Classification EN 14700

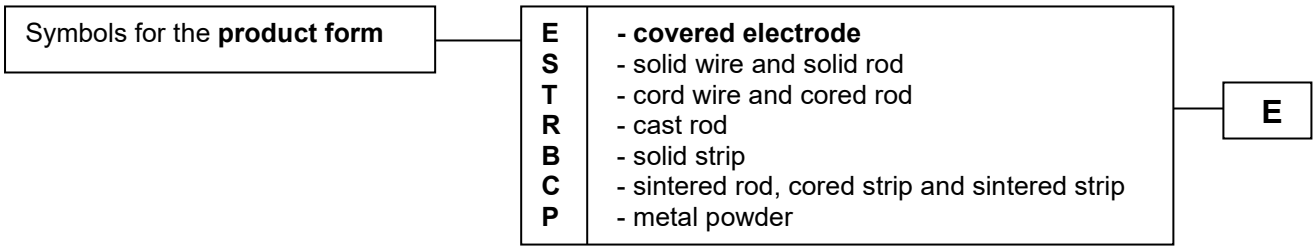
Welding consumables for hard-facing

Hardmelt 600 - EN 14700: E Fe8

Scope:

This European Standard (EN 14700) applies to welding consumables for hard facing. The range of application includes surfaces of new structural components, semi-finished products as well as the repair of surfaces of structural components which have to resist mechanical, chemical, thermal or combined stress.

This European Standard (EN 14700) specifies requirements for classification of the consumables based on the chemical composition of all the weld metal of covered electrodes, cored wires, cored rods, sintered strips, sintered rods and metal powders and on the chemical composition of solid wires, solid rods, solid strips and cast rods.



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Alloy symbols and chemical composition

Alloy symbol	Suitability	Chemical composition in % (m/m)									
		C	Cr	Ni	Mn	Mo	W	V	Nb	Other	Balance
Fe1	p	≤ 0,4	≤ 3,5	-	0,5 to 3	≤ 1	≤ 1	≤ 1	-	-	Fe
Fe2	p	0,4 to 1,2	≤ 7	≤ 1	0,5 to 3	≤ 1	≤ 1	≤ 1	-	-	Fe
Fe3	s t	0,2 to 0,5	1 to 8	≤ 5	≤ 3	≤ 4,5	≤ 10	≤ 1,5	-	Co, Si	Fe
Fe4	s t (p)	0,2 to 1,5	2 to 6	≤ 4	≤ 3	≤ 10	≤ 19	≤ 4	-	Co, Ti	Fe
Fe5	c p s t w	≤ 0,5	≤ 0,1	17 to 22	≤ 1	3 to 5	-	-	-	Co, Al	Fe
Fe6	g p s	≤ 2,5	≤ 10	-	≤ 3	≤ 3	-	-	≤ 10	Ti	Fe
Fe7	c p t	≤ 0,2	4 to 30	≤ 6	≤ 3	≤ 2	-	≤ 1	≤ 1	Si	Fe
Fe8	**g p t**	**0,2 to 2**	**5 to 18**	**-**	**0,3 to 3**	**≤ 4,5**	**≤ 2**	**≤ 2**	**≤ 10**	**Si, Ti**	**Fe**
Fe9	k (n) p	0,3 to 1,2	≤ 19	≤ 3	11 to 18	≤ 2	-	≤ 1	-	Ti	Fe
Fe10	c k (n) p z	≤ 0,25	17 to 22	7 to 11	3 to 8	≤ 1,5	-	-	≤ 1,5	Fe	Fe
Fe11	c n z	≤ 0,3	18 to 31	8 to 20	≤ 3	≤ 4	-	-	≤ 1,5	Cu	Fe
Fe12	c (n) z	≤ 0,08	17 to 26	9 to 26	0,5 to 3	≤ 4	-	-	≤ 1,5	-	Fe
Fe13	g	≤ 1,5	≤ 6,5	≤ 4	0,5 to 3	≤ 4	-	-	-	B, Ti	Fe
Fe14	g (c)	1,5 to 4,5	25 to 40	≤ 4	0,5 to 3	≤ 4	-	-	-	-	Fe
Fe15	g	4,5 to 5,5	20 to 40	≤ 4	0,5 to 3	≤ 2	-	-	≤ 10	B	Fe
Fe16	g z	4 to 7,5	10 to 40	-	≤ 3	≤ 9	≤ 8	≤ 10	≤ 10	B, Co	Fe
Fe20	c g t z	hard metal [b]	-	-	-	-	-	-	-	-	Fe
Ni1	c p t	≤ 0,6	15 to 30	Balance	0,3 to 1	≤ 6	≤ 2	≤ 1	-	Si, Fe, B	Ni
Ni2	c k p t z	0,6 to 3	15 to 30	Balance	≤ 1,5	≤ 28	≤ 8	≤ 1	≤ 4	Co, Si, Ti	Ni
Ni3	c p t	1 to 3	1 to 15	Balance	0,3 to 1	≤ 6	≤ 2	≤ 1	-	Si, Fe, B	Ni
Ni4	c k p t z	-	1 to 15	Balance	≤ 1,5	≤ 28	≤ 8	≤ 1	≤ 4	Co, Si, Ti	Ni
Ni20	c g t z	-	-	-	-	-	-	-	-	-	Ni
Co1	c k t z	1 to 5	20 to 30	≤ 10	0,1 to 2	≤ 10	≤ 15	-	≤ 1	Fe	Co
Co2	t z (c s)		20 to 35	≤ 4	0,1 to 2	-	4 to 10	-	-	Fe	Co
Co3	t z (c s)		20 to 35	≤ 4	≤ 2	≤ 1	6 to 14	-	-	Fe	Co
Cu1	c (n)		-	≤ 6	≤ 15	-	-	-	-	Al, Fe, Sn	Cu
Al1	c n		-	10 to35	≤ 0,5	-	-	-	-	Cu, Si	Al
Cr1	c g		Balance	-	≤ 1	-	-	15 to 30	-	Fe, B, Si, Zr	Cr

Suitability:

c: resistance to rusting
g: resistance to abrasion
k: work hardenable
n: cannot be magnetized
p: impact resistance
s: edge retention
t: heat resistance
z: scaling resistance
w: precipitation hardened

( ) may not apply to all alloys of this type

[a] Alloys which are not included in this table are analogies signified, but the letter Z shall be put in front

[b] Tungsten fused carbide or tungsten carbide broken or spherical.