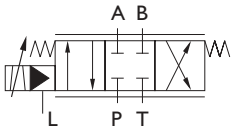
Schneider KREUZNACH

Elektrohydraulic Servovalves Typ HVM 090



Symbol

Special features:
- high reliability
- easy service
- robust construction
- high dynamic response
- relatively insensitive to contamination
- variable metering orifices only
- Qmax = 70l/min at Δp =70bar
- $p_{max.}$ = 315 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	:	2,8kg

Technical Data

1. Hydraulic Data (definition according to DIN 24311)

.1	rated pressure	p_N	=	210	[bar]	
.2	operating pressure	$p_{b\ min}$	=	10	[bar]	*in case of internal connection
		$p_{b\ max}$	=	315	[bar]	from L to T max.static pressure
.2.1	return line pressure	$p_{r\ max}$	=	35 % p_b *		10 bar continuously
.2.2	in case of separate leakage line	$p_{L\ max}$	=	10	[bar]	
.3	max. pressure (static test pressure)	p_{max}	=	450	[bar]	
.4	rated flow at Δp = 70 bar	Q_N	=	10/20/40/60/70	[l/min]	
.5	quiescent flow, max. at pn	Q_{02}	<	2% Q_N		
.6	internal max. leakage at p_n = 210 bar	Q_L	<	50	[cm^3/min]	
.7	hysteresis	H	<	5% i_N 3% i_N	(without Dither) (with Dither)	
.8	threshold sensitivity	E	<	0,5% i_N 0,2% i_N	(without Dither) (with Dither)	
.9	threshold span	S	< <<	2% i_N 1% i_N	(without Dither) (with Dither)	
.10	linearity deviation		<	10% i_N		
.11	flow symmetry -Q_N zu +Q_N		<	-10..+20% i_N		
.12	pressure gain (see diagram)	V_N	>	0,3 P_b / 1% i_N		
.13	overlap, standard	h	=	+3...+7% i_N		
.14	operating temperature range	δ_M	=	253...353	[K]	
.14.1	temperature drift		≤	2% i_N / 50K		
.15	viscosity range of fluid	γ_{min}	=	10...1000 mm^2/s approximate value normal: ISO VG 10...ISO VG 46		
.16	filtration of fluid		<	class 4-5 class 15/14/11	to NAS 1638 or to ISO 4406	
.17	fluid standard		=	HLP-hydraulic oils as per DIN 51524 Teil 2 (Special equipments possible)		

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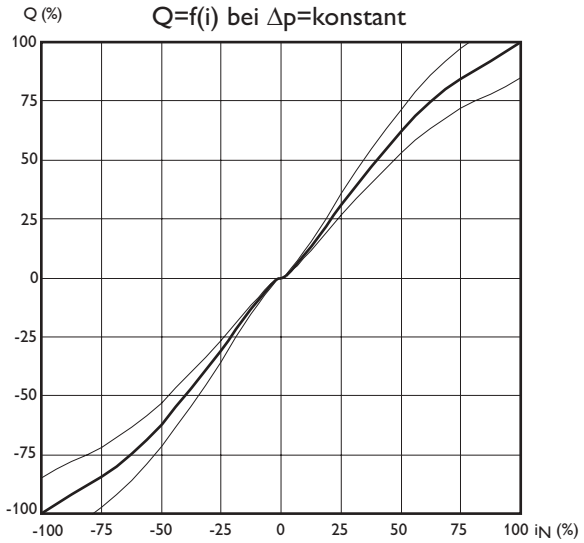
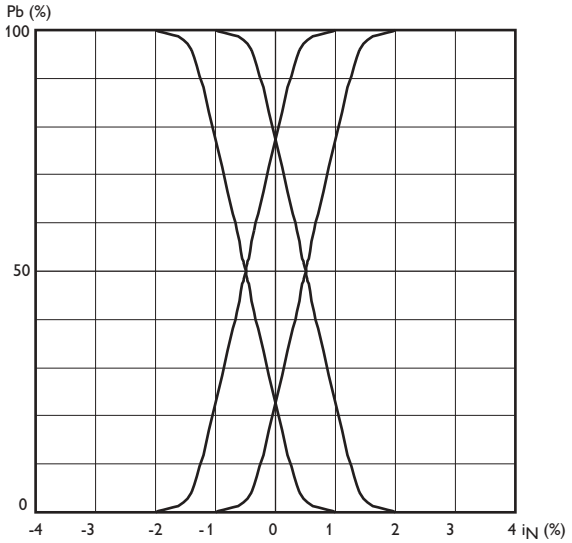
2. Diagrams HVM 090

Flow rate-signal function

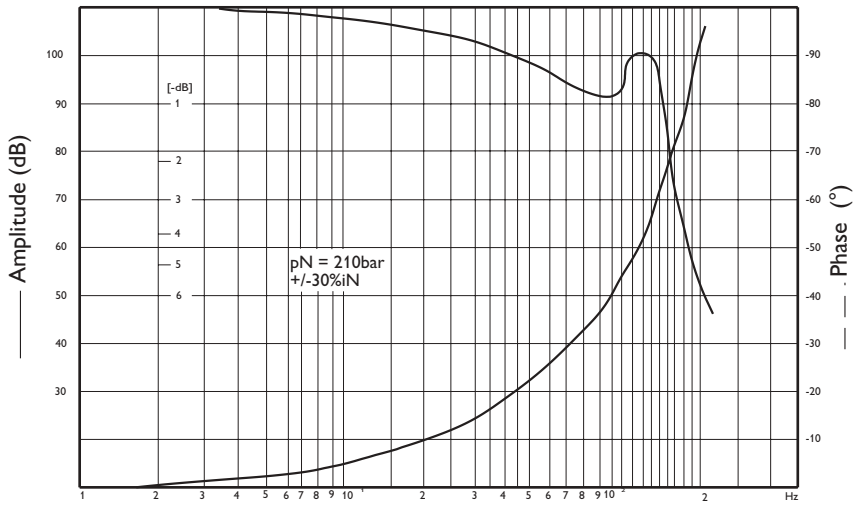


Pressure gain

$$V_p = \tan\alpha = \frac{\Delta_p}{\Delta_I}$$



Frequency Response



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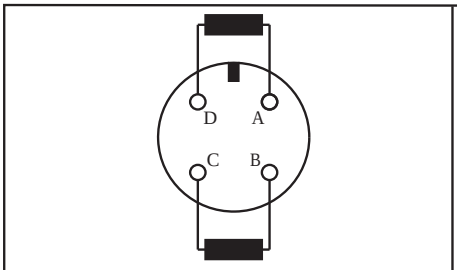
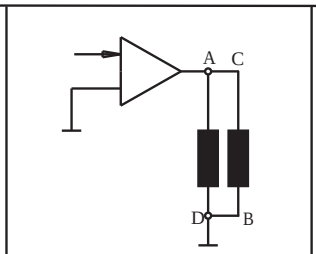
3.Electrical Data

3.1 Electrical Data without Electronic

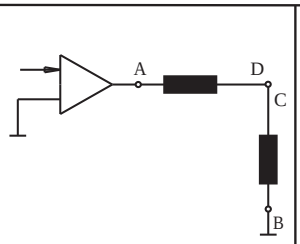


A or C +V
D or B 0V
flow from P to B

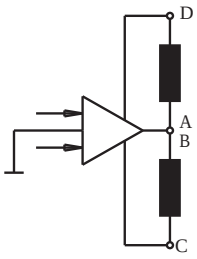
technical Data
per coil,
2 coils operated



Standard version
coils parallel
A+C: +V, D+B: 0V
flow from P to B



Special equipment
Coils serially
A: +V, B: 0V
flow from P to B



Special equipment
A,B to C >
A,B to D:
flow from P to A

coil type	inductance / coil	rated current	resistance	power	rated current	resistance	power	rated current	resistance	power	rated current	resistance	power
1	86 mH	± 325 mA	11,5Ω	1,35 W	± 650 mA	6 Ω	2,7 W	± 325 mA	23 Ω	2,7 W	650 mA	11,5Ω	5,4 W
2	320 mH	± 150 mA	60 Ω	1,35 W	± 300 mA	30 Ω	2,7 W	± 150 mA	120 Ω	2,7 W	300 mA	60 Ω	5,4 W

.2.1 Electrical Data with Electronic

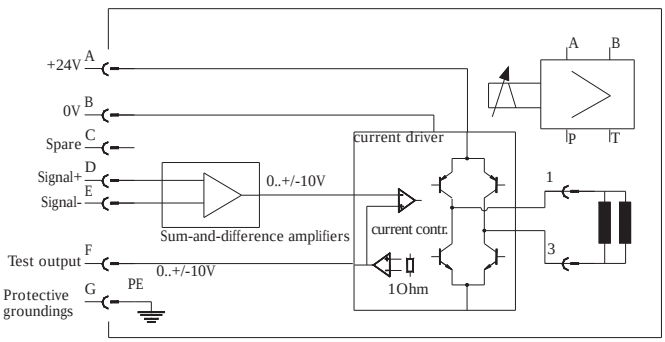
Power supply:	24V DC (18V ... 28V)
Current:	350mA max.
Input signal:	-10V ... 0,0 ... +10V
Input resistance:	100 kohm
Signal direction:	from Pin D to Pin E
Internal coil current:	300mA ... 0mA ... –300mA
Test signal output:	3Volt ... 0V ... –3 Volt
Valve oil flow:	100% ... 0% ... –100%
Flow direction:	+10V = P > A and B > T
	0,0V = Valve closed
	-10V = P > B and A > T

Reminds:
To avoid potential drifting problems, connect Pin E with low resistance (< 10 ohm) to Pin B.
The electrical-hydraulic working direction can be changed to reversed connection on Pin D and Pin E

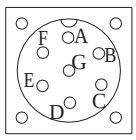
Cable recommendation:
twisted pair cable up to cable length 25 mtr.:
Type LiYCY 3x2x0,5 mm^2 or LiYCY4x2X0,5mm^2, if you will use the test signal out.
up to cable length 200 mtr.:
Type LiYCY 3x2x0,75 mm^2 or LiYCY 4x2x 0,75 mm^2, if you will use the test signal out.

.2.2 Bloc diagram

Servovalve with integrated electronics



connector 7 pol.
DIN 43563



View on the valve
Pins visible

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Order Information

HVM 090 - 060 - 1200 - XX - E1

Model

090

Rated flow

QN at Δp =70 bar
010 l/min
020 l/min
040 l/min
060 l/min
070 l/min

Seal material

1 Perbunan
2 Viton
3 Butyl
4 Vulkollan
5 Ethylen-Propylen

Resistance / coil [R20]

1 11,5 Ω
2 60 Ω

Overlap

0 Zero overlap
1 Positiv overlap
2 Negativ overlap

Amount of overlap

positive or negative
1..9

Design letter

assigned by manufacturer

Elektronic

E1 Voltage input ±10V
E2 Current input 4...20mA P > A
E3 Current input 4...20mA P > B

5.Accessories:

Description			Order No.
Connector	4pol.	CA 06 COM E 14 S2S	13018
Connector	7pol.	KE CA 06 COM 14S 7S	21855
Sub plate	NG 10	HZ 036	39276
scavenger plate	NG 10	HZ 061	39686
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 6µm. 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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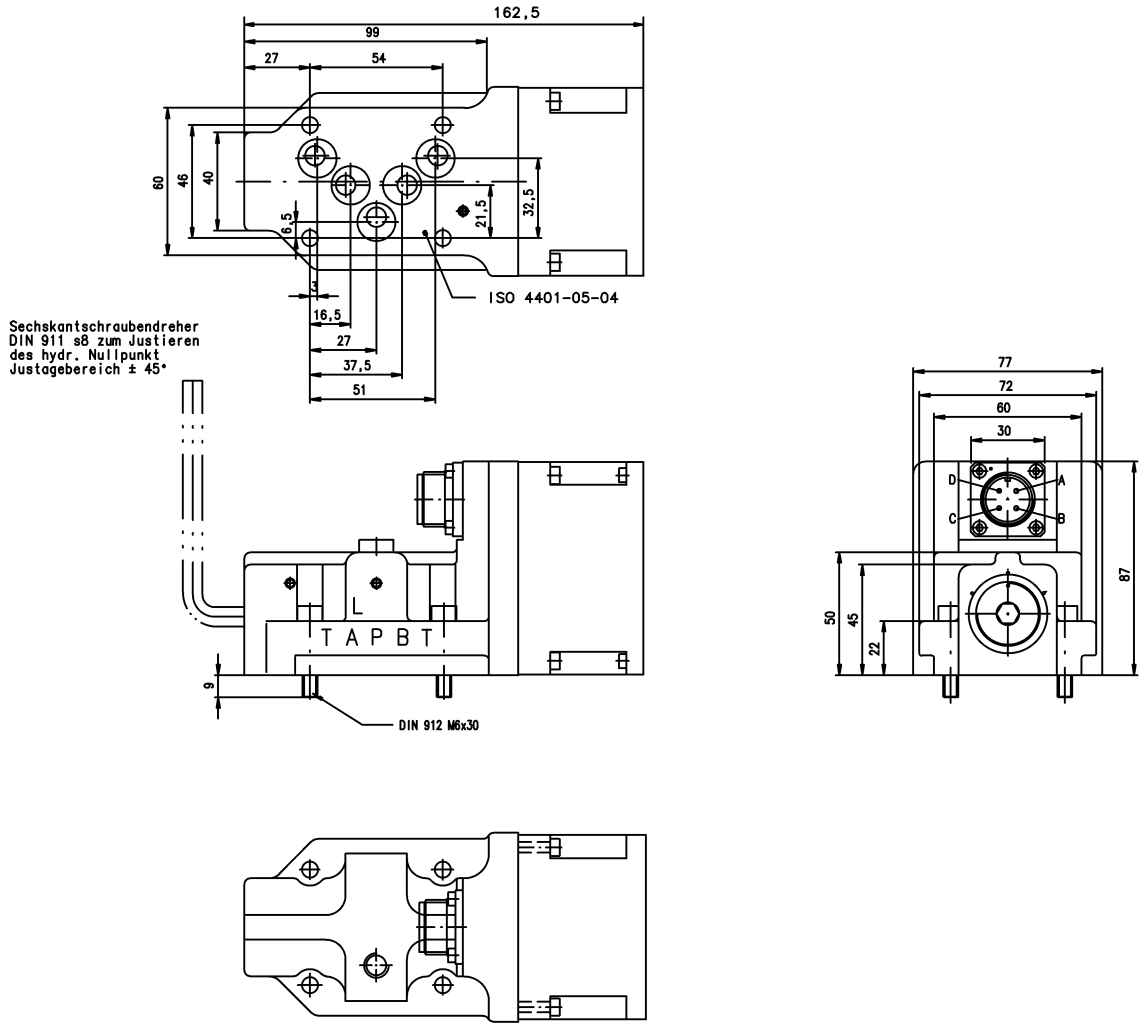

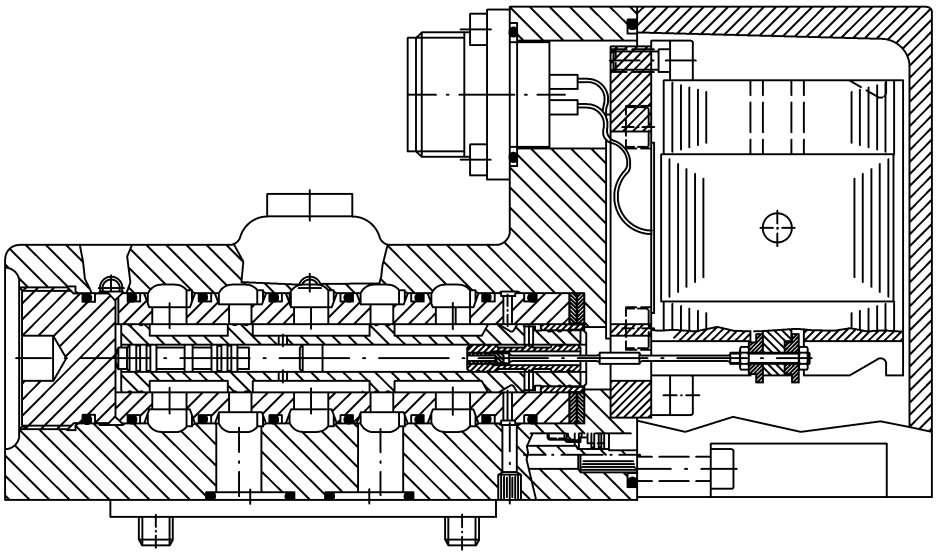

Angaben ohne Einheiten in mm
All dimensions without unit in mm

Nur zur Information / Only for information

Änderungsindex / Amendment index			Ventil Valve	Id.- Nr.
–			HVM 090-XXX-XXXX-XX	–
	Datum Date	Name Name		
dwg.	17.09.01	Dindorf		

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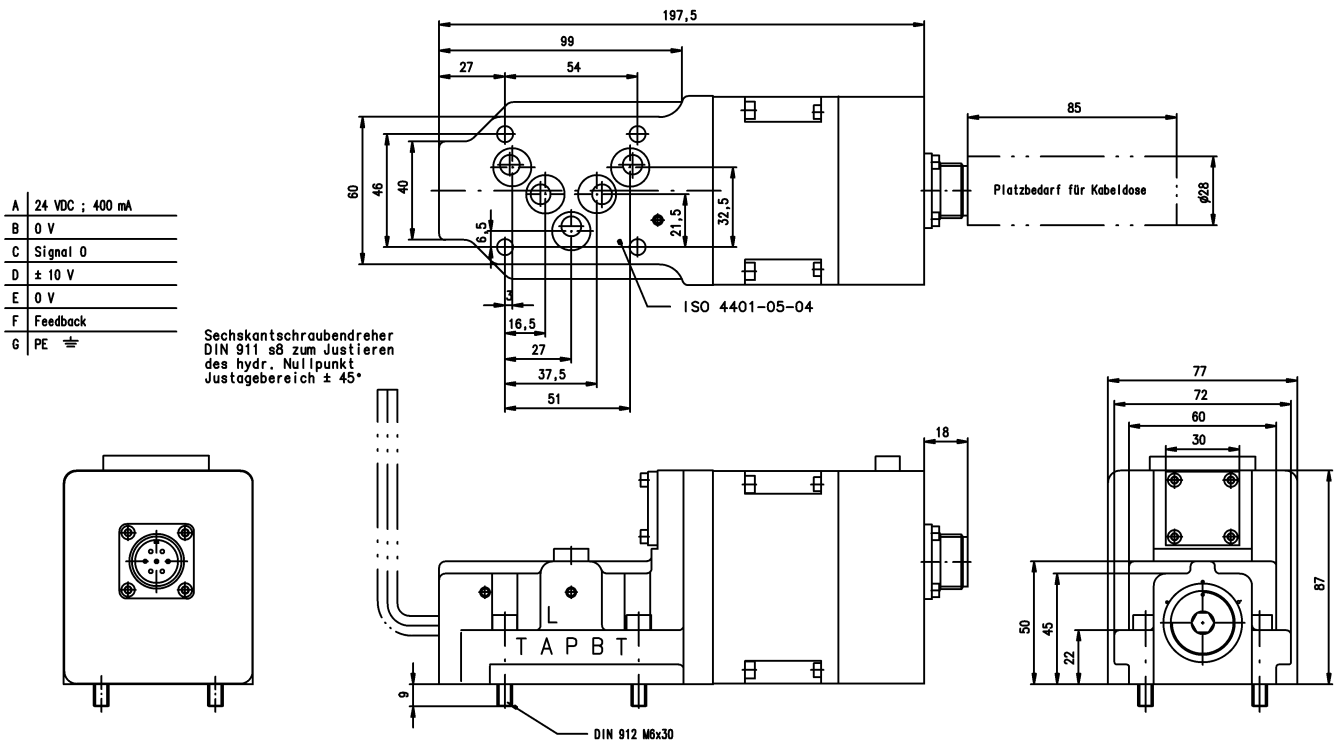

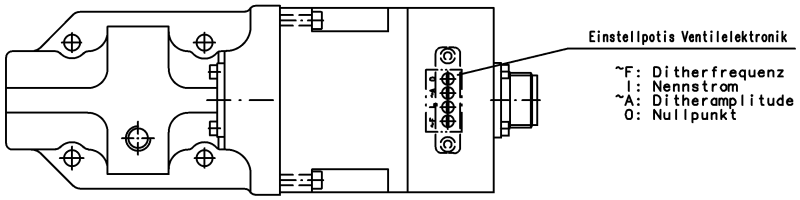

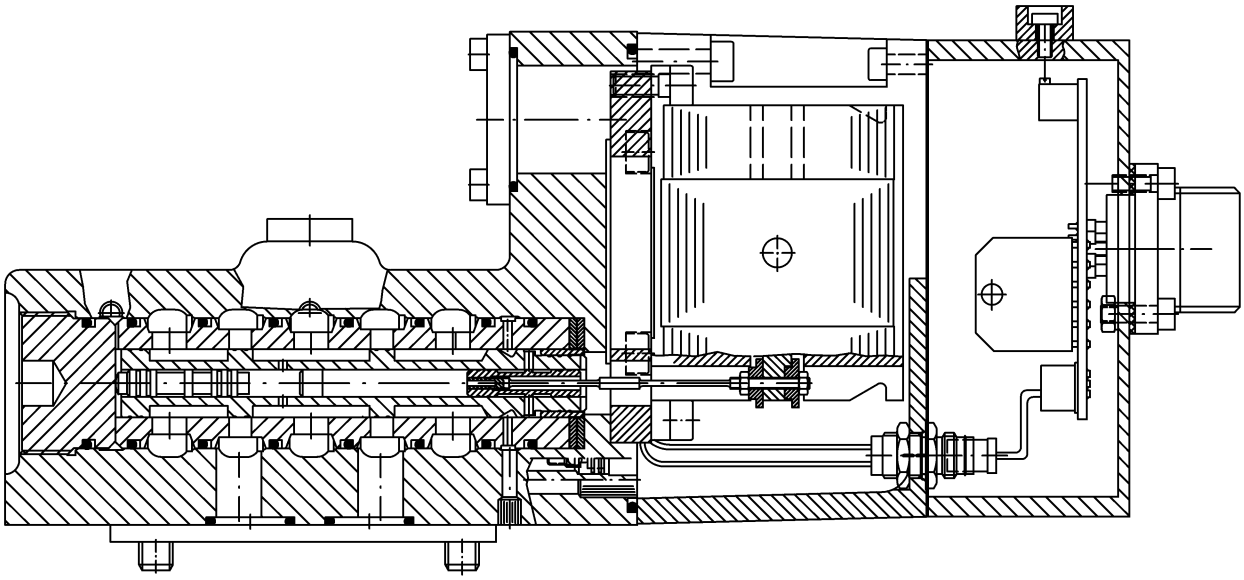

Angaben ohne Einheiten in mm
All dimensions without unit in mm

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Ventil
Valve

HVM 090-XXX-XXXX-XX-EX

Id.- Nr.
–

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