

## Series Y Strain Gages

Technical Data		
strain gage construction measuring grid material thickness carrier material base thickness cover thickness connections for strain gages without leads	          μm          μm μm	foil strain gage complete with embedded measuring grid  Constantan foil 3.8 or 5, depending on strain gage type  polyimide 45 ± 10 25 ± 5  nickel plated Cu leads, approx. 30mm in length. integrated solder tabs, approx. 1.5mm in length, approx. 1.6 ... 2.2mm wide
nominal resistance resistance tolerance except for KY types, per chain gage factor nominal factor of gage factors gage factor tolerance for 0.6mm and 1.5mm measuring grid length for ≥ 3 mm measuring grid length temperature coefficient of the gage factor nominal value of temperature coefficient of gage factor	          Ω % %          %          1/K	120, 350, 700, or 1000, depending on strain gage type ± 0.3 without; ± 0.35 with leads <sup>2)</sup> ± 0.5 approx. 2 specified on each package ± 1.5 %± 1 ca. (115 ± 10) · 10 <sup>-6</sup> specified on each package
reference temperature operation temperature range for static, i.e. zero point related measurements for dynamic, i.e. not zero point related measurements	    °C °C °C	23  - 70 ... + 200 -200 ... + 200
transverse sensitivity within reference temperature range using adhesive Z 70 on strain gage type LY 11-6/120	 %	- 0.1
temperature variation temperature variation acc. to selection, adjusted to thermal expansion coefficient α α for ferritic steel α for aluminium α for plastic material α for austenitic steel α for titanium/ grey steel α for molybdenum α for quartz temperature variation tolerance adjustment of temperature variation within range	                      1/K 1/K 1/K 1/K 1/K 1/K 1/K 1/K 1/K °C	specified on each package  10.8 · 10 <sup>-6</sup> 23 · 10 <sup>-6</sup> 65 · 10 <sup>-6</sup> 16 · 10 <sup>-6</sup> 9 · 10 <sup>-6</sup> 5.4 · 10 <sup>-6</sup> 0.5 · 10 <sup>-6</sup> ± 0.3 · 10 <sup>-6</sup> -10 ... + 120
mechanical hysteresis <sup>1)</sup> at reference temperature and strain ε = ± 1000 μm/m strain gage type LY 11-6/120 at 1st load cycle and adhesive Z 70 at 3rd load cycle and adhesive Z 70 at 1st load cycle and adhesive X 60 at 3rd load cycle and adhesive X 60 at 1st load cycle and adhesive EP 250 at 3rd load cycle and adhesive EP 250	                μm/m μm/m μm/m μm/m μm/m μm/m μm/m	1 0.5 2.5 1 1 1 1
maximum elongation <sup>1)</sup> at reference temperature using adhesive Z 70 on strain gage type LY 11-6/120 strain limit ε for positive direction strain limit ε for negative direction	    μm/m μm/m	50 000 ( Δ 5 %) 50 000 ( Δ 5 %)
fatigue life <sup>1)</sup> at reference temperature using adhesive X 60 on strain gage type LY 11-6/120 stress cycle value L <sub>w</sub> at alternating strain ε <sub>w</sub> = ± 1000 μm/m and zero point drift $\epsilon_m \Delta \leq 300 \mu\text{m/m}$ $\epsilon_w \Delta \leq 30 \mu\text{m/m}$	                      	>> 10 <sup>7</sup> (test was interrupted at 10 <sup>7</sup> ) > 10 <sup>7</sup> (test was interrupted at 10 <sup>7</sup> )
minimum radius of curvature, longitudinal and transverse, at reference temperature for strain gages c/w leads for strain gages c/w integrated leads within the measuring grid area within the area of the solder tabs usable bonding materials cold curing adhesives hot curing adhesives	                      mm                      mm mm mm	0.3  0.3 2  Z 70; X 60; X 280 EP 250; EP 310

<sup>1)</sup> The data depend on the various parameters of the specific application and are therefore stated for representative examples only.

<sup>2)</sup> With measuring grid lengths of 0.6 mm, the nominal resistance may deviate by ± 1%. For the types LY 51/ ... the deviation is ± 0,75%.