

Differential Pressure Flow Meters

The Verabar partial insert flow sensor has been used in hundreds of applications as the cost effective solution for pipe sizes above 20" and was designed specifically for high velocity water applications, large diameter gas applications and applications where opposite support hardware is impossible or impractical such as large vertical stacks, cooling water lines and buried water lines. The partial insert was designed to extend one-third the way into the pipe and sense half of the velocity profile (Figure 1) and is especially useful when a hot tap is required. The table illustrates the reduction in overall length of the partial insert in a 36" cooling water line.

	Full Insert	Partial Insert	Length Reduction
Inserted Length	65" (5.4') 1651mm	36" (3') 914mm	29" (2.4') 737mm
Retracted Length	115" (9.6') 2921mm	60" (5') 1524mm	55" (4.6') 1397mm

Partial Insert Reduces Sensor Length by 50% or More -- Savings up to 40%

The partial insert reduces the sensor's extension above the pipe by 2.4 ft (737mm) in the inserted position and 4.6 ft (1397mm) in the retracted position. The reduction in length can reduce the cost of the sensor up to 40%. It also greatly reduces the installation cost.

Insert/Retract without Reducing Flow Rate
A structural calculation is made to verify the insertion length at maximum flow. Unlike full insert hot taps that may require a reduction in flow rate, a partial insert hot tap can be inserted and retracted any time.

How to Specify

The partial insert can be added to all models except the V110, V150 Spring Lock and V510. Add the suffix **PI** to the Verabar Model Number (example: **V400PI**). Veris will calculate the structural limits and supply the sensor designating the insertion length (ODH) from the pipe wall to the head of the sensor.

Accuracy

If the velocity profile is fully developed, the partial insert is as accurate as a full insertion sensor ($\pm 1\%$). If there is insufficient straight run, consult the factory for a specific accuracy determination. For clarification on straight run requirements, see Veris drawing SUB-4521 Pipe Straight Run Requirements.

Fluid:	Gas, Liquid and Steam
Industry:	Multiple
Application:	Partial Insert sensor
Specifications:	Lower cost – savings up to 40%

