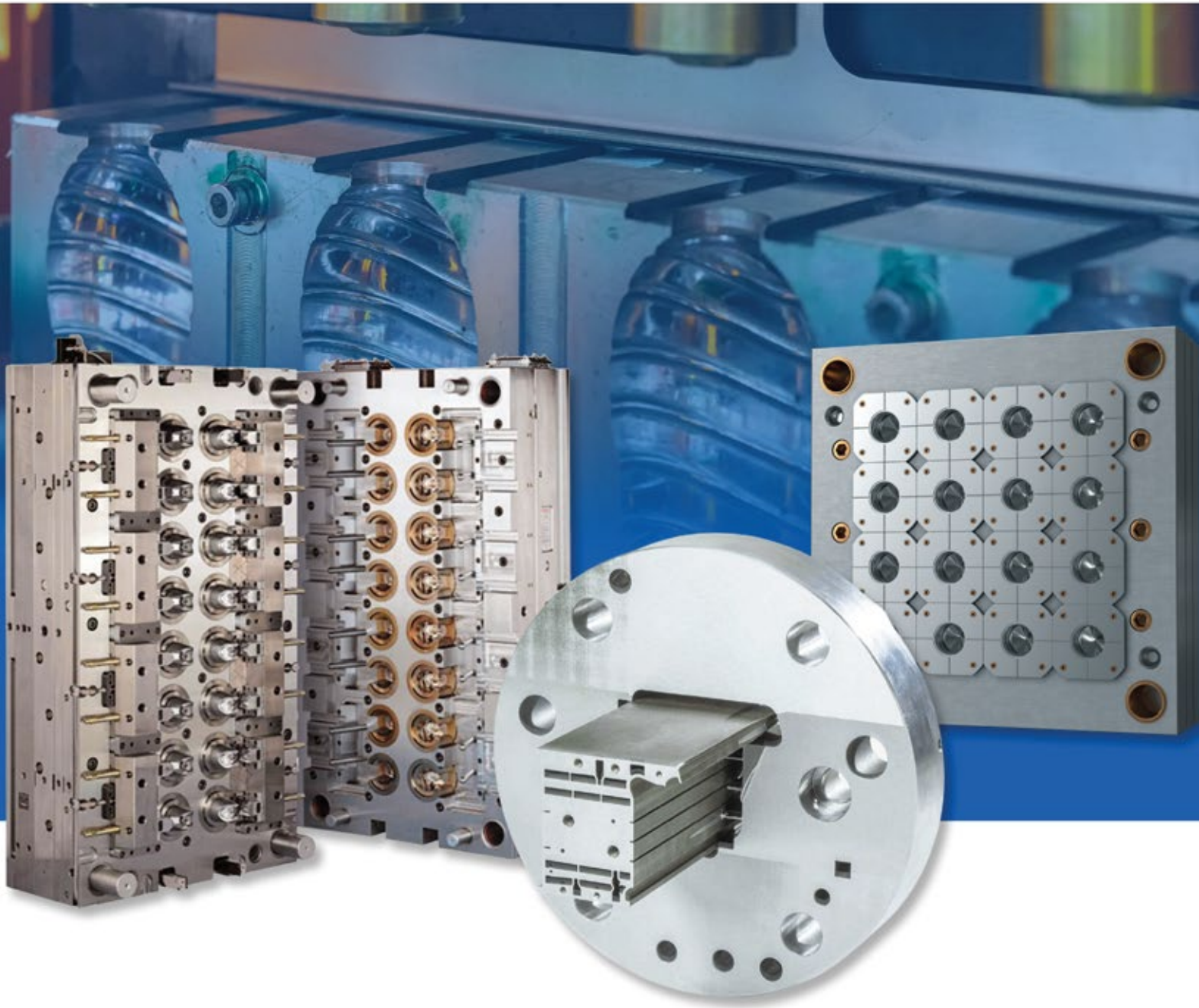




PRODUCTS AND SERVICES FOR PLASTICS TOOLING

MATERIALS | MOLD BASES | PVD COATINGS | ADDITIVE

OUR PRODUCTS

RoyAlloy[®]
STAINLESS

MOLDMAX[®]
MOLD ALLOYS



PLASTIC MOLD STEELS

Our plastic mold steels have been designed, developed and refined specifically to provide the optimum solution for the most demanding applications in today's expanding plastics tooling market.

- + Injection Molding
- + Blow molding
- + PVC Extrusion
- + Rubber and LSR molding

ALUMINUM PLATE PRODUCTS

Our aluminum product line has been carefully selected to service a wide range of manufacturing requirements. We offer grades that can service the following applications:

- + Injection and Blow Molds
- + Prototype Molds
- + Thermoforming
- + Structural Foam Molds



COPPER ALLOYS

We offer copper alloy based materials from our partner, Materion, for a unique combination of thermal conductivity and strength that provides significant advantages for the molding process.

ADDITIVE MANUFACTURING POWDERS

Through its relationship with voestalpine, EDRO-Sturdell provides customers with access to the AMPO™ metal powder portfolio and the specialized teams that support additive manufacturing applications across a wide range of industries.



COMPARISON CHARTS

	AISI/DIN Equivalent	Delivered Condition (Approx.)	Achievable Hardness HRC	Thermal Conductivity W/m*K	Corrosion Resistance	Wear Resistance	Toughness	Polishability
STAINLESS STEELS								
420 ESR	420SS ESR 1.2083	HB225	48-52	19.5	★★★★☆	★★★★☆	★★★★☆	★★★★☆
17-4 Stainless Steel	17-4	HB220	40-44	23.1	★★★★★	★★★★☆	★★★★☆	★★★★☆
PM Plus	Modified PM-420 Mod	Annealed	56-60	20.5	★★★★★	★★★★★	★★★★☆	★★★★☆
	AISI/DIN Equivalent	Delivered Condition (Approx.)	Achievable Hardness HRC	Thermal Conductivity W/m*K	Corrosion Resistance	Wear Resistance	Toughness	Polishability
PREHARDENED STAINLESS STEELS								
RoyAlloy®	Modified 400 Series 1.2095	HRC 29-34	29-34	21.7	★★★★☆	★★★★☆	★★★★☆	★★★★☆
UltraChem®	Modified 15-5PH	HRC 38-42	38-42	16.1	★★★★★	★★★★☆	★★★★☆	★★★★☆
	AISI/DIN Equivalent	Delivered Condition (Approx.)	Achievable Hardness HRC	Thermal Conductivity W/m*K	Corrosion Resistance	Wear Resistance	Toughness	Polishability
NON STAINLESS STEELS								
H13 ESR	H13 ESR 1.2344	HB205	46-51	27.8	N/A	★★★★☆	★★★★☆	★★★★☆
10V	PM-A11	HB280	63-65	20.4	N/A	★★★★★	★★★★☆	★★★★☆
S7 MQ	AISI S7	Annealed HB 260	55-60		N/A	★★★★☆	★★★★☆	★★★★☆
	AISI/DIN Equivalent	Delivered Condition (Approx.)	Achievable Hardness HRC	Thermal Conductivity W/m*K	Corrosion Resistance	Wear Resistance	Toughness	Polishability
PREHARDENED NON STAINLESS STEELS								
BÖHLER M261	Special (PH)	HRC 38-42	38-42	29.0	N/A	★★★★☆	★★★★☆	★★★★☆
P1-FM™	Modified 4130	HRC 28-32	28-32	33	N/A	★★★★☆	★★★★☆	★★★★☆
P20 MQ	P20 1.2738	HRC 30	30	29	N/A	★★★★☆	★★★★☆	★★★★☆

Machinability	Typical Applications for Injection Molds								Chemical Composition in % (Typical)					
	MoldBase Plate	Cavity /Core	Gate Insert	Stripper	Sleeve	Core Pin	Slide Body	Slide Face	C	Cr	Mo	Ni	V	Others
★★★★☆	X	X	X	X		X		X	0.38	14.30	-	-	0.20	-
★★★★☆		X	X	X		X		X	-	-	-	-	-	-
★★★★☆		X	X	X		X		X	-	-	-	-	-	-

Machinability	Typical Applications for Injection Molds								Chemical Composition in % (Typical)					
	MoldBase Plate	Cavity /Core	Gate Insert	Stripper	Sleeve	Core Pin	Slide Body	Slide Face	C	Cr	Mo	Ni	V	Others
★★★★★	X	X							0.05	12.30	-	0.25	-	Cu=0.54 S=0.1
★★★★☆	X	X		X	X				0.04	14.75	-	4.5	-	-

Machinability	Typical Applications for Injection Molds								Chemical Composition in % (Typical)					
	MoldBase Plate	Cavity /Core	Gate Insert	Stripper	Sleeve	Core Pin	Slide Body	Slide Face	C	Cr	Mo	Ni	V	Others
★★★★☆		X	X	X	X	X	X	X	0.39	5.20	1.40	-	0.95	Si=1.10
★★★★☆		X		X	X	X			2.45	5.20	1.30	-	V 9.7	-
★★★★☆		X				X	X	X	0.50	3.20	1.40	0.10		Si = 0.30

Machinability	Typical Applications for Injection Molds								Chemical Composition in % (Typical)					
	MoldBase Plate	Cavity /Core	Gate Insert	Stripper	Sleeve	Core Pin	Slide Body	Slide Face	C	Cr	Mo	Ni	V	Others
★★★★☆	X	X					X		0.13	0.35	-	3.50	-	Mn=2.00 S=.15 Cu=1.20 Al=1.20
★★★★★	X			X					0.28	2.00				S=0.03
★★★★☆	X	X		X					0.38	2.00		1.10		

	Delivered Condition (Approx.)	Corrosion Resistance	Wear Resistance	Toughness	Polishability	Machinability	Thermal Conductivity W/m*K
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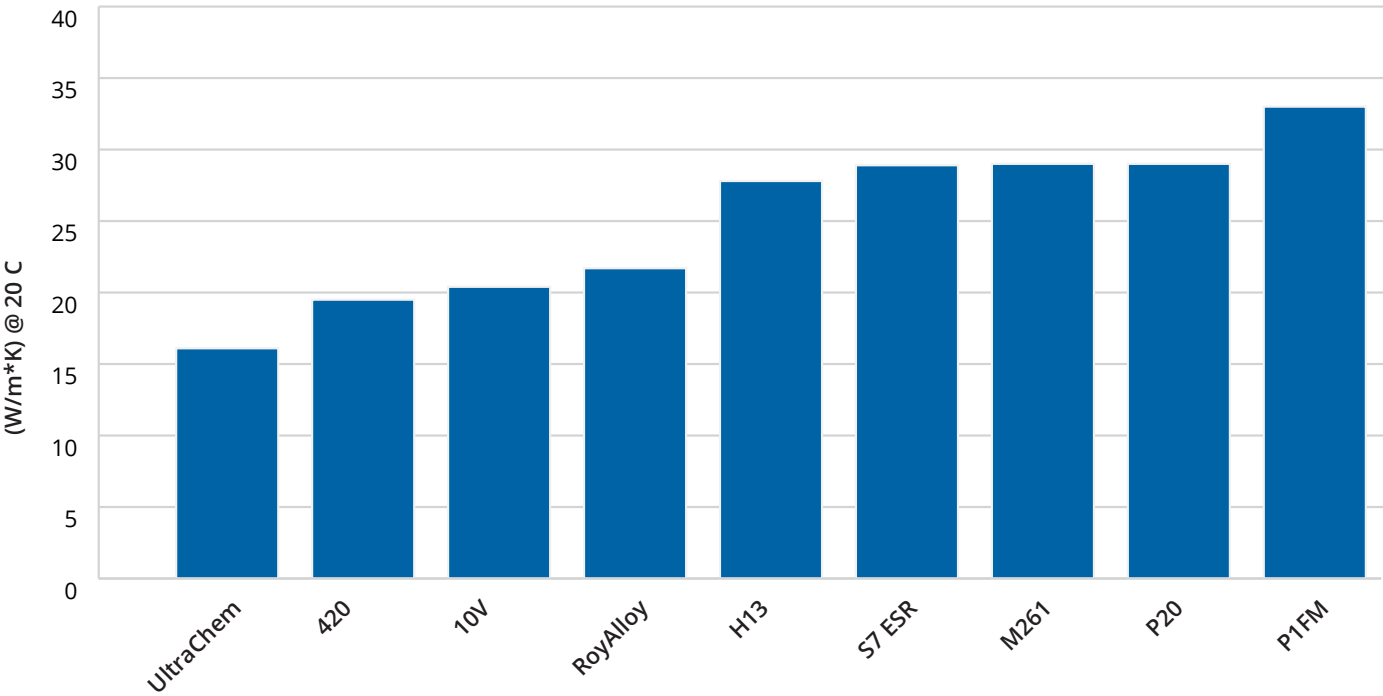
COPPER ALLOYS

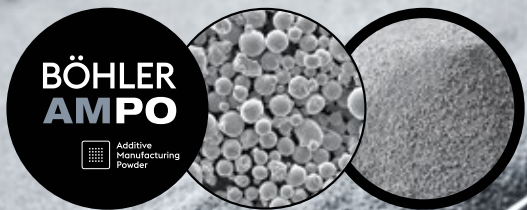
MOLDMAX HH®	HRC 40	★★★★☆	★★★★☆	★★★☆☆	★★★★☆	★★★★☆	130.0
MOLDMAX LH®	HRC 30	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆	155.6
PROTHERM®	HRC 20	★★★★☆	★★★☆☆	★★★★★	★★★★☆	★★★★☆	250.8
MOLDMAX XL®	HRC 30	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★★	69.2
MOLDMAX V®	HRC 28	★★★★☆	★★★★☆	★★★☆☆	★★★★☆	★★★★☆	159.1

ALUMINUM PLATE

6061-T651	HB 95	★★★★☆	★★★☆☆	★★★★☆	★★★★☆	★★★★☆	152
7075-T651	HB 150	★★★★★	★★★★☆	★★★★☆	★★★★☆	★★★★☆	130
QC-10	HB 160	★★★★☆	★★★★☆	★★★★☆	★★★★☆	★★★★☆	159

THERMAL CONDUCTIVITY - SPECIALTY STEELS





ADDITIVE MANUFACTURING POWDERS

BÖHLER M789 AMPO

Patent pending

Chemical Composition [average %]

Element	C	Cr	Ni	Mo	Al	Ti	Co-free
Mass - %	< 0.02	12.20	10.00	1.00	0.60	1.00	

BÖHLER W360 AMPO

Patent pending

Chemical Composition [average %]

Element	C	Si	Mn	Cr	Mo	V	Co-free
Mass - %	0.50	0.20	0.25	4.50	3.00	0.55	

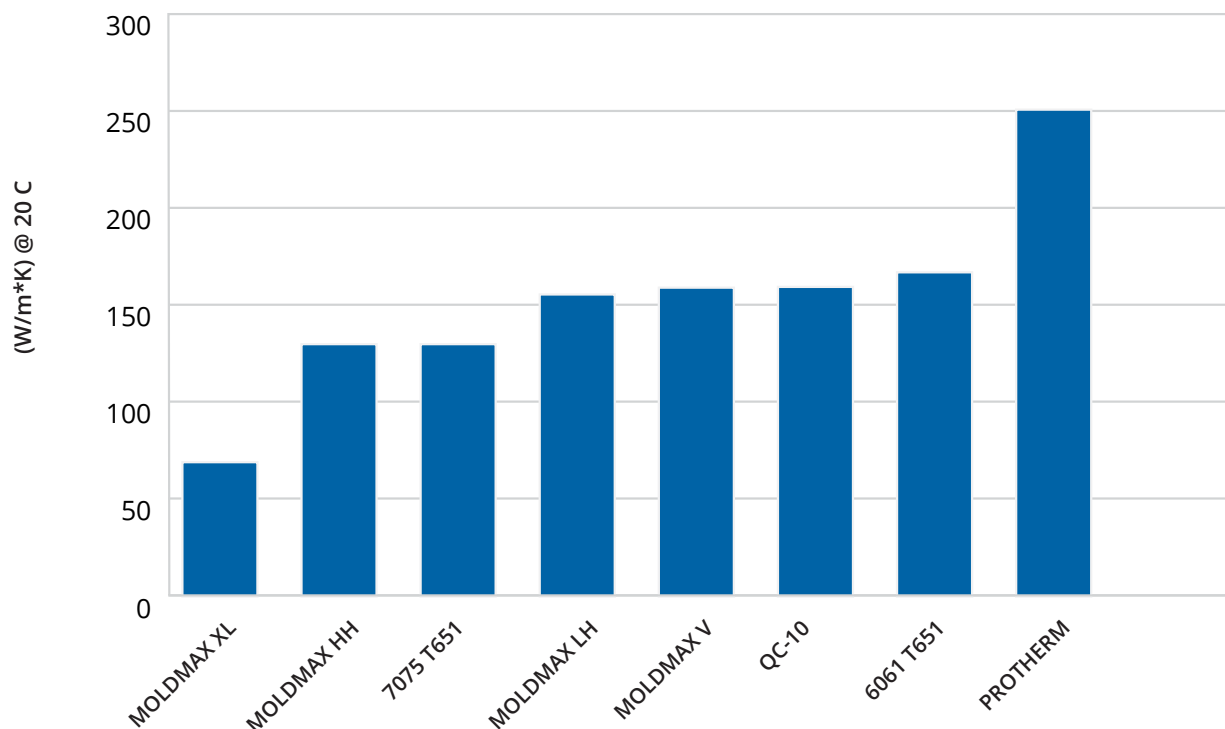
BÖHLER W722 AMPO

Chemical
Composition
[wt. %]

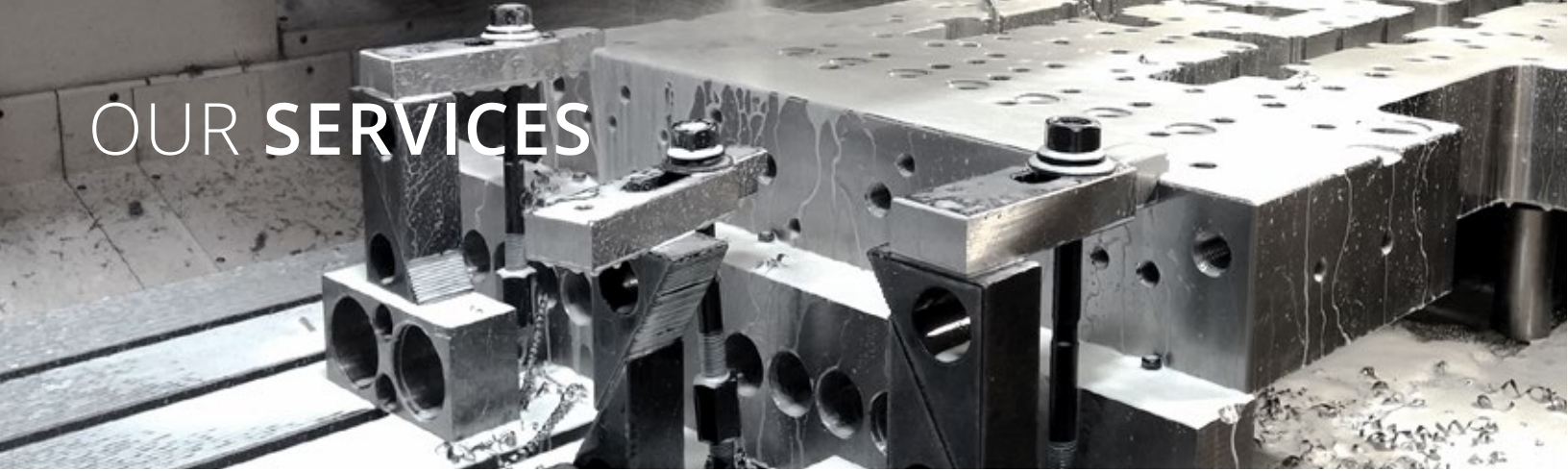
DIN 1.2709 / MS1 / ~ Marage 300

Element	C	Si	Mn	P	S	Cr	Mo	Ni	Ti	Co
min	-	-	-	-	-	-	4.5	17	0.8	8.5
max	0.03	0.1	0.15	0.01	0.01	0.25	5.2	19	1.2	10.0

THERMAL CONDUCTIVITY- COPPER ALLOYS AND ALUMINUM



OUR SERVICES



CUSTOM MOLD BASES / PRECISION MACHINING

EDRO-Sturdell specializes in the manufacture of high-cavitation custom mold bases, delivering complex solutions for demanding injection molding applications. Leveraging state-of-the-art technology, advanced equipment, and a highly skilled team of machinists and technicians, EDRO-Sturdell produces precision mold bases with exceptional accuracy, consistency, and repeatability.

Capabilities include:

- + High-cavitation custom mold bases
- + Stripper plate, stack, and rotational stack mold bases
- + Auto-unwind and hot-runner mold base designs
- + Precision manufacturing to tight tolerances
- + Advanced machining technology and equipment
- + Consistent first-time quality and repeatable performance
- + Experienced team of skilled machinists and technical experts



ADDITIVE MANUFACTURING

EDRO-Sturdell can assist in directing you to voestalpine Additive Manufacturing in the US.

- + AMPO® Metal Powders from BÖHLER
- + Design/Engineering/Simulation
- + Serial and prototype part Manufacturing
- + Heat treatment, coatings and machining



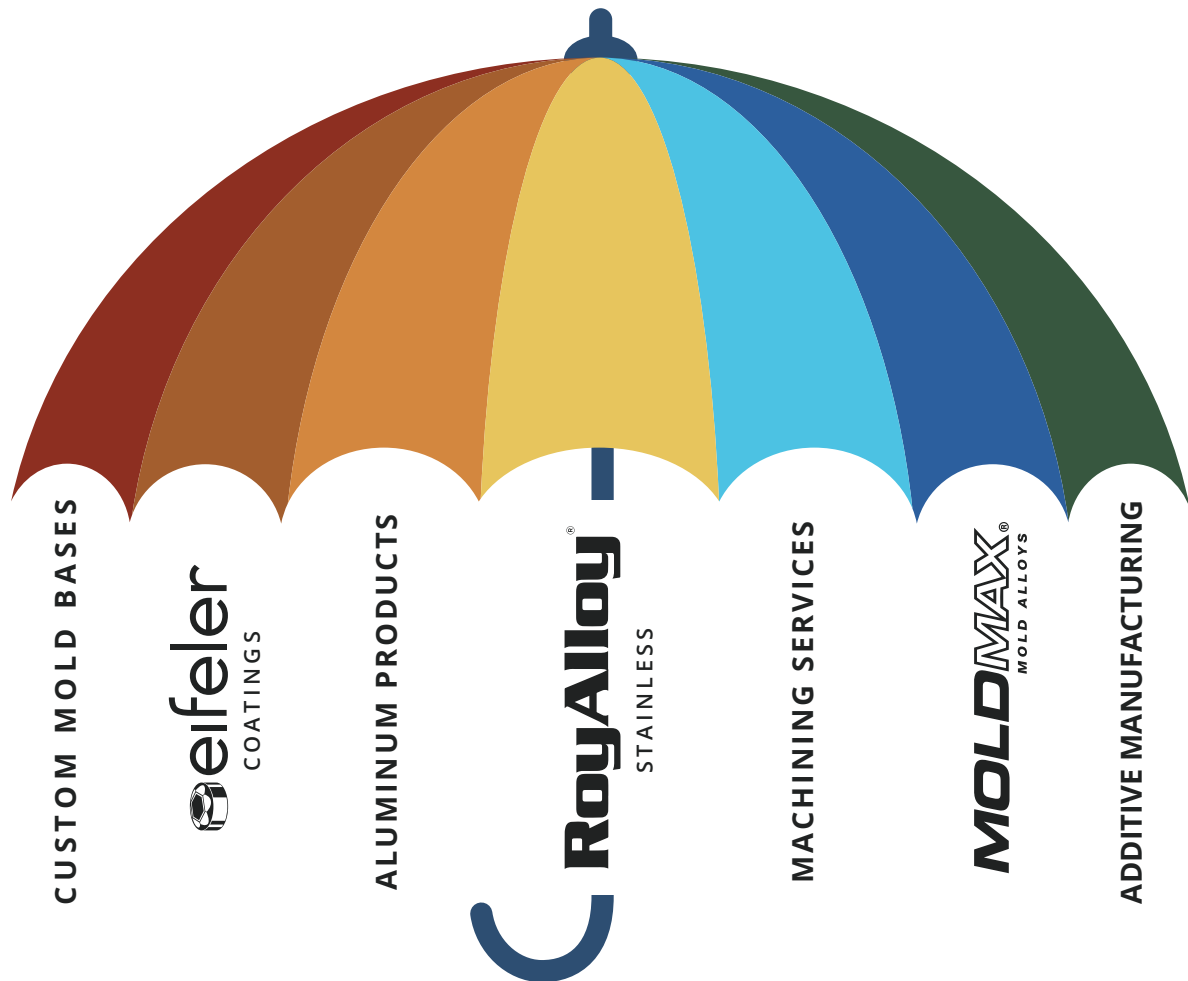
PVD/DLC COATINGS

EDRO-Sturdell customers have access to the latest PVD, DLC, and Duplex Treatment technologies through our partnership with voestalpine eifeler Coatings, a global leader in surface engineering and Physical Vapor Deposition (PVD).

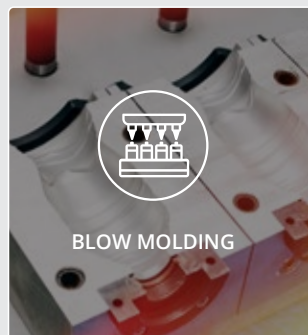
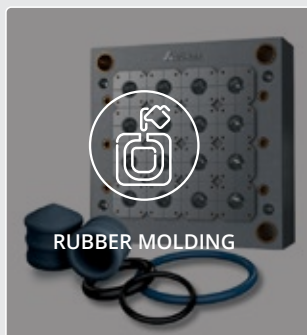
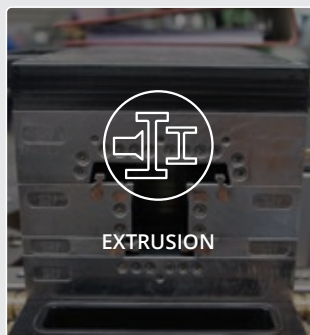
- + High quality thin film coatings
- + Enhance performance, durability, and appearance
- + State-of-the-art ultrasonic cleaning line
- + In house media blasting and polishing

WE HAVE YOU COVERED

EDRO-Sturdell's umbrella of innovative solutions covers all your needs for plastics tooling



MARKETS WE SERVE



EDRO™ | **STURDELL™**

SALES@EDRO.COM

ELLWOOD CITY, PA | ELGIN, IL | WALNUT, CA

WWW.EDRO.COM