

FACTS | FIGURES | DATA

Water jet pump P 20

P 20



FRANK
PREMIUM-QUALITY PLASTIC

Water jet pump P 20

DN 10 to DN 80



P 20 PVDF



P 20 PP



P 20 PVC

USE

Water jet liquid pumps can be used where pressurised liquid is present as the propellant. They are used for pumping out sumps, for transporting and mixing chemical waste water, for adding acids or alkalis in water treatment etc. They are self-priming and have no mechanical moving parts.

Since P20 water jet pumps are available in various materials, they can be used where the materials meet the specified requirements.

FUNCTION

The basic principle of the water jet pump is that the propellant emerges from a nozzle and brings with it the liquid or gaseous medium out of the suction line, speeding it up at the same time. The result of this process is a mixture of the propelling medium and the

drawn-in medium. The propelled volume is a function of the propulsion pressure and the nozzle hole size. The drawn-in volume can be seen in the diagrams. The stated capacities are guideline values only, and vary depending on the operating conditions.

TYPES

DN 10-DN 20 with male threads and union nut and insert
 DN 25-DN 50 with screw connections
 DN 65-DN 80 with adhesive spigots

MATERIALS

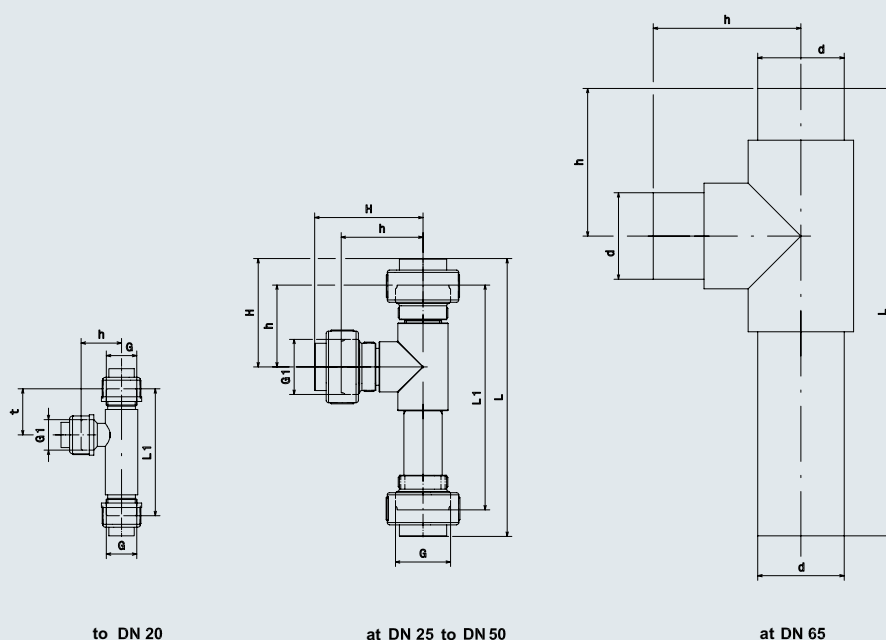
Housing	Permissible operating temperature
PVC	0 to +60 °C
PP	-10 to +80 °C
PVDF	-20 to +100 °C

Operating pressure: max. 1 bar at 20 °C

DIMENSIONS IN MM (GUIDELINE VALUES)

Type	NO*	d	DN	G	G1	L	L1	t	H	h
P 20.10-1.0	NO*	16	10	R 3/4"	R 3/4"	-	110	40	-	-
P 20.10-2.0										
P 20.15-2.0	NO*	20	15	R 1"	R 3/4"	-	125	40	-	-
P 20.15-3.0										
P 20.15-4.0										
P 20.20-3.0	NO*	25	20	R 1 1/4"	R 3/4"	-	145	45	-	-
P 20.20-4.5										
P 20.20-6.0										
P 20.25-2.5	NO*	32	25	R 1 1/2"	R 1 1/2"	245	195	-	96	-
P 20.25-4.0										
P 20.25-5.0										
P 20.32-3.0	NO*	40	32	R 2"	R 2"	297	239	-	116	-
P 20.32-4.5										
P 20.32-6.0										
P 20.40-3.5	NO*	50	40	R 2 1/4"	R 2 1/4"	369	301	-	139	-
P 20.40-5.5										
P 20.40-7.5										
P 20.50-5.0	NO*	63	50	R 2 3/4"	R 2 3/4"	433	351	-	169	-
P 20.50-7.0										
P 20.50-9.0										
P 20.65-6.5	NO*	75	65	-	-	388	-	-	-	115
P 20.65-9.0										
P 20.65-11.5										
P 20.80-8.0	NO*	90	80	-	-	465	-	-	-	149
P 20.80-11.0										
P 20.80-14.0										

* Nozzle bore (mm)



ARTICLE NUMBERS

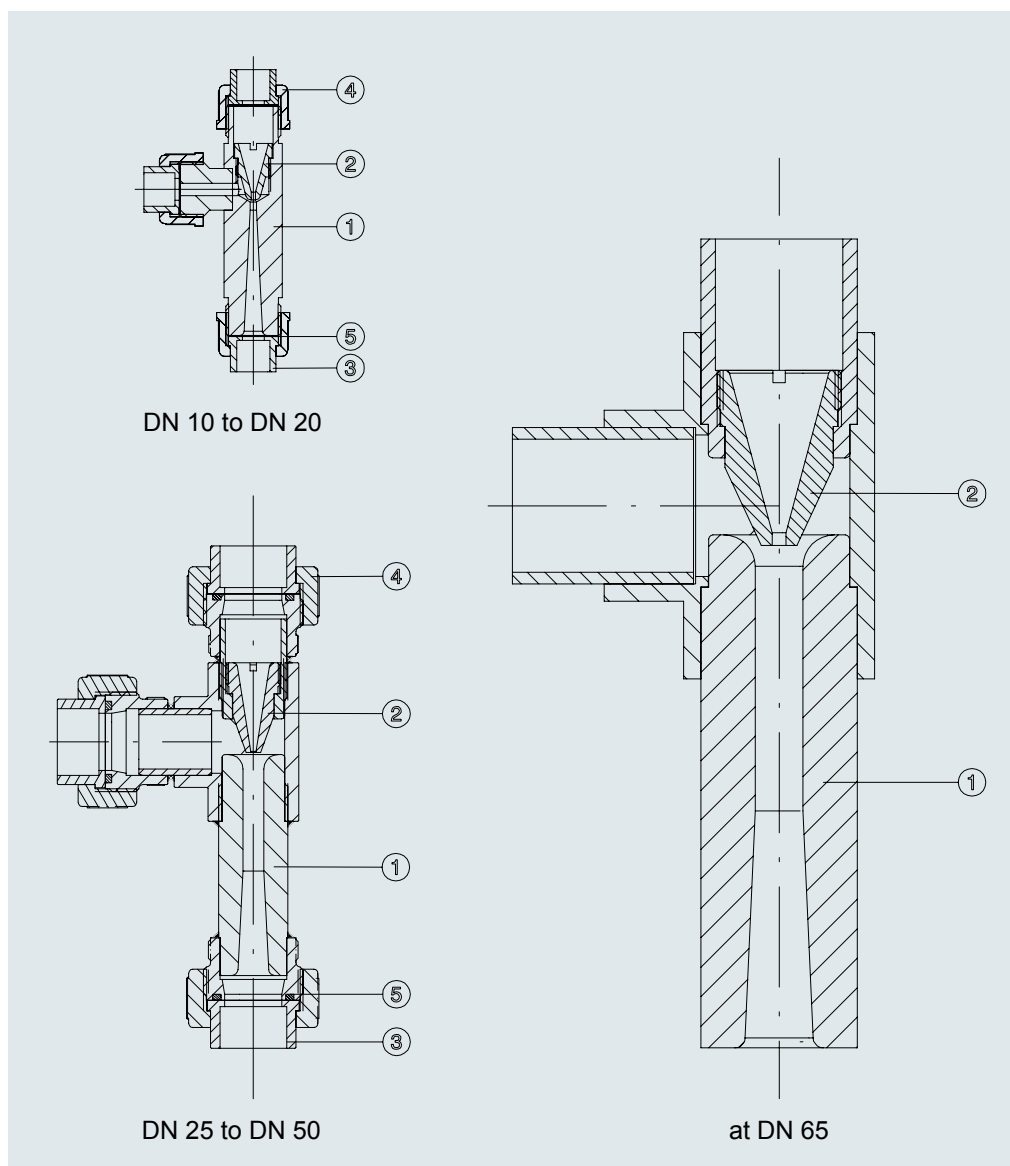
d	DN	PVC	PP	PVDF
16	10	17.002.118	17.002.127	17.002.136
20	15	17.002.119	17.002.128	17.002.137
25	20	17.002.120	17.002.129	17.002.138
32	25	17.002.121	17.002.130	17.002.139
40	32	17.002.122	17.002.131	17.002.140
50	40	17.002.123	17.002.132	17.002.141
63	50	17.002.124	17.002.133	17.002.142
75	65	17.002.125	17.002.134	17.002.143
90	80	17.002.126	17.002.135	17.002.144

Please state nozzle bore hole size. If no nozzle bore hole is stated, we will supply the nozzle with no bore hole.

INDIVIDUAL PARTS

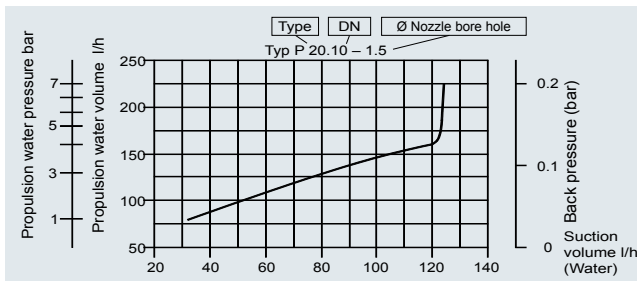
- Pos. Designation
- 1 Pump body
- 2 Nozzle
- 3 Insertion part
- 4 Union nut
- 5 O-ring
- 6 O-ring

From DN 65 available only with spigot

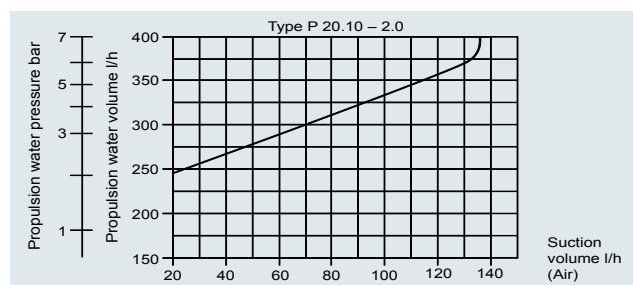
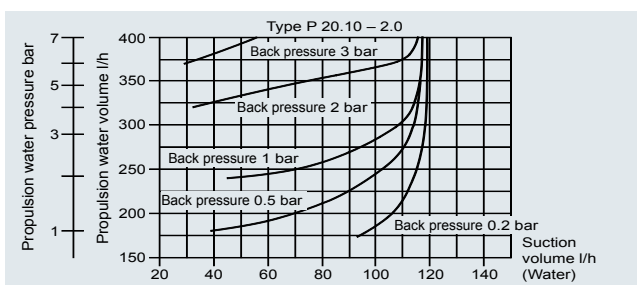
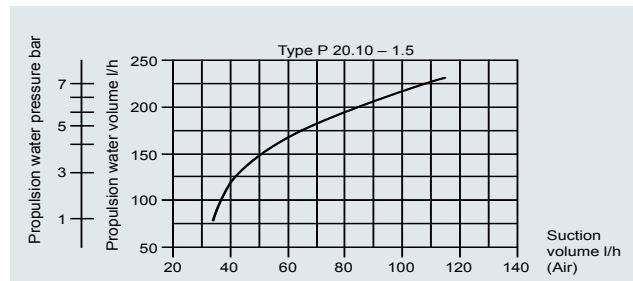


CHARACTERISTIC GRAPHS FOR WATER JET PUMP P 20 - 10

Suction medium: Water

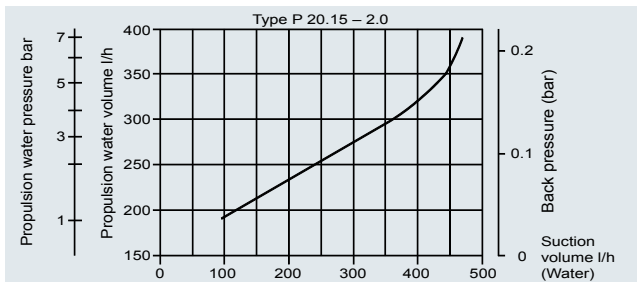


Suction medium: Air

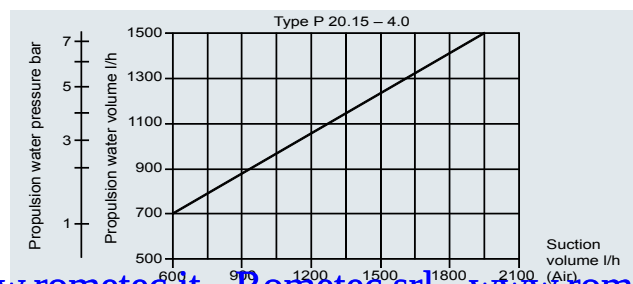
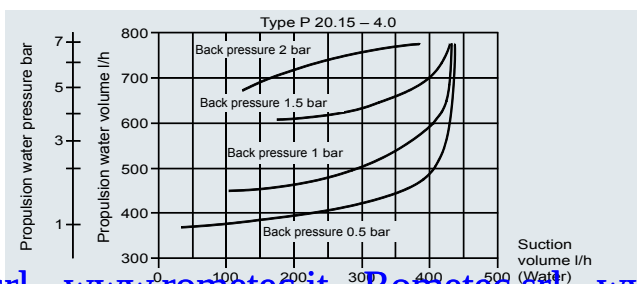
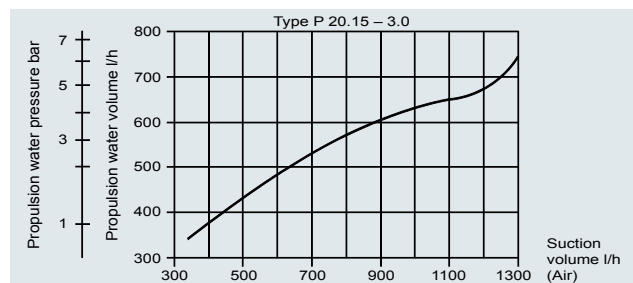
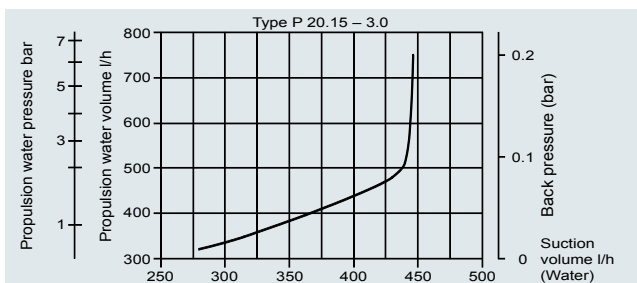
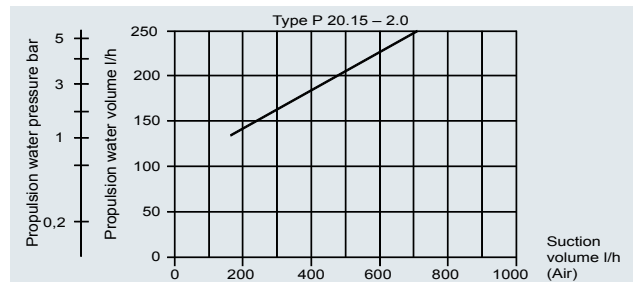


CHARACTERISTIC GRAPHS FOR WATER JET PUMP P 20 - 15

Suction medium: Water

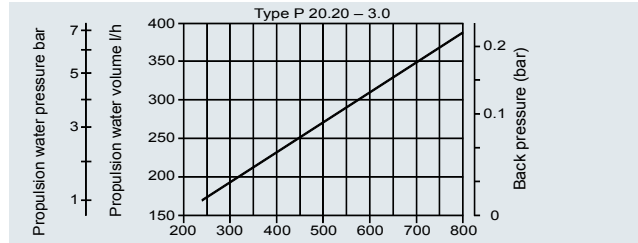


Suction medium: Air

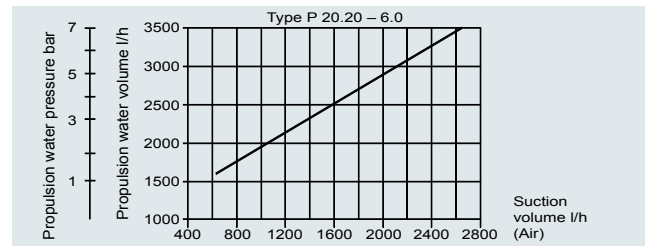
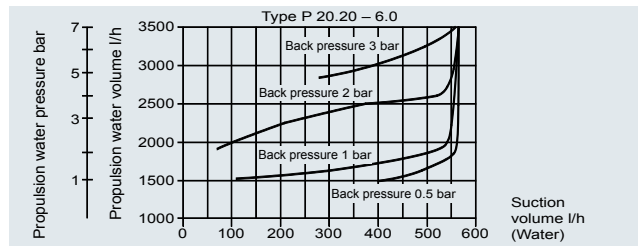
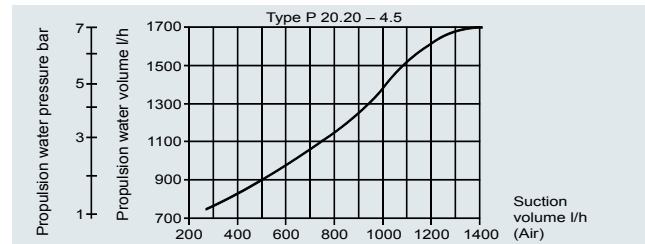
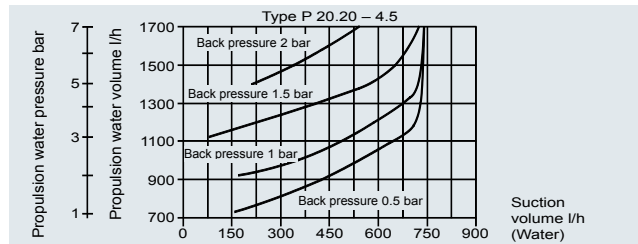
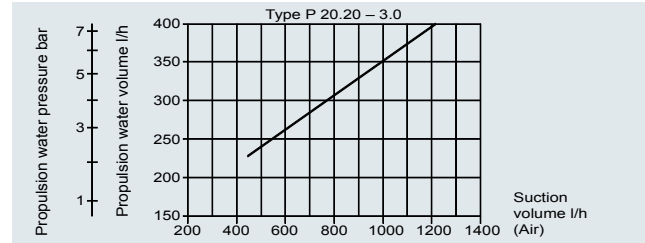


CHARACTERISTIC GRAPHS FOR WATER JET PUMP P 20 - 20

Suction medium: Water

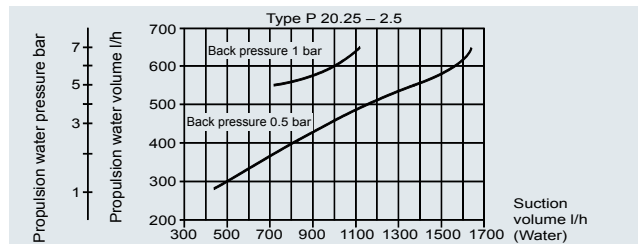


Suction medium: Air

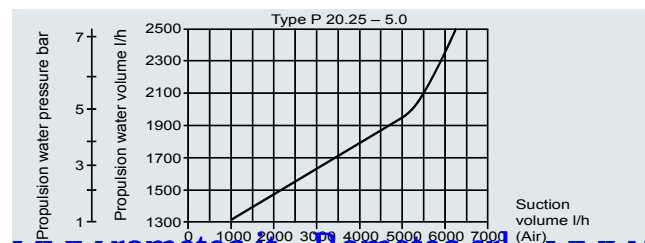
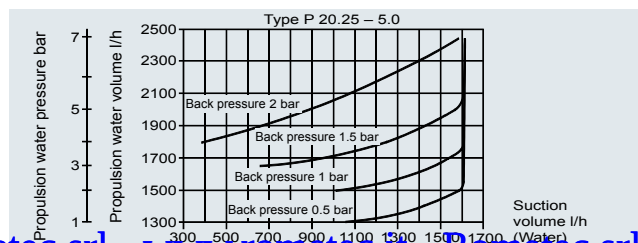
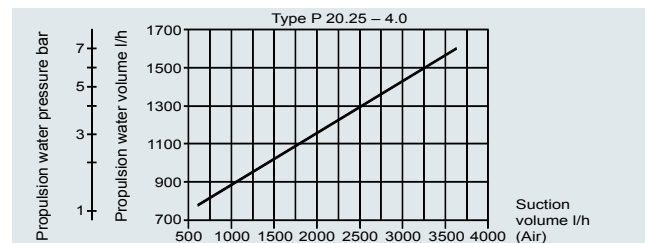
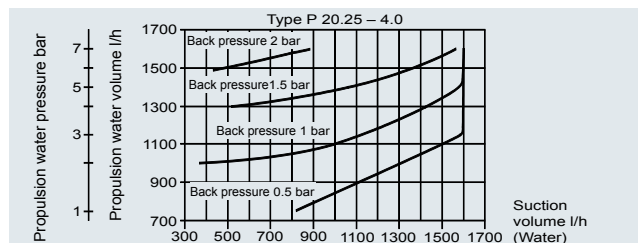
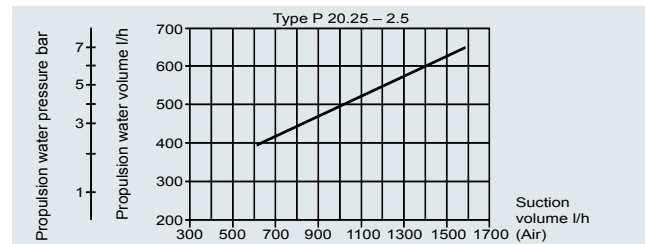


CHARACTERISTIC GRAPHS FOR WATER JET PUMP P 20 - 25

Suction medium: Water

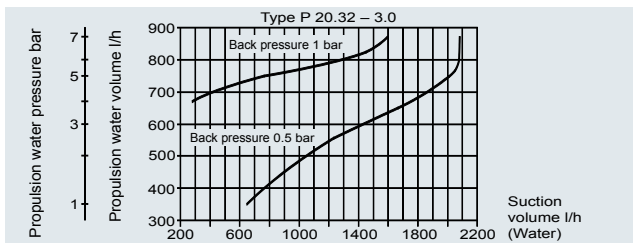


Suction medium: Air

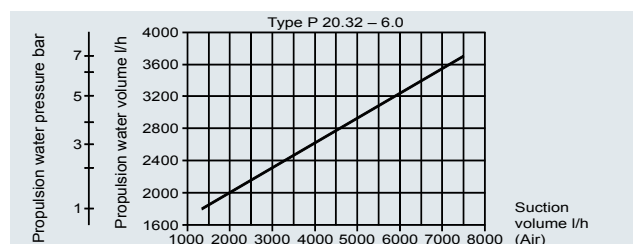
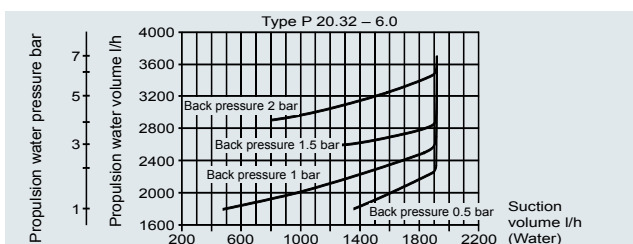
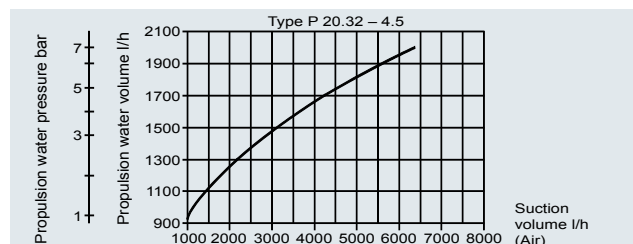
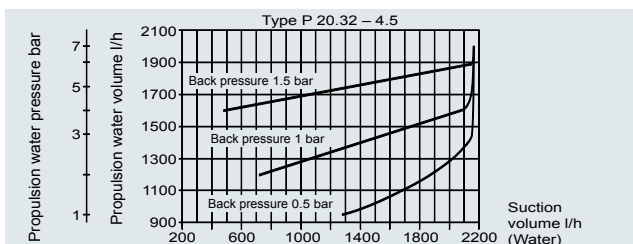
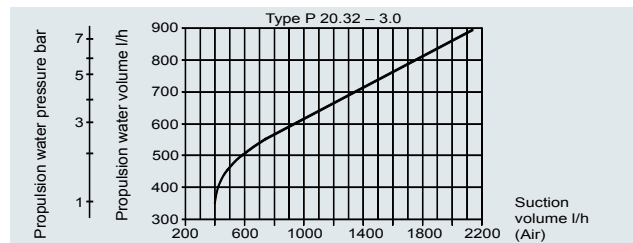


CHARACTERISTIC GRAPHS FOR WATER JET PUMP P 20 - 32

Suction medium: Water

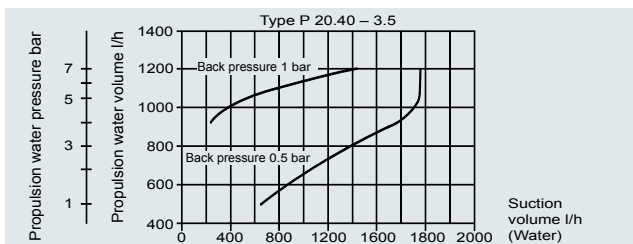


Suction medium: Air

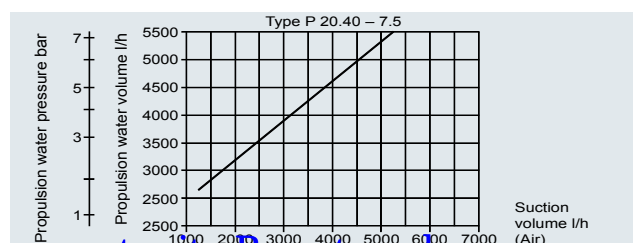
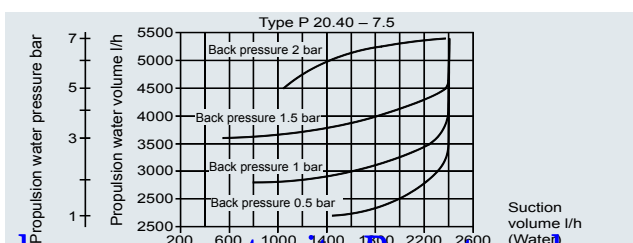
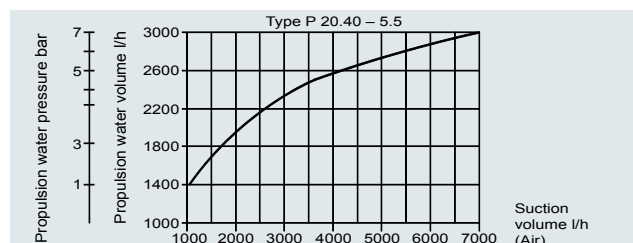
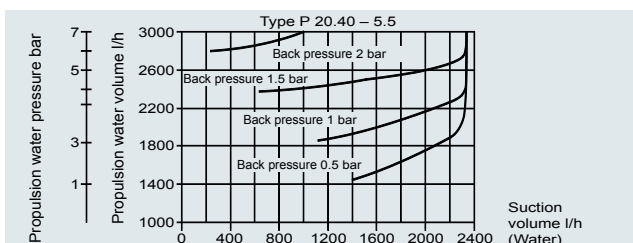
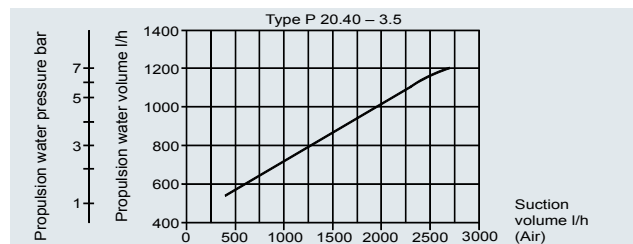


CHARACTERISTIC GRAPHS FOR WATER JET PUMP P 20 - 40

Suction medium: Water

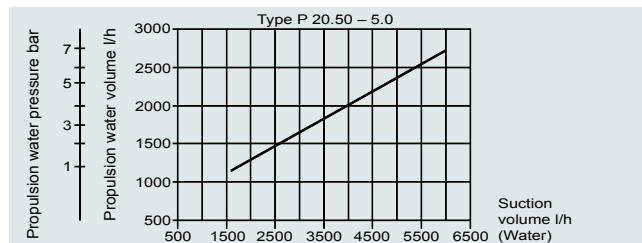


Suction medium: Air

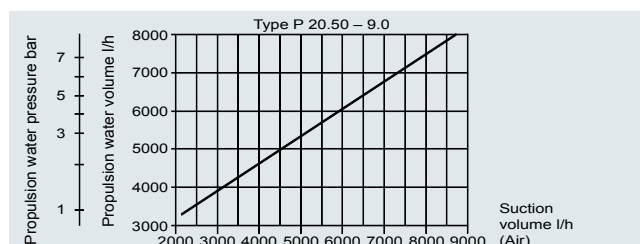
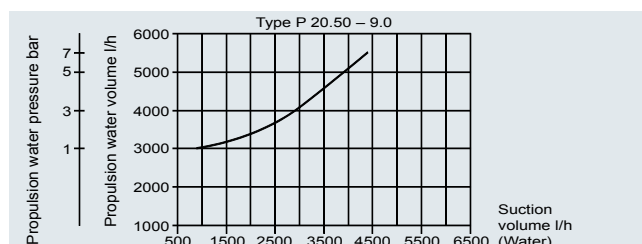
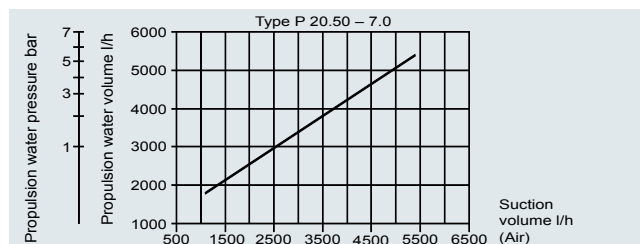
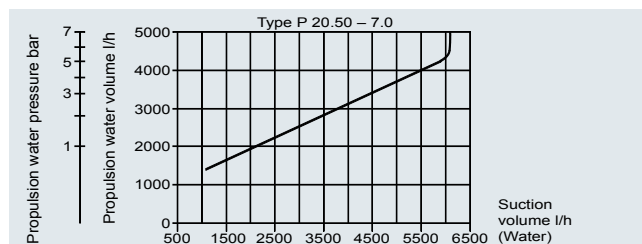
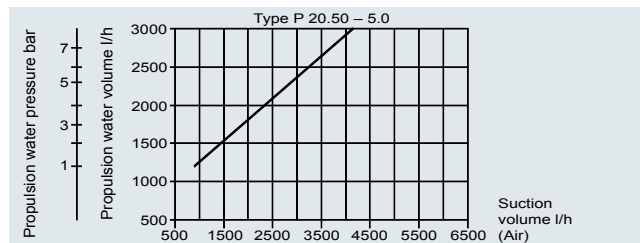


CHARACTERISTIC GRAPHS FOR WATER JET PUMP P20-50

Suction medium: Water

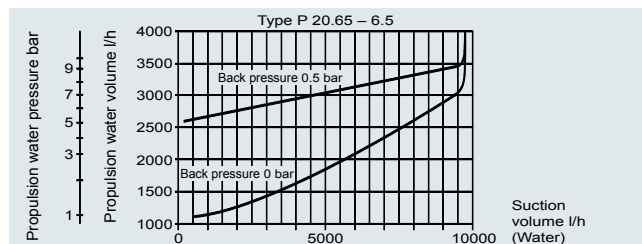


Suction medium: Air

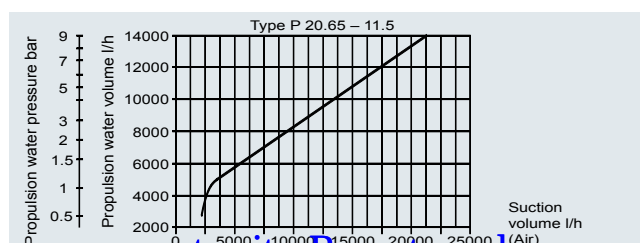
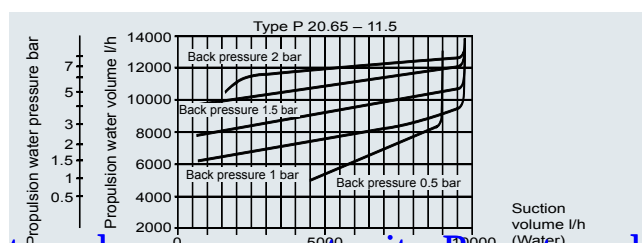
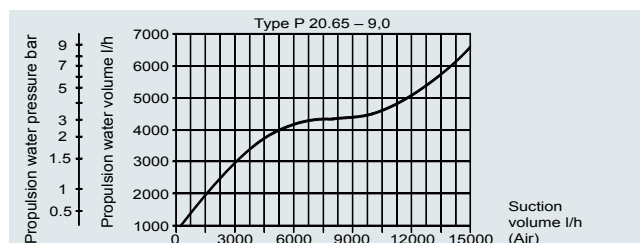
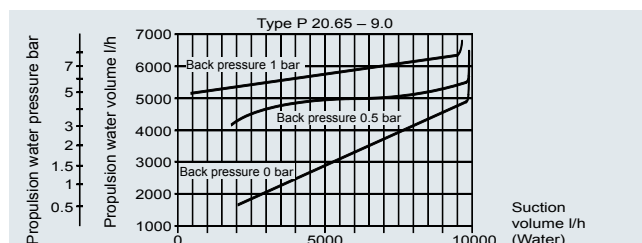
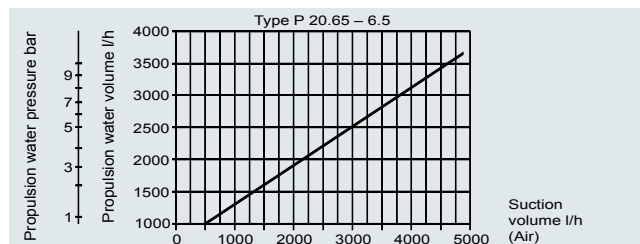


CHARACTERISTIC GRAPHS FOR WATER JET PUMP P20-65

Suction medium: Water

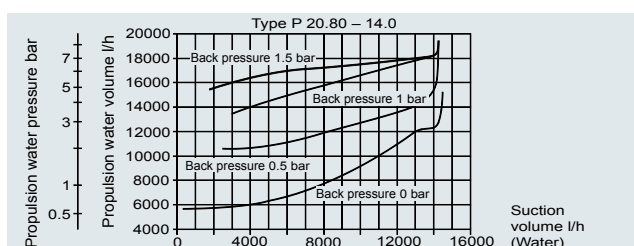
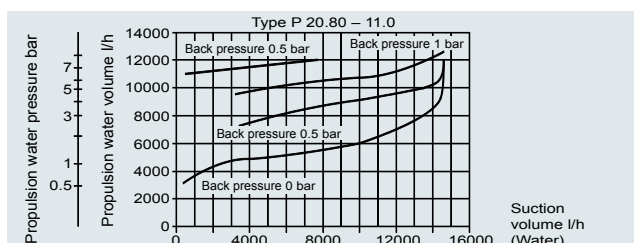
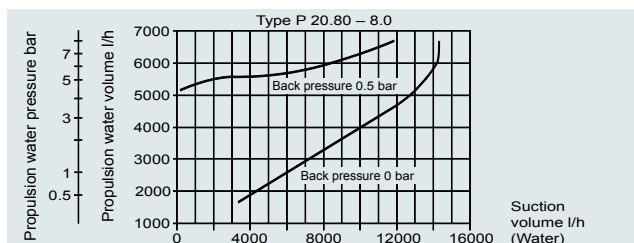


Suction medium: Air

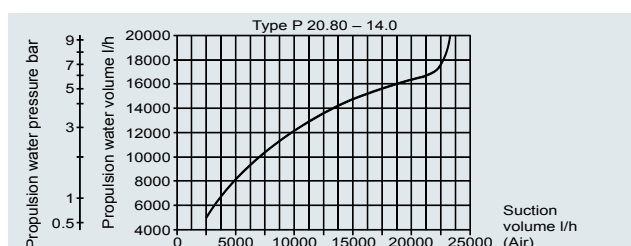
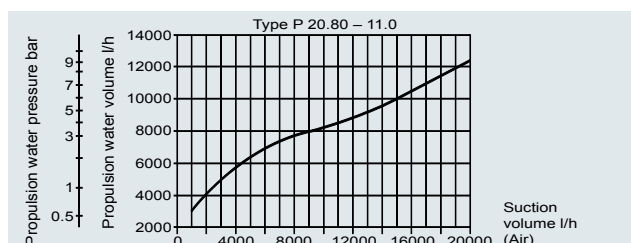
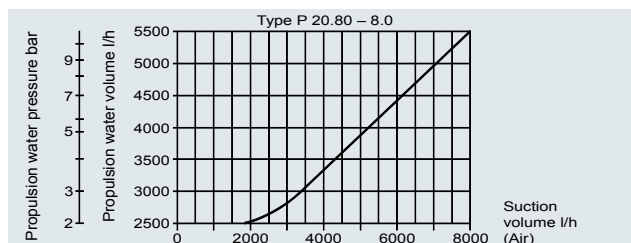


CHARACTERISTIC GRAPHS FOR WATER JET PUMP P 20 - 80

Suction medium: Water



Suction medium: Air



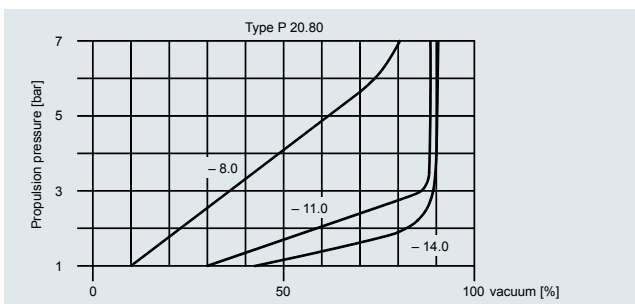
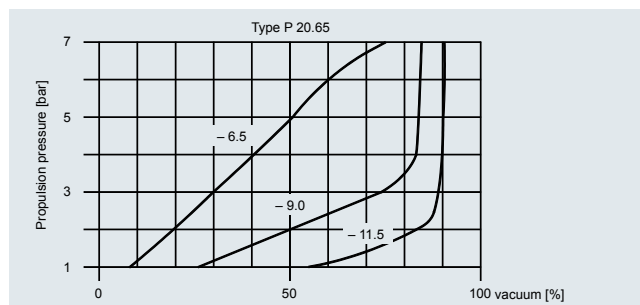
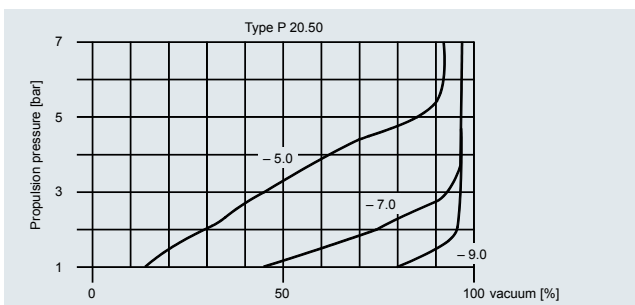
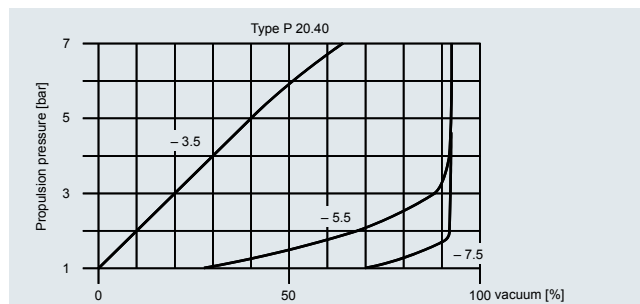
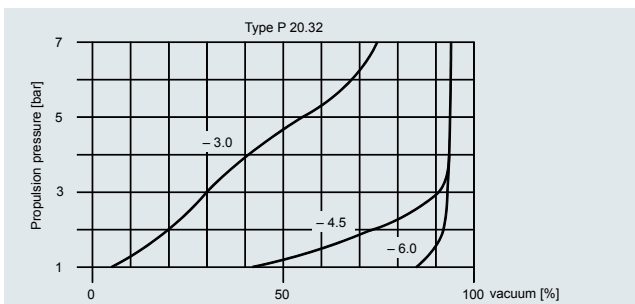
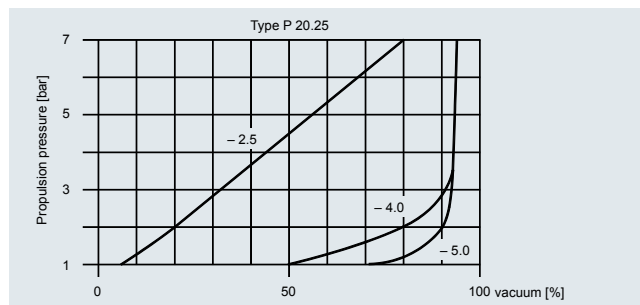
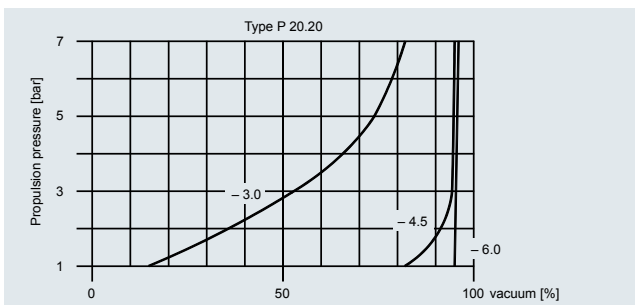
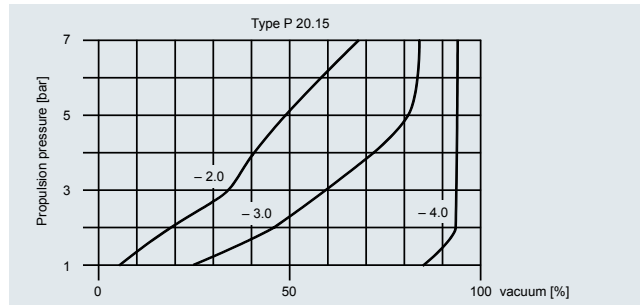
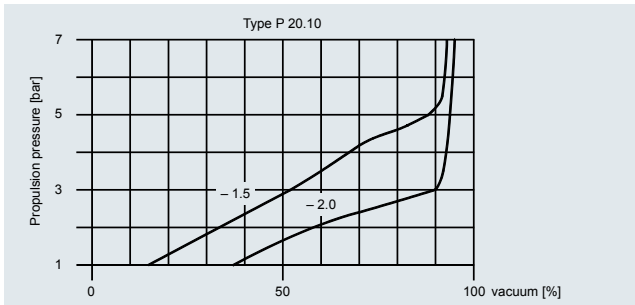
INSTALLATION INSTRUCTIONS

- We recommend installing the water jet pump between two detachable pipe connections. It is advantageous to provide shut-off devices to facilitate any later removal
- A pipe length of at least 5 x DN must be provided upstream and downstream of the pump
- We recommend installing a float-type flow meter in the suction line in order to obtain reference points for the pump's suction capacity
- It is advantageous to install pressure gauges upstream and downstream of the jet pump in order to read off the line pressure and back pressure
- The suction time is significantly reduced by installing a non-return valve in the suction line
- The infeed and drainage lines must have at least the same nominal diameter as the pump
- Precise regulation of the propulsion and suction flow is possible by installing throttle valves

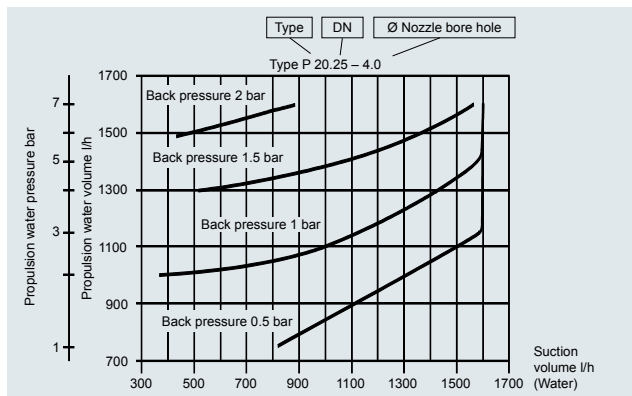
MALFUNCTIONS

Malfunctions can occur e.g. when the operating water pressure fluctuates or is too low, when the back pressure is too high or when the nozzles are dirty and blocked.

MAX. ATTAINABLE VACUUM FOR WATER JET PUMPS P20 DN 10 - DN 80



Note: The indications on the characteristic (e.g. 3.0) are the respective diameter of the nozzle bore hole.



CONFIGURATION OF THE WATER JET PUMP

Information required	Example	Data as per diagram
Propulsion water pressure bar	3 bar	3 bar
Propulsion water volume l/h	1,200 l/h	1,180 l/h
Suction volume l/h	550 l/h	1,150 l/h
Suction medium	HCl 30 %	H ₂ O
Back pressure bar	1 bar	1 bar

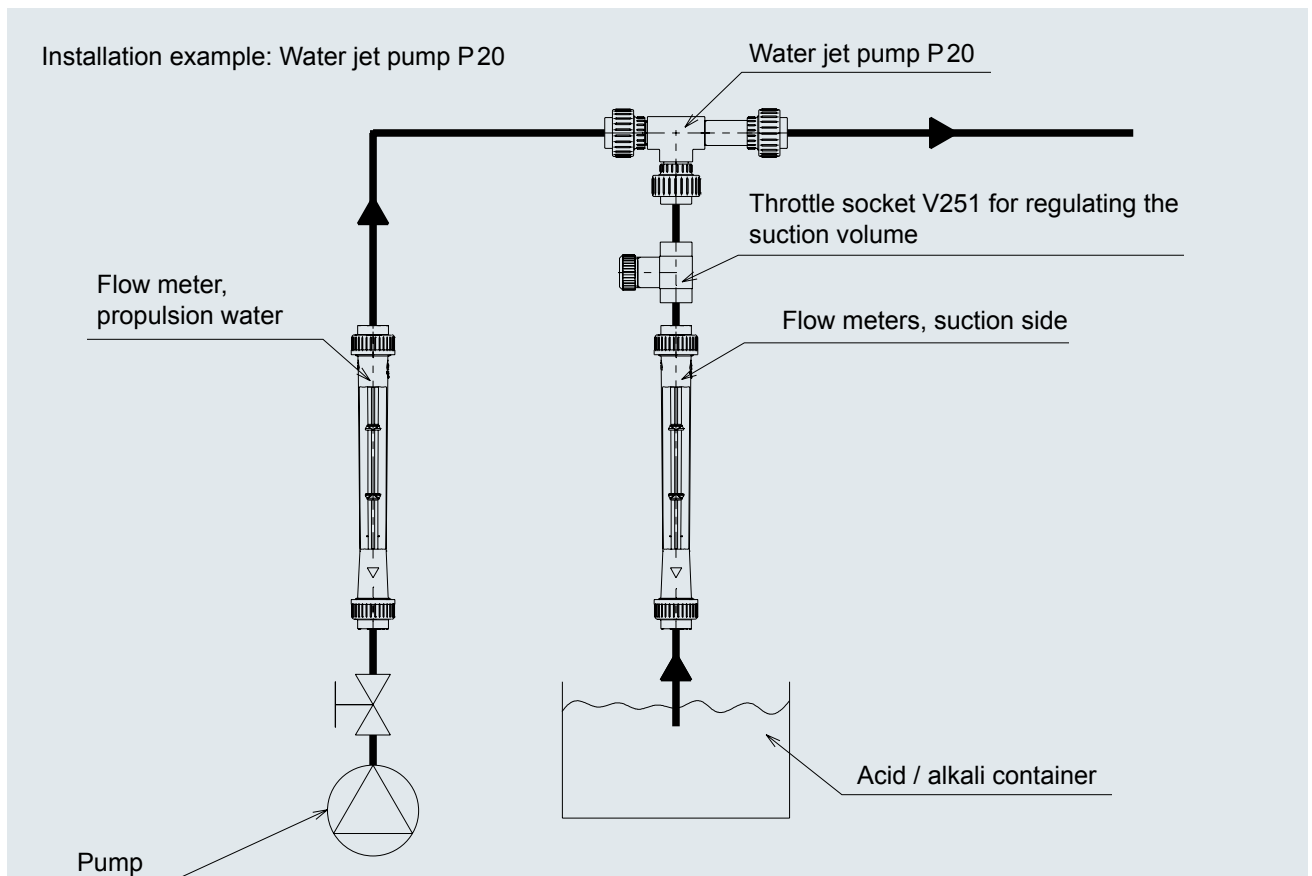
The suction volume must be adjusted to the desired value.

(REPLACEMENT) NOZZLE FOR P₂₀ PVC/PP/PVDF

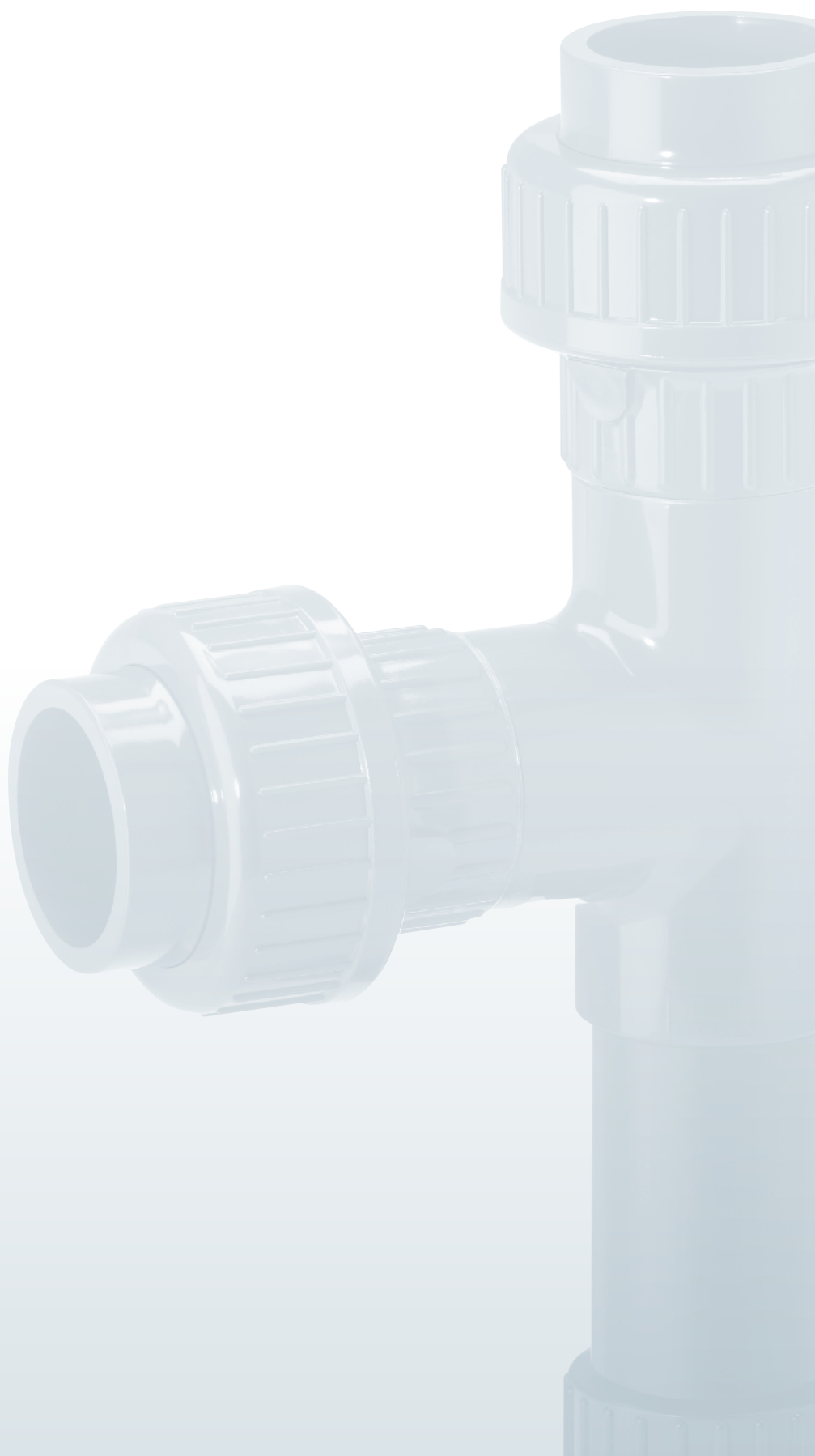
d	DN	PVC Article No.	PP Article No.	PVDF Article No.
16	10	10.002.581	10.002.582	10.002.583
20	15	10.002.581	10.002.582	10.002.583
25	20	10.002.587	10.002.588	10.002.589
32	25	10.002.590	10.002.591	10.002.592
40	32	10.002.593	10.002.594	10.002.595
50	40	10.002.596	10.002.597	10.002.598
63	50	10.002.599	10.002.600	10.002.601
75	65	10.002.602	10.002.603	10.002.604
90	80	10.002.605	10.002.606	10.002.607

Attention

Do not use a diaphragm valve to set the suction volume because the low pressure can cause the diaphragm to adhere to the base. For this, we recommend using the throttle socket V251.



P20



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