

► KBM / KBU: Drilling in HARDOX 400 and 450

Target segments

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| <input checked="" type="checkbox"/> Steel construction on-site | <input type="checkbox"/> Vessel-, container construction | <input type="checkbox"/> Foundries |
| <input checked="" type="checkbox"/> Steel construction industry | <input checked="" type="checkbox"/> Machinery | <input type="checkbox"/> Pipe processing |
| <input type="checkbox"/> Metal construction / building fitters | <input type="checkbox"/> Ship building | |

Application: Core drilling in HARDOX

HARDOX is an abrasion resistant plate, which is characterized by high hardness, high strength and excellent toughness. HARDOX finds its use wherever heavy wear must be countered:



Shovel



Spiral conveyor



Conveyor cage



Supporter skip

HARDOX steels are divided into different classes.

Type	Hardness [HBW]	Tensile strength [N/mm ²]	Type	Hardness [HBW]	Tensile strength [N/mm ²]
HARDOX 400	400	1250	HARDOX 550	570	1995
HARDOX 450	450	1400	HARDOX 600	620	2200
HARDOX 500	500	1550			

Solution: FEIN magnetic core drills KBM / KBU with electronic speed setting + FEIN HM ULTRA cutters

FEIN KBM / KBU models are equipped with an electronic speed setting to adjust the speed to the respective drilling task.

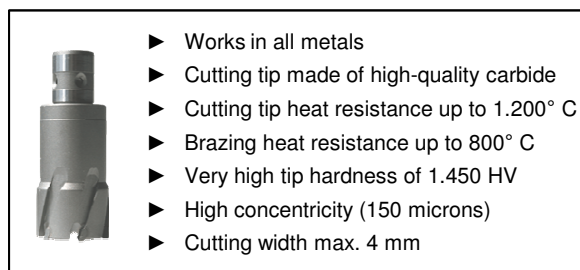
FEIN HM ULTRA cutters convince with a very high cutting tip hardness due to a high-quality carbide ceramic.

The processing of HARDOX with a FEIN KBM / KBU and a FEIN HM ULTRA cutter is only possible up to the HARDOX classes 400 and 450.

The service life of the cutter is here about 0.25 m*

Type	Weight	Drill-Ø max.	No. of gears	Speed range
KBU 35 Q	10,6 kg	35 mm	1	130–520
KBU 35-2 Q	11,0 kg	35 mm	2	130–520 / 800–1600
KBU 35 MQ	11,0 kg	35 mm	1	130–520
KBM 50 Q	13,2 kg	50 mm	2	130–260 / 260–520
KBM 50 U	13,9 kg	50 mm	2	130–260 / 260–520

Type	Weight	Drill-Ø max.	No. of gears	Speed range
KBM 65 U	16,1 kg	65 mm	2	120–240 / 260–520
KBM 80 U	25,4 kg	80 mm	3	110-180/160-260/350-580
KBM 50 auto	16,2 kg	50 mm	2	130–260 / 260–520
KBM 80 auto	26,4 kg	80 mm	3	110-180/160-260/350-580



Features of the FEIN HM ULTRA cutter

- Works in all metals
- Cutting tip made of high-quality carbide
- Cutting tip heat resistance up to 1.200° C
- Brazing heat resistance up to 800° C
- Very high tip hardness of 1.450 HV
- High concentricity (150 microns)
- Cutting width max. 4 mm

	HARDOX 400	HARDOX 450
Vc [m/min]	~ 20	~ 15
Ø 15 mm	430 1/min	320 1/min
Ø 20 mm	320 1/min	240 1/min
Ø 25 mm	250 1/min	190 1/min
Ø 30 mm	210 1/min	160 1/min
Ø 35 mm	180 1/min	140 1/min

Speed table for HARDOX 400 and 450



Core drilling in Hardox 400 with KBM 80 auto

Successfull core drilling in HARDOX 400 and 450

For a successfull core drilling in HARDOX 400 and 450 the following parameters must be noted:

- Always use brand new FEIN HM ULTRA carbide cutters
- Adjust the RPM to achieve the right cutting speed (see speed table HARDOX)
- Keep the distance between the cutter and the surface very tight (deepest stroke adjustment)
- Use much coolant lubricant. Open coolant tap maximally and cool ideally from the outside additionally
- Do not press too hard during drilling
- Drill in one move through the material. Don't stop or move backwards to break the chips. HARDOX reacts immediate on heat