

MEIJER

HANDLING SOLUTIONS

User Manual and Parts Book

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JIB CRANE TCP2-30



Table of Contents

1. Note.....	2
2. Quality Standards/Norms and Directives.....	3
3. Introduction.....	4
4. Identification	5
4.1. Type Information	5
1.1 Type Plate Explanatory Notes	6
1.2 Type Indication Explanatory Notes	7
1.3 Load Capacity	7
2 Safety	9
3 Instructions for Use	10
4 Assembly Instructions	11
4.1 Precautions.....	11
4.2 Jib Crane Assembly Instructions.....	12
4.2.1 <i>Recommended Oil Flow and Hose Diameter</i>	13
4.2.2 <i>Jib Crane Commissioning</i>	13
4.3 Jib Crane Protection	13
5 Inspection and Maintenance.....	14
5.1 Maintenance Schedule	14
5.2 Jib Crane Troubleshooting.....	16
5.3 Instructions for Replacing Hydraulic Jib Crane Components	17
5.4 Ordering Components.....	18
Appendices.....	19
Appendix 1 TCP2-30 Spare Parts Diagram	20
Appendix 2 TCP2-30 Article Number Specification Sheet	20



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1. Note

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2. Quality Standards/Norms and Directives

Meijer Handling Solutions B.V. complies with the following quality standards: ISO 9001

Telescopic Crane Product (TCP2-30) complies with the following norms/directives:

- ISO 13284 – Fork Arm Extensions and Telescopic Fork Arms;
- ISO 4406 – Hydraulic Fluid Power – Fluids – Method for Coding the Level of Contamination by Solid Particles
- ISO 2328 – Forklift Trucks – Hook-On Type Fork Arms and Fork Arm Carriages
- CE (2006/42/EC) – Machinery Directive
- ISO 3834-2 Quality Requirements for Fusion Welding of Metallic Materials - Part2: Compressive Quality Requirements
- CE (94/9/EC) – ATEX (only applies to forks with an ATEX name plate!)

KOOI-REACHFORKS® are randomly subjected to dynamic testing in accordance with ISO 2330.

3. Introduction

The jib crane is a hydraulically extendible attachment for mounting on forklift trucks. The system has been designed for maximum service life and minimal maintenance. To achieve this, however, it is important that maintenance is being carried out in accordance with the manufacturer's instructions. This instruction book is intended to acquaint you with the jib crane. Please study it carefully before assembling and using the jib crane.

The manufacturer reserves the right to change specifications without prior notice. As we constantly strive to improve the product, it is possible that images in this manual do not correspond to the jib crane that you have purchased. It is therefore important to mention the type and serial number when ordering parts or requesting information. Drawings and specification sheets for all types of jib crane have been included in the appendices so that you can indicate the relevant product number when ordering.

4. Identification

This chapter explains the information shown on the type plate. This information contains technical specifications for the jib crane that are required when ordering components. It is therefore important to know what information is shown on the plate and how it should be used.

4.1. Type Information

The following information should be specified when ordering components or requesting information. The serial number and type are shown on each jib crane's type plate (see Figure 4.1). This information is also engraved into the back plate.

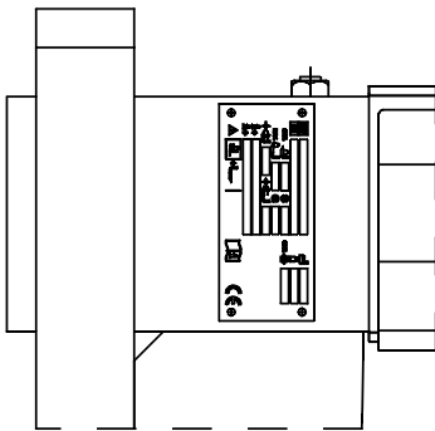


Figure 4.1 Type plate positioning and engraved details

Manufacturer	:	Meijer Handling Solutions
Manufacturer's Address	:	Oudebildtdijk 894 9079 NG Sint Jacobiparochie The Netherlands
Tel.	:	+31 (0)518 492929
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E-mail	:	info@meijer-group.com

1.1 Type Plate Explanatory Notes

The type plate can be found on the rear side of every jib crane. The type plate contains important information about the jib crane's technical specifications. Figure 4.2 shows an example of a type plate.

Type plate legend:




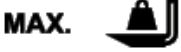
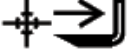


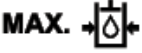






	Type description		Weight
	Serial number		Max. capacity on retracted load center
	Retracted center of gravity		Max. capacity on extended load center
	Extended center of gravity		Maximum allowed oil pressure
	At load center		Production year
	Lost Load Thickness		Extra information
		<p>WARNING: Never exceed the maximum truck capacity as seen on the truck type plate. Rated capacity of both truck and attachment is the responsibility of the original truck manufacturer and may be less than the capacity shown on the attachments type plate.</p>	

Figure 4.2 Jib Crane Type Plates

1.2 Type Indication Explanatory Notes

Section A in Figure 4.1 gives the jib crane type. Various details can also be derived from the type code. Table 4.2 explains the various parts of the type code.

Here is an example:

TCP2-30-1300/0900

Type Indication Part	Description	Unit
TCP	Stands for Telescopic Crane Product (Product type)	
30	Total load capacity of the telescopic crane	x 100 kg
1300	Sleeve Length	mm
900	Stroke (distance between fully retracted and fully extended positions)	mm

Table 4.2 Various parts of the type code and corresponding meanings

1.3 Load Capacity

The type plate on the rear of the jib crane provides information including its maximum load-bearing capacity. This information has also been engraved on the front of the jib crane on the back plate. It is possible to determine the load-bearing capacity at each loading point for each jib crane using the loading diagram shown below. Correction factors are shown vertically and load centre distances are shown horizontally measured in millimetres from the fork back. An example of how to apply this information is given on the following page.

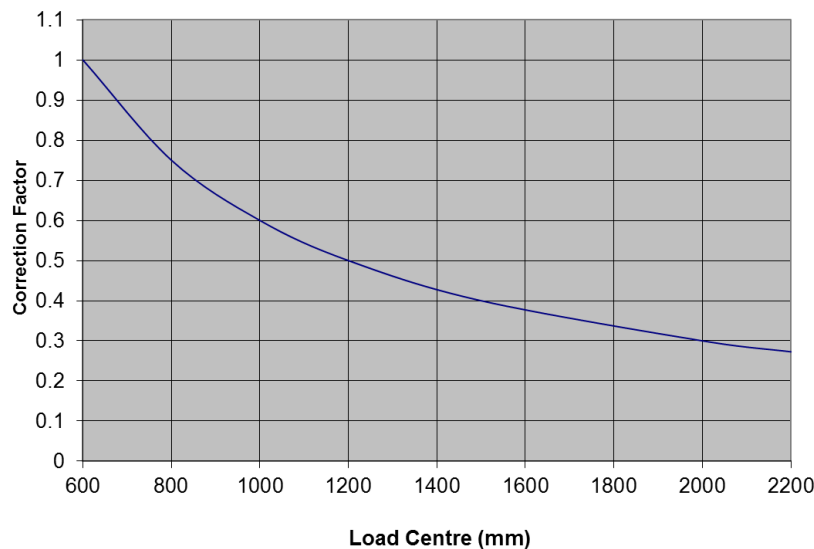


Figure 4.3 Correction factors for the maximum load-bearing capacity for a given load centre

In this example, we will be using the information as filled in on the type plate shown in Figure 4.2, TCP2-30-1300-900. The jib crane's maximum load capacity is $30 \times 100 = 3000$ kg with a load centre positioned at 600 mm. If the jib crane has been extended, then use should be made of Figure 4.3 to calculate the corrected maximum load capacity for the load centre in question. If the load centre is at 1200 mm, then Figure 4.3 shows that a correction factor of 0.5 should be applied. The jib crane's maximum capacity with a load centre at 1200 mm is thus $3000 \times 0.5 = 1500$ kg.

**Warning:**

Figure 4.3 is only applicable to the jib crane. The residual load capacity for the forklift truck in combination with the jib crane should be provided by an official forklift truck dealer.

2 Safety

The forklift truck driver is primarily responsible for safety. We strongly advise that your forklift truck drivers receive proper training and recognized licences.

It is also important to observe the following safety instructions:

1. Do not load the jib crane beyond the limits stipulated by the manufacturer concerning lifting capacities and load centres.
2. Retract the load whenever possible.
3. Retract the jib crane fully when moving and not carrying a load.
4. Always drive with the jib crane in the lowest possible position.
5. Never drag the jib crane or load over the ground while driving.
6. Never let anyone ride on the jib crane or the load.
7. Defective jib cranes may not be used until they have been repaired or replaced by a qualified person.
8. Before working on a jib crane, ensure that the forklift truck is turned off and that the hydraulic system is depressurized (take key out of ignition).
9. Watch out for people and objects near the jib crane, particularly regarding swing hooks and/or loads.
10. When securing loads to the hook always use the sprung-loaded hooks supplied with the jib crane.

All the above points should be read and understood by the forklift truck driver.



Warning:

Never exceed the forklift truck's maximum load capacity, regardless of the jib crane's load capacity.



Warning:

Never pass under the jib crane.



Warning:

Always check whether people or objects are within striking distance of the jib crane before rotating the crane, paying particular attention to swinging hooks and/or loads.



Warning:

Always use the original sprung-loaded hook for securing loads and ensure that the clasp is closed before lifting the load.

3 Instructions for Use

Jib crane attachments allow hydraulically rotatable and extendible jibs to be used on forklift trucks.

Jib cranes are easy to assemble and disassemble. Forklift truck-mounted jib cranes should be properly adjusted for the purpose intended. The final load capacity should be calculated by an accredited forklift truck dealer. The load capacity shown on the forklift truck's type plate should be amended accordingly for the new *forklift truck + jib crane* combination. It is strongly recommended that forklift truck drivers be properly trained in the use of the jib crane.



Warning:

Avoid any ground contact with jib crane or load while moving whenever possible. This prevents wear to the underside of the jib crane and any undue strain on the hydraulic system and framework.



Warning:

Make sure that the jib crane does not drag on the floor when moving in reverse. This can cause damage to both the jib crane and piston rods.

4 Assembly Instructions

This section primarily deals with a number of precautions to be heeded when working with jib cranes regardless of their type. Section 7.3 explains how to limit wear and tear to the underside of the jib crane.

4.1 Precautions

There are a number of precautions to be taken when *assembling*, *inspecting* and *maintaining* jib cranes.

1. The forklift truck should be turned off and the key removed from the ignition whenever work is being performed on the jib crane.
2. The forklift truck's hydraulic system should be fully depressurized whenever maintenance is being performed on the jib crane.
3. Position the jib crane at the most ergonomic height to prevent any back problems.
4. Wear proper work clothing, shoes and safety glasses.
5. Jib crane connectors should always be plugged when disconnecting the jib crane from the fork carriage to prevent contamination of its hydraulic system.
6. Jib cranes should never be welded without written permission from the manufacturer. Any jib crane guarantees shall be voided in the event that the jib crane is welded without this written permission.

4.2 Jib Crane Assembly Instructions

In order to get the best results from your jib crane after assembly, you should follow the assembly instructions as given below:

1. Slide the jib crane onto the fork carriage, ensuring that the locking pin drops into one of the fork carriage's recesses.
2. Attach the hydraulic hoses supplied with the jib crane and those on the forklift truck as shown in Figure 7.1.
3. Make sure that the hydraulic connections have been properly tightened.
4. The jib crane's maximum permitted operating pressure is 200 bar.

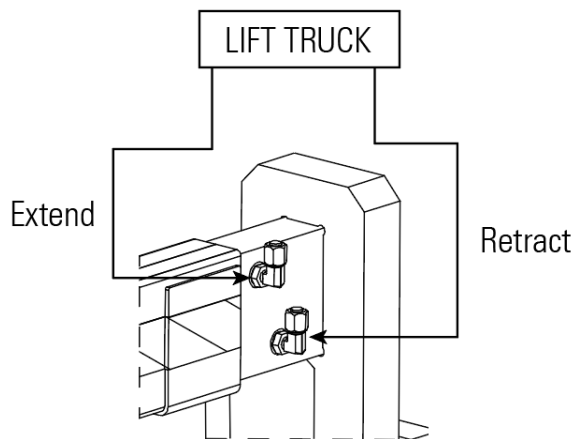


Figure 7.1 A diagram showing how to attach the jib crane's hydraulic hoses

4.2.1 Recommended Oil Flow and Hose Diameter

Table 7.1 lists the recommended hose diameters for a given jib crane oil flow with a separate flow divider. The recommended flow divider type is also indicated.

Recommended Oil Flow (L/min)	Recommended Hose Diameter
8 – 25	1/4"

Table 7.1 Recommended hose/oil flow combination

If the oil flow is greater than 25 L/min, then this will have little influence on the speed. It is also recommended that oil flows be kept under this level so that the pump is not required to provide maximum pressure on a constant basis thus preventing oil being pumped back to the tank via the safety release valve. This also requires less power.

4.2.2 Jib Crane Commissioning

Before starting, it is essential to ensure that there is no air in the system. This can be performed as follows:

1. Extend and retract the jib crane ten times.
2. Incline the forklift truck mast forwards and backwards several times.
3. Extend and retract the jib crane ten times.

Next, check whether the hoses are unobstructed and that there are no oil leakages.

4.3 Jib Crane Protection

In order to prevent the jib crane coming into contact with the ground, we recommend that you place a plastic bush on the lift cylinder in such a way that the jib crane cannot touch the ground. Forklift truck lifting chains may also be shortened slightly, which has the same effect. Always consult your dealer or manufacturer before carrying out such modifications.

5 Inspection and Maintenance

The jib crane works based on a closed self-lubricating hydraulic system. The jib crane is supplied with Rando HD 32 hydraulic oil.

Very little maintenance is required to keep the jib crane in good working condition. However, it is important that maintenance be performed in a timely and correct fashion.

Check the jib crane every day for signs of damage or oil leaks. Any damage or leaks found should be reported to the person in charge. The forklift truck must be switched off with the key removed from the ignition and the system depressurised whenever carrying out work on the jib crane.

Consult your maintenance schedule for additional inspection work. Under some circumstances, e.g. in exceptionally dirty environments, it may be necessary to amend the maintenance schedule. In such cases, the seals will have to be replaced more often, in particular, the wiper ring.

The jib crane should be tested by a specialist at least once a year in accordance with ISO 5057 standards. The results of the test should be recorded in a logbook.

If piston or cylinder head components are in need of replacement, then this work should be performed by a qualified person. Alternatively, contact an official importer listed on the www.telescopicforks.com website.

5.1 Maintenance Schedule

Table 8.1 shows which components require inspection, what action should be taken and how frequently this should be performed. The description item numbers correspond to those on the jib crane in Figure 8.1 (Page 16).

Description	Daily	Weekly	Half-Yearly or every 1000 hours	Annually or every 2000 hours
1 Grease the underside and topside of the jib		X		
2 Check for cylinder and/or jib leaks		X		
3 Check wear strips for any sign of wear			X	
4 Check for and remove any dirt accumulated in the sleeve			X	
5 Check for any cylinder head leaks			X	
6 Check inner fork in accordance with ISO 5057 standards				X

Table 8.1 Maintenance Schedule

Below is a more detailed explanation of the maintenance schedule given in Table 8.1:

1. We recommend Novatex EP 2 lubricating grease, as this is a special-purpose calcium-based grease designed to protect sliding parts from wear and corrosion when subjected to heavy loads .
2. In the event of jib leakage, disconnect the jib crane from the forklift truck immediately and contact your supplier. In the event of connector leaks, either tighten and/or replace attachments.
3. Wear strips at the front of the jib should be replaced or filled with packing if they wear down to less than 1.5 mm. Wear plates at the base of the sleeve should be replaced if they have been worn down such that they are flush with, or below the level of, the sleeve.
4. Any dirt in the front of the sleeve can adversely affect the jib crane's stroke. Depending on usage, inspection may have to be performed more or even frequently.
5. The wiper ring can be more easily inspected by removing the outer sleeve (see Section 8.4 for instructions on removing the outer fork).
6. International ISO 5057 standards apply to jib crane inspection except for Section 5.6.1, as the jib may not be subjected to any wear.

For more information about Novatex EP 2 and Rando HD 32, please visit the www.texaco.com website.

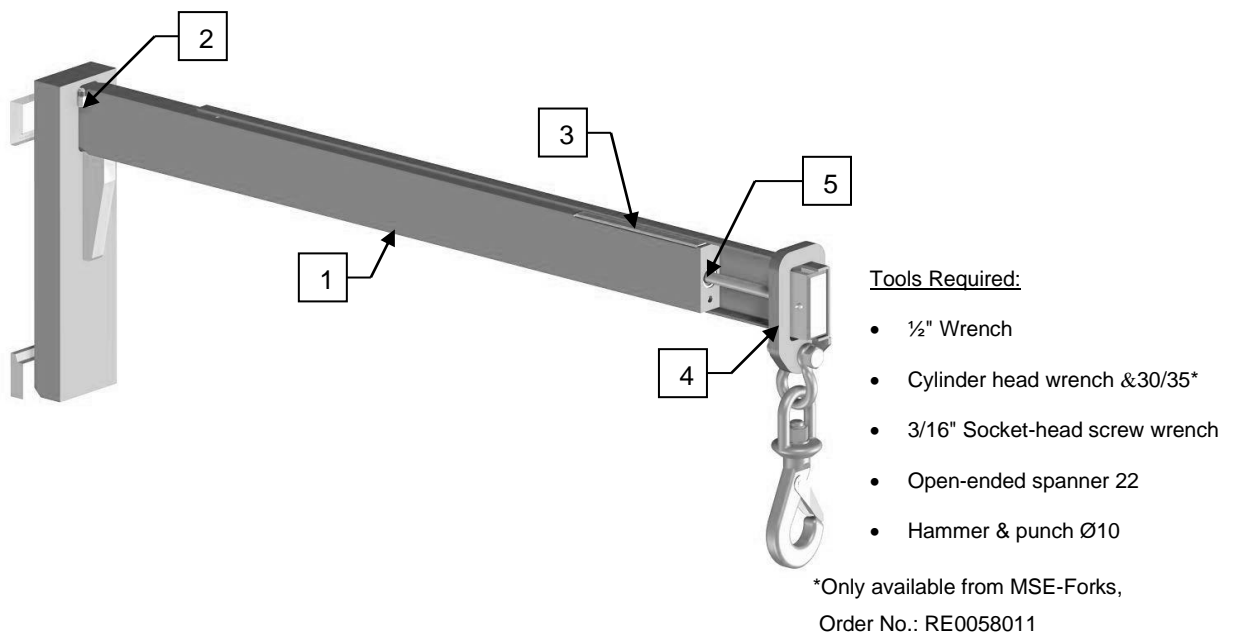


Figure 8.1 Maintenance Schedule

5.2 Jib Crane Troubleshooting

Symptom	Possible Cause	Possible Solution
Jib crane moves independently of operation	Operating valve leak	Check with your forklift truck supplier
Jib crane leaks oil	Connections leaking Cylinder head seal damaged Jib crane fractured	Retighten or replace Replace cylinder head seal Immediately disconnect the jib crane from the fork carriage and contact your forklift truck supplier
Jib crane does not move smoothly	Operating valve/pump worn out Insufficient oil flow	Check with your forklift truck supplier Check with your forklift truck supplier
Sleeve remains stationary when retracting	Spiral clamping bush broken	Replace spiral clamping bush
Excessive play between jib and sleeve	Wear strips worn out Sleeve worn out	Replace wear strips Replace sleeve

Table 8.2 Jib Crane Troubleshooting Table

5.3 Instructions for Replacing Hydraulic Jib Crane Components

(Contact your supplier in the event of any problems involving the rotation cylinder)

1. Position the jib crane at hip height, tip the mast forwards and remove the key from the ignition.
2. Remove the sleeve by removing the spiral clamping bush taking care not to damage the piston rods.
3. Loosen the hoses on top of the jib crane slightly so that the piston rods do not create a vacuum when disassembling the jib crane.
4. Loosen the locking screw to the side of the cylinder head.
5. Place a drip tray under the jib crane. Loosen the cylinder heads using a cylinder head wrench.
6. Carefully extract the piston rods.
7. Unscrew the piston. Piston rods should be attached to a fixing clamp to prevent them from being damaged. Slide the cylinder head off the piston rod.
8. Replace components.
9. Remove any Loctite from the piston rod screw thread.
10. Clean the piston rod and screw thread using Loctite 7063.
11. Slide the cylinder head back onto the piston rod.
12. Apply Loctite 270 to the thread of the piston rod. Clamp the piston rod at the rod end, not on the piston rod itself to prevent damage. Clean the piston thread with Loctite 7063. Use a torque wrench 19 or 24 to tighten the piston onto the piston rod to a torque of 70 Nm.
13. Smear Copaslip onto the thread of the cylinder head. Line up the piston rod, piston and cylinder head with the cylinder and use a hammer to tap it carefully into the bore. Screw the cylinder head tight using the cylinder head spanner and a torque wrench (80 Nm).
14. Reconnect and tighten the hose attachments.
15. Ensure that that the piston rods protrude approximately 150 mm.
16. Reassemble the sleeve. Make sure that that the piston rod clamp is exactly aligned with the hole in the outer fork. Insert a new spiral clamping bush into its hole using a heavy hammer.
17. Start the forklift truck up, and extend and retract the jib crane several times.

For more information about various Loctite products, please visit the www.loctite.com website. For more information about Copaslip, please visit the www.kroon-oil.com website.

5.4 Ordering Components

It is recommended that you order complete assemblies whenever individual pistons, cylinder heads or even certain seals, wiper rings or guide rings need to be ordered to avoid any assembly problems.

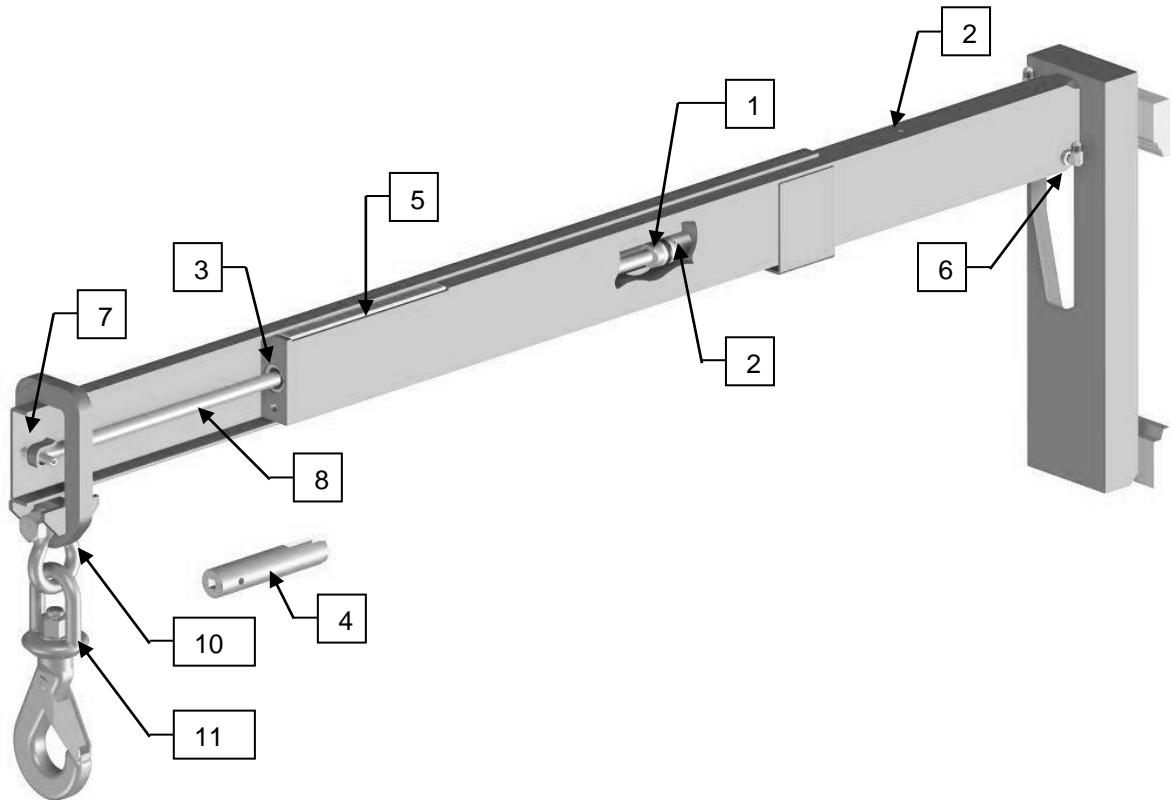
Enter the piston rod length where indicated (XXXX) in the article number when ordering piston rods. The piston rod length corresponds to the jib crane stroke plus 100 mm.

Please provide the jib crane serial number when ordering top block stop rings (stop pins, pawls, spiral clamping bushes for pawl and ratchets) or hydraulic screw-in connectors.

Appendices

Appendix 1 TCP2-30 Spare Parts Diagram	20
Appendix 2 TCP2-30 Article Number Specification Sheet.....	20

Appendix 1 TCP2-30 Spare Parts Diagram



Appendix 2 TCP2-30 Article Number Specification Sheet

Pos. number	Article description	Article number	TCP2-30
1	Piston & seals Ø35	RE2008004	1
2	Piston seal Ø35	RE0015004	1
3	Cylinder head & seals Ø35	RE2009004	1
4	Cylinder head wrench Ø30/Ø35/Ø40	RE0058034	-
5	Wear strip	RE0020010	1
6	90° Coupling	RE0017010 + M00018650	2
7	Spiral bush Ø12	RE0033014	1
8	Piston rod Ø20	*	1
9	-	-	1
10	Shackle	03-3013208	1

* Article N° depending on specific model. Please provide serial number when ordering.