VERIS Verabar®

Hot Tap Models

V400 Screw Drive – Flanged Components

The Most Accurate and Reliable Technology for Measuring Gas, Liquid and Steam…

Developed from aerospace technology, the VERIS Verabar® averaging pitot flow sensor provides unsurpassed accuracy and reliability.

With its solid, one-piece construction and bullet shape, the VERIS Verabar® makes flow measurement leak resistant and precise. The unique sensor shape reduces drag and flow induced vibration. The location of the low-pressure ports significantly reduces the potential for clogging and improves signal stability.

V400S

V400D

V400 Hot Tap	
Pipe Connection	Flanged
Mounting Type	Flanged ball or gate access valves
Features and Benefits	• Installation, insertion & retraction without system shutdown • Economical single threaded rod for most applications • Two threaded rods for high pressures • Synchro drive simultaneously rotates both rods (double rod drives only) • Patented, anti-seize orbital bearing aligns threaded rods and eliminates galling • Can mount to existing flanges or valves
Applications	• Air • Natural gas • Water (raw, cooling, feedwater) • Hydrocarbon liquids and gases • Hazardous fluids • Steam
Special Designs - Consult Factory	• Custom mounting, lengths, materials, instrument connections, etc. • Short straight run

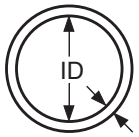
Temperature Pressure Limits (ANSI Class)*
150#
275 psig @ 100°F (19 bar @ 38°C)
80 psig @ 800°F (5.5 bar @ 426°C)
600#
1440 psig @ 100°F (99.3 bar @ 38°C)
825 psig @ 800°F (56.9 bar @ 426°C)

Model Specifications	**V400S**			**V400D**	
Sensor Code	**05**	**10**	**15**	**10**	**15**
Sensor Diameter	7/16" (11mm)	7/8" (22mm)	1-3/8" (35mm)	7/8" (22mm)	1-3/8" (35mm)
Accuracy	±1% of flow rate; up to +/-0.5% if calibrated				
ANSI Class*	600#	150#	150#	600#	600#
Drive Rods	Single			Double	
Pipe Size	2"- 6" (50mm-150mm)	6"- 42" (150mm-1050mm)	12"- 60" (300mm-1500mm)	6"- 42" (150mm-1050mm)	12"- 60" (300mm-1500mm)
Instrument Connection	1/2" NPT or Direct Mount			1/2" NPT or Direct Mount	
Components Furnished	Weld coupling, weld neck flange, access valve, gaskets, studs & nuts				
Flange Size	1" NPT	1-1/2" NPT	2" NPT	1-1/2" NPT	2" NPT

* DIN and JIS flanges available. Consult factory.

Armstrong®

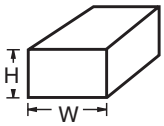
1. Enter Pipe Dimensions or Duct Dimensions



Pipe Size _____ Sch _____

Pipe ID _____ and

Wall _____ Pipe Material _____



Dimension Verabar® spans (H) or (W)

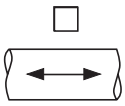
Height (H) _____

Width (W) _____

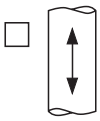
Wall _____

Duct Material _____

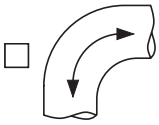
2. Pipe or Duct Orientation (Check one box)



☐ (H) Horizontal



☐ (V) Vertical



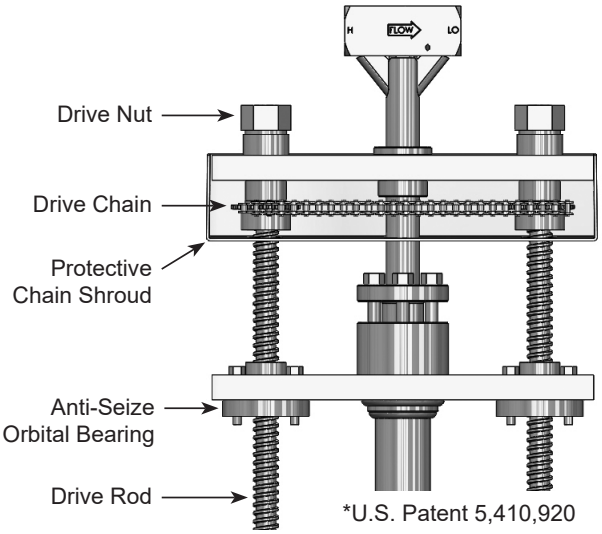
☐ Short Straight Run

Consult Factory

Synchro-Drive (Option SYN)

Synchro-Drive Description

Designed for pressures greater than ANSI Class 150#, Synchro-Drive is equipped with two drive rods that are coupled together by a protected chain drive system. Turning either drive nut simultaneously rotates both rods.



*U.S. Patent 5,410,920

Synchro-Drive Benefits

95% faster and easier insertion and retraction.

Equal load distribution over both rods maintains sensor alignment and eliminates binding.

3. Enter Flow Conditions

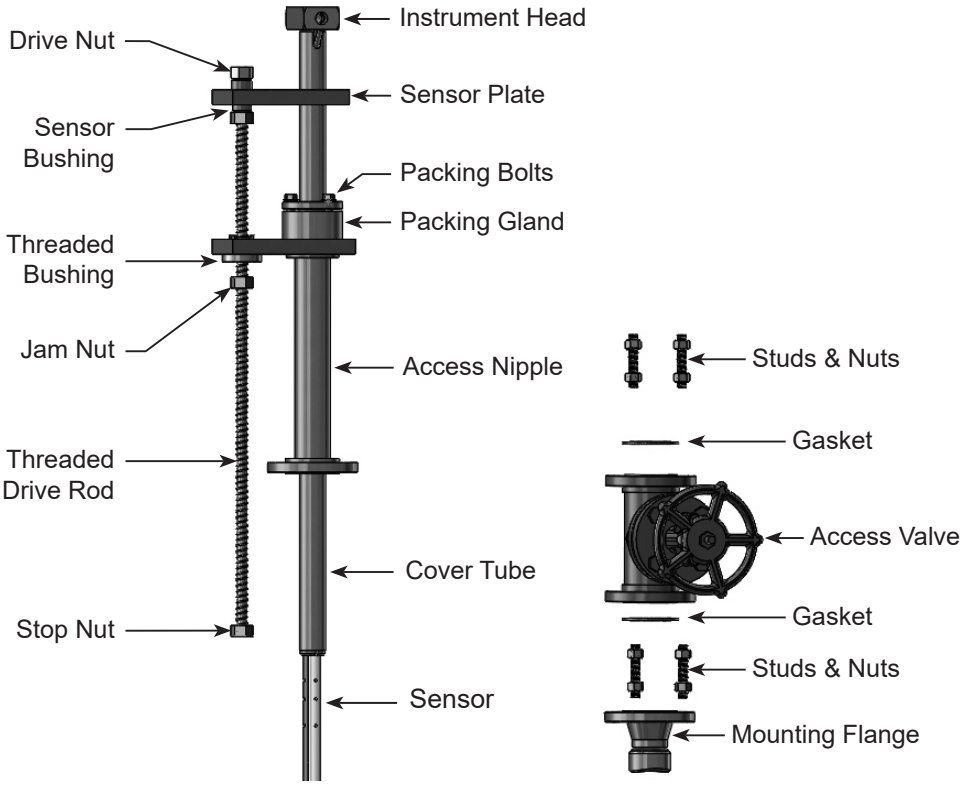
Fluid Name:		Maximum	Nominal	Minimum	Units
Flow Rate					
All Fluids	Pressure @ Flow				
	Temperature @ Flow				
Gas	Specific Gravity, or				
	Molecular Weight				
Liquid	Specific Gravity				
Steam	VeraCalc Program can calculate Density from Temperature and Pressure				

4. Select Model from Page 3

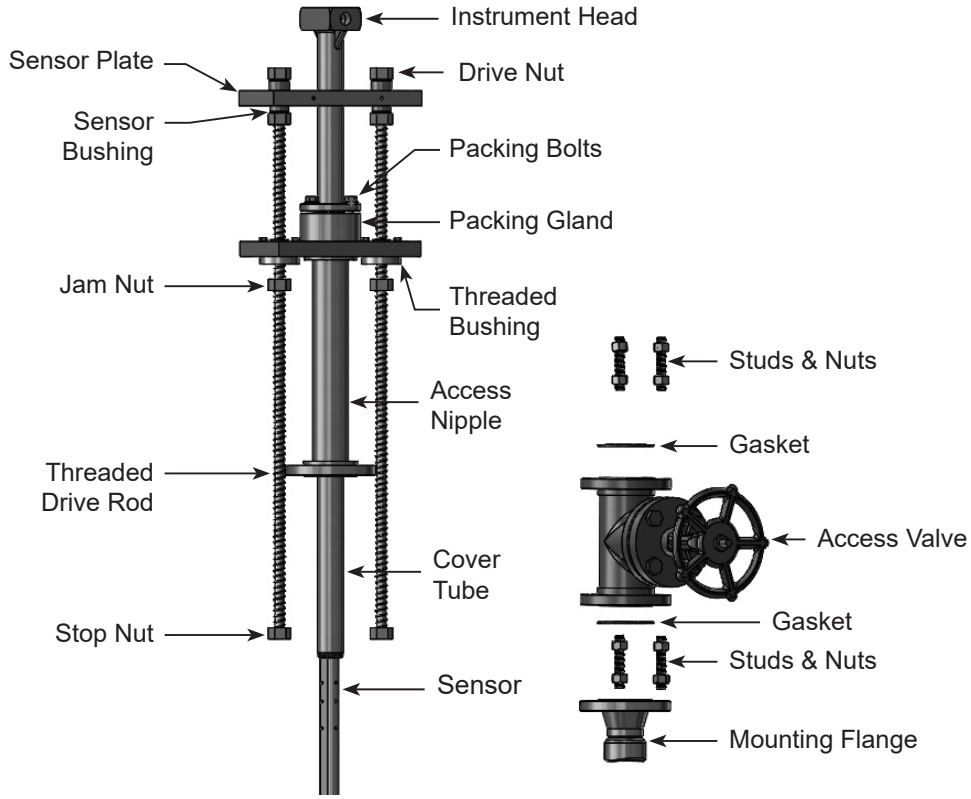
Use the Ordering Information table on Page 3 to determine your model number.

5. Flow Calculation

All VERIS Verabar® applications require a flow calculation to verify the DP, pressure and temperature limits, structural limits and to size the transmitter. VeraCalc is for use by representatives and end users. It is easy to operate and includes steam tables.



V400S (Single Rod)



V400D (Double Rod)

Model	Hot Tap • Screw Drive
V400S	Single Rod, Insert/Retract, General Purpose (05 Class 600#, 10 and 15 Class 150#)
V400D	Double Rod, Insert/Retract, Higher Pressures (600# max.) (10 and 15 only)

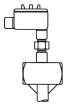
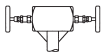
Pipe Size and Schedule or Exact ID and Wall Thickness

Code	Sensor Pipe Size Range
05	2” to 6” (50mm to 150mm)
10	6” to 42” (150mm to 1050mm)
15	12” to 60” (300mm to 1500mm)

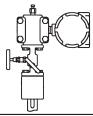
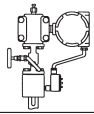
Code	Pipe Orientation
H	Horizontal
V	Vertical

Instrument Connections (Select Remote or Direct Mount)
(Transmitter sold separately)

Remote Mount Transmitter (1/2” NPT)

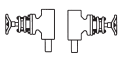
Parallel	Regular	RTD*	Valve
			 Integral
P	R	D	T

Direct Mount Transmitter (Flanged 450°F/232°C Max.)†

Transmount	Mass Transmount*	Manifold
	 Integral RTD	 Integral
F	G	M

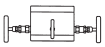
Instrument Valves (Opt.)

Remote Mount

Needle	Gate
 1/2” NPT	 1/2” NPT
C2NC (CS) **C2NS** (SS)	**C2GC** (CS) **C2GS** (SS)

Manifolds (Optional)

Direct Mount

3-Valve		5-Valve	
 Soft Seat	Hard Seat	 Soft Seat	Hard Seat
F3SC (CS) **F3SS** (SS)	**F3HC** (CS) **F3HS** (SS)	**F5SC** (CS) **F5SS** (SS)	**F5HC** (CS) **F5HS** (SS)

Optional

Mounting Assembly — Select Valve Type, Material & ANSI Class
(Includes valve, WN flange, weld coupling, spiral-wound gaskets, studs & nuts)

Ball Valve Flange

Sensor (Valve Size)			Material & ANSI Class	
05 (1”)	10 (1-1/2”)	15 (2”)		
Code				
B4CF15 **B4SF15**	**B6CF15** **B6SF15**	**B8CF15** **B8SF15**	CS SS	150# 150#
B4CF30 **B4SF30**	**B6CF30** **B6SF30**	**B8CF30** **B8SF30**	CS SS	300# 300#

Gate Valve Flange

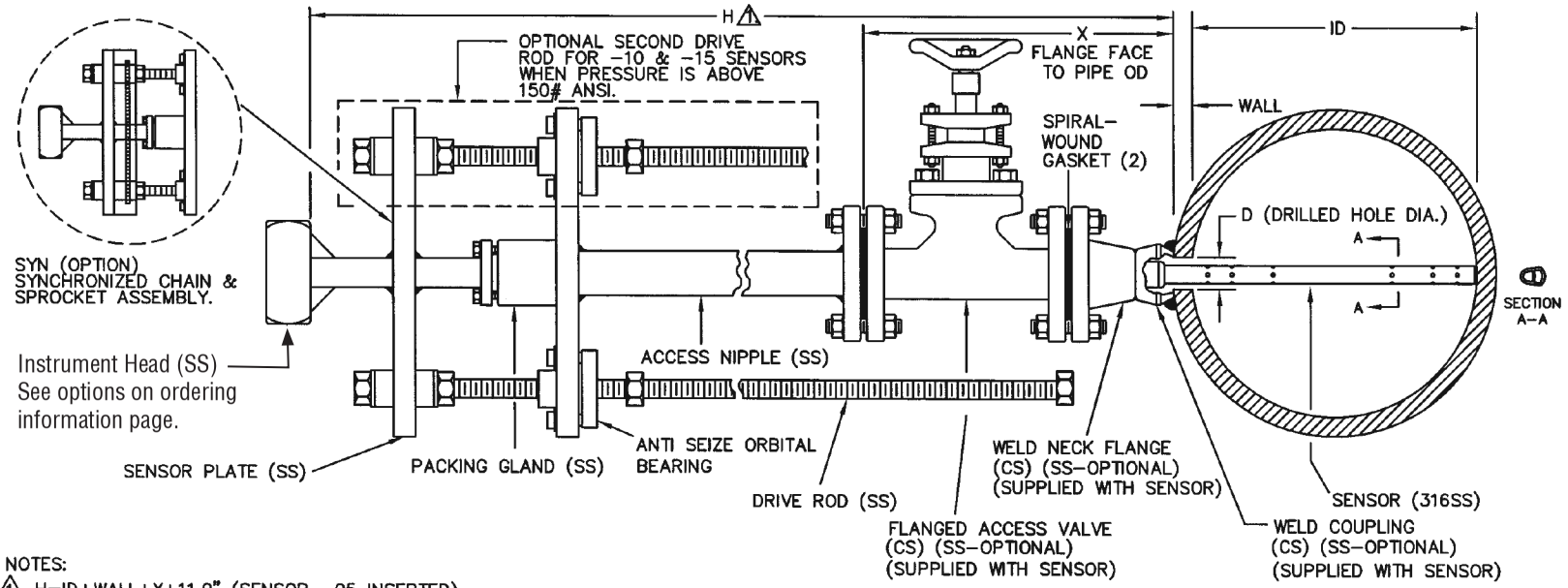
Sensor (Valve Size)			Material & ANSI Class	
05 (1”)	10 (1-1/2”)	15 (2”)		
Code				
G4CF15 **G4SF15**	**G6CF15** **G6SF15**	**G8CF15** **G8SF15**	CS SS	150# 150#
G4CF30 **G4SF30**	**G6CF30** **G6SF30**	**G8CF30** **G8SF30**	CS SS	300# 300#
G4CF60 **G4SF60**	**G6CF60** **G6SF60**	**G8CF60** **G8SF60**	CS SS	600# 600#

Code	Options
SYN	Synchronized Two Rod Drive System (Available for V400D-10 and V400D-15 sensors only)
WPS	SS Wetted Components (Furnished with SS weld coupling, flanges & access nipple). Must be ordered with SS access valve.

V400D	8”sch40	10	H	R	C2NC	G6CF30	Typical Model Number

* For high pressure (>500psig) or high temperature (>500°F), remote mount RTD in a thermowell is preferred.

† Assuming adequate heat dissipation for transmitter.



NOTES:

⚠ H=ID+WALL+X+11.0" (SENSOR –05 INSERTED).
H=ID+WALL+X+12.5" (SENSOR –10 INSERTED).
H=ID+WALL+X+14.5" (SENSOR –15 INSERTED).
H=2(ID+WALL+X)+11.6" (SENSOR –05 RETRACTED).
H=2(ID+WALL+X)+13.1" (SENSOR –10 RETRACTED).
H=2(ID+WALL+X)+15.1" (SENSOR –15 RETRACTED).
ADD 1.5" TO 'H' FOR –10 SYNCHRO DRIVE.
ADD 1.75" TO 'H' FOR –15 SYNCHRO DRIVE.

2. INSTRUMENT HEAD AND ACCESS VALVE ORIENTATION SHOWN 90 DEGREES FROM ACTUAL ORIENTATION FOR CLARITY.

ITEM	SENSOR –05	SENSOR –10	SENSOR –15
SENSOR DIA.	7/16" (11mm)	7/8" (22mm)	1–3/8" (35mm)
FLANGE SIZE	1"	1–1/2"	2"
DIM 'D' DRILLED HOLE DIAMETER	1/2" (13mm)	1" (26mm)	1–1/2" (39mm)
DIM 'X'* ANSI CLASS 150#	8.5" (216mm)	10.5" (267mm)	11.25" (286mm)
DIM 'X'* ANSI CLASS 300#	10.25" (260mm)	11.75" (298mm)	13.0" (330mm)
DIM 'X'* ANSI CLASS 600#	12.5" (318mm)	14.06" (357mm)	16.38" (416mm)
* 'H' & 'X' DIMENSIONS ARE APPROXIMATE (FOR SIZING PURPOSES ONLY).			

Armstrong® VERIS Flow Measurement Group armstrongintenational.com/veris	**VERIS Verabar® V400 Single & Double Rod, Flanged**	
DATE: 09/20/01	DWG. No. **SUB-3939**	
Scale: NTS	Rev: A	Page 1 of 1

Armstrong VERIS Flow Measurement Group
6315 Monarch Park Pl, Niwot, CO 80503 - USA Phone: 303-652-8550 Fax: 303-652-8552
armstronginternational.com

1636-EN
Printed in U.S.A. - 6/15/16