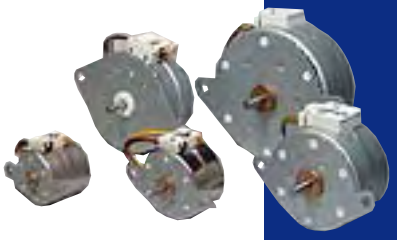
Selection of PM Motors



■ Selection of PM Motors

These motors offer high precision at a low price and are used in a wide array of office automation equipment as well as various other applications. Our PM motor offering spans a large range of motor sizes or output torques. We pride ourselves on our design and manufacturing systems that ensure the rapid delivery of motors perfectly suited to their applications. On this page we list several parameters that can be used in the selection of a PM motor.

Depending on the application, the conditions of use, and the model in which the motor will be used, it is necessary to set motor characteristics for optimum conditions. We therefore recommend, in addition to making a selection based on information on this website, that you order a variety of samples and conduct an evaluation of the products when in use in the actual equipment. Please contact your local sales representative or e-mail us for sample order.

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These pages do not constitute any part of the product specifications and are intended only as reference material in aiding with the selection of a motor. Also, please note that the contents of these page are liable to change without notice. Even if there are any changes to the information given here, this will have no influence whatsoever on products for which specifications have already been agreed and which are in production. If there should be any impact on products already manufactured, we will submit a request for approval of changes to the customer, and make any such changes only after receiving the customer's agreement.

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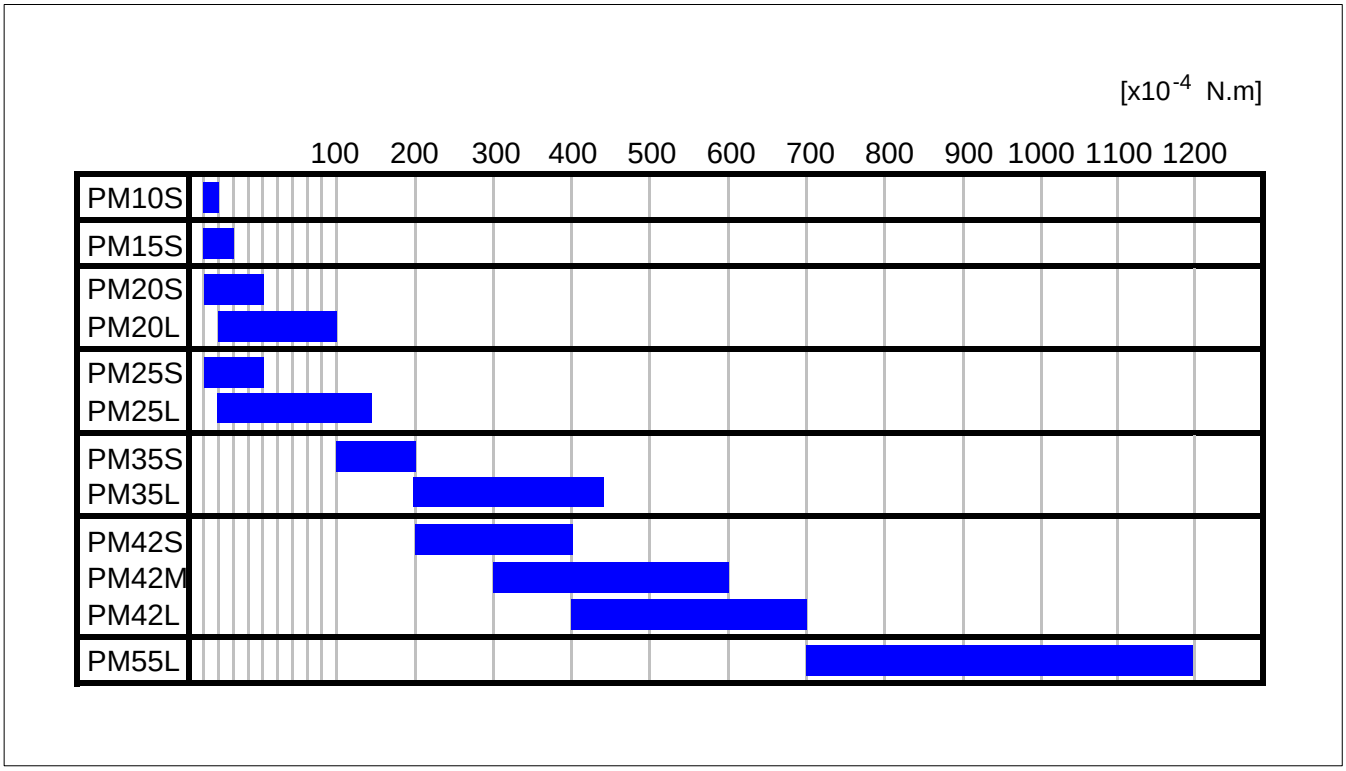
Selection in view of Torque Requirements (1)

The torque generated by a motor is determined by the size of the motor. Also, the heat resistance temperature of the magnet wires used in the motor limits the maximum torque for each motor size. UL and other safety standards impose further limitations. These specify that the motor surface should normally be at 105°C. In addition, when UEW (polyurethane wire: class E) is used the magnet wire heat resistance temperature is a maximum 120°C. We cannot guarantee reliability if the coil is used at temperatures exceeding this.

Torque Range According to Motor Size



The above graph shows output torque range by motor size. Within this range, coil resistance and magnet materials can be tailored for optimum motor settings. For Nd-Fe-B bonded magnets only, it is possible to control magnetization, and it is therefore possible to make adjustments to rotor flux.

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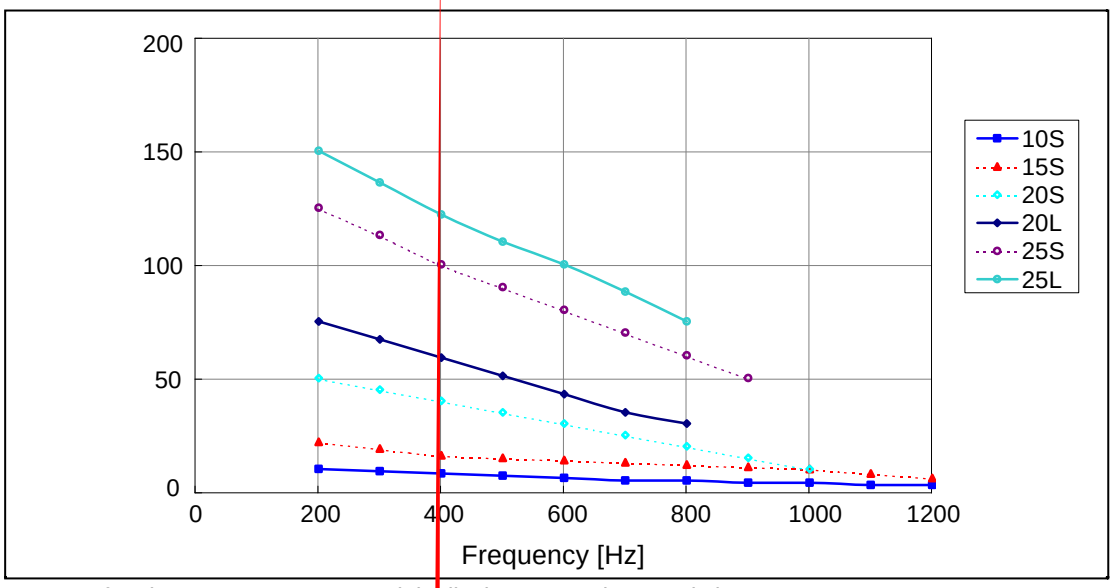
Selection in view of Torque Requirements (2)

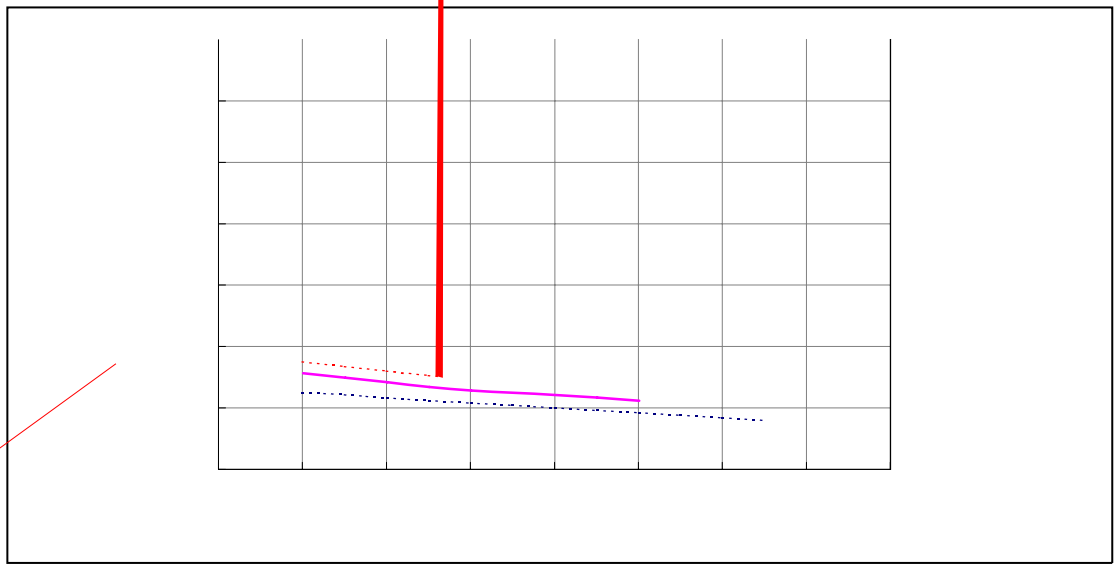
The output torque of a motor varies according to the drive speed. Even if the motor is driven at the same voltage, the rise in revolution speed leads to increased occurrence of electrical motive force, and to higher coil impedance. This in turn makes it harder for current to flow through the coil, thus lowering torque. The following graphs list the average torque for each size of motor. Please refer to this information in making your selection.

PM10S~ PM25L



Magnets for sizes PM15 to PM25 mainly display MS70 characteristics.

PM35~ PM55



Magnets for sizes PM35 to PM42 mainly display MS50 characteristics,
While magnets for size PM55 display MSPL characteristics.

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