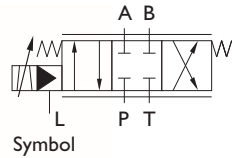
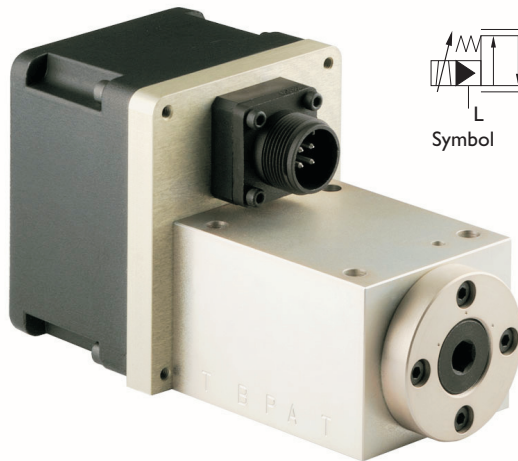


# HVM 057 Page 1/4

## Elektrohydraulic Servovalves Typ HVM 057



### Special features:

- high reliability
- easy service
- robust construction
- high dynamic response
- relatively insensitive to contamination
- variable metering orifices only
- $Q_{max} = 50\text{l/min}$  at  $\Delta p = 70\text{bar}$
- $p_{max} = 315\text{ bar}$

### General description:

|                   |   |  |
|-------------------|---|--|
| Type              | : | electrical input stage, torque motor, sliding spool system |
| Control           | : | torque motor actuated pilot spool                          |
| main spool        | : | located in 4-way sliding and correlated to the same        |
| Style of mounting | : | subplate / Cetop 05  |
| Mounting position | : | unrestricted   |
| Weight            | : | 1,75kg   |

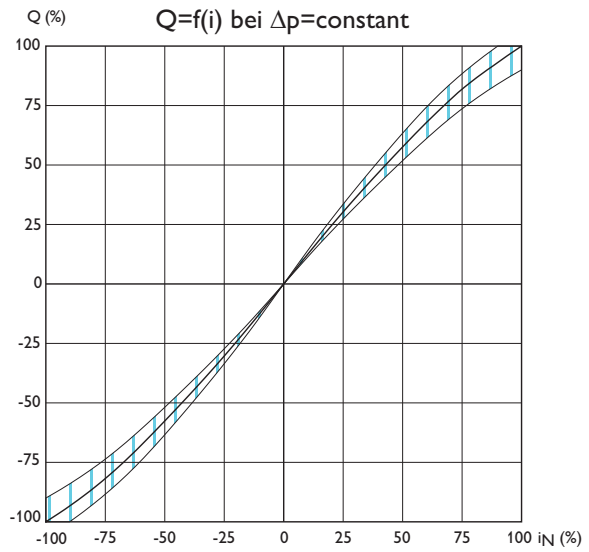
### Technical Data

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

|       |   |                     |   |   |                                   |   |
|-------|---|---------------------|---|---|-----------------------------------|---|
| .1    | rated pressure                                  | $p_N$               | = | 210   | [bar]                             |   |
| .2    | operating pressure                              | $p_{b \text{ min}}$ | = | 10  | [bar]                             |   |
|       |   | $p_{b \text{ max}}$ | = | 315   | [bar]                             |   |
| .2.1  | return line pressure*                           | $p_{r \text{ max}}$ | = | 35 % $p_b$  |                                   | *in case of internal connection from L to T max.static pressure 10 bar continuously |
| .2.2  | in case of separate leakage line                | $p_{L \text{ max}}$ | = | 10  | [bar]                             |   |
| .3    | max. pressure (static test pressure)            | $p_{max}$           | = | 450   | [bar]                             |   |
| .4    | rated flow at $\Delta p = 70\text{ bar}$        | $Q_N$               | = | 10/20/30/40/50  | [l/min]                           |   |
| .5    | quiescent flow, max. at $p_N$                   | $Q_{01+02}$         | < | 4% $Q_N$  |                                   |   |
| .6    | internal max. leakage at $p_N = 210\text{ bar}$ | $Q_L$               | < | 50  | [cm <sup>3</sup> /min]            |   |
| .7    | hysteresis                                      | H                   | < | 4,5% $i_N$<br>2% $i_N$  | (without Dither)<br>(with Dither) |   |
| .8    | threshold sensitivity                           | E                   | < | 0,5% $i_N$<br>0,1% $i_N$  | (without Dither)<br>(with Dither) |   |
| .9    | threshold span                                  | S                   | < | 2% $i_N$<br>1% $i_N$  | (without Dither)<br>(with Dither) |   |
| .10   | linearity deviation                             |                     | < | 10% $i_N$   |                                   |   |
| .11   | flow symmetry - $Q_N$ zu + $Q_N$                |                     | < | 10% $i_N$   |                                   |   |
| .12   | pressure gain (see diagram)                     | $V_P$               | > | 0,4 $P_b / 1\% i_N$   |                                   |   |
| .13   | overlap, standard                               | h                   | = | +1...+3% $i_N$  |                                   |   |
| .14   | operating temperature range                     | $\delta M$          | = | 253...353   | [K]                               |   |
| .14.1 | temperature drift                               |                     | ≤ | 2% $i_N / 50K$  |                                   |   |
| .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)     |                                   |   |

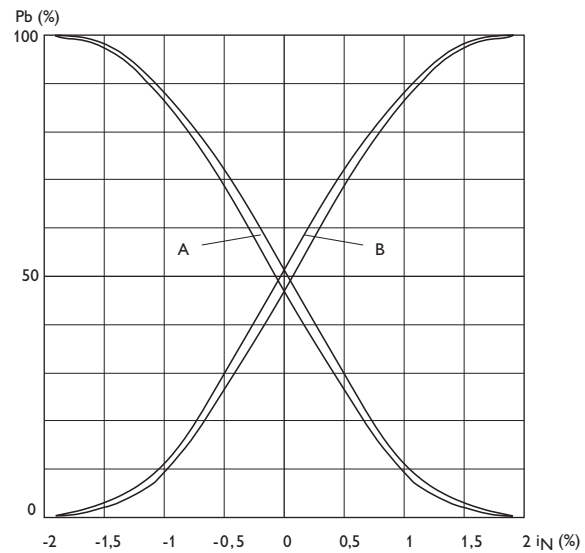
## 2. Diagrams HVM 057

Flow rate-signal function



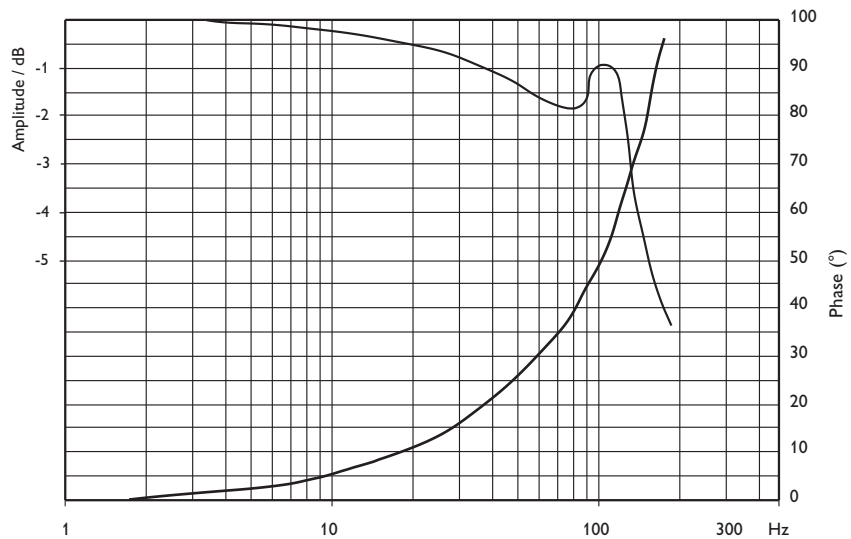
Pressure gain

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



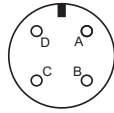
Frequency Response

$P_V: 210 \text{ bar}$   
 —  $\pm 30\%$

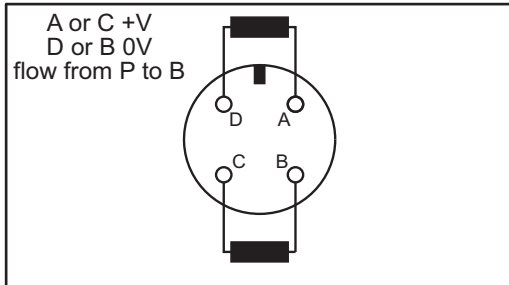


### 3. Electrical Data

#### 3.1 Electrical Data without Electronic

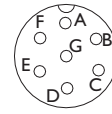


connector 4 pol.  
DIN 43563

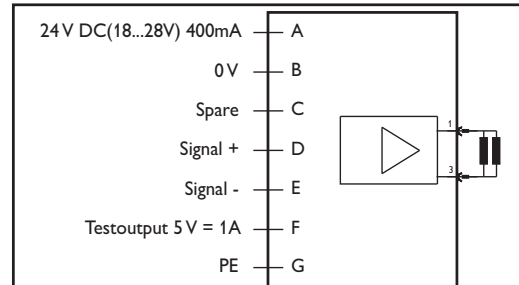


| coil type |                 | inductance | rated current | resistance | power  |
|-----------|-----------------|------------|---------------|------------|--------|
| 1         | 1 coil          | 86 mH      | ± 325 mA      | 11,5 Ω     | 1,35 W |
|           | 2 coil parallel | 31,2 mH    | ± 650 mA      | 6 Ω        | 2,7 W  |
| 2         | 1 coil          | 320 mH     | ± 150 mA      | 60 Ω       | 1,35 W |
|           | 2 coil parallel | 157 mH     | ± 300 mA      | 30 Ω       | 2,7 W  |

#### 3.2 Electrical Data with Electronic



connector 7 pol.  
DIN 43563



| Input      | E1    | E2    | E3    | E4     | E5     | Flow |
|------------|-------|-------|-------|--------|--------|------|
| Signal D>E | + 10V | 4 mA  | 20 mA | +10 mA | +20 mA | P>A  |
|            | 0V    | 12 mA | 12 mA | 0 mA   | 0 mA   | 0    |
|            | - 10V | 20 mA | 4 mA  | -10 mA | -20 mA | P>B  |

Order Information

## HVM 057 - 040 - 1200 - XX - E1

|   |  |  |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|--|--|
| <p><b>Model</b></p> <p>057</p>  |  |  |  |  |  |  |  |  |  |
| <p><b>Rated flow</b></p> <p>QN at <math>\Delta p = 70</math> bar</p> <p>010 l/min</p> <p>020 l/min</p> <p>030 l/min</p> <p>040 l/min</p> <p>050 l/min</p>   |  |  |  |  |  |  |  |  |  |
| <p><b>Seal material</b></p> <p>1 Perbunan</p> <p>2 Viton</p> <p>3 Butyl</p> <p>4 Vulkollan</p> <p>5 Ethylen-Propylen</p>  |  |  |  |  |  |  |  |  |  |
| <p><b>Resistance / coil [R20]</b></p> <p>1 11,5 <math>\Omega</math></p> <p>2 60 <math>\Omega</math></p>   |  |  |  |  |  |  |  |  |  |
| <p><b>Overlap</b></p> <p>0 Zero overlap</p> <p>1 Positiv overlap</p> <p>2 Negativ overlap</p>   |  |  |  |  |  |  |  |  |  |
| <p><b>Amount of overlap</b></p> <p>positiv or negative</p> <p>1..9</p>  |  |  |  |  |  |  |  |  |  |
| <p><b>Design letter</b></p> <p>assigned by manufacturer</p>   |  |  |  |  |  |  |  |  |  |
| <p><b>Elektronic</b></p> <p>E1 Voltage input <math>\pm 10V</math></p> <p>E2 Current input 4...20mA P &gt; A</p> <p>E3 Current input 4...20mA P &gt; B</p> <p>E4 Current input <math>\pm 10mA</math></p> <p>E5 Current input <math>\pm 20mA</math></p> |  |  |  |  |  |  |  |  |  |

5. Accessories:

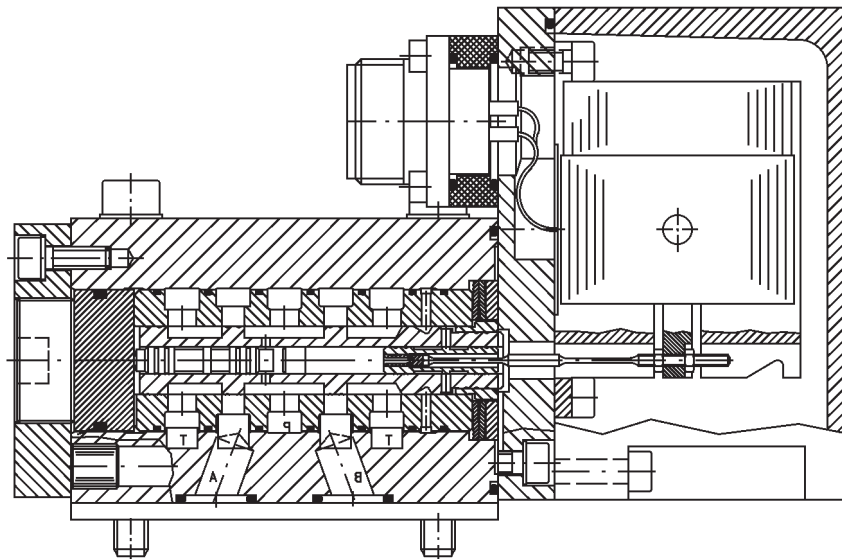
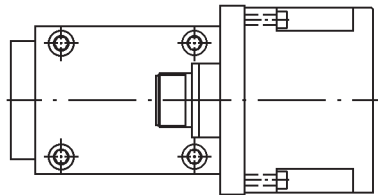
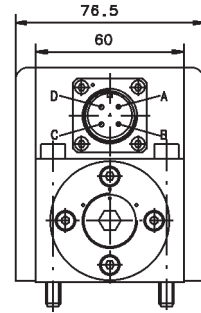
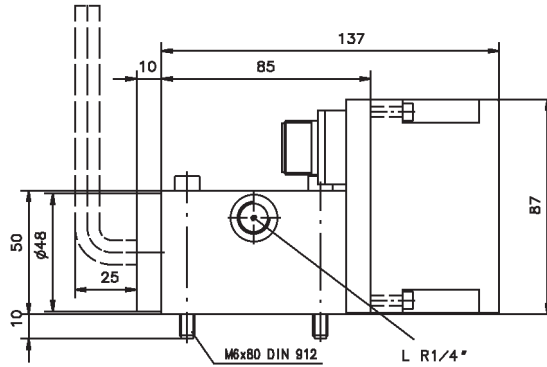
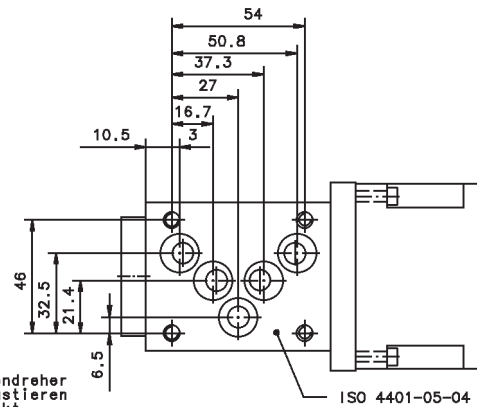
| Description     |       |                      | Order No. |
|-----------------|-------|----------------------|-----------|
| Connector       | 4pol. | KE-CA 06COM E 14 S2S | 13018     |
| Sub plate       | NG 10 | HZ 036               | 39671     |
| scavenger plate | NG 10 | HZ 061               | 39671     |
| Box-Amplifier   |       | BOE XXX-025-0-5-0A   | 46965     |

**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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Sechskantschraubendreher  
DIN 911 s8 zum Justieren  
des hydr. Nullpunkt  
Justagebereich  $\pm 45^\circ$



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 |         |
| dwg.                             | 04.09.01     | Dindorf |

Ventil  
Valve  
**HVM 057-XXX-XXXX-XX**

Id.- Nr.  
-

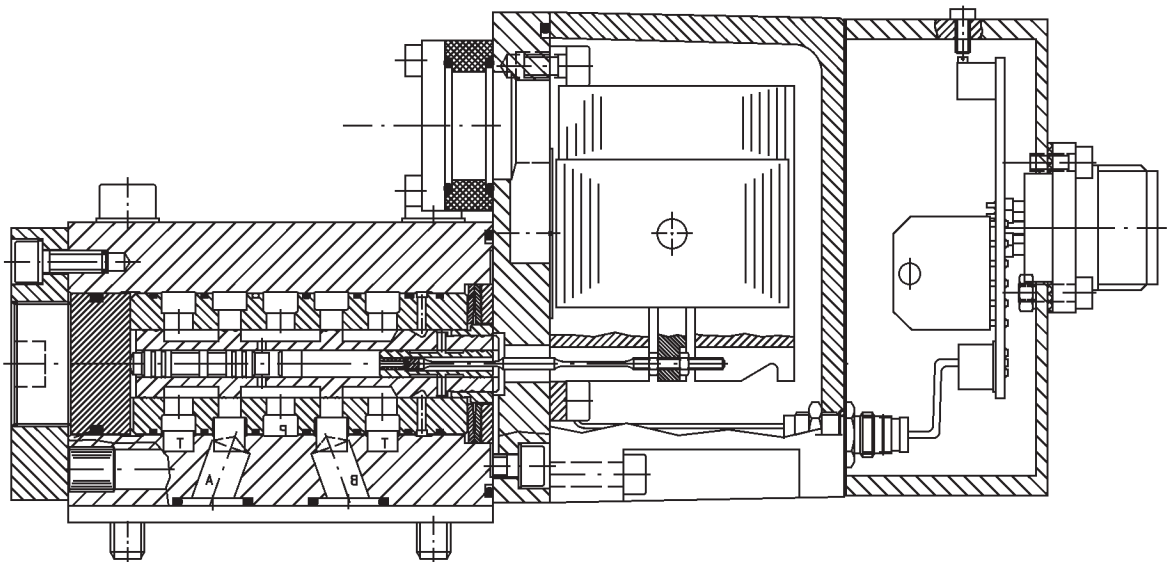
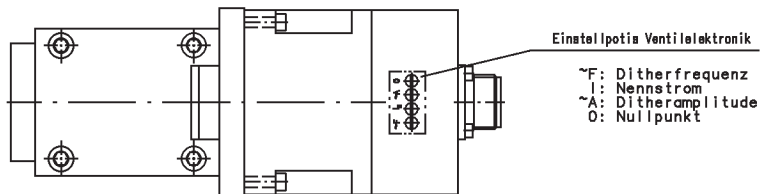
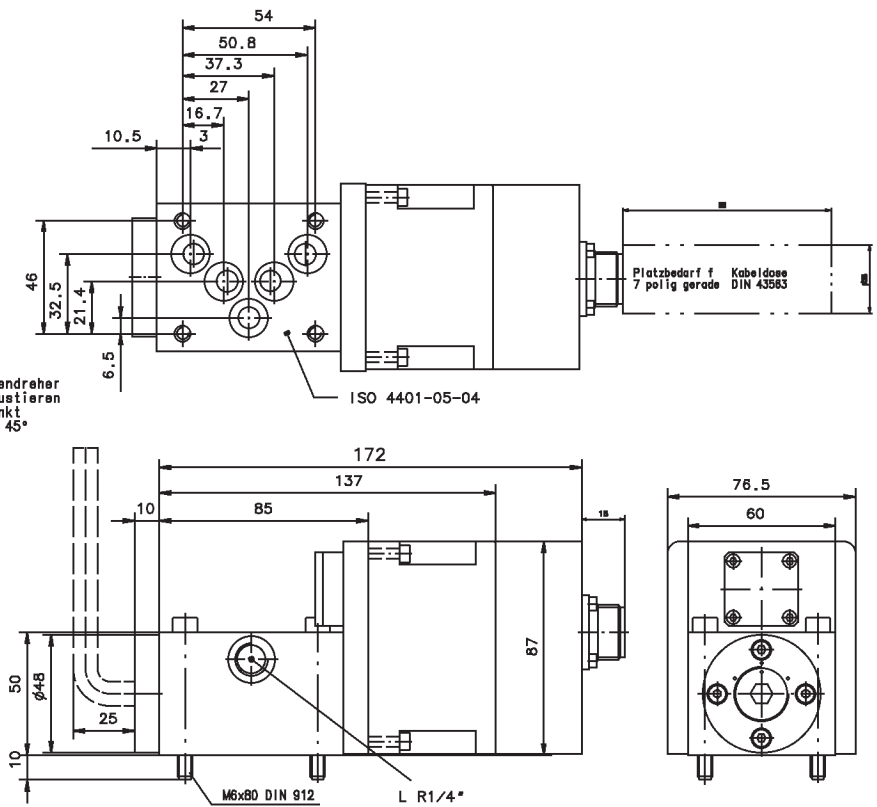
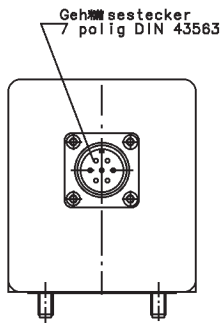
**Jos. Schneider Optische Werke GmbH**  
Ringstr. 132 55543 Bad Kreuznach  
Germany



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|   |                 |
|---|-----------------|
| A | 24 VDC ; 400 mA |
| B | 0 V             |
| C | Signal 0        |
| D | ± 10 V          |
| E | 0 V             |
| F | Feedback        |
| G | PE              |

Sechskantschraubendreher  
DIN 911 s8 zum Justieren  
des hydr. Nullpunkt  
Justagebereich ± 45°



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 |         |
| dwg.                             | 04.09.01     | Dindorf |

Ventil Valve  
**HVM 057-XXX-XXXX-XX-EX**

Id.- Nr.  
-

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Ringstr. 132 55543 Bad Kreuznach  
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