



Ordering Information		Thermowells
BA/		
	Unit Type	
	2"	Two Part (Welded) 304 Stainless Steel - 2"
	4"	Two Part (Welded) 304 Stainless Steel - 4"
	8"	Two Part (Welded) 304 Stainless Steel - 8"
	2" M304	Machined 304 Stainless Steel - 2"
	4" M304	Machined 304 Stainless Steel - 4"
	8" M304	Machined 304 Stainless Steel - 8"
	2" M316	Machined 316 Stainless Steel - 2"
	4" M316	Machined 316 Stainless Steel - 4"
	8" M316	Machined 316 Stainless Steel - 8"
	2" MB	Machined Brass - 2"
	4" MB	Machined Brass - 4"
	8" MB	Machined Brass - 8"
EXAMPLE		
BA/	4" M304	
Example Part Number: BA/4"M304 4" Machined 304 Stainless Steel Thermowell		
Your Part Number:		

Note: Standard thread size is 1/2" NPT external, and 1/2" NPSM internal.

2" wells have an insertion length of 2.5" (11.43 cm).

4" wells have an insertion length of 4.5" (11.43 cm).

8" wells have an insertion length of 7.5" (19.05 cm).

Gray shaded items follow the Buy and Resale Multiplier.

Comparing the Wake Frequency and the Resonant Frequency

Well failures, in most cases, are not due to the effects of pressure or temperature on the well. The calculations necessary to provide adequate strength, under given conditions, are familiar enough to permit proper choice of wall thickness and material. The values shown in Table 1 are conservative, and intended primarily as a guide. Less familiar, and more dangerous, are the **vibration effects** to which wells are subjected. Fluid, flowing by the well, forms a turbulent wake (called the Von Karman Trail) which has a definite frequency, based on the diameter of the well and the velocity of the fluid. It is important that the well have sufficient stiffness so that the wake frequency will never equal the resonant (natural) frequency of the well itself. If the resonant frequency of the well coincided with the wake frequency, the well would vibrate to destruction and break off in the piping. Wells are also safe if the resonant frequency is well **below** the wake frequency or if the fluid velocity is constantly fluctuating through the critical velocity point. Nevertheless, if the installation is not hampered by the use of a sufficiently stiff well, we recommend the values given in Table 2 not be exceeded.

Table 1: Pressure Rating versus Temperature

Thermowell Material	Temperature in Degrees Fahrenheit						
	70°F	200°F	400°F	600°F	800°F	1000°F	1200°F
Pressure Rating (Pounds per Square Inch)							
Brass	5000	4200	1000	-	-	-	-
Welded 304 S.S.	982	820	675	604	550	510	299
304 S.S.	7000	6200	5600	5400	5200	4500	1650
316 S.S.	7000	7000	6400	6200	6100	5100	2500

Table 2:

Maximum Fluid Velocity versus Insertion Length

Thermowell Material	Fluid Type	Insertion Length (Inches)		
		1-2"	1-4"	1-8"
		Maximum Fluid Velocity (Feet per Second)		
Brass	Air/Steam	207	75.5	27.3
	Water	59.3	32.2	19.7
Welded 304 S.S.	Air/Steam	169	61	20
	Water	88	20	10
304 S.S.	Air/Steam	300	109	39.5
316 S.S.	Water	148	82.2	-

The values shown in Table Two are based on operating temperatures of 350°F for brass and 1,000°F for stainless steel (S.S.). Slightly higher velocities are possible at lower temperatures.

