

# Outershield® 690-HSR

## TOP FEATURES

- All position gas shielded rutile flux cored wire, for high strength steel grades like grade S690
- Specific design for stress relieved applications, guaranteed impact properties after PWHT
- Excellent mechanical properties (CVN >50J) at -40°C

## TYPICAL APPLICATIONS

- PWHT applications
- Steel construction

## CLASSIFICATION

AWS A5.29 E111T1-K3M-J  
 EN ISO 18276-A T 69 4 Z P M 2 H5 T

## CURRENT TYPE

DC+

## WELDING POSITIONS

All except vertical down

## SHIELDING GASES (ACC. EN ISO 14175)

M21 Mixed gas Ar+ (>15-25%) CO<sub>2</sub>  
 Flow rate 15-25 l/min

## CHEMICAL COMPOSITION (WEIGHT %), TYPICAL, ALL WELD METAL

Shielding gas	C	Mn	Si	P	S	Ni	Mo	HDM
M21	0.06	1.5	0.2	0.015	0.010	2.0	0.5	3 ml/100 g

## MECHANICAL PROPERTIES, TYPICAL, ALL WELD METAL

	Shielding gas	Condition*	Yield strength (MPa)	Tensile strength (MPa)	Elongation (%)	Impact ISO-V (J)	
						-30°C	-40°C
Required: AWS A5.29			min. 680	760-900	min. 15	min. 27	
EN ISO 18276-A			min. 690	770-940	min. 157		min. 47
Typical values	M21	AW	740	790	17	9	70
		SR: 1h/580°C, 3G up - V60°	720	770	20		60

\* AW = As welded; SR = Stress relieved

## PACKAGING AND AVAILABLE SIZES

Wire diameter (mm)	Packaging	Weight (kg)	Item number
1.2	SPOOL (S200)	4.5	942818
	SPOOL (B300)	16.0	942804N

### TEST RESULTS

Test results for mechanical properties, deposit or electrode composition and diffusible hydrogen levels were obtained from a weld produced and tested according to prescribed standards, and should not be assumed to be the expected results in a particular application or weldment. Actual results will vary depending on many factors, including, but not limited to, weld procedure, plate chemistry and temperature, weldment design and fabrication methods. Users are cautioned to confirm by qualification testing, or other appropriate means, the suitability of any welding consumable and procedure before use in the intended application

Safety Data Sheets (SDS) are available here:



Subject to Change – The information is accurate to the best of our knowledge at the time of printing. Please refer to [www.lincolnelectric.eu](http://www.lincolnelectric.eu) for any updated information.