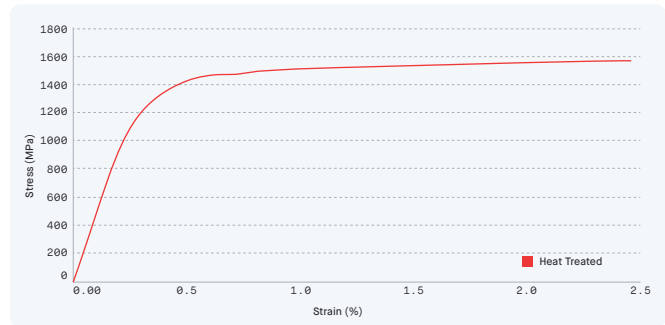


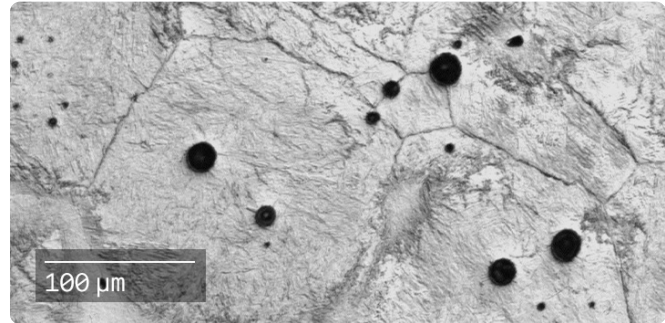
[Material Data Sheet]

H13

Tool Steel


COMPOSITION %

Fe	balance
C	0.32 – 0.45
Cr	4.75 – 5.50
Mn	0.2 – 0.5
Mo	1.10 – 1.75
Si	0.8 – 1.2
V	0.8 – 1.2
P	0.03 (Max)
S	0.03 (Max)


MECHANICAL PROPERTIES

	Standard	Production System™ Heat Treated
Density (g/cc)	ASTM B311	7.4
Hardness (Vickers)	ASTME92	425
0.2% Yield strength (MPa)	ASTM E8M	1400 ± 40
Ultimate tensile strength (MPa)	ASTM E8M	1520 ± 40
Elongation (%)	ASTM E8M	2 ± 0.8
Transverse Rupture Strength – X (GPa)	ASTM B528	2.98 ± .07
Transverse Rupture Strength – Y (GPa)	ASTM B528	2.66 ± 0.1
Charpy Impact* (J)	MPIF59	18 ± 3

ATTRIBUTES & APPLICATIONS

Hot work tool steel
Surface can be carburized or nitrided
Die cast dies
Extrusion dies
Punches
Medium wear resistance

OTHER STANDARD DESIGNATIONS

ASTM A681
DIN 1.2344
X40CrMoV5-1

*The charpy impact specimens are 5x10mm cross section un-notched.