

VDM® FM 625

N06625 (UNS) · 2.4831 (Material No.)



VDM® FM 625 is a versatile nickel-chromium-molybdenum filler material for seam welding homogeneous alloys in wet-corrosion and high-temperature applications. It is also used for corrosion-resistant weld cladding in piping and fittings in oil production and steam generator pipes.

Designations & standards

ISO 18274	S Ni 6625, NiCr22Mo9Nb
AWS A5.14	ERNiCrMo-3, ABS
VdTÜV	Data sheet no. 03453, 03454

Typical chemical composition, values in %

Ni	Cr	Mo	Nb	Fe	C
Bal.	22	9	3.5	< 0.7	< 0.1

Mechanical properties at ambient temperature

Yield strength $R_{p0.2}$ (MPa) (Ksi) (Ksi)	Tensile strength R_m (MPa) (Ksi) (Ksi)	Elongation A_5 (%)	ISO V-notch impact strength (J) (ft-lbs)
> 460 (> 65.7)	> 720* (> 104)*	> 30	> 100 (> 73.8)

* (> 760 typically) (> 110.2 typically)

Applications

Filler material for the welding of VDM® Alloy 625, VDM® Alloy 825, VDM® Alloy 20 and VDM® Alloy 926. Additional material combinations and fields of application available on request.

Special notes for the welding process

Ensure low heat input and rapid heat dissipation. The interlayer temperature should not exceed 150 °C. (302°F) For the MSG process, impulse welding is preferably used. No preheating or reheating is required to achieve the weld metal properties. If the submerged arc process is used, the wire diameter should not exceed 1.6 mm (0.039 in).

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	l1, R1 max. 3 % H ₂	10–12	90–140	11–16 4.33–6.30
<i>Comment</i>	<i>Root welding at 90 A to 110 A</i>			
v-TIG 141, 145	l1, R1 max. 3 % H ₂	≈ 12	150–180	≈ 25 ≈ 9.84
v-TIG HW 141 H, 145 H	l1, R1 max. 3 % H ₂	11–12	180–220	40–80 15.7–31.5
MSGp (MIG/MAG) 131, 135	l1, l3-ArHe-30, Z-ArHeHC 30-2-0.05 Z-ArHeHC 30-2-0,12	23–27	130–150	24–30 9.45–11.8
<i>Comment</i>	<i>from approx. 8 mm (0.315 in) work piece thickness</i>			
Plasma (PAW) 15	l1, R1 max. 3 % H ₂	≈ 25	165–200	≈ 26 ≈ 10.2
<i>Comment</i>	<i>up to approx. 8 mm (0.315 in) work piece thickness</i>			
Submerged (SAW) 121		≈ 28	240–280	45–55 17.7–21.7