TACOFLOW3 GENS SOLAR

CIRCULATION PUMPS FOR SOLAR THERMAL SYSTEMS (OEM VERSION)

Glandless circulation pumps for solar thermal systems in residential and commercial buildings.

ADVANTAGES

- Various versions for solar applications available
- Controlled by an external PWM signal with profile "solar", with feedback
- Automatic unlock function
- Small and compact design
- TacoSmart plug with connected 1.2 m voltage and signal cable

DESCRIPTION

The TacoFlow3 GenS is driven by permanent-magnet synchronous motors.
These innovative motors achieve a high efficiency at low operating costs.
They are maintenance-free and do not need replacement of seals and gaskets.

INSTALLATION POSITION

The pump can be installed both horizontally or vertically.
The arrow indicating the medium's flow direction must be observed.

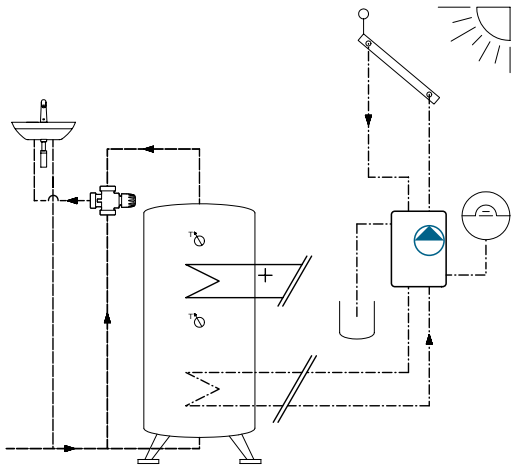
OPERATION

The circulation pump are of a glandless design, since the rotating parts of the motor run inside the pumped medium. This provides lubrication for the motor and the rotating parts.
The circulation pump is equipped with anti-blocking protection which automatically unblocks the pump in the event of a blockage.
The circulation pumps are controlled via an external PWM signal (solar).

BUILDING CATEGORIES

- Apartment blocks, single family dwellings, housing estates, multiple dwelling units
- Smaller public buildings
- Hotels and restaurants, industrial kitchens
- School buildings and sports facilities
- Office, commercial and industrial buildings
- Facilities with partial use, such as barracks, camping sites

SYSTEM/BASIC DIAGRAM



TECHNICAL DATA

Solar circuit pump

- Ambient temperature: +0 °C to +40 °C
- Permissible temperature range*: +2 °C to +110 °C (briefly: 130 °C)
- Static pressure: Max. 1 MPa – 10 bar
- Minimum pressure at suction port:
  - 0.005 MPa (0.05 bar) at 75 °C
  - 0.025 MPa (0.25 bar) at 85 °C
  - 0.055 MPa (0.55 bar) at 95 °C
- Max. relative humidity: ≤ 95%
- Sound pressure level: <33 dB (A)
- Low Voltage Directive (2014/30/EC): Standards applied: EN 62233, EN 60335-1 and EN 60335-2-51
- EMC Directive (2014/35/EC); Standards applied: EN 61000-3-2, EN 61000-3-3, EN 55014-1 and EN 55014-2
- Ecodesign Directive (2009/125/EC); Standards applied: EN 16297-1 and EN 16297-2

Material

- Pump body: Cast iron (CDP-coated (EN-GJL-200))
- Rotor / Impeller: Graphite, Ceramic, Composite plastic PPS, Ferrite, EPDM
- Rotor housing: Composite plastic PA6T
- Bearing: Graphite
- Axial thrust bearing: Ceramic
- Can: Composite plastic

Motor and electronics

- Supply voltage: 1x230 V (+10% / -15%)
- Pump power plug (TacoSmart with installed 1.2 m cable, to be ordered separately)
- Power rating (P1): 2,6 - 51,2 W
- Rated current (I1): Min. 0.03 A, Max. 0.45 A
- Insulation class: H
- Protection rating: IPX4D
- Safety category: II
- Starting current: <9 A

Fluids

- Heating water (VDI 2035; SWKI BT 102-01; ÖNORM H 5195-1)
- Water and proprietary additives used against corrosion and freezing up to 40 %

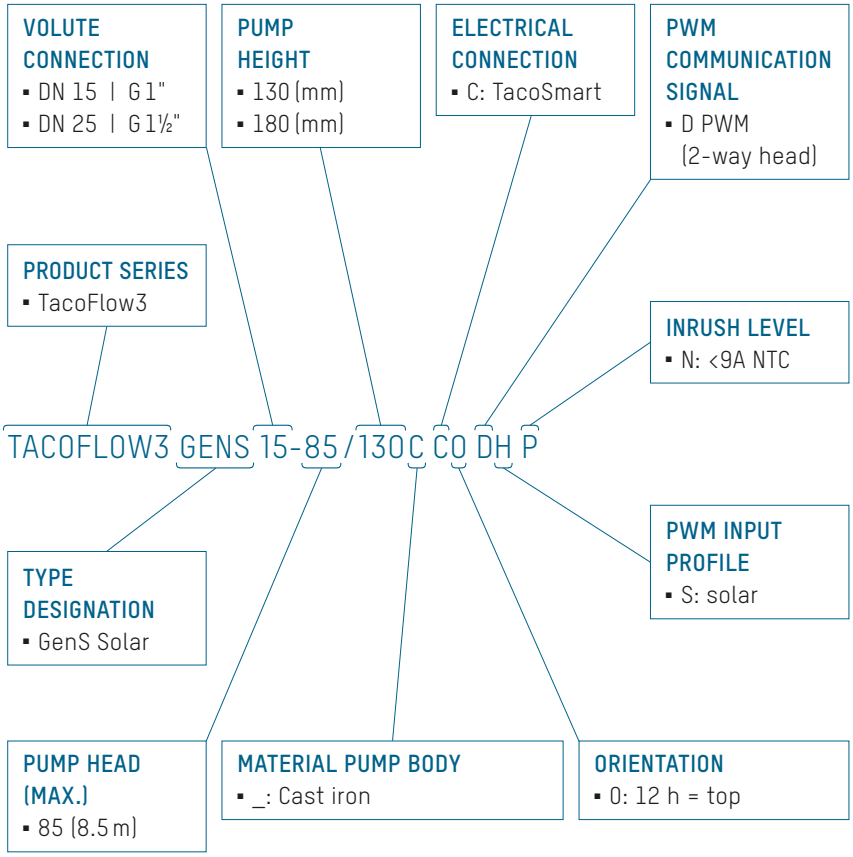
* To prevent condensate in the motor and on the control electronics, the temperature of the pumped medium must always be higher than the ambient temperature.

TYPE OVERVIEW

TacoFlow3 GenS Solar | Solar circuit pumps
High efficiency pump made of cast iron with plug connection.
PWM protocol: Solar
Pump head: 8.5 m

Order no.	Designation	Connec-tion	Centre distance	Weight
303.2255.029	GenS Solar 15-85/130 CO AS N	G 1"	130 mm	1.85 kg
303.4255.029	GenS Solar 25-85/130 CO AS N	G 1 ½"	130 mm	2.00 kg
303.5255.029	GenS Solar 25-85/180 CO AS N	G 1 ½"	180 mm	2.00 kg

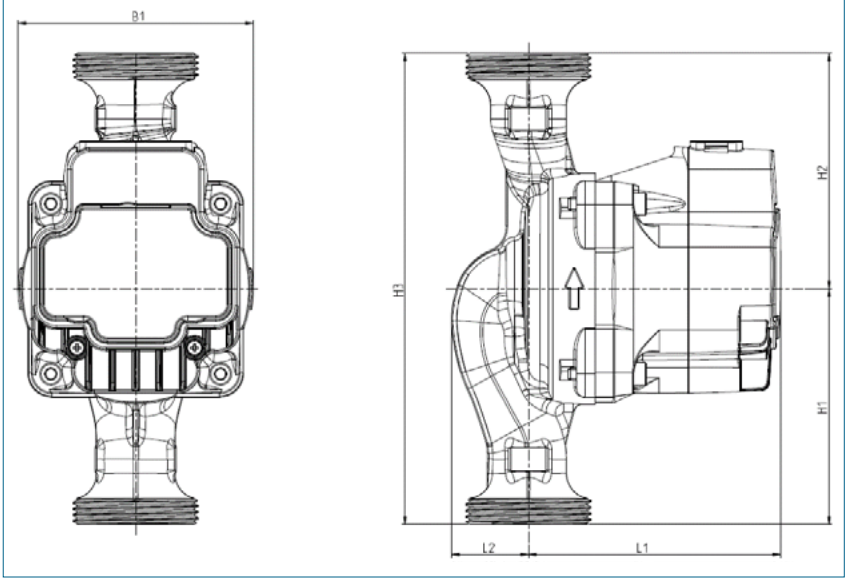
TYPE KEY



ENERGY EFFICIENCY INDEX

EEI ≤ 0,20 - Part 2
Reference value for the most efficient circulation pump is EEI ≤ 0.20

DIMENSIONAL DRAWING

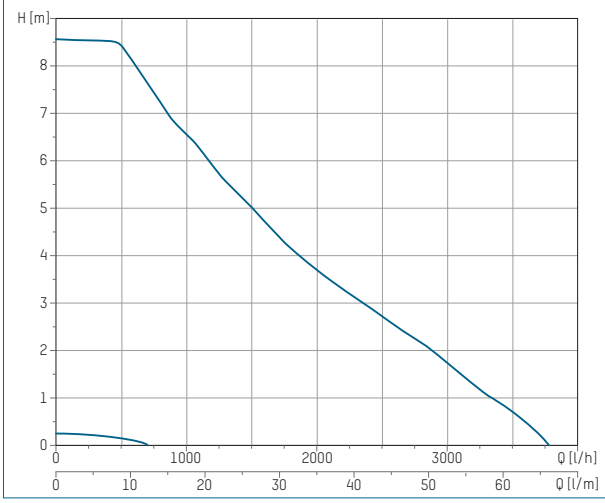


MEASUREMENT TABLE

Order no.	L	L2	B1	H1	H2	H3
303.2255.029						
303.4255.029	98	30	88	65 / 90	65 / 90	130 / 180
303.5255.029						

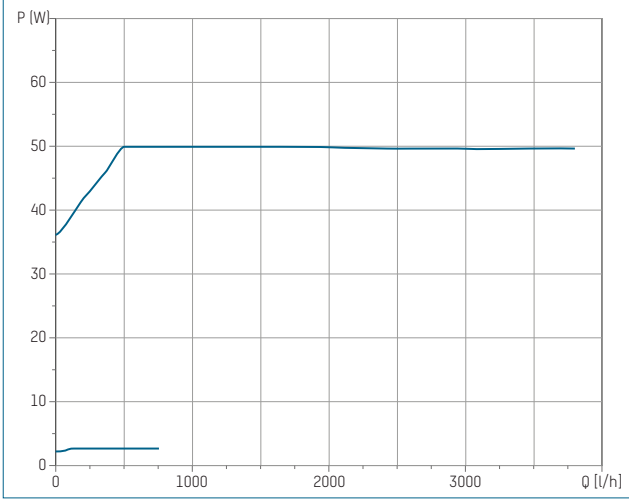
PERFORMANCE CURVES

Pump body: Cast iron



POWER CONSUMPTION CURVES

Pump body: Cast iron



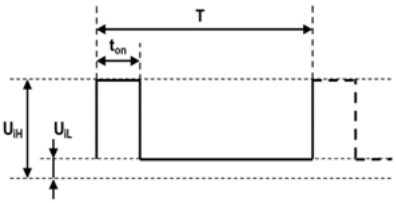
EXPLANATION PWM CONTROL SIGNALS

Control signals

The TacoFlow3 GenS platform can communicate with heat generators (boiler or other devices) via pulse width modulation (PWM).
The pump is controlled by an external controller, but can also send information back to it.

Communication

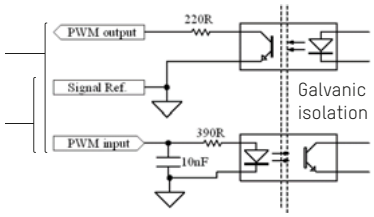
The PWM communication is standardized in accordance with VDMA 24224 «Wet runner circulating pumps - Specification of PWM control signals». Customer-specific versions can also be developed on request.



d= duty cycle [%]
T = period [s]
UIH=Input voltage higher value
UIL=Input voltage lower value

Input protocol

The PWM interface can be 1-way or 2-way and is galvanically isolated to ensure that the user does not come into contact with high voltage.



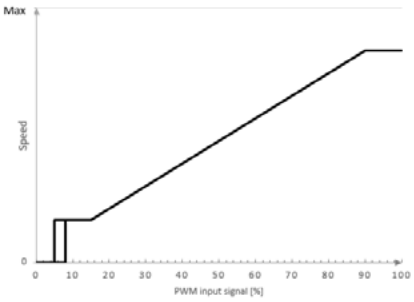
PWM interface electrical specification

PWM input frequency	100 – 4000 Hz
Input Voltage upper value UiH	4 – 24 V
Input Voltage lower value UiL	<1 V
Input current at UiH	<15 mA
PWM input operating range	0-100 %
PWM output frequency	75Hz ±5%
Accuracy of output signal	±2 %
Output duty cycle	0 – 100%
Output transistor collector voltage	<70 V
Output transistor collector current	<25 mA
Power dissipation on output resistor	<250 mW
Insulation voltage	3750 V
Sensible to polarity change	Coded connector

Input protocol according to the VDMA 24224

"Solar" profile
In the "solar" profile in case of cable breakage the circulator stops to avoid overheating of the solar thermal system.

PWM Solar Profile



Pump Status	PWM input signal
Standby mode (Off)	≤5 %
Hysteresis area (On/Off)	>5 ... ≤8 %
Minimum Speed (Min)	>8 ... ≤15 %
Variable Speed (Min-Max)	>15 ... ≤90 %
Maximum Speed (Max)	>90 ... ≤100 %

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