

# Simple integration in a range of processes

## Injection nozzles



### Injecting the transported chemicals

The injection nozzle is a fitting with which the dosing medium is introduced into a pressurised system.

A non-return valve with a spring-loaded ball (type R) or a valve hose (type S) ensures that under conditions of normal dosing operation and with process-related shut down times, no process medium can flow backwards into the dosing pump.

Injection nozzles should be fitted with a shutoff valve wherever possible. This means that the dosing system (inc. non-return valve) can be separated from the pressurised system (e.g. for maintenance).

The shutoff valve can be closed during longer downtimes, as the leak-free status of the non-return valve can be compromised through impurities or wear.

The most important factor in choosing the corresponding injection nozzle is the flow volume of the dosing chemical, the chemical resistance, the temperature-resistance and the function of the non-return function

Temperature-resistance

- PVC injection nozzles: up to 40°C
- PP injection nozzles: up to 60°C
- PVDC injection nozzles: up to 80°C
- Stainless steel injection nozzles up to 80°C with a cooling pipe up to 120°C

### Functions

- Flow capacity 70 – 2600 l/h
- Opening pressure 0.1 – 1.1 bar
- system pressure PN 10 (special versions up to PN160)
- Type S: a pre-tensioned hose effects very fine spraying of the chemical during the dosing stroke
- Type SAH: Dismantling of the injection pipe under system pressure possible
- Type SKD: self-cleaning by constantly-moving injection hose in the main flow
- The injection pipe (type I) enables the spraying of the dosing chemical in the centre of the pipe line, and ensures good mixing
- The non-return valve (type R and S) prevents fluids from the pressurised system from flowing back into the dosing pump.
- A shutoff valve (type IRA) enables the dosing system to separate from the pressurised system and provides a secure shutoff during longer downtimes
- A cooling pipe enables the emission of heat, if dosing is to be performed via a plastic dosing line in a system with high temperatures
- Different transmissions from the injection nozzle to the dosing line possible e.g. hose, a rigid line or via a flange (F)

## Technical data

| Hose injection nozzles                  |     | Type S                                  | Type SKD                          | Type SAH                          |
|-----------------------------------------|-----|-----------------------------------------|-----------------------------------|-----------------------------------|
| Opening pressure                        | bar | 1.1                                     | 0.2                               | 1.1                               |
| Nominal width                           |     | DN4                                     |                                   |                                   |
| Nominal pressure                        |     | PN10, PN16 (observe max. hose pressure) | PN16 (observe max. hose pressure) | PN10 (observe max. hose pressure) |
| max. flow capacity for continuous flow* | l/h | 70                                      |                                   |                                   |
| Housing material                        |     | PVC, PP, brass, stainless steel         | PVC, PVDF                         | PVC                               |
| Valve hose material                     |     | FPM, EPDM                               |                                   |                                   |

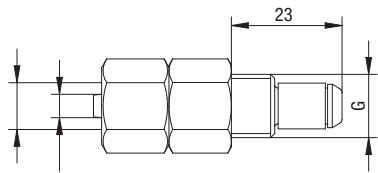
| Injection nozzles with non-return valve |     | Type R                                                      | Type IR        | Type IRA | Type IRF                             | Type IRAF                            |
|-----------------------------------------|-----|-------------------------------------------------------------|----------------|----------|--------------------------------------|--------------------------------------|
| Opening pressure                        | bar | 0.1 or 1.1                                                  |                |          |                                      |                                      |
| Nominal width                           |     | DN4, DN6, DN10, DN15, DN25                                  | DN4, DN6, DN10 |          | DN10, DN15, DN25                     |                                      |
| Nominal pressure                        |     | DN4: PN16<br>DN6 – DN25: PN10                               |                |          | PN10                                 |                                      |
| max. flow capacity for continuous flow* | l/h | DN4: 70<br>DN6: 150<br>DN10: 400<br>DN15: 900<br>DN25: 2600 |                |          | DN10: 400<br>DN15: 900<br>DN25: 2600 | DN10: 400<br>DN15: 900<br>DN25: 2500 |
| Housing material                        |     | PVC, PP, PVDF, stainless steel                              |                |          |                                      |                                      |
| Seal material                           |     | FPM, EPDM (CSM), PTFE, AF (asbestos free)                   |                |          |                                      |                                      |
| Spring material                         |     | Hastelloy C4 (Hastelloy C22)                                |                |          |                                      |                                      |

Other connections and materials available on request.

\*Flow control for uniform flow. If a pulsation damper is not used, the maximum flow with motor pumps amounts to 1/3 and with solenoid pumps, 1/10 of the stated value.

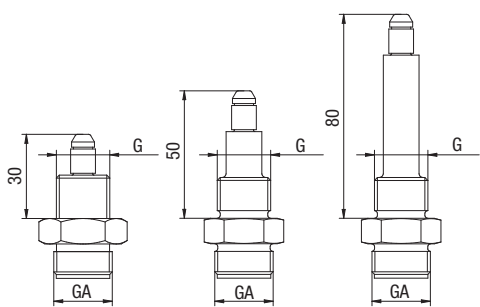
## Dimensions

Type S (with integrated connection)

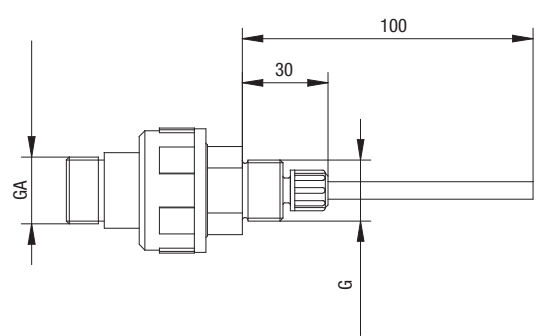


| Injection nozzle |   | Type S (with integrated connection) |
|------------------|---|-------------------------------------|
| Hose connection  |   | 4/6, 6/8, 6/12                      |
| Screw-in thread  | G | G1/2, G1/4                          |

Type S (with separate connection)

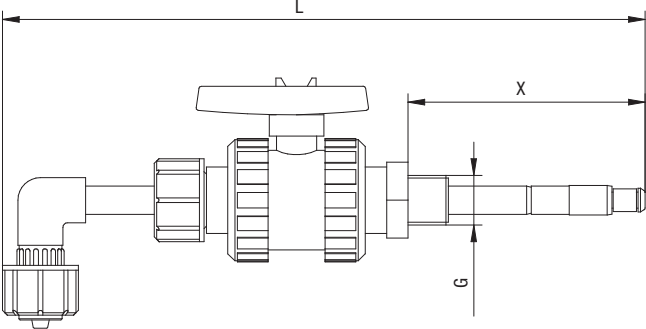


Type SKD



| Injection nozzle    |    | Type S (with separate connection) | Type SKD |
|---------------------|----|-----------------------------------|----------|
| Cemented connection | GA | G5/8                              | G5/8     |
| Screw-in thread     | G  | G1/2                              | G1/2     |

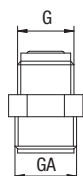
Type SAH



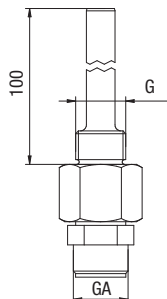
| Injection nozzle      |   | Type SAH                                                                                                                                                                           |
|-----------------------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hose connection       |   | 4/6, 6/9, 6/12 (further connections possible)                                                                                                                                      |
| Screw-in thread       | G | R1/2                                                                                                                                                                               |
| Length injection pipe | X | for pipe DN100 – DN150: 0 mm – 100 mm<br>for pipe DN150 – DN400: 100 mm – 200 mm                                                                                                   |
| Total length          | L | for pipe DN100 – DN150: 267 mm (without hose connection), 271 mm (with hose connection)<br>for pipe DN150 – DN400: 367 mm (without hose connection), 371 mm (with hose connection) |

## Dimensions

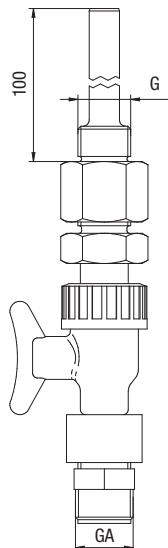
Type R  
(non-return valve)



Type IR  
(injection nozzle with non-return valve)

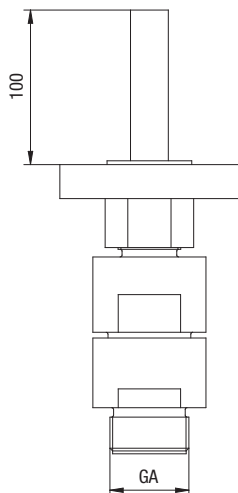


Type IRA  
(injection nozzle with non-return valve and shut-off fitting)

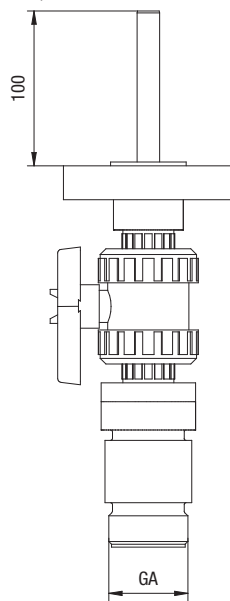


| Injection nozzle | Type R |      |        |      |        | Type IR / Type IRA |      |        |        |        |
|------------------|--------|------|--------|------|--------|--------------------|------|--------|--------|--------|
| Nominal width    | DN4    | DN6  | DN10   | DN15 | DN25   | DN4                | DN6  | DN10   | DN15   | DN25   |
| G                | G1/2   | G3/4 | G1 1/4 | G1   | G1 1/2 | G1/4               | G1/2 | G1     |        | G1 1/2 |
|                  |        |      |        |      |        | G1/2               | G3/4 | G1 1/4 | G1 1/2 | G2     |
|                  |        |      |        |      |        | G3/4               | G1   | G1 1/2 | G2     |        |
| GA               | G5/8   | G1   | G1 1/4 |      | G1 1/2 | G5/8               | G1   | G1 1/4 |        | G1 1/2 |

Type IRF (injection nozzle with non-return valve and flange connection)



Type IRAF (injection nozzle with non-return valve, shut-off valve and flange connection)



| Injection nozzle | Type IRF / Type IRAF |        |        |
|------------------|----------------------|--------|--------|
| Nominal width    | DN10                 | DN15   | DN25   |
| GA               | G1 1/4               | G1 1/4 | G1 1/2 |