

### Low Alloy Nitriding Steel

#### Product Description

32 CDV 13 in the French AIR 9160 aeronautical specifications is a 3% Cr-Mo-V nitriding steel offering a tensile strength of up to over 1,300 MPa and which develops a hard (around 850 HV), wear resistant surface after nitriding treatment. The alloy is usually produced by single electric melting and vacuum degassing but is also available as a vacuum arc re-melted (VAR) version designated with the prefix (E). Material is ultrasonically tested. The alloy can be employed for high strength non-nitrided parts or for nitrided components where high mechanical properties are required in the core. Bars are usually supplied in the annealed condition. Final heat treatment consists of hardening at 950°C (oil quench) followed by tempering at a temperature appropriate to the balance of strength and ductility required (refer to published standard and table below).

#### Typical Applications

High strength mechanical engineering parts in Aeronautical Construction, Autosport and General Mechanical Engineering.

#### Availability

Round bar.

#### Material Specifications

- AIR 9160 - 32 CDV 13 (single melted)
- AIR 9160 - (E) 32 CDV 13 (VAR)
- AMS 6481 (related specification)

#### Chemical Composition (weight %)

	C	Si	Mn	P	S	Cr	Mo	Ni	V	Fe
Min	0.29	0.10	0.40			2.80	0.70		0.15	Rem.
Max	0.36	0.40	0.70	0.025	0.020	3.30	1.20	0.30	0.35	Rem.

#### Mechanical Properties (for Q+T Nitrided Parts ≤ 80mm diam.)

	UTS, MPa	Elongation min., % on 5.65√S(A)	ISO Impact Value min., J	Nitrided layer hardness min., HV5
Tempered ≥ 640C	950/1100	14	12	700
Tempered ≥ 620C	1080/1280	12	10	700

The maximum hardness in the annealed condition is 248 HB.

### Technical Assistance

Our knowledgeable staff backed up by our resident team of qualified metallurgists and engineers, will be pleased to assist further on any technical topic.

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