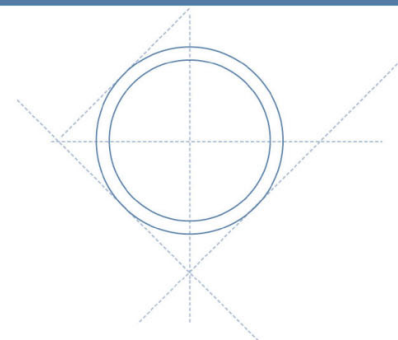




## EMCO Venturi Nozzle Series VES

### Principle

EMCO venturi nozzles are used as primary elements in flow measurement of steam, liquid, and gas according to the differential pressure principle.

The venturi nozzles are delivered with single pressure tapplings for plus and minus pressures or with single pressure tapping for plus pressure and 4 tapplings arranged with an external annular ring chamber for minus pressure.

EMCO venturi nozzles are fully in compliance to PED 97/23 EC and CE marked accordingly.

### Construction

Design and calculation standards

: ISO 5167-3, DIN 19215(expired)

Sizes

: DN 65 – 500, according to the standard ISO 5167-3, smaller or larger sizes on request.

Pressure rating

: PN 10 - 640, 150 - 2500 lbs

Bore (d)

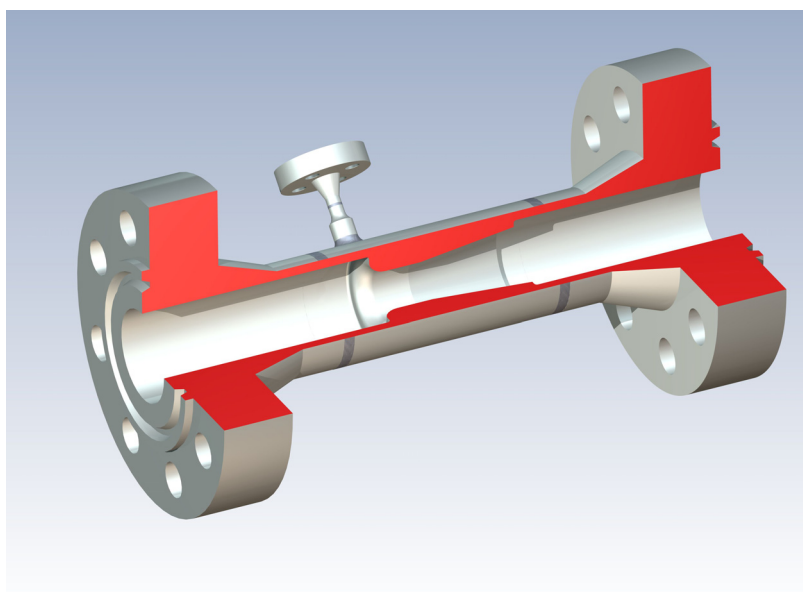
:  $d > 50$  mm (ISO 5167-3) or according to process data

$\beta$  (d/D)

:  $0,316 < \beta < 0,775$

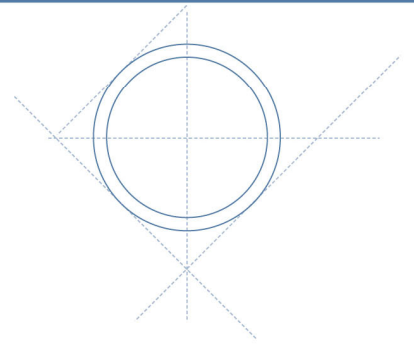
Material

: Carbon steel P250GH, AISI 316, 22Cr Duplex, 25Cr Duplex, 6Mo. Heat- resistance steels: 16Mo3, 13CrMo4-5, 10CrMo9-10, WB 36, X20CrMoV121, F91, F92, other materials on request

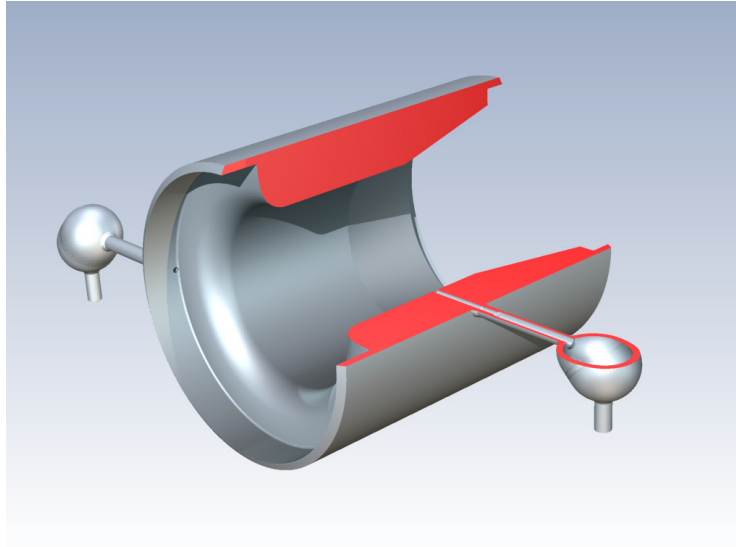


0-06-014-5e

EMCO Venturi nozzle with flanges.



Mounting style : Weld ends according to EN 9692-1 or ANSI B16.25, flange connection according to DIN, ANSI B 16.5, EN 1092, ISO 7005, NORSOK L-005, or hub connection to specific manufacturer's standard.



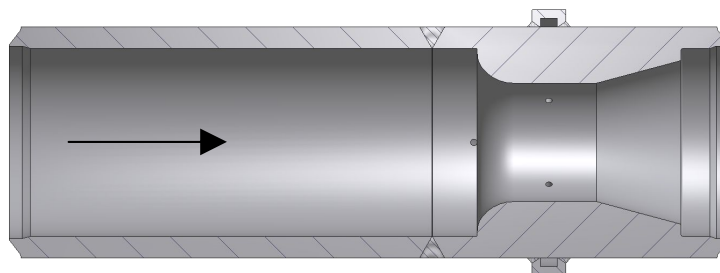
EMCO Venturi nozzle with weld ends and condensing chambers for steam.

Pressure taps : ½" NPT ext., ½" BSP ext., ½" butt weld ends, ½" or ¾" flanged, others on request.

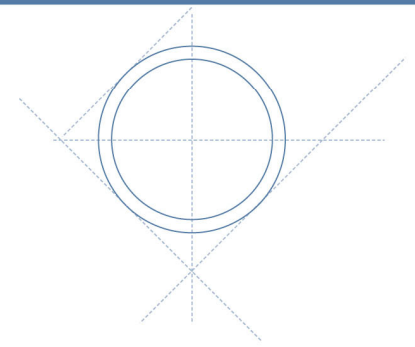
Tappings : Single pressure tappings or 2x4 tappings each arranged with an external annular ring to equalise the pressure.

Tap lengths : 150 mm, others on request

Tap location : At least 45 degrees apart, for sizes below DN 150.  
To be stated with order.



EMCO Venturi nozzle with annular ring chamber for minus tapping and inlet pipe section.



## Technical Data

Accuracy : ca. 1,4 – 1,5 % (according to ISO 5167)

Pressure loss : ca. 15 % of the differential pressure measured

Limits for Re. No. :  $1,5 \times 10^5 < ReD < 2 \times 10^6$  according to ISO 5157-3

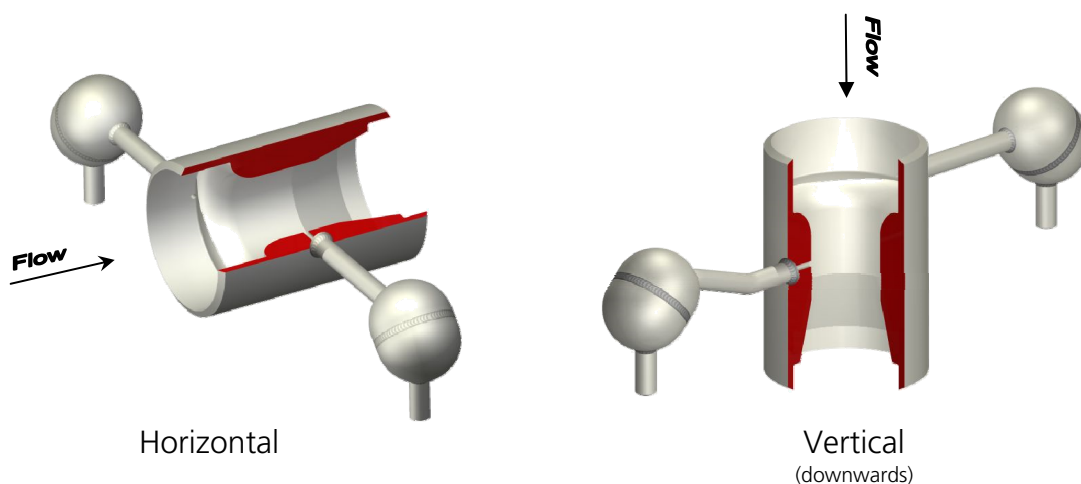
## Accessories

Shut-off valves and condensing chambers for steam flow measurement  
 Bracings for tapping support  
 2 x D In- and outlet pipe sections, other lengths on request

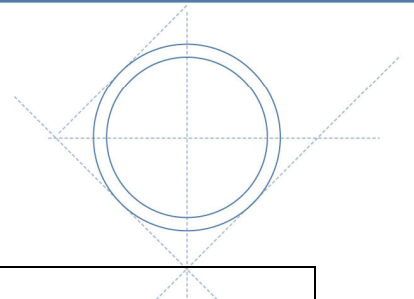
## Dimensions, weld ends

| DN    | Inner Pipe Diameter | Length |
|-------|---------------------|--------|
| (40)  | 45 - 35             | 150    |
| (50)  | 45 - 57             | 200    |
| 65    | 58 - 72             | 200    |
| 80    | 73 - 90             | 200    |
| 100   | 91 - 112            | 200    |
| 125   | 113 - 137           | 250    |
| 150   | 138 - 162           | 250    |
| (175) | 163 - 187           | 300    |
| 200   | 188 - 225           | 300    |
| 250   | 226 - 275           | 350    |
| 300   | 276 - 325           | 400    |
| 350   | 326 - 375           | 450    |
| 400   | 376 - 425           | 500    |
| 450   | 426 - 475           | 550    |
| 500   | 476 - 550           | 600    |

All dimensions in mm



EMCO Venturi nozzle with condensing chambers  
 for steam flow measurement in a vertical pipe line.



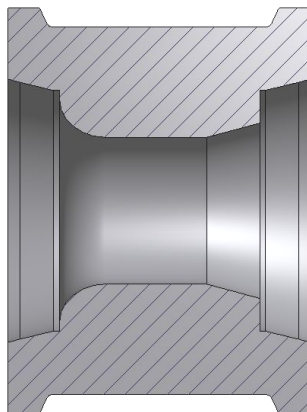
### Dimensions, DIN flange connection

|      | Length |       |       |       |        |        |        |
|------|--------|-------|-------|-------|--------|--------|--------|
| DN   | PN 16  | PN 25 | PN 40 | PN 64 | PN 100 | PN 160 | PN 250 |
| (40) | 230    | -     | 235   | -     | 270    | 270    | 300    |
| (50) | 285    | -     | 290   | 320   | 330    | 340    | 360    |
| 65   | 285    | -     | 300   | 330   | 350    | 360    | 380    |
| 80   | 290    | -     | 310   | 340   | 350    | 370    | 400    |
| 100  | 300    | -     | 320   | 350   | 370    | 390    | 420    |
| 125  | 350    | -     | 380   | 420   | 450    | 470    | 520    |
| 150  | 350    | -     | 390   | 430   | 470    | 500    | 560    |
| 200  | 420    | 450   | 470   | 510   | 550    | 570    | 670    |
| 250  | 480    | 520   | 550   | 590   | 660    | 650    | 770    |
| 300  | 550    | 580   | 620   | 670   | 730    | 740    | -      |
| 350  | 610    | 650   | 690   | 740   | 820    |        |        |
| 400  | 660    | 710   | 760   | -     | -      | -      | -      |
| 450  |        |       |       |       |        |        |        |
| 500  | 770    | 840   | 870   | -     | -      | -      | -      |
| 600  | 830    |       |       |       |        |        |        |

### Dimensions, ANSI flange connection

|      | Length  |         |         |         |          |          |
|------|---------|---------|---------|---------|----------|----------|
| SIZE | 150 lbs | 300 lbs | 600 lbs | 900 lbs | 1500 lbs | 2500 lbs |
| 1½"  | 270     | 280     | 280     | -       | 310      | 370      |
| 2"   | 320     | 330     | 340     | -       | 390      | 440      |
| 2½"  | 330     | 350     | 350     | -       | 400      | 480      |
| 3"   | 330     | 350     | 360     | 400     | 430      | 530      |
| 4"   | 350     | 360     | 400     | 420     | 440      | 570      |
| 6"   | 420     | 440     | 480     | 520     | 590      | 790      |
| 8"   | 500     | 520     | 560     | 620     | 720      | 930      |
| 10"  | 550     | 580     | 650     | 710     | 850      | 1180     |
| 12"  | 620     | 650     | 700     | 790     | 900      | 1320     |
| 14"  | 700     | 730     | 770     | 880     | 1040     |          |
| 16"  | 750     | 790     | 850     | 920     | 1100     |          |
| 18"  | 820     | 870     | 920     | 1040    | 1200     |          |
| 20"  | 880     | 920     | 1000    | 1090    | 1300     |          |
| 24"  | 950     | 980     | 1050    | 1230    | 1450     |          |

All dimensions in mm



EMCO Venturi nozzle with hub connection.