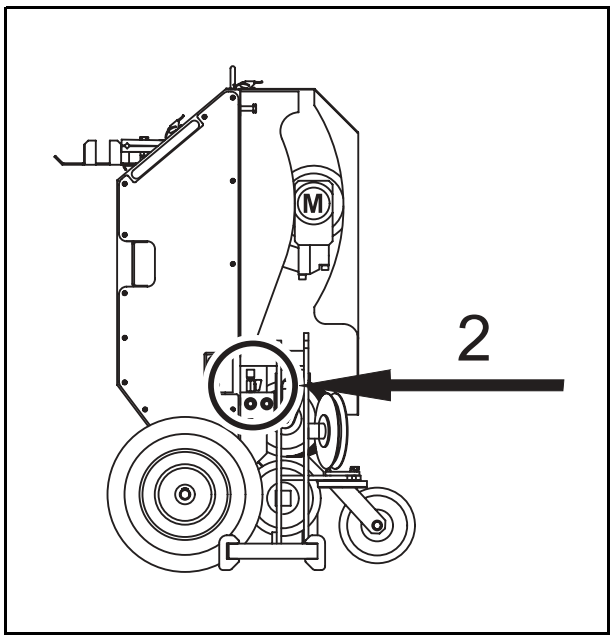


The most important modules

1. Protective hood
2. Drive motor
3. Deflection pulley
4. Swivelling pulley
5. Clamping shackle
6. Lower deflection pulleys
7. Drive pulleys
8. Chassis handle
9. Crane hook
10. Rocker
11. Pulley guide for wire storage
12. Wheel
13. Storage area for clamping shackles
14. Hinged working table

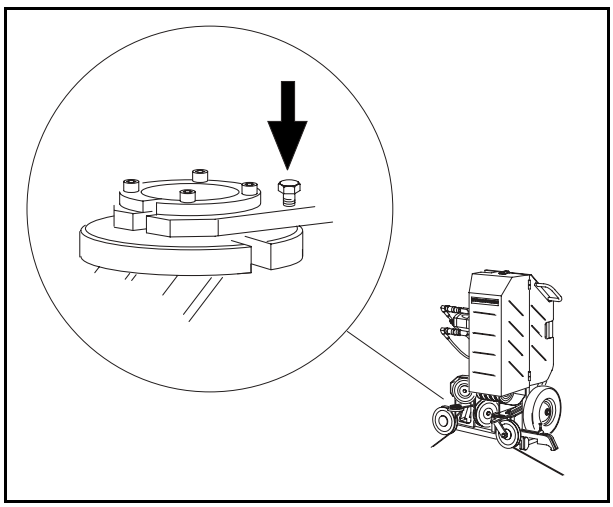
5 Control elements

Water tap



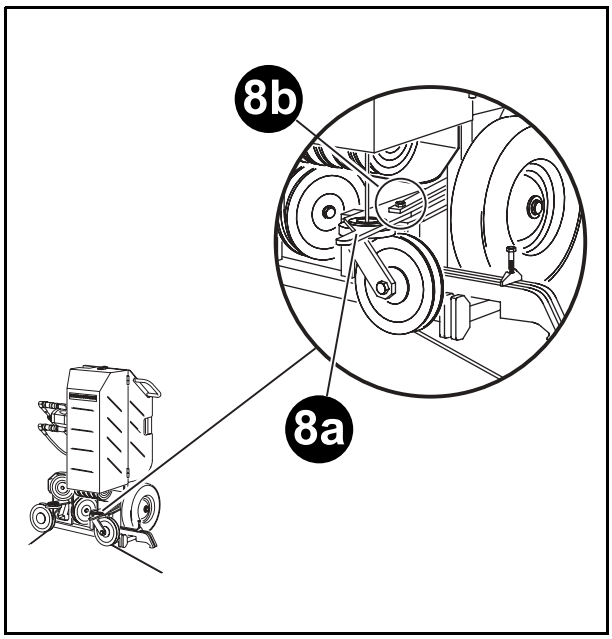
Water tap (2) for regulating the flushing of the drive pulleys

Locking screws for the swivelling pulleys



During cutting work the locking screws on the swivelling pulleys must be tight.

Roller guides



The roller guide (8a) has 4 latched positions and guides the wire to the correct storage pulley.

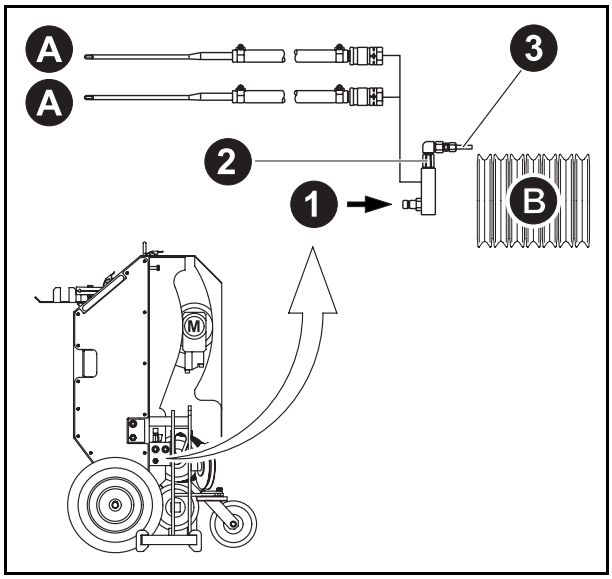
During cutting work the locking screws for the roller guides (8b) must be tight.

Before servicing or adjusting the SB the plug on the connected drive unit must be pulled out.

6 Water

Never connect the water supply hose directly onto the SB. Instead always lead it first through the drive unit in order to cool the electric motor.

Water circuit



The water coming from the drive unit is led to the water entry nozzle (1) and from there to the individual points, which have to be cooled and flushed through.

Water entry (1)

Connect water supply hose from drive to this point

Water tap (2)

This regulates the water quantity for flushing the drive pulleys (B)

Water exit to the drive pulleys (3)

Lead flexible water supply hose to the drive pulleys so that they are optimally flushed

Water lances (A)

The water lances must be placed into the cut at the wire entry points so that the wire is optimally cooled.

Connect water

- Pressure: Min. 1 to max. 6 bar
- Water temperature: Max. 25° C
- Ensure that the water supply is not interrupted during operation

Never close the water tap during operation.

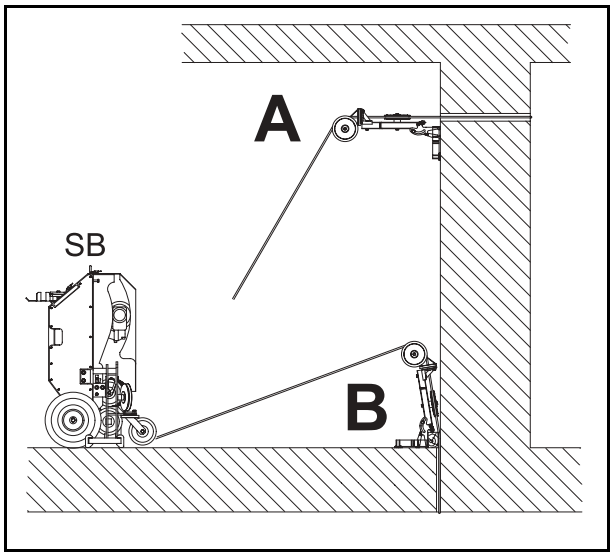
Blow out water if there is a risk of frost

To avoid frost damage, if there is a risk of frost the whole water system must be emptied and blown out after work or before longer operating breaks.
See also the operating instructions for the drive unit being used.

- Disconnect the water supply hose to the drive being used
- Disconnect both water lances (A) and blow them out
- Open water tap (2)
- Blow out the water hoses in the drive unit hose set

7 Applicational advice

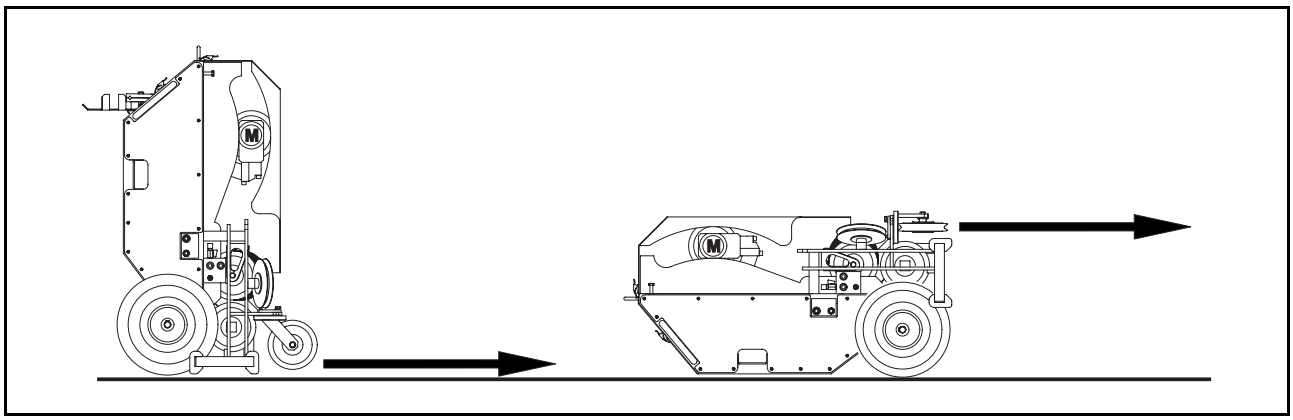
7.1 Setting up the SB



Usually the SB is set up at a certain distance from the structure (indirect erection), and the wire is guided into the cut with the universal trestle.

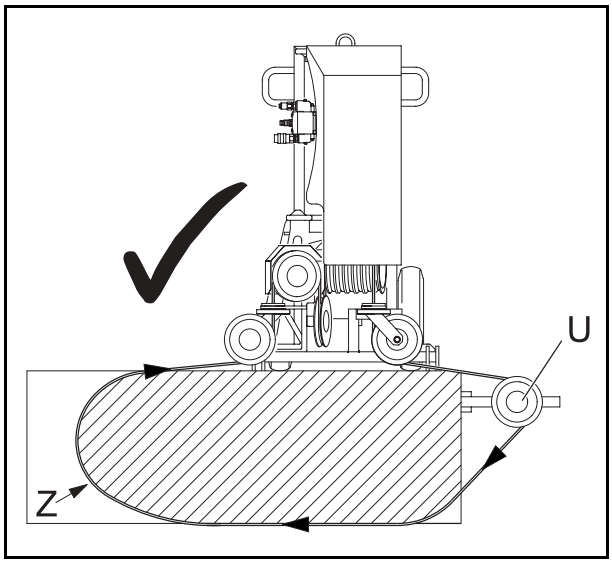
A: Horizontal cut

B: Vertical cut, flush



The SB is usually set up in a standing (vertical) position. However if the space is limited it can also be placed horizontally.

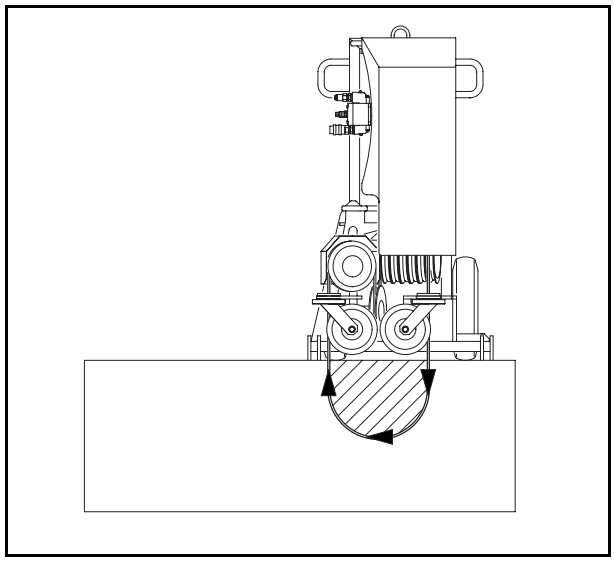
7.2 The correct cutting direction



The work should be carried out with the tension side (Z) of the wire since the cutting conditions are best with this method.

The wire can be guided by means of a deflection pulley (U) so that in the case of sharp edges the wire does not dig in.

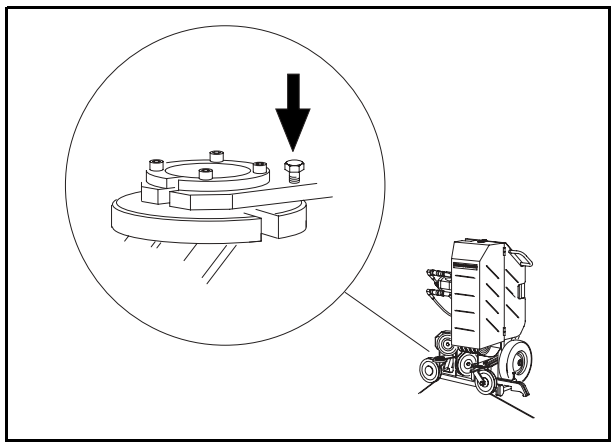
7.3 Finish cutting



For finish cutting of the workpiece swing in both swivelling pulleys so that:

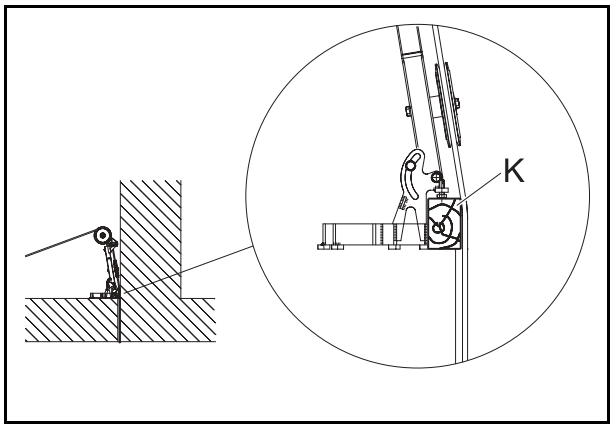
1. The wire does not saw the inside of the holding device and
2. At the end the wire is caught by the swivelling pulleys

Locking screws on the swivelling pulleys



The swivelling pulley locking screws must be tight during cutting work.

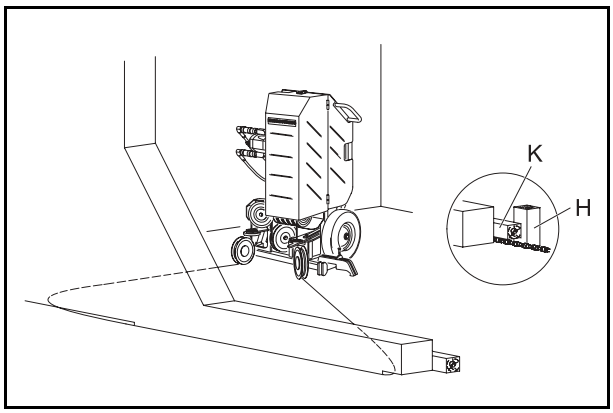
7.4 Flush cutting against a wall



When flush cutting against walls the following points must be borne in mind:

1. Set up SB at a suitable distance from the structure
2. With the universal trestle insert wire into the cut
3. Clamp a strip of timber (K) along the complete length in order to guide the wire flush against the wall

7.5 Flush cutting against the floor

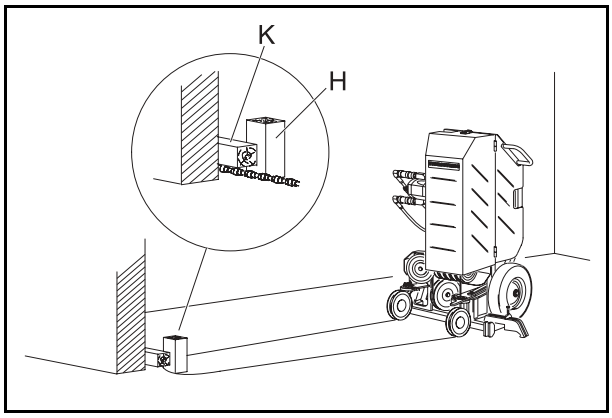


When cutting flush along the floor the following points should be observed:

1. Set up machine about 1 metre from the object
2. Guide wire and hold it right down with a wooden beam (K).

Warning: To catch the wire when it comes out of the cut a piece of wood (H) must be fixed at the exit point.

7.6 End of cut



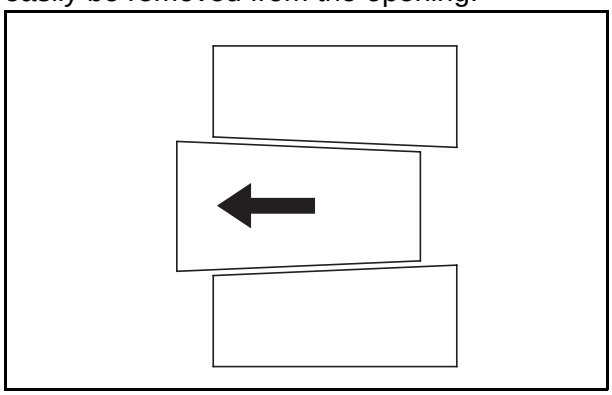
During cutting the swivelling rolls must be swivelled inwards in steps more and more as the cutting proceeds until at the end of the cut they are in parallel.

In order to swivel the swivelling pulleys inwards it is essential that the machine is stopped!

7.7 Establish removal direction

The removal of the sawn-out part must be possible without danger. Make sure that these parts cannot fall outside the restricted zone.

In certain cases it may be necessary to saw a tapered shape so that the sawn-out part can easily be removed from the opening.

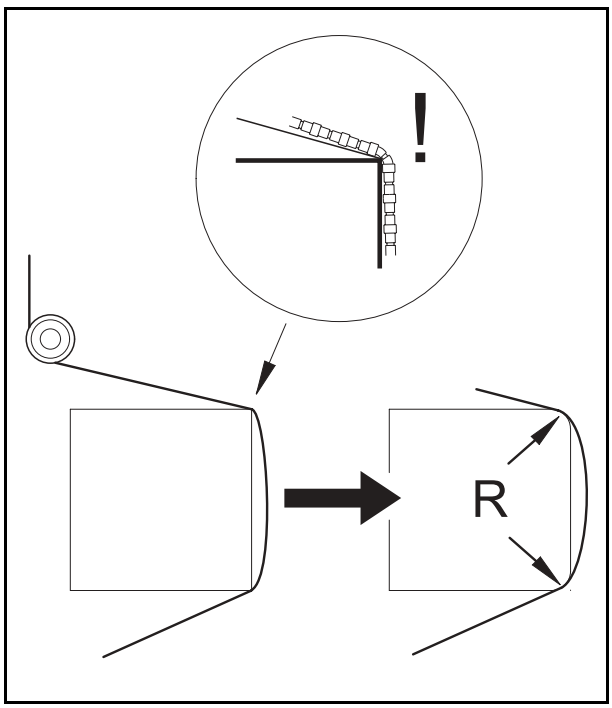


Take account of the structural strength of the building

Wire sawing work must frequently be carried out under difficult conditions. The resulting loose concrete parts are very heavy. Wire sawing work must therefore be carried out in close cooperation with specialists in the structural strength of buildings.

7.8 Rounding off the structural body

The wire must not be led around extremely sharp edges. Such edges must be rounded off before sawing to at least a radius of 10 cm.



7.9 The cutting sequence

Prevent jamming of the wire

The last cut must be arranged so that the sawn-out part does not jam the wire.

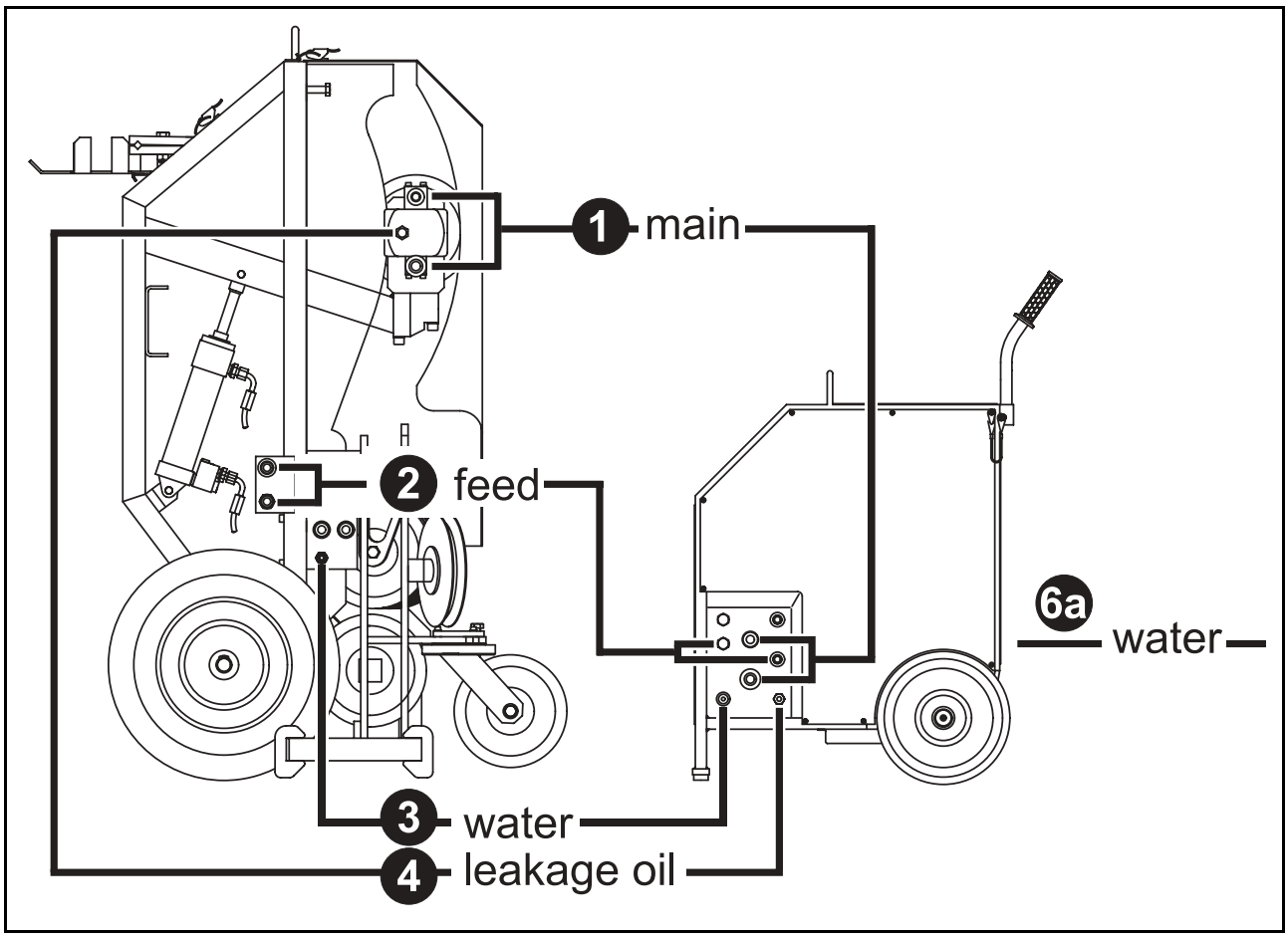
With respect to jamming of the tool (wire), wire sawing is much less trouble than sawing with a diamond saw blade, since the diamond wire constantly cuts itself free.

In spite of this however we recommend the following cutting sequence: First the lower, horizontal cut should be made because in this way the wire is least likely to become jammed, if at the end the block falls into the cut.

The following cuts are less troublesome and therefore can be made in any sequence.

8 Connection of hydraulics and water

8.1 Example of CR-5 RC



Before any work is carried out on the SB the plug on the drive - if connected - must be withdrawn.

Main circuit

Main circuit - feed (1)

Main circuit - return (1)

Feed

Feed - Feed (2)

Feed - Return (2)

Water drive - SB

Connecting hose - SB drive (3)

Main circuit

Main circuit - leakage oil (4)

Water (6a)

Water delivery hose to SB (6a)

Always connect the water delivery hose (6a) to the drive in order to cool the electric motor of the drive unit

Initial commissioning

The SB is delivered ready-to-operate. The points described under "Preparation for work" are also valid for the initial commissioning of a new machine.

Preparation for work

Always proceed as follows:

- Clarify the general conditions
- Make building site safe
- Establish position and sequence of drilled holes and cuts
- Carry out visual inspection
- Cover sharp-edged scuffing positions (hoses and wires)

Position yourself at a suitable distance and not in the "firing line" of the wire. If the wire breaks you are then better protected.

Visual checks

Check:

1. Oil level in the oil tank of the drive unit
2. Oil losses from hoses and clutches
3. Clutches and couplings for damage and contamination
4. Hoses, plugs and wires for damage

9 The diamond wire

Introduction

These operating instructions describe 2 connecting elements for 2 different types of wire.

Wire types

We distinguish between sintered wire of 11 mm diameter and electro-plated wire. (See page 27) SB_0107_e.fm.

- Only use the original TYROLIT connectors for assembly and the original TYROLIT tools, which are provided, for the fitting of these connectors
- Never kink the wire!
- If the wall thickness is less than 80 cm operate with reduced pressure to limit the wear on the beads

Connecting elements

Both wires can be connected or repaired with the following connecting elements:

- Repair sleeve
- Knuckle connection

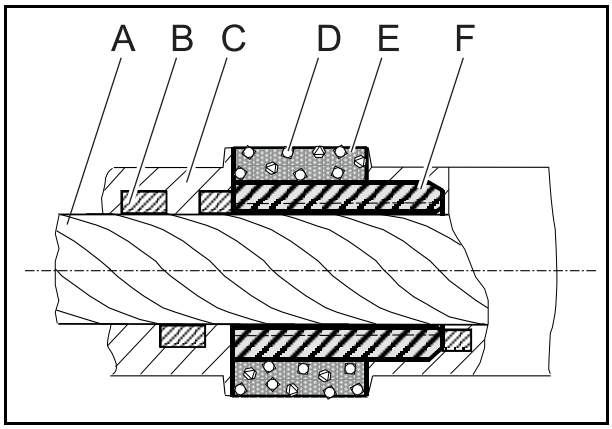
The screw connection should not be used with the SB!
It leads to increased wire cracks!

Storage of wire

- After use clean the wire and always make sure it is stored dry and protected from the light

9.1 Types of diamond wire

Sintered wire, 11 mm dia., longitudinal cut



A.) Steel wire

B.) Steel spring (flat)

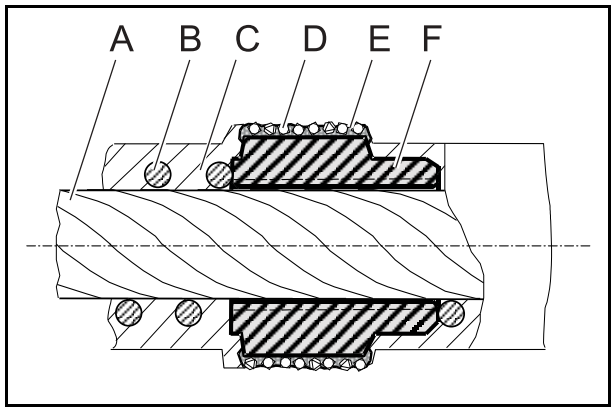
C.) Plastic casing

D.) Diamond crystals (multi-layered)

E.) Sintered bonding

F.) Steel core

Electro-plated wire, 10 mm dia., longitudinal cut



A.) Steel wire

B.) Steel spring (round)

C.) Plastic casing

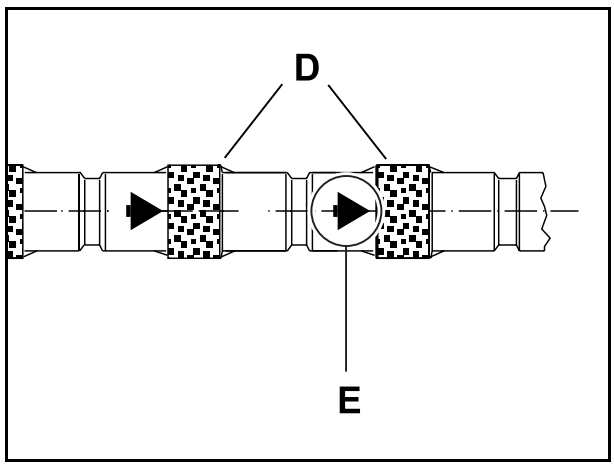
D.) Diamond crystals (single-layered)

E.) Electrical bonding

F.) Steel core

Wire running direction

The wire running direction is shown on all wires by an arrow behind every eighth bead.



D.) Diamond beads

E.) Directional arrow (wire running direction)

9.2 Preparation of wire ends

Working steps for both types of wire

1. Cut wire with cutting wheel (one bead is always lost), (see Page 29) SB_0107_e.fm
2. Pull off steel spring (with side cutter)
3. Cut plastic casing neatly from steel wire (with sack knife)

The steel wire must be absolutely free from plastic residues before pressing. Otherwise the wire could be torn from the pressing unit.

Caution: Risk of cutting with knife! Carry out cutting movements so that no injuries can occur!

- For cutting the wire only use an angle grinder with a 1.6 mm cutting wheel

Cutting wheel 38647

Cutting with other tools is not recommended since the wire ends may not be sufficiently accurate and may be cut at an angle.

9.3 Avoiding out-of-round wear

Twist wire

To avoid out-of-round wear on the diamond beads, both types of wire should be twisted in an anticlockwise direction before connection.

Knuckle connection: Twist inwards after pressing

Repair sleeve: Twist inwards before pressing

In the case of short wire contact lengths special care is necessary since with such applications the wire can very easily wear out-of-round.
Do not apply too strong a tensile force to the wire!

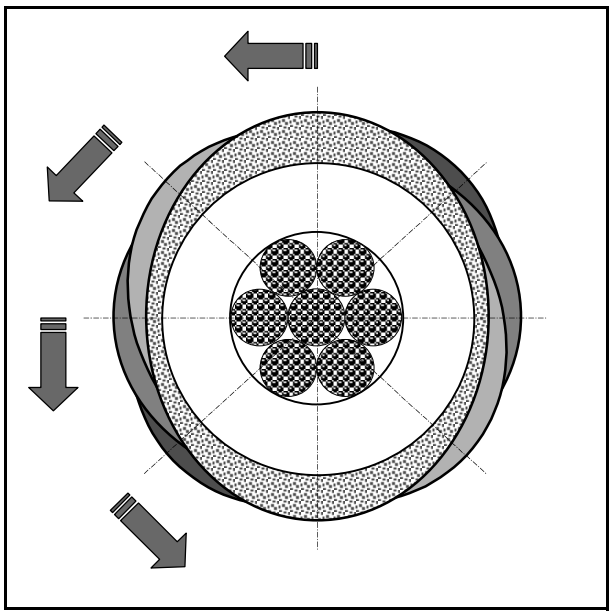
Prevent flat wear (sintered and electro-plated wires)

- To prevent flat running of the wire
- To reduce flat wear on the wire

To achieve a stable roundness of the wire during operation the wire should be frequently and systematically twisted in an anticlockwise direction. This will cause a constant change in the position of the individual diamond beads with respect to one another. This is mainly important during lengthy cutting operations.

Twisting direction

Twisting must always be done in the anti-clockwise direction since otherwise the wire strands of the steel wire would be unwound.



Sintered wire

When first used a sintered wire must be twisted about 1 - 1.5 times per metre length in an anticlockwise direction.

Sintered wire: Twisting at the start of work	
Length of wire	**Total twists**
5 metres	5 - 7 x twists
7.5 metres	8 - 11 x twists
10 metres	10 - 15 x twists
15 metres	15 - 22 x twists

To ensure uniform wear on the wire beads, change the twists of the wire often by about + or - 30%, but never under 1 x per metre of wire. Changing of the twists should take place after every cut.

Advanced operation, Example: 10 m sintered wire	
After 1st cut	+ 3 x twists
After 2nd cut	+ 3 x twists
After 3rd cut	Loosen x 3
After 4th cut	+ 3 x twists
After 5th cut	Loosen x 3, etc.

Electro-plated wire

When first used an electro-plated wire must be twisted about 0.5 times per metre length in an anticlockwise direction.

Electro-plated wire: Twisting at the start of work	
Length of wire	**Total twists**
5 metres	2-3 turns
7.5 metres	4 turns
10 metres	5 turns
15 metres	8 turns

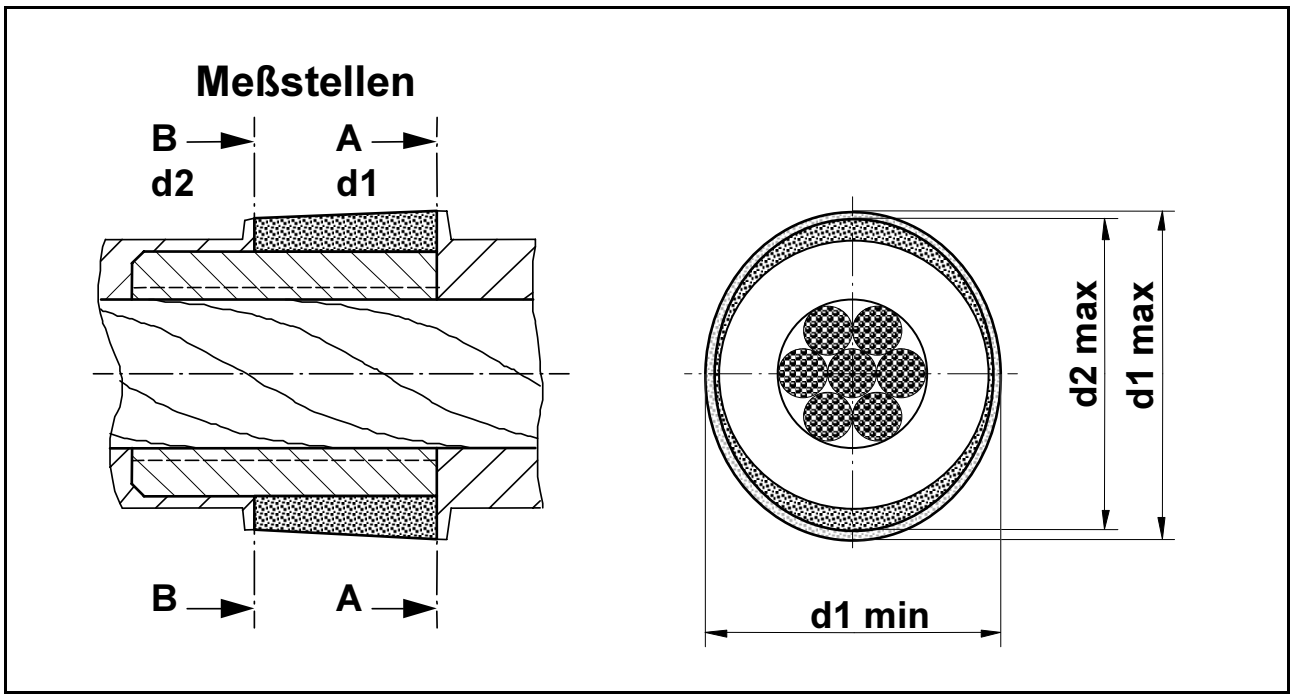
To ensure uniform wear on the wire beads, change the twists on the wire often, but never under 1 x and never more than 1.5 times per metre of wire.
Changing of the twists should take place after every cut.

Advanced operation, Example: 10 m electro-plated wire	
After 1st cut	+ 3 x twists
After 2nd cut	+ 3 x twists
After 3rd cut	Loosen x 3
After 4th cut	+ 3 x twists
After 5th cut	Loosen x 3, etc.

When flat running starts the number of twists should be changed significantly if possible, e.g. 2 to 4 or even more.

Measurement of wire wear

To be able to assess whether the wire is running round it should be measured periodically (e.g. every 2 hours).



Thereby both the conical shape (left-hand picture) and the out-of-roundness (right-hand picture) should be established. Deviations in the dimensions should be a maximum of 0.2 mm.

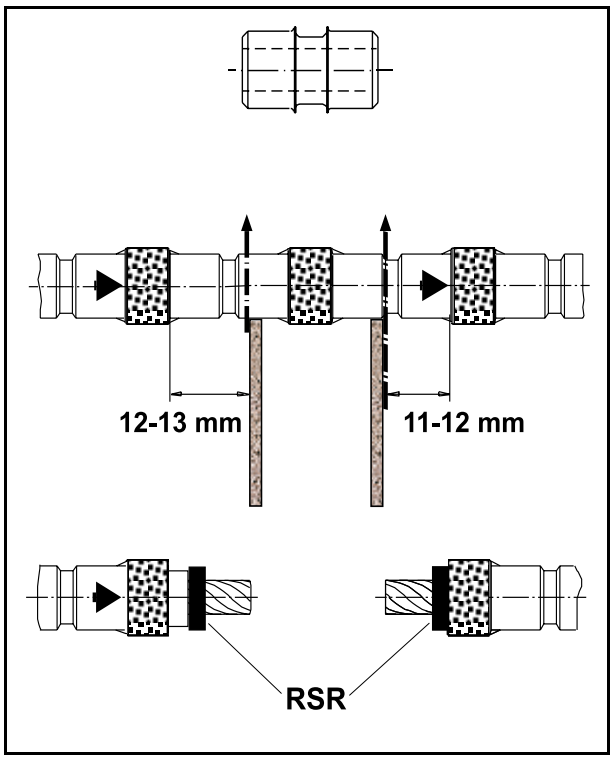
Measures to prevent flat-running wire

If it is found that the wire has been running flat or out-of-round it is essential to react immediately.

Immediately twist the wire inwards more strongly so that during cutting the beads are increasingly led into the concrete spirally. This forced winding makes the beads round again.

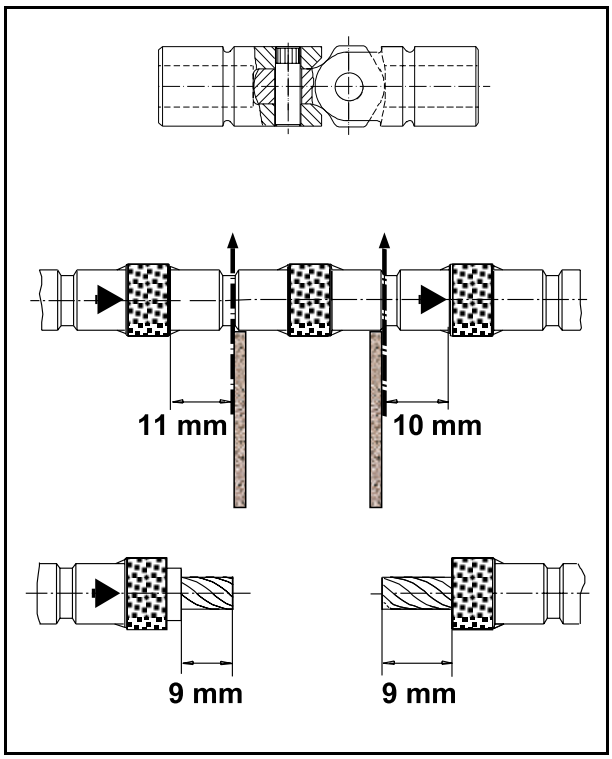
In addition the cutting pressure must be reduced, particularly in the case of small wire contact lengths.

Cut wire for repair sleeve



Before mounting the repair sleeve a rubber ring must be pushed on (RSR) so that the flexibility is maintained at the connecting point.

Cut wire for knuckle connection



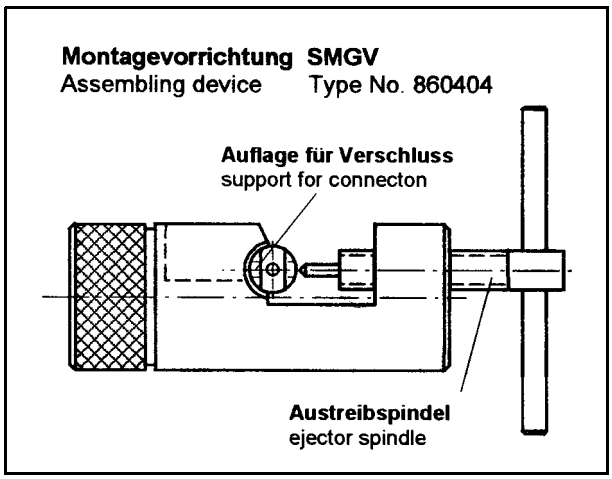
Cut wire so that the knuckle connection rests directly on the beads to the right and left.

Tools

To connect or repair the wire you need:

Repair sleeve	DSZU-01114-94	600045
	or	
Knuckle connection	DSZU-01114-95	724036
Replacement pins for knuckle connection	DSZU-01114-98	724037
Pressing clamp HT 80		117984
Cutting wheel 1.6mm		38647
Angle grinder		
Knife		
Side cutter		
Assembling and riveting device for knuckle connection		860404

Assembly device for knuckle connection



Explanation and function:

Opening the wire:

Place wire with closed knuckle connection into the device and align it centrally. Carefully drive out the spindle with the pin.

9.4 Connect wire

Electrically-bonded wire

This wire does not change its diameter as it wears.

Therefore when connecting various worn wires together it is unnecessary to take account of the diameter.

Sintered wire

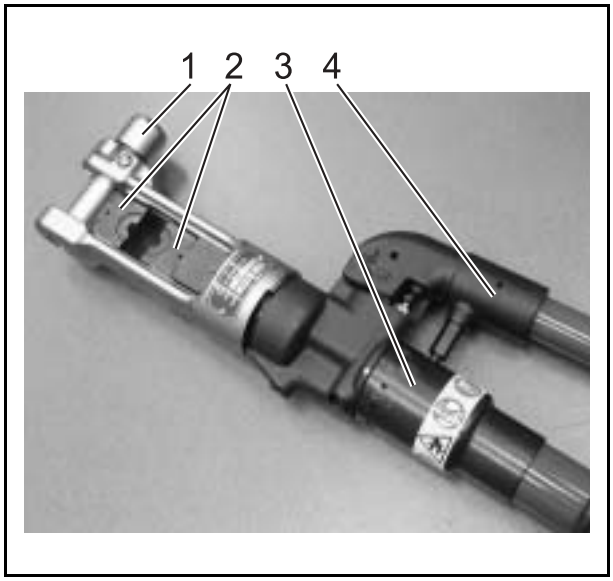
In the event of wear different diameters may arise since the diameter changes.

Therefore when connecting various worn wires together it is necessary to take account of the diameter.

Never connect wires of different diameters: The maximum difference between diameters should be 0.2 mm.

Operation of pressing clamp

Warning: Ensure that the 8 tonne press is used.
The 5 tonne press is not strong enough for this task!



1. Connecting pin
2. Pressing jaws
3. Resetting and safety sleeve
4. Pressing lever

Insert pressing jaws

- Open connecting pin (1) and slide in the pressing jaws (2)
- Insert connecting pin (1)

Press connectors

- Place sleeve right on the end of the wire and place in pressing clamp
- Turn resetting and safety sleeve (3) to release pressing lever (4)
- Operate press lever (4) several times until you hear a "click", repeat 3 times
- Turn resetting and safety sleeve (3) so that the piston travels back with the lower pressing jaw

10 Insert wire

10.1 Insert wire, general.

Before any work is carried out on the SB the plug on the drive - if connected - must be withdrawn.

The wire can be inserted into the machine open (unpressed) or closed (pressed).

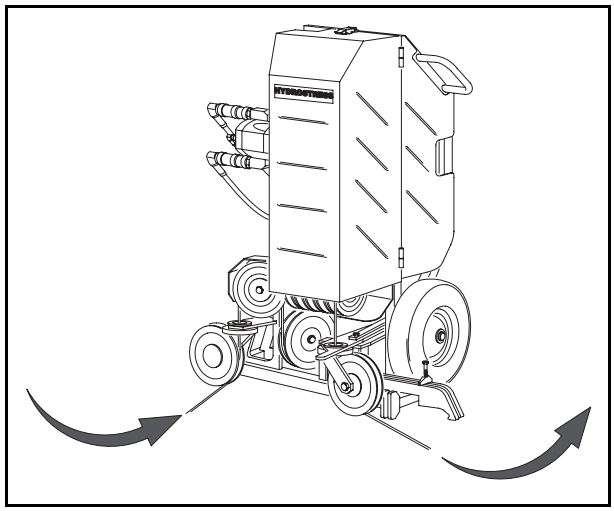
Note the running direction of the wire. This is always shown by an arrow on the wire.

If the running direction arrow can no longer be seen on a worn wire, the small diameter of the conically-worn beads must be aligned to the front.

Do not change the running direction of the wire (by inserting the wire in the opposite direction), since this would cause increased wear.

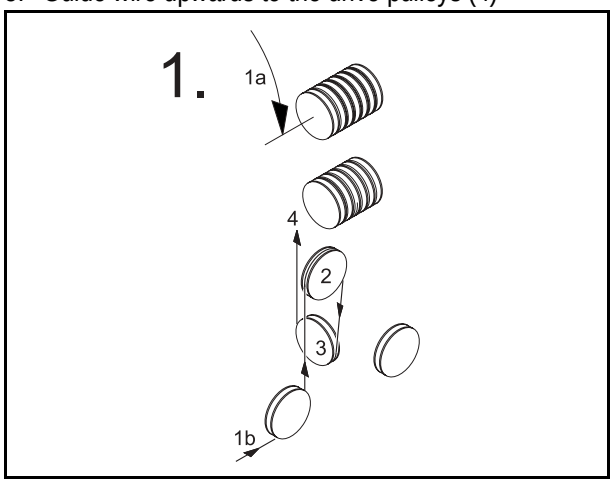
Wire running direction

The wire running direction is prespecified by the running direction of the hydraulic motor and the design of the drive pulley (free-running) and cannot be changed.



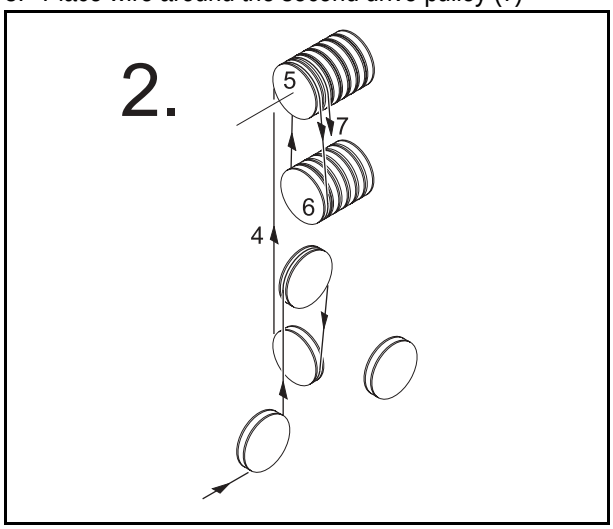
10.2 Insert wire, 1st step

1. Move rocker together with drive pulleys downwards (1a)
2. Insert wire in running direction over the left-hand swivelling pulley (1b)
3. Place wire around upper deflection pulley (2)
4. Place wire around lower deflection pulley (3)
5. Guide wire upwards to the drive pulleys (4)



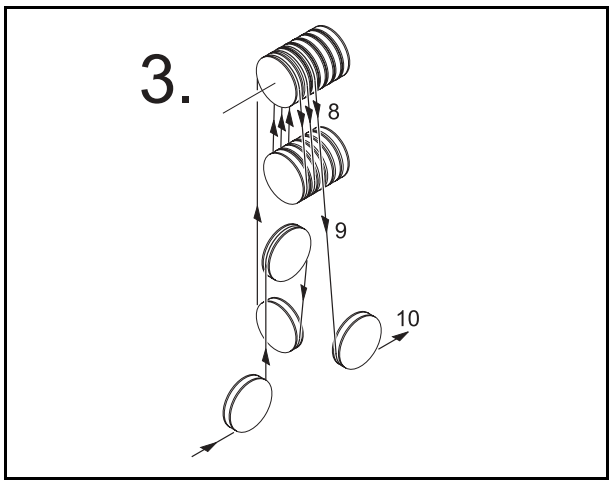
10.3 Insert wire, 2nd step

1. Place wire around the first drive pulley (5)
2. Place wire around the first deflection pulley (6)
3. Place wire around the second drive pulley (7)



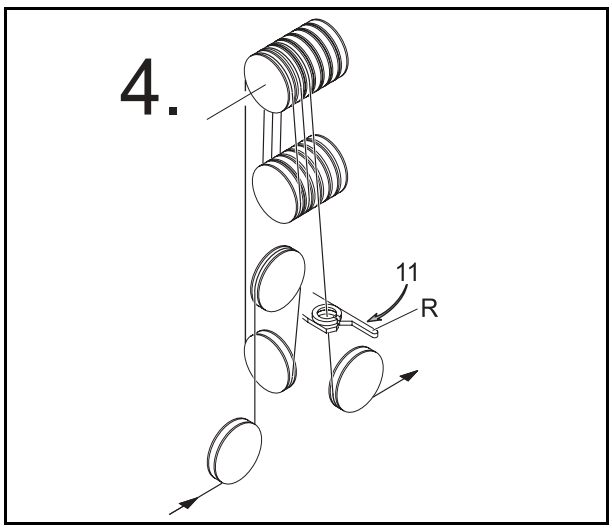
10.4 Insert wire, 3rd step

1. Place wire 3 times around pulleys (8)
2. After third drive pulley guide wire directly downwards towards the right hand deflection pulley (9)
3. Guide wire outwards with right-hand deflection pulley (10)



10.5 Insert wire, 4th step

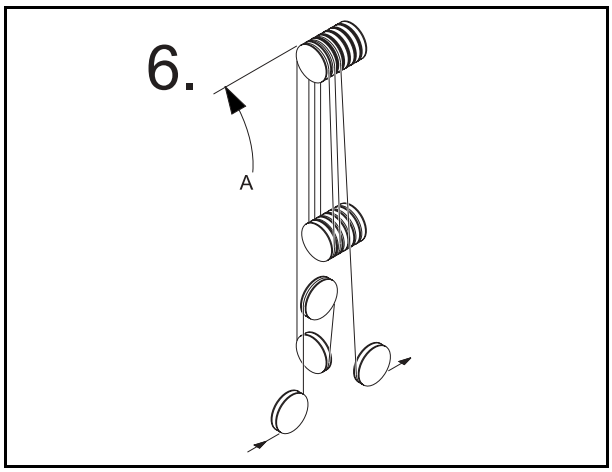
1. Latch roller guide (R) for the first storage stage into the final position on the left (11)



11 Store wire

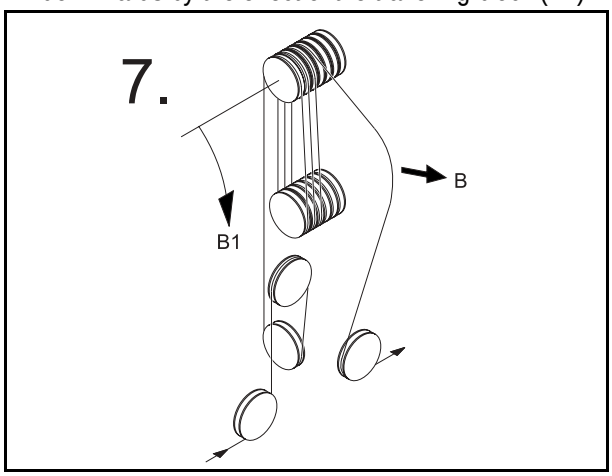
11.1 Store wire, 1st step

1. If the rocker with the drive pulleys has moved to the upper stop (A), first of all move it away
2. After moving away the wire shut down the machine



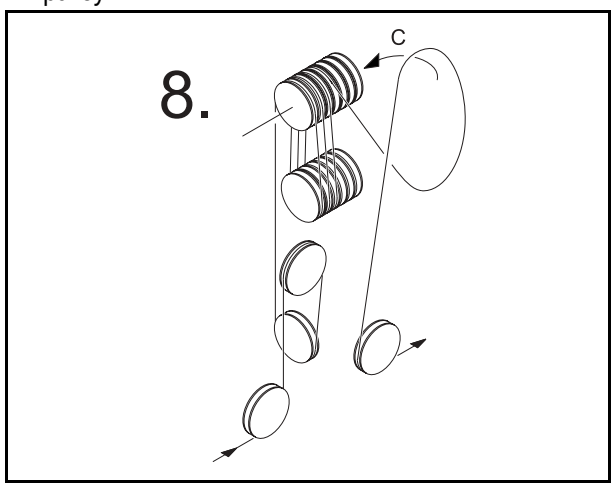
11.2 Store wire, 2nd step

1. Pull wire by hand from the machine (B). In doing this the rocker together with the drive pulleys is pulled downwards by the effect of the travelling block (B1).



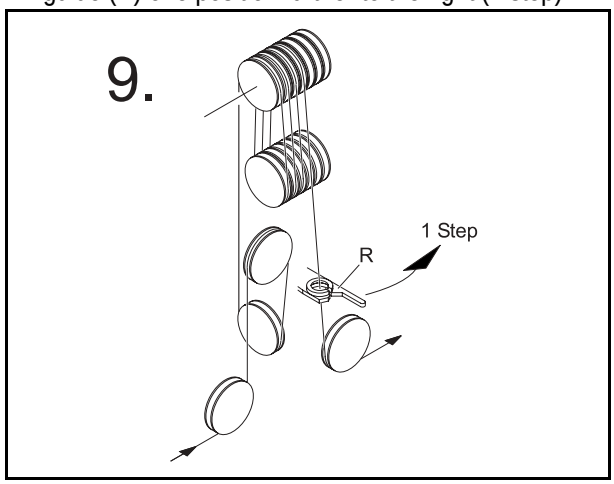
11.3 Store wire, 3rd step

1. Cross over wire in anticlockwise direction (C)
2. Place upper part of loop over the next free drive pulley
3. Place lower part of loop over the next free deflecting pulley



11.4 Store wire, 4th step

1. For each further wire storage step place the roller guide (R) one position further to the right (1 step)



12 Run up wire saw

To achieve a safe and efficient operation, we recommend that you proceed as follows:

Before any work is carried out on the SB the plug on the drive - if connected - must be withdrawn.

Task	Reference
Read safety instructions	See “1.2, Inherent dangers of chain saws” on Page 6
Pull wire through by hand	See “12.1, Pull wire through by hand” on Page 37
Switch on drive unit	See “12.2, Switch on drive unit” on Page 37
Preset the feed	See “12.3, Presetting the feed” on Page 37
Set up water	See “6, Water” on Page 17
Let wire run	See “12.4, Letting the wire run” on Page 37
Operation	See “12.5, Operation” on Page 38
Interruption of cut	See “12.6, Interruption of cut” on Page 38
End of cut	See “12.7, End of cut” on Page 38
Terminate operation	See “12.8, Terminate operation” on Page 38

12.1 Pull wire through by hand

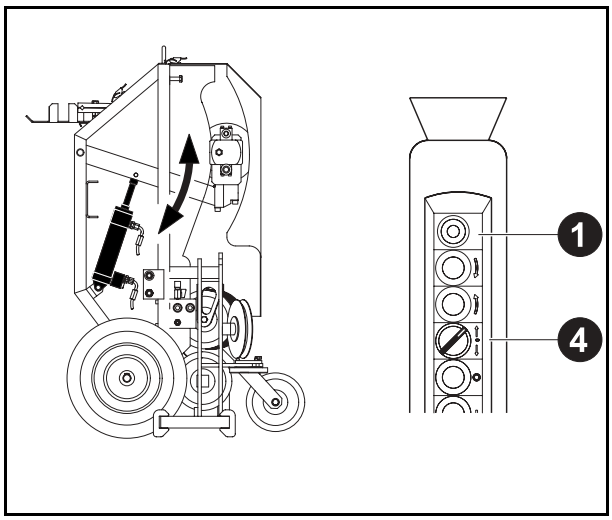
- Before starting the wire saw pull the wire by hand over the building object

If the wire cannot be pulled over the building object by hand it will also not be able to start up with the machine!

12.2 Switch on drive unit

- See the operating instructions for the drive unit being used.

12.3 Presetting the feed



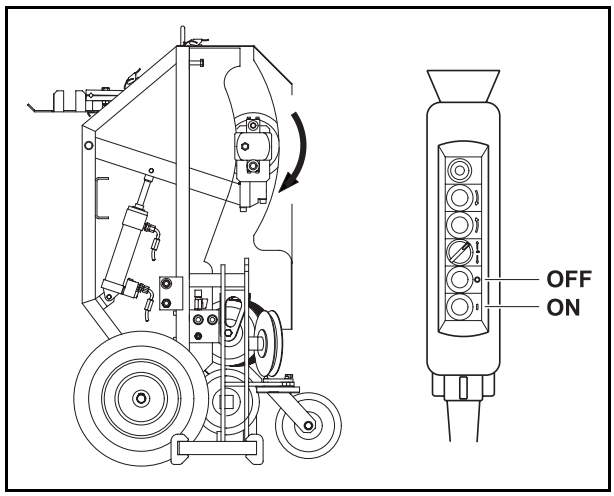
Before first switching it on, the wire must be tensioned by means of the feed as follows:

1. Not too loose. Otherwise the wire will not start to run or it could even jump off the pulleys.
2. Not too tight. Otherwise the wire could dig into and bind in the corners of the structural body.

- Set selection switch (4) to anticlockwise
- Preset feed pressure to 30 bar with rotary controller (1)

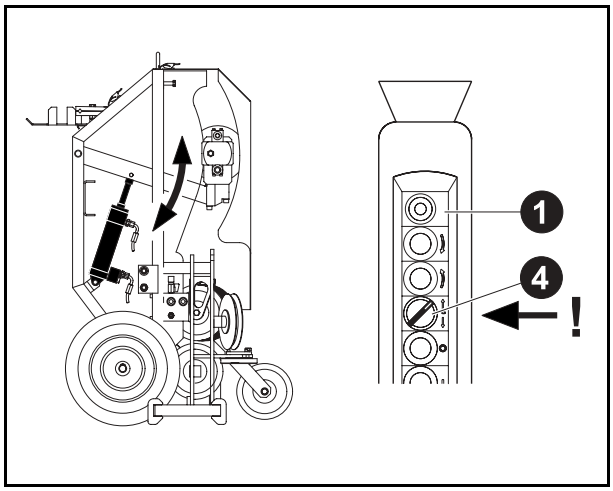
12.4 Letting the wire run

- Press the "ON" pulsing button on the remote controller



If the wire does not start to run immediately switch off the machine again, search for the reason why the wire is not moving and rectify it.
(See Page 38: Rectifying faults)

12.5 Operation



- Do not change the position of the selection switch (4) again!
- Regulate feed pressure with rotary controller (1)

12.6 Interruption of cut

To achieve easier starting up of the wire in the existing cut at a later stage, the cut should be "freed" by operating the wire for a few moments.

- Let the wire run in the cut without any feed until the main pressure has reduced by about 20-40 bar.
- Once the wire runs with significantly less main pressure, switch it off and also turn off the water.

12.7 End of cut

- At the end of the cut move out of the cut with reduced feed pressure to ensure trouble-free capturing of the wire on the swivelling pulleys.
- Once the wire has been captured by the swivelling pulleys, switch off the wire and turn off the water.

12.8 Terminate operation

- Close off and disconnect water supply
- Withdraw mains plug
- Uncouple hydraulic hose and wind it up
- Uncouple water hose and wind it up
- Disconnect cable and wind it up

13 Rectifying faults

Proceed systematically when searching for the cause of a fault. Also you should use the operating instructions for the drive unit being used. If you cannot find the fault or rectify the problem just call our Customer Services.

Before calling us however please note the following points:

- We can help you better the more precisely you can describe the fault
- Keep the operating instructions to hand

Before rectifying the fault disconnect the SB from the mains!

Fault	Possible cause	Rectification
Wire worn flat on one side	Wire has not been twisted - or not twisted enough	Twist wire or increase number of twists
	The operation was carried out on reinforcement steel with too much feed pressure	Work on steel with less feed pressure
	Too small a contact surface between wire and building object	Insert deflection pulley
Wire cannot be started	Wire tension too high	Correctly tension wire and/or slightly reduce tension during starting
	Wire has too many contact points with structural object	Mount deflection pulley
	Drive rims worn	Replace drive rims
	Corners of building object are too sharp edged	Round-off corners
Wire cracked	Wire pressing (connecting) incorrectly carried out	Improve wire pressing system
	False wire connector (screwed connector)	Only use knuckle connector or repair sleeves
	Loose steel or stones in building object	Cut must be relocated / insert deflection pulley

Fault	Possible cause	Rectification
Wire "polished"	Too high a wire cutting speed	Adapt wire cutting speed
	Strong reinforcement or hard aggregates	Adapt wire cutting speed
	Too great a contact surface between wire and building object, or pressing force or feed too small	Increase feeding force / insert deflection pulley
Wire has too much wear	Too little water in the cut	Align water lance better / increase water pressure
	Strong steel reinforcement	Rectification not possible
	Incorrect wire cutting speed	Adapt wire cutting speed
Feed not constant	Defective clamping cylinder	Replace clamping cylinder
	Strong steel reinforcement	Rectification not possible
Decaying of clamping cylinder when feed set to zero	Retaining valve defective	Replace retaining valve
Drive motor has no power	Defective drive motor	Check / replace defective motor
	Drive defective	Check drive see operating instructions for drive unit in use
Shaft seal defective on drive motor	Plug connectors not correctly connected	Check plug connectors and then replace shaft sealing ring
	Defective drive motor	Replace drive motor
Rim on deflection pulley worn at one position	Deflection pulley bearing defective	Replace bearing and rim
	Deflection pulley touching chassis and jamming	Establish cause and replace defective part
Play in the deflection pulley bearing	Defective bearing / worn ball-bearing	Replace ball bearing and seals
Wire vibrates strongly	Drive or deflection pulley rims are jamming the wire (worn rims)	Replace rims
	Too much tension on wire	Reduce feed pressure
	Too high a wire cutting speed	Adapt wire cutting speed
	Cut carried out with slack side of wire	Carry out cutting only with tension side. Only cut with slack side in the event of poor access to the building object
Straight cut not possible	Deformed swivel pulley holder	Replace swivel pulley holder
Play in bearing on drive shaft	Defective ball bearing	Replace ball bearing

14 Maintenance

14.1 Maintenance table

Carry out the following maintenance work within the given intervals so that the following are guaranteed:

- User safety
- Optimum performance
- Ready-for-use at any time

Before maintenance work disconnect the SB from the mains!

Maintenance interval	Tasks	Remarks
If there is a risk of frost at the end of work	Drain water and blow out lines	See operating instructions for the drive unit used
After every cut	Check flattening of wire	If unevenly worn change twists
Daily	Check rims on drive and deflection pulleys	Replace rims if worn
	Check bearings on drive and deflection pulleys	If worn replace drive and deflection pulleys
	Check clamping cylinder for oil loss	In the event of oil loss or defects seal or replace cylinder
Every 200 operating hours	Major service	To be carried out by HYDROSTRESS or an authorized representative

14.2 Repairs

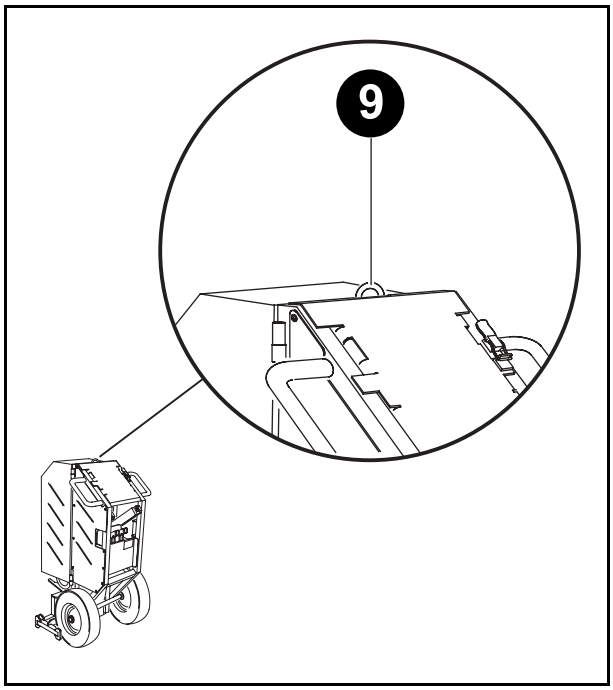
Components other than those described in the maintenance section may only be exchanged by personnel who have been trained by HYDROSTRESS.

15 Transport, putting out of operation, storage and disposal

15.1 Transport

The SB wire saw is a high-quality technical system. Protect it from transport damage:

- Do not place parts over or on the SB
- Only lift the machine with the crane hook (12)



15.2 Putting out of operation, storage

If the SB is not to be used for a longer time, do the following:

- After work rinse it off immediately with water
- Blow water from all hoses and lines (frost danger in winter)
- Store in a cool place
- Lightly oil bright parts

Storage of wire

- After work rinse it off immediately with water
- Store in a dry place protected from the light

15.3 Disposal

The SB consists of the following materials:

- Aluminium casting
- Aluminium rolled products
- Steel
- Rubber
- Plastic

Find out about the disposal regulations in your country.

16 Accessories, spare parts lists

16.1 Accessories

Hydraulic motors, size 3

Motor complete 31ccm	3400275
Motor complete 40ccm	3400377

16.2 Accessories which can be ordered

Hydraulic motors, size 3

Motor complete 50ccm	3400247
Motor complete 60ccm	3400889
Leakage Hose 25ft.	3400274

Connectors

Swivel Crimp	1400178
Crimp Pin Only	1400295

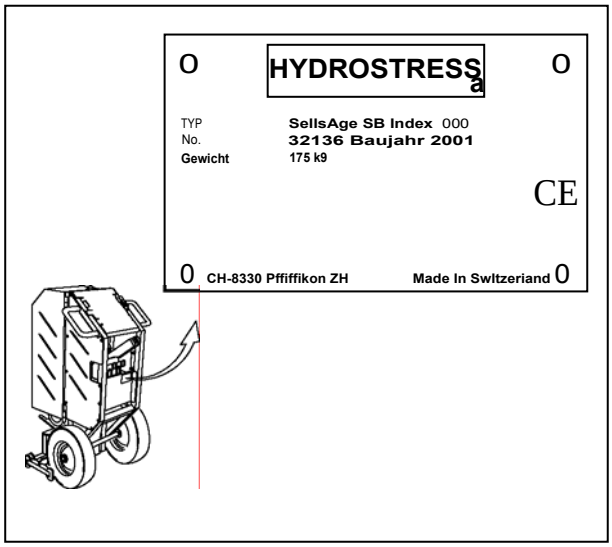
Crimping Tool

Crimper HT80	1400321
Crimper HT45	1400174

Replacement Jaws

Jaws HT45	1400279
Jaws HT80	1400176

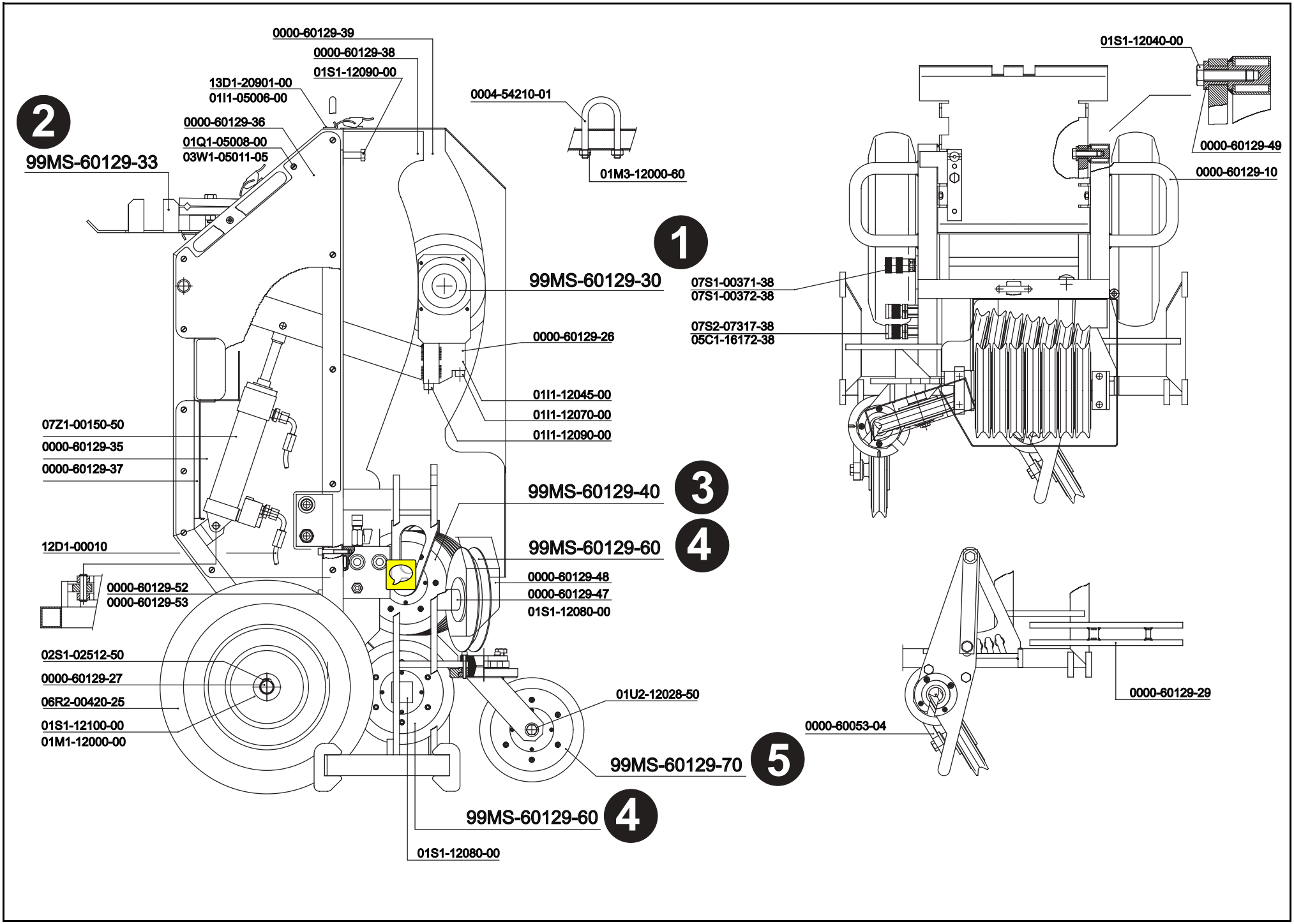
16.3 Spare parts lists, ordering details



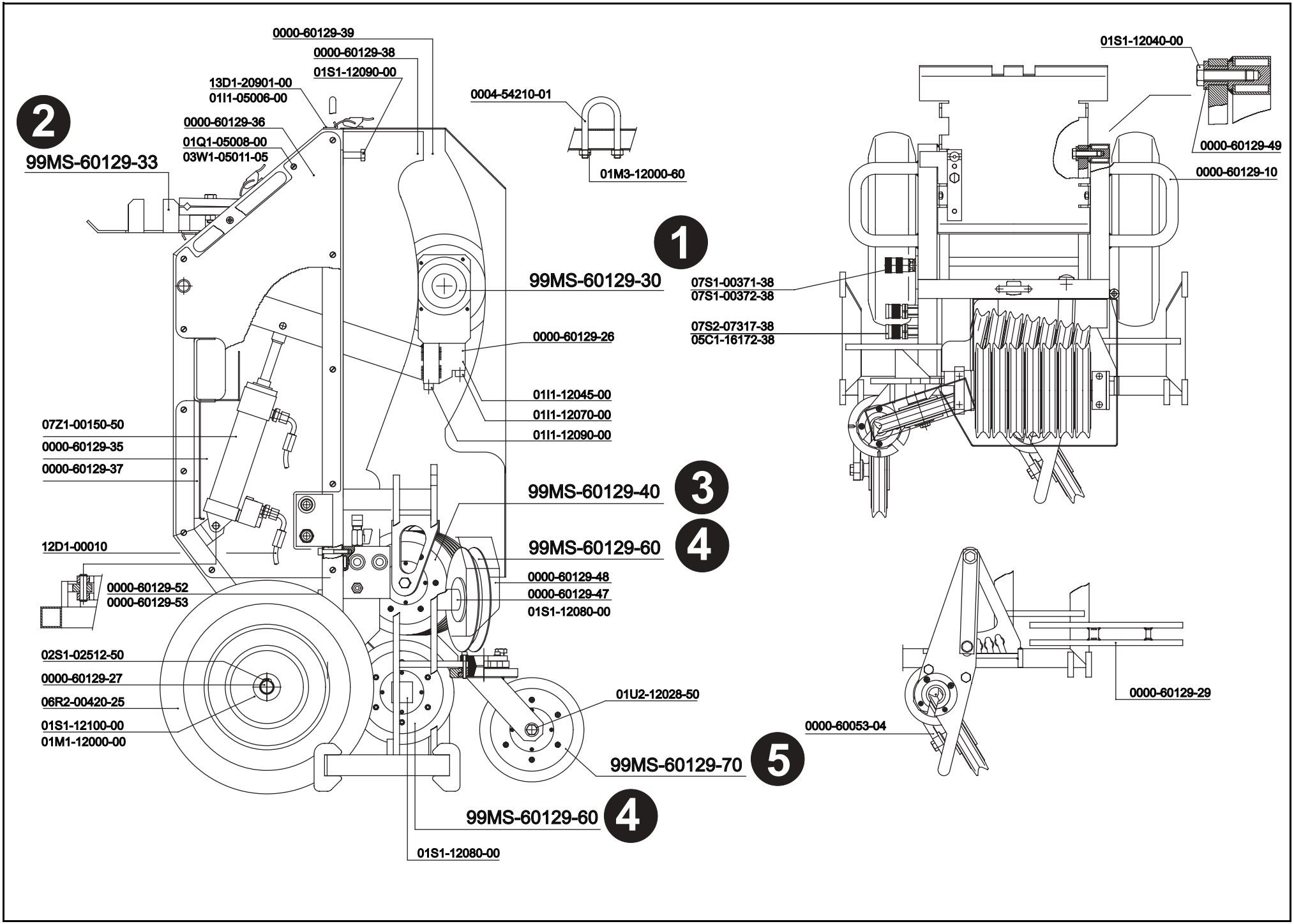
When you order spare parts we require the following details:

- Machine type, according to rating plate (SB)
- Machine number, according to rating plate (e.g. 32136)
- Machine index, according to rating plate (e.g. 000)
- Spare part number according to spare parts list (e.g. 08W7-73648-02)

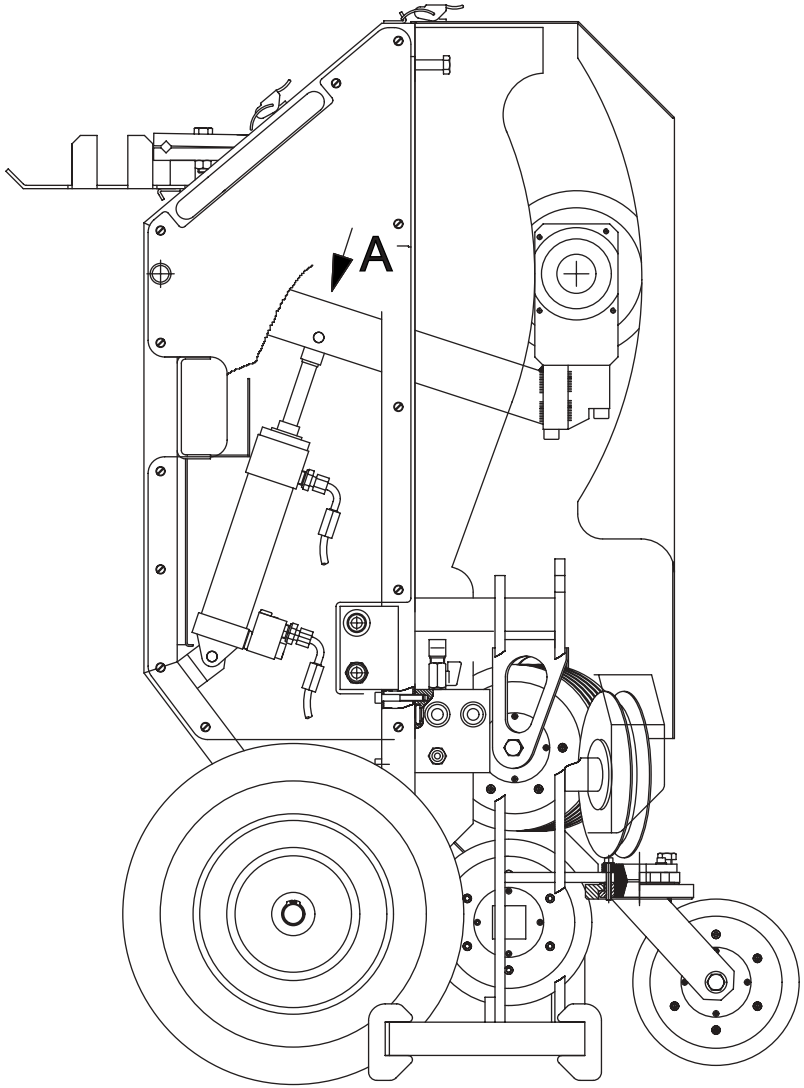
For orders, queries and information please make contact with the responsible subsidiary.


0000-60129-39
0000-60129-38
01S1-12090-00
13D1-20901-00
01I1-05006-00
0000-60129-36
01Q1-05008-00
03W1-05011-05
2
99MS-60129-33
0004-54210-01
01M3-12000-60
01S1-12040-00
0000-60129-49
0000-60129-10
1
99MS-60129-30
07S1-00371-38
07S1-00372-38
07S2-07317-38
05C1-16172-38
0000-60129-26
01I1-12045-00
01I1-12070-00
01I1-12090-00
07Z1-00150-50
0000-60129-35
0000-60129-37
99MS-60129-40
3
99MS-60129-60
4
12D1-00010
0000-60129-48
0000-60129-47
01S1-12080-00
0000-60129-52
0000-60129-53
02S1-02512-50
0000-60129-27
06R2-00420-25
01S1-12100-00
01M1-12000-00
01U2-12028-50
99MS-60129-70
5
0000-60053-04
0000-60129-29
99MS-60129-60
4
01S1-12080-00

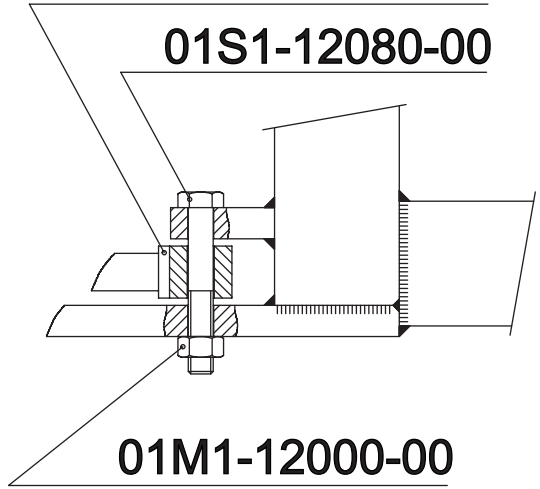
HS #	DP Part #		Description			
99MS-60129-30	**961927**	**Antriebseinheit**	**Antriebseinheit**	**Antriebseinheit**	**Antriebseinheit**	**No.** I
99MS-60129-33	**961928**	**Werktisch**	**Werktisch**	**Werktisch**	**Werktisch**	**No. 2**
99MS-60129-40		**3400344**	**Idler pulley assy.**	**Umienkrolieneinheit**	**Umienkrolieneinheit**	**No. 3**
99MS-60129-60		**3402126**	**Idler Pulley Comp. L h**	**Umienkrolle 200 mit**	**Umienkrolle 200 mit Loch**	**No. 4**
99MS-60129-70	**961901**	3401208	**Pulley**		**Umienkrolle 200**	
0000-60053-04	977114	3401088	Swivelling support	SUPPORT ORIENTABLE	BRACCIO RUOTA GIREVOLE SK	2
0000-60129-10	961914	N/A	Chassis	Chassis	Chassis	1
0000-60129-26	961923	N/A	Wippe	Wippe	Wippe	1
0000-60129-27	961924	**N/A**	**Achse**	**Achse**	**Achse**	1
0000-60129-29	**961926**	**N/A**	**Klammer**	**Klammer**	**Klammer**	2
0000-60129-35	**961930**	**N/A**	**Seitenblech li**	**Seitenblech li**	**Seitenblech li**	1
0000-60129-36	**961931**	**N/A**	**Seitenblech re**	**Seitenblech re**	**Seitenblech re**	1
0000-60129-37	**961932**	**N/A**	**Verschalung hinten**	**Verschalung hinten**	**Verschalung hinten**	1
0000-60129-38	**961933**	**N/A**	**Mittelblech**	**Mittelblech**	**Mittelblech**	1
0000-60129-39	**961934**	3403197	**Hood**	**Haube**	**Haube**	1
0000-60129-47	**961945**	**3402250**	**Spacer**	**Distanzstück**		2
0000-60129-48	**961954**	3403413	Guard	**Rollenabdeckung**		1
0000-60129-49	**961957**	3401246	Bushing	Büchse	Büchse	2
0000-60129-52	962504	N/A	Blech	Blech	Blech	1
0000-60129-53	962503	N/A	Schutzlappen	Schutzlappen	Schutzlappen	1
0002-54457-01	975923	N/A	HS-serial plate large NOT S. HS-Typenschild gross **NOT SHOWN**		HS-Typenschild gross **NOT SHOWN**	1
0004-54210-01	971605	3401920	Hanger Strap	Aufhängebügel	Aufhängebügel	1
01I1-12045-00	971781	N/A	Socket screw M 1 2x 45	Inbus-Schraube M1 2x 45	Inbus-Schraube M12x 45	2
01I1-12070-00	971784	N/A	Socket screw M 1 2x 70	Vis CHC M 1 2x70	VITE BRUGOLA M12X70	1
01I1-12090-00	971786	N/A	Socket screw M 1 2x 90	Inbus-Schraube M12x 90	Inbus-Schraube M 1 2x 90	1
01I6-05008-23	971834	3400189	Allen screw M5x8	VIS CHC tête plate M5x8	VITE BRUGOLA M5X8 BASSA	8
01M1-12000-00	971849	3402015	Hexagon nut	Ecrou 6 pans M 1 2	DADO M12	4
01 M3-12000-60	979309	3401921	stop-nut M12 thin head	Stop-Mutter M12 nied.Form	Stop-Mutter M12 nied.Form	2
01Q1-05012-00	971880	N/A	Panhead screw	Vis à tête plate M5x1 2	Pan-Head-Schr. M5x12	45
01S1-12040-00	979337	3402151	hex.-screw M 1 2x40	6kt-Schraube M12x40	6kt-Schraube M12x40	2


0000-60129-39
0000-60129-38
01S1-12090-00
13D1-20901-00
01I1-05006-00
0000-60129-36
01Q1-05008-00
03W1-05011-05
2
99MS-60129-33
0004-54210-01
01M3-12000-60
01S1-12040-00
0000-60129-49
0000-60129-10
1
99MS-60129-30
07S1-00371-38
07S1-00372-38
07S2-07317-38
05C1-16172-38
0000-60129-26
01I1-12045-00
01I1-12070-00
01I1-12090-00
07Z1-00150-50
0000-60129-35
0000-60129-37
99MS-60129-40
3
99MS-60129-60
4
12D1-00010
0000-60129-48
0000-60129-47
01S1-12080-00
0000-60129-52
0000-60129-53
02S1-02512-50
0000-60129-27
06R2-00420-25
01S1-12100-00
01M1-12000-00
01U2-12028-50
0000-60129-29
0000-60053-04
99MS-60129-70
5
99MS-60129-60
4
01S1-12080-00

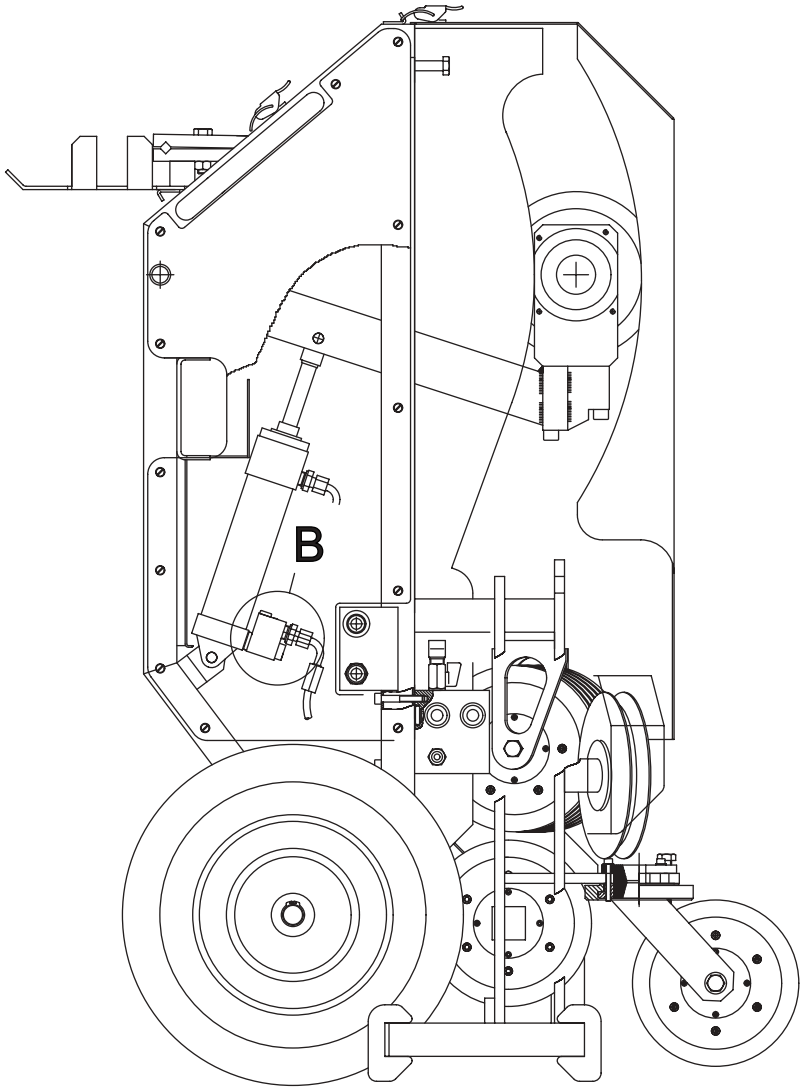
HS #		DP Part #	Description			
OISI-12080-00	971924	3402143	Hexagonal screw	6kt-Schraube M12x80	VITE M 1 2x80	3
01S1-12090-00	971925	3400918	hex.-screw M 1 2x90	VIS H M12X90	6kt-Schraube M12x90	1
01S1-12100-00	979341	N/A	hex.-screw M 1 2x1 00	Vis 6 pans M12x100	VITE M12x100	2
01U2-12028-50	971964	N/A	Washer	U-Scheibe M12 13/24/2,5	U-Scheibe M12 13/24/2,5	2
02L2-00040-08	971986	N/A	Wedge nail NOT SHOWN	Kerbnagel 4x8 NOT SHOWN	VITE M4x8 X LIVELLA NOT SHOWN	4
02S1-02512-50	971996	3400807	Clip Ring	CIRCLIPS ARBRE DIAMETRE 2	SEEGER DM 25 DZ/FZ	2
03W1-05011-05	972105	3400908	Spring disk, ribbed M 5	Federscheibe gewellt M 5	Federscheibe gewellt M 5	45
05C1-16172-38	972187	N/A	copper seal G 3/8"	Kupferdichtung G 3/8"	Kupferdichtung G 3/8"	3
06R2-00420-25	977204	3400684	Fan 420/100/25	Luftrad 420/100/25	Luftrad 420/100/25	2
07S1-00371-38	979703	3401031	CouplinG 3/8"	FF COUPLEUR 3/8"	RACCORDO BRUNING FEMM. 3/8	1
07S 1 -00372-38	979707	3401032	Nipple 3/9	Coupleur 3/8¨	RACCORDO BRUNING MASCH.3/8	1
07S2-07317-38	979716	N/A	coupler 3/8A WR01 7 R	Steckkuppl. 3/8A WR01 7 R	Steckkuppl. 3/8A WR01 7 R	2
07Z1-00150-50	972838	3402264	Hydraulic cylinder 3L	Hydraulikzylinder 3L	Hydraulikzylinder 3L	1
12D1-00010	974924	3400487	Hose No. 010	FLEXIBLE N°010	TUBO NR. 010	2
13D1-20901-00	961979	3401297	Latch	Spannverschluss		2
XXKL-00000-02	976087	HS-Signet 280/60 **NOT SHOWN**	HS-Signet 280/60 NOT S.	HS-Signet 280/60 **NOT SHOWN**	ADESIVO GRANDE **NOT SHOWN**	1
XXKL-00000-1 1	964466	2 Kleber Wasserhahn **NOT SHOWN**	2 adh. f. water tap NOT S.	2 Kleber Wasserhahn **NOT SHOWN**	2 Kleber Wasserhahn **NOT SHOWN**	1



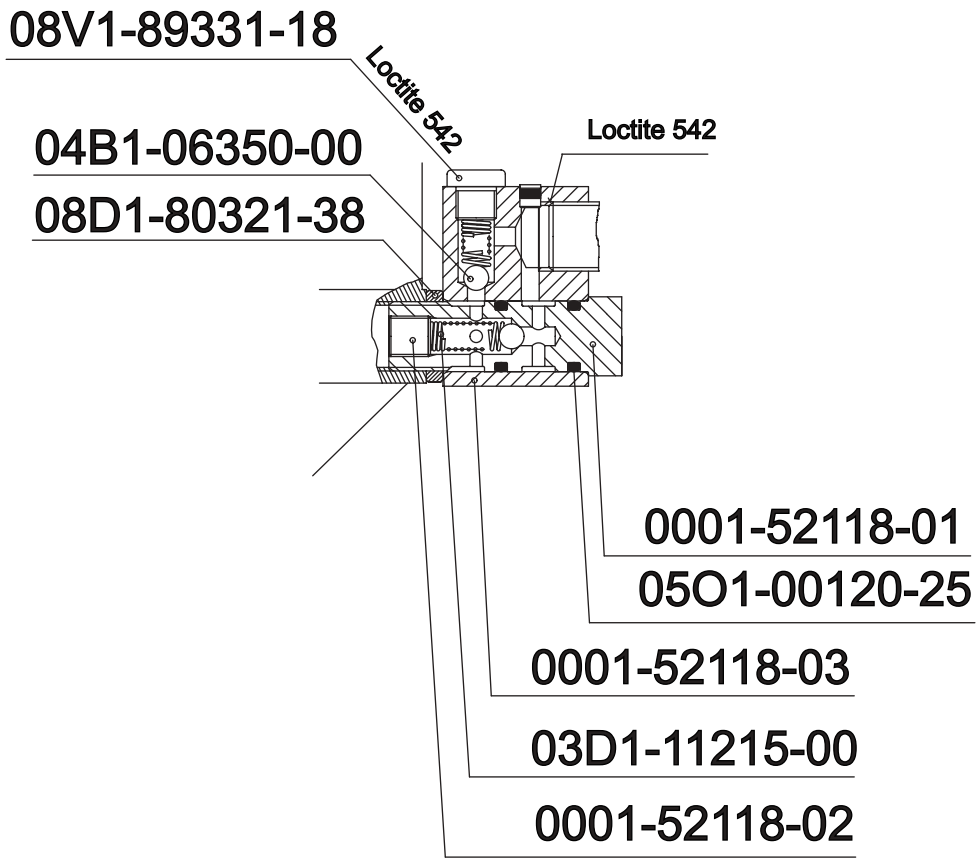
Ansicht A



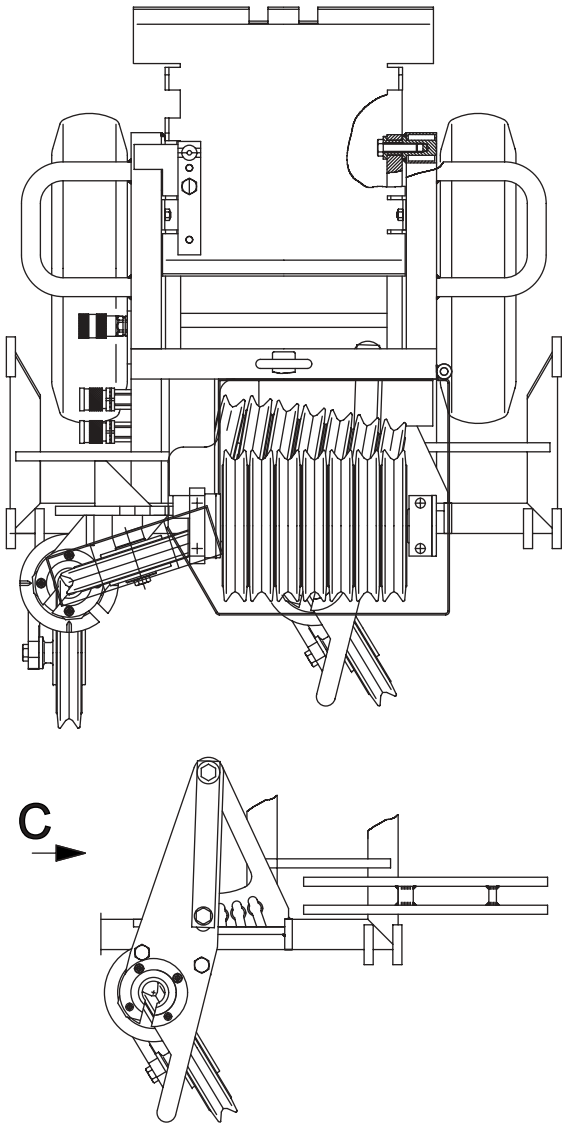
HS #		DP Part #	Description			
0000-60129-28	961925	3401248	Cylinder Top Pc.	Zylinder-Kopfstück	Zylinder-Kopfstück	1
01M1-12000-00	971849	3402015	Hexagon nut	Ecrou 6 pans M 1 2	DADO M12	4
01S1-12080-00	971924	3402143	Hexagonal screw	6kt-Schraube M12x80	VITE M 1 2x80	3


B

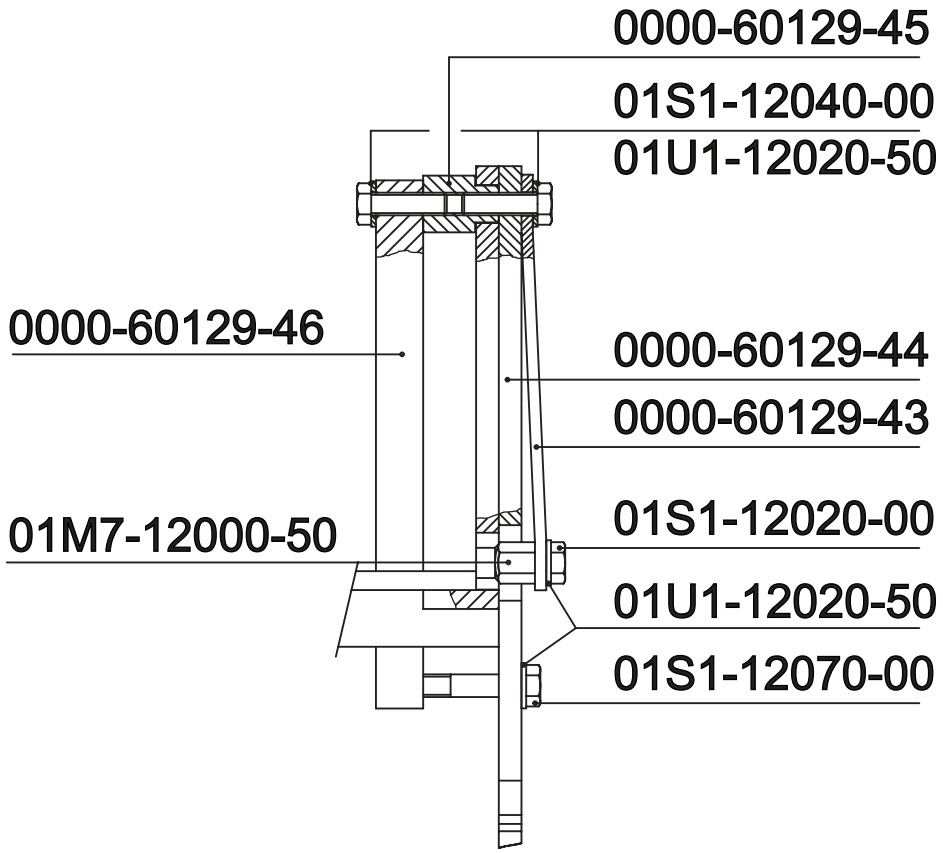
Ansicht B


08V1-89331-18
Loctite 542
Loctite 542
04B1-06350-00
08D1-80321-38
0001-52118-01
05O1-00120-25
0001-52118-03
03D1-11215-00
0001-52118-02

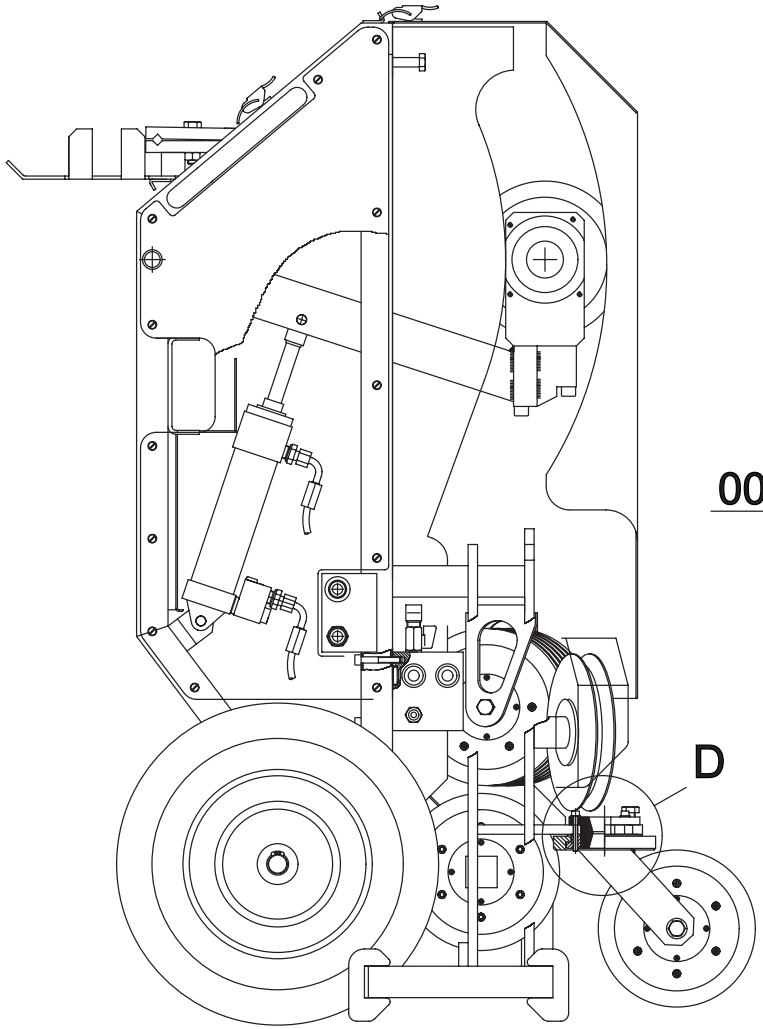
HS #		DP Part #	Description				
0001-52118-01	970494	3401132	Hollow Bolt		Vis creuse	BC/BL-S	VITE CAVA AVANZ. BC/BL-S 1
0001-52118-02	974564	3401133	Nozzle		Duse BL/BC/AL		GRANO BL/BC/AL M10X8 1
0001-52118-03	970495	3401134	Valve Body		Ventilkörper BC/BL-S/AL		VALVOLAAVANZAMENTO BC/BY 1
03D 1 -1 1215-00	972080	3401135	Spring		RESSORT CLAPET HCCB4		MOLLA SFERICA AVANZ. BC 2
04B1-06350-00	972115	3401136	6mm Ball		BILLE DM 6,35 1/4 INCH.		SFERA DIAM. 6,35 CR/3 2
05O1-00120-25	972223	3401137	O-Ring 12x2,5	N 70	O-RING 12X2		O-Ring 12x2,5 N70 BC 2
08D1-80321-38	972861	3401138	Seal Ring		Joint prismatique 3/8" G		ANELLO TENUTA METAL.3/8" 1
08V1 -89331-18	972978	3401139	Cap		BOUCHON FILETE 1/8		Verschlussschr. 1/8-zyl. 1


C

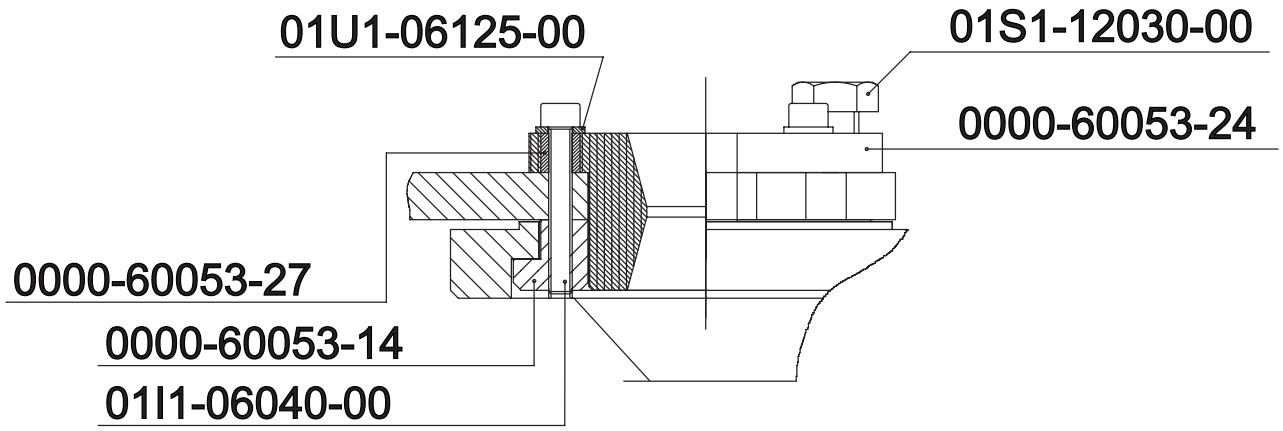
Ansicht C


0000-60129-45
01S1-12040-00
01U1-12020-50
0000-60129-46
0000-60129-44
0000-60129-43
01M7-12000-50
01S1-12020-00
01U1-12020-50
01S1-12070-00

HS #		DP Part#	Description			
0000-60129-43	961940	3400541	Spring Plate	Federblech	Federblech	1
0000-60129-44	961941	3401254	Locking Lever	Rasthebel		1
0000-60129-45	961943	3400553	Spacer Distanzgeber		Distanzgeber	1
0000-60129-46	961944	3400556	Steel Locking Bar		Befestigungsstahl	1
01 M7-12000-50	971868	N/A	Hexagonal nut M12	ECROU M12	DADOCHIUSO M12 B4-B6	1
01S1-12020-00	971914	N/A	hex.-screw M12x20	6kt-Schraube M12x20	VITE M12x20 T.E.	1
01S1-12040-00	979337	3402151	hex.-screw M 1 2x40	6kt-Schraube M12x40	6kt-Schraube M12x40	2
01S1-12070-00	971922	3401165	hex.-screw M 1 2x70	Vis CHC M 1 2x70	VITE M12x70	1
01U1-12020-50	979354	3403010	Washer M 1 2	Rondelle M12	RONDELLA M12	20
01 M7-12000-50	971868	N/A	Hexagonal nut M 1 2	ECROU M12	DADOCHIUSO M12 B4-B6	1

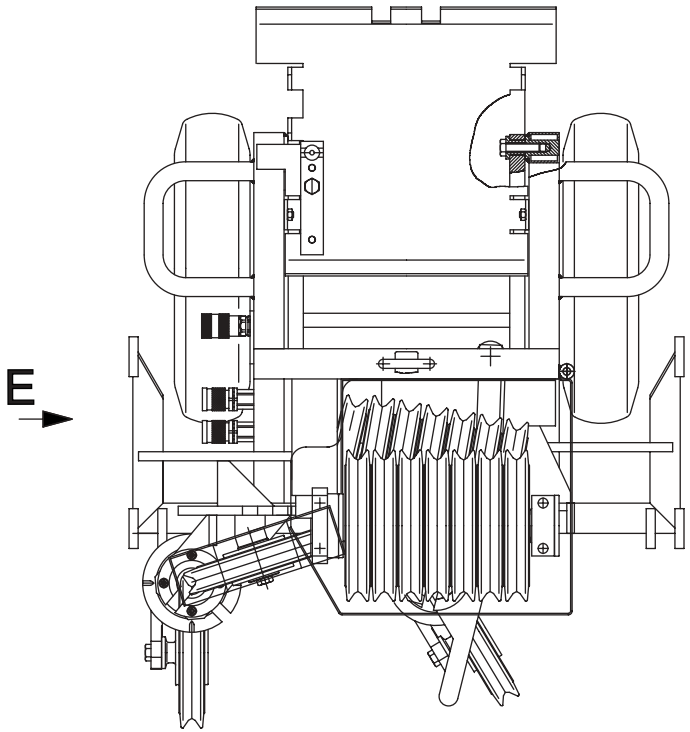

D

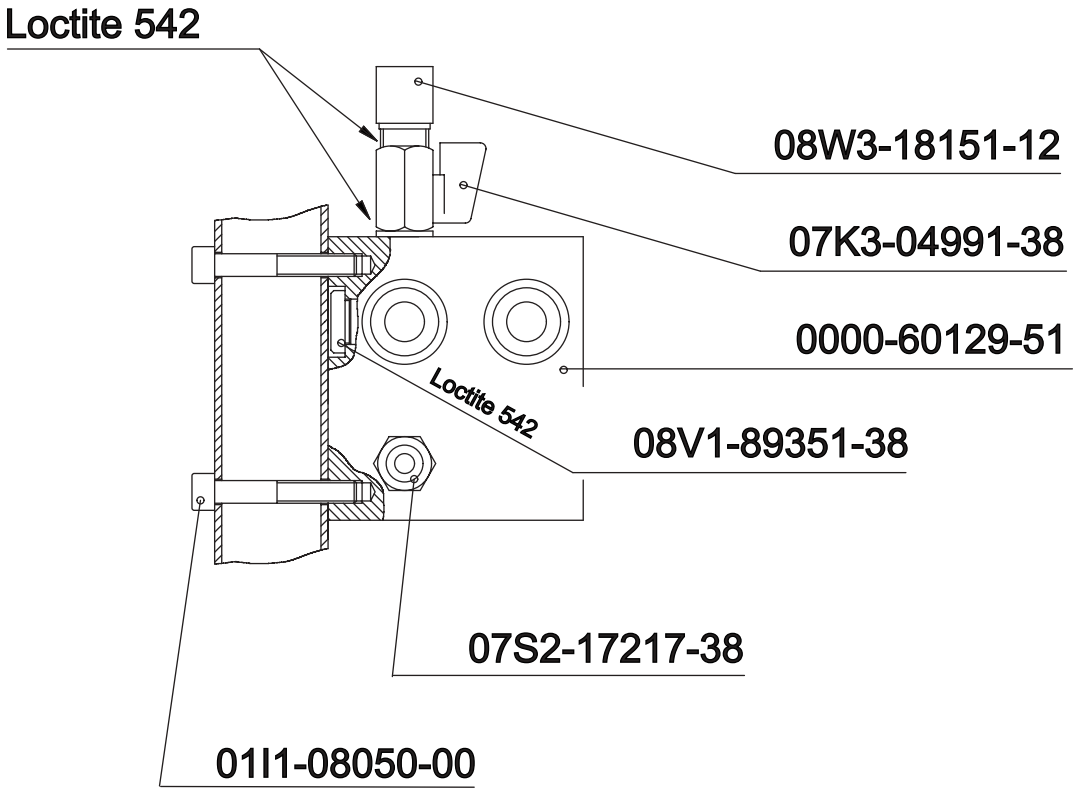
Ansicht D


01U1-06125-00
01S1-12030-00
0000-60053-24
0000-60053-27
0000-60053-14
01I1-06040-00

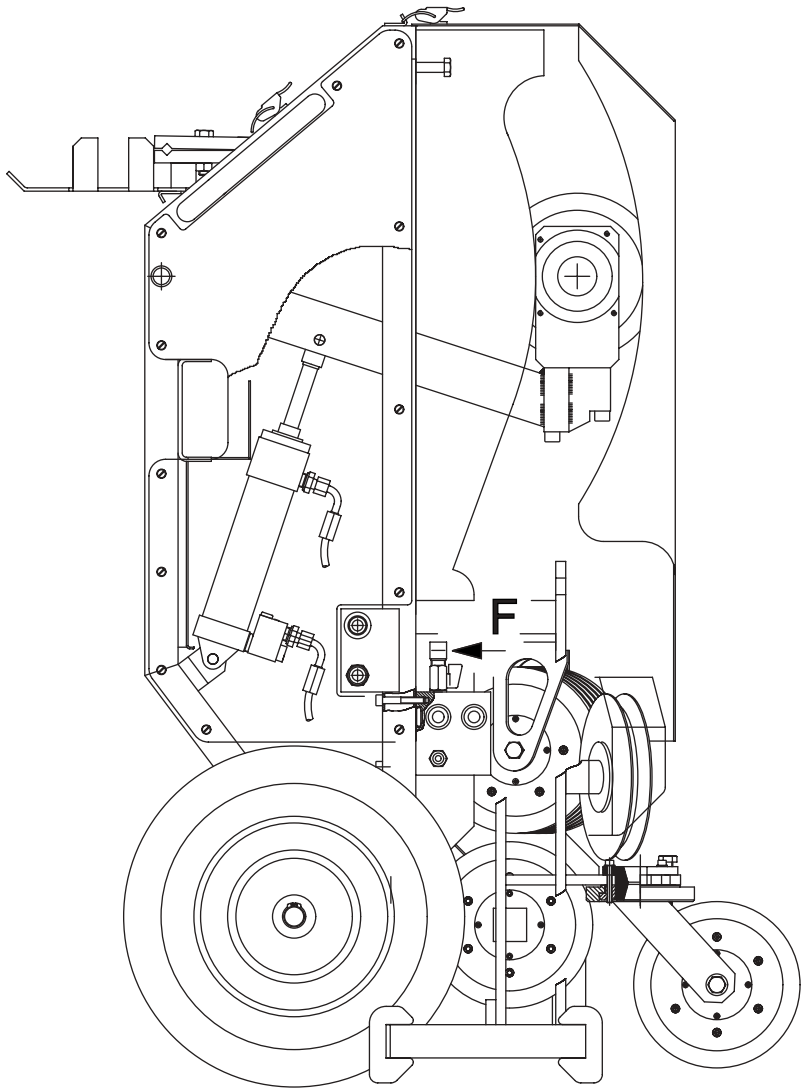
HS #		DP Part#	Description			
0000-60053-14	977120	3401089	Ring	ANNEAU	ANELLO ROTAZIONE RUOTA SK	2
0000-60053-24	977954	3400576	Protector sleeve	Douille de protection	Schutzbüchse	2
0000-60053-27	977956	3401228	Sleeve	Hülse	Hülse	8
01I1-06040-00	971715	3400087	Allen screw	Vis CHC M6x40	VITE BRUGOLA M6X40	8
01S1-12030-00	971916	2900223	Hexagonal screw	Vis 6 pans M 1 2x30	VITE M 1 2x30	2
01U1-06125-00	979352	N/A	washer dia 6.4x1 2.5x1.6	U-Scheibe Dm 6.4x12.5x1.6	U-Scheibe Dm 6.4x12.5x1.6	8

Ansicht E


E


Loctite 542
08W3-18151-12
07K3-04991-38
0000-60129-51
Loctite 542
08V1-89351-38
07S2-17217-38
01I1-08050-00

HS #		DP Part #	Description			
0000-60129-51	962108	3401325	Water Block	Wasserblock		1
01I1-08050-00	971745	3400145	Socket screw M 8x 50	Vis CHC M8x50	VITE BRUGOLA M8X50	2
07K3-04991-38	961666	N/A	Kugelhahn 3/8"i/a	Kugelhahn 3/8"i/a	Kugelhahn 3/8"i/a	1
07S2-17217-38	972795	3400427	nipple 3/8 A 1 -WR01 7	Stecknippel 3/8 A 1 -WR01 7	Stecknippel 3/8 A 1 -WR01 7	1
08V1 -89351-38	972980	N/A	Locking screw G 3/8"	Verschlussschr. 3/8"-zyl.	Verschlussschr. 3/8-zyl.	1
08W3-18151-12	972998	3400626	Angle Screw Connector	Winkelverschr. 3/8NPT-12L	Winkelverschr. 3/8NPT-12L	1

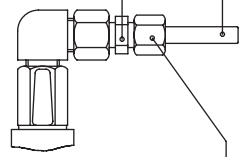


Ansicht F

0801-00080-10

50mm

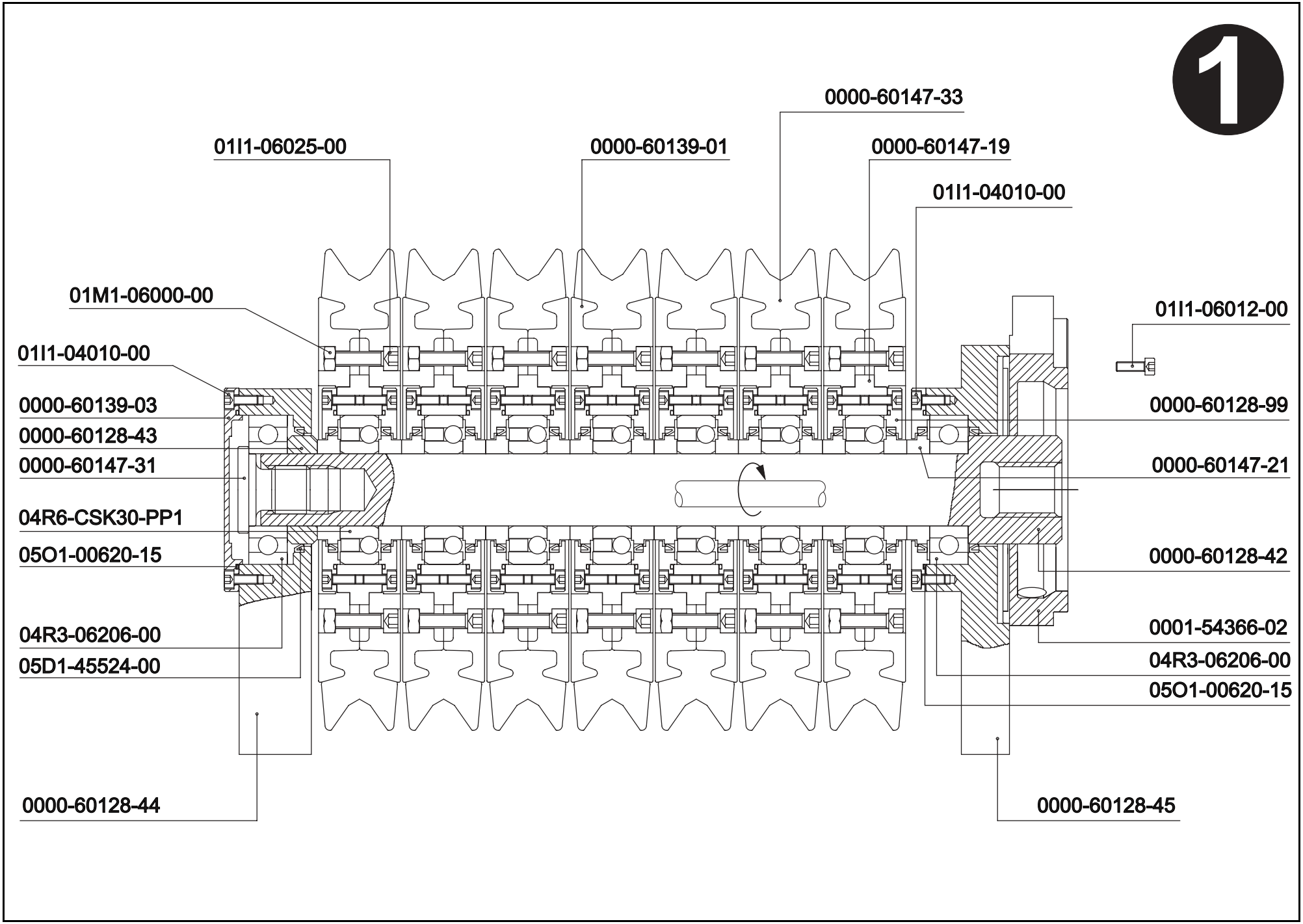
08R1-48161-08



08B1-04051-08

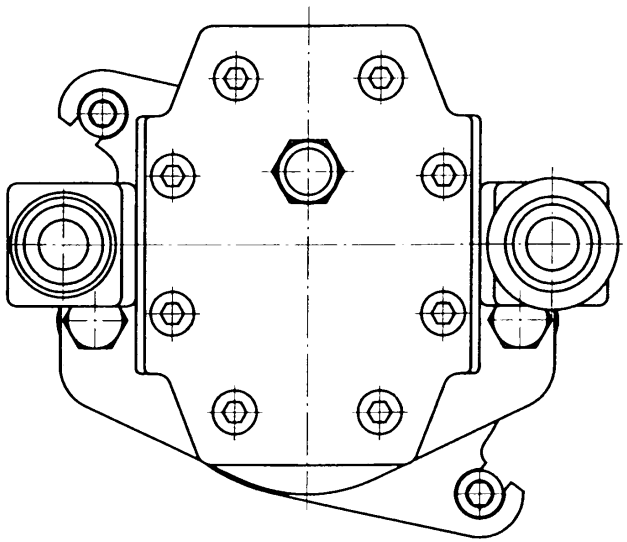
08C1-07052-08

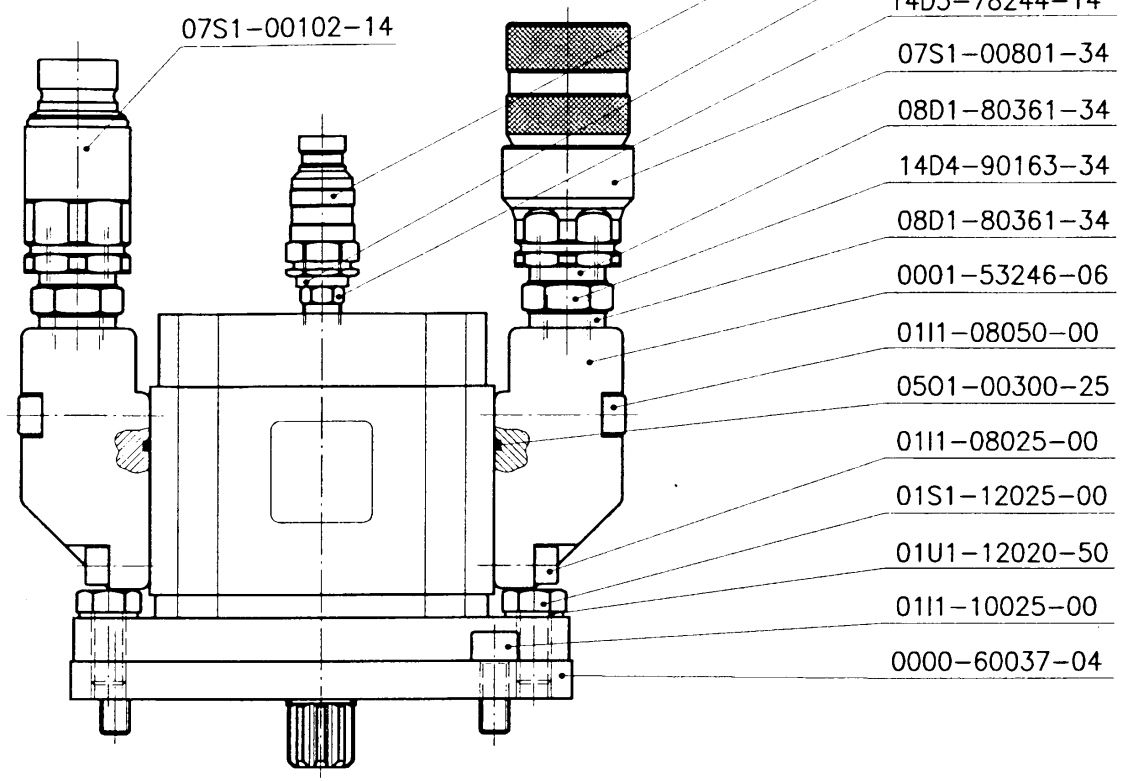
HS #		DP Part #	Description			
08B1-04051-08	972843	3401174	union nut 08 L	Ueberwurfmutter 08 L	Ueberwurfmutter 08 L	4
08C1-07052-08	972853	N/A	Olive ring, pipe 08	Schneidring Rohr 08	Schneidring Rohr 08	4
08O1-00080-10	972928	3400382	Hydraulic Pipe	Hydraulikrohr Dm 8x1	Hydraulikrohr Dm 8x1	0,05
08R1 -48161-08	972950	N/A	Red.insert pipe 12-08 L	Red.Einsatz Rohr 12-08 L	Red.Einsatz Rohr 12-08 L	1


1
0000-60147-33
01I1-06025-00
0000-60139-01
0000-60147-19
01I1-04010-00
01M1-06000-00
01I1-06012-00
01I1-04010-00
0000-60139-03
0000-60128-99
0000-60128-43
0000-60147-31
0000-60147-21
04R6-CSK30-PP1
05O1-00620-15
0000-60128-42
0001-54366-02
04R3-06206-00
04R3-06206-00
05D1-45524-00
05O1-00620-15
0000-60128-44
0000-60128-45

HS #		DP Part #	Description			1
0000-60128-42	960708	3400322	Drive Shaft	Antriebswelle	Antriebswelle	1
0000-60128-43	960718	N/A	Distanzring	Distanzring	Distanzring	1
0000-60128-44	960719	N/A	Lagerschild Loslager	Lagerschild Loslager	Lagerschild Loslager	1
0000-60128-45	960720	3401244	Motor Flange	Lagerschild Festlager		1
0000-60128-99	961286	2702792	Backslide Cover	Deckel hinten	Deckel hinten	15
0000-60139-01	964209	3401059	Hub	Jante	FLANGIA	14
0000-60139-03	964218	3402156	Front Cover	Couvercle avant	COPERCHIO	1
0000-60147-19	965658	3402078	Bearing Race SK-B**B**			7
0000-60147-21	**965659**	3401243	**Bearing Spacer**	**Dichtring SK-B**		
0000-60147-31	**960596**	3401245	Allen Head Left Hand			**1**
0000-60147-33	**960575**	**3402055**	**Lining for pulleys d=200**	**Bandage p. poulies d=200**	**GOMMA PULEGGIA TRAZ. SK-B**	**7**
0001-54366-02	**975878**	**3402155**	**Motor Mount Flange**	**BRIDE DE MOTEUR FZ/RZ**	**FLANGIA FISSAG. MOTORE F**	**1**
01I1-04010-00	**971678**	**N/A**	**Socket screw M 4x 1 0**	**Inbus-Schraube M 4x 10**	**Inbus-Schraube M 4x 10**	**64**
01I1-06012-00	**971704**	**3402011**	**Allen screw**	**Vis CHC M6x12**	**VITE BRUGOLA M6X1 2 TENSIO**	**4**
01I1-06025-00	**971711**	**3400865**	**Allen screw**	**Vis CHC M6x25**	**VITE BRUGOLA M6X25**	**56**
01M1-06000-00	**979307**	**3402059**	**nut hex. M6x0.8d**	Mutter 6 kt. M6x0.8d	DADO M6	56
04R3-06206-00	972153	3401360	DDeep groove ballbearing	ROULEMENT A BILLES 6206-2	CUSCINETTO 6206 2RS1	2
04R6-CSK30-PP1	960597	3402056	One-Way Bearing	1 Freilauf CSK 30 ohne Keil	1 Freilauf CSK 30 ohne Keil	7
05D1-45524-00	969143	3401866	Sealing ring dia 45x52x4	Joint Dm 45x52x4	ANELLO TENUTA 45X52X4 DZ/	17
05O1-00620-15	964355	2702791	O-Ring dia 62x1.5	O-Ring Dm 62x1.5	O-RING DM 62x1.5	16

1a

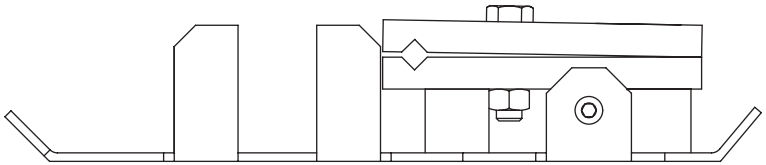


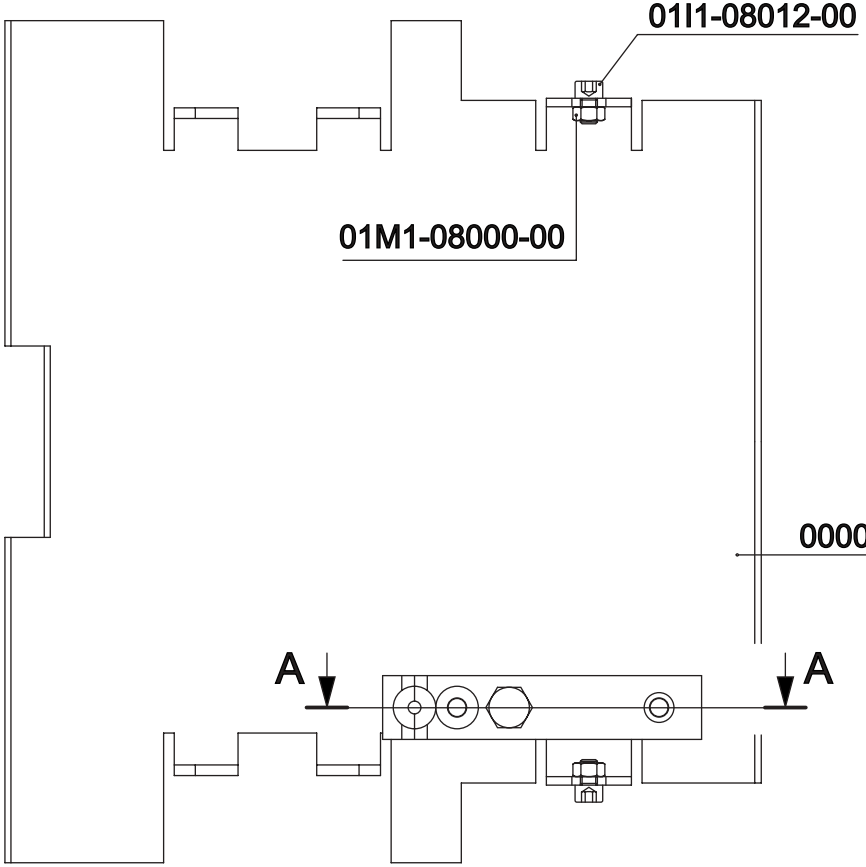

07S1-00102-14
07S1-00802-34
08D1-80301-14
14D3-78244-14
07S1-00801-34
08D1-80361-34
14D4-90163-34
08D1-80361-34
0001-53246-06
01I1-08050-00
05O1-00300-25
01I1-08025-00
01S1-12025-00
01U1-12020-50
01I1-10025-00
0000-60037-04

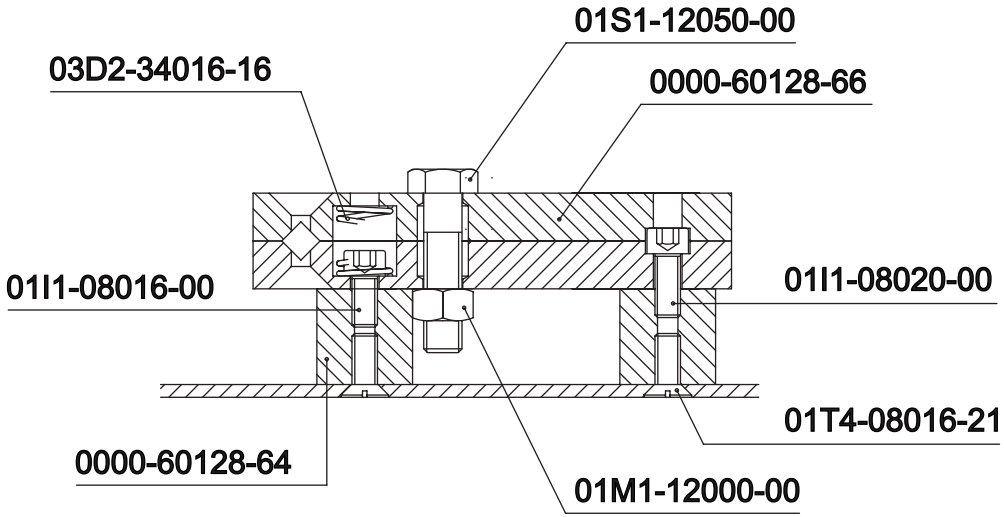
HS #		DP Part #	Description			
99MM-34008-031	976164	3400275	Motor Comp. S 31 ccm/FD	Motor komplett S 31 ccm/FD	Motor komplett S 31 ccm/FD	
99MM-34008-040	976165	3400377	Motor Comp. S 40 ccm/FD	Motor komplett S 40 ccm/FD	Motor komplett S 40 ccm/FD	
99MM-34008-050	976166	3400247	Motor Comp. S 50 ccm/FD	Motor komplett S 50 ccm/FD	Motor komplett S 50 ccm/FD	
07M2-33208-031	972623	N/A	Hydraulic motor S 31ccm	Hydraulikmotor S 31ccm	Hydraulikmotor S 31ccm	
07M2-33208-040	972624	N/A	Hydraulikmotor S 40ccm	Hydraulikmotor S 40ccm	Hydraulikmotor S 40ccm	
07M2-33208-050	972625	N/A	Hydraulikmotor S 50ccm	Hydraulikmotor S 50ccm	Hydraulikmotor S 50ccm	
0000-60037-04	977850	3400583	Motor Mount Plate	Motorplatte Gr.3	Motorplatte Gr.3	1
0001-53246-06	970883	3400305	Motor Q.D. Flange	COUDE MOTEUR H.P.I.	FLANGIA RACC. MOTORE GR.3	2
01I1-08025-00	979284	3400606	Socket screw M 8x 25	Vis CHC M8x25	VITE M 8x 25	4
01I1-08050-00	971745	3400145	Socket screw M 8x 50	Vis CHC M8x50	VITE BRUGOLA M8X50	4
01I1-10025-00	971764	N/A	Socket screw M 1 0x 25	Vis CHC M 1 0x25	Inbus-Schraube M10x 25	2
01S1-12025-00	971915	3402145	hex.-screw M 1 2x25	6kt-Schraube M12x25	6kt-Schraube M12x25	2
01U1-12020-50	979354	3403010	Washer M 1 2	Rondelle M12	RONDELLA M12	2
05O1-00300-25	972248	3400306	O-ring d.30x2,5 N 70	O-Ring 30x2,5 N 70	O-RING 30x2,5 N 70	2
07S1-00102-14	972775	3402166	Nipple	COUPLEUR 1/4 MALE N° 102	RACC. IDR.MA X RIFLUSSO CE	1
07S1-00801-34	975969	3401022	Coupling 3/4" FD	Kupplung FD Mut. 3/4 Zoll	Kupplung FD Mut. 3/4 Zoll	1
07S 1 -00802-34	975971	3401023	Nipple 3/4" FD	Coupleur 3/4" FD mâle	Nippel FD Vat. 3/4 Zoll	1
08D1-80301-14	972860	3400637	Seal Edge ring G 1/4	Joint prismatique G 1/4	ANELLO TENUTA METAL. 1/4"	1
08D1-80361-34	972863	3400276	Seal Edge ring G 3/4	Dichtkantenring G 3/4	DISTANZIALE 3/4	4
14D3-78244-14	980278	3401100	fix. conn. G1/4 -3/8 NPT	Raccord. G1/4 -3/8 NPT	Festanschl. G1/4 -3/8 NPT	1
14D4-90163-34	977526	3401081	dual connector G3/4-G3/4	Doppelstutzen G3/4-G3/4	NIPPLES MASCHIO 3/4"-3/4"	2
20D1-HPI30-00		3400064	Shaft Seal Size 3 motors			

2

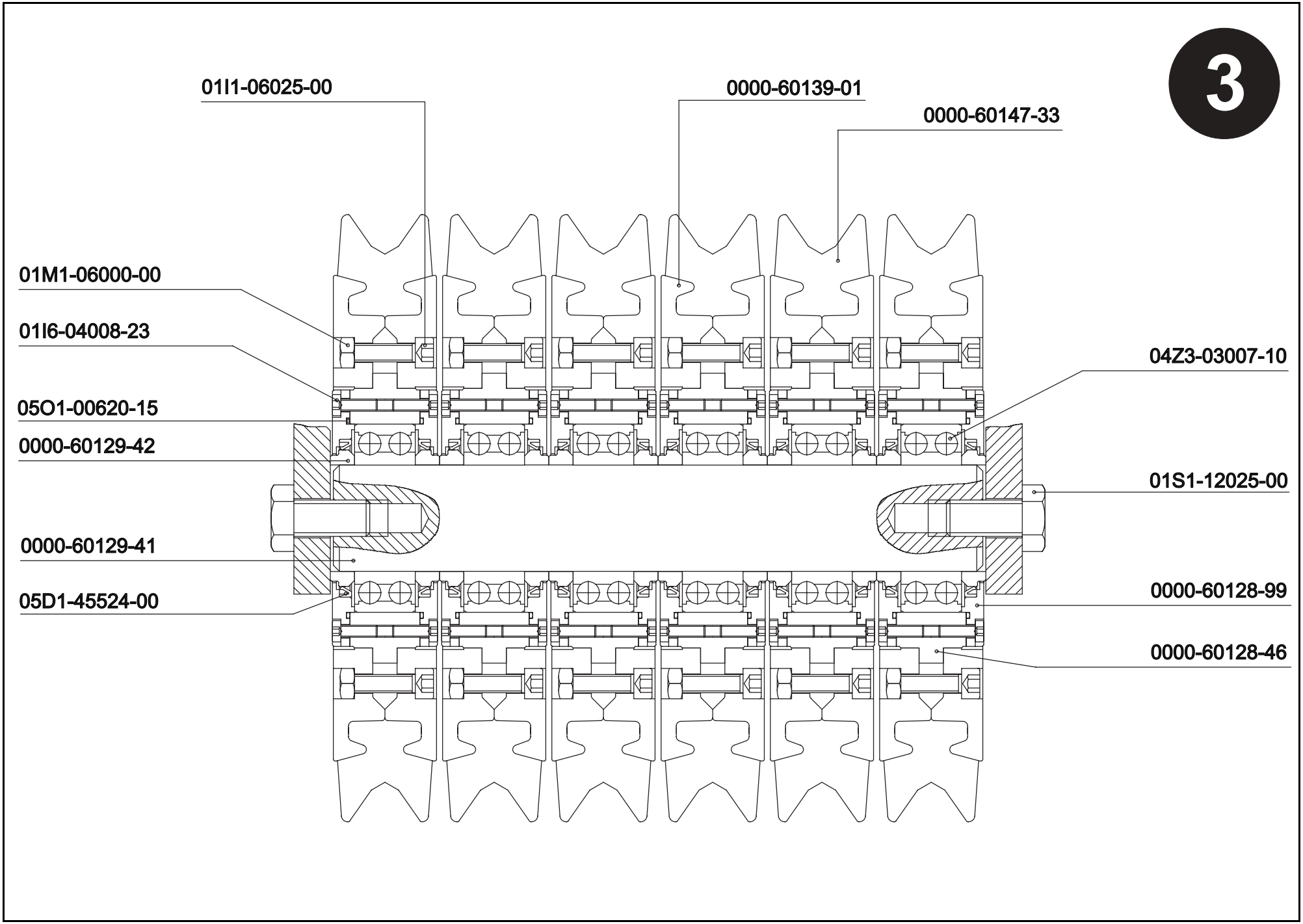
Schnitt A-A



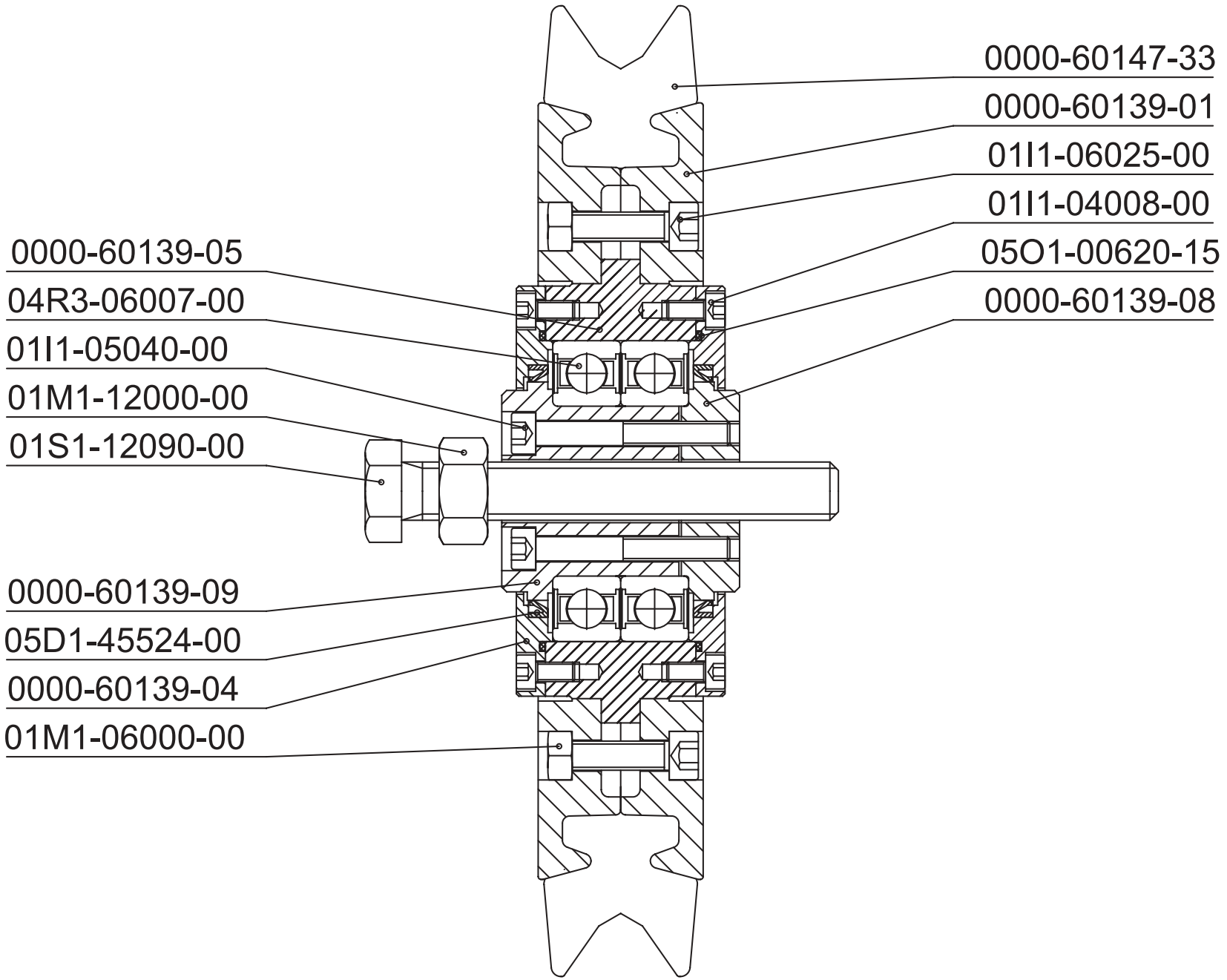

01I1-08012-00
01M1-08000-00
0000-60129-34
A
A


01S1-12050-00
03D2-34016-16
0000-60128-66
01I1-08016-00
01I1-08020-00
01T4-08016-21
0000-60128-64
01M1-12000-00

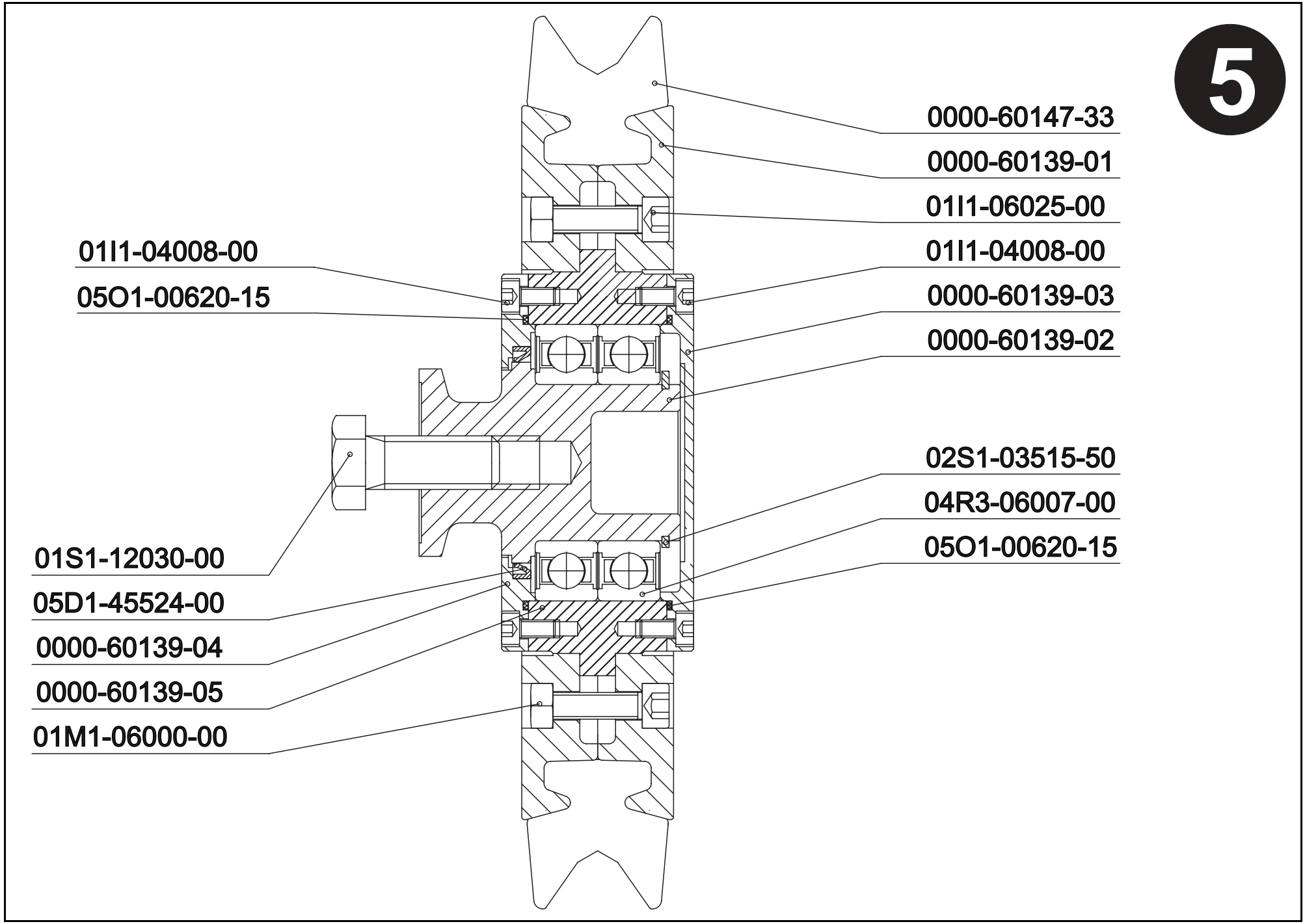
HS #		Dp Part #	Description			
0000-60128-64	960738	N/A	Distanzstück	Distanzstück	Distanzstück	2
0000-60128-66	960740	N/A	Seil-Klemmleiste	Seil-Klemmleiste	Seil-Klemmleiste	2
0000-60129-34	961929	N/A	Zangenblech	Zangenblech	Zangenblech	1
01I1-08012-00	971729	N/A	Socket screw M 8x 12	Inbus-Schraube M 8x 12	VITE M 8x 12	2
01I1-08016-00	971731	3402017	Socket screw M 8x 16	VIS CHC M 8X16 95	VITE BRUGOLA M8X1 6	1
01I1-08020-00	979283	3401917	Allen screw M8 x 20	Vis CHC M 8 x 20	VITE M 8 x 20	1
01M1-08000-00	971847	3403021	Hex Nut M-8	6 PANS M8X0,8D	DADO M8	2
01M1-12000-00	971849	3402015	Hexagon nut	Ecrou 6 pans M 1 2	DADO M12	1
01S1-12050-00	971919	3402146	hex.-screw M 1 2x50	6kt-Schraube M12x50	6kt-Schraube M12x50	1
01T4-08016-21	969127	N/A	Senkkopfschraube M8x16	Senkkopfschraube M8x16	Senkkopfschraube M8x16	1
03D2-34016-16	961947	N/A	Druckfeder 16 x 1.6 x 34	Druckfeder 16 x 1.6 x 34	Druckfeder 16 x 1.6 x 34	1


3
01I1-06025-00
0000-60139-01
0000-60147-33
01M1-06000-00
01I6-04008-23
04Z3-03007-10
05O1-00620-15
0000-60129-42
01S1-12025-00
0000-60129-41
05D1-45524-00
0000-60128-99
0000-60128-46

HS #		DP Part #	Description			1
0000-60147-33	960575	3402055	Lining for pulleys d=200	Bandage p. poulies d=200	GOMMA PULEGGIA TRAZ. SK-B	6
0000-60139-01	964209	3401059	Hub	Jante	FLANGIA	12
04Z3-03007-1 0	979505	3400507	ball bear. 3007-2RS	Rill.-Kugell. 3007-2RS	Rill.-Kugell. 3007-2RS	6
0000-60128-46	960721	3401321	Bearing Bushing	Lagerbüchse	Lagerbüchse	6
0000-60128-99	961286	2702792	Cover	Deckel hinten	Deckel	12
0000-60129-42	961939	3403028	Spacer	Dichtring	Dichtri	12
0000-60129-41	961938	3401388	Idler Shaft		Umlenkrollenachse	
05D1-45524-00	969143	3401866	Sealing ring dia 45x52x4	Joint Dm 45x52x4	ANELLO TENUTA 45X52X4 DZ/	12
05O1-00620-15	964355	2702791	O-Ring dia 62x1.5	O-Ring Dm 62x1.5	O-RING DM 62x1.5	12
01S1-12025-00	971915	N/A	hex.-screw M 1 2x25	6kt-Schraube M12x25	6kt-Schraube M12x25	2
01I1-06025-00	971711	3400865	Allen screw	Vis CHC M6x25	VITE BRUGOLA M6X25	48
01M1-06000-00	979307	3402059	nut hex. M6x0.8d	Mutter 6 kt. M6x0.8d	DADO M6	48
01I6-04008-23	971833	3401290	screwextr.flhd M4	Inb-Schr.extr. n. Kopf M4	I nb-Schr.extr.n. Kopf M4	48


4
0000-60147-33
0000-60139-01
01I1-06025-00
01I1-04008-00
05O1-00620-15
0000-60139-08
0000-60139-05
04R3-06007-00
01I1-05040-00
01M1-12000-00
01S1-12090-00
0000-60139-09
05D1-45524-00
0000-60139-04
01M1-06000-00

HS #		DP Part #	Description		
99MS-60129-60		3402126	Complete Idler Wheel w/hole		
0000-60139-01	964209	3401059	Hub	Jante	FLANGIA
0000-60139-04	964212	3402157	Cover rear	Couvercle arrière	FLANGIA
0000-60139-05	964213	3401186	Bearing Hub	Douille de roulement	
0000-60139-08	965860	3402158	Mounting Flange	Halteflansch	Halteflansch
0000-60139-09	965859	3401856	Bearing Cap		


5
0000-60147-33
0000-60139-01
01I1-06025-00
01I1-04008-00
0000-60139-03
0000-60139-02
02S1-03515-50
04R3-06007-00
05O1-00620-15
01I1-04008-00
05O1-00620-15
01S1-12030-00
05D1-45524-00
0000-60139-04
0000-60139-05
01M1-06000-00

HS #		DP Part #	Description			
0000-60139-01	964209	3401059	Hub	Jante	FLANGIA	2
0000-60139-02	964210	3400856	Shaft			1
0000-60139-03	964218	3402156	Cover front	Couvercle avant	COPERCHIO	1
0000-60139-04	964212	3402157	Cover rear	Couvercle arrière	FLANGIA	1
0000-60139-05	964213	3401186	Hub for Bearing	Douill		1
0000-60147-33	960575	3402055	Lining for pulleys d=200	Bandage p. poulies d=200	GOMMA PULEGGIA TRAZ. SK-B	1
01I1-04008-00	971677	3403788	Socket screw M 4x 8	Inbus-Schraube M 4x 8	VITE M 4x 8	8
01I1-06025-00	971711	3400865	Allen screw	Vis CHC M6x25	VITE BRUGOLA M6X25	8
01M1-06000-00	979307	3402059	nut hex. M6x0.8d	Mutter 6 kt. M6x0.8d	DADO M6	8
01S1-12030-00	971916	N/A	Hexagonal screw	Vis 6 pans M 1 2x30	VITE M 1 2x30	1
01S1-12055-00	979338	N/A	hex.-screw M 1 2x55	6kt-Schraube M12x55	VITE M 1 2x55 mezzo filet.	1
01S1-12070-00	971922	3401165	hex.-screw M 1 2x70	Vis CHC M 1 2x70	VITE M 1 2x70	1
02S1-03515-50	972000	3400857	Snap Ring	CIRCLIPS EXTERIEUR DIAM.3	SEEGER DM 35	1
04R3-06007-00	972149	2400089	Ball Bearing 6007-2RS	ROULEMENT A BILLES	CUSCINETTO 6007-2RS	2
05D1-45524-00	969143	3401866	Sealing ring dia 45x52x4	Joint Dm 45x52x4	ANELLO TENUTA 45X52X4	1
05O1-00620-15	964355	2702791	O-Ring dia 62x1.5	O-Ring Dm 62x1.5	O-RING DM 62x1.5	2