

DW Series

POSITIVE DISPLACEMENT PUMPS



Engineering excellence, allied to stringent quality control, ensures that SPX's unrivalled range of APV products complies with the highest international standards for hygiene. In the light of growing pressure worldwide to deliver safe, high quality food, all SPX products are designed for easy cleanability, while minimizing the use of valuable resources, such as energy. The APV product portfolio includes a wide range of pumps, valves, heat exchangers, mixers and homogenizers designed for use in the food, dairy and beverage, as well as in chemical, personal care, pharmaceutical and other liquid process industries.

DW Series Positive Displacement Pumps

PRODUCT FEATURES AND BENEFITS

High Volumetric Efficiency

The DW range is designed for outstanding efficiency. Internal clearances have been minimized so that a smaller pump size can be selected for medium viscosity applications. This reduces both the initial investment and running costs.

Ultra-Hygienic, Accommodates Harsh CIP-Cycles

All DW models are CIP/SIP cleanable. The pumps are designed to withstand rapid temperature changes and can therefore accommodate very harsh CIP-cycles.

Pulse-Free Performance

When pumping highly viscous products, the DW pump with piston rotors runs completely pulse-free. This ensures a consistent process flow, which is required in connection with filling machines. It also safeguards valves, and other equipment that can be damaged by pressure surges.

Low NPSH-Requirement

The highly improved suction capability of the DW pump considerably reduces the NPSH-requirement. This in combination with the absence of pressure pulsations makes the DW pumps ideal for many applications, such as ultra-filtration.

Gentle Product Handling

The rotor designs available ensure maximum product integrity and minimize risk of potential damage to sensitive products. Both piston and bi-lobe rotors are suitable for high and low viscosities. They will also handle cheese curds and whey, soft fruit and meat — which previously involved fitting special rotors.

Easy Maintenance

The easy-to-access front loaded mechanical seals reduce maintenance time considerably. All shaft seal O-rings are identical, and access to the shaft seal is achieved by simply removing the front cover and the rotors. Likewise, the timing of rotors is an equally uncomplicated operation.

Low Noise Levels

The patented rotor design practically eliminates hydraulic noise and the helical gears minimize gearbox noise.

Global Design

The entire range complies with the European EHEDG and the American 3-A hygiene standards.

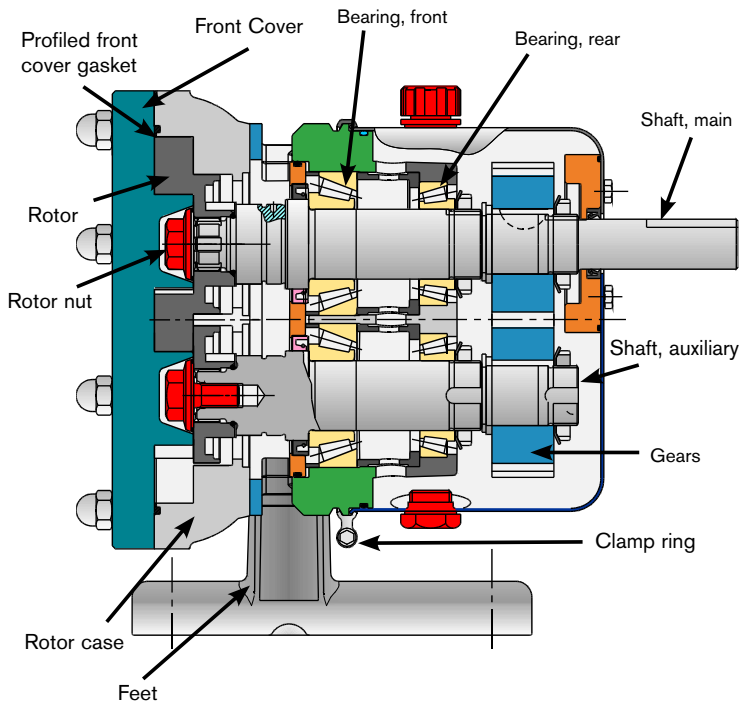
High Capacity

The DW6 high capacity pumps are unique in the field of positive displacement pumps. They are capable of running up to 800 rpm and pumping up to 268 gal/100 revs (1,016 liters/100 revs), approximately 1,628 gal/min (370 m³/h).

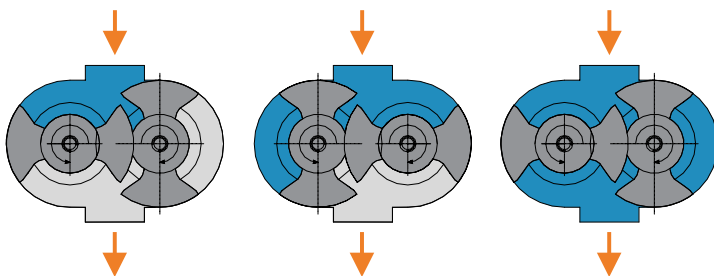
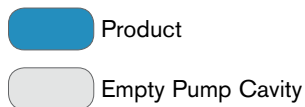
Typical product applications

THEORY OF OPERATION:

DW pumps are positive-displacement, low-slip, stainless steel pumps designed with larger diameter shafts for greater strength and stiffness, mounted on a heavy-duty cast iron bearing frame (stainless steel option available) with double-tapered roller bearings.



Expanding cavities are formed at the inlet drawing the liquid into the rotors. Meshing of the rotors forces the fluid out of the pumping chamber.



Beverage

Fruit Juice
Cider and Wine
Yeast
Liquid Sugar and Glucose



Food

Fruit Preserves
Soups and Sauces
Baby Food
Chocolate



Pharmaceutical and Toiletries

Antibiotics
Toothpaste
Cough Medicine
Shampoo



Dairy

Cream
Butter
Cheese Curd & Whey
Yogurt
Ice cream



Chemical

Paint
Oil Additives
Resins
Photographic Film Coatings



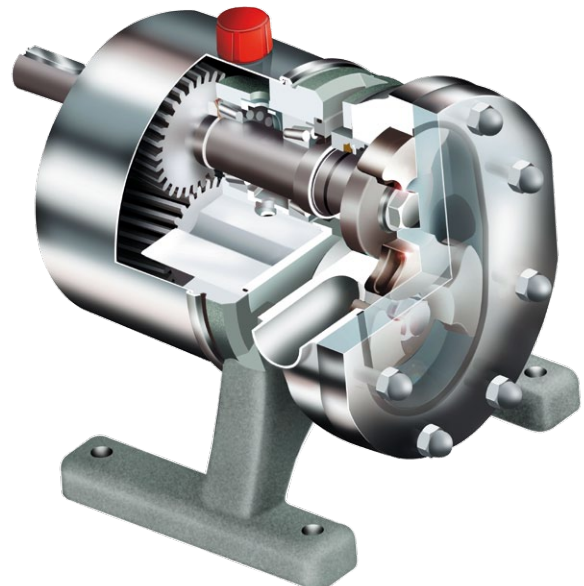
PRODUCT SPECIFICATIONS

The DW pump is designed for ultra-hygienic applications. The range consists of 26 models with capacities ranging from 0.8 gal/100 revs to 268 gal/100 revs (3 liters/100 revs to 1,016 liters /100 revs) and pressures up to 435 psi (30 bar). All product-contact parts are made from AISI 316L stainless steel and all elastomers comply with FDA-requirements.

There are two rotor types (piston and bi-lobe) available. The piston rotors can be easily changed to bi-lobe rotors without changing the rotor case. The porting on the pump can also be changed from horizontal to vertical (and vice versa) without any modification to the pump or use of a special gear case assembly.

		MAXIMUM DISPLACEMENT	MAXIMUM PRESSURE
MODEL NUMBER	ROTOR TYPE	GAL/100 REVS (LITERS/100 REVS)	PSI (BAR)
DW1/003/7.5	Piston	0.8 (3)	109 (7.5)
DW1/004/15	Bi-lobe	1.1 (4)	218 (15)
DW1/007/7	Bi-lobe	1.8 (7)	102 (7)
DW2/006/10	Piston	1.6 (6)	145 (10)
DW2/007/20	Bi-lobe	1.8 (7)	290 (20)
DW2/013/10	Bi-lobe	3.4 (13)	145 (10)
DW3/014/10	Piston	3.7 (14)	145 (10)
DW3/017/20	Bi-lobe	4.5 (17)	290 (20)
DW3/030/10	Bi-lobe	7.9 (30)	145 (10)
DW3/050/5	Bi-lobe	13.2 (50)	73 (5)
DW4/033/10	Piston	8.7 (33)	145 (10)
DW4/039/20	Bi-lobe	10.3 (39)	290 (20)
DW4/073/10	Bi-lobe	19.3 (73)	145 (10)
DW4/125/5	Bi-lobe	33.0 (125)	73 (5)
DW5/080/12.5	Piston	21.1 (80)	181 (12.5)
DW5/093/25	Bi-lobe	24.6 (93)	363 (25)
DW5/142/15	Bi-lobe	37.5 (142)	218 (15)
DW5/256/7	Bi-lobe	67.6 (256)	102 (7)
DW6/172/12.5	Piston	45.4 (172)	218 (15)
DW6/198/30	Bi-lobe	52.3 (198)	435 (30)
DW6/308/15	Bi-lobe	81.4 (308)	218 (15)
DW6/519/07	Bi-lobe	137.1 (519)	102 (7)

The figures included in this brochure are for guidance only. Please use the DW Pump Sizing program or contact your local SPX office for sizing and help selecting a DW Pump.



OPTIONS AND ACCESSORIES

Standard elastomer material is EPDM. FPM and Isolast (perfluoroelastomer) are also available.

The standard connections are S-Line. Other sanitary and industrial fittings are available.

Rotor Options

The two rotor types, which are available in three different versions, are suitable for product temperatures up to 230°F (110°C).

Multi Duty Rotors are standard rotors suitable for most applications. The clearance is greater than that of the high efficiency rotors.

High Efficiency Rotors are designed for low viscosity products. The size of the rotors has been increased and the clearance is minimal.

NGA Rotors are made of Non Galling Alloy (W88) for use with low viscosity products. The material allows the rotors to touch the pump housing without damaging the housing or the rotors. Low tolerances may therefore be applied without decreasing the reliability.

Furthermore the bi-lobe rotors can be supplied as **“high temperature”** rotors, suitable for product temperatures up to 356°F (180°C). The rotors are smaller for expansion due to the temperature.



Lobe Type Rotor



Piston Type Rotor

ROTOR TYPES	DESIGN		FEATURES				
	MATERIAL	CLEARANCE	MAXIMUM TEMPERATURE SHOCK	MAXIMUM DIFFERENCE IN PRESSURE (% OF PUMP MAXIMUM)	FULLY POSITIVE	MAXIMUM DIFFERENCE IN PRESSURE (% OF PUMP MAXIMUM)	VULNERABILITY TOWARDS FOREIGN MATTER BIGGER THAN CLEARANCE
Multi Duty	316L	Medium	130°C (266°F)	110°C (230°F)	500 cp	100%	High
High Efficiency	316L	Small	110°C (230°F)	50°C (122°F)	300 cp	100%	High
High Efficiency	NGA	Small	180°C (356°F)	80°C (176°F)	300 cp	100%	Low
Super Tight	NGA	Very Small	180°C (356°F)	80°C (176°F)	100 cp	80%	Low
High Temperature	316L	Large	180°C (356°F)	120°C (248°C)	700 cp	100%	High
High Temperature	NGA	Large	210°C (410°F)	180°C (356°F)	700 cp	100%	Low

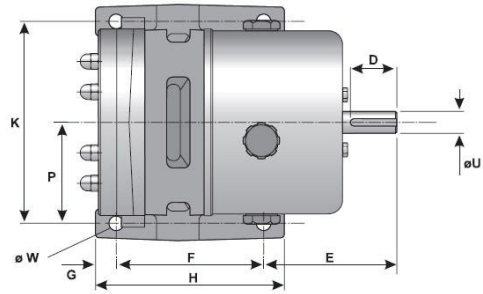
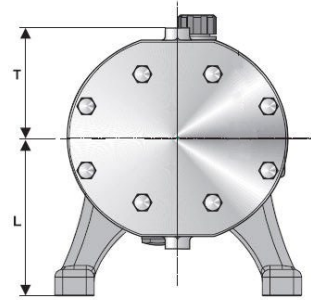
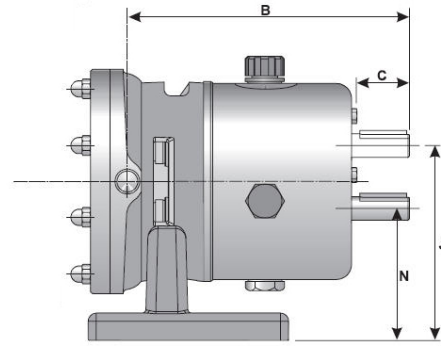
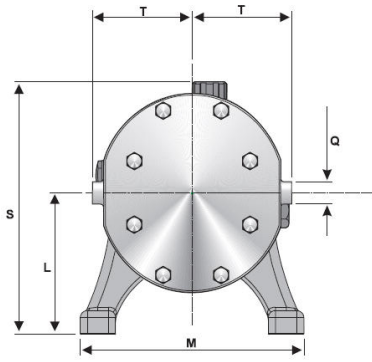
Special Application Options

Rectangular Inlet for extremely high viscosity products. By applying a rectangular inlet, the inlet conditions are considerably improved.

Thermal Jacket to provide a constant temperature level within the pump. This may be the solution for handling temperature-sensitive products such as chocolate.

Relief Valve releases pressure within the pump when it becomes too high. The relief valve is needed if no other safety devices are installed.

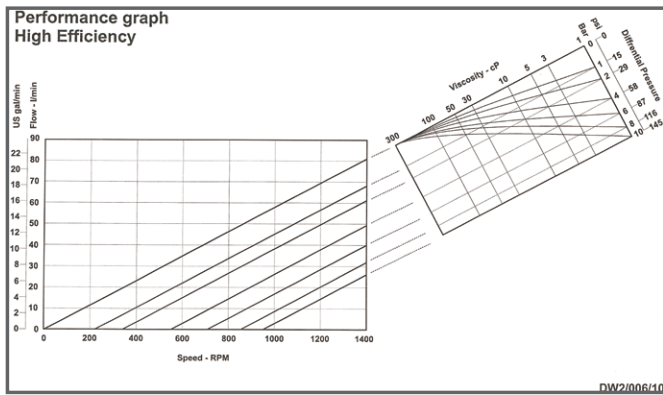
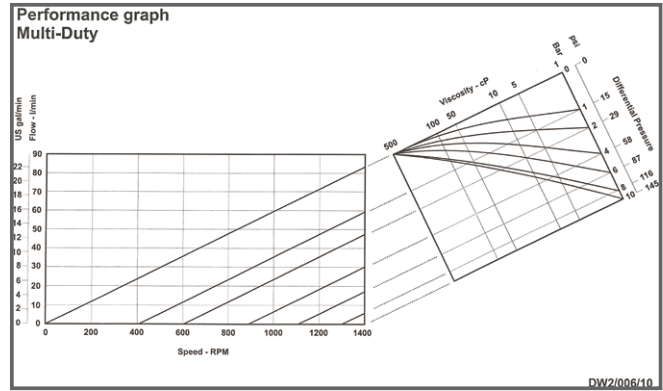
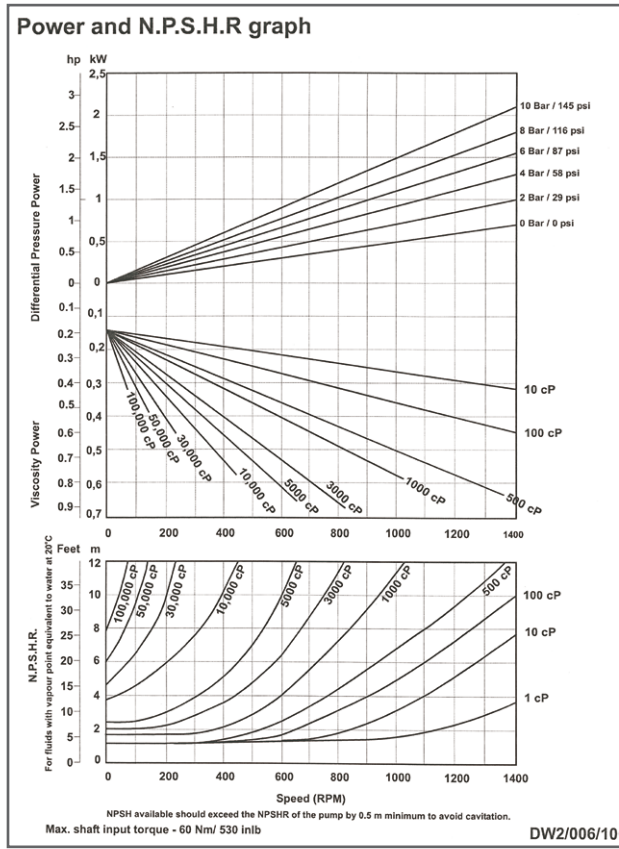
PRODUCT DIMENSIONS



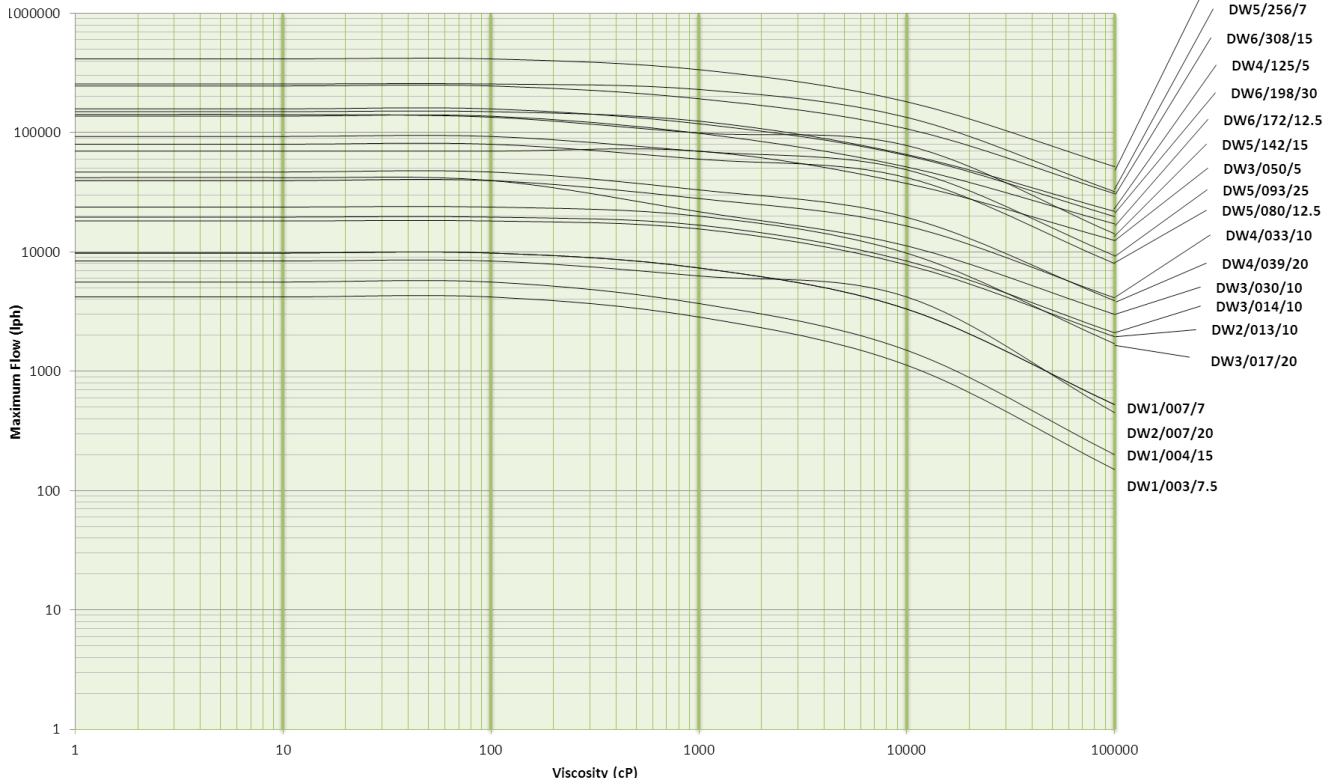
PUMP MODEL	B IN (MM)	C IN (MM)	D IN (MM)	E IN (MM)	F IN (MM)	G IN (MM)	H IN (MM)	J IN (MM)	K IN (MM)	L IN (MM)	M IN (MM)	N IN (MM)	P IN (MM)	Q IN (MM)	S IN (MM)	T IN (MM)	U IN (MM)	W IN (MM)	WEIGHT (KG)	OIL CAP. GAL. (L)
DW1/003/-	8.54 (217)	1.57 (40)	1.50 (38)	4.29 (109)	4.76 (121)	0.47 (12)	5.75 (146)	5.90 (150)	6.53 (166)	4.80 (122)	7.60 (193)	3.70 (94)	3.27 (83)	DN15	8.58 (218)	3.38 (86)	0.71 (18)	0.31 (8)	37.48 (17)	0.21 (0.8)
DW1/004/-	8.54 (217)	1.57 (40)	1.50 (38)	4.29 (109)	4.76 (121)	0.47 (12)	5.75 (146)	5.90 (150)	6.53 (166)	4.80 (122)	7.60 (193)	3.70 (94)	3.27 (83)	DN15	8.58 (218)	3.38 (86)	0.71 (18)	0.31 (8)	37.48 (17)	0.21 (0.8)
DW1/007/-	8.74 (222)	1.57 (40)	1.50 (38)	4.29 (109)	4.76 (121)	0.47 (12)	5.75 (146)	5.90 (150)	6.53 (166)	4.80 (122)	7.60 (193)	3.70 (94)	3.27 (83)	1 (25)	8.58 (218)	3.38 (86)	0.71 (18)	0.31 (8)	39.68 (18)	0.21 (0.8)
DW2/006/-	9.76 (248)	1.97 (50)	1.42 (36)	4.72 (120)	5.59 (142)	0.67 (17)	6.93 (176)	7.01 (178)	7.64 (194)	5.71 (145)	8.98 (228)	4.41 (112)	3.82 (97)	1 (25)	9.92 (252)	3.86 (98)	0.87 (22)	0.47 (12)	55.11 (25)	0.34 (1.3)
DW2/007/-	9.76 (248)	1.97 (50)	1.42 (36)	4.72 (120)	5.59 (142)	0.67 (17)	6.93 (176)	7.01 (178)	7.64 (194)	5.71 (145)	8.98 (228)	4.41 (112)	3.82 (97)	1 (25)	9.92 (252)	3.86 (98)	0.87 (22)	0.47 (12)	55.11 (25)	0.34 (1.3)
DW2/013/-	9.92 (252)	1.97 (50)	1.42 (36)	4.72 (120)	5.59 (142)	0.67 (17)	6.93 (176)	7.01 (178)	7.64 (194)	5.71 (145)	8.98 (228)	4.41 (112)	3.82 (97)	1.5 (38)	9.92 (252)	3.86 (98)	0.87 (22)	0.47 (12)	59.52 (27)	0.34 (1.3)
DW3/014/-	10.67 (271)	2.36 (60)	1.57 (40)	4.84 (123)	6.30 (160)	0.79 (20)	7.87 (200)	7.72 (196)	8.35 (212)	6.22 (158)	9.92 (252)	4.72 (120)	4.17 (106)	1.5 (38)	10.75 (273)	4.41 (112)	0.98 (25)	0.51 (13)	74.96 (34)	0.37 (1.4)
DW3/017/-	10.67 (271)	2.36 (60)	1.57 (40)	4.84 (123)	6.30 (160)	0.79 (20)	7.87 (200)	7.72 (196)	8.35 (212)	6.22 (158)	9.92 (252)	4.72 (120)	4.17 (106)	1.5 (38)	10.75 (273)	4.41 (112)	0.98 (25)	0.51 (13)	74.96 (34)	0.37 (1.4)
DW3/030/-	11.02 (280)	2.36 (60)	1.57 (40)	4.84 (123)	6.30 (160)	0.79 (20)	7.87 (200)	7.72 (196)	8.35 (212)	6.22 (158)	9.92 (252)	4.72 (120)	4.17 (106)	2 (51)	10.75 (273)	4.41 (112)	0.98 (25)	0.51 (13)	88.18 (40)	0.37 (1)
DW3/050/-	11.97 (304)	2.36 (60)	1.57 (40)	4.84 (123)	6.30 (160)	0.79 (20)	7.87 (200)	7.72 (196)	8.35 (212)	6.22 (158)	9.92 (252)	4.72 (120)	4.17 (106)	2 (51)	10.75 (273)	4.41 (112)	0.98 (25)	0.51 (13)	99.21 (45)	0.37 (1)
DW4/033/-	13.86 (352)	3.15 (80)	1.77 (45)	6.38 (162)	8.07 (205)	0.79 (20)	9.64 (245)	9.37 (238)	10.24 (260)	7.48 (190)	11.81 (300)	5.59 (142)	5.12 (130)	2 (51)	12.91 (328)	5.12 (130)	1.38 (35)	0.55 (14)	141.09 (64)	0.79 (3)
DW4/039/-	13.86 (352)	3.15 (80)	1.77 (45)	6.38 (162)	8.07 (205)	0.79 (20)	9.64 (245)	9.37 (238)	10.24 (260)	7.48 (190)	11.81 (300)	5.59 (142)	5.12 (130)	2 (51)	12.91 (328)	5.12 (130)	1.38 (35)	0.55 (14)	141.09 (64)	0.79 (3)
DW4/073/-	14.37 (365)	3.15 (80)	1.77 (45)	6.38 (162)	8.07 (205)	0.79 (20)	9.64 (245)	9.37 (238)	10.24 (260)	7.48 (190)	11.81 (300)	5.59 (142)	5.12 (130)	3 (76)	12.91 (328)	5.12 (130)	1.38 (35)	0.55 (14)	158.73 (72)	0.79 (3)
DW4/125/-	15.71 (399)	3.15 (80)	1.77 (45)	6.38 (162)	8.07 (205)	0.79 (20)	9.64 (245)	9.37 (238)	10.24 (260)	7.48 (190)	11.81 (300)	5.59 (142)	5.12 (130)	3 (76)	12.91 (328)	5.12 (130)	1.38 (35)	0.55 (14)	187.39 (85)	0.79 (3)
DW5/080/-	18.86 (479)	4.17 (106)	2.79 (71)	9.13 (232)	10.31 (262)	0.98 (25)	12.28 (312)	11.93 (303)	12.83 (326)	9.45 (240)	14.57 (370)	6.97 (177)	6.42 (163)	2.5 (63)	17.09 (434)	6.50 (165)	1.65 (42)	0.67 (17)	332.90 (151)	1.85 (7)
DW5/093/-	18.86 (479)	4.17 (106)	2.79 (71)	9.13 (232)	10.31 (262)	0.98 (25)	12.28 (312)	11.93 (303)	12.83 (326)	9.45 (240)	14.57 (370)	6.97 (177)	6.42 (163)	2.5 (63)	17.09 (434)	6.50 (165)	1.65 (42)	0.67 (17)	332.90 (151)	1.85 (7)
DW5/142/-	19.49 (495)	4.17 (106)	2.79 (71)	9.13 (232)	10.31 (262)	0.98 (25)	12.28 (312)	11.93 (303)	12.83 (326)	9.45 (240)	14.57 (370)	6.97 (177)	6.42 (163)	3 (76)	17.09 (434)	6.50 (165)	1.65 (42)	0.67 (17)	337.30 (153)	1.85 (7)
DW5/256/-	20.47 (520)	4.17 (106)	2.79 (71)	9.13 (232)	10.31 (262)	0.98 (25)	12.28 (312)	11.93 (303)	12.83 (326)	9.45 (240)	14.57 (370)	6.97 (177)	6.42 (163)	DN 125	17.09 (434)	6.50 (165)	1.65 (42)	0.67 (17)	379.19 (172)	1.85 (7)
DW6/172/-	27.24 (692)	3.86 (98)	3.54 (90)	13.82 (351)	16.53 (420)	1.57 (40)	19.68 (500)	14.80 (376)	19.33 (491)	11.53 (293)	21.30 (541)	8.19 (208)	9.64 (245)	3 (76)	20.79 (528)	8.58 (218)	1.97 (50)	0.94 (24)	815.71 (370)	6.60 (25)
DW6/198/-	27.24 (692)	3.86 (98)	3.54 (90)	13.82 (351)	16.53 (420)	1.57 (40)	19.68 (500)	14.80 (376)	19.33 (491)	11.53 (293)	21.30 (541)	8.19 (208)	9.64 (245)	3 (76)	20.79 (528)	8.58 (218)	1.97 (50)	0.94 (24)	815.71 (370)	6.60 (25)
DW6/308/-	27.80 (706)	3.86 (98)	3.54 (90)	13.82 (351)	16.53 (420)	1.57 (40)	19.68 (500)	14.80 (376)	19.33 (491)	11.53 (293)	21.30 (541)	8.19 (208)	9.64 (245)	4 (102)	20.79 (528)	8.58 (218)	1.97 (50)	0.94 (24)	859.80 (390)	6.60 (25)
DW6/519/-	28.82 (732)	3.86 (98)	3.54 (90)	13.82 (351)	16.53 (420)	1.57 (40)	19.68 (500)	14.80 (376)	19.33 (491)	11.53 (293)	21.30 (541)	8.19 (208)	9.64 (245)	DN 150	20.79 (528)	8.46 (215)	1.97 (50)	0.94 (24)	1014.12 (460)	6.60 (25)

ADDITIONAL TECHNICAL DATA

Typical Pump Curves - for DW2/006/10 Model



Maximum Capacity - Viscosity Graph





Global locations

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