

Turbo Molecular Pump [UTM Series]

The UTM series is an all the blades type turbo molecular pump which carries a pivot bearing (lower side) and a magnetic bearing (upper side).

Mechanical contact at the time of a high velocity revolution is reduced by adoption of the pivot bearing.

Moreover, a low vibration and a high compression ratio are realized.



Features

- ▶ Magnetic bearing was adopted as the upper part, pivot bearing was adopted as the lower part, and mechanical contact at the time of a high velocity revolution is eliminated.
Thereby, bearing exchange and an oil change become unnecessary and realize extended life-span of bearing.
- ▶ Fine dynamic balance rotor and highly efficient bearing by design of original blades realize a high velocity revolution, and inlet performance (high compression ratio) of low molecular weight gas, such as H_2 and He.
- ▶ A pivot bearing and fluoride oil (oil whose saturated vapor pressure is chemically stable and is low) are adopted, and environment without the infinite oil near zero is realized.
Achievement of clean, ultrahigh vacuum is possible.
- ▶ Adoption of a fine dynamic balance rotor and a highly efficient bearing realizes low noise and low vibration.

Applications

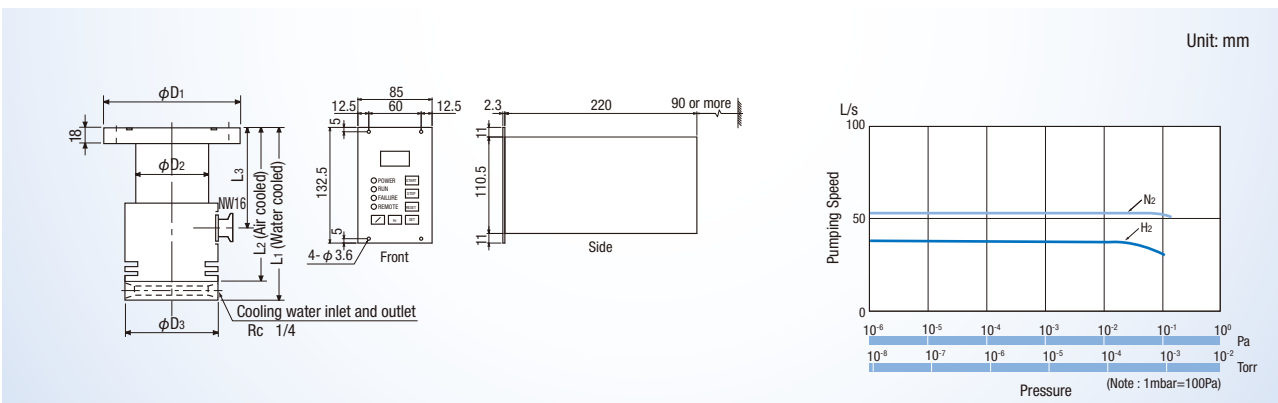
- ▶ Main pumping systems for analysis equipment, research-and-development equipment, and an experimental device.
- ▶ Main pumping system for low molecule gas, evacuation such as H_2 and He.
- ▶ Main pumping systems for analysis equipment and evaluation equipment, which are vibration sensitive.

Turbo Molecular Pump [UTM Series]

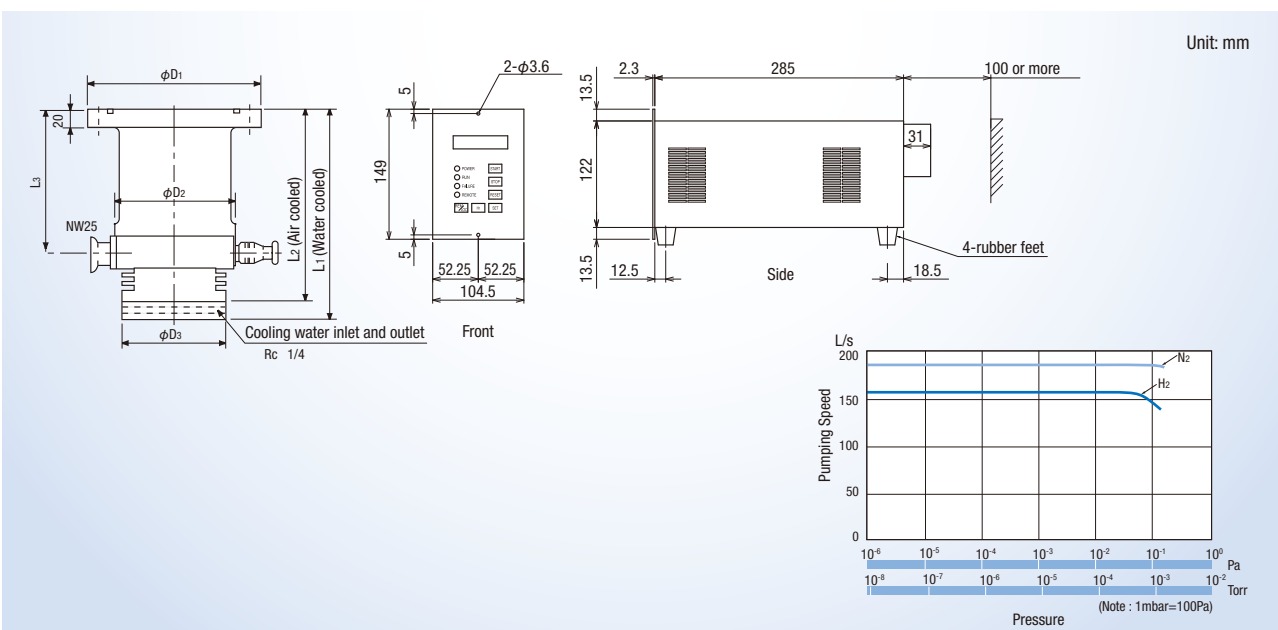
► Dimensions



UTM-50

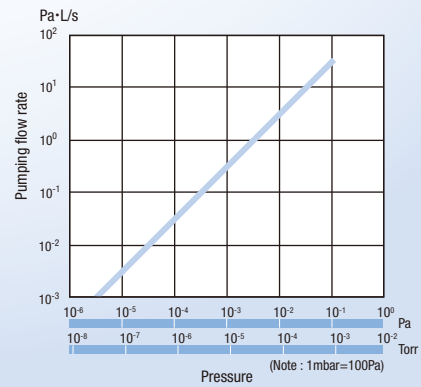
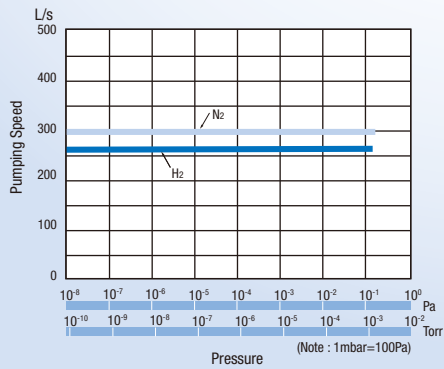
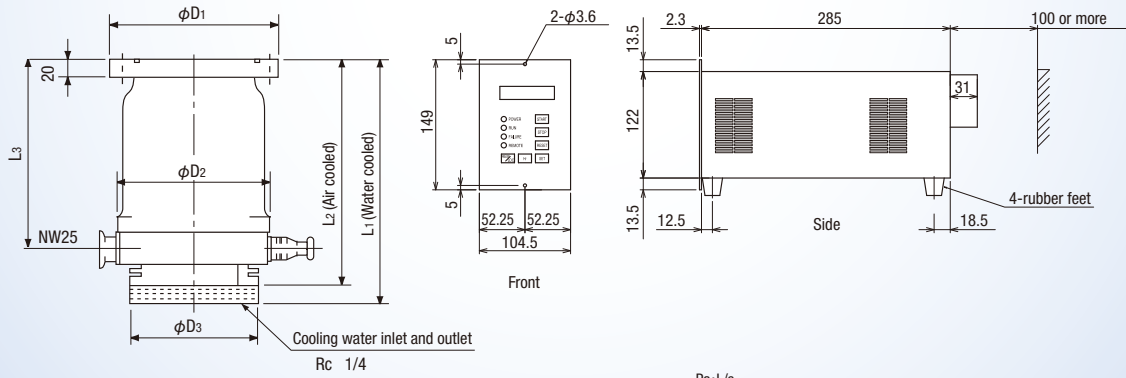


UTM-150



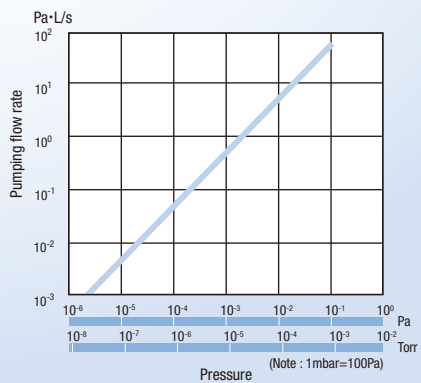
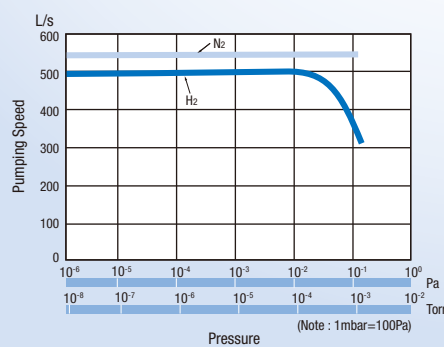
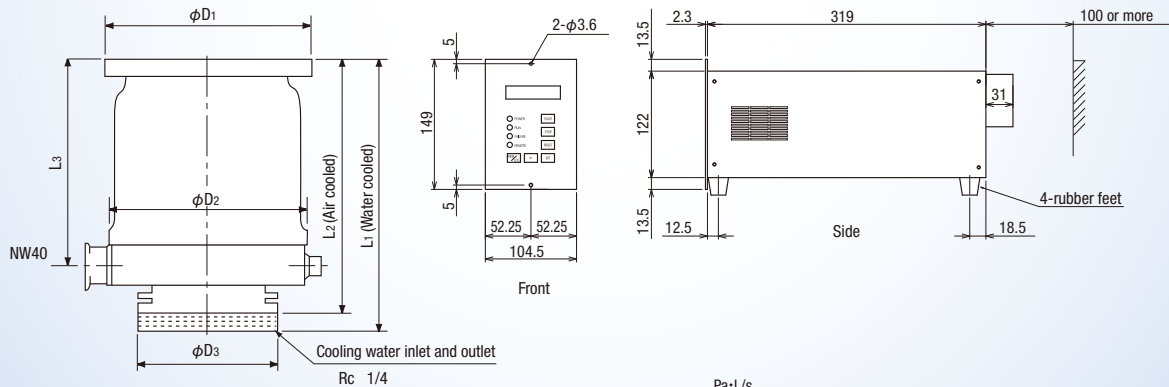
UTM-300

Unit: mm



UTM-500

Unit: mm



Turbo Molecular Pump [UTM Series]

Specifications

Model			UTM-50		UTM-150		UTM-300		UTM-500		
Pump	Flange size	Inlet	VG65	ICF114	VG100	ICF152	VG100	ICF152	VG150	ICF203	
		Outlet	NW16		NW25				NW40		
	Pumping speed *1 *2	L/sec	N ₂	50	190		300		550		
			H ₂	40	160		260		500		
	Ultimate pressure *1 *3	Pa	10 ⁻⁷		10 ⁻⁸						
		Torr	10 ⁻⁹		10 ⁻¹⁰						
		mbar	10 ⁻⁹		10 ⁻¹⁰						
	Max. compression rate *1 *3	N ₂	>10 ⁸								
		H ₂	10 ³		10 ⁴				10 ⁵		
	Max. pressure at inlet of N ₂ (at Max. flow) *1 *4	Pa	0.13								
		Torr	9.7×10 ⁻⁴								
		mbar	1.3×10 ⁻³								
	Max. pressure at outlet of N ₂ (at Max. flow) *1 *4	Pa	13								
		Torr	9.7×10 ⁻²								
		mbar	1.3×10 ⁻¹								
Rotational speed	rpm	90000		72000		54000		40200			
Acceleration time/Deceleration time	min	Approx. 2/3		Approx. 3/4		Approx. 4/7		Approx. 8/8			
Bearing	Upper side	Magnetic bearing									
	Lower side	Pivot bearing									
Lubricating oil		Fluorine oil									
Oil capacity	mL	Approx.10							Approx. 40		
Rotor blade surface treatment		None									
Baking temperature	°C (°F)	≤90 (194)									
Cooling		Water cooled/Air cooled									
Cooling water port		Rc1/4									
Flow rate of cooling water	L/min	≥0.5									
Pressure drop of cooling water between inlet and outlet	MPa (psi)	≥0.01 (≥1.5)									
Weight	kg/lb	Approx. 3		Approx. 6		Approx. 10		Approx. 16			
Recommended backing vacuum pump *5	m³/h	3		6		12		18			
	L/min	50		100		200		300			
	CFM	1.8		3.5		7.0		10.6			
Power supply	Power consumption	kVA	0.34		0.59		0.56		0.89		
	Input voltage	ACV	100 to 240								
	Input frequency	Hz	50/60								
	Phase		Single								
	Motor drive system		VWVF								
	Output frequency	Hz	Approx.1500		Approx.1200		Approx.900		Approx. 670		
	Ambient temperature	°C (°F)	0 to 40 (32 to 104)								
Weight	kg	Approx. 2.2		Approx. 3.9				Approx. 4.5			

Note: The values in the table are representative of actual measurement values and are not guaranteed.

*1 These are values measured according to the JVIS005, or calculated values based on these measured values.

*2 Without the Protecting metal net.

*3 Range.

*4 These are values measured under the condition of standard surface treatment, and measured with standard backing pump.

When continuous long term operation near the maximum inlet port pressure will be maintained, please consult the manufacturer (JVIS005 standard item9).

*5 Select a suitable, larger capacity pump depending on the gas flow rate.

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