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up to 100 °C

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with prismatic window, technopolymer
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Column level indicator
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with transparent protection for glycol-based solutions, technopolymer

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Column level indicators
with MAX temperature electrical sensor, technopolymer

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with MIN level electrical sensor, technopolymer

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Column level indicators
with MIN level and MAX temperature electrical sensors, technopolymer

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Column level indicators
with MIN level electrical sensor and temperature electrical probe, technopolymer

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HCV-ST

Column level indicators
with MAX temperature electrical sensor

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HCV-STL

Column level indicators
with temperature electrical probe

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HCV-E

Column level indicators
with MIN level electrical sensor, connector with side output, technopolymer

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Column level indicators
with MIN level and MAX temperature electrical sensors

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HCV-E-STL

Column level indicators
with MIN level electrical sensor and temperature electrical probe

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Column level indicators
with MIN level electrical sensor, technopolymer

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HCY-E-ST

Column level indicators
with MIN level and MAX temperature electrical sensors, technopolymer

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HFL-E

Rapid levels with float
Technopolymer

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HFLT-E

Rapid levels with float
Technopolymer

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HGFT.

Oil level indicators

Technopolymer

MATERIAL
Polyamide based (PA) technopolymer, black or red colour, glossy finish (HGFT/SL only black colour).

WINDOW
Transparent polyamide based (PA-T/AR) technopolymer.

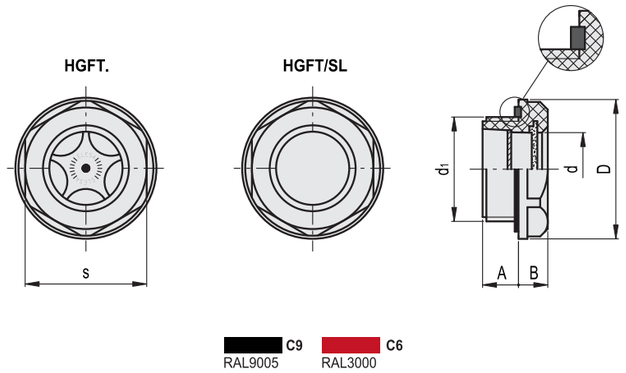
PACKING RING
NBR synthetic rubber.

STANDARD EXECUTIONS
- **HGFT.**: with matte anodised aluminium star-shaped contrast screen with red central level point.
- **HGFT/SL**: without contrast screen.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C at 3 bar pressure.

NOTE
For use with other fluids with special additives, please contact ELESA Sales Department.

ACCESSORIES ON REQUEST
Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



HGFT.

Code	Description	Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
14441	HGFT.10-3/8 C9	14444	HGFT.10-3/8 C6	G 3/8	8	7	24	11	22	4÷8	4
14461	HGFT.13-1/2 C9	14464	HGFT.13-1/2 C6	G 1/2	10	8.5	28	14.5	24	6÷8	6
14481	HGFT.16-3/4 C9	14484	HGFT.16-3/4 C6	G 3/4	9.5	8.5	35	18	32	8÷10	10
14521	HGFT.21-1 C9	14524	HGFT.21-1 C6	G 1	11	9.5	42.5	23	38	10÷12	15
14541	HGFT.25-1¼ C9	14544	HGFT.25-1¼ C6	G1 1/4	11	9	50	30	46	12÷15	30
14561	HGFT.40-2 C9	14564	HGFT.40-2 C6	G 2	12	11	68	40	62	12÷15	60

HGFT/SL

Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
14446	HGFT.10/SL-3/8	G 3/8	8	7	24	11	22	4÷8	3
14466	HGFT.13/SL-1/2	G 1/2	10	8.5	28	14.5	24	6÷8	5
14486	HGFT.16/SL-3/4	G 3/4	9.5	8.5	35	18	32	8÷10	9
14526	HGFT.21/SL-1	G 1	11	9.5	42.5	23	38	10÷12	14
14546	HGFT.25/SL-1¼	G1 1/4	11	9	50	30	46	12÷15	29
14566	HGFT.40/SL-2	G 2	12	11	68	40	62	12÷15	59

HGFT-EX

Oil level indicators

Technopolymer

MATERIAL
Polyamide based (PA) technopolymer, black colour, glossy finish.

WINDOW
Transparent polyamide based (PA-T/AR) technopolymer.

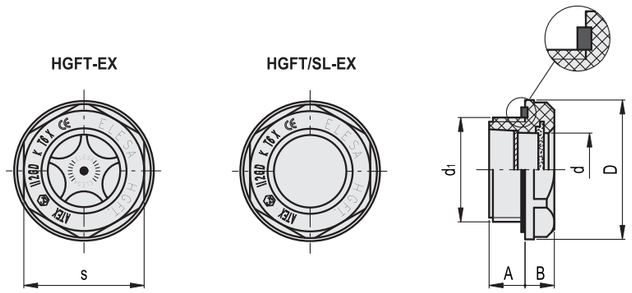
PACKING RING
NBR synthetic rubber.

STANDARD EXECUTIONS
- **HGFT-EX**: with matte anodised aluminium star-shaped contrast screen with red central level point.
- **HGFT/SL-EX**: without contrast screen.

ATEX DIRECTIVE COMPLIANCE
The level indicators of the HGFT-EX series comply with Health and Safety Requirements intended in 94/9/EC ATEX European Directive (explosive atmospheres) for equipments in Group II, category 2GD.
Level indicators have "kX" protection degree and can therefore be mounted on equipment protected by means of "immersion in liquid", without lowering protection degree.
II 2 G D k T6 X, marked on the HGFT-EX level indicators, represents the identification according to ATEX directive.
II: group of substances for which the product is suitable
2: identification of the category
G: identification of the type of explosive atmosphere (Gases or vapours)
D: identification of the type of explosive atmosphere (Dust)
kX: protection degree by means of immersion in liquid
IIB: explosive gases group (only for HGFT.16)
T6: temperature class
Ambient and/or fluid temperature: -30 to +80°C
The declaration of conformity to European Directives of this product is available and it is part of the product itself.

NOTE
For use with other fluids with special additives, please contact ELESA Sales Department.

ACCESSORIES ON REQUEST
Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



HGFT-EX

Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
14441-EX	HGFT.10-3/8-C9-EX	G 3/8	8	7	24	11	22	4÷8	4
14461-EX	HGFT.13-1/2-C9-EX	G 1/2	10	8.5	28	14.5	24	6÷8	6
14481-EX	HGFT.16-3/4-C9-EX	G 3/4	9.5	8.5	35	18	32	8÷10	10

HGFT/SL-EX

Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
14446-EX	HGFT.10/SL-3/8-C9-EX	G 3/8	8	7	24	11	22	4÷8	3
14466-EX	HGFT.13/SL-1/2-C9-EX	G 1/2	10	8.5	28	14.5	24	6÷8	5
14486-EX	HGFT.16/SL-3/4-C9-EX	G 3/4	9.5	8.5	35	18	32	8÷10	9

GN 743

Oil level sight glasses

Aluminum / natural glass, up to 100°C

SPECIFICATION

Types

- Type **A**: with contrast screen, blank
- Type **AS**: with contrast screen, black anodized
- Type **B**: without contrast screen, blank
- Type **BS**: without contrast screen, black anodized

Body
Aluminium

- Type A and B: fine turned, blank
- Type AS and BS: fine turned, black anodized

Contrast screen
Technopolymer (Polysulfon)

- temperature resistant up to **100 °C**
- Sight glass Float-glass
- Sealing ring rubber NBR (Perbunan)

INFORMATION

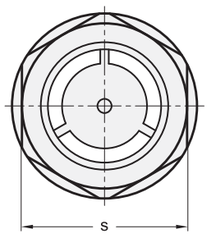
Oil level sight glasses GN 743 offer genuine glass of high stability and scratch proof. The sealing is achieved with an O-ring on the **periphery** and not on the face edge of the glass. Leak tightness is therefore not affected by axial pressures.
The outside diameter of these oil level sight glasses with recessed hexagon is chosen to match mounting holes for tube connections according to DIN 3852.
The seal is housed in a groove and it can therefore not be lost. In addition, this groove prevents the seal from being extruded when the sight glass is tightened.
Oil level sight glasses GN 743 can be used on pressurised oil tanks.
Tests regarding maximum pressure are available on request.
Assembly instruction:
For mounting on walls of less than 4 mm thickness please use a fixing nut GH. (see page 1743).
- RoHS compliant (only types AS and BS)

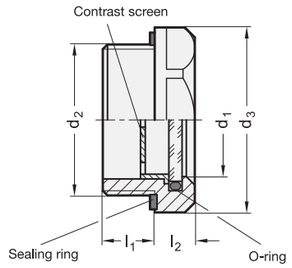
ACCESSORY

- Fixing nut GH. (see page 1743)

ON REQUEST

- EPDM seal





*Complete with type index of the Oil level sight glasses

A **AS** **B** **BS**

GN 743

Description	d1	d2	d3	l1	l2	s	⚖
GN 743-7-M14x1,5-*	7	M 14 x 1.5	20	7.5	6.5	18	6
GN 743-11-M16x1,5-*	11	M 16 x 1.5	22	8	7.5	20	10
GN 743-14-M20x1,5-*	14	M 20 x 1.5	26	8.5	7.5	23	12
GN 743-18-M26x1,5-*	18	M 26 x 1.5	32	9	8	30	18
GN 743-18-M27x1,5-*	18	M 27 x 1.5	32	9	8	30	18
GN 743-24-M33x1,5-*	24	M 33 x 1.5	40	11	8.5	36	26
GN 743-32-M40x1,5-*	32	M 40 x 1.5	50	12	9	46	39
GN 743-32-M42x1,5-*	32	M 42 x 1.5	50	12	9	46	48
GN 743-7-G1/4-*	7	G 1/4	20	7.5	6.5	18	9
GN 743-11-G3/8-*	11	G 3/8	22	8	7.5	20	10
GN 743-14-G1/2-*	14	G 1/2	26	8.5	7.5	23	12
GN 743-18-G3/4-*	18	G 3/4	32	9	8	30	18
GN 743-24-G1-*	24	G 1	40	11	8.5	36	26
GN 743-32-G11/4-*	32	G 1 1/4	50	12	9	46	40
GN 743-32-G11/2-*	32	G 1 1/2	60	13	9	55	80

Weight type A

GN 743.1

Oil level sight glasses

Aluminum / natural glass, up to 180°C

SPECIFICATION

Types

- Type **A**: with contrast screen, blank
- Type **AS**: with contrast screen, black anodized
- Type **B**: without contrast screen, blank
- Type **BS**: without contrast screen, black anodized

Body
Aluminium

- Type A and B: fine turned, blank
- Type AS and BS: fine turned, black anodized

Contrast screen
Technopolymer (Polysulfon)

- temperature resistant up to **180 °C**
- Sight glass ESG-glass
- Sealing ring rubber FPM (Viton®)

Identification by not black finish of the sealing ring

INFORMATION

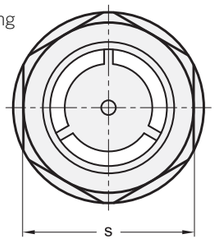
Oil level sight glasses GN 743.1 offer genuine glass of high stability and scratch proof. The sealing is achieved with an O-ring on the **periphery** and not on the face edge of the glass. Leak tightness is therefore not affected by axial pressures.
The outside diameter of these oil level sight glasses with recessed hexagon is chosen to match mounting holes for tube connections according to DIN 3852.
The seal is housed in a groove and it can therefore not be lost. In addition, this groove prevents the seal from being extruded when the sight glass is tightened.
Oil level sight glasses GN 743.1 can be used on pressurised oil tanks.
Tests regarding maximum pressure are available on request.
Assembly instruction:
For mounting on walls of less than 4 mm thickness please use a fixing nut GH. (see page 1743).
- RoHS compliant (only types AS and BS)

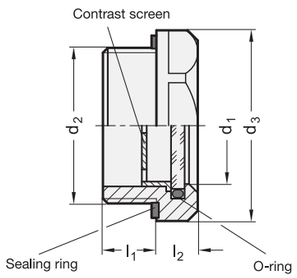
ACCESSORY

- Fixing nut GH. (see page 1743)

ON REQUEST

- EPDM seal





*Complete with type index of the Oil level sight glasses

A **AS** **B** **BS**

GN 743.1

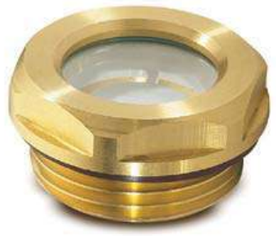
Description	d1	d2	d3	l1	l2	s	⚖
GN 743.1-7-M14x1,5-*	7	M 14 x 1.5	20	7.5	6.5	18	6
GN 743.1-11-M16x1,5-*	11	M 16 x 1.5	22	8	7.5	20	8
GN 743.1-14-M20x1,5-*	14	M 20 x 1.5	26	8.5	7.5	23	10
GN 743.1-18-M26x1,5-*	18	M 26 x 1.5	32	9	8	30	18
GN 743.1-18-M27x1,5-*	18	M 27 x 1.5	32	9	8	30	18
GN 743.1-24-M33x1,5-*	24	M 33 x 1.5	40	11	8.5	36	26
GN 743.1-32-M40x1,5-*	32	M 40 x 1.5	50	12	9	46	45
GN 743.1-32-M42x1,5-*	32	M 42 x 1.5	50	12	9	46	43
GN 743.1-7-G1/4-*	7	G 1/4	20	7.5	6.5	18	6
GN 743.1-11-G3/8-*	11	G 3/8	22	8	7.5	20	9
GN 743.1-14-G1/2-*	14	G 1/2	26	8.5	7.5	23	12
GN 743.1-18-G3/4-*	18	G 3/4	32	9	8	30	18
GN 743.1-24-G1-*	24	G 1	40	11	8.5	36	31
GN 743.1-32-G11/4-*	32	G 1 1/4	50	12	9	46	45
GN 743.1-32-G11/2-*	32	G 1 1/2	60	13	9	55	91

Weight type A

GN 743.2

Oil level sight glasses

Brass / natural glass, up to 100°C



SPECIFICATION

Types

- Type **A**: with contrast screen
- Type **B**: without contrast screen

Body
Brass
CuZn40Pb2

Contrast screen
Technopolymer (Polysulfon)

- temperature resistant up to **100 °C**
- Sight glass Float-glass
- Sealing ring rubber NBR (Perbunan)

INFORMATION

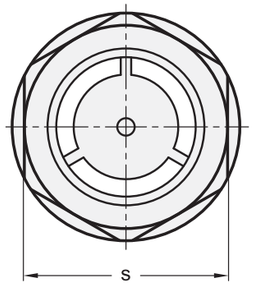
Oil level sight glasses GN 743.2 offer genuine glass of high stability and scratch proof. The sealing is achieved with an O-ring on the **periphery** and not on the face edge of the glass. Leak tightness is therefore not affected by axial pressures.
The outside diameter of these oil level sight glasses with recessed hexagon is chosen to match mounting holes for tube connections according to DIN 3852.
The seal is housed in a groove and it can therefore not be lost. In addition, this groove prevents the seal from being extruded when the sight glass is tightened.
Oil level sight glasses GN 743.2 can be used on pressurised oil tanks. Tests regarding maximum pressure are available on request.
Assembly instruction:
For mounting on walls of less than 4 mm thickness please use a fixing nut GH. (see page 1743).

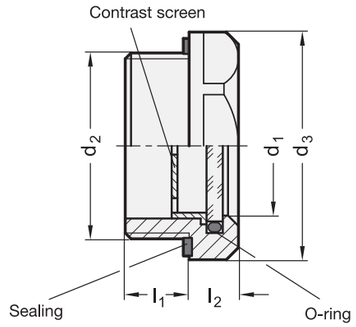
ACCESSORY

- Fixing nut GH. (see page 1743)

ON REQUEST

- EPDM seal





*Complete with type index of the Oil level sight glasses

A with contrast screen
B without contrast screen

GN 743.2

Description	d1	d2	d3	l1	l2	s	⚖
GN 743.2-11-M16x1,5-*	11	M 16 x 1.5	22	8	7.5	20	19
GN 743.2-14-M20x1,5-*	14	M 20 x 1.5	26	8.5	7.5	23	23
GN 743.2-18-M26x1,5-*	18	M 26 x 1.5	32	9	8	30	44
GN 743.2-18-M27x1,5-*	18	M 27 x 1.5	32	9	8	30	46
GN 743.2-24-M33x1,5-*	24	M 33 x 1.5	40	11	8.5	36	70
GN 743.2-11-G3/8-*	11	G 3/8	22	8	7.5	20	20
GN 743.2-14-G1/2-*	14	G 1/2	26	8.5	7.5	23	23
GN 743.2-18-G3/4-*	18	G 3/4	32	9	8	30	44
GN 743.2-24-G1-*	24	G 1	40	11	8.5	36	69

Weight type A

GN 743.3

Oil level sight glasses

Brass / natural glass, up to 180 °C

SPECIFICATION

Types

- Type **A**: with contrast screen
- Type **B**: without contrast screen

Body
Brass
CuZn40Pb2

Contrast screen
Technopolymer (Polysulfon)

- temperature resistant up to **180 °C**
- Sight glass ESG-glass
- Sealing ring rubber FPM (Viton®)

Identification by not black finish of the sealing ring

INFORMATION

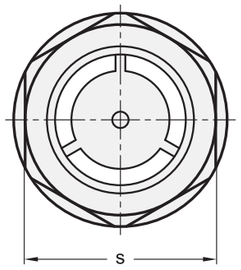
Oil level sight glasses GN 743.3 offer genuine glass of high stability and scratch proof. The sealing is achieved with an O-ring on the **periphery** and not on the face edge of the glass. Leak tightness is therefore not affected by axial pressures.
The outside diameter of these oil level sight glasses with recessed hexagon is chosen to match mounting holes for tube connections according to DIN 3852.
The seal is housed in a groove and it can therefore not be lost. In addition, this groove prevents the seal from being extruded when the sight glass is tightened.
Oil level sight glasses GN 743.3 can be used on pressurised oil tanks. Tests regarding maximum pressure are available on request.
Assembly instruction:
For mounting on walls of less than 4 mm thickness please use a fixing nut GH. (see page 1743).

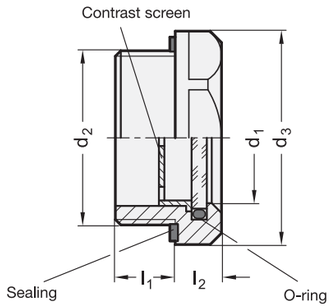
ACCESSORY

- Fixing nut GH. (see page 1743)

ON REQUEST

- EPDM seal





*Complete with type index of the Oil level sight glasses

A with contrast screen
B without contrast screen

GN 743.3

Description	d1	d2	d3	l1	l2	s	⚖
GN 743.3-11-M16x1,5-A	11	M 16 x 1.5	22	8	7.5	20	19
GN 743.3-14-M20x1,5-A	14	M 20 x 1.5	26	8.5	7.5	23	23
GN 743.3-18-M26x1,5-A	18	M 26 x 1.5	32	9	8	30	44
GN 743.3-18-M27x1,5-A	18	M 27 x 1.5	32	9	8	30	46
GN 743.3-24-M33x1,5-A	24	M 33 x 1.5	40	11	8.5	36	70
GN 743.3-11-G3/8-A	11	G 3/8	22	8	7.5	20	20
GN 743.3-14-G1/2-A	14	G 1/2	26	8.5	7.5	23	23
GN 743.3-18-G3/4-A	18	G 3/4	32	9	8	30	43
GN 743.3-24-G1-A	24	G 1	40	11	8.5	36	65

Weight type A

GN 743.4

Stainless Steel-
Oil level sight glasses

Natural glass, up to 100 °C

SPECIFICATION

Types

- Type **A**: with contrast screen
- Type **B**: without contrast screen

Body
Stainless Steel AISI 303

Contrast screen (Type A)
Technopolymer (Polysulfan)

Circlip (Type B)
Stainless Steel AISI 301

- temperature resistant up to **100 °C**
- Sight glass Float-glass
- Sealing ring rubber NBR (Perbunan®)

INFORMATION

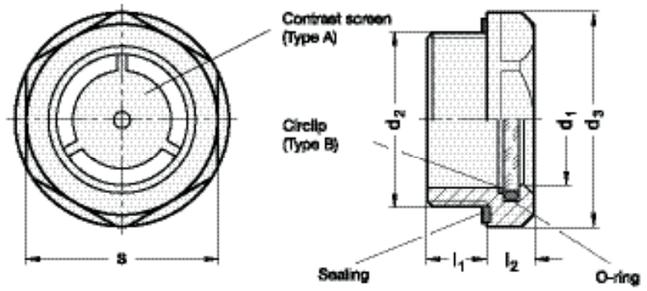
Stainless Steel-Oil level sight glasses GN 743.4 offer genuine glass of high stability and scratch proof. The sealing is achieved with an O-ring on the **periphery** and not on the face edge of the glass. Leak tightness is therefore not affected by axial pressures.
The outside diameter of these oil level sight glasses with recessed hexagon is chosen to match mounting holes for tube connections according to DIN 3852.
The seal is housed in a groove and it can therefore not be lost. In addition, this groove prevents the seal from being extruded when the sight glass is tightened.
Stainless Steel-Oil level sight glasses GN 743.4 can be used on pressurised oil tanks. Tests regarding maximum pressure are available on request.

ON REQUEST

- EPDM seal

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Stainless Steel characteristics (see page A26)



*Complete with type index of the Oil level sight glasses

A	B
with contrast screen	without contrast screen

GN 743.4 — **STAINLESS STEEL**

Description	d1	d2	d3	l1	l2	s	⚖
GN 743.4-11-M16x1,5-*	11	M 16 x 1.5	22	8	7.5	20	20
GN 743.4-14-M20x1,5-*	14	M 20 x 1.5	26	8.5	7.5	23	20
GN 743.4-18-M26x1,5-*	18	M 26 x 1.5	32	9	8	30	40
GN 743.4-24-M33x1,5-*	24	M 33 x 1.5	40	11	8.5	36	63
GN 743.4-32-M42x1,5-*	32	M 42 x 1.5	50	12	9	46	101
GN 743.4-11-G3/8-*	11	G 3/8	22	8	7.5	20	20
GN 743.4-14-G1/2-*	14	G 1/2	26	8.5	7.5	23	52
GN 743.4-18-G3/4-*	18	G 3/4	32	9	8	30	55
GN 743.4-24-G1-*	24	G 1	40	11	8.5	36	61
GN 743.4-32-G11/4-*	32	G 1 1/4	50	12	9	46	99

Weight type A

GN 743.5

Stainless Steel-
Oil level sight glasses

Natural glass, up to 180 °C

SPECIFICATION

Types

- Type **A**: with contrast screen
- Type **B**: without contrast screen

Body
Stainless Steel AISI 303

Contrast screen (Type A)
Technopolymer (Polysulfan)

Circlip (Type B)
Stainless Steel AISI 301

- temperature resistant up to **180 °C**
- Sight glass ESG-glass
- Sealing ring rubber FPM (Viton®)

Identification by not black finish of the sealing ring

INFORMATION

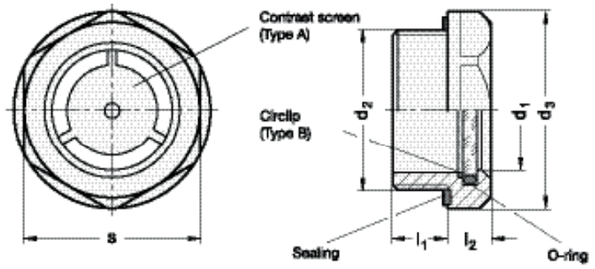
Stainless Steel-Oil level sight glasses GN 743.5 offer genuine glass of high stability and scratch proof. The sealing is achieved with an O-ring on the periphery and not on the face edge of the glass. Leak tightness is therefore not affected by axial pressures.
The outside diameter of these oil level sight glasses with recessed hexagon is chosen to match mounting holes for tube connections according to DIN 3852.
The seal is housed in a groove and it can therefore not be lost. In addition, this groove prevents the seal from being extruded when the sight glass is tightened.
Stainless Steel-Oil level sight glasses GN 743.5 can be used on pressurised oil tanks. Tests regarding maximum pressure are available on request.

ON REQUEST

- EPDM seal

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Stainless Steel characteristics (see page A26)



*Complete with type index of the Oil level sight glasses

A	B
with contrast screen	without contrast screen

GN 743.5 — **STAINLESS STEEL**

Description	d1	d2	d3	l1	l2	s	⚖
GN 743.5-11-M16x1,5-*	11	M 16 x 1.5	22	8	7.5	20	19
GN 743.5-14-M20x1,5-*	14	M 20 x 1.5	26	8.5	7.5	23	20
GN 743.5-18-M26x1,5-*	18	M 26 x 1.5	32	9	8	30	42
GN 743.5-24-M33x1,5-*	24	M 33 x 1.5	40	11	8.5	36	64
GN 743.5-32-M42x1,5-*	32	M 42 x 1.5	50	12	9	46	90
GN 743.5-11-G3/8-*	11	G 3/8	22	8	7.5	20	19
GN 743.5-14-G1/2-*	14	G 1/2	26	8.5	7.5	23	23
GN 743.5-18-G3/4-*	18	G 3/4	32	9	8	30	41
GN 743.5-24-G1-*	24	G 1	40	11	8.5	36	64
GN 743.5-32-G11/4-*	32	G 1 1/4	50	12	9	46	102

Weight type A

GN 743.6

ATEX-Sight glasses

Aluminium / Natural glass

SPECIFICATION

Body
Aluminium
Surface fine turned

Sight glass
ESG-glass

Sealing ring
rubber FPM (Viton®)

Circlip
Stainless Steel AISI 301

Temperature range:
-20 °C up to +150 °C

INFORMATION

ATEX-Sight glasses GN 743.6 are suitable for use in an explosion risk environment. They comply with the guidelines 94/9/EG. Detailed documentation is available and forms part of an order for this product.
A detailed operating instruction is included.
In addition, the body is provided with an ATEX-label.
Further salient points of the oil level sight glasses GN 743.6 are:
Genuine glass of high stability and scratch proof. The sealing is achieved with an O-ring on the **periphery** and not on the face edge of the glass. Leak tightness is therefore not affected by axial pressures.
The sealing ring is embedded in a radial groove and cannot drop out, nor can it be extruded when tightening torque is applied.
Sight glasses GN 743.6 can be used on pressurised oil tanks. Tests regarding maximum pressure are available on request.
Assembly instruction:
For mounting on walls of less than 4 mm thickness please use a fixing nut GH. (see page 1743).

ACCESSORY

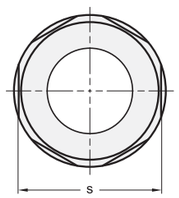
- Fixing nut GH. (see page 1743)

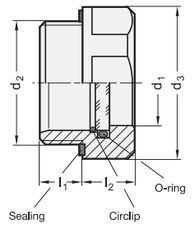
ON REQUEST

- EPDM seal

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Stainless Steel characteristics (see page A26)





GN 743.6

Description	d1	d2	d3	l1	l2	s	⚖
GN 743.6-11-M16x1,5	11	M 16 x 1.5	22	8	8	20	18
GN 743.6-14-M20x1,5	14	M 20 x 1.5	26	8.5	9	23	20
GN 743.6-18-M26x1,5	18	M 26 x 1.5	32	9	11	30	21
GN 743.6-18-M27x1,5	18	M 27 x 1.5	32	9	11	30	22
GN 743.6-18-M27x2	18	M 27 x 2	32	9	11	30	22
GN 743.6-11-G3/8	11	G 3/8	22	8	8	20	20
GN 743.6-14-G1/2	14	G 1/2	26	8.5	9	23	20
GN 743.6-18-G3/4	18	G 3/4	32	9	11	30	35

GN 743.7

Oil level sight glasses

Brass / natural glass, resistant up to 100 °C

SPECIFICATION

Types

- Type **A**: with contrast screen
- Type **B**: without contrast screen

Body
Brass
CuZn40Pb2

Contrast screen
Technopolymer (Polysulfon)

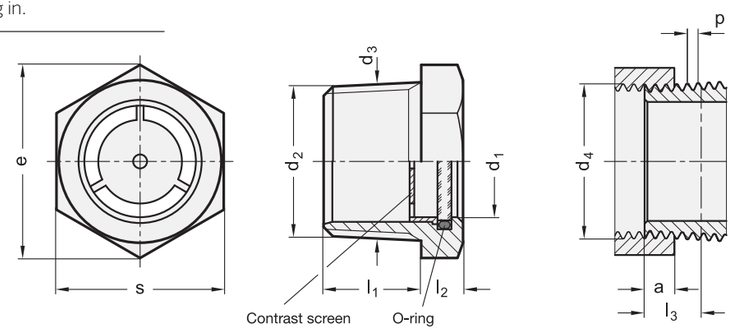
- temperature resistant up to **100 °C**
- Sight glass Float-glass
- O-Ring rubber NBR (Perbunan)

INFORMATION

The conical thread of the oil level sight glasses GN 743.7 makes a metallic seal possible. When tightening the conical male thread R it blocks itself with the appropriate cylindrical female thread Rp.
With the datum plane a the R-male thread has the same thread diameter as the Rp-female thread, so that it can be screwed in by hand. The strong tightening by means of a tool increases the length of engagement and seals the screw connection. Additionally a sealant (hemp or teflon band) is usually used. The R-thread is „roughened", so that the sealant does not shift when screwing in.

ON REQUEST

- EPDM O-rings



GN 743.7

Description	d1	d2	a	d3	d4	e	l1	l2	l3	s	p	⚖
GN 743.7-11-R3/8-A	11	R 3/8	6.4	16.7	Rp 3/8	22	13	6	10.1	19	1.34	19
GN 743.7-14-R1/2-A	14	R 1/2	8.2	21	Rp 1/2	27.5	17	7	13.2	24	1.81	40
GN 743.7-18-R3/4-A	18	R 3/4	9.5	26.4	Rp 3/4	31	18	8	14.5	27	1.81	50
GN 743.7-24-R1-A	24	R 1	10.4	33.2	Rp 1	40.5	21	9	16.8	36	2.3	91
GN 743.7-32-R11/4-A	32	R 1 1/4	12.7	42	Rp 1 1/4	53	24	9	19.1	46	2.3	149
GN 743.7-11-R3/8-B	11	R 3/8	6.4	16.7	Rp 3/8	22	13	6	10.1	19	1.34	20
GN 743.7-14-R1/2-B	14	R 1/2	8.2	21	Rp 1/2	27.5	17	7	13.2	24	1.81	33
GN 743.7-18-R3/4-B	18	R 3/4	9.5	26.4	Rp 3/4	31	18	8	14.5	27	1.81	49
GN 743.7-24-R1-B	24	R 1	10.4	33.2	Rp 1	40.5	21	9	16.8	36	2.3	91
GN 743.7-32-R11/4-B	32	R 1 1/4	12.7	42	Rp 1 1/4	53	24	9	19.1	46	2.3	140
GN 743.7-32-11/4NPT-B	32	1 1/4 NPT	10.7	42.2	1 1/4 NPT	51.5	23	9	-	44.5	2.21	133
GN 743.7-11-3/8NPT-A	11	3/8 NPT	6.1	17.1	3/8 NPT	22	15	6	-	19.1	1.41	19
GN 743.7-14-1/2NPT-A	14	1/2 NPT	8.1	21.2	1/2 NPT	27.5	16	7	-	23.8	1.81	31
GN 743.7-18-3/4NPT-A	18	3/4 NPT	8.6	26.6	3/4 NPT	33	18	8	-	28.6	1.81	55
GN 743.7-24-1NPT-A	24	1 NPT	10.2	33.7	1 NPT	41.5	22	8	-	34.9	2.21	73
GN 743.7-32-11/4NPT-A	32	1 1/4 NPT	10.7	42.2	1 1/4 NPT	51.5	23	9	-	44.5	2.21	135
GN 743.7-11-3/8NPT-B	11	3/8 NPT	6.1	17.1	3/8 NPT	22	15	6	-	19.1	1.41	200
GN 743.7-14-1/2NPT-B	14	1/2 NPT	8.1	21.2	1/2 NPT	27.5	16	7	-	23.8	1.81	34
GN 743.7-18-3/4NPT-B	18	3/4 NPT	8.6	26.6	3/4 NPT	33	18	8	-	28.6	1.81	60
GN 743.7-24-1NPT-B	24	1 NPT	10.2	33.7	1 NPT	41.5	22	8	-	34.9	2.21	83
GN 743.7-32-11/4NPT-B	32	1 1/4 NPT	10.7	42.2	1 1/4 NPT	51.5	23	9	-	44.5	2.21	133

GN 743.8

Oil level sight glasses

Brass / natural glass, resistant up to 180 °C

SPECIFICATION

Types

- Type **A**: with contrast screen
- Type **B**: without contrast screen

Body
Brass
CuZn40Pb2

Contrast screen
Technopolymer (Polysulfon)

- temperature resistant up to **180 °C**
- Sight glass ESG-glass
- O-Ring rubber FPM (Viton®)

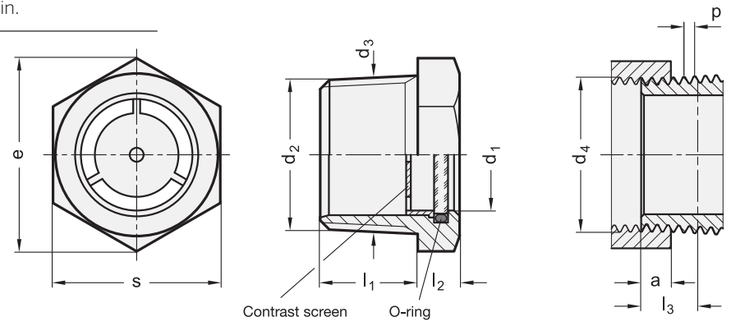
Identification by not black finish of the sealing ring

INFORMATION

The conical thread of the oil level sight glasses GN 743.8 makes a metallic seal possible. When tightening the conical male thread R it blocks itself with the appropriate cylindrical female thread Rp.
With the datum plane a the R-male thread has the same thread diameter as the Rp-female thread, so that it can be screwed in by hand. The strong tightening by means of a tool increases the length of engagement and seals the screw connection. Additionally a sealant (hemp or teflon band) is usually used. The R-thread is „roughened", so that the sealant does not shift when screwing in.

ON REQUEST

- EPDM O-rings



GN 743.8

Description	d1	d2	a	d3	d4	e	l1	l2	l3	s	p	⚖
GN 743.8-11-R3/8-A	11	R 3/8	6.4	16.7	Rp 3/8	22	13	6	10.1	19	1.34	19
GN 743.8-14-R1/2-A	14	R 1/2	8.2	21	Rp 1/2	27.5	17	7	13.2	24	1.81	34
GN 743.8-18-R3/4-A	18	R 3/4	9.5	26.4	Rp 3/4	31	18	8	14.5	27	1.81	49
GN 743.8-24-R1-A	24	R 1	10.4	33.2	Rp 1	40.5	21	9	16.8	36	2.3	92
GN 743.8-32-R11/4-A	32	R 1 1/4	12.7	42	Rp 1 1/4	53	24	9	19.1	46	2.3	140
GN 743.8-11-R3/8-B	11	R 3/8	6.4	16.7	Rp 3/8	22	13	6	10.1	19	1.34	22
GN 743.8-14-R1/2-B	14	R 1/2	8.2	21	Rp 1/2	27.5	17	7	13.2	24	1.81	40
GN 743.8-18-R3/4-B	18	R 3/4	9.5	26.4	Rp 3/4	31	18	8	14.5	27	1.81	60
GN 743.8-24-R1-B	24	R 1	10.4	33.2	Rp 1	40.5	21	9	16.8	36	2.3	80
GN 743.8-32-R11/4-B	32	R 1 1/4	12.7	42	Rp 1 1/4	53	24	9	19.1	46	2.3	140
GN 743.8-32-11/4NPT-B	32	1 1/4 NPT	10.7	42.2	1 1/4 NPT	51.5	23	9	-	44.5	2.21	140
GN 743.8-11-3/8NPT-A	11	3/8 NPT	6.1	17.1	3/8 NPT	22	15	6	-	19.1	1.41	27
GN 743.8-14-1/2NPT-A	14	1/2 NPT	8.1	21.2	1/2 NPT	27.5	16	7	-	23.8	1.81	34
GN 743.8-18-3/4NPT-A	18	3/4 NPT	8.6	26.6	3/4 NPT	33	18	8	-	28.6	1.81	55
GN 743.8-24-1NPT-A	24	1 NPT	10.2	33.7	1 NPT	41.5	22	8	-	34.9	2.21	100
GN 743.8-32-11/4NPT-A	32	1 1/4 NPT	10.7	42.2	1 1/4 NPT	51.5	23	9	-	44.5	2.21	150
GN 743.8-11-3/8NPT-B	11	3/8 NPT	6.1	17.1	3/8 NPT	22	15	6	-	19.1	1.41	20
GN 743.8-14-1/2NPT-B	14	1/2 NPT	8.1	21.2	1/2 NPT	27.5	16	7	-	23.8	1.81	32
GN 743.8-18-3/4NPT-B	18	3/4 NPT	8.6	26.6	3/4 NPT	33	18	8	-	28.6	1.81	60
GN 743.8-24-1NPT-B	24	1 NPT	10.2	33.7	1 NPT	41.5	22	8	-	34.9	2.21	140
GN 743.8-32-11/4NPT-B	32	1 1/4 NPT	10.7	42.2	1 1/4 NPT	51.5	23	9	-	44.5	2.21	140

HGFT-PR

Oil level indicators

with prismatic window, technopolymer

MATERIAL

Polyamide based (PA) technopolymer, black colour, glossy finish.

PRISMATIC WINDOW

Transparent polyamide based (PA-T/AR) technopolymer. The window consists of a continuous series of prisms which provide a clear and immediate reading of the level of the oil contained in the reservoir.

PACKING RING

NBR synthetic rubber.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

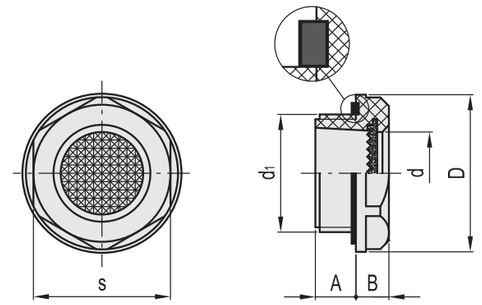
100°C at 3 bar pressure.

NOTE

For use with other fluids with special additives, please contact ELESA Sales Department.

ACCESSORIES ON REQUEST

Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
14462	HGFT.13/PR-1/2-C9	G 1/2	10	8.5	28	14.5	24	6÷8	5
14482	HGFT.16/PR-3/4-C9	G 3/4	9.5	8.5	35	18	32	8÷10	9
14522	HGFT.21/PR-1-C9	G 1	11	9.5	42.5	23	38	10÷12	14
14542	HGFT.25/PR-1¼-C9	G1 1/4	11	9	50	30	46	12÷15	30

HGFT-HT-PR

Oil level indicators

with prismatic window, high temperatures, technopolymer

MATERIAL

Polyamide based (PA) technopolymer, black colour, glossy finish.

PRISMATIC WINDOW

Transparent sulphonic based technopolymer. The window consists of a continuous series of prisms which provide a clear and immediate reading of the level of the oil contained in the reservoir.

PACKING RING

FKM type VITON®*.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

140°C at 7 bar pressure.

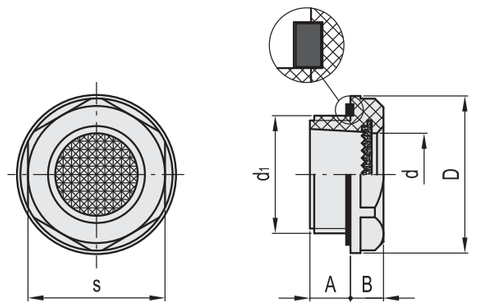
*** Registered trademark by DuPont Dow Elastomers.**

NOTE

For use with other fluids with special additives, please contact ELESA Sales Department.

ACCESSORIES ON REQUEST

Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
14463	HGFT.13/HT-PR-1/2	G 1/2	10	8.5	28	14.5	24	6÷8	5
14483	HGFT.16/HT-PR-3/4	G 3/4	9.5	8.5	35	18	32	8÷10	9
14523	HGFT.21/HT-PR-1	G 1	11	9.5	42.5	23	38	10÷12	14

GN 7403

Breather strainers
with Stainless Steel mesh

SPECIFICATION

Body

- Aluminium **AL**
- Stainless Steel AISI 303 **NI**

Strainer
Stainless Steel mesh
AISI 304

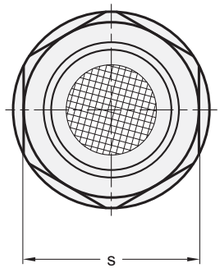
Strainer bezel
Plastic Polyamide (PA)

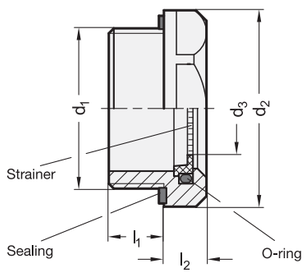
- glass fibre reinforced
- temperature resistant up to 100 °C

Sealing / O-Ring
Rubber NBR (Perbunan ®)

INFORMATION

Breather strainers GN 7403 are used in enclosure and device construction. Inserted into the wall of the enclosure, they ensure pressure equilibrium between the inside of the enclosure and the outside.
Any dirt and dust particles carried by the medium (usually gas) are prevented from exiting depending on the mesh size. This protects the insides of sensitive devices and machinery parts from dirt and pollution and also protects the environment from any exiting dust.
The outside diameter of the enclosure with the recessed hexagon matches the bolt mounting holes for DIN 3852 threaded pipe connectors.
The sealing ring is embedded in a radial and plane-sided recess which makes the seal captive and prevents it from being squeezed out during tightening.
Assembly instruction:
For mounting on walls of less than 4 mm thickness, please use mounting nut GH. (see page 1743).





ACCESSORY
- Mounting nut GH. (see page 1743)

ON REQUEST
- Body in brass
- Other mesh size
- Other material for the strainer

TECHNICAL INFORMATION
- Elastomer characteristics (see page A32)
- Plastic characteristics (see page A2)

GN 7403-AL

Description	d1	Mesh size in µm	d2	d3	l1	l2	s	⚖
GN 7403-AL-G1/2-100	G1/2	100	26	10	8.5	7.5	23	11
GN 7403-AL-G1/2-500	G1/2	500	26	10	8.5	7.5	23	11
GN 7403-AL-G3/4-100	G3/4	100	32	14	9	8	30	17
GN 7403-AL-G3/4-500	G3/4	500	32	14	9	8	30	17
GN 7403-AL-G1-100	G1	100	40	20	11	8.5	36	28
GN 7403-AL-G1-500	G1	500	40	20	11	8.5	36	20
GN 7403-AL-M20x1,5-100	M20x1.5	100	26	10	8.5	7.5	23	10
GN 7403-AL-M20x1,5-500	M20x1.5	500	26	10	8.5	7.5	23	10
GN 7403-AL-M26x1,5-100	M26x1.5	100	32	14	9	8	30	17
GN 7403-AL-M26x1,5-500	M26x1.5	500	32	14	9	8	30	17
GN 7403-AL-M33x1,5-100	M33x1.5	100	40	20	11	8.5	36	20
GN 7403-AL-M33x1,5-500	M33x1.5	500	40	20	11	8.5	36	20

GN 7403-NI STAINLESS STEEL

Description	d1	Mesh size in µm	d2	d3	l1	l2	s	⚖
GN 7403-NI-G1/2-100	G1/2	100	26	10	8.5	7.5	23	23
GN 7403-NI-G1/2-500	G1/2	500	26	10	8.5	7.5	23	20
GN 7403-NI-G3/4-100	G3/4	100	32	14	9	8	30	38
GN 7403-NI-G3/4-500	G3/4	500	32	14	9	8	30	38
GN 7403-NI-G1-100	G1	100	40	20	11	8.5	36	59
GN 7403-NI-G1-500	G1	500	40	20	11	8.5	36	66
GN 7403-NI-M20x1,5-100	M20x1.5	100	26	10	8.5	7.5	23	20
GN 7403-NI-M20x1,5-500	M20x1.5	500	26	10	8.5	7.5	23	20
GN 7403-NI-M26x1,5-100	M26x1.5	100	32	14	9	8	30	38
GN 7403-NI-M26x1,5-500	M26x1.5	500	32	14	9	8	30	37
GN 7403-NI-M33x1,5-100	M33x1.5	100	40	20	11	8.5	36	59
GN 7403-NI-M33x1,5-500	M33x1.5	500	40	20	11	8.5	36	59

GN 7405

Stainless Steel-Strainer fittings

SPECIFICATION

Types

- Type **A**: Fitting with female thread on both ends
- Type **B**: Fitting with female / male thread

Housing
Stainless Steel AISI 304 **NI**

Strainer
Stainless Steel mesh
AISI 304

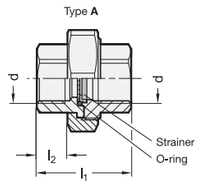
Strainer bezel
Plastic (Polyamide PA)

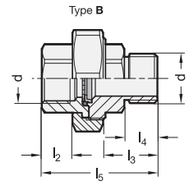
- glass fibre reinforced
- temperature resistant up to 100 °C

O-ring
NBR (Perbunan)

INFORMATION

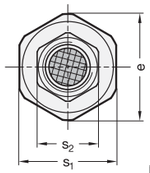
GN 7405 Stainless Steel-Strainer fittings are suited for assembly into piping systems as upstream or downstream protection devices. Depending on the mesh size, particles carried by liquid or gaseous media can be prevented from passing through. Units or housing interiors are thereby protected from foreign objects which can impair function or durability due to their size.
The housing is separately bolted through a union nut, making assembly/disassembly easier and allowing the strainer insert to be exchanged if necessary.
Replacement or maintenance Stainless Steel-Strainers are available under the GN 7403.1 (see page 1738) standard.

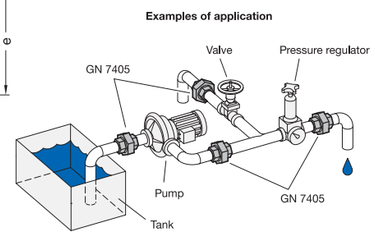




ACCESSORY
- Stainless Steel-Strainers GN 7403.1 (see page 1738)

TECHNICAL INFORMATION
- Elastomer characteristics (see page A32)
- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)





GN 7405 STAINLESS STEEL

Description	d	Mesh size in µm	e	l1	l2	l3	l4	l5	s1	s2	Differential pressure Δ 1 bar Flow volume in l/min. Water 100 µm	Differential pressure Δ 1 bar Flow volume in l/min. Water 500 µm	Hydraulic oil (HPL 46) 100 µm	Hydraulic oil (HPL 46) 500 µm	⚖
GN 7405-NI-G3/8-A-100	G3/8	100	40	36.5	12	-	-	-	36	22	21	25	7	18	140
GN 7405-NI-G3/8-A-500	G3/8	500	40	36.5	12	-	-	-	36	22	21	25	7	18	140
GN 7405-NI-G1/2-A-100	G1/2	100	45	40	13	-	-	-	41	26	48	61	15.5	38.5	168
GN 7405-NI-G1/2-A-500	G1/2	500	45	40	13	-	-	-	41	26	48	61	15.5	38.5	168
GN 7405-NI-G3/4-A-100	G3/4	100	55	46	15	-	-	-	50	34	96	104	30	77.5	303
GN 7405-NI-G3/4-A-500	G3/4	500	55	46	15	-	-	-	50	34	96	104	30	77.5	303
GN 7405-NI-G3/8-B-100	G3/8	100	40	36.5	12	21	12	45	36	22	21	25	7	18	140
GN 7405-NI-G3/8-B-500	G3/8	500	40	36.5	12	21	12	45	36	22	21	25	7	18	140
GN 7405-NI-G1/2-B-100	G1/2	100	45	40	13	23	14	49	41	26	48	61	15.5	38.5	188
GN 7405-NI-G1/2-B-500	G1/2	500	45	40	13	23	14	49	41	26	48	61	15.5	38.5	187
GN 7405-NI-G3/4-B-100	G3/4	100	55	46	15	25	16	55	50	34	96	104	30	77.5	333
GN 7405-NI-G3/4-B-500	G3/4	500	55	46	15	25	16	55	50	34	96	104	30	77.5	333

GN 7403.1

Stainless Steel-Strainers

SPECIFICATION

Strainer
Stainless Steel mesh **NI**
AISI 304

Strainer bezel
Plastic (Polyamide PA)

- glass fibre reinforced
- temperature resistant up to 100 °C

INFORMATION

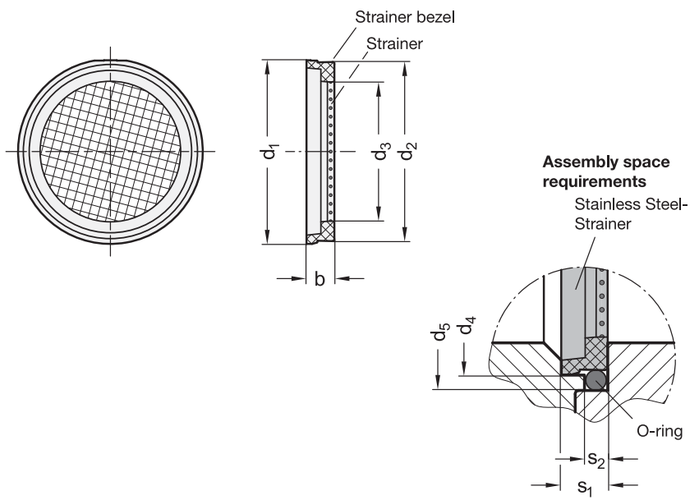
GN 7403.1 Stainless-Steel-Strainers are adapted for use as replacements for GN 7405 (see page 1737) strainer fittings. They are also suitable for the application-specific assembly of upstream or downstream protection devices.
Depending on the mesh size, particles carried by liquid or gaseous media can be prevented from passing through. Units or housing interiors are thereby protected from foreign objects which can impair function or durability due to their size.
The assembly space required is shown in the drawing. An additional O-ring is generally mounted at the circumference as a seal.

ON REQUEST

- other mesh sizes
- Plastic strainer mesh

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)



GN 7403.1 — **STAINLESS STEEL**

Description	Nominal size	Mesh size in µm	b	d1	d2	d3	d4 +0.1	d5 ±0.05	s1 +0.1	s2 -0.1	Suitable O-ring	Suitable for nominal size d of GN 7405	⚖
GN 7403.1-NI-14-100	14	100	4	16.6	15.7	10	16.6	18.7	4	2	16x2	G3/8	32
GN 7403.1-NI-14-500	14	500	4	16.6	15.7	10	16.6	18.7	4	2	16x2	G3/8	32
GN 7403.1-NI-18-100	18	100	4	20.6	19.7	14	20.6	22.7	4	2	20x2	G1/2	35
GN 7403.1-NI-18-500	18	500	4	20.6	19.7	14	20.6	22.7	4	2	20x2	G1/2	35
GN 7403.1-NI-24-100	24	100	4	26.6	25.7	20	26.6	28.7	4	2	26x2	G3/4	30
GN 7403.1-NI-24-500	24	500	4	26.6	25.7	20	26.6	28.7	4	2	26x2	G3/4	30

GN 744

Oil level sight glasses

Aluminium / crystal-clear plastic

SPECIFICATION

Types

- Type **A**: with prismatic effect (only d_1 = 14/18/24)
- Type **B**: without contrast screen (all sizes)
- Type **C**: with red marking ring (only d_1 = 11/14/18/24)

Body
Aluminium
fine turned

Sight glass
Plastic

- crystal-clear Polymide (PA-T)
- temperature resistant up to 110 °C

Red marking ring
pad printing

Sealing ring
Rubber NBR (Perbunan)

INFORMATION

Oil level sight glasses GN 744 use the so called prismatic effect of a cat's eye to display the oil level unaffected by oil colour or oil viscosity. The advantage of this effect is particularly obvious in the case of under or overfilling or for inspection under unfavourable light conditions.
The seal is housed in a radial groove in the aluminium body and hence cannot be lost. In addition it cannot be extruded when thigtening the sight glass.
Oil level sight glasses GN 744 can also be used on pressurised tanks. Data of pressure an vacuum pressure tests is available.
Assembly instruction:
For mounting on walls of less than 4 mm thickness please use a fixing nut GH. (see page 1743)

ACCESSORY

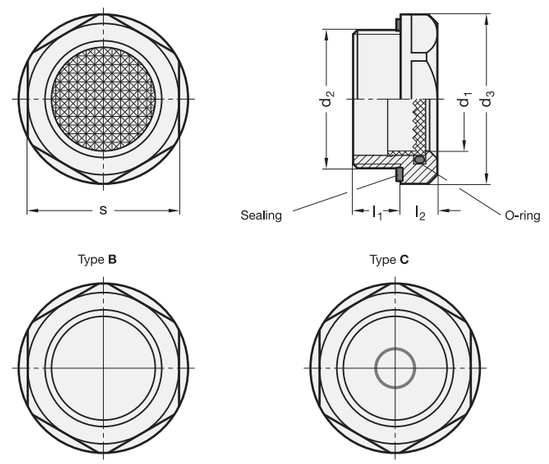
- Fixing nut GH. (see page 1743)

ON REQUEST

- EPDM seal

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Plastic characteristics (see page A2)



GN 744

Description	d1	d2	d3	l1	l2	s	⚖
GN 744-14-G1/2-A	14	G 1/2	26	8.5	7.5	23	12
GN 744-14-M20x1,5-A	14	M 20 x 1.5	26	8.5	7.5	23	5
GN 744-18-G3/4-A	18	G 3/4	32	9	8	30	15
GN 744-18-M26x1,5-A	18	M 26 x 1.5	32	9	8	30	15
GN 744-18-M27x1,5-A	18	M 27 x 1.5	32	9	8	30	16
GN 744-24-G1-A	24	G 1	40	11	8.5	36	23
GN 744-24-M33x1,5-A	24	M 33 x 1.5	40	11	8.5	36	30
GN 744-7-G1/4-B	7	G 1/4	20	7.5	6.5	18	5
GN 744-7-M12x1,5-B	7	M 12 x 1.5	20	7.5	6.5	18	5
GN 744-11-G3/8-B	11	G 3/8	22	8	7.5	20	6
GN 744-11-M16x1,5-B	11	M 16 x 1.5	22	8	7.5	20	6
GN 744-14-G1/2-B	14	G 1/2	26	8.5	7.5	23	8
GN 744-14-M20x1,5-B	14	M 20 x 1.5	26	8.5	7.5	23	8
GN 744-18-G3/4-B	18	G 3/4	32	9	8	30	15

GN 744

Description	d1	d2	d3	l1	l2	s	⚖
GN 744-18-M26x1,5-B	18	M 26 x 1.5	32	9	8	30	14
GN 744-18-M27x1,5-B	18	M 27 x 1.5	32	9	8	30	16
GN 744-24-G1-B	24	G 1	40	11	8.5	36	22
GN 744-24-M33x1,5-B	24	M 33 x 1.5	40	11	8.5	36	23
GN 744-11-G3/8-C	11	G 3/8	22	8	7.5	20	6
GN 744-11-M16x1,5-C	11	M 16 x 1.5	22	8	7.5	20	6
GN 744-14-G1/2-C	14	G 1/2	26	8.5	7.5	23	8
GN 744-14-M20x1,5-C	14	M 20 x 1.5	26	8.5	7.5	23	8
GN 744-18-G3/4-C	18	G 3/4	32	9	8	30	15
GN 744-18-M26x1,5-C	18	M 26 x 1.5	32	9	8	30	14
GN 744-18-M27x1,5-C	18	M 27 x 1.5	32	9	8	30	16
GN 744-24-G1-C	24	G 1	40	11	8.5	36	22
GN 744-24-M33x1,5-C	24	M 33 x 1.5	40	11	8.5	36	23

HFTX.

Oil level indicators

Technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Avoid contact with alcohol or detergents containing alcohol.

STAR-SHAPED CONTRAST SCREEN
Matte anodised aluminium with red central level point.

PACKING RING
NBR synthetic rubber.

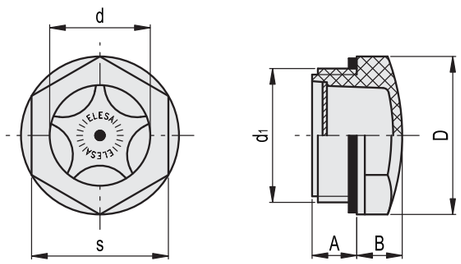
MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

FEATURES
The particular shape of the magnifying lens increases and improves visibility even from side positions.

TECHNICAL DATA
The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.

NOTE
For use with other fluids with special additives, please contact ELESA Sales Department.

ACCESSORIES ON REQUEST
Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
13661	HFTX.11-M16x1.5	M16x1.5	8	7	22	11	19	2÷3	4
13681	HFTX.14-M20x1.5	M20x1.5	9.5	8	26	14	22	8÷10	5
13701	HFTX.18-M25x1.5	M25x1.5	8	9	31.5	18	27	8÷10	8
13726	HFTX.21-M26x1.5	M26x1.5	13	9	31.5	18	27	8÷10	8
13711	HFTX.19-M27x1.5	M27x1.5	9	9	31.5	20	27	8÷10	8
13731	HFTX.22-M30x1.5	M30x1.5	9	10	35	22	30	8÷10	10
13751	HFTX.26-M35x1.5	M35x1.5	11	10	40	25	34	8÷10	13
13771	HFTX.31-M40x1.5	M40x1.5	11.5	13	47	30	40.5	8÷10	20
13651	HFTX.9-1/4	G 1/4	10	6	18	9	15	2÷3	3
13671	HFTX.12-3/8	G 3/8	7.5	7	22	11	19	3÷5	4
13691	HFTX.15-1/2	G 1/2	10.5	8	26	14	22	4÷6	5
13721	HFTX.20-3/4	G 3/4	10.5	9	31.5	20	27	6÷8	8
13741	HFTX.24-1	G 1	11	10	40	25	34	8÷10	12
13761	HFTX.30-1¼	G1 1/4	11.5	13	47.5	30	40.5	8÷10	20

HFTX-PR

Oil level indicators

with prismatic window, technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Avoid contact with alcohol or detergents containing alcohol.
The window consists of a continuous series of prisms which provide a clear and immediate reading of the level of the oil contained in the reservoir.

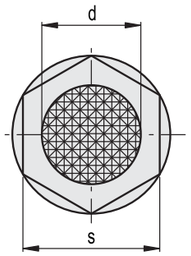
PACKING RING
NBR synthetic rubber.

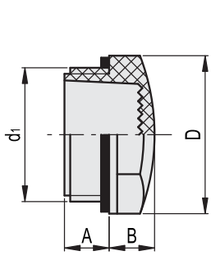
MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

TECHNICAL DATA
The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.

NOTE
For use with other fluids with special additives, please contact ELESA Sales Department.

ACCESSORIES ON REQUEST
Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.





Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
13652	HFTX.9/PR-1/4	G 1/4	10	6	18	9	15	2÷3	3
13672	HFTX.12/PR-3/8	G 3/8	7.5	7	22	11	19	3÷5	4
13692	HFTX.15/PR-1/2	G 1/2	10.5	8	26	14	22	4÷6	5
13722	HFTX.20/PR-3/4	G 3/4	10.5	9	31.5	20	27	6÷8	8
13742	HFTX.24/PR-1	G 1	11	10	40	25	34	8÷10	12

HFTR-PR

Oil level indicators

with prismatic window, technopolymer

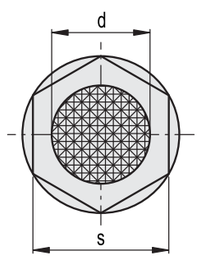
MATERIAL
Transparent polyamide based (PA-T) technopolymer. Avoid contact with alcohol or detergents containing alcohol.
The window consists of a continuous series of prisms which provide a clear and immediate reading of the level of the oil contained in the reservoir.

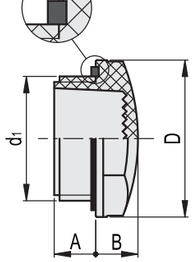
PACKING RING
NBR synthetic rubber
The positioning of the packing ring in its housing guarantees a high tightening torque.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

NOTE
For use with other fluids with special additives, please contact ELESA Sales Department.

ACCESSORIES ON REQUEST
Brass nut GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.





Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
14692	HFTR.15/PR-1/2	G 1/2	10.5	9	28	15	24	8÷10	6
14722	HFTR.20/PR-3/4	G 3/4	10.5	10.5	35	20	32	10÷12	9
14742	HFTR.24/PR-1	G 1	11	13.5	42.5	24	38	10÷12	13
14762	HFTR.30/PR-1¼	G1 1/4	19	16	52	30.5	41	12÷14	21

HRT.

Oil level indicators

push-fit, technopolymer

MATERIAL
Polyamide based (PA) technopolymer, black colour, matte finish.

WINDOW
Transparent polyamide based (PA-T/AR) technopolymer.

CONTRAST SCREEN
White lacquered aluminium with red level line.

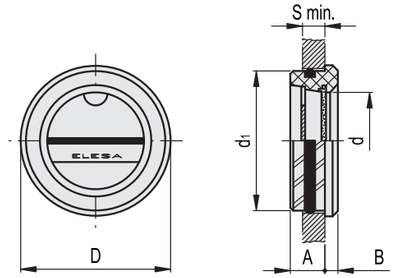
PACKING RING
NBR synthetic rubber O-Ring.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

FEATURES AND APPLICATIONS
The push-fit assembly is guaranteed by optimized ribbings.
Sealing is guaranteed by the O-ring.
HRT. oil level indicators push-fit are particularly suitable for assembly on reservoirs with limited pressure.

NOTE
For use with other fluids with special additives, please contact ELESA Sales Department.

ASSEMBLY INSTRUCTIONS
Chamfer hole 1x45° and grease slightly the outside surface of the O-ring to make assembly easier.



Code	Description	d1	A	B	D	d	Smin	Mounting hole d1 H11	⚖
10751	HRT.15-26	26	9	4.5	28	14.5	6	26	6
10756	HRT.20-32	32	10.5	4.5	36	18	8	32	10
10761	HRT.25-38	38	11	5	42	23	8	38	12
10766	HRT.40-60	60	11	5.5	64	40	9	60	29

HRT-T

Oil level indicators

push- fit with temperature reading, technopolymer

MATERIAL
Polyamide based (PA) technopolymer, black colour, matte finish.

WINDOW
Transparent polyamide based (PA-T/AR) technopolymer.

CONTRAST SCREEN WITH BIMETALLIC THERMOMETER
Graduated scale up to 100°C to read oil temperature, even when oil level is at minimum, thanks to the conductivity of the aluminium contrast screen.

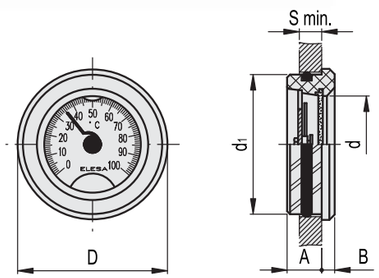
PACKING RING
NBR synthetic rubber O-Ring.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

FEATURES AND APPLICATIONS
The push-fit assembly is guaranteed by optimized ribbings.
Sealing is guaranteed by the O-ring.
HRT-T oil level indicators push-fit are particularly suitable for assembly on reservoirs with limited pressure.

NOTE
For use with other fluids with special additives, please contact ELESA Sales Department.

ASSEMBLY INSTRUCTIONS
Chamfer hole 1x45° and grease slightly the outside surface of the O-ring to make assembly easier.



Code	Description	d1	A	B	D	d	Smin	Mounting hole d1 H11	⚖
10781	HRT.25/T-38	38	11	5	42	23	8	38	12
10786	HRT.40/T-60	60	11	5.5	64	40	9	60	29

HE.

Oil level indicators

push- fit, polycarbonate

MATERIAL
Transparent high mechanical resistance polycarbonate. Not suitable for use with oils with additives and solvents. Avoid contact with alcohol or detergents containing alcohol.

CONTRAST SCREEN
White lacquered aluminium with red level line.

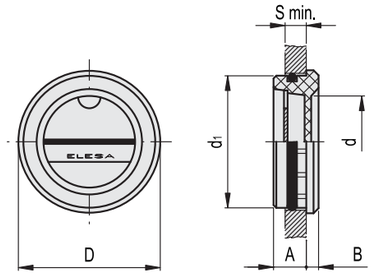
PACKING RING
NBR synthetic rubber O-Ring.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

FEATURES AND APPLICATIONS
The push-fit assembly is guaranteed by optimized ribbings.
Sealing is guaranteed by the O-ring.
HE. oil level indicators push-fit are particularly suitable for assembly on reservoirs with limited pressure.

NOTE
For use with other fluids with special additives, please contact ELESA Sales Department.

ASSEMBLY INSTRUCTIONS
Chamfer hole 1x45° and grease slightly the outside surface of the O-ring to make assembly easier.



Code	Description	d1	A	B	D	d	Smin	Mounting hole d1 H11	⚖
11401	HE.17	17	6.5	3	18	9	5	17	2
11501	HE.20	20	8	3	21	12	6	20	3
11601	HE.26	26	7.5	3.5	28	17	6	26	5
11701	HE.30	30	8	4	32	20	7	30	7
11801	HE.35	35	9	4	38	25	8	35	10
11901	HE.40	40	10	4.5	43	28	9	40	13
12001	HE.45	45	11	5.5	47	32	9	45	18

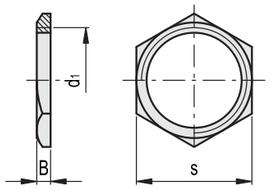
GH.

Nuts

Brass

MATERIAL
Brass.

FEATURES AND APPLICATIONS
GH. nuts can be used for fitting the following indicators to reservoirs with thin walls (thickness smaller than 5 mm):
- HGFT. (see page 1724)
- HGFT-EX (see page 1725)
- GN 743 (see page 1726)
- GN 743.1 (see page 1727)
- GN 743.2 (see page 1728)
- GN 743.3 (see page 1729)
- GN 743.4 (see page 1730)
- GN 743.5 (see page 1731)
- GN 743.6 (see page 1732)
- HGFT-PR (see page 1735)
- HGFT-HT-PR (see page 1735)
- GN 744 (see page 1739)
- HFTX (see page 1740)
- HFTX-PR (see page 1741)
- HCFE (see page 1745)
- HCFE-C (see page 1745)
- HCFE-EX (see page 1746)



Code	Description	d1	B	s	⚖
14991	GH. 1/4	G 1/4	6	19	9
15001	GH. 3/8	G 3/8	3	19	3
15011	GH. 1/2	G 1/2	4	26	8
15021	GH. 3/4	G 3/4	5	31	12
15031	GH. 1	G 1	4.5	37	14
15041	GH. 1¼	G1 1/4	5	46	23
15051	GH. 2	G 2	6	65	50

GN 537

Oil level sight glasses

Aluminium / Perspex / without thread

SPECIFICATION

Types

- Type **A**: without oil level mark
- Type **B**: with oil level mark

Ring nut
Aluminium

Sight glass
Perspex (PMMA)
temperature resistant up to 80 °C

Sealing ring
Rubber NBR (Perbunan)

Contrast screen
Plastic
white, with red oil level marks

INFORMATION

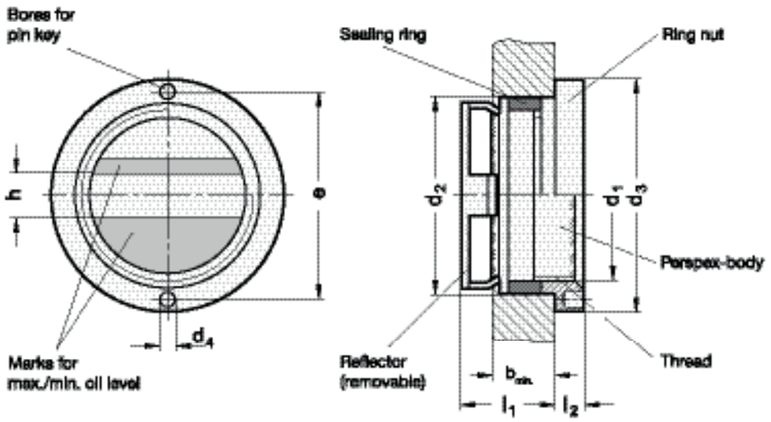
This oil level glass GN 537 does not require a thread.
The oil level sight glass is inserted into the bore d_2 to H11. By simply tightening the ring nut using the pin key the seal is pressed against the contact surface which, at the same time, will hold the sight glass in position. For removal reverse the procedure.
Their application is limited to non-pressurised or only slightly pressurised tanks.

ACCESSORY

- Pin key for installation GN 537.1 (Code no. see table)

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)



GN 537

Description	d1 Window glass	d2 Bore Ø	b min.	d3	d4	e ±0.1	h	l1	l2	Code no. pin key for installation	⚖
GN 537-16-20-A	16	20	9	25	2.2	21	5	15	3.5	GN 537.1-21	8
GN 537-22-28-A	22	28	10	35	3	30	6	15	4.5	GN 537.1-30	17
GN 537-32-38-A	32	38	12	45	3	40	8	18	5.5	GN 537.1-40	34
GN 537-50-58-A	50	58	14	64	3	58.5	10	22	5.5	GN 537.1-58.5	80
GN 537-16-20-B	16	20	9	25	2.2	21	5	15	3.5	GN 537.1-21	8
GN 537-22-28-B	22	28	10	35	3	30	6	15	4.5	GN 537.1-30	17
GN 537-32-38-B	32	38	12	45	3	40	8	18	5.5	GN 537.1-40	30
GN 537-50-58-B	50	58	14	64	3	58.5	10	22	5.5	GN 537.1-58.5	80

HCFE.

Oil circulation sights

Technopolymer

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Avoid contact with alcohol or detergents containing alcohol.

PACKING RING

NBR synthetic rubber.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

TECHNICAL DATA

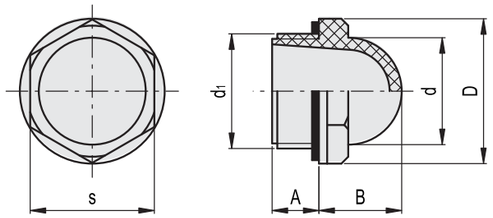
The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.

NOTE

For use with other fluids with special additives, please contact ELESA Sales Department.

ACCESSORIES ON REQUEST

Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
10851	HCFE.12-3/8	G 3/8	7.5	13	22.5	15	19	3÷5	4
10901	HCFE.15-1/2	G 1/2	10.5	16	26	19	22	4÷6	5
11001	HCFE.20-3/4	G 3/4	10.5	19.5	31.5	25	27	6÷8	8
11101	HCFE.24-1	G 1	11	24	42	31	36	8÷10	18
11111	HCFE.30-1¼	G1 1/4	11.5	26.5	46.5	38	40.5	12÷15	22

HCFE-C

Oil circulation sights

Technopolymer

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Avoid contact with alcohol or detergents containing alcohol.

CIRCLE FOR OIL LEVEL CHECK

Delimited by a small red coloured externally tampoprinted circle. Tampoprinting resistant to oils with additives, greases, alkali and white spirit; resistant to abrasions under normal working conditions. Avoid contact with solvents, alcohol or detergents containing alcohol.

PACKING RING

NBR synthetic rubber.

MAXIMUM CONTINUOUS WORKING TEMPERATURE

100°C.

TECHNICAL DATA

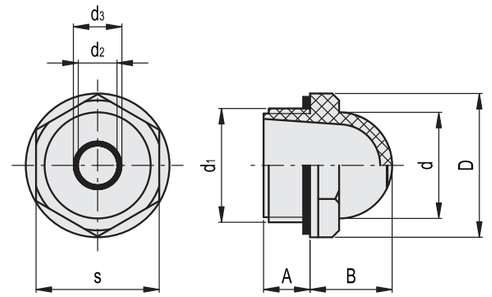
The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.

NOTE

For use with other fluids with special additives, please contact ELESA Sales Department.

ACCESSORIES ON REQUEST

Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



Code	Description	d1	A	B	D	d	d2	d3	s	Tightening torque [Nm]	⚖
10906	HCFE.15/C-1/2	G 1/2	10.5	16	26	19	6	7	22	4÷6	5
11006	HCFE.20/C-3/4	G 3/4	10.5	19.5	31.5	25	11	12	27	6÷8	8
11106	HCFE.24/C-1	G 1	11	24	42	31	14	15	36	8÷10	18

HCFE-EX

Oil circulation sights

Technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Avoid contact with alcohol or detergents containing alcohol.

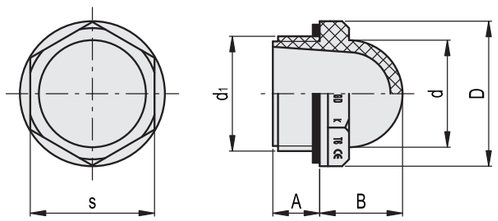
PACKING RING
NBR synthetic rubber.

ATEX DIRECTIVE COMPLIANCE
The level indicators of the HCFE-EX series comply with Health and Safety Requirements intended in 94/9/EC ATEX European Directive (explosive atmospheres) for equipments in Group II, category 2GD.
Level indicators have "kX" protection degree and can therefore be mounted on equipment protected by means of "immersion in liquid", without lowering protection degree.
II 2 G D k T6, marked on the HCFE-EX level indicators, represents the identification according to ATEX directive.
II: group of substances for which the product is suitable
2: identification of the category
G: identification of the type of explosive atmosphere (Gases or vapours)
D: identification of the type of explosive atmosphere (Dust)
k: protection degree by means of immersion in liquid
IIB: explosive gases group (only for HCFE.20)
T6: temperature class
Ambient and/or fluid temperature: -30 to +80°C
The declaration of conformity to European Directives of this product is available and it is part of the product itself.

TECHNICAL DATA
The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.

NOTE
For use with other fluids with special additives, please contact ELESA Sales Department.

ACCESSORIES ON REQUEST
Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
10851-EX	HCFE.12-3/8-EX	G 3/8	7.5	13	22.5	15	19	3÷5	4
10901-EX	HCFE.15-1/2-EX	G 1/2	10.5	16	26	19	22	4÷6	5
11001-EX	HCFE.20-3/4-EX	G 3/4	10.5	19.5	31.5	25	27	6÷8	8

HVF.

Visual flow indicators

Technopolymer ends

ENDS
Polypropylene based (PP) technopolymer, black colour, matte finish.

AXIS AND ROTOR PROPELLER
Polypropylene based (PP) technopolymer, red colour.

TUBULAR WINDOW
PYREX® glass, high-resistance, also suitable for use with glycol-based solutions.
Maximum visibility of the flow from all angles.

TIE RODS
Nickel-plated brass.

PACKING RINGS
NBR synthetic rubber.

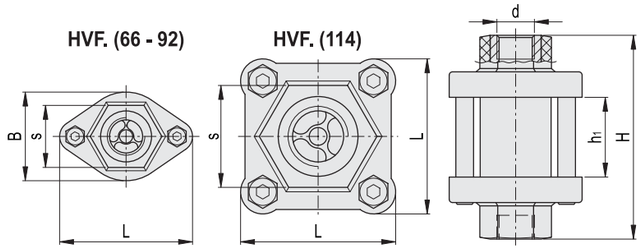
THREADED FITTINGS
Brass bosses with cylindrical gas thread according to UNI ISO 228/1.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100° C.

FEATURES AND APPLICATIONS
The indicator can be mounted in any position.
In case of mounting on rigid tubes, it is recommended to place the indicator perfectly aligned with the tubes.
The indicator operates with two-way liquid flows.
For rotating the propeller it is required a minimum fluid flow rate (Q**) depending on the type of fluid and its viscosity (shown in cSt, see table)

SPECIAL EXECUTIONS ON REQUEST
- AISI 316 stainless steel bosses.
- Bosses with NPT conical threads.
- Axis and rotor propeller in blue colour.

* Registered trademark by Corning Inc.



Code	Description	d	H	L	B	h1	s	Q max* l/min	P max # Bar	Q** l/min H2O	Q** l/min 0÷40 cSt	Q** l/min 41÷150 cSt	ΔP max ## Bar	⚖
111301	HVF.66-1/4	1/4	66	44	27	22	20	10	25	0.6	2.5	3.5	0.15	74
111311	HVF.92-3/8	3/8	92	60	40	36	28	20	15	1.2	3	4	0.25	176
111321	HVF.92-1/2	1/2	92	60	40	36	28	40	15	1.2	3	4	0.3	167
111331	HVF.114-3/4	3/4	114	70	-	46	46	60	12	2.1	3.7	5	0.17	663
111341	HVF.114-1	1	114	70	-	46	46	80	12	2.1	3.7	5	0.15	667

***** Maximum flow rate

Maximum pressure

****** Minimum flow rate to start the rotor for fluids of different viscosity

Pressure drop due to the indicator presence

Column Indicators

Series	Features
HCZ. page 1752 	With or without incorporated thermometer. With or without SUPER-technopolymer protection frame. Zinc-plated steel assembly screws. Hole centre distance 76, 127, 254 mm
HCZ-VT page 1754 	For applications requiring corrosion resistance with no need of using stainless steel screws. With or without incorporated thermometer. With or without SUPER-technopolymer protection frame. SUPER-technopolymer assembly screws. Hole centre distance 76, 127, 254 mm
HCX. page 1756 	With or without incorporated thermometer. Zinc-plated steel assembly screws. Hole centre distance 76, 127, 254 mm
HCX-SST page 1758 	For applications requiring corrosion resistance. With or without incorporated thermometer. Stainless steel assembly screws. Hole centre distance 76, 127, 254 mm
HCX-AR page 1763 	For applications with fluids containing alcohol. With or without incorporated thermometer. Zinc-plated steel assembly screws. Hole centre distance 76, 127, 254 mm
HCX-BW-SST page 1762 	For applications with hot water. Without thermometer. Stainless steel assembly screws. Hole centre distance 76, 127, 254 mm
HCX-VT page 1760 	For applications requiring corrosion resistance with no need of using stainless steel screws. With or without incorporated thermometer. SUPER-technopolymer assembly screws. Hole centre distance 127, 254 mm

Series	Features
HCX-LT page 1769 	With float for indirect level reading. Zinc-plated steel assembly screws. Hole centre distance 254 mm
HCX-PT page 1764 	With or without incorporated thermometer. SUPER-technopolymer protection frame. Zinc-plated steel assembly screws (HCX-PT), stainless steel (HCX-PT-SST), SUPER-technopolymer (HCX-PT-VT). Hole centre distance 76, 127, 254 mm.
HCX-P page 1766 	With or without incorporated thermometer. Zinc-alloy protection frame. Zinc-plated steel assembly screws. Hole centre distance 127 mm
HCK. page 1770 	Aluminium protection frame. With or without transparent polycarbonate protection frame. Zinc-plated steel assembly screws. Hole centre distance 76, 127, 176, 254, 381, 508 mm
HCK-GL page 1772 	For applications with water/glycol-based solutions. Aluminium protection frame and transparent polycarbonate front protection. Zinc-plated or stainless steel assembly screws. Hole centre distance 76, 127, 176, 254, 381, 508 mm
SLCK page 1774 	For the electric control of a fluid level for HCK. and HCK-GL
HCL. page 1776 	With aluminium protection frame. Zinc-plated steel assembly screws. Hole centre distance 300, 400, 500 mm

Column Indicators

Series	Features
HCX-ST page 1778 	With MAX temperature electrical sensor. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm
HCX-STL page 1780 	With electrical probe for indirect temperature reading by means of analogue signal. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm
HCX-E page 1782 	With MIN level electrical sensor. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm
HCX-E-ST page 1784 	With MIN level and MAX temperature electrical sensors. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm
HCX-E-STL page 1786 	With MIN level electrical sensor and electrical probe for indirect temperature reading by means of analogue signal. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm
HCV-ST page 1788 	With MAX temperature electrical sensor. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm
HCV-STL page 1790 	With electrical probe for indirect temperature reading by means of analogue signal. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm

Series	Features
HCV-E page 1792 	With MIN level electrical sensor. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm
HCV-E-ST page 1794 	With MIN level and MAX temperature electrical sensors. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm
HCV-E-STL page 1796 	With MIN level electrical sensor and electrical probe for indirect temperature reading by means of analogue signal. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm
HCY-E page 1798 	With MIN level electrical sensor. Nickel-plated brass assembly screws. Hole centre distance 76, 127, 254 mm
HCY-E-ST page 1800 	With MIN level and MAX temperature electrical sensors. Nickel-plated brass assembly screws. Hole centre distance 76, 127, 254 mm
HFL-E page 1802 	Level electrical sensor with float. Assembly by means of flange or threaded coupler.
HFLT-E page 1804 	Level electrical sensor with float. Assembly by means of flange or threaded coupler.

Column level indicators

with or without protection frame, technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol and detergents containing alcohol.

PROTECTION FRAME
Glass-fibre reinforced polyamide (PA) SUPER-technopolymer, black colour, matte finish. Supplied assembled, removable by a screwdriver.

SCREWS AND NUTS
Zinc-plated steel.

PACKING RINGS
Step-shaped for the seal on the reservoir walls and NBR synthetic rubber O-ring screw underhead.
Suggested roughness of the packing ring application surface Ra = 3 µm.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid.
It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

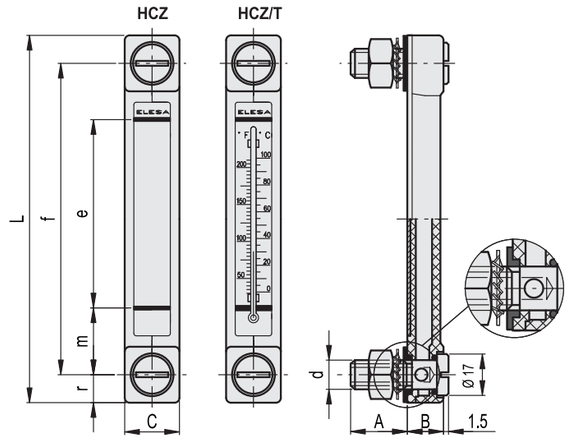
STANDARD EXECUTIONS
- **HCZ**: without thermometer and without protection frame.
- **HCZ/T**: with thermometer incorporated, without protection frame.
- **HCZ-P**: without thermometer, with protection frame.
- **HCZ/T-P**: with thermometer incorporated and protection frame.

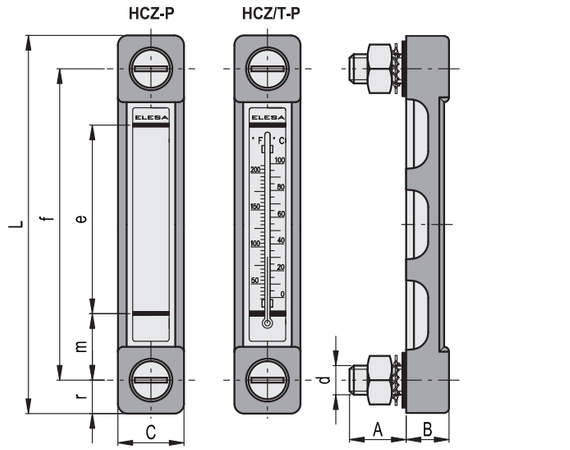
MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

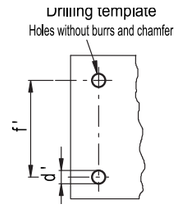
FEATURES AND PERFORMANCES
Ultrasound welding to guarantee a perfect seal.
Lens effect for a better visibility of the fluid level and temperature.
Special openings in the protection frame provide maximum fluid level visibility even from side positions.
All shocks are absorbed by the frame that transmits them directly onto the wall of the reservoir.

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCZ.76 and HCZ.127) 12 bar (HCZ.254).
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.

SPECIAL EXECUTIONS ON REQUEST
- HCZ.127: with M10 screws and nuts.
- UV resistant transparent technopolymer indicators.







HCZ.

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	C# [Nm]	⚖
11382	HCZ.76	76	M10	22	15	22	99	40	18	11.5	10.5	76	12	90
11385	HCZ.127	127	M12	22	15	22	150	80	23	11.5	12.5	127	12	120
11388	HCZ.254	254	M12	22	15	24	278	203	25	12.5	12.5	254	12	150

HCZ/T

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	⚖
11383	HCZ.76/T	76	M10	22	15	22	99	40	18	11.5	10.5	76	20÷100	68÷210	12	91
11386	HCZ.127/T	127	M12	22	15	22	150	80	23	11.5	12.5	127	0÷100	32÷210	12	121
11389	HCZ.254/T	254	M12	22	15	24	278	203	25	12.5	12.5	254	0÷100	32÷210	12	170

HCZ-P

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	C# [Nm]	⚖
11392	HCZ.76-P	76	M10	22	17.5	27	105	40	18	14.5	10.5	76	12	101
11395	HCZ.127-P	127	M12	22	17.5	27	156	80	23	14.5	12.5	127	12	138
11398	HCZ.254-P	254	M12	22	17.5	29	284	203	25	15.5	12.5	254	12	150

HCZ/T-P

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	⚖
11393	HCZ.76/T-P	76	M10	22	17.5	27	105	40	18	14.5	10.5	76	20÷100	68÷210	12	102
11396	HCZ.127/T-P	127	M12	22	17.5	27	156	80	23	14.5	12.5	127	0÷100	32÷210	12	139
11399	HCZ.254/T-P	254	M12	22	17.5	29	284	203	25	15.5	12.5	254	0÷100	32÷210	12	150

Maximum tightening torque.

Column level indicators

SUPER-technopolymer assembly screws, with or without protection frame

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

PROTECTION FRAME
Glass-fibre reinforced polyamide (PA) SUPER-technopolymer, black colour, matte finish. Supplied assembled, removable by a screwdriver.

SCREWS
Glass-fibre reinforced polyamide (PA) SUPER-technopolymer, lightweight and high mechanical strength.
Anticorrosive material: suitable even in the presence of liquid or humidity.
Resistant to several washing cycles with solvents and detergents, for this reason it is suitable for applications in the pharmaceutical or food industry.

NUTS AND WASHERS
AISI 304 stainless steel.

PACKING RINGS
Step-shaped for the seal on the reservoir walls and NBR synthetic rubber O-ring screw underhead.
Suggested roughness of the packing ring application surface Ra = 3 µm.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid.
It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

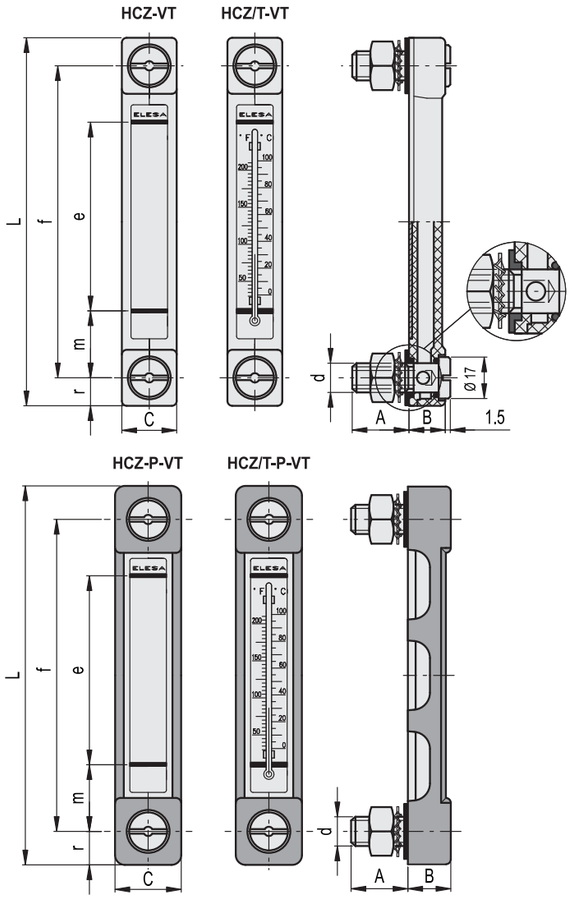
STANDARD EXECUTIONS
- **HCZ-VT**: without thermometer and without protection frame.
- **HCZ/T-VT**: with thermometer incorporated, without protection frame.
- **HCZ-P-VT**: without thermometer, with protection frame.
- **HCZ/T-P-VT**: with thermometer incorporated and protection frame.

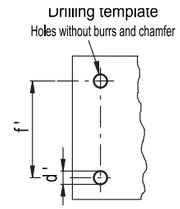
MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

SPECIAL EXECUTIONS ON REQUEST
UV resistant transparent technopolymer indicators.

FEATURES AND PERFORMANCES
Thanks to the SUPER-technopolymer screws, HCZ-VT column level indicator can be used in corrosion resistance applications where stainless steel is not necessary.
The special slotted head of the SUPER-technopolymer screws is especially designed to reach an optimum tightening of the packing rings by applying an adequate tightening torque (ELESA patent) thus avoiding unnecessary stress to the screws.
Ultrasound welding to guarantee a perfect seal.
Lens effect for a better visibility of the fluid level and temperature.
Special openings in the protection frame provide maximum fluid level visibility even from side positions.
All shocks are absorbed by the frame that transmits them directly onto the wall of the reservoir.

TECHNICAL DATA
Considering the SUPER-technopolymer screws, the maximum working pressure cannot be higher than 5 bar at 20°C and 2 bar at 90°C.
For higher pressure values use HCZ-SST with stainless steel screws.
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.





HCZ-VT

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	C# [Nm]	⚖
111382	HCZ.76-VT-M12	76	M12	23.5	15	22	99	40	18	11.5	12.5	76	6	67
111385	HCZ.127-VT-M12	127	M12	23.5	15	22	150	80	23	11.5	12.5	127	6	78
111388	HCZ.254-VT-M12	254	M12	23.5	15	24	278	203	25	12.5	12.5	254	6	110

HCZ/T-VT

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	⚖
111383	HCZ.76/T-VT-M12	76	M12	23.5	15	22	99	40	18	11.5	12.5	76	20÷100	68÷210	6	68
111386	HCZ.127/T-VT-M12	127	M12	23.5	15	22	150	80	23	11.5	12.5	127	0÷100	32÷210	6	79
111389	HCZ.254/T-VT-M12	254	M12	23.5	15	24	278	203	25	12.5	12.5	254	0÷100	32÷210	6	111

HCZ-P-VT

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	C# [Nm]	⚖
111392	HCZ.76-P-VT-M12	76	M12	23.5	17.5	27	105	40	18	14.5	12.5	76	6	85
111395	HCZ.127-P-VT-M12	127	M12	23.5	17.5	27	156	80	23	14.5	12.5	127	6	104
111398	HCZ.254-P-VT-M12	254	M12	23.5	17.5	29	284	203	25	15.5	12.5	254	6	169

HCZ/T-P-VT

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	⚖
111393	HCZ.76/T-P-VT-M12	76	M12	23.5	17.5	27	105	40	18	14.5	12.5	76	20÷100	68÷210	6	86
111396	HCZ.127/T-P-VT-M12	127	M12	23.5	17.5	27	156	80	23	14.5	12.5	127	0÷100	32÷210	6	105
111399	HCZ.254/T-P-VT-M12	254	M12	23.5	17.5	29	284	203	25	15.5	12.5	254	0÷100	32÷210	6	170

Maximum tightening torque

Column level indicators

Technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREWS, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
NBR synthetic rubber O-Ring.
Suggested roughness of the packing ring application surface Ra = 3 µm.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid.
It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCX.**: without thermometer.
- **HCX/T**: with incorporated thermometer.

MOUNTING
When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

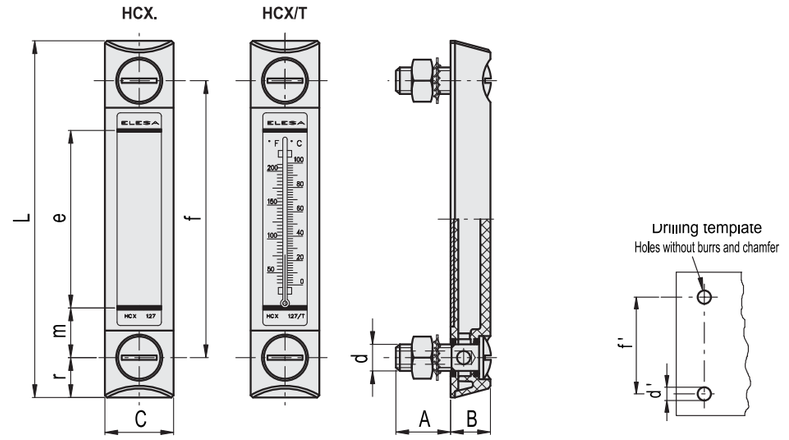
MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level and temperature.

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCX.76 e HCX.127) 12 bar (HCX.254).
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.

OTHER STANDARD EXECUTIONS
- HCX-AR (see page 1763) for use with fluids containing alcohol.
- HCX-BW-SST (see page 1762) for use with hot water.
- HCX-PT (see page 1764) with SUPER-technopolymer protection frame.

SPECIAL EXECUTIONS ON REQUEST
- UV resistant transparent technopolymer indicators.
- Indicators with two red ball-shaped floats (only for the execution without thermometer).
- Indicators with cylindrical or step-shaped (NBR or FKM) packing rings (instead of OR) for mounting on reservoirs having rough surfaces or in any case not perfectly flat.



Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	⚖
11341	HCX.76-M10	76	M10	22	16	27	107	40	18	15.5	10.5	76	-	-	12	87
11346	HCX.76/T-M10	76	M10	22	16	27	107	40	18	15.5	10.5	76	20÷100	68÷210	12	87
11349	HCX.127-M10	127	M10	23	18	31	161	80	23	17	10.5	127	-	-	12	138
11354	HCX.127/T-M10	127	M10	23	18	31	161	80	23	17	10.5	127	0÷100	32÷210	12	138
11351	HCX.127-M12	127	M12	23	18	31	161	80	23	17	12.5	127	-	-	12	138
11356	HCX.127/T-M12	127	M12	23	18	31	161	80	23	17	12.5	127	0÷100	32÷210	12	138
11361	HCX.254-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	-	-	10	185
11366	HCX.254/T-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	0÷100	32÷210	10	185

Maximum tightening torque

Accessories for hydraulic systems 15

Column level indicators

stainless steel assembly screws, technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREWS, NUTS AND WASHERS
AISI 303 stainless steel screws, AISI 304 stainless steel nuts and washers.

PACKING RINGS
FKM type VITON®*O-Ring.
Suggested roughness of the packing ring application surface Ra = 3 µm.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid.
It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCX-SST**: without thermometer.
- **HCX/T-SST**: with incorporated thermometer.

MOUNTING
When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

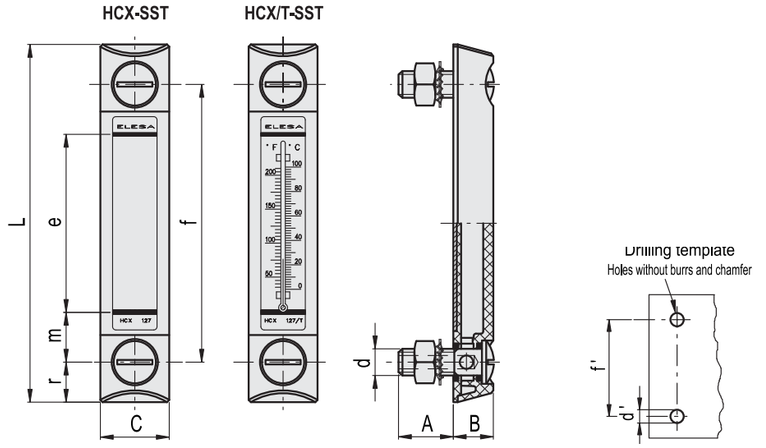
FEATURES AND PERFORMANCES
Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level and temperature.

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCX.76-SST and HCX.127-SST) 12 bar (HCX.254-SST).
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.

OTHER STANDARD EXECUTIONS
- HCX-AR (see page 1763) for use with fluids containing alcohol.
- HCX-BW-SST (see page 1762) for use with hot water.
- HCX-PT (see page 1764) with SUPER-technopolymer protection frame.

SPECIAL EXECUTIONS ON REQUEST
- UV resistant transparent technopolymer indicators.
- Indicators with two red ball-shaped floats (only for the execution without thermometer).
- Indicators with cylindrical or step-shaped (NBR or FKM) packing rings (instead of OR) for mounting on reservoirs having rough surfaces or in any case not perfectly flat.

*** Registered trademark by DuPont Dow Elastomers.**



STAINLESS STEEL

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	⚖
11343	HCX.76-SST-M10	76	M10	22	16	27	107	40	18	15.5	10.5	76	-	-	12	87
11348	HCX.76/T-SST-M10	76	M10	22	16	27	107	40	18	15.5	10.5	76	20÷100	68÷210	12	87
11353	HCX.127-SST-M12	127	M12	23	18	31	161	80	23	17	12.5	127	-	-	12	138
11358	HCX.127/T-SST-M12	127	M12	23	18	31	161	80	23	17	12.5	127	0÷100	32÷210	12	138
11363	HCX.254-SST-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	-	-	10	185
11368	HCX.254/T-SST-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	0÷100	32÷210	10	185

Maximum tightening torque

Column level indicators

SUPER-technopolymer assembly screws

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREWS
Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer

NUTS AND WASHERS
AISI 304 stainless steel.

PACKING RINGS
NBR synthetic rubber (on request FKM) O-Ring.
Suggested roughness of the packing ring application surface Ra = 3 µm.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCX-VT**: without thermometer.
- **HCX/T-VT**: with incorporated thermometer.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

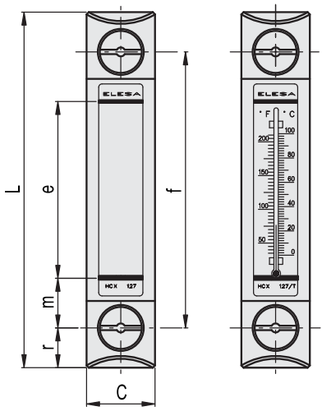
FEATURES AND PERFORMANCES
Thanks to the SUPER-technopolymer screws, HCX/VT column level indicator can be used in corrosion resistance applications where stainless steel is not necessary.
The special slotted head of the SUPER-technopolymer screws is especially designed to reach an optimum tightening of the packing rings by applying an adequate tightening torque (ELESA patent) thus avoiding unnecessary stress to the screws.
Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level and temperature.

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCX.127-VT) 12 bar (HCX.254-VT).
Considering the SUPER-technopolymer screws, the maximum working pressure cannot be higher than 5 bar at 20°C and 2 bar at 90°C.
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.

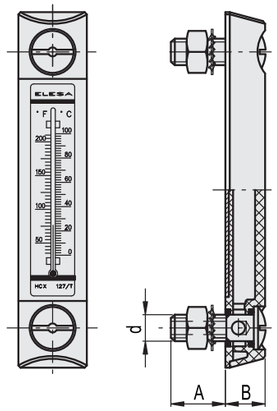
ANOTHER STANDARD EXECUTION
HCX-PT (see page 1764) with SUPER-technopolymer protection frame.

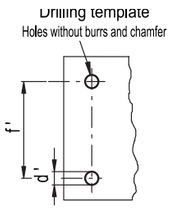
SPECIAL EXECUTIONS ON REQUEST
- UV resistant transparent technopolymer indicators.
- Indicators with two red ball-shaped floats (only for the execution without thermometer).
- Indicators with cylindrical or step-shaped (NBR or FKM) packing rings (instead of OR) for mounting on reservoirs having rough surfaces or in any case not perfectly flat.

HCX-VT



HCX/T-VT





Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	⚖
111351	HCX.127-VT-M12	127	M12	23	18	31	161	80	23	17	12.5	127	-	-	6	94
111361	HCX.127/T-VT-M12	127	M12	23	18	31	161	80	23	17	12.5	127	0÷100	32÷210	6	94
111371	HCX.254-VT-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	-	-	6	141
111381	HCX.254/T-VT-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	0÷100	32÷210	6	141

Maximum tightening torque

HCX-BW-SST

Column level indicators

for hot water, technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.
The special technopolymer used for HCX-BW-SST column level indicator allows to use it even in circuits working with very hot water and prevents milk effect on the transparent surface.

SCREWS, NUTS AND WASHERS
AISI 303 stainless steel screws, AISI 304 stainless steel nuts and washers.

PACKING RINGS
FKM type VITON®*O-Ring.
Suggested roughness of the packing ring application surface Ra = 3 µm.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

MOUNTING
When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

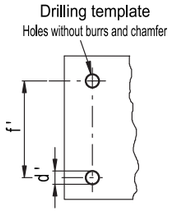
MAXIMUM CONTINUOUS WORKING TEMPERATURE
80°C with peaks of 90°C.

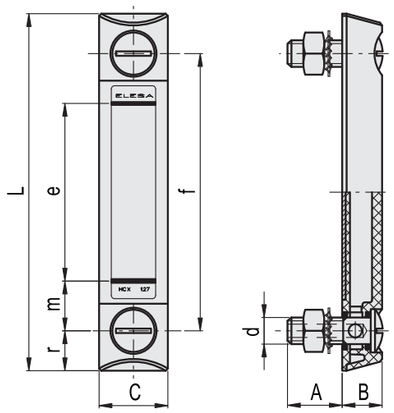
FEATURES AND PERFORMANCES
Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level.

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to 10 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.

SPECIAL EXECUTIONS ON REQUEST
- Level indicators with SUPER-technopolymer protection frame.
- Indicators with two red ball-shaped floats (only for the execution without thermometer).

*** Registered trademark by DuPont Dow Elastomers.**





STAINLESS STEEL

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	C# [Nm]	⚖
11345	HCX.76-BW-SST-M10	76	M10	22	16	27	107	40	18	15.5	10.5	76	8	87
11355	HCX.127-BW-SST-M12	127	M12	23	18	31	161	80	23	17	12.5	127	8	138
11365	HCX.254-BW-SST-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	8	185

Maximum tightening torque

HCX-AR

Column level indicators

for use with fluids containing alcohol, technopolymer

MATERIAL
Transparent polyamide based (PA-T/AR) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters, additives and detergents containing alcohol.

SCREWS, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
NBR synthetic rubber O-Ring.
Suggested roughness of the packing ring application surface Ra = 3 µm.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCX-AR**: without thermometer.
- **HCX/T-AR**: with incorporated thermometer.

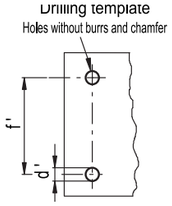
MOUNTING
When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE
80°C.

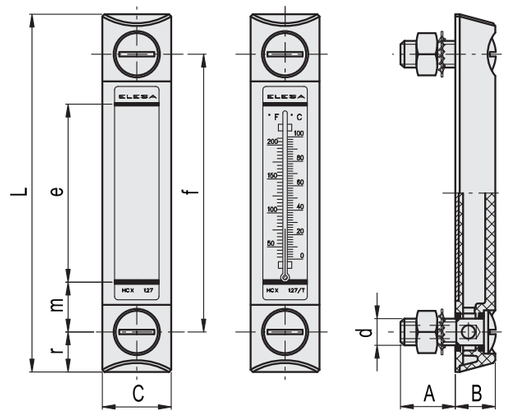
FEATURES AND PERFORMANCES
Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level and temperature.

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 13 bar (HCX.76-AR and HCX.127-AR) 10 bar (HCX.254-AR).
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.

SPECIAL EXECUTIONS ON REQUEST
- Level indicators with with SUPER-technopolymer protection frame.
- Indicators with two red ball-shaped floats (only for the execution without thermometer).
- Indicators with cylindrical or step-shaped (NBR or FKM) packing rings (instead of OR) for mounting on reservoirs having rough surfaces or in any case not perfectly flat.



HCX-AR **HCX/T-AR**



Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	⚖
11342	HCX.76-AR-M10	76	M10	22	16	27	107	40	18	15.5	10.5	76	-	-	8	87
11347	HCX.76/T-AR-M10	76	M10	22	16	27	107	40	18	15.5	10.5	76	20÷100	68÷210	8	87
11352	HCX.127-AR-M12	127	M12	23	18	31	161	80	23	17	12.5	127	-	-	8	138
11357	HCX.127/T-AR-M12	127	M12	23	18	31	161	80	23	17	12.5	127	0÷100	32÷210	8	138
11362	HCX.254-AR-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	-	-	8	185
11367	HCX.254/T-AR-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	0÷100	32÷210	8	185

Maximum tightening torque

Column level indicators

with SUPER-technopolymer protection frame

INDICATOR BODY
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

PROTECTION FRAME
Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer, black colour, matte finish. Supplied assembled, removable by a screwdriver.

SCREWS, NUTS AND WASHERS
- Zinc-plated steel. (HCX-PT).
- AISI 303 stainless steel screws, AISI 304 stainless steel nuts and washers. (HCX-PT-SST).
- Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer screws, AISI 304 stainless steel nuts and washers. (HCX-PT-VT).

PACKING RINGS
- NBR synthetic rubber O-Ring. (HCX-PT and HCX-PT-VT).
- FKM type VITON®*O-Ring. (HCX-PT-SST).

Suggested roughness of the packing ring application surface Ra = 3 µm.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCX-PT**: without thermometer. Zinc-plated steel screws, nuts and washers.
- **HCX/T-PT**: with incorporated thermometer. Zinc-plated steel screws, nuts and washers.
- **HCX-PT-SST**: without thermometer. AISI 303 stainless steel screws, AISI 304 stainless steel nuts and washers.
- **HCX/T-PT-SST**: with incorporated thermometer. AISI 303 stainless steel screws, AISI 304 stainless steel nuts and washers.
- **HCX-PT-VT**: without thermometer. Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer screws, AISI 304 stainless steel nuts and washers.
- **HCX/T-PT-VT**: with incorporated thermometer. Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer screws, AISI 304 stainless steel nuts and washers.

MOUNTING
When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
Ultrasound welding to guarantee a perfect seal.
Lens effect for a better visibility of the fluid level and temperature.
Special openings in the protection frame provide maximum fluid level visibility even from side positions.
All shocks are absorbed by the frame that transmits them directly onto the wall of the reservoir.

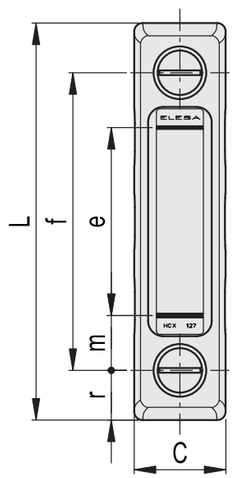
TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCX.76-PT e HCX.127-PT) 12 bar (HCX.254-PT).
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

OTHER STANDARD EXECUTIONS
- HCX-AR (see page 1761) for use with fluids containing alcohol.
- HCX-BW-SST (see page 1760) for use with hot water.

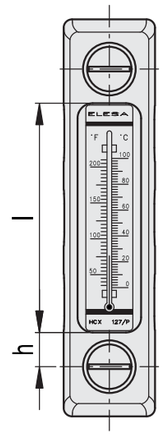
SPECIAL EXECUTIONS ON REQUEST
- UV resistant transparent technopolymer indicators.
- Indicators with two red ball-shaped floats (only for the execution without thermometer).
- Indicators with cylindrical or step-shaped (NBR or FKM) packing rings (instead of OR) for mounting on reservoirs having rough surfaces or in any case not perfectly flat.

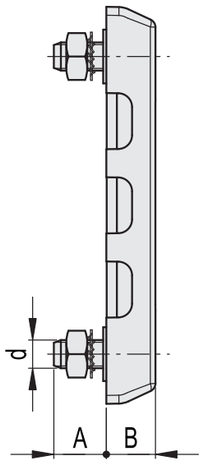
*** Registered trademark by DuPont Dow Elastomers.**

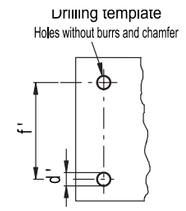
HCX-PT
HCX-PT-SST
HCX-PT-VT



HCX/T-PT
HCX/T-PT-SST
HCX/T-PT-VT







HCX-PT - HCX/T-PT

Code	Description	f	d	A	B	C	L	e	h	l	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	⚖
11332	HCX.76-PT-M10	76	M10	20	19	35.5	115	40	13.5	49	18	19.5	10.5	76	-	-	12	117
11336	HCX.76/T-PT-M10	76	M10	20	19	35.5	115	40	13.5	49	18	19.5	10.5	76	20÷100	68÷210	12	117
11372	HCX.127-PT-M12	127	M12	22	21	39	169	80	15	96	23	21	12.5	127	-	-	12	191
11377	HCX.127/T-PT-M12	127	M12	22	21	39	169	80	15	96	23	21	12.5	127	0÷100	32÷210	12	191
11359	HCX.254-PT-M12	254	M12	21	21.5	44.5	301	203	18	218	26	23.5	12.5	254	-	-	12	288
11369	HCX.254/T-PT-M12	254	M12	21	21.5	44.5	301	203	18	218	26	23.5	12.5	254	0÷100	32÷210	12	288

HCX-PT-SST - HCX/T-PT-SST **STAINLESS STEEL**

Code	Description	f	d	A	B	C	L	e	h	l	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	⚖
11334	HCX.76-PT-SST-M10	76	M10	20	19	35.5	115	40	13.5	49	18	19.5	10.5	76	-	-	12	119
11338	HCX.76/T-PT-SST-M10	76	M10	20	19	35.5	115	40	13.5	49	18	19.5	10.5	76	20÷100	68÷210	12	119
11373	HCX.127-PT-SST-M12	127	M12	22	21	39	169	80	15	96	23	21	12.5	127	-	-	12	193
11378	HCX.127/T-PT-SST-M12	127	M12	22	21	39	169	80	15	96	23	21	12.5	127	0÷100	32÷210	12	193
11360	HCX.254-PT-SST-M12	254	M12	21	21.5	44.5	301	203	18	218	26	23.5	12.5	254	-	-	12	290
11370	HCX.254/T-PT-SST-M12	254	M12	21	21.5	44.5	301	203	18	218	26	23.5	12.5	254	0÷100	32÷210	12	290

HCX-PT-VT - HCX/T-PT-VT

Code	Description	f	d	A	B	C	L	e	h	l	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	⚖
111353	HCX.127-PT-VT-M12	127	M12	22	21	39	169	80	15	96	23	21	12.5	127	-	-	6	147
111363	HCX.127/T-PT-VT-M12	127	M12	22	21	39	169	80	15	96	23	21	12.5	127	0÷100	32÷210	6	147
111373	HCX.254-PT-VT-M12	254	M12	21	21.5	44.5	301	203	18	218	26	23.5	12.5	254	-	-	6	248
111379	HCX.254/T-PT-VT-M12	254	M12	21	21.5	44.5	301	203	18	218	26	23.5	12.5	254	0÷100	32÷210	6	248

Maximum tightening torque

Column level indicators

technopolymer, with zinc alloy protection frame

MATERIAL
Transparent polyamide based (PA-T) technopolymer. High resistance to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

PROTECTION FRAME
Zinc-alloy, sandblasted and treated finish.

SCREWS, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
Step-shaped for the seal on the reservoir walls and NBR synthetic rubber O-ring screw underhead.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCX-P**: without thermometer.
- **HCX/T-P**: with incorporated thermometer.

MOUNTING
When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

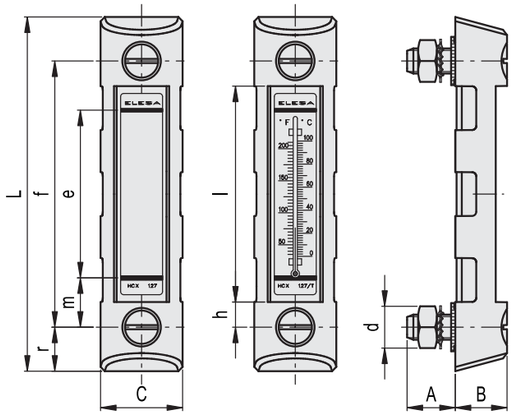
MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
Ultrasound welding to guarantee a perfect seal.
Lens effect for a better visibility of the fluid level and temperature.
Special openings in the protection frame provide maximum fluid level visibility even from side positions.
All shocks are absorbed by the frame that transmits them directly onto the wall of the reservoir

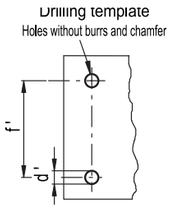
TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to 18 bar.
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

SPECIAL EXECUTIONS ON REQUEST
- Level indicators for use with fluids containing alcohol or with hot water.
- UV resistant transparent technopolymer indicators.
- Protection frame with indicators type HCX-SST (see page 1758), HCX-BW-SST (see page 1762), HCX-AR (see page 1763).
- Indicators with two red ball-shaped floats (only for the execution without thermometer).
- Indicators with cylindrical or step-shaped (NBR or FKM) packing rings (instead of OR) for mounting on reservoirs having rough surfaces or in any case not perfectly flat.

HCX-P



HCX/T-P



Code	Description	f	d	A	B	C	L	e	h	l	m	r	d'-0.2	f'±0.2	C# [Nm]	⚖
11371	HCX.127-P-M12	127	M12	22	25	39	169	80	12	103	23	21	12.5	127	12	279
11376	HCX.127/T-P-M12	127	M12	22	25	39	169	80	12	103	23	21	12.5	127	12	281

Maximum tightening torque

FM Kit

Fast Mounting Kit

Steel and rubber

NUT
Zinc-plated steel.

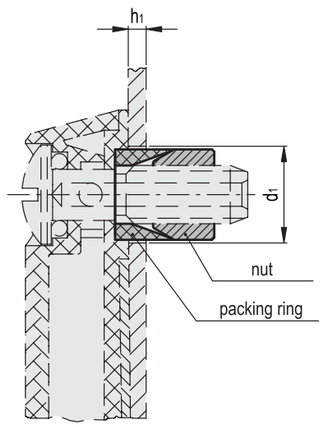
PACKING RING
NBR synthetic rubber.

FEATURES
The FM kit (fast mounting kit) has been designed for mounting level indicators series HCX. from the outside when nuts cannot be fitted from the inside of the reservoir.

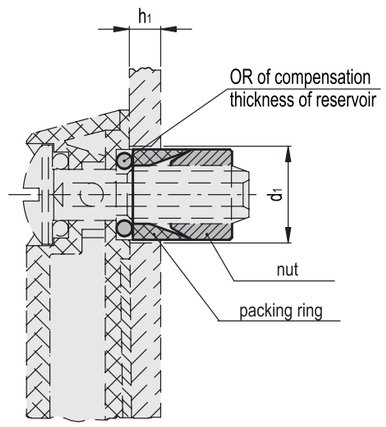
ASSEMBLY OF THE INDICATOR WITH THE FM KIT (FAST MOUNTING KIT)
- Arrange the holes d_1 as reported in the table and make sure that the holes in the plate do not have any burs, especially inside the reservoir.
- Unscrew the nuts from the HCX. indicator and take out the washers supplied with the standard execution, put the packing ring inside and screw the nuts (with or without O-Ring according to the thickness h_1).
- Before assembly of the indicator on the reservoir, slightly tighten the nut by hand against the packing ring.

We advise you, then, to deform slightly the threaded end of the screw in order to prevent the nut from falling into the reservoir while disassembling the indicator.
- To disassemble the indicator from the reservoir, just rotate the screw 3/4 of a turn keeping the plastic part of the indicator under tension (pulling).

1.5 < h_1 < 4.7
(assembly without O-ring)



4.7 < h_1 < 6.3
(assembly with O-ring)



Code	Description	d_1 +0.1	Without O-ring h_1 min	Without O-ring h_1 max	With O-ring h_1 min	With O-ring h_1 max	Tightening torque max. [Nm]
31801	FM-HCX.76-M10-KIT	16	1.5	4.7	4.7	6.3	7
31811	FM-HCX.127-254-M12-KIT	17.5	1.5	4.7	4.7	6.3	7

HCX-LT

Column level indicator

with float for indirect level reading, technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. High resistance to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREWS, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
NBR synthetic rubber O-Ring.
Suggested roughness of the packing ring application surface Ra = 3 µm.

FLOAT
Ebonite, black colour.

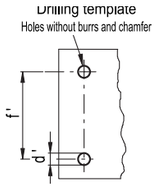
CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

MOUNTING
When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
HCX-LT column level indicator allows the fluid level reading by means of a float when, due to the particular design of the system, the fluid level cannot be seen directly from the lower part of the indicator.
The plastic foam float is moved upward by the fluid contained in the reservoir. This system allows an indirect reading of the level.
The red line on the lacquered contrast screen is visible only when the float is in its lowest position (minimum fluid level = m).
Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level.

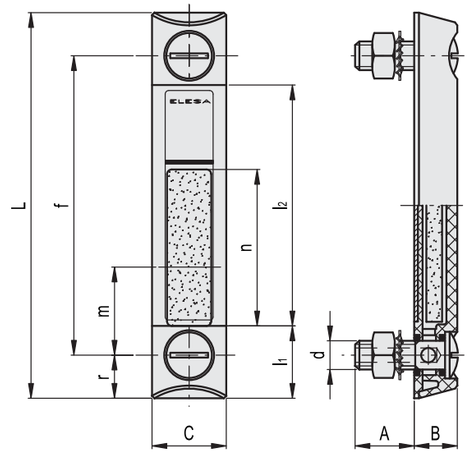
TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to 12 bar.
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.



SPECIAL EXECUTIONS ON REQUEST
Level indicators with SUPER-technopolymer protection frame.
UV resistant transparent technopolymer indicators.

ASSEMBLY INSTRUCTIONS
To ensure proper assembly of the indicator, please follow these instructions:
1. Set the minimum oil level of your reservoir.
2. Drill two holes on the reservoir wall. The lower hole axis should be drilled at "m" distance (see table) under the minimum oil level.

"m" is the minimum oil level allowed. This is the level from which the float starts to be moved upward.
The value "m" is calculated with an oil density of 875 Kg/m³ at 15°C.
If the red line of the contrast screen appears, the oil level is under its minimum level allowed.



Code	Description	f	d	A	B	C	L	l1	l2	m*	n	r	d'-0.2	f'±0.2	C# [Nm]	⚖
11364	HCX.254-LT-M12	254	M12	21	18	35	291	32	225	46	140	18.5	12.5	254	6	215

***** See assembly instructions

Maximum tightening torque

RoHS PA PC +100° -30°

Column level indicators

with or without transparent protection, technopolymer

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

SUPPORT
Aluminium in natural colour.

LEVEL COLUMN WINDOW
Polycarbonate transparent tube.
Maximum fluid level visibility even from side positions

SCREWS, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
NBR rubber O-Ring.

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

STANDARD EXECUTIONS
- **HCK:** with transparent front protection (against accidental shocks), in polycarbonate (PC), extractable for cleaning operations.
- **HCK-NP:** without transparent front protection.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C (with oil).

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the values of pressure resistance were much higher than 35 bar.
If you need to use the indicator with other oils or fluids and under different pressure and temperature conditions, please contact ELESA+GANTER Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

SPECIAL EXECUTIONS ON REQUEST
- Column level window in transparent methylmatacrylate (PMMA) for max 70°C use.
- AISI 303 stainless steel screws with hexagon socket.
- Polyamide based technopolymer float (from HCK.127) red colour.
- Expanded NBR float (from HCK.176) black colour with AISI 316 stainless steel spiral for special executions, viscous liquids, high temperatures.
- Column level window with visibility (l_2) superior to 452 mm and holes centre distance (f) for fixing up to 1.500 mm.
- Electric sensor bracket pre-set at the following temperatures: 50°C, 60°C, 70°C, 80°C.
- Packing rings in special material depending on the customer's needs.
- Built-in thermometer with red indication line.
- External scale thermometer (Fig. 1) with internal probe for fluid temperature.
- SLCK electric level sensor (Fig.2, from HCK.127) which can be fitted along the axis of the indicator according to the actual needs. With right (DX) or left (SX) connectors, normally closed (NC), normally open (NO).
- Special screw with nickel-plated brass tap (Fig. 3) to be fitted to the lower assembly end for any maintenance operation requiring the indicator exclusion.

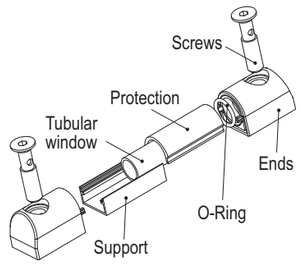


Fig.1

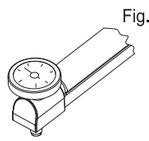


Fig.2

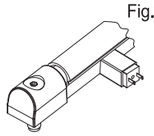
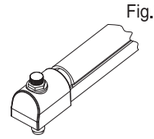
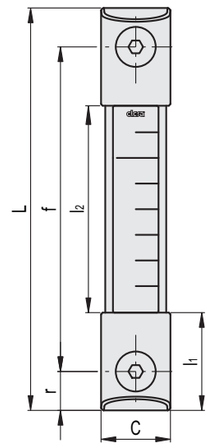
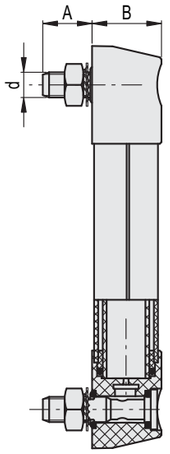
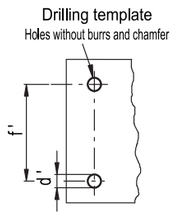


Fig.3









HCK		HCK-NP												
Code	**Description**	**Code**	**Description**	**f**	**d**	**A**	**B**	**C**	**L**	**l1**	**l2**	**r**	**d'-0.2**	**f'**	**C# [Nm]**	⚖
111001	HCK.76-M10	111001-NP	HCK.76-M10-NP	76	M10	20	33	33	113	35.5	42	18.5	10.5	76 ±0.2	12	183
111011	HCK.127-M12	111011-NP	HCK.127-M12-NP	127	M12	20	33	33	164	46.5	71	18.5	12.5	127±0.5	12	220
111021	HCK.176-M12	111021-NP	HCK.176-M12-NP	176	M12	20	33	33	213	46.5	120	18.5	12.5	176±0.5	12	250
111031	HCK.254-M12	111031-NP	HCK.254-M12-NP	254	M12	20	33	33	291	46.5	198	18.5	12.5	254±0.5	12	298
111041	HCK.381-M12	111041-NP	HCK.381-M12-NP	381	M12	20	33	33	418	46.5	325	18.5	12.5	381±0.5	12	377
111051	HCK.508-M12	111051-NP	HCK.508-M12-NP	508	M12	20	33	33	545	46.5	452	18.5	12.5	508±0.5	12	455

Maximum tightening torque

Column level indicators

with transparent protection for glycol-based solutions, technopolymer

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

SUPPORT
Aluminium in natural colour.

LEVEL COLUMN WINDOW
Transparent tube in PYREX®* glass, also suitable for use with glycol-based solutions.
Maximum fluid level visibility even from side positions

TRANSPARENT FRONT PROTECTION (AGAINST ACCIDENTAL SHOCKS)
Polycarbonate (PC), extractable for cleaning operations

SCREWS, NUTS AND WASHERS
- **HCK-GL:** : zinc-plated steel screws with hexagon socket, nuts and washers.
- **HCK-GL-SST:** : AISI 303 stainless steel screws with hexagon socket, AISI 304 stainless steel nuts and washers.

PACKING RINGS
- **HCK-GL:** : NBR rubber O-Ring
- **HCK-GL-SST:** : FKM type VITON®** synthetic rubber O-Ring.

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

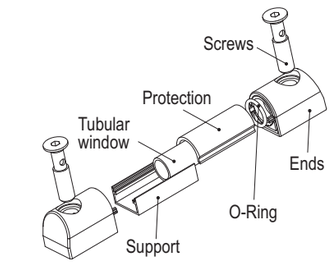
MAXIMUM CONTINUOUS WORKING TEMPERATURE
- **HCK-GL-SST**: 100°C (with oil, water, glycol-based solutions).
- **HCK-GL-SST**: 130°C (with oil, water, glycol-based solutions). In laboratory tests these indicators showed an excellent resistance to temperatures up to 150/160°C for many hours with pressures of 5/6 bar.

SPECIAL EXECUTIONS ON REQUEST
- Polyamide based technopolymer float (from HCK.127) red colour.
- Expanded NBR float (from HCK.176) black colour with AISI 316 stainless steel spiral for special executions, viscous liquids, high temperatures.
- Column level window with visibility (l_2) superior to 452 mm and holes centre distance (f) for fixing up to 1.500 mm.
- Electric sensor bracket pre-set at the following temperatures: 50°C, 60°C, 70°C, 80°C.
- Packing rings in special material depending on the customer's needs.
- Built-in thermometer with red indication line.
- External scale thermometer (Fig. 1) with internal probe for fluid temperature.
- SLCK electric level sensor (Fig.2, from HCK.127) which can be fitted along the axis of the indicator according to the actual needs. With right (DX) or left (SX) connectors, normally closed (NC), normally open (NO).
- Special screw with nickel-plated brass tap (Fig. 3) to be fitted to the lower assembly end for any maintenance operation requiring the indicator exclusion.

*** Registered trademark by Corning Inc.**

**** Registered trademark by DuPont Dow Elastomers.**

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the values of pressure resistance were much higher than 35 bar.
If you need to use the indicator with other oils or fluids and under different pressure and temperature conditions, please contact ELESA+GANTER Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.



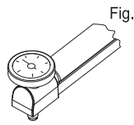


Fig.1

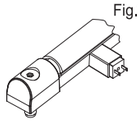


Fig.2

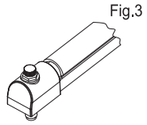
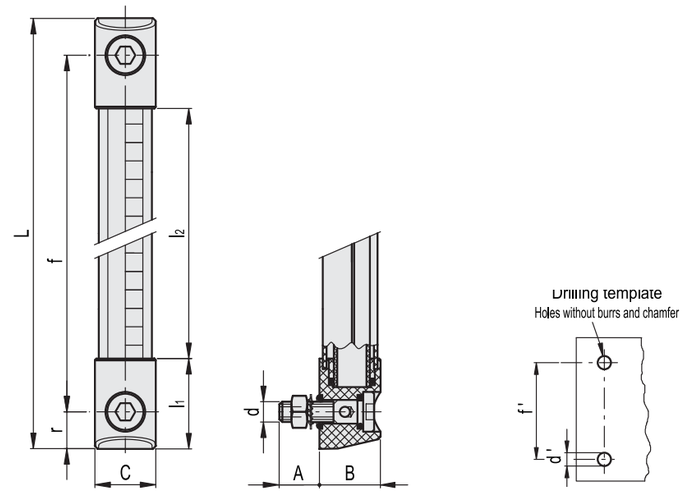


Fig.3



HCK-GL

Code	Description	f	d	A	B	C	L	l1	l2	r	d'-0.2	f'	C# [Nm]	⚖
111004	HCK.76-GL-M10	76	M10	20	33	33	113	35.5	42	18.5	10.5	76 ±0.2	12	183
111014	HCK.127-GL-M12	127	M12	20	33	33	164	46.5	71	18.5	12.5	127±0.5	12	220
111024	HCK.176-GL-M12	176	M12	20	33	33	213	46.5	120	18.5	12.5	176±0.5	12	250
111034	HCK.254-GL-M12	254	M12	20	33	33	291	46.5	198	18.5	12.5	254±0.5	12	298
111044	HCK.381-GL-M12	381	M12	20	33	33	418	46.5	325	18.5	12.5	381±0.5	12	377
111054	HCK.508-GL-M12	508	M12	20	33	33	545	46.5	452	18.5	12.5	508±0.5	12	455

HCK-GL-SST **STAINLESS STEEL**

Code	Description	f	d	A	B	C	L	l1	l2	r	d'-0.2	f'	C# [Nm]	⚖
111005	HCK.76-GL-SST-M10	76	M10	20	33	33	113	35.5	42	18.5	10.5	76 ±0.2	12	183
111015	HCK.127-GL-SST-M12	127	M12	20	33	33	164	46.5	71	18.5	12.5	127±0.5	12	220
111025	HCK.176-GL-SST-M12	176	M12	20	33	33	213	46.5	120	18.5	12.5	176±0.5	12	250
111035	HCK.254-GL-SST-M12	254	M12	20	33	33	291	46.5	198	18.5	12.5	254±0.5	12	298
111045	HCK.381-GL-SST-M12	381	M12	20	33	33	418	46.5	325	18.5	12.5	381±0.5	12	377
111055	HCK.508-GL-SST-M12	508	M12	20	33	33	545	46.5	452	18.5	12.5	508±0.5	12	455

Maximum tightening torque

RoHS IP65 PP +80° -30° PA +120° -30°

Kit for the electric control of a fluid level

for HCK. and HCK-GL column level indicators

SENSOR HOLDER BRACKET
In polyamide based (PA) technopolymer, black colour, watertight, with a built-in relay (reed) with two conductors wired to the two-pin connector. It can be moved along the axis of the indicator and secured in the preferred position with the appropriate screw (set screw) in technopolymer.

ELECTRIC SENSOR
- NO: the electric circuit closes on reaching the preset level.
- NC: the electric circuit opens on reaching the preset level.

CONNECTOR
With built-in cable gland and contact holders.Properly set, it offers an effective product protection against water sprays (IP 65 protection class according to EN 60529 table on page A23) that can be increased during installation with the necessary adjustments. NBR synthetic rubber packing rings.

FLOAT
Polypropylene based (PP) technopolymer, max temperature limit 80° C or polyamide based (PA) technopolymer, max temperature limit 120°C, max chemical compatibility, black colour.
The float incorporates a magnetic element to activate the electric contact. When the float reaches the intervention level set by the user, by suitably positioning the sensor holder along the axis of the indicator, the electrical contact activates.
Max operating pressure 2 bar (operation with oil).

SPACERS
In polyamide based (PA) technopolymer. Essential in cases where the reservoir is made out of ferromagnetic material in order to prevent the interaction between the magnet and the metal mass of the reservoir.

KIT
The kit includes one or two sensor holder brackets, a float, 4 O-rings (2 FKM for HCK-GL and 2 NBR for HCK) and two spacers.
It is possible to apply more than one kit to get the electric control of different levels, consistently with the height of the transparent column.

STANDARD EXECUTIONS
For applications with temperatures up to 80°C: polypropylene based (PP) technopolymer float.
- **SLCK-NO**: with electric contact normally open.
- **SLCK-NC**: with electric contact normally closed.
- **SLCK-NO-NC**: with one electric contact normally open and one electric contact normally closed.
- **SLCK-NC-NC**: with two electric contacts normally closed.
- **SLCK-NO-NO**: with two electric contacts normally open.

For applications with temperatures up to 120°C: polyamide based (PA) technopolymer float.
- **SLCK-HT-NO**: with electrical contact normally open.
- **SLCK-HT-NC**: with electrical contact normally closed.
- **SLCK-HT-NO-NC**: with one electrical contact normally open and one electric contact normally closed.
- **SLCK-HT-NC-NC**: with two electrical contacts normally closed.
- **SLCK-HT-NO-NO**: with two electrical contacts normally opened.

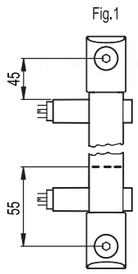
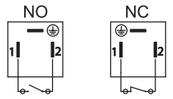


Fig.1

FEATURES AND PERFORMANCES
With the application of the SLCK kit, HCK. and HCK-GL column level indicators provide an electric signal when the fluid level reaches the level of preset intervention, besides the visual control of the level. The electric control of the level can be applied on all versions of HCK. from the version with 127 mm hole centre distance while always maintaining the visibility of fluid level even from side positions.
In the highest position, the sensor holder must be positioned at least 45 mm below the axis of the high screw (Fig.1), so that the switching takes place correctly.
In the lowest position, the fluid level which determines the switching of the electric circuit is about 55 mm above the axis of the low screw of fluid supply (data referring to mineral oil type CB68, according to ISO 3498, temperature 23°C) (Fig. 1).
The sensor holder is arranged to be installed to the left with respect to the axis of the indicator. However, if required it can also be mounted on the right. The connector can be rotated by 90° in four positions when wiring.
For a correct assembly see Warnings (on page 1775).



Level sensor electric characteristics	
Tension feed	AC/DC
Electric contacts	NO normally open NC normally close
Maximum applicable voltage	230 Vdc / Vac
Max. opening capacity (CC CA)	2 A
Maximum commutable power	40 W / VA
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.	

KIT ASSEMBLY INSTRUCTIONS
- Remove the assembly end of the indicator (Fig. 2).
- Insert the sensor holder bracket (Fig.3).
- Insert the float with the word "up" to the top and relocate the assembly end in place (Fig.4).
- Clamp the bracket with the set screw to the desired position (Fig. 5).
- Install the indicator on the reservoir using the spacers included in the supply (necessary in case of reservoir made out of ferromagnetic material in order to avoid interaction between the magnet and the metal mass (Fig.6).
- Assemble the two-pin connector (Fig. 7).

TWO-PIN CONNECTOR ASSEMBLY INSTRUCTIONS
1. Remove the connector from the sensor holder bracket by unscrewing the axial set screw, take off the contact holder and unscrew the cable gland as required.
2. Slip on the cable into the connector and connect the wires to the terminals of the contact holder.
3. Assemble by pressing the contact holder into the connector (the contact holder can be rotated by 90° in four positions to have a different orientation of the connector).
4. Screw again the connector to the sensor holder by means of the axial set screw and then tighten the cable gland.

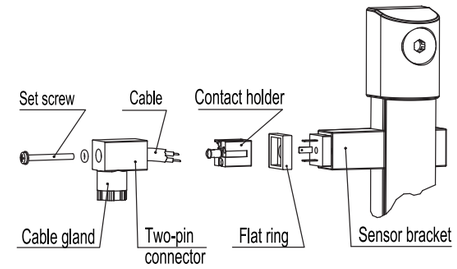
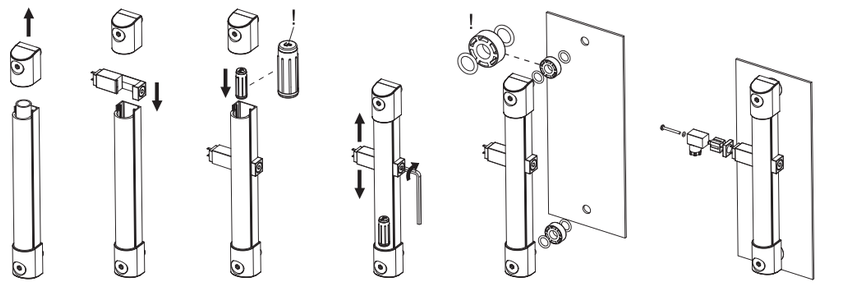
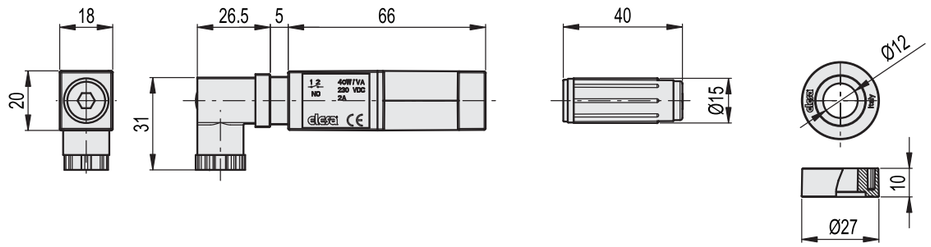


Fig.2 Fig.3 Fig.4 Fig.5 Fig.6 Fig.7



Sensor holder bracket Float Spacers



Code	Description	Code	Description	⚖
110081	SLCK-NO	110082	SLCK-HT-NO	235
110083	SLCK-NC	110084	SLCK-HT-NC	235
110085	SLCK-NO-NC	110086	SLCK-HT-NO-NC	235
110087	SLCK-NC-NC	110088	SLCK-HT-NC-NC	235
110089	SLCK-NO-NO	110090	SLCK-HT-NO-NO	235

Column level indicators

with U shaped protection, technopolymer

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

SUPPORT
Aluminium in natural colour. It can be turned by 90°C where necessary.

LEVEL COLUMN WINDOW
Polymethylmatacrylate transparent tube.

SCREWS
Zinc-plated steel with hexagon socket.

PACKING RINGS
NBR synthetic rubber O-Ring.

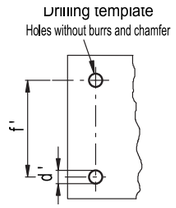
GRADUATED CONTRAST SCREEN
Plastic material, resistant to oils and greases. Fitted to the aluminium protection by means of an adhesive tape.

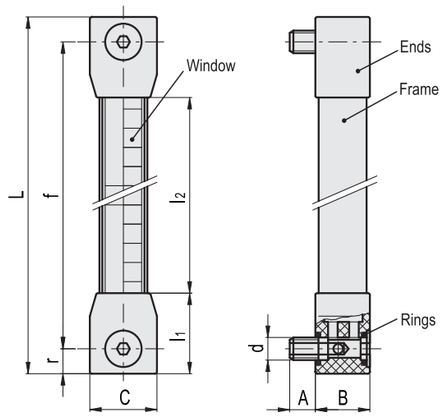
MAXIMUM CONTINUOUS WORKING TEMPERATURE
70°C (with oil or water).

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 30 bar (HCL.300), 25 bar (HCL.400) and 20 bar (HCL.500).
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.

SPECIAL EXECUTIONS ON REQUEST
- Column level indicators with tubes and assembly ends in different materials for the use with special fluids and/or at high temperatures.
- AISI 316 stainless steel or nickel-plated brass screws.
- Polyamide based (PA) technopolymer float, red colour to highlight the level also from a long distance.
- Column level indicators with fitting centre-holes up to 2000 mm.
- HCL-E column oil level indicators including float, minimum level signal, normally closed contacts (NC), normally open (NO) or CHANGE OVER.
- Adjustable level sensors which can be placed along the axis of the indicator, with right (DX) or left (SX) connectors, normally closed (NC), normally open (NO) or CHANGE OVER contacts.
- EPDM or FKM type VITON®* packing rings.

*** Registered trademark by DuPont Dow Elastomers.**





Code	Description	f	d	A	B	C	L	l1	l2	r	d'-0.2	f'±0.2	C# [Nm]	⚖
111211	HCL-300-M12	300	M12	13.5	28.5	35	326	42	242	13	12.5	300	15	227
111221	HCL-400-M12	400	M12	13.5	28.5	35	426	42	342	13	12.5	400	15	268
111231	HCL-500-M12	500	M12	13.5	28.5	35	526	42	442	13	12.5	500	15	306

Maximum tightening torque

Warnings for an effective protection of the Reed switches

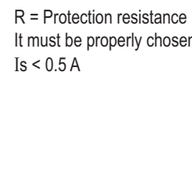
The electric features on the Reed switches, shown in the descriptive tables, are supplied by the manufacturers. For a Reed switch connection, it is recommended to pay special attention to the type of load to which the switch is going to be connected. Inductive, capacitive or lamp loads may produce surges during operation, for their own nature. These surges may damage the Reed switch or drastically reduce its operating life.

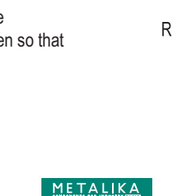
Inductive load
When a Reed switch is used to guide an inductive load such as engines and solenoid valves, the energy stored in the load may cause an inverse voltage when the Reed contact breaks. The voltage depends on the inductance value. The following circuits provide a protection in the cases hereunder mentioned.

In case of continous voltage, it is enough to introduce a diode in parallel to the load respecting the polarity, to advoid any damage to the Reed switch.

In case of alternating voltage, it is possible to use a resistance and a capacitance in parallel to the Reed switch. The capacitance and resistance values come out from the following formula.

An alternative solution may be to use a varistor in parallel to the load.

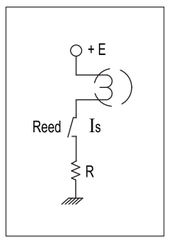




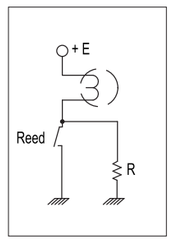
$$C\,[\mu F] = \frac{I^2}{10}$$

$$R\,[\Omega] = \frac{E}{10 \cdot I\,(1+\frac{E}{50})}$$

Lamp load
In case of a tungsten filament lamp, the filament resistance is 10 times smaller when the lamp is switched off (cold filament) than in case of the lamp switched on (hot filament). After the Reed contact commutation and after the lamp turning on, for a short time the in-rush current is 10 times higher than the one circulating in steady state. This flow may damage the Reed contact or jeopardise its duration. In this case, the solution is to introduce a resistance in series to the Reed switch, thus cutting the maximum value of the current, or a resistance in parallel to the Reed switch, to keep the filament hot (by increasing the resistance) without causing the lamp to turn on.



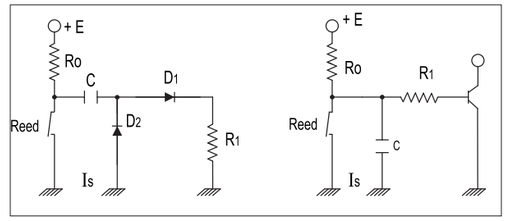
R = Protection resistance
It must be properly chosen so that
Is < 0.5 A



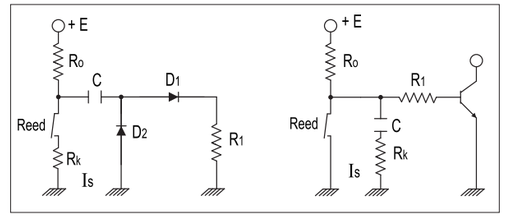
$$R < \frac{\text{Filament resistance}}{3}$$

Capacitive load
The in-rush current flowing during charge and discharge of the capacitor will cause deterioration of the Reed contacts in case when a capacitor is connected in series or in parallel with a Reed switch in a closed circuit. In this situation, the easiest and more effective solution is to position a resistance in series to the Reed switch or, in general, a resistance properly set in order to cut the maximum value of the currents of charge and discharge. Here are two examples of a circuit: the energy, stored in the capacitive load "C", generates rush currents discharging through the Reed contact. The use of a properly calibrated resistance reduces the value of these currents and protects the operating life of the Reed contact.

Circuit without protection



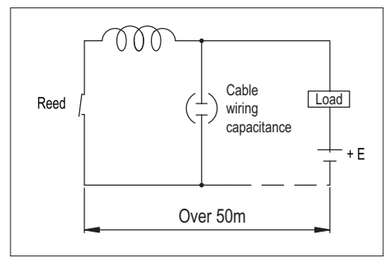
Circuit with protection



Rk is the resistance limiting the surges.
The Rk resistance value depends on the circuit electric configuration.
As a general rule:

$$Is = \frac{\text{V stored in the load}}{{}_{k}R\ [K\Omega]} < 0{,}1\ A$$

Wiring capacitance
In case a Reed switch is connected to a load by a cable, over a long distance, the cable static capacitance will affect the Reed switch. In case the cable length exceeds 50 metres, it is recommended to use a protection for assuring a longer operating life of the Reed switch (although it depends on the type of cable used). In this situation an inductance in series to the Reed switch or a small resistance (current limiting resistance of 10 to 500 ohms) can be inserted.



Column level indicators

with MAX temperature electrical sensor, technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREW, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
NBR synthetic rubber O-Ring.
Suggested roughness of the packing ring application surface Ra = 3 µm.

MAX TEMPERATURE ELECTRICAL SENSOR (80°C)
Zinc-plated screw with built-in sensor.
Temperature of intervention is 80°C.
For a correct assembly see Warnings (see page 1777).

SWIVELLING TWO-PIN CONNECTOR
With built-in cable gland and contact holder. Front or side output (right or left) including protection against water sprays (protection class IP 65 according to EN 60529 table on page A23) that can be increased during installation with the necessary adjustments. Flat NBR synthetic rubber packing rings.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCX-ST-NO**: with electrical contact normally open.
- **HCX-ST-NC**: with electrical contact normally closed.

MOUNTING
When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

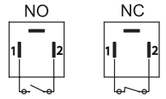
SPECIAL EXECUTIONS ON REQUEST
- Level indicators with SUPER-technopolymer protection frame.
- Level indicators for use with fluids containing alcohol or with hot water.
- UV resistant transparent technopolymer indicators.
- Temperature electrical sensor with pre-set temperatures different from 80°C.
- Indicators with two red ball-shaped floats.

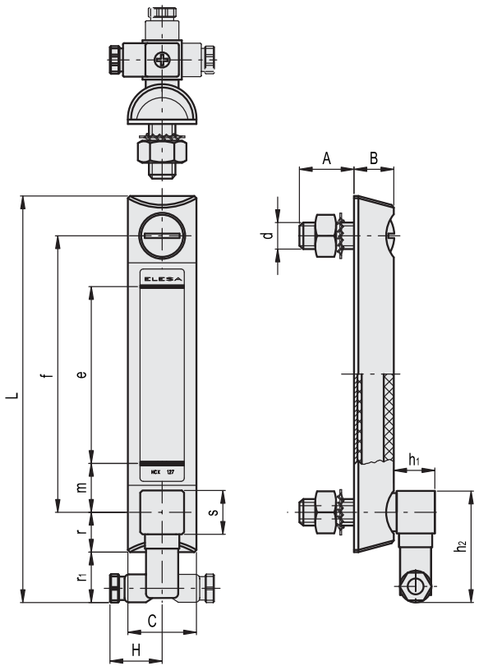
FEATURES AND PERFORMANCES
This column level indicator generates an electric signal when the temperature reaches the pre-set degrees (80°C).
Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level and temperature.

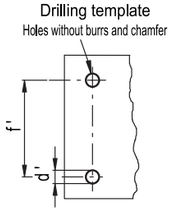
TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCX.127-ST) 12 bar (HCX.254-ST).
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

FUNCTIONING
- HCX-ST-NO with electrical contact normally open.
Electrical temperature sensor: the electrical circuit is closed when the pre-set temperature at 80°C is reached.
- HCX-ST-NC with electrical contacts normally closed.
Electrical temperature sensor: the electrical circuit is open when the pre-set temperature at 80°C is reached.

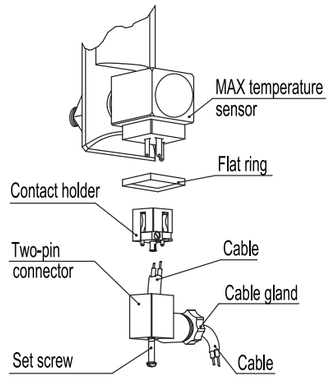
Electrical features	MAX temperature sensor	
Tension feed	AC/DC	
Electric contacts	NO normally open NC normally closed	
Voltage / Maximum current	250 Vac - 10 A	(resisteve loads)
	48 Vdc - 5 A	
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)	
Conductors cross-section	Max 1.5 mm^2	







TWO-PIN CONNECTOR ASSEMBLY INSTRUCTIONS
1. Remove the connector from the indicator by unscrewing the set screw placed in the bottom, take the contact holder out and loosen the cable gland.
2. Slip on the two-pole cable into the connector (standard connector) and connect the wires to the terminals nr. 1 and nr. 2 of the contact holder.
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.



Code	Description	f	d	A	B	C	H	L	e	h1	h2	m	r	r1	s	d'-0.2	f'±0.2	C# [Nm]	⚖
11161	HCX.127-ST-NO-M12	127	M12	23	18	31	27	187	80	21	54	23	17	26	22	12.5	127	12	220
11162	HCX.127-ST-NC-M12	127	M12	23	18	31	27	187	80	21	54	23	17	26	22	12.5	127	12	220
11171	HCX.254-ST-NO-M12	254	M12	21	18	35	27	315	203	21	54	26	18.5	24	22	12.5	254	10	265
11172	HCX.254-ST-NC-M12	254	M12	21	18	35	27	315	203	21	54	26	18.5	24	22	12.5	254	10	265

Maximum tightening torque

Column level indicators

with temperature electrical probe, technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREW, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
NBR synthetic rubber O-Ring.
Suggested roughness of the packing ring application surface Ra = 3 µm.

TEMPERATURE ELECTRICAL PROBE
Zinc-plated steel screw with built-in probe. The probe is made out of a platinum resistor whose ohmic resistance changes according to the temperature.
For a correct assembly see Warnings (see page 1777).

SWIVELLING TWO-PIN CONNECTOR
With built-in cable gland and contact holder. Front or side output (right or left) including protection against water sprays (protection class IP 65 according to EN 60529 table on page A23) that can be increased during installation with the necessary adjustments. Flat NBR synthetic rubber packing rings.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid.
It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

MOUNTING
When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

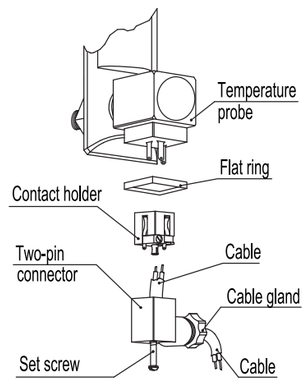
MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
This column level indicator generates an analogic electric signal of the oil temperature.
Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level and temperature.

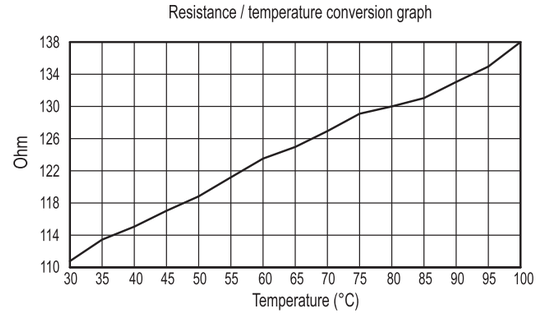
TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCX.127-STL) 12 bar (HCX.254-STL).
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

SPECIAL EXECUTIONS ON REQUEST
- Level indicators for use with fluids containing alcohol or with hot water.
- UV resistant transparent technopolymer indicators.
- Indicators with two red ball-shaped floats.

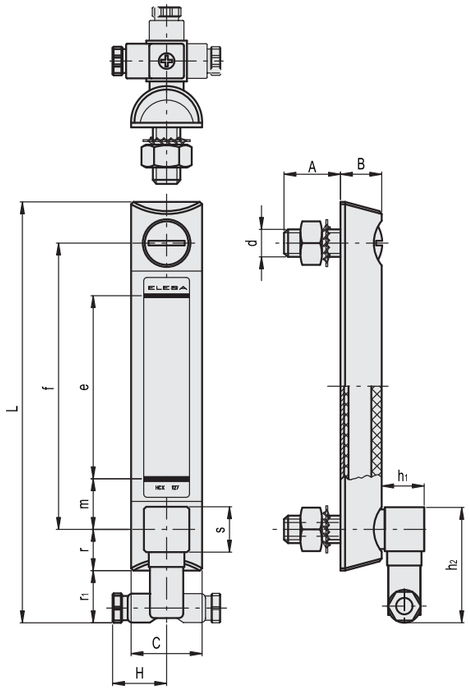
TWO-PIN CONNECTOR ASSEMBLY INSTRUCTIONS
1. Remove the connector from the indicator by unscrewing the set screw placed in the bottom, take the contact holder out and loosen the cable gland.
2. Slip on the two-pole cable into the connector (standard connector) and connect the wires to the terminals nr. 1 and nr. 2 of the contact holder.
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.

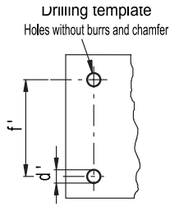


FUNCTIONING OF THE TEMPERATURE ELECTRICAL PROBE
The working principle of the temperature probe is to measure the variation of resistance of a platinum element: 100 ohm = 0°C, 138.4 ohm = 100°C.
The function between temperature (T) and resistance (R) is approximately linear over a small temperature range: 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.
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
Tension feed	AC/DC
Maximum current	2 mA
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max 1.5 mm²





Code	Description	f	d	A	B	C	H	L	e	h1	h2	m	r	r1	s	d'-0.2	f'±0.2	C# [Nm]	⚖
11166	HCX.127-STL-M12	127	M12	23	18	31	27	187	80	21	54	23	17	26	22	12.5	127	12	220
11176	HCX.254-STL-M12	254	M12	21	18	35	27	315	203	21	54	26	18.5	24	22	12.5	254	10	265

Maximum tightening torque

Column level indicators

with MIN level electrical sensor, technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.

SCREWS, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
NBR synthetic rubber O-Ring.
Suggested roughness of the packing ring application surface Ra = 3 µm.

FLOAT
Polyamide based (PA) expanded technopolymer, black colour, with a built-in magnetic element to activate the electric contact when the oil level drops to a minimum; alarm threshold located at about 50 mm from the centre of the lower nut (in presence of mineral oil type CB68, according to ISO 3498, at 23°C).

SENSOR BRACKET
Watertight in polypropylene based (PP) technopolymer, black colour, with a built-in relay (reed) with two conductors wired to the two-pin connector.
For a correct assembly see Warnings (on page 1777).

SWIVELLING TWO-PIN CONNECTOR
With built-in cable gland and contact holder. Front or side output (right or left) including protection against water sprays (protection class IP 65 according to EN 60529 table see page A23).

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCX-E-NO**: with electrical contact normally open.
- **HCX-E-NC**: with electrical contact normally closed.

MOUNTING
When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

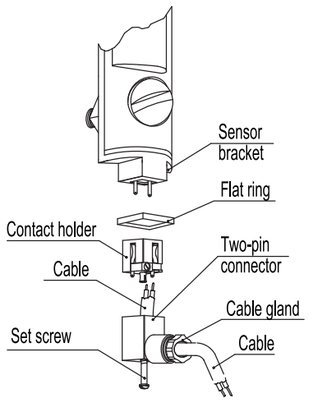
MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
The column level indicator HCX-E, in addition to the visual control, generates an electric signal when the oil level drops to a minimum.
Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level and temperature.

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to 13 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.

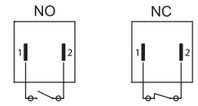
SPECIAL EXECUTIONS ON REQUEST
- Level indicators for use with fluids containing alcohol.
- UV resistant transparent technopolymer indicators.

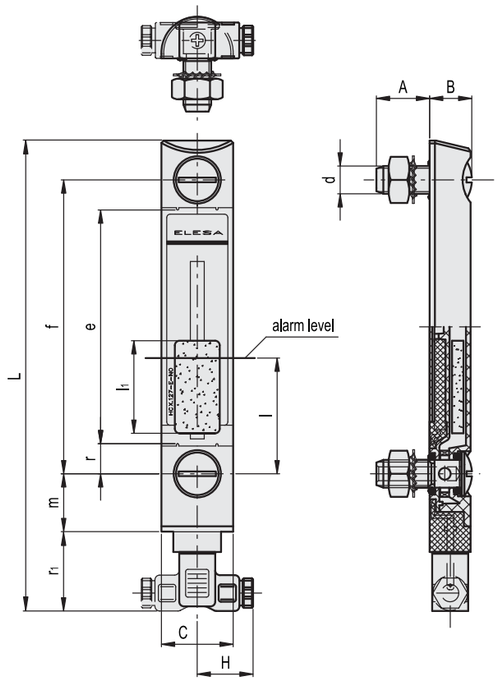
TWO-PIN CONNECTOR ASSEMBLY INSTRUCTIONS
1. Remove the connector from the indicator by unscrewing the set screw placed in the bottom, take the contact holder out and loosen the cable gland.
2. Slip on the two-pole cable into the connector (standard connector) and connect the wires to the terminals nr. 1 and nr. 2 of the contact holder.
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.

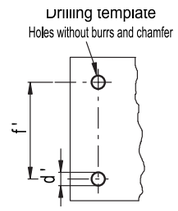


FUNCTIONING OF THE MIN LEVEL ELECTRICAL SENSOR
- HCX-E-NO: the electrical circuit is closed when the minimum level is reached.
- HCX-E-NC: the electrical circuit is open when the minimum level is reached.

Electrical features	MIN level sensor
Tension feed	AC/DC
Electric contacts	NO normally open NC normally close
Maximum applicable voltage	NO: 150 Vac, 100 Vdc NC: 150Vac, 150 Vdc
Maximum switching current	1 A
Maximum current	NO: 1A NC: 2A
Maximum switching power	NO: 10 Va NC: 20 Va
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm²
Do not mount this indicator in proximity to magnetic fields.	







Code	Description	f	d	A	B	C	H	L	e	l	l1	m	r	r1	d'-0.2	f'±0.2	C# [Nm]	⚖
11141	HCX.127-E-NO-M12	127	M12	23	20	32	26	202	101	50	40	25	13	32.5	12.5	127	12	150
11142	HCX.127-E-NC-M12	127	M12	23	20	32	26	202	101	50	40	25	13	32.5	12.5	127	12	150
11145	HCX.254-E-NO-M12	254	M12	23	20	31	25	328	228	50	40	25	13	32.5	12.5	254	12	177
11146	HCX.254-E-NC-M12	254	M12	23	20	31	25	328	228	50	40	25	13	32.5	12.5	254	12	177

Maximum tightening torque

Column level indicators

with MIN level and MAX temperature electrical sensors, technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREW, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
NBR synthetic rubber O-Ring.
Suggested roughness of the packing ring application surface Ra = 3 µm.

FLOAT
Polyamide based (PA) expanded technopolymer, black colour, with a built-in magnetic element to activate the electric contact when the oil level drops to a minimum; alarm threshold located at about 50 mm from the centre of the lower nut (in presence of mineral oil type CB68, according to ISO 3498, at 23°C).

SENSOR BRACKET
Watertight in polypropylene based (PP) technopolymer, black colour, with a built-in relay (reed) with two conductors wired to the two-pin connector.
For a correct assembly see Warnings (on page 1777).

MAX TEMPERATURE ELECTRICAL SENSOR (80°C)
Zinc-plated screw with built-in sensor.
Temperature of intervention is 80°C.

SWIVELLING TWO-PIN CONNECTORS
With built-in cable glands and contact holders. Front or side output (right or left) including protection against water sprays (protection class IP 65 according to EN 60529 table on page A23) that can be increased during installation with the necessary adjustments. Flat NBR synthetic rubber packing rings.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCX-E-ST-NO**: with electrical contact normally open.
- **HCX-E-ST-NC**: with electrical contact normally closed.

MOUNTING
When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

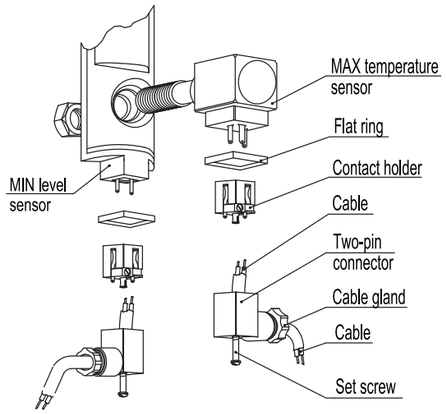
MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

SPECIAL EXECUTIONS ON REQUEST
- Level indicators for use with fluids containing alcohol.
- UV resistant transparent technopolymer indicators.
- Temperature electrical sensor with pre-set temperatures different from 80°C.

FEATURES AND PERFORMANCES
This column level indicator generates two electric signals: one when the oil goes down to the minimum level allowed and the other one when the temperature reaches the pre-set degrees (80°C).

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to 13 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.

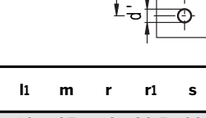
TWO-PIN CONNECTORS ASSEMBLY INSTRUCTIONS
1. Remove the connectors from the indicator by unscrewing the set screw placed in the bottom, take the contact holders out and loosen the cable glands.
2. Slip on the two-pole cable into the connectors (standard connectors) and connect the wires to the terminals nr. 1 and nr. 2 of the relative contact holders.
3. Assemble by pressing the contact holders into the realtive connectors in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.

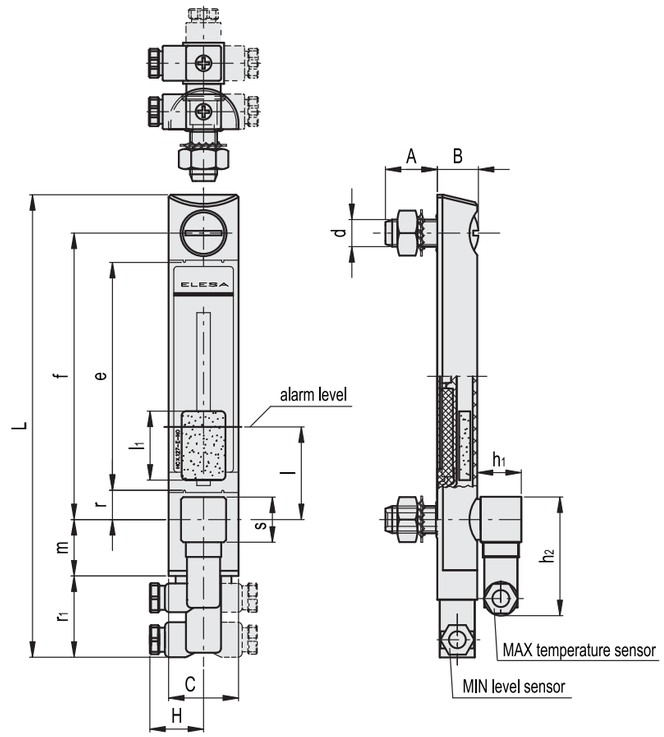


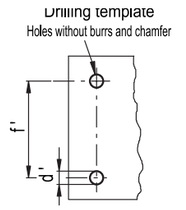
FUNCTIONING OF THE ELECTRICAL SENSORS
- HCX-E-ST-NO with electrical contacts normally open.
MIN level electrical sensor: the electrical circuit is closed when the minimum level is reached.
MAX temperature electrical sensor: the electrical circuit is closed when the pre-set temperature at 80°C is reached.
- HCX-E-ST-NC with electrical contacts normally closed.
MIN level electrical sensor: the electrical circuit is open when the minimum level is reached.
MAX temperature electrical sensor: the electrical circuit is open when the pre-set temperature at 80°C is reached.

Electrical features	MAX temperature sensor	
Tension feed	AC/DC	
Electric contacts	NO normally open NC normally close	
Voltage / Maximum current	250 Vac - 10 A	(resisteve loads)
	48 Vdc - 5 A	
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)	
Conductors cross-section	Max. 1.5 mm²	
Do not mount this indicator in proximity to magnetic fields.		

Electrical features	MIN level sensor
Tension feed	AC/DC
Electric contacts	NO normally open NC normally close
Maximum applicable voltage	NO: 150 Vac, 100 Vdc NC: 150Vac, 150 Vdc
Maximum switching current	1 A
Maximum current	NO: 1A NC: 2A
Maximum switching power	NO: 10 Va NC: 20 Va
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm²







Code	Description	f	d	A	B	C	H	L	e	h1	h2	l	l1	m	r	r1	s	d'-0.2	f'±0.2	C# [Nm]	⚖
11151	HCX.127-E-ST-NO-M12	127	M12	23	20	31.5	25	202	101	21	54	50	40	25	13	32.5	22	12.5	127	12	235
11152	HCX.127-E-ST-NC-M12	127	M12	23	20	31.5	25	202	101	21	54	50	40	25	13	32.5	22	12.5	127	12	235
11153	HCX.254-E-ST-NO-M12	254	M12	23	20	31	25	328	228	21	54	50	40	25	13	32.5	22	12.5	254	12	262
11154	HCX.254-E-ST-NC-M12	254	M12	23	20	31	25	328	228	21	54	50	40	25	13	32.5	22	12.5	254	12	262

Maximum tightening torque

RoHS IP65 PA-T PA +90° -30°

Column level indicators

with MIN level electrical sensor and temperature electrical probe, technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREW, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
NBR synthetic rubber O-Ring.
Suggested roughness of the packing ring application surface Ra = 3 µm.

FLOAT
Polyamide based (PA) expanded technopolymer, black colour, with a built-in magnetic element to activate the electric contact when the oil level drops to a minimum; alarm threshold located at about 50 mm from the centre of the lower nut (in presence of mineral oil type CB68, according to ISO 3498, at 23°C).

SENSOR BRACKET
Watertight in polypropylene based (PP) technopolymer, black colour, with a built-in relay (reed) with two conductors wired to the two-pin connector.
For a correct assembly see Warnings (on page 1777).

TEMPERATURE ELECTRICAL PROBE
Zinc-plated steel screw with built-in probe. The probe is made out of a platinum resistor whose ohmic resistance changes according to the temperature.

SWIVELLING TWO-PIN CONNECTORS
With built-in cable glands and contact holders. Front or side output (right or left) including protection against water sprays (protection class IP 65 according to EN 60529 table on page A23) that can be increased during installation with the necessary adjustments. Flat NBR synthetic rubber packing rings.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCX-E-STL-NO**: with electrical contact normally open.
- **HCX-E-STL-NC**: with electrical contact normally closed.

MOUNTING
When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

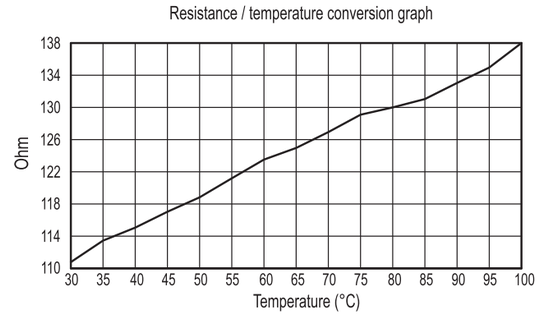
SPECIAL EXECUTIONS ON REQUEST
UV resistant transparent technopolymer indicators.

FUNCTIONING OF THE MIN LEVEL ELECTRICAL SENSOR
- HCX-E-STL-NO: the electrical circuit is closed when the minimum level is reached.
- HCX-E-STL-NC: the electrical circuit is open when the minimum level is reached.

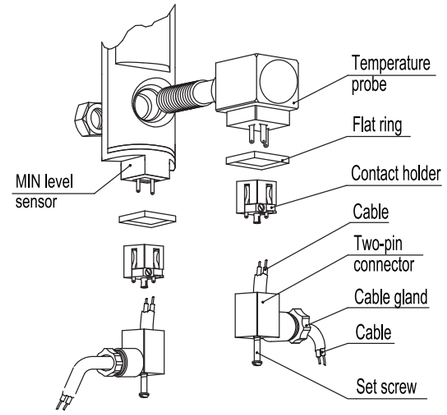
Electrical features	MIN level sensor
Tension feed	AC/DC
Electric contacts	NO normally open NC normally closed
Maximum applicable voltage	NO: 150 Vac, 100 Vdc NC: 150 Vac, 150 Vdc
Maximum switching current	1 A
Maximum current	NO: 1A NC: 2A
Maximum switching power	NO: 10 Va NC: 20 Va
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm²
Do not mount this indicator in proximity to magnetic fields.	

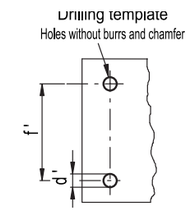
Electrical features	Temperature probe
Tension feed	DC
Maximum current	2 mA
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm²

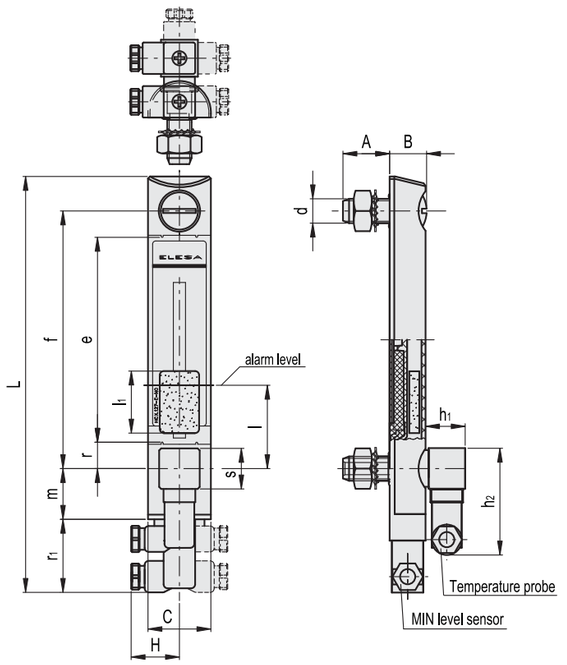
FUNCTIONING OF THE TEMPERATURE ELECTRICAL PROBE
The working principle of the temperature probe is to measure the variation of resistance of a platinum element: 100 ohm = 0°C, 138.4 ohm = 100°C.
The function between temperature (T) and resistance (R) is approximately linear over a small temperature range: 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.
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.



TWO-PIN CONNECTORS ASSEMBLY INSTRUCTIONS
1. Remove the connectors from the indicator by unscrewing the set screw placed in the bottom, take the contact holders out and loosen the cable glands.
2. Slip on the two-pole cable into the connectors (standard connectors) and connect the wires to the terminals nr. 1 and nr. 2 of the relative contact holders.
3. Assemble by pressing the contact holders into the realtive connectors in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.







Code	Description	f	d	A	B	C	H	L	e	h1	h2	l	l1	m	r	r1	s	d'-0.2	f'±0.2	C# [Nm]	⚖
11156	HCX.127-E-STL-NO-M12	127	M12	23	20	31.5	25	202	101	21	54	50	40	25	13	32.5	22	12.5	127	12	236
11157	HCX.127-E-STL-NC-M12	127	M12	23	20	31.5	25	202	101	21	54	50	40	25	13	32.5	22	12.5	127	12	236
11158	HCX.254-E-STL-NO-M12	254	M12	23	20	31	25	328	228	21	54	50	40	25	13	32.5	22	12.5	254	12	263
11159	HCX.254-E-STL-NC-M12	254	M12	23	20	31	25	328	228	21	54	50	40	25	13	32.5	22	12.5	254	12	263

Maximum tightening torque

Column level indicators

with MAX temperature electrical sensor

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREWS, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
Step-shaped for the seal on the reservoir walls and NBR synthetic rubber O-ring under screw head.
Suggested roughness of the packing ring application surface Ra = 3 µm.

SENSOR BRACKET
Watertight in glass-fibre reinforced polyamide based (PA) technopolymer, black colour, with MAX temperature sensor (80°C).
For a correct assembly see Warnings (on page 1777).

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 table on page A23).

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCV-ST-NO**: with electric contact normally open (NO).
- **HCV-ST-NC**: with electric contact normally closed (NC).

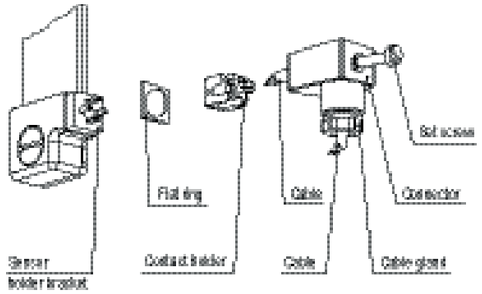
MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
In addition to the visual control, HCV-ST column level indicator, generates an electric signal when the temperature reaches the pre-set degrees (80°C).
Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level.

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCV.127) 12 bar (HCV.254).
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.

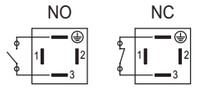
SPECIAL EXECUTIONS ON REQUEST
- Level indicators with stainless steel screws, nuts and washers.
- Level indicators for use with fluids containing alcohol.
- UV resistant transparent technopolymer level indicators.
- MAX temperature electrical sensor with trigger threshold at 70°C or 90°C.

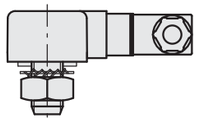
CONNECTOR ASSEMBLY INSTRUCTIONS
1. Remove the connector from the indicator by unscrewing the set screw placed on the connector, take the contact holders out and loosen the cable gland.
2. Slip on the cable into the connector (standard connector) and connect the wires to the terminals 3 and earth of the contact holder.
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.

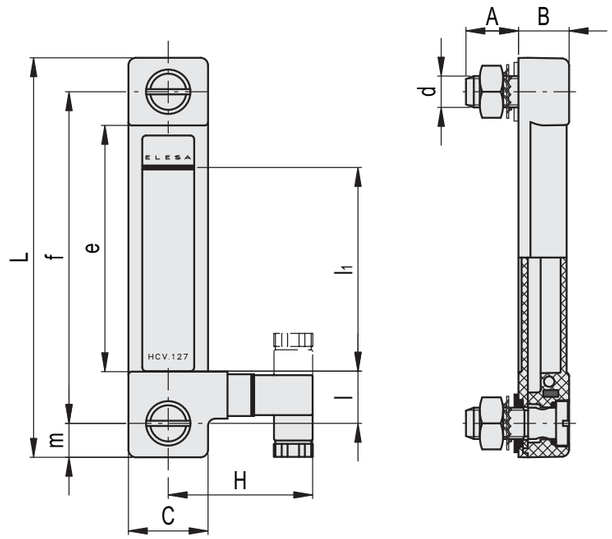


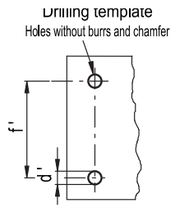
FUNCTIONING OF THE MAX LEVEL ELECTRICAL SENSOR
- HCV-ST-NO: the electrical contact closes when the pre-set temperature is reached at 80°C.
- HCV-ST-NC: the electrical contact opens when the pre-set temperature at 80°C is reached.

Electrical features	MAX temperature sensor	
Tension feed	AC/DC	
Electric contacts	NO normally open NC normally closed	
Voltage / Maximum current	250 Vac - 2 A	(resisteve loads)
	115 Vac- 3A	
	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 mm²	









Code	Description	f	d	A	B	C	H	L	e	l	l1	m	d'-0.2	f'±0.2	C# [Nm]	⚖
11112	HCV.127-ST-NO-M12	127	M12	20	19.5	30.5	55	153	97	20	78.5	13	12.5	127	12	149
11113	HCV.127-ST-NC-M12	127	M12	20	19.5	30.5	55	153	97	20	78.5	13	12.5	127	12	149
11122	HCV.254-ST-NO-M12	254	M12	20	19.5	30.5	55	280	224	20	205.5	13	12.5	254	12	176
11123	HCV.254-ST-NC-M12	254	M12	20	19.5	30.5	55	280	224	20	205.5	13	12.5	254	12	176

Maximum tightening torque

Column level indicators

with temperature electrical probe

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREWS, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
Step-shaped for the seal on the reservoir walls and NBR synthetic rubber O-ring under screw head.
Suggested roughness of the packing ring application surface Ra = 3 µm.

TEMPERATURE PROBE BRACKET
Watertight in glass-fibre reinforced polyamide based (PA) technopolymer, black colour, with temperature electrical probe, made out of a platinum resistor whose ohmic resistance changes according to the temperature.
For a correct assembly see Warnings (on page 1777).

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 table on page A23).

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

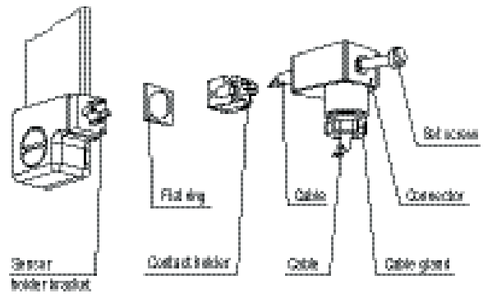
MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
In addition to the visual control, HCV-STL column level indicator generates an analogue electric signal of oil temperature.
Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level.

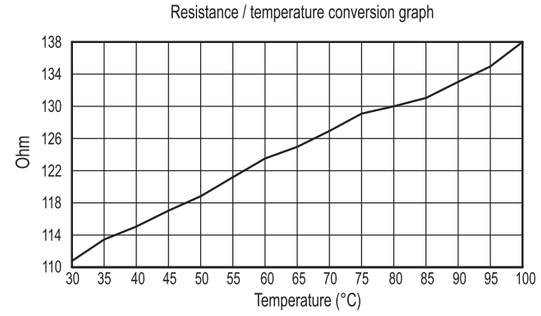
TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCV.127) 12 bar (HCV.254).
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

SPECIAL EXECUTIONS ON REQUEST
- Level indicators with stainless steel screws, nuts and washers.
- Level indicators for use with fluids containing alcohol.
- UV resistant transparent technopolymer level indicators.

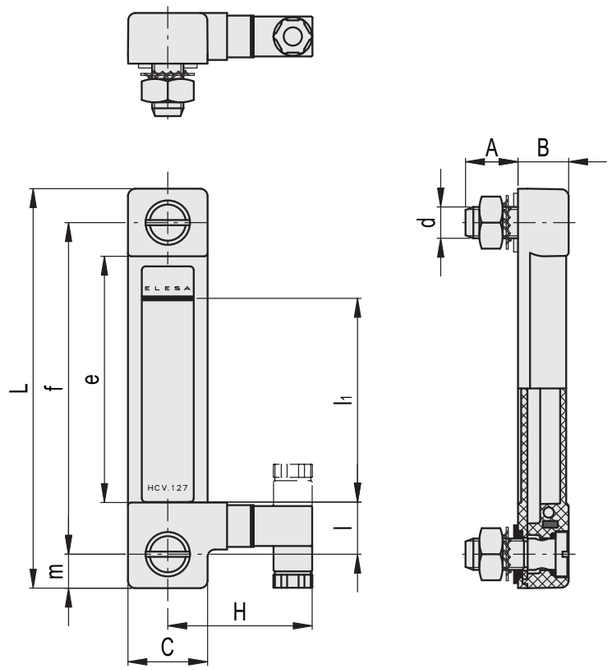
CONNECTOR ASSEMBLY INSTRUCTIONS
1. Remove the connector from the indicator by unscrewing the set screw placed on the connector, take the contact holders out and loosen the cable gland.
2. Slip on the cable into the connector (standard connector) and connect the wires to the terminals 3 and earth of the contact holder.
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.

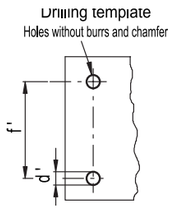


FUNCTIONING OF THE TEMPERATURE ELECTRICAL PROBE
The working principle of the temperature probe is to measure the variation of resistance of a platinum element: 100 ohm = 0°C, 138.4 ohm = 100°C.
The function between temperature (T) and resistance (R) is approximately linear over a small temperature range: 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.
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
Tension feed	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 mm²
Do not mount this indicator in proximity to magnetic fields.	





Code	Description	f	d	A	B	C	H	L	e	l	l1	m	d'-0.2	f'±0.2	C# [Nm]	⚖
11114	HCV.127-STL-M12	127	M12	20	19.5	30.5	55	153	97	20	78.5	13	12.5	127	12	149
11124	HCV.254-STL-M12	254	M12	20	19.5	30.5	55	280	224	20	205.5	13	12.5	254	12	176

Maximum tightening torque

Column level indicators

with MIN level electrical sensor

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREWS, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
Step-shaped for the seal on the reservoir walls and NBR synthetic rubber O-ring under screw head.
Suggested roughness of the packing ring application surface Ra = 3 µm.

FLOAT
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, with a built-in magnetic element to activate the electric contact when the float reaches the contact threshold located at about 50 mm above the axis of the lower screw (data referred to mineral oil type CB68, according to ISO 3498, temperature 23°C).

SENSOR BRACKET
Watertight in glass-fibre reinforced polyamide based (PA) technopolymer, black colour, with a built-in relay (reed) with two conductors (NO and NC versions) at the output or three connectors (SW version).
For a correct assembly see Warnings (on page 1777).

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 table on page A23).

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCV-E-NO**: with electric contact normally open (NO).
- **HCV-E-NC**: with electric contact normally closed (NC).
- **HCV-E-SW**: with change-over electrical contact (SW).

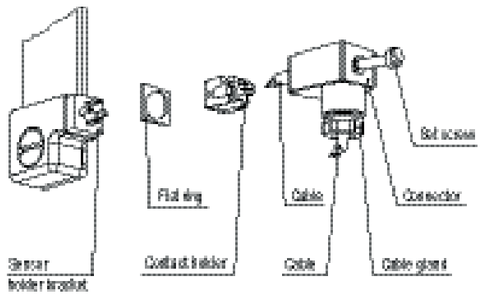
MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
The column level indicator HCV-E, in addition to the visual control, generates an electric signal when the oil level drops to a minimum.
Ultrasound welding to guarantee a perfect seal.
Thanks to the side output of the connector, HCV-E level indicator allows to minimise the level of intervention of the sensor.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level.

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCV.127) 12 bar (HCV.254).
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.

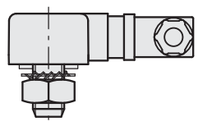
SPECIAL EXECUTIONS ON REQUEST
- Level indicators with stainless steel screws, nuts and washers.
- Level indicators for use with fluids containing alcohol.
- UV resistant transparent technopolymer level indicators.

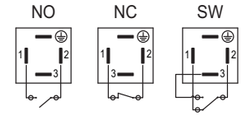
CONNECTOR ASSEMBLY INSTRUCTIONS
1. Remove the connector from the indicator by unscrewing the set screw placed on the connector, take the contact holders out and loosen the cable gland.
2. Slip on the cable into the connector (standard connector) and connect the wires to the terminals 1 and 2 (NO and NC version) or 1,2 and 3 (SW version) of the contact holder.
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.

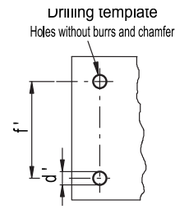


FUNCTIONING OF THE MIN LEVEL ELECTRICAL SENSOR
- HCV-E-NO: the electrical contact closes on reaching the minimum level.
- HCV-E-NC: the electrical contact is opened when it reaches the minimum level.
- HCV-E-SW (change-over electrical contact): the electrical contact switches between the two terminals.

Electrical features	MIN level sensor
Tension feed	AC/DC
Electric contacts	NO normally open NC normally closed SW change-over contact
Maximum applicable voltage	NO: 140 Vac, 200 Vdc NC: 140 Vac, 150 Vdc SW: 140 Vac, 150 Vdc
Maximum switching current	1 A
Maximum current	NO: 1.2A NC: 2A SW: 2A
Maximum commutable power	NO: 10 Va NC: 20 Va SW: 20 Va
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.	







Code	Description	f	d	A	B	C	H	L	e	l	l1	m	s	d'-0.2	f'±0.2	C# [Nm]	⚖
11131	HCV.127-E-NO-M12	127	M12	20	19.5	30.5	55	153	97	50	30	13	63	12.5	127	12	153
11132	HCV.127-E-NC-M12	127	M12	20	19.5	30.5	55	153	97	50	30	13	63	12.5	127	12	153
11133	HCV.127-E-SW-M12	127	M12	20	19.5	30.5	55	153	97	50	30	13	63	12.5	127	12	153
11135	HCV.254-E-NO-M12	254	M12	20	19.5	30.5	55	280	224	50	30	13	63	12.5	254	12	180
11136	HCV.254-E-NC-M12	254	M12	20	19.5	30.5	55	280	224	50	30	13	63	12.5	254	12	180
11137	HCV.254-E-SW-M12	254	M12	20	19.5	30.5	55	280	224	50	30	13	63	12.5	254	12	180

Maximum tightening torque

Column level indicators

with MIN level and MAX temperature electrical sensors

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREWS, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
Step-shaped for the seal on the reservoir walls and NBR synthetic rubber O-ring under screw head.
Suggested roughness of the packing ring application surface Ra = 3 µm.

FLOAT
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, with a built-in magnetic element to activate the electric contact when the float reaches the contact threshold located at about 50 mm above the axis of the lower screw (data referred to mineral oil type CB68, according to ISO 3498, temperature 23°C).

BRACKET WITH LEVEL AND TEMPERATURE SENSORS.
Watertight in glass-fibre reinforced polyamide based (PA) technopolymer, black colour, with a built-in relay (reed) with two conductors and a MAX temperature sensor (80°C).
For a correct assembly see Warnings (on page 1777).

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 table on page A23).

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCV-E-ST-NO**: with electric contacts normally open (NO).
- **HCV-E-ST-NC**: with electric contacts normally closed (NC).

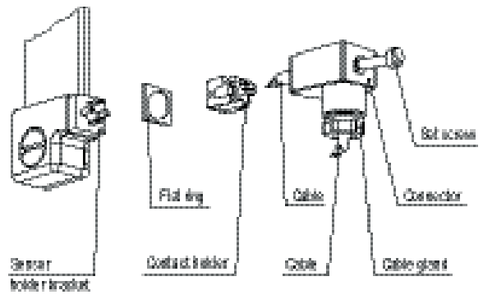
MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
In addition to the visual control, HCV-E-ST column level indicator, generates also an electric signal when the oil level drops to a minimum and an electric signal when the temperature reaches the max pre-set degrees (80°C).
Ultrasound welding to guarantee a perfect seal.
Thanks to the side output of the connector, HCV-E-ST level indicator allows to minimise the level of intervention of the sensor.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level.

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCV.127) 12 bar (HCV.254).
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.

SPECIAL EXECUTIONS ON REQUEST
- Level indicators with stainless steel screws, nuts and washers.
- Level indicators for use with fluids containing alcohol.
- UV resistant transparent technopolymer level indicators.
- MAX temperature electrical sensor with trigger threshold at 70°C or 90°C.

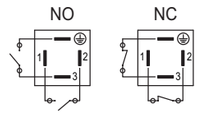
CONNECTOR ASSEMBLY INSTRUCTIONS
1. Remove the connector from the indicator by unscrewing the set screw placed on the connector, take the contact holders out and loosen the cable gland.
2. Slip on the cable into the connector (standard connector) and connect the wires to the terminals 1 and 2 for the functioning of the MIN level sensor, to the terminals 3 and earth for the functioning of the MAX temperature sensor.
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.

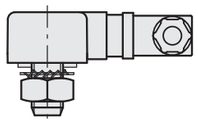


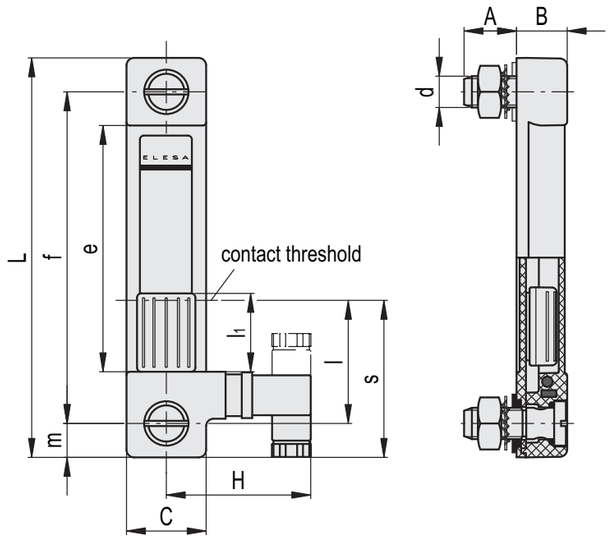
FUNCTIONING OF THE SENSOR
- HCV-E-ST-NO: the electrical contact closes when the minimum level and/or the pre-set temperature at 80°C is reached.
- HCV-E-ST-NC: the electrical contact opens when the minimum level and/or the pre-set temperature at 80°C is reached.

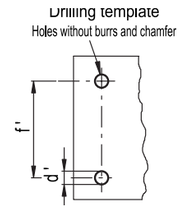
Electrical features	MAX temperature sensor	
Tension feed	AC/DC	
Electric contacts	NO normally open NC normally closed	
Voltage / Maximum current	250 Vac - 2 A	(resisteve loads)
	115 Vac- 3A	
	24 Vdc - 3 A	
	12 Vdc - 4 A	
Minimum current	50 mA	
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)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

Electrical features	MIN level sensor
Tension feed	AC/DC
Electric contacts	NO normally open NC normally closed
Maximum applicable voltage	NO: 140 Vac, 200 Vdc NC: 140Vac, 150 Vdc
Maximum switching current	1 A
Maximum current	NO: 1.2A NC: 2A
Maximum commutable power	NO: 10 Va NC: 20 Va
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.	









Code	Description	f	d	A	B	C	H	L	e	l	l1	m	s	d'-0.2	f'±0.2	C# [Nm]	⚖
11115	HCV.127-E-ST-NO-M12	127	M12	20	19.5	30.5	55	153	97	50	30	13	63	12.5	127	12	153
11116	HCV.127-E-ST-NC-M12	127	M12	20	19.5	30.5	55	153	97	50	30	13	63	12.5	127	12	153
11125	HCV.254-E-ST-NO-M12	254	M12	20	19.5	30.5	55	280	224	50	30	13	63	12.5	254	12	180
11126	HCV.254-E-ST-NC-M12	254	M12	20	19.5	30.5	55	280	224	50	30	13	63	12.5	254	12	180

Maximum tightening torque

Column level indicators

with MIN level electrical sensor and temperature electrical probe

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREWS, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
Step-shaped for the seal on the reservoir walls and NBR synthetic rubber O-ring under screw head.
Suggested roughness of the packing ring application surface Ra = 3 µm.

FLOAT
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, with a built-in magnetic element to activate the electric contact when the float reaches the contact threshold located at about 50 mm above the axis of the lower screw (data referred to mineral oil type CB68, according to ISO 3498, temperature 23°C).

BRACKET WITH LEVEL SENSOR AND TEMPERATURE PROBE
Watertight in glass-fibre reinforced polyamide based (PA) technopolymer, black colour, with a built-in relay (reed) with two conductors and a temperature electrical probe, made out of a platinum resistor whose ohmic resistance changes according to the temperature.
For a correct assembly see Warnings (on page 1777).

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 table on page A23).

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCV-E-STL-NO**: with electric contact normally open (NO).
- **HCV-E-STL-NC**: with electric contact normally closed (NC).

MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
In addition to the visual control, HCV-E-STL column level indicator generates an electric signal when the oil level drops to a minimum and an analogic electric signal of the oil temperature. Ultrasound welding to guarantee a perfect seal. Thanks to the side output of the connector, HCV-E-STL level indicator allows to minimise the level of intervention of the sensor. Maximum fluid level visibility even from side positions. Lens effect for a better visibility of the fluid level.

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCV.127) 12 bar (HCV.254). 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.

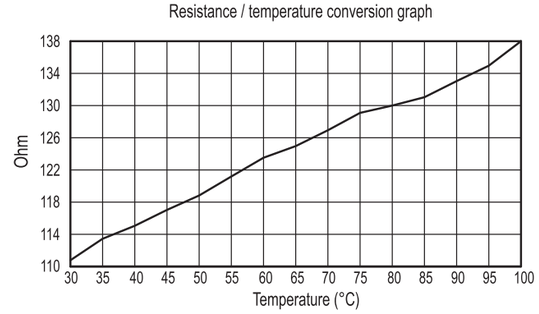
SPECIAL EXECUTIONS ON REQUEST
- Level indicators with stainless steel screws, nuts and washers.
- Level indicators for use with fluids containing alcohol.
- UV resistant transparent technopolymer level indicators.

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.
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.

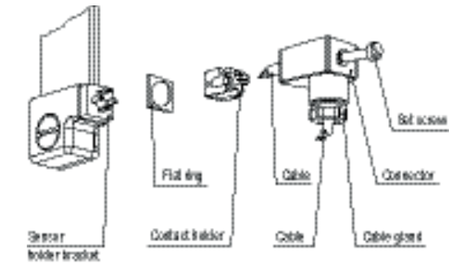
Electrical features	Temperature probe
Tension feed	AC/DC
Maximum current	1mA
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm²
Do not mount this indicator in proximity to magnetic fields.	

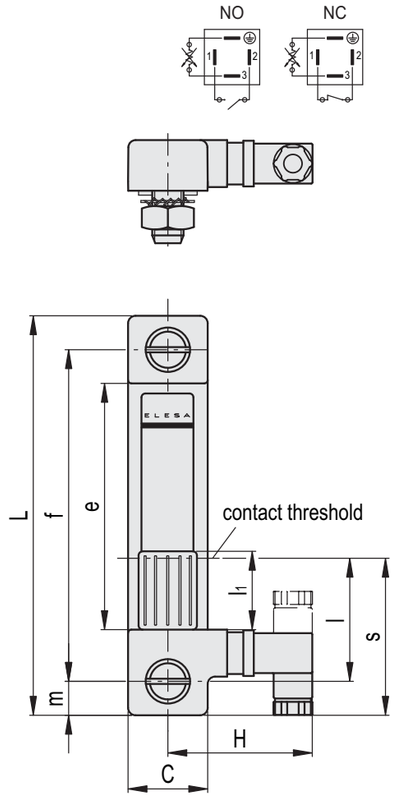
FUNCTIONING OF THE MIN LEVEL ELECTRICAL SENSOR
- HCV-E-STL-NO: the electrical contact closes on reaching the minimum level.
- HCV-E-STL-NC: the electrical contact is opened when it reaches the minimum level.

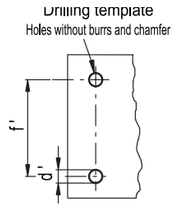
Electrical features	MIN level sensor
Tension feed	AC/DC
Electric contacts	NO normally open NC normally closed
Maximum applicable voltage	NO: 140 Vac, 200 Vdc NC: 140Vac, 150 Vdc
Maximum switching current	1 A
Maximum current	NO: 1.2A NC: 2A
Maximum commutable power	NO: 10 Va NC: 20 Va
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm²
Do not mount this indicator in proximity to magnetic fields.	



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. Slip on the cable into the connector (standard connector) and connect the wires to the terminals 1 and 2 for the functioning of the MIN level sensor, to the terminals 3 and earth for the functioning of the temperature probe.
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.







Code	Description	f	d	A	B	C	H	L	e	l	l1	m	s	d'-0.2	f'±0.2	C# [Nm]	⚖
11117	HCV.127-E-STL-NO-M12	127	M12	20	19.5	30.5	55	153	97	50	30	13	63	12.5	127	12	153
11118	HCV.127-E-STL-NC-M12	127	M12	20	19.5	30.5	55	153	97	50	30	13	63	12.5	127	12	153
11127	HCV.254-E-STL-NO-M12	254	M12	20	19.5	30.5	55	280	224	50	30	13	63	12.5	254	12	180
11128	HCV.254-E-STL-NC-M12	254	M12	20	19.5	30.5	55	280	224	50	30	13	63	12.5	254	12	180

Maximum tightening torque

RoHS PA-T IP65 +80° -20°

Column level indicators

with MIN level electrical sensor, technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREWS
Nickel-plated brass with hexagon socket.

PACKING RINGS
NBR synthetic rubber O-Ring.

FLOAT
Polyamide based (PA) technopolymer in red colour, with a built-in magnetic element to activate the electric contact when the oil level drops to the minimum set at 40mm over the screw axis (dimension l).

SENSOR BRACKET
Watertight, black colour, with a built-in relay (reed).
For a correct assembly see Warnings (see page 1777).

CONNECTOR
Right side output including protection against water sprays (protection class IP 65 according to EN 60529 table on page A23).

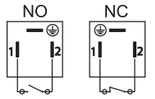
CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid.
It can be taken out before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCY-E-NO**: with electrical contact normally open.
- **HCY-E-NC**: with electrical contact normally closed.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
80°C (with oil).

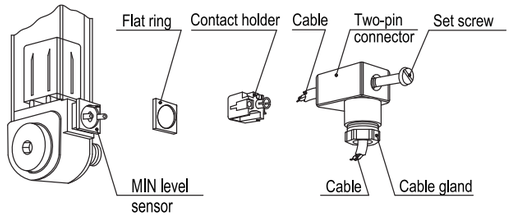
TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 14 bar (HCY.76), 9 bar (HCY.127) and 8 bar (HCY.254).
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

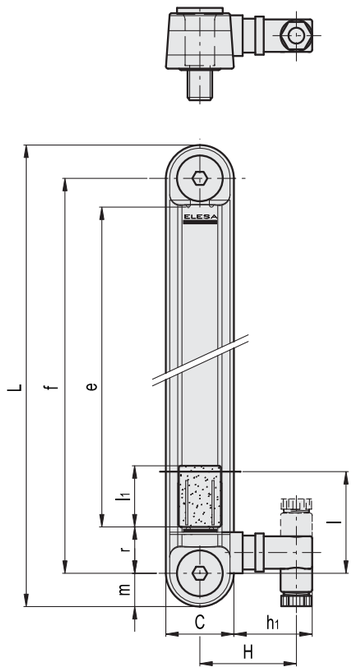
SPECIAL EXECUTIONS ON REQUEST
- Column level indicators in different materials (polycarbonate), for use with special fluids and/or at high temperatures.
- AISI 316 stainless steel or nickel-plated brass screws
- Column level indicators with change-over electrical contact.

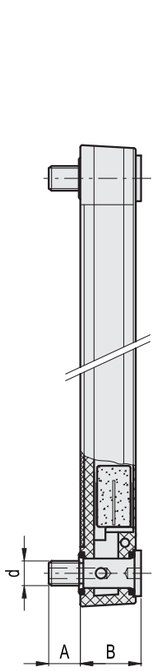


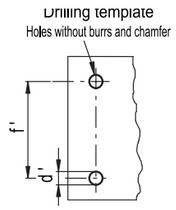
Electrical features	MIN level sensor
Tension feed	AC/DC
Electric contacts	NO normally open NC normally closed
Maximum applicable voltage	NO: 150 Vac, 150 Vdc NC: 230Vac, 230 Vdc
Maximum commutable opening capacity	NO: 1A NC: 2A
Maximum commutable power	NO: 20 W / 20 V.A. NC: 40 W / 40 V.A.
Cable gland	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.	

TWO-PIN CONNECTOR ASSEMBLY INSTRUCTIONS
1. Remove the connector from the indicator by unscrewing the set screw placed in the bottom, take the contact holder out and loosen the cable gland.
2. Slip on the two-pole cable into the connector (standard connector) and connect the wires to the terminals nr. 1 and nr. 2 of the contact holder.
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.









Code	Description	f	d	A	A1	B	C	H	L	e	h1	l	l1	m	r	d'-0.2	f'±0.2	C# [Nm]	⚖
111101	HCY.76-E-NO-M10	76	M10	16	16	29	32	46	108	41	37	40	17	16	20	10.5	76	12	150
111102	HCY.76-E-NC-M10	76	M10	16	16	29	32	46	108	41	37	40	17	16	20	10.5	76	12	150
111111	HCY.127-E-NO-M12	127	M12	16	16	29	32	46	159	93	37	40	29	16	20	12.5	127	12	170
111112	HCY.127-E-NC-M12	127	M12	16	16	29	32	46	159	93	37	40	29	16	20	12.5	127	12	170
111121	HCY.254-E-NO-M12	254	M12	16	16	29	32	46	286	219	37	40	29	16	20	12.5	254	10	215
111122	HCY.254-E-NC-M12	254	M12	16	16	29	32	46	286	219	37	40	29	16	20	12.5	254	10	215

Maximum tightening torque

Column level indicators

with MIN level and MAX temperature electrical sensors, technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREWS
Nickel-plated brass with hexagon socket.

PACKING RINGS
NBR synthetic rubber O-Ring.

FLOAT
Polyamide based (PA) technopolymer in red colour, with a built-in magnetic element to activate the electric contact when the oil level drops to the minimum set at 40mm over the screw axis (dimension l).

MIN LEVEL ELECTRICAL SENSOR
It generates an electric signal when the oil level reaches the minimum level.
The inside of the cavity where the sensor is contained is completely resinated in order to increase the thermal and electric insulation.

CONNECTOR
Right side output including protection against water sprays (protection class IP 65 according to EN 60529 on page A23).

MAX TEMPERATURE ELECTRICAL SENSOR (80°C)
It is set at a standard intervention temperature of 80°C, placed close to a metallic plate which serves as a conductor of the heat of the fluid for a faster transmission and a lower dissipation. The inside of the cavity where the sensor is contained is completely resinated in order to increase the thermal and electric insulation.
For a correct assembly see Warnings (on page 1777).

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid.
It can be taken out before assembly to allow the insertion of level lines or words.

SCREW-COVERS
Polyamide based technopolymer, grey colour.

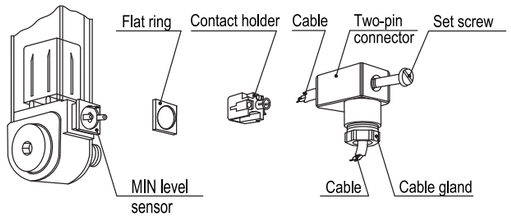
STANDARD EXECUTIONS
- **HCY-E-ST-NO**: with electrical contact normally open.
- **HCY-E-ST-NC**: with electrical contact normally closed.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
80°C (with oil).

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 14 bar (HCY.76), 9 bar (HCY.127) and 8 bar (HCY.254).
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.

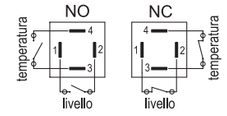
SPECIAL EXECUTIONS ON REQUEST
- Column level indicators in different materials (polycarbonate), for use with special fluids and/or at high temperatures.
- AISI 316 stainless steel or nickel-plated brass screws
- Column level indicators with change-over electrical contact.
- Execution with PT100 temperature electrical probe for connection to PLC.
- Electrical sensors set at the following temperatures: 50°, 60°, 70°C.

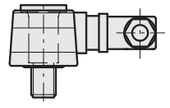
TWO-PIN CONNECTOR ASSEMBLY INSTRUCTIONS
1. Remove the connector from the indicator by unscrewing the set screw placed in the bottom, take the contact holder out and loosen the cable gland.
2. Slip on the two-pole cable into the connector (standard connector) and connect the wires to the terminals nr. 1 and nr. 2 of the contact holder.
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.

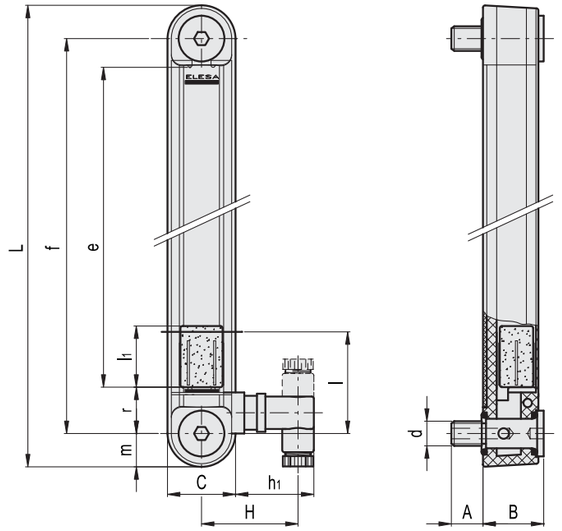


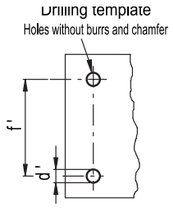
Electrical features	MIN level sensor
Tension feed	AC/DC
Electric contacts	NO normally open NC normally closed
Maximum applicable voltage	NO: 150 Vac, 150 Vdc NC: 230Vac, 230 Vdc
Maximum commutable opening capacity	NO: 1A NC: 2A
Maximum commutable power	NO: 20 W / 20 V.A. NC: 40 W / 40 V.A.
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm^2

Electrical features	MAX temperature sensor	
Tension feed	AC/DC	
Electric contacts	NO normally open NC normally closed	
Voltage / Maximum applicable voltage	250 Vac- 10 A 60 Vdc - 3 A	(resisteve loads)
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.		









Code	Description	f	d	A	A1	B	C	H	L	e	h1	l	l1	m	r	d'-0.2	f'±0.2	C# [Nm]	⚖
111151	HCY.76-E-ST-NO-M12	76	M12	22	16	29	32	46	108	41	37	40	17	16	20	10.5	76	12	175
111152	HCY.76-E-ST-NC-M12	76	M12	22	16	29	32	46	108	41	37	40	17	16	20	10.5	76	12	175
111161	HCY.127-E-ST-NO-M12	127	M12	22	16	29	32	46	159	93	37	40	29	16	20	12.5	127	12	173
111162	HCY.127-E-ST-NC-M12	127	M12	22	16	29	32	46	159	93	37	40	29	16	20	12.5	127	12	173
111171	HCY.254-E-ST-NO-M12	254	M12	22	16	29	32	46	286	219	37	40	29	16	20	12.5	254	10	240
111172	HCY.254-E-ST-NC-M12	254	M12	22	16	29	32	46	286	219	37	40	29	16	20	12.5	254	10	240

Maximum tightening torque

Rapid levels with float

Technopolymer

MATERIAL
Polyamide-based (PA) technopolymer, grey colour.

PACKING RINGS
- TPE flat gasket (HFL-EF).
- NBR synthetic rubber O-Ring (HFL-ER).

CONNECTOR WITH SENSOR BLOCK
Right side output including protection against water sprays (protection class IP 65 according to EN 60529 table on page A23).
For a correct assembly see Warnings (on page 1777).

DIPSTICK
AISI 304 stainless steel tube, fastened to the body by a nickel-plated brass coupler.

FLOAT
NBR synthetic rubber.

STANDARD EXECUTIONS
- **HFL-EF**: assembly by means of a flange with 3 holes at 120° for 3 zinc-plated steel screws with hexagon socket, supplied. It can be assembled also with 2 holes at 180°.
- **HFL-ER**: assembly by means of a 1" Gas threaded coupler.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
80°C.

FEATURES AND APPLICATIONS
HFL-E rapid levels show a minimum or maximum default level, according to the application needs.
Highly versatile, these rapid levels allow to define the most accurate set point by simply disassembling the dipstick float and cutting the dipstick exactly where needed, according to the specifications shown in the table.
Free from magnetic parts, the float is integral to the dipstick making this level indicator ideal for use in tanks containing dirty liquids, water, oil, coolant oil, also with iron metal parts or foams. Moreover, the operation is independent of the fluid electrical conductivity.
To ensure utmost safety, the electrical components are separated from the tank and perfectly sealed by means of ultrasound welding.

SPECIAL EXECUTIONS ON REQUEST
- Level indicators in different materials for use with particularly aggressive fluids and/or maximum working temperature up to 120°C.
- Dipsticks in different lengths and/or in AISI 316 stainless steel.
- Float with through holes to allow positioning according to different needs, avoiding cutting the dipstick.
- Double dipstick and double float manufactured for double minimum and maximum level reading.

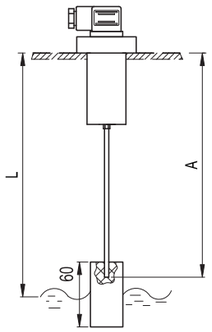
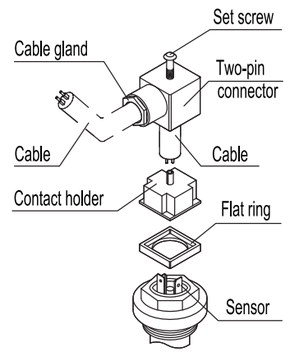


Table for cutting dipstick

Control quote L = (mm)	Dipstick cut quote for minimum level A = (mm)
120	116
140	137
160	158
180	179
200	200
220	221
240	242
260	263
280	284
300	305
320	326
340	347
360	368
380	389
400	410
420	431
440	452
460	473
480	494
500	515

Electrical features	
Tension feed	AC/DC
Electric contacts	NO normally open in the presence of liquid NC normally closed|Pin the presence of liquid
Maximum commutable voltage	230 Vdc, 230 Vac
Maximum opening capacity	3 A
Commutable power	60 W 60 VA
Cable gland	Pg 9 / Pg 11 UNIFIED
Conductors cross-section	Max. 1.5 mm^2

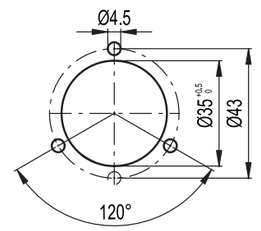
TWO-PIN CONNECTOR ASSEMBLY INSTRUCTIONS
1. Remove the connectors from the indicator by unscrewing the set screw placed in the bottom, take the contact holders out and loosen the cable glands.
2. Slip on the two-pole cable into the connectors (standard connectors) and connect the wires to the terminals nr. 1 and nr. 2 of the relative contact holders.
3. Assemble by pressing the contact holders into the realtive connectors in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.



HFL-EF

HFL-ER

Drilling template for HFL-EF



HFL-EF

Code	Description	L	⚖
111281	HFL-EF-NO	500	135
111283	HFL-EF-NC	500	135

HFL-ER

Code	Description	L	⚖
111286	HFL-ER-NO	500	135
111288	HFL-ER-NC	500	135

Rapid levels with float

Technopolymer

MATERIAL
Body, dipstick and float: polyamide based (PA) technopolymer, grey colour.

PACKING RINGS
- TPE flat gasket (HFLT-EF).
- NBR synthetic rubber O-Ring (HFLT-ER).

CONNECTOR
EN 175301-803 (A and C shape) / ISO 4400

DIPSTICK
Featuring two raised scales (for floatation in oil or water)

STANDARD EXECUTIONS
- **HFLT-EF**: assembly by means of a flange with 3 holes at 120° for 3 zinc-plated steel screws with hexagon socket, supplied, and a threaded coupler.
- **HFLT-ER**: assembly by mans of a 1" Gas threaded coupler.

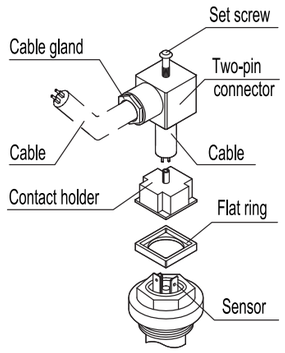
MAXIMUM CONTINUOUS WORKING TEMPERATURE
80° C.

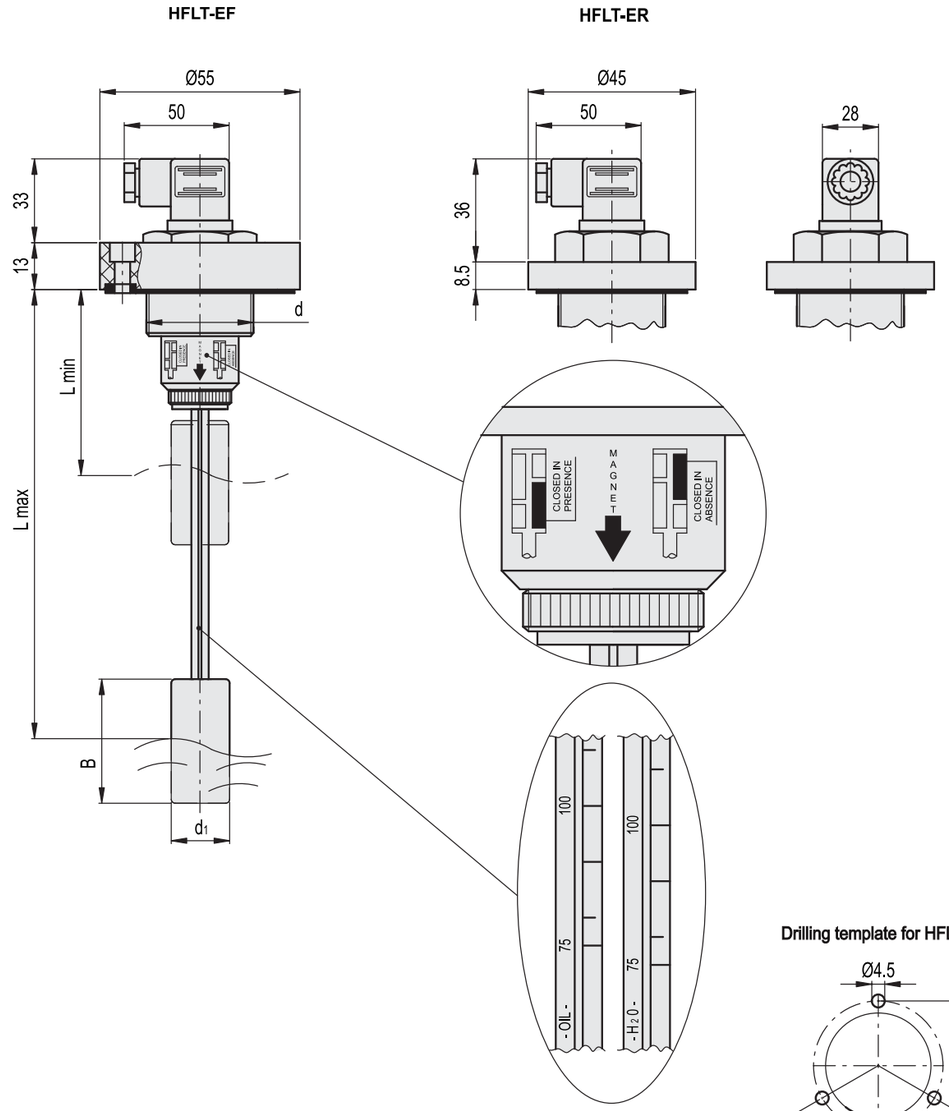
FEATURES AND APPLICATIONS
HFLT-E rapid levels detects a predefined minimum or maximum level, according to the application needs.
Highly versatile, these rapid levels allow to define both the most accurate set point required by simply disassembling the dipstick float and cutting the dipstick exactly where needed, and the kind of operation required, with normally open (NO) or normally closed (NC) contact in presence of liquid, by loosening the fastening nut on the opposite end of the dipstick and positioning the inner magnet according to specific requirements (refer to the adhesive label).
The magnet is generally supplied with normally open (NO) contact in presence of liquid.
Free from magnetic parts, the float is integral to the dipstick making this level indicator ideal for use in tanks containing dirty liquids, water, oil, coolant oil, also with iron metal parts or foams. Moreover, the operation is independent of the fluid electrical conductivity.
To ensure utmost safety, the electrical components are separated from the tank and perfectly sealed by means of ultrasound welding.

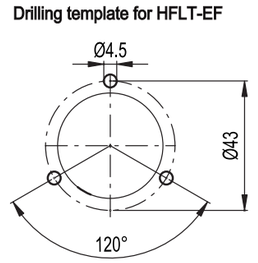
SPECIAL EXECUTIONS ON REQUEST
- Polypropylene body (PP).
- With flange with 6 holes for fastening with cylindrical head screws (supplied), in addition to the threaded body.
- For use with maximum working temperature up to 120°C.

TWO-PIN CONNECTOR ASSEMBLY INSTRUCTIONS
1. Remove the connectors from the indicator by unscrewing the set screw placed in the bottom, take the contact holders out and loosen the cable glands.
2. Slip on the two-pole cable into the connectors (standard connectors) and connect the wires to the terminals nr. 1 and nr. 2 of the relative contact holders.
3. Assemble by pressing the contact holders into the realtive connectors in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.

Electrical features	
Tension feed	AC/DC
Electric contacts	NO normally open in the presence of liquid NC normally closed in the presence of liquid
Maximum commutable voltage	230 Vdc, 230 Vac
Maximum opening capacity	2 A
Commutable power	40 W 40 VA
Cable gland	Pg 9 / Pg 11 UNIFIED
Conductors cross-section	Max. 1.5 mm²







HFLT-EF

Code	Description	d	B	Lmin	Lmax	d1	⚖
111276	HFLT-EF-3/4	G 3/4	50	75	250	23	110
111278	HFLT-EF-1	G 1	60	85	360	30	110

HFLT-ER

Code	Description	d	B	Lmin	Lmax	d1	⚖
111271	HFLT-ER-3/4	G 3/4	50	75	250	23	110
111273	HFLT-ER-1	G 1	60	85	360	30	110