

TECHNICAL DOCUMENTATION



ALLIGATOR COUPLERS | **ALC ALLIGATOR COUPLING**

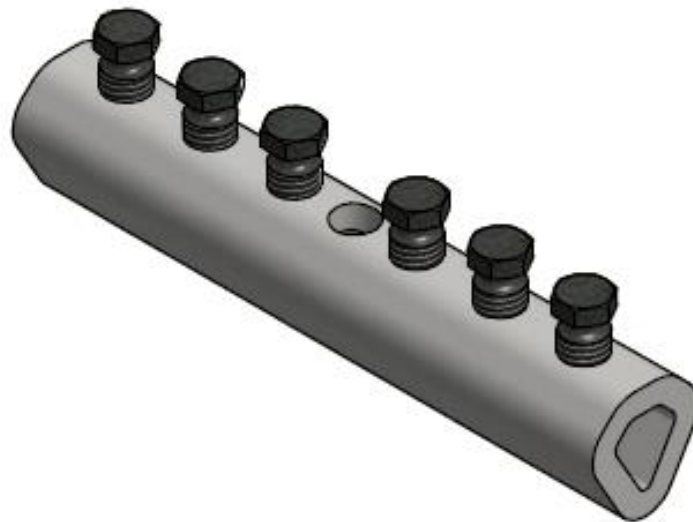


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INTRODUCTION

The ALLIGATOR coupler is used for splicing any grade or profile of reinforcing steel bar. These couplers are made of reinforcement steel with diameters in the range of 10 mm to 40 mm. Connection is made by inserting bars into both ends of the coupler. The breaking bolts are then screwed on manually and tightened with a ratchet wrench until the bolts shear off. In specific cases, these couplers can be used to replace the damaged reinforcements with new ones and to connect to the old structure.

The advantages of ALLIGATOR COUPLERS are as follows:

- Ensure integral connection for steel reinforcement.
- There is no need for threading or any other bar preparation.
- They are fast, simple and easy to use.
- The use of ALC rules out the use of lap splices resulting in less congestion and saves rebar material.
- No special training needed.
- Do not have any welded components.
- Correct assembly is easy to check visually.

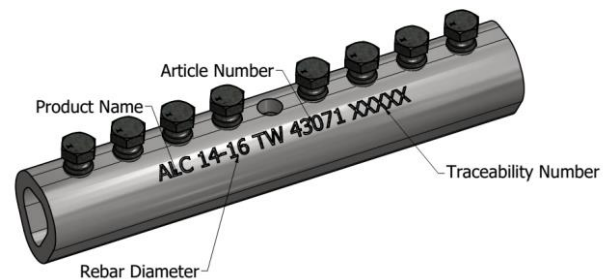
Quality

Terwa continuously controls the anchor production process in terms of strength, dimensional and material quality, and performs all of the required inspections for a superior quality system. All of the products are tracked from material acquisition to the final, ready to use product.



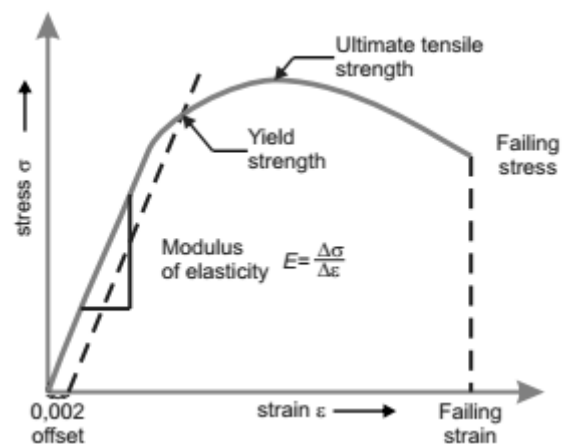
Marking and traceability

All systems have all necessary data for traceability, rebar diameter and product name.



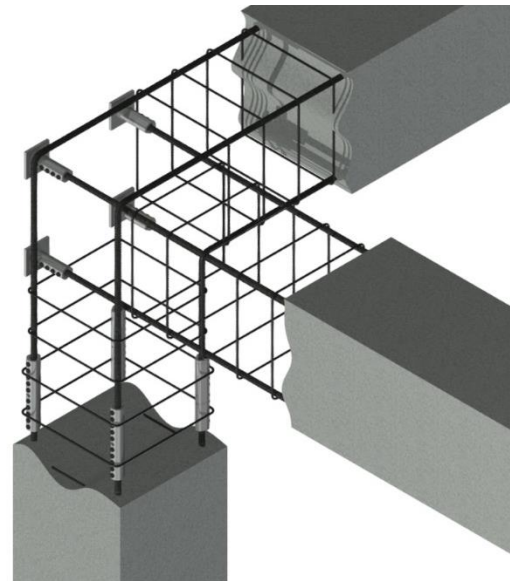
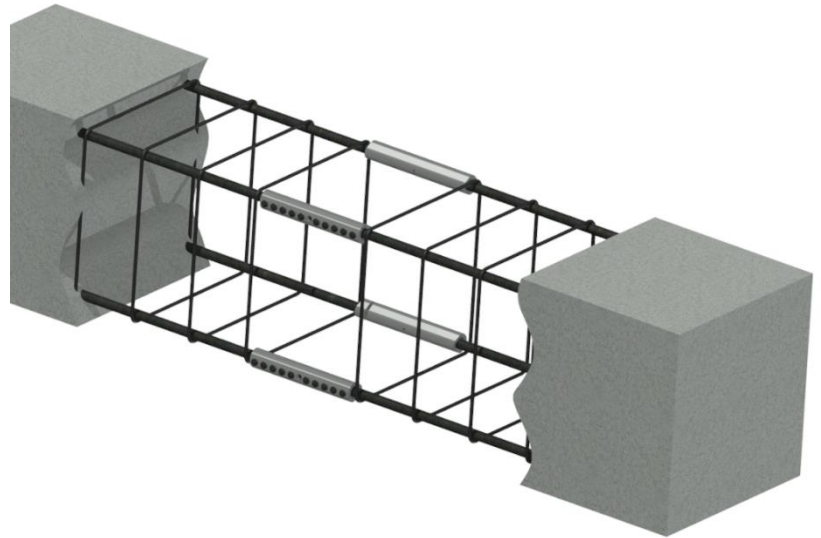
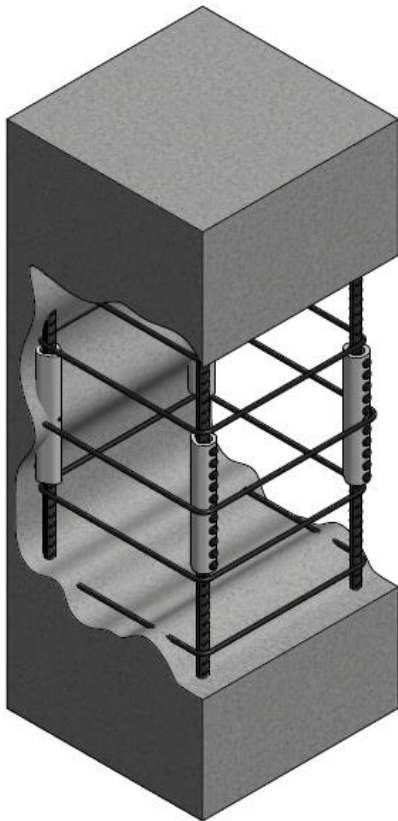
Coupler testing

Terwa rebar couplers are designed to ensure the full transfer of the load to the reinforcement steel and a slip value under 0.1 mm. Terwa periodically tests the system for this in the factory according to the European standards.



THE MAIN APPLICATIONS FOR ALLIGATOR COUPLERS

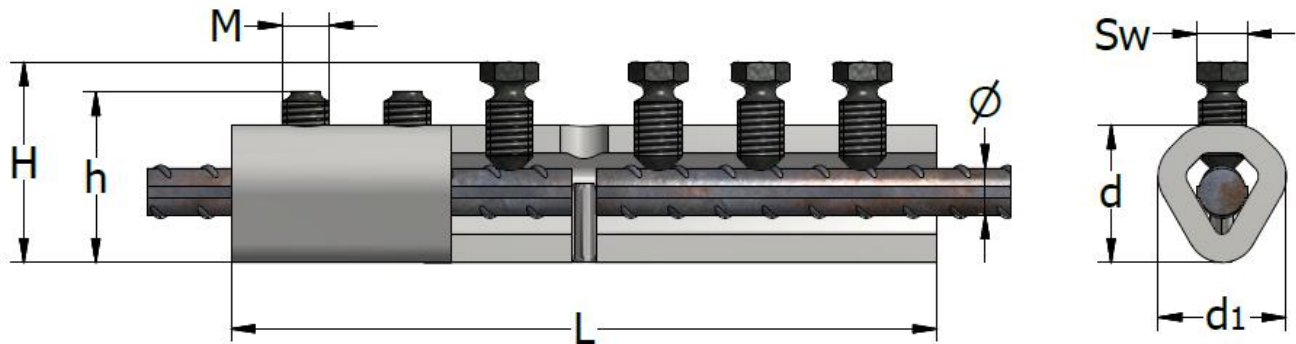
- for column construction
- to extend or repair existing structures
- to connect precast element to precast element
- to close access openings
- for the pre-fabrication of the reinforcing bar cage
- for fatigue applications



ALLIGATOR COUPLING – ALC

The ALLIGATOR COUPLING ALC is used for the connection of reinforcing bars of the same size. The product has a pin and an inspection hole in the middle for correct installation. The breaking bolts are designed to shear off at the torque moment specified in the table below.

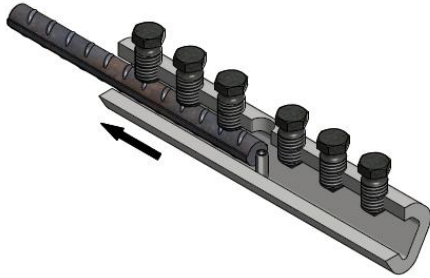
Tighten the bolts using a torque wrench, an impact, electric or pneumatic wrench. Please see page 8-9.



Type ALC	Product no.	Rebar Ø [mm]	Breaking bolt		Breaking bolt thread M	L [mm]	d [mm]	d1 [mm]	H Unruptured Bolt [mm]	h [mm]	SW [mm]	Torque moment [Nm]
			n	Product no.								
10	44633	10	6	50685-1	M12	160	33	34	Max. 46	36	13	95-115
12	44634	12	6	50685-1	M12	180	33	34	Max. 49	39	13	95-115
14-16	43071	14/16	8	50685-1	M12	230	37	38	Max. 55/57	45/47	13	95-115
18	43072	18	10	50685-1	M12	280	44	42	Max. 59	49	13	95-115
20-22	65681	20/22	10	50686-1	M16	290	50	50	Max. 63/67	51/55	17	190-215
25	43075	25	12	50686-1	M16	390	55	54	Max. 72	60	17	190-215
26	63079	26	12	52295	M20	420	63	62	Max. 83	68	22	355-415
28	43076	28	12	52295	M20	420	63	62	Max. 85	70	22	355-415
30	63080	30	14	52295	M20	480	70	69	Max. 87	72	22	355-415
32	43077	32	14	52295	M20	480	70	69	Max. 92	77	22	355-415
36	43078	36	16	52295	M20	540	77	74	Max. 99	84	22	355-415
40	43079	40	18	52295	M20	580	76	74	Max. 101	86	22	355-415

MOUNTING INSTRUCTIONS FOR ALC COUPLER

- Mount the ALLIGATOR COUPLING to the reinforcement steel from one side.

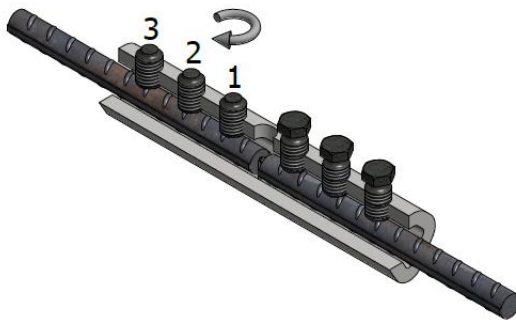


-Place the ALC coupler over the end of the first rebar and tighten the breaking bolt by hand.
- It is important to check the contact between the first rebar and the central stopper pin (visible through the inspection hole).

- Mount the second reinforcement bar in the ALLIGATOR COUPLER and tighten the breaking bolts until it shears off.

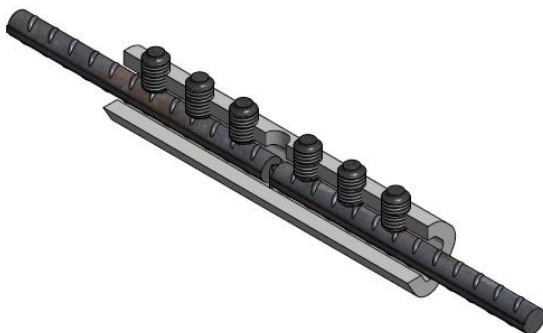


-Insert the second rebar into the coupler.
-Check the contact between the second rebar and the pin.
-Do not lubricate the bolt connection.
-Tighten the breaking bolt by hand.



Tighten the breaking bolts completely using an electric or pneumatic wrench as described on page 8-9. The bolts must be tightened from the centre outwards (1 to 3) until the heads of all the breaking bolts shear off.

- The ALLIGATOR COUPLER in its mounted state.

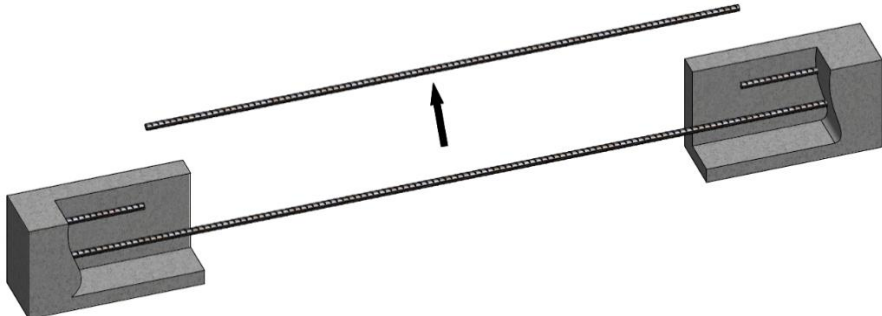
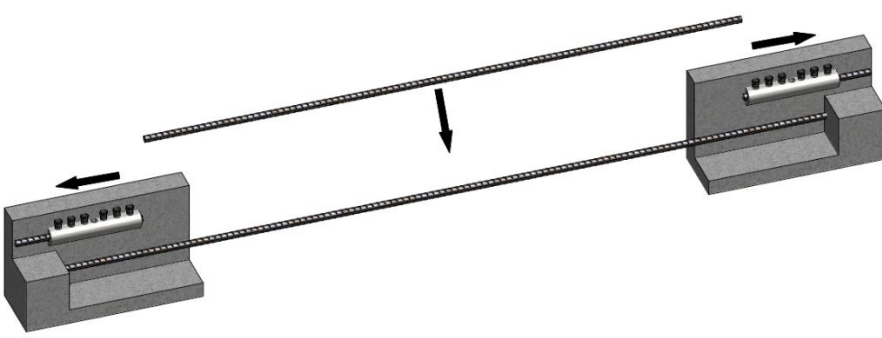
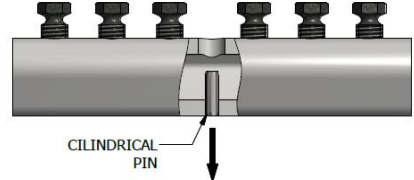
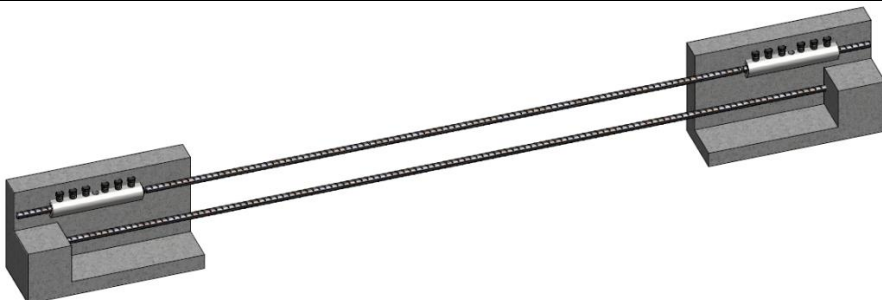
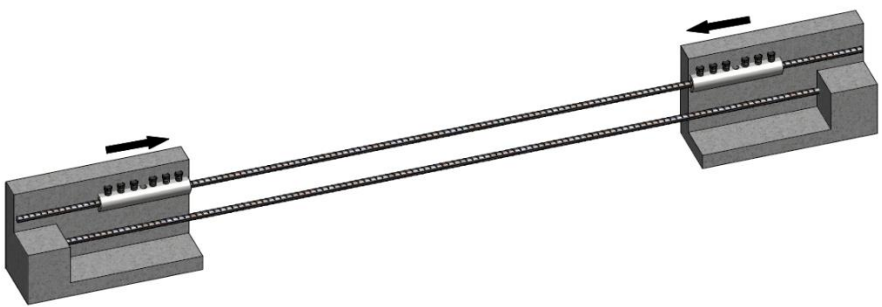
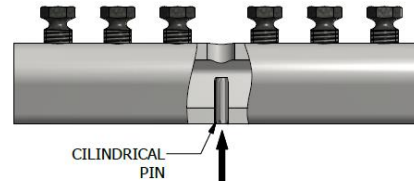
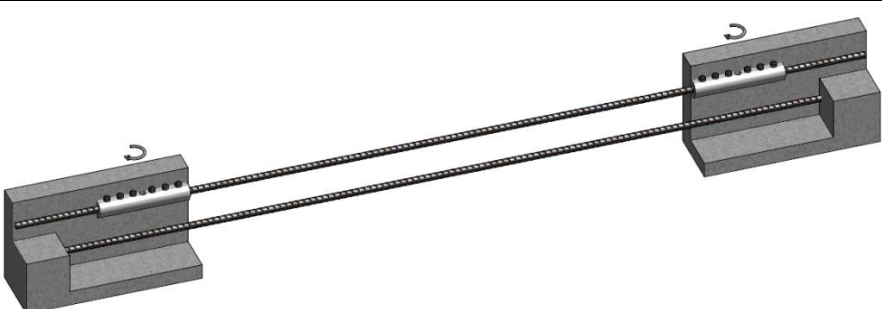


Completed Alligator (ALC) coupler installation after all bolts have been sheared off. Not removing/shearing off a bolt head on one side of the coupler during installation is acceptable provided that the appropriate bolt torque is attained as detailed in the table on page 5. However, the installation is only considered satisfactory if the height H as indicated in the table on page 5 is not exceeded. This must be measured to ensure satisfactory penetration and grip of the reinforcing bar.

Note: When there is not enough space in the element to use a pneumatic or electric wrench, a manual torque wrench can be used to shear the bolt or to achieve the torque momentum according to the table on page 5. We recommend using a torque multiplier for breaking bolts M16 and M20.

The ALC are delivered with the breaking bolts pre-mounted and should not be removed from the coupler. The wrench momentum has to be at least **2x the bolt torque**.

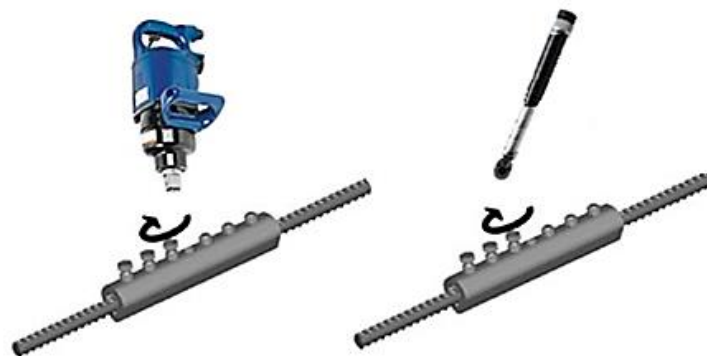
MOUNTING INSTRUCTIONS FOR AN ALC ALLIGATOR COUPLER – REPAIR OF AN EXISTING STRUCTURE

	<p>To repair an existing structure by replacing a corroded or damaged bar, the replacement bar must be cut approximately 5mm shorter to ensure clearance for insertion between the ends of the original bars.</p>
	<p>ALC couplers are pushed fully over both ends of the existing bars and temporarily tightened into position. First remove the pin from the ALC.</p> 
	<p>Then shift the position of the replacement bar and the ALC couplers on the replacement bar by half the length of the coupler. Remount the pin in the ALC.</p>
	
	<p>Then tighten the breaking bolts to shear them off.</p>

TOOLS FOR ALLIGATOR COUPLERS

- Use a high-speed, high-impact electric torque wrench or pneumatic wrench – we recommend a minimum of 1000 Nm.
- Try to prevent additional momentum when mounting/shearing off the bolts.
- When using an air impact wrench, check the air pressure, torque rating and air flow requirements before starting the installation process.
- Removing/shearing off bolt heads is not required if appropriate bolt torque is attained. In this case, please consult the table on page 5; the minimum height “H” has to be reached.
- When there is not enough space in the element to use a pneumatic or electric wrench, a handheld torque wrench can be used to shear the bolt or to attain the torque momentum according to the table on page 5. The wrench momentum has to be a minimum of 2x the breaking bolt torque.
- Using hardened, heavy-duty sockets with a maximum external diameter is recommended; see the table below.

Type ALC	Breaking bolt Thread M	SW / [mm]	Maximum socket wrench diameter /[mm]		
10	M12	13	Ø 26		
12, 14-16, 18	M12	13	Ø 36		
20	M16	17	Ø 27		
22, 25	M16	17	Ø 39		
28, 32, 36, 40	M20	22	Ø 33		



The above-mentioned wrenches with the tooling necessary for shearing off bolts M12, M16 and M20 are available in boxes.



60627

ALC Electric Mounting Kit



60626

ALC Pneumatic Mounting Kit

Aluminium box	Product no.	Type wrench	Torque moment (NM)
1	60627	Electric	1000
2	60626	Pneumatic	1000-1898



CONTACT



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