

Przykładowe materiały obrabiane - Oznaczenia wg norm

Oznaczenie wg ISO	Opis materiału	Oznaczenie wg EN	Numer wg EN	Oznaczenie wg DIN
P	Stale miękkie o niewielkiej zawartości węgla, stale ferrytyczne	G28Mn6	1.1165	30Mn5
		C10	1.0301	C10
		C22+N	1.0402	C22
		C25+N	1.0406	C25
		C10E	1.1121	Ck10
		C15R	1.1141	Ck15
		C22E	1.1151	Ck22
		S235JR	1.0037	St37-2
		S235JRG2	1.0038	St37-3
		S275J0H	1.0149	St44-2
		S275J2G3	1.0144	St44-3N
	Stale łatwo obrabialne	10S20	1.0721	10S20
		15SMn13	1.0725	15S20
		35S20	1.0726	35S20
		46S20	1.0727	46S20
		60S20	1.0728	60S20
		11SMn30	1.0715	9SMn28
		11SMn37	1.0736	9SMn36
		11SMnPb30	1.0718	9SMnPb28
		11SMnPb37	1.0737	9SMnPb36
	Stale konstrukcyjne. Stale o zawartości węgla do 0,5%	G28Mn6+QT	1.1165	36Mn5
		E335	1.0503	C45
		C30E	1.1178	Ck30
		C35E	1.1181	Ck35
		C40E	1.1186	Ck40
		C50E	1.1206	Ck50
		C55E	1.1203	Ck55
		S355JR	1.0570	St52-3
		E360	1.0070	St70-2
	Stale węglowe o zawartości węgla powyżej 0,5%. Stale do nawęglania o średniej twardości. Stale niskostopowe	13CrMo45	1.7335	13CrMo44
		14NiCr14	1.5752	14NiCr14
		16Mo3	1.5415	15Mo3
		16MnCr5	1.5715	16MnCr5
		16MnCrS5	1.7139	16MnCrS5
		17CrNiMo6	1.6587	18CrNiMo6
		20CrMo5	1.7264	20CrMo5
		20MnCr5	1.7147	20MnCr5
		20MnCrS5	1.7149	20MnCrS5
		20NiCrMoS22	1.6526	21NiCrMo2
		25CrMo4	1.7218	25CrMo4
		28Cr4	1.7030	28Cr4
		31CrMoV9	1.8519	31CrMoV9
		34Cr4	1.7033	34Cr4
34CrMo4		1.7220	34CrMo4	
38Cr2		1.7003	38Cr2	
41Cr4		1.7035	41Cr4	
42CrMo4		1.7225	42CrMo4	
50CrV4		1.8159	50CrV4	
50MnSi4		1.5131	50MnSi4	
55Cr3		1.7176	55Cr3	

P	Stale węglowe o zawartości węgla powyżej 0,5%. Stale do nawęglania o średniej twardości. Stale niskostopowe	55SiCr7	1.7100	55SiCr7
		C60+N	1.0601	C60
		C75W	1.1750	C75W
		C45E	1.1191	Ck45
		C60E	1.1221	Ck60
		C67S	1.1231	Ck67
		C75S	1.1248	Ck75
		E335	1.0060	St60-2
		X10Cr13	1.4006	X10Cr13
		X10CrAl13	1.4724	X10CrAl13
		X10CrAl24	1.4762	X10CrAl24
		X14CrMoS17	1.4104	X14CrMoS17
		X12CrS13	1.4005	X12CrS13
		X15Cr13	1.4024	X15Cr13
		X2CrMoTi182	1.4521	X2CrMoTi182
		X3CrNiMo133	1.4313	X5CrNi134
		X5CrTi12	1.4512	X5CrTi12
		X6Cr13	1.4000	X6Cr13
		X6Cr17	1.4016	X6Cr17
		X6CrAl13	1.4002	X6CrAl13
		X6CrMo4	1.2341	X6CrMo4
		X6CrTi17	1.4510	X6CrTi17
		X3CrNb17	1.4511	X8CrNb17
	Stale narzędziowe. Stale do ulepszenia. Stale nierdzewne martenzytyczne	10CrMo910	1.7380	10CrMo910
		100Cr6	1.3505	100Cr6
		105WCr6	1.2419	105WCr6
		107CrV3	1.2210	115CrV3
		14CrMoV69	1.7735	14CrMoV69
		34CrAl6	1.8504	34CrAl6
		34CrAlNi7	1.8550	34CrAlNi7
		34CrNiMo6	1.6582	34CrNiMo6
		41CrAlMo710	1.8509	41CrAlMo7
		90MnCrV8	1.2842	90MnCrV8
		C105U	1.1545	C105W1
		C100S	1.1274	Ck101
		X18CrN28	1.4749	X18CrN28
		X20Cr13	1.4021	X20Cr13
		X20CrMoWV121	1.4935	X20CrMoWV121
		X20CrNi172	1.4057	X20CrNi172
		X22CrMoV121	1.4923	X22CrMoV121
		X30Cr13	1.4028	X30Cr13
		X38CrMo16	1.2316	X36CrMo17
		X4CrNiMo165	1.4418	X4CrNiMo165
		X39Cr13	1.4031	X40Cr13
		X45Cr13	1.4034	X45Cr13
		X45CrNiW189	1.4873	X45CrNiW189
		X45NiCrMo4	1.2767	X45NiCrMo4
		X70CrMo15	1.4109	X65CrMo14
		X80CrNiSi20	1.4747	X80CrNiSi20
		X90CrMoV18	1.4112	X90CrMoV18

P	Stale narzędziowe trudnoobrabialne. Stale wysokostopowe o dużej ciągliwości. Stale nierdzewne martenzytyczne	54NiCrMoV6	1.2711	54NiCrMoV6
		HS10-4-3-10	1.3207	S10-4-3-10
		HS12-1-2	1.3318	S12-1-2
		HS12-1-4	1.3302	S12-1-4
		HS12-1-4-5	1.3202	S12-1-4-5
		HS18-0-1	1.3355	S18-0-1
		HS18-1-2-10	1.3265	S18-1-2-10
		HS18-1-2-15	1.3257	S18-1-2-15
		HS18-1-2-5	1.3255	S18-1-2-5
		HS2-10-1-8	1.3247	S2-10-1-8
		HS2-9-1	1.3346	S2-9-1
		HS2-9-2	1.3348	S2-9-2
		HS3-3-2	1.3333	S3-3-2
		HS6-5-2	1.3343	S6-5-2
		HS6-5-2-5	1.3243	S6-5-2-5
		HS6-5-3	1.3344	S6-5-3
		HS6-5-3C	1.3345	S6-5-3C
		HS7-4-2-5	1.3246	S7-4-2-5
		X100CrMoV5	1.2363	X100CrMoV51
		X105CrMo17	1.4125	X105CrMo17
		X210Cr12	1.2080	X210Cr12
X40CrMoV51	1.2344	X40CrMoV51		
M	Stale nierdzewne automatowe, łatwe w obróbce	X8CrNiS18 9	1.4305	X10CrNiS18 9
		X9CrNi18 8	1.4310	X12CrNi17 7
		X12CrNi18 8	1.4300	X12CrNi18 8
		X5CrNiNb18 10	1.4546	X5CrNiNb18 10
		X5CrNi18 9	1.4301	X6CrNi18 10
		X6CrNi18 11	1.4948	X6CrNi18 11
		X4CrNi18 11	1.4303	X6CrNi18 12
		X6CrNiNb18 10	1.4550	X6CrNiNb18 10
	Stale nierdzewne o podwyższonej trudności obrabiania. Stale nierdzewne austeniczne i duplex	X5CrNiMoNb19 11 2	1.4583	X10CrNiMoNb18 12
		X12CrNi25 21	1.4335	X12CrNi25 21
		X6CrNiTi18 10	1.4878	X12CrNiTi18 9
		X12CrNiWTi16 3	1.4963	X12CrNiWTi16 3
		X15CrNiSi20 12	1.4828	X15CrNiSi20 12
		X2CrNi19 11	1.4306	X2CrNi19 11
		X2CrNiMo17 12 2	1.4404	X2CrNiMo17 12 2
		X3CrNiMo18 14 3	1.4435	X3CrNiMo18 14 3
		X2CrNiMo18 15 4	1.4438	X2CrNiMo18 15 4
		X2CrNiN18 10	1.4311	X2CrNiN19 11
		X5CrNiMo17 13 3	1.4436	X5CrNiMo17 13 3
		X5CrNi19 10	1.4308	X6CrNi18 9
X6CrNiMoNb17 12 2	1.4580	X6CrNiMoNb17 12 2		
X6CrNiMoTi17 12 2	1.4571	X6CrNiMoTi17 12 2		
Stale nierdzewne trudnoobrabialne	X15CrNiSi25 20	1.4841	X15CrNiSi25 20	
	X5CrNiMo17 12 2	1.4401	X5CrNiMo18 10	

M	Stale nierdzewne trudnoobrabialne. Stale austeniczne i duplex	X1CrNiMoN20 18 7	1.4547	X1CrNiMoN20 18 7
		X1NiCrMoCuN31 27 4	1.4563	X1NiCrMoCuN31 27 4
		X10NiCrAlTi32 20	1.4876	X10NiCrAlTi32 20
		X12NiCrSi35 16	1.4864	X12NiCrSi36 16
		X2CrNiMoN25 7 4	1.4410	X2CrNiMoN25 7 4
		X2CrMoNiCuN25 6 3	1.4507	X2CrMoNiCuN25 6 3
		X2CrNiMoCuWN25 7 4	1.4501	X2CrNiMoCuWN25 7 4
		X2CrNiMoN17 11 2	1.4406	X2CrNiMoN17 11 2
		X2CrNiMoN17 13 3	1.4429	X2CrNiMoN17 13 3
		X2CrNiMoN17 13 5	1.4439	X2CrNiMoN17 13 5
		X2CrNiMoN22 5	1.4462	X2CrNiMoN22 5
		X1CrNiMoN25 22 8	1.4652	X2CrNiMoN25 22 7
		X2CrNiN23 4	1.4362	X2CrNiN23 4
		X2NiCrMoCu25 20 5	1.4539	X2NiCrMoCu25 20 5
		X4CrNiCuNb16 4	1.4540	X4CrNiCuNb16 4
		X3CrNiMo27 5 2	1.4460	X4CrNiMo27 5 2
		X5CrNiCuNb16 4	1.4548	X5CrNiCuNb17 4
		K	Średnio twarde żeliwo szare	EN-GJL-100
EN-GJL-150	0.6150			GG-15
EN-GJS-350-22	0.7033			GGG-35.3
EN-GJS-400-15	0.7040			GGG-40
EN-GJS-400-18	0.7043			GGG-40.3
EN-GJMB-350-10	0.8135			GTS-35-10
EN-GJMB-450-6	0.8145			GTS-45-06
EN-GJMB-550-4	0.8155			GTS-55-04
Żeliwo niskostopowe, ciągliwe, sweroidalne	EN-GJL-200		0.6200	GG-20
	EN-GJL-250		0.6250	GG-25
	EN-GJS-500-7		0.7050	GGG-50
	EN-GJS-600-3		0.7060	GGG-60
	EN-GJSA-XNiCr20-2		0.7660	GGG-NiCr20 2
	EN-GJSA-XNiCr20-3		0.7661	GGG-NiCr20 3
	EN-GJSA-XNiMn13-7		0.7652	GGG-NiMn13 7
	EN-GJLA-XNiCr20-2		0.6660	GGL-NiCr20 2
	EN-GJLA-XNiCr20-3		0.6661	GGL-NiCr20 3
	EN-GJMB-600-3		0.8165	GTS-65-02
Żeliwo o umiarkowany m stopniu trudności obrabiania	EN-GJL-300		0.6300	GG-30
	EN-GJS-700-2		0.7070	GGG-70
	EN-GJLA-XNiCuCr15-6-2		0.6655	GGL-NiCuCr15 6 2
	EN-GJLA-XNiCuCr15-6-3		0.6656	GGL-NiCuCr15 6 3
	EN-GJMB-700-2		0.8170	GTS-70-02
Żeliwo stopowe i ciągliwe o średnim stopniu trudności obrabiania	EN-GJL-350		0.6350	GG35
	EN-GJS-800-2		0.7080	GGG-80
	EN-GJSA-XNi22		0.7670	GGG-Ni22
	EN-GJSA-XNi35		0.7683	GGG-Ni35
	EN-GJSA-XNiCr30-3		0.7676	GGG-NiCr30 3
	EN-GJSA-XNiCr35-3		0.7683	GGG-NiCr35 3
	EN-GJSA-XNiMn23-4		0.7673	GGG-NiMn23 4
	EN-GJSA-XNiSiCr20-5-2		0.7665	GGG-NiSiCr20 5 2
	EN-GJSA-XNiSiCr30-5-5		0.7680	GGG-NiSiCr30 5 5
	EN-GJLA-XNiCr30-3		0.6676	GGL-NiCr30 3
EN-GJLA-XNiSiCr20-5-3	0.6667	GGL-NiSiCr20 5 3		

N	Stopy aluminium o niskiej zawartości Si	AW-120	Al99	Al99	
		AW-1050A	Al99.5	Al99.5	
		AW-1070	Al99.7	Al99.7	
		AW-1080	Al99.8	Al99.8	
		AW-2011	AlCuBiPb	AlCuBiPb	
		AW-2024	AlCuMg1	AlCuMg1	
		AW-2014	AlCuSiMn	AlCuSiMn	
		AW-5005A	AlMg1	AlMg1	
		AW-6061	AlMg1SiCu	AlMg1SiCu	
		AW-5052	AlMg2.5	AlMg2.6	
		AW-5454	AlMg2.7Mn	AlMg2.7Mn	
		AW-5251	AlMg2Mn0.3	AlMg2Mn0.3	
		AW-5049	AlMg2Mn0.8	AlMg2Mn0.8	
		AW-5754	AlMg3	AlMg4	
		AW-5083	AlMg4.5Mn	AlMg4.5Mn	
		AW-5086	AlMg4Mn	AlMg4Mn	
		AW-6060	AlMgSi0.5	AlMgSi0.5	
		AW-6063	AlMgSi0.7	AlMgSi0.7	
		AW-6082	AlMgSi1	AlMgSi2	
		AW-3105	AlMn0.5Mg0.5	AlMn0.5Mg0.5	
		AW-3005	AlMn0.5Mg0.6	AlMn0.5Mg0.6	
		AW-3103	AlMn1	AlMn2	
		AW-3003	AlMn1Cu	AlMn1Cu	
		AW-3004	AlMn1Mg1	AlMn1Mg2	
		AW-7020	AlZn4.5Mg1	AlZn4.5Mg2	
		AC-21100	AlCu4Ti	G-ALCu4Ti	
		AC-21000	AlCu4TiMg	G-AlCu4TiMg	
		AC-51100	AlMg3	G-AlMg3	
		AC-51400	AlMg5(Si)	G-AlMg5	
		AC-51200	AlMg9	G-AlMg9	
		AC-43400	AlSi10Mg(Fe)	G-AlSi10Mg	
		AC-45000	AlSi6Cu4	G-AlSi6Cu4	
		AC-42100	AlSi7Mg	G-AlSi7Mg	
		AC-46200	AlSi8Cu3(Si)	G-AlSi8Cu3	
		AC-43200	AlSi9Mg	G-AlSi9Mg	
		MG-P-62	MgAl3Zn	G-MgAl3Zn	
		MC 21230	MgAl6Mn	G-MgAl6Mn	
		MG-P-63	MgAl6Zn	G-MgAl6Zn	
		MG-P-61	MgAl8Zn	G-MgAl8Zn	
		MC 21110	MgAl8Zn1	G-MgAl8Zn1	
		MC-21120	MgAl9Zn1	G-MgAl9Zn1	
		MB 65110	MgSe3Zn2Zr1	G-MgSe3Zn2Zr1	
		Stopy aluminium o dużej zawartości Si	AC-43200	AlSi10Mg(Cu)	G-AlSi10Mg(Cu)
			AC-44200	AlSi12	GD-AlSi12
			AC-46100	AlSi11Cu2(Fe)	
			AC-47100	AlSi12Cu1(Fe)	

N

Stopy miedzi

CW013A	CuAg0.1	CuAg0.2
CW307G	CuAl10Ni5Fe4	CuAl10Ni5Fe4
CW308G	CuAl11Ni6Fe6	CuAl11Ni6Fe5
CW300G	CuAl5As	CuAl5As
CW107C	CuFe2P	CuFe2P
CW109C	CuNi1Si	CuNi1.5Si
CW406J	CuNi12Zn30Pb1	CuNi12Zn30Pb1
CW408J	CuNi18Zn19Pb2	CuNi18Zn19Pb2
CW409J	CuNi18Zn20	CuNi18Zn20
CW410J	CuNi18Zn27	CuNi18Zn27
CW354H	CuNi30Mn1Fe	CuNi30Mn1Fe
CW112C	CuNi3Si	CuNi3Si
CW351H	CuNi9Sn2	CuNi9Sn2
CW113C	CuPb1P	CuPb1P
CW450K	CuSn4	CuSn4
CW452K	CuSn6	CuSn6
CW453K	CuSn8	CuSn8
CW501L	CuZn10	CuZn10
CW502L	CuZn15	CuZn15
CW503L	CuZn20	CuZn20
CW702R	CuZn20Al2	CuZn20Al2
CW504L	CuZn28	CuZn28
CW706R	CuZn28Sn1	CuZn28Sn1
CW505L	CuZn30	CuZn30
CW708R	CuZn31Si1	CuZn31Si1
CW506L	CuZn33	CuZn33
CW710R	CuZn35Ni2	CuZn35Ni2
CW507L	CuZn36	CuZn36
CW601N	CuZn35Pb2	CuZn35Pb1.5
CW602N	CuZn36Pb3	CuZn36Pb3
CW508L	CuZn37	CuZn37
CW604N	CuZn37Pb0.5	CuZn37Pb0.5
CW607N	CuZn38Pb1.5	CuZn38Pb1.5
CW717R	CuZn38Sn1	CuZn38Sn1
CW715R	CuZn38SnAl	CuZn38SnAl
CW610N	CuZn39Pb0.5	CuZn39Pb0.5
CW612N	CuZn39Pb2	CuZn39Pb2
CW614N	CuZn39Pb3	CuZn39Pb3
CW509	CuZn40	CuZn40
CW723R	CuZn40Mn1	CuZn40Mn1
CW720R	CuZn40Mn1Pb	CuZn40Mn1Pb
CW612N	CuZn40Pb2	CuZn40Pb2
CW622N	CuZn44Pb2	CuZn44Pb2
CW500L	CuZn5	CuZn5

Oznaczenie wg ISO	Opis materiału	Oznaczenie wg EN	Numer wg EN	Nazwa własne	
S	Superstopy na bazie żelaza			A286	
				AM350	
				AM355	
				Custom 455	
				Discalloy	
				IN 800	
				IN 801	
				Incoloy 909	
				Lapelloy	
				M308	
				N155	
		X2NiCrAlTi3220	1.4876	Incoloy 800	
	Superstopy na bazie kobaltu				Air resist 13
					FSX-414
					H531
					Haynes188
					Haynes25
					Mar-M-302
					Mar-M-509
					MP159
					MP35N
					Stellite 21
					Stellite 30
	Superstopy na bazie niklu		NiMo30	2.4810	Hastelloy C
			NiMo16Cr15W	2.4819	Hastelloy C-276
			NiMo16Cr16Ti	2.4610	Hastelloy C-4
			NiCr21Fe18Mo9		Hastelloy W
			NiCr15Fe	2.4816	Inconel 600
			NiCr22Mo9Nb	2.4856	Inconel 625
			NiFe38Cr16Nb		Inconel 706
			NiCr19Fe19Nb5Mo3	2.4668	Inconel 718
			Ni99.6	2.4061	Nickel 201
			NiCr20TiAl	2.4631	Nimonic 80A
		NiCr19Co18Mo4Ti3Al3		Udimet 500	
Stopy tytanu		TiCu2	3.7124	Ti 2Cu	
		TiAl5Sn2.5		Ti 5Al-2.5Sn	
		TiAl6V4	3.7164	Ti 6Al-4V	
O	Duroplasty			Bakelit	
				Resopal	
				Pertinax	
				Moltopren	
	Termoplasty				Plexiglas
					Hostalen
					Novodur
					Makralon
	Wzmocnione wł.szkl. / węgl.				GFK
					CFK