

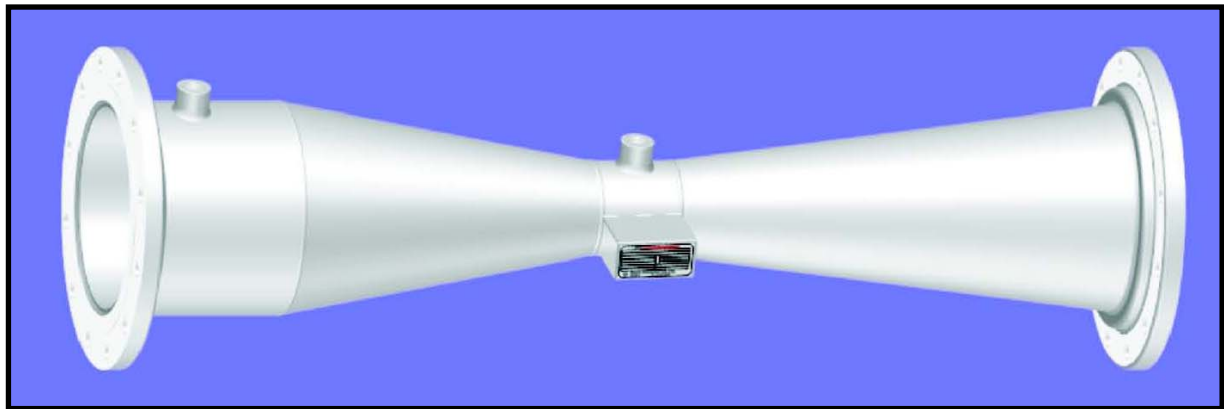
**INTRA-AUTOMATION**

MEASUREMENT AND CONTROL



# VENTURI TUBES

## Type: SVT



# TECHNICAL INFORMATION

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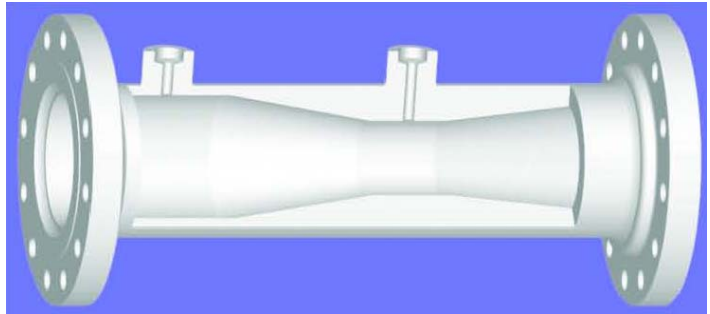
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## GENERAL DESCRIPTION:

Comparing with orifices and flow nozzles, the Venturi tube generally is of a little more complicated structure, requires more material and costs and tends to be larger in size. However, Venturi tubes offer advantages including an extremely low pressure loss, a higher durability and a lower chance of catching a sludge media and sediment than other throttle elements. The Venturi tube is mostly used for measurements of flow wherever a minimal loss of pressure is important.



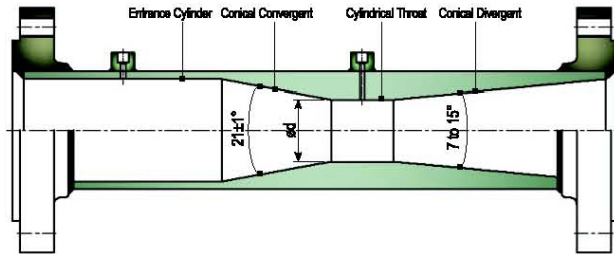
The Intra-Automation Venturi Tube is designed and manufactured in full compliance with ISO-5167 and ASME MFC-3M standards.

## SPECIFICATIONS

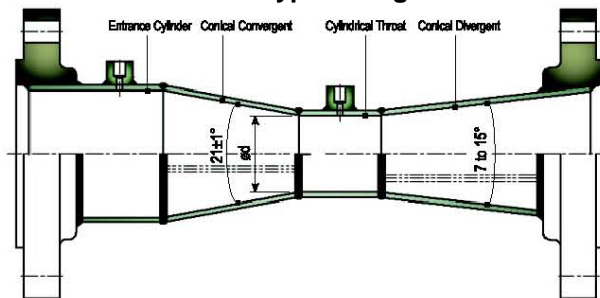
- |                             |   |
|-----------------------------|---|
| ◆ Venturi tube type:        | machined type<br>welded type<br>tetragon duct type  |
| ◆ End connection:           | butt-weld<br>flanged (slip-on & welding neck)   |
| ◆ $\beta$ -ratio-range:     | machined type: $\beta$ between 0,4 and 0,75 incl.<br>welded type: $\beta$ between 0,4 and 0,7 incl. |
| ◆ throat calculation codes: | ISO-5167<br>ASME MFC-3M<br>L.K.SPINK.<br>AGA NO.3.  |
| ◆ Options-1:                | Pressure tappings leading into piezometer ring  |
| ◆ Options-2:                | Full Jacket or Semi Jacket for Heating or Cooling   |

## DRAWINGS:

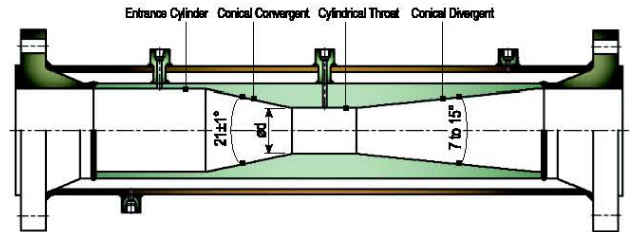
Generally, Venturi tube with a machined convergent can be used in pipes of size between 2" and 10". However, in the case that the machined type is of large size (8" or 10"), they have disadvantages because of required higher costs due to huge material consume.



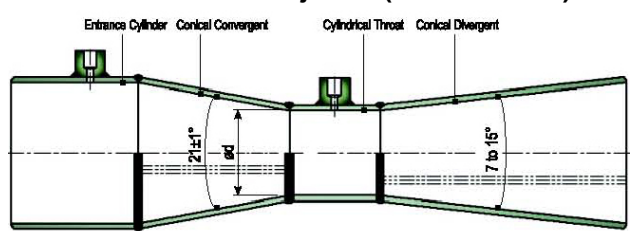
**Machined Type: Flanged End**



**Welded Type: Flanged End**



**Construction with jacket (model: SVT-J)**



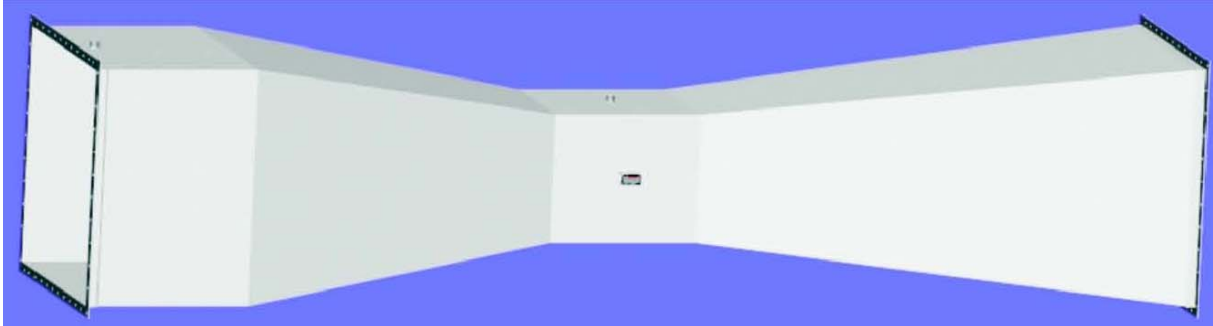
**Welded Type: Butt Welds End**

### Intra-Automation Design Standards:

- ◆ Conical Convergent Angle:  $21^\circ \pm 1^\circ$
- ◆ Conical Divergent Angle:  $14^\circ \pm 1^\circ$
- ◆ End connection: butt-welds  
flanged connection is available on request as welding-neck or slip-on-type
- ◆ Tapping adaptors:  $\frac{1}{2}$ " NPT  
Others are available on request (i.e.  $\frac{1}{2}$ " SW,  $\frac{3}{4}$ " NPT or SW, etc)
- ◆ Tapping Nos: 1 (one) upstream pressure tapping and 1(one) downstream pressure Tapping  
There may be used with several sets of pressure tapplings on request.

## TETRAGON DUCT & TAPLESS TYPE VENTURI

### Tetragon Duct

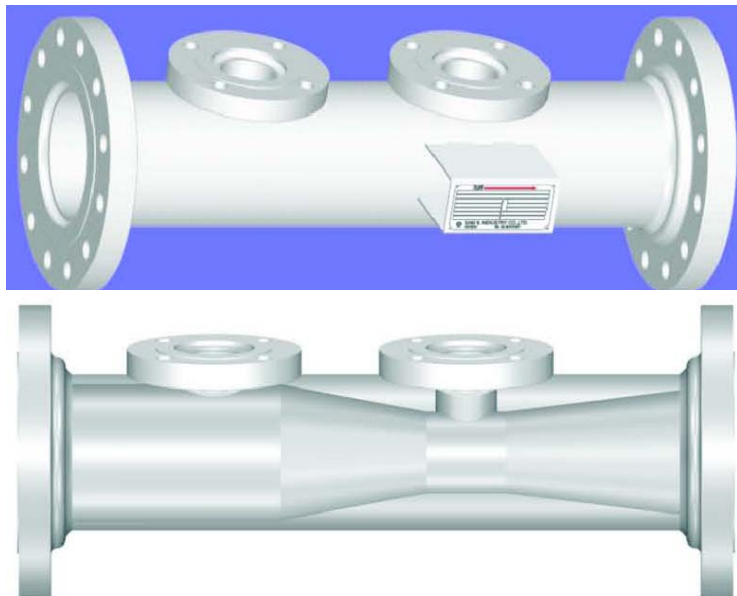


The tetragon is designed and manufactured in order to fit into tetragon duct type piping and the throat have the same area with its throat diameter calculated by ISO-5167, ASME MFC-3M or L.K.SPINK.-standards.


### Tapless

The tapless Venturi tube, which has no need of pressure tappings for differential pressure measurement, can be effectively used (with less pressure drop) for flow measurement of a slurry fluid, a fluid with suspensions, or a corrosive fluid. It can also measure a liquid which solidifies at low temperatures, or a liquid which vaporizes at high temperatures.

- ◆ max. temperature: -40...+280 °C
- ◆ pressure rating: up to JIS 20K RF  
up to ANSI 300 lb



**DATA SHEET FOR VENTURI TUBES:**

 Intra-Automation GmbH	<b>VENTURI TUBES</b>				Sheet of	
	Contract		Date			
	No.	By	Date	Rev.	Quotation/Order-No.	
					By	Checked
<b>VENTURI TUBES</b> 1. Type: Weld-in <input type="checkbox"/> other: _____ 2. Std: ISO-5167 <input type="checkbox"/> other: _____ 3. Bore: max. rate <input type="checkbox"/> nearest 1/8° <input type="checkbox"/> 4. Mat.: 304SS <input type="checkbox"/> 316SS <input type="checkbox"/> other: _____ 5. ring mat. & type: _____ 6. type no. & mfr. _____ -				<b>FLANGES</b> 7. Taps: Troat <input type="checkbox"/> Tapless <input type="checkbox"/> other: _____ 8. Tap size: 1/2" SW <input type="checkbox"/> other: _____ 9. Type: weld neck <input type="checkbox"/> slip on <input type="checkbox"/> threaded <input type="checkbox"/> 10. Mat.: steel <input type="checkbox"/> other: _____ 11. Flange include <input type="checkbox"/> other: _____ 12. Flange rating: ANSI 150# RF other: _____		
<b>FLUID DATA</b>	★ 13.	TAG-No.				
	14.	Service				
	15.	Line No.				
	★ 16.	Fluid name				
	★ 17.	Fluid state				
	★ 18.	max. Flow [m³/h]				
	★ 19.	normal Flow [m³/h]				
	★ 20.	pressure @ max. / norm.				
	★ 21.	temp. @ max. / norm.				
	★ 22.	Sp.Gr. / Density at base				
	★ 23.	Sp.Gr. / Density at oper.				
	★ 24.	Super Comp. Factor [Z]				
	★ 25.	Mol.W.T.   C <sub>p</sub> / C <sub>v</sub>				
	★ 26.	Operating viscosity [cp]:				
	Base press.:   Base Temp.:					
<b>METER</b>	★ 28.	Type of Meter:				
	★ 29.	Diff. Range [mm H <sub>2</sub> O]:				
	30.	Static Pressure Range:				
	★ 31.	Full Scale Range [m³/h]:				
	32.	Chart Multiplier:				
<b>VENTURI &amp; FLANGE OR PIPE</b>	★ 33.	Flange Rating:				
	★ 34.	Line Size:   Sch.:				
	★ 35.	Line material:				
	★ 36.	Pair[s] of Tapping:				
	★ 37.	End connection:				
	38.	Divergent angle:				
<b>ACCESSORIES</b>	39.	Nipple:				
	40.	Block valve:				
<b>MANUF. DATA</b>	41.	Type code:				
	42.	Manufacturer:	INTRA	INTRA	INTRA	INTRA
	★ 43.	Quantity:				
Remark: Lines marked with a "★" must be filled out by customer, if possible.						

Besides the products covered by this brochure, Intra-Automation GmbH also manufactures other high-quality and high precision instruments for industrial measurement tasks. For more information, please contact us (contact details on the backside of this brochure).

### Flow Measurement



Itabar®-Flow-Sensors



IntraSonic IS200 Ultrasonic Flow Meters



### Level Measurement



ITA-mag. level gauges



MAGLINK level indicators

### Other measurement tasks:



DigiFlow Flow and Level Computers



IntraCont digital Controllers



IntraDigit digital indicators





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