THOMAS
A Gardner Denver Product

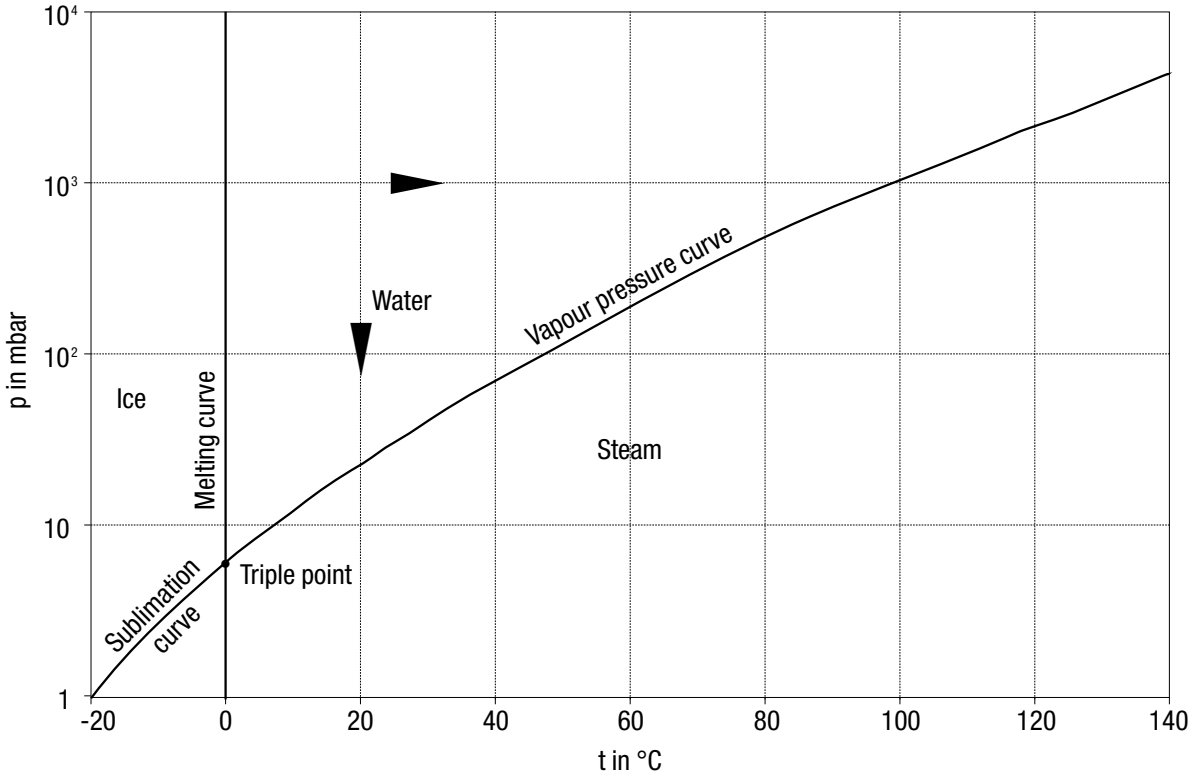
Application brochure

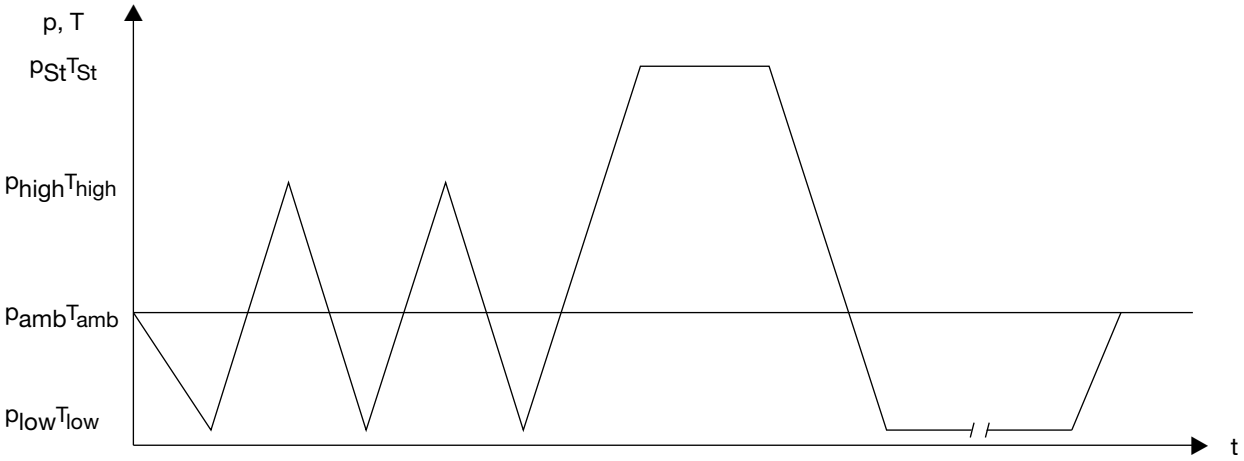
Vacuum pumps for table top steam autoclaves

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.





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 sterlization 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

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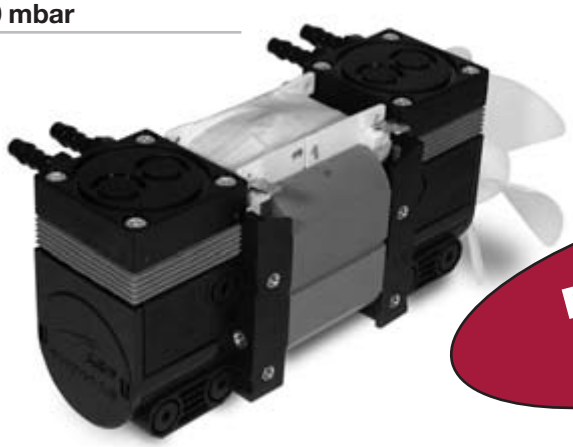
Flow	**15,5 l/min**
Max. vacuum	**-940 mbar**



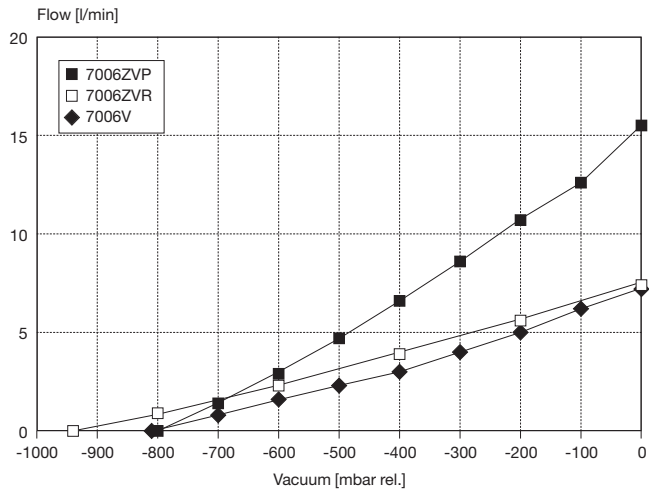
OIL-LESS

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	-810 mbar	-800 mbar	-940 mbar
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



TÜV SÜD ISO 9001

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Diaphragm Pump 2119

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Flow	**19 l/min**
Max. vacuum	**-900 mbar**

OIL-LESS

Designed for Autoclaves!

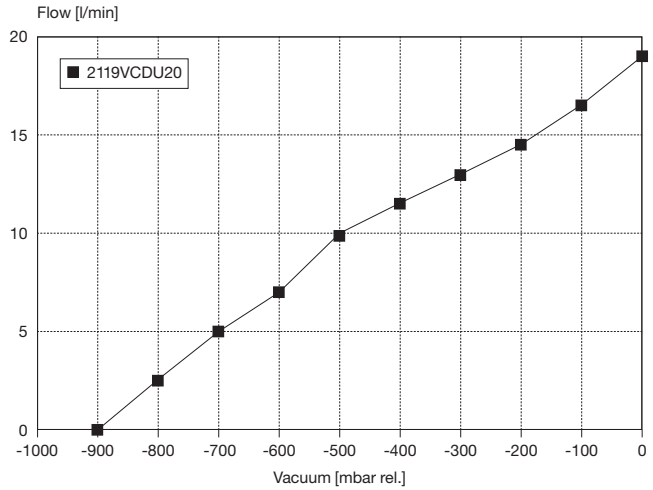
Pneumatic Data	
Description	2119VCDU20
Part number	on request
Free flow	19 l/min
Max. vacuum	-914 mbar
Max. restart vacuum	Ambient pressure

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

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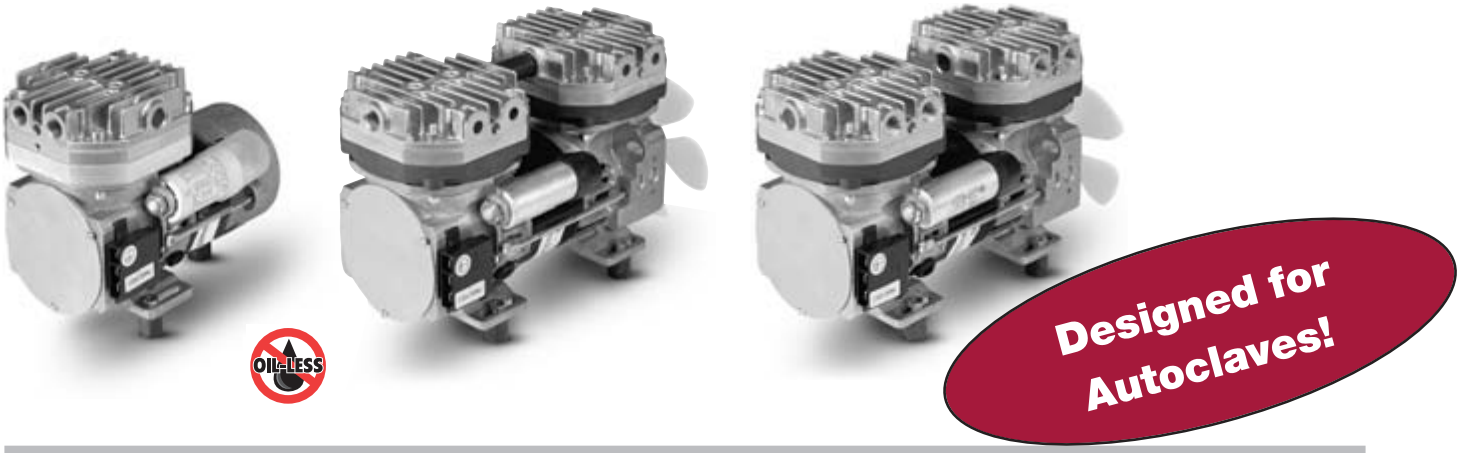
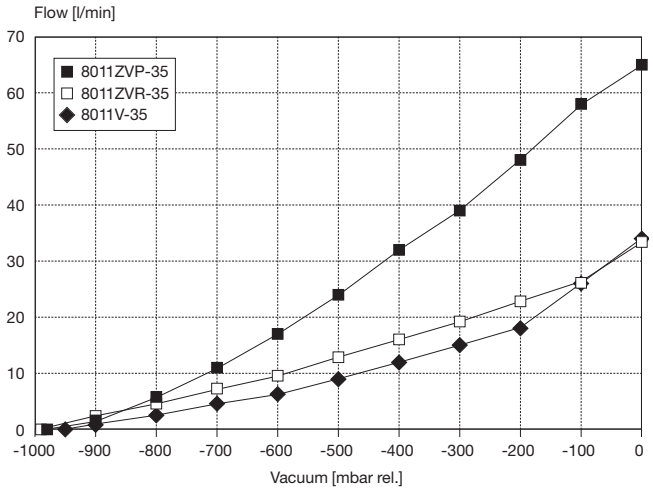
Flow	**65 l/min**
Max. vacuum	**-990 mbar**



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	-950 mbar	-920 mbar	-990 mbar
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-AlSi12	GD-AlSi12	GD-AlSi12
Diaphragm	EPDM	EPDM	EPDM
Valves	EPDM	EPDM	EPDM
Eccentric	steel	steel	steel
Configuration	N/A	Parallel	Series

[1)] All world voltages available

Flow Curves



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