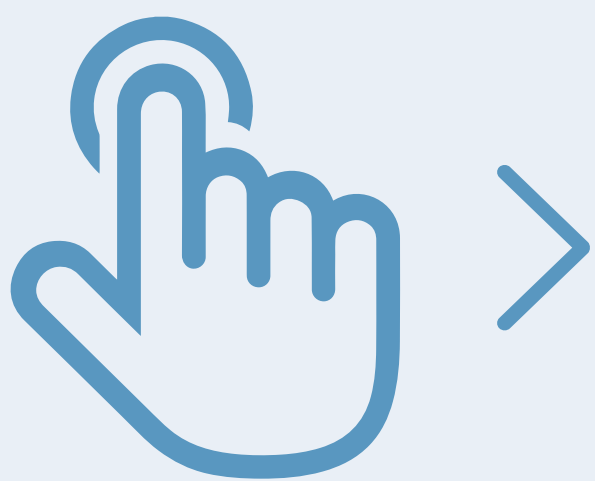


# ECODESIGN REGULATION DETAILS AND FAQs

Commission Regulation EU 2019/1781 setting new requirements for electric motors and variable speed drives.



**CLICK ON THE BOXES  
BELOW TO FIND OUT MORE**

## 2021

**THE ECODESIGN  
DIRECTIVE**  
(starting July 1<sup>st</sup>, 2021)

> **3 phase motors**

> **Variable speed drives**

## 2022

**THE ECODESIGN  
DIRECTIVE**  
(starting July 1<sup>st</sup>, 2022)

## 2023

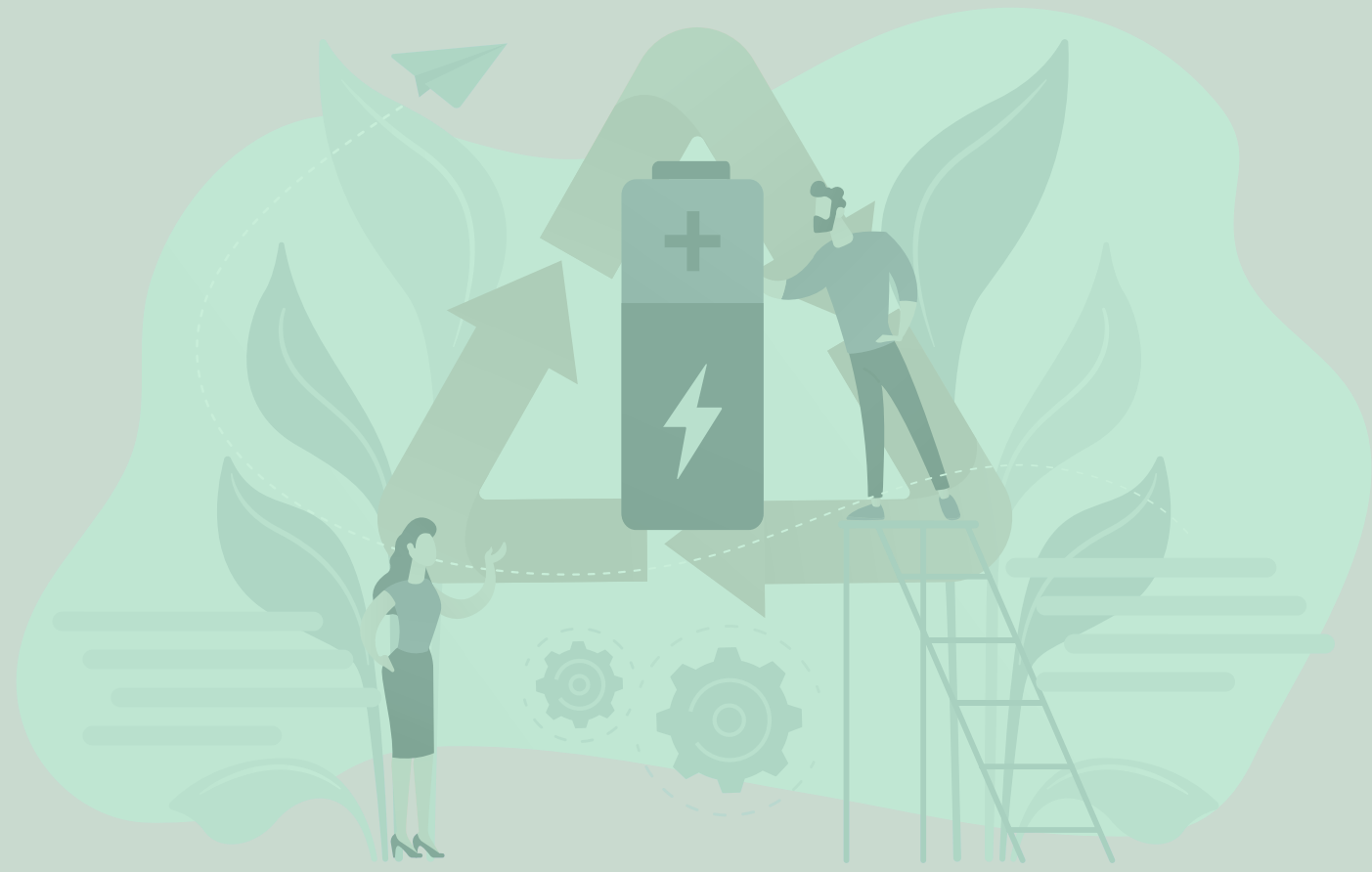
**THE ECODESIGN  
DIRECTIVE**  
(starting July 1<sup>st</sup>, 2023)



**GENERIC FAQ**

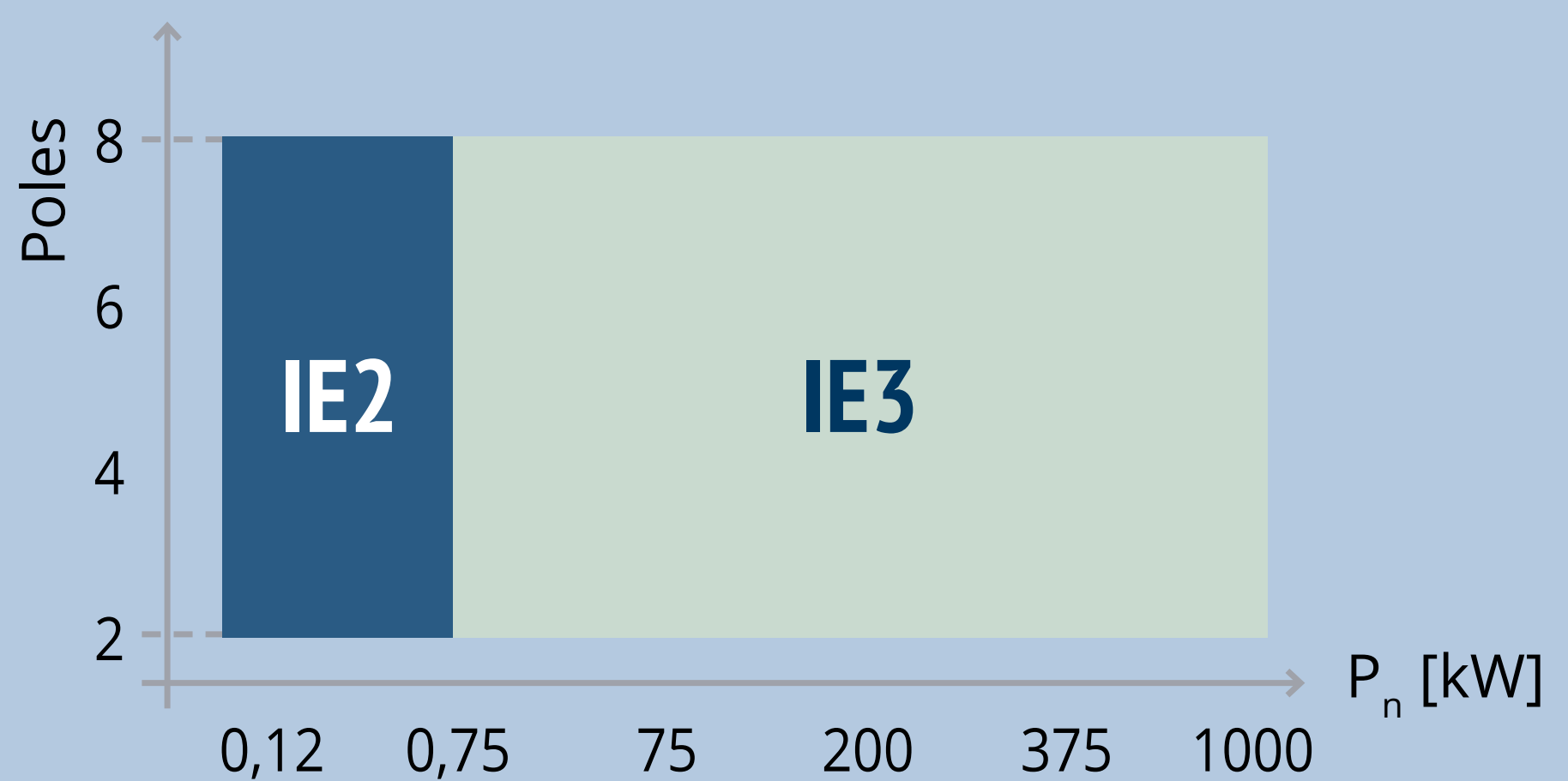
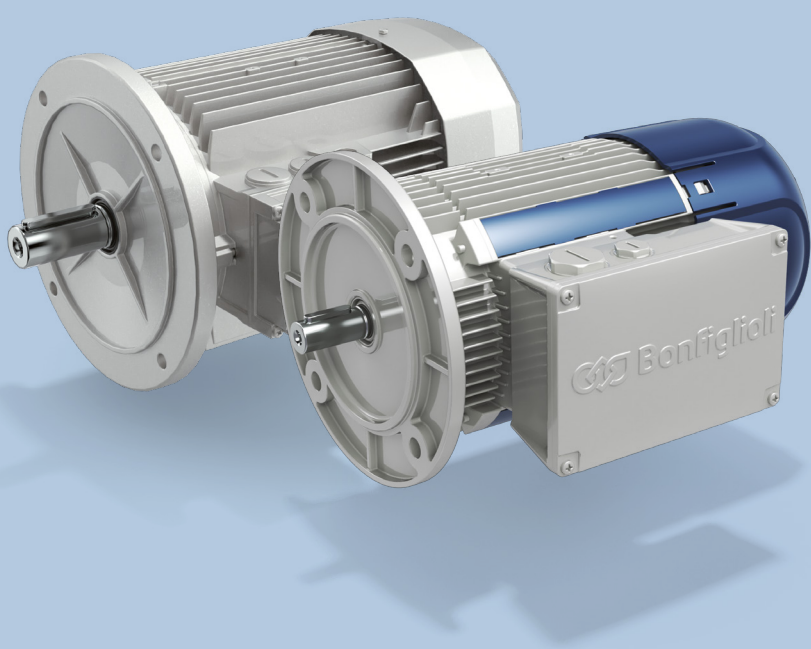
## THE ECODESIGN DIRECTIVE FOR A GREEN EUROPE REQUIREMENTS AND EXCEPTIONS OF THE ECODESIGN DIRECTIVE (EU) 2019/1781

Starting July 1<sup>st</sup>, 2021, **the Ecodesign Directive (EU) 2019/1781** introduces new energy efficiency binding requirements for induction motors and, for the first time, for electronic motors controls such as frequency inverters, eliminating some of the exceptions that have so far been valid.



### New requirements for electric motors starting July 1<sup>st</sup>, 2021

#### 3-phase motors



#### Applies to

##### 3-phase induction motors

- > Rated for operation on 50 Hz, 60 Hz or 50/60 Hz supplies and
- > Rated for continuous duty i.e. duty class S1, S3 $\geq$ 80%, S6 $\geq$ 80%

**The following types of motor will have efficiency requirements for the first time:**

- > 8-poles motors
- > Motors for explosive atmospheres Ex ec, Ex tc, Ex tb, Ex db, Ex dc, Ex db eb
- > Brake motors
- > Totally Enclosed Air Over (TEAO) motors.
- > The option of IE2 + VSD above 0,75kW is no longer applicable.

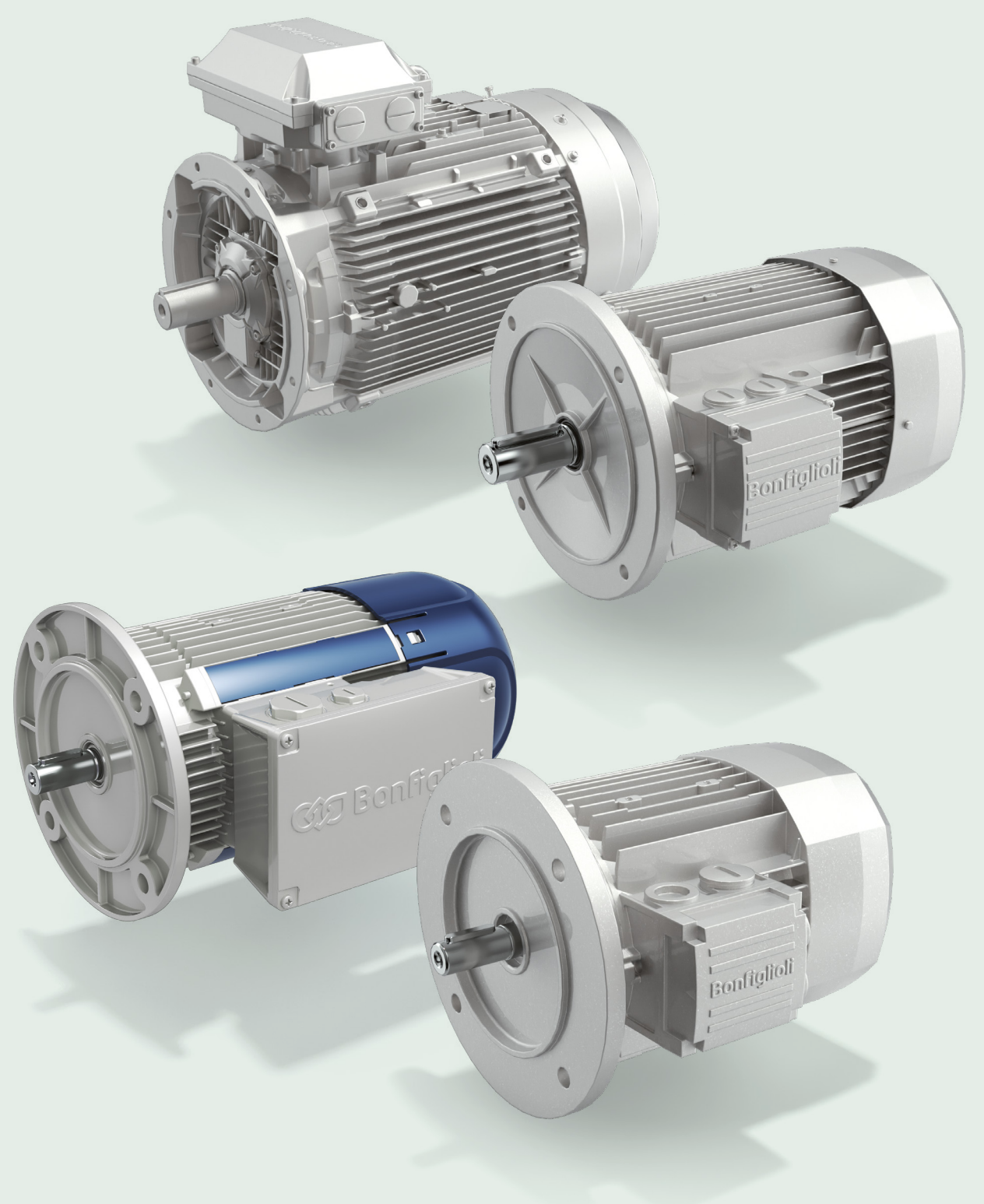
#### Does not apply to

- > Multi-speed motors
- > High-Voltage Motors (> 1000V)
- > DC motors

#### Major exemptions

##### 3-phase induction motors

- > Mining Motors
- > ATEX motors Ex eb
- > Totally Enclosed Non-Ventilated (TENV) motors
- > Not continuous duty cycle





## New requirements for variable speed drives starting July 1<sup>st</sup>, 2021

### Variable speed drives



### Applies to

The regulation covers 3-phase variable speed drives from  $0,12 \text{ kW} \leq P_n \leq 1\,000 \text{ kW}$

### Major exemptions

#### LV AC Drives:

- > Regenerative drives (active front end, AFE)
- > Low-harmonic drives (THD < 10%)
- > Multiple AC-output drives
- > 1-phase drives

## STARTING JULY 1<sup>st</sup>, 2022

**The power losses expressed in percentage (%) of the rated output power at the following different operating points for speed versus torque:**

**(25;25) (25;100) (50;25) (50;50)  
(50;100) (90;50) (90;100)  
must be provided on  
commercial offers.**



## THE ECODESIGN DIRECTIVE FOR A GREEN EUROPE

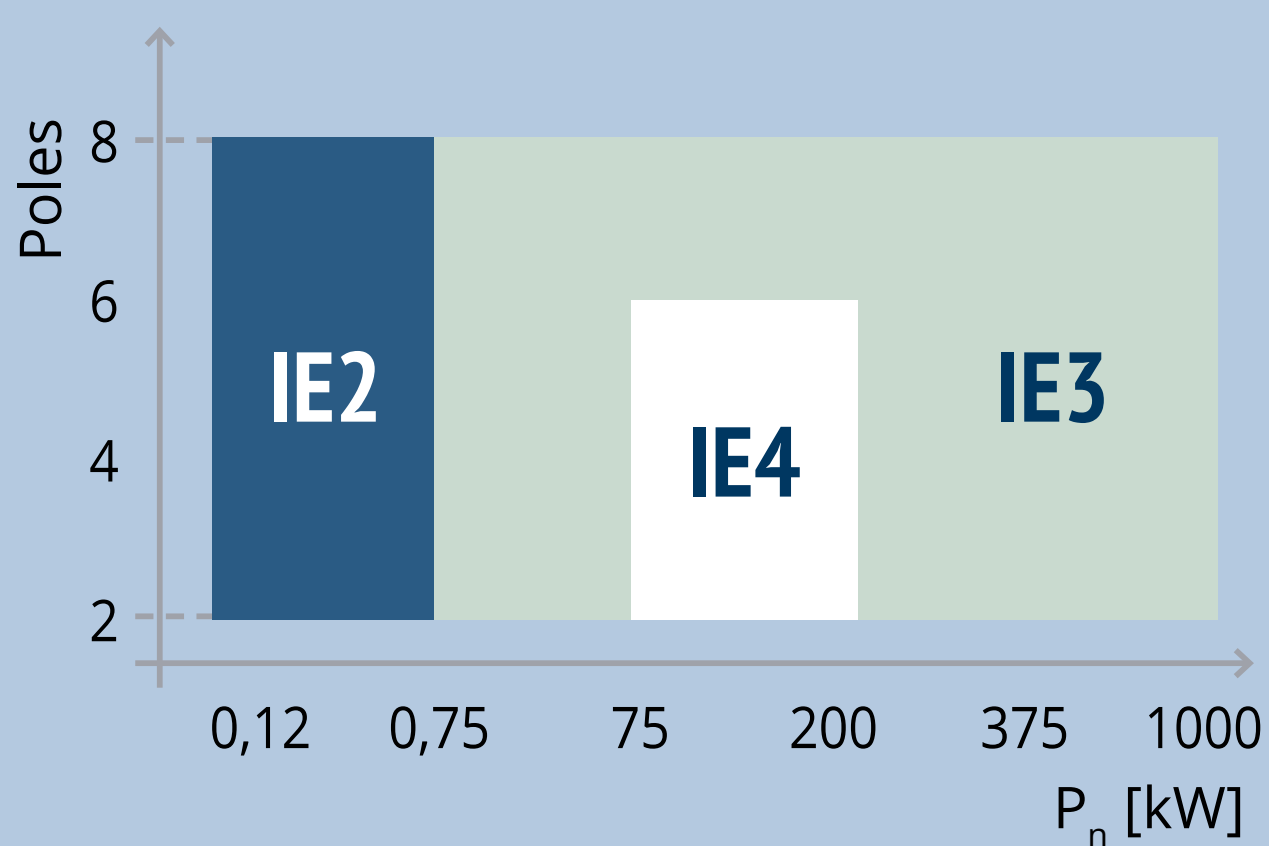
### REQUIREMENTS AND EXCEPTIONS OF THE ECODESIGN DIRECTIVE (EU) 2019/1781

Starting July 1<sup>st</sup>, 2023, the **Ecodesign Directive (EU) 2019/1781** introduces new energy efficiency binding requirements for induction motors and, for the first time, for single phase motors.

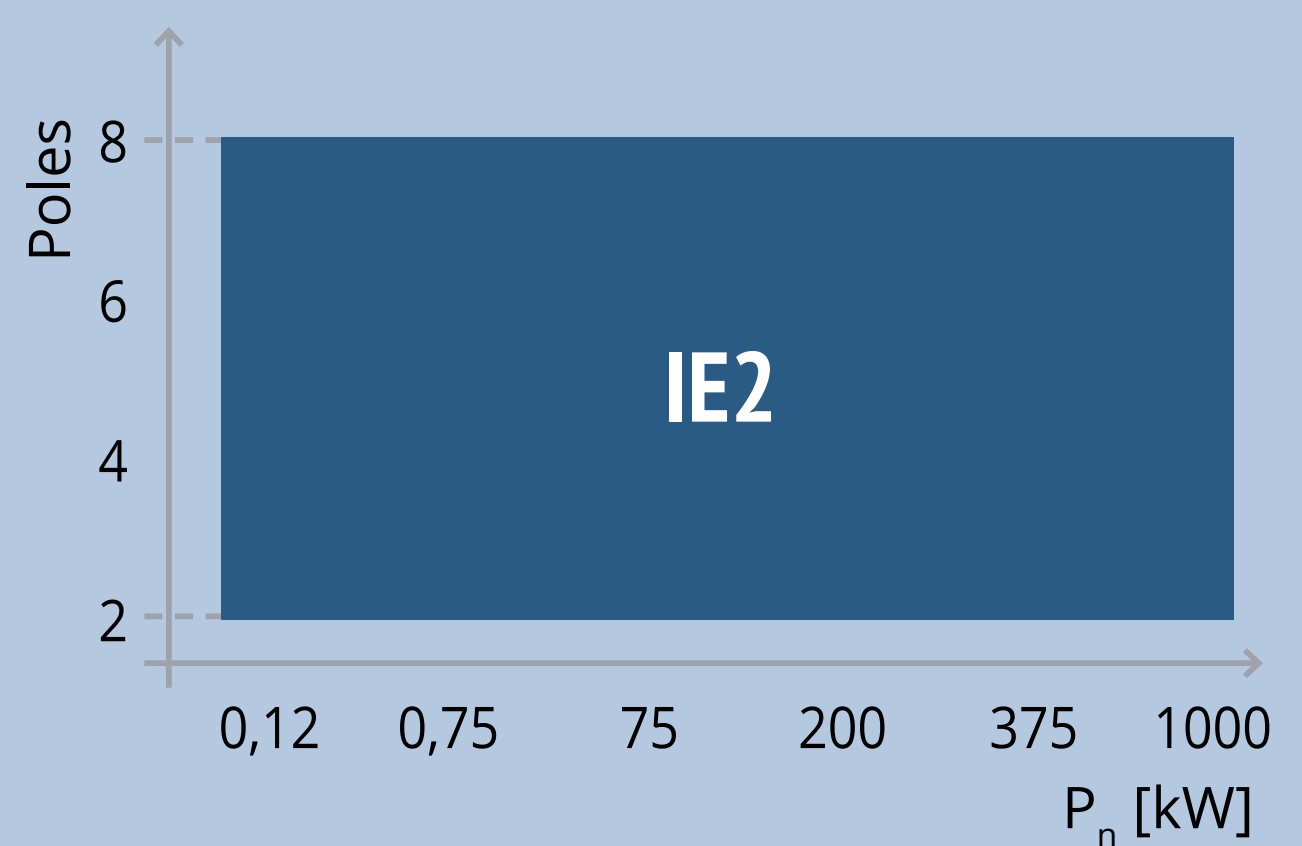


### New requirements for electric motors starting July 1<sup>st</sup>, 2023

#### 3-phase motors



#### 1-phase motors



#### Applies to

##### 3-phase induction motors

- > Rated for operation on 50 Hz, 60 Hz or 50/60 Hz supplies and
- > Rated for continuous duty i.e., duty class S1, S3 $\geq$ 80%, S6 $\geq$ 80%

The following types of motor will have efficiency requirements for the first time:

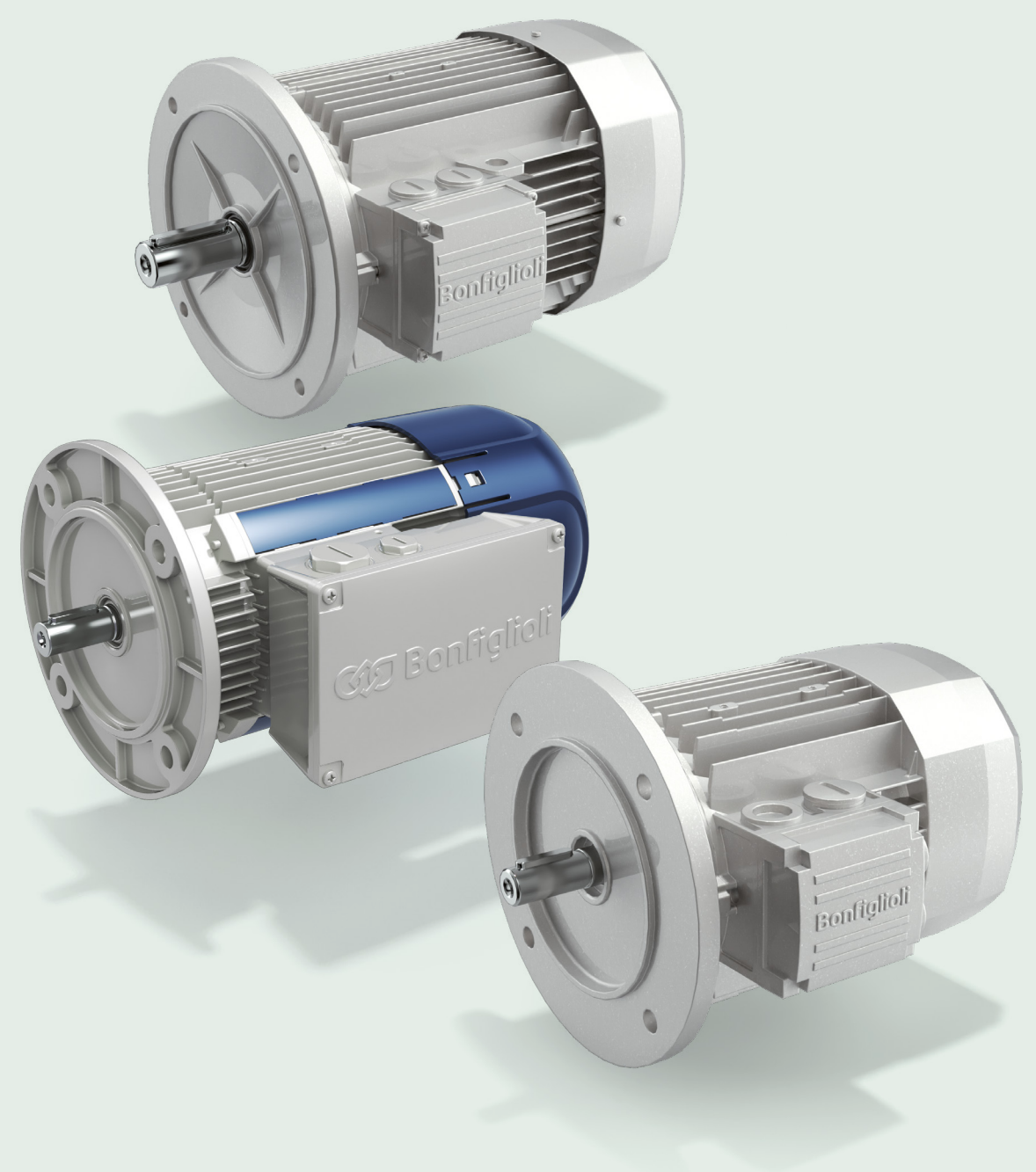
- > Ex eb increased safety motors > IE2
- > 1-phase induction motors > IE2

#### Does not apply to

- > Multi-speed motors
- > High-Voltage Motors (> 1000V)
- > DC motors

#### Major exemptions

- > Totally Enclosed Non-Ventilated (TENV) motors
- > Not continuous duty cycle







## GENERIC FAQ

> **What happens to actual IE2 motors sold with VSD on power above 0,75kW?**

These motors must comply with the appropriate efficiency requirements given in regulation (EU) 2019/1781. From July 1<sup>st</sup> 2021 these motors are no longer excluded due to the use of a variable speed drive.

> **How long can I continue buying motors which has been impacted by the new regulation?**

The dates indicated in the Ecodesign Regulation (EU) 2019/1781 (for example July 1<sup>st</sup> 2021 or July 1<sup>st</sup> 2023 for electric motors) correspond to the date in which the motors will be first placed on the EU market.

Motors are considered to be placed on the EU market if they have been transferred by the manufacturer or the importer to another economic operator in the EU (e.g. distributors, manufacturer's sales company) before that date and they can then be resold, put into service and used after the deadline mentioned above.

> **How long can I continue buying motors which have been impacted by the new regulation as spare part?**

Another important point related to spare motors states:

All motors placed on the Market before July 1<sup>st</sup> 2021, which have been integrated in products/machines placed on the market before July 1<sup>st</sup> 2022 and therefore subject to the strengthened Ecodesign requirements, can be replaced by identical marketed motors (replacement motors) until July 1<sup>st</sup> 2029. The motor (or packaging) and the delivery documentation must clearly indicate "Motor to be used exclusively as spare part for [unique model identification of the product(s) for which it is intended]"

> **Are our BMD servomotors impacted by the new regulation?**

Servo motors which require a drive for operation and cannot be operated direct on-line are not covered by the scope of the regulation, neither regulation (EC) 640/2009, nor the new regulation (EU) 2019/1781.

> **Are our BSR synchronous reluctance motors affected by the new regulation?**

No. The regulation (EU) 2019/1781 only covers induction motors and no other technologies.

> **Are DC motors affected by the new regulation?**

No. Only single-phase and three-phase AC induction motors are covered by the regulation. Commutator motors are not covered.

> **Does my variable speed drive have to be marked with an IE-Class?**

From July 1<sup>st</sup> 2021 onwards:

- > Must be marked and comply with efficiency level of class IE2 when all the following conditions are met:
- > Three-phase AC input
- > Only one three-phase AC voltage output at the drive
- > One three-phase motor at the drive output and effective motor rating as described in the section of the Ecodesign regulation dedicated to motors (see above).
- > A rated voltage of between 100 V and 1 000 V (AC)