



ArcelorMittal

ArcelorMittal Sestao

Dual Phase Steels

Dual Phase steels emerged from the market need for steels with high tensile strength and good formability.



Properties

The term "Dual Phase" comes from the two steel phases used to produce this grade of steel: a basic fine matrix of ferrite, which provides **good formability** and dispersed islands of martensite which provide **extraordinary hardness**.

Arcelormittal Sestao has developed this grade at its own facilities and holds the patent for the production of this grade using CSP technology.

Advantages

Dual Phase steels combine outstanding mechanical properties (very high strength, fatigue resistance and toughness) with good formability and weldability.

The good formability is due to a low YS/TS ratio, a high work hardening rate which is maintained up to very high strains, and a high

fracture strain. This combination of strength with formability and weldability is important, particularly for the automotive industry. The guaranteed high yield strength of these grades makes it possible to achieve substantial weight reduction through downgauging from 10 to 20%, while maintaining performance and safety.

Due to its low carbon value, this grade has excellent weldability with all the usual welding processes. When metal active gas welding process is used, the maximum hardness of the welded area never exceeds 300HV regardless which parameters are used.

Weld quality is equivalent to Level B of BS EN 25817/ISO 5817. Recommended products are:

- Welding wires: G3Si1 NF EN 440
- Protective gas: Ar + 1% O₂ + 3% CO₂

Dual-phase steel products are characterised by high tensile strength, an improved formability, high capacity to absorb crash energy and ability

to resist fatigue making this steel particularly suitable for use in structural and reinforcement applications.

Such properties contribute towards the mechanical strength of components, under the aspect of reduced weight.

Applications

Dual phase steel features an excellent cold forming and drawing capability. This steel can be used with current equipment just by optimising machine adjustments. Forming loads will increase about 20% compared to the same thickness in conventional micro alloy steels.

When used for parts under dynamic loading and in order to make the best of the benefits of this steel, its forming diagram should be carefully analysed, particularly its fatigue resistance.



Brand correspondence and norms

ArcelorMittal Sestao Offer
DP 600

Available quality



Dimensions

Hot rolled black coil

Thickness (mm)	Min width. (mm)	DP 600
		Max width. (mm)
≥ 1,50 and ≤ 1,99	845	1100
≥ 2,00 and ≤ 6,00		1300

Pickled coil

Thickness (mm)	Min width. (mm)	DP 600
		Max width. (mm)
≥ 1,50 and ≤ 1,99	845	1100
≥ 2,00 and ≤ 3,00		1285

UF Steels range

Commercial thicknesses range

Dimensions as per tables above

For other dimensions please contact:
consultasticas.sestao@arcelormittal.com



Mechanical properties

	Direction	Thickness (mm)	R _e (MPa)	R _m (MPa)	A ₈₀ (%)	A 5,65√S ₀ (%)
<i>DP 600</i>	L	1,50 – 2,99	300 – 470	580 – 670	≥ 20	–
		3 – 6			–	≥ 24

Grades in italics: not included in the standard.

Chemical properties

	≤ C (%)	≤ Mn (%)	≤ P (%)	≤ S (%)	≤ Si (%)	≥ Al (%)	≤ Cu (%)	≤ Ni (%)	≤ Cr (%)
<i>DP 600</i>	0,060	1,35	0,025	0,020	0,450	0,015	0,180	0,140	0,750

Grades in italics: not included in the standard.

The chemical properties given are based on cast analysis data.

Mechanical and chemical properties as per tables above