WESTOX
BUILDING PRODUCTS

REMEDIAL TIE

Westox Helical Anchoring System

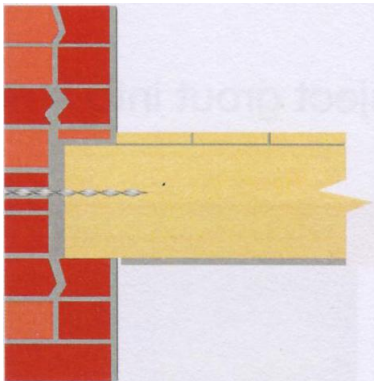
Description

TDS43 Rev7 17/02/20

The Westox Remedial Tie anchorage system includes ties that can be hammered or grouted into masonry walls. The Westox Remedial Ties are an austenitic stainless steel 316, reinforcing material. Being rolled from a plain round wire, the fins are work hardened to a very high level whilst the core remains relatively soft. The subsequent twisting process puts the fins into tension and the core into compression. The tensile strength of the base material is more than doubled during the manufacturing process. The pronounced fins over the core make the bonding characteristics of the Westox Remedial Tie far superior to alternative standard reinforcing materials.

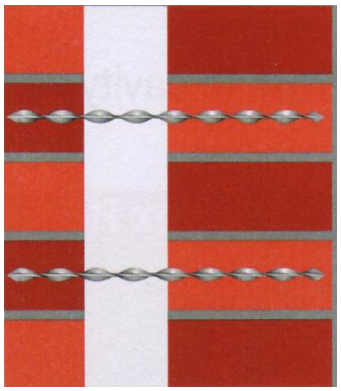
The Westox Remedial Ties are available in 6mm, 8mm and 10mm diameter and 200mm, 220mm and 250mm lengths. Other lengths and profile to meet the requirements of Structural Engineers and other specifiers are available on request.

Uses – The uses of the ties are both wide and varied and they can be utilised in new buildings and for many specialised refurbishment requirements like apartment buildings, historic buildings, bridges and many more. The Westox Remedial Ties can be used for structural reinforcement and anchorage fixings.



Wall Attachment

Repair and reinforcement of damaged wall lintels



Remedial Wall Ties

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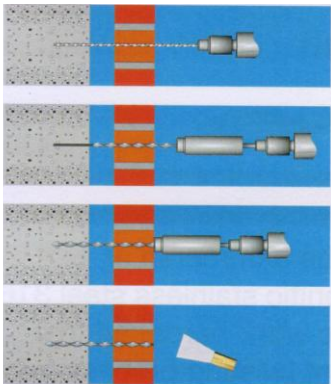
REMEDIAL TIE

Westox Remedial Tie Dry Installation

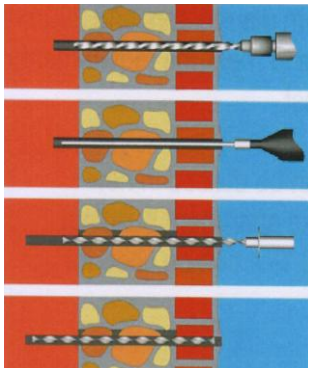


Westox Remedial Ties – Dry Fix

1. Drill pilot hole 2mm smaller than tie and approx. 70mm into the inner leaf.
2. Holes cleaning – Vacuum out the holes and flush with water.
3. Preparation of Ties – insert tie into the SDS PS3 Tie Tool.
4. Drive the tie till the tie is fully recessed into the masonry.
   IMPORTANT: USE THE HAMMER ACTION, ROTATION OFF SETTING.
5. Cover hole with appropriate grout.
6. Spread the ties at one metre centres horizontally (across) and 60cm vertically (up and down) with each row staggered.

Westox Remedial Tie – Chemical Installation

Westox Remedial Tie Chemical Installation System is ideal for use in masonry walls where the quality of masonry is poor or inconsistent or where mechanical ties will not bind with the masonry. The use of Polyester Resin Grout is needed.



Westox Remedial Ties – Chemical Fix

1. Drill hole 2mm larger than tie and approx. 70mm into inner leaf.
2. Holes clearance – Vacuum out the holes and flush with water.
3. Mix grout and using the appropriate nozzle inject grout into the hole.
4. Push the tie till the tie is fully recessed into the masonry.
   IMPORTANT: USE THE HAMMER ACTION, ROTATION OFF SETTING.
5. Cover the hole with appropriate grout.

NOTE: In cavity walls inject grout into the inner leaf, insert tie and then inject grout into outer leaf.

Westox Remedial Tie – Dry Application Without Resin

Choose Position

Drill Pilot Hole

Inserting Tie into wall

Finishing

Westlegate Pty Ltd
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WESTOX
BUILDING PRODUCTS

Mechanical Test Report

Dimensional Examination Results

Method Code: AS/NZS 4671-2001 Sec C3 and ARL MQTP-335 Rev_01
Acceptance Code: Supply Findings
Item Tested: Bar (Nominal Diameters: 6mm and 8mm)
Equipment Used: ARL Vernier Caliper-002 & External Micrometer-001

	Bar Dia: 6mm						***Bar Dia: 8mm***					
Test Items	**1**	**2**	**3**	**4**	**5**	**Average of results**	**1**	**2**	**3**	**4**	**5**	**Average of results**
Visual Appearance	No recordable discontinuities found					-	No recordable discontinuities found					-
Body Diameter (mm)	3.8	3.8	3.8	3.8	3.8	3.8mm	3.8	3.8	3.8	3.8	3.8	3.8mm
Fins (mm)	5.8	5.8	5.8	5.8	5.8	5.8mm	7.8	7.8	7.8	7.8	7.8	7.8mm
Pitch (mm)	26	26	26	26	26	26mm	34	34	34	34	34	34mm
Length Tested (mm)	297	296	296	297	297	-	291	296	296	297	294	-
Weight (g)	21.65	21.59	21.62	21.73	21.74	-	26.08	26.44	26.38	26.64	26.16	-
Weight (g/m)	72.90	72.94	73.04	73.16	73.20	**73.05 g/m**	89.62	89.32	89.12	89.70	88.98	**89.35 g/m**

PMI XRF Test Results

Method Code: ARL QTP 208 Rev_04
Acceptance Code: Supply Findings
Equip' Serial No.: Oxford X-MET 7500
Test Temperature: Ambient

Sample Description	**%wt of Elements**								**Material Specification**
	V	Cr	Mn	Fe	Ni	Cu	Nb	Mo	
Sample 1	*0.09*	*16.75*	*1.14*	*69.29*	*8.92*	*3.52*	*0.056*	*0.246*	***302HQ/ 304Cu***
6mm Dia	*0.08*	*16.87*	*0.94*	*69.29*	*8.89*	*3.29*	*0.021*	*0.246*	
Sample 2	*0.12*	*16.82*	*1.05*	*69.6*	*8.81*	*3.33*	*0.044*	*0.225*	
8mm Dia	*0.08*	*17.05*	*0.88*	*69.46*	*9.01*	*3.23*	*0.018*	*0.261*	

Test Results: Supply Findings

Tensile Test Results

Method Code: AS/NZS 4671:2001 Section 7.2.2
Acceptance Code: Supply Findings
Items Tested: Deformed bars, Parallel sections
Equipment Used: ARL Vernier 002, UTM Serial No. 075

Batch Number	Specimen ID	Nominal Cross Stress Area (mm^2)	Ultimate Tensile Load F_m(kN)	Yield Strength $R_{p0.2}$ (MPa)	Ultimate Tensile Strength R_m (MPa)	% Uniform Elongation (Agt_{100mm})
Sample 1 6mm Dia	E0145 1-1	8.1	8.16	605	1010	4
	E0145 1-2		8.32	540	1030	6
	E0145 1-3		7.96	570	985	4
	E0145 1-4		8.94	570	1105	6
	E0145 1-5		7.98	510	985	5
Average of Results:			*8.27 kN*	*559 MPa*	*1023 MPa*	-
Range:			*7.96 kN - 8.94 kN*	*510 MPa - 605 MPa*	*985 Mpa - 1105 MPa*	-
Sample 2 8mm Dia	E0145 2-1	10.1	11.18	760	1110	3
	E0145 2-2		11.14	640	1105	3
	E0145 2-3		11.34	810	1125	3
	E0145 2-4		11.24	790	1115	2
	E0145 2-5		10.68	750	1060	2
Average of Results:			*11.12 kN*	*750 MPa*	*1103 MPa*	-
Range:			*10.68 kN - 11.34 kN*	*640 MPa - 810 MPa*	*1060 MPa - 1125 MPa*	-

Test Results: Supply Findings

Note: 316 Type material bars are expected to exceed the tensile properties tested.

Shear Test Results

Method Code: ARL MQTP-335 Rev_01
Acceptance Code: Supply Findings
Items Tested: Deformed bars, Parallel sections
Equipment Used: ARL Vernier 002, UTM Serial No. 075

Batch Number	Specimen ID	Nominal Cross Stress Area (mm2)	Shear Load (kN)	Shear Strength (Mpa)	Mode of Failure
Sample 1 6mm Dia	E0145 1-1	8.1	3.84	475	Bars deformed
	E0145 1-2		4.04	500	
	E0145 1-3		3.00	370	
	E0145 1-4		3.04	375	
	E0145 1-5		3.40	420	
Average of Results:			*3.46 kN*	*428 MPa*	-
Range:			*3.00 kN - 4.04 kN*	*370 MPa - 500 MPa*	-

Sample 2 8mm Dia	**E0145 2-1**	10.1	5.34	530	Bars deformed
	E0145 2-2		4.32	430	
	E0145 2-3		4.76	470	
	E0145 2-4		3.92	390	
	E0145 2-5		3.94	390	
Average of Results:			*4.46 kN*	*442 MPa*	-
Range:			*3.92 kN - 5.34 kN*	*390 MPa - 530 MPa*	-

Test Results: Supply Findings

Note: 316 Type material bars are expected to exceed the shear properties tested.

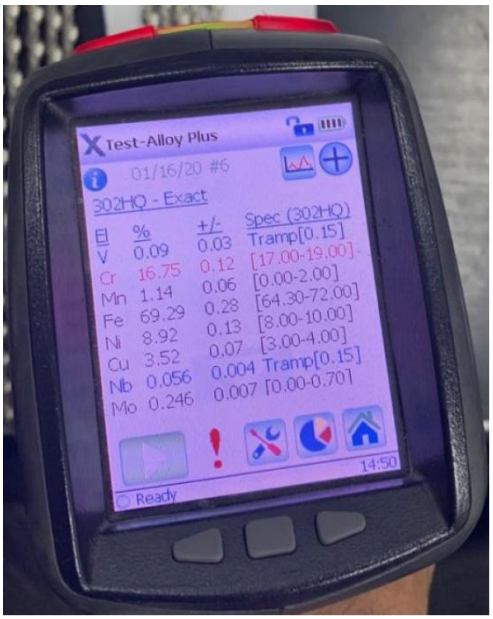

Fig 1. PMI Material Verification Test Result

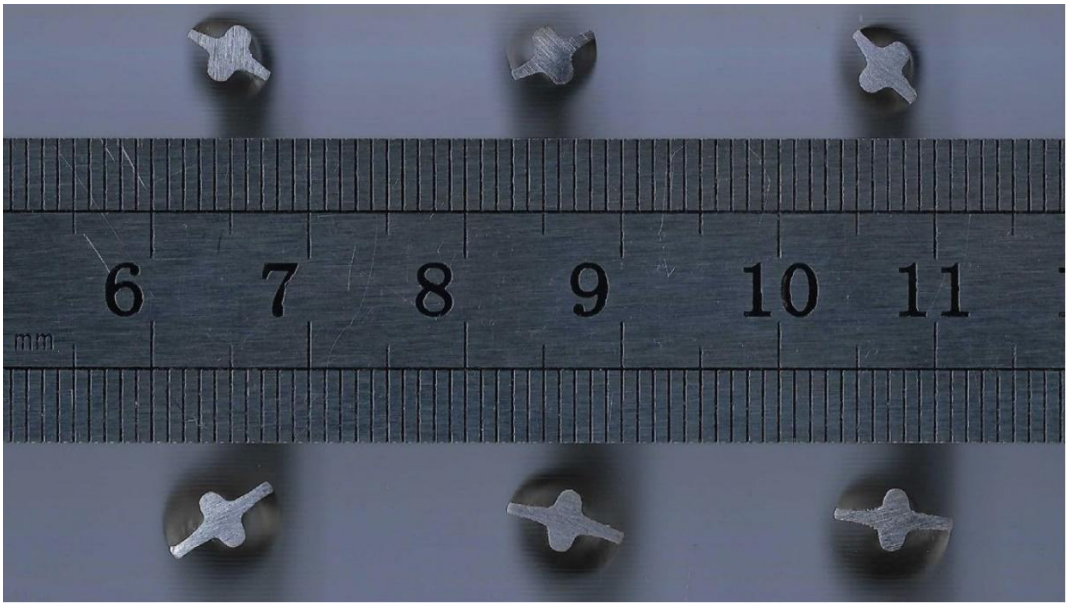

Fig 2. Dimensional Analysis

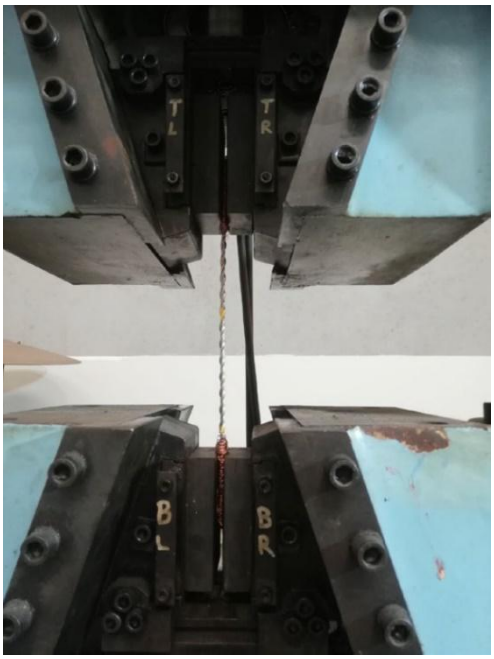

Fig 3. Tensile Test Set Up

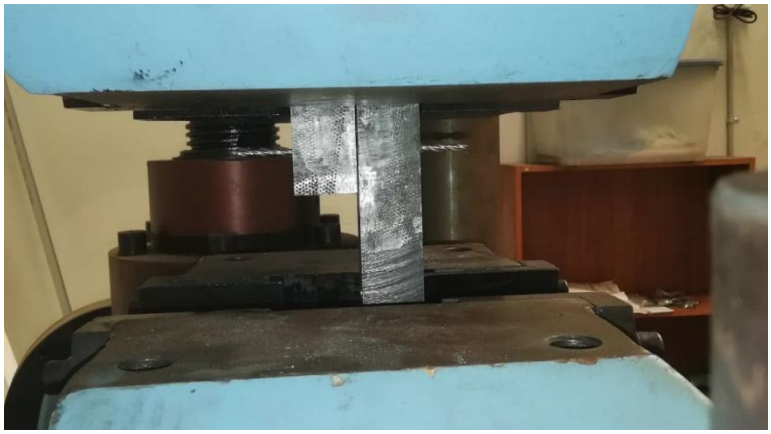

Fig 4. Shear Test Set Up

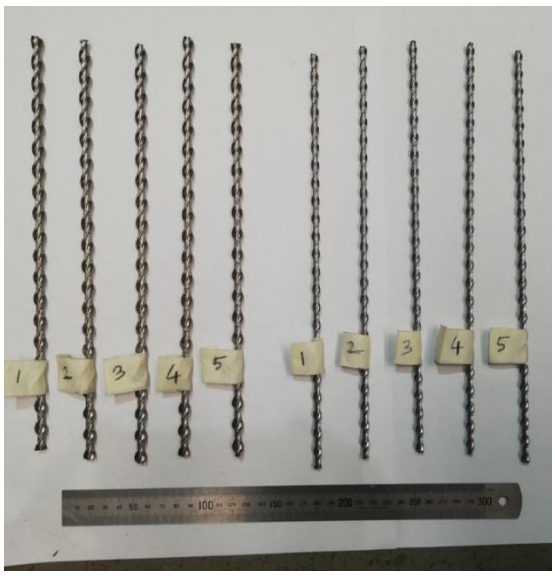

Fig 5. Test Samples as received

Note: 316 Type material bars are expected to exceed the mechanical properties tested.

========== End of Report ==========

Report completed by: ARL Laboratory Services Pty Ltd

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