



# Laminated flat bars Special profiles

Loader - Dozer - Grader

**Business contact**

Riva Acciaio S.p.A. - Viale Certosa, 249 - 20151 Milan (Italy)

**Phone** +39 02.30.700 - **Fax** +39 02.38000.346

**Email** [commerciale.riva@rivagroup.com](mailto:commerciale.riva@rivagroup.com)

Revision 08/2018





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## STEEL RANGE

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

## PRODUCTION RANGE

## STANDARD MANUFACTURING SIZES

GRADER (Curved) Riva Sellero	DOZER (2 chamfers) Riva Sellero	LOADER (1 chamfer)
152x16 - 152x19 - 203x15 - 203x19 203x25	152x16 - 152x19 - 203x16 - 203x19 203x25 - 254x19 - 254x25 - 254x30 254x32 - 254x41 - 280x25 - 305x25 305x29	<p><b>Riva Cerveno</b> 110x12 - 110x16 - 150x16 - 150x20 200x20 - 200x25</p> <p><b>Riva Sellero</b> 250x25 - 250x30 280x32 - 300x30 300x35 - 300x40</p>

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

## BAR LENGTH

Cerveno: 3 ÷ 12.50 m (including length+ tolerance)  
 Sellero: 5 ÷ 18.20 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

Standard

Extra standard

In accordance with Customer specification, to be evaluated at the order acceptance stage.

Note: stricter tolerances may be accepted, but they must have been defined at the order definition stage.

## STRAIGHTNESS

Standard

**Transversal camber**  
 Cerveno 3 ‰  
 Sellero 4 ‰  
**Longitudinal camber**  
 Cerveno/Sellero 2.5

## END APPEARANCE

Standard

Cerveno: hot shear cut with flat blades.  
 Sellero: cold saw cut at 2 ends.

Extra Standard

Cerveno: Cold saw cut at 1 or 2 ends. (to be agreed)

## TWIST

Standard

Cerveno/Sellero: 1° / metre



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## CONCAVITY

Standard	Cerveno/Sellero: 4 ‰ of width with max. = 0.8 mm
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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.
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Extra standard	In accordance with Customer specification, to be evaluated at the order acceptance stage.
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## 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
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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.
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## 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.
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Extra Standard	With extra standard process, 6 or finer austenite grain can be guaranteed.
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## MECHANICAL CHARACTERISTICS AND HARDENABILITY

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

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

Standard	4 ÷ 5 Tight containment ties + 2 certified metal lifting rings (Italy) 2 Tight containment ties + 4 straps per bundle (Abroad). 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 tags, 1 at the front and 1 at the rear of the bundle Polyester lifting belts Identification stamps on all bars
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## 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

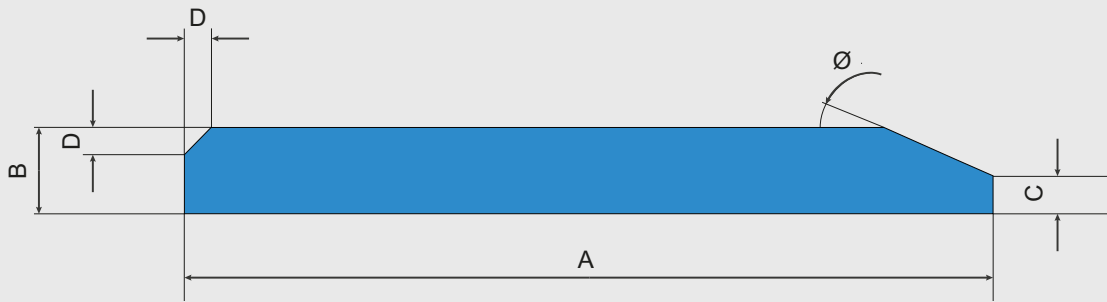
## OTHER INFORMATION

Cold sawability	Guaranteed
Manufacturing times	40-60 days
Product certificate	Compliant with EN 10204
Minimum batch size	30 tons per shape - Minimum campaign equal to 200 tons.
Weight tolerance with respect with the ordered amount	± 20% up to 5 tons. ± 10% > 5 ÷ 25 tons. ± 6% > 25 tons.

## DIMENSIONS AND TOLERANCES FOR LAMINATED FLAT BARS - SPECIAL PROFILES

### SINGLE CHAMFER PROFILES - "LOADER"

Single chamfer shapes are intended for supplies used to manufacture the cutting edge on buckets for loaders and excavators.

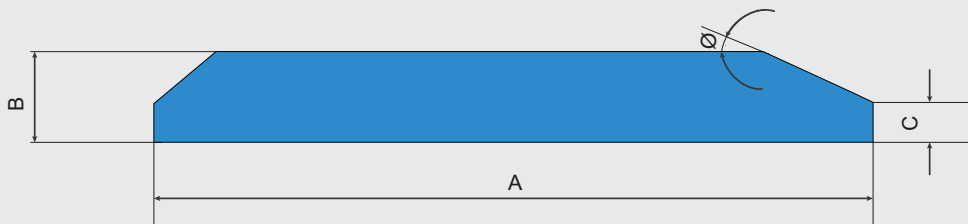


mm	Cross-section	A		B		C		D	Ø	Weight / m	mm
3X Flat 1 chamfer	110x12	110	+2 -2	12	+0.5 -0.5	3	+1 -1	R= 3	23.9 °	9.6	Riva Cerveno
	110x16	110	+2 -2	16	+0.5 -0.5	7	+1 -1	R= 3	23.9 °	13.1	
	150x16	150	+2.5 -2.5	16	+0.6 -0.6	7	+1.5 -1.5	5	24 °	17.6	
	150x20	150	+2.5 -2.5	20	+0.6 -0.6	5	+1.5 -1.5	5	26.5 °	21.7	
3V Flat 1 chamfer > 151 mm	200x20	200	+4 -2	20	+0.8 -0.8	6	+1.5 -1.5	8	23 °	29.3	Riva Cerveno
	200x25	200	+4 -2	25	+1 -1	11	+1.5 -1.5	8	23 °	37.2	
	250x25	250	+5 -2	25	+1 -1	6	+1.5 -1.5	10	22.6 °	45.3	Riva Selloero
	250x30	250	+5 -2	30	+1.2 -1.2	11	+1.5 -1.5	10	22.6 °	55	
	280x32	280	+4 -3	32	+0.5 -0.5	8	+1 -2.5	10	22.6 °	65	
	300x30	300	+1.5 -5	30	+1.5 -1.5	8	+1.5 -1.5	8	23 °	66	
	300x35	300	+1.5 -5	35	+1.5 -1.5	13	+1.5 -1.5	8	23 °	77.7	
300x40	300	+1.5 -5	40	+1.5 -1.5	18	+1.5 -1.5	8	23 °	89.4		

## DIMENSIONS AND TOLERANCES FOR LAMINATED FLAT BARS SPECIAL PROFILES

### TWO-CHAMFER PROFILES - "DOZER"

Two-chamfer shapes are intended for supplies used to manufacture the cutting edge for bulldozers, snow plows or as blade guards.

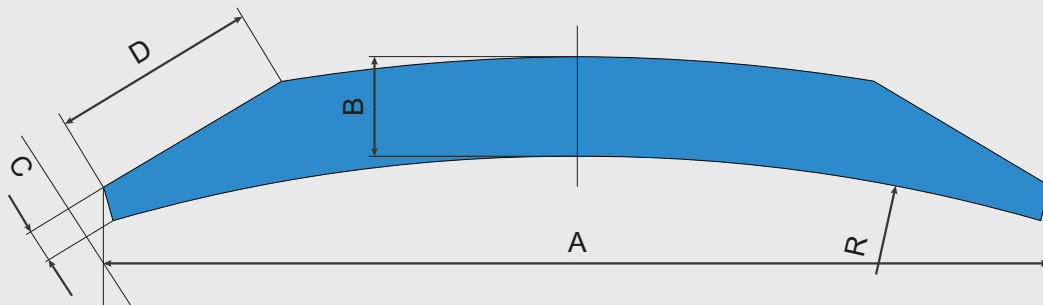


mm	Cross-section	A		B		C		Ø	Weight / m	mm
3S Flat 2 chamfers > 151 mm	152x16	152.4	+1.5 -4	15.9	+0.5 -0.5	5	+1.5 -1.5	25 °	17.4	Riva Sellero
	152x19	152.4	+1.5 -4	19.1	+0.5 -0.5	8.1	+1.5 -1.5	25 °	20.1	
	203x16	203.2	+1.5 -4	15.9	+0.5 -0.5	5	+1.5 -1.5	25 °	23.7	
	203x19	203.2	+1.5 -4	19.1	+0.5 -0.5	8.1	+1.5 -1.5	25 °	28.4	
	203x25	203.2	+1.5 -4	25.4	+0.5 -0.5	14.4	+1.5 -1.5	25 °	38.5	
	254x19	254	+1.5 -4	19.1	+0.5 -0.5	7.1	+1.5 -1.5	25 °	35.7	
	254x25	254	+1.5 -4	25.4	+0.5 -0.5	13.4	+1.5 -1.5	25 °	48.6	
	254x30	254	+1.5 -4	30	+0.5 -0.5	18	+1.5 -1.5	25 °	57.7	
	254x32	254	+1.5 -4	32	+0.5 -0.5	20	+1.5 -1.5	25 °	61.4	
	254x41	254	+1.5 -4	41	+0.5 -0.5	29	+1.5 -1.5	25 °	79.3	
	280x25	280	+1.5 -4	25	+0.5 -0.5	7	+1.5 -1.5	22.5 °	48.8	
	305x25	304.8	+1.5 -5	25.4	+1 -1	9.5	+1.5 -1.5	22.5 °	56	
305x29	304.8	+1.5 -5	28.5	+1 -1	12.6	+1.5 -1.5	22.5 °	63.4		

## DIMENSIONS AND TOLERANCES FOR LAMINATED FLAT BARS SPECIAL PROFILES

### CURVED PROFILES - "GRADER"

Curved shapes are intended for supplies used as inserts for graders.



mm	Cross-section	A		B		C		D	R	Weight / m	mm
3T Curved 2 chamfers > 151 mm	152x16	152.4	+3 -3	15.9	+0.8 -0.8	5.5	+2.5 -1	33.3	273	17.2	Riva Sello
	152x19	152.4	+3 -3	19.1	+0.8 -0.8	8.6	+2.5 -1	33.3	273	20.4	
	203x15	203.2	+3 -3	15.9	+0.8 -0.8	5.5	+2.5 -1	33.3	273	23.3	
	203x19	203.2	+3 -3	19.1	+0.8 -0.8	8.6	+2.5 -1	33.3	273	28.3	
	203x25	203.2	+3 -3	25.4	+0.8 -0.8	14.7	+2.5 -1	33.3	273	38.7	