

**SCOPE OF PREVISIONS - European standard UNI EN 10142 + A1 - Supply technical conditions**  
**EUROPEAN STANDARD UNI EN 10143 - Forming and dimensional tolerances**

Current standards specifies prescriptions for technical conditions of forming and dimensional tolerances of flat products ( every width tapes and plates or tapes to be cut in lengths / straps ) with thickness  $\leq 3,0$  mm of steel with low carbon for steel cold forming for structural uses, with metallic coating for continuous cold immersion. Thickness is the final thickness of final product, comprehensive of metallic coating.

**STEEL QUALITY**

Formability steel quality are indicated in the following table.  
 This table comprise, in flair order for cold forming, the following steel quality:

Current designation (EN 10142 + A1)	Previous designation
DX 51 D+Z	Fe P02 G: bending and sectioning quality
DX 52 D+Z	Fe P03 G: molding quality
DX 53 D+Z	Fe P05 G: deep molding quality
DX 54 D+Z	Fe P06 G: extra-deep molding quality

**STEEL QUALITY AND TECHNICAL CHARACTERISTICS**

Steel quality	Yield point charging unit $R_0$ 1) $N/mm^2$ max 2)	Breaking charging unit for traction $R_m$ $N/mm^2$ max 2)	Lenghtening to breaking $A_{80}$ % min. 3)
DX 51 D+Z	Fe P02 G	-	22
DX 52 D+Z	Fe P03 G	300 4)	26
DX 53 D+Z	Fe P05 G	260	30
DX 54 D+Z	Fe P06 G	220	336

- 1) Changing yield point values are the unit charge gap of proportionally of 0,2% for products without apparent effects yield point and at lower limit yield point  $R_0$  for others.
- 2) For every steel quality, is calculated a minimum value of 140  $Nmm^2$  for yield point charging unit ( $R_0$ ) and a minimum value of 270  $N/mm^2$  for breaking charging unit for traction ( $R_m$ ).
- 3) For products with thickness  $\leq 0,7$  mm ( comprehensive of zinc coating ), breaking lenghtening values ( $A_{80}$ ) must be reduced of 2 units.
- 4) This value is valid only for cold hardening products ( B and C superficial aspect ).



**COATING MASS**

Designation for coatings	Coating mass, g/m2 (comprehensive 2 surfaces) min.	
	Test on 3 points	Test on 1 point
Z 100, ZF 100	100	85
Z 140, ZF 140	140	120
Z 200	200	170
Z 225	225	195
Z 275	275	235
Z 350	350	300
Z 450	450	385
Z 600	600	510

**THICKNESS TOLERANCES ( mm )**

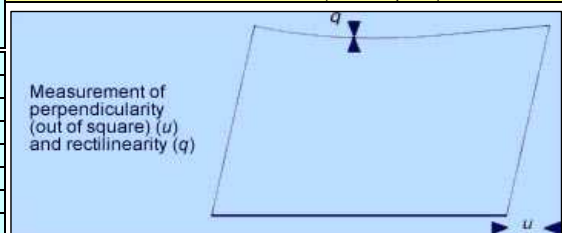
Thickness tolerances for flat products with metallic coating applied for hot immersing, every steels with low carbon for cold forming (specified in EN 10142 + A1) and of steel for structural uses with minimum values of yield point charging unit  $< 280 N/mm^2$  (comprehensive steel type Fe 550G or S 550GD).

Nominal thickness	Normal limit gap			Restricted tolerances (S) for a nominal lenght of		
	$\leq 1200$	$> 1200$ $a \leq 1500$	$> 1500$	$\leq 1200$	$> 1200$ $a \leq 1500$	$> 1500$
$\leq 0,40$	$\pm 0,05$	$\pm 0,06$	-	$\pm 0,03$	$\pm 0,04$	-
$> 0,40 a \leq 0,60$	$\pm 0,06$	$\pm 0,07$	$\pm 0,08$	$\pm 0,04$	$\pm 0,05$	$\pm 0,06$
$> 0,60 a \leq 0,80$	$\pm 0,07$	$\pm 0,08$	$\pm 0,09$	$\pm 0,05$	$\pm 0,06$	$\pm 0,06$
$> 0,80 a \leq 1,00$	$\pm 0,08$	$\pm 0,09$	$\pm 0,10$	$\pm 0,06$	$\pm 0,07$	$\pm 0,07$
$> 1,00 a \leq 1,20$	$\pm 0,09$	$\pm 0,10$	$\pm 0,11$	$\pm 0,07$	$\pm 0,08$	$\pm 0,08$
$> 1,20 a \leq 1,60$	$\pm 0,11$	$\pm 0,12$	$\pm 0,12$	$\pm 0,08$	$\pm 0,09$	$\pm 0,09$
$> 1,60 a \leq 2,00$	$\pm 0,13$	$\pm 0,14$	$\pm 0,14$	$\pm 0,09$	$\pm 0,10$	$\pm 0,10$
$> 2,00 a \leq 2,50$	$\pm 0,15$	$\pm 0,16$	$\pm 0,16$	$\pm 0,11$	$\pm 0,12$	$\pm 0,12$
$> 2,50 a \leq 3,00$	$\pm 0,17$	$\pm 0,18$	$\pm 0,18$	$\pm 0,12$	$\pm 0,13$	$\pm 0,13$

Flatness tolerance for thin plates for cold forming ( specified in EN 10142 ) and of steels for structural uses with minimum values of yield point charging unit  $< 280 N/mm^2$

Tolerance class	Nominal lenght	Nominal thickness		
		$< 0,7$	$\geq 0,7 < 1,2$	$\geq 1,2$
Normal	$\geq 600$	12	10	8
	$\geq 1200 < 1500$	15	12	10
	$\geq 1500$	17	17	15
Restricted (FS)	$\geq 600$	5	4	3
	$\geq 1200 < 1500$	6	6	4
	$\geq 1500$	8	8	6 <

**PERPENDICULARITY (out of square)**



**WIDTH - in mm**

**LENGHT - in mm**

Tolerances on width for flat products $\geq 600$ mm ( wide tapes and thin plates )					Tolerances on width ( for thin plates and cut tapes to strap )				
Nominal width	Norman tolerances		Restr. tolerances (S)		Nominal lenght	Normal tolerances		Restr. tolerances (S)	
	Lower gap	Higher gap	Lower gap	Higher gap		Lower gap	Higher gap	Lower gap	Higher gap
$\geq 600 < 1200$	0	+5	0	+2	$> 2000$	0	6	0	3
$\geq 1200 < 1500$	0	+6	0	+2	$\geq 2000$	0	0,003 x l	0	0,0015 x l
$\geq 1500$	0	+7	0	+3					

WIDTH - in mm									
Tolerances on nominal width < 600 ( sheared tapes, cut tapes e lenght/strap )									
Tolerance class	Nominal thickness	Nominal width							
		< 125		≥ 125 < 250		≥ 250 < 400		≥ 400 < 600	
		Lower gap		Higher gap		Lower gap		Higher gap	
Normal	< 0,6	0	+0,4	0	+0,5	0	+0,7	0	+1,0
	≥ 0,6 a < 1,0	0	+0,5	0	+0,6	0	+0,9	0	+1,2
	≥ 1,0 a < 2,0	0	+0,6	0	+0,7	0	+1,1	0	+1,4
	≥ 2,0 a < 3,0	0	+0,7	0	+0,8	0	+1,3	0	+1,6
Restricted (S)	< 0,6	0	+0,2	0	+0,2	0	+0,3	0	+0,5
	≥ 0,6 a < 1,0	0	+0,2	0	+0,3	0	+0,4	0	+0,6
	≥ 1,0 a < 2,0	0	+0,3	0	+0,4	0	+0,5	0	+0,7
	≥ 2,0 a < 3,0	0	+0,4	0	+0,5	0	+0,6	0	+0,8