

NOTE.—The Institution desires to call attention to the fact that this standard is intended to include the technical provisions necessary for the supply of the material herein referred to, but does not purport to comprise all the necessary provisions of a contract.

British Standards Institution

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BRITISH STANDARD SPECIFICATION FOR AIRCRAFT MATERIAL

65 TON, 2½ PER CENT NICKEL-CHROMIUM- MOLYBDENUM STEEL

(Limiting ruling section 6 in.)

- A. Bars and billets for forging.
- B. Black and bright bars for machining.
- C. Forgings other than those for crank and propeller shafts.
- D. Forgings for crank and propeller shafts.

As altered
Aug., 1955

1. Chemical composition.*

Carbon	-	not less than 0.27 and not more than 0.35 per cent.
Silicon	-	not less than 0.10 and not more than 0.35 per cent.
Manganese	-	not less than 0.5 and not more than 0.7 per cent.
Nickel	-	not less than 2.3 and not more than 2.8 per cent.
Chromium	-	not less than 0.5 and not more than 0.8 per cent.
Molybdenum	-	not less than 0.4 and not more than 0.7 per cent.
Sulphur	-	not more than 0.045 per cent.
Phosphorus	-	not more than 0.045 per cent.

2. Process of manufacture.

Acid open hearth or electric.

3. Rough machining.

Section One, Clause 5.2, of British Standard 2 S. 100.

4. Condition.

- 4.1. Bars and billets for forging shall be supplied in the softened condition.
- 4.2. Black bars for machining shall be supplied in the hardened and tempered condition.
- 4.3. Bright bars for machining shall be supplied hardened and tempered and cold drawn, ground, or machined before or after heat treatment.
- 4.4. Forgings shall be supplied in the hardened and tempered condition.

As altered
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* This composition is the same as En. 25, B.S. 970, except for the sulphur and phosphorus limits.

5. Heat treatment.

The heat treatment to be given to the test samples, and to material required in the hardened and tempered condition, shall be as follows :—

Harden in oil from a temperature between 820° C. and 850° C.

Temper at a suitable temperature not exceeding 660° C.

6. Mechanical properties.

- | | | |
|---|---|---|
| 0·1 per cent proof stress | - | not less than 54 tons/sq. in. |
| Ultimate tensile stress | - | not less than 65 tons/sq. in.,
not more than 75 tons/sq. in. |
| Elongation—Up to and including 4 in. ruling section | - | not less than 16 per cent. |
| Over 4 in. ruling section | - | not less than 14 per cent. |
| Izod | - | not less than 35 ft. lb. |
| Brinell hardness number | - | not less than 293,
not more than 341. |

7. Inspection and testing procedure.

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| Bars and billets for forging | - | Sections One and Two of
British Standard 2 S. 100. |
| Black and bright bars for machining | - | Sections One and Three of
British Standard 2 S. 100. |
| Forgings other than those for crank and propeller shafts | - | Sections One and Four of
British Standard 2 S. 100. |
| Forgings for crank and propeller shafts | - | Sections One and Five of
British Standard 2 S. 100. |

*As altered
Aug., 1955*

This British Standard, having been approved by the Aircraft Industry Standards Committee and endorsed by the Chairman of the Engineering Divisional Council, was published under the authority of the General Council of the Institution on 6th January, 1949.

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