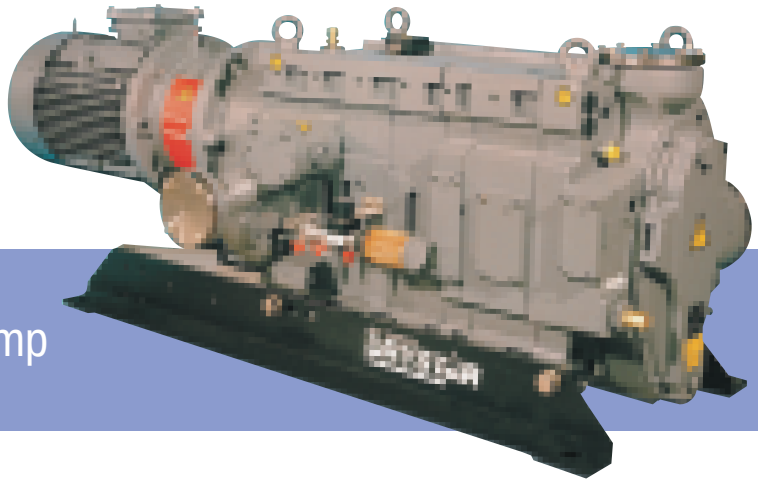
PRODUCT DATA

Drystar®GV600 Dry Vacuum Pump



The GV600 dry pump extends the range of the currently successful GV Drystar® series. The pump is based on the well-proven claw mechanism but has an additional roots stage to enhance pumping speed in the working range. This makes it ideal for backing industrial diffusion pumps, without the need for an additional mechanical booster. The higher speed reduces time to crossover pressure.

The pump has an improved ultimate vacuum of $5x10^{-2}$ mbar, a peak pumping speed of 560m^3/hr and better oil lubrication - extending service intervals to 6 years and therefore reducing running costs and strip-down time. Compared to oil sealed pumps, the GV600 offers superior water vapour handling characteristics and lower cost of ownership.

Features & Benefits

- Single pump combines roots and claw technology
- Higher pumping speed in the working range
- Low cost of ownership, with 6 year major service intervals
- Improved ultimate vacuum
- Higher dust and water vapour tolerance
- Resistant to harsh conditions
- Configuration flexibility with alternative inlet port

Applications

- Metallurgy
- Transformer drying
- Tank evacuation
- Glass Coating

PERFORMANCE BENEFITS

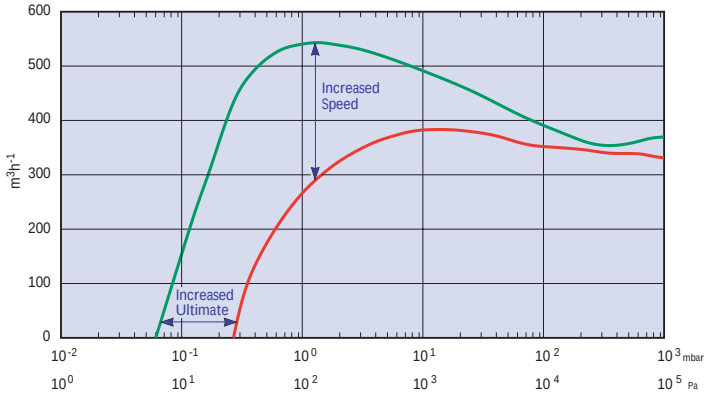
SINGLE PUMP COMBINES ROOTS AND CLAW TECHNOLOGY

The new GV600 is based on the well proven Edwards patented claw mechanism but has an additional roots stage, enhancing pumping speed in the working range and reaching a peak speed of 560m³/hr.

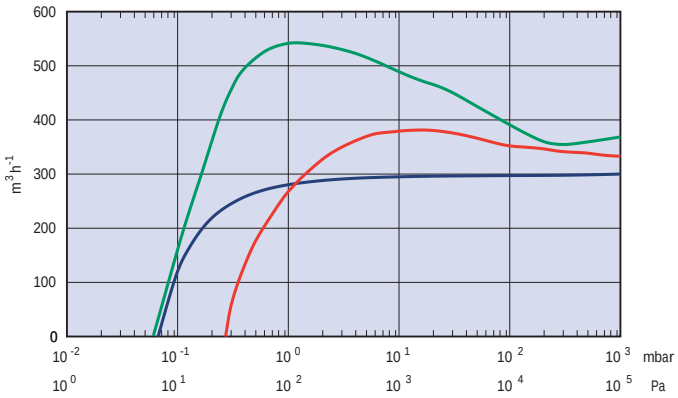
This makes it ideal for backing industrial diffusion pumps, in many cases without the need for an additional booster pump. The higher speed reduces the time to crossover pressure, improving pumpdown times and hence increasing the number of process cycles

IMPROVED SPEED AND PUMPDOWN

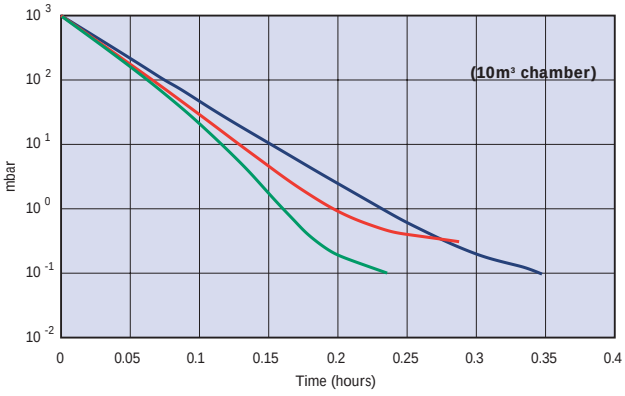
SPEED: GV600 V GV400

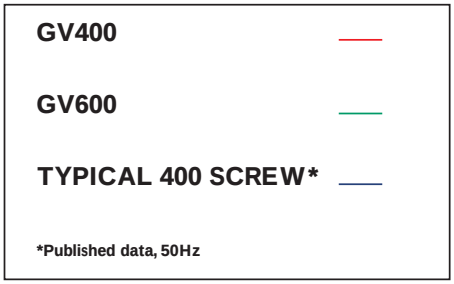


SPEED: GV600 V GV400 V TYPICAL 400 SCREW*



PUMPDOWN: GV600 V GV400 V TYPICAL 400 SCREW*





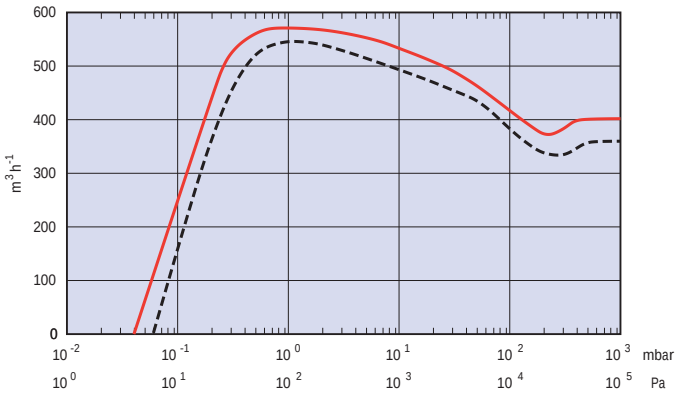
The GV600 achieves an ultimate vacuum of 5×10^{-2} mbar, extending its range of applications beyond those of the GV400. It also offers increased speed, both at atmosphere and at peak speed, compared to the GV400 and equivalent screw pumps.

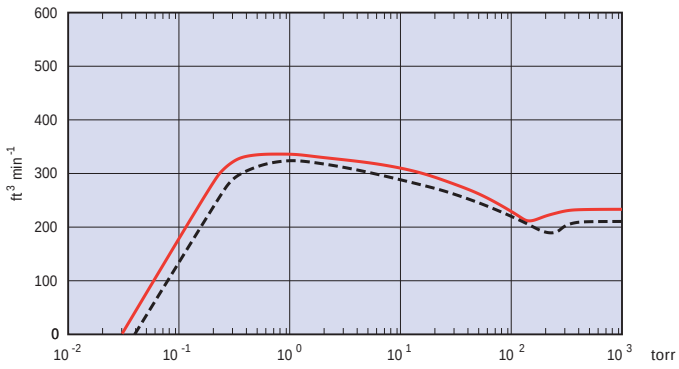
The increase in speed brings the advantage of faster pumpdown times, boosting the number of process cycles and hence productivity levels, whilst maintaining repeatable pumpdown cycles.

The GV600 is capable of pumping water vapour quantities several times that of oil sealed pumps, without the risk of contamination, making it an ideal pumping solution for drying applications.

LOW COST OF OWNERSHIP

PUMPING SPEED CURVES



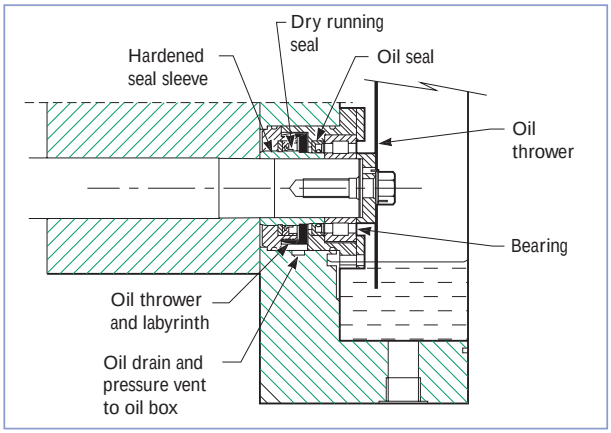


60 Hz ---------- 50 Hz

6 YEAR MAJOR SERVICE INTERVALS

The GV600 is designed to be a “fit and forget” pump, with oil-lubricated bearings that extend major service intervals to 6 years. The HV oil-lubricated bearings are based on the well-proven technology found in EH boosters, using high performance seals. With re-greasing eliminated, and bearing replacement confined to 6-year intervals, the need for pump intervention is significantly reduced. As a result, pump productivity is increased.

NEW HV OIL LUBRICATED BEARINGS

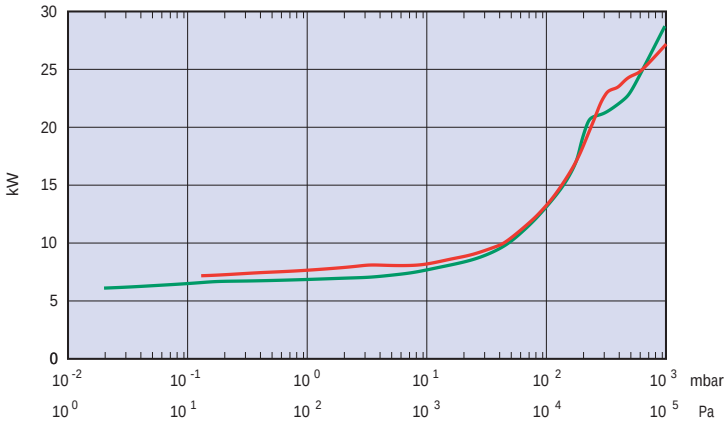


REDUCED UTILITY COSTS

Despite the increase in speed, the GV600 has been designed with energy-efficiency in mind. In the operating region, it draws the same power as the GV400 and is comparable to pumps using alternative technologies.

On some clean applications, an optional atmospheric shaft seal purge can eliminate the need for nitrogen and reduce cost of ownership still further.

POWER CONSUMPTION: GV600 V GV400

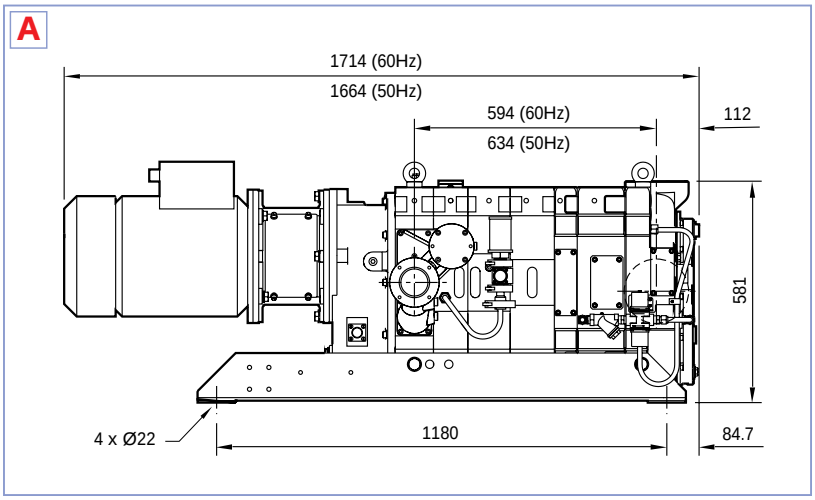


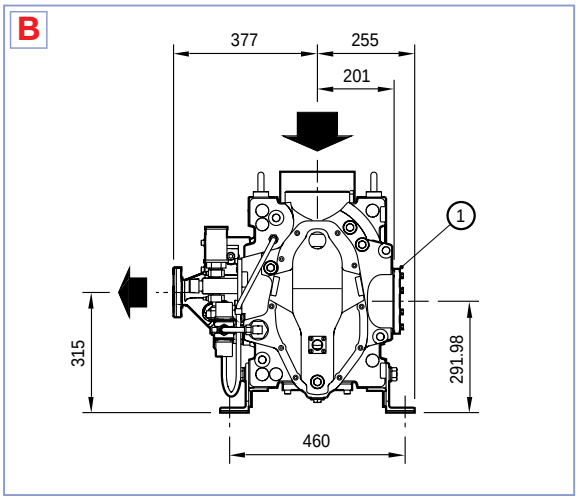
GV400 GV600

TECHNICAL SPECIFICATIONS

	50 Hz	60Hz
TECHNICAL DATA		
• Displacement	793	727
• Peak pumping speed @1mbar:		
m^3/hr	540	560
c.f.m	318	330
• Pumping speed at atmosphere:		
m^3/hr	360	400
cfm	212	236
• Ultimate vacuum:		
mbar	0.06	0.05
torr	0.045	0.0375
• Pressure at maximum speed:		
mbar	1	1
torr	0.75	0.75
• Weight	925kg	925 kg
• Inlet connection	ISO 100	ISO 100
• Outlet connection	ISO 63	ISO 63
• Operating pressures	ult to atmospheric	ult to atmospheric
• Max back-pressure	1.15 bar	1.15 bar
• Pump internal pressure rating	10 bar	10 bar
• Materials of construction:		
Stator	SG Iron 420/12	SG Iron 420/12
Rotors	SG Iron 420/12	SG Iron 420/12
Gearbox oil capacity	1.6 litres	1.6 litres
High vacuum bearing oil capacity	1 litre	1 litre
Recommended oil	SHC629	SHC629
COOLING/TEMPERATURE CONTROL		
• Cooling arrangement	Direct through TCV	Direct through TCV
• Cooling option	Indirectly cooled	Indirectly cooled
• Cooling water:		
Maximum pressure	10 bar	11 bar
Maximum inlet temperature	5 dec C	5 dec C
Typical temperature rise	40 deg C @ 1.7 l/min flow @ ultimate	45 deg C @ 1.7 l/min flow @ ultimate
Max flow rate	10 l/min	10 l/min
Pressure drop (max)	2 bar	2 bar
• Cooling water connections	Fittings suitable for 1/2" OD tube	Fittings suitable for 1/2" OD tube
• Over temperature switch:		
Setting	Warning @ 88 deg C, shut down @ 95 deg C	Warning @ 88 deg C, shut down @ 95 deg C
• Ambient temperature range:		
Operating	0 to 40 deg C	0 to 40 deg C
Storage	minus 30 to plus 50 deg C	minus 30 to plus 50 deg C
NOISE LEVELS (at ultimate)		
• Pump with silencer & motor muffler	76 dB[A]	85 dB[A]
SHAFT SEAL PURGE		
• Seal purge gas:	Air/N_2	Air/N_2
Flow	less than 22 l/min	less than 22 l/min
Pressure	6 psi above exhaust pressure	6 psi above exhaust pressure
GAS BALLAST		
• Flow (maximum)	100 l/min	100 l/min
• Pressure	atmospheric	atmospheric
MOTOR RATING		
• Electrical supply	380-415V 50 Hz	230 / 460 V 60 Hz
INSTALLED POWER		
• Normal power	22kW continuous rating	30 hp continuous rating
Power consumption @ 10mbar	6 kW	8 kW
Power consumption @ 1mbar	6 kW	7.3 kW
Typical rotational speed	2945 rpm	3560 rpm
Weight	950 kg	985 kg
Protection	IP55	IP55

DIMENSIONS & CONFIGURATIONS





A FRONT VIEW B SIDE VIEW 1 ALTERNATIVE INLET

PUMPING CONFIGURATION & ACCESSORIES

UTILITIES

water in
water out

COOLING WATER FLOW CONTROL
For water straining, flow indication, distribution to pumps and flow control for boosters.

clean dry air / N_2

GAS CONTROL PANEL
Provides 3 levels of control for metered automatic operation of:

1. Shaft seal purge
2. As above + gas ballast
3. As above + exhaust purge
4. Atmospheric shaft seal purge

power

MOTOR CONTROL MODULE
For automated operation of pump and blower combinations, allowing connection to supervisory systems and interlocked start-up & shut down.

shaft seals
gas ballast

EXHAUST PURGE

power
control

PUMP COOLING

- **Indirect cooling**
  Where water quality is an issue, this recirculating thermo-syphoning system provides uniform independent cooling.
- **Temperature control**
  This allows operation at elevated temperatures using a temperature control valve (TCV) to match certain process conditions.
- **Air Blast Cooling ***
  Fan cooled recirculating liquid cooling system which makes pumps suitable for external location.

ACOUSTIC ENCLOSURE
Reduces noise levels using acoustic panels and motor mufflers.

BOOSTERS
Edwards Hydrokinetic® boosters for fast pumpdown and extra throughput. Supplied with fitting kit when ordered with GV pumps.

SILENCER

* Special order

SERVICING & ORDERING INFORMATION

SERVICE OPTIONS

User intervention is minimal, thanks to the pump's new oil lubricated design and its ability to handle particulates and water vapour. At the 6 year major service intervals, customers have several options:

PUMP EXCHANGE
1 Year warranty

- Dispatch of exchange pump from nearest Edwards service centre, typically in 24 hours
- Previously used pump, rebuilt and tested to factory specifications
- Exchange on a one-for-one trade in only
- Original pump must be returned to Edwards within 30 days
- All accessories should be removed prior to return

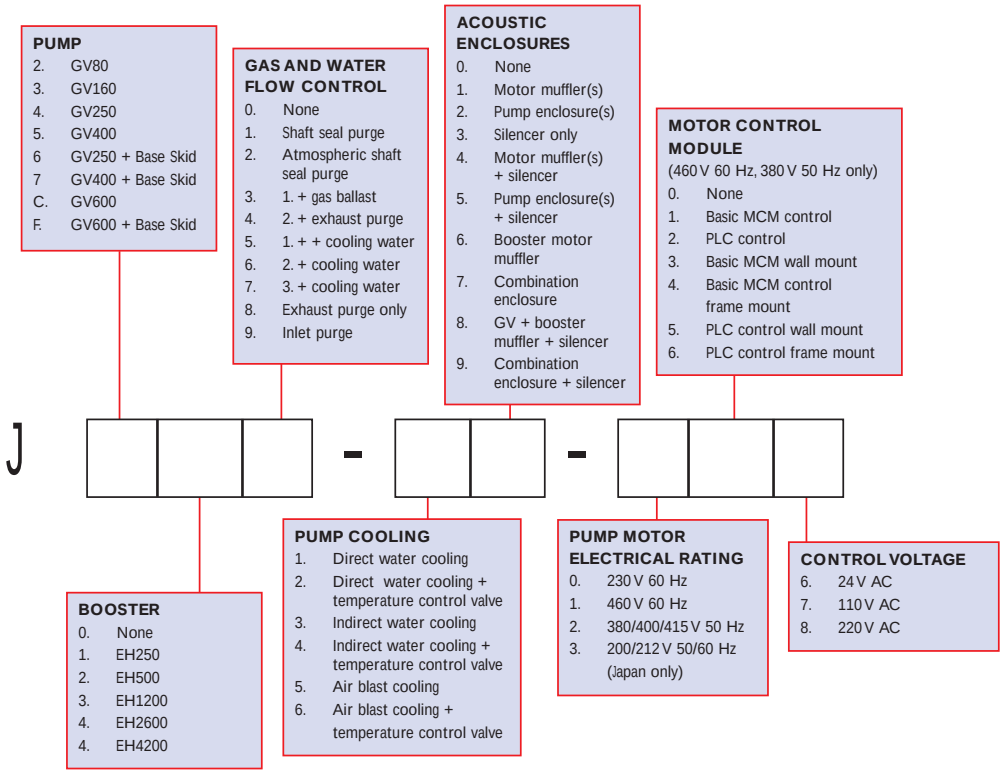
MODULE SERVICE
180 days warranty
(Module = pump rotor/stator and timing gear only)

- Strip and clean
- All contaminants disposed of in accordance with the law
- All seals, bearings and sleeves replaced
- Rotor and stator clearances checked

PUMP SERVICE
180 days warranty
(As module service plus additions as listed)

- Gearbox recharged
- Thermal snap switch tested for actuation
- Motor checked
- Motor coupling and gears inspected for wear
- Seal purge and gas ballast lines checked for flow and cleaned as necessary
- Motor seal replaced

GV RANGE ORDERING INFORMATION



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