

## Mechanical Booster Pump[NB Series]

Booster pumps can be used with roughing pumps, such as oil rotary pumps, dry vacuum pumps, and water sealed pumps, in order to improve the pumping speed in the  $1.3 \times 10^3 \sim 1.3 \times 10^{-1}$  Pa range, where pumping speeds of roughing pumps often deteriorate.

NB series are roots-type vacuum pumps designed primarily for use in processes where a high level of cleanliness is required.



### Features

#### ► Oil-free

Since no lubricating oil is used in the casing chamber, stable performance is realized even when evacuating water vapor or solvent vapors.

#### ► Operation at high inlet pressure

Since a motor larger than the standard motor can be installed, the pumps are sufficiently applicable to systems having high gas loads, such as CO<sub>2</sub> laser processes.

### Applications

- Illuminant, electronics, optics, semiconductor
- Evaporation, sputtering, ion plating, liquid crystal injector
- Vacuum drying, freeze drying, vacuum degassing
- Vacuum heat treatment furnaces, sintering furnaces, brazing furnaces
- Analytical instruments, leak testers, CO<sub>2</sub> laser equipment

## Mechanical Booster Pump[NB Series]

Item	Model	NB100B	NB300B	NB600B	NB1200B
Actual pumping speed <sup>3</sup> m <sup>3</sup> /h (L/min)	50Hz	95(1580)	280(4670)	500(8330)	1000(16667)
	60Hz	115(1920)	330(5500)	600(10000)	1200(20000)
Max.suction pressure (in continuous operation) Pa	50Hz	1.3X10 <sup>3</sup>	1.2X10 <sup>3</sup>	1.3X10 <sup>3</sup>	
	60Hz	1.3X10 <sup>3</sup>	9.3X10 <sup>2</sup>	1.1X10 <sup>3</sup>	
Max. allowable pressure difference(exhaust pressure - suction pressure) Pa	50Hz	8.0X10 <sup>3</sup>	4.0X10 <sup>3</sup>	7.3X10 <sup>3</sup>	
	60Hz	6.7X10 <sup>3</sup>	3.3.X10 <sup>3</sup>	6.0X10 <sup>3</sup>	
Ultimate vacuum Pa <sup>-1</sup>		4.0X10 <sup>-1</sup>			6.7X10 <sup>-1</sup>
Standard backing pump		GLD-N280 VDN301	VDN401 VDN602	VDN902 VSN1501	VSN1501 VSN2401
Motor kW (Poles) <sup>2,4</sup>		0.4 (2)	0.75 (2)	2.2 (2)	3.7 (2)
Oil		ULVOIL R-4			
Oil capacity L		0.35	0.70	1.50	1.9
Cooling water throughput <sup>*6</sup>	L/min	Air cooling	2 <sup>*5</sup>	2	3
Inlet/outlet differential pressuer	Mpa	—	0.1		
Weight kg		24	49	77.5	110
Inlet diameter(JIS B 2290)		Equivalent to VG50	Equivalent to VG80	Equivalent to VG80	Equivalent to VG100
Outlet diameter(JIS B 2290)		Equivalent to VF50	Equivalent to VF80	Equivalent to VF80	Equivalent to VF80

\*1This value is measured by using a Pirani vacuum gauge. It is approx.  $4.0 \times 10^{-2}$  Pa When a McLeod vacuum gauge is used (Model NB1200B is  $6.7 \times 10^{-2}$  Pa).

\*2 The power is AC380V 50Hz, AC200V 50/60Hz or AC220V 60Hz.

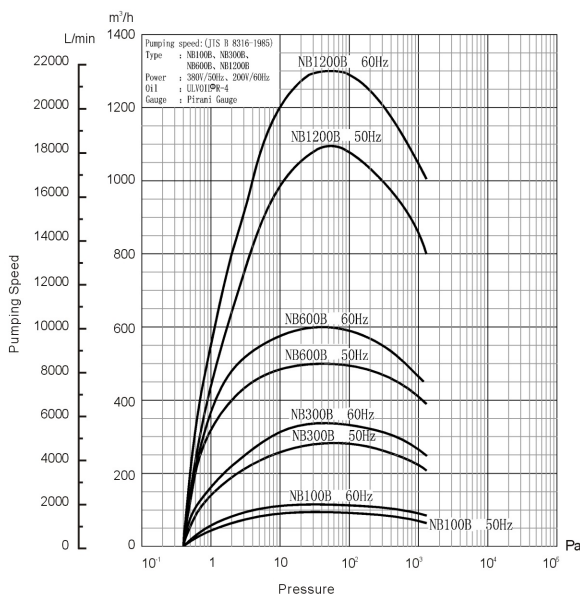
\*3 This value changes depending on the performance of the backing pump. The above data is obtained when the pump is used in Combination with a standard backing pump.

\*4 The NB300B, NB600B and NB1200B are also available with motors of larger capacity, e.g. 1.5kW, 3.7kW or 5.5kW as option.

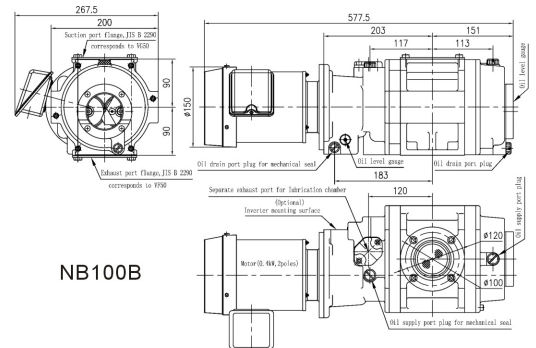
\*5 Air cooling will do when the pressure is lower than 530 Pa. Water cooling is required in continuous operation at a pressure higher than 530Pa.

\*6 Cooling water temperature: 5~30℃

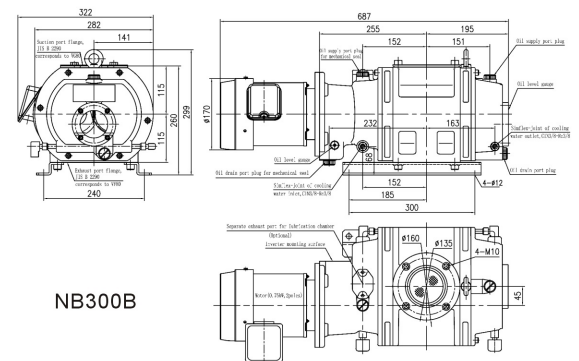
### Pumping Speed Curves



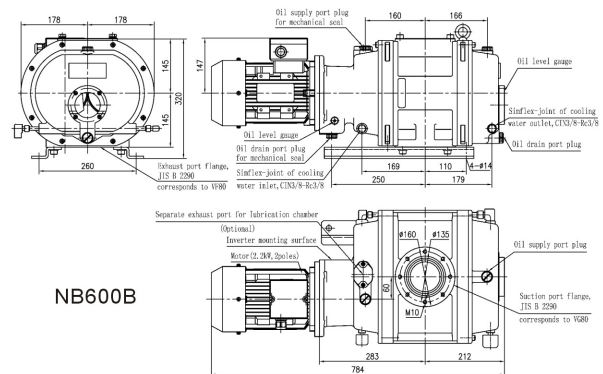
## Dimensional drawing



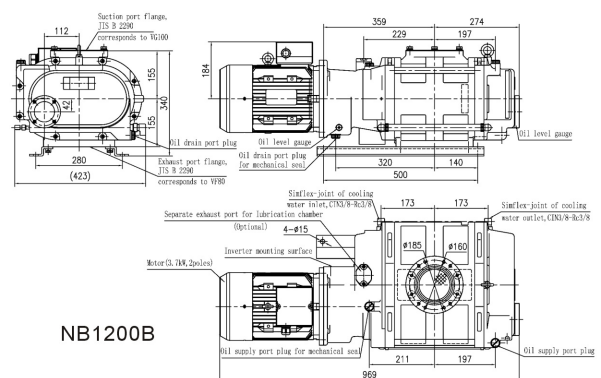
NB100B



NB300B



NB600B



NB1200B