

**ASSEMBLY ENDS**

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour.

SUPPORT

Aluminium in natural colour.

GRADUATED CONTRAST SCREEN

White lacquered aluminium. It can be taken out before assembly to allow the insertion of level lines or words.

BRACKET WITH SENSORS

Watertight glass-fibre reinforced polyamide based (PA) technopolymer, black colour.

SWIVELLING CONNECTOR

With built-in cable gland and contact holder. Front or axial output (high or low) ensuring protection against water sprays (protection class IP 65 according to table EN 60529 on page A-19).

STANDARD EXECUTIONS

See configuration table.

SPECIAL EXECUTIONS ON REQUEST

- Column level window in transparent methylmethacrylate (PMMA) for max 70°C use.
- Polyamide based technopolymer float (from HCK.127) red colour.
- NBR float (from HCK.176) black colour with AISI 316 stainless steel spiral for special executions, viscous liquids, high temperatures.
- Indicators with level visibility (e) up to 1429 mm and fixing holes with hole centre distance (f) up to 1500 mm.
- Packing rings in special material depending on the customer's needs.
- Special screw with nickel-plated brass tap to be fitted to the lower assembly end for any maintenance operation requiring the indicator exclusion.

TECHNICAL DATA

In laboratory tests carried out for a relatively limited time with the following liquids at a temperature of 23° C: mineral oil type CB68 (according to ISO 3498) for HCK, mineral oil type CB68 (according to ISO 3498) water or water/glycol-based solutions (50%) for HCK-GL, the resistance values were much higher than 35 bar.

For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.

In any case we suggest to verify the suitability of the product under the actual working conditions.

Conversion Table

1 mm = 0.039 inch

f	
mm	inch
127	5.00
176	6.93
254	10.00
381	15.00
508	20.00

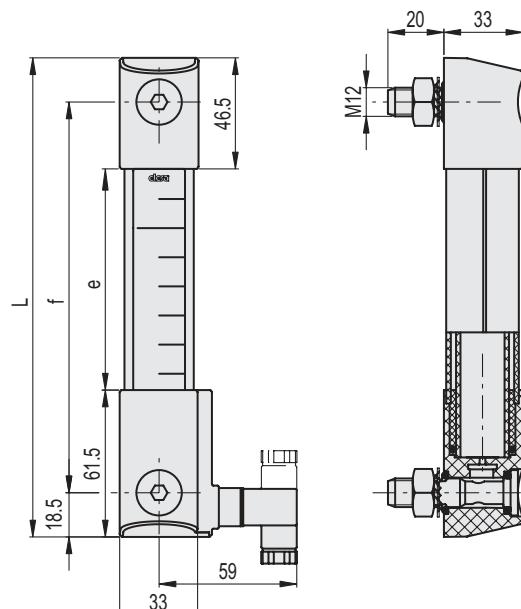
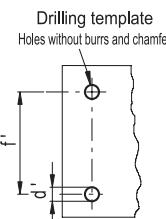
METRIC

f	L	e	d ^{1.02}	f'	C# [Nm]	ΔΔ
127	164	56	12.5	127±0.5	12	228
176	213	105	12.5	176±0.5	12	258
254	291	183	12.5	254±0.5	12	305
381	418	310	12.5	381±0.5	12	384
508	545	437	12.5	508±0.5	12	462

Maximum tightening torque.



ELESA Original design



FUNCTIONING OF THE MAX TEMPERATURE SENSOR

- NO: the electrical contact closes when the pre-set temperature is reached at 80°C.
- NC: the electrical contact opens when the pre-set temperature at 80°C is reached.

Electrical features	MAX temperature sensor		
Power supply	AC/DC		
Electric contacts	NO normally open NC normally closed		
Voltage / Maximum current	250 Vac - 2 A	(resistive loads)	
	115 Vac - 3 A		
	24 Vdc - 3 A		
	12 Vdc - 4 A		
Minimum current	50 mA		
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)		
Conductors cross-section	Max. 1.5 mm ²		

CONNECTOR ASSEMBLY INSTRUCTIONS

1. Remove the connector from the indicator by unscrewing the set screw placed on the connector, take the contact holders out and loosen the cable gland.
2. See Fig.3 to proceed with the wiring according to the chosen product.
3. Assemble by pressing the contact holder into the connector in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.

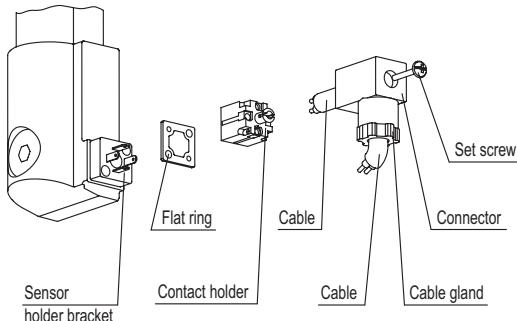
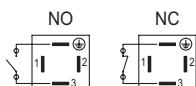


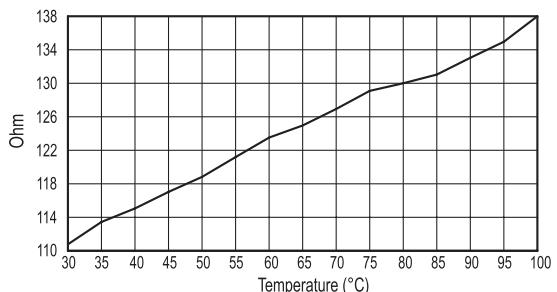
Fig.3

HCK-ST**HCK-STL****FUNCTIONING OF THE TEMPERATURE ELECTRICAL PROBE**

The working principle of the temperature probe is to measure the variation of resistance of a platinum element: 100 ohm = 0°C, 138.4 ohm = 100°C.

The function between temperature (T) and resistance (R) is approximately linear over a small temperature range: for example, if you assume that it is linear over the 0° to 100°C range, the error at 50°C is 0.4°C. For precision measurement, it is necessary to linearise the resistance to give an accurate temperature. The most recent definition of the function between resistance and temperature is International Temperature Standard 90 (ITS-90). The function between resistance and temperature, obtained in laboratory tests, measuring directly the resistance value on the contacts is shown in the graph. We suggest, anyway, to set the system in order to compensate both heat dissipation and cable resistance.

Resistance / temperature conversion graph



A 1°C temperature change will cause a 0.384 ohm change in resistance, so even a small error in measurement of the resistance (for example, the resistance of the wires leading to the sensor) can cause a large error in the measurement of the temperature.

Because of the low signal levels, it is important to keep any cables away from electric cables, motors, switchgear and other devices that may emit magnetic or electrical noise. Using screened cable, with the screen grounded at one end, may help to reduce interference.

When using long cables, it is necessary to check that the measuring equipment is able to handle the cable resistance.

Electrical features **Temperature probe**

Power supply	AC/DC
Maximum current	1mA
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm ²
Do not mount this indicator in proximity to magnetic fields.	



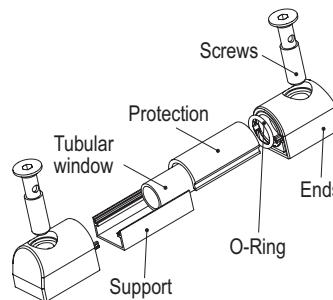
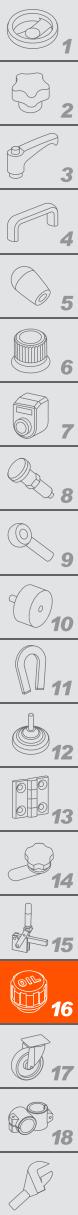


TABLE FOR THE CONFIGURATION OF THE STANDARD EXECUTIONS

	HCK.	-	127	-	ZN	-	M12	-	NBR	-	PC	-	P	-	ST80-NO	
①	Hole centre distance (f)		127												127 mm	
			176												176 mm	
			254												254 mm	
			381												381 mm	
			508												508 mm	
②	Screws, nuts and washers			ZN											Zinc-plated steel.	
				SST											AISI 303 stainless steel screws, AISI 304 stainless steel nuts and washers.	
				SST316											AISI 316 stainless steel.	
③	Packing rings				NBR										NBR synthetic rubber O-Ring for use with maximum continuous working temperature 100°C.	
					FKM										FKM synthetic rubber O-Ring type VITON® for use with maximum continuous working temperature 130°C.	
④	Level tubular window					PC									Polycarbonate transparent tube for use with oil.	
						GL									Borosilicate glass transparent tube for use with oil, water or water/glycol-based solutions (50%), supplied with front protection (P) paragraph 5.	
⑤	Transparent front protection					P									Polycarbonate (PC). Removable for cleaning operations.	
						NP									Without protection (for execution PC paragraph 4).	
⑥	Sensor / Temperature probe					80-NO									Temperature electrical sensor MAX = 80°C with electric contacts normally open.	
						80-NC									Temperature electrical sensor MAX = 80°C with electric contacts normally closed.	
						STL									PT100 temperature electrical probe.	

VITON® Registered trademark by DuPont Dow Elastomers.



INOX STAINLESS STEEL

* See table for the configuration of the standard executions.

HCK-SST316-PC-P		HCK-SST316-GL-P		HCK-SST316-PC-NP	
Code	Description*	Code	Description*	Code	Description*
113603	HCK.127-SST316-M12-NBR-PC-P-80-NC	113647	HCK.127-SST316-M12-NBR-GL-P-80-NC	113603-NP	HCK.127-SST316-M12-NBR-PC-NP-80-NC
113605	HCK.127-SST316-M12-NBR-PC-P-80-NO	113649	HCK.127-SST316-M12-NBR-GL-P-80-NO	113605-NP	HCK.127-SST316-M12-NBR-PC-NP-80-NO
113607	HCK.127-SST316-M12-NBR-PC-P-STL	113651	HCK.127-SST316-M12-NBR-GL-P-STL	113607-NP	HCK.127-SST316-M12-NBR-PC-NP-STL
114573	HCK.176-SST316-M12-NBR-PC-P-80-NC	114617	HCK.176-SST316-M12-NBR-GL-P-80-NC	114573-NP	HCK.176-SST316-M12-NBR-PC-NP-80-NC
114575	HCK.176-SST316-M12-NBR-PC-P-80-NO	114619	HCK.176-SST316-M12-NBR-GL-P-80-NO	114575-NP	HCK.176-SST316-M12-NBR-PC-NP-80-NO
114577	HCK.176-SST316-M12-NBR-PC-P-STL	114621	HCK.176-SST316-M12-NBR-GL-P-STL	114577-NP	HCK.176-SST316-M12-NBR-PC-NP-STL
116683	HCK.254-SST316-M12-NBR-PC-P-80-NC	116727	HCK.254-SST316-M12-NBR-GL-P-80-NC	116683-NP	HCK.254-SST316-M12-NBR-PC-NP-80-NC
116685	HCK.254-SST316-M12-NBR-PC-P-80-NO	116729	HCK.254-SST316-M12-NBR-GL-P-80-NO	116685-NP	HCK.254-SST316-M12-NBR-PC-NP-80-NO
116687	HCK.254-SST316-M12-NBR-PC-P-STL	116731	HCK.254-SST316-M12-NBR-GL-P-STL	116687-NP	HCK.254-SST316-M12-NBR-PC-NP-STL
117593	HCK.381-SST316-M12-NBR-PC-P-80-NC	117637	HCK.381-SST316-M12-NBR-GL-P-80-NC	117593-NP	HCK.381-SST316-M12-NBR-PC-NP-80-NC
117595	HCK.381-SST316-M12-NBR-PC-P-80-NO	117639	HCK.381-SST316-M12-NBR-GL-P-80-NO	117595-NP	HCK.381-SST316-M12-NBR-PC-NP-80-NO
117597	HCK.381-SST316-M12-NBR-PC-P-STL	117641	HCK.381-SST316-M12-NBR-GL-P-STL	117597-NP	HCK.381-SST316-M12-NBR-PC-NP-STL
118503	HCK.508-SST316-M12-NBR-PC-P-80-NC	118547	HCK.508-SST316-M12-NBR-GL-P-80-NC	118503-NP	HCK.508-SST316-M12-NBR-PC-NP-80-NC
118505	HCK.508-SST316-M12-NBR-PC-P-80-NO	118549	HCK.508-SST316-M12-NBR-GL-P-80-NO	118505-NP	HCK.508-SST316-M12-NBR-PC-NP-80-NO
118507	HCK.508-SST316-M12-NBR-PC-P-STL	118551	HCK.508-SST316-M12-NBR-GL-P-STL	118507-NP	HCK.508-SST316-M12-NBR-PC-NP-STL
113735	HCK.127-SST316-M12-FKM-PC-P-80-NC	113777	HCK.127-SST316-M12-FKM-GL-P-80-NC	113735-NP	HCK.127-SST316-M12-FKM-PC-NP-80-NC
113737	HCK.127-SST316-M12-FKM-PC-P-80-NO	113779	HCK.127-SST316-M12-FKM-GL-P-80-NO	113737-NP	HCK.127-SST316-M12-FKM-PC-NP-80-NO
113739	HCK.127-SST316-M12-FKM-PC-P-STL	113781	HCK.127-SST316-M12-FKM-GL-P-STL	113739-NP	HCK.127-SST316-M12-FKM-PC-NP-STL
114713	HCK.176-SST316-M12-FKM-PC-P-80-NC	114755	HCK.176-SST316-M12-FKM-GL-P-80-NC	114713-NP	HCK.176-SST316-M12-FKM-PC-NP-80-NC
114715	HCK.176-SST316-M12-FKM-PC-P-80-NO	114757	HCK.176-SST316-M12-FKM-GL-P-80-NO	114715-NP	HCK.176-SST316-M12-FKM-PC-NP-80-NO
114717	HCK.176-SST316-M12-FKM-PC-P-STL	114759	HCK.176-SST316-M12-FKM-GL-P-STL	114717-NP	HCK.176-SST316-M12-FKM-PC-NP-STL
116823	HCK.254-SST316-M12-FKM-PC-P-80-NC	116865	HCK.254-SST316-M12-FKM-GL-P-80-NC	116823-NP	HCK.254-SST316-M12-FKM-PC-NP-80-NC
116825	HCK.254-SST316-M12-FKM-PC-P-80-NO	116867	HCK.254-SST316-M12-FKM-GL-P-80-NO	116825-NP	HCK.254-SST316-M12-FKM-PC-NP-80-NO
116827	HCK.254-SST316-M12-FKM-PC-P-STL	116869	HCK.254-SST316-M12-FKM-GL-P-STL	116827-NP	HCK.254-SST316-M12-FKM-PC-NP-STL
117733	HCK.381-SST316-M12-FKM-PC-P-80-NC	117775	HCK.381-SST316-M12-FKM-GL-P-80-NC	117733-NP	HCK.381-SST316-M12-FKM-PC-NP-80-NC
117735	HCK.381-SST316-M12-FKM-PC-P-80-NO	117777	HCK.381-SST316-M12-FKM-GL-P-80-NO	117735-NP	HCK.381-SST316-M12-FKM-PC-NP-80-NO
117737	HCK.381-SST316-M12-FKM-PC-P-STL	117779	HCK.381-SST316-M12-FKM-GL-P-STL	117737-NP	HCK.381-SST316-M12-FKM-PC-NP-STL
118643	HCK.508-SST316-M12-FKM-PC-P-80-NC	118685	HCK.508-SST316-M12-FKM-GL-P-80-NC	118643-NP	HCK.508-SST316-M12-FKM-PC-NP-80-NC
118645	HCK.508-SST316-M12-FKM-PC-P-80-NO	118687	HCK.508-SST316-M12-FKM-GL-P-80-NO	118645-NP	HCK.508-SST316-M12-FKM-PC-NP-80-NO
118647	HCK.508-SST316-M12-FKM-PC-P-STL	118689	HCK.508-SST316-M12-FKM-GL-P-STL	118647-NP	HCK.508-SST316-M12-FKM-PC-NP-STL