

NON-ALLOY STRUTTURALI STEELS

This steel family is the most common on the market and has modified its designation over time. The following table shows how it has happened.

Name change over the years

Hot-Rolled			Cold-drawn			Forged
obsolete	obsolete	current	obsolete	obsolete	current	current
UNI 5132: 1974	EN 10025:	EN 10025:	UNI 10233-3:	EN 10277-2:	EN 10277-2:	EN 10250-2:
UNI 7746: 1979	1995	2004	1993	2000	2008	2001
Fe 360 BFN	S235JRG2C	S235JR	Fe 360	S235JRG2C	S235JRC	S235JRG2
Fe 360 D	S235J2G3C	S235J2		S235J2G3C		S235J2G3
Fe 360 C	S235J0	S235J0				
Fe 430 B	S275JR	S275JR	Fe 430	S275JR		
Fe 430 C	S275J0	S275J0		S275J0		
Fe 510 C	S355J0	S355J0	Fe 510	S355J0		
Fe 510 D	S355J2G3	S355J2		S355J2G3C	S355J2C	S355J2G3
Fe 490	E295GC	E295	Fe 490	E295GC	E295GC	
Fe 590	E335GC	E335	Fe 590	E335GC	E335GC	

This category includes all the main support elements such as frames, general installations, superstructures and all the elements needed to produce a device, a mechanism, etc.

EN 10277-1 classifies these steels as "general purpose" quality non-alloy steels. EN 10277-2 deals with the technical supply conditions for cold-finished steels, EN 10025 is applicable to hot-rolled steels and EN 10250-2 applies to forged steels. These standards must be referred to in the order.

They are tough steels with a limited carbon content in which some quantities of manganese and silicon are added in order to reach a compromise between weldability and a good Rp/R ratio (high yield limit), thereby enabling a reduction of the load-bearing sections, with a resulting reduction in material costs of even up to 30%. In some cases they contain small quantities of chromium, nickel etc., coming from scrap or from the raw material. The percentage content of these elements is so small that their influence is insignificant and they are not therefore considered in the Standard. The lack of alloy elements means that the hardening is limited. These are also known as high-yield steels due to cold reduction by cold-drawing and cold-rolling.

These steels are also suitable for welding, hot and cold deformation.

They are generally used in natural state, but they may be normalized or hardened and tempered when required for the specific use, such as for the production of shafts, lightly stressed machine parts, bolts and screws.