



## FLENDER TÜBINGEN energy-saving motors in the MODULOG® modular system

In the functionally highly flexible MODULOG® modular motor system FLENDER TÜBINGEN offers logistically and economically optimised solutions for all areas of drive technology.

**MODULOG® energy-saving motors are all designed for increased efficiency (eff2) or high efficiency (eff1).**

**The MODULOG® modular principle has numerous advantages for the machine designer**

To the designer the name MODULOG® stands for a clearly and comprehensibly structured modular system which enables him to assemble from a few standard components an efficient, long-lived and extremely easy-to-service motor to meet his individual requirements.

The central feature of the modular system is the gear motor designed for international power supply conditions with an add-on shaft system which is individually configurable on the B side of the motor. Thus, functional additions, such as brake, backstop, encoder, external ventilation, protective cover, second motor shaft end, etc., as "add-on functional units" can be almost arbitrarily combined.

### Standard

50Hz:

220-240/380-420V D/Y up to 7.5 kW and  
380-420/660-725V D/Y from 4 kW

4 pole

1.1 ... 30kW: eff2 , from 37 kW: eff1

Heat classF / load factor B

Suitable for inverter (IEC60034-17)

IP 55

Cable entries M .. x 1.5 , possible  
in 32 positions on motor

### Extendend Standard

60Hz "high performance":

254-277/440-480V D/Y up to 9 kW and  
440-480V D from 4.8 kW

60Hz "50Hz output":

220-240/380-420V D/Y up to 7.5 kW and  
380-420/660...725V D/Y from 4 kW

60Hz "50Hz output":

254-277/440-480V D/Y up to 7.5 kW and  
440-480V D from 4 kW

### Options

eff1 / 1.1 ... 30 kW

2-pole (eff2 , from 37 kW eff1)

6- or 8-pole

pole-reversible

other voltages/frequencies

1~ (single-phase-) version

PTC motor protection

WT motor protection

Space heater

IP 65 or IP 56

Protective cover

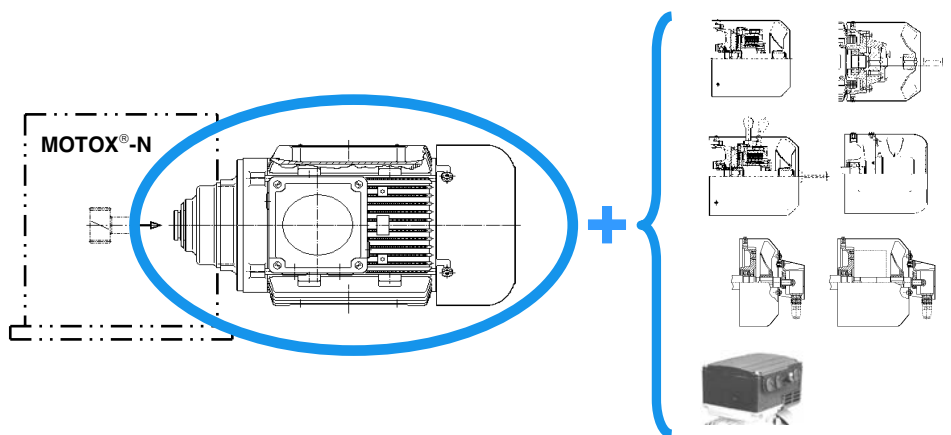
Feet on motor housing

(as mounting surface for brackets, etc.)

Additional earth (12 possible positions)

second rating plated

... and many more on enquiry



MOTOX®-N helical gear unit with externally ventilated MODULOG® brake motor  
D108-M1 12MB4F-L60N

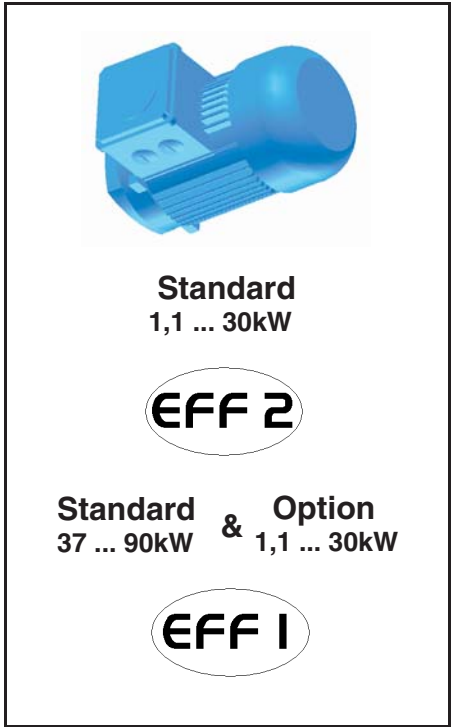
## Reducing operating costs with high-efficiency drives

### The MODULOG<sup>®</sup> motor series by FLENDER TÜBINGEN beats EU energy-saving requirements

According to a study by the Central Association of the Electrical Industry around two thirds of the energy consumed in industrial production facilities are accounted for by electric drives. The savings potential from the use of increased- and high-efficiency motors and the consistent use of frequency inverters for electronic speed control is estimated to be 10% of electric current consumption in German industry.

Accordingly, the European Commission and the European representatives of the electric motor manufacturers' trade associations CEMEP have developed a classification concept and invited motor manufacturers to voluntarily commit themselves to it.

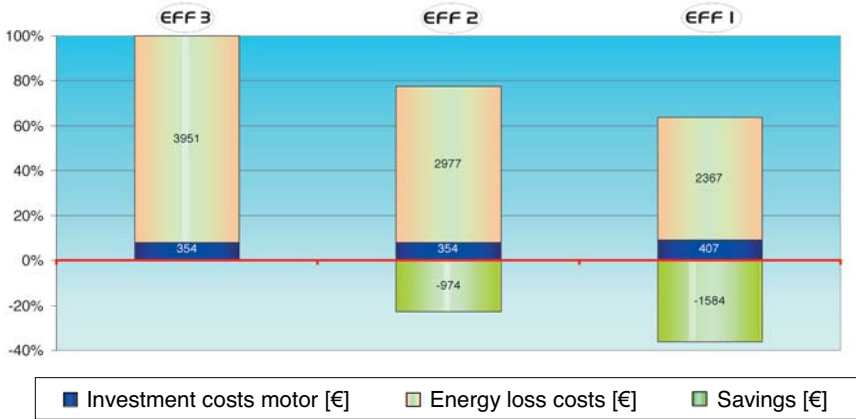
2- and 4-pole 1.1 to 90 kW three-phase motors are now classified in three categories, eff3, eff2 and eff1 according to efficiency.



#### Energy loss costs, investment costs and savings

from a 4-pole 7.5 kW motor with a service life of 3.000 h/a over 10 years

Depending on the number of operating hours per year, any additional cost to the operator of the system will be paid for in the first year, while the motor service life will be longer due to the markedly lower temperatures and improved quality of e.g. the insulation materials.



FLENDER TÜBINGEN was one of the first companies to commit itself to classification by taking a major step forwards by introducing the MODULOG<sup>®</sup> motor series and so offering the customer all-round high-efficiency motor technology in the form of MODULOG<sup>®</sup> motors to cover the entire power range.

The goal of the CEMEP EUC agreement:  
"eff3 market share < 50 % end 2003" was actually achieved 2 years early

**MODULOG<sup>®</sup> was there !**

European motor manufacturers pledge:  
"eff3 share < 10 % by 2007"

**MODULOG<sup>®</sup> is there !**

EUC presses for massive increase of eff1 share

**MODULOG<sup>®</sup> will be there !**