

1.0 SCOPE

Quality restrictions to provide steel suitable for near net shape forging. This is a multiple variation specification (different surface qualities). (See Articles 2.0 and 3.0).

2.0 APPLICATION

1E2728 will be specified on selected receiving plant station lists, forger die cards, and steel purchase orders when steel is applied to near net shape forgings. Three levels of surface quality are provided. The "stock allowance per surface" and the "shape tolerance per surface" given for the tooth profile process option (in the tooth control block of the part number drawing) selected by the manufacturing plant will determine the quality level needed according to the following table.

Minimum Machining Stock

| Removed from Forging | 1E2728 Quality Level |
|----------------------|----------------------|
| 0 – 0.4 mm | 1E2728A |
| >0.4 – 0.7 mm | 1E2728B |
| >0.7 mm | 1E2728C |

Quality level 1E2728B may be specified for piece parts with 0 - 0.4 mm stock removal when written approval is given by central purchasing **and** the using Caterpillar Facility. This will be subject to the demonstrated ability of the steel mill to provide the surface quality required in the as-rolled condition.

3.0 QUALITY LEVEL

3.1 1E2728A - Turned bars required (no surface defects permitted).

3.2 1E2728B - Permits hot rolled or cold drawn bars provided they are tested by NDE and have a maximum defect depth of 0.3 mm.

3.3 1E2728C - Permits hot rolled or cold drawn bars provided they are tested by NDE and have a maximum defect depth of 0.6 mm.

Note: 1E2728A (turned bars required - no surface defects permitted) is permitted for all quality levels.

4.0 CONDITIONING

Mult weight for near net shape forging applications must be held within $\pm 1\%$. Therefore, rolling tolerances and mill conditioning must be such that weight per unit length for each bar is consistent enough along its length.

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| QUALITY REQUIREMENTS - STEEL FOR NEAR NET SHAPE FORGINGS | DATE | CHG NO | NUMBER |
| | 04 JAN 1996 | 01 | 1E2728 |