

# Microvac series oil sealed rotary piston pumps



In today's globally competitive environment, the need for manufacturing and process equipment delivers maximum performance and reliability is greater than ever. Whether you operate at low pressure, handle large gas loads, or simply need increased capacity for your existing system, Edwards can help meet your pumping requirements.

## Rugged, reliable operation

Every design consideration, feature and detail is thoroughly engineered to maximize uptime and extend operating life. Below are just a few features that testify to the integrity of these rugged multistage vacuum pumps.

- Efficient, time proven design to deliver ease of maintenance
- Robust cast and ductile iron construction
- Hardened replaceable shaft sleeve enhances wear resistance
- Application specific seals maximize resistance to heat and corrosion while providing protection from gas stream oil contamination
- Standard, totally enclosed fan-cooled motor on direct drive units provide an economic alternate to belt drive units

## Solutions to fit your needs

Our total vacuum capabilities include a full line of pumping systems from 150 to 7880 ft<sup>3</sup>min<sup>-1</sup> capacities. Choose from microvac rotary piston pump (H or J series), 1700 series high capacity packages, and 1800 series mechanical booster packages, or a custom designed package to meet all your pumping needs.

## H & J series overview

The J series microvac rotary piston pump sets the standard for performance and reliability as the industry's most efficient, space-saving design. The microvac rotary piston pump has been improved, upgraded, and fine-tuned to deliver even better dependability and productivity combined with minimal maintenance and process downtime.

An integral oil distribution system eliminates external piping and delivers leak-free operation in a more stylized design for the J series. A larger oil sight glass and paddle wheel design flow indicator provides easier viewing of the oil system function. A stiffer motor mounting platform cuts flexibility to minimize motor belt wear. A stylized oil reservoir cover and side cover O-rings improve sealing to eliminate oil leakage. An integral gas ballast valve built into the side cover allows quick adaptation to automatic gas ballast.

Most importantly, these improvements don't increase the industry leading space saving footprint. Inlet, outlet and mounting dimensions are exactly the same as the H series microvac rotary piston pump.

## Features & benefits

- Rugged reliable operation - robust cast and ductile iron construction
- Efficient design - provides maximum uptime with minimal moving parts and large clearance
- Low ultimate blank-off - pressures down to < 10<sup>-2</sup> Torr
- Quiet operation-new valve design virtually eliminates valve maintenance and noise
- Space saving design - saves up to 50% of valuable floor space
- Complete and self-contained - delivered and ready to install
- Automatic lubrication - system provides proper flow of oil to bearings and sealing surfaces, prevents back flow into system
- Controlled balancing - reduces vibration to a practical minimum
- Gas ballast- standard on all models
- Total capability - includes the manufacturing and service capabilities to keep your equipment in top operation - with a broad range of vacuum system accessories
- Oxygen service models available

## Applications

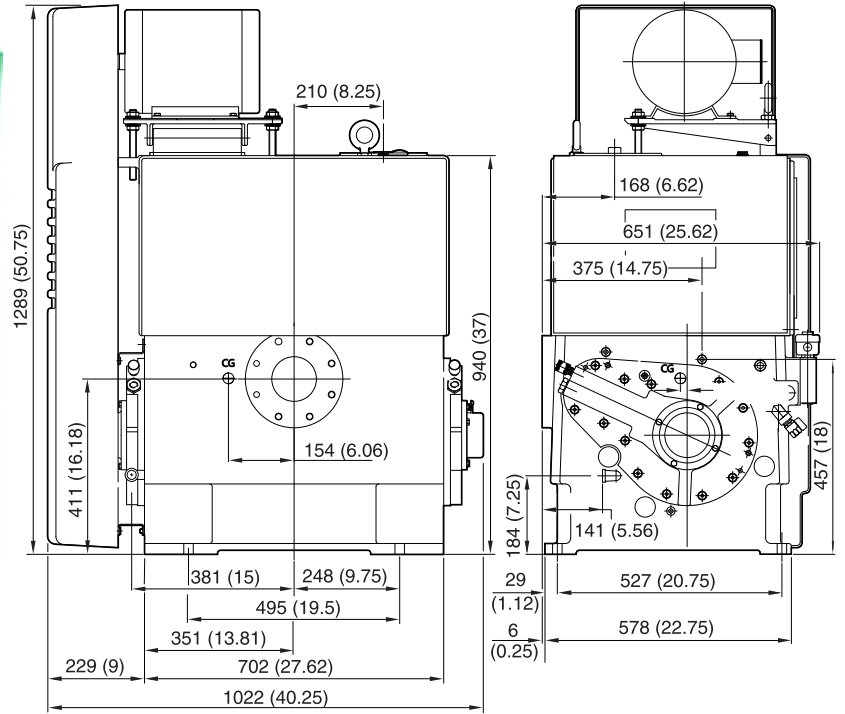
- Automotive
- Chemical processing
- General applications
- Heat treatment
- Leak detection
- Metallurgy
- PET processing
- Pharmaceuticals
- Transformer drying and cable fluid conditioning
- Vacuum coating
- Vacuum melting

By combining over a century of technical experience with a global sales and service network, Edwards adds value to your process. Our applications specialists can offer advice on a single pump or component through to a complete pumping system, custom tailored to your specifications. Applications suitable for the microvac rotary piston pump include:

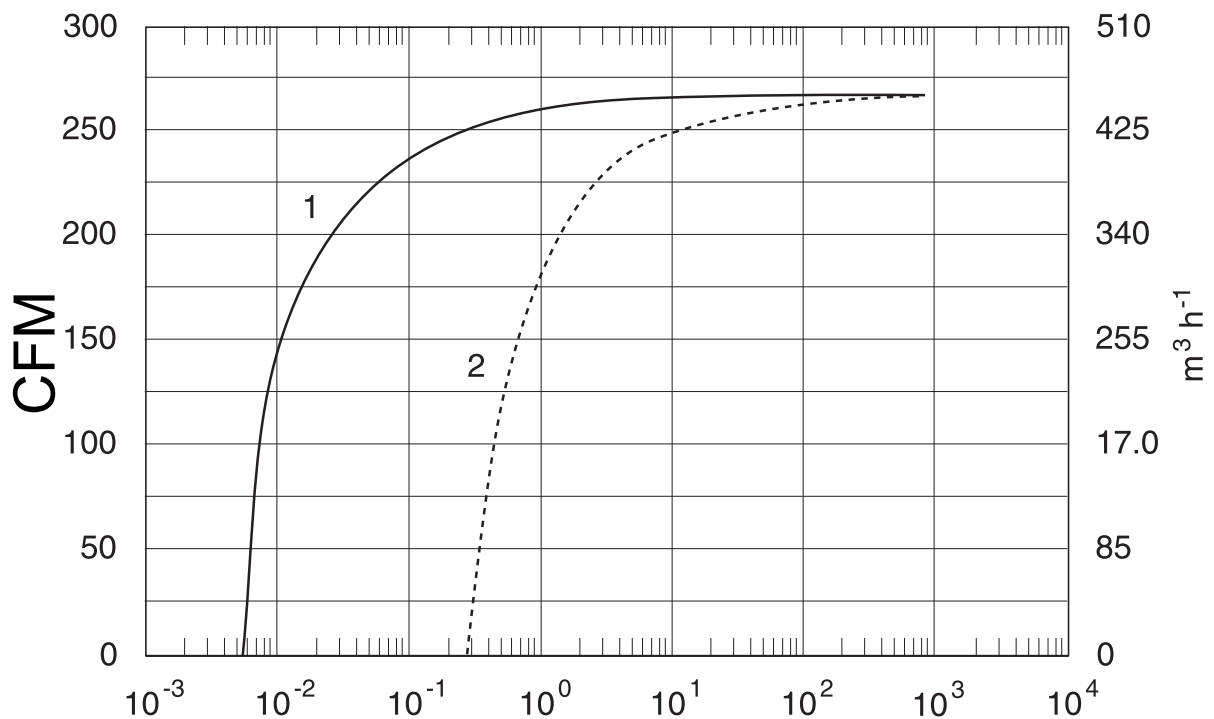


[www.avac.com](http://www.avac.com) 800-747-2821

# Stokes Vacuum Model 412H-11



Dimensions mm (inches)



## DATA SUMMARY MICROVAC SERIES OIL SEALED ROTARY PISTON PUMPS

PUMP		146H	148H	149H	149HS
Catalog page		9-30	9-30	9-31	9-31
Displacement					
50 Hz (swept volume) (AVS)	m <sup>3</sup> h <sup>-1</sup> / ft <sup>3</sup> min <sup>-1</sup>	50 / 30	85 / 50	135 / 80	170 / 100
60 Hz swept volume) (AVS)	m <sup>3</sup> h <sup>-1</sup> / ft <sup>3</sup> min <sup>-1</sup>	50 / 30	85 / 50	135 / 80	170 / 100
Ultimate vacuum (total pressure)					
without gas ballast	mbar Torr	< 1.3 × 10 <sup>-2</sup> < 1.0 × 10 <sup>-2</sup>	< 1.3 × 10 <sup>-2</sup> < 1 × 10 <sup>-2</sup>	< 1.3 × 10 <sup>-2</sup> < 1 × 10 <sup>-2</sup>	< 1.3 × 10 <sup>-2</sup> < 1.0 × 10 <sup>-2</sup>
with gas ballast	mbar Torr	2.6 2	6.6 × 10 <sup>-1</sup> 5 × 10 <sup>-1</sup>	5.3 × 10 <sup>-1</sup> 4 × 10 <sup>-1</sup>	7.9 × 10 <sup>-1</sup> 6 × 10 <sup>-1</sup>
Motor size (TEFC)	kw / hp	1.1 / 1.5	1.5 / 2	2.2 / 3	3.7 / 5
Motor	rpm	1800	1800	1800	1800
Inlet connection	inch	2 inch ASA/ANSI Flange	1 1/2 inch ASA/ANSI Flange	2 inch ASA/ANSI Flange	2 inch ASA / ANSI Flange
Exhaust connection	inch	1 1/4 inch NPT	1 1/2 inch NPT	1 1/2 inch NPT	1 1/2 inch NPT
Cooling medium		Air Cooled	Air Cooled	Water	Water
Water inlet connection	inch	n/a	n/a	1/2 inch NPT	1/2 inch NPT
Water outlet connection	inch	n/a	n/a	1/2 inch NPT	1/2 inch NPT
Recommended cooling flow @ 85 °F / 30 °C	l min <sup>-1</sup> / gal min <sup>-1</sup>	n/a	n/a	3.8 / 1	3.8 / 1
Water vapor pumping rate	kg h <sup>-1</sup> / lb h <sup>-1</sup>	1.36 / 3	1.81 / 4	1.81 / 4	1.81 / 4
Oil capacity	liter / gal	2 / 0.5	5 / 1.25	10 / 2.5	10 / 2.5
Recommended oil		V Lube F	V Lube F	V Lube F	V Lube F
Noise level	dB(A)	< 75	< 67	< 77	< 77
Dimensions L x W x H	mm inch	394 × 425 × 762 15 1/2 × 16 3/4 × 30	421 × 486 × 813 19 1/8 × 20 1/8 × 32	597 × 511 × 987 23 1/2 × 20 1/8 × 38 7/8	597 × 511 × 987 23 1/2 × 20 1/8 × 38 7/8
Weight	kg / lbs	143 / 315	143 / 315	256 / 565	256 / 565

PUMP		212J	412J	612J	912H
Catalog page		9-32	9-32	9-33	9-33
Displacement					
50 Hz (swept volume) (AVS)	m <sup>3</sup> h <sup>-1</sup> / ft <sup>3</sup> min <sup>-1</sup>	255 / 150	510 / 300	1020 / 600	1240 / 728
60 Hz swept volume) (AVS)	m <sup>3</sup> h <sup>-1</sup> / ft <sup>3</sup> min <sup>-1</sup>	255 / 150	510 / 300	1020 / 600	1240 / 728
Ultimate vacuum (total pressure)					
without gas ballast	mbar Torr	< 1.3 × 10 <sup>-2</sup> < 1.0 × 10 <sup>-2</sup>	< 1.3 × 10 <sup>-2</sup> < 1.0 × 10 <sup>-2</sup>	< 1.3 × 10 <sup>-2</sup> < 1.0 × 10 <sup>-2</sup>	< 1.3 × 10 <sup>-2</sup> < 1.0 × 10 <sup>-2</sup>
with gas ballast	mbar Torr	2.6 × 10 <sup>-1</sup> 2 × 10 <sup>-1</sup>	2.6 × 10 <sup>-1</sup> 2 × 10 <sup>-1</sup>	2.6 × 10 <sup>-1</sup> 2 × 10 <sup>-1</sup>	1 × 10 <sup>-1</sup> / 8 × 10 <sup>-2</sup>
Motor size	kw / hp	5.5 / 7	7.5 / 10	7.5* (2) / 10* (2)	22 / 30
Motor	rpm	1800	1800	1800	1800
Inlet connection	inch	3 inch ASA/ANSI Flange	4 inch ASA/ANSI Flange	6 inch ASA/ANSI Flange	6 inch ASA/ANSI Flange
Exhaust connection	inch	2 inch ASA/ANSI Flange or 2 inch NPT	3 inch ASA/ANSI Flange or 3 inch NPT	2 × 3 inch ASA/ANSI Flange or 3 inch NPT	5 inch NPT
Cooling medium		Water	Water	Water	Water
Water inlet connection	inch	1/2 inch NPT	1/2 inch NPT	2 × 1/2 inch NPT	1 inch NPT
Water outlet connection	inch	1/2 inch NPT	1/2 inch NPT	2 × 1/2 inch NPT	1 inch NPT
Recommended cooling flow @ 85 °F / 30 °C	l min <sup>-1</sup> / gal min <sup>-1</sup>	5.7 / 1.5	7.6 / 2	7.6 * (2) / 2 * (2)	18.9 / 5
Water vapor pumping rate	kg h <sup>-1</sup> / lb h <sup>-1</sup>	5 / 11	10.45 / 23	20.9 / 46	27.27 / 60
Oil capacity	liter / gal	15 / 4	46 / 12	92 / 24	92 / 24
Recommended oil		V Lube F	V Lube F	V Lube F	V Lube G
Noise level	dB(A)	< 77	< 83	< 85	< 85
Dimensions L x W x H	mm inch	667 × 610 × 1105 26 1/4 × 24 × 43 1/2	1022 × 661 × 1314 40 1/4 × 25 5/8 × 51 3/4	1137 × 1778 × 1438 44 3/4 × 70 × 56 5/8	1283 × 1013 × 1689 50 1.2 × 39 7/8 × 66 1/2
Weight	kg / lbs	431 / 950	794 / 1750	1724 / 3800	2495 / 5500