# Alignment Checklist

**1) Pre-Alignment checks:**

- ☐ **Lock-out and tag-out the equipment you will be working on.**
- ☐ **Clean the area under and around the feet of loose rust, dirt and paint.**
- ☐ **Make sure that the base, grout and feet of the machines to be aligned are in good condition.**
- ☐ **Remove any existing pipe strain if possible.**

**2) Rough Alignment:**

- ☐ **Loosen all bolts and make sure the alignment is close by eyesight.**
- ☐ **Fill any obvious gaps under the feet.**
- ☐ **Torque bolts to correct amount.**

**3) First Alignment Check:**

- ☐ **Mount the brackets, heads and center the laser.**
- ☐ **Enter the proper dimensions as well as any thermal growth or targets that are required.**
- ☐ **Take at least two sets of readings in order to establish repeatability.**
- ☐ **Ensure that the feet of the moveable machine are within .075” of the horizontal center line.**

**4) Soft Foot Correction:**

- ☐ **Measure each foot using the laser alignment system.**
- ☐ **Diagnose the type of soft foot, if any, and make the necessary corrections.**
- ☐ **Get all soft foot readings as low as possible with a goal of no more than .002” on any foot.**

**5) Final alignment:**

- ☐ **Measure the misalignment once all soft feet corrections have been made.**
- ☐ **Align the machines to within the specified tolerances for their rotating speed.**
- ☐ **Measure again to make sure you have what you think you have.**

**6) Saving and Documentation:**

- ☐ **Save the file using the accepted format.**
- ☐ **Generate a PDF report or upload the file to the alignment software for future reference.**

**7) Final Housekeeping and Safety Items**

- ☐ **Make sure all guards are fastened back in place.**
- ☐ **Clean up the work area and remove all trash and tools.**
- ☐ **Sign-out and remove any locks you have on the equipment.**

STAR-TECH
INSTRUMENT SYSTEMS, INC

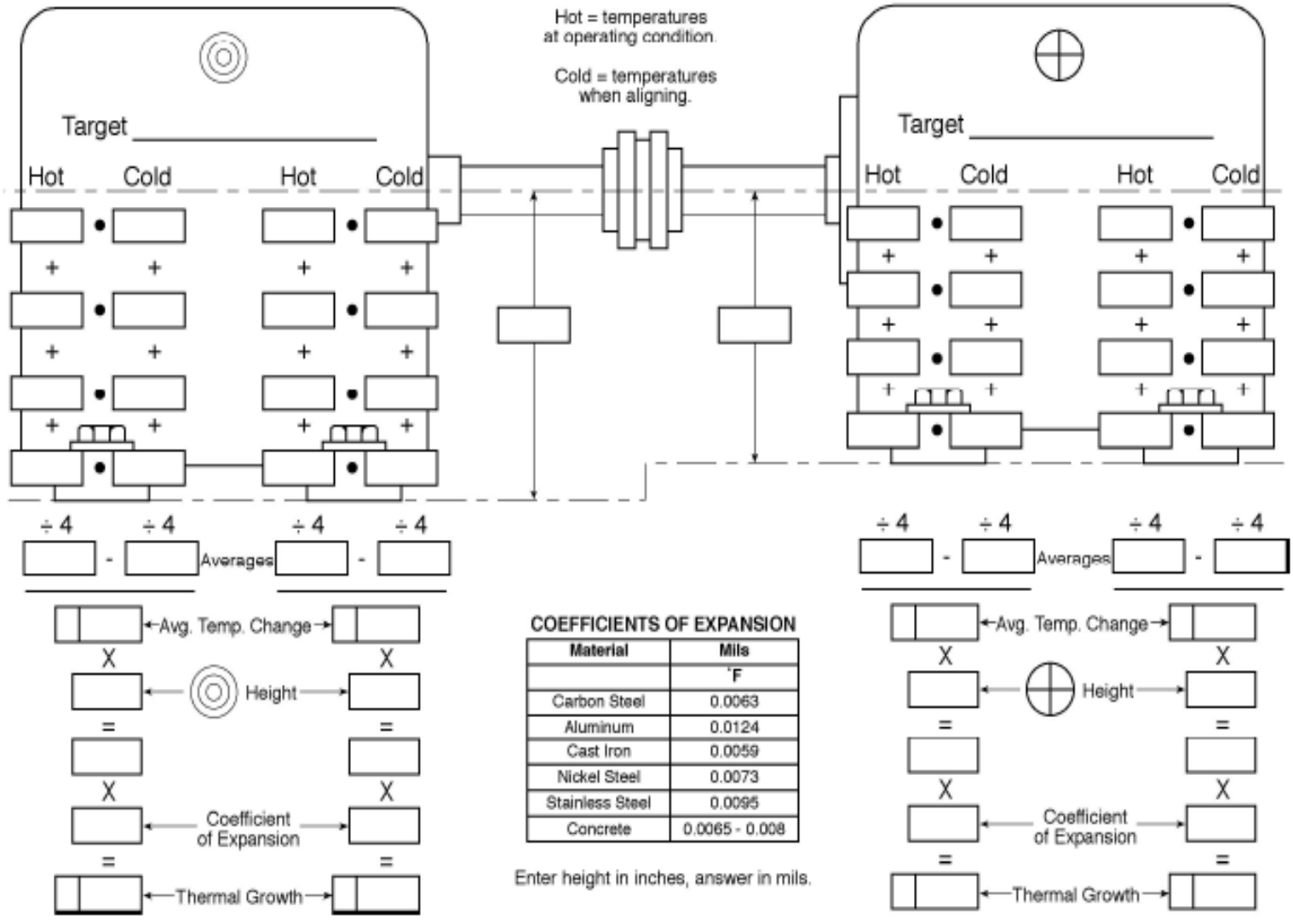
TOLERANCES FOR SHAFT ALIGNMENT

| RPM | OFFSET thous | | GAP thous/10" | | SPACER SHAFT thous/inch | |
|---|---|---|---|---|---|---|
| | EXCELLENT | OK | EXCELLENT | OK | EXCELLENT | OK |
| 600 | 5.0 | 9.0 | 10.0 | 15.0 | 1.8 | 3.0 |
| 900 | 3.0 | 6.0 | 7.0 | 10.0 | 1.2 | 2.0 |
| 1200 | 2.5 | 4.0 | 5.0 | 8.0 | 0.9 | 1.5 |
| 1800 | 2.0 | 3.0 | 3.0 | 5.0 | 0.6 | 1.0 |
| 3600 | 1.0 | 1.5 | 2.0 | 3.0 | 0.3 | 0.5 |
| 7200 | 0.5 | 1.0 | 1.0 | 2.0 | 0.15 | 0.25 |
| Softfoot tolerance is 2.0 thous | | | | | | |

| SAE Bolt Sugested Torque Specs | | |
|---|---|---|
| Bolt Size | Grade 5 | Grade 8 |
| 5/16" | 15 FT-LB | 20 FT-LB |
| 3/8" | 30 FT-LB | 35 FT-LB |
| 7/16" | 45 FT-LB | 60 FT-LB |
| 1/2" | 65 FT-LB | 90 FT-LB |
| 9/16" | 95 FT-LB | 130 FT-LB |
| 5/8" | 135 FT-LB | 175 FT-LB |
| 3/4" | 185 FT-LB | 280 FT-LB |

# Thermal Growth Calculation Sheet

Thermal Growth = (Avg. Temp. Hot - Avg. Temp. Cold) x Height x Coeficient of Expansion




COEFFICIENTS OF EXPANSION

| Material | Mils |
|---|---|
| | °F |
| Carbon Steel | 0.0063 |
| Aluminum | 0.0124 |
| Cast Iron | 0.0059 |
| Nickel Steel | 0.0073 |
| Stainless Steel | 0.0095 |
| Concrete | 0.0065 - 0.008 |

Enter height in inches, answer in mils.