

### 3 Own-manufactured rolled strips

## Recalibration of strips

Despite the good tolerances currently achieved by the most advanced steel mills in hot-rolled steels, there are numerous applications where the requirements of high dimensional precision are paramount to obtain conforming parts, which is why they require more precise tolerances.

Gonvarri Precision Tubes offers recalibration processes for strips up to 6 mm thick in our rolling facilities, where our technology allows the following precision ranges to be guaranteed.

The recalibration process offers the following advantages:

- Achieve a precise thickness tolerance.
- Achieve a slight surface hardening that eases cutting and stamping operations, which increases the fine cut area and reduces the sheer area. In this way, the notch effect in the stamping, which is produced by microcracks that leave an excessive sheer area, is minimised.
- Improve the surface appearance of pickled materials.

Ranges of accuracy	
Final thickness (mm)	Minimum tolerance
$1,5 \leq t \leq 2,5$	$\pm 0,04$ mm
$2,5 < t \leq 4,5$	$\pm 0,05$ mm
$4,5 < t \leq 6,0$	$\pm 0,06$ mm

Rugosity - Ra	
Description	Value
Rough	$Ra > 1,0 \mu\text{m}$
Matte (comercial FINISH)	$0,6 < Ra \leq 1,0 \mu\text{m}$
Smooth	$0,25 < Ra \leq 0,6 \mu\text{m}$
Polished	$Ra \leq 0,25 \mu\text{m}$

Rounded edges in thicknesses from 1.5 - 5 mm and widths from 8 - 50 mm.

EN 10139		Cold rolled uncoated mild steel narrow strip for cold forming (<600 mm)										
Grade	Supply Condition	Symbol	$R_{eH}$ (N/mm <sup>2</sup> )	Rm (N/mm <sup>2</sup> )	A (%) min. A <sub>80</sub> A <sub>50</sub> L <sub>0</sub> =5·65·√S <sub>0</sub>			Max. value in thousandth % C Mn S P				Equival. DIN 1624
DC01	Annealed	A	-	270÷390	28	30	32	120	600	45	45	St 2 G
	Skin passed	LC	≤ 280	270÷410	28	30	32					St 2 LG
	Hardened	C290	200÷380	290÷430	18	20	24					St 2 K32
		C340	≥ 250	340÷490	-	-	-					St 2 K40
		C390	≥ 310	390÷540	-	-	-					St 2 K50
		C440	≥ 360	440-590	-	-	-					St 2 K60
		C490	≥ 420	490÷640	-	-	-					St 2 K70
		C590	≥ 520	590÷740	-	-	-					
C690	≥ 630	≥ 690	-	-	-							
DC03	Annealed	A	-	270÷370	34	36	37	100	450	35	35	St 3 G
	Skin passed	LC	≤ 240	270÷350	34	36	37					St 3 LG
	Hardened	C290	210÷355	290÷390	22	24	26					St 3 K32
		C340	≥ 240	340÷440	-	-	-					St 3 K40
		C390	≥ 330	390÷490	-	-	-					St 3 K50
		C440	≥ 380	440÷540	-	-	-					St 3 K60
		C490	≥ 440	490÷590	-	-	-					
		C590	≥ 540	≥ 590	-	-	-					
DC04	Annealed	A	-	270÷350	38	40	40	80	400	30	30	St 4 G
	Skin passed	LC	≤ 280	270÷350	38	40	40					St 4 LG
	Hardened	C290	220÷325	290÷390	24	26	28					St 4 K32
		C340	≥ 240	340÷440	-	-	-					St 4 K40
		C390	≥ 350	390÷490	-	-	-					St 4 K50
		C440	≥ 400	440÷590	-	-	-					St 4 K60
		C490	≥ 460	490÷590	-	-	-					
		C590	≥ 560	590÷690	-	-	-					
DC05	Skin passed	LC	≤ 180	270÷330	40	42	42	60	350	25	25	

