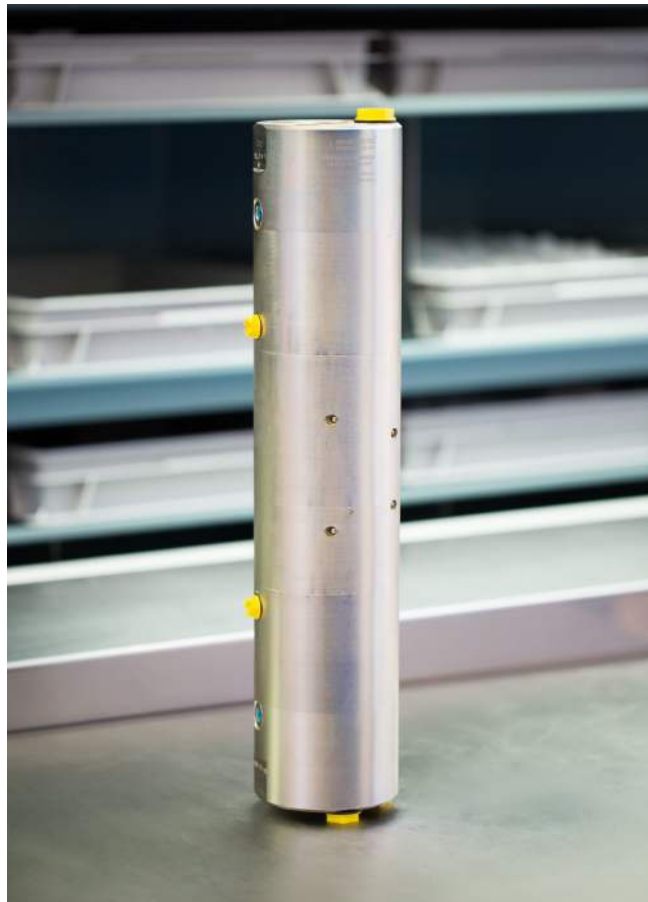


INSTRUCTION MANUAL

DUAL HYDRAULIC BOOSTER 2 MEDIA HC9D2



MINIMUM SIZE – MAXIMUM POWER

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1.1 - Safety precautions - IMPORTANT -

Although the miniBOOSTER hydraulic intensifier 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 system.



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 Intensifiers 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 intensifier 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 intensifiers are individually pressure tested prior to the EOL-approval.

1.3 - Serial number and identification plate location

Each individual miniBOOSTER HC9D2 can be identified by a unique serial number and its type-code which is stamped on the two flats at the H1 end of the miniBOOSTER housing.

The type number and the serial number are required when ordering spare parts (new seals) or repairs of the miniBOOSTER HC9D2.



The example specifies:

04-15-188 Serial number
(week-year-number)



Nomenclature:

HC9D2	Booster model
10.1	$i = 10.1 : 1$
A	No dump valve
1	BSPP ports
HP	Seal system

1.4 - Material certificate

All body parts of the miniBOOSTER HC9D2 are marked with a material 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 for the miniBOOSTER HC9D2 on request.



1.5 - Product description

The miniBOOSTER HC9D2 is a dual media hydraulic intensifier. It is designed to use one media (media 1) to provide the energy to pressurize a second media (media 2).

The intensifier is available in several different intensification ratios to provide a wide range of flow and pressure capacities. It is manufactured of cast iron GGG40 and permitting operation with several types of hydraulic fluids.

The booster automatically compensates for the consumption of media 2 to maintain the HP set-point.

Adjusting the media 1 pressure will proportionally control the media 2 pressure relative to the intensification factor.

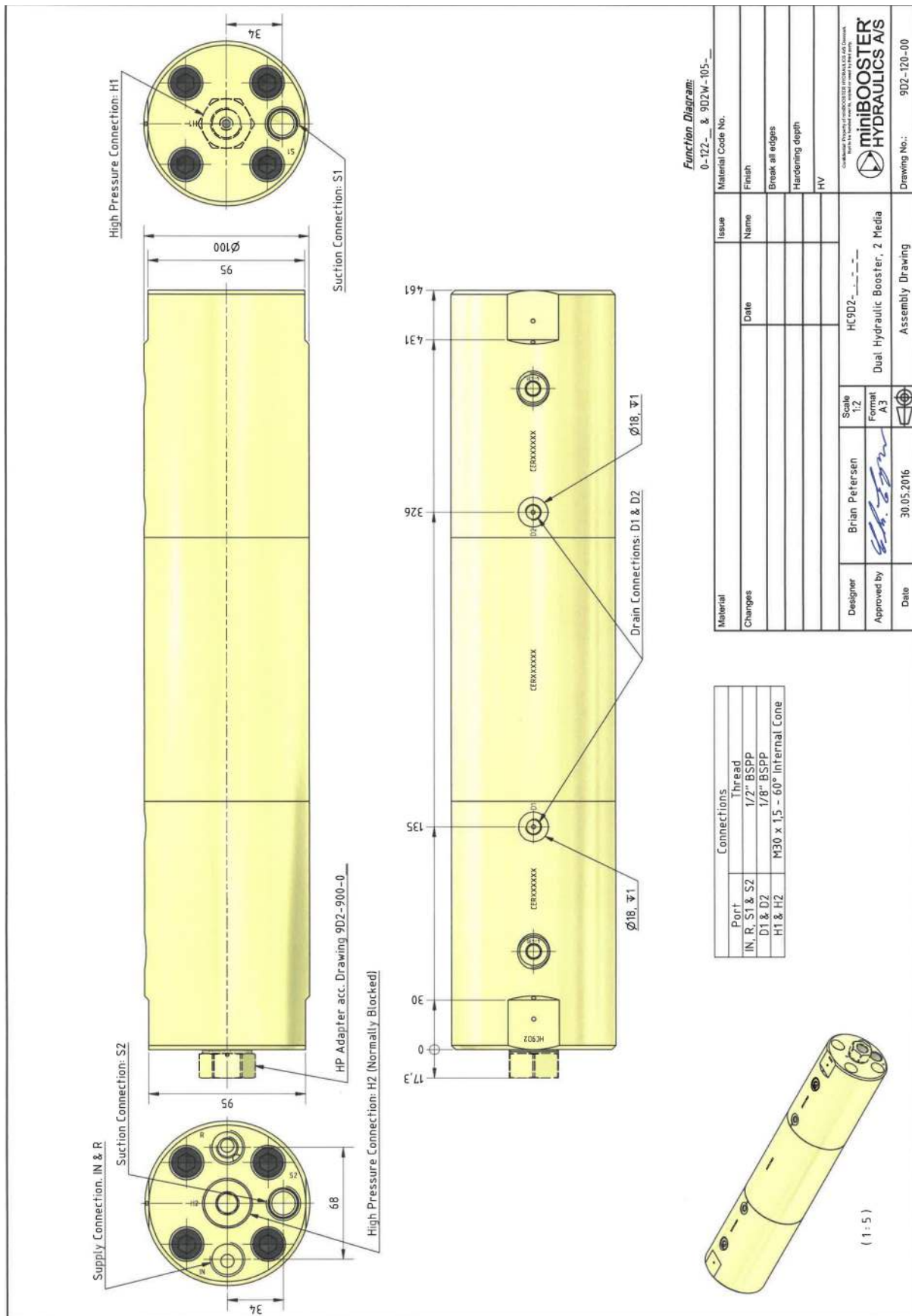
The miniBOOSTER is internally controlled by a build-in bistable valve assembly, that ensures a continuous flow of pressure-intensified media 2.

The miniBOOSTER HC9D2 is supplied with the following process connections: 1/2" BSPP thread for the inlet and return line and a M30x1.5 thread for various HP adapters.

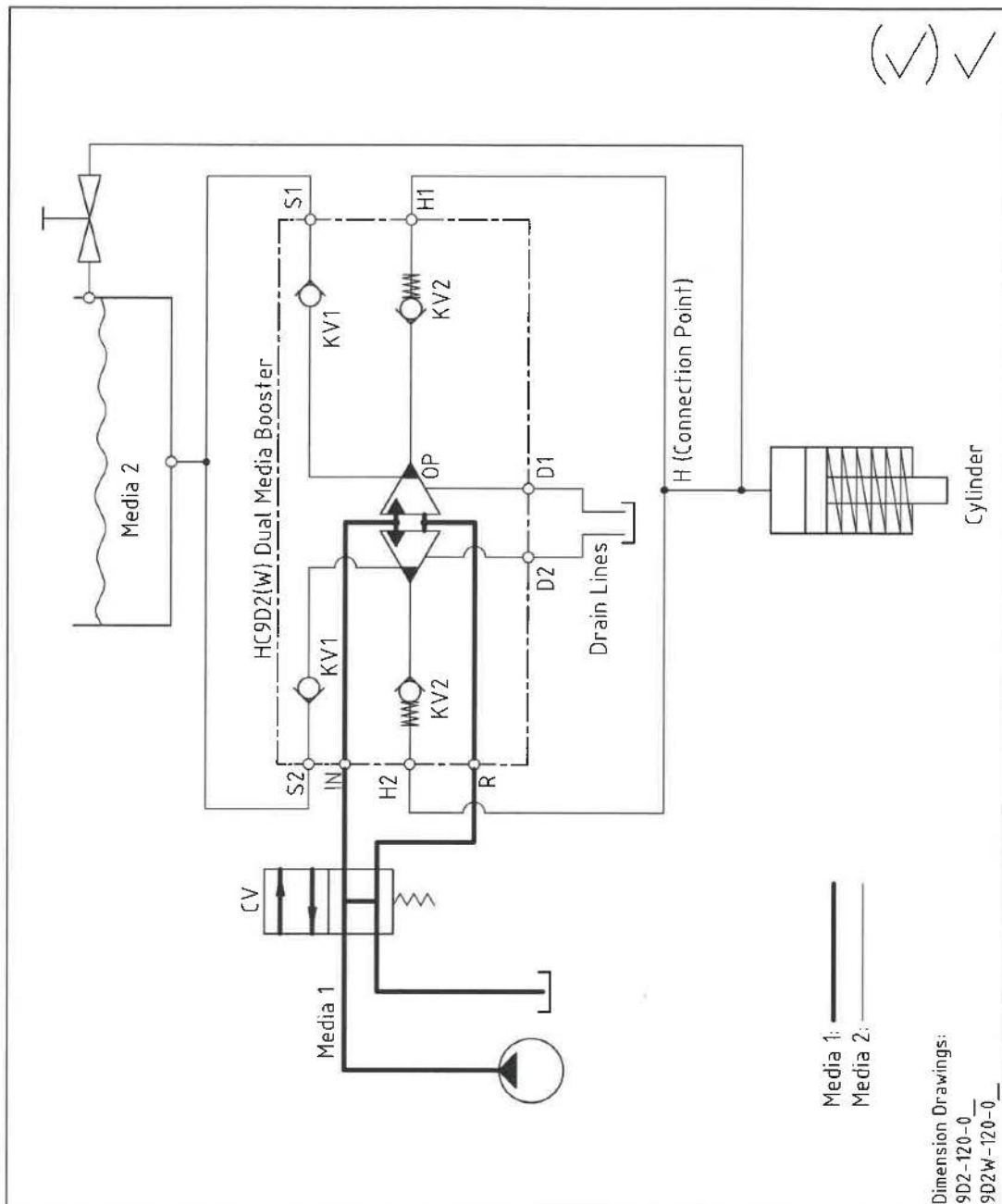
The miniBOOSTER HC9D2 is designed with a double seal system to prevent cross-contamination. The drain connections for the seals are BSPP 1/8".

Adapters are available for operating pressures above 1,380 bar / 20,000 psi. Please contact distributor for further information.

1.6 - Assembly drawing



1.7 - Function diagram



Number	Designation	Material	Dimension		Issue		Matr. code No.			
Changes		Date	Name	Ext. dim.: -, Int. dim.: +, Distance.: ±					Surface	
New issue		19.12.2014	L.H.							
New issue		04.12.2018	L.H.	Meas. range	0-6	6-30	30-100	100-300	300-1000	Break all edges
				2 dec. .00	0.05	0.10	0.15	0.20	0.30	Hardening depth
				1 dec. .0	0.10	0.20	0.30	0.50	0.80	
				No dec.	0.30	0.50	0.80	1.20	2.00	HV
Replace		Scale	HC9D2(W) Funktionsdiagramm					Confidential: Property of miniBOOSTER, HYDRAULICS A/S Denmark Not to be handed over to, copied or used by third party.		
Designer	Leif Hansen		HC9D2(W) Funktion Diagramm					 miniBOOSTER® HYDRAULICS A/S		
Konf.			HC9D2(W) Funktionsdiagramm							
Approv.										
Date	08.09.2014		HC9D2(W) Funktionsdiagramm					No. 9D2W-105-02		

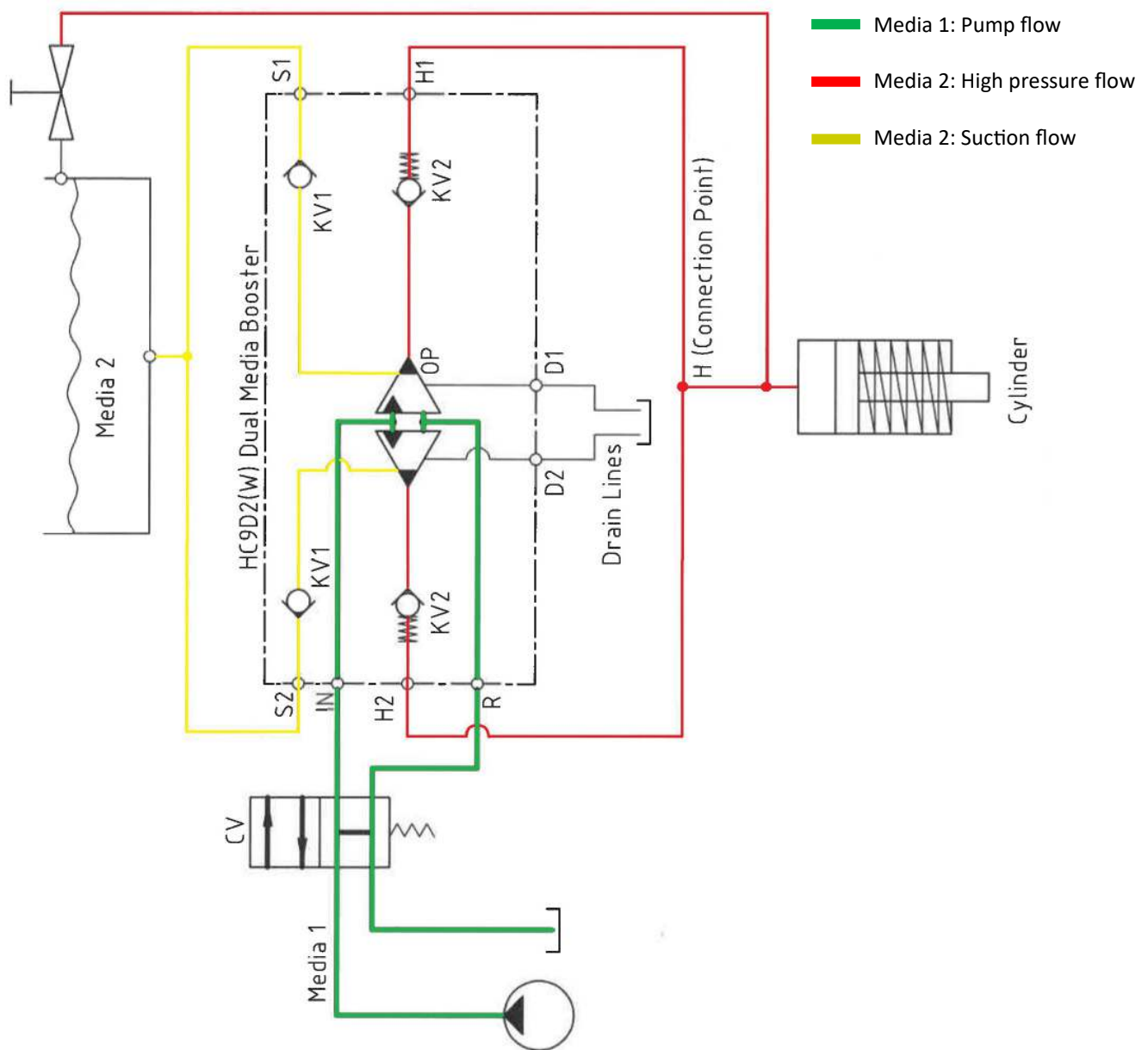
1.8 - Function diagram flow paths

The basic operation of the miniBOOSTER HC9D2 intensifier is illustrated in the below function diagram.

Media 1 is fed through the IN-port flowing freely through the bistable valve (BV1), which in turn drives the LP/HP piston assembly. From both of the suction inlets (S1 and S2), media 2 is drawn through the inlet check valves (KV1) and pumped through the high pressure check valves (KV2) to the high pressure outlet H1 (alternatively H2)

The intensifier will automatically stall when the end pressure on the high-pressure side (H) is reached.

If a pressure drop occurs on the high-pressure side, due to a consumption of media 2 or due to a leakage from the system, the bistable LP/HP piston assembly will automatically start-up oscillating, thus maintaining the intensified pressure (H).

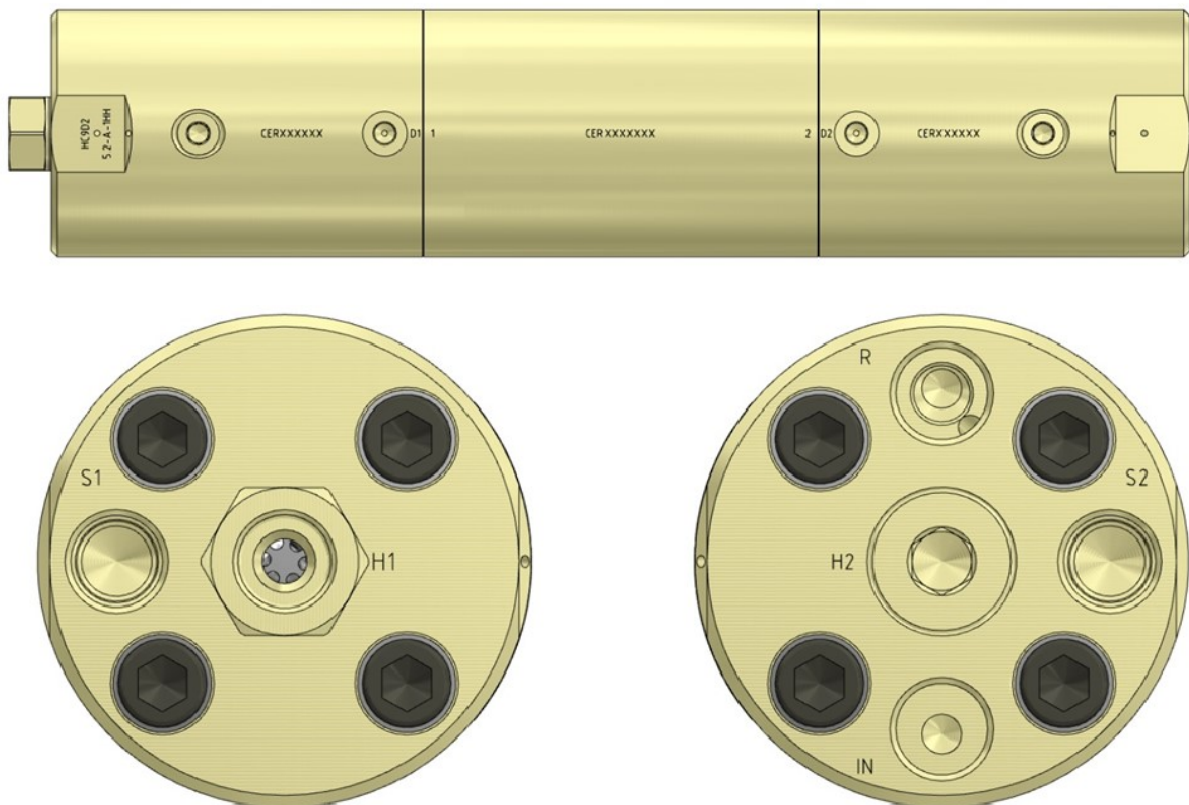


1.9 - Function diagram

The miniBOOSTER HC9D2 is supplied with 8 threaded connection bores.

All connections are clearly marked/stamped into the body of the miniBOOSTER and could thus be easily identified.

IN	Inlet pressurized media 1
R	Return outlet media 1
H1	High pressure outlet media 2
H2	Optional high pressure outlet media 2 (plugged from manufacturer)
S1	Suction media 2
S2	Suction media 2
D1	Seal drainhole media 1 and 2 (when seals have become worn or defective!)
D2	Seal drainhole media 1 and 2 (when seals have become worn or defective!)



1.10 - Technical specifications

Model	HC9D2		
Weight	25 kg / 55 lbs		
Pressure ranges			
Inlet pressure (media 1)	IN:	20 - 207 bar / 290 - 3,000 psi	
Outlet pressure (media 2)	H1 and H2:	0 - 1380 bar / 20,000 psi as standard (Higher pressures available, please contact miniBOOSTER)	
Return (media 1)	R:	As low as possible.	
Temperature ranges			
Media oil	-40°C to +120°C / -40°F to +248°F		
Media water	+3°C to +50°C / +37°F to +122°F		
Stroke ranges			
Continuous	> 5 minutes	from 1 to maximum 500 strokes/minute	
Intermittent	< 5 minutes	from 1 to maximum 600 strokes/minute	
Materials of construction			
Body	Zinc chromate electroplated cast iron		
Pistons	Hardened alloy steel		
Check valves	Chrome alloy steel		
Static seals standard	Nitrile NBR (other seal systems available as option)		
Dynamic LP and HP seals standard	H-ECOPUR (other seal systems available as option)		
Connections			
IN and R	1/2" BSPP		
S1 and S2	1/2" BSPP		
D1 and D2	1/8" BSPP		
H1 and H2	M30 x 1.5 (see section 2.1 for available HP adapters)		
Fluids			
Media 1	Hydraulic fluids, water/glycol solutions > 5% glycol		
Media 2	Hydraulic fluids, glycol		



For other mediums such as methanol etc. please contact your miniBOOSTER® distributor.

Filtration recommendations media 1 (**media 2 max. 40 Micron**).

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



Mediums not filtered in accordance with the recommendations given in this chapter may be the reason to severe damage of the HC9D2.

2.1 - Connections adapters

miniBOOSTER offer a wide program of adapters enabling the HC9D2 to be installed into most hydraulic systems. For further information's please contact your local miniBOOSTER distributor, or visit www.minibooster.com

List of available connection adapters:

M30x1.5 HP adapters (for HC9D2)		
Ordering Code	HP Connection (female)	Max. Pressure
9D2-816	1/2" BSPP	800 bar
9D2-817	13/16"-16 UNF	1,380 bar
9D2-819	3/4"-16 UNF	2,070 bar
9D2-820	1/4" NPT	1,380 bar

2.2 - Seal kit

Complete seal kits are available for the miniBOOSTER HC9D2. Seals should be replaced whenever media 1 or media 2 is leaking from connection D1 or D2 (more than 8 drops/min) or as part of a routine maintenance procedure. A seal kit contains a complete set of seals and an assembly drawing of the seal assembly.



Seal kit

Intensification factor	Item number HH type	Item number EP type	Item number HP type	Item number EE type
5.2	SEALKIT-9D2-5.2HH	SEALKIT-9D2-5.2EP	SEALKIT-9D2-5.2HP	SEALKIT-9D2-5.2EE
7.1	SEALKIT-9D2-7.1HH	SEALKIT-9D2-7.1EP	SEALKIT-9D2-7.1HP	SEALKIT-9D2-7.1EE
10.1	SEALKIT-9D2-10.1HH	SEALKIT-9D2-10.1EP	SEALKIT-9D2-10.1HP	SEALKIT-9D2-10.1EE
12.2	SEALKIT-9D2-12.2HH	SEALKIT-9D2-12.2EP	SEALKIT-9D2-12.2HP	SEALKIT-9D2-12.2EE
15.0	SEALKIT-9D2-15.0HH	SEALKIT-9D2-15.0EP	SEALKIT-9D2-15.0HP	SEALKIT-9D2-15.0EE



Important notice!

The HE and the EP and the EE type seals are made from materials, which do not withstand the solvent properties from most types of oil. These seals swell and become inefficient when exposed to oil.

Under **NO** circumstances should intensifiers assembled with **EP and EE** type seals be internally exposed to oil on the media 2 side.

2.3 - Bolt kit

Complete bolts kits, containing special bolts and washers, are available for the miniBOOSTER HC9D2.



Body bolts part number. [HC9D2-BOLTKIT](#)



Recommendation! Replace old bolts and washers with new ones whenever seals are changed.

2.4 - Tool kit

A complete Tools kit, including all the needed tools, required to change the seals at routine maintenance, is available for the miniBOOSTER HC9D2.



Tool kit part number. [HC9D2-TOOLKIT](#)

Note! The tool kit includes customized tools, which are only available from miniBOOSTER.

3.1 - Introduction

The miniBOOSTER HC9D2 intensifier has been designed and is manufactured to provide reliable service over a range of demanding applications. The intensifier does not require special maintenance, but should be kept free from dust and dirt and debris.

As noted earlier, to provide extended service life, ensure that the unit is operated within specifications and in particular, fluid quality. Please refer to section 1.10 Technical Specifications for additional information.

The miniBOOSTER HC9D2 is designed with field serviceable seals. In the event of a seal failure, the following procedure should be followed closely. For repairs other than seal replacement, it is recommended the intensifier be returned to the factory. In case the HC9D2 should malfunction, all repairs of the product should be conducted by using miniBOOSTER original spare parts only, whilst following the instructions given in this manual strictly.

Before the miniBOOSTER is disconnected and sent for a repair, it should be thoroughly cleaned at the exterior. Once the HC9D2 has been disconnected all connection bores should immediately be plugged efficiently with plugs or tape, before the intensifier is sent to miniBOOSTER or to the miniBOOSTER distributor. I.e. since an internal contamination of the HC9D2 may obstruct the fault-finding process at the miniBOOSTER service dept.

3.2 - Inspection

A visual inspection for media escaping from drain holes D1 or D2 should be conducted on a regularly basis. The purpose of the drain holes (see their routing on the function diagram) is to enable the user to visually inspect whether the internal dynamic seals of the HC9D2 have become worn or scratched for some reason, or if these are fully functional. The maximum permissible amount of media escaping from D1 or D2 is 8 (eight) drops per minute. If this amount is exceeded the HC9D2 should be repaired with new seals or returned to miniBOOSTER for a repair. Any changes in the normal behavior/run of the HC9D2 i.e. slow or difficult starting etc. should be a sensible reason to have the intensifier repaired immediately.

3.3 - Preparation

The miniBOOSTER should only remain unplugged and dissembled in a very clean and tidy workshop environment. No particles larger than 10 µm should possibly be allowed to enter the miniBOOSTER HC9D2 in any way.

Ensure that a clean, flat working space is used and that the following tools and supplies are available before beginning repairs:

Tools:

1. Bench-mounted heavy-duty vise with soft face jaws and an opening of at least 90 mm / 2.75".
2. Roll of lint-free cloth or paper wipes.
3. Tube of silicone based O-rings grease.
4. 1/2" torque wrench, min. 120 Nm / 88 lbf-ft.
5. 1/2" Socket Allen Key, 10 mm
6. Adjustable face spanner, Ø4 mm / 5/32" pin diameter.

RECOMMENDED! miniBOOSTER Tool kit, HC9D2-TOOLKIT (see section 2.4).

Spare Parts:

1. Seal Kit (see section 2.2)
2. Bolt Kit (see section 2.3)

3.4 - Seal replacement instruction



3.4.1

Clean the exterior of the miniBOOSTER HC9D2 thoroughly before it is taken to the workshop.

(HC6D2W shown, but principle of the seal system is the same)

Make sure that the warranty void sealant is removed from all HEX bolt heads.



Follow the provided instructions carefully. Failure to comply with the instructions could result in equipment damage and personal injury. The miniBOOSTER HC9D2 should only be disassembled, have the seals changed and be reassembled in one end at a time.



3.4.2.

Secure the HC9D2 vertically in a vice between soft jaws clamping and on the flat ends. If soft jaws are not available use cloth or cardboard instead as to protect the surface of the intensifier.



3.4.3

Loosen all 8 HEX bolts (both ends) crosswise by $\frac{1}{4}$ of a turn.



3.4.4

Secure the HC9D2 horizontally in the vice with D1 and D2 pointing upwards, as illustrated.

**3.4.5**

Loosen all 4 HEX bolts from the body mid-part (one end only)



Be careful when loosening the last 2 HEX bolts. Residual oil spilling from the HC9D2 combined with the weight of the end part- may make it difficult to hold the end part safely (use two hands to hold if in any doubt).

**3.4.6**

Secure the end part in the vice, and pull out the piston rod.



If the surface of the pistons or the piston cylinders have any visible surface imperfections, the intensifier will not operate properly. The unit should be returned to the factory for refurbishment. If reassembled with such damaged parts, the intensifier may operate with a reduced effective intensification ratio, for a while, but will

**3.4.7**

Loosen and remove the seal lock nut.

**3.4.8**

Remove the seal support ring (note no O-rings on this part).

**3.4.9**

Remove the old seal assembly.

**3.4.10**

Clean off the seal bore with a lint free cloth.

**3.4.11.**

Reassemble with new seals, by hands force, in accordance with the Instructions drawing incorporated in the supplied seal kit.



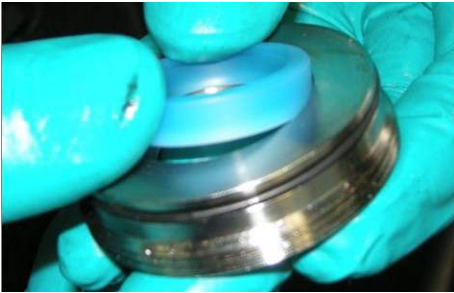
miniBOOSTER is continuously developing and improving their products. Material appearances may vary slightly from the illustrations. Please contact your distributor or the factory if you have any questions or concerns about the procedure or parts.

**3.4.12**

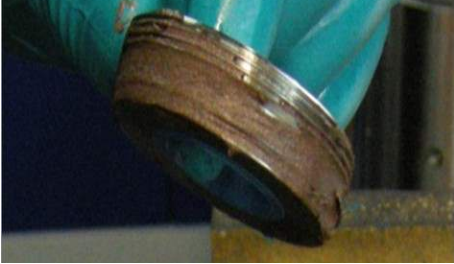
Clean and reassemble seal support ring.

**3.4.13**

Assemble the new O-ring on the cleaned seal lock nut.

**3.4.14**

Assemble the new seal ring on the seal lock ring (by hands force).

**3.4.15**

Liberal­ly coat the threading of the seal lock ring thoroughly with Rocol Anti Seize Compound® or Never Seez® and reassemble it into the end part.

**3.4.16**

Reassemble the lock nut into the end part and DO NOT use excessive force to tighten the nut.

When the nut is under the surface level of the end part, DO NOT tighten any further.

**3.4.17**

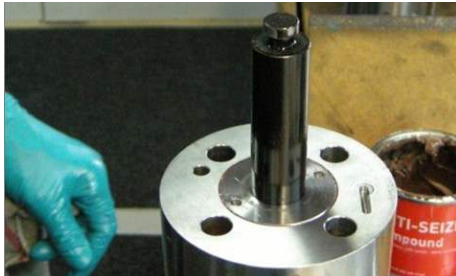
IMPORTANT! Check that the seal lock nut is tightened to a level below the area of the end part. In this example a caliper is used for this inspection.

**3.4.18**

Inspect the piston for visual damages (scratches, wear marks).



If the surface of the pistons or the piston cylinders have any visible surface imperfections, the intensifier will not operate properly. The intensifier should be returned to the factory for refurbishment. If reassembled with damaged parts, the unit may operate, with a reduced effective intensification ratio, for a while, but will generally fail after a short period of operation and may no longer be serviceable.



3.4.19

Insert the HP piston into the end part.



3.4.20

A soft hammer or mallet may be used to gently tap the piston into the end part if the piston runs very tight in the new seals.



The piston should be pushed/tapped approximately half of its length into the end part.



3.4.21

Assemble the remaining new gaskets and O-rings into the mid-part in accordance with the instructions drawing incorporated in the supplied seal kit. If the O-rings are difficult to fit, they may be greased with a thin layer of silicone-based grease. This will make them stick better into their corresponding grooves.



3.4.22

Assemble the end part onto the mid-part connecting the two pistons by their corresponding T-grooves.

**3.4.23**

Push the parts together, while gently rotating the end part, so that the drain holes D1 and D2 are aligned on the same side of the HC9D2.

**3.4.24**

Example of drain holes D1 and D2 correctly aligned on the same side.

**3.4.25**

Grease the new bolts and washers thoroughly with Rocol Anti Seize Compound® or Never Seez®, and assemble the end and the mid part.

**3.4.26**

Assemble all four bolts to the booster without tightening.

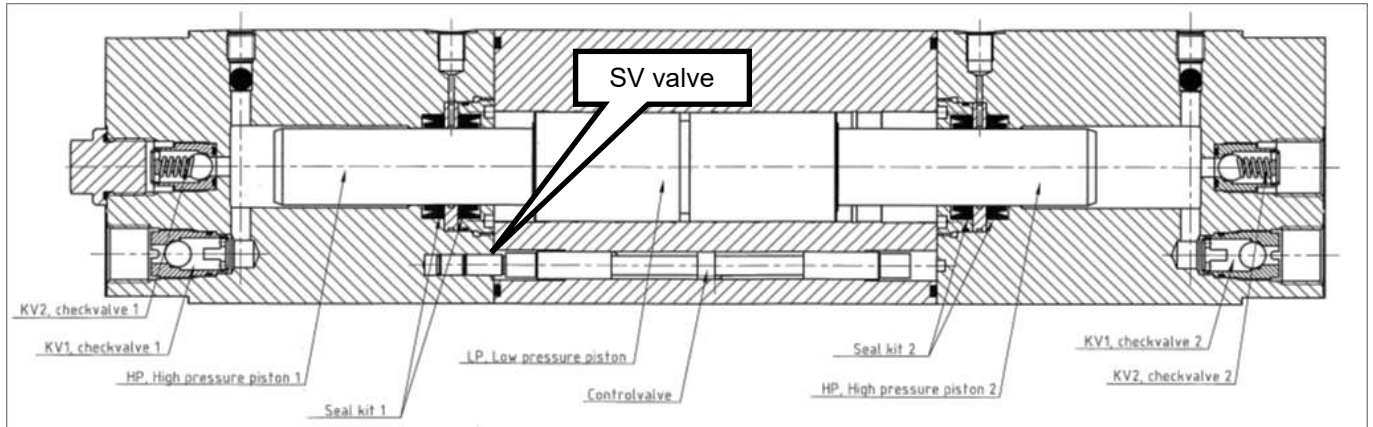
**3.4.27**

Tighten the HEX bolts crosswise to 90 Nm / 66 ft-lbs.

Repeat the above seal-change procedures in the other end of the miniBOOSTER HC9D2.

Important information!

Between the middle part and the end part with the 4 threaded connections (IN, R, S2, H2), a built-in extension of the control valve (BV1) i.e. the “SV-valve” may stick to the middle part or/and the control valve, when the middle part and the end part are disassembled. If this happens the SV valve should be put back in to the end part and NOT into the middle part.



Ensure that the SV valve is placed correctly in the end part before reassembling these particular parts of the HC9D2.



The SV valve should be assembled into the end part as shown (thread facing out)

4.1 - Installing the miniBOOSTER HC9D2

The miniBOOSTER HC9D2 can be installed in any position. The preferred and recommended mounting position is with the intensifier horizontal and with the drain ports, D1 and D2, facing downward.

Important notice: The media 2 fluid must be vertically higher positioned than the S1 and S2 suction ports. This ensures that the high pressure chambers in the booster are always flooded with liquid.

The HC9D2 can be used for two different modes of operation:

1. As a hydraulic driven High Pressure Pump increasing the pressure of a media 2, which is primed into the intensifier (S1 and S2 connections), and pumped out (H1 or H2 connections) through a nozzle, at a steady constant pressure set by the size of the nozzle and the pressure/flow of the media 1. The intensifier installed in this mode, will oscillate/ pump constantly during operation. (i.e. for High pressure spraying purposes etc).
2. As a hydraulic driven intensifier intensifying the pressure of media 2 up to a preset value set by the intensification ratio and the supplied media 1 pressure/flow. The intensifier installed, in this mode will oscillate until the preset pressure is reached and then stall, until a consumption of media 2 causes the intensifier start oscillating/intensifying again (this mode is for filling-up hydraulic cylinders, accumulators etc.)

It is recommended to connect a transparent drain hose between the D1 and the D2 connections and the system return line, alternatively a sight glass connected to a sludge tank etc.



Under no circumstances should the D1 and the D2 connections remain plugged during the operation of the HC9D2. I.e. since this could lead to a damage of the internal components of the intensifier, and a pollution of media 1 from media 2.



Either way the miniBOOSTER HC9D2 is installed, it is important that the HC9D2 is installed in accordance to the below mentioned "Preparations" and "Initial start-up" instructions.

4.2 - Preparations

Before the miniBOOSTER HC9D2 is started-up for the first time, as a new unit or as a repaired unit, it should be ensured that the:

1. Filtering recommendations (see index 1.10) do comply.
2. Fittings, piping's and hoses connected to the intensifier High pressure side (H1 or H2) are from materials, which will withstand the high pressure supplied from the HC9D2
3. Media 2 circuit has been completely bled from trapped air, and that there is a sufficient flow of media 2 supplied to the intensifier.



Trapped air should be bled from the internal media 2 circuits thus preventing the HP-pistons and the HP-seals to run under dry conditions. Air should be bled by priming the media 2 suction lines (S1 and S2) with pressurized media 2 (min. 4 bar / 58 psi) until the HP sections are completely bled from air i.e. media 2 flows from the H1 or the H2 connections without any air bubbles in it)

1. Media 1 flow (IN connection) is adjustable and is adjusted to 0.
2. Check that the drain connections (D1 and D2) are unplugged and connected to a drainage system.

4.3 - Initial start-up procedure (after preparations are carried out)

Mode 1 installation (HC9D2 installed as a High Pressure Pump)

1. Slowly increase the pressure/flow of the media 1 supplied to the HC9D2. Observe that the intensifier starts oscillating when the supplied pressure reaches 20 - 30 bar / 290 - 435 psi.
2. Observe that the intensifier oscillates with a steady pulsing sound, and with a stroke-rate within the specifications (see section 1.10).
3. Increase the pressure/flow of the media 1 observing that the pressure of the media 2 increases proportionally. Ensure that the specified stroke-rate is not exceeded at any time.
4. Check that no media 1 or 2 is leaking from the connections D1 and D2 (up to 8 drops /minute should be accepted)

Mode 2 installation (HC9D2 installed as a pressure intensifier)

1. Slowly increase the pressure/flow of the media 1 supplied to the HC9D2. Observe that the intensifier starts oscillating when the supplied pressure reaches approximately 20 - 30 bar / 290 - 435 psi.
2. Observe that the intensifier oscillates with a steady pulsing sound, and with a stroke-rate within the specifications (see section 1.10).
3. Increase the pressure/flow of the media 1 observing that the pressure of the media 2 increases proportionally. Ensure that the specified stroke-rate is not exceeded at any time.
4. Operate the cylinder / accumulator to its end position.
5. Move the cylinder/accumulator between its end positions a couple of times, as to completely bleed the system from trapped air.
6. Check whether the pressure of media 2 is reached. If not, then adjust the pressure of media 1 once more.

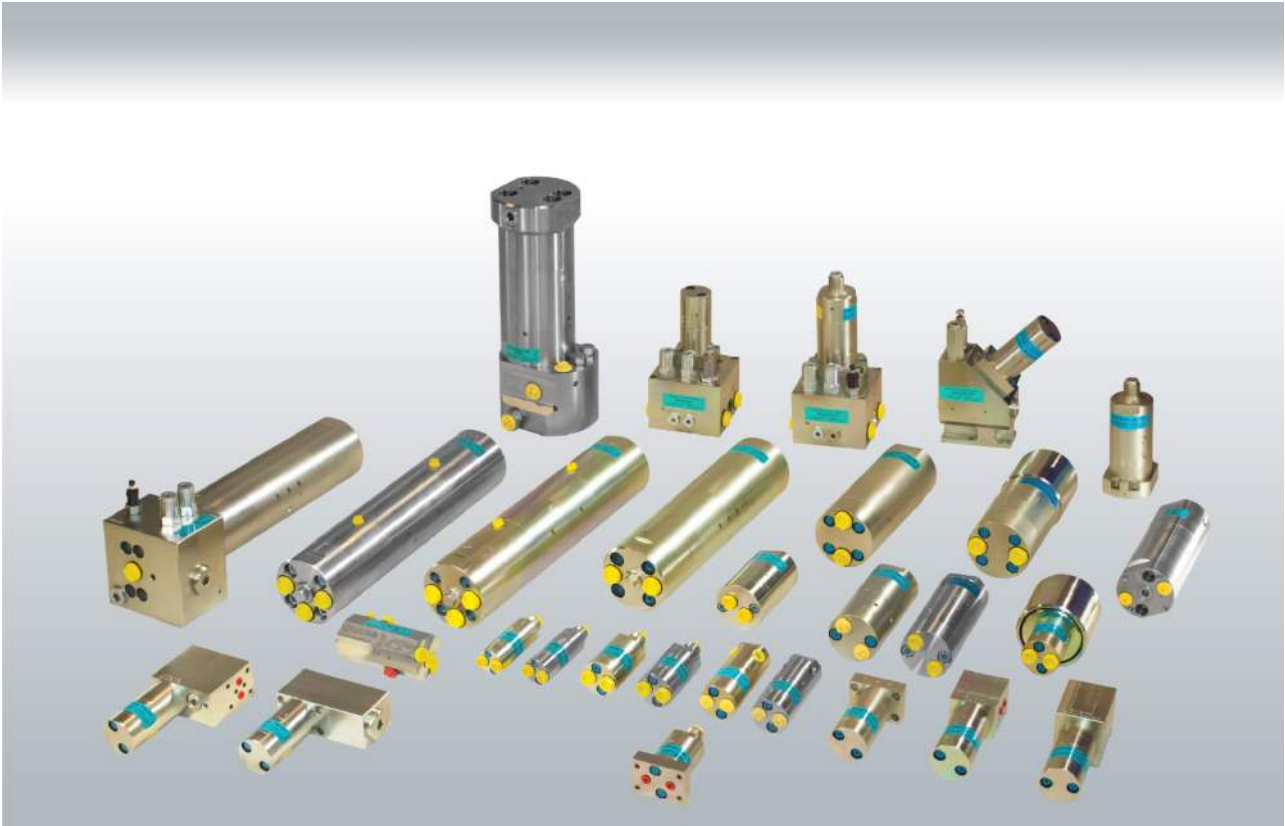


IMPORTANT! At no time should the intensifier be operated beyond the specifications listed in Section 1.10.

5.1 - Troubleshooting

Symptom	Possible causes	Remedy
Media 2 pressure (H1 and H2) not existent	No supply of media 2 to port S1 and S2 Intensifier doesn't oscillate Air trapped in the media 2 circuit Suction filter Clogged	Establish supply and bleed circuit See below Bleed the media 2 circuit Change filter element
Intensifier doesn't oscillate	Port R plugged Port R pressure too high Pressure on IN < 20 bar Intensifier piston seized Intensifier cylinder seized Intensifier seals seized Bistable valve system seized Preset max HP (H1 and H2) reached	Establish a flow from R to tank Reduce pressure to max 5 bar Increase media1 pressure Return intensifier to miniBOOSTER Return intensifier to miniBOOSTER Change out the seals Return intensifier to miniBOOSTER Normal situation (intensifier stalls)
Excessive flow of media from D1 and D2	LP seals defective HP seals defective HP pistons scratched or worn	Change out the seals Change out the seals Return intensifier to miniBOOSTER
Media1 has been polluted with media 2	D1 and D2 plugged/clogged	Unplug and establish a free flow
Reduced capacity of the intensifier	Air trapped in media 2 circuit Defective HP seals Defective HP pistons Defective HP cylinders	Bleed the circuit Change out the seals Return intensifier to miniBOOSTER Return intensifier to miniBOOSTER
Media 2 pressure builds up very slowly	Air trapped in media2 circuit Defective HP seals Defective HP pistons Defective HP cylinders Poor filling with media 1	Bleed the media 2 circuit Change out the seals Return intensifier to miniBOOSTER Return intensifier to miniBOOSTER Ensure sufficient filling of intensifier
Media 2 pressure won't build up	Air trapped in media 2 circuit LP seals defective HP seals defective HP pistons scratched or worn HP pistons seize under pressure Too low pressure of media 1	Bleed the media 2 circuit Change out the seals Change out the seals Return intensifier to miniBOOSTER Return intensifier to miniBOOSTER Check pressure of media 1
Effective intensification ratio reduced	HP seals defective HP pistons scratched or worn HP pistons seize under pressure	Change out the seals Return intensifier to miniBOOSTER Return intensifier to miniBOOSTER
Unsteady pulsing sound from intensifier	Trapped air in 1 media 2 circuit	Bleed the media 2 circuit
Hard metallic sound from intensifier	Trapped air in 1 or 2 media 2 circuits Intensifier over speeding	Bleed the media2 circuit (S1 and S2) Reduce media 1 pressure/flow (IN)
Intensifier over speeding consequently	Trapped air in 1 or 2 media 2 circuits	Bleed the media 2 circuit
LP and HP seals wears rapidly	Filtering recommendations do not comply Intensifier working under too warm conditions Intensifier over speeding	Ensure proper filtering of mediums Ensure proper cooling of intensifier Reduce speed
LP and HP cylinders worn rapidly	Intensifier working under too warm conditions	Ensure proper cooling of intensifier
Intensifier overheats	Filtering recommendations do not comply Too high working pressures Too warm mediums entered into intensifier HP pistons seizing under high pressure Warm operating environment	Ensure proper filtering of mediums Check/reg pressures (see specs) Check/reg temperatures (see specs) Return intensifier to miniBOOSTER Cool the intensifier with water or oil
None of the above symptoms		Consult miniBOOSTER

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