

KANTHAL

Data Sheet	KANTHAL 155 R 55 Thermostatic bimetal	1996-03-25 Issue 2
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KANTHAL 155 R 55 is a thermostatic bimetal which is recommended for use in the temperature range -20 to +350°C. In extreme cases it can be used at temperatures up to a maximum of +450°C.

Typical applications for KANTHAL 155 R 55 are in circuit breakers, motor protection units, ammeters, etc.

General

	Alloy	Designation	Portion of thickness %
High-expansive component	15-7	440	47
Low-expansive component	Invar 155	450	47
Intermediate component	Ni	400	6

Chemical composition

	Designation	Mn %	Ni %	Fe %
High-expansive component	440	6.9	17.0	Balance
Low-expansive component	450	0.12	36.8	Balance

Mechanical properties

Components	Designation	Yield strength R _{p 0.2} MPa	Tensile strength R _m MPa	Elongation A %	Hardness Hv
High-expansive component	440	240	550	40	140
Low-expansive component	450	290	450	40	130

Mechanical data for components refer to annealed condition.

Bimetal	Designation	Hardness Hv	
High-expansive component	440	260	Cold-worked 20 %
Low-expansive component	450	210	Cold-worked 20 %

Young's modulus

Temperature °C	20
x 10 ³ MPa	170

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The data given are representative for the product. Kanthal will not guarantee any values, except when maximum or minimum values are explicitly stated.

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Physical properties

Density g/cm^3 8.15

Electrical resistivity

	Designation	Temperature $^{\circ}\text{C}$	0	20	100	200	300	400
Bimetal	155 R 55	$\text{mm}^2 \text{ m}^{-1}$	0.52	0.55	0.65	0.75	0.84	0.91
High-expansive component	440	$\text{mm}^2 \text{ m}^{-1}$		0.80				
Low-expansive component	450	$\text{mm}^2 \text{ m}^{-1}$		0.79				

Coefficient of thermal expansion

	Designation	Temperature $^{\circ}\text{C}$	Thermal Expansion $\times 10^{-6} \text{ K}^{-1}$
High-expansive component	440	35 - 120	19.4
Low-expansive component	450	35 - 120	0.5

Specific deflection $\times 10^{-6} \text{ K}^{-1}$ 15.0

Specific thermal curvature $\times 10^{-6} \text{ K}^{-1}$ 28.2

Linearity range $^{\circ}\text{C}$ -20 to +200

Thermal conductivity

Temperature $^{\circ}\text{C}$	20
$\text{W m}^{-1} \text{ K}^{-1}$	16

Specific heat capacity

Temperature $^{\circ}\text{C}$	20
$\text{kJ kg}^{-1} \text{ K}^{-1}$	0.46

Temperature range $^{\circ}\text{C}$ -20 to +350

Maximum operating temperature $^{\circ}\text{C}$ +450

Marking on the high expansion side 155R55TB1555