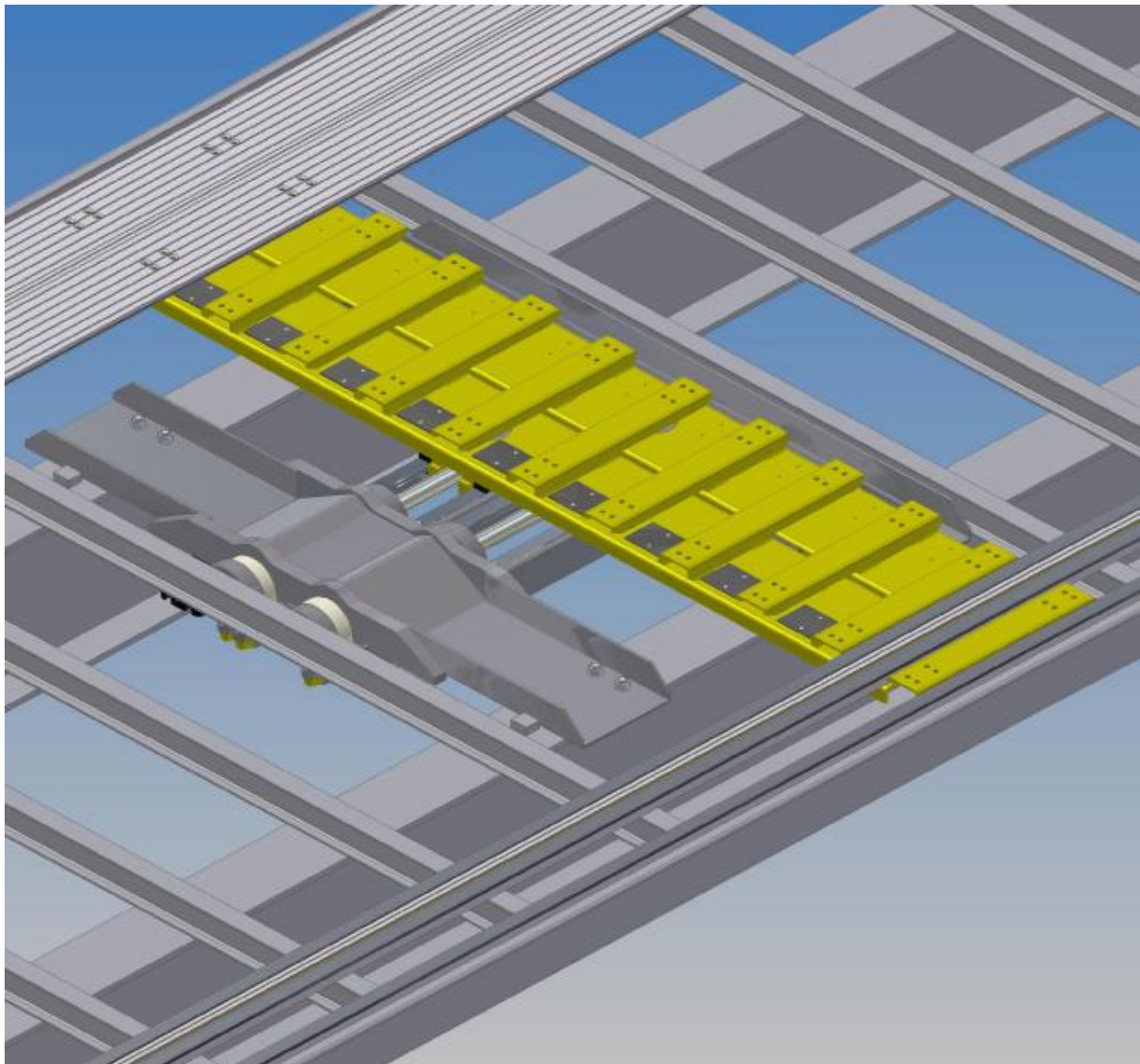


INSTALLATION MANUAL

FOR THE

“SPIROFLOOR”
TYPE TNS 2/1-1



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This manual is to be used for the base version of the machine. Thus Machinefabriek Spiro B.V. cannot be held responsible for any damage resulting from the application of this manual for deviating versions.

For extra information on adjustments, maintenance and repair, contact the technical department of your supplier.

This manual has been written very carefully. However, Machinefabriek Spiro B.V. cannot be held responsible for the consequences of possible mistakes in this manual.

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1 – DESCRIPTION OF THE SYSTEM

1.1 – Contents

The ‘Spirofloor’ system consists in its basic version of the following parts:

- 1 pre-fabricated steel subframe (drive-unit) equipped with a hydraulic drive and control-switch. (including set fastening-parts)
- synthetic glide-profile (amount depends on the length of the floorprofiles).
- 1 roll of sealprofile for the floorprofiles. (including fixation screws)
- 12 aluminum floorprofiles 175 mm. of the required length. (including set fastening-parts)
- 12 subfloor profiles of the required length. (including set fastening-parts)
- 1 synthetic head-board seal-plate.
- 1 pressure oil-filter.
- 12 aluminum end-stops 175 mm. with logo Spirofloor, (including set fastening-parts)
- 11 aluminum end-stops for the subfloor profiles. (including set fastening-parts)
- 12 synthetic glide-plates for rear end. (including set fastening-parts)
- 4 x 8 filling-inn plates
- 48 aluminum securing-clamps for glide-profile.

Warning

The ‘Spirofloor’ system is designed to achieve the lowest possible total weight.

This results in the fact that the floorprofile 175 mm. derives its strength from the assembled situation.

Therefore handle these profiles before and during mounting with care in order to prevent the profiles from being damaged.

1.2 – Finishing

The drive-unit is standard sandblasted and painted in a 2-components coating, so there is no need to paint once more.

If the unit is painted once more, please consider:

The piston rods of the hydraulic cylinders should be completely retracted.

Electric coils and plugs should not be painted.

2 – REQUIREMENTS FOR THE CHASSIS

2.1 – Cross beams

The cross beams should meet the following requirements:

- The cross beams should have a height of at least 80 mm.(fig.1)
- The centre distance between the cross beams should be not more than 400 mm.(fig.1)
If, due to circumstances, this distance has to be more than 400 mm., extra support of the subfloor profile has to be made.
- In order to place the drive-unit in the chassis a space of 1160 mm. between cross beams should be reserved. This space should not be more than 1200 mm. When taking measures also take into account the position of air tanks, axles and the spare-wheel carrier.(see also the overall drawing in the back of this manual).
- At the rear side of the chassis the space between the last cross beam and the rear side profile should measure 100 mm.(fig.1)
- At the front side of the chassis the space between the last cross beam and the front side profile should measure not more than 200 mm.(fig.1)

2.2 – Rear

At the rear of the chassis a set plate should be mounted with a width of 250 mm. and a height, equal to the height of the cross beams.(fig.1)

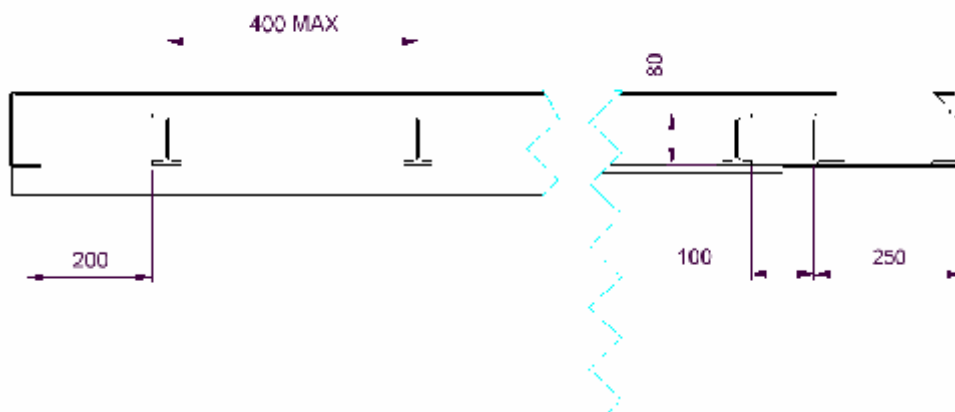


fig. 1

2.3 – Lateral profile

The measurements of the lateral profile depend on how the side-adjusting profile will be mounted. This side-adjusting profile is the 12th subfloor profile which has to be sawed lengthwise.

Please consider by the construction of the trailer that occasional leaking materials (load) can fall away. So on the front- and rear side of the chassis there should be no plating underneath of the floor.

3 – MOUNTING

Check thoroughly that all parts meet the required dimensions mentioned in chapter 2.

3.1 – Drive unit

3.1.1 – Installing

After fastening the hoisting ropes, the drive unit can be placed in the foreseen space of the chassis. Place the unit in such a way that the piston rods of the cylinders point to the front side of the chassis. Position the system in such a way that the harts of both the outermost carriers are at exactly the same distance to the lateral profiles of the system.

Take care that the drive unit is placed exactly at right angles (90°) to the hart line of the system. Check this with regard to the rear bridge of the drive unit (=where the cylinders are mounted at) and not with regard to the carrier beams.

Now drill the holes through the rear- and front bridge of the drive unit and the main beams of the chassis, as pointed out in the overall drawing in the back of this manual. (totally 12 holes Ø 16 mm.)

Now produce 4 ‘lock up’ steel blocks and affix (do not weld completely yet) to the chassis as indicated in detail F in the overall drawing in the back of this manual.

Lift the unit from the chassis and weld the blocks all the way round.

Paint the welded spots and drilling holes with primer and lower the unit back in its place.

3.1.2 – Levelling

The Spirofloor drive unit is constructed a little lower than 80 mm. in order to be able to correct deviations of the height-measurements of the cross members.

Put the two special tubes with a height of 31 mm. on the two cross members at the front- and rear side of the drive unit over the 5th and 7th carrier.

Now fill in between the two main beams and the front- and rear bridge of the drive unit with the supplied filling-in plates until the upper side of the carriers equals the underside of the special tubes.(definitely not lower).

Check these at all carriers.

3.1.3 – Mounting

After having finished and checked the routines as described in paragraphs 3.1.1 and 3.1.2, the drive unit should be fastened to the chassis by means of 12 bolts M16 (12.9) and self-securing nuts with a torque of 340 Nm.

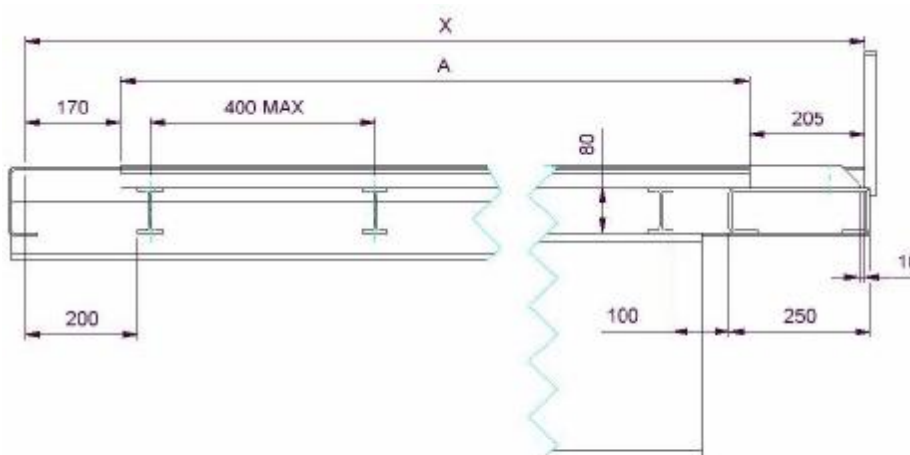
3.2 – SUBFLOOR

11 out of 12 subfloor profiles should now be prepared for mounting on the chassis.

The 12th profile should be sawed lengthwise later on in order to be used as closing-profile for the sides of the floor.

3.2.1 – Measuring and cutting the subfloor profiles

Measure and cut, exactly at right angle the 12 subfloor profiles according the drawing below.



$$A = X - 375$$

3.2.2 – Mounting the subfloor

BEWARE : If, at the front side (headboard side) of the chassis, there is no space to mount the aluminium securing-clamps after having mounted the subfloor profiles, (f.i. because the headboard is already mounted) these clamps have to be mounted first. (see chapter 3.2.3.)

Position one profile, as in the drawing above, exactly in the middle of the middle two carriers and precisely parallel to the lateral profiles of the chassis.

Clamp, before fastening, this profile with cramps on various spots.

It is very important that this profile is mounted precisely straight and level. If there are differences in height between the separate cross members, the subfloor profiles ought to be filled out on the cross members in order to guarantee the flatness.

Now fasten this profile on the cross members using the 5.5 x 25 mm. galvanized self drilling screws (supertex-DIN750 4K) or 6 mm. rivets in the outer channels of the profile.

Do this alternately left and right, time and again once at every cross member.

Do this, however, left as well as right at the first and last cross member of the chassis, as well as at the two cross members directly next to the drive unit.

Now the 10 remaining subfloor profiles can be placed on the chassis, time and again between 2 carriers.

Position these profiles by using 2 of the 3 profiled jigs. Place one jig on the profiles at the rear end of the chassis, and the other one at the front end.

Using the 3rd jig, the subfloor profiles should be fastened to the cross members similar as the middle profile as described before. Start with this 3rd jig at the rear end and slide it time and again 1 cross member to the front.

The 12th subfloor profile should be sawed lengthwise in 2 equal parts and must be fastened at the left and right side by using the jigs as described before.

Beware: The cutting length and positioning of these halve profiles is the same as the other subfloor profiles.

3.2.3 – Glide-profile on the subfloor

In order to ‘lock up’ and secure the glide-profile on the subfloor profile, aluminium securing-clamps are supplied.

Mount these clamps according the illustration below on the subfloor profile at the front side (headboard side) of the chassis

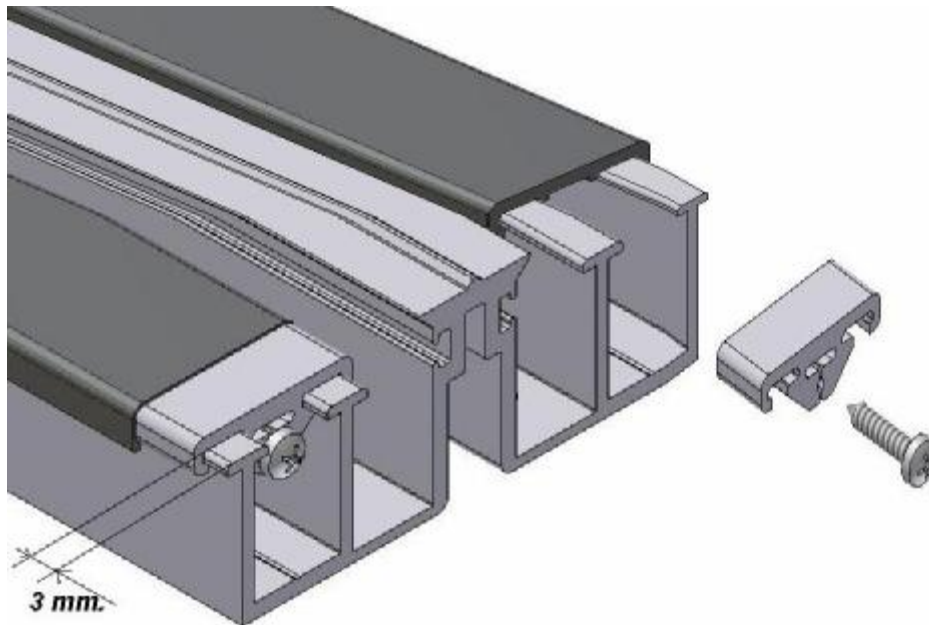
These clamps should be mounted at least 3 mm. from the end of the subfloor profile.

Now slide the glide-profile on both sides of the subfloor profile over the full length.

Now secure the glide-profile at the rear-end with the supplied securing-clamps according the illustration below.

Here the securing-clamps should be mounted at 3 mm. from the end of the subfloor profile (the head of the screw may not stick out of the profile).

Important is that the glide-profile is mounted without spaces and closed up between the aluminium securing clamps.



3.2.4 – Mounting the seal profile in the subfloor profile

Each subfloor profile is provided with 2 trenches for the seal profile.

In each trench, at the front side (headboard side) of each subfloor profile one of the set-screws M4 should be fastened in order to prevent the seal profile to run out of the trench.

Now slide, time and again, from the rear side the seal profile into the trench over the full length of the subfloor profile and cut it straight at the same length of the subfloor profile.

Beware that the soft lip of the profile points upwards.

Now cut the seal profiles of the both ½ subfloor profiles 10 mm. shorter and close the trench with the set-screw M4.

3.3 – ALUMINIUM FLOORPROFILES 175 mm.

Before mounting the floorprofiles some preparatory tasks have to be done.

Beware

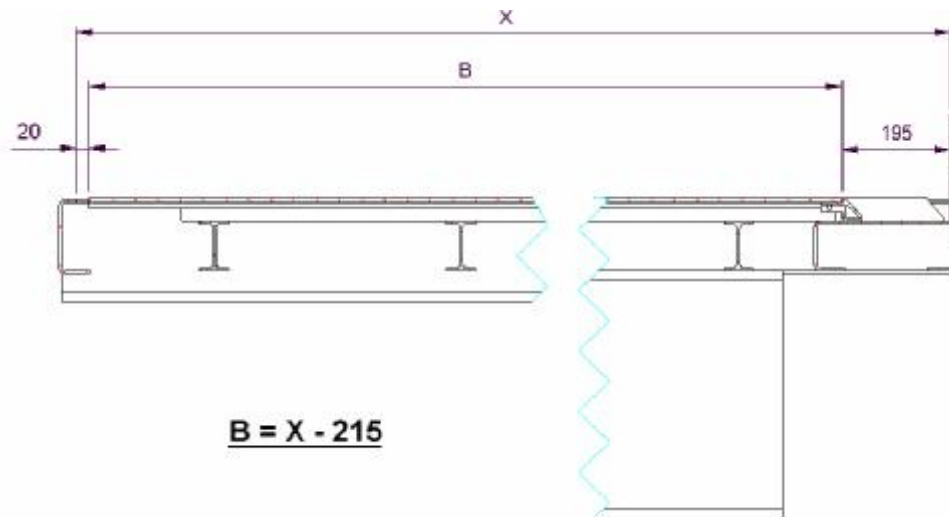
The ‘Spirofloor’ system is designed to achieve the lowest possible total weight.

This results in the fact that the floorprofile 175 mm. derives its strength from the assembled situation.

Therefore handle these profiles before and during mounting with care in order to prevent the profiles from being damaged.

3.3.1 – Measuring and cutting the floorprofiles

Measure and cut the 12 floorprofiles according the drawing below.
 (= 160 mm longer than the subfloor profile)
 Cut the profiles at this length exactly at right angle.



3.3.2 – Edge-breaking and rounding off

In order to facilitate the pushing in of the floorprofiles and to avoid damage to the sealprofile the front side of the floorprofile should be edge-broken at the outside, and rounded off at the inside.

3.3.3 – Mounting the end-stops 175 mm.

Push the end-stops in the floorprofiles (rear end) and take over the position of the bore-holes of the end-stops onto the profiles.
 Countersink these holes at the upper side of the profiles for the use of a M6 countersunk bolt.
 The upper side of the bolt should be exactly levelled with the upper side of the floor profile.
 Now fasten the end-stops to the floorprofiles with the countersunk stainless steel bolts M6 x 30 mm. and the self securing nuts.

3.3.4 – Drilling the floor profiles 175 mm.

In order to be able to fasten the floor profiles to the carriers the hole-pattern of the carrier should be taken over on the floor profiles by means of the drilling-jig.
 For the location of the hole-pattern, do the following:

Beware that the piston-rods of the hydraulic cylinders are fully drawn in and the carrier-beams are at exactly right angles with regard to the chassis.

Now place 1 end-stop for subfloor profile in the middle subfloor profile. (Do not fasten definitely)

Check that both of the carrier-beams are at right angle to the lateral profiles of the chassis.

Measure the distance from the 'nose' of this end-stop to the hole-pattern of the carrier.

Copy this measurement for all 12 floorprofiles, counted from the 'nose' of the end-stop 175 mm.

After being mounted, all end-stops should be in one straight line.

Now take over the hole-pattern by using the drilling-jig.

Drill the holes to a size of \varnothing 10 mm.

These holes must be countersunk at the upper side of the profiles for the supplied bolts M10 x 35 mm.(10.9)

For this countersinking preferably a column drilling machine has to be used; to prevent loose product from catching on the head, the head has to be countersunk exactly into the profile. If the countersinking is done too deep, then fastening the profiles correctly will be a problem.

3.3.5 – Mounting the floorprofiles 175 mm.

Take care that, during the sliding in of the profile, the soft lip of the sealprofile points upwards.

Now slide all profiles in and fasten them to the carriers using the supplied countersunk bolts M10 x 35 mm.

Start with the middle floor profiles and work towards both sides.

These bolts must be fastened with a torque of 68 Nm.

Beware! – After having hooked up the hydraulics of the system, run the system for a few minutes and then torque the bolts again at 68 Nm.

Now secure these bolts by hitting a centre-point on the transition of bolt/aluminium profile.

3.3.6 – Mounting the end-stops for subfloor profiles and glide-plates

Now mount the end-stops for subfloor profiles, exactly in line of the subfloor profiles.

Fasten the end-stops to the rear plate of the chassis with the supplied stainless steel bolts M8 with the self securing nuts.

Fasten now, between each of these end-stops, the plastic glide-plates 195x175x3 mm. with the supplied countersunk rivets \varnothing 5 mm. to the rear plate of the chassis.

3.3.7 – Filling out the side-spaces

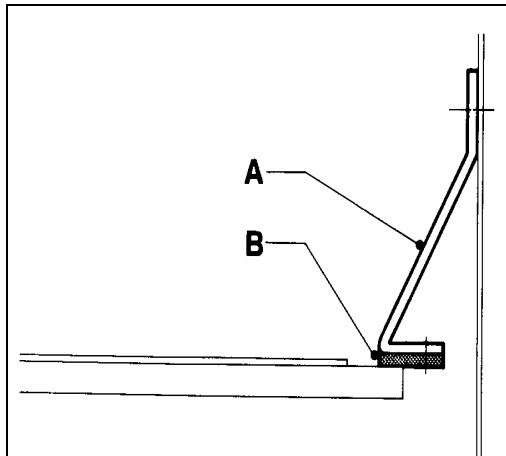
The gap between the $\frac{1}{2}$ subfloor profiles and the side walls of the body should be filled out on the same level as the floor to your own mind.

3.4 – SEAL-PLATE

In order to prevent leaking of the load at the headboard side, a seal-plate (A) has to be mounted against the headboard.

The design of this can be made to your own mind.

The corresponding plastic seal-plate (B) is supplied.



(example)

4 CONNECTIONS AND LIMITING CONDITIONS HYDRAULIC AND ELECTRIC SYSTEMS

4.1 Hydraulic System

Pump capacity, max.	: approx. 100 l/min.
Oil purity	: according to ISO 4406, category 16/13 - 17/14
Max. oil pressure, preset	: 250 bar
Oil temperature, max.	: 75 °C
Recommended oil	: see oil diagram.

Connect the hydraulic system with a:

Pressure pipe \varnothing 25 x 2 mm

Return pipe \varnothing 28 x 1,5 mm

It is advised to execute the connection between manifold and pipes with hydraulic hoses. (approx. 800 mm).

Pipes should be fastened firmly with pipe brackets.

Connections of the manifold:

Pressure M22 x 1½ mm.

Return M22 x 1½ mm.

NOTE

- * All pipes, hoses and connections have to be very clean and without burrs on the inside.
- * The oil filter, which also is supplied, should be mounted in the pressure pipe ON THE TRAILER. Mounting the pressure filter extends the life of the drive system and prevents malfunctioning. Take care to change the filter element regularly. (at least once a year)

Recommended oil diagram		
Ambient temperature	Oil category	Viscosity
	<u>acc.ISO 6743/4</u>	<u>ISO 3448</u>
< -5 °C	L-HM	15
-5 °C up to +25 °C	L-HM	32
> +25 °C	L-HM	46
-15 °C up to +30 °C	L-HV	32

Advice

*** Before operating the system for the first time, pump the oil round for 15 minutes to filter the oil.**

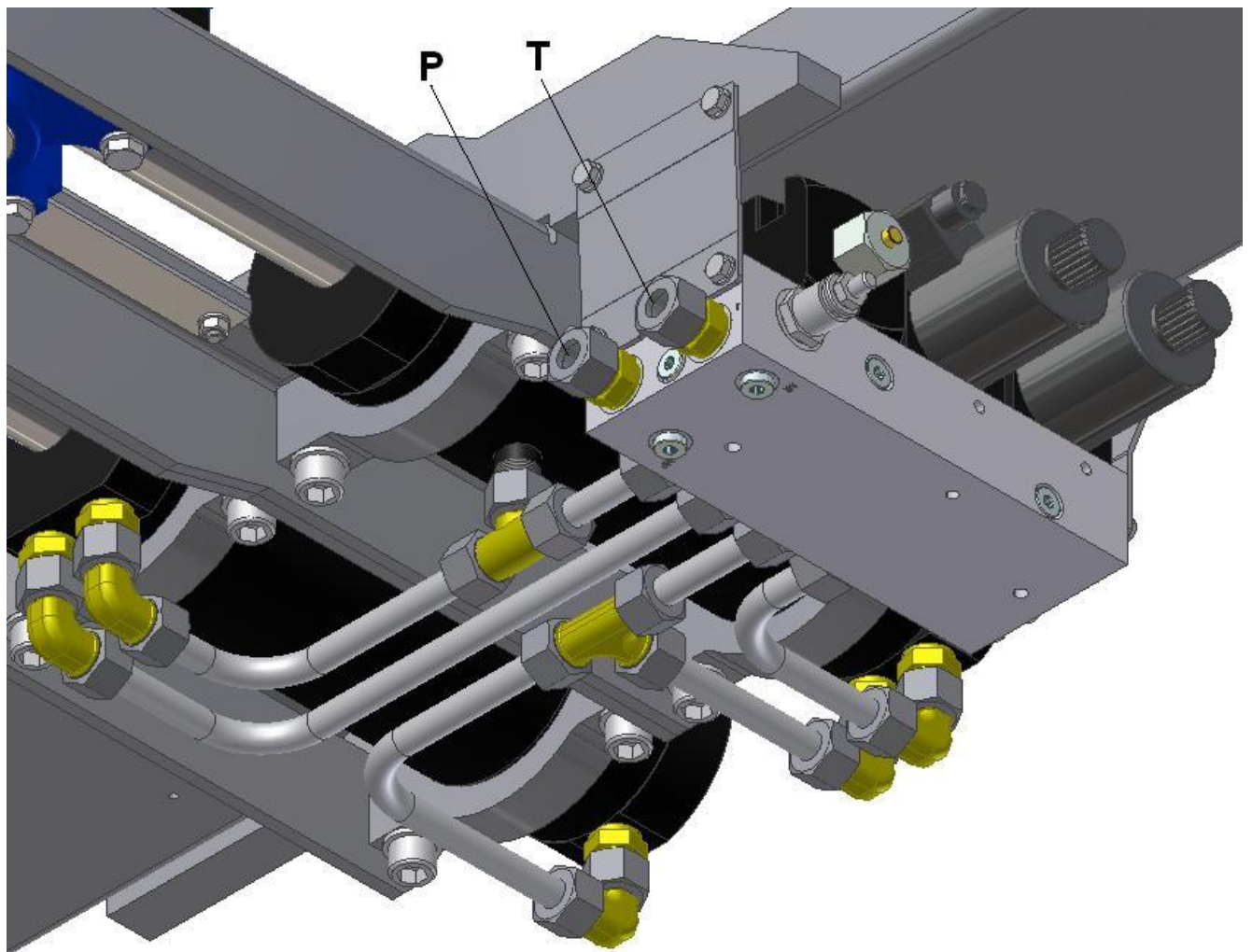
4.2 Elektric system

Connections

- voltage : 24 V DC
- nominal current : 5 A.
- supply cable : lengte ca. 10 mtr.
- fuse (in control box): 5 A. car fuse

The operating switch can be positioned as desired.

HYDRAULIC CONNECTIONS



ELEKTRIC CONNECTION PLAN

