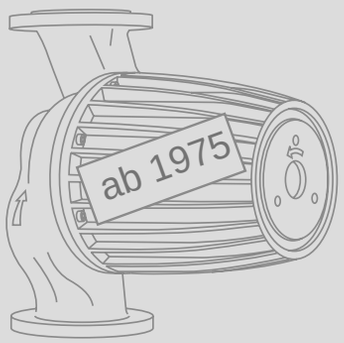

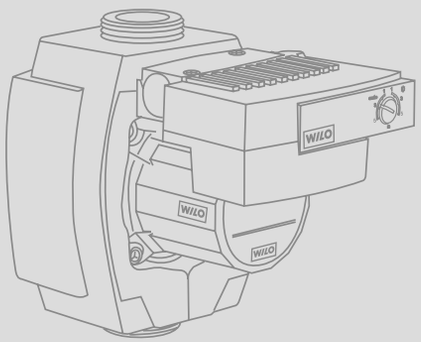

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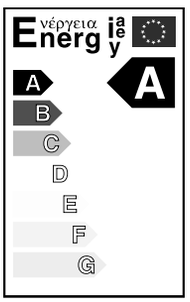

The Wilo-Stratos-ECO is the world's first high-efficiency pump. And it is the reference for the energy label. Allowing power savings of up to 80 %*, it set the standard for the energy efficiency class A as early as in 2001. The Wilo-Stratos ECO offers this state-of-the-art technology now also for one- and two-family homes.
Ingenious? We call it Pumpen Intelligenz.

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Wilo Replacement Guide Heating

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Wilo Replacement Guide Heating

Notes

The quick selection of a new Wilo pump is guaranteed by:
- the make overview for the replacement of circulating pumps, sorted by single-head and twin-head pumps for heating as well as secondary hot water circulating pumps
- detailed explanations and notes for the installation in the Technical Appendix (fault reasons, EnEV etc.)

Optimisation
- Replacing a pump always offers the opportunity to adapt and re-determine the pump performance in consideration of the modifications which have been done at and in the building.
- High-efficiency pumps or energy-saving pumps can avoid noise disturbances which may occur due to installed thermostatic valves and therefore increasing pump pressure when valves are closing.
- Low heat demand thanks to heat insulation of the building. The formerly high pump performance is not needed any longer. Experience shows that smaller pumps are fully sufficient and even reduce power consumption.
- Profit from the simplified new determination of the pump performance. It is described in the "System optimisation" chapter.

Note:
The German Energy Saving Ordinance
- (EnEV § 12, Paragraph 3) demand that heating installations from 25 kW central heating capacity onwards always a pump with capacity control, both in old installations and in new buildings (single-head and twin-head pumps).
- This basically requires that all flanged pumps are equipped with a pump capacity control.
- With the high-efficiency pumps and the energy-saving pumps, Wilo offers the ideal concept to meet this requirement.
- The compact design with integrated control directly at the pump makes additional switchgears unnecessary.

Energy efficiency classes
- Europe's leading heating pump manufacturers have committed themselves to a uniform labelling of the energy consumption.
- The labelling is identical with the one on refrigerators and other household appliances.
- As early as in 2001 we set the standard for the energy efficiency class A by introducing the Wilo-Stratos.
- The Wilo-Stratos and Wilo-Stratos ECO are labelled with the energy efficiency class A and reach power savings of up to 80 % compared with uncontrolled heating pumps!

Selection criteria
- This replacement guide includes pump types from construction year 1975 onwards.

Wilo always offers 3 solutions for heating pumps:
- High-efficiency pump (infinitely variable), energy efficiency class: A
- Energy-saving pump (infinitely variable)
- Standard pump (3 or 4 stages)
- The technical selection criteria of the old pump are:
- The installation length/nominal width of the Wilo pump corresponds if possible to the dimensions of the pump to be replaced.
- When replacing flanged pumps up to a nominal width of DN 65 , the dimensions of the counterflanges have to checked (different flange sizes between versions PN 6 and PN 10). Combination flanges PN 6/10 must not be connected to other combination flanges.
- In the event that the installation length of the Wilo pump is shorter than that of the pump to be replaced, adapters and flange adapters are available to compensate the length. Possibly the motor with the terminal box needs to turned by 90°.
- The hydraulic flow rate of the Wilo pump (max. curve) is if possible, equal to the flow rate in the back area of the pump curve.

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Energy efficiency classes

EEI Classification

In line with the Kyoto protocol the European governments in particular aim at considerably reducing CO_2 emissions. An essential requirement is the energy labelling of particular energy-relevant household appliances like washing machines and refrigerators, in order to make it easier for the end user to decide in favour of energy-saving appliances.
As heating circulating pumps have a long lifetime and therefore are one of the biggest power consumers in households, Europe's leading heating pump manufacturers have committed themselves on a voluntary basis to label heating pumps with an energy label, too. Thus users and end consumers are able to determine by means of a known classification system whether a heating circulating pump is particular energy-efficient.
The energy efficiency of heating pumps is classified by means of a metrological method which delivers the energy efficiency index, the EEI. The smaller the EEI, the less electrical energy the pumps consumes and the better is the energy classification.

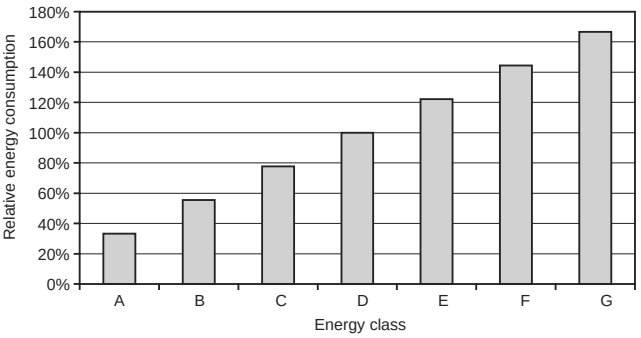

Fig.: Comparison of the energy consumption of pumps with identical hydraulic output

Energy class	Energy efficiency index
A	EEI < 0.4
B	0.4 EEI < 0.6
C	0.6 EEI < 0.8
D	0.8 EEI < 1.0
S	1.0 EEI < 1.2
F	1.2 EEI < 1.4
C	1.4 EEI

Tab.: Classification of the energy efficiency index in 7 different energy efficiency classes

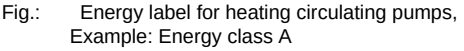

Fig.: Energy label for heating circulating pumps, Example: Energy class A

The following tables show the energy classes for all heating pumps which have to be labelled; the energy classes can be seen from the energy label on the packaging. Just like on household appliances, the letter A is the best and G is the worst energy class.
When comparing hydraulically similar pumps with different energy classes, you can see that there is a difference of approx. 22 per cent points in the energy demand between two neighbouring energy classes. A pump with energy class A therefore demands on average only 33% of the electrical energy which a pump of class D needs.
Although the energetic requirements on a pump of class A are very high, the complete application range from one-family homes to large buildings can be covered by high-efficiency pumps of energy efficiency class A.

Energy efficiency classes

EEI-Classification – Single-head pumps/Twin-head pumps (Field of application: one/two-family house)

Nominal dia.	Wilo-Stratos ECO...	EEI-Class	Wilo-Star-E... (EasyStar)	EEI-Class	Wilo-Star-RS... (ClassicStar)	EEI-Class	Wilo-Star-RSD... (ClassicStar)	EEI-Class
DN 15 (Rp ½)	–	–	15/1-3	–	15/4	B	–	–
	–	–	15/1-5	–	15/6	C	–	–
DN 25 (Rp 1)	25/1-3	A	25/1-3	B	25/2	C	–	–
	25/1-5	A	25/1-5	B	25/4	B	–	–
	–	–	–	–	25/6	C	–	–
DN 30 (Rp 1¼)	30/1-3	A	30/1-3	B	30/2	C	30/4	D
	30/1-5	A	30/1-5	B	30/4	B	30/6	D

EEI-Classification – Single-head pumps (Fields of application: multi-family homes, commercial applications)

Nominal dia.	Wilo-Stratos...	EEI-Class	Wilo-TOP-E...	EEI-Class	Wilo-TOP-S...	EEI-Class	Wilo-RP/P...	EEI-Class
DN 25 (Rp 1)	25/1-6	A	25/1-7	C	25/5 EM/DM	D/D	RP 25/80 r EM/DM	G/F
	25/1-8	A	–	–	25/7 EM/DM	D/D	RP 25/100 r EM/DM	F/E
	–	–	–	–	25/10 EM/DM	D/D	–	–
DN 30 (Rp 1¼)	30/1-6	A	30/1-7	C	30/4 EM/DM	D/D	RP 30/80 r EM/DM	G/F
	30/1-8	A	30/1-10	C	30/5 EM/DM	D/D	RP 30/100 r EM/DM	F/F
	30/1-12	A	–	–	30/7 EM/DM	D/D	–	–
	–		–	–	30/10 EM/DM	D/D	–	–
DN 32	32/1-12	A	–	–	–	–	–	–
DN 40	40/1-4	A	40/1-4	C	40/4 EM/DM	D/D	P 40/100 r EM/DM	F/D
	40/1-8	A	40/1-10	B	40/7 EM/DM	D/C	P 40/160 r	S
	40/1-12	A	–	–	40/10 EM/DM	D/C	–	–
	–	–	–	–	40/15 EM/DM	D/D	–	–
DN 50	50/1-8	A	50/1-6	C	50/4 EM/DM	D/D	P 50/125 r	D
	50/1-9	A	50/1-7	B	50/7 EM/DM	E/D	P 50/160 r	S
	50/1-12	A	50/1-10	B	50/10 EM/DM	D/C	P 50/250 r	S
	–	–	–	–	50/15	C	–	–
DN 65	65/1-9	A	65/1-10	B	65/7 EM/DM	F/D	P 65/125 r	D
	65/1-12	A	–	–	65/10 EM/DM	F/D	P 65/160 r	D
	–	–	–	–	65/13	C	P 65/250 r	S
	–	–	–	–	65/15	C	–	–
DN 80	80/1-12	A	80/1-10	B	80/7 EM/DM	F/D	P 80/125 r	D
	–	–	–	–	80/10	D	P 80/160 r	C
	–	–	–	–	–	–	P 80/250 r	S
DN 100	100/1-12	A	100/1-10	B	100/10	D	P 100/160 r	S
	–	–	–	–	–	–	P 100/200 r	S

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Energy efficiency classes

EEI-Classification – Single-head pumps (Fields of application: multi-family homes, commercial applications) (continued)

Nominal dia.	Wilo-TOP-D...	EEI- Class
DN 30 (Rp 1¼)	30EM/DM	G/F
DN 40	40EM/DM	E/E
DN 50	50EM/DM	E/E
DN 65	65EM/DM	E/E
DN 80	80EM/DM	E/E
DN 100	100EM/DM	E/E
DN 125	125	D

EEI-Classification – Twin-head pumps (Fields of application: multi-family homes, commercial applications)

Nominal dia.	Wilo-Stratos-D....	EEI-Class	Wilo-TOP-ED...	EEI-Class	Wilo-TOP-SD...	EEI-Class	Wilo-DOP...	EEI-Class
DN 30 (Rp 1¼)	–	–	–	–	30/5 EM/DM	D/D	–	–
DN 32	32/1-8	A	32/1-7	C	32/7 EM/DM	E/D	–	–
	32/1-12	A	–	–	–	–	–	–
DN 40	40/1-8	A	40/1-7	C	40/3 EM/DM	E/D	40/100 r EM/DM	F/E
	40/1-12	A	40/1-10	B	40/7 EM/DM	D/D	40/160 r	F
	–	–	–	–	40/10 EM/DM	E/C	–	–
	–	–	–	–	40/15 EM/DM	E/D	–	–
DN 50	50/1-8	A	50/1-6	C	50/7 EM/DM	F/C	50/100 r	D
	50/1-12	A	50/1-7	B	50/10 EM/DM	E/D	50/160 r	S
	–		50/1-10	C	50/15	D	–	
DN 65	65/1-12	A	65/1-10	B	65/10 EM/DM	F/D	65/125 r	D
	–	–	–	–	65/13	D	65/160 r	D
	–	–	–	–	65/15	D	–	–
DN 80	80/1-12	A	80/1-10	B	80/10	D	80/125 r	D
	–	–	–	–	80/7 single-phase motor	F	80/160 r	S
DN 100	–	–	–	–	–	–	100/160 r	D