

High Speed Tool Steel Physical Properties

Thermal expansion rate / Thermal conductivity / Specific heat /
Young's modulus / Rigidity modulus / Poisson's ratio

■ Document Disclaimer

- The data described in this document is the latest version as of June 1st, 2023. Values listed in the brochure may differ.
- The repeated measurement accuracy of the thermal conductivity measuring equipment that we use is about $\pm 10\%$.
- The product characteristics included in this brochure are the representative values based on the result of our measurements, and do not guarantee the performance in use of the products. Please inquire the latest information to our department in charge as the information of this brochure is updated without previous notice as needed.
- If you have any questions regarding this document, please contact us after selecting "Tool Steel" from the "Inquiry Form (Products)" on our website (<https://www.daido.co.jp>).

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Brand name	Heat treatment ^{*1}			HRC	Thermal expansion rate (×10 ⁻⁶ /K)						Thermal conductivity (W/m · K) ^{*2}						
	Cond.	H (°C)	T (°C)		20~100°C	20~200°C	20~300°C	20~400°C	20~500°C	20~600°C	25°C	100°C	200°C	300°C	400°C	500°C	600°C
DRM1	A	-	-	<20	10.5	11.1	11.5	11.9	12.4	12.8	34.1	34.4	35.0	34.4	34.1	32.3	31.5
	HT	1140	560	58	10.5	11.1	11.5	11.9	12.3	12.7	25.3	26.8	27.7	29.0	28.9	28.3	28.9
DRM2	A	-	-	<20	10.7	11.3	11.7	12.2	12.8	13.2	35.0	36.4	36.5	35.5	34.6	33.4	32.0
	HT	1100	560	61	10.7	11.3	11.6	12.0	12.5	12.9	24.4	26.5	27.2	28.0	28.1	28.4	28.4
DRM3	A	-	-	<20	10.4	11.3	11.7	12.2	12.6	12.9	30.3	31.5	31.9	32.0	31.5	30.2	30.4
	HT	1140	560	65	10.5	11.1	11.5	11.9	12.3	12.6	20.2	22.6	24.8	25.5	26.0	26.4	27.6
DEX20	A	-	-	<20	10.3	11.1	11.5	12.0	12.4	12.7	32.3	34.0	34.8	33.8	33.5	31.9	30.6
	HT	1190	560	67	10.3	10.9	11.3	11.7	12.2	12.5	21.2	23.6	25.3	26.4	26.8	27.2	27.8
DEX40	A	-	-	<20	9.7	10.3	10.6	11.0	11.3	11.6	30.6	32.3	34.4	34.0	33.5	32.9	32.3
	HT	1190	560	67	9.7	10.2	10.4	10.8	11.2	11.5	21.3	23.9	26.0	28.2	28.7	29.2	30.1

(*1) A : Annealing H : Quenching (Hardening) T : Tempering PH : Pre-hardened (*2) Accuracy of repeated measurements is about ±10%. (*3) Measured value at 25°C

Brand name	Heat treatment ^{*1}			HRC	Specific heat (J/kg · K)						Young's modulus (GPa) ^{*3}	Rigidity modulus (GPa) ^{*3}	Poisson's ratio ^{*3}	
	Cond.	H (°C)	T (°C)		25°C	100°C	200°C	300°C	400°C	500°C				600°C
DRM1	A	-	-	<20	473	494	531	560	607	645	728	220.5	85.2	0.29
	HT	1140	560	58	466	491	513	557	591	631	724	211.7	81.1	0.31
DRM2	A	-	-	<20	494	531	564	590	632	682	756	220.8	84.9	0.30
	HT	1100	560	61	477	520	539	575	613	672	754	211.0	81.0	0.30
DRM3	A	-	-	<20	484	514	540	574	608	648	745	225.1	86.8	0.30
	HT	1140	560	65	465	505	545	568	603	658	758	214.2	82.2	0.30
DEX20	A	-	-	<20	458	496	536	557	598	634	691	236.6	91.0	0.30
	HT	1190	560	67	460	498	528	558	592	642	719	221.7	85.0	0.30
DEX40	A	-	-	<20	460	495	539	555	582	620	676	237.7	91.6	0.30
	HT	1190	560	67	475	506	535	578	603	643	716	228.0	87.6	0.30

