

KANTHAL

Data Sheet	KANTHAL 155 Thermostatic bimetal	1996-03-25 Issue 2
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KANTHAL 155 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 are in circuit breakers, motor protection units, thermostats, shower mixers, etc.

General

	Alloy	Designation	Portion of thickness %
High-expansive component	15-7	440	50
Low-expansive component	Invar 155	450	50
Intermediate component		-	-

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 _{p0.2} 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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Physical properties

Density g/cm^3 8.1

Electrical resistivity

	Designation	Temperature $^{\circ}\text{C}$	0	20	100	200	300	400
Bimetal	155	$\text{mm}^2 \text{ m}^{-1}$	0.77	0.78	0.86	0.94	1.00	1.07
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 $\times 10^{-6} \text{ K}^{-1}$ 15.6

Specific thermal curvature $\times 10^{-6} \text{ K}^{-1}$ 28.5

Linearity range $^{\circ}\text{C}$ -20 to +250

Thermal conductivity

Temperature $^{\circ}\text{C}$	20
$\text{W m}^{-1} \text{ K}^{-1}$	13

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 155TB1577