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

Ⓔx II 2G c IIB T3

or

Ⓔx II 2G c IIB T160

The notations used in these ratings are as follows:

Symbol	Meaning
Ⓔx	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

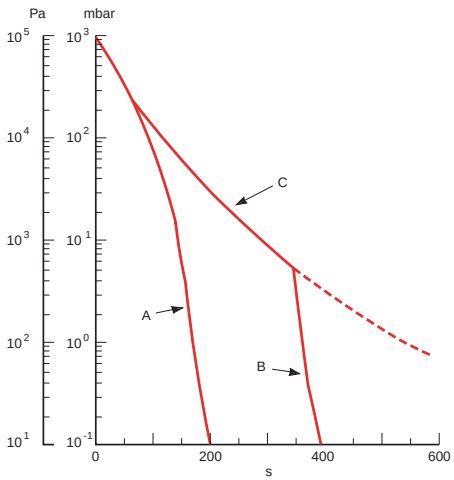
EH booster pumps have a unique and patented hydrokinetic fluid drive, which couples the motor to the pumping mechanism. The hydrokinetic drive offers the following advantages:

- 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

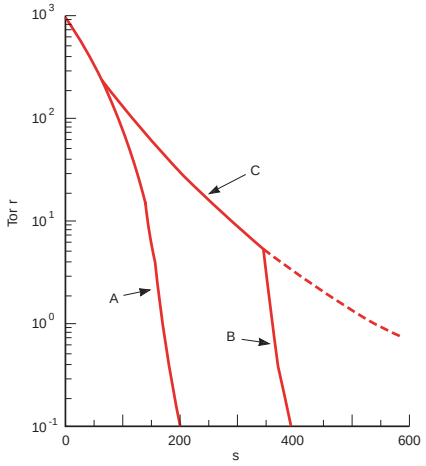
EH booster pumps have universal voltage, air-cooled motors and are available with effective pumping speeds of up to 4140 m^3h^{-1} / 2440 ft^3min^{-1}. The pump bodies of the EH1200, EH2600 and EH4200 pumps are water-cooled.

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.

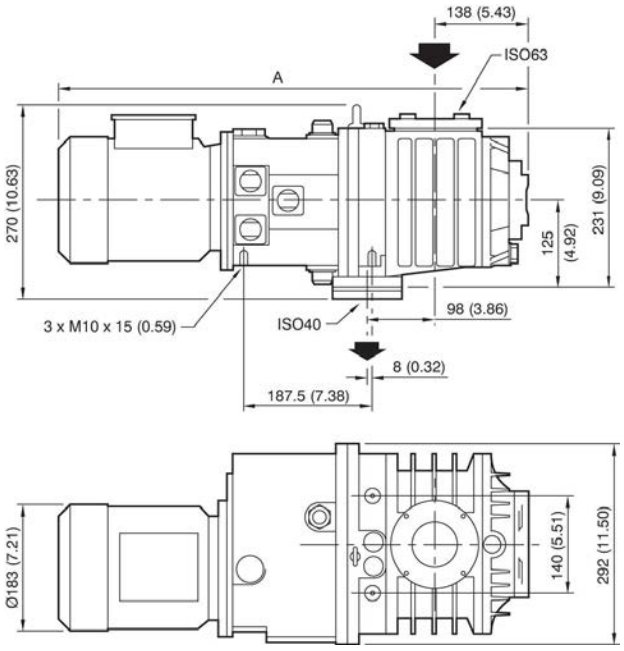
Features & Benefits

- 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

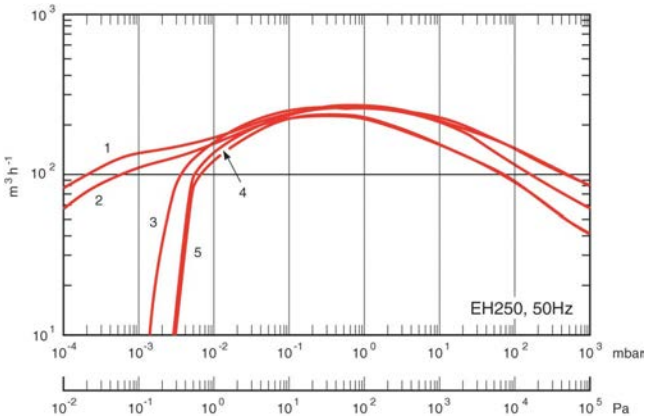
- Semiconductor processing
- Vacuum distillation
- Vacuum packaging
- Steel de-gassing
- Thin film coating

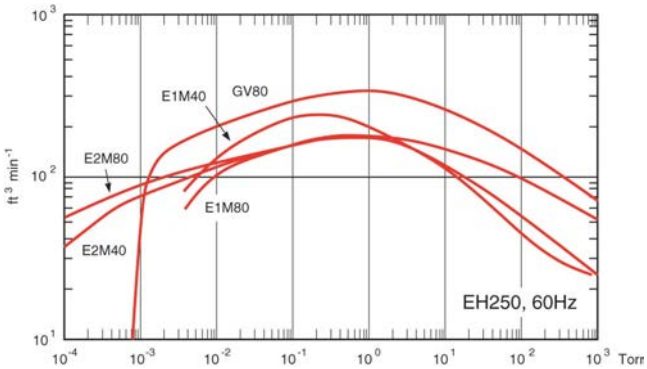
Dimensions



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	
E2M40	240 $m^3 h^{-1}$ / 141 $ft^3 min^{-1}$
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, E2M40, 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 litre / 1.6 qt
Shaft seal reservoir	0.125 litre / 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.

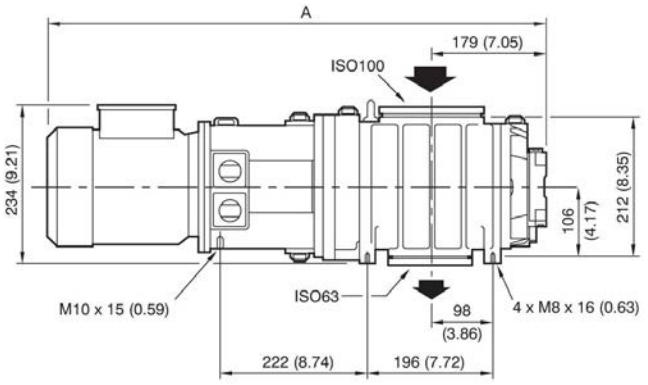
Features & Benefits

- 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

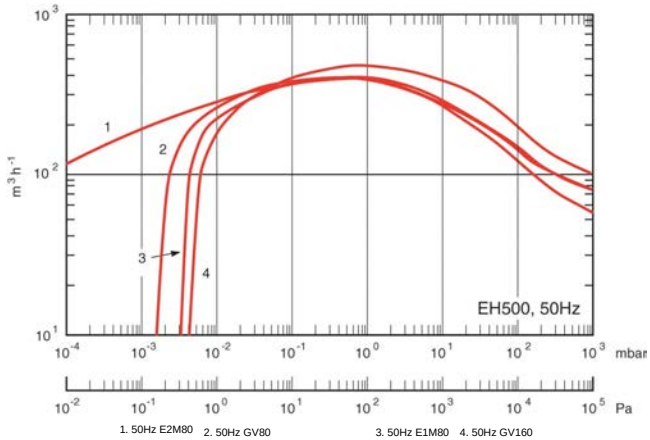
- Semiconductor processing
- Vacuum distillation
- Vacuum packaging
- Steel de-gassing
- Thin film coating

Dimensions

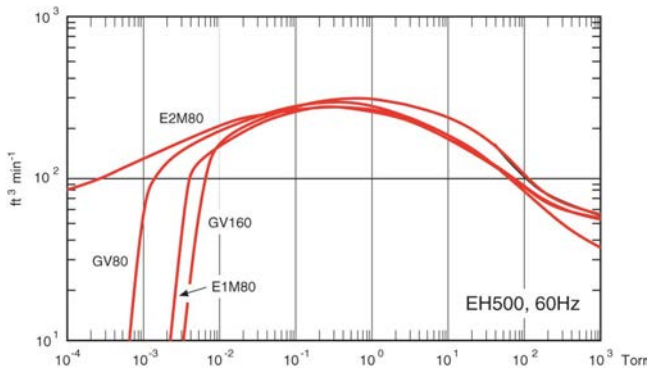


Pump is shown with inlet and outlet blanking flanges fitted. Dimensions are to the top surface of the pump flange.

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	
E2M40	350 $m^3 h^{-1}$ / 206 $ft^3 min^{-1}$
E2M80	400 $m^3 h^{-1}$ / 236 $ft^3 min^{-1}$
E2M175	440 $m^3 h^{-1}$ / 259 $ft^3 min^{-1}$
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 litre / 1.6 qt
Shaft seal reservoir	0.125 litre / 0.25 qt
Weight	74 kg / 163 lb

†. Depends on pressure

Ordering Information

Product Description	Order No.
EH500IND 208-230/460V, 3-ph, 60Hz, 3 hp	A30272946
EH500IND 200V, 3-ph 60Hz, 3 hp	NRC219000
EH500IND 200V, 3-ph, 50Hz, 2.2kW	NRC220000
EH500IND 220-240/380-415V, 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.

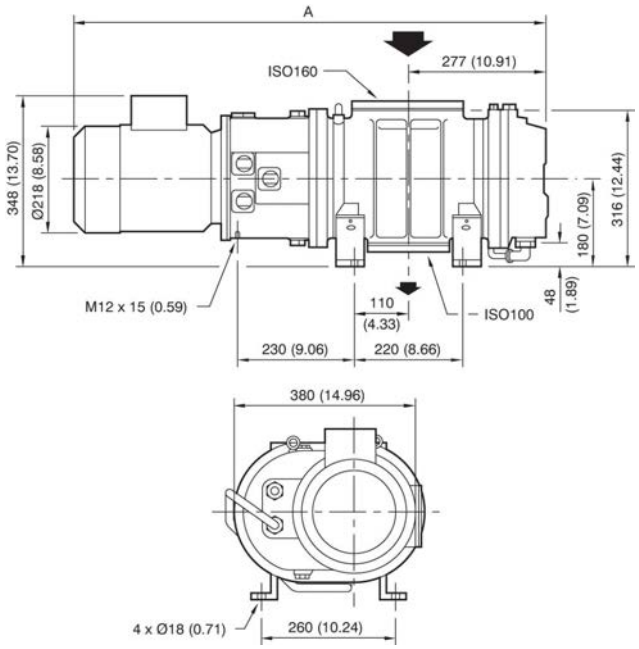
Features & Benefits

- 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

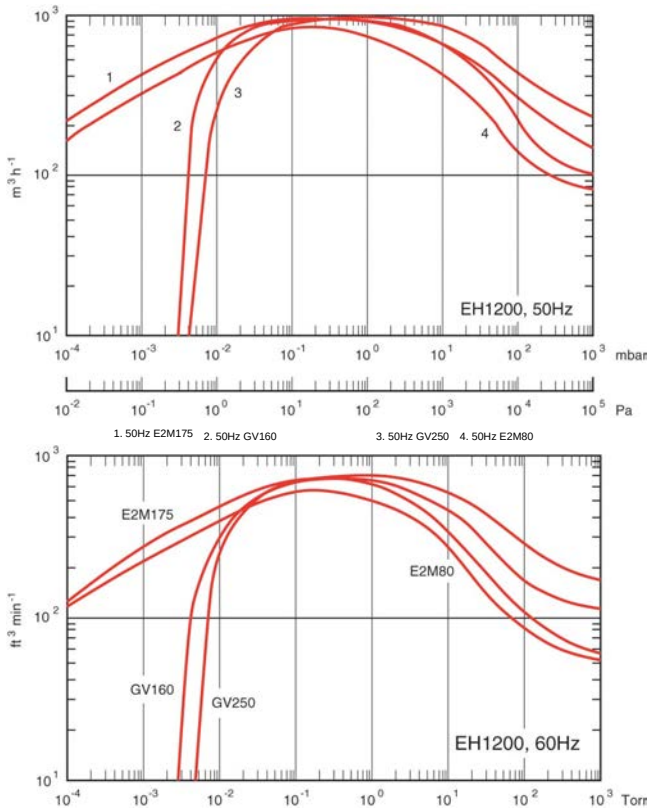
- Semiconductor processing
- Vacuum distillation
- Vacuum packaging
- Steel de-gassing
- Thin film coating

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	
E2M80	840 $m^3 h^{-1}$ / 495 $ft^3 min^{-1}$
E2M175	930 $m^3 h^{-1}$ / 548 $ft^3 min^{-1}$
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)*	120lh^{-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 litre / 1.3 qt
Coupling cover	1.5 litre / 1.6 qt
Shaft seal reservoir	0.125 litre / 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.

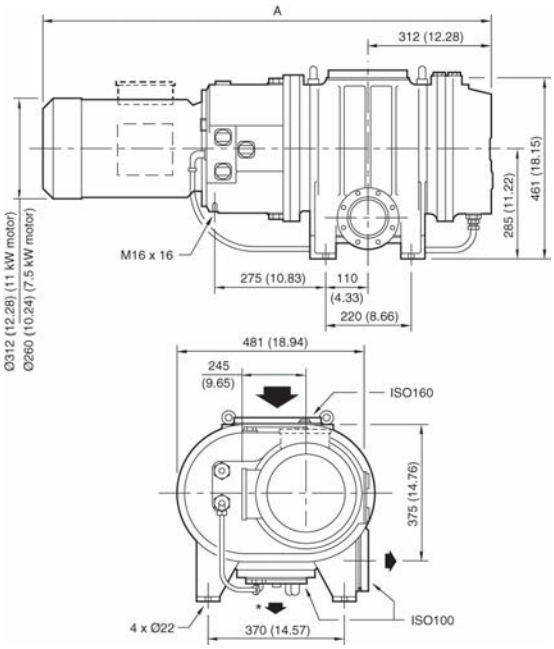
Features & Benefits

- 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

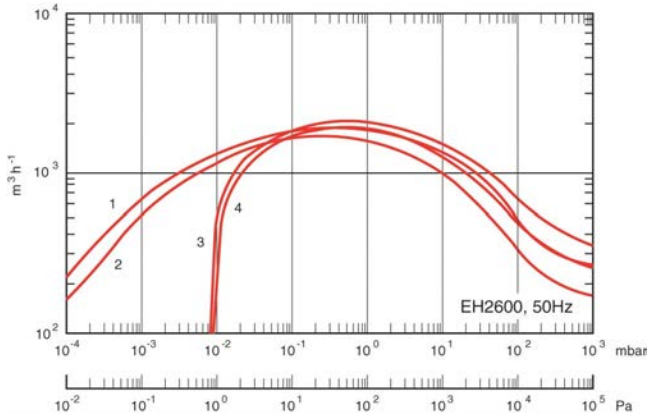
Dimensions



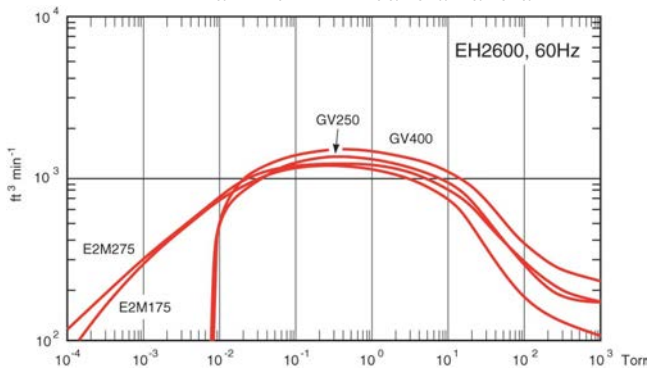
Pump is shown with inlet and outlet blanking flanges fitted. Dimensions are to the top surface of the pump flange.

* 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)*	250lh^{-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 litre / 3.3 qt
Coupling cover	6.5 litre / 7 qt
Shaft seal reservoir	1.5 litre / 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.

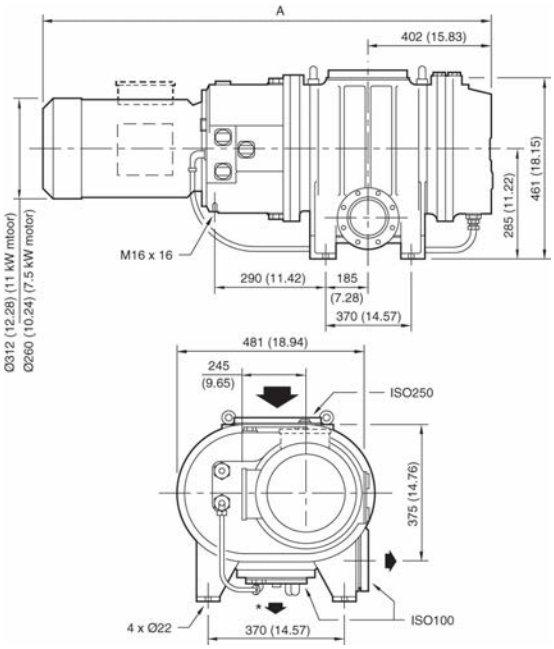
Features & Benefits

- 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

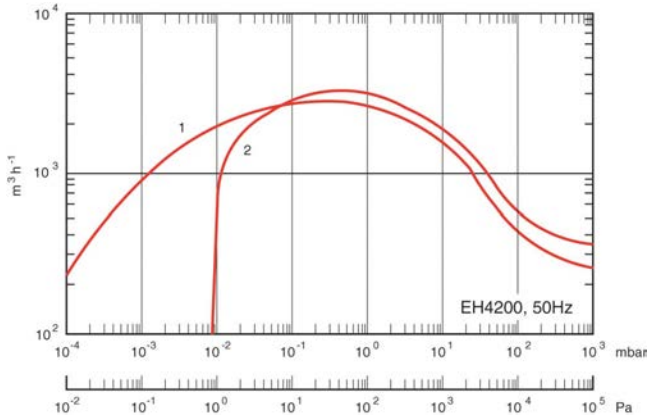
Dimensions



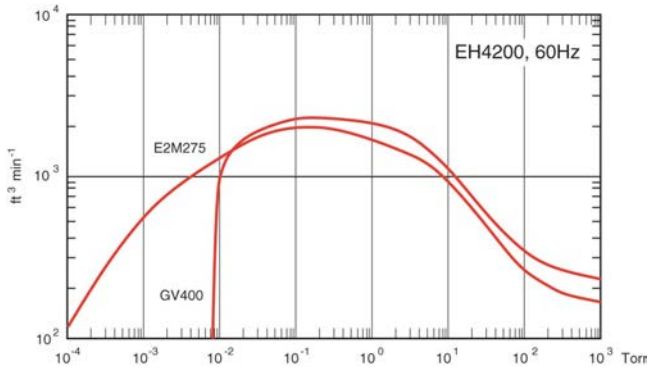
Pump is shown with inlet and outlet blanking flanges fitted. Dimensions are to the top surface of the pump flange.

* 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)*	250lh^{-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 litre / 3.3 qt
Coupling cover	6.5 litre / 7 qt
Shaft seal reservoir	1.5 litre / 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.

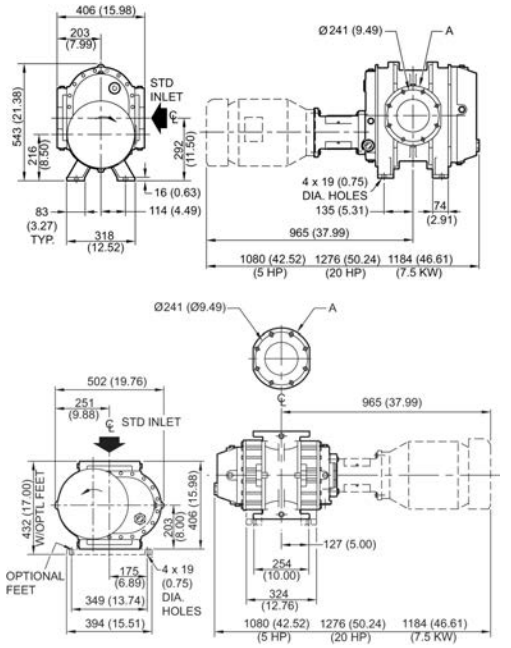
Features & Benefits

- 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)	1.9 litre / 0.51gal
Oil capacity (vertical flow)	4.1 litre / 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	900607MHR101
607 MVR (Bare shaft) Vertical flow	900607MVR101
607 MH20, 20 hp, 230/460V, 3-ph, 60Hz @ 1800rpm	900-607-MH20
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.

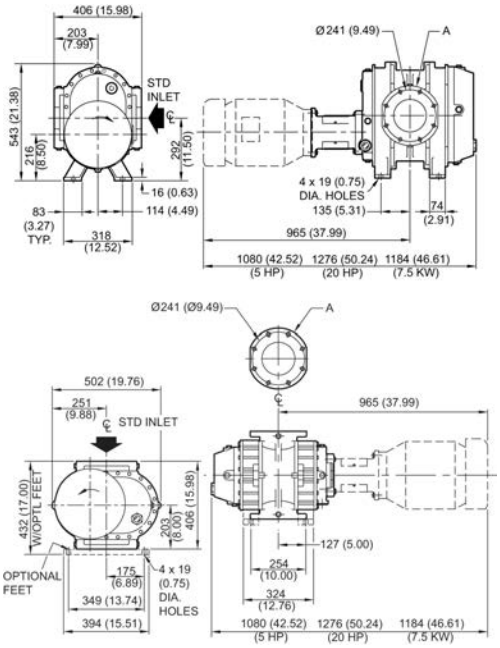
Features & Benefits

- 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)	1589m^3h^{-1} / 935ft^3min^{-1}
Direct drive (3000 rpm)	1733m^3h^{-1} / 1020ft^3min^{-1}
Direct drive (3600 rpm)	2080m^3h^{-1} / 1224ft^3min^{-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)	1.9 litre / 0.51gal
Oil capacity (vertical flow)	4. litre / 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	9006075HR101
607 5V10, 10hp, 230/460V, 3-ph, 60Hz @ 1800rpm	9006075V10
607 5VR (Bare shaft) Vertical flow	9006075VR101
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.

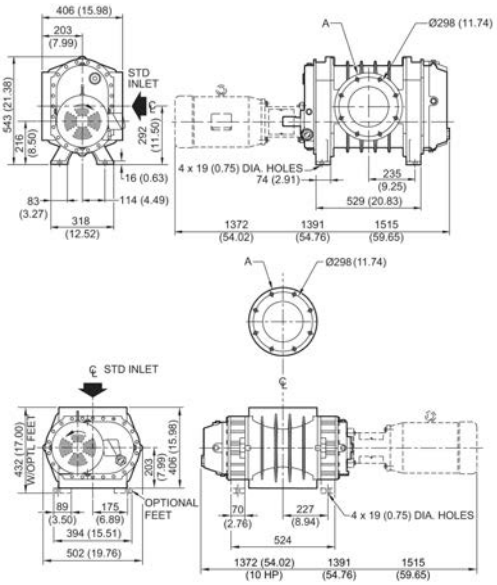
Features & Benefits

- 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, 15hp, 230/460V, 3-ph, 60Hz @ 3600rpm	900615MV15
615 MVR (Bare shaft) Vertical flow	900615MVR101
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	900-615-MH10
615 MH15, 15hp, 230/460V, 3-ph, 60Hz @ 3600rpm	900615MH15
615 MHR (Bare shaft) Horizontal flow	900615MHR101
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.

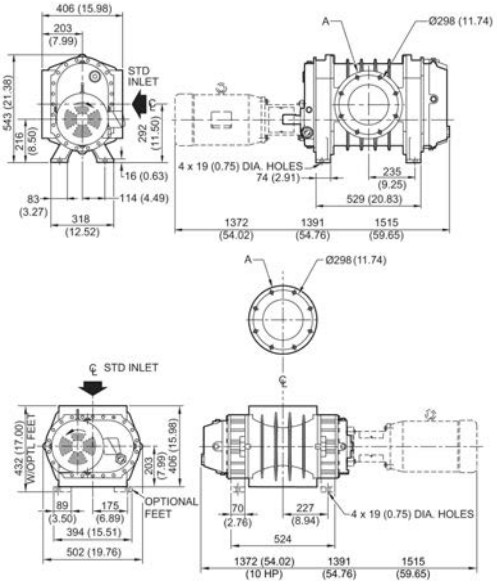
Features & Benefits

- 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)	1.9 litre / 0.51gal
Oil capacity (vertical flow)	4.1 litre / 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	9006155HR101
615 5V15, 15hp, 230/460V, 3-ph, 60Hz @ 3600rpm	9006155V15
615 5VR (Bare Shaft) Vertical flow	9006155VR101
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.

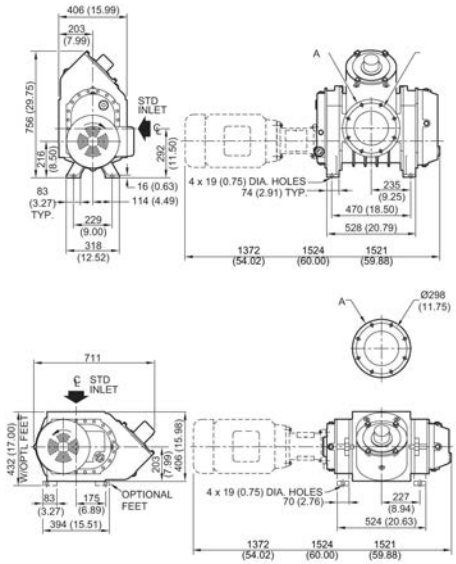
Features & Benefits

- 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)	3375m^3h^{-1} / 2000ft^3min^{-1}
Direct drive (1800 rpm)	2210m^3h^{-1} / 1300ft^3min^{-1}
Direct drive (3000 rpm)	3685m^3h^{-1} / 2170ft^3min^{-1}
Direct drive (3600 rpm)	4420m^3h^{-1} / 2600ft^3min^{-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)	1.9 litre / 0.51gal
Oil capacity (vertical flow)	4.1 litre / 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	90061BMHR101
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	90061BMVR101
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

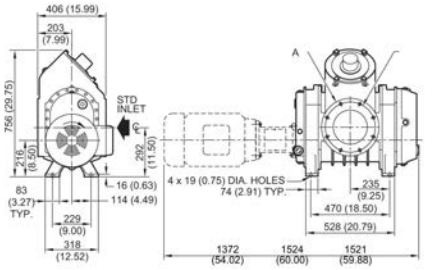
Stokes 61B Series Process Isolation Boosters

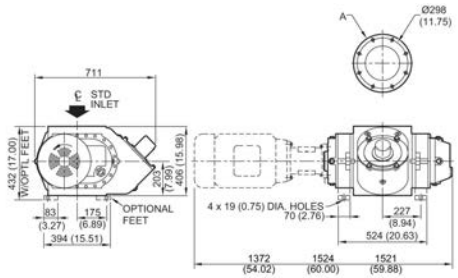
Stokes 61B series process isolation boosters are designed to be used in conjunction with rotary-piston, dry vacuum, rotary vane and liquid ring pumps to increase pumping speed at working pressures and shorten pump down time significantly. It incorporates five mechanical seals for optimum protection from 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)	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	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)	1.9 litre / 4.1gal
Oil capacity (vertical flow)	4.1 litre / 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	90061B5HR101
61B 5V25, 25hp, 230/460V, 3-ph, 60Hz @ 3600rpm	90061B5V25
61B 5VR (Bare shaft) Vertical flow	90061B5VR101
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.

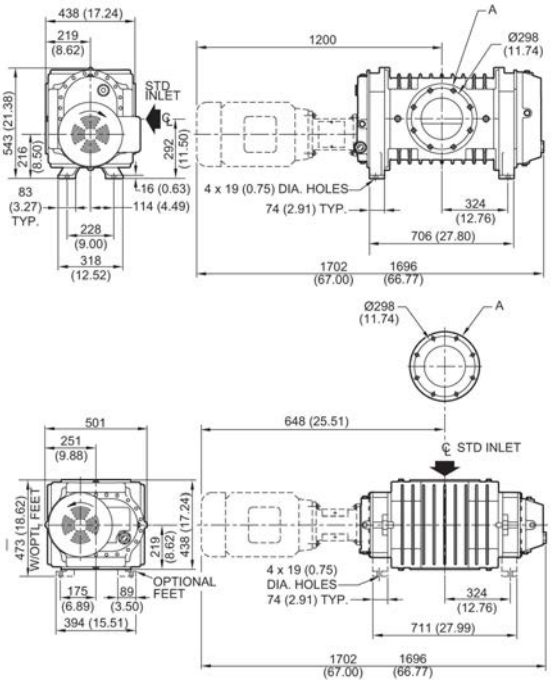
Features & Benefits

- 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)	5100m^3h^{-1} / 3000ft^3min^{-1}
Direct drive (3000 rpm)	5525m^3h^{-1} / 2350ft^3min^{-1}
Direct drive (3600 rpm)	6630m^3h^{-1} / 3900ft^3min^{-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)	1.9 litre / 0.51gal
Oil capacity (vertical flow)	4.1 litre / 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	900622MHR101
622 MV25, 25hp, 230/460V, 3-ph, 60Hz @ 3600rpm	900622MV25
622 MVR (Bare shaft) Vertical flow	900622MVR101
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.

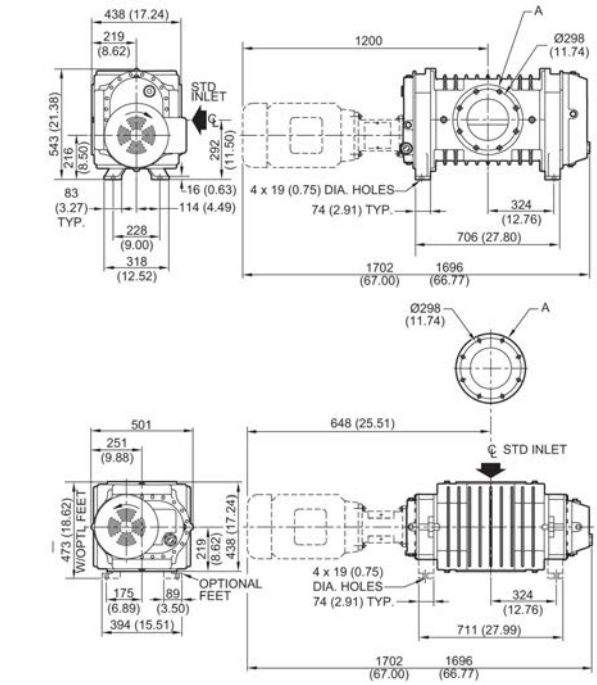
Features & Benefits

- 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)	1.9 litre / 4.1gal
Oil capacity (vertical flow)	4.1 litre / 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	9006225HR101
622 5V25, 25hp, 230/460V, 3-ph, 60Hz @ 3600rpm	9006225V25
622 5VR (Bare shaft) Vertical flow	9006225VR101
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

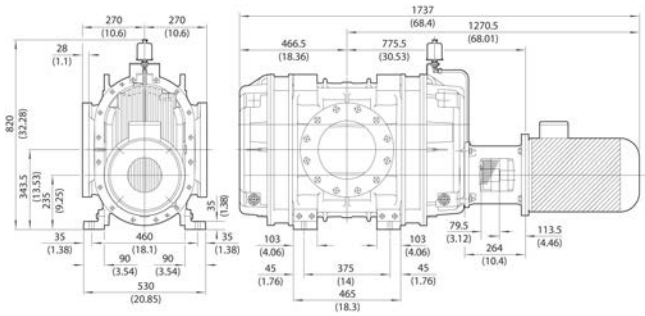
HV8000 Mechanical booster pump

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.

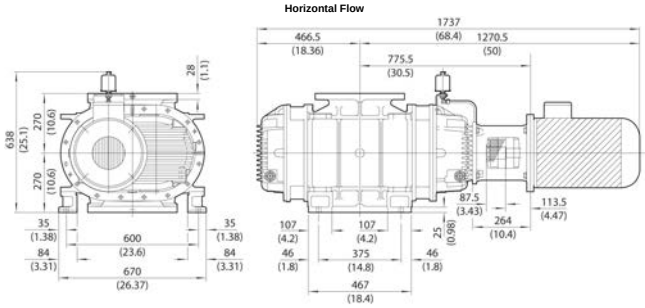
Features & Benefits

- 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 $m^3 h^{-1}$ / 4241 $ft^3 min^{-1}$
Displacement (swept volume) (60Hz)	8640 $m^3 h^{-1}$ / 5089 $ft^3 min^{-1}$
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)	1.5×10^{-4} mbar / 1×10^{-4} Torr
Ultimate (depends on backing set) (60Hz)	2×10^{-4} mbar / 1.5×10^{-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 $m^3 h^{-1}$ / 1530 $ft^3 min^{-1}$
Recommended oil	Mobile SHC 629
Max oil capacity (vertical gas flow config)	8.3 litre / 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.

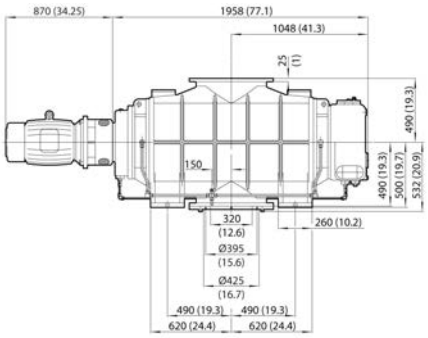
Features & Benefits

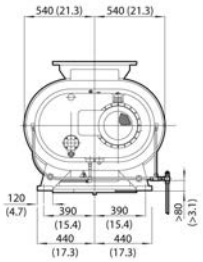
- Water cooled shaft seals and after cooler
- Fitted with thermal snap-switch, to protect the pump from over temperature
- Nitrogen purge inlet fitted as standard
- Vertical flow, direct drive (horizontal optional)
- Control with inverter, or interlock with a pressure switch input

Applications

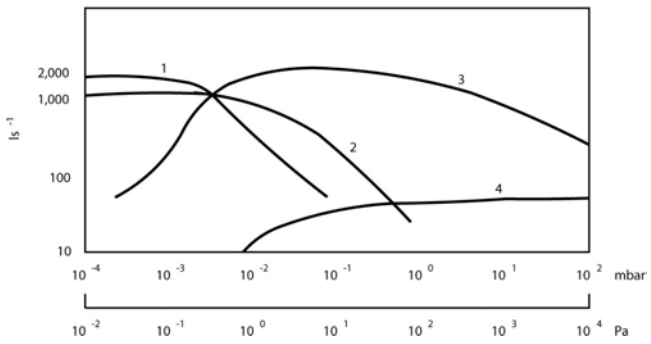
- Semiconductor processing
- Vacuum distillation
- Vacuum packaging
- Steel degassing
- Thin film coating

Dimensions

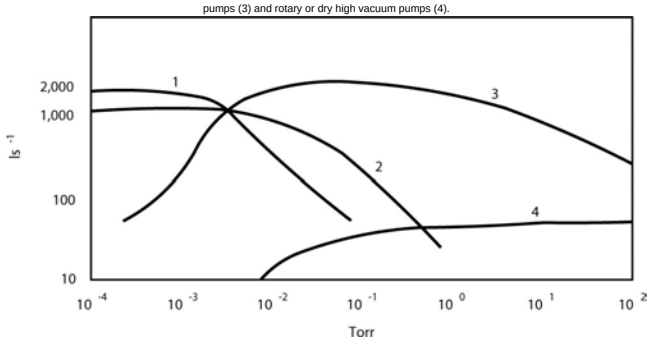




Performance Curves



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 ^{o}C
Recommended oil	Ultragrade 20
Oil capacity	33 l / 34.9 qt
Ambient operating temperature	5^{o} - 40 ^{o}C
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