Dissolvable Magnesium Alloy Rod — Grade Overview

Adjustable alloy chemistry · Purpose-built for dissolvable frac plugs · Lot-to-lot consistency, mill test report with every lot · Rod diameters 0.5–6 in

Grade	Recommended Service Temp.	Tensile		Yield		Elong. (%)	Compressive		Dissolution (laboratory reference)		Availability for North America
		(MPa)	(ksi)	(MPa)	(ksi)		(MPa)	(ksi)	Test condition	Rate (mg/cm²·hr)	
EM-100	Medium	≥300	≥43.5	≥210	≥30.5	≥5	≥380	≥55.1	93 °C (199 °F) / 3% KCl	50–80	Available
									60 °C (140 °F) / 1% KCl	0.4–0.6	
EM-110	—	≥270	≥39.2	≥200	≥29.0	≥12	—	—	38 °C (100 °F) / 3% KCl	13.4	**License required**
EM-111	—	≥305	≥44.2	≥225	≥32.6	≥15	—	—	38 °C (100 °F) / 3% KCl	1.06	**License required**
EM-112	—	≥330	≥47.9	≥240	≥34.8	≥15	—	—	38 °C (100 °F) / 3% KCl	1.22	**License required**
EM-120	Medium	≥240	≥34.8	≥180	≥26.1	≥14	≥350	≥50.8	93 °C (199 °F) / 3% KCl	40–70	Available
EM-130	Medium	≥300	≥43.5	≥220	≥31.9	≥5	≥380	≥55.1	93 °C (199 °F) / 3% KCl	50–80	Available
									50 °C (122 °F) / 0.84% KCl	10–25	
EM-140	Medium	≥320	≥46.4	≥240	≥34.8	≥7	≥390	≥56.6	50 °C (122 °F) / 0.84% KCl	60–120	By inquiry
EM-150	Medium	≥280	≥40.6	≥230	≥33.4	≥6	≥300	≥43.5	93 °C (199 °F) / 3% KCl	190–410	Available
									50 °C (122 °F) / 0.84% KCl	80–120	
									50 °C (122 °F) / 0.1% KCl	40–70	
EM-160	High	≥370	≥53.7	≥260	≥37.7	≥3	≥430	≥62.4	50 °C (122 °F) / 0.84% KCl	20–40	**License required**
EM-170	High	≥170	≥24.7	≥100	≥14.5	≥28	≥50	≥7.3	93 °C (199 °F) / 3% KCl	20–40	**License required**
EM-180	High	≥380	≥55.1	≥300	≥43.5	≥5	≥420	≥60.9	93 °C (199 °F) / 3% KCl	35–65	**License required**
EM-190	High	≥450	≥65.3	≥350	≥50.8	≥3	≥500	≥72.5	93 °C (199 °F) / 3% KCl	35–70	**License required**
EM-200	Medium	≥210	≥30.5	≥150	≥21.8	≥16	≥250	≥36.3	93 °C (199 °F) / 3% KCl	65–100	Available
EM-210	Medium	≥160	≥23.2	≥95	≥13.8	≥24	—	—	93 °C (199 °F) / 3% KCl	25–65	Available
EM-220	Low	≥250	≥36.3	≥200	≥29.0	≥5	≥250	≥36.3	93 °C (199 °F) / 3% KCl	600–800	Available
									50 °C (122 °F) / 0.84% KCl	100–180	
									50 °C (122 °F) / 0.1% KCl	40–80	
EM-230	Low	≥240	≥34.8	≥200	≥29.0	≥5	≥250	≥36.3	93 °C (199 °F) / 3% KCl	350–450	Available
									50 °C (122 °F) / 0.84% KCl	45–115	
									50 °C (122 °F) / 0.1% KCl	25–75	
EM-240	Low	≥220	≥31.9	≥180	≥26.1	≥9	≥250	≥36.3	93 °C (199 °F) / 3% KCl	120–160	Available
									50 °C (122 °F) / 0.84% KCl	20–60	
									50 °C (122 °F) / 0.1% KCl	5–20	
EM-250	Medium	≥320	≥46.4	≥230	≥33.4	≥5	≥380	≥55.1	93 °C (199 °F) / 3% KCl	200–400	By inquiry
									50 °C (122 °F) / 0.84% KCl	70–110	
									50 °C (122 °F) / 0.1% KCl	35–65	
EM-260	Low	≥110	≥16.0	≥80	≥11.6	≥40	≥40	≥5.8	93 °C (199 °F) / 3% KCl	50–100	**License required**
									50 °C (122 °F) / 0.84% KCl	10–40	
EM-270	Medium	≥310	≥45.0	≥210	≥30.5	≥5	≥380	≥55.1	93 °C (199 °F) / 3% KCl	40–75	Available
EM-280	Medium	≥220	≥31.9	≥150	≥21.8	≥16	≥250	≥36.3	93 °C (199 °F) / 3% KCl	75–105	Available
EM-290	Medium	≥300	≥43.5	≥240	≥34.8	≥6	≥300	≥43.5	93 °C (199 °F) / 3% KCl	120–210	Available
									50 °C (122 °F) / 0.84% KCl	5–35	
EM-300	—	≥200	≥29.0	≥140	≥20.3	≥25	—	—	93 °C (199 °F) / 3% KCl	15–31	Available

License required. Contains rare-earth additions controlled under China's export rules. Each shipment, including samples, needs a Chinese export license.

By inquiry. Availability is confirmed for each order.

Values. Room-temperature minimums on longitudinal extruded rod; dissolution rates are laboratory reference values. Where a grade has its own datasheet, the datasheet governs.

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