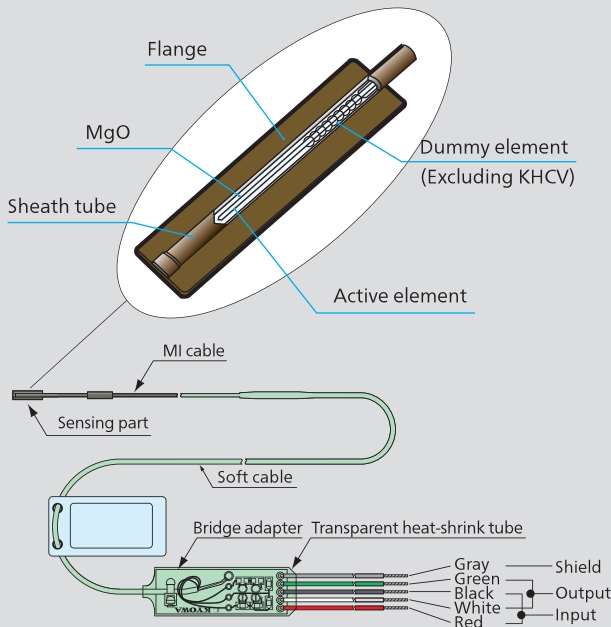


Encapsulated Gages



* The above picture is KHCR with a bridge adapter.

Encapsulated Gages

Encapsulated Gages are welded-type strain gages with a completely airtight structure. The product consists of a sensing part and a cable for signal output. The sensing part is comprised of a flange and an environmentally resistant metallic tube with encapsulated gage and insulator. The sensing part can be fixed to the measurement material by using a compact spot welder GW-3C. Using the high-temperature model, strain measurement can be conducted even in harsh environments involving high temperature, high pressure, and high humidity, such as nuclear-power generation, automobiles, and planes. The specifications are for reference purpose only. Actual values may vary depending on operating conditions including temperatures.

- Gages and lead-wire cables (MI cables) are covered and integrated with metals (such as NCF 600) with excellent environmental properties including heat or corrosion resistance, and can be used in high temperature and high-pressure environments, seawater, and pure water.
- Provides high-precision measurement with minimal thermally-induced apparent strain (KHCV, KHCR, KHCS, KHCM, KHC).
- Detailed test data sheet allows strain measurement to be conducted with high precision.

Types and typical applications

| Type | Normal Temp. | | High Temp. | | | | |
|--------------------------------|----------------|-----------|------------|---------|-------|----------------|-------|
| Model | KCW | KHC | KHCM | KHCS | KHCR | KHCV | KHCX |
| Measuring strain | Static/Dynamic | | | Dynamic | | Static/Dynamic | |
| Max. oprg. temp. ^{*1} | 100°C | 500/550°C | 650°C | 750°C | 750°C | 800°C | 950°C |
| Temp. comp. ^{*2} | Yes | | | | | No | Yes |

*1 Max. oprg. temp.: Max. operating temperature

*2 Temp. comp.: Temperature compensation

| Scope of application | 0°C | 10°C | 200°C | 300°C | 400°C | 500°C | 600°C | 700°C | 800°C | 900°C | 1000°C |
|------------------------------------|---|------|-------|--|-------|---|--|--|--|-------|---|
| Energy | Boiler water pump in thermal power stations | | | Cooling pipes (pure water) in nuclear power stations Gas turbine combustors | | | Heat exchangers in thermal power stations Nuclear fuel rods | Around nuclear power reactors | Boiler steam turbines Fast breeder reactors | | Dynamic and stationary blades in high-temperature gas turbines High temperature gas furnaces |
| Plant Large structure | Various plumbing of large plants | | | | | Around high-temperature furnaces for steel manufacturing Fireproof tests for steel reinforced concrete structure | | | | | Petrochemical reactors Heat treatment furnaces Incinerators |
| Automobile Aviation Shipping | Automobile intake blowers | | | Automobile cylinder heads Automobile pistons | | | Automobile exhaust valves | Automobile exhaust manifolds Automobile exhaust turbines Automobile exhaust mufflers | | | Ship turbines Aircraft jet engine turbines |