

# Ultra-High Vacuum Turbo Molecular Pump UTM Series

## Standard Specifications

Item	Model	UTM-50	UTM-150	UTM-300	UTM-500	UTM-1500	
Main unit	Flange diameter	Inlet port JIS VG65	JIS VG100	JIS VG100	JIS VG150	JIS VG250	
		Exhaust port	NW16	NW25	NW25	NW40	JIS VF50
	Pumping speed*1+2 L/s	N <sub>2</sub>	50	190	300	550	1,600
		H <sub>2</sub>	40	160	260	500	1,650
	Maximum compression ratio*1+3	N <sub>2</sub>	>10 <sup>8</sup>	>10 <sup>8</sup>	>10 <sup>8</sup>	>10 <sup>8</sup>	>10 <sup>8</sup>
		H <sub>2</sub>	10 <sup>3</sup>	10 <sup>4</sup>	10 <sup>4</sup>	10 <sup>5</sup>	10 <sup>5</sup>
	Ultimate pressure*1+3 Pa		10 <sup>-7</sup>	10 <sup>-8</sup>	10 <sup>-8</sup>	10 <sup>-8</sup>	10 <sup>-8</sup>
	Maximum inlet/exhaust port pressure*1+4 Pa		0.13/13	0.13/13	0.13/13	0.13/13	0.13/13
	Rotation speed rpm		90,000	72,000	54,000	40,200	26,700
	Startup/stop time min		Approx. 2/3	Approx. 3/4	Approx. 4/7	Approx. 8/8	Approx. 20/20
	Bearing	Upper bearing	Magnetic bearing	Magnetic bearing	Magnetic bearing	Magnetic bearing	Magnetic bearing
		Lower bearing	Pivot bearing	Pivot bearing	Pivot bearing	Pivot bearing	Pivot bearing
	Lubricating oil and oil capacity mL		Fluorine oil, approx. 10	Fluorine oil, approx. 10	Fluorine oil, approx. 10	Fluorine oil, approx. 40	Fluorine oil, approx. 100
	Cooling method		Air cooled/water cooled	Air cooled/water cooled	Air cooled/water cooled	Air cooled/water cooled	Air cooled/water cooled
	Cooling water flow rate L/min (water temperature: 5-25°C)	Bearing section	0.5 or lower	0.5 or lower	0.5 or lower	0.5 or lower	0.5 or lower
Pump housing section		—	—	—	—	—	
Cooling water pressure loss (MPa)	Bearing section	> 0.01	> 0.01	> 0.01	> 0.01	> 0.01	
	Pump housing section	—	—	—	—	—	
Allowable surrounding temperature °C	Air cooled model	5-30	5-30	5-30	5-30	5-30	
	Water cooled model	5-35	5-35	5-35	5-35	5-35	
Standard backing pump*5 L/min		50	100	200	300	700	
Weight kg		Approx. 3	Approx. 6	Approx. 10	Approx. 16	Approx. 55	
Power supply	Input voltage ACV	100-240	100-240	100-240	100-240	200-240	
	Frequency Hz	50/60	50/60	50/60	50/60	50/60	
	Phase	Single phase	Single phase	Single phase	Single phase	Single phase	
	Power consumption kVA	0.34	0.59	0.56	0.89	0.94	
	Motor drive method	VVVF	VVVF	VVVF	VVVF	VVVF	
	Output frequency under stable working conditions Hz	Approx. 1,500	Approx. 1,200	Approx. 900	Approx. 670	Approx. 445	
	Allowable surrounding temperature °C	0-40	0-40	0-40	0-40	0-40	
	Weight kg	Approx. 2.2	Approx. 3.9	Approx. 3.9	Approx. 4.5	Approx. 7.3	
Inlet ports other than JIS VG Standard		CF114	CF152	CF152	CF203	CF305	

\* 1 Values obtained directly by measurement using JVIS 005 standards or based on measurements using JVIS 005 standards.  
 \* 2 Pumping speeds obtained with no protective metal net installed.  
 \* 3 Orders of magnitude only are shown.  
 \* 4 Measurement values for pumping under the designated

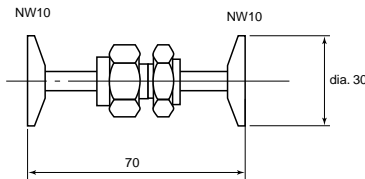
cooling conditions using N<sub>2</sub> gas or gas with lower molecular weight. When continuous long-term operation near the maximum inlet port pressure/exhaust port pressure will be maintained, please consult the manufacturer (JVIS 005 standards, item 9).  
 \* 5 Select a suitable, larger capacity pump depending on the gas flow rate.

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

## Options

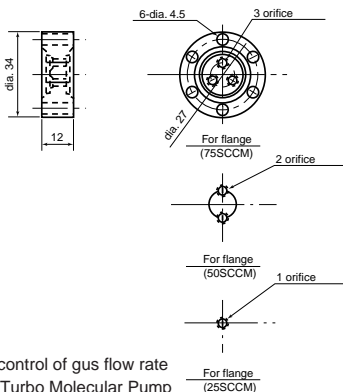
(unit: mm)

### External dimensions of gas purge device



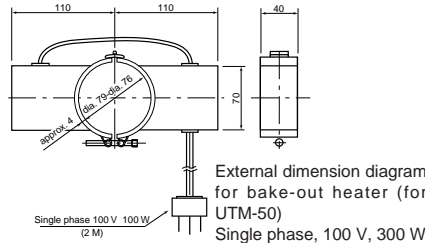
When pumping corrosive gases using a turbo molecular pump, an inert gas purge (N<sub>2</sub> gas) is used in order to prevent corrosion of motor bearings.

### External dimension diagram for flow rate control unit (CF34)

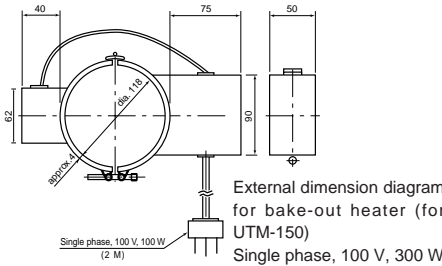


For control of gas flow rate to a Turbo Molecular Pump

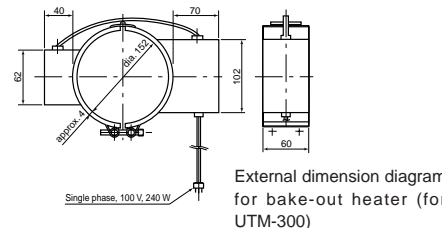
### Bake-out heater



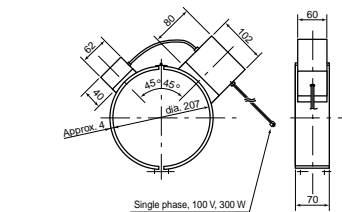
External dimension diagram for bake-out heater (for UTM-50)  
 Single phase, 100 V, 300 W



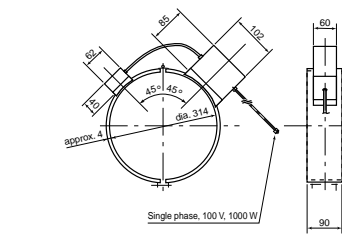
External dimension diagram for bake-out heater (for UTM-150)  
 Single phase, 100 V, 300 W



External dimension diagram for bake-out heater (for UTM-300)



External dimension diagram for bake-out heater (for UTM-500)



External dimension diagram for bake-out heater (for UTM-1500)  
 Single phase, 100 V, 300 W

Cable length: 2 m  
 Heating temperature: 90 °C (Not Adjustable)