

# EH MECHANICAL BOOSTER PUMP

## THE INTELLIGENT CHOICE



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 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, and 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  $3000 \text{ m}^3\text{h}^{-1}/1776 \text{ ft}^3\text{min}^{-1}$  are required in the pressure region of 0.01 to 50 mbar/0.0075 to 37.5 Torr. These 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 and Benefits

- Performance – fast pump down time due to unique hydrokinetic drive.
- Increased productivity – faster pump down time.
- More performance for less – larger displacement than equivalent competitor models.
- Stable operation – optimised clearances and after coolers.
- Simplicity – Continuous operation at all pressures.
- Simple installation – no need for pressure switches, bypass lines or variable frequency drives.
- Reliability – automatic overload protection, reliable shaft seal design.
- Safe operation – automatic overload protection.
- Robust operation even for harsh duties – proven shaft seal design to protect pumping mechanism and gearbox from cross-contamination.
- High uptime and low maintenance – internal evacuation of gearboxes extends shaft seal life.
- Reassurance.
- Peace of mind – industry proven with large installed base.

### Applications

- Vacuum distillation.
- Vacuum packaging.
- Steel degassing.
- Thin film coating.
- Industrial freeze drying.
- Semiconductor processing.

### Pump Range

#### EH

- EH250
- EH500
- EH1200
- EH2600
- EH4200
- PFPE Prepared
- EH250FX
- EH500FX
- EH1200FX
- EH2600FX
- EH4200FX

# Performance Curves

## EH250 Mechanical Booster Pump

### EH250



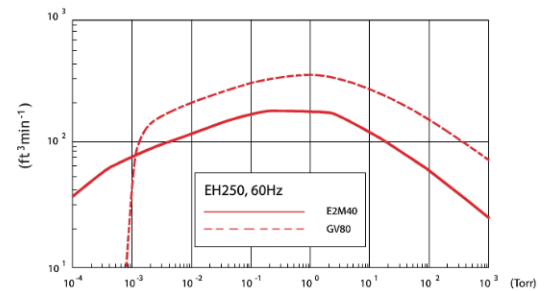
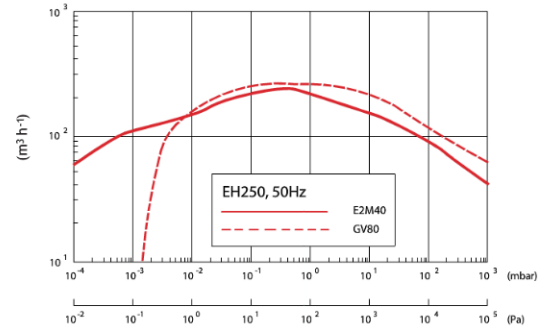
Displacement	
50 Hz	310 m <sup>3</sup> h <sup>-1</sup>
	185 ft <sup>3</sup> min <sup>-1</sup>
60 Hz	375 m <sup>3</sup> h <sup>-1</sup>
	220 ft <sup>3</sup> min <sup>-1</sup>

### Ordering information

Product description	Order no:
EH250 HC IE3 Asia 50 Hz 200 V 50 Hz	A30105934
EH250 HC IE3 EU/CN 50 Hz 380-400 V 50 Hz	A30105945
EH250 HC IE3 Asia 60 Hz 200 V 60 Hz, 380 V 60 Hz	A30106934
EH250 HC IE3 US 60 Hz 230/460 V 60 Hz	A30106946
EH250 FX IE3 Asia 50 Hz 200 V 50 Hz	A30107934
EH250 FX IE3 EU/CN 50 Hz 380-400 V 50 Hz	A30154936
EH250 FX IE3 Asia 60 Hz 200 V 60 Hz, 380 V 60 Hz	A30108934
EH250 FX IE3 US 60 Hz 230/460 V 60 Hz	A30108946
EH250C 460 V 3-ph 60 Hz 3 hp	NRA997000
EH250T4 220-240/380-415 V 3ph 50 Hz 2.2 kW	NRA996000

Please note that Fomblin® must be purchased separately with PFPE-prepared pumps. Fomblin YVac 16/6 is appropriate

### EH250 Performance Curve



## EH500 Mechanical Booster Pump

### EH500



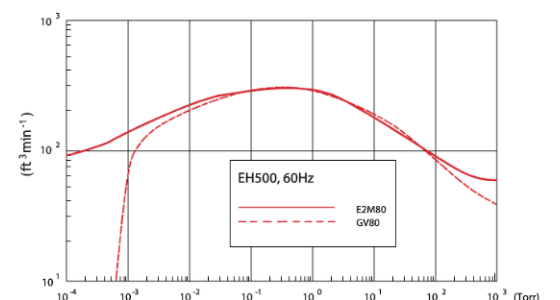
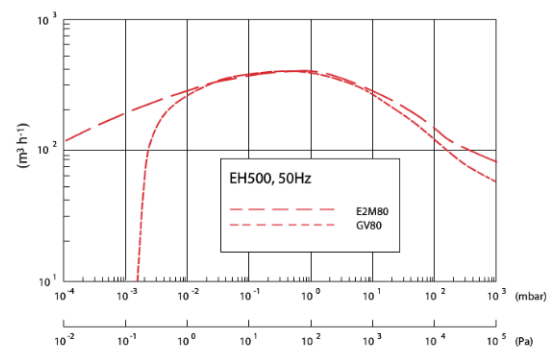
Displacement	
50 Hz	505 m <sup>3</sup> h <sup>-1</sup>
	300 ft <sup>3</sup> min <sup>-1</sup>
60 Hz	605 m <sup>3</sup> h <sup>-1</sup>
	335 ft <sup>3</sup> min <sup>-1</sup>

### Ordering information

Product description	Order no:
EH500 HC IE3 Asia 50 Hz 200 V 50 Hz	A30205934
EH500 HC IE3 EU/CN 50 Hz 380-400 V 50 Hz	A30205945
EH500 HC IE3 Asia 60 Hz 200 V 60 Hz, 380 V 60 Hz	A30206934
EH500 HC IE3 US 60 Hz 230/460 V 60 Hz	A30206946
EH500 FX IE3 Asia 50 Hz 200 V 50 Hz	A30207934
EH500 FX IE3 EU/CN 50 Hz 380-400 V 50 Hz	A30207945
EH500 FX IE3 Asia 60 Hz 200 V 60 Hz, 380 V 60 Hz	A30208934
EH500 FX IE3 US 60 Hz 230/460 V 60 Hz	A30208946
EH500C 460 V 3-ph 60 Hz 3 hp	NRA999000
EH500T3 220-240/380-415 V 3ph 50 Hz 2.2 kW	NRA998000

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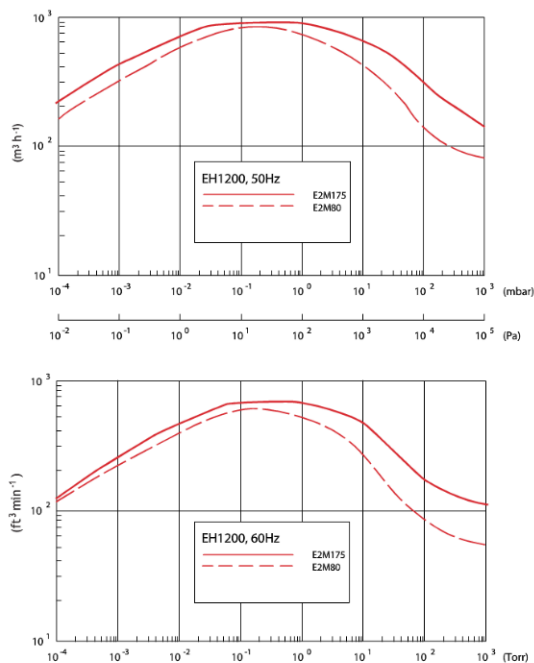
### EH500 Performance Curve



## EH1200 Mechanical Booster Pump

### EH1200 Performance Curve

**EH1200**



#### Displacement

50 Hz	1195 $m^3/h$
	715 $ft^3/min$
60 Hz	1435 $m^3/h$
	845 $ft^3/min$



#### Ordering information

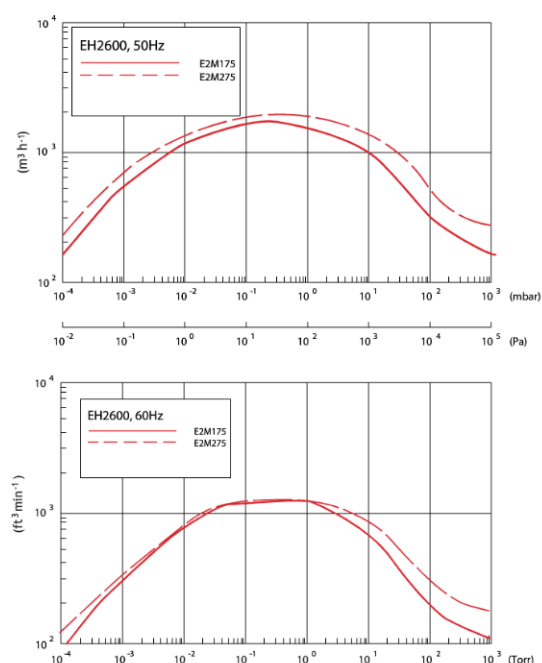
Product description	Order no:
EH1200 HC IE3 Asia50 Hz 200 V50 Hz	A30505934
EH1200 HC IE3 EU/CN50 Hz 380-400 V50 Hz	A30505945
EH1200 HC IE3 Asia60 Hz 200 V60 Hz, 380 V60 Hz	A30506934
EH1200 HC IE3 US60 Hz 230 / 460 V60 Hz	A30506946
EH1200 FX IE3 Asia50 Hz 200 V50 Hz	A30507934
EH1200 FX IE3 EU/CN50 Hz 380-400 V50 Hz	A30507945
EH1200 FX IE3 Asia60 Hz 200 V60 Hz, 380 V60 Hz	A30508934
EH1200 FX IE3 US60 Hz 230 / 460 V60 Hz	A30508946
EH1200C 230/460 V 3-ph 60 Hz 4 hp	A30556982
EH1200T4 380-415 V 3ph 50 Hz 3 kW	A30557900

Please note that Fomblin® must be purchased separately with PFPE-prepared pumps. Fomblin YVac 16/6 is appropriate

## EH2600 Mechanical Booster Pump

### EH2600 Performance Curve

**EH2600**



#### Displacement

50 Hz	2590 $m^3/h$
	1525 $ft^3/min$
60 Hz	3110 $m^3/h$
	1830 $ft^3/min$



#### Ordering information

Product description	Order no:
EH2600 HC IE3 Asia50 Hz 200 V50 Hz	A30705934
EH2600 HC IE3 EU/CN50 Hz 380-400 V50 Hz	A30705945
EH2600 HC IE3 Asia60 Hz 200 V60 Hz, 380 V60 Hz	A30706934
EH2600 HC IE3 US60 Hz 230 / 460 V60 Hz	A30706946
EH2600 FX IE3 Asia50 Hz 200 V50 Hz	A30707934
EH2600 FX IE3 EU/CN50 Hz 380-400 V50 Hz	A30707945
EH2600 FX IE3 Asia60 Hz 200 V60 Hz, 380 V60 Hz	A30708934
EH2600 FX IE3 US60 Hz 230 / 460 V60 Hz	A30708946
EH2600C 230/460 V 3-ph 60 Hz 15 hp	A30756982
EH2600T3 380-415 V 3ph 50 Hz 11 kW	A30741935
EH2600T4 380-415 V 3ph 50 Hz 11 kW	A30779900

Please note that Fomblin® must be purchased separately with PFPE-prepared pumps. Fomblin YVac 16/6 is appropriate

# Performance Curves

## EH4200 Mechanical Booster Pump

### EH4200



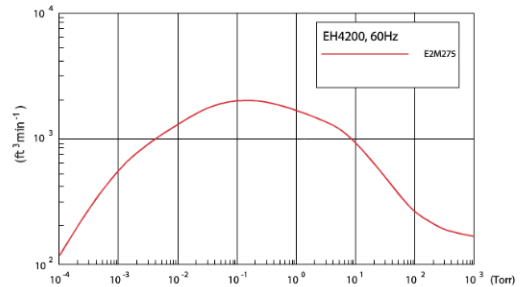
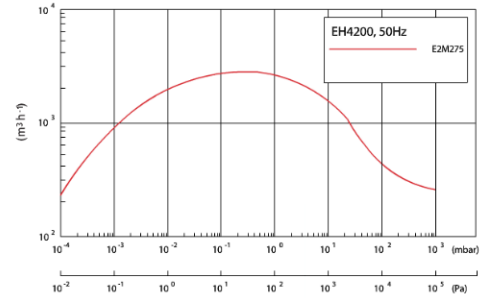
#### Displacement

50 Hz	4140 m <sup>3</sup> h <sup>-1</sup>
	2440 ft <sup>3</sup> min <sup>-1</sup>
60 Hz	4940 m <sup>3</sup> h <sup>-1</sup>
	2935 ft <sup>3</sup> min <sup>-1</sup>

### Ordering information

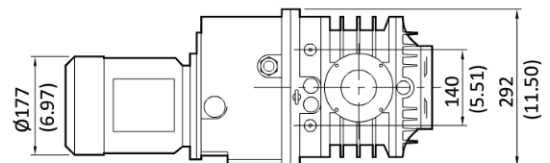
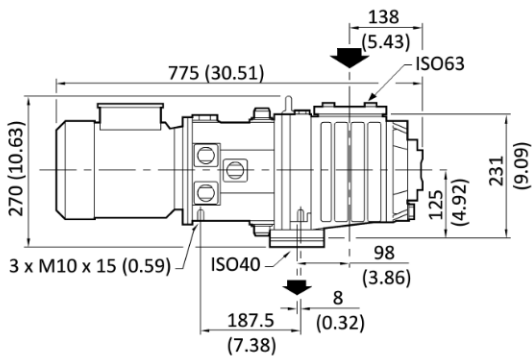
Product description	Order no:
EH4200 HC IE3 Asia 50 Hz 200 V 50 Hz	A30905934
EH4200 HC IE3 EU/CN 50 Hz 380-400 V 50 Hz	A30905945
EH4200 HC IE3 Asia 60 Hz 200 V 60 Hz, 380 V 60 Hz	A30906934
EH4200 HC IE3 US 60 Hz 230/460 V 60 Hz	A30906946
EH4200 FX IE3 Asia 50 Hz 200 V 50 Hz	A30907934
EH4200 FX IE3 EU/CN 50 Hz 380-400 V 50 Hz	A30907945
EH4200 FX IE3 US 60 Hz 230/460 V 60 Hz	A30908946
EH4200 FX IE3 Asia 60 Hz 200 V 60 Hz, 380 V 60 Hz	A30908934
EH4200C 230/460 V, 3-ph, 60 Hz, 15 hp	A30956982
EH4200T3 380-415 V, 3-ph, 50 Hz, 11 kW	A30941935
EH4200T4 380-415 V, 3ph, 50 Hz, 11 kW	A30979900

### EH4200 Performance Curve

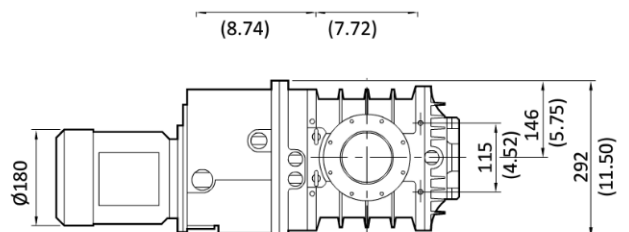
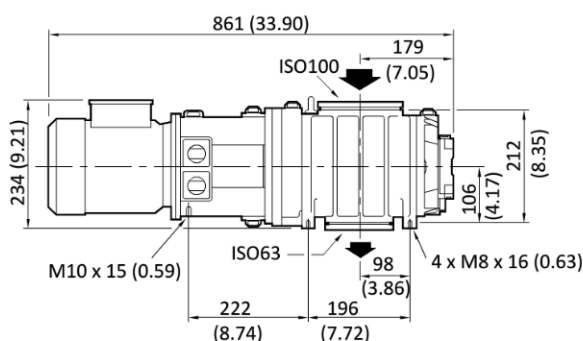


# Dimensions

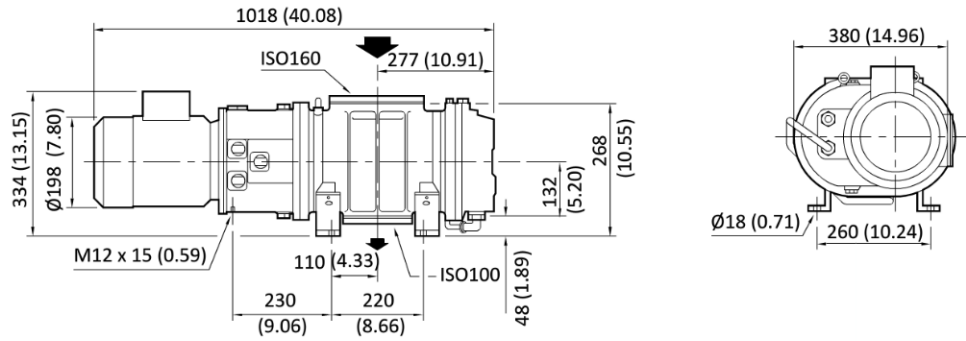
## EH250 dimensions



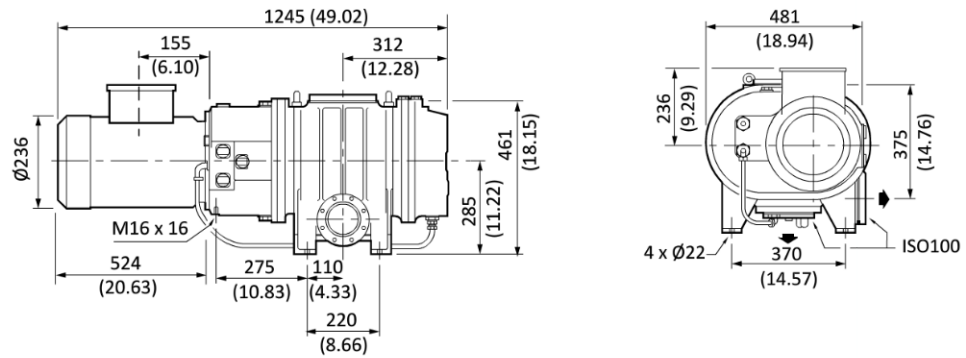
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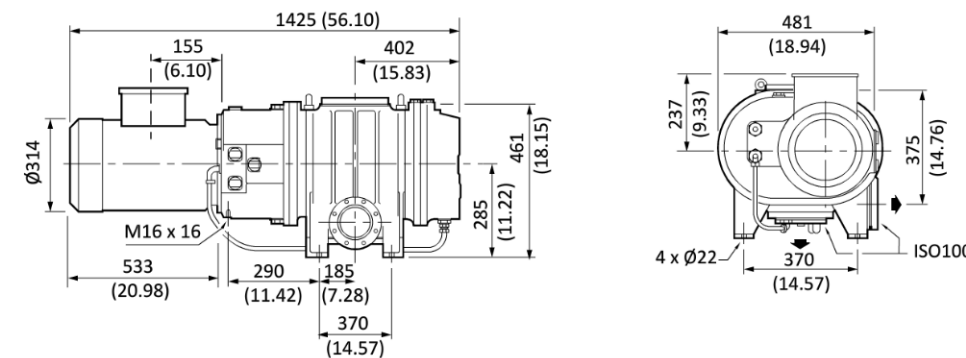
### EH1200 dimensions



### EH2600 dimensions



### EH4200 dimensions



## Technical Data



	Units	EH250	EH500	EH1200	EH2600	EH4200
<b>Displacement (swept volume)</b>						
50 Hz	m <sup>3</sup> h <sup>-1</sup> /ft <sup>3</sup> min <sup>-1</sup>	310/185	505/300	1195/715	2590/1525	4140/2440
60 Hz	m <sup>3</sup> h <sup>-1</sup> /ft <sup>3</sup> min <sup>-1</sup>	375/220	605/335	1435/845	3110/1830	4985/2935
<b>Effective pumping speed with backing pump</b>						
E2M40	m <sup>3</sup> h <sup>-1</sup> /ft <sup>3</sup> min <sup>-1</sup>	240/141	350/206	840/495	-	-
E2M80	m <sup>3</sup> h <sup>-1</sup> /ft <sup>3</sup> min <sup>-1</sup>	274/161	400/236	840/495	-	-
E2M175	m <sup>3</sup> h <sup>-1</sup> /ft <sup>3</sup> min <sup>-1</sup>	-	440/259	930/548	1750/1031	-
E2M275	m <sup>3</sup> h <sup>-1</sup> /ft <sup>3</sup> min <sup>-1</sup>	-	460/271	1020/601	1900/1119	3100/1825
<b>Pressure differential across pump +</b>						
50 Hz	mbar/Torr	0-180/0-140	0-110/0-83	0-90/0-68	0-120/0-90	0-70/0-52
60 Hz	mbar/Torr	0-150/0-115	0-90/0-68	0-75/0-56	0-67/0-50	0-50/0-38
Inlet connection		ISO63	ISO100	ISO160	ISO160	ISO250
Outlet connection		ISO40	ISO63	ISO100	ISO100	ISO100
<b>Rotational speed</b>						
50 Hz	rpm				0-2900 rpm	
60 Hz	rpm				0-3500 rpm	
Operating continuous inlet pressure	mbar/Torr	0-1000 mbar/0-760 Torr				
Maximum outlet pressure	mbar/Torr	1000 mbar/760 Torr				
Recommended backing pumps		GV80, E2M40, E2M80, ES100, 212J	GV80, E2M80, ES100, ES200, ES300, 212J, 412J	GXS160, GXS250, E2M80, E2M175, ES200, ES300, ES630, 212J, 412J, IDX1000, IDX1300	GXS250, GXS400, E2M175, E2M275, ES300, ES630, 412J, IDX1000, IDX1300	GXS450, E2M275, ES300, ES630, 412J, IDX1000, IDX1300
<b>Electrical supply voltage, 3-ph</b>						
50 Hz		200 V/380-400 V				
60 Hz		200 V/380 V/230 V/460 V				
<b>Motor power</b>						
Hydrocarbon	kW/hp	2.2/3		3/4		11/15
PFPE	kW/hp	2.2/3		3/4		11/15
ATEX	kW	2.2		3		11
Explosion proof		3		4		15
<b>Ambient temperature range</b>						
Operating	°C/F				5 to 40/40 to 104	
Storage	°C/F				-10 to 80/14 to 176	
Maximum operating humidity	RH	90%				
Cooling method		Air cooled	Air cooled	Water cooled+	Water cooled	Water cooled
<b>Recommended oil</b>						
Standard version		Ultragrade 20				
PFPE version		Fomblin® YVAC 16/6				
<b>Oil capacity</b>						
Gear case	litre	-	-	1.25	3.5	3.5
Coupling cover	litre	1.5		2.4	6.5	6.5 l
Shaft seal reservoir	litre	0.125		1.5		
Weight	kg/lb	75/165	85/187	151/332	339/746	409/900

+ Depends on pressure