

# Minimal spray angle variation

Leaflet No. VVEP-HL-3\_180914E

## Hydraulic Even Flat Spray Nozzles

with **Large Turndown\* Ratio**

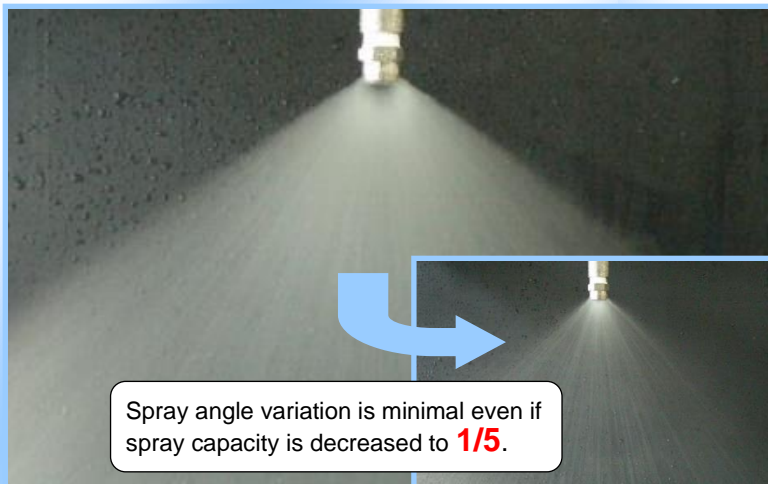
**VVEP-HL series**

### VVEP-HL series:

- ◆ **Maintains even distribution while minimizing variation in spray angle even when spray pressure is changed.**
- ◆ **Effective particularly for small spray flow control at low pressures.**

Having a large turndown ratio of spray flow-rate, VVEP-HL series is optimal for applications where spray capacity needs to be changed depending on the spray target and applications.

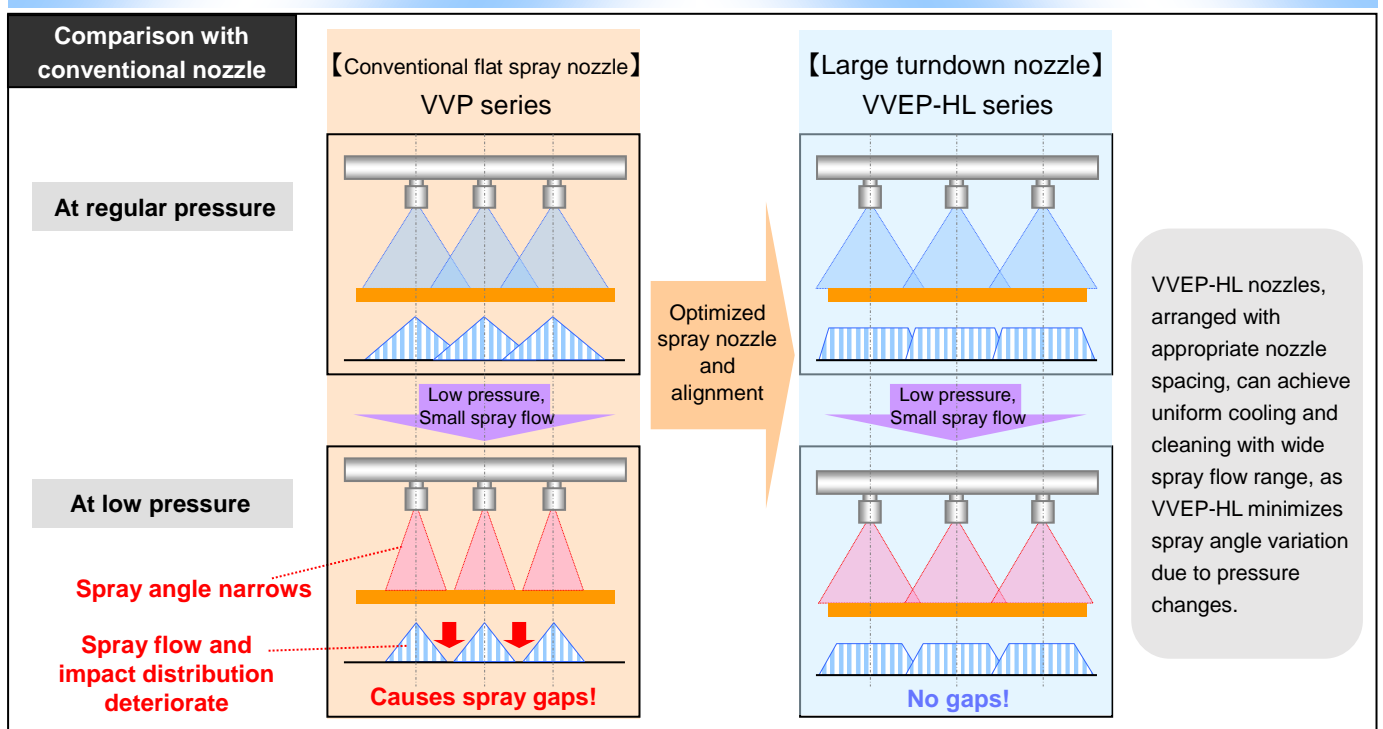
\*Spray flow-rate adjustable range



### Applications

- **Cooling:**  
Steel plate, cast steel, cast metal, extruded aluminum
- **Cleaning:**  
Steel plate cleaning after pickling
- Applications which require a large turndown ratio

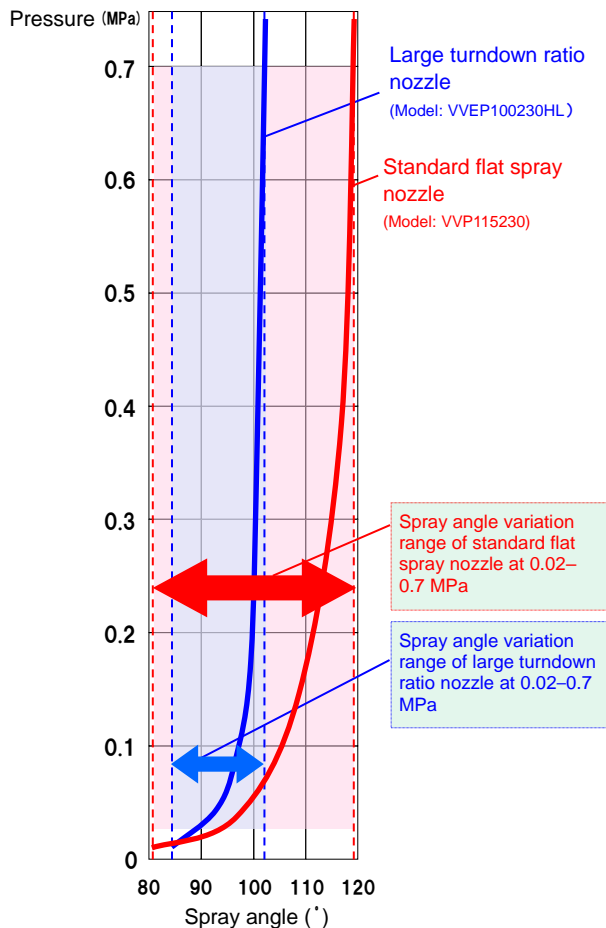
**Ideal for hydraulic spray cooling which requires changing of spray capacity, especially for upper zone and under molding of continuous casting machines, and for control cooling.**



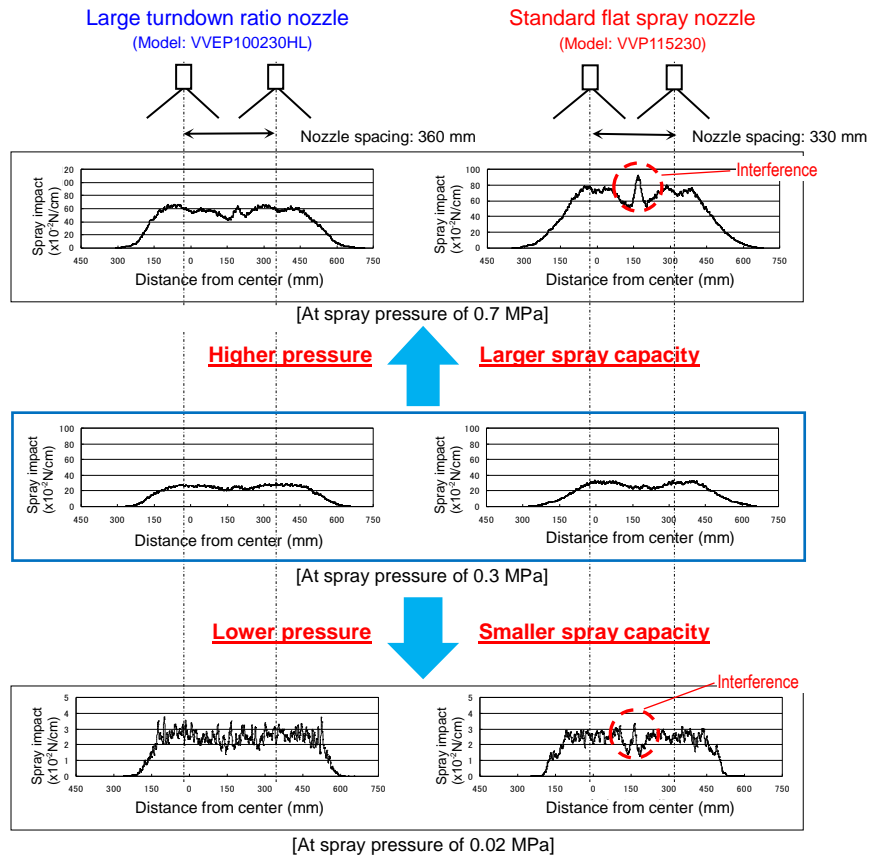
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## 【Relation of pressure and spray angle】

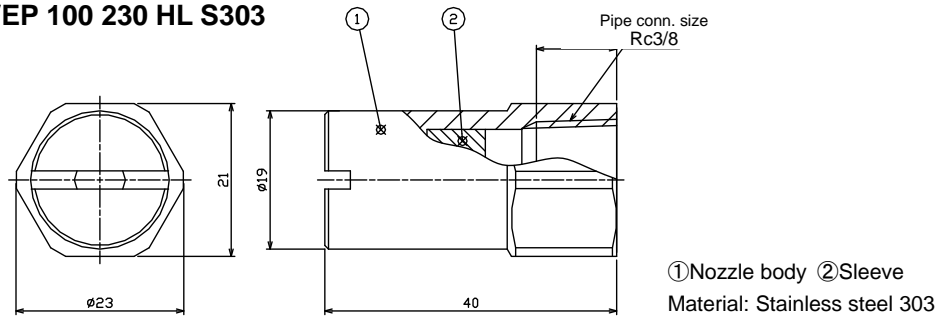
Spray capacity: 23 L/min (at 0.3 MPa)



## 【Interference in spray impact due to pressure changes】



### ■ Drawing of 3/8F VVEP 100 230 HL S303



### ■ Spray performance

Pipe conn. size	Spray capacity code	Spray capacity (L/min)					Free passage diameter (mm)
		0.02 MPa	0.1 MPa	0.3 MPa	0.5 MPa	0.7 MPa	
Rc1/4	30	0.9	1.8	3	3.9	4.5	0.9
Rc3/8	230	6.5	13	23	30	36	2.3
Rc1*1/4	1240	35	72	124	158	185	5.4

■ How to order Please inquire or order for a specific nozzle using this coding system.

Example) 1/4F VVEP 100 30 HL S303

1/4F	VVEP 100	30	HL S303
Pipe conn. size*		Spray capacity code	
<ul style="list-style-type: none"> <li>■ 1/4F</li> <li>■ 3/8F</li> <li>■ 1*1/4F</li> </ul>		<ul style="list-style-type: none"> <li>■ 30</li> <li>■ 230</li> <li>■ 1240</li> </ul>	

\*"M" indicates male thread ("R" of the ISO standard) and "F" indicates female thread ("Rc" of the ISO standard).

If you need a custom-made nozzle, please inform us of detailed specifications including 1) spray flow range you desire, 2) your current nozzle arrangement, and 3) spray height.



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### Headquarters

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