



Hinges with
built-in safety
multiple switch





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The new hinges **CFSW.** with built-in multiple switch (ELESA patent) is a safety device. In case of accidental opening of doors, machine protections or safety doors on machines and production equipment, it automatically breaks off the power supply hence protecting the operators.

The CFSW., coupled with its complementary mechanical hinge **CFMW.**, represents a complete system combining safety and style.



Double insulation

Thanks to its housing made of SUPER-technopolymer, the safety hinge guarantees a double insulation and therefore does not need a safety connection to the electrical earth (ground).

Approved by IMQ

Mechanical and electrical features approved by IMQ*. Usage category up to 400 V- 4A (AC15).

Safety switches

Available with different combinations of contacts with positive opening (2NO+2NC, 1NO+3NC, ...).

High mechanical strength

The SUPER-technopolymer body withstands high loads; life-span over 1 million operating cycles.



Quick assembly

4 screws assembly - front or back side (countersunk-head screws, cylindrical-head screws or nuts).

Easy installation

Suitable to be installed on different types of profiles with/without slots, without the need of special adapters.

Totally tamper-proof

The special bushings (supplied together with the product) make the hinge totally tamper-proof.

No corrosion

Protection class IP67.
Stainless steel screws to fix the cover.
Withstanding frequent severe water jet washings.

* For features approved by IMQ (Italian Certification Body), please refer to the technical data sheet.

Hinges with built-in safety multiple switch



CFSW...C-A



CFSW...C-C



CFSW...F-A



CFSW...F-C



CFSW...F-B

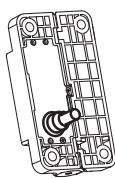


Fig.1

+180°

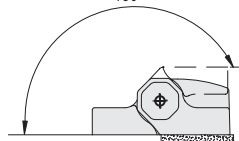
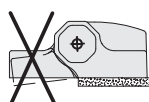


Fig.2



• Material

- **Hinge body:** self-extinguish high-rigidity SUPER-technopolymer, black colour. Resistant to solvents, oils, greases and other chemical agents.
- **Rotation pin:** glass-fibre reinforced polyamide-based technopolymer (PA), black colour.
- **Assembly kit** (see assembly instructions):
 - n°4 technopolymer covers (fig. 3).
 - n°4 technopolymer bushings (fig. 4 and fig. 5).
 - n°2 thermoplastic elastomer safety plugs (fig. 7) to guarantee IP67 protection class.
- **Switch:** four slow action electrical contacts with double interruption Zb shaped (see IEC EN 60947-5-1) wich can be set in normally open (NO) or normally closed (NC) mode in production.

Positive opening in compliance with IEC EN 60947-5-1 annex K: the separation of the electrical contacts is the direct result of an actuator action on which an action force is applied by means of non elastic elements, that is to say not dependant on, for example, spring-like elements.

The contact elements guarantee a self-cleaning action of the silver-alloy pastes.

Thanks to its housing made out of SUPER-technopolymer, the CFSW. hinge guarantees the double insulation of the internal circuits, therefore there is no need of grounding connection. Furthermore, the housing protects the electric contacts from shocks, atmospheric agents and accidental penetration of tools.

• Standard executions

- **C-A:** 8 pole connector, top axial output.
 - **C-C:** 8 pole connector, bottom axial output.
 - **F-A:** 2 or 5 m cable, 8 conductors, top axial output.
 - **F-C:** 2 or 5 m cable, 8 conductors, bottom axial output.
 - **F-B:** 2 or 5 m cable, 8 conductors, back output.
- Cable type: UL/CSA STYLE 2587 8X AWG 22.
- Contact blocks in the standard execution:
- **NO-NC-NO-NC:** 2 NO contacts + 2 NC contacts.
 - **NO-NC-NC-NC:** 1 NO contact + 3 NC contacts.

Features and applications

- Hinge with built-in multiple switch (ELESA patent) is a safety device because in case of accidental opening of doors, machine protections, or safety doors on machines and production equipment, it automatically breaks off the power supply hence protecting the operators.
- This hinge can be subject to frequent cleaning cycles and can be used in any situation or environment where a special attention to cleaning and hygiene is requested, thanks to the IP67 protection class and the use of stainless steel elements for closing the hinge body.
- Limited size, different assembly and output options (cable/connector) make this product easy to install on the most common aluminium profiles (30 mm minimum wide).
- Easy to assemble: the built-in safety multiple switch and the hinge come in one piece offering a very easy and fast assembly. This is a big advantage in comparison with some traditional systems which require to set up separately a hinge and a safety switch connected by a special pin to replace the standard pin of the hinge.
- Universal usage: CFSW. hinges can be assembled on the most common aluminium profiles.
- System design up to SIL3 or PLe in compliance with EN ISO 13849-1 possible when using a redundant system.

Rotation angle (approximate value)

Max 180° (0° and +180° being 0° the condition where the two interconnected surfaces are on the same plane fig. 1). The switching angle (see Built-in safety multiple switch functioning and maintenance) is guaranteed from this position. The condition where the two interconnected surfaces are on the same plane is to be strictly verified because the hinge must not be stressed by any negative angle (fig. 2).

Special executions on request

- Operating angle of the hinge other than from 0° to 180°, every 15°, where the system frame/door requires a special execution.
- NC and NO contact blocks setting (up to 4 NC).
- NO and NC overlapping contacts.

Assembly instructions

CFSW. hinge can be assembled in three different modes:

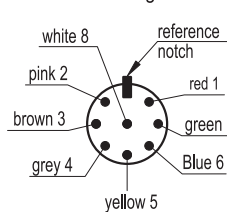
- With M6 UNI 5933 ISO 10642 countersunk-head screw (not supplied) and screw cover supplied in the kit (fig. 3) to avoid free access to screws.
- With cylindrical-head screw with hexagon socket M6 UNI 5931 ISO 4762 (not supplied) to set with the bushing supplied in the kit (fig. 4).
- With M6 UNI 5588 ISO 4032 nut (not supplied) and the bushing supplied in the kit (fig. 5). This kind of assembly makes the hinge totally tamper-proof preventing any tampering.
- Fit the hinge side with the built-in microswitch on the fixed part (the frame) and the other side on the door.
- Leave the least clearance between the holes on the mounting walls and the diameter of the assembling screws (Max 0.5 mm). The suggested tightening torque should not be exceeded: 5 Nm.
- The hinge must not be used as a mechanical end-stroke either for door maximum opening or for closed door. For this purpose we recommend using external mechanical stops to prevent the door from opening completely against the hinge body assembled on the frame (fig. 1) or exceeding the angle where the two interconnected surfaces are on the same plane (fig. 2).
- CFSW. hinge is generally assembled with one or more complementary hinges CFMW. In case of horizontal door opening or of a limited weight it is possible to use one hinge only.
- The connection cables must always be protected against mechanical damages.

Contacts and cables

The built-in safety switch is available with 4 contacts which can be set in production in the normally closed NC or normally open NO mode.

- NC contact with positive opening is mainly used for safety applications. The use of more than one NC switches reduces the risk of error of the single commutation.
- NO contact can be used simultaneously with the NC contact thanks to their electrical separation. The use of NO together with NC contacts guarantees a safety diversification.
- Cable with M12x1 connector following the shown circuit scheme.

Contact wiring cable



Built-in safety multiple switch functioning and maintenance

- The operating angle (see travel diagram) is set at 5° (we suggest to check it according to EN294).
- To guarantee the safety protection function, the hinge must be able to turn at least by 11° (see travel diagram), equivalent to the forced opening of the NC contacts by the actuator (positive opening).
- The adjustment of the operating angle can be modified, in case of doors with large dimensions, till 1° before the start up of the hinge by adjusting the assembly screw by a screwdriver (fig. 6).
- After the adjustment is done, the safety plug must be fit (not removable) to guarantee protection class IP67 (fig. 7). The functioning points shown in the travel diagram undergo the same variation as the operating angle (ex: operating angle 1°, positive operating angle 7°).
- Under normal conditions of use, when the mechanical life of the device is over, the operating angle can get to 3° from the starting angle.
- We suggest to check prior to the start up and then periodically the proper functioning of the CFSW. hinge. When the protection is opened the machine must immediately stop. When the protection is opened at any degrees, the machine must not be able to start.

Warnings

- The choice and use of CFSW. hinge is the responsibility of the customer who will check that the relevant application is compliant to the safety regulations in force in the actual operating conditions.
- Using CFSW. hinges always implies a full knowledge of and compliance with the safety regulations in force, including UNI EN ISO 13849-1, IEC EN 60204-1, EN1088 and EN ISO 12100.
- The hinge must always be assembled and connected by qualified operators who have to check regularly the hinge perfect functioning.
- The hinge with built-in safety switch CFSW. must not be used in environments with frequent temperature changes which can cause condensation, in the presence of explosive or flammable gasses and must always be protected by a proper fuse (see Electrical features table).
- The structure of CFSW. hinge must not be modified and the back cover has never to be removed: an improper installation or tampering of the hinge with built-in safety switch can make the protection ineffective and cause serious damages.
- During handling and storage the shown environmental conditions have to be observed.

Fig.3

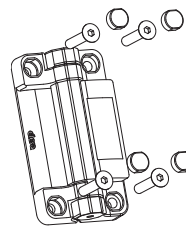


Fig.4

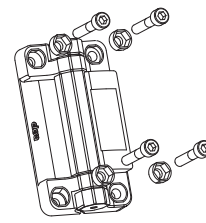
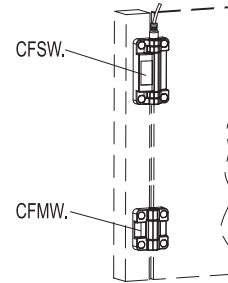
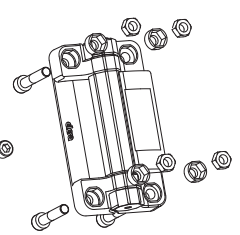


Fig.5

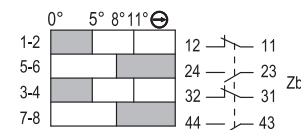


Approved by IMQ CA02.04800
In compliance with: EN 60947-1/2007 +
EN 60947-5-1 : 2004 + A1/2009
Low voltage control auxiliaries



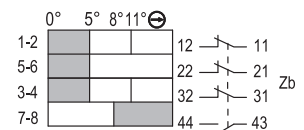
Positive opening
in compliance with
EN 60947-5-1

Travel diagram 2NO+2NC



hinge operating life
switching angle = 5°

Travel diagram 1NO+3NC



hinge operating life
switching angle = 5°

How to read the diagram

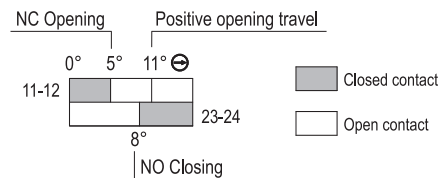


Fig.6

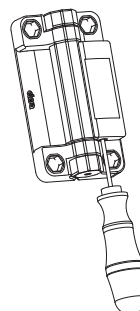
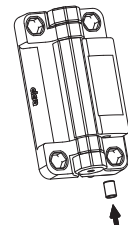


Fig.7



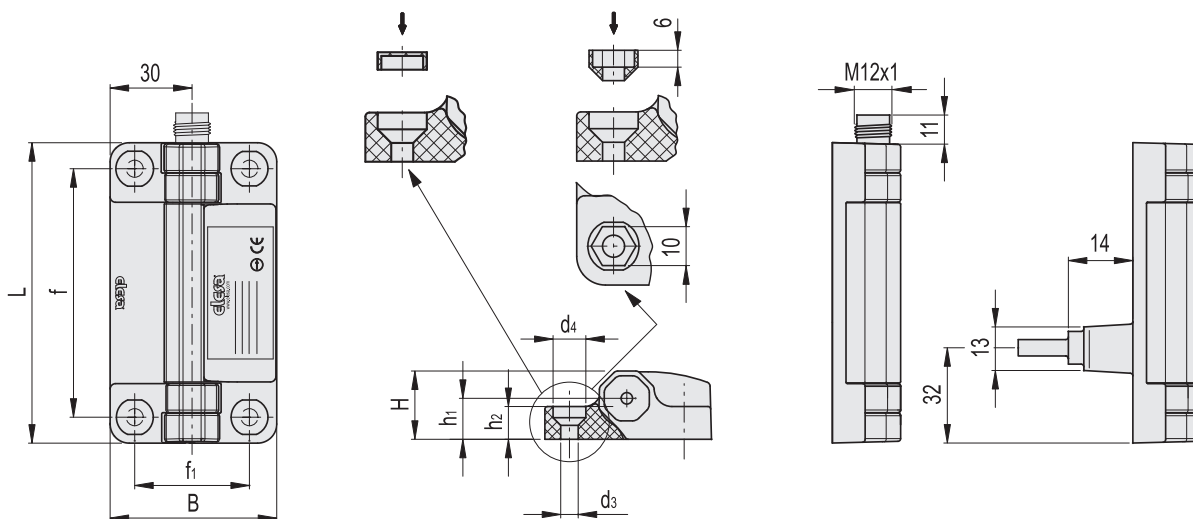
The safety plug must be fit (not removable) to guarantee protection class IP67.

Category of usage (values approved by IMQ)	CFSW-C.. (connector)	CFSW-F.. (cable)	
AC15 standard IEC 60947-5-1 Typical applications: electromagnetic load controls in alternating current	24 V	-	4 A
	120 V	-	4 A
	250 V	-	4 A
	400 V	-	4 A
DC13 standard IEC 60947-5-2 Typical applications: electromagnet controls in direct current	24 V	2 A	2 A
	125 V	-	0,4 A
	250 V	-	0,3 A

Remark: the category of usage AC15 2A 24V may be applied to CFSW-C..., even though this category is not certified by IMQ, since it is not provided for the standards in use.

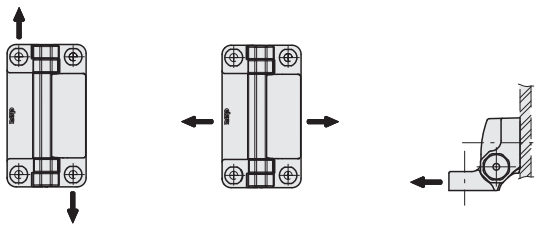
Mechanical features (values approved by IMQ)	Electrical features (values approved by IMQ)	
Type of contacts: Ag 999	Thermic power I the	Cable 4A Connector 2A
Maximum working frequency: 1200 operation/hour	Short-circuit protection: 4A 500V gG	
Mechanical life-span (test carried in compliance with IEC EN 60947-5-1 regulation): 10 ⁶	Seal voltage at nominal pulse:	Cable 4 Kv Connector 2.5 Kv
	Insulation nominal voltage	Cable: 400Vac Connector: 30 Vac/Vdc
Protection class of the housing EN60529: IP67 *	Minimum force (torque for positive opening of contact): 0.5 Nm	
Speed of operation: minimum 2° / sec., maximum 90° / sec.	Short circuit conditioned current: 1000 A	
	Pollution degree: 3	
	B10d = 2000000	
	Tm = 20 years	

* Fit the safety plug to guarantee IP67 protection (fig.7)
For CFSW-C...(connector) it is the customer's responsibility to check the protection class guaranteed by the connector of the cable used.



Standards Elements		Main dimensions							Fitting			⚖
Code	Description	L	B	f ±0.2	f1 ±0.2	H	h1	h2	d3	d4	C [Nm]#	g
426601	CFSW.110-6-2NO+2NC-C-A	110	60	91	42	25	15	12	6.5	12	5	150
426602	CFSW.110-6-2NO+2NC-C-C	110	60	91	42	25	15	12	6.5	12	5	150
426611	CFSW.110-6-2NO+2NC-F-A-2	110	60	91	42	25	15	12	6.5	12	5	280
426612	CFSW.110-6-2NO+2NC-F-C-2	110	60	91	42	25	15	12	6.5	12	5	280
426613	CFSW.110-6-2NO+2NC-F-B-2	110	60	91	42	25	15	12	6.5	12	5	280
426615	CFSW.110-6-2NO+2NC-F-A-5	110	60	91	42	25	15	12	6.5	12	5	475
426616	CFSW.110-6-2NO+2NC-F-C-5	110	60	91	42	25	15	12	6.5	12	5	475
426617	CFSW.110-6-2NO+2NC-F-B-5	110	60	91	42	25	15	12	6.5	12	5	475
426661	CFSW.110-6-1NO+3NC-C-A	110	60	91	42	25	15	12	6.5	12	5	150
426662	CFSW.110-6-1NO+3NC-C-C	110	60	91	42	25	15	12	6.5	12	5	150
426671	CFSW.110-6-1NO+3NC-F-A-2	110	60	91	42	25	15	12	6.5	12	5	280
426672	CFSW.110-6-1NO+3NC-F-C-2	110	60	91	42	25	15	12	6.5	12	5	280
426673	CFSW.110-6-1NO+3NC-F-B-2	110	60	91	42	25	15	12	6.5	12	5	280
426675	CFSW.110-6-1NO+3NC-F-A-5	110	60	91	42	25	15	12	6.5	12	5	475
426676	CFSW.110-6-1NO+3NC-F-C-5	110	60	91	42	25	15	12	6.5	12	5	475
426677	CFSW.110-6-1NO+3NC-F-B-5	110	60	91	42	25	15	12	6.5	12	5	475

Suggested tightening torque for assembly screws.



Resistance tests	AXIAL STRESS	RADIAL STRESS	90° ANGLED STRESS
Description	Max static load Sa [N]	Static load max limit Sr [N]	Static load max limit S90 [N]
CFSW.110	2100	2800	1300

For CFSW. hinges with built-in safety multiple switch, the reference value supplied is the max limit static load (Sa, Sr, S90), since these hinges can be used as safety devices. Above this value, the material may break, thus prejudicing the hinge functionality. Obviously a suitable factor, according to the importance and safety level of the specific application, must be applied to this value. The load values shown in the tables of the different hinges are the result of tests carried out in our laboratories under controlled temperature and humidity (23°C-50% R.H.), under given conditions of use and for a limited period of time.

Example of suitability check

- P** = weight of the door [N]
P₁ = additional extra load [N]
W = width of the door
D = distance [metres] between the centre of gravity of the door and the hinge axis. In normal conditions $D = W/2$
D₁ = distance [metres] between the hinge axis and the additional extra load application point
N = number of hinges
k = safety factor
d_T = sum of the distances (metres) of all the hinges from the hinge of reference ($d_T = d_1 + d_2 + \dots + d_n$). In case of only two hinge assembled, d_T is simply the distance between them.

Conditions to be checked in order to ensure a correct functioning with two or more hinges.

$$\frac{(P+P_1)}{N} \cdot k < S_a$$

$$\frac{[(P \cdot D) + (P_1 \cdot D_1)]}{d_T} \cdot k < S_r$$

$$\frac{[(P \cdot D) + (P_1 \cdot D_1)]}{d_T} \cdot k < S_{90}$$

The technical designer must use suitable safety factors (k) according to the type of application and function of the CFSW. hinge.

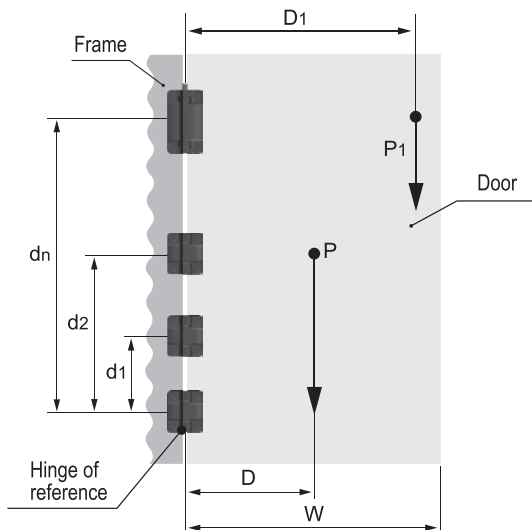
Example hinge CFSW.110-6-2NO+2NC-C-A

$$\begin{array}{lll}
 P = 294 \text{ N (30 Kg)} & D = 0,4 \text{ m} & N = 3 \\
 d_T = 1,5 \text{ m} & d_2 = 1 \text{ m} & d_1 = 0,5 \text{ m} \\
 P_1 = 196 \text{ N (20 Kg)} & D_1 = 1,2 \text{ m} &
 \end{array}$$

$$\frac{490}{3} = 163,3 \cdot k < 2100$$

$$\frac{[(294 \cdot 0,4) + (196 \cdot 1,2)]}{1,5} = 235,2 \cdot k < 2800$$

$$\frac{[(294 \cdot 0,4) + (196 \cdot 1,2)]}{1,5} = 235,2 \cdot k < 1300$$



The examples shown here must be considered only as explanatory, since they are not applicable to all the different applications, conditions of use, ways of assembly which can actually take place. In practice, the technical designer, after applying a suitable safety factor (k) must also test the chosen product to check its suitability. For further general technical information, refer to the guidelines.

Hinge



Material

Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer. Resistant to solvents, oils, greases and other chemical agents.

Colour

Black, matte finish.

Rotation pin

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

Assembly kit (see assembly)

- n°4 technopolymer covers (fig. 1).
- n°4 technopolymer bushings (fig. 2 and fig. 3).

Assembly

CFMW. hinge can be assembled in three different modes:

- With M6 UNI 5933 ISO 10642 countersunk-head screw (not supplied) and screw cover supplied in the kit (fig. 1) to avoid free access to screws.
- With cylindrical-head screw with hexagon socket M6 UNI 5931 ISO 4762 (not supplied) to set with the bushing supplied in the kit (fig. 2).
- With M6 UNI 5588 ISO 4032 nut (not supplied) and the bushing supplied in the kit (fig. 3). This kind of assembly makes the hinge totally tamper-proof preventing any tampering.

Features and applications

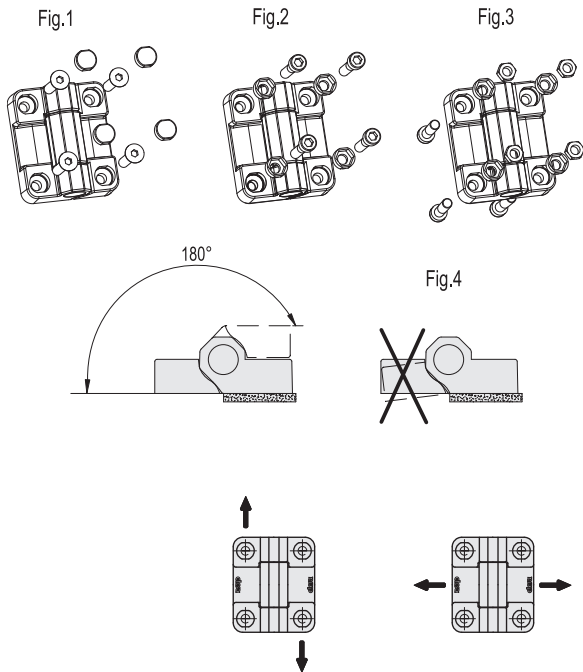
The different assembly options make this product easy to install on the most common aluminium profiles (30 mm minimum side).

CFMW. hinge can be assembled with CFSW. hinge with built-in safety switch.

Rotation angle (approximate value)

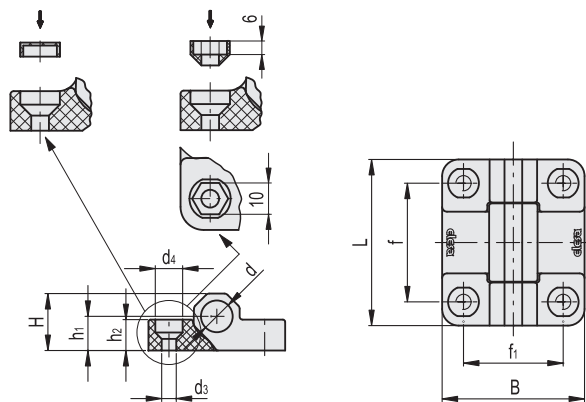
Max 180° (0° and +180° being 0° the condition where the interconnected surfaces are on the same plane).

Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical performance. The condition where the two interconnected surfaces are on the same plane is to be strictly verified because the hinge must not be stressed by any negative angle (fig. 4).



Resistance tests	AXIAL STRESS	RADIAL STRESS	90° ANGLED STRESS
Description	Max limit static load Sa [N]	Max limit static load Sr [N]	Max limit static load S90 [N]
CFMW.70 SH-6	4500	7600	5800

The max limit static load is the value above which the material may break thus prejudicing the hinge functionality. Obviously, a suitable factor, according to the importance and the safety level of the specific application, must be applied to this value.



Standards Elements		Main dimensions							Fitting			△△	
Code	Description	L	B	f ±0.2	f1 ±0.2	H	h1	h2	d	d3	d4	C [Nm] #	g
425951	CFMW.70-SH-6	70	60	50	42	25	15	15	13.5	6.5	12	5	80

Suggested tightening torque for assembly screws.

GN 139.1

Hinges with safety switch

•Material

Zinc-alloy die-cast, silver metallic epoxy resin coating.

•Pin

AISI 303 stainless steel.

•Assembly

- Type **A**: Connector plug at the top.
- Type **B**: Connector plug from the bottom.
- Type **C**: Connector plug on the backside, with 0,2 m cable.

Features and applications

The hinges with safety switch GN 139.1 have been designed for the position monitoring of pivoted protective safety equipment, e.g. protection covers.

The switching element is fully integrated in the mechanical hinge and invisible from the outside. Hinges with and without safety switch are identical except the connector plug. In addition, the covered bolts at the rear make the hinge tamper-proof.

The compact construction combines safety and attractive design.

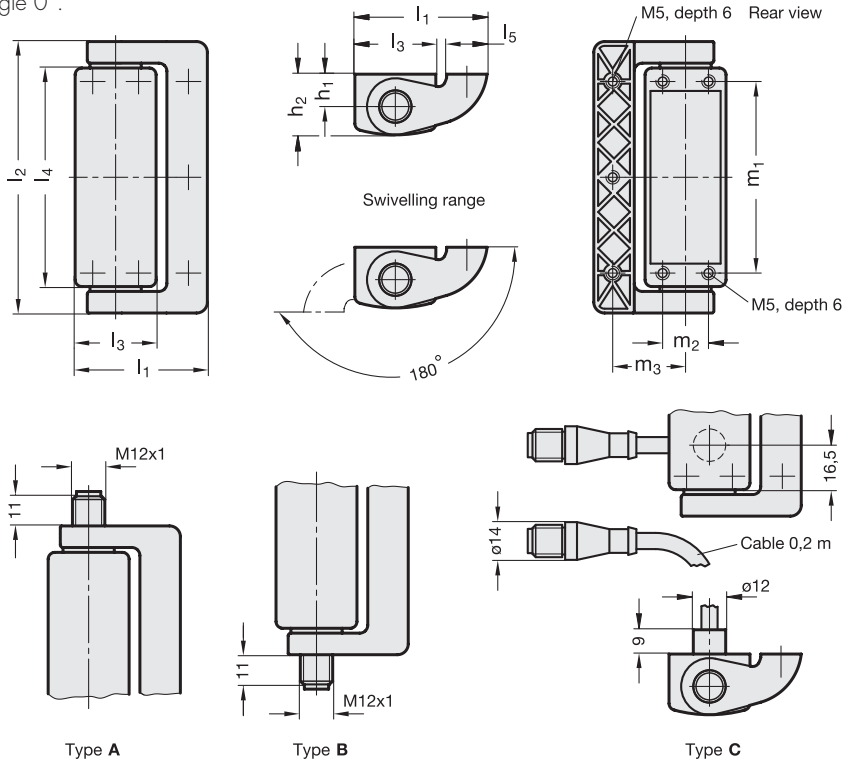
The version with broad hinge wing has been designed for mounting against glass or polycarbonate doors.

Accessories (to be ordered separately)

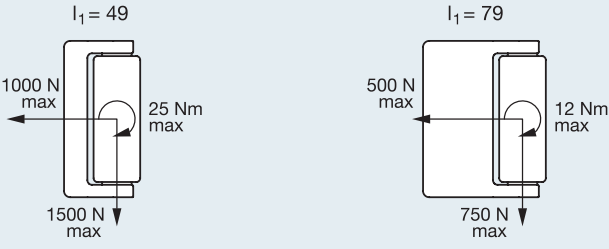
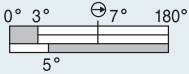
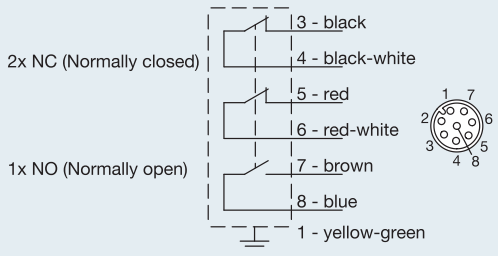
- Hinges without safety switch GN 139.2 (see page 11) in the same design for uniform appearance.
- Cables with connector coupling 8-pin (see page 14), 5 and/or 10 meter long: GN 330-M12x1-8-G-5 and GN 330-M12x1-8-G-10.
- Mounting plates GN 139.3 / GN 139.4 (see page 12-13).

Special execution on request (For sufficient quantities)

Hinges with operating angle 0°.



Standard Elements	Main dimensions										△△
	l1	l2	l3	l4	l5	h1	h2	m1	m2	m3	
GN 139.1-49-101-A	49	101	30	81	15	12	22.5	71	17	27	325
GN 139.1-49-101-B	49	101	30	81	15	12	22.5	71	17	27	325
GN 139.1-49-101-C	49	101	30	81	15	12	22.5	71	17	27	364
GN 139.1-79-101-A	79	101	30	81	30	12	22.5	71	17	50	425
GN 139.1-79-101-B	79	101	30	81	30	12	22.5	71	17	50	427
GN 139.1-79-101-C	79	101	30	81	30	12	22.5	71	17	50	427

Technical data	
Switch type	Interlocking mechanism without tension pickup acc. to EN 1088
Actuator, internal	Safety switch encapsulated in hinge
Max. load	 <p>Computation examples -> see operating instruction</p>
Actuating velocity	min. 2°/second, max. 90°/second
Operating angle for forced separation (after switching point 0°)	<p>The switching point is adjustable within +4°. -> see operating instruction</p> 
Mechanical life acc. to IEC 60947-5-1	10 ⁶ operating cycles
Operating frequency acc. IEC 60947-5-1	max. 720 / hour
Useful life (TM) acc. to EN ISO 13849-1	20 years
Number of cycles until hazardous failure (B10 d) acc. to EN 61820-2	5 000 000
Utilisation category acc. to EN 60947-5-1	AC 15 / DC 13: Ue 24 V, Ie 2 A
Protection class	IP 67 (plug) / IP69K (cable)
Contact material	Silver alloy, solid
Contact complement	<p>8-pin plug</p>  <p>2x NC (Normally closed)</p> <p>1x NO (Normally open)</p>
Switching principle	Slow-action contact
Contact opening	Force-locking, forced
Design isolation voltage	30 V AC, 36 V DC
Conventional technical current	max. 2 A
Short-circuit protection acc. to IEC 60269-1	2 A, 500 V, Type gG
Ambient temperature	- 25 °C bis ... + 80 °C
Degree of pollution external acc. to EN 60947-5-1	3

Technical data	
Conformity with international directives	BG-GS-ET-15 CEI 17-45 CEI 44-5 CEI 70-1 CEI EN 60947-5-1 EN 1088 EN 60204-1 EN 60529 EN 60947-5-1 EN ISO 12100-1 EN ISO 12100-2 IEC 204-1 IEC 337-1 IEC 529 IEC 947-5-1 NFC 63-140 VDE 0113 VDE 0660-200
Special features	<ul style="list-style-type: none"> - Double safety function with 2 contact switches - High load-bearing capacity owing to robust zinc die cast design - Encapsulated inside actuator guarantees the proper function also under difficult conditions - Tamper-proof owing to bolting from the rear

More important details and notices are found in the operating instructions for the hinges GN 139.1.

They are included with every hinge and can also be downloaded as PDF under "www.elesa-ganter.com" at "Instruction manuals".

GN 139.2



Hinges

•Material

Zinc-alloy die-cast, silver metallic epoxy resin coating.

•Pin

AISI 303 stainless steel.

•Load ratings

- for $l_1 = 49$: 1500 Nm (axial), 1000 Nm (radial), 25 Nm (torsion).
- for $l_1 = 79$: 500 Nm (axial), 750 Nm (radial), 12 Nm (torsion).

Features and applications

Hinges without safety switch GN 139.2 are identical with the version with safety switch except the connector plug. In addition, the covered bolts at the rear make the hinge tamper-proof.

The compact construction combines safety and attractive design.

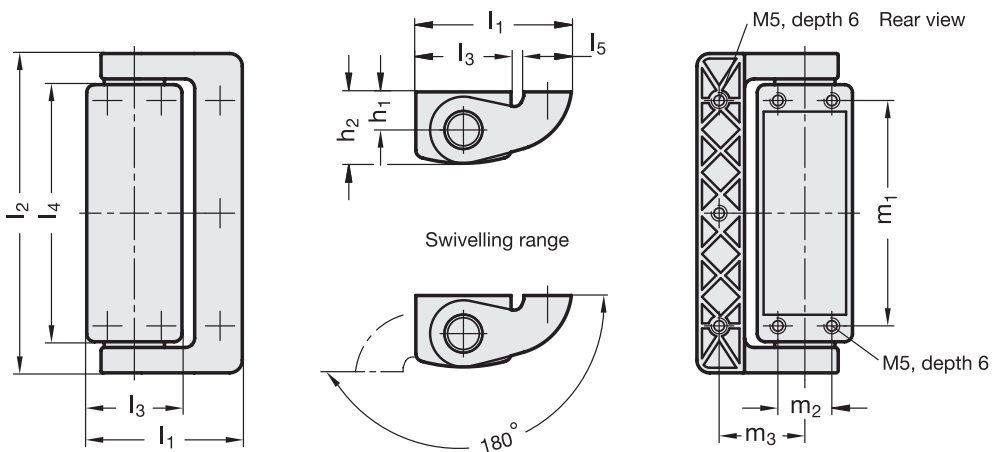
The version with broad hinge wing has been designed for mounting against glass or polycarbonate doors.

Accessories (to be ordered separately)

Mounting plates GN 139.3 / GN 139.4 (see page 12-13).

Special execution on request (For sufficient quantities)

Hinges with operating angle 0° .



Standard Elements	Main dimensions										\triangle
Description	l_1	l_2	l_3	l_4	l_5	h_1	h_2	m_1	m_2	m_3	g
GN 139.2-49-101	49	101	30	81	15	12	22.5	71	17	27	308
GN 139.2-79-101	79	101	30	81	30	12	22.5	71	17	50	427

GN 139.3

Mounting plates

•Material

Zinc-alloy die-cast, silver metallic epoxy resin coating.

Features and applications

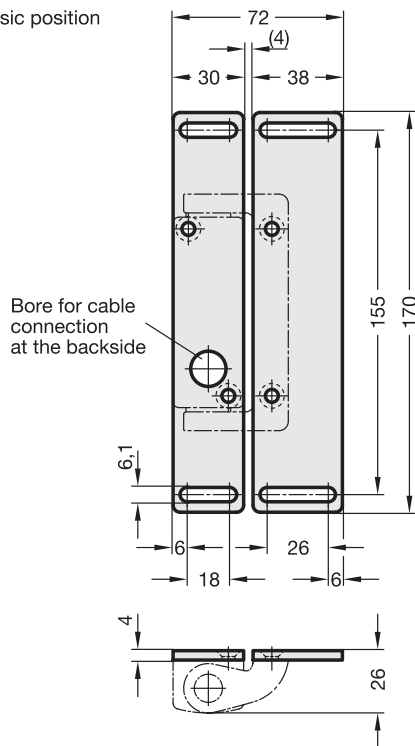
The flat mounting plates GN 139.3 allows the hinges GN 139.1 / GN 139.2 to be attached from the front.

The long slotted holes allow also allow the attachment to profile systems.

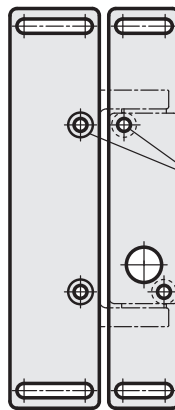
Countersunk screws for fixing the hinges to the mounting plate are included part of the order.



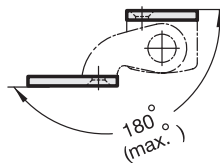
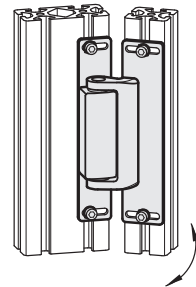
Basic position



180° swivelled



Bore for countersunk head screw to fix the hinges



Standard Elements	Main dimension	⚖
Description	Length	g
GN 139.3-170	170	358

GN 139.4

Mounting plates

•Material

Zinc-alloy die-cast, silver metallic epoxy resin coating.

Features and applications

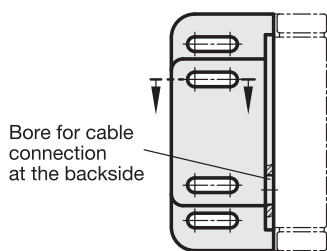
The angled mounting plates GN 139.4 allows the hinges GN 139.1 / GN 139.2 to be attached between frame and door, i.e. the door gap.

The long slotted holes allow also allow the attachment to profile systems.

Countersunk screws for fixing the hinges to the mounting plate are included part of the order.

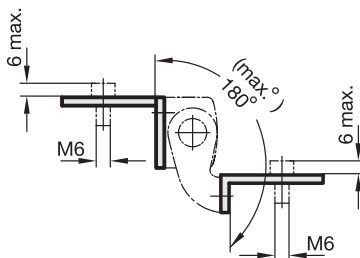
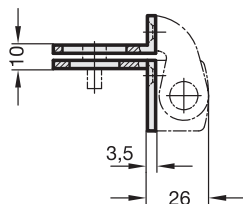
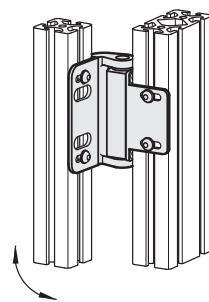
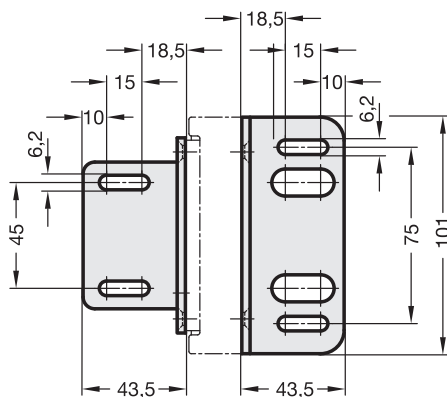


Basic position



Bore for cable connection at the backside

180° swivelled



Standard Elements	Main dimension	⚖
Description	Length	g
GN 139.4-101	101	240

GN 330

Cables with connector coupling

•Handle

Plastic, Polyurethan-Elastomer-TPU, black colour.

•Cable (Outer sheath)

Polyurethan PUR, black colour.

•Assembly

- Type **G**: Connector coupling straight

- Type **W**: Connector coupling 90° angled

•Working temperature

From -40 °C to +90 °C.

•Technical data

- Insulating resistance: 109 Ω.

- Degree of pollution: 3 / 2 according to ICE 60 664-1.

- Protection class: IP67 (in screwed condition) according to ICE 60 529.

•Connecting nut M12x1

Nickel plated brass.

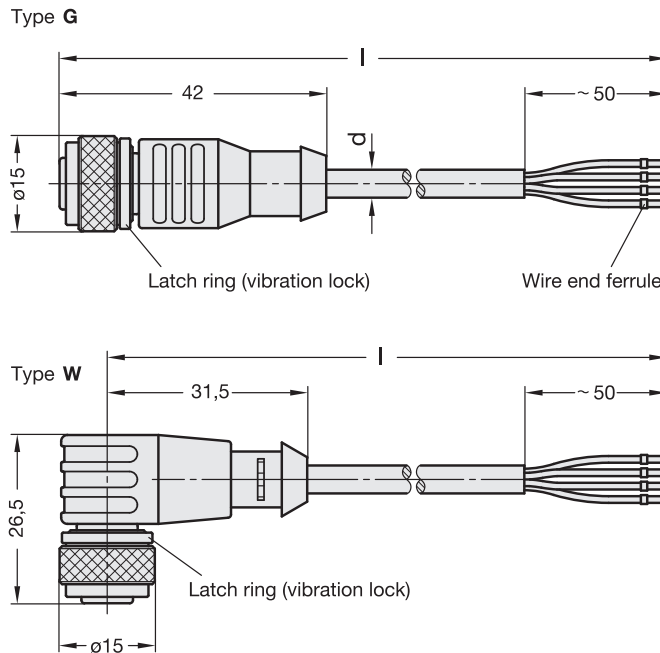


Special executions on request (For sufficient quantities)

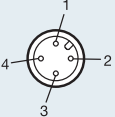
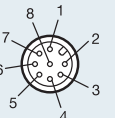

Cable in different lengths.

Features and applications

Cables with connector coupling M12x1 GN 330 are used in conjunction with standard elements which have an electric switching function.



Standard Elements	Main dimensions			⚖
Description	Connector	No. of contacts	l	g
GN 330-M12x1-4-G-5	M12x1	4	5	160
GN 330-M12x1-4-G-10	M12x1	4	10	360
GN 330-M12x1-8-G-5	M12x1	8	5	260
GN 330-M12x1-8-W-5	M12x1	8	5	265
GN 330-M12x1-8-G-10	M12x1	8	10	510
GN 330-M12x1-8-W-10	M12x1	8	10	515
GN 330-M12x1-12-G-5	M12x1	12	5	250
GN 330-M12x1-12-W-5	M12x1	12	5	250
GN 330-M12x1-12-G-10	M12x1	12	10	400
GN 330-M12x1-12-W-10	M12x1	12	10	450

Cable with plug-in connector	d Outside diameter	Cross-Section	Operating voltage acc. to IEC 60 664-1	Current load rating acc. to IEC 60512-3	Contact assignment
4-pole (4-wire)	5	4 x 0.34 mm ²	max. 250 V	4 A	 1 brown 3 blue 2 white 4 black
8-pole (8-wire)	6	8 x 0.25 mm ²	max. 30 V	2 A	 1 white 5 grey 2 brown 6 pink 3 green 7 blue 4 yellow 8 red
12-pole (12-wire)	6	12 x 0.14 mm ²	max. 30 V	1.5 A	 1 brown 5 pink 9 red 2 blue 6 yellow 10 purple 3 white 7 black 11 grey/pink 4 green 8 grey 12 red/blue

The cable is flexible, no PVC, silicone and halogens, with PUR outer sheath; the wire insulation is made of polypropylene.
 The cable is also oil-resistant and flame-retardant in compliance with VE 0472, as well as resistant to chemicals, hydrolysis and microbes.
 With its resistance to welding sparks, the cable is also suitable for the adaptable use in machining processes.
 Approvals under UL and CSA.



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