

MEGAFIL[®] 690 R



AWS A5.36: E111T1-M21A4-G-H4

EN ISO 18276-A: T 69 6 Z P M21 1 H5

WELDING POSITIONS:



FEATURES	BENEFITS	APPLICATIONS
<ul style="list-style-type: none"> Extremely low diffusible hydrogen weld deposit Low fumes and spatter Easy slag removal Able to bridge poor fit-up without burn-through Good impact toughness Virtually no slag coverage Smooth arc characteristic 	<ul style="list-style-type: none"> Minimized risk of hydrogen-induced cracking No re-drying Excellent all position welding Resists cracking in severe applications Reduces clean-up time, minimizes risk of inclusions Increases productivity, reduces part rework/rejection Root welding with ceramic backing Automatic root welding with ceramic backing 	<ul style="list-style-type: none"> Automatic and mechanized welding Steel structures Offshore structures Pipelines Non-alloy and fine grain steels Vessels General fabrication Heavy equipment Single and multi-pass welding

WIRE TYPE	Gas shielded rutile flux-cored wire with rapidly solidifying slag
SHIELDING GAS	75-85% Argon (Ar) / Balance Carbon Dioxide (CO ₂); Gas Flow 12-18 l/min (25-38 cfh)
TYPE OF CURRENT	Direct Current Electrode Positive (DCEP)
STANDARD DIAMETERS	Ø 1.2 mm (0.045")
TYPICAL DIFFUSIBLE HYDROGEN*	< 3.0 ml / 100 g; Guaranteed for the total processing time < 4.0 ml / 100 g maximum (AWS Spec)
RE-DRYING	Not required due to seamless wire design.
STORAGE	The same conditions as for solid wire. Product should be stored in a dry, enclosed environment, in its original undamaged packaging

*Measurement technique is the carrier gas method according to AWS and ISO

MATERIALS TO BE WELDED*

Material	Rel \leq 690 MPa	Material
Unalloyed structural steels	Rel \leq 690 MPa	S620 - S690, A 106, A 600
Boiler steels	Rel 690 MPa	P620GH - P690GH up to A517; A537; A625
Pipe steels	Rel 690 MPa	P620T1/T2 - P690NL2 up to A 625
Fine grain structural steels	Rel 690 MPa	S620 - S629QL1 up to A 625
Steels to API-standard	Rel 690 MPa	X70 - X100 / HY100

*) The specified base materials are not complete and should only be seen as examples. The selection of the appropriate combination of steel and welding consumable should follow the specific mechanical strength and toughness requirements.

ALL WELD METAL CHEMISTRY (%) (typical values for mixed gas 82% Ar / 18% CO₂)

Element	Value (%)	Element	Value (%)
Carbon (C)	0.08	Nickel (Ni)	2.0
Manganese (Mn)	1.7	Molybdenum (Mo)	0.15
Silicon (Si)	0.5	Chromium (Cr)	-
Sulphur (S)	0.015		
Phosphorus (P)	0.015		

ALL WELD METAL MECHANICAL PROPERTIES (for mixed gas 82% Ar / 18% CO₂)

Mechanical tests	Typical values MPa (ksi)	ISO Specification MPa (ksi)
Tensile Strength Rm	820 MPa (119) (with due regard of the 8/5 time)	770 - 940 MPa (112 - 136)
Yield strength Rp0.2	750 MPa (109) (with due regard of the 8/5 time)	> 690 MPa (100)
Expansion A5	18%	17%

CHARPY V-NOTCH IMPACT VALUES (for mixed gas 82% Ar / 18% CO₂)

Mechanical tests	Typical values [J] (ft.lbf)	ISO Specification [J] (ft.lbf)
-20 °C	110 (81)	> 69 (51)
-40 °C	80 (59)	> 69 (51)
-60 °C	55 (41)	> 47 (35)

APPROVALS: CE, TÜV, ABS, BV, DNV-GL, LR

Please contact the manufacturer to learn the present scope of approvals