

**ISO 9001**  
REGISTERED

### 1.0 DESCRIPTION

ISO 5167-3, 2003 (E) standard

Two Long Radius Type

High-Ratio Nozzle ( $0.25 \leq \beta \leq 0.8$ )

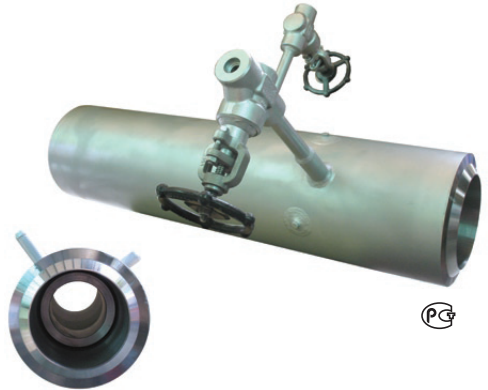
Low-Ratio Nozzle ( $0.20 \leq \beta \leq 0.5$ )

Flange Wafer Type

Welded-In Type

Welded-In with Holding Ring Type

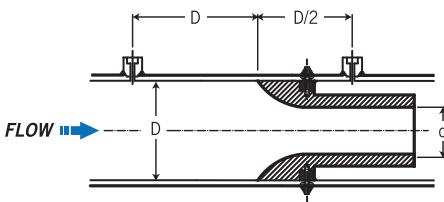
Material: A105, Stainless steel, others on request



### 2.0 RECOMMENDED INSTALLATION

#### (1-a.) Model: NWR

Welded-In with Holding Ring-Type

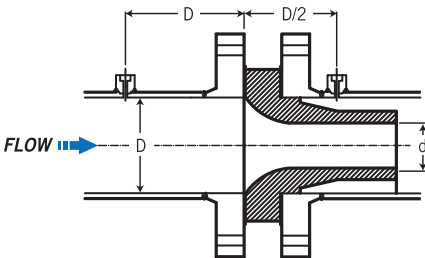


#### NOTE.

\*The welded-in holding ring type are not recommended below 4" size pipe. Because difficulty to weld the thin ring in a small pipe with small space.

#### (1-b.) Model: NF

Wafer Type- Typical Nozzle

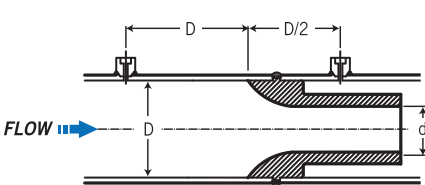


#### NOTE.

\*The wafer type- typical flow nozzle is the most common type used for insertion between pipe flanges.

#### (1-c.) Model: NW

Welded-In Type Flow Nozzle

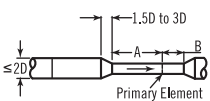
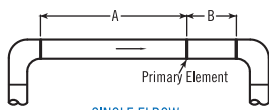
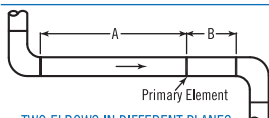
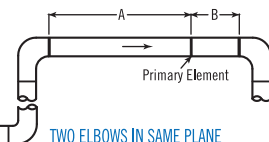
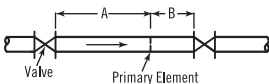
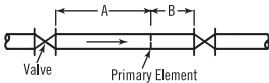
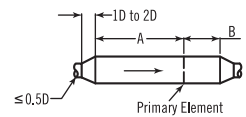


#### NOTE.

\*The weld-in type flow nozzle is used where flanges are not applicable such as high temperature and pressure. This type is also suitable for a small pipe below 4" size pipe.

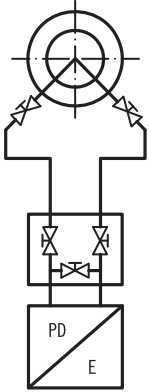
### 3.0 ISO STANDARD 5167 REQUIRED

#### Straight Lengths for Orifice Nozzle ISA Venturi Nozzle and Venturi in Multiples of Pipe Diameter D

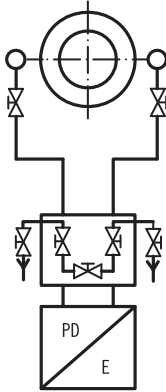
Upstream disturbance	Dimension	Device	$\beta$						
			0.2	0.3	0.4	0.5	0.6	0.7	0.75
 <p>REDUCER</p>	A	Orifices Nozzles	5	5	5	6	9	14	22
		Venturis		0.5	2.5	5.5	8.5	10.5	11.5
 <p>SINGLE ELBOW</p>	A	Orifices Nozzles	14	16	18	20	26	28	36
		Venturis		0.5	0.5	1.5	3	4	4.5
 <p>TWO ELBOWS IN DIFFERENT PLANES</p>	A	Orifices Nozzles	34	34	36	40	48	62	70
		Venturis		0.5	0.5	8.5	17.5	27.5	29.5
 <p>TWO ELBOWS IN SAME PLANE</p>	A	Orifices Nozzles	14	16	18	20	26	36	42
		Venturis		1.5	1.5	2.5	3.5	4.5	4.5
 <p>GATE VALVE, FULLY OPEN</p>	A	Orifices Nozzles	12	12	12	12	14	20	24
		Venturis		1.5	2.5	3.5	4.5	5.5	5.5
 <p>GLOBE VALVE, FULLY OPEN</p>	A	Orifices Nozzles	18	18	20	22	26	32	36
		Venturis							
 <p>EXPANDER</p>	A	Orifices Nozzles	16	16	16	18	22	30	38
		Venturis		1.5	1.5	2.5	3.5	5.5	6.5
Downstream length for all Pictured disturbances	B	Orifices Nozzles	4	5	6	6	7	7	8
		Venturis		4d	4d	4d	4d	4d	4d

## 4.0 ORIFICE / NOZZLE / VENTURI TUBE INSTALLED GUIDE

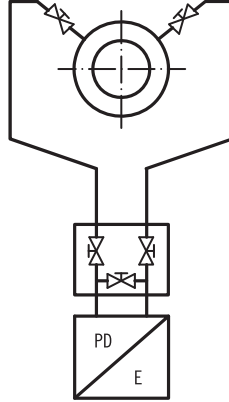
**Liquid**  
DP-Flow Element  
 With 3-way manifold.



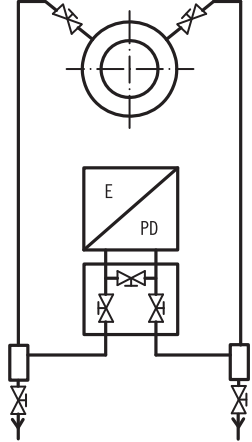
**Steam**  
DP-Flow Element  
 With 5-way manifold and  
 condense pots



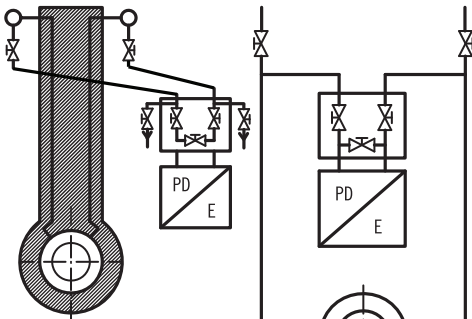
**Dry Gas**  
DP-Flow Element  
 With 3-way manifold



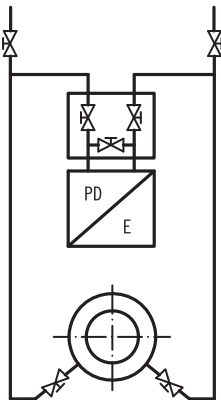
**Humid Gas**  
DP-Flow Element  
 With 3-way manifold and  
 drain pot



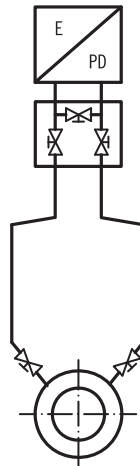
**Steam**  
DP-Flow Element on  
 top mounting  
 With condense pots



**Liquid**  
DP-Flow Element on  
 top mounting  
 With 3-way manifold and  
 vent valves



**Gas, dry and humid**  
DP-Flow Element on  
 top mounting  
 With 3-way manifold



**Gaseous Fluid**  
DP-Flow Element on  
 top mounting  
 With 3-way manifold and  
 vent pots

