

MIG (GMAW) wires for Mild and Low Alloyed Steels

Product Name	EN 440/12070/12534 Material No. AWS A5.18/5.28 Approvals	Characteristics and application	Base Materials	Typical Analysis		Mechanical properties of the pure weld metal				
					%	Tensile strength MPa	Yield strength MPa	Elongation %	Charpy-V-Value ISO-V (Joule) RT -40 °C	
SG 1	G2Si1 1.5112 ER70S-3 -	MIG-electrode for joining and surfacing of mild steel.	S185 - S275JR, S355JO - E335, S255N - P355N, P255NH - P355NH, P235GH, P265GH, P310GH	C Si Mn	0,09 0,60 1,15	≥500	≥420	≥22	≥80	
ER70S-2	G2Ti - ER70S-2 -	MIG-electrode for joining and surfacing of mild steel.	S255N - S380N, P235GH, P265GH, P295GH, P355GH	C Si Mn Al Ti Zr	0,03 0,55 1,20 0,10 0,10 0,07	≥560	≥480	≥22	≥100	
ER70S-6	G3Si1 1.5125 ER70S-6 DB, TÜV	MIG-electrode for joining and surfacing of mild steel.	S185 - S275JR, S355JO - E335, S255N - P355N, P255NH - P355NH, P235GH, P265GH, P310GH	C Si Mn	0,09 0,87 1,47	≥500	≥420	≥22	≥80	-50°C ≥47
ED-SG 3	G4Si1 1.5130 ER70S-6 DB, TÜV	MIG-electrode for joining and surfacing of mild steel.	S185 - S275JR, S355JO - E335, S255N - P355N, P255NH - P355NH, P235GH, P265GH, P310GH	C Si Mn	0,09 0,95 1,67	≥530	≥460	≥22	≥80	-20°C ≥47
FK 1	Mn3Ni1CrMo - ER100S-G DB, TÜV	MIG-electrode for welding of high-strength fine-grain structural steels. Yield strength to 690 MPa.	S690QL1, S420N - S500N, P420NH - P500NH S420NL - S500NL	C Si Mn Cr Ni Mo V	0,09 0,52 1,57 0,30 1,40 0,25 0,09	≥790	≥690	≥16	≥80	≥47
FK 2	~Mn3Ni1Mo - ER100S-G DB, TÜV	MIG-electrode for welding of high-strength fine-grain structural steels. Yield strength to 690 MPa. For Yield strength > 620 MPa only suitable for plate thickness up to 15 mm and fillet weld.	S690QL1, S420N - S500N, P420NH - P500NH S420NL - S500NL	C Si Mn Ni Mo	0,08 0,57 1,77 1,00 0,38	≥710	≥640	≥18	≥100	≥47
FK 1000	Mn4Ni2CrMo - ER120S-G DB, TÜV	MIG-electrode for welding of high-strength fine-grain structural steels.	S890QL	C Si Mn Ni Cr Mo	0,09 0,80 1,80 2,20 0,31 0,55	≥940	≥885	≥14	≥70	-60°C ≥47
NiCu	Z Mn3Ni1Cu - ER80S-G DB	MIG-electrode for welding of weather resistant fine-grain structural steels.	S235JRW - S355J2G1W, 9CrNiCuP3-2-4	C Si Mn Ni Cu	0,08 0,80 1,40 0,80 0,40	≥550	≥450	≥22	≥80	-40 °C ≥47
A30	G2Mo/G MoSi 1.5424 ER70S-A1 DB, TÜV	MIG-electrode for elevated temperatures. For service temperatures up to 500 °C.	P235G1TH - P255G1TH, P310GH, 16Mo3, L320, L360NB - L415NB	C Si Mn Mo	0,10 0,60 1,15 0,52	≥560	≥460	≥22	≥60	-20 °C ≥47
A 31	G4Mo - ER80S-D2 -	MIG-electrode for elevated temperatures. For service temperatures up to 500 °C.	P235G1TH - P255G1TH, P310GH, 16Mo3	C Si Mn Mo	0,09 0,70 1,95 0,50	≥550	≥470	≥17	≥90	-29 °C ≥27
A32	G CrMo1Si 1.7339 ER80S-G DB, TÜV	MIG-electrode for elevated temperatures. For service temperatures up to 550 °C. Bruscato Factor max. 15 ppm.	13CrMo4-5	C Si Mn Cr Mo	0,10 0,60 1,00 1,20 0,52	≥450	≥305	≥20	≥100	-10 °C ≥47

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				%		Tensile strength MPa	Yield strength MPa	Elongation %	Charpy-V-Value ISO-V (Joule) RT	-40 °C
A33	G CrMo2Si 1.7384 ER90S-G DB, TÜV	MIG-electrode for elevated temperatures. For service temperatures up to 600 °C.	10CrMo9-10 10CrSiMoV7	C Si Mn Cr Mo	0,08 0,60 0,92 2,45 1,00	≥540	≥355	≥22	≥80	
ER80S-Ni2	G2Ni2 - ER80S-Ni2 DB, TÜV	MIG-electrode for welding of fine grain structural steels if low temperature impact values are required. For service temperatures down to -60 °C.	S255N - S380N, 14Ni6, 12Ni14, S255NL	C Si Mn Ni	0,09 0,52 1,10 2,45	≥570	≥420	≥22	≥100	-60 °C ≥47
ER80S-Ni1	G3Ni1 - ER80S-Ni1 DB, TÜV	MIG-electrode for welding of fine grain structural steels if low temperature impact values are required. For service temperatures down to -60 °C.	P355NL1 - P460NL1	C Si Mn Ni	0,09 0,50 1,05 0,90	≥560	≥470	≥24		-60 °C ≥47
ER80S-B2	- - ER80S-B2 -	MIG-electrode for elevated temperatures. For service temperatures up to 550 °C. Bruscato Factor max. 15 ppm	13CrMo4-5	C Si Mn Cr Mo	0,09 0,55 0,55 1,35 0,50	≥550	≥470	≥19		
ER90S-B3	- - ER90S-B3 -	MIG-electrode for elevated temperatures. For service temperatures up to 600 °C.	10CrMo9-10	C Si Mn Cr Mo	0,09 0,55 0,55 2,50 1,05	≥620	≥540	≥17		
ER80S-B6	GCrMo5 GcrMo5Si ER80S-B6 -	CrMo alloyed steels resistant to oxidation, heat, corrosion and wear .		C Si Mn Cr Mo	0,07 0,45 0,50 5,70 0,58	≥660	≥560	≥22		
ER80S-B8	GcrMo9 GcrMo9Si ER80S-B8 -	Good resistance to strain, cracking, oxidation and high temperature corrosion.	BS 1504, Gr629, 3604, Grs HFS 629- 470 & 629-590 ASTM A335 Gr P9, A336 Gr F9, A199, A200 & A213 Gr T9	C Si Mn Cr Mo	0,09 0,45 0,55 9,0 1,0	≥720	≥600	≥24		
ER90S-B9	GcrMo91 - ER90S-B9 -	Intended for welding high integrity structural service at elevated temperatures. The addition of V and Nb increases the resistance to strain, corrosion and heat oxidation.	A 213 T91 A 335 P91 A387 Gr91 A 182/A336 F91 A 217 C12A, A234 WP91, A369 FP91 EN X10CrMoVNb91 BS 1503 Gr91	C Si Mn Cr Mo Ni V Nb N	0,10 0,25 0,50 8,70 1,0 0,6 0,2 0,05 0,05	≥780	≥690	≥21		
FV520	- - - -	For welding high strength martensitic precipitation hardening stainless steels	FV520 B A564, A693	C Si Mn Cr Mo Ni Cu Nb	0,05 0,30 0,7 14,0 1,6 5,5 1,7 0,3					
9CrMoWV	- - -ER90S-G (92) -	Used for welding equiv type '92' 9% Cr steels modified with tungsten, vanadium and nitrogen with small addition of boron to give improved long term creep properties. Intended for high integrity structural service at elevated temperatures.	ASTM A213 T92 A335 P92 A387 Gr92 A182 F92 EN X10CrWMoVNb 9-2	C Si Mn Cr Mo W Ni Nb V N B	0,11 0,30 0,70 9,0 0,45 1,7 0,5 0,06 0,2 0,05 0,003					
ENi3	- - -AWS A5.23 ENi3 -	Welding electrode for welding of fine grain structural steels where high impact values are required.	12Ni14	C Si Mn Ni	0,09 0,17 1,05 3,20					
IAB PWHT-1	- - -ER100S-G -	NiCrMo fine grained steels for low temperature applications		C Si Mn Cr Mo Ni	0,09 0,75 1,6 0,55 0,25 0,6	≥770	≥680	≥24		

MIG- (GMAW-) electrodes for wear resistant cladding

Product Name	DIN 8555 Material No.	Characteristics and application	Hardness	typical analysis %	
HF350	MSG 2-350 GZ 1.8405	Low alloyed MIG-electrode for wear resistant parts, which have to resist strong impact forces. Machining of weld metal by milling, turning and cutting is possible. For hard-facing punches, dies and striking tools. Also suitable for railway crossings and frogs. The weld metal can still be easily tempered. Tempering temperatures 810 to 850 degree C	325-375 HB	C	0,08
				Mn	0,9
				Si	0,55
				Cr	6,0
				Mo	0,90
HF600	MSG 6-60 GZ 1.4718	High-alloyed MIG-electrode for tough and abrasion resistant claddings. Weld metal is resistant against strong impact forces. Machining of weld metal is possible only by grinding. For highly wear-resistant hard-facing of conveyor rolls, percussion drill bits, for building up shearing tools etc.	55-60 HRC	C	0,45
				Si	3,00
				Cr	9,50
HF650	MSG 3-60 GZ 1.2606	Martensite steel, used on materials resistant to moderate impacts and to abrasion	57-60 HRC	C	0,35
				Si	1,1
				Mn	0,40
				Cr	5,2
				V	0,4
				W	1,3

Delivery conditions: copper or bronze coated, bright drawn, diameter between 0,80 – 2,40 mm

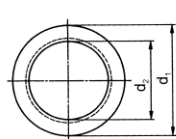
Special qualities and special diameters on request

Types of spoolings

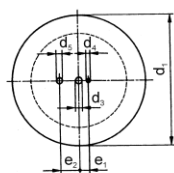
Dimensions of spools, rims and coils

Denomination	DIN EN ISO 544	Type	Outer diameter	Inner diameter	Outer width	Bore diameter	Driver Pin Hole		Weight [kg]		
			d ₁ [mm]	d ₂ [mm]	b [mm]	d ₃ [mm]	Diameter d ₄ [mm]	Distance from axis e ₁ [mm]		e ₂ [mm]	
Spool (Sigmette)	S 100	Spool (S)	100 ^{±2}	-	45 ⁰ ₋₂	16,5 ⁺¹ ₀	d ₄	d ₅	0,5/0,75/1,0		
Portawirespool	S 200	Spool (S)	200 ^{±3}	-	55 ⁰ ₋₃	50,5 ^{+2,5} ₀	10 ⁺¹ ₀	44,5 ^{±5}	5		
Spool	S 300	Spool (S)	300 ^{±5}	-	103 ⁰ ₋₃	50,5 ^{+2,5} ₀	10 ⁺¹ ₀	44,5 ^{±5}	15		
Basket Spool	B 300	Basket Rim (B)	300 ⁰ ₋₅	180 ^{±2}	100 ^{±3}				15/18/20		
Reel (Steel/Wood)	S 760	Spool (S)	760 ⁰ ₋₁₀	-	290 ⁺¹⁰ ₋₁	40,5 ⁺¹ ₀	25 ⁺¹ ₀	35 ⁺¹ ₀	65 ^{±1}	110 ^{±1}	300
Mid Size Reel	(-S 500)*	Spool (S)	500 ⁺² ₋₅	-	350 ⁺¹ ₋₁	40,5 ⁺¹ ₀	25 ⁺¹ ₀	65 ^{±1}	150		
Basket Spool	BS 300	Basket Spool (BS)	300 ^{±5}	-	103 ⁰ ₋₃	50,5 ^{+2,5} ₀			15/18/20		
Spool (D/117)	(-S117)*	Spool (S)	117	-	71				2,7		
Rim	-R 435*	Rim (R)	390	305	90				13/20		

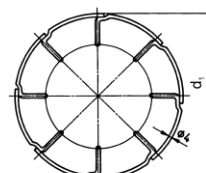
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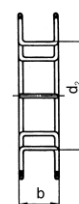
Rim (R)



Spool (S)



Basket Rim (B)



Basket Spool (BS)

