PART NUMBERING SYSTEM FOR Idaho Labs
MINERAL INSULATED THERMOCOUPLES

EXAMPLE:
125-Ks-I600-H-EW-UNG-24"IM-MP
(A)-(B)-(C)-(D)-(E) - (F) - (G) - (H) (OTHER)

The first five (5) sections of the part number ("A" to "E") describe the mineral insulated cable to be used. The others ("F" thru "Other") describe the thermocouple design and components.

A. NOMINAL OUTSIDE DIAMETER OF SHEATH (in thousandths of an inch).

A two (2) number description is denotes a dual diameter probe.
EXAMPLE: 062/125-XXXXXXXXXX is .062" at the tip, the balance of the immersion length will be .125" diameter.

B. TYPE OF THERMOCOUPLE CALIBRATION:

1. Follows the ANSI system for "normal" calibrations, and uses special characters for non-standard types.
   EXAMPLE: XXX-**M**-XXXXXXXXX
   The -M- designates a Nickel / Nickel-Moly thermocouple, also known as Alloy 19 vs. Alloy 20.
2. This area also designates the number of conductors.
   EXAMPLE: XXX-**K**-XXXXXXXXX is two (2) wire. XXX-**KK**-XXXXXXXXX is four (4) wire.
   XXX-**KKK**-XXXXXXXXXX denotes six (6) wires.
3. An "s" after the calibration letter designates special limits of error wire calibration.
   (**NOTE:** special limits of error platinum/rhodium alloys will be called out in the (other) category to avoid confusion with four-wire "S" calibration.)
4. A number in brackets () will call out the conductor diameter if required.
   EXAMPLE: XXX-R**(020)**-XXXXXXXXX designates 24 awg (.020"diameter) wire.

C. SHEATH MATERIAL or MATERIALS (for composite sheath TC's):

EXAMPLE: XXX-X-**AL2O3HF**-XXXXXXXX calls for a hard-fired aluminum oxide ceramic sheath.
EXAMPLE: XXX-X-**P10R/I600**-XXXXXXXX calls for a Platinum /10% Rhodium sheath on the tip, and the balance of the probe will be Inconel Alloy 600.

D. DESCRIPTION OF THE INSULATION PURITY: Choose from either High-Purity or Standard Purity.

EXAMPLE: XXX-X-XXXX-**H**-XXXXXX
The letter -H- designates a high purity MgO of 99.4% minimum. If no letter is used in this area the insulation is standard purity MgO with a minimum purity of 96.4%

E. SPECIAL DESCRIPTION AREA: This is left blank unless needed.

EXAMPLE: XXX-X-XXXX-X-**EW**-XXXXXXXX
The -EW- is a call out for mineral insulated cable that has equal wall and wire thickness.

F. JUNCTION INFORMATION: Choose the type of junction based on the application.

EXAMPLES:

- ***GND*** - grounded junction where the wires are welded into sheath.
- ***UNG*** - isolated or ungrounded junction: the junction is electrically isolated from the sheath.
- ***UNC/UNG*** - the wire pairs are welded together and are not in contact with other pairs or the sheath.
- ***EXP*** - the wires are welded together and extend past the end of sheath. Usually the insulation is sealed to prevent contamination from entering the probe (the seal material depends on the application).

G. LENGTH OF PROBE, OR LENGTH UNDER TRANSITION FITTING (measured in inches)

EXAMPLE: XXX-K-XXXX-X-X-**28.5"IM**-XXXXXXX

Immersion length is 28 1/2" inches. If no tolerances are specified, standard tolerance for immersion length of probes of 120 inches or under is +/-.250" or +/- one sheath diameter whichever is greater. Length tolerance for probes over 120" is +/- 1.0" unless specified differently.

H. DESCRIPTION OF NON-SENSING (COLD) END OF PROBE.

EXAMPLES:

- ***MP*** - full size male plug, standard temperature range, compensating pins, unit may have crimp adaptor to mic or compression adaptor. May also appear as “SMP”.
- ***MMP*** - miniature male plug, with flat, compensating pins, on a 5/16" center to center spacing. unit may have either a crimp or braze adaptor to connect to the probe.
- ***TRN*** - stainless steel transition fitting, 3/8" diameter body by 1 3/8" long, nose piece crimped or brazed to mic, black epoxy filled, temperature rating 350 degrees f. flexible lead wire imbedded in epoxy.
- ***TRNSR*** - stainless steel transition fitting, same as trn only this piece has a sst spring strain relief over the end of lead wire.
- ***HEX*** - stainless steel, hex fitting, 304 or 316, 1/2" x 1/2" npt, brazed or welded to mic, used as a transition fitting, or with stripped and insulated wires, black epoxy sealed.
- ***HEXSL*** - stainless steel, hex fitting, 304 or 316, 1/2" x 1/2" npt, spring-loaded. Typically used with either stripped and insulated wires, or with a 5/16" diameter transition fitting.

OTHER - This section will describe special information, such as weld pads, lead wires, bends in probes, over braid on wires, or flexible SST armor. Any other pertinent information may be included here as well.