

## BRIEF INFORMATION

### Media Pump MPx

- › Perfectly suited to circulate the coolant and to cool the battery, electric drive and power electronics accordingly
- › Lightweight design for different vehicle types
- › Operational range 150–250 W el. power (up to 400 W in future)
- › High power to size ratio
- › Silent, long-lasting, and efficient
- › Active Cooling concept for own electronics
- › Equipped with safety features such as blockage detection, dry-running protection, temperature, voltage and current detection

## PRODUCT FEATURES

### Application

The Media Pump MPx is perfectly suited for electrified powertrain applications, such as battery conditioning or cooling of the e-machine. In high ambient temperatures, the connected components and the battery need to be cooled by the refrigeration circuit using the chiller – which is a heat exchanger between the cooling and the refrigeration circuit. The Media Pump guarantees the appropriate flow of the coolant, in order to maintain the battery's maximum permissible temperature, ensuring long battery life and protects all other components from thermal damage. With all necessary safety features like blockage detection, dry run, temperature derating and all under-/over- voltage and current detections this pump is a very safe and smart product.

### Design and function

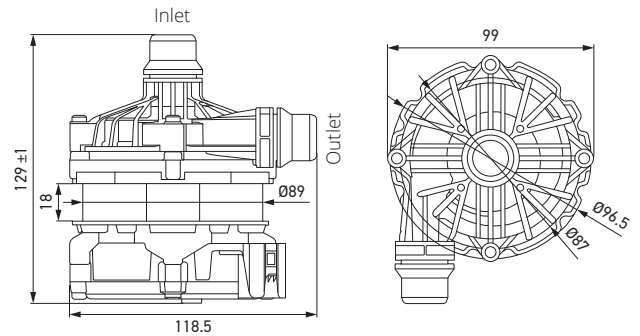
The lightweight design and the compact size lead to a high power to size ratio. The Active Cooling concept ensures enhanced removal of dissipated thermal energy due to thermal coupling of the PCB and motor windings to the cooling circuit and optimal placement of electrical current leading components to improve the temperature distribution on the PCB. The MPx can operate with high electrical current density in the stator windings without overheating and is mainly independent regarding any influence of the ambient temperature.

# TECHNICAL DETAILS

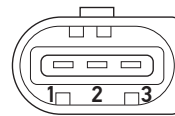
## Technical data

Operating voltage range	Single-voltage (8–16 V)
Rated voltage	12 V
Power consumption	150–250 watt
Operating temperature	Coolant: -40 °C to +90 °C (briefly: +95 °C) Ambient: -40 °C to +120 °C (briefly: +130 °C) Storage: -40 °C to +100 °C
Communication interface	LIN 2.0, 2.1, 2.2 (PWM and CAN possible)
Protection class	IP 6KX, IP X7, IP X9K
Weight	Approx. 720 g
Connector	3 Pin connector (GND, LIN, Supply) Kostal SLK 2,8, Coding A, Latching version 3
Protection	Thermal overload protection, overvoltage protection
Hydraulic interface	Norma-Quick PS3 NW16
Nominal hydraulic working point	3,000 l/h @ $\Delta p = 1.1$ bar $T_{med} = 50$ °C glycol/water mixture: 50/50 $U = 12$ V
Medium	Water-glycol mixture, released with BASF Glysantin G40 and Schweitzer ST DOS F-190
Speed range	1,360 rpm to 6,800 rpm
Lifetime	> 30,000 h (dependent on mission profile)

## Dimensional sketch



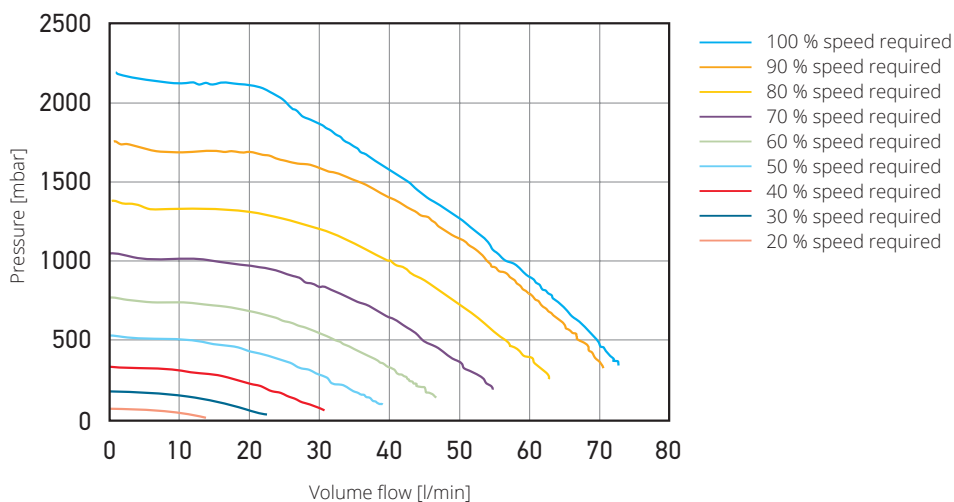
## Pin assignment



Pin 1: GND  
Pin 2: LIN  
Pin 3: Supply

# CHARACTERISTICS MAP AT 50 °C MEDIA TEMPERATURE

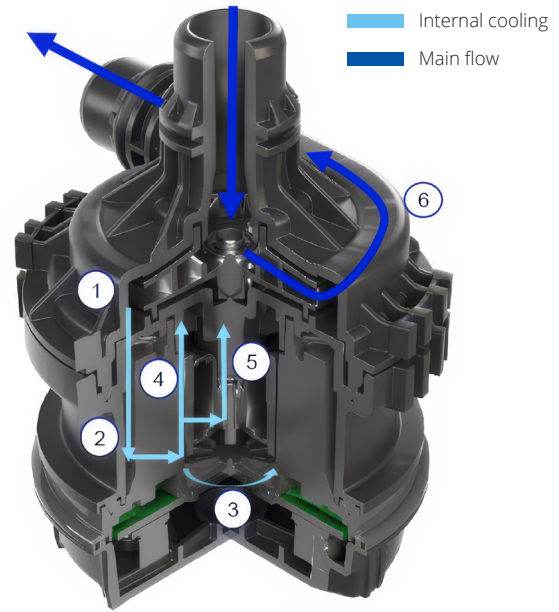
Following performance chart shows the characteristics of the pump under certain conditions. The working point for the MPx is at 3,000 l/h (min. 1.1 bar, 50 °C medium temperature, glycol / water mixture 50/50).




# COOLING CONCEPT

The cooling concept of the MPx offers significant advantages, including the ability to operate the water pump with high electrical current density in the stator windings without overheating. Additionally, it is largely independent of ambient temperature variations, ensuring reliable performance in various environmental conditions.

- (1) Impeller bypasses a part of the coolant to the exterior of the stator
- (2) Coolant flows around the exterior surface of the stator
- (3) Transfer of the coolant into the inner area of the stator
- (4) Separation of coolant to flow through and around the rotor
- (5) Longitudinal grooves of the plain bearing canalize the coolant flow: hydro-dynamic lubrication of the bearing
- (6) Transfer of the coolant to the impeller



# PROGRAM OVERVIEW

Product picture	Description	Part number	VPE**
	Media Pump MPx, 150-250 watt	8TW 016 374-001*	1

\* Further variants with different power classes up to 400 Watt in preparation  
 \*\* Packaging unit