

High pressure nozzles

1/4" M NPT

1/8" M NPT



Impact = 100 %



Impact = 100 %

	0°	15°	25°	40°	65°
<b>D</b>	<b>R+M Nr.</b>	<b>R+M Nr.</b>	<b>R+M Nr.</b>	<b>R+M Nr.</b>	<b>R+M Nr.</b>
02	610 05	613 05	617 50	620 30	625 20
025	610 07	613 07	617 65	620 35	625 25
03	610 10	613 10	617 70	621 00	625 30
034		613 20	617 80		625 35
035	610 20		617 85	621 20	
04	610 30	613 30	617 90	621 30	625 40
045	610 40	613 40	618 00	621 40	625 50
05	610 50	613 50	618 10	621 50	625 60
055	610 60	613 60	618 20	621 60	625 70
06	610 70	613 70	618 30	621 70	625 80
065	610 80	613 80	618 40	621 80	625 90
07	610 90	613 90	618 50	621 90	626 00
075	611 00	614 00	618 60	622 00	
08	611 10	614 10	618 70	622 10	626 10
085	611 20	614 20	618 80	622 20	
09	611 30	614 30	618 90	622 30	626 20
10	611 40	614 40	619 00	622 40	626 30
11	611 50	614 50	619 10	622 50	
12	611 60	614 60	619 20	622 60	
13	611 70	614 70	619 30	622 70	
14	611 75	614 75	619 35		
15	611 80	614 80	619 40	622 80	626 50
20	611 90	614 90	619 50	622 90	626 60
25	612 00	615 00	619 60	623 00	
30	612 10	615 10	619 70	623 20	626 70
35	612 50	615 20	619 75	623 25	
40	612 15	615 25	619 80	623 30	
50	612 20	615 35	619 90	623 32	

	0°	15°	25°	40°	65°
<b>D</b>	<b>R+M Nr.</b>	<b>R+M Nr.</b>	<b>R+M Nr.</b>	<b>R+M Nr.</b>	<b>R+M Nr.</b>
02	630 08	632 05	635 00		
03	630 10	632 10	635 10	638 10	
035		632 15	635 15		
04	630 20	632 20	635 20	638 20	639 591
045	630 30	632 30	635 30	638 30	
05	630 40	632 40	635 40	638 40	639 60
055	630 50	632 50	635 50	638 50	
06	630 60	632 60	635 60	638 60	639 61
065	630 70	632 70	635 70	638 70	
07	630 80	632 80	635 80	638 80	
075	630 90	632 85	635 90	638 90	
08	631 00	633 00	636 00	639 00	
085	631 10	633 10	636 10	639 10	
09	631 20	633 20	636 20	639 20	
10	631 30	633 30	636 30	639 30	639 65
11	631 40		636 40		
12	631 50			639 50	
15		633 60	636 80		

1/4" M NPT - VVSS

1/8" M NPT - VVSS



Impact = 100 %



Impact = 100 %

	40°	65°	80°		
<b>D</b>	<b>R+M Nr.</b>	<b>R+M Nr.</b>	<b>R+M Nr.</b>		
01	620 20	625 10	627 000 1		
015	620 25	625 15	627 00		
02	620 29		627 02		
03			627 03		

	40°	65°			
<b>D</b>	<b>R+M Nr.</b>	<b>R+M Nr.</b>			
01	638 01	639 55 *			
015		639 56			
02		639 57			
03		639 58			

Power 1/4" M NPT - PMEG

Power 1/8" M NPT - PMEG

Nozzle filter VV



Impact = 250 %



Impact = 250 %



	15°	25°			
<b>D</b>	<b>R+M Nr.</b>	<b>R+M Nr.</b>			
04	613 305	617 905			
045	613 405	618 005			
05	613 505	618 105			
055	613 605	618 205			
06	613 705	618 305			
065	613 805	618 405			

	15°	25°
<b>D</b>	<b>R+M Nr.</b>	<b>R+M Nr.</b>
04	632 205	635 205
045	632 305	635 305
05	632 405	635 405
055	632 505	635 505
06	632 605	635 605
065	632 705	635 705

Brass. Max. 70 bar

R+M Nr.	nozzle
649 90	1/4"
649 95	1/8"

Symbols **D** nozzle

\* brass

## High pressure nozzles

### Tip nozzle



Impact = 100 %

	0°	15°	25°	40°	65°
<b>D</b>	<b>R+M Nr.</b>	<b>R+M Nr.</b>	<b>R+M Nr.</b>	<b>R+M Nr.</b>	<b>R+M Nr.</b>
02	600 02	602 40	604 90	607 40	609 052
025		602 45	604 95		
03	600 05	602 50	605 00	607 50	609 053
034	600 06	602 55	605 05		609 34
04	600 10	602 60	605 10	607 60	609 10
045	600 20	602 70	605 20	607 70	
05	600 30	602 80	605 30	607 80	609 30
055	600 40	602 90	605 40	607 90	609 305
06	600 50	603 00	605 50	608 00	
065	600 60	603 10	605 60	608 10	
07	600 70	603 20	605 70	608 20	
075	600 75	603 25	605 75	608 25	
08	600 80	603 30	605 80	608 30	609 008
085	600 90	603 40	605 90		
09	601 00	603 50	606 00	608 40	
10	601 10	603 60	606 10	608 60	609 100
12		603 70	606 20	608 66	
13	601 30	603 80	606 30	608 70	
15	601 40	603 90	606 40	608 80	
20	601 50		606 50	609 00	609 200

## Tip cleaner



High speed steel (HSS) with aluminium shaft.

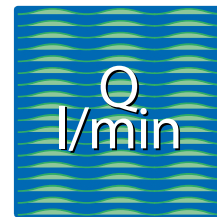
↔ 42 mm

<b>R+M Nr.</b>	∅
200 049 042	0.5

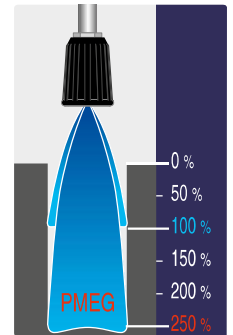
### Advantages of Power-MEG nozzle



3 times faster



saves up to 60 % water



3 times higher impact

## Ceramic high pressure nozzles



### 1/4" M NPT



Impact = 100 %. Max. 300 bar / 125 °C

	0°	15°	25°	40°	
<b>D</b>	<b>R+M Nr.</b>	<b>R+M Nr.</b>	<b>R+M Nr.</b>	<b>R+M Nr.</b>	
02	610 056	613 056	617 506*	620 306	
025		613 076	617 656	620 356	
03	610 106*	613 106	617 706	621 006	
035	610 206*	613 206	617 806	621 206*	
04	610 306*	613 306	617 906	621 306	
045	610 406*	613 406	618 006	621 406	
05	610 506*	613 506	618 106	621 506	
055	610 606*	613 606	618 206	621 606	
06	610 706	613 706	618 306	621 706	
065	610 806*		618 406	621 806	
07		613 906	618 506		
075	611 006*	614 006*		622 006*	
08	611 106*	614 106*		622 106	
09				622 306*	
10	611 406*	614 406*	619 006*	622 406*	
11	611 506*	614 506	619 106*	622 506*	
12	611 606*	614 606*	619 206*	622 606*	
15	611 806*	614 806	619 406*	622 806*	

- » Ceramic inserts provide up to 10 times the life of stainless steel inserts, maximizing your return of investment and decreasing downtime for nozzle replacement.
- » Extra long life ceramic orifice is nearly diamond-hard to resist wear.
- » The used ceramic is specially designed for high pressure and elevated temperature.
- » The extremely hard ceramic insert guarantees a more precise and stronger
- » Wedge-shaped orifice insert seats tightly as spray pressure increases.
- » The external body made out of stainless steel V2A / AISI 304 has a polished surface which is resistant to rust and slight damages.
- » The nozzles are equipped with a 1/4" M NPT connection.

### 1/4" M NPT



Impact = 100 %. Max. 500 bar / 150 °C

0°

<b>D</b>	<b>R+M Nr.</b>
025	610 076 1*
03	610 106 1*
045	610 406 1*

\* limited stock

## Further information about high pressure nozzles

Output in l/min depends on pressure in bar

D	Ø*	Pressure in bar											
		3	10	20	30	40	50	60	70	80	90	100	110
01	0.59	0.4	0.7	1.0	1.3	1.4	1.6	1.7	1.8	2.0	2.1	2.2	2.3
015	0.71	0.6	1.0	1.5	1.8	2.1	2.4	2.6	2.8	3.0	3.2	3.4	3.6
02	0.84	0.8	1.4	2	2.5	2.8	3.2	3.5	3.7	4.0	4.2	4.5	4.7
025	0.94	1.0	1.6	2.5	3.1	3.5	4.0	4.3	4.7	5.0	5.3	5.6	5.9
03	1.03	1.2	2.0	3.1	3.7	4.3	4.8	5.3	5.7	6.1	6.3	6.8	7.1
035	1.10	1.4	2.5	3.6	4.2	4.9	5.5	6.0	6.5	7.0	7.4	7.8	8.2
04	1.21	1.6	2.8	4.1	5.2	5.9	6.6	7.3	7.8	8.4	8.9	9.4	9.8
045	1.26	1.8	3.1	4.5	5.5	6.4	7.1	7.8	8.4	9.0	9.6	10.2	10.5
05	1.33	2.0	3.5	5.1	6.2	7.1	8.0	8.7	9.4	10.0	10.7	11.3	11.8
055	1.39	2.2	3.7	5.6	6.8	7.8	8.7	9.6	10.3	11.1	11.8	12.4	13.0
06	1.46	2.4	4.1	6.1	7.4	8.6	9.6	10.4	11.3	12.1	12.8	13.6	14.3
065	1.52	2.6	4.3	6.6	8.0	9.3	10.4	11.3	12.3	13.2	14.0	14.7	15.4
07	1.57	2.8	5.0	7.1	8.6	10.0	11.2	12.2	13.2	14.1	15.0	15.8	16.6
075	1.63	3.0	5.3	7.6	9.3	10.7	12.0	13.1	14.2	15.2	16.1	16.9	17.7
08	1.68	3.2	5.6	8.2	9.8	11.3	12.7	14.0	15.1	16.1	17.1	18.0	18.9
085	1.73	3.4	6	8.7	10.4	12.1	13.5	14.8	16.0	17.1	18.1	19.1	20.0
09	1.78	3.6	6.5	9.2	11.1	12.8	14.3	15.7	17.0	18.0	19.2	20.2	21.2
10	1.88	3.9	7.0	10.2	12.3	14.2	16.0	17.4	18.9	20.1	21.4	22.5	23.6
11	1.96	4.3	7.8	11.2	13.4	15.5	17.3	19.0	20.5	22.0	23.3	24.5	25.7
12	2.05	4.7	8.4	12.3	14.6	16.9	18.9	20.8	22.4	24.0	25.4	26.8	28.1
13	2.13	5.1	9.5	13.3	15.9	18.3	20.5	22.5	24.3	26.0	27.5	29.0	30.4
14	2.21	5.5	10.2	14.3	17.1	19.7	22.1	24.2	26.1	28.0	29.6	31.3	32.8
15	2.30	5.9	10.8	15.3	18.5	21.3	23.9	26.1	28.3	30.2	32.1	33.8	35.3
20	2.66	7.9	14	20.5	24.7	28.5	31.9	34.9	37.8	40.3	42.7	45.1	47.2
30	3.25	11.8	21.1	31.0	37.0	42.7	47.8	52.4	56.6	60.5	64.2	67.6	70.9
40	3.76	15.8	28.0	41.0	49.4	57.0	63.7	69.8	75.4	80.7	85.5	90.2	94.6
50	4.28	19.7	35.3	51.0	61.50	71.00	80.00	87.00	94.50	102.50	107.00	112.50	118.00

Choosing the suitable nozzle is most important for output and smooth function of the high pressure cleaner:

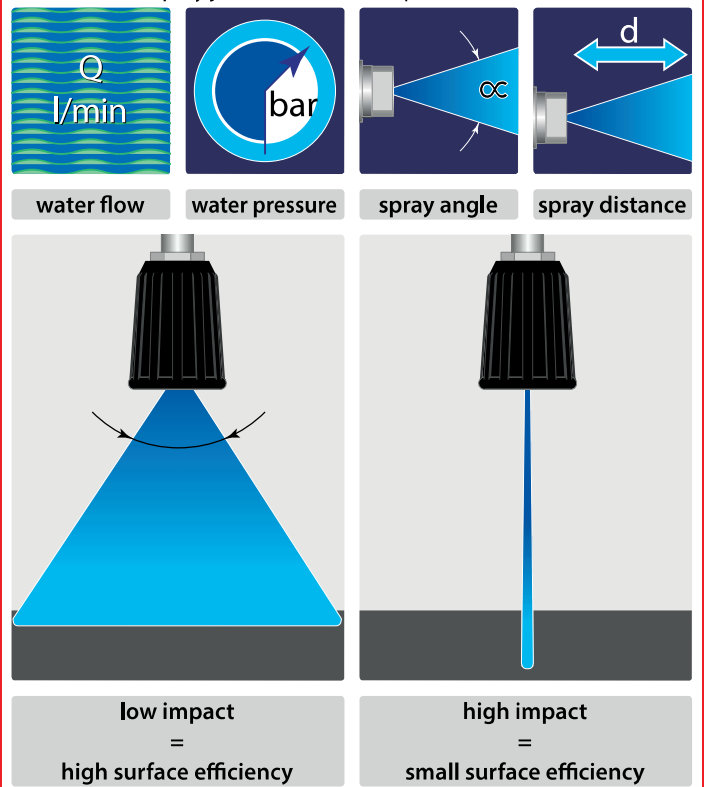
**Nozzle too small** = machine permanently switches into bypass or off.  
**Nozzle too wide** = machine has a small output, lower pressure.

### How to choose the suitable nozzle?

Attention: pressure and flow of the high pressure cleaner must be known e.g. 15 l/min (900 l/h) - working pressure of 150 bar.

1. In the first line (pressure in bar) please go to column "150".
2. Follow column "150" down to find l/min: take "15.2" (nearest to 15).
3. Turn left in line "15.2" until the first column and stop at nozzle type "055".
4. The size you need is "055"
5. On pages 264 -265 please select type of nozzle and spray angle.
6. In line "055" please find the R+M Nr. of the nozzle you need.

Important for excellent high pressure cleaning is the impact of the spray jet which is made up of 4 features.



\* hole diameter in mm

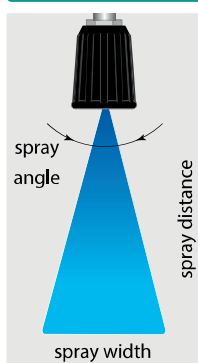
## Further information about high pressure nozzles

Output in l/min depends on pressure in bar

D	Ø	Pressure in bar											
		120	130	140	150	160	175	200	225	250	300	400	500
01	0.59	2.4	2.5	2.6	2.7	2.8	2.9	3.1	3.3	3.5	3.8	4.4	4.9
015	0.71	3.7	3.8	4.0	4.2	4.3	4.5	4.8	5.1	5.4	5.9	6.7	7.5
02	0.84	4.8	5.0	5.3	5.4	5.6	5.9	6.3	6.7	7.0	7.7	8.9	9.9
025	0.94	6.1	6.4	6.6	6.9	7.1	7.5	8.0	8.5	9.0	9.9	11.4	12.7
03	1.03	7.4	7.7	8.0	8.3	8.6	9.0	9.6	10.2	10.7	11.8	13.5	15.1
035	1.10	8.6	8.9	9.2	9.5	9.8	10.3	11.0	11.7	12.3	13.8	15.5	17.8
04	1.21	10.3	10.7	11.1	11.5	11.9	12.4	13.3	14.1	14.8	16.3	18.7	20.9
045	1.26	10.9	11.4	11.8	12.2	12.6	13.2	14.1	15.0	15.8	17.4	19.9	22.3
05	1.33	12.4	12.9	13.4	13.8	14.3	14.9	16.0	16.9	17.9	19.7	22.6	25.3
055	1.39	13.6	14.1	14.7	15.2	15.7	16.4	17.5	18.6	19.6	21.7	25.0	28.0
06	1.46	14.9	15.5	16.0	16.7	17.2	18.0	19.2	20.4	21.5	23.7	27.1	30.3
065	1.52	16.1	16.8	17.4	18.0	18.6	19.4	20.8	22.0	23.2	25.6	29.3	32.7
07	1.57	17.3	18.0	18.7	19.3	20.0	20.9	22.3	23.7	25.0	27.1	31.3	35.0
075	1.63	18.5	19.3	20.0	20.7	21.4	22.4	23.9	25.3	26.7	29.4	33.7	37.7
08	1.68	19.7	20.5	21.3	22.0	22.8	23.8	25.5	27.0	28.5	31.4	35.9	40.2
085	1.73	20.9	21.8	22.6	23.4	24.1	25.3	27.0	28.6	30.2	34.5	39.8	44.5
09	1.78	22.1	23.0	23.9	24.7	25.5	26.7	28.6	30.3	31.9	35.1	40.2	45.0
10	1.88	24.6	25.6	26.6	27.6	28.5	29.8	31.8	33.7	35.6	39.2	44.9	50.2
11	1.96	26.9	28.0	29.1	30.1	31.1	32.5	34.7	36.8	38.8	43.4	50.1	56.0
12	2.05	29.4	30.6	31.7	32.8	33.9	35.4	37.9	40.2	42.4	46.7	53.4	59.8
13	2.13	31.8	33.1	34.4	35.6	36.7	38.4	41.1	43.6	45.9	50.5	57.8	64.7
14	2.21	34.2	35.6	37.0	38.3	39.5	41.4	44.3	46.9	49.4	55.0	63.5	71.0
15	2.30	36.9	38.4	39.9	41.3	42.6	44.6	47.7	50.6	53.3	58.7	67.2	75.2
20	2.66	49.3	51.3	53.2	55.1	56.9	59.5	63.6	67.5	71.1	78.2	89.6	100.0
30	3.25	74.0	77.1	80.0	82.8	85.5	89.4	95.6	101.0	107.0	118.0	149.0	151.0
40	3.76	98.8	103.0	107.0	110.0	114.0	119.0	127.0	135.0	143.0	157.0	198.0	202.0
50	4.28	123.00	128.00	133.00	138.00	142.50	149.00	159.00	168.50	178.00	196.00	224.50	251.00

## Spray width depending on spray angle and distance

Angle	Distance in cm										
	1	2	3	5	7	10	20	30	50	70	100
5°	0.09	0.17	0.26	0.44	0.61	0.87	1.75	2.62	4.37	6.11	8.73
10°	0.17	0.35	0.52	0.87	1.22	1.75	3.50	5.25	8.75	12.25	17.50
15°	0.26	0.53	0.79	1.32	1.84	2.63	5.27	7.90	13.17	18.43	26.33
20°	0.35	0.71	1.06	1.76	2.47	3.53	7.05	10.58	17.63	24.69	35.27
25°	0.44	0.89	1.33	2.22	3.10	4.43	8.87	13.30	22.17	31.04	44.34
40°	0.73	1.46	2.18	3.64	5.10	7.28	14.56	21.84	36.40	50.96	72.79
65°	1.27	2.55	3.82	6.37	8.92	12.74	25.48	38.22	63.71	89.19	127.41
80°	1.68	3.36	5.03	8.39	11.75	16.78	33.56	50.35	83.91	117.47	167.82
110°	2.86	5.71	8.57	14.28	19.99	28.56	57.13	85.69	142.81	199.94	285.63



Symbols diameter nozzle flow

## Nozzle protector and nozzle holder

### 2-component nozzle protector ST-10

The ST-10 is the ideal combination made out of hard and soft plastics. The nozzle protector is suitable for cold and hot water applications in the car wash, agriculture and food industry. The ST-10 is unimpeachable, protects your nozzles and preserves the surfaces to be cleaned at the same time. Suitable for nozzles 1/4" M NPT. Zinc-plated steel max. 400 bar. Stainless steel max. 500 bar

Plastic. Zinc-plated steel	Plastic. Zinc-plated steel	Plastic. Zinc-plated steel	Plastic. Zinc-plated steel	Plastic. Stainless steel	Plastic. Stainless steel		
R+M Nr. 200 010 500	R+M Nr. 200 010 510	R+M Nr. 200 010 520	R+M Nr. 200 010 530	R+M Nr. 200 010 770	R+M Nr. 200 010 760		
Plastic. Stainless steel	Plastic. Stainless steel	Plastic. Stainless steel	Plastic. Stainless steel	Plastic. Stainless steel	Plastic. Stainless steel		
R+M Nr. 200 010 700	R+M Nr. 200 010 710	R+M Nr. 200 010 720	R+M Nr. 200 010 730	R+M Nr. 200 010 755	R+M Nr. 200 010 740		

For nozzles with filter. Plastic. Stainless steel. R+M Nr. 200 010 745

For nozzles with filter. Plastic. Stainless steel. R+M Nr. 200 010 725

### For nozzles 1/4" M NPT

ST-005. Plastic. Zinc-plated steel	ST-005. Plastic. Stainless steel	Rubber. Zinc-plated steel	Socket. Brass. Quadrangle	ST-12. Plastic. Zinc-plated steel	1/4" F NPT : 3/8" F. Stainless steel. Socket	Socket. Round. Stainless steel
R+M Nr. 200 000 003	R+M Nr. 200 000 008	R+M Nr. 519 05	R+M Nr. 518 00	R+M Nr. 200 012 500	R+M Nr. 710 101 350	R+M Nr. 040 004 100

### For nozzles 1/8" M

ST-005. Plastic. Zinc-plated steel	Socket. Hexagon. Stainless steel	Socket. Plastic. For nozzle with hexagon 13 + 14	2-component nozzle protector ST-10. Plastic. Stainless steel
R+M Nr. 200 000 004	R+M Nr. 518 70	R+M Nr. 519 32	R+M Nr. 200 010 830

### For tip nozzles

1/4" F : M18 M. Nozzle holder EG. Brass	O-ring. Nozzle holder EG	M18 F. Nozzle holder EG. Stainless steel	M18 F. Nozzle protector
R+M Nr. 010 000 043	R+M Nr. 790 25	R+M Nr. 040 000 041	R+M Nr. 519 60
1/4" F. Nozzle protector complete without nozzle tip.	1/4" F : M18 F. Adaptor. Brass	1/4" M : M18 F. Adaptor 2 pieces	3/8" M : M18 F. Adaptor. Stainless steel
R+M Nr. 519 601	R+M Nr. 519 40	R+M Nr. 519 70	R+M Nr. 040 001 125

### Adaptor 500 bar lances

	1/4" M : M20 F. Stainless steel
R+M Nr. 519 714 209	

### Nozzle protector

	Rubber
R+M Nr. 519 35	

Symbols nozzle colour coding