MATERIAL GRADES
High speed steel (KV5)

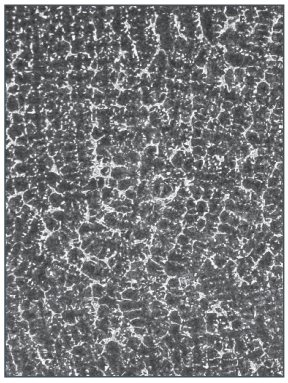
vítkovické slévárny

Material Barrel	Chemical composition [%]									Barrel Hardness
	C	Mn	Si	P max.	S max.	Cr	Ni	Mo	Others	[HSh"C"]
KV 5	1,5/2,1	0,4/1,3	0,3/1,3	0,08	0,02	4,0/8,0	0,3/2,0	2,0/8,0	V,W,Nb	78 - 83

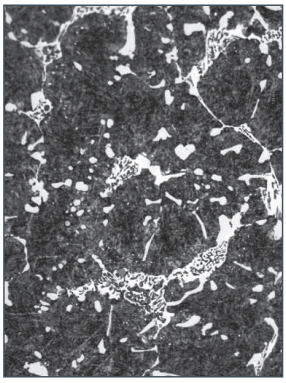
- **Dimensional and weight limits:**
  Ø 550-1050 mm / 6.000 mm // 22.000 kg

- **Barrel Structure**
  High Speed Steel created tempered martensite and trans-form. ledeburite

100x



500x



- **Heat Treatment**
  Quenching and annealing
  Low tempering and stress relieving

BARREL HARDNESS DECREASE WITH DEPTH MAX. 3 SHORE C.
HARDNESS DISTRIBUTION ± 1,5 SHORE C (EACH SURFACE)

- **Physical and mechanical properties**

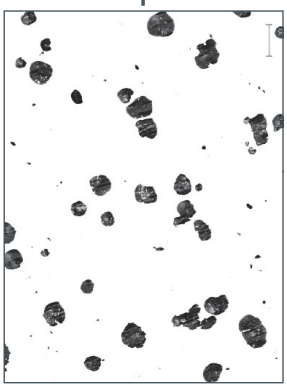
	KV 5
TENSILE STRENGTH - Rm [MPa]	900
BENDING STRENGTH - Rmi [MPa]	1150
YOUNG MODULUS - E.10^3 [MPa]	225
COEFFICIENT OF THERMAL EXPANSION [m/K]	11,5 - 11,8 x 10^{-6}
THERMAL CONDUCTIVITY [W/m°K]	17 - 18

Shell

Material Core - Neck	Chemical composition [%]									Neck Hardness
	C	Mn	Si	P max.	S max.	Cr max.	Ni	Mo	Others	[HSh"C"]
Nodular iron	2,8/3,5	0,1/1,0	1,5/2,5	0,06	0,02	0,3	0,60/1,20	0,05/0,30	Mg = 0,030 /0,080	37 - 45

- **Core Structure**

Nodular Graphite - 100x



- **Physical and mechanical properties**

	Nodular Iron
TENSILE STRENGTH - Rm [MPa]	350
BENDING STRENGTH - Rmi [MPa]	540
YOUNG MODULUS - E.10^3 [MPa]	165

- **NON-Destructive testing:**
  Ultrasonic Test of Shell Depth and Bond Integrity

- **Product certificates**
  Shell and Core Chemistry
  Mechanical Testing
  Hardness Measurement Report of Barrel and Necks
  Dimensional Inspection of Body and Journal Diameters
  Ultrasonic Report of Shell Depth and Bond Integrity

- **Application**
  Work rolls for finishing stands of hot strip mills

Core