

Material Grade: **655M13**
 Material Condition(s): **Untreated / Annealed**
 Surface Finish: **As rolled / As forged**

Associated Standard: **BS970**

Description:

A nickel-chromium alloy case-hardening steel that is specified for heavy duty highly stressed applications. When carburised and hardened cores strengths of 850 – 1230 N/mm² are attainable. The presence of chromium increases hardenability whilst the nickel content increases toughness and resistance to stock

Typical applications: **High duty gears for aircraft, heavy vehicles and automobile transmission components, steering worms, track rod pins, timing wheels, breech mechanisms and small arms parts**

1. STEELMAKING

| | <u>C</u> | <u>Si</u> | <u>Mn</u> | <u>S</u> | <u>P</u> | <u>Cr</u> | <u>Ni</u> | <u>Mo*</u> |
|-----|----------|-----------|-----------|----------|----------|-----------|-----------|------------|
| Min | 0.10 | 0.10 | 0.35 | | | 0.70 | 3.00 | |
| Max | 0.16 | 0.35 | 0.60 | 0.040 | 0.035 | 1.00 | 3.75 | 0.15 |

(* denotes residual element)

2. TYPICAL MECHANICAL PROPERTIES

| Test type | Tensile and hardness test (at room temperature) | | | | | | Impact test (KV) |
|------------------------------------|---|-------------------|-------------------|-----------|------------|----------|------------------|
| | Yield (Re) | 0.2 % proof | UTS (Rm) | Elong (A) | R of A (Z) | Hardness | Room Temp |
| Unit | N/mm ² | N/mm ² | N/mm ² | % | % | HB | J |
| Annealed | Min | | | | | | |
| | Max | | | | | 255 | |
| Q+T capability test on 19mm sample | Min | | 1000 | 9 | | | 35 |
| | Max | | | | | | |