BRIGHTSTEELS LIMITED

MANUFACTURERS OF BRIGHT STEEL BARS

Comparison of specifications (analysis) based on EN 10277 - 1999 - Bright Steel Products

These tables have been prepared for guidance purposes only and reference should be made to the covering standard for specific requirements.

Note 1 - EN 10277 does not cover heat treatment operations (stress relieving, annealing or normalising) post drawing

Note 2 - Specifications other than those quoted in EN 10277 are capable of being cold drawn or machined

Key:
(*1) No governing mechancial properties - analysis only
(*2) Based on estimated mechanical properties - no real equivalent
(*3) Near equivalent only unless shown in italics, which is direct equivalent

EN 10277 Pt2 (steels for general engineering purposes)	European raw material black bar standard Classification - non-alloy quality steels	Comments	BS 970 (*3) Pt3 1991 unless stated	American ASTM A29 (*1)
S235 JRG2	EN 10025		080A15	(1018 type) (*2)
E 295 GC	EN 10025	No analysis - mechanical properties only quoted	080M30	1030
E 335 GC	EN 10025		080M40	1040
S355 J2G3	EN 10025			(1513/1518 type) (*2)
C10	-	No direct European raw material standard - C10/C15 based on DIN 1652 C16 based on 080A15 BS 970	040A10 (*1)	1010
C15	-		080A15 (nearest Mn overlap)	1015
C16	-		*080A15*	1016
C35	EN 10083 - 2		080M30	1034
C40			080M40	1040
C45			080M46 (1972)	1045
C50			080M50	1050
C60			070M55	1060

EN 10277 Pt3 (free-cutting steels)	European raw material black bar standard Classification - non-alloy quality steels	Comments	BS 970 (*3) Pt3 1991 unless stated	American ASTM A29 (*1)
11 S Mn 30	EN 10087		230M07	1215
11 S Mn Pb 30			230M07 Leaded	12L14
11 S Mn 37			240M07 (1972)	-
11 S Mn Pb 37			240M07 Leaded (1972)	-
Case Hardening Free-Cutting	Classification - non-alloy quality steels			-
10 S 20	EN 10087		-	-
10 S Pb 20			-	-
15 Mn 13			210M15	1117

EN 10277 Pt3 (direct hardening free-cutting steels)	European raw material black bar standard Classification - non-alloy quality steels	Comments	BS 970 (*3) Pt3 1991 unless stated	American ASTM A29 (*1)
35 S 20	EN 10087		-	-
35 S Pb 20			-	-
36 S Mn 14			216M36	-
36 S Mn Pb 14			216M36Pb	-
38 S Mn 28			-	-
38 S Mn Pb 28			-	-
44 S Mn 28			226M44	-
44 S Mn Pb 28			226M44 Pb	-
46 S 20			-	-
46 S Pb 20			-	-

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EN 10277 Pt4 (case hardening steels)	European raw material black bar standard Classification - non-alloy special steels	Comments	BS 970 (*3) Pt3 1991 unless stated	American ASTM A29 (*1)
C 10 R	EN 10084	Fine Grain, killed - restricted analysis compared to base analysis EN 10277 Pt2 material and special steels.	045M10 (not restricted sulphur)	-
C 15 R			-	-
C 16 R			080M15 BS 970 (case hardening not restricted sulphur)	-
	European raw material black bar standard Classification - alloy			
16 Mn Cr S 5	EN 10084	Code letters R & S mean restricted analysis range for sulphur	590M17	-
16 Mn Cr B 5			-	-
20 Mn Cr S 5			-	-
16 Ni Cr S 4			635M15 / 637M17	-
15 Ni Cr 13			655M13	-
20 Ni Cr Mo S 2-2			805M20	8620
17 Ni Cr Mo S6-4			815M17	-

EN 10277 Pt5 (steels for quenching & tempering)	European raw material black bar standard Classification - non-alloy special steels	Comments	BS 970 (*3) Pt3 1991 unless stated	American ASTM A29 (*1)
C 35 E	EN 10083-2	Fine Grain, restricted analysis and higher degree of cleanness compared to EN 10277 Pt2 steels of similar base specifications.		-
C 35 R				-
C 40 E				-
C 40 R				-
C 45 E				-
C 45 R		Code letters E and R mean either lowering limiting maxima or restricted analysis range for sulphur compared to standard grades.		-
C 50 E				-
C 50 R				-
C 60 E				-
C 60 R				-
	European raw material black bar standard Classification - alloy special steels			
34 Cr S 4	EN 10083-3	Be aware restricted sulphur analysis on S types compared to standard grades		-
41 Cr S 4			530M40	-
25 Cr Mo S 4				-
42 Cr Mo S 4			708M40	4140
34 Cr Ni Mo 6				-
51 Cr V 4				-