

# P7

For welding steels such as Outokumpu	EN	ASTM	BS	NF	SS
AVESTA P7 is specially designed for difficult-to-weld steels such as Mn-steels, tool steels and high temperature grades.					

## Standard designations

EN ISO 14343 G 29 9  
AWS A5.9 ER312

## Characteristics and welding directions

AVESTA P7 is a high-alloy consumable designed for welding C/Mn-steels, high strength steels such as Hardox® and Armox®, tool steels, spring steels, high temperature steels and other difficult-to-weld steels. P7 is also suitable for dissimilar welds between stainless and mild steel connections.

AVESTA P7 provides a weldment with high tensile strength and wear resistance as well as an excellent resistance to cracking.

Pre-heating is normally unnecessary, but when working with constricted designs and materials susceptible to hardening, some pre-heating may be required.

## Welding data

	Diameter mm	Current A	Voltage V
Spray arc	1.00	170 – 230	26 – 28
	1.20	200 – 260	27 – 29
Pulsed arc	1.20	$I_{peak} = 350 - 380$ A $I_{bkg} = 50 - 120$ A Freq = 70 – 150 Hz	

## Shielding gas

1. Ar + 30% He + 2.5% CO<sub>2</sub>.
2. Ar + 2% CO<sub>2</sub> / Ar + 2% CO<sub>2</sub>.

MIG welding is best performed using pure argon with an addition of approx. 30% He and 2 – 3% CO<sub>2</sub>. The addition of helium (He), will increase the energy of the arc.

Gas flow rate 12 – 16 l/min.

## Chemical composition, wire (typical values, %)

C	Si	Mn	Cr	Ni
0.11	0.45	1.9	30.0	9.5
Ferrite 60 FN WRC-92				

Mechanical properties	Typical values (IIW)	Min. values EN ISO 14343
Yield strength R <sub>p0,2</sub>	560 N/mm <sup>2</sup>	450 N/mm <sup>2</sup>
Tensile strength R <sub>m</sub>	750 N/mm <sup>2</sup>	650 N/mm <sup>2</sup>
Elongation A <sub>5</sub>	25 %	15 %
Impact strength KV +20°C	40 J	
Hardness	240 Brinell	

**Interpass temperature:** Max. 150°C.

**Heat input:** Max. 2.0 kJ/mm.

**Heat treatment:** Generally none. Alloys of this type are susceptible to precipitation of the secondary phase in the temperature range 550 – 950°C.

**Structure:** Austenite with 40 – 60% ferrite.

**Scaling temperature:** Approx. 850°C (air).

**Corrosion resistance:** AVESTA P7 offers very good corrosion resistance in wet sulphuric environments, such as in sulphate digesters used by the pulp and paper industry.

## Approvals

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