



Minimum Tool Performance Requirements

The following are the MINIMUM ergonomics requirements tools must meet to be considered for further evaluation. Meeting the minimum does not ensure that a tool will pass subsequent ergonomic evaluation criteria.

1.1 Grip Size

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|-------|---|---------------------|
| 1.1.1 | Grip must be at least 3.5" in length. | Pass ____ Fail ____ |
| 1.1.2 | Tools must accommodate both left and right handed grips. | Pass ____ Fail ____ |
| 1.1.3 | Non-precision grip tools must provide grip circumferences between 3.1" to 5.4". For a round cross-section, this corresponds to a diameter between 1.0" and 1.7" | Pass ____ Fail ____ |
| 1.1.4 | Precision grip tools must provide a grip circumference between 1.0" and 3.1". For a round cross-section, this corresponds to a diameter between 0.3" and 1.0" | Pass ____ Fail ____ |

1.2 Contact Pressure and Trigger

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|-------|---|---------------------|
| 1.2.1 | The tool must not possess sharp or cornered surfaces that contact the hand. | Pass ____ Fail ____ |
| 1.2.2 | Maximum trigger forces per finger must be below 2.2 lbs. | Pass ____ Fail ____ |
| 1.2.3 | Maximum trigger contact stress must be maintained below 30psi initial and 22psi sustained. | Pass ____ Fail ____ |
| 1.2.4 | Tool grips must possess appropriate flanges or contouring to prevent hands from slipping off of grip during anticipated force applications. | Pass ____ Fail ____ |
| 1.2.5 | Tools must NOT possess individual finger grooves. | Pass ____ Fail ____ |



1.3 Temperature & Exhaust

1.3.1 Tool grips must maintain operating temperatures within the range of 65°F and 100°F under normal power conditions and duty cycles.

1.3.2 Tools must not exhaust onto the users hand or toward their face. Adjustable direction exhaust ports are preferred.

Pass ____ Fail____

Pass ____ Fail____

1.4 Tool Weight & Balancing

1.4.1 Single grip tools used without tool balancers must not exceed 6 lbs with common bits.

1.4.2 Dual handed tools used without tool balancers must not exceed 12 lbs with common bits.

Pass ____ Fail____

1.4.3 Precision grip tools must not exceed 1.5 lbs with common bits.

Pass ____ Fail____

1.4.4 Tools requiring a balancer must provide suspension points that enable the tool to be supported in the orientation of application.

Pass ____ Fail____

Pass ____ Fail____

1.5 Vibration & Noise

1.5.1 Vibration levels must be within ANSI S3.34-1996 Hand-Arm vibration standards.

1.5.2 The tools operating noise levels must be below 85 DBA if intended for all day use.

Pass ____ Fail____

Pass ____ Fail____