



## Industrial plug-in connectors

HEAVYCON EVO –  
efficient at a twist of the wrist

# For more efficiency in your system – HEAVYCON EVO

Heavy-duty plug-in connectors are established on the market and are used in applications that require robust plug & play solutions.

Switch to HEAVYCON EVO now and save storage costs. With the new plastic plug-in connector, you just need one sleeve housing for every possible application. The use of high-quality materials and full compatibility with the industry standard enable failsafe use in a wide range of applications.



## Efficient thanks to reduced number of versions

HEAVYCON EVO housings reduce the number of versions required, thereby cutting your storage costs by 70 %. Using just one housing and four cable glands, you can now implement solutions for every possible application – whether with straight or lateral outlet, whatever the cable diameter.

### Technical data for the housings

- Inflammability class according to UL 94: V0
- Degree of protection: IP65
- Degree of protection according to UL50e: type 4/4x/12
- Strain relief according to: DIN EN 50262
- Housing material: polyamide GF
- Locking latch material: polyamide GF
- Seal material: NBR
- Ambient temperature (operation): -40°C ... 125°C
- Ambient temperature for bayonet locking (operation): -40°C ... 100°C



## Fully compatible

The sleeve housing and supporting base element are mounting and plug-in compatible with aluminum housings from all well-known manufacturers. All contact inserts in B series format as well as modular contact inserts can be used in the housings.



## Just as robust as metal

HEAVYCON EVO plug-in connectors made from fiberglass-reinforced polyamide meet all the requirements of heavy-duty industrial plug-in connectors made from aluminum. Their suitability for industrial use is verified by numerous tests.



# The evolution of heavy-duty industrial plug-in connectors

The current trend is towards high-performance plastics. This is because plastic can be used to create solutions that are lighter, more resilient, and more environmentally friendly. In addition, in many industries the use of plastic offers advantages over metal.

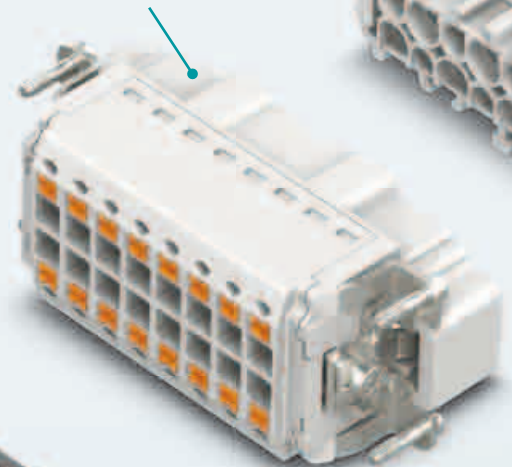
Keep track of developments and find out about the many advantages of the new HEAVYCON EVO plastic plug-in connectors.

## High resistance to loads

The plastic housings made from PA are tested according to IP65 protection and according to IK08 against shock. Fire protection add-ons according to UL94 V0 are guaranteed halogen-free.

## New PT inserts

The push-in connection technology, which has been proven a million times over with modular terminal blocks, offers easy and safe handling thanks to the convenient plug-in principle.



## Easy seal

The supporting base elements in the EVO series have compression stops at the four screw connections for the corresponding flat gaskets. This enables easy positioning of the seals and they do not slip when the housings are screwed on.

## Energy savings in the manufacturing process

Considerably less energy is needed to manufacture plastic than to manufacture aluminum.

### Complete range

IP65-protected sleeve and coupling housings are available in B6, B10, B16, and B24 design with double and single locking latch. The associated supporting base elements are available as a panel mounting base and box mounting base with and without protective cover.

### Integrated marking options

The new housings have marking grooves on the sleeve housing and panel mounting base as standard for easier identification.

### HEAVYCON EVO bayonet locking

The cable gland, which is separate from the housing, is securely locked with just a twist of the wrist thanks to the bayonet locking.

### Improved cable routing

Thanks to the angled, asymmetrical cable outlet, narrower cable routing along the wall is possible when using the straight outlet.

### Effortless mounting

When mounting the plug-in connectors, prior bending of the often unwieldy cable is not required. Thanks to the angled outlet, both outlet directions can be used conveniently.

### Safety thanks to capacitive PE contact

Two metal inlays are used to hold the contact inserts and coding screws. They form the electrical bridge between the PE contacts, thereby ensuring compliance with standards. Capacitive PE contact is ensured even when connected at an angle.

Simply choose the orientation based on your space requirements and all it takes is just a twist of the wrist:



Attach from the side, turn, and snap in...



...and you're done!



Attach straight on, turn, and snap in...



...and you're done!

# Quality in every application

The quality of our products is our top priority. This is not tested subsequently on finished products, but is ensured responsibly during every step of production.

A process-oriented, integrated management system ensures that not only legislation and standards, but also customer requirements are taken into account in the manufacturing of our products.

*HEAVYCON EVO plug-in connectors are tested in accordance with numerous national and international standards and are suitable for many applications.*



## Machine building and systems manufacturing

**Protection test:**

UL50e NEMA 4/4X/12 and IP65 DIN 60529

**Plug-in connector safety:**

DIN 61984

**Shock resistance test:**

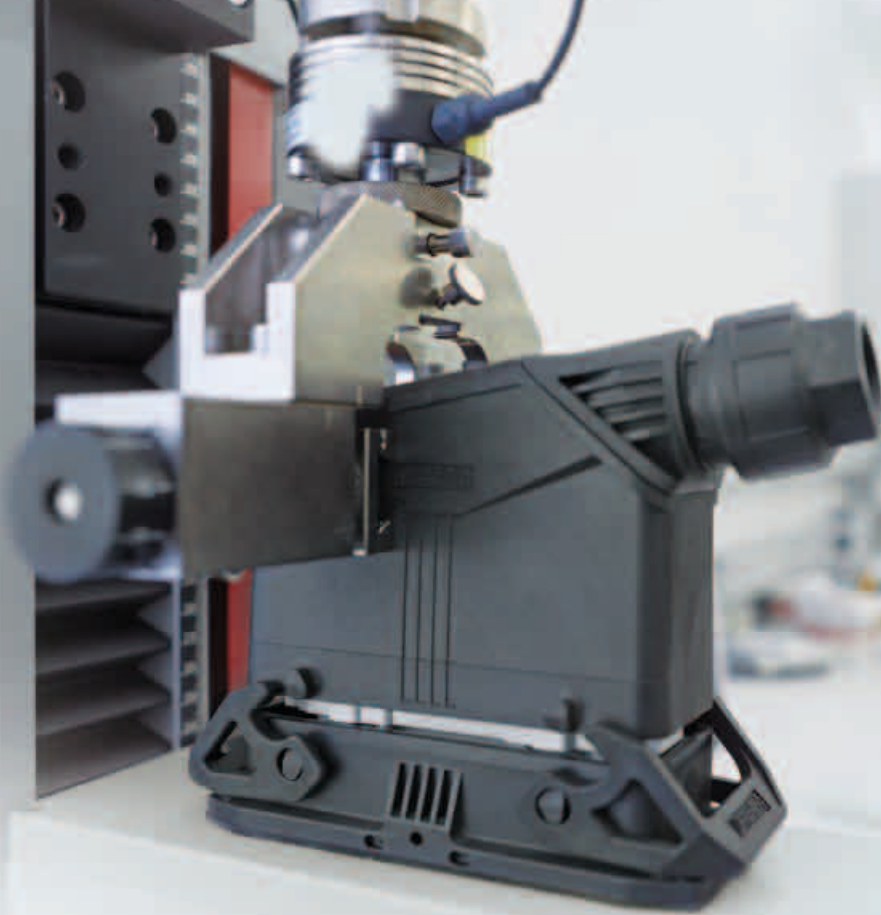
IK08 according to DIN 50102

**Fluid contamination:**

DIN EN 60068-2-74

Mechanical test	Parameters
Shock resistance test	Freefalling hammer, 1.7 kg from 0.3 m
Test against static lateral load	At least 250 N per axis
Protection test	Jet water/dust/ice
Shocks from rough handling	50 cycles from 0.5 m
Vibration test	5g, 10 - 150 Hz, 2.5 hours per axis
Shock test	30g, 18 ms
Strain relief	According to DIN 50262

Aging test	
Cold	-40°C 24 hours with subsequent actuation
Heat	125°C 168 hours with subsequent actuation
Durability test (locking latch actuation)	1000 cycles Open and close
Bending tests (bayonet)	2000 bending operations at an angle greater than 45°



### Offshore wind parks and energy technology

**Vibration test/sinusoidal:**

DIN 60068-2-6

Endurance by sweeping

**Corrosion test:**

DIN EN 60068-2-55, cyclic salt spray

**Environmental influence:**

Constant damp heat,

DIN EN 60068-2-78



### Shipbuilding

**Vibration load/resonance range:**

DIN 60068-2-6 DIN test Fc, Table 3.16

**Cyclic climatic storage:**

DIN EN 60068-2-30 (test Db)

**Fire hazard testing:**

DIN EN 60695-11-5 (VDE 0471-11-5)

**Environmental influence:**

Cyclic salt spray, DIN EN 60068-2-52

**Environmental influence:**

Cyclic damp heat,

DIN EN 60068-2-30



### Traffic technology

**Resistance to UV and ozone:**

DIN 60068-2-5 test Sa/

DIN EN 50306-2 test method B

**Resistance to weathering:**

DIN EN ISO 4892-2

**Vibration and shock resistance in accordance with railway technology/ broadband noise:**

DIN EN 50155:2001/

EN 61373:1999 category 1B

**Temperature shock resistance:**

DIN 60068-2-14 100 cycles

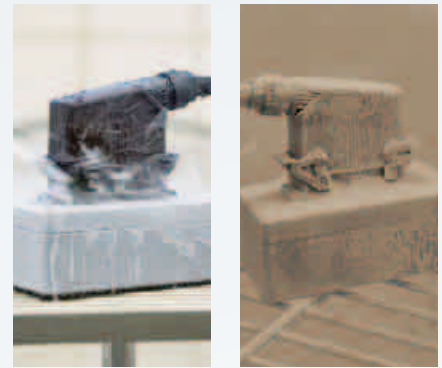
## IP protection test

### DIN EN 60529

IP6X: protection of the contact inserts inside the housing against the ingress of dust in the presence of a slight vacuum.  
Parameters: vacuum: 20 mbar, test duration: 8 hours

IPX5: protection against the harmful effects of the ingress of jet water.  
Parameters: jet nozzle: 6.3 mm, volumetric water flow: 12.5 l/min, minimum test duration: 3 minutes

HEAVYCON EVO plug-in connectors meet the requirements of IP65 protection: no discernable, visible ingress of dust or water inside the housing.



*Jet water test and dust test*

## Vibration test

### IEC 60068-2-6

This test demonstrates the vibration resistance of an electrical connection. Harmonic, sinusoidal vibrations are applied to the test object to simulate rotating, pulsating or oscillating forces. Along all three axes (xyz), frequencies in the 10 - 2000 Hz range, for example, are successively applied at a rate of one octave per minute. The r.m.s. value of the acceleration is 50 m/s<sup>2</sup>, for example.

There must be no damage to the test object that might impair further use or adversely affect the constant electrical values.

HEAVYCON EVO plug-in connectors meet these high requirements and are therefore suitable for applications on construction vehicles and machinery, for example.



*Vibration test according to IEC 60068-2-6*

## Temperature shock test

### IEC 60512-11-4, test 11d

In industrial applications, significant temperature differences resulting from the process may occur. In order to simulate such ambient conditions, the test objects are moved within the space of a few seconds between the lower and upper limit temperature (e.g., -50°C to +85°C) of the product and usually remain there for 45 minutes. This must not result in damage that might impair further use.

Thanks to the use of high-quality materials, HEAVYCON EVO plug-in connectors are suitable for applications at an ambient temperature of -40°C to +100°C with constant temperature response.



*HEAVYCON EVO plug-in connector in the climatic chamber at -50°C*



## IK08 shock resistance test

### DIN EN 50102

During use, housings may be subjected to shock and impact, for example, from falling tools. Testing is carried out with a freefalling hammer weighing 1.7 kg, which is dropped onto the housing five times from a height of 0.3 meters. This is to ensure that no damage is caused which adversely affects function.

The plastic plug-in connectors have IK08 shock resistance, which is the same as that of aluminum plug-in connectors or aluminum control boxes, and therefore meet the mechanical requirements of heavy-duty industrial plug-in connectors.



*Impact of falling hammer weighing 1.7 kg*

## Roll-over test

### In accordance with DIN IEC 62196-1

Housings that are removed during servicing or installation may be subjected to high stresses from moving loads such as heavy pallets or vehicles such as forklift trucks.

A special test is carried out on the EVO housing where a forklift truck weighing several tons is rolled over the housing.

HEAVYCON EVO housings withstand high stresses from heavy, moving loads without any adverse effect on function and are therefore ideal for use in industrial environments.



*Extreme load due to roll-over with a forklift truck*

## Test against dynamic lateral load

### In accordance with DIN IEC 60512-5

During installation, the housings may be partially subjected to high static loads. In this test, a force of 200 N is applied to the cable in 50 cycles. The effect of the force on the locking mechanism and cable gland is particularly detrimental at an angle of 90°.

This test verifies that the HEAVYCON EVO bayonet locking and the double locking latch between the housing and panel mounting frame do not open independently or malfunction even in the case of extreme loads.




*Lateral load of 200 N*


## Ordering data for housing with double locking latch


HEAVYCON EVO housings are equipped with a single locking latch or double locking latch. This ensures maximum possible flexibility depending on the application.

Housings with a double locking latch support particularly space-saving alignment sideways.

All box mounting bases and coupling housings are designed as a tall version.

	Height	B10	B16	B24
<b>Sleeve housing for double locking latch</b>				
	Low	1407628		
	Tall	1407629	1407643	1407657

<b>Sleeve housing with double locking latch</b>				
	Low	1407630		
	Tall	1407631	1407644	1407658

	Screw connection	Cable feed-through	Tightening torque	Order No.
<b>Cable gland with bayonet locking</b>				
	M20	7 mm ... 13 mm	4 Nm	1407669
	M25	9 mm ... 17 mm	6 Nm	1407670
	M32	11 mm ... 21 mm	10 Nm	1407671
	M40	19 mm ... 28 mm	17 Nm	1407672

HEAVYCON EVO offers a complete product range for all possible applications.



**B10    B16    B24**

**Panel mounting base**

**With double locking latch without cover**



1407634    1407648    1407661

**For double locking latch with cover**



1407635    1407649    1407662

Screw  
connection

**B10    B16    B24**

**Box mounting base**

**With double locking latch without cover**



2 x M32	1407638		
2 x M40		1407652	1407665

**For double locking latch with cover**



2 x M32	1407639		
2 x M40		1407653	1407666

**B10    B16    B24**

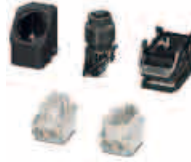
**Coupling housing with double locking latch**



1407641    1407655    1407668

**Plug-in connector sets with push-in connection**

**Size B10 with M25 screw connection**



HC-EVO-B10PT-BWD-HL-M25-PLRBK  
Order No. 1407711

**Size B16 with M25 screw connection**



HC-EVO-B16PT-BWD-HH-M25-PLRBK  
Order No. 1407712

**Size B24 with M32 screw connection**




HC-EVO-B24PT-BWD-HH-M32-PLRBK  
Order No. 1407713


## Ordering data for housing with single locking latch

HEAVYCON EVO housings are equipped with a single locking latch or double locking latch. This ensures maximum possible flexibility depending on the application.

Housings with a single locking latch can be aligned right under one another.

All box mounting bases and coupling housings are designed as a tall version.

	Height	B6	B10	B16	B24
<b>Sleeve housing for single locking latch</b>					
	Low	1407619	1407626		
	Tall	1407620	1407627	1407642	1407656

	Screw connection	Cable feed-through	Tightening torque	Order No.
<b>Cable gland with bayonet locking</b>				
	M20	7 mm ... 13 mm	4 Nm	1407669
	M25	9 mm ... 17 mm	6 Nm	1407670
	M32	11 mm ... 21 mm	10 Nm	1407671
	M40	19 mm ... 28 mm	17 Nm	1407672

The housings are plug-in and functionally compatible with all housing solutions available on the market.



B6 B10 B16 B24

**Panel mounting base with single locking latch**

**Without cover**



1407621 1407632 1407646 1407659

**With cover**



1407622 1407633 1407647 1407660

Screw connection B6 B10 B16 B24

**Box mounting base with single locking latch**

**Without cover**



2 x M32	1407623	1407636		
2 x M40			1407650	1407664

**With cover**



2 x M32	1407624	1407624		
2 x M40			1407651	1407663

B6 B10 B16 B24

**Coupling housing with single locking latch**



1407625 1407640 1407654 1407667

**Plug-in connector sets with push-in connection**

**Size B6 with M20 screw connection**



HC-EVO-B06PT-BWSC-HL-M20-PLRBK  
Order No. 1407710

**Size B10 with M25 screw connection**



HC-EVO-B10PT-BWSC-HL-M25-PLRBK  
Order No. 1408791

**Size B16 with M25 screw connection**




HC-EVO-B16PT-BWSC-HH-M25-PLRBK  
Order No. 1408793

**Size B24 with M32 screw connection**




HC-EVO-B24PT-BWSC-HH-M32-PLRBK  
Order No. 1408794


## Ordering data for accessories

Series	Connection	Connection cross section	Rated current	Rated voltage	No. of positions	B6	B10	B16	B24	B32	B48	
<b>Contact inserts with a fixed number of positions with push-in connection</b>												
	B	Push-in (PT)	0.14 - 2.5 mm <sup>2</sup>	16 A	500 V	Socket	1407727	1407729	1407731	1407735	1407731	1407735
							–	–	–	–	1407733	1407737
						Pin	1407728	1407730	1407732	1407736	1407732	1407736
							–	–	–	–	1407734	1407738


Further contact inserts with a fixed number of positions and modular contact inserts can be found on the Phoenix Contact website.


Cable Ø	Screw connection	Order No.
<b>Plastic screw connection</b>		
	Black, for cable diameter (mm)	
12 mm ... 21 mm	M32	1407673
16 mm ... 28 mm	M40	1407674

Screw connection	Order No.
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<b>Plastic filler plug</b>		
	For metric screw openings	
M32	1410754	
M40	1410767	


Reduction	Order No.
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<b>Plastic reducing adapter</b>		
	For metric screw openings	
M32 to M25	1410712	
M32 to M20	1410725	
M40 to M32	1410738	
M40 to M25	1410741	


Outside Ø	Order No.
<b>Screw connection for plastic protective hoses</b>	
	Screw connection, IP66, straight, with metric thread, for protective hose outside diameter
21.2 mm	M20 3241220
28.5 mm	M25 3241221
34.5 mm	M32 3241222
42.5 mm	M40 3241223


Ø Outside/inside	Bending radius Static/dynamic	Order No.
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<b>Plastic protective hose</b>		
	Black, plastic, PA 6.6 HB	
21.2 mm/16.5 mm	45 mm/75 mm	3240683
28.5 mm/23 mm	55 mm/100 mm	3240684
34.5 mm/29 mm	65 mm/120 mm	3241088
42.5 mm/36 mm	90 mm/150 mm	3241089


	B6	B10	B16	B24
<b>Cover plate</b>				
	For HEAVYCON panel cutouts, height: 3.5 mm			
	1660368	1660371	1660384	1660397

<b>Replacement latch</b>				
	Single locking latch, plastic, for HEAVYCON EVO plastic housing			
	1407697	1407698	1407700	1407701
	Double locking latch, plastic, for HEAVYCON EVO plastic housing			
		1407696	1407696	1407696

<b>Replacement flat gasket</b>				
	Replacement flat gasket, for HEAVYCON EVO plastic panel mounting base			
	1407702	1407703	1407704	1407705

<b>Replacement profile gasket</b>				
	Replacement profile gasket, for HEAVYCON EVO plastic supporting base element			
	1407706	1407707	1407708	1407709

	B6	B10	B16	B24	B32
<b>Plastic protective cover</b>					
	Protective cover, for panel mounting base, box mounting base, and coupling housing with single locking latch, with retaining cord, without seal				
	1660180	1660177	1660151	1660148	
	Protective cover, for panel mounting base, box mounting base, and coupling housing with double locking latch, with retaining cord, without seal				
		1772586	1772599	1772609	1646120
	Protective cover, for sleeve housing without single locking latch, with retaining cord, with seal				
	1678282	1678295	1678318	1678334	
Protective cover, for sleeve housing without double locking latch, with retaining cord, with seal					
	1678305	1678321	1678347		
Protective cover, for sleeve housing with double locking latch, with retaining cord, with seal					
	1687260	1687273	1687286		

<b>Marking label</b>	
	Unmarked, UniSheet, 0.5 mm thick, 70-section, lettering field size: 20 x 9 mm, white
	0829439



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## Product range

- Cables and connectors
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- Electronic reversing contactors and motor control
- Electronics housing
- Ethernet networks
- Fieldbus components and systems
- Functional safety
- HMIs and industrial PCs
- I/O systems
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- Industrial lighting
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- Measurement and control technology
- Modular terminal blocks
- Monitoring and signaling
- PCB terminal blocks and PCB connectors
- Plug-in connectors
- Protective devices
- Relays
- Sensor cables and connectors
- Software
- Surge protection devices
- System cabling for DCS and PLC
- Tools
- Wireless data communication

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