

ErP

2015

The ErP Directive
New values for fans



 **BVN**[®]
VENTILATION SYSTEMS & ELECTRICAL MOTORS

THE ErP DIRECTIVE AND BAHÇIVAN FANS

Globally increasing electricity consumption automatically increases the production of CO₂ released into the atmosphere. The excess content of CO₂ in the air has a negatively impact on our planet's climate.

By adopting the Kyoto Protocol, the European Union has undertaken to reduce CO₂ emissions. The goal of the ErP Directive (Energy-related Products Directive) is to protect the climate by increasing the overall share of renewable energy in the EU to 20% by 2020 and to increase energy efficiency by 20 %. To achieve this climate goal, the EU adopted the EuP Directive (Energy-using Products Directive) in 2005, and then renamed as the ErP Directive (Energy-related Products Directive) in 2009.

For fans with input power of between 125 W and 500 kW the Commission's regulation 327/20011 applies. The construction of electric motors is regulated by means of Directive 640/2009.

IMPLEMENTATION PROCESS OF THE ERP DIRECTIVE.

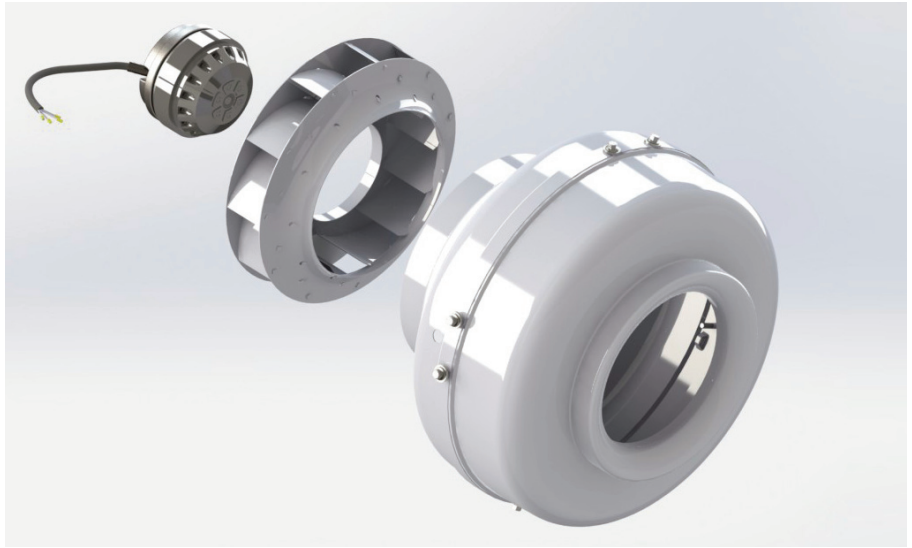
According to researches, Electric motors consume 30-40 % of the electricity produced worldwide, so this is an obvious area with the greatest potential for achieving savings. The ErP implementing measure for fans defines the minimum efficiency requirements for fans with an output range of 125 W to 500 kW. When assessing whether a fan fulfils these requirements, the efficiency of the entire system is evaluated – this consists of the motor, transmission (e. g. belt drive) and impeller. The ErP Directive is being implemented in two stages: stage 1 in 2013 and stage 2 in 2015. The system efficiency requirements are the premise for the CE marking and therefore must be met for use in the EU member states. On the whole, it is generally estimated that around 50% of fans currently on the market will no longer fulfil the requirements of ErP 2015 and will have to be replaced by more energy-efficient systems.

REGULATION OF THE EUROPEAN COMMISSION (EU) NO. 327/2011

1. This Regulation establishes ecodesign requirements for the placing on the market or putting into service of fans, including those integrated in other energy-related products as covered by Directive 2009/125/EC.
2. The Regulation shall not apply to fans integrated in:
 - I. Products with a sole electric motor of 3 kW or less where the fan is fixed on the same shaft used for driving the main functionality;
 - II. Laundry and washer dryers \leq 3 kW maximum electrical input power;
 - III. Kitchen hoods $<$ 280 W total maximum electrical input power attributable to the fan(s).
3. This Regulation shall not apply to fans which are:
 - I. Designed specifically to operate in potentially explosive atmospheres as defined in Directive 94/9/EC of the European Parliament and of the Council (1);
 - II. Designed for emergency use only, at short-time duty, with regard to fire safety requirements set out in Council Directive 89/106/EC (2);
 - III. Designed specifically to operate:
 - a. Where operating temperatures of the gas being moved exceed 100 °C;
 - b. Where operating ambient temperature for the motor, if located outside the gas stream, driving the fan exceeds 65 °C;
 - c. Where the annual average temperature of the gas being moved and/or the operating ambient temperature for the motor, if located outside the gas stream, are lower than - 40 °C;
 - d. With a supply voltage $>$ 1 000 V AC or $>$ 1 500 V DC;
 - e. in toxic, highly corrosive or flammable environments or in environments with abrasive substances;
 - IV. Placed on the market before 1 January 2015 as replacement for identical fans integrated in products which were placed on the market before 1 January 2013; except that the packaging, the product information and the technical documentation must clearly indicate regarding (a), (b) and (c) that the fan shall only be used for the purpose for which it is designed and regarding (d) the product (s) for which it is intended.

LABELING AND TOTAL FAN EFFICIENCY

The system efficiency requirements are the premise for the CE marking. The efficiency of the fans, should be understood as the total calculation of the motor efficiency, impeller efficiency and the housing efficiency.



HOW THE ERP CALCULATION MADE?

Considering to different power consumption and connection types, minimum energy efficiency levels are determined according to the following formulation.

Fan type	Installation situation (A-D)	Efficiency (static or overall)	Power range P_1 in kW	Minimum efficiency	Efficiency N 01.01.2013	Efficiency N 01.01.2015
Axial fan	A,C	Static	$0.125 \leq P_1 \leq 10$	$\eta_{\min} = 2.74 \cdot \ln(P_1) - 6.33 + N$	36	40
			$10 < P_1 \leq 500$	$\eta_{\min} = 0.78 \cdot \ln(P_1) - 1.88 + N$		
	B,D	Overall	$0.125 \leq P_1 \leq 10$	$\eta_{\min} = 2.74 \cdot \ln(P_1) - 6.33 + N$	50	58
			$10 < P_1 \leq 500$	$\eta_{\min} = 0.78 \cdot \ln(P_1) - 1.88 + N$		
Centrifugal fan, forward curved and Centrifugal fan with radial blade ends	A, C	Static	$0.125 \leq P_1 \leq 10$	$\eta_{\min} = 2.74 \cdot \ln(P_1) - 6.33 + N$	37	44
			$10 < P_1 \leq 500$	$\eta_{\min} = 0.78 \cdot \ln(P_1) - 1.88 + N$		
	B,D	Overall	$0.125 \leq P_1 \leq 10$	$\eta_{\min} = 2.74 \cdot \ln(P_1) - 6.33 + N$	42	49
			$10 < P_1 \leq 500$	$\eta_{\min} = 0.78 \cdot \ln(P_1) - 1.88 + N$		
Centrifugal fan, backward curved without housing	A,C	Static	$0.125 \leq P_1 \leq 10$	$\eta_{\min} = 4.56 \cdot \ln(P_1) - 10.5 + N$	58	62
			$10 < P_1 \leq 500$	$\eta_{\min} = 1.1 \cdot \ln(P_1) - 2.6 + N$		
	A,C	Static	$0.125 \leq P_1 \leq 10$	$\eta_{\min} = 4.56 \cdot \ln(P_1) - 10.5 + N$	58	61
			$10 < P_1 \leq 500$	$\eta_{\min} = 1.1 \cdot \ln(P_1) - 2.6 + N$		
Centrifugal fan, backward curved with housing	B,D	Overall	$0.125 \leq P_1 \leq 10$	$\eta_{\min} = 4.56 \cdot \ln(P_1) - 10.5 + N$	61	64
			$10 < P_1 \leq 500$	$\eta_{\min} = 1.1 \cdot \ln(P_1) - 2.6 + N$		
Diagonal fan	A,C	Static	$0.125 \leq P_1 \leq 10$	$\eta_{\min} = 4.56 \cdot \ln(P_1) - 10.5 + N$	47	50
			$10 < P_1 \leq 500$	$\eta_{\min} = 1.1 \cdot \ln(P_1) - 2.6 + N$		
	B,D	Overall	$0.125 \leq P_1 \leq 10$	$\eta_{\min} = 4.56 \cdot \ln(P_1) - 10.5 + N$	58	62
			$10 < P_1 \leq 500$	$\eta_{\min} = 1.1 \cdot \ln(P_1) - 2.6 + N$		
Tangential blower	B,D	Overall	$0.125 \leq P_1 \leq 10$	$\eta_{\min} = 1.14 \cdot \ln(P_1) - 2.6 + N$	13	21
			$10 < P_1 \leq 1500$	$\eta_{\min} = N$		



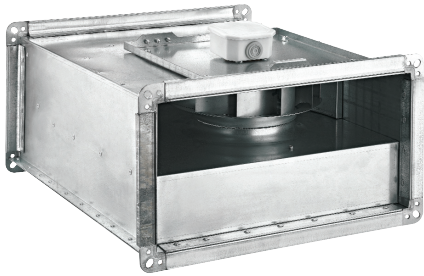
Name Of Fan	ErP Status	Note
BDTX 100	✓	P<125 W
BDTX 125	✓	P<125 W
BDTX 150-B	✓	P<125 W
BDTX 160-A	✓	P<125 W
BDTX 200-A	✓	P<125 W
BDTX 200-B	✓	P<125 W
BDTX 250-A	✓	P<125 W
BDTX 250-B	✓	P<125 W
BDTX 315-A	✓	01*2015
BDTX 315-B	✓	01*2015
BDTX 355	✓	P<125 W



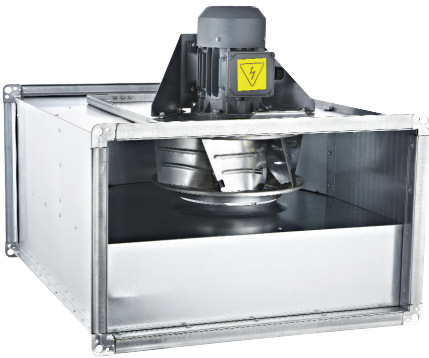
Name Of Fan	ErP Status	Note
BMFX-100	✓	P<125 W
BMFX-125	✓	P<125 W
BMFX-150	✓	P<125 W
BMFX-200	✓	P<125 W
BMFX-250	✓	01*2015
BMFX-315	✓	01*2015



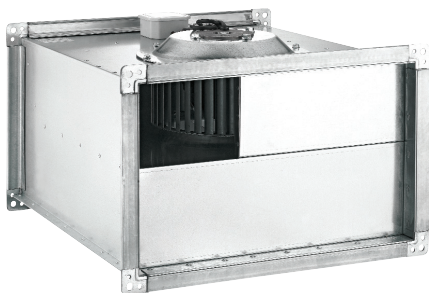
Name Of Fan	ErP Status	Note
BFTX 100	✓	P<125 W
BFTX 150-B	✓	P<125 W
BFTX 200-A	✓	P<125 W
BFTX 200-B	✓	P<125 W
BFTX 250-A	✓	P<125 W
BFTX 250-B	✓	P<125 W
BFTX 315-A	⊘	No Replacement
BFTX 315-B	⊘	No Replacement



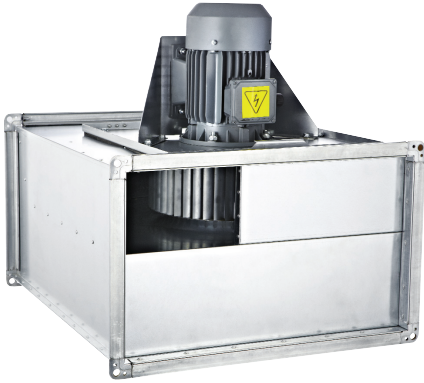
Name Of Fan	ErP Status	Note
BDKF 30-15	✓	P<125 W
BDKF 40-20A	✓	P<125 W
BDKF 40-20B	✓	01*2015
BDKF 50-25	✓	01*2015
BDKF 60-30	✓	P<125 W
BDKF 60-35A	✓	01*2015
BDKF 60-35B	✓	01*2015
BDKF 70-40A	✓	01*2015
BDKF 70-40B	✓	01*2015
BDKF 80-50	✓	01*2015
BDKF 100-50	✓	01*2015



Name Of Fan	ErP Status	Note
BDKF-R 315	✓	T>100°C
BDKF-R 355	✓	T>100°C
BDKF-R 400	✓	T>100°C
BDKF-R 450	✓	T>100°C
BDKF-R 500	✓	T>100°C
BDKF-R 560	✓	T>100°C



Name Of Fan	ErP Status	Note
BSKF 40-20	✓	01*2015
BSKF 50-25	✓	01*2015
BSKF 50-30	✓	01*2015
BSKF 60-30	✓	01*2015
BSKF 60-35	✓	01*2015



Name Of Fan	ErP Status	Note
BSKF-R 200-4	✓	T>100° C
BSKF-R 200-6	⊘	No Replacement
BSKF-R 225-4	✓	T>100° C
BSKF-R 225-6	⊘	No Replacement
BSKF-R 250-4	✓	T>100° C
BSKF-R 250-6	⊘	No Replacement
BSKF-R 280-4	✓	T>100° C
BSKF-R 280-6	⊘	No Replacement
BSKF-R 315-4	✓	T>100° C
BSKF-R 315-6	✓	T>100° C
BSKF-R 355-4	✓	T>100° C
BSKF-R 355-6	✓	T>100° C
BSKF-R 400-6	✓	T>100° C
BSKF-R 450-6	✓	T>100° C



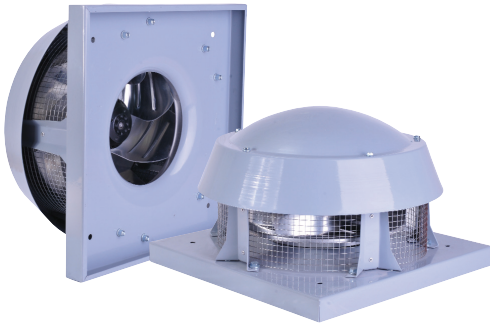
Name Of Fan	ErP Status	Note
BKEF 315M	✓	T>100° C
BKEF 355T	✓	T>100° C
BKEF 400T	✓	T>100° C
BKEF 450T	✓	T>100° C



Name Of Fan	ErP Status	Note
BKEF-T 160	✓	T>100° C
BKEF-T 180	✓	T>100° C
BKEF-T 200	✓	T>100° C
BKEF-T 225	✓	T>100° C
BKEF-T 280	✓	T>100° C
BKEF-T 315	✓	T>100° C
BKEF-T 355	✓	T>100° C



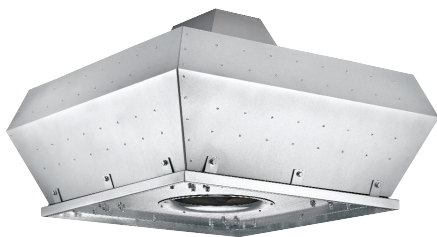
Name Of Fan	ErP Status	Note
BKEF-R 400	✓	T>100° C
BKEF-R 450	✓	T>100° C
BKEF-R 500	✓	T>100° C
BKEF-R 560	✓	T>100° C



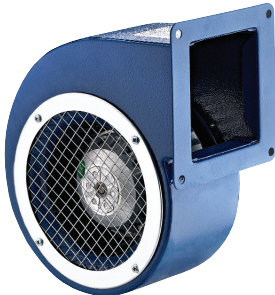
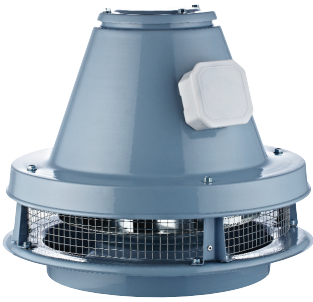
Name Of Fan	ErP Status	Note
BRF 160	✓	P<125 W
BRF 180	✓	P<125 W
BRF 225	✓	P<125 W
BRF 250	✓	01*2015
BRF 315	✓	P<125 W
BRF 355	✓	01*2015
BRF 400	✓	01*2015
BRF 450	✓	01*2015
BRF 500	✓	01*2015
BRF 560	✓	01*2015



Name Of Fan	ErP Status	Note
BRF-V 225	✓	P<125 W
BRF-V 315	✓	P<125 W
BRF-V 355	✓	01*2015
BRF-V 400	✓	01*2015
BRF-V 450	✓	01*2015
BRF-V 500	✓	01*2015
BRF-V 560	✓	01*2015



Name Of Fan	ErP Status	Note
BRDV 315	✓	T>100° C
BRDV 355	✓	T>100° C
BRDV 400	✓	T>100° C
BRDV 450	✓	T>100° C
BRDV 500	✓	T>100° C
BRDV 560	✓	T>100° C



Name Of Fan	ErP Status	Note
BRCF 280	✓	T>100° C
BRCF 315	✓	T>100° C
BRCF 355	✓	T>100° C
BRCF 400	✓	T>100° C
BRCF 450	✓	T>100° C
BRCF 500	✓	T>100° C
BRCF 560	✓	T>100° C
BRCF 630	✓	T>100° C
BRCF 710	✓	T>100° C
BRCF 800	✓	T>100° C

Name Of Fan	ErP Status	Note
BRCF-M	✓	01*2015

Name Of Fan	ErP Status	Note
BDRAX 200-2K	✓	P<125 W
BDRAX 200-4K	✓	P<125 W
BDRAX 250-2K	✓	P<125 W
BDRAX 250-4K	✓	P<125 W
BDRAX 300-2K	✓	01*2015
BDRAX 300-4K	✓	P<125 W
BDRAX 350-2K	✓	01*2015
BDRAX 350-4K	✓	P<125 W

Name Of Fan	ErP Status	Note
BDRS 125-50	✓	P<125 W
BDRS 120-60	✓	P<125 W
BDRS 140-60	✓	P<125 W
BDRS 160-60	✓	01*2015

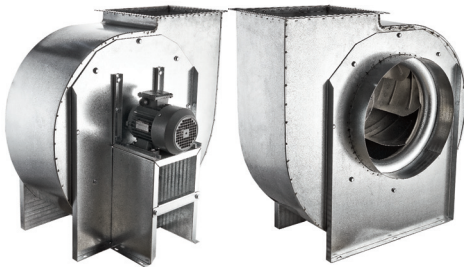
Name Of Fan	ErP Status	Note
BDRAS 120-60	✓	P<125 W
BDRAS 140-60	✓	P<125 W
BDRAS 160-60	✓	01*2015



Name Of Fan	ErP Status	Note
BSMS / BSTS 250	✓	01*2015
BSMS / BSTS 300	✓	01*2015
BSMS / BSTS 350	✓	01*2015
BSMS / BSTS 400	✓	01*2015
BSMS / BSTS 450	✓	01*2015
BSMS / BSTS 500	✓	01*2015
BSMS / BSTS 550	✓	01*2015
BSMS / BSTS 600	✓	01*2015



Name Of Fan	ErP Status	Note
EF 1009	✓	P<125 W
EF 1219	✓	P<125 W
EF 1530	✓	P<125 W
EA 1010	✓	P<125 W
EA 1219	✓	P<125 W
EA 1530	✓	P<125 W
EC 1010E	✓	P<125 W
EC 1219E	✓	P<125 W
EC 1530E	✓	P<125 W
BPP 15	✓	P<125 W
BPP 20	✓	P<125 W
BPP 25	✓	P<125 W
BPP 30	✓	P<125 W



Name Of Fan	ErP Status	Note
ALÇ 315 A	⊘	No Replacement
ALÇ 315 B	✓	01*2015
ALÇ 355	✓	01*2015
ALÇ 400	✓	01*2015
ALÇ 500	✓	01*2015
ALÇ 560	✓	01*2015



Name Of Fan	ErP Status	Note
BPS-B 150-100	✓	01*2015
BPS 140-60	✓	P<125 W
BPS-B 140-60	✓	P<125 W



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