

# Pilot control unit with end position lock for the remote control of directional valves

RE 64 557/02.07 1/12

Replaces: 03.06

Type 4THF5 or 6THF5

Series 1X



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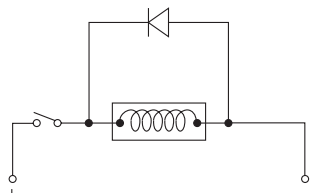
## Special features

- Progressive, sensitive operation.
- Precise and play-free control.
- Low actuation forces at lever.
- Several ergonomic grips with various E contacts (design patents).
- Electro-magnetic end position lock for holding the control lever in its deflected position.  
The electro-magnetic lock may be released by operating a switch on the machine.
- Noticeable resistance point when operating close to the lever end position (summation of progressive force), hence providing a warning just before the changeover occurs to the locked position or float position (prevention of accidental operation).



## Technical data (for applications outside these parameters, please consult us!)

Mechanical		
Back pressure at port T	bar	up to 3
Pilot oil flow (P to 1 - 2 - 3 - 4)	l/mn	up to 13
Pressure fluid <sup>1)</sup> suitable for NBR seals		Mineral oil (HL, HLP) to DIN 51524 <sup>1)</sup>
Pressure fluid temperature range	°C	-20 to +80
Viscosity range	mm <sup>2</sup> /s	10 to 380
Degree of pressure fluid contamination		to NAS 1638 class 9. We, therefore, recommend a filter with a minimum retention rate of $\beta_{10} \geq 75$
Max. permissible operating torque at lever	Nm	10 during operation
	Nm	80 with an exceptional, one time loading
Weight, version 4 THF 5	kg	approx. 3,5
Weight, version 6 THF 5	kg	approx. 4,9

Electrical		
Technical data for the grips switch EC2000		
• Switching capacity		
– minimal current	resistive load	100mA at 12VDC or 24VDC
– maximal current	resistive load	5A at 12VDC or 24VDC
• Microswitch lifetime		
– resistive load at 12VDC	100 to 500mA	5 millions cycles
	5A	300000 cycles
– resistive load at 24VDC	100 to 500mA	3 millions cycles
	5A	150000 cycles
– inductive load L/R=5ms at 12VDC or 24VDC	1,25A	200000 cycles
• Maximal contact resistance	m Ω	20
• Switching on/off with low loads		
– minimum voltage	V	12
– minimum current strength	mA	100
• E-contact type		high current
Grip protection		IP65
Switching guidelines for DC voltages		to ensure the service life of the electrical switch, we recommend the use of free-wheeling diodes that are switched parallel to the inductivity. 
• Power supply for the locking solenoids	V	12 V (9 to 15) and 24 V (20 to 27) / DC
• Max. power consumption of each solenoid	W	13,5 at 12 VDC or 24VDC

# Ordering details

## Single pilot control unit 4 / 6 THF 5

	THF5		06	1X	-	/										M	*
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**Number of control ports**

4 ports = 4  
6 ports = 6

**Grip ranges :**

Ergonomic EC2000 = E  
Ergonomic EC4000 = H  
Ergonomic EC2000+ = I  
Customer's no code  
Without grip = Z

**Control curve** (see page 5)

Curve 06 = 06  
Curve 70 = 70

Series 10 to 19 = 1X  
(10 to 19: unchanged installation and connection dimensions)

**Type of ergonomic grip**

Grip type E (see page 8) = TT, ST, VT, YT, YU  
Grip type H or I see datasheet RE 64547  
Without grip no code

**Grip orientation** (see pages 6-7)

Lever curved 15° towards control port 4 and grip towards control port 1 = 41  
Without grip no code

**End position lock per control port**

Without lock, without resistance point before changeover to inlet pressure = A <sup>1)</sup>  
With electro-magnetic lock 24 V and resistance point before changeover to inlet pressure (except control port 2) = C  
With electro-magnet lock 24 V, without resistance point (except control port 2) = D  
With electro-magnetic lock 12 V and resistance point before changeover to inlet pressure (except control port 2) = E  
With electro-magnetic lock 12 V, without resistance point (except control port 2) = F


«control port 1»  
«control port 2»  
«control port 3»  
«control port 4»  
«control port 5»  
«control port 6»

Further details in clear text

**Connection threads**

01 = G 1/4 pipe thread to standard ISO 228/1  
02 = M 14 x 1,5 metric to standard ISO 9974  
05 = 9/16 UNF-2B to standard ISO 11926

**Seals type**

M = NBR seals  
 Attention!  
the compatibility of the seals and pressure fluid has to be taken into account

**Plugs**

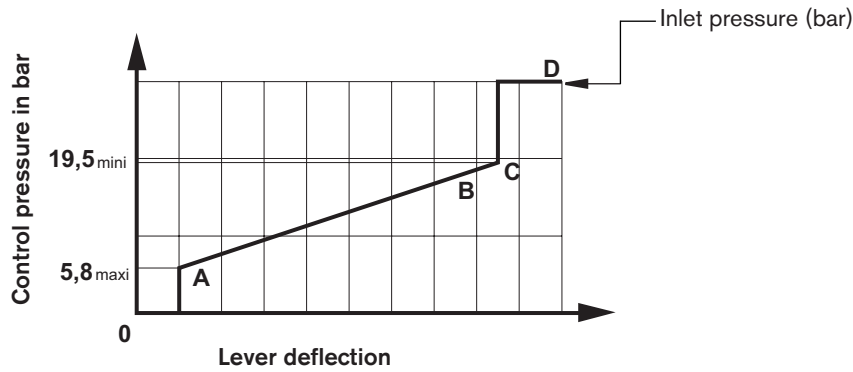
5 = DEUTSCH sealed plugs IP67 for the wiring of the grip and solenoids (see pages 9-10)  
6 = AMP MAT-N-LOK plugs for the wiring of the grip and solenoids (see pages 9-10)  
no code without plug

<sup>1)</sup> For the 4THF5: 3 control ports without lock maximum.

# Characteristic curves : control ranges, actuation moments

## 06 Control curve, identification No. 06

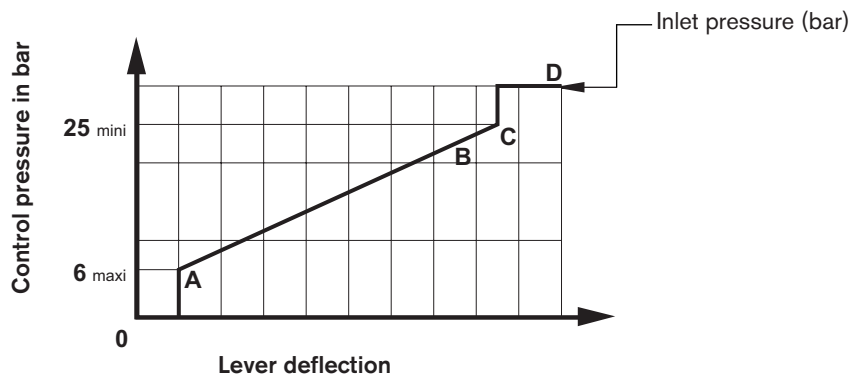
This curve is used for the pilot control of the SM12, M6 control blocks



B = Resistance point before changeover to inlet pressure

## 70 Control curve, identification No. 70

This curve is used for the pilot control of the SX12, SX14, SX18 control blocks



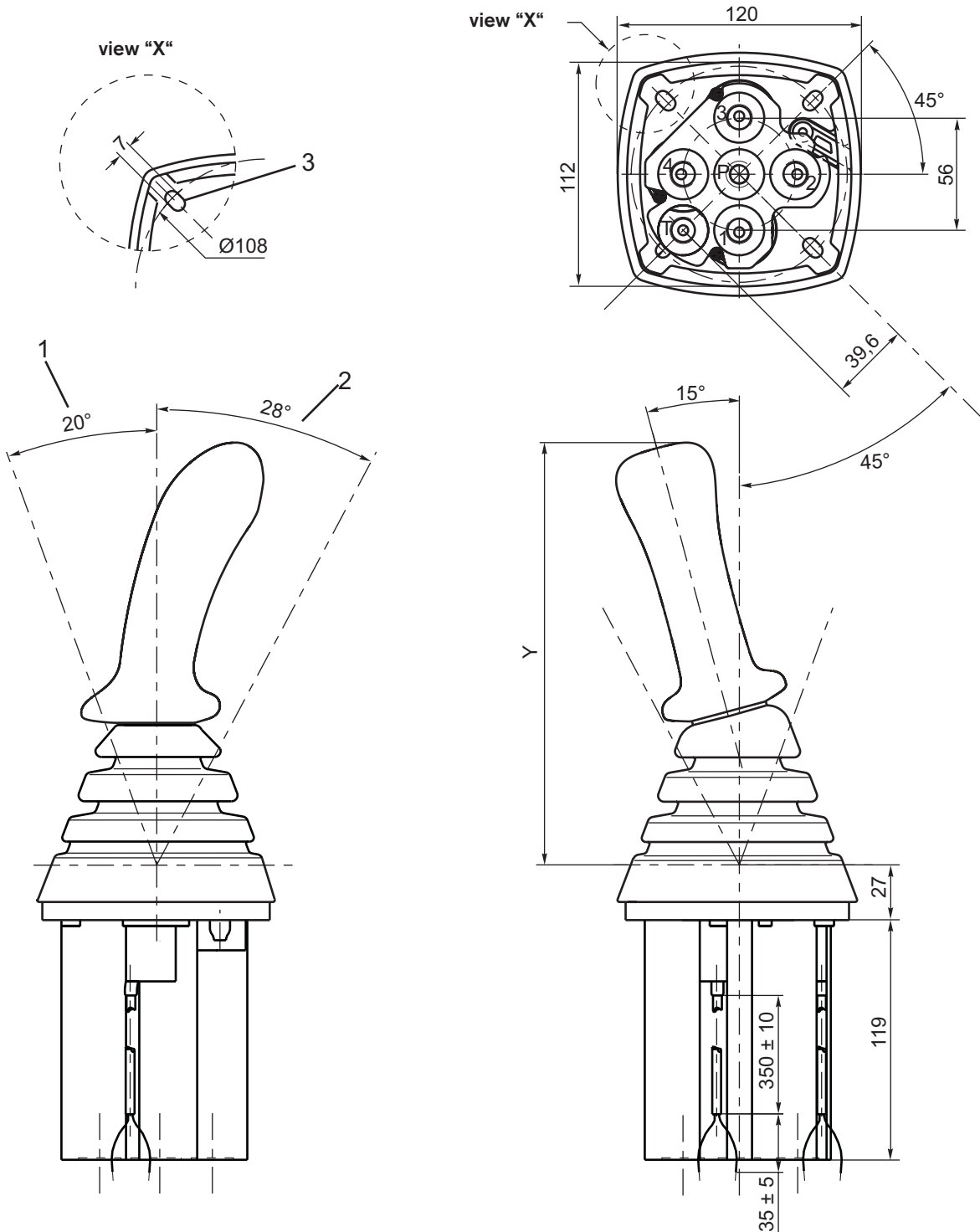
B = Resistance point before changeover to inlet pressure

Actuation moments of 1 actuator				
Inter-section point	A	B	C	D
Lever deflection	2°	16°	18°	20°
Operating torque without detent in N.m	0,8		2,2	3,6 (p = 35 bar)
Operating torque with detent in N.m	0,8	3,4	3,6	5,2 (p = 35 bar)

The operating torques stated are theoretical values which do not take into account the rubber boot resistance.

# Unit dimensions (dimensions in mm)

Type designation of the pilot control units shown: **4 THF 5 E...-1X / TT 41**



The 4 THF 5 variants are supplied without fixing screws nor shims



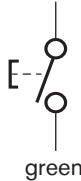


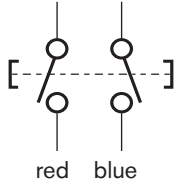


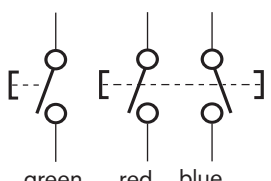


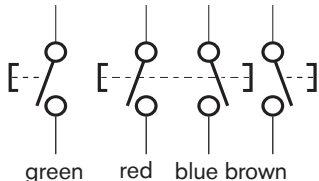

- 1 lever deflection when operating one actuator
- 2 lever deflection when operating two actuators
- 3 four equally space mounting points

### Unit dimension in function of the grip type :

type of grip	Y
EC2000	208
EC2000+	220
EC4000	254



# Variations of ergonomic grip EC2000

<p><b>TT</b></p> 	<ul style="list-style-type: none"> <li>- without E-contact</li> </ul>	
<p><b>ST</b></p> 	<ul style="list-style-type: none"> <li>- single E-contact on top</li> </ul>	<p>yellow</p>  <p>green</p> 
<p><b>VT</b></p> 	<ul style="list-style-type: none"> <li>- double E-contact with rocker switch</li> </ul>	<p>black grey</p>  <p>red blue</p> 
<p><b>YT</b></p> 	<ul style="list-style-type: none"> <li>- double E-contact with rocker switch</li> <li>- single E-contact on top</li> </ul>	<p>yellow black grey</p>  <p>green red blue</p> 
<p><b>YU</b></p> 	<ul style="list-style-type: none"> <li>- double E-contact with rocker switch</li> <li>- single E-contact on top</li> <li>- single E-contact to the front</li> </ul>	<p>yellow black grey white</p>  <p>green red blue brown</p> 



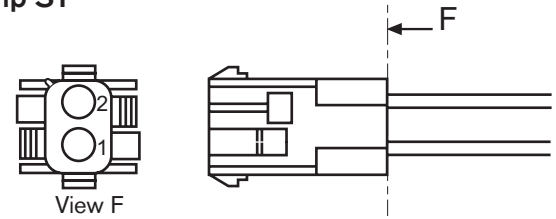
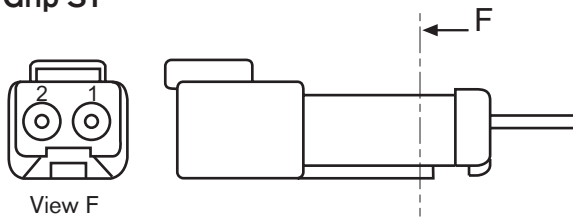
# Contact location within the plugs for wiring grip EC2000

**DEUTSCH sealed plug IP 67**  
(ordering detail = 5)

**Plug AMP MAT-N-LOCK**  
(ordering detail = 6)

**Grip ST**

**Grip ST**

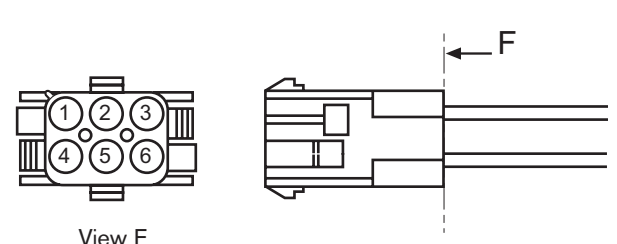
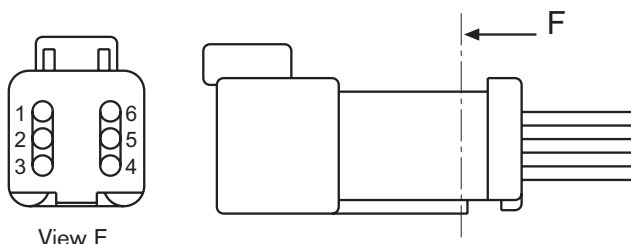


cover DEUTSCH DT 04 - 2P - CE 04

cover AMP 350778 - 1

**Grip VT or YT**

**Grip VT or YT**



cover DEUTSCH DT 04 - 6P - CE 04

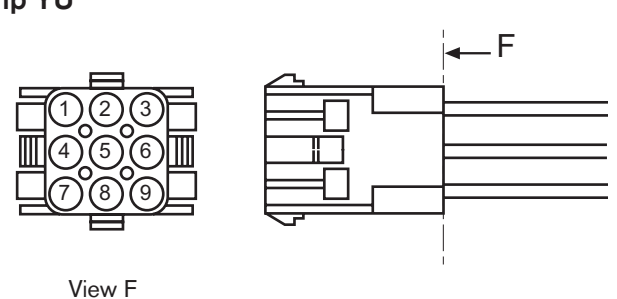
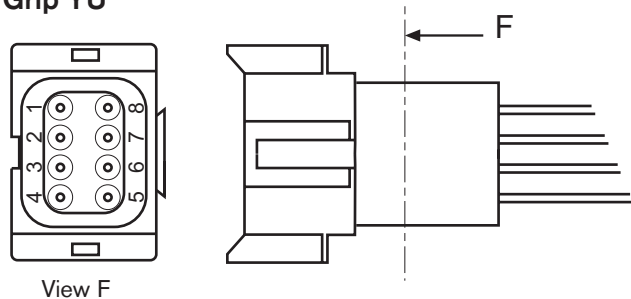
cover AMP 350781 - 1

Identification in the plug	wire colour	Ergonomic grip type	
		VT	YT
1	red	X	X
2	black	X	X
3	grey	X	X
4	blue	X	X
5	yellow		X
6	green		X

Identification in the plug	wire colour	Ergonomic grip type	
		VT	YT
1	grey	X	X
2	black	X	X
3	red	X	X
4	blue	X	X
5	yellow		X
6	green		X

**Grip YU**

**Grip YU**



cover DEUTSCH DT 04 - 8P - CE 04

cover AMP 350782 - 1

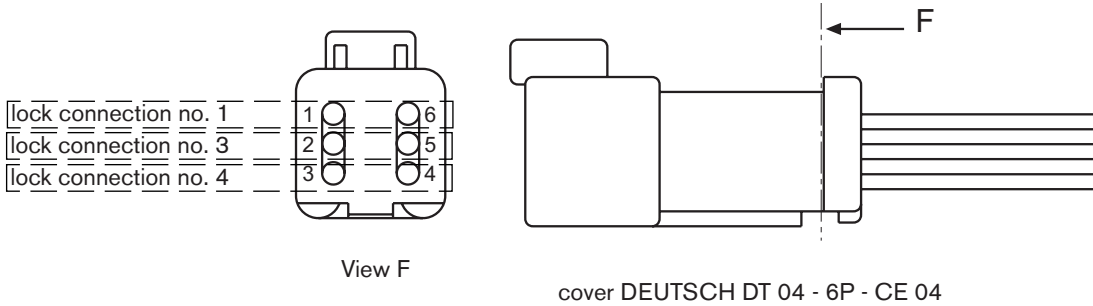
Identification in the plug	wire colour	identification in the plug	wire colour
1	red	5	yellow
2	black	6	green
3	grey	7	white
4	blue	8	brown

Identification in the plug	wire colour	identification in the plug	wire colour
1	grey	5	yellow
2	black	6	green
3	red	7	white
4	blue	8	brown

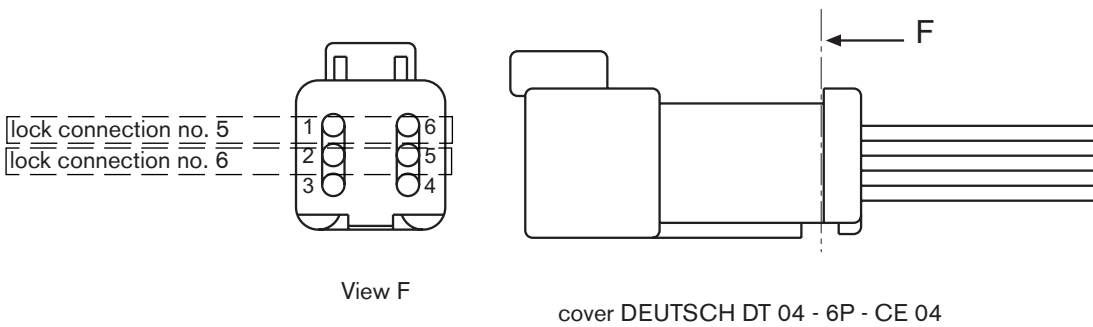
# Contact location within the plugs for wiring the solenoids of the electro-magnetic lock

## DEUTSCH sealed plug IP 67 (ordering code = 5)

- Plug for wiring the 4/6 THF 5 electro-magnetic lock solenoids (ports 1, 3, 4)

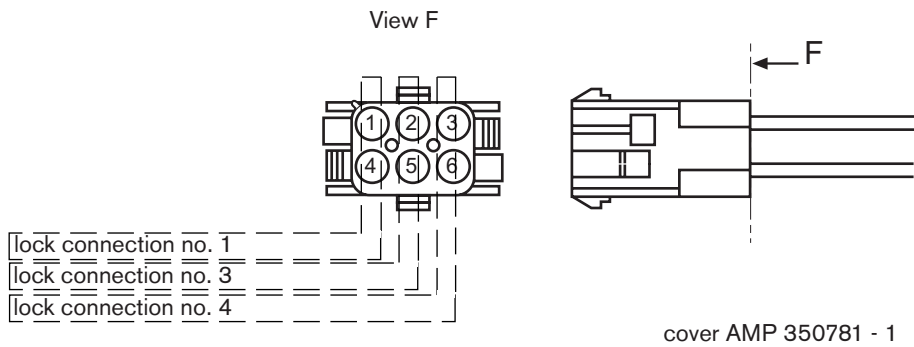


- Plug for wiring the 6 THF 5 electro-magnetic lock solenoids (ports 5, 6)

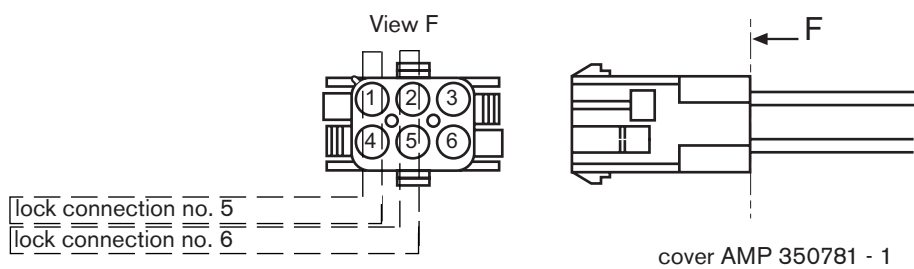


## Plug AMP MAT-N-LOK (ordering code = 6)

- Plug for wiring the 4/6 THF 5 electro-magnetic lock solenoids (ports 1, 3, 4)



- Plug for wiring the 6 THF 5 electro-magnetic lock solenoids (ports 5, 6)



## Application guidelines (these guidelines are not intended to be considered as complete)

- Limit the control pilot circuit pressure to 35 bars maximum for a good resistance of the electrical detents.
- Do not direct the jet of a pressure washing unit directly at the unit.
- The electrical cable must be kept free of any mechanical forces.
- During operation protection via the rubber boot must be ensured.
- Only use the unit with its original grip and lever.
- Ensure that the inertia data of the original grip are not exceeded.
- Replace worn push buttons, so that the integrity of the EC2000 grip is ensured.

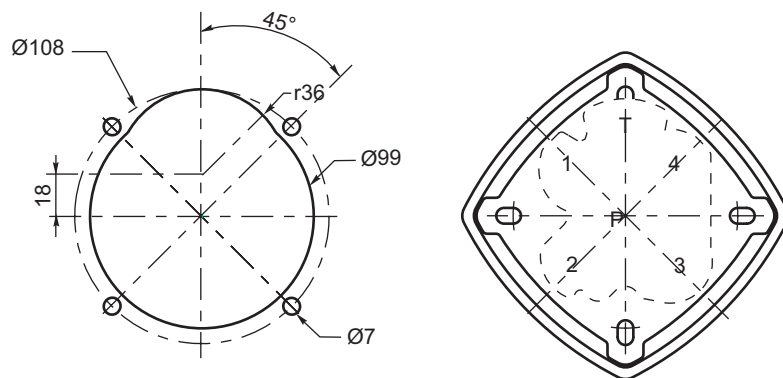
## Safety guidelines (these guidelines are not intended to be considered as complete)

- Only one function control must be allocated to an E-contact.
- The circuit functions are to be so designed that uncontrolled machine movements caused by the application are prevented and that it is possible to switch from one function to another.
- Take into account all of the application limits, particularly those application limits stated within this catalogue sheet.
- Preparation for assembly and testing on the machine: The various checks must include all the functions of the pilot control device.

## Installation guidelines

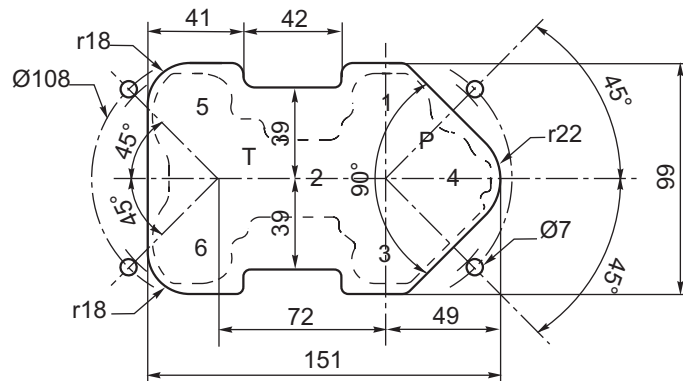
- Mounting flange area: Flatness = 0.5 mm
- Screw head dimensions =  $\varnothing$  10 mm
- Dimensions of shims (large M6) placed underneath the screw heads =  $\varnothing$  18 mm
- Tightening torque for the flange fixing screws = Max. 10 Nm
- Tightening torque for the pipe connections = Max. 30 Nm

### Installation hole 4 THF 5



- $\varnothing$  108 = nominal diameter / fixing via 4 screws and 4 shims

### Installation hole 6 THF 5



- 72 mm = between axis
- Fixing via 4 screws and 4 shims

# Notes

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**Subject to revision.**