TEST REPORT
EN 62275 : 2015
Cable ties for electrical installations

Report Reference No. ..... :	CN17-0015336-01
Tested by (+ signature) ..... :	T. Mongelli
Approved by (+ signature) ..... :	A. Primicerio
Date of issue ..... :	2017/09/18
Contents ..... :	15 pages
..... :	--

Testing laboratory

Name ..... :	IMQ S.p.A.
Address ..... :	I - 20138 Milano - Via Quintiliano, 43
Testing location ..... :	as above
..... :	

Client

Name ..... :	ITW Construction Products Italy srl
Address ..... :	V.le Regione Veneto,5 – Z.I. I - 35127 Padova (PD)
..... :	

Test specification

Standard ..... :	EN 62275 Ed. 2015
Test procedure ..... :	-
Procedure deviation ..... :	-
Non-standard test method ..... :	-
..... :	

Test Report Form/blank test report

Test Report Form No. ..... :	1838TRF/0
Master TRF ..... :	

Test item

Description ..... :	Cable ties for electrical installations
Trademark ..... :	E ELEMATIC
Model and/or type reference ..... :	2 - LOCK
Manufacturer ..... :	ITW s.r.l.
Rating(s) ..... :	2,5 – 7,5 mm (width)

Tests and test case verdicts .....:	☐ complete tests	☑ partial tests
Test case does not apply to the test object ..... :	N.A.	
Not tested	N.T.	
Test item does meet the requirement..... :	P(ass)	
Test item does not meet the requirement..... :	F(ail)	

Testing

Date of receipt of test item ..... :	2017/07/28
Date(s) of performance of test..... :	2017/09/07 – 2017/09/11

Classification

According to material..... :	metallic / **non-metallic** / composite
According to mechanical properties ..... :	--
According to temperature ..... :	**minimum - 60°C**
According to the fiame application..... :	--
According to environmental influences..... :	--

General remarks

Unless otherwise stated the uncertainties for the tests and measurements are evaluated in according to IMQ Operational Instruction IO-LAB-001 and IO-LAB-004. The uncertainties evaluation has been carried out in accordance with IEC Guide 115 “Application of Uncertainty of measurement’s to Conformity Assessment Activity in the Electrotechnical Sector” and IECEE OD-5014.
Internal Procedure PG-037 ensures that the requirements for traceability of calibrations, of all test equipment requiring calibration, and calibration intervals are met.
The sample under test is sampled and sent by the applicant.

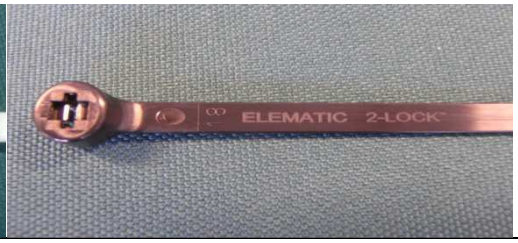
TYPE TESTS SUMMARY

Partial test par. 7 , 8 , 9.4

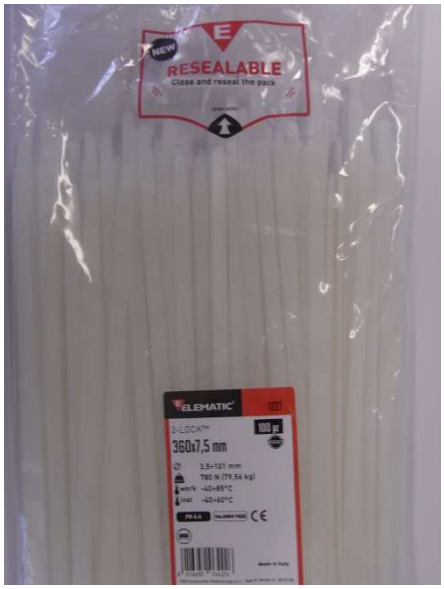
Copy of marking plate (for example)

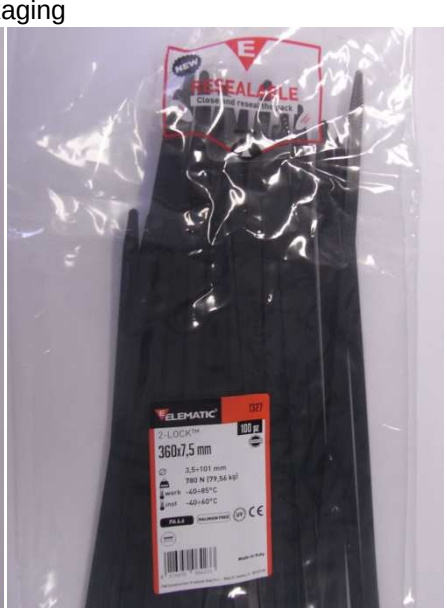
Code: 1227 360x7,5 (neutral)

Code: 1327 360x7,5 (black)



Packaging





7	**MARKING AND DOCUMENTATION**		
7.1	Name or trademark of the manufacturer.....:	E ELEMATIC 2 - LOCK	Pass
	Identification mark can be given on the smallest package unit		N.A.
7.2	Marking:		
	Test: rubbing 15s water and 15s petroleum spirit		N.A.
	Marking legible to normal or corrected vision	Legible	Pass
7.3	The manufacturer shall provide in his literature:		
	The classification according to clause 6……..:		--
	The maximum and minimum bundle diameter .....:		--
	The recommended Method of installation, the tool to be used and the load to be applied.....:		--
	Recommendations on trasport and storage.....:		--
	The manufacturer's declared mechanical strenght for a fixing device.		--
8	**CONSTRUCTION**		
	The surface of the cable tie shall be free from burrs and similar inconsistencies which are likely to damage the cables or to inflict injury to the installer or user. Compliance is checked by inspection.....:	free from burr	Pass

9	**MECHANICAL PROPERTIES**		
9.1	Requirements: The cable tie and/or its associated fixing device shall withstand the stresses likely to occur during installation and application.		
9.2	Inspection maximum and minimum bundle diameter declared by the manufacturer……:		N.T.
9.3	Minimum installation temperature test for cable ties		
	Non-metallic and composite cable ties shall be aged for 72 ± 1h at the maximum application temperature declared by the manufacturer……:		--
	Three sample and a steel mandrel, with the minimum bundie diameter, shall be placed separately in a refrigerator, at the declared minimum temperature for installation with a tolerance of ± 2°C for 2 h ……:		--
	After the sample is installed on the mandrel, with the minimum bundle diameter……:		--
	After the test there shall be no sign of disintegration nor shall there be any crack visible to normal or vision without magnification……:	No crack	--

9.4	Minimum operating temperature test for cable ties		
	Three sample is instaled on a steel or aluminium mandrel…....:		
	The mandrel with a diameter: - equal to 20 ±2 mm for cables ties with a maximum declared diameter of 38 mm or less;or - equal to 38 ±2 mm for cables ties with a maximum declared diameter greater than 38 mm. and a width of at least 5mm greater than the maximum declared width of the cable tie……..:	see pages 14,15	Pass
	The sample is installed on a steel mandrel or aluminium which has a diameter equal to maximum declared .....:	see pages 14,15	Pass
	The sample is installed on a steel or aluminium mandrel which has a diameter equal to minimum declared .....:	see pages 14,15	Pass
	The test mandrel with the sample is placed the declared temperature with a tolerance of ± 2°C ...:	-60°C	Pass
	2h after an impact is applied on the strap by a free fall hammer (12 ±1) s with a apparatus is shown in fig. 1……..:	see pages 14,15	
	The energy of the hammer is as given in Tab.5…:		
	The sample shall be deemed to have passed the test if after the test it has not broken open……:	see pages 14,15	Pass

9.5	Loop tensile strength test and heat ageing test for cable ties according to 6.2.2		
9.5.1	Ten sample is installed everyone on a steel or aluminium mandrel as shown in fig. 2 and subjected to a tensile pull where the jaws separate at a constant rate of 25 ± 2.5 mm/min until the cable tie fails…:		N.A.
	The mandrel with a diameter: - equal to 20 ±2 mm for cables ties with a maximum declared diameter of 38 mm or less;or - equal to 38 ±2 mm for cables ties with a maximum declared diameter greater than 38 mm. and a width of at least 5mm greater than the maximum declared width of the cable tie……..:		N.A.
	The sample is installed on a steel or aluminium mandrel which has a diameter equal to maximum declared ..…..:		--
	The minimum force declared accorging to Tab...:		--
	The maximum force recorded……..:		
9.5.2	Ten samples aged to maximum declared temperature increased by (15 ± 1)°C for 1000 h with a tolerance of + 48 h ……..:		N.A.
	Tensile test after conditioned according to 5.2		--
	The maximum force is measured……..:		--
	No individual value shall be less than 50% of the loop tensile strength declared according to 6.2.2		--

9.5.3	Temperature life cycle test for cable ties : The sample shall be installed on a test mandrel as specified in 9.5.1		
	The test assembly is subjected to the following temperature cycling with transfer between each condition described in paragraphs **a** to **f** , from 4 minutes to 5 minutes duration……..:		N/A
	No sign of disintegration nor any crack visible to normal or corrected vision:		--
	The loop tensile test as specified in 9.5……:		--
	The maximum force is measured……..:		--
	No individual value shall be less than 50% of the loop tensile strength declared according to 6.2.2		--
9.6	Loop tensile strength test and heat ageing test for cable ties according to 6.2.3		
9.6.1	Ten sample is installed everyone on a steel or aluminium mandrel as shown in fig. 2 and subjected to a tensile pull where the jaws separate at a constant rate of 25 ± 2.5 mm/min until the cable tie fails…:		--
	The mandrel with a diameter: - equal to 20 ±2 mm for cables ties with a maximum declared diameter of 38 mm or less;or - equal to 38 ±2 mm for cables ties with a maximum declared diameter greater than 38 mm. and a width of at least 5mm greater than the maximum declared width of the cable tie……..:		--
	The sample is installed on a steel or aluminium mandrel which has a diameter equal to maximum declared ..…….:		--
	The minimum force declared accorging to Tab.2 is reached and maintained for 60 ÷ 65 s as described in the paragraph.....:		--
	The cable tie shall not break and excessive slippage shall not occur.....:		--

9.6.2	Ten samples aged to maximum declared temperature increased by (15 ± 1)°C for 1000 h with a tolerance of + 48 h ……..:		N.T.
	Tensile test after conditioned according to 5.2		
	The minimum force declared accorging to Tab.1 is reached and maintained for 60 ÷ 65 s as described in the paragraph.....:		--
	The cable tie shall not break and excessive slippage shall not occur.....:		--
9.6.3	Temperature life cycle test for cable ties : The sample shall be installed on a test mandrel as specified in 9.6.3		--
	The test assembly is subjected to the following temperature cycling with transfer between each condition described in paragraphs **a** to **e** ……..:		--
	No sign of disintegration nor any crack visible to normal or corrected vision……..:		--
	The minimum force declared accorging to Tab.1 is reached and maintained for 60 ÷ 65 s as described in the paragraph.....:		--
	The cable tie shall not break and excessive slippage shall not occur.....:		--

9.6.4	After vibration test for metallic cable ties A minimum of two cable ties shall be installed as descibed in 5.9.....:		N.A.
	The ties shall be subjected to the temperature cycle in accordance with 9.6.3 (except loop tensile strenght test).....:		--
	The samples shall be installed on the vibration table as shown in fig. 4.....:		--
	The mandrels shall be subjected to the vibration test in accordance to accordance IEC 60068-2-6.:		--
	The samples shall be subjected to tensile pull as described in 9.6.1.....:		--
	The cable tie shall not break and excessive slippage shall not occur.....:		--
9.7	Mechenical strengh test for fixing devices:		
9.7.1	The samples shall be fixed as described in the paragraph ane shown in fig. 5 ……:		N.A.
	The maximum static load declared is maintained for 60 ÷ 65 s……..:		--
	No sign of disintegration nor any crack visible to normal ro corrected vision without magnification..:		--
9.7.2	The assembly aged to maximum declared temperature increased by (15 ± 1)°C for 1000 h with a tolerance of + 48 h ……:		N.A.
	Static load test after conditioned according to 5.2		
	The maximum static load declared is maintained for 60 ÷ 65 s……..:		--
	No sign of disintegration nor any crack visible to normal ro corrected vision without magnification..:		--

9.7.3	Temperature life cycle test for fixing devices :		N.A.
	The sample shall be installed on a test mandrel as specified in 5.9……..:		--
	The test assembly is subjected to the following temperature cycling as specified in 9.5.3……..:		--
	The maximum static load declared is maintained for 60 ÷ 65 s ……..:		--
	No sign of disintegration nor any crack visible to normal or corrected vision……..:		--

10	**CONTRIBUTION TO FIRE**		
	Non –metallic and composite cable ties classified according to 6.4.2 shall have adequate resistance to flame propagation.		
	The sample is test as shown in fig. 6 and with formality specified in EN 60695-11-5, with the following additional information…….: -the flame shall be applied shall be applied for a maximun of 30 s or until the sample has separated from the mandrel; -the underlyng layer shall consist of three layers of tissue paper.		N.T.
	The sample to have passed the test if : - 30 s after removed there is no flaming. - there is no ignition of the tissue paper.		--

11	**EVINRONMENTAL INFLUENCES**		
11.1	UV resistance:		
11.1.1	For cable ties and fixing devices classified according to 6.5.1.2 a set of ten samples instaled on a mandrel according to 5.9 shall be subjected to ultraviolet light conditioning according to 11.1.2.		
11.1.2	The samples are to be exposed for 1000 h to xenon-arc, method A, in accordance with ISO 4892-2, as describe in the paragraph.....:		N.A.
11.1.3	The test is not applicable for metallic cable tie or fixing device or metallic cable tie having a non metallic coat wich complies 11.2.....:		--
11.1.4	Following the exposure each cable tie shall be tested according to 6.2.2 or 6.2.3 as defined.		--
	Each sample classified according to 6.2.2 shall be subjected to a tensile pull. The maximun force is measured.....:		--
	No individual value shall be less than 50% of the loop tensile strength declared according to 6.2.....:		--
	Each sample of a cable tie classified according to 6.2.3 shall be subjected to a tensile pull until the load equivalent to the loop tensile strength declared by manufacturer is reached. This load is maintained for 60 ÷ 65 s.....:		--
	The cable tie shall not break and excessive slippage shall not occur.....:		--

11.2	Resistance to atmospheric corrosion		
	Samples shall be exposed to corrosion cycle as described in this paragraph and according to ISO 9227 (neutral salt spray – NSS).....:		N.A.
	No cracks visible to normal or corrected vision:		
	Cable tie classified according to 6.2.2 are tested according 9.5…….....……..:		--
	The maximun force is measured.....:		--
	No individual value shall be less than 50% of the loop tensile strength declared according to 6.2.....:		--
	Cable tie classified according to 6.2.3 are tested according 9.6…….....……..:		--
	The cable tie shall not break and excessive slippage shall not occur.....:		--

Width cable ties 2,5 mm

Model	Code	Length (mm)	Mandrel with a diameter (mm)	Bundle diameter		Min. loop tensil strength (N)	Temperature for application	The energy of the hammer (J)
				Min. (mm)	Max. (mm)		Min. (°C)	
2-LOCK	1203	100	20	1,5	21	180	-60	0,35
2-LOCK	1303	100	20	1,5	21	180	-60	0,35
2-LOCK	1207	200	38	1,5	50	180	-60	0,35
2-LOCK	1307	200	38	1,5	50	180	-60	0,35

Width cable ties 3,5 mm

Model	Code	Length (mm)	Mandrel with a diameter (mm)	Bundle diameter		Min. loop tensil strength (N)	Temperature for application	The energy of the hammer (J)
				Min. (mm)	Max. (mm)		Min. (°C)	
2-LOCK	1209	140	20	2,0	35	250	--60	1,00
2-LOCK	1309	140	20	2,0	35	250	--60	1,00
2-LOCK	1214	200	38	3,0	50	250	--60	1,00
2-LOCK	1314	200	38	3,0	50	250	--60	1,00
2-LOCK	1210	290	38	2,0	80	250	--60	1,00
2-LOCK	1310	290	38	2,0	80	250	--60	1,00

Width cable ties 4,5 mm

Model	Code	Length (mm)	Mandrel with a diameter (mm)	Bundle diameter		Min. loop tensil strength (N)	Temperature for application	The energy of the hammer (J)
				Min. (mm)	Max. (mm)		Min. (°C)	
2-LOCK	1215	200	38	3,0	50	360	--60	1,00
2-LOCK	1315	200	38	3,0	50	360	--60	1,00
2-LOCK	1216	250	38	--	68	360	--60	1,00
2-LOCK	1316	250	38	3,0	68	360	--60	1,00
2-LOCK	1217	290	38	--	80	360	--60	1,00
2-LOCK	1317	290	38	3,5	80	360	--60	1,00
2-LOCK	1219	360	38	3,5	101	360	--60	1,00
2-LOCK	1319	360	38	3,5	101	360	--60	1,00

Width cable ties 7,5 mm

Model	Code	Length (mm)	Mandrel with a diameter (mm)	Bundle diameter		Min. loop tensil strength (N)	Temperature for application	The energy of the hammer (J)
				Min. (mm)	Max. (mm)		Min. (°C)	
2-LOCK	1227	360	38	3,5	101	780	--60	2,00
2-LOCK	1327	360	38	3,5	101	780	--60	2,00

INSTRUMENTS FOR TEST

Instrument	***IMQ Ref.***	***Trademark***	***Date of next calibration***
Climatic chamber	P-02107	ANGELANTONI	04-2018

End of Test Report