

Clogging Indicators

VD*D*/*-L24*

VD*D*/*-L48*

Operating instructions

(Translation of original
instructions)



Content

1	<i>Safety information</i>	4
2	<i>Exclusion of liability</i>	4
3	<i>Warranty</i>	4
4	<i>Security</i>	4
4.1	Symbols and notices	4
4.2	Intended use / foreseeable misuse.....	5
4.3	Responsibility of the operator before start-up	5
4.4	Personnel selection and qualification; fundamental obligations	5
4.5	Organisational measures	5
5	<i>Transportation, Packaging, Storage</i>	6
5.1	Transportation.....	6
5.2	Packaging	6
5.3	Storage.....	6
6	<i>Waste disposal</i>	6
7	<i>Maintenance and servicing</i>	6
8	<i>Installation</i>	7
8.1	General installation notes	7
8.2	Additional installation instructions	7
9	<i>Functions</i>	7
9.1	Brief description.....	7
10	<i>Terminal connections</i>	8
11	<i>Technical Data</i>	8
12	<i>Model code</i>	9
13	<i>DIMENSIONS</i>	9
14	<i>Contact</i>	10

Preface

This manual provides you, as user of our product, with key information on the operation and maintenance of the equipment.

It will acquaint you with the product and assist you in obtaining maximum benefit in the applications for which it is designed.

Keep it in the vicinity of the product so it is always available.

Please note that the specifications given in this documentation regarding the instrument technology were correct at the time of publishing. Modifications to technical specifications, illustrations and dimensions are therefore possible.

Should you find any errors whilst using these instructions, or have any suggestions for improvements, please contact:

HYDAC FILTERTECHNIK GMBH
Technical documentation
Industriegebiet
D-66280 Sulzbach / Saar
-Germany-
Phone: +49(0)6897 / 509-01
Fax: +49(0)6897 / 509-300

We look forward to receiving your input.

“Putting experience into practice”

These operating instructions, including the illustrations contained therein, is subject to copyright protection. Use of this manual by third parties in contravention of copyright regulations is forbidden. Reproduction, translation as well as electronic and photographic archiving and modification require the written permission of the manufacturer. Offenders will be liable for damages.

1 Safety information

Before commissioning, check the device and all accessories supplied. Before commissioning, please read the operating instructions. Ensure that the instrument is suitable for your application.

If the instrument is not handled correctly, or if the operating instructions and specifications are not adhered to, damage to property and/or personal injury can result.

2 Exclusion of liability

These operating instructions were made to the best of our knowledge. Nevertheless and despite the greatest care, it cannot be excluded that mistakes could have crept in. Therefore please understand that in the absence of any provisions to the contrary hereinafter our warranty and liability – for any legal reasons whatsoever – are excluded in respect of the information in this instruction manual.

In particular, we shall not be liable for lost profit or other financial loss. This exclusion of liability does not apply in cases of intent or gross negligence. Moreover, it does not apply to defects which have been deceitfully concealed or whose absence has been guaranteed, nor in cases of culpable harm to life, physical injury and damage to health. If we negligently breach any material contractual obligation, our liability shall be limited to foreseeable damage. Claims due to the product liability shall remain unaffected.

In cases where the translation is used, the text of the original German Operating Instructions shall prevail.

3 Warranty

The General Terms and Conditions of FILTERTECHNIK GMBH always apply. These are available to the operator with the order confirmation or when the contract is concluded at the latest.

You will also find these at www.hydac.com -> General Terms and Conditions.

4 Security

4.1 Symbols and notices



WARNING !

The symbol means that death, serious injury or major damage to property could occur if the stated precautions are not met.



CAUTION !

The symbol means that minor injuries or damage to property can occur if the stated precautions are not met.



The symbol indicates important information or features and application suggestions for the product used.



The symbol means that appropriate ESD-protective measures must be considered according to DIN EN 100 015-1.

(Establish equipotential bonding between body and device-mass as well as the housing-mass via a high-impedance resistor (approx. 1 megaohm) e.g. with a commercial ESD wrist strap.)

4.2 Intended use / foreseeable misuse

Claims for defects or liability, regardless of the legal foundation, do not apply with incorrect or improper installation, commissioning, usage, handling, storage, maintenance, repair, use of unsuitable components or other circumstances, which the manufacturer is not responsible for.

The manufacturer assumes no responsibility for determining the interfaces for installation in a system or the installation, use or functionality of the product in this system.

4.3 Responsibility of the operator before start-up

In accordance with the EC Machinery Directive, the clogging indicator is considered to be a component for installation into a system/machine. Moreover, the conformity of the clogging indicator was investigated in respect of the EMC Directive.

It is therefore only permitted to start up the clogging indicator if it has been established that the system/machine into which the clogging indicator is to be fitted satisfies the provisions of the EC Machinery Directive, the EMC Directive, the harmonised standards, European standards or the corresponding national standards.

4.4 Personnel selection and qualification; fundamental obligations

- All work on the measuring system must be carried out by specialist personnel only.
- Qualified personnel includes persons, who, through their training, experience and instruction, as well as their knowledge of the relevant standards, provisions, accident prevention regulations and operating conditions, were authorized by the persons responsible for the system to carry out the required work and are able to recognise and prevent from potential hazards.
- The definition of “Qualified Personnel” also includes an understanding of the standards VDE 0105-100 and IEC 364 (source: e.g. Beuth Verlag GmbH, VDE-Verlag GmbH).
- Clear regulation of responsibilities for the assembly, installation, start-up and operation to be defined. It is obligatory to provide supervision for trainee personnel!

4.5 Organisational measures

- The operating instructions must always be kept accessible at the place of use of the clogging indicator.
- In addition to the operating instructions, generally applicable legal and other binding accident prevention and environmental protection regulations must be paid attention to and must be mediated.
- The respective applicable national, local and system-specific provisions and requirements must be paid attention to and communicated.
- It is mandatory for the owner to inform personnel of special operating features and requirements.

- The personnel instructed to work with the clogging indicator must have read and understood the operating instructions, especially **section 4 Security**, prior to commencing work.
- The type labels and any prohibition or information signs applied on the clogging indicator must always be maintained in a legible state.
- Repairs may only be undertaken by the manufacturer or a facility or person authorised by the manufacturer.

5 Transportation, Packaging, Storage

5.1 Transportation

The clogging indicator is supplied in a robust cardboard box.

When receiving and unpacking the unit, check it for any possible transport damage. Report any damage to the carrier immediately.

5.2 Packaging

Do not remove the packing until you are ready to install the unit.

Keep the packing of the device for eventual reuse in case of transport (changing application areas) or re-storage, it provides the best protection for the device.

5.3 Storage

Information on the permitted environmental conditions at the place of storage can be found in **section 11 Technical Data**.

6 Waste disposal

If the clogging indicator has to be disposed after expiry of its life cycle, the corresponding national regulations are applicable.

7 Maintenance and servicing

All clogging indicators of the series VD*D*/*-L24* and VD*D*/*-L48* are maintenance-free. However, if there is a cause for complaint, please contact HYDAC Systems & Services GmbH.

8 Installation

8.1 General installation notes

The clogging indicator can be installed directly on the filter via the standardised G1/2 HN 28-22.1 threaded connection by means of an adapter. In order to prevent mechanical damage when dealing with critical applications involving heavy vibrations or blows, for example, we recommend securing the unit with an elastomer clamp and decoupling the hydraulic ports via a Minimesse hose.

The recommended mounting position is vertical with the pressure port pointing downwards in hydraulic applications.

The tightening torque for the G1/2 HN 28-22.1 threaded connection is approx. 100 Nm for steel or cast iron (see also **section 11 Technical Data**).

When fitted into a filter or hydraulic block, earthing the filter or block via the hydraulic system is sufficient. When using hose mounting, the housing has to be earthed separately.

The electrical connection must be carried out by a qualified electrician according to the relevant regulations of the country concerned (VDE 0100 in Germany).

The clogging indicators of series VD*D*/*-L24* and VD*D*/*-L48* bear the  marking. A declaration of conformity is available on request. The relevant EMC standards EN 61000-6-2 and EN 61000-6-4 are met. However, the requirements of those standards will be met only if the clogging indicator's housing has been correctly earthed by a qualified electrician.

8.2 Additional installation instructions

Additional installation instructions which, from experience, reduce the effect of electromagnetic interference:

- Make line connections as short as possible.
- Use shielded cabling (e.g. LIYCY 4 x 0.5 mm²).
- The cable shielding must be fitted by qualified personnel, subject to the environmental conditions and with the aim of suppressing interference.
- Keep the unit well away from the electrical supply lines of power equipment, as well as from any electrical or electronic equipment causing interference.

9 Functions

Depending on the design, the device has the following functions:

- Visual on-site LED display
- Remote display via cabling

9.1 Brief description

The clogging indicator is a device for filter monitoring. The differential pressure at a filter element is measured to determine and display the time of element change.

When the filter element has been replaced by a new element, the clogging indicator returns to its original state. No reset is required.

10 Terminal connections

Connector M20x1.5

Contact box according to DIN EN 175301-803, 3+PE

Pin	Signal	Description
1	+U _B	Supply +
2	NC	N/C contact
3	NO	N/O contact
	PE	Earthing
5	0 V	Supply (circuit-board-mounted)

11 Technical Data

Input data

Switching pressures	Differential pressure 2 -10%; 5 -10%; 8 ±10% bar
Perm. operating pressure	420 bar
Mechanical connection	G ½ HN 28-22.1
Tightening torque	100 Nm (steel)
Parts in contact with fluid ¹⁾	Connection: stainless steel Piston: aluminium Compression spring: steel, bonded Setting screw: steel, phosphate-plated O-ring: NBR or FKM Profile seal ring: PTFE

Environmental conditions

Operating temperature range	-20 °C to +100 °C for –V version Otherwise -30 °C to +100 °C
Storage temperature range	-40 °C to +100 °C
CE marking	EN 61000-6-2 and EN 61000-6-4
Protection class according to DIN EN 60529	IP 65

Other data

Electrical connection	DIN EN 175301-803, 3+PE
Supply voltage	10 to 35 V AC/DC for series VD*D*/*-L24* 35 to 70 V AC/DC for series VD*D*/*-L48*
Min. switching current	20 mA
Max. switching capacity	60 W = 110 VA ~
Switching capacity	Ohmic 3 A at 24 V DC
Service life	Min. 1 million cycles (max. perm. operating pressure)
Weight	~ 220g
Max. cycles	10 million
Switching frequency	Max. 200/min
Switching current	Max/min

¹⁾ Fluid compatibility with HFC on request

12 Model code

VD 5 D. X / -V -L24

Type:

VD = measurement of pressure difference

Measuring ranges in bar

2; 5; 8

Model

D = electrical, visual

Modification code

X = the latest version is always supplied.

Supplementary details

V = FKM seal (no details NBR)

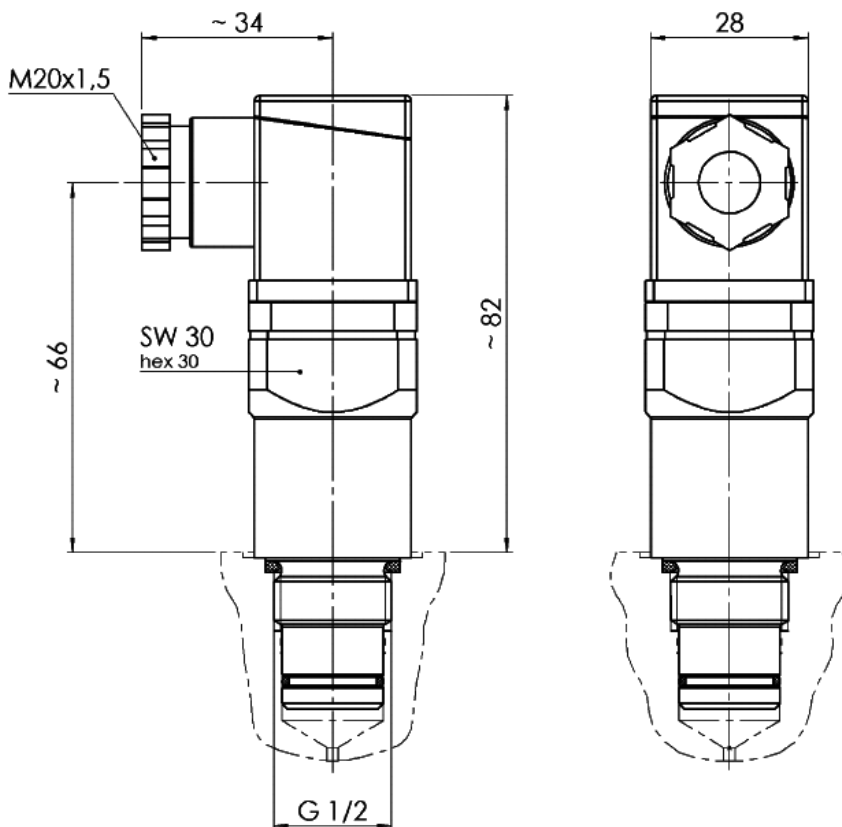
L24 = rated lamp voltage 24 V

L48 = rated lamp voltage 48 V

Note:

For devices with a different modification number, please read the name plate or the technical amendment details supplied with the device.

13 DIMENSIONS



14 Contact

HYDAC FILTERTECHNIK GMBH

Industriegebiet
D-66280 Sulzbach/Saar
Germany

Web: www.hydac.com
E-mail: Filter@hydac.com
Phone: +49 (0)6897 509-01

HYDAC Service

For enquiries about repairs or alterations, please contact HYDAC Service.

HYDAC SYSTEMS & SERVICES GMBH

Friedrichsthaler Str. 15,
66540 Neunkirchen
Germany

Tel.: +49 (0)6897 509-01

Note

The information in this operating manual relates to the operating conditions and applications described. For applications and/or operating conditions not described please contact the relevant technical department.

If you have any questions or suggestions or encounter any problems of a technical nature, please contact your HYDAC representative.

This image shows a full page of blank graph paper. The grid consists of small, equal-sized squares formed by thin black lines. There are 20 columns and 20 rows of squares, creating a total of 400 square units. The grid covers the entire area of the page, leaving no margins or additional markings.