miniBOOSTER®

INSTRUCTION MANUAL

HYDRAULIC BOOSTER

HC21

Manually Operated

MINIMUM SIZE – MAXIMUM POWER

Index

1.1 - Safety Precautions - IMPORTANT -

Although the miniBOOSTER hydraulic booster has been designed with operator safety in mind, it still requires the operator to be vigilant upon use.

Therefore, it should be observed that the below mentioned safety instructions are followed. Contact miniBOOSTER or your local miniBOOSTER distributor in case of any doubt.

Read all instructions, warnings and cautions carefully. Follow all safety precautions to avoid personal injury or property damage during system operation. miniBOOSTER cannot be held responsible for damage or injury resulting from unsafe use, lack of maintenance or incorrect product and/or system operation. Contact your miniBOOSTER distributor if in doubt as to the safety precautions and operations.

Eye protection must be worn while unpacking, installing, repairing and initial start-up of this miniBOOSTER product.

Gloves must be worn while unpacking, installing, repairing and initial start-up of this miniBOOSTER product.

The hydraulic system should always be de-pressurised before any couplings are disconnected. Check the integrity of connections before applying any hydraulic pressure.

Do not apply any hydraulic pressure to non-connected fittings.

Do not unscrew any nipples, couplings or fittings being under any hydraulic pressure.

Avoid sharp bends and kinks when routing hydraulic hoses.

Never exceed the maximum working pressure of the hydraulic system.

If the hydraulic system is under pressure **DO NOT STAND IN LINE** with any fittings, connections or other moving parts i.e. piston-rods and/or any other parts mechanically or hydraulically connected to the hydraulic

All hoses, couplings and fittings connected to the hydraulic system, including the miniBOOSTER, must be kept clean and free from debris and contamination at all times. Follow all instructions provided in this manual whenever installing, running and/or repairing the miniBOOSTER.

This instruction does not override any local safety regulations or relevant hazardous, regulations, which must always take precedence.

Never exceed the specified maximum pressure ranges, temperatures and flows.

Never put the component into operation until the machine, into which it is assembled, complies with all relevant directives and regulations in EU and EFTA.

miniBOOSTER® A/S cannot be held responsible for damage or injury resulting from unsafe use of the product, lack of maintenance, or incorrect product and system application.

If you have any doubts about precautions or applications, contact your local distributor, the manufacturer or visit www.minibooster.com

1.2 - Warranty

Never attempt to disassemble the booster or any other component from the system where it is not specifically described to do so. Any attempt will void the warranty if no consulting has taken place with miniBOOSTER.

DECLARATION OF CONFORMITY

We the manufacturer:

miniBOOSTER Hydraulics A/S
Fynsgade 3
DK 6400 Sønderborg
DENMARK

Declare that:

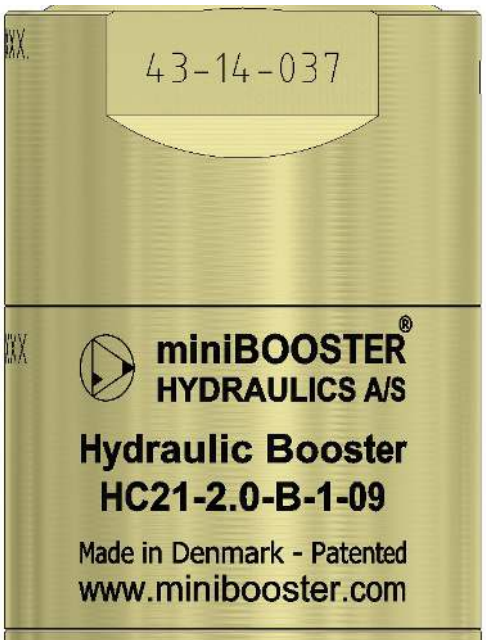
Hydraulic boosters all types, variants and accessories are designed and manufactured in accordance with the below directives.

2006/42/EC Machinery Safety Directive
97/93/EC Pressure Equipment Directive where required (Max HPXVol >10,000)

The manufacturer miniBOOSTER® is ISO 9001 certified by Bureau Veritas (Certificate number DNKFRC10000046A). Each hydraulic booster has an identifiable serial number, stamped into its metal body. Year of manufacture and intensification factor are stamped into the metal body too. All technical documentation is drafted in accordance with the term "sound engineering practice" and in accordance with all of the processes and test procedures described in miniBOOSTER®´s process guides. All boosters are individually pressure tested prior to the EOL-approval.

1.3 - Serial Number and Identification Plate Location

Each individual hydraulic booster can be identified by a unique serial number and its type-code which is stamped on the manifold housing.
The type number and the serial number is required when ordering repairs of the miniBOOSTER hydraulic booster.



The Example Specifies:

HC21	Model
42-14-035	Serial Number (week-year-number)
CERXXXXX	Material Certificate

Nomenclature:

HC21	Booster Model
2.0	*i* = 2.0 : 1
B	With Dump Valve
1	BSPP Connections
0	Manually Operated
9	4/2 Directional Control Valve

1.4 - Material Certificate

All body parts of the hydraulic booster are marked with a 3.1 material certificate specification number, which provides materials traceability.

A material certificate verifies the origin batch numbers, the compositions and the test results of the materials used for the individual body parts. It is possible to order the certificates on request.

1.5 - Technical Specification

Never exceed the below pressure, flow and temperature ranges, as this will damage the internal seals of the booster.

Model	HC21, Manually Operated (always B-version)	
Weight	Max. 3.2 kg / 7.1 lbs	
Pressure Ranges		
Inlet	IN, R and Z	0 - 207 bar / 3,000 psi
Outlet	H	0 - 800 bar / 11,600 psi
Flow Ranges		
Inlet	IN, R and Z	0 - 15 l/min / 4.0 US gpm
Outlet	H	0 - 4,2 l/min / 1.1 US gpm
Threaded Connections	1/4” BSPP	
Control Valve	Manual operated. Several types available	
	Valve Cavity	C10-4
Temperature Ranges		
Media Oil	-40°C to +120°C / -40°F to +248°F	
Materials of Construction		
Boosters	Cast iron	
Check Valves	Alloy steel	
Static Seals Standard	Nitrile NBR	
Max. Tightening Torque		
1/4” BSPP	4.0 Nm	
Fluids	Recognized Hydraulic Fluids	

Filtration Recommendations

		0-140 BAR (0-2,030 psi)		141-207 BAR (2,031-3,000 psi)		> 207 BAR (> 3,000 psi)	
Media		ISO 4406 Scale number	Micron rating	ISO 4406 Scale number	Micron ratings	ISO 4406 Scale number	Micron ratings
Oil	>5cSt	19/17/14	10	18/16/13	5	17/15/12	3

Medias not filtered in accordance with the recommendations given in this chapter may be the reason to severe damage of the hydraulic booster.

2.1 - Product Description

The HC21 raises supplied pressure to a higher outlet pressure and automatically compensates for oil consumption to maintain the high pressure.
Adjustment of the outlet pressure is carried out by varying the supplied pressure.

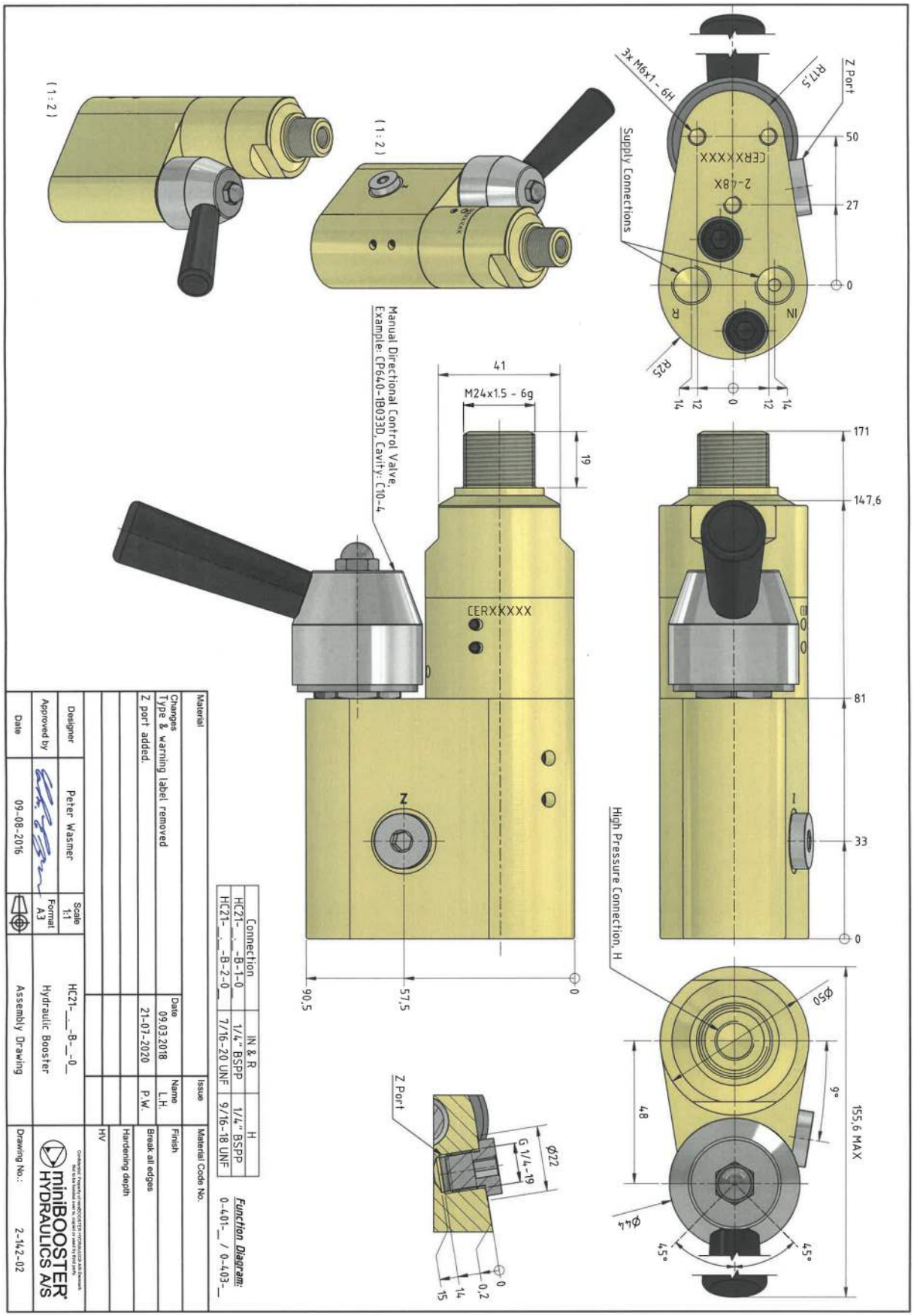
The HC21 incorporates a manual directional control valve to control inlet pressure to the booster section.
Several directional control valve types and voltage specifications available.

Key Features of the Hydraulic Booster:

- Control Valve integrated
- Several Valve Types available
- Very compact and space saving unit

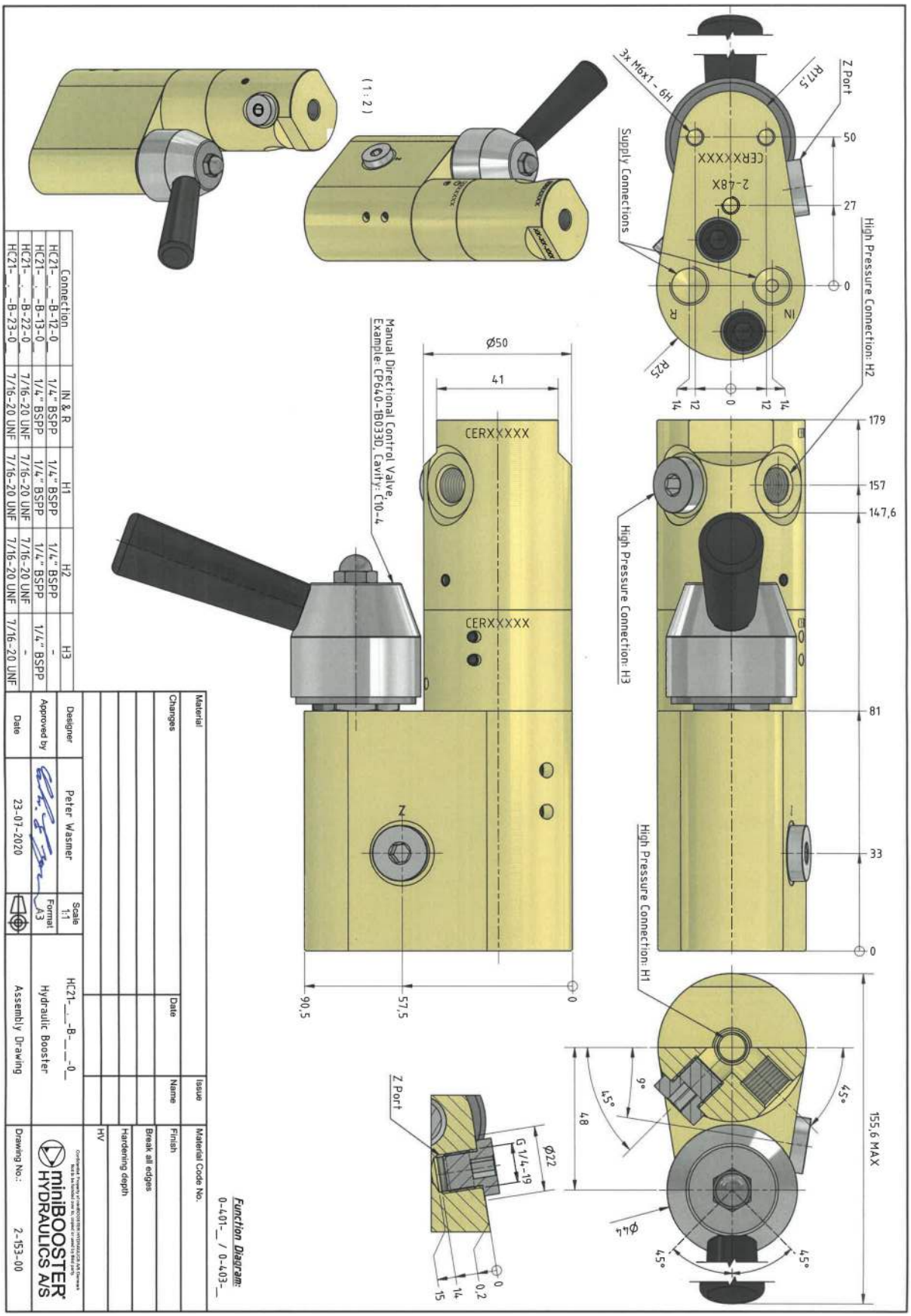
2.2 - Assembly Drawing

Without HP side port connection(s)



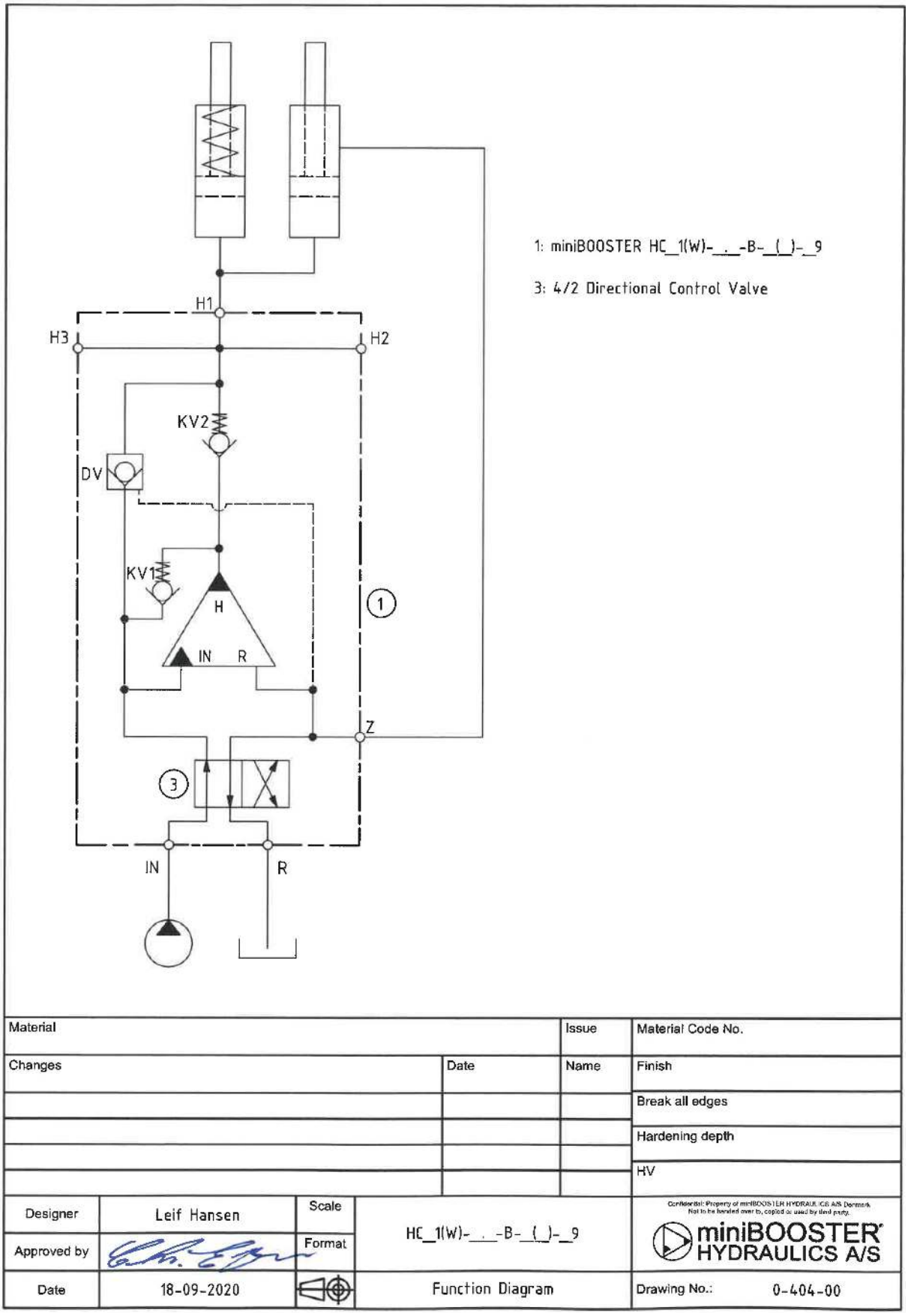
2.3 - Assembly Drawing

With HP side port connection(s)



2.4 - Function Diagram

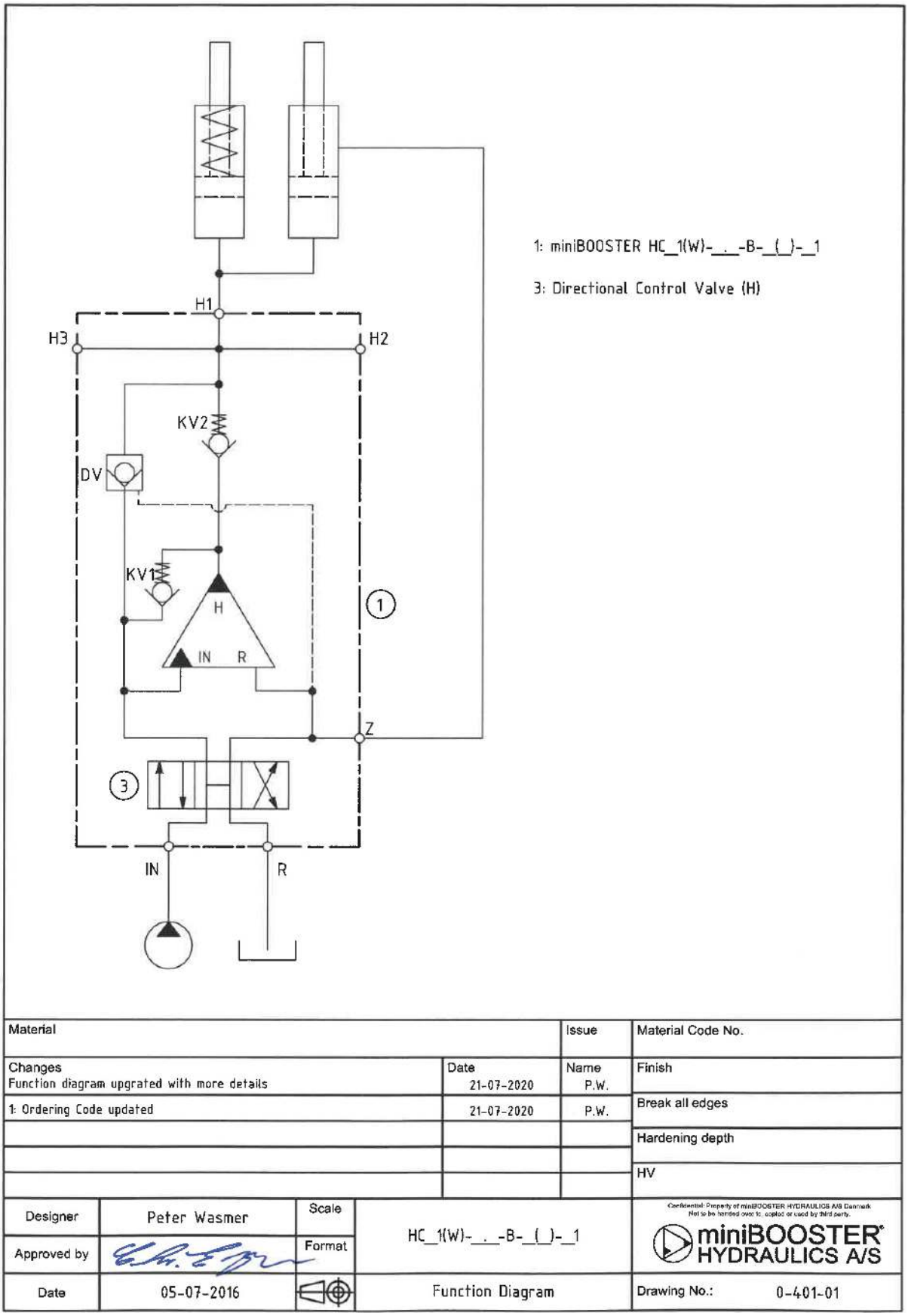
With 4/2 Valve



Material			Issue	Material Code No.
Changes		Date	Name	Finish
				Break all edges
				Hardening depth
				HV
Designer	Leif Hansen	Scale	HC_1(W)-_._-B-_(_)-_9	Confidential: Property of miniBOOSTER HYDRAULICS A/S Denmark. Not to be handed over to, copied or used by third party. miniBOOSTER HYDRAULICS A/S
Approved by		Format		
Date	18-09-2020		Function Diagram	Drawing No.: 0-404-00

2.5 - Function Diagram

With 4/3 Valve (H)

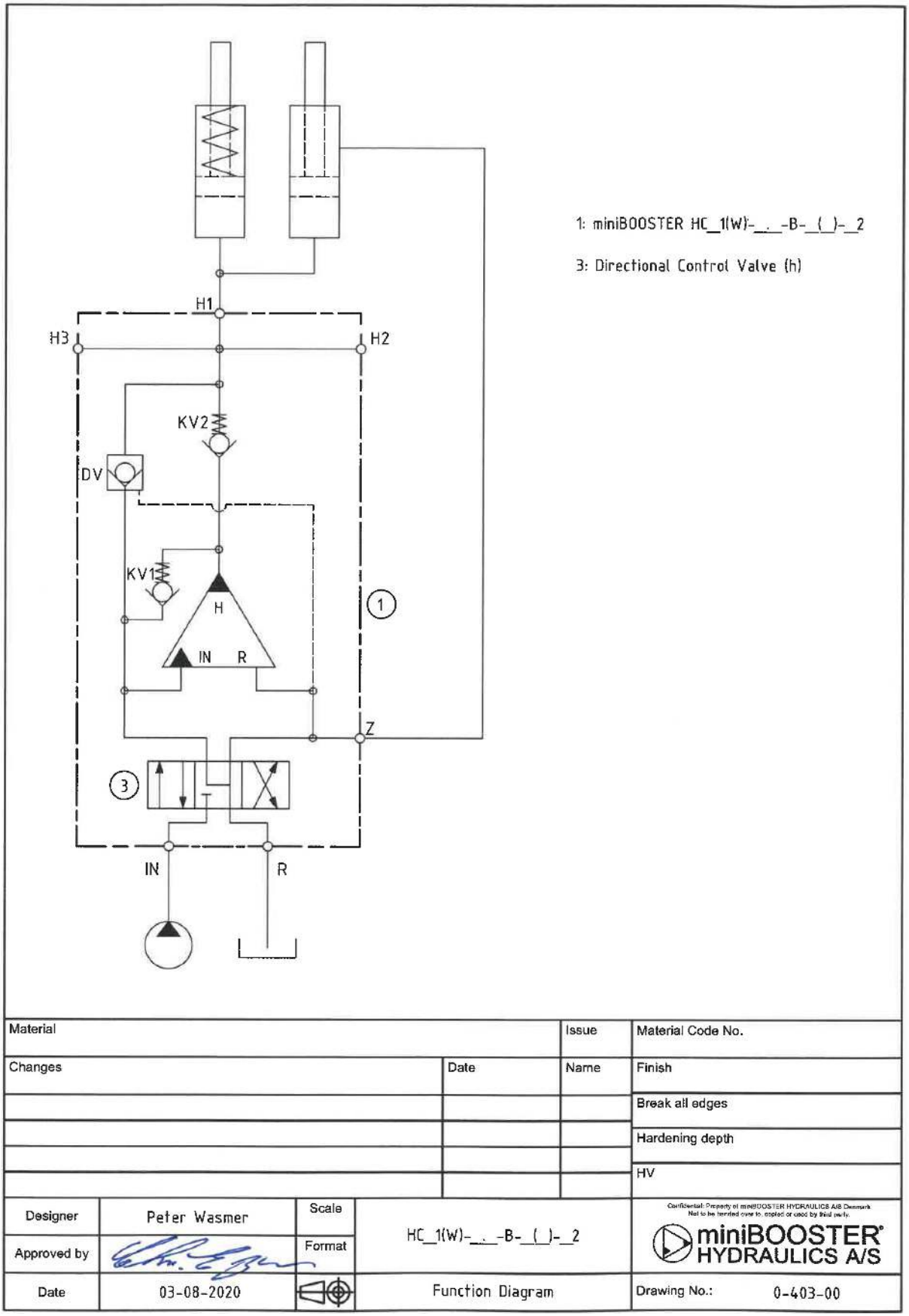


Material		Issue	Material Code No.
Changes Function diagram upgrated with more details	Date 21-07-2020	Name P.W.	Finish
1: Ordering Code updated	21-07-2020	P.W.	Break all edges
			Hardening depth
			HV

Designer	Peter Wasmer	Scale	HC_1(W)-_._-B-_(_)-_1	Confidential: Property of miniBOOSTER HYDRAULICS A/S Denmark. Not to be handed over to, copied or used by third party. miniBOOSTER HYDRAULICS A/S
Approved by		Format		
Date	05-07-2016		Function Diagram	Drawing No.: 0-401-01

2.6 - Function Diagram

With 4/3 Valve (h)



3.1 - General Use

All new or repaired boosters from miniBOOSTER have been hydraulically tested under full load conditions after assembly and are guaranteed full functionality and efficiency.

The hydraulic booster has been designed and manufactured to provide reliable service over a range of demanding applications. The booster does not require special maintenance, but should be kept free from dust, dirt and debris.

A visual inspection for oil escaping on any exterior part of the hydraulic booster should be conducted on a regular basis.

3.2 - Installation

The hydraulic booster could be installed in any position (vertical, horizontal, angled etc.) Use the four provided screws to firmly secure the booster.

Either way the hydraulic booster is installed, it is important that the system is initially started-up in accordance to the below mentioned instructions. Incorrect initial start-up of the booster may cause severe damages to the internal components of the booster.

3.3 - Bleeding and Initial Start-Up

At the initial start-up the booster should be operated gently at a max LP-IN pressure of approximately 10 bar above setpoint for 30 to 60 seconds, as to ensure it is properly bled from trapped air. Hereafter the hydraulic booster system could be operated at its full capacity.

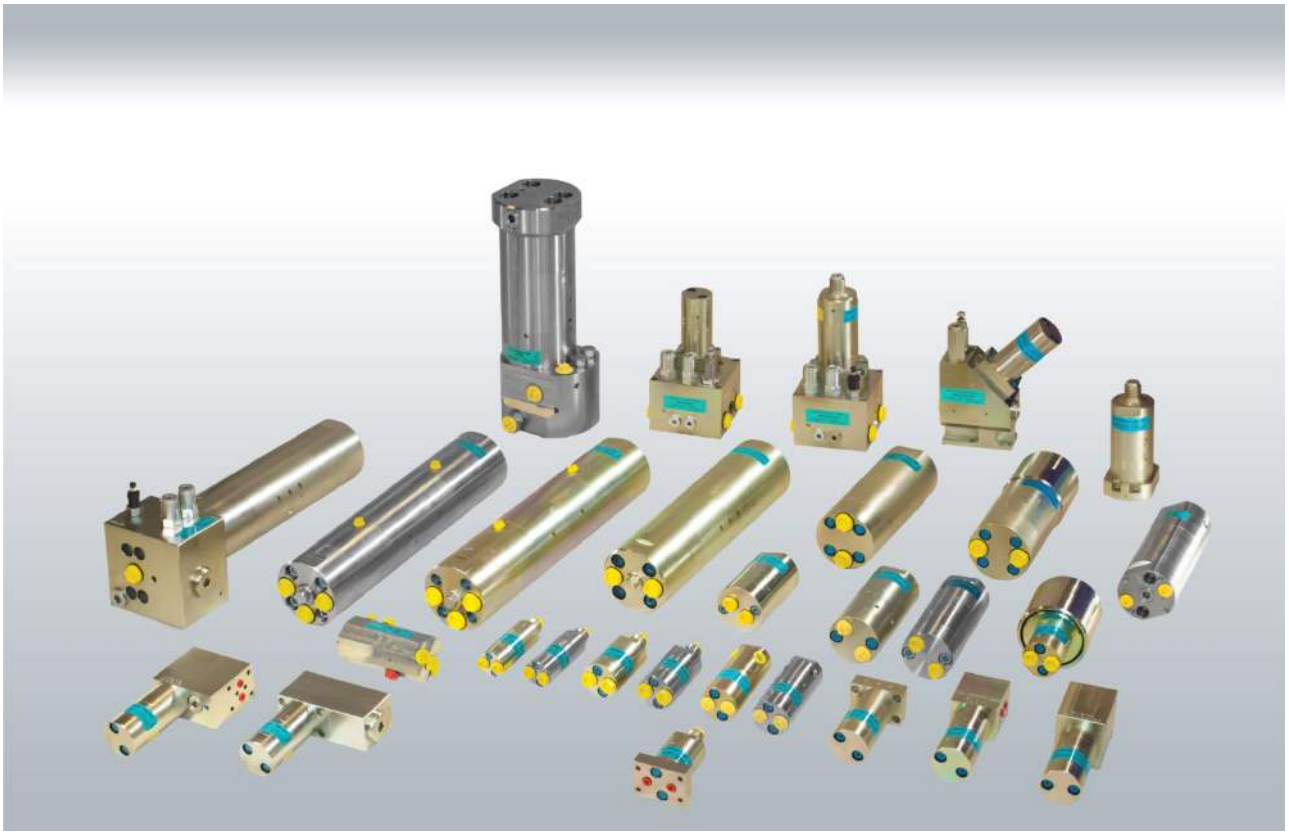
IMPORTANT! At no time should the booster be operated beyond the specifications listed in Section 1.5

3.4 - Repair

In case the booster should malfunction, all repairs of the product should be conducted by miniBOOSTER only i.e. since any intervention on the booster requires special tools and special testing equipment.

Before the hydraulic booster system is disconnected and sent for repair, it should be thoroughly cleaned at the exterior. Once the hydraulic booster system has been disconnected all connection bores should immediately be plugged efficiently with plugs or tape, before the booster is sent to miniBOOSTER or to the miniBOOSTER distributor, i.e. since an internal contamination of the booster may obstruct the fault-finding process at the miniBOOSTER service department.

The only full range of hydraulic intensifying solutions



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