

Varian, Inc.
Vacuum Technologies



Dry Scroll Pumps

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Inspiring Excellence



VARIAN

Scroll Pumps Features and Benefits

SH-100 Hermetic Single Scroll Pumps are designed to provide reliable, dry vacuum in a small, economical package. The pump is ideally suited for many applications including Analytical Instruments and Research and Development. This simple, reliable design utilizes proven TriScroll™ seal technology for longer demonstrated maintenance intervals. The SH-100 conforms with CE, UL/CUL, and Semi S2-0200 requirements.



Built-In Vacuum Pump Isolation Valve
Isolates the pump during vacuum system upset conditions and power loss; prevents contamination of the vacuum system.



Single-sided Scroll
Enables quick and easy tip seal change.



Hour Meter
Gives an accurate measurement of total run time which facilitates maintenance planning.



Fuse Holder and Voltage Changeover Tab
Easy and quick voltage selection.
On/Off Switch
Easily accessible.
IEC 320 Power Connection
Flexible electrical connections for easy installation worldwide. (See power cord selection, page 7)



TriScroll Dry Primary Pumps are multi-stage dry vacuum pumps designed and manufactured by Varian for high reliability. The TriScroll pumps produce oil-free vacuum at high speed and low ultimate pressure. The unique patented TriScroll features provide proven reliability and durability leading to superior cost of ownership and consistent performance.



Unique TriScroll™ Design

Delivers high pumping speed and achieves low ultimate pressure, within a compact design.



Bearing Purge Port

Improved tolerance for condensable gases; improved reliability; longer service interval.



Proven Reliability

Thanks to patented solutions, field-proven reliability has been achieved in innumerable applications



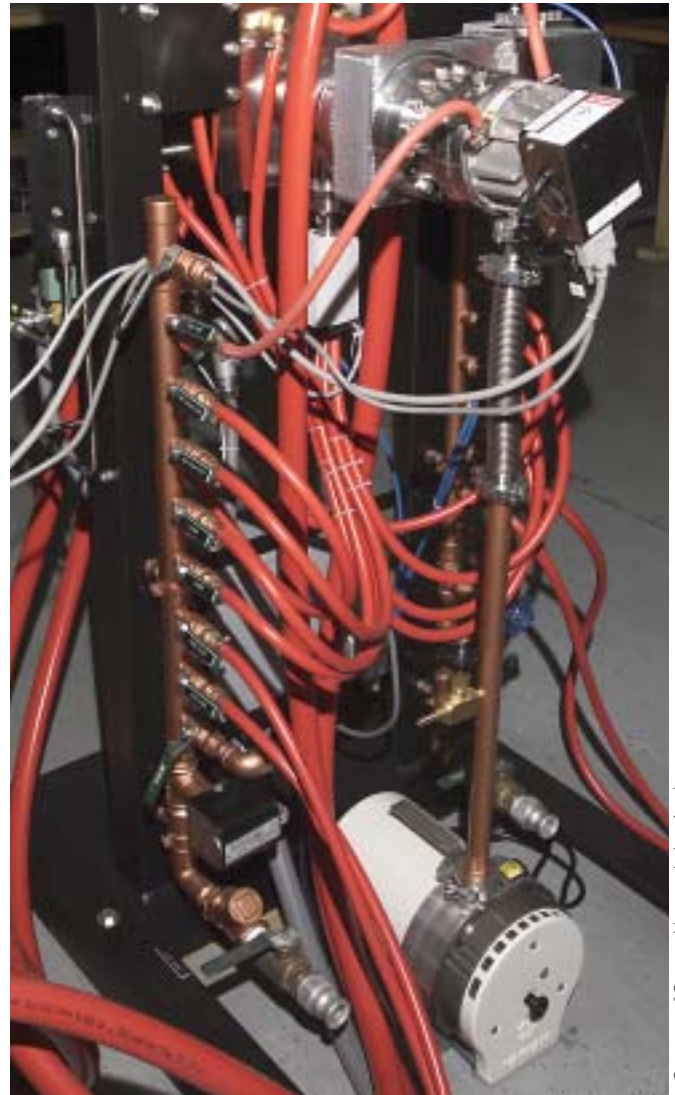
Automatic Ballast Port

Improves tolerance for water vapor and handling of condensable gases for consistent performance.

Typical Applications



Courtesy of Epion, a JDS Uniphase Company



Courtesy of Centorr, Vacuum Industries, Inc.

Scanning Electron Microscopes Varian scroll pumps provide clean and reliable dry vacuum, ideal for maintaining the critical condition of instrument columns.

Primary backing pump for turbo systems The ideal selection for backing high vacuum turbo pumps, eliminating the risk of system contamination.

General purpose laboratory applications Proven scroll technology provides predictable dry vacuum at low base pressure for long periods of time. Scroll design eliminates all possibility of sudden and catastrophic failure associated with technologies such as diaphragm pumps. The SH-100 is equipped with a handle for easy movement around the laboratory.

Beam Lines Fast and oil-free pump down in combination with turbomolecular pumps and ion pumps. Scroll pumps are part of a total Varian Vacuum Technologies dry product offering, including turbo pumps and ion pumps.

Drying Ovens Scroll pumps eliminate the risk of backstreaming hydrocarbon oil into the oven system. The gas ballast feature guarantees reliable operation where water vapor is to be pumped.

Load Locks and Transfer chambers Scroll pumps are proven as a highly reliable and low maintenance choice for clean dry pumping in production equipment on load locks and transfer chambers.



Courtesy of Systems Design and Fabrication



Courtesy of Kopin Corporation

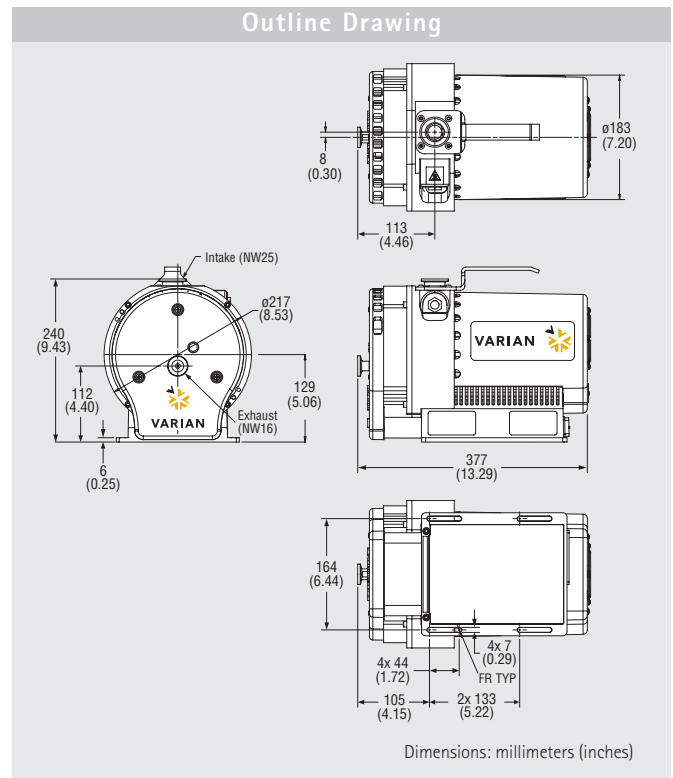


Cryogenics Scroll pumps are commonly used for regeneration of cryogenic pumps. Use of the inert gas purge kit accessory is recommended for this application to enhance pumping of condensable vapor.

Manufacturing/Glove Box Enclosures Scroll pumps are an economical choice for critical manufacturing, eliminating the risk of oil contamination, and costly waste disposal. Varian scroll pumps keep the manufacturing environment hydrocarbon free.

Leak Detection The TriScroll modules used in Helium Mass Spec Leak Detection have been specifically optimized for this application, improving the compression ratio for Helium.

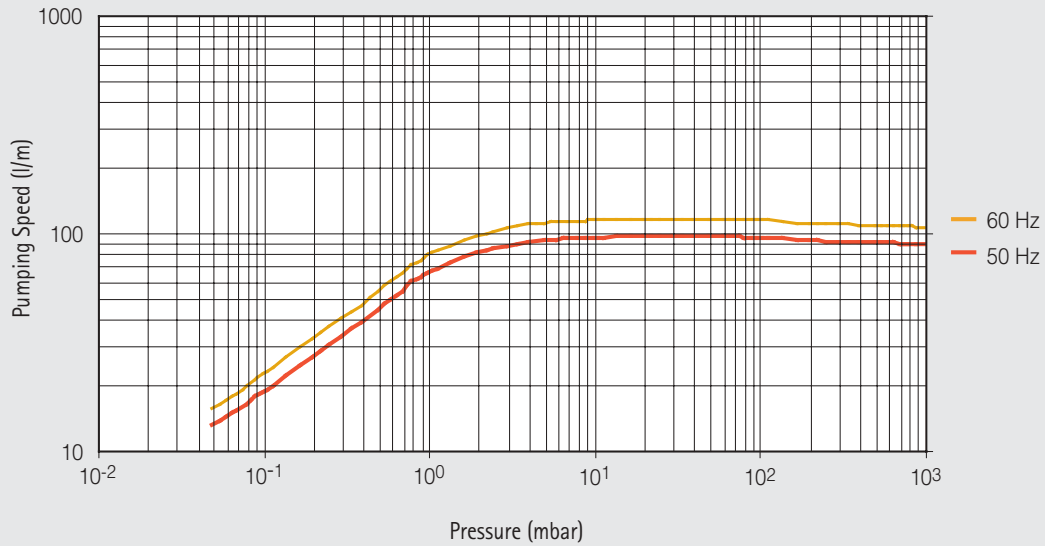
SH-100



Technical Specifications

Peak pumping speed	50 Hz: 83 lpm, 5 m ³ /hr, 2.9 cfm; 60 Hz: 100 lpm, 6 m ³ /hr, 3.5 cfm
Media	No toxic, corrosive, explosive or particulate forming gases
Ultimate pressure	5.0 x 10 ⁻² Torr (6.6 x 10 ⁻² mbar)
Maximum inlet pressure	1.0 atmosphere (0 psig)
Maximum outlet pressure	1.5 atmosphere (7.5 psig)
Inlet Connection	NW25
Exhaust Connection	1/4" Female NPT (NW16 adapter provided)
Gas ballast	1/8" Female NPT (20 micron sintered plug provided)
Ambient operating temperature	5 °C to 40 °C (41 °F to 104 °F)
Storage temperature	-20 °C to 60 °C (-4 °F to 140 °F)
Motor rating (1 phase)	0.5 HP (0.37 kW)
Operating Voltages	1 phase - 50-60 Hz/100-115:200-230 VAC
Motor thermal protection	Type U automatic
Operating speed	50 Hz: 1425 RPM; 60 Hz: 1725 RPM
Cooling system	Air-cooled
Weight	Pump only: 19.1 kg (42 lbs) Shipping weight: 20 kg (44 lbs)
Leak rate (with exhaust sealed)	<1 x 10 ⁻⁷ std cc/sec Helium
Noise level (per ISO 11201)	56 dB(A)
Vibration level (per ISO 10816-1)	Class 1B, 1.5 mm/sec
Hour meter	Integral Hour Meter provided, displays running time to closest .1 hour
Certification	CE marked UL, CUL

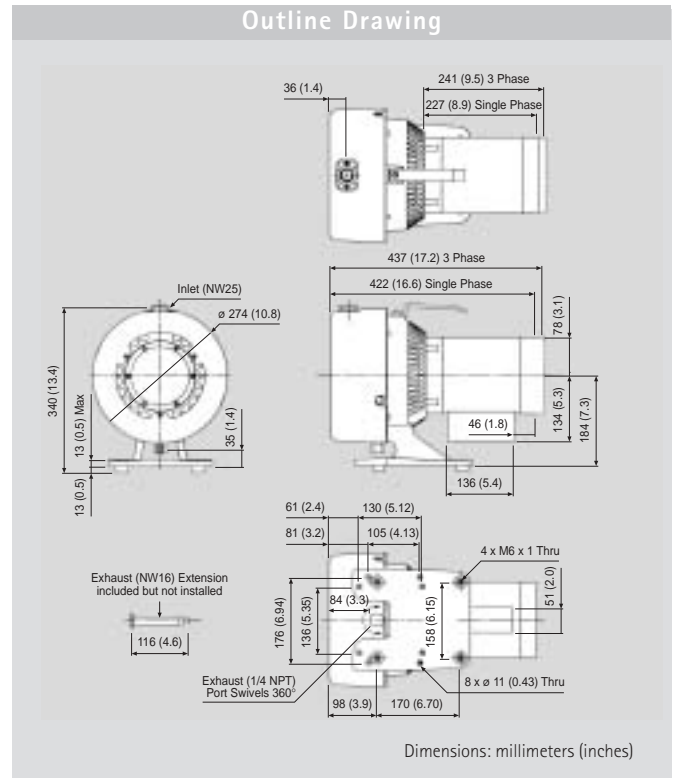
SH-100 Pumping Speed vs Pressure



Ordering Information

Description	Part Number
Single Scroll Pump	SH01001UNIV
Products for maintaining your SH-100 pump	
Tip Seal Replacement Kit	SH0100TS
Exhaust Silencer Kit	SH0100EXSLR
SH-100 Power Cord Selection	
Europe, 10A/220-230 VAC, 2.5 Meter	656494220
Denmark, 10A/220-230 VAC, 2.5 Meter	656494225
Switzerland, 10A/230 VAC, 2.5 Meter	656494235
UK/Ireland, 13A/230 VAC, 2.5 Meter	656494250
India, 10A/220-250 VAC, 2.5 Meter	656494245
Israel, 10A/230 VAC, 2.5 Meter	656494230
Japan, 12A/100 VAC, 2.3 Meter	656494240
Japan, 12A/100 VAC, 2.3 Meter, with ground	656494265
North America, 15A/125 VAC, 2.0 Meter	656458203
North America, 10A/230 VAC, 2.5 Meter	656494255

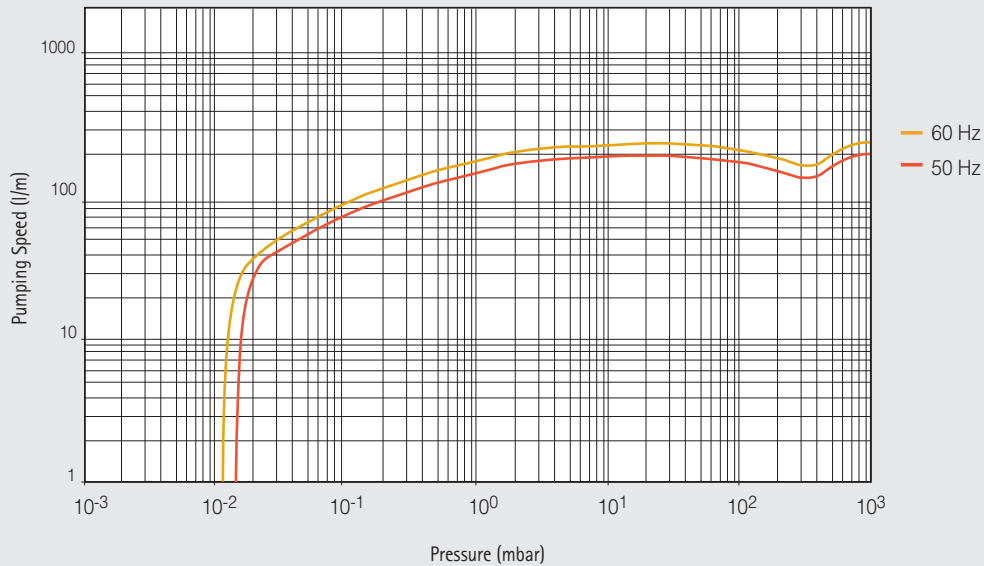
TriScroll 300



Technical Specifications

Peak pumping speed	50 Hz: 210 l/m (7.4 cfm); 60 Hz: 250 l/m (8.8 cfm)
Media	Clean atmospheric gases Not suitable for toxic, corrosive, explosive, or particulate forming gases.
Ultimate pressure	1.3×10^{-2} mbar (10^{-2} Torr)
Maximum inlet pressure	1.0 atmosphere (0 psig)
Maximum outlet pressure	1.1 atmosphere (1.5 psig)
Inlet Connection	NW25
Exhaust Connection	1/4" Female NPT with swivel (NW16 adapter provided)
Gas ballast	1/4" Female NPT (40 micron sintered filter provided)
Ambient operating temperature	5 °C to 40 °C (41 °F to 104 °F)
Storage temperature	-20 °C to 60 °C (-4 °F to 140 °F)
Motor rating (1 phase)	0.75 HP (0.56 kW)
Operating Voltages	Single phase models: 50-60 Hz/100-115:200-230 VAC Three phase models: 50 Hz/200-230:380-415 VAC; 60 Hz/200-230:460 VAC
Motor thermal protection	Type U automatic
Operating speed	50 Hz: 1425 RPM; 60 Hz: 1725 RPM
Cooling system	Air-cooled
Weight	Pump only: 26.4 kg (58 lbs.) Shipping weight: 34.2 kg (75 lbs)
Noise level (per ISO 11201)	68 dB(A)
Vibration level (per ISO 10816-1)	6.3 mm/sec
Certification	CE marked Motor: UL, CSA

TriScroll 300 Pumping Speed vs Pressure



Ordering Information

Description	Part Number
TriScroll 300 dry scroll primary pump, single phase motor, US cord	PTS03001UNIV
TriScroll 300 dry scroll primary pump, single phase motor, Euro cord	PTS03001UNIVEU
TriScroll 300 dry scroll primary pump, single phase motor, UK cord	PTS03001UNIVUK
TriScroll 300 dry scroll primary pump, three phase motor	PTS03003UNIV
TriScroll 300, single phase, with Vacuum Pump Isolation Valve (VPI), 120 VAC	PTS03001UVPI*
TriScroll 300, single phase, with VPI, 220 VAC, EU power cord	PTS03001UVPIEU
TriScroll 300, three phase, with VPI, 200 VAC	PTS03003200VPI
TriScroll 300, three phase, with VPI, 230 VAC	PTS03003230VPI

Products for maintaining your TriScroll pump

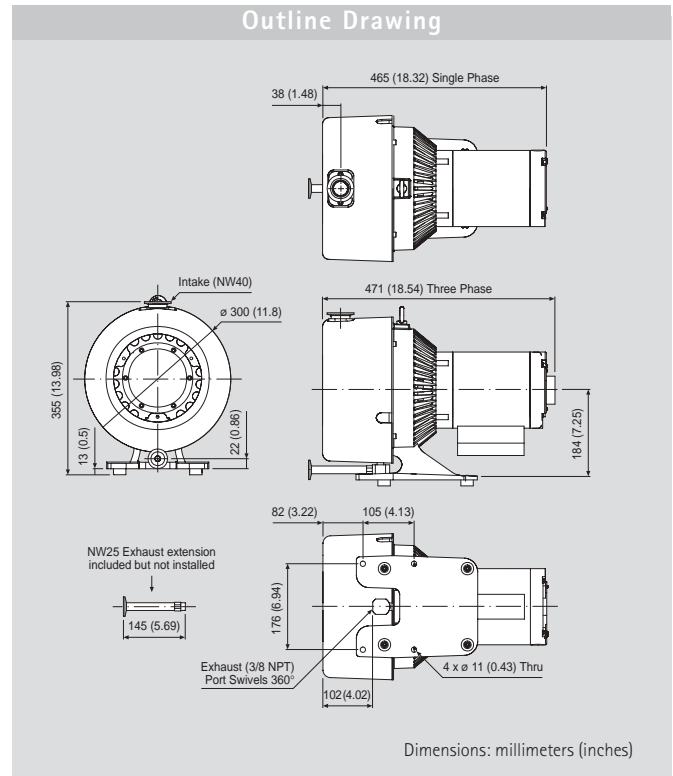
Maintenance kit	PTSS0300MK
Maintenance tool kit	PTSS0600TK
Replacement tip seal set	PTSS0300TS
TS300/600 tip seal tool kit	PTSTSTKIT
Single phase exchange pump	EXPPTS03001
Single phase exchange pump, Euro cord	EXPPTS03001UNIVEU
Single phase exchange pump, UK cord	EXPPTS03001UNIVUK
Three phase exchange pump	EXPPTS03003
Exchange pump module	EXPTS0300SC

Accessories

Purge kit, TriScroll	PTSPURGEKIT
Three phase cable kit	S4789001
TS300 exhaust extension	S4707002
TS300 exhaust filter kit	PTS300EXFIL

*Contact Varian for other voltages.

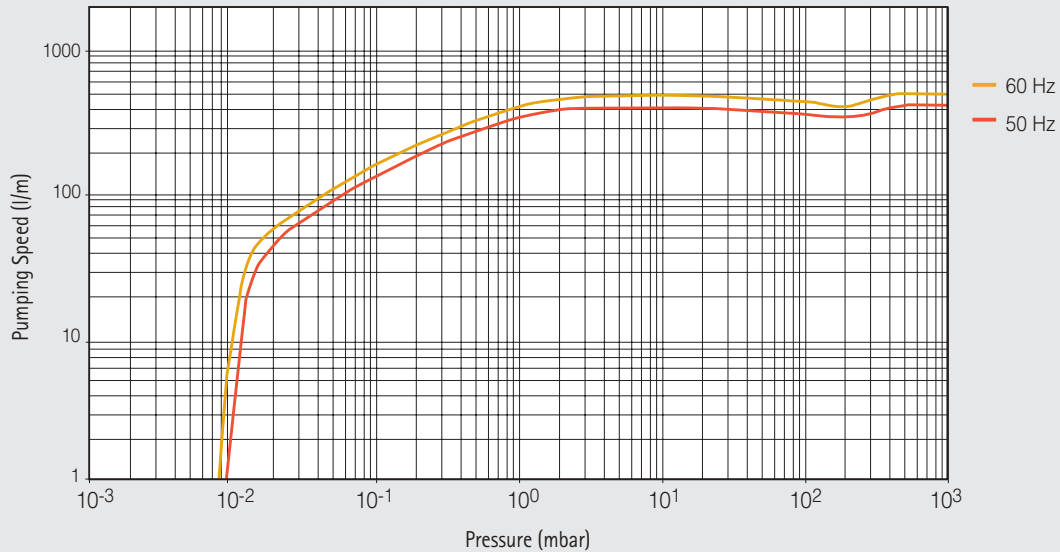
TriScroll 600



Technical Specifications

Peak pumping speed	50 Hz: 420 l/m, 25.2 m ³ /hr (14.8 cfm); 60 Hz: 500 l/m 30 m ³ /hr (17.7 cfm)
Media	Clean atmospheric gases. Not suitable for toxic, corrosive, explosive, or particulate forming gases.
Ultimate pressure (Torr)	9.3 x 10 ⁻³ mbar (7.0 x 10 ⁻³ Torr)
Maximum inlet pressure	1.0 atmosphere (0 psig)
Maximum outlet pressure	1.1 atmosphere (1.5 psig)
Inlet Connection	NW40
Exhaust Connection	3/8" Female NPT with swivel (NW25 adapter provided)
Gas ballast	1/4" Female NPT (40 micron sintered filter provided)
Ambient operating temperature	5 °C to 40 °C (41 °F to 104 °F)
Storage temperature	-20 °C to 60 °C (-4 °F to 140 °F)
Motor rating (1 phase)	1.0 HP (0.76 kW)
Operating Voltages	Single phase models: 50-60 Hz/100-115:200-230 VAC Three phase models: 50 Hz/200-230:380-415 VAC; 60 Hz/200-230:460 VAC
Motor thermal protection	Type U automatic
Operating speed	50 Hz: 1425 RPM; 60 Hz: 1725 RPM
Cooling system	Air-cooled
Weight	Pump only: 32 kg (70 lb.) Shipping weight: 40 kg (87 lbs)
Noise level (per ISO 11201)	68 dB(A)
Vibration level (per ISO 10816-1)	6.3 mm/sec
Certification	CE marked Motor: UL, CSA

TriScroll 600 Pumping Speed vs Pressure



Ordering Information

Description	Part Number
TriScroll 600 dry scroll primary pump, single phase motor	PTS06001UNIV
TriScroll 600 dry scroll primary pump, single phase motor, Euro cord	PTS06001UNIVEU
TriScroll 600 dry scroll primary pump, single phase motor, UK cord	PTS06001UNIVUK
TriScroll 600 dry scroll primary pump, three phase motor	PTS06003UNIV
TriScroll 600, single phase, with Vacuum Pump Isolation Valve (VPI), 120 VAC	PTS06001UVPI*
TriScroll 600, single phase, with VPI, 220 VAC, EU power cord	PTS06001UVPIEU
TriScroll 600, three phase, with VPI, 220 VAC	PTS06003200VPI
TriScroll 600, three phase, with VPI, 230 VAC	PTS06003230VPI

Products for maintaining your TriScroll pump

Maintenance kit	PTSS0600MK
Maintenance tool kit	PTSS0600TK
Replacement tip seal kit	PTSS0600TS
TS300/600 tip seal tool kit	PTSTSTKIT
Single phase exchange pump, US cord	EXPPTS06001
Single phase exchange pump, Euro cord	EXPPTS06001UNIVEU
Single phase exchange pump, UK cord	EXPPTS06001UNIVUK
Three phase exchange pump	EXPPTS06003
Exchange pump module	EXPTS0600SC

Accessories

Purge kit, TriScroll	PTSPURGEKIT
Three phase cable kit	S4789001
TS600 exhaust extension	S4807001
TS600 exhaust filter kit	PTS600EXFIL

*Contact Varian for other voltages.

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