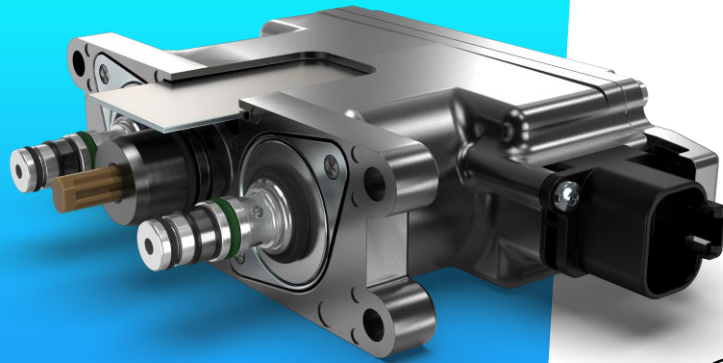


# Electrohydraulic Actuator 2.0 [EHA 2.0] with NG-PPCD03 Fail-Safe



Proportional valves

Directional valves

**Smart products**

Special designs

## Product classification

Name	Max volume flow @ 6 bar dp
EHA 2.0	1,25 l/min based on NG-PPCD03 Fail-Safe
	2,5 – 5 l/min based on NG-PPCD04 IPH
	2,5 – 5 l/min based on NG-PPCD04
	10 l/min based on NG-PPCD05
EMA	

## Benefits and Application

- ≡ Work and Steering Solutions
- ≡ Personalized support
- ≡ Up to Performance Level d
- ≡ Intuitive operation



### Hydraulic Data

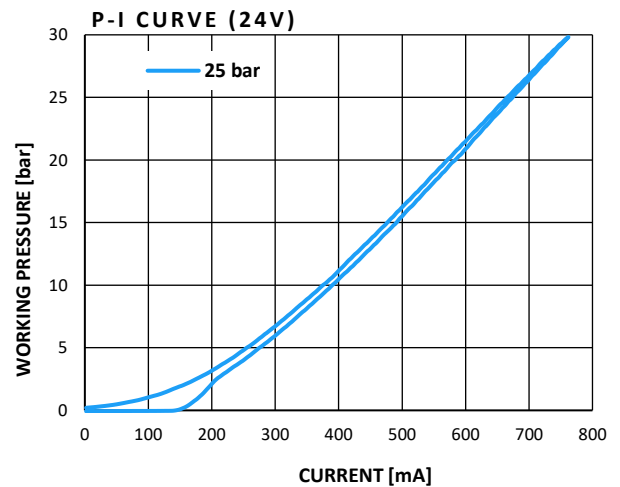
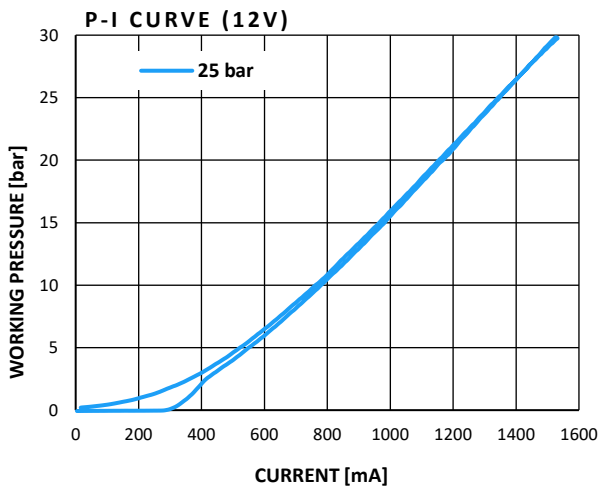
<b>Max pressure pump</b>	$P_p = 50 \text{ bar}$
<b>Max pressure tank</b>	$P_T = 30 \text{ bar}$
<b>Max pressure work</b>	$P_A = 25 \text{ bar}$
<b>Contamination level</b>	Min Filtration: 20/18/15 According to ISO 4406
<b>Fluid</b>	Mineral Oil According to DIN 51524
<b>Temperature range</b>	-30 °C to +90 °C (ambient) -30 °C to +90 °C (fluid)
<b>Leakage (internal, each valve)*</b>	< 0,03 l/min (de-energized) < 0,15 l/min (energized)
<b>Filterscreen size</b>	125 $\mu\text{m}$ (all ports)

\* The reported data are measured @ $P_p = 35 \text{ bar}$  and an oil viscosity of 32 cSt

### Electrical Data

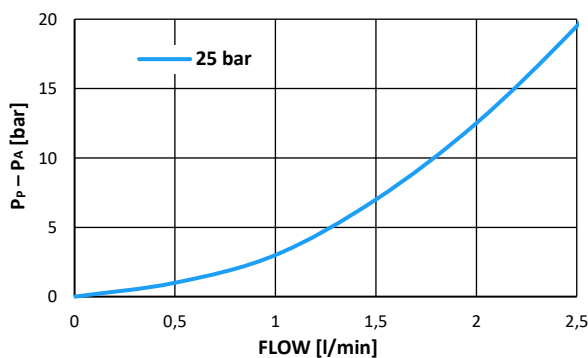
<b>Voltage</b>	12 V	24 V
<b>Voltage range min/max</b>	9/16 V	16/32 V
<b>Short term overvoltage</b>	36 V	
<b>Max idle power</b>	1 W	1 W
<b>Max power consumption</b>	25 W	
<b>EMC immunity</b>	1) acc. to ISO 11452-2:2019,2015 100 V/m; 80-2500 MHz 2) Acc. to ISO 11452-4:2011 150 mA; 0,5 – 200 MHz	
<b>EMC transient conduction test</b>	acc. to ISO 7637-2:2011 Tests 1, 2a, 2b, 3a, 3b, 3, 5 Test level: IV except for 24 V systems + test No. 5 Test level: III	
<b>Connector</b>	Deutsch Connector DT14-6P	
<b>Protection class</b>	Up to IP6K6 / IPX9K	

### Current vs. Pressure (Average characteristic)

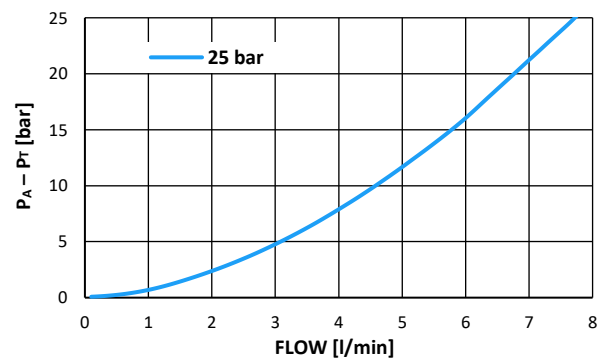


### Flow characteristics (Average characteristic)

**PRESSURE DROP PUMP TO CONTROL PORT (P→A)**  
Valve only



**PRESSURE DROP CONTROL PORT TO TANK (A→T)**  
Valve only





**Safety functions** The EHA provides three safety functions in compliance of DIN EN ISO 13849

	SAFETY FUNCTION 1	SAFETY FUNCTION 2	DIAGNOSTIC FUNCTION 3
<b>Name</b>	Current less state	Pressure less state	Rated customer diagnostic function – EHA diag-message
<b>Description</b>	Whenever the signal processing of setpoints along the rated safety-chain (CAN ... valve-coil) is disturbed, the valves enter the current less state, which is defined as the safe state	Whenever the signal processing of setpoints along the rated safety-chain (CAN ... pilot pressure) is disturbed, the valves enter the current less state, which is defined as the safe state	The current position of the valve slider (accuracy ±4 %) is transmitted via the CAN bus interface cyclically (user configurable intervals of 10 ms, 30 ms and 100 ms) accompanied by an error code in case one has occurred.
<b>MTTFd</b>	~ 100 years	~ 53 years	~ 49 years
<b>Diagnostic coverage</b>	~ 95 %	93 %	~ 93 %
<b>Performance level</b>	D	D	D

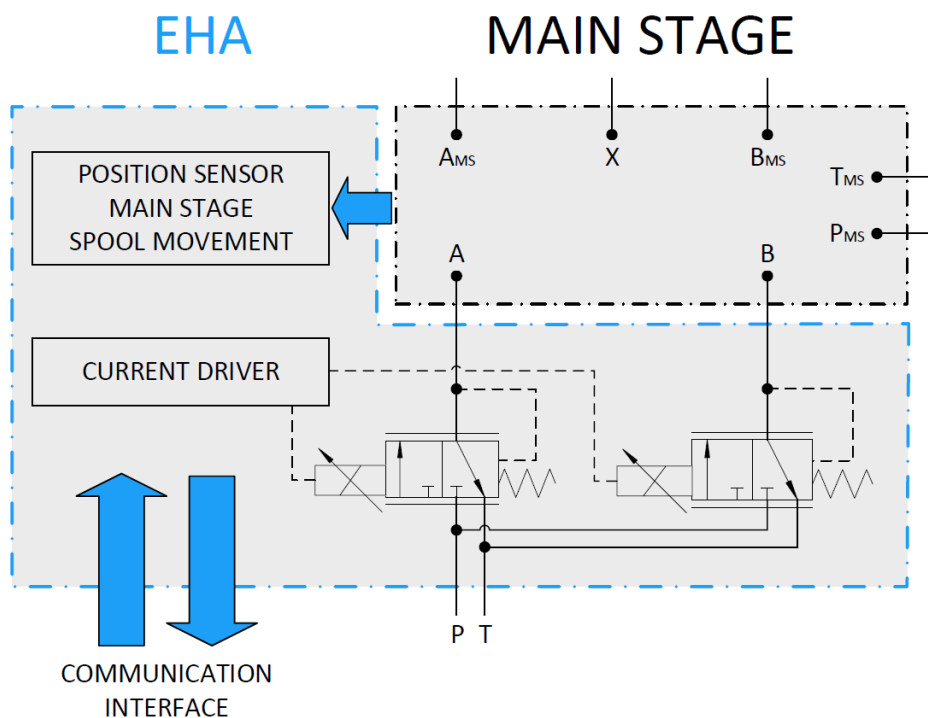
**Sensoric accuracy**

<b>Sensor type</b>	Hall effect
<b>Max. stroke</b>	± 11 mm
<b>Max. sensing deviation</b>	< 90 µm
<b>Max. position offset</b>	30 % (of max. stroke)

**Additional data**

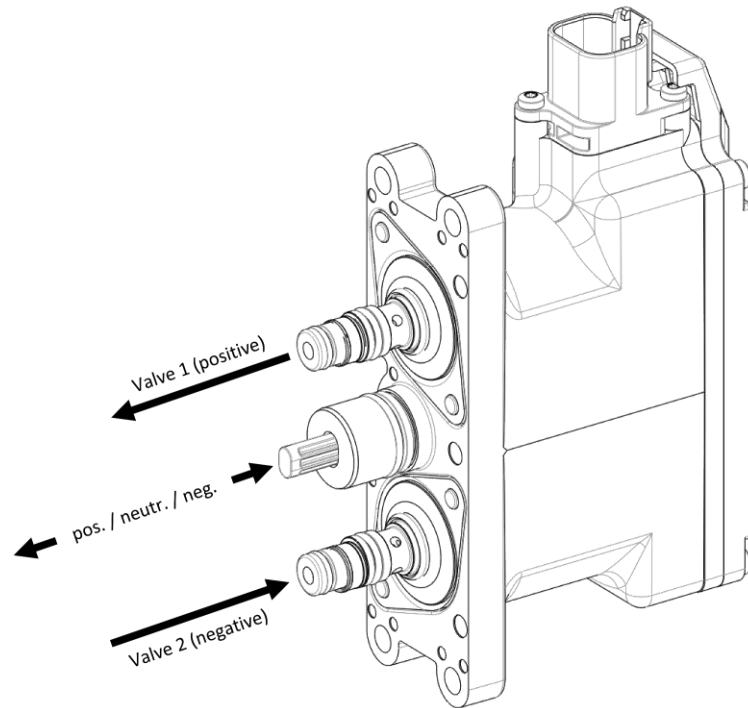
<b>Weight</b>	Approx. 670 g
<b>Mounting position (recommended)</b>	Any (consider valve assignment)
<b>Reference</b>	Valve specification according to Thomas LHP 98 EHA TES

**Hydraulic schematic**





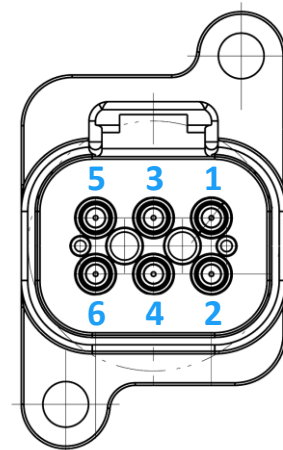
## Valve assignment



## Pin assignment

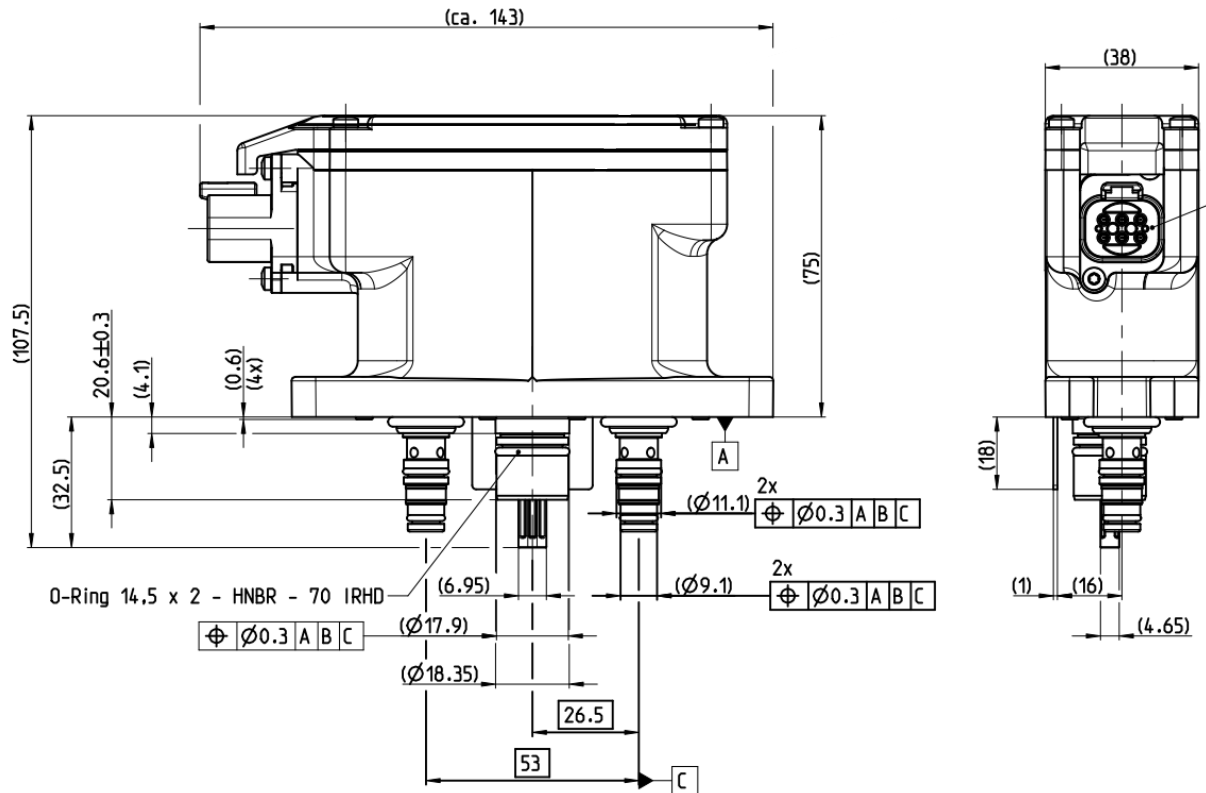
Pin number	Function
1	U Bat (battery voltage)
2	CAN_L Signal (low)
3	A_IN + / alt EO Analog input signal (or electrical override for valve 2 - negative direction)**
4	A_IN - / alt EO Analog input ground (or electrical override for valve 1 - positive direction)**
5	GND ground
6	CAN_H Signal (high)

\*\* depending on variant

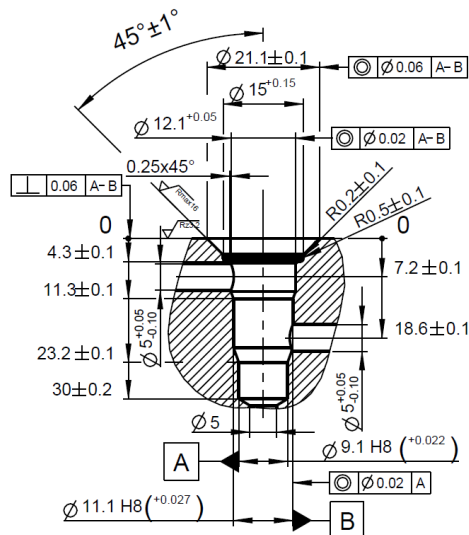




## Dimensions with Deutsch Connector and NG-PPCD03 Fail-Safe [mm]

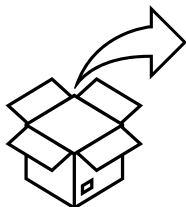


## Cavity Dimensions of NG-PPCD03 Fail-Safe [mm]

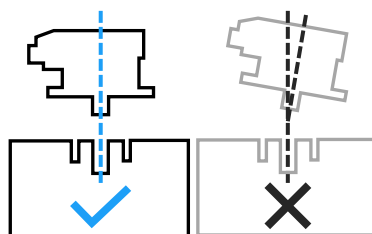


## Mounting

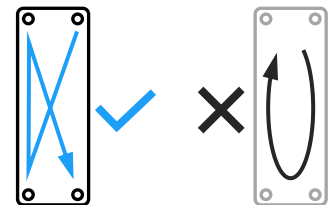
Handle with care



Insert in a straight line



Fasten screws crosswise





## EHA Product Family

EHA 2.0 with NG-PPCD03 Fail-Safe											
Art. No.	Voltage	Pressure	Flow P-A	Flow A-T	CANopen	CANprop	Fail Safe	FuSa	EO	NP	Analog In
1024900	12 V	25 bar	1,5 l/min	4,0 l/min	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
on request	12 V	25 bar	1,5 l/min	4,0 l/min	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
1024901	24 V	25 bar	1,5 l/min	4,0 l/min	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
on request	24 V	25 bar	1,5 l/min	4,0 l/min	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

EHA 2.0 with NG-PPCD04 IPH											
Art. No.	Voltage	Pressure	Flow P-A	Flow A-T	CANopen	CANprop	Fail Safe	FuSa	EO	NP	Analog In
1021416	12 V	25 bar	2,7 l/min	2,4 l/min	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
on request	12 V	25 bar	2,7 l/min	2,4 l/min	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
on request	24 V	20 bar	3,0 l/min	2,7 l/min	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
1021417	24 V	25 bar	2,7 l/min	2,4 l/min	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
on request	24 V	25 bar	2,7 l/min	2,4 l/min	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

EHA 2.0 with NG-PPCD04											
Art. No.	Voltage	Pressure	Flow P-A	Flow A-T	CANopen	CANprop	Fail Safe	FuSa	EO	NP	Analog In
1024369	12 V	20 bar	4,3 l/min	5,5 l/min	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
on request	12 V	20 bar	4,3 l/min	5,5 l/min	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
1019503	12 V	25 bar	3,5 l/min	4,3 l/min	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
on request	12 V	25 bar	3,5 l/min	4,3 l/min	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
1034370	24 V	20 bar	4,3 l/min	5,5 l/min	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
on request	24 V	20 bar	4,3 l/min	5,5 l/min	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
1019504	24 V	25 bar	3,5 l/min	4,3 l/min	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
on request	24 V	25 bar	3,5 l/min	4,3 l/min	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

EHA 2.0 with NG-PPCD05											
Art. No.	Voltage	Pressure	Flow P-A	Flow A-T	CANopen	CANprop	Fail Safe	FuSa	EO	NP	Analog In
1024030	12 V	30 bar	10,5 l/min	11,4 l/min	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
on request	12 V	30 bar	10,5 l/min	11,4 l/min	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

\*Flow P-A/A-T = @6 bar dp    FuSa = Functional Safety    EO = Electrical Override    NP = Neighbour Parameters

### DISCLAIMER



The presented information is based on current knowledge and provides only non-binding information to the customer. Any liability in connection with this information is excluded. It is the responsibility of the customer to determine the suitability and appropriateness of the product for his intended purpose. We reserve the right to change the product with regard to technical progress and new developments.

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