RADIAL LOAD CELLS

FOR WEB TENSIONS SERIES LCR 200

• THROUGH HOLE • ANGULAR REGULATION • WHOLE PROTECTION AGAINST OVERLOADS

APPLICATIONS:

The radial load cells Series LCR 200, named also tensiometers, are installed at one or at both the ends of the measuring cylinder in direct contact with the web.

They find applications in textile machines, in paper, plastic, rubber, metal foil and printing machines and, generally, where it is necessary to control the tension on rolled material by the measure of the radial force.

MAIN CONSTRUCTIVE FEATURES:

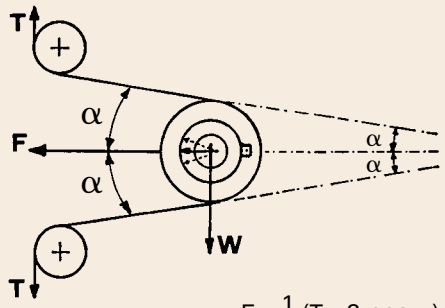
- **Parts of the load cell**: the strain gauge load cell is made by 3 separable parts: the fixing base, the measuring body, the cover.

  The *fixing base* is fastened by screws to the machine frame. By its deep thickness it enters into the measuring body and it becomes its support.

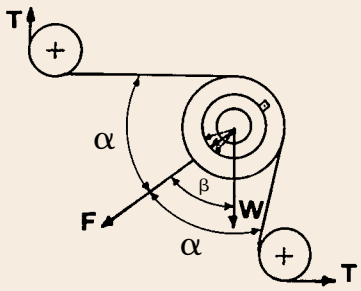
  The *measuring body* includes: the rolling bearing, the strain-gauge sensors (the electronics) and the electrical connector.

  The *cover* with its fixing screws. The screws are passing through the measuring body and they lock the 3 parts in an only block.
- **Cell with axial through hole**: the end pivot of the cylinder can protube beyond the back of the cell: better design flexibility and installation even on pre-existing machines.
- **Thin thickness**: to extend the installation possibilities.
- **Overload protections**: in all the radial and axial directions (x-y-z).
- **Coincidence of the load axis** with the internal plane of the sensors: to minimize the measuring errors due to the change of the axial position of the load.
- **Possibility of rotation** of the central measuring body during the installation: for an accurate alignment of the measuring axis with the load direction and for a better validity of the measure and of the feedback control.
- **Environmental and dust protection** in front and in back of the cell by distinct gaskets either for the rolling bearing or for the sensor room.
- **High accuracy,** solidity and use flexibility.
- **Choice** of several models, rolling bearings and measuring ranges.

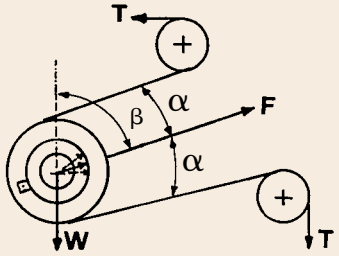
HOW TO LINE UP THE MEASURING AXIS



$F = \frac{1}{2}(T \cdot 2 \cos \alpha)$



$F = \frac{1}{2}(T \cdot 2 \cos \alpha + W \cos \beta)$



$F = \frac{1}{2}(T \cdot 2 \cos \alpha - W \cos \beta)$

F=radial force measured by one cell settled in one end of the cylinder. *T=web tension.*
W=weight of the cylinder and of the bearing. *The first example with W=0 is advisable for low web tensions.*

Rotation of the measuring body: ± 10 degrees.
During the installation and before tightening the screws of the cover, to adjust the measuring axis of the cell in the direction of the web resulting force, the measuring body can be rotated of about ± 10 degrees without modifying the fixing holes of the machine frame.

TECHNICAL SPECIFICATIONS

Measuring ranges (1)**:**

Mod. LCR 215:	0 to ± 5 - 10 - 20 - 50 - 80 Kg.	(Al)	(Al=Aluminium)
Mod. LCR 220:	0 to ± 100 - 200 - 350 Kg.	(Al)	
Mod. LCR 240:	0 to ± 500 - 1000 - 1500 Kg.	(Fe)	(Fe=Steel)
(1) Note:	for sensitivity: ± 1mV/V FS, the values of the ranges are reduced to half.		

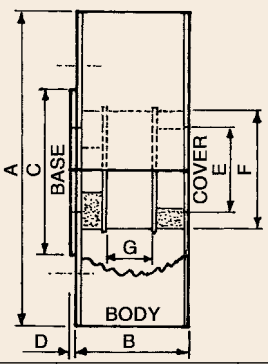
- **Excitation voltage:** 10 Vdc stabilized (standard); 18 Vdc max.
- **Sensitivity:** ± 2 mV/V FS., typical. (± 1 mV/V FS).
- **Total error:** ⩽± 0,2% FS. **Variation of zero:** within 5°K: ⩽ ± 0,1% FS.
- **Overload:** 500% FS max (sensitivity: 1mV/V FS); 250% FS max (sensitivity: 2mV/V FS).
- **Number of strain gauges:** 8 as an active full bridge.

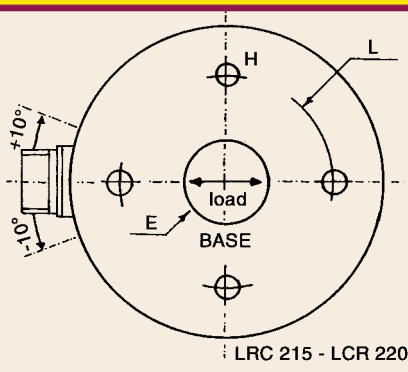
WITH INTERNAL AMPLIFIER (suffix: -A) (2):

(2) Note: in measuring systems with 2 or more cells, use only not-amplified cells with the *summing unit: EL574* or with the digital conditioner 698.

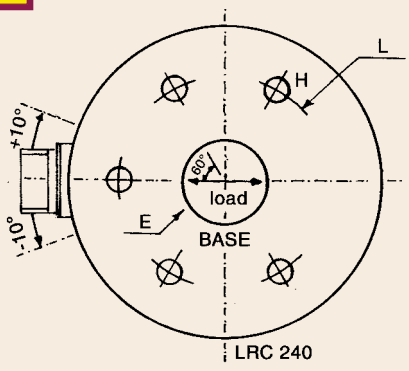
- **Output** (and supply):
  Voltage amplifiers: (-A5): Output: ± 5 V (Supply: 10,5 ÷ 28 Vdc); (-A10): Output: ± 10 V (Supply:18 ÷ 28 Vdc).
  Current amplifier: (-A4): Output: 4÷20 mA; (Supply:12 ÷ 40 V).
- **Working temperature range**: *without amplifier:* - 10 ÷ + 100°C; *with internal amplifier:* - 10 ÷ + 85° C.

OVERALL DIMENSIONS

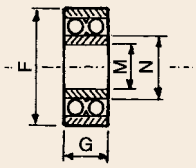




LRC 215 - LCR 220



LRC 240



ROLLING BEARINGS

MODEL	RANGES	SIZES mm							SELF-ALIGNING BALL BEARINGS SKF								SELF-ALIGNING ROLLER BEARINGS SKF							
	Kg	A	B	C	D	E	H	L	MODEL	F	G	M	N	$P_{1.5}$	P_3	P_{15}	MODEL	F	G	M	N	$P_{1.5}$	P_3	P_{15}
LCR215	0 to ±5-10-20-50-80	99	35	50	3	22,9	6,3	64	2202 E	35	14	15	20,9	140	110	65	-	-	-	-	-	-	-	-
LCR220	0 to ±100-200 -350	119	35	60	3	35,3	6,3	82	1304 E	52	15	20	33,3	230	185	105	21304 CC	52	15	20	28,5	600	490	300
LCR240	0 to ±500-1000-1500	185	62	90	5	54,4	8,3	126,7	2208 E	80	23	40	52,4	520	410	240	22208 E	80	23	40	49,1	1750	1430	880
P = approximate max. dynamic load in Kg. for an expected working life of 25000 hours at $P_{1.5}$=150; P_3=300; P_{15}=1500 RPM																	25000 hours = 12 years at 40h/week					E = N ± 2		

Specifications and prices may change without notice.

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