

## Chart P5: The shape–process matrix

The shape capabilities of manufacturing processes are summarized in this chart. It uses the same format and classifications as the material–process matrix. Processes are listed vertically and the various shapes (referred to by their codes) are listed horizontally. The capability of a process to make a shape is indicated by the number 0 or 1: the number 1 means that the process can make the shape; the number 0 that it cannot.

		Shapes																	
		Axisymmetric						Prismatic				Non-Axisymmetric, Non-Prismatic							
		A10	A11	A20	A21	A30	A31	P10	P11	P20	P21	N10	N11	N20	N21	N30	N31	N40	
Casting	Gravity	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Low pressure	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	
	High pressure	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	
	Investment	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Moulding	Injection	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	
	Compress	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	
	Blow	0	1	0	1	1	1	0	0	0	0	0	0	0	0	1	1	0	
	Foam	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	
Deformation	Cold	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	
	Warm	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	
	Hot	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	
	Sheet	0	1	0	1	1	1	0	1	0	1	1	1	1	1	1	1	0	
Machining	Turn	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	1	
	Mill	0	0	0	0	0	0	1	0	1	1	1	0	1	1	1	1	1	
	Grind	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Polish	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Powder Methods	Sinter/HIP	1	1	1	1	0	0	1	1	1	1	0	0	1	1	0	0	0	
	Slip cast	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	0	
	Spray forming	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	
	Hydration	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Composite Forming	Lay-up	0	1	0	1	1	1	1	1	1	1	1	0	1	1	0	0	1	
	Mould	0	1	0	1	1	1	0	0	0	0	0	1	1	1	1	1	1	
	Squeeze-cast	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	
Molecular Methods	Filament wind	0	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	
	PVD	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	
	CVD	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Sputtering	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Special Methods	Electroforming	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Electrochemical	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Ultrasonic	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Chemical	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Fabrication	Thermal beaming	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Weld/braze	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Adhesive	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Fasten	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Microfabrication	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		