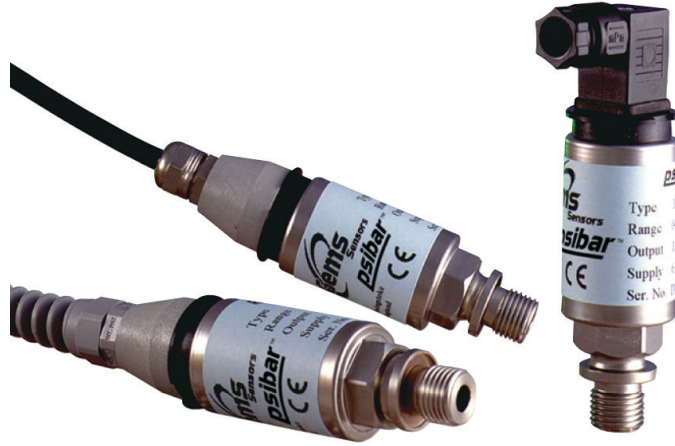


1200/1600 Series versus 2200/2600 Series Pressure Sensors



Gems Sensors offers their CVD based pressure sensors in two flavors: the standard 2200/2600 and the heavy duty 1200/1600. We are often asked:

When would I specify the 2200/2600 for my application and when would I use the 1200/1600?

The 2200/2600 series pressure sensors are considered for most applications. You reach for that one first as the standard model.

The 1200/1600 Heavy Duty series is considered when you are using the sensors in water and hydraulic applications where the sensor will see lots of spikes in (over) pressure. A spike is when pressure accelerates very quickly in the system and momentarily goes beyond the working pressure.

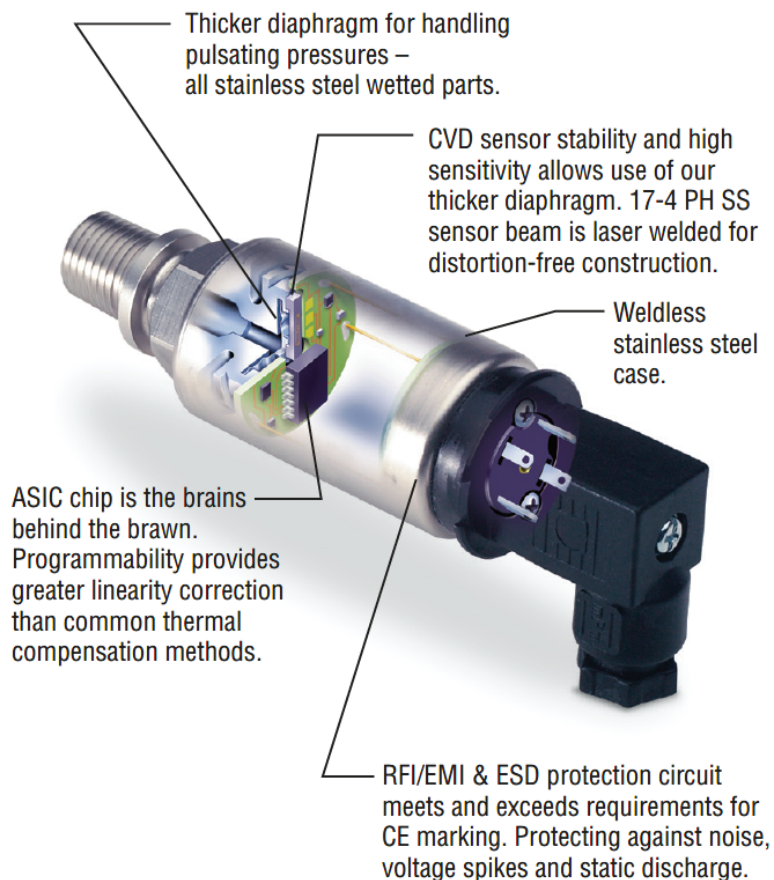
Some examples of over-pressure can occur in pumping systems that are handling large volumes of water. As water moves around the system and hits valves or ends of the pipe, a phenomenon called water hammer occurs. These large impact situations create spikes in the fluidic system and can over-pressure and damage the sensors. With the 1200/1600's thicker diaphragm, the water hammer is absorbed and does not damage the sensor.



Based on testing, it also has been discovered that a customer might have a 0 to 1,500 psi (0 to 100 bar) system that they measured with a dial gauge but when spikes occur, they can reach 5,000 psi (350 bar) or more. The mechanical needle is not fast enough to see and display these spikes. If the customer specified a 1,500 psi (100 bar) sensor, the 5,000 psi (350 bar) spike can damage the sensor and cause incorrect outputs.

[How does Gems make the Heavy-Duty Versions?](#)

The main difference is Gems uses a thicker diaphragm for sensing the media's pressure. This thicker diaphragm absorbs these spikes and prevents the pressure from being damaged.



What about Performance? Are there any differences between the 2200/2600 versus a 1200/1600?

Looking at the side-by-side specs of a 2200/2600 vs. a 1200/1600, you will see two major differences:

■ Proof Pressure:

Definition: The maximum pressure that can be applied to a pressure sensor without causing mechanical degradation or shift in output. For example: a 1-5V output sensor becomes a 2-6V output sensor after being exposed to a large pressure spike.

The 2200/2600 typically has a 2x FS (Full Scale) proof pressure spec while the 1200/1600 is typically a 4x FS proof pressure spec.

■ Accuracy:

Definition: The value of error of how closely a pressure sensor can send an output with respect to the actual pressure in the system being measured.

The 2200/2600 typically has a 0.25% FS accuracy pressure error while the 1200/1600 is typically 0.5% FS.

Summary:

The tradeoff of specifying and applying a 2200/2600 series pressure sensors versus the 1200/1600 series pressure sensor is Accuracy versus Proof Pressure. We have found that in high pressure / spike water and hydraulic applications, accuracy is not as important proof pressure so the 1200/1600 series is selected to ensure the sensor will have a long life and provide accurate readings.