

## Characteristics

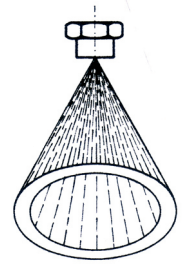
Inside of MC's hollow cone return nozzles **HR** a part of the liquid amount is discharged via a valve in the return, which decreases the liquid outlet of the nozzle without noteworthy fluctuations in spray angle and droplet size. The atomizing quality depends on nozzle size, control range and special operating conditions. Pressures above 40 bar result in finer droplets than the other way around.

## Application

Gas treatment  
Desuperheating steam

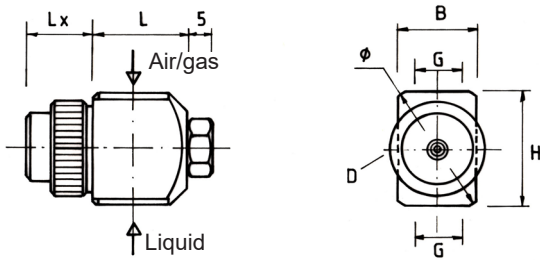
## Material

Stainless steel,  
Acid and  
heat resistant  
stainless steels



**Hollow cone spray pattern**

## 1. Dimensions

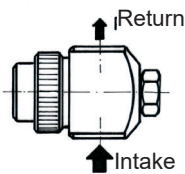


Type	G	L	L1*	H	B	Ø	Varies with air cap L x	D
HR 1-2	1/8" or 1/4"	25	45	30	20	34	17 to 21	24
HR 3-6	3/8" or 1/2"	38	68	50	30	52	20 to 28	33

\* Length of variant 3

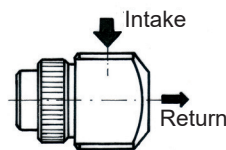
## 2. Connection variants

**Variant 1**  
Standard



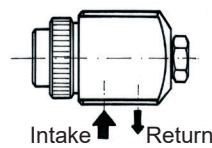
**Variant 2**

Most inexpensive variant; however, no control needle possible



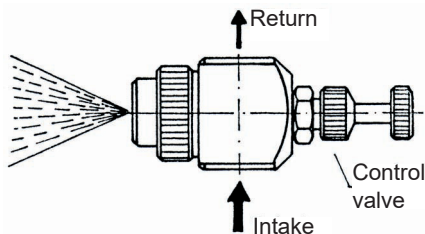
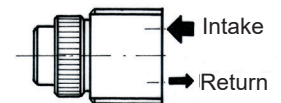
**Variant 3**

Both connections on one side

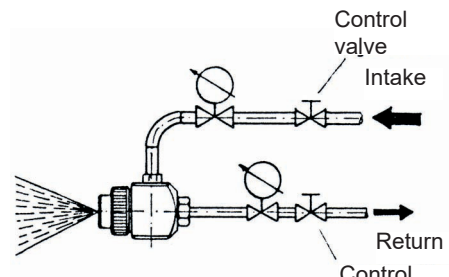


**Variant 4**

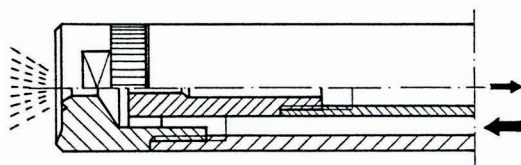
With connections on the backside



HR nozzle with integrated control valve



Rule example without integrated control valve



Rule example with nozzle lance  
**ZL 1/2" - HR-2**  
(other see page 11.1-11.4)

## 3. Dimensioning tool

Type	Flow rate at 42 bar		Control range	Spray angle
	min.	max.		
HR-1	1.13	11.3	10:01	75
HR-2	0.76	11.3	15:01	80
HR-3	1.89	18.9	10:01	85
HR-4	1.21	18.9	15:01	80
HR-5	2.65	26.5	10:01	85
HR-6	2.19	26.5	12:01	80