

BETTER



FASTER



LABORATORY SERVICE
INCLUDING

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.

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				
Low Alloy Steel	Con-Duct	Bal.	0.4	0.25	0.7	0.8	1.9	0.3				●	●●●●●●	Tempered	540 (38 HRC)	42	75	Container body/subliner(34-38 HRC)
														600 (34 HRC)				
Hot Work Tool Steel	L6 (1.2714)	Bal.	0.55	0.3	0.9	1.1	1.7	0.5	0.1			●●○	●●●	Tempered	530 (42 HRC)	35	75	Container body (38-42 HRC)
		570 (38 HRC)																
	H-11 (1.2343)	Bal.	0.4	1	0.4	5		1.3	0.4			●●	●●○	Tempered	630 (42 HRC)	26	100	Container body (38-42 HRC)
		650 (38 HRC)																
	H-13 (1.2344)	Bal.	0.4	1	0.4	5		1.4	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)																
	1.2367	Bal.	0.37	0.3	0.4	5		3	0.6			●●●	●●	Tempered	630 (48 HRC)	30	200	Shot Steeve Insert (46-48 HRC)
640 (46 HRC)															Bore Welding			
Tuff Temper	Bal.	0.36	0.3	0.3	5		4	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

- ✓ Microstructure
- ✓ Chemical Composition
- ✓ Material Characterization



CAPACITIES/ CAPABILITIES

- Lifting 40 Ton
- Design Solidworks
- Simulation Thermal, Mechanical, Flow
- Saw Cutting 32" x 32" (812 mm x 812 mm)
- CNC Turning 30"dia x 15' (762mm dia x 4572mm)
- Drilling 20"dia x 70" (508mm dia x 1778mm)
- Vertical Turning 74" dia x 88" (1880mm dia x 2235mm) 40 Ton
- Horizontal Milling 80" x 80" x 100" (2032 x 2032 x 2540mm) 40 Ton
- Gun Drilling 2"dia x 70" (50.8mm dia x 1778mm)
- Honing 20"dia x 100" (508mm dia x 2540mm)
- Wire EDM 24" x 30" x 14" (609mm x 672mm x 355mm)
- Heat Treatment 60"dia x 95" 20,000 lbs (1524mm dia x 2413mm 9,000kgs)
- Nitration 61" dia x 98.5" 13,200 lbs (1550mm dia x 2500mm 6,000kgs)



CASTOOL
TOOLING SYSTEMS™



PROTERIAL



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www.castool.com

CASTOOL METALLURGICAL LABORATORY (CML)

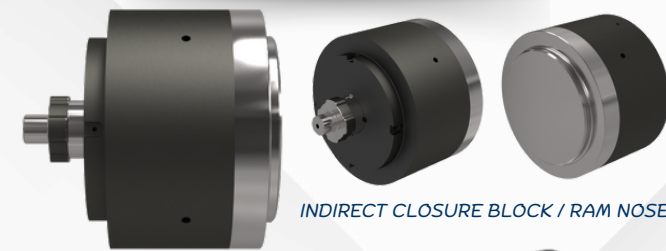
Equipped with high-resolution microscopy, microhardness testing systems, and automated sample preparation tools, the lab supports everything from surface treatment validation to failure analysis.

Whether evaluating the depth of a nitrided layer, verifying alloy grades, or inspecting wear patterns, our team delivers consistent, accurate, and fast results.

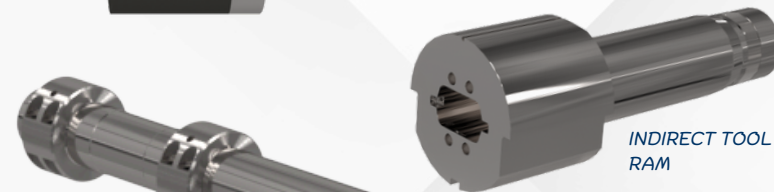
By keeping these capabilities fully in-house, Castool provides total process control, faster turnaround times, and the confidence that every tool is built to last and perform under pressure.



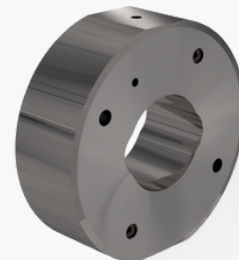
EXTRUSION



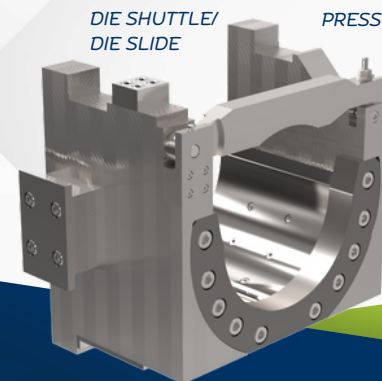
INDIRECT CLOSURE BLOCK / RAM NOSE



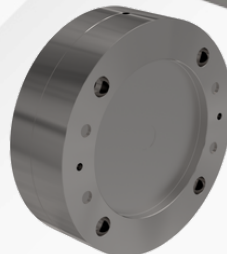
INDIRECT TOOL
RAM



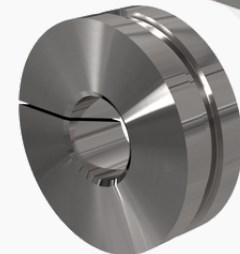
PRESSURE RING



DIE SHUTTLE/
DIE SLIDE



PRESSURE PLATE



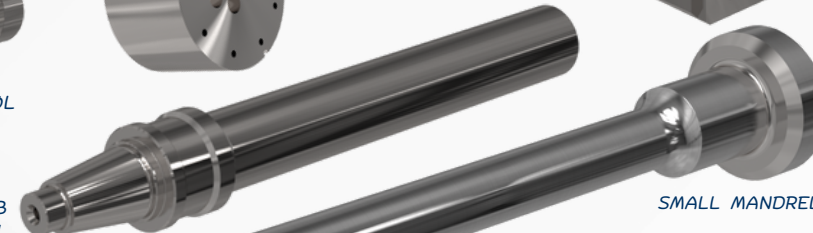
SPLIT CLEANOUT



PIERCING
MANDREL



HEATED BOLSTER

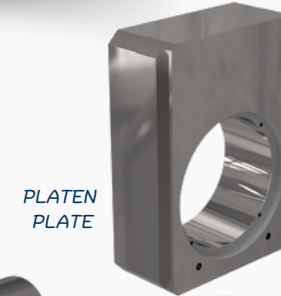


SUB
MANDREL



SHOT
BLOCK

DIE CASTING



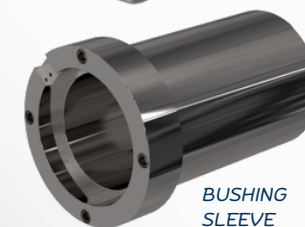
PLATEN
PLATE



INDIRECT TOOL
CONTAINER



TIE ROD &
SPLIT NUTS



BUSHING
SLEEVE

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.

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

