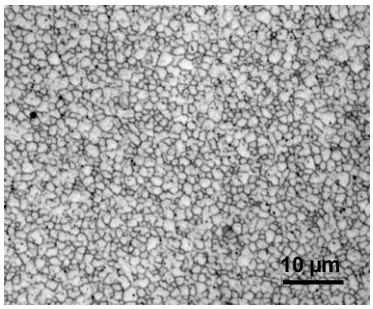
ECAP – Equal Channel Angular Pressing
for high performance nanostructured materials

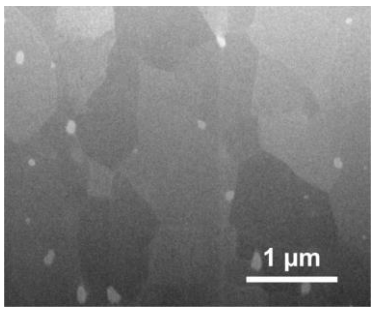
12 24.305
Mg
Magnesium

ECAP Magnesium

High strength Mg alloys without changing of composition

Severe plastic deformation by ECAP leads to improved mechanical properties of Mg alloys without changing the chemical composition or phase distribution. Therefore, other desired properties of the specific alloy are not changed. Processing with a unique double ECAP tool offers a wide range of different, tailored mechanical properties.





- unchanged chemical composition
- unchanged corrosion behaviour
- **tuneable mechanical properties**
- **excellent strength & ductility**
- excellent homogeneity

Exemplary alloy	Condition	Mechanical properties (minimum values)		
		Rm [MPa]	$Rp_{0.2}$ [MPa]	A [%]
EZ33	rolled	200	180	< 1
EZ33	**D-ECAP**	**330**	**310**	**3**
Mg-0.5Zn-0.6Ca	extruded	255	225	20
Mg-0.5Zn-0.6Ca	**D-ECAP – high strength**	**350**	**340**	**5**
Mg-0.5Zn-0.6Ca	**D-ECAP – balanced strength**	**290**	**280**	**20**

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