DC MOTOR CHOICE

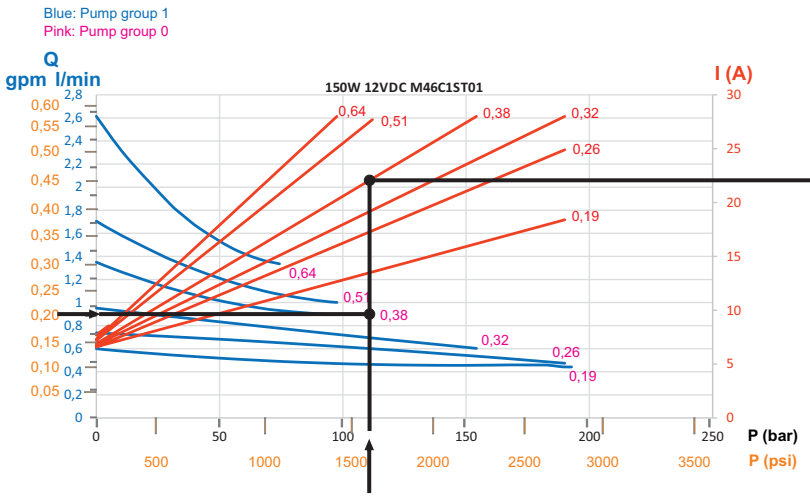
DC motors selection

DC motor selection is a critical step for the proper power pack definition. Required Pressure, Required Flow, Service Factor (or Duty Cycle) should be known before starting the motor selection. Please note that DC motors speed is **not** constant and depends on torque.
Once you choose a motor, look at Motor-Pump Performance diagram if a pump displacement (blue curve) is available at the **intersection** of required pressure and flow values. On the relevant "I" axis (red curve) you obtain the current drawn. When the intersection point is not exactly on a pump curve, select a smaller pump . On Motor Ratings diagram you can easily obtain the maximum allowed Service Factor: S2, Short Time Duty (min); S3, Intermittent Periodic Duty (% of total cycle). If the obtained Service values are not sufficient to meet required performances, choose a higher power or heavier duty motor and repeat the calculation on the new motor curves.

Example:

an application requires the following data: flow = 4 l/min, max pressure = 195 bar, duty cycle is unknown.
- check on 1,6 Kw 12V DC motor diagram: the 1,66 cc pump curve meet the intersection of 4 liters/minutes and 195 bar
- choose from curves a 1,66 cm^3/rev pump. the corresponding "I" curve declares 200 A drawn current at 195 bar.
- project horizontally the current drawn to the Motor Rating diagram: the DC motor can work for maximum 3 min (S2) and S3 is about 9% of the total cycle, i.e. after 3 min working, the motor should cool down for at least 30 min.
- The total cycle time is calculated by adding the working time and the idle time (9% working time plus 91% idle time), in this case 33 min. If this duty cycle is not adequate for our application, we must choose a higher power or higher duty DC motor and check the relevant diagram again.

Motor-Pump Performances



Motor Ratings

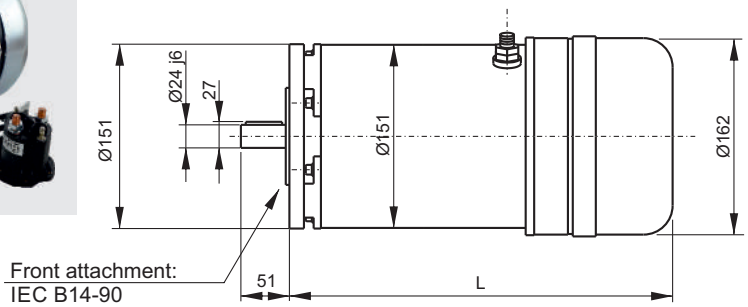


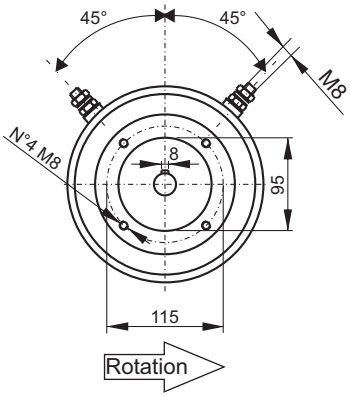
Other B14 DC motors for heavy duty or special applications

They are available in sizes Ø125, Ø151 or Ø191 in multiple executions, engineered to perform heavy duty cycles and tailor made to suit each specific application, with or without cooling fan and thermal protection. They are normally mounted on the central manifold with B14 standard mounting kits.
To properly select these motors, the following minimum information must be provided: 1) motor power and voltage, 2) application type, 3) duty factors: S2 [min] - continuous running time and S3 [%] - percentage of running time on total cycle time, 4) required motor speed, 5) quantity to be supplied.
For environment with humidity over 80%, motors with optional IP67 protection index are available and recommended. Please ask our sales office. The thermal switch is set at 120°C.
The motors indicated above in particular operating cycles can reach temperatures of 100-110 °C on the outher part of the housing, it is recommended to use the special protective cover (MACVH00003) to prevent the motor from burning up.

HEAVY DUTY DC MOTORS Ø 151 WITH COOLING FAN



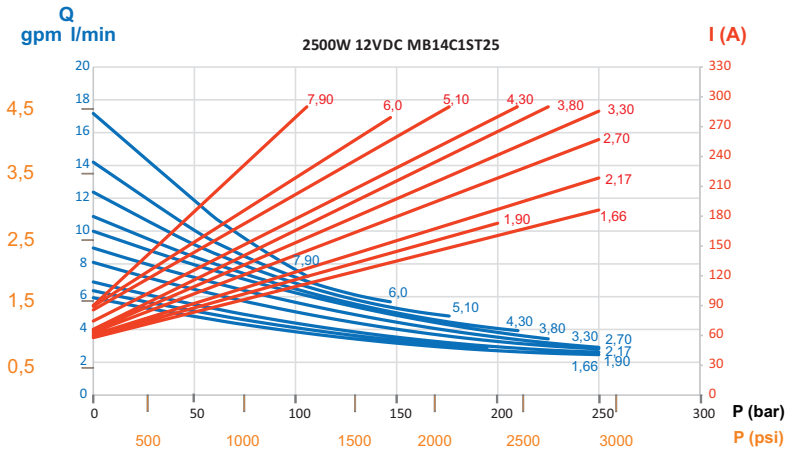


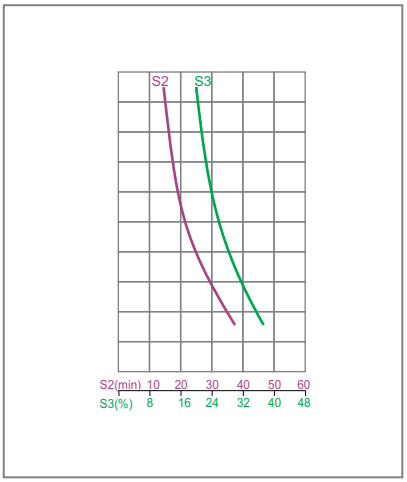


Series wound
Colingfan
Protection degree: IP20
Insulation class: F
Weight: 21,5 kg
B14-90 interface

Code

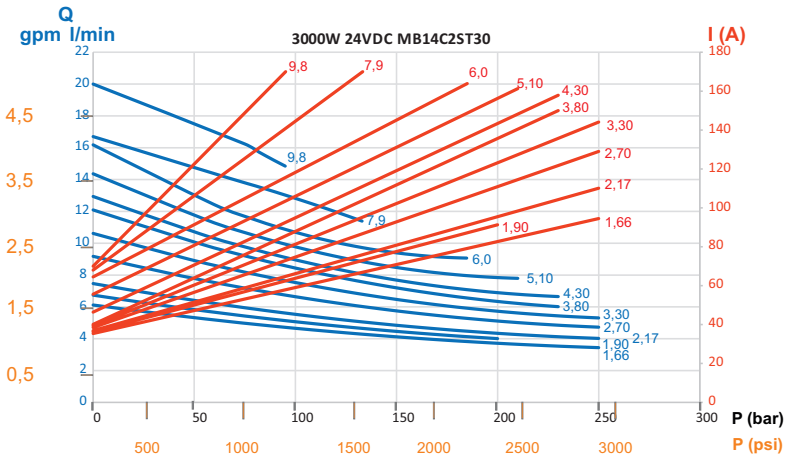
Description	Assembly code	Spare part code	Nominal duty cycle	Nominal speed	Nominal current	Mounting kit	L
2500W 12V DC motor + thermal protection & fan	**2,5HD 12DC_T**	**MB14C1ST25**	S2:11 min S3: 20%	1700 rpm	290 A	XB14 90-1	320 mm
3000W 24V DC motor + thermal protection & fan	**3HD 24DC_T**	**MB14C2ST30**	S2: 13 min S3: 20%	1700 rpm	170 A	XB14 90-1	320 mm
4000W 24V DC motor + thermal protection & fan	**4HD 24DC_T**	**MB14C2ST40**	S2: 8 min S3: 15%	2000 rpm	240A	XB14 90-1	320 mm

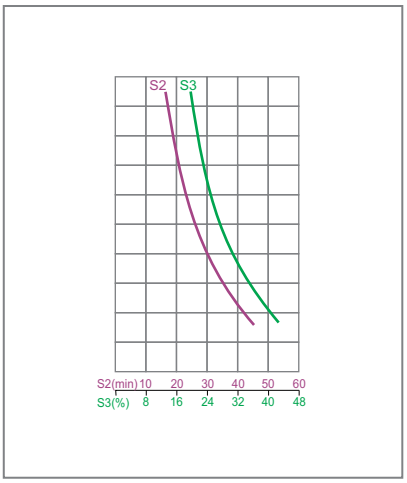


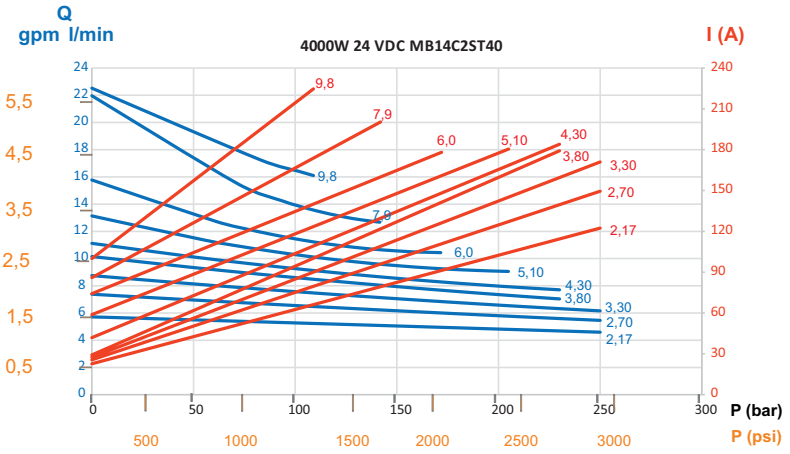


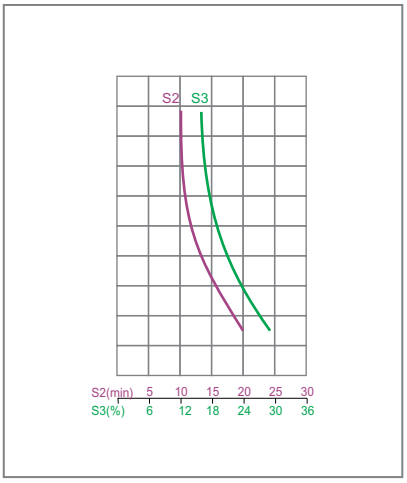
Tests made with rectified current supplied at nominal motor voltage (measured at the motor connection terminals) and oil ISO VG46 at 40°C

DC MOTORS Ø151 DIAGRAMS









Tests made with rectified current supplied at nominal motor voltage (measured at the motor connection terminals) and oil ISO VG46 at 40°C