

Large-scale ejectors

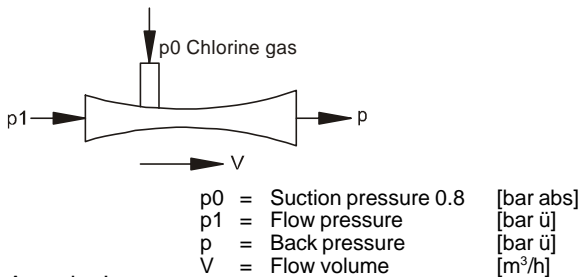
Large-scale ejectors for up to 100 or 200 kg/h of chlorine gas are primarily installed in intermittent chlorination plants for water cooling systems. Ejectors can be optimally designed in dependence of the volume of chlorine to be metered, the volume of motive water available (V), the flow pressure (p1) and the back pressure (p). However, ejectors designed especially to the customer's specification would result in unnecessarily expensive individual units, and long delivery times. It can therefore be worthwhile to use standard ejectors for which, as a compromise, specific operating data are assumed.

In the tables given below, ejectors for up to 100 and 200 kg/h of chlorine gas are specified with a number of different motive water data. The first variant is an ejector with the lowest possible flow pressure and a large flow volume, while the last variant is an ejector with high flow pressure but low flow volume.

The selection of the right type of ejector depends on whether, for example, the motive water is wasted or recirculated back into the system, or whether the use of centrifugal pumps with low capacity but high supply pressure is preferred.

With the operating data remaining the same in both cases, the ejector can be selected as a reasonable uPVC version or as a wear-resistant, rubber-lined cast-iron version.

The suction pressure (p0) of all ejectors is compatible with group C 2700 chlorination units, and amounts to approximately 0.8 bar of absolute pressure at the maximum flow rate.



Attention!

Pressures p and p1 are the pressures directly before and after the ejector. Pressure drops in the pipes must be taken into account.

The operating data apply for motive water temperatures of 20°C.

Nozzle material

Type a and b flow and mixing nozzles are made of PVC, type c flow nozzle is made of Hastelloy, the mixing nozzle of PVC.

Temperature

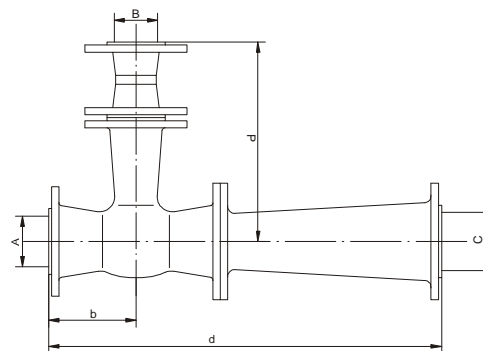
The ejectors can be used at operating temperatures of up to max. 40°C.

Accessories

The fittings required for operation can be found in the data sheets for chlorinators. In every case a nonreturn valve must be fitted at the gas intake (see MB 2 32 01).



Dimensions



Dimensions PVC version

Ejector size	A DN	B DN	C DN	a	b	d
6 a	65	65	65	600	100	136
7 a	80	65	80	675	115	146
8 a	100	65	100	825	135	238
9 a	125	65	125	1050	165	266
10 a	150	65	150	1250	190	286

Dimensions cast iron version

Ejector size	A DN	B DN	C DN	a	b	c
6 b	65	65	80	530	80	229
7 b + c	80	65	100	730	115	135
8 b + c	100	65	125	950	150	285

Operating data and Part Numbers

100 kg/h large-scale ejectors

Operating data			Large-scale ejector			
P bar ü	P1 bar ü	V m³/h	PVC		GG-20 cast iron	
			Type	Part No.	Type	Part No.
1	3	50	7a	23100001	7b	23100018
	4	34		23100002		23100019
	5	28	6a	23100003	6b	23100020
	6	23		23100004		23100021
2	4	95	8a	23100005	8b	23100022
	5	65		23100006		23100023
	6	47	7a	23100007	7b	23100024
	7	38		23100008		23100025
	8	32	6a	23100009	23100026	
3	6	90	8a	23100010	8b	23100027
	7	70		23100011		23100028
	8	57	7a	23100012	7b	23100029
	10	38		23100013		23100030
4	8	87	8a	23100014	8b	23100031
	9	75		23100015		23100032
	10	62	7a	23100016	7b	23100033
5	10	87	8a	23100017	8c	23100034
	12	65	-	-		23100035
	14	49	-	-	7c	23100036
6	12	87	-	-	8c	23100037
	14	70	-	-		23100038
	16	57	-	-	7c	23100039
7	14	87	-	-	8c	23100040
	16	70	-	-		23100041
8	16	87	-	-	8c	23100042

200 kg/h large-scale ejectors

Operating data			Large-scale ejector			
P bar ü	P1 bar ü	V m³/h	PVC		GG-20 cast iron	
			Type	Part No.	Type	Part No.
1	3	100	8a	23100043	8b	23100060
	4	68		23100044		23100061
	5	56	7a	23100045	7b	23100062
	6	46		23100046		23100063
2	4	190	10a	23100047	-	-
	5	130	9a	23100048	8b	23100064
	6	94	8a	23100049		23100065
	7	76		23100050	23100066	
	8	64	23100051	23100067		
3	6	180	10a	23100052	-	-
	7	140	9a	23100053	8b	23100068
	8	114		23100054		23100069
	10	76	8a	23100055	8c	23100070
4	8	174	10a	23100056	-	-
	9	150	9a	23100057	8c	23100071
	10	124		23100058		23100072
	12	94	-	-	-	23100073
	5	10	174	10a	23100059	-
12		130	-	-	8c	23100074
14		98	-	-		23100075
16		85	-	-	23100076	
6	14	140	-	-	8c	23100077
	16	114	-	-		23100078
7	16	140	-	-	8c	23100079

Order example

An intermittent chlorination plant requires 100 kg/h of chlorine gas to be delivered into a system under a pressure of 1 bar. An additional loss of pressure due to the 60m long chlorine solution piping between ejector and injection point is assumed to be 0.8 bar. Therefore the back pressure just after the ejector amounts to 1.8 bar of excess pressure. Since the water used in the water cooling system is constantly recirculated, i.e.: is not wasted, an existing centrifugal pump operated at a pressure of 4 bar with a flow volume of 70 m³ can be used. The recycled water available at a pressure of

1 bar can - with the pressure increase of 4 bar - be brought up to the required pressure p1= 5 bar. Ejector type 8a, Part No. 23100006 requires a flow pressure of 65m³/h of water, which is more than covered by the existing flow of 70m³/h. Since the cooling water does not contain any abrasive suspended particles, and the ejector will only be operated intermittently, the PVC ejector will be sufficient.

