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Production and distribution of
construction-material testing devices

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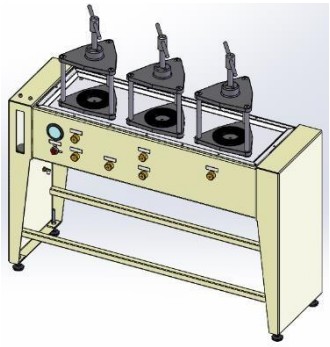
Operating Manual

Water Impermeability Tester



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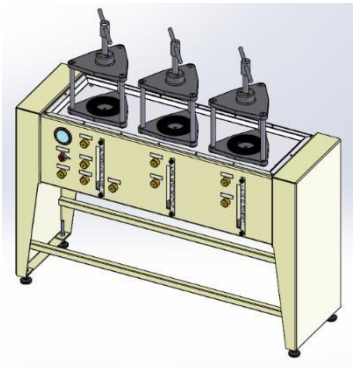

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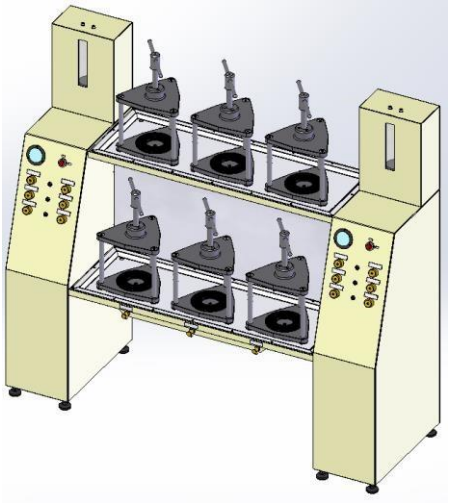

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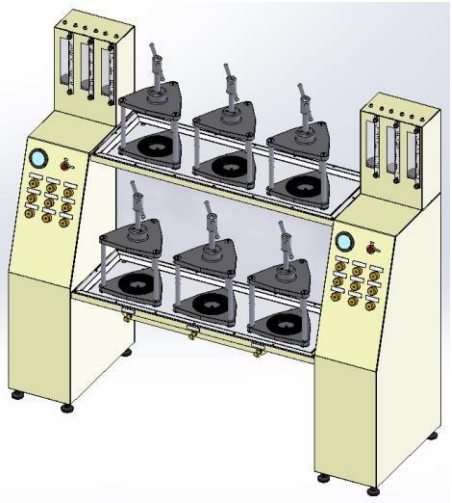


2.0410 WUP 6-M

Importance of this Operating Manual:
It is expected that users and operators read and understand this entire Operating Manual before putting the system into operation. Reading and understanding this entire Operating Manual is absolutely necessary before operating the system.

Contents
no.: Page

Attachments:
EU - Declaration of Conformity
Diagram of hydraulic system
Test report

1. General instructions

1.1 Designations

Designation of the Manufacturer:	Please see the first page of this Operating Manual
Designation of this equipment	Please see the designation plate on the equipment. This plate contains all ratings and electrical characteristics.

1.2 Purpose for which this system has been designed

This Operating Manual contains the information required for operation of the products described here, for the purpose for which they have been designed. This Operating Manual is intended to be used only by technically qualified staff.

“Technically qualified staff” is defined as those persons who – as a result of their training; their experience; the instructions which they have received; as well as their knowledge of the relevant standards, regulations, accident-prevention regulations, and conditions of product operation in the company – have been authorized by the person responsible for the safety of the company facilities to carry out the activities and actions required for operation of the equipment described below, and who can recognize and prevent any possible dangers arising from such operation (this definition of technically qualified staff has been provided in IEC 364).

The User must by all means observe the requirements and limit values, as well as all safety instructions, given in this Operating Manual. Any use of this equipment not in conformity with these stipulations shall be considered to be in violation of the use for which this system was intended.

This Water Impermeability Tester has been designed and produced in accordance with EN 12390-8. It is designed for the purpose of carrying out standardised testing of concrete test cubes with either of the following dimensions:

- 150 □ 150 □ 120 mm
- 200 □ 200 □ 120 mm

Testing pressure is 5 bar = 0.5 N/mm²
The Water Impermeability Tester is designed for use in dry rooms.

1.3 Use not in accordance with its intended purpose

It is not permissible to use this Water Impermeability Tester to perform tests under the following conditions:

- With the use of test cubes which are not in accordance with the pertinent standards
- With the improper use of the compressed-air / water jets (nozzles) in the sealing clamps
- Operation at air pressure > 10 bar !

This operating manual contains safety instructions that are to be observed in order to exclude any risk of fatalities, injuries, damage to the equipment or improper operation. Safety markings are as follows:

 Caution!	This warning refers to dangers that could cause material damage.
 Danger	This warning refers to dangers that could cause severe injuries or even fatalities.
 Note	Provides practical advice on operation

1.4 Technical description of the Water Impermeability Tester

The frame of the Water Impermeability Tester is made of sturdy sheet steel, and has been coated with a fine-structure enamel paint, in RAL 7032 color. The holes drilled in the two feet can be used to anchor the frame onto the floor with bolts. Or, the machine feet delivered along with the device can be used to set up and level the unit.

The sealing clamps with central spindles make it possible to easily insert and clamp the test cubes. These clamps are made of stainless steel.
The inspection window of the water tank is made of Polyacryl. The end pieces of the container are made of PVC, and the hoses are made of polyethylene.

The shutoff ball valves are made of nickel-plated brass and require no maintenance. To close them, turn clockwise; to open, turn counter-clockwise.

1.5 Guarantee

Our **General Terms of Sale and Delivery** shall principally apply.

The Manufacturer provides the guarantee that this Operating Manual has been prepared in accordance with the technical and functional parameters of the equipment which has been delivered. The Manufacturer reserves the right to add supplementary information to this Operating Manual for the equipment.

The Manufacturer provides the legal guarantee. This guarantee shall not cover wear parts.

The Manufacturer guarantees fully satisfactory operation only under the condition that the User observes all the instructions in this Operating Manual, and that the equipment is used only for the purpose for which it has been intended.

The Manufacturer shall not be liable for any damages which result from use of the equipment which is not in accordance with the intended use of this device, or which result from failure to observe the stipulations and the instructions for operation which are contained in this Operating Manual.

The User shall not be entitled to lodge claims against the Manufacturer in the event that changes have been made with respect to the structural systems or to the functions of the device without the express and prior written consent of the Manufacturer.

Any person acting in violation of the above stipulations may be prosecuted before a court of law.

1.6 Acceptance of delivery, Transport

1.6.1 Acceptance of delivery

When accepting delivery of the machine, first inspect it for its outer, visible condition. If this inspection is satisfactory, the machine may be accepted from the freight forwarder (railways, parcel service, or other haulage company).
If there are no shortcomings, and if there are no transport damages, then use the bill of delivery to make sure that the consignment is complete, and that all parts have been delivered.
If you assume or suspect transport damage, or if transport damage becomes apparent only after you have accepted the delivery, immediately make an exact report of the conditions and any damage as they exist. Send us this report immediately by fax or e-mail. Important: Absolutely do not make any changes to the delivered goods.

After we have studied your report, we can make a decision whether we can:

- Deliver spare parts to you, or
- Send a specialized fitter/installer to your plant, or
- Ask that you return the system to us for repair.

1.6.2 Transport

The Water Impermeability Tester is delivered in a vertical position, on square beams. To prevent transport damage, the device is shipped in a crate and is wrapped in plastic sheeting to prevent water damage.

While still in its delivery packing, the Water Impermeability Tester can be transported by lifting transporters (such as fork lifts or other suitable floor conveyor systems). These transporters must be able to support the Water Impermeability Tester from below.

It is permissible to use ropes, cables, or other hoisting means only if it can be absolutely ensured that forces will not act to the sides of the transport case, and that no forces will act from the side, or from any other direction, on any parts of the Water Impermeability Tester.

Remove the Water Impermeability Tester from the square transport beams.
Use suitable lifting vehicles or apparatus to transport it to its final place of use. Owing to its intrinsic weight of approx. 120 kg, we do not recommend transporting the device by hand.

1.6.3 Removal of the transport packing

Proceed as follows to remove the transport packing:

- Unscrew the nuts on the bottom of the crate by using a no. 13 engineer's wrench.
  Use a hammer to knock the bolts to the outside of the crate.
- Take off the crate from the square beams.
- Remove the cardboard and the plastic sheeting.
- Remove the lower rear wall on both rear sides by using a Phillips screwdriver.
- Remove the four mounting bolts on the foot of the frame by using a no. 17 engineer's wrench.

1.6.4 Placing the Water Impermeability Tester down where it will be used

Carefully place the Water Impermeability Tester down where it will be used, and take care to avoid damage to the manometer (pressure gauge).
Allowing the unit to drop or placing it down with a sharp impact (jolt) can cause incorrect measurement in the following operations. Any sharp impact can cause the manometer to malfunction.

2. Basic safety instructions

2.1 Responsibilities of the user

Only persons who fulfil all of the following conditions may be authorized to operate the Water Impermeability Tester on an unsupervised basis:

- Staff who have reached the age of 18
- Staff who have been instructed in the operation of the Water Impermeability Tester
- Staff who possess written authorization from their company to operate the Water Impermeability Tester.

The person operating the Water Impermeability Tester must ensure that he or she does not endanger the safety of himself/herself or any other persons.

If deficiencies or damages to the Water Impermeability Tester endanger its operating safety, the User must immediately take the Water Impermeability Tester out of operation and may put it back into operation only after such deficiencies or damages have been corrected.

2.2 Dangers in work with the Water Impermeability Tester

The Water Impermeability Tester has been designed and constructed in accordance with the state of the engineering art and in conformity with recognized, good engineering practice. During its application, however, it is possible for dangers to arise for the life and safety of the User, or for third parties, and for damage to occur to its mechanical engineering parts or other items of property.

 Attention	Never apply compressed air to the container for the measurement of water penetration before you fill it with water. Always fill the container with water before you fill with compressed air (compressed-air valve ON).

The Water Impermeability Tester may be used only:

- For the purposes for which it was designed
- In fully satisfactory condition from the standpoint of technical safety.

If any malfunctions arise which impair the safety of operation, the User must immediately correct them.

3. Scope of delivery

The scope of delivery for the Water Impermeability Tester includes the following:

- Sealing clamp for test cubes with the following dimensions: 150 □ 150 □ 120 mm 200 □ 200 □ 120 mm.
- Rubber rings for sealing clamps (standard version for test cubes with dimensions: 200 □ 200 □ 120 mm)

- Inspection windows (sight glass) without a scale for watching amount of water penetration Models 2.0407 / 2.0409
- Inspection windows (sight glass) with a scale for reading off the quantitative amount of water penetration Models 2.0407 / 2.0409
- Feet to set up the machine system

Options:

- Air compressor, especially quiet operating, with a 3-meter safety hose and a fastfitted coupling
- Pressure testing system with calibrated precision manometer, for checking the test pressure.

4. Technical data

Dimensions (L x W x H):	2.0407 / 2.0408	1375 x 450 x 1280 mm
	2.0409 / 2.0410	1750 x 570 x 1560 mm
Working height	2.0407 / 2.0408	Appr. 850 mm
	2.0409 / 2.0410	Appr. 550/ 1110 mm
Weight (mass):	2.0407 / 2.0408	Appr. 110 kg / 120 kg
	2.0409 / 2.0410	Appr. 200 kg / 250 kg
Maximum air pressure produced by the compressor:		8 bar
Operating pressure at the Water Impermeability Tester		5 bar = 0.5 N/mm² (in accordance with DIN EN 12390-8)
Max. sample dimension (W x H)		220 x 170 mm

The air compressor is available as an optional accessory. It is especially quiet in operation.

Clamping of the test cubes by means of a central spindle with self-locking acme thread (tetragonal thread)
ON / OFF switch, designated as a compressed-air valve for activation of test pressure in accordance with relevant testing standards
Compressed-air controller for setting the desired testing pressure acting on the test cube; the factory setting is 0.5 N/mm², in accordance with DIN EN 12390-8

test cubes: 150□150□150 or 200□200□150 mm with standard clamping cylinder ø150x300 mm with optional special clamping

Model 2.0407
- 3 test points, with separate shutoff
- 1 inspection windows for watching the amount of water penetration for 3 test points

Model 2.0408
- 3 test points, with separate shutoff
- 1 inspection windows with scale for reading off the amount of water penetration for 3 test points

Model 2.0409
- 6 test points, with separate shutoff
- 2 inspection windows for watching the amount of water penetration for each 3 test points

Model 2.0410
- 6 test points, with separate shutoff
- 6 inspection windows with scale for reading off the amount of water penetration for each 6 test points

5. Placing the Water Impermeability Tester into operation

5.1 Place of installation

Do not operate the Water Impermeability Tester in a moist room; the room must be dry. We recommend to operate the Water Impermeability Tester under those conditions of ambient temperature and relative humidity as they usually apply to laboratory operations.

The Water Impermeability Tester can be set up on the feet which are delivered with it, or the frame can be bolted into the floor.

The system should be set up such that is it open at all sides to allow maintenance work to be performed easily. The system must be installed by a qualified specialist.

Permitted temperature range:	from + 5 °C to + 40 °C
Permitted air humidity range:	from 30 % to 75 %
Permitted installation height:	1.000 m o. sealevel

5.2 Preparation of the pneumatic connection

Use the fast-fitted coupling to connect the hose of the compressor and of the compressedair line. Now connect in the compressed air by switching on the compressor, or by opening the compressed-air line. The incoming air pressure should be between 6-8 bar to ensure proper testing in accordance with DIN EN 12390-8.

5.3 Preparation of the hydraulic connection

First close the water valve by turning it to the right. Only then connect the water supply (tube ø13mm inner diameter) from the public water mains to the connection point on the left-hand side of the unit. Now tightly install the water hose and turn on the water.

5.4 Preparation for emptying the water from the unit

The drain connection for the system must be tightly installed to the drain system. This is because the drain connection must bear the full operational pressure (5 bar) when the system is drained. The drain connection for the working surface, however, can be routed down to a bucket, since the water being drained here is not under pressure. (tube ø13mm inner diameter)

5.5 Setting the test pressure

Set the desired test pressure by adjusting the pressure controllers on the bottom side of the Water Impermeability Tester. Setting is infinitely variable from 0 ... 8 bar; the pressure set at the factory is 5 bar (= 0.5 N/mm²).
For model 2.0409 / 2.0410 two controllers make it possible to set the pressure separately for the upper 3 test points (by adjusting the controller on the left rear side) and for the lower 3 test points (by adjusting the controller on the right rear side).

You can purchase a test device with the required precision gas-pressure gauge from the company TESTING Bluhm & Feuerherdt GmbH to check the effective pressure present at the test point.

5.6 Specimens surface

The surface of the test specimen (on the site to be checked) must be of cavity vacancies to guarantee the tightness at the pressure with 5 bar absolutely cleanly and freely. Possible leaks between test specimen and thick rubber have to be led back on a too rough surface and aren't faults of the one instep device.

6. Operating the Water Impermeability Tester

The operating valves have been equipped with turning knobs. The valve has a switching position of 90° between its closed and opened positions.
The valves are closed when they are turned to the right (clockwise) until they definitely reach their limit position. The valves are open when they are turned to the left (anti-clockwise) until they definitely reach their limit position. The black marking on the turning knob indicates its present position.

- Close the valves designated water and water drain [marked with water and discharge].
- Close the valves for test points X
- Place the compressed-air switch in the OFF position [marked with off].
- Open the valve for water [marked with water].
- Cautionsly open the valve for test point X and fill water up to the upper edge of the rubber sealing ring of the test point.
- Then close this valve for test point.
- Cautionsly open the valve for inspection window. Fill this inspection window with water up to the top edge. It is possible to perform a correction by the correction valve in order to let out compressed air.
- After you have finished filling the test points and the inspection windows, close the valve for water [marked with water].
- Place the concrete test cubes in the centre of the sealing clamps and use the starhandle palm grips to firmly and uniformly clamp the cubes into place.
- Open the valve for test points X.
- Place the compressed-air switch in position ON. The system will then produce the pressure which you have set, which will then act on the test cubes.

Achtung 	The installed pressure gauge is not a fine measuring device and that's why it doesn't show the correct pressure. It serves only for checking proposes. The default pressure is 5 bar (= 0.5 N/mm²).

If leaks occur at the sealing clamps for a test point, then shut off the valves for this test point. Check to ensure that the concrete test cube has been correctly clamped in place. If necessary, correct the clamping of the cube, or again clamp it into place.

Attention 	Before clamping a cube into place for the second or repeated time, first be sure to close down everything (for example, the valves) for this test point.

End of testing:

- Close the valves for test points X. Loosen the cube clamping system by turning the star-handle palm grips to the left (anti-clockwise).
- Take the test cubes out of the sealing clamps.
- Check the water level and, if necessary, fill as described before Now clamp a new test cube into place.
- Follow instructions as described before

7. Placing the system out of operation

- Close the all valves for water and drain water [discharge].
- Close the valves for test points X
- Open water drain valve [discharge]. The water will now run out of the unit.
- Place the compressed-air switch in the OFF position.

Attention 	The system is still under pressure.

- Cautionsly open the valves for inspection windows. The water will now run out of the inspection windows.
- The water on the stainless-steel drain pan will flow through the drain hose without pressure.
- close all valves.

For Models 2.0409 / 2.0410 let the water drain out of the test points 4, 5, and 6. To do this, first drain the unit, and then open the required drain cock (faucet) on the front of the Water Impermeability Tester.

8. Cleaning the Water Impermeability Tester

Clean the Water Impermeability Tester after each test sequence. Keep it dry. Any water which might remain in the hoses will not impair the function of the system.

9. Troubleshooting

Fault:	Signs of this fault:	Action to take:
The Water Impermeability Tester leaks	The compressor starts up too often, or it never stops. Water runs out of the system.	Find out where the leak is. Exchange any faulty hoses or plastic connections. Properly seal the reduction valve and the manometer (pressure gauge). If you cannot properly seal them, replace these components. Properly seal the water tank or the inspection glasses. If you cannot properly seal them, replace these components.

If any other malfunction or disturbances occur, or if the compressor does not work properly, please get in touch with TESTING Customer Service.

10. After-sales service and spare parts

A great deal of care has been taken to ensure that this Operating Manual is correct. We cannot, however, guarantee that it is without mistakes or errors, or that all information contained herein will continue to remain valid in the event of technical changes.

10.1 Date of issue of this Operating Manual

Edition no. 7
Date of issue: Apr. of 2020

10.2 Copyright

This Operating Manual is intended only for the Operator, the User, and his staff. The information in this Operating Manual may not be:

- Reproduced, or
- Distributed, or
- Provided to any other persons.

Any person acting in violation of the above stipulations may be prosecuted before a court of law.

10.3 Contact for help and spare parts

If you have any technical questions, or if you require spare parts, please get directly in touch with the following address:

TESTING Bluhm & Feuerherdt GmbH
Motzener Str. 26b
DE – 12277 Berlin
Germany

Tel. +49 (0) 30 710 96 45-0
Fax: +49 (0) 30 710 96 45-98 E-mail:
info@testing.de
www.testing.de

EC Declaration of Conformity in accordance with the Machinery Directive 2006/42/EC Appendix II 1.A

The authorised representative established in the community,

Mr. Feuerherdt hereby declares that

the following product

Manufacturer:	TESTING Bluhm & Feuerherdt GmbH Motzener Str. 26b 12277 Berlin
Product designation:	2.0407 / 2.0408 / 2.0409 / 2.0410
Serial number:	continuous
Serial/Type designation:	Water Impermeability Tester

complies with all of the relevant provisions of the above named guidelines as well as the additional applied guidelines (following) - including any of the amendments thereto which are in force at the time of the declaration.

The following additional EU Directives have been applied:

The following harmonised standards have been applied:

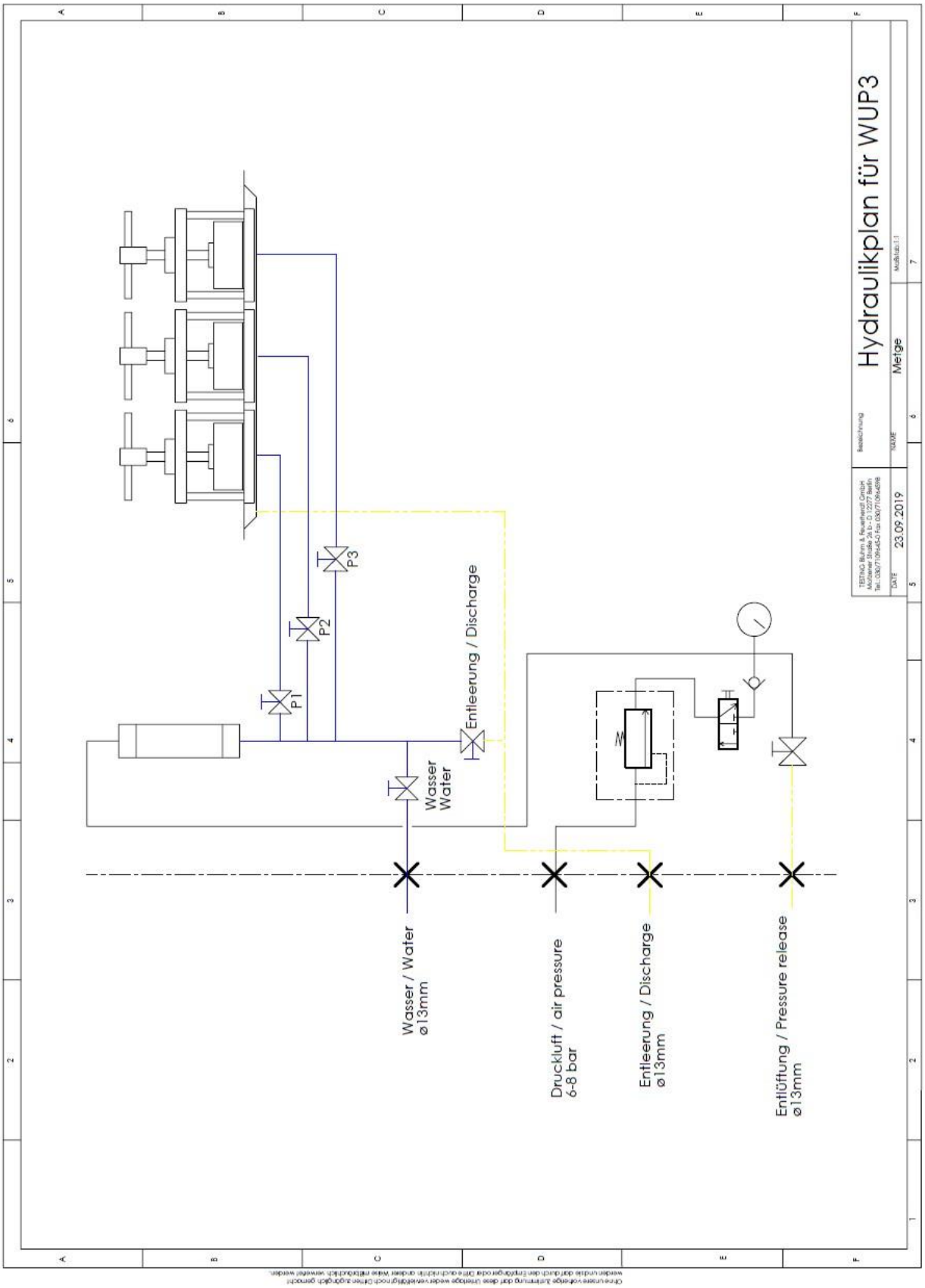
DIN EN ISO 12100	Safety of machinery - General principles for design - Risk assessment and risk reduction (corrigendum 2013)

The name and address of the person who has been authorised to compile the technical documentation:
Mr. Metge

Location: Berlin
Date: 28/02/2015

(Signature)
Managing Director

(Signature)
Technician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Bezeichnung
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Maßstab 1:1
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23.09.2019
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P2
P3
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6-8 bar
Entleerung / Discharge
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Entlüftung / Pressure release
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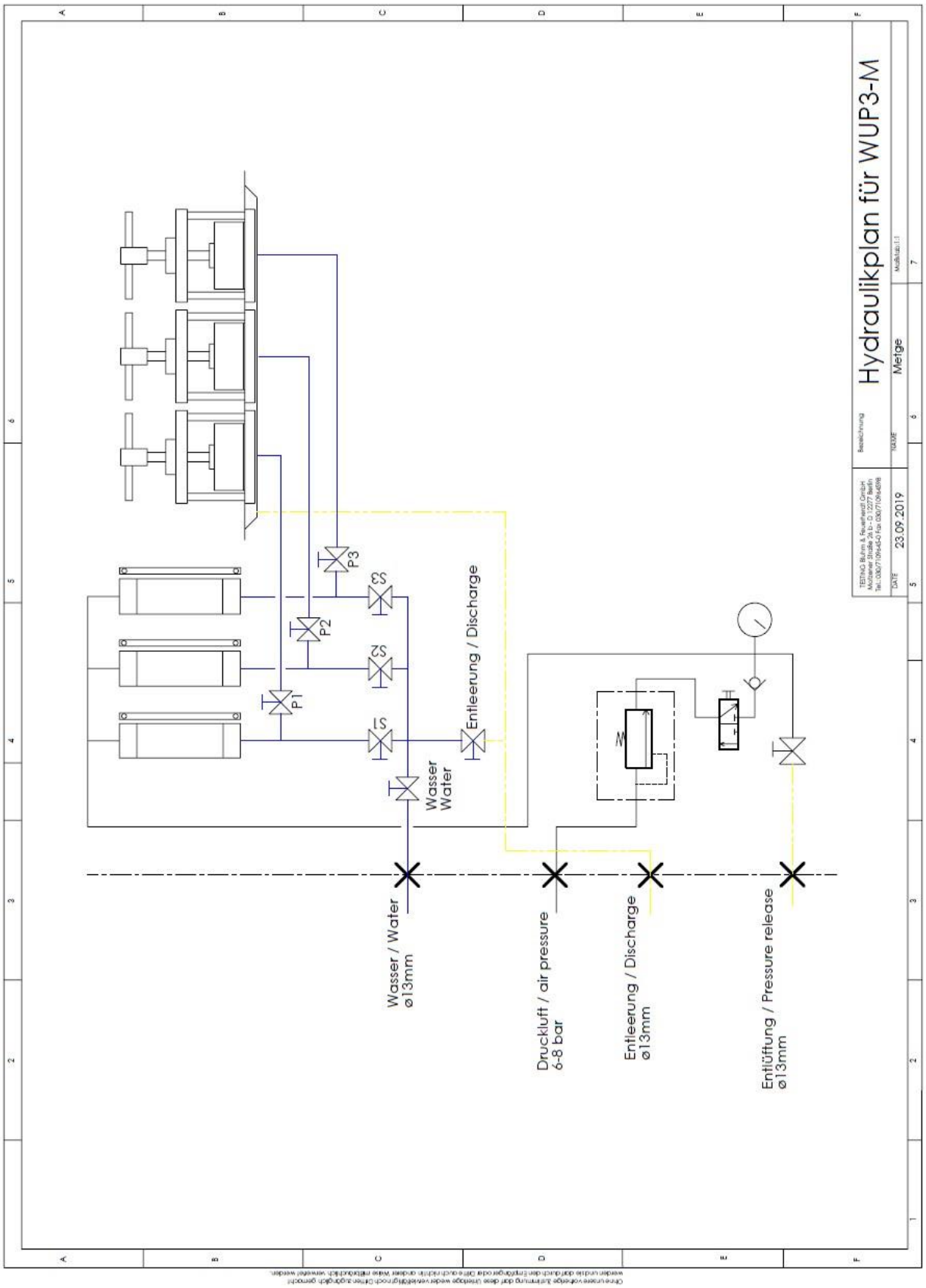
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Bezeichnung
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DATE
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TESTING Bühler & Baumhoff GmbH
Tel.: 030/7109-445-0 Fax: 030/7109-445-99
P1
P2
P3
S1
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Water
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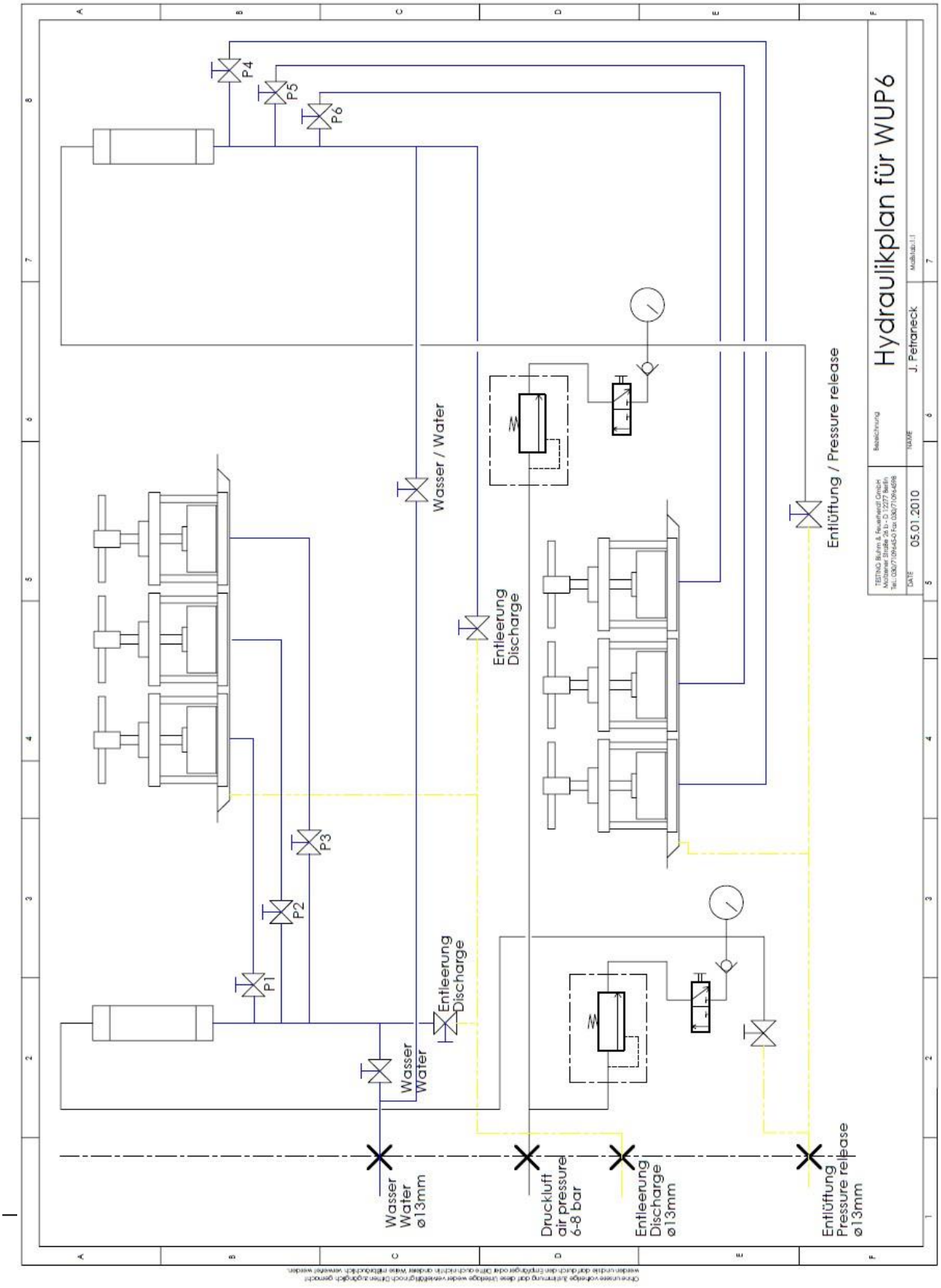
Hydraulikplan für WUP6
J. Petraneck
05.01.2010
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Discharge
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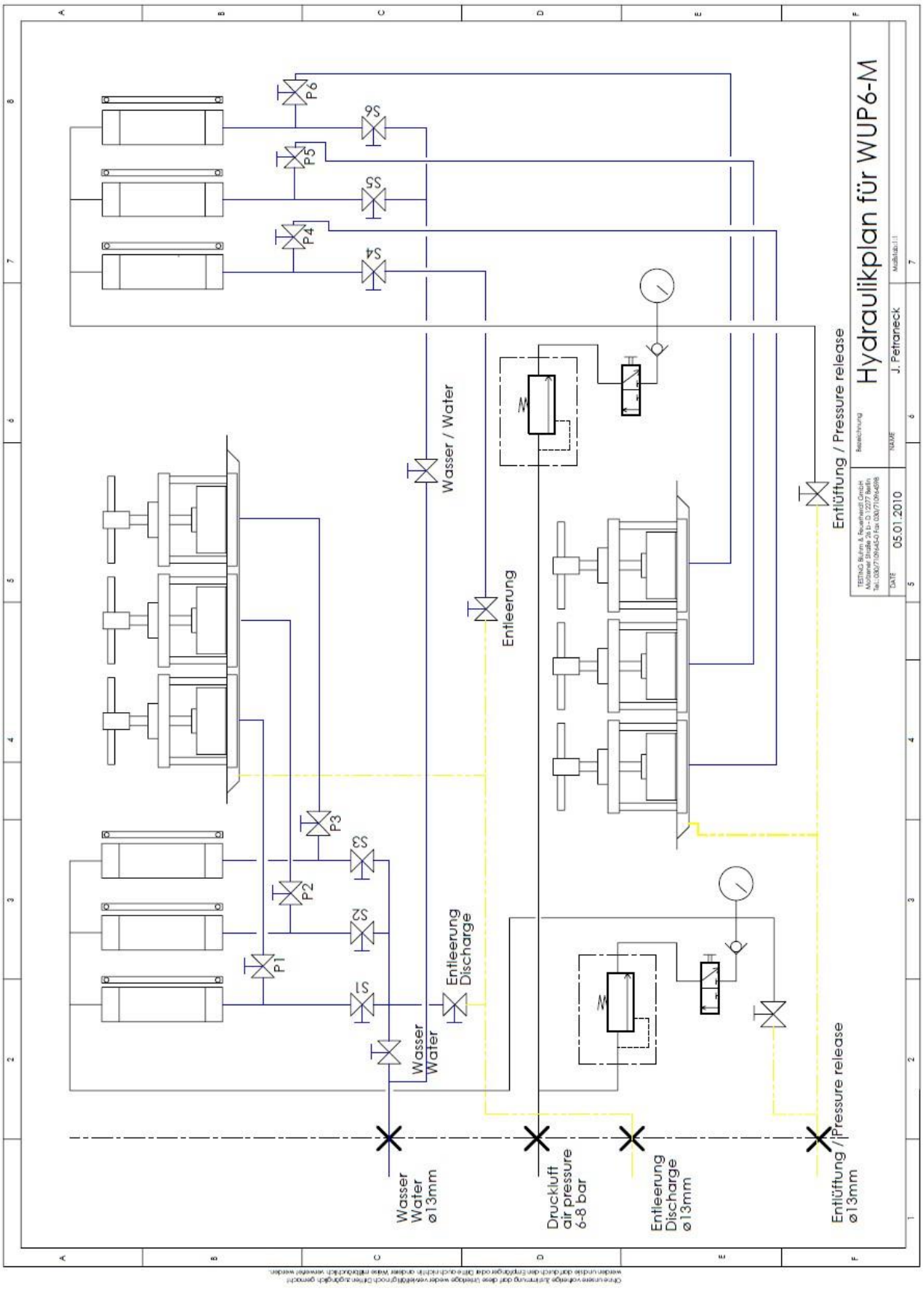
Hydraulikplan für WUP6-M
J. Petraneck
05.01.2010
Wasser / Water
Entleerung
Entlüftung / Pressure release
Entleerung Discharge
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Entleerung Discharge ø13mm
Entlüftung / Pressure release ø13mm