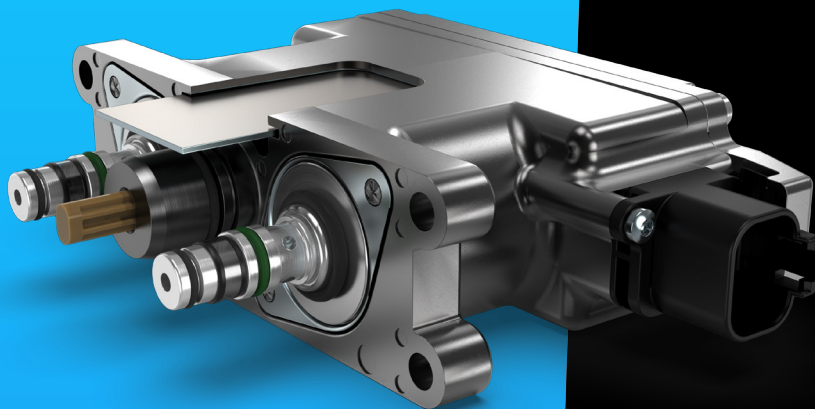


# EHA 2.0 Fail-Safe

The Thomas EHA 2.0 Fail-Safe electrohydraulic actuator is a compact, CANbus-based solution that has been designed for seamless integration into safety-critical motion control systems.

Engineered for high reliability and efficiency, it features a redundant stroke feedback sensor and a hydraulically fail-safe pilot valve. These safety elements together enable compliance with Performance Level up to PL=d, as defined by DIN EN ISO 13849.

Integrated error diagnostics and rapid software configurability further enhance the flexibility of the actuator.





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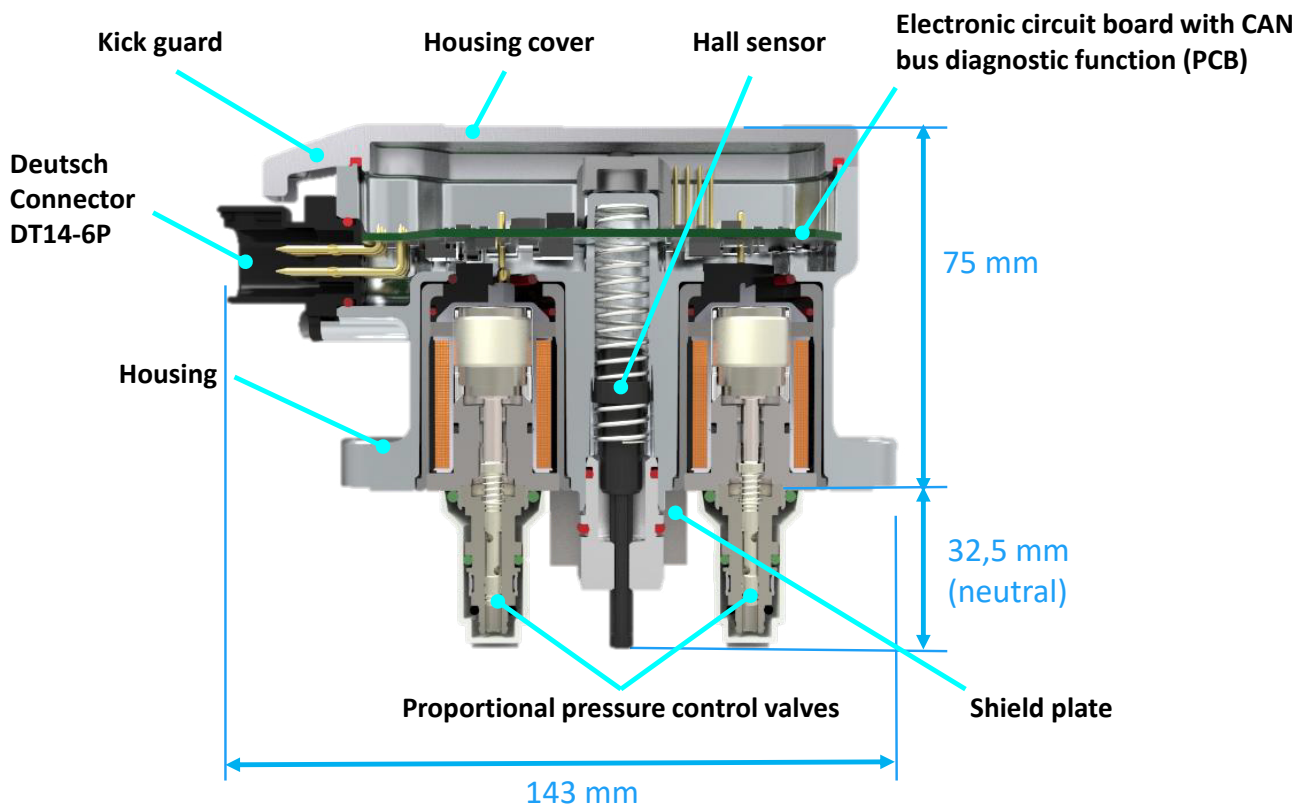
**01**

# **System Configuration**

# System Configuration

# 01

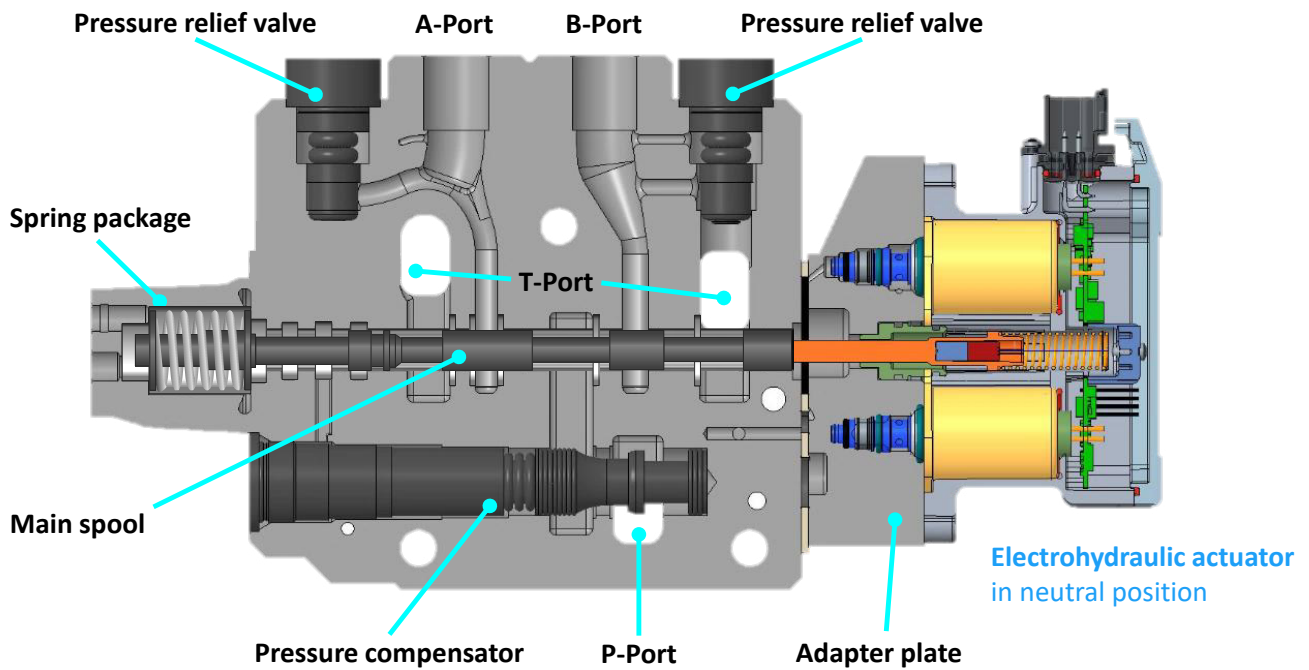
## EHA overview



# System Configuration

# 01

## Example



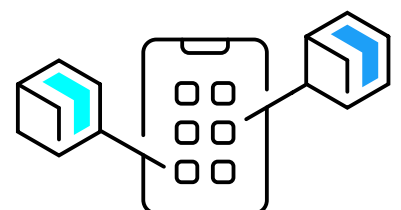


02

# Product Benefits

# Product Benefits

- Fail-Safe version with functional safety up to Performance Level PL=d to form the basis for (semi-)automated machine functions like steering and braking
- CANbus, analog input and electrical override provides additional functionality for diverse systems
- Open- and Closed-Loop Control ensures best dynamic behavior and flexibility for use in various systems
- Use Thomas Software Control interface to achieve best parameterization results
- Support team saves time and maximizes product functionality
- Plug and play field replace thanks to neighbor parameter backup saves time and costs at service
- Implementation of all available standard valves enables adaption to smallest and largest systems



# Product Benefits

02

## Sample Box



- EHA samples 1-4 pcs.
- Connection cable
- PCAN USB adapter
- USB stick with software and instructions
- Printed instructions DIN A4

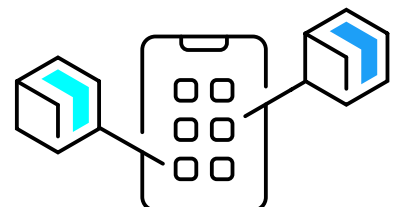


**Would you like to order a sample?  
Our Account Manager will be  
happy to assist you:**

**David Aaron Haubrich**

☎ +49 170 3742205

✉ [DavidAaron.Haubrich@thomas-magnete.com](mailto:DavidAaron.Haubrich@thomas-magnete.com)





03

# Functional Description

# Functional Description

## 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 µm (all ports)

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

## Sensoric accuracy

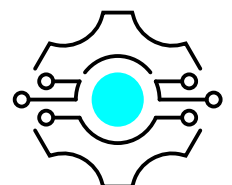
<b>Sensor type</b>	Hall effect
<b>Max. stroke</b>	$\pm 11 \text{ mm}$
<b>Max. sensing deviation</b>	< 90 µm
<b>Max. position offset</b>	30 % (of max. stroke)

## 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	

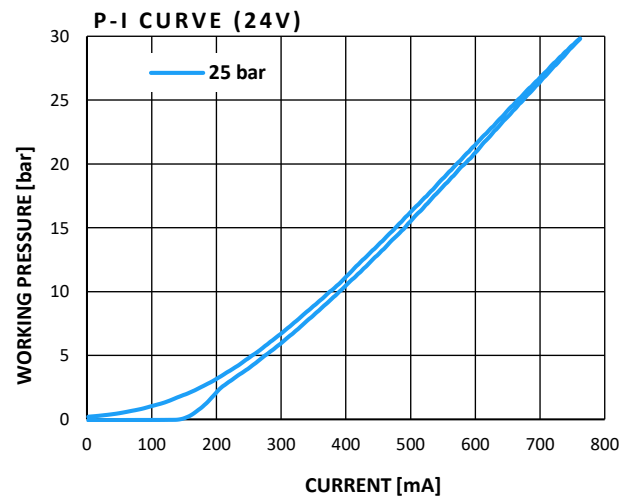
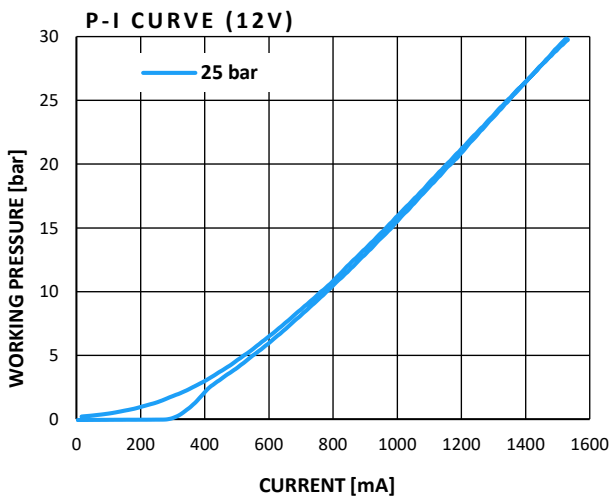
## Additional data

<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



# Functional Description

## Current vs. Pressure (Average characteristic)



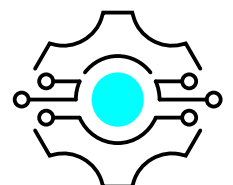
## Safety functions

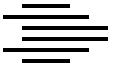
The EHA provides three safety functions in compliance of DIN EN ISO 13849

	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 $\pm 4\%$ ) 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

### [1] Performance Level PL=d

The Performance Level in the ratings a to e is a measure of the ability of a component to perform a safety function under foreseeable conditions. The functional safety of the EHA 2.0 Fail-Safe is applicable up to Performance Level PL=d in accordance with DIN EN ISO 13849. Performance Level d forms an essential basis for the safety-related implementation of independent machine functions.



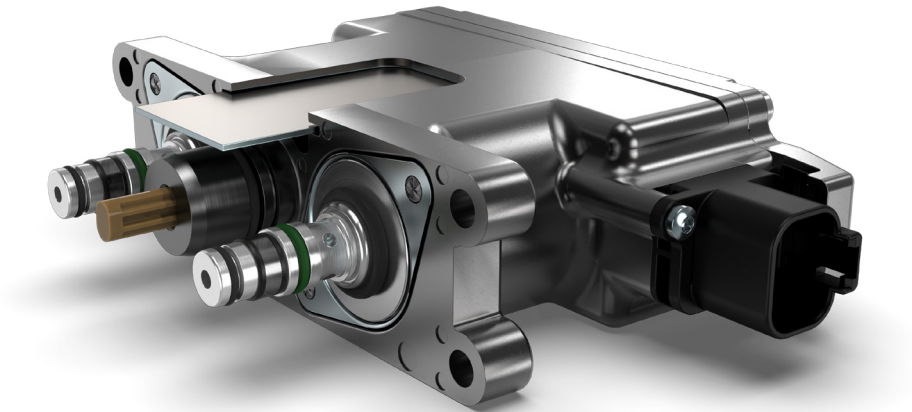


**04**

# **Configuration Options**

# Configuration Options

# 04



## 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	x	x	x	x		x	x
on request	12 V	25 bar	1,5 l/min	4,0 l/min	x	x	x		x	x	
1024901	24 V	25 bar	1,5 l/min	4,0 l/min	x	x	x	x		x	x
on request	24 V	25 bar	1,5 l/min	4,0 l/min	x	x	x		x	x	

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

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