

Standard:

Alloy group: EN AB-AISi9Cu3(Fe)

Alloy designation: STENAL 460

CHEMICAL COMPOSITION %

Alloy	Elements															Each	Total
	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Pb	Sn	Ti	Sr	Ca	Sb			
STENAL 460	min	8,70	0,5	2,70	0,30	0,35					0,05	0,030					
	max	9,40	0,60	3,30	0,47	0,45	-	0,30	1,20	0,094	0,10	0,10	0,05	0,003	0,005	0,05	0,25

MECHANICAL PROPERTIES FROM SEPARATELY CAST TEST PIECES

Casting process	Temper designation	Tensile Strength	Yield strength	Elongation
		Rm MPa min.	Rp0,2 MPa min.	A % min.
Sand				
Permanent mould				
High pressure die casting	**HPDC	280	150	3,5
	*AC / WC	360 /350	220 /225	2,8 / 2,6

General description:

This is a further development of the most common casting alloy, EN AB-46000 (Al Si9Cu3(Fe)), with high-performance properties. Stenal 460 has a tighter alloying range for favorable process effects and adjusted levels of alloying elements, which improves its properties. The alloy has a lower iron content, is alloyed with strontium and the manganese is balanced against the iron content compared to a standard alloy. The distinguishing properties of Stenal 460 are high strength, good fatigue properties and good plastic strain. Apart from the excellent strength properties, the alloy gives a lower process variation, which provides good opportunities for lower discard levels. It is possible to heat-treat the component if porosity is kept low during casting, which in turn makes it possible to tailor the properties to the application.

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 %.

*Air (ac) and water cooled (wc) separately casted test bars thickness 4 mm, material potential, process depending.

**HPDC, circular cross section type test bar, diam. 6 mm. Normally expected values.

True properties only when testing component.