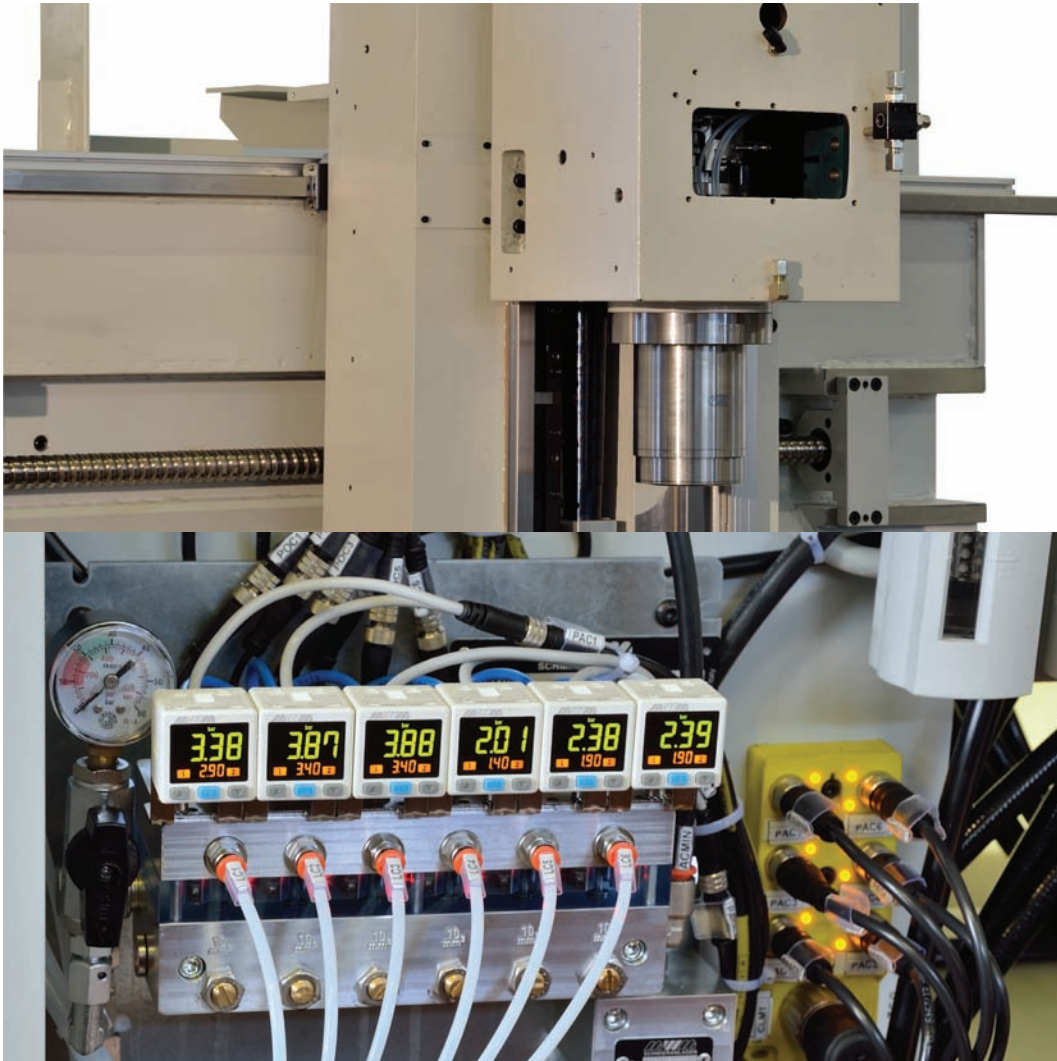


SPINDLE HSK50



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Motor-spindle

Unlike what expected in the conventional construction of an electrospindle in which the rotor / stator are located within the spindle, in this case the spindle is a separate unit from the motor. The transmission of motion between the motor and the spindle is via a direct coupling of our own construction.

Relatively to the spindle, having a value of ndm (*) equal to 1,620,000, have been used bearings of hybrid type, ie steel rings and ceramic balls.

The solution of the spindle motor with respect to an electrospindle allows to have the following advantages:

- The heat generated by the rotor/stator of the spindle motor does not interfere with the operating temperature of the spindle bearings.
- The spindle axis is easier to balance because it lacks of the mass of the rotor.
- The overall dimensions of the diameter of the spindle nose turns out to be considerably more compact.
- The duration of this solution compared to the solution electrospindle, with the same quality of construction and power output, is much higher. Typically we have an average effective duration "on the field" higher then 15,000 hours.
- As regards the real motor, it has been possible to use bearings of small diameter, having a value of ndm (*) equal to 1,296,000, as it does not have to support the shocks caused by the machining tool. The life of the bearings employed will be very long, such as to require very rarely their replacement during the life of the machine.

Rigid tapping

Makes it possible to mount tools tapping directly on the tool holder. It is the Numerical Control that provides to synchronize the movement of the descent of the Z axis, taking into account both the number of programmed speed that the pitch of the tap mounted, to execute the tapping request.

Cooling system

We have provided two specific systems: one for the motor and one for the spindle. They maintain the operating temperature of both units within the margin of + 0° to + 3° than the ambient temperature. The envisaged system provides a circulation of liquid in the neighborhood of both the motor spindle having a flow very important. This system allows to avoid the occurrence of hot spots in the structure of the machine that may have very negative consequences at the level of thermal drifts.

Minimal lubrication oil

Have been provided for the lubrication circuits specific for the bearings of the motor and for the spindle bearings.

Construction of both units made by us

When a repair will be necessary we will intervene directly with time and costs particularly low.

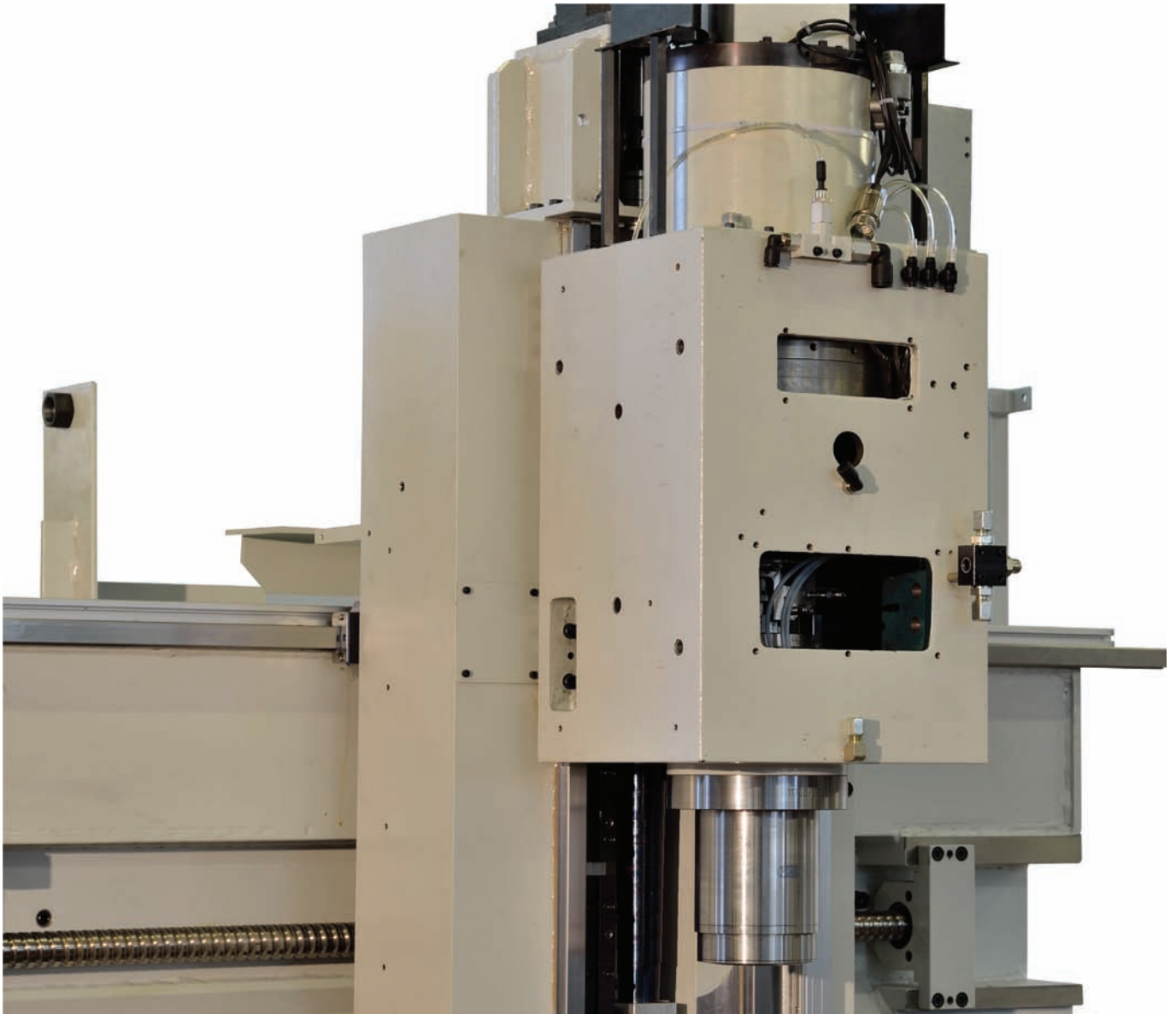
Features of power / torque

Thanks to the protection thermal image of the spindle, it is possible overloading of the power output to 100% for a period of time limited. Then the limit of the available power is not to be interpreted as a limitation of peak, but as the maximum average power output.

(*) ndm (speed factor) = number rpm x bearing mean diameter in mm

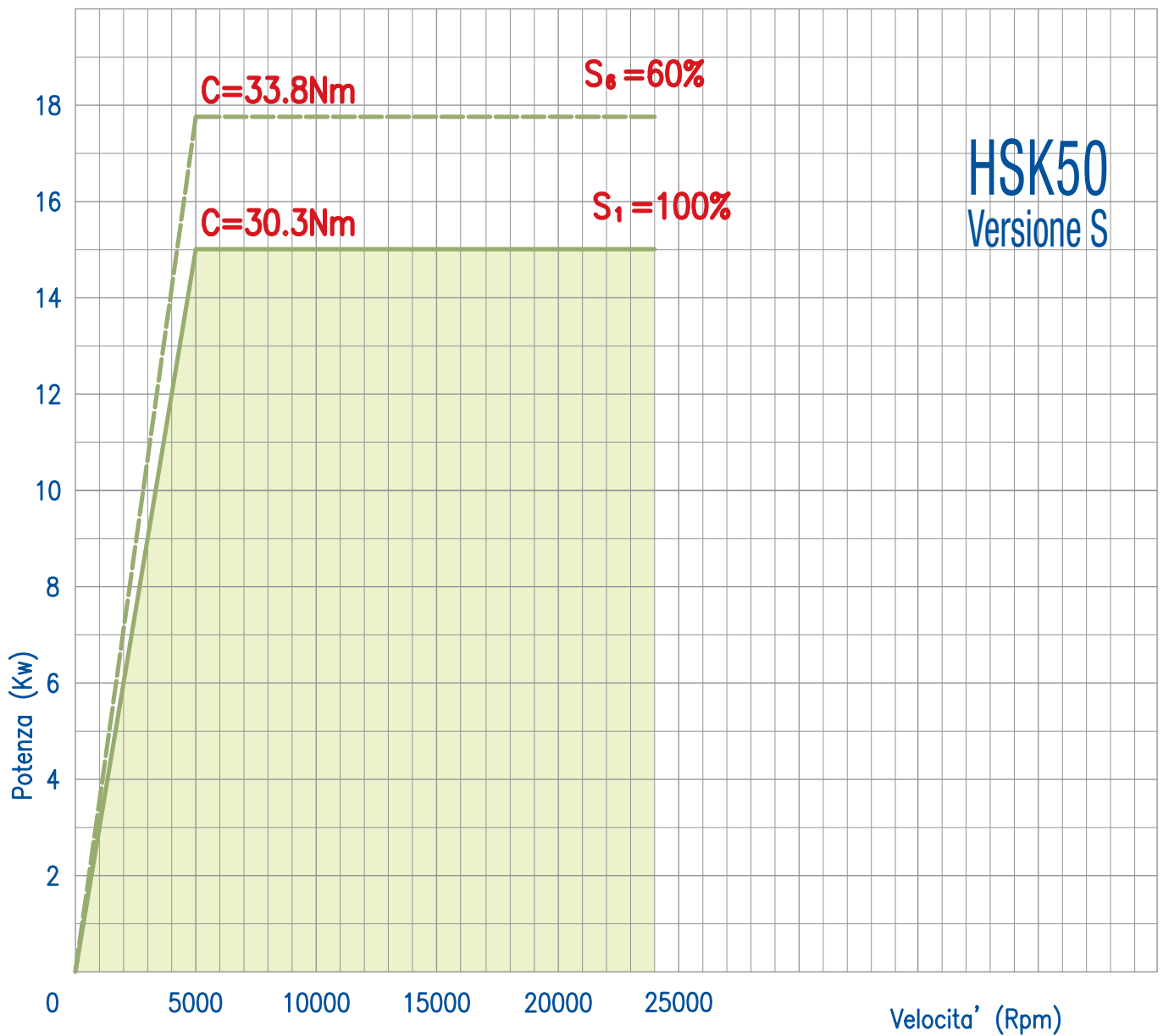
Overall View of the Spindle Motor Hsk50

The motor and the spindle are two separate groups and this in order to ensure maximum stability of operation



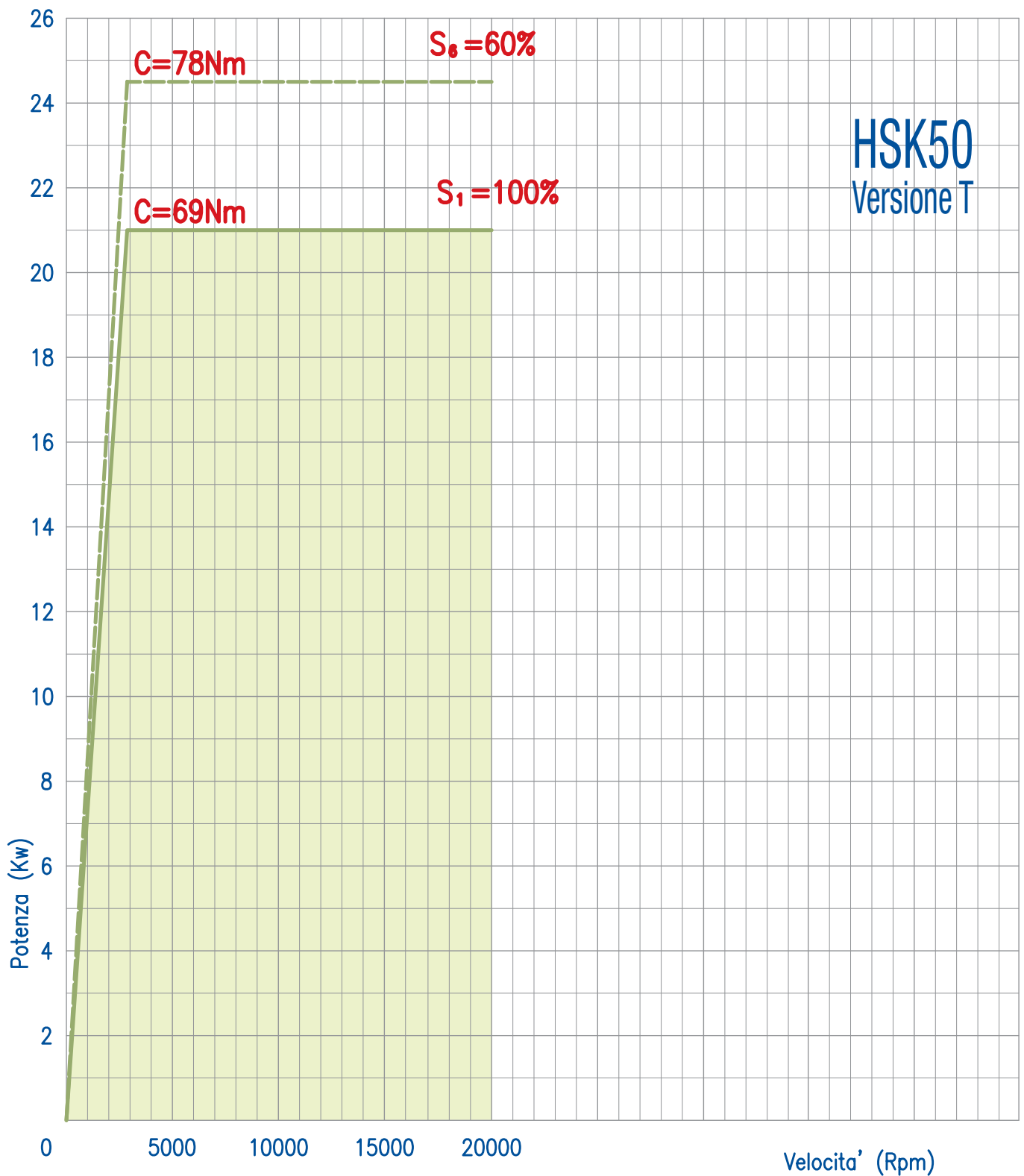
HSK50 version S

Power and torque diagram for Motor-spindle used for the following machine models: M64S and M1015S



HSK50 version T

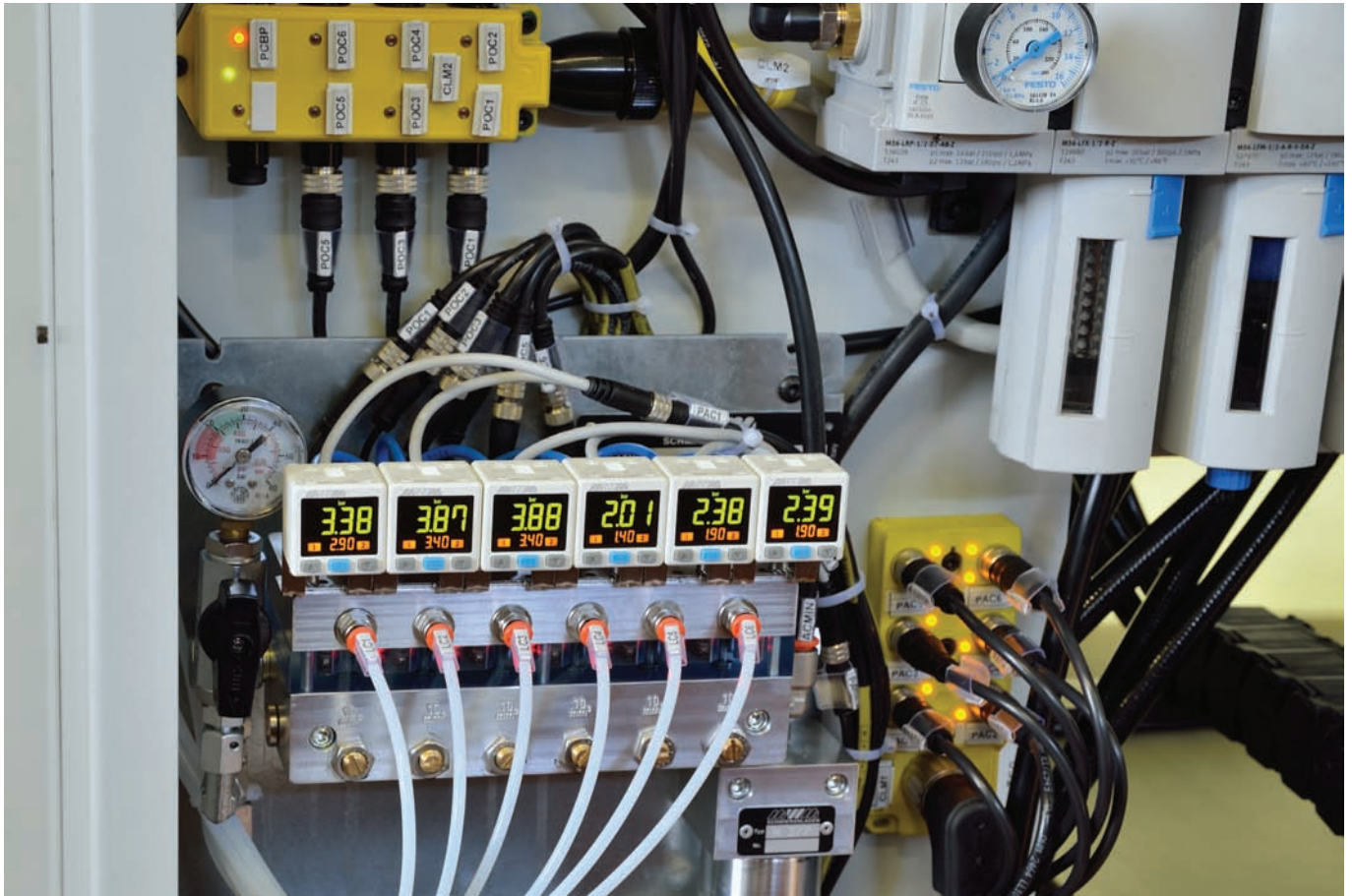
Power and torque diagram for Motor-spindle used for the M1015S only



Minimal Lubrication System for Spindle Bearing
As a standard equipment for this type of spindle



Minimal Lubrication System for Spindle Bearing
View of a detail





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