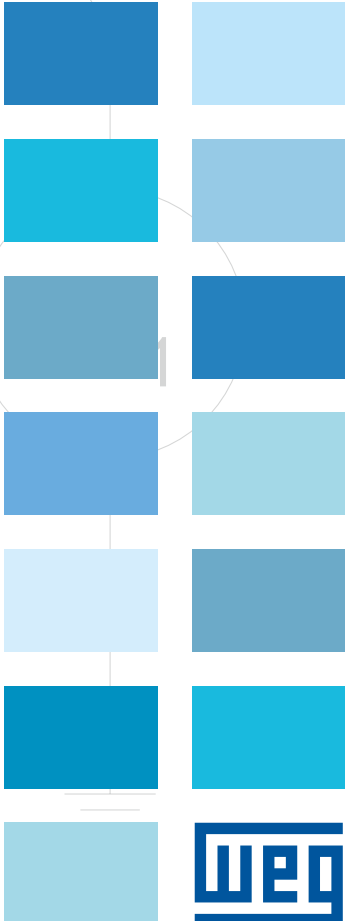


DC Motors



DC Motors

WEG DC motors are designed with state-of-the-art project technology, resulting in compact machines with excellent dynamic properties able to meet the requirements of a variety of applications in the automation and process control areas.

Technical Characteristics

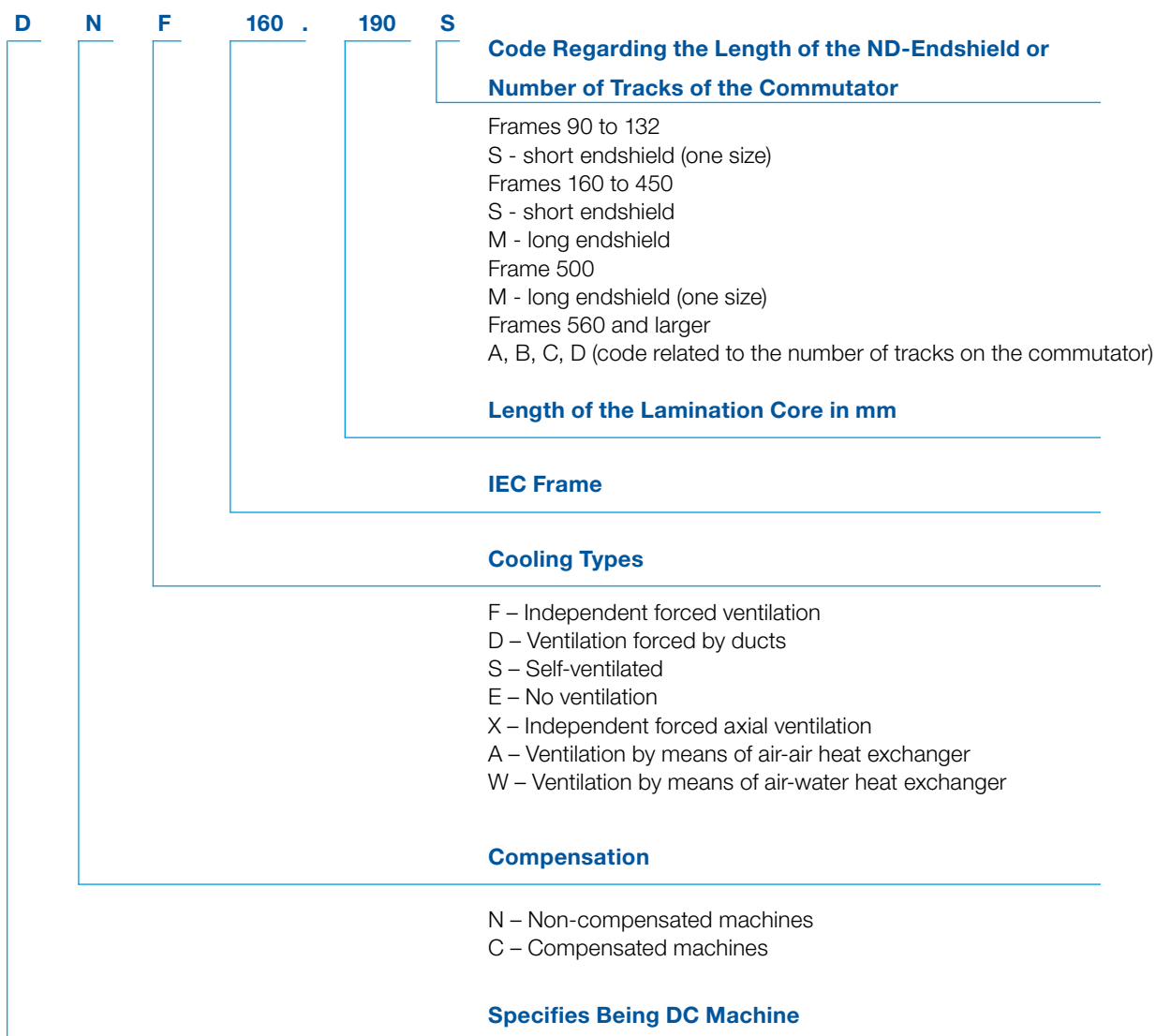
WEG DC motor line comprises a power range up to 10,000 kW, with torques from 2 to 200,000 Nm, and is used in different industrial applications, such as the paper and plastic industries, among others.

Projected for drive by means of thyristor converters, the DC motors can be manufactured with voltages from 110 to 1000 V and frame sizes (IEC) from 90 to 1800, or larger sizes upon consultation.



Powers up to 10,000 kW

Terminology



Constructive Characteristics

Frame

Laminated in high-quality steel plates in rectangular, hexagonal or octagonal shape, allowing supply by static converters in high dynamic duties with fast torque and current variations.

Rotor and Stator Winding

They are wound with copper wire enamel-coated with class H varnish and with insulation and impregnation system class F or H.

Endshields

In cast iron or welded, they allow the coupling of WEG tacogenerators model 1R or TCW and other accessories, tacogenerators and encoders upon consultation.

Commutators

Made of copper and with the highest quality insulating materials, they allow a perfect contact with the brushes and ensure excellent commutation conditions.

Brush Holder

Manufactured with high technology, they have dimensions, tolerances and pressures suitable for each application, ensuring a long useful life of the mechanical system.

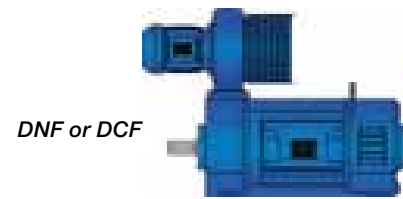
Brushes

Made of electrographite, natural graphite or specified according to load conditions, they ensure a long useful life.

Bearings

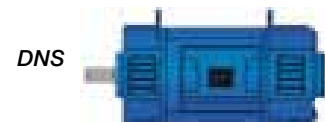
Ball bearings or roller bearings according to the size and application of the motor.

Oil-lubricated sleeve bearings for specific applications.



DNF or DCF

*Independent Forced Ventilation
Degree of Protection IP23S
Cooling IC 06*



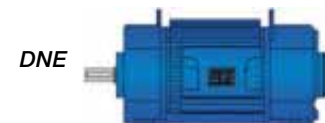
DNS

*Self-Ventilated
Degree of Protection IP23S
Cooling IC 01*



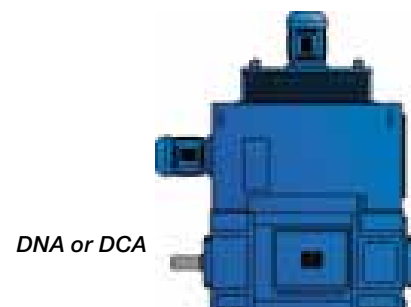
DNX

*Independent Forced Axial Ventilation
Degree of Protection IP23S
Cooling IC 06*



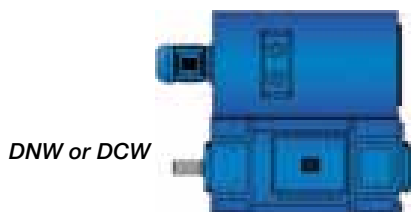
DNE

*No Ventilation
Degree of Protection up to IP55 (W)
Cooling IC 410*



DNA or DCA

*Ventilation by Air-Air Heat Exchanger
Degree of Protection up to IP55 (W)
Cooling IC 666*



DNW or DCW

*Ventilation by Air-Water Heat Exchanger
Degree of Protection up to IP55 (W)
Cooling IC 87W*



Rotor



Commutator centrifuge



Stator

Advantages

Besides their high reliability and safety combined with long periods without requiring maintenance, WEG DC motors have important characteristics that make them stand out in the industry:

- Wide range of speed variation
- Dimensions according to ABNT and IEC
- Low weight / power ratio
- High efficiency
- Low noise level
- Low moment of inertia
- High capacity for dynamic loads
- Robust construction
- High resistance to vibration
- Excellent commutation quality

Full Solutions

With the advance of the electronics in high power circuits and control systems, the converter, command and DC motor set becomes economically feasible. The DC motors offer a wide range of speed variation without jeopardizing the performance of the driven machine. The DC drives, composed of AC/DC converters, feature excellent command and regulation technical properties, ensuring:

- Accurate speed regulation
- Constant and ample acceleration under any load condition
- Controlled acceleration and/or deceleration
- Constant torque under a wide speed range with control by the armature



Applications

Due to its versatility in the applications, the DC motor takes a great share of the market of electric motors, being specially used in:

- Tool-machines in general
- Piston pumps
- Friction torques
- Advance tools
- Lathes
- Coil winding machines
- Boring mills
- Grinding machines
- Textile machines
- Hoists and cranes
- Gantries
- Traction vehicles
- Presses
- Paper machines
- Circle cutting machines
- Chemical and petrochemical industry
- Steel plants
- Furnaces, exhaust fans, separators and conveyor belts for the cement industry and others



Customer: USIMINAS

Country: Brazil
 Supply: DC motors of 325 KW
 Application: Tensioning roll of strap feeding



Customer: HEATLAND STEEL

Country: USA
 Supply: DC motors of 448 to 1119 KW
 Application: Cold rolling



Customer: VILLARES METALS

Country: Brazil
 Supply: DC motor, frame 1800, 2400 KW
 Application: Hot rolling of bars



Customer: AREVA

Country: Brazil
 Supply: DC motor, frame 900, 1800 KW
 Application: Test laboratory

Tacogenerators

WEG also supplies a line of tacogenerators for the control of numeric-control tool-machines, textile machines and other applications that require continuous controlled speed or acceleration and deceleration of preset programs.

Models

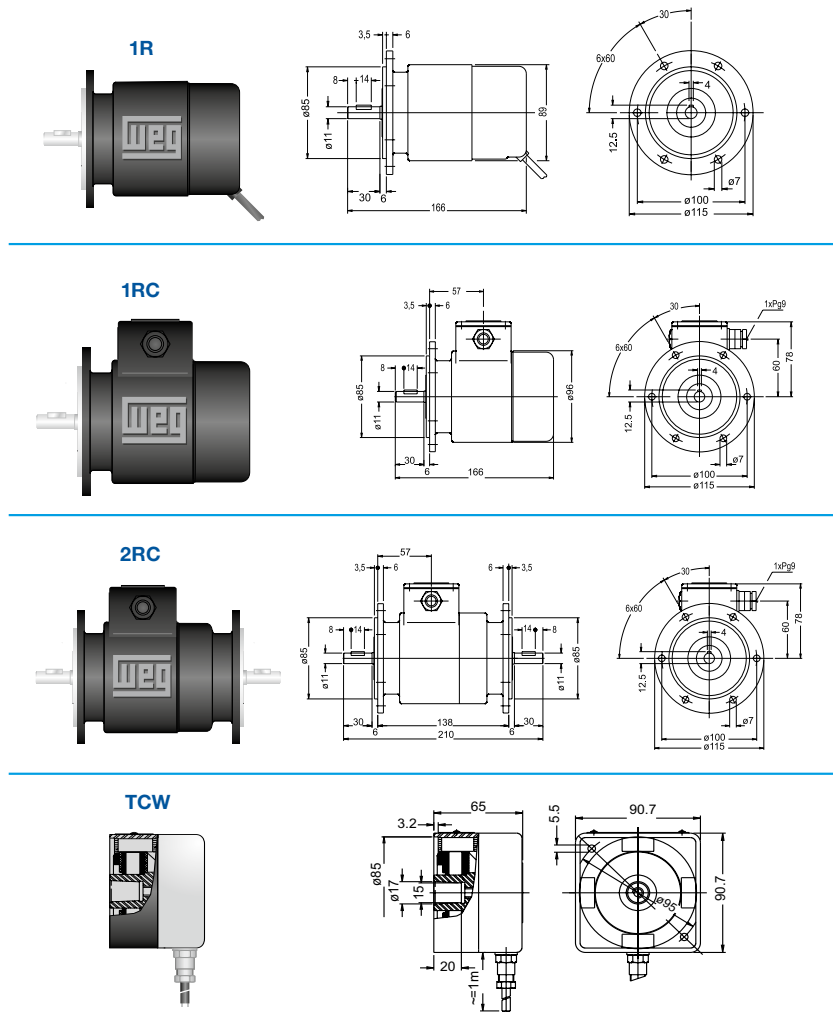
1R/20, 1R/30, 1R/40, 1R/60, 1R/100, 1RC/20, 1RC/30, 1RC/40, 1RC/50, 1RC/60, 1RC/100, 1RC/120, 1RC/150, 1RCP/20, 1RCP/60, 1RP/100, 1RP/20, 1RP/60, 1RC/100, 2RC/20, 2RC/40, 2RC/60, 2RCP/100, 2RCP/20, 2RCP/60, 2RCP/100, 3RCP/20, 3RCP/60, 3RCP/100, 3RCP/120, 3RP/20, 3RP/60, 3RP/100, TCW20, TCW40.

TCW

Horizontal or vertical mounting by flange directly on the motor ND-endshield.
Compact and high performance.

R, RC, RCP, RP

Horizontal or vertical mounting by flange or feet; supplied with terminal box or connecting cable.



Note: dimensions of other models upon consultation.

Technical Characteristics

Models	_ R _/20	_ R _/60	_ R _/100	TCW20__	TCW40__
Voltage at 1000 rpm	20 V*	60 V*	100 V*	20 V*	40 V*
Maximum speed	8000 rpm	8000 rpm	6000 rpm	8000 rpm	4000 rpm
Direction of rotation	Reversible	Reversible	Reversible	Reversible	Reversible
Maximum consumption current	550 mA	250 mA	160 mA	30 mA	20 mA
Maximum consumption voltage	160 V	480 V	600 V	165 V	165 V
Resistance of the armature	9 Ohm +3%	59 Ohm +3%	165 Ohm +3%	60 Ohm +3%	196 Ohm +3%
Maximum linearity error	0.50%	0.50%	0.50%	0.50%	0.50%
Maximum reversibility error	1%	1%	1%	1%	1%
Ripple	1%	1%	1%	1%	1%
Temperature coefficient for voltage percentage variation	0.01% /°C	0.01% /°C	0.01% /°C	0.01% /°C	0.01% /°C
Insulation resistance at 600 V DC and thermal duty of 120°C	2 MOhm	2 MOhm	2 MOhm	2 MOhm	2 MOhm
Dielectric strength between each terminal and frame	1700 V/60 Hz for 30°	1700 V/60 Hz for 30°	1700 V/60 Hz for 30°	1700 V/60 Hz for 30°	1700 V/60 Hz for 30°
Maximum ambient relative humidity	90%	90%	90%	90%	90%
Protection as per IEC 34-5 and NBR 6146	IP44 or IP55**	IP44 or IP55**	IP44 or IP55**	IP55	IP55
Insulation class	B	B	B	B	B
Maximum radial force	10 Kgf	10 Kgf	10 Kgf	-	-
Maximum axial force	10 Kgf	10 Kgf	10 Kgf	-	-
Number of poles	2	2	2	4	4
Number of brushes	4	4	4	4	4
GD ²	8450 g. cm ²	8450 g. cm ²	8450 g. cm ²	5370 g. cm ²	5370 g. cm ²
Ambient temperature	-15 up to 60°C	-15 up to 60°C	-15 up to 60°C	-15 up to 60°C	-15 up to 60°C
Approximate mass model without terminal box	2.20 Kg	2.20 Kg	2.20 Kg	-	-
Approximate mass model with terminal box	2.40 kg	2.40 kg	2.40 kg	-	-
Approximate mass model TCW	-	-	-	1.50 kg	1.50 kg

* Other voltages, consult the factory.

** Without terminal box (model R): IP44.
With terminal box (model RC) IP55.



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