# Industrial Pumps and Pumping Systems

# Large Pumps and Pumping Systems

## Introduction

Edwards range of industrial dry pumps, oil sealed rotary pumps, oil sealed piston pumps and mechanical boosters are the most comprehensive available to the industrial user. Add our extensive range of accessories and the pumps can be configured for a wide range of applications. The pumps and accessories can be supplied either as individual components or as fully systemized, factory tested combinations.

The range consists of:

- GXS dry pumps
- IDX dry pumps
- Drystar® 80 dry pumps
- EM oil sealed rotary vane pumps
- Stokes Microvac oil sealed piston pumps
- EV oil sealed rotary vane pumps
- EH, Stokes Vacuum 6" and HV booster pumps

## GXS Dry Pumps

Edwards, a pioneer in dry pumping technology, launches a new generation of dry pumps for industrial applications.

Edwards has over 90 years of experience in harsh process vacuum applications, including dust and process contaminants handling, with more than 150,000 dry pumps installed worldwide.

The GXS industrial dry screw pump incorporates innovative, patented design features that establish a new standard in dry pumping.

Fast - Dry pumping down to 1 x $10^{-3}$ mbar / 7.5 x $10^{-4}$ Torr ultimate vacuum

Robust - Reliable operation in harsh industrial applications

Compact - Smaller footprint than pumps of similar capabilities

Economical - Affordable capital investment and low cost of ownership

Environmental - Smooth, quiet running with low power and utilities consumption

## IDX and Drystar® 80 Dry Pumps

The Drystar® 80 is based on the well proven Edwards reverse claw mechanism reaching a peak speed of 560 $m^3h^{-1}$ / 330 $ft^3min^{-1}$. The reverse claw mechanism results in short gas paths within the operating mechanism, providing the ability to handle large amounts of dust and water vapour, when compared to oil sealed pumps, without deterioration of performance.

The IDX 1000 and 1300 use the latest double ended screw technology to provide a peak speed of up to 1300 $m^3h^{-1}$ / 767 $ft^3min^{-1}$. Many features are patented and as with the GV range are able to handle large amounts of dust and water vapour with little or no effect on performance.

- Low cost of ownership in harsh conditions
- High reliability – dry mechanism proven in 100,000 installations
- Oil free mechanism – reduced maintenance
- Higher dust and water vapour tolerance
- Accessories to optimise pump performance to process variables
- Fast pump down with Edwards hydrokinetic drive booster pumps.

## EM Oil Sealed Rotary Pumps

Edwards rugged two stage mechanical oil sealed pumps are available in sizes from 40 - 275 $m^3h^{-1}$ / 30 - 206 $ft^3min^{-1}$. They feature:

- Advanced oil lubrication circuit
- High reliability
- Accessories to match your application needs

## Stokes Microvac Oil Sealed Rotary Piston Pumps

Stokes Microvac oil sealed piston pumps are available in sizes 255 - 1240 $m^3h^{-1}$ / 150 - 728 $ft^3min^{-1}$. They feature:

- Proven rugged robust design
- Internal oil piping to eliminate potential leaks
- Oil sight glass and flow indicator to provide easy monitoring of oil level and flow
- O-ring sealed covers to eliminate potential oil leaks
- Integral gas ballast valve

## EV Oil Sealed Single Stage Rotary Vane Pumps

Oil sealed rotary vane pumps 20 to 630 $m^3h^{-1}$ /11 to 360 $ft^3min^{-1}$. Standard features include:

- Dual frequency, wide band motor operates in most countries worldwide
- Efficient mist filter for economical operation and environmental protection
- Integral anti suckback valve protected by fine mesh filter
- Gas ballast valve
- High pumping speed at low pressure
- Ultimate vacuum better than 0.5 mbar
- Continuously rated at any pressure from atmosphere to ultimate
- Fine mesh inlet filter

The new EV range of vacuum pumps provides an economical solution for industrial applications where high ultimate vacuums are not required.

## EH Mechanical Booster Pumps

The EH mechanical booster pumps feature the unique hydrokinetic drive, providing an efficient power transmission with benefits in economy, performance and compactness. The hydrokinetic drive provides the following features:

- Capacities for 250 to 4200 $m^3h^{-1}$
- Pump down times cut by 50%, when compared with direct drive pumps
- No bypass lines or pressure switches required
- Reduced capital and operating costs
- Air cooled motors
- Quiet, minimum vibration

## Stokes 6" Series Mechanical Booster Pumps

Stokes 6" series mechanical booster pumps are available in sizes 1020-5100 $m^3h^{-1}$ / 600-3000 $ft^3min^{-1}$. Features include:

- Rugged design for reliable and extended operation
- Simple maintenance features incorporated in design
- Options of direct drive motors or bare shaft machines
- Options of 5 seal process isolation boosters for optimum protection from dust and particulate
- Options of by pass technology to reduce pump down time
- Dynamically balanced impellers

## HV8000 Industrial, ATEX and Explosion Proof Mechanical Booster Pumps

The Edwards HV8000 high vacuum mechanical booster has a nominal pumping speed of 7200 $m^3\ h^{-1}$ (4241 $ft^3\ min^{-1}$), at 50 Hz.

- Derived from the successful range of SN pressure blowers, the HV8000 booster is designed for arduous duty cycles and high power applications.
- Ideal for larger scale harsh industrial and chemical applications, HV boosters are available in Industrial, ATEX or Explosion Proof configurations.
- HV boosters may be ordered as either 'bareshaft' or with motor fitted. Variable frequency drives may be specified for greater versatility.
- HV boosters are available in vertical or horizontal gas flow configuration.
- For long service life, the external shaft seal is water-cooled.
- Five bearing construction and rugged helical gears make for a very robust construction.

## HV Mechanical Booster Pumps

The HV30000 direct drive mechanical booster has a pumping speed of up to 36000 $m^3h^{-1}$ / 21204 $ft^3min^{-1}$ at 60 Hz. The speed of the pump motor can be controlled by an inverter.

In addition, the pumps offer the following features:

- Water cooled shaft seals and after cooler
- Fitted with thermal snap-switch, to protect the pump from over temperature
- Nitrogen purge inlet fitted as standard
- Vertical flow, direct drive
- Control with inverter, or interlock with a pressure switch input.

## Systemization

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 systemization service offers fully factory tested combinations with appropriate accessories.

# GXS, IDX and Drystar® 80 Pumps

Edwards is a market leader in dry pump technology and has pioneered the use of dry vacuum in some of the harshest applications.

The Edwards GXS range incorporates our unique screw technology with a world leading high efficiency drive to achieve excellent vacuum performance with low running costs.

The IDX uses the very latest in double ended screw pumping technology, whilst the Drystar 80 range utilises a reverse claw mechanism, proven over more than 10 years and 100,000 installations worldwide. Both provide reliable and economical solutions to the demands of today's industrial processes.



The product range is available from 80 $m^3hr^{-1}$ / 47 $ft^3min^{-1}$ to 3450 $m^3hr^{-1}$ / 2031 $ft^3min^{-1}$.

## Why Dry?

Dry Vacuum pumps - why not you? The competitive nature of today's business means changes are required to improve performance, lower costs, and provide optimal process solutions. The Dry pumping solution is the change from traditional oil sealed pumps to a proven technology for this industry. Edwards, a world leader in dry pump technology, has demonstrated the ability to provide a low-cost, custom tailored solution to your vacuum application. The benefits offered by the GXS/Drystar 80/IDX Dry pumping solutions are:

- Maintenance
  - Low capital cost and minimal maintenance requirements lead to lowest cost of ownership
  - Extended periods between user intervention
  - Lower consumable costs
- Environmental
  - No oil disposal
  - No oil emissions into atmosphere
- Performance
  - Very stable pumping speed gives repeatability to processes
  - Continuous pumping at atmosphere
  - Ability to handle particulates
  - Dry eliminates back-streaming, thus protecting reactive alloys from contamination
  - Significantly higher capacity for water vapour pumping than traditional oil sealed pumps
- Safety
  - Unobtrusive noise levels
  - No unsightly oil spills
  - No hazardous oil vapours

All Edwards dry pump ranges are ideally suited to:

- Metallurgy
  - Vacuum Induction Melting (VIM)
  - Precision Investment Casting (PIC)
  - Vacuum Arc Refining (VAR)
  - Electron beam welding
  - Vacuum sintering
  - Steel degassing
- LED manufacture
- Solar
  - Lamination
  - Silicon Crystal growing
  - Solar coating
- Heat treatment
  - Hardening
  - Plasma & LP nitriding
  - LP carburization
  - Vacuum brazing
- Coating
  - Roll coating
  - Architectural glass coating
  - Optical filters & lenses
  - Vacuum metallising
- Drying
  - Transformers, capacitors & cables
  - Leather
  - Spices & fragrances
  - Nuclear industry

and many more.

With such a range of pumping speeds combinations and applications available, Edwards retains a comprehensive Applications Engineering capability and are able to offer a solutions package that includes:

- Process design
- Equipment specification and selection
- Safety and operating procedures
- Vacuum system and control integration
- Commissioning advice

## Solutions Engineering

The range and complexity of industrial applications means a 'one size fits all' policy does not result in system optimization. A detailed appreciation of the process, environmental and safety issues is required to tailor systems to match performance and process.

Applications Design & Support Edwards comprehensive design service is based on in-depth knowledge of the industries and applications involved. This expertise is held in the highly focused and experienced applications team, which consists of a Central Applications Group supported by a regional network of Applications Specialists. Proprietary software is used to define pumping requirements and a suite of optional accessories or modules are available. For larger or more unusual applications a custom engineering service is available.

Solutions could cover:

- Process design
- Equipment selection
- Safety and Operating Parameters
- Integration with plant control system(s)
- Commissioning advice and more...

Contact your local office to request an initial discussion with an Applications Specialist. Typically, discussions will include gases / materials to be pumped, cycle times and duty pressures, system capacities, control systems, utilities, system footprint and all other aspects of the vacuum system to ensure that we are able to offer the most effective solution for your application.

## GXS industrial Dry Screw Pump

Designed for high reliability Edwards patented screw-rotor design delivers excellent pumping speed and is part of an advanced thermal management system that maximizes pump performance and life of the seals, bearings, and motor to ensure long pump service life.

Adaptable to a wide range of applications GXS pumps are offered with a range of purge options, filters, catchpots, inlet isolation valves and silencers; together with our special high flow purge and solvent flush accessory enabling the inside of the pump to be kept clean without disassembly.

Long service intervals and easy swap-out Long-life non-oxidizing gearbox oil enables service intervals of up to 5 years to be achieved. Quick-connect utility interfaces provide for rapid pump installation and exchange to improve factory up-time.

Low cost of ownership Custom high-efficiency motor and drive system with advanced seal technology provides for greatly reduced power consumption. Minimal cooling water and purge gas requirements coupled with improved powertrain technology provide for long service intervals and near maintenance-free operation.

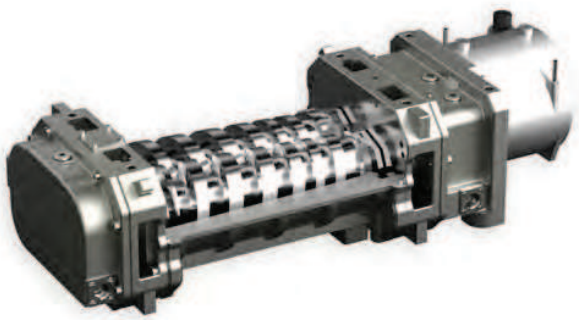
Minimum workplace and environmental impact GXS pumps are incredibly compact. Edwards advanced screw-rotor design provides for remarkably quiet, low vibration operation even without a silencer.

Simple to install and operate GXS pumps are easily wheeled or fork-lifted into position, coupled to the process and services using the supplied mating connectors and run at the push of a button.

Ideal for integration into larger systems GXS pumps and combinations are supplied with serial (RS232) communication and LAN-based web-serving capability as standard. Optional modules are available to add Parallel (digital I/O) and Profibus control functionality.

At your service Edwards has highly skilled applications specialists who will advise on the optimum configuration for your process or application.

## GXS innovative technology



### Bearing and Lubrication

- Oil lubricated gears eliminate grease and the need for periodic maintenance.
- Advanced quality bearings and special purpose oil is used, with low vapour pressure for application compatibility and greatly improved life.

### Double ended shaft support

- Non-cantilever design provides secure rotor support for extremely low vibration and superior starting reliability, especially on harsh processes.
- In tests superior liquid and powder handling has demonstrated that a five litre water slug and one kilogram fine powder slug handling capability.

### Built in control panel

- All pumps are fitted with a built-in control panel for direct local control of the pump.
- Full start / stop control with indication of running mode and state of the pump with a connector for an optional Pump Display Terminal (PDT) for improved diagnostic and configuration capability.

### Advanced shaft sealing technology

- Non-contacting long-life seals with integral oil blocking labyrinth seal provides for highly effective sealing.
- Combined with a four litre per minute seal purge the gearbox is protected from contamination and the vacuum space is kept free of oil.

### World leading motor and drive technology

- Extremely high efficiency motors with electronic drives deliver maximum torque performance for difficult processes.
- Hermetically sealed motor eliminates oil leaks and improves pump reliability.
- Water-cooled motors and drives provide for improved reliability and long life to reduce service costs.

### Advanced pumping mechanism design

- Enhanced screw-type rotor design results in smooth, gradual compression along the length of the rotor for improved thermal control and optimised pumping at all inlet pressures.
- Integrated heat management and unique rotor and stator design features provide argon gas pumping capability at full concentration.
- Advanced machining techniques and design features eliminate the need for rotor coatings while maintaining superb ultimate vacuum performance.
- Improved manufacturing technology and design contributes to low vibration and extremely quiet running of <64 dB(A) without a silencer.

### Accessories for enhanced reliability

- High-flow inlet purge accessory available to aid powder removal from the pump mechanism.
- Solvent flush accessory for in-situ cleaning and removal of sticky substances from the pump mechanism.
- Solvent injection accessory for use during vacuum processing.
- All accessories controllable via the pump's advanced control system with optional hand-held Pump Display Terminal (PDT).

## GXS Systemisation

The range of GXS Industrial screw pumps may be further enhanced through the addition of accessories which have been specially designed to give optimum performance in a wide range of industrial applications.

For detailed advice and availability, please consult one of our Edwards sales engineers.

### Inlet and Exhaust accessories (ISO-ANSI and NW-ANSI)

- Foreline spool adaptor
- Inlet isolation valve (with position indicator)
- Inlet spool
- Inlet filter
- Inlet cyclone
- Inlet knock-out pot
- Exhaust knock-out pot
- Cleanable, drainable silencer
- Exhaust check valve

### Control and monitoring accessories

- Operator panel with IP54 enclosure
- MCM microTIM (I/O control module)
- Profibus DP control module
- Cooling water flow sensor
- Purge gas flow switch
- Instrument pack (PT100 & ASG + cables)

### Special accessories

- IP54 enclosure
- Solvent injection
- Heated/insulated exhaust
- Air blast cooler

# GXS160/1750 Dry Pump

Edwards, a pioneer in dry pumping technology, has more than 90 years experience in harsh process vacuum applications, including dust and process contaminants handling, with more than 150,000 pumps installed worldwide.

The GXS industrial dry screw pump incorporates innovative, patented design features that establish a new standard in dry pumping.

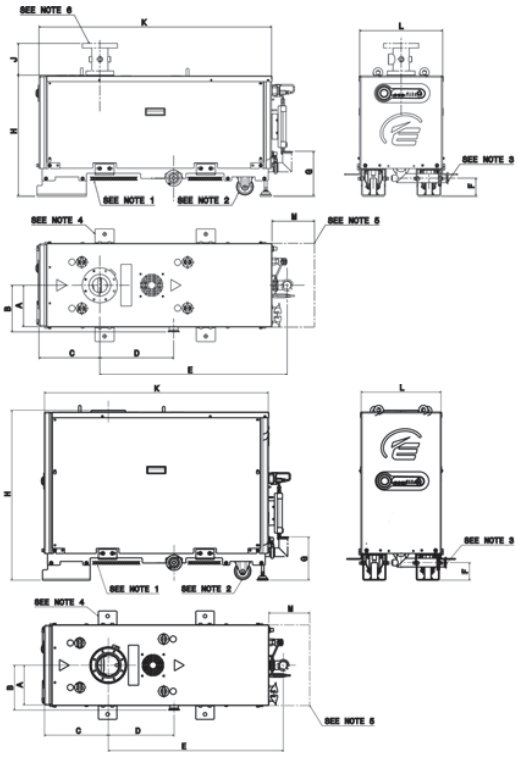
## Features & Benefits

- Designed for high reliability
- Adaptable to a wide range of applications
- Long service interval and easy swap out
- Low cost of ownership
- Minimum workplace and environmental impact

## Applications

- Typical applications include:
- Solar
- Silicon crystal growing
- Lamination
- Freeze drying

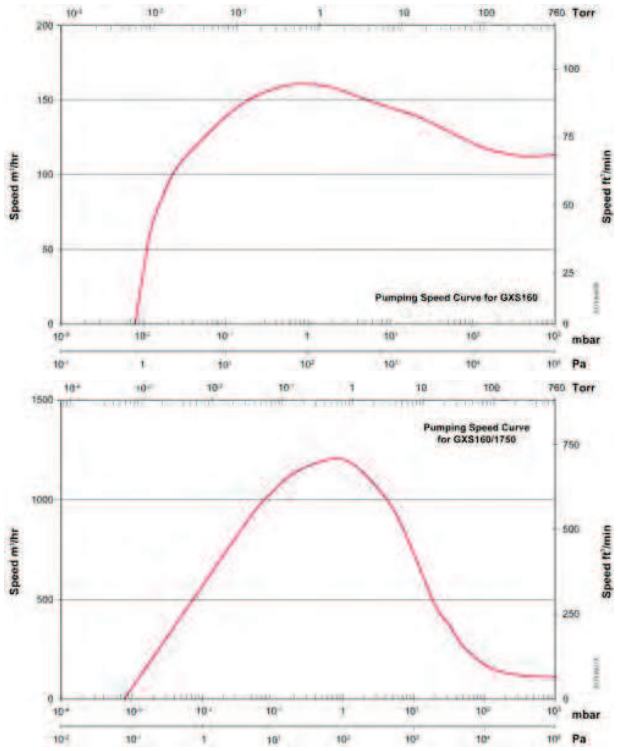
## Dimensions




| (mm) | A | B | C | D | E | F | G | H | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 160 | 195 | 220 | 285.9 | 346.5 | 879.5 | 83 | 209.4 | 568 | 150 | 1092 | 390 | 250 |
| 160/1750 | 195 | 220 | 311.6 | 346.5 | 853.8 | 83 | 209.4 | 829.5 | - | 1092 | 390 | 250 |

| (inches) | A | B | C | D | E | F | G | H | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 160 | 7.7 | 8.7 | 11.3 | 13.6 | 34.6 | 3.3 | 8.2 | 22.4 | 5.9 | 43 | 15.4 | 9.8 |
| 160/1750 | 7.7 | 8.7 | 12.3 | 13.6 | 33.6 | 3.3 | 8.2 | 32.7 | - | 43 | 15.4 | 9.8 |

## Performance Curves

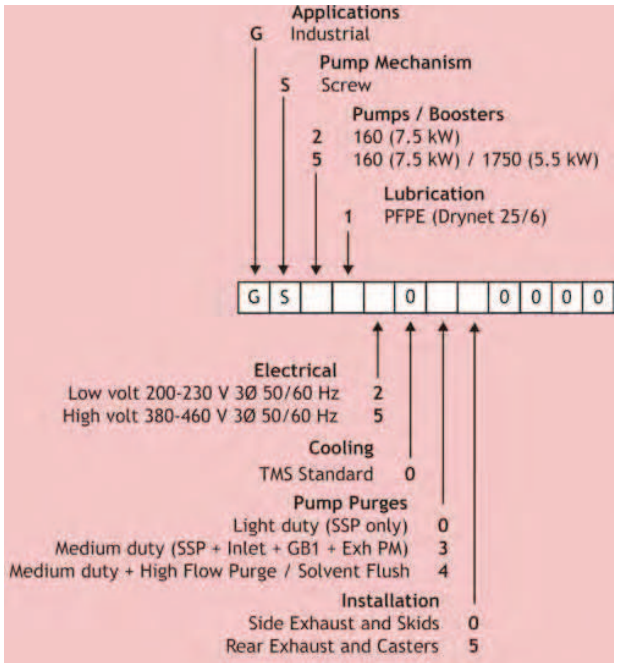


## Technical Data

| | GXS160 | GXS160/1750 |
|---|---|---|
| Peak Pumping Speed | 160 $m^3$/hr (95 cfm) | 1200 $m^3$/hr (706 cfm) |
| Ultimate Pressure | <1 x $10^{-2}$ mbar (<7.5 x $10^{-3}$ Torr) | <1 x $10^{-3}$ mbar (<7.5 x $10^{-4}$ Torr) |
| Full Load Power | | |
| @ ultimate pressure | 3.8 kW (5.1 hp) | 5.1 kW (6.8 hp) |
| @ peak pumping load | 5 kW (6.7 hp) | 7.4 kW (9.9 hp) |
| Inlet connection | ISO63 | ISO100 |
| Exhaust connection | NW40 | NW40 |
| Cooling Water | | |
| Flow | 4 l/min (1.1 gal/min) | 7 l/min (1.9 gal/min) |
| Supply pressure (max) | 6.9 bar (100 psig) | 6.9 bar (100 psig) |
| DP across pump (min) | 1 bar (15 psig) | 1 bar (15 psig) |
| Temperature | 5-40 °C (41-104 °F) | 5-40 °C (41-104 °F) |
| Purge Gas* | | |
| Pressure | 3-10 bar (45-145 psig) | 3-10 bar (45-145 psig) |
| Light Duty | 4 sl/min | 4 sl/min |
| Medium Duty | 10-44 sl/min | 10-44 sl/min |
| High flow purge/solvent flush supply pressure | 2.5-6.9 bar (36-100 psig) | 2.5-6.9 bar (36-100 psig) |
| Mass | 305 Kg (672 lbs) | 475 Kg (1047 lbs) |
| Noise | <64 dB(A) | <64 dB(A) |
| Operating Temperature | 5-40 °C (41-104 °F) | 5-40 °C (41-104 °F) |
| Exhaust Back Pressure (Max) | 1400 mbar (20 psia) | 1400 mbar (20 psia) |
| System IP rating | | |
| Standard | 31 | 31 |
| Option | 54 | 54 |
| Lubrication | PFPE Drynert® 25/6 | PFPE Drynert® 25/6 |
| Volume | 0.7 l (0.2 gal) | 1.4 l (0.4 gal) |
| Monitoring & Control | | |
| Standard | Front panel "Dashboard" | Front panel "Dashboard" |
| | Serial - RS232 | Serial - RS232 |
| | Ethernet Webserver | Ethernet Webserver |
| Option | Parallel I/O - MicroTim | Parallel I/O - MicroTim |
| | Profibus DP | Profibus DP |
| | Pump Display Terminal (PDT) | Pump Display Terminal (PDT) |
| | FabWorks® | FabWorks® |

* Purge Gas information
Light duty - shaft seal purge only
Medium duty - Shaft seal purge, inlet purge, variable gas ballast & exhaust purge (with exhaust pressure sensor)
Medium duty + - As Medium duty, plus High Flow Purge / Solvent Flush

## Ordering Information




SSP = Shaft seal purge, Inlet = Inlet purge, GB1 = First stage gas ballast,
Exh PM = Exhaust pressure monitor and purge
High Flow Purge / Solvent Flush accessory requires optional PDT for operation

**Recommended Accessory**

| | |
|---|---|
| Pump Display Terminal (PDT)* | D37280700 |

**Accessories**

| | |
|---|---|
| GXS Auxilliary gauge cable (0-10 V) | D37241017 |
| GXS Pressure input cable (4-20 mA) | D37241019 |
| Connector kit for 4-20 mA cable** | D37241023 |
| MCM MicroTIM | D39753000 |
| Connector kit for MCM MicroTIM** | D37422802 |
| Profibus® Module | D37360320 |
| Drynert 25/6 fluid 1 kg (528 ml) | H11312021 |
| Drynert 25/6 fluid 5 kg (2646 ml) | H11312025 |

* Access to full functionality for MD & MD+ pumps requires a PDT
** Required to build interface cable

# GXS250/2600 Dry Pump

Edwards, a pioneer in dry pumping technology, launches a new generation of dry pumps for industrial applications.

Edwards has over 90 years of experience in harsh process vacuum applications, including dust and process contaminants handling, with more than 150,000 dry pumps installed worldwide.

The GXS industrial dry screw pump incorporates innovative, patented design features that establish a new standard in dry pumping.

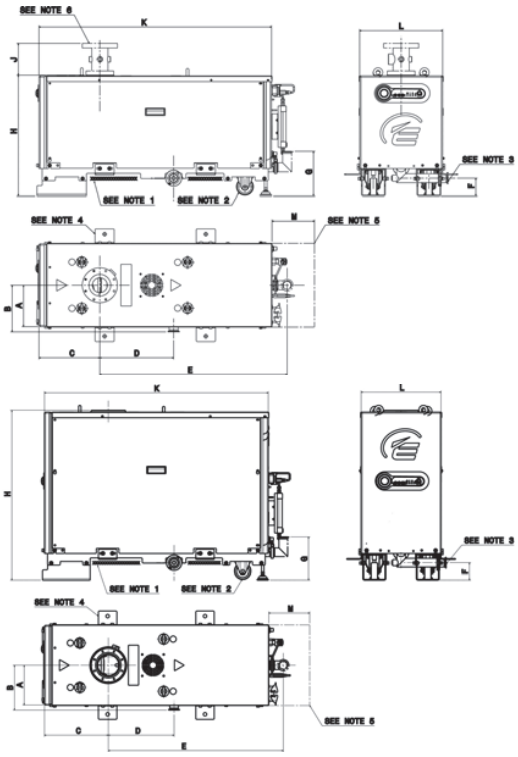
## Features & Benefits

- Designed for high reliability
- Adaptable to a wide range of applications
- Long service interval and easy swap out
- Low cost of ownership
- Minimum workplace and environmental impact

## Applications

- Typical applications include:
- Solar
- Silicon crystal growing
- Lamination
- Freeze drying

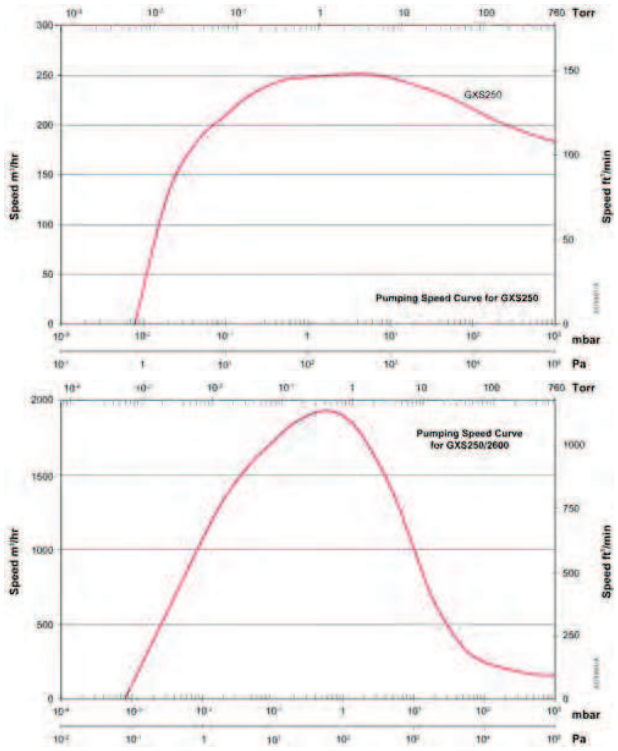
## Dimensions




| (mm) | A | B | C | D | E | F | G | H | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 250 | 195 | 220 | 285.9 | 346.5 | 879.5 | 83 | 209.4 | 568 | 150 | 1092 | 390 | 250 |
| 250/2600 | 195 | 220 | 311.6 | 346.5 | 853.8 | 83 | 209.4 | 829.5 | - | 1092 | 390 | 250 |

| (inches) | A | B | C | D | E | F | G | H | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 250 | 7.7 | 8.7 | 11.3 | 13.6 | 34.6 | 3.3 | 8.2 | 22.4 | 5.9 | 43 | 15.4 | 9.8 |
| 250/2600 | 7.7 | 8.7 | 12.3 | 13.6 | 33.6 | 3.3 | 8.2 | 32.7 | - | 43 | 15.4 | 9.8 |

## Performance Curves

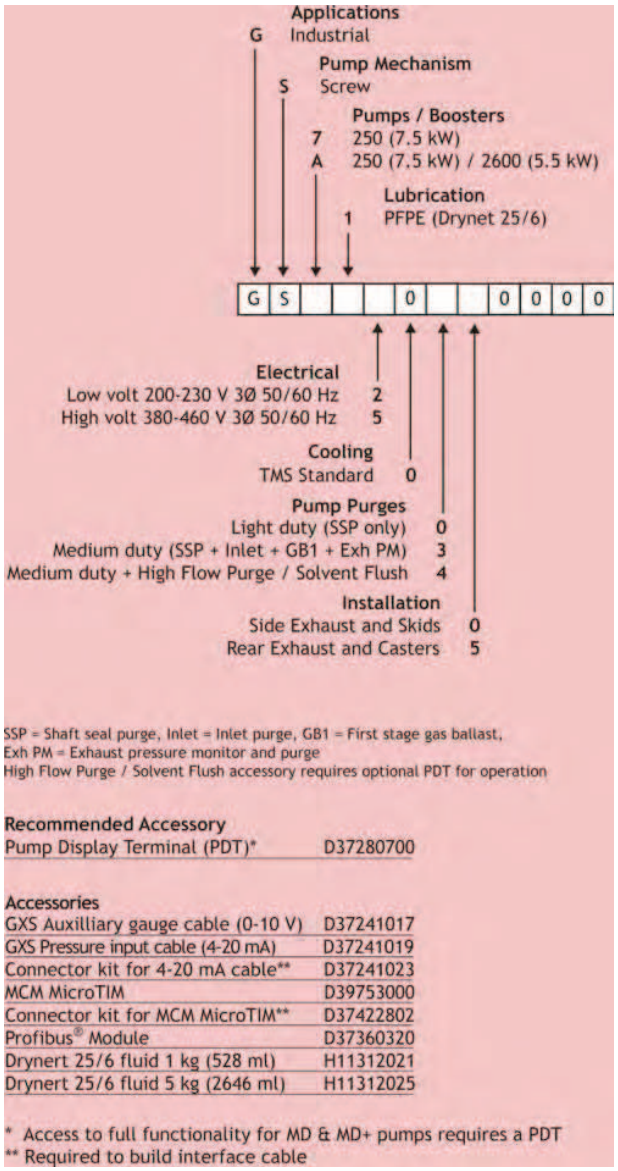


## Technical Data

| | GXS250 | GXS250/2600 |
|---|---|---|
| Peak Pumping Speed | 250 $m^3$/hr (148 cfm) | 1900 $m^3$/hr (1118 cfm) |
| Ultimate Pressure | <1 x $10^{-2}$ mbar (<7.5 x $10^{-3}$ Torr) | <1 x $10^{-3}$ mbar (<7.5 x $10^{-4}$ Torr) |
| Full Load Power | | |
| @ ultimate pressure | 4 kW (5.4 hp) | 5.3 kW (7.1 hp) |
| @ peak pumping load | 9 kW (12.1 hp) | 9.7 kW (13 hp) |
| Inlet connection | ISO63 | ISO160 |
| Exhaust connection | NW40 | NW40 |
| Cooling Water | | |
| Flow | 4 l/min (1.1 gal/min) | 7 l/min (1.9 gal/min) |
| Supply pressure (max) | 6.9 bar (100 psig) | 6.9 bar (100 psig) |
| DP across pump (min) | 1 bar (15 psig) | 1 bar (15 psig) |
| Temperature | 5-40 °C (41-104 °F) | 5-40 °C (41-104 °F) |
| Purge Gas* | | |
| Pressure | 3-10 bar (45-145 psig) | 3-10 bar (45-145 psig) |
| Light Duty | 4 sl/min | 4 sl/min |
| Medium Duty | 10-44 sl/min | 10-44 sl/min |
| High flow purge/solvent flush supply pressure | 2.5-6.9 bar (36-100psig) | 2.5-6.9 bar (36-100psig) |
| Mass | 305 Kg (672 lbs) | 515 Kg (1035 lbs) |
| Noise | <64 dB(A) | <64 dB(A) |
| Operating Temperature | 5-40 °C (41-104 °F) | 5-40 °C (41-104 °F) |
| Exhaust Back Pressure (Max) | 1400 mbar (20 psia) | 1400 mbar (20 psia) |
| System IP rating | | |
| Standard | 31 | 31 |
| Option | 54 | 54 |
| Lubrication | PFPE Drynert® 25/6 | PFPE Drynert® 25/6 |
| Volume | 0.7 l (0.2 gal) | 1.4 l (0.4 gal) |
| Monitoring & Control | | |
| Standard | Front panel "Dashboard" | Front panel "Dashboard" |
| | Serial - RS232 | Serial - RS232 |
| | Ethernet Webserver | Ethernet Webserver |
| Option | Parallel I/O - MicroTim | Parallel I/O - MicroTim |
| | Profibus DP | Profibus DP |
| | Pump Display Terminal (PDT) | Pump Display Terminal (PDT) |
| | FabWorks® | FabWorks® |

* Purge Gas information
Light duty - shaft seal purge only
Medium duty - Shaft seal purge, inlet purge, variable gas ballast & exhaust purge (with exhaust pressure sensor
Medium duty + - As Medium duty, plus High Flow Purge / Solvent Flush

## Ordering Information




SSP = Shaft seal purge, Inlet = Inlet purge, GB1 = First stage gas ballast,
Exh PM = Exhaust pressure monitor and purge
High Flow Purge / Solvent Flush accessory requires optional PDT for operation

**Recommended Accessory**

| | |
|---|---|
| Pump Display Terminal (PDT)* | D37280700 |

**Accessories**

| | |
|---|---|
| GXS Auxilliary gauge cable (0-10 V) | D37241017 |
| GXS Pressure input cable (4-20 mA) | D37241019 |
| Connector kit for 4-20 mA cable** | D37241023 |
| MCM MicroTIM | D39753000 |
| Connector kit for MCM MicroTIM** | D37422802 |
| Profibus® Module | D37360320 |
| Drynert 25/6 fluid 1 kg (528 ml) | H11312021 |
| Drynert 25/6 fluid 5 kg (2646 ml) | H11312025 |

* Access to full functionality for MD & MD+ pumps requires a PDT
** Required to build interface cable

# GXS450/2600/4200 Dry Pump

Edwards, a pioneer in dry pumping technology, has more than 90 years experience in harsh process vacuum applications, including dust and process contaminants handling, with more than 150,000 pumps installed worldwide.

The GXS industrial dry screw pump incorporates innovative, patented design features that establish a new standard in dry pumping.

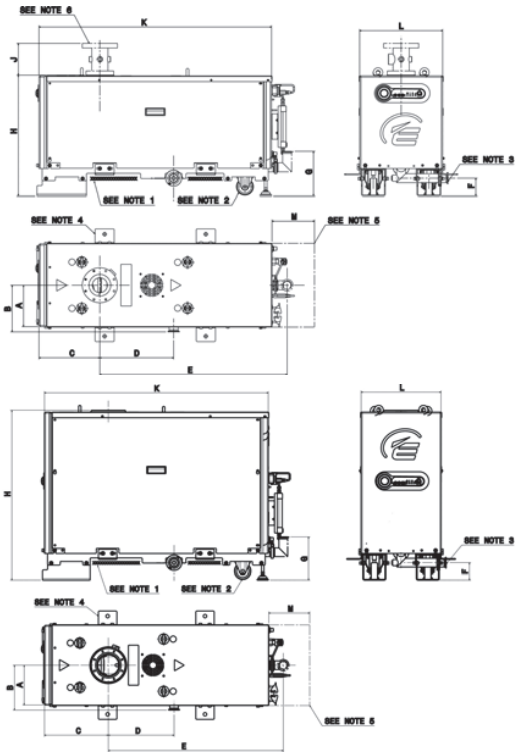
## Features & Benefits

- Designed for high reliability
- Adaptable to a wide range of applications
- Long service interval and easy swap-out
- Low cost of ownership
- Minimum workplace and environmental impact

## Applications

- Solar
- Freeze drying
- Sterilisation
- Coating
- Metallurgy

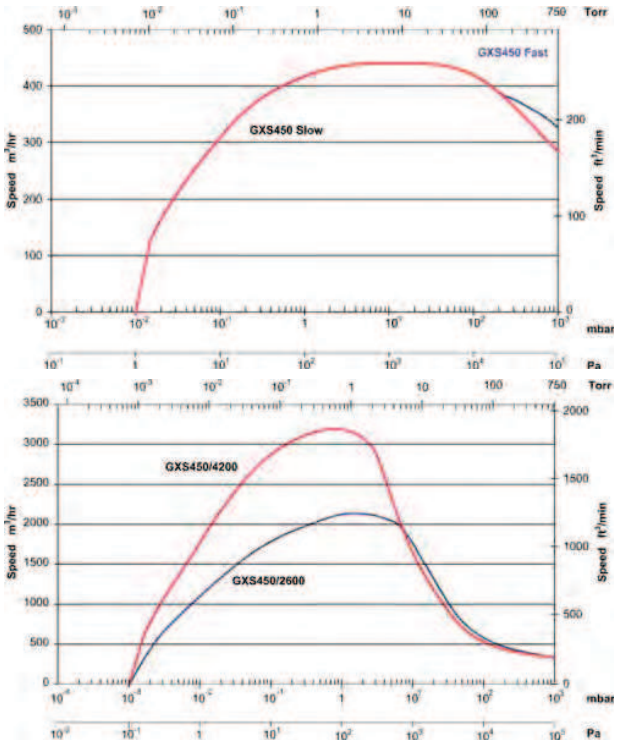
## Dimensions




| (mm) | A | B | C | D | E | F | G | H | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 450 | 258.5 | 283.5 | 394 | 300 | 871.6 | 83 | 261.4 | 717 | 150 | 1186 | 517 | 250 |
| 450/2600 | 258.5 | 283.5 | 362 | 332 | 903.8 | 83 | 261.4 | 1031 | - | 1186 | 517 | 250 |
| 450/4200 | 258.5 | 283.5 | 362 | 332 | 903.8 | 83 | 261.4 | 1031 | - | 1186 | 517 | 250 |

| (inches) | A | B | C | D | E | F | G | H | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 450 | 10.2 | 11.2 | 15.5 | 11.8 | 34.3 | 3.3 | 10.3 | 28.2 | 5.9 | 46.7 | 20.4 | 9.8 |
| 450/2600 | 10.2 | 11.2 | 14.2 | 13.1 | 33.6 | 3.3 | 10.3 | 40.6 | - | 46.7 | 20.4 | 9.8 |
| 450/4200 | 10.2 | 11.2 | 14.2 | 13.1 | 33.6 | 3.3 | 10.3 | 40.6 | - | 46.7 | 20.4 | 9.8 |

## Performance Curves



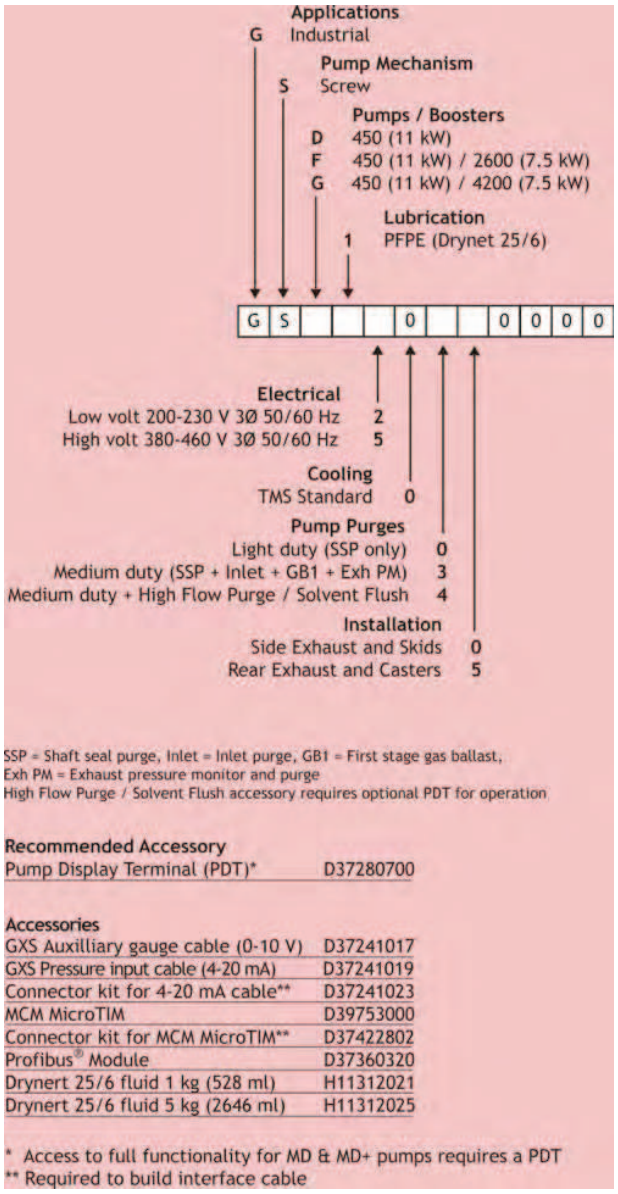
# Technical Data

| | GXS450 | GXS450/2600 | GXS450/4200 |
|---|---|---|---|
| Peak Pumping Speed | 450 $m^3$/hr (265 cfm) | 2200 $m^3$/hr (1295 cfm) | 3026 $m^3$/hr (1781 cfm) |
| Ultimate Pressure | <1 x $10^{-2}$ mbar (<7.5 x $10^{-3}$ Torr) | <1 x $10^{-3}$ mbar (<7.5 x $10^{-4}$ Torr) | <1 x $10^{-3}$ mbar (<7.5 x $10^{-4}$ Torr) |
| Full Load Power | | | |
| @ ultimate pressure | 7.2 kW (9.6 hp) | 8.8 kW (11.8 hp) | 9.4 kW (12.6 hp) |
| @ peak pumping load | 17.3 kW (23.2 hp) | 20 kW (26.8 hp) | 21.1 kW (28.3 hp) |
| Inlet connection | ISO100 | ISO160 | ISO160 |
| Exhaust connection | NW50 | NW50 | NW50 |
| Mass | 640 Kg (1411 lbs) | 860 Kg (1996 lbs) | 868 Kg (1914 lbs) |
| Lubrication volume | 1.8 l (0.5 gal) | 2.5 l (0.7 gal) | 3.6 l (1.0 gal) |

| | |
|---|---|
| Cooling Water flow | 12 l/min (3.2 gal/min) |
| Cooling Water supply pressure (max) | 6.9 bar (100 psig) |
| Cooling Water DP across pump (min) | 1.5 bar (22 psig) |
| Cooling Water temperature | 5-40 °C (41-104 °F) |
| Purge gas - pressure* | 2.5-6.9 bar (36-100 psig) |
| Purge gas – light duty* | 6 sl/min |
| Purge gas – medium duty* | 18-146 sl/min |
| High flow purge/solvent flush supply pressure | 2.5-6.9 bar (36-100 psig) |
| Noise | <64 dB(A) |
| Operating Temperature | 5-40 °C (41-104 °F) |
| Exhaust back pressure (max) | 1400 mbar (20 psia) |
| IP rating – standard | 31 |
| IP rating – option | 54 |
| Lubrication | PFPE Drynert® 25/6 |
| Monitoring & Control | |
| Standard | Front panel Dashboard |
| | Serial - RS232 |
| | Ethernet Webserver |
| Option | Parallel – MCM MicroTim |
| | Profibus DP |
| | Pump Display Terminal (PDT) |
| | FabWorks® |

* Purge Gas information
Light duty - shaft seal purge only
Medium duty - Shaft seal purge, inlet purge, variable gas ballast & exhaust purge (with exhaust pressure sensor)
Medium duty + - As Medium duty, plus High Flow Purge / Solvent Flush

# Ordering Information




SSP = Shaft seal purge, Inlet = Inlet purge, GB1 = First stage gas ballast,
Exh PM = Exhaust pressure monitor and purge
High Flow Purge / Solvent Flush accessory requires optional PDT for operation

**Recommended Accessory**

| | |
|---|---|
| Pump Display Terminal (PDT)* | D37280700 |

**Accessories**

| | |
|---|---|
| GXS Auxilliary gauge cable (0-10 V) | D37241017 |
| GXS Pressure input cable (4-20 mA) | D37241019 |
| Connector kit for 4-20 mA cable** | D37241023 |
| MCM MicroTIM | D39753000 |
| Connector kit for MCM MicroTIM** | D37422802 |
| Profibus® Module | D37360320 |
| Drynert 25/6 fluid 1 kg (528 ml) | H11312021 |
| Drynert 25/6 fluid 5 kg (2646 ml) | H11312025 |

* Access to full functionality for MD & MD+ pumps requires a PDT
** Required to build interface cable

# GXS750/2600/4200 Dry Pump

Edwards, a pioneer in dry pumping technology, has more than 90 years experience in harsh process vacuum applications, including dust and process contaminants handling, with more than 150,000 pumps installed worldwide.

The GXS industrial dry screw pump incorporates innovative, patented design features that establish a new standard in dry pumping.

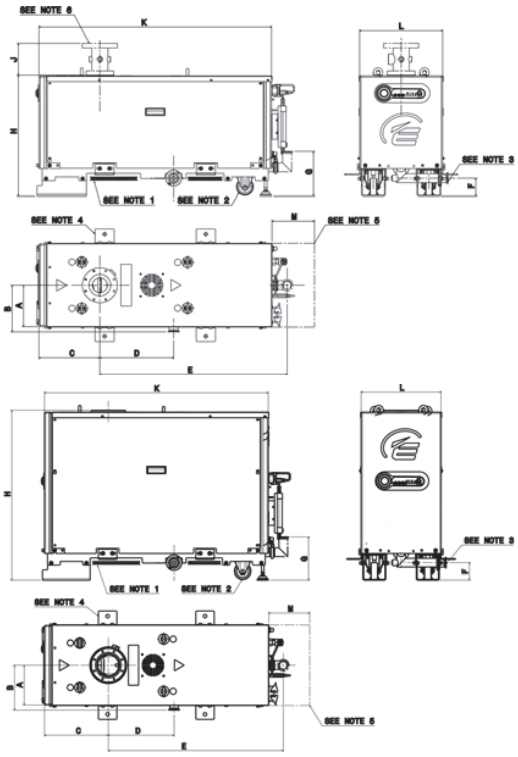
## Features & Benefits

- Designed for high reliability
- Adaptable to a wide range of applications
- Long service interval and easy swap-out
- Low cost of ownership
- Minimum workplace and environmental impact

## Applications

- Solar
- Freeze drying
- Sterilisation
- Coating
- Metallurgy

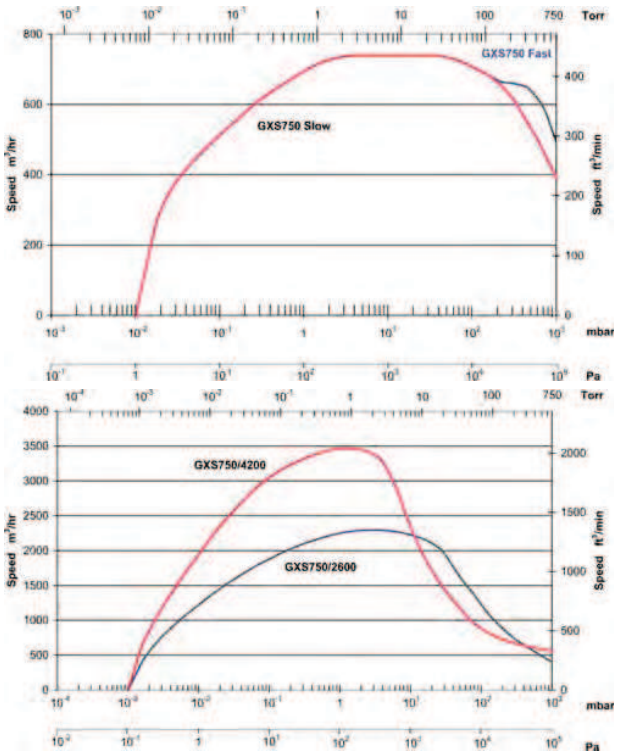
## Dimensions




| (mm) | A | B | C | D | E | F | G | H | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 750 | 258.5 | 283.5 | 576 | 413 | 1134 | 83 | 261.4 | 717 | 150 | 1622 | 517 | 250 |
| 750/2600 | 258.5 | 283.5 | 657 | 332 | 1053 | 83 | 261.4 | 1031 | - | 1622 | 517 | 250 |
| 750/4200 | 258.5 | 283.5 | 657 | 332 | 1053 | 83 | 261.4 | 1031 | - | 1622 | 517 | 250 |

| (inches) | A | B | C | D | E | F | G | H | J | K | L | M |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 750 | 10.2 | 11.2 | 15.5 | 11.8 | 34.3 | 3.8 | 10.3 | 28.2 | 5.9 | 46.7 | 20.4 | 9.8 |
| 750/2600 | 10.2 | 11.2 | 25.9 | 13.1 | 41.5 | 3.8 | 10.3 | 40.6 | - | 63.9 | 20.4 | 9.8 |
| 750/4200 | 10.2 | 11.2 | 25.9 | 13.1 | 41.5 | 3.8 | 10.3 | 40.6 | - | 63.9 | 20.4 | 9.8 |

## Performance Curves

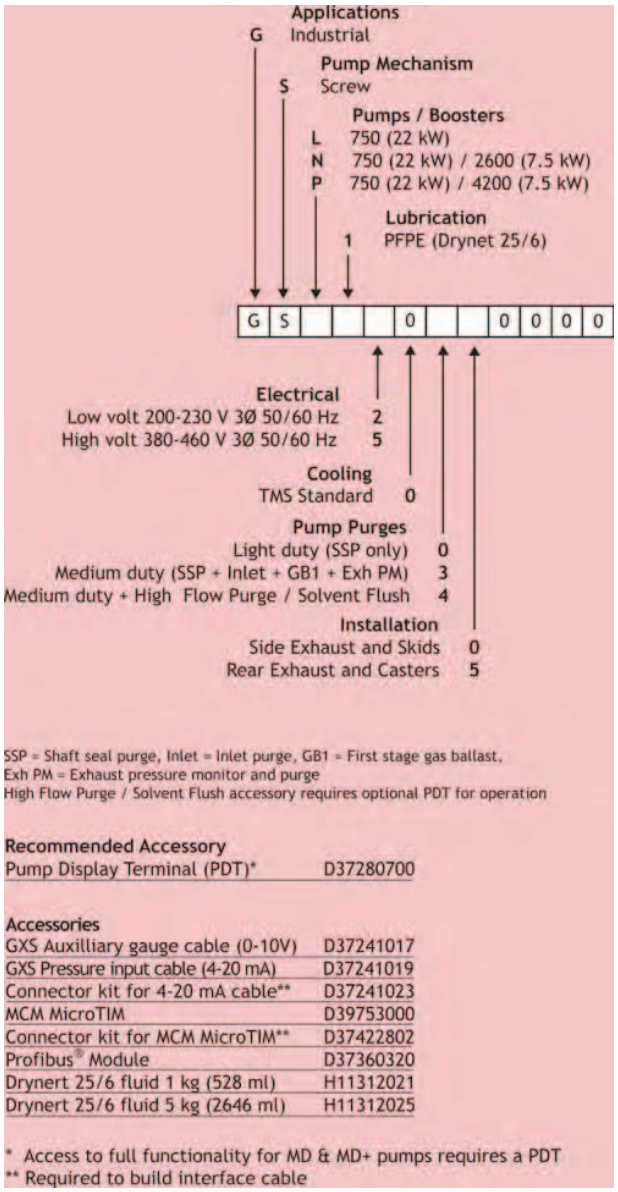


## Technical Data

| | GXS750 | GXS750/2600 | GXS750/4200 |
|---|---|---|---|
| Peak Pumping Speed | 740 $m^3$/hr (436 cfm) | 2300 $m^3$/hr (1354 cfm) | 3450 $m^3$/hr (2031 cfm) |
| Ultimate Pressure | <1 x $10^{-2}$ mbar (<7.5 x $10^{-3}$ Torr) | <1 x $10^{-3}$ mbar (<7.5 x $10^{-4}$ Torr) | <1 x $10^{-3}$ mbar (<7.5 x $10^{-4}$ Torr) |
| Full Load Power | | | |
| @ ultimate pressure | 10 kW (13.4 hp) | 11.1 kW (14.9 hp) | 11.5 kW (15.4 hp) |
| @ peak pumping load | 37 kW (49.6 hp) | 40 kW (53.6 hp) | 40 kW (53.6 hp) |
| Inlet connection | ISO100 | ISO160 | ISO160 |
| Exhaust connection | NW50 | NW50 | NW50 |
| Mass | 640 Kg (1411 lbs) | 908 Kg (2002 lbs) | 953 Kg (2101 lbs) |
| Lubrication volume | 2.4 l (0.6 gal) | 3.1 l (0.8 gal) | 4.2 l (1.1 gal) |
| Cooling Water flow | | 12 l/min (3.2 gal/min) | |
| Cooling Water supply pressure (max) | | 6.9 bar (100 psig) | |
| Cooling Water DP across pump (min) | | 1.5 bar (22 psig) | |
| Cooling Water temperature | | 5-40 °C (41-104 °F) | |
| Purge gas - pressure* | | 2.5-6.9 bar (36-100 psig) | |
| Purge gas – light duty* | | 6 sl/min | |
| Purge gas – medium duty* | | 18-146 sl/min | |
| High flow purge/solvent flush supply pressure | | 2.5-6.9 bar (36-100 psig) | |
| Noise | | <70B(A) | |
| Operating Temperature | | 5-40 °C (41-104 °F) | |
| Exhaust back pressure (max) | | 1400 mbar (20 psia) | |
| IP rating – standard | | 31 | |
| IP rating – option | | 54 | |
| Lubrication | | PFPE Drynert® 25/6 | |
| Monitoring & Control | | | |
| Standard | | Front panel Dashboard | |
| | | Serial - RS232 | |
| | | Ethernet Webserver | |
| Option | | Parallel – MCM MicroTim | |
| | | Profibus DP | |
| | | Pump Display Terminal (PDT) | |
| | | FabWorks® | |

* Purge Gas information
Light duty - shaft seal purge only
Medium duty - Shaft seal purge, inlet purge, variable gas ballast & exhaust purge (with exhaust pressure sensor)
Medium duty + - As Medium duty, plus High Flow Purge / Solvent Flush

## Ordering Information




SSP = Shaft seal purge, Inlet = Inlet purge, GB1 = First stage gas ballast,
Exh PM = Exhaust pressure monitor and purge
High Flow Purge / Solvent Flush accessory requires optional PDT for operation

**Recommended Accessory**

| | |
|---|---|
| Pump Display Terminal (PDT)* | D37280700 |

**Accessories**

| | |
|---|---|
| GXS Auxilliary gauge cable (0-10V) | D37241017 |
| GXS Pressure input cable (4-20 mA) | D37241019 |
| Connector kit for 4-20 mA cable** | D37241023 |
| MCM MicroTIM | D39753000 |
| Connector kit for MCM MicroTIM** | D37422802 |
| Profibus® Module | D37360320 |
| Drynert 25/6 fluid 1 kg (528 ml) | H11312021 |
| Drynert 25/6 fluid 5 kg (2646 ml) | H11312025 |

* Access to full functionality for MD & MD+ pumps requires a PDT
** Required to build interface cable

# Drystar 80 Pump and Booster Package

Edwards DRYSTAR 80 dry vacuum pump is configured for ease of installation and commissioning while providing a clean, robust and cost effective alternative to traditional oil-sealed pumps.

The DRYSTAR 80 is designed to handle large volumes of condensable vapours and particulate loads to provide a consistent pumping performance, minimal service intervention and low cost of ownership. The use of dry pumping technology and unique seal design will eliminate contamination throughout the vacuum process making the DRYSTAR 80 suitable for a range of applications and environments.

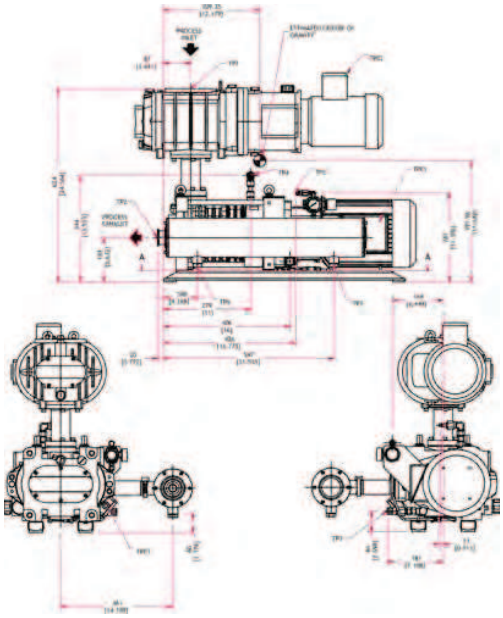
## Features & Benefits

- Extended periods between user intervention to achieve maximum uptime
- No exhaust filters to service offering lower consumable cost and inventory
- Available in hydrocarbon or PFPE fluid (for oxygen) versions making it suitable for a wide range of applications and environments
- Continuous pumping from atmosphere
- Consistent performance in demanding applications

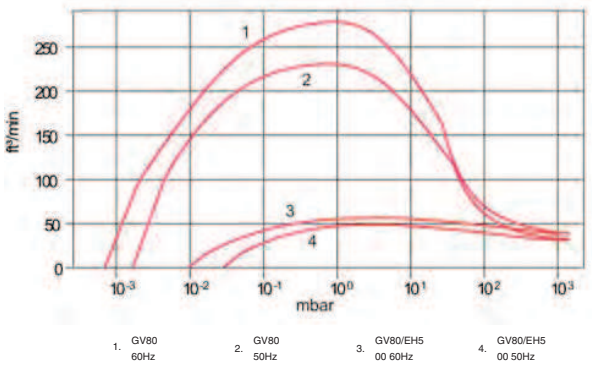
## Applications

- Vacuum metallurgy processes
- Heat treatment carburisation
- Thin film coating technologies
- Pharmaceutical freeze drying
- Refrigeration and air conditioning system evacuation, drying, and backfilling

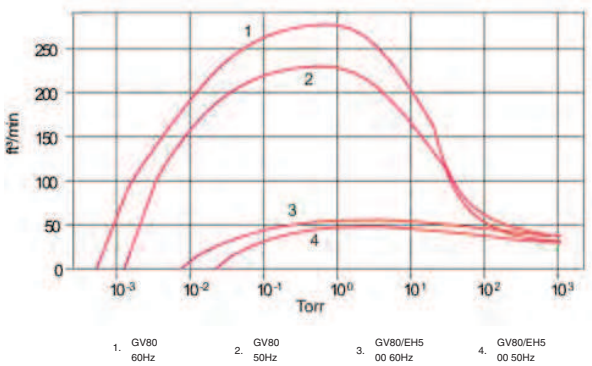
## Dimensions



## Performance Curves




1. GV80 60Hz
2. GV80 50Hz
3. GV80/EH5 00 60Hz
4. GV80/EH5 00 50Hz




1. GV80 60Hz
2. GV80 50Hz
3. GV80/EH5 00 60Hz
4. GV80/EH5 00 50Hz

# Technical Data

| | Drystar 80 | Drystar 80/EH500 |
|---|---|---|
| Peak Pumping Speed 50 Hz | 80 $m^3$/hr (47 $ft^3$/min) | 390 $m^3$/hr (230 $ft^3$/min) |
| Peak Pumping Speed 60 Hz | 94 $m^3$/hr (56 $ft^3$/min) | 471 $m^3$/hr (277 $ft^3$/min) |
| Ultimate Pressure | <3x$10^{-2}$ mbar (<2x$10^{-2}$ Torr) | <3x$10^{-3}$ mbar (<2x$10^{-3}$ Torr) |
| Power @ ultimate pressure | 3.6 kW (4.8 hp) | 4.3 kW (5.6 hp) |
| Power @ peak pumping load | 5.8 kW (7.8 hp) | 6.7 kW (9.0 hp) |
| Electrical supply | 200-230V 3Æ 50/60Hz or 380-460V 3Æ 50/60Hz | 200-230V 3Æ 50/60Hz or 380-460V 3Æ 50/60Hz |
| Inlet connection | ISO40 | ISO100 |
| Outlet connection | NW40 | NW40 |
| Cooling method | Water | Water/Air |
| Cooling Water flow rate | 1 l/min (0.26 gal/min) | 1 l/min (0.26 gal/min) |
| Max cooling Water supply pressure | 8 bar (116 psig) | 8 bar (116 psig) |
| Cooling Water DP across pump | 2.1 bar (30 psig) | 2.1 bar (30 psig) |
| Cooling Water temp | 5-35 °C (41-95 °F) | 5-35 °C (41-95 °F) |
| Cooling Water inlet | ½" Quick connect coupling | ½" Quick connect coupling |
| Cooling Water outlet | ½" Quick connect plug | ½" Quick connect plug |
| Purge gas pressure | 0.5 bar (6-8 psig) | 0.5 bar (6-8 psig) |
| Purge gas light duty | 15 sl/min | 15 sl/min |
| Purge gas connection | ¼" Quick connect coupling | ¼" Quick connect coupling |
| Weight | 145 kg (320 lbs) | 220 kg (485 lbs) |
| Noise (with exhaust silencer) | <78 dB(A) | <78 dB(A) |
| Exhaust back pressure | 1.3 bar (18 psig) | 1.3 bar (18 psig) |
| Lubrication volume | 0.4 l (0.1 gal) | 1.4 l (0.4 gal) |
| Hydrocarbon lubrication | SHC629 | SHC629 / Ultragrade 20 |
| PFPE lubrication | YVAC 25/6 | YVAC 25/6 / YVAC 16/6 |

# Ordering Information

| Product Description | Order No. |
|---|---|
| DRYSTAR 80 SSP & Silencer 380-415V 50Hz | NR8030000 |
| DRYSTAR 80 SSP & Silencer 230/460V 60 Hz | NR8031000 |
| DRYSTAR 80 SSP & Silencer 380V 60 Hz | NR8032000 |
| DRYSTAR 80 SSP & Silencer 200V 50 Hz | NR8033000 |
| DRYSTAR 80 SSP & Silencer 200V 60 Hz | NR8034000 |
| DRYSTAR 80 PFPE SSP & Silencer 380-415V 50Hz | NR8035000 |
| DRYSTAR 80 PFPE SSP & Silencer 230/460V 60 Hz | NR8036000 |
| DRYSTAR 80 PFPE SSP & Silencer 380V 60 Hz | NR8037000 |
| DRYSTAR 80 PFPE SSP & Silencer 200V 50 Hz | NR8038000 |
| DRYSTAR 80 PFPE SSP & Silencer 200V 60 Hz | NR8039000 |
| DRYSTAR 80/EH500 SSP & Silencer 380-415V 50Hz | NRY041000 |
| DRYSTAR 80/EH500 SSP & Silencer 230/460V 60 Hz | NRY042000 |
| DRYSTAR 80/EH500 SSP & Silencer 380V 60 Hz | NRY043000 |
| DRYSTAR 80/EH500 SSP & Silencer 200V 50 Hz | NRY044000 |
| DRYSTAR 80/EH500 SSP & Silencer 200V 60 Hz | NRY045000 |
| DRYSTAR 80/EH500 PFPE SSP & Silencer 380-415V 50Hz | NRY046000 |
| DRYSTAR 80/EH500 PFPE SSP & Silencer 230/460V 60 Hz | NRY047000 |
| DRYSTAR 80/EH500 PFPE SSP & Silencer 380V 60 Hz | NRY048000 |
| DRYSTAR 80/EH500 PFPE SSP & Silencer 200V 50 Hz | NRY049000 |
| DRYSTAR 80/EH500 PFPE SSP & Silencer 200V 60 Hz | NRY050000 |
| DRYSTAR 80 SSP (24VAC Solenoid) Silencer Wall Mount MCM 208V 60 Hz | NRY29W000 |
| DRYSTAR 80/EH500 SSP (24vac Solenoid) Silencer Wall Mount MCM 208V 60 Hz | NRY29X000 |
| DRYSTAR 80F (PFPE) SSP (24vac Solenoid) Silencer Wall Mount MCM 208V 60 Hz | NRY29Y000 |
| DRYSTAR 80/EH500F (PFPE) SSP (24vac Solenoid) Silencer Wall Mount MCM 208V 60 Hz | NRY29Z000 |
| DRYSTAR 80 SSP (24VAC Solenoid) Silencer Wall Mount MCM 230V 60 Hz | NRY2A0000 |
| DRYSTAR 80/EH500 SSP (24vac Solenoid) Silencer Wall Mount MCM 230V 60 Hz | NRY2A1000 |
| DRYSTAR 80F (PFPE) SSP (24vac Solenoid) Silencer Wall Mount MCM 230V 60 Hz | NRY2A2000 |
| DRYSTAR 80/EH500F (PFPE) SSP (24vac Solenoid) Silencer Wall Mount MCM 230V 60 Hz | NRY2A3000 |
| DRYSTAR 80 SSP (24VAC Solenoid) Silencer Wall Mount MCM 460V 60 Hz | NRY2A4000 |
| DRYSTAR 80/EH500 SSP (24vac Solenoid) Silencer Wall Mount MCM 460V 60 Hz | NRY2A5000 |
| DRYSTAR 80F (PFPE) SSP (24vac Solenoid) Silencer Wall Mount MCM 460V 60 Hz | NRY2A6000 |
| DRYSTAR 80/EH500F (PFPE) SSP (24vac Solenoid) Silencer Wall Mount MCM 460V 60 Hz | NRY2A7000 |

| Accessories & Spares | Order No. |
|---|---|
| Acoustic Enclosure For GV80 | A50575000 |
| Atmospheric Shaft Seal Purge Kit | NRA640450 |
| Exhaust Silencer | A50805020 |
| Routine Maintenance Kit GV80 | A70212825 |
| Spares Kit Con C&O EH/QMB250/500A | A30151815 |

# IDX 1000/1300

The IDX1000 is the new benchmark in performance for fast pumpdown of large chambers and high capacity pumping for industrial processes.

Based on the double-ended screw technology, the IDX Dry Vacuum Pump will give you all the reliability and performance you want for your process. The IDX outperforms all other dry pumps in robustness, performance and ease of operation, giving you faster pump-down from atmosphere and managing higher throughput at low pressures. Dry pumping systems reduce energy costs, eliminate effluent and can give significant improvements in product quality, making them the ideal solution for many coating and metallurgy processes.

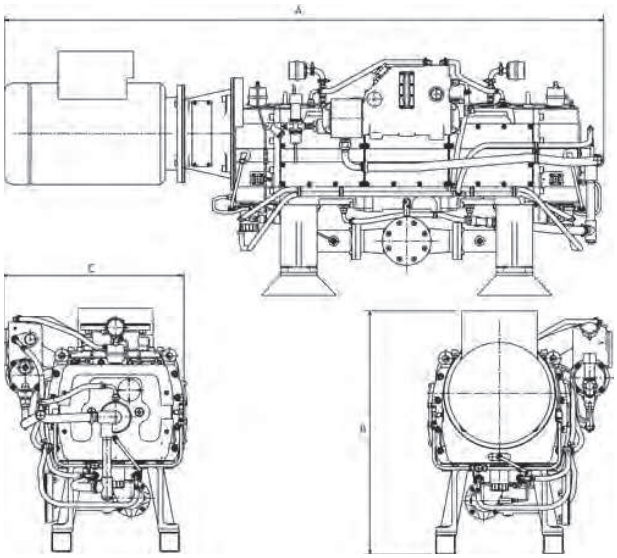
## Features & Benefits

- Improved Performance and Reliability
- Continuous performance from atmosphere to ultimate
- Excellent thermal profile and temperature control
- Tolerates liquid and particles
- Does not contaminate your process

## Applications

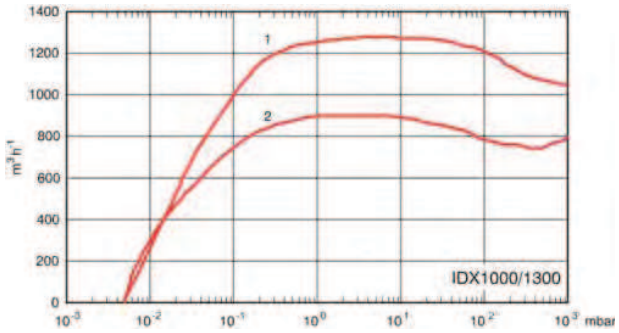
- Metallurgy
- Vacuum Induction Melting (VIM)
- Vacuum Arc Refining (VAR)
- Precision Investment Casting (PIC)
- Steel Degassing

## Dimensions



| | | IDX1000 | IDX1300 |
|---|---|---|---|
| A | 50Hz | 2250mm (88.5") | 2465mm (97") |
| | 60Hz | 2290mm (90.1") | 2515mm (99") |
| B | | 854mm (33.6") | 1005mm (39.6") |
| C | | 750mm (29.5") | 750mm (29.5") |

## Performance Curves




1. IDX1300 2. IDX1000

## Technical Data

| Mass | IDX1000 | IDX1300 |
|---|---|---|
| 50 Hz | 1560 kg (3439 lb) | 1590 kg (3506 lb) |
| 60 Hz | 1630 kg (3594 lb) | 1660 kg (3660 lb) |
| Pumping Speed | | |
| Nominal | 1000 $m^3 hr^{-1}$ (589 cfm) | 1300 $m^3 hr^{-1}$ (766 cfm) |
| Actual | 900 $m^3 hr^{-1}$ (560 cfm) | 1250 $m^3 hr^{-1}$ (736 cfm) |
| Ultimate pressure | 5 x $10^{-2}$ mbar (3.75 x $10^{-2}$ Torr) | 5 x $10^{-2}$ mbar (3.75 x $10^{-2}$ Torr) |
| Noise | 82 dB(A) | 82 dB(A) |
| Motor | 30 kW (40 hp) | 30 kW (40 hp) |
| Optional | 22 kW (30 hp) | |

## Ordering Information

| Product Description | Order No. |
|---|---|
| IDX1300 30kW DIN Safe Area | A70904985 |
| IDX1300 40hp ANSI Safe Area | A70914985 |
| IDX1000 22 kW 50 Hz safe area | A70803985 |
| IDX1000 30 kW 50 Hz safe area extended performance | A70804985 |
| IDX1000 30 hp 60 Hz safe area | A70813985 |
| IDX1000 40 hp 60 Hz safe area extended performance | A70814985 |
| **Accessories & Spares** | **Order No.** |
| Gear Box Oil 4 Ltr Mobil SHC 629 | H11023011 |
| Coolant 0.9/2L Drystar | H12810003 |
| IDX Routine maintenance kit | A70801800 |
| IDX Heat exchanger cleaning kit | A70801801 |
| IDX Cooling system overhaul kit | A70801802 |
| IDX Motor fitting kit | A70801803 |
| IDX Drive coupling kit | A70801804 |
| IDX Bearing and seal replacement kit | A70801805 |
| IDX Oil pump replacement kit | A70801806 |
| IDX Strip and rebuild kit | A70801807 |
| IDX Flame arrestor cleaning kit | A70801808 |
| IDX Hoses kit | A70801809 |
| IDX Flame arrestor replacement kit (inlet) | A70801810 |
| IDX Flame arrestor replacement kit (outlet) | A70801811 |
| IDX Flame arrestor tooling kit | A70801812 |

# EM Oil Sealed Rotary Pumps

Edwards rugged two stage mechanical oil sealed pumps are available in sizes from 40 to 275 $m^3h^{-1}$ / 30-206 $ft^3min^{-1}$. They feature:

- Advanced oil lubrication circuit
- High reliability
- Accessories to match your application needs

## Application and Accessory Information EM Rotary Pumps

The use of Edwards rotary pumps with our comprehensive range of accessories will result in enhanced performance and reliability. The information below will help you to select the correct accessories for your application. However, we recommend that you treat this as a guide only, because the final selection of components can be influenced by the operation of your vacuum system and the process by-products. If in doubt, please contact Edwards or your local supplier for further advice from an Edwards application specialist.

When you select accessories for your system, the major aim is to prolong the life and the safe operation of the pumps and to ensure that the system continues to perform at its ultimate specification. To do this, you need to ensure that the system is able to accommodate the process media and any process by-products, including vapours, liquids or particulates, which may damage the pumps. At the same time, you should ensure that any materials discharged from the system to atmosphere are not harmful to the environment and to people nearby.

## Broad Application Coverage

### Industrial

Industrial EM primary pumps are annotated with the suffix "IND".

EM primary pumps are safe to handle non-flammable gases and vapours within the normal operating parameters of the pump.

Flammable gases and vapours may also be pumped, provided they are outside the flammable range, please consult Edwards for advice.

### PFPE

EM primary pumps may be supplied for use with PFPE oil. This enables them to be used in harsh (corrosive) processes, or where the presence of Oxygen will result in rapid degradation of hydrocarbon oils.

### ATEX

- EM primary pumps (hydrocarbon oil only) may be supplied with ATEX classification either as part of a pump system or stand-alone. Please consult Edwards.
- ATEX compliance is typically specified for use in Europe, but may also be required in other areas.

ATEX compliant EM primary pumps are suitable for operation in ATEX systems rated as follows:

| Pump Classification | Internal Classification | External Classification |
|---|---|---|
| E2M40 & E2M80 | Ⓔx II 3 Gc IIB T4 | Ⓔx II 2 G IIB T4 |
| E2M175 & E2M275 | Ⓔx II 3 Gc IIB T3 | Ⓔx II 2 G IIB T160 |

Where the following classification...

| Symbol | Meaning |
|---|---|
| Ⓔx | Specifies that an ATEX-compliant EM pump can be used in a potentially explosive atmosphere |
| II | Equipment Group – II = non-mining equipment |
| 3 (Int) 2 (Ext) G | Equipment Category 3 (or 2) – G = Gas |
| c | Constructional safety |
| IIB | Gas Group – Suitable to pump gases in gas group IIB Where no gas group is mentioned, there are no limitations |
| T4 T160 T3 | Temperature Class – Gas auto-ignition temperature greater than: – T4 = 135 °C, T160 = 160 °C, T3 = 200 °C |

A four-pole, three-phase ATEX approved flameproof motor provides direct drive through an ATEX certified flexible coupling to the E2M40, E2M80, E2M175 and E2M275 pumps. A cooling fan is attached to the drive coupling on the E2M40 and E2M80 pumps. The E2M175 and E2M275 pumps are water-cooled.

Lubrication is provided by a sliding vane oil pump, which delivers pressurized oil to the vacuum pumping mechanism.

Pumps are supplied with sealed Gas Ballast. Plugs have been fitted to prevent flammable atmospheres accidentally entering the pump. If the gas ballast facility is required, an $N_2$ purge must be used, or clean air supplied from a safe area.

For much of the operating cycle the pump operates at pressures significantly below 0.8 bar (11.6 psi) absolute. However, the final stage of the pump will exhaust to atmosphere and there is a startup and shutdown period where the whole pump is briefly operating at atmospheric pressure.

A surface temperature thermal snap switch is fitted to the body of the E2M175 and E2M275 rotary pumps. This must be connected to an intrinsically safe circuit suitable for the hazardous zone in which it may be located; otherwise it must be located in a safe area. If the pump temperature should rise due to a fault condition, the snap switch activates and the pump will shut-off.

### Trapping Particulates

In any application, first ensure that particulates in the process stream are trapped before they get into the pump: use the ITM or ITF inlet filters which are suitable for use with oil-sealed and dry pumps. However, in processes which generate or contain large amounts of particulates, some will enter the pump: use our EOF an external oil filter to remove particulates from the pump oil during operation.

ITF inlet dust filters If the mechanical pump is a backing pump for a diffusion pump, the diffusion pump will trap particulates during normal operation, but the diffusion pump will not trap dust during the roughing stage of the process cycle. We recommend you fit an ITF filter to the mechanical pump inlet (that is, in the foreline): this filter has a replaceable element. Note that the impedance of a clean filter will cause the pumping speed to decrease by about 10% at 1 mbar and 20% at $10^{-2}$ mbar. The ITF filter is more that 96% efficient, when tested in accordance with BS2831.

ITM High Capacity Inlet Dust Filters Use an ITM filter for applications where there is a high load of dust and particulates. Fit the ITM directly to the inlet of a rotary or mechanical booster pump. This filter has a stainless steel mesh element that can be washed and re-used. It is ideal for use when backing diffusion pumps or for wet processes where a paper filter may become blocked quickly. The ITM filter has high conductance and is therefore ideal for applications which require fast pump down times. The ITM filter has an efficiency of 90%, when tested in accordance with BS3831.

EOF External Oil Filters Use the EOF's with the EM oil-sealed rotary pumps, to remove particulates trapped in the pump oil. There are two types of EOF filter.

The EOFA and EOFM filters use the internal pressurized oil system of the pump to continually filter a proportion of the pump oil. These filters are only suitable for hydrocarbon oil. The EOFM filter removes particulates down to 0.5 microns, and the EOFA filter both removes particulates and includes an active element to remove acidic and other aggressive contaminants from the oil.

EOF pumped external oil filters have their own oil re-circulation pump. The re-circulation pump has a high flow rate and allows large quantities of oil to be filtered. The filter is fitted with a gauge which indicates when the filter need to be changed. This filter is suitable for hydrocarbon and PFPE oils.

## Pumping Vapours

The use of gas ballast significantly improves vapour handling capability of oil sealed rotary pumps. We offer a number of accessories to improve the utility of gas ballast.

EBV Gas Ballast Control Valve Fit EBV gas ballast control valve to allow remote or automated control of gas ballast.

TCV Temperature Control Valve The vapour pumping performance of the larger oil sealed pumps can be enhanced by fitting a TCV. Use the TCV both to warm-up the pump faster (which reduces the amount of condensation in the pump) and to reduce water usage and cost.

ITC Inlet Chemical Traps Fit an ITC trap to the inlet of the pump to protect against the aggressive process vapours that may corrode the pump or degrade the oil.

## Trapping Liquids

The use of gas ballast allows an oil sealed pump to process significant quantities of vapour. However, oil sealed pumps can not pump liquid streams and it is important both to remove liquids before they reach the pump inlet and to prevent condensed liquids from flowing back into the pump outlet. The following accessories may be suitable for your application:

ITO Inlet Trap The ITO inlet trap is ideal for processes where there is a risk of liquids in the process entering the pump inlet. Fit the ITO trap to the pump inlet or elsewhere in the foreline.

CP Catchpot Process vapours passing through the pump may condense after the pump outlet, in the exhaust line. Fit a CP catchpot to the pump outlet to trap the condensates and prevent them flowing back into the pump.

## Exhaust Management

You should aim to minimise the impact of gases and vapours which exhaust from the pump outlet. Edwards offers a range of exhaust management systems for the most exacting applications. However, for most straight-forward applications of oil sealed rotary pumps, we recommend that you fit an oil mist filter to the pump outlet to remove oil mist vapour. A mist filter is not required if you vent the exhaust gases remotely or pass them through exhaust scrubbing equipment.

MF Oil Mist Filters The MF filters remove oil mist (vapour) from the process gases exhausted from the outlet of an oil sealed pump. The filters remove both odour and oil vapour and so prevent it from reaching the atmosphere and the workplace.

## Back Migration

When operated at ultimate pressure for extended periods of time, any oil sealed pump allows oil vapour to back migrate into the process chamber. The back-migration of oil vapour could contaminate your process or your vacuum system.

ITC Inlet Chemical Trap Fit an ITC inlet chemical trap (filled with an alumina charge) to the pump inlet to trap oil vapour and to prevent back migration.

# Applications

- Refrigeration dehydration
- Brake line evacuation
- TV aluminisers
- Vacuum metallurgy
- Fluorescent light tube pumping
- Thin film coating
- IT hard disc coating
- Vacuum distillation
- Cryogenic vessel evacuation
- Transformer and cable drying
- Pharmaceutical freeze drying
- Space simulation
- Crystal growing
- Automotive
- Chemical processing

# E2M40 Two Stage Rotary Vacuum Pumps


Edwards E2M40 series two stage oil sealed rotary vane vacuum pumps are renowned for their high ultimate vacuum, rapid pumping speeds, quiet operation and ability to handle water vapour. These direct drive rotary vane pumps are inherently compact and vibration free, and with their finger-proof fan and coupling housings they offer excellent operator protection.

A comprehensive range of accessories is available to allow use on the widest variety of vacuum applications.

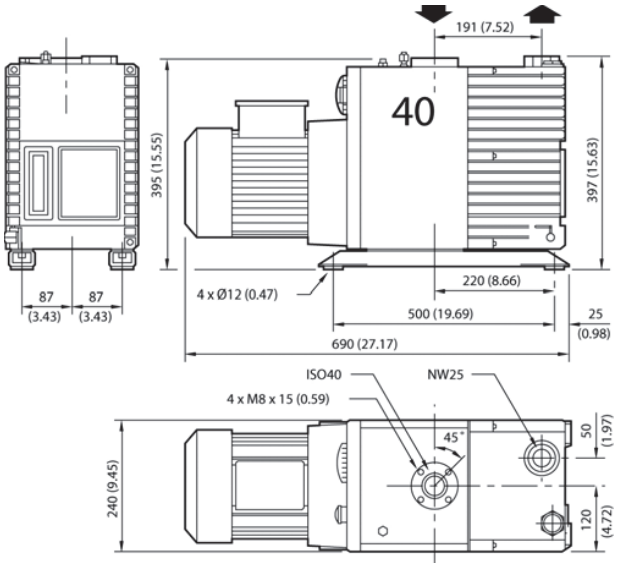
## Features & Benefits

- Advanced pressurised oil circuit to give effective lubrication even under high gas loads
- When the pump is switched off, the spring loaded distributor valve provides oil and air suck-back protection
- Gas Ballast control to assist in handling high water vapour loads
- Industrial roller bearings on drive shaft for ultimate reliability and long, trouble free life
- Full height oil sight glass for easy checking of oil level and condition

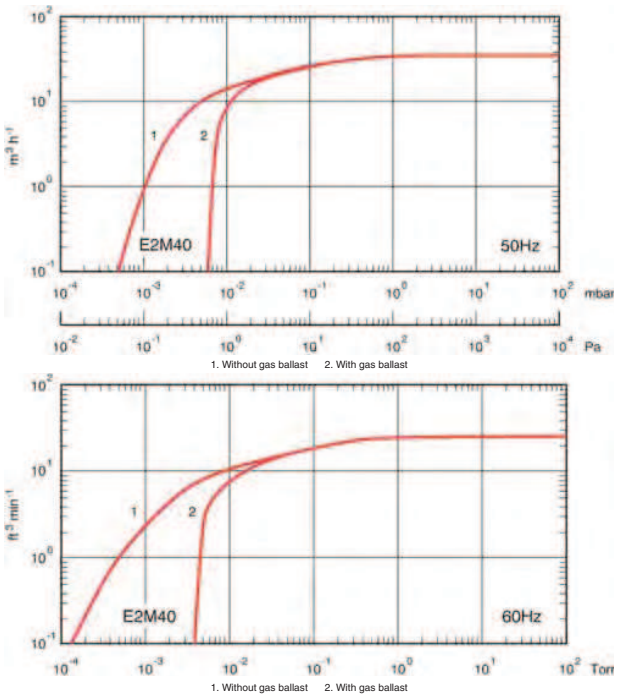
## Applications

- Vacuum metallurgy processes
- Thin film coating technologies
- Pharmaceutical freeze drying
- Refrigeration and air conditioning system evacuation, drying, and backfilling
- Transformer and cable drying and impregnation, insulating oil treatment plant

## Dimensions




## Performance Curves



## Technical Data

| | |
|---|---|
| Displacement | |
| 50Hz | 42.5 $m^3 h^{-1}$ / 25 $ft^3 min^{-1}$ |
| 60Hz | 50.5 $m^3 h^{-1}$ / 29.7 $ft^3 min^{-1}$ |
| Speed (Pneurop) | |
| 50Hz | 37 $m^3$h-1 / 21.8 $ft^3 min^{-1}$ |
| 60Hz | 44 $m^3$h-1 / 25.9 $ft^3 min^{-1}$ |
| Number of stages | 2 |
| Ultimate vacuum (total pressure) | |
| Without gas ballast | $1.0 \times 10^{-3}$ mbar / $7.7 \times 10^{-4}$ Torr |
| With gas ballast | $7.0 \times 10^{-3}$ mbar / $5.4 \times 10^{-3}$ Torr |
| Inlet connection | ISO40 |
| Outlet connection | 25 mm flange suitable for NW25 |
| Max outlet pressure | 0.5 bar gauge |
| Max inlet pressure for water vapour | 7 mbar / 5.3 Torr |
| Max water vapour pumping rate | 0.2 kg $h^{-1}$ / 0.4 lb $h^{-1}$ |
| Weight | 72 kg / 159 lb |
| Motor protection rating | IP44 or IP54 |
| Motor power | |
| 50Hz | 1.1 kW / 1.5 hp |
| 60Hz | 1.5 kW / 2 hp |
| Standard oil capacity | |
| maximum | 3.5 liter / 3.2 qt |
| minimum | 1.32 liter / 1.6 qt |
| PFPE oil capacity | |
| maximum | 3.5 liter / 3.2 qt |
| minimum | 1.32 liter / 1.6 qt |
| Recommended oil | Ultragrade 70 |
| Noise level | 65 dB (A) |

## Ordering Information

| Product Description | Order No. |
|---|---|
| E2M40 220-240 / 380-415V, 3-ph, 50Hz | A36401935 |
| E2M40 208-230/460V, 3-ph, 60Hz | A36402982 |
| E2M40T4 400V, 3-ph, 50Hz | A36418993 |
| E2M40FX 220-240/380-415V, 3-ph, 50Hz | A36411935 |
| E2M40FX 208-230/460V, 3-ph 60Hz | A36412982 |
| E2M40 200/380V, 3-ph, 50/60Hz | A36401934 |
| E2M40FX 200/380V, 3-ph, 50/60Hz | A36411934 |
| **Accessories & Spares** | **Order No.** |
| Spares Kit C&O E1/2M40 HC/F | A34401131 |
| Spares Kit Blade E1M40 | A34401050 |
| Spares Kit Blade E2M40 | A36401050 |
| Spares Kit Major E1M40 | A34401814 |
| Spares Kit Major Service E2M40 | A36401814 |

# E2M80 Two Stage Rotary Vacuum Pumps


Edwards E2M80 series two stage oil sealed rotary vane vacuum pumps are renowned for their high ultimate vacuum, rapid pumping speeds, quiet operation and ability to handle water vapour. These direct drive rotary vane pumps are inherently compact and vibration free, and with their finger-proof fan and coupling housings they offer excellent operator protection.

This pump is suitable for most duties and is safe to handle non-flammable gases and vapours within the normal operating parameters of the pump.

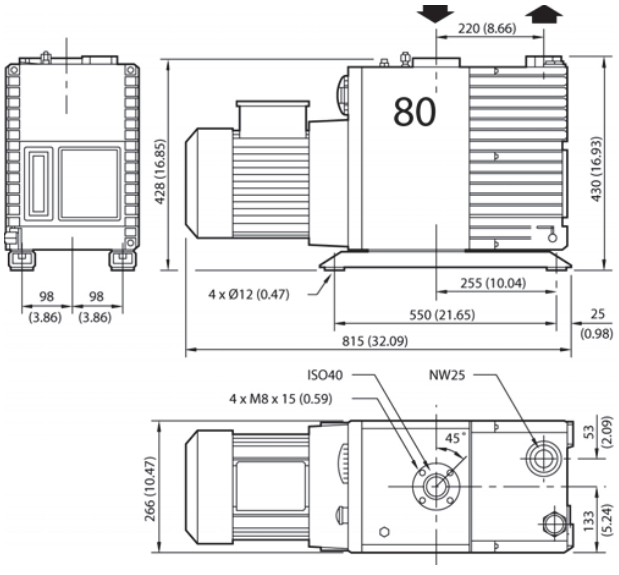
## Features & Benefits

- Advanced pressurised oil circuit to give effective lubrication even under high gas loads
- When the pump is switched off, the spring loaded distributor valve provides oil and air suck-back protection
- Gas Ballast control to assist in handling high water vapour loads
- Industrial roller bearings on drive shaft for ultimate reliability and long, trouble free life
- Full height oil sight glass for easy checking of oil level and condition

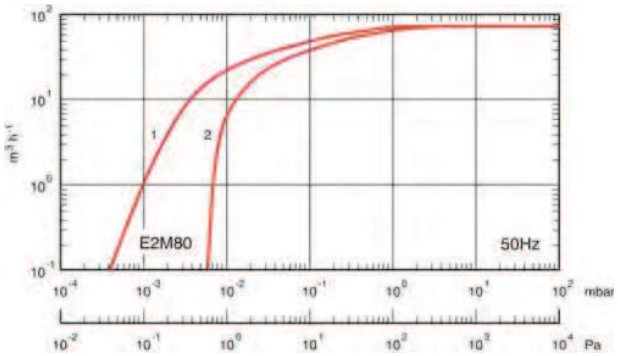
## Applications

- Vacuum metallurgy processes
- Thin film coating technologies
- Pharmaceutical freeze drying
- Refrigeration and air conditioning system evacuation, drying, and backfilling
- Transformer and cable drying and impregnation, insulating oil treatment plant

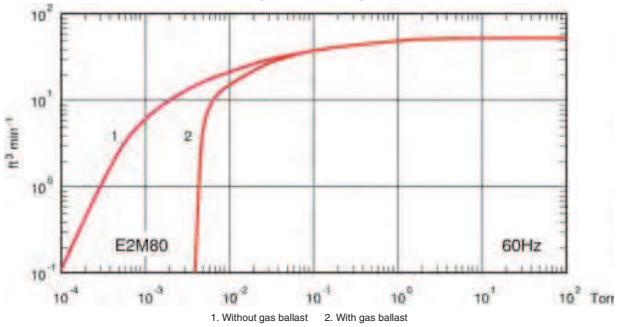
## Dimensions




## Performance Curves




1. Without gas ballast 2. With gas ballast




1. Without gas ballast 2. With gas ballast

## Technical Data

| | |
|---|---|
| Displacement | |
| 50Hz | 80 $m^3 h^{-1}$ / 47.1 $ft^3 min^{-1}$ |
| 60Hz | 96 $m^3 h^{-1}$ / 56.5 $ft^3 min^{-1}$ |
| Speed (Pneurop) | |
| 50Hz | 74 $m^3$h-1 / 43.6 $ft^3 min^{-1}$ |
| 60Hz | 90 $m^3$h-1 / 53 $ft^3 min^{-1}$ |
| Number of stages | 2 |
| Ultimate vacuum (total pressure) | |
| Without gas ballast | $1.0 \times 10^{-3}$ mbar / $7.7 \times 10^{-4}$ Torr |
| With gas ballast | $7.0 \times 10^{-3}$ mbar / $5.4 \times 10^{-3}$ Torr |
| Inlet connection | ISO40 |
| Outlet connection | 25 mm flange suitable for NW25 |
| Max outlet pressure | 0.5 bar gauge |
| Max inlet pressure for water vapour | 5 mbar / 3.8 Torr |
| Max water vapour pumping rate | 0.3 kg $h^{-1}$ / 0.7 lb $h^{-1}$ |
| Weight | 105 kg / 231 lb |
| Motor protection rating | IP44 or IP54 |
| Motor power | |
| 50Hz | 2.2 kW / 3 hp |
| 60Hz | 3 kW / 4 hp |
| Standard oil capacity | |
| maximum | 6.3 liter / 6.7 qt |
| minimum | 4 liter / 4.2 qt |
| PFPE oil capacity | |
| maximum | 4.01 liter / 4.2 qt |
| minimum | 2.19 liter / 2.3 qt |
| Recommended oil | Ultragrade 70 |
| Noise level | 70 dB (A) |

## Ordering Information

| Product Description | Order No. |
|---|---|
| E2M80 208-230/460V, 3-ph, 60Hz | A36502982 |
| E2M80 220-240/380-415V, 3-ph, 50Hz | A36501935 |
| E2M80T4 400V, 3-ph, 50Hz | A36518993 |
| E2M80FX 220-240/380-415V, 3-ph, 50Hz | A36511935 |
| E2M80FX, 208-230/460V, 3-ph, 60Hz | A36512982 |
| E2M80 200/380V, 3-ph, 50/60Hz | A36501934 |
| E2M80FX 200/380V, 3-ph, 50/60Hz | A36511934 |
| **Accessories & Spares** | **Order No.** |
| Spares Kit C&O E1/2M80 HC/F | A34501131 |
| Spares Kit Blade E2M80 | A36501050 |
| Spares Kit Blade E1M80 | A34501050 |
| Spares Kit Major Service E1M80 | A34501814 |
| Spares Kit Major Service E2M80 | A36501814 |

# E2M175 Two Stage Rotary Vacuum Pumps

Edwards E2M175 series two stage oil sealed rotary vane vacuum pumps are renowned for their high ultimate vacuum, rapid pumping speeds, quiet operation and ability to handle water vapour. These direct drive rotary vane pumps are inherently compact and vibration free, and with their finger-proof fan and coupling housings they offer excellent operator protection.

This pump is suitable for most duties and is safe to handle non-flammable gases and vapours within the normal operating parameters of the pump.

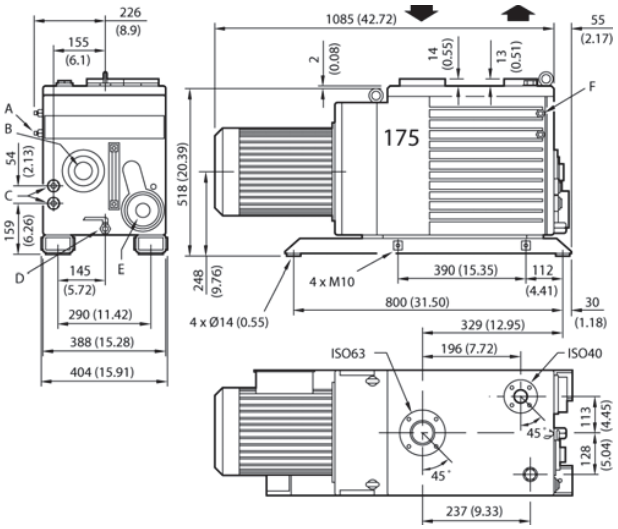
## Features & Benefits

- Advanced pressurised oil circuit to give effective lubrication even under high gas loads
- When the pump is switched off, the spring loaded distributor valve provides oil and air suck-back protection
- Gas Ballast control to assist in handling high water vapour loads
- Industrial roller bearings on drive shaft for ultimate reliability and long, trouble free life
- Full height oil sight glass for easy checking of oil level and condition

## Applications

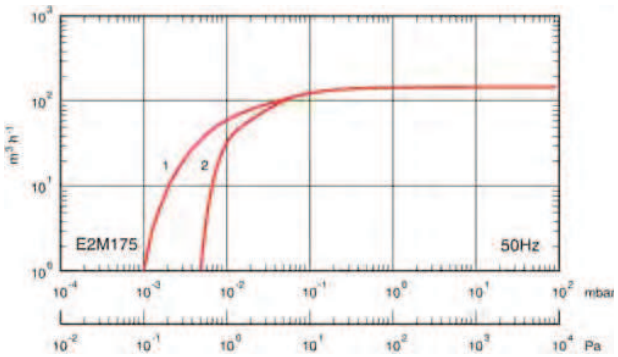
- Vacuum metallurgy processes
- Thin film coating technologies
- Pharmaceutical freeze drying
- Refrigeration and air conditioning system evacuation, drying, and backfilling
- Transformer and cable drying and impregnation, insulating oil treatment plant

## Dimensions

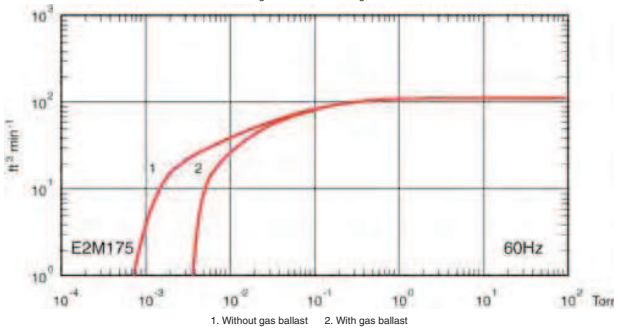



A Union for oil return connection from oil mist filter
B Gas ballast control valve
C Water connections (tapped 3/8 in BSP)
D Oil drain tap (tapped ½ in BSP)
E Oil filter mounting plate (allow 330mm to withdraw filter from pump)
F Oil pressure take-off (tapped 1/8 in BSP)

## Performance Curves




1. Without gas ballast 2. With gas ballast




1. Without gas ballast 2. With gas ballast

## Technical Data

| | |
|---|---|
| Displacement | |
| 50Hz | 178 $m^3 h^{-1}$ / 105 $ft^3 min^{-1}$ |
| 60Hz | 214 $m^3 h^{-1}$ / 126 $ft^3 min^{-1}$ |
| Speed (Pneurop) | |
| 50Hz | 160 $m^3$h-1 / 94 $ft^3 min^{-1}$ |
| 60Hz | 196 $m^3$h-1 / 115 $ft^3 min^{-1}$ |
| Number of stages | 2 |
| Ultimate vacuum (total pressure) | |
| Without gas ballast | $1.0 \times 10^{-3}$ mbar / $7.7 \times 10^{-4}$ Torr |
| With gas ballast | $7.0 \times 10^{-3}$ mbar / $5.4 \times 10^{-3}$ Torr |
| Inlet connection | ISO63 blank flange with seal |
| Outlet connection | ISO40 flange centre tapped |
| Max outlet pressure | 0.5 bar gauge |
| Max inlet pressure for water vapor | 20 mbar / 15 Torr |
| Max water vapor pumping rate | 0.3 kg $h^{-1}$ / 0.7 lb $h^{-1}$ |
| Weight | 200 kg / 441 lb |
| Motor protection rating | IP44 |
| Motor power | |
| 50Hz | 5.5 kW / 7.5 hp |
| 60Hz | 6.5 kW / 8.5 hp |
| Standard oil capacity | |
| maximum | 25 liter / 26 qt |
| minimum | 16 liter / 17 qt |
| PFPE oil capacity | |
| maximum | 18 liter / 19 qt |
| minimum | 6.5 liter / 6.9 qt |
| Recommended oil | Ultragrade 70 |
| Noise level | 75 dB (A) |

## Ordering Information

| Product Description | Order No. |
|---|---|
| E2M175 220-240/380-415V, 3-ph, 50Hz | A36601935 |
| E2M175 208-230/460V, 3-ph, 60Hz 4 pole | A36603982 |
| E2M175T3 220-240/380-415V, 3-ph, 50Hz | A36618993 |
| E2M175FX 220-240/380-415V, 3-ph, 50Hz | A36615935 |
| E2M175FX 208-230/460V, 3-ph, 60Hz | A36616982 |
| E2M175 200/380V, 3-ph, 50/60Hz | A36601934 |
| E2M175FX 200/380V, 3-ph, 50/60Hz | A36611934 |
| **Accessories & Spares** | **Order No.** |
| Spares Kit C&O E1M175/275S | A34601131 |
| Spares Kit C&O E2M175/275 | A36601131 |
| Service Interior Assy E1M175 | A34601100 |
| Service Interior Assy E2M175 | A36601100 |
| Spares Kit Blade E2M175 | A36601134 |
| Spares Kit Blade Springless E1M175 | A34601134 |
| Spares Kit Major E1M175S | A34601831 |
| Spares Kit Major Service E2M175 | A36601831 |

# E2M275 Two Stage Rotary Vacuum Pumps

Edwards E2M275 series two stage oil sealed rotary vane vacuum pumps are renowned for their high ultimate vacuum, rapid pumping speeds, quiet operation and ability to handle water vapour. These direct drive rotary vane pumps are inherently compact and vibration free, and with their finger-proof fan and coupling housings they offer excellent operator protection.

This pump is suitable for most duties and is safe to handle non-flammable gases and vapours within the normal operating parameters of the pump.

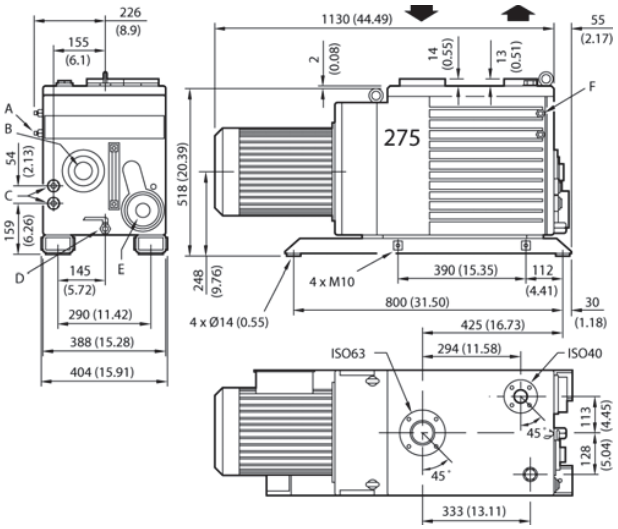
## Features & Benefits

- Advanced pressurised oil circuit to give effective lubrication even under high gas loads
- When the pump is switched off, the spring loaded distributor valve provides oil and air suck-back protection
- Gas Ballast control to assist in handling high water vapour loads
- Industrial roller bearings on drive shaft for ultimate reliability and long, trouble free life
- Full height oil sight glass for easy checking of oil level and condition

## Applications

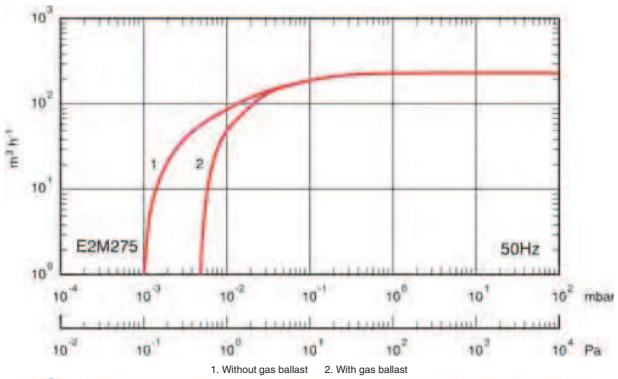
- Vacuum metallurgy processes
- Thin film coating technologies
- Pharmaceutical freeze drying
- Refrigeration and air conditioning system evacuation, drying, and backfilling
- Transformer and cable drying and impregnation, insulating oil treatment plant

## Dimensions

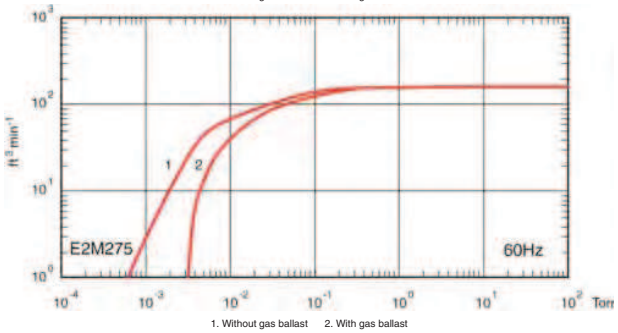



A Union for oil return connection from oil mist filter
B Gas ballast control valve
C Water connections (tapped 3/8 in BSP)
D Oil drain tap (tapped ½ in BSP)
E Oil filter mounting plate (allow 330mm to withdraw filter from pump)
F Oil pressure take-off (tapped 1/8 in BSP)

## Performance Curves




1. Without gas ballast 2. With gas ballast




1. Without gas ballast 2. With gas ballast

## Technical Data

| | |
|---|---|
| Displacement | |
| 50Hz | 292 $m^3 h^{-1}$ / 172 $ft^3 min^{-1}$ |
| 60Hz | 350 $m^3 h^{-1}$ / 206 $ft^3 min^{-1}$ |
| Speed (Pneurop) | |
| 50Hz | 255 $m^3$h-1 / 150 $ft^3 min^{-1}$ |
| 60Hz | 306 $m^3$h-1 / 180 $ft^3 min^{-1}$ |
| Number of stages | 2 |
| Ultimate vacuum (total pressure) | |
| Without gas ballast | 1.0 x $10^{-3}$ mbar / 7.7 x $10^{-4}$ Torr |
| With gas ballast | 5.0 x $10^{-3}$ mbar / 3.8 x $10^{-3}$ Torr |
| Inlet connection | ISO63 blank flange with seal |
| Outlet connection | ISO40 flange centre tapped |
| Max outlet pressure | 0.5 bar gauge |
| Max inlet pressure for water vapor | 12 mbar / 9 Torr |
| Max water vapor pumping rate | 2.3 kg $h^{-1}$ / 5.1 lb $h^{-1}$ |
| Weight | 225 kg / 495 lb |
| Motor protection rating | IP44 |
| Motor power | |
| 50Hz | 7.5 kW / 10 hp |
| 60Hz | 8.5 kW / 11 hp |
| Standard oil capacity | |
| maximum | 28 liter / 29.5 qt |
| minimum | 19 liter / 20 qt |
| PFPE oil capacity | |
| maximum | 18 liter / 19 qt |
| minimum | 7 liter / 7 qt |
| Recommended oil | Ultragrade 70 |
| Noise level | 75 dB (A) |

## Ordering Information

| Product Description | Order No. |
|---|---|
| E2M275 220-240/380-415V, 3-ph, 50Hz | A36701935 |
| E2M275 208-230/460V, 3-ph, 60Hz | A36703982 |
| E2M275T3 400V, 3-ph, 50Hz | A36718993 |
| E2M275 200/380V, 3-ph, 50/60Hz | A36701934 |
| E2M275FX 200/380V, 3-ph, 50/60Hz | A36711934 |
| **Accessories & Spares** | **Order No.** |
| Spares Kit C&O E1M175/275S | A34601131 |
| Spares Kit C&O E2M175/275 | A36601131 |
| Service Interior Assy E1M275 | A34701100 |
| Service Interior Assy E2M275 | A36701100 |
| Spares Kit Blade E2M275 | A36701134 |
| Spares Kit Blade Springless E1M275 | A34701134 |
| Spares Kit Major E1M275S | A34701831 |
| Spares Kit Major Service E2M275 | A36701831 |

## MF Outlet Mist Filters

The MF30, MF100 and MF300 mist filters are suitable for pumps from E2M28 to E2M275. They are very efficient at 99.85% DOP test (pre-wetted filter; 99.5% with dry element). The oil level sight-glass provides easy monitoring of mist filter status.

The MF100AE is a version of the MF100, designed for use with corrosive gases and vapours and for greater security when processing toxic substances. It is very efficient at 99.1% DOP test (pre-wetted; 98.4% with dry element). This version is leak tested to $1 \times 10^{-4}$ mbar l $s^{-1}$ / 3.8 x $10^{-3}$ Torr. The filter element, sight-glasses and seals are resistant to chemical attack. The MF100AE is fitted with an acrylic sight-glass (for use with fluorinated processes); a glass sight-glass is also supplied with the filter (for use with chlorinated processes).

A version of the EMF clean application oil return kit is available for all the MF filters, except the MF100AE.

### Ordering Information

| Product Description | Order No. |
|---|---|
| Model MF100 mist filter (12 kg/26.5 lb)* | A46203000 |
| Model MF100AE mist filter (12 kg/26.5 lb)* | A46211000 |
| Model MF300 mist filter (28 kg/62 lb)† | A46204000 |

* Supplied with two NW25 "C" clamps, NW25 elbow, two NW25 centring-ring and O-rings, bolts, washers, mounting brackets and studs

† Supplied with two ISO40 "C" clamps, ISO40 elbow, two 40 mm Co-Seals, bolts, washers, mounting brackets and studs

| Accessories | Order No. |
|---|---|
| Clean application oil return kit (E1M40 to E2M80) | A50004000 |
| Clean application oil return kit (E1M175 to E2M275) | A50005000 |

| Spares | Order No. |
|---|---|
| MF100 | A22304020 |
| MF100AE | A22304052 |
| MF300 | A22304021 |
| Spares kits | |
| MF100, MF100AE | A46203800 |
| MF300 | A46204800 |
| MF100AE sight-glass kit | A50080000 |

## CP Outlet Catchpots

In some industrial applications it is desirable for pumps to be provided with piped exhaust arrangements to carry gases and vapours to the outside of the building.

There is always a risk that some vapour carried out with the effluent gas will cool and condense as it travels up the exhaust line and the liquid produced will drain back into the pump causing serious contamination.

For this reason, it is good practice to use a catchpot between the pump outlet and the exhaust line to prevent this from happening.

These catchpots are designed for fitting directly to the pump outlet, or can be remotely mounted if required. A "high level" sight glass is provided to indicate the need for draining the catchpot when the nominal capacity is reached. A drain plug is also provided.

Note: When an oil mist filter is used, a separate catchpot is generally unnecessary.

### Ordering Information

| Product Description | Order No. |
|---|---|
| Model CP100 outlet catchpot, 6.5 litre/6.2 qt capacity (12.0 kg/26.5 lb)* | A46103000 |
| Model CP300 outlet catchpot, 23.0 litre/22 qt capacity (28.0 kg/62 lb)† | A46104000 |

* Supplied with two NW25 "C" clamps, NW25 elbow, two NW25 centring-rings and O-rings, bolts, washers, mounting bracket and studs.

† Supplied with two ISO40 "C" clamps, ISO40 elbow, two 40 mm O-rings and centring-rings, bolts, washers, mounting brackets and studs.

## External Oil Filters: EOF100A/300A (Chemical) and EOF100M/300M (Dust)

These filters are operated by the internal pressurized oil system of the pump, which by-passes a proportion of the oil through the filter. The filters are easy to install – just connect the flexible hoses supplied to the oil outlet and return connectors on the pump. The oil capacities are approximately 6 litres / 5.7 qt (EOF100) and 15 litres / 14.3 qt (EOF300).

The EOF100A and EOF300A chemical filters have a renewable high-capacity, activated earth element. The filters purify the oil by removing acidic and other aggressive contaminants. These filters are intended for use with hydrocarbon oils, and they will greatly increase the interval between oil changes.

The EOF100M and EOF300M dust filters have pleated paper elements which trap small dust particles (down to 0.5 micron diameter). Use these filters for applications which produce large quantities of abrasive dust (for example, vacuum furnaces).

### Ordering Information

| Product Description | Order No. |
|---|---|
| External oil filter, without connection kit | |
| EOF100A | A50024000 |
| EOF100M | A50025000 |
| External oil filter, with E1M/E2M175 and 275 connection kit | |
| EOF300A | A50003000 |
| EOF300M | A50023000 |
| Connection kit for E1M/E2M40 and E1M/E2M80 | |
| EOF100A and M | A50039000 |
| EOF300A and M | A36401020 |

| Product Description | Order No. |
|---|---|
| Activated earth element | |
| EOF100A | A22304043 |
| EOF300A | A22304033 |
| Dust filter element | |
| EOF100M | A22304044 |
| EOF300M | A22304042 |

# Pumped External Oil Filters

EOF filters have their own pump, which delivers 3.5 l $min^{-1}$ / 0.89 US gal $min^{-1}$ (50 Hz) clean, decontaminated oil to the pump oil system.

The canister is available in two sizes to suit the contaminant load.

The 25P and 40P elements filter dust contaminants from the oil. The 25C and 40C elements filter both dust and chemical contaminants. Both elements have a pleated paper filter to trap dust particles; the 25C and 40C elements have a bed of activated alumina for chemical adsorption.

| | |
|---|---|
| Oil pump flow rate | 3.5 l $min^{-1}$ / 0.8 US gal $min^{-1}$ (50 Hz) |
| Electrical supply | 100-120 / 200-240 V, 1-ph, 50/60 Hz |
| Current | 5 A (start), 2.5 A (run) |
| Dimensions | |
| Height | 435 mm / 16.97 inch |
| Width | 385 mm / 15.02 inch |
| Depth | 320 mm / 12.49 inch |
| Weight (dry) | |
| Base units | 22.5 kg / 50 lb |
| 25 CR canister | 2.8 kg / 6 lb |
| 40 CR canister | 4 kg / 9 lb |

Please consult Edwards or your supplier for other technical data

## Ordering Information

| Product Description | Order No. |
|---|---|
| CR base module, PFPE prepared | A54011999 |
| Supplied with hoses and 2 pairs of disconnects. When you order, specify a base module, canister, element and a pump connection kit separately. | |
| EOF canisters | |
| 25CR | A54012022 |
| 40CR | A54014022 |
| Spare elements | |
| 40P | A22304068 |
| 25C | A22304090 |
| 40C | A22304091 |
| Oil sampling valve | A50409000 |
| Canister outlet pressure gauge | H01900013 |
| Pump connection kits | |
| E1M/E2M40 | A54000002 |
| E1M/E2M80 | A54000004 |
| E1M/E2M175 | On application |
| E1M/E2M275 | On application |

# OPG Oil Pressure Gauges

Fit the OPG to the pump to allow visual indication of the oil pressure. This will provide early indication of a reduction in oil pressure so you can plan preventative maintenance. The 0 – 30 psig OPG gauges are buffered against pulses in the oil pressure, to give a steady reading. The OPG100HC is made of brass construction.

## Ordering Information

| Product Description | Order No. |
|---|---|
| OPG100HC brass oil pressure gauge | A50435000 |
| Connection kit for fitting | On application |

# Vibration Isolators

You may need to fit vibration isolators to your pump if you mount it into a frame or system, if the mounting points are not level or if you need to minimise the transmission of vibration and noise in your application. You must fit flexible bellows or other flexible pipes to the pump inlet and outlet.

## Ordering Information

| Pump | Approximate Reduction in Height with Pump Fitted (mm) | Weight Set of Four | Order No. |
|---|---|---|---|
| E1M40/E2M40 | .5 | 0.6 kg/1.3 lb | A24801405 |
| E1M80/E2M80 | 2.5 | 0.6 kg/1.3 lb | A24801405 |
| E1M175/E2M175 | 3 | 0.9 kg/2 lb | A24801406 |
| E1M275/E2M275 | 3.5 | 0.9 kg/2 lb | A24801406 |

Details of vibration isolators for use with rotary/mechanical booster pump combinations are available on request.

# OLM100 Oil Level Monitor

Fit the OLM100 in place of the oil sight glass on the E1M/E2M 40 and 80 pumps. The OLM100 continues to allow visual inspection of the oil level and condition, while also providing a switched output for remote indication. Technical data: 24 V a.c. or d.c., maximum current 0.5 A, switching power 10 W (12 VA).

## Ordering Information

| Product Description | Order No. |
|---|---|
| OLM100 oil level monitor | A50433000 |

# EBV Gas Ballast Control Valves

Fit the EBV valve (EBV20 for RVs and E2M1.5 to E2M28, EBV100S for E1M40 and 80, EBV300S for E1M175 and 275, EBV300D for E2M40, 80, 175 and 275) to allow remote operation of the pump's gas ballast control. For example, the EBV can be configured to switch off the gas ballast when the pump is switched off, to provide suck-back protection. The EBV can also be configured to prevent the 175 and 275 from running backwards when the gas ballast valve is open and the pumps are stopped under vacuum.

## Ordering Information

| Product Description | Order No. |
|---|---|
| EBV20 (0.5 kg) 220 – 240 V s.ph 50/60 Hz | A50006930 |
| EBV100S (0.5 kg) 220 – 240 V s.ph 50/60 Hz | A50018930 |
| EBV300S (1.2 kg) 220 – 240 V s.ph 50/60 Hz | A50016930 |
| EBV300D (1.0 kg) 220 – 240 V s.ph 50/60 Hz | A50017930 |

# TCV300 Temperature Control Valve

Use the TCV300 with the E1M/E2M175 and 275 pumps. The valve facilitates rapid pump warm-up and higher operation temperatures. This improves the pump's vapour pumping performance. The TCV300 also reduces the use of cooling water and reduces operation costs.

## Ordering Information

| Product Description | Order No. |
|---|---|
| TCV300 (1.2 kg/2.6 lb) | A50001000 |

# ITF Inlet Dust Filters

The ITF inlet dust filters prevent the entry of dust particles into the pump. The impedance of a clean filter reduces the pumping speed of a 20 $m^3h$-1 / 12 $ft^3min^{-1}$ pump by about 20% at 1 mbar / 0.75 Torr and 25% at 10 mbar / 7.5 Torr.

Depending on your application, you can normally clean the filter element with a vacuum cleaner or a clean air blast, and then re-use the element.

The benefits of the ITF filters include:

- Thick aluminium casting, to withstand abrasion
- Tangential entry port, to promote centrifugal separation of dust particles
- Filter efficiency better than 96% (tested to BS2831, dust number 2)

## Ordering Information

| Product Description | Order No. |
|---|---|
| ITF100 inlet dust filter (7.0 kg/15 lb)* | A44202000 |
| ITF300 inlet dust filter (8.3 kg/18 lb)† | A44203000 |
| ITF800 inlet dust filter (20.2 kg/44 lb)** | A44204000 |
| ITF3000 inlet dust filter†† | A44212000 |

* Supplied with bolts, washers, 40 mm O-ring and centring-ring
† Supplied with 63 mm Co-Seal, bolts and washers
** Supplied with 100 mm Co-Seal, bolts and washers
†† Supplied with 160 mm Co-Seal, bolts and washers

| Spares | Order No. |
|---|---|
| ITF100 element and gasket kit | A44202800 |
| ITF300 element and gasket kit | A44203800 |
| ITF800 element and gasket kit | A44204800 |
| ITF3000 element (2 required) | A22304037 |

# ITM High Capacity Inlet Dust Filters

The ITM deep, stainless steel mesh elements are ideal for applications where fast pump-down times are required and which produce high levels of dust and grit (which would normally clog the ITF filters very quickly). You can wet the stainless steel mesh element with oil to improve dust adhesion. You can wash the mesh elements and re-use them indefinitely.

The benefits of the ITM filters include:

- Thick aluminium casting, to withstand abrasion
- Tangential entry port, to promote centrifugal separation of dust particles
- Filter efficiency better than 90% (tested to BS2831, dust number 2)
- Glass cover, to allow a visual check of the filter element

## Ordering Information

| Product Description | Order No. |
|---|---|
| ITM100 high capacity dust filter (7.2 kg/16 lb)* | A44302000 |
| ITM300 high capacity dust filter (8.7 kg/19 lb)† | A44303000 |
| ITM800 inlet dust filter (20.2 kg/44 lb)** | A44304000 |
| ITM3000 inlet dust filter†† | A44312000 |
| ITM5000 inlet dust filter | A44313000 |

* Supplied with bolts, washers, 40 mm O-ring and centring-ring
† Supplied with 63 mm Co-Seal, bolts and washers
** Supplied with 100 mm Co-Seal, bolts and washers
†† Supplied with 160 mm Co-Seal, bolts and washers

| Spares | Order No. |
|---|---|
| ITM100 filter element | A22305020 |
| ITM300 filter element | A22305019 |
| ITM800 filter element | A22305018 |
| ITM3000 filter element (2 required) | A22305033 |

# ITP800 Dust & Particulate Trap

The ITP800 dust and particulate trap is intended for use in processes where large quantities of dust and particulates will block conventional filters in a matter of hours or days. Although primarily intended for Semicon applications such as SACVD, BPSG and some PECVD processes, the ITP800 is also suitable for high-dust industrial processes.

Constructed from a series of concentric fine mesh cylinders, the ITP800 provides an unrestricted gas flow, but presents a large surface area onto which dust is collected.

The ITP800 has a complete self-contained filter element in a canister which is quick, safe and easy to remove and replace, thus reducing downtime. Contaminants are contained within the canister, reducing the risk of spillage at the pump.

## Ordering Information

| Product Description | Order No. |
|---|---|
| ITP800 dust & particulate trap complete | A44504000 |
| Weight 22 kg/48 lb | |

| Spares | Order No. |
|---|---|
| C100 self contained filter element – spare | A44106700 |

# ITO Inlet Catchpots

These catchpots minimise the entry of condensable vapours into the pump. Benefits of the catchpots include:

- Capture condensable vapours
- Helps prevent froth or spray from the process from carrying over to the pump
- Corrosion-resistant body
- Visual indication of trapped liquid level
- Hand-tightened drain plug, for easy drainage

## Ordering Information

| Product Description | Order No. |
|---|---|
| ITO100 inlet catchpot, 5.47 litres/5.2 qt capacity (6.8 kg, 15 lb)* | A44102000 |
| ITO300 inlet catchpot, 7.87 litres/7.5 qt capacity (8.0 kg/18 lb)† | A44103000 |
| IT0800 inlet catchpot, 9.5 litres/10 qt capacity (19.5 kg/43 lb)** | A44104000 |

* Supplied with bolts, washers, 40 mm O-ring and centring-ring
† Supplied with 63 mm Co-Seal, bolts and washers
** Supplied with 100 mm Co-Seal, bolts and washers

# ITC Inlet Chemical Traps

The ITC series of chemical traps provides the following benefits:

- Protection against various aggressive vapours, which may attack the pump or pump oil
- Prevent high molecular weight vapours (such as might arise in a resin treatment plant), from reaching the pump. These vapours could cause lacquering or clogging
- The standard sorbent (activated charcoal), has relatively high trapping properties (absorbs around 25% of its own weight), even when large amounts of water vapour are being pumped
- When filled with activated alumina on two-stage pumps, backstreaming of pump oil can be controlled

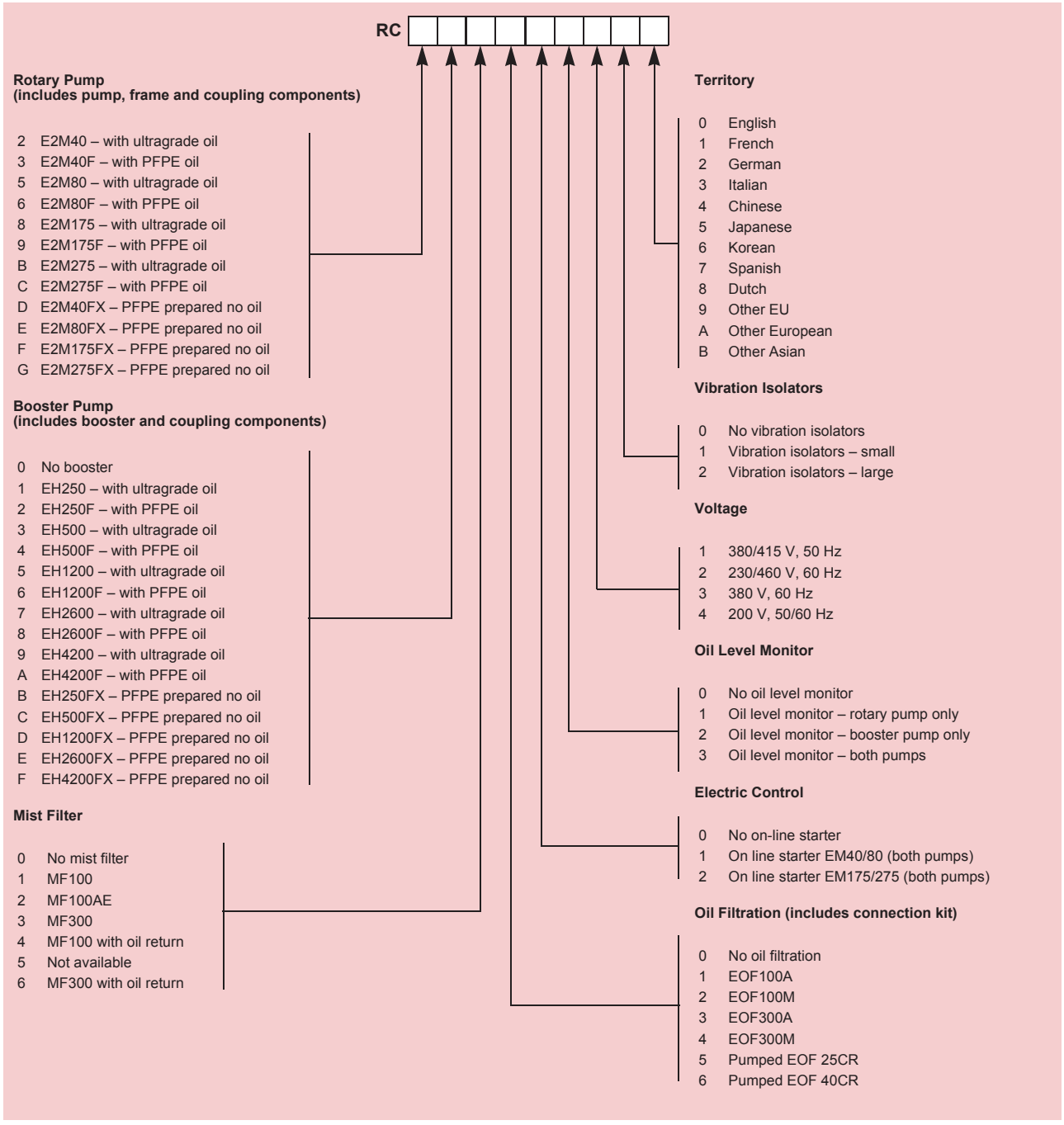
## Ordering Information

| Product Description | Order No. |
|---|---|
| ITC100 inlet chemical trap* | A44402000 |
| Charcoal charge 0.75 kg/1.7 lb, weight 16.5 kg/1.7 lb | |
| ITC300 inlet chemical trap† | A44403000 |
| Charcoal charge 1.1 kg/2.4 lb, weight 9 kg/20 lb | |
| ITC800 inlet chemical trap** | A44404000 |
| Charcoal charge 3.3 kg/2.4 lb, weight 21 kg/20 lb | |

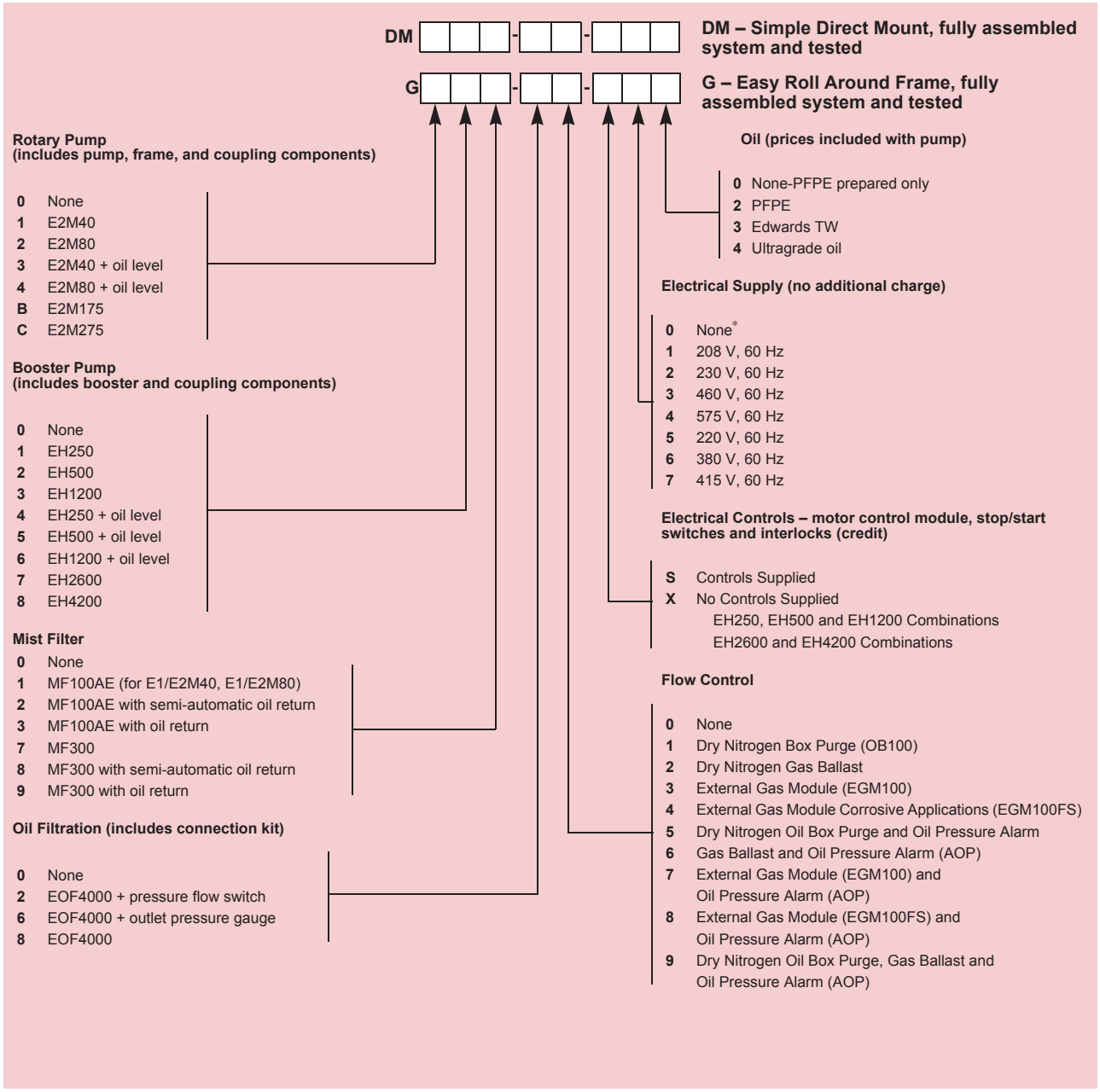
* Supplied with bolts, washers, 40 mm O-ring and centring-ring
† Supplied with 63 mm Co-Seal, bolts and washers
** Supplied with 100 mm Co-Seal, bolts and washers

| Spares | Order No. |
|---|---|
| 0.5 kg/1.1 lb activated charcoal | H12205001 |
| 3 kg/6.6 lb activated charcoal | H12205002 |
| 0.45 kg/1 lb activated alumina | H02600050 |
| 0.2 kg/0.5 lb activated alumina | H02600056 |

# Ordering Information – All Territories Except North America



# Ordering Information – North America



# Stokes 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
- Low 500 rpm operation for longest pump life cycle
- Low ultimate blank-off – pressures down to < $10^{-2}$ Torr
- Robust cast and ductile iron construction
- Hardened replaceable shaft sleeve enhances wear resistance
- Efficient design provides maximum uptime with minimal moving parts, low rotational speed and large clearance
- New valve design virtually eliminates valve maintenance and noise
- Application specific seals maximize resistance to heat and corrosion while providing protection from gas stream oil contamination
- Standard, totally enclosed fan-cooled motors
- 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

## Solutions to Fit Your Needs

Our total vacuum capabilities include a full line of pumping systems from 150 to 7880 $ft^3min^{-1}$ capacities. Choose from Stokes microvac rotary piston pump (J series), Stokes 1700 series high capacity mechanical booster pump combinations, and MV Series Matrix selection series mechanical booster packages, or a custom designed package to meet all your pumping needs.

## J Series Overview

The Stokes J series microvac rotary piston pump sets the standard for performance and reliability as the industry's most efficient, space-saving design. The Stokes 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 minimise 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.

# Applications

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

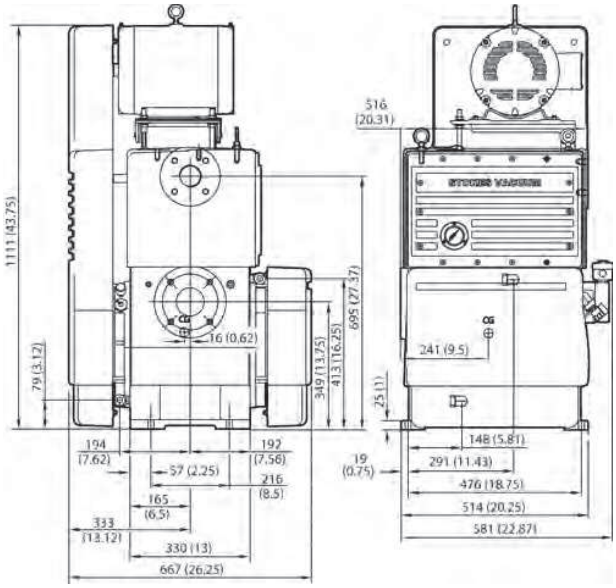
By combining over a century of technical experience with a global sales and service network, Edwards adds value to your process. Our applications specialists can offer advice on a single pump or component through to a complete pumping system, custom tailored to your specifications.

# Stokes Microvac Model 212J

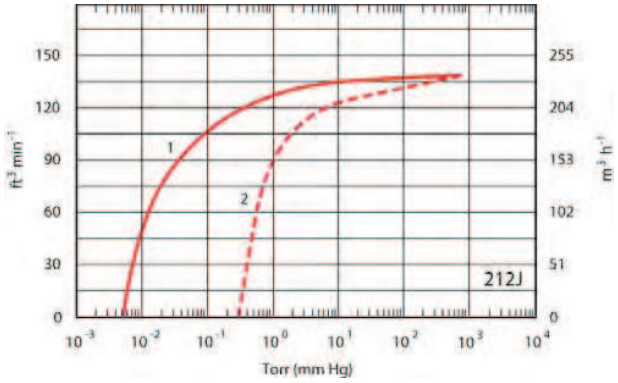
The Stokes Microvac rotary piston pump sets the standard for performance and reliability as the industrys most efficient, space-saving design. The Stokes Microvac rotary piston pump has been improved, upgraded, and fine-tuned to deliver even better dependability and productivity combined with minimal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

An integral oil distribution system eliminates external piping and delivers leak-free operation in a stylized design. 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.

## Dimensions




## Performance Curves




1. Withough gas ballast 2. With gas ballast

## Technical Data

| | |
|---|---|
| Displacement (swept volume) | 255 $m^3 h^{-1}$ / 150 $ft^3 min^{-1}$ |
| Pumping Speed | 234 $m^3 h^{-1}$ / 138 $ft^3 min^{-1}$ |
| Ultimate vacuum (total pressure) | |
| without gas ballast | <3.3x$10^{-2}$ mbar / <2.5x$10^{-2}$ Torr |
| with gas ballast | <2.6x$10^{-2}$ mbar / <2x$10^{-2}$ Torr |
| 50Hz Motor size (TEFC) | 5.5 kW IEC (CE variant) |
| 60Hz Motor size (TEFC) | 7.5 hp TEFC |
| Motor speed | 1800 rpm |
| Inlet connection | 3 inch ASA/ANSI flange |
| Exhaust connection | 2 inch ASA/ANSI flange or 2 inch NPT |
| Water inlet/outlet connection | ½ inch NPT |
| Recommended cooling flow @ 85°C / 30°F | 5.7 l $min^{-1}$ / 1.5 gal $min^{-1}$ |
| Water vapour pumping rate | 5 kg $h^{-1}$ / 11 lb $h^{-1}$ |
| Oil capacity | 15 liter / 4 gal |
| Recommended oil | V lube F |
| Noise | <77 dB(A) |
| Weight | 431 kg / 950 lbs |

## Ordering Information

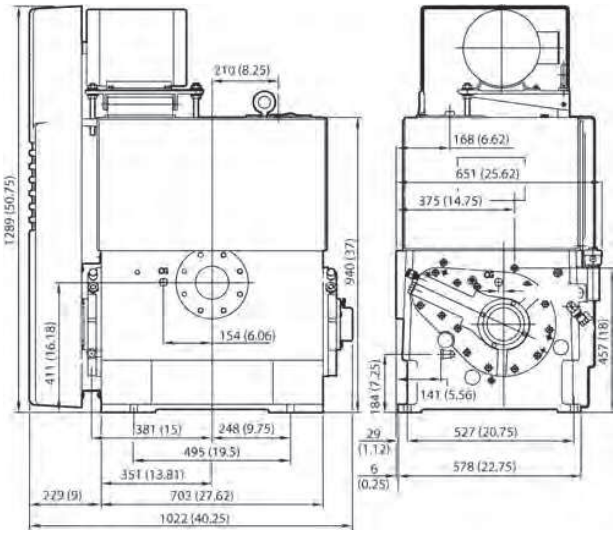
| Product Description | Order No. |
|---|---|
| 212J 230/460V, 3Ø, 60Hz (230/460V Coil) | 900212014 |
| 212J 400V, 3-ph, 50Hz, IEC motor, 380V Coil (CE compliant) | 900212014501 |
| 212J 400V, 3-ph, 50Hz, IEC motor, 415V Coil (CE compliant) | 900212014502 |
| 212J 400V, 3-ph, 50Hz, IEC motor, 380V Coil with Water Miser (CE compliant) | 900212014503 |
| 212J 400V, 3-ph, 50Hz, IEC motor 415V Coil with Water Miser (CE compliant) | 900212014504 |
| **Accessories & Spares** | **Order No.** |
| Replacement parts kit | 429-638-016 |
| Bearings | 085-019-757 |
| Valve deck assembly | 607-417-001 |

# Stokes Microvac Model 412J

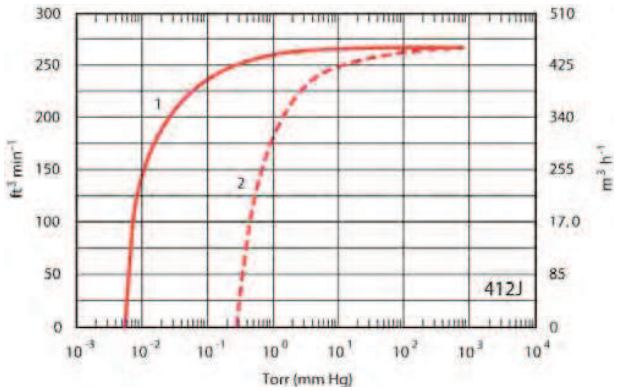
The Stokes Microvac rotary piston pump sets the standard for performance and reliability as the industrys most efficient, space-saving design. The Stokes Microvac rotary piston pump has been improved, upgraded, and fine-tuned to deliver even better dependability and productivity combined with minimal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

An integral oil distribution system eliminates external piping and delivers leak-free operation in a stylized design. 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.

## Dimensions




## Performance Curves




1. Without gas ballast 2. With gas ballast

## Technical Data

| | |
|---|---|
| Displacement (swept volume)(AVS) | 510 $m^3 h^{-1}$ / 300 $ft^3 min^{-1}$ |
| Pumping Speed | 442 $m^3 h^{-1}$ / 260 $ft^3 min^{-1}$ |
| Ultimate vacuum (total pressure) | |
| without gas ballast | <3.3x$10^{-2}$ mbar / <2.5x$10^{-2}$ Torr |
| with gas ballast | <2.6x$10^{-1}$ mbar / <2x$10^{-1}$ Torr |
| 50Hz Motor size | 11 kW IEC (CE variant) |
| 60Hz Motor size | 10 hp TEFC |
| Motor speed | 1800 rpm |
| Inlet connection | 4 inch ASA/ANSI flange |
| Exhaust connection | 3 inch ASA/ANSI flange or 3 inch NPT |
| Water inlet/outlet connection | ½ inch NPT |
| Recommended cooling flow @ 85°C / 30°F | 7.6 l $min^{-1}$ / 1.5 gal $min^{-1}$ |
| Water vapour pumping rate | 10.45 kg $h^{-1}$ / 23 lb $h^{-1}$ |
| Oil capacity | 46 liter / 12 gal |
| Recommended oil | V lube F |
| Noise level | <83 dB(A) |
| Weight | 794 kg / 1750 lbs |

## Ordering Information

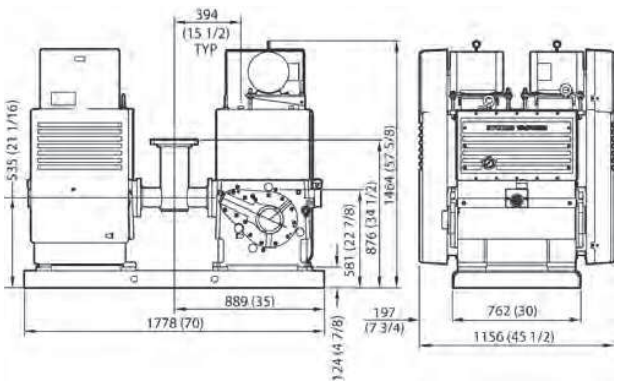
| Product Description | Order No. |
|---|---|
| 412J 230/460V, 3Ø, 60Hz (230/460V Coil) | 900412014 |
| 412J 400V, 3-ph, 50Hz, IEC motor 380V Coil (CE compliant) | 900412014501 |
| 412J 400V, 3-ph, 50Hz, IEC motor 415V Coil (CE compliant) | 900412014502 |
| 412J 400V, 3-ph, 50Hz, IEC motor, 380V Coil with Water Miser (CE compliant) | 900412014503 |
| 412J 400V, 3-ph, 50Hz, IEC motor 415V Coil with Water Miser (CE compliant) | 900412014504 |
| **Accessories & Spares** | **Order No.** |
| Replacement parts kit | 429-638-015 |
| Bearings | 085-019-757 |
| Valve deck assembly | 607-417-001 |

# Stokes Microvac Model 612J

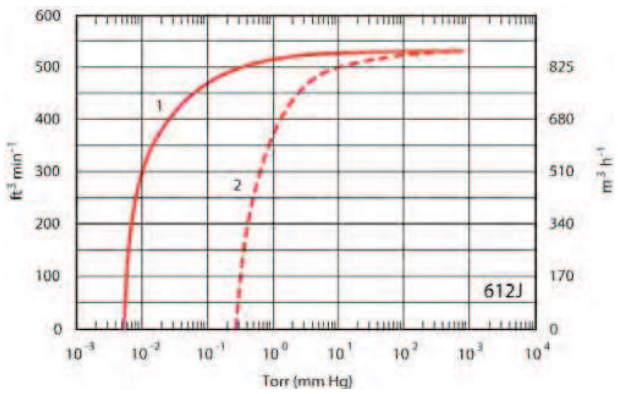
The Stokes Microvac rotary piston pump sets the standard for performance and reliability as the industrys most efficient, space-saving design. The Stokes Microvac rotary piston pump has been improved, upgraded, and fine-tuned to deliver even better dependability and productivity combined with minimal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

An integral oil distribution system eliminates external piping and delivers leak-free operation in a stylized design. 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.

## Dimensions




## Performance Curves




1. Without gas ballast 2. With gas ballast

## Technical Data

| | |
|---|---|
| Displacement (swept volume) | 1020 $m^3 h^{-1}$ / 600 $ft^3 min^{-1}$ |
| Pumping speed | 884 $m^3 h^{-1}$ / 520 $ft^3 min^{-1}$ |
| Ultimate vacuum (total pressure) | |
| without gas ballast | <3.3 x $10^{-2}$ mbar / <2.5 x $10^{-2}$ Torr |
| with gas ballast | <2.6 x $10^{-1}$ mbar / <2 x $10^{-1}$ Torr |
| 50Hz Motor size | 11 kW IEC (CE variant) (x2) |
| 60Hz Motor size | 10 hp TEFC (x2) |
| Motor speed | 1800 rpm |
| Inlet connection | 6 inch ASA/ANSI flange |
| Exhaust connection | 2 x 3 inch ASA/ANSI flange or 3 inch NPT |
| Cooling medium | Water |
| Water inlet/outlet connection | 2 x ½ inch NPT |
| Recommended cooling flow @ 85°F / 30°C | 7.6 l $min^{-1}$ / 1.5 gal $min^{-1}$ (x2) |
| Water vapour pumping rate | 20.9 kg $h^{-1}$ / 46 lb $h^{-1}$ |
| Oil capacity | 92 liter / 24 gal |
| Recommended oil | V lube F |
| Noise level | <85 dB(A) |
| Weight | 1724 kg / 3800 lbs |

## Ordering Information

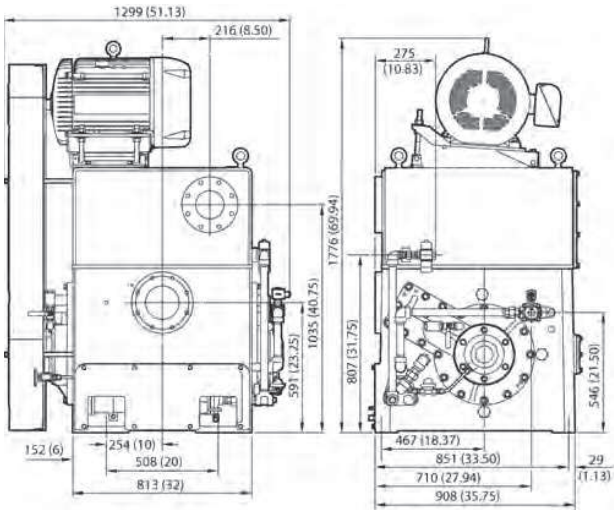
| Product Description | Order No. |
|---|---|
| 612J 230/460V, 3-ph, 60Hz (230/460V Coil) | 900612014 |
| **Accessories & Spares** | **Order No.** |
| Replacement parts kit | 429-638-015 |
| Bearings | 085-019-757 |
| Valve deck assembly | 607-417-001 |

# Stokes Microvac Model 912J

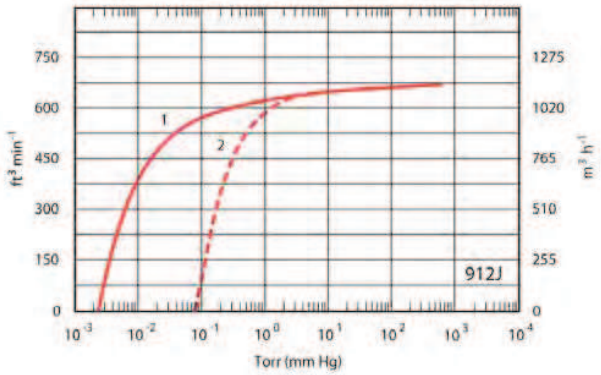
The Stokes Microvac rotary piston pump sets the standard for performance and reliability as the industrys most efficient, space-saving design. The Stokes Microvac rotary piston pump has been improved, upgraded, and fine-tuned to deliver even better dependability and productivity combined with minimal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

An integral oil distribution system eliminates external piping and delivers leak-free operation in a stylized design. 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.

## Dimensions




## Performance Curves




1. Without gas ballast 2. With gas ballast

## Technical Data

| | |
|---|---|
| Displacement (swept volume)(AVS) | 1240 $m^3 h^{-1}$ / 728 $ft^3 min^{-1}$ |
| Pumping speed | 1132 $m^3 h^{-1}$ / 670 $ft^3 min^{-1}$ |
| Ultimate vacuum (total pressure) | |
| without gas ballast | <3.3 x $10^{-2}$ mbar / <2.5 x $10^{-2}$ Torr |
| with gas ballast | <2.6 x $10^{-1}$ mbar / <2 x $10^{-1}$ Torr |
| 50Hz Motor size | 22 kW TEFC |
| 60Hz Motor size | 30 hp TEFC |
| Motor speed | 1800 rpm |
| Inlet connection | 6 inch ASA/ANSI flange |
| Exhaust connection | 5 inch NPT |
| Cooling medium | Water |
| Water inlet/outlet connection | 1 inch NPT |
| Recommended cooling flow @ 85°C / 30°F | 18.9 l $min^{-1}$ / (2) / 5 gal $min^{-1}$ |
| Water vapour pumping rate | 27.27 kg $h^{-1}$ / 60 lb $h^{-1}$ |
| Oil capacity | 92 litre / 24 gal |
| Recommended oil | V lube F |
| Noise level | <85 dB(A) |
| Weight | 2495 kg / 5500 lbs |

## Ordering Information

| Product Description | Order No. |
|---|---|
| 912J 230/460V, 3-ph, 60Hz (230/460V Coil) | 900912010 |
| **Accessories & Spares** | **Order No.** |
| Replacement roller bearing | 085033795 |
| Replacement oil seal | 085018191 |
| Roller bearing with adaptive sleeve | 085033794 |
| Valve deck stainless steel clappers | 272963002 |
| Valve deck springs | 247172001 |

## Water Miser

### Features & Benefits

- Saves cooling water, improves efficiency
- Remote bulb temperature sensor in oil reservoir of vacuum pump
- Throttles valve on cooling water to control oil temperature
- Fits most water cooled vacuum pumps

### Ordering Information

| Product Description | For Pump | Order No. |
|---|---|---|
| Water Miser | 149H-412J | 900412124 |

## Gas Ballast Silencer

### Features & Benefits

- Cuts noise level
- Simple thread-in unit reduces noise level
- Filters gas ballast intake air

### Ordering Information

| Product Description | For Pump | Order No. |
|---|---|---|
| 151 Series Gas Ballast Silencer/Filter | | |
| # Required | | |
| 1 | 146H, 148H, 149H/S | 900151001 |
| 1 | 212J | 900151002 |
| 2 or 4 | 412J / 612J | 900151002 |
| 2 | 912J | 900151003 |

## Min-Max Cooler

The Edwards Model 170-116 mini-max compact cooler provides closed circuit cooling specially designed for mobile pumping systems. It includes pump, radiator, fan, motor (115/60/1), on-off switch, connection kit for the microvac pumps, and has a cooling capacity of 14000 BTU/hr. The mini-max cooler is ideal when cooling water is not convenient or clean enough to ensure peak performance.

### Technical Data

For use with Model 149, 212 & 412 Rotary Piston Pumps

| | |
|---|---|
| Motor | 1/4 hp (Pump and Fan) |
| Motor Voltage | 115 V, 1-ph, 60 Hz |
| | 230 V, 1-ph, 60 Hz |
| Cooling Capacity | 14000 BTU/hour |
| Hose Length | 5 feet |
| Reservoir Tank Capacity | 3 gallons |
| Overall Dimensions | 12 1/4" W x 23 1/4" I X 13 1/4" H |
| Weight | 50 lbs |

### Ordering Information

| Product Description | Order No. |
|---|---|
| Minimax Cooling System | 900170116 |
| Includes: Pump, Radiator, Fan, Motors, On-Off Switch, Piping, Wiring and Hoses. | |

## Oil Mist Separators

The 291 series oil mist separators are high performance air/oil coalescing separators that will virtually eliminate all liquids and solids from a gas stream. These units produce exhaust liquid levels as low as 0.05 PPMW and solids removal in excess of 99.79% efficiency for particulate as small as 0.3 micron.

### Features & Benefits

- Clean pump exhaust, saves oil
- Two-stage design removes ail smog and traps particles as small as 0.3 microns
- Standard and heavy models available

## Heavy Duty Oil Mist Filter

Heavy-duty oil mist separators are designed to handle the most severe oil exhaust situations from rotary oil sealed mechanical pumps. For true measure of efficiency, it is important to go beyond the weight to consider the actual number of particles collected. The heavy-duty oil mist separators efficiency by weight approaches 100% and total particle collection 97.8%. Edwards guarantees to collect and remove the stated percentage of particles by size, not by weight alone. The HD mist separator will effectively prevent fume emissions unlike existing separators that do not remove the sub micron particles.

### Ordering Information

| Product Description | For Pump | CFM | Replacement Elements | Order No. |
|---|---|---|---|---|
| Oil Mist Separators with Fiberglass Element | | | | |
| 291-30S | 146H | | 085021473 | 900291021 |
| 291-50S | 148H | | 085021474 | 900291022 |
| 291-100S | 149H | | 085021475 | 900291023 |
| 291-150S | 212H | | 085052035 | 900291024 |
| 291-150J | 212J only | | 085052263 | 900291J24 |
| 291-300S | 412H, 612H | | 085052036 | 900291025 |
| 291-300J | 412J only | | 085052264 | 900291J25 |
| 291-750S | 912J | | 085021478 | 900291026 |
| 291-750MB | 612MB | | 085021478 | 900291027 |
| Oil Mist Separator with Polypropylene Element | | | | |
| 291-30SO | 146H | | 085039836 | 900291031 |
| 291-50SO | 148H | | 085039837 | 900291032 |
| 291-100SO | 149H | | 085039838 | 900291033 |
| 291-150SO | 212H | | 085039839 | 900291034 |
| 291-300SO | 412H, 612H | | 085039840 | 900291035 |
| 291-750SO | 912J, 612MB | | 085039841 | 900291036 |
| Heavy Duty Oil Mist Separators | | | | |
| 291-150HD | 212H and smaller | 150 | 085038239 | 900291048 |
| 291-300HD | 412H | 300 | 085038125 | 900291049 |
| 291-600HD | 612H | 600 | 085038226 | 900291050 |
| 291-1000HD | Combinations | 1000 | 085044934 | 900291054 |
| 291-1500HD | Combinations | 1500 | 085045429 | 900291055 |

# Oil Reservoir Heater

Edwards model 212 and 412 oil reservoir heaters are recommended for pre-heating oil in the reservoir prior to pump start up at temperatures below 55 °F. Below 1 Torr., it will help maintain the oil at a temperature high enough to prevent condensation of water vapour in the oil when running with full gas ballast. The 212 and 412 oil reservoir heaters consist of an immersion heater to be inserted into the oil reservoir and an over-temperature switch with sensing bulb to control power to the heater. The heater arrangement can be factory or field installed.

# Vacuum Break Solenoid

## Features & Benefits

- 2-way 240 V 3/8 inch FNPT
- 2-way 110 V 3/8 inch FNPT

## Ordering Information

| Product description | For pump | Order No. |
|---|---|---|
| Vacuum Break Solenoid | All 240 V | 085046623 |
| | All 110 V | 085046998 |

# Gask-O-Seal

## Features & Benefits

- For tight joint seals
- Combination anodised aluminium retainer with Buna-N seals
- Range to 0.0001 microns

## Ordering Information

| Product Description | Order No. |
|---|---|
| Gask-O-Seal | |
| Pipe Size (inch) | |
| 1.5 | 900318005 |
| 2 | 900318006 |
| 3 | 900318007 |
| 4 | 900318008 |
| 6 | 900318010 |
| 8 | 900318011 |
| 10 | 900318012 |
| 12 | 900318013 |
| 14 | 900318014 |
| 16 | 900318015 |
| 18 | 900318016 |
| 20 | 900318017 |
| 24 | 900318018 |

# Flex Hose

The model 820 high vacuum hose from Edwards is an all-plastic hose with aluminium flanges tough enough for easy handling streamline use. This rugged, reliable hose is suitable for use in a temperature range of -50 °F to 150 °F, tested to $10^{-2}$ Torr absolute pressure

## Ordering Information

| Product Description | Flange Gasket | Order No. |
|---|---|---|
| Series 820 High Vacuum Hose | | |
| Size | | |
| 2" x 20' long | 08510028 | 900820220 |
| 3" x 20' long | 023001141 | 900820206 |
| 4" x 20' long | 023001129 | 900820208 |

# Flex Connectors

Model 315 flexible connectors feature rugged type 321 stainless steel bellows to sharply ease potential alignment and thermal expansion problems, while significantly reducing vibration transmissions from other equipment. They are designed to provide years of trouble-free service.

## Features & Benefits

- Free-formed bellows minimise stress concentration
- Solve alignment problems
- Convoluted bellows of AISI 321 stainless steel
- ASA standard carbon steel flanges
- Sizes from 1.5 inch to 24 inch

## Ordering Information

| Product Description | Order No. |
|---|---|
| Type Standard: Flexible connector, vacuum service, convoluted, stainless steel bellows, carbon steel pipe flange, 150# ASA – both ends – 63 micro finish, Mass spec tested. | |
| Pipe Size (inch) | |
| 1-1/2 | 900315005 |
| 2 | 900315006 |
| 3 | 900315008 |
| 4 | 900315009 |
| 6 | 900315011 |
| 8 | 900315012 |
| 10 | 900315013 |
| 12 | 900315014 |
| Type CE: Flexible connector, vacuum service, convoluted, stainless steel bellows, carbon steel weld band – one end – to fit over ASA pipe for lap weld, carbon steel pipe flange, 150# ASA – one end – 63 micro finish, Mass spec tested. | |
| Pipe Size (inch) | |
| 1-1/2 | 900315099 |
| 3 | 900315102 |
| 4 | 900315103 |
| 6 | 900315105 |
| Type PP: Flexible connector, vacuum service, convoluted, stainless steel bellows, carbon steel pipe ends – both ends – for butt welding, Mass spec tested. | |
| Pipe Size (inch) | |
| 1-1/2 | 900315069 |
| 2 | 900315070 |
| 3 | 900315072 |
| 4 | 900315073 |
| 6 | 900315075 |
| 8 | 900315076 |
| 10 | 900315077 |
| 12 | 900315078 |
| Type EE: Flexible connector, vacuum service, convoluted, stainless steel bellows, carbon steel weld band – both ends – to fit over ASA pipe for lap weld, Mass spec tested. | |
| Pipe Size (inch) | |
| 2 | 900315090 |
| 4 | 900315093 |
| 6 | 900315095 |
| 8 | 900315096 |
| 10 | 900315097 |
| 12 | 900315098 |
| Type CP: Flexible connector, vacuum service, convoluted, stainless steel bellows, carbon steel pipe end – one end – for butt welding, carbon steel pipe flange, 150# ASA – one end – 63 micro finish, Mass spec tested. | |
| Pipe Size (inch) | |
| 2 | 900315080 |
| 3 | 900315082 |
| 4 | 900315083 |
| 6 | 900315085 |
| 8 | 900315086 |
| 12 | 900315088 |

# High Volume Inlet Filters

## Features & Benefits

- Traps particulates ahead of pump
- Recommended ahead of all vacuum pumps
- Provide protection to pump internals
- Extends the change interval up to 10 times
- Variety of filter elements available
- 146H pump has a 2 inch flange – 333-30A has a 1 inch flange. 333-100A (2 inch flange) can be used as an option
- 1754 and 1755 have 8 inch flange. Customer must supply an adaptor to mate with 10 inch flange on filter
- Polyester replacement element max temp 200 °F, Glastex replacement element 450 °F
- 1700 Series requires 2 replacement elements

## Ordering Information

| Product Description | For Pump | CFM | Order No. |
|---|---|---|---|
| Intake Pipeline Filters | | | |
| 333-30A* | 146H | 30 | 900333031 |
| 333-50A | 148H | 50 | 900333032 |
| 333-100A | 149H | 100 | 900333033 |
| 333-165A | 212J | 165 | 900333034 |
| 333-330A | 412J | 400 | 900333035 |
| 333-750A | 612J, 912J | 850 | 900333036 |
| 333-1125A | 1721, 1722, 1738 | 2000 | 900333037 |
| 333-2250A† | 1739, 1733, 1754 | 2800 | 900333038 |
| **Spares** | | | **Order No.** |
| Replacement Glastex Elements‡ | | | |
| 333-30A* | | | 085032573 |
| 333-50A | | | 085032576 |
| 333-100A | | | 085032579 |
| 333-165A | | | 085032582 |
| 333-330A | | | 085032585 |
| 333-750A | | | 085032079 |
| 333-1125A | | | 085032588** |
| 333-2250A† | | | 085032591** |
| Replacement Polyester Elements‡ | | | |
| 333-30A* | | | 085039010 |
| 333-50A | | | 085039011 |
| 333-100A | | | 085039012 |
| 333-165A | | | 085039013 |
| 333-330A | | | 085039014 |
| 333-750A | | | 085039077 |
| 333-1125A | | | 085039015** |
| 333-2250A† | | | 085039016** |

* 146H Pump has a 2" Flange, Filter 333-30A has a 1" Flange. Use Filter 333-100A w/2" Flange as an Option.
† 1754 and 1755 have 8" Flange. Customer must supply an adapter to mate w/10" Flange on Filter.
‡ Replacement Element is Polyester w/Maximum Temp of 200°F, Glastex has a Maximum Temp. of 450°F.
** Two Elements Are Required.

# Small Volume Inlet Filter

## Features & Benefits

- For small volumes and fast pump down cycles
- Effective protection from harmful solid particles of 0.01 inch or larger
- Less expensive than conventional filters

## Ordering Information

| Product Description | Flange Size | For Pump | Replacement Elements | Order No. |
|---|---|---|---|---|
| Small Volume Inlet Filters | | | | |
| 332-3 | 3" | 212J | 085036701 | 900332003 |
| 332-4 | 4" | 412J | 085036702 | 900332004 |
| 332-6 | 6" | 612J-912J | 085036703 | 900332006 |
| 332-8 | 8" | 1721-1722 | 085036704 | 900332008 |

# Oil Purifiers

Oil purifiers continuously supply clean oil to the vacuum pump to assure peak uptime while prolonging the life of both the oil and the pump. Oil purifiers from Edwards are designed for use with rotary oil sealed pumps used in dirty applications or for corrosive and hazardous gases. These oil purifiers are commonly used in heat creating, annealing, sintering, brazing, nitriding, and metal melting. The Edwards models are available to handle hydrocarbon and inert oils for rotary oil sealed pumps up to 750 $ft^3min^{-1}$ and can filter out solids to 3 microns.

## Features & Benefits

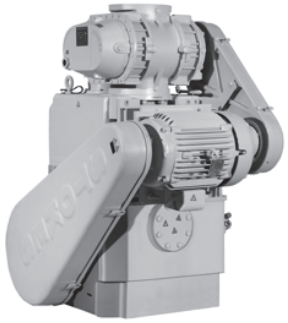
- Keep pump fluids cleaner
- Self-contained and portable
- Suitable for mechanical vacuum pumps up to 730 $ft^3min^{-1}$
- Models available for hydrocarbon and inert oils

## Ordering Information

| Product Description | For Pump | GPM | Elements Required | Order No. |
|---|---|---|---|---|
| Vacuum Pump Oil Purifiers | | | | |
| 339-015 (115 V, 1-ph, 60 Hz) | 146, 148, 149 | 1.5 | 1 | 900339015 |
| 339-015 CE (230 V, 1-ph, 50 Hz) | 146, 148, 149 | 1.2 | 1 | 900339015501 |
| 339-015 CE (200/400 V, 3-ph, 50 Hz) | 146, 148, 149 | 1.2 | 1 | 900339015502 |
| 339-030 (115 V, 1-ph, 60 Hz) | 212, 412 | 3 | 1 | 900339030 |
| 339-030 CE (230 V, 1-ph, 50 Hz) | 212, 412 | 2.3 | 1 | 900339030501 |
| 339-030 CE (200/400 V, 3-ph, 50 Hz) | 212, 412 | 2.3 | 1 | 900339030502 |
| 339-150 | All | 1.5 | 2 | 900339150 |
| 339-215 | All | 1.5 | 2 | 900339215 |
| 339-070 | 912 | 7 | 2 | 900339070 |
| Special Service (all pumps) | | | | |
| 339-15 (115 V, 1-ph, 60 Hz)* | 146, 148, 149 | 1.5 | 1 | 900339151 |
| 339-152 (115 V, 1-ph, 60 Hz)† | 146-412 | 1.5 | 2 | 900339152 |
| 339-251(115 V, 1-ph, 60 Hz)* | 146-412 | 1.5 | 2 | 900339251 |
| 339-252 (115 V, 1-ph, 60 Hz)† | 146-412 | 1.5 | 4 | 900339252 |
| **Spares** | | | | **Order No.** |
| Model 339 Replacement Oil Purifier Elements | | | | |
| Standard 339 Filter Fullers Earth 10 microns | | | | 085033395 |
| Standard 339 Filter Pleated Paper 3 microns | | | | 085039432 |
| Standard 339 Filter Activated Alumna | | | | 085039890 |
| Special Service 339 Fullers Earth 10 microns | | | | N/A (use 3 Microns Option) |
| Special Service 339 Pleated Paper 3 microns | | | | 085037794 |
| Special Service 339 Activated Alumna | | | | 085039956 |

* Single element canister
† Double element canister

# MB Series / MV Series Vertically Oriented Booster Combinations



## Overview

Edwards multi-stage pumping systems, backed by over a century of in-depth applications knowledge and technical experience.

These compact, efficient pumping systems feature a Stokes microvac pump and rugged, proven Stokes 6" Series boosters or the Edwards EH series with patented hydrokinetic drive. MB series configurations are comprised of the Stokes 412J piston pumps coupled with a model 607 mechanical booster. The configuration has the ability to start at atmospheric pressure without the need for a pressure switch, packages are offered as a cost-effective alternative for low to medium range capacity requirement.

The MV Series Mechanical Booster Pump Packages comprises of either the Stokes 212J or 412J rotary piston pump. Each can be directly coupled with a range of mechanical booster pumps. The range includes Edwards EH series offering the patented Hydrokinetic Drive or the full range of Stokes 6" series. All are vertical gas flow orientation for a compact space saving design. The MV Series offers a broad selection of configurations which enables the flexibility to mix and match the complete range of Stokes Microvac accessories along with various electrical control options. This enables the user to customize the pumping package to meet their application requirements.

# 1700 Series High Capacity Mechanical Booster Pump Combinations

## Overview

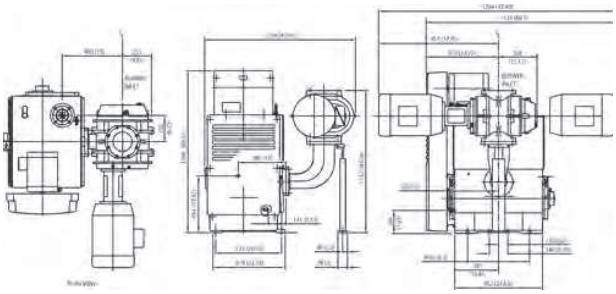
Whether you need to increase the capacity of your existing system or achieve peak performance for a new installation; Edwards makes taking advantage of the latest technology easy. These field-proven pumping systems are the workhorse of countless industrial and large chamber applications. Each Stokes 1700 series mechanical booster combinations includes a Stokes microvac backing pump and a belt driven, Stoke 6" series mechanical booster pump horizontal flow. In harsh applications where chemical or particulate contamination is present, process isolation boosters are available as an option. Controls for Stokes 1700 series mechanical booster combinations include a pressure switch, motor starters, fuses and overload.

The Stokes 1700 series combinations deliver the high capacity needed to achieve faster pump-downs. Most importantly, these systems achieve the task more cost effectively than larger single stage pumps. Depending on the specific application, they can improve blank-off by a factor of ten over large, single stage pumps. Pumping capacities range from 1300 to 7880 $ft^3min^{-1}$.

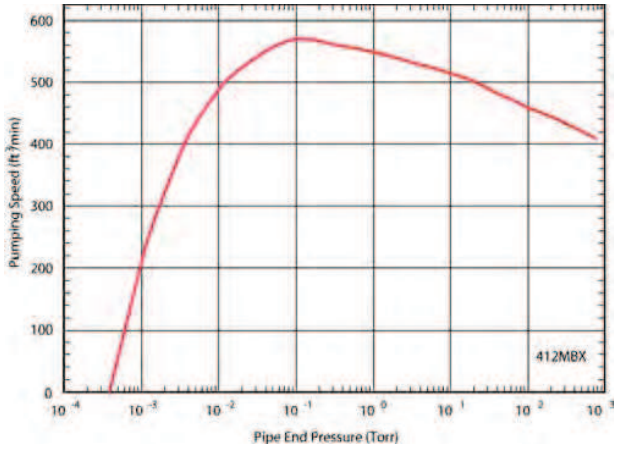
# Stokes 412MBX Multi-Stage Pumping System

Stokes MB Multi-stage pumping systems are available in two options, consisting of a Microvac piston pump and a Stokes 607 mechanical booster pump. The compact direct mounted packages provide high performance pumping from atmosphere. The MB systems are ideal for high cycling arduous applications.

## Dimensions



## Performance Curves



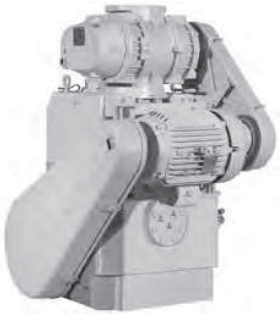

## Technical Data

| | |
|---|---|
| Blower displacement (swept volume) (AVS) | 1040 $m^3 h^{-1}$ / 612 $ft^3 min^{-1}$ |
| Pump displacement (swept volume) (AVS) | 510 $m^3 h^{-1}$ / 300 $ft^3 min^{-1}$ |
| Blower motor size | 15 kW / 20 hp |
| Microvac motor size | 7.5 kW / 10 hp |
| Blower motor | 1800 rpm |
| Microvac motor | 1800 rpm |
| Inlet connection | 6 inch ASA/ANSI flange |
| Exhaust connection | 3 inch ASA/ANSI flange or 3 inch NPT |
| Microvac water inlet/outlet connection | ½ inch NPT |
| Recommended cooling flow @ 30 ºC/85 ºF | 7.6 liter $min^{-1}$ / 1 US gal $min^{-1}$ |
| Booster oil capacity | 4.2 liter / 22 US gal |
| Microvac oil capacity | 46 liter / 12 US gal |
| Booster recommended oil | V lube H |
| Microvac recommended oil | V lube F |
| Dimensions (L x W x H) | 973 x 1022 x 1365 mm |
| | 47 x 55.69 x 51.75 inch |
| Height to inlet | 868 mm / 34.19 inch |
| Weight | 1202 kg / 2650 lbs |

## Ordering Information

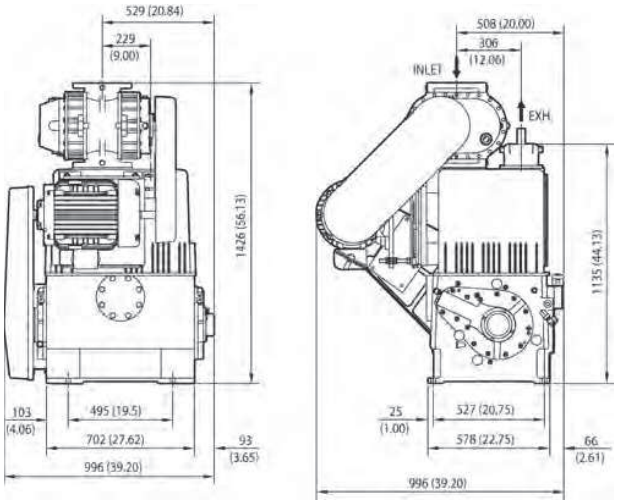
| Product Description | Order No. |
|---|---|
| 412MBX Multi-stage Pumping System 230/460V, 3Ø, 60 Hz with 230/460V Coil | 900412072 |
| **Accessories & Spares** | **Order No.** |
| Replacement parts kit | 429-638-015 |
| Bearings | 085-019-757 |
| Valve deck assembly | 607-417-001 |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |
| Replacement parts kit for 412H pump | 429-638-012 |

# Stokes 612MB Multi-Stage Pumping System

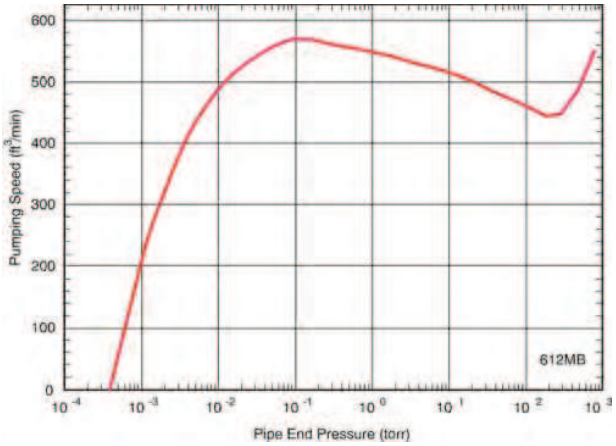


Stokes MB Multi-stage pumping systems are available in two options, consisting of a Microvac piston pump and a Stokes 607 mechanical booster pump. The compact direct mounted packages provide high performance pumping from atmosphere. The MB systems are ideal for high cycling arduous applications. The 612MB Multi-stage pumping systems incorporate an integral bypass valve which offers increased speed at atmospheric pressure.

## Dimensions




## Performance Curves




## Technical Data

| | |
|---|---|
| Blower displacement (swept volume) (AVS) | 1040 $m^3 h^{-1}$ / 612 $ft^3 min^{-1}$ |
| Pump displacement (swept volume) (AVS) | 510 $m^3 h^{-1}$ / 300 $ft^3 min^{-1}$ |
| Pressure switch required | No |
| Blower motor size *** | 15 kW / 20 hp |
| Motor | 1800 rpm |
| Inlet connection | 6 inch ASA/ANSI flange |
| Exhaust connection | 4 inch NPT |
| Microvac water inlet/outlet connection | ½ inch NPT |
| Recommended cooling flow @ 30 ºC/85 ºF | 7.6 liter $min^{-1}$ / 2 US gal $min^{-1}$ |
| Booster oil capacity | 4.7 liter / 7 US gal |
| Microvac oil capacity | 46 liter / 12 US gal |
| Booster recommended oil | V lube H |
| Microvac recommended oil | V lube G |
| Dimensions (L x W x H) | 1181 x 1022 x 1434 mm |
| | 47 x 55.69 x 51.75 inch |
| Height to inlet | 1434 mm / 56.44 inch |
| Weight | 1452 kg / 3200 lbs |

*** 612 MB incorporates double shafted single motor

## Ordering Information

| Product Description | Order No. |
|---|---|
| 612MBX Multi-stage Pumping System 230/460V, 3Ø, 60 Hz with 230/460V Coil | 900612J30 |
| **Accessories & Spares** | **Order No.** |
| Replacement parts kit | 429-638-015 |
| Bearings | 085-019-757 |
| Valve deck assembly | 607-417-001 |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |

# MV Series Oil Sealed Piston Pumps and Mechanical Booster Combinations

## Ordering Information

MV [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

**CE Marking**

- **0** No CE mark required
- **1** CE marked system

**Microvac Pump**

- **1** 212J
- **2** 412J
- **3** 212J with base
- **4** 412J with base

**Booster**

- **0** No booster
- **1** EH250
- **2** EH500
- **3** EH1200
- **4** EH2600
- **5** EH4200
- **6** EH250 with 3 inch ASA inlet
- **7** EH500 with 4 inch ASA inlet
- **8** EH1200 with 6 inch ASA inlet
- **9** EH2600 with 8 inch ASA inlet
- **A** 607MV05
- **B** 607MV20
- **C** 615MV10
- **D** 615MV15
- **E** 61BMV10
- **F** 61BMV25
- **M** 622MV25

**Oil Mist Filter**

- **0** No mist filter
- **1** MF 291-150J
- **2** MF 291-300J

**Cooling Options**

- **0** No cooling options
- **1** Water miser
- **2** Min max cooler 115 V 1-ph 60 Hz
- **3** Min max cooler 230 V 1-ph 60 Hz

**Oil Purification and Connection Kit**

- **0** No oil purifier
- **1** OP 339-030 115 V 1-ph 60 Hz
- **2** OP 339-030CE 230 V 1-ph 50 Hz
- **3** OP 339-030CE 230/400 V 1-ph 50 Hz
- **4** OP 339-215 115 V 1-ph 60 Hz

**Manual Selection**

- **0** English
- **1** French
- **2** German
- **3** Italian
- **4** Chinese
- **5** Japanese
- **6** Korean
- **7** Spanish
- **8** Dutch
- **9** Other EU
- **A** Other European
- **B** Other Asian

**Motor Control Module**

- **0** No motor control/pressure switch
- **1** Motor starter control box pedestal mount without pressure switch****
- **2** Motor starter control box wall mount without pressure switch****
- **3** Motor starter control box pedestal mount with pressure switch****
- **4** Pressure switch only
- **5** Motor starter control box wall mount with pressure switch****

**Coil Voltage**

- **1** 24 V a.c. 50 Hz
- **2** 24 V a.c. 60 Hz
- **3** 120 V 60 Hz/110 V 50 Hz
- **4** 240 V 60 Hz/220 V 50 Hz
- **5** 380 V 50 Hz
- **6** 415 V 50 Hz
- **7** 480 V 60 Hz/440 V 50 Hz
- **8** 380 V 60 Hz

**Motor Voltage (All TEFC Motors)**

- **1** 230 V 3-ph 60 Hz
- **2** 460 V 3-ph 60 Hz
- **3** 400 V 3-ph 50 Hz CE
- **4** 220 V 3-ph 50 Hz
- **5** 380 V 3-ph 50 Hz
- **6** 440 V 3-ph 50 Hz
- **7** 380 V 3-ph 60 Hz

**Gas Ballast Silencer and Vacuum Break**

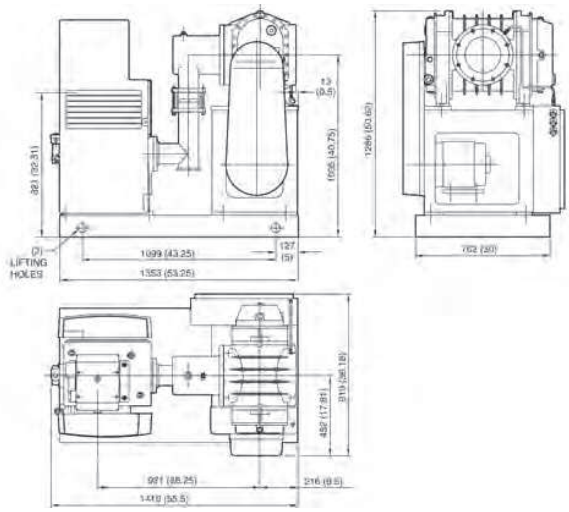
- **0** No gas ballast, no silencer, no vacuum break
- **1** Gas ballast silencer
- **2** Auto gas ballast 24 V a.c. 60 Hz
- **3** Auto gas ballast 24 V d.c. din
- **4** Auto gas ballast 120 V 60 Hz/110 V 50 Hz

Note* Above booster combinations are direct mount vertical flow.
Note** Oil mist filters and min max coolers will ship separately unless ordered with base frame.
Note*** Oxygen service pumps are available, please contact your local Edwards representative to discuss your requirements.
Note**** Not applicable in CE versions.
For other possible combinations, please contact your local Edwards representative to discuss your requirements.

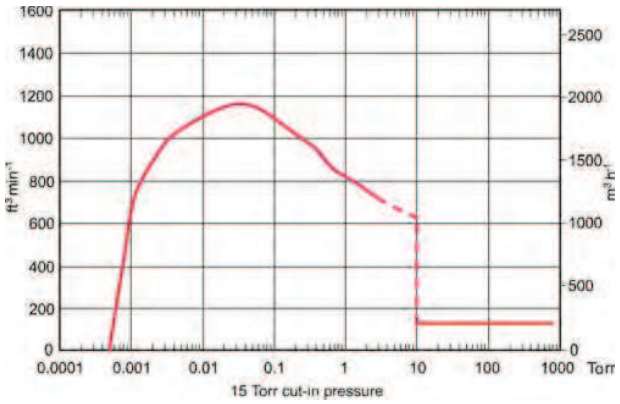
# Stokes 1721 Mechanical Booster Pump Combination

Whether you need to increase the capacity of your existing system or achieve peak performance for a new installation; Edwards makes taking advantage of the latest technology easy. These field-proven pumping systems are the workhorse of countless industrial and large chamber applications. Each Stokes1700 series mechanical booster pump combination includes a Stokes Microvac backing pump and a belt driven, horizontal flow, high vacuum Stokes 6” series mechanical booster pump. In harsh applications where chemical or particulate contamination is present, process isolation boosters are available as an option. Controls for Stokes 1700 series mechanical booster pump combination include a pressure switch, motor starters, overloads, remote booster selection switch and lights for pump running and fault indication.

## Dimensions




## Performance Curves




## Technical Data

| | |
|---|---|
| Booster displacement | 2210 $m^3 h^{-1}$ / 1300 $ft^3 min^{-1}$ |
| Booster speed | 1800 rpm |
| Booster orientation | Horizontal |
| Pump displacement | 255 $m^3 h^{-1}$ / 150 $ft^3 min^{-1}$ |
| Pressure switch required | Yes |
| Normal cut-in pressure | 20 mbar / 15 Torr |
| Continuous operation pressure limit | 4 mbar / 3 Torr |
| Booster drive | 5.6 kW / 7.5 hp |
| Pump drive (TEFC) | 5.6 kW / 7.5 hp |
| Inlet connections | 8 inch ASA/ANSI flange |
| Discharge connections | 2 inch ASA/ANSI flange, 2 inch NPT |
| Water inlet/outlet connection | ½ inch NPT |
| Recommended cooling flow @ 30ºC/85 ºF | 5.7 l $min^{-1}$ / 1.5 gal $min^{-1}$ |
| Booster oil capacity (V lube H) | 1.9 liter / 0.51 US gal |
| Microvac oil capacity (V lube F) | 15 liter / 4 US gal |
| Inlet height | 1035 mm / 40.75 inch |
| Footprint (L x W x H) | 1419 x 919 x 1260 mm |
| | 55.87 x 36.18 x 49.61 inch |
| Weight | 1225 kg / 2700 lbs |

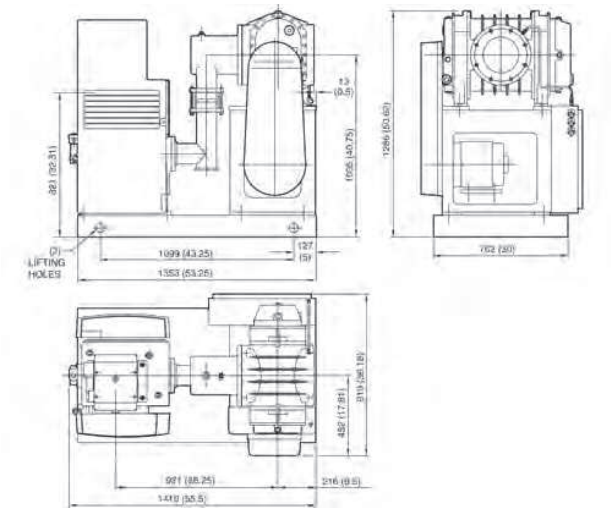
## Ordering Information

| Product Description | Order No. |
|---|---|
| 1721 230/460V, 3-ph, 60Hz (230/460V Coil) | 900170061 |
| **Accessories & Spares** | **Order No.** |
| Replacement parts kit | 429-638-016 |
| Bearings | 085-019-757 |
| Valve deck assembly | 607-417-001 |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |

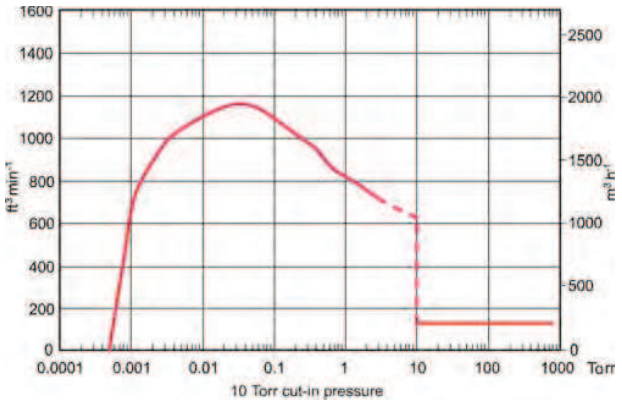
# Stokes 1721S Mechanical Booster Pump Combination

Whether you need to increase the capacity of your existing system or achieve peak performance for a new installation; Edwards makes taking advantage of the latest technology easy. These field-proven pumping systems are the workhorse of countless industrial and large chamber applications. Each Stokes1700 series mechanical booster pump combination includes a Stokes Microvac backing pump and a belt driven, horizontal flow, high vacuum Stokes 6” series mechanical booster pump. In harsh applications where chemical or particulate contamination is present, process isolation boosters are available as an option. Controls for Stokes 1700 series mechanical booster pump combination include a pressure switch, motor starters, overloads, remote booster selection switch and lights for pump running and fault indication.

## Dimensions




## Performance Curves






## Technical Data

| | |
|---|---|
| Booster displacement | 2720 $m^3 h^{-1}$ / 1600 $ft^3 min^{-1}$ |
| Booster speed | 2200 rpm |
| Booster orientation | Horizontal |
| Pump displacement | 255 $m^3 h^{-1}$ / 150 $ft^3 min^{-1}$ |
| Pressure switch required | Yes |
| Normal cut-in pressure | 13 mbar / 10 Torr |
| Continuous operation pressure limit | 2.6 mbar / 2 Torr |
| Booster drive | 7.5 kW / 10 hp |
| Pump drive (TEFC) | 6.5 kW / 7.5 hp |
| Inlet connections | 8 inch ASA/ANSI flange |
| Discharge connections | 2 inch ASA/ANSI flange, 2 inch NPT |
| Water inlet/outlet connection | ½ inch NPT |
| Recommended cooling flow @ 30ºC/85 ºF | 5.7 l $min^{-1}$ / 1.5 gal $min^{-1}$ |
| Booster oil capacity (V lube H) | 1.9 liter / 0.51 US gal |
| Microvac oil capacity (V lube F) | 15 liter / 4 US gal |
| Inlet height | 1035 mm / 40.75 inch |
| Footprint (L x W x H) | 1419 x 919 x 1260 mm |
| | 55.87 x 36.18 x 49.61 inch |
| Weight | 1270 kg / 2800 lbs |

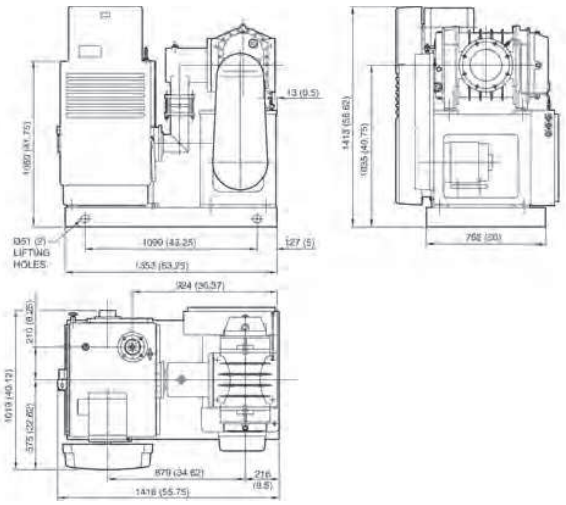
## Ordering Information

| Product Description | Order No. |
|---|---|
| 1721S 230/460V, 3-ph, 60Hz (230/460V Coil) | 900170074 |
| **Accessories & Spares** | **Order No.** |
| Replacement parts kit | 429-638-016 |
| Bearings | 085-019-757 |
| Valve deck assembly | 607-417-001 |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |

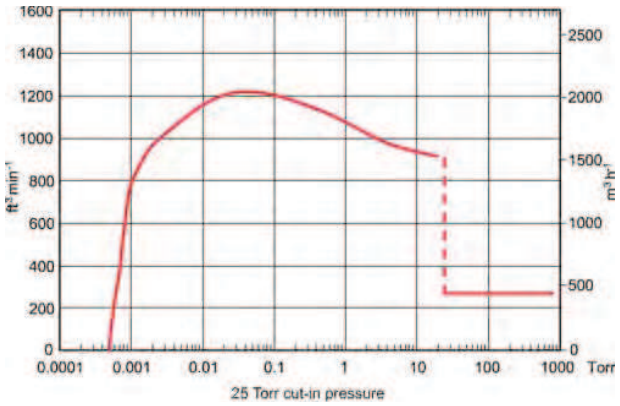
# Stokes 1722 Mechanical Booster Pump Combination

Whether you need to increase the capacity of your existing system or achieve peak performance for a new installation; Edwards makes taking advantage of the latest technology easy. These field-proven pumping systems are the workhorse of countless industrial and large chamber applications. Each Stokes1700 series mechanical booster pump combination includes a Stokes Microvac backing pump and a belt driven, horizontal flow, high vacuum Stokes 6" series mechanical booster pump. In harsh applications where chemical or particulate contamination is present, process isolation boosters are available as an option. Controls for Stokes 1700 series mechanical booster pump combination include a pressure switch, motor starters, overloads, remote booster selection switch and lights for pump running and fault indication.

## Dimensions



## Performance Curves




## Technical Data

| | |
|---|---|
| Booster displacement | 2210 $m^3 h^{-1}$ / 1300 $ft^3 min^{-1}$ |
| Booster speed | 1800 rpm |
| Booster orientation | Horizontal |
| Pump displacement | 510 $m^3 h^{-1}$ / 300 $ft^3 min^{-1}$ |
| Pressure switch required | Yes |
| Normal cut-in pressure | 33 mbar / 25 Torr |
| Continuous operation pressure limit | 20 mbar / 15 Torr |
| Booster drive | 5.6 kW / 7.5 hp |
| Pump drive (TEFC) | 7.5 kW / 10 hp |
| Inlet connections | 8 inch ASA/ANSI flange |
| Discharge connections | 3 inch ASA/ANSI flange, 3 inch NPT |
| Water inlet/outlet connection | ½ inch NPT |
| Recommended cooling flow @ 30ºC/85 ºF | 7.6 l $min^{-1}$ / 2 gal $min^{-1}$ |
| Booster oil capacity (V lube H) | 1.9 liter / 0.51 US gal |
| Microvac oil capacity (V lube F) | 46 liter / 12 US gal |
| Inlet height | 1035 mm / 40.75 inch |
| Footprint (L x W x H) | 1407 x 1048 x 1438 mm |
| | 55.40 x 41.26 x 56.61 inch |
| Weight | 1588 kg / 3500 lbs |

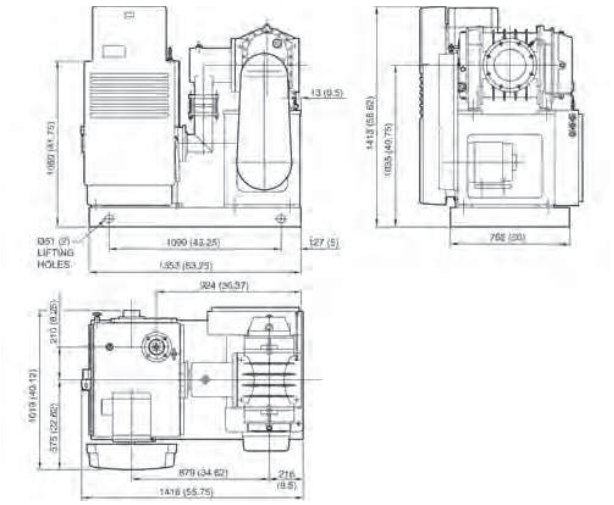
## Ordering Information

| Product Description | Order No. |
|---|---|
| 1722 230/460V, 3-ph, 60Hz (230/460V Coil) | 900170062 |
| **Accessories & Spares** | **Order No.** |
| Replacement parts kit | 429-638-015 |
| Bearings | 085-019-757 |
| Valve deck assembly | 607-417-001 |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |

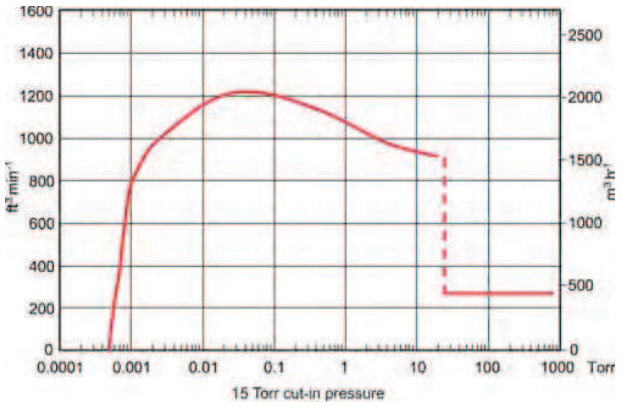
# Stokes 1722S Mechanical Booster Pump Combination

Whether you need to increase the capacity of your existing system or achieve peak performance for a new installation; Edwards makes taking advantage of the latest technology easy. These field-proven pumping systems are the workhorse of countless industrial and large chamber applications. Each Stokes1700 series mechanical booster pump combination includes a Stokes Microvac backing pump and a belt driven, horizontal flow, high vacuum Stokes 6” series mechanical booster pump. In harsh applications where chemical or particulate contamination is present, process isolation boosters are available as an option. Controls for Stokes 1700 series mechanical booster pump combination include a pressure switch, motor starters, overloads, remote booster selection switch and lights for pump running and fault indication.

## Dimensions



## Performance Curves






## Technical Data

| | |
|---|---|
| Booster displacement | 2720m$^3$h$^{-1}$ / 1600 ft$^3$min$^{-1}$ |
| Booster speed | 2200 rpm |
| Booster orientation | Horizontal |
| Pump displacement | 510 m$^3$h$^{-1}$ / 300 ft$^3$min$^{-1}$ |
| Pressure switch required | Yes |
| Normal cut-in pressure | 20 mbar / 15 Torr |
| Continuous operation pressure limit | 10.7 mbar / 8 Torr |
| Booster drive | 7.5 kW / 10 hp |
| Pump drive (TEFC) | 7.5 kW / 10 hp |
| Inlet connections | 8 inch ASA/ANSI flange |
| Discharge connections | 3 inch ASA/ANSI flange, 3 inch NPT |
| Water inlet/outlet connection | ½ inch NPT |
| Recommended cooling flow @ 30ºC/85ºF | 7.6 l min$^{-1}$ / 2 gal min$^{-1}$ |
| Booster oil capacity (V lube H) | 1.9 liter / 0.51 US gal |
| Microvac oil capacity (V lube F) | 46 liter / 12 US gal |
| Inlet height | 1035 mm / 40.75 inch |
| Footprint (L x W x H) | 1407 x 1048 x 1438 mm |
| | 55.40 x 41.26 x 56.61 inch |
| Weight | 1633 kg / 3600 lbs |

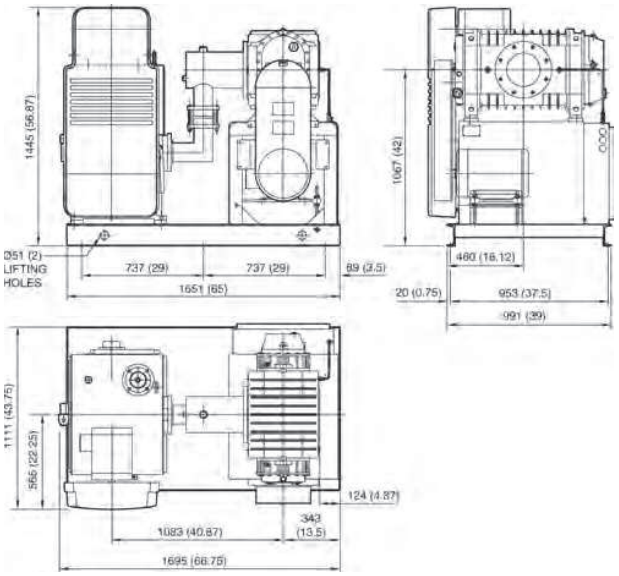
## Ordering Information

| Product Description | Order No. |
|---|---|
| 1722S 230/460V, 3-ph, 60Hz (230/460V Coil) | 900170075 |
| **Accessories & Spares** | **Order No.** |
| Replacement parts kit | 429-638-015 |
| Bearings | 085-019-757 |
| Valve deck assembly | 607-417-001 |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |

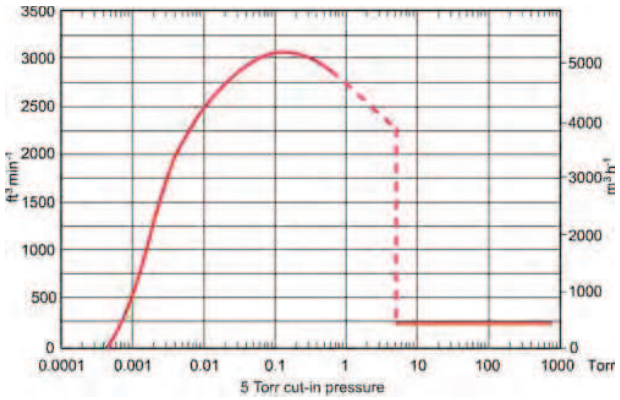
# Stokes 1733 Mechanical Booster Pump Combination

Whether you need to increase the capacity of your existing system or achieve peak performance for a new installation; Edwards makes taking advantage of the latest technology easy. These field-proven pumping systems are the workhorse of countless industrial and large chamber applications. Each Stokes1700 series mechanical booster pump combination includes a Stokes Microvac backing pump and a belt driven, horizontal flow, high vacuum Stokes 6” series mechanical booster pump. In harsh applications where chemical or particulate contamination is present, process isolation boosters are available as an option. Controls for Stokes 1700 series mechanical booster pump combination include a pressure switch, motor starters, overloads, remote booster selection switch and lights for pump running and fault indication.

## Dimensions




## Performance Curves




## Technical Data

| | |
|---|---|
| Booster displacement | 6538 $m^3 h^{-1}$ / 3840 $ft^3 min^{-1}$ |
| Booster speed | 3600 rpm |
| Booster orientation | Horizontal |
| Pump displacement | 510 $m^3 h^{-1}$ / 300 $ft^3 min^{-1}$ |
| Pressure switch required | Yes |
| Normal cut-in pressure | 6.7 mbar / 5 Torr |
| Continuous operation pressure limit | 0.8 mbar / 0.6 Torr |
| Booster drive | 18.5 kW / 25 hp |
| Pump drive | 7.5 kW / 10 hp |
| Inlet connections | 8 inch ASA/ANSI flange |
| Discharge connections | 3 inch ASA/ANSI flange, 3 inch NPT |
| Water inlet connection | ½ inch NPT (2) |
| Water outlet connection | ½ inch NPT |
| Recommended cooling flow @ 30ºC/85 ºF | 7.61 l $min^{-1}$ / 2 gal $min^{-1}$ |
| Booster oil capacity (V lube H) | 1.9 liter / 0.51 US gal |
| Microvac oil capacity (V lube F) | 46 liter / 12 US gal |
| Weight | 1710 kg / 3770 lbs |

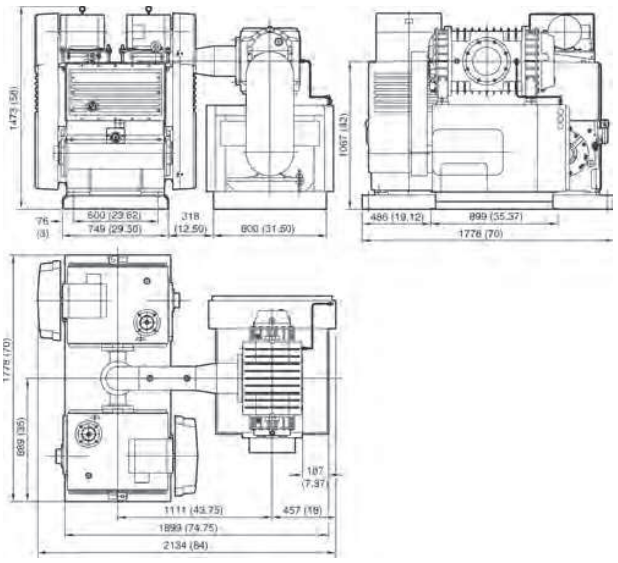
## Ordering Information

| Product Description | Order No. |
|---|---|
| 1733 230/460V, 3-ph, 60Hz (230/460V Coil) | 900170S33 |
| **Accessories & Spares** | **Order No.** |
| Replacement parts kit | 429-638-015 |
| Bearings | 085-019-757 |
| Valve deck assembly | 607-417-001 |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |

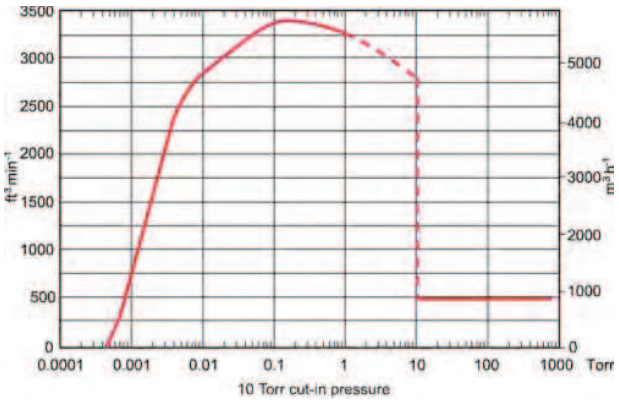
# Stokes 1733HC Mechanical Booster Pump Combination

Whether you need to increase the capacity of your existing system or achieve peak performance for a new installation; Edwards makes taking advantage of the latest technology easy. These field-proven pumping systems are the workhorse of countless industrial and large chamber applications. Each Stokes1700 series mechanical booster pump combination includes a Stokes Microvac backing pump and a belt driven, horizontal flow, high vacuum Stokes 6” series mechanical booster pump. In harsh applications where chemical or particulate contamination is present, process isolation boosters are available as an option. Controls for Stokes 1700 series mechanical booster pump combination include a pressure switch, motor starters, overloads, remote booster selection switch and lights for pump running and fault indication.

## Dimensions



## Performance Curves






## Technical Data

| | |
|---|---|
| Booster displacement | 6538 $m^3 h^{-1}$ / 3840 $ft^3 min^{-1}$ |
| Booster speed | 3600 rpm |
| Booster orientation | Horizontal |
| Pump displacement | 1020 $m^3 h^{-1}$ / 600 $ft^3 min^{-1}$ |
| Pressure switch required | Yes |
| Normal cut-in pressure | 13.3 mbar / 10 Torr |
| Continuous operation pressure limit | 1.3 mbar / 1 Torr |
| Booster drive | 22.5 kW / 30 hp |
| Pump drive | 7.5 kW (x2) / 10 hp (x2) |
| Inlet connections | 8 inch ASA/ANSI flange |
| Discharge connections | 3 inch ASA/ANSI flange, 3 inch NPT (x2) |
| Water inlet/outlet connection | ½ inch NPT (x2) |
| Recommended cooling flow @ 30ºC/85ºF | 7.61 l $min^{-1}$ (x2) / 2 gal $min^{-1}$ (x2) |
| Booster oil capacity (V lube H) | 1.9 liter / 0.51 US gal |
| Microvac oil capacity (V lube F) | 92 liter / 24 US gal |
| Weight | 2767 kg / 6100 lbs |

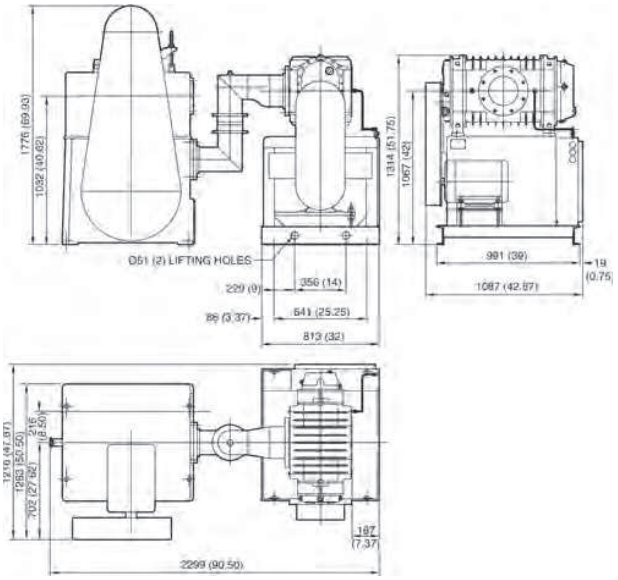
## Ordering Information

| Product Description | Order No. |
|---|---|
| 1733HC 230/460V, 3-ph, 60Hz (230/460V Coil) | 900170S34 |
| **Accessories & Spares** | **Order No.** |
| Replacement parts kit | 429-638-015 |
| Bearings | 085-019-757 |
| Valve deck assembly | 607-417-001 |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |

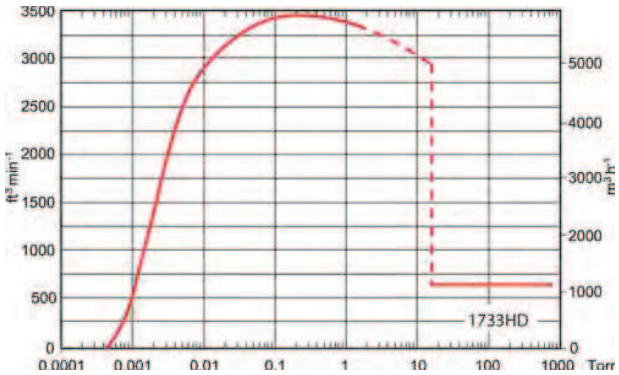
# Stokes 1733HD Mechanical Booster Pump Combination

Whether you need to increase the capacity of your existing system or achieve peak performance for a new installation; Edwards makes taking advantage of the latest technology easy. These field-proven pumping systems are the workhorse of countless industrial and large chamber applications. Each Stokes1700 series mechanical booster pump combination includes a Stokes Microvac backing pump and a belt driven, horizontal flow, high vacuum Stokes 6” series mechanical booster pump. In harsh applications where chemical or particulate contamination is present, process isolation boosters are available as an option. Controls for Stokes 1700 series mechanical booster pump combination include a pressure switch, motor starters, overloads, remote booster selection switch and lights for pump running and fault indication.

## Dimensions




## Performance Curves




## Technical Data

| | |
|---|---|
| Booster displacement | 6538 $m^3 h^{-1}$ / 3840 $ft^3 min^{-1}$ |
| Booster speed | 3600 rpm |
| Booster orientation | Horizontal |
| Pump displacement | 1240 $m^3 h^{-1}$ / 730 $ft^3 min^{-1}$ |
| Pressure switch required | Yes |
| Normal cut-in pressure | 20 mbar / 15 Torr |
| Continuous operation pressure limit | 2 mbar / 1.5 Torr |
| Booster drive | 22.5 kW / 30 hp |
| Pump drive | 22.5 kW / 30 hp |
| Inlet connections | 8 inch ASA/ANSI flange |
| Discharge connections | 3 inch NPT |
| Water inlet/outlet connection | 1 inch NPT |
| Recommended cooling flow @ 30ºC/85 ºF | 18.9 l $min^{-1}$ / 5 gal $min^{-1}$ |
| Booster oil capacity (V lube H) | 1.9 liter / 0.51 US gal |
| Microvac oil capacity (V lube F) | 76 liter / 20 US gal |
| Weight | 3538 kg / 7800 lbs |

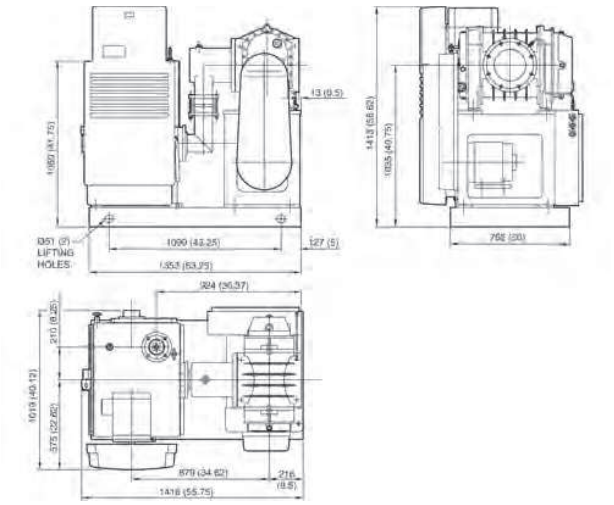
## Ordering Information

| Product Description | Order No. |
|---|---|
| 1733HD 230/460V, 3-ph, 60Hz (230/460V Coil) | 900170S35 |
| **Accessories & Spares** | **Order No.** |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |
| Replacement oil seal | 085018191 |
| Replacement roller bearing | 085033795 |
| Roller bearing with adaptive sleeve | 085033794 |
| Valve deck stainless steel clappers | 272963002 |
| Valve deck springs | 274172001 |

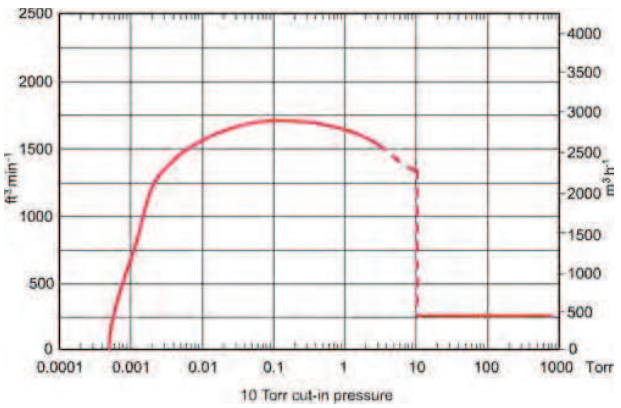
# Stokes 1738 Mechanical Booster Pump Combination

Whether you need to increase the capacity of your existing system or achieve peak performance for a new installation; Edwards makes taking advantage of the latest technology easy. These field-proven pumping systems are the workhorse of countless industrial and large chamber applications. Each Stokes1700 series mechanical booster pump combination includes a Stokes Microvac backing pump and a belt driven, horizontal flow, high vacuum Stokes 6” series mechanical booster pump. In harsh applications where chemical or particulate contamination is present, process isolation boosters are available as an option. Controls for Stokes 1700 series mechanical booster pump combination include a pressure switch, motor starters, overloads, remote booster selection switch and lights for pump running and fault indication.

## Dimensions



## Performance Curves






## Technical Data

| | |
|---|---|
| Booster displacement | 3398 $m^3 h^{-1}$ / 2000 $ft^3 min^{-1}$ |
| Booster speed | 2750 rpm |
| Booster orientation | Horizontal |
| Pump displacement | 510 $m^3 h^{-1}$ / 300 $ft^3 min^{-1}$ |
| Pressure switch required | Yes |
| Normal cut-in pressure | 13 mbar / 10 Torr |
| Continuous operation pressure limit | 4 mbar / 3 Torr |
| Booster drive | 7.5 kW / 10 hp |
| Pump drive (TEFC) | 7.5 kW / 10 hp |
| Inlet connections | 8 inch ASA/ANSI flange |
| Discharge connections | 3 inch ASA/ANSI flange, 3 inch NPT |
| Water inlet/outlet connection | ½ inch NPT |
| Recommended cooling flow @ 30ºC/85 ºF | 7.6 l $min^{-1}$ / 2 gal $min^{-1}$ |
| Booster oil capacity (V lube H) | 1.9 liter / 0.51 US gal |
| Microvac oil capacity (V lube F) | 46 liter / 12 US gal |
| Inlet height | 1035 mm / 40.75 inch |
| Footprint (L x W x H) | 1407 x 1048 x 1438 mm |
| | 55.40 x 41.26 x 56.61 inch |
| Weight | 1633 kg / 3600 lbs |

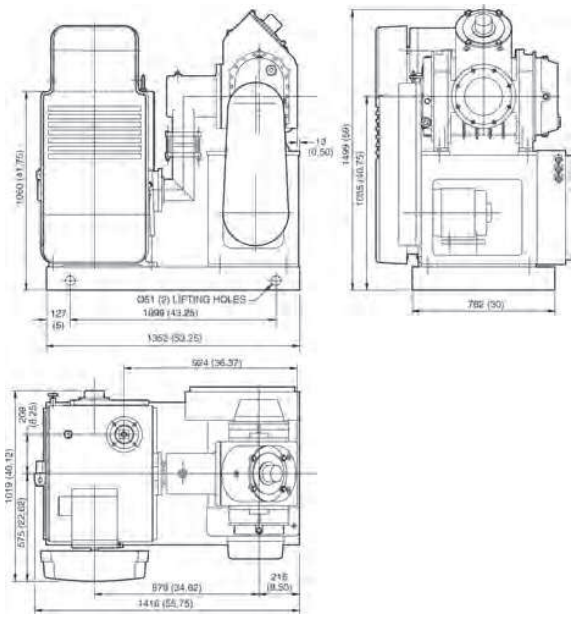
## Ordering Information

| Product Description | Order No. |
|---|---|
| 1738 230/460V, 3-ph, 60Hz (230/460V Coil) | 900170038 |
| **Accessories & Spares** | **Order No.** |
| Replacement parts kit | 429-638-015 |
| Bearings | 085-019-757 |
| Valve deck assembly | 607-417-001 |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |

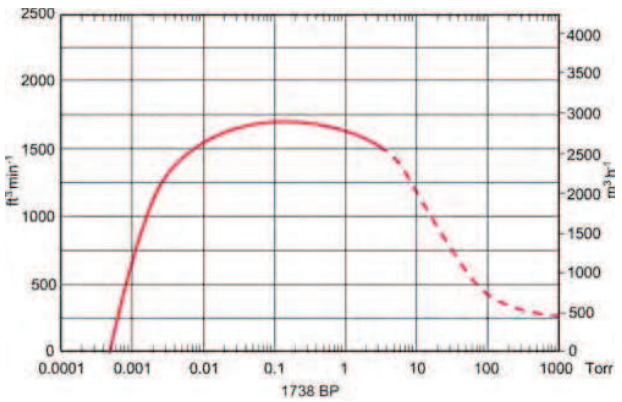
# Stokes 1738BP Mechanical Booster Pump Combination

Whether you need to increase the capacity of your existing system or achieve peak performance for a new installation; Edwards makes taking advantage of the latest technology easy. These field-proven pumping systems are the workhorse of countless industrial and large chamber applications. Each Stokes1700 series mechanical booster pump combination includes a Stokes Microvac backing pump and a belt driven, horizontal flow, high vacuum Stokes 6" series mechanical booster pump. In harsh applications where chemical or particulate contamination is present, process isolation boosters are available as an option. Controls for Stokes 1700 series mechanical booster pump combination include a pressure switch, motor starters, overloads, remote booster selection switch and lights for pump running and fault indication.

## Dimensions



## Performance Curves




## Technical Data

| | |
|---|---|
| Booster displacement | 3398 $m^3 h^{-1}$ / 2000 $ft^3 min^{-1}$ |
| Booster speed | 2750 rpm |
| Booster orientation | Horizontal |
| Pump displacement | 510 $m^3 h^{-1}$ / 300 $ft^3 min^{-1}$ |
| Pressure switch required | No |
| Continuous operation pressure limit | 4 mbar / 3 Torr |
| Booster drive | 11 kW / 15 hp |
| Pump drive (TEFC) | 7.5 kW / 10 hp |
| Inlet connections | 8 inch ASA/ANSI flange |
| Discharge connections | 3 inch ASA/ANSI flange, 3 inch NPT |
| Water inlet/outlet connection | ½ inch NPT |
| Recommended cooling flow @ 30ºC/85 ºF | 7.6 l $min^{-1}$ / 2 gal $min^{-1}$ |
| Booster oil capacity (V lube H) | 1.9 liter / 0.51 US gal |
| Microvac oil capacity (V lube F) | 46 liter / 12 US gal |
| Weight | 1690 kg / 3725 lbs |

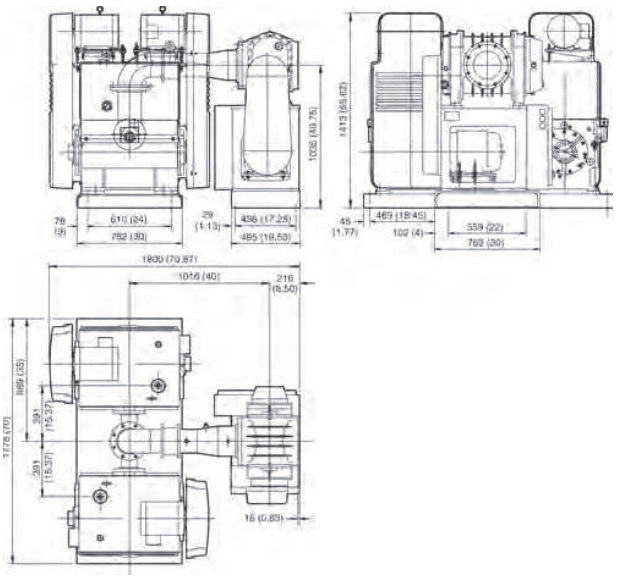
## Ordering Information

| Product Description | Order No. |
|---|---|
| 1738BP 230/460V, 3-ph, 60Hz (230/460V Coil) | 90017038B |
| **Accessories & Spares** | **Order No.** |
| Replacement parts kit | 429-638-015 |
| Bearings | 085-019-757 |
| Valve deck assembly | 607-417-001 |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |

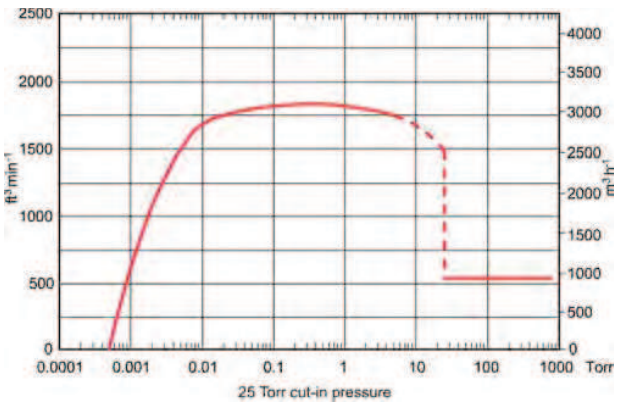
# Stokes 1738HC Mechanical Booster Pump Combination

Whether you need to increase the capacity of your existing system or achieve peak performance for a new installation; Edwards makes taking advantage of the latest technology easy. These field-proven pumping systems are the workhorse of countless industrial and large chamber applications. Each Stokes1700 series mechanical booster pump combination includes a Stokes Microvac backing pump and a belt driven, horizontal flow, high vacuum Stokes 6” series mechanical booster pump. In harsh applications where chemical or particulate contamination is present, process isolation boosters are available as an option. Controls for Stokes 1700 series mechanical booster pump combination include a pressure switch, motor starters, overloads, remote booster selection switch and lights for pump running and fault indication.

## Dimensions



## Performance Curves




## Technical Data

| | |
|---|---|
| Booster displacement | 3398 $m^3 h^{-1}$ / 2000 $ft^3 min^{-1}$ |
| Booster speed | 2750 rpm |
| Booster orientation | Horizontal |
| Pump displacement | 1020 $m^3 h^{-1}$ / 600 $ft^3 min^{-1}$ |
| Pressure switch required | Yes |
| Normal cut-in pressure | 33 mbar / 25 Torr |
| Continuous operation pressure limit | 6.7 mbar / 5 Torr |
| Booster drive | 7.5 kW / 10 hp |
| Pump drive (TEFC) | 7.5 kW (x2) / 10 hp (x2) |
| Inlet connections | 8 inch ASA/ANSI flange |
| Discharge connections | 3 inch ASA/ANSI flange, 3 inch NPT (x2) |
| Water inlet/outelt connection | ½ inch NPT (x2) |
| Recommended cooling flow @ 30ºC/85ºF | 7.6 l $min^{-1}$ (x2) / 2 gal $min^{-1}$ (x2) |
| Booster oil capacity (V lube H) | 1.9 liter / 0.51 US gal |
| Microvac oil capacity (V lube F) | 92 liter / 24 US gal |
| Weight | 2404 kg / 5300 lbs |

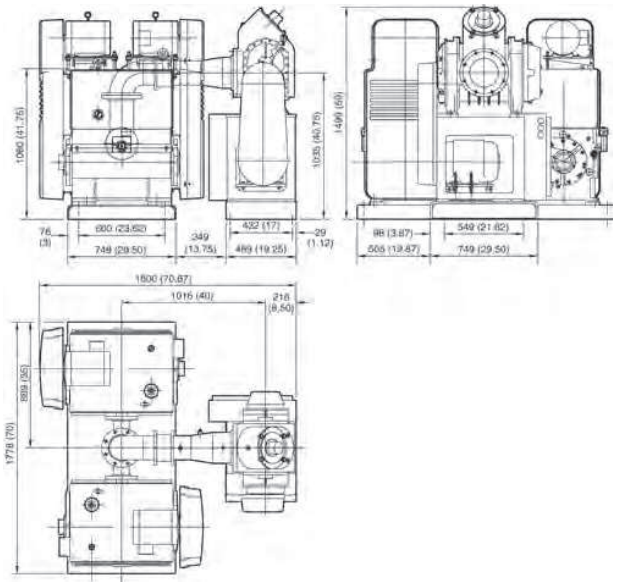
## Ordering Information

| Product Description | Order No. |
|---|---|
| 1738HC 230/460V, 3-ph, 60Hz (230/460V Coil) | 90017C038 |
| **Accessories & Spares** | **Order No.** |
| Replacement parts kit | 429-638-015 |
| Bearings | 085-019-757 |
| Valve deck assembly | 607-417-001 |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |

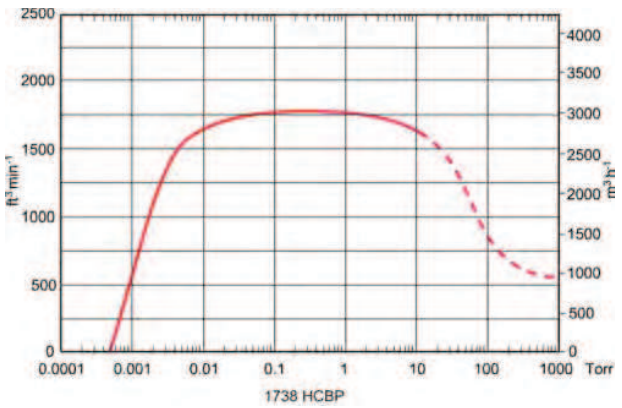
# Stokes 1738 HCBP Mechanical Booster Pump Combination

Whether you need to increase the capacity of your existing system or achieve peak performance for a new installation; Edwards makes taking advantage of the latest technology easy. These field-proven pumping systems are the workhorse of countless industrial and large chamber applications. Each Stokes1700 series mechanical booster pump combination includes a Stokes Microvac backing pump and a belt driven, horizontal flow, high vacuum Stokes 6" series mechanical booster pump. In harsh applications where chemical or particulate contamination is present, process isolation boosters are available as an option. Controls for Stokes 1700 series mechanical booster pump combination include a pressure switch, motor starters, overloads, remote booster selection switch and lights for pump running and fault indication.

## Dimensions



## Performance Curves




## Technical Data

| | |
|---|---|
| Booster displacement | 3398 $m^3 h^{-1}$ / 2000 $ft^3 min^{-1}$ |
| Booster speed | 2750 rpm |
| Booster orientation | Horizontal |
| Pump displacement | 1020 $m^3 h^{-1}$ / 600 $ft^3 min^{-1}$ |
| Pressure switch required | No |
| Continuous operation pressure limit | 6.7 mbar / 5 Torr |
| Booster drive | 11.2 kW / 15 hp |
| Pump drive (TEFC) | 7.5 kW (x2) / 10 hp (x2) |
| Inlet connections | 8 inch ASA/ANSI flange |
| Discharge connections | 3 inch ASA/ANSI flange, 3 inch NPT (x2) |
| Water inlet/outlet connection | ½ inch NPT (x2) |
| Recommended cooling flow @ 30ºC/85ºF | 7.6 l $min^{-1}$ (x2) / 2 gal $min^{-1}$ (x2) |
| Booster oil capacity (V lube H) | 1.9 liter / 0.51 US gal |
| Microvac oil capacity (V lube F) | 92 liter / 24 US gal |
| Weight | 2449 kg / 5400 lbs |

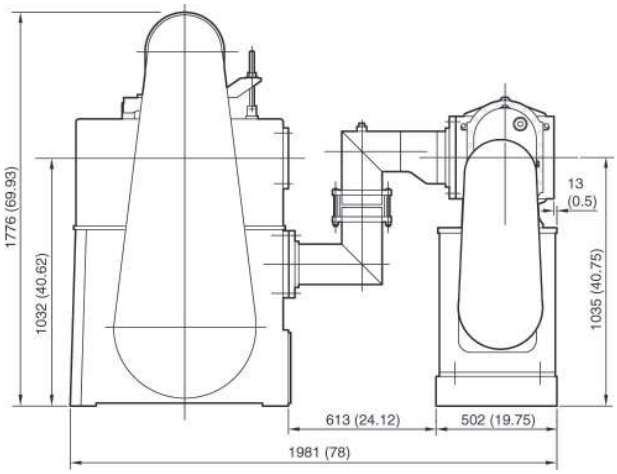
## Ordering Information

| Product Description | Order No. |
|---|---|
| 1738HCBP 230/460V, 3-ph, 60Hz (230/460V Coil) | 90017C38B |
| **Accessories & Spares** | **Order No.** |
| Replacement parts kit | 429-638-015 |
| Bearings | 085-019-757 |
| Valve deck assembly | 607-417-001 |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |

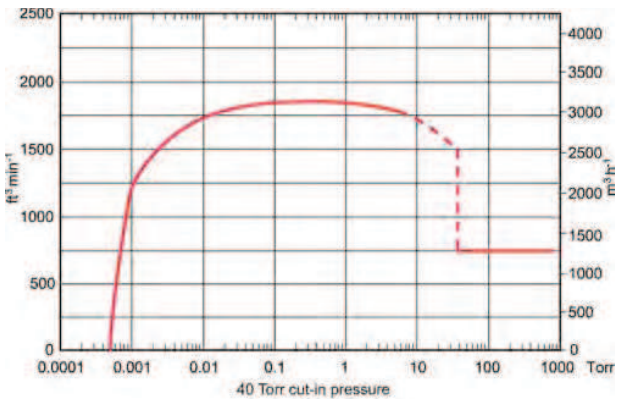
# Stokes 1738HD Mechanical Booster Pump Combination

Whether you need to increase the capacity of your existing system or achieve peak performance for a new installation; Edwards makes taking advantage of the latest technology easy. These field-proven pumping systems are the workhorse of countless industrial and large chamber applications. Each Stokes1700 series mechanical booster pump combination includes a Stokes Microvac backing pump and a belt driven, horizontal flow, high vacuum Stokes 6” series mechanical booster pump. In harsh applications where chemical or particulate contamination is present, process isolation boosters are available as an option. Controls for Stokes 1700 series mechanical booster pump combination include a pressure switch, motor starters, overloads, remote booster selection switch and lights for pump running and fault indication.

## Dimensions




## Performance Curves




## Technical Data

| | |
|---|---|
| Booster displacement | 3398 $m^3 h^{-1}$ / 2000 $ft^3 min^{-1}$ |
| Booster speed | 2750 rpm |
| Booster orientation | Horizontal |
| Pump displacement | 1240 $m^3 h^{-1}$ / 730 $ft^3 min^{-1}$ |
| Pressure switch required | Yes |
| Normal cut-in pressure | 53 mbar / 40 Torr |
| Continuous operation pressure limit | 16 mbar / 12 Torr |
| Booster drive | 11 kW / 15 hp |
| Pump drive (TEFC) | 22.5 kW / 30 hp |
| Inlet connections | 8 inch ASA/ANSI flange |
| Discharge connections | 5 inch NPT |
| Water inlet/outlet connection | 1 inch NPT |
| Recommended cooling flow @ 30ºC/85ºF | 18.9 l $min^{-1}$ / 5 gal $min^{-1}$ |
| Booster oil capacity (V lube H) | 1.9 liter / 0.51 US gal |
| Microvac oil capacity (V lube F) | 76 liter / 20 US gal |
| Weight | 3187 kg / 7025 lbs |

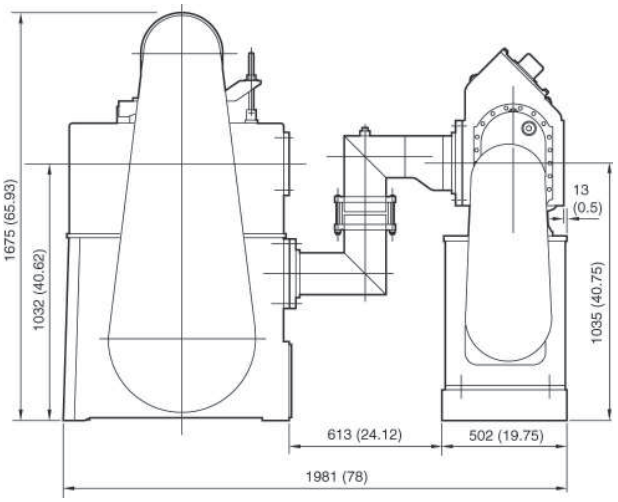
## Ordering Information

| Product Description | Order No. |
|---|---|
| 1738HD 230/460V, 3-ph, 60Hz (230/460V Coil) | 90017D038 |
| **Accessories & Spares** | **Order No.** |
| Replacement roller bearing | 085033795 |
| Replacement oil seal | 085018191 |
| Roller bearing with adaptive sleeve | 085033794 |
| Valve deck stainless steel clappers | 272963002 |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |
| Valve deck springs | 274172001 |

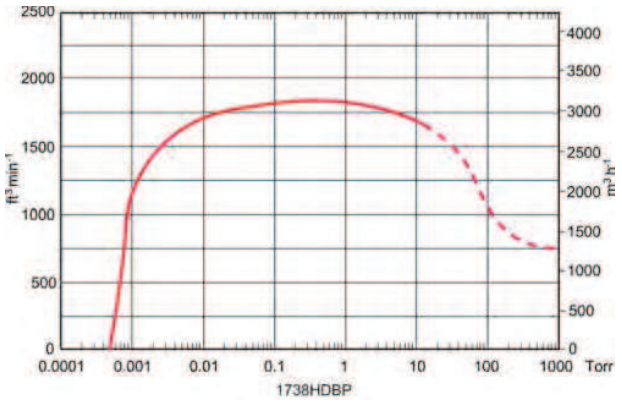
# Stokes 1738HDBP Mechanical Booster Pump Combination

Whether you need to increase the capacity of your existing system or achieve peak performance for a new installation; Edwards makes taking advantage of the latest technology easy. These field-proven pumping systems are the workhorse of countless industrial and large chamber applications. Each Stokes1700 series mechanical booster pump combination includes a Stokes Microvac backing pump and a belt driven, horizontal flow, high vacuum Stokes 6" series mechanical booster pump. In harsh applications where chemical or particulate contamination is present, process isolation boosters are available as an option. Controls for Stokes 1700 series mechanical booster pump combination include a pressure switch, motor starters, overloads, remote booster selection switch and lights for pump running and fault indication.

## Dimensions




## Performance Curves




## Technical Data

| | |
|---|---|
| Booster displacement | 3398 $m^3 h^{-1}$ / 2000 $ft^3 min^{-1}$ |
| Booster speed | 2750 rpm |
| Booster orientation | Horizontal |
| Pump displacement | 1240 $m^3 h^{-1}$ / 730 $ft^3 min^{-1}$ |
| Pressure switch required | No |
| Continuous operation pressure limit | 16 mbar / 12 Torr |
| Booster drive | 11 kW / 15 hp |
| Pump drive (TEFC) | 22 kW / 30 hp |
| Inlet connections | 8 inch ASA/ANSI flange |
| Discharge connections | 5 inch NPT |
| Water inlet/outlet connection | 1 inch NPT |
| Recommended cooling flow @ 30ºC/85 ºF | 18.9 l $min^{-1}$ / 5 gal $min^{-1}$ |
| Booster oil capacity (V lube H) | 1.9 liter / 0.51 US gal |
| Microvac oil capacity (V lube F) | 76 liter / 20 US gal |
| Weight | 3221 kg / 7100 lbs |

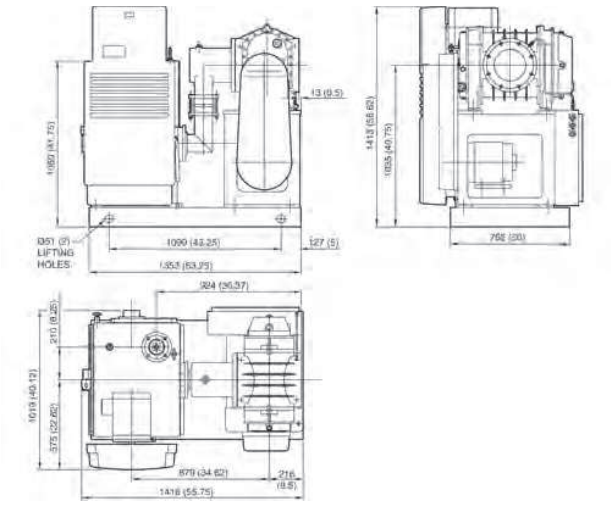
## Ordering Information

| Product Description | Order No. |
|---|---|
| 1738HDBP 230/460V, 3-ph, 60Hz (230/460V Coil) | 90017D38B |
| **Accessories & Spares** | **Order No.** |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |
| Replacement oil seal | 085018191 |
| Replacement roller bearing | 085033795 |
| Roller bearing with adaptive sleeve | 085033794 |
| Valve deck stainless steel clappers | 272963002 |
| Valve deck springs | 274172001 |

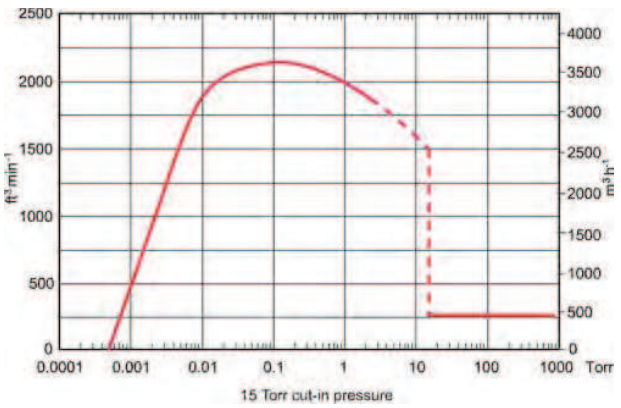
# Stokes 1739 Mechanical Booster Pump Combination

Whether you need to increase the capacity of your existing system or achieve peak performance for a new installation; Edwards makes taking advantage of the latest technology easy. These field-proven pumping systems are the workhorse of countless industrial and large chamber applications. Each Stokes1700 series mechanical booster pump combination includes a Stokes Microvac backing pump and a belt driven, horizontal flow, high vacuum Stokes 6” series mechanical booster pump. In harsh applications where chemical or particulate contamination is present, process isolation boosters are available as an option. Controls for Stokes 1700 series mechanical booster pump combination include a pressure switch, motor starters, overloads, remote booster selection switch and lights for pump running and fault indication.

## Dimensions



## Performance Curves






## Technical Data

| | |
|---|---|
| Booster displacement | 4420 $m^3 h^{-1}$ / 2600 $ft^3 min^{-1}$ |
| Booster | 3600 rpm |
| Booster orientation | Horizontal |
| Pump displacement | 510 $m^3 h^{-1}$ / 300 $ft^3 min^{-1}$ |
| Pressure switch required | Yes |
| Normal cut-in pressure | 13 mbar / 10 Torr |
| Continuous operation pressure limit | 2.7 mbar / 2 Torr |
| Booster drive | 22.4 kW / 30 hp |
| Pump drive (TEFC) | 7.5 kW / 10 hp |
| Inlet connections | 8 inch ASA/ANSI flange |
| Discharge connections | 3 inch ASA/ANSI flange, 3 inch NPT |
| Water inlet/outlet connection | ½ inch NPT |
| Recommended cooling flow @ 30ºC/85 ºF | 7.6 l $min^{-1}$ / 2 gal $min^{-1}$ |
| Booster oil capacity (V lube H) | 1.9 liter / 0.51 US gal |
| Microvac oil capacity (V lube F) | 46 liter / 12 US gal |
| Inlet height | 1067 mm / 42 inch |
| Footprint (L x W x H) | 1905 x 1270 x 1318 mm |
| | 75 x 50 x 51.89 inch |
| Weight | 1803 kg / 3975 lbs |

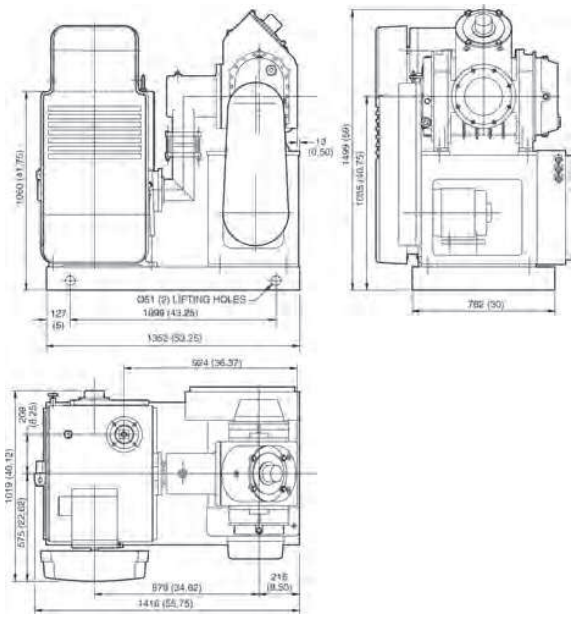
## Ordering Information

| Product Description | Order No. |
|---|---|
| 1739 230/460V, 3-ph, 60Hz (230/460V Coil) | 900170039 |
| **Accessories & Spares** | **Order No.** |
| Replacement parts kit | 429-638-015 |
| Bearings | 085-019-757 |
| Valve deck assembly | 607-417-001 |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |

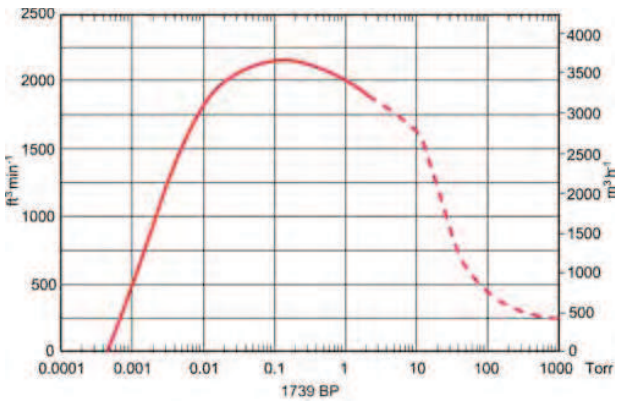
# Stokes 1739BP Mechanical Booster Pump Combination

Whether you need to increase the capacity of your existing system or achieve peak performance for a new installation; Edwards makes taking advantage of the latest technology easy. These field-proven pumping systems are the workhorse of countless industrial and large chamber applications. Each Stokes1700 series mechanical booster pump combination includes a Stokes Microvac backing pump and a belt driven, horizontal flow, high vacuum Stokes 6" series mechanical booster pump. In harsh applications where chemical or particulate contamination is present, process isolation boosters are available as an option. Controls for Stokes 1700 series mechanical booster pump combination include a pressure switch, motor starters, overloads, remote booster selection switch and lights for pump running and fault indication.

## Dimensions




## Performance Curves




## Technical Data

| | |
|---|---|
| Booster displacement | 4420 $m^3h^{-1}$ / 2600 $ft^3min^{-1}$ |
| Booster speed | 3600 rpm |
| Booster orientation | Horizontal |
| Pump displacement | 510 $m^3h^{-1}$ / 300 $ft^3min^{-1}$ |
| Pressure switch required | No |
| Continuous operation pressure limit | 2.7 mbar / 2 Torr |
| Booster drive | 22 kW / 30 hp |
| Pump drive (TEFC) | 7.5 kW / 10 hp |
| Inlet connections | 8 inch ASA/ANSI flange |
| Discharge connections | 3 inch ASA/ANSI flange, 3 inch NPT |
| Water inlet/outlet connection | ½ inch NPT |
| Recommended cooling flow @ 30ºC/85 ºF | 7.6 l $min^{-1}$ / 2 gal $min^{-1}$ |
| Booster oil capacity (V lube H) | 1.9 liter / 0.51 US gal |
| Microvac oil capacity (V lube F) | 46 liter / 12 US gal |
| Weight | 1837 kg / 4050 lbs |

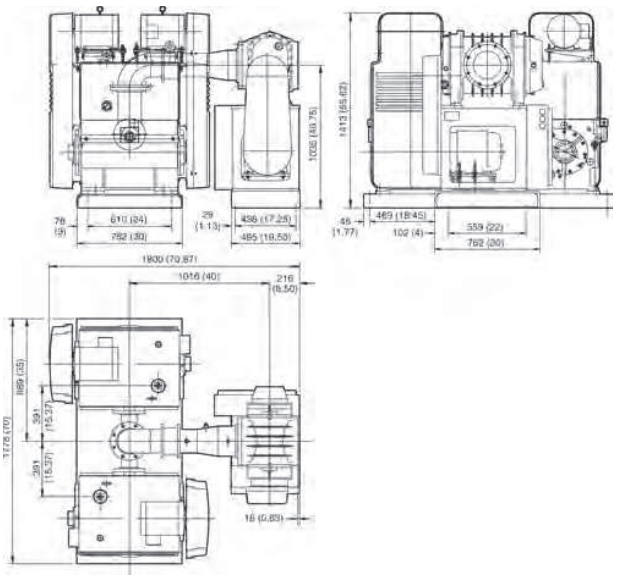
## Ordering Information

| Product Description | Order No. |
|---|---|
| 1739BP High Capacity Mechanical Booster Pump Combination 230/460V, 3Ø, 60 Hz with 230/460V Coil | 90017039B |
| **Accessories & Spares** | **Order No.** |
| Replacement parts kit | 429-638-015 |
| Bearings | 085-019-757 |
| Valve deck assembly | 607-417-001 |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |

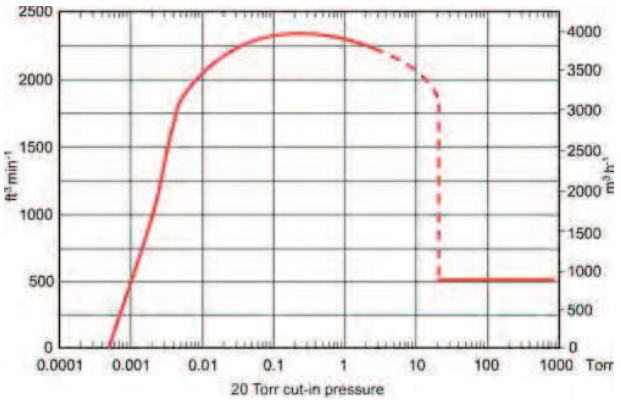
# Stokes 1739HC Mechanical Booster Pump Combination

Whether you need to increase the capacity of your existing system or achieve peak performance for a new installation; Edwards makes taking advantage of the latest technology easy. These field-proven pumping systems are the workhorse of countless industrial and large chamber applications. Each Stokes1700 series mechanical booster pump combination includes a Stokes Microvac backing pump and a belt driven, horizontal flow, high vacuum Stokes 6” series mechanical booster pump. In harsh applications where chemical or particulate contamination is present, process isolation boosters are available as an option. Controls for Stokes 1700 series mechanical booster pump combination include a pressure switch, motor starters, overloads, remote booster selection switch and lights for pump running and fault indication.

## Dimensions



## Performance Curves




## Technical Data

| | |
|---|---|
| Booster displacement | 4420 $m^3 h^{-1}$ / 2600 $ft^3 min^{-1}$ |
| Booster speed | 3600 rpm |
| Booster orientation | Horizontal |
| Pump displacement | 1020 $m^3 h^{-1}$ / 600 $ft^3 min^{-1}$ |
| Pressure switch required | Yes |
| Normal cut-in pressure | 33 mbar / 25 Torr |
| Continuous operation pressure limit | 3.4 mbar / 2.5 Torr |
| Booster drive | 18.6 kW / 25 hp |
| Pump drive (TEFC) | 7.5 kW (x2) / 10 hp (x2) |
| Inlet connections | 8 inch ASA/ANSI flange |
| Discharge connections | 3 inch ASA/ANSI flange, 3 inch NPT (x2) |
| Water inlet/outlet connection | ½ inch NPT (x2) |
| Recommended cooling flow @ 30ºC/85ºF | 7.6 l $min^{-1}$ (x2) / 2 gal $min^{-1}$ (x2) |
| Booster oil capacity (V lube H) | 1.9 liter / 0.51 US gal |
| Microvac oil capacity (V lube F) | 92 liter / 24 US gal |
| Weight | 2733 kg / 6025 lbs |

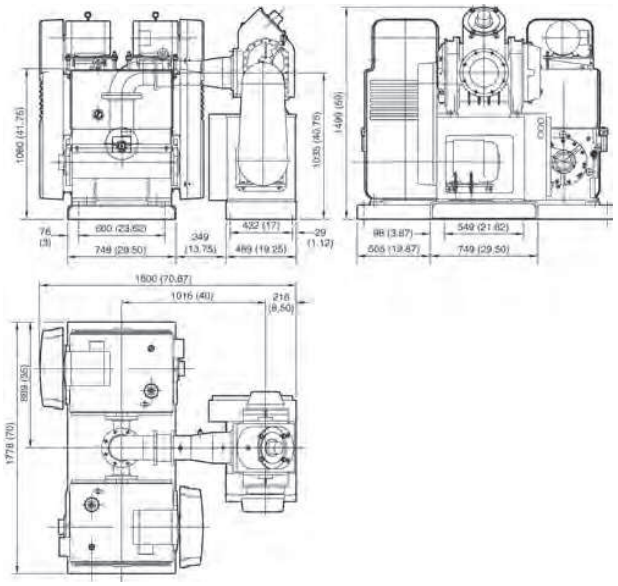
## Ordering Information

| Product Description | Order No. |
|---|---|
| 1739HC 230/460V, 3-ph, 60Hz (230/460V Coil) | 90017C039 |
| **Accessories & Spares** | **Order No.** |
| Replacement parts kit | 429-638-015 |
| Bearings | 085-019-757 |
| Valve deck assembly | 607-417-001 |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |

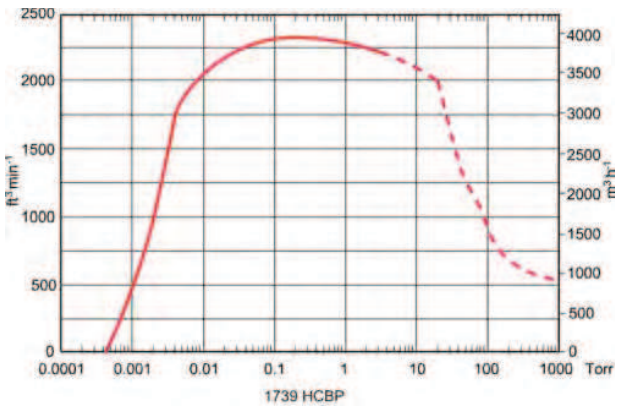
# Stokes 1739HCBP Mechanical Booster Pump Combination

Whether you need to increase the capacity of your existing system or achieve peak performance for a new installation; Edwards makes taking advantage of the latest technology easy. These field-proven pumping systems are the workhorse of countless industrial and large chamber applications. Each Stokes1700 series mechanical booster pump combination includes a Stokes Microvac backing pump and a belt driven, horizontal flow, high vacuum Stokes 6" series mechanical booster pump. In harsh applications where chemical or particulate contamination is present, process isolation boosters are available as an option. Controls for Stokes 1700 series mechanical booster pump combination include a pressure switch, motor starters, overloads, remote booster selection switch and lights for pump running and fault indication.

## Dimensions



## Performance Curves




## Technical Data

| | |
|---|---|
| Booster displacement | 4420 $m^3 h^{-1}$ / 2600 $ft^3 min^{-1}$ |
| Booster speed | 3600 rpm |
| Booster orientation | Horizontal |
| Pump displacement | 1020 $m^3 h^{-1}$ / 600 $ft^3 min^{-1}$ |
| Pressure switch required | No |
| Continuous operation pressure limit | 4 mbar / 3 Torr |
| Booster drive | 18.6 kW / 25 hp |
| Pump drive (TEFC) | 7.5 kW (x2) / 10 hp (x2) |
| Inlet connections | 8 inch ASA/ANSI flange |
| Discharge connections | 3 inch ASA/ANSI flange, 3 inch NPT (x2) |
| Water inlet/outlet connection | ½ inch NPT (x2) |
| Recommended cooling flow @ 30ºC/85ºF | 7.6 l $min^{-1}$ (x2) / 2 gal $min^{-1}$ (x2) |
| Booster oil capacity (V lube H) | 1.9 liter / 0.51 US gal |
| Microvac oil capacity (V lube F) | 92 liter / 24 US gal |
| Weight | 2767 kg / 6100 lbs |

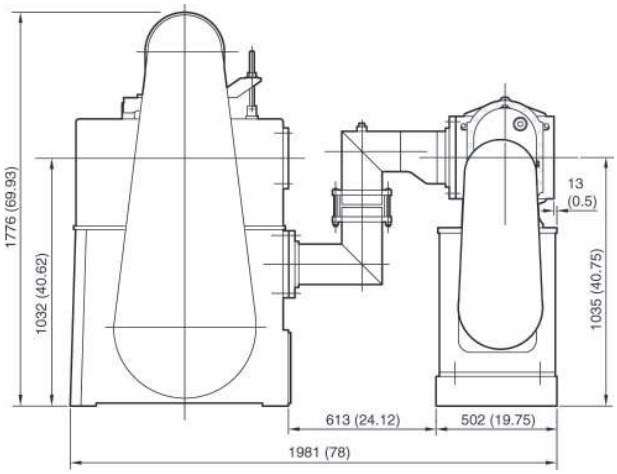
## Ordering Information

| Product Description | Order No. |
|---|---|
| 1739HCBP 230/460V, 3-ph, 60Hz (230/460V Coil) | 90017C39B |
| **Accessories & Spares** | **Order No.** |
| Replacement parts kit | 429-638-015 |
| Bearings | 085-019-757 |
| Valve deck assembly | 607-417-001 |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |

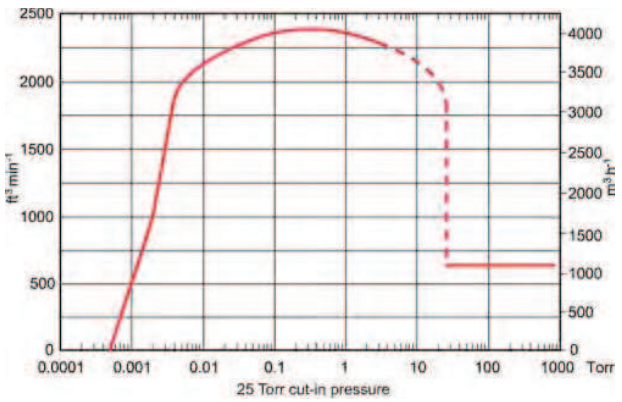
# Stokes 1739HD Mechanical Booster Pump Combination

Whether you need to increase the capacity of your existing system or achieve peak performance for a new installation; Edwards makes taking advantage of the latest technology easy. These field-proven pumping systems are the workhorse of countless industrial and large chamber applications. Each Stokes1700 series mechanical booster pump combination includes a Stokes Microvac backing pump and a belt driven, horizontal flow, high vacuum Stokes 6" series mechanical booster pump. In harsh applications where chemical or particulate contamination is present, process isolation boosters are available as an option. Controls for Stokes 1700 series mechanical booster pump combination include a pressure switch, motor starters, overloads, remote booster selection switch and lights for pump running and fault indication.

## Dimensions




## Performance Curves




## Technical Data

| | |
|---|---|
| Booster displacement | 4420 $m^3 h^{-1}$ / 2600 $ft^3 min^{-1}$ |
| Booster speed | 3600 rpm |
| Booster orientation | Horizontal |
| Pump displacement | 1240 $m^3 h^{-1}$ / 730 $ft^3 min^{-1}$ |
| Pressure switch required | Yes |
| Normal cut-in pressure | 47 mbar / 35 Torr |
| Continuous operation pressure limit | 4 mbar / 3 Torr |
| Booster drive | 18.5 kW / 25 hp |
| Pump drive (TEFC) | 22.5 kW / 30 hp |
| Inlet connections | 8 inch ASA/ANSI flange |
| Discharge connections | 5 inch NPT |
| Water inlet/outlet connection | 1 inch NPT |
| Recommended cooling flow @ 30ºC/85 ºF | 18.9 l $min^{-1}$ / 5 gal $min^{-1}$ |
| Booster oil capacity (V lube H) | 1.9 liter / 0.51 US gal |
| Microvac oil capacity (V lube F) | 76 liter / 20 US gal |
| Weight | 3504 kg / 7725 lbs |

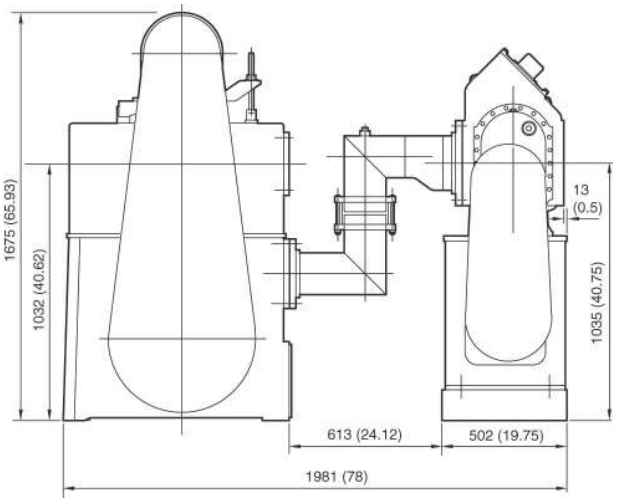
## Ordering Information

| Product Description | Order No. |
|---|---|
| 1739HD 230/460V, 3-ph, 60Hz (230/460V Coil) | 90017D039 |
| **Accessories & Spares** | **Order No.** |
| Replacement roller bearing | 085033795 |
| Replacement oil seal | 085018191 |
| Roller bearing with adaptive sleeve | 085033794 |
| Valve deck stainless steel clappers | 272963002 |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |
| Valve deck springs | 274172001 |

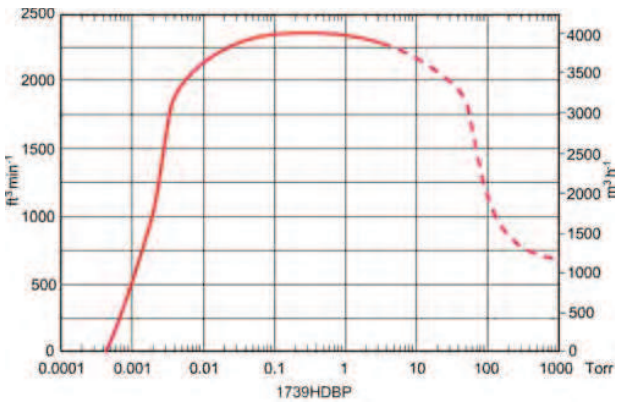
# Stokes 1739HDBP Mechanical Booster Pump Combination

Whether you need to increase the capacity of your existing system or achieve peak performance for a new installation; Edwards makes taking advantage of the latest technology easy. These field-proven pumping systems are the workhorse of countless industrial and large chamber applications. Each Stokes1700 series mechanical booster pump combination includes a Stokes Microvac backing pump and a belt driven, horizontal flow, high vacuum Stokes 6" series mechanical booster pump. In harsh applications where chemical or particulate contamination is present, process isolation boosters are available as an option. Controls for Stokes 1700 series mechanical booster pump combination include a pressure switch, motor starters, overloads, remote booster selection switch and lights for pump running and fault indication.

## Dimensions




## Performance Curves




## Technical Data

| | |
|---|---|
| Booster displacement | 4420 $m^3 h^{-1}$ / 2600 $ft^3 min^{-1}$ |
| Booster speed | 3600 rpm |
| Booster orientation | Horizontal |
| Pump displacement | 1240 $m^3 h^{-1}$ / 730 $ft^3 min^{-1}$ |
| Pressure switch required | No |
| Continuous operation pressure limit | 4 mbar / 3 Torr |
| Booster drive | 18.5 kW / 25 hp |
| Pump drive | 22.5 kW / 30 hp |
| Inlet connections | 8 inch ASA/ANSI flange |
| Discharge connections | 5 inch NPT |
| Water inlet/outlet connection | 1 inch NPT |
| Recommended cooling flow @ 30ºC/85ºF | 18.9 l $min^{-1}$ / 5 gal $min^{-1}$ |
| Booster oil capacity (V lube H) | 1.9 liter / 0.51 US gal |
| Microvac oil capacity (V lube F) | 76 liter / 20 US gal |
| Weight | 3538 kg / 7800 lbs |

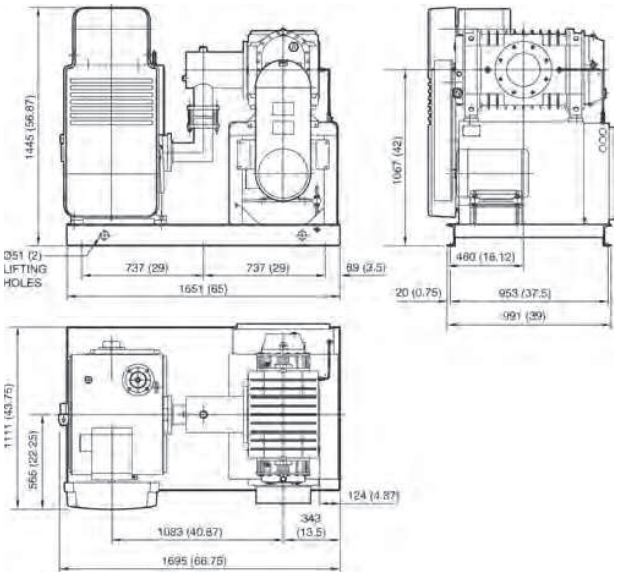
## Ordering Information

| Product Description | Order No. |
|---|---|
| 1739HDBP 230/460V, 3-ph, 60Hz (230/460V Coil) | 90017D39B |
| **Accessories & Spares** | **Order No.** |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |
| Replacement oil seal | 085018191 |
| Replacement roller bearing | 085033795 |
| Roller bearing with adaptive sleeve | 085033794 |
| Valve deck stainless steel clappers | 272963002 |
| Valve deck springs | 274172001 |

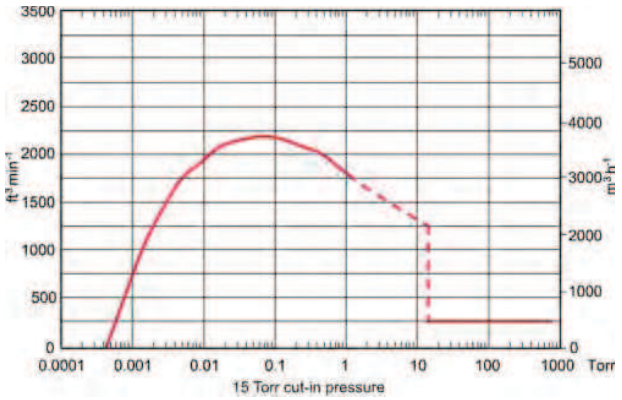
# Stokes 1754 Mechanical Booster Pump Combination

Whether you need to increase the capacity of your existing system or achieve peak performance for a new installation; Edwards makes taking advantage of the latest technology easy. These field-proven pumping systems are the workhorse of countless industrial and large chamber applications. Each Stokes1700 series mechanical booster pump combination includes a Stokes Microvac backing pump and a belt driven, horizontal flow, high vacuum Stokes 6” series mechanical booster pump. In harsh applications where chemical or particulate contamination is present, process isolation boosters are available as an option. Controls for Stokes 1700 series mechanical booster pump combination include a pressure switch, motor starters, overloads, remote booster selection switch and lights for pump running and fault indication.

## Dimensions




## Performance Curves




## Technical Data

| | |
|---|---|
| Booster displacement | 5100 $m^3 h^{-1}$ / 3000 $ft^3 min^{-1}$ |
| Booster speed | 2750 rpm |
| Booster orientation | Horizontal |
| Pump displacement | 510 $m^3 h^{-1}$ / 300 $ft^3 min^{-1}$ |
| Pressure switch required | Yes |
| Normal cut-in pressure | 20 mbar / 15 Torr |
| Continuous operation pressure limit | 1.3 mbar / 1 Torr |
| Booster drive | 15 kW / 20 hp |
| Pump drive | 7.5 kW / 10 hp |
| Inlet connections | 8 inch ASA/ANSI flange |
| Discharge connections | 3 inch ASA/ANSI flange, 3 inch NPT |
| Water inlet connection | ½ inch NPT (2) |
| Water outlet connection | ½ inch NPT |
| Recommended cooling flow @ 30ºC/85ºF | 7.61 l $min^{-1}$ / 2 gal $min^{-1}$ |
| Booster oil capacity (V lube H) | 1.9 liter / 0.51 US gal |
| Microvac oil capacity (V lube F) | 46 liter / 12 US gal |
| Weight | 1678 kg / 3700 lbs |

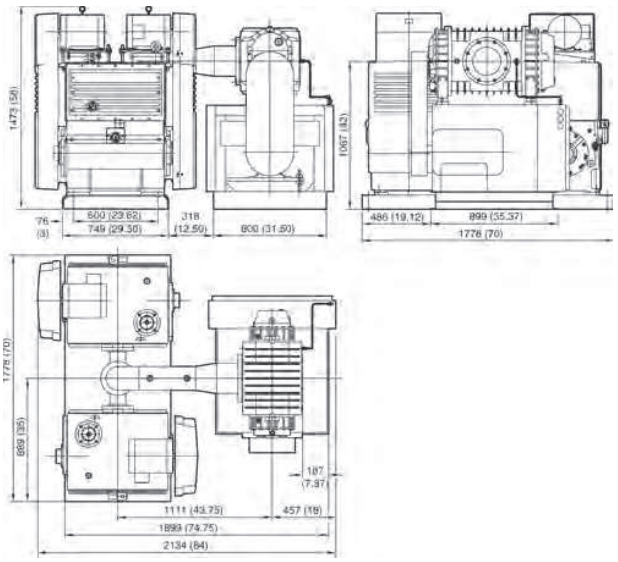
## Ordering Information

| Product Description | Order No. |
|---|---|
| 1754 230/460V, 3-ph, 60Hz (230/460V Coil) | 900170054 |
| **Accessories & Spares** | **Order No.** |
| Replacement parts kit | 429-638-015 |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Bearings | 085-019-757 |
| Valve deck assembly | 607-417-001 |
| Replacement 6" booster - maintenance kit | 607552002 |

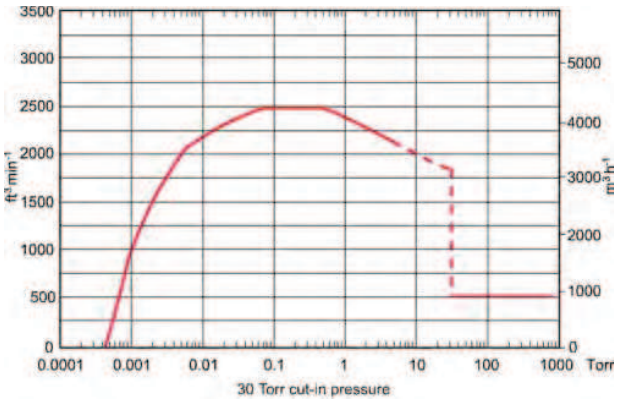
# Stokes 1754HC Mechanical Booster Pump Combination

Whether you need to increase the capacity of your existing system or achieve peak performance for a new installation; Edwards makes taking advantage of the latest technology easy. These field-proven pumping systems are the workhorse of countless industrial and large chamber applications. Each Stokes1700 series mechanical booster pump combination includes a Stokes Microvac backing pump and a belt driven, horizontal flow, high vacuum Stokes 6” series mechanical booster pump. In harsh applications where chemical or particulate contamination is present, process isolation boosters are available as an option. Controls for Stokes 1700 series mechanical booster pump combination include a pressure switch, motor starters, overloads, remote booster selection switch and lights for pump running and fault indication.

## Dimensions




## Performance Curves




## Technical Data

| | |
|---|---|
| Booster displacement | 5100 $m^3 h^{-1}$ / 3000 $ft^3 min^{-1}$ |
| Booster speed | 2750 rpm |
| Booster orientation | Horizontal |
| Pump displacement | 1020 $m^3 h^{-1}$ / 600 $ft^3 min^{-1}$ |
| Pressure switch required | Yes |
| Normal cut-in pressure | 40 mbar / 30 Torr |
| Continuous operation pressure limit | 4 mbar / 3 Torr |
| Booster drive | 18.5 kW / 25 hp |
| Pump drive | 7.5 kW (x2) / 10 hp (x2) |
| Inlet connections | 8 inch ASA/ANSI flange |
| Discharge connections | 3 inch ASA/ANSI flange, 3 inch NPT (x2) |
| Water inlet/outlet connection | ½ inch NPT (x2) |
| Recommended cooling flow @ 30ºC/85ºF | 7.61 l $min^{-1}$ (x2) / 2 gal $min^{-1}$ (x2) |
| Booster oil capacity (V lube H) | 1.9 liter / 0.51 US gal |
| Microvac oil capacity (V lube F) | 92 liter / 24 US gal |
| Weight | 2722 kg / 6000 lbs |

## Ordering Information

| Product Description | Order No. |
|---|---|
| 1754HC 230/460V, 3-ph, 60Hz (230/460V Coil) | 900170055 |
| **Accessories & Spares** | **Order No.** |
| Replacement parts kit | 429-638-015 |
| Bearings | 085-019-757 |
| Valve deck assembly | 607-417-001 |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |

# EV20 Oil Sealed Pump

The EV rotary vane pumps are designed to be used in a wide range of industrial and scientific applications. They can be used individually or with mechanical booster pumps to increase both performance and ultimate vacuum. They can operate continuously from atmosphere to ultimate.

With reliability and ease of service in mind, the EV range of pumps are designed for the industrial and scientific markets. Edwards Applications Specialists have unrivalled knowledge and can advise on pump selection, configuration and operation to suit any customers' requirements. The EV range can be supplied individually or as part of pre-engineered combinations using Edwards EH mechanical boosters.

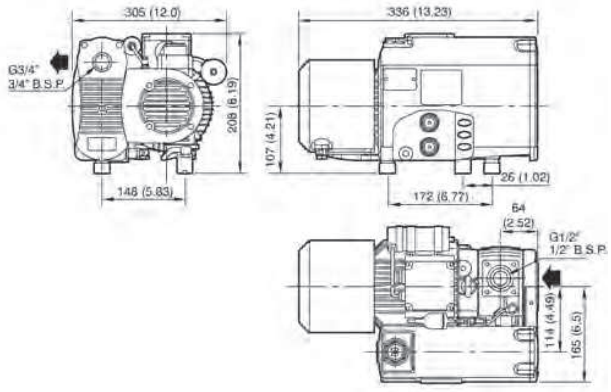
## Features & Benefits

- Continuous operation from atmosphere to ultimate vacuum
- High pumping speed at low pressure
- Gas ballast valve fitted as standard
- Low noise and vibration
- Air cooled

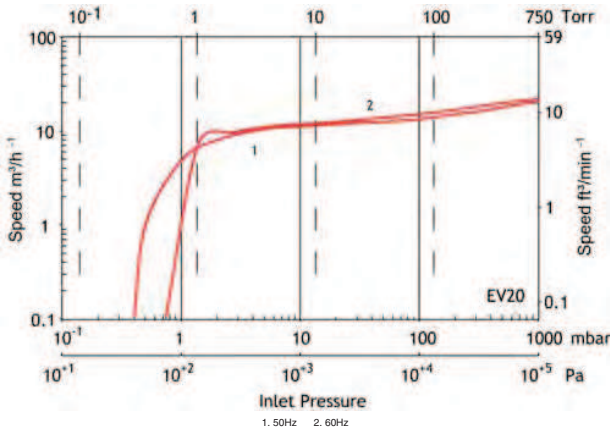
## Applications

- Furnaces and metallurgy industries
- Food processing and packaging
- Lifting
- Vacuum coating
- Vacuum transporting

## Dimensions




## Performance Curves




## Technical Data

| | |
|---|---|
| Pumping speed 50 Hz | 18 $m^3 h^{-1}$ / 11 $ft^3 min^{-1}$ |
| Pumping speed 60 Hz | 21 $m^3 h^{-1}$ / 13 $ft^3 min^{-1}$ |
| Ultimate comparative partial pressure without gas ballast | <1 x $10^{-1}$ mbar |
| Water vapor capacity | 0.4 kg $h^{-1}$ @ 10 mbar / 0.9 lb $h^{-1}$ @ 10 mbar |
| Electricity supply 50 Hz | 175-260 / 300-450 V |
| Electricity supply 60 Hz | 190-290 / 330-500 V |
| Motor Power 50 Hz | 0.55 kW / 0.75hp |
| Motor Power 60 Hz | 0.66 kW / 1.0 hp |
| Noise 50 Hz | 63 dB(A) |
| Noise 60 Hz | 67 dB(A) |
| Weight | 20 kg / 44 lbs |
| Oil capacity | 0.5 liter / 0.13 US gal |
| Oil Type | UG20 |

## Ordering Information

| Product Description | Order No. |
|---|---|
| EV20 175-260/300-450V, 50Hz, 190-290/330-500V, 60Hz | A35010940 |

# EV40 Oil Sealed Pump

The EV rotary vane pumps are designed to be used in a wide range of industrial and scientific applications. They can be used individually or with mechanical booster pumps to increase both performance and ultimate vacuum. They can operate continuously from atmosphere to ultimate.

With reliability and ease of service in mind, the EV range of pumps are designed for the industrial and scientific markets. Edwards Applications Specialists have unrivalled knowledge and can advise on pump selection, configuration and operation to suit any customers' requirements. The EV range can be supplied individually or as part of pre-engineered combinations using Edwards EH mechanical boosters.

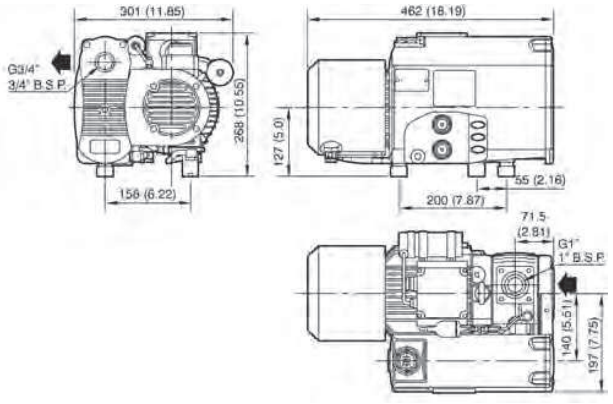
## Features & Benefits

- Continuous operation from atmosphere to ultimate vacuum
- High pumping speed at low pressure
- Gas ballast valve fitted as standard
- Low noise and vibration
- Air cooled

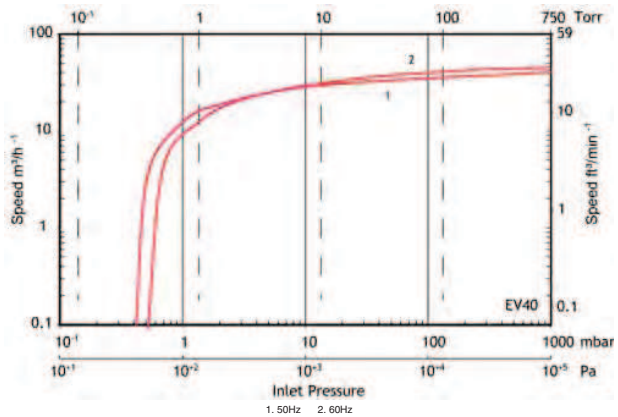
## Applications

- Furnaces and metallurgy industries
- Food processing and packaging
- Lifting
- Vacuum coating
- Vacuum transporting

## Dimensions




## Performance Curves




## Technical Data

| | |
|---|---|
| Pumping speed 50 Hz | 41 $m^3 h^{-1}$ / 25 $ft^3 min^{-1}$ |
| Pumping speed 60 Hz | 48 $m^3 h^{-1}$ / 29 $ft^3 min^{-1}$ |
| Ultimate comparative partial pressure without gas ballast | <1 x $10^{-1}$ mbar |
| Water vapor capacity | 0.3 kg $h^{-1}$ @ 10 mbar / 0.7 lb $h^{-1}$ @ 10 mbar |
| Electricity supply 50 Hz | 190-255 / 330-440 V |
| Electricity supply 60 Hz | 190-290 / 330-500 V |
| Motor Power 50 Hz | 1.5 kW / 2.0 hp |
| Motor Power 60 Hz | 1.8 kW / 2.5 hp |
| Noise 50 Hz | 69 dB(A) |
| Noise 60 Hz | 71 dB(A) |
| Weight | 38 kg / 84 lbs |
| Oil capacity | 1 liter / 0.26 US gal |
| Oil Type | UG20 |

## Ordering Information

| Product Description | Order No. |
|---|---|
| EV40 190-255/330-440V, 50Hz, 190-290/330-500V, 60Hz | A35015940 |

# EV70 Oil Sealed Pump

The EV rotary vane pumps are designed to be used in a wide range of industrial and scientific applications. They can be used individually or with mechanical booster pumps to increase both performance and ultimate vacuum. They can operate continuously from atmosphere to ultimate.

With reliability and ease of service in mind, the EV range of pumps are designed for the industrial and scientific markets. Edwards Applications Specialists have unrivalled knowledge and can advise on pump selection, configuration and operation to suit any customers' requirements. The EV range can be supplied individually or as part of pre-engineered combinations using Edwards EH mechanical boosters.

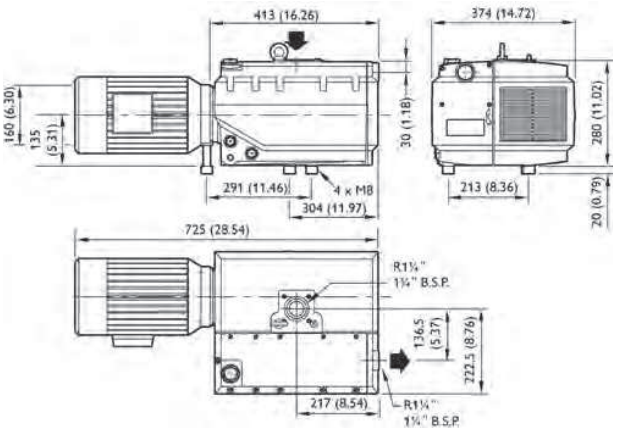
## Features & Benefits

- Continuous operation from atmosphere to ultimate vacuum
- High pumping speed at low pressure
- Gas ballast valve fitted as standard
- Low noise and vibration
- Air cooled

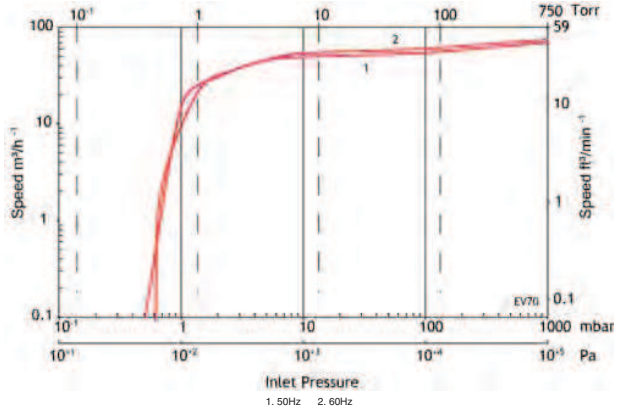
## Applications

- Furnaces and metallurgy industries
- Food processing and packaging
- Lifting
- Vacuum coating
- Vacuum transporting

## Dimensions




## Performance Curves




## Technical Data

| | |
|---|---|
| Pumping speed 50 Hz | 58 $m^3h^{-1}$ / 35 $ft^3min^{-1}$ |
| Pumping speed 60 Hz | 73 $m^3h^{-1}$ / 44 $ft^3min^{-1}$ |
| Ultimate comparative partial pressure without gas ballast | <1 x $10^{-1}$ mbar |
| Water vapor capacity | 0.57 kg $h^{-1}$ @ 10 mbar / 1.3 lb $h^{-1}$ @ 10 mbar |
| Electricity supply 50 Hz | 190-255 / 330-440 V |
| Electricity supply 60 Hz | 190-290 / 330-500 V |
| Motor Power 50 Hz | 2.4 kW / 3.25hp |
| Motor Power 60 Hz | 3 kW / 4.0hp |
| Noise 50 Hz | 67 dB(A) |
| Noise 60 Hz | 68.5 dB(A) |
| Weight | 62 kg / 136 lbs |
| Oil capacity | 2 liter / 0.53 US gal |
| Oil Type | UG20 |

## Ordering Information

| Product Description | Order No. |
|---|---|
| EV70 190-255/330-440V, 50Hz, 190-290/330-500V, 60Hz | A35020940 |

# EV100 Oil Sealed Pump

The EV rotary vane pumps are designed to be used in a wide range of industrial and scientific applications. They can be used individually or with mechanical booster pumps to increase both performance and ultimate vacuum. They can operate continuously from atmosphere to ultimate.

With reliability and ease of service in mind, the EV range of pumps are designed for the industrial and scientific markets. Edwards Applications Specialists have unrivalled knowledge and can advise on pump selection, configuration and operation to suit any customers' requirements. The EV range can be supplied individually or as part of pre-engineered combinations using either Edwards EH or MB mechanical boosters.

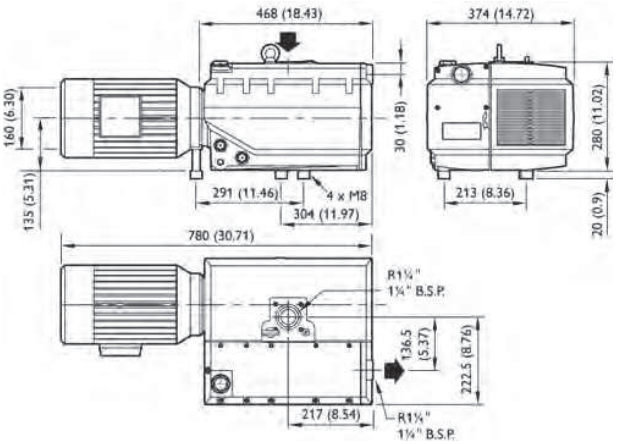
## Features & Benefits

- Continuous operation from atmosphere to ultimate vacuum
- High pumping speed at low pressure
- Gas ballast valve fitted as standard
- Low noise and vibration
- Air cooled

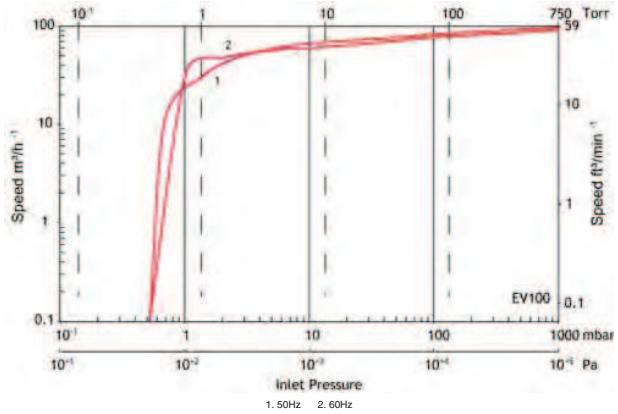
## Applications

- Furnaces and metallurgy industries
- Food processing and packaging
- Lifting
- Vacuum coating
- Vacuum transporting

## Dimensions




## Performance Curves




## Technical Data

| | |
|---|---|
| Pumping speed 50 Hz | 100 $m^3 h^{-1}$ / 60 $ft^3 min^{-1}$ |
| Pumping speed 60 Hz | 117 $m^3 h^{-1}$ / 70 $ft^3 min^{-1}$ |
| Ultimate comparative partial pressure without gas ballast | <1 x $10^{-1}$ mbar |
| Water vapor capacity | 0.36 kg $h^{-1}$ @ 10 mbar / 0.8 lb $h^{-1}$ @ 10 mbar |
| Electricity supply 50 Hz | 190-255 / 330-440 V |
| Electricity supply 60 Hz | 190-290 / 330-500 V |
| Motor Power 50 Hz | 2.4 kW / 3.25 hp |
| Motor Power 50 Hz | 3 kW / 4.0 hp |
| Noise 50 Hz | 67.5 dB(A) |
| Noise 60 Hz | 69 dB(A) |
| Weight | 65 kg / 143 lbs |
| Oil capacity | 2 liter / 0.53 US gal |
| Oil Type | UG20 |

## Ordering Information

| Product Description | Order No. |
|---|---|
| EV100 190-255/330-440V, 50Hz, 190-290/330-500V, 60Hz | A35025940 |

# EV160 Oil Sealed Pump

The EV rotary vane pumps are designed to be used in a wide range of industrial and scientific applications. They can be used individually or with mechanical booster pumps to increase both performance and ultimate vacuum. They can operate continuously from atmosphere to ultimate.

With reliability and ease of service in mind, the EV range of pumps are designed for the industrial and scientific markets. Edwards Applications Specialists have unrivalled knowledge and can advise on pump selection, configuration and operation to suit any customers' requirements. The EV range can be supplied individually or as part of pre-engineered combinations using Edwards EH mechanical boosters.

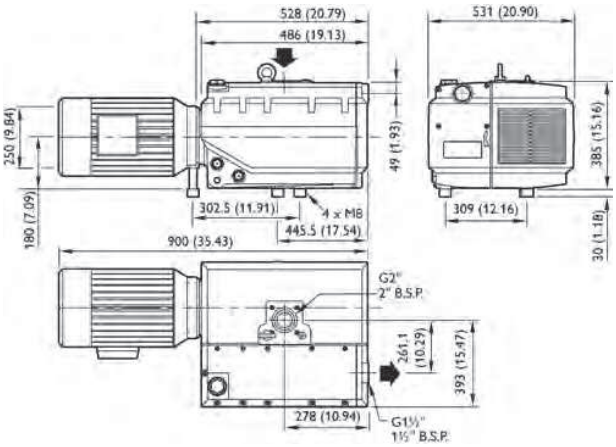
## Features & Benefits

- Continuous operation from atmosphere to ultimate vacuum
- High pumping speed at low pressure
- Gas ballast valve fitted as standard
- Low noise and vibration
- Air cooled

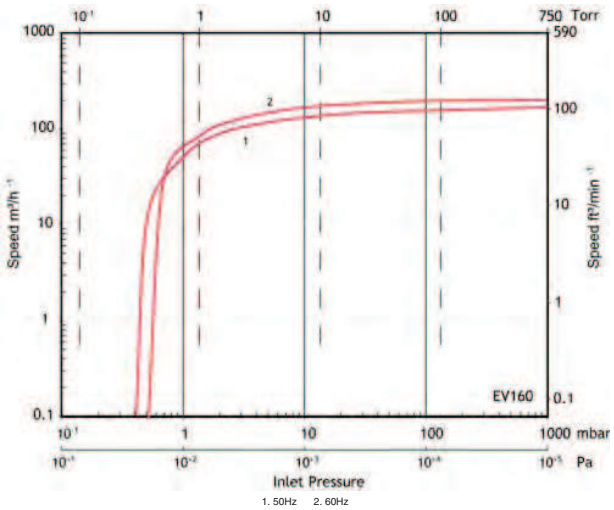
## Applications

- Furnaces and metallurgy industries
- Food processing and packaging
- Lifting
- Vacuum coating
- Vacuum transporting

## Dimensions




## Performance Curves




## Technical Data

| | |
|---|---|
| Pumping speed 50 Hz | 160 $m^3 h^{-1}$ / 96 $ft^3 min^{-1}$ |
| Pumping speed 60 Hz | 192 $m^3 h^{-1}$ / 116 $ft^3 min^{-1}$ |
| Ultimate comparative partial pressure without gas ballast | <1 x $10^{-1}$ mbar |
| Water vapor capacity | 1.2 kg $h^{-1}$ @ 10 mbar / 2.6 lb $h^{-1}$ @ 10 mbar |
| Electricity supply 50 Hz | 190-255 / 330-440 V |
| Electricity supply 60 Hz | 190-290 / 330-500 V |
| Motor Power 50 Hz | 4 kW / 5.5 hp |
| Motor Power 60 Hz | 4.8 kW / 6.5 hp |
| Noise 50 Hz | 71 dB(A) |
| Noise 60 Hz | 74 dB(A) |
| Weight | 129 kg / 284 lbs |
| Oil capacity | 7 liter / 1.84 US gal |
| Oil Type | UG20 |

## Ordering Information

| Product Description | Order No. |
|---|---|
| EV160 190-255/330-440V, 50Hz, 190-290/330-500V, 60Hz | A35030940 |

# EV200 Rotary vane pump

The EV rotary vane pumps are designed to be used in a wide range of industrial and scientific applications. They can be used individually or with mechanical booster pumps to increase both performance and ultimate vacuum. They can operate continuously from atmosphere to ultimate.

With reliability and ease of service in mind, the EV range of pumps are designed for the industrial and scientific markets. Edwards Applications Specialists have unrivalled knowledge and can advise on pump selection, configuration and operation to suit any customers' requirements. The EV range can be supplied individually or as part of pre-engineered combinations using Edwards EH mechanical boosters.

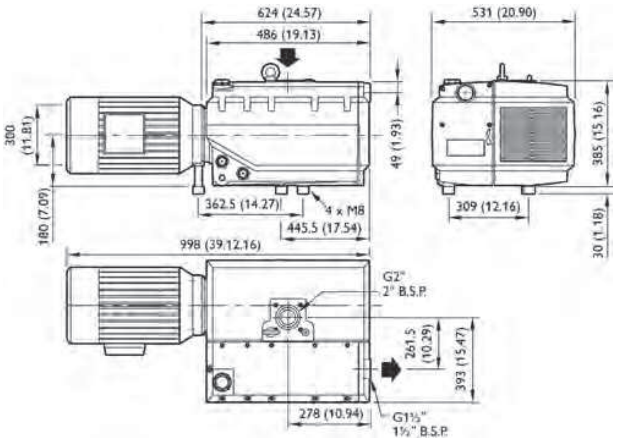
## Features & Benefits

- Continuous operation from atmosphere to ultimate vacuum
- High pumping speed at low pressure
- Gas ballast valve fitted as standard
- Low noise and vibration
- Air cooled

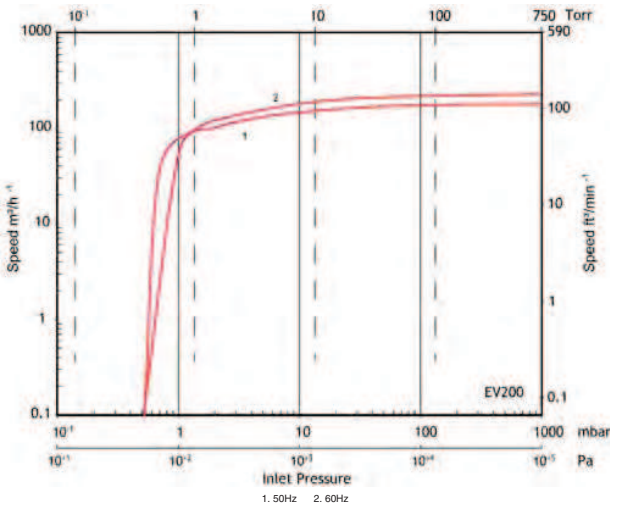
## Applications

- Furnaces and metallurgy industries
- Food processing and packaging
- Lifting
- Vacuum coating
- Vacuum transporting

## Dimensions




## Performance Curves




## Technical Data

| | |
|---|---|
| Pumping speed 50 Hz | 184 $m^3 h^{-1}$ / 111 $ft^3 min^{-1}$ |
| Pumping speed 60 Hz | 221 $m^3 h^{-1}$ / 133 $ft^3 min^{-1}$ |
| Ultimate comparative partial pressure without gas ballast | <1 x $10^{-1}$ mbar |
| Water vapor capacity | 1.33 kg $h^{-1}$ @ 10 mbar / 2.9 lb $h^{-1}$ @ 10 mbar |
| Electricity supply 50 Hz | 340-430V / 588-745V or 200V |
| Electricity supply 60 Hz | 340-500V / 590-865V or 200V |
| Motor Power 50 Hz | 5.5 kW / 7.5 hp |
| Motor Power 60 Hz | 6.4 kW / 8.5 hp |
| Noise 50 Hz | 73 dB(A) |
| Noise 60 Hz | 76 dB(A) |
| Weight | 163 kg / 359 lbs |
| Oil capacity | 7 liter / 1.84 US gal |
| Oil Type | UG20 |

## Ordering Information

| Product Description | Order No. |
|---|---|
| EV200 200V, 50/60Hz | A35035934 |
| EV200 340-430/588-745V, 50Hz, 340-500/590-865V, 60Hz | A35035940 |

# EV300 Rotary vane pump

The EV rotary vane pumps are designed to be used in a wide range of industrial and scientific applications. They can be used individually or with mechanical booster pumps to increase both performance and ultimate vacuum. They can operate continuously from atmosphere to ultimate.

With reliability and ease of service in mind, the EV range of pumps are designed for the industrial and scientific markets. Edwards Applications Specialists have unrivalled knowledge and can advise on pump selection, configuration and operation to suit any customers' requirements. The EV range can be supplied individually or as part of pre-engineered combinations using Edwards EH mechanical boosters.

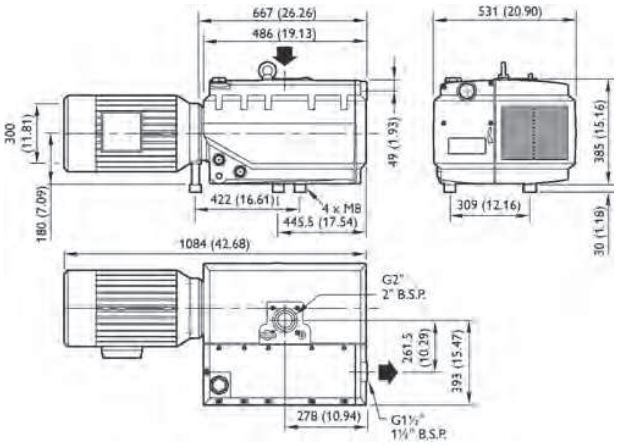
## Features & Benefits

- Continuous operation from atmosphere to ultimate vacuum
- High pumping speed at low pressure
- Gas ballast valve fitted as standard
- Low noise and vibration
- Air cooled

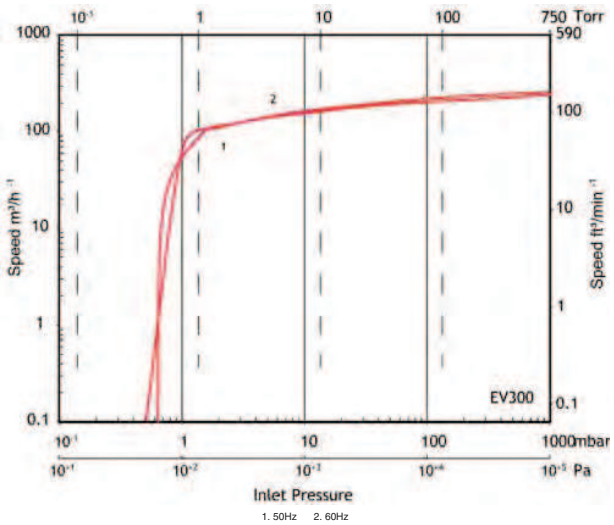
## Applications

- Furnaces and metallurgy industries
- Food processing and packaging
- Lifting
- Vacuum coating
- Vacuum transporting

## Dimensions




## Performance Curves




## Technical Data

| | |
|---|---|
| Pumping speed 50 Hz | 240 $m^3 h^{-1}$ / 145 $ft^3 min^{-1}$ |
| Pumping speed 60 Hz | 274 $m^3 h^{-1}$ / 165 $ft^3 min^{-1}$ |
| Ultimate comparative partial pressure without gas ballast | <1 x $10^{-1}$ mbar |
| Water vapor capacity | 1.4 kg $h^{-1}$ @ 10 mbar / 3.1 lb $h^{-1}$ @ 10 mbar |
| Electricity supply 50 Hz | 340-430V / 588-745V or 200V |
| Electricity supply 60 Hz | 340-500V / 590-865V or 200V |
| Motor Power 50 Hz | 7.8 kW / 10.5 hp |
| Motor Power 60 Hz | 9.3 kW / 12.5 hp |
| Noise 50 Hz | 73 dB(A) |
| Noise 60 Hz | 76 dB(A) |
| Weight | 178 kg / 392 lbs |
| Oil capacity | 7 liter / 1.84 US gal |
| Oil Type | UG20 |

## Ordering Information

| Product Description | Order No. |
|---|---|
| EV300 200V, 50/60Hz | A35040934 |
| EV300 340-430/588-745V, 50Hz, 340-500/590-865V, 60Hz | A35040940 |

# EV400 Rotary vane pump

The EV rotary vane pumps are designed to be used in a wide range of industrial and scientific applications. They can be used individually or with mechanical booster pumps to increase both performance and ultimate vacuum. They can operate continuously from atmosphere to ultimate.

With reliability and ease of service in mind, the EV range of pumps are designed for the industrial and scientific markets. Edwards Applications Specialists have unrivalled knowledge and can advise on pump selection, configuration and operation to suit any customers' requirements. The EV range can be supplied individually or as part of pre-engineered combinations using Edwards EH mechanical boosters.

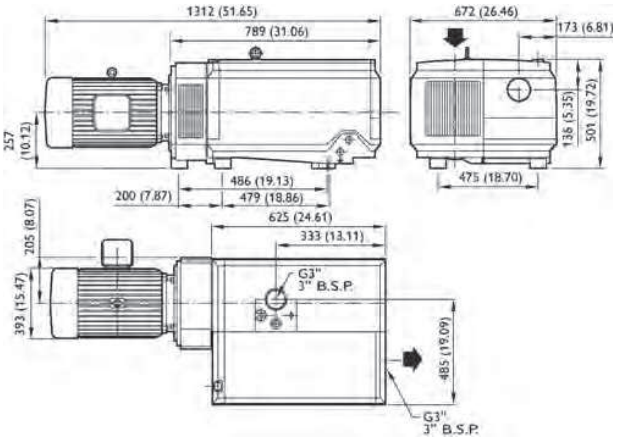
## Features & Benefits

- Continuous operation from atmosphere to ultimate vacuum
- High pumping speed at low pressure
- Gas ballast valve fitted as standard
- Low noise and vibration
- Air cooled

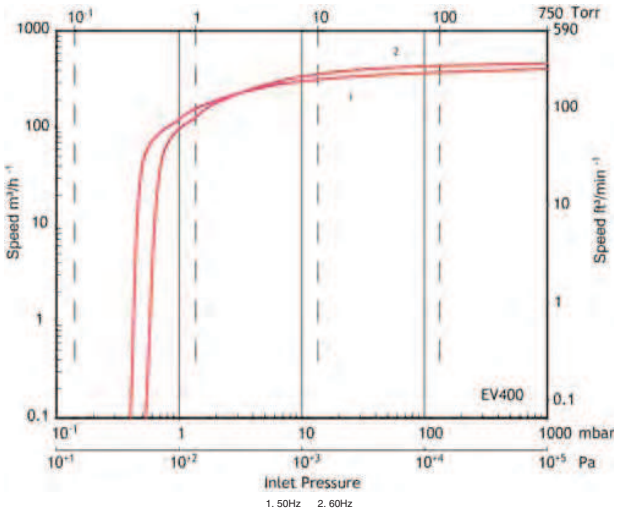
## Applications

- Furnaces and metallurgy industries
- Food processing and packaging
- Lifting
- Vacuum coating
- Vacuum transporting

## Dimensions




## Performance Curves




## Technical Data

| | |
|---|---|
| Pumping speed 50 Hz | 400 $m^3 h^{-1}$ / 241 $ft^3 min^{-1}$ |
| Pumping speed 60 Hz | 480 $m^3 h^{-1}$ / 289 $ft^3 min^{-1}$ |
| Ultimate comparative partial pressure without gas ballast | <1 x $10^{-1}$ mbar |
| Water vapor capacity | 6.0 kg $h^{-1}$ @ 10 mbar / 13.2 lb $h^{-1}$ @ 10 mbar |
| Electricity supply 50 Hz | 340-430V / 588-745V or 200V |
| Electricity supply 60 Hz | 340-500V / 590-865V or 200V |
| Motor Power 50 Hz | 11 kW / 15 hp |
| Motor Power 60 Hz | 12.5 kW / 17 hp |
| Noise 50 Hz | 78 dB(A) |
| Noise 60 Hz | 81 dB(A) |
| Weight | 400 kg / 880 lbs |
| Oil capacity | 15 liter / 3.96 US gal |
| Oil Type | UG20 |

## Ordering Information

| Product Description | Order No. |
|---|---|
| EV400 200V, 50/60Hz | A35045934 |
| EV400 340-430/588-745V, 50Hz, 340-500/590-865V, 60Hz | A35045940 |

# EV630 Rotary vane pump

The EV rotary vane pumps are designed to be used in a wide range of industrial and scientific applications. They can be used individually or with mechanical booster pumps to increase both performance and ultimate vacuum. They can operate continuously from atmosphere to ultimate.

With reliability and ease of service in mind, the EV range of pumps are designed for the industrial and scientific markets. Edwards Applications Specialists have unrivalled knowledge and can advise on pump selection, configuration and operation to suit any customers' requirements. The EV range can be supplied individually or as part of pre-engineered combinations using Edwards EH mechanical boosters.

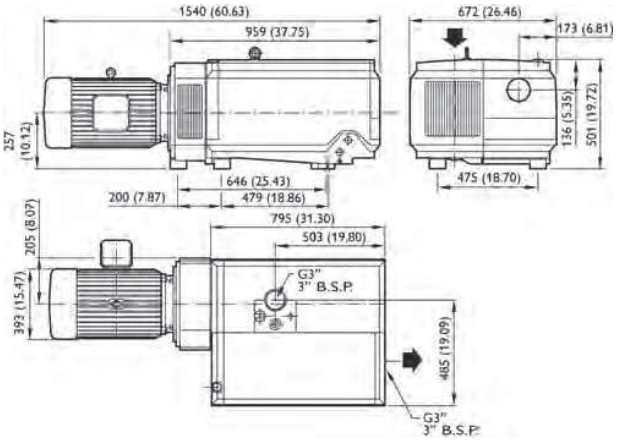
## Features & Benefits

- Continuous operation from atmosphere to ultimate vacuum
- High pumping speed at low pressure
- Gas ballast valve fitted as standard
- Low noise and vibration
- Air cooled

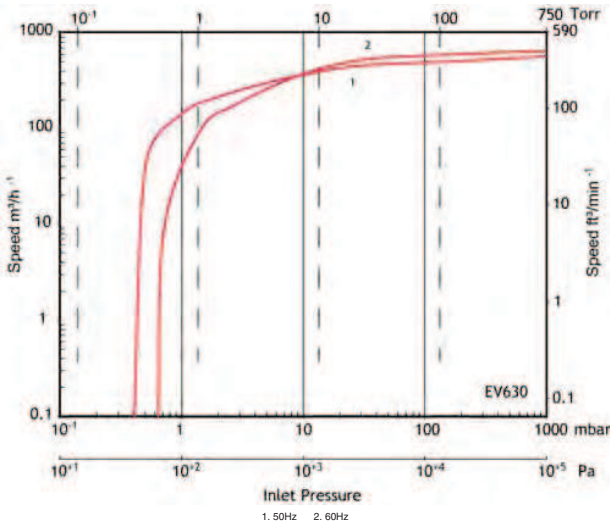
## Applications

- Furnaces and metallurgy industries
- Food processing and packaging
- Lifting
- Vacuum coating
- Vacuum transporting

## Dimensions




## Performance Curves




## Technical Data

| | |
|---|---|
| Pumping speed 50 Hz | 630 $m^3 h^{-1}$ / 380 $ft^3 min^{-1}$ |
| Pumping speed 60 Hz | 750 $m^3 h^{-1}$ / 452 $ft^3 min^{-1}$ |
| Ultimate comparative partial pressure without gas ballast | <1 x $10^{-1}$ mbar |
| Water vapor capacity | 10.4 kg $h^{-1}$ @ 4 mbar / 22.9 lb $h^{-1}$ @ 4 mbar |
| Electricity supply 50 Hz | 400V / 690V* or 200V |
| Electricity supply 60 Hz | 400V / 690V* or 200V |
| Motor Power 50 Hz | 15 kW / 20 hp |
| Motor Power 60 Hz | 18.5 kW / 25 hp |
| Noise 50 Hz | 80 dB(A) |
| Noise 60 Hz | 83 dB(A) |
| Weight | 525 kg / 1155 lbs |
| Oil capacity | 15 liter / 3.96 US gal |
| Oil Type | UG20 |

## Ordering Information

| Product Description | Order No. |
|---|---|
| EV630 200V, 50/60Hz | A35050934 |
| EV630 400/690V, 50/60Hz | A35050940 |

# Accessories for Single Stage Oil Sealed Pumps

## Oil Level Switch

An oil level switch is available to order as a separate item that can be fitted to give an indication or warning of low oil level in the pump. This allows the user to remotely monitor the oil level and add oil or plan maintenance to prevent potentially serious damage occurring to the pump.

### Ordering Information

| Product Description | Order No. |
|---|---|
| Oil level switch EV20, EV40 | A35010300 |
| Oil level switch EV70, EV100, EV160, EV200, EV300, EV400, EV630 | A35020300 |

## Inlet Filter

A full range of inlet filters for all models are available for use when there is the possibility of harmful dust or debris entering the pump during operation and potentially causing damage or increased wear to the pump mechanism.

### Ordering Information

| Product Description | Order No. |
|---|---|
| Inlet filters complete with fittings | |
| Inlet filter EV20 | A35010310 |
| Inlet filter EV40 | A35015310 |
| Inlet filter EV70, EV100 | A35025310 |
| Inlet filter EV160, EV200, EV300 | A35030310 |
| Inlet filter EV400, EV630 | A35045310 |
| **Spares** | **Order No.** |
| Inlet filter element EV20 | A35010700 |
| Inlet filter element EV40 | A35015700 |
| Inlet filter element EV70, EV100 | A35025700 |
| Inlet filter element EV160, EV200, EV300 | A35030700 |
| Inlet filter element EV400, EV630 | A35045700 |

## Spares

Three levels of spares kits are available. Filter kit containing exhaust mist filters, Service kit containing filter kit, seals and blades and an Overhaul kit containing service kit and parts to completely rebuild a pump such as bearings, etc.

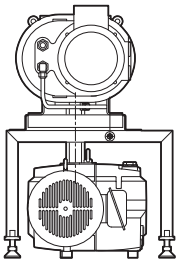
### Ordering Information

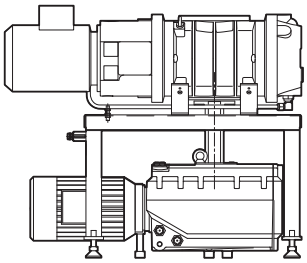
| Spares | Order No. |
|---|---|
| Filter kit EV20 (index A-B) | A35010800 |
| Service kit EV20 (index A) | A35010810 |
| Service kit EV20 (index B) | A35010811 |
| Overhaul kit EV20 (index A) | A35010820 |
| Overhaul kit EV20 (index B) | A35010821 |
| Filter kit EV40 | A35015800 |
| Service kit EV40 | A35015810 |
| Service kit EV40 (index A) | A35015811 |
| Overhaul kit EV40 | A35015820 |
| Overhaul kit EV40 (index A) | A35015821 |
| Filter kit EV70 (index D-G) | A35020801 |
| Service kit EV70 (index D-F) | A35020811 |
| Service kit EV70 (index G) | A35020812 |
| Overhaul kit EV70 (index F) | A35020822 |
| Overhaul kit EV70 (index G) | A35020823 |
| Filter kit EV100 (index D-G) | A35025801 |
| Service kit EV100 (index D-F) | A35025811 |
| Service kit EV100 (index G) | A35025812 |
| Overhaul kit EV100 (index F) | A35025822 |
| Overhaul kit EV100 (index G) | A35025823 |
| Filter kit EV160 (index F) | A35030802 |
| Service kit EV160 (index F) | A35030812 |
| Overhaul kit EV160 (index F) | A35030822 |
| Filter kit EV200 (index E-F) | A35035801 |
| Service kit EV200 (index F) | A35035812 |
| Overhaul kit EV200 (index F) | A35035822 |
| Filter kit EV300 (index E-F) | A35040801 |
| Service kit EV300 (index F) | A35040812 |
| Overhaul kit EV300 (index F) | A35040822 |
| Filter kit EV400 (index A&D) | A35045800 |
| Service kit EV400 (index A&D) | A35045810 |
| Overhaul kit EV400 (index D) | A35045821 |
| Filter kit EV630 (index C-D) | A35050800 |
| Service kit EV630 (index C-D) | A35050810 |
| Overhaul kit EV630 (index C-D) | A35050820 |

# EV Single Stage Oil Sealed Pump Combinations

Our comprehensive range of EV pumps and mechanical boosters, complete with connection kits to mount the mechanical booster allows the user to specify a complete system. The fitting of a mechanical booster to an EV rotary vane pump significantly increases pumping speed and vacuum performance of the system, as well as increasing the ultimate vacuum attainable by approximately one decade of pressure.

Specifying a combination is simply a process of selecting the EV pump, selecting the required mechanical booster (from catalogue) and the appropriate connection kit shown below. The connection kits are supplied as a kit of parts that allows them to be easily assembled, together with the EV pump and mechanical booster on site. Clear and concise instructions are included with the kits to make this a very simple process.





## Ordering Information Booster Connections

| | Booster | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Primary pump** | **EH250** | **EH500** | **EH1200** | **607MV05** | **EH2600** | **615MV10 61BMV10** | **EH4200** | **615MV15 61BMV25** | **622MV25** |
| **EV100** | NR7001000 | NR7002000 | NR7003000 | NR7046000 | | | | | |
| **EV100 50 Hz** | | NRD236000 | NRD238000 | | | | | | |
| **EV100 60 Hz** | | NRD237000 | NRD239000 | | | | | | |
| **EV160** | | NR7006000 | NR7007000 | NR7047000 | | NR7050000 | | | |
| **EV200** | | NR7010000 | NR7011000 | | | NR7050000 | | | |
| **EV300** | | NR7014000 | NR7015000 | | NR7016000 | NR7050000 | NR7017000 | NR7050000 | |
| **EV300 50 Hz** | | | NRD240000 | | NRD242000 | | | | |
| **EV300 60 Hz** | | | NRD241000 | | NRD243000 | | | | |
| **EV400** | | | NR7021000 | | NR7022000 | NR7056000 | NR7023000 | NR7056000 | |
| **EV630** | | | NR7028000 | | NR7029000 | NR7056000 | NR7030000 | NR7056000 | NR7064000 |

To ensure that both pumps and connecting kits are ordered:

Select the required EV pump – order as individual item

Select the required mechanical booster – order as individual item

Select the connection kit required to mount the booster on the EV pump from the table above – order as individual item

The three components will be supplied packed individually for assembly on receipt. The mounting kit contains simple instructions detailing the operations required to assemble the mounting kit and how to connect both the EV and mechanical booster together as a system.

# EH Mechanical Booster Pumps

The EH mechanical booster pumps feature the unique hydrokinetic drive, providing an efficient power transmission with benefits in economy, performance and compactness. The hydrokinetic drive provides the following features:

- Pump down times cut by 50%, when compared with direct drive pumps
- No bypass lines or pressure switches required
- Universal voltage motors
- Reduced capital and operating costs
- Air cooled motors – with water cooled options
- Quiet, minimum vibration

The EH mechanical booster pumps, based on the simple Roots principle, remain the favorite pumps for applications where high pumping speeds over 3000 $m^3h^{-1}$ / 1776 $ft^3min^{-1}$ are required in the pressure region of 0.01 to 50 mbar / 0.0075 to 37.5 Torr. These pumps must always be backed by another pump which can deliver against a high pressure differential to atmospheric pressure.

Operating at relatively low pressures, the mechanical booster pump is not exposed to the same concentrations of corrosive process media as is the backing pump, which makes it highly reliable.



## High Performance Pumping Mechanism

The EH has a high quality, oil-free pumping mechanism. This offers:

- Quiet, vibration free operation
- Rugged and corrosion resistant
- Advanced shaft-seal technology – no oil contamination of process chamber

The corrosion resistant pumping mechanism is manufactured from high grade cast iron. The proven shaft-seal arrangement ensures that no oil enters the pumping stator, and the absence of internal and external by-pass lines and valves which may corrode or stick minimizes maintenance requirements.

The design of the shaft seals is optimised to ensure that no lubricants can migrate into the pumping mechanism. This maintains booster pump performance in applications which demand the highest standard of cleanliness. In addition, this prevents the build-up of trapped particles on the rotor lobes and end-faces which have very close tolerances.

The dynamically balanced rotors and precision ground gears contribute to the smooth, quiet operation of the pumps, as demanded by manufacturers of advanced technology equipment.

# Broad Application Coverage

EH mechanical boosters are available to cover a broad range of industrial and chemical process applications.

## Industrial

Industrial EH boosters are safe to handle non-flammable gases and vapours within the normal operating parameters of the booster.

## ATEX

ATEX classified EH boosters are annotated with the suffix "T3" or "T160".

- EH boosters may be supplied with ATEX classification either as part of a pump system or stand-alone, on application. Please consult Edwards.
- ATEX compliance is typically specified for use in Europe, but may also be required in other areas.

ATEX compliant EH boosters are suitable for operation in ATEX systems rated as follows:

All of the EH1200C, EH1200 T160, EH2600C, EH2600 T3, EH2600 T160, EH4200C, EH4200 T3 and EH4200 T160 chemical EH pumps are fitted with flameproof motors:

- Pumps suitable for 50 Hz operation are fitted with a flameproof motor approved to EEx d. Gas Group IIA, IIB, Temperature Class T4.
- Pumps suitable for 60 Hz operation are fitted with a flameproof motor approved to CSA, Division 1 area, Gas Class I Group C & D, and Dust Class II Group F & G, Temperature Class T3C.

Internal and External Classifications

Ex II 2G c IIB T3

or

Ex II 2G c IIB T160

The notations used in these ratings are as follows:

| Symbol | Meaning |
|---|---|
| Ex | Specifies that the chemical EH pump can be used in a potentially explosive atmosphere |
| II | Equipment group II |
| 2 G | Equipment category 2 (gas) |
| c | Constructional safety |
| IIB | Suitable to pump gas group IIB |
| T3 / T160 | Gas auto-ignition temperature |

## Equipment Category

For equipment category 1 (gas) consult Edwards.

## Gas Auto-Ignition Temperature

The temperature classifications applied to the chemical EH pumps relate to the auto-ignition temperature of flammable materials that can be pumped:

- The EH1200C, EH2600C, EH4200C and chemical EH pumps that have a T3 classification are suitable for pumping flammable materials that have an auto-ignition temperature greater than 200 °C.
- Chemical EH pumps that have a T160 classification are suitable for pumping flammable materials that have an auto-ignition temperature greater than 160 °C.

## Explosion Proof

Explosion proof boosters are annotated with the suffix "C".

- EH boosters may be ordered with explosion proof motors either individually, or as part of an explosion proof system.
- Explosion proof is generally applicable in N. America and the rest of the world (excluding Europe).

Explosion-proof boosters will be supplied fitted with an explosion-proof motor (suitable for 60 Hz operation) approved to CSA, Division 1 area, Gas Class I Group C & D and Dust Class II Group F & G, Temperature Class T3C.

## EH Pumps with Hydrokinetic Drive

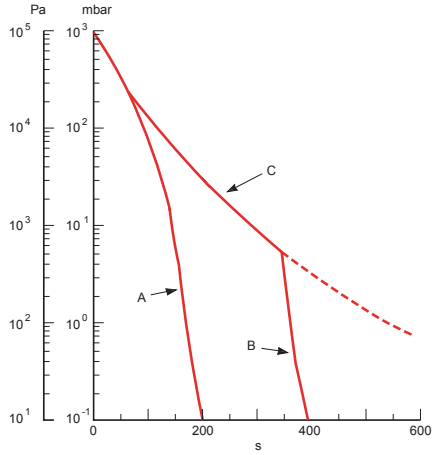
EH booster pumps have a unique and patented hydrokinetic fluid drive, which couples the motor to the pumping mechanism. The hydrokinetic drive offers the following advantages:

- Pump down times cut by up to 50%
- Reduced capital and operating costs
- No pressure sensors, by-pass lines or valves
- Can operate continuously at all pressures – when used with a backing pump

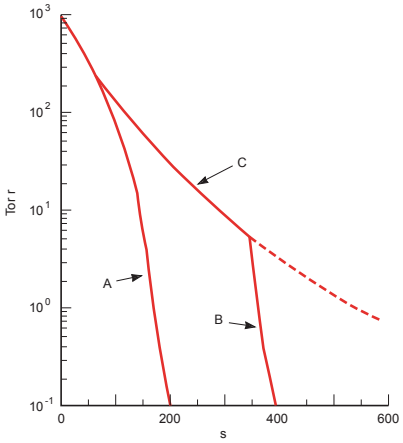
EH booster pumps have universal voltage, air-cooled motors and are available with effective pumping speeds of up to 4140 $m^3h^{-1}$ / 2440 $ft^3min^{-1}$. The pump bodies of the EH1200, EH2600 and EH4200 pumps are water-cooled.

Two versions of each EH booster pump are available, with different oils used for the lubrication of the seals and gears. The standard version uses mineral oils, such as Ultragrade 20. The alternative version has PFPE (perfluoropolyether) oils and is suitable for applications where oxygen or other reactive and corrosive gases are processed.

Pump-Down Times cut by up to 50% The hydrokinetic drive allows the booster pump to be started at the same time as the backing pump (at atmospheric pressure) as it prevents motor overload. The EH booster pump therefore assists the pumping process from the start of pump-down. In comparison pumping systems with conventional, direct drive mechanical booster pumps (where the booster pump is switched on when the chamber pressure has been reduced to, typically, less than 10 mbar / 7.5 Torr), the total evacuation time can be reduced by as much as 50%. The graph below shows data for a 2.8 $m^3$ / 100 $ft^3$ chamber, with a 2600 $m^3h^{-1}$ / 2600 $ft^3min^{-1}$ mechanical booster pump and a 255 $m^3h^{-1}$ / 150 $ft^3min^{-1}$ backing pump.




**A** With backing pump and EH mechanical booster pump switched on together
**B** With mechanical booster pump switched on at 5 mbar
**C** With backing pump only (pumping through booster pump)




**A** With backing pump and EH mechanical booster pump switched on together
**B** With mechanical booster pump switched on at 5 mbar
**C** With backing pump only (pumping through booster pump)

Automatic Overload Protection The hydrokinetic drive automatically varies the rotational speed of the pump. This protects the motor from overload, prevents over-heating, and allows the pump to operate with high pressure differentials. Consequently, EH booster pumps are not damaged by sudden increases of inlet pressure and even by the entry of solid debris into the pump.

Important Cost Savings When you use EH mechanical booster pumps, you save money on installation and operation. Your capital costs are reduced as you do not need valves, by-pass lines and pressure switches, and you can use a smaller backing pump than with conventional drive booster pumps. Operation costs are reduced because EH booster pumps have smaller motors than direct drive pumps and, when operating at full speed, they use only a fraction of the rated power.

# EH250 Mechanical Booster Pump

The EH mechanical booster pump, based on the simple Roots principle, remains the favourite pump for applications where high pumping speeds are required for pressures in the region of 0.01 to 10 mbar. This pump must always be backed by another pump, which can deliver against a high-pressure differential to atmospheric pressure.

Operating at relatively low pressures, the mechanical booster pump is not exposed to the same concentrations of corrosive process media as is the backing pump, which makes it highly reliable.

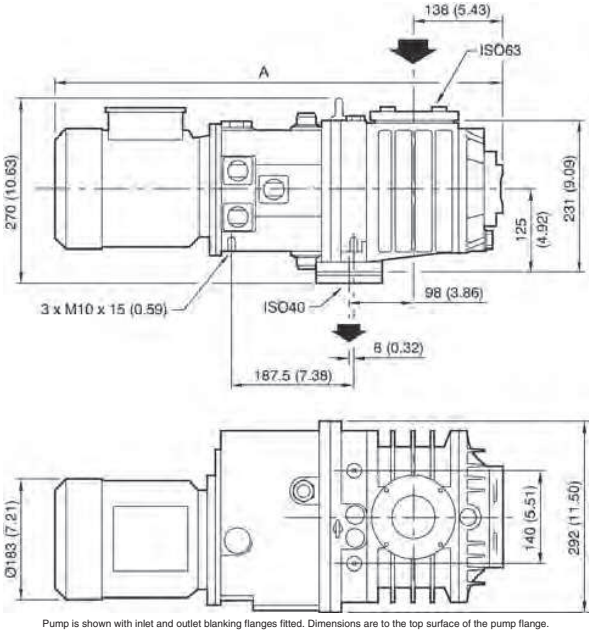
## Features & Benefits

- Suitable for applications where high pumping speeds over 3000 $m^3 h^{-1}$/1776 $ft^3 min^{-1}$ are required in the pressure region of 0.01 to 50 mbar/0.0075 to 37.5 Torr.
- Operating at relatively low pressures makes it highly reliable.
- The EH pumps have a high quality, oil-free pumping mechanism. This offers:
- Quiet, vibration free operation.
- Rugged and corrosion resistant.

## Applications

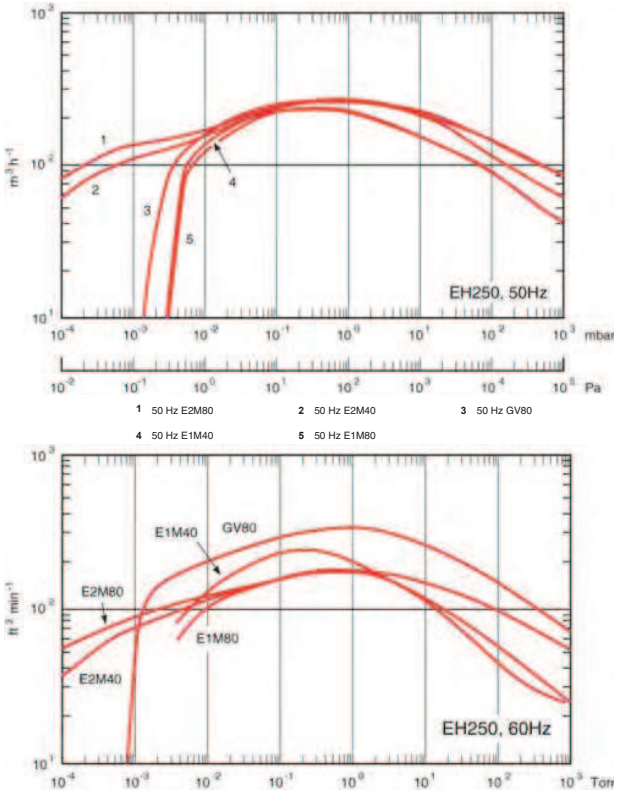
- Semiconductor processing
- Vacuum distillation
- Vacuum packaging
- Steel de-gassing
- Thin film coating

## Dimensions




Pump is shown with inlet and outlet blanking flanges fitted. Dimensions are to the top surface of the pump flange.

## Performance Curves



# Technical Data

| | |
|---|---|
| Displacement (swept volume) | |
| 50Hz | 310 $m^3 h^{-1}$ / 185 $ft^3 min^{-1}$ |
| 60Hz | 375 $m^3 h^{-1}$ / 220 $ft^3 min^{-1}$ |
| Effective pumping speed with backing pump | |
| E1M40 or E2M40 | 240 $m^3 h^{-1}$ / 141 $ft^3 min^{-1}$ |
| E1M80 or E2M80 | 274 $m^3 h^{-1}$ / 161 $ft^3 min^{-1}$ |
| Pressure differential across pump | |
| 50Hz | 0-180 mbar / 0-140 Torr |
| 60Hz | 0-150 mbar / 0-115 Torr |
| Inlet connection | ISO63 |
| Outlet connection | ISO40 |
| Rotational speed ‡ | |
| 50Hz | 0-2900 rpm |
| 60Hz | 0-3500 rpm |
| Operating continuous inlet pressure | 0-1000 mbar / 0-760 Torr |
| Maximum outlet pressure | 1000 mbar / 760 Torr |
| Recommended backing pumps | GV80, E1M/E2M40, E1M/E2M80 |
| Electrical supply voltage, 3-ph | |
| 50Hz | 220 – 240V / 380 – 415V |
| 60Hz | 208-230V / 460V |
| Motor power | |
| Hydrocarbon | 2.2 kW / 3 hp |
| PFPE | 1.5 kW / 2 hp |
| ATEX | 2.2 kW |
| Explosion proof | 3 hp |
| Ambient temperature range | |
| Operating | 5 to 40°C / 40 to 104°F |
| Storage | -10 to 80°C / 14 to 176°F |
| Maximum operating humidity | 90% RH |
| Cooling method | Air cooled |
| Recommended oil | Ultragrade 20 |
| Oil capacity | |
| Coupling cover | 1.5 liter / 1.6 qt |
| Shaft seal reservoir | 0.125 liter / 0.25 qt |
| Weight | 61 kg / 134 lb |

# Ordering Information

| Product Description | Order No. |
|---|---|
| EH250IND 200V, 3-ph, 60Hz, 3hp | NRC221000 |
| EH250IND 200V, 3-ph, 50Hz, 2.2kW | NRC222000 |
| EH250IND 220-240/380-415V, 3-ph, 50Hz, 2.2kW | A30151945 |
| EH250IND 208 – 230V or 460V, 3-ph, 60Hz, 3 hp | A30152946 |
| PFPE EH250FX 220-240/380-415V, 3-ph, 50Hz, 1.5kW | A30153935 |
| PFPE EH250FX 208-230/460V, 3-ph, 60Hz, 2 hp | A30154936 |
| EH250C 460V, 3-ph 60Hz, 3 hp | NRA997000 |
| EH250T160 220-240/380-415V, 3-ph 50Hz, 2.2kW | NRA996000 |
| **Accessories & Spares** | **Order No.** |
| Spares Kit Con C&O EH/QMB250/500A | A30151815 |
| Spares Kit Module EH/QMB250/500A | A30151820 |
| Spares Kit Shim EH/QMB250/500A | A30151825 |
| Inlet Mesh Assy 3.3 mm ISO63 | A60041029 |
| ISO63 Screen Centring S/S Viton | C10521085 |

# EH500 Mechanical booster pump

The EH mechanical booster pump, based on the simple Roots principle, remains the favourite pump for applications where high pumping speeds are required for pressures in the region of 0.01 to 10 mbar. This pump must always be backed by another pump, which can deliver against a high-pressure differential to atmospheric pressure.

Operating at relatively low pressures, the mechanical booster pump is not exposed to the same concentrations of corrosive process media as is the backing pump, which makes it highly reliable.

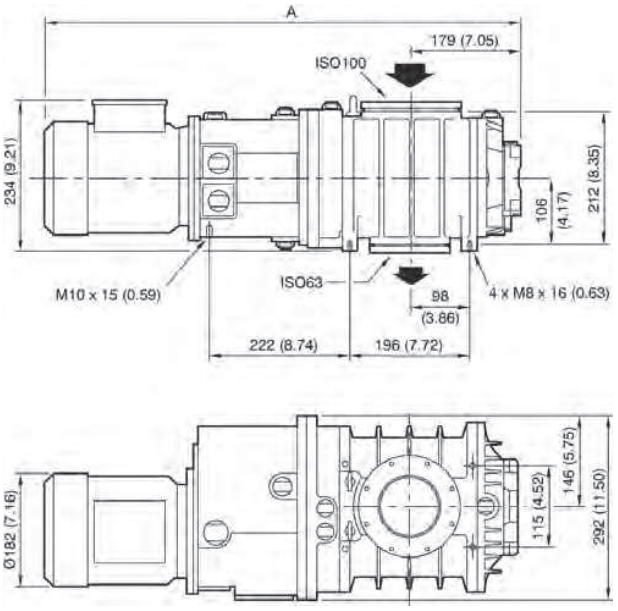
## Features & Benefits

- Suitable for applications where high pumping speeds over 3000 $m^3 h^{-1}$/1776 $ft^3 min^{-1}$ are required in the pressure region of 0.01 to 50 mbar/0.0075 to 37.5 Torr.
- Operating at relatively low pressures makes it highly reliable.
- The EH pumps have a high quality, oil-free pumping mechanism. This offers:
- Quiet, vibration free operation.
- Rugged and corrosion resistant.

## Applications

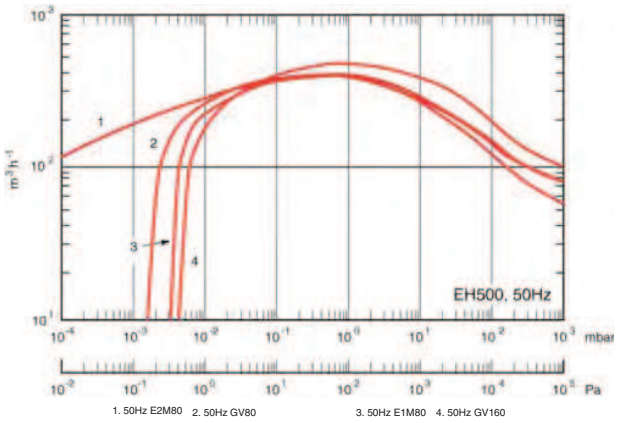
- Semiconductor processing
- Vacuum distillation
- Vacuum packaging
- Steel de-gassing
- Thin film coating

## Dimensions

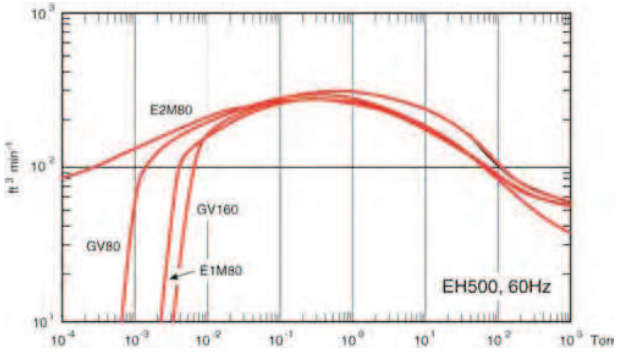



Pump is shown with inlet and outlet blanking flanges fitted. Dimensions are to the top surface of the pump flange.

## Performance Curves




1. 50Hz E2M80 2. 50Hz GV80 3. 50Hz E1M80 4. 50Hz GV160



## Technical Data

| | |
|---|---|
| Displacement (swept volume) | |
| 50Hz | 505 $m^3 h^{-1}$ / 300 $ft^3 min^{-1}$ |
| 60Hz | 605 $m^3 h^{-1}$ / 335 $ft^3 min^{-1}$ |
| Effective pumping speed with backing pump | |
| E1M40 or E2M40 | 350 $m^3 h^{-1}$ / 206 $ft^3 min^{-1}$ |
| E1M80 or E2M80 | 400 $m^3 h^{-1}$ / 236 $ft^3 min^{-1}$ |
| E1M175 or E2M175 | 440 $m^3 h^{-1}$ / 259 $ft^3 min^{-1}$ |
| E1M275 or E2M275 | 460 $m^3 h^{-1}$ / 271 $ft^3 min^{-1}$ |
| Pressure differential across pump † | |
| 50Hz | 0-110 mbar / 0-83 Torr |
| 60Hz | 0-90 mbar / 0-68 Torr |
| Inlet connection | ISO100 |
| Outlet connection | ISO63 |
| Rotational speed | |
| 50Hz | 0-2900 rpm |
| 60Hz | 0-3500 rpm |
| Operating continuous inlet pressure | 0-1000 mbar / 0-760 Torr |
| Maximum outlet pressure | 1000 mbar / 760 Torr |
| Recommended backing pumps | GV80, E2M80 |
| Electrical supply | |
| 50Hz | 220-240V / 380-415V |
| 60Hz | 208-230V / 460V |
| Motor power | |
| Hydrocarbon | 2.2kW / 3hp |
| PFPE | 1.5 kW / 2hp |
| ATEX | 2.2kW |
| Explosion proof | 3hp |
| Ambient temperature range | |
| Operating | 5 to 40°C / 40 to 104°F |
| Storage | -10 to 80°C / 14 to 176°F |
| Maximum operating humidity | 90% RH |
| Cooling method | Air cooled |
| Recommended oil | |
| Standard version | Ultragrade 20 |
| PFPE version | Fomblin® YVAC 16/6 |
| Oil capacity | |
| Coupling cover | 1.5 liter / 1.6 qt |
| Shaft seal reservoir | 0.125 liter / 0.25 qt |
| Weight | 74 kg / 163 lb |

†. Depends on pressure

## Ordering Information

| Product Description | Order No. |
|---|---|
| EH500IND 208-230/4640V, 3-ph, 60Hz, 2.2kW | A30272946 |
| EH500IND 200V, 3-ph 60Hz, 3 hp | NRC219000 |
| EH500IND Mechanical Booster Pump 2.2kW 200V 3ø 50 Hz | NRC220000 |
| EH500IND 200V, 3-ph, 50Hz, 2.2kW | A30271945 |
| EH500AFX 220-240/380-415V, 3-ph 50Hz, 1.5 kW | A30273935 |
| EH500AFX 208-230/460V, 3-ph, 60Hz, 2 hp | A30274936 |
| EH500C 460V, 3-ph, 60Hz, 3 hp | NRA999000 |
| EH500T3 220-240/380-415V, 3-ph, 50Hz, 2.2kW | NRA998000 |
| **Accessories & Spares** | **Order No.** |
| Spares Kit Con C&O EH/QMB250/500A | A30151815 |
| Spares Kit Module EH/QMB250/500A | A30151820 |
| Spares Kit Shim EH/QMB250/500A | A30151825 |
| ISO100 Screen Centring S/S Viton | C10523085 |
| Inlet Mesh Assembly EH250/EH500A | A60041569 |

# EH1200 Mechanical booster pump

The EH mechanical booster pump, based on the simple Roots principle, remains the favourite pump for applications where high pumping speeds are required for pressures in the region of 0.01 to 10 mbar. This pump must always be backed by another pump, which can deliver against a high-pressure differential to atmospheric pressure.

Operating at relatively low pressures, the mechanical booster pump is not exposed to the same concentrations of corrosive process media as is the backing pump, which makes it highly reliable.

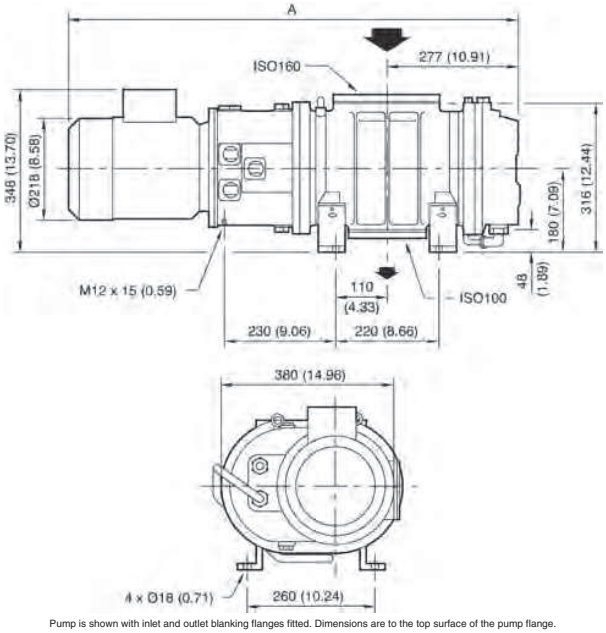
## Features & Benefits

- Suitable for applications where high pumping speeds over 3000 $m^3 h^{-1}$/1776 $ft^3 min^{-1}$ are required in the pressure region of 0.01 to 50 mbar/0.0075 to 37.5 Torr.
- Operating at relatively low pressures makes it highly reliable.
- The EH pumps have a high quality, oil-free pumping mechanism. This offers:
- Quiet, vibration free operation.
- Rugged and corrosion resistant.

## Applications

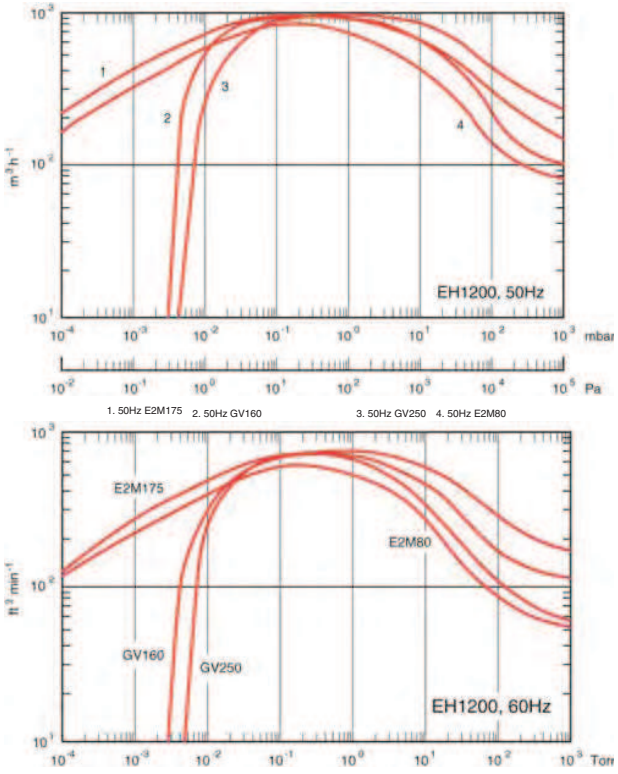
- Semiconductor processing
- Vacuum distillation
- Vacuum packaging
- Steel de-gassing
- Thin film coating

## Dimensions




Pump is shown with inlet and outlet blanking flanges fitted. Dimensions are to the top surface of the pump flange.

## Performance Curves



## Technical Data

| | |
|---|---|
| Displacement (swept volume) | |
| 50Hz | 1195 $m^3 h^{-1}$ / 715 $ft^3 min^{-1}$ |
| 60Hz | 1435 $m^3 h^{-1}$ / 845 $ft^3 min^{-1}$ |
| Effective pumping speed with backing pump | |
| E1M80 or E2M80 | 840 $m^3 h^{-1}$ / 495 $ft^3 min^{-1}$ |
| E1M175 or E2M175 | 930 $m^3 h^{-1}$ / 548 $ft^3 min^{-1}$ |
| E1M275 or E2M275 | 1020 $m^3 h^{-1}$ / 601 $ft^3 min^{-1}$ |
| Pressure differential across pump † | |
| 50Hz | 0-90 mbar / 0-68 Torr |
| 60Hz | 0-75 mbar / 0-56 Torr |
| Inlet connection | ISO160 |
| Outlet connection | ISO100 |
| Rotational speed | |
| 50Hz | 0-2900 rpm |
| 60Hz | 0-3500 rpm |
| Operating continuous inlet pressure | 0-1000 mbar / 0-760 Torr |
| Maximum outlet pressure | 1000 mbar / 760 Torr |
| Recommended backing pumps | GV160, GV250, E2M80, E2M175 |
| Electrical supply | |
| 50Hz | 220-240V / 380-415V |
| 60Hz | 208-230V / 460V |
| Motor power | |
| Hydrocarbon | 3kW / 4hp |
| PFPE | 3kW / 4hp |
| ATEX | 3kW |
| Explosion proof | 4hp |
| Ambient temperature range | |
| Operating | 5 to 40°C / 40 to 104°F |
| Storage | -10 to 80°C / 14 to 176°F |
| Maximum operating humidity | 90% RH |
| Recommended cooling water flow (inlet temperature 20°C)* | 120$lh^{-1}$ / 0.53 gal $min^{-1}$ |
| Recommended cooling water supply pressure* | 2-6 bar |
| Cooling water connections* | 3/8 inch BSP male |
| Recommended oil | |
| Standard version | Ultragrade 20 |
| PFPE version | Fomblin® YVAC 16/6 |
| Oil capacity | |
| Gear case | 1.25 liter / 1.3 qt |
| Coupling cover | 1.5 liter / 1.6 qt |
| Shaft seal reservoir | 0.125 liter / 0.25 qt |
| Weight | 74 kg / 163 lb |

* Under many circumstances, pumps may operate without cooling water. Apply to Edwards for more information.
†. Depends on pressure

## Ordering Information

| Product Description | Order No. |
|---|---|
| EH1200IND 220-240/380-415V, 3-ph, 50Hz, 3kW | A30590935 |
| EH1200IND 208-230/460V, 3-ph, 60Hz, 4 hp | A30591936 |
| EH1200IND 200V, 3-ph, 60Hz, 4 hp | NRC217000 |
| EH1200IND 200V, 3-ph, 50Hz, 3 kW | NRC218000 |
| EH1200FX 220-240/380-415V, 3-ph, 50Hz, 3 kW | A30592935 |
| EH1200FX 208-230/460V, 3-ph, 60Hz, 4 hp | A30593936 |
| EH1200C 230/460V, 3-ph, 60Hz, 4 hp | A30556982 |
| EH1200T160 380-415V, 3-ph, 50Hz, 3kW | A30557900 |
| **Accessories & Spares** | **Order No.** |
| Spares Kit Con C&O EH/QMB1200 | A30551815 |
| Spares Kit Module EH/QMB1200 | A30551820 |
| Shim kit | A30551825 |
| ISO160 Screen Centring S/S Viton | C10524085 |
| Inlet Mesh Assembly EH2600/EH4200 | A60041570 |

# EH2600 Mechanical booster pump

The EH mechanical booster pump, based on the simple Roots principle, remains the favourite pump for applications where high pumping speeds are required for pressures in the region of 0.01 to 10 mbar. This pump must always be backed by another pump, which can deliver against a high-pressure differential to atmospheric pressure.

Operating at relatively low pressures, the mechanical booster pump is not exposed to the same concentrations of corrosive process media as is the backing pump, which makes it highly reliable.

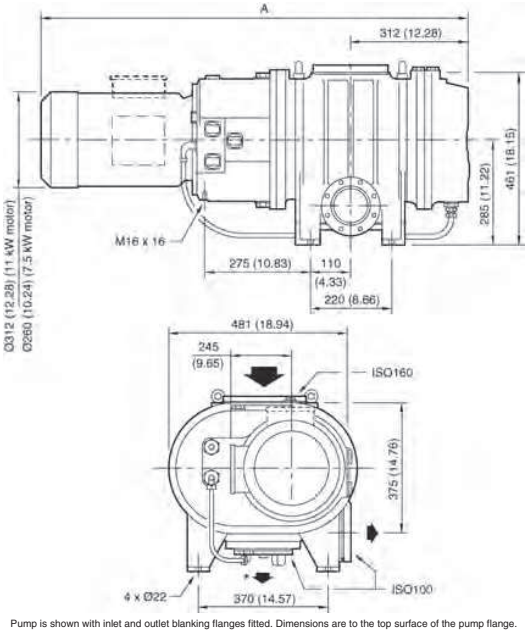
## Features & Benefits

- Suitable for applications where high pumping speeds over 3000 $m^3 h^{-1}$/1776 $ft^3 min^{-1}$ are required in the pressure region of 0.01 to 50 mbar/0.0075 to 37.5 Torr.
- Operating at relatively low pressures makes it highly reliable.
- The EH pumps have a high quality, oil-free pumping mechanism. This offers:
- Quiet, vibration free operation.
- Rugged and corrosion resistant.

## Applications

- Semiconductor processing
- Vacuum distillation
- Vacuum packaging
- Steel de-gassing
- Thin film coating

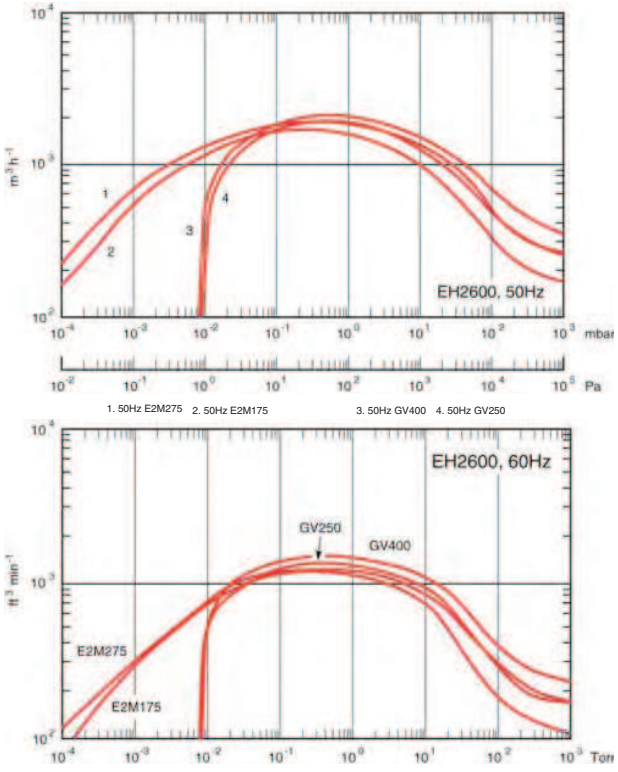
## Dimensions




Pump is shown with inlet and outlet blanking flanges fitted. Dimensions are to the top surface of the pump flange.

* Alternative outlet position

## Performance Curves




1. 50Hz E2M275 2. 50Hz E2M175 3. 50Hz GV400 4. 50Hz GV250

# Technical Data

| | |
|---|---|
| Displacement (swept volume) | |
| 50Hz | 2590 $m^3 h^{-1}$ / 1525 $ft^3 min^{-1}$ |
| 60Hz | 3110 $m^3 h^{-1}$ / 1830 $ft^3 min^{-1}$ |
| Effective pumping speed with backing pump | |
| E2M175 | 1750 $m^3 h^{-1}$ / 1031 $ft^3 min^{-1}$ |
| E2M275 | 1900 $m^3 h^{-1}$ / 1119 $ft^3 min^{-1}$ |
| Pressure differential across pump † | |
| 50Hz | 0-80 mbar / 0-60 Torr |
| 60Hz | 0-67 mbar / 0-50 Torr |
| Inlet connection | ISO160 |
| Outlet connection | ISO100 |
| Rotational speed | |
| 50Hz | 0-2900 rpm |
| 60Hz | 0-3500 rpm |
| Operating continuous inlet pressure | 0-1000 mbar / 0-760 Torr |
| Maximum outlet pressure | 1000 mbar / 760 Torr |
| Recommended backing pumps | GV250, GV400, E2M175, E2M275 |
| Electrical supply | |
| 50Hz | 220-240V / 380-415V |
| 60Hz | 208-230V / 460V |
| Motor power | |
| Hydrocarbon | 11kW / 15hp |
| PFPE | 7.5kW / 10hp |
| ATEX | 11kW |
| Explosion proof | 15hp |
| Ambient temperature range | |
| Operating | 5 to 40°C / 40 to 104°F |
| Storage | -10 to 80°C / 14 to 176°F |
| Maximum operating humidity | 90% RH |
| Recommended cooling water flow (inlet temperature 20°C)* | 250$lh^{-1}$ / 1.1 gal $min^{-1}$ |
| Recommended cooling water supply pressure* | 2-6 bar |
| Cooling water connections* | 3/8 inch BSP male |
| Recommended oil | |
| Standard version | Ultragrade 20 |
| PFPE version | Fomblin® YVAC 16/6 |
| Oil capacity | |
| Gear case | 3.5 liter / 3.3 qt |
| Coupling cover | 6.5 liter / 7 qt |
| Shaft seal reservoir | 1.5 liter / 1.4 qt |
| Weight | 308 kg / 679 lb |

* Under many circumstances, pumps may operate without cooling water. Apply to Edwards for more information.
†. Depends on pressure

# Ordering Information

| Product Description | Order No. |
|---|---|
| EH2600IND 380-415V, 3-ph, 50Hz, 11 kW | A30775946 |
| EH2600IND 230/460V, 3-ph, 60Hz, 15 hp | A30776982 |
| EH2600IND 200V, 3-ph, 60Hz, 15 hp | NRB989000 |
| EH2600IND 200V, 3-ph, 50Hz, 11 kW | NRC216000 |
| EH2600FX 220-240/380-415V, 3-ph, 50Hz, 7.5kW | A30753935 |
| EH2600FX 208-230/460V, 3-ph, 60Hz, 10 hp | A30754936 |
| EH2600C 230/460V, 3-ph, 60Hz, 15 hp | A30756982 |
| EH2600T3 380-415V, 3-ph, 50Hz, 11 kW | A30741935 |
| EH2600T160 380-415V, 3-ph, 50Hz, 11 kW | A30779900 |
| **Accessories & Spares** | **Order No.** |
| Spares Kit Con C&O EH/QMB26/4200 | A30751815 |
| Spares Kit Module EH/QMB26/4200 | A30751820 |
| Spares Kit Shim EH/QMB12/26/4200 | A30751825 |
| ISO160 Screen Centring S/S Viton | C10524085 |
| Inlet Mesh Assembly EH2600/EH4200 | A60041570 |

# EH4200 Mechanical booster pump

The EH mechanical booster pump, based on the simple Roots principle, remains the favourite pump for applications where high pumping speeds are required for pressures in the region of 0.01 to 10 mbar. This pump must always be backed by another pump, which can deliver against a high-pressure differential to atmospheric pressure.

Operating at relatively low pressures, the mechanical booster pump is not exposed to the same concentrations of corrosive process media as is the backing pump, which makes it highly reliable.

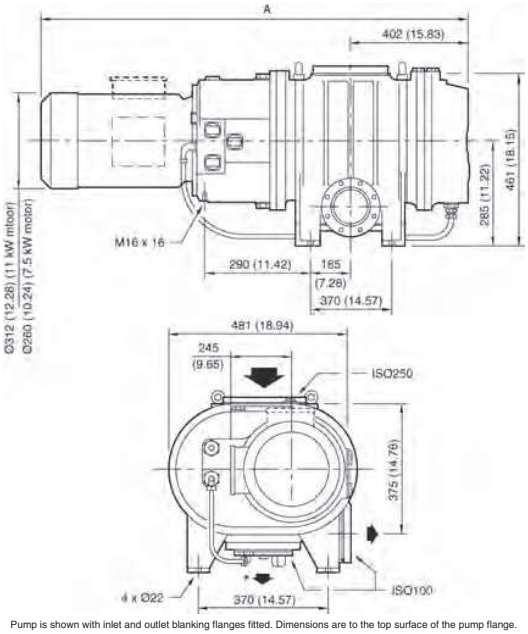
## Features & Benefits

- Suitable for applications where high pumping speeds over 3000 $m^3 h^{-1}$/1776 $ft^3 min^{-1}$ are required in the pressure region of 0.01 to 50 mbar/0.0075 to 37.5 Torr.
- Operating at relatively low pressures makes it highly reliable.
- The EH pumps have a high quality, oil-free pumping mechanism. This offers:
- Quiet, vibration free operation.
- Rugged and corrosion resistant.

## Applications

- Semiconductor processing
- Vacuum distillation
- Vacuum packaging
- Steel de-gassing
- Thin film coating

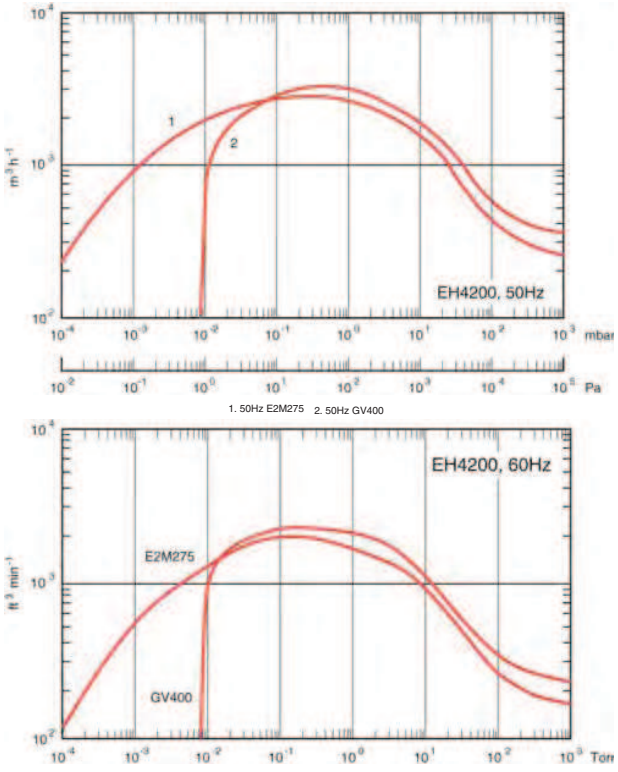
## Dimensions




Pump is shown with inlet and outlet blanking flanges fitted. Dimensions are to the top surface of the pump flange.

* Alternative outlet position

## Performance Curves




1. 50Hz E2M275 2. 50Hz GV400

## Technical Data

| | |
|---|---|
| Displacement (swept volume) | |
| 50Hz | 4140 $m^3 h^{-1}$ / 2440 $ft^3 min^{-1}$ |
| 60Hz | 4985 $m^3 h^{-1}$ / 2935 $ft^3 min^{-1}$ |
| Effective pumping speed with backing pump | |
| E2M275 | 3100 $m^3 h^{-1}$ / 1825 $ft^3 min^{-1}$ |
| Pressure differential across pump † | |
| 50Hz | 0-60 mbar / 0-45 Torr |
| 60Hz | 0-50 mbar / 0-38 Torr |
| Inlet connection | ISO250 |
| Outlet connection | ISO100 |
| Rotational speed | |
| 50Hz | 0-2900 rpm |
| 60Hz | 0-3500 rpm |
| Operating continuous inlet pressure | 0-1000 mbar / 0-760 Torr |
| Maximum outlet pressure | 1000 mbar / 760 Torr |
| Recommended backing pumps | GV400, E2M275 |
| Electrical supply | |
| 50Hz | 220-240V / 380-415V |
| 60Hz | 208-230V / 460V |
| Motor power | |
| Hydrocarbon | 11kW / 15hp |
| PFPE | 11kW / 15hp |
| ATEX | 11kW |
| Explosion proof | 15hp |
| Ambient temperature range | |
| Operating | 5 to 40°C / 40 to 104°F |
| Storage | -10 to 80°C / 14 to 176°F |
| Maximum operating humidity | 90% RH |
| Recommended cooling water flow (inlet temperature 20°C)* | 250$lh^{-1}$ / 1.1 gal $min^{-1}$ |
| Recommended cooling water supply pressure* | 2-6 bar |
| Cooling water connections* | 3/8 inch BSP male |
| Recommended oil | |
| Standard version | Ultragrade 20 |
| PFPE version | Fomblin® YVAC 16/6 |
| Oil capacity | |
| Gear case | 3.5 liter / 3.3 qt |
| Coupling cover | 6.5 liter / 7 qt |
| Shaft seal reservoir | 1.5 liter / 1.4 qt |
| Weight | 400 kg / 882 lb |

* Under many circumstances, pumps may operate without cooling water. Apply to Edwards for more information.
†. Depends on pressure

## Ordering Information

| Product Description | Order No. |
|---|---|
| EH4200IND 380-415V, 3-ph, 50Hz, 11kW | A30975946 |
| EH4200IND 200V, 3-ph, 60Hz, 15 hp | NRB988000 |
| EH4200IND 200V, 3-ph, 50Hz, 11 kW | NRC215000 |
| EH4200IND 208-230/460V, 3-ph, 60Hz, 15 hp | A30976982 |
| EH4200C 230/460V, 3-ph, 60Hz, 15 hp | A30956982 |
| EH4200T3 380-415V, 3-ph, 50Hz, 11 kW | A30941935 |
| EH4200T160 380-415V, 3-ph, 50Hz, 11 kW | A30979900 |
| **Accessories & Spares** | **Order No.** |
| Spares Kit Con C&O EH/QMB26/4200 | A30751815 |
| Spares Kit Module EH/QMB26/4200 | A30751820 |
| Spares Kit Shim EH/QMB12/26/4200 | A30751825 |
| Inlet Mesh Assembly EH2600 | A60041571 |

## OLM500 Oil Level Monitor

Fit the OLM500 in place of the oil sight-glass on the EH250 and EH500 oil seal reservoirs, and on the EH1200, EH2600 and EH4200 oil seal reservoirs and gear boxes. The OLM500 provides a switched output for remote activation or warning devices. Technical data: 24 V a.c. or d.c., maximum current 0.5 A.

### Ordering Information

| Product Description | Order No. |
|---|---|
| OLM500 oil level monitor* | A50434000 |

* Not suitable for ATEX boosters

## Inlet Seal with Mesh Screen

Designed to prevent objects falling into the inlet of our booster pumps, the mesh aperture is 3.3 mm.

### Ordering Information

| Product Description | Order No. |
|---|---|
| Inlet seal with mesh screen | |
| ISO63 | C10521085 |
| ISO100 | C10523085 |
| ISO160 | C10524085 |

# Stokes 6" Series Mechanical Booster Pumps

Edwards Stokes Vacuum 6" Mechanical Booster Pumps

Stokes 6" series mechanical boosters are available in sizes 1020-6630 $m^3h^{-1}$ / 612-3900 $ft^3min^{-1}$. Features include:

- Rugged design for reliable and extended operation
- Simple maintenance features incorporated in design
- Vertical or horizontal gas flow
- Options of direct drive motors or bare shaft machines
- Options of by pass technology to reduce pump down time and process isolation seals
- Dynamically balanced impellers

## Overview

Used in conjunction with rotary-piston, rotary vane, dry vacuum and liquid ring pumps, Stokes 6" series will increase pumping speed at working pressures and shorten pump down time significantly. Whether your objective is to reduce valuable time from the front end of your pumping cycle, or to substantially boost pumping capacity for high out-gassing applications, the result is the same - significantly reduced cycle times.

Stokes 6" series are compatible with any make or type of vacuum pumping system. The boosters can be mounted separately, or on the inlet of the backing pump. The latter forms a compact integrated package as a mechanical booster system. For even lower-pressure applications, two Stokes 6" series can be used in series with one backing pump. This results in a significantly lower-cost and space-saving pumping system.

Bypass technology is available in the 615 model to enhance your productivity further, while also assuring consistent, reproducible vacuum processing. The bypass valve limits the maximum differential pressure, enabling the booster to start from atmosphere and provide increased pumping capacity over the full pressure range. Eliminating the electrical pressure switch insures continuous, booster operation regardless of vacuum level.

The 1 11/16 inch extra large shaft diameter engineered into the Stokes 6" series provides the capability for use with higher powered motors, in addition to ensuring a uniquely rugged and durable mechanical booster. The use of higher powered motors in conjunction with the high differential specification, allows the pumps to operate at their full displacement from atmospheric pressure, with appropriately sized backing pumps the 612MB offers these advantages in a standard package.

The Stokes 6" series is also available in a process isolation series (five mechanical seals) for optimum protection from dust and particulate contamination in arduous duty applications.

All mechanical vacuum boosters must be backed by a primary vacuum pump designed to discharge to atmospheric pressure. Below is a list of commonly used backing pumps:

- Oil Sealed Pumps (EM or EV)
- Liquid Ring Pump (Two-stage LR Series)
- Piston Pumps (Stokes Microvac Series)
- Dry Pump (GV Drystar or Chemical Drystar)

## Features & Benefits

- Mechanical shaft seal - improved life and serviceability
- Ringfeder® keyless gear locking system - stronger, faster timing
- Large shaft diameters - allowing improved performance at high pressures
- Belt drive or direct drive capability - flexibility of operating speeds and motor power
- Vertical or horizontal gas flow - flexibility of orientation
- Drive end roller bearing - resists belt pull and thermal effects
- Over-sized anti-friction bearings - increased uptime and longer service intervals
- Rugged proven design and construction
- Air Cooled - utility savings
- Unique impeller design -Dynamically balanced to minimise vibration
- High volumetric efficiency - optimal performance
- High differential pressure - operation capability
- Available by-pass option for improved pumpdown
- Available process isolation seal option-optimum protection from dust and particulate contamination

## Applications

Typical applications for the Stokes 6" series mechanical booster pumps includes:

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

# Stokes 607 Series Mechanical Booster Pumps

Stokes 6" series mechanical boosters are designed to be used in conjunction with rotary-piston, dry vacuum, rotary vane and liquid ring pumps to increase pumping speed at working pressures and shorten pump down time significantly. The Stokes 6" series can be mounted separately or on the inlet of the backing pump to create a compact integrated package.

Featuring an extra large diameter shaft, the Stokes 6” series has the capability for use with higher powered motors in addition to ensuring a uniquely rugged and durable mechanical booster. This allows the pumps to operate at their full displacement from atmospheric pressure with an appropriately sized backing pump.

## Features & Benefits

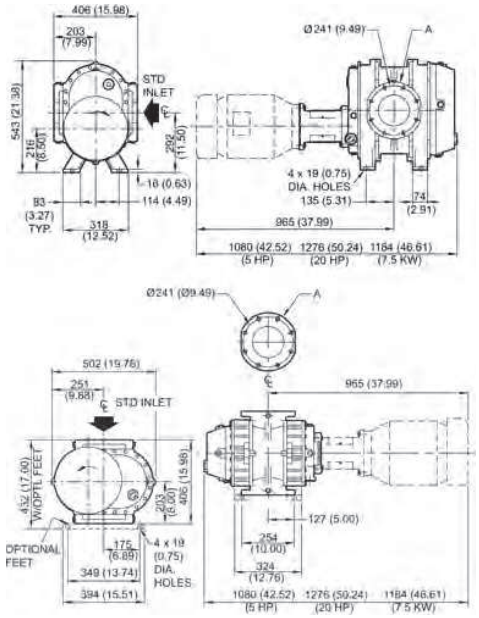
- Mechanical shaft seal – improved life and serviceability
- Ringfeder® keyless gear locking system – stronger, faster timing
- Large shaft diameters – allowing improved performance at high pressures
- Belt drive or direct drive capability
- Vertical or horizontal gas flow

## Technical Data

| | |
|---|---|
| Displacement | |
| V belt 2750 rpm | 1589$m^3 h^{-1}$ / 935$ft^3 min^{-1}$ |
| Direct drive 1800 rpm | 1040$m^3 h^{-1}$ / 612$ft^3 min^{-1}$ |
| Direct drive 3000 rpm | 1733$m^3 h^{-1}$ / 1020$ft^3 min^{-1}$ |
| Direct drive 3600 rpm | 2080$m^3 h^{-1}$ / 1224$ft^3 min^{-1}$ |
| Inlet/outlet flanges | 6” ASA/ANSI |
| Motor power | 5 / 20hp (7.5kW) |
| Cooling method | Air Cooled |
| Oil capacity (horizontal flow) | 1.9liter / 0.51gal |
| Oil capacity (vertical flow) | 4.1liter / 1.1gal |
| Max pressure differential | 506mbar / 380Torr |
| Max temp rise | 135°C / 275°F |
| Max discharge temp | 191°C / 375°F |
| Weight bare shaft | 215kg / 475lbs |
| Weight TEFC direct drive | 408kg / 900lbs |



## Dimensions




A 6" pipe flange connection 11" (279mm) OD x 6" (152mm) ID. 8 x 3/4-10 NC-2B x 1 1/8" (29mm) holes stradle both CL flanges

## Ordering Information

| Product Description | Order No. |
|---|---|
| 607 MHR CE, 7.5kW, 230/400V, 3-ph, 50Hz @3000rpm | 900607MHR601 |
| 607 MHR CE, 7.5kW, 200-220V/380V, 3-ph, 50/60Hz @3000/3600rpm | 900607MHR602 |
| 607 MVR CE, 7.5kW, 230/400V, 3-ph, 50Hz @ 3000rpm | 900607MVR601 |
| 607 MVR CE, 7.5kW, 200-220V/380V, 3-ph, 50/60Hz @ 3000/3600rpm | 900607MVR602 |
| 607 MHR (Bare shaft) Horizontal flow | 900607MHR |
| 607 MVR (Bare shaft) Vertical flow | 900607MVR |
| 607 MH20, 20 hp, 230/460V, 3-ph, 60Hz @ 1800rpm | 900607MH20 |
| 607 MV05, 5 hp, 230/460V, 3-ph, 60Hz @ 1800rpm | 900607MV05 |
| 607 MV20, 20 hp, 230/460V, 3-ph, 60Hz @ 1800rpm | 900607MV20 |
| 607 MH05, 5 hp, 230/460V, 3-ph, 60Hz @ 1800rpm | 900607MH05 |
| **Accessories & Spares** | **Order No.** |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |

# Stokes 607 Series Process Isolation Boosters

Stokes 6" series mechanical boosters are designed to be used in conjunction with rotary-piston, dry vacuum, rotary vane and liquid ring pumps to increase pumping speed at working pressures and shorten pump down time significantly. They incorporate five mechanical seals for optimum protection from dust and particulate contamination and can be mounted separately or on the inlet of the backing pump to create a compact integrated package.

Featuring an extra large diameter shaft, the Stokes 6” series has the capability for use with higher powered motors in addition to ensuring a uniquely rugged and durable mechanical booster.

## Features & Benefits

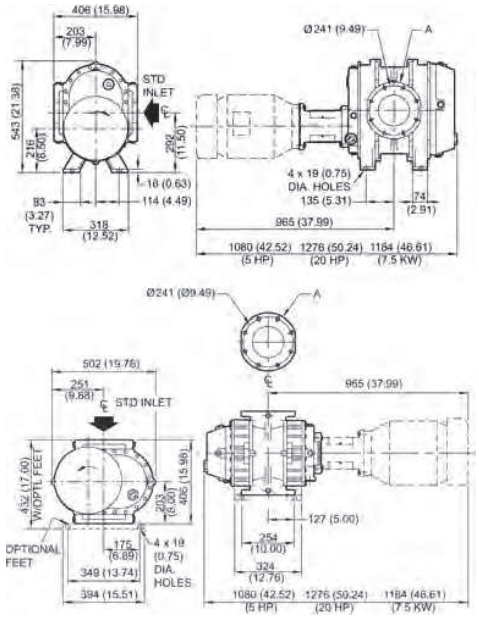
- Mechanical shaft seal – improved life and serviceability
- Ringfeder® keyless gear locking system – stronger, faster timing
- Large shaft diameters – allowing improved performance at high pressures
- Belt drive or direct drive capability
- Vertical or horizontal gas flow

## Technical Data

| | |
|---|---|
| Displacement | |
| V belt (2750 rpm) | 1589$m^3 h^{-1}$ / 935$ft^3 min^{-1}$ |
| Direct drive (3000 rpm) | 1733$m^3 h^{-1}$ / 1020$ft^3 min^{-1}$ |
| Direct drive (3600 rpm) | 2080$m^3 h^{-1}$ / 1224$ft^3 min^{-1}$ |
| Inlet/outlet flanges | 6” ASA/ANSI flange |
| Motor power EU/Asia | 7.5kW |
| Motor power US TEFC | 10hp |
| Cooling water | 7.6-11.4l $min^{-1}$ / 2-3gal $min^{-1}$ |
| Oil capacity (horizontal flow) | 1.9liter / 0.51gal |
| Oil capacity (vertical flow) | 4. liter / 1.1gal |
| Max pressure differential | 506 mbar / 380 Torr |
| Max temp rise | 135°C / 275°F |
| Max discharge temp | 191°C / 375°F |
| Weight bare shaft | 215kg / 475lbs |
| Weight TEFC direct drive | 345kg / 760lbs |



## Dimensions




A 6" pipe flange connection 11" (279mm) OD x 6" (152mm) ID. 8 x 3/4-10 NC-2B x 1 1/8" (29mm) holes stradle both CL flanges

## Ordering Information

| Product Description | Order No. |
|---|---|
| 607 5HR CE 7.5kW, 230/400V, 3-ph, 50Hz @ 3000rpm | 9006075HR601 |
| 607 5HR CE 7.5kW, 200-220/380V, 3-ph, 50/60Hz @ 3000/3600rpm | 9006075HR602 |
| 607 5H10, 10hp, 230/460V, 3-ph, 60Hz @1800rpm | 9006075H10 |
| 607 5HR (Bare shaft) Horizontal flow | 9006075HR |
| 607 5V10, 10hp, 230/460V, 3-ph, 60Hz @ 1800rpm | 9006075V10 |
| 607 5VR (Bare shaft) Vertical flow | 9006075VR |
| 607 5VR CE 7.5kW, 230/400V, 3-ph, 50Hz @ 3000rpm | 9006075VR601 |
| 607 5VR CE 7.5kW, 200-220/380V, 3-ph, 50/60Hz @ 3000/3600rpm | 9006075VR602 |
| **Accessories & Spares** | **Order No.** |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |
| Process isolation seal kit | 607552004 |

# Stokes 615 Series Mechanical Booster Pumps

Stokes 6" series mechanical boosters are designed to be used in conjunction with rotary-piston, dry vacuum, rotary vane and liquid ring pumps to increase pumping speed at working pressures and shorten pump down time significantly. The Stokes 6" series can be mounted separately or on the inlet of the backing pump to create a compact integrated package.

Featuring an extra large diameter shaft, the Stokes 6” series has the capability for use with higher powered motors in addition to ensuring a uniquely rugged and durable mechanical booster. This allows the pumps to operate at their full displacement from atmospheric pressure with an appropriately sized backing pump.

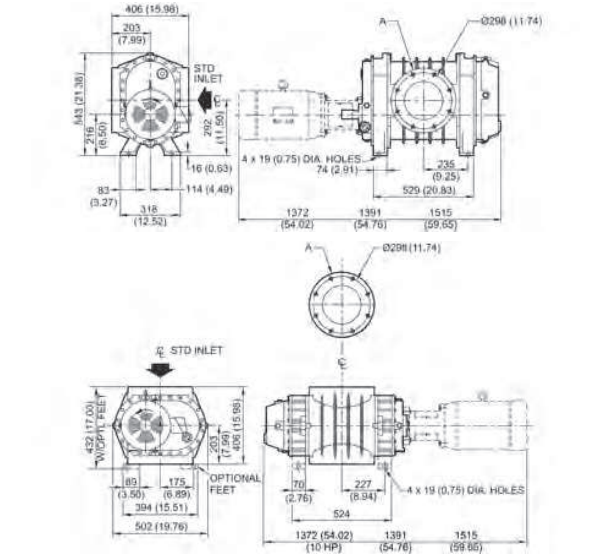
## Features & Benefits

- Mechanical shaft seal – improved life and serviceability
- Ringfeder® keyless gear locking system – stronger, faster timing
- Large shaft diameters – allowing improved performance at high pressures
- Belt drive or direct drive capability
- Vertical or horizontal gas flow

## Technical Data

| | |
|---|---|
| Displacement | |
| V belt (2750 rpm) | 3375$m^3 h^{-1}$ / 2000$ft^3 min^{-1}$ |
| Direct drive (1800 rpm) | 2210$m^3 h^{-1}$ / 1300$ft^3 min^{-1}$ |
| Direct drive (3000 rpm) | 3685$m^3 h^{-1}$ / 2170$ft^3 min^{-1}$ |
| Direct drive (3600 rpm) | 4420$m^3 h^{-1}$ / 2600$ft^3 min^{-1}$ |
| Inlet/outlet flanges | 8” ASA/ANSI flange |
| Motor power EU/Asia | 11kW |
| Motor power US TEFC | 10hp |
| Cooling method | Air cooled |
| Oil capacity (horizontal flow) | 1.9liter / 0.51gal |
| Oil capacity (vertical flow) | 4.1liter / 1.1gal |
| Max pressure differential | 506mbar / 380Torr |
| Max temp rise | 135°C / 275°F |
| Max discharge temp | 191°C / 375°F |
| Weight bare shaft | 234kg / 515 lbs |
| Weight TEFC direct drive | 390kg / 860lbs |

## Dimensions




A 8" pipe flange connection 13 1/2" (343 mm) OD x 8" (203 mm) ID 8 x 3/4-10 NC-2B x 1 1/8" (29 mm) holes straddle both CL both flanges

## Ordering Information

| Product Description | Order No. |
|---|---|
| 615 MHR CE 11kW, 400V, 3-ph, 50Hz @ 3000rpm | 900615MHR601 |
| 615 MHR CE 11kW, 200-220/380V, 3-ph, 50/60Hz @ 3000/3600rpm | 900615MHR602 |
| 615 MV10, 10hp, 230/460V, 3-ph, 60Hz @ 1800rpm | 900615MV10 |
| 615 MV15, 10hp, 230/460V, 3-ph, 60Hz @ 3600rpm | 900615MV15 |
| 615 MVR (Bare shaft) Vertical flow | 900615MVR |
| 615 MVR CE 11kW, 400V, 3-ph, 50Hz @ 3000rpm | 900615MVR601 |
| 615 MVR CE 11kW, 200-220/380V, 3-ph, 50/60Hz @ 3000/3600rpm | 900615MVR602 |
| 615 MH10, 10hp, 230/460V, 3-ph, 60Hz @ 1800rpm | 900615MH10 |
| 615 MH15, 15hp, 230/460V, 3-ph, 60Hz @ 3600rpm | 900615MH15 |
| 615 MHR (Bare shaft) Horizontal flow | 900615MHR |
| **Accessories & Spares** | **Order No.** |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |

# Stokes 615 Series Process Isolation Boosters

Stokes 6" series process isolation boosters are designed to be used in conjunction with rotary-piston, dry vacuum, rotary vane and liquid ring pumps to increase pumping speed at working pressures and shorten pump down time significantly. They incorporate five mechanical seals for optimum protection from dust and particulate contamination, and can be mounted separately or on the inlet of the backing pump to create a compact integrated package.
Featuring an extra large diameter shaft, the Stokes 6" series has the capability for use with higher powered motors in addition to ensuring a uniquely rugged and durable mechanical booster. This allows the pumps to operate at their full displacement from atmospheric pressure with an appropriately sized backing pump.

## Features & Benefits

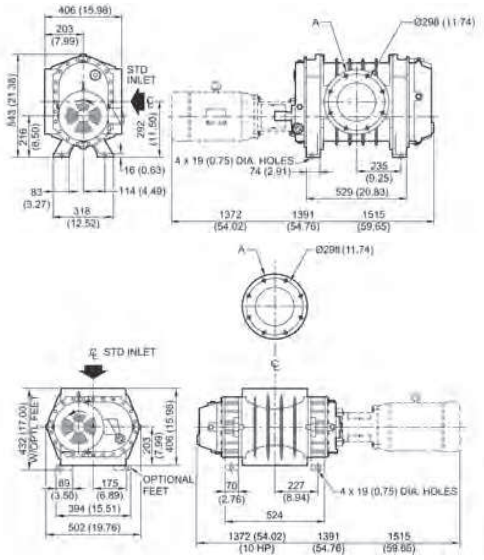
- Mechanical shaft seal – improved life and serviceability
- Ringfeder® keyless gear locking system – stronger, faster timing
- Large shaft diameters – allowing improved performance at high pressures
- Belt drive or direct drive capability
- Vertical or horizontal gas flow

## Technical Data

| | |
|---|---|
| Displacement | |
| V belt (2750 rpm) | 3375$m^3 h^{-1}$ / 2000$ft^3 min^{-1}$ |
| Direct drive (3000 rpm) | 3685$m^3 h^{-1}$ / 2170$ft^3 min^{-1}$ |
| Direct drive (3600 rpm) | 4420$m^3 h^{-1}$ / 2600$ft^3 min^{-1}$ |
| Inlet/outlet flanges | 8" ASA/ANSI flange |
| Motor power EU/Asia | 11kW |
| Motor power US TEFC | 15hp |
| Cooling water | 7.6-11.4 l $min^{-1}$ / 2-3 gal $min^{-1}$ |
| Oil capacity (horizontal flow) | 1.9liter / 0.51gal |
| Oil capacity (vertical flow) | 4.1liter / 1.1gal |
| Max pressure differential | 506mbar / 380Torr |
| Max temp rise | 135°C / 275°F |
| Max discharge temp | 191°C / 375°F |
| Weight bare shaft | 234kg / 515lbs |
| Weight TEFC direct drive | 397kg / 875lbs |



## Dimensions




**A** 8" pipe flange connection 13 1/2" (343 mm) OD x 8" (203 mm) ID 8 x 3/4-10 NC-2B x 1 1/8" (29 mm) holes straddle both CL both flanges

## Ordering Information

| Product Description | Order No. |
|---|---|
| 615 5HR CE 11kW, 230/400V, 3-ph, 50Hz @ 3000rpm | 9006155HR601 |
| 615 5HR CE 11kW, 200-220/380V, 3-ph, 50/60Hz @ 3000/36000rpm | 9006155HR602 |
| 615 5H15, 15hp, 230/460V, 3-ph, 60Hz @ 3600rpm | 9006155H15 |
| 615 5HR (Bare shaft) Horizontal flow | 9006155HR |
| 615 5V15, 15hp, 230/460V, 3-ph, 60Hz @ 3600rpm | 9006155V15 |
| 615 5VR (Bare Shaft) Vertical flow | 9006155VR |
| 615 5VR CE 11kW, 230/400V, 3-ph, 50Hz @ 3000rpm | 9006155VR601 |
| 615 5VR CE 11kW, 200-220/380V, 3-ph, 50/60Hz @ 3000/3600rpm | 9006155VR602 |
| **Accessories & Spares** | **Order No.** |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |
| Process isolation seal kit | 607552004 |

# Stokes 61B Series By-Pass Mechanical Booster Pumps

Stokes 61B by-pass mechanical boosters are designed to be used in conjunction with rotary-piston, dry vacuum, rotary vane and liquid ring pumps to increase pumping speed at working pressures and shorten pump down time significantly. The Stokes 61B by-pass boosters include an integral by-pass valve enabling the booster to start from atmosphere, eliminating the need for a vacuum pressure switch and ensures continuous operation regardless of vacuum level. The Stokes 61B can be mounted separately or on the inlet of the backing pump to create a compact integrated package.

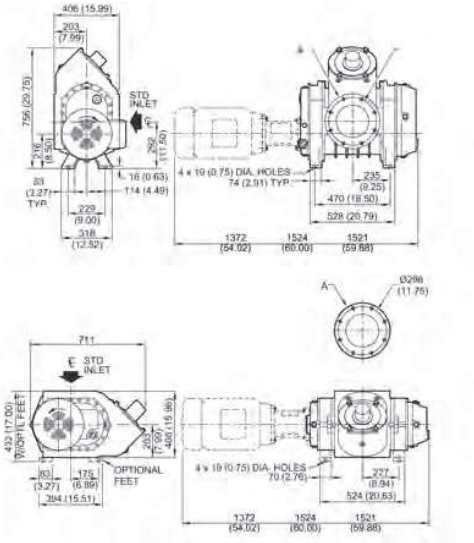
## Features & Benefits

- Mechanical shaft seal – improved life and serviceability
- Ringfeder® keyless gear locking system – stronger, faster timing
- Large shaft diameters – allowing improved performance at high pressures
- Belt drive or direct drive capability
- Vertical or horizontal gas flow

## Technical Data

| | |
|---|---|
| Displacement | |
| V belt (2750 rpm) | 3375$m^3 h^{-1}$ / 2000$ft^3 min^{-1}$ |
| Direct drive (1800 rpm) | 2210$m^3 h^{-1}$ / 1300$ft^3 min^{-1}$ |
| Direct drive (3000 rpm) | 3685$m^3 h^{-1}$ / 2170$ft^3 min^{-1}$ |
| Direct drive (3600 rpm) | 4420$m^3 h^{-1}$ / 2600$ft^3 min^{-1}$ |
| Inlet/outlet flanges | 8” ASA/ANSI flange |
| Motor power EU/Asia | 18.5kW |
| Motor power US TEFC | 10/25hp |
| By-pass available | Yes |
| Cooling method | Air cooled |
| Oil capacity (horizontal flow) | 1.9liter / 0.51gal |
| Oil capacity (vertical flow) | 4.1liter / 1.1gal |
| Max temp rise | 135°C / 275°F |
| Max discharge temp | 191°C / 375°F |
| Weight bare shaft | 284kg / 625lbs |
| Weight TEFC direct drive | 530kg / 1170lbs |

## Dimensions




**A** 8" pipe flange connection 13 1/2" (343 mm) OD x 8" (203 mm) ID 8 x 3/4-10 NC-2B x 1 1/8" (29 mm) holes straddle both CL both flanges

## Ordering Information

| Product Description | Order No. |
|---|---|
| 61B MHR CE, 18.5kW, 400V, 3-ph, 50Hz @ 3000rpm | 90061BMHR601 |
| 61B MHR CE, 18.5kW, 200-220/380V, 3-ph, 50/60Hz @ 3000/3600rpm | 90061BMHR602 |
| 61B MH10, 10hp, 230/460V, 3-ph, 60Hz @ 1800rpm | 90061BMH10 |
| 61B MH25, 25hp, 230/460V, 3-ph, 60Hz @ 3600rpm | 90061BMH25 |
| 61B MHR (Bare shaft) Horizontal flow | 90061BMHR |
| 61B MV10, 10hp, 230/460V, 3-ph, 60Hz @ 1800rpm | 90061BMV10 |
| 61B MV25, 25hp, 230/460V, 3-ph, 60Hz @ 3600rpm | 90061BMV25 |
| 61B MVR (bare shaft) Vertical flow | 90061BMVR |
| 61B MVR CE, 18.5kW, 400V, 3-ph, 50Hz @ 3000rpm | 90061BMVR601 |
| 61B MVR CE, 18.5kW, 200-220/380V, 3-ph, 50/60Hz @ 3000/3600rpm | 90061BMVR602 |
| **Accessories & Spares** | **Order No.** |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |

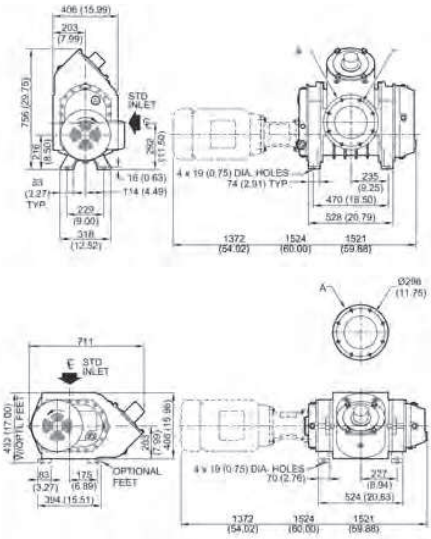
# Stokes 61B Series Process Isolation Boosters

Stokes 61B series process isolation boosters are designed to be used in conjunction with rotary-piston, dry vacuum, rotary vane and liquid ring pumps to increase pumping speed at working pressures and shorten pump down time significantly. It incorporates five mechanical seals for optimum protection from dust and particulate contamination. It also includes an integral by-pass valve enabling the booster to start from atmosphere, eliminating the need for a vacuum pressure switch to ensure continuous operation regardless of vacuum level. The Stokes 61B series can be mounted separately or on the inlet of the backing pump to create a compact integrated package.

## Features & Benefits

- Mechanical shaft seal – improved life and serviceability
- Ringfeder® keyless gear locking system – stronger, faster timing
- Large shaft diameters – allowing improved performance at high pressures
- Belt drive or direct drive capability
- Vertical or horizontal gas flow

## Dimensions




A 8" pipe flange connection 13 1/2" (343 mm) OD x 8" (203 mm) ID 8 x 3/4-10 NC-2B x 1 1/8" (29 mm) holes straddle both CL both flanges

## Technical Data

| | |
|---|---|
| Displacement | |
| V belt (2750 rpm) | 3375m$^3$h$^{-1}$ / 2000ft$^3$min$^{-1}$ |
| Direct drive (3000 rpm) | 3685m$^3$h$^{-1}$ / 2170ft$^3$min$^{-1}$ |
| Direct drive (3600 rpm) | 4420m$^3$h$^{-1}$ / 2600ft$^3$min$^{-1}$ |
| Inlet/outlet flanges | 8” ASA/ANSI flange |
| Motor power EU/Asia | 18.5kW |
| Motor power US TEFC | 25 hp |
| By-pass available | Yes |
| Cooling water | 7.6-11.4l min$^{-1}$ / 2-3gal min$^{-1}$ |
| Oil capacity (horizontal flow) | 1.9liter / 4.1gal |
| Oil capacity (vertical flow) | 4.1liter / 8.8gal |
| Max temp rise | 135°C / 275°F |
| Max discharge temp | 191°C / 375°F |
| Weight bare shaft | 284kg / 625lbs |
| Weight TEFC direct drive | 538kg / 1185lbs |

## Ordering Information

| Product Description | Order No. |
|---|---|
| 61B 5HR CE 18.5kW, 230/400V, 3-ph, 50Hz @ 3000rpm | 90061B5HR601 |
| 61B 5HR CE 18.5kW, 200-220/380V, 3-ph, 50/60Hz @ 3000/3600rpm | 90061B5HR602 |
| 61B 5H25, 25hp, 230/460V, 3-ph, 60Hz @ 3600rpm | 90061B5H25 |
| 61B 5HR (Bare Shaft) Horizontal flow | 90061B5HR |
| 61B 5V25, 25hp, 230/460V, 3-ph, 60Hz @ 3600rpm | 90061B5V25 |
| 61B 5VR (Bare shaft) Vertical flow | 90061B5VR |
| 61B 5VR CE 18.5kW, 230/400V, 3-ph, 50Hz @ 3000rpm | 90061B5VR601 |
| 61B 5VR CE 18.5kW, 200-220/380V, 3-ph, 50/60Hz @ 3000/3600rpm | 90061B5VR602 |
| **Accessories & Spares** | **Order No.** |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |
| Process isolation seal kit | 607552004 |

# Stokes 622 Series Mechanical Booster Pumps

Stokes 6" series mechanical boosters are designed to be used in conjunction with rotary-piston, dry vacuum, rotary vane and liquid ring pumps to increase pumping speed at working pressures and shorten pump down time significantly. The Stokes 6" series can be mounted separately or on the inlet of the backing pump to create a compact integrated package.

Featuring an extra large diameter shaft, the Stokes 6” series has the capability for use with higher powered motors in addition to ensuring a uniquely rugged and durable mechanical booster. This allows the pumps to operate at their full displacement from atmospheric pressure with an appropriately sized backing pump.

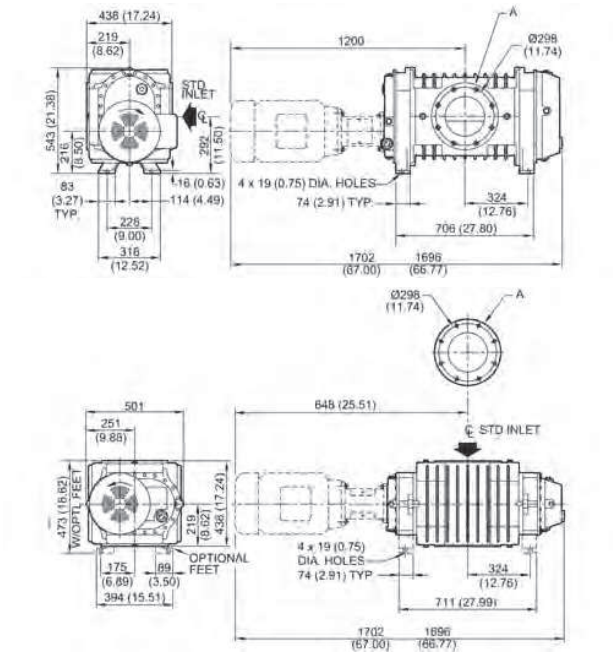
## Features & Benefits

- Mechanical shaft seal – improved life and serviceability
- Ringfeder® keyless gear locking system – stronger, faster timing
- Large shaft diameters – allowing improved performance at high pressures
- Belt drive or direct drive capability
- Vertical or horizontal gas flow

## Technical Data

| | |
|---|---|
| Displacement | |
| V belt (2750 rpm) | 5100$m^3 h^{-1}$ / 3000$ft^3 min^{-1}$ |
| Direct drive (3000 rpm) | 5525$m^3 h^{-1}$ / 2350$ft^3 min^{-1}$ |
| Direct drive (3600 rpm) | 6630$m^3 h^{-1}$ / 3900$ft^3 min^{-1}$ |
| Inlet/outlet flanges | 8” ASA/ANSI flange |
| Motor power EU/Asia | 18.5kW |
| Motor power US TEFC | 25hp |
| Cooling method | Air cooled |
| Oil capacity (horizontal flow) | 1.9liter / 0.51gal |
| Oil capacity (vertical flow) | 4.1liter / 1.1gal |
| Max pressure differential | 333mbar / 250Torr |
| Max temp rise | 151°C / 275°F |
| Max discharge temp | 177°C / 350°F |
| Weight bare shaft | 335kg / 740lbs |
| Weight TEFC direct drive | 617kg / 1360lbs |

## Dimensions




A 8" pipe flange connection 13 1/2" (343 mm) OD x 8" (203 mm) ID 8 x 3/4-10 NC-2B x 1 1/8" (29 mm) holes straddle both CL both flanges

## Ordering Information

| Product Description | Order No. |
|---|---|
| 622 MHR CE 18.5kW, 400V, 3-ph, 50Hz @ 3000rpm | 900622MHR601 |
| 622 MHR CE 18.5kW, 200-220/380V, 3-ph, 50/60Hz @ 3000/3600rpm | 900622MHR602 |
| 622 MH25, 25hp, 230/460V, 3-ph, 60Hz @ 3600rpm | 900622MH25 |
| 622 MHR (Bare shaft) Horizontal flow | 900622MHR |
| 622 MV25, 25hp, 230/460V, 3-ph, 60Hz @ 3600rpm | 900622MV25 |
| 622 MVR (Bare shaft) Vertical flow | 900622MVR |
| 622 MVR CE 18.5kW, 400V, 3-ph, 50Hz @ 3000rpm | 900622MVR601 |
| 622 MVR CE 18.5kW, 200-220/380V, 3-ph, 50/60Hz @ 3000/3600rpm | 900622MVR602 |
| **Accessories & Spares** | **Order No.** |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |

# Stokes 622 Series Process Isolation Boosters

Stokes 6" series process isolation boosters are designed to be used in conjunction with rotary-piston, dry vacuum, rotary vane and liquid ring pumps to increase pumping speed at working pressures and shorten pump down time significantly. They incorporate five mechanical seals for optimum protection from dust and particulate contamination and can be mounted separately or on the inlet of the backing pump to create a compact integrated package.

Featuring an extra large diameter shaft, the Stokes 6” series has the capability for use with higher powered motors in addition to ensuring a uniquely rugged and durable mechanical booster.

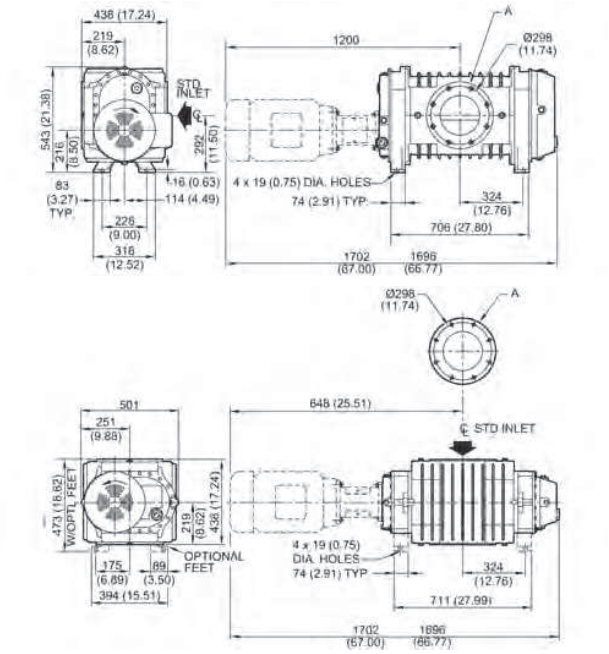
## Features & Benefits

- Mechanical shaft seal – improved life and serviceability
- Ringfeder® keyless gear locking system – stronger, faster timing
- Large shaft diameters – allowing improved performance at high pressures
- Belt drive or direct drive capability
- Vertical or horizontal gas flow

## Technical Data

| | |
|---|---|
| Displacement | |
| V belt (2750 rpm) | 5100$m^3 h^{-1}$ / 3000$ft^3 min^{-1}$ |
| Direct drive (3000 rpm) | 5525$m^3 h^{-1}$ / 2350$ft^3 min^{-1}$ |
| Direct drive (3600 rpm) | 6630$m^3 h^{-1}$ / 3900$ft^3 min^{-1}$ |
| Inlet/outlet flanges | 8” ASA/ANSI flange |
| Motor power EU/Asia | 18.5kW |
| Motor power US TEFC | 25hp |
| Cooling water | 7.6-11.4l $min^{-1}$ / 2-3gal $min^{-1}$ |
| Oil capacity (horizontal flow) | 1.9liter / 4.1gal |
| Oil capacity (vertical flow) | 4.1liter / 8.8gal |
| Max pressure differential | 333mbar / 250Torr |
| Max temp rise | 121°C / 250°F |
| Max discharge temp | 177°C / 350°F |
| Weight bare shaft | 335kg / 740lbs |
| Weight TEFC direct drive | 625kg / 1370lbs |

## Dimensions




A 8" pipe flange connection 13 1/2" (343 mm) OD x 8" (203 mm) ID 8 x 3/4-10 NC-2B x 1 1/8" (29 mm) holes straddle both CL both flanges

## Ordering Information

| Product Description | Order No. |
|---|---|
| 622 5HR CE 18.5kW, 230/400V, 3-ph, 50Hz @ 3000rpm | 9006225HR601 |
| 622 5HR CE 18.5kW, 200-220/380V, 3-ph, 50/60Hz @ 3000/3600rpm | 9006225HR602 |
| 622 5H25, 25hp, 230/460V, 3-ph, 60Hz @ 3600rpm | 9006225H25 |
| 622 5HR (Bare shaft) Horizontal flow | 9006225HR |
| 622 5V25, 25hp, 230/460V, 3-ph, 60Hz @ 3600rpm | 9006225V25 |
| 622 5VR (Bare shaft) Vertical flow | 9006225VR |
| 622 5VR CE 18.5kW, 230/400V, 3-ph, 50Hz @ 3000rpm | 9006225VR601 |
| 622 5VR CE 18.5kW, 200-220/380V, 3-ph, 50/60Hz @ 3000/3600rpm | 9006225VR602 |
| **Accessories & Spares** | **Order No.** |
| Replacement 6" booster Mseal - seal kit | 607552001 |
| Replacement 6" booster - maintenance kit | 607552002 |

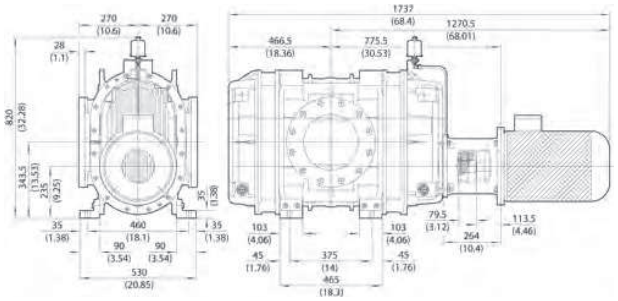
# HV8000 Mechanical booster pump

The Edwards HV8000 high vacuum mechanical booster has been developed to provide high reliability operation in aggressive environments.
With a nominal pumping speed of 7200 $m^3h^{-1}$ (4241 $ft^3 min^{-1}$) at 50Hz, it is ideal for large industrial and chemical applications including, steel degassing, metallurgy, coating, electron beam welding and the process engineering industries.

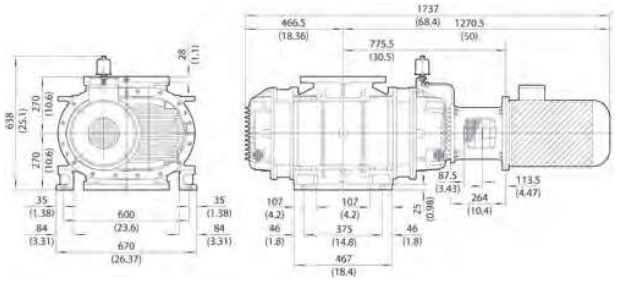
## Features & Benefits

- Derived from the successful range of HV pressure blowers, the HV8000 is designed for arduous duty cycles and high power applications.
- Ideal for larger scale, harsh industrial and chemical applications, the HV8000 is available in Industrial, ATEX or Explosion Proof configurations.
- The HV8000 may be ordered as either bareshaft or with motor fitted. Variable frequency drives may be specified for greater versatility.
- The HV8000 is available in vertical or horizontal gas flow configuration.
- For long service life, the external shaft seal is water-cooled.

## Dimensions




Horizontal Flow




Vertical Flow

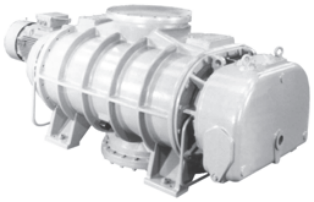
## Technical Data

| | |
|---|---|
| Displacement (swept volume) (50Hz) | 7200 $m^3h^{-1}$ / 4241 $ft^3min^{-1}$ |
| Displacement (swept volume) (60Hz) | 8640 $m^3h^{-1}$ / 5089 $ft^3min^{-1}$ |
| Max rotation speed (50Hz) | 3000 rpm |
| Max rotation speed (60Hz) | 3600 rpm |
| Max pressure differential (50Hz) | 190 mbar / 143 Torr |
| Max pressure differential (60Hz) | 120 mbar / 90 Torr |
| Ultimate (depends on backing set) (50Hz) | $1.5 \times 10^{-4}$ mbar / $1 \times 10^{-4}$ Torr |
| Ultimate (depends on backing set) (60Hz) | $2 \times 10^{-4}$ mbar / $1.5 \times 10^{-4}$ Torr |
| Electrical supply voltage (50Hz) | 380-415V, 3-ph |
| Electrical supply voltage (60Hz) | 440-460V, 3-ph |
| Standard motor power (50Hz) | 15 kW / 20 hp |
| Standard motor power (60Hz) | 18.5 kW / 25 hp |
| Standard backing set speed requirements | 2600 $m^3h^{-1}$ / 1530 $ft^3min^{-1}$ |
| Recommended oil | Mobile SHC 629 |
| Max oil capacity (vertical gas flow config) | 8.3 liter / 2.18 US gal |
| Inlet/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) |
| Max cooling water supply pressure | 4 bar / 58 psi |
| Max cooling water supply temp | 35°C / 95°F |
| Cooling water flow rate | 15 l $min^{-1}$ / 3.96 US gal $min^{-1}$ |
| Noise level | 82 dB(A) |
| Weight (without motor) | 580 kg / 1279 lb |
| Weight (with standard motor) | 720 kg / 1587 lb |

## Ordering Information

| Product Description | Order No. |
|---|---|
| HV8000IND VF 380-415V, 3-ph, 50Hz, 18.5kW | A31101935 |
| HV8000IND VF 440-460V, 3-ph, 60Hz, 25hp | A31101936 |
| HV8000IND VF bareshaft | A31101985 |
| HV8000IND HF 380-415V, 3-ph, 50Hz, 18.5kW | A31102935 |
| HV8000IND HF 440-460V, 3-ph, 60Hz, 25hp | A31102936 |
| HV8000IND HF bareshaft | A31102985 |
| **Accessories & Spares** | **Order No.** |
| HV8000 VF motor mounting kit IEC | A31101002 |
| HV8000 VF motor mounting kit NEMA | A31101006 |
| HV8000 HF motor mounting kit IEC | A31102002 |
| HV8000 HF motor mounting kit NEMA | A31102006 |
| Gear Box Oil 4 Ltr Mobil SHC 629 | H11023011 |
| HV8000 Set of O-Rings spare | A31101801 |
| HV8000 Mech seal kit spare | A31101802 |
| HV8000 mech seal + sleeve kit spare | A31101803 |
| HV8000 gear set spare | A31101804 |
| HV8000 bearings kit spare | A31101805 |
| HV8000 rotors kit spare | A31101806 |
| HV8000 oil resevoir spare | A31101807 |
| HV8000 sight glass spare | A31101808 |

# HV30000 Mechanical Booster Pump



The HV pump systems combine Edwards expertise in manufacture and assembly of complete industrial vacuum systems with Dresser's world-renowned Roots pump technology. These pumps are backed by Edwards Dry Pumps or Mechanical Booster pumps.

This range of high capacity mechanical booster pumps is designed to operate reliably for long periods with no need for maintenance. The HV pumps can be fitted with an inverter to allow them to be started at atmospheric pressure, at the same time as the dry pumps.

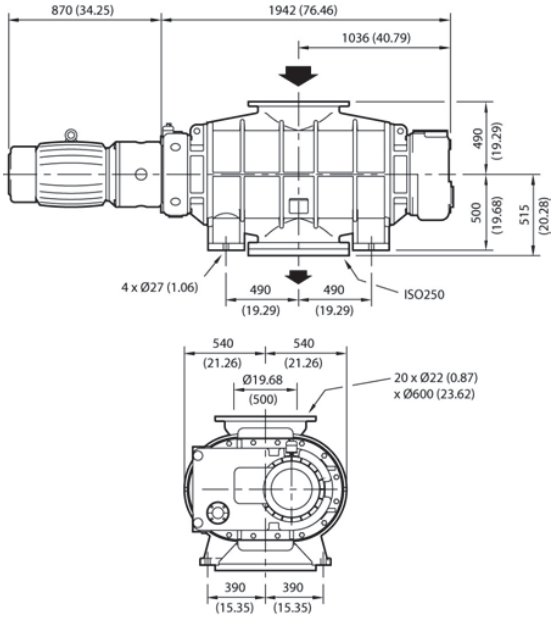
## Features & Benefits

- Water cooled shaft seals and after cooler
- Fitted with thermal snap-switch, to protect the pump from over temperature
- Nitrogen purge inlet fitted as standard
- Vertical flow, direct drive (horizontal optional)
- Control with inverter, or interlock with a pressure switch input

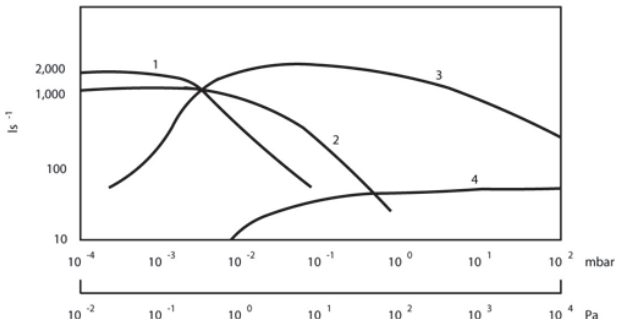
## Applications

- Semiconductor processing
- Vacuum distillation
- Vacuum packaging
- Steel degassing
- Thin film coating

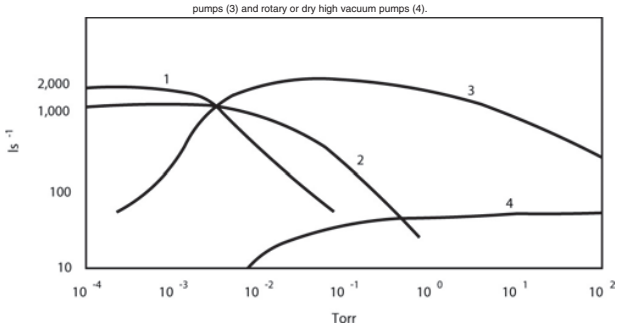
## Dimensions




## Performance Curves




In their most efficient range, booster pumps (1) fill the gap between the pumping speeds of vapor diffusion pumps (2), vapor booster pumps (3) and rotary or dry high vacuum pumps (4).




In their most efficient range, booster pumps (1) fill the gap between the pumping speeds of vapor diffusion pumps (2), vapor booster pumps (3) and rotary or dry high vacuum pumps (4).

## Technical Data

| | |
|---|---|
| Displacement | |
| 50 Hz Supply | 30000 $m^3 h^{-1}$ |
| | 17700 $ft^3 min^{-1}$ |
| 60 Hz Supply | 36000 $m^3 h^{-1}$ |
| | 21204 $ft^3 min^{-1}$ |
| Maximum pressure differential | |
| 50 Hz Supply | 29 mbar |
| | 22 Torr |
| 60 Hz Supply | 24 mbar |
| | 18 Torr |
| Recommended backing pumps | 2 x GV400 / DP400 and 2 x EH4200 |
| Electrical supply | 400 V 50 Hz 3-ph or 460 V 60 Hz 3-ph |
| Motor power 50 Hz | 30 kW / 40 hp |
| Motor power 60 Hz | # |
| Cooling-water supply | |
| Maximum pressure | 10 bar / 145 psi |
| Inlet temperature | 20 ºC |
| Recommended oil | Ultragrade 20 |
| Oil capacity | 33 l / 34.9 qt |
| Ambient operating temperature | 5 - 40 ºC |
| Maximum operating humidity | 100% RH |
| Weight (without motor) | 3100 kg / 6820 lb |

# On request

## Ordering Information

| Product Description | Order No. |
|---|---|
| HV30000 High Capacity Mechanical Booster Pump | HV30000 Mechanical Booster Pump |