AX-250
1.8401

Standard

EN 14700	S Fe1	
DIN 8555	MSG 1-GZ–250	
AWS A 5.21	ERFe-1	
Material number	1.8401	

Application areas

Filler wire of low-alloyed manganese-chromium steel for MAG welding of machinable, wear resistant facings, preferably for rolling wear.

Special hints

Preheat base materials sensitive to cracks to around 250°C. Welding with other shielding gases may alter the hardness values.

Composition of the filler wire (typical data in %)

C	Si	Mn	Cr	Al	Ti
0.06	0.45	1.1	1.0	0.1	0.2

Important areas of application

Overlays on machinery parts of structural steel or cast steel, areas of application e.g. slideways, track wheels, bearing surface, wheel rims, rails, rollers, guide ways, conveyor rollers, clutches.

Material properties

Welding process	MAG	Mechanical properties of the
Shielding gas	M21	weld metal as per DIN EN 32525-4
Test temperature	20°C	
Hardness of the weld metal	[HRC]	20-24
Brinell hardness	[HB]	225-275
Vickers hardness	[HV]	225-275

Applicable shielding gases (EN ISO 14175)

MAG: Mixed gases e.g. M1, M2, M3

Approvals

(Request current scope if required)

Product forms (others available on request)

Spool	Ø mm	1.0	1.2	1.6

Welding position/ polarity

MAG	PA, PB, PC, PF	
1,6 mm only	PA; PB	

AX-350
1.8405

Standard

EN 14700	S Fe2	
DIN 8555	MSG 2-GZ–350	
AWS A 5.21	ERFe-1A	
Material number	1.8405	

Application areas

Filler wire of low-alloyed manganese-chromium steel for MAG welding of machinable, wear resistant facings exposed to pressure, shock and abrasion. The weld metal can be hardened and close annealed.

Special hints

Welding with other shielding gases may alter the hardness values.
Untreated weld metal is still machinable. Preheat base materials susceptible to cracking to 200 to 250°C.

Composition of the filler wire (typical data in %)

C	Si	Mn	Cr	Ti	Al		
0.7	0.45	2.0	1.0	0.2	0.1		

Important areas of application

Facings on machinery parts of structural steel or cast steel, e.g. slideways, track wheels, bearing surfaces, wheel rims, rails, rollers, guide ways, conveyor rollers, clutches and push rods.

Material properties

Welding process	MAG	Mechanical properties of the
Shielding gas	M21	weld metal as per DIN EN 32525-4
Test temperature	20°C	
Hardness of the weld metal	[HRC]	40 (untreated/as welded)
Hardness of the weld metal	[HRC]	60 (hardened 820-850°C/oil)
Hardness of the weld metal	[HB]	200 (close annealed 720-740°C)

Applicable shielding gases (EN ISO 14175)

MAG: Mixed gases e.g. M1, M2, M3

Approvals

(Request current scope if required)

Product forms (others available on request)

Spool	Ø mm	1.0	1.2	1.6			

Welding position/ polarity

MAG	PA, PB, PC, PF				
1,6 mm only	PA; PB				

AX-450W
1.2567

Standard

EN 14700	S Fe3	
DIN 8555	W / MSG 3–GZ-45-T	
Material number	1.2567	

Area of application

Wire electrode / filler rod for cladding highly stressed hot working tools. Weld metal of chromium-tungsten-vanadium hard alloy

Special hints

Weld metal can be machine cut after soft-annealing; otherwise only machinable by grinding. Preheat tool depending on base material, form and size to 200 to 400°C and keep to this temperature during welding. Then allow to cool down slowly. Harden and/or anneal corresponding to the intended use.

Composition of the wire electrode (typical data in %)

C	Si	Mn	Cr	V	W		
0.2	0.2	0.3	2.4	0.6	4.5		

Important areas of application

Welding new or tools to be repaired of hot work steel, e.g. die casting moulds, plastic moulds, press boxes, pressing discs, impact molding dies, bottom dies, push rods, upsetting tools.

Material properties

Welding process	TIG	Mechanical properties of the
Shielding gas	argon	weld metal as per DIN EN 32525-4
Test temperature	20°C	
Hardness of the weld metal	[HRC]	44 (untreated/as welded)
Hardness of the weld metal	[HRC]	52 (hardened 1080°C/oil)
Hardness of the weld metal	[HB]	230 (close annealed 780°C)
Hardness of the weld metal	[HRC]	48 (tempered at 600°C)

Applicable shielding gases (EN ISO 14175)

TIG: argon I1, MAG: mixed gases e.g. M1, M2

Approvals

(Request current scope if required)

Product forms (others available on request)

Spool	Ø mm	1.2	1.6				
Rod	Ø mm x 1000	2.0					

Welding position/ polarity

MAG	PA, PB, PC, PF			TIG	
1,6 mm only	PA; PB				

AX-500
1.8425

Standard

EN 14700	S Fe2	
DIN 8555	MSG 2-GZ–50	
Material number	1.8425	

Application

Wire electrode of chromium-silicon steel for MAG welding of tough abrasion resistant overlays.

Special hints

Welding with other shielding gases may alter the hardness values. Untreated weld metal only workable by grinding. Preheat base materials susceptible to cracking to 200 to 300°C. With base materials very susceptible to cracking weld intermediate layer (buffer), e.g. with the wire electrode AX-307 or the bar electrode EI307B or EI307R.

Composition of the wire electrode (typical data in %)

C	Si	Mn	Cr				
1.1	0.5	2.0	1.9				

Important areas of application

Facings on machinery parts of structural steel or cast steel or manganese steel. E.g. contact surfaces, caterpillar tracks, running wheels, chaser mills, dredger parts, rolling mill guidance, clamping jaws.

Material properties

Welding process	MAG	Mechanical properties of the
Shielding gas	M21	weld metal as per DIN EN 32525-4
Test temperature	20°C	
Hardness of the weld metal	[HRC]	50-52
Vickers hardness	[HV]	530

Applicable shielding gases (EN ISO 14175)

MAG: Mixed gases e.g. M2, M3

Approvals

(Request current scope if required)

Product forms (others available on request)

Spool	Ø mm	1.0	1.2	1.6			

Welding position/ polarity

MAG	PA, PB, PC, PF				
1.6 mm only	PA; PB				

AX-600
1.4718

Standard

EN 14700	S Fe8	
DIN 8555	MSG 6-GZ-60-S	
Material number	1.4718	

Properties

Filler rod/filler wire of chromium-silicon steel for TIG or MAG welding of tough abrasion resistant coatings.

Application areas

For tough, crack, cut and abrasion resistant overlay on wearing parts that are exposed to strong striking and moderate abrasion stress, e.g. sand processing plants, mining industry, steelworks, cement works, cutting and forming tools for the automotive industry and plants in quarries. The weld metal is only workable by grinding. With base materials very susceptible to cracking weld intermediate layer (buffer), e.g. with the wire electrode AX-307 or the bar electrode EI307B or EI307R.

Composition of the wire electrode (typical data in %)

C	Si	Mn	Cr				
0.5	3.0	0.5	9.2				

Important areas of application

Overlays on machinery parts of structural steel or cast steel or manganese steel, e.g. rollers, contact surfaces, caterpillar tracks, running wheels, chaser mills, dredger parts, screw conveyors, rolling crushers, paving breakers, rolling mill guides, cams, clamping jaws, impact jaws, mixing arms, anvils, upper layers of Mn steels and for regenerating cutting edges and working surfaces of cold work tools.

Material properties

Welding process	MAG	Mechanical properties of the
Shielding gas	M21	weld metal as per DIN EN 32525-4
Test temperature	20°C	
Hardness of the weld metal	[HRC]	59 (untreated/as welded)
Hardness of the weld metal	[HV]	680 (untreated/as welded)
Hardness of the weld metal	[HRC]	62 (hardened 1080°C/oil)
Hardness of the weld metal	[HB]	230 (close annealed 780°C)

Applicable shielding gases (EN ISO 14175)

TIG: argon I1, MAG: mixed gases e.g. M1, M2, M3, CO_2

Approvals

(Request current scope if required)

Product forms (others available on request)

Spool	Ø mm	0.8	1.0	1.2	1.6		
Rod	Ø mm x 1000	1.0	1.6	2.0	2.4		

Welding position/ polarity

MAG	PA, PB, PC, PF			TIG	
1,6 mm only	PA; PB				

AX-650
1.2606

Standard

EN 14700	S Fe8
DIN 8555	MSG 3–GZ-60
AWS A 5.21	ERFe-8 mod.
Material number	1.2606

Area of application

Filler rod / filler wire of chromium-silicon steel for MAG welding of tough abrasion resistant overlays on components exposed to strong abrasion, impact and shock load. Can be used up to 500°C. The weld metal is then only workable by grinding.

Special hints

The hardness of the weld metal is dependent on the dilution with the base material. With the increasing number of layers the influence is reduced. The weld area must be ground and depending on wall thickness and base material preheated to 200-300°C.
If there are more than two layers, a buffer layer should be welded, e.g. with the wire electrode AX-307 or the bar electrode EI307B or EI307R.

Composition of the wire electrode (typical data in %)

C	Si	Mn	Cr	Mo	V	W
0.35	1.1	0.4	5.5	1.2	0.25	1.3

Important areas of application

For overlays of components from sand processing plants, dies for abrasives, final passes of Mn steels, rail tamper picks, hammer boring tools, shredder hammers, bottom dies, guillotine shears, crusher jaws, cold and hot working tools.

Material properties

Welding process	MAG	Mechanical properties of the
Shielding gas	M21	weld metal as per DIN EN 32525-4
Test temperature	20°C	
Hardness of the weld metal	[HRC]	56

Applicable shielding gases (EN ISO 14175)

TIG: argon, MAG: mixed gases e.g. M2, M3, CO_2

Approvals

(Request current scope if required)

Product forms (others available on request)

Spool	Ø mm	1.0	1.2	1.6		
Rod	Ø mm x 1000	1.0	1.2	1.6	2.0	2.4

Welding position/ polarity

MAG	PA, PB, PC, PF		TIG	
1.6 mm only	PA; PB			

AX-650W
1.3348

Standard

EN 14700	S Fe4	
DIN 8555	W / MSG 4-60-S	
AWS A 5.21	ERFe-6 mod.	
Material number	1.3348	

Application

Filler wire / filler rod for overlay of high-speed steel tools. Weld metal of tungsten-molybdenum-chromium hard alloy.

Special hints

Weld metal can be machine cut after soft-annealing; otherwise only workable by grinding. Preheat tool slowly and evenly to 400 to 500°C and keep to temperature during welding. Slow cool down is essential (furnace, hot sand). Then carry out heat treatment (hardening, tempering).
With small repairs and newly manufactured tools, local preheating to 250 to 350°C is sufficient without subsequent heat treatment with likewise slow cool down covered or in the furnace down to about 100°C. With base materials very susceptible to cracking weld intermediate layer (buffer), e.g. with the wire electrode AX-307 or the bar electrode EI307B or EI307R.

Composition of the wire electrode (typical data in %)

C	Si	Mn	Cr	Mo	V	W
0.9	0.3	0.3	4.0	8.5	2.0	1.8

Important areas of application

Repair and new manufacture of high speed steel tools with high cutting performance and good toughness also with impact-type load. For turning and planing tools, milling cutters, broaching tools, reamers, spiral drills, wood working tools, cold working and cutting tools

Material properties

Welding process	MAG	Mechanical properties of the
Shielding gas	M21	weld metal as per DIN EN 32525-4
Test temperature	20°C	
Hardness of the weld metal	[HRC]	58 (untreated/as welded)
Hardness of the weld metal	[HV]	680 (untreated/as welded)
Hardness of the weld metal	[HRC]	62-66 (hardened 1190-1230°C/oil) tempered at
Hardness of the weld metal	[HB]	540°C/2h 230 (close annealed 740-840°C)

Applicable shielding gases (EN ISO 14175)

TIG: argon I1, MAG: mixed gases e.g. M1, M21

Approvals

(Request current scope if required)

Product forms (others available on request)

Spool	Ø mm	1.0	1.2				
Rod	Ø mm x 1000	1.6	2.0				

Welding position/ polarity

MAG	PA, PB, PC, PF		TIG