

# KENDRION

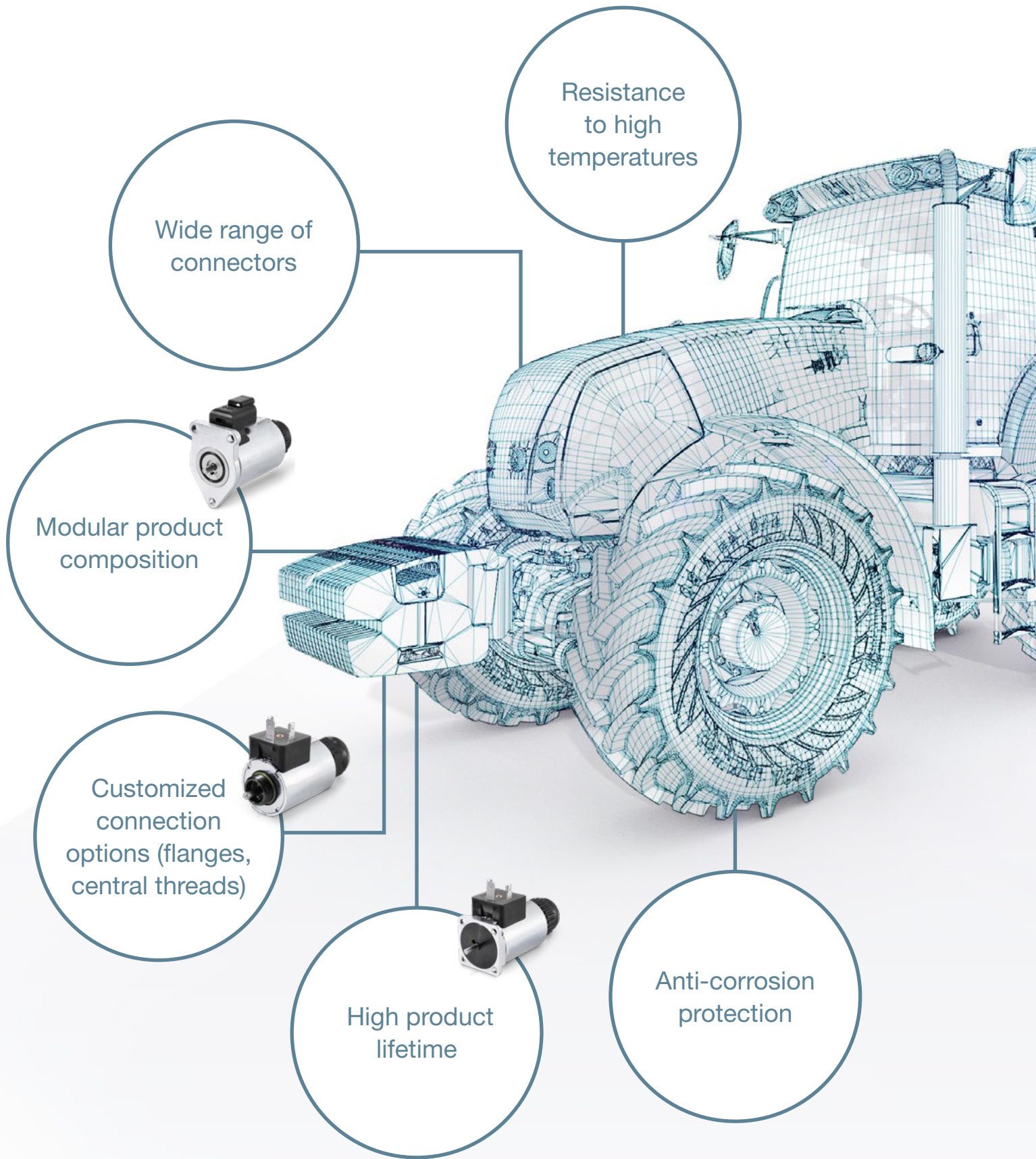
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KENDRION SOLUTIONS

## Proportional and On-Off Solenoids

For Mobile and Standard Hydraulics

PRECISION. SAFETY. MOTION.



As **electromagnetic technology specialists** we offer solenoids for hydraulic applications in various standard configurations and sizes, we are also able to design solenoids for specific needs customized to customer application.

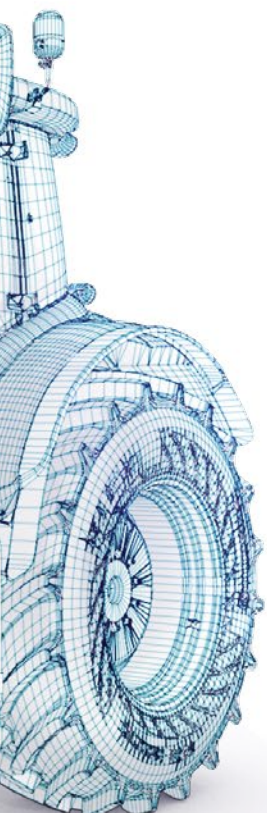
Our hydraulics solenoids are equipped with a pressure-sealed armature chamber and are maintenance-free. Their advantage is the capability of servicing the system with the hydraulic circuit remaining sealed.

The outstanding features of our solenoids are excellent proportional functions, low hysteresis, precise functions. All of this, along with consistent quality, contributes to the satisfaction of our customers.



# Hydraulic solenoids

Control of pumps, motors, cartridge and cetop valves for proportional and on/off applications



## Technical details

### Solenoid sizes / Performance

NG4, NG6, NG10  
Others available on request

### Degree of protection

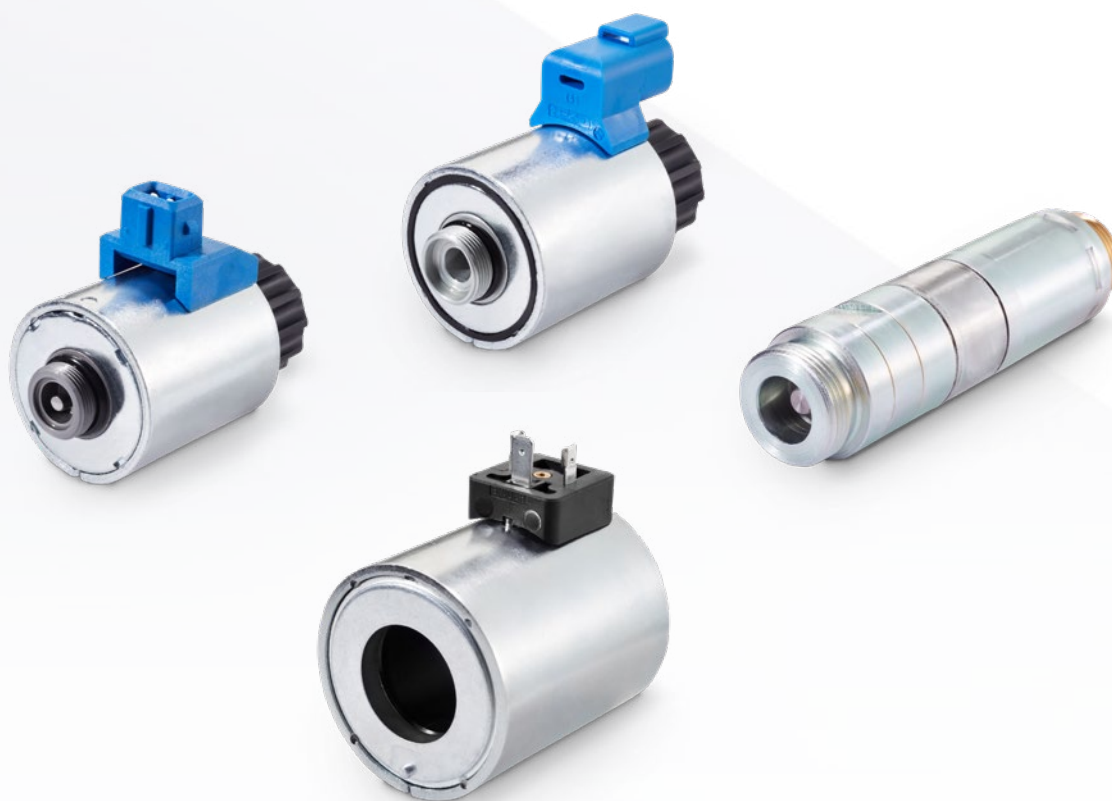
IP 65 – IP 69 K

### Connectors

DIN 43 650, DT04 (2-pin, Deutsch-Kompagnie), AMP Junior Timer, Desina (3- and 5-pin); NG6 and NG4 also available with integrated diode

### Features

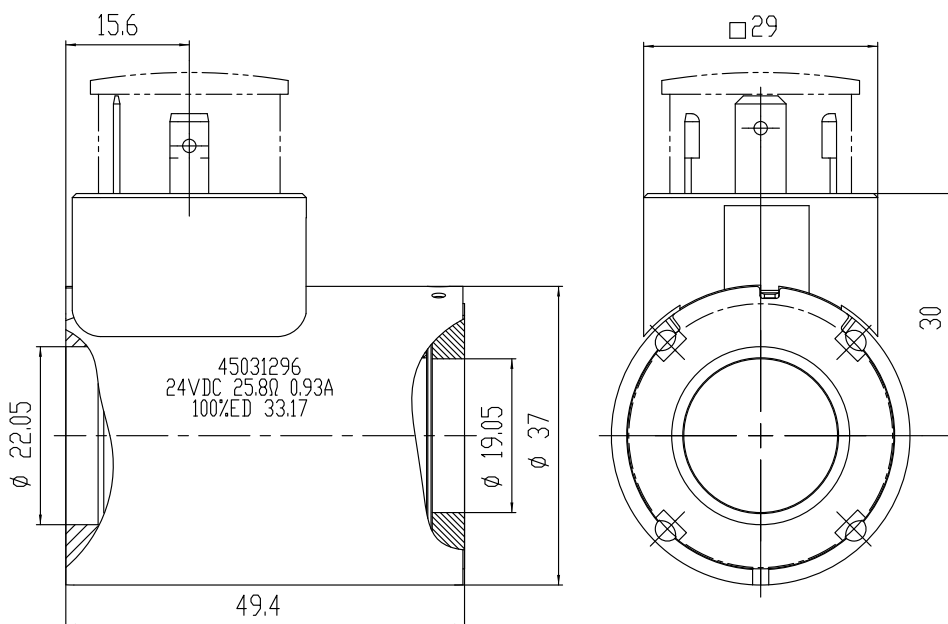
- Different voltage variants
- Variable temperature ranges
- Operating pressure 210 – 270 bar; higher dynamic operating pressures on request
- Resistant to external influences
- Various connection geometries



# NG04 On/Off Excitation system

## Technical specification according to VDE 0580

<b>Thermal class</b>	F (155°C)
<b>Surface protection</b>	DIN 50979-Fe//Zn12//An//T0
<b>Protection class (Assembled)</b>	IP65



## Electrical specification

Ident. no.	Nominal voltage $U_N \pm 10\%$ [V DC]	Nominal current $I_N$ [A]	Resistance at 20°C $R_{20} \pm 6\%$ [ $\Omega$ ]	Nominal power $P_N$ [W]	Duty cycle ED [%]
45031295	12	2	6	24	100
45031296	24	0.93	25.8	22.3	100

## Type of connector



IP65<sup>1</sup>  
DIN 43 650



IP6K9K1<sup>1</sup>  
DT04-2P



IP67<sup>1</sup>  
AMP  
Junior Timer  
(Coding I)



IP6K6K1<sup>1</sup>  
Axial AMP  
Junior Timer  
(Coding I/  
Coding II)

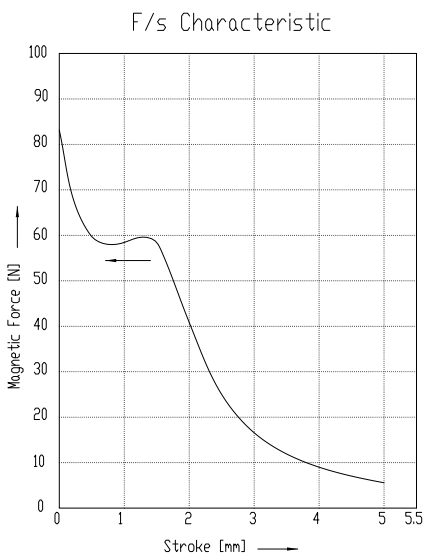
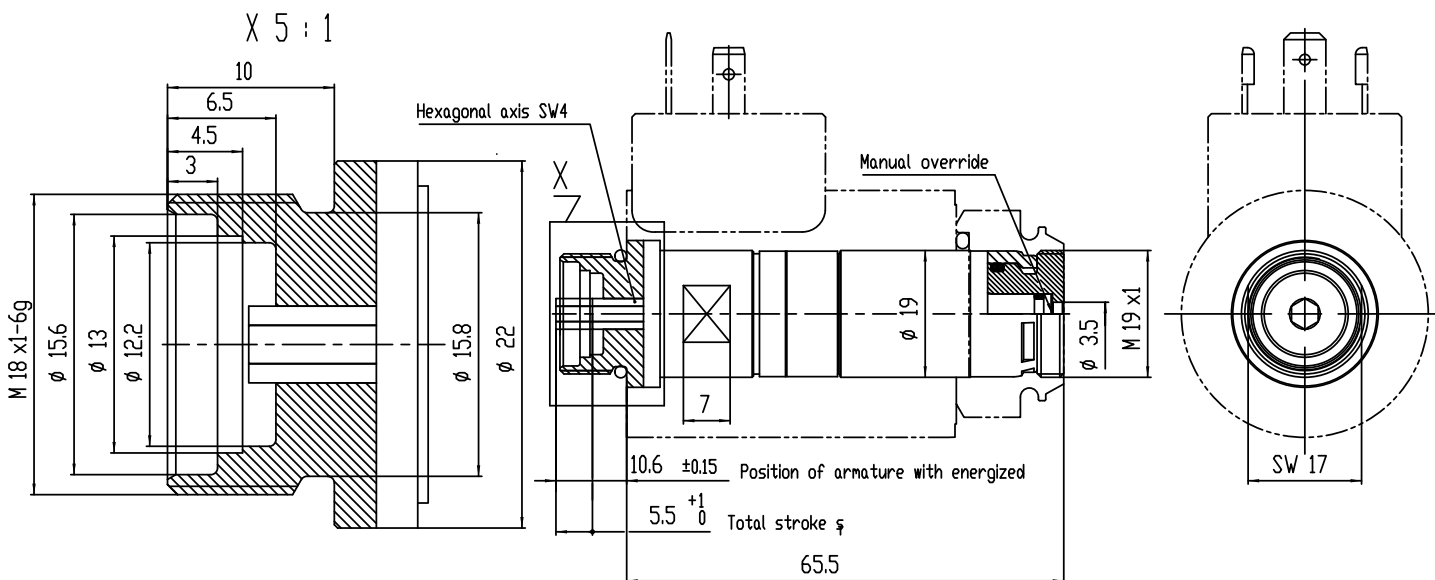
<sup>1</sup> in properly mounted condition

# NG04 On/Off Actuating system



## Technical specification

Ambient temperature	-20 to +50 °C
Hydraulic manifold dimensions (steel)	46x46x66 mm
Hydraulic fluid	Hydraulic oil
Max. dynamic pressure	210 bar
Max. static pressure	315 bar
Sealing material	Viton
Total stroke	5.5 <sup>+1</sup> mm
Surface protection	DIN 50979-Fe//Zn8//An//T0



## F/s Characteristic measured at

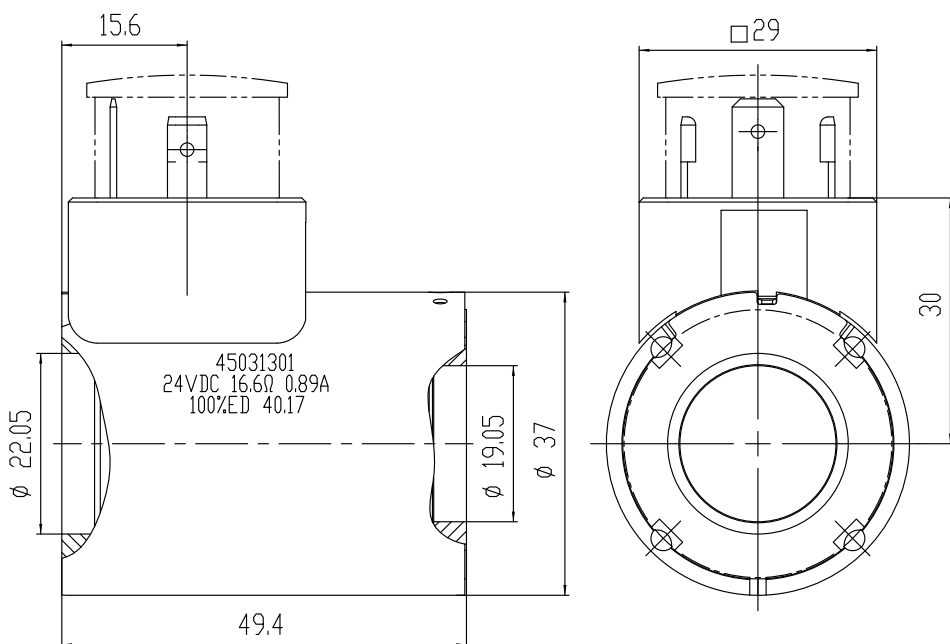
Nominal voltage $U_N$ [V DC]	24
Duty cycle ED [%]	100
Nominal current $I_N$ [A]	0.93
Testing current (PWM 100Hz) $I_{test} = (0.9 \times U_N) / R_w$ [A]	0.59
Nominal power $P_N$ [W]	22.3
Weight armature $m_A$ [kg]	0.04
Testing speed $v_{test}$ [mm/min]	20

The characteristic of solenoid measured with steel hydraulic manifold.

# NG04 Proportional Excitation system

## Technical specification according to VDE 0580

<b>Thermal class</b>	F (155°C)
<b>Surface protection</b>	DIN 50979-Fe//Zn12//An//T0
<b>Protection class (Assembled)</b>	IP65



## Electrical specification

Ident. no.	Nominal voltage $U_N$ [V DC]	Nominal current $I_{Lim}$ [A]	Resistance at 20°C $R_{20} \pm 6\% [\Omega]$	Nominal power $P_{Lim}$ [W]	Duty cycle ED [%]
45031299	12	1.98	3.66	21.4	100
45031301	24	0.89	16.6	19.3	100

## Type of connector



IP65<sup>1</sup>  
DIN 43 650



IP6K9K<sup>1</sup>  
DT04-2P



IP67<sup>1</sup>  
AMP  
Junior Timer  
(Coding I)



IP6K6K<sup>1</sup>  
Axial AMP  
Junior Timer  
(Coding I /  
Coding II)

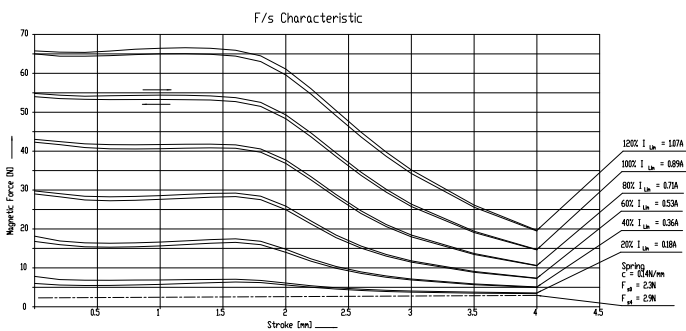
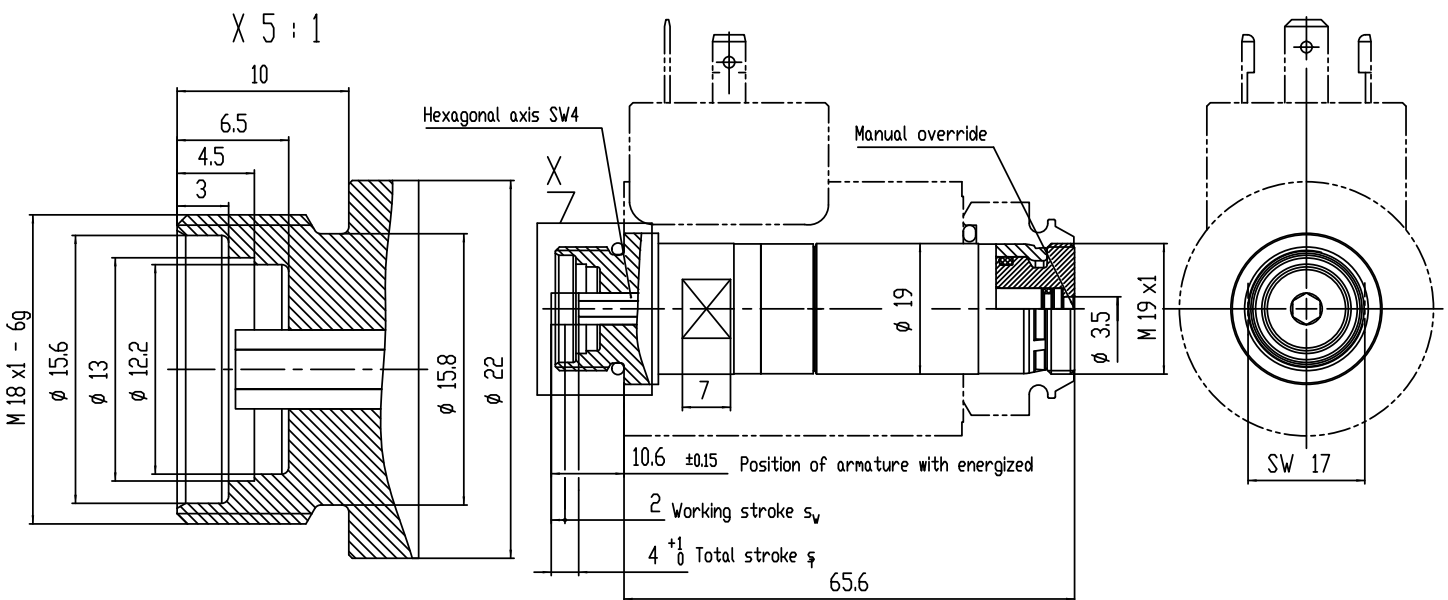
<sup>1</sup> in properly mounted condition

# NG04 Proportional Actuating system



## Technical specification

<b>Ambient temperature</b>	-20 to +50 °C
<b>Hydraulic manifold dimensions (steel)</b>	46x46x66 mm
<b>Hydraulic fluid</b>	Hydraulic oil
<b>Max. dynamic pressure</b>	210 bar
<b>Max. static pressure</b>	315 bar
<b>Mechanical lifetime</b>	10 mil. cycles
<b>Sealing material</b>	Viton
<b>Working stroke</b>	2 mm
<b>Total stroke</b>	4 <sup>+1</sup> mm
<b>Surface protection</b>	DIN 50979-Fe//Zn8//An//T0



## F/s Characteristic measured at

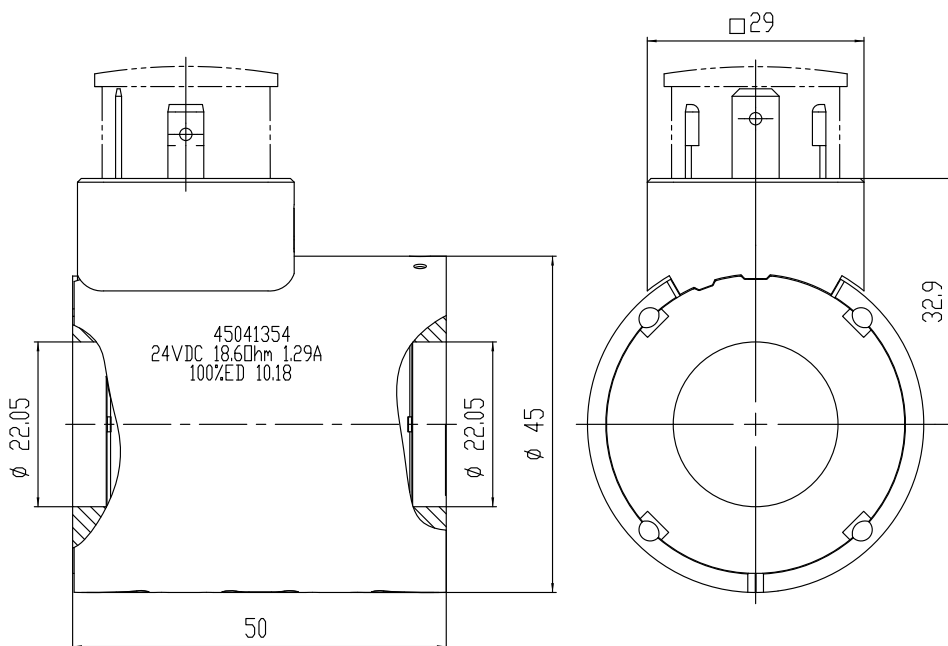
<b>Nominal voltage <math>U_N</math> [V DC]</b>	24
<b>Duty cycle ED [%]</b>	100
<b>Limit current (PWM 100Hz)</b>	0.89
<b>Testing current <math>I_{Lim} = I_{test}</math> [A]</b>	
<b>Limit power <math>P_{Lim} = I_{Lim}^2 \times R_w</math> [A]</b>	19.3
<b>Weight armature <math>m_A</math> [kg]</b>	0.04
<b>Testing speed <math>v_{test}</math> [mm/min]</b>	20

The characteristic of solenoid measured with steel hydraulic manifold.

# NG06 On/Off Excitation system

## Technical specification according to VDE 0580

<b>Thermal class</b>	F (155°C)
<b>Surface protection</b>	DIN 50979-Fe//Zn12//An//T0
<b>Protection class (Assembled)</b>	IP65



## Electrical specification

Ident. no.	Nominal voltage $U_N \pm 10\%$ [V DC]	Nominal current $I_N$ [A]	Resistance at 20°C $R_{20} \pm 6\%$ [ $\Omega$ ]	Nominal power $P_N$ [W]	Duty cycle ED [%]
45041353	12	2.72	4.41	32.7	100
45041354	24	1.29	18.6	31	100

## Type of connector

IP65 <sup>1</sup> DIN 43 650	IP6K9K <sup>1</sup> DT04-2P (In)	IP6K9K <sup>1</sup> DT04-2P (Out)	IP67 <sup>1</sup> AMP Junior Timer (Coding I)	IP6K6K <sup>1</sup> Axial AMP Junior Timer (Coding I / Coding II)	IP65 <sup>1</sup> M12 367038	IP65 <sup>1</sup> M12 367039

<sup>1</sup> in properly mounted condition

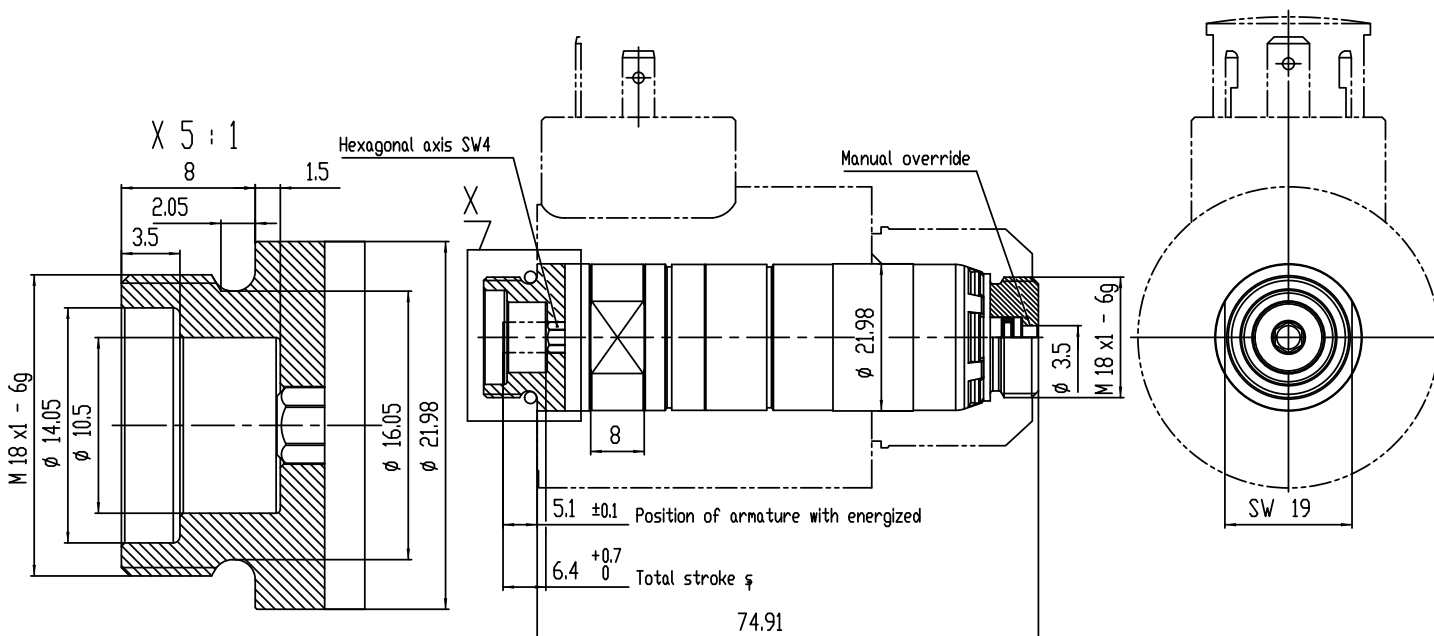


# NG06 On/Off Actuating system

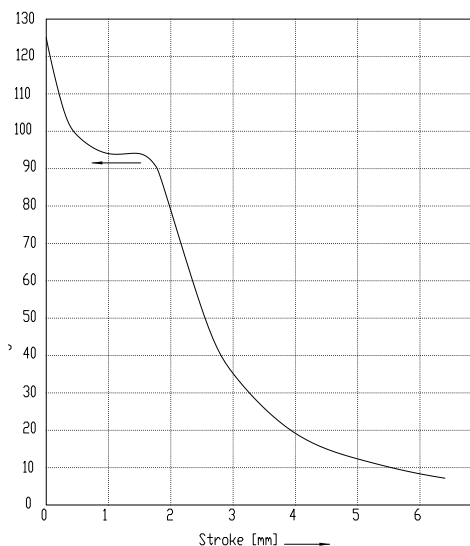


## Technical specification

Ambient temperature	-20 to +50 °C
Hydraulic manifold dimensions (steel)	46x46x66 mm
Hydraulic fluid	Hydraulic oil
Max. dynamic pressure	210 bar
Max. static pressure	315 bar
Sealing material	Viton
Total stroke	6.4 <sup>+0.7</sup> mm
Surface protection	DIN 50979-Fe//Zn8//An//TO



F/s Characteristic



F/s Characteristic measured at

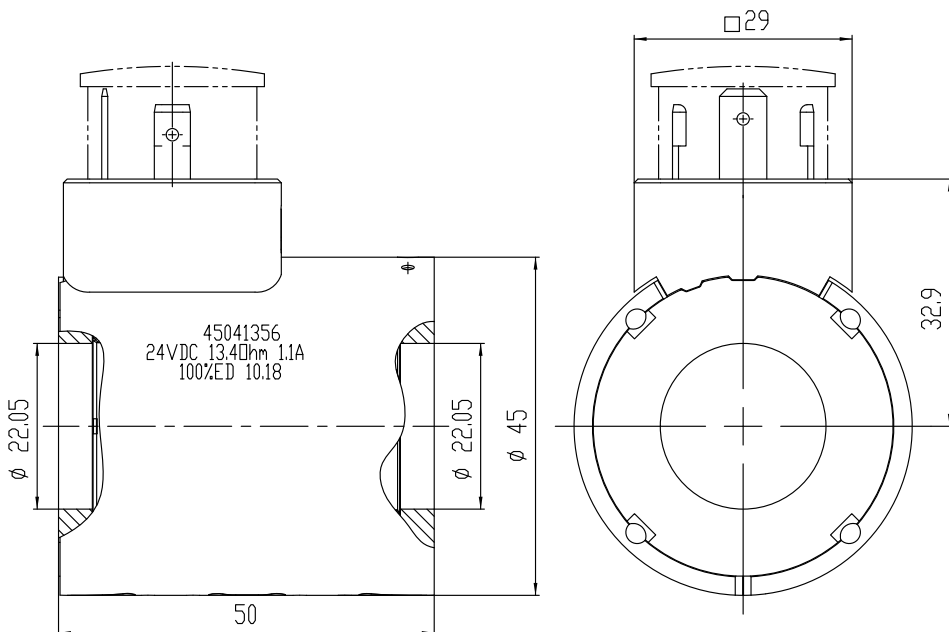
Nominal voltage $U_N$ [V DC]	24
Duty cycle ED [%]	100
Nominal current $I_N$ [A]	1.29
Testing current (PWM 100Hz) $I_{test} = (0.9 \times U_N) / R_W$ [A]	0.81
Nominal power $P_N$ [W]	31
Weight armature $m_A$ [kg]	0.06
Testing speed $v_{test}$ [mm/min]	20

The characteristic of solenoid measured with steel hydraulic manifold.

# NG06 Proportional Excitation system

## Technical specification according to VDE 0580

<b>Thermal class</b>	F (155°C)
<b>Surface protection</b>	DIN 50979-Fe//Zn8//An//T0
<b>Protection class (Assembled)</b>	IP65



## Electrical specification

Ident. no.	Nominal voltage $U_N$ [V DC]	Nominal current $I_{Lim}$ [A]	Resistance at 20°C $R_{20} \pm 6\%$ [ $\Omega$ ]	Nominal power $P_{Lim}$ [W]	Duty cycle ED [%]
45041355	12	2.98	2.33	32.2	100
45041356	24	1.1	13.4	23.7	100

## Type of connector



IP65<sup>1</sup>  
DIN 43 650



IP6K9K<sup>1</sup>  
DT04-2P  
(In)



IP6K9K<sup>1</sup>  
DT04-2P  
(Out)



IP67<sup>1</sup>  
AMP  
Junior Timer  
(Coding I)



IP6K6K<sup>1</sup>  
Axial AMP  
Junior Timer  
(Coding I /  
Coding II)

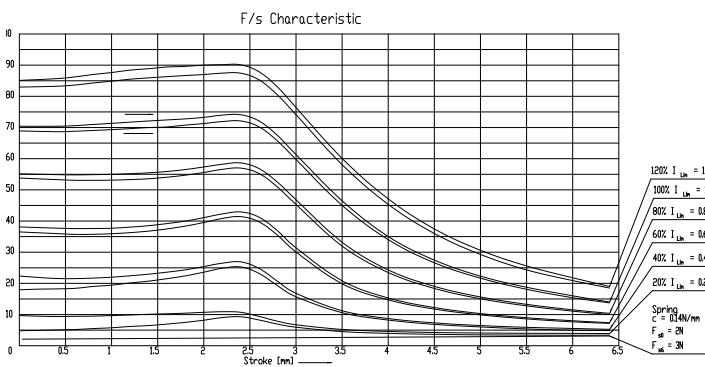
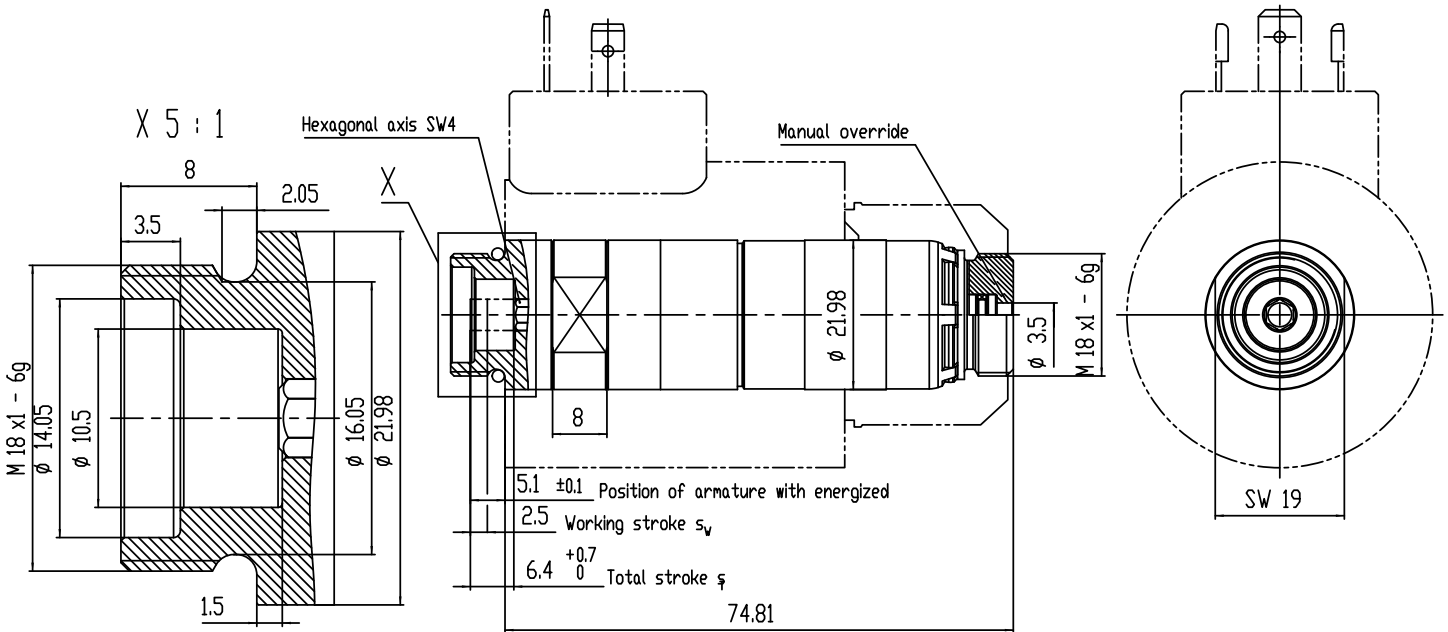
<sup>1</sup> in properly mounted condition

# NG06 Proportional Actuating system



## Technical specification

Ambient temperature	-20 to +50 °C
Hydraulic manifold dimensions (steel)	46x46x66 mm
Hydraulic fluid	Hydraulic oil
Max. dynamic pressure	210 bar
Max. static pressure	315 bar
Mechanical lifetime	10 mil. cycles
Sealing material	Viton
Working stroke	2.5 mm
Total stroke	6.4 <sup>+0.7</sup> mm
Surface protection	DIN 50979-Fe// Zn8//An//TO



## F/s Characteristic measured at

Nominal voltage $U_N$ [V DC]	24
Duty cycle ED [%]	100
Limit current (PWM 100Hz)	1.1
Testing current $I_{Lim} = I_{test}$ [A]	
Limit power $P_{Lim} = I_{Lim}^2 \times R_w$ [A]	23.7
Weight armature $m_A$ [kg]	0.06
Testing speed $v_{test}$ [mm/min]	20

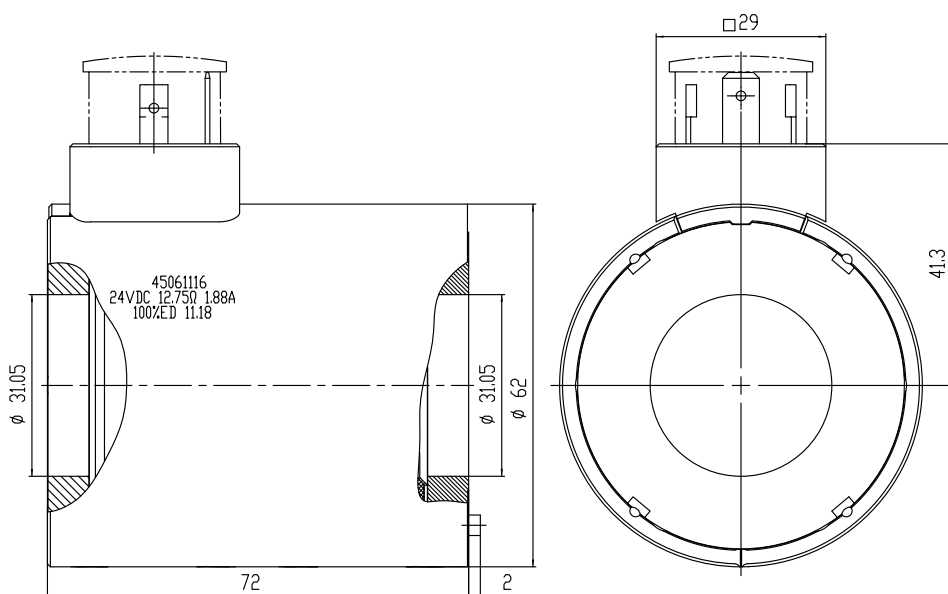
The characteristic of solenoid measured with steel hydraulic manifold.

Type no.: 45 13606E1B

# NG10 On/Off Excitation system

## Technical specification according to VDE 0580

<b>Thermal class</b>	F (155°C)
<b>Surface protection</b>	DIN 50979-Fe//Zn8//An//T0
<b>Protection class (Assembled)</b>	IP65



## Electrical specification

Ident. no.	Nominal voltage $U_N \pm 10\%$ [V DC]	Nominal current $I_N$ [A]	Resistance at 20°C $R_{20} \pm 6\%$ [ $\Omega$ ]	Nominal power $P_N$ [W]	Duty cycle ED [%]
45061115	12	3.17	3.78	38.1	100
45061116	24	1.88	12.75	45.2	100

## Type of connector



IP65<sup>1</sup>  
DIN 43 650

IP6K9K<sup>1</sup>  
DT04-2P

<sup>1</sup> in properly mounted condition

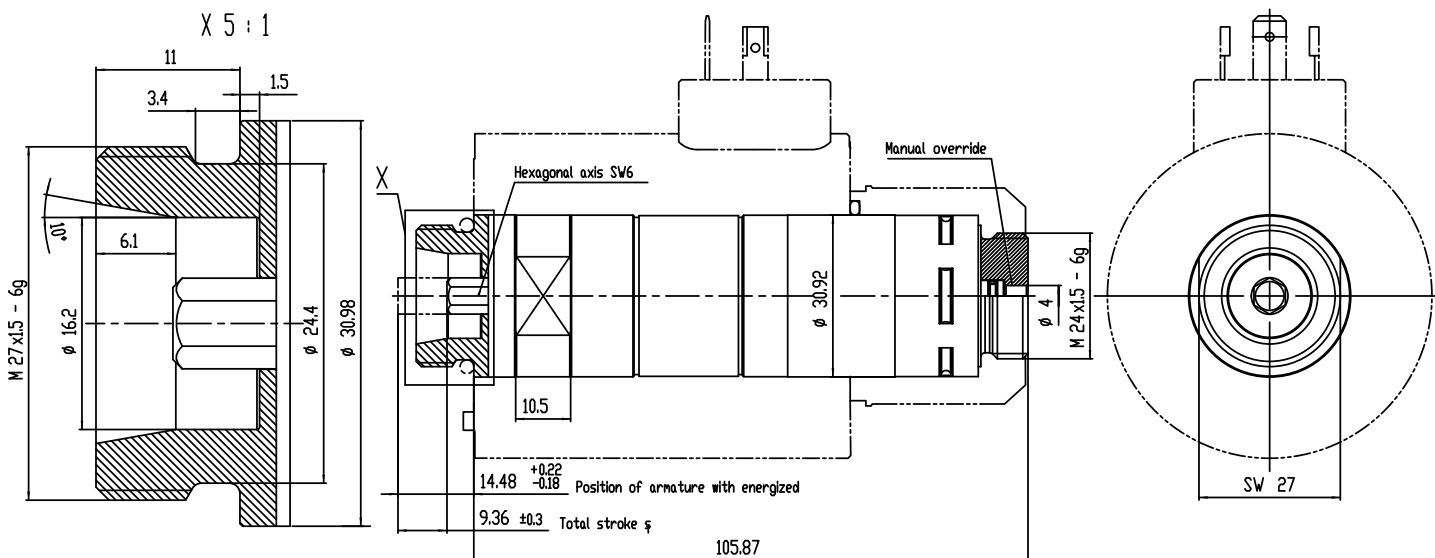


# NG10 On/Off Actuating system

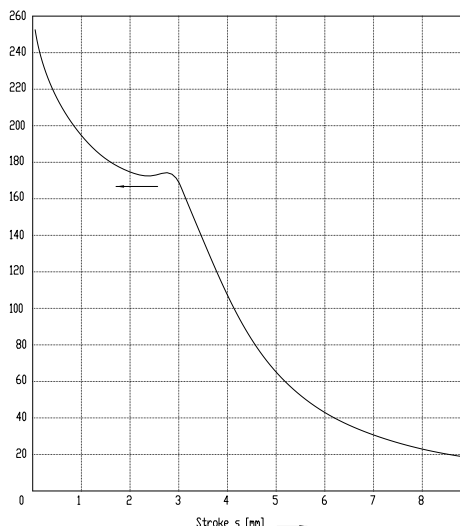


## Technical specification

Ambient temperature	-20 to +50 °C
Hydraulic manifold dimensions (steel)	70x80x102 mm
Hydraulic fluid	Hydraulic oil
Max. dynamic pressure	210 bar
Max. static pressure	315 bar
Sealing material	Viton
Total stroke	9.36 <sup>±0.3</sup> mm
Surface protection	DIN 50979-Fe//Zn8//An//T0



F/s Characteristic



F/s Characteristic measured at

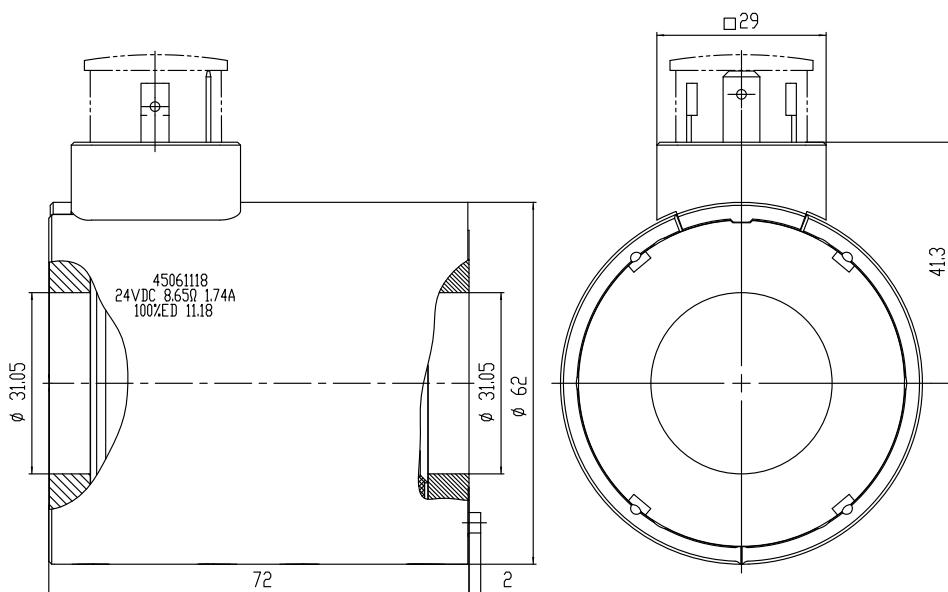
Nominal voltage $U_N$ [V DC]	24
Duty cycle ED [%]	100
Nominal current $I_N$ [A]	1.88
Testing current (PWM 100 Hz) $I_{test} = (0.9 \times U_N) / R_W$ [A]	1.21
Nominal power $P_N$ [W]	45
Weight armature $m_A$ [kg]	0.15
Testing speed $v_{test}$ [mm/min]	20

The characteristic of solenoid measured with steel hydraulic manifold.

# NG10 Proportional Excitation system

## Technical specification according to VDE 0580

<b>Thermal class</b>	F (155°C)
<b>Surface protection</b>	DIN 50979-Fe//Zn8//An//T0
<b>Protection class (Assembled)</b>	IP65



## Electrical specification

Ident. no.	Nominal voltage $U_N$ [V DC]	Nominal current $I_{Lim}$ [A]	Resistance at 20°C $R_{20} \pm 6\%$ [ $\Omega$ ]	Nominal power $P_{Lim}$ [W]	Duty cycle ED [%]
45061117	12	1.64	5.06	17.7	100
45061118	24	1.74	8.65	37.6	100

## Type of connector



IP65<sup>1</sup>  
DIN 43 650



IP6K9K<sup>1</sup>  
DT04-2P

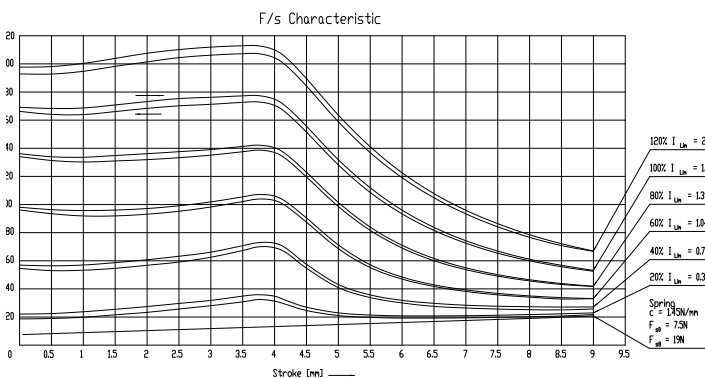
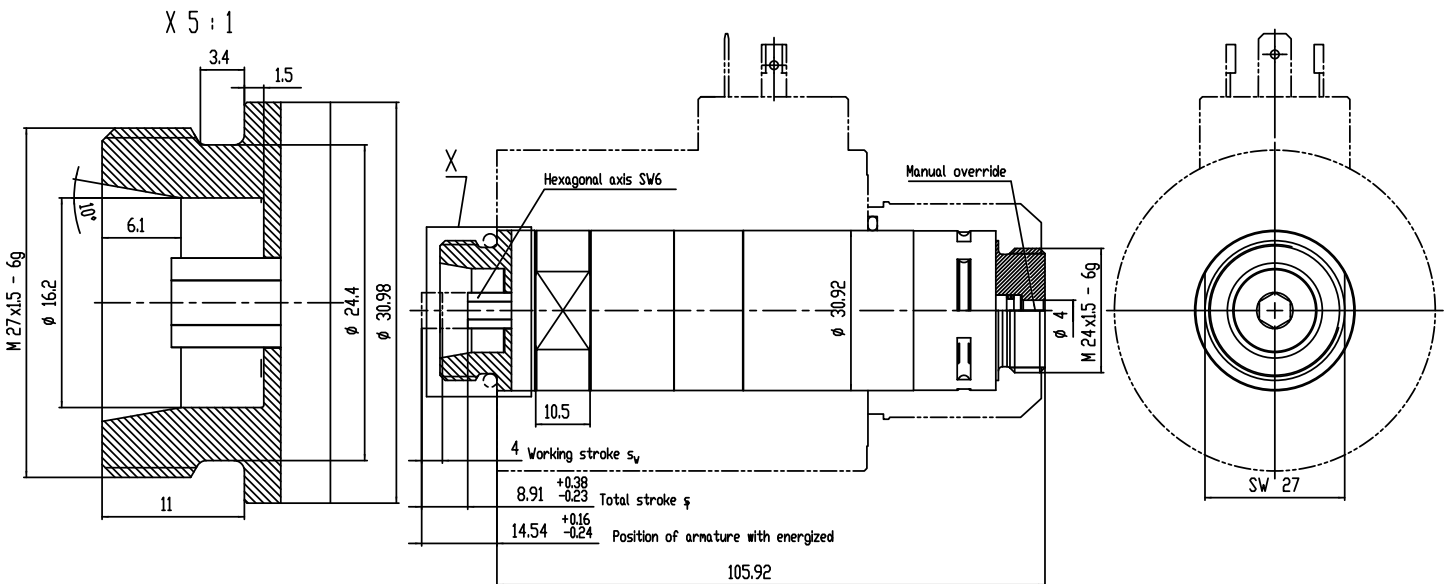
<sup>1</sup> in properly mounted condition

# NG10 Proportional Actuating system



## Technical specification

Ambient temperature	-20 to +50 °C
Hydraulic manifold dimensions (steel)	70x80x102 mm
Hydraulic fluid	Hydraulic oil
Max. dynamic pressure	210 bar
Max. static pressure	315 bar
Mechanical lifetime	10 mil. cycles
Sealing material	Viton
Working stroke	4 mm
Total stroke	8.91 <sup>+0.38/-0.23</sup> mm
Surface protection	DIN 50979-Fe//Zn8//An//T0



## F/s Characteristic measured at

Nominal voltage $U_N$ [V DC]	24
Duty cycle ED [%]	100
Limit current (PWM 100Hz)	1.74
Testing current $I_{Lim} = I_{test}$ [A]	
Limit power $P_{Lim} = I_{Lim}^2 \times R_w$ [A]	37.6
Weight armature $m_A$ [kg]	0.15
Testing speed $v_{test}$ [mm/min]	20

The characteristic of solenoid measured with steel hydraulic manifold.

# Kendrion

Your global partner for electromagnetic systems and components

With more than 100 years of experience in electromagnetism, we are well established on the market not only as a producer but also as a researcher and innovator in the field of solenoids.

We continue with the Binder Magnete company's tradition. We are proud of company know-how based on Wilhelm Binder inventions in electromagnetics because thanks to them we can benefit from many introduced patents.

With a strong research and development department and flexible manufacture, all under one roof, we are your ideal partner for customer-specific solutions.

Together with our customers, we initially analyze requirements and assist in developing a product to meet these requirements, from the initial concept stage to the prototype and serial production. The short distances among our various departments guarantee a smooth and reliable transition from the development to the serial production without any loss of knowledge.

With our design team we are able to design and manufacture solenoids exactly meeting your needs. The substantial know-how of our specialists and many years of experience ensure that our solenoids can be easily integrated into your applications.

From our registered offices we deliver solenoids to our customers throughout the world. With our plants in the Czech Republic and Germany, global locations in the USA, China, Mexico we are always in your neighborhood.



**Providing competence locally – around the globe**





## Contact us

We'll find the right product for your application!

**Our qualified employees, the precisely defined manufacturing processes and globally-uniform, strict quality guidelines ensure top quality at the end of every production process – worldwide.**

Our customers trust us because we have successfully been on the market for over 100 years, and always with the optimum for them in our focus. The cooperation with leading automotive manufacturers continually improves our know-how and processes. In this, we rely on production and logistics processes that enable both modular and individual production – regardless if large or small-lot orders are placed.

A blurred industrial background showing a worker in a green uniform and a red machine. A red text box is overlaid on the left side of the image.

**Feel free to contact us!**

We'll find the right product for your application!

### The advantages at a glance:

- Application and market-specific product development
- Customised components and system solutions
- Company-own prototyping and production-equipment department
- Test and validation environment including testing and inspection
- Worldwide development and production sites
- Cost-optimised and market-oriented products



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