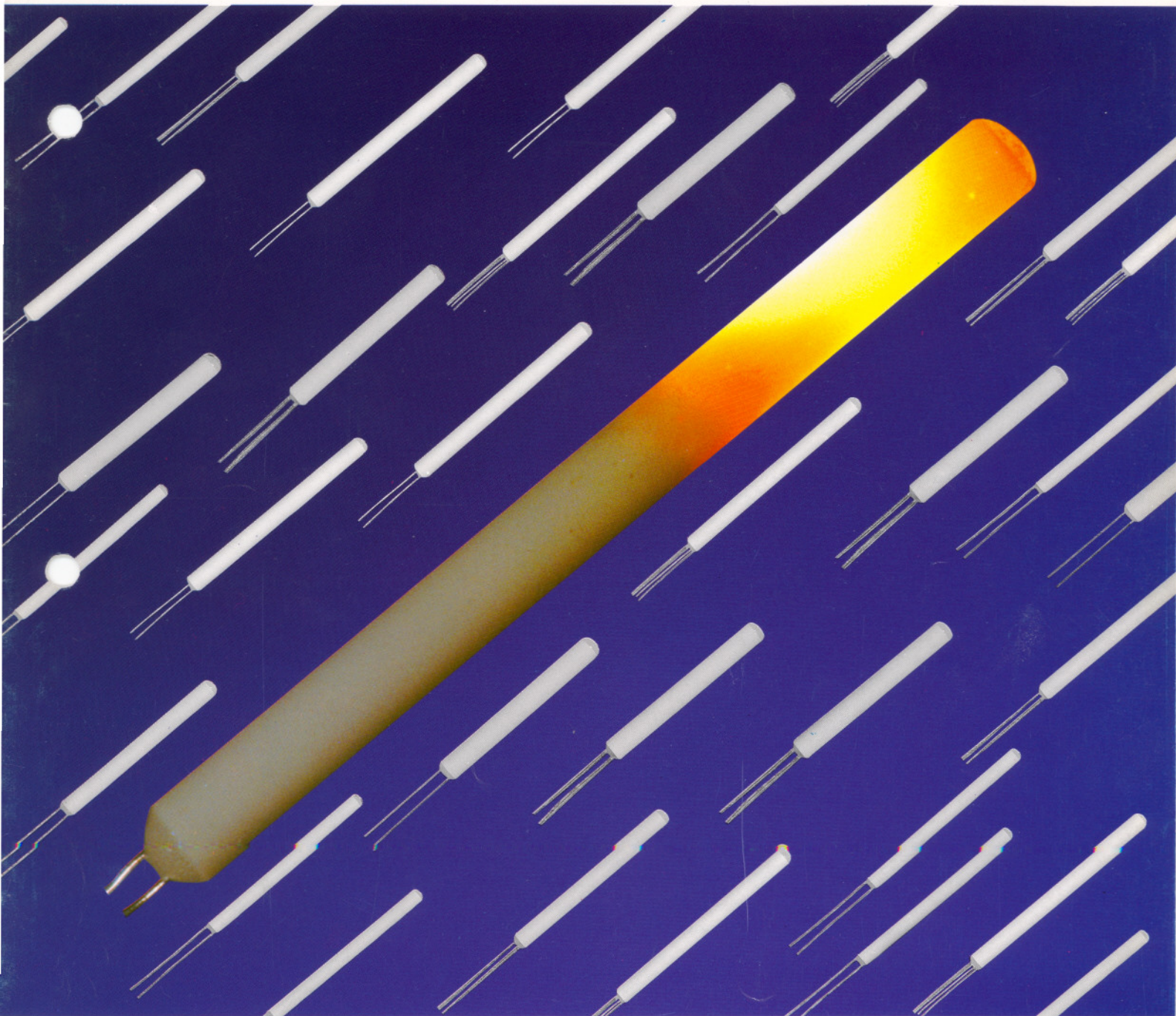


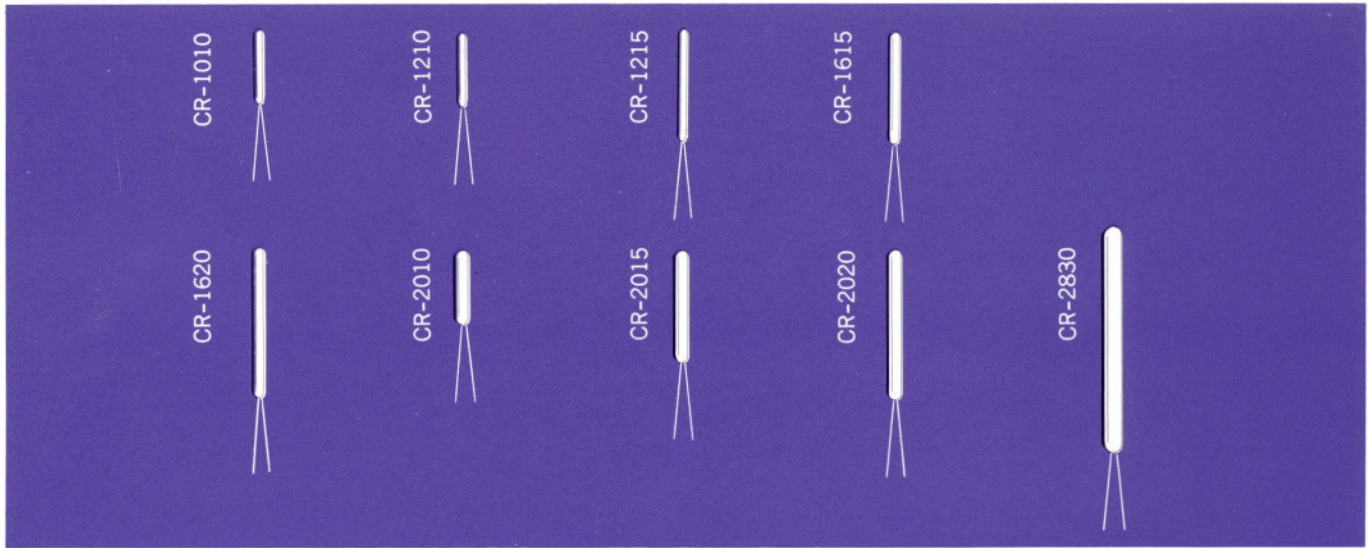
CERAMIC RESISTANCE ELEMENTS

PLATINUM RESISTANCE THERMOMETER ELEMENTS IN CERAMIC



Unique technology from **HAYASHI DENKO COMPANY LIMITED**

CR Series



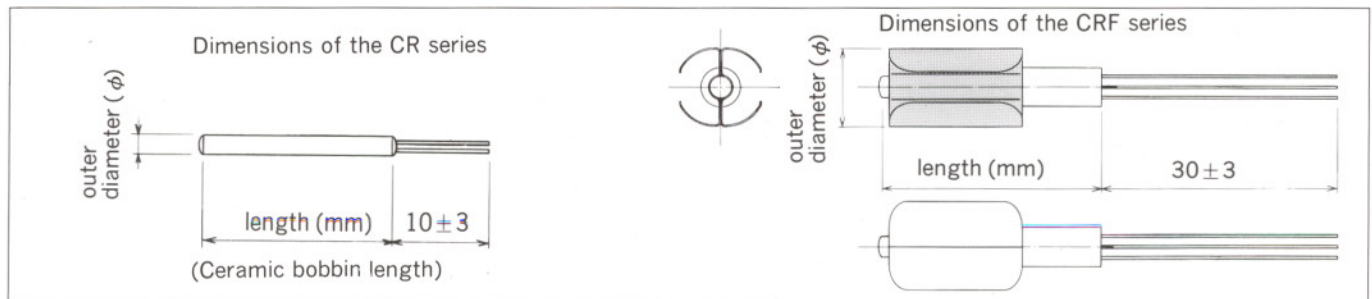
CHARACTERISTICS OF THE CR SERIES (CERAMIC ELEMENTS)

v : Available

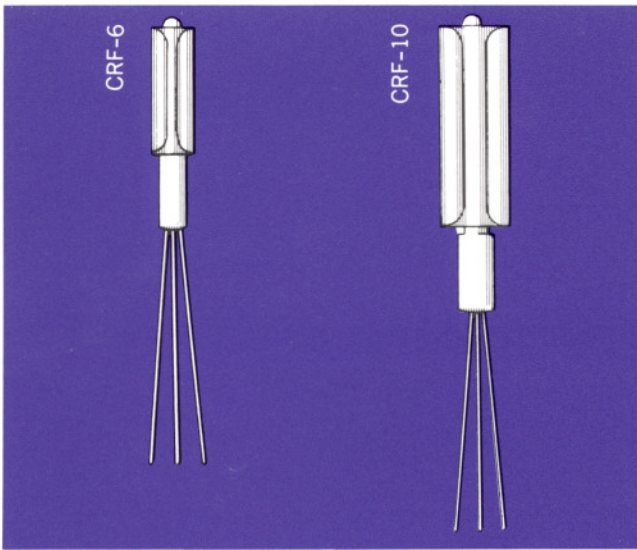
Model	outer diameter(mm)	length (mm)	number of elements		resistance value	class	measurement current	length of leads (mm)	operating temperature
			1	2					
*CR-1010	1.0±0.1	10±2	v	—	Pt100Ω	JIS IEC DIN A class B class	not exceeding 1mA	10±3	-200°C } +500°C
CR-1210	1.2±0.1	10±2	v	v			not exceeding 2mA		
*CR-1215	1.2±0.1	15±2	v	—					
CR-1615	1.6±0.1	15±2	v	v					
*CR-1620	1.6±0.1	20±2	v	—					
*CR-2010	2.0±0.1	10±2	v	—					
CR-2015	2.0±0.1	15±2	v	v					
CR-2020	2.0±0.1	20±2	v	v					
*CR-2830	2.8 ^{+0.3} _{-0.1}	30±2	v	v					

Note: * marked items are ordermade and delivery times may be longer than usual.

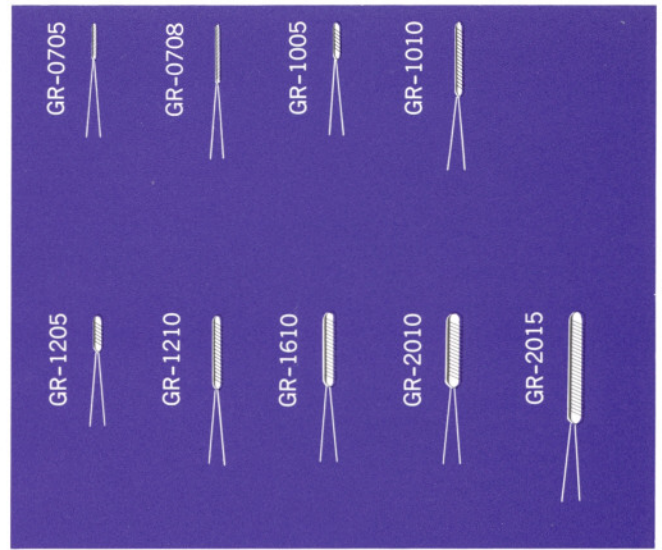
DIMENSIONS



CRF Series



GR Series



CHARACTERISTICS OF THE CRF SERIES (CERAMIC ELEMENTS WITH HEAT SENSITIVE FIN ATTACHED)

Model	outer diameter(mm)	length (mm)	number of elements		resistance value	class	measurement current	length of leads (mm)	operating temperature
			1	2					
CRF-6	6	32±1.5	✓	✓	Pt100Ω	JIS DIN IEC CLASS A CLASS B	not exceeding 5mA	30±3	-200°C } +500°C
CRF-10	10	42±1.5	✓	✓					

CHARACTERISTICS OF THE GR SERIES (GLASS-ENCAPSULATED ELEMENTS)

Model	outer diameter(mm)	length (mm)	number of elements		resistance value	class	measurement current	length of leads (mm)	operating temperature
			1	2					
*GR-0705	0.7±0.1	5±1	✓	—	Pt100Ω	JIS DIN IEC CLASS A CLASS B	not exceeding 1mA	10±3	-200°C } +350°C
GR-0708	0.7±0.1	8±1	✓	—					
*GR-1005	1.0±0.1	5±1	✓	—					
GR-1010	1.0±0.1	10±1	✓	—			not exceeding 2mA		
*GR-1205	1.2±0.15	5±1	✓	—					
GR-1210	1.2±0.15	10±1	✓	—			not exceeding 5mA		
GR-1610	1.6±0.15	10±1	✓	—					
GR-2010	2.0±0.2	10±1	✓	—					
GR-2015	2.0±0.2	15±1.5	✓	—			not exceeding 1mA		
GR-3025	3.0±0.2	25±2	✓	—	Pt1000Ω				

(In addition to the above, elements of various different types and sizes can be manufactured on request.)

Note: *marked items are ordermade and delivery times may be longer than usual.

- When ordering please specify model, resistance value, measurement current and class.
e.g. Model CR-2830D, resistance value 100, class B, measurement current 2mA, :CR-2830D-100-B-2.
- In addition, please describe the working environment where possible.

TEMPERATURE/RESISTANCE RELATIONSHIP AND TOLERANCE

Table of temperature/resistance relationship

DIN 43760 (Ω)

°C (°F)	0	-10	-20	-30	-40	-50	-60	-70	-80	-90	-100
-100 (-148)	60.25	56.19	52.11	48.00	43.87	39.71	35.53	31.32	27.08	22.80	18.49
0 (32)	100.00	96.09	92.16	88.22	84.27	80.31	76.33	72.33	68.33	64.30	60.25
°C (°F)	0	10	20	30	40	50	60	70	80	90	100
0 (32)	100.00	103.90	107.79	111.67	115.54	119.40	123.24	127.07	130.89	134.70	138.50
100 (212)	138.50	142.29	146.06	149.82	153.58	157.31	161.04	164.76	168.46	172.16	175.84
200 (392)	175.84	179.51	183.17	186.82	190.45	194.07	197.69	201.29	204.88	208.45	212.02
300 (572)	212.02	215.57	219.12	222.65	226.17	229.67	233.17	236.65	240.13	243.59	247.04
400 (752)	247.04	250.48	253.90	257.32	260.72	264.11	267.49	270.86	274.22	277.56	280.90
500 (932)	280.90	284.22	287.53	290.83	294.11	297.39	300.65	303.91	307.15	310.38	313.59
600 (1,112)	313.59	316.80	319.99	323.18	326.35	329.51	332.66	335.79	338.92	342.03	345.13
700 (1,292)	345.13	348.22	351.30	354.37	357.42	360.47	363.50	366.52	369.53	372.52	375.51
800 (1,472)	375.51	378.48	381.45	384.40	387.34	390.26	-	-	-	-	-

Table of tolerance values

DIN 43760

temperature	resistance value	tolerance			
		class A		class B	
-200 (°C)	18.49 (Ω)	±0.55 (°C)	±0.24 (Ω)	±1.3 (°C)	±0.56 (Ω)
-100	60.25	±0.35	±0.14	±0.8	±0.32
0	100.00	±0.15	±0.06	±0.3	±0.12
100	138.50	±0.35	±0.13	±0.8	±0.30
200	175.84	±0.55	±0.20	±1.3	±0.48
300	212.02	±0.75	±0.27	±1.8	±0.64
400	247.04	±0.95	±0.33	±2.3	±0.79
500	280.90	±1.15	±0.38	±2.8	±0.93
600	313.59	±1.35	±0.43	±3.3	±1.06
650	329.51	±1.45	±0.46	±3.6	±1.13
700	345.13			±3.8	±1.17
800	375.51			±4.3	±1.28
850	390.26			±4.6	±1.34

Tolerance Class Definitions

DIN class A: $\pm(0.15+0.002|t|)^{\circ}\text{C}$
 DIN class B: $\pm(0.30+0.005|t|)^{\circ}\text{C}$
 Where t is the actual temperature, in degrees C, of the platinum element.

Technical data

For more details please ask for our separate technical data brochure.

HAYASHI DENKOH (Co., Ltd.) specializes in the manufacture of temperature detectors. In addition to the products described here we also produce sheath type resistance temperature detectors and thermocouples, resistance temperature detectors and thermocouples in protecting tubes, extension and compensating lead wires, special protecting tubes, drilled wells, explosion proof type resistance temperature detectors and thermocouples etc..

MANUFACTURER:

 **HAYASHI DENKOH CO., LTD.**

 **DP THERMO CONTROL ELECTRIC SDN BHD**
(Co. No. 387517A)

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