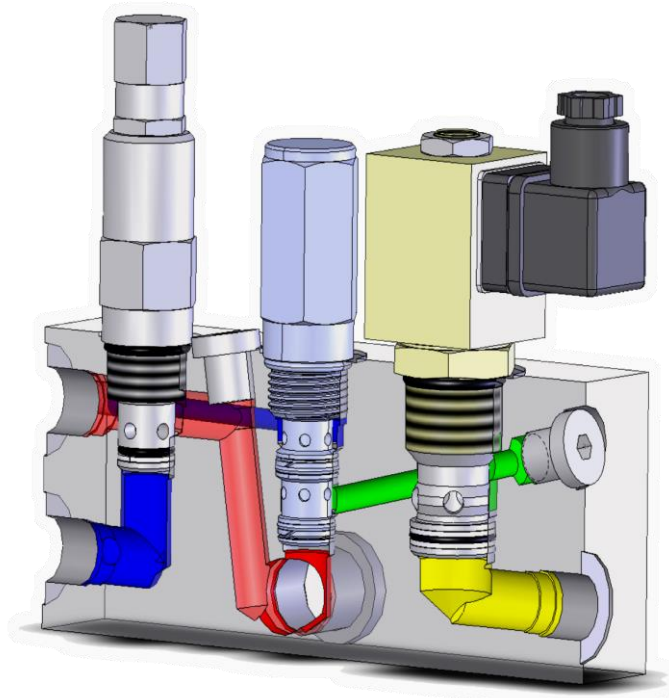


General Operating Manual

This Operating Manual is valid for the following hydraulic components of Motrac Hydraulik GmbH:

- IMAV-Manifold-Blocks
- IMAV-Mounting-Units
- Valves and Housings
- IMAV-Sandwich plates
- IMAV-Mounting-plates and -systems



In principle, all data sheets and operating manuals of the manufacturer must be observed!

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Explanation of Symbols



Important information is designated by this symbol. This information is to be observed in order to avoid damage to people or property.



Caution! This is special information. In order to avoid damage to people or property these regulations must be observed at all times!

In case of difficulties always contact the maintenance personnel or the manufacturer.

Exclusion of Liability

This technical documentation is to be read with care. At all times, it must be kept within easy reach of the product concerned or the higher level assembly.

This information is directed exclusively toward qualified personal and convey all the information for the correct use of our products.

This documentation is not a substitute for the qualified competence of a technician!

Under any one of the following conditions MOTRAC-Hydraulik GmbH will not be liable to any claims:

- the article is being used or put to use improperly
- the assembly, installation and maintenance has not been carried out by qualified technicians.
- in case of incorrect assembly and installation
- if failure has been caused by the electric current
- as soon as unauthorized interference or adjustments have been made to the articles we have supplied
- the operating manual has not been observed
- the key technical data of this article has not been observed

Severe damage to people and property can be caused by improper or unintended use. This technical documentation gives the qualified and competent user and technical personnel the information required for proper use of our products.

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In principle, beside all the information in our operating manual, all valid health protection and safety requirements are also to be observed!

Safety Information



Excess within the hydraulic-system can possibly lead to severe damage to people or property.

The max. pressure must not be exceeded!



The hydraulic components may not be used in areas subject to explosion hazards!



No changes or manipulation may be carried out on articles supplied by IMAV. Even "small" adjustments (for example: to loosen valves screws) can possibly lead to severe damage to people or property.



All required assembly, maintenance and disassembly work is to be carried out at all times under strict adherence to all valid safety regulations. Before beginning any work the whole system is to be shut down, the system must to be depressurized and be secured against unauthorized re-start.



- All work is to be carried out under maximum safety conditions at all times.
- Prescribed safety equipment is to be employed.
- During any work maximum cleanliness is to be observed. All openings are to be closed immediately with suitable plugs.
- Only clean and undamaged tools are to be employed.



The following types of danger can occur when dealing with the hydraulic components:

- electrical danger: electric shock (high voltage and current)
- danger of fire: on overheating due to overload

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- physical stress: sources of ignition in case of danger of fire or explosion
weight of the individual components
ergonomic stress due to the type of layout
- danger of heat: contact with hot process liquids and gases and hot surfaces
- pollution by environment: climate pollution
polluting agents

Technical Data

The technical details can be found in our technical data sheets.

You can order these data sheets from MOTRAC, or download from the internet at www.imav-hydraulik.com

Component data sheet can be obtained from MOTRAC, or downloaded from the web site of the manufacturer.

The respective datasheets are constituent parts of the documentation of our hydraulic components. All constituent parts of the documentation must be saved collectively.

General Information

In addition to the previously described points the following points must be observed!

Packaging – Transport – Storage

- The individual components are not to be damaged.
- The goods supplied may only be transported and stored in the proper original packaging.
- The original packaging is to be saved for any possible return delivery.
- Transport damage must be reported without delay in writing to the haulage contractor commissioned and to MOTRAC-Hydraulik GmbH.

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- The housing must remain closed during storage and may only be opened directly before assembly.
- The goods must be stored in a dry place.
- Suitable lifting equipment is to be used during transport.

Assembly – Start Up – Maintenance – Disassembly

Before the installation all installation-surfaces and cavities must be checked for dirt or damage. When required the installation-surfaces and cavities must to be clean carefully. Also all seals must be checked for completeness and serviceability.

During installation of electrical components all regulations must be adhered to. Such installations use to be carried out by a qualified electrician.

All operating manuals of the manufacturer are to be consulted, particularly the tightening torque of the components!

For manifold blocks, subplates and housings from MOTRAC the following tightening torques are to be observed:

Measuring- and Threaded Pipe Fittings			
size	tightening torque	size	tightening torque
G1/8"	12 Nm	M 10 x 1	12 Nm
G1/4"	30 Nm	M 12 x 1,5	20 Nm
G3/8"	50 Nm	M 14 x 1,5	30 Nm
G1/2"	70 Nm	M 16 x 1,5	45 Nm
G3/4"	110 Nm	M 18 x 1,5	55 Nm
G1"	170 Nm	M 20 x 1,5	75 Nm
G1 1/4"	170 Nm	M 22 x 1,5	85 Nm
G1 1/2"	170 Nm	M 26 x 1,5	100 Nm
		M 27 x 2	125 Nm
		M 33 x 2	175 Nm

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		M 42 x 2	175 Nm
		M 48 x 2	175 Nm

tolerance: $\pm 20\%$

On installation using an electrical screwdriver, the tightening torque must be randomly checked. For manual tightening a torque key must be used.



Before operation or to filling the hydraulic system the complete hydraulic system must to be flashed!

New hydraulic oil must be filtered through a 1-3 μm filter.

The hydraulic system must be air-bled before operation.

Use suitable medium only! You will find information on the data sheet of the components. The state of the medium must be checked regularly. Information about the interval you will find at the data sheet of the hydraulic medium.

On installation of components with flange mounting tension-free assembly is important.

MOTRAC-components are not suitable for inversion in liquid!

On use of the components in oscillating applications the spool direction must be different to the direction of the oscillation.

To avoid damage, all hydraulic components need sufficient ventilation!



Latest 3 months after beginning operation all screws, valves and fittings must be checked with a torque key.

This check must be integrated into the regular servicing of the complete system.



During the regular servicing of the complete system the following are to be checked:

- visual check (damage, leakage, etc.)
- check settings
- electric check

In all cases, particularly in cleaning do not use wire or steel wool!

In dismantling all safety regulations must be obeyed.

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The hydraulic medium must be disposed of a hazardous waste, by an authorized company. After cleaning, the manifold blocks and valves can be to disposed by the regional disposer. For more information contact your regional disposal company.

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