

Comparison – Equivalent Grades of Iron

Grey Iron, Ductile Iron, SG Iron & Nodular Graphite Iron

Comparison of grey iron and ductile iron grades across international standards including AS, EN, BS, ISO, ASTM, DIN, JIS, UNI, NF, IS, UNF, NBN, SS, NS.

Table 1 – Equivalent Grades of Grey Iron (Grey Cast Iron)

Country		Standard	100	150	200 / 225	225	250	275	300	350	400
ISO (2004)		ISO 185/JL/	100	150	200	225	250	275	300	350	—
Australia (2007)		AS 1830	100	150	200	225	250	275	300	350	400
USA (a)		ASTM A48 (a)	—	150 (No. 20/25)	200 (No. 30)	—	250 (No. 35)	—	300 (No. 45)	350 (No. 50)	400 (No. 55/60)
USA (a)		ASTM A126 (a)	—	CLASS A	—	—	CLASS B	—	CLASS C	—	—
Germany / Austria		DIN 1691	GG10	GG15	GG20	—	GG25	—	GG30	GG35	GG40
European		EN 1561	EN-GJL-100	EN-GJL-150	EN-GJL-200/225	—	EN-GJL-250	—	EN-GJL-300	EN-GJL-350	—
China		GB 9439	HT100	HT150	HT200	—	HT250	—	HT300	HT350	—
Japan		JIS G5501	FC100	FC150	FC200	—	FC250	—	FC300	FC350	—
Italy		UNI 5007	G10	G15	G20	—	G25	—	G30	G35	—
France		NF A32-101	—	FGL150	FGL200	—	FGL250	—	FGL300	FGL350	FGL400
UK (b)		BS 1452 (b)	100	150	200	—	250	—	300	350	—
India		IS 210	—	FG150	FG200	—	FG260	—	FG300	FG350	FG400
Spain		UNF	—	FG15	FG20	—	FG25	—	FG30	FG35	—
Belgium		NBN 830-01	FGG10	FGG15	FGG20	—	FGG25	—	FGG30	FGG35	FGG40
Sweden		SS 14 01	O110	O115	O120	—	O125	—	O130	O135	O140
Norway		NS 11 100	SJG100	SJG150	SJG200	—	SJG250	—	SJG300	SJG350	—
SAE (c)		J431 (c)	G9H12	G10H18/G10H21	G11H18/G11H20	—	G12H21	—	G13H19	G13H22/G13H24	—

(a) ASTM A126 is used for valves, flanges & fittings. ASTM A48 is for general engineering use.

(b) Superseded by BS EN 1561 — see EN 1561 above.

(c) Because SAE specifies grey cast iron by minimum tensile-strength-to-hardness ratio and minimum casting hardness, SAE J431 grades may also be produced to meet a grade specified only by tensile strength. A direct correlation between SAE J431 and ISO 185 hardness grades is not possible; grades shown above have minimum hardness values approximately equal to the corresponding ISO grades.

Table 2 – Equivalent Grades of Ductile Iron (SG Iron / Nodular Graphite Iron)

Country		Standard	400-15	400-18	450-10	500-7	500-10	600-3	700-2	800-2	900-2
ISO	ISO 1083/JS/	400-15/S	400-18/S	450-10/S	500-7/S	500-10/S	600-3/S	700-2/S	800-2/S	900-2/S	
Australia (2007)	AS 1831	400-15	400-18	450-10	500-7	—	600-3	700-2	800-2	900-2	
USA	ASTM A395	—	60-40-18	—	—	—	—	—	—	—	—
USA	ASTM A536	—	—	60-42-10 / 65-45-12	70-50-05	—	80-60-03 / 80-55-06	100-70-03	120-90-02	—	—
Germany / Austria	DIN 1693	GGG40	—	—	GGG50	—	GGG60	GGG70	GGG80	—	—
European	EN 1563	EN-GJS-400-15	EN-GJS-400-18	EN-GJS-450-10	EN-GJS-500-7	—	EN-GJS-600-3	EN-GJS-700-2	EN-GJS-800-2	EN-GJS-900-2	
China	GB 1348	—	QT400-18	QT450-10	QT500-7	—	QT600-3	QT700-2	QT800-2	QT900-2	
Japan	JIS G5502	FCD400	—	FCD450	FCD500 / FGS500-7	—	FCD600 / FGS600-2	FCD700 / FGS700-2	FCD800 / FGS800-2	—	—
Italy	UNI 4544	GS370-17	GS400-12	—	500/7 / SG500/7	—	600/7 / SG600/3	700/2 / SG700/2	800/2 / SG800/2	900/2	
France	NF A32-201	FGS370-17	FGS400-12	—	FGE50-7 / FNG50-7	—	FGE60-2 / FNG60-2	FGE70-2 / FNG70-2	FGE80-2 / FNG80-2	—	—
UK (d)	BS 2789 (d)	400/17	420/12	—	0727-02	—	0732-03	0737-01	0864-03	—	—
India	IS 1865	SG370/17	SG400/12	—	SJK-500	—	SJK-600	SJK-700	SJK-800	—	—
Spain	UNF	FGE38-17	FGE42-12	—	—	—	—	—	—	—	—
Belgium	NBN 830-02	FNG38-17	FNG42-12	—	—	—	—	—	—	—	—
Sweden	SS 14 07	0717-02	—	—	SS 140725	—	—	—	—	—	—
Norway	NS 11 301	SJK-400.3	SJK-400	—	—	—	—	—	—	—	—

(d) Superseded by BS EN 1563 — see EN 1563 above.

Reference compiled by Perniagaan Logam Xing Fa Sdn Bhd (PLXF) for customer reference only.
Original comparison data based on published international grade standards.