

Water Jet Suction Pump type P20



Product description

The P20 water jet suction pump can be used in cases where liquid that is under pressure is present as a propellant. They are used for transporting and mixing liquids. They are self-priming and have no mechanically moving parts.

The basic principle of the water jet suction pump is that the propellant liquid passes through a nozzle and draws in with it the liquid or gaseous medium from the suction line, increasing its velocity. The result of this is that the propellant and the medium that is sucked in are mixed together. The amount of liquid propelled is a function of the propellant pressure and the size of the nozzle. The amount of medium drawn in can be seen from the diagrams. The results shown are only guidelines and depend on the method of operation.

Benefits/features

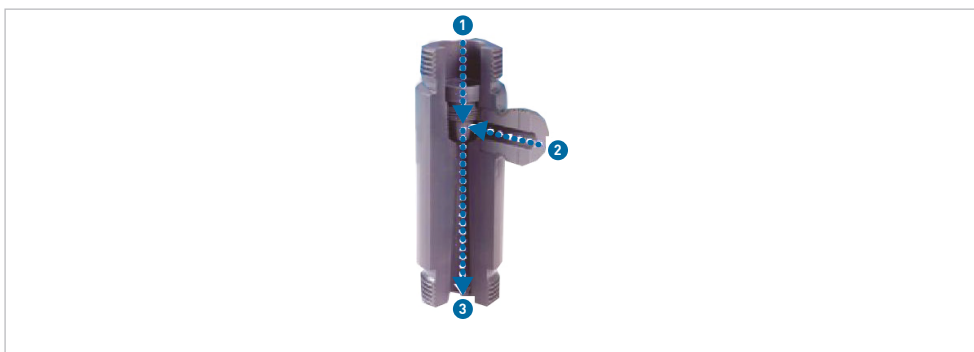
- No external energy required for operation
- Ideal for mixing, dosing and transporting liquids
- No mechanically moving parts
- Self-priming

Applications

- Aquariums
- Chemical process industry
- Industrial water treatment
- Swimming pools

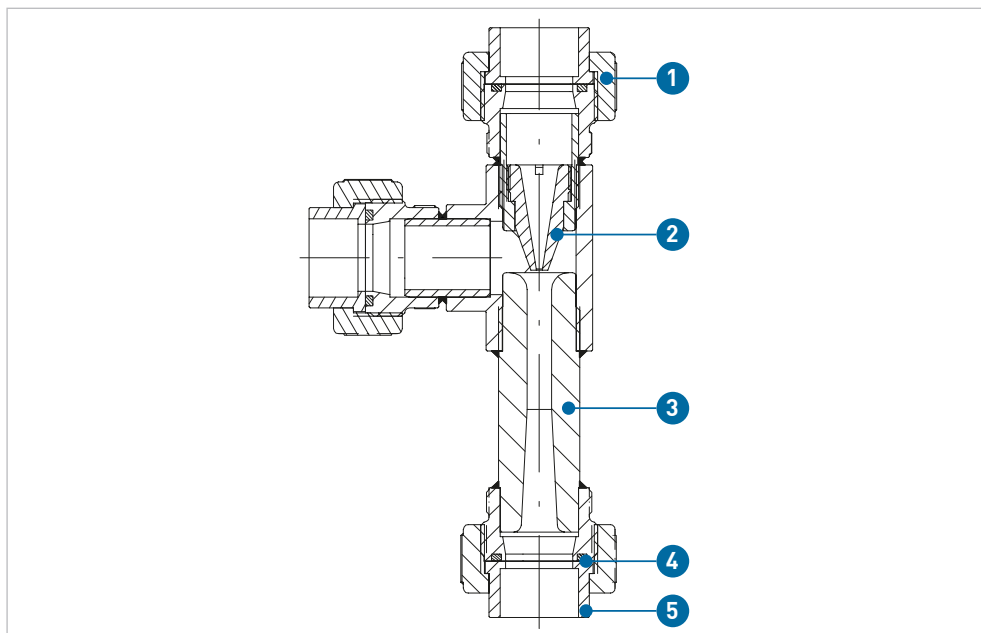
Function

The propellant (liquid) flows through a nozzle. Due to this, a negative pressure (vacuum) is created. The liquid or gas suction medium is sucked out through an increase in speed. The propellant and the suction medium are ideally mixed. The amount of liquid propelled is a function of the propellant pressure and the size of the nozzle. The amount of liquid drawn in can be seen from the diagrams. The results shown are only guidelines and depend on the method of operation. A throttle is connected to the suction pipe to enable optimal dosing.



- 1 Propellant
- 2 Suction medium (suction pipe)
- 3 Mixture of propellant and suction medium (outlet)

Technical data



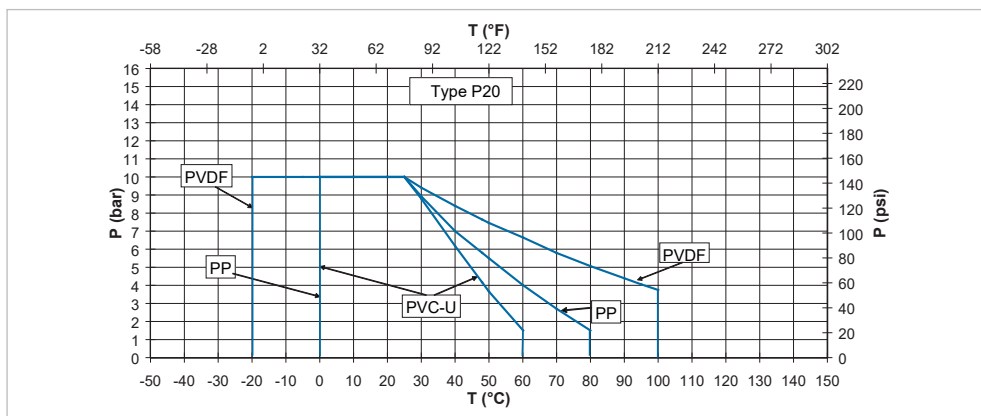
- 1 Union nut
- 2 Nozzle
- 3 Water jet suction pump
- 4 O-ring
- 5 Insert

Specification

Dimensions	d16/DN10 – d90/DN80, 3/8" – 3"	
Materials	PVC-U, PP-H, PVDF	
Gasket materials	EPDM, FKM	
Connections	DN10 – DN20	Male threads and union nut
	DN25 – DN50	Screw connections DIN/ISO
	DN65 – DN80	Spigots DIN/ISO
Nominal pressure	PN10	
Flow media	Neutral and aggressive media free of particles/solids. The chemical resistance depends on the selected material (see online tool ChemRes PLUS).	
Product standard	EN ISO 21787	
Test standard	ISO 9393-2, EN 12266-1	

Pressure-temperature diagrams

PVC-U, PP-H, PVDF

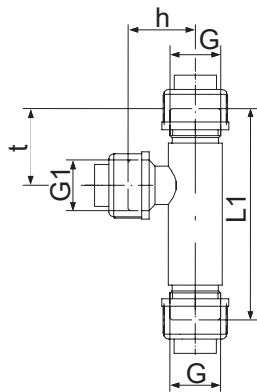


The following pressure-temperature diagrams are based on a lifetime of 25 years and water or similar media.

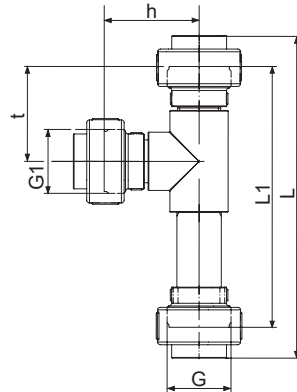
T Temperature (°C, °F)
P Permissible pressure (bar, psi)

Dimensions

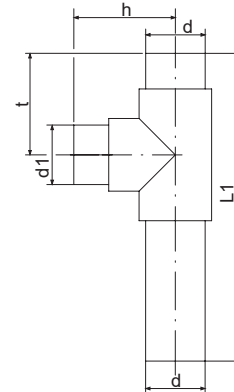
DN10 – DN20



DN25 – DN50



DN65 – DN80



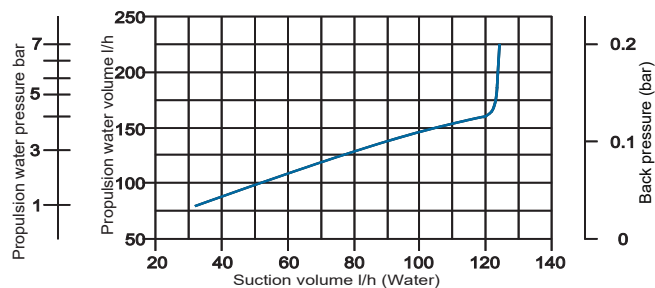
DN (mm)	d (mm)	Size (inch)	G/d	G1/d1	L (mm)	L1 (mm)	t (mm)	h (mm)
10	16	3/8	R 3/4"	R 3/4"		110	40	35
15	20	1/2	R 1"	R 3/4"		125	38	35
20	25	3/4	R 1 1/4"	R 3/4"		145	45	40
25	32	1	R 1 1/2"	R 1 1/2"	245	195	71	71 PVC 74 PP/PVDF
32	40	1 1/4	R 2"	R 2"	297	239	87	87
40	50	1 1/2	R 2 1/4"	R 2 1/4"	369	301	104	105
50	63	2	R 2 3/4"	R 2 3/4"	433	351	128	128
65	75	2 1/2	75	75		388	128	128
80	90	3	90	90		465	149	149

Characteristic curves

DN10

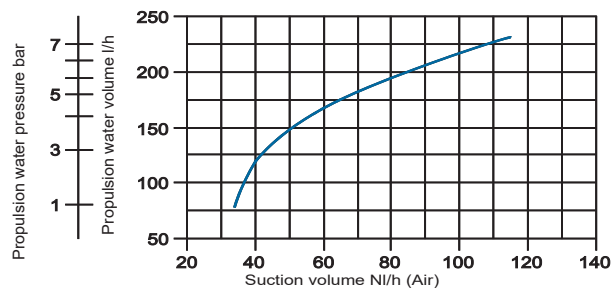
Suction medium: water

DN10, nozzle size 1.5

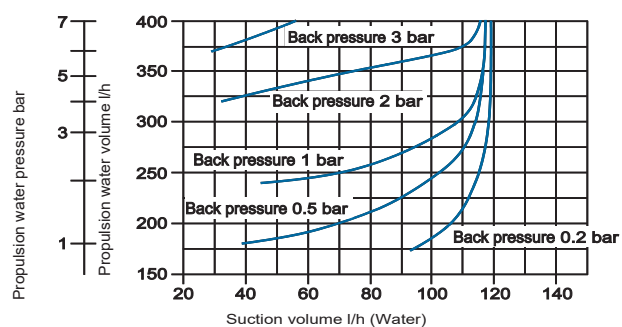


Suction medium: air

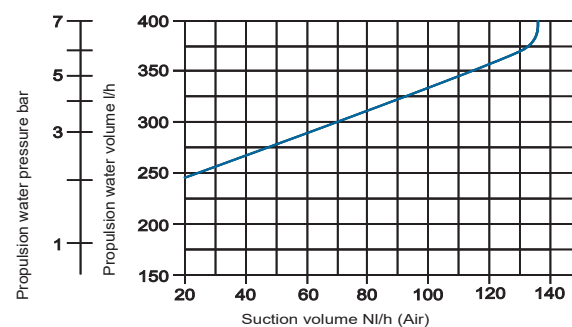
DN10, nozzle size 1.5



DN10, nozzle size 2.0



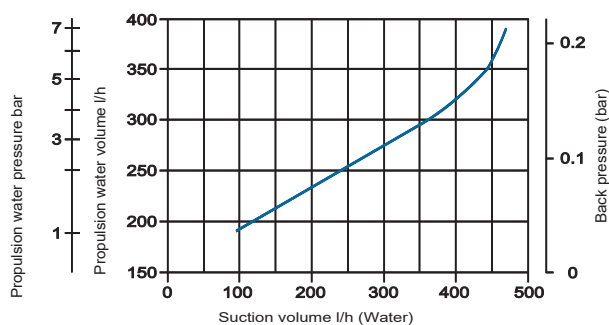
DN10, nozzle size 2.0



DN15

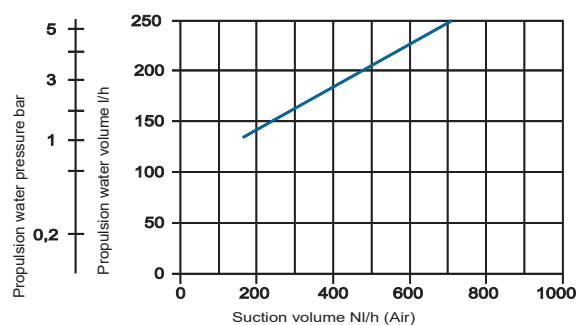
Suction medium: water

DN15, nozzle size 2.0

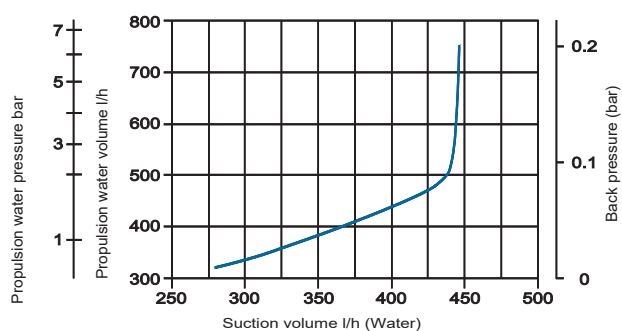


Suction medium: air

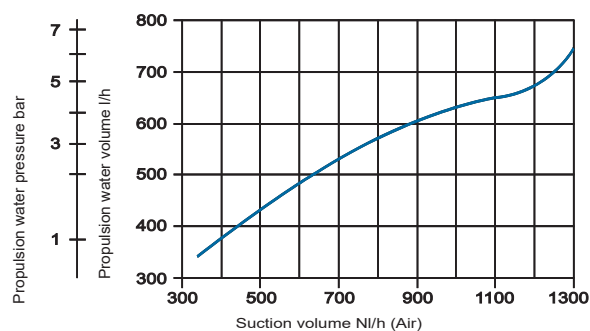
DN15, nozzle size 2.0



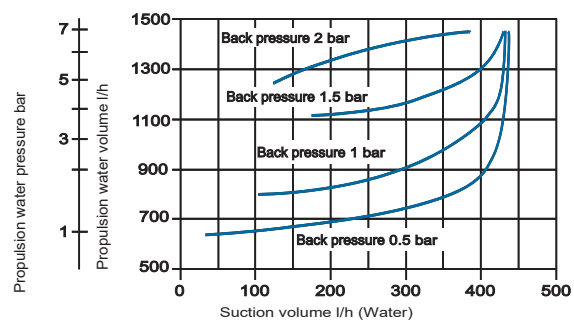
DN15, nozzle size 3.0



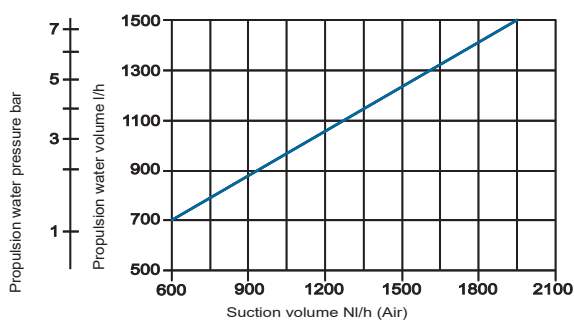
DN15, nozzle size 3.0



DN15, nozzle size 4.0



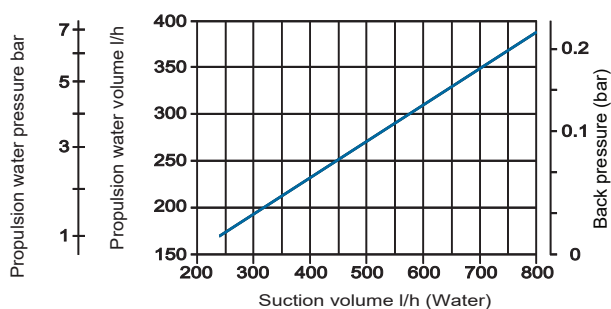
DN15, nozzle size 4.0



DN20

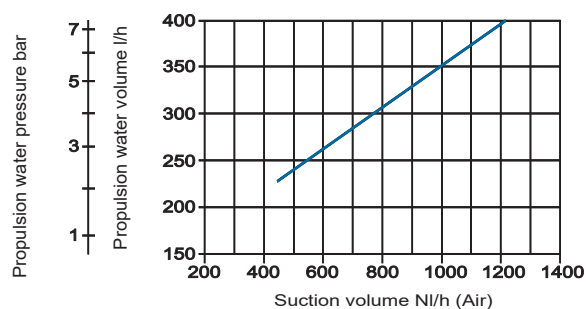
Suction medium: water

DN20, nozzle size 3.0

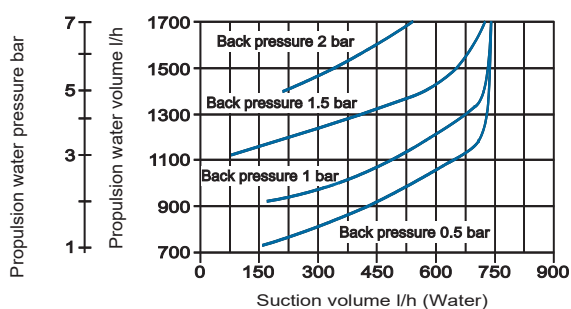


Suction medium: air

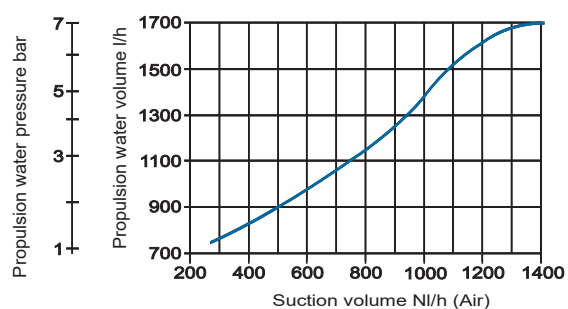
DN20, nozzle size 3.0



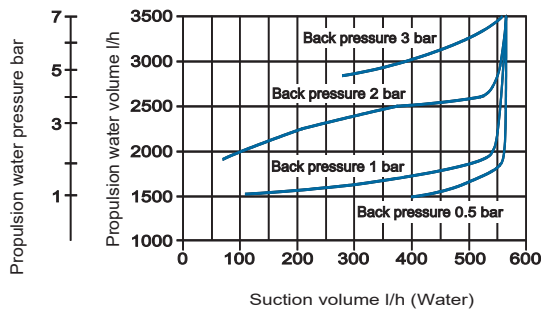
DN20, nozzle size 4.5



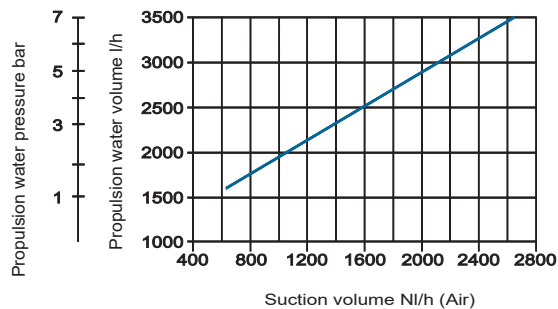
DN20, nozzle size 4.5



DN20, nozzle size 6.0



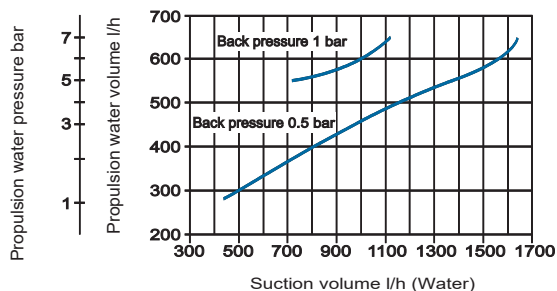
DN20, nozzle size 6.0



DN25

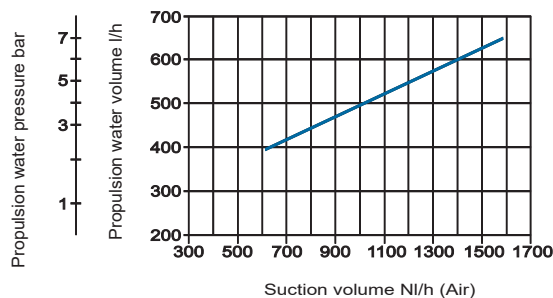
Suction medium: water

DN25, nozzle size 2.5

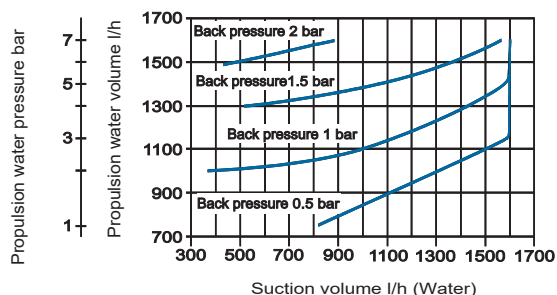


Suction medium: air

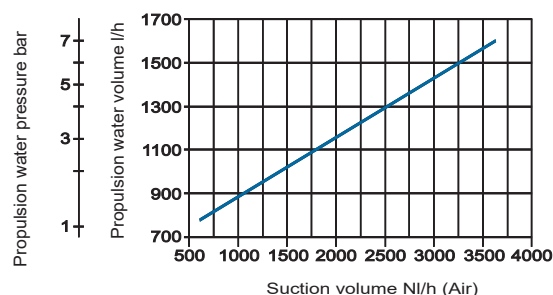
DN25, nozzle size 2.5



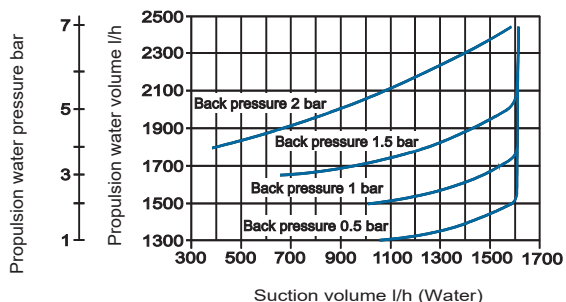
DN25, nozzle size 4.0



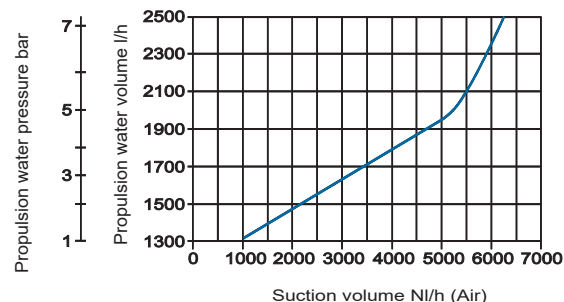
DN25, nozzle size 4.0



DN25, nozzle size 6.0



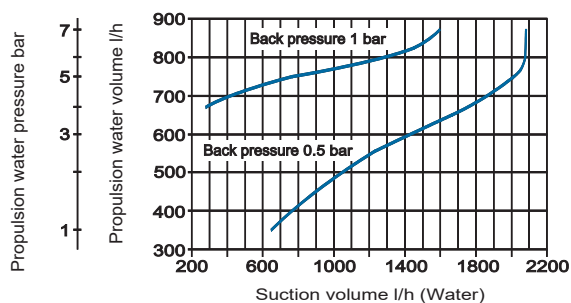
DN25, nozzle size 6.0



DN32

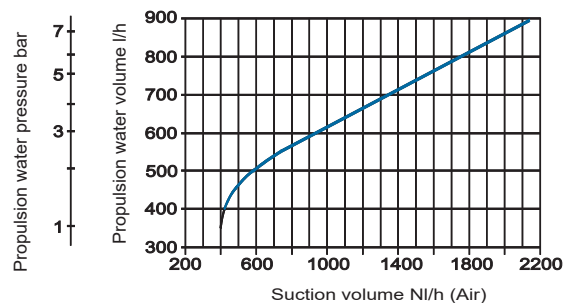
Suction medium: water

DN32, nozzle size 3.0

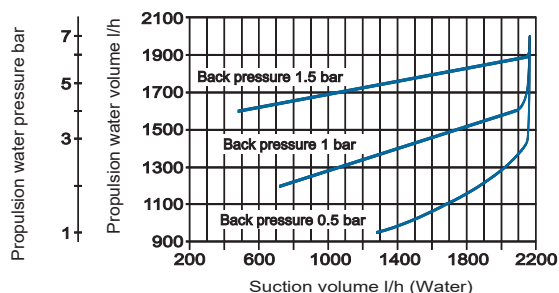


Suction medium: air

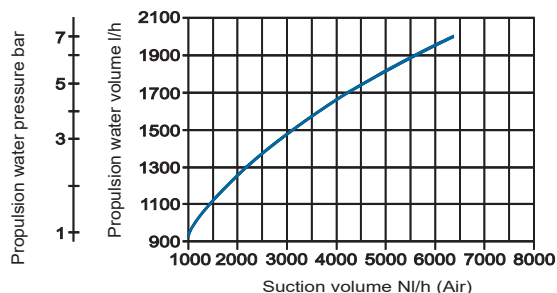
DN32, nozzle size 3.0



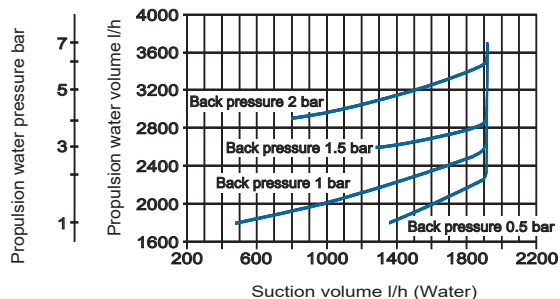
DN32, nozzle size 4.5



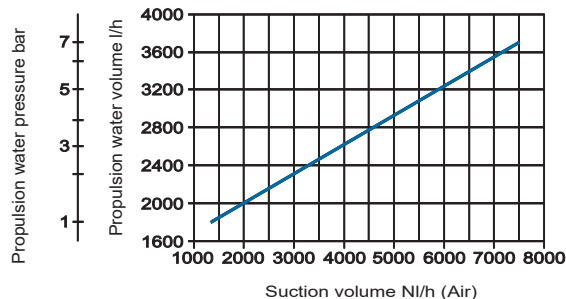
DN32, nozzle size 4.5



DN32, nozzle size 6.0



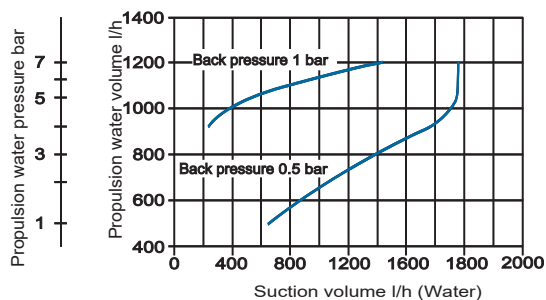
DN32, nozzle size 6.0



DN40

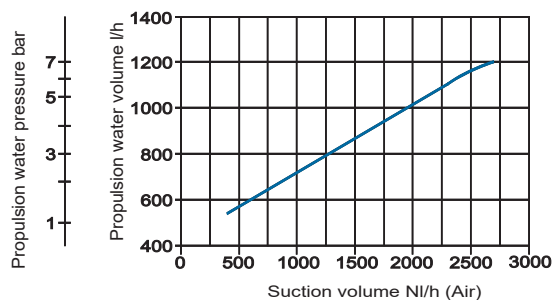
Suction medium: water

DN40, nozzle size 3.5

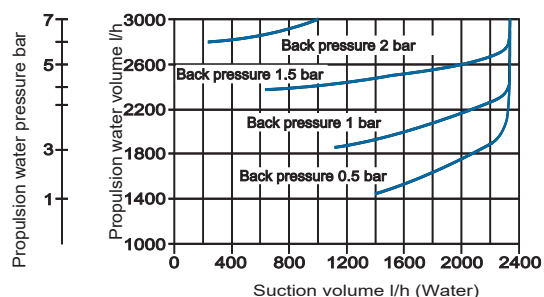


Suction medium: air

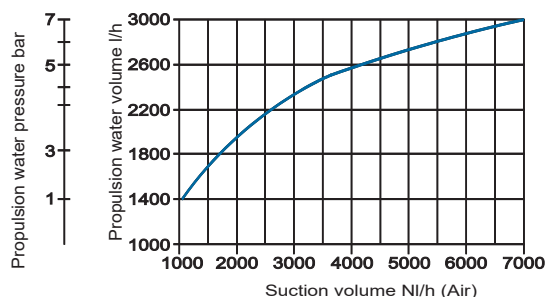
DN40, nozzle size 3.5



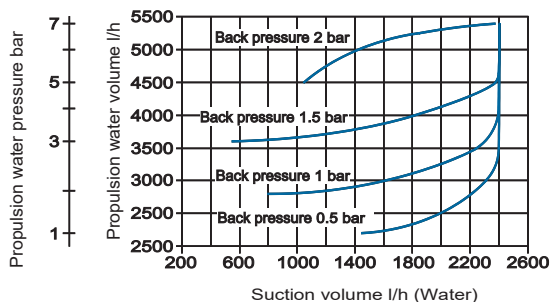
DN40, nozzle size 5.5



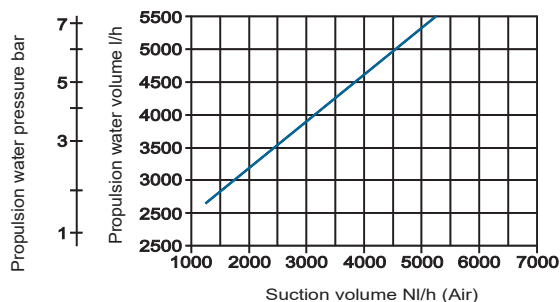
DN40, nozzle size 5.5



DN40, nozzle size 7.5



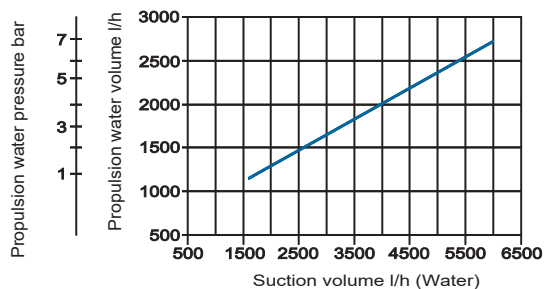
DN40, nozzle size 7.5



DN50

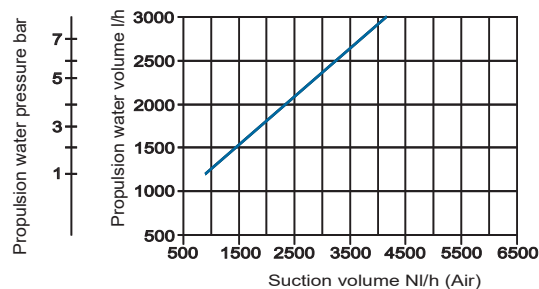
Suction medium: water

DN50, nozzle size 5.0

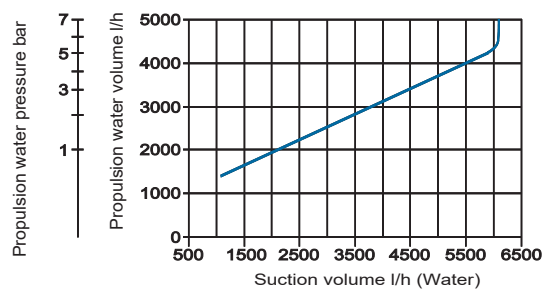


Suction medium: air

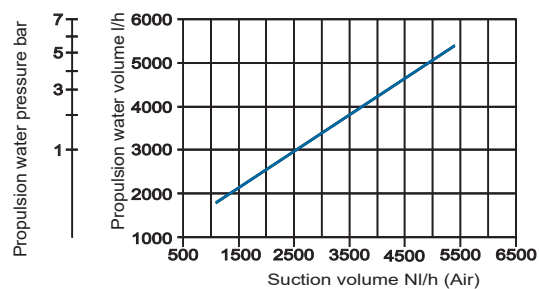
DN50, nozzle size 5.0



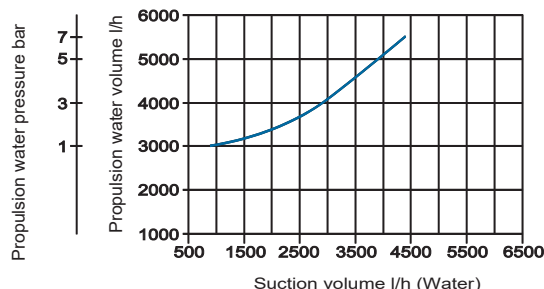
DN50, nozzle size 7.0



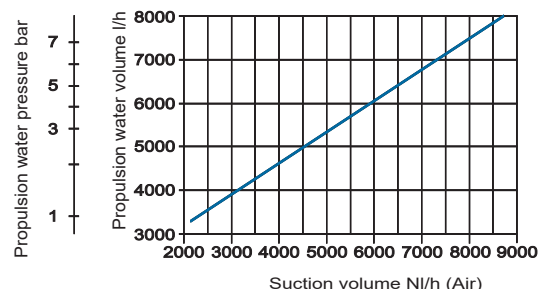
DN50, nozzle size 7.0



DN50, nozzle size 9.0



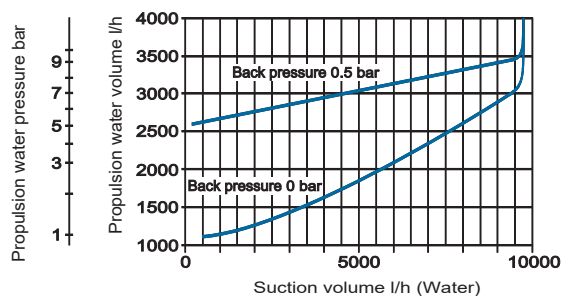
DN50, nozzle size 9.0



DN65

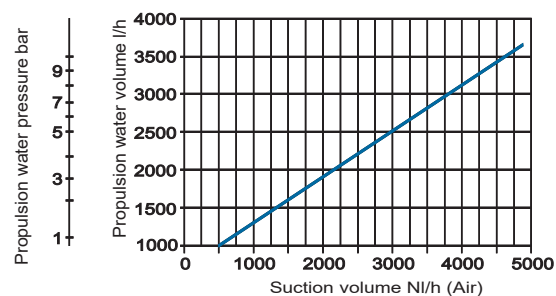
Suction medium: water

DN65, nozzle size 6.5

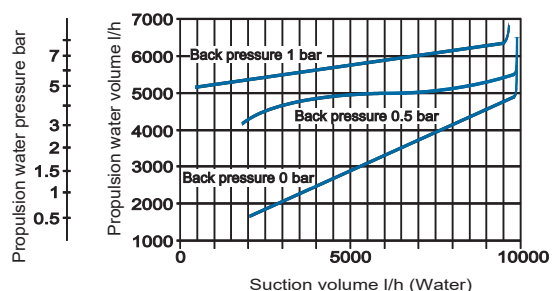


Suction medium: air

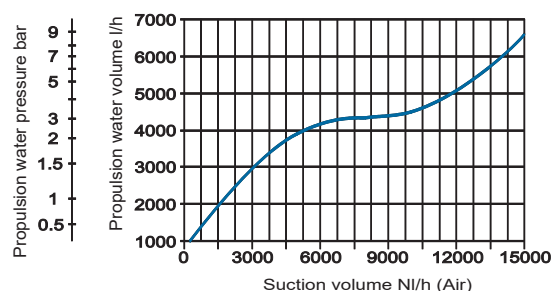
DN65, nozzle size 6.5



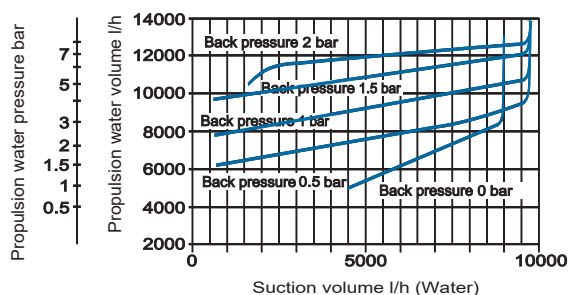
DN65, nozzle size 9.0



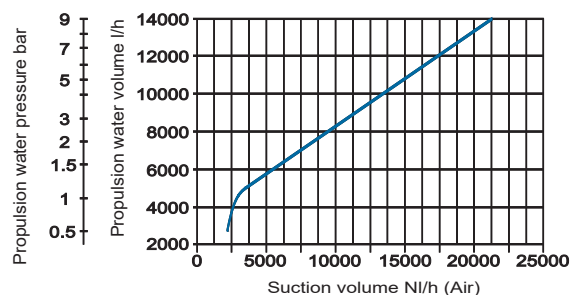
DN65, nozzle size 9.0



DN65, nozzle size 11.5



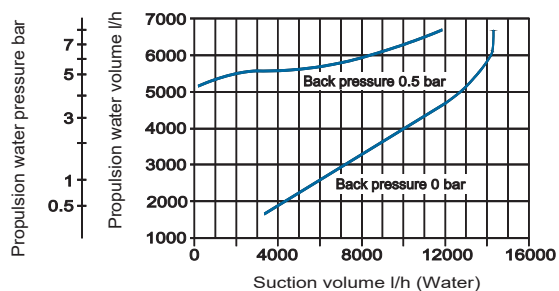
DN65, nozzle size 11.5



DN80

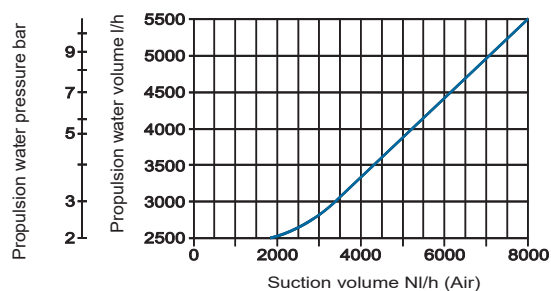
Suction medium: water

DN80, nozzle size 8.0

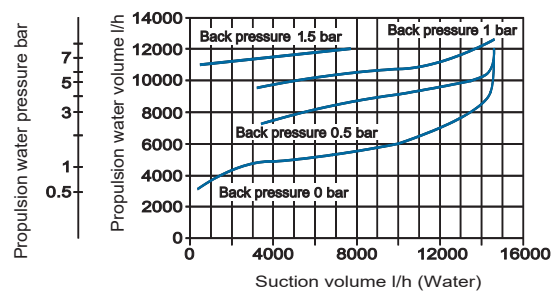


Suction medium: air

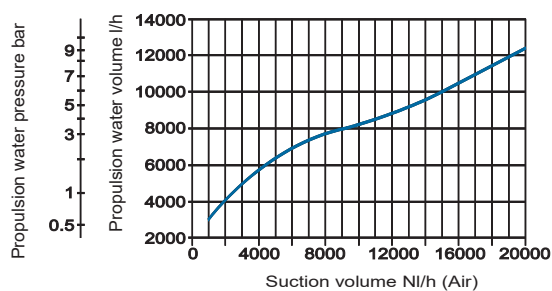
DN80, nozzle size 8.0



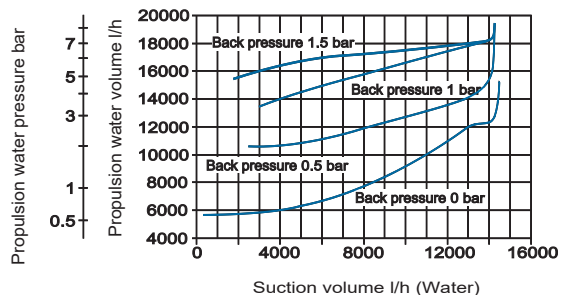
DN80, nozzle size 11.0



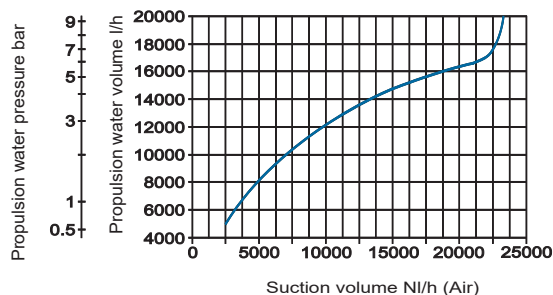
DN80, nozzle size 11.0



DN80, nozzle size 14.0



DN80, nozzle size 14.0



Technical basics

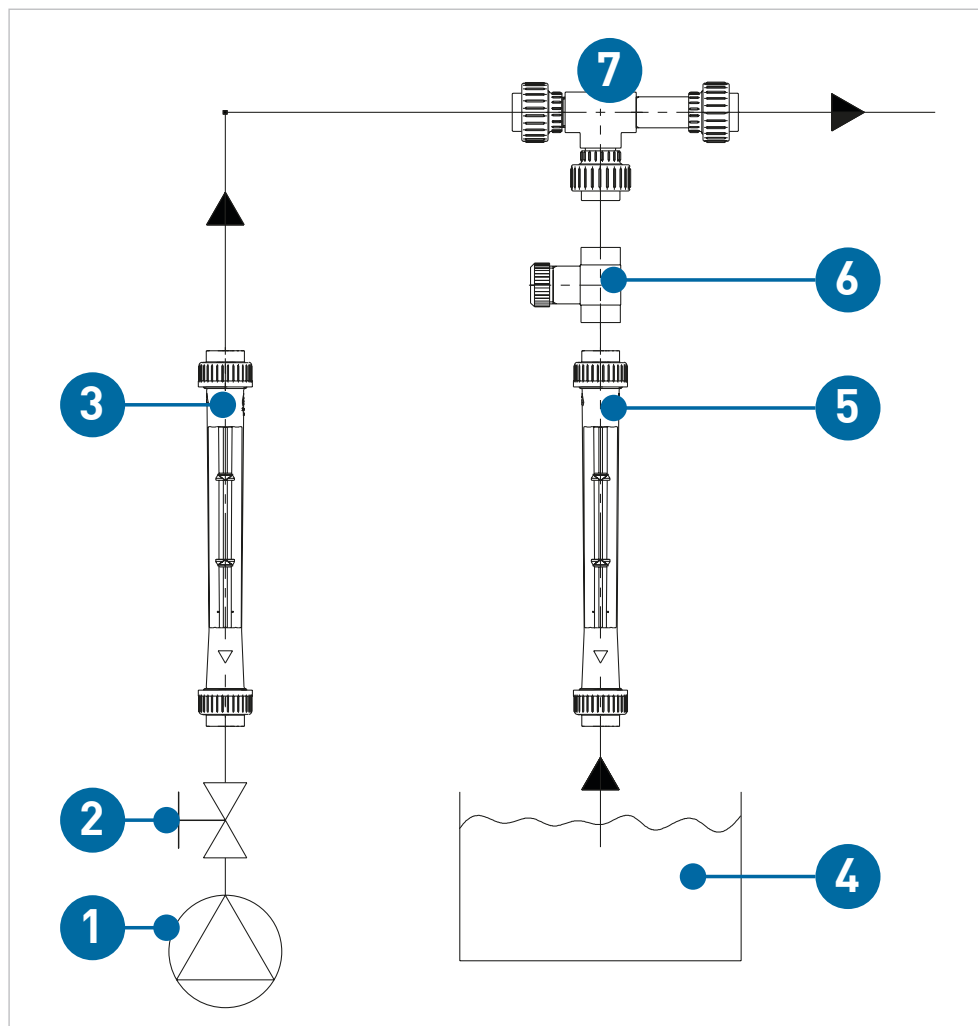
Valve handling

Installation notes

- We recommend installing the water jet pump between two detachable pipe sections. With a view to subsequent dismantling, it is useful to provide shut-off devices.
- Relaxation zones of at least 5 x DN are to be provided upstream and downstream of the pump.
- It is recommended to install a flow meter in the suction pipe to provide information on the suction power of the pump.
- It is useful to install manometers upstream and downstream of the jet pump for reading the inlet pressure and the back pressure.
- The suction time can be significantly reduced by installing a check valve in the suction pipe.
- Inlet and outlet pipes must have at least the nominal diameter of the pump.
- An exact dosing of the propellant and suction flow is guaranteed through the installation of throttle valves.

 Installation and maintenance must be performed in accordance with the corresponding installation manual. The installation manual is provided with the product, see also the online product catalogue at www.gfps.com

Installation example



- 1 Pump
- 2 Shut-off valve
- 3 Variable Area Flowmeter type 335/350/123 for drive water
- 4 Acid/alkali container
- 5 Variable Area Flowmeter type 335/350/123 Suction side
- 6 Throttle Valve type V251 - for regulating the suction volume
- 7 Water Jet Suction Pump type P20

Ordering Information

Water Jet Suction Pump P20 PVC-U

DN (mm)	d (mm)	Size (inch)	Order code	Connections	O-ring material
10	16	3/8	199 041 120	BSP parallel male thread, union nut and solvent cement socket metric	EPDM
15	20	1/2	199 041 121	BSP parallel male thread, union nut and solvent cement socket metric	EPDM
20	25	3/4	199 041 122	BSP parallel male thread, union nut and solvent cement socket metric	EPDM
25	32	1	199 041 123	Screw connection with solvent cement sockets metric	EPDM
32	40	1 1/4	199 041 124	Screw connection with solvent cement sockets metric	EPDM
40	50	1 1/2	199 041 125	Screw connection with solvent cement sockets metric	EPDM
50	63	2	199 041 126	Screw connection with solvent cement sockets metric	EPDM
65	75	2 1/2	199 041 127	Solvent cement spigot metric	-
80	90	3	199 041 128	Solvent cement spigot metric	-

Water Jet Suction Pump P20 PP-H

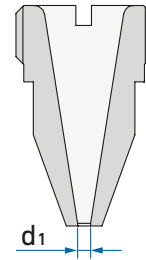
DN (mm)	d (mm)	Size (inch)	Order code	Connections	O-ring material
10	16	3/8	199 041 129	BSP parallel male thread, union nut and fusion sockets metric	EPDM
15	20	1/2	199 041 130	BSP parallel male thread, union nut and fusion sockets metric	EPDM
20	25	3/4	199 041 131	BSP parallel male thread, union nut and fusion sockets metric	EPDM
25	32	1	199 041 132	Screw connection with fusion sockets metric	EPDM
32	40	1 1/4	199 041 133	Screw connection with fusion sockets metric	EPDM
40	50	1 1/2	199 041 134	Screw connection with fusion sockets metric	EPDM
50	63	2	199 041 135	Screw connection with fusion sockets metric	EPDM
65	75	2 1/2	199 041 136	Fusion spigot metric	-
80	90	3	199 041 137	Fusion spigot metric	-

Water Jet Suction Pump P20 PVDF

DN (mm)	d (mm)	Size (inch)	Order code	Connections	O-ring material
10	16	3/8	199 041 138	BSP parallel male thread, union nut and solvent cement socket metric	FKM
15	20	1/2	199 041 139	BSP parallel male thread, union nut and solvent cement socket metric	FKM
20	25	3/4	199 041 140	BSP parallel male thread, union nut and solvent cement socket metric	FKM
25	32	1	199 041 141	Screw connection with fusion sockets metric	FKM
32	40	1 1/4	199 041 142	Screw connection with fusion sockets metric	FKM
40	50	1 1/2	199 041 143	Screw connection with fusion sockets metric	FKM
50	63	2	199 041 144	Screw connection with fusion sockets metric	FKM
65	75	2 1/2	199 041 145	Fusion spigot metric	-
80	90	3	199 041 146	Fusion spigot metric	-

Replacement Nozzles to Water Jet Suction Pump P20

DN (mm)	d (mm)	Size (inch)	Order code PP-H	Order code PVC-U	Order code PVDF	Description
10	16	3/8	700254026	700254030	700254248	Nozzle for P20, DN10/15 *
15	20	1/2	700254026	700254030	700254248	Nozzle for P20, DN10/15 *
20	25	3/4	700254002	700254129	700254059	Nozzle for P20, DN20 *
25	32	1	700254003	700254116	700254249	Nozzle for P20, DN25 *
32	40	1 1/4	700254033	700254130	700254035	Nozzle for P20, DN32 *
40	50	1 1/2	700254032	700254131	700254250	Nozzle for P20, DN40 *
50	63	2	700254134	700254094	700254251	Nozzle for P20, DN50 *
65	75	2 1/2	700254012	700254132	700254252	Nozzle for P20, DN65 *
80	90	3	700254013	700254004	700254253	Nozzle for P20, DN80 *



* The nozzles are not pre-drilled ex works. For pre-drilled nozzles, contact your local GF sales company and specify the nozzle size (d1) in mm.