

Length Calculation and Accessories

for Retractable Probes & Coupon Holders

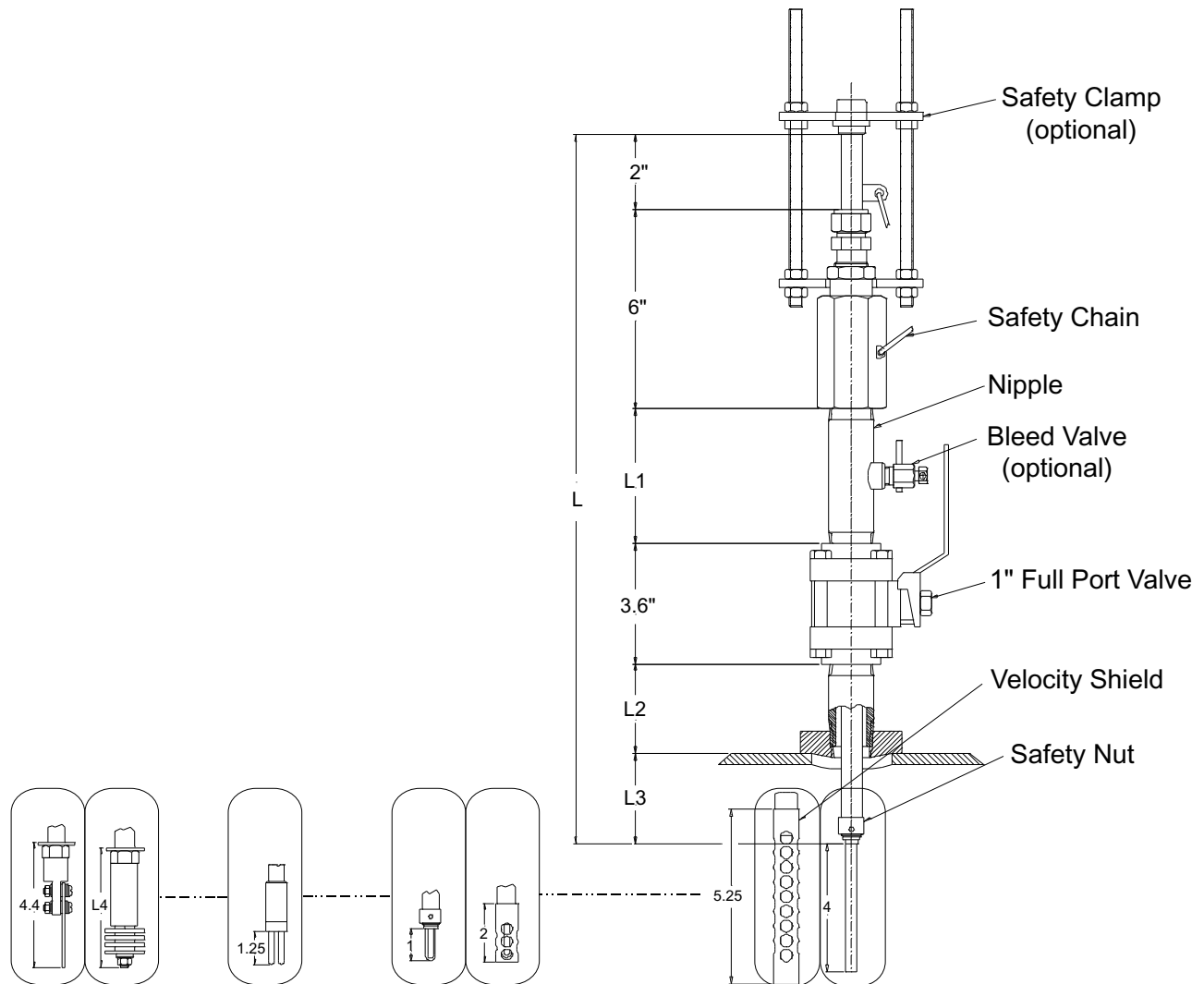


Figure 1. Retractable Probe / Coupon Holder Assembly

The length of a retractable probe or coupon holder assembly is calculated by adding the required lengths of its various accessories.

Electrical resistance probes, two electrode linear polarization probes, and coupon holder assemblies require a 1" (minimum) **full port valve** and **nipple** for mounting. Three electrode linear polarization probes require a 1½" (minimum) full port valve and nipple for mounting.

The **insertion rod** extends 2" above the packing gland when fully inserted.

A **packing gland** is used with the probe for insertion or retraction from a system without process shutdown. Standard length of the packing gland is 6".

Note: Installation of a probe with a packing gland requires a certified fitter.

When removed from the process environment, the end of the insertion rod retracts into the **nipple**. This allows the full port valve to be closed. Standard nipple length (L1) is 4", but may vary depending on the length of accessories attached to probes or the length and number of coupons attached to coupon holder assemblies.

The **bleed valve** (optional) is used to release pressure and drain any process fluid/gas that accumulates within the nipple after the probe is retracted from the process and the port valve is closed.

The length from the top of the valve to the process environment (L2) is determined by the customer.

The portion of the probe or coupon holder assembly that enters the process will vary in length depending on the type of element, electrode, or coupon being used. **Figure 1** shows some of the various types and their lengths.

A **velocity shield** may be added to fit over the element at the end of an electrical resistance probe. The shield reduces fluid velocity around the element and protects the element from floating debris. If a shield (which is longer than the element it covers) is used, the nipple will need to be longer to allow for the total retraction of the probe from the process environment. The shield also provides protection against accidental blowout. If the safety cable is not hooked in place or if the cable fails, the packing gland will catch on the velocity shield preventing blowout. To ensure that this added safety feature is provided to customers who do not order shields, Metal Samples provides a **safety nut** with all probes which can be attached to the end of the probes in place of shields.

A **coupon adaptor** may be attached to the threads on the end of the safety shield, allowing for the addition of coupons. The nipple length would then need to be longer to compensate for the length of the added adaptor and coupons. Example: If an adaptor with a coupon extended 2" beyond the 5" safety shield to which it was attached, the required nipple length would be 7". **Figure 2** shows two coupon adaptors attached to safety shields.

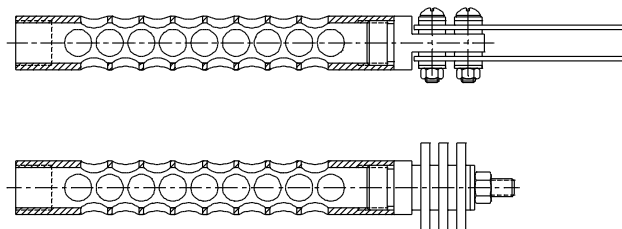
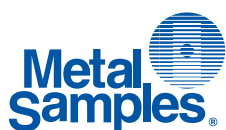


Figure 2. Coupon Adaptors attached to Safety Shields

A **safety cable** is provided with every retractable probe to prevent accidental blowout of the insertion rod. Optional **safety clamps** may be ordered to provide additional protection against blowout. The clamps are put in place after the probe has been inserted to the required depth.

A **six-pin connector** is mounted to the top of electrical resistance and linear polarization probes. Coupon holding probes are capped with either a mushroom knob or an Easy Tool adaptor head.

The [Easy Tool](#) is strongly recommended for probe insertion in systems with pressure over 150 pounds.



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