

ENGINEERING BULLETIN #126

How We Calculate Maximum Allowable Working Pressure (MAWP)

As defined by the international ISO 10380-2012 standard, Maximum Allowable Working Pressure (MAWP) is the maximum pressure for which the hose assembly is designed. MAWP is specified by the manufacturer.

It is commonly accepted in our industry that the MAWP of an assembly should be no more than one-fourth of the burst pressure, or the pressure at which the assembly ruptures. This gives the assembly a safety factor of 4:1.

To establish Maximum Allowable Working Pressure, a straight hose assembly with a live length equal to ten (10) times its nominal diameter, but not less than twenty (20) inches, is subjected to gradually increasing hydrostatic pressure. The pressure at which the assembly ruptures is recorded as the burst pressure of the assembly.

To calculate the number for Working Pressure which we publish in [our catalog](#), we would first apply the 4:1 safety factor mentioned above and then reduce the result by additional 20% to account for welding as the method of attachment.

The reason for this additional reduction is based on the fact that tensile strength of the braid wires located in the Heat Affected Zone (HAZ) might be affected by the heat and become lower.

An example:

If the burst pressure of a hose is 1000 psi, the published MAWP is calculated as per the following:

$$1000 \div 4 = 250 \text{ psi}$$

$$250 \times .8 = 200 \text{ psi}$$

For double-braided hoses, the MAWP published in [our catalog](#) is based on the addition of 60% to the number we published for single-braided hoses.

Therefore, if the single-braided hose assembly had a published WP of 1000 psi, then the MAWP of the double-braided hose would be calculated as:

$$1000 \times 1.6 = 1600 \text{ psi}$$

Note:

- MAWP published in [our catalog](#) is the maximum working pressure at 70°F. At elevated temperatures, the Temperature Adjustment Factor has to be applied. Please refer to [our catalog](#) for Adjustment Factors at different service temperatures.
- It is essential that the maximum operating pressure, including the surge pressure to which the hose is subjected in service, not exceed the specified Maximum Allowable Working Pressure.

Practical points to note:

- When making an assembly, it is important to make sure that braid is tight on the hose and all braid wires end flush with ends of hose.
- Testing has shown that the braid sleeves must be snug on the hose or the burst value of the hose will be significantly reduced.

For more information, please [contact us](#).