

Uddeholm
Impax[®]
Supreme

Uddeholm Impax® Supreme

Uddeholm Impax Supreme is a premium prehardened mould steel with very good polishing and texturing properties. Uddeholm Impax Supreme is available in a very wide dimensional range, where even the largest dimensions show a very uniform hardness profile all through the cross section.

The delivery hardness of ~310 HB, makes the steel suitable for a many different applications like:

- Moulds for plastic injection moulding
- Moulds for blow moulding
- Dies for plastic extrusion
- General constructional parts, like machine components requiring improved fatigue strength and reliability

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This information is based on our present state of knowledge and is intended to provide general notes on our products and their uses. It should not therefore be construed as a warranty of specific properties of the products described or a warranty for fitness for a particular purpose.

Classified according to EU Directive 1999/45/EC
For further information see our "Material Safety Data Sheets".

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END MILLING

Cutting data parameters	Milling cutter		
	Solid carbide	Carbide indexable insert	High speed steel
Cutting speed, (v_c) m/min f.p.m.	70–110 230–361	80–120 262–394	15–20 ¹⁾ 49–66 ¹⁾
Feed, (f_z) mm/tooth inch/tooth	0.03–0.20 ²⁾ 0.001–0.008 ²⁾	0.08–0.20 ²⁾ 0.003–0.008 ²⁾	0.05–0.35 ²⁾ 0.002–0.014 ²⁾
Carbide designation, ISO	–	P20–P40	–

¹⁾ For coated high speed steel end mill $v_c = 35–40$ m/min (115–131 f.p.m.)

²⁾ Depending on radial depth of cut and cutter diameter

GRINDING

A general grinding wheel recommendation is given below. More information can be found in the Uddeholm brochure “Grinding of Tool Steel”.

Type of grinding	Wheel recommendation
Face grinding straight wheel	A 46 HV
Face grinding segments	A 24 GV
Cylindrical grinding	A 60 KV
Internal grinding	A 46 JV
Profile grinding	A 100 KV

WELDING

Good results when welding tool steel can be achieved if proper precautions are taken during welding (elevated working temperature, joint preparation, choice of consumables and welding procedure). If the tool is to be polished or photo-etched, it is necessary to work with an electrode type of matching composition.

Welding method	TIG	MMA (SMAW)
Working temperature	200–250°C (390–480°F)	200–250°C (390–480°F)
Consumables	IMPAX TIG-WELD	IMPAX WELD
Hardness after welding	300–330 HB	300–330 HB

Further information is given in the Uddeholm brochures “Welding of Tool Steel” and “Uddeholm Impax Weld/TIG-Weld”.

ELECTRICAL-DISCHARGE MACHINING – EDM

If spark-erosion, EDM, is performed in the as delivered condition, the tool should then be given an additional temper at approx. 550°C (1020°F). If the steel has been rehardened, the additional tempering temperature should be 25°C (50°F) lower than the last tempering temperature used.

Further information can be obtained from the Uddeholm brochure “EDM of tool steel”.

HARD-CHROMIUM-PLATING

After hard-chromium-plating, the tool should be tempered for approx. 4 hours at 180°C (350°F) within 4 hours of plating in order to avoid hydrogen embrittlement.

PHOTO-ETCHING

Uddeholm Impax Supreme is particularly suitable for texturing by the photo-etching process. Its very low sulphur content ensures accurate and consistent pattern reproduction.

For heavy sections an extra tempering at 550°C (1020°F) before photo-etching is recommended.

POLISHING

Uddeholm Impax Supreme has good polishability in the hardened and tempered condition. After grinding, polishing is undertaken with aluminium oxide or diamond paste.

Note: Each steel grade has an optimum polishing time which largely depends on hardness and polishing technique. Over-polishing can lead to a poor surface finish (e.g. an “orange peel” effect).

Further information is given in the Uddeholm publication “Polishing of mould steel”.

FURTHER INFORMATION

Contact your local Uddeholm office for further information on the selection, heat treatment, application and availability of Uddeholm tool steels, including the publication “Steels for moulds”.

Uddeholm is the world's leading supplier of tooling materials. This is a position we have reached by improving our customers' everyday business. Long tradition combined with research and product development equips Uddeholm to solve any tooling problem that may arise. It is a challenging process, but the goal is clear – to be your number one partner and tool steel provider.

Our presence on every continent guarantees you the same high quality wherever you are. We act worldwide. For us it is all a matter of trust – win long-term partnerships as well as in developing new products.

For more information, please visit www.uddeholm.com