



EBARA

EBARA Turbomolecular Pumps

Model EBT

Innovative Technology.

Ceramic-Bearing



Model EBT

EBARA's Model EBT are mechanical-bearing, compound turbomolecular pumps which compliment EBARA's existing line of Model EMT mag-lev turbomolecular pumps. Model EBT pumps are highly efficient, cost effective solutions to your high vacuum pumping requirements. EBARA's Model EBT compound turbomolecular pumps offer an extremely rugged, mechanical bearing design which provides clean, reliable vacuum generation for high tech manufacturing. Typical applications include semiconductor, thin film, photovoltaic, and analytical instruments. EBARA's Model EBT of compound turbomolecular pumps can be mounted in any orientation. These pumps offer high pumping speed and high, light gas compression, making them ideal for UHV and analytical systems.

FEATURES AND BENEFITS

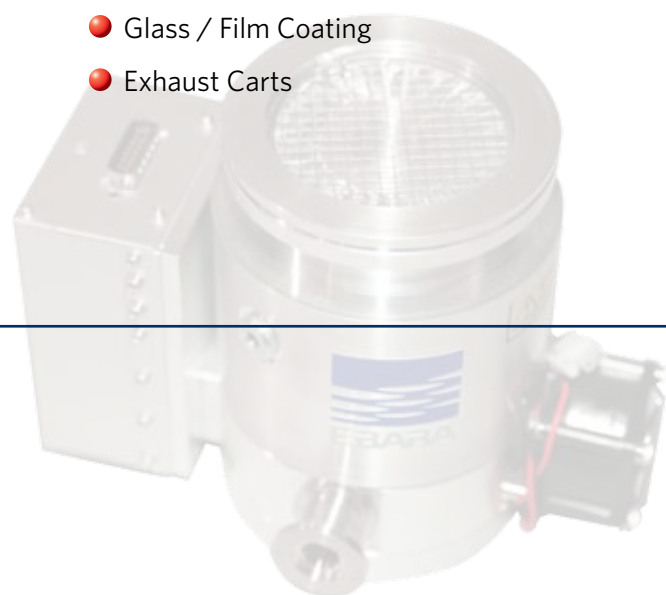
- Rugged Bearing Design Ideal for Mobile Applications
- High Pumping Speeds
- High Compression Ratios for Light Gases
- Fast Starts and Stops
- Quick Venting (No Vent Pulsing)
- Fan or Water Cooling
- ISO or Conflat (CF) Flanges
- Integrated Controller (Selected Models)

APPLICATIONS

- Surface Treatment
- Analytical Instrument Lamps
- Electron / X-Ray Tubes
- Ion / EB-Source
- Wafer Bonding
- Sputter
- Glass / Film Coating
- Exhaust Carts

OPTIONS

- Natural Air or Water Cooling
- Vent Valve Kit
- Nitrogen Purge
- Install Kit (Valves, etc.)
- Isolation Valves



SPECIFICATIONS

Model			EBT70	EBT220	EBT240	EBT350	EBT450	EBT800	EBT1100	EBT1400	EBT2400
Pumping Speed, L/s		N ₂	70	220	240	330	450	820	1100	1400	2400
		H ₂	40	210	160	210	240	650	720	750	1100
Compression Ratio		N ₂	1x10 ⁸								
		H ₂	1.0x10 ⁵	4.0x10 ²	4.0x10 ⁴	2.0x10 ³		1.0x10 ⁴		4.3x10 ³	1.4x10 ⁴
Ultimate Pressure	CF	Pa	< 1x10 ⁻⁷	< 1x10 ⁻⁶	< 1x10 ⁻⁷	< 1x10 ⁻⁶					-
		Torr	< 7.5x10 ⁻¹⁰	< 7.5x10 ⁻⁹	< 7.5x10 ⁻¹⁰	< 7.5x10 ⁻⁹					-
	ISO-R	Pa	< 5 x 10 ⁻⁷	< 1x10 ⁻⁶							
		Torr	< 3.8x10 ⁻⁹	< 7.5x10 ⁻⁹							
Recommended Backing Vacuum Pump		L/min	> 25	> 80				> 250			
		CFM	> 0.88	> 2.85				> 8.80			> 17.60
Startup Time		min	2.0 - 2.5	1.0 - 1.2	5.5 - 6.0	2.0 - 2.5		7.0 - 9.0		5.5 - 7.0	5.0 - 7.0
Cooling Type			Air (Fan) / Convection	Air (Fan) / Water							
Weight	CF	kg	5.0	8.0	10.5	9.0	10.0	27.0	28.0	30.0	-
		lb	11.0	17.6	23.1	19.8	22.0	59.5	61.7	66.1	-
	ISO-R	kg	3.0	5.8	7.3	6.0	7.0	26.0	27.0	29.0	45.0
		lb	6.6	12.0	16.1	13.0	15.4	57.3	59.5	63.9	99.2

CONTROLLERS

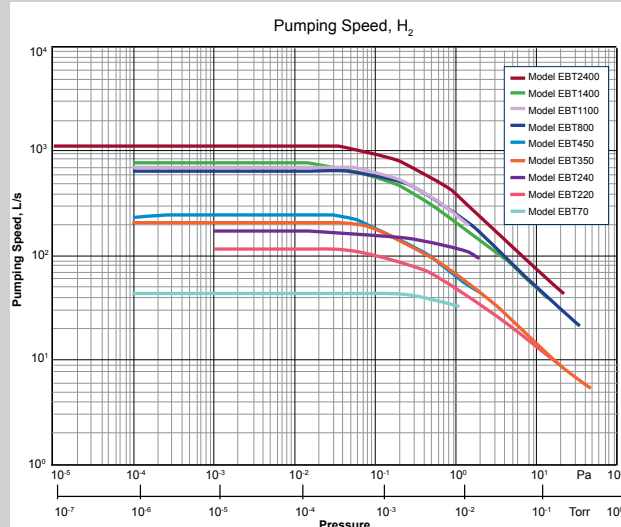
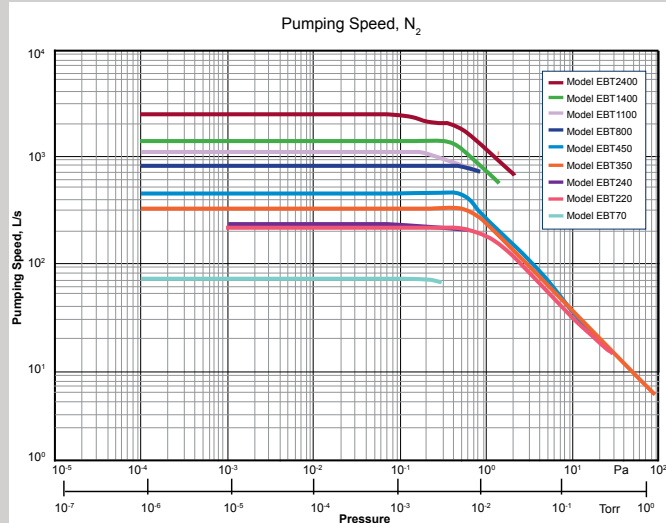
CONTROLLERS				
Model		ETC-S2		ETC-M2
Input Voltage		AC 100 - 110 ± 10% or AC 200 - 230 V ±10%		AC 200 - 230 V ±10%
Input Frequency	Hz	50 / 60 ± 2%		
Input Phase		Single		
Input Power		490 - 610 VA		0.81 - 2.2 kVA
Weight	kg	2.7		8.2
	lb	6.0		18.0
Pump Models		Model EBT70, EBT220, EBT350, EBT450, EBT800, EBT1100		Model EBT800, EBT1100, EBT2400

Model EBT

MODEL DESCRIPTION

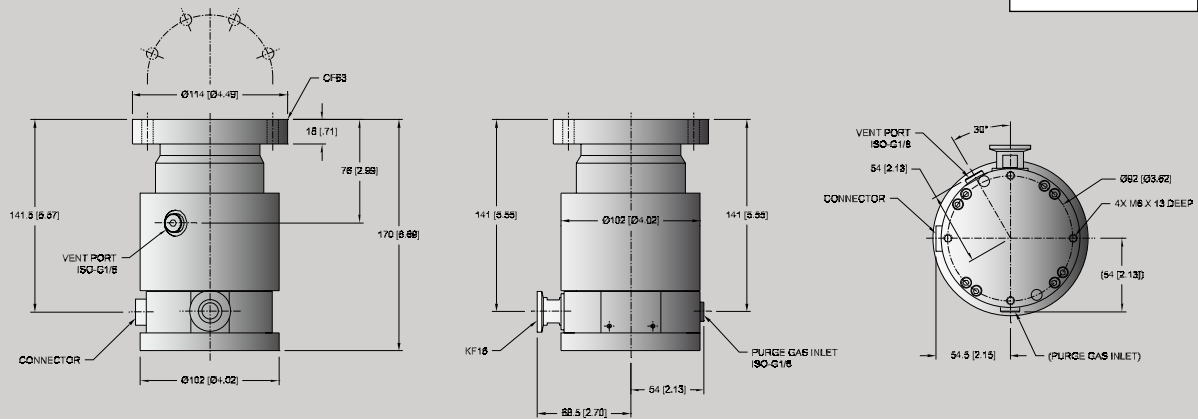
EBT	350	F	B	A	B
1	2		3	4	5
1	Model	EBT	Ceramic-Bearing		
2	Size	N ₂ Flow Rates	70		
			220		
			240		
			350		
			450		
			800		
			1100		
			1400		
			2400		
3	Inlet Flange	C	Conflat		
		B	ISO-B (Bolt)		
		R	ISO-R (Clamp)		
4	Cooling System	A	Air Cooling (Fan)		
		N	Natural Air Cooling (No Fan)		
		W	Water Cooling		
5	Specification Type	B	Standard		
		C	Corrosive Resistant		

PERFORMANCE CURVES



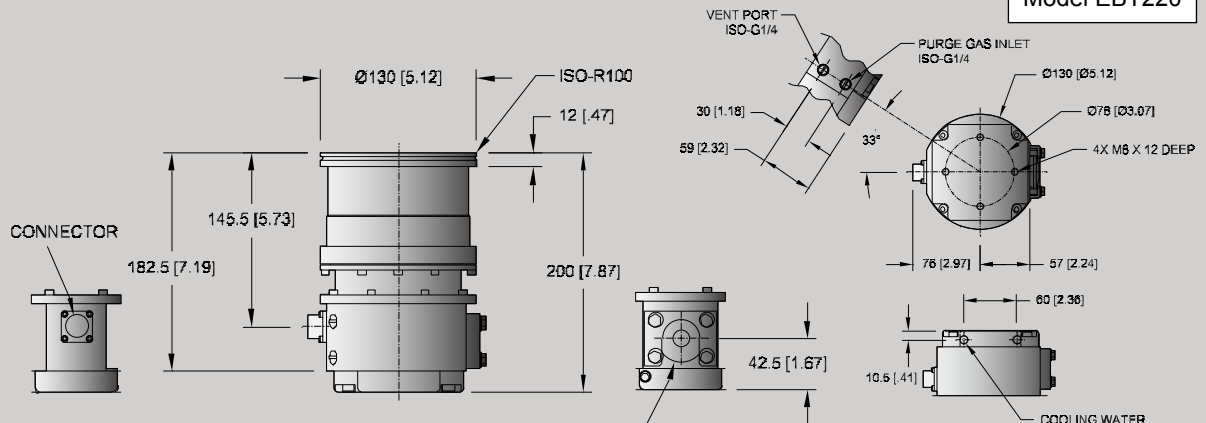
DIMENSIONS

Model EBT70



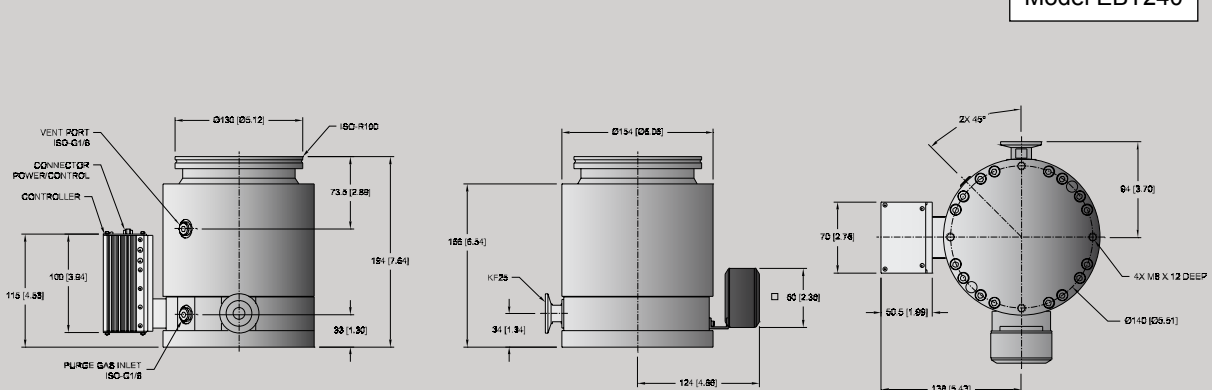
Unit: mm [in]

Model EBT220



Unit: mm [in]

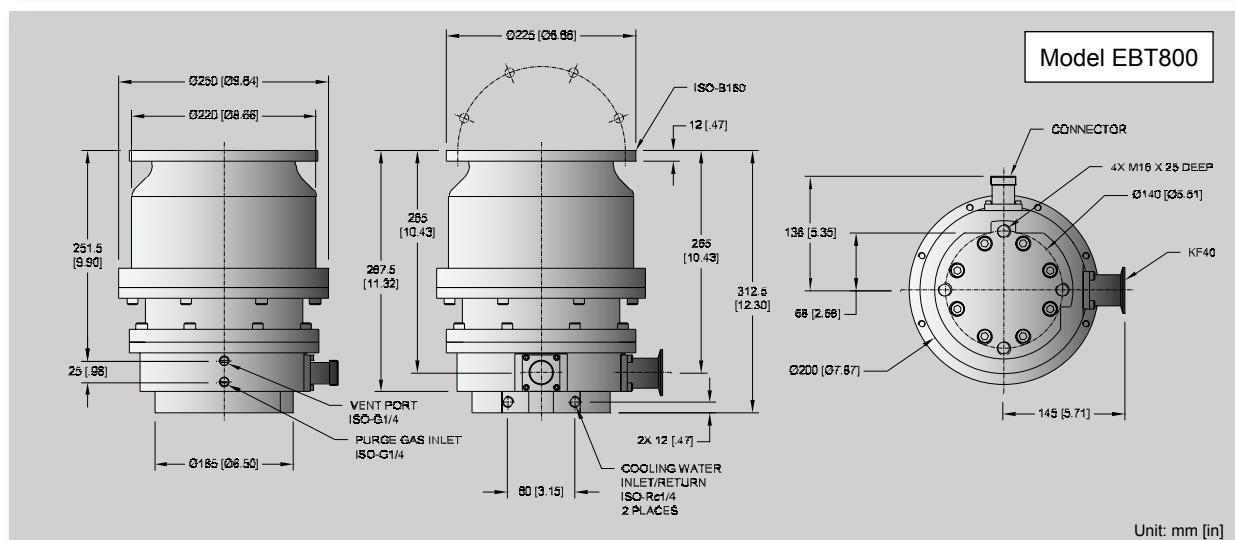
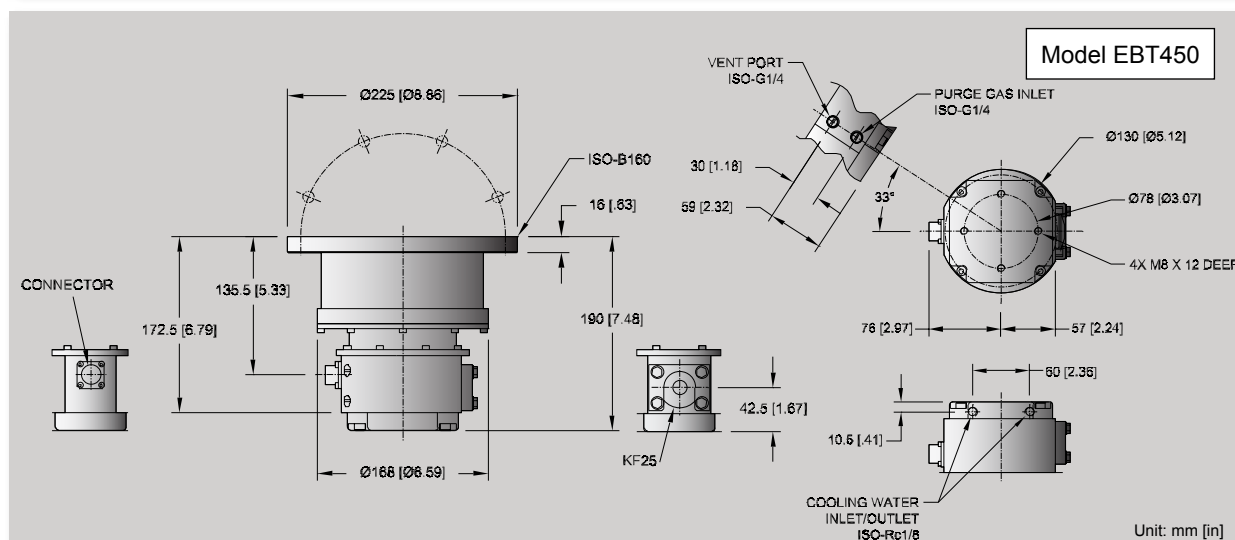
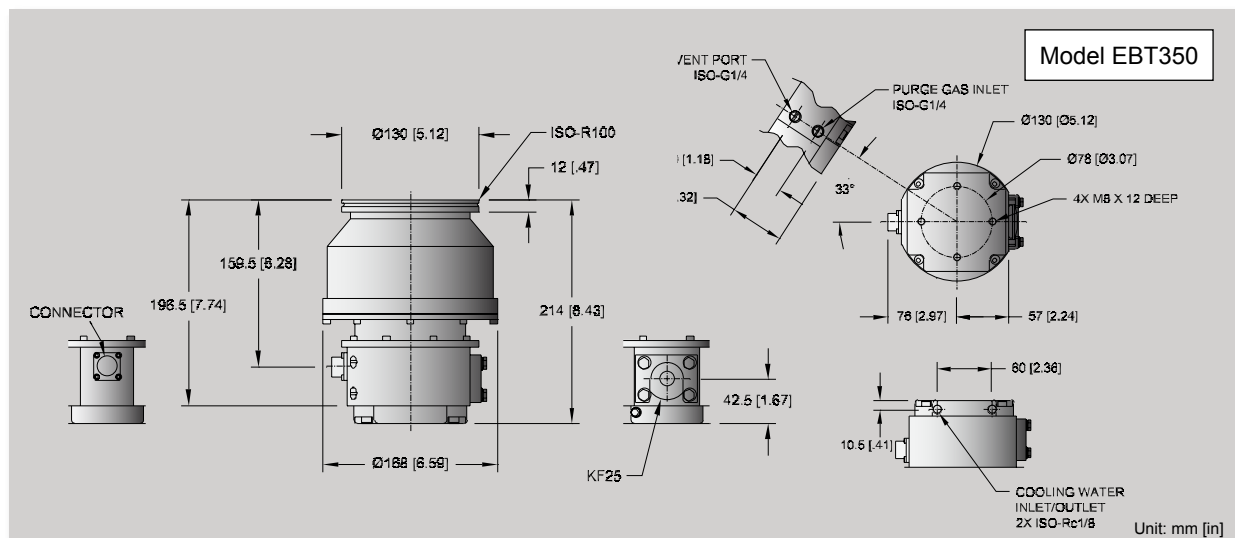
Model EBT240



Unit: mm [in]

Model EBT

DIMENSIONS



Technical drawings of the ISO 15110-1 Cryogenic Valve, showing front, side, and top views with dimensions in mm and inches.

Front View Dimensions:

- Top Flange Diameter: $\varnothing 285$ [11.22]
- Body Diameter: $\varnothing 250$ [9.84]
- Overall Height: 220 [8.66]
- Bottom Flange Diameter: $\varnothing 256$ [10.06]
- Bottom Flange Thickness: 25 [0.98]
- Ports: PURGE GAS INLET ISO-G1/4, VENT PORT ISO-G1/4

Side View Dimensions:

- Top Flange Thickness: 18 [0.71]
- ISO-B200 Label
- Body Diameter: $\varnothing 220$ [8.66]
- Overall Height: 233.5 [9.19]
- Bottom Flange Thickness: 281 [11.06]
- Bottom Flange Diameter: $\varnothing 212$ [8.35]
- Bottom Flange Thickness: 80 [3.15]
- Bottom Flange Diameter: $\varnothing 180$ [7.09]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 160$ [6.30]
- Bottom Flange Thickness: 80 [3.15]
- Bottom Flange Diameter: $\varnothing 140$ [5.51]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 120$ [4.72]
- Bottom Flange Thickness: 80 [3.15]
- Bottom Flange Diameter: $\varnothing 100$ [3.94]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 80$ [3.15]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 60$ [2.36]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 40$ [1.57]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 20$ [0.79]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 10$ [0.39]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 5$ [0.20]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 2.5$ [0.10]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 1.25$ [0.05]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 0.625$ [0.025]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 0.3125$ [0.0125]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 0.15625$ [0.00625]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 0.078125$ [0.003125]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 0.0390625$ [0.0015625]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 0.01953125$ [0.00078125]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 0.009765625$ [0.000390625]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 0.0048828125$ [0.0001953125]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 0.00244140625$ [0.00009765625]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 0.001220703125$ [0.000048828125]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 0.0006103515625$ [0.0000244140625]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 0.00030517578125$ [0.00001220703125]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 0.000152587890625$ [0.000006103515625]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 0.0000762939453125$ [0.0000030517578125]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 0.00003814697265625$ [0.00000152587890625]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 0.000019073486328125$ [0.000000762939453125]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 0.0000095367431640625$ [0.0000003814697265625]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 0.00000476837158203125$ [0.00000019073486328125]
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- Bottom Flange Diameter: $\varnothing 0.000002384185791015625$ [0.000000095367431640625]
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- Bottom Flange Diameter: $\varnothing 0.0000011920928955078125$ [0.0000000476837158203125]
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- Bottom Flange Diameter: $\varnothing 0.00000059604644775390625$ [0.00000002384185791015625]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter: $\varnothing 0.000000298023223876953125$ [0.000000011920928955078125]
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- Bottom Flange Diameter: $\varnothing 0.0000001490116119384765625$ [0.0000000059604644775390625]
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- Bottom Flange Diameter: $\varnothing 0.00000007450580596923828125$ [0.00000000298023223876953125]
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- Bottom Flange Diameter: $\varnothing 0.000000037252902984619140625$ [0.000000001490116119384765625]
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- Bottom Flange Thickness: 2X 12 [0.47]
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- Bottom Flange Diameter: $\varnothing 0.0000000000363797880709171295166015625$ [0.0000000000014551915228366851806640625]
- Bottom Flange Thickness: 2X 12 [0.47]
- Bottom Flange Diameter:

Technical drawings of the ISO-B200 cryogenic storage dewar, showing front, side, and top views with dimensions in mm [in].

Front View Dimensions:

- Top Flange: Ø285 [11.22]
- Main Body: Ø245.5 [9.67]
- Base: Ø252.5 [9.94]
- Height: 239 [9.41]
- Purge Gas Inlet: ISO G1/4
- Vent Port: ISO G1/4

Side View Dimensions:

- Top Flange: Ø280 [11.02]
- Main Body: Ø252.5 [9.94]
- Base: Ø252.5 [9.94]
- Height: 275 [10.83]
- ISO-B200 Label: 16 [0.63]
- Height to Base: 252.5 [9.94]
- Height to Top Flange: 300 [11.81]
- Height to Cooling Water Inlet/Outlet: 252.5 [9.94]
- Height to Base: 252.5 [9.94]
- Height to Purge Gas Inlet: 25 [0.98]
- Height to Vent Port: 25 [0.98]
- Height to Cooling Water Inlet/Outlet: 80 [3.15]
- Height to Base: 80 [3.15]
- Height to Purge Gas Inlet: 25 [0.98]
- Height to Vent Port: 25 [0.98]
- Height to Cooling Water Inlet/Outlet: 80 [3.15]
- Height to Base: 80 [3.15]
- Height to Purge Gas Inlet: 25 [0.98]
- Height to Vent Port: 25 [0.98]
- Height to Cooling Water Inlet/Outlet: 80 [3.15]
- Height to Base: 80 [3.15]

Top View Dimensions:

- Connector: Ø200 [Ø7.87]
- Height to Top Flange: 136 [5.35]
- Height to Main Body: 68 [2.68]
- Height to Base: 68 [2.68]
- Height to Cooling Water Inlet/Outlet: 68 [2.68]
- Height to Base: 68 [2.68]
- Height to Purge Gas Inlet: 25 [0.98]
- Height to Vent Port: 25 [0.98]
- Height to Cooling Water Inlet/Outlet: 80 [3.15]
- Height to Base: 80 [3.15]
- Height to Purge Gas Inlet: 25 [0.98]
- Height to Vent Port: 25 [0.98]
- Height to Cooling Water Inlet/Outlet: 80 [3.15]
- Height to Base: 80 [3.15]
- Height to Purge Gas Inlet: 25 [0.98]
- Height to Vent Port: 25 [0.98]
- Height to Cooling Water Inlet/Outlet: 80 [3.15]
- Height to Base: 80 [3.15]

Other Labels:

- ISO-B200
- KF40
- COOLING WATER INLET/OUTLET 2X ISO-Rc1/4
- CONNECTOR
- Ø200 [Ø7.87]
- 4X M16 X 25 DEEP
- Ø140 [Ø5.51]
- Ø165 [Ø6.50]
- 145 [5.71]

Unit: mm [in]

Technical drawings of the ISO 15110-1 Cryogenic Valve, showing front and end views with dimensions and labels.

Front View Dimensions:

- Top flange diameter: $\varnothing 335$ [13.19]
- ISO-B250 connection
- Flange thickness: 16 [.63]
- Body diameter: $\varnothing 310$ [12.20]
- Body length: 244.5 [9.63]
- Valve body length: 292.5 [11.52]
- Total height: 340 [13.39]
- VENT PORT ISO-G1/4
- 19 [.75]
- 38 [1.50]
- 2X 12 [.47]
- PURGE GAS INLET ISO-G1/4
- KF40 connection

End View Dimensions:

- Connector
- 2X 35°
- Ø286 [Ø11.28]
- 54 [2.13]
- Ø255 [Ø10.04]
- 6X M16 25 DEEP
- 181 [7.13]
- 2X 200 [7.87]
- 186 [7.32]
- COOLING WATER INLET/OUTLET 2X ISO-Rc1/4

Unit: mm [in]

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Patent Pending

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