



CAPACITIES / CAPABILITIES

Vertical Turning	74" dia x 72" (1880 mm dia x 1830 mm) 40 Ton
Horizontal Milling	80" x 80" x 100" (2032 x 2032 x 2540 mm) 40 Ton
CNC Turning	30" dia x 15' (762 mm dia x 4572 mm)
Drilling	20" dia x 70" (508 mm dia x 1778 mm)
Gun Drilling	2" dia x 70" (50.8 mm dia x 1778 mm)
Honing	20" dia x 100" (508 mm dia x 2540 mm)
Wire EDM	24" x 30" x 14" (609 mm x 762 mm x 355 mm)
Saw Cutting	32" x 32" (812 mm x 812 mm)
Heat Treatment	60" dia x 90" 20,000 lbs (1524 mm dia x 2285 mm)
Nitration	61" dia x 98.5" 13,200 lbs (1550 mm dia x 2500 mm)
Lifting	40 Ton
Design	Solidworks
Simulation	Thermal, Mechanical, Flow

Laboratory Services including Microstructure, Chemical Composition & Material Characterization



Alloy		Chemical Composition										Strength	Toughness	Tempering/ Aging		Thermal Conductivity (W/mK)	Cost Factor	Application
		Fe	C	Si	Mn	Cr	Ni	Mo	V	Nb	Ti			Temperature (°C)				
Low Alloy Steel	Con-Duct	Bal.	0.4	0.25	0.7	0.8	1.9	0.3				●●	●●●●●●	Tempered	540 (38 HRC) 600 (34 HRC)	42	75	Container body/ Subliner (34-38 HRC) Plunger Tip (32-36 HRC)
	L6 (1.2714)	Bal.	0.55	0.3	0.9	1.1	1.7	0.5	0.1			●●●	●●●	Tempered	530 (42 HRC) 570 (38 HRC)	35	75	Container body (38-42 HRC)
Hot Work Tool Steel	H-11 (1.2343)	Bal.	0.4	1	0.4	5		1.3	0.4			●●●	●●●	Tempered	630 (42 HRC) 650 (38 HRC)	26	100	Container body (38-42 HRC)
	H-13 (1.2344)	Bal.	0.4	1	0.4	5		1.5	1			●●●●	●●●	Tempered	620 (48 HRC)	24	100	Container liner (46-48 HRC)
															630 (46 HRC)			Container subliner (38-42 HRC)
															650 (42 HRC)			Shot Sleeve/ Insert (46-48 HRC)
															660 (38 HRC)			Plunger Rod
	DieVar	Bal.	0.35	0.2	0.5	5		2.3	0.6			●●●●	●●●	Tempered	595 (48 HRC)	30	200	Shot Sleeve (46-48 HRC)
															605 (46 HRC)			Plunger Tip (38-42 HRC)
															620 (42 HRC)			
															640 (38 HRC)			
	E40K	Bal.	0.35	0.3	0.3	5		1.8	0.8			●●●●	●●●●	Tempered	600 (48 HRC)	30	200	Container liner (46-48 HRC)
620 (46 HRC)																		
630 (48 HRC)																		
640 (46 HRC)																		
1.2367	Bal.	0.37	0.3	0.4	5		3	0.6			●●●●	●●	Tempered	640 (46 HRC)	30	200	Shot Sleeve Insert (46-48 HRC) Bore Welding	
														640 (46 HRC)				
Tuff Temper	Bal.	0.36	0.3	0.4	5		3.8	0.8			●●●●●●	●●	Tempered	640 (48 HRC)	30	200	Shot Sleeve Insert (46-48 HRC)	
														650 (46 HRC)				
Q10	Bal.	0.36	0.25	0.6	5		1.9	0.55			●●●●	●●●	Tempered	610 (48 HRC)	30	200	Container liner (46-48 HRC)	
														620 (46 HRC)				
DAC3	Bal.	0.4	0.3	0.3	5		1.6	0.7			●●●●	●●●	Tempered	600 (48 HRC)	30	200	Container liner (46-48 HRC)	
														620 (46 HRC)				
Super Alloys	IN718	~20			19	52	3		5		●●●	●●●●	Aged	720 (44 HRC)	13	1500	Copper Extrusion liner (40-44 HRC)	
	A286	~50			15	25	1.3			2.3	●●	●●●●●●	Aged	720 (34 HRC)	15	750	Copper Extrusion liner	
Stainless Steel	M303	Bal.	0.27	0.3	0.65	14.5	0.9	1			●●	●●●●●●●●	Tempered	540 (40 HRC)	23	300	Plunger holder	
														570 (35 HRC)				
Copper Alloy	A-25	1.5 Be, 0.15 Co, 0.15 Ni										●●	●●●	Aged	320 (280 HB)	120	2400	Plunger Tip
	A-45	2.5 Ni, 0.65 Si										●	●●●●	Aged	480 (190 HB)	220	1300	Plunger Tip body
	A-52	0.55 Be, 1 Co, 1 Ni										●	●●●●	Aged	480 (260 HB)	240	1800	Plunger Tip



BETTER CASTINGS AND PROFILES FASTER

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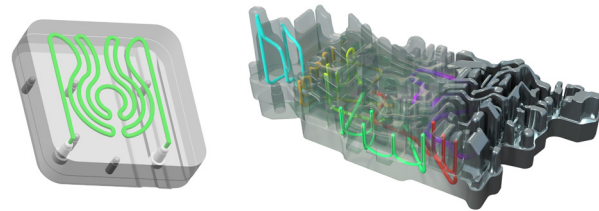
05/2024

ADDITIVE MANUFACTURING

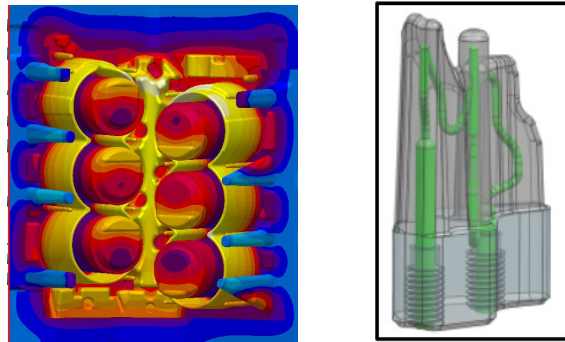
Additive manufacturing can thermally improve the die casting condition, resulting in reduced cycle times and extended tooling life. This is accomplished by conformal cooling channels which were impossible with conventional manufacturing processes.

We can accommodate up to 100kg or 400mm x 400mm x 400mm parts. A proprietary heat treatment systems is also in-house to guarantee consistency and short lead times.

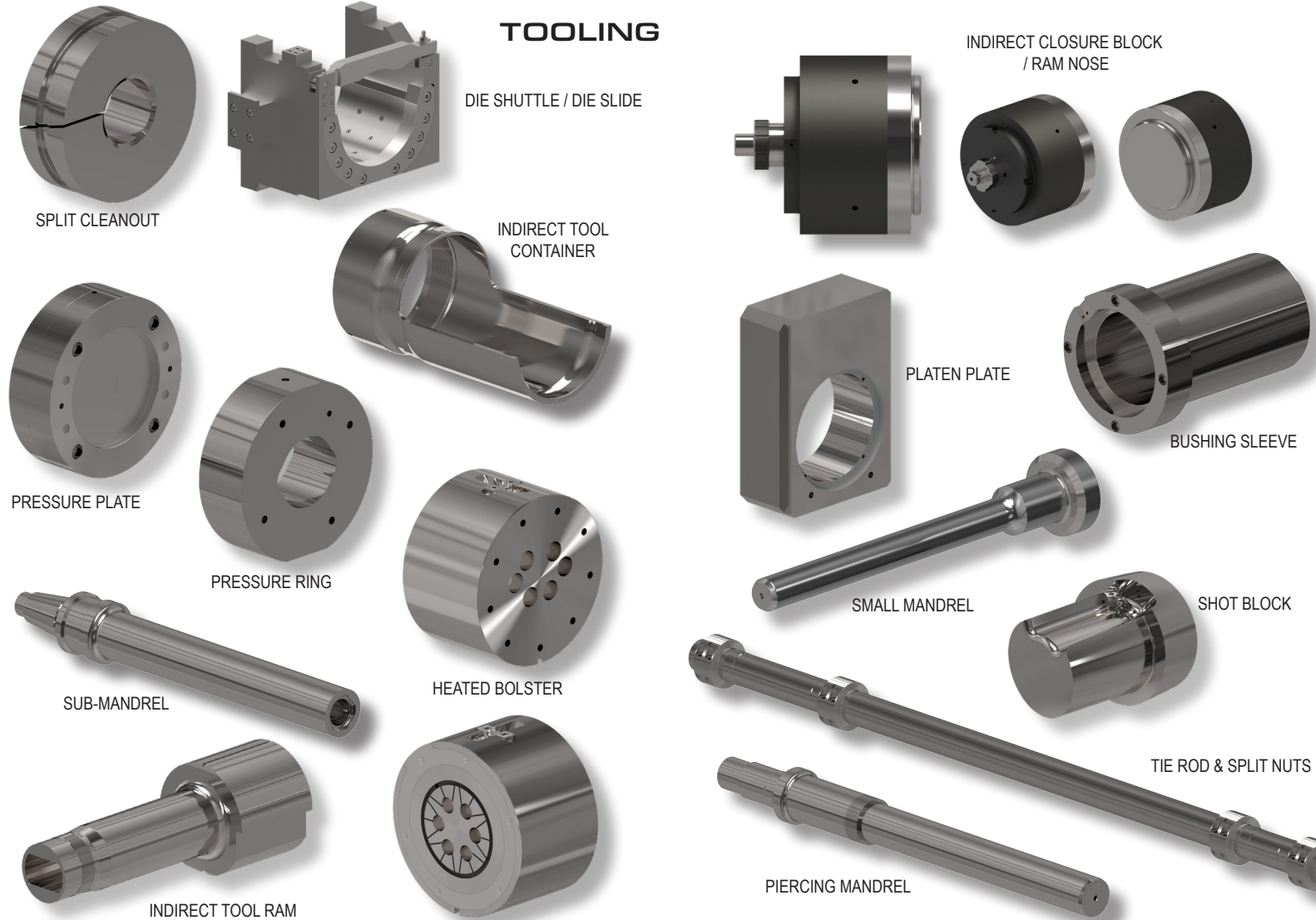
Each additive manufactured part undergoes Thermal Simulation.



CONFORMAL COOLING SOLUTIONS



TOOLING

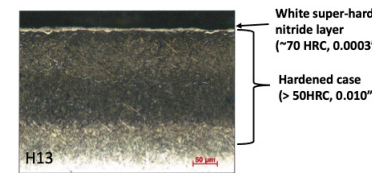
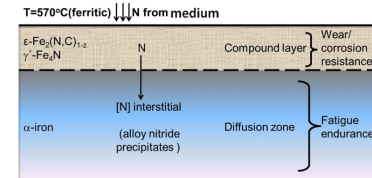


HEAT TREATMENT & NITRATION

Heat treatment, nitration and other post processes are also very important. Castool has evolved the recipes over the last 50 years to provide long life, balancing wear and ductility. These recipes are the same in Canada, Thailand, Morocco and Mexico.

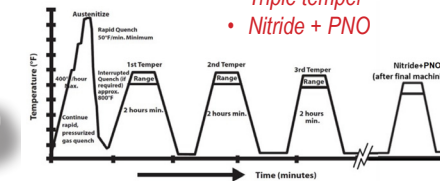
We vacuum harden and quench all hot work tool steel to give the best possible microstructure. The chemistry and microstructure are examined and filed by our in-house metallurgist.

Many of our products also receive post heat treatment process, such as nitration and PNO, which add to wear resistance and extend time to failure.



Nitriding

- Vacuum austenizing
- High pressure quench
- Triple temper
- Nitride + PNO



Nitriding System



Vacuum Furnace



NITREX

Design, Simulation, Material Analysis & Characterization, Thermal Control, Control Systems, Multi-Axis Milling and Turning, Large Turning and Milling, Deep Hole Drilling, Honing and Grinding, Wire EDM

Castool's expertise in material, manufacturing and temperature management enables us to design and manufacture specialty tooling for many applications.

CASTOOL MAKES DIE CAST & EXTRUSION BETTER