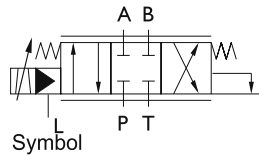
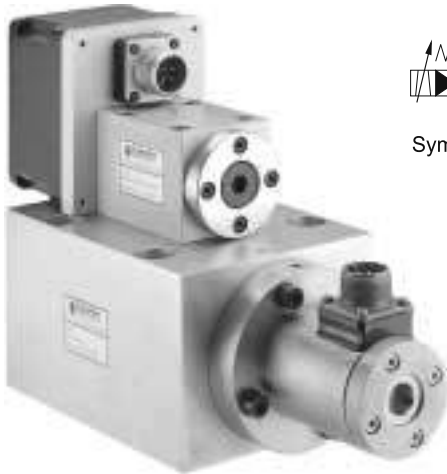


# HVM107 Page 1/4

## Elektrohydraulic Servovalves Typ HVM 107



### Special features:

- high reliability
- easy service
- electric feedback of the main spool
- high dynamic response
- internal or external pilot supply
- variable metering orifices only
- $Q_{max} = 250\text{l/min}$  at  $\Delta p = 70\text{bar}$
- $p_N = 315\text{ bar}$

### General description:

|                   |   |  |
|-------------------|---|--|
| Type              | : | two- or three-stage servovalve<br>slighting spool only<br>without fixed jet pipes or nozzles,<br>servovalves model<br>HVM 025 or HVM 055 |
| Control           | : |  |
| main spool        | : | with inductive LVDT,   |
| Style of mounting | : | subplate   |
| Mounting position | : | unrestricted   |
| Weight            | : | 14,5kg   |

### Technical Data

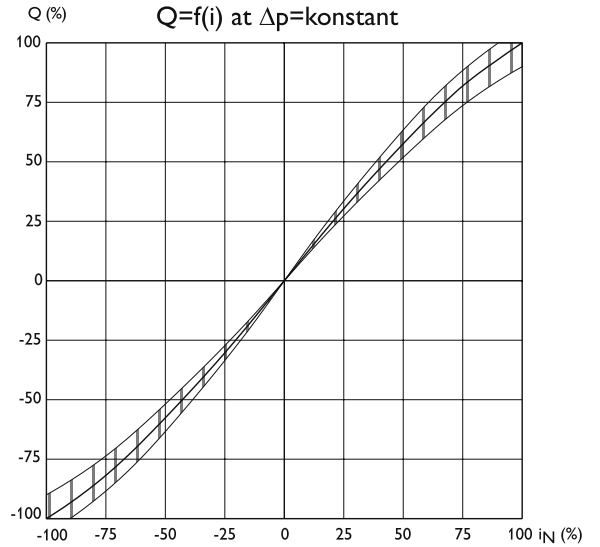
#### 1. Hydraulic Data (definition according to DIN 24311)

|       |   |                     |   |   |                               |                         |
|-------|---|---------------------|---|---|-------------------------------|-------------------------|
| .1    | rated pressure                                      | $p_N$               | = | 315   | [bar]                         |                         |
| .2    | operating pressure main stage                       | $p_{b \text{ min}}$ | = | 0   | [bar]                         | (external pilot supply) |
|       |   | $p_{b \text{ max}}$ | = | 420   | [bar]                         |                         |
|       | operating pressure pilot                            | $p_{b \text{ min}}$ | = | 10  | [bar]                         |                         |
|       |   | $p_{b \text{ max}}$ | = | 150   | [bar]                         |                         |
| .2.1  | backstroke pressure                                 | $p_r \text{ max}$   | = | 315   | [bar]                         | (external pilot supply) |
|       |   | $p_r \text{ max}$   | = | 50  | [bar]                         | (internal pilot supply) |
| .3    | max. pressure (static test pressure)                | $p_{max}$           | = | 500   | [bar]                         |                         |
| .4    | rated flow at $\Delta p = 70\text{ bar}$            | $Q_N$               | = | 150/200/250   | [l/min]                       |                         |
| .5    | quiescent flow, max. at $p_n$                       | $Q_{01+02}$         | < | 3 % $Q_N$   |                               |                         |
| .6    | internal max. leakage<br>bei $p_n = 210\text{ bar}$ | $Q_L$               | < | 200   | [cm <sup>3</sup> /min]        |                         |
| .7    | hysteresis  | H                   | < | 0,5 % $i_N$   | (with Dither)                 |                         |
| .8    | threshold sensitivity                               | E                   | < | 0,2 % $i_N$   | (with Dither)                 |                         |
| .9    | threshold span                                      | S                   | < | 0,4% $i_N$  | (with Dither)                 |                         |
| .10   | linearity deviation                                 |                     | < | 8% $i_N$  |                               |                         |
| .11   | flow symmetry - $Q_N$ at + $Q_N$                    |                     | < | 7% $i_N$  |                               |                         |
| .12   | pressure gain (see diagram)                         | $V_N$               | > | 1 $P_b$ / 1% $i_N$  |                               |                         |
| .13   | overlap, standard                                   | h                   | = | -1...+3% $i_N$  |                               |                         |
| .14   | operating temperature range                         | $\delta_M$          | = | 253...353   | [K]                           |                         |
| .14.1 | temperature drift                                   |                     | ≤ | 3% $i_N$ / 50K  |                               |                         |
| .15   | viscosity range of fluid                            | $\gamma_{min}$      | = | 10...1000 mm <sup>2</sup> /s approximate value<br>normal: ISO VG 10...ISO VG 46 |                               |                         |
| .16   | filtration of fluid                                 |                     | < | class 4-5<br>class 15/14/11   | to NAS 1638 or<br>to ISO 4406 |                         |
| .17   | fluid standard                                      |                     | = | HLP-hydraulic oils as per DIN 51524 Teil 2<br>(Special equipments possible)     |                               |                         |

# HVM107 Page 2/4

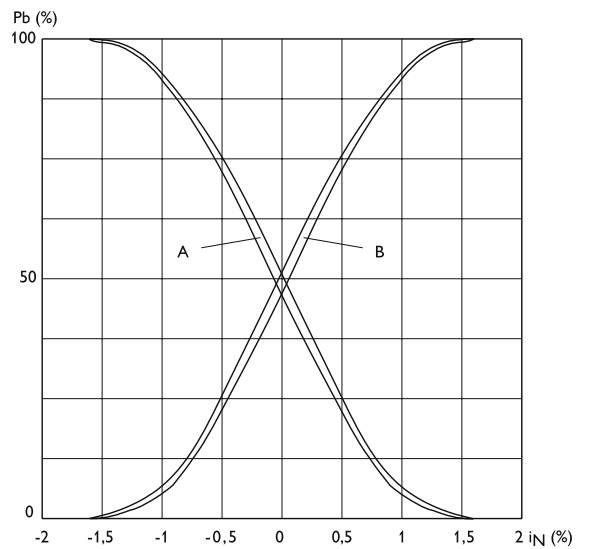
## 2. Diagrams HVM 107

Flow rate-signal function

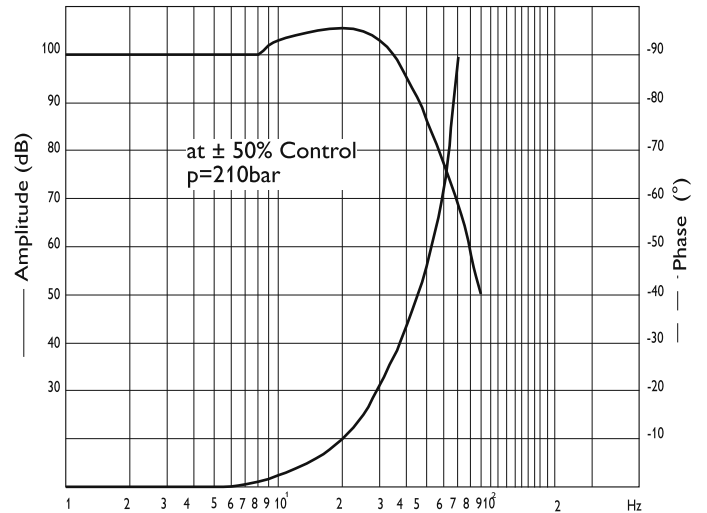
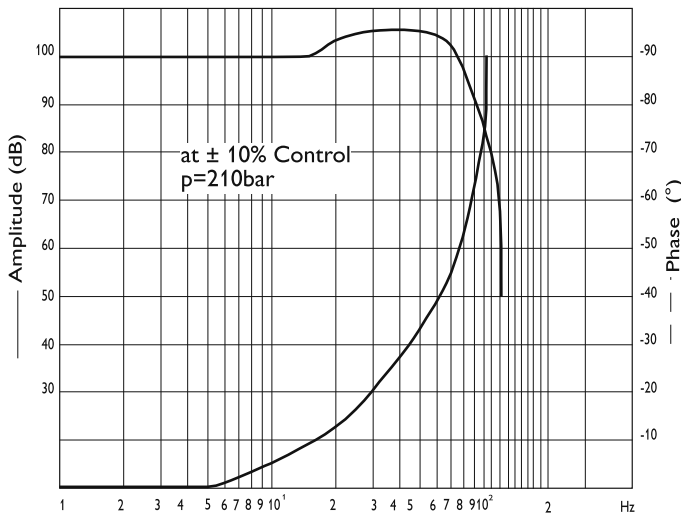


Pressure gain

$$V_p = \tan \alpha = \frac{\Delta p}{\Delta I}$$



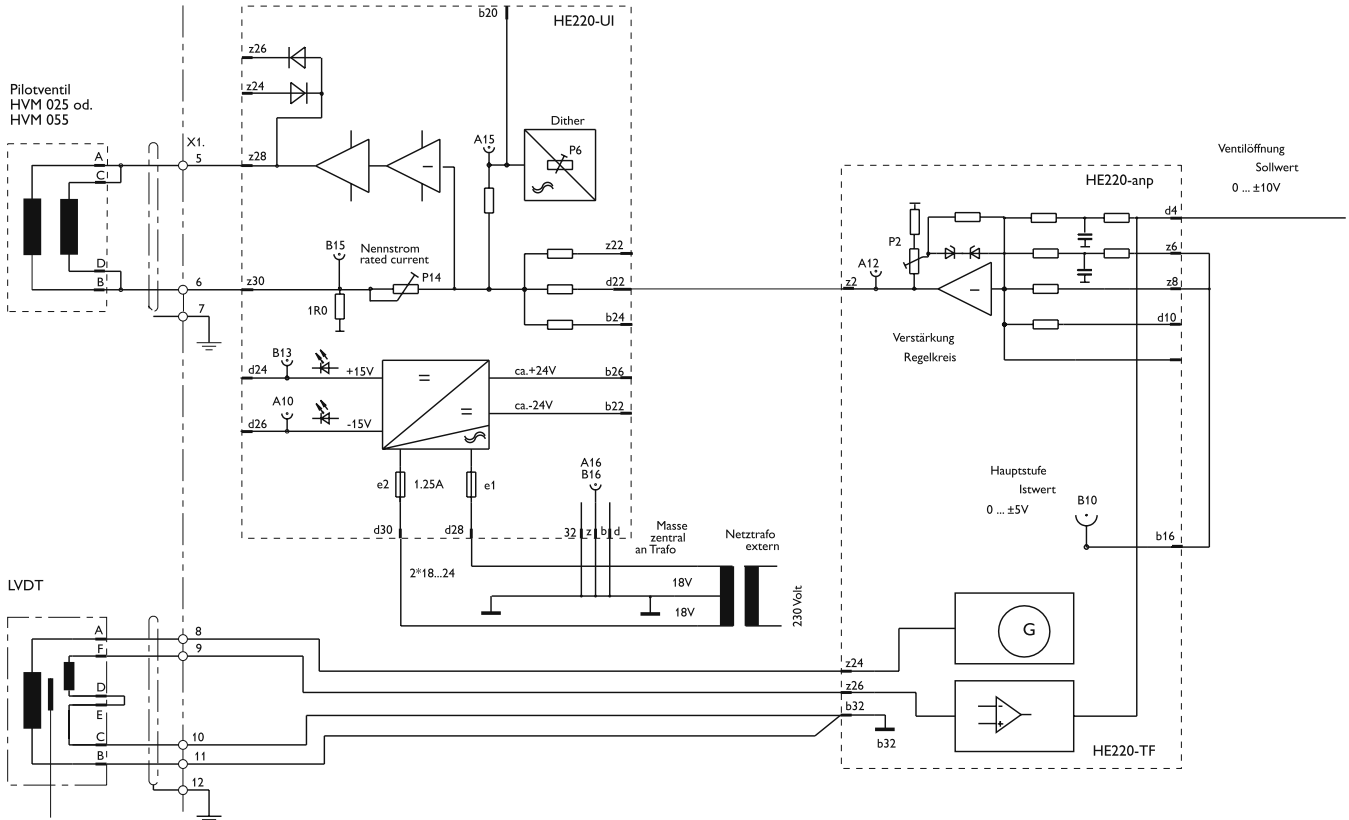
Frequency Response with Servo Valve HVM 025-003-1211-0G



# HVM 107 Page 3/4

## 3. Electrical data

### 3.1.1 Basic block diagram with PID-Amplifier HE 261

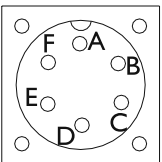


### 3.1.2 Technical data of the LVDT

- impedance at the primary coil = 650  $\Omega$ /coil at 2,5kHz
- impedance at the secondary coil = 920  $\Omega$  at 2,5kHz
- input voltage = 6 V max.
- carrier frequency = 1..10 kHz
- sensitivity at 2,5 kHz = 98 mV/Vmm

for the electrical data of the amplifier and the servovalve see table for amplifier HE 261 and servovalve HVM 025 or HVM 055. Flow-direction of the main spool from P to B or from A to R, if there AC+ and BD 0 voltage at the servovalve.

connector 6 pol.  
DIN 43563



View on the valve  
pins visible

#### Cable recommendation:

- twisted pair cable up to cable length 25 mtr.:  
Type LiYCY 4x0,25mm<sup>2</sup>
- up to cable length 200 mtr.:  
Type LiYCY 4x0,75mm<sup>2</sup>

# HVM 107 Page 4/4

## Order Information

# HVM 107 - 120 - XXXX - X - X - X - X - XX

| <p><b>Model</b><br/>107</p> <p><b>Rated flow</b><br/>QN at <math>\Delta p = 70</math> bar<br/>150 l/min<br/>200 l/min<br/>250 l/min</p> <p><b>Seal material</b><br/>1 Perbunan<br/>2 Viton<br/>3 Butyl<br/>4 Vulkollan<br/>5 Ethylen-Propylen</p> <p><b>Resistance / coil [R20](Servo valve)</b><br/>1 11,5 <math>\Omega</math><br/>2 60 <math>\Omega</math></p> <p><b>Overlap</b><br/>0 Zero overlap<br/>1 Positiv overlap<br/>2 Negativ overlap</p> <p><b>Amount of overlap</b><br/>positive oder negative<br/>1..9</p> | <p><b>Design letter</b><br/>assigned by manufacturer</p> <p><b>stroke of main spool (mm)</b><br/>1 <math>\pm 1</math><br/>2 <math>\pm 1,8</math></p> <p><b>Pilotvalve</b><br/>1 HVM 025-001<br/>2 HVM 025-003<br/>3 HVM 025-005<br/>4 HVM 055-010</p> <p><b>Electric</b><br/>1 without Electronic<br/>2 with integrated Elektronik<br/>(in preparation)</p> <p><b>pilot supply</b></p> <table border="1"> <thead> <tr> <th></th> <th>P</th> <th>T</th> <th>L</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>internal</td> <td>internal</td> <td>Block</td> </tr> <tr> <td>2</td> <td>external</td> <td>internal</td> <td>Block</td> </tr> <tr> <td>3</td> <td>external</td> <td>external</td> <td>Block</td> </tr> <tr> <td>4</td> <td>internal</td> <td>external</td> <td>Block</td> </tr> </tbody> </table> |          | P     | T | L | 1 | internal | internal | Block | 2 | external | internal | Block | 3 | external | external | Block | 4 | internal | external | Block |
|---|--|----------|-------|---|---|---|----------|----------|-------|---|----------|----------|-------|---|----------|----------|-------|---|----------|----------|-------|
|   | P  | T        | L     |   |   |   |          |          |       |   |          |          |       |   |          |          |       |   |          |          |       |
| 1   | internal   | internal | Block |   |   |   |          |          |       |   |          |          |       |   |          |          |       |   |          |          |       |
| 2   | external   | internal | Block |   |   |   |          |          |       |   |          |          |       |   |          |          |       |   |          |          |       |
| 3   | external   | external | Block |   |   |   |          |          |       |   |          |          |       |   |          |          |       |   |          |          |       |
| 4   | internal   | external | Block |   |   |   |          |          |       |   |          |          |       |   |          |          |       |   |          |          |       |

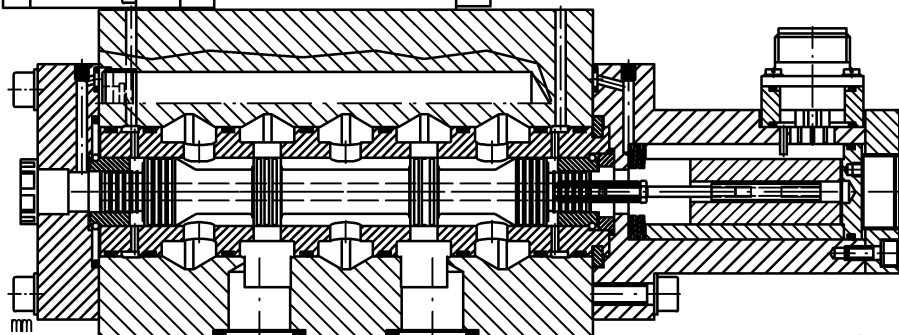
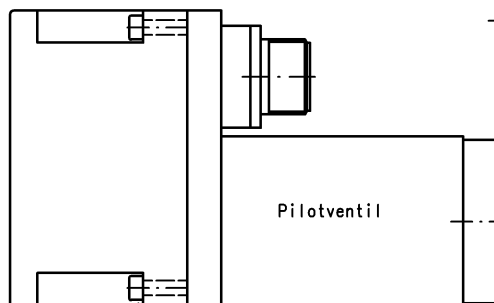
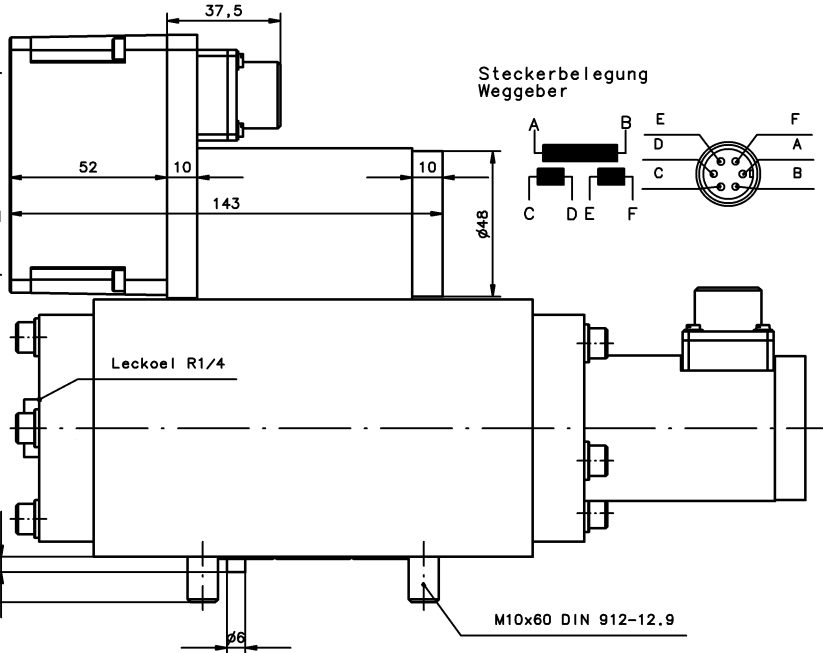
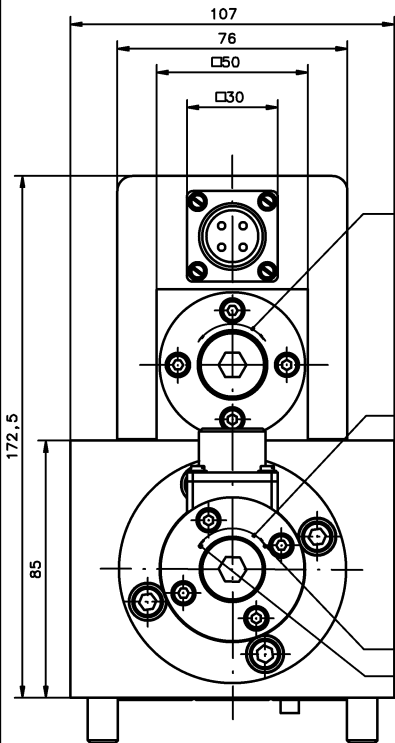
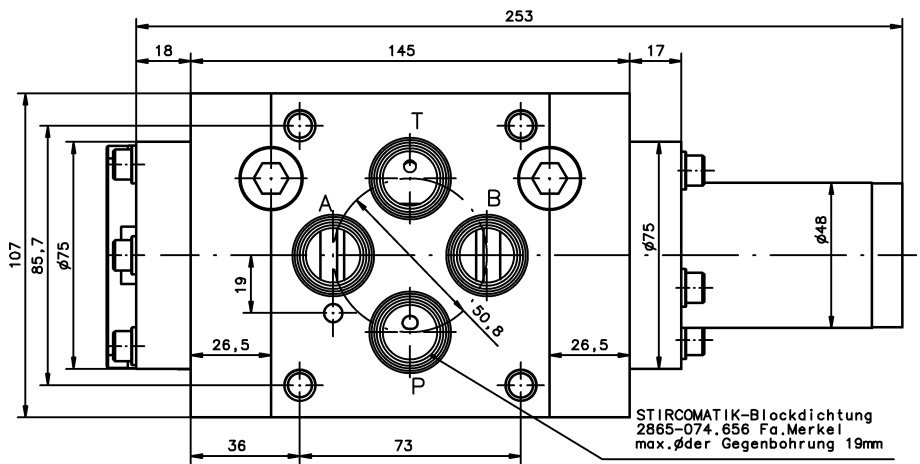
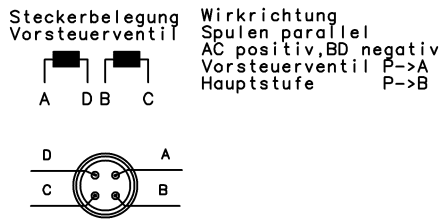
## 5. Accessories:

| Description     |                       |                     | Order No. |
|-----------------|-----------------------|---------------------|-----------|
| Connector       | 4pol. for Servo valve | CA06COM 14S2S       | 13018     |
| Connector       | 6pol. for LVDTr       | CA06COM 14S6S       | 13446     |
| Sub plate       | HVM 106               | HZ 033              | 14264     |
| scavenger plate | HVM 106               | HZ 035              | 14258     |
| Amplifier       |                       | HE 261-0XX-12801-3A | 10300     |

## Important remarks:

Valve mounting surface must be flat within 0,02mm and smoothness not to exceed 6 $\mu$ m. Easy hydraulic Zero adjustment by means of Allen key S8 DIN 911. Max. permissible drain line pressure 10 bar. Valves with modified characteristics available. Modifications, which serve technical progress, remain reserving.

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Angaben ohne Einheiten in mm  
All dimensions without unit in mm

Nur zur Information / Only for information

|                                  |              |  |
|----------------------------------|--------------|--|
| Änderungsindex / Amendment index |              |  |
| -                                |              |  |
| Datum<br>Date                    | Name<br>Name |  |
| 29.10.01                         | Dindorf      |  |
| dwg.                             |              |  |

|                 |                             |               |
|-----------------|-----------------------------|---------------|
| Ventil<br>Valve | HVM 107-XXX-XXXX-X-X-X-X-XX | Id.- Nr.<br>- |
|-----------------|-----------------------------|---------------|

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Germany

