VDM® FM C-276

N10276 (UNS) · 2.4886 (Material No.)

VDM® FM C-276 is a nickel-chromium-molybdenum filler material with a low carbon content for seam welding homogeneous alloys in wet corrosion applications. It is widely used in the chemical industry and environmental technologies.

Designations & standards

ISO 18274	S Ni 6276, NiCr15Mo16Fe6W4
AWS A5.14	ERNiCrMo-4, ABS
VdTÜV	Data sheet no. 05582, 05583

Typical chemical composition, values in %

Ni	Cr	Mo	Fe	W	Mn	V	C
Bal.	16	16.5	6	3.5	0.5	0.2	< 0.01

Mechanical properties at ambient temperature

Yield strength $R_{p\,0.2}$ (MPa) (Ksi) (Ksi)	Tensile strength R_m (MPa) (Ksi) (Ksi)	**Elongation** A_5 (%)	**ISO V-notch impact strength** (J) (ft-lbs)
> 450 (> 65.3)	> 750 (> 109)	> 30	> 90 (> 66.4)

Applications

Filler metal for welding VDM® Alloy C-276 and for mixed joints with suitable high- and low-alloy steels. Due to excellent corrosion properties suitable for clad welding on carbon steel. The material VDM® FM C-276 can also be used for submerged arc welding in the field of liquefied natural gas (LNG).

Special notes for the welding process
A low heat input and fast heat removal must be ensured. The interpass temperature should not exceed 120 °C (248 °F). When using the gas-shielded metal-arc process, pulsed welding is the preferable method. No preheating or reheating is required to achieve the weld metal properties.

Example welding processes and parameters
for homogeneous seam welding in Position 1G

Welding process as per ISO 4063	Shielding gas as per ISO 14175	Welding parameters		
		U (V)	I (A)	V (cm/min) (in/min)
m-TIG 141, 145	I1, R1 max. 3 % H_2	10–11	90–120	10–15 3.94–5.91
Comment	*Root welding at 110 A*			
v-TIG 141, 145	I1, R1 max. 3 % H_2	11–12	≈ 150	≈ 25 ≈ 9.84
v-TIG HW 141 H, 145 H	I1, R1 max. 3 % H_2	10–12	180–250	40–80 15.7–31.5
MSGp (MIG/MAG) 131, 135	I1, R1 max. 3 % H_2	23–27	130–150	20–30 7.87–11.8
Comment	*from approx. 8 mm (0.315 in) work piece thickness*			
Plasma (PAW) 15	I1, R1 max. 3 % H_2	≈ 25	165–200	≈ 25 ≈ 9.84
Comment	*up to approx. 8 mm (0.315 in) work piece thickness*			