

20/08/2019

#### Qty. | Description

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### TPE 200-150/4 A-F-A-BQQE



Note! Product picture may differ from actual product

Product No.: 97927473

Single-stage, close-coupled, volute pump with in-line suction and discharge ports of identical diameter. The pump is of the top-pull-out design, i.e. the power head (motor, pump head and impeller) can be removed for maintenance or service while the pump housing remains in the pipework.

Pipework connection is via PN 16 DIN flanges (EN 1092-2 and ISO 7005-2).

The pump is fitted with a fan-cooled asynchronous motor.

The motor includes a frequency converter and PI controller in the motor terminal box. This enables continuously variable control of the motor speed, which again enables adaptation of the performance to a given requirement.

# **Further product details**

The pump is suitable for applications where the pressure, temperature, flow rate or another parameter is to be controlled on basis of signals from a sensor at some point in the system.

A control panel enables setting of required setpoint as well as setting of pump to "Min." or "Max." operation or to "Stop". The control panel has indicator lights for "Operation" and "Fault".

Communication with the pump is possible by means of the Grundfos GO Remote (accessory). The remote control enables further settings as well as reading out of a number of parameters such as "Actual value", "Speed", "Power input" and total "Power consumption".

The product's minimum efficiency index (MEI) is greater or equal to 0.70. This is by the Commission Regulation (EU) considered as an indicative benchmark for best-performing water pump available on the market as from 1 January 2013.

### Pump

Pump housing and pump head are electrocoated to improve the corrosion resistance.

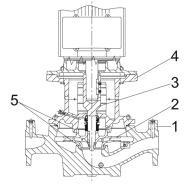
Electrocoating includes:

- 1) Alkaline-based cleaning.
- 2) Pretreatment with zinc phosphate coating.
- 3) Cathodic electrocoating (epoxy).
- 4) Curing of paint film at 200-250 °C.



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- 1: Pump housing
- 2: Impeller
- 3: Stub shaft
- 4: Pump head/motor stool
- 5: Wear rings

The pump housing is provided with a replaceable brass neck ring to reduce the amount of liquid running from the outlet side of the impeller to the inlet side. The impeller is secured to the shaft with a nut.

The pump is fitted with an unbalanced rubber bellows seal with torque transmission across the spring and around the bellows. Due to the bellows, the seal does not wear the shaft, and the axial movement is not prevented by deposits on the shaft.

Primary seal:

- Rotating seal ring material: silicon carbide (SiC)
- Stationary seat material: silicon carbide (SiC)

This material pairing is used where higher corrosion resistance is required. The high hardness of this material pairing offers good resistance against abrasive particles.

Secondary seal material: EPDM (ethylene-propylene rubber)

EPDM has excellent resistance to hot water. EPDM is not suitable for mineral oils.

A circulation of liquid through the duct of the air vent screw ensures lubrication and cooling of the shaft seal. The flanges have tappings for mounting of pressure gauges.

The motor stool forms connection between the pump housing and the motor, and is equipped with a manual air vent screw for venting of the pump housing and the shaft seal chamber. The sealing between motor stool and pump housing is an O-ring.

The central part of the motor stool is provided with guards for protection against the shaft and coupling. The pump shaft is fastened directly on the motor shaft with key and set screws.

### Motor

The motor is a totally enclosed, fan-cooled motor with principal dimensions to IEC and DIN standards. Electrical tolerances comply with IEC 60034.

The motor is flange-mounted with free-hole flange (FF).

Motor-mounting designation in accordance with IEC 60034-7: IM B 5, IM V 1 (Code I) / IM 3001, IM 3011 (Code II).

The motor efficiency is classified as IE3 in accordance with IEC 60034-30-1.

The motor requires no external motor protection. The motor control unit incorporates protection against slow- and quick-rising temperatures, e.g. constant overload and stalled conditions.

TPE 200-150/4 A-F-A-BQQEThe terminal box holds terminals for these connections:

- pump start/stop input (potential-free contact)
- remote setpoint setting via analog signal, 0-10 V, 0(4)-20 mA
- 10 V voltage supply for setpoint potentiometer, Imax = 5 mA
- one analog sensor input, 0-10 V, 0(4)-20 mA
- 24 V voltage supply for sensor, Imax = 40 mA



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- one digital input

- two potential-free fault signal relays with changeover contact, reporting "Fault", "Operation" or "Ready"
- RS-485 GENIbus connection
- interface for Grundfos CIM fieldbus module.

TPE 200-150/4 A-F-A-BQQEThe terminal box holds terminals for these connections:

- pump start/stop input (potential-free contact)
- remote setpoint setting via analog signal, 0-10 V, 0(4)-20 mA
- 10 V voltage supply for setpoint potentiometer, Imax = 5 mA
- one analog sensor input, 0-10 V, 0(4)-20 mA
- 24 V voltage supply for sensor, Imax = 40 mA
- one digital input
- two potential-free fault signal relays with changeover contact, reporting "Fault", "Operation" or "Ready"
- cable for communication between the two power heads
- selector switch for alternating operation and standby operation

Built-in

- RS-485 GENIbus connection
- interface for Grundfos CIU fieldbus module.

# **Technical data**

Controls:	
Frequency converter:	
Liquid	

Liquia:	
Pumped liquid:	Water
Liquid temperature range:	-25 120 °C
Selected liquid temperature:	20 °C
Density at selected liquid temp	perature: 998.2 kg/m <sup>3</sup>

### **Technical:**

Pump speed on which pump da	ta are based: 1470 rpm
Rated flow:	396 m³/h
Rated head:	9.6 m
Actual impeller diameter:	224 mm
Primary shaft seal:	BQQE
Curve tolerance:	ISO9906:2012 3B

### Materials:

Pump housing:	Cast iron
	EN-JL1040

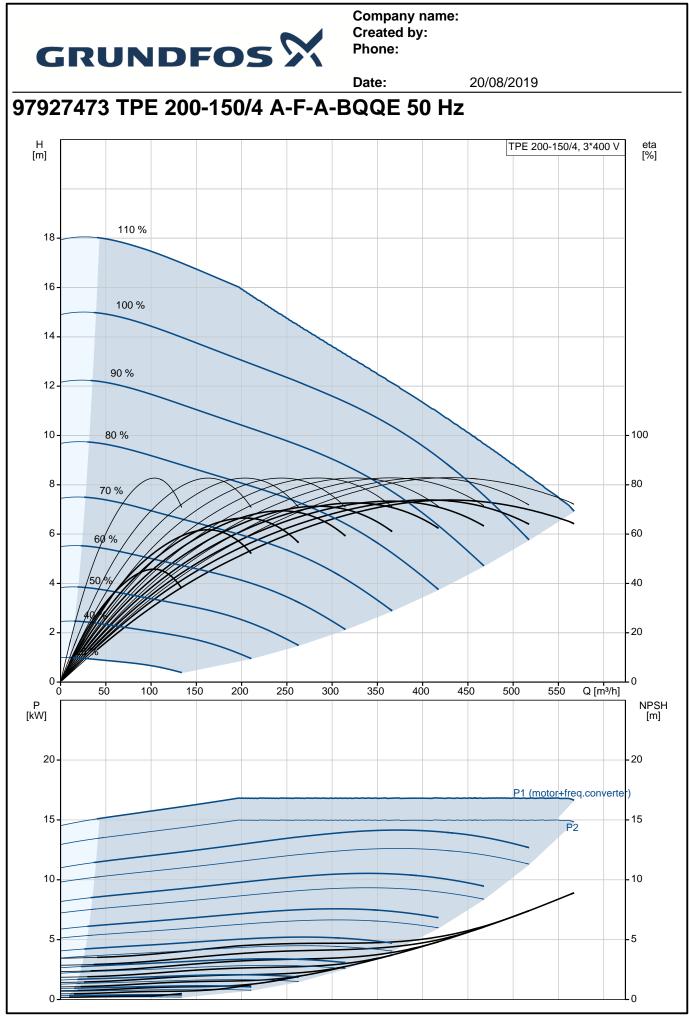
	ASTM A48-40 B
Impeller:	Cast iron
	EN-JL1030
	ASTM A48-30 B

#### Installation: Range of ambient temperature: -20 .. 40 °C

Range of amplent temperature.	-20 40	U
Maximum operating pressure:	16 bar	
Flange standard:	DIN	
Pipe connection:	DN 200	
Pressure rating:	PN 16	
Port-to-port length:	900 mm	
Flange size for motor:	FF300	
Electrical data:		
Motor type:	160LB	
IE Efficiency class:	IE3	
Rated power - P2:	15 kW	
-		



Rated voltage:3 x 380-480 VRated current:30.0-25.4 ACos phi - power factor:0.90-0.85Rated speed:240-1750 rpmEfficiency:IE3 92,1%Motor efficiency at full load:92.1 %Jumber of poles:4Enclosure class (IEC 34-5):IP55Insulation class (IEC 85):FMotor No:86906190			Date:	20/08/2019	
Rated current: $30.0-25.4 \text{ A}$ Cos phi - power factor: $0.90-0.85$ Rated speed: $240-1750 \text{ rpm}$ Efficiency:IE3 92,1%Motor efficiency at full load: $92.1 \%$ Jumber of poles:4Enclosure class (IEC 34-5):IP55Insulation class (IEC 85):FMotor No:86906190Others:EuP Standalone/Prod.Minimum efficiency index, MEI ≥: $0.70$ Err P status:EuP Standalone/Prod.Jet weight: $406 \text{ kg}$ Gross weight: $502 \text{ kg}$ Shipping volume: $1.68 \text{ m}^3$	. Description				
Cos phi - power factor:0.90-0.85Rated speed:240-1750 rpmEfficiency:IE3 92,1%Motor efficiency at full load:92.1 %Number of poles:4Enclosure class (IEC 34-5):IP55Insulation class (IEC 85):FMotor No:86906190Others:Minimum efficiency index, MEI ≥:0.70EuP Standalone/Prod.Iet weight:406 kgGross weight:502 kgShipping volume:1.68 m³	Rated voltage:				
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Motor efficiency at full load:    92.1 %      Number of poles:    4      Enclosure class (IEC 34-5):    IP55      Insulation class (IEC 85):    F      Motor No:    86906190      Others:    Kinimum efficiency index, MEI ≥:      Minimum efficiency index, MEI ≥:    0.70      ErP status:    EuP Standalone/Prod.      Net weight:    406 kg      Gross weight:    502 kg      Shipping volume:    1.68 m³					
Number of poles:    4      Enclosure class (IEC 34-5):    IP55      Insulation class (IEC 85):    F      Motor No:    86906190      Others:    Keiner Status:      Minimum efficiency index, MEI ≥:    0.70      ErP status:    EuP Standalone/Prod.      Net weight:    406 kg      Gross weight:    502 kg      Shipping volume:    1.68 m³	Efficiency:				
Enclosure class (IEC 34-5): IP55 Insulation class (IEC 85): F Motor No: 86906190 <b>Others:</b> Minimum efficiency index, MEI ≥: 0.70 ErP status: EuP Standalone/Prod. Net weight: 406 kg Gross weight: 502 kg Shipping volume: 1.68 m <sup>3</sup>	Motor efficiency at full load:				
Insulation class (IEC 85):    F      Motor No:    86906190      Others:    Inimum efficiency index, MEI ≥: 0.70      FrP status:    EuP Standalone/Prod.      Net weight:    406 kg      Gross weight:    502 kg      Shipping volume:    1.68 m³					
Motor No:  86906190    Others:					
Others:      Minimum efficiency index, MEI ≥: 0.70      SrP status:    EuP Standalone/Prod.      Vet weight:    406 kg      Gross weight:    502 kg      Shipping volume:    1.68 m³					
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ErP status:EuP Standalone/Prod.Jet weight:406 kgGross weight:502 kgShipping volume:1.68 m³	Others:				
let weight:406 kgGross weight:502 kgShipping volume:1.68 m³					
Gross weight: 502 kg Shipping volume: 1.68 m <sup>3</sup>					
Shipping volume: 1.68 m <sup>3</sup>					
Janish VVS No.: 382039150	Snipping volume:				
	Danish VVS No.:	382039150			



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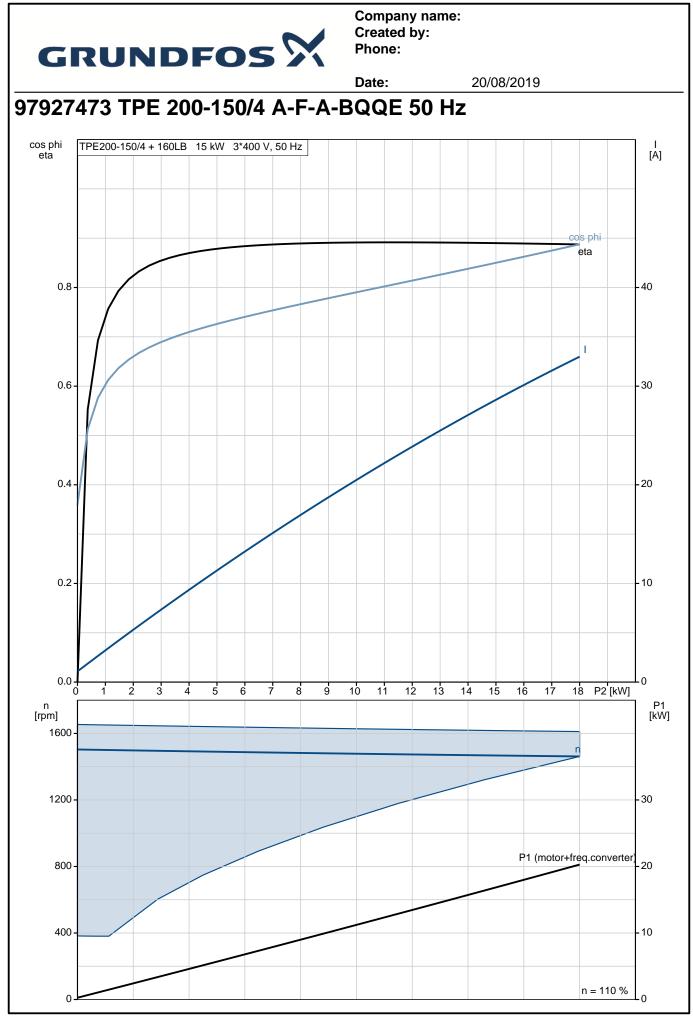


		Date:	20/08/2019
Description	Value	H [m]	TPE 200-150/4, 3*400 V eta [%]
General information:	Falue		
Product name:	TPE 200-150/4 A-F-A-BQQE	18 110 %	6
Product No:	97927473		
EAN number:	5710626550111	16 - 100 %	6
	5710626550111	14 -	
Technical:		90 %	
Pump speed on which pump data are	1470 rpm	12-	
based:	1470 rpm	10 - 80 %	
Rated flow:	396 m³/h	10- 80 %	100
Rated head:	9.6 m	8- 70 %	-80
Head max:	150 dm		
Actual impeller diameter:	224 mm	6-60%	60
Primary shaft seal:	BQQE		
Curve tolerance:	ISO9906:2012 3B	4 - 1907	40
Pump version:	A	2-	-20
Model:	A	5/0	
Materials:		0	200 300 400 500 Q [m³/h]
Pump housing:	Cast iron	P 100	200 300 400 500 Q [m³/h]
	EN-JL1040	P [kW]	[m]
	ASTM A48-40 B	20 -	
Impeller:	Cast iron		P1 (motor+freq.converter)
	EN-JL1030	15 -	P2 15
Matarial anda	ASTM A48-30 B		
Material code:	A	10-	
Installation:	-20 40 °C		
Range of ambient temperature:	-20 40 C	5-	-5
Maximum operating pressure: Flange standard:	DIN		
Pipe connection:	DN 200		0
Pressure rating:	PN 16		
Port-to-port length:	900 mm	308	314
Flange size for motor:	FF300		
Connect code:	F		
Liquid:	•		
Pumped liquid:	Water		
Liquid temperature range:	-25 120 °C		
Selected liquid temperature:	20 °C	200	
Density at selected liquid temperature:	998.2 kg/m <sup>3</sup>	283 363	
Electrical data:	-		
Motor type:	160LB		
IE Efficiency class:	IE3	₩	
Rated power - P2:	15 kW		
Mains frequency:	50 Hz	Ŧ	220 287 5 x Ø18
Rated voltage:	3 x 380-480 V		
Rated current:	30.0-25.4 A		
Cos phi - power factor:	0.90-0.85		
Rated speed:	240-1750 rpm		
Efficiency:	IE3 92,1%		
Motor efficiency at full load:	92.1 %		
Number of poles:	4		
Enclosure class (IEC 34-5):	IP55		
Insulation class (IEC 85):	F		]
Motor protec:	YES		: Digital input GND (frame) +24 V
Motor No:	86906190		Sensor input
Controls:			
Control panel:	Standard		: GND (frame) - +10 V
Function Module:	PUMP I/O		: Setpoint input : cND (rtame) :: Start/stop
Frequency converter:	Built-in		J

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		Date:	20/08/2019
Description	Value		
Others:		_	
Minimum efficiency index, MEI ≥:	0.70		
ErP status:	EuP Standalone/Prod.		
Net weight:	406 kg		
Gross weight:	502 kg		
Shipping volume:	1.68 m³		
Config. file no:	97912865		
Danish VVS No.:	382039150		



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