

Aluminium alloy STENAL 460

Chemical designation:

STENAL 460 (EN AB-ALSi9Cu3(Fe))

Chemical composition:

| Element | Min % | Max % |
|---------|-------|-------|
| Si | 8,70 | 9,40 |
| Fe | 0,5 | 0,60 |
| Cu | 2,70 | 3,30 |
| Mn | 0,30 | 0,47 |
| Mg | 0,35 | 0,45 |
| Cr | - | - |
| Ni | - | 0,30 |
| Zn | - | 1,20 |
| Pb | - | 0,20 |
| Sn | - | 0,10 |
| Ti | 0,05 | 0,10 |
| Sr | 0,030 | 0,05 |
| Sb | - | 0,005 |
| P | - | 0,002 |
| Ca | - | 0,003 |

Other elements, each max 0,05%
total max 0,25%

Mechanical properties

| Proof stress, $R_{p0,2}$, MPa, min. | Tensile strength R_m , MPa, min. | Elongation A_{25mm} , %. | Brinell hardness HB $_{5/250}$, |
|---|---------------------------------------|-------------------------------|-------------------------------------|
| ac 220 (22) | 361 (25) | 2,8 (0,6) | 118 |
| wc 226 (8) | 352 (6) | 2,6 (0,3) | 123 |

- Mechanical properties for air (ac) and water cooled (wc) tensile test bars are typical for wall thicknesses up to 4 mm
- Figures within brackets are the standard deviation (1s)
- Properties are highly dependent up on casting conditions. Wall thickness, geometry, location are critical parameters
- Values given are for guidance only. More accurate values can only be obtained via testing of final casting.

General description:

A development of the most common alloy for high pressure die casting ALSi9Cu3(Fe), and with higher mechanical properties. Key properties are high mechanical strength, good fatigue properties and good ductility.

Suitable applications:

Suitable in a variety of applications where high mechanical properties are required. Excellent for complex and/or thin walled castings.

Heat treatment:

Castings can be cooled in air or water after casting. The alloy can be artificially aged or precipitation hardened, provided that porosity can be kept low.

Remark:

Sr content is higher for delivery condition of ingots. Sr level will, in liquid state, decrease with time and needs to be maintained with separately added Sr. Recommended Sr level for castings is in range of 0,02-0,03 %