

Leviat[®]
A CRH COMPANY

Australian Edition



Ancon[®]
Stainless Steel
Reinforcement and
Round Bars

for the Construction Industry

December 2021



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Leviat is the new name of CRH's construction accessories companies worldwide.

Under the Leviat brand, we have united the expertise, skills and resources of Ancon and its sister companies to create a world leader in fixing, connecting and anchoring technology.

The products you know and trust will remain an integral part of Leviat's comprehensive brand and product portfolio. As Leviat, we can offer you an extended range of specialist products and services, greater technical expertise, a larger and more agile supply chain and better, faster innovation.

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Leviat[®]
A CRH COMPANY

Innovative engineered products and construction solutions that allow the industry to build safer, stronger and faster.



Stainless Steel Reinforcement

A comprehensive range of stainless steel reinforcing bar is available from Leviat.

Stainless steel offers many advantages to the specifier and its use in the Construction Industry continues to increase. Stainless steel reinforcement ensures a high degree of corrosion resistance without requiring additional protection.



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Stainless Steel Reinforcement

Leviat offers a complete range of stainless steel reinforcement for the construction industry. These include both plain round bars (Ancon Staibar) and ribbed reinforcing bars (Ancon Stairib).

Plain Bar

Ancon Staibar 304/Ancon Staibar 316 -

An austenitic stainless steel reinforcing bar with a 0.2% proof stress of 205MPa and an ultimate tensile stress of 220MPa. It can be used for structural engineering purposes. It is particularly suited for highly corrosive environments such as in marine locations. It is best used in applications where high strength and corrosion resistance are required.

Ribbed Bar

Ancon Stairib 304 - An austenitic stainless steel reinforcing bar with a minimum 0.2% proof stress of 500MPa and an ultimate tensile stress of 550MPa. It can be used for both concrete reinforcement and structural engineering purposes.

Ancon Stairib 304 conforms to BS 6744:2016, Austenitic stainless steel bars for the reinforcement of concrete, for Grade 500 reinforcement.

Ancon Stairib 316 - An austenitic stainless steel reinforcing bar with a minimum 0.2% proof stress of 500MPa and an ultimate tensile stress of 550MPa. It can be used for both concrete reinforcement and structural engineering purposes. Ancon Stairib 316 is more corrosion resistant than Ancon Stairib 304 and is therefore more suitable for use in aggressive environments such as marine or heavy industrial locations.

Ancon Stairib 316 conforms to BS 6744:2016, Austenitic stainless steel bars for the reinforcement of concrete, for Grade 500 reinforcement.

Ancon Stairib 2304 (1.4362) - A duplex stainless steel reinforcing bar with a minimum 0.2% proof stress of 500MPa. As per the Australian Stainless Steel Development Association (ASSDA), Ancon Stairib 2304 stainless steel provides similar corrosion resistance properties to Grade 316 stainless steel. It is best used in applications requiring a combination of high strength and corrosion resistance or where maintenance or inspection is impractical.

All bar grades are hot rolled and cold or warm worked to provide the stated mechanical properties. Chemical composition is given in the table below.

Ancon Stairib 2205 (1.4462) - It is a duplex stainless steel reinforcing bar with minimum 0.2% proof stress of 500MPa. It provides even better corrosion resistance than grade 316 stainless steel and can be used as reinforcing bars for structural applications such as bridges, roads, harbours and buildings.

Bending and Threading

Bars are available supplied cut to length, bent to schedule, threaded and engineered as specified, please contact the our Technical Department for maximum bar lengths.

Tying Wire

Tying wire 1.27mm in diameter is available in grade 2304 (1.4362) stainless steel.

Chemical Composition (% by mass)

BS-EN 10088-1 Steel Designation Number	Ancon Staibar 304 / Ancon Stairib 304 1.4301		Ancon Staibar 316 / Ancon Stairib 316 1.4436		Ancon Stairib 2304 1.4362		Ancon Stairib 2205 1.4462	
	Min	Max	Min	Max	Min	Max	Min	Max
Carbon	-	0.07	-	0.05	-	0.03	-	0.03
Silicon	-	1.0	-	1.0	-	1.0	-	1.0
Manganese	-	2.0	-	2.0	-	2.0	-	2.0
Nickel	8.0	10.5	10.5	13.0	3.5	5.5	4.5	6.5
Chromium	17.5	19.5	16.5	18.5	22.0	24.0	21.0	23.0
Molybdenum	-	-	2.5	3.0	0.10	0.60	2.5	3.5
Sulphur	-	0.030	-	0.030	-	0.015	-	0.015
Phosphorous	-	0.045	-	0.045	-	0.035	-	0.035
Nitrogen	-	0.11	-	0.11	0.05	0.20	0.10	0.22

Nominal Cross-sectional area and Nominal Mass per metre length as per AS/NZS 4671:2019

Nominal diameter mm	Cross-sectional area mm ²	Mass per metre length kg/m	Strength grade and ductility class
10	78.5	0.62	500N
12	113	0.89	
16	201	1.58	
20	314	2.47	
24	452	3.55	
28	616	4.83	
32	804	6.31	
36	1020	7.99	
40	1260	9.86	
50	1960	15.4	

Notes: The values for the mass per unit length have been calculated from the values for the nominal diameter using a density value of 7850 kg/m³. The equivalent diameter is the same as the nominal diameter for all the bars listed above.



Physical Properties

Extended Temperature Performance

Stainless Steels are high temperature alloys and Leviai's complete stainless steel range have excellent mechanical performance at elevated temperature. Stainless steels do not undergo the ductile to brittle condition change of conventional carbon steel as temperature falls.

Stainless steel bars are therefore suitable for use in cryogenic and high temperature applications.

Low Magnetic Permeability

Austenitic grade bars Ancon Stalbar 304/316 and Ancon Stairib 304/316 have extremely low magnetic permeability characteristics and are virtually non-magnetic.

This property can be very helpful to the designer of structures housing equipment such as electric arc furnaces, magnetic resonance imaging (MRI) units or other sensitive electronic equipment where a neutral magnetic environment is a requirement.



Stainless Steel Reinforcement



Strength and ductility properties as per BS 6744:2016

	Ancon Staibar 304	Ancon Staibar 316	Ancon Stairib 304	Ancon Stairib 316	Ancon Stairib 2304	Ancon Stairib 2205
0.2% Proof Stress	205 min.	205 min.	500 min.	500 min.	500 min.	500 min.
Minimum value of stress ratio	≥1.08	≥1.08	≥1.08	≥1.08	≥1.08	≥1.08
Percentage total elongation at maximum force, A_{gt}	≥5.0	≥5.0	≥5.0	≥5.0	≥5.0	≥5.0
Percentage elongation after fracture, A_5	≥14%	≥14%	≥14%	≥14%	≥14%	≥14%



Ancon BT Stainless Steel Couplers

The BT system is one of the smallest and the most cost-effective coupler systems in our range, when used on large scale, high coupler volume projects. Stainless steel Ancon BT couplers are available in 12, 16, 20, 25, 28, 32, 36, 40, and 50mm bar diameters.

The end of each bar to be joined is cut square and enlarged by cold forging. This increases the core diameter of the bar to ensure that the joint is stronger than the bar.

Parallel metric threads are cut onto the enlarged ends. The threaded end can be proof tested to a force equal to the characteristic yield strength of the bar. A nominal allowance of +50mm per threaded bar end should be made for cutting square and cold forging.

The threaded ends of the bars are protected by an external plastic sheath. Couplers, which are usually supplied attached to the bar, have their internal threads protected by an internal plastic end cap. For certain applications, especially where the Ancon BT system is being used in deep pours, the coupler end caps may not prevent the ingress of concrete fines. For these applications, further protection may be required.

For further information please contact Levia.



Other Products

Reinforcement Continuity Systems

Reinforcement Continuity Systems are an increasingly popular means of maintaining continuity of reinforcement at construction joints in concrete. The Ancon Keybox system eliminates the need to drill shuttering and can simplify formwork design, thereby accelerating the construction process. It is available in both standard units and special configurations. Ancon KSN Anchors eliminate the need for on-site bar straightening and are available as standard in 12mm, 16mm and 20mm diameters. The system is also available with a re-useable rebate former.

Shear Load Connectors

Ancon DSD and ESD Shear Load Connectors are used to transfer shear across expansion and contraction joints in concrete. They are more effective at transferring load and allowing movement to take place than standard dowels, and can be used to eliminate double columns at structural movement joints in buildings. A 'Lockable' dowel is also available for temporary movement joints in post-tensioned concrete frames.

Punching Shear Reinforcement

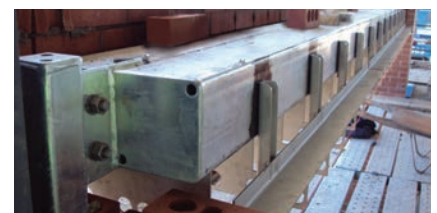
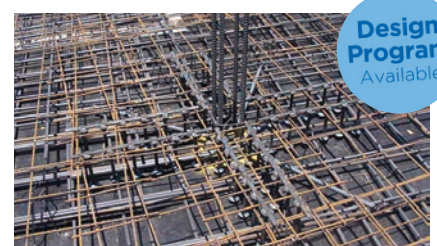
Ancon Shearfix is used within a slab to provide additional reinforcement from punching shear around columns. The system consists of double-headed steel studs welded to flat rails and is designed to suit the load conditions and slab depth at each column using our free calculation software.

Masonry Support Systems

Masonry cladding on concrete or steel frames is normally supported from stainless steel support systems. Ancon MDC Systems create a continuous angle to support the outer leaf of masonry. Ancon Individual Brackets support masonry features such as curves and arches.

Special Fabrications

Levia is an ASSDA accredited specialist fabricator and has a wealth of experience in working with a variety of material grades. High integrity steel components are supplied to a wide range of industries including Civil Engineering, Building, Infrastructure, Water Treatment, Nuclear and Mining.



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