



COMPACTTILT™ ROTATOR™

USER MANUAL
INSTRUCTIONS
PRODUCT INFORMATION

CTR2-1 V1.2024

Patentnr.: PCT/DK2016/050047



Congratulations on choosing Compacttilt!

We are happy that you have chosen our product - and look forward to it working for you.

Here at Compacttilt, we develop and create products based on the vision of creating the best user experiences. Therefore, it is also important for us that you remain satisfied with your Compacttilt product, and if something unexpected arises or questions - contact us or your machine dealer.

Compacttilt products are our own development and is manufactured in Compacttilt's factory in Denmark. This means that each part of the product is engineered based on our vision of what supplies the best tilt product. But we cannot avoid the fact that maintenance and correct use of the product is the way forward, for full utilization of the product's lifetime. Therefore, read this instruction and perform the maintenance according to the regulations.

Again, congratulations on your choice of Compacttilt. We look forward to a long and good cooperation. Just contact us for more information.

Daniel Duus,
CEO and Product Engineer
Compacttilt.com

Compacttilt is a patented and protected product: The full ownership of all intellectual property rights regarding the product's manufacture, design, trademarks and copyrights, belongs to Compacttilt ApS.

EC declaration of conformity

According to The Machinery Directive 2006/42/EF, Appx. IIA



Manufacturer:

Compacttilt ApS
Fabriksvej 5
5580 Nørre Aaby, Danmark
Tlf.: +45 6442 2080

Hereby declare that the following equipment:

Product: Compacttilt™
Type: CTR2
Serie no _____
Year: _____

Complies with the following directives:

2006/42/EC Machinery Directive
2014/30/EU EMC-directive (Electromagnetic Compatibility)

The following harmonized standards have been applied:

DS/EN ISO 12100:2011 Machine safety - General principles of construction - Risk assessment and risk reduction
DS/EN ISO 4413:2010 Hydraulics - General rules and safety requirements for systems and their components.
DS/EN 474-1:2022 Earthmoving machines - Safety - Part 1: General requirements
ISO 13031:2016 Earth-moving machinery - Quick couplers - Safety
DS/EN ISO 13849-1:2023 Safety of machinery - Safety related parts of control systems - Part 1: General principles of construction

Place / Date

December 2023

Name/Title Maria Gade, Administrator

Signature

The undersigned is the representative for the collection of the technical dossier

Certificate: Lifting Hook

See application and restrictions further down in the manual.



TEST CERTIFICATE		H-LIFT INDUSTRIES CO., LTD.			
		8/F., No. 560 Jincheng Road, Xiaoshan, Hangzhou, 311202, China Tel + 86-571-8263-6008, Fax + 86-571-8263-6028 http://www.h-lift.com E-mail: info@h-lift.com			
		CERTIFICATE NO.	ZS-14319-029		
		SUPPLIED TO	SORENSEN & KOFOED A/S SMEDEHOLM 7-9 2730 HERLEV DENMARK		
YOUR P/O NO.:	00059679-2	INVOICE NO.	14HC319		
(1) Description of Gear					
GRADE 80 WELD ON HOOK TESTING ACCORDING TO EN 1677 MATERIAL: ALLOY STEEL					
(2) PRODUCT CODE	(3) SIZE(t)	(4) QUANTITY (pcs)	(5) WORKING LOAD LIMIT(WLL)	(6) MIN. BREAKING FORCE (BF)	(7) MARKING
8-WOH-01	1	50	1t	49kN	WLL 1T CE
8-WOH-02	2	100	2t	98kN	WLL2T CE
8-WOH-03	3	120	3t	147kN	WLL3T CE
8-WOH-05	5	40	5t	245kN	WLL5T CE
8-WOH-08	8	20	8t	392kN	WLL8T CE
I hereby certify that the item described in this certificate was tested and thoroughly examined and that the above particulars are correct.					
TEST RESULT		CERTIFIED BY:			
Pass <input checked="" type="checkbox"/>	Fail <input type="checkbox"/>	AUTHORISED SIGNATORY:			
		DATE (dd/mm/yy):			
				06/09/14	



Add: 8/F., No. 560 Jincheng Road, Xiaoshan, Hangzhou, 311202, China

Tel: +86-571-8263-6008 Fax: +86-571-8263-6028 http://www.h-lift.com Email: info@h-lift.com

Content

Safety Regulations	5
Compacttilt™: purpose and function	5
Restrictions on use	5
Before Use	5
Before Daily Use	5
Regular security checks	7
Safety instructions	7
Warning – Prohibition - Reminders	8
Moving the product	8
Disposal	9
Cessation of use and disassembly	9
Scrapping	9
Data Compacttilt Rotator	10
Installation	11
Before start of installation	11
Installation	11
Inspection of unwanted contact between machine and coupler	12
Installation of CTR2 hydraulic system HS2	13
Hydraulic schedule CTR2 Hydraulic system HS2	14
Installation of CTR2 with hydraulic system HS4	15
Hydraulic schedule for CTR2 hydraulic system HS4	16
Installation of CTR2 with hydraulic system HS6	17
Hydraulic schedule CTR2 with system HS6	18
Installation of CTR2 with hydraulic system HS8	19
Hydraulic schedule CTR2 with system HS8	20
Inspection of installation:	21
Steering range – Compacttilt Rotator	21
Attaching equipment	21
Quick coupler with valve system	22
Lifting hook – use and limitations	23
Decoupling equipment	23
Safety – Hydraulic quick coupler	24
Extra outlet	24
Maintenance	25
Lubrication overview	26
Sparepart	26

Safety Regulations

This instruction manual must be thoroughly read by any user of the Compactilt before use. The Compactilt may only be used for the purposes described in this manual. Compactilt is a hydraulic quick-coupling equipment that connects the carrier with an implement - therefore user instructions and safety instructions from these two products must always be understood and complied with before the product is used.

Compactilt™: purpose and function

- To give the excavator increased flexibility, so as the Compactilt is mounted between an excavator's arm and attachment such as a shovel. Compactilt adds the function that the attachment can be tilted and rotated.
- NOTE: The weight of the Compactilt and the increased range can lead to impaired stability which in the worst case can lead to personal or property damage.
- The Compactilt is only for use in implements intended for excavators and must not be used for other purposes.

Restrictions on use

The Compactilt is only intended for use with digging implements. It is not recommended to use the Compactilt for oil hammer / hydraulic hammer, as it significantly reduces the service life of the Compactilt.

Compactilt must not be used with a crane arm, for transporting or lifting people.

Before Use

This instruction only involves the Compactilt - the safety information described will at all times depend on the carrier, where the applicable safety instructions and lifting graphs for the carrier as well as any other equipment, to be read and understood at all times before commissioning and subsequently complied with.

- It is ensured that the information in the declaration of conformity corresponds to the information plate mounted on the Compactilt. If there are deviations, contact the supplier immediately before carrying out the installation.
- Make sure that the hydraulic system is depressurized before you start working on the system.
- It is strictly forbidden, at any time, that:
 - Stay under the Compactilt.
 - To influence, sabotage or manipulate the Compactilt using 3rd party objects.
 - To use the Compactilt for other machine types than the specific one for which it is manufactured, cf. the type plate.

Before Daily Use

- The mounting points are safety components that require regular inspection and adjustment. In the event of signs of wear or cracking, the Compactilt must not be used.
- Always follow the instructions and pay attention to the personal and environmental instructions in the data sheet that comes with hydraulic oil and grease.
- Never use your hands to check for leaks in the hydraulic system - there is a risk of personal injury.

- When mounting the Compacttilt and / or tool holder, check the limits for tip load.
- Implements connected to the Compacttilt may only be used if the locking has been carried out correctly.
- Never use the Compacttilt on a damaged or defective machine or bucket.
- Never try to increase the maximum capacity of the machine.
- Always replace damaged or unreadable labels and warning signs before using the machine.
- Always insulate electrical conductors and components when installing electrical equipment.
- There is a risk of burns when in contact with hot hydraulic oil.
- The implement lock may only be activated when the bucket or work implement is switched on and off.
- There is a risk of crushing with moving parts.
- When lifting, use a lifting hook for lifting to the extent that the excavator is approved for.
- If you have any doubts about use and safety instructions, contact your dealer or the manufacturer of the Compacttilt.
- Be extremely careful when handling long objects due to forces due to “live/movable weight” and the increased risk area. Risk of personal injury and property damage.
- The Compacttilt must not be used beyond the maximum capacity.
- It is not permitted to manipulate or otherwise change the installation and / or function of the Compacttilt.
- Maintenance and repair may only be performed by professionally trained personnel.
- Assembly and installation may only be carried out by an authorized workshop.
- Do not start the tool without:
 - The tool is set correctly, including that the mechanical locking device is set correctly.
 - It is ensured that hoses, hydraulics etc. does not bother the Compacttilt and its features.
 - The operator and the third party are not under the tool and / or in the working area of the tool, where the hazardous squeezing situation may occur.
- Be extremely careful when handling long objects due to forces due to “live/movable weight” and the increased risk area. Risk of personal injury and property damage.
- The Compacttilt must not be used beyond the maximum capacity.
- It is not permitted to manipulate or otherwise change the installation and / or function of the Compacttilt.
- Maintenance and repair may only be performed by professionally trained personnel.
- Assembly and installation may only be carried out by an authorized workshop.
- Do not start the tool without:
 - The tool is set correctly, including that the mechanical locking device is set correctly.
 - It is ensured that hoses, hydraulics etc. does not bother the Compacttilt and its features.
 - The operator and the third party are not under the tool and / or in the working area of the tool, where the hazardous squeezing situation may occur.

Important for tiltrotators valve system:

Always test the valve function every morning before starting, to ensure that the valve system is fully functional. This is done by making a full swing to both full right and full left. Then checking that the locking pawls are not unlocked when tilting.

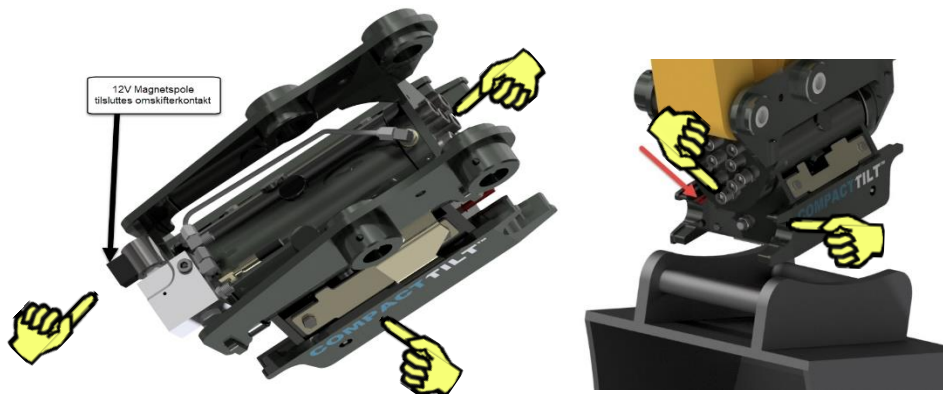
NOTE: if this is not the case - contact your service center.

Checks for leaks. Compacttilt Rotator must not be used if leaks are found on the valve system.

Pay attention to wear on hoses. In the event of signs of wear, these must be replaced immediately.

Regular security checks





- Inspection of hydraulic hoses, fittings, pipes, joints, bushings and bolts.
- Inspections of welds and suspensions.
- Inspections of fork wear
- Inspections of lock













The manufacturer requires inspection of the products mounting and installation.
The manufacturer requires inspection of the quick coupler locking component.
If damage occurs, contact Support.

Safety instructions

- Only trained personnel and operators are allowed to operate the product.
- The machine bracket must be properly mounted. Any irregularities must be reported and fixed.
- All operators must be registered by the person in charge of the excavator.
- During maintenance all moving parts must be in a locked position.
- During maintenance the manufacturer demands that the operator uses correct safety equipment

			
<p>High pressure fluid The pump generates high pressure fluid. Never check for leaks with a hand or other body part. Always drain pressure before working on the hydraulic system</p>	<p>Safety glasses required</p>	<p>Wear safety boots</p>	<p>Keep in safe distance from hazard</p>

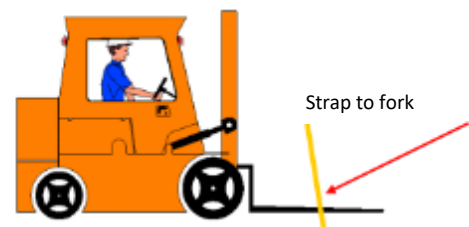
Warning – Prohibition - Reminders

-  This manual must be available immediately at the machine. If this is not possible, the machine must clearly mark where the manual is stored.
-  Other rules, established by national or other authorities or by the company itself, must be observed. If these are violated, the manufacturer and his representative disclaim any responsibility for damage to persons or material.
-  The machine must be operated in accordance with the instructions and instructions given in this and the other instructions that together constitute the operating instructions for the machine.
-  This manual must be read before using the machine.
-  All operators and others who must operate the machine must review this manual before working on the machine. By operators is meant all persons working at the machine, both operators and employees who are engaged in e.g. unloading and loading, cleaning, maintenance etc.
-  Only those persons who need it as part of their work may access the machine. If it is necessary to provide access to the machine for persons unfamiliar with the function (eg. during repairs, visits or demonstrations), this must be done under the pre-determined safety precautions. The person responsible for the operation of the machine must be informed of the presence of strangers.
-  Operators and repairers who are to operate or work on the machine must undergo training in the use of the machine before the work may take place. The manufacturer carries out the necessary training of operators and repairers when handing over the machine.
-  If the safety instructions are ignored by the user, the manufacturer and his representative disclaim all responsibility.
-  If the user changes, disassembles or adds to the original design, mechanical shielding, electrical safety, pneumatics, hydraulics, as well as functions related to the original design, the manufacturer's CE marking lapses.
-  Always test the acoustic signal at every engine start, to ensure correct attachment of equipment on the Compacttilt Rotator. This must be conducted regularly to prevent personal injury.

Moving the product

Always ensure that there are no objects, persons or third-party objects under the product, or with the risk that it may interfere with the movement.

When moving, use correct lifting devices, e.g. truck or crane. Always remember to ensure that the product is properly secured during the move. It is the user's responsibility that lifting straps, or lifting chains, are safety approved for the weight of the product. For truck transport, machine parts must be secured with straps. For crane lifting, lifting chains / straps must be designed for the weight.



Disposal

Cessation of use and disassembly

- The equipment must not be pressurized during disassembly and must be drained of oil.
- A plan for disassembly must be prepared. The plan must include a risk assessment for the work and for disposal of the Compacttilt Rotator / machine part.
- Plan and risk assessment must be prepared in accordance with applicable rules at the time of dismantling.



Scrapping

The product is dismantled and sorted into categories that require in applicable environmental requirements. The product is subject to valid version of: Directive 2008/98/EC on waste.

When the product is obsolete, all the components that make up the product must be sorted and handed in at an approved recycling site or conducted by an approved recycling company.

The product must not be disposed as unsorted household waste. Use the local WEEE collection points for the disposal of electrical components of this product and make sure that all relevant regulations are observed.

The product consists of the following materials and must be sorted accordingly:

- Iron
- Aluminum
- Plastic (hard & soft)
- Rubber
- Oil & grease
- Electrical components
- Copper
- Other metals

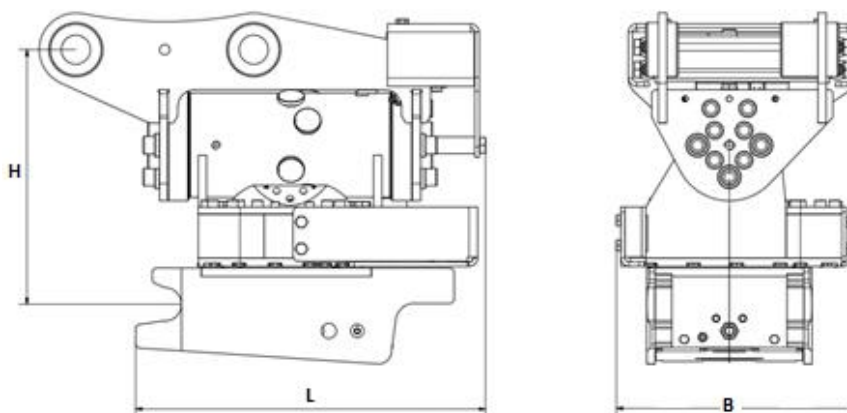
If parts of the product is resold for purposes other than disposal, it is the owner's responsibility to make the recipient aware of the disposal rules.

Data Compactilt Rotator

Data/Compactilt Rotator	CTR2
Max machine size by weight	2.000 kg
Product installation height [H]	260mm
Width [B]	253mm
Length [L]	364mm
Weight including attachment and valve system	65 kg
Total tilt angel	100°
Tilt angel	2x50°
Max. hydraulic pressure [MPa]	22
Recommended hydraulic flow [L/min]	20
Pressure open/close pin-lock [kN]	1
Torque [Nm at 21 MPa]	3165,2
Type of quick coupler	S30
Rotation ability	∞
Rotator speed HS2* [sec/rev. v. 10 l/min]	13,5
Rotator speed HS4, HS6, HS8 [sec/rev. v. 20 l/min]	7
Outlet [set]	1
Extra outlet** [l/min]	10-15
Electrical system	12V
Max digging moment [kNm]	18,3
Max. Breaking moment [kNm]	12,3
*Maks. Digging and breaking torque is calculated at bucket size width/height	500/550mm

*Hydraulicly limited to 10L/min.

**The precise number of liters per minute depends on the machine setup and what amount of pressure drop that can be accepted.



Installation

Documentation for the carrying machine must be available and read before installation. In the following it's described how to mount the Compacttilt equipment directly on the machine.

If the Compacttilt is mounted on a quick coupler you must use the carrying machine documentation.

Note: Assembly and installation may only be carried out by workshops approved by the manufacturer. Do not make any changes to the assembly without the manufacturer's permission. Workshops approved by the manufacturer are dealers with their own workshop, unless otherwise stated in the delivery of the Compacttilt.

Before start of installation

1. Check the limits for tip load considering the weight of the Compacttilt Rotator and the extended range, which may make it necessary to reduce, for example, the volume of the bucket.
2. Place the bucket on a level and non-slip surface.
3. Place the bottom of the Compacttilt Rotator on a level and non-slip surface, making sure the tilt is in neutral position (**Figure 1**).
4. The digging arm is moved into position so that the arm can be lowered against the machine mount of the Compacttilt Rotator without contact.



Figure 1

Installation



Figure 2

Position the link arm so that its mounting hole is in line with the attachment (**Figure 2**).



Figure 3

Fit the pin bolt of the link arm and lock it with a bolt or locking pin in the transverse hole of the mounting bracket (Figure 3).

NOTE. Use the supplied pin bolts, if supplied. If not supplied, use the original pin bolts of the machine.

Lower the main arm into the bracket, until its pin hole is in line with the mounting holes in the attachment.

The arm is also locked with a pin bolt corresponding to the link arm (Figure 4).

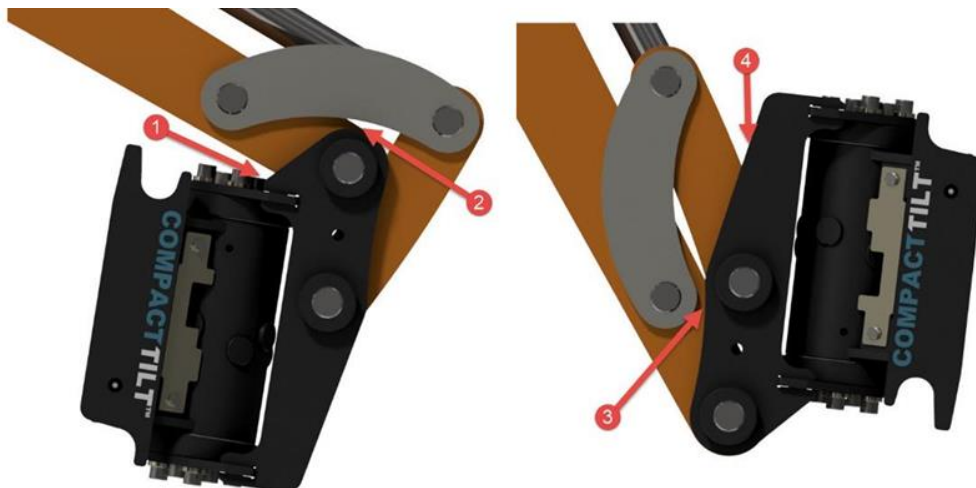


Figure 4

Inspection of unwanted contact between machine and coupler

It's recommended to look for interference between tilt and boom. Position 1,2,3 and 4 shows where it typically can occur. If no contact is detected, then proceed with the installation.

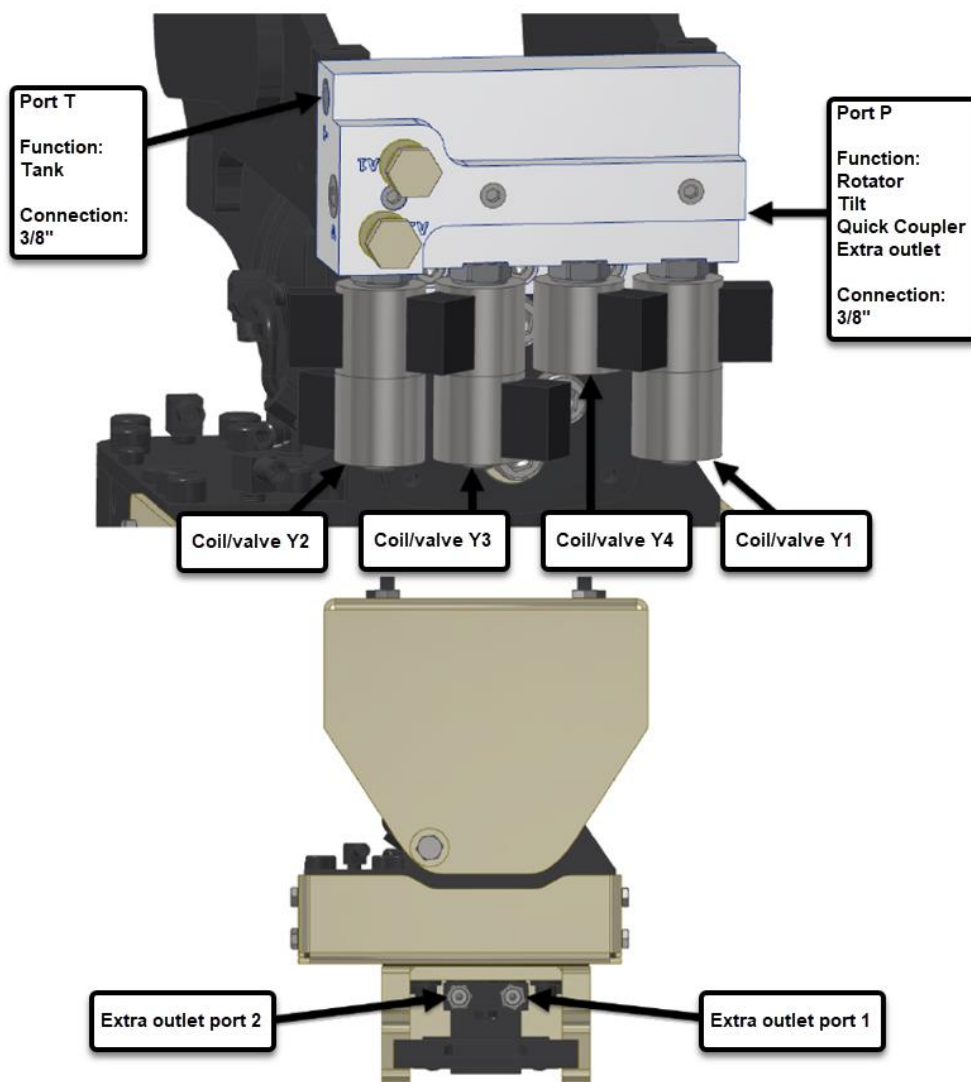
In case of any deviations, please contact Compacttilt on Service@compacttilt.com



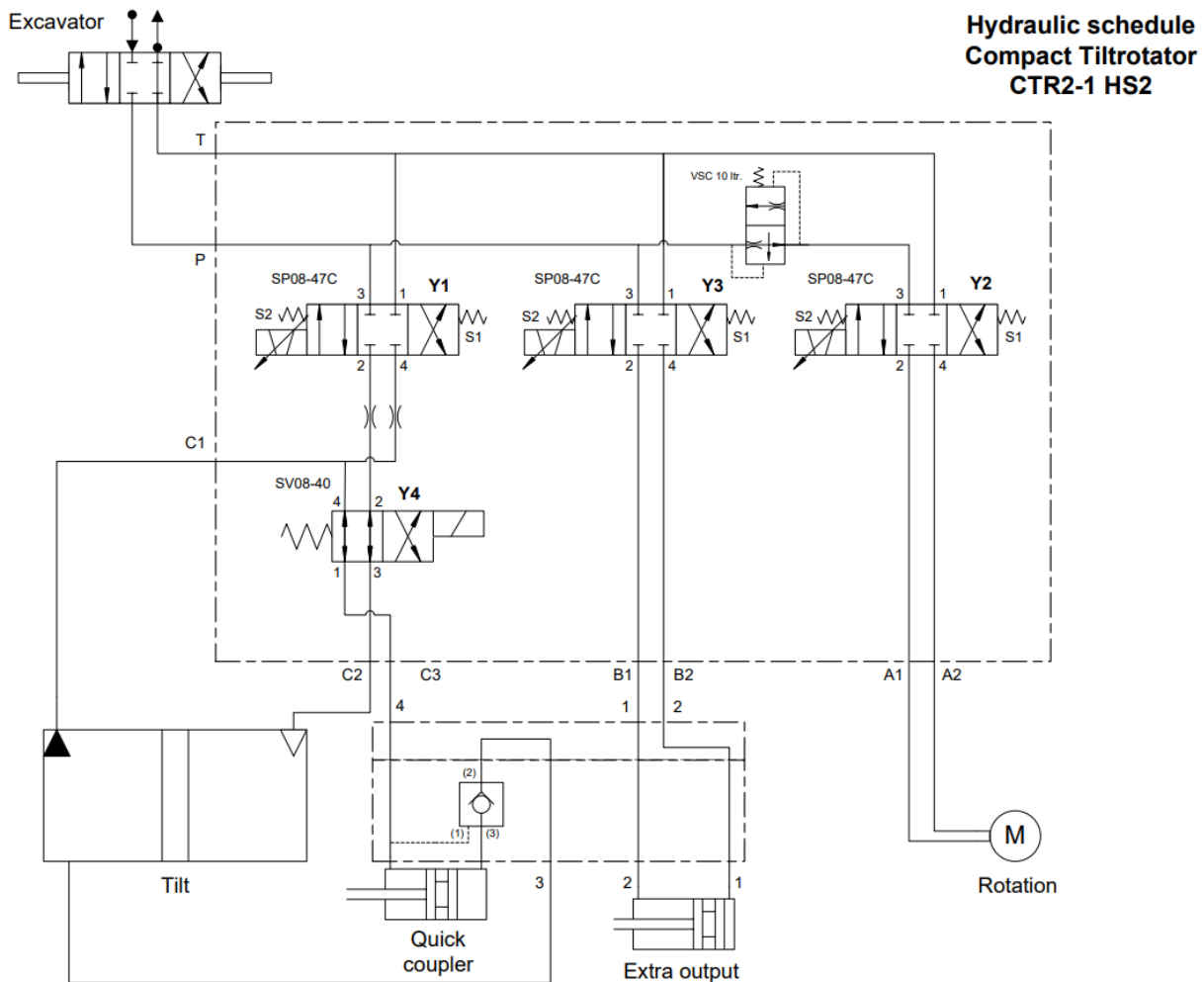
Installation of CTR2 hydraulic system HS2

Before starting the installation of hydraulic hoses, the machine must be switched off and the hydraulic system pressure less.

Hoses are pulled so that there is no squeezing or risk of squeezing when using the machine and the attached equipment.



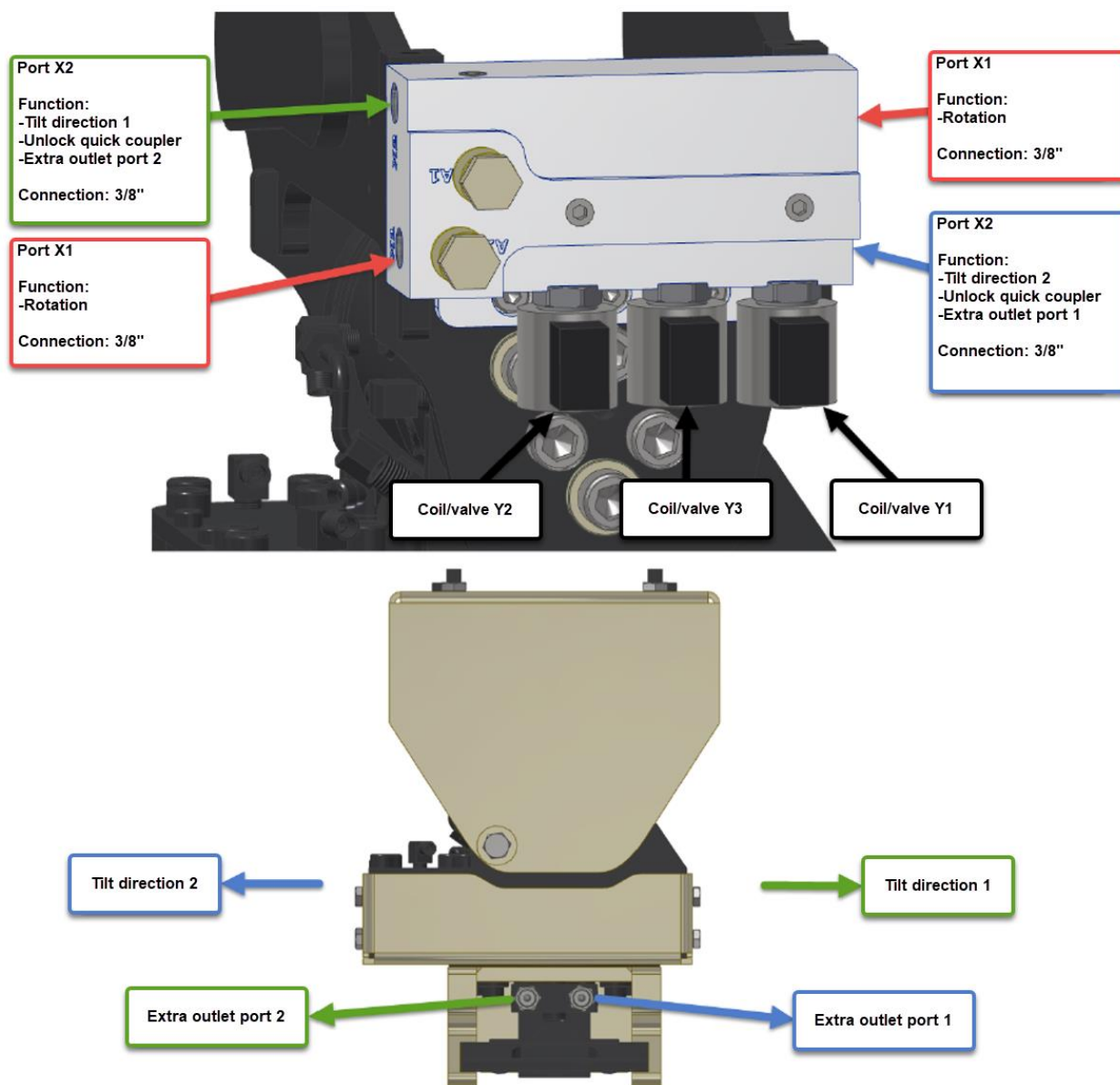
Hydraulic schedule CTR2 Hydraulic system HS2



Installation of CTR2 with hydraulic system HS4

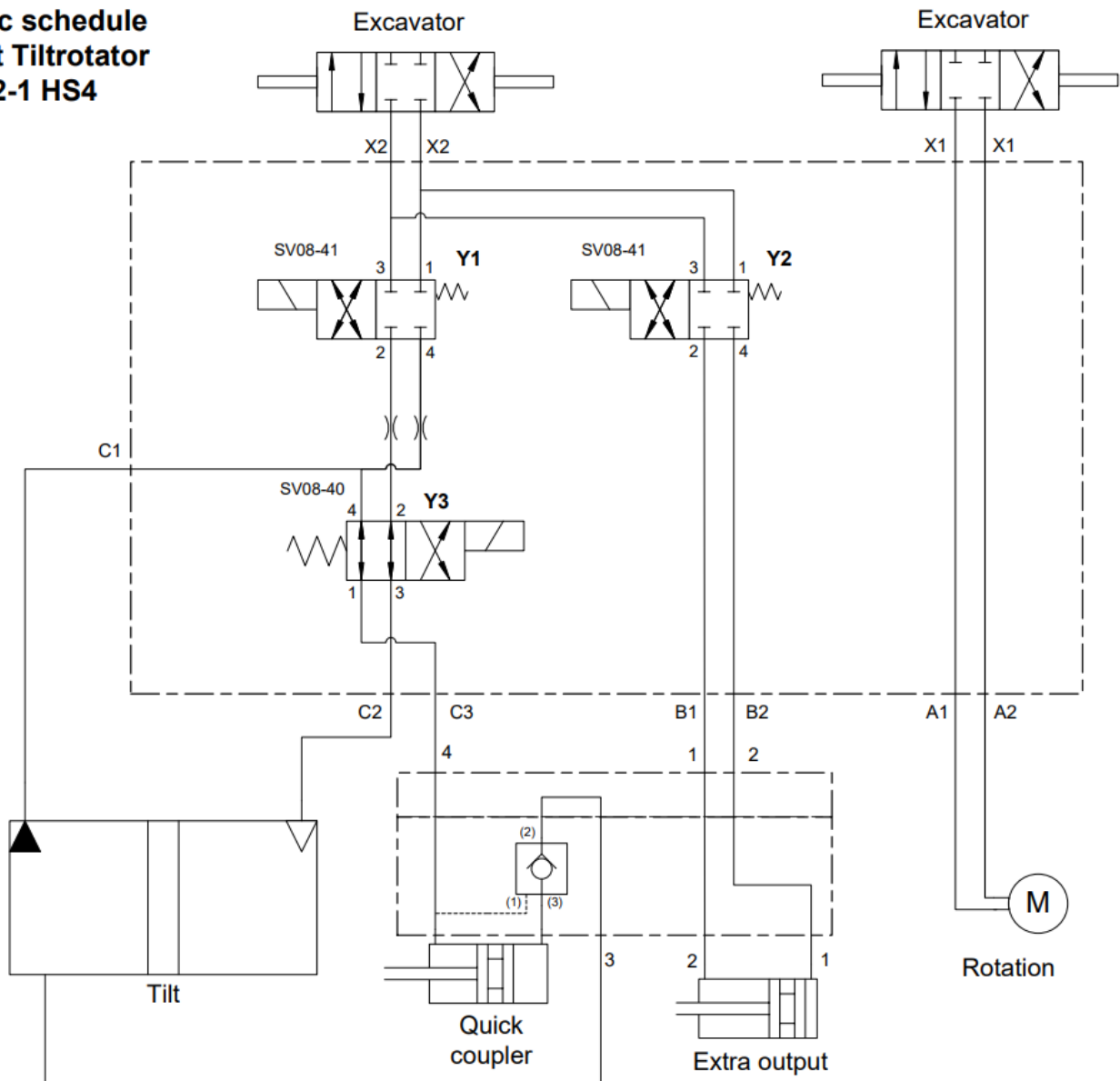
Before starting the installation of hydraulic hoses, the machine must be switched off and the hydraulic system pressure less.

Hoses are pulled so that there is no squeezing or risk of squeezing when using the machine and the attached equipment.



Hydraulic schedule for CTR2 hydraulic system HS4

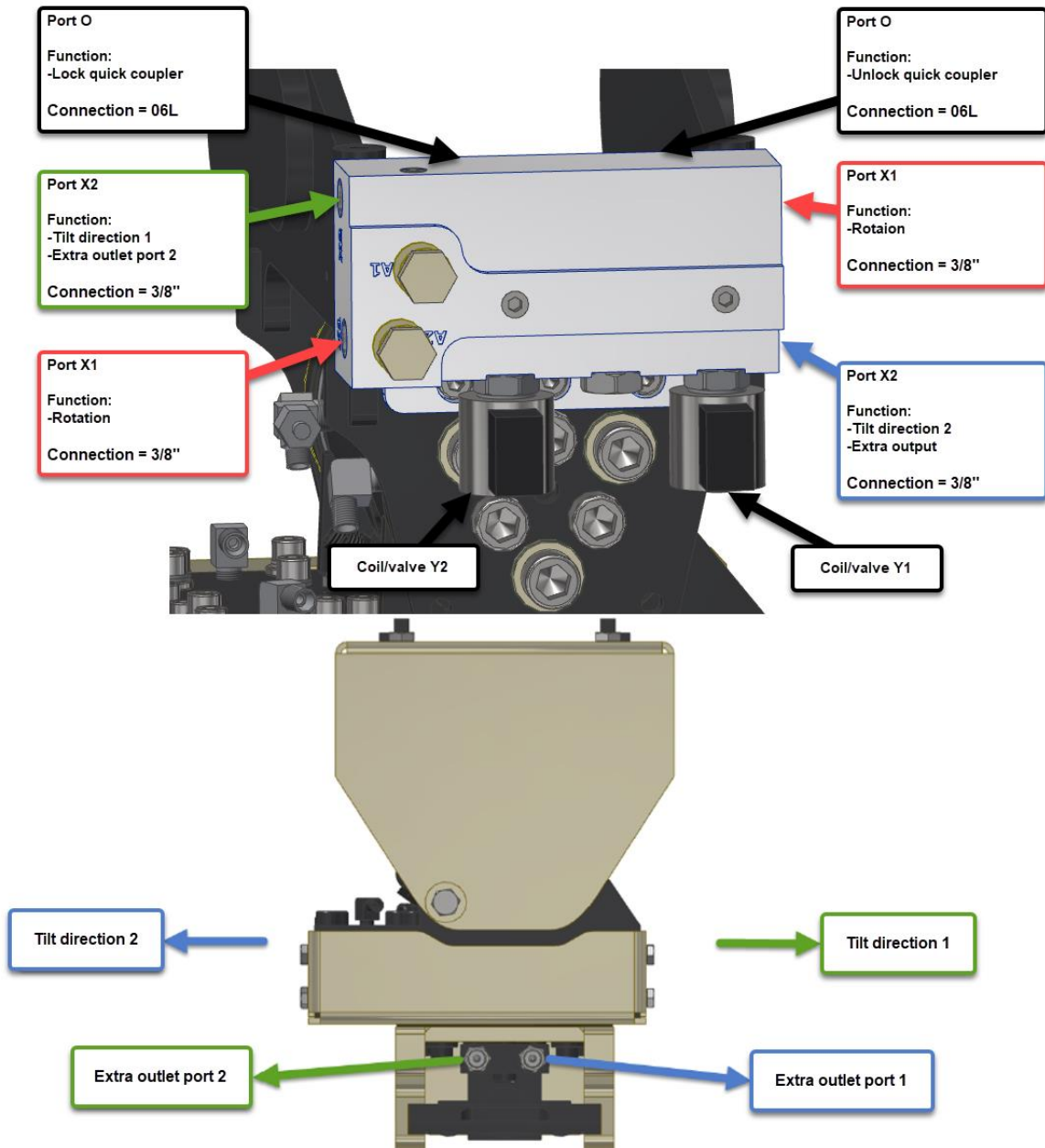
Hydraulic schedule Compact Tiltrotator CTR2-1 HS4



Installation of CTR2 with hydraulic system HS6

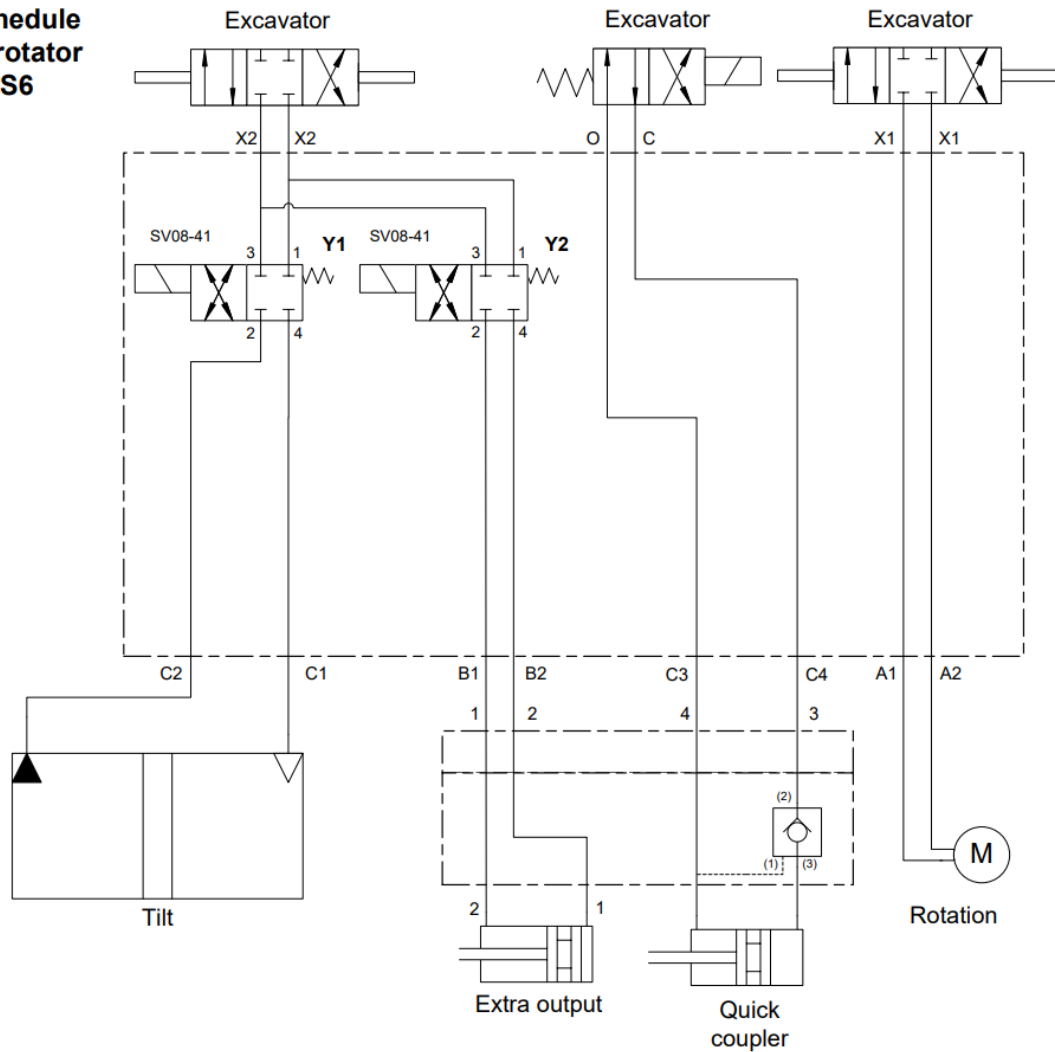
Before starting the installation of hydraulic hoses, the machine must be switched off and the hydraulic system pressure less.

Hoses are pulled so that there is no squeezing or risk of squeezing when using the machine and the attached equipment.



Hydraulic schedule CTR2 with system HS6

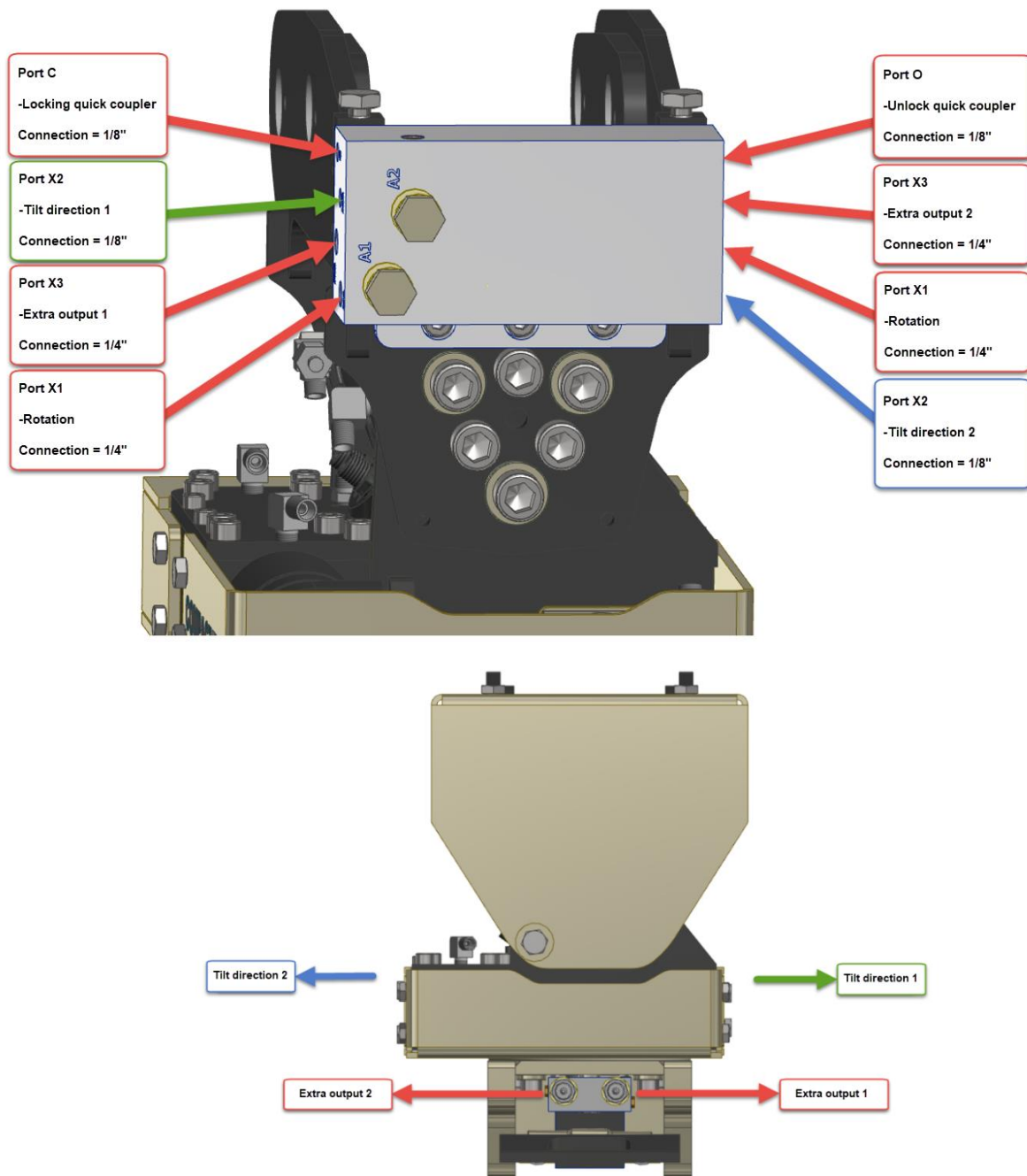
Hydraulic schedule
Compact Tiltrotator
CTR2-1 HS6



Installation of CTR2 with hydraulic system HS8

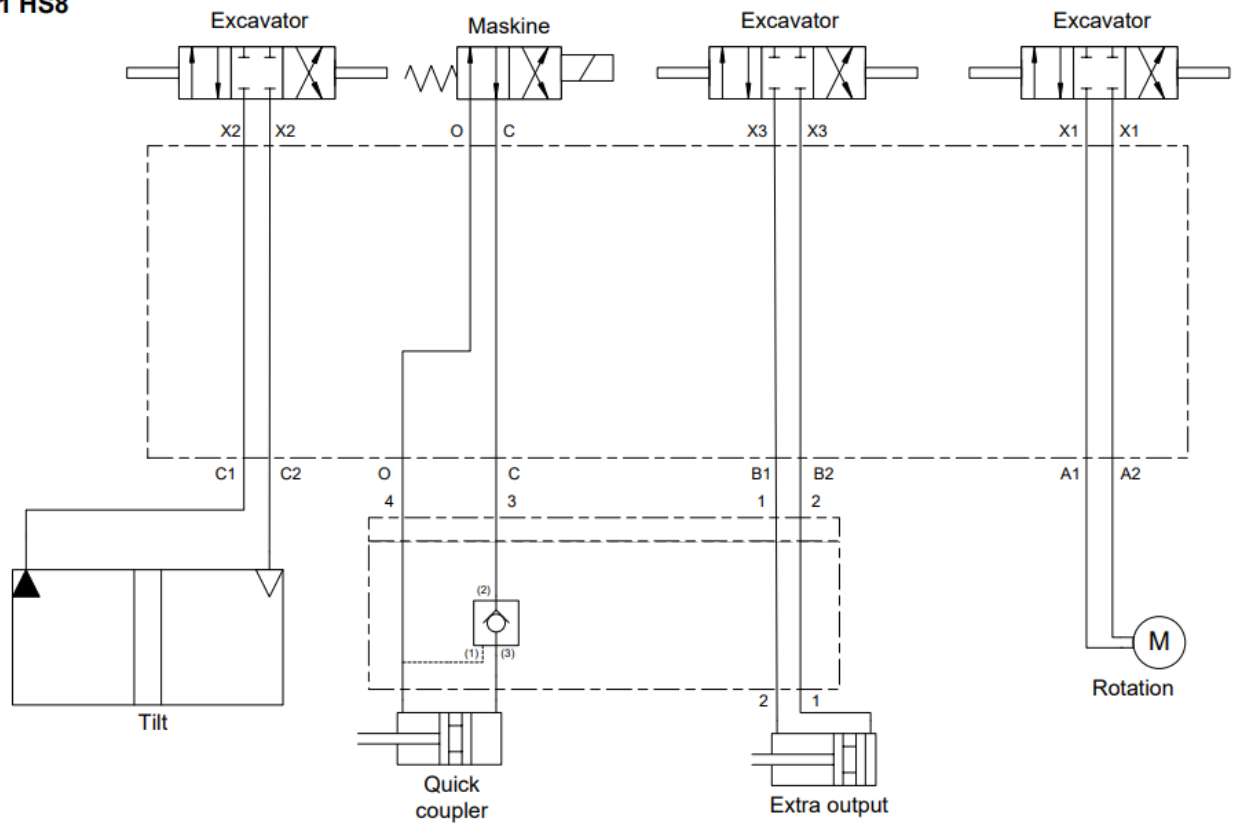
Before starting the installation of hydraulic hoses, the machine must be switched off and the hydraulic system pressure less.

Hoses are pulled so that there is no squeezing or risk of squeezing when using the machine and the attached equipment.



Hydraulic schedule CTR2 with system HS8

Hydraulic schedule
Compact Tiltrotator
CTR2-1 HS8



Inspection of installation:

1. Ensure the Compacttilt functions correctly.
2. Ensure that hoses aren't at risk of getting squeezed, cut or pulled.
3. Check for hydraulic leaks.
4. Inspect that bolts are correctly tightened [See the instructions of the carrier machine].
5. Ensure that the machine attachment is correct for the carrier machine [see product type plate].
6. Ensure the coupler fully locks.

Steering range – Compacttilt Rotator

Compacttilt Rotator has the following control angle which must be taken into account:

1. Rotations 360° grader (*Figure 5*)
2. Tilt 2 x 50° grader (*Figure 6*)

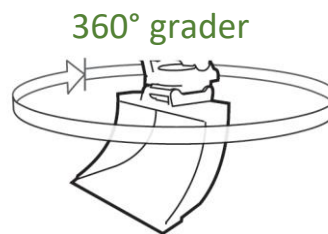


Figure 5

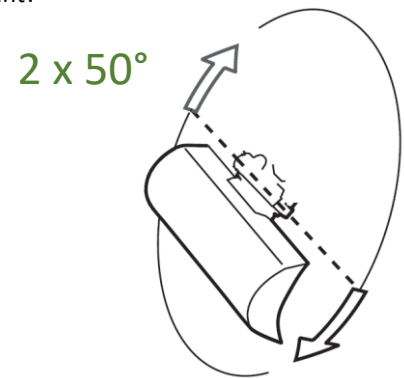


Figure 6

Attaching equipment

Before attaching the equipment, make sure that the quick coupler locking pins are retracted, which can be seen by the indicator pin (*Figure 7*).



Figure 7



Figure 8

The equipment to be connected must be positioned so that the quick coupler fork eyes can catch.

The quick coupler fork eyes engage the coupling shaft of the equipment (**Figure 8**).

When the quick coupler fork eyes have caught, the attachment is swung into position.

The quick coupler is activated, and the locking pins are slid out (**Figure 9**).

The activation of the quick coupler can be confirmed when the indicator pin is retracted into the coupler housing.

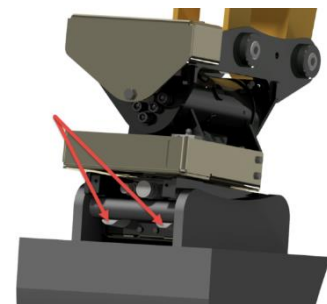


Figure 9

The machine is now ready for use with the attached equipment.

Quick coupler with valve system



Lifting hook – use and limitations

This illustration (**Figure 10**) is taken from the standard *DS/EN 474-1* and describes how the lifting hook (**Figure 11**) must be used. See the inscription on the hook for max. capacity load. Human lifting is prohibited.

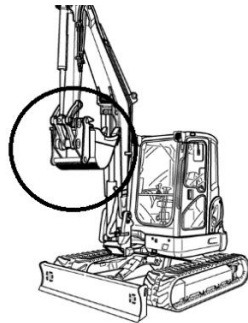


Figure 10



Figure 11

Decoupling equipment

The bucket / equipment is lowered so that it supports a solid surface (**Figure 12**).



Figure 12

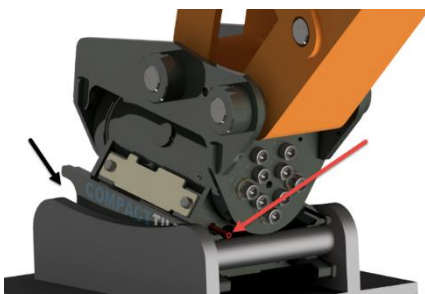


Figure 13

The bucket lock is unlocked by the operator until the indicator pin has been extended. This releases the coupler locking pins (**Figure 13**).

With the bucket lock open, the tilt is now moved away from the bucket / equipment (**Figure 14**).

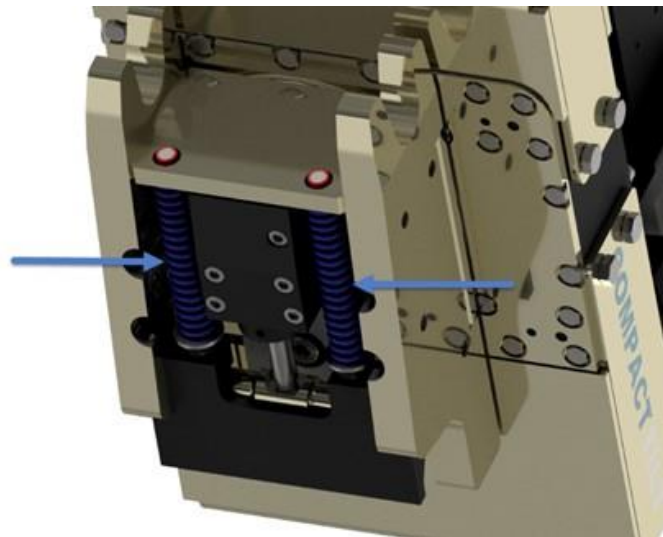


Figure 14

Safety – Hydraulic quick coupler

Compacttilt Rotator quick coupler is fitted with heavy duty springs to ensure that buckets and equipment are not released in the event of a hose breakage or internal leakage in the coupler hydraulic cylinder.

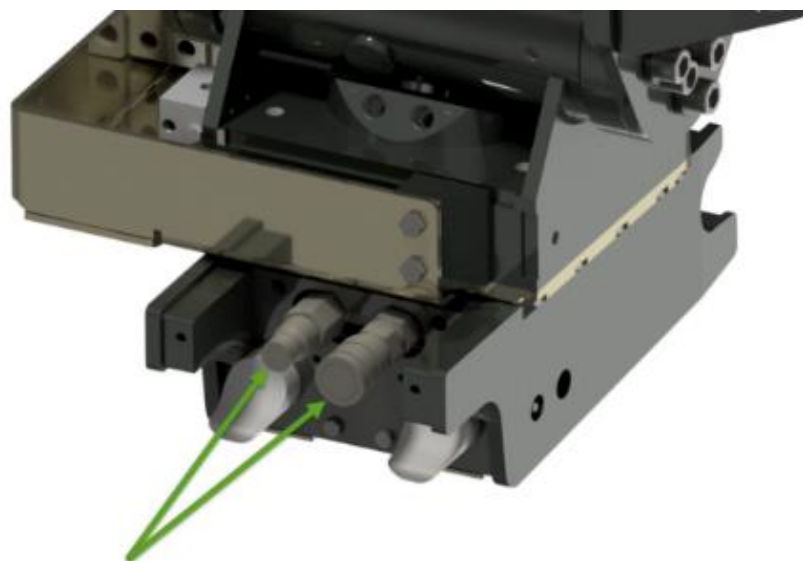
Compacttilt Rotator must not be used if the springs are damaged or removed.



Extra outlet

Compacttilt Rotator is included 1 extra outlet, with following data:

Compacttilt Rotator	Fitting
CTR2	Iso-N 1/4"



Maintenance

During daily inspection and maintenance, check:

- Lubrication of lubrication points according to the overview
- Threads are intact
- Eyes and bolts are not broken
- No loose screw joints
- No cracks or fractures
- It is ensured that the tool holder is clean, mounted and clamped correctly
- Compacttilt Tiltrotator is correctly mounted between the carrier and the equipment
- There is no hydraulic leak
- There is no grease leakage on hoses or in couplings

Every month or when needed for inspection and maintenance:

- All bolts and screws are inspected and tightened
- Check for unusual wear
- Cleaning of hoses and couplings
- Check for abnormal play. If play exceeds 2 degrees, contact your dealer for service.

Annual inspection or after 500 operating hours:

- Inspection must be carried out in accordance with applicable legislation.

Tightening torque:

Bolt size [mm]	Torque [NM] (10.9 bolts)	Torque [NM] (12.9 bolts)
M5	8.1	9,7
M6	14	17
M8	33	40
M10	65	79
M12	114	136
M14	181	217
M16	277	333

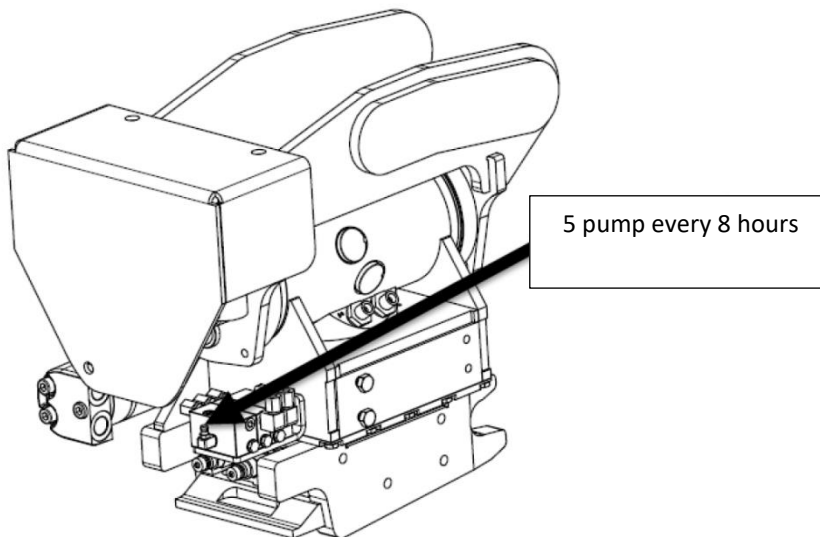
Lubrication overview

For lubrication of the Compacttilt, it is recommended to use: **Castrol Molub-Alloy 370-2**
Lithium-based high-pressure grease with min. 3% molybdenum disulphide (MoS₂) EP additives in NLGI 2.

Spec.: -DIN 51502 KF2K-25
 -ISO 6743-9 ISO-LXCCIB2

Greases containing graphite and copper must not be used.

Always ensure that the lubrication nipples are free of dirt before lubrication is carried out.



Sparepart

Contact your machine dealer for inquiries about spare parts for the Compacttilt Rotator

CT

Bliv en del af
Compactilt's forum:



Du kan se mange
flere billeder her:



Se alle film fra
Compactilt™ her:



Link dig til
Compactilt's netværk her:

