Cold Work 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 ±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).

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
GO4	A	-	-	<20	10.6	12.0	12.8	13.4	14.0	14.4	39.4	38.9	36.7	36.4	35.9	33.9	32.3
	HT	850	180×2	61	12.2	13.4	14.3	13.7	13.4	13.6	23.0	23.8	24.9	30.0	32.3	30.9	31.6
GO5	A	-	-	<20	11.1	12.2	12.9	13.4	13.9	14.3	31.0	32.5	32.8	33.9	33.7	32.3	31.4
	HT	950	180×2	61	12.4	13.4	14.3	14.7	12.1	13.1	16.0	17.1	18.0	19.8	21.7	22.4	24.5
GO40F	PH	-	-	39	10.9	11.9	12.5	13.1	13.5	13.8	32.3	35.5	33.3	33.0	33.5	32.1	31.4
DC11	A	-	-	<20	10.0	10.9	11.4	11.9	12.4	12.8	27.2	29.0	27.9	28.2	29.0	28.2	28.2
	HT	1030	180×2	62	10.6	11.9	11.8	12.0	12.2	12.2	16.9	19.7	21.1	22.5	24.0	25.2	28.2
			490×2	59	10.6	11.3	11.9	12.4	12.9	12.9	19.2	20.3	21.2	22.9	24.1	24.7	26.6
			520×2	59	10.0	10.8	11.3	11.8	12.3	12.4	20.7	21.9	23.9	23.7	25.3	25.3	26.8
DC53	A	-	-	<20	10.3	11.3	11.8	12.3	12.8	13.2	23.8	26.0	25.4	26.5	27.5	27.2	27.4
	HT	1030	180×2	61	11.5	12.3	12.8	13.3	13.4	13.4	14.8	16.7	18.1	20.6	22.1	23.7	26.7
			490×2	60	11.7	12.6	13.1	13.6	14.1	14.3	16.6	18.1	19.0	21.0	22.6	23.2	25.5
			520×2	62	10.8	11.6	12.2	12.8	13.2	13.5	17.8	19.3	20.0	22.5	24.3	24.5	26.3
DCMX	A	-	-	<20	10.6	11.4	12.0	12.4	12.9	13.2	20.1	22.3	23.0	25.3	27.0	27.1	28.1
	HT	1030	180×2	59	11.5	12.7	13.4	14.0	14.3	14.3	13.9	15.4	16.6	19.0	21.2	22.4	25.4
			490×2	60	11.9	12.8	13.3	13.9	14.3	14.6	15.6	16.7	17.6	19.9	21.8	22.2	24.6
			520×2	61	10.7	11.4	12.0	12.5	13.0	13.3	16.0	17.1	18.0	19.8	21.7	22.4	24.5
YK30	A	-	-	<20	-	-	-	-	-	-	42.5	43.2	42.1	39.4	35.9	34.0	31.6
	HT	830	180×2	64	11.9	13.1	13.6	10.3	10.6	11.3	27.1	29.3	30.3	34.8	34.7	32.9	31.8
GOA	A	-	-	<20	-	-	-	-	-	-	44.3	44.7	43.2	40.5	37.8	35.4	32.9
	HT	830	180×2	63	11.7	13.0	13.0	10.6	10.8	11.5	29.9	30.8	31.9	35.0	35.1	33.6	32.0
GO31	A	-	-	<20	-	-	-	-	-	-	41.8	43.0	40.0	38.8	35.5	32.9	30.6
	HT	830	180×2	64	11.6	12.8	12.7	10.5	11.0	11.6	28.3	29.9	31.5	34.7	33.6	32.4	31.9

(*1) A：Annealing　H：Quenching (Hardening)　T：Tempering　PH：Pre-hardened

(*2) Accuracy of repeated measurements is about ±10%.

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			
GO4	A	-	-	<20	462	473	487	538	601	649	738	216	84	0.28
	HT	850	180×2	61	472	478	505	554	617	661	763	202	78	0.30
GO5	A	-	-	<20	465	482	511	567	623	668	767	213	83	0.29
	HT	950	180×2	61	450	456	474	524	587	636	740	201	76	0.32
GO40F	PH	-	-	39	453	505	530	546	610	663	766	206	86	0.19
DC11	A	-	-	<20	466	500	506	556	618	660	745	213	83	0.28
	HT	1030	180×2	62	467	525	559	587	644	686	779	204	78	0.30
			490×2	59	449	460	484	536	589	634	716	206	79	0.30
			520×2	59	449	466	514	531	596	640	730	209	81	0.29
DC53	A	-	-	<20	450	485	488	536	592	636	734	217	85	0.28
	HT	1030	180×2	61	448	474	505	563	608	658	745	204	77	0.32
			490×2	60	445	456	475	530	584	622	706	207	79	0.31
			520×2	62	450	466	476	544	608	646	737	207	79	0.31
DCMX	A	-	-	<20	464	493	516	582	654	705	827	214	83	0.29
	HT	1030	180×2	59	461	481	503	561	618	653	743	200	77	0.30
			490×2	60	466	474	492	555	628	658	747	204	78	0.31
			520×2	61	450	456	474	524	587	636	740	204	78	0.30
YK30	A	-	-	<20	482	512	539	562	579	630	700	-	-	-
	HT	830	180×2	64	479	519	545	574	605	639	713	200	77	0.30
GOA	A	-	-	<20	501	529	557	578	608	658	731	-	-	-
	HT	830	180×2	63	517	537	566	588	626	666	728	200	77	0.29
GO31	A	-	-	<20	478	520	527	568	587	624	692	-	-	-
	HT	830	180×2	64	508	544	582	608	625	666	746	202	78	0.29

(*1) A : Annealing H : Quenching (Hardening) T : Tempering PH : Pre-hardened

(*3) Measured value at 25°C