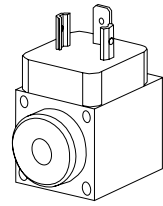


**Solenoid SIN29V**  
**to VDE 0580**  
**Plug plate to ISO 4400 / DIN 43650**  
**Protection class IP65**

**DESCRIPTION**

The SIN29V is a switching solenoid. Its design corresponds to VDE standard 0580. The steel housing is zinc coated as a standard. Static pressure-tightness is 160 bars. All o-rings are Viton. The solenoids are fixed to the valve with four screws. Depending on the intended use, the solenoid can be supplied with a plug screw, or with integrated manual override. The connector plate corresponds to ISO 4400 and DIN 43650.

**FUNCTION**

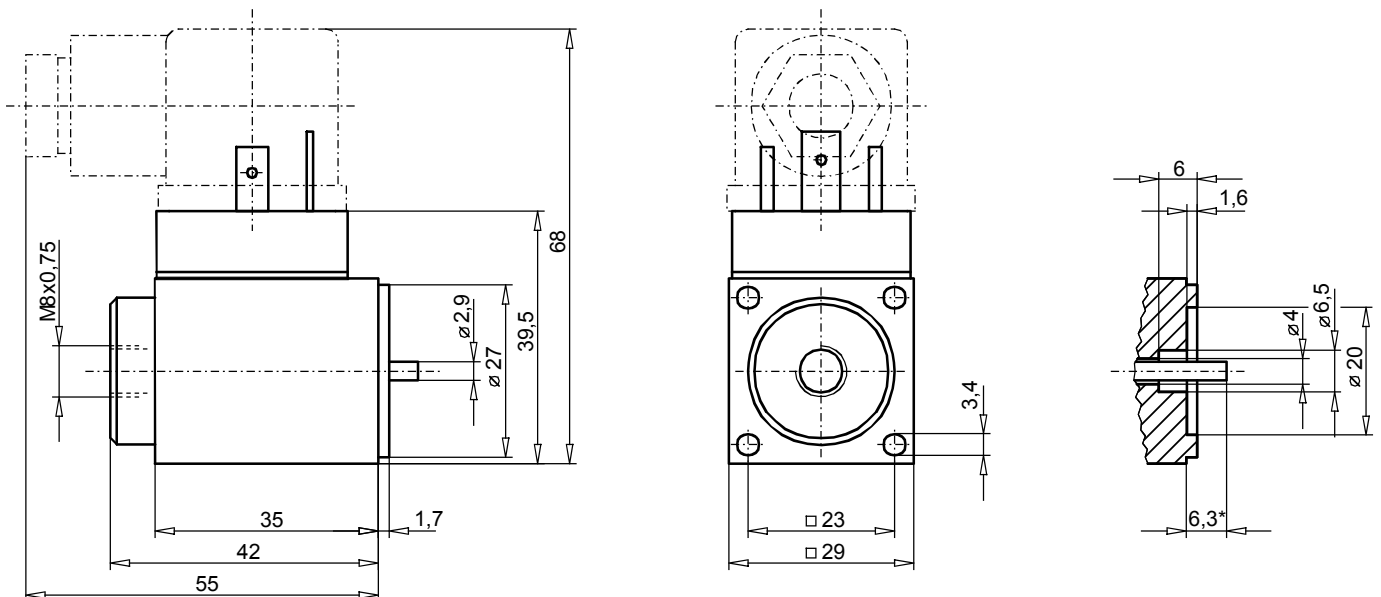
When the solenoid is energised with the specified nominal voltage, the armature moves from the starting position of its stroke ( $s=2,5$  mm) to the end position ( $s=0$  mm). The switching time is essentially dependent on the application. The power-stroke characteristics are designed to suit the requirements of hydraulic valves. AC versions include an electronic rectifier integrated into the connector plate. In this way maximum performance is assured.

**APPLICATION**

Essential for hydraulic directional and poppet valves. Because of the risk of overheating, the solenoid must never be used separately. The length of the fixing screws depends on the base material of the body. An o-ring is used for the valve seal. Information on screws and o-rings will be found in the data sheets relating to the valves concerned. Before changing the plug screw or the screw with integrated manual override, care must be taken to ensure that the solenoid is not under pressure. Risk of injury! The maximum operating pressure is determined by the valve actually used.

**TYPE CODE**

		SI	N	29	V	-	-	#	
Solenoid									
Industrial execution									
Normal									
Square 29 mm housing									
Solenoid completely potted									
Nominal voltage $U_N$	12 VDC	G12							
	24 VDC	G24							
	115 VAC	R115 *							
	230 VAC	R230 *							
AC= 50 to 60 Hz									
* Rectifier integrated in the plug plate									
Other nominal voltages and nominal power on request									
with mounted screw plug (data sheet 1.1-300)		HB0							
with mounted manual override (data sheet 1.1-300)		HB4,5							
with mounted special manual override (data sheet 1.1-310)		H...							
Design-Index (Subject to change)									

**DIMENSIONS**


\* Solenoid energised ( $s=0$  mm)

**CHARACTERISTICS**

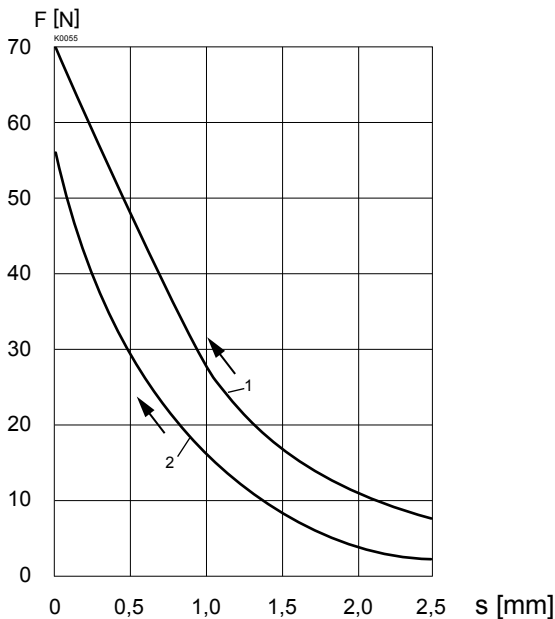
Static pressure tightness	160 bar (seal diameter of valve max. 20 mm) With seal diameter of valve = 27 mm: static pressure tightness = 100 bar
Coil winding insulation class	H
Connection/Power supply	Over device plug connection to ISO 4400/DIN 43650, (2P+E), other connections on request
Protection class to EN 60529	IP65
Relative duty factor	100 %
Reference temperature	50 °C
Seal	Viton, other on request
Fluid	Mineral oil, other fluid on request
Switching cycles	15 000/h
Mounting screws	4 x M3 (Quality 8.8)
Housing	Zinc coated steel housing, other surface treatments on request.

		<b>DC</b>	<b>AC</b>
Totale stroke (mm)	2,5	2,5	
Working stroke (mm)	1	1	
Nominal power (W)	15		
	(VA)		17
Armature weight (kg)	0,020		0,020
Solenoid weight (kg)	0,21		0,21
Voltage range (VDC)	10-250		
	(VAC)		24-250

	<b>12VDC</b>	<b>24VDC</b>	<b>115VAC</b>	<b>230VAC</b>
Nominal resistance (Ω)	10	42	650	2'650
Number of windings (-)	740	1'490	5'800	11'000
Inductivity (mH)	8	35	-	-

**PERFORMANCE**

F = f (s) Force-stroke characteristics



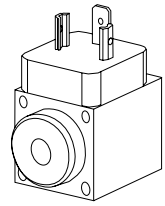
1: U = 100 % U<sub>N</sub>      Reference temperature = 20 °C (15W)  
 2: U = 90 % U<sub>N</sub>      Reference temperature = 50 °C  
 Solenoid in operating temperature (9W)

The values refer to U<sub>N</sub> = 24VDC.  
 With other nominal voltages deviations can occur.  
 For curve 2 the solenoid has been mounted on a body □ 30x38.

**ACCESSOIRES**

Plug HB0	* Article No. 239.2033
Plug with integrated manual override HB4,5	
* Article No. 253.8000	* acc. data sheet 1.1-300
Special manual override	see data sheet 1.1-310
Plug grey	Article No. 219.2001
Plug black	Article No. 219.2002

Technical explanation see data sheet 1.1-400

**Solenoid SIS29V  
 to VDE 0580  
 Plug plate to ISO 4400 / DIN 43650  
 Protection class IP65**

**DESCRIPTION**

The SIS29V is a switching solenoid. Its design corresponds to VDE standard 0580. The steel housing is zinc coated as a standard. Static pressure tightness is 350 bars. All o-rings are Viton. The solenoids are fixed to the valve with four screws. Depending on the intended use, the solenoid can be supplied with a plug screw, or with integrated manual override. The connector plate corresponds to ISO 4400 and DIN 43650.

**FUNCTION**

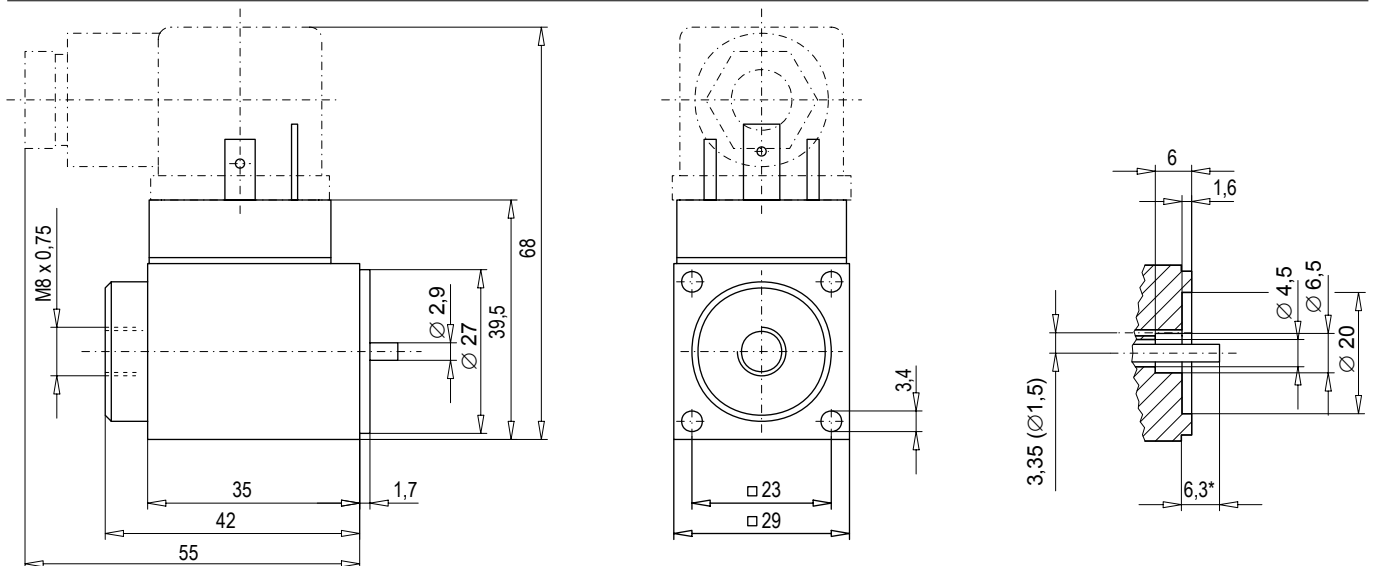
When the solenoid is energised with the specified nominal voltage, the armature moves from the starting position of its stroke ( $s=2,5$  mm) to the end position ( $s=0$  mm). The switching time is essentially dependent on the application. The power-stroke characteristics are designed to suit the requirements of hydraulic valves. AC versions include an electronic rectifier integrated into the connector plate. In this way maximum performance is assured.

**APPLICATION**

Essential for hydraulic directional and poppet valves. Because of the risk of overheating, the solenoid must never be used separately. The length of the fixing screws depends on the base material of the body. An o-ring is used for the valve seal. Information on screws and o-rings will be found in the data sheets relating to the valves concerned. Before changing the plug screw or the screw with integrated manual override, care must be taken to ensure that the solenoid is not under pressure. Risk of injury! The maximum operating pressure is determined by the valve actually used.

**TYPE CODE**

			SI	S	29	V	-	-	#	
Solenoid										
Industrial execution										
Super										
Square 29 mm housing										
Solenoid completely potted										
Nominal voltage $U_N$	12 VDC	G12								
	24 VDC	G24								
	115 VAC	R115 *								
	230 VAC	R230 *								
AC= 50 to 60 Hz										
* Rectifier integrated in the plug plate										
Other nominal voltages and nominal power on request										
with mounted screw plug (data sheet 1.1-300)		HB0								
with mounted manual override (data sheet 1.1-300)		HB4,5								
with mounted special manual override (data sheet 1.1-310)		H...								
Design-Index (Subject to change)										

**DIMENSIONS**


\* Solenoid energised ( $s=0$  mm)

**CHARACTERISTICS**

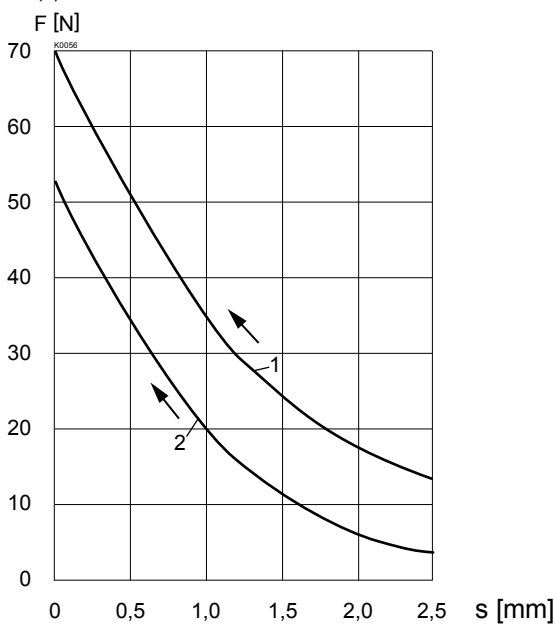
Static pressure tightness	350 bar (seal diameter of valve max. 15 mm) With seal diameter of valve = 27 mm: Static pressure tightness = 100 bar
Coil winding insulation class	H
Connection/Power supply	Over device plug connection to ISO 4400/DIN 43650,(2P+E), other connections on request
Protection class to EN 60529	IP65
Relative duty factor	100 %
Reference temperature	50 °C
Seal	Viton, other on request
Fluid	Mineral oil, other fluid on request
Switching cycles	15 000/h
Mounting screws	4 x M3 (Quality 8.8)
Housing	Zinc coated steel housing, other surface treatments on request.

		<b>DC</b>	<b>AC</b>
Totale stroke (mm)	2,5	2,5	
Working stroke (mm)	1	1	
Nominal power (W)	15		
	(VA)	17	
Armature weight (kg)	0,014	0,014	
Solenoid weight (kg)	0,21	0,21	
Voltage range (VDC)	10-250		
	(VAC)		24-250

	<b>12VDC</b>	<b>24VDC</b>	<b>115VAC</b>	<b>230VAC</b>
Nominal resistance (Ω)	10	42	650	2'650
Number of windings (-)	740	1'490	5'800	11'000
Inductivity (mH)	17	70	-	-

**PERFORMANCE**

F = f (s) Force-stroke characteristics



1: U = 100 % U<sub>N</sub>      Reference temperature = 20 °C (15W)  
 2: U = 90 % U<sub>N</sub>      Reference temperature = 50 °C  
                                  Solenoid in operating temperature (9W)

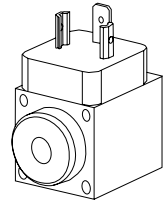
The values refer to U<sub>N</sub> = 24VDC.  
 With other nominal voltages deviations can occur.  
 For curve 2 the solenoid has been mounted on a body □ 30x38.

**ACCESSOIRES**

Plug HB0	* Article No. 239.2033
Plug with integrated manual override HB4,5	* Article No. 253.8000
	* acc. data sheet 1.1-300
Special manual override	see data sheet 1.1-310
Plug grey	Article No. 219.2001
Plug black	Article No. 219.2002

Technical explanation see data sheet 1.1-400

**Proportional solenoid PI29V  
to VDE 0580  
Plug plate to ISO 4400 / DIN 43650  
Protection class IP65**



**DESCRIPTION**

The PI29V is a proportional solenoid. Its design corresponds to VDE standard 0580. The steel housing is zinc coated as a standard. Static pressure tightness is 350 bars. All o-rings are Viton. The solenoids are fixed to the valve with four screws. Depending on the intended use, the solenoid can be supplied with a plug screw, or with integrated manual override. The connector plate corresponds to ISO 4400 and DIN 43650.

**FUNCTION**

The horizontal force-stroke characteristics in the working stroke range means that:

- a more or less linear force absorption can be achieved with constant stroke and increasing current absorption;
- a more or less linear stroke variation can be achieved when working against a spring and with increasing current absorption.

This ensures that the reference voltage is adequate at the specified reference temperature to reach the limit current in every case.

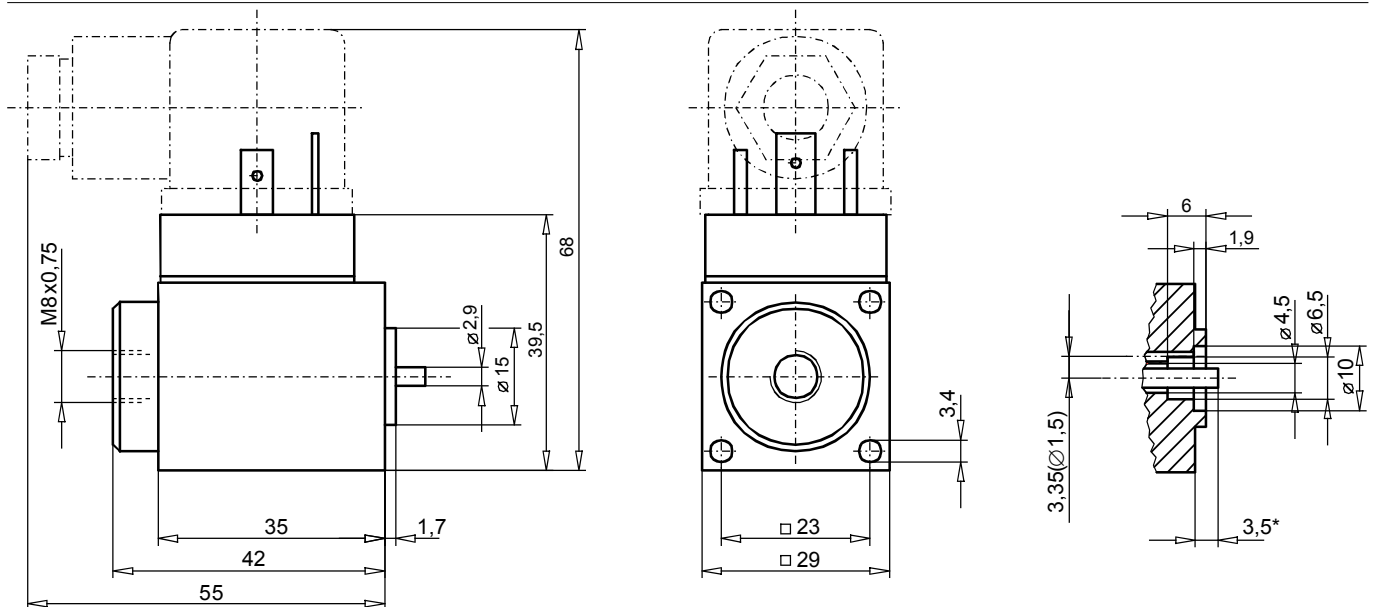
**APPLICATION**

Essential for hydraulic proportional-way-, pressure- and current valves. Because of the risk of overheating, the solenoid must never be used separately. The length of the fixing screws depends on the base material of the body. An o-ring is used for the valve seal. Information on screws and o-rings will be found in the data sheets relating to the valves concerned. Before changing the plug screw or the screw with integrated manual override, care must be taken to ensure that the solenoid is not under pressure. Risk of injury! The maximum operating pressure is determined by the valve actually used.

**TYPE CODE**

		PI 29 V - <input type="checkbox"/> - <input type="checkbox"/> # <input type="checkbox"/>	
Proportional solenoid			
Industrial execution			
Square 29 mm housing			
Solenoid completely potted			
Nominal voltage $U_N$	12 VDC	<input type="checkbox"/> G12	
	24 VDC	<input type="checkbox"/> G24	
with mounted screw plug (data sheet 1.1-300)		<input type="checkbox"/> HB0	
with mounted manual override (data sheet 1.1-300)		<input type="checkbox"/> HB4,5	
Design-Index (Subject to change)			

**DIMENSIONS**



\* Solenoid energised (s = 0 mm)

**CHARACTERISTICS**

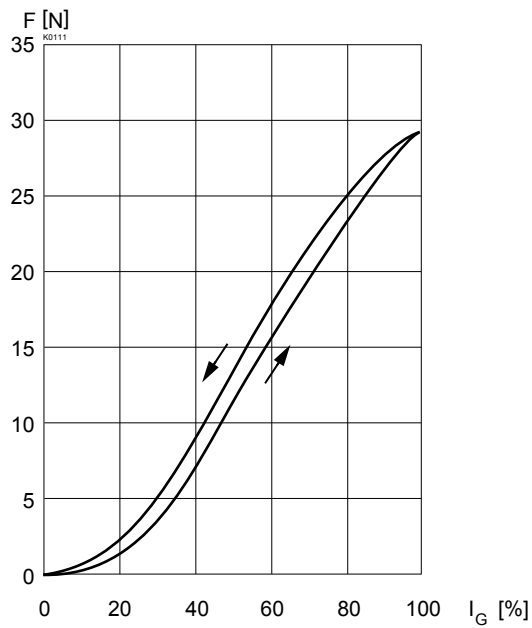
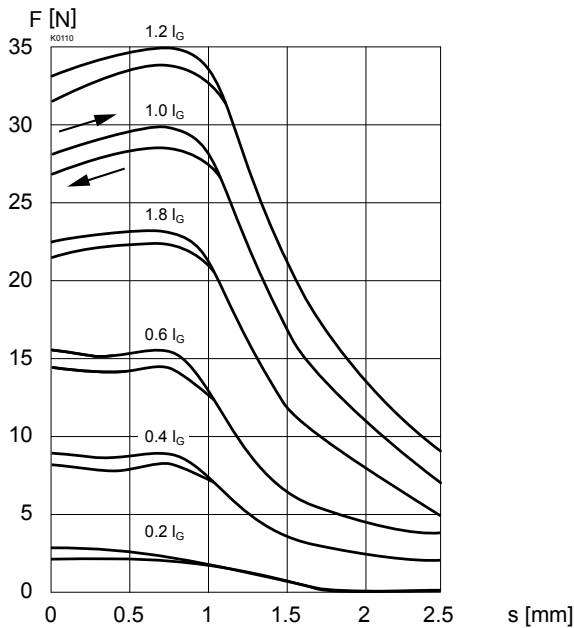
Static pressure tightness	350 bar (seal diameter of valve max. 15 mm)
Coil winding insulation class	H
Connection/Power supply	Over device plug connection to ISO 4400/DIN 43650, (2P+E), other connections on request
Protection class EN 60 529	IP65
Relative duty factor	100 %
Reference temperature	50 °C
Seal	Viton, other on request
Fluid	Mineral oil, other fluid on request
Mounting screws	4 x M3 (Quality 8.8)
Housing	Zinc coated steel housing, other surface treatments on request

		12VDC	24VDC
Totale stroke	(mm)	2,5	2,5
Working stroke	(mm)	1	1
Rated force	(N)	29	29
Hysteresis of rated force	(%)	5,5	5,5
Hysteresis of rated current	(%)	5,5	5,5
Nom. linearity deviation	(%)	4,5	4,5
Rated resistance	(Ω)	7,2	31
Rated current	(A)	1,08	0,54
Limiting current	(A)	1,08	0,54
Linearity current	(A)	0,2	0,1
Actuation current	(A)	0,02	0,01
Nominal wattage	(W)	8,1	8,8
Performance limit	(W)	13	13
Number of windings	(-)	645	1'310
Inductivity	(mH)	12	45
Armature weight	(kg)	0,014	0,014
Solenoid weight	(kg)	0,21	0,21

**PERFORMANCE**

F = f (s) Force-stroke characteristics

F = f (I) Force-current characteristics


**ACCESSOIRES**

Plug HB0 \* Article No. 239.2033  
 Plug with integrated manual override HB4,5 \* Article No. 253.8000  
 \* = acc. data sheet 1.1-300

Plug grey Article No. 219.2001  
 Plug black Article No. 219.2002

Technical explanation see data sheet 1.1-410



**CHARACTERISTICS**

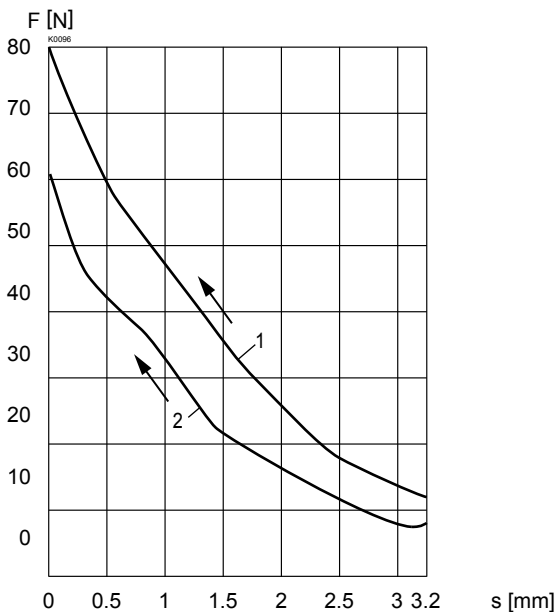
Static pressure tightness	160 bar (seal diameter of valve max. 27 mm) With seal diameter of valve = 32mm Static pressure tightness = 120 bar
Coil winding insulation class	H
Connection/Power supply	Over device plug connection to ISO 4400/DIN 43650, (2P+E), other connections on request
Protection class EN 60 529	IP65
Relative duty factor	100%
Reference temperature	50 °C
Seal	Viton, other on request
Fluid	Mineral oil, other fluid on request
Switching cycles	15000/h
Mounting screws	4 x M4 (Quality 8.8)
Housing	Zinc coated steel housing, other surface treatments on request

		<b>DC</b>	<b>AC</b>
Totale stroke (mm)	3,2	3,2	
Working stroke (mm)	1,5	1,5	
Nominal power (W)	20		
	(VA)		23
Armature weight (kg)	0,028		0,028
Solenoid weight (kg)	0,34		0,34
Voltage range (VDC)	10-250		
	(VAC)		24-250

	<b>12VDC</b>	<b>24VDC</b>	<b>115VAC</b>	<b>230VAC</b>
Nominal resistance (Ω)	7,5	29	530	2'550
Number of windings (-)	720	1'320	5'700	13'300
Inductivity (mH)	7	25	-	-

**PERFORMANCE**

F = f (s) Force-stroke characteristics



- 1: U = 100 % U<sub>N</sub> Reference temperature = 20 °C (20W)  
 2: U = 90 % U<sub>N</sub> Reference temperature = 50 °C  
 Solenoid in operating temperature (12W)

The values refer to U<sub>N</sub> = 24 VDC.

With other nominal voltages deviations can occur.

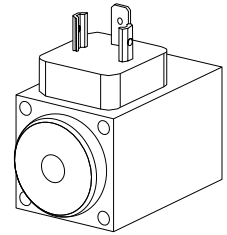
For curve 2 the solenoid has been mounted on a body □ 38 x 54.

**ACCESSOIRES**

Plug HB0	* Article No. 239.2033
Plug with integrated manual override HB4,5	* Article No. 253.8000
	* acc. data sheet 1.1-300
Special manual override	see data sheet 1.1-310
Plug grey	Article No. 219.2001
Plug black	Article No. 219.2002

Technical explanation see data sheet 1.1-400



**Solenoid SIN35V  
 to VDE 0580  
 Plug plate to ISO 4400 / DIN 43650  
 Protection class IP65**

**DESCRIPTION**

The SIN35V is a switching solenoid. Its design corresponds to VDE standard 0580. The steel housing is zinc coated as a standard. Static pressure tightness is 160 bars. All o-rings are Viton. The solenoids are fixed to the valve with four screws. Depending on the intended use, the solenoid can be supplied with a plug screw, or with integrated manual override. The connector plate corresponds to ISO 4400 and DIN 43650.

**FUNCTION**

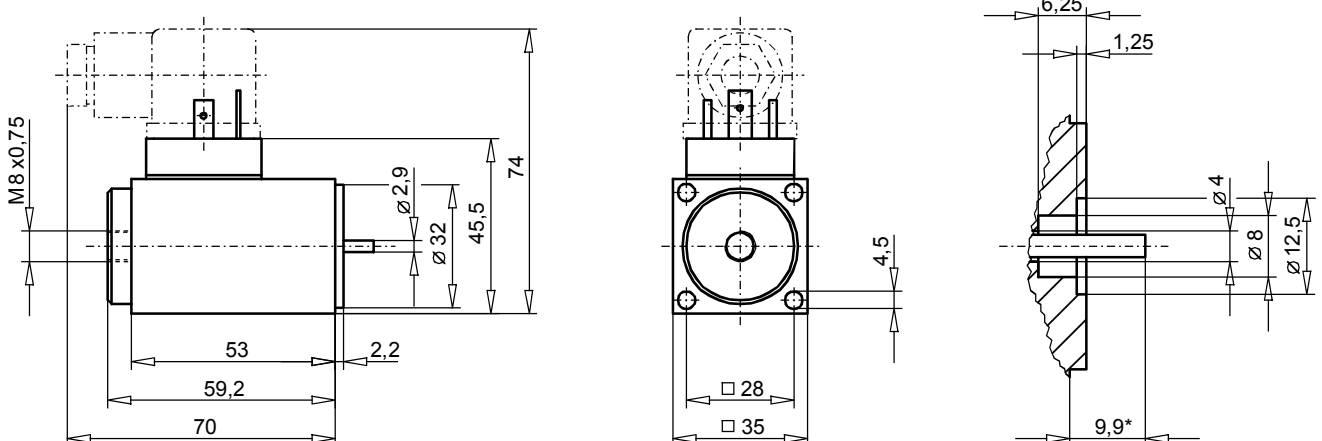
When the solenoid is energised with the specified nominal voltage, the armature moves from the starting position of its stroke ( $s=3,2$  mm) to the end position ( $s=0$  mm). The switching time is essentially dependent on the application. The power stroke characteristics are designed to suit the requirements of hydraulic valves. AC versions include an electronic rectifier integrated into the connector plate. In this way maximum performance is assured.

**APPLICATION**

Essential for hydraulic directional and poppet valves. Because of the risk of overheating, the solenoid must never be used separately. The length of the fixing screws depends on the base material of the body. An o-ring is used for the valve seal. Information on screws and o-rings will be found in the data sheets relating to the valves concerned. Before changing the plug screw or the screw with integrated manual override, care must be taken to ensure that the solenoid is not under pressure. Risk of injury! The maximum operating pressure is determined by the valve actually used.

**TYPE CODE**

		SI N 35 V -	<input type="checkbox"/>	-	<input type="checkbox"/>	#	<input type="checkbox"/>
Solenoid							
Industrial execution							
Normal							
Square 35 mm housing							
Solenoid completely potted							
Nominal voltage $U_N$	12 VDC	<input type="checkbox"/>	G12				
	24 VDC	<input type="checkbox"/>	G24				
	115 VAC	<input type="checkbox"/>	R115	*			
	230 VAC	<input type="checkbox"/>	R230	*			
AC= 50 to 60 Hz							
* Rectifier integrated in the plug plate							
Other nominal voltages and nominal power on request							
with mounted screw plug (data sheet 1.1-300)					<input type="checkbox"/>	HB0	
with mounted manual override (data sheet 1.1-300)					<input type="checkbox"/>	HB4,5	
with mounted special manual override (data sheet 1.1-310)					<input type="checkbox"/>	H...	
Design-Index (Subject to change)							

**DIMENSIONS**


\* Solenoid energised ( $s=0$  mm)

**CHARACTERISTICS**

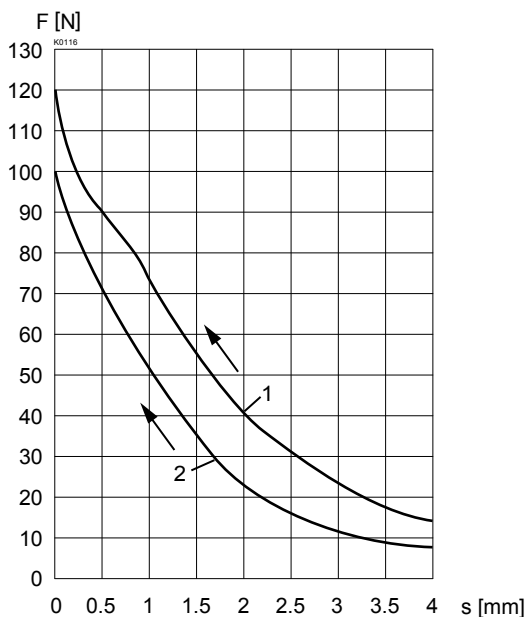
Static pressure tightness	160 bar (seal diameter of valve max. 27 mm) With seal diameter of valve = 32mm Static pressure tightness = 120 bar
Coil winding insulation class	H
Connection/Power supply	Over device plug connection to ISO 4400/DIN 43650, (2P+E), other connections on request
Protection class EN 60529	IP65
Relative duty factor	100 %
Reference temperature	50 °C
Seal	Viton, other on request
Fluid	Mineral oil, other fluid on request
Switching cycles	15 000/h
Mounting screws	4 x M4 (Quality 8.8)
Housing	Zinc coated steel housing, other surface treatments on request

		<b>DC</b>	<b>AC</b>
Totale stroke	(mm)	4	4
Working stroke	(mm)	1,7	1,7
Nominal power	(W)	22	
	(VA)		25
Armature weight	(kg)	0,038	0,038
Solenoid weight	(kg)	0,45	0,45
Voltage range	(VDC)	10-250	
	(VAC)		24-250

	<b>12VDC</b>	<b>24VDC</b>	<b>115VAC</b>	<b>230VAC</b>
Nominal resistance (Ω)	7,2	25	420	1'500
Number of windings (-)	800	1'550	5'930	11'400
Inductivity (mH)	6	22	-	-

**PERFORMANCE**

F = f (s) Force-stroke characteristics



1:  $U = 100\% U_N$  Reference temperature = 20 °C (20W)  
 2:  $U = 90\% U_N$  Reference temperature = 50 °C  
 Solenoid in operating temperature (12W)

The values refer to  $U_N = 24$  VDC.

With other nominal voltages deviations can occur.

For curve 2 the solenoid has been mounted on a body □ 38x54.

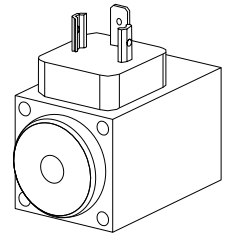
**ACCESSOIRES**

Plug HB0 \* Article No. 239.2033  
 Plug with integrated manual override HB4,5 \* Article No. 253.8000  
 \* acc. data sheet 1.1-300

Special manual override see data sheet 1.1-310

Plug grey Article No. 219.2001  
 Plug black Article No. 219.2002

Technical explanation see data sheet 1.1-400

**Solenoid SIS35V  
 to VDE 0580  
 Plug plate to ISO 4400 / DIN 43650  
 Protection class IP65**

**DESCRIPTION**

The SIS35V is a switching solenoid. Its design corresponds to VDE standard 0580. The steel housing is zinc coated as a standard. Static pressure tightness is 350 bars. All o-rings are Viton. The solenoids are fixed to the valve with four screws. Depending on the intended use, the solenoid can be supplied with a plug screw, or with integrated manual override. The connector plate corresponds to ISO 4400 and DIN 43650.

**FUNCTION**

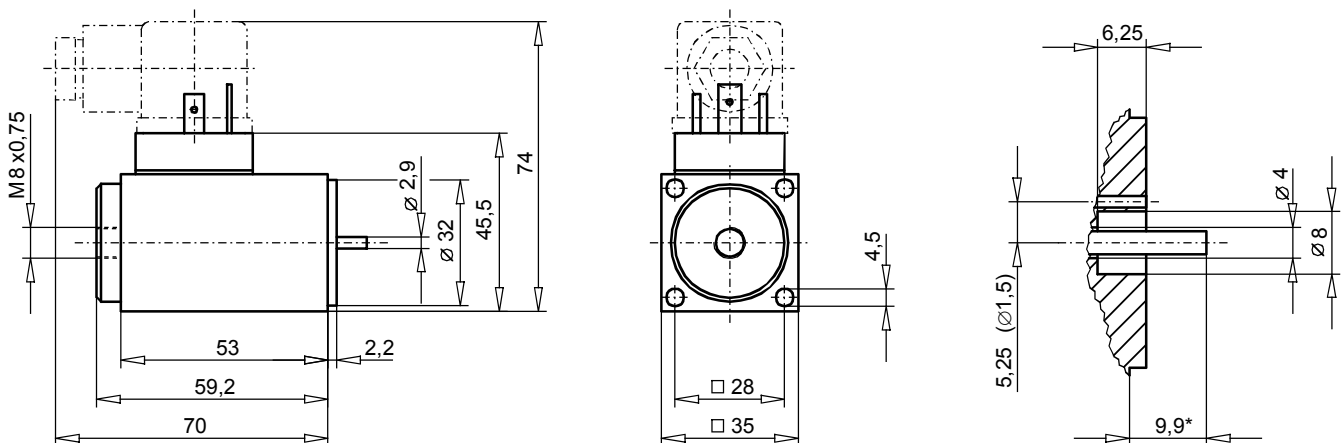
When the solenoid is energised with the specified nominal voltage, the armature moves from the starting position of its stroke ( $s=4$  mm) to the end position ( $s=0$  mm). The switching time is essentially dependent on the application. The power stroke characteristics are designed to suit the requirements of hydraulic valves. AC versions include an electronic rectifier integrated into the connector plate. In this way maximum performance is assured.

**APPLICATION**

Essential for hydraulic directional and poppet valves. Because of the risk of overheating, the solenoid must never be used separately. The length of the fixing screws depends on the base material of the body. An o-ring is used for the valve seal. Information on screws and o-rings will be found in the data sheets relating to the valves concerned. Before changing the plug screw or the screw with integrated manual override, care must be taken to ensure that the solenoid is not under pressure. Risk of injury! The maximum operating pressure is determined by the valve actually used.

**TYPE CODE**

		SI	S	35	V	-	-	#	
Solenoid									
Industrial execution									
Super									
Square 35 mm housing									
Solenoid completely potted									
Nominal voltage $U_N$	12 VDC	G12							
	24 VDC	G24							
	115 VAC	R115		*					
	230 VAC	R230		*					
AC= 50 to 60 Hz									
* Rectifier integrated in the plug plate									
Other nominal voltages and nominal performances on request									
with mounted screw plug (data sheet 1.1-300)		HB0							
with mounted manual override (data sheet 1.1-300)		HB4,5							
with mounted special manual override (data sheet 1.1-310)		H...							
Design-Index (Subject to change)									

**DIMENSIONS**


\* Solenoid energised ( $s=0$  mm)

**CHARACTERISTICS**

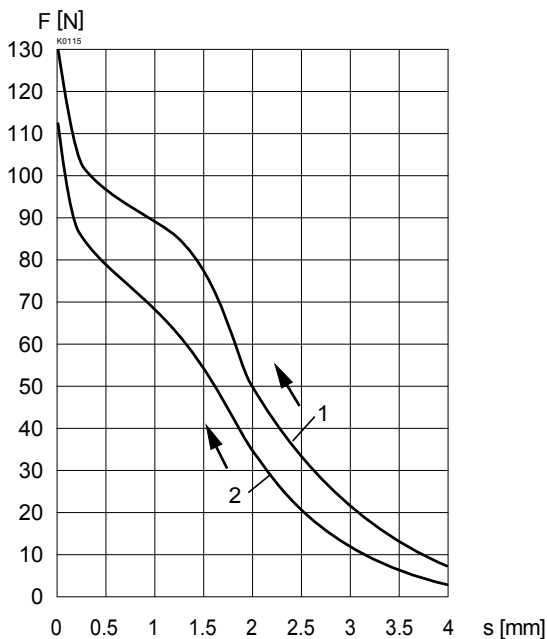
Static pressure tightness	350 bar (seal diameter of valve max. 19 mm) With seal diameter of valve = 32 mm: Static pressure tightness = 120 bar
Coil winding insulation class	H
Connection/Power supply	Over device plug connection to ISO 4400/DIN 43650, (2P+E), other connections on request.
Protection class to EN 60529	IP65
Relative duty factor	100 %
Reference temperature	50 °C
Seal	Viton, other on request
Fluid	Mineral oil, other fluid on request
Switching cycles	15 000/h
Mounting screws	4 x M4 (Quality 8.8)
Housing	Zinc coated steel housing, other surface treatments on request.

		DC	AC
Totale stroke	(mm)	4	4
Working stroke	(mm)	1,7	1,7
Nominal power	(W)	22	
	(VA)		25
Armature weight	(kg)	0,024	0,024
Solenoid weight	(kg)	0,45	0,45
Voltage range	(VDC)	10-250	
	(VAC)		24-250

	12VDC	24VDC	115VAC	230VAC
Nominal resistance (Ω)	7,2	25	420	1'500
Number of windings (-)	800	1'550	5'930	11'400
Inductivity (mH)	14	60	-	-

**PERFORMANCE**

F = f (s) Force-stroke characteristics



- 1: U = 100 % U<sub>N</sub>      Reference temperature = 20 °C (22W)  
 2: U = 90 % U<sub>N</sub>      Reference temperature = 50 °C  
                                  Solenoid in operating temperature (15W)

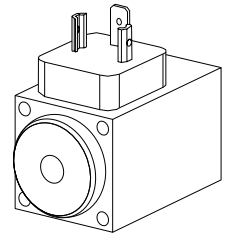
The values refer to U<sub>N</sub> = 24VDC.  
 With other nominal voltages deviations can occur.  
 For curve 2 the solenoid has been mounted on a body □ 38x54.

**ACCESSOIRES**

Plug HB0	* Article No. 239.2033
Plug with integrated manual override HB4,5	* Article No. 253.8000
	* acc. data sheet 1.1-300
Special manual override	see data sheet 1.1-310
Plug grey	Article No. 219.2001
Plug black	Article No. 219.2002

Technical explanation see data sheet 1.1-400

**Proportional solenoid PI35.V  
to VDE 0580  
Plug plate to ISO 4400 / DIN 43650  
Protection class IP65**



**DESCRIPTION**

The PI35V is a proportional solenoid. Its design corresponds to VDE standard 0580. The steel housing is zinc coated as a standard. Static pressure tightness is 350 bars. All o-rings are Viton. The solenoids are fixed to the valve with four screws. Depending on the intended use, the solenoid can be supplied with a plug screw, or with integrated manual override.

Optional are available: Version with shortened total stroke «M», or version with shortened total stroke and dampened armature «P». The connector plate corresponds to ISO 4400 and DIN 43650.

**FUNCTION**

The horizontal force-stroke characteristics in the working stroke range means that:

- a more or less linear force absorption can be achieved with constant stroke and increasing current absorption;
- a more or less linear stroke variation can be achieved when working against a spring and with increasing current absorption.

This ensures that the reference voltage is adequate at the specified reference temperature to reach the limit current in every case.

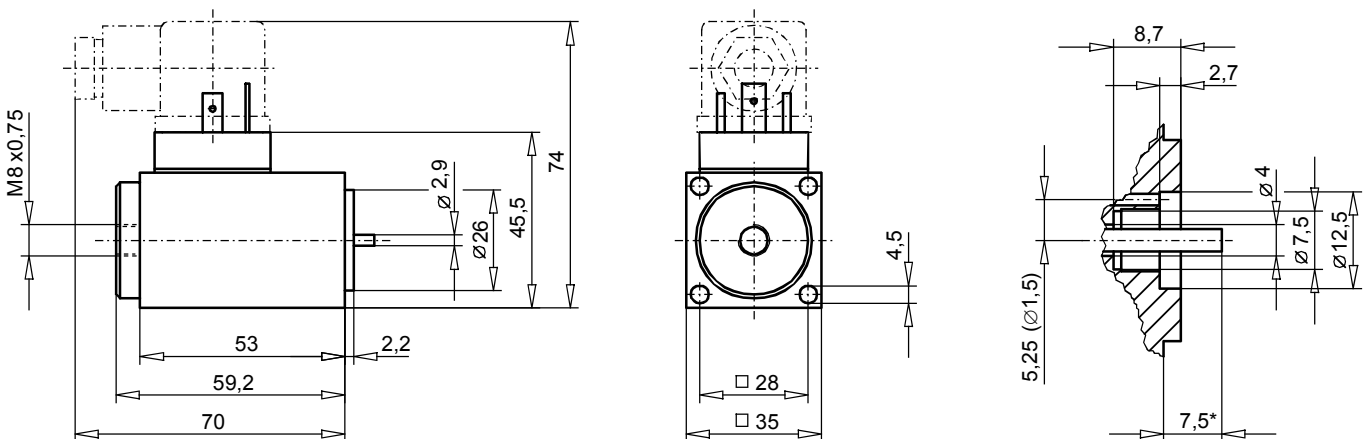
**APPLICATION**

Essential for hydraulic proportional-way-, pressure- and current valves. Because of the risk of overheating, the solenoid must never be used separately. The length of the fixing screws depends on the base material of the body. An o-ring is used for the valve seal. Information on screws and o-rings will be found in the data sheets relating to the valves concerned. Before changing the plug screw or the screw with integrated manual override, care must be taken to ensure that the solenoid is not under pressure. Risk of injury! The maximum operating pressure is determined by the valve actually used.

**TYPE CODE**

		PI 35	<input type="checkbox"/>	V	-	<input type="checkbox"/>	-	<input type="checkbox"/>	#	<input type="checkbox"/>
Proportional solenoid										
Industrial execution										
Square 35 mm housing										
Armature execution										
Total stroke (s = 4 mm)										
Total stroke (s = 2 mm)		<input type="checkbox"/> M								
Total stroke (s = 2 mm), damped		<input type="checkbox"/> P								
Solenoid completely potted										
Nominal voltage $U_N$		12 VDC		<input type="checkbox"/> G12						
		24 VDC		<input type="checkbox"/> G24						
with mounted screw plug (data sheet 1.1-300)				<input type="checkbox"/> HB0						
with mounted manual override (data sheet 1.1-300)				<input type="checkbox"/> HB4,5						
Design-Index (Subject to change)										

**DIMENSIONS**



\* Solenoid energised (s = 0 mm)

**CHARACTERISTICS**

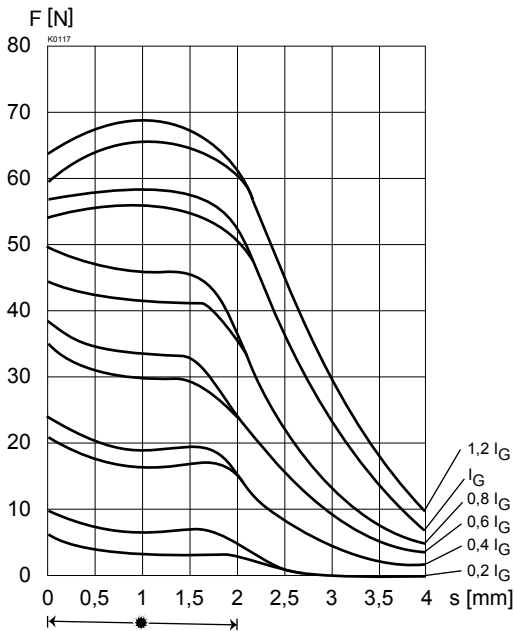
Static pressure tightness	350 bar (seal diameter of valve max. 19 mm) With seal diameter of valve = 26 mm: Static pressure tightness = 190 bar
Coil winding insulation class	H
Connection/Power supply	Over device plug connection to ISO 4400/DIN 43650, (2P+E), other connections on request
Protection class EN 60 529	IP65
Relative duty factor	100 %
Reference temperature	50 °C
Seal	Viton, other on request
Fluid	Mineral oil, other fluid on request
Mounting screws	4 x M4 (Quality 8.8)
Housing	Zinc coated steel housing, other surface treatments on request

		12VDC	24VDC
Totale stroke	(mm)	4 (2)	4 (2)
Working stroke	(mm)	2	2
Rated force	(N)	56	56
Hysteresis of rated force	(%)	6	6
Hysteresis of rated current	(%)	5	5
Nom. linearity deviation	(%)	2	2
Rated resistance	(Ω)	7,2	25
Rated current	(A)	1,25	0,68
Limiting current	(A)	1,25	0,68
Linearity current	(A)	0,28	0,14
Actuation current	(A)	0,04	0,02
Nominal wattage	(W)	11,3	11,7
Performance limit	(W)	16	16
Number of windings	(-)	800	1'550
Inductivity	(mH)	14	60
Armature weight	(kg)	0,024	0,024
Solenoid weight	(kg)	0,45	0,45

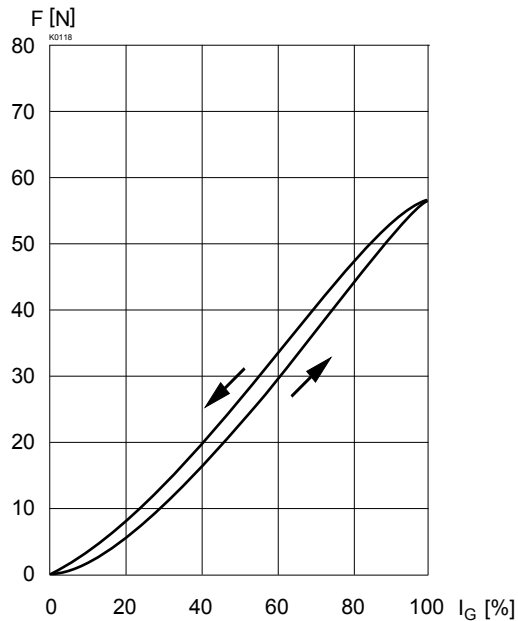
**PERFORMANCE**

F = f (s) Force-stroke characteristics

\* = stroke, versions, PI35MV, PI35PV



F = f (I) Force-current characteristics

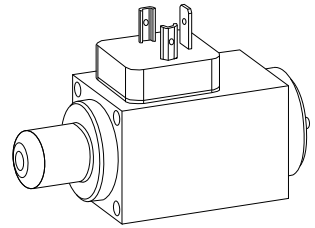

**ACCESSOIRES**

Plug HB0 \* Article No. 239.2033  
 Plug with integrated manual override HB4,5 \* Article No. 253.8000  
 \* = acc. data sheet 1.1-300

Plug grey Article No. 219.2001  
 Plug black Article No. 219.2002

Technical explanation see data sheet 1.1-410

**Proportional pull-type solenoid PI35V- ...- M152  
to VDE 0580  
Plug plate acc. to ISO 4400/DIN 43650  
Protection class IP65**



**DESCRIPTION**

The PI35V-...-M152 is a pull-type proportional solenoid. Its design corresponds to VDE standard 0580. The steel housing is zinc coated as a standard. The pressed-in armature tube is zinc coated. This guarantees high corrosion protection. Static pressure tightness is 350 bars! All o-rings are Viton. The solenoids are fixed to the valve with four screws. The connector plate corresponds to ISO 4400 and DIN 43650.

**FUNCTION**

With deenergised coil the pin will be extended by spring force. With rising solenoid current the spring force acting on the pin will be reduced. With the adjustment at the back of the solenoid the spring force may be set within a certain range. It is provided that the reference voltage is adequate at the specified reference temperature to reach the limit current in every case.

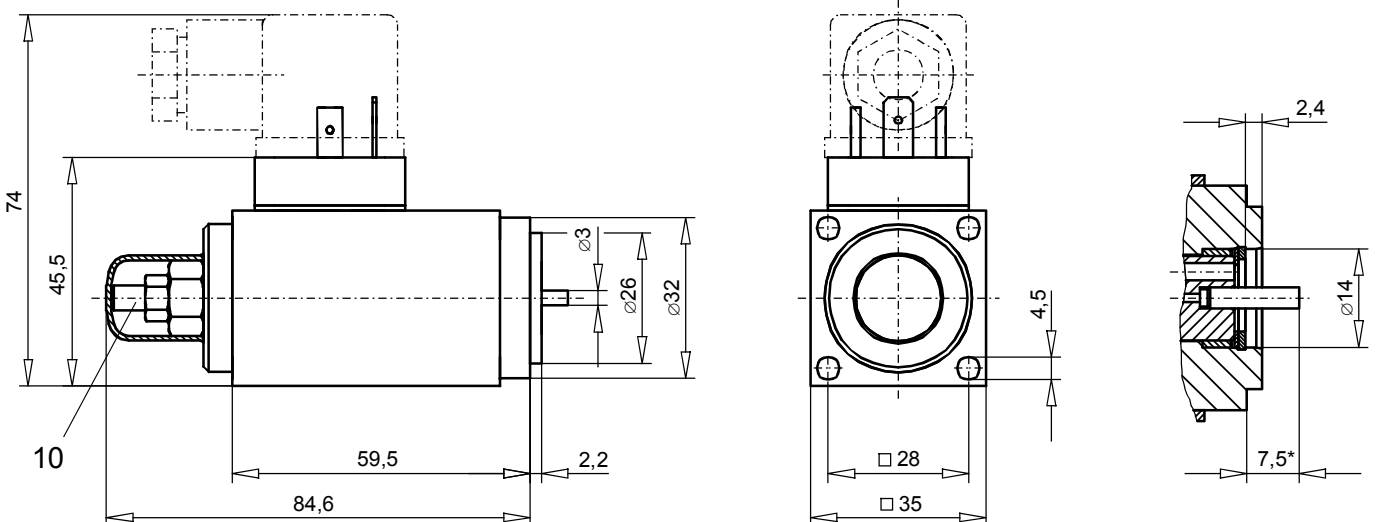
**APPLICATION**

Mainly for hydraulic proportional pressure valves. Because of the risk of overheating, the solenoid must never be energised separately. The length of the fixing screws depends on the base material of the body. An o-ring is used for the valve seal. Information on screws and o-rings will be found in the data sheets relating to the valves concerned!

**TYPE CODE**

		PI 35 V - <input type="checkbox"/> - M152 # <input type="checkbox"/>	
Proportional solenoid			
Industrial execution			
Square 35 mm housing			
Solenoid completely potted			
Nominal voltage $U_N$	12 VDC	<input type="checkbox"/> G12	
	24 VDC	<input type="checkbox"/> G24	
Pull-type solenoid (inverse function)			
Design-Index (Subject to change)			

**DIMENSIONS**



\* Solenoid energised (s= 0 mm)

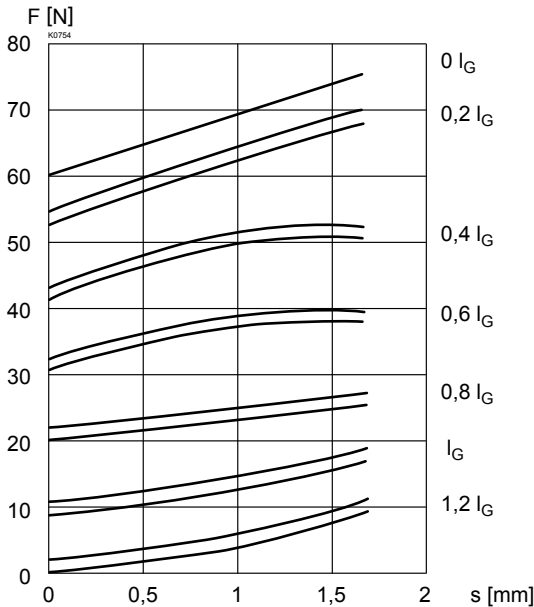
**CHARACTERISTICS**

Static pressure tightness	350 bar (seal diameter of valve max. 19 mm) With seal diameter of valve = 26 mm: Static pressure tightness = 190 bar
Coil winding insulation class	H
Connection/Power supply	Over device plug connection to ISO 4400/DIN 43 650, (2P+E), other connections on request
Protection class EN 60 529	IP65
Relative duty factor	100 %
Reference temperature	50 °C
Seal	Viton, other on request
Fluid	Mineral oil, other fluid on request
Mounting screws	4 x M4 (Quality 8.8)
Housing	Zinc coated steel housing, other surface treatments on request

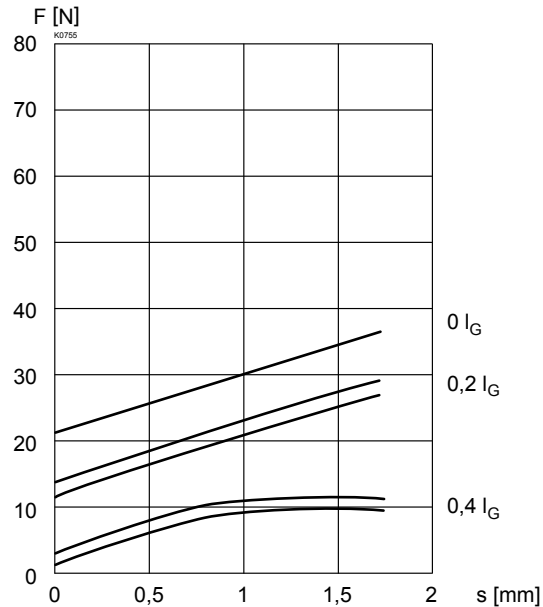
		12 VDC	24 VDC
Totale stroke	(mm)	1,75	1,75
Working stroke	(mm)	1,75	1,75
Rated force	(N)	56	56
Hysteresis of rated force	(%)	6	6
Hysteresis of rated current	(%)	6	6
Nom. linearity deviation	(%)	2	2
Rated resistance	(Ω)	7,2	25
Rated current	(A)	1,25	0,68
Limiting current	(A)	1,25	0,68
Nominal wattage	(W)	11,3	11,7
Performance limit	(W)	16	16
Number of windings	(-)	800	1'550
Inductivity	(mH)	14	60
Armature weight	(kg)	0,024	0,024
Solenoid weight	(kg)	0,50	0,50

**PERFORMANCE**

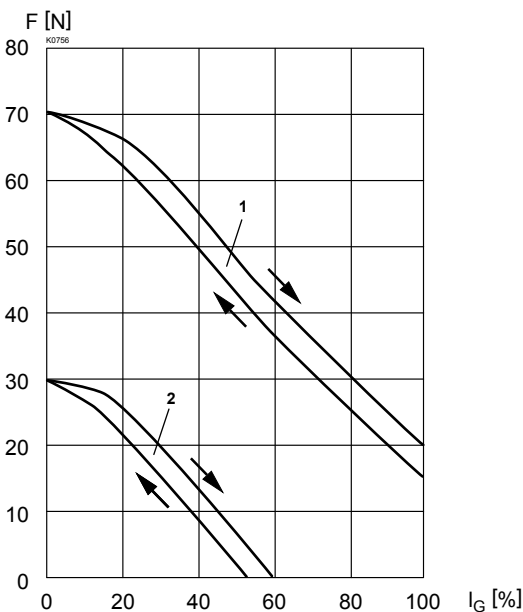
F = f (s) Force-stroke characteristics  
(with max. spring force)



F = f (s) Force-stroke characteristics  
(with min. spring force)



F = f (I) Force-current characteristics  
1: with max. spring force  
2: with min. spring force


**ACCESSOIRES**

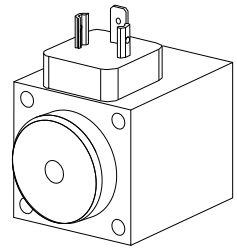
Position	Article	Description
10	253.8012	Manual override HB4,5-H44
	123.9030	Clamp cap

**ACCESSOIRES**

Plug grey	Article No. 219.2001
Plug black	Article No. 219.2002

Technical explanation see data sheet 1.1-410



**Solenoid SIN45V  
 to VDE 0580  
 Plug plate to ISO 4400 / DIN 43650  
 Protection class IP65**

**DESCRIPTION**

The SIN45V is a switching solenoid. Its design corresponds to VDE standard 0580. The steel housing has a zinc coated finish as standard. Static pressure tightness is 160 bars. All o-rings are Viton. The solenoids are fixed to the valve with four screws. Depending on the intended use, the solenoid can be supplied with a plug screw, or with integrated manual override. The connector plate corresponds to ISO 4400 and DIN 43650.

**FUNCTION**

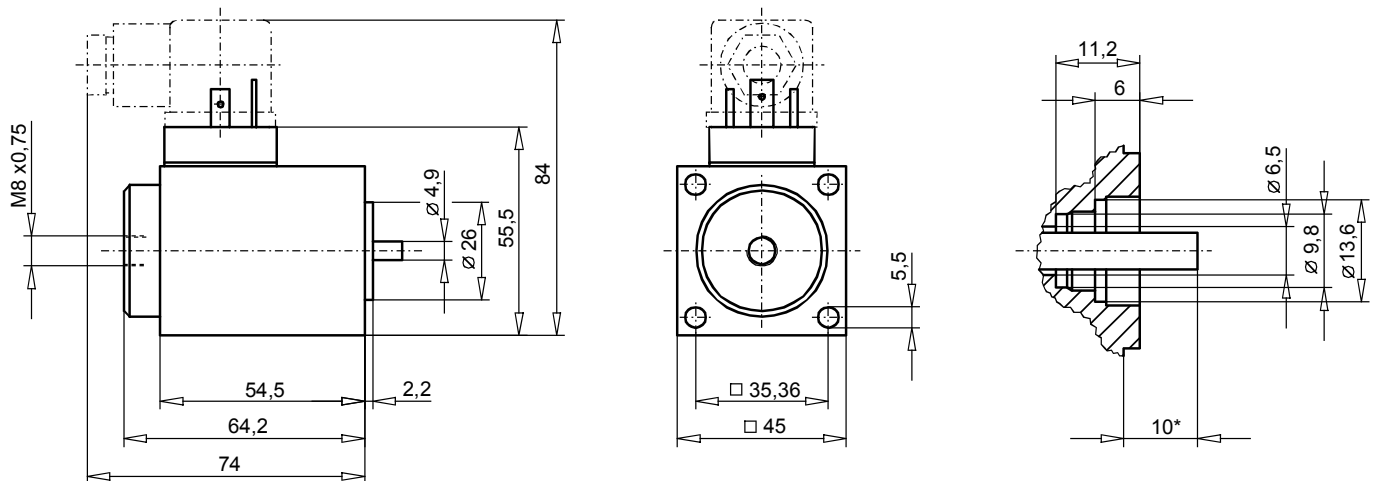
When the solenoid is energised with the specified nominal voltage, the armature moves from the starting position of its stroke ( $s=5,5$  mm) to the end position ( $s=0$  mm). The switching time is essentially dependent on the application. The power-stroke characteristics are designed to suit the requirements of hydraulic valves. AC versions include an electronic rectifier integrated into the connector plate. In this way maximum performance is assured.

**APPLICATION**

Essential for hydraulic directional and poppet valves. Because of the risk of overheating, the solenoid must never be used separately. The length of the fixing screws depends on the base material of the body. An o-ring is used for the valve seal. Information on screws and o-rings will be found in the data sheets relating to the valves concerned. Before changing the plug screw or the screw with integrated manual override, care must be taken to ensure that the solenoid is not under pressure. Risk of injury! The maximum operating pressure is determined by the valve actually used.

**TYPE CODE**

		SI N 45 V - <input type="checkbox"/> - <input type="checkbox"/> # <input type="checkbox"/>	
Solenoid			
Industrial execution			
Normal			
Square 45 mm housing			
Solenoid completely potted			
Nominal voltage $U_N$	12 VDC	<input type="checkbox"/> G12	
	24 VDC	<input type="checkbox"/> G24	
	115 VAC	<input type="checkbox"/> R115 *	
	230 VAC	<input type="checkbox"/> R230 *	
AC= 50 to 60 Hz			
* Rectifier integrated in the plug plate			
Other nominal voltages and nominal power on request			
with mounted screw plug (data sheet 1.1-300)		<input type="checkbox"/> HB0	
with mounted manual override (data sheet 1.1-300)		<input type="checkbox"/> HB6	
with mounted special manual override (data sheet 1.1-310)		<input type="checkbox"/> H...	
Design-Index (Subject to change)			

**DIMENSIONS**


\* Solenoid energised ( $s=0$  mm)

**CHARACTERISTICS**

Static pressure tightness	160 bar (seal diameter of valve max. 26 mm)
Coil winding insulation class	H
Connection/Power supply	Over device plug connection to ISO 4400/DIN 43650, (2P+E), other connections on request.
Protection class EN 60 529	IP65
Relative duty factor	100 %
Reference temperature	50 °C
Seal	Viton, other on request
Fluid	Mineral oil, other fluid on request
Switching cycles	15 000/h
Mounting screws	4 x M5 (Quality 8.8)
Housing	Zinc coated steel housing, other surface treatments on request.

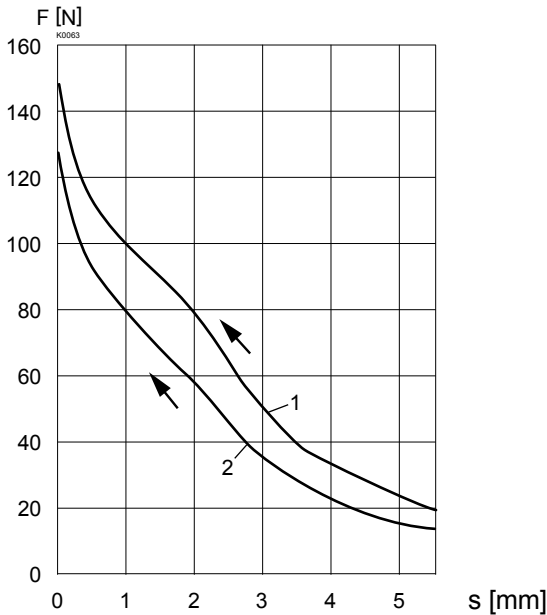
		DC	AC
Totale stroke	(mm)	5,5	5,5
Working stroke	(mm)	2,5	2,5
Nominal power	(W)	30	
	(VA)		35
Armature weight	(kg)	0,055	0,055
Solenoid weight	(kg)	0,76	0,76
Voltage range	(VDC)	10-250	
	(VAC)		40-250*

\* For AC voltages below 40 VAC DC solenoids plus rectifier plugs are available.  
 21 VDC to 24 VAC  
 32 VDC to 36 VAC

	12VDC	24VDC	115VAC	230VAC
Nominal resistance (Ω)	5	21,8	445	1'400
Number of windings (-)	770	1'560	7'000	13'000
Inductivity (mH)	16	72	-	-

**PERFORMANCE**

F = f (s) Force-stroke characteristics



1: U = 100 % U<sub>N</sub> Reference temperature = 20 °C (30W)  
 2: U = 90 % U<sub>N</sub> Reference temperature = 50 °C  
 Solenoid in operating temperature (19W)

The values refer to U<sub>N</sub> = 24 VDC.

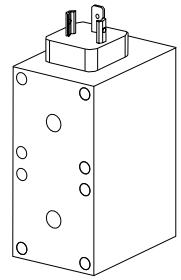
With other nominal voltages deviations can occur.

For curve 2 the solenoids has been mounted on a body □ 46x64.

**ACCESSOIRES**

Plug HB0	* Article No. 239.2033
Plug with integrated manual override HB6	* Article No. 253.8001
	* acc. data sheet 1.1-300
Special manual override	see data sheet 1.1-310
Plug grey	Article No. 219.2001
Plug black	Article No. 219.2002
Rectifier plug grey	Article No. 219.2105
Rectifier plug black	Article No. 219.2106

Technical explanation see data sheet 1.1-400

**Solenoid SIN45DV-...-M40  
 to VDE 0580  
 Plug plate to ISO 4400 / DIN 43650  
 Protection class IP65**

**DESCRIPTION**

The SIN45DV-M40 is a switching solenoid. Its design corresponds to VDE standard 0580. The steel housing has a zinc coated finish as standard. Static pressure tightness is 160 bars. All o-rings are Viton. The solenoids are fixed to the valve with eight screws. The solenoid will be supplied with a plug screw as standard, or depending on the intended use, with integrated manual override. The connector plate corresponds to ISO 4400 and DIN 43650.

**FUNCTION**

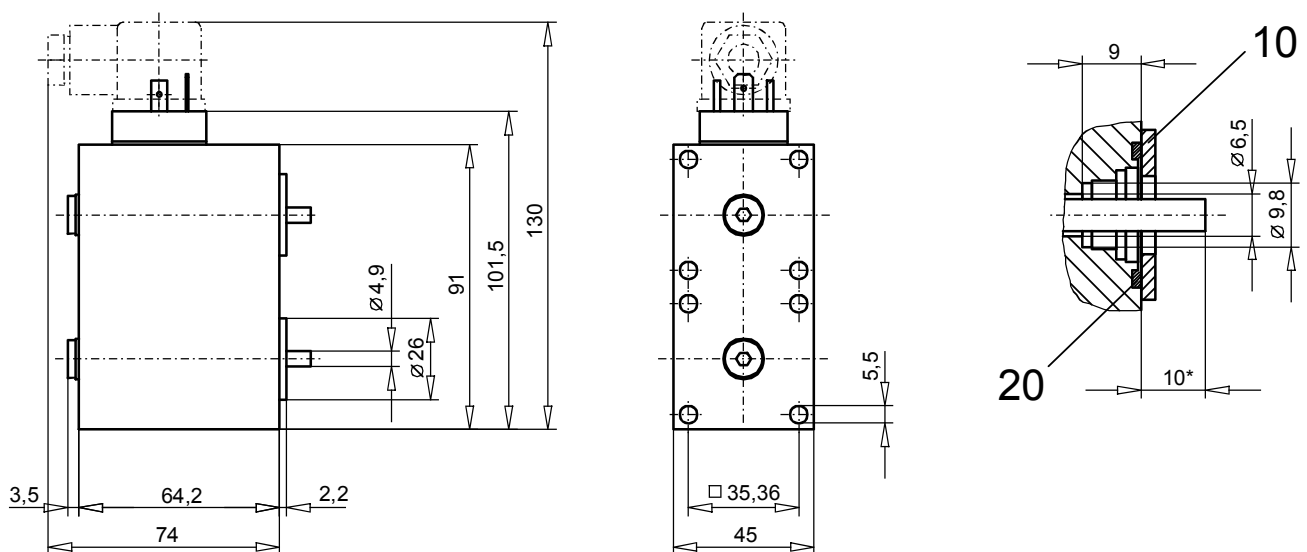
When the solenoid is energised with the specified nominal voltage, the armature moves from the starting position of its stroke ( $s=5,5$  mm) to the end position ( $s=0$  mm). The switching time is essentially dependent on the application. The power-stroke characteristics are designed to suit the requirements of hydraulic valves. AC versions include an electronic rectifier integrated into the connector plate. In this way maximum performance is assured.

**APPLICATION**

Essential for hydraulic poppet valves. Because of the risk of overheating, the solenoid must never be used separately. The length of the fixing screws depends on the base material of the body. An o-ring is used for the valve seal. Information on screws and o-rings will be found in the data sheets relating to the valves concerned. Before changing the plug screw or the screw with integrated manual override, care must be taken to ensure that the solenoid is not under pressure. Risk of injury! The maximum operating pressure is determined by the valve actually used.

**TYPE CODE**

		SI	N	45D	V	-	<input type="text"/>	-	M40	-	<input type="text"/>	#	<input type="text"/>
Solenoid, Industrial execution													
Normal													
Double solenoid, 45mm													
Solenoid completely potted													
Nominal voltage $U_N$	12 VDC	<input type="text"/>	G12	115 VAC	<input type="text"/>	R115	*						
	24 VDC	<input type="text"/>	G24	230 VAC	<input type="text"/>	R230	*						
AC = 50 to 60 Hz													
* Rectifier integrated in the plug plate													
Other nominal voltages and nominal performances on request													
Special sealing against the valve													
with mounted screw plug (data sheet 1.1-300)		<input type="text"/>		HB0									
with mounted manual override (data sheet 1.1-300)		<input type="text"/>		HB6									
with mounted special manual override (data sheet 1.1-310)		<input type="text"/>		H...									
Design-Index (Subject to change)													

**DIMENSIONS**


\* Solenoid energised ( $s=0$  mm)

**CHARACTERISTICS**

Static pressure tightness	160 bar (seal diameter of valve max. 26 mm)
Coil winding insulation class	H
Connection/Power supply	Over device plug connection to ISO 4400/DIN 43650, (2P+E), other connections on request.
Protection class EN 60529	IP65
Relative duty factor	100%
Reference temperature	50 °C
Seal	Viton, other on request
Fluid	Mineral oil, other fluid on request
Switching cycles	15 000/h
Mounting screws	8 x M5 (Quality 8.8)
Housing	Zinc coated steel housing, other surface treatments on request.

		DC	AC
Totale stroke	(mm)	5,5	5,5
Working stroke	(mm)	2,5	2,5
Nominal power	(W)	60	
	(VA)		70
Armature weight	(kg)	0,055	0,055
Solenoid weight	(kg)	1,650	1,650
Voltage range	(VDC)	10-250	
	(VAC)		80-250 *

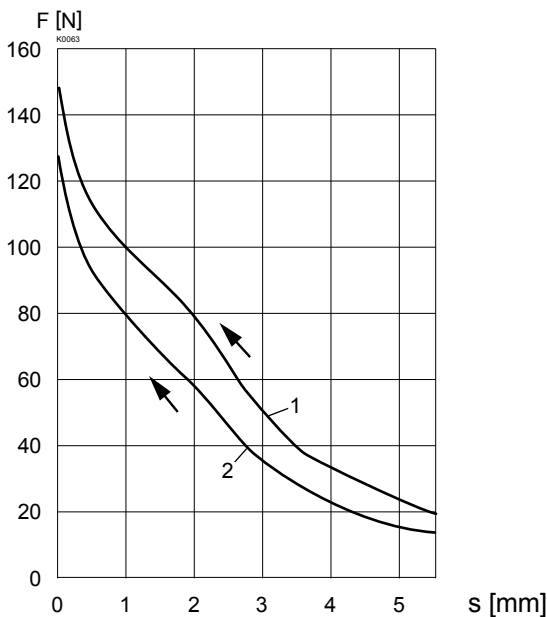
\* For AC voltages below 80 VAC DC solenoids plus rectifier plugs are available.

21 VDC to	24 VAC
32 VDC to	36 VAC
36 VDC to	42 VAC
42 VDC to	48 VAC

	12VDC	24VDC	115VAC	230VAC
Nominal resistance (Ω)	5	21,8	445	1'400
Number of windings (-)	770	1'560	7'000	13'000
Inductivity (mH)	9	36		

**PERFORMANCES**

F = f (s) Force-stroke characteristics  
(Valid for single coil)



1: U = 100% U<sub>N</sub> Reference temperature = 20 °C (30W)  
 2: U = 90% U<sub>N</sub> Reference temperature = 50 °C  
 Solenoid in operating temperature (19W)

The values refer to U<sub>N</sub> = 24 VDC.

With other nominal voltages deviations can occur.

For curve 2 the solenoids has been mounted on a body 46x92x64.

**PARTS LIST**

Position	Article	Description
10	212.0506	Washer
20	160.6188	O-ring ID 18,77x1,78

Technical explanation see data sheet 1.1-400



**CHARACTERISTICS**

Static pressure tightness	350 bar (seal diameter of valve max. 25 mm) With seal diameter of valve = 26 mm: Static pressure tightness = 315 bar
Coil winding insulation class	H
Connection/Power supply	Over device plug connection to ISO 4400/DIN 43650, (2P+E), other connections on request
Protection class to EN 60529	IP65
Relative duty factor	100 %
Reference temperature	50 °C
Seal	Viton, other on request
Fluid	Mineral oil, other fluid on request
Switching cycles	15 000/h
Mounting screws	4 x M5 (Quality 8.8)
Housing	Zinc coated steel housing, other surface treatments on request.

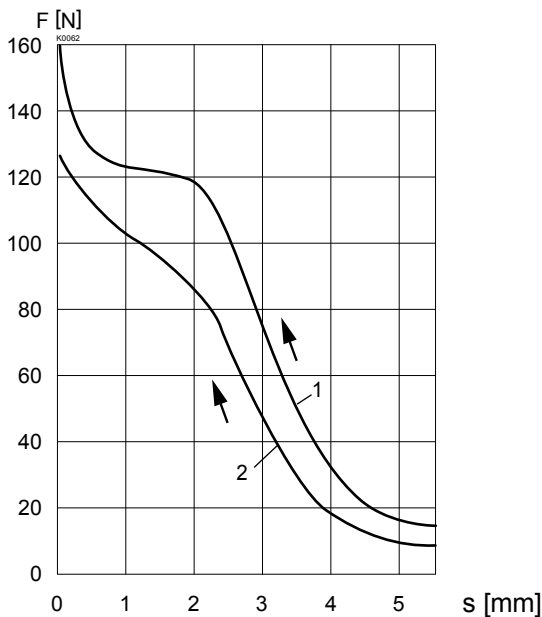
		DC	AC
Totale stroke	(mm)	5,5	5,5
Working stroke	(mm)	2,5	2,5
Nominal power	(W)	30	
	(VA)		35
Armature weight	(kg)	0,044	0,044
Solenoid weight	(kg)	0,76	0,76
Voltage range	(VDC)	10-250	
	(VAC)		40-250*

\* For AC voltages below 40 VAC DC solenoids plus rectifier plugs are available.  
 21 VDC to 24 VAC  
 32 VDC to 36 VAC

	12VDC	24VDC	115VAC	230VAC
Nominal resistance (Ω)	5	21,8	445	1'400
Number of windings (-)	770	1'560	7'000	13'000
Inductivity (mH)	19	82		

**PERFORMANCE**

F = f (s) Force-stroke characteristics



1:  $U = 100\% U_N$  Reference temperature = 20 °C (30W)  
 2:  $U = 90\% U_N$  Reference temperature = 50 °C  
 Solenoid in operating temperature (19W)

The values refer to  $U_N = 24$  VDC.

With other nominal voltages deviations can occur.

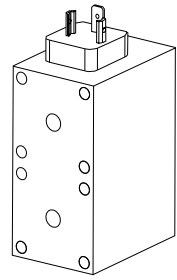
For curve 2 the solenoid has been mounted on a body □ 46 x 64.

**ACCESSOIRES**

Plug HB0	* Article No. 239.2033
Plug with integrated manual override HB6	* Article No. 253.8001
	* acc. data sheet 1.1-300
Special manual override	see data sheet 1.1-310
Plug grey	Article No. 219.2001
Plug black	Article No. 219.2002
Rectifier plug grey	Article No. 219.2105
Rectifier plug black	Article No. 219.2106

Technical explanation see data sheet 1.1-400

**Solenoid SIS45DV-...-M40**  
**to VDE 0580**  
**Plug plate to ISO 4400 / DIN 43650**  
**Protection class IP65**



**DESCRIPTION**

The SIS45DV-M40 is a switching solenoid. Its design corresponds to VDE standard 0580. The steel housing has a zinc coated finish as standard. Static pressure tightness is 350 bars. All o-rings are Viton. The solenoids are fixed to the valve with eight screws. The solenoid will be supplied with a plug screw as standard, or depending on the intended use, with integrated manual override. The connector plate corresponds to ISO 4400 and DIN 43650.

**FUNCTION**

When the solenoid is energised with the specified nominal voltage, the armature moves from the starting position of its stroke ( $s=5,5$  mm) to the end position ( $s=0$  mm). The switching time is essentially dependent on the application. The power-stroke characteristics are designed to suit the requirements of hydraulic valves. AC versions include an electronic rectifier integrated into the connector plate. In this way maximum performance is assured.

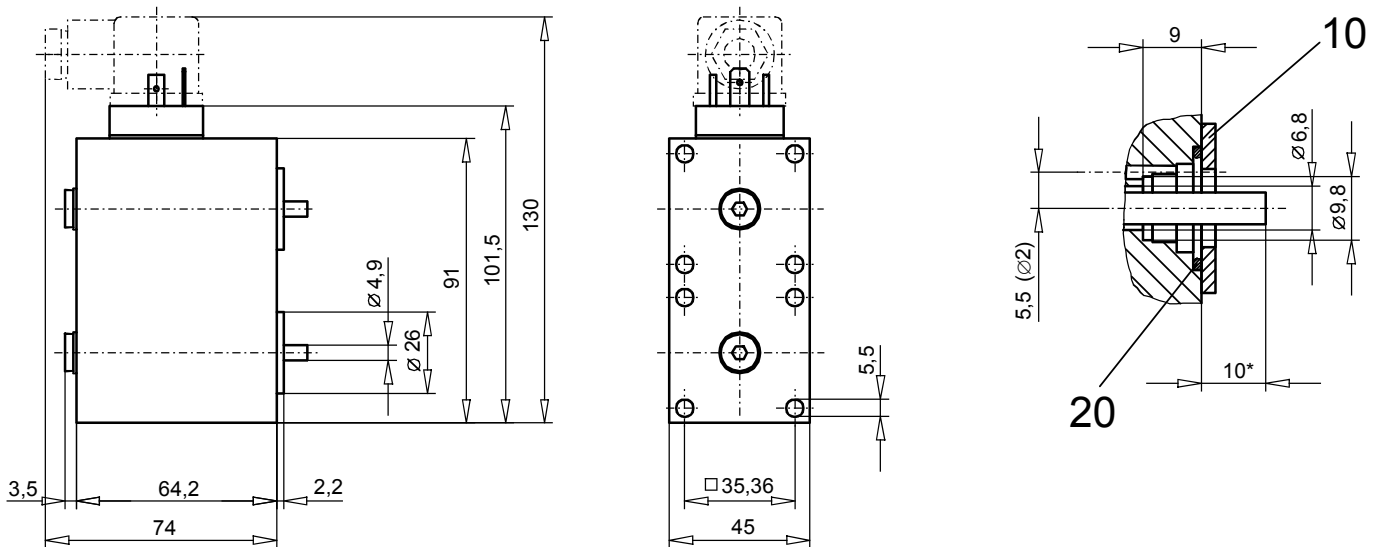
**APPLICATION**

Essential for hydraulic poppet valves. Because of the risk of overheating, the solenoid must never be used separately. The length of the fixing screws depends on the base material of the body. An o-ring is used for the valve seal. Information on screws and o-rings will be found in the data sheets relating to the valves concerned. Before changing the plug screw or the screw with integrated manual override, care must be taken to ensure that the solenoid is not under pressure. Risk of injury! The maximum operating pressure is determined by the valve actually used.

**TYPE CODE**

	SI S 45D V - <span style="border: 1px solid black; padding: 0 5px;"> </span> - M40 - <span style="border: 1px solid black; padding: 0 5px;"> </span> # <span style="border: 1px solid black; padding: 0 5px;"> </span>										
Solenoid, Industrial execution											
Super											
Double solenoid, 45mm											
Solenoid completely potted											
Nominal voltage $U_N$	<table border="0" style="font-size: small;"> <tr> <td style="padding-right: 10px;">12 VDC</td> <td style="border: 1px solid black; padding: 2px;">G12</td> <td style="padding-right: 10px;">115 VAC</td> <td style="border: 1px solid black; padding: 2px;">R115</td> <td style="padding-left: 5px;">*</td> </tr> <tr> <td>24 VDC</td> <td style="border: 1px solid black; padding: 2px;">G24</td> <td>230 VAC</td> <td style="border: 1px solid black; padding: 2px;">R230</td> <td>*</td> </tr> </table>	12 VDC	G12	115 VAC	R115	*	24 VDC	G24	230 VAC	R230	*
12 VDC	G12	115 VAC	R115	*							
24 VDC	G24	230 VAC	R230	*							
AC = 50 to 60 Hz											
* Rectifier integrated in the plug plate											
Other nominal voltages and nominal power on request											
Special sealing against the valve											
with mounted screw plug (data sheet 1.1-300)	<span style="border: 1px solid black; padding: 0 5px;"> </span> HB0										
with mounted manual override (data sheet 1.1-300)	<span style="border: 1px solid black; padding: 0 5px;"> </span> HB6										
with mounted special manual override (data sheet 1.1-310)	<span style="border: 1px solid black; padding: 0 5px;"> </span> H...										
Design-Index (Subject to change)											

**DIMENSIONS**



\* Solenoid energised ( $s=0$  mm)

**CHARACTERISTICS**

Static pressure tightness	350 bar (seal diameter of valve max. 25 mm) With seal diameter of valve = 26 mm: Static pressure tightness = 315 bar
Coil winding insulation class	H
Connection/Power supply	Over device plug connection to ISO 4400/DIN 43650, (2P+E), other connections on request.
Protection class EN 60 529	IP65
Relative duty factor	100 %
Reference temperature	50 °C
Seal	Viton, other on request
Fluid	Mineral oil, other fluid on request
Switching cycles	15 000/h
Mounting screws	8 x M5 (Quality 8.8)
Housing	Zinc coated steel housing, other surface treatments on request.

		DC	AC
Totale stroke	(mm)	5,5	5,5
Working stroke	(mm)	2,5	2,5
Nominal power	(W)	60	
	(VA)		70
Armature weight	(kg)	0,044	0,044
Solenoid weight	(kg)	1,650	1,650
Voltage range	(VDC)	10-250	
	(VAC)		80-250 *

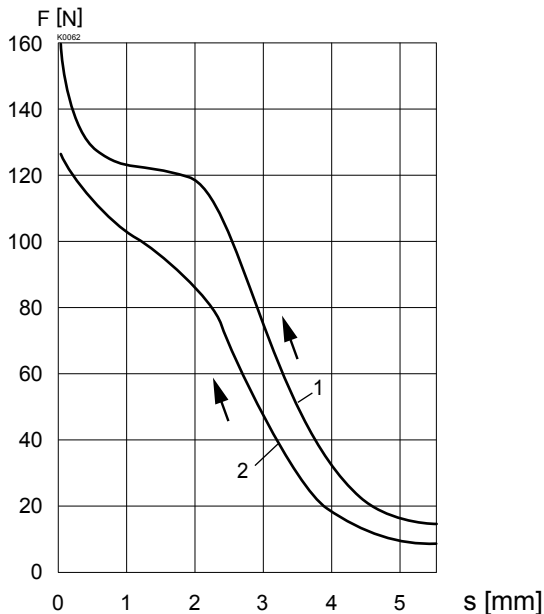
\* For AC voltages below 80 VAC DC solenoids plus rectifier plugs are available.

21 VDC	to	24 VAC
32 VDC	to	36 VAC
36 VDC	to	42 VAC
42 VDC	to	48 VAC

	12VDC	24VDC	115VAC	230VAC
Nominal resistance (Ω)	5	21,8	445	1'400
Number of windings (-)	770	1'560	7'000	13'000
Inductivity (mH)	10	41		

**PERFORMANCES**

F = f (s) Force-stroke characteristics  
(Valid for single coil)



1: U = 100 % U<sub>N</sub> Reference temperature = 20 °C (30W)  
 2: U = 90 % U<sub>N</sub> Reference temperature = 50 °C  
 Solenoid in operating temperature (19W)

The values refer to U<sub>N</sub> = 24 VDC.  
 With other nominal voltages deviations can occur.  
 For curve 2 the solenoids has been mounted on a body 46 x 92 x 64.

**ACCESSOIRES**

Plug HB0	* Article No. 239.2033
Plug with integrated manual override HB6	* Article No. 253.8001 * acc. data sheet 1.1-300
Special manual override see data sheet	1.1-310
Plug grey	Article No. 219.2001
Plug black	Article No. 219.2002
Rectifier plug grey	Article No. 219.2105
Rectifier plug black	Article No. 219.2106

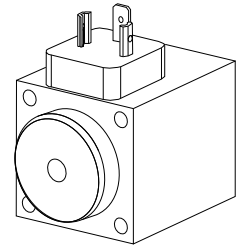
**PARTS LIST**

Position	Article	Description
10	212.0506	Washer
20	160.6456	O-ring ID 15,60 x 1,78

Technical explanation see data sheet 1.1-400



**Proportional solenoid PI45V  
to VDE 0580  
Plug plate to ISO 4400 / DIN 43650  
Protection class IP65**



**DESCRIPTION**

The PI45V is a proportional solenoid. Its design corresponds to VDE standard 0580. The steel housing has a zinc coated finish as standard. Static pressure tightness is 350 bars. All o-rings are Viton. The solenoids are fixed to the valves with four screws. Depending on the intended use, the solenoid can be supplied with a plug screw, or with integrated manual override. The connector plate corresponds to ISO 4400 and DIN 43650.

**FUNCTION**

The horizontal force-stroke characteristics in the working stroke range means that:

- a more or less linear force absorption can be achieved with constant stroke and increasing current absorption;
- a more or less linear stroke variation can be achieved when working against a spring and with increasing current.

This ensures that the reference voltage is adequate at the specified reference temperature to reach the limit current in every case.

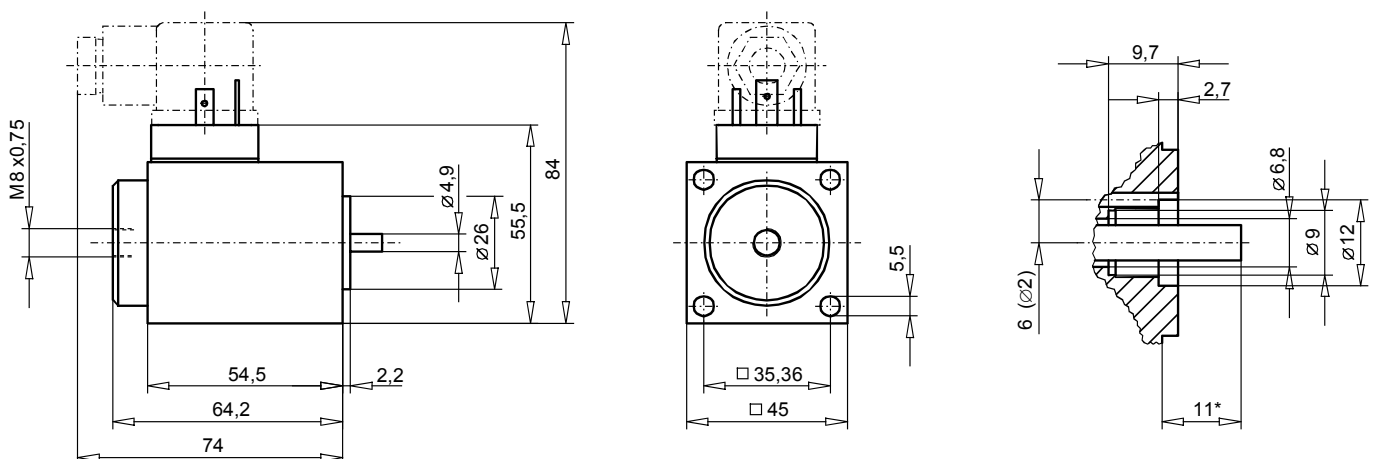
**APPLICATION**

Essential for hydraulic proportional-way-, pressure- and current valves. Because of the risk of overheating, the solenoid must never be used separately. The length of the fixing screws depends on the base material of the body. An o-ring is used for the valve seal. Information on screws and o-rings will be found in the data sheets relating to the valves concerned. Before changing the plug screw or the screw with integrated manual override, care must be taken to ensure that the solenoid is not under pressure. Risk of injury! The maximum operating pressure is determined by the valve actually used.

**TYPE CODE**

		PI 45 V - <input type="checkbox"/> - <input type="checkbox"/> # <input type="checkbox"/>	
Proportional solenoid			
Industrial execution			
Square 45 mm housing			
Solenoid completely potted			
Nominal voltage $U_N$	12 VDC	<input type="checkbox"/> G12	
	24 VDC	<input type="checkbox"/> G24	
with mounted screw plug (data sheet 1.1-300)		<input type="checkbox"/> HB0	
with mounted manual override (data sheet 1.1-300)		<input type="checkbox"/> HB6	
Design-Index (Subject to change)			

**DIMENSIONS**



\* Solenoid energised (s= 0 mm)

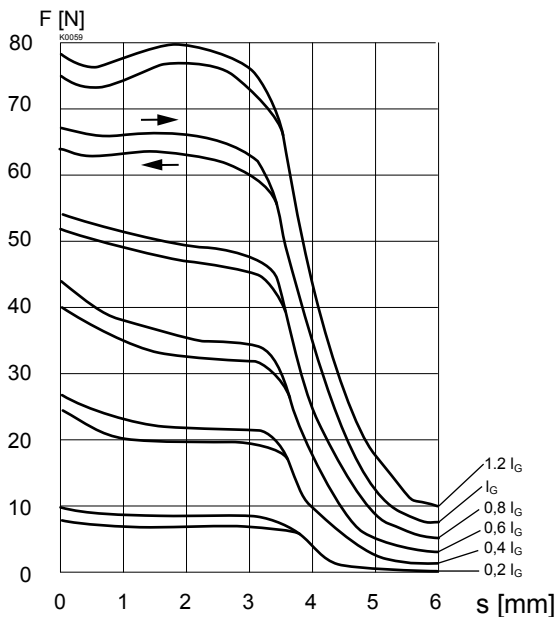
**CHARACTERISTICS**

Static pressure tightness	350 bar (seal diameter of valve max. 25 mm)
Coil winding insulation class	H
Connection/Power supply	Over device plug connection to ISO 4400/DIN 43650, (2P+E), other connections on request
Protection class EN 60 529	IP65
Relative duty factor	100%
Reference temperature	50 °C
Seal	Viton, other on request
Fluid	Mineral oil, other on request
Mounting screws	4 x M5 (Quality 8.8)
Housing	Zinc coated steel housing, other surface treatments on request

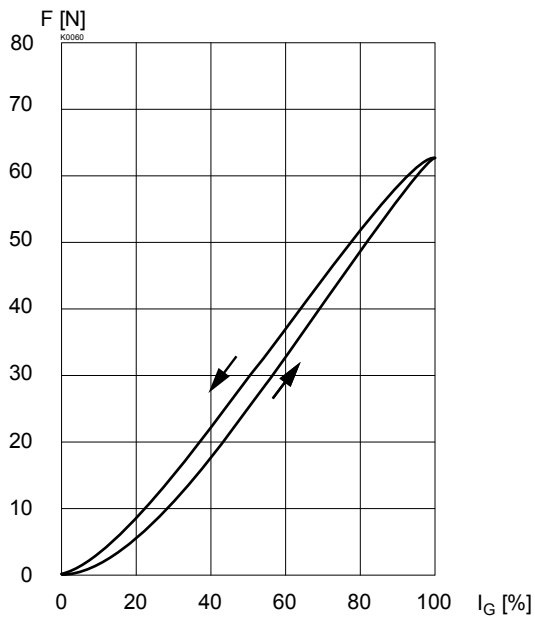
		12VDC	24VDC
Totale stroke	(mm)	6	6
Working stroke	(mm)	3	3
Rated force	(N)	65	65
Hysteresis of rated force	(%)	5	5
Hysteresis of rated current	(%)	3,5	3,5
Nom. linearity deviation	(%)	2	2
Rated resistance	(Ω)	5	21,8
Rated current	(A)	1,78	0,81
Limiting current	(A)	1,78	0,81
Linearity current	(A)	0,3	0,15
Actuation current	(A)	0,04	0,02
Nominal wattage	(W)	15,8	14,3
Performance limit	(W)	21	20
Number of windings	(-)	770	1'560
Inductivity	(mH)	19	82
Armature weight	(kg)	0,044	0,044
Solenoid weight	(kg)	0,76	0,76

**PERFORMANCE**

F = f (s) Force-stroke characteristics

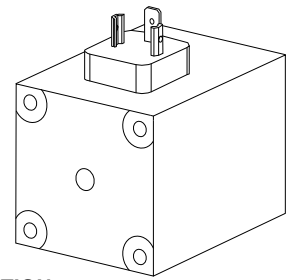


F = f (I) Force-current characteristics


**ACCESSOIRES**

Plug HB0	* Article No. 239.2033
Plug with integrated manual override HB6	* Article No. 253.8001
	* acc. data sheet 1.1-300
Plug grey	Article No. 219.2001
Plug black	Article No. 219.2002

Technical explanation see data sheet 1.1-410

**Solenoid SIN60V  
 to VDE 0580  
 Plug plate to ISO 4400 / DIN 43650  
 Protection class IP65**

**DESCRIPTION**

The SIN60V is a switching solenoid. Its design corresponds to VDE standard 0580. The steel housing is zinc coated as a standard. Static pressure tightness is 160 bars. All o-rings are Viton. The solenoids are fixed to the valve with four screws. Depending on the intended use, the solenoid can be supplied with a plug screw, or with integrated manual override. The connector plate corresponds to ISO 4400 and DIN 43650.

**FUNCTION**

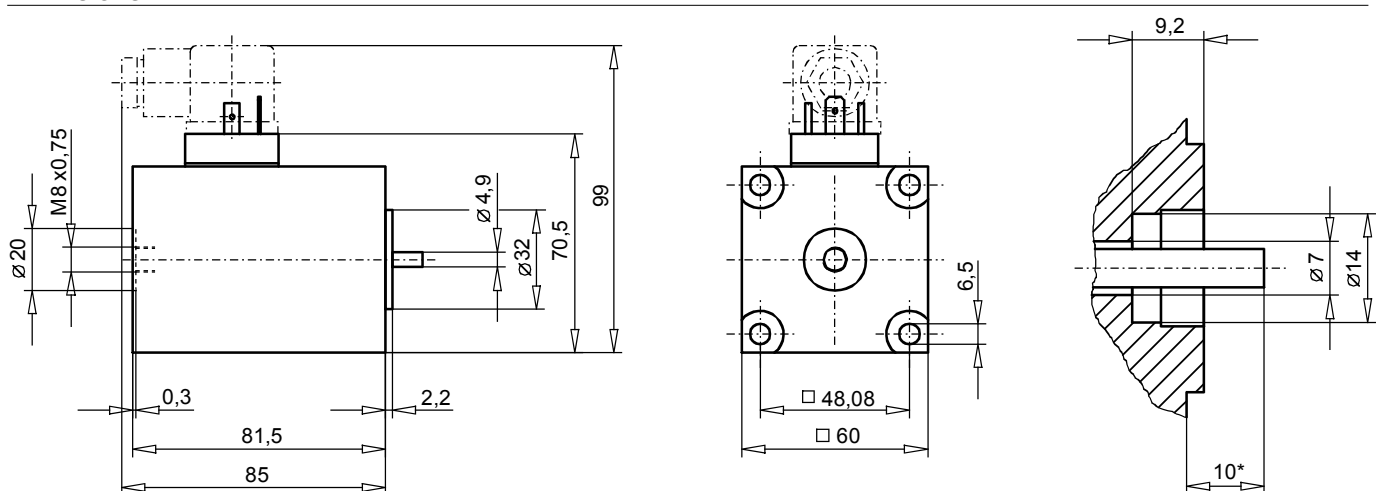
When the solenoid is energised with the specified nominal voltage, the armature moves from the starting position of its stroke ( $s=8,5$  mm) to the end position ( $s=0$  mm). The switching time is essentially dependent on the application. The power-stroke characteristics are designed to suit the requirements of hydraulic valves. AC versions include an electronic rectifier integrated into the connector plate. In this way maximum performance is assured.

**APPLICATION**

Essential for hydraulic directional and poppet valves. Because of the risk of overheating, the solenoid must never be used separately. The length of the fixing screws depends on the base material of the body. An o-ring is used for the valve seal. Information on screws and o-rings will be found in the data sheets relating to the valves concerned. Before changing the plug screw or the screw with integrated manual override, care must be taken to ensure that the solenoid is not under pressure. Risk of injury! The maximum operating pressure is determined by the valve actually used.

**TYPE CODE**

		SI N 60 V - <input type="checkbox"/> - <input type="checkbox"/> # <input type="checkbox"/>	
Solenoid			
Industrial execution			
Normal			
Square 60 mm housing			
Solenoid completely potted			
Nominal voltage $U_N$	12 VDC	<input type="checkbox"/> G12	
	24 VDC	<input type="checkbox"/> G24	
	115 VAC	<input type="checkbox"/> R115 *	
	230 VAC	<input type="checkbox"/> R230 *	
AC= 50 to 60 Hz			
* Rectifier integrated in the plug			
Other nominal voltages and nominal power on request			
with mounted screw plug (data sheet 1.1-300)		<input type="checkbox"/> HB0	
with mounted manual override (data sheet 1.1-300)		<input type="checkbox"/> HB8,5	
with mounted special manual override (data sheet 1.1-310)		<input type="checkbox"/> H...	
Design-Index (Subject to change)			

**DIMENSIONS**


\* Solenoid energised ( $s=0$  mm)

**CHARACTERISTICS**

Static pressure tightness	160 bar (seal diameter of valve max. 32 mm)
Coil winding insulation class	H
Connection/Power supply	Over device plug connection to ISO 4400/DIN 43650, (2P+E), other connections on request
Protection class EN 60 529	IP65
Relative duty factor	100%
Reference temperature	50 °C
Seal	Viton, other on request
Fluid	Mineral oil, other fluid on request
Switching cycles	15 000/h
Mounting screws	4 x M6 (Quality 8.8)
Housing	Zinc coated steel housing, other surface treatments on request.

		DC	AC
Totale stroke	(mm)	8,5	8,5
Working stroke	(mm)	4	4
Nominal power	(W)	40	
	(VA)		46
Armature weight	(kg)	0,124	0,124
Solenoid weight	(kg)	1,90	1,90
Voltage range	(VDC)	10-250	
	(VAC)		50-250*

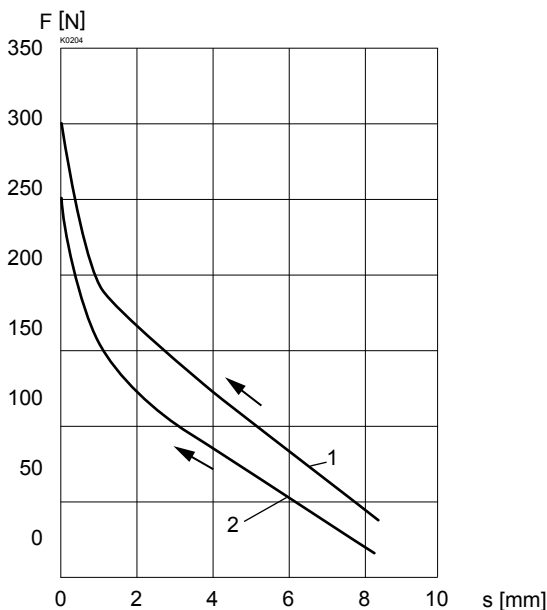
\* For AC voltages below 50 VAC DC solenoids plus rectifier plugs are available.

21 VDC	to 24 VAC
32 VDC	to 36 VAC
36 VDC	to 42 VAC
42 VDC	to 48 VAC

	12VDC	24VDC	115VAC	230VAC
Nominal resistance (Ω)	4	16,5	260	920
Number of windings (-)	780	1'580	5'710	11'200
Inductivity (mH)	19	75	-	-

**PERFORMANCE**

F = f (s) Force-stroke characteristics



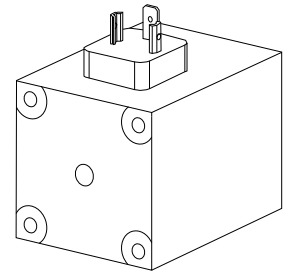
1: U = 100 % U<sub>N</sub> Reference temperature = 20 °C (40W)  
 2: U = 90 % U<sub>N</sub> Reference temperature = 50 °C  
 Solenoid in operating temperature (25W)

The values refer to U<sub>N</sub> = 24 VDC.  
 With other nominal voltages deviations can occur.  
 For curve 2 the solenoid has been mounted on a body □ 62x93.

**ACCESSOIRES**

Plug HB0	* Article No. 239.2033
Plug with integrated manual override HB8,5	* Article No. 253.8002
	* acc. data sheet 1.1-300
Special manual override	see data sheet 1.1-310
Plug grey	Article No. 219.2001
Plug black	Article No. 219.2002
Rectifier plug grey	Article No. 219.2105
Rectifier plug black	Article No. 219.2106

Technical explanation see data sheet 1.1-400

**Solenoid SIS60V  
 to VDE 0580  
 Plug plate to ISO 4400 / DIN 43650  
 Protection class IP65**

**DESCRIPTION**

The SIS60V is a switching solenoid. Its design corresponds to VDE standard 0580. The steel housing has a zinc coated as a standard. Static pressure-tightness is 350 bars. All o-rings are Viton. The solenoids are fixed to the valve with four screws. Depending on the intended use, the solenoid can be supplied with a plug screw, or with integrated manual override. The connector plate corresponds to ISO 4400 and DIN 43650.

**FUNCTION**

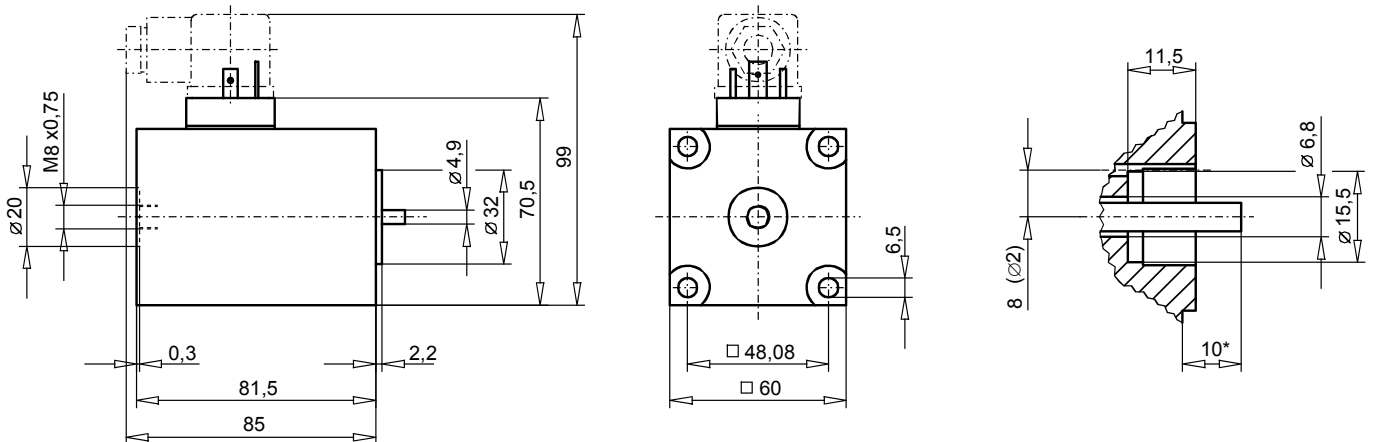
When the solenoid is energised with the specified nominal voltage, the armature moves from the starting position of its stroke ( $s=8,5$  mm) to the end position ( $s=0$  mm). The switching time is essentially dependent on the application. The power-stroke characteristics are designed to suit the requirements of hydraulic valves. AC versions include an electronic rectifier integrated into the connector plate. In this way maximum performance is assured.

**APPLICATION**

Essential for hydraulic directional and poppet valves. Because of the risk of overheating, the solenoid must never be used separately. The length of the fixing screws depends on the base material of the body. An o-ring is used for the valve seal. Information on screws and o-rings will be found in the data sheets relating to the valves concerned. Before changing the plug screw or the screw with integrated manual override, care must be taken to ensure that the solenoid is not under pressure. Risk of injury! The maximum operating pressure is determined by the valve actually used.

**TYPE CODE**

		SI	S	60	V	-	-	#	□
Solenoid									
Industrial execution									
Super									
Square 60 mm housing									
Solenoid completely potted									
Nominal voltage $U_N$	12 VDC								
	24 VDC								
	115 VAC								
	230 VAC								
		G12							
		G24							
		R115	*						
		R230	*						
AC= 50 to 60 Hz									
* Rectifier integrated in the plug plate									
Other nominal voltages and nominal power on request									
with mounted screw plug (data sheet 1.1-300)									HB0
with mounted manual override (data sheet 1.1-300)									HB8,5
with mounted special manual override (data sheet 1.1-310)									H...
Design-Index (Subject to change)									

**DIMENSIONS**


\* Solenoid energised ( $s=0$  mm)

**CHARACTERISTICS**

Static pressure tightness	350 bar (seal diameter of valve max. 29 mm) With seal diameter of valve = 32 mm: Static pressure tightness = 315 bar
Coil winding insulation class	H
Connection/Power supply	Over device plug connection to ISO 4400/DIN 43650, (2P+E), other connections on request
Protection class to EN 60529	IP65
Relative duty factor	100 %
Reference temperature	50 °C
Seal	Viton, other on request
Fluid	Mineral oil, other fluid on request
Switching cycles	15 000/h
Mounting screws	4 x M6 (Quality 8.8)
Housing	Zinc coated steel housing, other surface treatments on request.

		DC	AC
Totale stroke	(mm)	8,5	8,5
Working stroke	(mm)	4	4
Nominal power	(W)	40	
	(VA)		46
Armature weight	(kg)	0,102	0,102
Solenoid weight	(kg)	1,90	1,90
Voltage range	(VDC)	10-250	
	(VAC)		50-250*

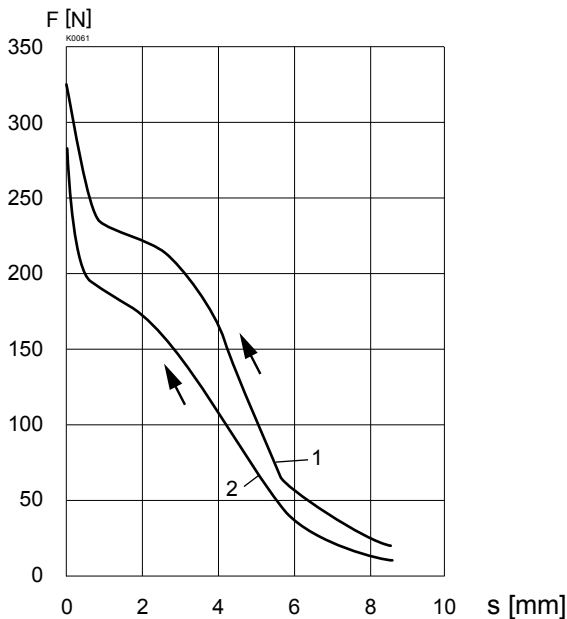
\* For AC voltages below 50 VAC DC solenoids plus rectifier plugs are available.

21 VDC to 24 VAC
32 VDC to 36 VAC
36 VDC to 42 VAC
42 VDC to 48 VAC

	12VDC	24VDC	115VAC	230VAC
Nominal resistance (Ω)	4	16,5	260	920
Number of windings (-)	780	1'580	5'710	11'200
Inductivity (mH)	17	65		

**PERFORMANCE**

F = f (s) Force-stroke characteristics



1: U = 100 % U<sub>N</sub> Reference temperature = 20 °C (40W)  
 2: U = 90 % U<sub>N</sub> Reference temperature = 50 °C  
 Solenoid in operating temperature (25W)

The values refer to U<sub>N</sub> = 24 VDC.

With other nominal voltages deviations can occur.

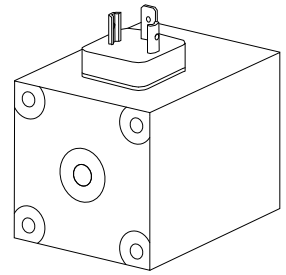
For curve 2 the solenoid has been mounted on a body □ 62x93.

**ACCESSOIRES**

Plug HB0	* Article No. 239.2033
Plug with integrated manual override HB8,5	* Article No. 253.8002
	* acc. data sheet 1.1-300
Special manual override	see data sheet 1.1-310
Plug grey	Article No. 219.2001
Plug black	Article No. 219.2002
Rectifier plug grey	Article No. 219.2105
Rectifier plug black	Article No. 219.2106

Technical explanation see data sheet 1.1-400

**Proportional solenoid PI60V-...-M40  
to VDE 0580  
Plug plate to ISO 4400 / DIN 43650  
Protection class IP65**



**DESCRIPTION**

The PI60V is a proportional solenoid. Its design corresponds to VDE standard 0580. The steel housing is zinc coated as a standard. Static pressure tightness is 350 bars! All o-rings are Viton. The solenoids are fixed to the valve with four screws. Depending on the intended use, the solenoid can be supplied with a plug screw, or with integrated manual override. The connector plate corresponds to ISO 4400 and DIN 43650.

**FUNCTION**

The horizontal force-stroke characteristics in the working stroke range means that:

- a more or less linear force absorption can be achieved with constant stroke and increasing current absorption;
- a more or less linear stroke variation can be achieved when working against a spring and with increasing current absorption.

This ensures that the reference voltage is adequate at the specified reference temperature to reach the limit current in every case.

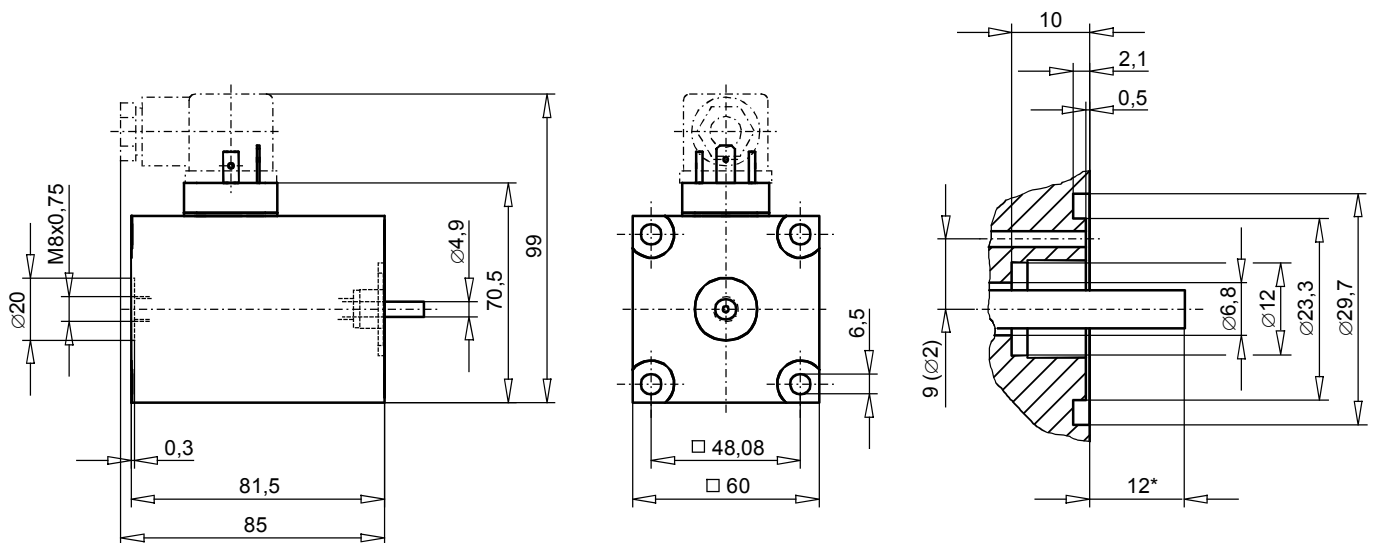
**APPLICATION**

Essential for hydraulic proportional-way-, pressure- and current valves. Because of the risk of overheating, the solenoid must never be used separately. The length of the fixing screws depends on the base material of the body. An o-ring is used for the valve seal. Information on screws and o-rings will be found in the data sheets relating to the valves concerned. Before changing the plug screw or the screw with integrated manual override, care must be taken to ensure that the solenoid is not under pressure. Risk of injury! The maximum operating pressure is determined by the valve actually used.

**TYPE CODE**

		PI 60 V -	<input type="text"/>	- M40 -	<input type="text"/>	#	<input type="text"/>
Proportional solenoid							
Industrial execution							
Square 60 mm housing							
Solenoid completely potted							
Nominal voltage $U_N$		12 VDC	<input type="checkbox"/>	G12			
		24 VDC	<input type="checkbox"/>	G24			
Special sealing against the valve							
with mounted screw plug (data sheet 1.1-300)						<input type="checkbox"/>	HBO
with mounted manual override (data sheet 1.1-300)						<input type="checkbox"/>	HB8,5
Design-Index (Subject to change)							

**DIMENSIONS**



\* Solenoid energised (s= 0 mm)

**CHARACTERISTICS**

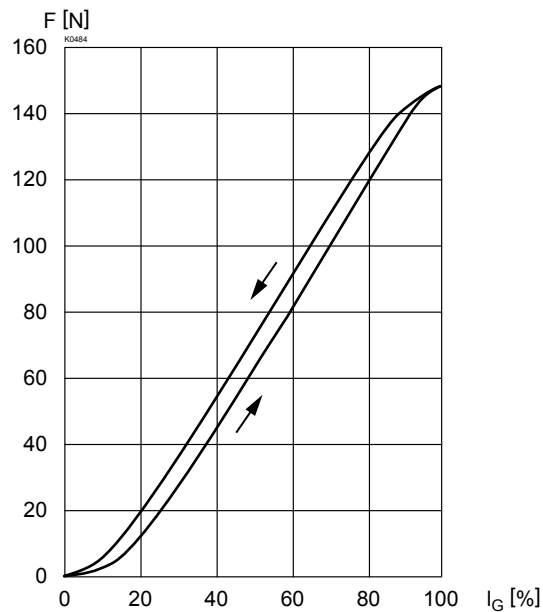
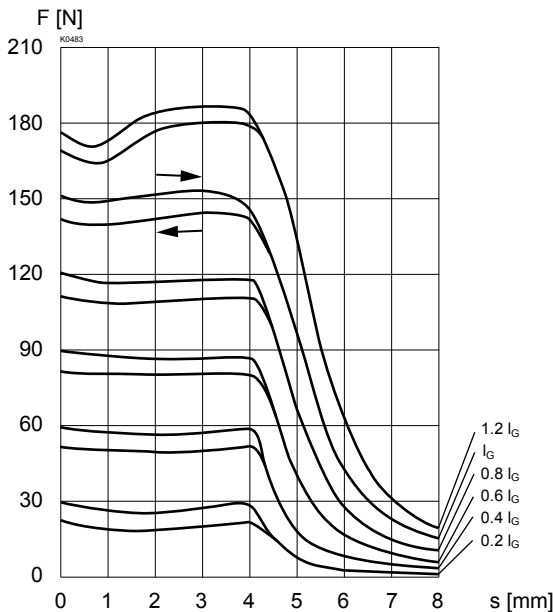
Static pressure tightness	350 bar (seal diameter of valve max. 29 mm) With seal diameter of valve = 32 mm: Static pressure tightness = 315 bar
Coil winding insulation class	H
Connection/Power supply	Over device plug connection to ISO 4400/DIN 43650, (2P+E), other connections on request
Protection class EN 60529	IP65
Relative duty factor	100%
Reference temperature	50 °C
Seal	Viton, other on request
Fluid	Mineral oil, other on request
Mounting screws	4 x M6 (quality 8.8)
Housing	Zinc coated steel housing, other surface treatments on request

		12 VDC	24 VDC
Totale stroke	(mm)	8	8
Working stroke	(mm)	4	4
Rated force	(N)	145	145
Hysteresis of rated force	(%)	5	5
Hysteresis of rated current	(%)	5	5
Nom. linearity deviation	(%)	2	2
Rated resistance	(Ω)	4,1	16,5
Rated current	(A)	2,3	1,15
Limiting current	(A)	2,3	1,15
Linearity current	(A)	0,3	0,15
Actuation current	(A)	0,1	0,05
Nominal wattage	(W)	22	22
Performance limit	(W)	28	28
Number of windings	(-)	780	1'580
Inductivity	(mH)	17	65
Armature weight	(kg)	0,102	0,102
Solenoid weight	(kg)	1,90	1,90

**PERFORMANCE**

F = f (s) Force-stroke characteristics

F = f (I) Force-current characteristics

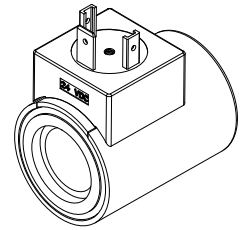

**ACCESSOIRES**

Plug HB0 \* article no. 239.2033  
 Plug with integrated manual override HB8,5 \* article no. 253.8002  
 \* acc. data sheet 1.1-300

Plug grey article no. 219.2001  
 Plug black article no. 219.2002

Technical explanation see data sheet 1.1-410



**Solenoid coil V.E37/19**  
**according to VDE 0580**  
**Protection class IP 65/67/69K**

**DESCRIPTION**

The slip-on solenoid coil V.E37/19 is available in two sizes and with three different connection versions (see type code). The construction corresponds to the VDE 0580 standard. The housing is made of steel (nickel-chromium coated), the connector socket is made of plastic material.

**FUNCTION**

With the combination of an armature tube the function of a switching solenoid or of a proportional solenoid results. The solenoid coils are available with the standard nominal voltages as AC and DC versions.

**APPLICATION**

The solenoid coils are mainly utilised in hydraulic applications.

**TYPE CODE**

Metal housing round with one-sided collar					V	<input type="checkbox"/>	E37 / 19	x	<input type="checkbox"/>	-	<input type="checkbox"/>	#	<input type="checkbox"/>
Connection execution													
Connector socket EN 175301-803/ISO 4400													
Connector socket AMP Junior-Timer													
Connector Deutsch DT04-2P													
Coil execution													
Internal coil diameter 19 mm													
Coil clamping length	40 mm	<input type="checkbox"/>	50 mm	<input type="checkbox"/>									
Nominal voltage U <sub>N</sub>	12 VDC	<input type="checkbox"/>	115 VAC	<input type="checkbox"/>									
	24 VDC	<input type="checkbox"/>	230 VAC	<input type="checkbox"/>									
Design-Index (Subject to change)													

**SPECIFICATIONS**

Coil winding insulation class H (180 °C)  
 Relative duty factor 100% DF/ED  
 combined with armature tube and valve  
 Ambient temperature -20...+50 °C  
 Corrosion protection Salt spray test according to EN ISO 9227: ≥ 200 h

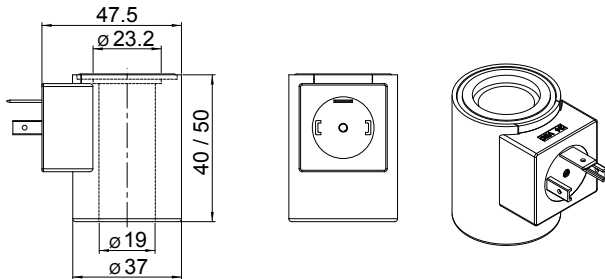
**SAFE OPERATION**

**Caution:** Because of the danger of over-heating the solenoid coil must only be commissioned together with an armature tube as well as with a valve.

			12 VDC	24 VDC	115 VAC	230 VAC
<b>V.E37/19x40</b>	Nominal power (W)	(W)	18	18	18	18
	Limiting power (Proportional function) (W)	(W)	12,5	12,5	–	–
	Limiting current (50 °C) (Proportional function) (A)	(A)	1,00	0,52	–	–
	Nominal resistance (Ω)	(Ω)	8	32	675	2550
	Number of windings (–)	(–)	750	1500	6400	12800
	Weight of solenoid coil (kg)	(kg)	0,17	0,17	0,17	0,17

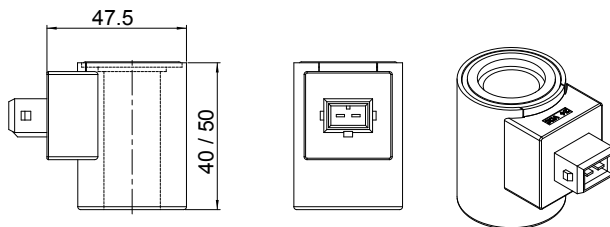
			12 VDC	24 VDC	115 VAC	230 VAC
<b>V.E37/19x50</b>	Nominal power (W)	(W)	22	22	22	22
	Limiting power (Proportional function) (W)	(W)	16	15	–	–
	Limiting current (50 °C) (Proportional function) (A)	(A)	1,20	0,63	–	–
	Nominal resistance (Ω)	(Ω)	6,4	27,2	520	1950
	Number of windings (–)	(–)	780	1560	6650	13300
	Weight of solenoid coil (kg)	(kg)	0,2	0,2	0,2	0,2

TYPE LIST / DIMENSIONS / GENERAL SPECIFICATIONS



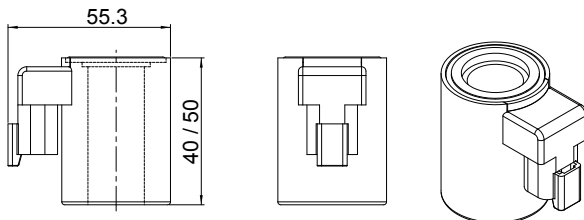
Execution: V **D** E37/19x...

- 3-poles 2 P+E
  - Protection class IP 65
- With corresponding mating connector (not included in delivery) and professional assembly.



Execution: V **J** E37/19x...

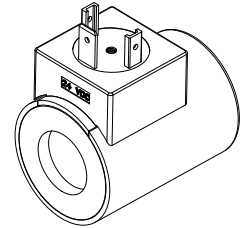
- 2-poles 2P
  - only for  $U_N \leq 75$  VDC
  - Protection class IP 66
- With corresponding mating connector (not included in delivery) and professional assembly.



Execution: V **G** E37/19x...

- 2-poles 2P
  - only for  $U_N \leq 75$  VDC
  - Protection class IP 67 and 69 K
- With corresponding mating connector (not included in delivery) and professional assembly.

Technical explanation see data sheet 1.1-400 and 1.1-410

**Solenoid coil W.E37/16 x 40  
 according to DIN VDE 0580  
 Protection class IP 65/67/69K**

**DESCRIPTION**

The slip-on solenoid coil W.E37/16 x 40 is available in three different connection versions (see type code). The construction corresponds to the DIN VDE 0580-Norm. The housing is made of steel (nickel-/chromium coated), the connector socket is made of plastic material.

**FUNCTION**

With the combination of an armature tube the function of a switching solenoid or of a proportional solenoid results. The solenoid coils are available with standard nominal voltages and as AC and DC versions.

**APPLICATION**

The solenoid coils are mainly utilised in hydraulic applications.

**TYPE CODE**

Metal housing, round		W		<input type="checkbox"/>	E37 / 16 x 40 -	<input type="checkbox"/>	#	<input type="checkbox"/>
Connection execution								
Connector socket EN 175301-803/ISO 4400		<input type="checkbox"/>						
Connector socket AMP Junior-Timer		<input type="checkbox"/>						
Connector Deutsch DT04-2P		<input type="checkbox"/>						
Coil execution								
Internal coil diameter 16 mm								
Coil length 40 mm								
Nominal voltage U <sub>N</sub>		12 VDC	<input type="checkbox"/>	G12	115 VAC	<input type="checkbox"/>	R115	
		24 VDC	<input type="checkbox"/>	G24	230 VAC	<input type="checkbox"/>	R230	
Design-Index (Subject to change)								

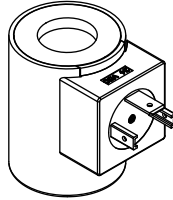
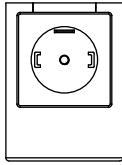
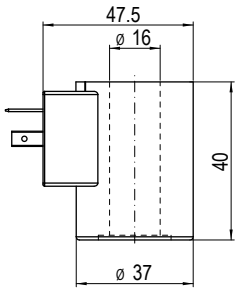
**SPECIFICATIONS**

		12 VDC	24 VDC
Coil winding insulation class	H (180 °C)		
Relative duty factor	100% DF/ED combined with armature tube and valve	Nominal power (W) 20,5	20,5
Ambient temperature	-20...+50 °C	Limiting power (W) 14	14
Corrosion protection	Salt spray test according to EN ISO 9227: ≥ 200 h	Limiting current (50 °C) (A) 1,16	0,58
		Nominal resistance (Ω) 7	28
		Number of windings (-) 710	1 420
		Weight of solenoid coil (kg) 0,22	0,22

**SAFE OPERATION**

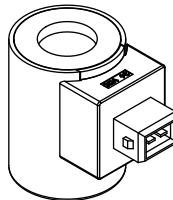
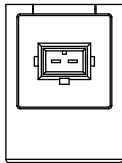
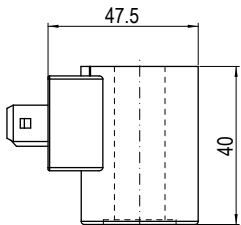
**Caution:** Because of the danger of over-heating the solenoid coil must only be commissioned together with an armature tube as well as with a valve.

TYPE LISTE / DIMENSIONS / GENERAL SPECIFICATIONS



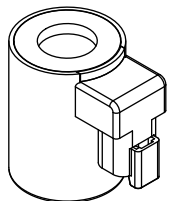
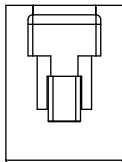
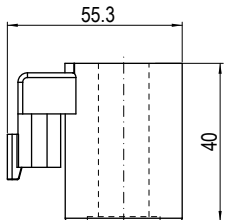
Execution: W **D** E37/16x40-...

- 3-poles 2 P+E
  - Protection class IP 65
- With corresponding mating connector  
(not included in delivery)  
and professional assembly.



Execution: W **J** E37/16x40-...

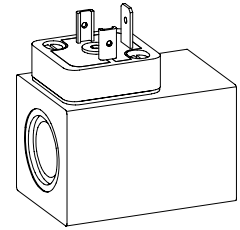
- 2-poles 2P
  - only for  $U_N \leq 75$  VDC
  - Protection class IP 66
- With corresponding mating connector  
(not included in delivery)  
and professional assembly.



Execution: W **G** E37/16x40-...

- 2-poles 2P
  - only for  $U_N \leq 75$  VDC
  - Protection class IP 67 and 69 K
- With corresponding mating connector  
(not included in delivery)  
and professional assembly.

Technical explanation see data sheet 1.1-400 and 1.1-410

**Solenoid coil M.S35/16x53  
 to VDE 0580  
 Protection class IP65/IP67**

**DESCRIPTION**

The slip-on solenoid coil M.S35/16x53 is available with different types of electric connections (see type code). The construction corresponds to standard VDE 0580. The steel housing is zinc coated.

**FUNCTION**

In combination with the corresponding armature tube the function of an on-off solenoid or proportional solenoid will be obtained. The AC voltage type incorporates a rectifier. The available AC voltages are listed in the type code section.

**APPLICATION**

Due to its robust design the coil is mainly intended for hydraulic applications.

**TYPE CODE**

Metal housing, square	M <input type="checkbox"/> S35/16x53 - <input type="checkbox"/> - <input type="checkbox"/> # <input type="checkbox"/>	
Connection execution		
Connector socket ISO 4400/DIN 43650	<input type="checkbox"/> D	
Connector socket AMP Junior-Timer	<input type="checkbox"/> J	
Connector Deutsch DT04-2P	<input type="checkbox"/> G	
Flying leads execution	<input type="checkbox"/> L	
Cable execution	<input type="checkbox"/> K	
Bayonet connector	<input type="checkbox"/> B	
Screw clamp	<input type="checkbox"/> X	
Coil execution		
Internal coil diameter 16 mm		
Coil length 53 mm		
Nominal voltage U <sub>N</sub>	12 VDC	<input type="checkbox"/> G12
	24 VDC	<input type="checkbox"/> G24
	115 VAC	<input type="checkbox"/> R115 *
	230 VAC	<input type="checkbox"/> R230 *
* AC-Execution:		
- Only with connection type: «D», «K», «B», «K...-M28»		
- 50 to 60 Hz		
- Rectifier integrated in the plug plate		
- Other nominal voltages and nominal power on request		
Standard	<input type="checkbox"/>	
Special cable execution	<input type="checkbox"/> M28	
With pressure compensation	<input type="checkbox"/> M35	
Special screw clamp	<input type="checkbox"/> M209	
Screw clamp and electric wiring	<input type="checkbox"/> M222	
Design-Index (Subject to change)		

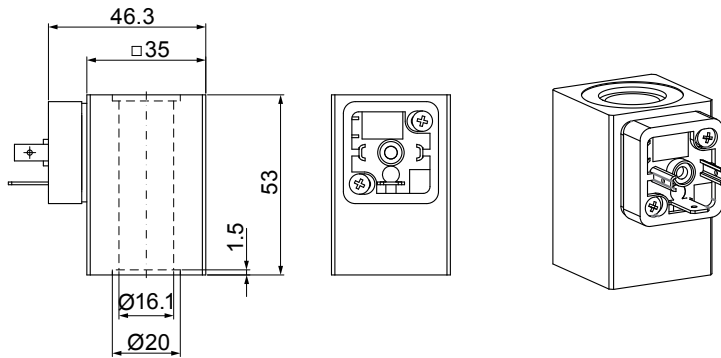
**SPECIFICATIONS**

		12 VDC	24 VDC	115 VAC	230 VAC
Coil winding	min. H (180 °C)				
insulation class					
Protection class	depending on the connector version IP65 or IP67 according to EN 60 529 (if correctly mounted)	Nominal power (W) (Switching function)	22	22	22
Relative duty factor	100 % DF	Limiting power (W) (Proportional function)	11,3	11,7	-
Ambient temperature	-20...+90 °C	Limiting current (50 °C)(A) (Proportional function)	1,25	0,68	-
Nominal voltage range	10-250 VDC 24-250 VAC	Nominal resistance (Ω)	7,2	25	420
		Number of windings (-)	800	1550	5930
		Weight of solenoid coil (kg)	0,37	0,37	0,37
				11400	

**SAFE OPERATION**

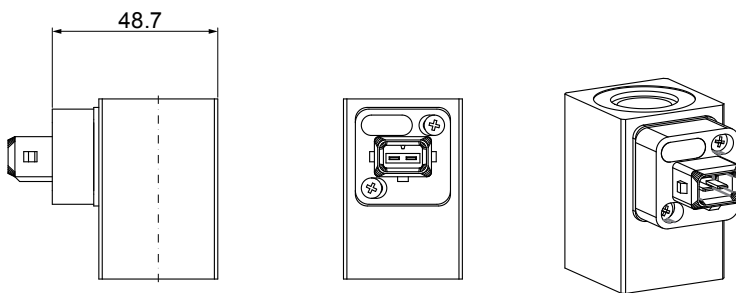
**Caution:** To avoid overheating the coil may only be energised when mounted on an armature tube and valve.

**TYPE LISTE / DIMENSIONS / GENERAL SPECIFICATIONS**



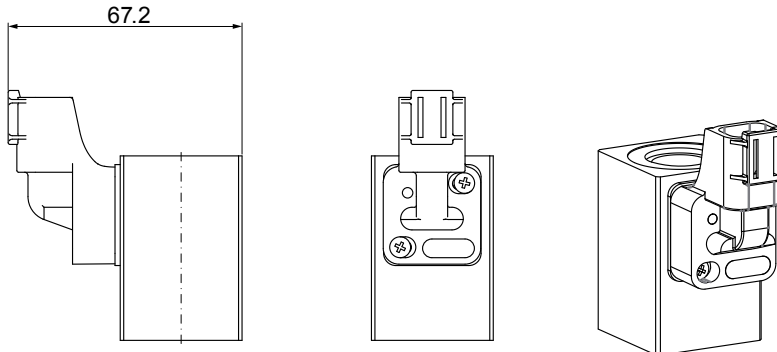
Execution: M **D** S35/16x53-...

- 3 contacts 2 P+E
  - DC- and AC-execution available
  - Connector socket plastic
  - Protection class IP65
- With corresponding mating connector (not included in delivery) and professional assembly.



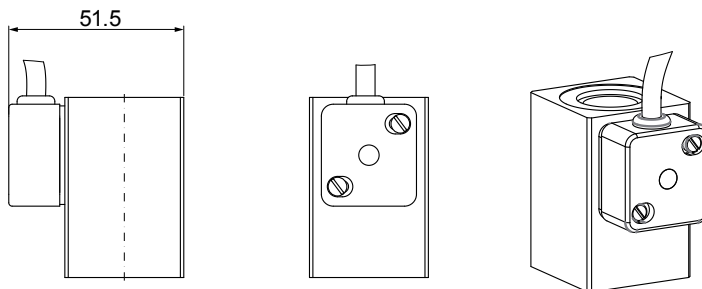
Execution: M **J** S35/16x53-...

- 2 contacts 2P
  - DC-execution available
  - only for  $U_N \leq 75VDC$
  - Connector socket plastic
  - Protection class IP65
- With corresponding mating connector (not included in delivery) and professional assembly.



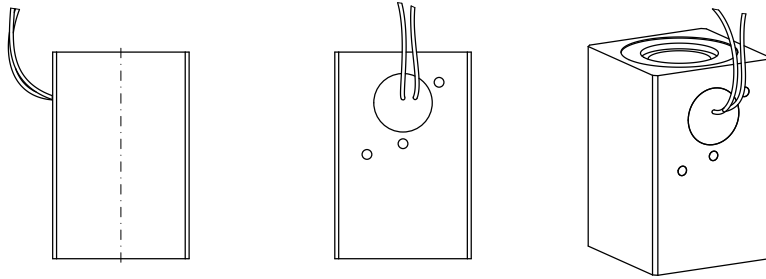
Execution: M **G** S35/16x53

- 2-contacts 2P
  - DC-execution available
  - only for  $U_N \leq 75VDC$
  - Protection class IP 67 and 69 K
- With corresponding mating connector (not included in delivery) and professional assembly.



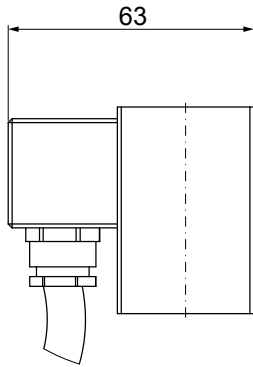
Execution: M **K** S35/16x53-...

- 3 conductors 2P+E 3 x 0,75 mm<sup>2</sup>
  - Thermoplast
  - Cable length 1500 mm
  - Cable diameter 6 mm
  - DC- and AC-execution available
  - Cable housing plastic
  - Protection class IP67
- With professional assembly.

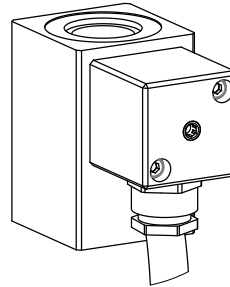
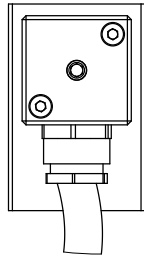


Execution: M **L** S35/16x53-...

- 2 leads 2P (2x 0,25 mm<sup>2</sup>) Radox 155
- Cable length 500 mm
- DC-execution available
- only for UN ≤ 75VDC
- Protection class IP65
- With professional assembly.

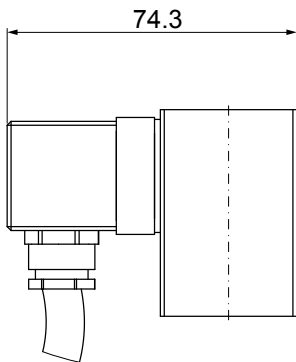


**DC-execution**

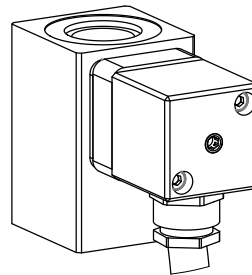
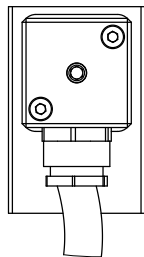


Execution: M **K** S35/16x53-...**M28**

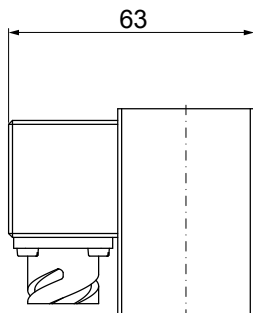
- 3 conductors 2P+E 2x 1 mm<sup>2</sup> [+E] (acc. to IEC 332)
- Cable length 1500 mm
- DC- and AC-execution available
- Cable housing steel
- Protection class IP670
- With professional assembly.



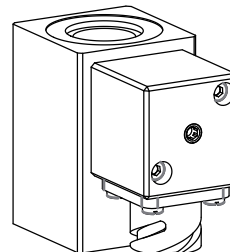
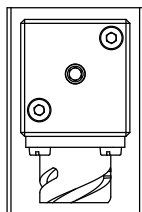
**AC-execution**



- Plastic rectifier housing

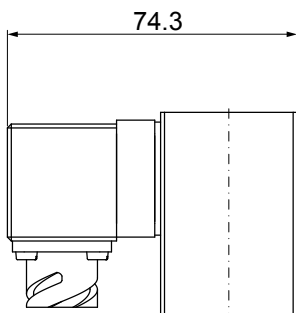


**DC-execution**

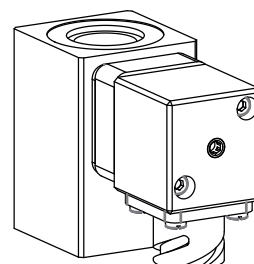
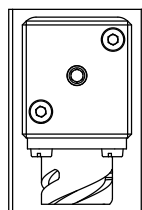


Execution: M **B** S35/16x53-...

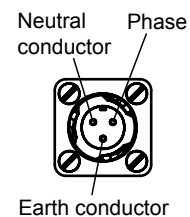
- 3 contacts 2P+E
- DC- and AC-execution available
- Connector housing steel
- Protection class IP67
- With corresponding mating connector (not included in delivery) and professional assembly.

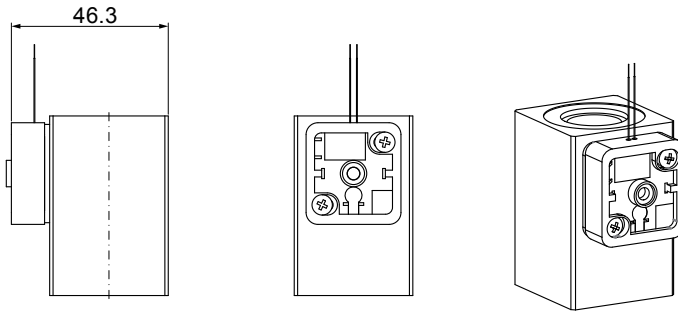


**AC-execution**



- Plastic rectifier housing





Execution: M  S35/16x53-... **M47**

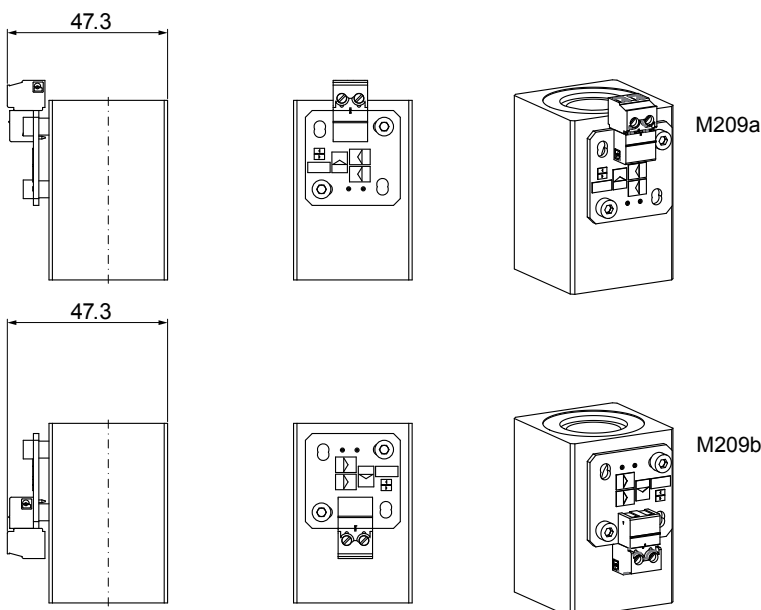
- 2-leads (2 x 0,25 mm<sup>2</sup>) Radox 155
- Cable length 200 mm
- DC- and AC-execution available
- < 120 V external earth contact recommended
- > 120 V external earth contact necessary
- Leads housing plastic
- Protection class IP65
- With professional assembly.

Plug alignment		Electric wiring
M222a	M222b	
M222c	M222d	
M222e	M222f	 Not recommended for proportional solenoids

Execution: M  S35/16x53-... **M222**

- 2-pole
- DC-version available up to 28 VDC
- Screw clamp plastic
- Plug housing plastic, transparent, removable
- Printed circuit board protected with conformal coating
- Protection type IP40 with plastic hood installed

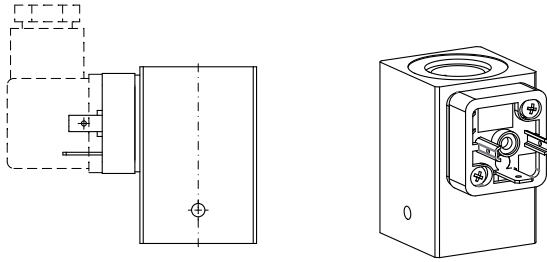
\*  $I_{max} = 1,0 \text{ A at } 130 \text{ }^\circ\text{C}$   
 $I_{max} = 1,5 \text{ A at } 120 \text{ }^\circ\text{C}$   
 $I_{max} = 2,0 \text{ A at } 110 \text{ }^\circ\text{C}$



Execution: M  S35/16x53-... **M209**

- 2-pole
- DC-version available up to 28 VDC
- Screw clamp plastic
- Printed circuit board protected with conformal coating





Execution: M . S35/16x53-... **M35**  
M . S35/16x53-... **M../35**

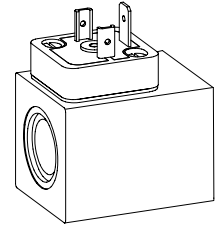
- With pressure equalising bore for underwater applications
- With connection type «D», «L», «X»
- DC-execution available
- Insert in oil tank  
Oil tank separated from water by a membrane

**Attention:**

In case of the connection execution "D", only plugs with the additional designation "Z23" (also with pressure equalising bore) must be utilised.

(Not included in the scope of supply of the solenoid)

Technical explanation see data sheet 1.1-400 and 1.1-410

**Solenoid coil M.E35/16x40  
 to VDE 0580  
 Protection class IP65**

**DESCRIPTION**

The slip-on solenoid coil M.E35/16x40 is available with different types of electric connections (see type code). The construction corresponds to standard VDE 0580.

**FUNCTION**

In combination with the corresponding armature tube the function of an on-off solenoid or proportional solenoid will be obtained. The AC voltage type incorporates a rectifier. The available AC voltages are listed in the type code section.

**APPLICATION**

Due to its robust design the coil is mainly intended for hydraulic applications.

**TYPE CODE**

Metal housing, square		M	<input type="checkbox"/>	E35 / 16	x 40 -	<input type="checkbox"/>	#	<input type="checkbox"/>
Connection execution								
Connector socket EN 175301-803 / ISO 4400				<input type="checkbox"/>	D			
Connector socket AMP Junior-Timer				<input type="checkbox"/>	J			
Flying leads execution				<input type="checkbox"/>	L			
Coil execution								
Internal coil diameter 16 mm								
Coil length 40 mm								
Nominal voltage $U_N$	12 VDC			<input type="checkbox"/>	G12			
	24 VDC			<input type="checkbox"/>	G24			
	115 VAC			<input type="checkbox"/>	R115	*		
	230 VAC			<input type="checkbox"/>	R230	*		
* AC-Execution								
- Only with connection type: «D»								
- 50 to 60 Hz								
- Rectifier integrated in the plug plate								
- Other nominal voltages and nominal power on request								
Design-Index (Subject to change)								

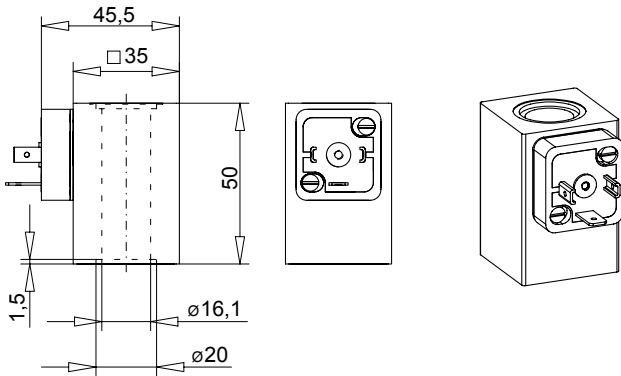
**SPECIFICATIONS**

		12 VDC	24 VDC	115 VAC	230 VAC
Coil winding	min. H (180 °C)				
insulation class					
Relative duty factor	100% DF / ED				
	when mounted on armature tube and valve				
Ambient temperature	-20...+90 °C				
Voltage range	10–250 VDC				
	24–250 VAC				
Nominal power	(On/off function)	20	20	20	20
Nominal resistance ( $\Omega$ )		7,5	29	530	2550
Weight of solenoid coil (kg)		0,28	0,28	0,28	0,28

**SAFE OPERATION**

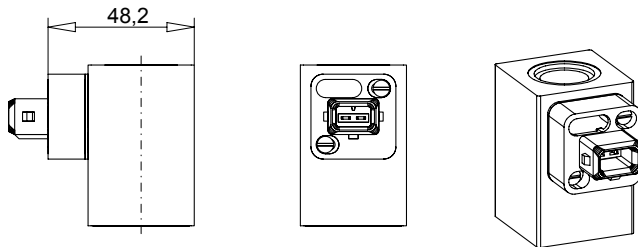
**Caution:** To avoid overheating the coil may only be energised when mounted on an armature tube and valve.

**TYPE LISTE / DIMENSIONS / GENERAL SPECIFICATIONS**



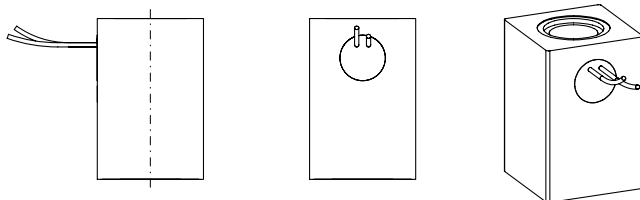
Execution: M **D** E35/16x40-...

- 3 contacts 2 P+E
- DC- and AC-execution available
- Connector socket plastic
- Protection class IP65
- With corresponding mating connector (not included in delivery) and professional assembly.



Execution: M **J** E35/16x40-...

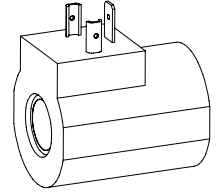
- 2 contacts 2P
- DC-execution available
- only for  $U_N \leq 75$  VDC
- Connector socket plastic
- Protection class IP65
- With corresponding mating connector (not included in delivery) and professional assembly.



Execution: M **L** E35/16x40-...

- 2 leads 2P (2x 0,25 mm<sup>2</sup>) Radox 155
- Cable length 500 mm
- DC-execution available
- only for  $U_N \leq 75$  VDC
- Protection class IP65
- With professional assembly.

Technical explanation see data sheet 1.1-400

**Solenoid coil K.35/16  
 to VDE 0580  
 Protection class IP65**

**DESCRIPTION**

For the slip-on solenoid coil K.35/16 two types of electric connections are available (see type code). The construction corresponds to standard VDE 0580. The housing and connector socket are made of moulded plastic.

**FUNCTION**

In combination with the corresponding armature tube the function of an on-off solenoid or proportional solenoid will be obtained. The solenoid coils are available for standard-nominal voltages 12 VDC or 24 VDC.

**APPLICATION**

The solenoid coils are intended mainly for hydraulic applications.

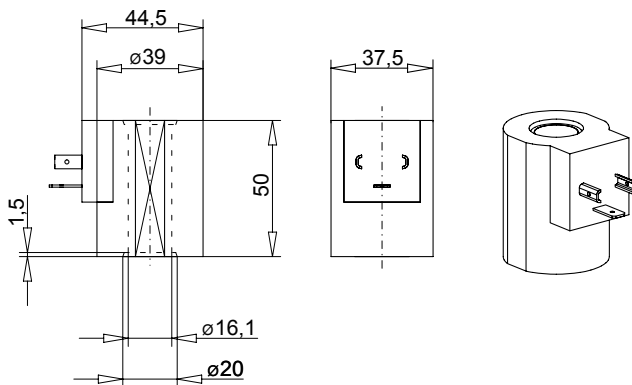
**Caution:** To avoid overheating the coil may only be energised when mounted on an armature tube and valve.

**TYPE CODE**

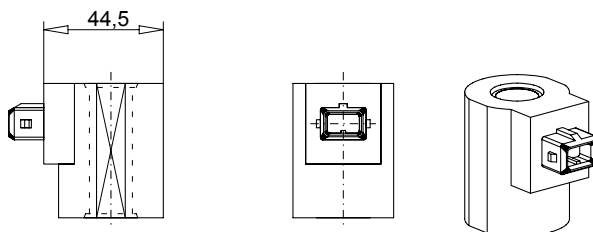
		K	<input type="checkbox"/>	35 / 16	-	<input type="checkbox"/>	#	<input type="checkbox"/>
Plastic housing								
Connection execution								
Connector socket ISO 4400/DIN 43650	<input type="checkbox"/>	D						
Connector socket AMP Junior-Timer	<input type="checkbox"/>	J						
Coil execution								
Internal coil diameter 16 mm								
Nominal voltage $U_N$	12 VDC	<input type="checkbox"/>	G12					
	24 VDC	<input type="checkbox"/>	G24					
Design-Index (Subject to change)								

**TYPE LISTE / DIMENSIONS**

Execution: K  D 35/16-... / 3 contacts 2 P+E



Execution: K  J 35/16-... / 2 contacts


**SPECIFICATIONS**

Coil winding insulation class	min. H (180 °C)
Protection class	IP65 acc. to EN 60 529 (if correctly mounted)
Relative duty factor	100 % DF when mounted on armature tube and valve
Reference temperature	50 °C

		12 VDC	24 VDC
Nominal power (On/off function)	(W)	26	26
Nominal power (Proportional function)	(W)	8,1	8,1
Rated current (Proportional function)	(A)	1,25	0,68
Nominal resistance	(Ω)	5,5	21
Inductivity	(mH)	6	21
Weight of solenoid coil	(kg)	0,25	0,25

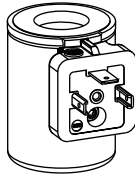
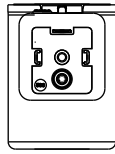
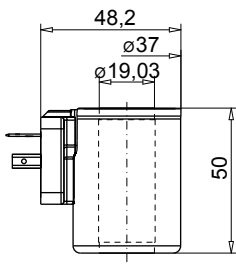
**SAFE OPERATION**

**Caution:** To avoid overheating the coil may only be energised when mounted on an armature tube and valve.

Technical explanation see data sheet 1.1-400

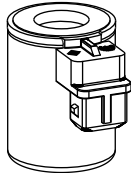
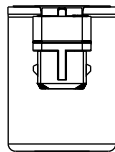
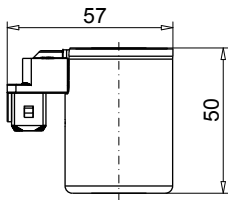


TYPE LISTE / DIMENSIONS / GENERAL SPECIFICATIONS



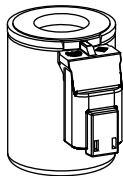
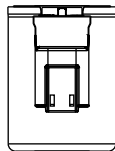
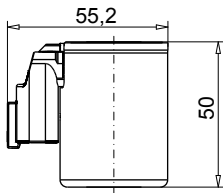
Execution: W **D** S37/19x50-...

- 3-poles 2 P+E
  - Protection class IP 65
- With corresponding mating connector  
(not included in delivery)  
and professional assembly.



Execution: W **J** S37/19x50-...

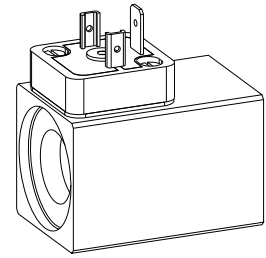
- 2-poles 2P
  - only for  $U_N \leq 75$  VDC
  - Protection class IP 66
- With corresponding mating connector  
(not included in delivery)  
and professional assembly.



Execution: W **G** S37/19x50-...

- 2-poles 2P
  - only for  $U_N \leq 75$  VDC
  - Protection class IP 67 and 69 K
- With corresponding mating connector  
(not included in delivery)  
and professional assembly.

Technical explanation see data sheet 1.1-400 and 1.1-410

**Solenoid coil M.S35/19x50  
 to VDE 0580  
 Protection class IP65/IP67**

**DESCRIPTION**

The slip-on solenoid coil M.S35/19x50 is available with different types of electric connections (see type code). The construction corresponds to standard VDE 0580. The steel housing is zinc coated.

**FUNCTION**

In combination with the corresponding armature tube the function of an on-off solenoid or proportional solenoid will be obtained. The AC voltage type incorporates a rectifier. The available AC voltages are listed in the type code section.

**APPLICATION**

Due to its robust design the coil is mainly intended for hydraulic applications.

**TYPE CODE**

	M	<input type="checkbox"/>	S35/19x50	-	<input type="checkbox"/>	-	<input type="checkbox"/>	#	<input type="checkbox"/>
Metal housing square									
Connection execution									
Connector socket ISO 4400/DIN 43650			D						
Connector socket AMP Junior-Timer			J						
Connector Deutsch DT04-2P			G						
Flying leads execution			L						
Cable execution			K						
Bayonet connector			B						
Screw clamp			X						
Coil execution									
Internal coil diameter 19 mm									
Coil length 50 mm									
Nominal voltage U <sub>N</sub>	12 VDC		G12						
	24 VDC		G24						
	115 VAC		R115		*				
	230 VAC		R230		*				
* AC-Execution:									
- Only with connection type: «D», «K», «B», «K...-M28»									
- 50 to 60 Hz									
- Rectifier integrated in the plug plate									
- Other nominal voltages and nominal power on request									
Standard			<input type="checkbox"/>						
Special cable execution			M28						
With pressure compensation			M35						
Special screw clamp			M209						
Screw clamp and electric wiring			M222						
Design-Index (Subject to change)									

**SPECIFICATIONS**

			12 VDC	24 VDC	115 VAC	230 VAC
Coil winding insulation class	min. H (180 °C)	Nominal power (W)	26	26	26	26
Relative duty factor	100 % DF	Limiting power (W)	16	16	-	-
Ambient temperature	-20...+90 °C	Limiting current (50 °C) (A)	1,36	0,68	-	-
Nominal voltage range	10–250 VDC	Nominal resistance (Ω)	75,6	22	410	1650
	24–250 VAC	Number of windings (-)	718	1400	6100	11 850
		Weight of solenoid coil (kg)	0,32	0,32	0,32	0,32

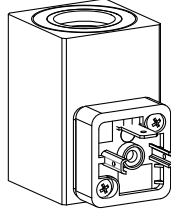
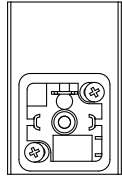
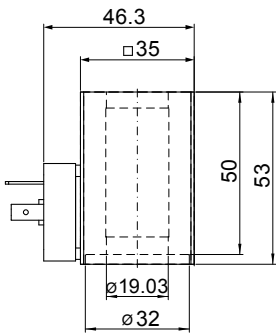
**SAFE OPERATION**

**Caution:** To avoid overheating the coil may only be energised when mounted on an armature tube and valve.

**Note:** For maximum power development the coil has to be installed in its preferred direction. A reversed installation can lead to lower hydraulic values.

**TYPE LISTE / DIMENSIONS / GENERAL SPECIFICATIONS**

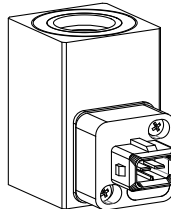
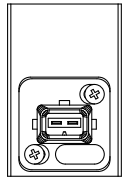
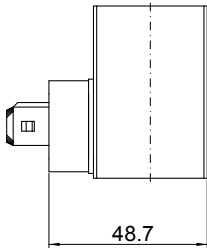
↓ Valve side



Execution: M **D** S35/19x50-...

- 3 contacts 2 P+E
  - DC- and AC-execution available
  - Connector socket plastic
  - Protection class IP65
- With corresponding mating connector (not included in delivery) and professional assembly.

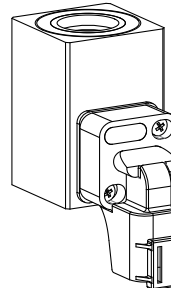
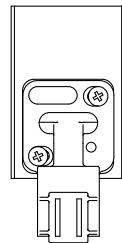
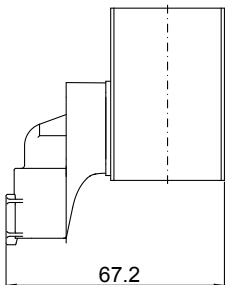
↓ Valve side



Execution: M **J** S35/19x50-...

- 2 contacts 2P
  - DC-execution available
  - only for  $U_N \leq 75VDC$
  - Connector socket plastic
  - Protection class IP65
- With corresponding mating connector (not included in delivery) and professional assembly.

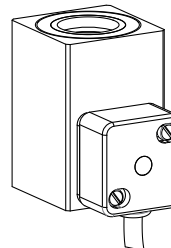
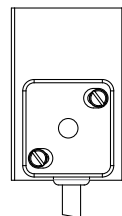
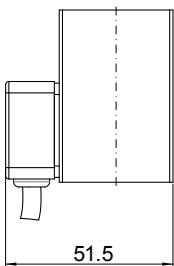
↓ Valve side



Execution: M **G** S35/19x50

- 2-contacts 2P
  - DC-execution available
  - only for  $U_N \leq 75VDC$
  - Protection class IP 67 and 69 K
- With corresponding mating connector (not included in delivery) and professional assembly.

↓ Valve side

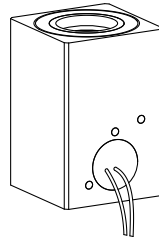
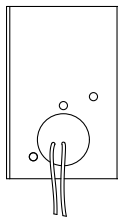
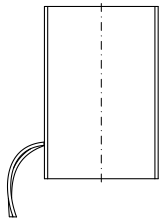


Execution: M **K** S35/19x50-...

- 3 conductors 2P+E 3 x 0,75 mm<sup>2</sup>
  - Thermoplast
  - Cable length 1500 mm
  - Cable diameter 6 mm
  - DC- and AC-execution available
  - Cable housing plastic
  - Protection class IP67
- With professional assembly.



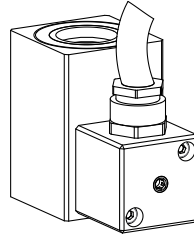
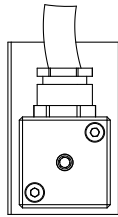
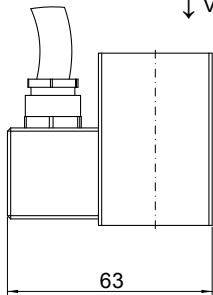
↓ Valve side



Execution: M **L** S35/19x50-...

- 2 leads 2P (2x 0,25 mm<sup>2</sup>) Radox 155
- Cable length 500 mm
- DC-execution available
- only for UN ≤ 75VDC
- Protection class IP65
- With professional assembly.

↓ Valve side

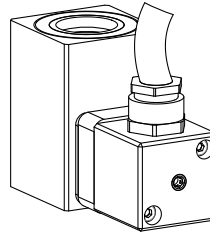
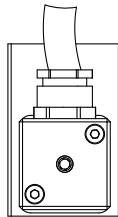
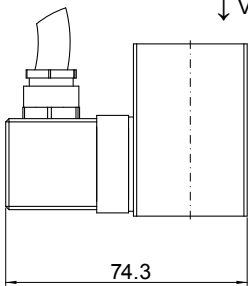


**DC-execution**

Execution: M **K** S35/19x50-... **M28**

- 3 conductors 2P+E 2x 1 mm<sup>2</sup> [+E] (acc. to IEC 332)
- Cable length 1500 mm
- DC- and AC-execution available
- Cable housing steel
- Protection class IP670
- With professional assembly.

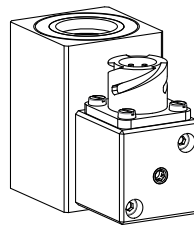
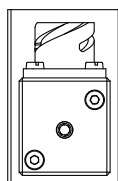
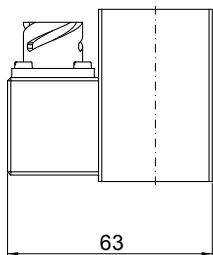
↓ Valve side



**AC-execution**

- Plastic rectifier housing

↓ Valve side

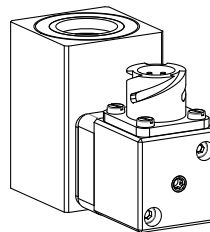
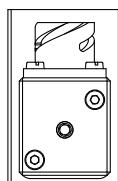
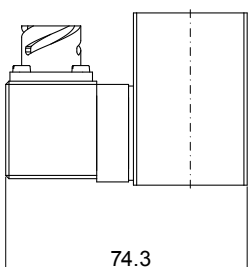


**DC-execution**

Execution: M **B** S35/19x50-...

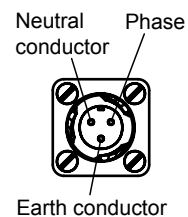
- 3 contacts 2P+E
- DC- and AC-execution available
- Connector housing steel
- Protection class IP67
- With corresponding mating connector (not included in delivery) and professional assembly.

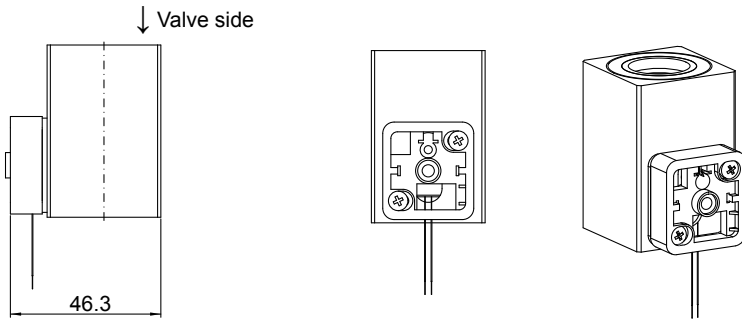
↓ Ventilseite



**AC-execution**

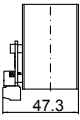
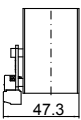
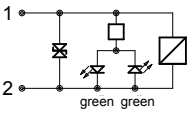
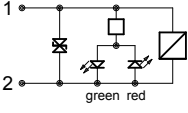
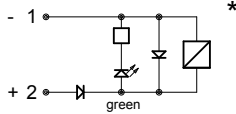
- Plastic rectifier housing





Execution: M  S35/19x50-... **M47**

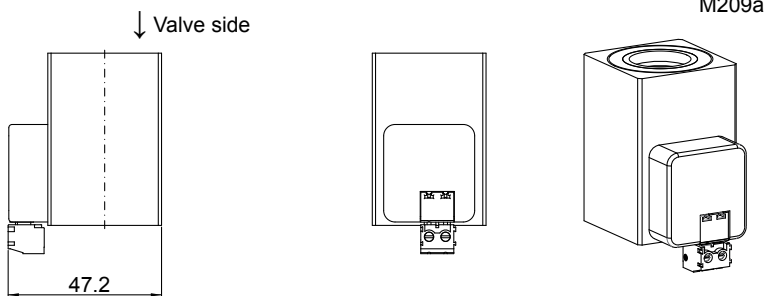
- 2-leads (2 x 0,25 mm<sup>2</sup>) Radox 155
- Cable length 200 mm
- DC- and AC-execution available
- < 120 V external earth contact recommended
- > 120 V external earth contact necessary
- Leads housing plastic
- Protection class IP65
- With professional assembly.

Plug alignment		Electric wiring
		
M222a	M222b	
M222c	M222d	
M222e	M222f	 Not recommended for proportional solenoids

Execution: M  S35/19x50-... **M222**

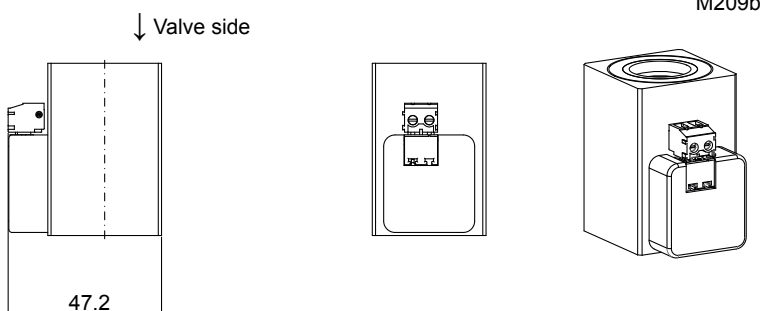
- 2-pole
- DC-version available up to 28 VDC
- Screw clamp plastic
- Plug housing plastic, transparent, removable
- Printed circuit board protected with conformal coating
- Protection type IP40 with plastic hood installed

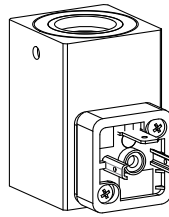
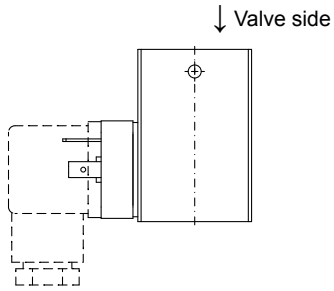
\*  $I_{max} = 1,0 \text{ A at } 130 \text{ }^\circ\text{C}$   
 $I_{max} = 1,5 \text{ A at } 120 \text{ }^\circ\text{C}$   
 $I_{max} = 2,0 \text{ A at } 110 \text{ }^\circ\text{C}$



Execution: M  S35/16x53-... **M209**

- 2-pole
- DC-version available up to 28 VDC
- Screw clamp plastic
- Printed circuit board protected with conformal coating





Execution: M . S35/19x50-... **M35**  
M . S35/19x50-... **M../35**

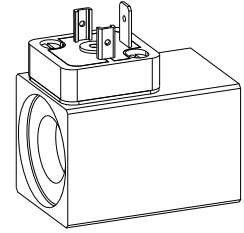
- With pressure equalising bore for underwater applications
- With connection type «D», «L», «X»
- DC-execution available
- Insert in oil tank  
Oil tank separated from water by a membrane

**Attention:**

In case of the connection execution "D", only plugs with the additional designation "Z23" (also with pressure equalising bore) must be utilised.

(Not included in the scope of supply of the solenoid)

Technical explanation see data sheet 1.1-400 and 1.1-410

**Solenoid coil N.S35/19x50  
 to VDE 0580  
 Protection class IP65/IP67**

**DESCRIPTION**

The slip-on solenoid coil N.S35/19x50 is available with different types of electric connections (see type code). The construction corresponds to standard VDE 0580. The steel housing is zinc coated.

**FUNCTION**

In combination with the corresponding armature tube the function of an on-off solenoid or proportional solenoid will be obtained. The AC voltage type incorporates a rectifier. The available AC voltages are listed in the type code section.

**APPLICATION**

Due to its robust design the coil is mainly intended for hydraulic applications.

**TYPE CODE**

Metal housing square with one-sided collar Connection execution Connector socket ISO 4400/DIN 43650 Connector socket AMP Junior-Timer Connector Deutsch DT04-2P Flying leads execution Cable execution Bayonet connector Screw clamp Coil execution Internal coil diameter 19 mm Coil length 50 mm Nominal voltage U <sub>N</sub> 12 VDC 24 VDC 115 VAC 230 VAC * AC-Execution: - Only with connection type: «D», «K», «B», «K...-M28» - 50 to 60 Hz - Rectifier integrated in the plug plate - Other nominal voltages and nominal power on request Standard Special cable execution With pressure compensation Special screw clamp Screw clamp and electric wiring Design-Index (Subject to change)	N <input type="checkbox"/> S35/19x50 - <input type="checkbox"/> - <input type="checkbox"/> # <input type="checkbox"/>  <input type="checkbox"/> D <input type="checkbox"/> J <input type="checkbox"/> G <input type="checkbox"/> L <input type="checkbox"/> K <input type="checkbox"/> B <input type="checkbox"/> X  <input type="checkbox"/> G12 <input type="checkbox"/> G24 <input type="checkbox"/> R115 * <input type="checkbox"/> R230 *  <input type="checkbox"/> <input type="checkbox"/> M28 <input type="checkbox"/> M35 <input type="checkbox"/> M209 <input type="checkbox"/> M222	
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**SPECIFICATIONS**

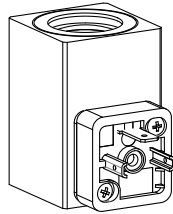
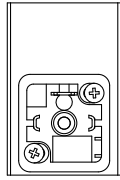
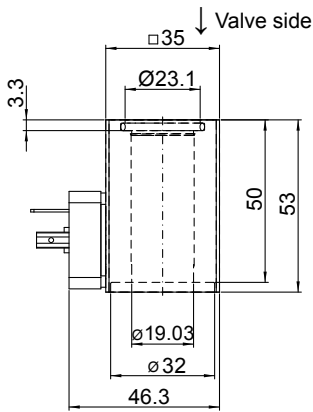
			12 VDC	24 VDC	115 VAC	230 VAC
Coil winding	min. H (180 °C)					
insulation class		Nominal power (W)	26	26	26	26
Relative duty factor	100 % DF	Limiting power (W)	16	16	–	–
	when mounted on armature tube and valve	(Proportional function)				
Ambient temperature	-20...+90 °C	Limiting current (50 °C) (A)	1,36	0,68	–	–
Nominal voltage range	10–250 VDC	(Proportional function)				
	24–250 VAC	Nominal resistance (Ω)	75,6	22	410	1650
		Number of windings (–)	718	1400	6100	11 850
		Weight of solenoid coil (kg)	0,32	0,32	0,32	0,32

**SAFE OPERATION**

**Caution:** To avoid overheating the coil may only be energised when mounted on an armature tube and valve.

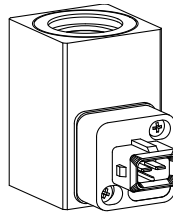
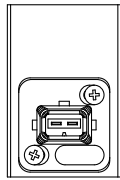
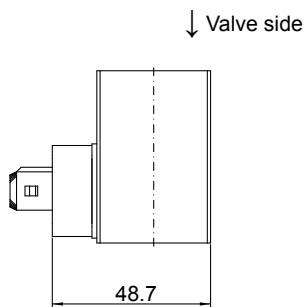
**Note:** For maximum power development the coil has to be installed in its preferred direction. A reversed installation can lead to lower hydraulic values.

**TYPE LISTE / DIMENSIONS / GENERAL SPECIFICATIONS**



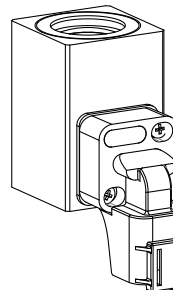
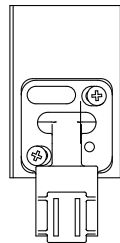
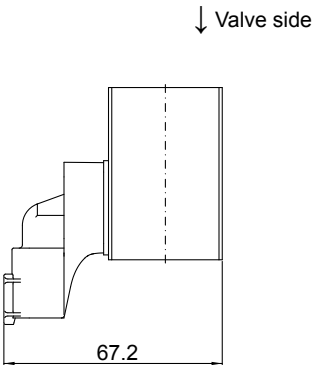
Execution: N **D** S35/19x50-...

- 3 contacts 2 P+E
  - DC- and AC-execution available
  - Connector socket plastic
  - Protection class IP65
- With corresponding mating connector (not included in delivery) and professional assembly.



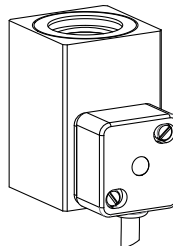
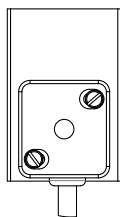
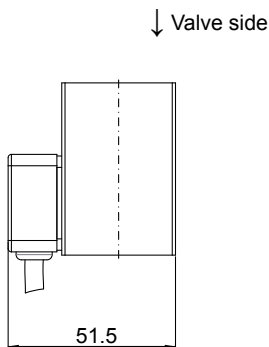
Execution: N **J** S35/19x50-...

- 2 contacts 2P
  - DC-execution available
  - only for  $U_N \leq 75VDC$
  - Connector socket plastic
  - Protection class IP65
- With corresponding mating connector (not included in delivery) and professional assembly.



Execution: N **G** S35/19x50

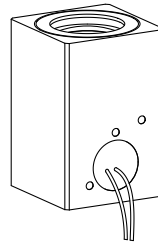
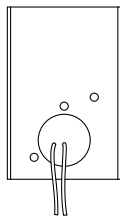
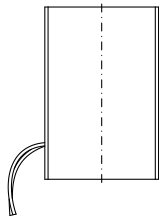
- 2-contacts 2P
  - DC-execution available
  - only for  $U_N \leq 75VDC$
  - Protection class IP 67 and 69 K
- With corresponding mating connector (not included in delivery) and professional assembly.



Execution: N **K** S35/19x50-...

- 3 conductors 2P+E 3 x 0,75 mm<sup>2</sup> Thermoplast
  - Cable length 1500 mm
  - Cable diameter 6 mm
  - DC- and AC-execution available
  - Cable housing plastic
  - Protection class IP67
- With professional assembly.

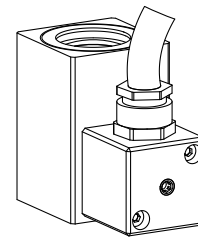
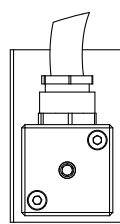
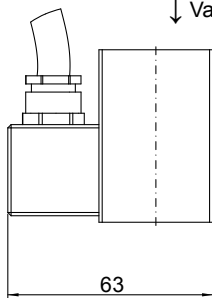
↓ Valve side



Execution: N **L** S35/19x50-...

- 2 leads 2P (2x 0,25 mm<sup>2</sup>) Radox 155
- Cable length 500 mm
- DC-execution available
- only for UN ≤ 75VDC
- Protection class IP65
- With professional assembly.

↓ Valve side

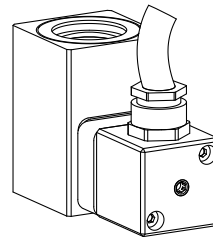
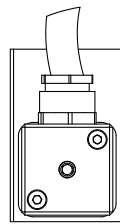
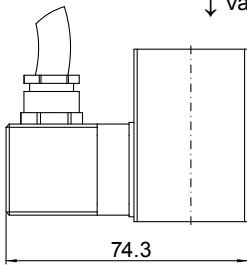


**DC-execution**

Execution: N **K** S35/19x50-... **M28**

- 3 conductors 2P+E 2x 1 mm<sup>2</sup> [+E] (acc. to IEC 332)
- Cable length 1500 mm
- DC- and AC-execution available
- Cable housing steel
- Protection class IP670
- With professional assembly.

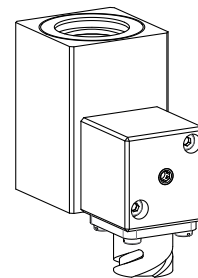
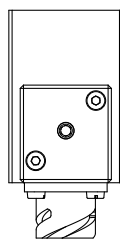
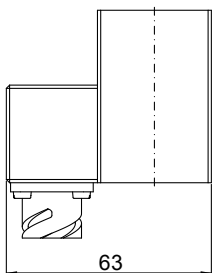
↓ Valve side



**AC-execution**

- Plastic rectifier housing

↓ Valve side

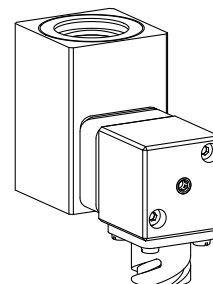
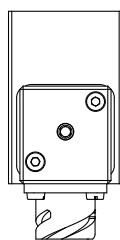
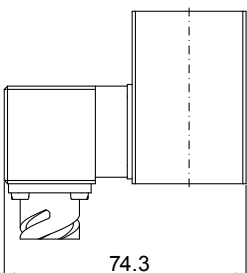


**DC-execution**

Execution: N **B** S35/19x50-...

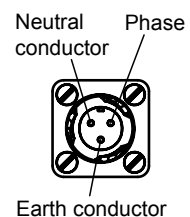
- 3 contacts 2P+E
- DC- and AC-execution available
- Connector housing steel
- Protection class IP67
- With corresponding mating connector (not included in delivery) and professional assembly.

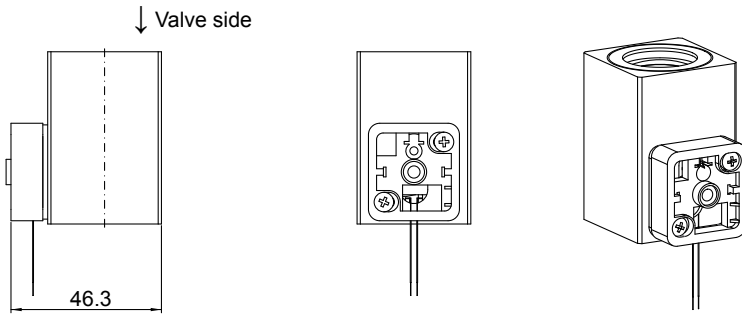
↓ Valve side



**AC-execution**

- Plastic rectifier housing





Execution: N  S35/19x50-... **M47**

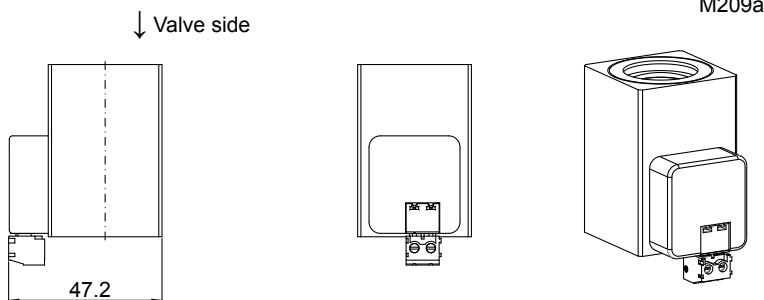
- 2-leads (2 x 0,25 mm<sup>2</sup>) Radox 155
- Cable length 200 mm
- DC- and AC-execution available
- < 120 V external earth contact recommended
- > 120 V external earth contact necessary
- Leads housing plastic
- Protection class IP65
- With professional assembly.

Plug alignment		Electric wiring
M222a	M222b	
M222c	M222d	
M222e	M222f	

Execution: N  S35/19x50-... **M222**

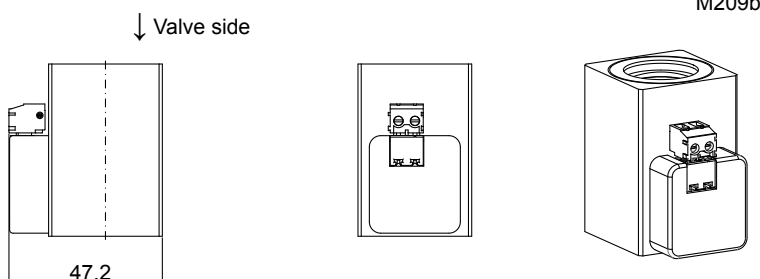
- 2-pole
- DC-version available up to 28 VDC
- Screw clamp plastic
- Plug housing plastic, transparent, removable
- Printed circuit board protected with conformal coating
- Protection type IP40 with plastic hood installed

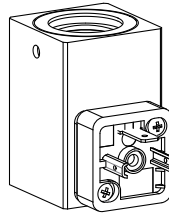
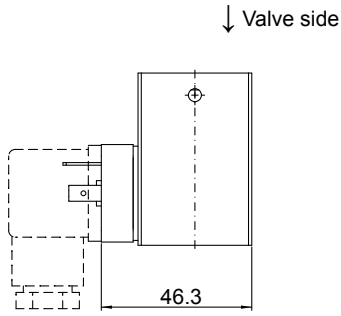
\*  $I_{max} = 1,0 \text{ A at } 130 \text{ }^\circ\text{C}$   
 $I_{max} = 1,5 \text{ A at } 120 \text{ }^\circ\text{C}$   
 $I_{max} = 2,0 \text{ A at } 110 \text{ }^\circ\text{C}$



Execution: N  S35/16x53-... **M209**

- 2-pole
- DC-version available up to 28 VDC
- Screw clamp plastic
- Printed circuit board protected with conformal coating





Execution: N . S35/19x50-...**M35**  
N . S35/19x50-...**M../35**

- 
- With pressure equalising bore for underwater applications
- With connection type «D», «L», «X»
- DC-execution available
- Insert in oil tank  
Oil tank separated from water by a membrane

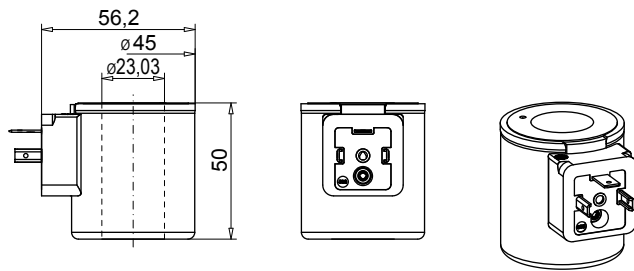
Attention:  
In case of the connection execution "D", only plugs with the additional designation "Z23" (also with pressure equalising bore) must be utilised.  
(Not included in the scope of supply of the solenoid)

Technical explanation see data sheet 1.1-400 and 1.1-410



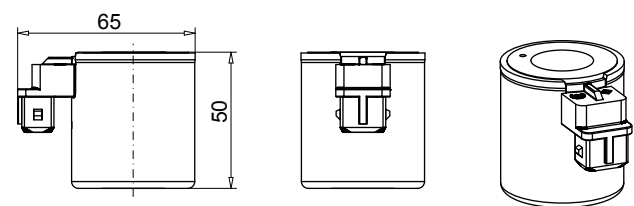


TYPE LISTE / DIMENSIONS / GENERAL SPECIFICATIONS



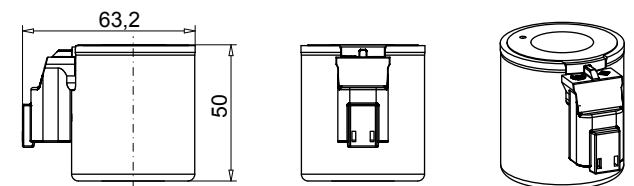
Execution: W **D** S45/23x50-...

- 3-poles 2 P+E
  - Protection class IP 65
- With corresponding mating connector  
(not included in delivery)  
and professional assembly.



Execution: W **J** S45/23x50-...

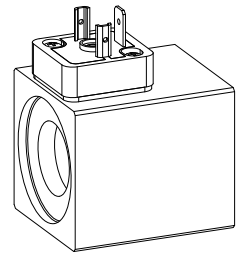
- 2-poles 2P
  - only for  $U_N \leq 75$  VDC
  - Protection class IP 66
- With corresponding mating connector  
(not included in delivery)  
and professional assembly.



Execution: W **G** S45/23x50-...

- 2-poles 2P
  - only for  $U_N \leq 75$  VDC
  - Protection class IP 67 and 69 K
- With corresponding mating connector  
(not included in delivery)  
and professional assembly.

Technical explanation see data sheet 1.1-400 and 1.1-410

**Solenoid coil M.S45/23 x 50  
 to VDE 0580  
 Protection class IP65/IP67**

**DESCRIPTION**

The slip-on solenoid coil M.S45/23 x 50 is available with different types of electric connections (see type code). The construction corresponds to standard VDE 0580. The steel housing is zinc coated.

**FUNCTION**

In combination with the corresponding armature tube the function of an on-off solenoid or proportional solenoid will be obtained. The AC voltage type incorporates a rectifier. The available AC voltages are listed in the type code section.

**APPLICATION**

Due to its robust design the coil is mainly intended for hydraulic applications.

**TYPE CODE**

Metal housing, square	M <input type="checkbox"/> S45/23 x 50 - <input type="checkbox"/> - <input type="checkbox"/> # <input type="checkbox"/>	
Connection execution		
Connector socket ISO 4400/DIN 43650	<input type="checkbox"/> D	
Connector socket AMP Junior-Timer	<input type="checkbox"/> J	
Connector Deutsch DT04-2P	<input type="checkbox"/> G	
Flying leads execution	<input type="checkbox"/> L	
Cable execution	<input type="checkbox"/> K	
Bayonet connector	<input type="checkbox"/> B	
Screw clamp	<input type="checkbox"/> X	
c		
Internal coil diameter 23 mm		
Coil length 50 mm		
Nominal voltage U <sub>N</sub>	12 VDC	<input type="checkbox"/> G12
	24 VDC	<input type="checkbox"/> G24
	115 VAC	<input type="checkbox"/> R115 *
	230 VAC	<input type="checkbox"/> R230 *
* AC-Execution:		
- Only with connection type: «D», «K», «B», «K...-M28»		
- 50 to 60 Hz		
- Rectifier integrated in the plug plate		
- Other nominal voltages and nominal power on request		
Standard	<input type="checkbox"/>	
Special cable execution	<input type="checkbox"/> M28	
With pressure compensation	<input type="checkbox"/> M35	
Special screw clamp	<input type="checkbox"/> M209	
Screw clamp and electric wiring	<input type="checkbox"/> M222	
Design-Index (Subject to change)		

**SPECIFICATIONS**

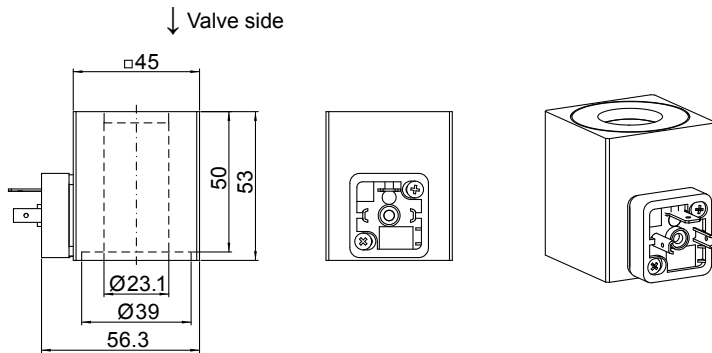
		12 VDC	24 VDC	115 VAC	230 VAC
Coil winding	min. H (180 °C)				
insulation class					
Relative duty factor	100 % DF				
	when mounted on armature tube and valve				
Ambient temperature	-20...+90 °C				
Nominal voltage range	10–250 VDC				
	24–250 VAC				
Nominal power (W)	(Switching function)	26	26	26	26
Limiting power (W)	(Proportional function)	18	19	–	–
Limiting current (50 °C) (A)	(Proportional function)	1,49	0,78	–	–
Nominal resistance (Ω)		5,7	21,7	420	1700
Number of windings (–)		690	1313	–	–
Weight of solenoid coil (kg)		0,49	0,49	0,49	0,49

**SAFE OPERATION**

**Caution:** To avoid overheating the coil may only be energised when mounted on an armature tube and valve.

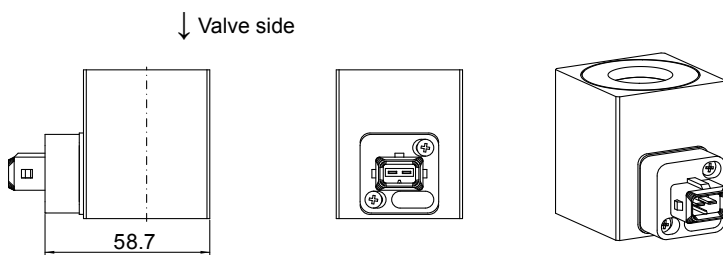
**Note:** For maximum power development the coil has to be installed in its preferred direction. A reversed installation can lead to lower hydraulic values.

TYPE LISTE / DIMENSIONS / GENERAL SPECIFICATIONS



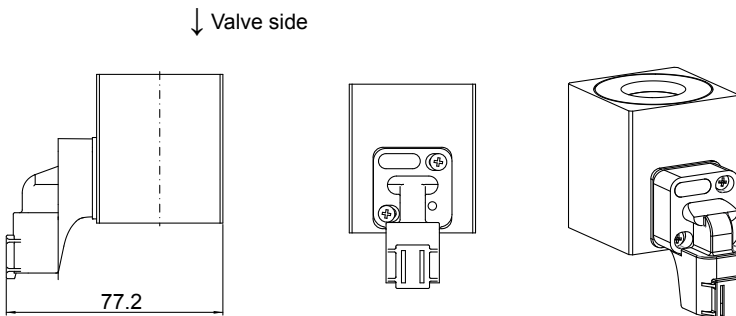
Execution: M **D** S45/23x50-...

- 3 contacts 2 P+E
  - DC- and AC-execution available
  - Connector socket plastic
  - Protection class IP65
- With corresponding mating connector (not included in delivery) and professional assembly.



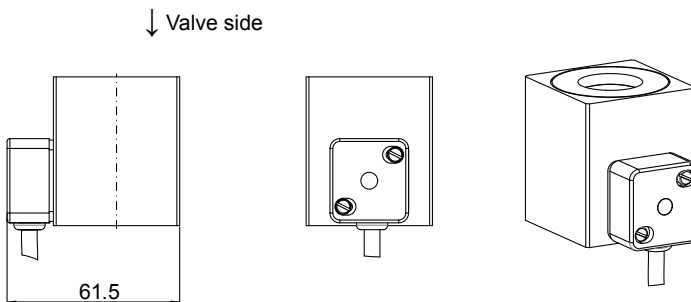
Execution: M **J** S45/23x50-...

- 2 contacts 2P
  - DC-execution available
  - only for  $U_N \leq 75VDC$
  - Connector socket plastic
  - Protection class IP65
- With corresponding mating connector (not included in delivery) and professional assembly.



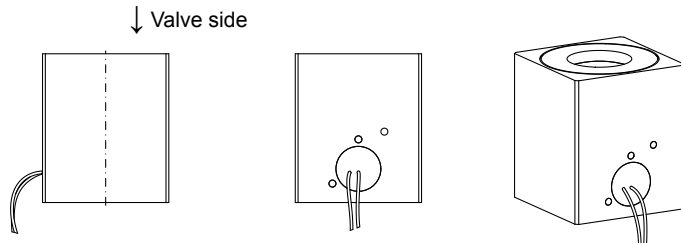
Execution: M **G** S45/23x50

- 2-contacts 2P
  - DC-execution available
  - only for  $U_N \leq 75VDC$
  - Protection class IP 67 and 69 K
- With corresponding mating connector (not included in delivery) and professional assembly.



Execution: M **K** S45/23x50-...

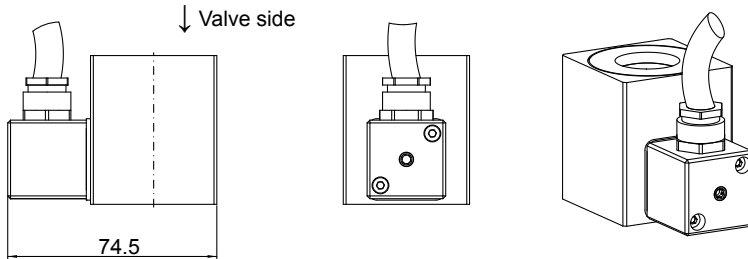
- 3 conductors 2P+E 3 x 0,75 mm<sup>2</sup>
  - Thermoplast
  - Cable length 1500 mm
  - Cable diameter 6 mm
  - DC- and AC-execution available
  - Cable housing plastic
  - Protection class IP67
- With professional assembly.



Execution: M **L** S45/23x50-...

- 2 leads 2P (2x 0,25 mm<sup>2</sup>) Radox 155
- Cable length 500 mm
- DC-execution available
- only for UN ≤ 75VDC
- Protection class IP65
- With professional assembly.

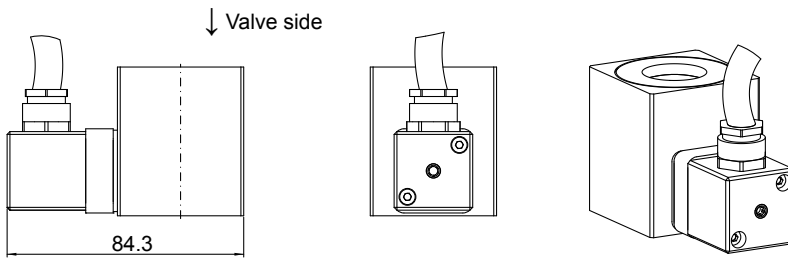
**DC-execution**



Execution: M **K** S45/23x50-...**M28**

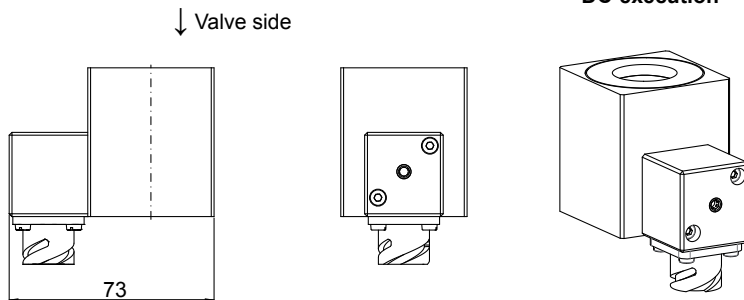
- 3 conductors 2P+E 2x 1 mm<sup>2</sup> [+E] (acc. to IEC 332)
- Cable length 1500 mm
- DC- and AC-execution available
- Cable housing steel
- Protection class IP670
- With professional assembly.

**AC-execution**



- Plastic rectifier housing

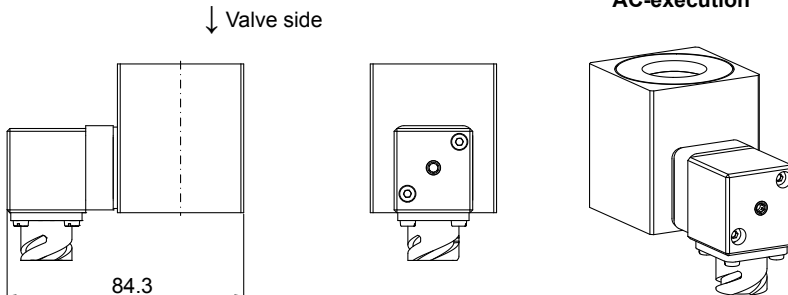
**DC-execution**



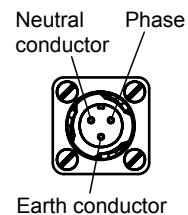
Execution: M **B** S45/23x50-...

- 3 contacts 2P+E
- DC- and AC-execution available
- Connector housing steel
- Protection class IP67
- With corresponding mating connector (not included in delivery) and professional assembly.

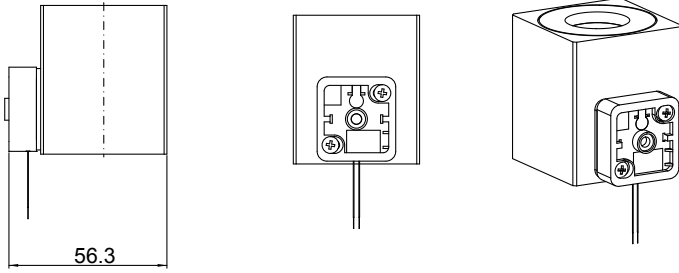
**AC-execution**



- Plastic rectifier housing



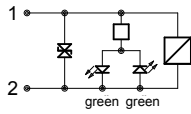
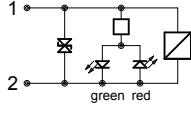
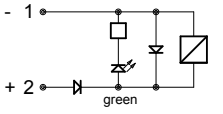


↓ Valve side



Execution: M  S45/23 x 50-... **M47**

- 2-leads (2 x 0,25 mm<sup>2</sup>) Radox 155
- Cable length 200 mm
- DC- and AC-execution available
- < 120 V external earth contact recommended
- > 120 V external earth contact necessary
- Leads housing plastic
- Protection class IP65
- With professional assembly.

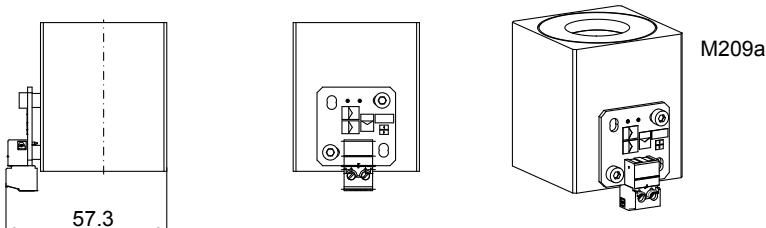
Plug alignment		Electric wiring
		
M222a	M222b	
M222c	M222d	
M222e	M222f	 Not recommended for proportional solenoids

Execution: M  S45/23 x 50-... **M222**

- 2-pole
- DC-version available up to 28 VDC
- Screw clamp plastic
- Plug housing plastic, transparent, removable
- Printed circuit board protected with conformal coating
- Protection type IP40 with plastic hood installed

\*  $I_{max} = 1,0 \text{ A at } 130 \text{ }^\circ\text{C}$   
 $I_{max} = 1,5 \text{ A at } 120 \text{ }^\circ\text{C}$   
 $I_{max} = 2,0 \text{ A at } 110 \text{ }^\circ\text{C}$

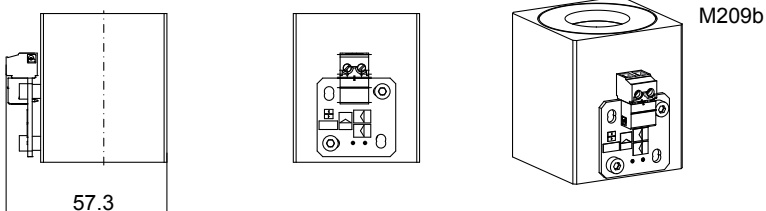
↓ Valve side

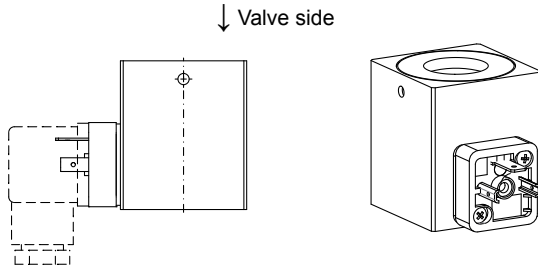


Execution: M  S45/23 x 50-... **M209**

- 2-pole
- DC-version available up to 28 VDC
- Screw clamp plastic
- Printed circuit board protected with conformal coating

↓ Valve side





Execution: M . S45/23x50-... **M35**  
M . S45/23x50-... **M../35**

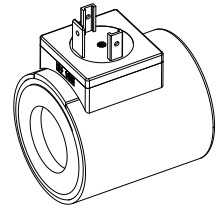
- With pressure equalising bore for underwater applications
- With connection type «D», «L», «X»
- DC-execution available
- Insert in oil tank  
Oil tank separated from water by a membrane

**Attention:**

In case of the connection execution "D", only plugs with the additional designation "Z23" (also with pressure equalising bore) must be utilised.

(Not included in the scope of supply of the solenoid)

Technical explanation see data sheet 1.1-400 and 1.1-410

**Solenoid coil W.E45/23 x 50  
 in accordance with DIN VDE 0580  
 Protection class IP 65/67/69K**

**DESCRIPTION**

The slip-on solenoid coil W.E45/23x50 is available in three different connection versions (see type code). The design corresponds to the DIN VDE standard 0580. The housing is made of steel (nickel-chromium coated), the connector socket is made of plastic material.

**FUNCTION**

With the combination of an armature tube the function of a switching solenoid or of a proportional solenoid results. The solenoid coils are available with the standard nominal voltages 12 VDC and 24 VDC.

**APPLICATION**

The solenoid coils are mainly utilised in hydraulic applications.

**TYPE CODE**

Metal housing, round	W <input type="checkbox"/> E45 / 23 x 50 - <input type="checkbox"/> # <input type="checkbox"/>			
Connection execution				
Connector socket EN 175301-803/ISO 4400	<input type="checkbox"/> D			
Connector socket AMP Junior-Timer	<input type="checkbox"/> J			
Connector Deutsch DT04-2P	<input type="checkbox"/> G			
Connection execution				
Internal coil diameter 23 mm				
Coil length 50 mm				
Nominal voltage U <sub>N</sub>	12 VDC	<input type="checkbox"/> G12	115 VAC	<input type="checkbox"/> R115
	24 VDC	<input type="checkbox"/> G24	230 VAC	<input type="checkbox"/> R230
Design-Index (Subject to change)				

**SPECIFICATIONS**

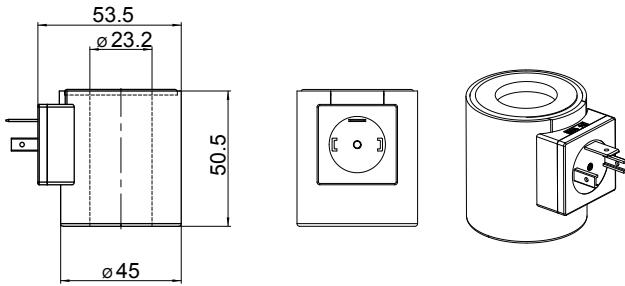
Coil winding insulation class	H (180 °C)
Relative duty factor	100 % DF / ED combined with armature tube and valve
Ambient temperature	-20...+70 °C
Corrosion protection	Salt spray test according to EN ISO 9227:≥ 200 h

		12 VDC	24 VDC	115 VAC	230 VAC
Nominal power (20 °C)	(W)	30,5	32,5	28	30
(Switching function)					
Limiting current (50 °C)	(A)	1,69	0,88	–	–
(Proportional function)					
Limiting power (50 °C)	(W)	20,3	21,1	–	–
(Proportional function)					
Nominal resistance (20 °C)	(Ω)	4,73	16,9	385	1425
Number of windings	(–)	620	1250	5350	10700
Weight of solenoid coil	(kg)	0,33	0,33	0,33	0,33

**SAFE OPERATION**

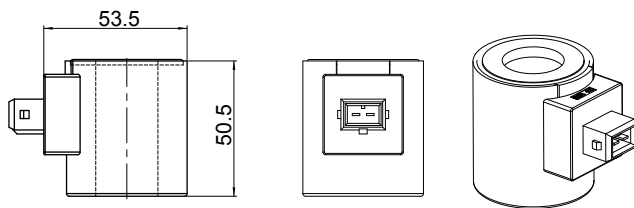
**Caution:** Because of the danger of over-heating the solenoid coil must only be commissioned together with an armature tube as well as with a valve.





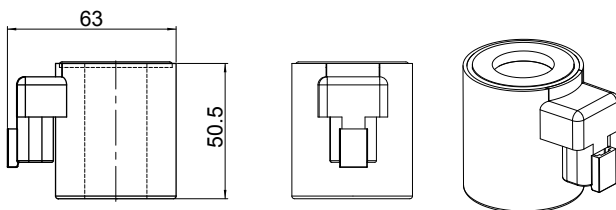
Execution: W **D** E45/23x50

- 3-poles 2 P+E
  - Protection class IP 65
- With corresponding mating connector  
(not included in delivery)  
and professional assembly.



Execution: W **J** E45/23x50

- 2-poles 2P
  - only for  $U_N \leq 75$  VDC
  - Protection class IP 66
- With corresponding mating connector  
(not included in delivery)  
and professional assembly.



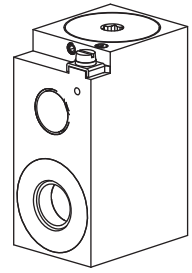
Execution: W **G** E45/23x50

- 2-poles 2P
  - only for  $U_N \leq 75$  VDC
  - Protection class IP 67 and 69 K
- With corresponding mating connector  
(not included in delivery)  
and professional assembly.

Technical explanation see data sheet 1.1-400 and 1.1-410

**Solenoid coil MKY45/18x60**  
For explosion-hazard zones  
Protection class IP65/67

**Ex d IIC T6/T4 Gb**  
**Ex tb IIIC IP65 T80°C/T130°C Db**  
**Ex d I Mb**



**Ex** II 2 G Ex d IIC T6/T4  
**Ex** II 2 D Ex tD A21 IP65 T80°C/T130°C  
**Ex** I M2 Ex d I Mb

**DESCRIPTION**

**For explosion-hazard zones**

Solenoid coil in acc. with directive 94/9/EC (ATEX) for explosion-hazard zones. The flameproof enclosures (acc. to EN/IEC 60079-1/31 and EN/IEC 61241-1) prevents an explosion in the interior from getting outside. The design prevents a surface temperature capable of igniting. The steel housing is zinc-/nickel-coated.

**FUNCTION**

In combination with an armature tube, the function of a switching solenoid or of a proportional solenoid results. Solenoid coils in AC - construction have an integrated rectifier. All cable threaded joints certified for this explosion protection class with a protection class of at least IP65 can be used.

**APPLICATION**

The solenoid coil is suitable for use in all explosion-hazard zones, open cast and also in mines. This signifies, that the coils are certified for applications in zones with explosion-hazard gas-, steam-, vapour-, air- and dust mixtures of the zones 1/21 and 2/22. Valves for explosion-hazard zones are utilised in:

- the shipping- and offshore industries
- the oil- and gas industries
- the chemical industry
- wood processing
- grain mills
- the mining application

**CERTIFICATES**

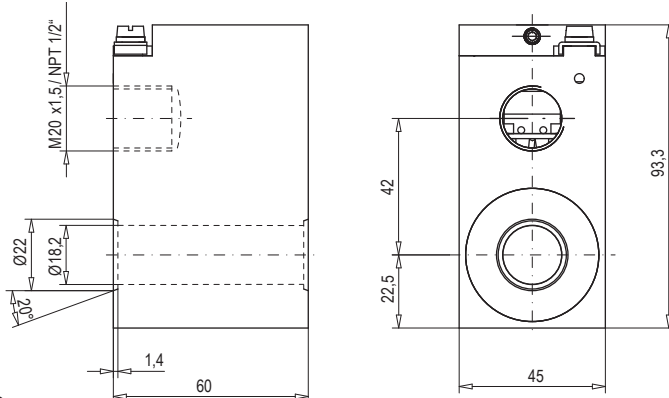
in accordance with	Surface gas and dust	Mining
ATEX	x with option -60°C	x
IECEX	x with option -60°C	x
GOST Ex	x	x
Australia	x	x
Inmetro	x	x

The certificates can be found on [www.wandfluh.com](http://www.wandfluh.com) / DOWNLOADS / Accompanying Ex-proof / MKY45/18--L..

**TYPE CODE**

M K Y 45 / 18 x 60 -  /  /  -  #

Metal housing type with steel housing									
Terminal box without cable									
Ex d – Execution									
Housing width 45 mm									
Coil internal diameter 18 mm									
Coil length 60 mm									
Standard nominal voltage range U <sub>N</sub> :	12 VDC <input type="checkbox"/> G 12	230 VDC <input type="checkbox"/> G 230	24 VAC <input type="checkbox"/> R 24	230 VAC <input type="checkbox"/> R 230					
Standard nominal power range P <sub>N</sub> :	9 W <input type="checkbox"/> L 9	21 W <input type="checkbox"/> L 21							
Certification	ATEX, IECEX, GOST Ex <input type="checkbox"/>	Australia <input type="checkbox"/> AUS	Inmetro <input type="checkbox"/> IM						
Temperature range	-25°C to ... <input type="checkbox"/>	-40°C to ... <input type="checkbox"/> M224	-60°C to ... <input type="checkbox"/> M238	only ATEX and IECEX /Surface					
Design-Index (Subject to change)									

**DIMENSIONS**

**CHARACTERISTICS**

Coil winding isolation class H

 Protection class  
 in acc. EN 60529

Relative duty factor

Reference temperature

 IP65/67, with corresponding cable gland  
 and correct installation

 100 % DF, combined with armature tube  
 and valve

Execution L9:

-25...+40 °C (operation as T1...T6/T80 °C)

-25...+90 °C (operation as T1...T4/T130 °C)

Execution L15 / L12

Temperature range „-25° to...“

-25...+70 °C (operation as T1...T4/T130 °C)

Temperaturbereich „-40° to ...“

-40...+70 °C (operation as T1...T4/T130 °C)

Temperaturbereich „-60° to ...“

-60...+70 °C (operation as T1...T4/T130 °C)

Execution L 21:

-25...+50 °C (operation as T1...T4/T130 °C)

 At  $U_N < 20V$  the max. ambient temperatu  
 re has to be reduced by 10 °C.

Housing

Relative duty factor

Corrosion protection

Steel housing, zinc-/nickel-coated

max. 95 % (not dew-forming)

 Salt spray test in accordance with  
 EN ISO 9227 > = 800 hours

 Maximum operating  
 voltage

Nominal frequency

Standard

nominal voltages

Nominal voltage +10 %

 in acc. with name plate  $\pm 2\%$ 
 $U_N = 12 \text{ VDC}$ 
 $U_N = 24 \text{ VDC}$ 
 $U_N = 115 \text{ VAC}$ 
 $U_N = 230 \text{ VAC}$ 

Other nominal voltages in the ranges of

12–230 VDC and 24–230 VAC on request

Standard

nominal powers

 $P_N = 9 \text{ W}$ 
 $P_N = 15 \text{ W}$ 
 $P_N = 21 \text{ W}$ 

	12 VDC			
Nominal power (W)	9	12	15	21
Nominal resistance ( $\Omega$ )	16,5	13,5	9,9	7,1
Recommended rated current for fuse inserts (mA)	1600	2000	2'500	4'000
Limiting current (mA) (Proportional function)	610	720	960	1'230

	24 VDC			
Nominal power (W)	9	12	15	21
Nominal resistance ( $\Omega$ )	64	49,2	38,5	27,5
Recommended rated current for fuse inserts (mA)	800	800	1'250	2'000
Limiting current (mA) (Proportional function)	300	370	450	600

	115 VAC			
Nominal power (W)	9	12	15	21
Nominal resistance ( $\Omega$ )	1'180	869	700	500
Recommended rated current for fuse inserts (mA)	200	200	315	400

	230 VAC			
Nominal power (W)	9	12	15	21
Nominal resistance ( $\Omega$ )	4'750	3'370	2'850	2'050
Recommended rated current for fuse inserts (mA)	100	100	160	200

**OPERATION SECURITY**

 The solenoid coil must only be put into operation, if the require-  
 ments of the operating instructions supplied are observed to  
 their full extent.

In case of non-observance, no liability can be assumed.

 A corresponding fuse in accordance with its design current  
 has to be connected in series as short-circuit protection for  
 every solenoid coil.

**INSTALLATION**

 For stack assembly please observe the remarks in the operating  
 instructions.

**ACCESSORIES**

 – The operating instructions incl. the EC declaration of conformity for  
 solenoid coils of the type MKY45/18x60 is supplied in German,  
 English and French (download under [www.wandfluh.com](http://www.wandfluh.com))

 – Type test certifications  
 (download under [www.wandfluh.com](http://www.wandfluh.com))

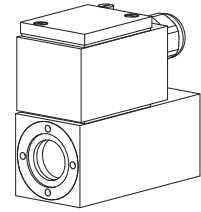
 – EC-declaration of conformity  
 (download under [www.wandfluh.com](http://www.wandfluh.com))

 – Recognition of production quality assurance  
 PTB 07 ATEX Q006  
 (download under [www.wandfluh.com](http://www.wandfluh.com))

**Solenoid coil M.Z45**  
**for explosion hazard zones**  
**ATEX und IECEx certified**  
**Protection class IP65**



**Ex ia I Ma**  
**Ex ia II C T5/T6 Ga**  
**II 1 G Ex ia II C T6, T5**  
**I M1 Ex ia I Ma**


**DESCRIPTION**

The solenoid coil for explosion hazard areas in the ignition protection type «intrinsically safe» is utilised on solenoid spool valves.

**FUNCTION**

The winding resistance can be adapted to the intrinsically safe electric power supply utilised, in the range of 20...1000 Ω. With 100 Ω or 152 Ω coil resistance it is adapted to the recommended electric power supplies. Three diodes connected in parallel with the winding serve to render the inductivity ineffective, and a diode connected in series serves as a protection against reverse polarity. The electrical minimum values for a secure operation can be taken from the corresponding data sheet of the valve.

**APPLICATION**

The solenoid coil is certified as a device of the device groups I+II, category 1. This signifies that the devices are suitable for utilisation in areas with explosive gas -, vapour -, mist - and air mixtures of the zones 0, 1 and 2 as well as in mining applications.

- Intrinsically safe valves are used in:
- the shipping- and offshore industries
  - the oil- and gas industries
  - the chemical industry
  - the mining application

**CERTIFICATES**

in accordance with	Surface	Mining
ATEX	x	x
IECEx	x	x

The certificates can be found on [www.wandfluh.com](http://www.wandfluh.com) / DOWNLOADS / Accompanying Ex-proof / **M.Z45**

**TYPE CODE**

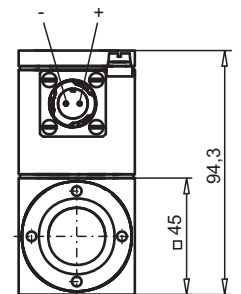
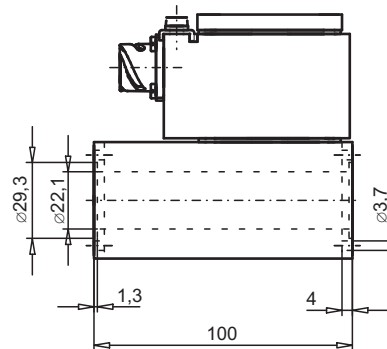
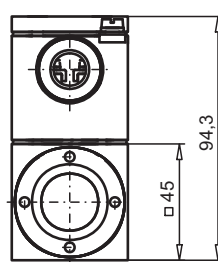
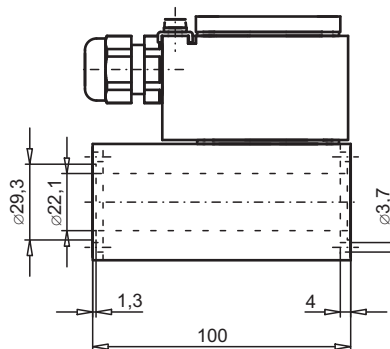
			M		Z	45	-		-		#	
Mobile type with steel housing												
Terminal box with cable screw connection M20x1,5			K									
Bajonet connector (only equipment group II)			B									
Protection type intrinsically safe												
45 mm square housing												
Coil resistance	100 Ω					100						
	152 Ω					152						
Equipment group	II											
	I		M233									only in combination with coil resistance 100 Ω

Design-Index (Subject to change)

**DIMENSIONS**

Type MKZ45

Type MBZ45



**SPECIFICATIONS**

Insulation material class of the excitation winding	at least H
Protection class	IP65 acc. to EN 60 529
Relative duty factor	100 % DF
Admissible ambient temp.	T1...T6: -20...+45 °C T1...T5: -20...+60 °C
Housing	Steel housing zinc coated
Relative humidity	max. 95 % (non-condensing)
Connection / power supply	MKZ45: Standard for equipment groups I+II • Cable entry for cable $\varnothing$ 6...12 mm • + external protective terminal MBZ45: (CA 3102E 10 SL4P-B) • Bajonet connector, Cannon • + external protective terminal
Only available for device group II	

Technical safety limit values	Equipment group	
	I	II
$U_i$	30 V	30 V
$I_i$	2,5 A	0,8 A
$P_i$		3 W
$L_i$	0mH	0mH
$C_i$	0nF	0nF

The inductance and capacitance of the solenoid coils are made ineffective.

**RECOMMENDED ELECTRIC POWER SUPPLY**

Electric power supply					Solenoid
Type	Manufacturer	Number of outputs	$I_{max}$	Equipment group	Required coil resistance
BXNE3412	Georgin	1	95mA	II	100 $\Omega$
BXNE3422	Georgin	2	95mA	II	100 $\Omega$
KFD0-SD2-EX2.1245	Pepperl+Fuchs	(1) *	90mA *	I and II	100 $\Omega$
BXNE3712	Georgin	1	125mA	II	100 $\Omega$
BXNE3722	Georgin	2	125mA	II	100 $\Omega$
LB6115/FB6215***	Pepperl+Fuchs	4	80mA	II	152 $\Omega$

Further characteristic values refer to data sheet of the power supply manufacturer

\* Parallel switching of both outputs

**SAFE OPERATION**

Intrinsically valves must only driven by a suitable electric power supply (see operating instructions). The selection of the power supply and wiring work must be executed by trained specialists.

**ACCESSORIES**

– The operating instructions incl. the EC declaration of conformity for solenoid coils of the type M.Z45-... and I.Z45-... is supplied in German, English and French language and provided for downloading under [www.wandfluh.com](http://www.wandfluh.com).

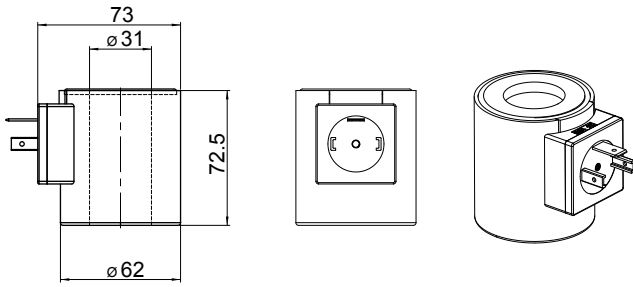
– Type test certifications  
(download under [www.wandfluh.com](http://www.wandfluh.com))

– Declaration of conformity  
(download under [www.wandfluh.com](http://www.wandfluh.com))

– Recognition of production quality assurance

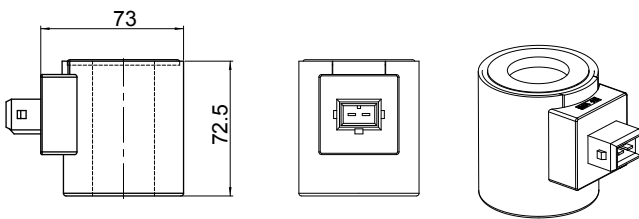
ATEX: PTB 07 ATEX Q006  
IECEX: DE/PTB/QAR09.0002/00  
(download under [www.wandfluh.com](http://www.wandfluh.com))





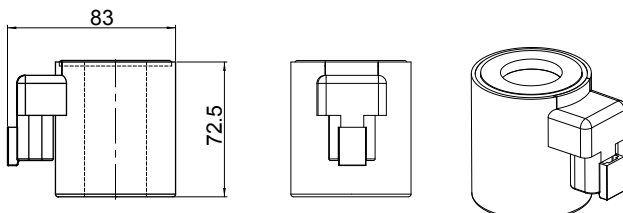
Execution: W **D** E62/31 x 72

- 3-poles 2 P+E
  - Protection class IP 65
- With corresponding mating connector  
(not included in delivery)  
and professional assembly.



Execution: W **J** E62/31 x 72

- 2-poles 2P
  - only for  $U_N \leq 75$  VDC
  - Protection class IP 66
- With corresponding mating connector  
(not included in delivery)  
and professional assembly.



Execution: W **G** E62/31 x 72

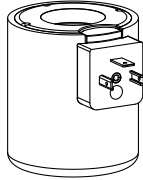
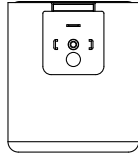
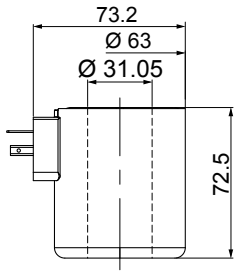
- 2-poles 2P
  - only for  $U_N \leq 75$  VDC
  - Protection class IP 67 and 69 K
- With corresponding mating connector  
(not included in delivery)  
and professional assembly.

Technical explanation see data sheet 1.1-400 and 1.1-410



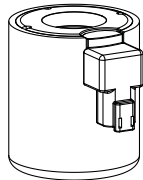
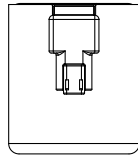
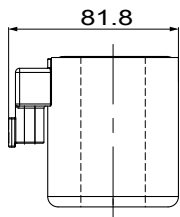


**TYPE LISTE / DIMENSIONS / GENERAL SPECIFICATIONS**



Execution: W **D** S63/31 x 72-...

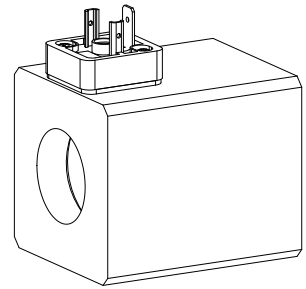
- 3-poles 2 P+E
  - Protection class IP 65
- With corresponding mating connector  
(not included in delivery)  
and professional assembly.



Execution: W **G** S63/31 x 72-...

- 2-poles 2P
  - only for  $U_N \leq 75$  VDC
  - Protection class IP 67 and 69 K
- With corresponding mating connector  
(not included in delivery)  
and professional assembly.

Technical explanation see data sheet 1.1-400 and 1.1-410

**Solenoid coil M.S60/31 x 72  
 to VDE 0580  
 Protection class IP65/IP67**

**DESCRIPTION**

The slip-on solenoid coil M.S60/31 x 72 is available with different types of electric connections (see type code). The construction corresponds to standard VDE 0580. The steel housing is zinc-/nickel-coated.

**FUNCTION**

In combination with the corresponding armature tube the function of an on-off solenoid or proportional solenoid will be obtained. The AC voltage type incorporates a rectifier. The available AC voltages are listed in the type code section.

**APPLICATION**

Due to its robust design the coil is mainly intended for hydraulic applications.

**TYPE CODE**

Metal housing square			M	<input type="checkbox"/>	S60/31 x 72 -	<input type="checkbox"/>	-	<input type="checkbox"/>	#	<input type="checkbox"/>
Connection execution										
Connector socket ISO 4400/DIN 43650		<input type="checkbox"/>	D							
Connector socket AMP Junior-Timer		<input type="checkbox"/>	J							
Connector Deutsch DT04-2P		<input type="checkbox"/>	G							
Flying leads execution		<input type="checkbox"/>	L							
Cable execution		<input type="checkbox"/>	K							
Bayonet connector		<input type="checkbox"/>	B							
Screw clamp		<input type="checkbox"/>	X							
Coil execution										
Internal coil diameter 31 mm										
Coil length 72 mm										
Nominal voltage U <sub>N</sub>	12 VDC	<input type="checkbox"/>	G12							
	24 VDC	<input type="checkbox"/>	G24							
	115 VAC	<input type="checkbox"/>	R115	*						
	230 VAC	<input type="checkbox"/>	R230	*						
* AC-Execution:										
- Only with connection type: «D», «K», «B», «K...-M28»										
- 50 to 60 Hz										
- Rectifier integrated in the plug plate										
- Other nominal voltages and nominal power on request										
Standard			<input type="checkbox"/>							
Special cable execution			<input type="checkbox"/>	M28						
With pressure compensation			<input type="checkbox"/>	M35						
Special screw clamp			<input type="checkbox"/>	M209						
Screw clamp and electric wiring			<input type="checkbox"/>	M222						
Design-Index (Subject to change)										

**SPECIFICATIONS**

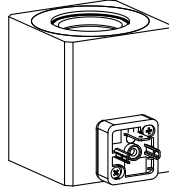
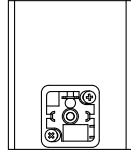
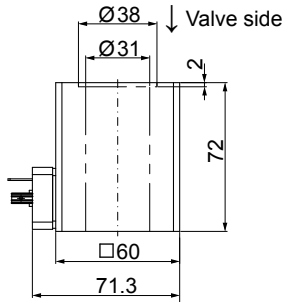
		12 VDC	24 VDC	115 VAC	230 VAC
Coil winding insulation class	min. H (180 °C)				
Relative duty factor	100 % DF				
Ambient temperature	-20...+90 °C				
Nominal voltage range	10–250 VDC 24–250 VAC				
Nominal power (Switching function)	(W)	37,4	37,4	34,1	37,1
Limiting power (Proportional function)	(W)	27,5	27,4	–	–
Limiting current (50 °C) (Proportional function)	(A)	2,29	1,14	–	–
Nominal resistance	(Ω)	3,9	15,4	309	1146
Number of windings	(–)	725	1451	6'463	12'438
Weight of solenoid coil	(kg)	1,30	1,30	1,30	1,30

**SAFE OPERATION**

**Caution:** To avoid overheating the coil may only be energised when mounted on an armature tube and valve.

**Note:** For maximum power development the coil has to be installed in its preferred direction. A reversed installation can lead to lower hydraulic values.

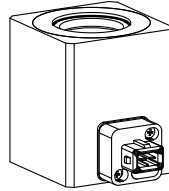
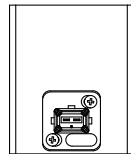
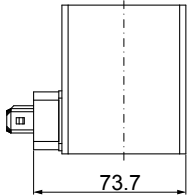
TYPE LISTE / DIMENSIONS / GENERAL SPECIFICATIONS



Execution: M **D** S45/23x50-...

- 3 contacts 2 P+E
  - DC- and AC-execution available
  - Connector socket plastic
  - Protection class IP65
- With corresponding mating connector (not included in delivery) and professional assembly.

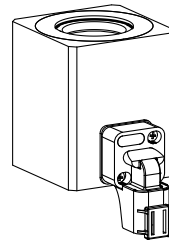
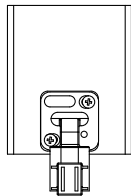
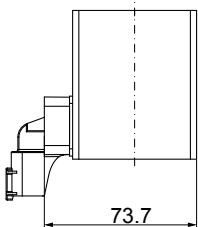
↓ Valve side



Execution: M **J** S45/23x50-...

- 2 contacts 2P
  - DC-execution available
  - only for  $U_N \leq 75VDC$
  - Connector socket plastic
  - Protection class IP65
- With corresponding mating connector (not included in delivery) and professional assembly.

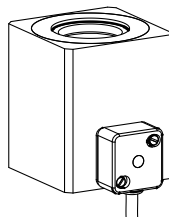
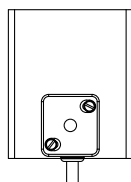
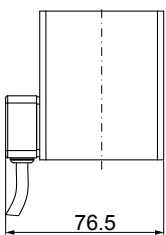
↓ Valve side



Execution: M **G** S45/23x50

- 2-contacts 2P
  - DC-execution available
  - only for  $U_N \leq 75VDC$
  - Protection class IP 67 and 69 K
- With corresponding mating connector (not included in delivery) and professional assembly.

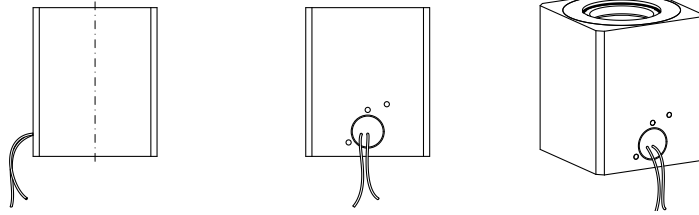
↓ Valve side



Execution: M **K** S45/23x50-...

- 3 conductors 2P+E 3x 0,75 mm<sup>2</sup>
  - Thermoplast
  - Cable length 1500 mm
  - Cable diameter 6 mm
  - DC- and AC-execution available
  - Cable housing plastic
  - Protection class IP67
- With professional assembly.

↓ Valve side

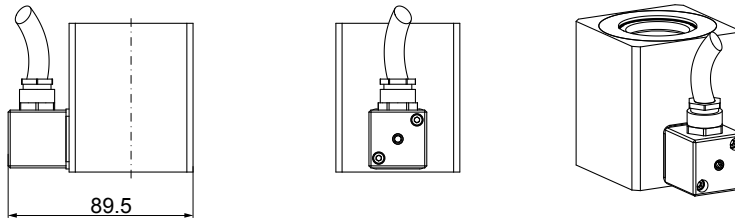


Execution: M **L** S45/23x50-...

- 2 leads 2P (2x 0,25 mm<sup>2</sup>) Radox 155
- Cable length 500 mm
- DC-execution available
- only for UN ≤ 75VDC
- Protection class IP65
- With professional assembly.

**DC-execution**

↓ Valve side

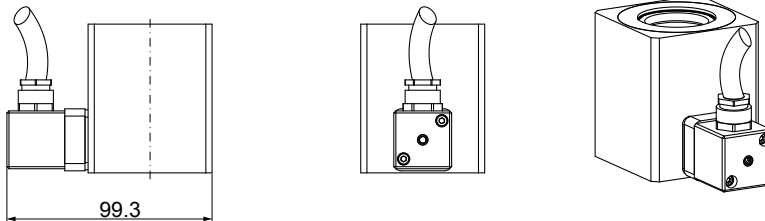


Execution: M **K** S45/23x50-...**M28**

- 3 conductors 2P+E 2x 1 mm<sup>2</sup> [+E] (acc. to IEC 332)
- Cable length 1500 mm
- DC- and AC-execution available
- Cable housing steel
- Protection class IP670
- With professional assembly.

**AC-execution**

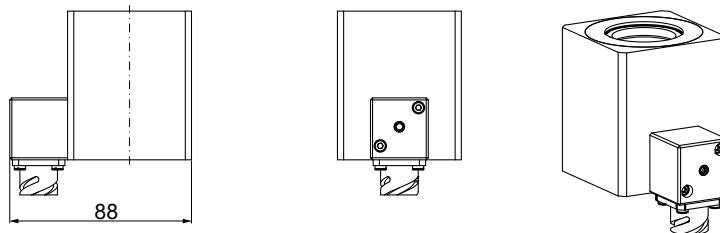
↓ Valve side



- Plastic rectifier housing

**DC-execution**

↓ Valve side

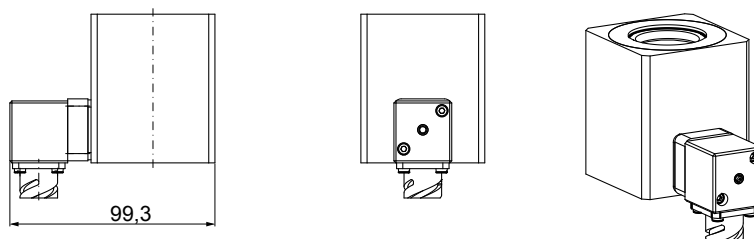


Execution: M **B** S45/23x50-...

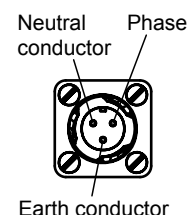
- 3 contacts 2P+E
- DC- and AC-execution available
- Connector housing steel
- Protection class IP67
- With corresponding mating connector (not included in delivery) and professional assembly.

**AC-execution**

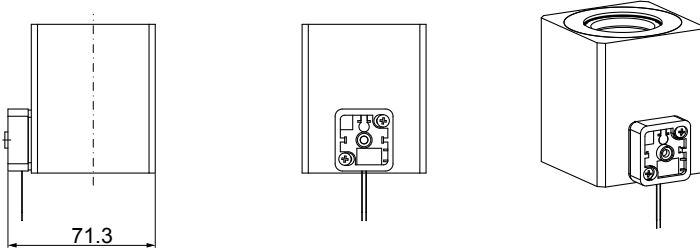
↓ Valve side



- Plastic rectifier housing



↓ Valve side



Execution: M  S45/23 x 50-... **M47**

- 2-leads (2 x 0,25 mm<sup>2</sup>) Radox 155
- Cable length 200 mm
- DC- and AC-execution available
- < 120 V external earth contact recommended
- > 120 V external earth contact necessary
- Leads housing plastic
- Protection class IP65
- With professional assembly.

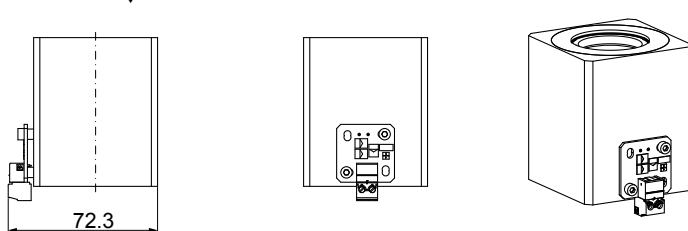
Steckerausrichtung		el. Beschaltung
M222a	M222b	
M222c	M222d	
M222e	M222f	 Not recommended for proportional solenoids

Execution: M  S45/23 x 50-... **M222**

- 2-pole
- DC-version available up to 28 VDC
- Screw clamp plastic
- Plug housing plastic, transparent, removable
- Printed circuit board protected with conformal coating
- Protection type IP40 with plastic hood installed

\*  $I_{max} = 1,0 \text{ A at } 130 \text{ }^\circ\text{C}$   
 $I_{max} = 1,5 \text{ A at } 120 \text{ }^\circ\text{C}$   
 $I_{max} = 2,0 \text{ A at } 110 \text{ }^\circ\text{C}$

↓ Valve side

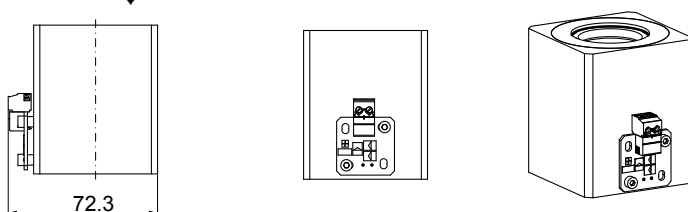


M209a

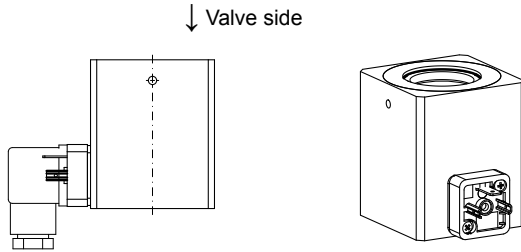
Execution: M  S45/23 x 50-... **M209**

- 2-pole
- DC-version available up to 28 VDC
- Screw clamp plastic
- Printed circuit board protected with conformal coating

↓ Valve side



M209b



Execution: M . S45/23x50-... **M35**  
M . S45/23x50-... **M../35**

- With pressure equalising bore for underwater applications
- With connection type «D», «L», «X»
- DC-execution available
- Insert in oil tank  
Oil tank separated from water by a membrane

**Attention:**

In case of the connection execution "D", only plugs with the additional designation "Z23" (also with pressure equalising bore) must be utilised.

(Not included in the scope of supply of the solenoid)

Technical explanation see data sheet 1.1-400 and 1.1-410

**Multi-pin sockets**

- to DIN 41612, design F, C
- for rack assembly
- 48- or 64-pin
- for soldered or wire-wrap connections

**DESCRIPTION**

The multi-contact sockets are available in either C or F design and are for soldered or wire-wrap connections. Sizes and assembly dimensions can be obtained from the drawings on page 2.

**FUNCTION**

Connector counterpart to the Wandfluh Euro cards.

**APPLICATION**

The multi-pin sockets are used as the counterpart to the Wandfluh amplifier cards in 19" racks.

**CONTENT**

TYPE CODE .....	1
CHARACTERISTICS .....	1
DIMENSIONS .....	2
ADDITIONAL INFORMATION .....	2

**TYPE CODE**

	Z	04	-	<input type="text"/>	-	<input type="text"/>	#	<input type="text"/>
Accessory								
Multi-pin sockets								
Number of pins								
448 pin design F				<input type="text" value="48"/>				
64 pin design C				<input type="text" value="64"/>				
Type of connection								
Soldered connection for print assembly				<input type="text" value="1"/>				
Soldering lugs for cable connection				<input type="text" value="2"/>				
Wire-wrap connections				<input type="text" value="3"/>				
Design-Index (Subject to change)								

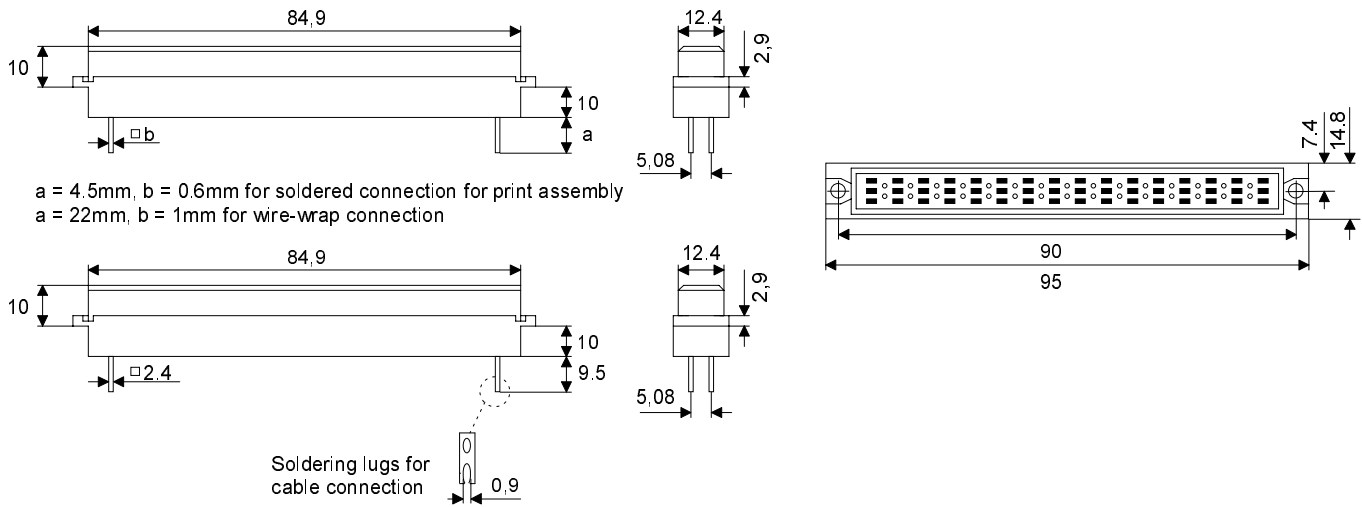
Other designs or special productions available on request

**CHARACTERISTICS**

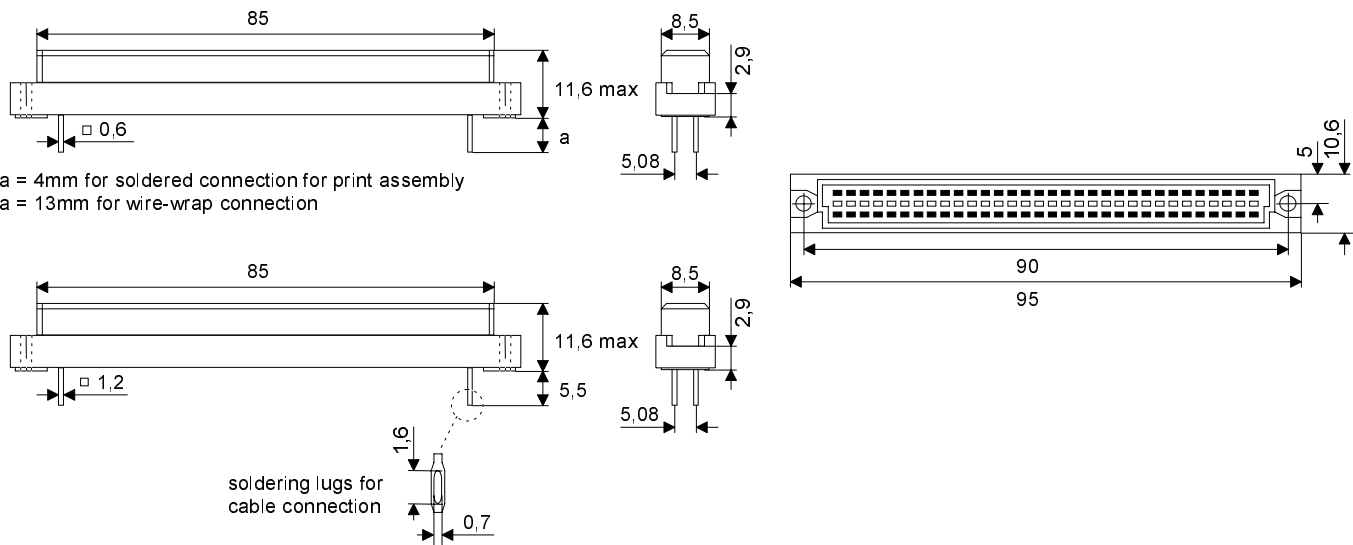
Mechanical durability	400 connection cycles
Standard	DIN 41612, VG95324, design C and F48
Grid	2,54 mm

**DIMENSIONS**

Multi-pin socket, 48 pin, design F



Multi-pin socket, 64 pin, Design C



**ADDITIONAL INFORMATION**

Wandfluh Electronics, general

1.13



**Plug-in cardholder**

- For fast mounting of Eurocards
- Screw terminals
- 48 pins

**DESCRIPTION**

The plug-in cardholder type B is designed especially for the ED2 controller card. For connection easily accessible spring loaded clamps and D-SUB connectors are provided.

**FUNCTION**

The plug-in cardholder serves as a mount for electronic cards and makes assembly easy.

**APPLICATION**

The plug-in cardholder is used where no 19"-rack is available. Fixation with 4 screws or clipped onto a dome rail.

**CONTENTS**

CHARACTERISTICS .....	1
APPLICATION .....	1
DIMENSIONS .....	2
BLOCK DIAGRAM .....	3
CONNECTION INFORMATION .....	4-5

**TYPE CODE**

	Z	05	B	-	F48	-	2	#	□
Accessory									
Plug-in cardholder									
Type B									
Number of pins									
48-pins, design F									
Screw fixation or snapped onto dome rail									
Design-Index (Subject to change)									

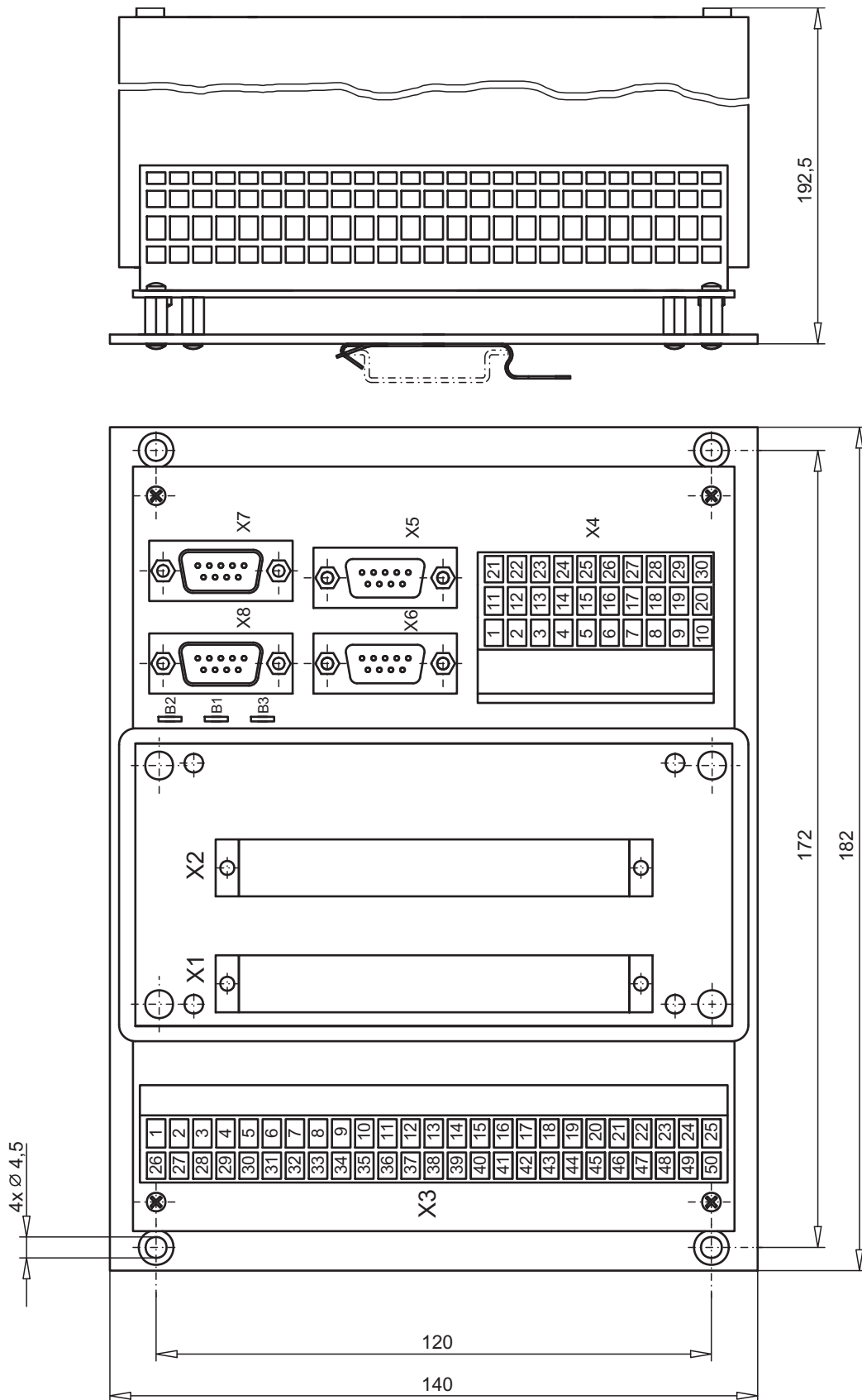
**CHARACTERISTICS TYPE B**

Housing	Plastic, ASB shock proof
Colour	grey RAL 7035
Ambient temperature	0...+75 °C
Flammability class	to UL 94 HB/1,6
Weight	760 g
Connection to card	2 multi-pins socket DIN 41 612, design F 48-polig
Connection to application side	spring loaded clamps for cable 0,13...1,5mm <sup>2</sup> , 2 D-SUB connector, 9-pins (male) 2 D-SUB connector, 9-pins (female)
Fixation	With 4 screws or snapped onto a 35 mm dome rail to DIN 46 277

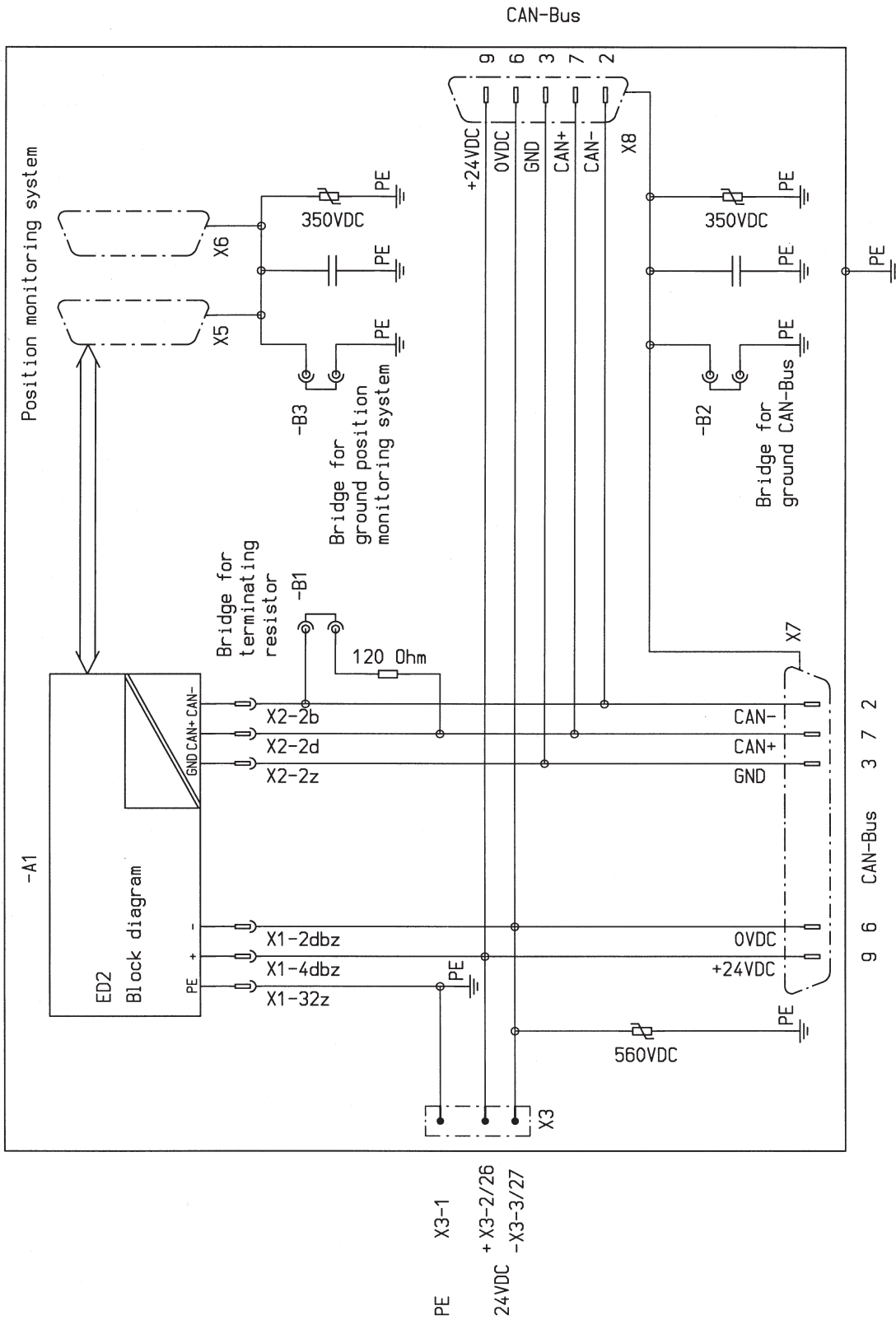
**APPLICATION**

Z05B-F48-2	ED2, ED3
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**DIMENSIONS TYPE B**



**BLOCK DIAGRAM TYPE B**  
Ground connections CAN-Bus



**ADDITIONAL INFORMATION**  
Wandfluh Electronics, general

1.13

**CONNECTION INSTRUCTION TYP B**
**Assigned terminal / pin X3**

Screw terminal number	Screw terminal denomination	PIN Connector strip	Screw terminal number	Screw terminal denomination	PIN Connector strip
26	Supply +24VDC	X1-4dbz	1	Ground	X1-32z
27	Supply 0VDC	X1-2dbz	2	Supply +24VDC	X1-4dbz
28	Digital GND	X1-6z	3	Supply 0 VDC	X1-2dbz
29	Supply Digital output -	X1-6b	4	Output + 24VDC	X1-6d
30	Digital output 1	X1-8b	5	Supply Digital output +	X1-8d
31	Digital output 3	X1-10d	6	Digital output 2	X1-8z
32	Digital output 5	X1-10z	7	Digital output 4	X1-10b
33	Solenoid output A +	X1-12d	8	Digital output 6	X1-12z
34	Solenoid output B +	X1-14d	9	Solenoid output A –	X1-12b
35	Solenoid output C +	X1-14z	10	Solenoid output B –	X1-14b
36	Solenoid output D +	X1-16d	11	Solenoid output C –	X1-16z
37	Digital input 1	X1-18d	12	Solenoid output D –	X1-16b
38	Digital input 3	X1-18z	13	Digital input 2	X1-18b
39	Digital input 5	X1-20b	14	Digital input 4	X1-20d
40	Digital input 7	X1-22d	15	Digital input 6	X1-20z
41	Digital input 9	X1-22z	16	Digital input 8	X1-22b
42	Digital input 11	X1-24b	17	Digital input 10	X1-24d
43	Digital input 13	X1-26d	18	Digital input 12	X1-24z
44	Digital input 15	X1-26z	19	Digital input 14	X1-26b
45	Digital input 17	X1-28b	20	Digital input 16	X1-28d
46	Digital common	X1-30z	21	Digital input 18	X1-28z
47	+5VDC Output	X1-32d	22	Digital common	X1-30z
48	-15VDC Output	X1-30b	23	+15 VDC Output	X1-30d
49	RS 232C RxD	X2-12b	24	RS 232C TxD	X2-12d
50	reserved	X2-18z	25	RS 232C GND	X2-12z

**Assigned terminal / pin X4**

Sc. ter. no.	Screw terminal denomination	PIN Connec. strip	Sc. ter. no.	Screw terminal denomination	PIN Connec. strip	Sc. ter. no.	Screw terminal denomination	PIN Connec. strip
1	Aux 1	X2-16d	11	Aux 3	X2-16z	21	Aux 5	X2-14d
2	Aux 2	X2-16b	12	Aux 4	X2-14z	22	Aux 6	X2-14b
3	Analog input 8 -	X2-20b	13	Analog input 8+	X2-20d	23	Analog output 1	X2-18d
4	Analog input 7 -	X2-20z	14	Analog input 7+	X2-22z	24	Analog output 2	X2-18b
5	Analog input 6 -	X2-22b	15	Analog input 6+	X2-22d	25	Analog GND	X2-26z/24z
6	Analog input 5 -	X2-24b	16	Analog input 5+	X2-24d	26	Analog GND	X2-26z/24z
7	Analog input 4 -	X2-26b	17	Analog input 4+	X2-26d	27	Analog GND	X2-26z/24z
8	Analog input 3 -	X2-28b	18	Analog input 3+	X2-28d	28	Analog GND	X2-26z/24z
9	Analog input 2 -	X2-28z	19	Analog input 2+	X2-30z	29	+10VDC Output	X2-32d
10	Analog input 1 -	X2-30b	20	Analog input 1+	X2-30d	30	-10VDC Output	X2-32b

**Assigned terminal / pin X5 (position monitoring system 1)**

Screw terminal number	Screw terminal denomination	PIN Connector strip
1	Mes 1 +	X2-4d
2	Mes 1 -	X2-4b
3	Mes 2 +	X2-4z
4	Mes 2 -	X2-6z
5	Mes 5 +	X2-6d
6	Mes 5 -	X2-6b
7	+5VDC Output	X1-32d
8	Digital GND	X1-6z
9	+ 24VDC Output	X1-6d

**Assigned terminal / pin X6 (position monitoring system 2)**

Screw terminal number	Screw terminal denomination	PIN Connector strip
1	Mes 3 +	X2-8d
2	Mes 3 -	X2-8b
3	Mes 4 +	X2-8z
4	Mes 4 -	X2-10z
5	Mes 6 +	X2-10d
6	Mes 6 -	X2-10b
7	+5VDC Output	X1-32d
8	Digital GND	X1-6z
9	+ 24VDC Output	X1-6d

**Assigned terminal / pin X7 (CAN)**

Screw terminal number	Screw terminal denomination	PIN Connector strip
1	NC	
2	CAN low	X2-2b
3	CAN GND	X2-2z
4	NC	
5	NC	
6	OV	X1-2dbz
7	CAN high	X2-2d
8	NC	
9	+ 24V	X1-4dbz

**Assigned terminal / pin X8 (CAN)**

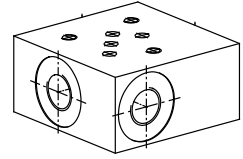
Screw terminal number	Screw terminal denomination	PIN Connector strip
1	NC	
2	CAN low	X2-2b
3	CAN GND	X2-2z
4	NC	
5	NC	
6	OV	X1-2dbz
7	CAN high	X2-2d
8	NC	
9	+ 24V	X1-4dbz

**Jumper**

	<b>open</b>	<b>plugged in</b>
B1	CAN unterminated	CAN terminated
B2	Shield CAN open	Shield CAN to ground
B3	Shield position monitoring system 1+2 open	Shield position monitoring system 1+2 to ground

**Threaded subplate**

- Threaded connection G1/8"
- $p_{max} = 350 \text{ bar}$

**NG3-Mini<sup>®</sup>**

**DESCRIPTION**

Threaded subplate with interface for valve NG3-Mini acc. to Wandfluh standard. The threaded subplate is made from phosphated steel.

**TYPE CODE**

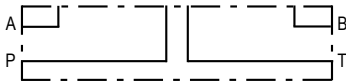
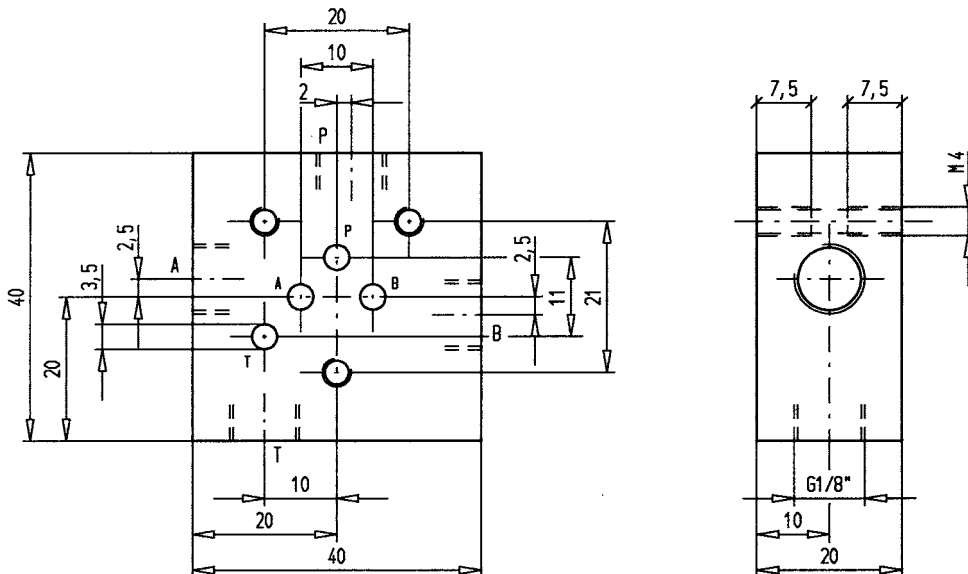
	B	G	3	S	#	<input type="checkbox"/>
Mounting interface acc. to Wandfluh standard						
Threaded subplate						
Nominal size 3-Mini						
Type list						
Connections P, T, A, B on the side						
Design-Index (Subject to change)						

**GENERAL CHARACTERISTICS**

Designation	Threaded subplate
Nominal size	NG3-Mini acc. to Wandfluh standard
Fastening	3 tapped holes for cylinder screw M4
Connection	Threaded connections A, B, P, T G1/8"
Mounting position	any
Weight	m = 0,2 kg

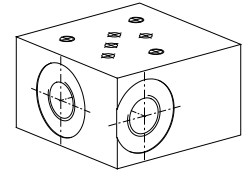
**HYDRAULIC SPECIFICATIONS**

Working pressure	$p_{max} = 350 \text{ bar}$
------------------	-----------------------------

**SYMBOL**

**DIMENSIONS**


**Threaded subplate**

- Threaded connection G1/4"
- $p_{max} = 350 \text{ bar}$

**NG4-Mini<sup>®</sup>**

**DESCRIPTION**

Threaded subplate with interface for valve NG4-Mini acc. to Wandfluh standard. The threaded subplate is made from phosphated steel.

**TYPE CODE**

Interface	B	G	4		#	
Threaded subplate						
Nominal size 4-Mini						
Type list						
Connections P, T, A, B, on the side	S					
Connections P, T, A, B on the bottom	U					
Connections A, B, side; P, T, bottom	SU					
Design-Index (Subject to change)						

**GENERAL CHARACTERISTICS**

Designation	Threaded subplate	
Nominal size	NG4-Mini acc. to Wandfluh standard	
Fastening:		
BG4S	3 tapped holes for cylinder screw M5	
BG4U	2 location holes for cylinder screw M5	
BG4SU	2 tapped holes for cylinder screw M5	
Connection	Threaded connections A, B, P, T G1/4"	
Mounting position	any	
Weight:	BG4S	m = 0,5 kg
	BG4U	m = 0,75 kg
	BG4SU	m = 0,5 kg

**HYDRAULIC SPECIFICATIONS**

Working pressure	$p_{max} = 350 \text{ bar}$
------------------	-----------------------------

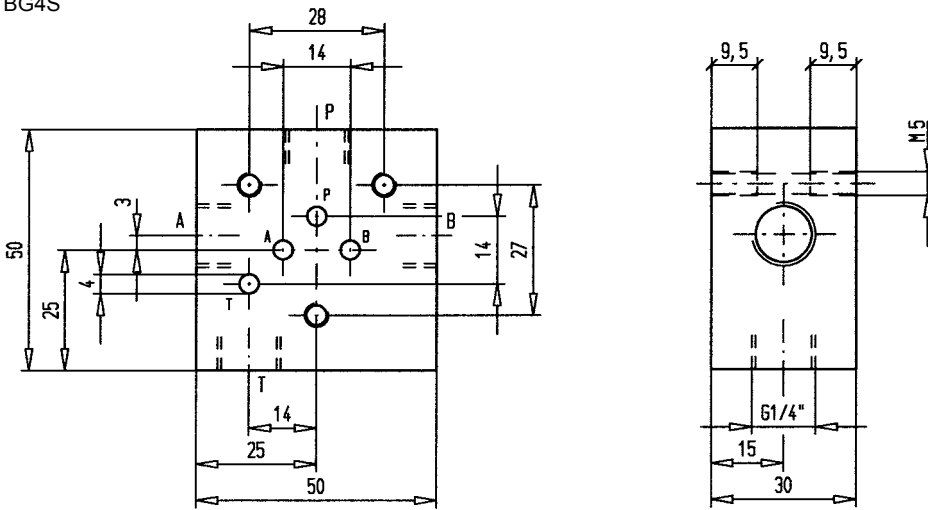
**TYPES**
**BG4S**

**BG4U**

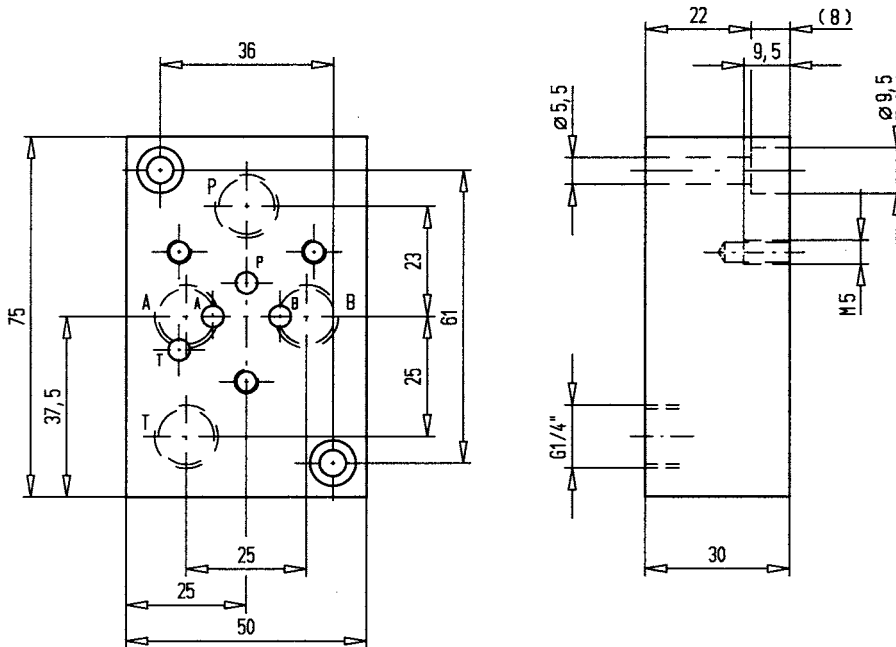
**BG4SU**


**DIMENSIONS**

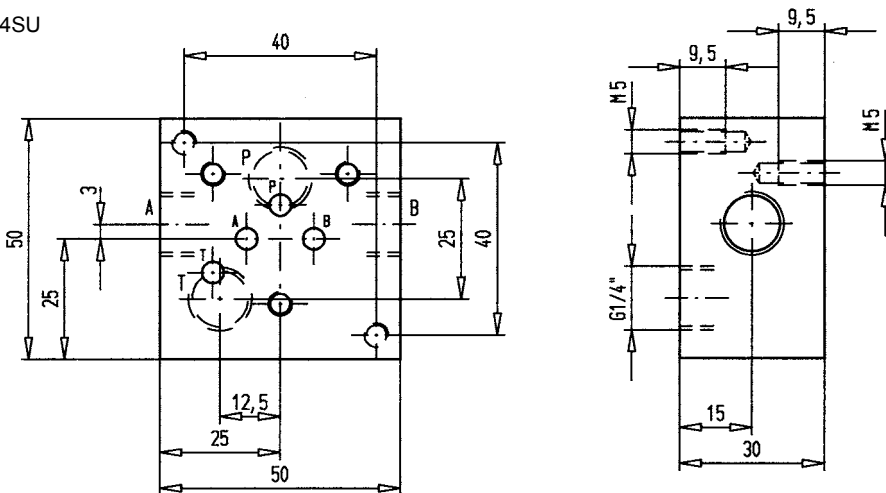
BG4S



BG4U



BG4SU

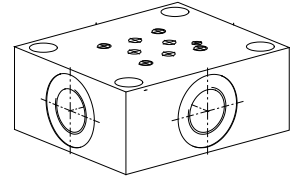




**Threaded subplate**

- Threaded connection G3/8"
- $p_{max} = 350 \text{ bar}$

**NG4**  
ISO 4401-02


**DESCRIPTION**

Threaded subplate with interface for valve NG4 acc. to ISO 4401-02. The threaded subplate is made from phosphated steel.

**TYPE CODE**

	AG	<input type="checkbox"/>	B04	#	<input type="checkbox"/>
Threaded subplate					
Type list					
Connections P, T, A, B, on the side	S				
Connections P, T, A, B, on the bottom	U				
Connections A, B, side; P, T, bottom	T				
International standard interface ISO, NG4					
Design-Index (Subject to change)					

**GENERAL CHARACTERISTICS**

Designation	Threaded subplate
Nominal size	NG4 acc. to ISO 4401-02
Fastening:	4 location holes for cylinder screw M5
Connection	Threaded connections A, B, P, T G3/8"
Mounting position	any
Weight	m = 0,8 kg

**HYDRAULIC SPECIFICATIONS**

Working pressure	$p_{max} = 350 \text{ bar}$
------------------	-----------------------------

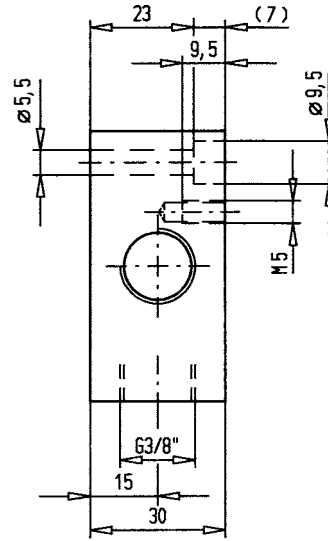
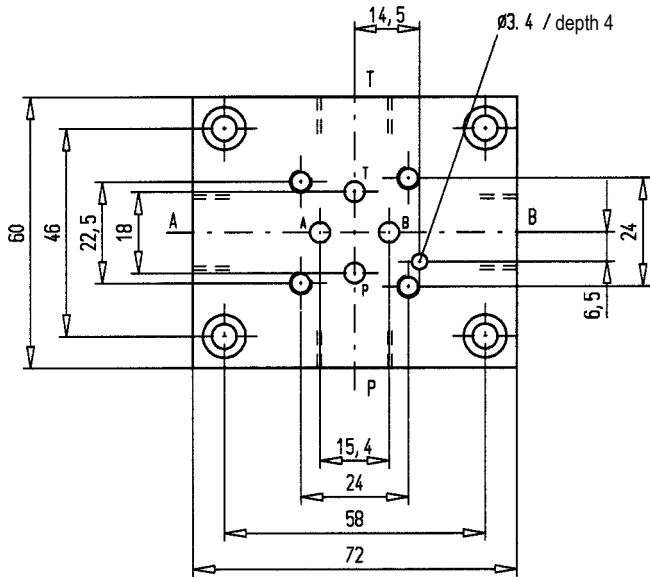
**TYPES**
**AGSB04**

**AGUB04**

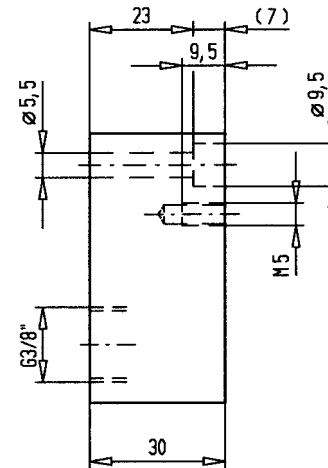
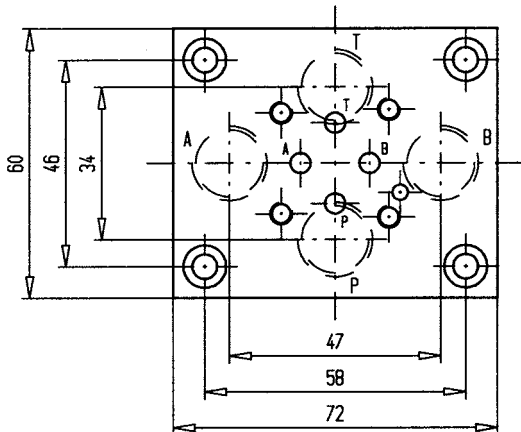
**AGTB04**


**DIMENSIONS**

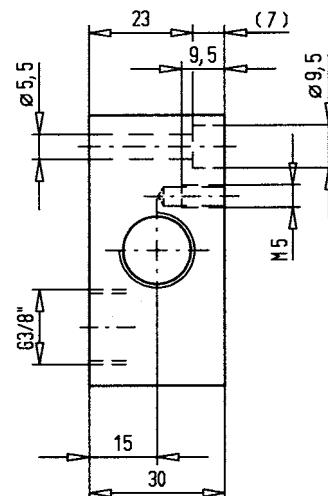
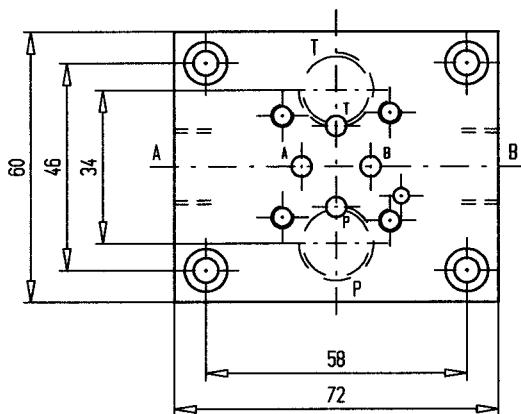
AGSB04



AGUB04



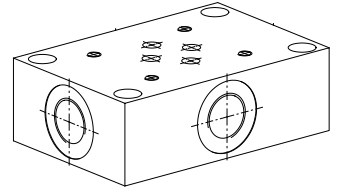
AGTB04



**Threaded subplate**

- Threaded connection G3/8"
- $p_{max} = 350$  bar

**NG6**  
ISO 4401-03


**DESCRIPTION**

Threaded subplate with interface for valve NG6 to ISO 4401-03. The threaded subplates are made from phosphated steel.

**TYPE CODE**

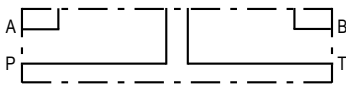
	A	G	6	#	□
Interface					
Threaded subplate					
Nominal size 6					
Type list					
Connections P, T, A, B, on the side	S				
Connections P, T, A, B on the bottom	U				
Connections A, B, side; P, T, bottom	SU				
Design-Index (Subject to change)					

**GENERAL CHARACTERISTICS**

Designation	Threaded subplate
Nominal size	NG6 to ISO 4401-03
Fastening	4 location holes for cylinder screw M5
Connection	Threaded connections A, B, P, T G3/8"
Mounting position	any
Weight: AG6S	m = 1,0 kg
AG6U	m = 1,0 kg
AG6SU	m = 1,4 kg

**HYDRAULIC SPECIFICATIONS**

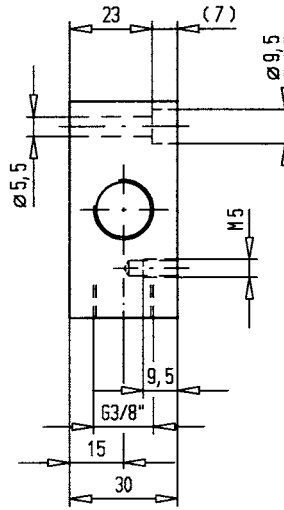
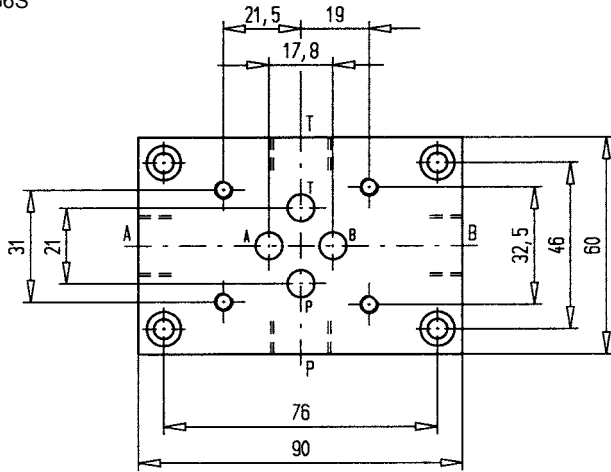
Working pressure	$p_{max} = 350$ bar
------------------	---------------------

**TYPES**
**AG6S**

**AG6U**

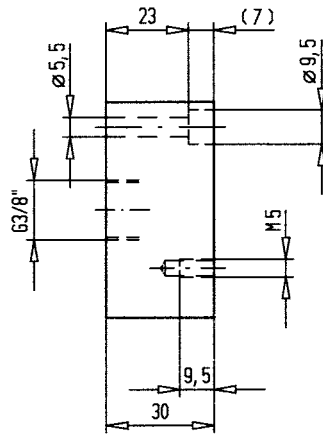
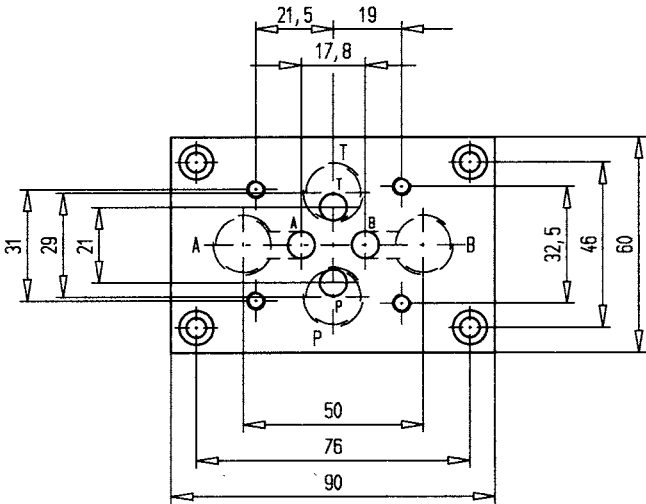
**AG6SU**


**DIMENSIONS**

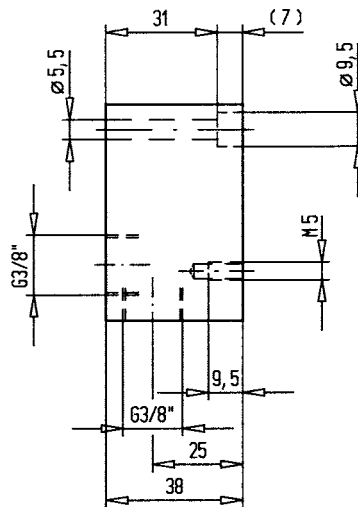
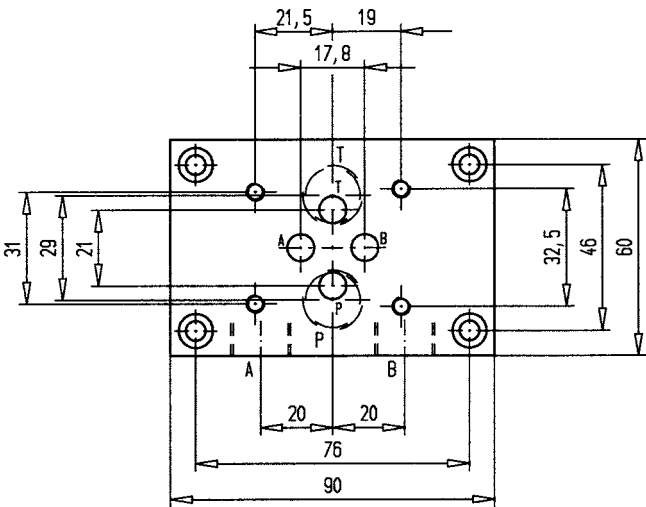
AG6S



AG6U



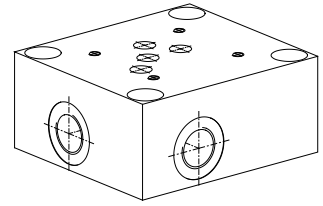
AG6SU



**Threaded subplate**

- Threaded connection G1/2"
- $p_{max} = 350$  bar

**NG10**  
 ISO 4401-05


**DESCRIPTION**

Threaded subplate with interface for valve NG10 acc. to ISO 4401-05. The threaded subplates are made from phosphated steel.

**TYPE CODE**

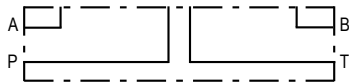
	A	G	10	#	□
Interface					
Threaded subplate					
Nominal size 10					
Type list					
Connections P, T, A, B, on the side	<input type="checkbox"/> S				
Connections P, T, A, B on the bottom	<input type="checkbox"/> U				
Connections A, B, side; P, T, bottom	<input type="checkbox"/> SU				
Design-Index (Subject to change)					

**GENERAL CHARACTERISTICS**

Designation	Threaded subplate
Nominal size	NG10 acc. to ISO 4401-05
Fastening	4 location holes for cylinder screw M10
Connection	Threaded connections A, B, P, T G1/2"
Mounting position	any
Weight	m = 3,75 kg

**HYDRAULIC SPECIFICATIONS**

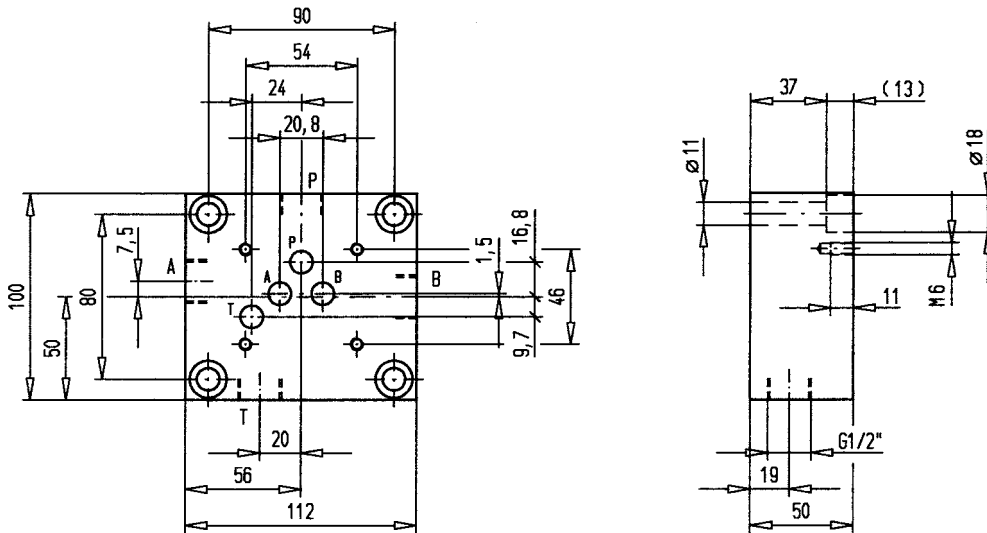
Working pressure	$p_{max} = 350$ bar
------------------	---------------------

**TYPES**
**AG10S**

**AG10U**

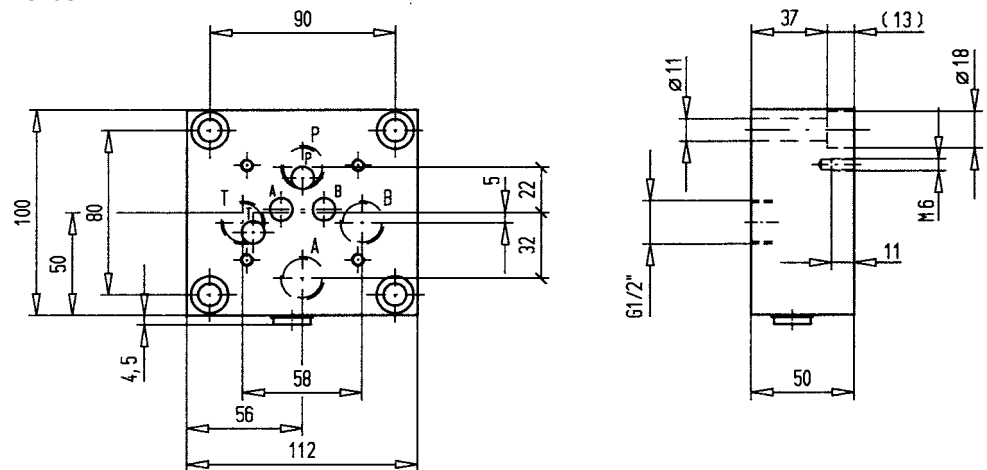
**AG10SU**


**DIMENSIONS**

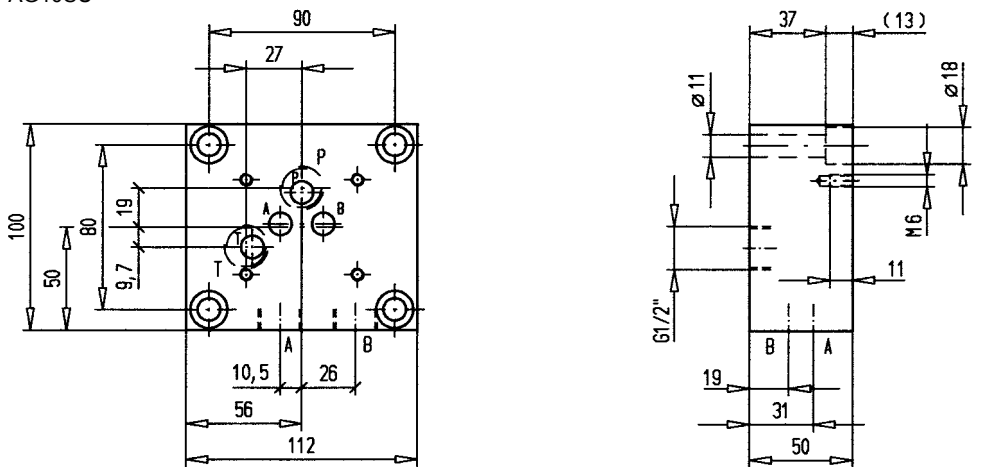
AG10S



AG10U

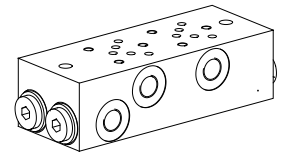


AG10SU



**Multi-station subplate**

- Threaded connection G1/8"
- $p_{max} = 350 \text{ bar}$

**NG3-Mini<sup>®</sup>**

**DESCRIPTION**

Multi-station subplates with interfaces for 2 to 7 valves NG3-Mini acc. to Wandfluh standard. The multistation subplates are made from phosphated steel.

**TYPE CODE**

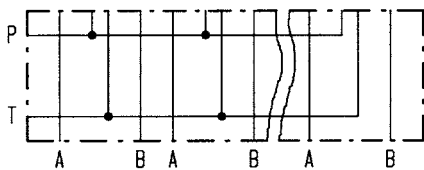
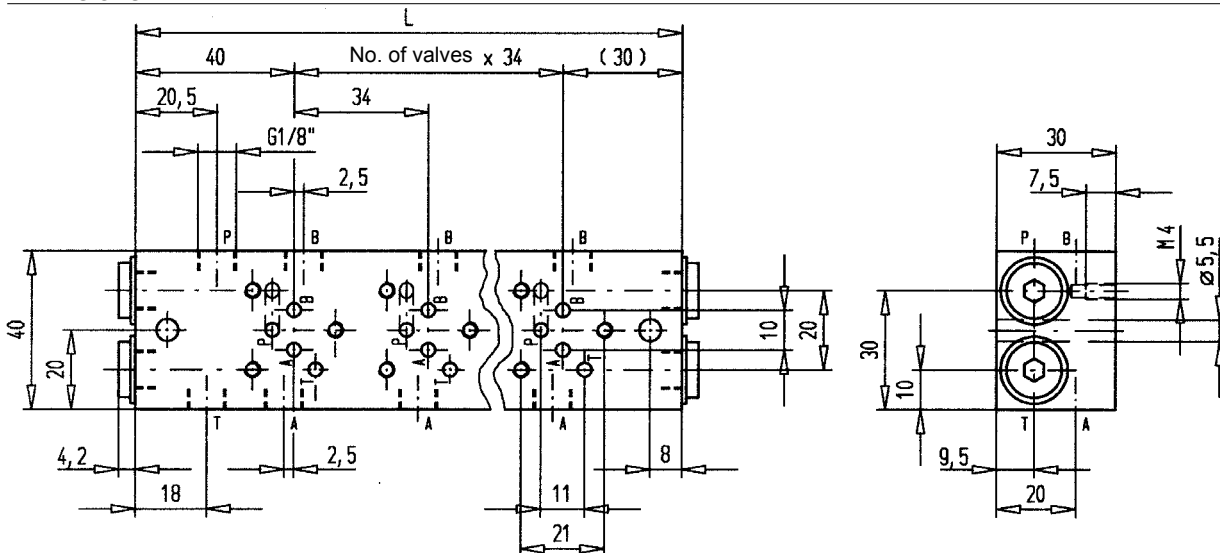
	B 3 / <input type="checkbox"/> # <input type="checkbox"/>
Mounting interface acc. to Wandfluh standard	
Nominal size 3-Mini	
Number of valves	
Design-Index (Subject to change)	

**GENERAL CHARACTERISTICS**

Designation	Multi-station subplate
Nominal size	NG3-Mini acc. to Wandfluh standard
Fastening	2 location holes for cylinder screw M5
Connection	Threaded connections A, B, P, T G1/8"
Mounting position	any
Weight	see chart

**HYDRAULIC SPECIFICATIONS**

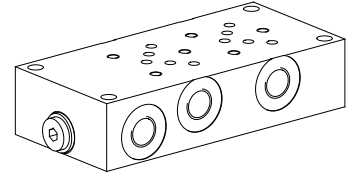
Working pressure	$p_{max} = 350 \text{ bar}$
------------------	-----------------------------

**SYMBOL**

**DIMENSIONS**


Type	No. of valves	Dimension L	Weight m
B3/2	2	104	0,85 kg
B3/3	3	138	1,12 kg
B3/4	4	172	1,39 kg
B3/5	5	206	1,66 kg
B3/6	6	240	1,93 kg
B3/7	7	274	2,20 kg

**Multi-station subplate**

- Threaded connection G1/4"
- $p_{max} = 350 \text{ bar}$

**NG4-Mini<sup>®</sup>**

**DESCRIPTION**

Multi-station subplates with interfaces for 2 to 8 valves NG4-Mini acc. to Wandfluh standard. The multi-station subplates are made from phos-phated steel.

**TYPE CODE**

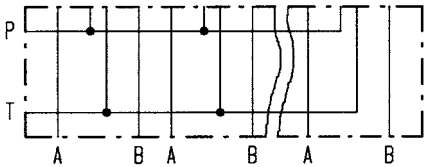
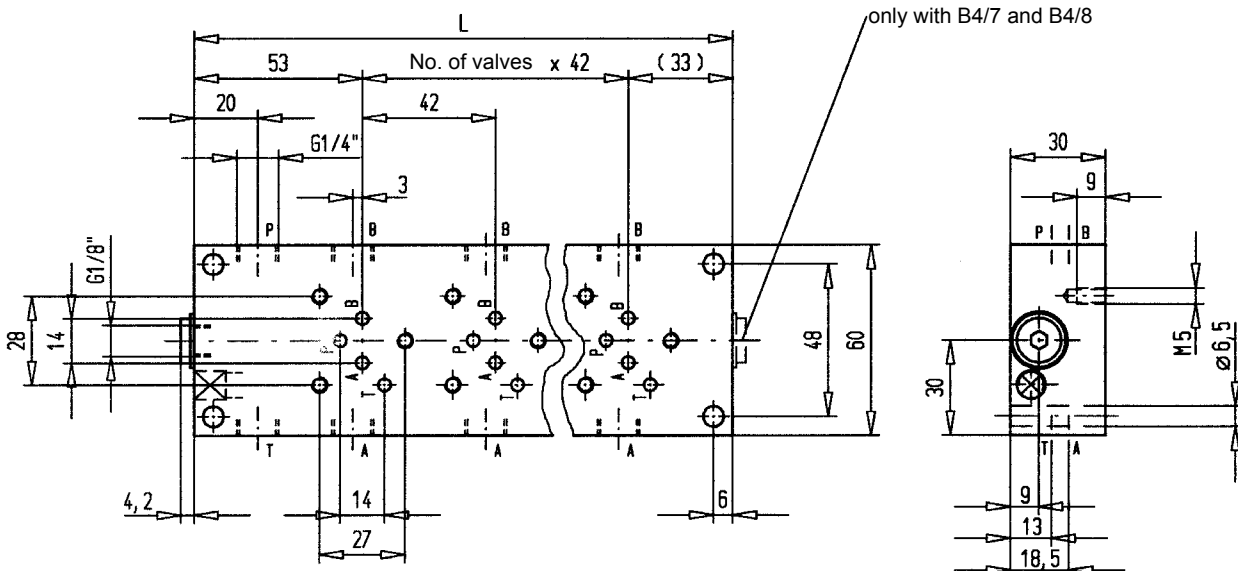
	B 4 / <input type="checkbox"/> # <input type="checkbox"/>
Mounting interface acc. to Wandfluh standard	
Nominal size 4-Mini	
Number of valves	
Design-Index (Subject to change)	

**GENERAL CHARACTERISTICS**

Designation	Multi-station subplate
Nominal size	NG4-Mini acc. to Wandfluh standard
Fastening	4 location holes for cylinder screw M6
Connection	Threaded connections A, B, P, T G1/4"
Mounting position	any
Weight	see chart

**HYDRAULIC SPECIFICATIONS**

Working pressure	$p_{max} = 350 \text{ bar}$
------------------	-----------------------------

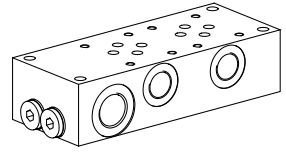
**SYMBOL**

**DIMENSIONS**


Type	No. of valves	Dimension L	Weight m
B4/2	2	128	1,50 kg
B4/3	3	170	2,00 kg
B4/4	4	212	2,50 kg
B4/5	5	254	3,00 kg
B4/6	6	296	3,50 kg
B4/7	7	338	4,00 kg
B4/8	8	380	4,50 kg



**Multi-station subplate**

- Threaded connection P and T G1/2"  
A and B G3/8"
- $p_{max} = 350 \text{ bar}$

**NG6**  
 ISO 4401-03

**DESCRIPTION**

Multi-station subplates with interfaces for 2 to 7 valves NG6 acc. to ISO 4401-03. The multi-station subplates are made from phosphated steel.

**TYPE CODE**

	A 6 / <input type="checkbox"/> # <input type="checkbox"/>
International standard interface ISO	
Nominal size 6	
Number of valves	
Design-Index (Subject to change)	

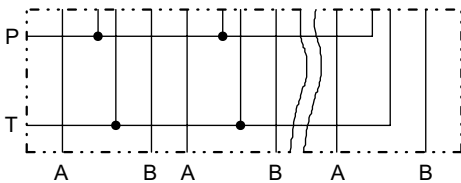
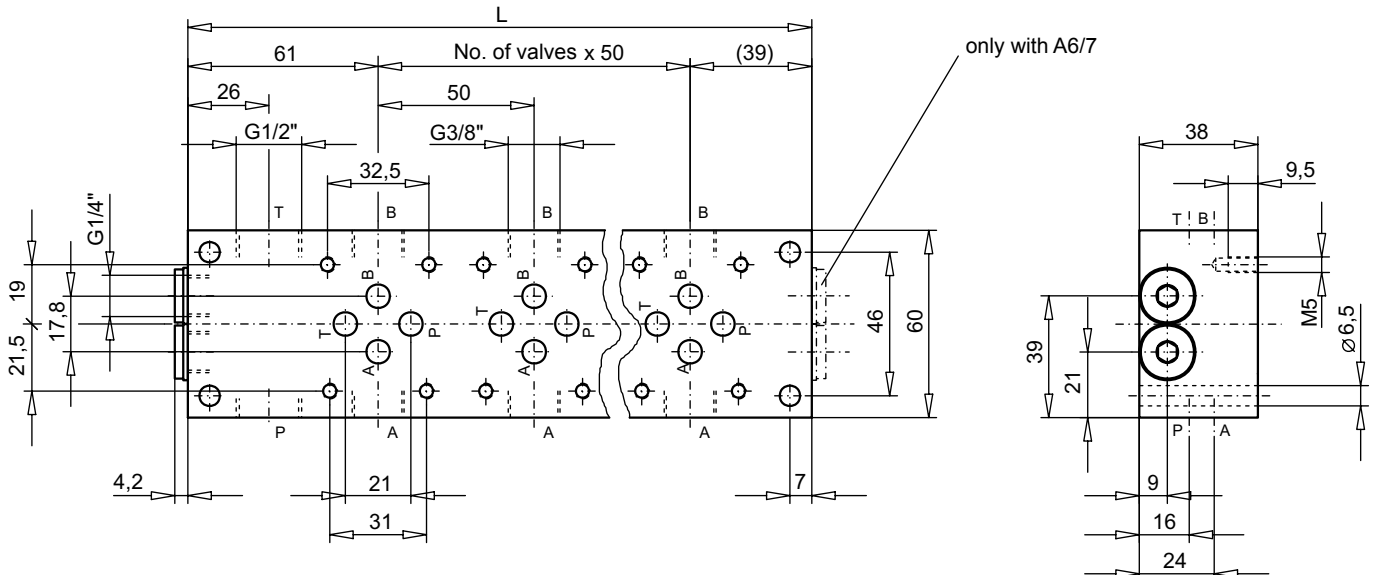
**GENERAL CHARACTERISTICS**

Designation	Multi-station subplate
Nominal size	NG6 acc. to ISO 4401-03
Fastening	4 location holes for cylinder screw M6
Connection	Threaded connections P and T G1/2" A and B G3/8"

**HYDRAULIC SPECIFICATIONS**

Working pressure	$p_{max} = 350 \text{ bar}$
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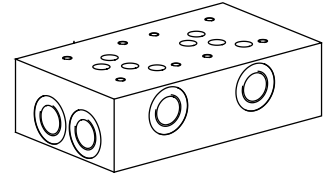
Mounting position	any
Weight	see chart

**SYMBOL**

**DIMENSIONS**


Type	No. of valves	Dimension L	Weight m
A6/2	2	150	2,00 kg
A6/3	3	200	2,65 kg
A6/4	4	250	3,30 kg
A6/5	5	300	3,95 kg
A6/6	6	350	4,60 kg
A6/7	7	400	5,30 kg

**Multi-station subplate**

- Threaded connection G1/2"
- $p_{max} = 350$  bar

**NG10**  
 ISO 4401-05

**DESCRIPTION**

Multi-station subplates with interfaces for 2 to 4 valves NG10 acc. to ISO 4401-05. The multi-station subplates are made from phosphated steel.

**TYPE CODE**

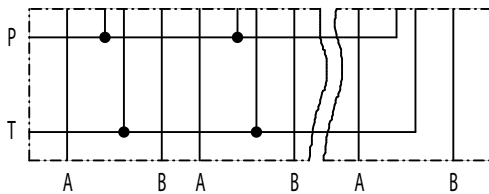
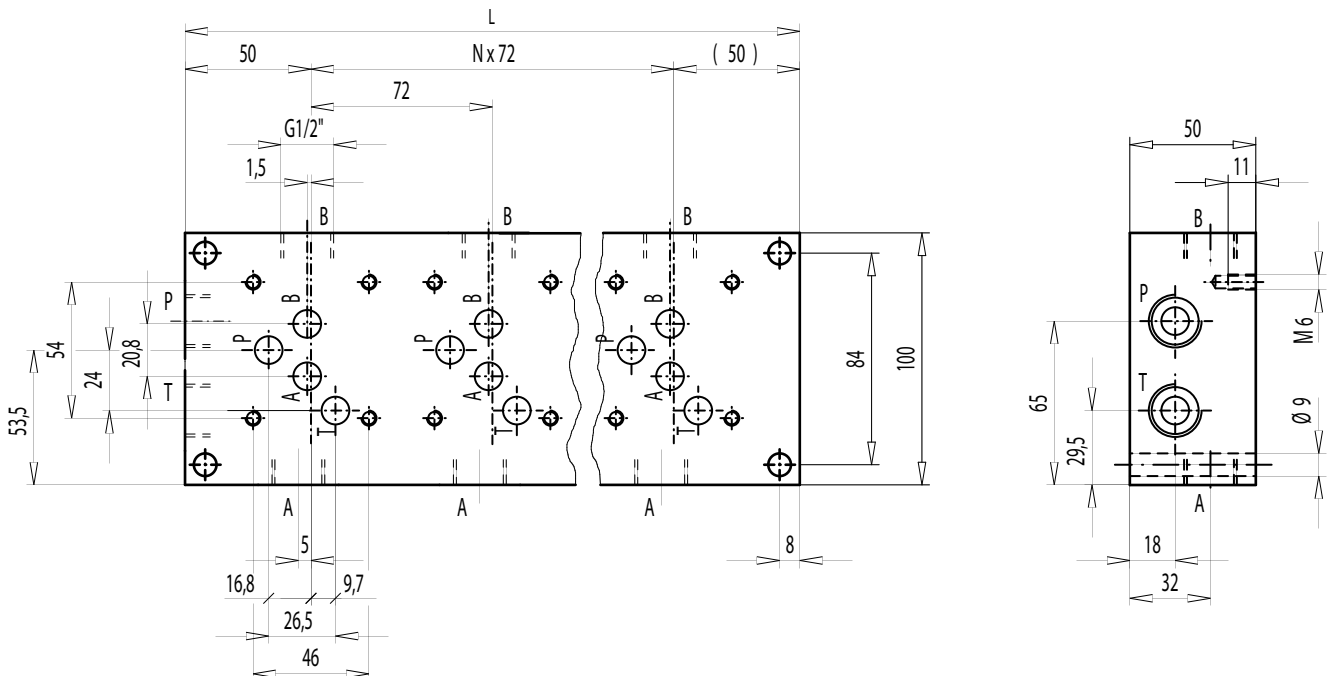
	A	10	/	<input type="checkbox"/>	#	<input type="checkbox"/>
International standard interface ISO						
Nominal size 10						
Number of valves						
Design-Index (Subject to change)						

**GENERAL CHARACTERISTICS**

Designation	Multi-station subplate
Nominal size	NG10 selon ISO 4401-05
Fastening	4 location holes for cylinder screw M8
Connection	Threaded connections A, B, P, T G1/2"
Mounting position	any
Weight	see chart

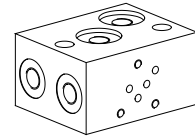
**HYDRAULIC SPECIFICATIONS**

Working pressure	$p_{max} = 350$ bar
------------------	---------------------

**SYMBOL**

**DIMENSIONS**


Type	No. of valves N (-)	Dimension L (mm)	Weight m (kg)
A10/2	2	172	5,80
A10/3	3	244	8,30
A10/4	4	316	10,80

**Module type manifold blocks**

 •  $p_{max} = 350 \text{ bar}$ 
**NG3-Mini<sup>®</sup>**

**DESCRIPTION**

Module type manifold blocks with interface NG3-Mini acc. to Wandfluh standard. The drilling pattern is identical with NG4-Mini. This allows direct combination with the NG4-Mini module type manifold blocks. Using an adapter plate and connecting blocks, combinations with NG6 and NG10 are also possible (see also data sheet 2.9-80). The module type manifold blocks are made from aluminium and are therefore very light.

**FUNCTION**

The module type manifold blocks are available with 3 different basic circuits, namely parallel, serial and pressure reduction circuit.

**APPLICATION**

This block system can be used as a replacement for expensive special blocks. Existing systems may be extended or reduced by adding or removing modular blocks.

**TYPE CODE**

			AL	<input type="checkbox"/>	A03	#	<input type="checkbox"/>
Module type manifold							
Type list							
Parallel circuit		<input type="checkbox"/>	P				
Serial circuit		<input type="checkbox"/>	S				
Pressure reduction circuit		<input type="checkbox"/>	D				
Nominal size	NG3-Mini						
Design-Index (Subject to change)							

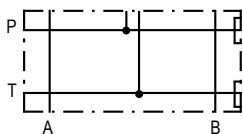
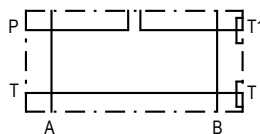
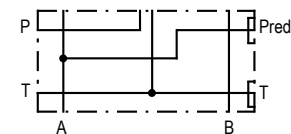
**GENERAL SPECIFICATIONS**

Description	Parallel-, serial- and pressure reduction circuit
Nominal size	NG3-Mini acc. to Wandfluh standard
Fastening	see data sheet 2.9-122
Connection	Threaded connections A, B, P, T, G1/8"
Mounting position	any
Weight	m = 0,26 kg

**HYDRAULIC SPECIFICATIONS**

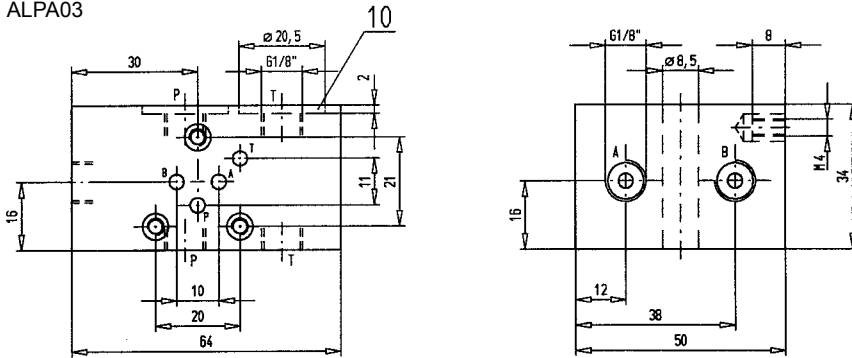
Working pressure	$p_{max} = 350 \text{ bar}$
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**SYMBOLS**

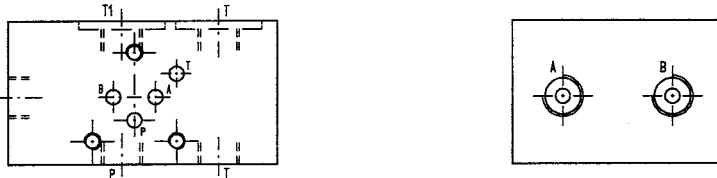
 Block for parallel circuit  
 ALPA03

 Block for serial circuit  
 ALSA03

 Block for pressure reduction circuit  
 ALDA03


**DIMENSIONS**

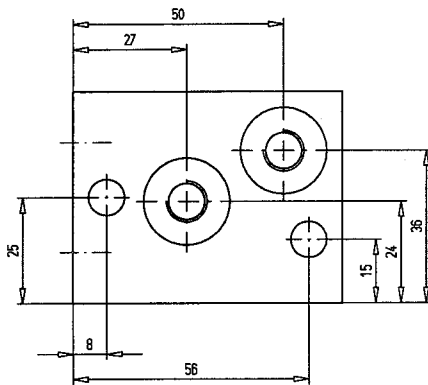
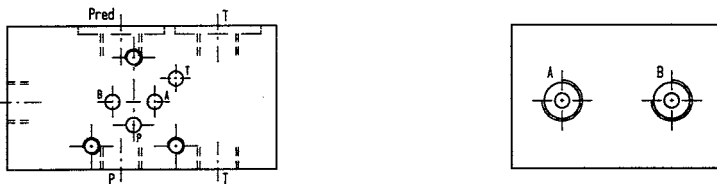
Block for parallel circuit  
ALPA03



Block for serial circuit  
ALSA03



Block for pressure reduction circuit  
ALDA03



**PARTS LIST**

Position	Article	Description
10	160.2155	O-ring ID 15,54x2,62

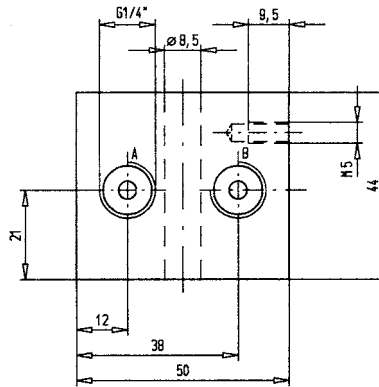
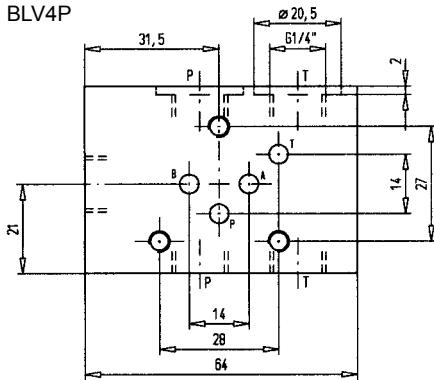
**ACCESSORIES**

Fixing brackets BB41/BB42 and studs  
see data sheet 2.9-122

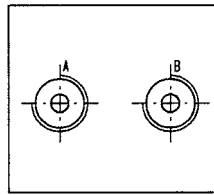
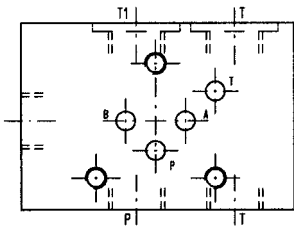


**DIMENSIONS**

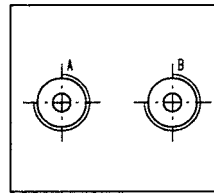
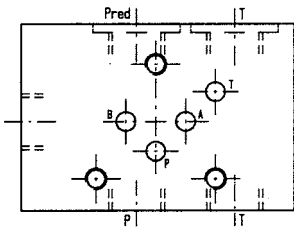
Block for parallel circuit  
BLV4P



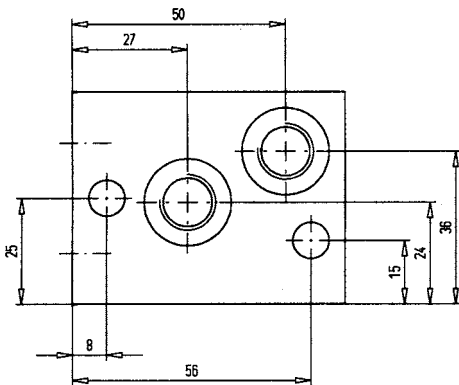
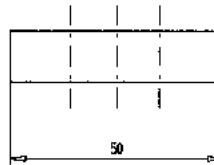
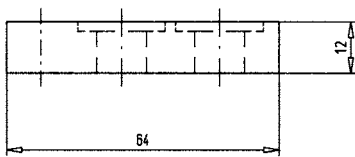
Block for serial circuit  
BLV4S



Block for pressure reduction circuit  
BLV4D



Intermediate block  
BLV4Z



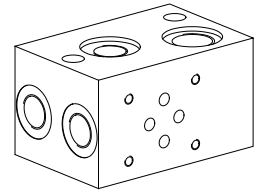
**PARTS LIST**

Position	Article	Description
10	160.2155	O-ring ID 15,54x2,62

**ACCESSORIES**

Fixing brackets BB41/BB42 and studs  
see data sheet 2.9-122

**Module type manifold blocks**

 •  $p_{max} = 350 \text{ bar}$ 
**NG6**  
 ISO 4401-03

**DESCRIPTION**

Module type manifold blocks with interface NG6 acc. to ISO 4401-03. Using an adapter plate and connecting blocks, combinations with NG3-Mini, NG4-Mini and NG10 are also possible (see also data sheet 2.9-80). The module type manifold blocks are made from steel and are phosphated.

**FUNCTION**

The module type manifold blocks are available with 3 different basic circuits, namely parallel, serial and pressure reduction circuit.

**APPLICATION**

This block system can be used as a replacement for expensive special blocks. Existing systems may be extended or reduced by adding as removing modular blocks.

**TYPE CODE**

	A	LV	6	<input type="checkbox"/>	#	<input type="checkbox"/>
International standard interface ISO	_____					
Module type manifold	_____					
Nominal size 6	_____					
Type list	_____					
Parallel circuit	<input type="checkbox"/> P					
Serial circuit	<input type="checkbox"/> S					
Pressure reduction circuit	<input type="checkbox"/> D					
Design-Index (Subject to change)	_____					

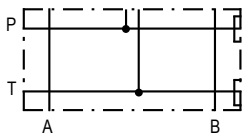
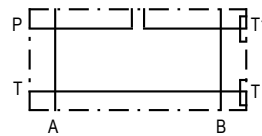
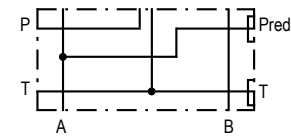
**GENERAL SPECIFICATIONS**

Description	Parallel-, serial- and pressure reduction circuit
Nominal size	NG6 acc. to ISO 4401-03
Fastening	see data sheet 2.9-124
Connection	Threaded connections P, P <sub>red</sub> , T1, A, B = G3/8" T = G1/2"
Mounting position	any
Weight:	m = 2,0 kg

**HYDRAULIC SPECIFICATIONS**

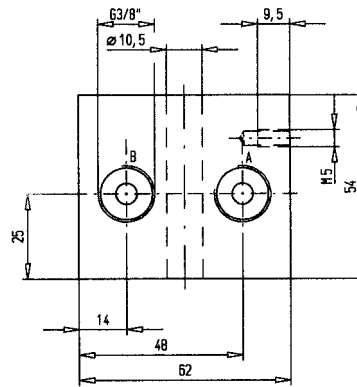
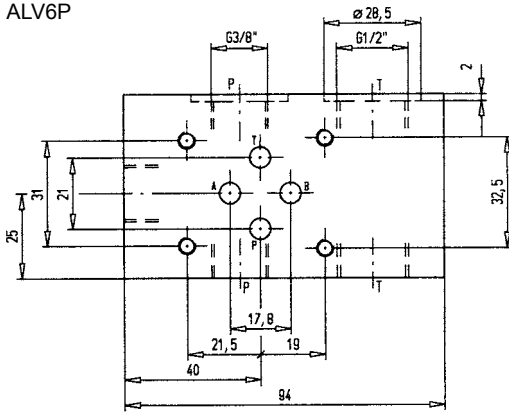
Working pressure	$p_{max} = 350 \text{ bar}$
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**SYMBOLS**

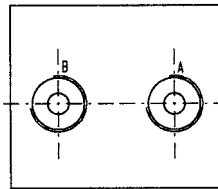
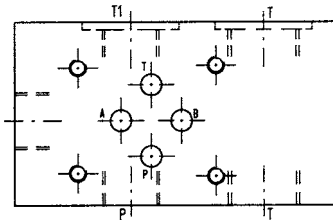
 Block for parallel circuit  
 ALV6P

 Block for serial circuit  
 ALV6S

 Block for pressure reduction circuit  
 ALV6D


**DIMENSIONS**

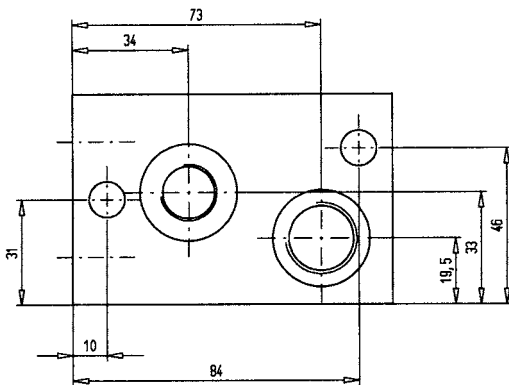
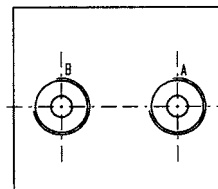
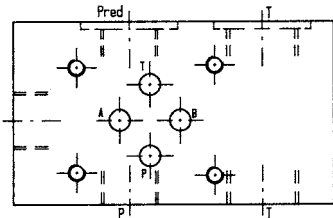
Block for parallel circuit  
ALV6P



Block for serial circuit  
ALV6S



Block for pressure reduction circuit  
ALV6D



**PARTS LIST**

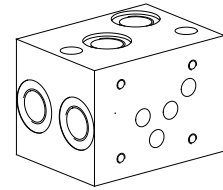
Position	Article	Description
10	160.2238	O-ring ID 23,81x2,62

**ACCESSORIES**

Fixing brackets AB61/AB62 and studs  
see data sheet 2.9-124



**Module type manifold blocks**

 •  $p_{max} = 350 \text{ bar}$ 
**NG10**  
 ISO 4401-05

**DESCRIPTION**

Module type manifold blocks with interface NG10 acc. to ISO 4401-05. Using an adapter plate and connecting blocks, combinations with NG3-Mini, NG4-Mini and NG6 are also possible (see also data sheet 2.9-80). The module type manifold blocks are made from steel and are phosphated.

**FUNCTION**

The module type manifold blocks are available with 3 different basic circuits, namely parallel, serial and pressure reduction circuit.

**APPLICATION**

This block system can be used as a replacement for expensive special blocks. Existing systems may be extended or reduced by adding as removing modular blocks.

**TYPE CODE**

	A	LV	10	<input type="checkbox"/>	#	<input type="checkbox"/>
International standard interface ISO						
Module type manifold						
Nominal size 10						
Type list						
Parallel circuit	<input type="checkbox"/> P					
Serial circuit	<input type="checkbox"/> S					
Pressure reduction circuit	<input type="checkbox"/> D					
Design-Index (Subject to change)						

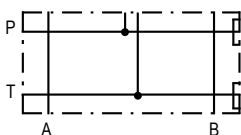
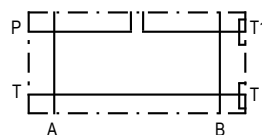
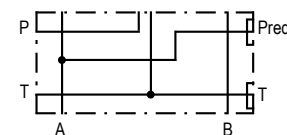
**GENERAL SPECIFICATIONS**

Description	Parallel-, serial- and pressure reduction circuit
Nominal size	NG10 acc. to ISO 4401-05
Fastening	see data sheet 2.9-126
Connection	Threaded connections A, B, P, T G1/2"
Mounting position	any
Weight:	m = 2,9 kg

**HYDRAULIC SPECIFICATIONS**

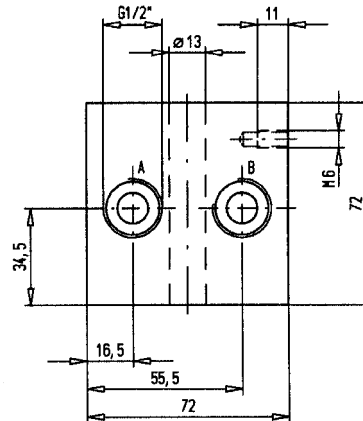
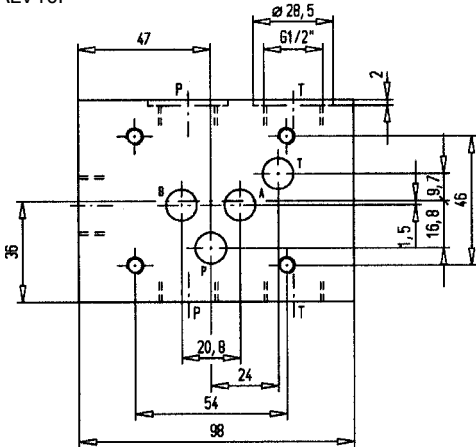
Working pressure	$p_{max} = 350 \text{ bar}$
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**SYMBOLS**

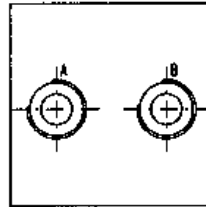
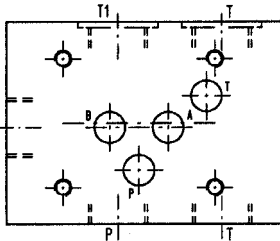
 Block for parallel circuit  
 ALV10P

 Block for serial circuit  
 ALV10S

 Block for pressure reduction circuit  
 ALV10D


**DIMENSIONS**

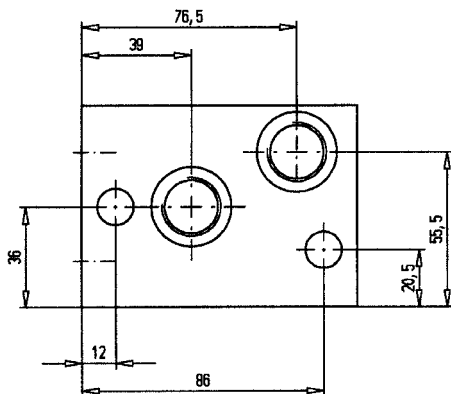
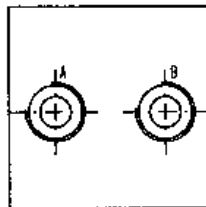
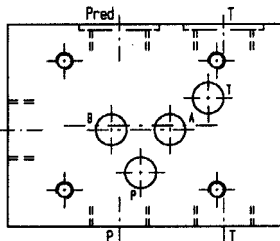
Block for parallel circuit  
ALV10P



Block for serial circuit  
ALV10S



Block for pressure reduction circuit  
ALV10D



**PARTS LIST**

Position	Article	Description
10	160.2238	O-ring ID 23,81x2,62

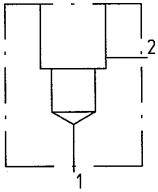
**ACCESSORIES**

Fixing brackets AB101/AB102 and studs  
see data sheet 2.9-126

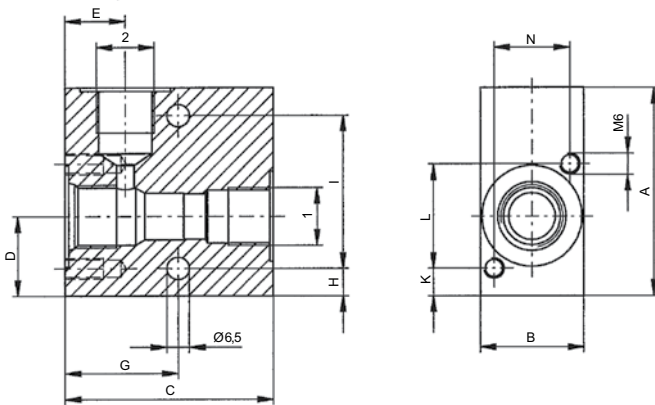
**Line mount body**

- for pressure relief valves in screw-in cartridge construction
- $p_{max} = 400$  bar

**M18x1,5**  
**M22x1,5**  
**M33x2**  
**M42x22**

**VARIATIONS**
**Types**
**C02**

**TYPE CODE**

Line mount body made of steel		KG	<input type="text"/>	- C02 #	<input type="text"/>
Port size	G 1/4" <input type="text" value="G14"/> G 3/8" <input type="text" value="G38"/>				
	G 1/2" <input type="text" value="G12"/> G 3/4" <input type="text" value="G34"/>				
	G 1 1/4" <input type="text" value="G114"/>				
Cavity thread diameter	M18x1,5 <input type="text" value="18"/> G 1/4" and G 3/8"				
	M22x1,5 <input type="text" value="22"/> G 3/8" and G 1/2"				
	M33x2 <input type="text" value="33"/> G 3/4"				
	M42x2 <input type="text" value="42"/> G 1 1/4"				
Variations/Types	C02				
Design index (subject to change)					

**DIMENSIONS C02**

**TYPE C02**

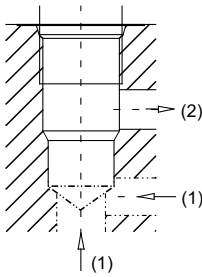
Ordering code	Size	Ports		Dimensions (in mm)											Wight
		1	2	A	B	C	D	E	G	H	I	K	L	N	
KGG1418-C02	M18x1,5	G 1/4"	G 1/4"	60	30	60	23	17.3	32.5	8	44	8	30	22	0.65 kg
KGG3818-C02	M18x1,5	G 3/8"	G 3/8"	60	30	60	23	17.3	32.5	8	44	8	30	22	0.65 kg
KGG3822-C02	M22x1,5	G 3/8"	G 3/8"	60	45	60	23	22.5	40	8	44	8	30	32	1.05 kg
KGG1222-C02	M22x1,5	G 1/2"	G 1/2"	60	45	60	23	22.5	40	8	44	8	30	32	1.05 kg
KGG3433-C02	M33x2	G 3/4"	G 3/4"	80	50	80	32.5	30.5	50	11	58	10	45	34	2.05 kg
KGG11442-C02	M42x2	G 1 1/4"	G 1 1/4"	100	60	100	40	33.5	62	11	79	12.5	55	44	3.60 kg

**GENERAL SPECIFICATIONS**

Description	Line mount body
Mounting	2 location holes 2 tapped holes
Connection	Threaded connections
Mounting position	see valve data sheet
Surface protection	zinc coated

**HYDRAULIC SPECIFICATIONS**

Peak pressure	$p_{max} = 400 \text{ bar}$
---------------	-----------------------------

**CARTRIDGE CAVITY**


Type	Cavity according to:	For detailed cavity drawing see data sheet:
<b>M18x1,5</b>	ISO 7789-18-02-0-98	2.13-1001
<b>M22x1,5</b>	ISO 7789-22-02-0-98	2.13-1003
<b>M33x2</b>	ISO 7789-33-02-0-98	2.13-1041
<b>M42x2</b>	ISO 7789-42-02-0-07	2.13-1048

**SCREW-IN CARTRIDGES INSTALLED**

According to the type the following screw-in cartridges can be installed in the line mount bodies:

**Type**                      **Data sheet no.**
**M18x1,5**

BV.PM18	2.1-510
BS.PM18	2.1-520
BS.PM18-Z36	2.1-522
BVPPM18	2.3-510
BDPPM18	2.3-520

**M22x1,5**

BV.PM22	2.1-530
BVTPM22	2.1-532
BVEPM22	2.1-536
BA.PM22	2.1-540
BK.PM22	2.1-542
BS.PM22-Z36	2.1-543
BVPPM22	2.3-529
BVPPM22-../ME	2.3-537
BNIPM22	2.3-533
BVBPM22	2.3-536
BDPPM22	2.3-539
BDPPM22-../ME	2.3-561
BDIPM22	2.3-548
BDIPM22-../ME	2.3-562
BDBPM22	2.3-547

**M33x2**

BV.PM33	2.1-550
BVPPM33	2.3-551
BVPPM33-../ME	2.3-553

**M42x2**

BVPPM42	2.3-590
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**CAUTION!**

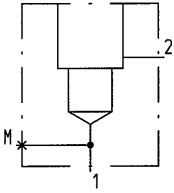
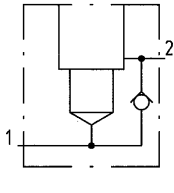
The performance data refer to the screw-in cartridges only. The additional pressure drop in the line mount body must be taken into consideration.

Technical explanation see data sheet 1.0-100

**Line mount body**

- for 2-way-valves in screw-in cartridge construction
- $p_{max} = 400 \text{ bar}$

**M18x1,5**  
**M22x1,5**  
**M33x2**  
**M42x2**

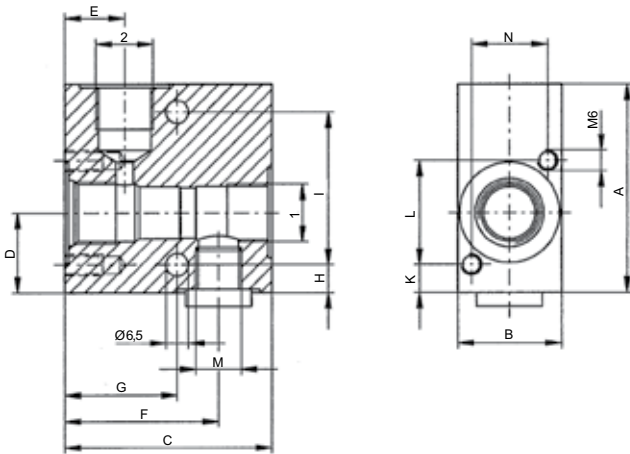
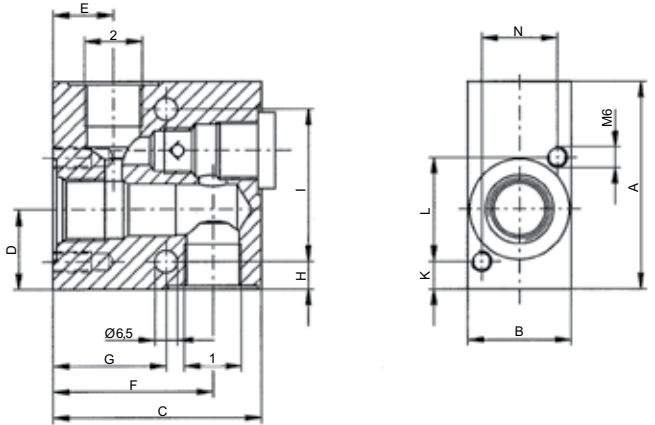
**VARIATIONS**
**Types**
**A01**

**B01**

**TYPE CODE**

Line mount body made of steel

Port size	G 3/8"	<input type="text" value="G38"/>	G 1/2"	<input type="text" value="G12"/>
	G 3/4"	<input type="text" value="G34"/>	G 1 1/4"	<input type="text" value="G114"/>
Cavity thread diameter	M18x1,5	<input type="text" value="18"/>	G 3/8"	
	M22x1,5	<input type="text" value="22"/>	G 1/2"	
	M33x2	<input type="text" value="33"/>	G 3/4"	
	M42x2	<input type="text" value="42"/>	G 1 1/4"	

Variations/Types	A01	<input type="text" value="A01"/>
	B01	<input type="text" value="B01"/>

Design index (subject to change)

 KG   -  # 
**DIMENSIONS A01**

**DIMENSIONS B01**

**TYPE A01**

Ordering code	Size	Ports			Dimensions (in mm)												Wight
		1	2	M	A	B	C	D	E	F	G	H	I	K	L	N	
KGG3818-A01	M18x1,5	G 3/8"	G 3/8"	G 1/4"	60	30	65	23	17.3	44.5	32.5	8	44	8	30	22	0.75
KGG1222-A01	M22x1,5	G 1/2"	G 1/2"	G 1/4"	60	45	80	23	22.5	53.5	40	8	44	8	30	32	1.45
KGG3433-A01	M33x2	G 3/4"	G 3/4"	G 1/4"	80	50	80	32.5	30.5	61.5	50	11	58	10	45	34	1.90
KGG11442-A01	M42x2	G 1 1/4"	G 1 1/4"	G 1/4"	100	60	100	40	33.5	80	62	11	78	12.5	55	44	3.20

**TYPE B01**

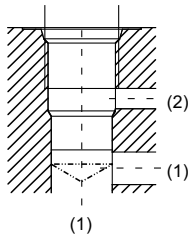
Ordering code	Size	Ports			Dimensions (in mm)												Wight
		1	2	M	A	B	C	D	E	F	G	H	I	K	L	N	
KGG1222-B01	M22x1,5	G 1/2"	G 1/2"		60	45	80	23	22.5	60	40	8	44	8	30	32	1.45

**GENERAL SPECIFICATIONS**

Description	Line mount body
Mounting	2 location holes 2 tapped holes
Connection	Threated connections
Mounting position	see valve data sheet
Surface protection	zinc coated

**HYDRAULC SPECIFICATIONS**

Peak pressure	$p_{max} = 400$ bar
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**CARTRIDGE CAVITY**


Type	Cavity according to:	For detailed cavity drawing see data sheet:
<b>M18x1,5</b>	ISO 7789-18-01-0-98	2.13-1002
<b>M22x1,5</b>	ISO 7789-22-01-0-98	2.13-1008
<b>M33x2</b>	ISO 7789-33-01-0-98	2.13-1005
<b>M42x2</b>	ISO 7789-42-01-0-07	2.13-1050

**SCREW-IN CARTRIDGES INSTALLED**

According to the type the following screw-in cartridges can be installed in the line mount bodies:

**Type** **Data sheet no.**
**M18x1,5**

SDSPM18-BA/AB	1.11-2050
SVSPM18-BC/CB	1.11-2080
DN.PM18	2.4-510
DR.PM18	2.4-610
QA.PM18	2.5-510
D.PPM18	2.6-510

**M22x1,5**

SDSPM22-BA/AB	1.11-2060
SDYPM22-BA/AB	1.11-2064
SVSPM22-DC/CD	1.11-2065
SVYPM22-BC/CB	1.11-2084
SVSPM22-BC/CB	1.11-2082
QRSPM22	2.5-530
QZ.PM22	2.5-535
DNPPM22	2.6-531
DNPPM22-../ME	2.6-541
QNPPM22	2.6-631
QNPPM22-../ME	2.6-633

**M33x2**

SVSPM33-DC/CD	1.11-2076
SVSPM33-BA/AB	1.11-2076
SVYPM33-BC/CB	1.11-2085
SVYPM33-BA/AB	1.11-2085
QZ.PM33	2.5-550
DNPPM33	2.6-551
DNPPM33-../ME	2.6-561
QNPPM33	2.6-651
QNPPM33-../ME	2.6-659
QSPPM33	2.6-661

**M42x2**

SVSPM42-BA/AB	1.11-2091
QNPPM42	2.6-690

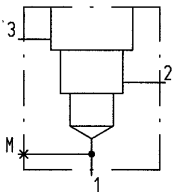

**CAUTION!**

The performance data refer to the screw-in cartridges only. The additional pressure drop in the line mount body must be taken into consideration.

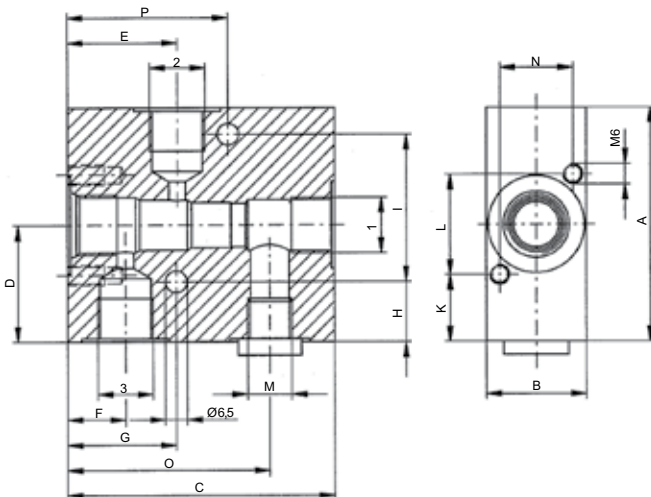
Technical explanation see data sheet 1.0-100

- Line mount body**
- for 3-way-valves  
in screw-in cartridge construction
  - $p_{max} = 400$  bar

**M18x1,5**  
**M22x1,5**  
**M33x2**  
**M42x2**

**VARIATIONS**
**Types**
**F04**

**TYPE CODE**

Line mount body made of steel	KG		<input type="checkbox"/>	<input type="checkbox"/>	- F04 #	<input type="checkbox"/>
Port size	G 3/8"	<input type="checkbox"/> G38	G 1/2"	<input type="checkbox"/> G12		
	G 3/4"	<input type="checkbox"/> G34	G 1 1/4"	<input type="checkbox"/> G114		
Cavity thread diameter	M18x1,5	<input type="checkbox"/> 18	G 3/8"			
	M22x1,5	<input type="checkbox"/> 22	G 3/8" and G 1/2"			
	M33x2	<input type="checkbox"/> 33	G 3/4"			
	M42x2	<input type="checkbox"/> 42	G 1 1/4"			
Varianten/Typen	F04					
Design index (subject to change)						

**DIMENSIONS F04**

**TYPE F04**

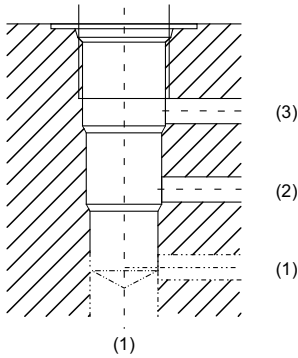
Ordering code	Size	Ports				Dimensions (in mm)														Wight
		1	2	3	M	A	B	C	D	E	F	G	H	I	K	L	N	O	P	
KGG3818-F04	M18x1,5	G 3/8"	G3/8"	G3/8"	G1/4"	70	30	80	35	32.8	17.3	32.5	18	44	20	30	22	60.5	48	1.10
KGG3822-F04	M22x1,5	G 3/8"	G3/8"	G3/8"	G1/4"	80	45	100	40	44	22.5	55	11	58	25	30	32	77	25	2.45
KGG1222-F04	M22x1,5	G 1/2"	G1/2"	G1/2"	G1/4"	80	45	100	40	44	22.5	55	11	58	25	30	32	77	25	2.45
KGG3433-F04	M33x2	G 3/4"	G3/4"	G3/4"	G1/4"	100	50	110	50	58.5	30.5	70	11	80	27.5	45	34	89.5	35	3.40
KGG11442-F04	M42x2	G 1 1/4"	G 1 1/4"	G 1 1/4"	G1/4"	120	60	130	60	66.5	33.4	72	15	88	32.5	55	44	100	25	5.40

**GENERAL SPECIFICATIONS**

Description	Line mount body
Mounting	2 location holes 2 tapped holes
Connection	Threated connections
Mounting position	see valve data sheet
Surface protection	zinc coated

**HYDRAULC SPECIFICATIONS**

Peak pressure	$p_{max} = 400$ bar
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**CARTRIDGE CAVITY**


Type	Cavity according to:	For detailed cavity drawing see data sheet:
<b>M18x1,5</b>	WAG standard	2.13-1020
<b>M22x1,5</b>	ISO 7789-22-04-0-98	2.13-1004
<b>M33x2</b>	ISO 7789-33-04-0-98	2.13-1040
<b>M42x2</b>	ISO 7789-42-04-0-07	2.13-1047

**SCREW-IN CARTRIDGES INSTALLED**

According to the type the following screw-in cartridges can be installed in the line mount bodies:

Type	Data sheet no.
<b>M18x1,5</b>	
SDSPM18-FG	1.11-2050
MV.PM18	2.2-510
MVPPM18	2.3-610
<b>M22x1,5</b>	
SDSPM22-FG	1.11-2060
SDYPM22-FG	1.11-2064
MV.PM22	2.2-530
MVEPM22	2.2-536
MVPPM22	2.3-629
MVPPM22-../ME	2.3-632
MVBPM22	2.3-635
MQPPM22	2.3-641
MQPPM22-../ME	2.3-643
QD.PM22	2.5-540
QDPPM22	2.6-644
QDPPM22-../ME	2.6-647
<b>M33x2</b>	
MVPPM33	2.3-649
MVPPM33-../ME	2.3-652
MVBPM33	2.3-654
QD.PM33	2.5-555
QDPPM33	2.6-666
QDPPM33-../ME	2.6-668
<b>M42x2</b>	
MVPPM42	2.3-690
QDPPM42	2.6-695

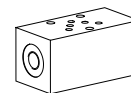

**CAUTION!**

The performance data refer to the screw-in cartridges only. The additional pressure drop in the line mount body must be taken into consideration.

Technical explanation see data sheet 1.0-100



**Threaded ports sandwich body**

 •  $p_{max} = 350 \text{ bar}$ 
**NG3-Mini<sup>®</sup>**

**DESCRIPTION**

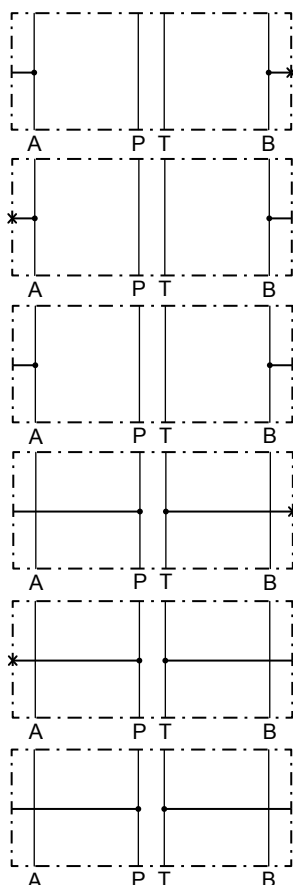
Sandwich bodies NG3-Mini acc. to Wandfluh standard with ports G1/8" for external connection to A and B or P and T lines. Sandwich bodies with one external connection (A, B, P, T) will have the second port plugged with plug G1/8" (article 238.1405). The sandwich bodies are zinc coated and will be supplied inclusive 5 O-rings ID 4,50x1,50 (article 160.2045). The connections T and To are not connected together.

**APPLICATION**

Threaded ports sandwich bodies in stacking systems to connect gauges, sensors or control elements.

**TYPE CODE**

	PG	S	A03	<input type="text"/>	#	<input type="text"/>
Sandwich threaded body						
Sandwich construction						
Mounting interface acc. to Wandfluh standard, NG3-Mini						
Type list / Function						
in A	<input type="text" value="A"/>	in P	<input type="text" value="P"/>			
in B	<input type="text" value="B"/>	in T	<input type="text" value="T"/>			
in A and B	<input type="text" value="AB"/>	in P and T	<input type="text" value="PT"/>			
Design-Index (Subject to change)						

**TYPES**

 PGSA03-A  
 (article 203.0501)

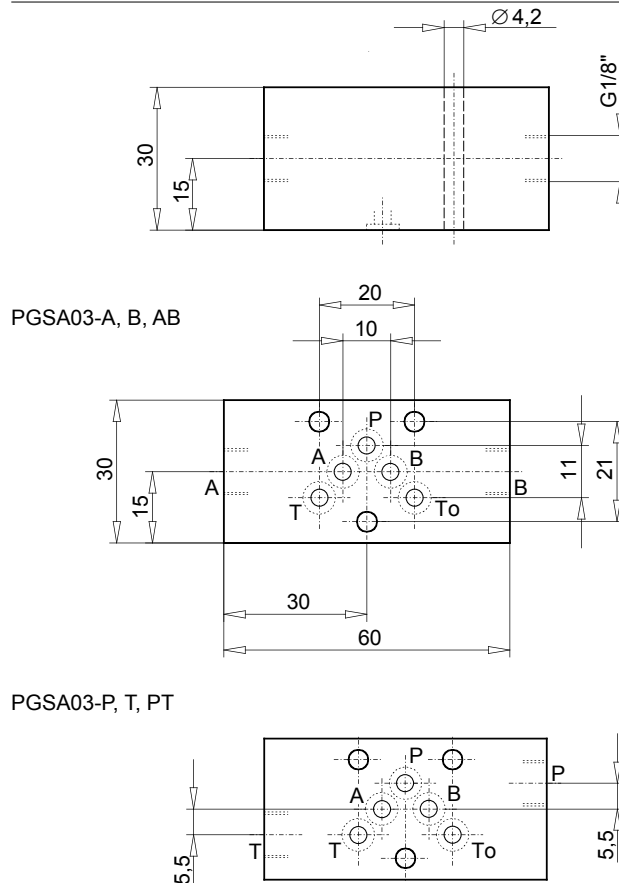
 PGSA03-B  
 (article 203.0502)

 PGSA03-AB  
 (article 203.0500)

 PGSA03-P  
 (article 203.0504)

 PGSA03-T  
 (article 203.0505)

 PGSA03-PT  
 (article 203.0503)

**DIMENSIONS**


**Threaded ports sandwich body**

 •  $p_{max} = 350 \text{ bar}$ 
**NG4-Mini<sup>®</sup>**
**DESCRIPTION**

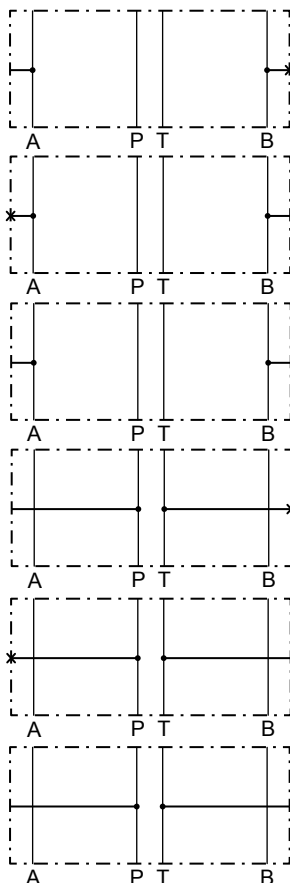
Sandwich bodies NG4-Mini according to Wandfluh standard with ports G1/4" for external connection to A and B or P and T lines. Sandwich bodies with one external connection (A, B, P, T) will have the second port plugged with plug G1/4" (article 238.2406). The sandwich bodies are zinc coated and will be supplied inclusive 5 O-rings ID 5,28x1,78 (article no. 160.2052). The connections T and To are not connected together.

**APPLICATION**

Threaded ports sandwich bodies in stacking systems to connect gauges, sensors or control elements.

**TYPE CODE**

			B	SGK	<input type="checkbox"/>	4	#	<input type="checkbox"/>
Mounting interface acc. to Wandfluh standard								
Sandwich threaded body								
Type list / Function								
	in A	<input type="checkbox"/>	in P	<input type="checkbox"/>				
	in B	<input type="checkbox"/>	in T	<input type="checkbox"/>				
	in A and B	<input type="checkbox"/>	in P and T	<input type="checkbox"/>				
Nominal size 4-Mini								
Design-Index (Subject to change)								

**TYPES**

 BSGKA4  
 (article 203.1501)

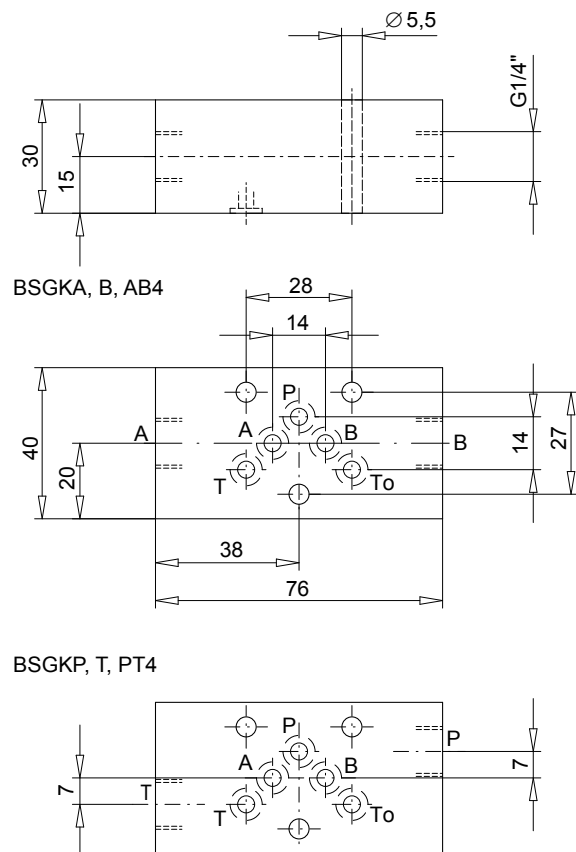
 BSGKB4  
 (article 203.1502)

 BSGKAB4  
 (article 203.1500)

 BSGKP4  
 (article 203.1504)

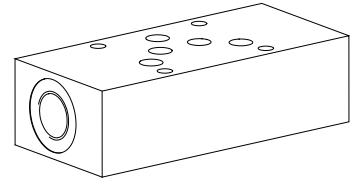
 BSGKT4  
 (article 203.1505)

 BSGKPT4  
 (article 203.1503)

**DIMENSIONS**




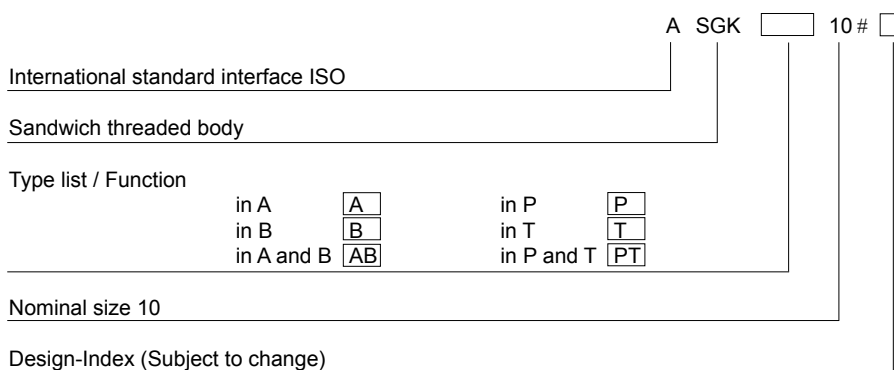
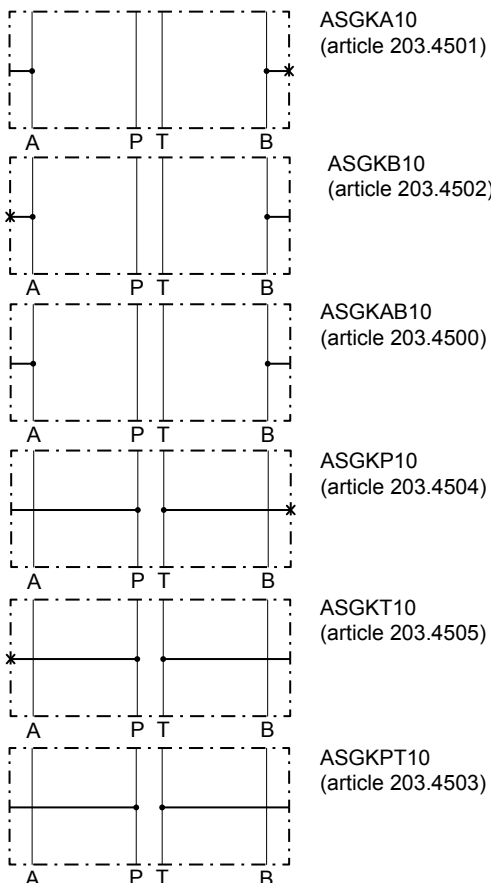
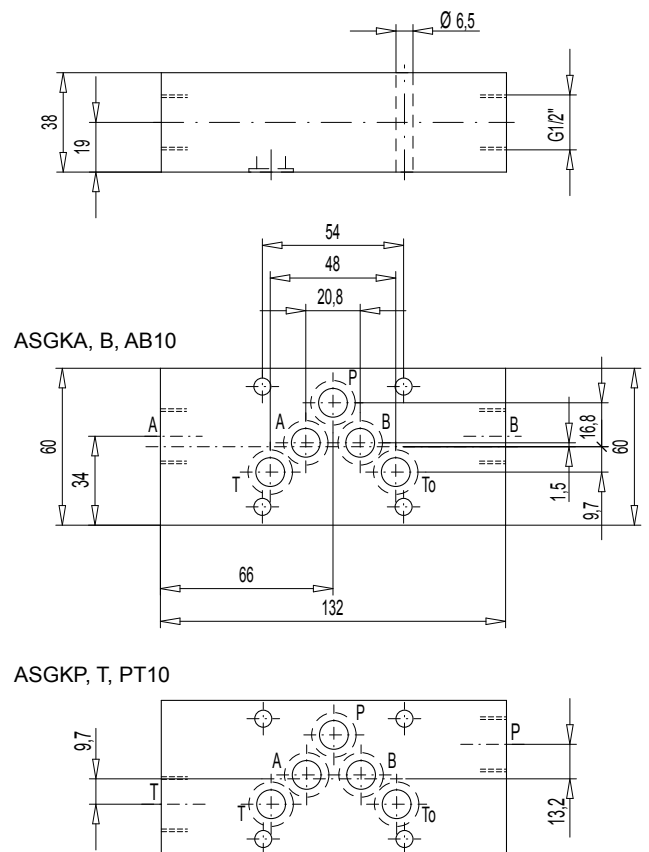
**Threaded ports sandwich body**

 •  $p_{max} = 350 \text{ bar}$ 
**NG10**  
 ISO 4401-05

**DESCRIPTION**

Sandwich bodies NG10 acc. to ISO 4401-05 with ports G1/2" for external connection to A and B or P and T lines. Sandwich bodies with one external connection (A, B, P, T) will have the second port plugged with plug G1/2" (article 238.5405). The sandwich bodies are zinc coated and will be supplied inclusive 5 O-rings ID 14,00x1,78 (article 160.2140). The connections T and To are not connected together.

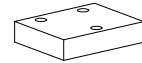
**APPLICATION**

Threaded ports sandwich bodies in stacking systems to connect gauges, sensors or control elements.

**TYPE CODE**

**TYPES**

**DIMENSIONS**


**Blanking plate**  
**Linking plate**  
 •  $p_{max} = 350$  bar

**NG3-Mini<sup>®</sup>**



**DESCRIPTION**

Blanking and linking plates NG3-Mini acc. to Wandfluh standard. The plates are phosphated and will be supplied inclusive 5 O-rings ID 4,50x1,50 (article 160.2045). The connections T and To are connected together.

**APPLICATION**

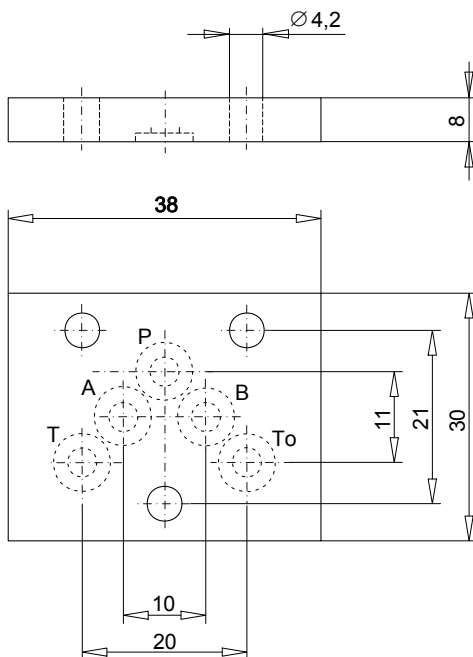
Blanking plates are used to seal all ports (P, A, B, T, T<sub>o</sub>) of a NG3-Mini interface. With linking plates selected ports of a NG3-Mini interface can be connected. Other ports not in use are sealed.

**TYPE CODE**


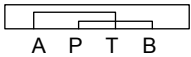




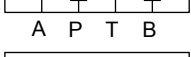
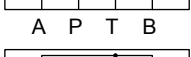

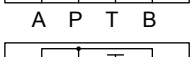

		PB F A03	#	<input type="checkbox"/>
		PU F A03 -	<input type="checkbox"/>	# <input type="checkbox"/>
Blanking plate	PB			
Linking plate	PU			
Flange construction				
Mounting interface acc. to Wandfluh standard, NG3-Mini				
Connection of ports see type code list and symbols				
Design-Index (Subject to change)				

**DIMENSIONS**

Blanking and linking plate

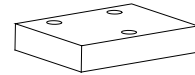


**TYPES**

Types	Article no.	Symbols
<i>Blanking plate:</i>		
PBFA03	173.0150	
<i>Linking plate:</i>		
PUFA03 - P/B - A/T	173.0256	
PUFA03 - P/A - B/T	173.0253	
PUFA03 - P/A	173.0254	
PUFA03 - P/B	173.0257	
PUFA03 - P/T	173.0251	
PUFA03 - A/T	173.0161	
PUFA03 - B/T	173.0260	
PUFA03 - A/B/T	173.0255	
PUFA03 - A/B	173.0252	
PUFA03 - P/A/B	173.0250	

**Blanking plate**  
**Linking plate**  
 •  $p_{max} = 350 \text{ bar}$

**NG4-Mini<sup>®</sup>**



**DESCRIPTION**

Blanking and linking plates NG4-Mini acc. to Wandfluh standard. The plates are phosphated and will be supplied inclusive 5 O-rings ID 5,28x1,78 (article 160.2052). The connections T and To are connected together.

**APPLICATION**

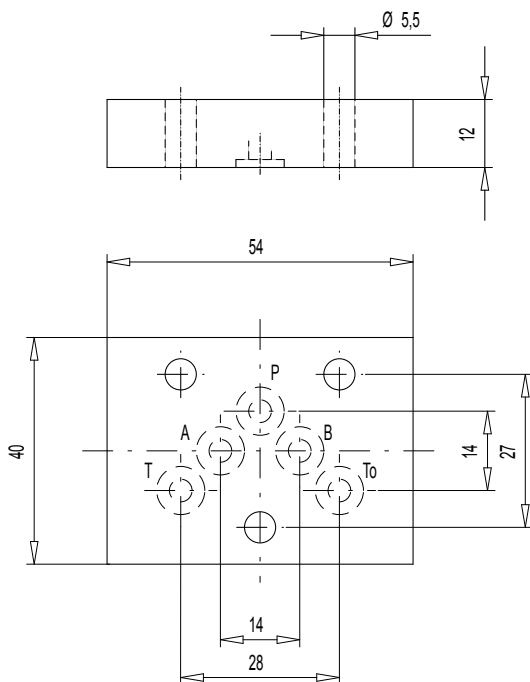
Blanking plates are used to seal all ports (P, A, B, T, T0) of a NG4-Mini interface. With linking plates selected ports of a NG4-Mini interface can be connected. Other ports not in use are sealed.

**TYPE CODE**

		B BP 4	#	<input type="checkbox"/>
		B U 4 /	#	<input type="checkbox"/>
Mounting interface acc. to Wandfluh standard				
Blanking plate	BP			
Linking plate	U			
Nominal size 4-Mini				
Connection of ports see type code list and symbols				
Design-Index (Subject to change)				

**DIMENSIONS**

Blanking and linking plate

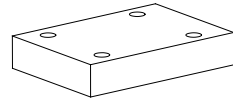


**TYPES**

Types	Article no.	Symbols
<i>Blanking plate:</i>		
BBP4	173.1150	A P T B
<i>Linking plate:</i>		
BU4 / P-B / A-T	173.1258	A P T B
BU4 / P-A / B-T	173.1250	A P T B
BU4 / P-A	173.1251	A P T B
BU4 / P-B	173.1252	A P T B
BU4 / P-T	173.1253	A P T B
BU4 / A-T	173.1254	A P T B
BU4 / B-T	173.1255	A P T B
BU4 / A-B-T	173.1256	A P T B
BU4 / A-B	173.1257	A P T B
BU4 / P-A-B	173.1262	A P T B

**Blanking plate**  
**Linking plate**  
 •  $p_{max} = 350 \text{ bar}$

**NG6**  
 ISO 4401-03


**DESCRIPTION**

Blanking and linking plates NG6 acc. to ISO 4401-03. The plates are zinc coated and will be supplied inclusive 4 O-rings ID 9,25x1,78 (article 160.2093).

**APPLICATION**

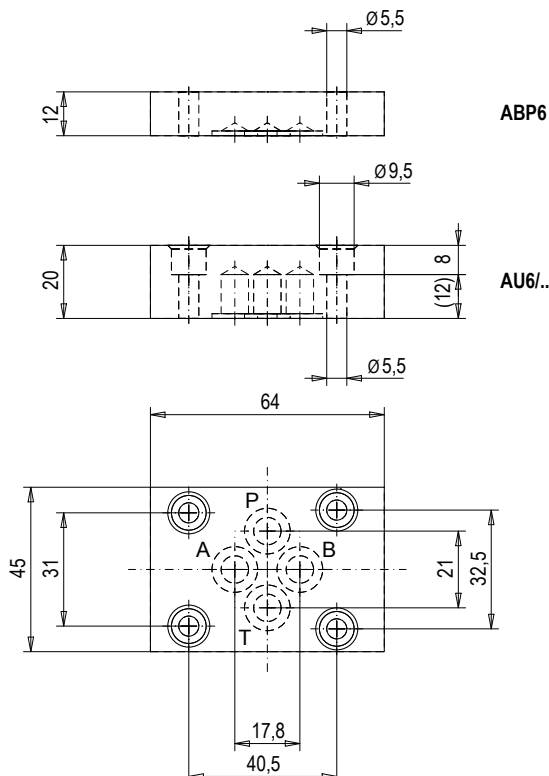
Blanking plates are used to seal all ports (P, A, B, T) of a NG6 interface. With linking plates selected ports of a NG6 interface can be connected. Other ports not in use are sealed.

**TYPE CODE**

	A BP 6	#	<input type="checkbox"/>
	A U 6 /	#	<input type="checkbox"/>
International standard interface ISO			
Blanking plate BP			
Linking plate U			
Nominal size 6			
Connection of ports see type code list and symbols			
Design-Index (Subject to change)			

**DIMENSIONS**

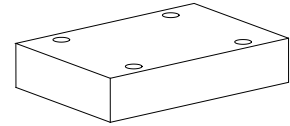
Blanking and linking plate


**TYPES**

Types	Article no.	Symbols
<i>Blanking plate:</i>		
ABP6	173.3150	A P T B
<i>Linking plate:</i>		
AU6 / P-B / A-T	173.3250	A P T B
AU6 / P-A / B-T	173.3251	A P T B
AU6 / P-A	173.3252	A P T B
AU6 / P-B	173.3253	A P T B
AU6 / P-T	173.3254	A P T B
AU6 / A-T	173.3255	A P T B
AU6 / B-T	173.3256	A P T B
AU6 / A-B-T	173.3257	A P T B
AU6 / A-B	173.3258	A P T B
AU6 / P-A-B	173.3259	A P T B

**Blanking plate**  
**Linking plate**  
 •  $p_{max} = 350 \text{ bar}$

**NG10**  
 ISO 4401-05


**DESCRIPTION**

Blanking and linking plates NG10 acc. to ISO 4401-05. The plates are zinc coated and will be supplied inclusive 5 O-rings ID 14,00x1,78 (article 160.2140). The connections T and To are connected together.

**APPLICATION**

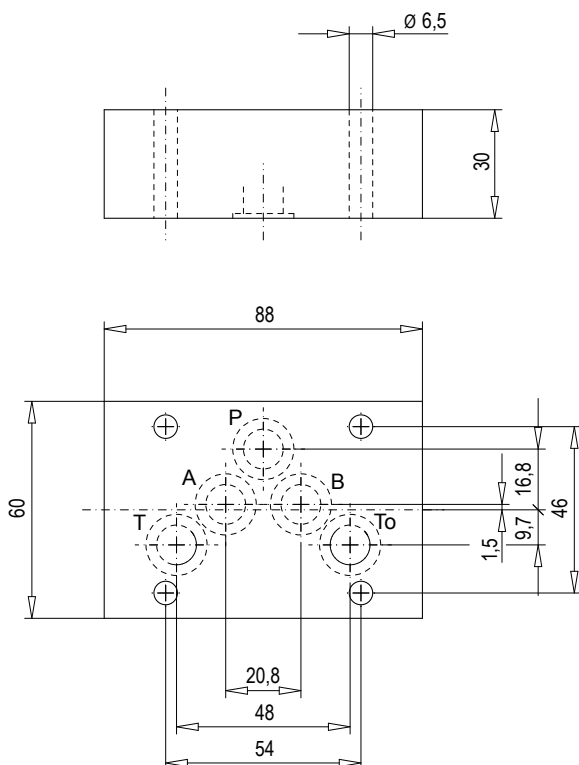
Blanking plates are used to seal all ports (P, A, B, T, T0) of a NG10 interface. With linking plates selected ports of a NG10 interface can be connected. Other ports not in use are sealed.

**TYPE CODE**

	A BP 10	#	<input type="checkbox"/>
	A U 10 /	#	<input type="checkbox"/>
International standard interface ISO			
Blanking plate	BP		
Linking plate	U		
Nominal size 10			
Connection of ports see type code list and symbols			
Design-Index (Subject to change)			

**DIMENSIONS**

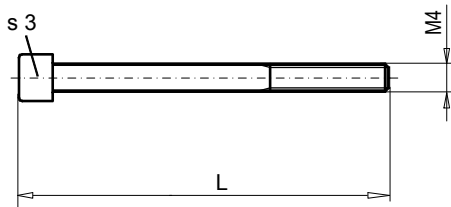
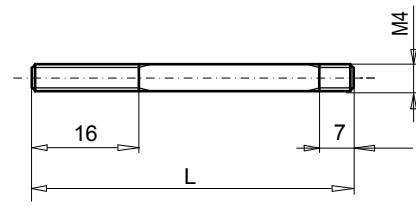
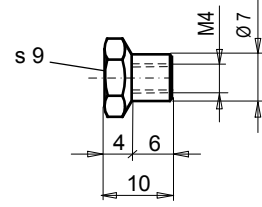
Blanking and linking plate


**TYPES**

Types	Article no.	Symbols
<i>Blanking plate:</i>		
ABP10	173.4150	A P T B
<i>Linking plate:</i>		
AU10 / P-B / A-T	173.4250	A P T B
AU10 / P-A / B-T	173.4251	A P T B
AU10 / P-A	173.4252	A P T B
AU10 / P-B	173.4253	A P T B
AU10 / P-T	173.4254	A P T B
AU10 / A-T	173.4255	A P T B
AU10 / B-T	173.4256	A P T B
AU10 / A-B-T	173.4260	A P T B
AU10 / A-B	173.4257	A P T B
AU10 / P-A-B	173.4258	A P T B



## Stack assembly

**NG3-Mini<sup>®</sup>**
**SOCKET HEAD CAP SCREW M4xL**

**STUD M4xL**

**STEP NUT M4**
**Art. Nr. 154.7404**

**FIXATION WITH SOCKET HEAD CAP SCREWS**

Effective stack length	Description and dimension ( M4xL )	Fastening torque	Article No.
38 ... 40	Cap screw M4x45 Steel 8.8 zinc coated DIN 912	2,6 Nm	246.1146
43 ... 45	Cap screw M4x50 Steel 8.8 zinc coated DIN 912	2,6 Nm	246.1151
48 ... 50	Cap screw M4x55 Steel 8.8 zinc coated DIN 912	2,6 Nm	246.1156
53 ... 55	Cap screw M4x60 Steel 8.8 zinc coated DIN 912	2,6 Nm	246.1161
56 ... 58	Cap screw M4x63 Steel 8.8 zinc coated	2,6 Nm	249.1007
58 ... 60	Cap screw M4x65 Steel 12.9 black DIN 912	5 Nm	246.1365
61 ... 63	Cap screw M4x68 Steel 8.8 zinc coated	2,6 Nm	249.1005
63 ... 65	Cap screw M4x70 Steel 8.8 zinc coated DIN 912	2,6 Nm	246.1171
68 ... 70	Cap screw M4x75 Steel 8.8 zinc coated	2,6 Nm	249.1004
73 ... 75	Cap screw M4x80 Steel 8.8 zinc coated DIN 912	2,6 Nm	246.1181

**FIXATION WITH STUDS AND STEP NUTS**

Effective stack length	Description and dimension ( M4xL )	Fastening torque	Article No.
52 ... 60	Stud M4x73 St 329 black	2,8 Nm	224.1006
84 ... 92	Stud M4x105 St 329 black	2,8 Nm	224.1007
93 ... 101	Stud M4x114 St 329 black	2,8 Nm	224.1009
115 ... 123	Stud M4x136 St 329 black	2,8 Nm	224.1005
146 ... 154	Stud M4x167 St 329 black	2,8 Nm	224.1004

Effective stack length = Length between head of screw and top of base plate

## Stack assembly

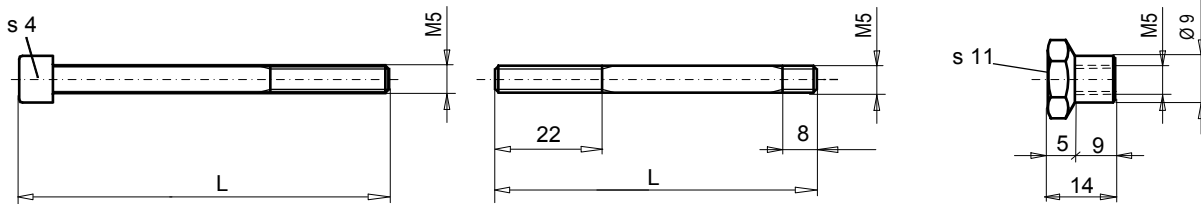
**NG4-Mini<sup>®</sup>**  
**NG6**

SOCKET HEAD CAP SCREW M5xL

STUD M5xL

STEP NUT M5

Art. Nr. 154.7402


**FIXATION WITH SOCKET HEAD CAP SCREWS**

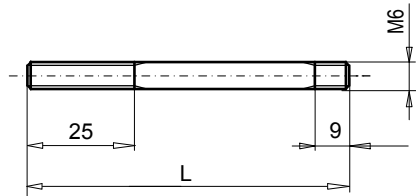
Effective stack length	Description and dimension ( M5xL )	Fastening torque	Article No.
41 ... 44	Cap screw M5x50 Steel 8.8 zinc coated DIN 912	5,2 Nm	246.2151
46 ... 49	Cap screw M5x55 Steel 8.8 zinc coated DIN 912	5,2 Nm	246.2156
51 ... 54	Cap screw M5x60 Steel 8.8 zinc coated DIN 912	5,2 Nm	246.2160
56 ... 59	Cap screw M5x65 Steel 12.9 black DIN 912	9,7 Nm	246.2365
61 ... 64	Cap screw M5x70 Steel 8.8 zinc coated DIN 912	5,2 Nm	246.2171
66 ... 69	Cap screw M5x75 Steel 8.8 zinc coated DIN 912	5,2 Nm	246.2176
69 ... 72	Cap screw M5x78 Steel 8.8 black	5,5 Nm	249.2003
71 ... 74	Cap screw M5x80 Steel 8.8 zinc coated DIN 912	5,2 Nm	246.2181
76 ... 79	Cap screw M5x85 Steel 12.9 black DIN 912	9,7 Nm	246.2385
79 ... 82	Cap screw M5x88 Steel 12.9 black	9,7 Nm	249.2006
81 ... 84	Cap screw M5x90 Steel 8.8 zinc coated DIN 912	5,2 Nm	246.2190
86 ... 89	Cap screw M5x95 Steel 12.9 black	9,7 Nm	249.2004
91 ... 94	Cap screw M5x100 Steel 12.9 black DIN 912	9,7 Nm	246.2391

**FIXATION WITH STUDS AND STEP NUTS**

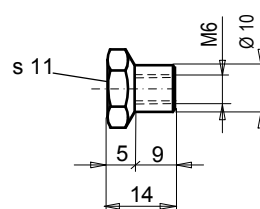
Effective stack length	Description and dimension ( M5xL )	Fastening torque	Article No.
83 ... 98	Stud M5x112 ETG 88 black	5,5 Nm	224.2016
89 ... 104	Stud M5x118 ETG 88 black	5,5 Nm	224.2025
95 ... 110	Stud M5x124 ETG 88 black	5,5 Nm	224.2001
106 ... 121	Stud M5x135 ETG 88 black	5,5 Nm	224.2023
113 ... 128	Stud M5x142 ETG 88 black	5,5 Nm	224.2002
124 ... 140	Stud M5x154 ETG 88 black	5,5 Nm	224.2003
136 ... 151	Stud M5x165 ETG 88 black	5,5 Nm	224.2013
143 ... 158	Stud M5x172 ETG 88 black	5,5 Nm	224.2004
154 ... 170	Stud M5x184 ETG 88 black	5,5 Nm	224.2005
166 ... 181	Stud M5x195 ETG 88 black	5,5 Nm	224.2011
173 ... 188	Stud M5x202 ETG 88 black	5,5 Nm	224.2006
184 ... 200	Stud M5x214 ETG 88 black	5,5 Nm	224.2007
196 ... 212	Stud M5x226 ETG 88 black	5,5 Nm	224.2008
208 ... 223	Stud M5x237 ETG 88 black	5,5 Nm	224.2028
219 ... 234	Stud M5x248 ETG 88 black	5,5 Nm	224.2026
227 ... 242	Stud M5x256 ETG 88 black	5,5 Nm	224.2020
238 ... 254	Stud M5x268 ETG 88 black	5,5 Nm	224.2009
246 ... 261	Stud M5x275 ETG 88 black	5,5 Nm	224.2032
251 ... 266	Stud M5x280 ETG 88 black	5,5 Nm	224.2030
261 ... 276	Stud M5x290 ETG 88 black	5,5 Nm	224.2022
271 ... 286	Stud M5x300 ETG 88 black	5,5 Nm	224.2031
281 ... 296	Stud M5x310 ETG 88 black	5,5 Nm	224.2010
292 ... 307	Stud M5x321 ETG 88 black	5,5 Nm	224.2029
305 ... 320	Stud M5x334 ETG 88 black	5,5 Nm	224.2052

Effective stack length = Length between head of screw and top of base plate

## Stack assembly

**NG10**
**STUD M6xL**

**STEP NUT M6**

Art. Nr. 154.7400

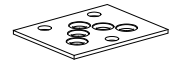

**FIXATION WITH STUDS AND STEP NUTS**

Effective stack length	Description and dimension ( M6xL )	Fastening torque	Article No.
73 ... 89	Stud M6x106 ETG 100 black	9,5 Nm	224.3000
82 ... 96	Stud M6x115 ETG 100 black	9,5 Nm	224.3002
96 ... 112	Stud M6x129 ETG 100 black	9,5 Nm	224.3003
108 ... 124	Stud M6x141 ETG 100 black	9,5 Nm	224.3004
120 ... 136	Stud M6x153 ETG 100 black	9,5 Nm	224.3006
128 ... 144	Stud M6x161 ETG 100 black	9,5 Nm	224.3007
140 ... 156	Stud M6x173 ETG 100 black	9,5 Nm	224.3008
149 ... 165	Stud M6x182 ETG 100 black	9,5 Nm	224.3009
159 ... 175	Stud M6x192 ETG 100 black	9,5 Nm	224.3010
175 ... 191	Stud M6x205 ETG 100 black	9,5 Nm	224.3011
187 ... 203	Stud M6x220 ETG 100 black	9,5 Nm	224.3012
196 ... 212	Stud M6x229 ETG 100 black	9,5 Nm	224.3013
204 ... 220	Stud M6x237 ETG 100 black	9,5 Nm	224.3014
213 ... 229	Stud M6x246 ETG 100 black	9,5 Nm	224.3019
225 ... 241	Stud M6x258 ETG 100 black	9,5 Nm	224.3015
234 ... 250	Stud M6x267 ETG 100 black	9,5 Nm	224.3016
252 ... 268	Stud M6x285 ETG 100 black	9,5 Nm	224.3020
264 ... 280	Stud M6x297 ETG 100 black	9,5 Nm	224.3022
292 ... 308	Stud M6x325 ETG 100 black	9,5 Nm	224.3018
360 ... 378	Stud M6x393 ETG 100 black	9,5 Nm	224.3021
372 ... 388	Stud M6x405 ETG 100 black	9,5 Nm	224.3017

Effective stack length = Length between head of screw and top of base plate

Sealing plate  
 Intermediate plate  
 •  $p_{max} = 350 \text{ bar}$

**NG3-Mini<sup>®</sup>**



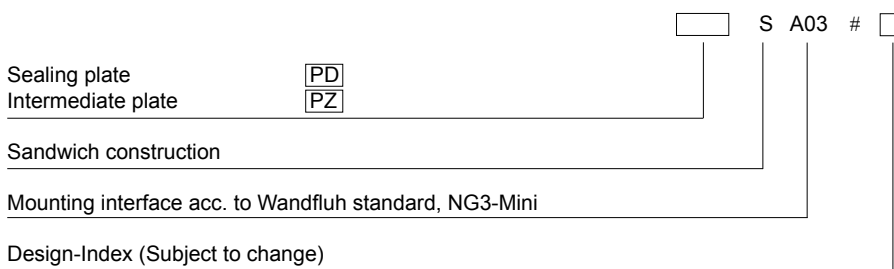
**DESCRIPTION**

Sealing and intermediate plates NG3-Mini acc. to Wandfluh standard. The plates are zinc. Sealing plates will be supplied inclusive 5 O-rings ID 4,5x1,5 (article 160.2045).

**APPLICATION**

Sealing and intermediate plates are required if certain sandwich valves have to be tronsforwed from meter- out control to meter- in control eg throttle valves with by pass check (DRDSA03-AB) for meter- out control adapted for meter- in control (DRDSA03-ABV).

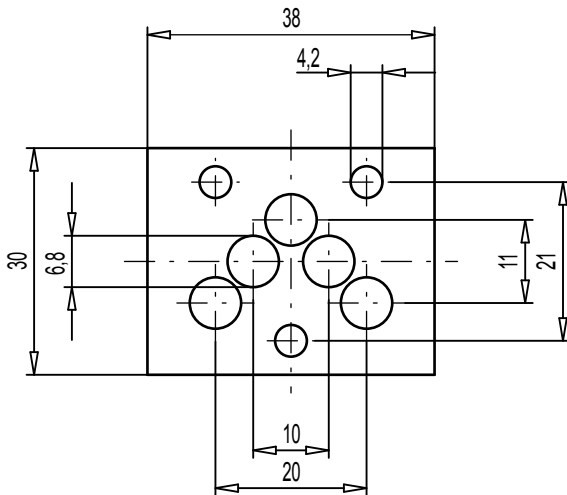
**TYPE CODE**



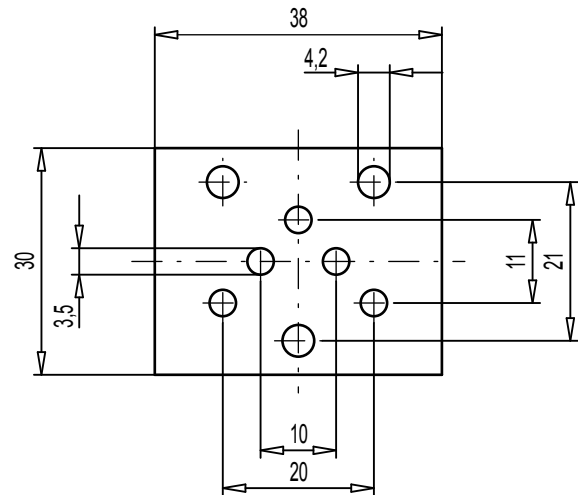
**DIMENSIONS**

PDSA03      **Article no. 173.0650**

PZSA03      **Article no. 173.0700**



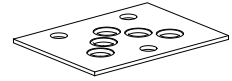
Thickness = 1,2



Thickness = 1,2

**Sealing plate**  
**Intermediate plate**  
•  $p_{max} = 350 \text{ bar}$

**NG4-Mini<sup>®</sup>**



**DESCRIPTION**

Sealing and intermediate plates NG4-Mini acc. Wandfluh standard. The plates are zinc. Sealing plates will be supplied inclusive 5 O-rings ID 5,28x1,78 (article 160.2052).

**APPLICATION**

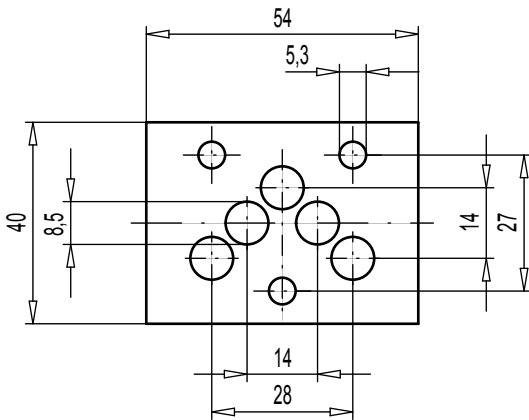
Sealing and intermediate plates are required if certain sandwich valves have to be trousforward from meter- out control to meter- in control eg throttle valves with by pass check (BURDV4) for meter- out control adapted for meter- in control (BURD4).

**TYPE CODE**

	B	<input type="text"/>	4	#	<input type="text"/>
Mounting interface acc. to Wandfluh standard					
Sealing plate		DB			
Intermediate plate		ZB			
Nominal size 4-Mini					
Design-Index (Subject to change)					

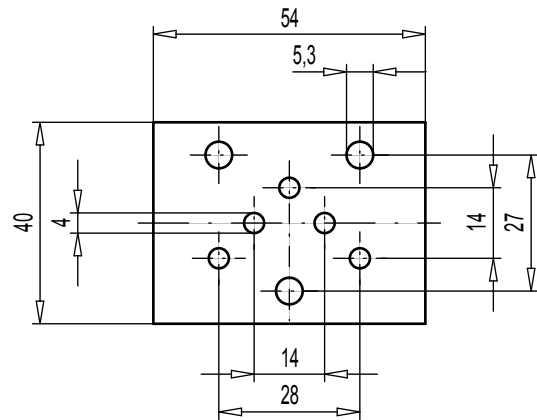
**DIMENSIONS**

BDB4 Article no. 173.1650



Thickness = 1,25

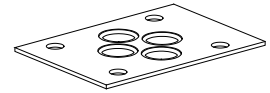
BZB4 Article no. 173.1700



Thickness = 1,25

Sealing plate  
 Intermediate plate  
 •  $p_{max} = 350 \text{ bar}$

**NG6**  
 ISO 4401-03



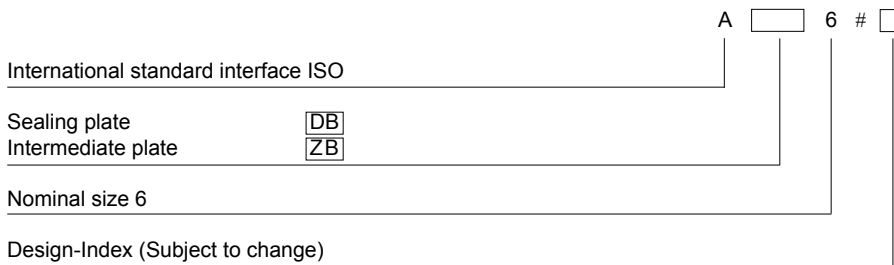
**DESCRIPTION**

Sealing and intermediate plates NG6 to ISO 4401-03. The plates are zinc. Sealing plates will be supplied inclusive 4 O-rings ID 9,25x 1,78 (article 160.2093).

**APPLICATION**

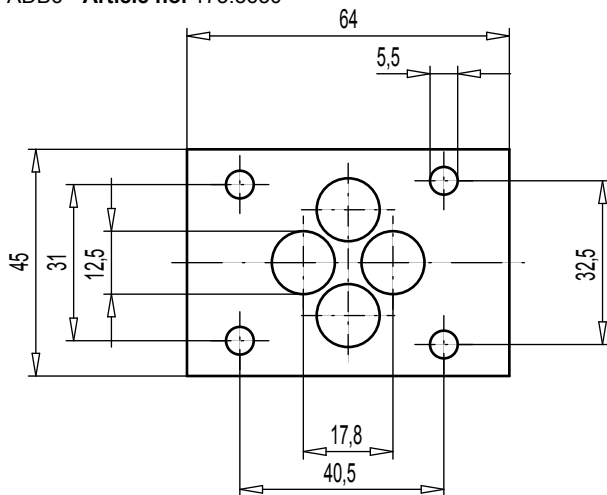
Sealing and intermediate plates are required if certain sandwich valves have to be transferred from meter- out control to meter- in control eg throttle valves with by pass check (AURDV6) for meter- out control adapted for meter- in control (AURD6).

**TYPE CODE**



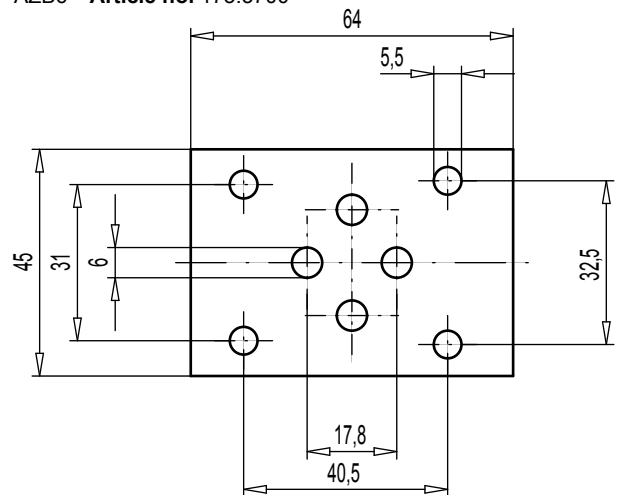
**DIMENSIONS**

ADB6 Article no. 173.3650



Thickness = 1,25

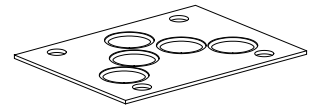
AZB6 Article no. 173.3700



Thickness = 1,25

Sealing plate  
 Intermediate plate  
 •  $p_{max} = 350 \text{ bar}$

**NG10**  
 ISO 4401-05



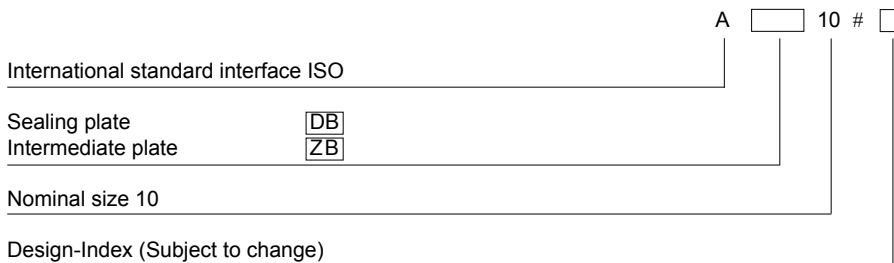
#### DESCRIPTION

Sealing and intermediate plates NG10 to ISO 4401-05. The plates are zinc. Sealing plates will be supplied inclusive 5 O-rings ID 14,00x1,78 (article 160.2140).

#### APPLICATION

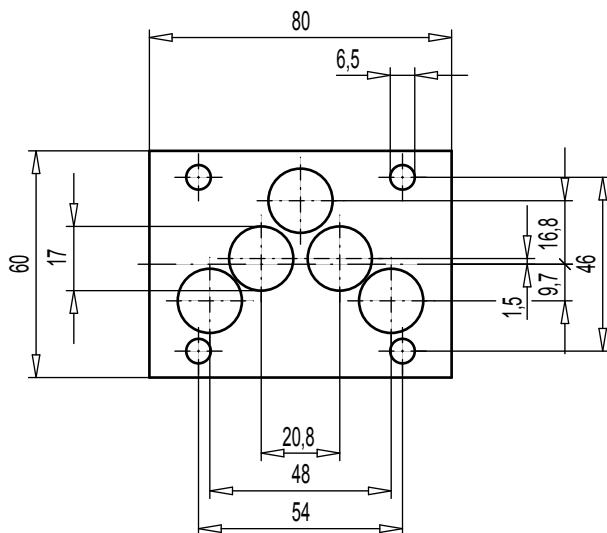
Sealing and intermediate plates are required if certain sandwich valves have to be tronsformed from meter- out control to meter- in control eg throttle valves with by pass check (AURDV10) for meter- out control adapted for meter- in control (AURD10).

#### TYPE CODE



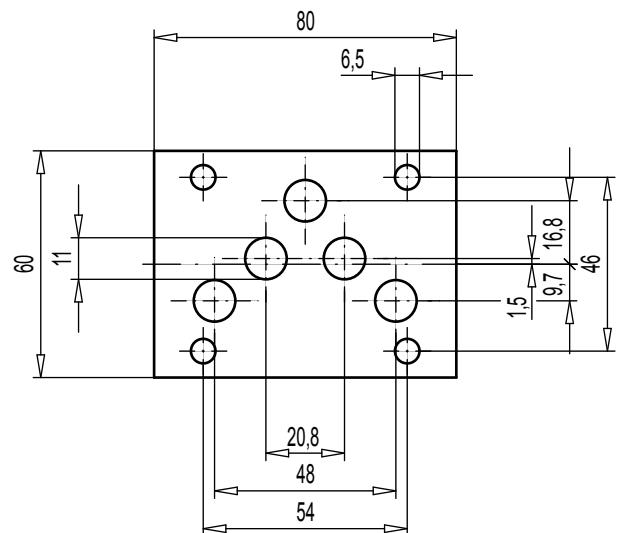
#### DIMENSIONS

ADB10 Article no. 173.4650



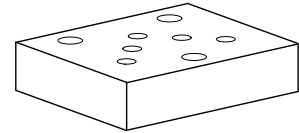
Thickness = 1,25

AZB10 Article no. 173.4700



Thickness = 1,25

**Distance plates**

 •  $p_{max} = 350 \text{ bar}$ 
**NG4-Mini<sup>®</sup>**

**DESCRIPTION**

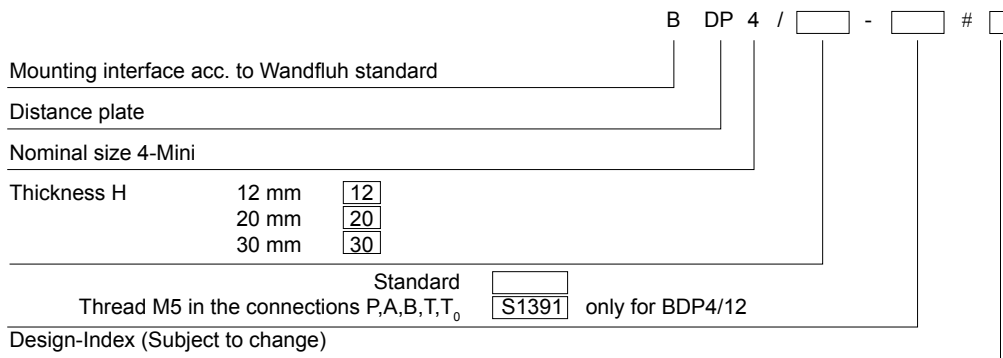
Distance plates NG4-Mini acc. to Wandfluh standard. The plates are zinc coated and are supplied including 5 O-rings ID 5,28x1,78 (article 160.2052).

The connections T and  $T_0$  are not connected together.

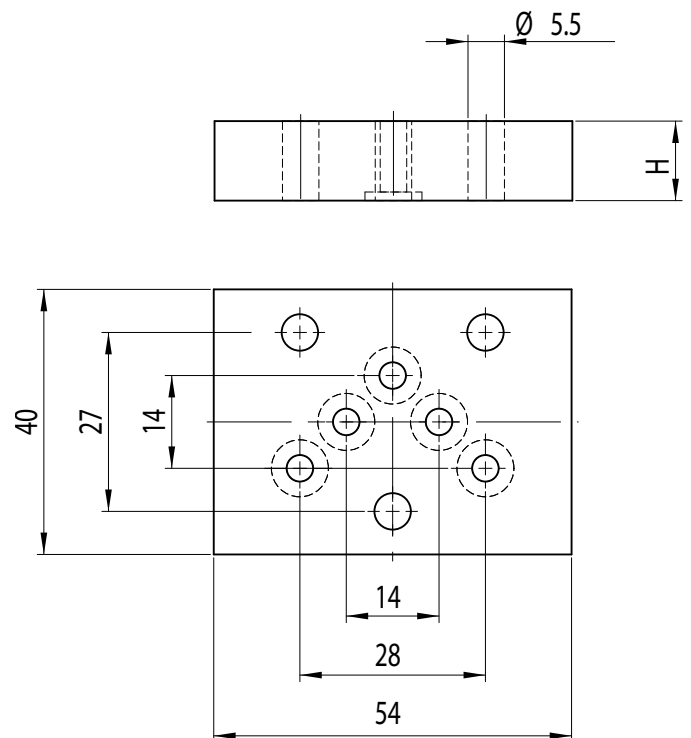
**APPLICATION**

Distance plates serve to create a distance between to elements.

In case of plates with the additional designation S1391, nozzles can be additionally screwed into the connections P,A,B,T, $T_0$ . Thread M5 (5,5 mm deep).

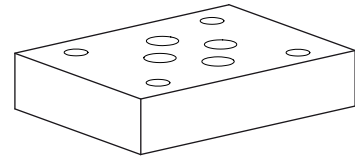
**TYPE CODE**

**TYPES**

BDP4/12	article 173.1450
BDP4/12-S1391	article 173.1454
BDP4/20	article 173.1451
BDP4/30	article 173.1452

**DIMENSIONS**




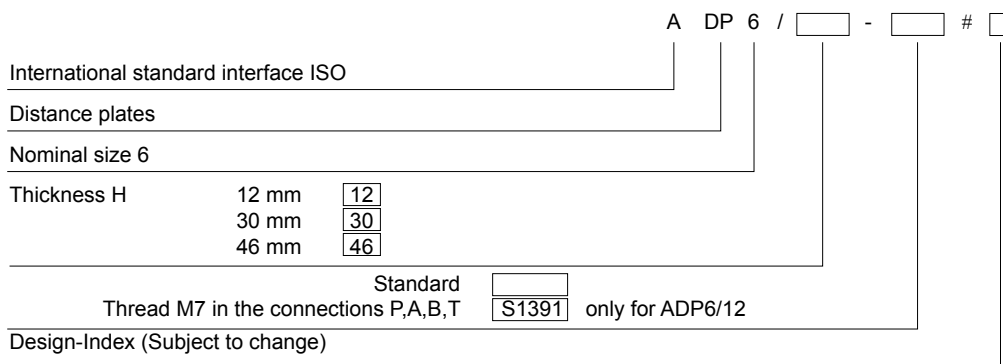
**Distance plates**

 •  $p_{max} = 350 \text{ bar}$ 
**NG6**  
 ISO 4401-03

**DESCRIPTION**

Distance plates NG6 acc. to ISO 4401-03. The plates are zinc coated and are supplied including 4 O-rings ID 9,25x1,78 (article 160.2093).

**APPLICATION**

 Distance plates serve to create a distance between to elements.  
 In case of plates with the additional designation S1391, nozzles can be additionally screwed into the connections P,A,B,T. Thread M7 (8 mm deep).

**TYPE CODE**

**TYPES**

ADP6/12	article 173.3451
ADP6/12-S1391	article 173.3452
ADP6/30	article 173.3453
ADP6/46	article 173.3454

**DIMENSIONS**
