

# PRODUCT DATA SHEET

## Afrox Filmax NiCrMo-4 Afrox TIG NiCrMo-4

Afrox NiCrMo-4 solid wires for TIG and MIG welding are designed to match the composition and properties of parent alloy C276 with Ni-15% Cr-16% Mo-4% W-5% Fe. Carbon and silicon controlled as close as possible to the very low levels of the wrought alloy to minimise carbide and intermetallic phase precipitates which can reduce as-welded corrosion resistance. Cast versions of the alloy typically have higher carbon and silicon (like the original wrought Hastelloy® alloy C, now obsolete), but repair welds are usually solution treated for optimum corrosion resistance. Alloy C276 has high resistance to corrosion in a wide range of acids and salts under oxidizing and especially reducing conditions. These include hydrochloric and hydrofluoric acids, hypochlorites, chlorides and wet chlorine gas, sulphuric, phosphoric and many organic acids. Exceptional resistance to crevice corrosion and pitting in

seawater and chloride-induced stress corrosion cracking (superior to alloy 625). High temperature stability is limited by intermetallic phase formation. In addition to fabrication welds in alloy C276, these consumables have good tolerance to dilution by most ferrous and high nickel alloys, and are suitable for surfacing and dissimilar welds which exploit the corrosion resistance, strength and toughness. Excellent properties to below -196°C allow its use for welding 5-9% Ni cryogenic installations.

### Applications

Applications include pumps, valves, pipework and vessels for use in aggressive environments in chemical process plants; also in equipment for flue gas desulphurisation and critical equipment in offshore oil and gas production.

### Materials to be Welded

#### Wrought

ASTM UNS N10276

#### Cast

A494 CW-12MW

A743/A744 CW-12M

2.4883 (G-NiMo16Cr)

#### Proprietary

Hastelloy® alloy C-276 (Haynes)

Inco alloy C-276 (Special Metals)

Nicrofer® 5716hMoW (VDM)

### Classifications

AWS	A5.14	ERNiCrMo-4
EN	18274	ENi6276 (NiCr15Mo16Fe6W4)

### Typical Chemical Analysis (All weld metal)

% Carbon	0,02 max	% Nickel	Bal.
% Manganese	1,0 max	% Tungsten	3,0 - 4,5
% Silicon	0,08 max	% Vanadium	0,3 max
% Sulphur	0,015 max	% Iron	4,0 - 7,0
% Phosphorous	0,02 max	% Copper	0,5 max
% Chrome	14,5 - 16,5	% Molybdenum	15,0 - 17,0

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## Typical Mechanical Properties (All weld metal in the as welded condition)

<b>0,2% Proof Stress</b>	500 MPa
<b>Tensile Strength</b>	740 MPa
<b>% Elongation on 4d</b>	46
<b>% Elongation on 5d</b>	43
<b>% Reduction of Area</b>	50

## Packing Data

MIG			TIG			
Diameter (mm)	Pack Mass (kg)	Item Number	Diameter (mm)	Pack Mass (kg)	Consumable Length (mm)	Item Number
1,2	15,0	W077746	1,6	5,0	1 000	W077654
-	-	-	2,0	5,0	1 000	W077655
-	-	-	2,4	5,0	1 000	W077656

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