



# Laminated spring flat bars Special profiles

EN 10092

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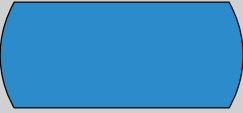

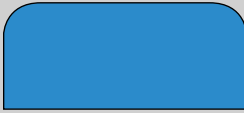
Revision 12/2023

## STEEL RANGE

Possibility of supplying steels in accordance with Customer specifications, to be agreed upon at the order stage.

## PRODUCTION RANGE

### STANDARD MANUFACTURING SIZES

EN 10092 "B" SHAPE 2LB		EN 10092 "C" SHAPE 4SR		FLAT BAR WITH TWO ROUNDED EDGES (NOT REGULATED) 2SR (NOTE 1)	
R 30 mm	60x20 - 60x22 - 60x25 70x20	R 8 mm	65x36 - 75x30	R 6 +/- 1,5 mm	50x30 - 80x60
	70x25 - 75x22 80x20 - 80x25 - 90x25 90x30		76x38 80x30 120x35 - 130x40		80x40 - 120x80
-	100x25 - 100x30 100x35 - 120x30	R 12 mm	76x50 - 90x50	R 10 +/- 2,0 mm	60x40 - 70x40
-	-	R 6 mm	60x50 (R 6 mm is not regulated)	-	-
					

NOTA: feasibility can be verified for other cross-section types.

**NOTE 1:** for non-standardized plates, the dimensional, shape and straightness tolerances are in accordance with EN 10058

## BAR LENGTH

- 3 ÷ 12.5 m (including length+ tolerance)
- Standard Fixed Length: - 0/+200.
- Extra Standard Fixed Length - 0/+100 mm or +/- 50 mm. (to be agreed upon)

NOTE: Crop end, if agreed upon at the order,  $\geq 3$  m for  $\leq 10\%$  of the ordered weight. It will be included in the supply if hot-rolled and separately wrapped if cold-rolled.

## DIMENSIONAL TOLERANCES EN 10092

Standard	EN 10092
Extra standard	In accordance with Customer specification, to be evaluated at the order acceptance stage.

## STRAIGHTNESS

- Extra standard:
- $\leq 2\%$  L with straightening as for EN 10092
  - $\leq 1.5\%$  L with straightening to be agreed upon.

## END APPEARANCE

- Standard Hot shear cut with flat blades.



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Extra Standard	Cold saw cut at 1 or 2 ends. (to be agreed)
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## TWIST

Standard	Cerveno: 1° / metre
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## SUPERFICIAL DEFECTS

Standard	Production statistics 0.008 *Side with 0.3 minimum and 0.6 mm maximum. Class B EN 10221
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## DECARBONISATION

Standard	Max. 1% of the side, with a minimum equal to 0.30 mm.
Extra standard	In accordance with Customer specification, to be evaluated at the order acceptance stage.

## NON-METALLIC INCLUSIONS

Standard	Macro-purity at grade $\leq 2$ as per S.E.P. 1584 standard. Micro-purity at grade $\leq 2.5$ as per ASTM E 45 standard or with K method at the values of the EN 10083/06-1 standard, App. E or EN10084/08 App. C. Macro-segregation $\leq C3-R2-S2$ as per ASTM E 381 standard
Extra Standard	Through the vacuum degassing (VD) process it is possible to obtain macro-inclusions falling into grade 0 of the S.E.P. 1584 standard.

## AUSTENITE GRAIN REFINING FOR SPECIAL STEELS

Standard	5 ÷ 8 austenite grain guaranteed, as per ASTM E112 or ISO 643. This grain size range is not guaranteed for general purpose structural steels, with the exception of the J2 types envisaged in the EN 10025-2 table.
Extra Standard	With extra standard process, 6 or finer austenite grain can be guaranteed.

## MECHANICAL CHARACTERISTICS AND HARDENABILITY

Standard	-
Extra standard	In accordance with Customer specification, to be evaluated at the order acceptance stage.

## MAGNETIC RETENTIVITY

Standard	Not guaranteed.
Extra standard	To be evaluated at the order acceptance stage.

## PACKAGING

Standard	4 ÷ 5 Tight containment ties + 2 certified metal lifting rings (Italy). 4 ÷ 5 Tight containment ties 1 Tag per bundle. 3 identification stamps per bundle (if requested by the customer). Colour as requested by the Customer.
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Extra Standard

Peculiar conditions besides the previous ones, to be evaluated at the order acceptance stage.  
2 Tight containment ties + 4 straps per bundle  
2 tags, 1 at the front and 1 at the rear of the bundle  
Polyester lifting belts.  
Identification stamps on all bars.

## ANTI-MIX CHECK

Standard

Spark test.

Extra standard

100% anti-mix check with spectrometer. (to be agreed)

## BUNDLE WEIGHT

Standard

2,500 ÷ 3,100 kg

Extra standard

1,500 ÷ 2,000 kg

## OTHER INFORMATION

Cold sawability

Guaranteed

Manufacturing times

40÷60 days

Product certificate

Compliant with EN 10204

Minimum batch size

20 tons

Weight tolerance with respect with the ordered amount

± 20% up to 5 tons.  
± 10% > 5 ÷ 25 tons.  
± 6% > 25 tons.