Trim-tilt system type PTT

Product documentation

Operating pressure p_{max}:	190 bar
Flow rate Q_{max}:	1.65 l/min

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1 Overview of trim-tilt system type PTT

Trim-tilt systems are used on motorboats. Given the high forces that often occur here, hydraulic systems are the preferred choice. Thanks to their high power density, our hydraulic solutions can use compact components and therefore take up little installation space. One key advantage of the self-contained system is that it requires no maintenance as the system comes filled with oil for its entire service life and is fully leak-tight.

The trim-tilt system type PTT for outboard engines is optimised to their handling characteristics. The brushless motor enables higher forces and takes up less installation space than conventional drives. The built-in position sensor in the tilt cylinder continuously monitors the cylinder's position and enables the outboard engine to be automatically aligned to suit the boat's speed.

Trim-tilt system type PTT

Features and advantages

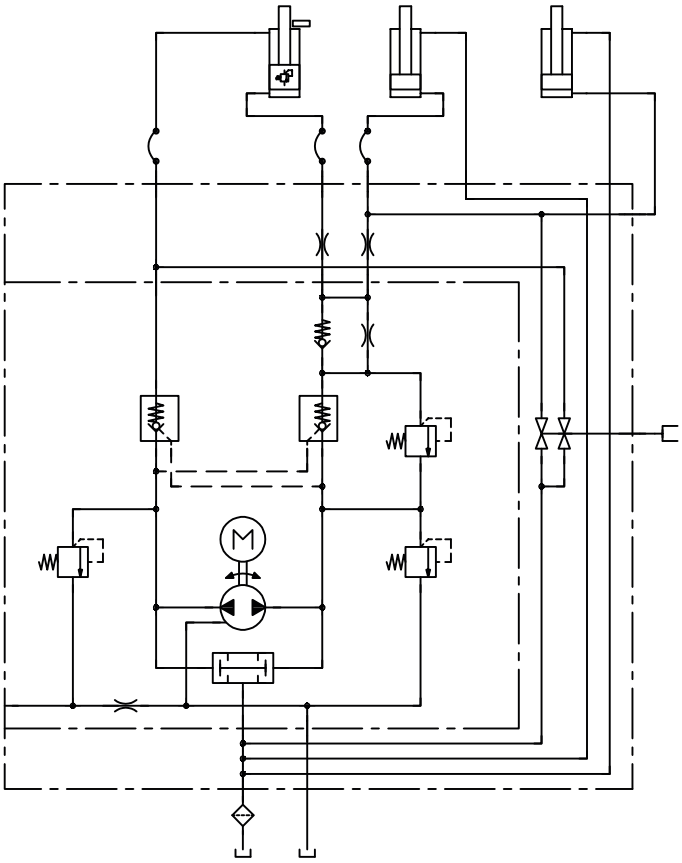
- State-of-the-art drive technology
- Compact, powerful units
- Reliable protection against marine growth
- Resistant to seawater
- Ready to use: filled with oil, tested and ready for action straight away

Applications

- Outboard engines for pleasure craft and recreational boats

2 Available versions

Schematic



Basic type

Type	Description	Pressure p_{max} (bar)	Flow rate Q_{max} (l/min)
PTT	Power-trim-tilt system with brushless DC motor with flange-mounted external gear pump	190	1.65

3 Parameters

3.1 General data

Mechanical connection	4x M10x1.25 / min. 20 mm deep, on left and right in each case
Operating elements	Pressure-limiting valves are present and must not be adjusted.
Control panel	Motor cable pins for electrical connection by customer: ▪ Load circuit 2 cables (2 x ring terminal for M8) ▪ 3x PIN type 1060-20-0222 (nickel plating) for motor control ▪ 3x PIN type 1060-20-0222 (nickel plating) for sensor
Installation requirements	Indoors and outdoors, above the water's edge, temporary submersion according to IP 67 permitted
Installation position	Vertical +/- 45°
Filling quantity	▪ 0.6 l ▪ Tank filling level: see Chapter 4, "Dimensions"
Hydraulic fluid	▪ Pentosin CHF 11S ▪ Pentosin CHF 202
Cleanliness level	**ISO 4406** 17/15/12 Filtration ratio βx = 75: 12-15 µm
Temperatures	Environment: approx. -30 to +80°C, hydraulic fluid: -40 to +90°C, note viscosity range.
Permissible humidity	100%
Noise level	max. 65 dB (A)
Max. dust content in the ambient air	as per IP 67

3.2 Pressure and volumetric flow

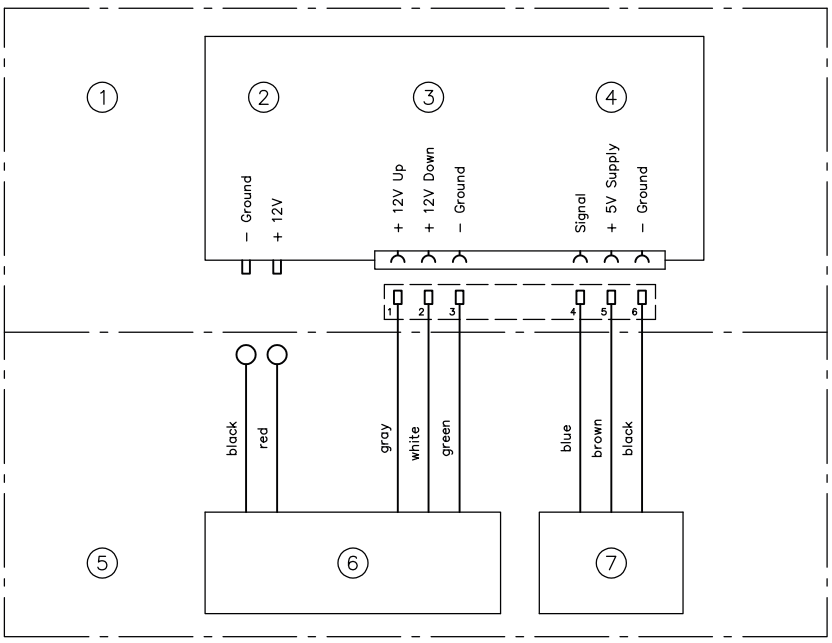
Operating pressure	190 bar
Minimum pressure	0 bar
Maximum pressure	210 bar (+10 bar tolerance)
Flow rate	up to 1.65 l/min

3.3 Weight

	Type	
	PTT	= 10.6 kg

3.4 Electrical data

	Load circuit	Control circuit
Rated voltage	12 V	12 V
Rated current	80 A	< 1 A
Rated torque	960 W input power	< 12 W
Duty cycle	--	100% duty cycle
EMC protection class	89/336/EC; CISPR 12 and CISPR 25; class 3	



1 Customer part
2 PSU of ignition, fused
3 Motor signal
4 Sensor signal
5 HAWE parts
6 PTT control
7 Sensor

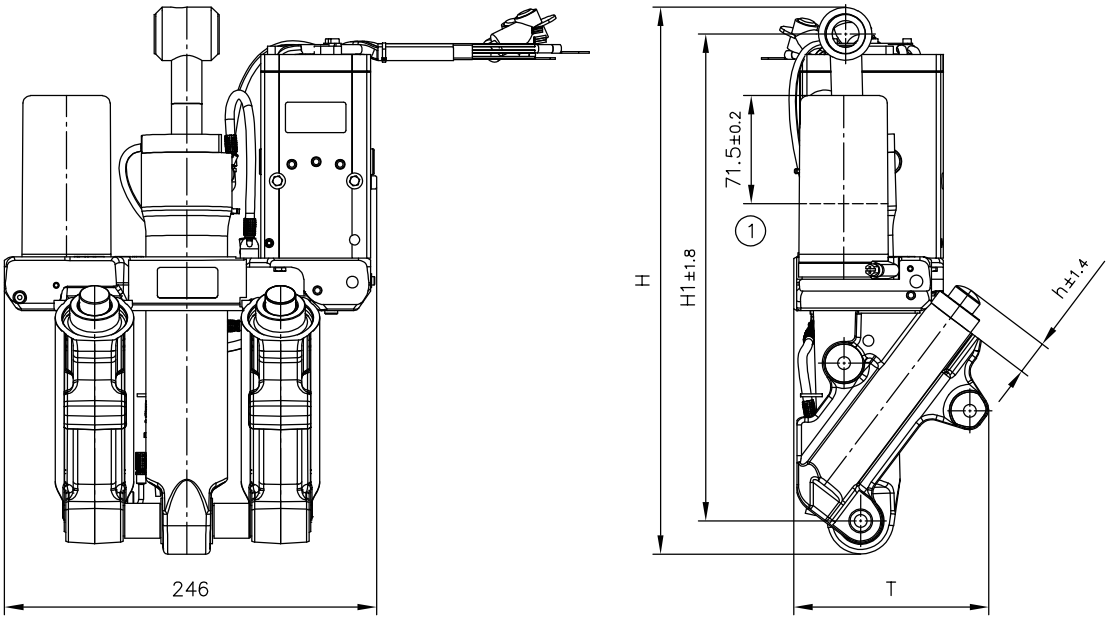
Motor 12 V DC

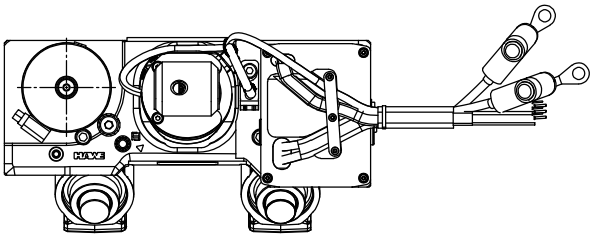
Motor voltage	▪ min. 10 V DC ▪ nominal 12 V DC ▪ max. 14.4 V DC
Electric power supply	0 to 110 A
Overload protection	110°C motor thermal switch
Power	up to 1.6 W
Operating mode	S3 – Periodic intermittent operation 10% 2 min
Electrical connection	see electric circuit diagram
Protection class (IEC 60529)	IP 67

4 Dimensions

All dimensions in mm, subject to change.

PTT





1 Oil fill level with all cylinders extended

	H	H1	h	T	Space requirements
Retract cylinder	~362	322	22.5	~129	11.5 dm³
Extend cylinder	~510	469.7	106.8	~174	--

5 Installation, operation and maintenance information

NOTICE

Available for this product: assembly instructions with notes on

- intended use,
- operating and maintenance,
- Assembly information

Trim-tilt system type PTT: B 6013

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