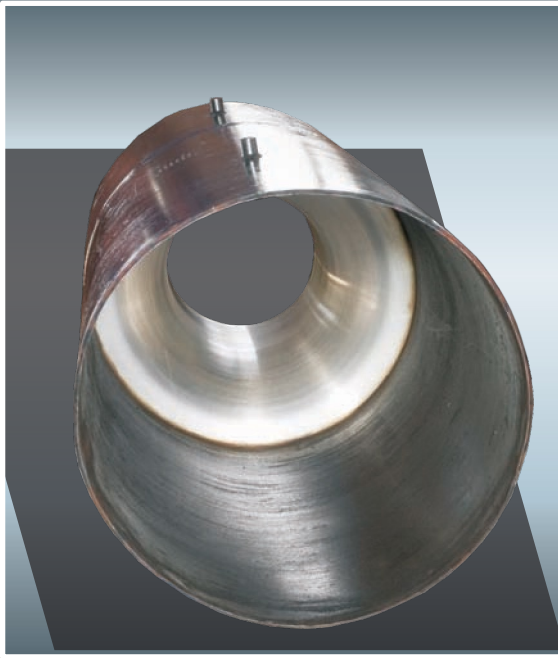


**PRISMA**  
Instruments

# Flow Nozzles



Prisma Flow Nozzle is used in typically high-velocity, non-viscous, erosive flow. They are suitable for determining the flow rates of fluids at high temperature and high pressure.

GENERAL Flow Nozzles are erosion-resistant, consistently accurate and virtually maintenance-free. They perform a wide variety of applications that include air, water, steam, gas, chemical substances and high temperature applications. The rounded design provides a more effective sweep-through of particles in the flow stream, which extends product life by reducing wear and potential damage. Flow Nozzles are manufactured in strict accordance with ASME MFC-3M, BS-1042 and ISO-5167 standards. For critical measurement applications, wet calibration at reputed flow laboratories can be offered.

Flow Nozzles have a smooth elliptical inlet leading to a throat section with a sharp outlet. Restriction in the fluid flow causes a pressure drop, which relates to the flow rate by applying Bernoulli's equation. The smooth inlet of the flow nozzle results in a higher coefficient of discharge than most other differential meters. This higher efficiency means greater flow capacity when compared to most other differential meters of the same size.

There are three types of Flow Nozzles

- ISA 1932, with corner taps
- ASME long radius, low beta ratio ( $0.20 < \beta < 0.5$ ), with throat tap
- ASME long radius, high beta ratio ( $0.25 < \beta < 0.8$ ), with radius taps ( $D & D/2$ )

ASME long radius, low beta ratio Nozzle with throat taps is used in steam turbine performance test as per ASME PTC-6 code.

ISA-1932 nozzle can be mounted with carrier ring or in between flanges with corner taps.

Long radius nozzle are normally with weld-in branch pipe with radius taps.  
Can be also mounted in between flanges.

To avoid welding of dissimilar metals, nozzles are also installed in the pipe with holding ring.

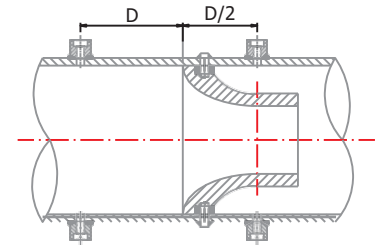
## Salient features & benefits

- Widely used for high pressure & high temperature steam flow
- Useful for flow measurement at high velocities
- Rounded inlet not subject to wear or damage, extending product life
- Better sweep-through effect for debris and liquids, eliminate damming effect
- Lower susceptibility to erosion
- Extended product life with no moving parts



## HOLDING RING TYPE FLOW NOZZLE

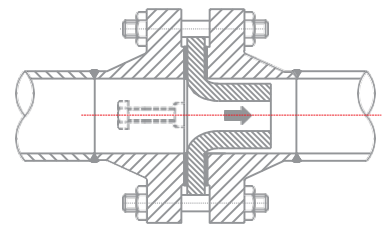
These types of nozzles are designed for installation in a pipe without flanges. The flow nozzle is installed with the help of holding ring and locating pins which are made of same material as that of pipe thereby eliminating welding of dissimilar materials.



Long Radius High Beta Ratio  
Holding Ring Type Nozzle

## FLANGED TYPE FLOW NOZZLE

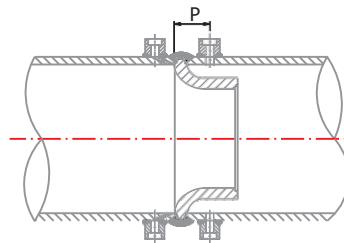
These types of nozzles are the most commonly used for insertion between pipe flanges. This type of nozzle is designed for pipe wall taps whose locations are determined by Beta ratio and pipe.



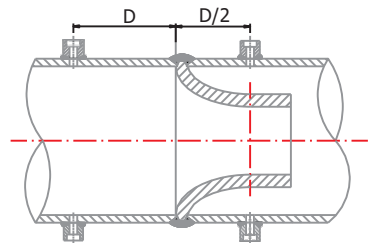
Flanged Type Flow Nozzle

## WELD-IN TYPE FLOW NOZZLE

This type of nozzle has a machined tongue around its greatest diameter designed to fit between beveled ends of both inlet and outlet pipe section. The pipe sections, with the nozzle in place are firmly clamped and welded. The weld-in flow nozzle is used where flanges are not applicable such as high temperature and pressure applications in power plant installations, feed water, etc.



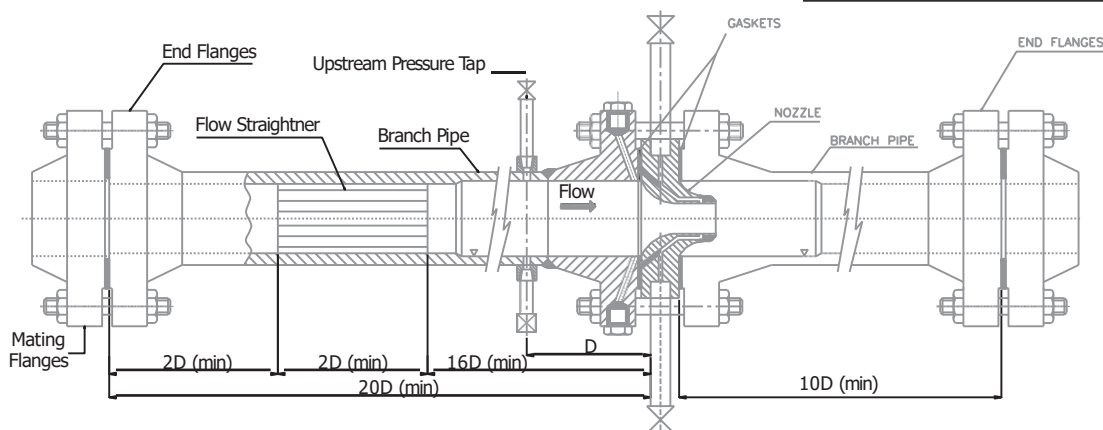
ISA1932 Weld-In Type Nozzle  
Corner Tappings



Long Radius High Beta Ratio  
Weld-In Type Nozzle

## FLANGED TYPE THROAT-TAP FLOW NOZZLE

Flange type throat-tap flow nozzle is used when extreme accuracy and repeatability required. In most cases this type of nozzle is purchased with a complete flow section and laboratory flow calibrated. This type of nozzles are manufactured in strict accordance with ASME performance test code PTC-6.



Flow Nozzle Assembly as per ASME PTC-6



SIZE		PIPE SCH		ELEMENT MATERIAL		PIPE MATERIAL		SPECIAL		END CONNECTION		PROCESS CONNECTION		ASSEMBLY TYPE		ELEMENT TYPE	
SAVE ASSIZE	1" TO 36"	SAVE ASSCH	5	N6/NBL	SS316/316L	A1	A106GrB	CE	CE	W	SOCKET	NP	NPT(F)	W	WELDIN	LH	LONG RADIUS HIGH
		SAVE ASSCH	10	N4/NAL	SS304/304L	B	SA335	H5	H2S	S	WELDED BUTT	BS	BSP(F)	H	HOLDING RING	R	RATIO LONG RADIUS LOW
		SAVE ASSCH	20	N01	F91	P1	P11	NAC	NAC	W	WELDED	SW	SOCKET WELDED	R	FLANGE ASSEMBLY	LLR	RATIO SA 1932
		SAVE ASSCH	40	N5	F5	1	SA335	E1BR	E1BR	B	FLANGED END			FA		ISA	ASME PIC-6
		SAVE ASSCH	60			P2	SA335 P5	H2	H2 SERVICE							PIC	
		SAVE ASSCH	80			8	SA240 P91	O2	O2 CLEANING								
		SAVE ASSCH	120			P9	TP304	WCAL	WET CALIBRATION								
		SAVE ASSCH	160			4	SA240										
		SPECIFY	OTHER			P	TP316										
						6	OTHER										
						SPECIFY											

- Note:**
1. If the nozzle assembly is flanged, then use the flange details as described in orifice ordering information.
  2. Other than above information customer has to provide process data as on page no. 32
  3. Default process connection size is 1/2" other than this (e.g. 3/4" or 1"), please specify.