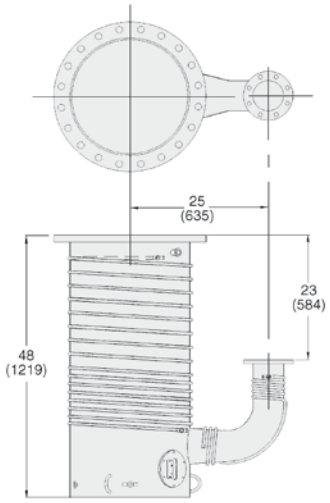
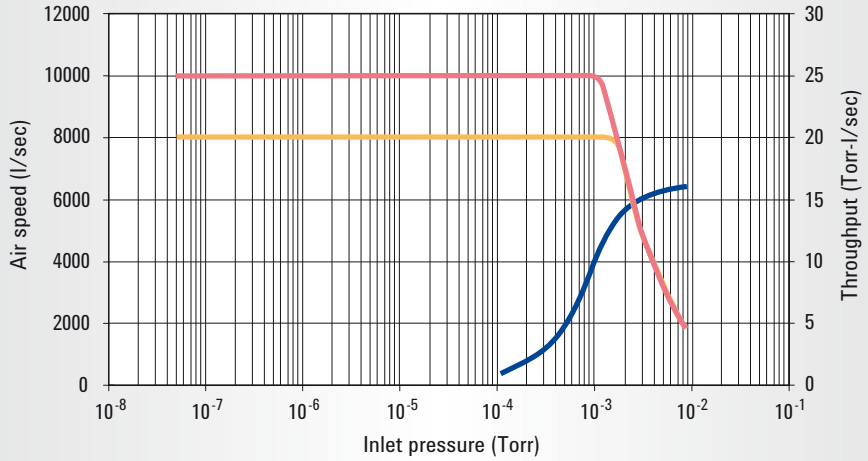
Agilent HS-20





Dimensions: inches (millimeters)

HS-20 Pumping Speed - Air/N_2



Technical Specifications

Pumping speed, operating range **Pumping speed*, AVS 4.1** (1963)	10,000 l/s air, 12,500 l/s He and H_2 17,500 l/s air
Maximum throughput	12.5 T-l/s (16.7 mbar l/s) in operating range, 18 T-l/s (23 mbar-l/s) @ 0.01 Torr
Operating range	1.3 x 10^{-3} to 5 x 10^{-8} Torr (1.7 x 10^{-3} to 6.5 x 10^{-8} mbar)
Maximum forepressure	No load: 0.65 Torr (0.85 mbar) Full load: 0.55 Torr (0.72 mbar)
Recommended backing pump	≥100 cfm (170 m^3/hr)
Backstreaming rate, standard cold cap**	<1.5 x 10^{-3} mg/cm^2/min
Warmup time	45 minutes
Cooldown time	85 minutes
Fluid charge	5 quarts (4.7 liters)
Electrical requirements	3 ph, 50/60 Hz, 240/415/480 VAC
Pump power	12,000 watts
Cooling water requirements	1.5 gpm (300 l/hr) at 60-80 °F (15-26 °C)
Water connections	¼ in. FPT Tee
Recommended fluid	DC-704 or equivalent (see page 30)

* *For an explanation of pumping speed measurements, please see page 34.*
** *Refer to page 32 for a description of test methods.*

Ordering Information

Description	Voltage	Weight kg (lbs)	Part Number	
			Flange Type	
HS-20 Pump			**ASA**	**ISO**
HS-20 with standard cold cap	240 V	264.0 (580.0)	84341308	L5922308
HS-20 with halo baffle	240 V	264.0 (580.0)	84341318	L5922318
HS-20 with standard cold cap	415 V	264.0 (580.0)	84341326	L5922326
HS-20 with halo baffle	415 V	264.0 (580.0)	84341336	L5922336
HS-20 with standard cold cap	480 V	264.0 (580.0)	84341309	L5922309
HS-20 with halo baffle	480 V	264.0 (580.0)	84341319	L5922319

Accessories	**Page**	**Weight** kg (lbs)	**Part Number**
Water-cooled halo baffle	31	11.0 (25.0)	K1855320
Centering ring for ISO foreline flange, 160K		0.5 (1.0)	IC160SV
Quick cool coil – must be installed in the factory			Factory Special
Installation and Operation Manual (download from www.agilent.com/chem/vacuum)			699901140
Replacement Parts (six heaters required per pump)			
Heater, 2000 W, 240 V/415 V with leads		0.5 (1.0)	647320020
Heater, 2000 W, 480 V with leads		0.5 (1.0)	647320030
Heater, 2000 W, 240 V/415 V no leads – used on pumps built before May '90		0.5 (1.0)	647320060
Heater, 2000 W, 480 V no leads – used on pumps built before May '90		0.5 (1.0)	647320070
Heater crush plate (replace one with each new heater)		0.5 (1.0)	K7108001
Heater clamping plate (six required per pump)		4.0 (8.0)	K7107001
Heater insulator (one required per pump)		0.5 (1.0)	L6514001
HS-16/20/Dalton heater wire, 10 AWG, 120 inches (2 per heater required)		1.0 (0.4)	X3900-68000
Replacement o-ring kit for ASA pumps (kit contains 1 inlet flange o-ring (butyl 84349002), 1 foreline flange o-ring (buna 2-432), sight glass o-ring and gasket, 8 fill and drain o-rings (Viton 2-213)		0.5 (1.0)	K0377165
Sight glass service kit (pumps built before Oct. '95)		1.5 (3.0)	F6097301
Upper (water) thermal switch (set at 185 °F/85 °C)		0.5 (1.0)	K9050001
Lower (boiler) thermal switch (set at 390 °F/199 °C)		0.5 (1.0)	K9050002
Cold cap gasket/grommet (kit of 4)		0.5 (1.0)	L8839301
Cold cap nut and follower (2 each)		0.5 (1.0)	L8840301

NOTE
- *Inlet flange 20 in. ASA, foreline flange 4 in. ASA*
- *Inlet flange ISO 630K, foreline flange ISO 160K*
- *Not recommended for use with Santovac 5*
- *Pumps with ASA flanges include o-rings for inlet and foreline flanges*
- *Pumps with ISO flanges do not include centering rings required for foreline and inlet flanges*