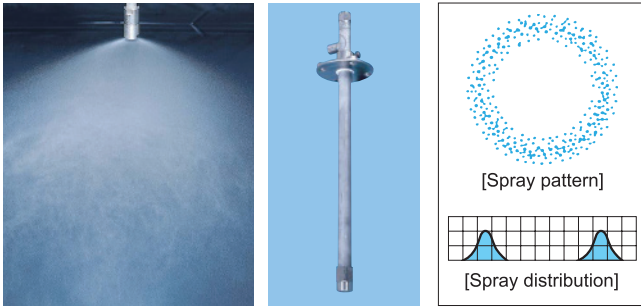
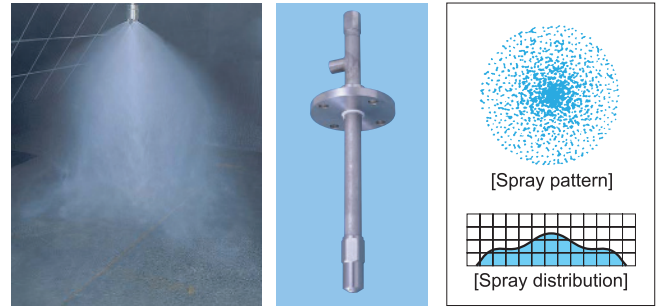


## Single-head SPB-R series

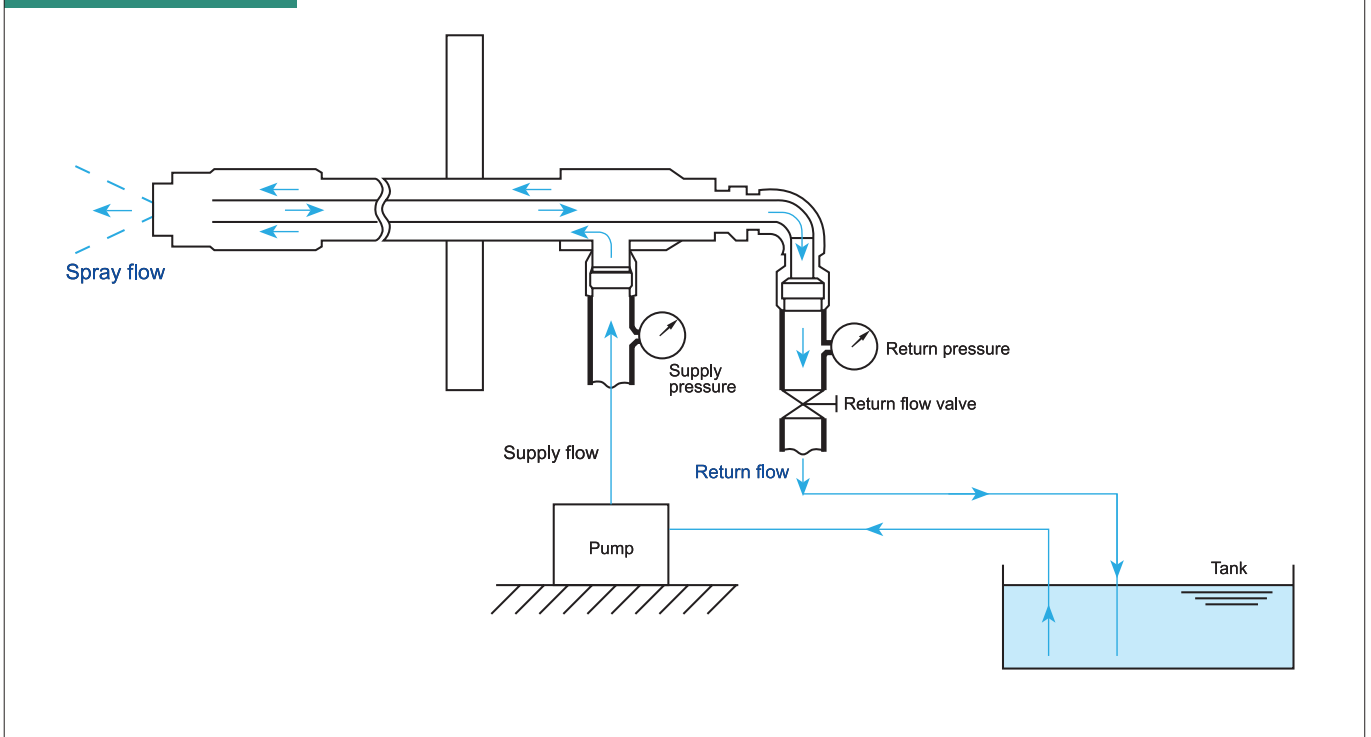


## Four-orifice SPB series



Cone Spray

### System diagram (example)



### [Features]

- Variable capacity hollow cone spray nozzle generating fine atomization with uniform spray distribution (single-head).
- Spray capacity can be controlled by only adjusting return pressure while supply pressure is kept constant. Spray capacity is maximized by fully closing the return flow valve and minimized by fully opening the return flow valve. The turn-down ratio of spray capacity is 1:10.
- Part of the supplied liquid flows back when the return flow valve is opened, causing supply flow to increase. The increase of supply flow is within 40% of the maximum spray capacity.
- Featuring minimal variation in spray droplet size despite the modulation of spray flow, our SPILLBACK nozzles are ideal for gas cooling where the inlet gas temperature varies.
- Multiple-head SPILLBACK nozzles are suitable for applications which require larger spray capacity and minimal increase in spray droplet size.

### [Standard pressure]

Supply pressure: 2 MPa (with return flow valve totally closed)

### [Applications]

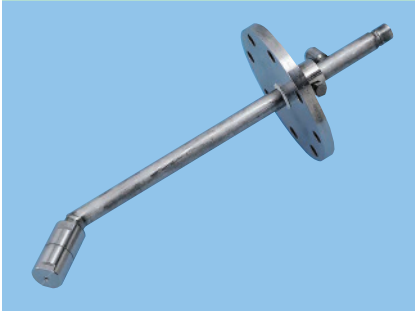
Cooling: Incinerators, cement factories, glass factories, blast furnaces, iron works  
 Moisture control: Blast furnaces

Please contact us for further information.

SPILLBACK Nozzles for gas cooling  
**SPB** series

The following are also available to suit various installations.

L-type (45°) SPILLBACK nozzles



Flange-mounted protection pipe



Pressure-resistant flexible hose



Cone Spray

**Sister Product**

■ Large Flow High-pressure Return Nozzles **GSPB** series



**Min. spray capacity**

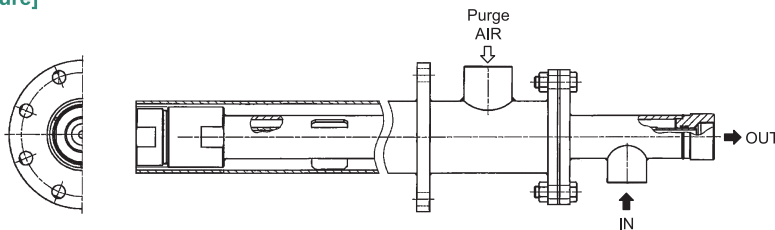
Supply pressure: 3.5 MPa  
 Spray capacity: 1,000 ℓ/hr (16.7 ℓ/min)  
 Spray angle: 130°



**Max. spray capacity**

Supply pressure: 3.5 MPa  
 Spray capacity: 10,000 ℓ/hr (167 ℓ/min)  
 Spray angle: 90°

**[Structure]**



**[Materials]**

- Nozzle tip: Tungsten carbide
- Other parts: S316L, S304, S440C
- Protector: S316

This drawing is just one example.  
 Protector is optional.

**[Features]**

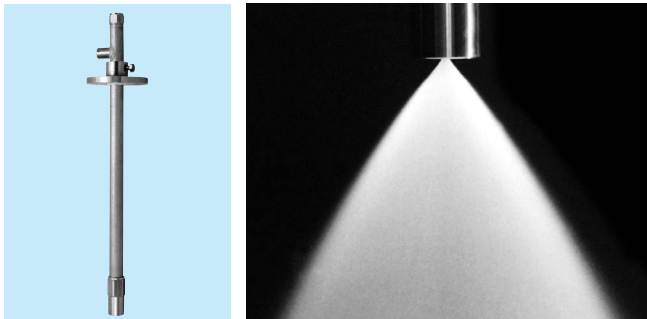
- SPILLBACK NOZZLE for circulating fluidized bed flue gas desulfurization (CFB-FGD).
- Hollow cone spray nozzle with large flow of 10,000 liters per hour.
- Turndown ratio of 1:10 with minimal variation in spray droplet size. Ideal for gas cooling.

Please contact us for details.

# SPB series SPILLBACK Nozzle with Variable Flow

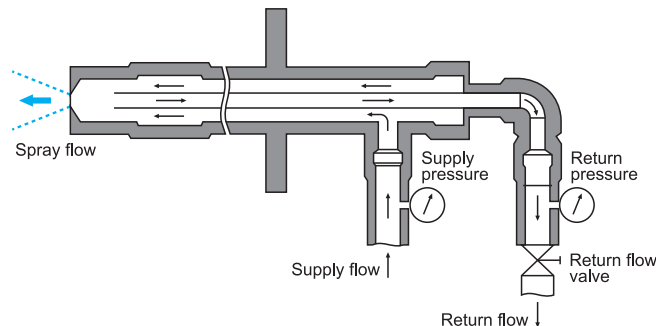
## Raw material / pig iron making process

- Gas cooling in flue gas desulfurization
- Gas cooling in blast furnace (dry dust catcher)
- Moisture conditioning of supply air to blast furnace (water spraying to hot blast stove)



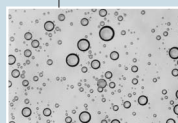
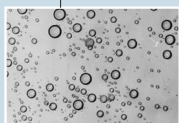
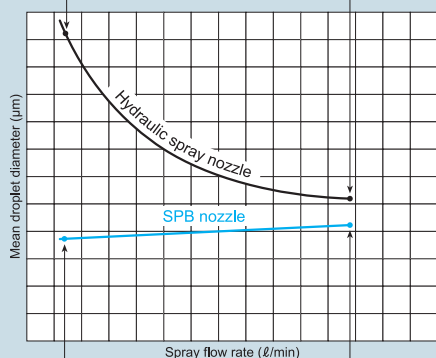
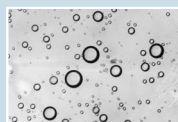
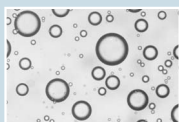
## FEATURES

Spray capacity can be controlled by opening/closing the return flow valve while supply pressure is kept constant. Featuring minimal variation in spray droplet size with a large turndown ratio of spray capacity (1:10), SPB series nozzles are ideal for gas cooling where the inlet gas temperature and gas flow rate varies.



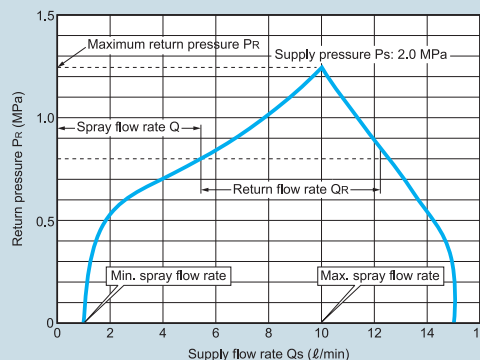
## Fine atomization with no large droplets

The variation in spray droplet sizes is minimized despite the modulation of spray flow rate, SPILLBACK nozzle is suitable for evaporative cooling in cooling towers where the inlet gas temperature varies.

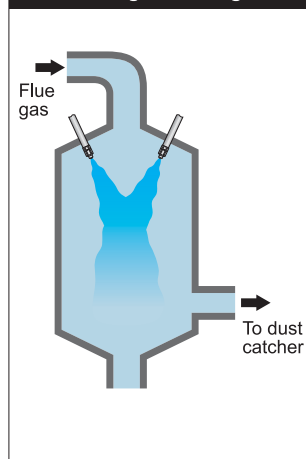


## Turndown ratio is 1:10

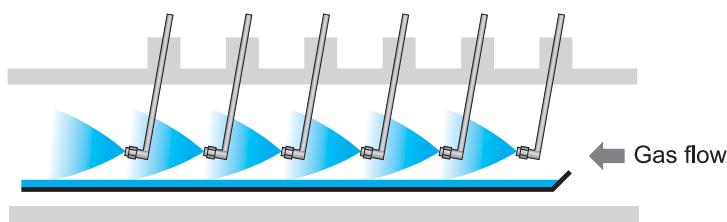
Spray capacity is maximized by fully closing the return flow valve and minimized by fully opening the return flow valve. The turndown ratio of spray capacity is 1:10.



## Use in flue gas cooling tower



## SPB nozzles used in air inlets of blast furnace



Affiliated SPILLBACK Nozzles for finer atomization

Sister products

SPB series

## 4-orifice and multiple-head SPILLBACK Nozzles



Nozzles mounted with multiple single-orifice nozzle tips for excellent atomizing performance at the same spray flow.



### 4-orifice SPILLBACK Nozzle

The mean droplet diameter is 12% smaller compared to the standard SPB series nozzle.

Please contact our local sales office for details.