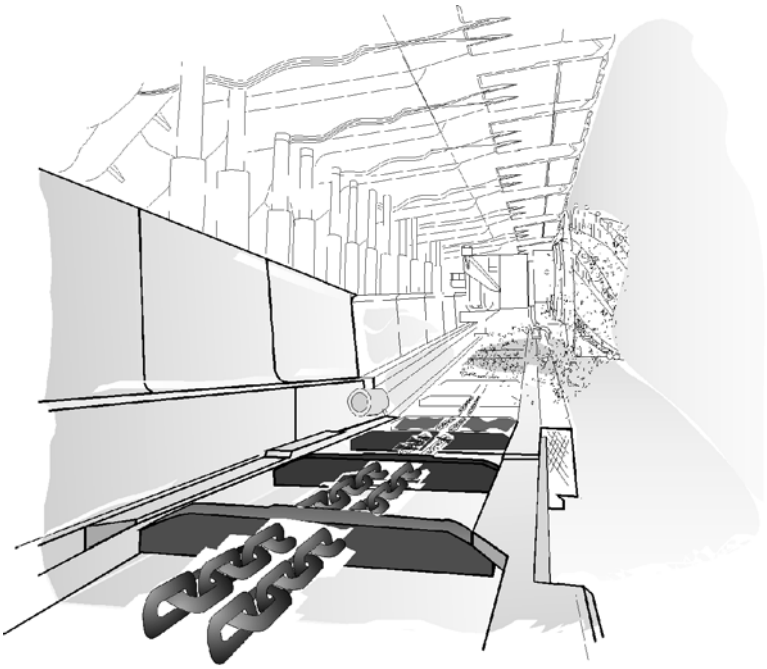
Reliability at work

Operating manual

RHH-AFC PF 3/822

Doc. no.: 0010 297 000 BA 00



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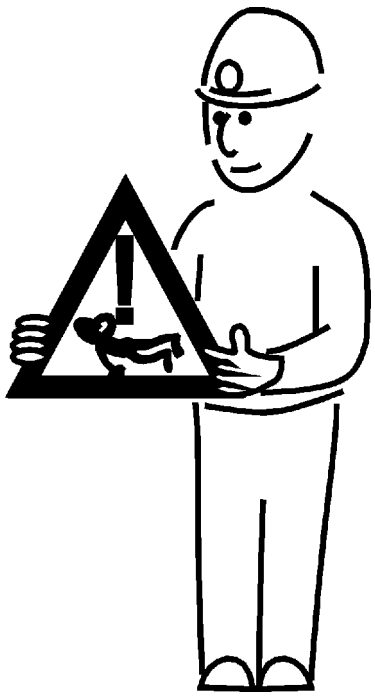
2 Your safety



Carry out a visual inspection of all the hydraulic components at regular intervals. In particular check that:

- the hoses are not pinched,
- the hoses have no bubbles or blisters,
- the hoses or the outer sheaths of the hoses are not abnormally-rigid or hard,
- the outer sheath of the hose is not damaged,
- the connectors are securely inserted into the sockets,
- the connections are leak-tight.

Ensure that no dirt enters the hydraulics system during repair work. Dirt in the hydraulic system can cause serious damage to the whole system. Flush out the hydraulic lines thoroughly before connecting.

If staples are difficult to disconnect or cannot be disconnected, the hydraulic line may still be pressurized. Make sure the line is de-pressurized.

Secure the connectors of the hydraulic elements with the proper coupling clips only. Always fasten the staples completely with both sides.
Never use nails, wire or similar materials to secure the connectors.

After finishing repair work, check all connectors and connections for leaks before pressurizing the system again.

permissible hoses

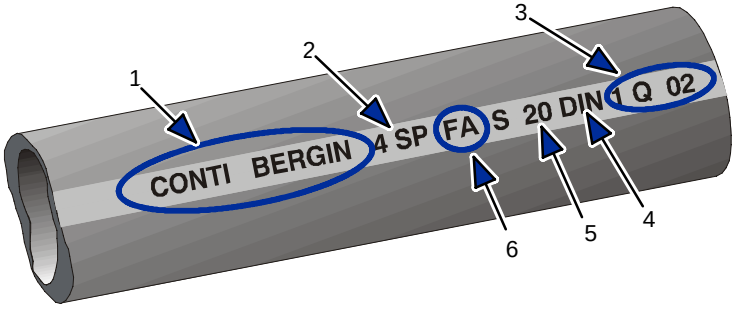
Use only hydraulic hose lines approved for the prevailing pressures.

Do not use any hydraulic hoses with damaged connectors or worn O-rings.

Replace hydraulic hoses only with hoses of the same or a higher quality.

Observe the date of manufacture stamped on the hydraulic hoses. Never use hydraulic hoses which are more than 2 years old, even if they have no visible signs of damage.

Fig. 1: Example: 4SP hydraulic hose, identification

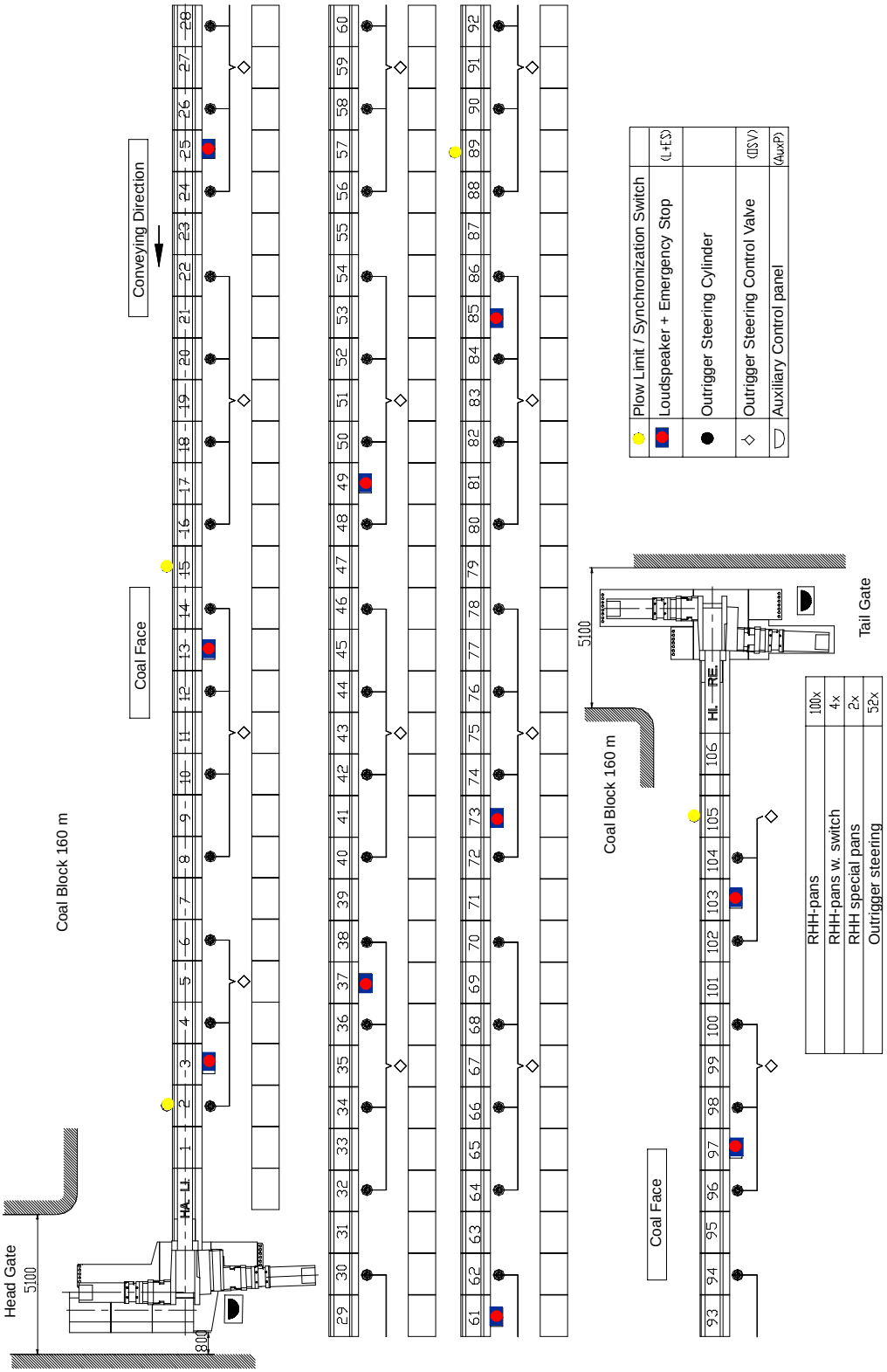


1 manufacturer
2 hose type
3 date of manufacture, 1st Quarter 2002
4 Standard
5 nominal diameter
6 Flame-resistant and antistatic

Never try to hold a hydraulic hose that is thrashing about. Depressurize the line in question immediately.

4 Installation

Fig. 11: Installation plan



Gearbox P 25/30 and P-30 UEL-R

Notice!
Observe the separate operating manuals for the gearboxes used.

Important general information on installing the gearbox:

- All flange surfaces, centering bores, parallel keys and grooves must be clean and free of burrs.
- The gearing must be well-greased before being mounted.
- The gearing must be aligned so that tooth and tooth gap are exactly opposite one another to ensure that they mesh smoothly. Try to avoid damage to the gearing. Take special care to ensure that the gearbox is not tilted during installation.
- The gearbox must be positioned accurately on the centering bores, connectors, and parallel keys when being installed.
- All gearbox connections must be sealed with O-rings. The various O-ring sizes can be obtained from the spare parts documentation for the gearbox utilized.
- Ensure you use the correct screw sizes corresponding to the gearboxes used.
- The gearbox is fixed to the flange plate using hydraulic tensioning nuts. Pay attention to the working pressure for the tensioning nuts (Fig. 19, Item 3).

Notice!
For this, follow the separate operating manual of the hydraulic tensioning nuts of the respective manufacturer.

- After installing the gearboxes, there must be no strain between gearbox and drive frame or between the drive shafts.

Drive connection

The drive connection comprises all components arranged between the E-motor and the gearbox. It mainly consists of a protection cover and a coupling.

Flange position “W”

Flange position “W” of the E-motor means the distance between the motor flange and the shaft collar. On the drive connection the flange position is the distance between the contact surface of the protection cover (motor side) and the contact surface of the coupling (see Fig. 22).

Caution!
If flange position “W”on the E-motor is larger than on the drive unit connection assembly, the motor shaft and gearbox drive shaft bearings can become strained This can result in damage to the gearbox and the E-motor!

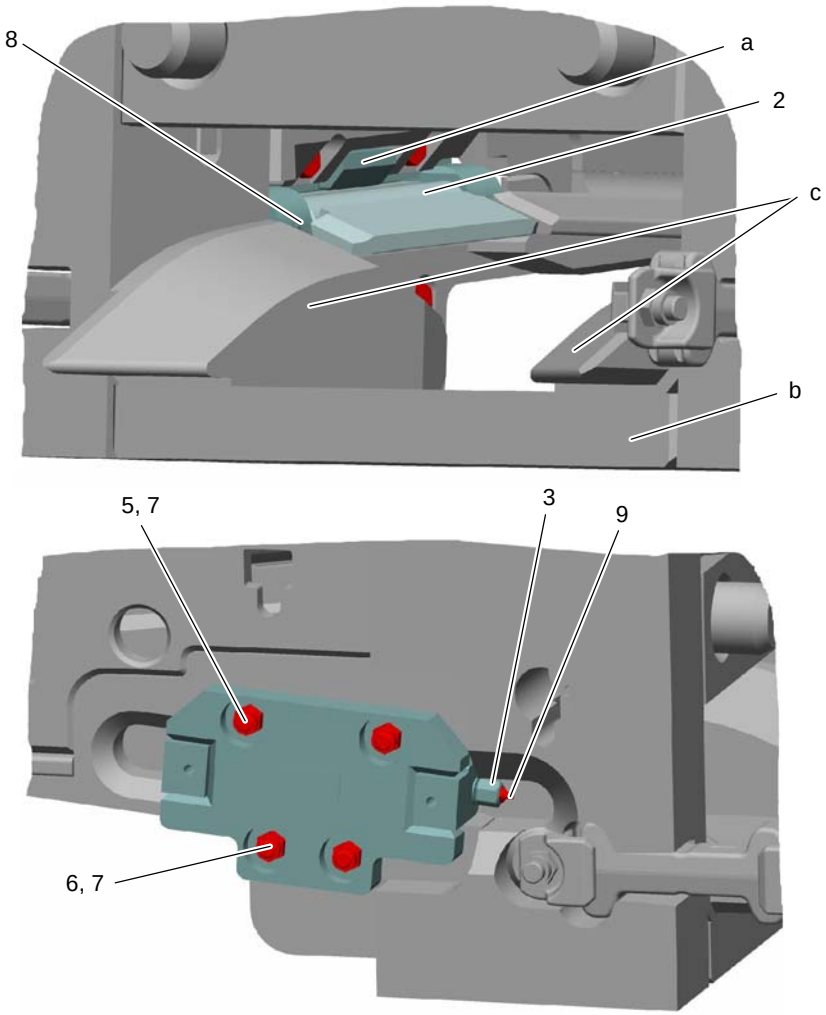
Rerailer

Rerailers are installed in the bottom race on both sides of the adaptor pans on the head and tail gate.They are used to guide flights, that are below the bottom race, into the bottom race again before they enter the drive frame. The flight flips the rerailing flap (2) up and the flight moves onto the inlet supports (c).

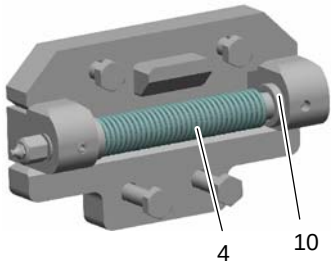
Prior to start-up the spring (4) must be tensioned sufficiently so that the rerailing flap is level with the lower profile.

Fill the rerailer with grease before start-up via the lubricating nipple (9). Lubricate once a month during operation.

Fig. 32: Rerailer in the adaptor pan

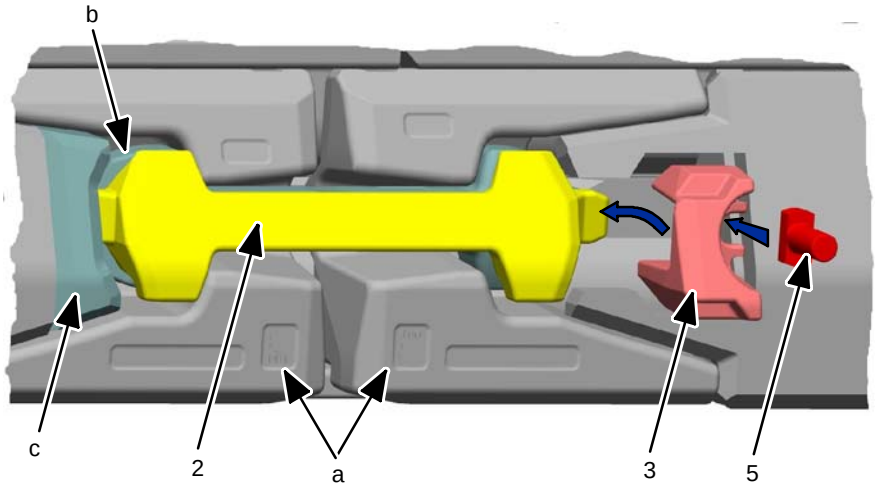


Detail rerailer
(diagram without rerailing flap)



2	rerailing flap	8	spring dowel pin
3	shaft	9	lubricating nipple
4	flexible spring for rerailers	10	end ring
5	hex. head screw M 20x60-10.9	a	stop plate
6	hex. head screw M 20x90-10.9	b	adaptor pan
7	hex. nut V M 20-10	c	inlet supports

Fig. 45: Dogbone connection - face side

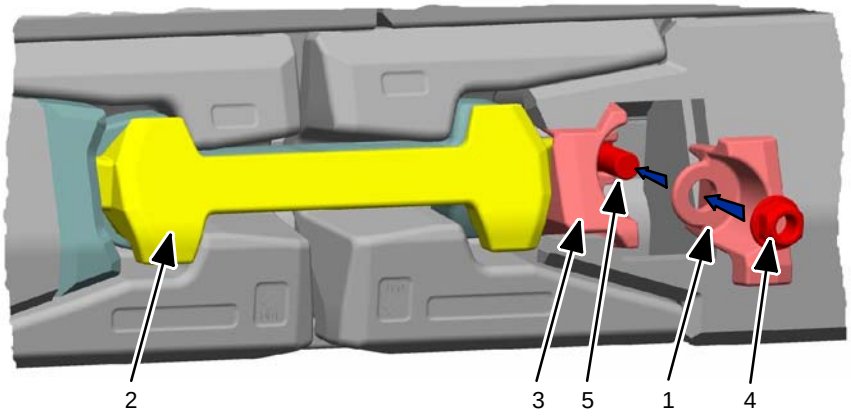


2 filler piece for dogbone
3 lock for dogbone
5 centering bolt M 20x45-10.9

a dogbone pocket
b dogbone
c dogbone retainer at the pan

☞ Place the filler piece (1) on the centering bolt (5) and screw the centering screws with the nut (4) tight.

Fig. 46: Dogbone connection - face side



1 filler piece
2 filler piece for dogbone
3 lock for dogbone

4 collar nut M 20 with securing element, SW 30
5 centering bolt M 20x45-10.9
a dogbone

The connection is now completed and secured.

Danger!
A ratchet pawl apparatus that has not been fastened properly or sufficiently might come loose during the tightening operation. As a result, you or others can be seriously injured or even killed!
Only use the connecting and securing elements provided. Each time before installation always check the connecting elements for damage.

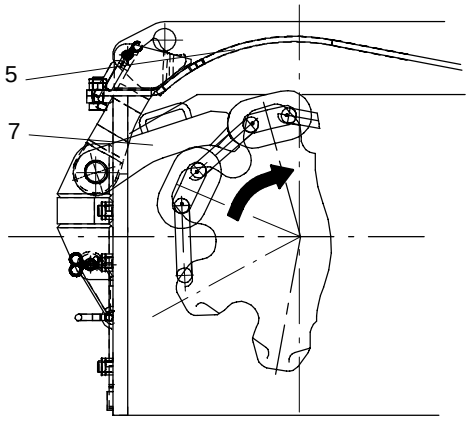
Warning!
If the ratchet pawl is able to engage in the chain during operation you or others can be severely injured and can cause serious damage to the drives. After work on the chain has been completed, the support with ratchet pawl and all nuts and securing devices must be removed.

Chain-ratchet pawl on baffle plate

The pivot-mounted ratchet pawl for blocking the chain is loaded after the flap (5) is opened so that its dead-weight will cause it to lie against the chain strands. If the chain is retracted (head gate), then the vertical chain links will lift the ratchet pawl. The ratchet pawl engages in the openings of the subsequent horizontal chain links and blocks the chain.

Caution!
Once the chain has been tensioned, the ratchet pawl must be folded away to the outside and the flap closed again, so that the ratchet pawl will be prevented from engaging in the chain during operation!

Fig. 59: Chain ratchet pawl on baffle plate - tail gate



5 flap 7 ratchet pawl

Test run of the conveyor

Danger!
Make sure that nobody is present in the hazardous area of the conveyor system during the test run.
In this phase, a safe distance should be kept to the conveyor as e.g. due to installation errors hazards may occur which would not occur during normal operation.
These hazards could cause severe injuries or even death!
Make sure that you keep sufficient distance between you and the conveyor system especially during the test operation.

test run of the empty conveyor

When you have checked the conveyor and remedied any faults discovered, the proper interaction of the individual components of the complete system must be checked. For this purpose, carry out a test run with the empty conveyor (appoximately ½ hour).

☞ As the conveyor is running empty, you have to lubricate the chain at the chain sprockets, in order to avoid excessive wear of the chain sprockets.

Notice!
Use biodegradable vegetable oils, Water Pollution Class 0, to lubricate the chain sprockets due to total-loss lubrication.
Ensure you observe the applicable environmental regulations.

☞ lubricate the overall installation at the lubrication points.

☞ Check and inspect the following points:

- Uniform and equal power consumption of the E-motors.
- Sufficient cooling of the E-motors.
- Sufficient cooling and proper oil filling of the gearboxes.
- Steady and quiet running of the gearboxes.
- Steady rolling behavior of the chain at the chain drums.
- Uniform entry of the chain to the drive frame
- Check that the flights enter the chain guides properly.
- Check conveyor flight spacing.
- Correct number and installation position of flights.
- Check that chain connectors are fitted correctly and in the right installation position.
- Optimum chain pretension.
- Function of the sequencing control of the conveyor drive units.
- Function of the safety devices such as the signaling devices, EMERGENCY STOP circuit, etc.

Only when tensionable tail gate drive frames are being utilized:

- Apply full working pressure to the cylinders of the tensionable drive frame several times for approximately one minute each during the test run. Correct the length of the chain as soon as the required chain pretension is not achieved by tensioning the tensionable drive frame.

Lubrication of the system in accordance with the lubrication schedule

Tab. 6: Lubrication according to runtime

Component [1]	Medium	Runtime in hours			
		1.	2.	3.	...
Drive frame - head gate - drive bearing Drive frame - tail gate - drive bearing	Grease [2]	8	100	100	...
Gearbox	3)				
E-motors					
Chain tensioners (pneumatic or hydraulic)					
Plow, plow drive unit, etc.					

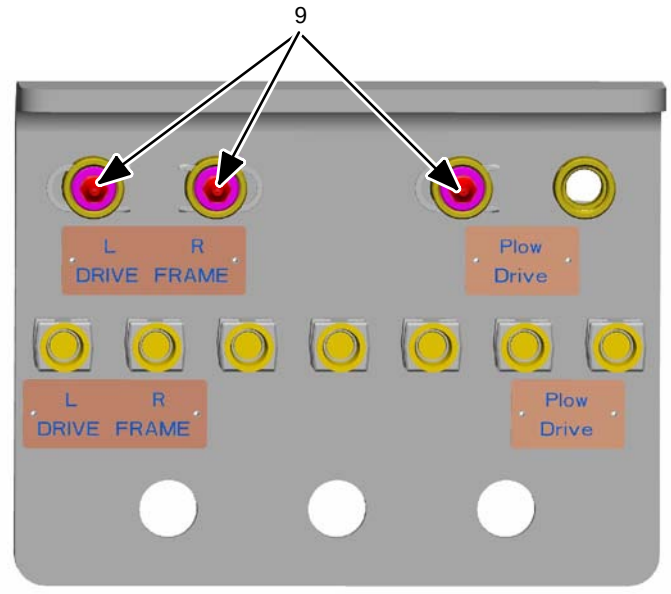
☞ Pump grease into the central lubrication points with the conveyor running until fresh grease emerges.

Notice!
During operation, the relubrication intervals must not exceed 100 hours. Lubrication must be carried out with the conveyor running, as only then will the grease be distributed uniformly.

Lubrication points

The bearings on the head gate and tail gate are each supplied with grease via a central lubrication system.
Grease the bearings until fresh grease is visible at the grease outlet.

Fig. 63: Bracket for central lubrication



9 lubricating nipples

1) The listing is general and does not relate to a particular conveyor system.
2) Grease A2, see Chapter 6, Section entitled “Lubricating greases and pastes”
3) See information in the corresponding operating manual.

Chain stripper

The drive frames are provided with chain strippers which assist in releasing the circulating chain from the chain pockets of the chain sprocket in time.

replacement

When replacing a worn chain sprocket always replace the chain strippers as well.

disassembly

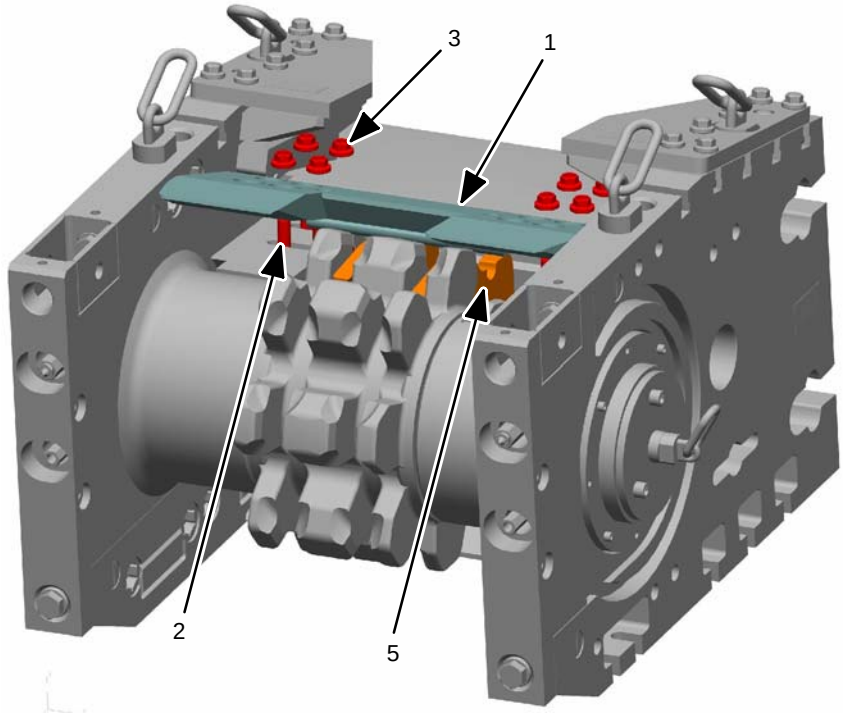
After opening the chain and removing the stripper plate (1), the chain stripper (5) can be pulled out toward the top when the chain sprocket is installed. The baffle plate must first be removed before the chain stripper on the tail gate can be replaced (see chapter 4, section “Chain stripper”, Fig. 26).

fastening

The chain strippers are fastened on the support receptacles on the right and the left side. The chain strippers are secured in position in their recesses by means of a round steel bar welded to the stripper plate.

Caution!
Should the strippers come loose during operation, the chain sprocket or the drive frame could be damaged. Do not fail to tighten the stripper plate with the torque required when mounting the M 24x2-8 collar nuts.
The required tightening torque is 785 Nm.

Fig. 72: Chain stripper



1 stripper plate
2 square-head bolt M 24x2x80-10.9
3 collar nut M 24x2-8, with retaining part, SW 30 1)
5 chain stripper

1) tightening torque M_A = 785 Nm

Identification

The following contains the designations of the conveyor and the individual components .

Identification of the conveyor

Manufacturer: . . . . . Bucyrus DBT Europe GmbH

Type: . . . . . RHH-AFC PF 3/822

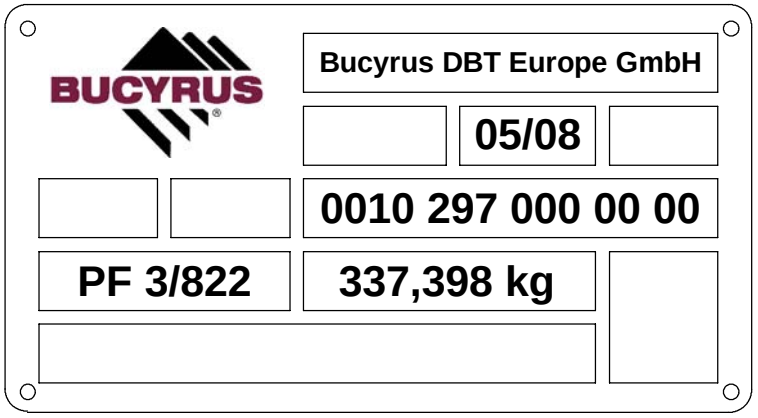
Year of manufacturing: . . . . . MM/YY (e. g. : 04/08 ≙ April 2008)

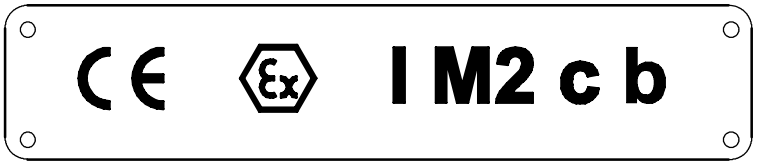
ID. No.: . . . . . 0010 297 000 00 XX *)

Weight: . . . . . 379,287 kg

The conveyor has the following specifications :

Fig. 75: Example type plate and CE-marking





The design of the conveyor meets the requirements of the European Directive 94/9/EC and EN1710 and has been designed for use in potentially explosive atmospheres.

Information with respect to the components of the conveyor subject to identification marking, but not included here, is given in the respective operating manuals.

*) X = Placeholder for variant ID number