BS and Equivalent EN Grades

The Specifications

Listed below are the EN Specifications relating to Chemical Composition and Mechanical Properties that have replaced The old BS Specifications.

BS1449 for cold rolled has been replaced by:

Standard	Scope
EN10088-2	Replaces BS1449-Part 2: 1983
EN10059	Covers Heat Resisting Grades

BS1449 & BS1501 for hot rolled have been replaced by:

Standard	Scope
EN10088-2	Replaces BS1449-Part 2: 1983
EN10028-7	Replaces BS1501-Part3: 1990
EN10095	Covers Heat Resisting Grades

BS970 for bar has been replaced by:

Standard	Scope
EN10088-3	Replaces BS970 Part 1: 1991 & BS970 Part 3: 1991 covering chemical composition & mechanical properties

Be Aware!

- 27 grades in BS have been replaced by 68 grades in EN and thus many EN grades do not have an old BS equivalent
- Most BS Grades do not have an EXACT EN equivalent grade
- In some cases one EN grade has replaced more than one BS grade, for example:
  - 304S15, 304S16 & 304S31 have all been replaced by 1.4301
- In other cases more than one EN grade could be considered in place of a BS grade, for example:
  - 304S11 could be replaced by 1.4307, 1.4306 or 1.4311
- Mechanical Properties have been changed
- Tensile strengths are now higher and a maximum is stipulated
- Chemical Compositions vary slightly with Nickel contents being slightly lower

Examples

BS	EN	AISI
304S11	1.4306 1.4307 1.4311	304L
304S15	1.4301	-
304S16	1.4301	-
304S31	1.4301	304
304S61	1.4311	304LN
316S11	1.4404	316L
316S31	1.4401	316
316S61	1.4406	316LN
320S31	1.4571	316Ti
-	1.4432	316 High Mo
303S31	1.4305	303
321S31	1.4541	321
309S16	1.4833	309
310S24	1.4845	310
317S12	1.4438	317L
301S21	1.4310	301
409S19	1.4512	409
430S17	1.4016	430
410S21	1.4006	410
416S21	1.4005	416
431S29	1.4057	431
904S13	1.4539	-

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BS and Equivalent EN Grades

Stainless Steel Grades, Compositions & Typical Mechanical Properties

EN	BS	AISI	EN No.	Composition Guide					Typical Mechanical Properties (Rolled Products)		
			Obsolete	C	Cr	Ni	Mo	Others	Proof Strength 0.2% Nmm_2	Tensile Strength Nmm_2	Elongation %
1.4000	403S17	410S	–	0.08x	12	.	.	.	220-250	400-600	19
1.4002	405S17	405	–	0.08x	12	.	.	0.2 Al	210-250	400-600	17
1.4003	–	–	–	0.03x	11	0.5	.	.	250-320	450-650	18-20
1.4016	430S17	430	60	0.08x	17	.	.	.	240-280	430-630	18-20
1.4113	434S17	434	–	0.08x	17	.	1	.	260-280	450-630	18
1.4509	–	–	–	0.015x	18	.	.	Nb, Ti			
1.4510	–	430Ti	–	0.05x	17	.	.	0.6 Ti	230-240	420-600	23
1.4511	–	430Nb	–	0.05x	17	.	.	0.6Nb	230-240	420-600	23
1.4512	409S19	409	–	0.03x	11	.	.	0.5 Ti	210-220	380-560	25
1.4521	–	(444)	–	0.025x	17	.	2	0.6 Ti			
1.4006	410S21	410	56A	.08-.15	12	.	.	.	400-450	550-850	12-20
1.4005	416S21	416	56AM	.08-.15	12	.	.	.35xS	450	650-850	12
1.4021	420S29	420	56B	.16-.25	12	.	.	.	450-550	650-950	10-15
1.4028	420S45	420	56D	.26-.35	12	.	.	.	600	740-1000	10-15
1.4029	416S37	416	56CM	.25-.32	12	.	.	.35xS			
1.4057	431S29	431	57	.12-.22	15	2	.	.			
1.4104	416S29	416	56BM	.10-.17	16	.	0.4	.35xS	500	650-850	10
1.4112	–	440B	–	.85-.95	17	.	1.0	0.1V		900 max	12
1.4125	–	440C	–	.95-1.2	17	.	0.6	.		900 max	12
1.4594	460S52	–	–	0.7x	14	5	1.5	1.5Cu	700-1000	930-1270	10
1.4749	–	446	–	.15-.20	26	.	.	0.2N			
1.4301	304S31	304	58E	0.07x	18	8	.	.	210-260	520-750	45
1.4303	305S19	305	–	0.06x	18	11	.	.	200-250	500-650	45
1.4305	303S31	303	58M	0.10x	18	8	.	0.35xS	190-230	500-700	35
1.4306	–	304L	–	0.030x	18	10	.	.	200-250	500-670	45
1.4307	304S11	304L	–	0.030x	18	8	.	.	200-250	500-670	45
1.4310	301S21	301	–	0.05/0.1	517	6	.	.	250-280	600-950	40
1.4311	304S61	304LN	–	0.030x	18	9	.	0.22xN	270-320	550-750	40
1.4372	–	201	–	0.15x	17	4.5	.	6.5Mn	330-380	750-950	40
1.4401	316S31	316	58J	0.07x	17	11	2	.	220-270	520-680	40
1.4404	316S11	316L	–	0.030x	17	11	2	.	220-270	520-680	40
1.4406	316S61	316LN	–	0.030x	17	11	2	0.22xN	280-330	580-780	40
1.4432	316S13	316L	–	0.030x	17	11	2.5	.	220-270	520-700	40
1.4435	316S13	316L	–	0.030x	17	13	2.5	.	220-270	520-700	40
1.4436	316S33	316	58J	0.05	17	11	2.5	.	220-270	500-730	40
1.4438	317S12	317L	–	0.030x	18	13	3	.	220-270	520-720	35
1.4439	–	–	–	0.030x	17	13	4	0.22xN	270-320	580-780	35
1.4541	321S31	321	58B	0.08x	18	9	.	0.5Ti	200-250	500-720	40
1.4550	347S31	347	58F	0.08x	18	9	.	0.5Nb	200-250	500-720	40
1.4571	320S31	(316Ti)	–	0.08x	17	11	2	0.5Ti	220-270	520-690	40
1.4833	309S16	309	–	0.15x	22	12	.	.			
1.4845	310S24	310	–	0.10x	25	20	.	.			

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