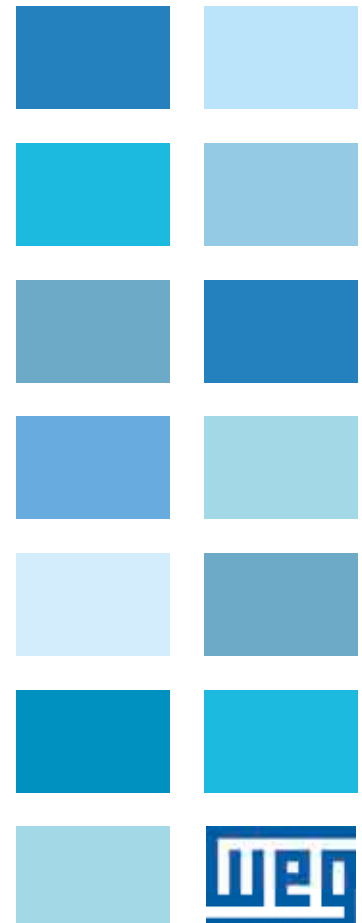


WMagnet Drive System

- Extra high efficiency
- Lighter and compact
- Extended life time
- Wide speed range
- Constant torque



WMagnet Drive System

This system consists of a Permanent Magnet Motor with extra high efficiency and a Variable Frequency Drive (VFD) specially designed to control the motor.

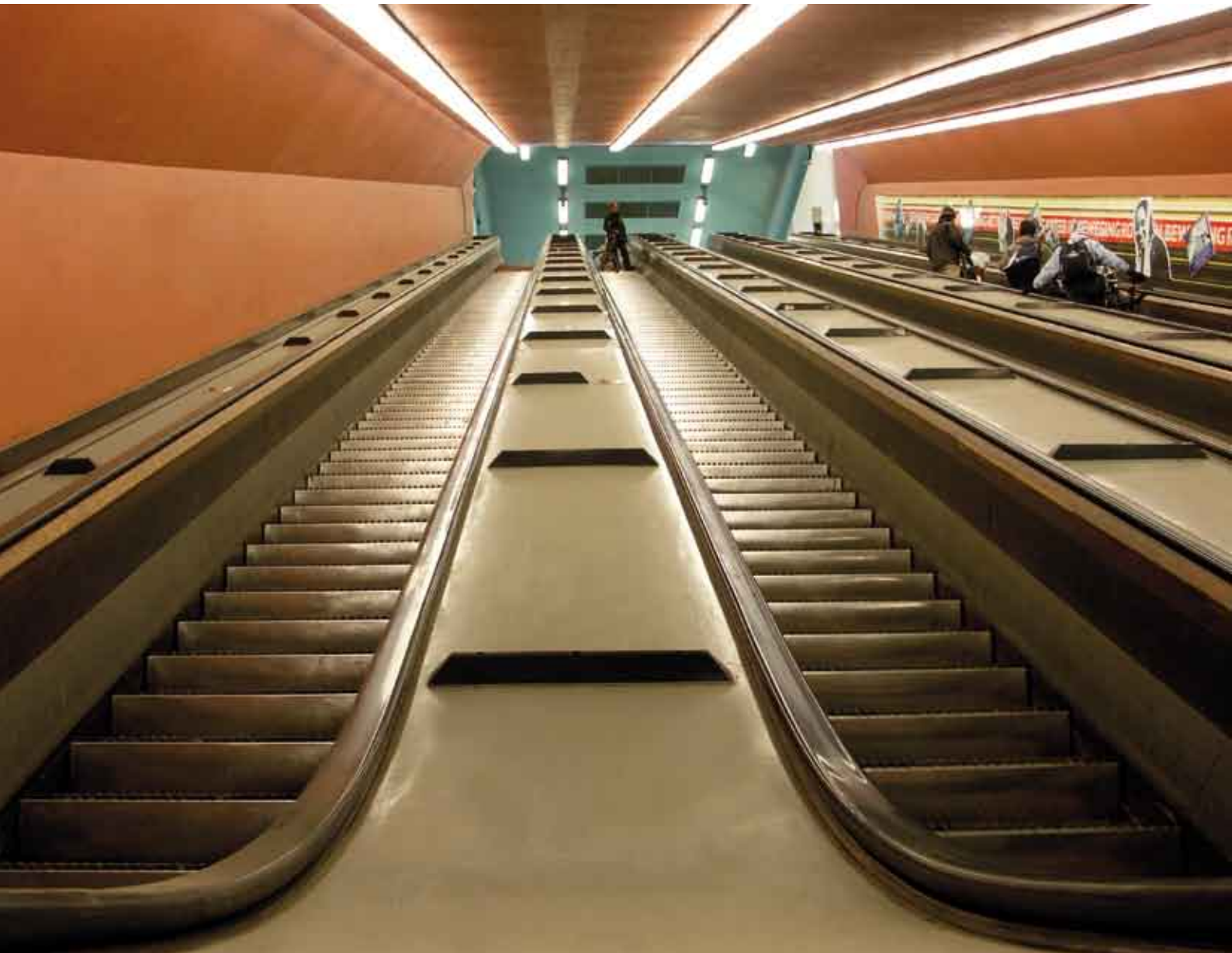
Motor

WEG permanent magnet motors are synchronous machines fitted with high energy magnets in their rotors. The magnets are displayed in a special configuration to minimize vibrations, noise level and maximize efficiency. These motors can also provide rated torque across the speed range without requiring any external ventilation unit.

Drive system

To drive the Permanent Magnet Motor WEG developed a special VFD line with specific software for this function. The vector control technology drives from zero speed to the field weakening zone. This control can be made without encoder (sensorless), allowing zero speed due to the use of control algorithms.

Wmagnet motors can not be directly connected to the power supply.



WMagnet is suitable to operate at variable speeds with additional benefits such as weight, dimension and noise reduction and extended life time.



Motor Features

- Degree of Protection: IP 55
- Output: 11kW to 160kW
- Frame: 132S to 250S/M
- Speed Range: zero to 5500 rpm*
- Voltage: 400V
- Bearing sealing: V-ring
- Class F Insulation
- Service factor: 1.0
- Thermal protection: PTC
- Mounting: B3T
- Self-ventilated

VFD Features

- Output: 11kW to 160kW
- Voltage: 380-480V
- Sensorless Vector Control
- RISC 32 bit micro controller
- EMC filters
- Modbus RTU

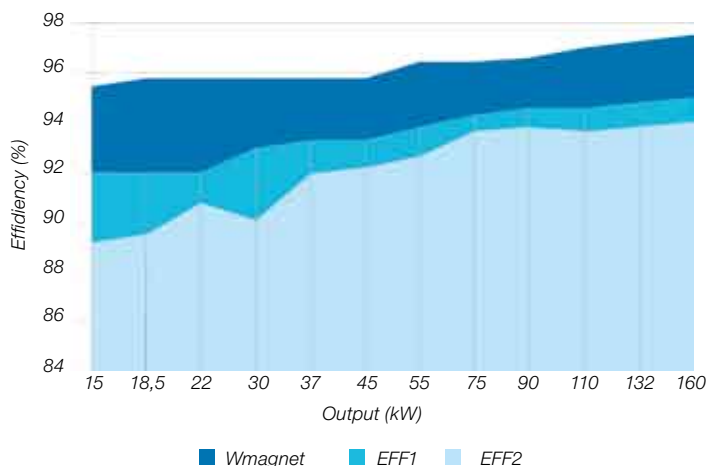
* Other speeds under request

Main Features

Extra High Efficiency

WMagnet motors are fitted with NdFeB magnets inserted inside the rotor, instead of conventional aluminium alloy squirrel cage. As the Joule losses in the induction motor rotor are responsible for a significant portion of total losses in the motor, replacing the squirrel cage by the permanent magnet technology ensures efficiency levels much higher than any other conventional induction motor. The efficiency levels provided by WMagnet motors are much higher than the minimum requirements by the standard for High Efficiency motor ratings.

Efficiency for 400V - Europe - 3000 rpm



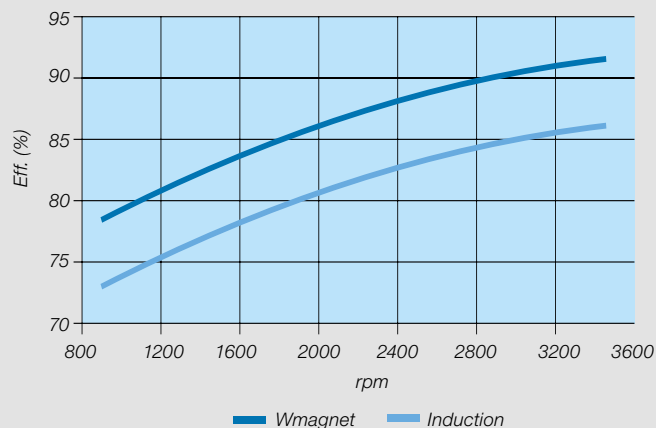
WMagnet X Induction Motor

Actual tested values

150 kW compressor

150 kW	WMagnet Motor	Induction Motor
Frame	250S/M	280S/M
Current (A)	279	296
Speed	3600	3575
Eff.(%)	97,3	94,5
Weight (kg)	443	850

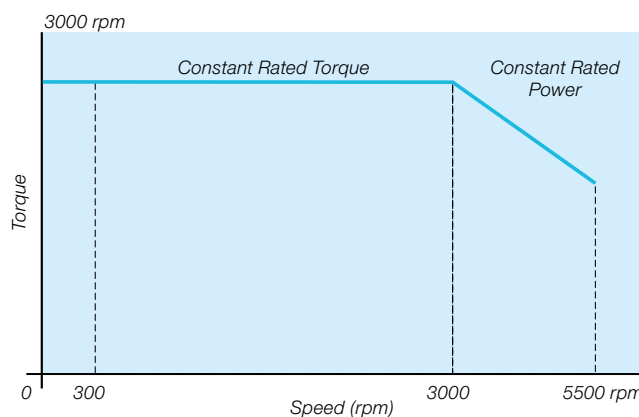
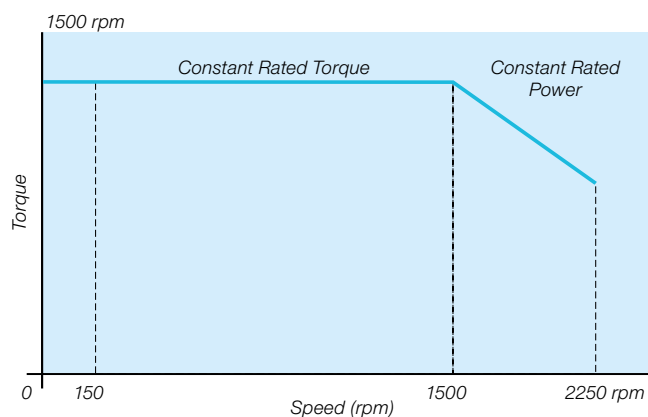
3600 rpm of compressor system



Wide speed range with constant torque

WMagnet motors were designed to operate in a wide speed range, controlled by WEG frequency inverters. The presence of NdFeB magnets in the rotor ensures constant magnetic flows. This means that WMagnet motors can be operated with constant torque, with the same performance, with no need of a forced ventilation unit.

Torque vs. Speed Curve

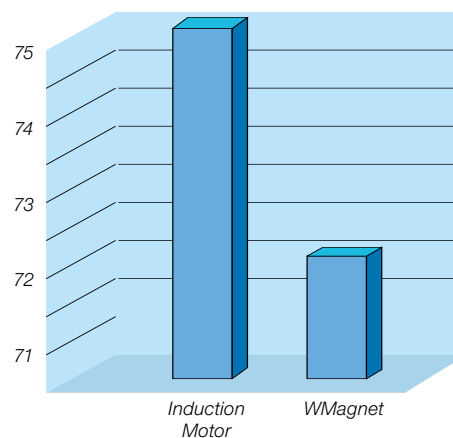


* maximum speed under request and below 10:1 range.

Low noise and vibration level

Reduction of motor frame as well as cooling fan ensures a great reduction in noise level. This combined with a new technology specially developed to balance the rotor provides extra benefits to the customer

Average Sound Pressure Level dB (A)
15kW - 3000rpm motor

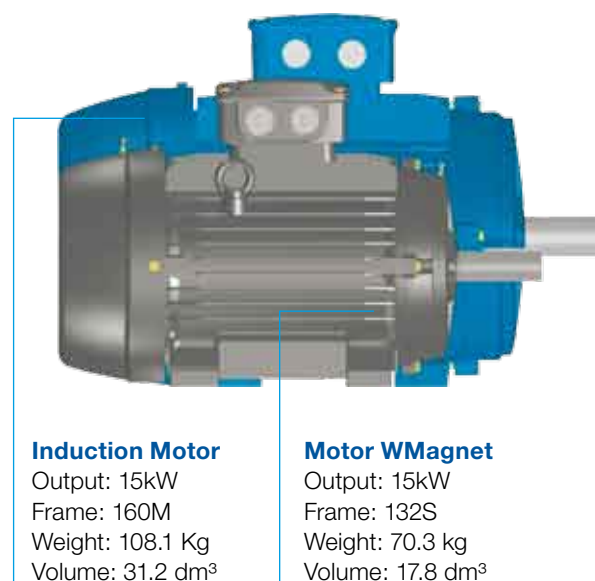


Reduced weight and volume

The magnets fitted in the rotor ensure a greater reduction of electric losses and in motor temperature, thus resulting in a higher torque/volume ratio in the same output, enabling motor size reduction. When compared with the standard induction motor, the volume of the WEG permanent magnet motors is reduced up to 43%, and the weight is reduced up to 35%.

300 - 3000 rpm

Output (kW)	Torque (Nm)	Frame	
		Induction motor	WMagnet
15.0	47.7	160M	132S
18.5	58.9	160L	132M
22.0	70.0	180M	160M
30.0	95.5	200L	180M
37.0	117.8	200L	180L
45.0	143.2	225S/M	200M
55.0	175.1	250S/M	225S/M
75.0	238.7	280S/M	225S/M
90.0	286.5	280S/M	225S/M
110.0	350.1	315S/M	250S/M
132.0	420.2	315S/M	250S/M
160.0	477.5	315S/M	250S/M



All WMagnet motors are built at least one frame size smaller compared to induction motors and, in some cases, there will be a reduction of two frame sizes for the same output power.

WISE Insulation System

Aiming at extending the motor life time and reliability of motors fed by inverters, WEG developed the WISE system, which is the result of the enhancement of materials in all production stages related to the motor insulation system such as wires, insulating films, impregnation system, impregnating material and leads, among other components included in the process.

Extended Life Time

The presence of magnets prevents from circulating current through the rotor, thus the motor operates cooler, and this results in a significant increase of its life time.

Electrical Features

3000 rpm

Motor								Drive		
Output		Frame	Torque [Nm]	Rated current at 400V [A]	Efficiency [%]	Average sound pressure level [dB(A)]	Approx. Motor weight [kg]	Drive	Drive Dimensions [mm] HxWxD	Approx. Drive weight [kg]
kW	HP									
15	20	132S	47.7	24.3	95.8	72	63	CFW09PM030	390x223x274	19
18.5	25	132M	58.9	29.9	95.8	72	74	CFW09PM030*	390x223x274	19
22	30	160M	70.0	36.4	95.8	75	141	CFW09PM038	475x250x274	22,5
30	40	180M	95.5	48.7	96.2	75	201	CFW09PM060	550x335x274	41
37	50	180L	118	57.4	96.4	75	218	CFW09PM060*	550x335x274	41
45	60	200M	143	73.3	96.6	81	281	CFW09PM086	675x335x300	55
55	75	225S/M	175	88.6	96.6	85	392	CFW09PM0105	675x335x300	55
75	100	225S/M	239	116	96.9	85	464	CFW09PM0142	835x335x300	70
90	125	225S/M	286	140	97.1	85	503	CFW09PM0142*	835x335x300	70
110	150	250S/M	350	169	97.3	85	546	CFW09PM0240	975x410x370	100
132	175	250S/M	420	216	97.4	85	570	CFW09PM0312	1020x688x492	216
160	220	250S/M	477	251	97.5	85	595	CFW09PM0361	1085x700x492	259

1500 rpm

Motor								Drive		
Output		Frame	Torque [Nm]	Rated current at 400V [A]	Efficiency [%]	Average sound pressure level [dB(A)]	Approx. Motor weight [kg]	Drive	Drive Dimensions [mm] HxWxD	Approx. Drive weight [kg]
kW	HP									
11	15	132S	70.0	20.2	93.6	72	63	CFW09PM0024	290x182x196	6
15	20	132ML	95.5	26.1	94.0	72	75	CFW09PM0030	390x223x274	19
18.5	25	160L	118	30.2	94.4	75	148	CFW09PM0030	390x223x274	19
22	30	180M	140	35.3	94.9	75	201	CFW09PM0038*	475x250x274	22,5
30	40	180L	191	47.9	94.9	75	219	CFW09PM0060	550x335x274	41
37	50	200M	235	60.5	95.9	81	281	CFW09PM0060*	550x335x274	41
45	60	200L	287	71.9	96	81	304	CFW09PM0086	675x335x300	55
55	75	225S/M	350	89.2	96.1	85	458	CFW09PM00105	675x335x300	55
75	100	250S/M	477	119	96.7	85	569	CFW09PM0142	835x335x300	70
90	125	250S/M	573	145	96.7	85	595	CFW09PM0180	975x410x370	100

* Note: Reduced drive size compared to an induction motor.

Typical Applications

Applications that required low noise and vibration as well as reduction of space such as: compressors, elevators, centrifugal pumps, fans, exhausters, conveyor belts, electric vehicles and others.

Pumps and Ventilation Systems

Pumps and ventilation systems operating under variable load duties benefit by the speed variation capacity of synchronous Wmagnet motors without efficiency loss, which ensures energy savings and faster returns on investments. The size reduction is also an important consideration for the ventilation system, as it ensures lower weight and better usage of the available area.



Elevators

Elevators will benefit from the use of permanent magnet motors.

Reduced size and noise levels ensuring space optimization and giving greater comfort to users.

Compressors

Constant torque for all the speed range is a desirable feature in compressors fed by VFD's. The permanent magnet motors are able to start constant torque loads in a wide speed range, with additional advantages such as weight, dimension and noise reduction and extended life time.



Conveyor belts

The capacity to provide constant torque in the whole speed range is essential for conveyor belts. Wmagnet motors are suitable to operate at variable speeds without requiring motor over sizing or the use of a forced ventilation unit.

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