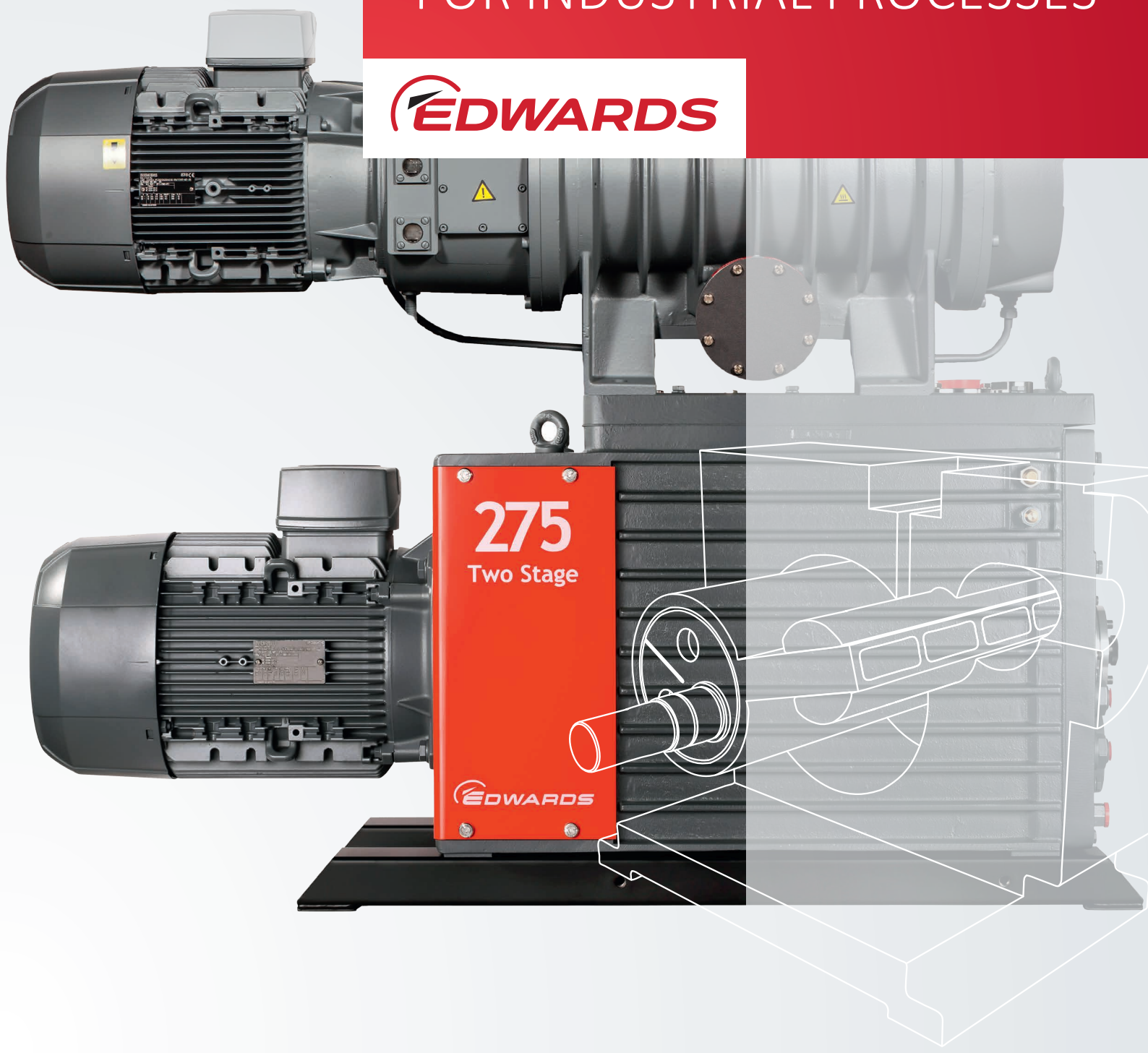
edwardsvacuum.com

# OIL SEALED VACUUM PUMP AND BOOSTER SOLUTIONS FOR INDUSTRIAL PROCESSES

EDWARDS





# EDWARDS - THE PARTNER OF CHOICE

Edwards is a world leader in the design, technology and manufacture of vacuum pumps for industrial applications with over 95 years' history and more than 75 years' manufacturing experience.

Edwards believes in delivering results that bring value to our customers by using our breadth of industry experience to identify and apply solutions to your problems.

# Wide range of pumping solutions for industrial processes

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

Edwards provides a comprehensive range of oil sealed rotary pumps, oil sealed piston pumps, oil sealed screw and mechanical boosters pumps to the industrial user to suit a wide range of applications. The pumps and accessories can be supplied either as individual components or as fully systemised, factory tested combinations.

Our range of oil sealed pumps and boosters include:

- E2M range Two stage oil sealed rotary vane pump available in displacement from 42 to 350 $m^3h^{-1}$. Recommended for applications when better ultimate vacuum down to $10^{-3}$ mbar is needed.
- ES range Single stage oil sealed rotary vane pump. Provides a good ultimate vacuum and is available in displacement from 64 to 769 $m^3h^{-1}$.
- Microvac range Rotary piston pump available in displacement from 255 to 1020 $m^3h^{-1}$. Time Proven robust and reliable piston pump technology. Simple operation with low cost life cycle.
- EOSi range of quiet, oil sealed rotary screw pumps with Variable Speed drive (VDS) technology and intelligent control to provide on demand performance and optimised energy consumption.

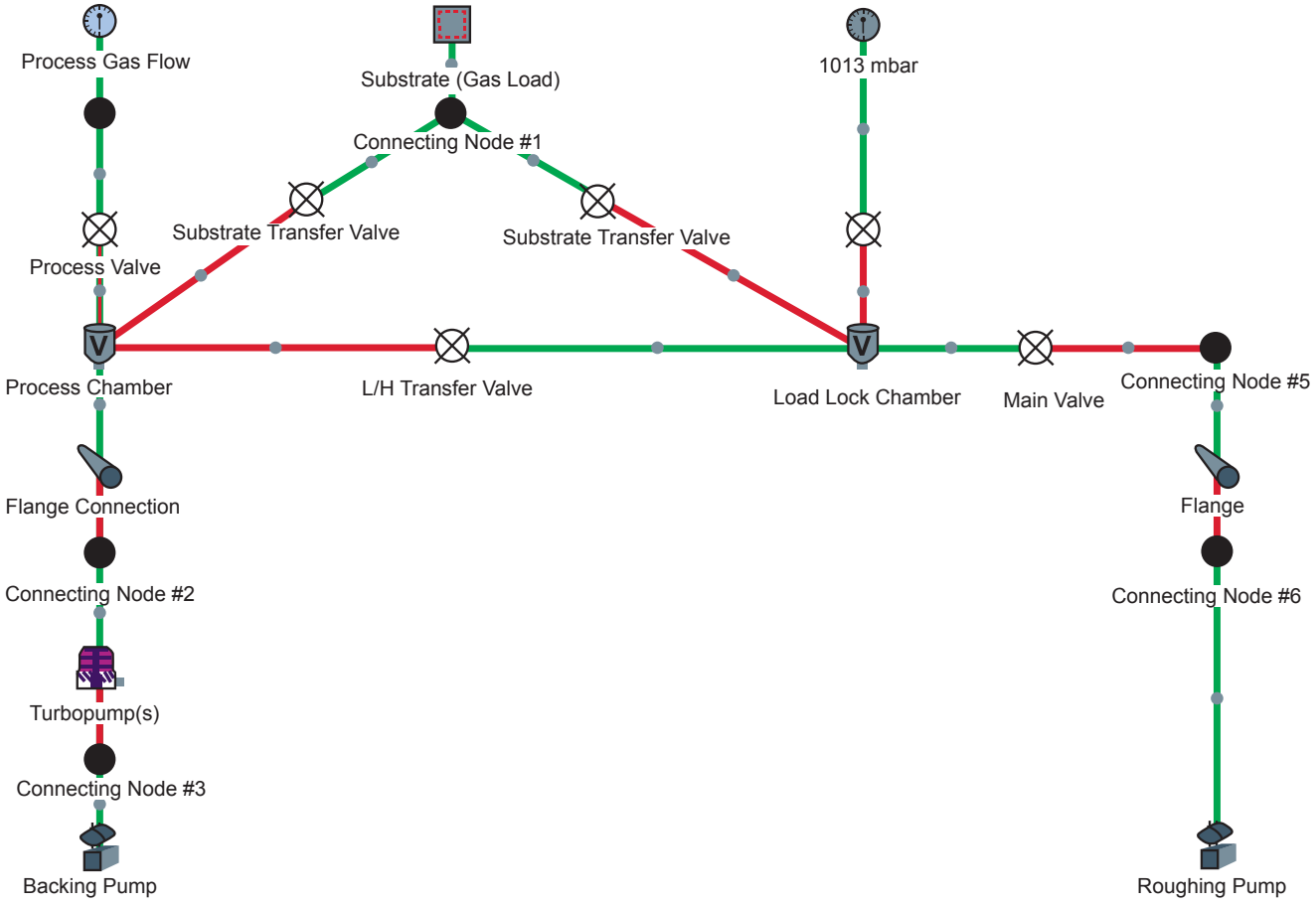
The mechanical booster pump range includes:

- EH boosters Mechanical boosters with displacement from 310 to 4985 $m^3h^{-1}$. Unique hydrokinetic drive coupling for efficient and effective power transmission without the need for bypass lines, inverters or pressure switches. Typically used in combination with ES, EM and Microvac pumps.
- 6" boosters Mechanical boosters with displacement from 1040 to 6630 $m^3h^{-1}$. Available in vertical or horizontal orientations, bypass, process isolation, motorized and bare shaft models. Typically used in combination with the Microvac pumps.
- HV8000 booster Mechanical boosters with a displacement of 7200 $m^3h^{-1}$ for larger scale industrial applications.
- Pump combinations A wide range of displacement available from speeds of 240 $m^3h^{-1}$ to 8640 $m^3h^{-1}$.
  Through the use of our proprietary "Pump Calc" software and our vacuum expertise, identifying the right pumping solution for you has never been easier.

# Vacuum expertise and application solutions

Using the most innovative and up-to-date modelling techniques, and selecting the right pumps from a wide range of dry and wet products, we can optimise the pumping configuration to provide a system design giving the maximum performance in the most reliable and cost-effective way.

As experts in vacuum technology, Edwards has a full understanding of vacuum processes and the importance of correct pump selection and sizing. Using our proprietary modelling software, Edwards Application Experts can help design your vacuum system for optimal performance.




Example of a Transcalc model for loadlock. This scheme represents a typical process coating system where substrates are introduced first to a load-lock and then to the process chamber and then in reverse, removed from the system.

# E2M range – two stage oil sealed rotary vane pumps

The E2M Two Stage Oil Sealed Rotary Vane Pump is the tried and tested solution for applications when better ultimate vacuum down to $10^{-3}$ mbar is needed. Available in sizes from 40 to 275 $m^3h^{-1}$ it features a robust design for reliable and stable high vacuum performance.

### Reliability

Reliable and stable process - effective lubrication even under high gas loads

### Robust

No contamination of process - oil and air suck-back protection

### Performance

Long and trouble free life - industrial roller bearings on drive shaft




## Technical data

| | Units | E2M40 | E2M80 | E2M175 | E2M275 |
|---|---|---|---|---|---|
| **Pumping Speed 50 Hz** | $m^3h^{-1}$/cfm | 37/21.8 | 74/43.6 | 160/94 | 255/150 |
| **Pumping Speed 60 Hz** | $m^3h^{-1}$/cfm | 44/25.9 | 90/53 | 196/115 | 306/180 |
| **Ultimate vacuum (total pressure) no gas ballast** | mbar/torr | $1x10^{-3}$/$7.7x10^{-4}$ | $1x10^{-3}$/$7.7x10^{-4}$ | $1x10^{-3}$/$7.7x10^{-4}$ | $1x10^{-3}$/$7.7x10^{-4}$ |
| **Ultimate vacuum (total pressure) with gas ballast** | mbar/torr | $7x10^{-3}$/$5.4x10^{-3}$ | $7x10^{-3}$/$5.4x10^{-3}$ | $7x10^{-3}$/$5.4x10^{-3}$ | $5x10^{-3}$/$3.8x10^{-3}$ |
| **Ultmate Vacuum (total Pressure ) no Gas Ballast with Fomblin R** | mbar/torr | $1x10^{-2}$/$7.7x10^{-3}$ | $1x10^{-2}$/$7.7x10^{-3}$ | $1x10^{-2}$/$7.7x10^{-3}$ | N/A |
| **Inlet Connection** | | ISO40 | ISO40 | ISO63 | ISO63 |
| **Outlet Connection** | | 25 mm flange suitable for NW25 | 25 mm flange suitable for NW25 | ISO40 | ISO40 |
| **Max outlet pressure** | bar gauge | 0.5 | 0.5 | 0.5 | 0.5 |
| **Max inlet pressure for water vapour** | mbar/torr | 7/5.3 | 5/3.8 | 20/15 | 12/9.0 |
| **Max water vapour pumping rate** | $kgh^{-1}$/$lbh^{-1}$ | 0.2/0.4 | 0.3/0.7 | 0.3/0.7 | 2.3/5.1 |
| **Weight** | $kgh^{-1}$/$lbh^{-1}$ | 81.5/179.3 | 125/275 | 230/507 | 253 / 557 |
| **Dimensions (L,W,H)** | mm | 690, 240, 395 | 815, 266, 429 | 1140, 404, 534 | 1185, 404, 534 |
| **Motor Protection rating** | | IP55 | IP55 | IP55 | IP55 |
| **Motor Power 50Hz** | kW/hp | 1.1/1.5 | 2.2/3 | 5.5/7.5 | 7.5/10.0 |
| **Motor Power 60Hz** | kW/hp | 1.5/2.0 | 3.0/4.0 | 6.5/8.5 | 8.5/11.0 |
| **Noise level** | dB(A) | 65 | 70 | 75 | 75 |
| **Oil capacity min/max** | litre | 2.2/4.0 | 4/6.3 | 16/25 | 18/28 |
| **PFPE oil capacity min/max** | litre | 2.2/4.0 | 2.2/4 | 6.5/18 | N/A |
| **Water cooling requirement** | $lmin^{-1}$ | N/A air cooled | N/A air cooled | 1.3 | 2 |
| **Recommended oil** | | Ultragrade® 70, Fomblin® Y06/6 | Ultragrade® 70, Fomblin® Y06/6 | Ultragrade® 70, Fomblin® Y06/6 | Ultragrade® 70, Fomblin® Y06/6 |
| **Ambient temp range (operational)** | °C | 12 to 40 | 12 to 40 | 12 to 40 | 12 to 40 |

## Ordering information

| Oil Type | Voltage | E2M40 | E2M80 | E2M175 | E2M275 |
|---|---|---|---|---|---|
| "Hydrocarbon oil Oil supplied with pump" | ASIA 50/60HZ 200V 50/60HZ, 380V 60HZ IE3 | A36404934 | A36504934 | A36604934 | A36704934 |
| | EU/US 50/60HZ 380-400V 50HZ, 230 / 460V 60HZ IE3 | A36404940 | A36504940 | A36604940 | A36704940 |
| "PFPE Prepared FX (Oil to be ordered separately)" | ASIA 50/60HZ 200V 50/60HZ, 380V 60HZ IE3 | A36417934 | A36517934 | A36617934 | A36717934 |
| | EU/US 50/60HZ 380-400V 50HZ, 230 / 460V 60HZ IE3 | A36417940 | A36517940 | A36617940 | A36717940 |

For Azide, ATEX version contact Edwards

## Applications:

- Furnaces and metallurgy
- Optical and display coating
- Pharmaceutical freeze drying
- Refrigeration and air conditioning system evacuation
- Transformer and cable drying
- Brake line evacuation
- Industrial leak detection
- Plasma Coating and Cleaning

# ES range – single stage oil sealed rotary vane pumps

The ES Single Stage Oil Sealed Rotary Vane Pump range provides a good ultimate vacuum performance in sizes from 65 to 630 $m^3h^{-1}$. ES represents a step ahead in single stage oil technology with class leading ultimate vacuum level and extended operating pressure range.

### Enhanced performance

Class leading ultimate vacuum level and extended operating pressure range

### Stability

Stable vacuum performance with no pressure fluctuations

### Convenience

Combined ISO/BSP connection, easily serviceable on site

### Flexibility

Use individually or with mechanical booster pumps, for a wide range of applications




## Technical data

| | Units | ES65 | ES100 | ES200 | ES300 | ES630 |
|---|---|---|---|---|---|---|
| **Maximum Displacement 50Hz** | ($m^3h^{-1}$/cfm) | 64/38 | 96/56 | 198/117 | 293/172 | 635/374 |
| **Maximum Displacement 60Hz** | ($m^3h^{-1}$/cfm) | 77/45 | 115/68 | 240/141 | 354/208 | 769/453 |
| **Pumping Speed 50 Hz** | $m^3h^{-1}$/cfm | 59/35 | 90/53 | 190/112 | 275/162 | 575/338 |
| **Pumping Speed 60 Hz** | $m^3h^{-1}$/cfm | 70/41 | 105/62 | 225/132 | 320/188 | 674/397 |
| **Ultimate vacuum (total pressure) no gas ballast** | mbar/torr | 0.15/0.11 | 0.15/0.11 | 0.08/0.06 | 0.08/0.06 | 0.1/0.08 |
| **Ultimate vacuum (total pressure) with gas ballast** | mbar/torr | 1.0/0.8 | 2.0/1.5 | 1.0/0.8 | 2.0/1.5 | 1.0/0.8 |
| **Inlet Connection** | | ISO40/1"BSP | ISO63/2"BSP | ISO63/2"BSP | ISO63/2"BSP | ISO100/3"BSP |
| **Outlet Connection** | | ISO40/11/2"BSP | ISO40/11/2"BSP | ISO40/2"BSP | ISO40/2"BSP | ISO100/3"BSP |
| **Max permitted outlet pressure** | bar gauge | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| **Max water vapour pumping rate (50Hz)** | $kgh^{-1}$/$lbh^{-1}$ | 1.3/2.8 | 2.6/5.7 | 2.2/4.8 | 2.3/5.1 | 5.6/12.3 |
| **Max water vapour pumping rate (60Hz)** | $kgh^{-1}$/$lbh^{-1}$ | 1.6/3.5 | 4.3/9.4 | 2.8/6.1 | 3/6.6 | 8.1/17.8 |
| **Dimensions (L,W,H)** | mm | 725*387*361 | 804*387*361 | 935*517*462 | 1083*517*462 | 1587*681*589 |
| **Weight** | | 77/169 | 88/194 | 144/317 | 180/369 | 506/1115 |
| **Motor Protection rating** | kg/lb | IP55 | IP55 | IP55 | IP55 | IP55 |
| **Motor Power 50Hz** | kW/hp | 1.5/2.0 | 2.3/3 | 4.5/6.0 | 6/8.0 | 12.5/16.7 Motor Power |
| **Motor Power 60Hz** | kW/hp | 1.8/2.4 | 3/4.0 | 5.8/7.7 | 7.5/10.0 | 15/20.1 |
| **Noise level (50Hz)** | dB(A) | 64 | 65 | 67 | 69 | 75 |
| **Noise level (60Hz)** | dB(A) | 66 | 67 | 69 | 71 | 77 |
| **Oil Refill Capacity** | litre | 4 | 4 | 5 | 5 | 15 |
| **Recommended oil** | | Ultragrade 20 | Ultragrade 20 | Ultragrade 20 | Ultragrade 20 | Ultragrade 20 |

## Ordering information

| Oil Type | Voltage | ES65 | ES100 | ES200 | ES300 | ES630 |
|---|---|---|---|---|---|---|
| **"Hydrocarbon oil Oil supplied with pump"** | ASIA 200V (50/60Hz) & 380V (60Hz) IE3 | A35247934 | A35252934 | A35257934 | A35262934 | A35267934 |
| | EU/USA/CHINA 380-400V(50Hz) & 230/460V (60Hz) IE3 | A35247940 | A35252940 | A35257940 | A35262940 | A35267940 |

## Applications:

- Annealing
- Tempering
- Quenching
- Cell Formation
- Electrode Drying Process
- Packaging Processes
- Refrigeration/Air Conditioning Drying
- Automotive Drying/Filling
- Transformer Drying Vapour phase
- Display Coating
- Optical Opthalmic Coating
- Roll Web Coating
- Plasma Deposition
- Reflective Decorative Coating
- Glass Coating
- Leak detection
- Gas Cylinder Filling
- Vacuum Insulation panels/ glass
- Oil/Resin Degassing
- Plasma Cleaning Sterilising

# Microvac range – oil sealed rotary piston pumps

Stokes Microvac rotary piston pumps from Edwards are available in displacement from 255 to 1020 $m^3h^{-1}$/ 150 to 600 $ft^3\,min^{-1}$. Through expert engineering design, the current 'J' series promises to deliver reduced noise, improved sealing, optimal performance, with minimal maintenance and low operating costs.

### Reliable

Dependability - low rotational speed enables longest pump life cycle

### Robust

Easy on-site maintenance - robust simple mechanism for high reliability and ease of rebuild

### Flexible

Configured for you - choice of pumping combinations available with a wide range of mechanical booster options

### Reassurance

Peace of mind - over 80 years of time tested proven performance with experienced service and technical support



## Technical data

| | Units | 212J | 412J | 612J |
|---|---|---|---|---|
| **Displacement 50 Hz/60 Hz** | $m^3h^{-1}$/CFM | 255/150 | 510/300 | 1020/600 |
| **Pumping Speed 50 Hz/60 Hz** | $m^3h^{-1}$/CFM | 234/138 | 442/260 | 884/520 |
| **Ultimate Vacuum (total Pressure) no Gas Ballast** | mbar/torr | $<3.3x10^{-2}$/< $2.5x10^{-2}$ | $<3.3x10^{-2}$/< $2.5x10^{-2}$ | $<3.3x10^{-2}$/< $2.5x10^{-2}$ |
| **Ultimate Vacuum (total Pressure) with Gas Ballast** | | $<2.6x10^{-1}$/$<2x10^{-1}$ | $<2.6x10^{-1}$/$<2x10^{-1}$ | $<2.6x10^{-1}$/$<2x10^{-1}$ |
| **Inlet Connection** | | 3 inch ASA/ANSI flange | 4 inch ASA/ANSI flange | 6 inch ASA/ANSI flange |
| **Outlet Connection** | | 2 inch ASA/ANSI or 3 inch NPT | 3 inch ASA/ANSI or 3 inch NPT | 3 inch ASA/ANSI or 3 inch NPT *2 |
| **Max outlet pressure** | bar/psig | 483/7 | 483/7 | 483/7 |
| **Max water vapour pumping rate** | $kgh^{-1}$/$lbh^{-1}$ | 5/11 | 10.45/23 | 20.9/46 |
| **Weight** | kg/lb | 431/950 | 794/1750 | 1724/3800 |
| **Motor Speed** | rpm | 1800 | 1800 | 1800 |
| **Motor Power 50Hz TEFC** | kW/hp | 5.5/7.5 IEC (CE) | 11/15 IEC (CE) | 11/15 IEC ( CE) *2 |
| **Motor Power 60Hz** | kW/hp | 5.5/7.5 | 7.7/10 | 7.7/10 *2 |
| **Noise level** | dB(A) | < 77 | <85 | <85 |
| **Oil capacity** | litre/gal | 15/4 | 46/12 | 92/24 |
| **Water cooling req @ 30°C / 85 F** | $lmin^{-1}$/galmin | 5.7/1.5 | 5.7/1.5 | 7.6/2.0 *2 |
| **Water inlet connection** | NPT | 0.5 | 0.5 | 0.5 * 2 |
| **Recommended oil** | | V Lube F | V Lube F | V Lube F |

## Ordering information

| Oil Type | Voltage | 212J | 412J | 612J | 412ESI |
|---|---|---|---|---|---|
| **"Hydrocarbon oil (Oil supplied with pump)"** | 230 / 460V 3-ph 60Hz 230/460V Coil | 900-212-014 | 900-412-014 | 900-612-014 | NRY4Q9000 |
| | 230 / 460V 60Hz 15 hp 230/460V Coil | | 900-412-015 | | |
| | Explosion proof 460V Class 1 Div 1 Group C&D 460V coil | 916-212-014 | 916-412-014 | | |
| | 575 V 60 Hz 575 V Coil | 919-212-014 | 919-412-014 | | |
| | 230 / 460V 60Hz 110 V Coil | 931-212-014 | 931-412-014 | | |
| | 380 V 60 Hz 380 V Coil | 945-212-014 | 945-412-014 | | |
| | 230 / 460V 3-ph 60Hz 230/460V Coil with Water Miser | 970-212-014 | 970-412-014 | | |
| | 400V 3-ph 50Hz 380V Coil ( CE) | 900212014501 | 900412014501 | | |
| | 400V 3-ph 50Hz 415V Coil ( CE) | 900212014502 | 900412014502 | | |
| | 400V 3-ph 50Hz 380V Coil with Water Miser( CE) | 900212014503 | 900412014503 | | |
| | 400V 3-ph 50Hz 415V Coil with Water Miser( CE) | 900212014504 | 900412014504 | | |

## Applications:

- Automotive
- Coating
- Chemical Processing
- General Applications
- Heat Treatment
- Leak Detection
- Metallurgy
- Melting
- PET Processing
- Pharmaceuticals
- Transformer Drying

# EOSi- Rotary Screw Vacuum pump

Edwards EOSi range is a new generation range of quiet, oil sealed rotary screw vacuum pumps. With Variable Speed Drive (VSD) technology and intelligent control, the EOSi range delivers impressive on-demand performance capability and optimises energy consumption.

### Increased efficiency

Class leading ultimate vacuum level and extended operating pressure range

### Improved productivity

Class-leading pumping speed and fast chamber pumpdown performance capability

### Intelligent control

Closed loop pressure control and active power management

### Low cost of ownership

Automatic performance matched to vacuum demand

### Quiet operation

Noise levels approximately half that of comparable technologies

### Reduced environmental impact

Ultra-high oil retention at all operating pressures




## Technical data

| | Units | EOS 350i | EOS 585i | EOS 730i | EOS 900i | EOS 1300i | EOS 1600i | EOS 1900i |
|---|---|---|---|---|---|---|---|---|
| **Peak pumping speed** | $m^3h^{-1}$/cfm | 400/240 | 560/330 | 730/430 | 900/530 | 1250/740 | 1590/940 | 1810/1070 |
| **Ultimate vacuum** | mbar/Torr | 0.35/0.26 | 0.35/0.26 | 0.35/0.26 | 0.35/0.26 | 0.35/0.26 | 0.35/0.26 | 0.35/0.26 |
| **Inlet connection** | - | DN 80 | DN 80 | DN 80 | DN 80 | DN 150 | DN 150 | DN 150 |
| **Outlet connection** | - | DN 60 | DN 60 | DN 60 | DN 60 | DN 100 | DN 100 | DN 100 |
| **Shaft power** | kW | 5.5 | 7.5 | 11 | 15 | 22 | 30 | 37 |
| **Permissible ambient temperature** | °C | 0 - 46 | 0 - 46 | 0 - 46 | 0 - 46 | 0 - 46 | 0 - 46 | 0 - 46 |
| **Noise level range** | dB(A) | 51-65 | 51-65 | 51-73 | 51-76 | 65-75 | 65-79 | 65-80 |
| **Oil quantity** | l | 16 | 16 | 16 | 16 | 40 | 40 | 40 |
| **Dimensions** | mm | 1266 x 934 x 1083 | | | | 1266 x 1590 x 1470 | | |
| **Weight** | kg | 500 | 500 | 510 | 520 | 1058 | 1058 | 1073 |

Electrical specification: 380/460V 50/60Hz IP54 enclosure CSA/UL.

## Ordering information

| Part Number | Product Description | Part Number | Product Description | Part Number | Product Description |
|---|---|---|---|---|---|
| **A50862000** | EOS 350i 380-460V 3PH | A50864200 | EOS 730Wi 380-460V 3PH | A50867100 | EOS 1600i 380-460V 3PH |
| **A50862100** | EOS 350Wi 380-460V 3PH | A50864300 | EOS 730Qi 380-460V 3PH | A50867200 | EOS 1600Wi 380-460V 3PH |
| **A50862200** | EOS 350Qi 380-460V 3PH | A50864400 | EOS 730QWi 380-460V 3PH | A50867300 | EOS 1600Qi 380-460V 3PH |
| **A50862300** | EOS 350QWi 380-460V 3PH | A50865100 | EOS 900i 380-460V 3PH | A50867400 | EOS 1600QWi 380-460V 3PH |
| **A50863100** | EOS 585i 380-460V 3PH | A50865200 | EOS 900Wi 380-460V 3PH | A50868100 | EOS 1900i 380-460V 3PH |
| **A50863200** | EOS 585Wi 380-460V 3PH | A50866100 | EOS 1300i 380-460V 3PH | A50868200 | EOS 1900Wi 380-460V 3PH |
| **A50863300** | EOS 585Qi 380-460V 3PH | A50866200 | EOS 1300Wi 380-460V 3PH | | |
| **A50863400** | EOS 585QWi 380-460V 3PH | A50866300 | EOS 1300Qi 380-460V 3PH | | |
| **A50864100** | EOS 730i 380-460V 3PH | A50866400 | EOS 1300QWi 380-460V 3PH | | |

## Applications:

- Food freeze drying
- Altitude simulation
- Drying
- Load lock
- Pipeline drying
- Central vacuum systems
- Pneumatic conveying
- General packaging
- Plastics (e.g. bath tubs, shower trays, white goods internals)
- Packaging materials (e.g. thermoformed parts)
- Lamination
- Meat packaging (flat, vacuum packs, controlled atmosphere packaging)
- Roof tile and brick manufacture
- Food cooling
- General evacuation duties
- Coating

# EH range – mechanical booster pumps

The **EH Mechanical Booster** range gives our customers reassurance and peace of mind thanks to its large installed base, both in Industrial and Chemical markets. EH pumps, available in sizes from 250 to 4200$m^3h^{-1}$ displacement, feature the unique hydrokinetic drive, providing an efficient power transmission with benefits in economy, performance and compactness.

### Performance

Increased productivity - fast pump-down time due to unique hydrokinetic drive

### Simplicity

Simple installation - continuous operation at all pressures

### Reliability

Robust and safe operation - automatic overload protection, reliable shaft-seal design

### Reassurance

Peace of mind - industry proven, with a large installed base



## Technical data

| | Units | EH250 | EH500 | EH1200 | EH2600 | EH4200 |
|---|---|---|---|---|---|---|
| **Displacement 50 Hz** | $m^3h^{-1}$/cfm | 310/185 | 505/300 | 1195/715 | 2590/1525 | 4140/2440 |
| **Displacement 60 Hz** | $m^3h^{-1}$/cfm | 375/220 | 605/335 | 1435/845 | 3110/1830 | 4985/2935 |
| **Inlet Connection** | | ISO63 | ISO100 | ISO160 | ISO160 | ISO250 |
| **Outlet Connection** | | | | | | |
| **Pressure differential across pump 50 Hz** | mbar/torr | 0-180/0-140 | 0-110/0-83 | 0-90/0-68 | 0-120/0-90 | 0-70/0-52 |
| **Pressure differential across pump 60 Hz** | mbar/torr | 0-150/0-115 | 0-90/0-68 | 0-75/0-56 | 0-67/0-50 | 0-50/0-38 |
| **Weight** | kg/lb | 69/152 | 106/233 | 149/328 | 401/882 | 481/1058 |
| **Dimensions (L, W, H)** | mm | 705, 305, 272 | 791, 305, 265 | 953, 380, 334 | 1156, 522, 479 | 1336, 522, 479 |
| **Motor Power 50Hz** | kW/hp | 2.2/3 | 2.2/3 | 3.0/4 | 11.0/15 | 11.0/15 |
| **Motor Power 60Hz** | kW/hp | 2.2/3 | 2.2/3 | 3.0/4 | 11.0/15 | 11.0/15 |
| **Oil capacity Gear Case** | litre | N/A | N/A | 1.25 | 3.5 | 3.5 |
| **Oil capacity coupling cover** | litre | 1.5 | 1.5 | 2.4 | 6.5 | 6.5 |
| **Oil capacity shaft seal reservoir** | litre | 0.125 | 0.125 | 0.125 | 0.15 | 0.15 |
| **Water cooling req** | $lhr^{-1}$/gal $min^{-1}$ | N/A air cooled | N/A air cooled | 120/0.53 | 250/1.1 | 250/1.1 |
| **Recommended oil** | | Ultragrade® 20 Fomblin® Y16/6 | Ultragrade® 20 Fomblin® Y16/6 | Ultragrade® 20 Fomblin® Y16/6 | Ultragrade® 20 Fomblin® Y16/6 | Ultragrade® 20 Fomblin® Y16/6 |

## Ordering information

| Oil Type | Voltage | EH250 | EH500 | EH1200 | EH2600 | EH4200 |
|---|---|---|---|---|---|---|
| **"Hydrocarbon oil Oil supplied with pump"** | Asia 50HZ 200V 50HZ IE3 | A30105934 | A30205934 | A30505934 | A30705934 | A30905934 |
| | EU/CN 50HZ 380-400V 50HZ IE3 | A30105945 | A30205945 | A30505945 | A30705945 | A30905945 |
| | Asia 60HZ 200V 60HZ, 380V 60HZ IE3 | A30106934 | A30206934 | A30506934 | A30706934 | A30906934 |
| | US 60HZ 230 / 460V 60HZ IE3 | A30106946 | A30206946 | A30506946 | A30706946 | A30906946 |
| **"PFPE Prepared FX (Oil to be ordered separately)"** | Asia 50HZ 200V 50HZ IE3 | A30107934 | A30207934 | A30507934 | A30707934 | A30907934 |
| | EU/CN 50HZ 380-400V 50HZ IE3 | A30107945 | A30207945 | A30507945 | A30707945 | A30907945 |
| | Asia 60HZ 200V 60HZ, 380V 60HZ IE3 | A30108934 | A30208934 | A30508934 | A30708934 | A30908934 |
| | US 60HZ 230 / 460V 60HZ IE3 | A30108946 | A30208946 | A30508946 | A30708946 | A30908946 |

For Chemical, ATEX versions, contact Edwards

## Applications:

- Semiconductor processing
- Vacuum distillation
- Vacuum packaging
- Steel degassing
- Thin film coating
- Vacuum metallurgy
- Low density wind tunnels
- Space simulation
- Vacuum impregnation
- Oil drying and degassing
- Pharmaceutical freeze drying
- $CO_2$ lasers

# Stokes 6” range - mechanical booster pumps

The **Stokes 6”** Series features a rugged design for robust and reliable operation. Available in sizes from 1040 to 6630 $m^3h^{-1}$ displacement is configurable to customer needs: bare shaft or direct drive, 1800-3600 rpm, vertical or horizontal gas flow orientation with bypass versions available.

### Robust

Increased lifetime, reliability and simple to use - large diameter shafts, ring feeder keyless gear locking system and dynamically balanced impellers

### Reliable

Increased productivity - 5 seal design for optimal process protection available

### Versatile

Configured for your needs - bare shaft or direct drive, 1800-3600 rpm. Vertical or horizontal gas flow orientation with bypass versions available



## Technical data

| | Units | 607 | 607 PIB (Process Isolation) | 615 | 615 PIB (Process Isolation) | 615 BP (Bypass) | 615 BP PIB (Bypass) Process Isolation | 622 | 622 (Process Isolation) |
|---|---|---|---|---|---|---|---|---|---|
| **Displacement 1800 rpm** | $m^3h^{-1}$/CFM | 1040/612 | n/a | 2210/1300 | n/a | 2210/2000 | n/a | n/a | n/a |
| **Displacement 2750 rpm** | $m^3h^{-1}$/CFM | 1589/935 | 1589/935 | 3375/2000 | 3375/2000 | 3375/2000 | 3375/2000 | 5100/3000 | 5100/3000 |
| **Displacement 3000 rpm** | $m^3h^{-1}$/CFM | 1733/1020 | 1733/1020 | 3685/2170 | 3685/2170 | 3685/2170 | 3685/2170 | 5525/2350 | 5525/2350 |
| **Displacement 3600 rpm** | $m^3h^{-1}$/CFM | 2080/1224 | 2080/1224 | 4420/2600 | 4420/2600 | 4420/2600 | 4420/2600 | 6630/3900 | 6630/3900 |
| **Inlet Connection/Outlet Connection** | | 6 inch ASA / ANSI | 6 inch ASA / ANSI | 8 inch ASA / ANSI | 8 inch ASA / ANSI | 8 inch ASA / ANSI | 8 inch ASA / ANSI | 8 inch ASA / ANSI | 8 inch ASA / ANSI |
| **Max pressure differential** | mbar/torr | 506/380 | 506/380 | 506/380 | 506/380 | n/a | n/a | 333/250 | 333/250 |
| **Max temperature rise** | °C/F | 135/275 | 135/275 | 135/275 | 135/275 | 135/275 | 135/275 | 121/250 | 121/250 |
| **Max discharge temperature** | °C/F | 191/375 | 191/375 | 191/375 | 191/375 | 191/375 | 191/375 | 177/350 | 177/350 |
| **Weight bare shaft** | kg/lb | 215/475 | 215/475 | 234/515 | 234/515 | 284/625 | 284/625 | 335/740 | 335/740 |
| **Weight TEFC direct drive** | kW/hp | 408/900 | 345/760 | 390/860 | 297/875 | 530/1170 | 538/1185 | 617/1360 | 625/1370 |
| **Motor Power 50Hz** | kW/hp | 7.5/10 @ 3000 rpm | 7.5/10 @ 3000 rpm | 7.5/10 @ 3000 rpm | 11/15 @ 3000 rpm | 18/25 @ 3000 rpm | 18/25 @ 3000 rpm | 18/25 @ 3000 rpm | 18/25 @ 3000 rpm |
| **Motor Power 60Hz** | kW/hp | 3.7/5 15 /20 | 7.5/10 | 7.5/10 @ 1800 rpm 11/15 @ 3600 rpm | 11/15 @ 3600 rpm | 7.5/10 @ 1800 rpm 18 /25 @ 3600rpm | 18/25 @ 3600rpm | 18/25 @ 3600rpm | 18/25 @ 3600rpm |
| **Oil capacity (horizontal flow)** | litre/gal | 1.9/0.51 | 1.9/0.51 | 1.9/0.51 | 1.9/0.51 | 1.9/0.51 | 1.9/0.51 | 1.9/0.51 | 1.9/0.51 |
| **Oil capacity (vertical flow)** | litre/gal | 4.1/1.1 | 4.1/1.1 | 4.1/1.1 | 4.1/1.1 | 4.1/1.1 | 4.1/1.1 | 4.1/1.1 | 4.1/1.1 |
| **Water cooling req @ 30°C/85 F** | $lmin^{-1}$/ $galmin^{-1}$ | air cooled | 7.6-11.4/2-3 | air cooled | 7.6-11.4/2-3 | air cooled | 7.6-11.4/2-3 | air cooled | 7.6-11.4/2-3 |
| **Water inlet connection** | NPT | | | | | | | | |
| **Recommended oil** | | V Lube H | V Lube H | V Lube H | V Lube H | V Lube H | V Lube H | V Lube H | V Lube H |

## Ordering information

| Part Number | Product Description | Part Number | Product Description |
|---|---|---|---|
| **900607MHR934** | 607 MHR IE3 ASIA 50/60HZ | **90061B5HR940** | 61B 5HR IE3 EU/US/CN 50/60HZ |
| **900607MHR940** | 607 MHR IE3 EU/US/CN 50/60HZ | **90061B5HR934** | 61B 5HR IE3 ASIA 50/60HZ |
| **900607MVR934** | 607 MVR IE3 ASIA 50/60HZ | **90061B5VR940** | 61B 5VR IE3 EU/US/CN 50/60HZ |
| **900607MVR940** | 607 MVR IE3 EU/US/CN 50/60HZ | **90061B5VR934** | 61B 5VR IE3 ASIA 50/60HZ |
| **9006075HR940** | 607 5HR IE3 EU/US/CN 50/60HZ | **900-61B-MVR** | 61B BP VGF Bare Shaft |
| **9006075HR934** | 607 5HR IE3 ASIA 50/60HZ | **900-61B-MHR** | 61B BP HGF Bare Shaft |
| **9006075VR940** | 607 5VR IE3 EU/US/CN 50/60HZ | **90061BMV10EE** | 61B BP VGF 10hp EE 230/460V 60Hz |
| **9006075VR934** | 607 5VR IE3 ASIA 50/60HZ | **90061BMV25EE** | 61B BP VGF 25hp EE 230/460V 60Hz |
| **900-607-MVR** | 607MVR VGF Bare Shaft | **90061B5V25EE** | 61B PIB BP VGF 25hp 230-460V 60Hz |
| **900-607-MHR** | 607MHR HGD Bare Shaft | **90061BMH10EE** | 61B BP HGF 10hp EE 230/460V 60Hz |
| **900607MV05EE** | 607 VGF 5hp EE 230-460V 60Hz | **90061BMH25EE** | 61B BP HGF 25hp EE 230/460V 60Hz |
| **900607MV20EE** | 607 VGF 20hp EE 230-460V 60Hz | **90061B5H25EE** | 61B PIB BP HGF 25hp 230-460V 60Hz |
| **9006075V10EE** | 607 PIB VGF 10hp 230-460V 60Hz | **90061BMHR934** | 61B MHR IE3 ASIA 50/60HZ |
| **900607MH05EE** | 607 HGF 5hp EE 230-460V 60Hz | **90061BMHR940** | 61B MHR IE3 EU/US/CN 50/60HZ |
| **900607MH20EE** | 607 HGF 20hp EE 230-460V 60Hz | **90061BMVR934** | 61B MVR IE3 ASIA 50/60HZ |
| **9006075H10EE** | 607 PIB HGF 10hp 230-460V 60Hz | **90061BMVR940** | 61B MVR IE3 EU/US/CN 50/60HZ |
| **900615MHR934** | 615 MHR IE3 ASIA 50/60HZ | **9006225HR940** | 622 5HR IE3 EU/US/CN 50/60HZ |
| **900615MHR940** | 615 MHR IE3 EU/US/CN 50/60HZ | **9006225HR934** | 622 5HR IE3 ASIA 50/60HZ |
| **900615MVR934** | 615 MVR IE3 ASIA 50/60HZ | **9006225VR940** | 622 5VR IE3 EU/US/CN 50/60HZ |
| **900615MVR940** | 615 MVR IE3 EU/US/CN 50/60HZ | **9006225VR934** | 622 5VR IE3 ASIA 50/60HZ |
| **9006155HR940** | 615 5HR IE3 EU/US/CN 50/60HZ | **900-622-MVR** | 622 VGF Bare Shaft |
| **9006155HR934** | 615 5HR IE3 ASIA 50/60HZ | **900-622-MHR** | 622 HGF Bare Shaft |
| **9006155VR940** | 615 5VR IE3 EU/US/CN 50/60HZ | **900622MV25EE** | 622 VGF 25hp 230-460 60Hz |
| **9006155VR934** | 615 5VR IE3 ASIA 50/60HZ | **9006225V25EE** | 622 PIB VGF 25hp 230-460 60Hz |
| **900-615-MVR** | 615MVR VGF Bare Shaft | **900622MH25EE** | 622 HGF 25hp 230-460V 60Hz |
| **900-615-MHR** | 615MHR HGF Bare Shaft | **9006225H25EE** | 622 PIB HGF 25hp 230-460V 60Hz |
| **900615MV10EE** | 615 VGF 10hp EE 230-460V 60Hz | **900622MHR934** | 622 MHR IE3 ASIA 50/60HZ |
| **900615MV15EE** | 615 VGF 15hp EE 230-460V 60Hz | **900622MHR940** | 622 MHR IE3 EU/US/CN 50/60HZ |
| **9006155V15EE** | 615 PIB VGF 15hp EE 230-460V 60Hz | **900622MVR934** | 622 MVR IE3 ASIA 50/60HZ |
| **900615MH10EE** | 615 HGF 10hp EE 230-460V 60Hz | **900622MVR940** | 622 MVR IE3 EU/US/CN 50/60HZ |
| **900615MH15EE** | 615 HGF 15hp EE 230-460V 60Hz | | |
| **9006155H15EE** | 615 PIB HGF 15hp 230-460V 60Hz | | |

Note: for PFPE variants please contact Edwards

VGF - Vertical Gas Flow
HGF - Horizontal Gas Flow
EE - Energy Efficient Motor

## Applications:

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

# HV 8000 – mechanical booster pump

Edwards HV 8000 high vacuum direct drive mechanical booster pumps are available in horizontal or vertical flow options with nominal pumping speed displacement of 8640 $m^3h^{-1}$ (5089 $ft^3\,min^{-1}$) at 60 Hz.

### Performance

Stable process for consistent output - suitable for continuous operation over wide pressure ranges on heavy duty large scale applications



### Reliability

No unplanned downtime - high performance water cooled mechanical shaft seal, large diameter shaft and large helical gears

### Adaptability

Easy integration and safe - optional water cooled exhaust gas after cooler, shaft seal safety purge, temperature monitoring and VFD available

### Flexibility

Configured to your needs - can be supplied with standard motor or without motor to allow a local motor to be fitted. Horizontal or vertical flow to suit application and system design

## Technical data

| | Units | HV8000 |
|---|---|---|
| **Displacement 50 Hz** | $m^3h^{-1}$/CFM | 7200/4241 |
| **Displacement 60 Hz** | $m^3h^{-1}$/CFM | 8640/5089 |
| **Standard backing set speed requirements** | $m^3h^{-1}/ft^3min^{-1}$ | 2600/1530 |
| **Inlet Connection** | | 10” class 150 ASME B16.5 |
| **Outlet Connection** | | 10” class 150 ASME B16.5 |
| **Inlet / outlet cooling water connection** | | Rp 1/2 ISO 7-1 (1/2 BSP) |
| **End cover purge gas inlet** | | Rp 3/8 ISO 7-1 (3/8 BSP) |
| **Pressure differential across pump 50 Hz** | mbar/torr | 190/143 |
| **Pressure differential across pump 60 Hz** | mbar/torr | 120/90 |
| **Max cooling water supply pressure** | bar/psi | 4.0/58 |
| **Max cooling water supply temp** | °C/F | 35/95 |
| **Cooling water flow rate** | $lmin^{-1}$/US gal $min^{-1}$ | 15/3.96 |
| **Noise level** | dB(A) | 82 |
| **Weight (without motor)** | kg/lb | 580/1279 |
| **Weight (with standard motor) kg** | kg/lb | 720/1587 |
| **Motor Protection rating** | | |
| **Motor Power 50Hz Hydrocarbon** | kW/hp | 15/20 |
| **Motor Power 60Hz Hydrocarbon** | kW/hp | 18.5/25 |
| **Oil capacity (vertical gas flow)** | litre/gal | 8.3/2.18 |
| **Water cooling req** | $lmin^{-1}$ | N/A air cooled |
| **Recommended oil** | | Mobil SHC 629 |
| **Dimensions Horizontal flow L x W x H** | mm | 1737 x 530 x 820 |
| **Dimensions Vertical flow L x W x H** | mm | 1737 x 670 x 638 |

## Ordering information

| Part Number | Product Description |
|---|---|
| **A31103934** | HV8K VF IE3 ASIA 50/60HZ 18.5KW |
| **A31103940** | HV8K VF IE3 EU/USA 50/60HZ 18.5KW |
| **A31104934** | HV8K HF IE3 ASIA 50/60HZ 18.5KW |
| **A31104940** | HV8K HF IE3 EU/USA 50/60HZ 18.5KW |

ATEX motor versions available on request

# Pump combinations

Edwards' comprehensive range of pumps forms the basis for the manufacture of factory tested combination systems, with displacements from 310 $m^3h^{-1}$ to 30000 $m^3h^{-1}$/180 $ft^3min^{-1}$ to 17700 $ft^3min^{-1}$. With a wide and robust range of accessories to choose from, the pumping system can be optimised for your application. Edwards' systemisation service offers fully factory tested combinations with appropriate accessories.

EH pump can be combined with Microvac pump with an ASA inlet adapter. PFPE Prepared versions of EH / EM combinations are available on request. Fomblin® fluid to be ordered separately. Microvac rotary piston pump and booster combinations available with horizontal or vertical gas flow boosters. Microvac 1700 booster/rotary piston pump packages also available. Contact Edwards to define pumping combination requirements and selection of suitable accessories.

| Allowed combinations of Edwards boosters & Primary pumps | 212J | 412J | E2M40 | E2M80 | E2M175 | E2M275 | ES100 | ES200 | ES300 | ES630 |
|---|---|---|---|---|---|---|---|---|---|---|
| **No Booster** | ✓ | ✓ | | | | | | | | |
| **EH250** | ✓ | | ✓ | ✓ | | | ✓ | | | |
| **EH500** | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| **EH1200** | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ |
| **EH2600** | | ✓ | | | ✓ | ✓ | | | ✓ | ✓ |
| **EH4200** | | ✓ | | | | ✓ | | | ✓ | ✓ |
| **607** | ✓ | ✓ | | | | | | | | |
| **615** | ✓ | ✓ | | | | | | | | |
| **61B** | ✓ | ✓ | | | | | | | | |
| **622** | | ✓ | | | | | | | | |

# Pump accessories

### Inlet dust filters
Available with pleated paper/polyester or metal mesh element to trap out particulates before they reach the pump. Suitable for trapping out particulates down to 5 microns

### Inlet catchpots
Designed to minimise the entry of condensable vapours into the pump

### Inlet chemical trap
Supplied with activated charcoal to provide protection against aggressive vapours and high molecular weight vapours. Activated alumina may also be used to create a large foreline trap to control any back-streaming at low inlet pressures

### Outlet oil mist filters
Removes and collects oil mist from the exhaust line. ES pumps have integral oil mist filters

### External oil filters
Remove particulate or acidic contaminants from the oil in the pump

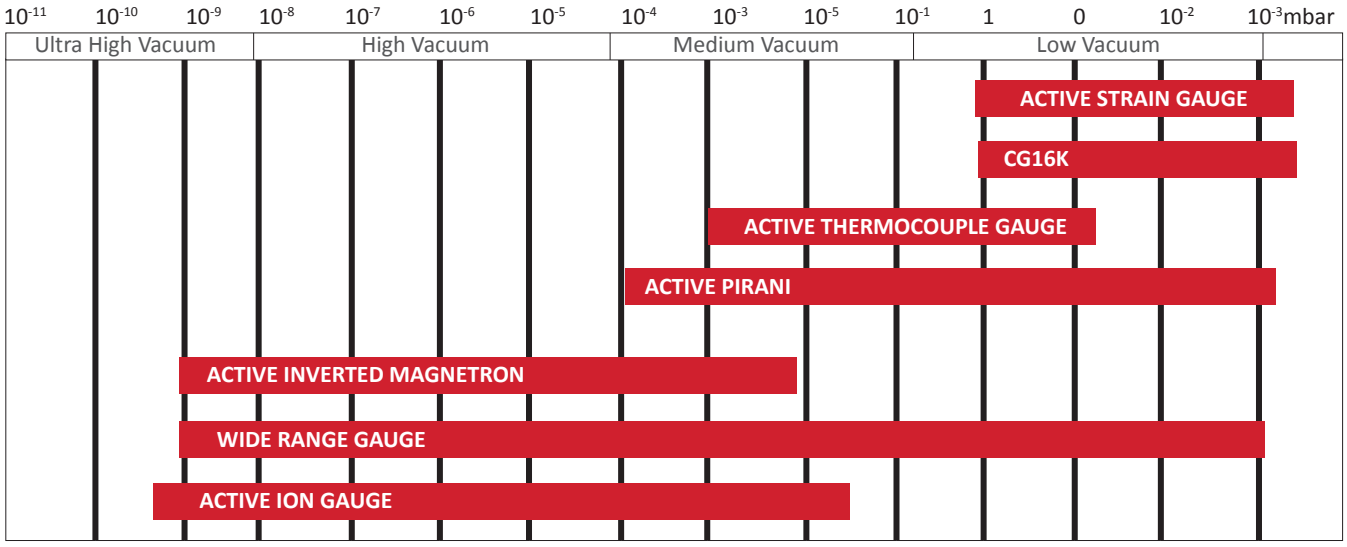
### Gas ballast valves
Auto control of gas ballast

### Sensors and other
Temperature sensor, oil level monitors, water miser, vibration isolators

### Measuring instruments
Range of instruments to measure vacuum over the range 2000 to 7 x $10^{-10}$ mbar

# Measurement and control

Edwards offers a wide choice of vacuum measurement and control products – from dial gauges to microprocessor based gauge controllers. Within each product range, there is a family of models designed to meet the widest user specification.




# Valves for vacuum systems

Edwards applies the same energy and commitment to its valves. The result is an extensive range of valves, with a choice of actuation methods, materials and size. Materials of construction have been uncompromisingly selected for performance in high vacuum.

# Fittings and flanges

Edwards vacuum fittings are designed to be leak-tight in vacuum applications. However, they are not intended to provide full structural support. When designing vacuum systems, it is essential that consideration be given to the static and dynamic loads imposed on each connection. If necessary, additional mechanical support should be provided.



Fittings and Flanges



Valves



Measurement and control instruments

# Service and Support

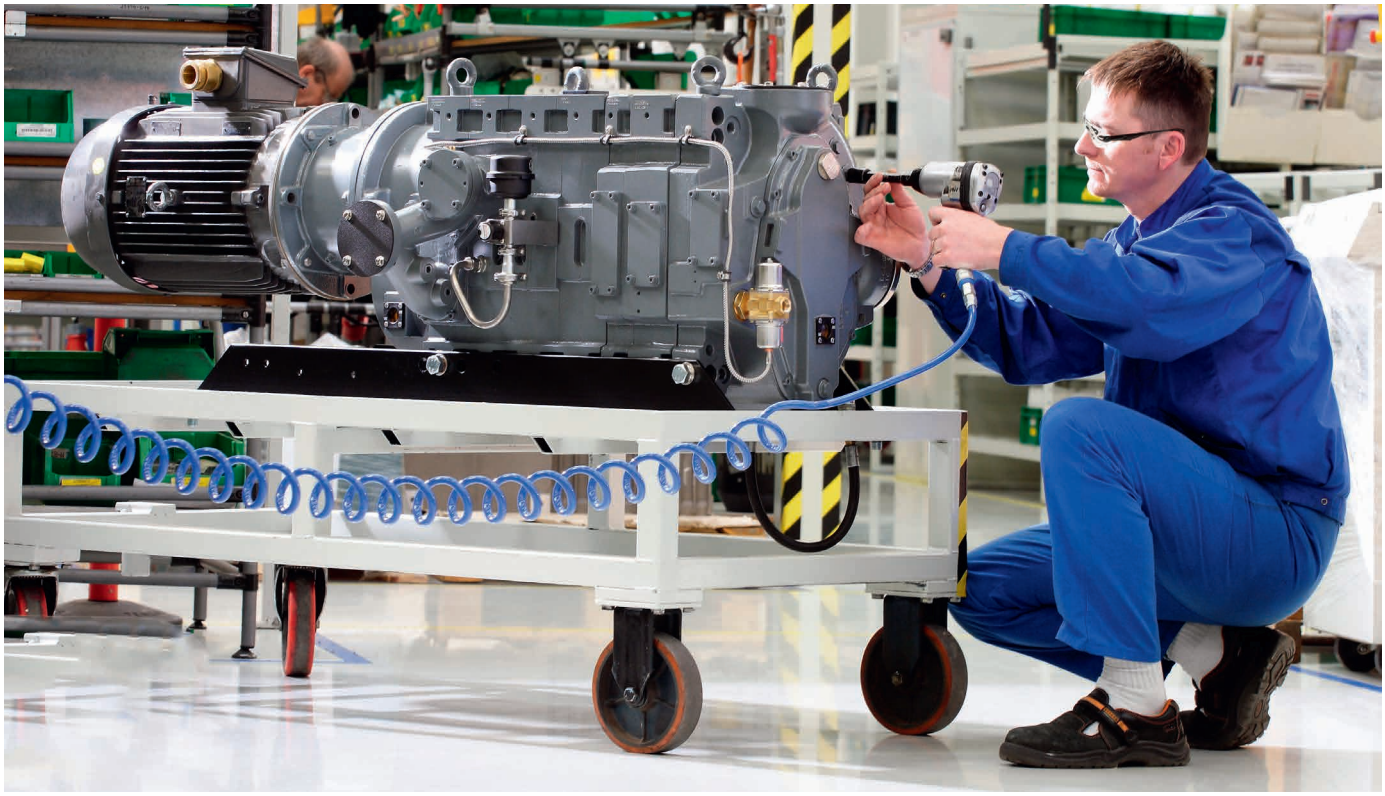
Our customers' business success depends on maximum equipment uptime and minimum total cost of ownership, and we constantly strive to support those two key conditions. As a global leader in vacuum technology and processes, we understand how vacuum pumps and systems perform in real life. Our wide portfolio of services is designed with our customers in mind: to help keep your process equipment running in the most economically and environmentally efficient way.




## Services include:

- Overhaul and repair using genuine Edwards OEM parts
- OEM spares and kits available for immediate despatch
- Remanufactured products available for cost-effective expansion and backups
- Global network of expert field service engineers available to respond quickly to unexpected equipment failures
- Extended warranty, to help manage the cost of the unexpected

Our Expert Advantage Service Plans provide our customers with the ongoing support necessary to continuously improve your operational efficiency and meet your business objectives. As service offerings may vary slightly from product to product, please contact your Edwards representative to discuss your specific requirements.



edwardsvacuum.com



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