



ELECTRIC MOTORS AND COMPONENTS

LOW VOLTAGE DC MOTORS

Frame size from \varnothing 81 to \varnothing 125 mm



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DC MOTOR TECHNICAL CORNER-STONES EXPLANATION

Nominal value

Value of a variable (e.g. voltage, current, resistance ...) for which a motor, fan, pump, its parts or characteristics are measured and by which they are named.

Power input P_1

$$P_1 = U \cdot I$$

P_1	Power input in W
U	Voltage in V
I	Current in A

Power output P_2

The power output P_2 is always specified for motors.

$$P_2 = \frac{2\pi}{60} \cdot M \cdot n$$

P_2	Power output in W
M	Torque in Nm
n	Speed in min^{-1}

Efficiency

The efficiency is the relationship between mechanical power output P_2 and electrical power input P_1 .

$$\eta = \frac{P_2}{P_1}$$

Torque M_N

The torque of a motor is calculated using the following equation:

$$M_N = \frac{60}{2\pi} \frac{P_{2N}}{n}$$

Nominal speed n_N

The nominal speed is the speed output by a motor supplied with nominal voltage and driven with nominal power.

Direction of rotation

Specifications regarding direction of rotation apply when looking onto the shaft end of the motor. In the case of motors with two shaft ends, the shaft end opposite the commutator determines the direction of rotation.

IP code

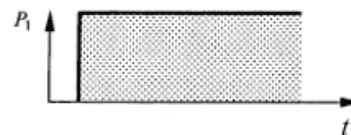
Degrees of protection are indicated by the IP code. The IP code consists of the letters IP (internal protection) followed by two digits indicating the degree of protection and a letter, which is only an option.

The first digit stands for protection of the electrical equipment inside the housing against the effects of solid foreign bodies including dust. The second digit defines the protection of the electrical equipment inside the housing against ingress of water. And the third optional letter indicates prevention of employees from touching hazardous parts inside the housing or moving, mechanical parts.

Type of Duty

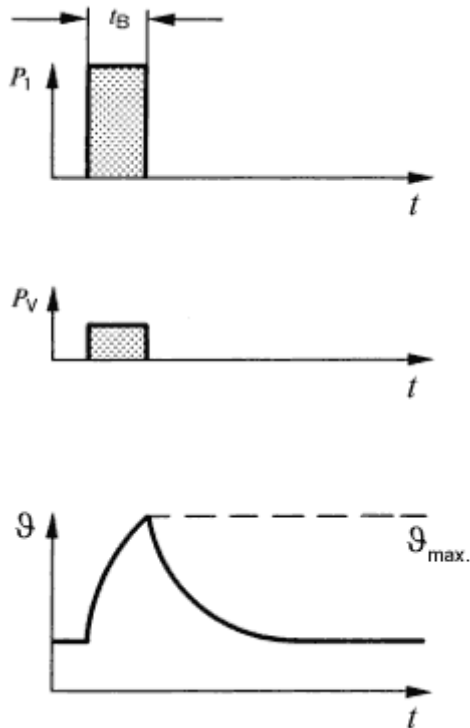
CONTINUOUS DUTY S1

Operation at constant load, the duration of which is sufficient to reach thermal equilibrium.



SHORT-TIME DUTY S 2

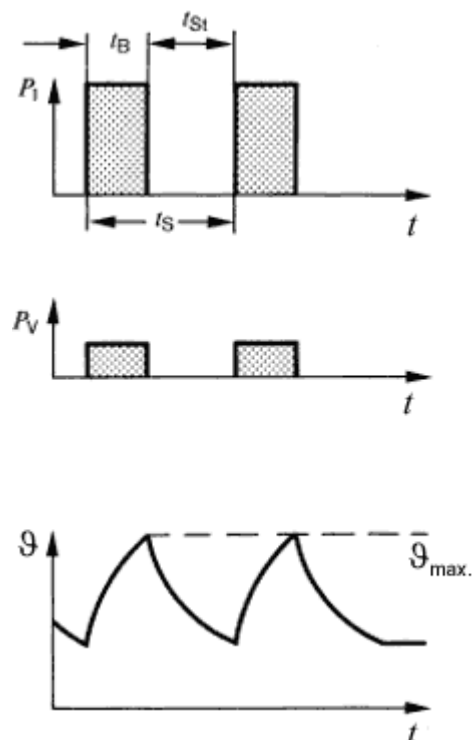
Operation at constant load, duration of which, however, is not sufficient to reach thermal equilibrium, with a subsequent rest lasting until the motor temperature differs no more than 2 K from the temperature of the coolant.



INTERMITTENT DUTY S 3

Operation composed of a sequence of identical cycles of which each cycle includes a period at constant load and a rest whereby the starting current does not have any considerable effect on heating. The percent figure refers to the cyclic duration factor :

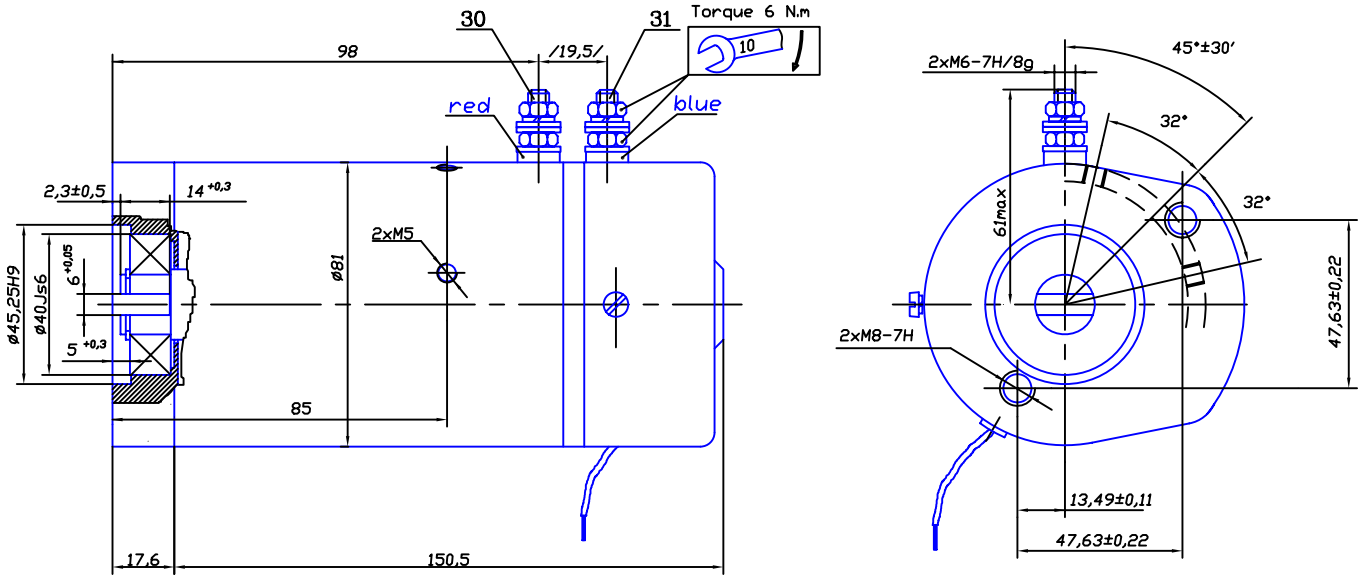
$$t_r = \frac{t_B}{t_B + t_{St}} \cdot 100 \%$$



MOTRIC Ltd. manufactures low voltage DC motors used for different applications in mobile equipment. We are mainly serving the worldwide automotive, lifting, material handling, petrol and marine industries.

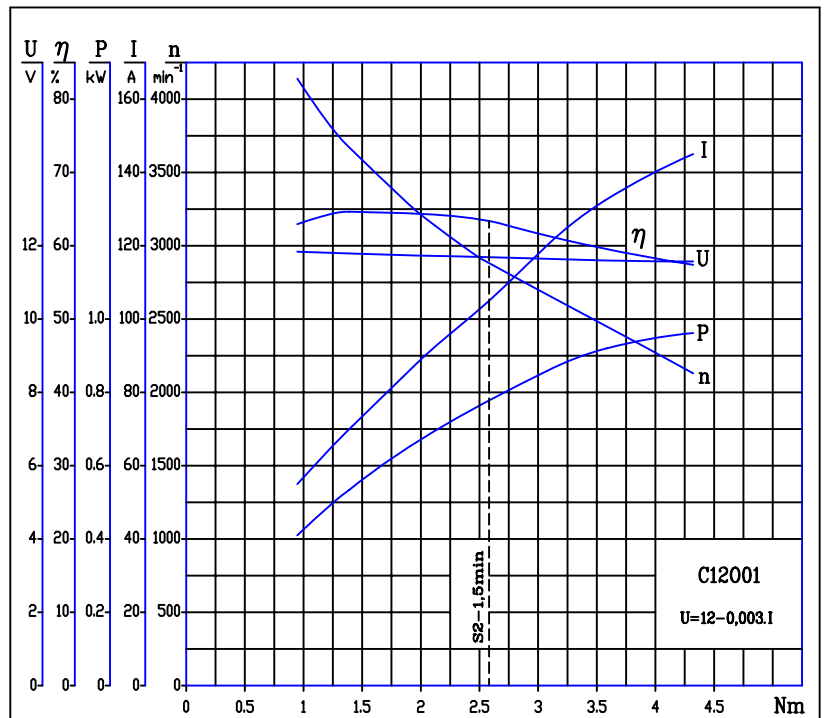
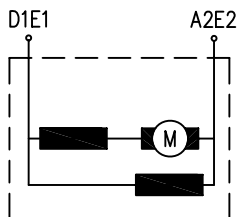
The standard frame sizes for our motors are $\varnothing 81$, $\varnothing 112$ and $\varnothing 125$ mm. Customized and innovative product development is one of the most important advantages of our company.

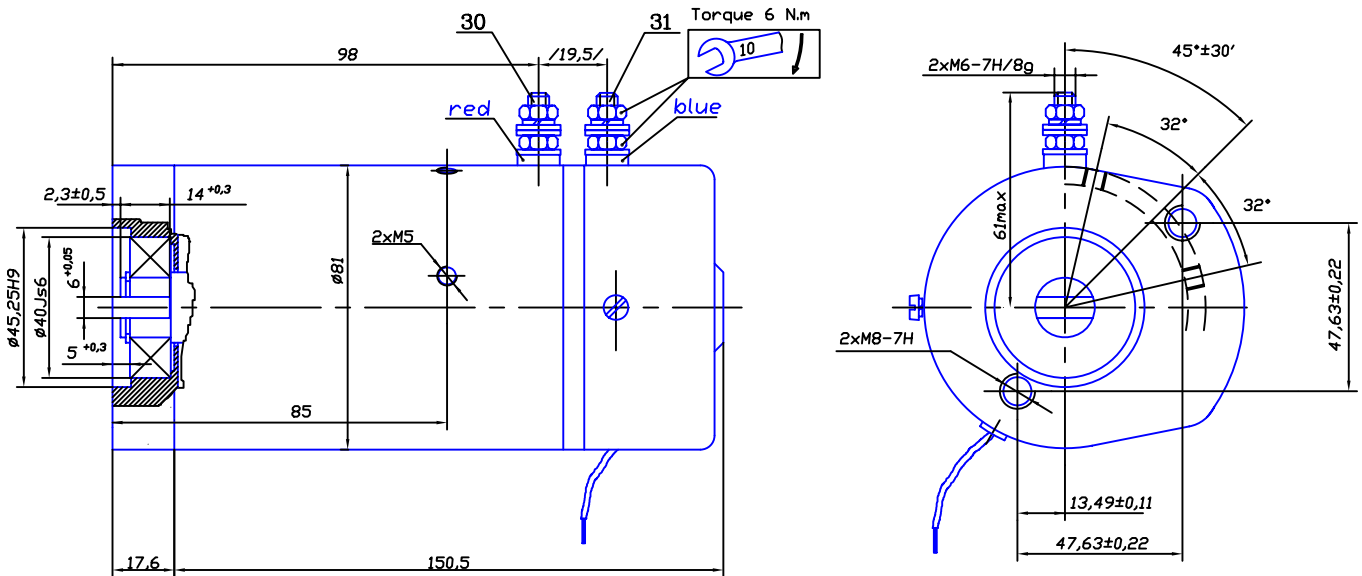
Please contact us for further help, technical advice or price quotation.



DC MOTORS IN FRAME SIZE Ø 81 MM CODE : 08123003

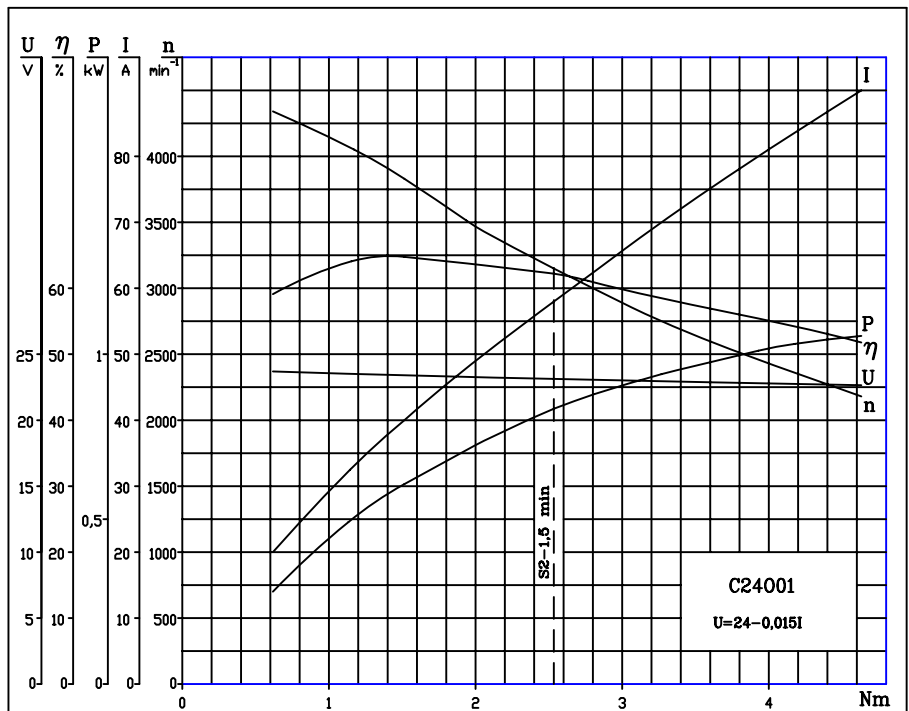
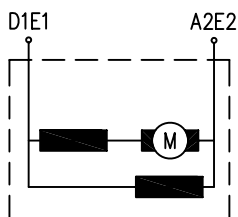
Power :	0.8 kW
Voltage :	12 V
Current :	110 A
Speed :	3000 RPM
Duty :	S2 - 1,5 min
Excitation :	compound
Protection :	IP 44
Insulation :	F
Weight :	3.34 kg
Rotation :	CW

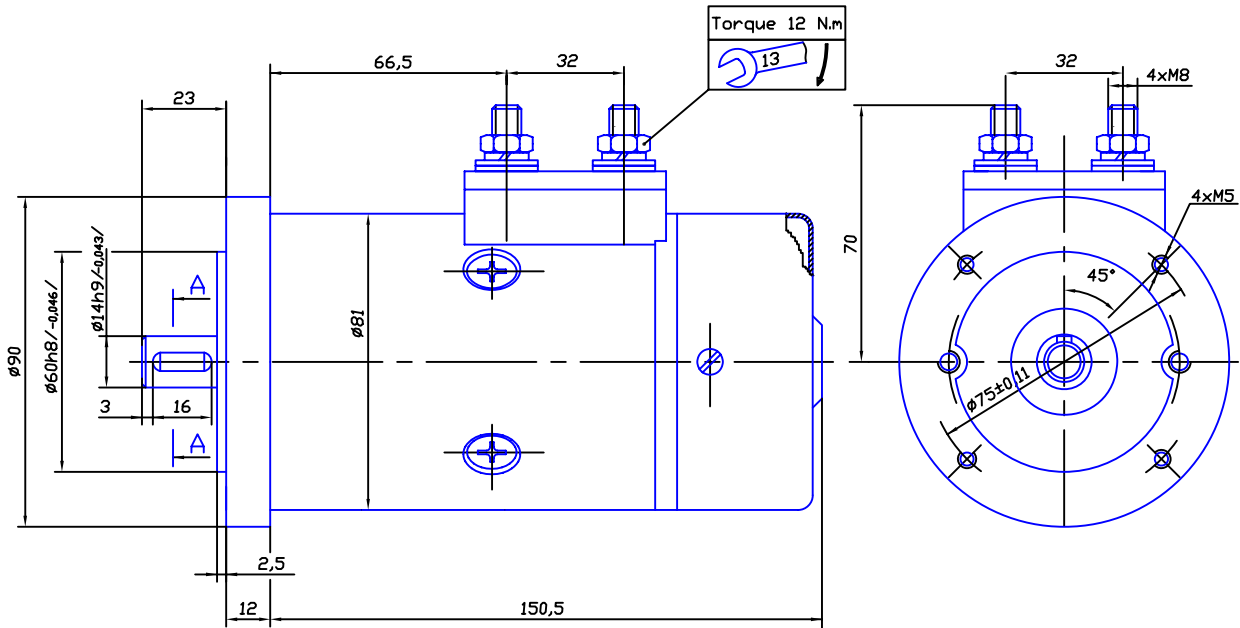




DC MOTORS IN FRAME SIZE Ø 81 MM CODE : 08243003

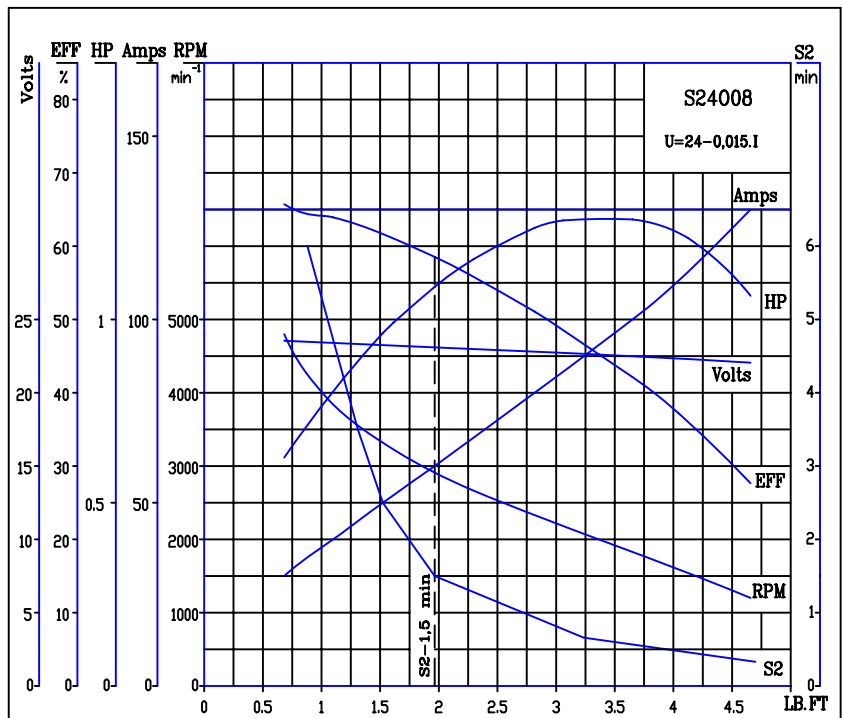
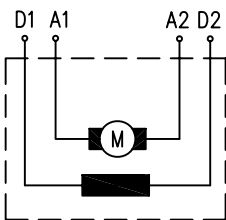
Power :	0.8 kW
Voltage :	24 V
Current :	58 A
Speed :	3000 RPM
Duty :	S2 - 1,5 min
Excitation :	compound
Protection :	IP 44
Insulation :	F
Weight :	3.34 kg
Rotation :	CW

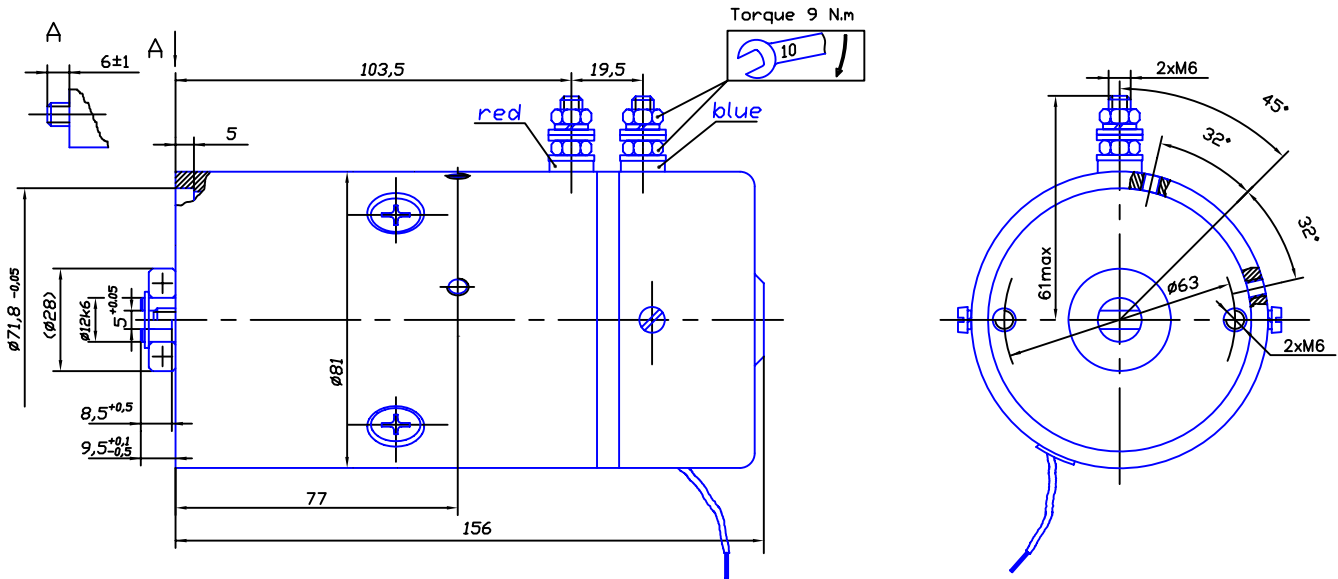




DC MOTORS IN FRAME SIZE $\varnothing 81$ MM CODE : 08243022

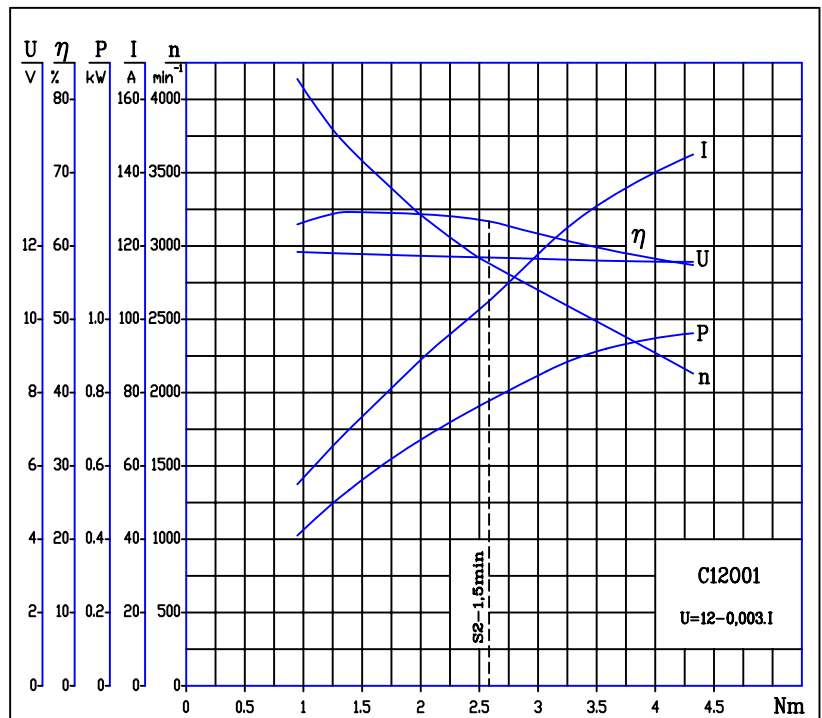
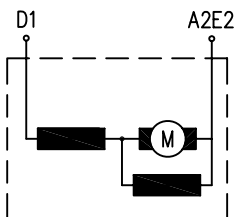
Power :	0.8 kW
Voltage :	24 V
Current :	60 A
Speed :	3000 RPM
Duty :	S2 - 1,5 min
Excitation :	series
Protection :	IP 44
Insulation :	F
Weight :	3.52 kg
Rotation :	REV

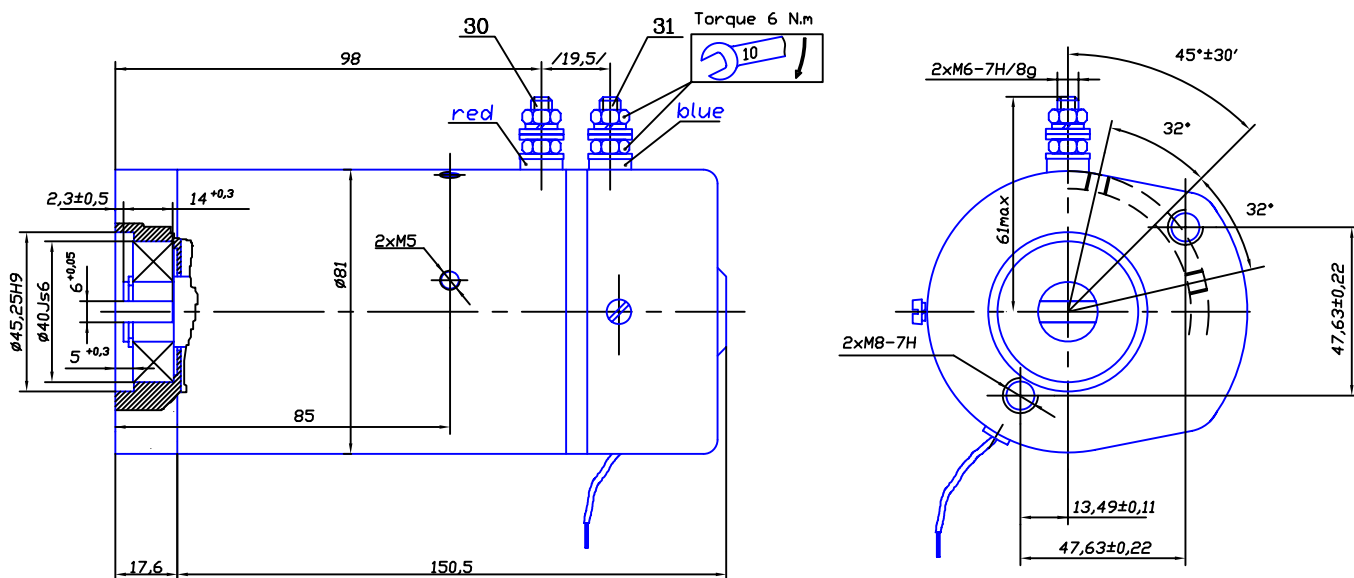




DC MOTORS IN FRAME SIZE Ø 81 MM CODE : 08123010

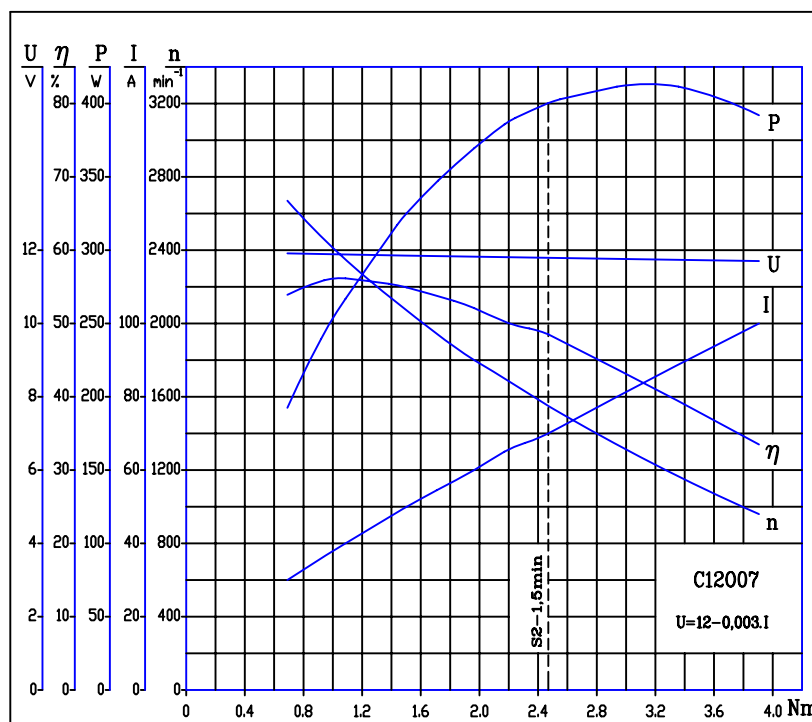
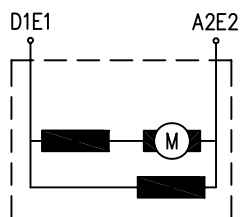
Power :	0.8 kW
Voltage :	12 V
Current :	110 A
Speed :	3000 RPM
Duty :	S2 - 1,5 min
Excitation :	compound
Protection :	IP 44
Insulation :	F
Weight :	3.18 kg
Rotation :	CW

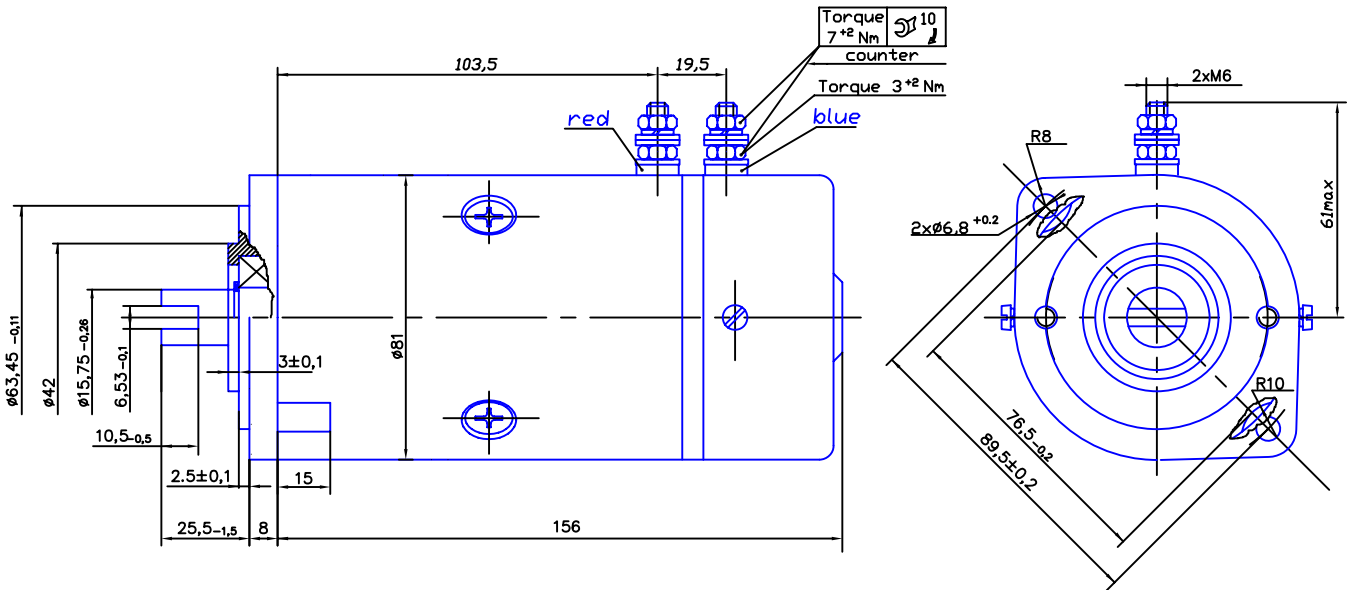




DC MOTORS IN FRAME SIZE Ø 81 MM CODE : 04121501

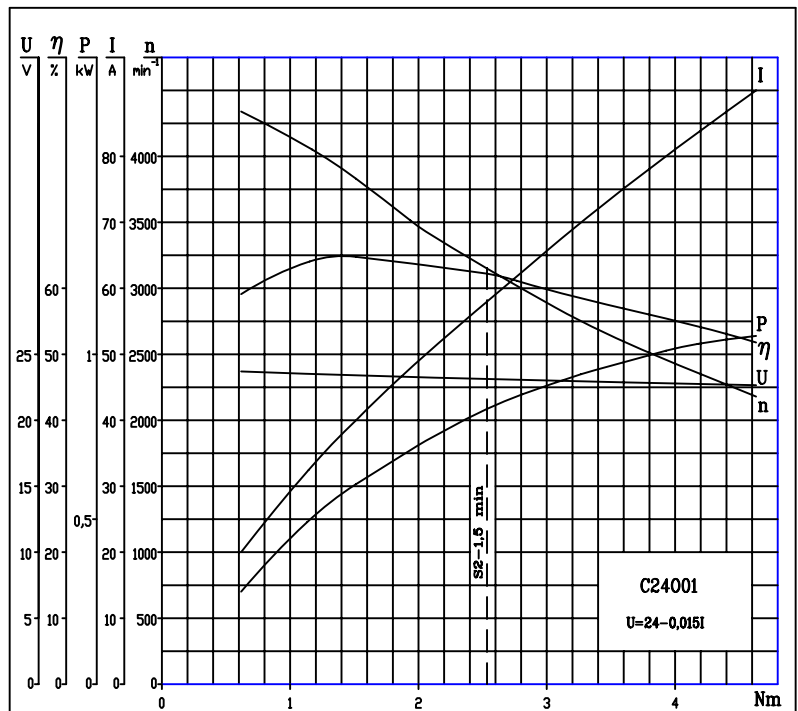
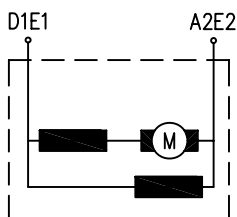
Power :	0.4 kW
Voltage :	12 V
Current :	70 A
Speed :	1500 RPM
Duty :	S2 - 1,5 min
Excitation :	compound
Protection :	IP 44
Insulation :	F
Weight :	3.34 kg
Rotation :	CW

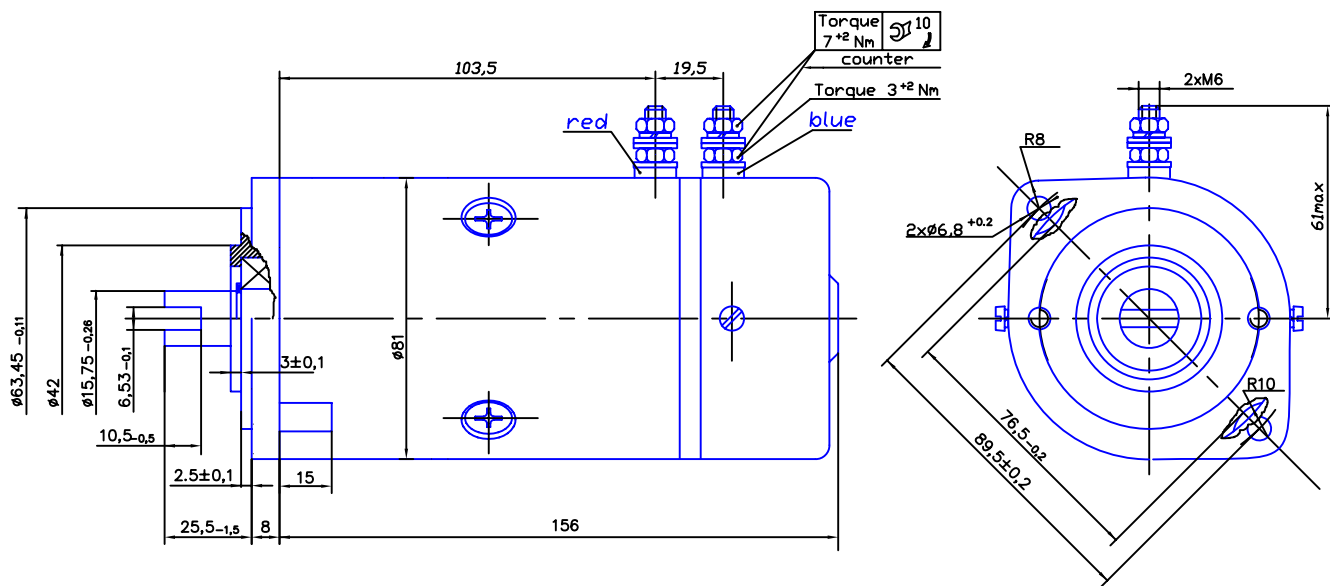




DC MOTORS IN FRAME SIZE $\phi 81$ MM CODE : 08243009

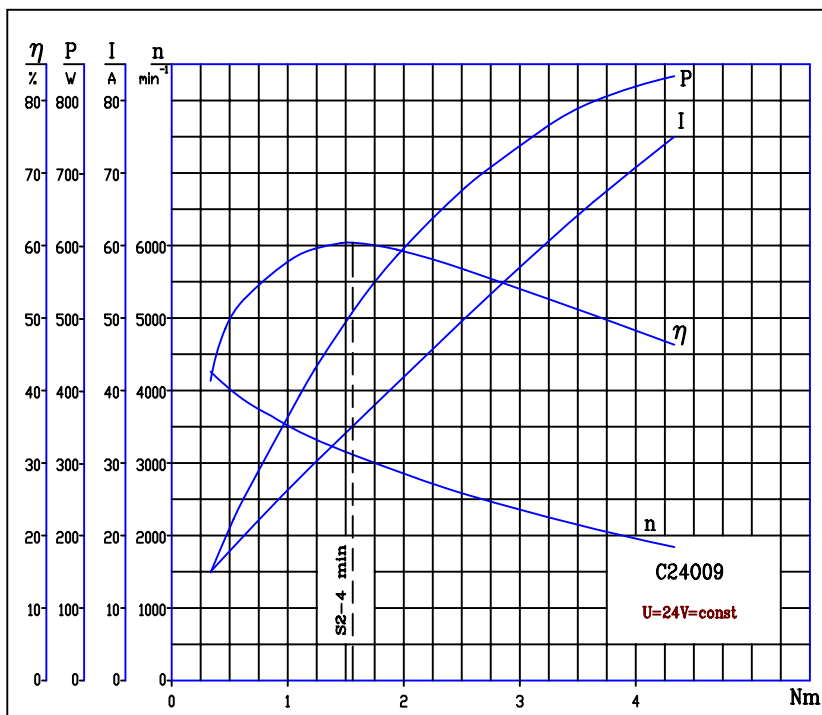
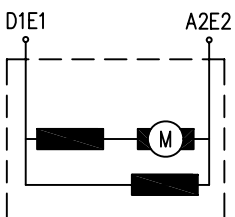
Power :	0.8 kW
Voltage :	24 V
Current :	58 A
Speed :	3000 RPM
Duty :	S2 - 1,5 min
Excitation :	compound
Protection :	IP 44
Insulation :	F
Weight :	3.22 kg
Rotation :	CW

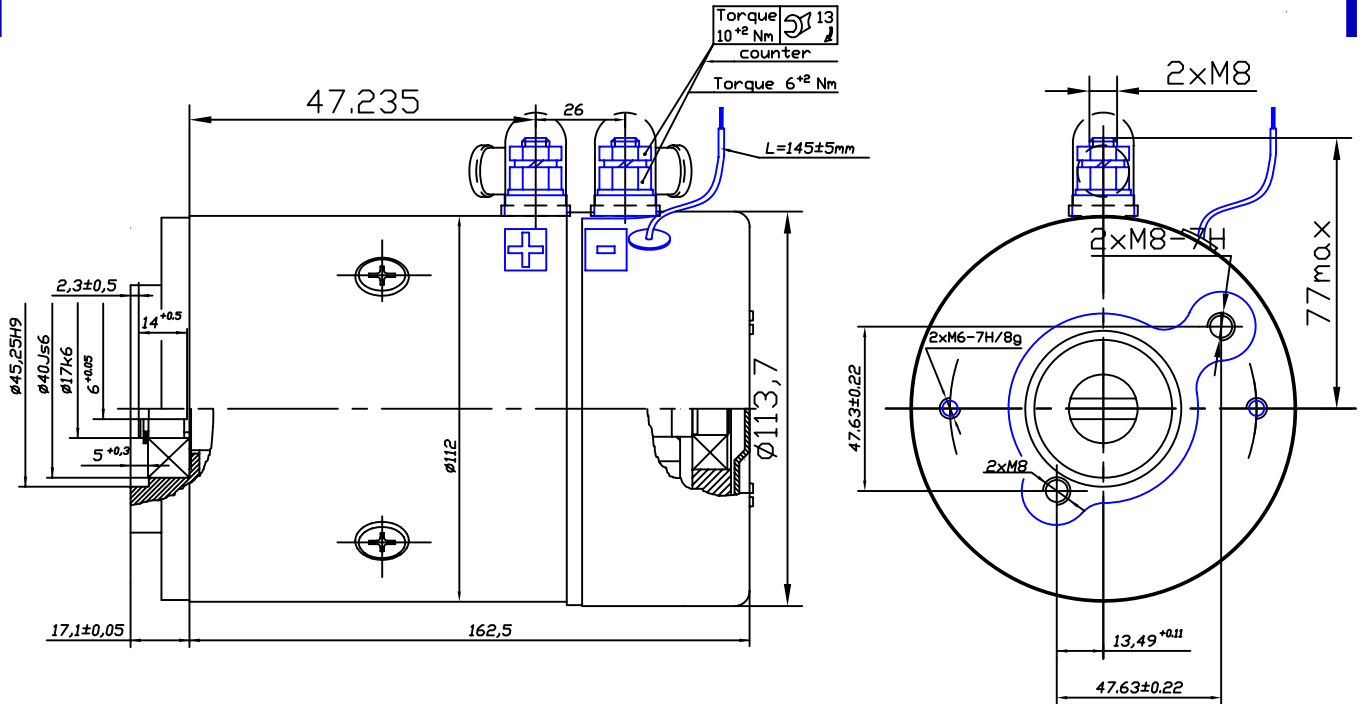




DC MOTORS IN FRAME SIZE $\varnothing 81$ MM CODE : 05243200

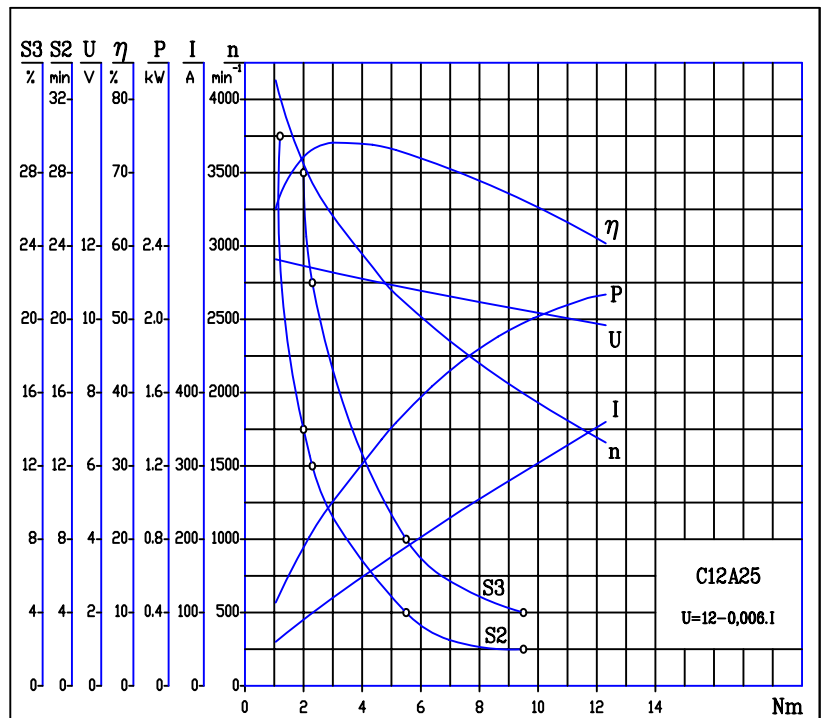
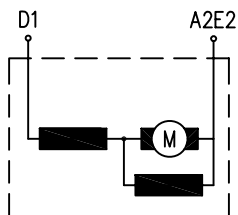
Power :	0.5 kW
Voltage :	24 V
Current :	35 A
Speed :	3200 RPM
Duty :	S2 - 5 min
Excitation :	compound
Protection :	IP 44
Insulation :	F
Weight :	3.26 kg
Rotation :	CW

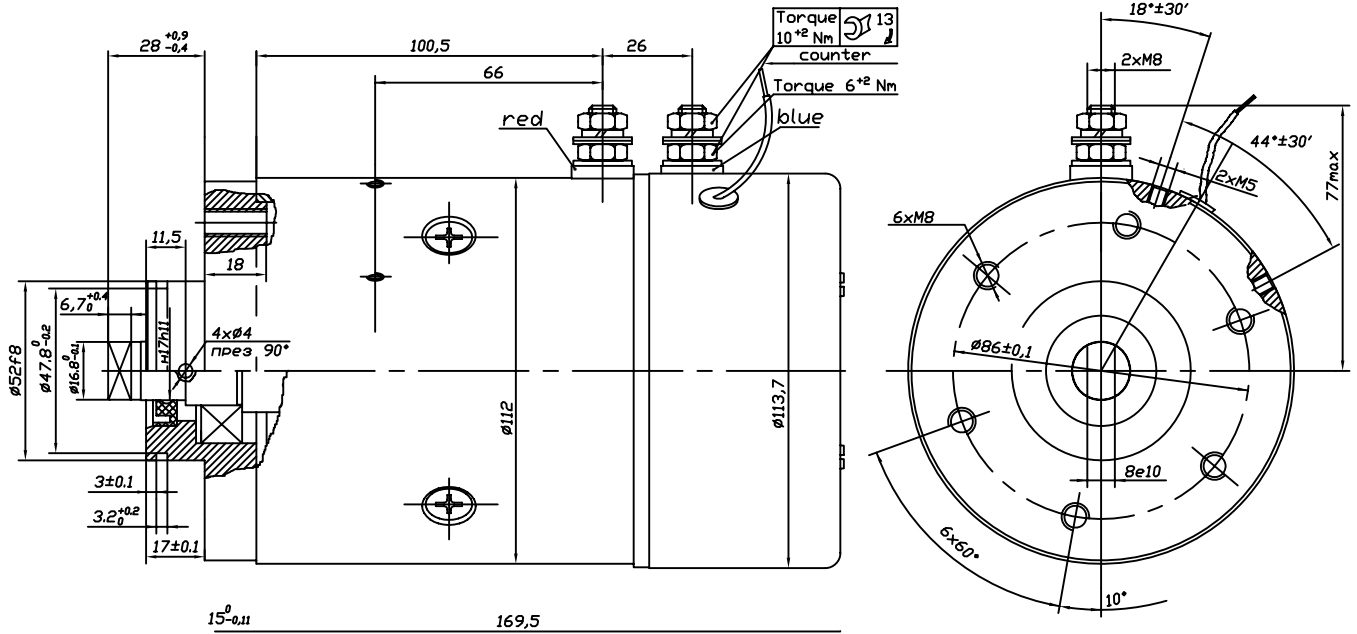




DC MOTORS IN FRAME SIZE $\varnothing 112$ MM CODE : 02122341

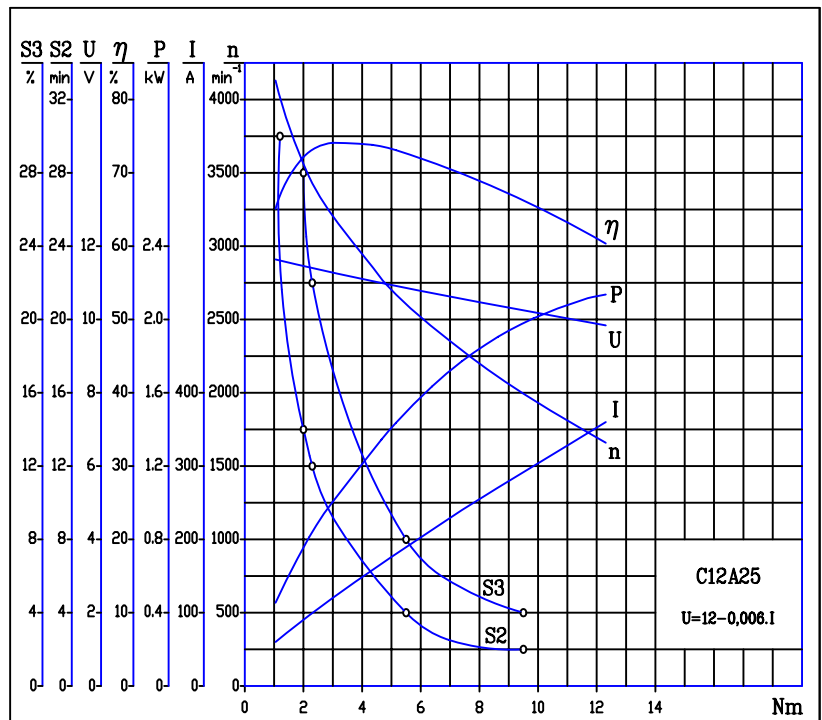
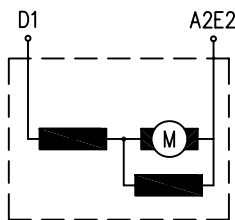
Power :	2 kW
Voltage :	12 V
Current :	270 A
Speed :	2300 RPM
Duty :	S2 - 1.5 min
Excitation :	compound
Protection :	IP 44
Insulation :	F
Weight :	6.76 kg
Rotation :	CW

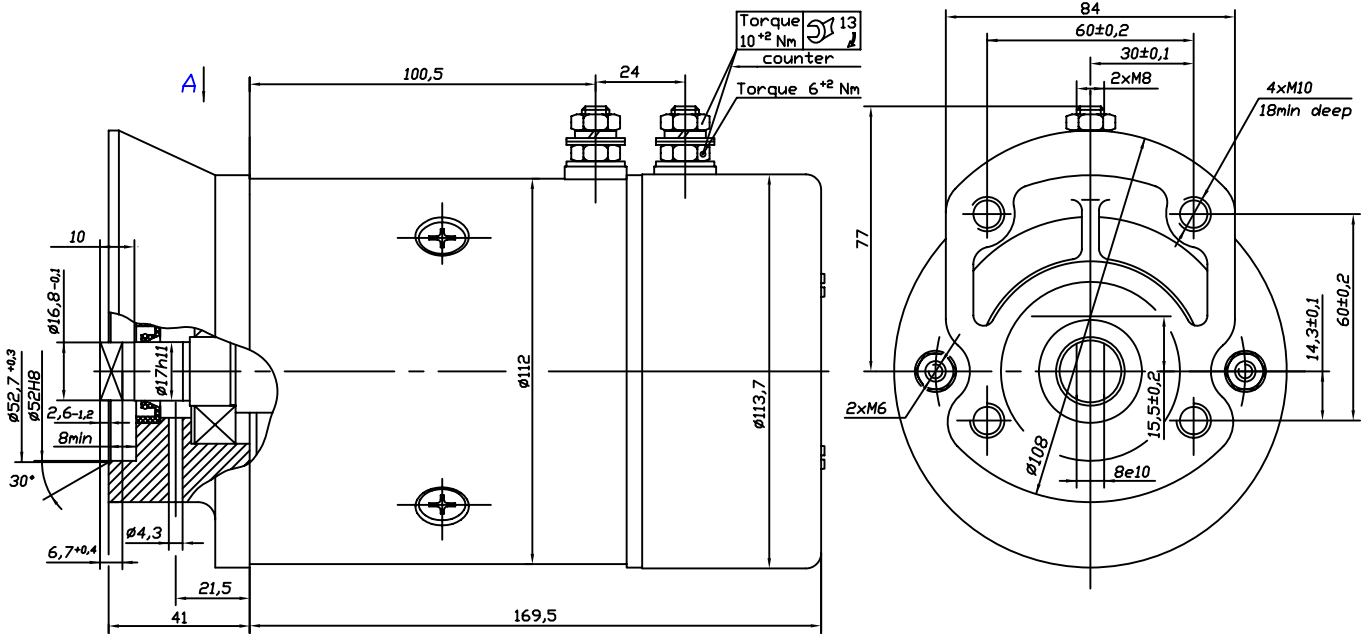




DC MOTORS IN FRAME SIZE Ø 112 MM CODE : 15122500

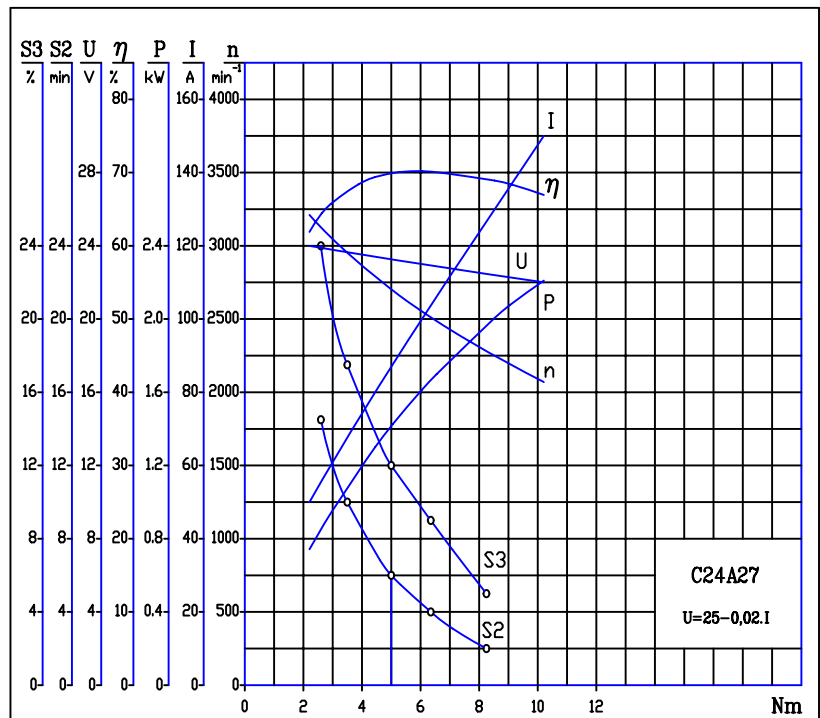
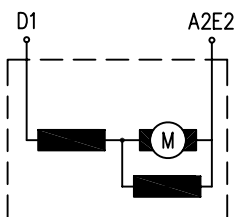
Power :	1.5 kW
Voltage :	12 V
Current :	180 A
Speed :	2500 RPM
Duty :	S2 - 4 min
Excitation :	compound
Protection :	IP 44
Insulation :	F
Weight :	7.00 kg
Rotation :	CW

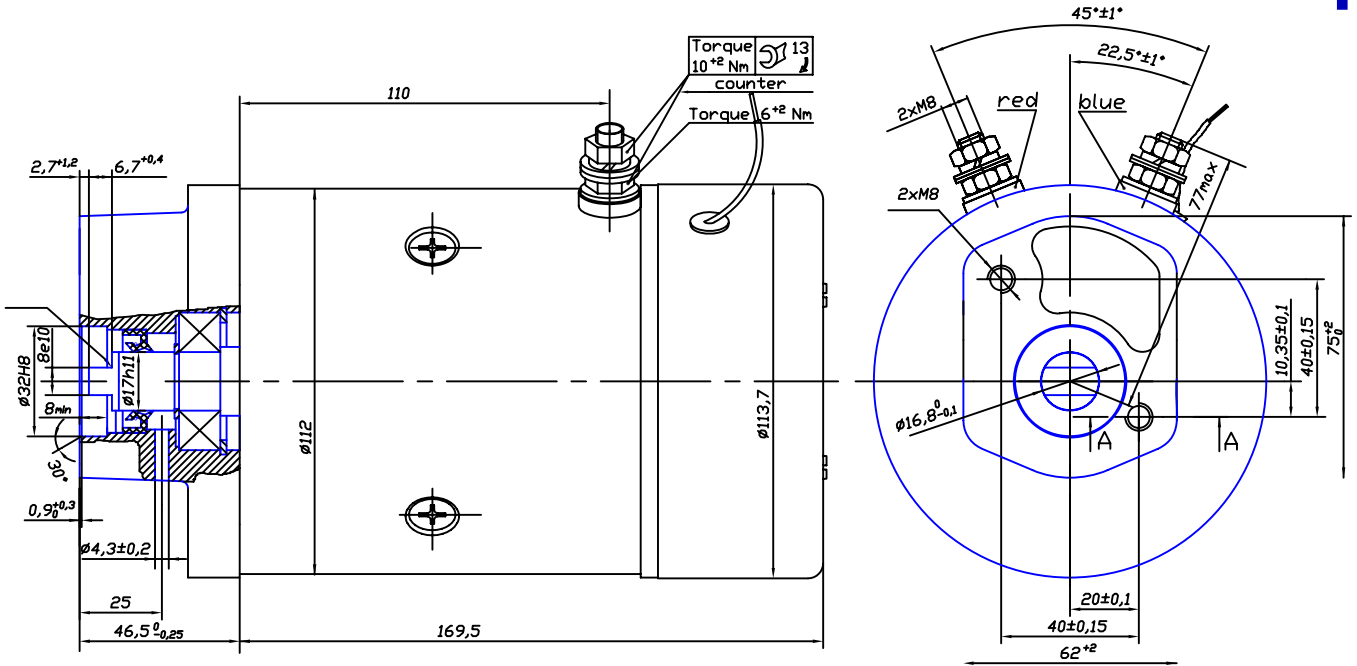




DC MOTORS IN FRAME SIZE Ø 112 MM CODE : 02242200

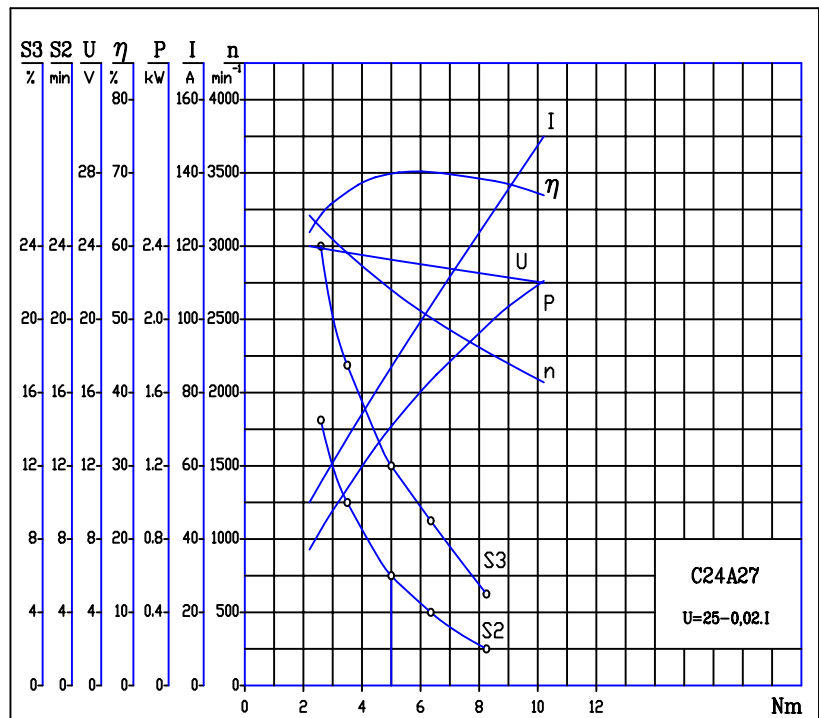
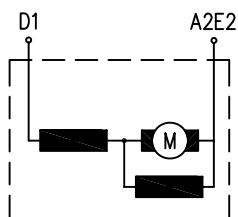
Power :	2 kW
Voltage :	24 V
Current :	121 A
Speed :	2200 RPM
Duty :	S2 - 2 min
Excitation :	compound
Protection :	IP 44
Insulation :	F
Weight :	8.30 kg
Rotation :	CW

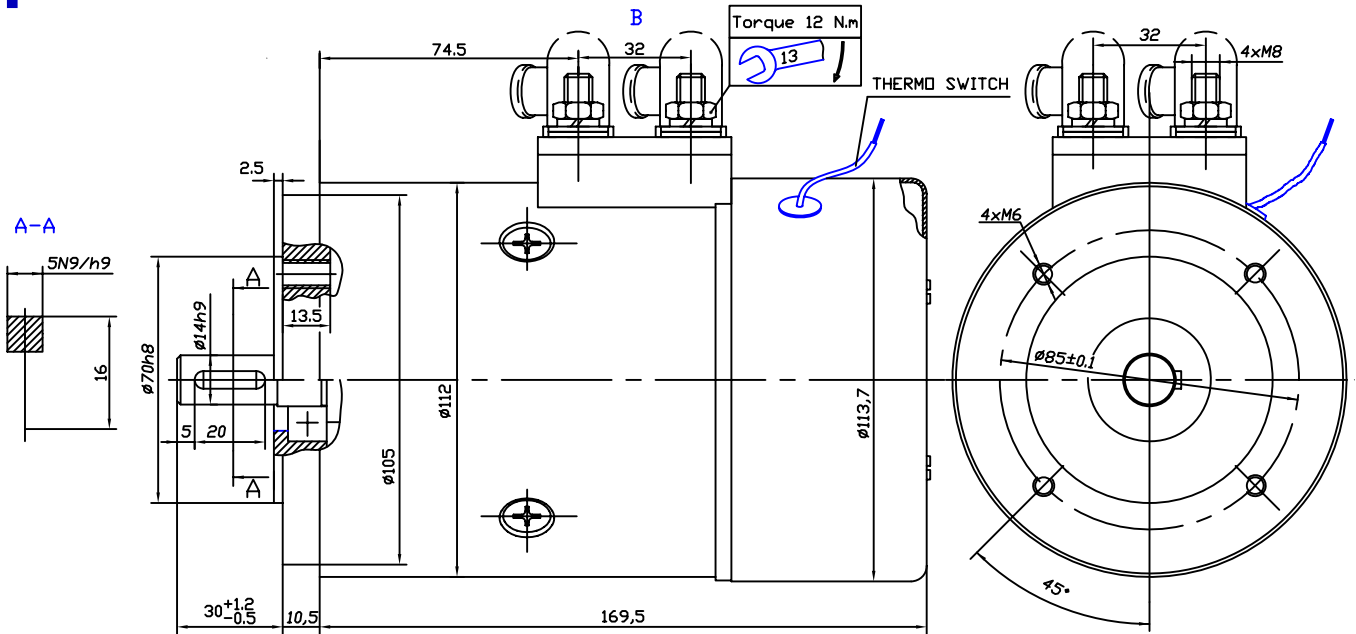




DC MOTORS IN FRAME SIZE Ø 112 MM CODE : 02242202

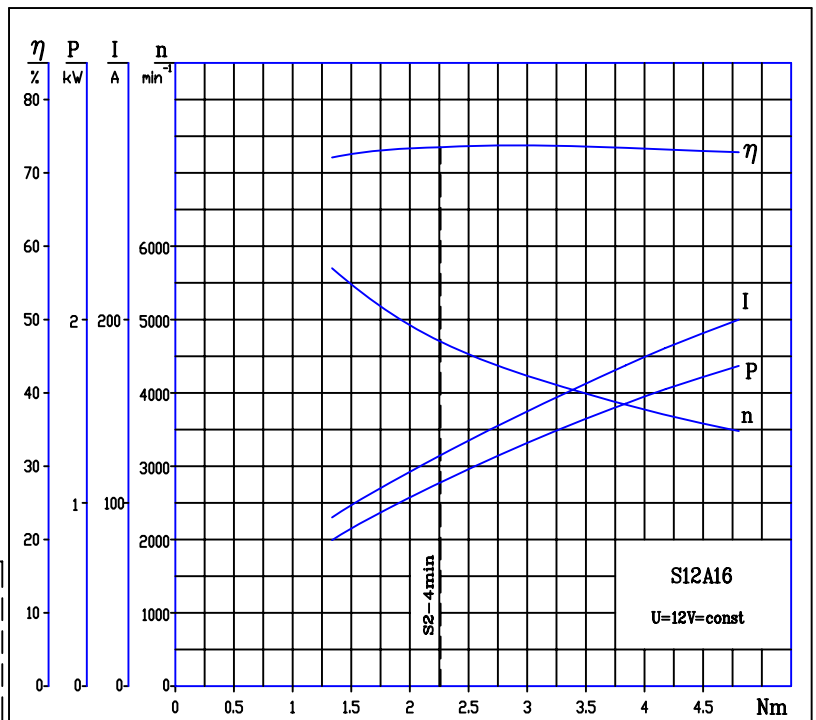
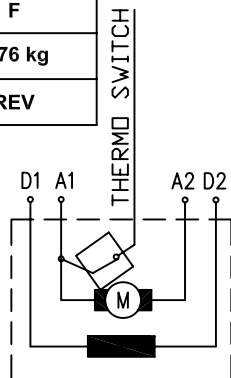
Power :	2 kW
Voltage :	24 V
Current :	132 A
Speed :	2200 RPM
Duty :	S2 - 2 min
Excitation :	compound
Protection :	IP 44
Insulation :	F
Weight :	7.40 kg
Rotation :	CW

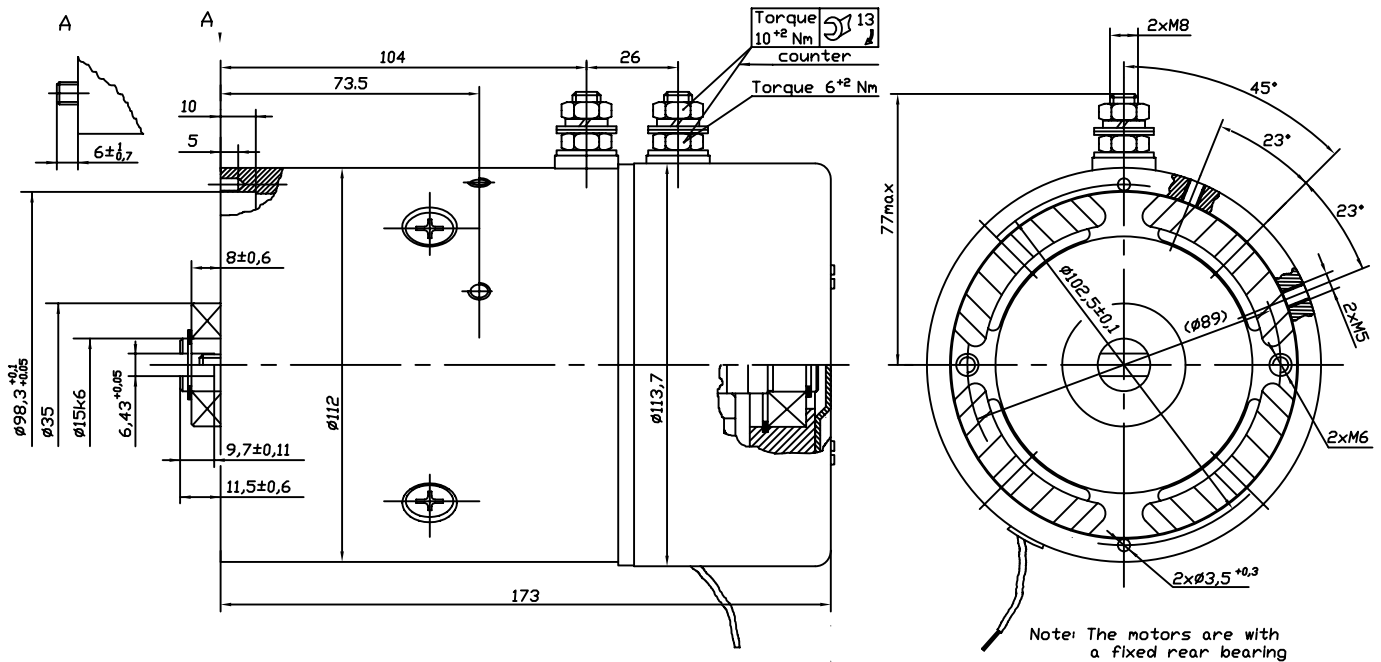




DC MOTORS IN FRAME SIZE $\phi 112$ MM CODE : 11124500

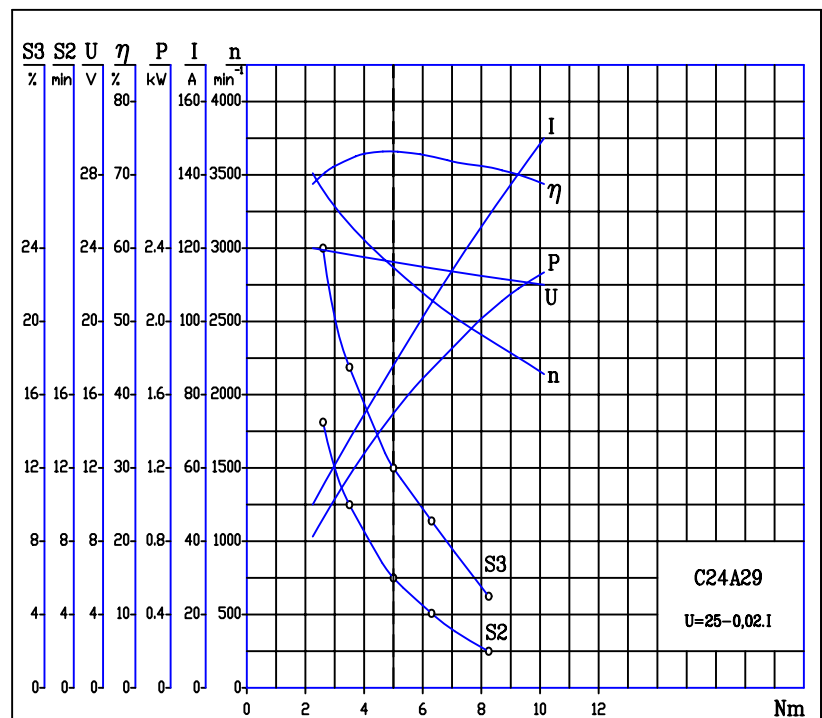
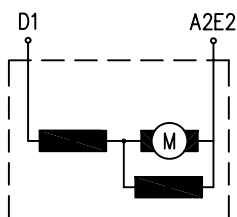
Power :	1.1 kW
Voltage :	12 V
Current :	126 A
Speed :	4500 RPM
Duty :	S2 - 4 min
Excitation :	series
Protection :	IP 44
Insulation :	F
Weight :	6.76 kg
Rotation :	REV

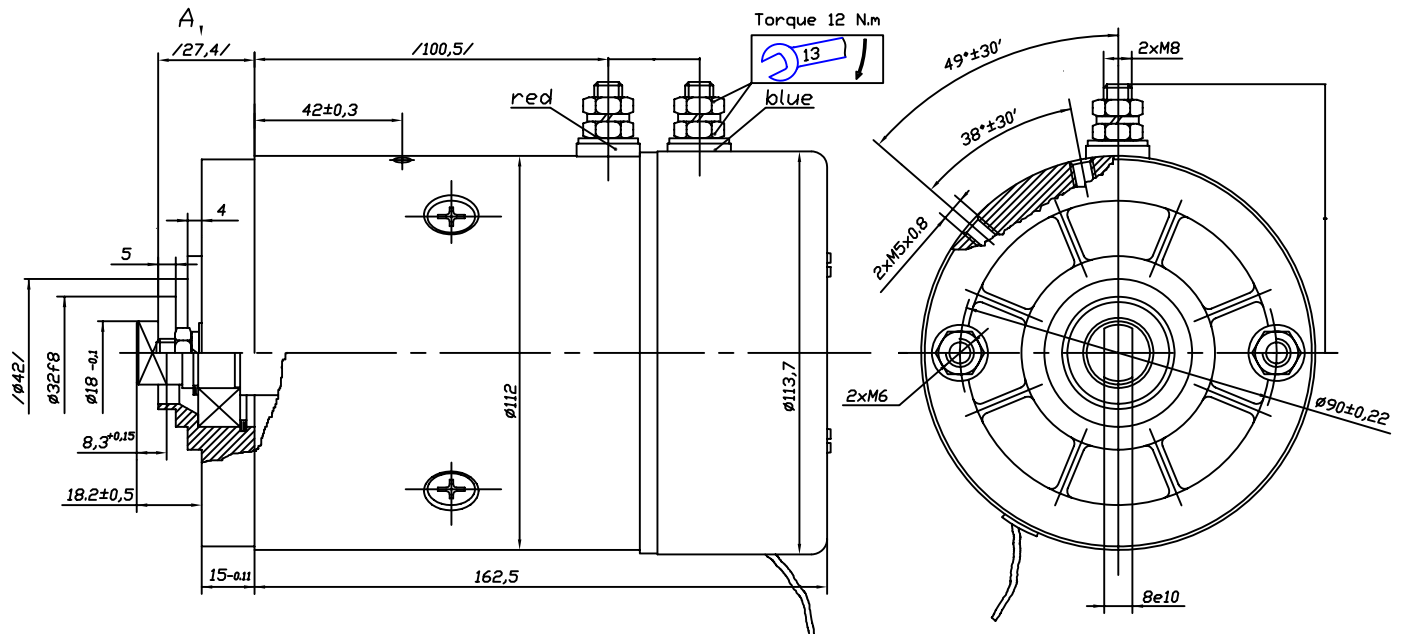




DC MOTORS IN FRAME SIZE $\phi 112$ MM CODE : 15242719

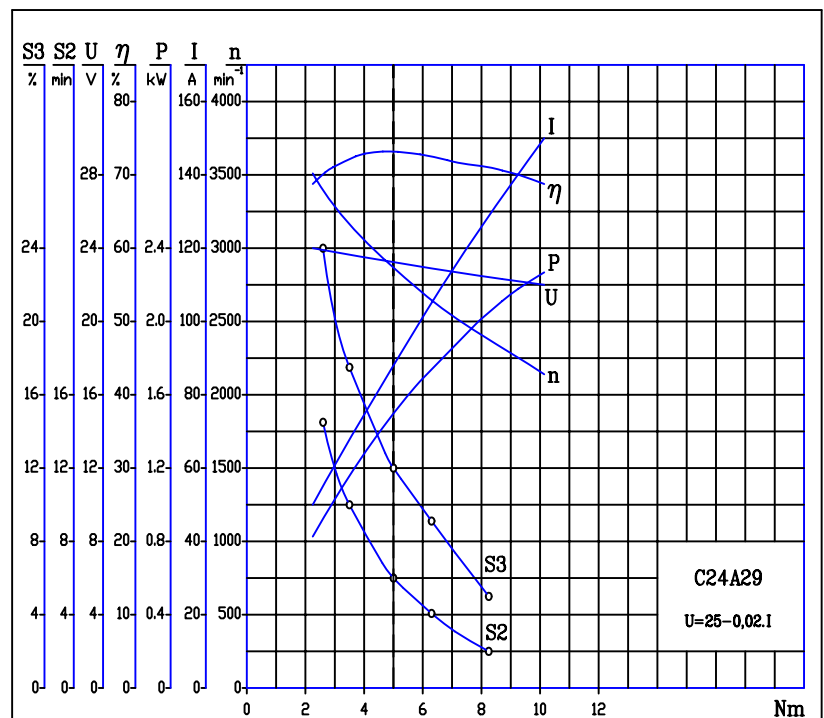
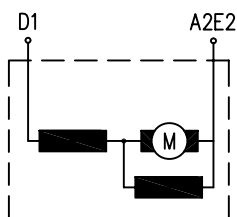
Power :	1.5 kW
Voltage :	24 V
Current :	88 A
Speed :	2700 RPM
Duty :	S2 - 5 min
Excitation :	compound
Protection :	IP 44
Insulation :	F
Weight :	6.70 kg
Rotation :	CW

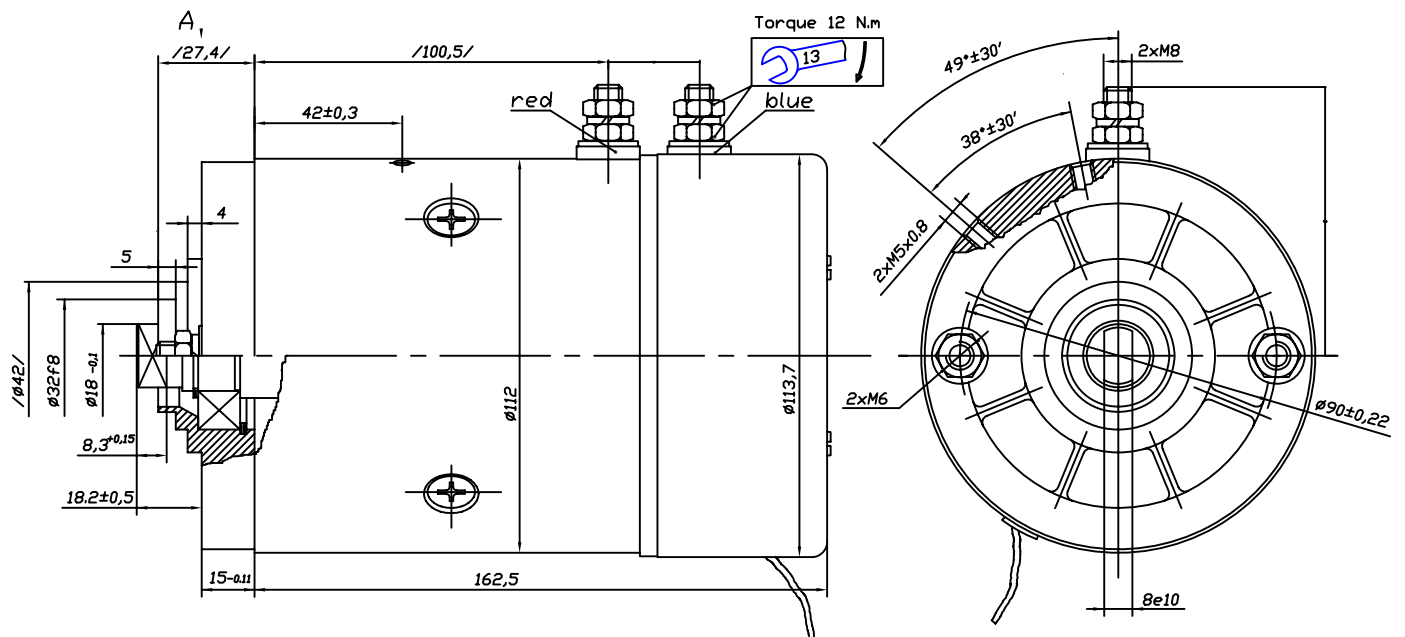




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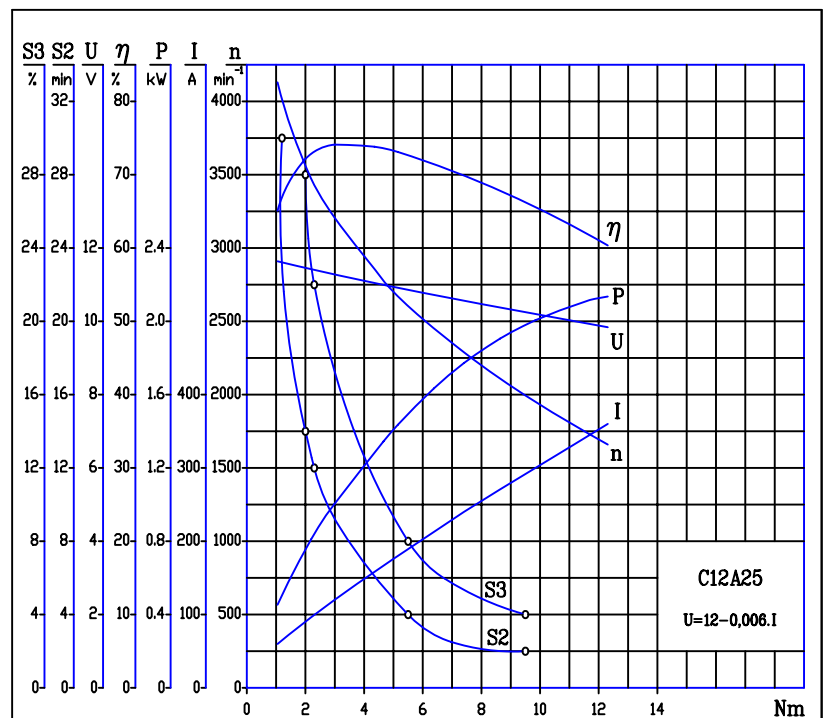
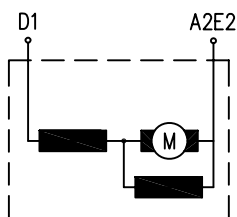
Power :	2 kW
Voltage :	24 V
Current :	121 A
Speed :	2300 RPM
Duty :	S2 - 2 min
Excitation :	compound
Protection :	IP 44
Insulation :	F
Weight :	6.90 kg
Rotation :	CW

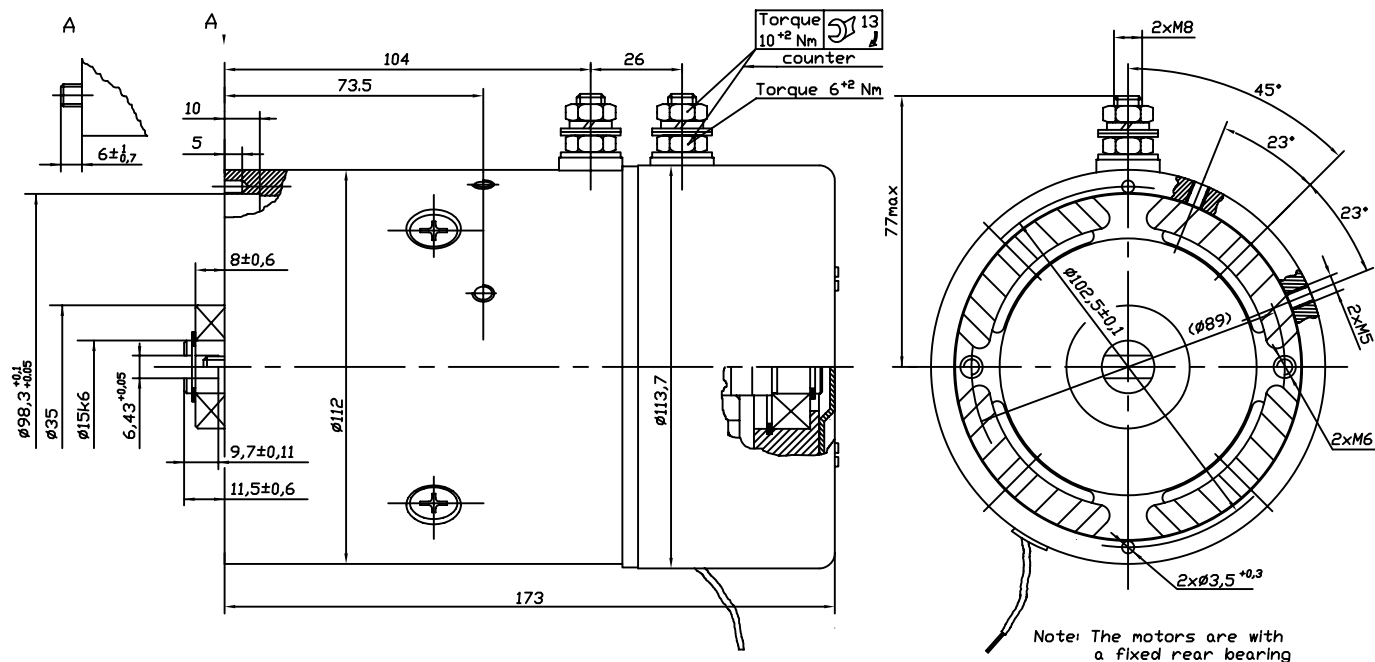




DC MOTORS IN FRAME SIZE $\phi 112$ MM CODE : 02122302

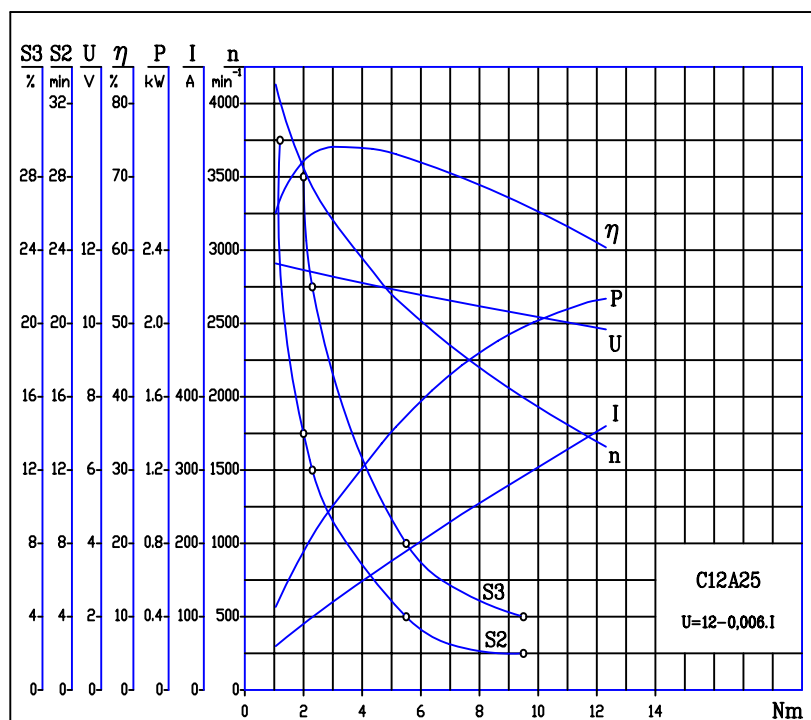
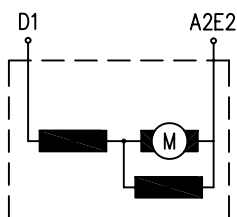
Power :	2 kW
Voltage :	12 V
Current :	270 A
Speed :	2300 RPM
Duty :	S2 - 1.5 min
Excitation :	compound
Protection :	IP 44
Insulation :	F
Weight :	6.90 kg
Rotation :	CW

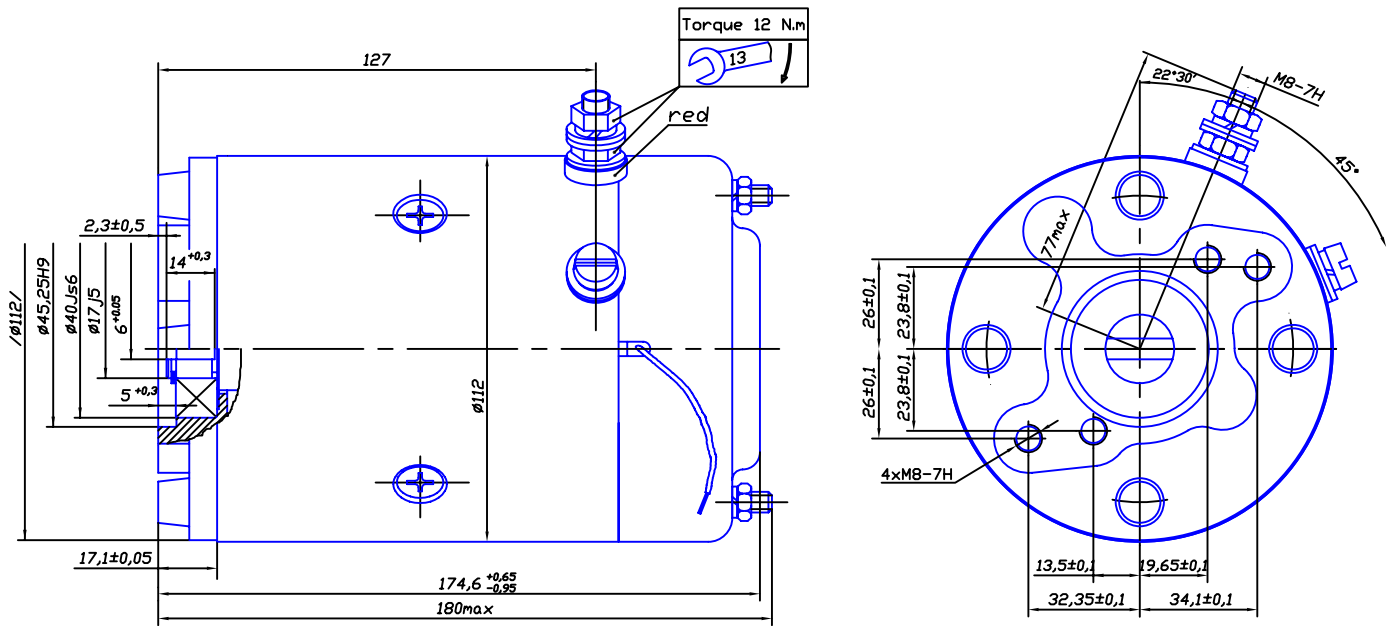




DC MOTORS IN FRAME SIZE $\varnothing 112$ MM CODE : 15122719

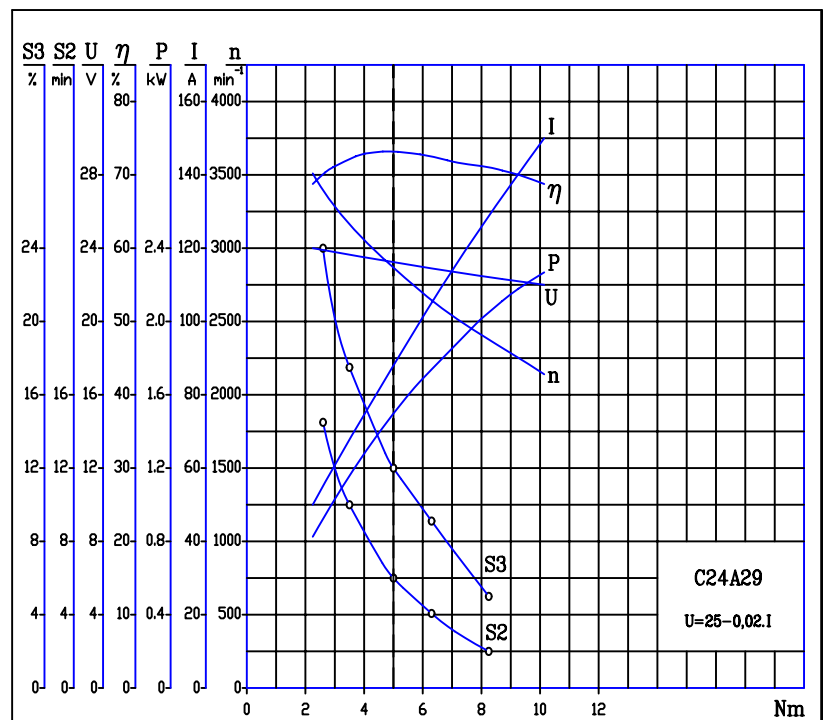
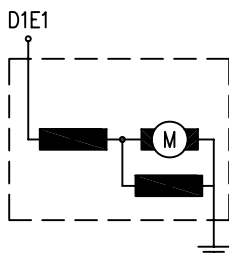
Power :	1.5 kW
Voltage :	12 V
Current :	180 A
Speed :	2700 RPM
Duty :	S2 - 4 min
Excitation :	compound
Protection :	IP 44
Insulation :	F
Weight :	6.70 kg
Rotation :	CW

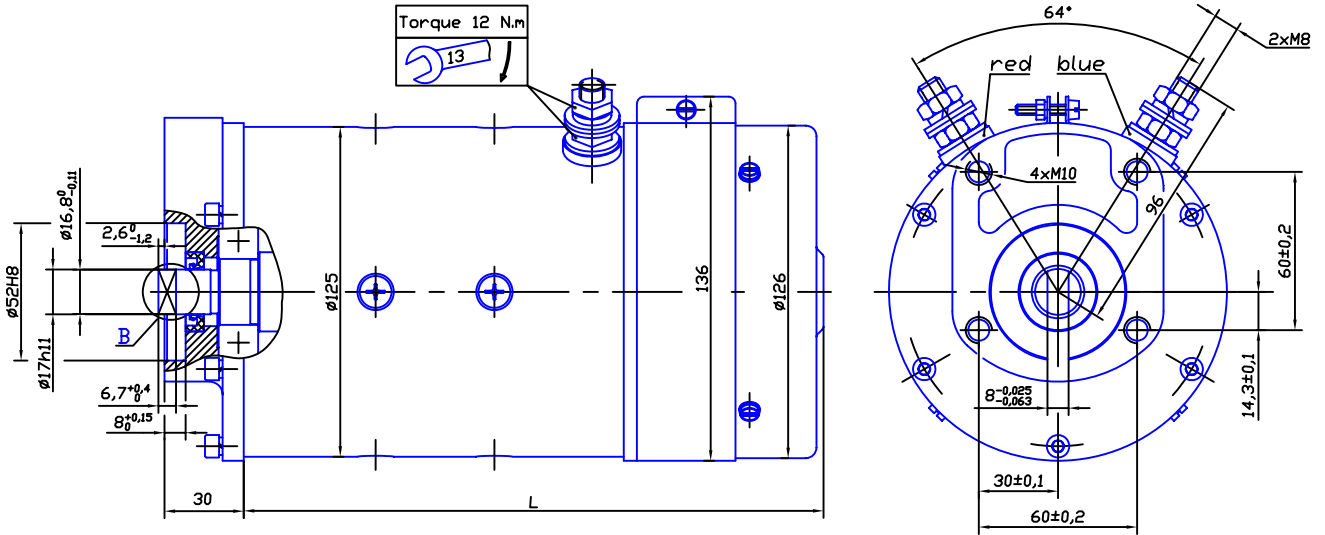




DC MOTORS IN FRAME SIZE Ø 112 MM CODE : 02242349

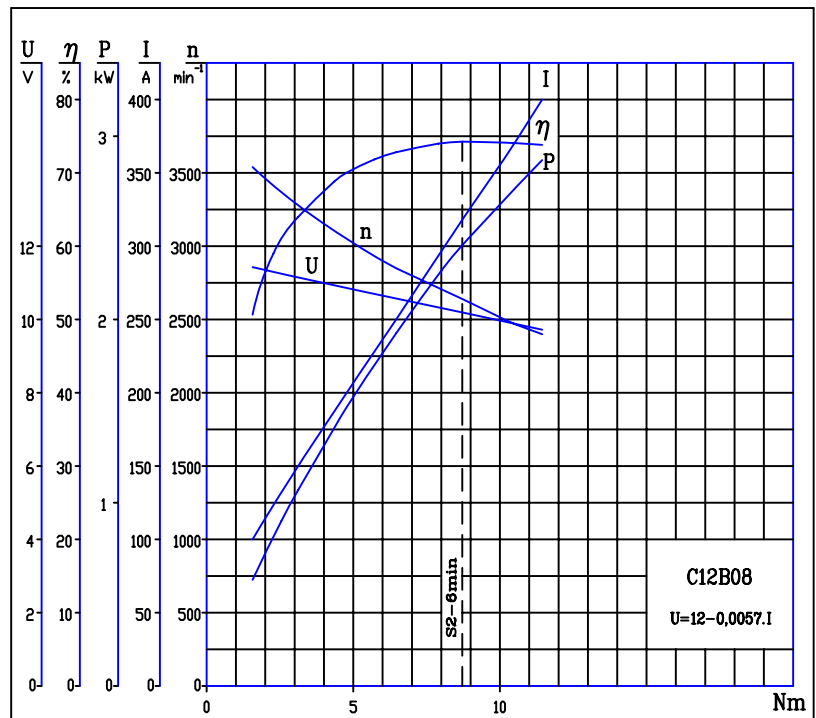
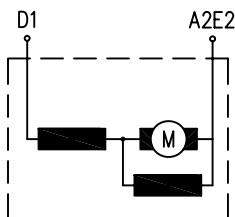
Power :	2 kW
Voltage :	24 V
Current :	121 A
Speed :	2300 RPM
Duty :	S2 - 2 min
Excitation :	compound
Protection :	IP 44
Insulation :	F
Weight :	7.00 kg
Rotation :	CW

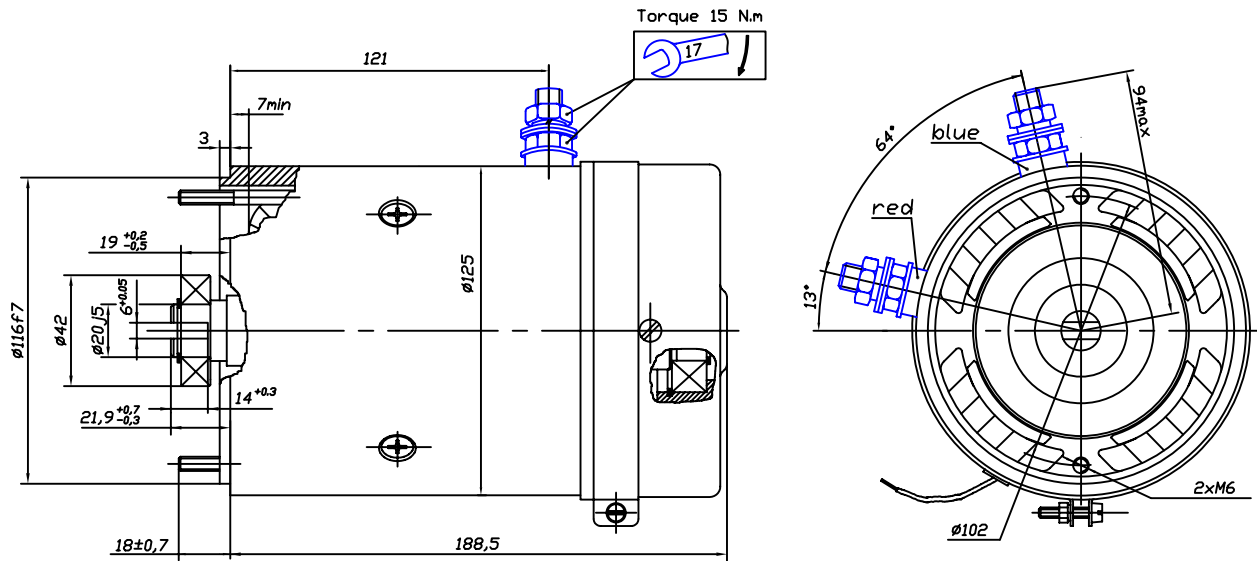




DC MOTORS IN FRAME SIZE Ø 125 MM CODE : 24122600

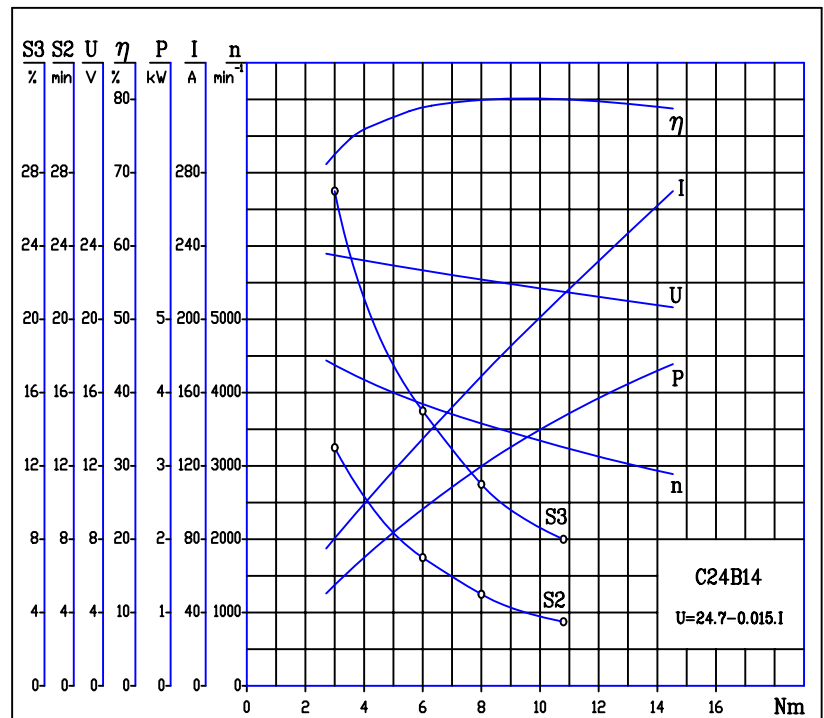
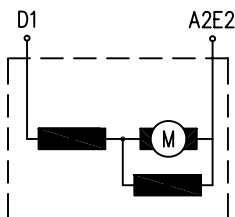
Power :	2.4 kW
Voltage :	12 V
Current :	318 A
Speed :	2600 RPM
Duty :	S2 - 6 min
Excitation :	compound
Protection :	IP 44
Insulation :	F
Weight :	11.54 kg
Rotation :	CW

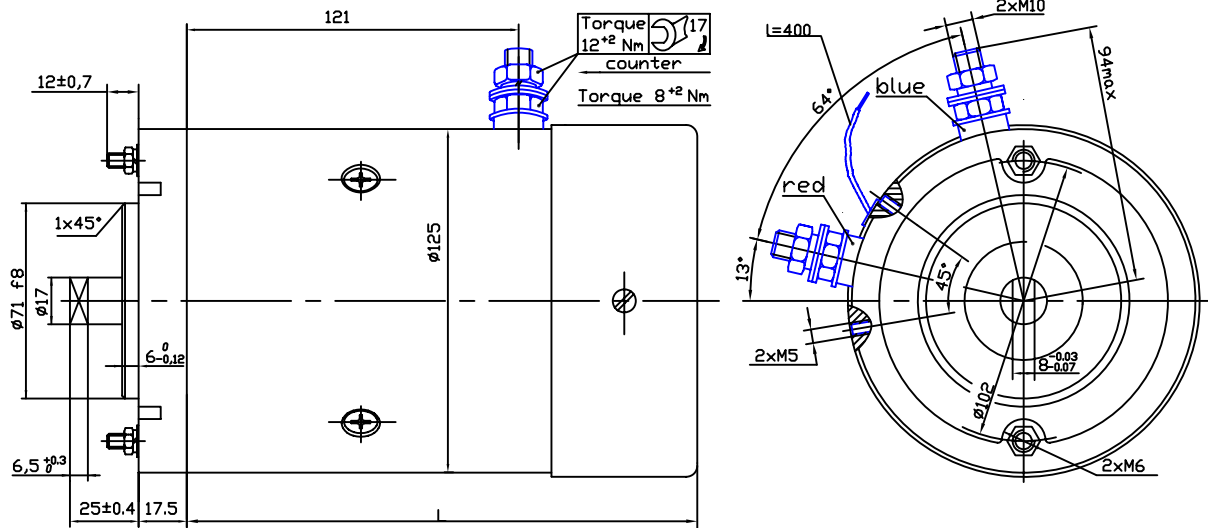




DC MOTORS IN FRAME SIZE Ø 125 MM CODE : 03243520

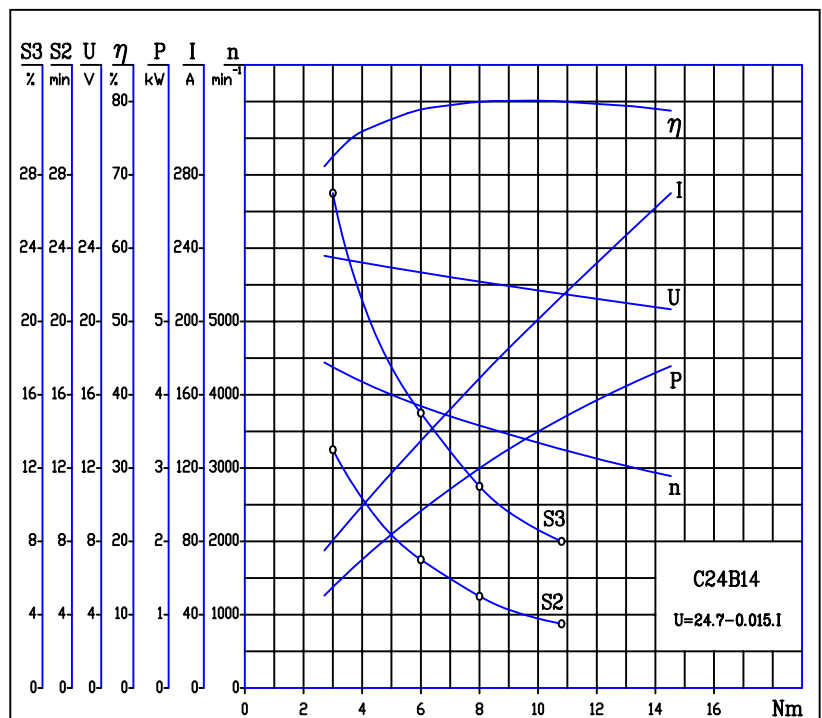
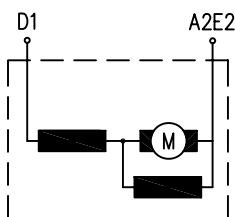
Power :	3 kW
Voltage :	24 V
Current :	168 A
Speed :	3500 RPM
Duty :	S2 - 4.5 min
Excitation :	compound
Protection :	IP 44
Insulation :	F
Weight :	9.50 kg
Rotation :	CW

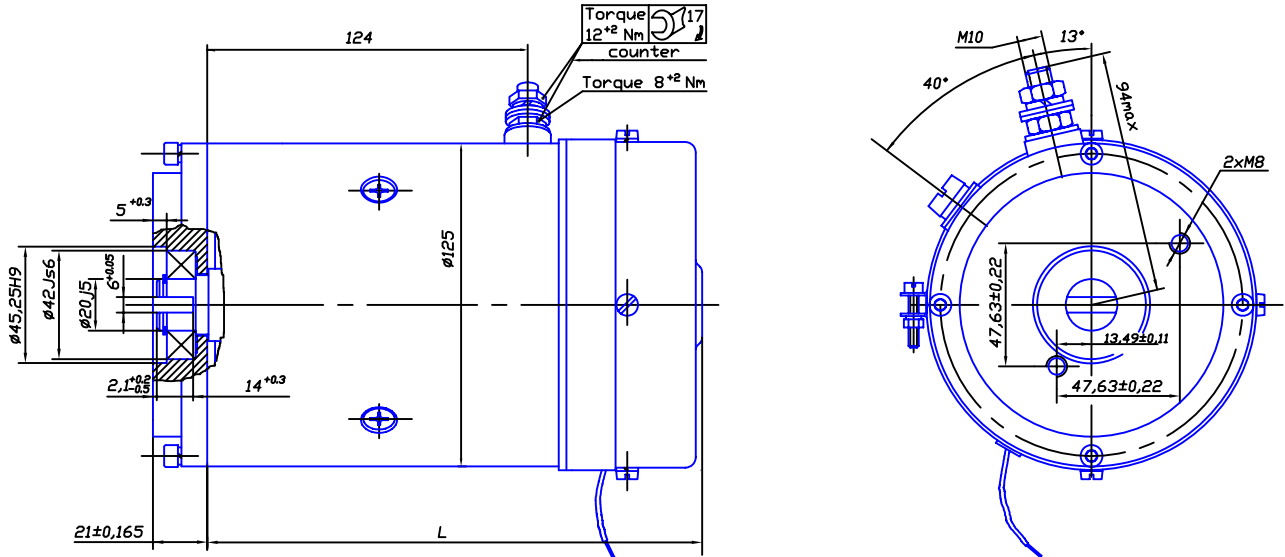




DC MOTORS IN FRAME SIZE Ø 125 MM CODE : 03243533

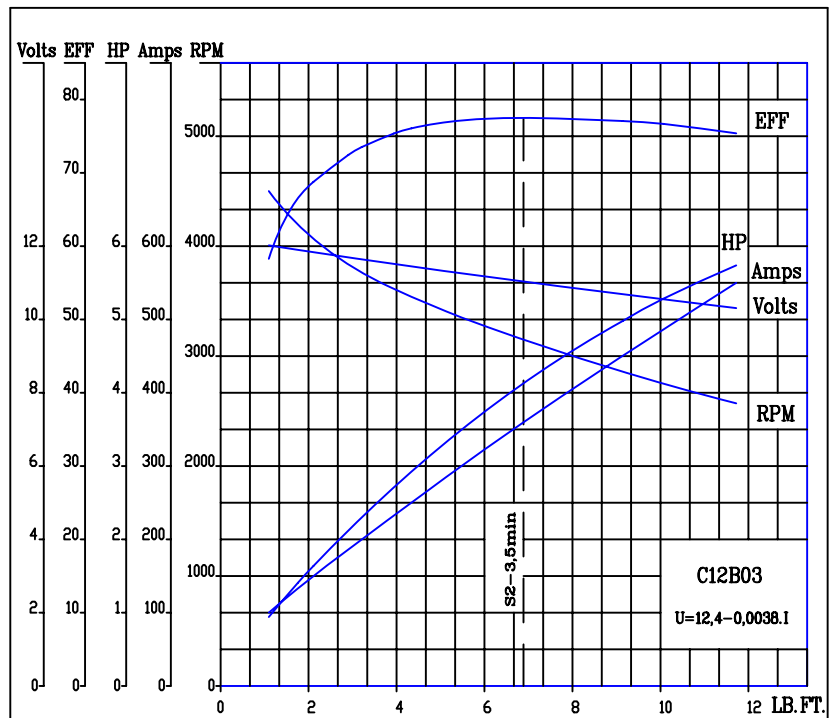
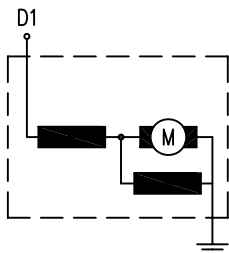
Power :	3 kW
Voltage :	24 V
Current :	168 A
Speed :	3500 RPM
Duty :	S2 - 4.5 min
Excitation :	compound
Protection :	IP 44
Insulation :	F
Weight :	9.50 kg
Rotation :	CW

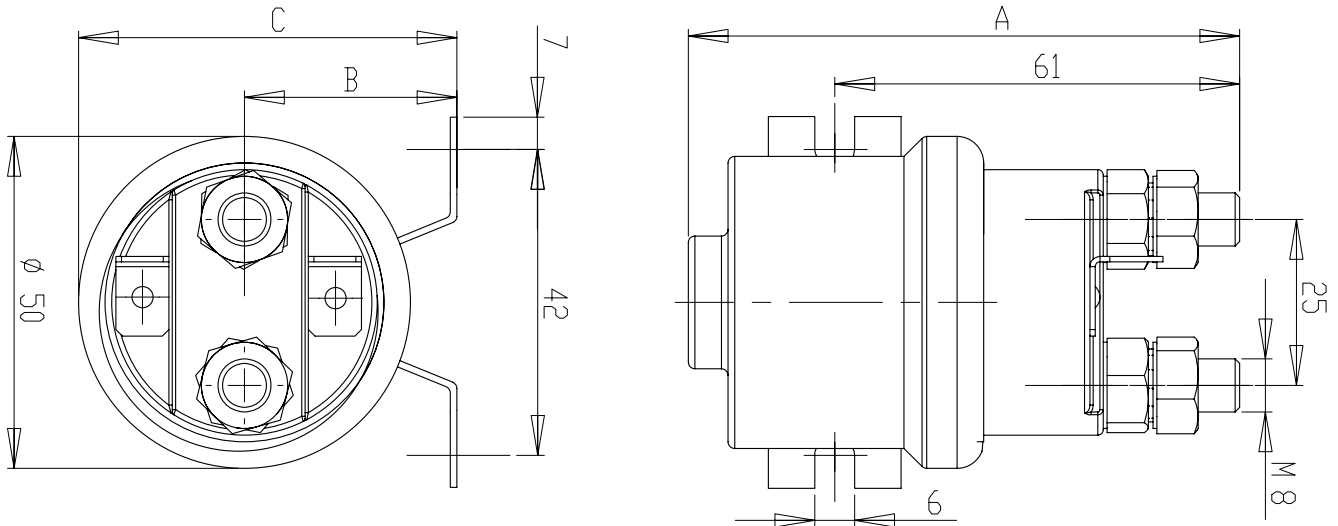




DC MOTORS IN FRAME SIZE Ø 125 MM CODE : 03123513

Power :	3 kW
Voltage :	12 V
Current :	360 A
Speed :	3500 RPM
Duty :	S2 - 3.5 min
Excitation :	compound
Protection :	IP 44
Insulation :	F
Weight :	10.03 kg
Rotation :	CW





STARTING RELAY

Contactor type	MR80A	MR100A	MR150A
Nominal operating current at 50% intermittent duty, 300 op/h	120 A	150 A	180 A
Thermal current rating, permanent duty	80 A	100 A	150 A
Nominal voltage	12 & 24 V	12 & 24 V	12 & 24 V
Breaking capacity with 15 ms time constant	480 A	600 A	720 A
Category of usage	DC5	DC5	DC5
Working voltage limits	0.7-1.1Ue	0.7-1.1Ue	0.7-1.1Ue
Coil power dissipation 80% Coil power dissipation 100%	12 W 8 W	16 W	20 W
Operating time Pull-in time Operating time Drop-out time	≤30 ms ≤10 ms	≤30 ms ≤10 ms	≤30 ms ≤10 ms
Max torque at terminal board	60 kgcm	60 kgcm	60 kgcm
Mechanical life (op.n.)	2x10.6	2x10.6	2x10.6
Contact material	AgCdO	AgCdO	AgCdO
Main contacts	1NO	1NO	1NO
Dimension A	83.0	96.0	96.0
Dimension B	29.0	30.5	30.5
Dimension C	54.0	55.5	55.5

INQUIRY FOR DC MOTOR

Company :

Address :

Telephone :

E-mail :

Contact person :

THE REQUIRED MOTOR WILL BE USED FOR :

REQUIRED TECHNICAL DATA FOR MOTOR OPERATION :

Nominal Power :

Nominal Voltage :

Nominal Speed :

Nominal Current :

Duty rating :

Direction of rotation :

Excitation :

ADDITIONAL REQUIREMENTS :

PLEASE SEND THIS INQUIRY TO SALES@MOTRIC.COM
OR FAX TO +359 2 917 39 68.
THANK YOU. WE WILL GET IN TOUCH YOU IMMEDIATELY.