condensate pumps

Condensate boiler technology

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Condensate pumps in condensing boiler technology

Condensation is the transition of a substance from a gaseous form to a liquid aggregate state. Condensate forms as a result of this. This process occurs under certain pressure and temperature conditions, which are called the condensation point. The higher the hydrogen content of a fuel, the higher the amount of water vapour that is contained in the exhaust gas after combustion of the fuel.

During the combustion of, for example, methane, a molecule produces approximately twice the mass of water (steam). The conversion of C to CO_2 and H to H_2O releases energy. The main water quantity is produced by the oxidation of the fuel's hydrogen atoms.

This is the reason why the water vapour dew point in flue gas is about 59°C during the combustion of natural gas and when burning fuel oil at approx. 48°C.

If this process does not happen naturally, it is the task of condensate pumps to use gravity by raising the condensate above a certain height and pumping it into another remote sequence.
Eckerle pumps are fully-automated and controlled using internal sensor technology.

swiss drive inside

Condensate pump for high discharge heads

Usage

Sophisticated condensate extraction system without neutralisation for gas condensing boilers.

Description

- Reduced noise piston pump with high discharge head (up to 10 m / 32 ft)
- Electronic controls with follow-up time to reduce switching frequency
- Low voltage minimises contact wear to the working and alarm float switches
- Normally open contact (up to 8 A resistive load)
- Integrated suction filter and unidirectional valve

For gas condensing systems up to 50 kW

Technical Data:

Dimensions (L x W x H)	244 x 174 x 144 mm
Electrical spec.	230 V / 50 Hz, 40 W
Alarm switch	max. 230V, 8A (NO/NC) ohmic load (potential free) NO normally open NC normally closed
Max. flow rate	14 l/h
Max. delivery height	10 m
Tank capacity	1,6 l
Pressure hose – Ø	6 x 1,5 mm
Infeed height	83 mm
Weight	1,6 kg

swiss drive inside

Condensate Pump w. neutralisation system

Usage

Sophisticated condensate extraction system with neutralisation. Particularly suited to small systems up to 25 kW (extensible for systems up to 100 kW with additional tank NB50).

Description

- Reduced noise piston pump with high discharge head (up to 10 m / 32 ft)
- Electronic controls with follow-up time to reduce switching frequency
- Low voltage minimises contact wear to the working and alarm float switches
- Normally open contact (up to 8 A resistive load)
- Integrated suction filter and unidirectional valve

With carbon kit (order no. 23014) also suitable to use with oil fired condensing boilers.

For gas condensing systems up to 100 kW

Technical Data:

Dimensions (L x W x H)	244 x 174 x 261 mm
Electrical spec.	230 V / 50 Hz, 40 W
Alarm switch	max. 230V, 8A (NO/NC) ohmic load (potential free) NO normally open NC normally closed
Max. flow rate	14 l/h
Max. delivery height	10 m
Tank capacity	6 l
Pressure hose – Ø	6 x 1,5 mm
Neutralisation	up to 25 kW
Infeed height	200 mm
Weight	2,7 kg (with granular material)

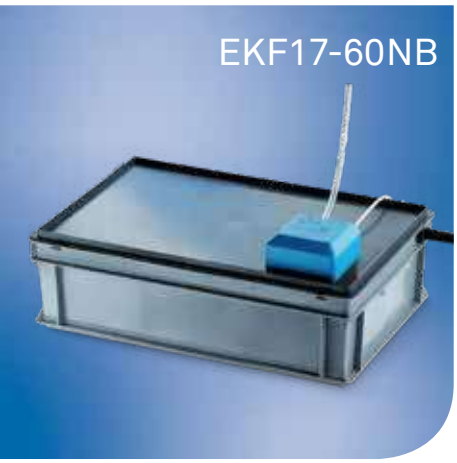
Eckerle offers you two pump principles

1. Electromagnetic pump

If you want to achieve high discharge heads, then choose our tank pumps EKF15T, EKF15-25NB and EKF17-60NB.
The Teflon-cone valves used reliably seal and are also dirt resistant during prolonged operation.
In addition, the material is very stable against acid condensate.

2. Centrifugal pump

Our tank pumps EE300, EE400M and EE400 M Premium are equipped with this robust pump technology. Main features of the volumetrically wide-open positive displacement principle includes its high displacement volumes and dirt resistance. Special encapsulated versions with a higher protection rating – like the EE400M / EE400M Premium – can be operated in harsh environments with high humidity levels and with media that is far from the PH neutral range.



swiss drive inside

Condensate Pump w. neutralisation system

Usage

The EKF17-60 NB pumping system is suitable for neutralising condensate in gas condensing boilers. The system is designed for boilers up to 600 kW.

Description

- Reliable and powerful
- Cost-effective full system
- Tank optionally available without pump as neutralisation system
- Easy to maintain
- Granular material and PH testing strips included

Also suitable for use with oil condensing boilers with extension set (order no. 23015).

For gas condensing systems up to 600 kW

Technical Data:

Dimensions (L x W x H)	655 x 400 x 245 mm
Electrical spec.	230 V / 50 Hz, 45 W
Alarm switch	max. 230V, 8A (NO/NC) ohmic load (potential free) NO normally open NC normally closed
Max. flow rate	120 l/h
Max. delivery height	15 m
Tank capacity	47 l
Pressure hose – Ø	8 x 2 mm
Neutralisation	up to 600 kW
Infeed height	175 mm
Weight	31 kg (with granular material)

Neutralisation system

Usage

The NB600 continuous neutralisation system was developed for gas-powered condensing devices with higher heating capacity.

Description

The neutralisation limit of the 5-chamber NB600 system equates to a burner output of 600 kW. It features simple assembly and low maintenance requirements.

An optimised neutralisation result is achieved at a pH value of 6.5.

For gas condensing systems up to 600 kW

Technical Data:

Necessary granule filling (Applies also to EKF 17-60NB)	600 kW ~ 10 kg 400 kW ~ 7 kg 200 kW ~ 4 kg
Dimensions (L x W x H)	655 x 400 x 185 mm
Infeed height	150 mm
Outlet height	80 mm

EE300

Condensate pump w/o neutralisation

Usage

The Eckerle EE300 condensate pump is designed for extracting condensation from air conditioning systems, commercial refrigeration cases, dehumidifiers and flue condensing furnaces, water heaters and boilers. The case is made from ABS plastic and is therefore chemically resistant to acidic condensate. (≥PH3)

Description

- Silent running centrifugal with 1.5 m power cord
- Check valve to prevent back-flow of liquid into the unit
- Compact size
- Attractive design
- Overflow safety alarm switch (only EE300)

For gas condensing systems up to 300 kW

Technical Data:

Dimensions (L x W x H)	200 x 105 x 160 mm
Electrical data	230V, 50/60 Hz, 65 W
Alarm switch	max. 230V, 3A (NO/NC) ohmic load (potential free) NO normally open NC normally closed
Max. flow rate	200 l/h
Max. delivery height	4 m
Tank capacity	max. 1 l
Pressure hose – Ø	8 x 2 mm
Infeed height	77 mm
Weight	1,6 kg

EE400M

with tank

Condensate pump w/o neutralisation

Usage

The Eckerle EE400M condensate pump is designed for extracting condensation from air conditioning systems, commercial refrigeration cases, dehumidifiers and flue condensing furnaces, water heaters and boilers.
The case is made from ABS plastic and is therefore chemically resistant to acidic condensate. (≥PH3)

Description

- Extremely quiet and vibration free
- Pump encapsulated and fluid-cooled
- Protection class IP 55 (resistant to water jets)
- Max. medium temperature 70° C / 158° F
- Compact, space-saving construction
- High quality plastic pump housing, incl. wall bracket
- Overflow protection via separate float control with cable connection
- Integrated check valve

Pump unit can be used in an external pan as well.
Pan height: min. 62 mm, max. 70 mm

For gas condensing systems up to 400 kW

Technical Data:

Dimensions (L x W x H)	185 x 85 x 100 mm
Electrical spec.	230 V, 50 / 60 Hz, 65 W
Alarm switch	max. 230V, 8A (NO/NC) ohmic load (potential free) NO normally open NC normally closed
Max. flow rate	350 l/h
Max. delivery height	4 m
Tank capacity	max. 0,5 l
Pressure hose – Ø	8 x 2 mm
Infeed height	83 mm
Weight	1,3 kg
Operating points*	Alarm: max. 55 mm Start: 52 ± 1 mm Stop: 24 ± 1 mm

EE400M Premium

With OPTAK fault detector

Condensate Pump w/o neutralisation

Usage

The Eckerle EE400M condensate pump is designed for extracting condensation from air conditioning systems, commercial refrigeration cases, dehumidifiers and flue condensing furnaces, water heaters and boilers.
The case is made from ABS plastic and is therefore chemically resistant to acidic condensate. (≥PH3)

Description

Design as for EE400M – additonally includes:

- Separate overflow protection with special “OPTAK” fault sensor with LED and audible alarm
- including 6 m PVC hose (8 x 2 mm)

Benefit: Savings on material and assembly costs as no additional electrical installation required.

For gas condensing systems up to 400 kW

Technical Data:

Dimensions (L x W x H)	185 x 85 x 100 mm
Electrical spec.	230 V, 50 / 60 Hz, 65 W
Max. flow rate	350 l/h
Max. delivery height.	4 m
Tank capacity	max. 0,5 l
Pressure hose – Ø	8 x 2 mm
Infeed height	83 mm
Weight	1,6 kg
Operating points*	Alarm: max. 55 mm Start: 52 ± 1 mm Stop: 24 ± 1 mm
EE400M Premium	Safety device visual and acoustical alarm

*Measurements from mounting surface

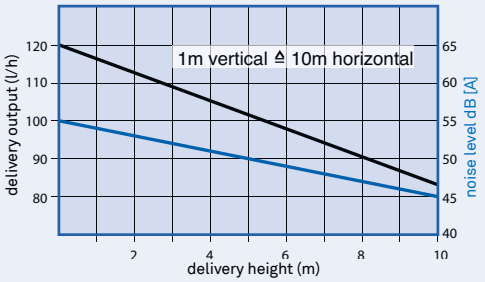
Performance Diagrams

EE300

EKF15-25NB / EKF 15T

EE400M

EKF17-60NB



	Accessories	Order number
	Activated carbon kit for oil fired condensing boilers EKF15-25NB and NB50	23014
	Activated carbon kit for oil fired condensing boilers EKF17-60NB and NB600	23015
	PVC hose for EKF15T and EKF15-25NB, 50 m-roll, inner Ø 6 mm x 1.5 mm	22150
	PVC pipe for EE300, EE400M and EKF17-60NB, 50 m-roll, inner Ø 8 mm x 2 mm	0505050024
	NB50 Neutralisation box with granular filling (50kW neutralisation capacity), Expanding neutralisation capacity of EKF15-25NB up to 100kW	13002
	Check valve for EE300	22213
	Check valve for EE400^{M}	22214
	Service kit for EKF15-25NB (2kg neutralisation granules, fine filter and grid)	23012
	Service kit for EKF17-60NB (25 kg neutralisation granules, fine filter and 2 grids)	23013
	PH test strips for EKF15-25NB and EKF17-60NB	23004
	Straight pipe connection Ø 6 mm	1948050002
	Straight pipe connection Ø 8 mm	1948050010
	Alarm contact: visual and audible signal OPTAK for all pumps with alarm output	9002002204

All data shown are for informational purposes only and have no commercial engagement value.
Subject to technical changes.

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