

EDRO #2™ Prehardened 4130 Holder Block

General

Approximate analysis %	C	Si	Mn	S	Cr	Mo
	0.30	0.28	1.1	0.4	1.0	0.2
Standard specification	AISI 4130-35 improved					
Delivery condition	Hardened and tempered to 293-332 HB					
Color code	Blue					

Properties

Impact strength

Approx. values. Samples taken from a round bar 1" (25 mm) diameter. Hardness: 310 HB.

Testing temperature	68°F (20°C)	390°F (200°C)	750°F (400°C)
Joules	50	55	65
Ft. lbs.	37	41	53

Tensile strength

Approx. values. Samples taken from a round bar 1" (25 mm) diameter. Hardness: 310 HB.

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
Reduct. in area	50%	52%	54%
Elongation in 2"	18%	20%	23%

EDRO #2™ is a vacuum-degassed Chromium-Molybdenum-alloyed steel which is supplied in the hardened and tempered condition. EDRO #2™ is characterized by:

- Excellent machinability
- Good resistance to indentation
- Uniform hardness in all dimensions

Applications

- Holders/bolsters for plastic molds and die-casting dies
- Plastics and rubber molds with low requirements on polishability
- Support plates
- Constructional parts

Machining

Milling

Carbide tools and high speed steel tools	Rough milling		Finish milling	
	Depth of cut (t) in mm	min. 0.08 min. 2	max. 0.08 max. 2	
Feed (s) in/tooth mm/tooth	min. 0.08 min. 2	max. 0.08 max. 2		
ISO machining group Cutting speed (v) f.p.m. m/min	Carbide tools			
		P30-P40		P10-P20
		230-330		295-380
Cutting speed (v) f.p.m. m/min	High speed steel tools			
		50-100		65-115
		15-30		20-35

Drilling

Diameter in./mm	Depth of Hole			
	0.16/4	0.16/4	0.16/4	0.16/4
	rpm/feed (rev./mm/in.)			
0.16/4	1720 / .08 .003	1435 / .08 .003	1310 / .05 .002	1190 / .04 .002
0.32/8	1080 / .14 .006	900 / .11 .004	820 / .08 .003	740 / .07 .003
0.64/16	570 / .25 .010	475 / .19 .008	435 / .15 .006	395 / .12 .005
1.0/25	370 / .29 .012	310 / .22 .009	285 / .17 .007	360 / .15 .006

Chip removal is recommended when depth of hole is $> 4 \times D$. Flush cooling is to be used.

Heat Treatment

EDRO #2™ is intended for use in the hardened and tempered condition, i.e. the delivery condition.

Flame and induction hardening

EDRO #2™ can be flame or induction hardened to a hardness of 50 RC. Cooling in air is preferable. Smaller pieces may, however, require forced cooling. Hardening should be immediately followed by tempering.

Nitriding

Gas Nitriding

Nitriding gives a hard surface which is a very resistant to wear and erosion. A nitrided surface also increases the corrosion resistance. The surface hardness after nitriding at a temperature of 980°F, 525°C in ammonia gas will be approx. 650 HV.

Nitriding temperature		Nitriding time hours	Depth of case approx.	
°F	°C		in.	mm
980	525	20	0.012	0.30
980	525	30	0.014	0.35
980	525	60	0.020	0.50

Tufftriding (Tenifer process)

Tufftriding at 570°C, 1025°F will give a surface hardness of approx. 700 HV. After 2 hours treatment, the hard layer will be approx. 0.0004 in., (0.01 mm).

Welding

The following procedure is recommended when welding EDRO #2™

1. Heat part to approx. 400-500°F, 200-260°C
2. Weld part
3. Stress relieve at 750-930°F, 400-500°C

Electrode: Chromium-Molybdenum alloyed basic electrodes for welding of structural steels.

Note: Use a well dried basic electrode. Welding may also be performed with an austenitic stainless steel electrode. In this case this stipulated increased working temperature may be modified, but the weld metal has a lower strength (hardness) than the parent material.