SOLID FUEL PRODUCTS

LOAD UNIT
SERIES LTC300

The ESBE load unit series LTC300 is used to automatically and efficiently load storage tanks and protect solid fuel boilers from too low return temperatures, which otherwise could cause tarring, reduced output and shorter life span of the boiler. The load unit is developed according to the European Directive 2009/125/EC regarding Eco-design of Energy Related Products.

Internal thread

ErP READY 2015
Applies to European directive for energy related products.

OPERATION
The ESBE series LTC300 is a load unit designed to protect the boiler from return temperatures that are too low. Maintaining a high and stable return temperature enables a higher level of boiler efficiency, reduced tarring and increased life span of the boiler.

The LTC300 is used in heating applications where solid fuel boilers are used to feed storage tanks.

FUNCTION
The load unit consists of an integrated pump and a thermic valve, designed to make both assembly and operation easy.

The pump speed is adjustable, enabling the pump speed to be set correctly for the system and optimizing the loading of the storage tank.

The load unit is protected by an insulation shell and is fitted with easily readable thermometers.

The valve regulates on two ports, which makes it easy to install and does not require any balancing valve in the by-pass pipe.

The LTC300 has an integrated auto-circulation function which makes the unit operational even during power failure or pump failure. The circulation function is blocked at delivery, but can easily be activated if required.

An integrated venting function is included in the LTC300. By alternating for 10 minutes, between low and high speed of the pump, any residual air is pushed out of the load unit and can be vented from the system. After the routine is run, the pump automatically switches to the pre-set speed.

The valve contains a thermostat which begins to open connection A when the outgoing mixed water temperature in connection AB exceeds the lower end of the regulating range. Connection B is fully closed when the temperature in connection A exceeds the nominal temperature with 5°C.

MOUNTING
The pump is equipped with a power supply cable of 3,0 meters.

MEDIA
Maximum 50% glycol for freezing protection and oxygen absorbing compounds are allowed as additives. As both the viscosity and the thermal conduction are affected when glycol is added to the system water, this fact has to be considered when dimensioning the unit.

LOAD UNIT LTC300 DESIGNED FOR
● Heating

TECHNICAL DATA
Pressure class: _____ PN 6
Temperature of medium: _____ max. 110°C
_____ min. 0°C
Ambient temperature: _____ max. 60°C
_____ min. 0°C
Leakrate A - AB: _____ max. 0,5% of max. flow (Q_{max})
Leakrate B - AB: _____ max. 3% of max. flow (Q_{max})
Rangeability Kv/Kv^{min}: _____ 100
Supply voltage: _____ 230 ± 10% VAC, 50 Hz
Max. power consumption - LTC341: _____ 20 W
                                        - LTC361: _____ 43 W
                                        - LTC381: _____ 80 W
Energy classification: _____ A
EEI (Energy Efficiency Index), circulation pump: _____ ≤0,20
Power supply cable: _____ 3,0 m
Connections: _____ Internal thread (G), ISO 228/1
Media: _____ Heating water (in accordance with VDI2035)
_____ Water / Glycol mixtures, max. 50%
_____ Water / Ethanol mixtures, max. 28%
Material
Valve body: _____ Nodular iron EN-JS 1050

CE
LVD 2014/35/EU
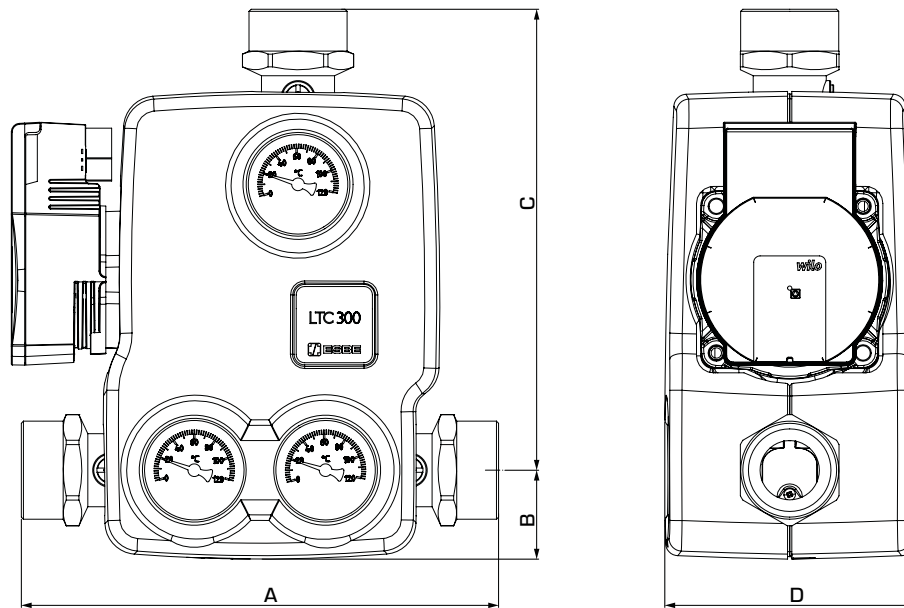EMC 2014/30/EU
RoHS3 2015/863/EU
ErP 2009/125/EU

UKCA
SI 2016 No. 1101
SI 2016 No. 1091
SI 2012 No. 3032
SI 2010 No. 2617

PED 2014/68/EU, article 4.3 / SI 2016 No. 1105 (UK)

FLOW PATTERN

LOAD UNIT
SERIES LTC300

SERIES LTC341 Internal thread with electronic 4 m pump

Art. No.	Reference	DN	Connection Adapter	Power* [kW]	(max. Δt)	Opening temperature	A	B	C	D	Weight [kg]
55005300				60	35	55°C ± 5°C					
55005400	LTC341	25	G 1"	50	30	60°C ± 5°C	213	42	212	118	4,4
55005500				45	25	65°C ± 5°C					

SERIES LTC361 Internal thread with electronic 6 m pump

Art. No.	Reference	DN	Connection Adapter	Power* [kW]	(max. Δt)	Opening temperature	A	B	C	D	Weight [kg]
55006000				90	35	55°C ± 5°C					
55006100	LTC361	25	G 1"	80	30	60°C ± 5°C	213	42	212	118	4,4
55006200				65	25	65°C ± 5°C					
55006300				50	20	70°C ± 5°C					
55006400				90	35	55°C ± 5°C					
55006500	LTC361	32	G 1¼"	80	30	60°C ± 5°C	227	42	219	118	4,6
55006600				65	25	65°C ± 5°C					
55006700				50	20	70°C ± 5°C					

SERIES LTC381 Internal thread with electronic 8 m pump

Art. No.	Reference	DN	Connection Adapter	Power* [kW]	(max. Δt)	Opening temperature	A	B	C	D	Weight [kg]
55006800				110	35	55°C ± 5°C					
55006900	LTC381	40	G 1 ½"	95	30	60°C ± 5°C	225	42	218	118	4,6
55005200				80	25	65°C ± 5°C					

* The following recommendations apply only for this product.
  For the overall system requirements, restrictions in the possible power output can occur, (available Δp = 15 kPa).
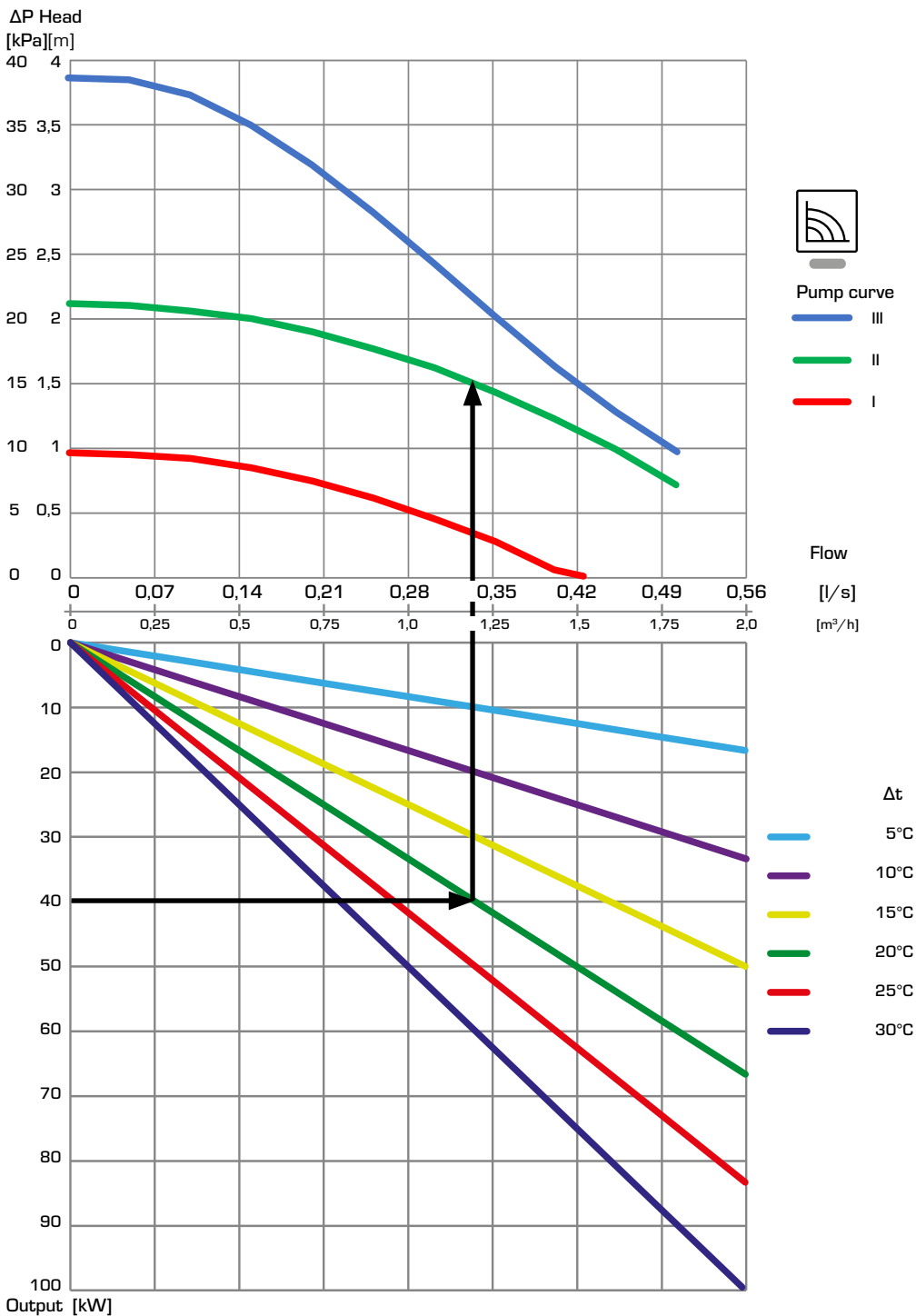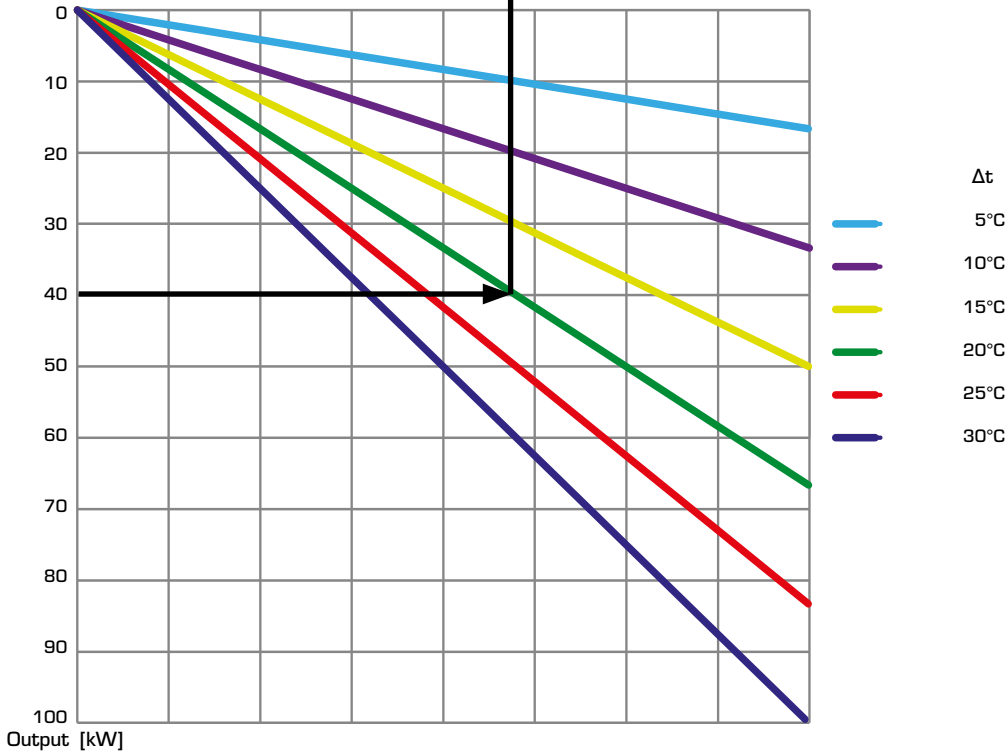
LOAD UNIT
SERIES LTC300

DIMENSIONING

Example: Start with the heat output of the boiler (e.g. 40 kW) and move horizontally to the right in the diagram to the chosen Δt (recommended by boiler supplier), which is the temperature difference between the riser from the boiler and the return to the boiler (e.g. 85°C -65°C = 20°C).

Move vertically up to the curves representing load unit performance. Check that the pump curve overcomes the additional pressure drops in system components such as pipes, boiler and storage tank.

LTC341 – available pressure of the pump, constant speed

ΔP Head [kPa][m]

Pump curve
III
II
I

Flow [l/s] [m³/h]

Δt
5°C
10°C
15°C
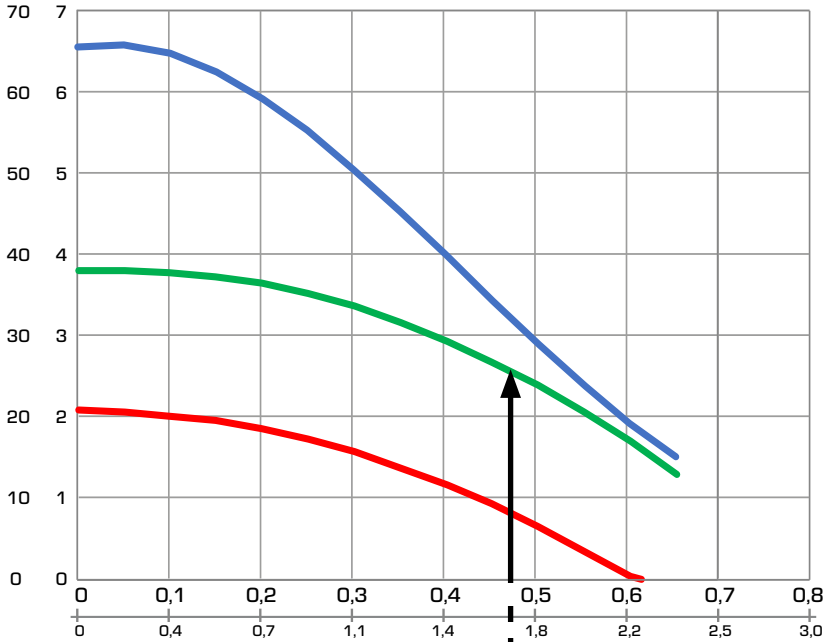20°C
25°C
30°C

Output [kW]

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LTC361 – available pressure of the pump, constant speed

ΔP Head [kPa][m]

Flow [l/s] [m³/h]

Pump curve
- III
- II
- I

Δt
- 5°C
- 10°C
- 15°C
- 20°C
- 25°C
- 30°C

Output [kW]

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SERIES LTC300

DIMENSIONING

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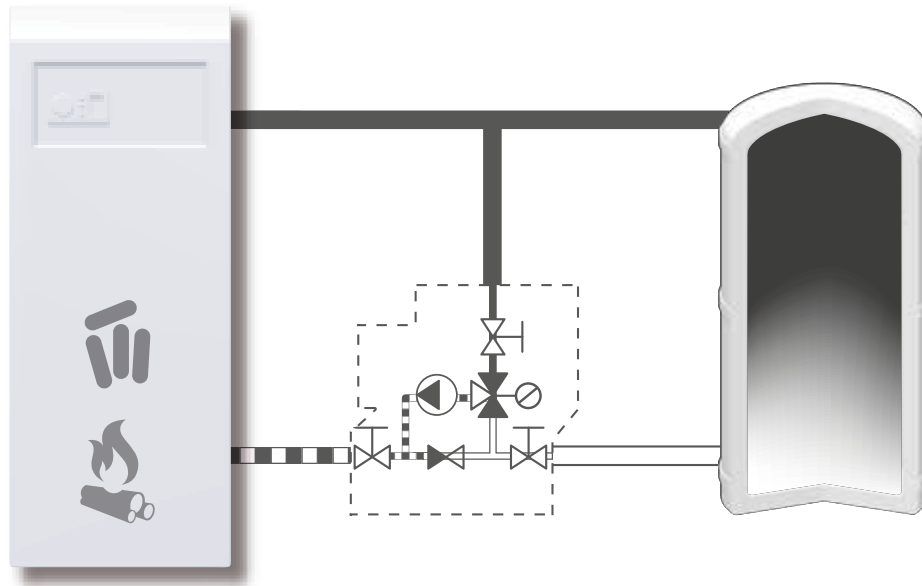
Move vertically up to the curves representing load unit performance. Check that the pump curve overcomes the additional pressure drops in system components such as pipes, boiler and storage tank.

LTC381 – available pressure of the pump, constant speed

Pump curve
— III
— II
— I

Δt
— 5°C
— 10°C
— 15°C
— 20°C
— 25°C
— 30°C

LOAD UNIT
SERIES LTC300
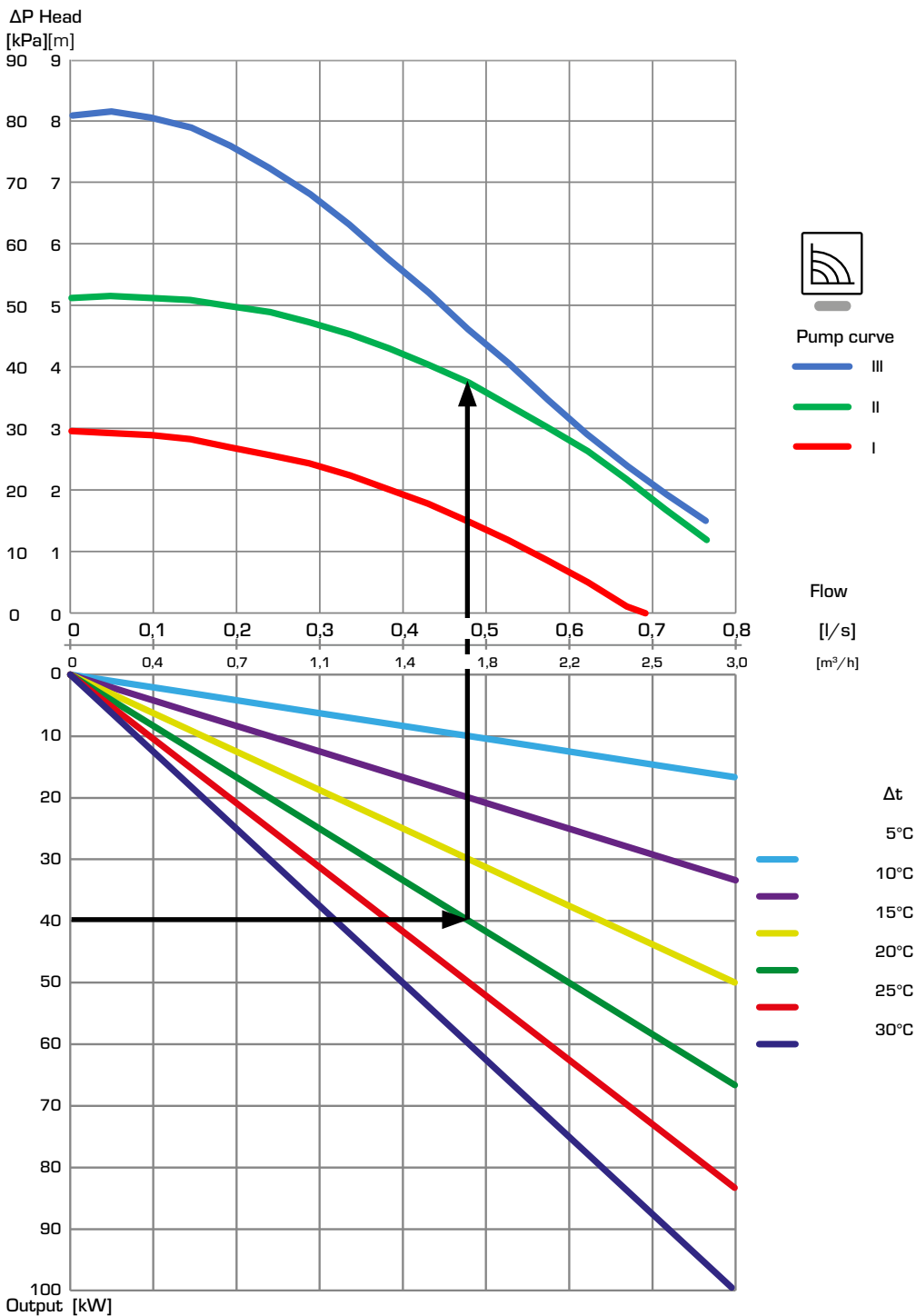
ESBE SERIES LTC300 • en • D

INSTALLATION EXAMPLE

SERVICE AND MAINTENANCE

The load unit is equipped with shut off ball valves to facilitate future service.

The load unit does not need any maintenance under normal conditions. However thermostats are available and are easy to replace if necessary.

OPTIONS

Thermostat 55°C_____ Art. No. 57020200
Thermostat 60°C_____ Art. No. 57020300
Thermostat 65°C_____ Art. No. 57020800
Thermostat 70°C_____ Art. No. 57020400