



POSITIVE PUMPS

APV Product's experience of the development and production of pumps goes all the way back to 1903, but as early as 1897 our subsidiary was making pneumatic equipment for the fast-growing railway industry. The first stainless steel rotary lobe pump was designed and manufactured in 1932.

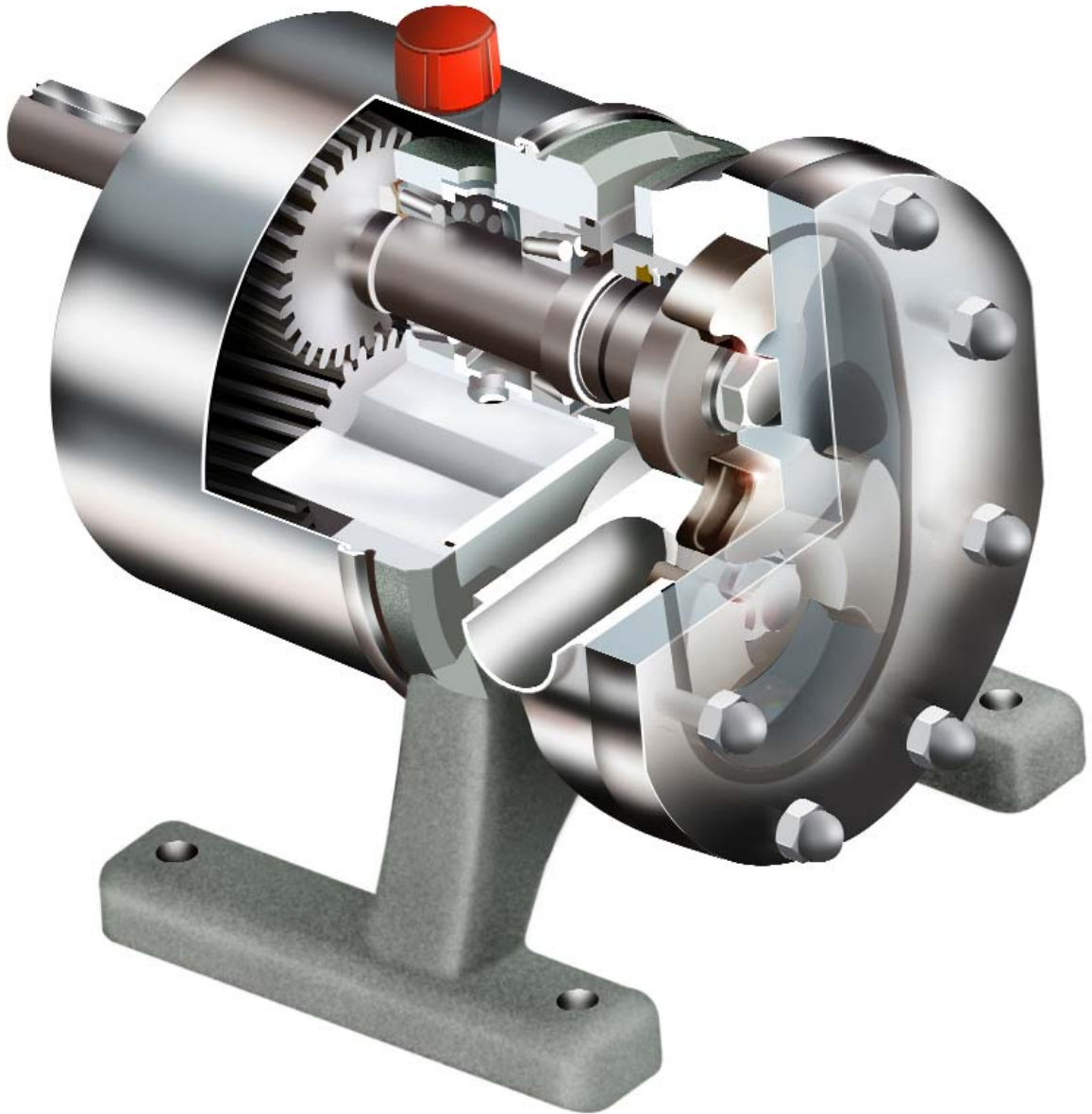
Over the years our original design has been copied innumerable times, but the quality cannot be copied. In addition, we constantly stay that crucial step ahead through intensive product development. APV Product's latest pump programme is thus the result of four years of international collaboration among a number of the world's leading specialists in the field.

A SIMPLE AND EFFICIENT SYSTEM

Positive pumps are based on the principle of displacement - the transfer of liquid by means of a moving body which pushes (displaces) the liquid in front of it and thus creates pressure. This movement may either be back-and-forward (reciprocal) or rotating.

The rotary lobe pump uses two rotors rotating in opposite directions. As they turn they generate an expanding volume at the pump inlet. This results in a reduced pressure, which draws the product into the cavity.





HOW TO CHOOSE THE RIGHT POSITIVE PUMP

TYPE AND SIZE

You have to specify your application in terms of product, flow rate, differential pressure and viscosity before choosing the pump size.

ROTOR SELECTION

The DW pump is available with different rotor options. Bi-lobe or circumferential piston rotors in AISI 316L material or 88WM (NGA-Non galling Alloy) are available as standard, suited for 110°C. Optional 180°C bi-lobe rotors are also available. The type of rotor will be determined by the individual application, and will depend on product temperature, viscosity and abrasiveness, CIP or SIP temperature, size and percentage of solid particles suspended in the liquid, the potential risk of pressure spikes, the required flexibility of the pump and other parameters.

SHAFT SEALS

As standard the DW pump is fitted with a single mechanical seal consisting of a silicon carbide face rotating against a static face of carbon, with the product-wetted elastomers in EPDM. Other shaft seal materials are available as options; for example silicone carbide against silicon carbide may be fitted where the liquid can cause wear. Flushed versions of both material combinations are also available. These are especially suitable for handling liquids with low lubrication qualities.

Single-lip and triple-lip seals are also available for special applications like the processing of minced meat and high-viscosity confectionery products.

ELASTOMERS

The standard product-wetted elastomer is EPDM. Viton™ (fluorocarbon) is also available for high-temperature applications and for pumping liquids with a high fat content or certain chemicals. In the gearbox end elastomers are Nitrile as standard; Viton™ is an option where high temperatures are involved.

FITTINGS

A wide variety of threaded connections and tri-clamp fittings and flanges can be welded on to the DW pump. Examples of common standards used are DS, ISO, DIN, BS, ANSI and SMS.

DRIVE UNIT

As standard, all drive units are IP55, IEC, Insulation Class F. The size and rotational speed of the drive unit depend on the absorbed power and the pump size. The drive unit is available in higher protection classes, and the rotational speed ranges from 10 rpm up to 1400 rpm.

BASE PLATE

The pump and drive unit can be mounted on a stainless steel, fully self-draining base plate. A painted mild-steel flat base plate is optional. The pump and drive unit coupling is protected by a coupling guard; a further option is a stainless-steel shroud that covers both the coupling and the motor.

OPTIONAL EXTRAS

For special applications, optional extras such as a thermal jacket for the pump body and/or the front cover, a rectangular inlet or an improved surface finish are also available.



DW ROTARY LOBE PUMPS



THE DW RANGE

- ◆ Includes 24 models
- ◆ Capacities from 100 - 370,000 litres per hour
- ◆ Viscosities from 1 - 1,000,000 centipoise
- ◆ Discharge pressures up to a maximum of 30 bar
- ◆ Product temperatures up to 110°C respectively 180°C
- ◆ The rotor design ensures maximum product integrity and minimises risk of potential damage to sensitive products

The pumps are 3A- and EHEDG -approved as standard and all product contact parts are AISI 316L. All elastomers comply with FDA-requirements.

STANDARD DESIGN

DW pumps port orientation can be changed on site; Between horizontal and vertical orientation with the drive shaft being situated either top, bottom or left.

DW pumps can be fitted with a range of rotors to suit your application:

- ◆ Bilobe stainless steel as standard
- ◆ Circumferential piston rotors stainless steel for high volumetric efficiency and no pulsation
- ◆ Optimally 88WM(NGA Non Galling Alloy) can be supplied insuring high efficiency and less sensitive to damage by particles in the product

As standard, the DW pumps are fitted with an hygienic and easy-to-clean Burgmann mechanical shaft seal, SiC/Car.

The single mechanical seal is also available with SiC/SiC seal faces and in a flushed version.

DW ROTARY LOBE PUMP

Alternatively, a single lip-seal can be supplied offering easy to change, low-cost options. For confectionary applications such as chocolate or caramel, a triple lip seal can be fitted. All seals are front loaded.

PUMP FEATURES

The DW pump has been designed to be 100% clean after CIP. This includes radii rather than 90° corners, self-draining when mounted with ports vertically, and a moulded, hygienic front cover gasket.

The modular design makes it easy to change from bi-lobe to piston rotors, from horizontal to vertical port orientation can be done on site, and from one shaft seal option to another - all shaft seal options can be changed with a minimum of extra parts.

The DW pump is very robust and has long bearing and mechanical shaft seal life times.

The DW pump can be supplied with fixed speed geared motors, suitable for frequency converter use.

As standard, the motors have IP55 enclosure protection, but higher ratings can be fitted if required.

Manually variable drives can also be fitted.

Pumps and drives can be mounted onto a self-draining 304 stainless steel base plate with adjustable balled feet or on a painted mild steel base plate.

A vast number of various standard fittings can be fitted to the pump, - the most common ones being tri-clamp, RJT, DIN 11851, SMS, IDF, BS, and DS.



Rectangular inlet suitable for extremely high viscosity products can also be fitted.

Pressure relief valve in order to obtain sufficient flow through the DW pump during CIP, the relief valve can also be used as a bypass. The PRV is available both in manually and pneumatically operated versions.

Thermal jacket provide a constant temperature level in the pump wring operation.



DW PUMP MODEL NUMBERS			
Model Number	Rotor Type	Max. displacement (litres per 100 revs)	Max. Pressure (bar)
DW1/003/7.5	Piston	3	7.5
DW1/004/15	Bi-lobe	4	15
DW1/007/7	Bi-lobe	7	7
DW2/006/10	Piston	6	10
DW2/007/20	Bi-lobe	7	20
DW2/013/10	Bi-lobe	13	10
DW3/014/10	Piston	14	10
DW3/017/20	Bi-lobe	17	20
DW3/030/10	Bi-lobe	30	10
DW4/033/10	Piston	33	10
DW4/039/20	Bi-lobe	39	20
DW4/073/10	Bi-lobe	73	10
DW5/080/12.5	Piston	80	12.5
DW5/093/25	Bi-lobe	93	25
DW5/142/15	Bi-lobe	142	15
DW5/256/7	Bi-lobe	256	7
DW6/172/12,5	Piston	172	12,5
DW6/198/30	Bi-lobe	198	30
DW6/308/15	Bi-lobe	308	15
DW6/519/07	Bi-lobe	519	7
DW7/307/12,5	Piston	370	12,5
DW7/450/30	Bi-lobe	420	30
DW7/725/15	Bi-lobe	725	15
DW7/1016/07	Bi-lobe	1016	7