



Title: Furnace Thermocouples	MS-110 B
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### 1.0 Purpose

1.1 This document establishes the requirements for furnace thermocouples (TC) to be used in Meyer Tool’s coating, heat treating, and brazing processes.

### 2.0 Certificate Required

2.1 Each lot must be accompanied with a Certificate of Compliance. The analysis must state that the material meets or exceeds the criteria listed in the Meyer Tool purchase order and/or that listed below. Calibration and certifications shall be traceable to NIST or other equivalent national certification agency.

### 3.0 Coating Furnace Thermocouples

- 3.1 Control, monitoring, and overtemp TC’s must be:
  - 3.1.1 Type K nonexpendable with correction factors meeting the requirements of Table 1.
  - 3.1.2 Correction factors must be the average of the ends.
  - 3.1.3 End to end difference in correction factors may not exceed 2° F.
  - 3.1.4 Limits apply from 750°F to 2250°F.

### 4.0 Vacuum Furnace Thermocouples

- 4.1 Workload TC’s must be:
  - 4.1.1 Type K nonexpendable with correction factors compliant with Table 1.
- 4.2 Control TC’s must be:
  - 4.2.1 Type R nonexpendable with a correction factor of +/- .75% of reading max.
- 4.3 For all TC’s:
  - 4.3.1 Correction factors must be the average of the ends.
  - 4.3.2 End to end difference in correction factors may not exceed 2° F.
  - 4.3.3 Limits apply from 750° F to 2250° F.

Date		Date	
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**TABLE 1**Allowable correction factors for Type K  
workload TC's

<b>Temp</b>	<b>Allowable TC Error</b>	<b>Allowable TC%</b>
700	0.8	0.11%
750	1.0	0.13%
800	1.2	0.15%
850	1.4	0.16%
900	1.6	0.18%
950	1.8	0.19%
1000	2.0	0.20%
1050	2.2	0.21%
1100	2.4	0.22%
1150	2.6	0.23%
1200	2.8	0.23%
1250	3.0	0.24%
1300	3.2	0.25%
1350	3.4	0.25%
1400	3.6	0.26%
1450	3.8	0.26%
1500	4.0	0.27%
1550	4.2	0.27%
1600	4.4	0.28%
1650	4.6	0.28%
1700	4.8	0.28%
1750	5.0	0.29%
1800	5.2	0.29%
1850	5.4	0.29%
1900	5.6	0.29%
1950	5.8	0.30%
2000	6.0	0.30%
2050	6.2	0.30%
2100	6.4	0.30%
2150	6.6	0.31%
2200	6.8	0.31%
2250	7.0	0.31%
2300	7.2	0.31%

