

Plaka MBT coupler

Reinforcement Continuity Connecting System



Leviat®

We imagine, model and make engineered products and innovative construction solutions that help turn architectural visions into reality and enable our construction partners to build better, safer, stronger and faster.

Leviat is a world leader in connecting, fixing, lifting and anchoring technology.

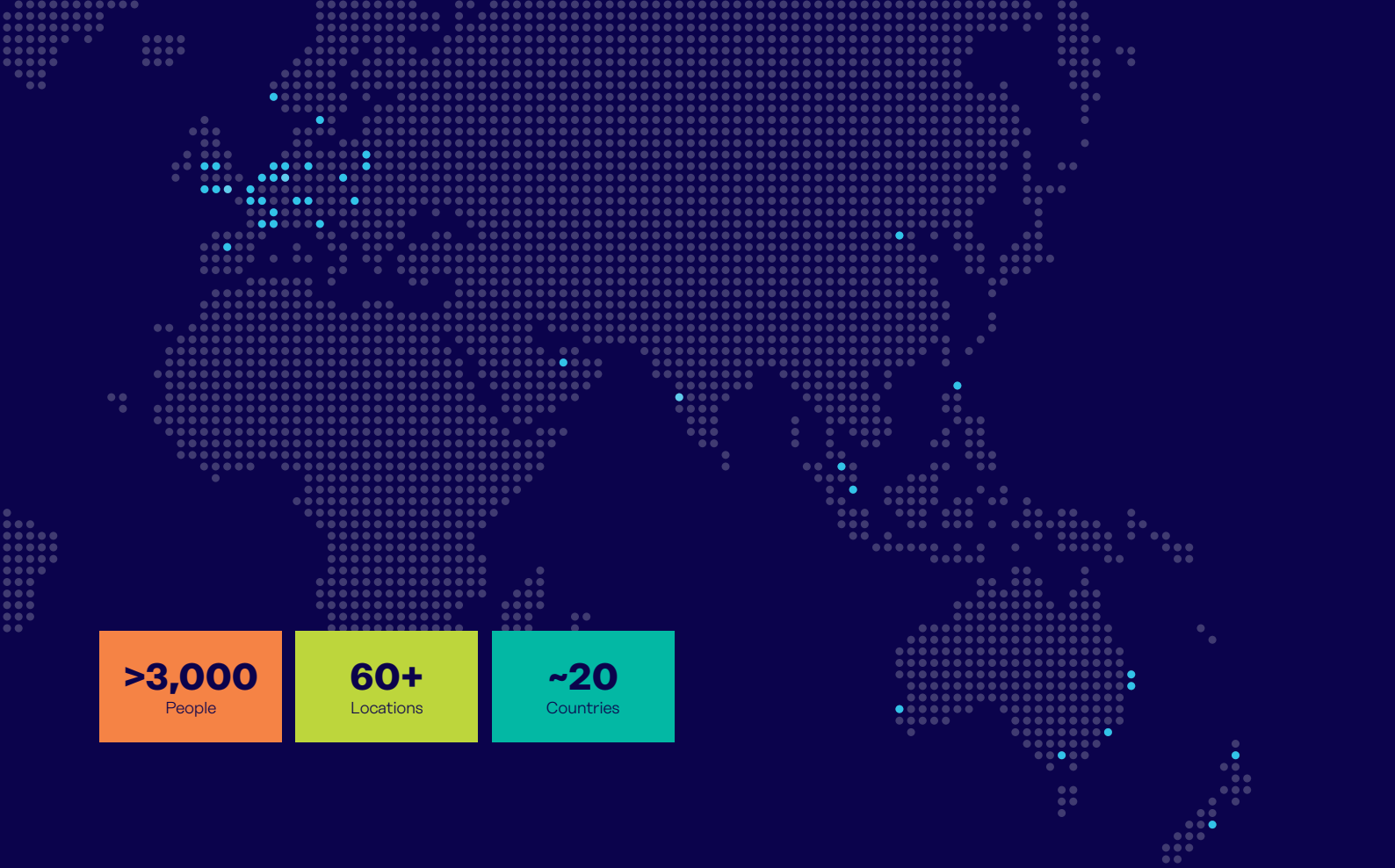
From the build of new schools, hospitals, homes and infrastructure, to the repair and maintenance of heritage structures, our engineering skills are making a difference around the world.

We provide technical design assistance at every stage of a project, from initial planning to installation and beyond.

Our technical support services range from simple product selection through to the development of a fully customised project-specific design solution.

Every promise we make locally, has the commitment and dedication of our global team behind it. We employ almost 3,000 people at 60 locations across North America, Europe and Asia-Pacific, providing an agile and responsive service worldwide.



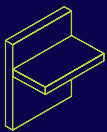


>3,000
People

60+
Locations

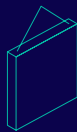
~20
Countries

Our areas of expertise:



Structural Connections

Systems to form robust, efficient connections, and continuity of concrete reinforcement as necessary, between walls, slabs, columns, beams and balconies, providing structural integrity as well as enhanced thermal and acoustic performance.



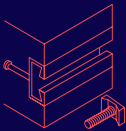
Lifting & Bracing

Systems for the safe and efficient transportation, lifting and temporary bracing of cast concrete elements and tilt-up panels before permanent structural connections are made.



Façade Support & Restraint

Systems for the safe and thermally-efficient fixing of the external building envelope, including brick and natural stone, insulated sandwich panels, curtain walling and suspended concrete façades, and also the repair and strengthening of existing masonry installations.



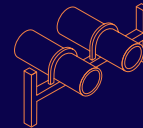
Anchoring & Fixing

Systems for fixing secondary fixtures to concrete, including anchor channels, bolts and inserts; also tension rod systems for roofs and canopies.



Formwork & Site Accessories

Non-structural accessories that complement our engineered solutions and help keep your construction environment operating safely and efficiently, including moulds for casting standard and special concrete elements and construction essentials such as reinforcing bar spacers.

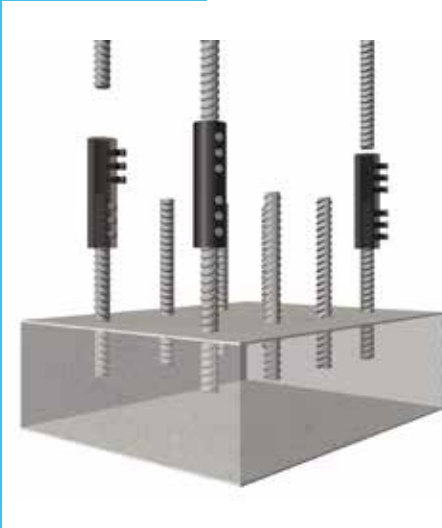


Industrial Technology

Mounting channels, pipe clamps and other versatile framing systems that provide safe fixing in a wide range of industrial applications.

Leviat product ranges:

Ancon | Aschwanden | Connolly | Halfen | Helifix | Isedio | Meadow Burke | Modersohn | Moment | Plaka | Scaldex | Thermomass



Couplers

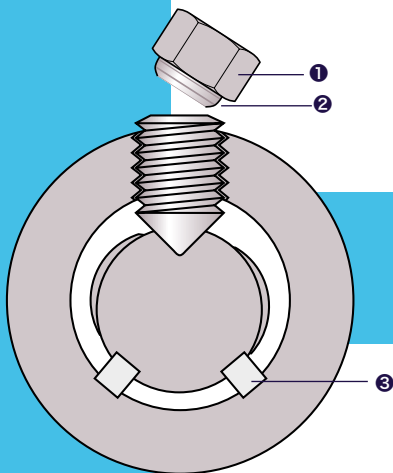
Couplers simplify the design and construction of structures made from reinforced concrete and reduce the amount of reinforcing steel required.

Overlapping of the rebar depends on the transfer of the forces in the concrete. A mechanical coupler works independently from the concrete surrounding it and will therefore retain its mechanical properties when the surrounding concrete is lost as a result of the effects of earthquakes.

The series of MBT couplers enables economic connection of the reinforcing, in particular when one of the bars is already set in concrete and it would not be practical or possible to use a bar swaging device. The MBT couplers are easy to use and enable a breaking force to be obtained that reaches more than 115% of the elasticity limit of steel B500B. Neither preparation of the ends nor twisting of the reinforcing bars is required. The MBT couplers can be used for connecting both smooth and ribbed steel.

The ends of the reinforcing bars lie inside the coupler on two serrated bars and the conical points of the bolts penetrate the reinforcing bars when the lockshear bolts are tightened. The teeth on the serrated bars penetrate the reinforcing bars at the same time. The lockshear bolts on couplers up to type ET20 can be tightened manually with the help of a ratchet spanner. The use of an electric or pneumatic screwing tool for the larger types is recommended.

Reinforced screw caps must be used in all cases. When the optimal tightening moment has been reached, a groove in the bolt causes its head to shear off so that the rest of the bolt does not stick too far out of the coupler. This allows a quick visual inspection of the connection.

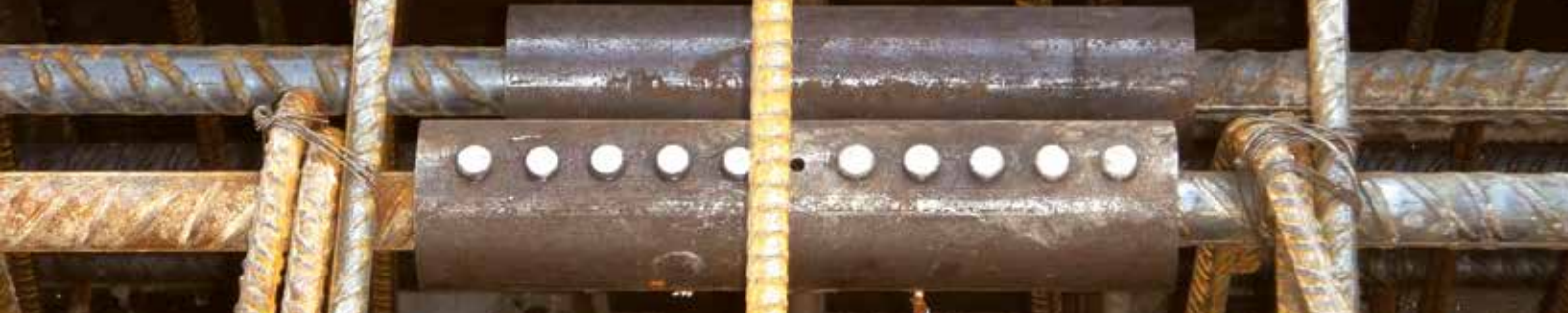


Cross-section showing the penetration of the lockshear bolt and the serrated bars in the reinforcing bar and the body of the coupler.

- ① Lockshear bolts
- ② Groove to check tightening
- ③ Serrated bar

Advantages

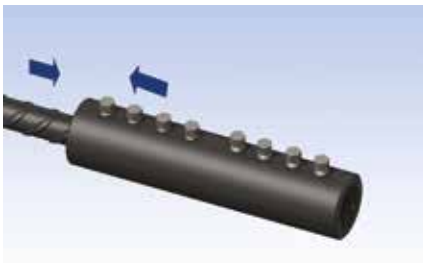
- No overlapping reinforcing bars required, so saves space and material
- The ends of the reinforcing bars require no extra treatment
- The reinforcing bars can also be coupled to bars already concreted



MBT coupler Application



Instructions for use



Slide the coupler over one reinforcing bar. The head of the bar must be in the middle of the coupler with ± 6 mm tolerance. Tighten the lockshear bolts by hand until they make contact with the bar. Check the alignment and improve if necessary.



Slide the other bar into the coupler until it touches the first one. Tighten the lockshear bolts by hand until they make contact with the bars. Check the alignment and improve if necessary.



Finish tightening the lockshear bolts with a ratchet spanner or a tightening tool. Do not use any tools that vibrate. Tighten the bolts alternately in two goes (first every other bolt, then the rest) until the hexagonal heads shear off.

Testing & certification



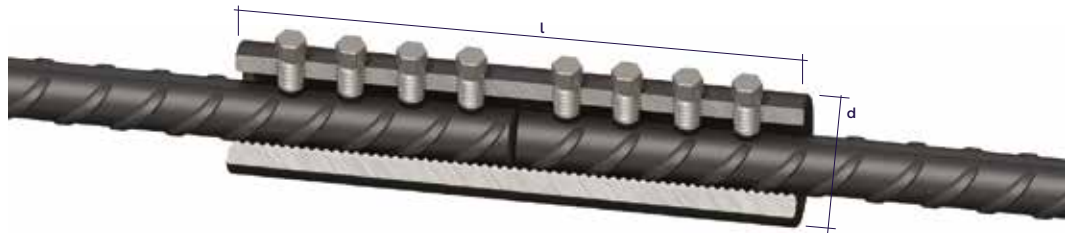
The producer regularly carries out tensile tests on couplers from his stock. The ET couplers have been designed and produced in accordance with the BS EN ISO 9001 quality standard. The most standard types have been certified by the BBA (British Board of Agreement) under No. 98/R102 for use in bridges and roads. Types ET10 to ET28 have also been certified by the German organisation DIBt and make up part of the Nr Z-1.5-10 certificate. Tests were also carried out in order to show that they conform to the international reference standards BS5400, BS8110, ACI318, DIN 1045 and SP SITAC 1002 (Sweden).

Note: The technical advice and the certificates are not applicable to all types and dimensions of couplers presented in this prospectus. Please refer to the corresponding certificate that is available upon request for details of types and dimensions for which all technical advice or national certification is applicable.

MBT coupler Various types

Series MBT coupler type ET

The ET coupler is used for connecting bars of the same diameter.



Dimensions of the ET coupler

Ø of the rebar (mm)	10	12	14	16	20	25	28	32	40
Outside Ø of the coupler 'd' (mm)	33,4	33,4	42,2	42,2	48,3	54,0	66,7	71,0	81,0
Length of the coupler 'l' (mm)	100	140	160	160	204	258	312	312	484
Type of threaded coupler*	½	½	½	½	½	⅝	⅝	⅝	¾
# lockshear bolts	4	6	6	6	8	8	10	10	14
Weight (kg)	0,52	0,72	1,25	1,25	1,96	3,00	5,80	6,50	11,30
Article code	BRMBT10	BRMBT12	BRMBT14	BRMBT16	BRMBT20	BRMBT25	BRMBT28	BRMBT32	BRMBT40

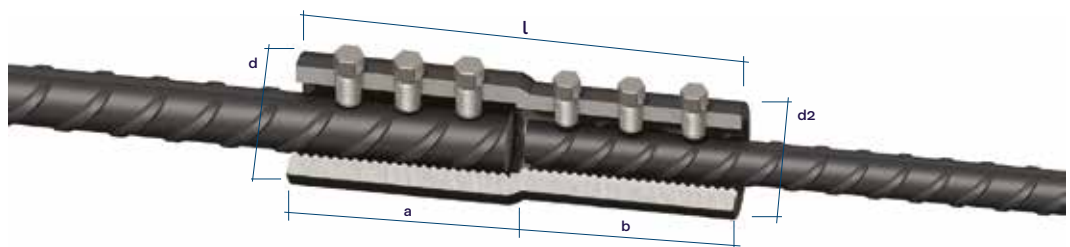
Note: *key width of hexagonal head expressed in inches

Other dimensions available upon request. Please contact us for more information.

Reducing coupler type MR

The MR coupler enables a connection to be made between reinforcing bars with two different diameters. It has the same advantages as the ET couplers and also enables a breaking force to be obtained that reaches more than 115% of the elasticity limit of steel B500B.

It can be used without preparation on the ends of the reinforcing bars as well as without the reinforcing being twisted. The coupler may be positioned in such a way that the lockshear bolts can be easily reached. The lockshear bolts are tightened using a ratchet spanner or a tightening tool. Reinforced screw caps must be used in all cases. The reducing couplers are never stocked but are produced upon request.



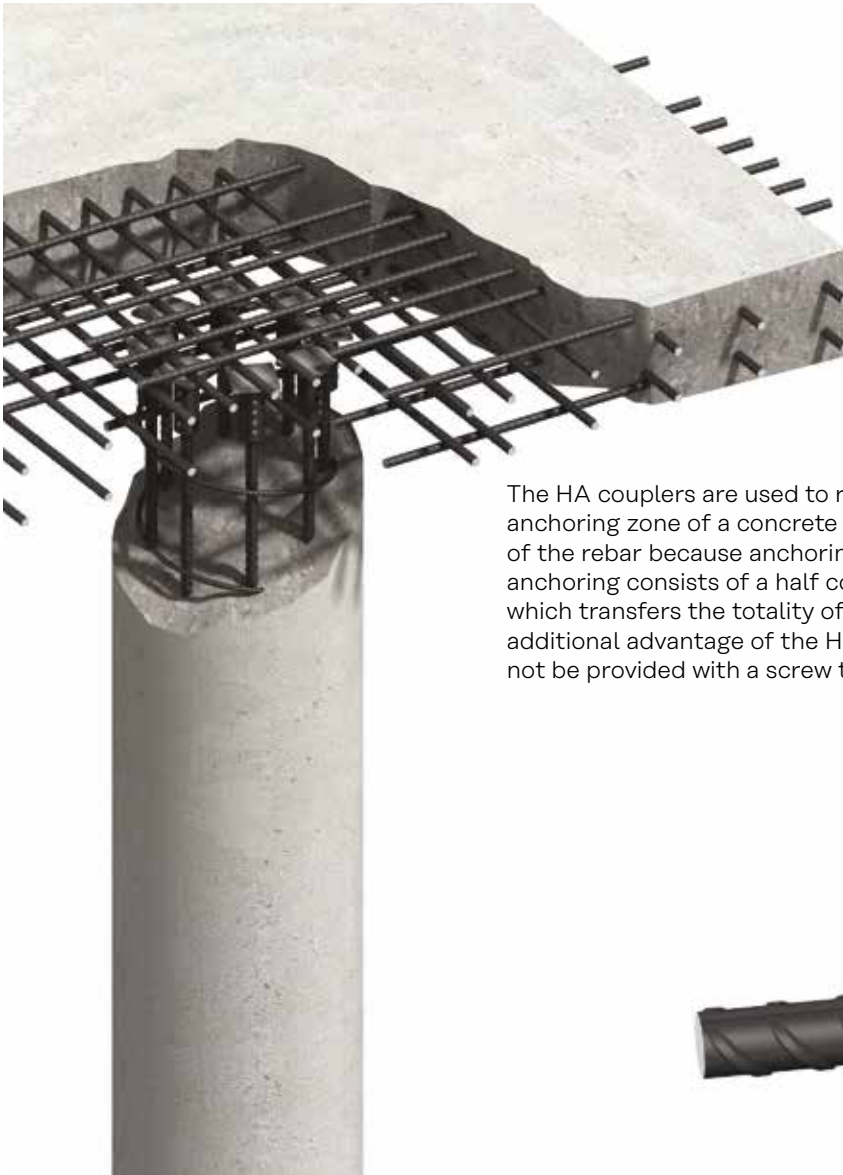
Dimensions of the MBT reducing coupler

Ø of the rebar (mm)	16/12	16/14	20/16	25/20	28/25	32/25	32/28	40/32
Outside Ø of the coupler 'd' (mm)	42,2	42,2	48,3	54,0	66,7	71,0	71,0	81,0
Outside Ø of the coupler 'd2' (mm)	26,4	42,2	48,3	54,0	54,0	54,0	66,7	71,0
Total length of the coupler 'l' (mm)	160	160	160	180	258	231	286	335
Individual length a-b (mm)	80-80	80-80	80-80	90-90	129-129	102-129	130-156	178-157
Type of threaded coupler* a:b	½:½	½:½	½:½	⅝:½	⅝:⅝	⅝:⅝	⅝:⅝	¾:⅝
# lockshear bolts a:b	3:3	3:3	3:3	3:3	4:4	3:4	4:5	5:5
Weight (kg)	1,30	1,25	1,56	2,23	3,98	3,70	5,71	7,47
Article code	BRMR1612	BRMR1614	BRMR2016	BRMR2520	BRMR2825	BRMR3225	BRMR3228	BRMR4032

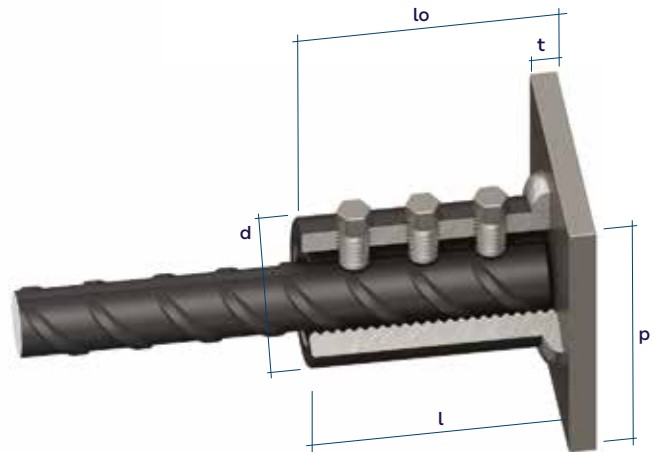
Note: *key width of hexagonal head expressed in inches

MBT coupler Various types

Anchoring coupler type HA



The HA couplers are used to reduce the concentration of steel in the anchoring zone of a concrete element and they simplify the positioning of the rebar because anchoring with bent bars is avoided. This type of anchoring consists of a half coupler from the ET series welded to a plate which transfers the totality of the loads in the adjacent concrete. An additional advantage of the HA coupler is that the ends of the bars need not be provided with a screw thread or require any other treatment.



Dimensions of the MBT anchoring

Ø of the rebar (mm)	12	14	16	20	25	28	32	40
Outside Ø of the coupler 'd' (mm)	33,4	42,2	42,2	48,3	54,0	66,7	71,0	81,0
Length of the coupler 'l' (mm)	75	82	82	104	129	156	156	247
Length of the coupler 'lo' (mm)	85	92	92	114	139	168	171	262
Length of the plate 't' (mm)	10	10	10	10	10	12	15	15
Plate length x width 'p' (mm)	70	70	80	90	100	110	130	150
Type of threaded coupler*	½	½	½	½	⅝	⅝	⅝	¾
# lockshear bolts	3	3	3	4	4	5	5	7
Weight (kg)	0,74	1,01	1,07	1,58	2,29	4,14	4,72	8,30
Product code	BRHA12	BRHA14	BRHA16	BRHA20	BRHA25	BRHA28	BRHA32	BRHA40

Note: *key width of hexagonal head expressed in inches. Concrete pressure resistance in the anchoring zone at least 25 N/mm².

MBT coupler Screwing tools



Electric tightening tool

An electric tightening tool to simplify the use of MBT couplers is available on request. Regular and progressive tightening of the bolts avoids premature shearing of the hexagonal heads of the lockshear bolts, as well as damage to the screw thread.

This tool must be used in combination with specially strengthened caps. Please contact us for more information.

Note: The use of vibrating tools to tighten the lockshear bolts is not permitted. The reinforced couplers must be used in all cases.



Lockshear bolts					
Coupler Type	Bolt thread	Coupler		Fracture torque (Nm)	Lever* (mm)
		Type	Code		
T 10	M 10	1/2"	BRD1620	55	300
T 12	M 10	1/2"	BRD1620	55	300
T 16	M 12	1/2"	BRD1620	108	600
T 20	M 12	1/2"	BRD1620	108	600
T 25	M 16	5/8"	BRD2532	275	1100
T 32	M 16	5/8"	BRD2532	360	1500
T 40	M 20	3/4"	BRD40	525	2100

(*) The length of the lever given causes a fracture in the bolt at a force of about 250 N

MBT coupler Applications



MBT coupler

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Contact Leviat worldwide

Australia

98 Kurrajong Avenue,
Mount Druitt, Sydney, NSW 2770
Tel: +61 - 2 8808 3100
Email: info.au@leviat.com

Austria

Leonard-Bernstein-Str. 10
Saturn Tower, 1220 Wien
Tel: +43 - 1 - 259 6770
Email: info.at@leviat.com

Belgium

Industrielaan 2
1740 Ternat
Tel: +32 - 2 - 582 29 45
Email: info.be@leviat.com

China

Room 601 Tower D,
Vantone Centre
No. A6 Chao Yang Men Wai Street
Chaoyang District
Beijing P.R. China 100020
Tel: +86 - 10 5907 3200
Email: info.cn@leviat.com

Czech Republic

Pekařská 695/10a
155 00 Praha 5
Tel: +420 - 311 - 690 060
Email: info.cz@leviat.com

Finland

Vädursgatan 5
412 50 Göteborg / Sweden
Tel: +358 (0)10 6338781
Email: info.fi@leviat.com

France

Carré Pleyel
5, Rue Pleyel
93200 Saint Denis
Tel: +33 (0)5 34 25 54 82
Email: info.fr@leviat.com

Germany

Liebigstrasse 14
40764 Langenfeld
Tel: +49 - 2173 - 970 - 0
Email: info.de@leviat.com

India

Unit S4, 902, A Wing,
Lodha iThink Techno Campus Building,
Panchpakhadi, Pokharan Road 2,
Thane, 400606
Tel: +91-022 695 33700
Email: info.in@leviat.com

Italy

Via F.lli Bronzetti 28
24124 Bergamo
Tel: +39 - 035 - 0760711
Email: info.it@leviat.com

Malaysia

28 Jalan Anggerik Mokara 31/59
Kota Kemuning,
40460 Shah Alam Selangor
Tel: +603 - 5122 4182
Email: info.my@leviat.com

Netherlands

Slachthuisweg 10
7556 AX Hengelo
Tel: +31 - 74 - 267 14 49
Email: info.nl@leviat.com

New Zealand

246D James Fletcher Drive, Otahuhu,
Auckland 2024
Tel: +64 - 9 276 2236
Email: info.nz@leviat.com

Philippines

27F Office A, Podium West Tower,
12 ADB Avenue, Ortigas Center
Mandaluyong City, 1550
Tel: +63 - 2 7957 6381
Email: info.ph@leviat.com

Poland

ul. Głogowska 151
60-206 Poznań
Tel: +48 - 61 - 622 14 14
Email: info.pl@leviat.com

Singapore

10 Benoi Sector,
Singapore 629845
Tel: +65 - 6266 6802
Email: info.sg@leviat.com

Spain

Poligono Industrial Santa Ana
c/ Ignacio Zuloaga, 20
28522 Rivas-Vaciamadrid
Tel: +34 - 91 632 18 40
Email: info.es@leviat.com

Sweden

Vädursgatan 5
412 50 Göteborg
Tel: +46 - 31 - 98 58 00
Email: info.se@leviat.com

Switzerland

Grenzstrasse 24
3250 Lyss
Tel: +41 (0)800 22 66 00
Email: info.ch@leviat.com

United Arab Emirates

RA08 TB02, PO Box 17225
JAFZA, Jebel Ali, Dubai
Tel: +971 (0)4 883 4346
Email: info.ae@leviat.com

United Kingdom

President Way,
President Park,
Sheffield S4 7UR
Tel: +44 - 114 275 5224
Email: info.uk@leviat.com

USA / Canada

6467 S Falkenburg Road
Riverview, FL 33578
Tel: (800) 423-9140
Email: info.us@leviat.us

For countries not listed
Email: info@leviat.com

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