

Vacuum pumps for table top steam autoclaves



APPLICATION BROCHURE



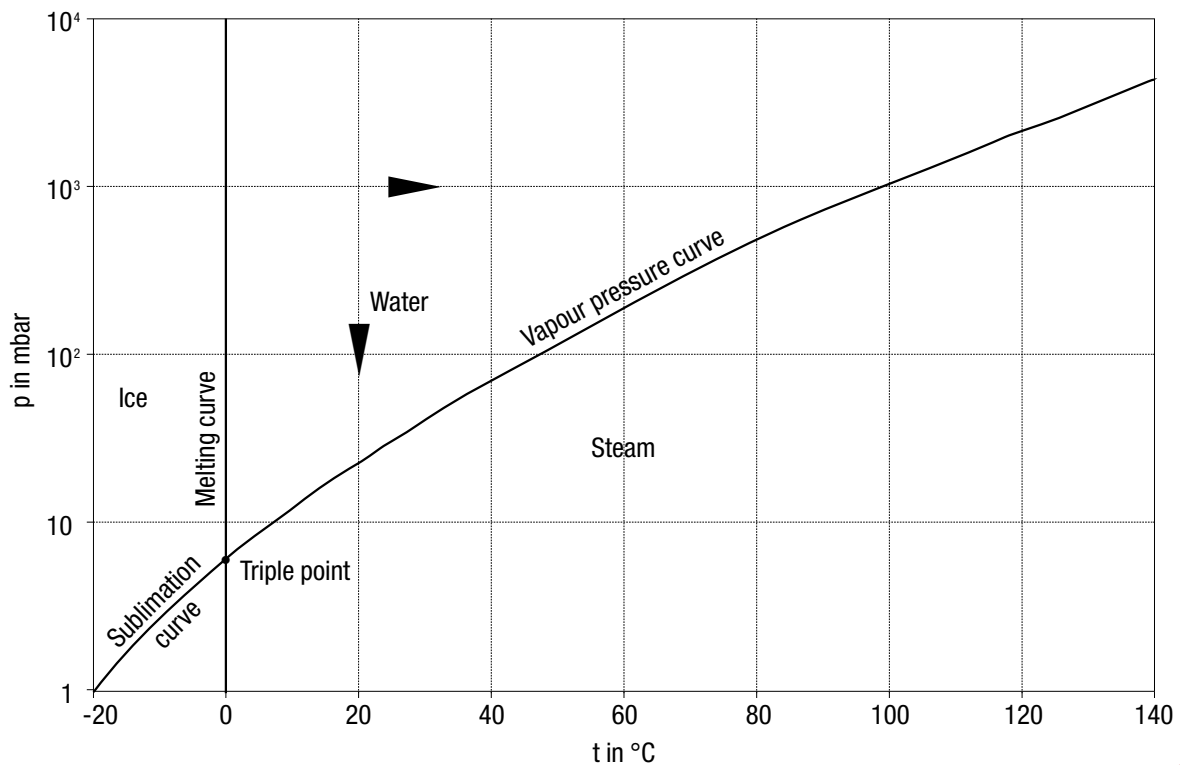
THOMAS
by Gardner Denver

Steam sterilization process in autoclaves

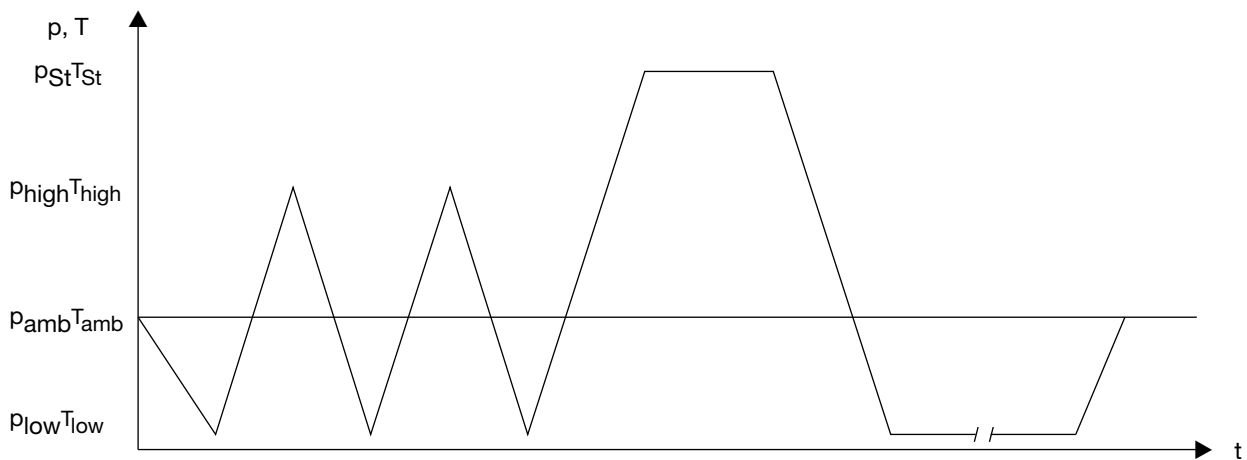


Steam sterilization is one of the best methods to neutralize micro-organisms. For a safe sterilization process only saturated steam should be used. This is pure steam generated from boiling water.

Saturated steam shows a firm temperature-/pressure-curve (see diagram below). For example to reach a steam pressure of 100 mbar (absolute) a temperature of 46 °C is required. This temperature/pressure relationship is also the key to a very efficient sterilization process. The lower the steam temperature and the corresponding pressure (vacuum) level the faster the sterilization cycle.



Steam sterilization with the fractionated pre-vacuum process



Fractionated pre-vacuum process

According to the preliminary European Norm prEN 13060-1..4 the fractionated pre-vacuum process is absolutely necessary to achieve the highest sterilization level possible, the so called class-B standard. The chamber is evacuated several times (air removal) while alternating with the intake of saturated steam. This job can be done with a vacuum pump enabling the pump to pass the Bowie-Dick test required by prEN 13060. In addition the vacuum pump provides the post-vacuum for the load drying phase of the sterilization procedure. A diaphragm pump is one of the best solutions for the air removal in autoclaves.

The heart of a table top steam autoclave

The autoclave application is a very demanding task for a diaphragm pump. It has to provide consistent vacuum levels for multiple daily sterilization cycles regardless of the type of load – and the vacuum pump has to run reliably day after day, week after week, year after year!

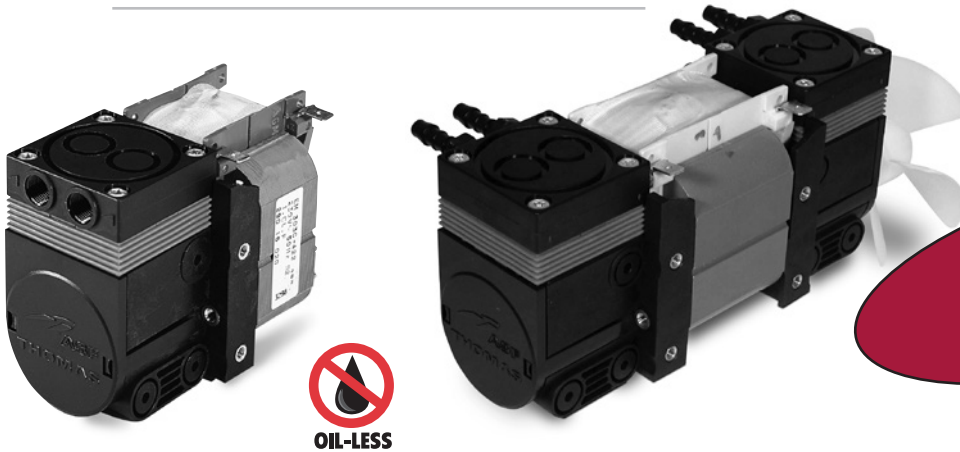
From the market leader for market leaders!

We have listened to our customers and have developed diaphragm pumps best suited for the autoclave application. Equipped with especially heat resistant and long-life components our pumps are first choice for many autoclave manufacturers around the world. Based on more than 10 years of experience and due to our excellent engineering support, more and more sterilizer producers rely on Thomas pump technology.

We are the specialist in supplying pumps for your market ... **Utilize our experience!**

Diaphragm Pump 7006

Flow	15,5 l/min
Max. vacuum	94%



Designed for Autoclaves!



Pneumatic Data

Description	7006 V	7006 ZVP	7006 ZVR
Part number	70060045	70060046	70060047
Free flow	7,2 l/min	15,5 l/min	7,4 l/min
Max. vacuum	81%	80%	94%
Max. restart vacuum	Ambient pressure	Ambient pressure	Ambient pressure

Electrical Data

Motor type	Shaded pole	Shaded pole	Shaded pole
Nominal voltage ¹⁾	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz
Nominal speed	2400 rpm	2600 rpm	2600 rpm
Power consumption	62 W	90 W	90 W
Motor insulation class	F	H	H
Thermal switch	150 °C	180 °C	180 °C

General Data

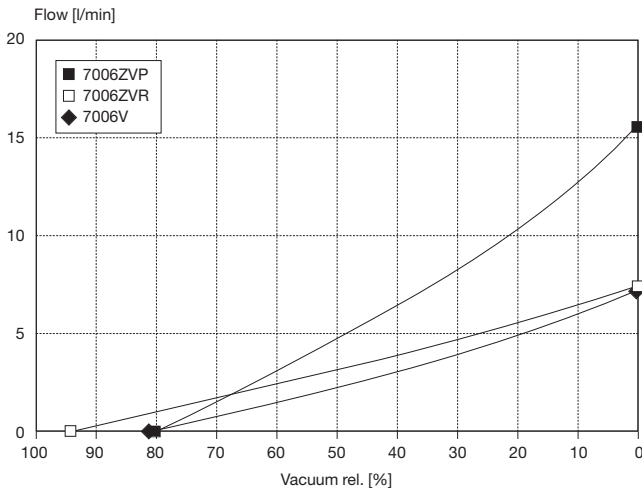
Ambient temperature	10 to 40 °C	10 to 40 °C	10 to 40 °C
Weight	1,1 kg	1,8 kg	1,8 kg
Dimensions (L x W x H)	125 x 61 x 78 mm ²⁾	184 x 61 x 78 mm ²⁾	184 x 61 x 78 mm ²⁾

Material

Head & chamber	PPS	PPS	PPS
Diaphragm	EPDM	EPDM	EPDM
Valves	FPM ³⁾	FPM ³⁾	FPM ³⁾
Eccentric	steel	steel	steel
Configuration	N/A	Parallel	Series

¹⁾ All world voltages available
²⁾ Without ventilator and tubing
³⁾ Steam resistant

Flow Curves



The information presented in this material is based on technical data and test results of nominal units. It is believed to be accurate and reliable and is offered as an aid to help in the selection of Thomas products. It is the responsibility of the user to determine the suitability of the product for the intended use and the user assumes all risk and liability whatsoever in connection therewith. Thomas does not warrant, guarantee or assume any obligation or liability in connection with this information.

Diaphragm Pump 2119

Flow	19 l/min
Max. vacuum	90%



Designed for Autoclaves!

Pneumatic Data

Description	2119VCDU20
Part number	on request
Free flow	19 l/min
Max. vacuum	91,4%
Max. restart vacuum	Ambient pressure

Electrical Data

Motor type	Shaded pole
Nominal voltage	230 V/50 Hz
Nominal speed	1400 rpm
Power consumption	100 W
Motor insulation class	B
Thermal switch	145 °C

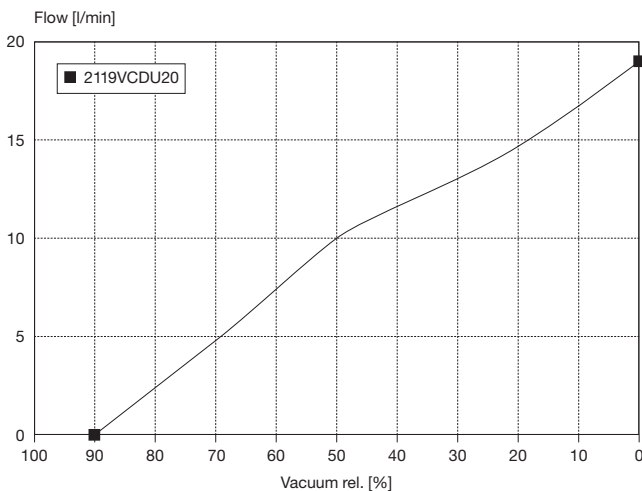
General Data

Ambient temperature	10 to 40 °C
Weight	3,3 kg
Dimensions (L x W x H)	221 x 107 x 124 mm

Material

Head & chamber	Aluminum with epoxy coat
Diaphragm	EPDM
Valves	EPDM
Eccentric	PM steel
Configuration	Series

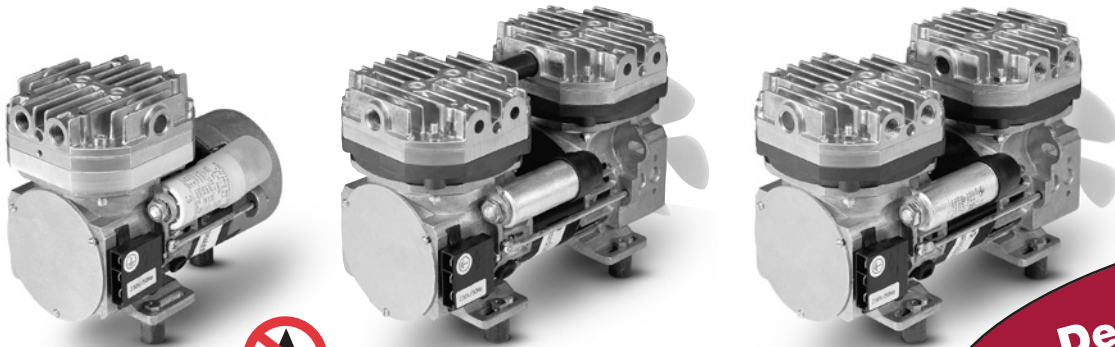
Flow Curves



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Diaphragm Pump 8011

Flow	65 l/min
Max. vacuum	99%



Designed for Autoclaves!

Pneumatic Data

Description	8011V-35	8011ZVP-35	8011ZVR-35
Part number	80110119	80110110	80110106
Free flow	34 l/min	65 l/min	34 l/min
Max. vacuum	95%	92%	99%
Max. restart vacuum	Ambient pressure	Ambient pressure	Ambient pressure

Electrical Data

Motor type	Capacitor	Capacitor	Capacitor
Nominal voltage ¹⁾	230 V/50 Hz	230 V/50 Hz	230 V/50 Hz
Nominal speed	1350 rpm	1270 rpm	1300 rpm
Power consumption	85 W	95 W	95 W
Motor insulation class	F	F	F
Thermal switch	140 °C	140 °C	140 °C

General Data

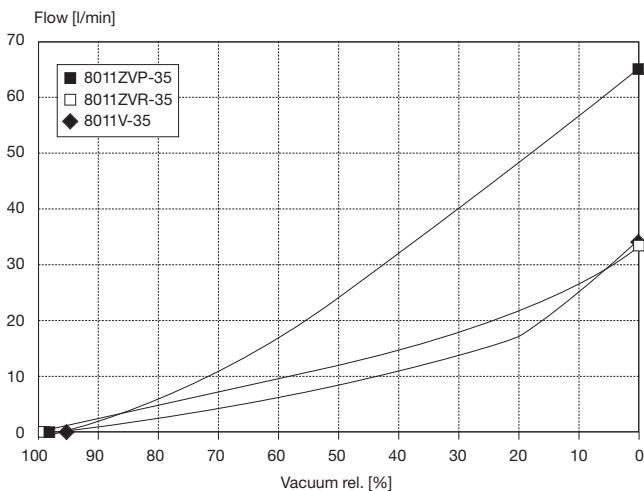
Ambient temperature	10 to 40 °C	10 to 40 °C	10 to 40 °C
Weight	3,3 kg	4,6 kg	4,6 kg
Dimensions (L x W x H)	178 x 129 x 168 mm	261 x 129 x 158 mm	261 x 129 x 158 mm

Material

Head & chamber	GD-AISI12	GD-AISI12	GD-AISI12
Diaphragm	EPDM	EPDM	EPDM
Valves	EPDM	EPDM	EPDM
Eccentric	steel	steel	steel
Configuration	N/A	Parallel	Series

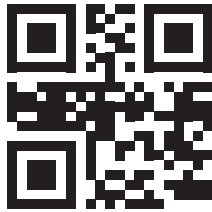
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Flow Curves



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Note



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