

HOT-ROLLED ROD		HOT-ROLLED ROUNDS		HOT-ROLLED SQUARES		HOT-ROLLED FLATS		HOT-ROLLED HEXAGONS	
UNI EN 10017		UNI EN 10060 - ASTM A 29		UNI EN 10059 - ASTM A 29		UNI EN 10058 ASTM A 29		UNI EN 10061 ASTM A 29	
BRIGHT PRODUCTS (COLD-DRAWN PEELED GROUND)			FORGED ROUGH-SHAPED (MILLED ROUGH-TURNED)			HOT-WORKED AND THEN MILLED SQUARES FLATS			
EN 10278 - ASTM A 108			+ 1 mm + 3 mm			normal IT15 - accurate IT14		Ra 3,2 µm	⊥ IT15
COLD-DRAWN ROUNDS SQUARES FLATS HEXAGONS									
Parallelism	Flatness	Out-of-round	Dimensional tolerances Rounds	Dimensional tolerances Squares Flats Hexagons	Straightness ^{a)}		Geometric Twist	Roughness	
IT10	70 µm	½ of the dimensional tolerance	normal h11 accurate h9	normal h11 ⊥ IT10	normal 1,5‰ - accurate 1‰		normal 4° accurate 2°	Ra 1,6-3,2 µm	
ONLY PEELED					PEELED-REELED				
Dimensional tolerances		Out-of-round	Straightness	Roughness	Dimensional tolerances	Straightness	Out-of-round	Roughness	
normal h10 accurate h9		½ of the dimensional tolerance	2‰	Ra 3,2 µm	nor. h10 acc. h9	1‰	½ of the dimensional tolerance	Ra 0,8 µm	
ROUGH GROUND				GROUND					
Straightness	Dimensional tolerances	Roughness	Out-of-round	Dimensional tolerances	Out-of-round		Straightness	Roughness	
0,5‰	h8-h9	Ra 1,6 µm	0,03 mm	normal h8-h7 accurate h6 g.. f.. js..	½ of the dimensional tolerances		normal 0,7‰ accurate 0,4‰	normal Ra 0,8 µm accurate Ra 0,6 µm	
<p>Parallelism, flatness, roundness, tolerances, straightness, geometric twist, roughness are maximum values. Bars standard length: 3000 - 3500 mm or 6000 - 6500 mm.</p> <p>^{a)} for straightness, flatness and parallelism of flats of width greater than 120 mm, tolerances have to be agreed.</p> <p>Flats with width > 100 mm and thickness > 60 mm: tolerances according to EN 10278.</p>									