

# HALFEN HGC GRIP CONNECTOR

## TECHNICAL PRODUCT INFORMATION



HALFEN HGC GRIP CONNECTOR

HGC 08-E


CONCRETE

# HALFEN HGC GRIP CONNECTOR

## System Description

### Advantages

- Slim socket dimensions allow smaller bar distances;
- All diameters on stock - short delivery times;
- Also permitted for dynamic loads;
- The rod ends require no pretreatment - universally applicable
- Quick and simple connection with sheared-off screws;
- Coupling even possible with bars which can not be turned

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- Officially approved by German Building Authority DIBt, Berlin.
  - Can also be used as transition coupler - small product range for many applications.
  - Works with various reinforcement steels - flexible application for each reinforcement bar.

Please contact us for further advice.



# HALFEN HGC GRIP CONNECTOR

## System Description

### Product features

- Mechanical coupler for concrete reinforcement bars with diameters of 8 - 40 mm.
- 100% load transfer like continuous reinforcement bar - for tensile and compressive loads.
- Mechanical interlocking by self-regulating clamping effect inside the HGC sleeve.
- Slip < 0,1 mm (at 300 N/mm<sup>2</sup>).
- Qualified for loads not resulting from predominantly static loads.

The two ends of the concrete reinforcement bars are connected inside the HGC coupler sleeve using special screws which press into the concrete reinforcing steel when tightened and shear off at a defined torque flush with the socket surface. The inside of the coupler is provided with parallel grooves which clamp the reinforcing steel securely.

This principle ensures that the reinforcement is always properly installed. Once installed, the connections can not work loose.

### Approval

The HALFEN HGC Grip Connector is officially approved for diameters 8-28mm by German Construction Supervisory Board DIBt (Approv. No Z-1.5-209).

The HALFEN HGC diameters 32 and 40mm are type tested by the Material Testing Institute MPA Stuttgart, Germany.

### Areas of application

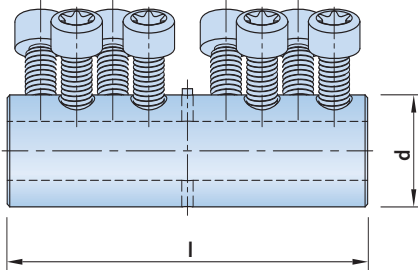
- Reinforced concrete, general building construction and civil engineering works
- Bridge construction
- Pile foundations
- Chimneys
- Repair works - perfect for reconstruction and accidentally cut bars



# HALFEN HGC GRIP CONNECTOR

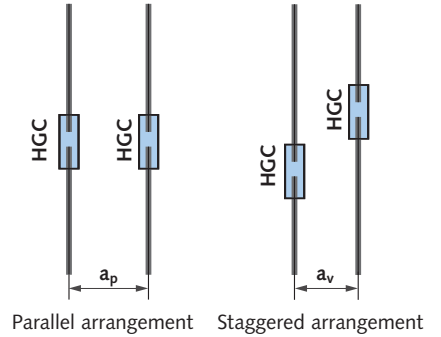
## Type range, dimensions, installation

### Identification and dimensions



#### Bar spacing

The clear spacings are based on DIN 1045-1 regulations and result from the minimum spacings required for assembly (see table below). For optimisation a staggered arrangement allows reduced spacings, see drawing.



Designation	Order code 0712.010-	d <sub>s</sub> (mm) reinforc. steel	Reduction [mm]	d [mm]	l [mm]	HGC Screws			Min. centre spacing [mm], arrangement:	
						No. screws	Thread	TORX®	- parallel a <sub>p</sub>	- staggered a <sub>v</sub>
HGC 8/10	00001	8/10	10 - 8	26,5	76	4	M10	T55	50	40
HGC 12	00002	12	12 - 10	31,8	100	6	M10	T55	65	45
HGC 14	00003	14	14 - 12	38,0	112	6	M12	T60	75	50
HGC 16	00004	16	16 - 14	38,0	140	8	M12	T60	100	75
HGC 20	00005	20	20 - 16	48,3	164	8	M14	T70	120	100
HGC 25	00006	25	25 - 20	54,0	216	10	M16	T80	130	110
HGC 28	00007	28	28 - 20	60,3	252	12	M16	T80		
HGC 32	00008	32	32 - 28	70,0	310	12	M18	T90		
HGC 40	00009	40	40 - 32	82,5	400	14	M20	T100		

### Installation



1) Slide the HGC coupler over the end of the first reinforcement bar up to the centred stop pin. Secure screws by hand tightening. If the stop pin is removed, the central fit must be checked using suitable permanent marking at the required distance from the ends of the bars.



2) Insert second bar into the coupler to correct depth. Secure screws by hand tightening.



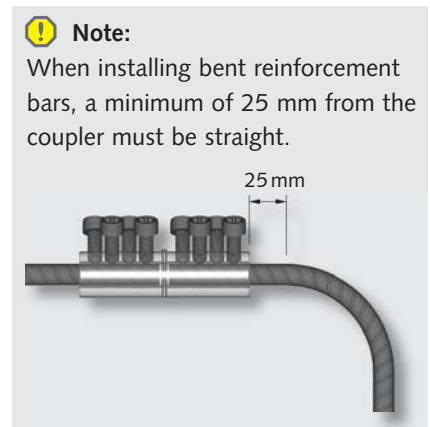
3) Tighten the screws by a suitable tool until they shear off. Thus the required tightening torque is achieved.



4) The HGC coupler is correctly installed when all screws are sheared off.



HGC Grip Connector during installation



**Note:** When installing bent reinforcement bars, a minimum of 25 mm from the coupler must be straight.

# HALFEN HGC GRIP CONNECTOR

## Assembly

### Assembly tools

For shearing off the bolts of the HGC Grip Connector efficiently we recommend the use of the following tools, depending on no. and size of the HGCs.

All tools can be bought or hired from HALFEN-DEHA.

The assembly can also be carried out with a pneumatic impact driver (by contractor) for HGC types up to size 28.

*Further information see page 7.*

**Table: Recommended tools**

For HGC	Bolts			No. of HGC					
	Quantity	TORX®	Torque [Nm]	5	10	15	20	35	50
HGC 8/10	4	T55	120	█	█	█	█	█	█
HGC 12	6	T55	120	█	█	█	█	█	█
HGC 14	6	T60	200	█	█	█	█	█	█
HGC 16	8	T60	200	█	█	█	█	█	█
HGC 20	8	T70	320	█	█	█	█	█	█
HGC 25	10	T80	500	█	█	█	█	█	█
HGC 28	12	T80	500	█	█	█	█	█	█
HGC 32	12	T90	700	█	█	█	█	█	█
HGC 40	14	T100	1000	█	█	█	█	█	█

Explanations regarding the tools socket wrench, socket wrench with converter and electrical screwdriver:

→ see following page.

### Manual assembly by socket wrench



For small quantities, the screws of HGC couplers can be sheared off by using a manual socket wrench. The necessary tools are listed in the table below.

The assembly of the HGC 25 to 40 by a manual socket wrench can't be recommended.

For HGC	TORX® insert		Socket wrench	
	Designation	Order code	Designation	Order code
HGC 8/10	T55 1/2"	0712.020-00110	Socket wrench 1/2"	Standard tool by contractor
HGC 12	T55 1/2"	0712.020-00110	Socket wrench 1/2"	Standard tool by contractor
HGC 14	T60 3/4"	0712.020-00111	Socket wrench 3/4"	00101
HGC 16	T60 3/4"	0712.020-00111	Socket wrench 3/4"	00101
HGC 20	T70 3/4"	0712.020-00112	Socket wrench 3/4"	00101

Note: The socket wrench may not be used with any extensions such as tubes.



## HALFEN HGC GRIP CONNECTOR

### Assembly

#### Socket wrench with converter

In order to shear off the screws of a medium number of HGC couplers as efficiently as possible, the socket wrench with converter can be leased from HALFEN-DEHA. Please ask us for a quote.

The tool set includes the appropriate TORX® bits and a special fork. The torque will be applied through the fork at the head of the converter onto the bar, so that a safe transmission of the torque is ensured.



For HGC:	Tool set	
	Designation	Order code
<b>HGC 16 to 28</b>	HGC socket wrench with converter, rental tool set, HGC 16-28	0712.025- 00201
<b>HGC 32 to 40</b>	HGC socket wrench with converter, rental tool set, HGC 32-40	0712.025- 00202

#### Electrical screwdriver



If a greater number or big sizes of HGC couplers is to be processed, the use of an electrical screwdriver is recommended.

The torque is transmitted through the fork and the head of the electrical screwdriver onto the bar, so that the operator feels no torque or impact when shearing off the bolts.

The working with the electrical screwdriver is very fast, safe and efficient.

An adequate tool set with the appropriate TORX® bits and a special fork can be leased from HALFEN-DEHA. Please ask us for a quote.

The electrical screwdriver can also be bought, on request.

For HGC:	Electrical screwdriver		Fork	
	Designation	Order code	Designation	Order code
<b>HGC 8/10</b>	HGC electrical screwdriver (rental tool)	0712.025	HGC fork 8/10	Please indicate the size of the HGC Grip Connectors for which forks are needed.
<b>HGC 12</b>			HGC fork 12	
<b>HGC 14</b>			HGC fork 14/16	
<b>HGC 16</b>			HGC fork 14/16	
<b>HGC 20</b>			HGC fork 20	
<b>HGC 25</b>			HGC fork 25	
<b>HGC 28</b>			HGC fork 28	
<b>HGC 32</b>			HGC fork 32	
<b>HGC 40</b>			HGC fork 40	

## HALFEN HGC GRIP CONNECTOR

### Assembly, specification

#### Pneumatic Impact Driver (by contractor)

The pneumatic impact driver can be used for all HGC types up to size 28. For proper installation of the HGC couplers we strongly advise the socket sizes and maximum torques of the impact driver given in the table below.

For providing the equivalent working torques the instructions of the operation manual of the used impact tool must be observed. Each bolt must be pre-assembled with the minimum required tightening torque (see table).



TORX® Bit ③

For HGC:	TORX® Bit		requ. max. torque for the Impact Driver applied [Nm]	min. tightening torque [Nm]
	Designation	Order code		
HGC 8/10 to 12	HGC-TORX® Bit 16 x T55	0712.020- 00007	1500	50
HGC 14 to 16	HGC-TORX® Bit 16 x T60	0712.020- 00008		50
HGC 20	HGC-TORX® Bit 16 x T70	0712.020- 00009	2700	80
HGC 25 to 28	HGC-TORX® Bit 22 x T80	0712.020- 00010		120

To ensure the required torques the operation instructions of the manufacturer of the pneumatic impact driver must be observed.

③ For the pneumatic impact driver an additional adaptor is required.

For further informations regarding possible tool manufacturers please ask our International CompetenceCenter Technology.

#### Corrosion protection

If higher corrosion protection is specified for the reinforcement, the inside of the HGC Connector can be filled with a suitable anti-corrosion agent such as DENSO® Jet or DENSO® Fill paste (by contractor).

The paste is injected into the coupler through the opening in the coupler sleeve after assembly.

For HGC:	Approx. filling weight [g]
HGC 8/10	8
HGC 12	15
HGC 14	22
HGC 16	22
HGC 20	60
HGC 25	65
HGC 28	105
HGC 32	200
HGC 40	350

Designation	Description	Order code
3205-01	DENSO®-FILL Paste (250g cartridge)	0711.010-00001

#### Specifications texts

Position Text

1.0 HALFEN HGC Grip Connector for concrete reinforcing steel with German Certificate of Approval. For static and dynamic tensile and compression stresses. For reinforcement connections on floor slabs, floors, columns, girders and corbel, etc. Installation according to manufacturer specifications and in accordance with the German Certificate of Approval,

E.g.:	Quantity	Unit	Amount unit	Amount
1.6 HGC 20 for reinforcement steel ds=20 mm	.....	pieces	.....	.....

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