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## 700 MPa manual pressure controller

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High pressure liquids and gases are potentially hazardous. Energy stored in these liquids and gases can be released unexpectedly and with extreme force. High pressure systems should be assembled and operated only by personnel who have been instructed in proper safety practices.



This instrument is not to be operated in any other manner than that specified by the manufacturer.



The product described in this manual is intended to be used by educated personell only who are familiar with high pressure and understand the risks involved with that.

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This manual was originally composed in English.



#### 1. introduction

The MNR-70 autonomous pressure generation and adjustment system is designed for the generation and fine adjustment of high hydraulic pressures. It can be used for calibrating and testing of gauges, pressure transducers etcetera.

#### 2. technical specifications

pressure rating	: 0 700	MPa
variable volume stroke	: 3	CC
priming pump	: 20	MPa
priming pump stroke	: 3	cc per stroke
reservoir capacity	: 200	сс
pressure connections	: GLAND	M16 x 1,5 M 6 x 1 $\downarrow$ H (6 mm HP tubing)
operating fluid	: Di-2-ethylhexyl Se Priolube 1856	ebacate
dimensions weight	: 37 x 45 x 25 : 40	cm ka
weight	. +0	ку



Due to a policy of continuous product improvement all specifications are subject to change without notice.







# location of components 3.1 4000 200 6000 7000 HP connections priming pump oil reservoir VENT valve HP variable volume



#### 4. operating instructions

Make sure this equipment is used, operated and maintained by authorized and properly trained personnel only.

#### 4.1 connections

The MNR-70 high pressure circuit is constructed using 700 MPa 6 mm SS tubing. The tubing ends are machined in such that they end up coned and threaded with 6x1 LH thread.



Alternatively collars can be supplied for 1/4" HP tubing with imperial glands.



#### 4.2 pressurising

- connect relevant external tubing taking into account the correct pressure rating and connection types
- make sure the reservoir is sufficiently filled with oil
- rotate the variable volume fully counterclockwise
- close VENT valve
- operate priming pump untill the handle blocks, e.g. pressure is built up



The priming pump is intended to fill the system with oil and pre-pressurise. In order to remove air from dead end tubing, the operator might need to crack fittings. Please make sure this is done in VENT conditions. Alternatively a vacuüm pump can be used to evacuate external tubing and remove air. (vacu full)

• start rotating the variable volume clockwise and monitor the pressure on the pressure measuring device connected (e.g. an analog gauge)



When the stroke of the variable volume is insufficient to reach the setpoint, most likely there is still air trapped in the system and the system needs to be reprimed and / or vacu filled





#### 4.3 venting

- rotate the variable volume counterclockwise till the pressure is below 200 MPa
- carefully open the VENT valve counterclockwise untill the pressure starts dropping
- when the pressure is low enough, fully rotate the VENT valve counterclockwise to assure the system is in a safe state

#### 5. storage

No special recommendations are applicable other than prior to storage the system oil is removed as much as possible. The oil supplied with the system is not subject to detoriation but when the system has been used for a while the oil will contaminate and contamination might affect the wetted parts.

#### 6. transport

Allways make sure that transport of the product complies with the local rules and regulations for transport of potential dangerous goods of the country, state or province where the transport takes place.



#### 7. putting instrument in safe condition

In case of accident or breakdown the below instructions need to be followed to put the instrument in safe condition :

• carefully open the VENT valve which assures the system to be pressure free

In case of a failing VENT valve :

• carefully crack one of the three HP connections on the back side of the device making sure the bleed valves on the HP cross is not facing the operator.





#### 8. calibration and maintenance



Before taking any maintenance actions, please follow the safe condition procedure as described in section 7

#### 8.1 calibration

The product itsself does not contain parts which need recalibration. A periodic functionality test of the analog gauges is sufficient.

#### 8.2 general maintenance

Check the product for any possible defects on :

• enclosure

check the enclosure on damages and keep it clean with a non-aggressive and non-synthetic cleaner

test connection(s)

check the test connection on damages of the thread / damaged test connection(s) must be replaced immediately

- needle valve(s)
  - check whether the needle valve(s) can be opened and closed smoothly
- filling and test hoses / tubing

if hoses / tubing show any sign of damage / knicks they should be replaced immediately

#### 8.3 spare parts

The manufacturer keeps all parts used in the assembly of this product on file. Only originally specified spare parts may be used to perform any repair on the product.

It is advised to send the product to the manufacturer in case of failure.



Before taking any maintenance actions and or ship a defective product, please follow the safe condition procedure as described in section 7



This product is covered by a limited one (1) year warranty. Unauthorized service or repair during the warranty period is undertaken at the owner's risk and may cause damage that is not covered under warranty and/or may void the warranty. See Section 9.



#### 9. warranty

During the design and manufacturing of this instrument the utmost attention has been given to quality and durability.

This manual contains information needed for the safe and effective use of the capabilities of the instrument. Please read the manual carefully before operating the instrument. By doing so possible damage to the instrument or damage caused by the incorrect use of the instrument can be avoided.

Minerva meettechniek B.V. warrants the instrument in accordance with the Standard Terms and Conditions of the Instrument Trade as issued by the Association bearing the name "Federation Het Instrument" (The Instrument federation), filed with the Clerk of Utrecht District Court on 13 January 1993 under number 16/93 and with the Chamber of Commerce and Industry in Amerfoort on 18 January 1993. A copy is available on request.

Minerva meettechniek B.V. warrants that this product will be free from defects in materials and workmanship for a period of 12 months from the date of shipment. If any such product proves defective during this warranty period, Minerva meettechniek B.V., at its option, will either repair the defective product without charge for parts or labor, or will provide a replacement in exchange for the defective product.

In order to obtain service under this warranty, The customer must notify Minerva meettechniek B.V. of the defect before the expiration of the warranty period and make suitable arrangements for the execution of the service.

The customer shall be responsible for packaging and shipping of the defective product to the service centre designated by Minerva meettechniek B.V, with shipping charges prepaid.

If no defect can be found the customer can be charged for costs of the investigation.

This warranty shall not apply to any defect, failure or damage caused by :

- a. improper use of the instrument.
- b. normal wear of the product.
- c. modification or repair carried out by or on behalf of the owner or by a third party
- d. modifications to the product that are not supplied or implemented by Minerva meettechniek B.V.

Minerva meettechniek B.V. and its distributors will not be liable for any indirect, special, incidental or consequential damages irrespective of whether Minerva meettechniek B.V. or the vendor has advance notice of the possibility of such damages.

The type number and serial number of the product, as listed on the instrument, should always be mentioned in any correspondence concerning the product.





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