Series K Strain Gages

Technical data

Type		LK11, LK13, DK11, DK13, XK51, XK53, XK11, XK13, MK11	LK21,LK23, LK41, DK21, DK23, XK61, XK21, MK21
strain gage construction		foil strain gage with embedded measuring grid, with integrated leads	foil strain gage open face, with integrated solder tabs
measuring grid			
material		Constantan foil	
thickness	µm	5	
carrier			
material		phenolic resin, glass fibre reinforced	
base thickness	µm	35 ± 10	
cover thickness	µm	25 ± 8	–
connections		nickel plated Cu leads, approx. 30mm in length	–
nominal resistance	Ω	350	
resistance tolerance [2]	%	± 0,35	± 0,3
gage factor		approx. 2	
nominal value of gage factor		specified on each package	
gage factor tolerance	%	± 0,7	
temperature coefficient of the gage factor	1/K	ca. (115 ± 10) · 10^{-6}	
nominal value of temperature coefficient of gage factor		specified on each package	
reference temperature	°C	23	
operation temperature range			
for static, i.e. zero point related measurements	°C	- 70 ... + 200	
for dynamic, i.e. not zero point related measurements	°C	- 200 ... + 200	
transverse sensitivity			
within reference temperature range using adhesive Z 70	%		
on strain gage type LK 11-6/120		- 0,9	
temperature variation		specified on each package	
temperature variation acc. to selection, adjusted to thermal expansion coefficient α			
α for ferretic	1/K	10,8 · 10^{-6}	
α für Aluminum	1/K	23 · 10^{-6}	
other adaptions on request			
temperature variation tolerance	1/K	± 0,3 ...· 10^{-6}	
adjustment of the temperature variation within range	°C	-10 ... + 120	
creep adjustment			
The end loop length „u" corresponds to a multiple of the grid line width s		ID letter	
 end loop		A: u = 1s C: u = 2s E: u = 3s G: u = 4s I: u = 5s K: u = 6s	M: u = 7s O: u = 8s Q: u = 9s S: u = 10s U: u = 11s W: u = 12s
mechanical hysteresis[1]			
at reference temperature and strain ε = ± 1000 µm/m			
on strain gage type LK11E-3/350			
at 1st load cycle and adhesive Z 70	µm/m	1,1	
at 3rd load cycle and adhesive Z 70	µm/m	0,8	
maximum elongation[1]			
at reference temperature using adhesive Z 70 on			
strain gage type LK 11-6/120			
strain limit ε for positive direction	µm/m	20 000 (≙ 2 %)	
strain limit ε for negative direction	µm/m	50 000 (≙ 5 %)	
fatigue life[1]			
at reference temperature using adhesive Z 70			
on strain gage type LK 11-6/120			
stress cycle value L_a at alternating strain ε_w = ± 1000 µm/m and			
zero zero point drift $\Delta \varepsilon_m \leqq$ 300 µm/m		>> 10^7	
$\Delta \varepsilon_m \leqq$ 30 µm/m		3 · 10^6	
minimum radius of curvature, longitudinal and transverse, at reference temperature	mm	3	
usable bonding materials			
cold curing adhesives		Z 70; X 60; X 280	
hot curing adhesives		EP 250; EP 310	

[1] The data depend on the various parameters of the specific application and are therefore stated for representative examples only.
[2] With measuring grid lengths of 0.6 mm, the nominal resistance may deviate by ± 1%.