



Grout Coupler





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Economical Solutions with MOMENT Grout Coupler

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MOMENT Grout Coupler is used for joining together precast concrete elements. It consists of a sturdy one piece steel sleeve suitable for all construction applications, which is then filled with a high strength, flow-able, shrinkage equalized grout to provide a bond between the starter bar and the grout coupler sleeve. Different diameters, variants and thread systems are available to match the exact design conditions of the project. Each of which has a series of accessories to assist with the installation and make sure that no excessive grout leakage can occur.

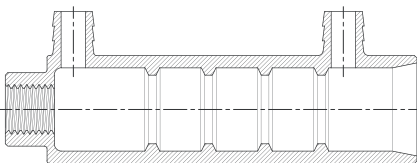
- Robust one piece steel construction limits the number of interfaces that would require quality controls.
- Slender profile provides adequate tolerance for premium precasters whilst minimising the amount of grout required by the on-site assembly crew.
- If used in combination with the precast shoe components in each corner, it can provide a cost effective column connection.

The on-site grouting of the columns can be achieved in two different ways:

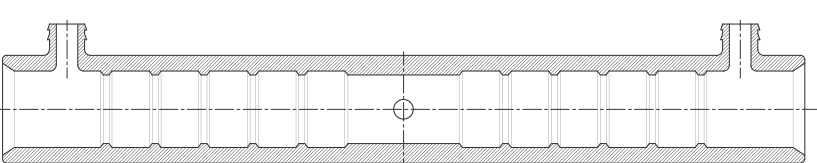
- Single component grouting to provide flexibility on the grout that is then used for filling the mortar bed underneath the column.
- Mass grouting off all the grout couplers and bed joint in one process and with the same grout to reduce overall installation times and increase productivity.



Cross section of
MOMENT Half Grout Coupler



Cross section of
MOMENT Full Grout Coupler



* The actual supply might be varied from the original design but it will not affect the quality performance.

Quality Performance

Efficiency

- Slender coupler body minimises grout use and helps with placement in areas of high steel congestion.

Quality

- Optimised alloy and grout strength to achieve bar-break system performance.
- Tested to provide seismic resistance to ISO 15835.

Geometry

- Chamfered opening to facilitate the installation of misaligned bars.

Installation

- Hexagon shaped threaded area to ensure secure fixing to the rebar for the half grout version.

Performance

- Earthquake resistance.

* The actual supply might be varied from the original design but it will not affect the quality performance.



Advantages for the Design Engineer

- Full bar break system means that the design engineer does not need to make any special allowances for the placement or detailing of the grouted coupler.
- Tested to meet the seismic requirements of ISO15835 to give assurance on plastic hinge formations.
- Transition couplers are also available to step down the bar sizes between columns.



Advantages for the Precast Element Producer

- Full set of accessories to enable fast and secure connection of the grout coupler to the formwork.
- Hexagon profile at the threaded end of the half grout coupler helps to ensure that the bar can be easily and securely fixed to the coupler.
- Slender coupler body means that the grout coupler can still be easily installed in areas of heavy steel congestion.



Advantages for the Assembly Crew on site

- Leviat's long standing experience in selling grouted couplers makes us the ideal partner to provide bespoke advice on the most efficient grouting process for you to use.
- Optimised grouting will not only reduce the manpower required on site but will also reduce the construction programme.
- A chamfered opening assists in the placement of rebars in case of small misalignments.



Advantages for the Purchaser

- Leviat's broad range of specialist precast products mean that all the necessary precast accessories can be acquired from a single source, significantly simplifying the logistics and paperwork.
- Alternative thread profiles for the half grout coupler are available making it possible to align the coupler with any Leviat threading machinery that is already on site.



MOMENT Half Grout Coupler

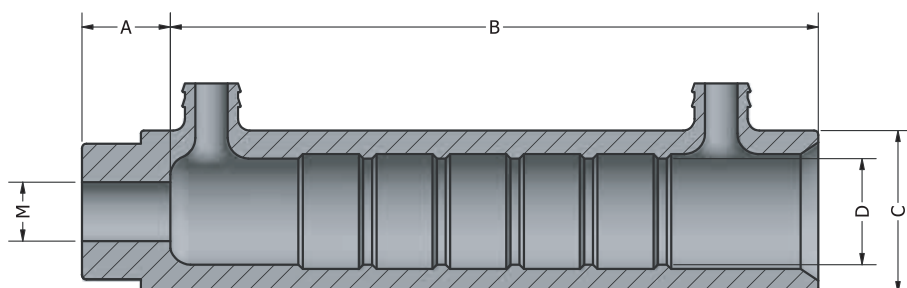


The MOMENT Half Grout Coupler is a mechanical splicing system intended to be used to connect precast elements.

At one end, the coupler receives a threaded rebar, whereas the other end provides the flexibility of a grout system. It consists of a one piece design and the coupler is capable of resisting an equivalent bar stress of more than 700MPa.



When used in conjunction with MOMENT's proprietary grout, the system will be able to achieve bar break.



Applications

This coupler can be used for connecting precast elements either horizontally or vertically. The elements can consist of walls, columns, beams etc.

Benefits

- Grout cavity includes taper for easy installation.
- Hexagon shape feature for easy assembly onto rebar.
- Combines the use of MOMENT JT threaded system as standard and other thread profiles are available on request.



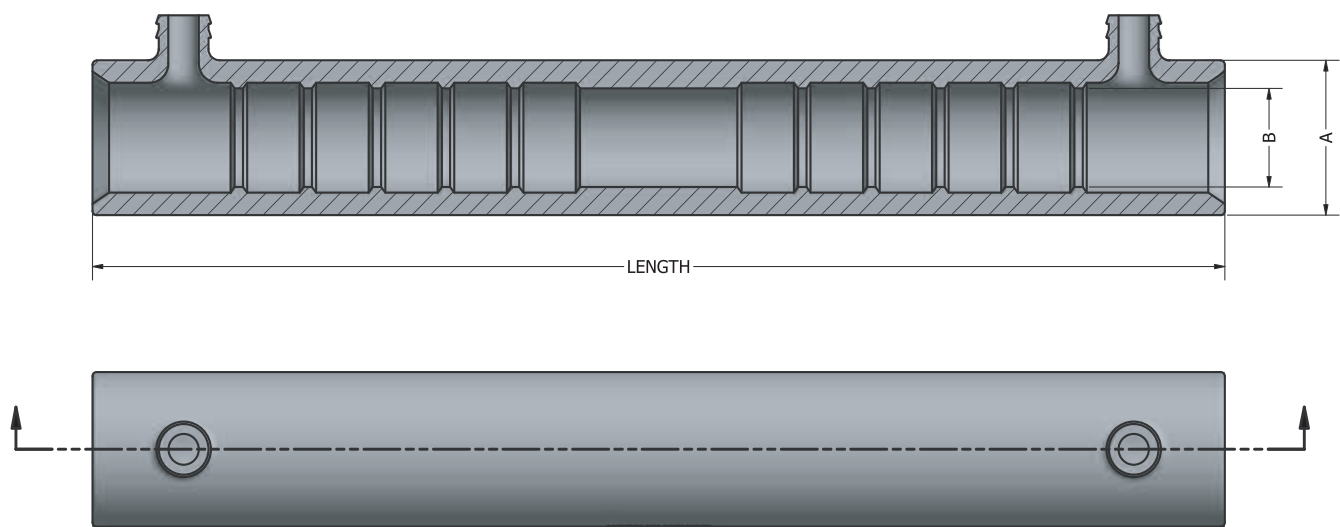
Dimensions and Availability

Item	Product Code	Rebar	A	B	C	D	M	Length (mm)	Minimum Insertion
1	HGC 12	12	18	116	35	24	M16 x P2.0	134	96
2	HGC 16	16	20	148	40	26	M20 x P2.5	168	128
3	HGC 20	20	25	180	46	30	M24 x P3.0	205	160
4	HGC 25	25	30	220	55	35	M30 x P3.5	250	200
5	HGC 28 or 32	28/32	38	276	71	45	M33 x P3.5 / M36 x P4.0	314	256
6	HGC 36 or 40	36/40	45	340	86	54	M42 x P4.5 / M45 x P4.5	385	320

MOMENT Full Grout Coupler



Complementing the MOMENT Half Grout Coupler, the MOMENT Full Grout Coupler can be used either for precast or in-situ connections where additional tolerance is needed, or if the reinforcing bars cannot be threaded.



Dimensions and Availability

Item	Product Code	Rebar	A	B	Length (mm)	Minimum Insertion
1	FCG 12	12	35	24	200	96
2	FCG 16	16	40	26	265	128
3	FCG 20	20	46	30	330	160
4	FCG 25	25	55	35	410	200
5	FCG 28 or 32	28/32	71	45	522	256
6	FCG 36 or 40	36/40	86	54	650	320

Note: Latest version will include centre pin. Please ask us for information.



Testing performed at DNV-GL's Laboratory with the 2500kN Dynamic UTM and Video Extensometer. Photo courtesy of DNV – GL Singapore Pte Ltd

To ensure fitness for purpose there are a number of tests that should be carried out and a wide variety of international standards that can be tested against.

The tests that are generally covered are for strength, slip, high stress/low cycle (seismic), medium stress/medium cycle and low stress/high cycle (vibration). However, we go beyond the standard tests to ensure that our coupler products are tested to meet the exact requirements of your application such as impact toughness or high acceleration loading.

Each engineer, should take care to ensure that the specification on the project is written in order to ensure that the correct coupler is selected.

For additional guidance on the correct selection, please contact your local technical representative.

The most widely accepted international standards are:

- I) ISO 15835
- II) AC133 (which defines test regimes for ACI318 compliance)

However, there are a number of other national standards that stipulate mechanical splice requirements, such as:

- I) IS 16172-2014
- II) BS 8110-1997
- III) NZS 3101-2006
- IV) NF 35-020

MOMENT couplers are manufactured in accordance with the highest standards of quality and conformance to ensure their suitability regardless of the in service conditions.

Accessories



Position Plug

Position plug is used to secure both MOMENT Full Grout Coupler and MOMENT Half Grout Coupler onto the formwork at precast factory. It can be used for several times.



Spring

The spring is used for both MOMENT Grout Coupler variation when contractor opt for individual grouting method. The purpose of the spring is to prevent grout leakage on site. It is only for one-time use.



End Seal

Used together with the spring, the end seal is used for both variations when a contractor opts for individual grouting method. The purpose of the end seal too is to prevent grout leakage on site. It can only be used once.



End Cap

The end cap is specifically used for MOMENT Full Grout Coupler. This one-time use accessory will be supplied along with the MOMENT Full Grout Coupler. The end cap is designed to prevent concrete from entering the grout coupler while installation at the precast factory.



Dust Cap

Dust Cap is used in precast factory to cover the end of the grout coupler to prevent dirt from entering before site installation. This single use item will be supplied along both MOMENT Full Grout Coupler and MOMENT Half Grout Coupler.



Clear Hose

The clear hose is used to create a grouting channel from the outside of the precast element to the grout coupler. This will be done in the precast factory. The clear hose can only be used once together with both variants of the MOMENT Grout Coupler.

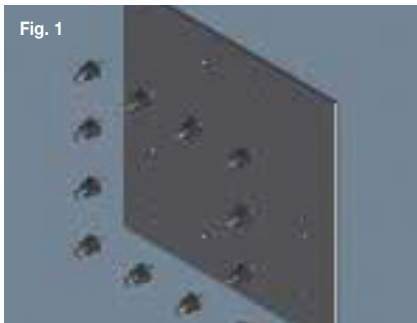


Hose Cap (RT20)

Hose cap is a stopper for the clear hose that is used to prevent grout from overflowing. This single-use item will be used on site for both variants of the MOMENT Grout Coupler.

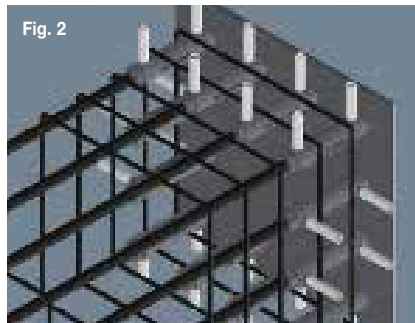
Installation Instruction

In the Precast Yard



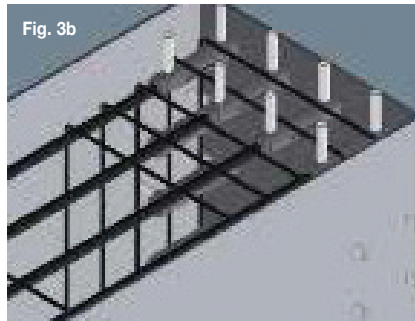
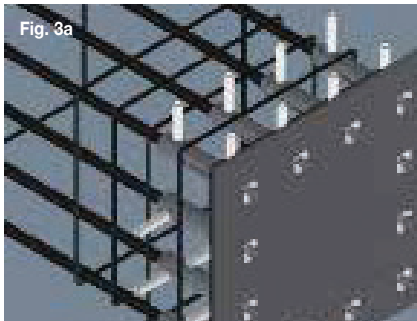
Step 1

Install the position plug onto the formwork.



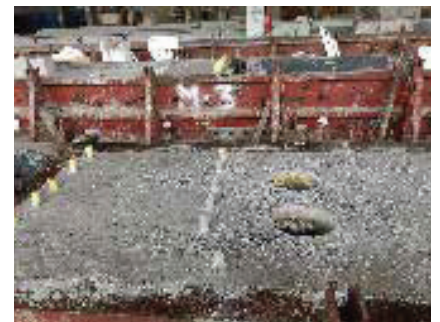
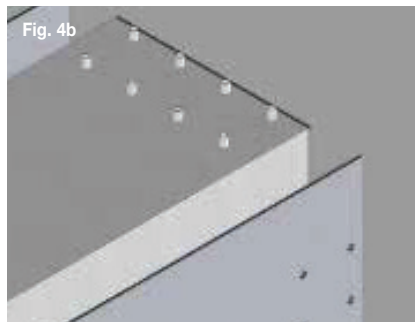
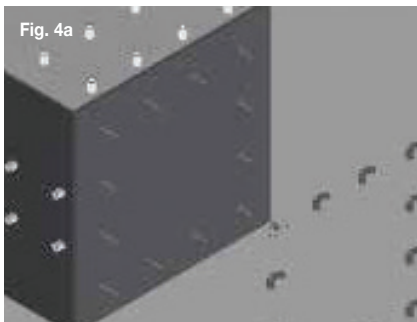
Step 2

Install the grout hose on the MOMENT Grout Coupler. Then slide onto the position plug. Screw in the wing nut. For MOMENT Full Grout Coupler, additional accessory would be needed (end cap).



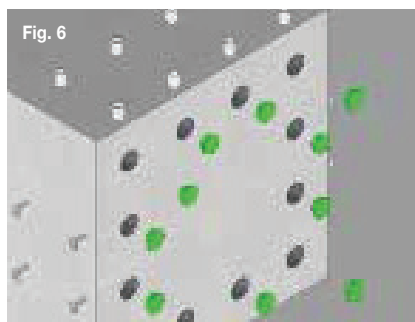
Step 3

Tighten the wing nut (Fig. 3a). Attach the rest of the formwork (Fig. 3b). Additional grouting hoses are necessary for mass grouting method.



Step 4

After casting, remove the wing nut, washer and formwork.



Step 5

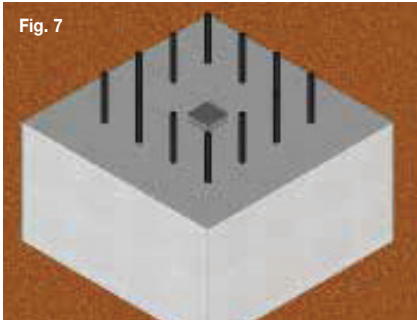
Remove the position plug. This part is reusable.

Step 6

Attach dust cap.

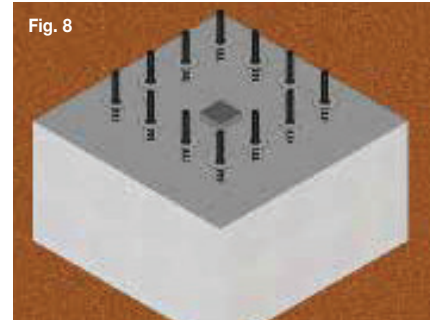
Installation Instruction

Individual grouting on the construction site



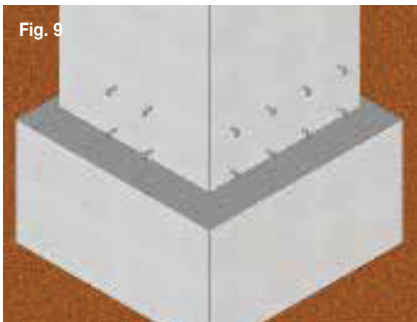
Step 1

Cast starter bars into the foundation.



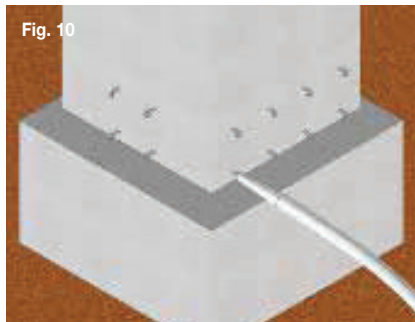
Step 2

For individual coupler grouting method, insert the spring and end seal.



Step 3

Remove the dust cap. Lower the column onto the starter bars, leaving a small gap to the foundation.



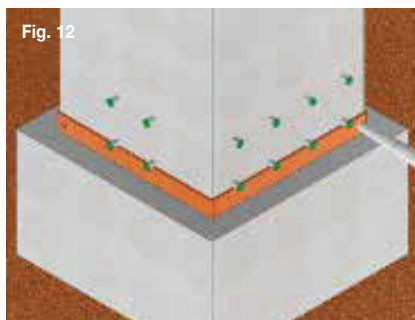
Step 4

Pump the grout into the lower grouting hole of the coupler.



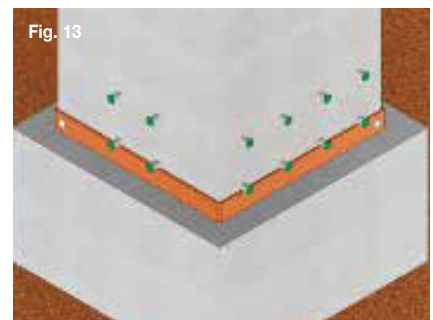
Step 5

Once the grout overflows from the upper grouting hole of the coupler, close the upper and lower hole using hose cap. Repeat steps 4 and 5 for the remaining couplers.



Step 6

Once the grout is cured, attach the base formwork and start pumping the grout into the base.

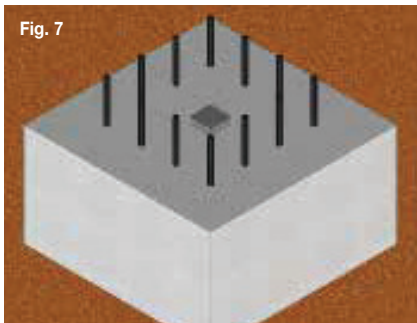


Step 7

Once the grout overflows from the formwork hole, close both holes using a suitable method. Repeat step on Fig. 10 and Fig. 11. for the remaining couplers.

Installation Instruction

Mass grouting on the construction site



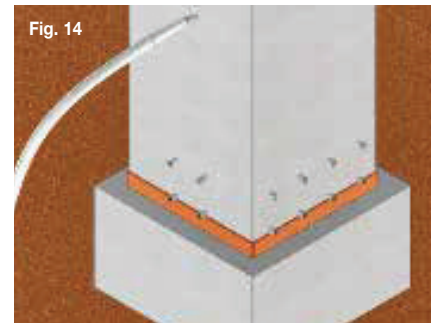
Step 1

Cast the starter bars into the foundation.



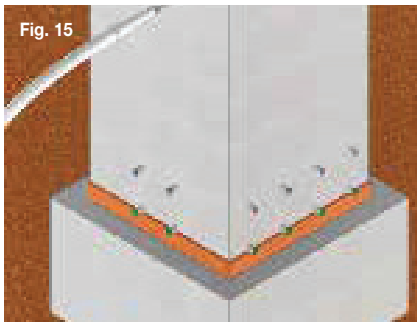
Step 2

Remove the dust cap. Lower the column onto the starter bars, leaving a small gap to the foundation.



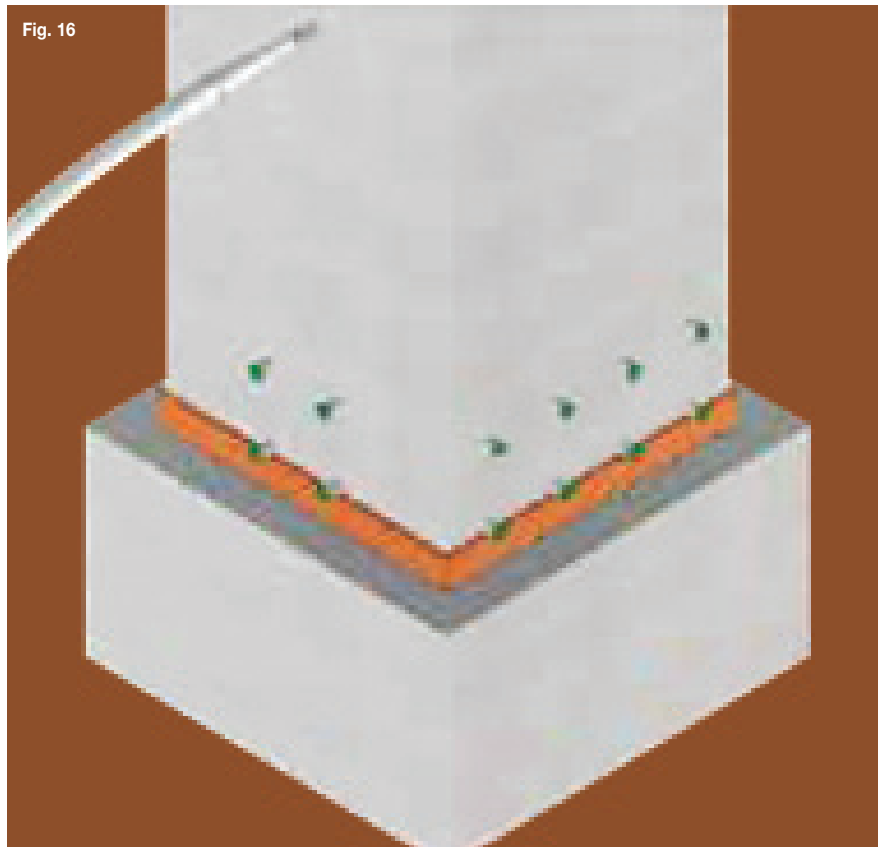
Step 3

Attach the base formwork and start pumping the grout into the grouting hose.



Step 4

Once the grout overflows from the lower and upper grouting holes of the coupler, close the hole using the hose cap.



Step 5

Continue pumping until the grout overflows from the opposite side grouting hose. Then, close the grouting hose holes using a suitable method.

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