

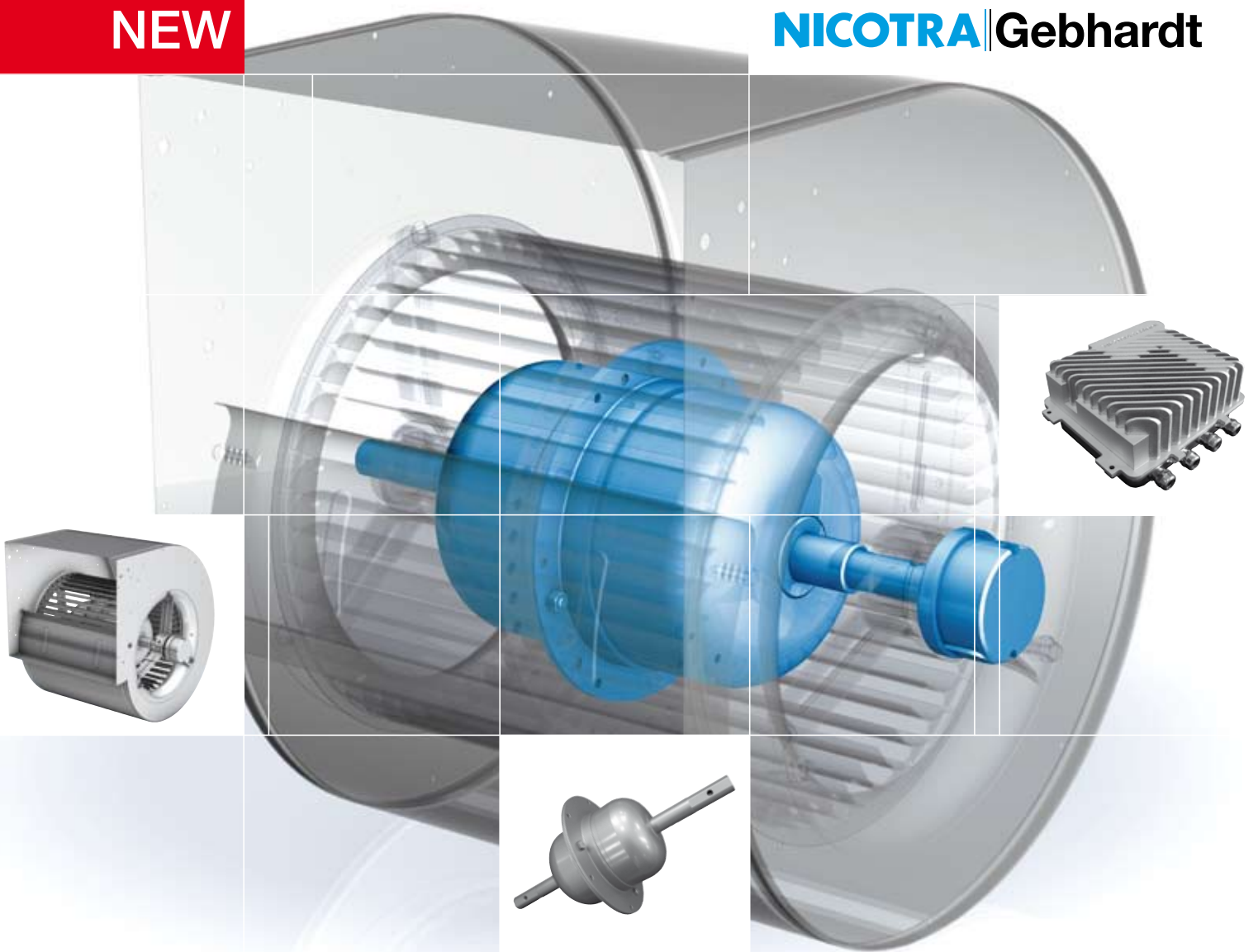
# Brushless DC

high efficiency motor technology  
for fans

Issue 1

**NEW**

**NICOTRA** | Gebhardt



fan|tastic solutions

# Brushless DC

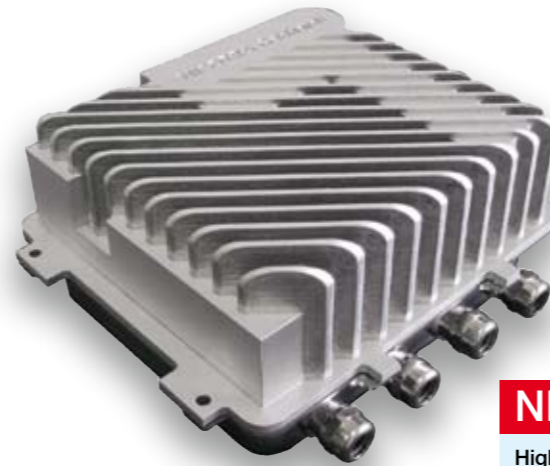
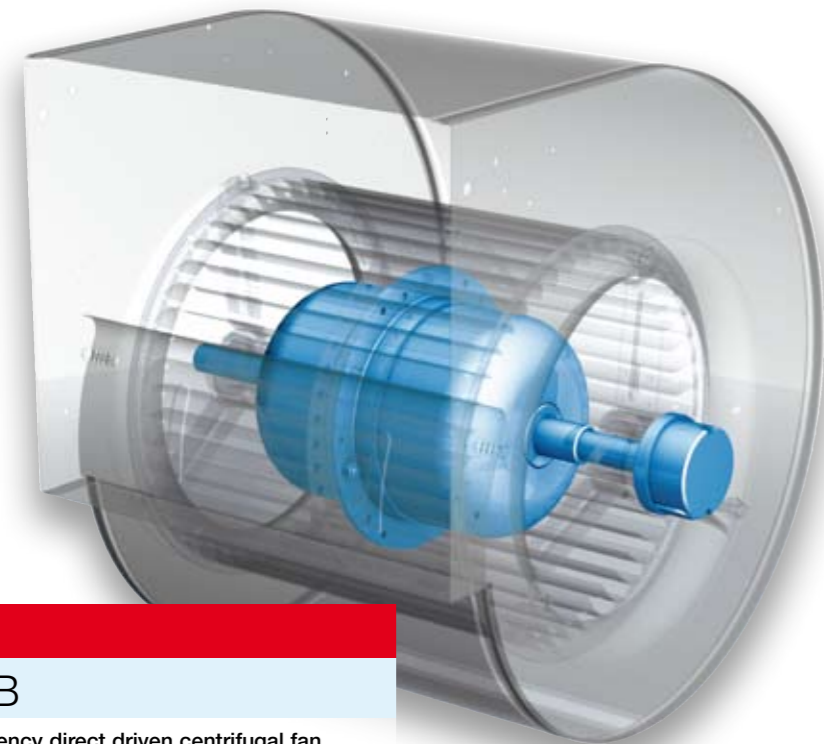
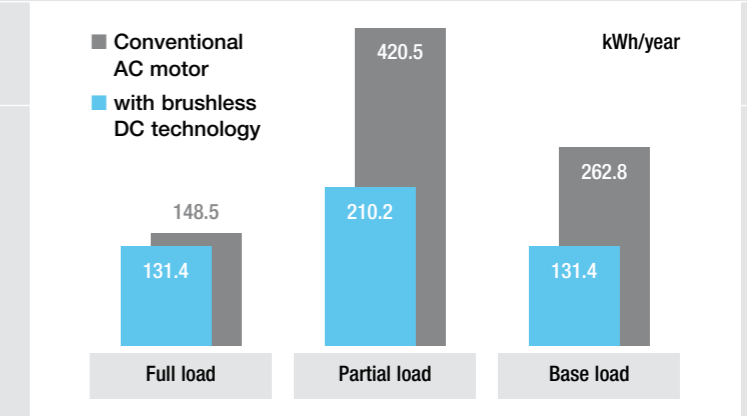


## Compact direct driven centrifugal fan, double inlet

- high efficiency drive technology
- continuously variable speed

### Cost balance / operating period

Up to 50 % of the power consumption of a fan can be saved (depending on the operating environment) by the use of brushless DC motors in place of AC motors.



### NEW

#### High efficiency variable speed drive

##### Energy saving concept

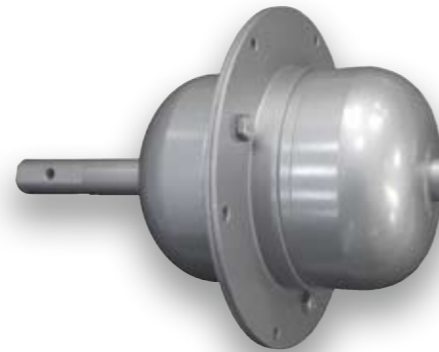
- high efficiency drive due to optimized motor design
- PFC disabled at stop
- NTC bypassed during operation

##### General features

- integrated PFC
- brownout protection
- IP 54 for complete drive
- dry contact - error signal
- simple usage - fan selection by DIP-switches and GO! (no parameter setup)
- designed for double inlet fans
- external unit - no obstruction of intake - less aerodynamic losses

##### Interface

- analogue
- MODBUS RTU



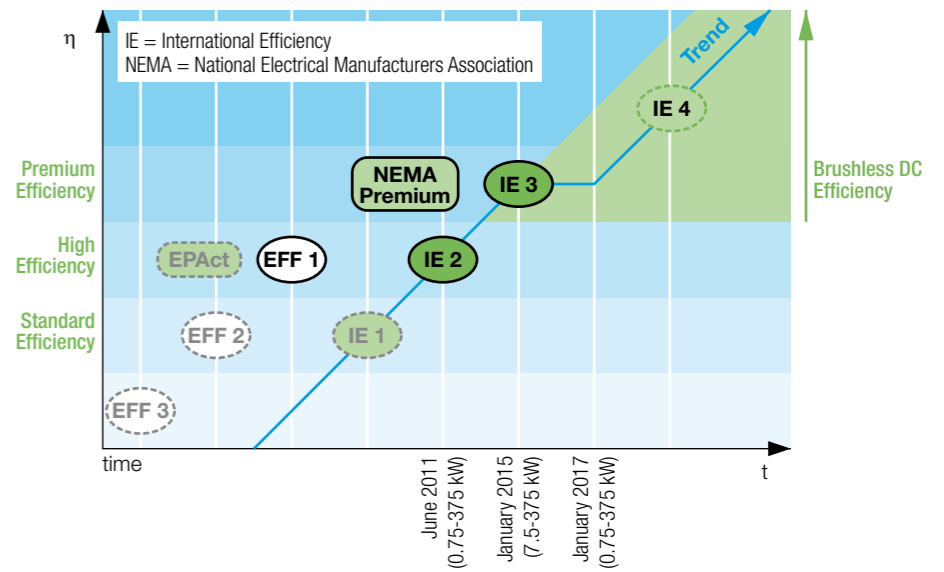
### NEW

#### DDMB

##### High efficiency direct driven centrifugal fan

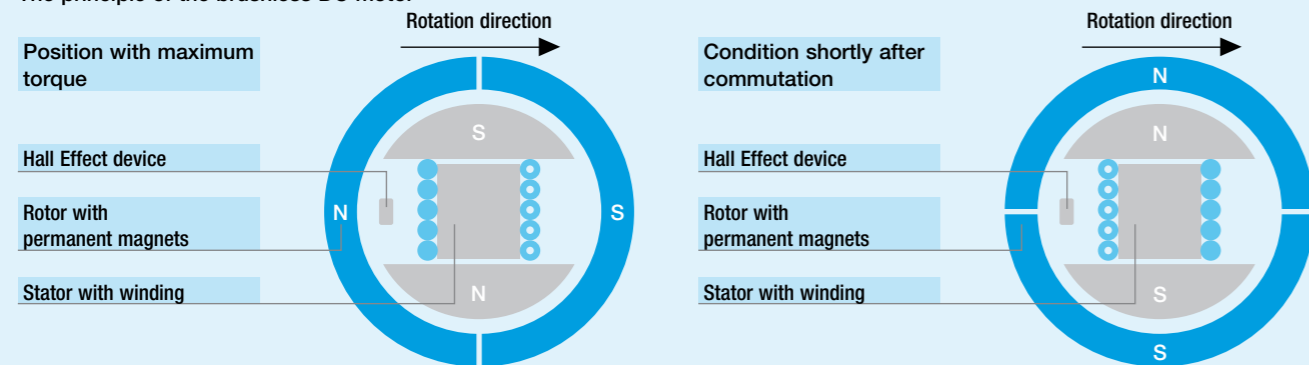
- new brushless DC external rotor motor
- new lap jointed scroll
- impeller with forward-curved blades
- high efficiency
- low power consumption
- low sound power level
- high reliability

## IEC 60034-30 and NEMA-efficiency classes phasing-in according to EuP-Legislation



Drives with brushless DC technology achieve efficiency class IE3 or higher.

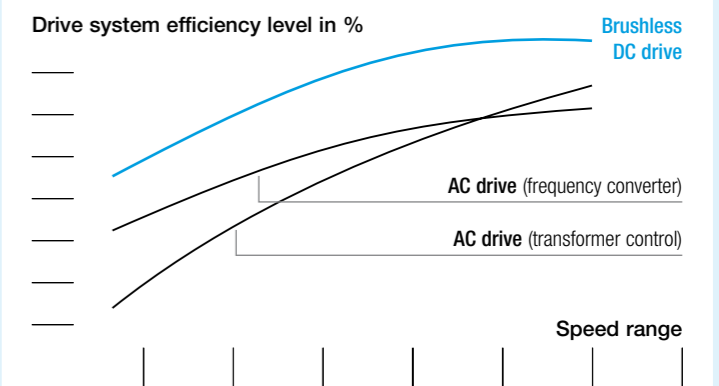
### The principle of the brushless DC motor



In order to reduce noise, the Brushless DC motor is combined with the control principle of a Permanent Magnet Synchronous Machine using sinusoidal currents on all 3 phases.

### Comparison of the different levels of system efficiency

The brushless DC motor operates without slip losses and thus consumes significantly less power than conventional AC motors. Important: this applies for all speeds, i.e. even in partial-load operation! The brushless DC motor therefore uses less power than the AC motor under all operating conditions and has a significantly higher level of drive system (motor and control) efficiency.



Brushless DC technology used in many applications



**NEW**

Direct driven centrifugal fans DDMB with brushless DC internal rotor motor and DDB with brushless DC external rotor motor



Direct driven centrifugal fans RZP with brushless DC external rotor motor



**NEW**

Plug fans RLMB with brushless DC internal rotor motor



Roof extract fans RDA EC with brushless DC external rotor motor. Ideal for being connected to central control systems or any other individual control



Filter fan units FFU developed with control software to monitor different ventilating systems, room configurations and airflows



**NEW**

Plug fans RLE with brushless DC external rotor motor

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