



**DATA SHEET**  
**DS 064**  
**Rev. 6 dd 14/05/2015**  
**INEFIL B9**

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**CLASSIFICATION**

**APPROVALS**

AWS SPECIFICATIONS	EN SPECIFICATIONS
AWS A 5.28: ER90S-B9	EN ISO 21952-A: G CrMo91
AWS A 5.28M: ER62S-B9	
ASME SFA 5.28: ER90S-B9	
ASME SFA 5.28M: ER62S-B9	


**ALLOY TYPE**

9Cr1Mo modified for the welding of creep resistant steel (0,5Ni, Nb, V, N).

**APPLICATIONS**

Copper-free solid wire suitable for the welding of creep resistant steel. It will find applications in petro-chemical industry for welding P91 steels. Long term creep properties get improved thanks to small additions of niobium, vanadium and nitrogen. This wire is designed for elevated temperature service up to 650°C. It is used in fossil fuelled power generating plants for components such as headers, main steam piping and turbine casings. To be used under the shield of Ar 95%+CO<sub>2</sub> 5%.

**MATERIALS TO BE WELDED**

ASTM		EN		Others
A 199 Gr T91	A 387 Gr 91	10222-2 X10CrMoV 9-1		
A 200 Gr T91	A 182 Gr F91	(DIN X10CrMoVnB 9-1)		
A 213 Gr T91	A 217 C12A	(BS 1503 Gr 91)		
A 335 Gr P91	A 234 WP91			
A 336 Gr F91	A 369 FP91			

**WELDING GUIDELINES**

Preheat and interpass temperature 200 ÷ 300°C. PWHT at 760°C for two hours. In multipass welding it is recommended to clean accurately the surface of the material to be welded by grinding off the surface layer of chrome oxide.

**TECHNICAL INFORMATION**

Gas: Mix Ar- CO<sub>2</sub> (EN 14175)  
 Welding positions: all positions



**WELDING PARAMETERS**

Current	DC + Reverse polarity				
	0.8	1.0	1.2	1.6	
Diameter (mm)					
Volts (V)	16 ÷ 28	17 ÷ 32	18 ÷ 34	19 ÷ 38	
Intensity (A)	60 ÷ 200	80 ÷ 260	100 ÷ 360	130 ÷ 450	



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**TYPICAL CHEMICAL COMPOSITION OF WIRE**

C %	Mn %	Si %	S %	P %	Cr %	Ni %	Mo %	Cu %	V %	Nb %	N %
0.09	0.60	0.25	0.007	0.002	8.80	0.65	0.95	0.03	0.20	0.06	0.05

**TYPICAL MECHANICAL PROPERTIES**

GAS		Yield strength	Tensile strength	Elongation on % 5d	Impact energy (Charpy V)				
		Rs	Rm	A 5d	+ 20°C	0°C	-20°C	-40°C	-60°C
		(MPa)	(MPa)	%	(Joule)	(Joule)	(Joule)	(Joule)	(Joule)
<b>M12</b>	after PWHT	590	680	19	60	-	-	-	-

**PRODUCTS AVAILABLE**

Process	Product	Classification AWS	Classification EN
<b>MIG/MAG</b> Solid wire	INEFIL B9LowNi	AWS A 5.28: ER90S-B9	
<b>TIG</b> Rods	INETIG B9 INETIG B9LowNi	AWS A 5.28: ER90S-B9 AWS A 5.28: ER90S-B9	EN 21952-A: W CrMo91
<b>SAW</b> Submerged arc	INESUB EB9 INESUB EB9LowNi	AWS A 5.23: EB9 AWS A 5.23: EB9	EN 24598-A: S CrMo91
<b>FCAW</b> Cored wire	INETUB M91TG-B9	AWS 5.28: E90C-B9	
<b>SMAW</b> Electrodes	INE B9	AWS A 5.5: E9015-B9	EN 3580-A: E CrMo91