

# STP HIGH THROUGHPUT PUMP

## THE INTELLIGENT CHOICE



Edwards high performance high throughput series, STP-H, STP-A and STP-XA pump series incorporate a Holweck drag stage that increases the pump throughput at low pressure. They have been designed for use in the harshest of semiconductor and flat panel applications. The pumps field proven reliability and class leading performance increase the maximum process flow capability and provide process flexibility. They give a wide process window, from high vacuum, to high flow requirements with enhanced throughput for all gases. The range contains pumps with throughput speeds from 300  $\text{ls}^{-1}$  to 4500  $\text{ls}^{-1}$ .



### Features and Benefits

- Advanced rotor technology gives industry leading pumping performance.
- Higher gas throughput gives maximised process flexibility.
- Optimised temperature distribution provides low deposition and increased operating life.
- Harsh process compatible.
- TMS (Temperature Management System) reduces particle accumulation inside the pump and provides extended overhaul intervals.
- Higher temp setting TMS is available for very harsh process.
- High reliability.
- RoHS Compliant and UL approved.

### Applications

- Plasma etch (chlorine, fluorine and bromine chemistries) for metal (aluminum), tungsten and dielectric (oxide) and polysilicon.
- Film deposition CVD, PECVD, ECRCVD, MOCVD.
- Sputtering.
- Ion implantation source, beam line pumping end station.
- FPD Etch.

### Pump Range

#### STP-H

- STP-H301C
- STP-H451C

#### STP-A

- STP-A803C
- STP-A1303C
- STP-A1603C
- STP-A2203C

#### STP-XA

- STP-XA2703C
- STP-XA3203C
- STP-XA4503C

# Performance Curves

## STP-H301C Turbomolecular Vacuum Pump

### STP-H301C



#### Peak pumping speed

$N_2$  300  $ls^{-1}$

$H_2$  200  $ls^{-1}$

#### Compression Ratio

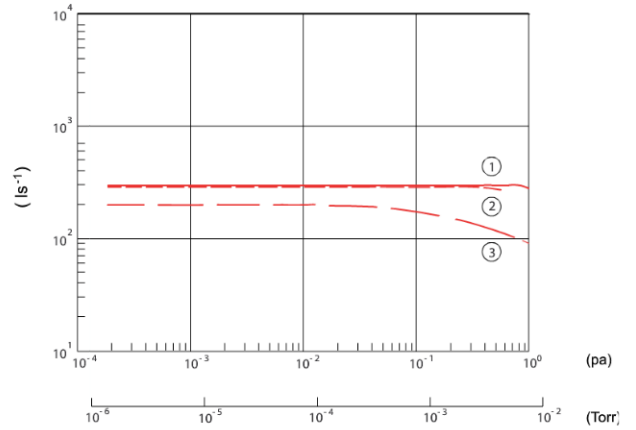
$>10^8$

$>10^3$

### Ordering information

Product description	Order no:
STP-H301C ISO100K inlet	YT340Z000
STP-H301C VG100 inlet	YT340Z006
STP-H301C DN100CF inlet	YT340Z004
STP-H301CV TMS, ISO100K inlet	YT3416000
STP-H301CV TMS, VG100 inlet	YT3416003
STP-H301CV TMS, DN100CF inlet	YT3416005

### STP-H301C Performance Curve



## STP-H451C Turbomolecular Vacuum Pump

### STP-H451C



#### Peak pumping speed

$N_2$  450  $ls^{-1}$

$H_2$  300  $ls^{-1}$

#### Compression Ratio

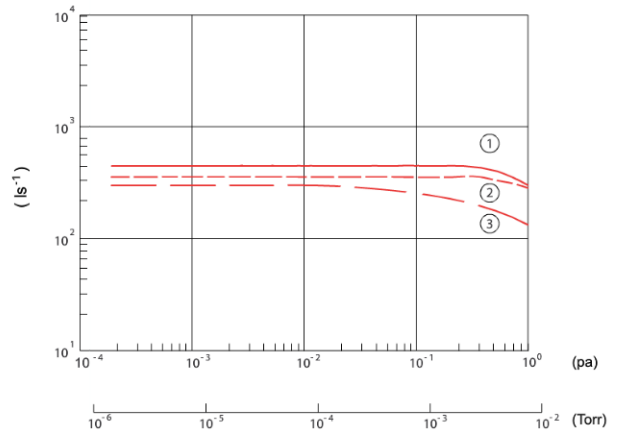
$>10^8$

$>10^3$

### Ordering information

Product description	Order no:
STP-H451C ISO160K inlet	YT340Z002
STP-H451C VG150 inlet	YT340Z007
STP-H451C DN160CF inlet	YT340Z005
STP-H451CV TMS, ISO160K inlet	YT3416002
STP-H451CV TMS, VG150 inlet	YT3416004
STP-H451CV TMS, DN160CF inlet	YT3416006

### STP-H451C Performance Curve



## STP-A803C Turbomolecular Vacuum Pump

### STP-A803C



#### Peak pumping speed

$N_2$  800  $ls^{-4}$

$H_2$  520  $ls^{-4}$

#### Compression Ratio

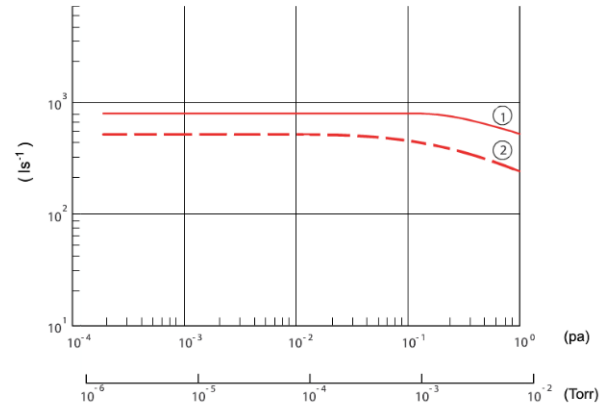
$>10^8$

$>10^3$

### Ordering information

Product description	Order no:
STP-A803C ISO160F inlet	YT36B0040
STP-A803C VG150 inlet	YT360Z000
STP-A803C DN160CF inlet	YT36B0010
STP-A803CV TMS, ISO160F inlet	YT3626000
STP-A803CV TMS, VG150 inlet	YT3626001
STP-A803CV TMS, DN160CF inlet	YT3626003

### STP-A803C Performance Curve



## STP-A1303C Turbomolecular Vacuum Pump

### STP-A1303C



#### Peak pumping speed

$N_2$  1300  $ls^{-1}$

$H_2$  800  $ls^{-1}$

#### Compression Ratio

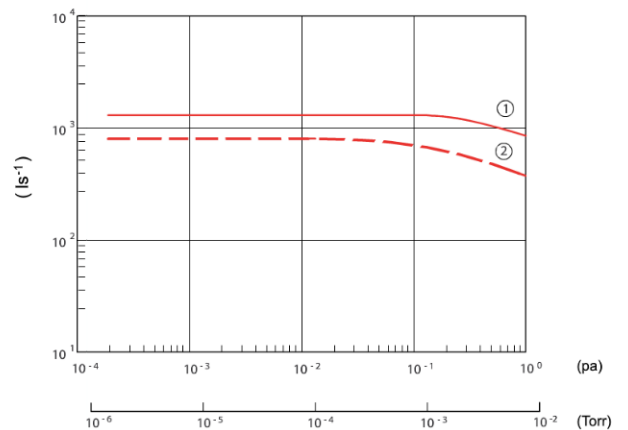
$>10^8$

$>10^3$

### Ordering information

Product description	Order no:
STP-A1303C ISO200F inlet	YT36B0120
STP-A1303C VG200 inlet	YT360Z001
STP-A1303C DN200CF inlet	YT36B0030
STP-A1303CV TMS, ISO200F inlet	YT3626005
STP-A1303CV TMS, VG200 inlet	YT3626002
STP-A1303CV TMS, DN200CF inlet	YT3626004

### STP-A1303C Performance Curve



## STP-A1603C Turbomolecular Vacuum Pump

### STP-A1603C



#### Peak pumping speed

$N_2$  1600  $l\ s^{-1}$

$H_2$  1200  $l\ s^{-1}$

#### Compression Ratio

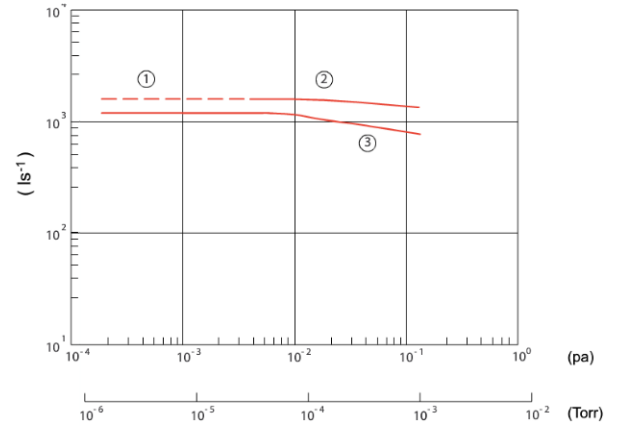
$>10^8$

$7 \times 10^3$

### Ordering information

Product description	Order no:
STP-A1603C ISO200F inlet	YT46B0060
STP-A1603C VG200 inlet	YT460Z000
STP-A1603C DN200CF inlet	YT46B0010
STP-A1603CV TMS, ISO200F inlet	YT4616004
STP-A1603CV TMS, VG200 inlet	YT4616003
STP-A1603CV TMS, DN200CF inlet	YT4616005

### STP-A1603C Performance Curve



## STP-A2203C Turbomolecular Vacuum Pump

### STP-A2203C



#### Peak pumping speed

$N_2$  2200  $l\ s^{-1}$

$H_2$  1700  $l\ s^{-1}$

#### Compression Ratio

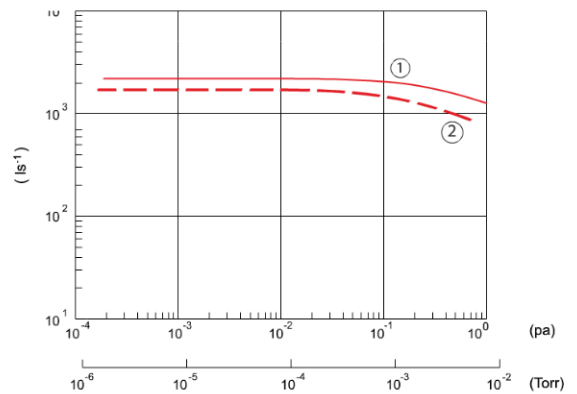
$>10^8$

$2.5 \times 10^4$

### Ordering information

Product description	Order no:
STP-A2203C ISO250F inlet	YT4V0Z002
STP-A2203C VG250 inlet	YT4V0Z001
STP-A2203C DN250CF inlet	YT4V0Z003
STP-A2203CV TMS, ISO250F inlet	YT4V66001
STP-A2203CV TMS, VG250 inlet	YT4V66000
STP-A2203CV TMS, DN250CF inlet	YT4V66002

### STP-A2203C Performance Curve



## STP-XA2703C Turbomolecular Vacuum Pump

### STP-XA2703C



#### Peak pumping speed

$N_2$  2650  $l s^{-1}$

$H_2$  2050  $l s^{-1}$

#### Compression ratio

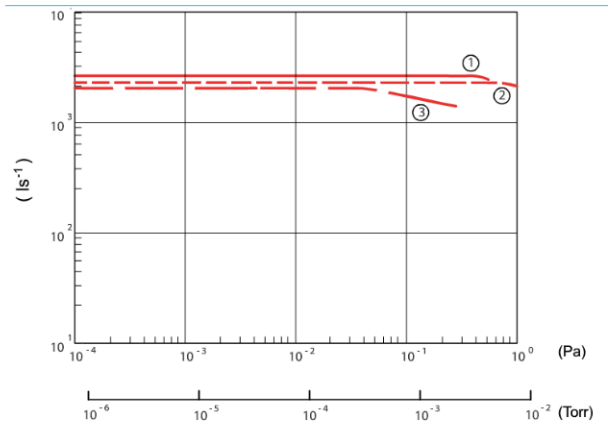
$N_2 > 10^8$

$H_2 > 6 \times 10^3$

#### Ordering information

Product description	Order no:
STP-XA2703C ISO250F inlet	YT660Z030
STP-XA2703C VG250 inlet	YT660Z040
STP-XA2703C DN250CF inlet	YT6610010
STP-XA2703CV TMS, ISO250F inlet	YT6616000
STP-XA2703CV TMS, VG250 inlet	YT6616010
STP-XA2703CV TMS, DN250CF inlet	YT6616140

### STP-XA2703C Performance Curve



## STP-XA3203C Turbomolecular Vacuum Pump

### STP-XA3203C



#### Peak pumping speed

$N_2$  3200  $l s^{-1}$

$H_2$  2300  $l s^{-1}$

#### Compression ratio

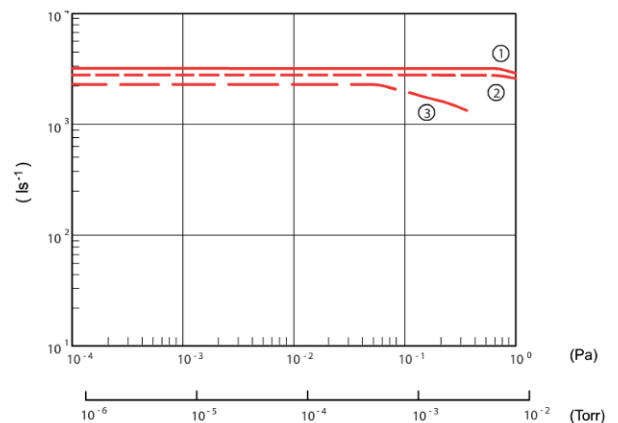
$N_2 > 10^8$

$H_2 > 6 \times 10^3$

#### Ordering information

Product description	Order no:
STP-XA3203C ISO320F inlet	YT660Z050
STP-XA3203C VG300 inlet	YT660Z060
STP-XA3203C DN320CF inlet	YT660Z080
STP-XA3203CV TMS, ISO320F inlet	YT6616020
STP-XA3203CV TMS, VG300 inlet	YT6616030

### STP-XA3203C Performance Curve



## STP-XA4503C Turbomolecular Vacuum Pump

### STP-XA4503C



#### Peak pumping speed

$N_2$  3800-4300  $l s^{-1}$

$H_2$  2500  $l s^{-1}$

#### Compression ratio

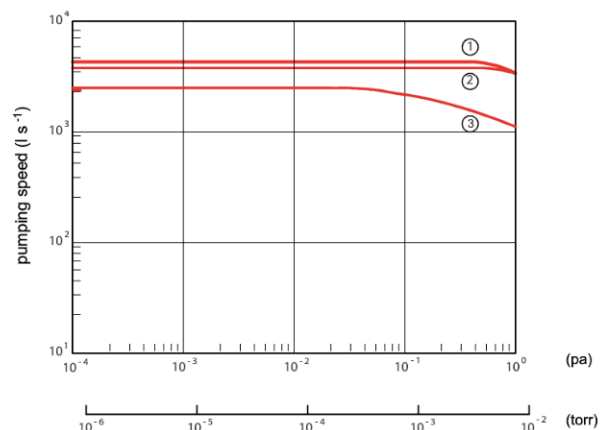
$N_2 > 10^8$

$H_2 > 6 \times 10^3$

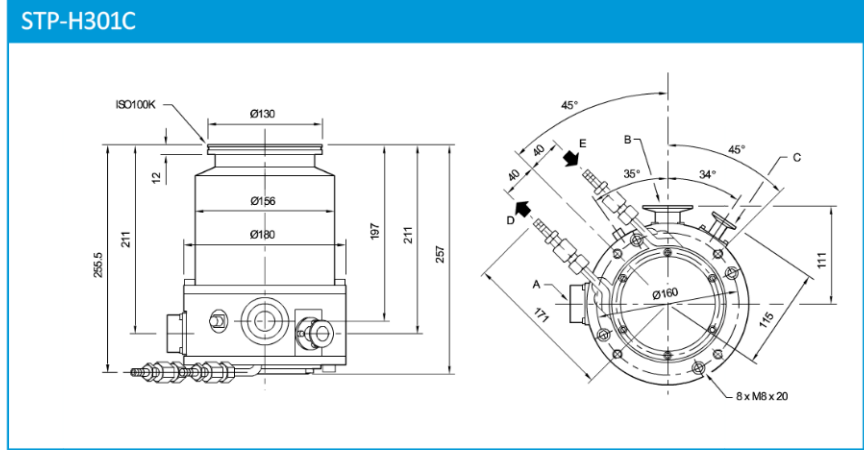
#### Ordering information

Product description	Order no:
STP-XA4503C ISO320F inlet	YT670Z040
STP-XA4503C VG300 inlet	YT670Z030
STP-XA4503C VG350 inlet	YT670Z000
STP-XA4503CV TMS, ISO320F inlet	YT6716000
STP-XA4503CV TMS, VG300 inlet	YT6706020
STP-XA4503CV TMS, VG350 inlet	YT6706010

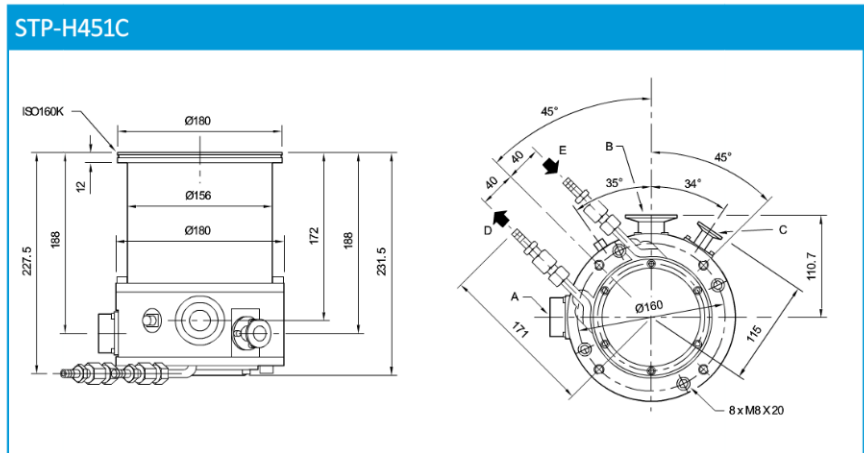
### STP-XA4503C Performance Curve



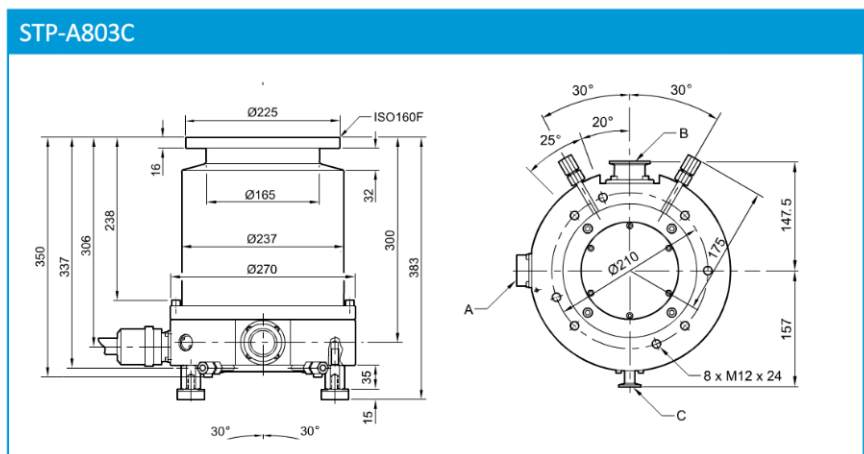
# Dimensions



A	Electrical Connector
B	Outlet Port
C	Purge Port
D	Cooling Water out
E	Cooling Water in

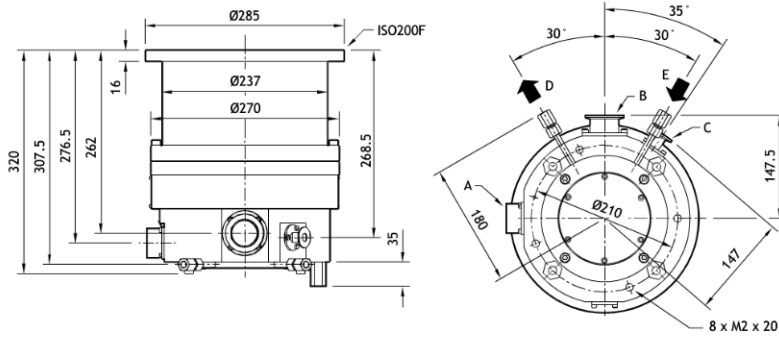


A	Electrical Connector
B	Outlet Port
C	Purge Port
D	Cooling Water out
E	Cooling Water in



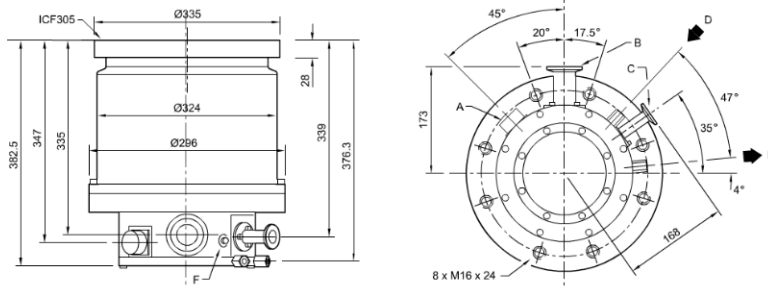
A	Electrical Connector
B	Outlet Port
C	Purge Port

### STP-A1603C



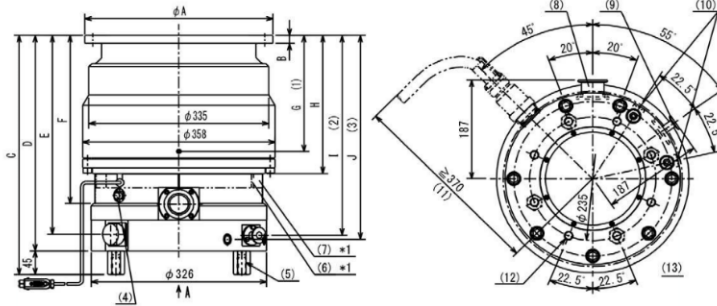
A	Electrical Connector
B	Outlet Port
C	Purge Port
D	Cooling Water out
E	Cooling Water in
F	Temp Sensor Connector

### STP-A2203C



A	Electrical Connector
B	Outlet Port
C	Purge Port
D	Cooling Water out
E	Cooling Water in
F	Temp Sensor Connector

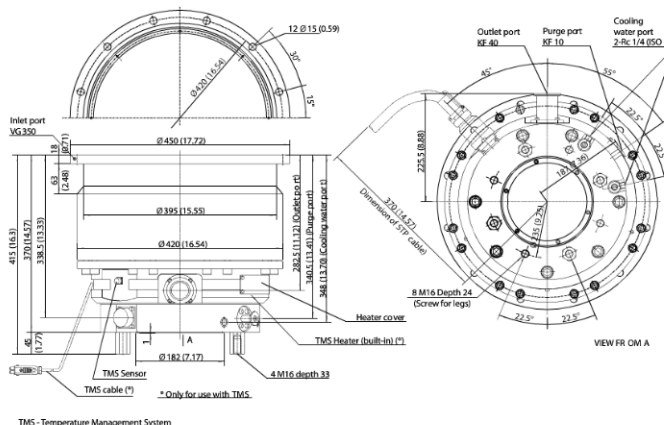
### STP-XA2703C/STP-XA3203C



- A Temperature Management System (TMS) Sensor
  - B TMS Heater\*
  - C TMS Heater cover\*
  - D Outlet port KF40
  - E Cooling water port Rc ¼ (ISO)
  - F Purge port KF10
- \*TMS spec only

Inlet flange port	STP-XA2703				STP-XA3203	
	VG250	ISO250F	ICF305 (DN25OCF)	VG300	ISO320F	ICF356 (DN32OCF)
A	350	335	305	400	425	356
B*	15	15	28	18	20	28.5
C*	454	454	459	415	415	454.5
D*	409	409	414	370	370	409.5
E*	378	378	383	339	339	378.5
F*	320	320	325	281	281	320.5
G*	262	262	267	224	224	262.5
H*	262	262	385	341	341	380.5
J*	387	387	393	349	349	388

### STP-XA4503C



TMS - Temperature Management System



## Technical Data



	STP-H301C	STP-H451C	STP-A803C	STP-A1303C	STP-A1603C	STP-A2203C
Inlet flange	ISO100K	ISO160K	ISO160	ISO200F	ISO200F	ISO250F
Outlet port	KF40	KF40	KF40	KF40	KF40	KF40
Purge port	KF10	KF10	KF10	KF10	KF10	KF10
Water cooling fitting	PT1/4	PT1/4	PT1/4	PT1/4	PT1/4	PT1/4
Pumping Speed						
N <sub>2</sub>	300 ls <sup>-1</sup>	450 ls <sup>-1</sup>	800 ls <sup>-1</sup>	1300 ls <sup>-1</sup>	1600 ls <sup>-1</sup>	2200 ls <sup>-1</sup>
H <sub>2</sub>	200 ls <sup>-1</sup>	300 ls <sup>-1</sup>	520 ls <sup>-1</sup>	800 ls <sup>-1</sup>	1200 ls <sup>-1</sup>	1700 ls <sup>-1</sup>
Compression ratio						
N <sub>2</sub>	> 10 <sup>8</sup>	> 10 <sup>8</sup>	> 10 <sup>8</sup>	> 10 <sup>8</sup>	> 10 <sup>8</sup>	> 10 <sup>8</sup>
H <sub>2</sub>	10 <sup>3</sup>	10 <sup>3</sup>	10 <sup>3</sup>	10 <sup>3</sup>	10 <sup>3</sup>	>2.5 x 10 <sup>4</sup>
Ultimate pressure with bake out heating	10 <sup>-7</sup> Pa (10 <sup>-9</sup> Torr)	10 <sup>-7</sup> Pa (10 <sup>-9</sup> Torr)	10 <sup>-7</sup> Pa (10 <sup>-9</sup> Torr)	10 <sup>-7</sup> Pa (10 <sup>-9</sup> Torr)	10 <sup>-7</sup> Pa (10 <sup>-9</sup> Torr)	10 <sup>-6</sup> Pa (10 <sup>-8</sup> Torr)
Max continuous outlet pressure	660 Pa (5 Torr)	660 Pa (5 Torr)	270 Pa (2 Torr)	270 Pa (2 Torr)	270 Pa (2 Torr)	400 Pa (3 Torr)
Max Nitrogen throughput	2500 sccm	2500 sccm	1500 sccm	1500 sccm	2500 sccm	1500 sccm
Rated speed	48000 rpm	48000 rpm	32500 rpm	32500 rpm	36500 rpm	27000 rpm
Starting time	4 min	4 min	7 min	7 min	7 min	7 min
Max inlet flange temperature	120 °C	120 °C	120 °C	120 °C	120 °C	Any
Input voltage	100 to 120 (± 10) V a.c. or 200 to 240 (± 10) V a.c.	100 to 120 V a.c. (± 10) or 200 to 240 V a.c. (± 10)	200 to 240 V a.c. (± 10)	200 to 240 V a.c. (± 10)	200 to 240 V a.c. (± 10)	200 to 240 V a.c. (± 10)
Power consumption	0.6 kVA	0.6 kVA	0.85 kVA	0.85 kVA	0.85 kVA	1.5 kVA
Pump weight	15 kg	15 kg	39 kg	39 kg	35 kg	61 kg
Controller weight	9 kg	9 kg	9 kg	9 kg	9 kg	11 kg



	STP-XA2703C	STP-XA3203C	STP-XA4503C
Inlet flange	VG250/ISO250	VG300/ISO320F	VG300/ISO320F/ VG350
Outlet port	KF40	KF40	KF40
Pumping Speed			
N <sub>2</sub>	2650 ls <sup>-1</sup>	3200 ls <sup>-1</sup>	3800/4000/4300 ls <sup>-1</sup>
H <sub>2</sub>	2050 ls <sup>-1</sup>	2300 ls <sup>-1</sup>	2500 ls <sup>-1</sup>
Compression ratio			
N <sub>2</sub>	> 10 <sup>8</sup>	> 10 <sup>8</sup>	> 10 <sup>8</sup>
H <sub>2</sub>	> 6 x 10 <sup>3</sup>	> 6 x 10 <sup>3</sup>	6 x 10 <sup>3</sup>
Ultimate pressure	10 <sup>-7</sup> Pa (10 <sup>-9</sup> Torr)	10 <sup>-7</sup> Pa (10 <sup>-9</sup> Torr)	10 <sup>-7</sup> Pa (10 <sup>-9</sup> Torr)
Max allowable backing pressure	266 Pa (2 Torr)	266 Pa (2 Torr)	266 Pa (2 Torr)
Max allowable gas flow			
N <sub>2</sub> (water cooled)	2300 sccm (3.88 Pam <sup>3</sup> s <sup>-1</sup> )	2300 sccm (3.88 Pam <sup>3</sup> s <sup>-1</sup> )	2800 sccm (4.73 Pam <sup>3</sup> s <sup>-1</sup> )
Ar (water cooled)	1900 sccm (3.21 Pam <sup>3</sup> s <sup>-1</sup> )	1900 sccm (3.21 Pam <sup>3</sup> s <sup>-1</sup> )	2150 sccm (3.63 Pam <sup>3</sup> s <sup>-1</sup> )
Rated speed	27500 rpm	27500 rpm	24000 rpm
Starting time	8 min	8 min	12 min
Mounting position	Any orientation	Any orientation	Any orientation
Water cooling			
Flow	3 lmin <sup>-1</sup>	3 lmin <sup>-1</sup>	3 lmin <sup>-1</sup>
Temperature	5-25 °C/41-77 °F	5-25 °C/41-77 °F	5-25 °C/41-77 °F
Pressure	0.3 MPa	0.3 MPa	0.3 MPa
Recommended purge gas flow	50 sccm/8.4 x 10 <sup>-2</sup> Pam <sup>3</sup> s <sup>-1</sup>	50 sccm/8.4 x 10 <sup>-2</sup> Pam <sup>3</sup> s <sup>-1</sup>	50 sccm/8.4 x 10 <sup>-2</sup> Pam <sup>3</sup> s <sup>-1</sup>
Input voltage	200 to 240 V a.c. (± 10)	200 to 240 V a.c. (± 10)	200 to 240 V a.c. (± 10)
Power consumption	1.5 kVA	1.5 kVA	1.5 kVA
Pump weight	75 kg	80 kg	105/105/97 kg
Controller weight	11 kg	11 kg	11 kg