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# **FCH2**

## **Fe-Chrome Type 2**

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# Alloys : FCH2 (Fe-Chrome Type 2)

[JIS C 2520]

Iron chromium electric heating wire Compared to Class 1, it is easier to cold work.  
Suitable for home appliances and resistors.

JIS	JIS Code	Electrical Resistivity [ $\mu\Omega\text{m}$ ]	Average TCR [ $\times 10^{-6}/^{\circ}\text{C}$ ]
FCH2	C 2520	1.23 $\pm$ 0.06	* 90
GFC123	C 2532		

(\* )Reference value

Cuprous Electromotive Force Mv/K (0~100°C)	Thermal Expansion Coefficient $\times 10^{-6}/$	Specific Heat J/g·K (20°C)	Thermal Conductivity w/m·K	Density g/cm <sup>3</sup> (20°C)	Melting Point °C	Max Operating Temperature °C
-0.3	12.5	0.46	13	7.35	1500	1100

Chemical Composition	C	Si	Mn	Cr	Al	Fe
(%)	$\leq 0.11$	$\leq 1.5$	$\leq 1.0$	17~21	2~4	BAL

## Resistance increase by temperature

°C	20	100	200	300	400	500	600	700	800	900	1000	1100
Coefficient	1.000	1.005	1.014	1.025	1.038	1.054	1.074	1.086	1.095	1.102	1.107	1.110

Alloys	Type	Diameter (mm)	
FCHW2	Wire	$\phi 6.00 \sim 0.15$	
FCHR2	Ribbon	$t = 2.90 \sim 0.08$	$w = 40 \sim 0.4$ (Depends on thickness)

# FCH2 (Fe-Chrome Type 2)

## Resistance·Length·Weight

Wire

Electrical Resistivity (23°CμΩm) 1.23±0.06

Diameter (mm)	Tolerance (mm)	Cross section (mm <sup>2</sup> )	Resistance Tolerance (%)	DC Resistance (Ω/m)	Length (m/Kg)	Weight (g/m)
6.00	±0.080	28.27	±5	0.0435	4.81	208
5.50	±0.063	23.76	±5	0.0518	5.73	175
5.00	±0.063	19.64	±5	0.0626	6.93	144
4.50	±0.063	15.90	±5	0.0773	8.55	117
4.00	±0.063	12.57	±5	0.0979	10.8	92.4
3.50	±0.050	9.621	±5	0.128	14.1	70.7
3.20	±0.050	8.042	±5	0.153	16.9	59.1
2.90	±0.050	6.605	±5	0.186	20.6	48.5
2.60	±0.040	5.309	±5	0.232	25.6	39.0
2.30	±0.040	4.155	±5	0.296	32.7	30.5
2.00	±0.040	3.142	±5	0.392	43.3	23.1
1.80	±0.040	2.545	±5	0.483	53.5	18.7
1.60	±0.032	2.011	±5	0.612	67.7	14.8
1.50	±0.032	1.767	±5	0.696	77.0	13.0
1.40	±0.032	1.539	±5	0.799	88.4	11.3
1.30	±0.032	1.327	±5	0.927	103	9.76
1.20	±0.025	1.131	±5	1.09	120	8.31
1.10	±0.025	0.9503	±6	1.29	143	6.98
1.00	±0.025	0.7854	±6	1.57	173	5.77
0.90	±0.025	0.6362	±6	1.93	214	4.68
0.85	±0.025	0.5675	±6	2.17	240	4.17
0.80	±0.020	0.5027	±6	2.45	271	3.69
0.75	±0.020	0.4418	±6	2.78	308	3.25
0.70	±0.020	0.3848	±6	3.20	354	2.83
0.65	±0.020	0.3318	±6	3.71	410	2.44
0.60	±0.020	0.2827	±6	4.35	481	2.08
0.55	±0.016	0.2376	±7	5.18	573	1.75
0.50	±0.016	0.1964	±7	6.26	693	1.44
0.45	±0.016	0.1590	±7	7.73	855	1.17
0.40	±0.016	0.1257	±7	9.79	1083	0.924
0.35	±0.013	0.09621	±7	12.8	1414	0.707
0.32	±0.013	0.08042	±7	15.3	1692	0.591
0.29	±0.013	0.06605	±7	18.6	2060	0.485
0.26	±0.010	0.05309	±8	23.2	2563	0.390
0.23	±0.010	0.04155	±8	29.6	3275	0.305
0.20	±0.010	0.03142	±8	39.2	4331	0.231
0.18	±0.008	0.02545	±8	48.3	5347	0.187
0.16	±0.008	0.02011	±8	61.2	6767	0.148
0.15	±0.008	0.01767	±8	69.6	7699	0.130

# FCH2 (Fe-Chrome Type 2)

## Temperature Current Characteristics · Diameter · Temperature · Current

Wire Electrical Resistivity (23°CμΩm) 1.23±0.06 [Unit: Ampere]

Diameter (mm)	200 (°C)	300 (°C)	400 (°C)	500 (°C)	600 (°C)	700 (°C)	800 (°C)	900 (°C)	1000 (°C)	1100 (°C)
6.00	49.3	68.6	86.2	105	129	154	185	220	255	286
5.50	43.1	60.7	85.4	92.4	114	136	167	194	224	255
5.00	37.8	51.9	66.0	79.2	98.6	119	144	167	194	220
4.50	31.7	44.0	56.3	67.8	82.7	101	123	141	167	189
4.00	27.3	37.0	47.5	57.2	70.4	82.7	99.4	117	140	158
3.50	22.0	29.9	38.7	46.6	58.1	68.6	84.5	99.4	114	132
3.20	19.4	26.4	34.3	40.5	50.2	59.8	73.0	86.2	100	114
2.90	16.5	22.9	29.9	35.2	43.1	51.9	63.4	73.9	86.2	97.7
2.60	13.6	19.4	24.6	29.9	37.0	44.0	54.6	63.4	73.0	81.8
2.30	11.6	15.9	21.1	25.5	30.8	37.0	45.8	52.8	60.7	69.5
2.00	9.68	13.2	17.6	21.1	25.5	30.8	36.1	43.1	49.3	56.3
1.80	8.54	11.6	15.2	18.5	22.0	26.4	29.0	37.0	42.2	48.4
1.60	7.22	9.94	13.2	15.4	18.5	22.9	27.3	30.8	36.1	40.5
1.50	6.69	9.15	12.0	14.1	17.2	20.2	24.6	28.2	32.6	37.0
1.40	6.16	8.36	11.0	12.8	15.8	18.5	22.9	25.5	29.9	34.3
1.30	5.63	7.66	9.94	11.7	14.3	16.7	20.2	22.9	26.4	30.8
1.20	5.19	6.86	9.24	10.4	12.3	14.2	17.6	20.2	23.8	27.3
1.10	4.58	6.16	7.92	9.50	11.4	13.6	16.0	18.5	21.1	23.8
1.00	4.14	5.37	7.04	8.27	10.1	11.9	13.6	15.4	17.6	20.2
0.90	3.61	4.84	6.25	7.22	8.80	10.4	12.3	14.1	16.0	18.5
0.85	3.43	4.49	5.81	6.78	8.18	9.50	11.3	13.0	15.0	17.0
0.80	3.08	4.14	5.37	6.16	7.48	8.80	10.4	11.9	13.6	15.4
0.75	2.90	3.78	4.93	5.72	6.86	7.92	9.42	10.9	12.3	14.1
0.70	2.64	3.43	4.49	5.19	6.25	7.30	8.54	9.68	11.4	12.9
0.65	2.46	3.17	4.14	4.75	5.72	6.60	7.66	8.80	10.2	11.6
0.60	2.20	2.82	3.70	4.22	5.10	5.98	6.86	7.92	9.06	10.6
0.55	2.02	2.55	3.34	3.78	4.58	5.28	6.16	7.04	8.10	9.24
0.50	1.76	2.29	2.99	3.34	4.05	4.66	5.54	6.25	7.22	8.10
0.45	1.58	2.02	2.55	2.90	3.52	4.05	4.58	5.19	5.90	6.69
0.40	1.32	1.67	2.20	2.55	2.99	3.43	3.96	4.58	5.19	5.90
0.35	1.11	1.41	1.85	2.20	2.55	2.90	3.26	3.78	4.22	4.84
0.32	0.994	1.28	1.64	1.94	2.29	2.55	2.99	3.43	3.87	4.31
0.29	0.880	1.14	1.45	1.67	2.02	2.29	2.64	2.99	3.34	3.78
0.26	0.774	0.994	1.28	1.50	1.76	2.02	2.29	2.55	2.90	3.26
0.23	0.669	0.880	1.10	1.28	1.50	1.67	1.94	2.20	2.46	2.82
0.20	0.563	0.739	0.924	1.06	1.25	1.43	1.63	1.85	2.11	2.29
0.18	0.493	0.651	0.810	0.933	1.10	1.25	1.43	1.63	1.76	2.02
0.16	0.431	0.563	0.695	0.801	0.933	1.08	1.23	1.41	1.58	1.74
0.15	0.396	0.519	0.642	0.739	0.862	0.986	1.14	1.28	1.43	1.58

注(\*)参考値

(\*)Reference value

# FCH2 (Fe-Chrome Type 2)

## Conductor resistance

Ribbon

Electrical Resistivity (23°CμΩm) 1.23±0.06

[Unit:Ω/m]

Thickness (mm)	Width mm)													
	40.0	32.0	25.0	20.0	16.0	13.0	10.0	6.5	5.0	3.2	2.4	1.6	0.8	0.4
2.90	0.0108	0.0135	0.0173	0.0216	0.0270	0.0333	0.0433							
2.60	0.0121	0.0151	0.0193	0.0241	0.0302	0.0371	0.0483	0.0758						
2.30	0.0136	0.0171	0.0218	0.0273	0.0341	0.0420	0.0546	0.0857	0.111					
2.00	0.0157	0.0196	0.0251	0.0314	0.0392	0.0483	0.0628	0.0986	0.128					
1.80	0.0174	0.0218	0.0279	0.0349	0.0436	0.0536	0.0697	0.110	0.142					
1.60	0.0196	0.0245	0.0314	0.0392	0.0490	0.0603	0.0784	0.123	0.160					
1.40	0.0224	0.0280	0.0359	0.0448	0.0560	0.0690	0.0897	0.141	0.183					
1.20	0.0261	0.0327	0.0418	0.0523	0.0654	0.0805	0.105	0.164	0.214					
1.00	0.0314	0.0392	0.0502	0.0628	0.0784	0.0965	0.126	0.197	0.256					
0.90		0.0436	0.0558	0.0697	0.0872	0.107	0.139	0.219	0.285	0.445	0.593			
0.80		0.0490	0.0628	0.0784	0.0981	0.121	0.157	0.246	0.320	0.500	0.667			
0.70			0.0717	0.0897	0.112	0.138	0.179	0.282	0.366	0.572	0.763			
0.60			0.0837	0.105	0.131	0.161	0.209	0.329	0.427	0.667	0.890			
0.50			0.100	0.126	0.157	0.193	0.251	0.394	0.513	0.801	1.07			
0.45			0.112	0.139	0.174	0.215	0.279	0.438	0.569	0.890	1.19	1.78		
0.40					0.196	0.241	0.314	0.493	0.641	1.00	1.33	2.00		
0.35						0.276	0.359	0.563	0.732	1.14	1.53	2.29		
0.32						0.302	0.392	0.616	0.801	1.25	1.67	2.50		
0.29							0.433	0.680	0.884	1.38	1.84	2.76	5.52	
0.26							0.483	0.758	0.986	1.54	2.05	3.08	6.16	12.3
0.23								0.857	1.11	1.74	2.32	3.48	6.96	13.9
0.20								0.986	1.28	2.00	2.67	4.00	8.01	16.0
0.18								1.10	1.42	2.22	2.97	4.45	8.90	17.8
0.16										2.50	3.34	5.00	10.0	20.0
0.14										2.86	3.81	5.72	11.4	22.9
0.12											4.45	6.67	13.3	26.7
0.10												8.01	16.0	32.0
0.08												10.0	20.0	40.0

\*Allowable tolerance of conductor resistance : Width 10mm or more ±7% , Width 10mm or less ±8%

## Conductor Resistance Tolerance of Ribbon

Thickness [mm]	Width [mm]	Resistance Tolerance [%]
0.08above 3.15below	10below	±8
	10above	±7

\*We can manufacture products other than the standard (size and tolerance), so please contact us.