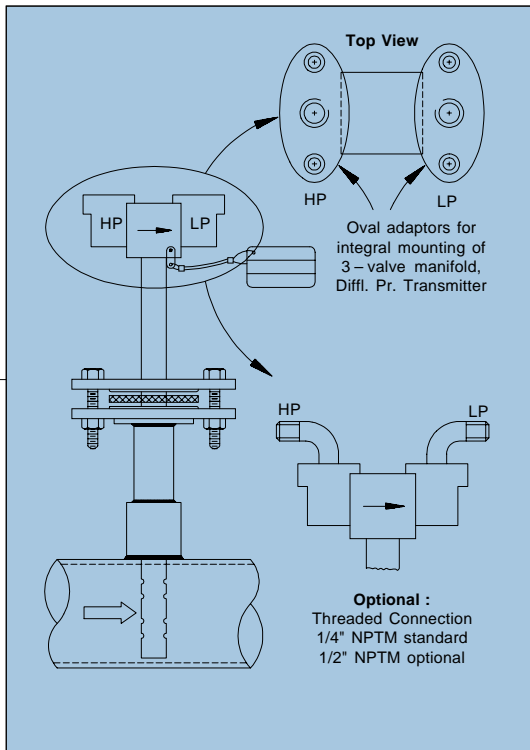




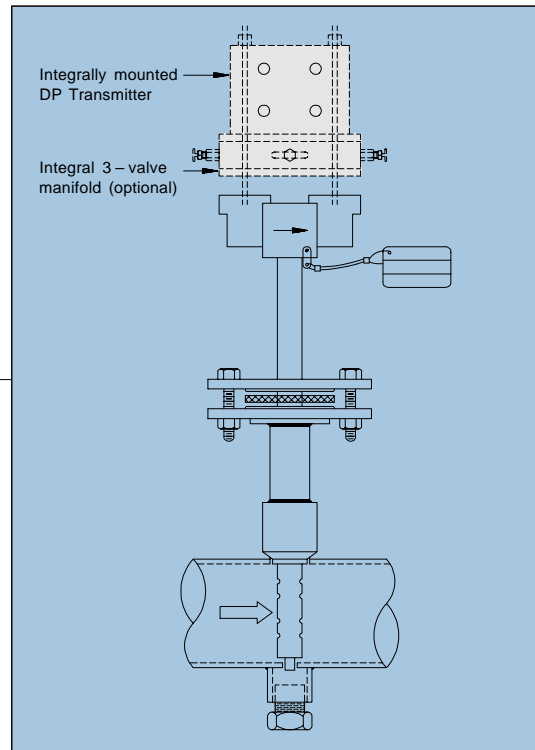
DELTA TUBE — FLOW RATE SENSOR

341
342
343

- GAS, LIQUID AND STEAM APPLICATIONS ●
- DIRECT INSERTION TYPE (FLANGED CONNECTION) FLOW SENSOR ●
- LOW PERMANENT PRESSURE LOSS ● HIGH ENERGY CONSERVATION ●



341, 342, 343 WITH SINGLE SUPPORT



341, 342, 343 WITH DOUBLE SUPPORT

The Delta tube® is a low cost, low maintenance, high accuracy flow sensor for use on steam, gas and liquid flow applications. Manufactured with technical knowhow from Mid-West, USA, these are rugged in construction, and simple to install. The flow sensor is a multi-ported averaging pitot tube which spans the entire flow profile and produces differential pressure which has square root relationship with flow rate. Based on pipe or duct size the Delta tube is constructed so that strategically located sensing ports continually sample the impact and static pressures produced by the Delta tube's obstruction of the flow stream profile. Within the probe the impact pressures sensed by the upstream are continually averaged in an isolated plenum chamber. Similarly the static pressures sensed by the downstream ports are averaged in a second isolated plenum chamber.

All conventional secondary instruments can be used for direct measurement, or transmission of the differential pressure produced by the Delta tube which is proportional to square of flow rate.

The models 341, 342 & 343 are flange mounted type Delta tubes suitable for line sizes ranging from 3" to 72"

as standard. Delta tubes for higher line sizes are also available as specials on request. Material of construction of probe and head is 316 SS as standard. Attaching hardware can be either of CS or 316 SS. These are installed on the flow line by directly welding the mounting flange on the weld-o-let provided on the pipe. Either single support type or double support type are available to handle wide range of flow.

Many other versions of Delta Tubes are also available to suit various applications such as in-line series, direct insert type, duct mounted type or wet tap type (with retractable facility) vide models 300, 301, 302, 307, 308, 311, 321, 331, 312, 322, 332 & 323.




Delta Tubes offer excellent advantages compared to conventional primary flow elements — such as low installation cost, low permanent pressure loss and hence high energy conservation.

The process connection head of the delta tube has been designed to facilitate integral mounting of a 3-valve manifold and so the transmitter as well. Please refer schematic diagram shown above.

GENERAL SPECIFICATION

Basic Model No.	341 or 342 or 343	Optional : Threaded connection 1/4" NPTM std; 1/2" NPTM optional.
Design	Mid-West, Michigan, USA	
Mounting type	Direct insertion — Flanged connection	
Attaching Hardware Details		
For Top Support		
Probe Details		
Profile	Pear bar for 341 & 342 Circular for 343	Mounting Flange
Size	1/2" nominal dia for 341; 1" nominal dia for 342; 2 ³ / ₈ " dia for 343	Weld neck type, CS or 316 SS of size 3/4" for 341, 1 ¹ / ₄ " for 342 and 3" for 343
Material	316 SS	Weld-o-let
Head Material	316 SS	CS or 316 SS to suit probe dia
Pressure and Temperature rating	} 300 PSIG at 40°C (for both CS and 316 SS attaching Hardware)	Weld Nipple
Head Flange Material and Size		CS or 316 SS of size 3/4" for 341, 1 ¹ / ₄ " for 342 and 3" for 343.
Support	Single or Double	Packing
Process Connection	Standard : Oval adaptors for integral mounting of 3 – valve manifold and / or Differential Pressure Transmitter.	Spiral wound gasket of CS and graphite or SS and teflon.
		For Bottom Support
		Thread-o-let
		CS or 316 SS, 1/4" NPTF for 341, 1/2" NPTF for 342, 1" NPTF for 343
		Pipe Plug
		CS or 316 SS, 1/4" NPTM for 341, 1/2" NPTM for 342, 1" NPTM for 343
		Accuracy
		± 1% of actual flow

PROBE CONSTRUCTION AND PROFILE

Flow ⇒ 	Pear Shaped Profile Delta Tube Size : 1/2" Applicable for Model : 341	Flow ⇒ 	Pear Shaped Profile Delta Tube Size : 1" Applicable for Model : 342	Flow ⇒ 	Circular Profile Delta Tube Size : 2 ³ / ₈ " Applicable for Model : 343
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ORDERING INFORMATION

BASIC MODEL NO.	341, 342, 343	A	G	0	0	H	0
ATTACHING HARDWARE MATERIAL							
Carbon Steel _____		A					
316 SS _____		B					
PIPE SIZE							
3" _____ G	14" _____ N	36" _____ U					
4" _____ H	16" _____ P	42" _____ V					
6" _____ J	18" _____ Q	48" _____ W					
8" _____ K	20" _____ R	60" _____ X					
10" _____ L	24" _____ S	72" _____ Y					
12" _____ M	30" _____ T	Special _____ Z					
PIPE SCHEDULE							
Schedule 40 _____							0
Schedule 80 _____							1
All others (Customer to specify) _____							9
CONSTRUCTION							
Single Support _____							0
Double Support _____							1
PROCESS PIPE ORIENTATION *							
Horizontal _____						H	
Vertical _____						V	
OPTIONS							
None (Standard) _____							0
Spiral wound gasket of CS & Graphite _____							A
Spiral wound gasket of SS & Teflon® _____							B

NOTE : Models 341, 342 & 343 are with probe having 150 RF flanged connections. For higher rated probe head and mounting flanges of ratings 300 RF vide models 351, 352 & 353 for 600 RF vide models 361, 362 & 363 for 900 RF vide models 371, 372 & 373 and for 1500 RF vide models 381, 382 & 383 are also available as option. Other specifications remain unchanged for these models.

* Generally the Probe Orientation is Vertical in the process line. If it is different, customer to specify clearly with a sketch. For more technical information on theory, sizing, selection, installation, etc., please ask switzer brochure on "Delta Tube Flow Elements".

* Teflon® is a registered trademark of E.I. Dupont de Nemours and Company

Prior notification of changes in specification is impracticable due to continuous development.

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