

Encapsulated Strain Gages

KHC

● Applicable Linear Expansion Coefficients 11, 16

Mounting Method and Operating Temperature Range

Spot welding: -196 to 550°C

■ Encapsulated Gages for Measurement of Dynamic Strain at 550°C and Static Strain at 500°C

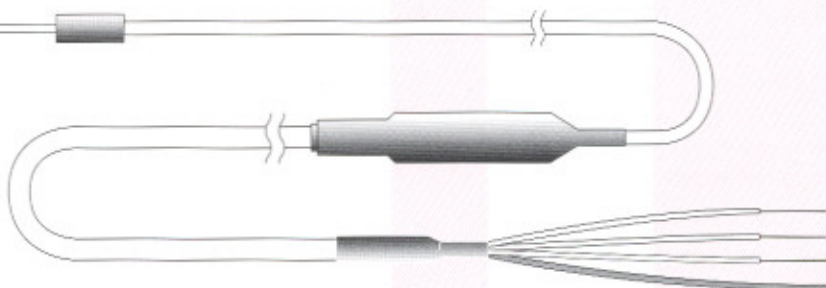
The KHC gages are uniaxial temperature compensation Capsule Gages with 2 elements, active and dummy, forming a half bridge. The sensing part and Mi cable are made of Inconel 600 with the G8 type and of stainless steel with the G9 type. Thus, an optimum model for the operating environment can be selected.

KHC Gages ● Uniaxial 120Ω

Pattern	Leadwire Cable - Type and Shape	Operating Temp. Range	Leadwire Length	Model
KHC-20-120-G8-11 16	3-conductor shielded cable	-196 to 550°C	Mi cable, 2m Soft cable, 50cm	KHC-20-120-G8-11 C2M
	3-conductor shielded cable with bridge adapter	-196 to 550°C	Mi cable, 2m Soft cable, 50cm	KHC-20-120-G8-11 C2MV
	3-conductor shielded cable with compression fitting	-196 to 550°C	Mi cable, 2m Soft cable, 50cm	KHC-20-120-G8-11 C2MF
	3-conductor shielded cable with compression fitting & bridge adapter	-196 to 550°C	Mi cable, 2m Soft cable, 50cm	KHC-20-120-G8-11 C2MFV

Uniaxial 2-element, temperature compensation

- Gage Factor Approx. 1.75 (500°C)
- Base Size 30 x 4 mm
- Gage Length 20 mm
- Gage Resistance 120Ω
- Pieces per Pack 1



KHC Gages • Uniaxial 120Ω/60Ω

Pattern	Leadwire Cable – Type and Shape	Operating Temp. Range	Leadwire Length	Model
KHC-10-120-G8-11 16	3-conductor shielded cable	-196 to 550°C	MI cable, 2m Soft cable, 50cm	KHC-10-120-G8-11 C2M
	3-conductor shielded cable with bridge adapter	-196 to 550°C	MI cable, 2m Soft cable, 50cm	KHC-10-120-G8-11 C2MV
	3-conductor shielded cable with compression fitting	-196 to 550°C	MI cable, 2m Soft cable, 50cm	KHC-10-120-G8-11 C2MF
	3-conductor shielded cable with compression fitting & bridge adapter	-196 to 550°C	MI cable, 2m Soft cable, 50cm	KHC-10-120-G8-11 C2MFV
Uniaxial 2-element, temperature-compensation <ul style="list-style-type: none"> ● Gage Factor Approx. 1.5 (500°C) ● Base Size 16.5 x 4 mm ● Gage Length 10 mm ● Gage Resistance 120Ω ● Pieces per Pack 1 				
KHC-5-60-G8-11 16	3-conductor shielded cable	-196 to 550°C	MI cable, 2m Soft cable, 50cm	KHC-5-60-G8-11 C2M
	3-conductor shielded cable with bridge adapter	-196 to 550°C	MI cable, 2m Soft cable, 50cm	KHC-5-60-G8-11 C2MV
	3-conductor shielded cable with compression fitting	-196 to 550°C	MI cable, 2m Soft cable, 50cm	KHC-5-60-G8-11 C2MF
	3-conductor shielded cable with compression fitting & bridge adapter	-196 to 550°C	MI cable, 2m Soft cable, 50cm	KHC-5-60-G8-11 C2MFV
Uniaxial 2-element, temperature compensation <ul style="list-style-type: none"> ● Gage Factor Approx. 1.1 (500°C) ● Base Size 10 x 4 mm ● Gage Length 5 mm ● Gage Resistance 60Ω ● Pieces per Pack 1 				

KHC Gages • Uniaxial 120Ω

Pattern	Leadwire Cable - Type and Shape	Operating Temp. Range	Leadwire Length	Model
KHC-20-120-G9-11 16	3-conductor shielded cable	-196 to 550°C	MI cable, 2m Soft cable, 50cm	KHC-20-120-G9-11 C2M
	3-conductor shielded cable with bridge adapter	-196 to 550°C	MI cable, 2m Soft cable, 50cm	KHC-20-120-G9-11 C2MV
	3-conductor shielded cable with compression fitting	-196 to 550°C	MI cable, 2m Soft cable, 50cm	KHC-20-120-G9-11 C2MF
	3-conductor shielded cable with compression fitting & bridge adapter	-196 to 550°C	MI cable, 2m Soft cable, 50cm	KHC-20-120-G9-11 C2MFV
KHC-10-120-G9-11 16	3-conductor shielded cable	-196 to 550°C	MI cable, 2m Soft cable, 50cm	KHC-10-120-G9-11 C2M
	3-conductor shielded cable with bridge adapter	-196 to 550°C	MI cable, 2m Soft cable, 50cm	KHC-10-120-G9-11 C2MV
	3-conductor shielded cable with compression fitting	-196 to 550°C	MI cable, 2m Soft cable, 50cm	KHC-10-120-G9-11 C2MF
	3-conductor shielded cable with compression fitting & bridge adapter	-196 to 550°C	MI cable, 2m Soft cable, 50cm	KHC-10-120-G9-11 C2MFV

Uniaxial 2-element, temperature compensation

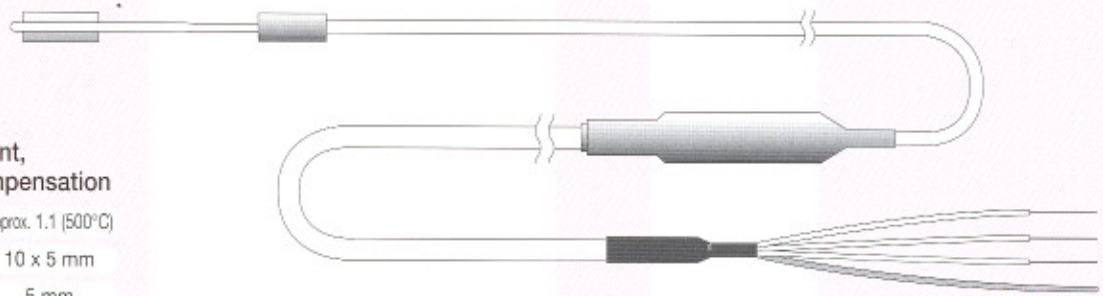
- Gage Factor Approx. 1.75 (500°C)
- Base Size 30 x 5 mm
- Gage Length 20 mm
- Gage Resistance 120Ω
- Pieces per Pack 1

Uniaxial 2-element, temperature compensation

- Gage Factor Approx. 1.5 (500°C)
- Base Size 16.5 x 5 mm
- Gage Length 10 mm
- Gage Resistance 120Ω
- Pieces per Pack 1

KHC Gages ● Uniaxial 60Ω

Pattern	Leadwire Cable - Type and Shape	Operating Temp. Range	Leadwire Length	Model
KHC-5-60-G9-11 16	3-conductor shielded cable	-196 to 550°C	MI cable, 2m Soft cable, 50cm	KHC-5-60-G9-11 C2M
	3-conductor shielded cable with bridge adapter	-196 to 550°C	MI cable, 2m Soft cable, 50cm	KHC-5-60-G9-11 C2MV
	3-conductor shielded cable with compression fitting	-196 to 550°C	MI cable, 2m Soft cable, 50cm	KHC-5-60-G9-11 C2MF
	3-conductor shielded cable with compression fitting & bridge adapter	-196 to 550°C	MI cable, 2m Soft cable, 50cm	KHC-5-60-G9-11 C2MFV



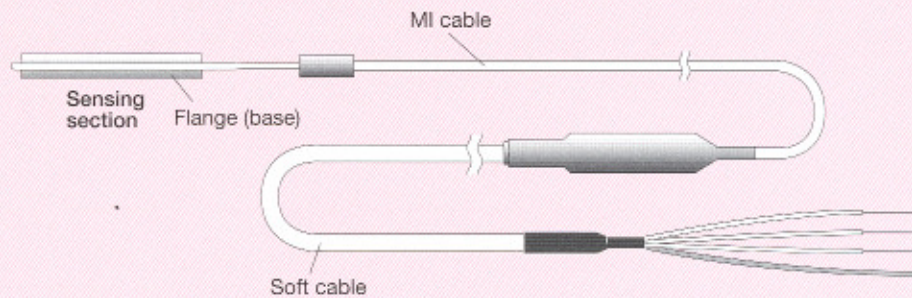
Uniaxial 2-element, temperature compensation

- Gage Factor Approx. 1.1 (500°C)
- Base Size 10 x 5 mm
- Gage Length 5 mm
- Gage Resistance 60Ω
- Pieces per Pack 1



Encapsulated Strain Gages

Encapsulated strain gages are 2-element, temperature compensation gages applicable at high temperatures. The capsule has active and dummy gages embedded in a metal tube filled with insulation (MgO). The leadwire cable is composed of an MI cable and a soft cable, 3 conductors each, for easy handling. Except for the KHCD gage, measurement is performed in conjunction with the dedicated HDB adapter to form a strain-gage bridge. Also available is a bridge adapter which is connected directly to the terminal of the soft cable in place of the HDB.



● Extension of MI Cable/Soft Cable

Extension of MI Cable

The MI cable can be extended to 0.5, 1, 1.5, 2m and thereafter by every 1m step to 30m. Since the MI cable resistance of the KHCD gage is as high as approximately $40\Omega/1m$ reciprocated, its extension considerably reduces the gage factor. Thus, it is recommended to extend the soft cable.

Extension of Soft Cable

The soft cable can be extended up to 30m by every 1m step.

● MI Cables

Gage	Cable Extension Unit
KHCS	0.5m, 1m, 1.5m, 2m and thereafter by every 1m step to 30m
KHCM	
KHC G8	
KHC G9	
KHCX	2m to 30m by every 1m step

● Soft Cables

Gage	Cable Extension Unit
KHCX, KHCD, KHCS, KHCM, KHC	Up to 30m by every 1m step

Options

■ Dedicated Adapters HDB-B/C

The dedicated adapter enables the user to easily configure a strain-gage bridge by soldering the temperature compensation resistor (accessory to encapsulated gage) to the terminal of the adapter (excluding the KHCD gage).

Applicable Gage Resistance	Model	Cable Length	Dimensions & Mass
120 Ω	HDB-120B HDB-120C	1m long, terminated with arrow-shaped chip 1m long, terminated with NDS connector plug	86 x 54 x 33 mm, approx. 200g
60 Ω	HDB-60B HDB-60C	1m long, terminated with arrow-shaped chip 1m long, terminated with NDS connector plug	



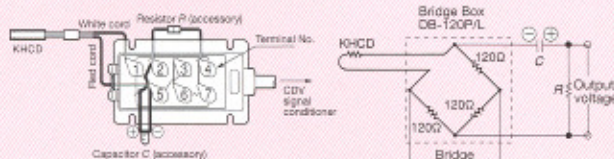
HDB-120B,C

■ Bridge Boxes DB-120P/L

The bridge box enables the user to easily configure a measuring circuit by soldering the resistor and capacitor (accessories to KHCD gages) to the terminal of the box.

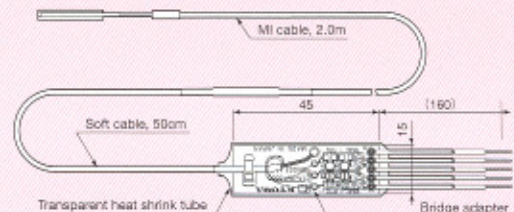


DB-120P



■ Bridge Adapter

The bridge adapter has the most suitable temperature compensation resistor for the operating temperature range mounted to the board. It is connected to the soft cable when delivered. It makes the dedicated HDB adapter unnecessary, while eliminating any possible erroneous wiring and ensuring labor-saving. (excluding the KHCD gage).



■ Compression Fitting (Cable Extractor)

(Except for KHCX and KHCD)

