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FMH SERIES

TWIN SCREW PUMPS

FOR HYGIENIC SERVICE

- EHEDG STANDARD
- 3A STANDARD

PERA-PRINZ®

3P PRINZ®
PUMP MANUFACTURING COMPANY

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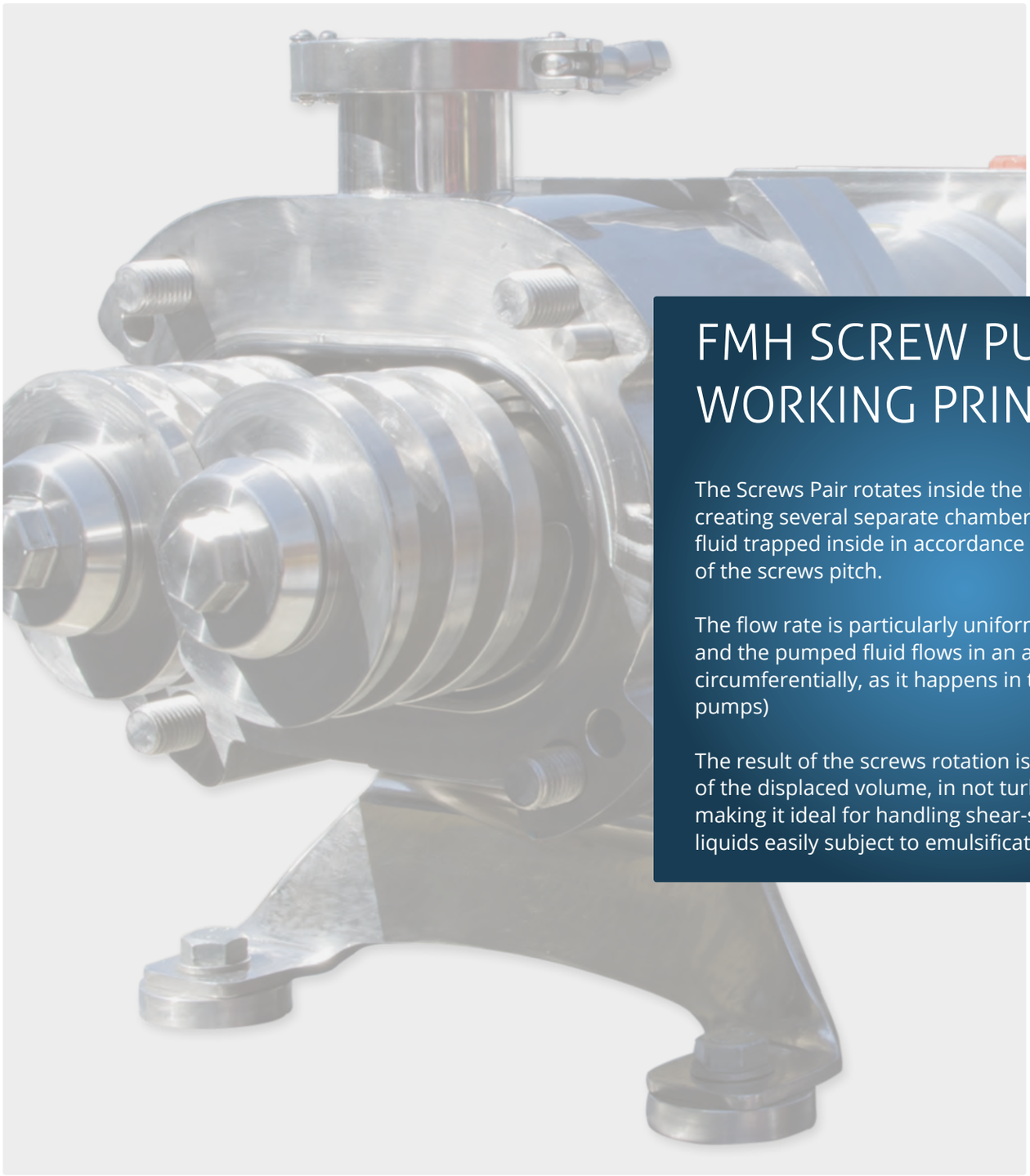
FMH SERIES

TWIN SCREW PUMPS FOR HYGIENIC SERVICE

MODEL: 50/100/200/300



FMH SCREW PUMPS WORKING PRINCIPLE

The Screws Pair rotates inside the Pump Enclosure, creating several separate chambers and pushing the fluid trapped inside in accordance with the progression of the screws pitch.

The flow rate is particularly uniform and pulsation-free, and the pumped fluid flows in an axial direction (not circumferentially, as it happens in the centrifugal pumps)

The result of the screws rotation is a gentle movement of the displaced volume, in not turbulent conditions, making it ideal for handling shear-sensitive fluids or liquids easily subject to emulsification.

Executions:
- **EHEDG**
- **3A**

3P Prinz FMH Hygienic twin screw pumps are self-priming and reversible

3P PRINZ MANUFACTURES PUMPS THAT WORK THE WAY YOU WISH THEY WOULD

The PERA-PRINZ® FMH Screw Pumps are Rotating Positive Displacement Pumps, externally supported. One Pair of Screws, which operate without being in contact with each other, ensures a constant flow, pulsation-free, together with a high suction lift capability with very low NPSH values.

MAIN ADVANTAGES

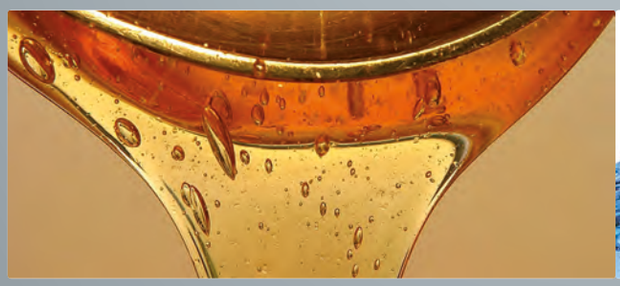
The Trim design is modular with a high degree of interchangeability of parts between their variants, inside the same Pump Series.
Each pump can be customized for a specific application allowing the customer to be served in an optimal way.
External supports and gears version is supplied as a Standard.

EASY CLEANING

Compact Design and Dimensions,
Easy Access for Maintenance.
The Pump is suitable to CIP and SIP and can be used as a CIP Pump.

PULSATION FREE, GENTLE MOVEMENT

Thanks to the absence of pulsations, the pumped product does not suffer of changes of volume, texture, aspect and properties. Since the Screws are contactless, the pumped product is not squeezed or smashed, so its phisical properties are mantained after it is pumped.



HIGH VISCOSITY PRODUCTS

Suitable to pump fluids with low, medium, high and very high viscosity, up to 1.000.000 cSt.

SUCTION PERFORMANCE

High Suction Lift Capability – generally from 7 to 8,5 meters (the pump NPSH being very low).

ADVANCED SOLUTIONS MAXIMUM PERFORMANCE

Thanks to the absence of pulsations, to the low flow internal velocities, to the minimization of the turbulent movements and to the absence of contact between the screw rotors, the pumped product does not suffer of changes of volume, texture, aspect and properties.

Thanks to the low inertia of the rotating parts, the Screw Pumps can work at rotating speeds higher than other Positive Displacement Pumps of equivalent volume chambers.

A gentle and hygienic production and an even more operating efficiency.

CLEAN

Fully cleanable in place (CIP) and Sterilisable in place. (SIP)

Cleaning-In-Place (CIP) and Sterilization-In-Place (SIP) are pumps procedures for cleaning and disinfecting without major disassembly and assembly work.

The FMH Twin Screw Pump can be used also as a CIP Pump, with the benefit of eliminating the need of another Pump dedicated only to CIP (and any eventual accessories that would be needed for that).

The Components of the PERA-PRINZ® Screw Pumps are machined with very accurate tolerances and with very high quality surface finishing, in order to reduce the clearance and minimize the leakages and backflow.

VERSATILITY

The PERA-PRINZ® Screw Pumps can also be used as Dosing Pumps and Metering Pumps, in particular applications in which the pressure and fluid viscosity are constant during the operation.

For Viscous Fluids, simply by changing the rotation speed, flow rates directly proportional to velocity can be achieved, with a good repeatability too.

Thanks to their working principle, the Screw Pumps can suction also good percentages of Air, Gas or Vapors that are entrapped in the fluid.

The FMH Screw Pumps are capable of dry running, making them versatile for a wide range of applications and installations.

APPLICATIONS
FOR FOOD AND BEVERAGE INDUSTRY

Each pump can be customized for a specific application allowing the customer to be served in an optimal way.
Several Screws Profiles and several materials available allow them to be optimized for each particular application.

Suitable for CIP (Cleaning In Place).
Capable of working as a CIP Pump by providing required line velocity and flow for the complete cleaning of the system (no need of using another CIP pump)

TOMATO PASTE, KETCHUPS & BBQ SAUCES

Suitable for developing high suction for high viscosity fluids such as tomato concentrate. Feeds homogenizers and heat exchangers with smooth non-pulsating constant flow and high pressures.
High resistance to abrasive particles, with reduced maintenance costs. Suitable for pumping at High pressures for long piping discharge distances.

CHOCOLATE AND WHITE CHOCOLATE

Suitable for pumping delicate confectionary products that are shear sensitive. Excellent abrasion resistance. Special Double Mechanical Seal with special flushing for Raw Chocolate and Cocoa Mass applications (highly abrasive). Optional Jacket on Pump Casing for maintaining the product in the optimal temperature range.

YOGURT, CREAM YOGURT AND GREEK YOGURT

Suitable for gently pumping viscous yogurt / cream with high suction capabilities. Fruit Injection with delicate handling of solids (fruit pieces, nuts, chocolate chips etc.). Capable of running dry without damage of the rotors and of the seals.

ICE CREAM AND FROZEN FOODS

Suitable for pumping with a very smooth flow from the feeder, with a more uniform blending of the various ingredients (cookies, chocolate chips, nuts, syrups, etc.). Very Gentle Product handling and suitable for pumping soft solids.

BUTTER, MARGARINE, ANIMAL / VEGETABLE FATS

Suitable for pumping at high pressures for coolers heat exchangers.

Very Good for Dosing applications since it delivers repeatable and smooth flow for continuous blending.

PEANUT, ALMOND BUTTER AND NUT CREAM

Excellent abrasion resistance and Special Double Mechanical Seal with special flushing for abrasive fluids applications. Very Good for Dosing applications since it delivers repeatable and smooth flow for continuous blending like honey, molasses, crunchies, syrups etc. Suitable of Reverse Pumping for emptying the line and for product recovery from the pipe.

FRUIT / VEGETABLE JUICES, CONCENTRATES, SMOOTHIES AND OTHER BEVERAGES

Suitable for pumping smoothly viscous concentrates / bases from drums / tanks. Suitable for pumping fruit / vegetable pieces and slurries with low shear. Smooth and Constant Flow for feeding Pasteurizers and Chillers and for continuous Blending and injection of Flavouring. Unloads and injects Pulp Slurry or Concentrates with high pressure, high capacity and Low NPSH. Suitable of Reverse Pumping for emptying the line and for product recovery from the pipe.

BEER AND BREWING

Suitable for gently pumping yeast.
High Suction Capacity for long suction lines, in particular for waste yeast.
Suitable for pumping beer with low shear.

APPLICATIONS
PHARMACEUTICALS INDUSTRY

Each pump can be customized for a specific application allowing the customer to be served in an optimal way.
Several Screws Profiles and several materials available allow them to be optimized for each particular application.

Suitable for CIP (Cleaning In Place).
Capable of working as a CIP Pump by providing required line velocity and flow for the complete cleaning of the system (no need of using another CIP pump)

PERSONAL CARE
Delivers non-pulsating flow, with low shear, avoiding foaming. High suction capability allows to pull very viscous products such as toothpaste, shampoo, cream based ointments from tanks Capable of running dry without damage of the rotors and of the seals. Low shear capability avoids damage of the pumped fluid, cells, pearls.

PASTE AND TOOTHPASTE
Delivers non-pulsating flow, with low shear, avoiding foaming. High suction capability allows to pull very viscous products such as toothpaste, shampoo, cream based ointments from tanks Capable of running dry without damage of the rotors and of the seals. Low shear capability avoids damage of the pumped fluid, cells, pearls.

COSMETICS
Capable of handling plant-derived materials, highly viscous healing earth clay, substances that need gentle and low-pulsation conveyance and products with particular physical and chemical characteristics including abrasive or corrosive ones. Suitable for pumping very high viscosity products at very high pressures. Capable of running dry without damage of the rotors and of the seals.

BODY OILS, LOTIONS, MEDICAL PREPARATIONS
FMH Pumps by 3P Prinz are designed for uncompromising hygiene and meet the most demanding requirements in the processing industry.

High-grade / very high viscosity products can be handled in a safe and gentle way.

MAKING THE DIFFERENCE

Twin screw pumps are predestinated by their operation mode and the construction for low shearing and smooth handling of sensitive products. The axial transporting movement, without changing direction, as well as the non-contacting intermeshing screws, provide optimum results.

Thanks to its modular system, 3P PRINZ offers various pump sizes and different screw sets that cover a capacity range up to 70 m3/h (308 GPM).

PERA-PRINZ®

The specific construction makes it possible to handle a wide range of flow capacities with the same viscosities, operating pressures and rotation speeds.

PERFORMANCE DATA

PUMP TYPE	2-SCREW PUMPS FOR HYGIENIC SERVICE (Series FMH)			
PUMP SERIES	**FMH 50 Series**	**FMH 100 Series**	**FMH 200 Series**	**FMH 300 Series**
INSTALLATION OPTIONS:	Horizontal			
EXECUTIONS:	Standard compliant with 3A and EHEDG			
OPTIMIZED FOR APPLICATIONS IN:	Food & Beverage, Pharmaceutical			
Suitable to Fluid having the following properties:	Abrasive Corrosive Low / Medium / High Viscosities Not Lubricating or Lubricating Medium percentage of Gas or Air dissolved in Liquid Dirty (small and medium soft solid particles, up to 20-25 mm diameter)			
ADVANTAGES OF THE OPERATING PRINCIPLE:	Self priming without any auxiliary devices (when pump is filled)			
	High Suction Lift Capacity (suitable to conditions with low NPSH available) Capable to pump very viscous fluids (up to 1.000.000 cSt) thanks to its smooth and low-pulsation movement High Rotating Speeds are possible thanks to the low inertia of the screws Screws are contact-less so wear-out is minimized, pump parts are not dissolved into product and Pump Life is extended Pulsations are minimized and flow rate is uniform, allowing to handle fluids that are very viscous and sensitive to shear stresses or turbolences, avoiding emulsions or fluid damage Reversible Low noise level			
PUMP SERIES	**FMH 50 Series**	**FMH 100 Series**	**FMH 200 Series**	**FMH 300 Series**
Maximum differential pressure:	Up to 16 barg	Up to 16 barg	Up to 16 barg	Up to 16 barg
Flow rates:	Up to 12 m3/h	Up to 22 m3/h	Up to 30 m3/h	Up to 70 m3/h
Viscosity of the pumped fluid:	Up to 1.000.000 cSt	Up to 1.000.000 cSt	Up to 1.000.000 cSt	Up to 1.000.000 cSt
Rotation speed:	From 100 up to 2500 rpm	From 100 up to 2500 rpm	From 100 up to 2200 rpm	From 100 up to 2000 rpm
Temperature range:	-20 / +140 °C (160°C with Oil Cooler)	-20 / +140 °C (160°C with Oil Cooler)	-20 / +140 °C (160°C with Oil Cooler)	-20 / +140 °C (160°C with Oil Cooler)
Pulsations:	Minimized (almost zero)	Minimized (almost zero)	Minimized (almost zero)	Minimized (almost zero)
Dosing capability:	Good	Good	Good	Good
Bearing types:	External Bearings and Gears in oil bath	External Bearings and Gears in oil bath	External Bearings and Gears in oil bath	External Bearings and Gears in oil bath
Flange type	Suction 1 1/2” Discharge 1”1/2	Suction 2” Discharge 2”	Suction 3” Discharge 2”1/2	Suction 4” Discharge 4”
	DIN 11853-1, DIN 11853-2, DIN 11853-3 DIN 11864-1, DIN 11864-2, DIN 11864-3 TRI-CLAMP			
	MORE FLANGE CONNECTIONS UPON REQUEST			
Construction	Stainless Steel 316L for wetted parts - On Request: Hastelloy C-276			
Cleaning	CIP (Cleaning in Place) and SIP (Sterilisation in Place) cleaning			
APPLICATION FIELDS:	**Food & Beverage:**		Vegetable and Animal Oils	Fruit Juices, Pastes, Jam, Pulp
			Animal Fats	Lecithin
			Alcohol	Chocolate
			Sauces and Dough	Dairy Products
			Syrups and Molasses	Cream
			Caramel and Fudge	Wines & Beers
			Fluids with pieces in suspension	Ground meat and similar
	Pharmaceutical & Cosmetics:		Cosmetics	Ointments, Emulsions
			Pastes & Creams	Soaps and Detergents

FMH SERIES – CONSTRUCTION			
Standard Material Combinations:	Housing	Screws	Shaft / Shafts
	Stainless Steel SS316L grade	Stainless Steel SS316L grade	Stainless Steel 17-4 PH
	NOTE: all parts in contact with the fluid are in SS316L grade.		
	Hastelloy C-276	Hastelloy C-276	Hastelloy C-276
	Other hardenings available de-pending on application		

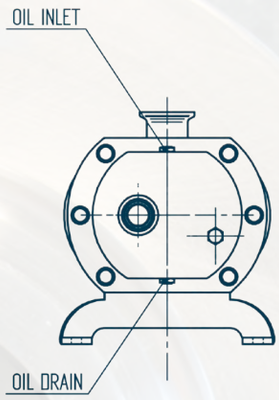
FMH SERIES – MAIN SPECIFICATION	
Maximum differential pressure:	Up to 16 bar [232 PSI] Higher Pressures available on request
Flow rates:	up to 60 m3/h [up to 264 GPM]
Viscosity of the pumped fluid:	up to 1.000.000 cSt
Rotation speed:	up to 3600 rpm
Temperature range:	-20 / +140 °C (160°C with Oil Cooler)
Handling Solid Particles & Dirty Fluids:	Yes
Handling Aggressive Fluids:	Yes
Pulsations:	Minimized (almost zero)
Dosing capability:	Good
Flange Type:	From 1. 1/2 to 4”
Bearing types:	Bearings in Oil Bath
Mechanical Seals:	-Single Mechanical Seal (Standard) -Double Mechanical Seal (Optional) Several Material Combinations available Several Flushing Fluids available
Heating / Cooling:	Heating Jacket (Optional)
Construction	Stainless steel 316L for wetted parts - Hastelloy C-276 on request

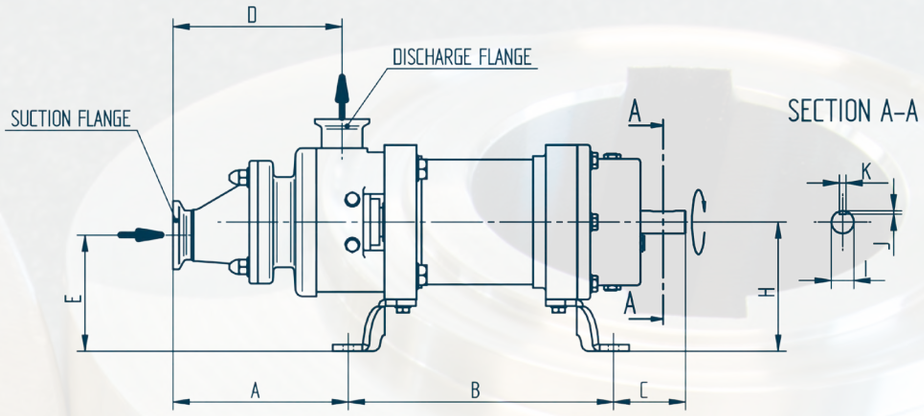
FMH - HYGIENIC PUMPS SERIES

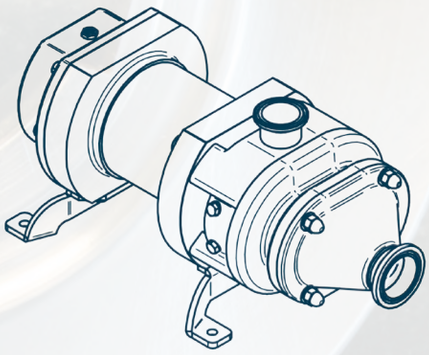
ONE PAIR OF SCREWS – SINGLE END

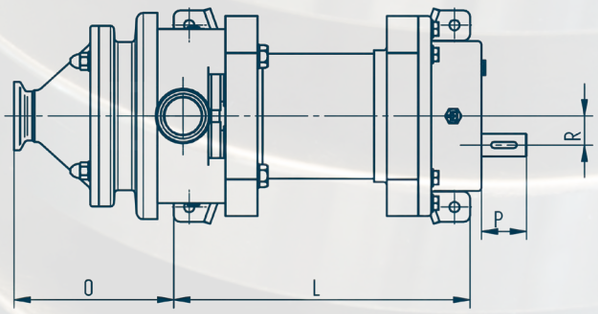
EXTERNAL BEARINGS AND GEARS

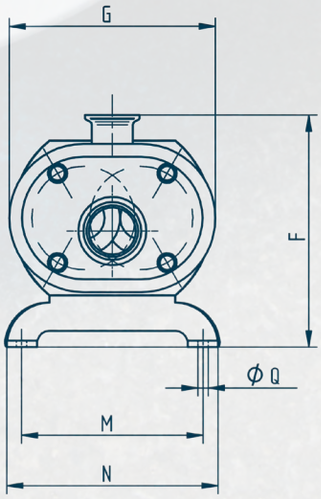
OVERALL DIMENSIONS











FMH - HYGIENIC PUMPS SERIES

OVERALL DIMENSION TABLE

PUMP MODEL: 50/100/200/300

FMH SERIES – DIMENSIONS (MM)																		
PUMP TYPE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
FMH200	289	380	128	262	205	386	320	225	35	8	10	440	250	300	259	70	20	45
FMH100	222	316	99	217	179	317	247	179	22	3,5	6	445	200	250	192	50	18	34
FMH50	180	242	91	163	100	217	202	119	18	3,5	6	270	151,5	197	163	40	12	28

PUMP TYPE	SUCTION FLANGE	DISCHARGE FLANGE	WEIGHT (Kg)
FMH200	3"	2 1/2"	150
FMH100	2"	2"	85
FMH50	1 1/2"	1 1/2"	50

COMPARISON TABLE AGAINST OTHER POSITIVE DISPLACEMENT PUMPS FOR HYGIENIC SERVICE

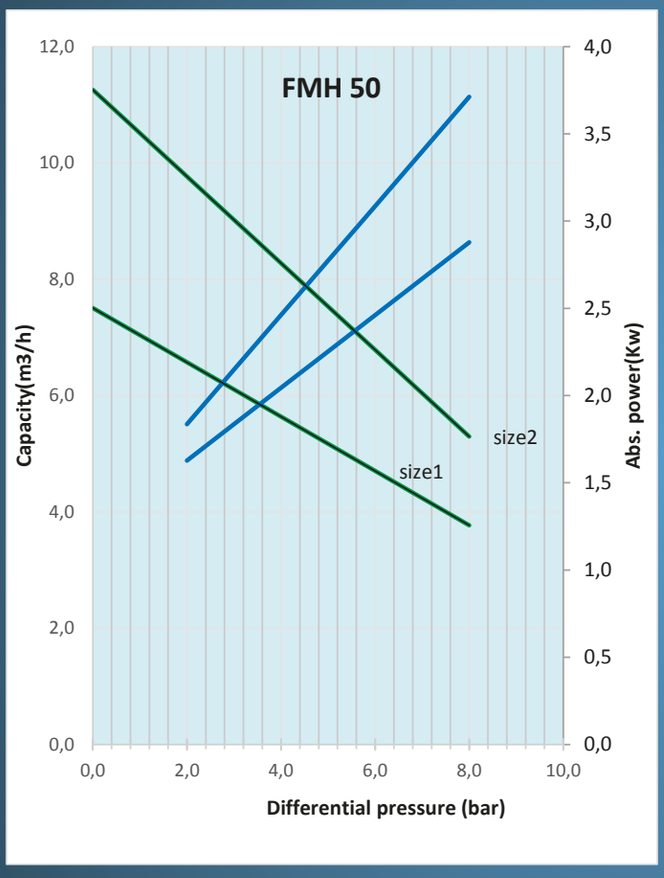
FEATURES	FMH SERIES TWIN SCREW PUMP	LOBE PUMP (TWIN)	TRI - LOBE PUMP	PROGRESSIVE CAVITY PUMP	ECCENTRIC / HOLLOW DISK PUMP	SINUSOIDAL PUMP	CIRCUMFERENTIAL PISTON
HYGIENIC DESIGN	EXCELLENT	FAIR	FAIR	POOR	FAIR	POOR	FAIR
SUCTION CAPABILITY	EXCELLENT	GOOD (only on low speed)	FAIR	EXCELLENT	GOOD	FAIR	GOOD (only on low speed)
DIFFERENTIAL PRESSURE	EXCELLENT	EXCELLENT	FAIR	EXCELLENT	FAIR	FAIR	EXCELLENT
DRY RUNNING CAPABILITY	GOOD	FAIR	FAIR	POOR	FAIR	POOR	FAIR
HANDLING SOFT SOLIDS	GOOD	FAIR	POOR	GOOD	FAIR	GOOD	POOR
MAINTENANCE TIME/COST	EXCELLENT	FAIR	POOR	POOR	FAIR	POOR	POOR
SHEAR	GOOD	FAIR	POOR	GOOD	GOOD	FAIR	FAIR
CIP CAPABILITIES	EXCELLENT	FAIR	FAIR	FAIR	POOR	POOR	FAIR
"HANDLING DISSOLVED GAS OR AIR"	EXCELLENT	POOR	POOR	POOR	GOOD	POOR	FAIR
PULSATION / VIBRATIONS	EXCELLENT	POOR	FAIR	GOOD	POOR	POOR	POOR
HIGH SPEED CAPABILITIES	3000 RPM	800 RPM	800 RPM	600 RPM	400 RPM	1000 RPM	800 RPM

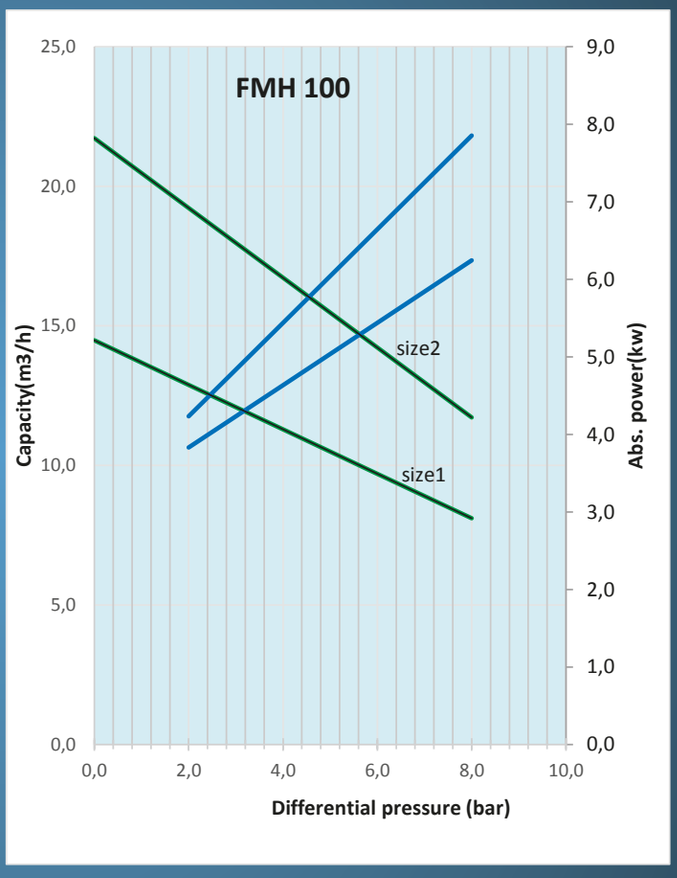
PUMP PERFORMANCE @
RPM 2500 - VISCOSITY 5 CST

	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	7,5			0,0	11,3	
		2,0	6,6	1,6		2,0	9,8	1,8
FMH 50		4,0	5,6	2,0		4,0	8,3	2,5
		6,0	4,7	2,5		6,0	6,8	3,1
		8,0	3,8	2,9		8,0	5,3	3,7

	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	14,5			0,0	21,7	
		2,0	12,9	3,8		2,0	19,2	4,2
FMH 100		4,0	11,3	4,6		4,0	16,7	5,4
		6,0	9,7	5,4		6,0	14,2	6,6
		8,0	8,1	6,2		8,0	11,7	7,9

PUMP PERFORMANCE @
RPM 2500 - VISCOSITY 5 CST





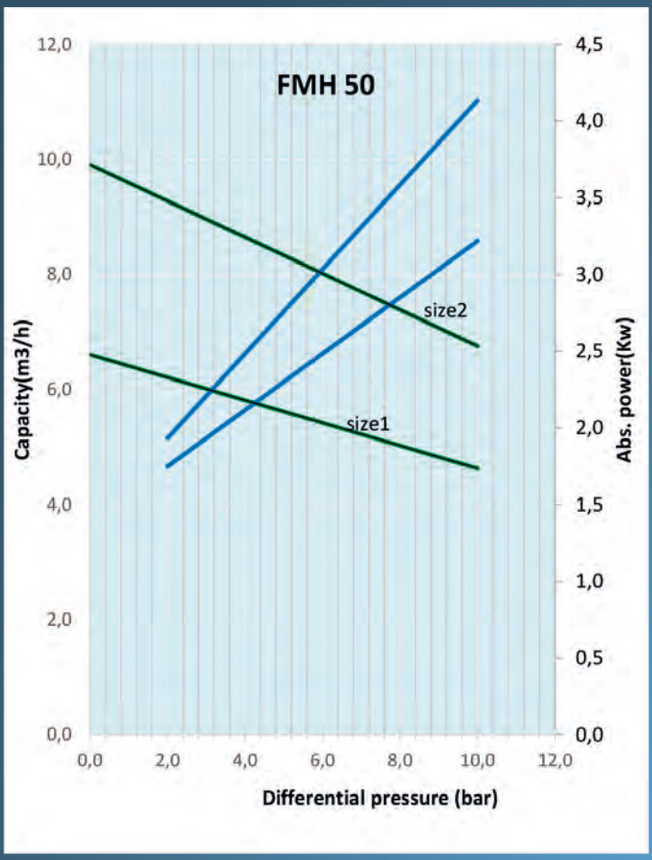
PUMP PERFORMANCE @
RPM 2200 - VISCOSITY 40 CST

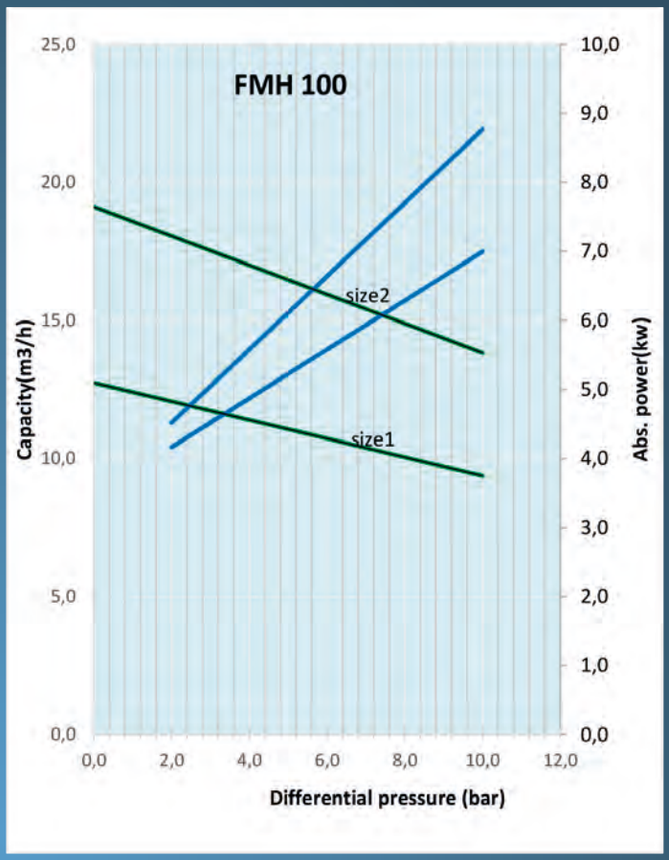
	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	6,6			0,0	9,9	
		2,0	6,2	1,7		2,0	9,3	1,9
FMH 50		4,0	5,8	2,1		4,0	8,6	2,5
		6,0	5,4	2,5		6,0	8,0	3,0
		8,0	5,0	2,9		8,0	7,4	3,6
		10,0	4,6	3,2		10,0	6,8	4,1

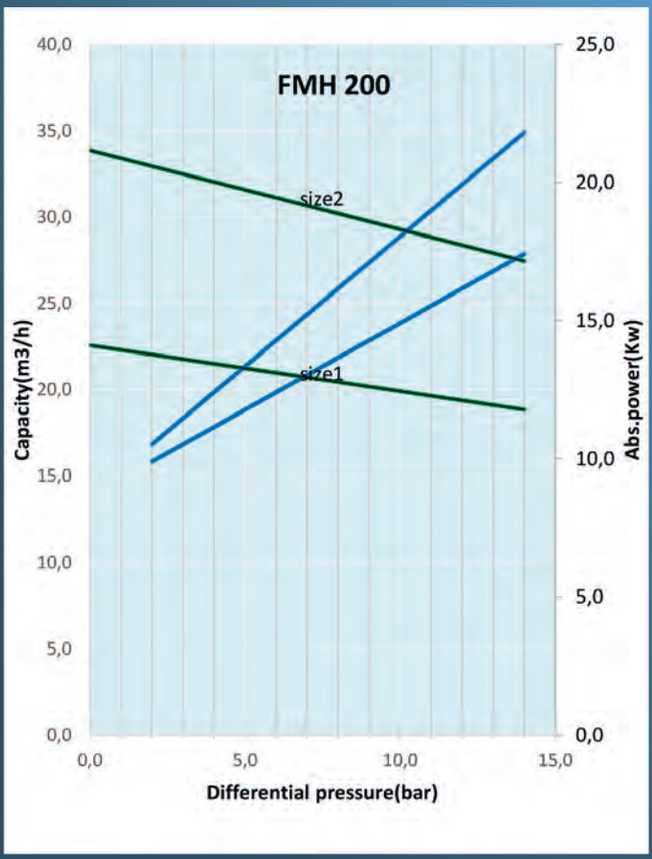
	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	12,7			0,0	19,1	
		2,0	12,1	4,2		2,0	18,1	4,5
FMH 100		4,0	11,4	4,9		4,0	17,0	5,6
		6,0	10,7	5,6		6,0	15,9	6,6
		8,0	10,0	6,3		8,0	14,9	7,7
		10,0	9,4	7,0		10,0	13,8	8,8

	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	22,6			0,0	33,9	
		2,0	22,0	9,9		2,0	32,9	10,5
FMH 200		4,0	21,5	11,2		4,0	32,0	12,4
		6,0	21,0	12,4		6,0	31,1	14,3
		8,0	20,4	13,7		8,0	30,2	16,2
		10,0	19,9	14,9		10,0	29,3	18,0
		12,0	19,4	16,2		12,0	28,4	19,9
		14,0	18,8	17,4		14,0	27,5	21,8

PUMP PERFORMANCE @
RPM 2200 - VISCOSITY 40 CST







PUMP PERFORMANCE @
RPM 1900 - VISCOSITY 90 CST

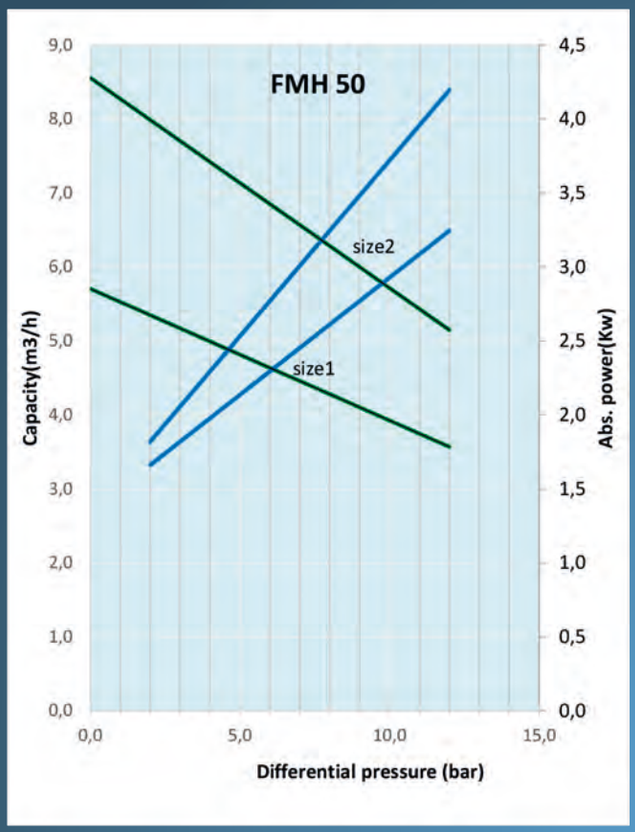
	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	5,7			0,0	8,6	
		2,0	5,3	1,7		2,0	8,0	1,8
FMH 50		4,0	5,0	2,0		4,0	7,4	2,3
		6,0	4,6	2,3		6,0	6,9	2,8
		8,0	4,3	2,6		8,0	6,3	3,2
		10,0	3,9	2,9		10,0	5,7	3,7
		12,0	3,6	3,2		12,0	5,1	4,2

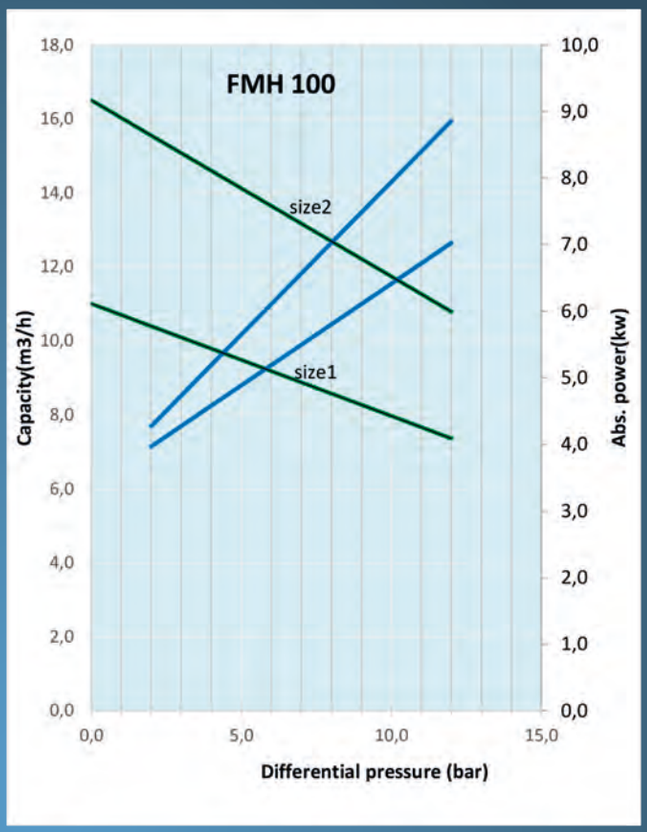
	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	11,0			0,0	16,5	
		2,0	10,4	4,0		2,0	15,6	4,3
FMH 100		4,0	9,8	4,6		4,0	14,6	5,2
		6,0	9,2	5,2		6,0	13,6	6,1
		8,0	8,6	5,8		8,0	12,7	7,0
		10,0	8,0	6,4		10,0	11,7	7,9
		12,0	7,4	7,0		12,0	10,8	8,9

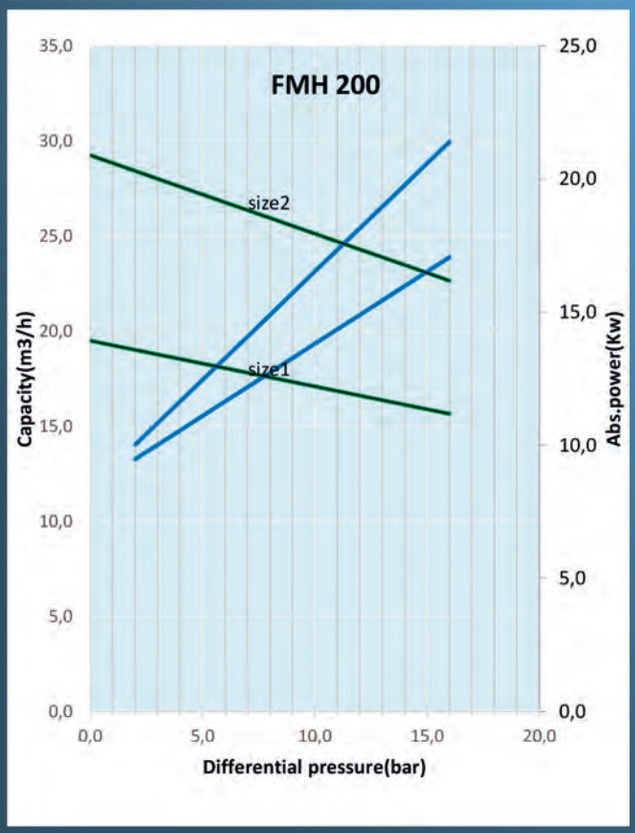
	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	19,5			0,0	29,2	
		2,0	19,0	9,5		2,0	28,4	10,0
FMH 200		4,0	18,5	10,6		4,0	27,6	11,6
		6,0	18,1	11,6		6,0	26,8	13,3
		8,0	17,6	12,7		8,0	25,9	14,9
		10,0	17,1	13,8		10,0	25,1	16,5
		12,0	16,6	14,9		12,0	24,3	18,1
		14,0	16,1	16,0		14,0	23,5	19,8
		16,0	15,7	17,1		16,0	22,6	21,4

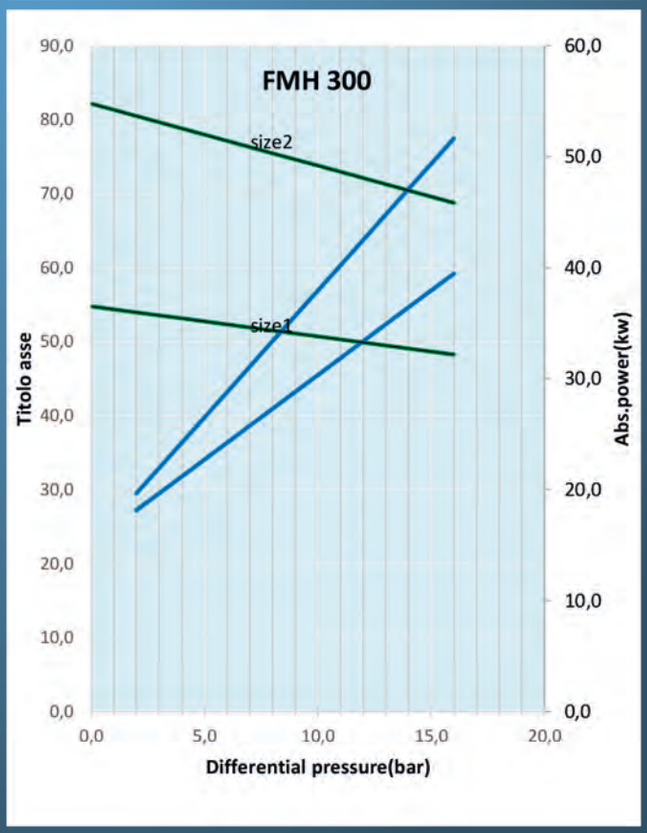
	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	54,8			0,0	82,2	
		2,0	54,0	18,2		2,0	80,5	19,7
FMH 300		4,0	53,1	21,2		4,0	78,8	24,2
		6,0	52,3	24,2		6,0	77,1	28,8
		8,0	51,5	27,3		8,0	75,5	33,4
		10,0	50,7	30,3		10,0	73,8	37,9
		12,0	49,9	33,4		12,0	72,1	42,5
		14,0	49,1	36,4		14,0	70,4	47,1
		16,0	48,3	39,5		16,0	68,8	51,6

PUMP PERFORMANCE @
RPM 1900 - VISCOSITY 90 CST









PUMP PERFORMANCE @
RPM 1500 - VISCOSITY 300 CST

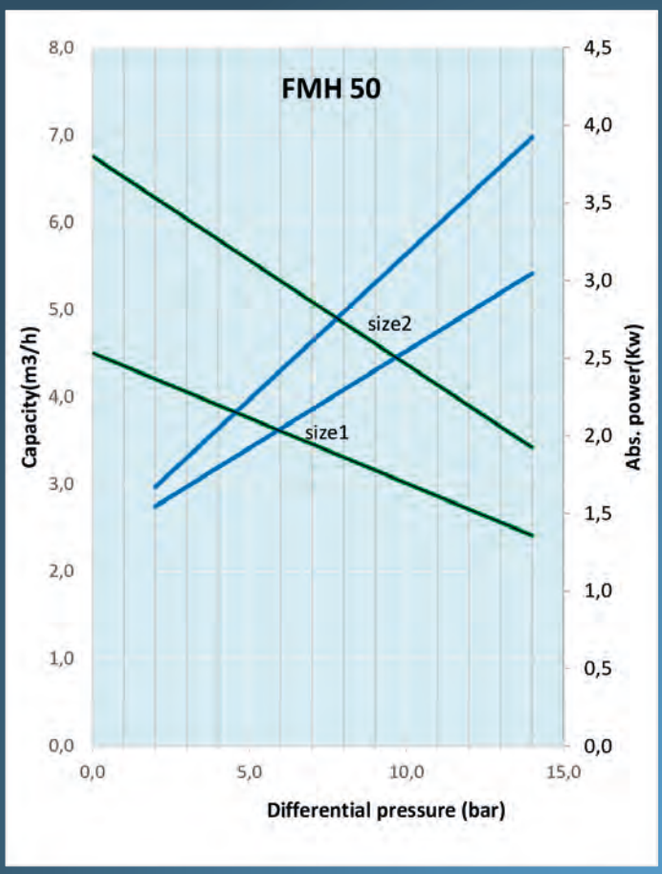
	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	4,5			0,0	6,8	
		2,0	4,2	1,5		2,0	6,3	1,7
FMH 50		4,0	3,9	1,8		4,0	5,8	2,0
		6,0	3,6	2,0		6,0	5,3	2,4
		8,0	3,3	2,3		8,0	4,8	2,8
		10,0	3,0	2,5		10,0	4,4	3,2
		12,0	2,7	2,8		12,0	3,9	3,5
		14,0	2,4	3,0		14,0	3,4	3,9

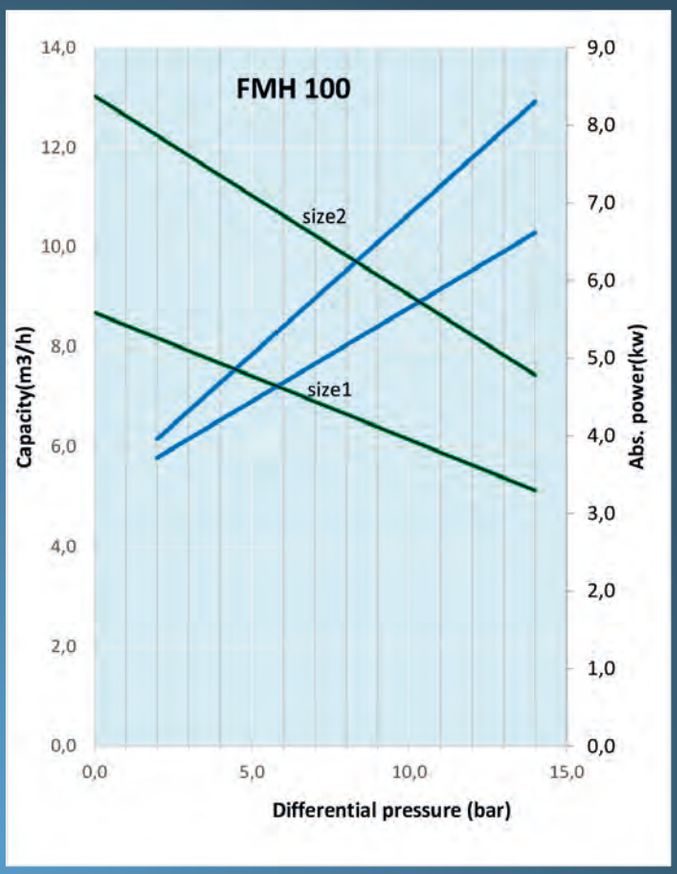
	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	8,7			0,0	13,0	
		2,0	8,2	3,7		2,0	12,2	4,0
FMH 100		4,0	7,7	4,2		4,0	11,4	4,7
		6,0	7,2	4,7		6,0	10,6	5,4
		8,0	6,7	5,2		8,0	9,8	6,1
		10,0	6,1	5,6		10,0	9,0	6,9
		12,0	5,6	6,1		12,0	8,2	7,6
		14,0	5,1	6,6		14,0	7,4	8,3

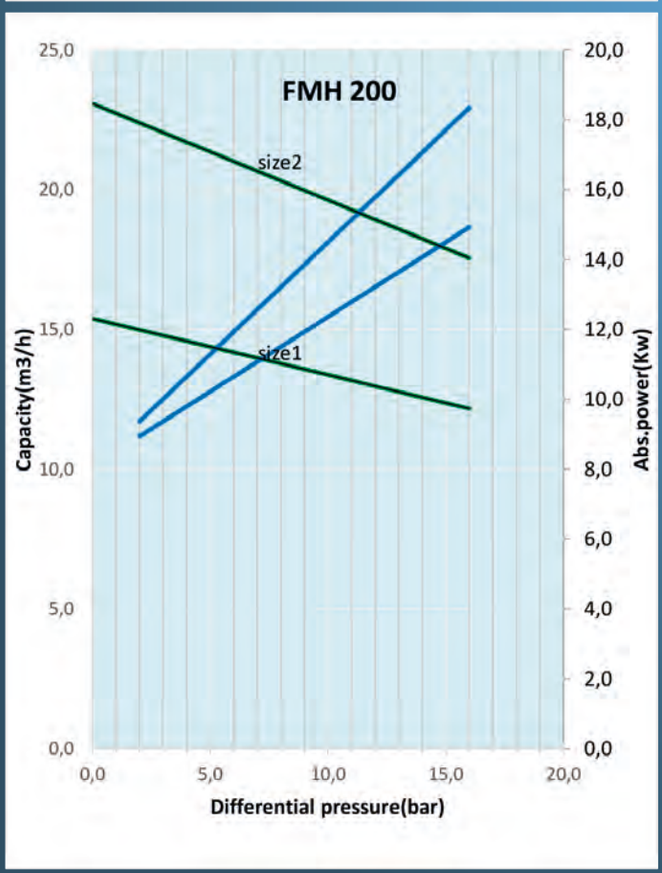
	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	15,4			0,0	23,1	
		2,0	15,0	8,9		2,0	22,4	9,4
FMH 200		4,0	14,6	9,8		4,0	21,7	10,7
		6,0	14,2	10,7		6,0	21,0	11,9
		8,0	13,8	11,5		8,0	20,3	13,2
		10,0	13,4	12,4		10,0	19,6	14,5
		12,0	13,0	13,2		12,0	18,9	15,8
		14,0	12,6	14,1		14,0	18,2	17,1
		16,0	12,2	14,9		16,0	17,6	18,3

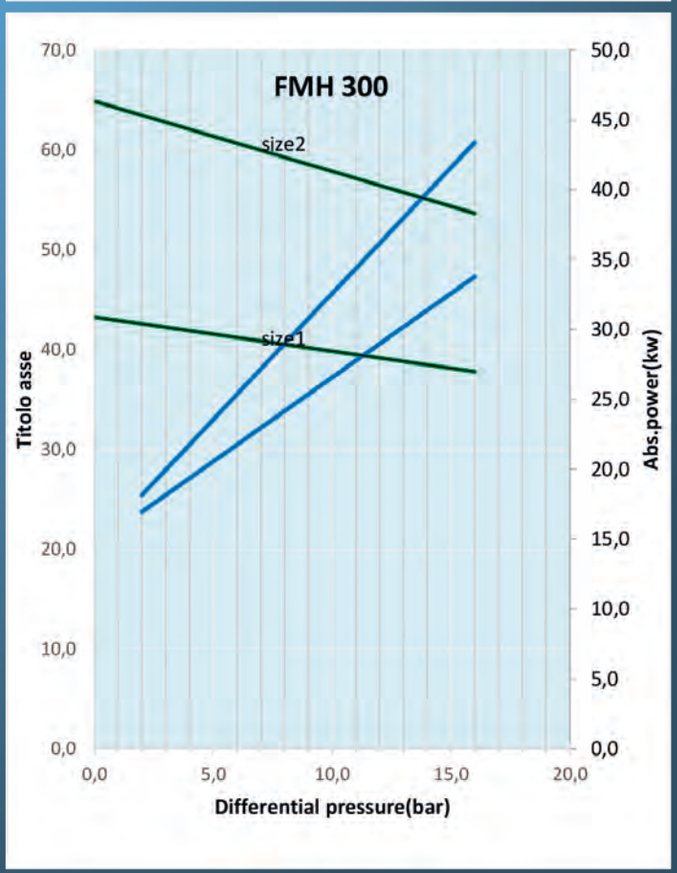
	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	43,2			0,0	64,9	
		2,0	42,6	17,0		2,0	63,5	18,2
FMH 300		4,0	41,9	19,4		4,0	62,1	21,8
		6,0	41,2	21,8		6,0	60,7	25,4
		8,0	40,5	24,2		8,0	59,2	29,0
		10,0	39,8	26,6		10,0	57,8	32,6
		12,0	39,1	29,0		12,0	56,4	36,2
		14,0	38,5	31,4		14,0	55,0	39,8
		16,0	37,8	33,8		16,0	53,6	43,4

PUMP PERFORMANCE @
RPM 1500 - VISCOSITY 300 CST









PUMP PERFORMANCE @
RPM 1000 - VISCOSITY 800 CST

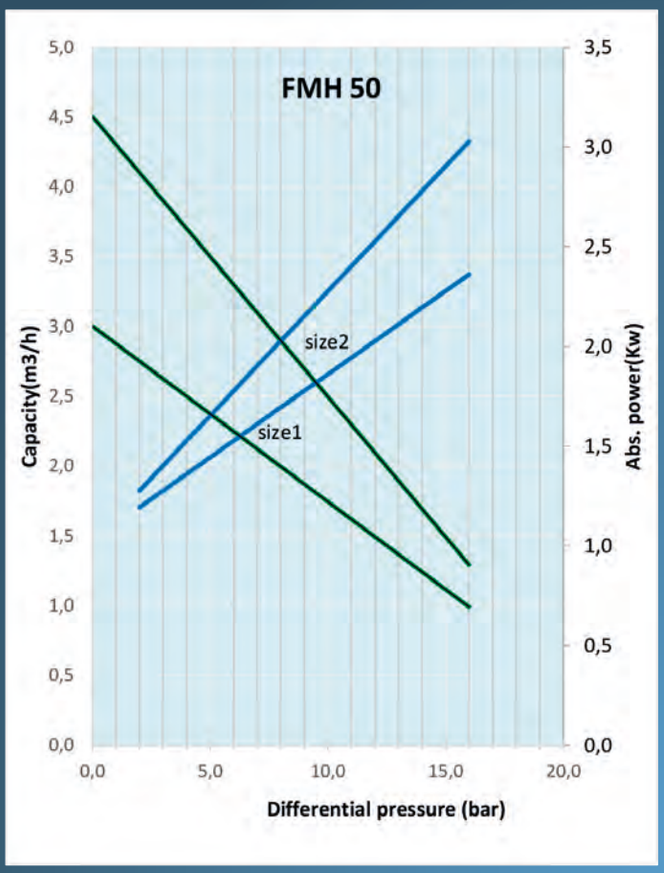
	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	3,0			0,0	4,5	
		2,0	2,8	1,2		2,0	4,1	1,3
FMH 50		4,0	2,5	1,4		4,0	3,7	1,5
		6,0	2,2	1,5		6,0	3,3	1,8
		8,0	2,0	1,7		8,0	2,9	2,0
		10,0	1,7	1,9		10,0	2,5	2,3
		12,0	1,5	2,0		12,0	2,1	2,5
		14,0	1,2	2,2		14,0	1,7	2,8
		16,0	1,0	2,4		16,0	1,3	3,0

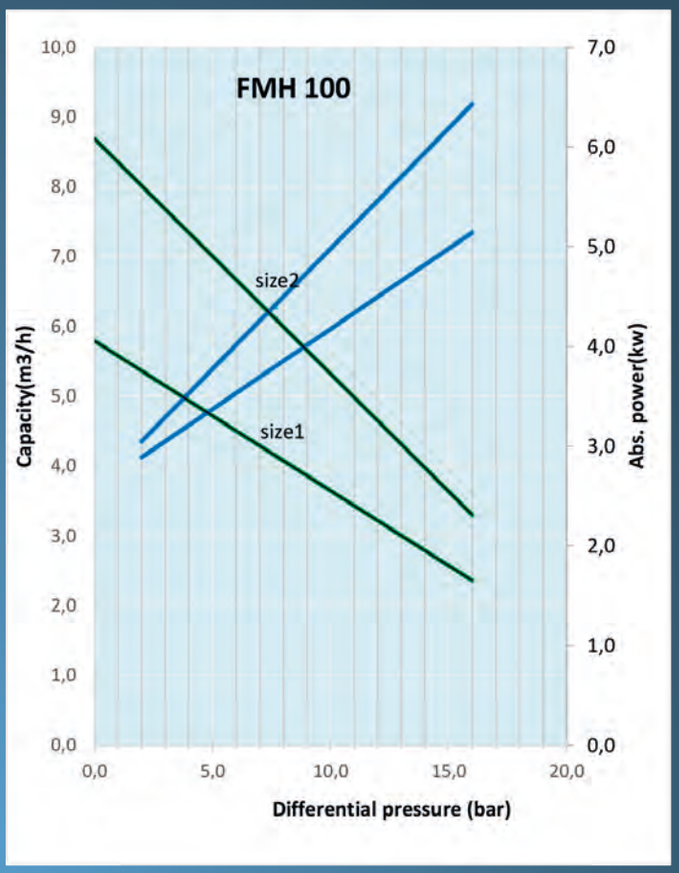
	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	5,8			0,0	8,7	
		2,0	5,4	2,9		2,0	8,0	3,0
FMH 100		4,0	4,9	3,2		4,0	7,3	3,5
		6,0	4,5	3,5		6,0	6,7	4,0
		8,0	4,1	3,9		8,0	6,0	4,5
		10,0	3,6	4,2		10,0	5,3	5,0
		12,0	3,2	4,5		12,0	4,6	5,5
		14,0	2,8	4,8		14,0	4,0	5,9
		16,0	2,4	5,1		16,0	3,3	6,4

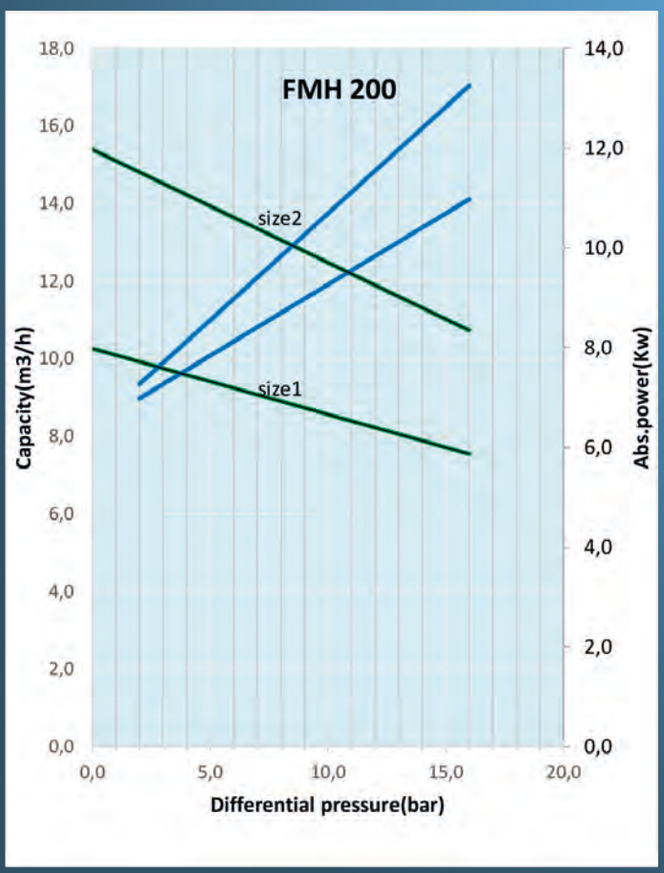
	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	10,3			0,0	15,4	
		2,0	9,9	7,0		2,0	14,8	7,3
FMH 200		4,0	9,6	7,6		4,0	14,2	8,1
		6,0	9,2	8,1		6,0	13,6	9,0
		8,0	8,9	8,7		8,0	13,1	9,8
		10,0	8,6	9,3		10,0	12,5	10,7
		12,0	8,2	9,8		12,0	11,9	11,5
		14,0	7,9	10,4		14,0	11,3	12,4
		16,0	7,5	11,0		16,0	10,7	13,3

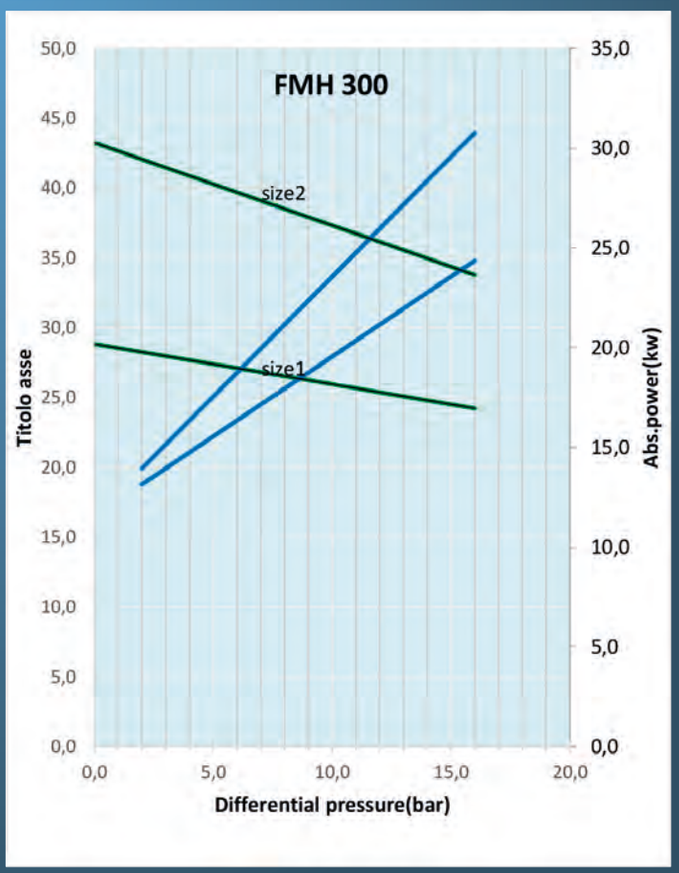
	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	28,8			0,0	43,2	
		2,0	28,3	13,1		2,0	42,1	13,9
FMH 300		4,0	27,7	14,7		4,0	40,9	16,4
		6,0	27,1	16,4		6,0	39,7	18,8
		8,0	26,5	18,0		8,0	38,5	21,2
		10,0	26,0	19,6		10,0	37,3	23,6
		12,0	25,4	21,2		12,0	36,1	26,0
		14,0	24,8	22,8		14,0	35,0	28,4
		16,0	24,2	24,4		16,0	33,8	30,8

PUMP PERFORMANCE @
RPM 1000 - VISCOSITY 800 CST









PUMP PERFORMANCE @
RPM 600 - VISCOSITY 4000 CST

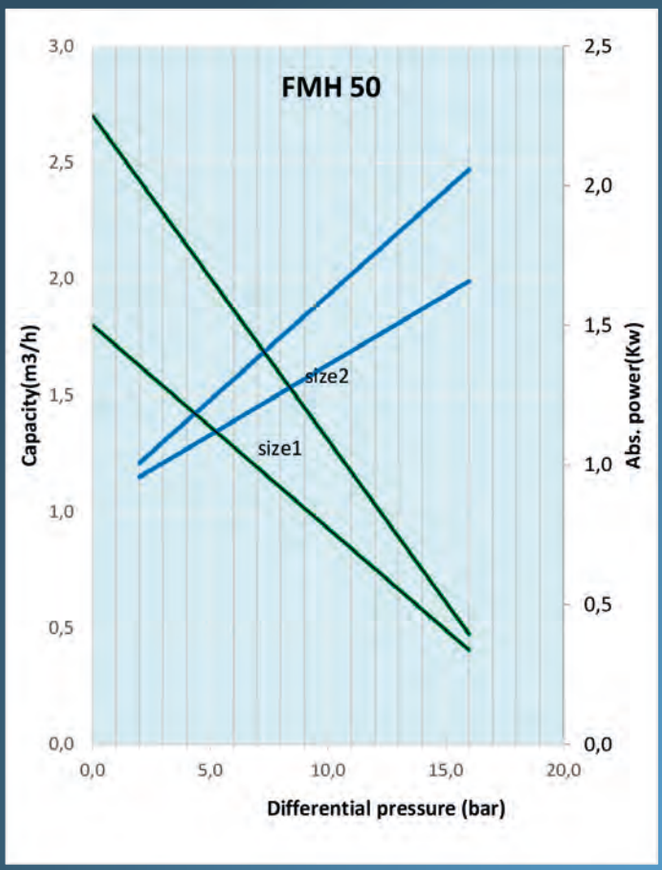
	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	1,8			0,0	2,7	
		2,0	1,6	1,0		2,0	2,4	1,0
FMH 50		4,0	1,5	1,1		4,0	2,1	1,2
		6,0	1,3	1,2		6,0	1,9	1,3
		8,0	1,1	1,3		8,0	1,6	1,5
		10,0	0,9	1,4		10,0	1,3	1,6
		12,0	0,8	1,5		12,0	1,0	1,8
		14,0	0,6	1,6		14,0	0,8	1,9
		16,0	0,4	1,7		16,0	0,5	2,1

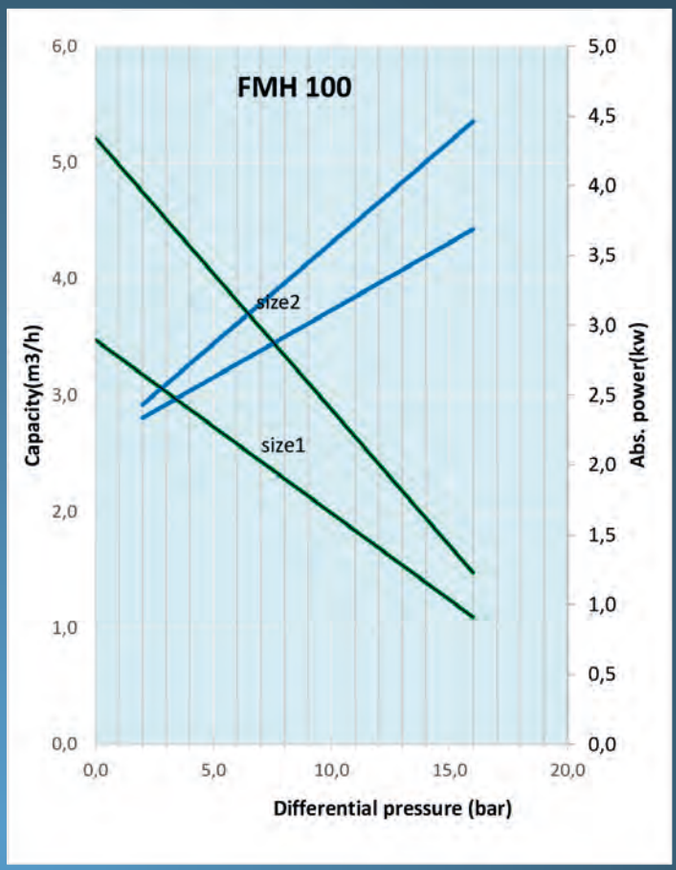
	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	3,5			0,0	5,2	
		2,0	3,2	2,3		2,0	4,7	2,4
FMH 100		4,0	2,9	2,5		4,0	4,3	2,7
		6,0	2,6	2,7		6,0	3,8	3,0
		8,0	2,3	2,9		8,0	3,3	3,3
		10,0	2,0	3,1		10,0	2,9	3,6
		12,0	1,7	3,3		12,0	2,4	3,9
		14,0	1,4	3,5		14,0	1,9	4,2
		16,0	1,1	3,7		16,0	1,5	4,5

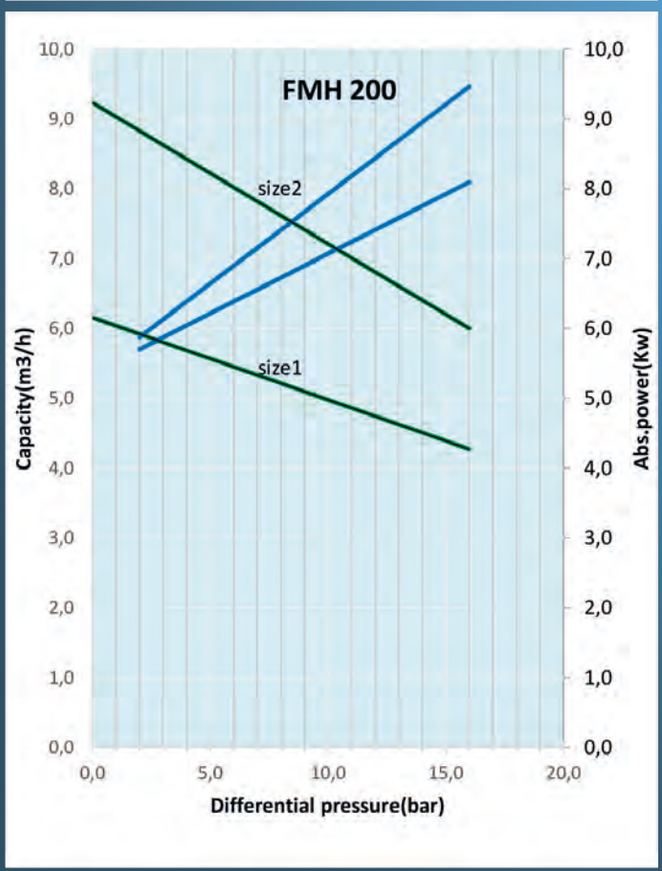
	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	6,2			0,0	9,2	
		2,0	5,9	5,7		2,0	8,8	5,9
FMH 200		4,0	5,7	6,0		4,0	8,4	6,4
		6,0	5,4	6,4		6,0	8,0	6,9
		8,0	5,2	6,7		8,0	7,6	7,4
		10,0	5,0	7,1		10,0	7,2	7,9
		12,0	4,7	7,4		12,0	6,8	8,4
		14,0	4,5	7,8		14,0	6,4	9,0
		16,0	4,3	8,1		16,0	6,0	9,5

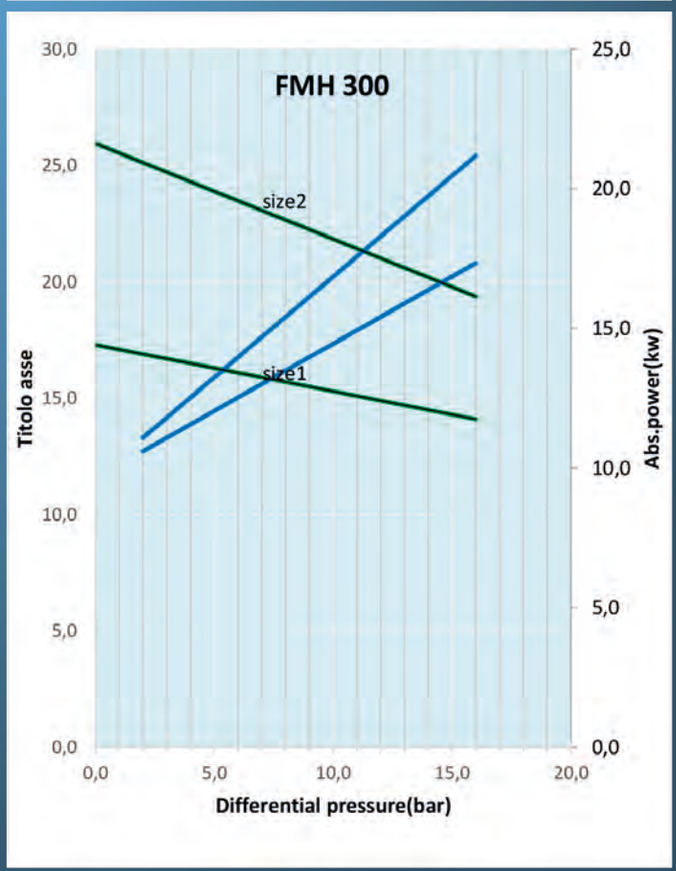
	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	17,3			0,0	25,9	
		2,0	16,9	10,6		2,0	25,1	11,1
FMH 300		4,0	16,5	11,6		4,0	24,3	12,5
		6,0	16,1	12,5		6,0	23,5	14,0
		8,0	15,7	13,5		8,0	22,7	15,4
		10,0	15,3	14,5		10,0	21,8	16,9
		12,0	14,9	15,4		12,0	21,0	18,3
		14,0	14,5	16,4		14,0	20,2	19,7
		16,0	14,1	17,3		16,0	19,4	21,2

PUMP PERFORMANCE @
RPM 600 - VISCOSITY 4000 CST









PUMP PERFORMANCE @
RPM 300 - VISCOSITY 20000 CST

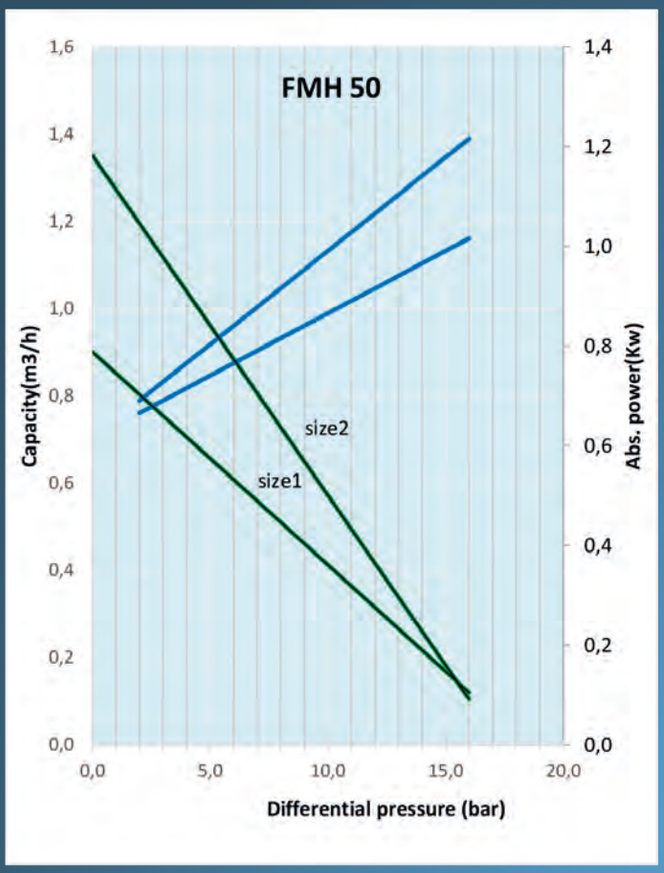
	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	0,9			0,0	1,4	
		2,0	0,8	0,7		2,0	1,2	0,7
FMH 50		4,0	0,7	0,7		4,0	1,0	0,8
		6,0	0,6	0,8		6,0	0,9	0,8
		8,0	0,5	0,8		8,0	0,7	0,9
		10,0	0,4	0,9		10,0	0,6	1,0
		12,0	0,3	0,9		12,0	0,4	1,1
		14,0	0,2	1,0		14,0	0,3	1,1
		16,0	0,1	1,0		16,0	0,1	1,2

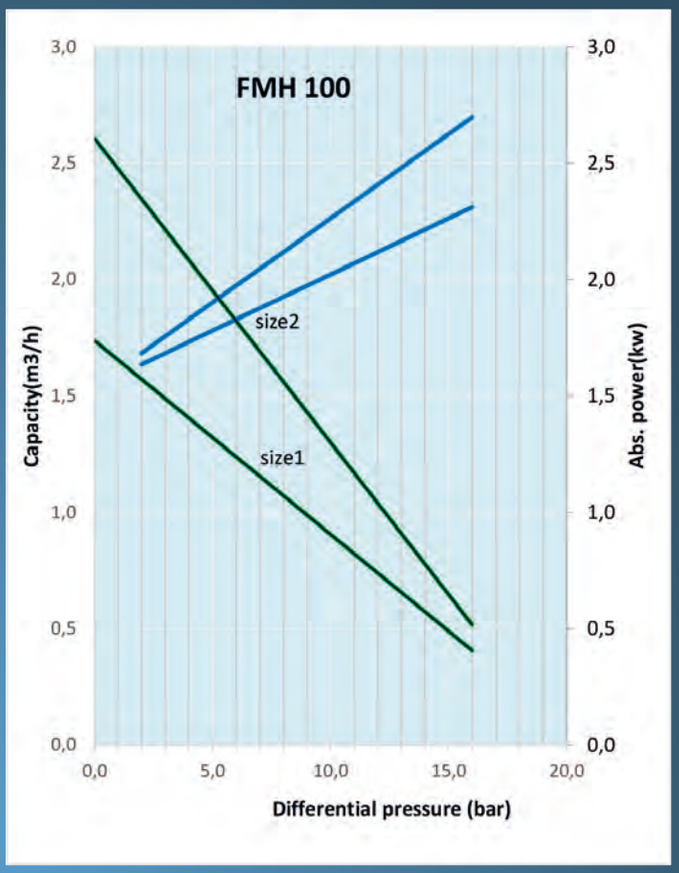
	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	1,7			0,0	2,6	
		2,0	1,6	1,6		2,0	2,3	1,7
FMH 100		4,0	1,4	1,7		4,0	2,1	1,8
		6,0	1,2	1,8		6,0	1,8	2,0
		8,0	1,1	1,9		8,0	1,6	2,1
		10,0	0,9	2,0		10,0	1,3	2,3
		12,0	0,7	2,1		12,0	1,0	2,4
		14,0	0,6	2,2		14,0	0,8	2,6
		16,0	0,4	2,3		16,0	0,5	2,7

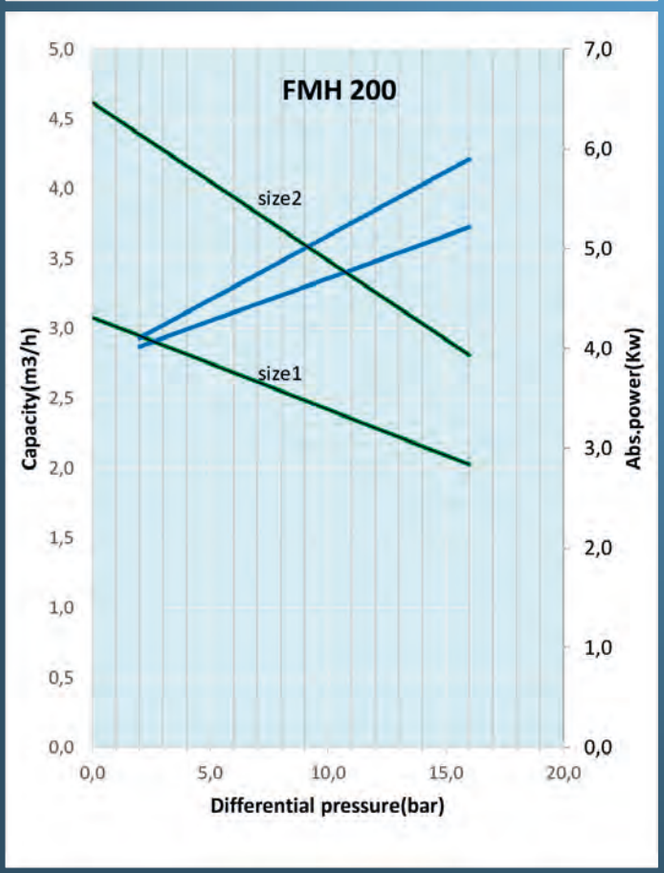
	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	3,1			0,0	4,6	
		2,0	2,9	4,0		2,0	4,4	4,1
FMH 200		4,0	2,8	4,2		4,0	4,2	4,4
		6,0	2,7	4,4		6,0	3,9	4,6
		8,0	2,6	4,5		8,0	3,7	4,9
		10,0	2,4	4,7		10,0	3,5	5,1
		12,0	2,3	4,9		12,0	3,3	5,4
		14,0	2,2	5,0		14,0	3,0	5,6
		16,0	2,0	5,2		16,0	2,8	5,9

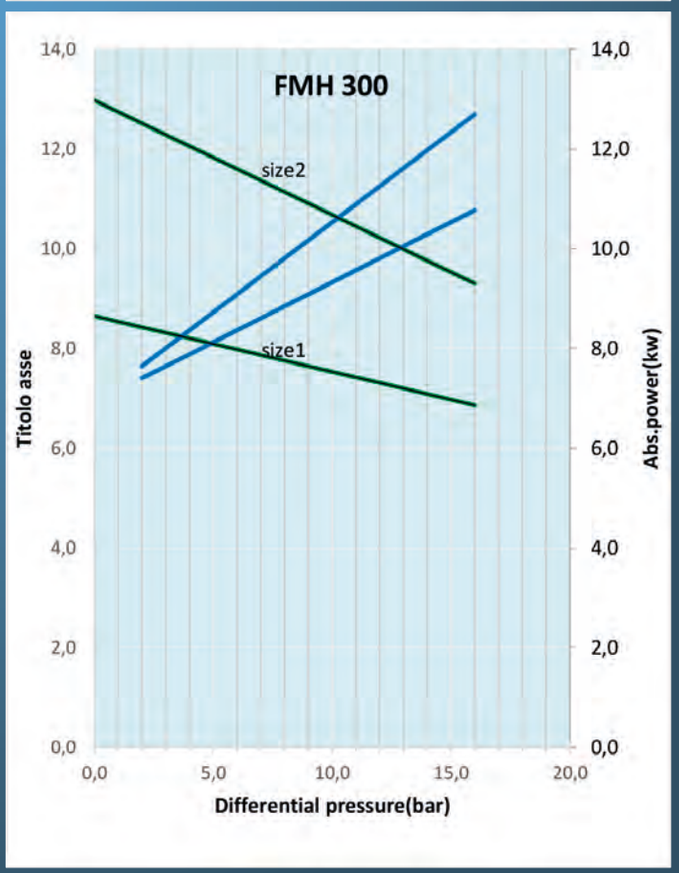
	size1	DP	Q	Ab.Power	size2	DP	Q	Ab.Power
		Bar	m3/h	Kw		Bar	m3/h	Kw
		0,0	8,6			0,0	13,0	
		2,0	8,4	7,4		2,0	12,5	7,6
FMH 300		4,0	8,2	7,9		4,0	12,1	8,4
		6,0	8,0	8,4		6,0	11,6	9,1
		8,0	7,8	8,8		8,0	11,1	9,8
		10,0	7,5	9,3		10,0	10,7	10,5
		12,0	7,3	9,8		12,0	10,2	11,2
		14,0	7,1	10,3		14,0	9,8	12,0
		16,0	6,9	10,8		16,0	9,3	12,7

PUMP PERFORMANCE @
RPM 300 - VISCOSITY 20000 CST









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3P Prinz

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The company is highly-specialized in engineering products and innovative technology,
serving the demands of customers worldwide. 3P Prinz is the owner for the following Brands:
Pompe 3P - Hollow rotary disk Rotary Vane and Gear Pumps
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We believe that After sales service, reliability and efficiency are the base in this type of products and industry.
The pumps selection is based on cost-effective and energy-efficient pumping solutions.
Strong of its 60 years spent supplying Italy's top refineries, chemical, petrochemical, ship building,
ecological and food industries, 3P Prinz has become an undisputed benchmark of quality and service.
Our richness is based on customers that require perfection, personalization, promptly!
We fulfill our customer's requirements and our customers fulfill our desire of growth at a steady rate!

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3P Prinz is able to ship spare parts worldwide within 48 hours.

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3P Prinz commits to Quality.
The Quality assurance and Quality Controls are registered and independently audited to the ISO 9001 standard.
3P Prinz is certified by CSI.
For Enquiries or Further Information please contact: sales@3pprinz.com

ISO 9001

Visit site
www.3pprinz.com

WWW.3PPRINZ.COM

3P PRINZ
PUMPS MANUFACTURING COMPANY

Via Enrico Mattei, n.293/R,
55100 MUGNANO (LU) Italy

Phone: +39 0583 491183
Fax: +39 0583 954659

Email: sales@3pprinz.com
web: www.3pprinz.com

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