

Explanation of Technical Terms

Be sure to read the following “Explanation of Technical Terms” before selecting a model appropriate for your application.

Application Examples and Applicable Fluids for Compressors and Vacuum Pumps

Application: for incorporation into equipment **Applicable fluid:** Air

For Compressors & Vacuum Pumps

Rated performance: The average total accumulated time over which the unit can be used without repair, except the maintenance of the filter. This indicates the expected time required for the rated air flow to fall to 80% of the specification value in the rated operation. The actual life might vary depending on the actual operating and environmental conditions such as output pressure setting, maintenance schedule, ventilation, ambient temperature, duty cycle, etc.

MTTF: MTTF (Mean Time to Failure) is the average time that the product will function before it fails. However, this time is reference only and does not guarantee. Since MTTF depends on your actual operating environment and conditions, conduct performance evaluation test with an actual product prior to use.

Rated voltage: The two major types are 115 V AC/60 Hz and 230 V AC/50 Hz (excluding DC motors). While most models can be operated at both 50 Hz and 60 Hz with different performance characteristics, there are some models that are frequency specific.

Duty cycle: The period of operation under the condition that the coil temperature will not exceed the coil insulation class limit.

Rated frequency: In the case of AC drive pumps, the rated frequency will vary according to the model. While some are designed for only 50 Hz or for 60 Hz, some are designed for both 50 Hz and 60 Hz.

Coil insulations: The suggested class, most bare units attaining “E” class, is based on Japanese electric regulations. They are merely suggestions since bare units are considered “components” and are not classified as complete products or systems.

Coil Insulation Class(for reference only)	(Temperature limit, degrees C)
A	100
E	115
B	125
F	150

Control method: Be careful when controlling compressors and vacuum pumps with electronic components because the power factor depends upon the load.

Outside & mounting dimensions: Useful for assessing the required space for installation. Include sufficient space surrounding the pump when designing it into your application.

Operating ambient temperature: 0 to 40°C

Operating ambient humidity: 30 to 85% non-condensing

Storage environment temperature: -10 to 60°C

Storage environment humidity: 10 to 90% non-condensing

Improvement Suggestion

Our compressors and vacuum pumps employ a unique internal coil cooling feature to reduce or control the rise in internal temperature. If they are operated at higher than rated pressures, elevated temperatures may result. Should these temperatures become excessive, operating duty cycles may need to be reduced, or the use of an auxiliary cooling fan should be considered.

For Compressors

Rated pressure:	This is the pressure point where you will get optimum capabilities for performance and service life and where the pump is designed to have almost the same airflow regardless of a rated frequency of 50 Hz or 60 Hz.
Rated airflow:	The discharge airflow volume at the rated pressure.
Rated operation:	Operating conditions regarding the rated pressure, rated voltage, and rated frequency.
Maximum pressure:	The highest obtainable pressure at which the pump is designed to operate while producing zero discharge airflow (not guaranteed; for reference only).
Power consumption:	The wattage during operation at the rated pressure.
Electric current:	The electric current during operation at the rated pressure (for reference only).
Airflow characteristics:	Discharge pressure-airflow curve (for reference only).
Power consumption characteristics:	Discharge pressure-power consumption curve (for reference only).

For Vacuum Pumps

Attainable vacuum :	The highest vacuum the pump can attain with the pump inlet closed (except some of the exclusive models). *The degree of vacuum shown in this catalog is gauge pressure.
Free air displacement:	The airflow volume at zero vacuum (within three (3) minutes after starting).
Power consumption:	The maximum wattage on the power consumption curve when measured against vacuum levels up to the pumps attainable vacuum.
Electric current:	The maximum electric current on the current characteristics curve when measured against vacuum levels up to the pumps attainable vacuum. (for reference only).
Airflow characteristics:	Vacuum-airflow curve (for reference only).
Power consumption characteristics:	Vacuum-power consumption curve (for reference only).
Exhaust characteristics:	The time required to attain the respective vacuum in a 10 liter container (for reference only).

For DC Pumps

Operating ambient temperature:	0 to 40°C (5 to 50°C for DP0105 only)
Operating ambient humidity:	30 to 85% non-condensing

Start-up the pump at the same level as the atmospheric pressure (Similarly in the case of DPE series pumps)

For Liquid Pumps

Self-priming pressure:	The power the pump requires to draw up 25°C water. 1 kPa is equal to the power needed to draw up 25°C water 10 cm.
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This catalog will give the guidelines needed to determine the appropriate model for your application(s). However, in certain cases you may need further detailed information, which will be provided in the form of a specifications sheet for each model/version by our technical staff who will further assist you in your selection.

Specifications and designs are subject to change at any time without notice.

It is recommended that OEM customers confirm the required specifications in writing before placing orders.