

iH Series Drypumps



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BOC EDWARDS

for Better Process Results

1st Choice for Vacuum Solutions



SEMICONDUCTOR INDUSTRY STANDARDS COMPLIANCE

The iH Series Drypumps comply with internationally recognized semiconductor industry standards: SEMI® S2 (Semiconductor Equipment and Materials International), ETL (Energy Technology Laboratories), which conforms to UL Standard 3101-I and CE Mark (European Community Mark).

BOC Edwards is a leading supplier of integrated process-enabling technologies, materials and services for semiconductor and Flat Panel Display (FPD) processes. Products include process gases, gas delivery systems, vacuum pumps, chillers, exhaust gas management, chemical blend and dispense systems, liquid abatement, and monitoring and control equipment. An extensive range of services includes tool component cleaning, equipment repair, and on-site materials and equipment support. BOC Edwards has over 100,000 pumps installed, supporting 200 mm and 300 mm fabs worldwide and operates in every major semiconductor manufacturing region. BOC Edwards is part of the BOC Group plc, which employs over 30,000 people and had annual sales in excess of \$8b in 2004.

BOC Edwards advanced semiconductor vacuum pumps have been field-proven to perform to the highest operating standards. Reliability and high performance are achieved by extending service life, improving uptime and increasing productivity, while minimizing footprint and cost of ownership.

The iH Series offers high reliability for difficult processes, such as PECVD and LPCVD, where particulate, condensable and corrosive by-products are present. iH dry pumps are available in a range of peak speeds, from 80 to 1800 m³/h. iH 1800 dry pumps are specifically designed for high-throughput applications.

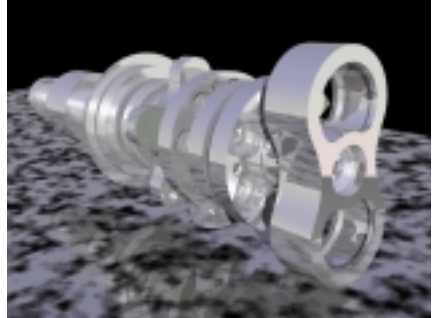
iH Series Benefits

Pumping Expertise and Leadership

BOC Edwards is the global market leader for advanced vacuum pumps, supplying over 60% of the pumps currently installed in 300 mm fabs. With more than 100,000 BOC Edwards dry pumps supplying vacuum on 200 mm and 300 mm processes, reliability has been proven.

Proven Design

The iH Series has been designed with cantilevered shafts and specially profiled rotors for better handling of particles. Reserve motor power also maximizes reliability on harsh-duty CVD applications. Corrosion-resistant materials allow pumping of corrosive gases while higher operating temperatures provide ample margin to prevent gas condensation.

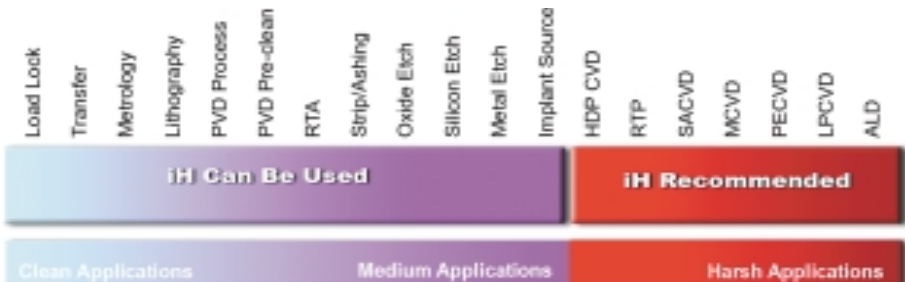


Low Cost of Ownership

The iH Series minimizes ownership costs through optimized utilities consumption and with no preventative maintenance required. High operating temperatures minimize the amount of N₂ dilution required and the absence of greased bearings eliminates the need for intervention between overhauls.

Optimized Footprint

The one-piece shaft eliminates the need for a motor coupling and a fifth pumping stage removes the need for a silencer and eliminates particle accumulation, both reducing the overall footprint.



Non-reactive gases used

A range of ATEX compliant pumping systems is available. Contact BOC Edwards for details.

Corrosive or reactive gases used

iH80 to iHI 800 Series

The iH Series is the product of over 20 years dry vacuum pump expertise and field experience. iH dry pumps are the preferred pumps for most 300 mm production lines. iH pumps provide application-specific solutions for the full range of semiconductor fabrication processes.

The major OEMs recommend iH Series drypumps for harsh processes.

The optional Tool and Network Interface Modules (iTIM and iNIM) allow control by any OEM tool and fab-wide monitoring maximizes equipment availability.



iH600



iH80

iHI 800 and iHI 800HTX

The iHI800 dry pumps are designed to provide high-throughput pumping for harsh 300 mm process applications.

The iHI800HTX is specifically designed for processes such as 300 mm LPCVD Nitride, where higher operating temperatures are required to prevent process gas condensation.



iHI 800

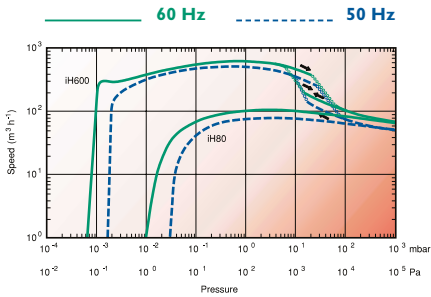
iH Technical Data

Specifications

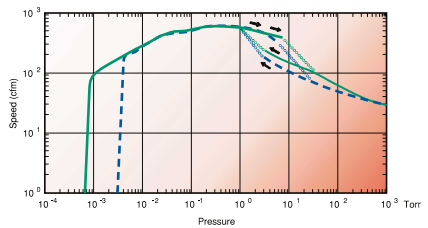
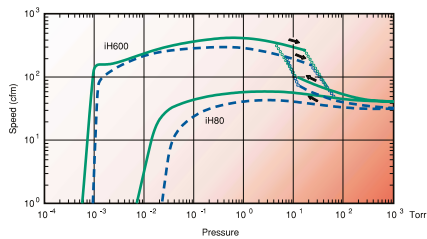
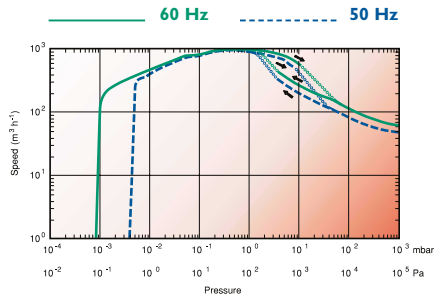
		iH80		iH600		iH1000	
		50 Hz	60 Hz	50 Hz	60 Hz	50 Hz	60 Hz
• Peak speed	m ³ h ⁻¹	86	103	518	600	950	1000
	cfm	51	61	305	353	560	589
	l min ⁻¹	1433	1717	8635	10000	15837	16670
• Ultimate vacuum (with shaft seal purge only)	mbar	3 × 10 ⁻²	1 × 10 ⁻²	2 × 10 ⁻³	7 × 10 ⁻⁴	2 × 10 ⁻³	1 × 10 ⁻³
	Torr	2.3 × 10 ⁻²	7.5 × 10 ⁻³	1.5 × 10 ⁻³	5.3 × 10 ⁻⁴	1.5 × 10 ⁻³	7.5 × 10 ⁻⁴
	Pa	3	1	0.2	0.07	0.2	0.1
• Typical shaft seal nitrogen flow	slm	4	4	4	4	4	4
• Inlet connection	ISO63	ISO63	ISO100	ISO100	ISO100	ISO100	
• Outlet connection	NW40	NW40	NW40	NW40	NW40	NW40	
• Typical cooling water flow at 15 psi pressure drop	l h ⁻¹	120	120	240	240	240	240
	l min ⁻¹	2	2	4	4	4	4
• Weight	kg	240	240	415	415	430	430
• Power input at ultimate	kW	2.4	2.7	3.1	3.4	3.5	3.8
• Rated motor power	kW	2.9	3.5	5.1	6.1	5.1	6.1
• Oil capacity	l	0.7	0.7	1.43	1.43	1.48	1.48

All figures are typical without gas ballast

Pumping Speed Curves - iH80 & iH600



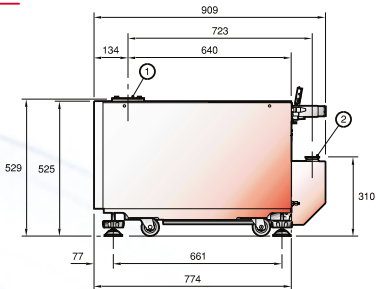
Pumping Speed Curves - iH1000



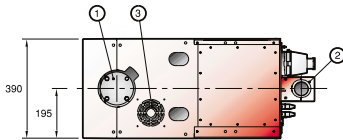
iH Dimensions

iH80

A



B

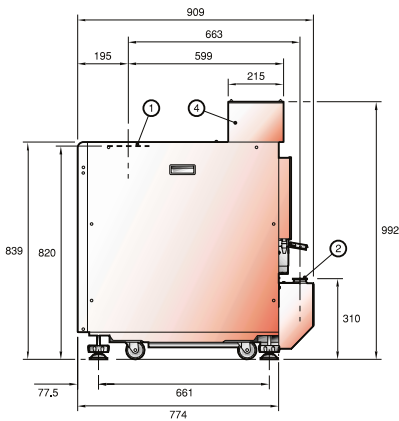


iH80

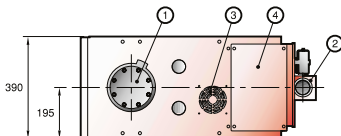
- 1 INLET
- 2 OUTLET
- 3 AIR EXTRACTION PORT
- 4 INVERTER BOX (IH1000 only)
- A SIDE VIEW
- B PLAN VIEW

iH600 & iH1000

A



B



iH600

iH Technical Data

Specifications

- Peak speed m³h⁻¹
- cfm
- l min⁻¹
- Ultimate vacuum mbar
- (with shaft seal purge only) Torr
- Pa
- Typical shaft seal nitrogen flow slm
- Inlet connection
- Outlet connection
- Typical cooling water flow at 15psi pressure drop l h⁻¹
- l min⁻¹
- Weight kg
- Power input at ultimate kW
- Rated motor power kW
- Oil capacity l

iH160

50 Hz/60 Hz

165
97
2,750
 1×10^2
 7.5×10^{-3}
1
4
ISO63
NW40
120
2
244
3.1
5.0
0.85

iH1800/HTX

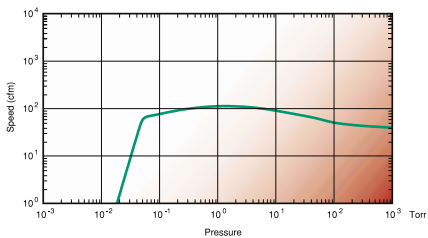
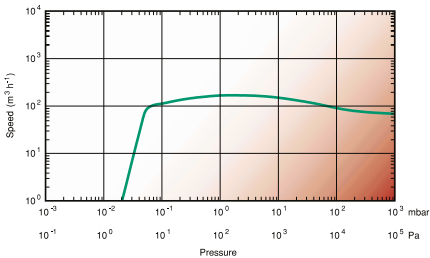
50 Hz/60 Hz

1800
1060
30,000
 1×10^3
 7.5×10^{-4}
0.1
4
ISO160
NW40
240
4
502
4.1
7.0
1.6

All figures are typical without gas ballast

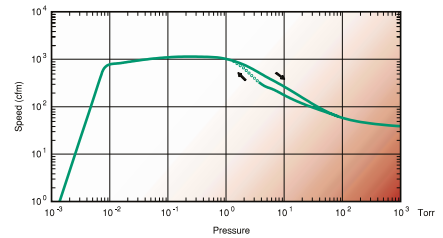
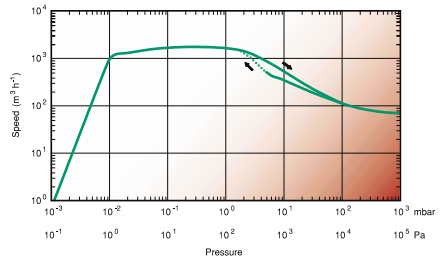
Pumping Speed Curves - iH160

50 Hz/60 Hz



Pumping Speed Curves - iH1800/HTX

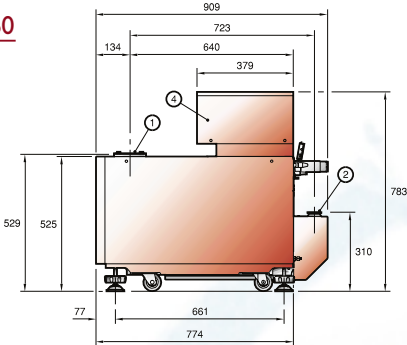
50 Hz/60 Hz



iH Dimensions

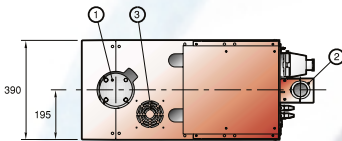
iH160

A



iH160

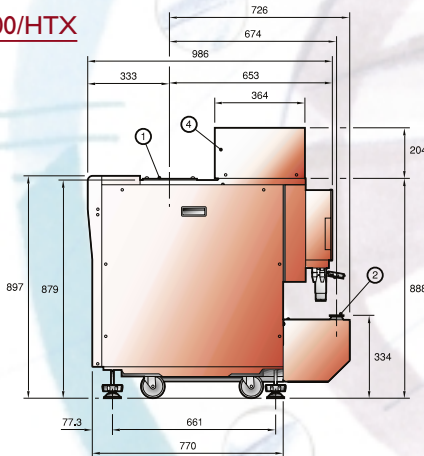
B



- 1 INLET
- 2 OUTLET
- 3 AIR EXTRACTION PORT
- 4 INVERTOR BOX
- A SIDE VIEW
- B PLAN VIEW

iH1800/HTX

A



iH1800

B

