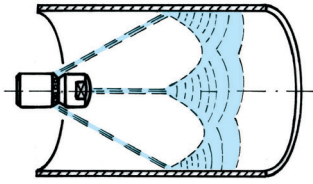
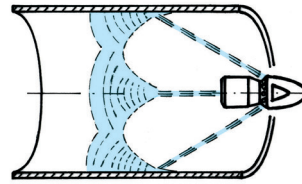


## 1. General information on pipe cleaning

All pipe cleaning nozzles have to be chosen with either onwards or backwards directed jets. The choice depends on the pipe's position and the cleaning effect required.



**V** - Onwards directed cleaning flows push liquid and dirt particles ahead of them, leaving a clean pipe wall behind. These nozzles are marked with an additional V.



**H** - Backwards directed cleaning flows pull the nozzle through the pipe. Dissolved soilings may be left behind if drainage velocity is too low resp. pipes are too long. These nozzles are marked with an additional H.

## 2. Pipe cleaning nozzle GR

### Characteristics

Multiplex solid stream at the nozzle top with respectively high spray intensity and maximum force of impact.

Backwards or onwards directed water jet available.

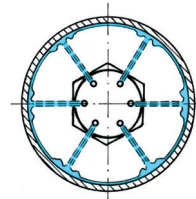
The backwards directed water jet pulls the nozzle through the pipe.

### Application

Pipe and sewer cleaning

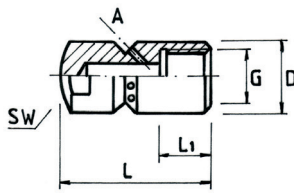
### Material

Stainless steel  
Galvanized stainless steel



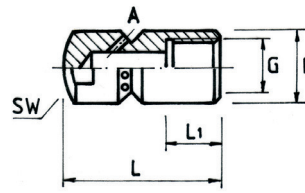
The cleaning flows impinge forcefully, slopingly, either onwards or backwards directed on the pipe's inside walls. This causes the jet to spread between the points of impact, and to clean all of the pipe's inside walls.

Illu. 1



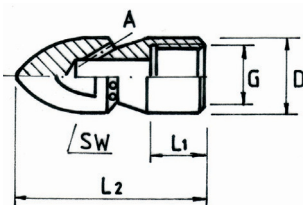
Type **GR-V** 1/8" - 3/4"  
with onwards directed water jet

Illu. 2



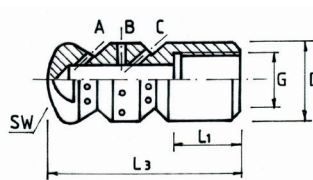
Type **GR-H** 1/8" - 3/4"  
with backwards directed water jet

Illu. 3



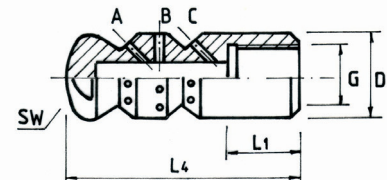
Type **GR 2-H** 1/8" - 1 1/2"  
with backwards directed water jet

Illu. 4



Special types available on request,  
with onwards directed water jet

Illu. 5



Sonderformen auf Anfrage  
with backwards directed water jet

### Sewer pipe and pipe cleaning nozzle type GR,

flow rate for one bore, diameter and number of bores varies with pump capacity

| Type<br>bore- Ø<br>(mm) | Flow rate V (l/min.) at pressure p (bar)<br>for 1 bore |           |           |            |            |            |            |            |            |
|-------------------------|--------------------------------------------------------|-----------|-----------|------------|------------|------------|------------|------------|------------|
|                         | 30<br>bar                                              | 50<br>bar | 80<br>bar | 100<br>bar | 120<br>bar | 150<br>bar | 200<br>bar | 300<br>bar | 400<br>bar |
| GR 1.0                  | 2.36                                                   | 3.06      | 3.88      | 4.33       | 4.75       | 5.30       | 6.12       | 7.50       | 8.65       |
| GR 1.1                  | 2.88                                                   | 3.72      | 4.70      | 5.25       | 5.75       | 6.40       | 7.40       | 9.10       | 11.7       |
| GR 1.2                  | 3.44                                                   | 4.45      | 5.65      | 6.30       | 6.90       | 7.70       | 8.90       | 10.9       | 14.0       |
| GR 1.3                  | 4.02                                                   | 5.20      | 6.60      | 7.35       | 8.05       | 9.00       | 10.3       | 12.7       | 16.4       |
| GR 1.4                  | 4.68                                                   | 6.05      | 7.65      | 8.55       | 9.30       | 10.5       | 12.1       | 14.8       | 19.1       |
| GR 1.5                  | 5.39                                                   | 6.95      | 8.70      | 9.80       | 10.7       | 12.0       | 13.9       | 17.0       | 22.0       |
| GR 1.6                  | 6.12                                                   | 7.90      | 10.0      | 11.2       | 12.2       | 13.7       | 15.8       | 19.3       | 25.0       |
| GR 1.7                  | 6.90                                                   | 8.90      | 11.2      | 12.6       | 13.8       | 15.4       | 17.8       | 21.8       | 28.2       |
| GR 1.8                  | 7.75                                                   | 10.0      | 12.7      | 14.2       | 15.5       | 17.3       | 20.0       | 24.5       | 32.0       |
| GR 1.9                  | 8.90                                                   | 11.5      | 14.5      | 16.3       | 17.8       | 19.9       | 23.0       | 28.5       | 36.8       |
| GR 2.0                  | 9.45                                                   | 12.2      | 15.4      | 17.2       | 18.9       | 21.1       | 24.4       | 29.8       | 38.5       |
| GR 2.2                  | 11.5                                                   | 14.9      | 18.8      | 21.0       | 23.0       | 25.6       | 29.8       | 36.5       | 47.0       |
| GR 2.5                  | 14.9                                                   | 19.2      | 24.3      | 27.2       | 29.8       | 33.2       | 38.3       | 47.0       | 60.5       |
| GR 2.8                  | 18.6                                                   | 24.0      | 30.4      | 34.0       | 37.2       | 41.5       | 48.0       | 58.5       | 76.0       |
| GR 3.0                  | 21.4                                                   | 27.7      | 35.0      | 39.2       | 43.0       | 48.0       | 55.4       | 67.8       | 87.5       |

Order example:  
(thread - type - number of bores -  
spray angle)  
3/8" - GR 2H - 6 x 45°

| G<br>ISO 228 | Dimensions in mm |    |     |    |    |
|--------------|------------------|----|-----|----|----|
|              | D                | L  | L2  | L1 | SW |
| 1/8"         | 12               | 25 | 35  | 10 | 9  |
| 1/4"         | 16               | 30 | 40  | 11 | 14 |
| 3/8"         | 22               | 33 | 45  | 12 | 17 |
| 1/2"         | 28               | 35 | 52  | 14 | 24 |
| 3/4"         | 39               | 40 | 65  | 20 | 32 |
| 1"           | 44               |    | 75  | 22 | 36 |
| 1 1/4"       | 54               |    | 95  | 24 | 41 |
| 1 1/2"       | 59               |    | 108 | 24 | 50 |