

DME NO.3

P20 Modified Steel



DME Steel No.3 was formulated for DME in the early 1960's and has become the industry standard P20 Steel. Trust DME to give you the quality level you need for a vast array of molding and mold-based applications. Available in rotary ground (RGM) or finished ground (FG); this pre-heat treated and tempered mold steel comes off-the-shelf to you when you need it.

DME - ready to support your steel needs today!

STEEL CHARACTERISTICS

GENERAL

C 0.310 | Si 0.400 | Mn 0.400 | Cr 0.400 | Mo 0.400 | S 0.400

PHYSICAL PROPERTIES (AT 68°F)

Temperature	68°F (20°C)	390°F (200°C)	750°F (400°C)
Density - lbs/cu.in. - fg/m ³	0.282 7,800	0.280 7,750	0.277 7,700
Coefficient of Thermal Expansion - per °F from 68° - per °C from 20°	— —	7.0 x 10 ⁶ 12.7 x 10 ⁶	7.5 x 10 ⁶ 13.6 x 10 ⁶
Thermal Conductivity - BTU in/ft ² hr °F - J/m s °C	202 29.0	205 29.5	216 31.0
Modulus of Elasticity - psi - N/mm ²	29.7 x 10 ⁶ 205 000	29.0 x 10 ⁶ 200 000	26.8 x 10 ⁶ 185 000
Specific Heat - Btu/lbF - J/kg °C	0.110 460	— —	— —

MECHANICAL PROPERTIES - DME #3

Samples: round bar 1" (25mm) diameter. Hardness: 310HB

Tensile Strength - Approximate values

Testing temperature	68°F (20°C)	390°F (200°C)	750°F (400°C)
Tensile strength psi N/mm ²	146,000 1010	138,000 950	115,000 790
Yield strength psi N/mm ²	116,000 800	109,000 750	91,000 630
Reduction of area	60%	63%	65%
Elongation in 2"	20%	22%	25%

Impact Strength - Approximate values

Joules	50	55	65
Ft-lbs.	37	41	48

Applications

DME No.3 Steel is a P-20 (modified) type cavity steel, pre-heat treated to 28-35 HRC (277-332 Bhn). It provides high hardness, exceptional machinability and polishability for both molds and die cast dies. Available in both RGM and Finish Ground. Exceptionally clean and uniform it is comparable to DIN 1.2311 (G40CrMnMo7). Various application for this versatile steel formulation include but are not limited to:

- Injection Molds
- Compression Molds
- Die Casting Dies
- Structural Or Engineered Applications
- Other applications such as supports, backers, bolsters, die holders, rails, shafts, wear strips and more.
- Extrusion Molds
- Blow Molds

TOLERANCES

All dimensions are in inches.

	RGM	FG
Length and Width	-0.000 / +0.005	-0.000 / +0.005
Thickness 88 - 1518 - all other standard sizes	+0.015 / +0.020 +0.023 / +0.031	-0.001 / +0.001 —
Flatness	0.002 / ft	0.0007 / ft
Parallelism	0.003	0.0005
Chamfer	0.095 x 45°TYP / 0.125 x 45°*	0.060 x 45°TYP / 0.100 x 45°*

See Page 2 for Machining Characteristics.

PLATES FOR THE ENTIRE MARKET

DME Steel is readily available for **all markets** – more than just mold industry applications. Our steels machinability, uniformity, and consistency make it ideal for a wide variety of uses. Our exclusive supply from the best steel mills allow DME to maintain readily accessible quality stock. This availability means DME can deliver product to you quicker and easier.

All DME steel is available in standard and custom widths, lengths and thicknesses, in RGM or Finish Ground.



DME NO. 3 STEEL

Machining Specifications

MILLING

Carbide tool and high speed tools	Rough Milling	Finish Milling
Depth of cut (t) in	min. 0.08	max 0.08
mm	min 2.0	max 2.0
Carbide Tools		
ISO machining group	P30 - P40	P10 - P20
Cutting speed (v) f.p.m.	180 - 280	230 - 330
mm/min.	55 - 85	75 - 95
High Speed Steel Tools		
Cutting speed (v) f.p.m	30 - 70	50 - 100
m/min.	10 - 20	15 - 30

DRILLING

Diameter	Depth of Hole			
	2xD	6xD	8xD	10xD
in/mm	rpm/feed (rev. mm/in)			
0.157/4	1430/ .003 .080	1435/ .003 .060	1090/ .002 .050	990/ .002 .040
0.315/8	900/ .006 .140	750/ .004 .110	680/ .003 .080	620/ .003 .070
0.630/16	475/ .010 .250	395/ .019 .080	365/ .006 .150	330/ .005 .120
0.984/25	310/ .012 .290	260/ .009 .220	235/ .007 .170	215/ .006 .150

Plate Services Available

- Saw Cut
- RGM - Rotary Ground
- FG - Finish Ground
- Lift Holes
- Pry Bar Slots
- Gun Drilling
- Drilling & Tapping
- Milling/Boring
- Rough or Finish Machined
- Radius Edges
- And More

Key Benefits

- Highly Polishable
- Additional heat treat not required
- No heat treating risks or lost time
- Machinability - lower tooling costs & consistent tool cutting
- Plates can be surface treated
- Chamfered edges standard

Contact Milacron - DME

For more information or delivery options contact at:
800-626-6653 (U.S.) • **800-387-6600** (Canada) • **248-398-6000** (Worldwide).
www.dme.net
<https://store.milacron.com>

Keyword search: **STEEL PLATE**



DME No. 3 PLATE SIZES & AVAILABILITY											
Plate Size			Plate Thickness								
Measurement in inches.			7/8	1 1/8	1 1/2	2 1/8	2 1/2	3 1/8	3 1/2	4 1/8	5 1/8
DME #	W	L	7	13	17	23	27	33	37	47	57
88	7.875	7.875	◆	◆	◆	◆	◆				
812	7.875	11.875	◆	◆	◆	◆	◆	◆			
108	9.875	8	◆	◆	◆	◆	◆				
1012	9.875	11.875	◆	◆	◆	◆	◆	◆			
1016	9.875	16			◆	◆	◆				
1020	9.875	20									
1112	10.875	12			◆	◆					
1114	10.875	14	◆	◆	◆	◆	◆	◆			
1118	10.875	18									
1123	10.875	23.5									
1212	11.875	12	◆	◆	◆	◆					
1215	11.875	15			◆	◆	◆	◆	◆		
1220	11.875	20									
1223	11.875	23.5									
1315	13.375	15		◆	◆	◆					
1318	13.375	18		◆	◆	◆	◆				
1321	13.375	20.75									
1323	13.375	23.5									
1326	13.375	26									
1329	13.375	29.5									
1518	14.875	17.875	◆								
1524	14.875	23.75									
1529	14.875	29.5									
1616	15.875	16	◆								
1620	15.875	20				◆	◆				
1623	15.875	23.5									
1626	15.875	26									
1629	15.875	29.5									
1635	15.875	35.5									
1724	16.5	23.5									
1729	16.5	29.5									
1818	17.875	18	◆	◆	◆	◆					
1820	17.875	20	◆	◆	◆	◆					
1823	17.875	23.5	◆	◆	◆	◆					
1826	17.875	26	◆	◆	◆						
1829	17.875	29.5	◆								
1835	17.875	35.5	◆								
1924	19.5	23.75	◆	◆			◆				
1929	19.5	29.5	◆								
1935	19.5	35.5	◆								
2424	23.75	23.75	◆	◆							
2429	23.75	29.5	◆	◆	◆						
2435	23.75	35.5	◆	◆	◆						

Over 387 standard plate sizes.

- ◆ Standard RGM or Finished Ground Plate (shown above) available off-the-shelf.
- Standard RGM or Finished Ground Plate (shown above) available for quick delivery.

Custom sizes available upon request. Call DME for more information.