



**CGS TEST HİZMETLERİ TEKNİK  
KONTROL VE BELGELENDİRME  
ANONİM ŞİRKETİ**



Kayışdağı Mah. Gülçin Sok. No:2/2 Ataşehir  
İstanbul/TURKİYE  
*Deney Raporu*  
Test Report

**Müşterinin adı /adresi:**  
Customer name/address

*Mutlusan Plastik Elektrik San. ve Tic. A.Ş.*  
*İOSB Mah. Enkoop Cad. No: 7 Başakşehir / İstanbul*

**İstek Numarası :**  
Order no.

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**Numunenin Adı ve Tanımı :**  
Name and identity of test item

*001 020 140025 00 11; Spiral Pipes & Accessories*

**Numunenin Kabul tarihi :**  
The date of receipt of test item

*06.01.2022*

**Açıklamalar :**  
Remarks

*DGC'ye EN 61386-22:2004 Standardı uyarınca Güvenlik Deneyleri yapılmıştır.*  
*Safety tests have been applied to EUT according to EN 61386-22:2004 on page three.*

**Deneyin yapıldığı tarih :**  
Date of Test

*06.01.2022 to 20.04.2022*

**Raporun Sayfa Sayısı:**  
Number of pages of the Report

*14 sayfa / pages*

**Deney ve /veya ölçüm sonuçları, genişletilmiş ölçüm belirsizlikleri ( olması halinde ) ve deney metotları bu sertifikanın tamamlayıcı kısmı olan takip eden sayfalarda verilmiştir.**

The test and/or measurement results, the uncertainties ( if applicable ) with confidence probability and test methods are given on the following pages which are part of this report.

**Mühür/Kaşe**  
Seal

**Tarih**  
Date

**Deney Sorumlusu**  
Person in charge of test

**Onaylayan**  
Approval

*10.02.2022*

*Bedran ÖNDEŞ*

*Naim Koralp KARAKOÇ*



*Bu rapor laboratuvarın izni olmadan kısmen kopyalanıp çoğaltılamaz.*

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*Testing reports without signature and seal are not valid*

**TEST REPORT**  
**EN/IEC 61386-22**  
**Conduit systems for cable management**  
**Part 22: Particular requirements - Pliable conduit systems**

Report Reference No. ....: LVD-183-8282

Date of issue.....: 22-04-2022

Contents.....: 14 pages

**Testing Laboratory** .....: CGS TEST HİZMETLERİ TEKNİK KONTROL VE BELGELENDİRME ANONİM ŞİRKETİ

Address.....: Kayışdağı Mah. Gülçin Sok. No:2/2 Ataşehir/İstanbul

Testing location.....: CGS TEST HİZMETLERİ TEKNİK KONTROL VE BELGELENDİRME ANONİM ŞİRKETİ

Address.....: Kayışdağı Mah. Gülçin Sok. No:2/2 Ataşehir/İstanbul

**Applicant's name** .....: MUTLUSAN PLASTİK ELEKTRİK SANAYİ VE TİCARET ANONİM ŞİRKETİ

Address.....: İOSB Mah. Enkoop Cad. No: 7 Başakşehir / İstanbul

**Test specification:**

Standard .....: EN 61386-22:2004 used in conjunction with EN 61386-1:2008

Test procedure .....: Type Test

Non-standard test method.....: N/A

**Test Report Form No.**.....: F510\_54\_R1.0

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Test item description.....: SPIRAL PIPES & ACCESSORIES

Trade Mark .....



Manufacturer .....: MUTLUSAN PLASTİK ELEKTRİK SANAYİ VE TİCARET ANONİM ŞİRKETİ

Model/Type reference.....: 001 020 140025 00 11

Ratings.....: 1 coil of 50 meters

**List of Attachments (including a total number of pages in each attachment):**

**Summary of testing:**

**Tests performed (name of test and test clause):**

Necessary tests were applied to the sample according to EN 61386-22:2004 used in conjunction with EN 61386-1:2008 standards.

**Testing location:**

CGS TEST HİZMETLERİ TEKNİK KONTROL VE BELGELENDİRME ANONİM ŞİRKETİ

Kayışdağı Mah. Gülçin Sok. No:2/2  
Ataşehir/İstanbul/Türkiye

**Copy of marking plate**

**The artwork below may be only a draft.**

<b>Test item particulars:</b>	Spiral Pipe & Accessories
Conduit system classification coding.....	: 2331 (manufacturer's declaration)
Type of conduit.....	: <input type="checkbox"/> Metallic <input checked="" type="checkbox"/> Non-metallic <input type="checkbox"/> Composite
Type of conduit.....	: <input type="checkbox"/> Plain <input checked="" type="checkbox"/> Corrugated
Type of conduit fitting.....	: No fittings
Conduit fitting – quantity.....	: ---
Conduit fitting – type(s).....	: ---
Conduit fitting – colour(s).....	: ---
Method for connection.....	: <input type="checkbox"/> Threadable <input checked="" type="checkbox"/> Non-threadable
Resistance to compression.....	: 2
Resistance to impact.....	: 3
Tensile strength.....	: 0
Suspended load capacity.....	: 0
Lower / Upper temperature range.....	: -15°C / +60°C
Electrical characteristics.....	: <input type="checkbox"/> With electrical continuity <input checked="" type="checkbox"/> With electrical insulating (not declared)
Resistance to external influences.....	: ---
Resistance against corrosion.....	: ---
Resistance to flame propagation.....	: <input type="checkbox"/> Non-flame propagating <input checked="" type="checkbox"/> Flame propagating (all other types)
<b>Possible test case verdicts:</b>	
- test case does not apply to the test object.....	: N/A
- test case does meet the requirement.....	: Pass (P)
- test case does not meet the requirement.....	: Fail (F)
<b>Testing:</b>	
Date of receipt of test item.....	: 06.01.2022
Date(s) of performance of tests.....	: 06.01.2022 to 20.04.2022
<b>General remarks:</b>	
<p>The test results presented in this report relate only to the object tested.  This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.  "(See Enclosure #)" refers to additional information appended to the report.  "(See appended table)" refers to a table appended to the report.  Throughout this report a comma (point) is used as the decimal separator.</p>	

**General product information:**

Spiral pipes are produced for safe and trouble-free use in suspended ceilings, plasterboard walls and flush mounted light installations.

The other sub-models of the product are given in Attachment 3.

**IEC 61386-22**

Clause	Requirement + Test	Result - Remark	Verdict
<b>7</b>	<b>MARKING AND DOCUMENTATION</b>		<b>P</b>
7.1	Conduit (conduit fitting) is marked on the product with a trade mark or a name identifying the manufacturer or responsible vendor .....	MUTLUSAN	P
	Conduit (conduit fitting) is marked in addition in such a way that it can be identified in the manufacturer's, or responsible vendor's, literature .....	Type designation, dimensions and length	P
7.1.1	Conduit is also marked with the classification code, in accordance with annex A, and includes at least the first four digits (optional) .....	Marked in specification	P
7.1.2	Manufacturer indicates the compatibility of parts within a conduit system	Only conduits (no system)	N/A
7.1.101	Conduit is marked in accordance with 7.1 along its entire length at regular intervals of preferably 1 m but not longer than 3 m (m) .....		N/A
	The mark is on a label attached to the product at each end or on the packaging (if the marking in accordance with 7.1 along its entire length is technically impractical) .....	Marked on label provided with each 25 or 50 m packaging	N/A
7.1.102	Minimum inside diameter and the classification for the system in accordance with clause 6 are documented by the manufacturer .....		P
7.2	Conduit fitting is marked in accordance with 7.1, on		N/A
	- the product .....	No fittings	N/A
	- a label attached to the product, or on the box or carton containing the fittings (if the marking on the product is impractical) .....		N/A
7.3	Flame propagating material is orange in colour		N/A
	Flame propagating material is not coloured orange by painting or other superficial means		N/A
	Non-flame propagating material is of any colour except yellow, orange or red, unless is clearly marked on the product to be of non-flame propagating material .....	Black	P
7.4	Earthing facilities are indicated by the symbol for protective earth in accordance with IEC 60417, symbol 60417-IEC-5019-a .....		N/A
	This marking is not placed on easily removable parts, for example screws		N/A
7.5	Compliance with 7.1 to 7.4 checked by inspection		P
7.6	Marking is durable and clearly legible		P
	Compliance checked by inspection and by rubbing the marking by hand for 15 s with a piece of cloth soaked with water, and again for 15 s with a piece of cloth soaked with petroleum spirit	Related markings has been observed on the label.	P

**IEC 61386-22**

Clause	Requirement + Test	Result - Remark	Verdict
<b>8</b>	<b>DIMENSIONS</b>		N/A
8.1	Outside diameters of non-metallic conduits comply with IEC 60423 .....		N/A
	Threads comply with IEC 60423 .....		N/A
	Outside diameters of metallic and composite conduits designed to be installed only with terminating conduit fittings having threads complying with IEC 60423: need not to comply with IEC 60423		N/A
8.2	Threadable conduits and threadable conduit fittings comply with table 101 (except terminating conduit fittings) .....		N/A
	Non-threadable conduit fittings comply with table 102 (except fittings which are part of a conduit system declaring tensile strength) .....		N/A
	Minimum inside diameter of the conduit system is as declared by the manufacturer		N/A
<b>9</b>	<b>CONSTRUCTION</b>		P
9.1	There are no sharp edges, burrs or surface projections within the conduit system		P
	The manufacturer provides guidelines to assist the safe installation of the conduit system	Use is self-evident	N/A
9.2	Screws, if any, used for attaching components or covers to conduit fittings, or in joints to conduits, do not cause damage to cable insulation when correctly inserted	No screws	N/A
	Screws have ISO metric threads		N/A
	Thread-cutting screws are not used		N/A
	Fixing screws and small clips for use with non-metallic or composite conduit fittings, of non-metallic material, are isolated from insulated conductors or cables		N/A
9.3	Test for screw fixing using preformed threads		N/A
	After the test: no damage sustained by the screw or nut, such as breakage of the screw or damage to the head or thread		N/A
9.4	Test for screw fixing using thread-forming screws		N/A
	After the test: no damage, such as breakage of the screw or damage to the head or thread		N/A
9.5	Any material within the joint have at least the same level of resistance to the external influence as either the conduit or the conduit fitting .....	IP30	N/A

**IEC 61386-22**

Clause	Requirement + Test	Result - Remark	Verdict
9.6	Indications whether the conduit system that are assembled by means other than threads can be disassembled and if so, how this can be achieved, are provided by the manufacturer	Not assembled by means of threads	N/A

<b>10</b>	<b>MECHANICAL PROPERTIES</b>		P
<b>10.1</b>	<b>Mechanical strength</b>		P
10.1.1	Conduit systems have adequate mechanical strength		P
10.1.2	Conduits do not crack and are not deformed when bent or compressed, or exposed to impact or extreme temperature, according to their classification		P
10.1.3	Conduit systems intended as a mounting for other equipment have adequate mechanical strength		N/A
10.1.4	Compliance of 10.1.1 to 10.1.3 checked by the tests specified in 10.2 to 10.8		P
<b>10.2</b>	<b>Compression test</b>		P
	3 samples of conduit, each (200 ± 5) mm long, subjected to a compression test at (23 ± 2) °C, using the apparatus shown in figure 1		P
	Test for pliable conduits		P
10.2.101	Test for pliable/self-recovering conduits	320 N	P
<b>10.3</b>	<b>Impact test</b>		P
	12 samples of conduit, each (200 ± 5) mm in length, or 12 samples of conduit fittings subjected to an impact test using the apparatus shown in figure 2		P
10.3.3	At least 9 of the 12 samples passed the test	Ø 16mm: 8.6 mm Ø 20 mm: 11.3 mm Ø 25 mm: 14.4 mm Ø 32 mm: 20.7 mm	P
<b>10.4</b>	<b>Bending test</b>		P
	6 samples of conduits subjected to a bending test by means of the apparatus as shown in figure 101		P
<b>10.5</b>	<b>Flexing test</b>		N/A
	Sub-clause of part 1 not applicable		—
<b>10.6</b>	<b>Collapse test</b>		N/A
	Sub-clause of part 1 not applicable		—
<b>10.7</b>	<b>Tensile test</b>		N/A
	Conduit systems declaring tensile strength: test carried out on an assembly prepared in accordance with the manufacturer's instructions so that the overall length is approximately 200 mm		N/A
<b>10.8</b>	<b>Suspended load test</b>		N/A



**IEC 61386-22**

Clause	Requirement + Test	Result - Remark	Verdict
	Conduit fitting declared by the manufacturer to be suitable for suspended loads: test carried out with a load suspended by the means provided and installed in accordance with the manufacturer's instructions for a time duration given in table 7		N/A
<b>11</b>	<b>ELECTRICAL PROPERTIES</b>		P
<b>11.1</b>	<b>Electrical requirements</b>		P
11.1.1			
11.1.1	Conduit systems declaring electrical continuity characteristics are checked by the tests in 11.2 immediately after the tests in 14.2	No electrical continuity declared	N/A
11.1.2	Conduit systems of metal or composite materials are so constructed that accessible metal parts can be bonded to earth		N/A
11.1.3	Accessible conductive parts of the metal or composite conduit system, which may become live in the event of a fault, are be effectively earthed		N/A
11.1.4	Conduit systems of non-metallic or composite materials, where declared, have an adequate electrical insulating strength and insulating resistance	Not declared	N/A
<b>11.2</b>	<b>Bonding test</b>		N/A
	Test carried out on a sample of a conduit and terminating conduit fittings assembled in accordance with the manufacturer's instructions and mounted as shown in figure 103: resistance not exceed 0,1 $\Omega$		N/A
<b>11.3</b>	<b>Electrical insulating strength and resistance</b>		N/A
11.3.1	Conduits		N/A
	3 samples of conduit tested in a salt water solution at $(23 \pm 2) ^\circ\text{C}$ , in accordance with figure 5, and submitted after 24 h $\pm$ 15 min to a voltage of 2000 V maintained for a period of 15 min +5/0 s: trip device incorporated into the circuit not trip during the test		N/A

<b>12</b>	<b>THERMAL PROPERTIES</b>		P
12.1	Non-metallic and composite conduits have adequate resistance to heat		P
12.2	Samples of conduit, each $(100 \pm 5)$ mm long, together with the test apparatus as shown in figure 8, kept for 4 h $\pm$ 5 min in a heating cabinet at the declared temperature given in table 2, with a tolerance of $\pm 2 ^\circ\text{C}$	+60 $^\circ\text{C}$ ,	P
	Each sample then loaded for 24 h $\pm$ 15 min in the apparatus of figure 8 with a total mass as shown in table 9	1 kg	P
12.3	It is possible to pass the appropriate gauge of figure 102 immediately after the removal of the load	$\varnothing$ 16mm: 8.6 mm $\varnothing$ 20 mm: 11.3 mm $\varnothing$ 25 mm: 14.4 mm	P

**IEC 61386-22**

Clause	Requirement + Test	Result - Remark	Verdict
		Ø 32 mm: 20.7 mm	

<b>13</b>	<b>FIRE HAZARD</b>		<b>P</b>
13.1	Reaction to fire		<b>P</b>
13.1.1	Initiation of fire (not applicable)		—
13.1.2	Contribution to fire (under consideration)		—
13.1.3	Spread of fire		-
	Non-flame propagating conduit systems have adequate resistance to flame propagation		<b>P</b>
13.1.3.1	Non-metallic and composite conduit fittings subjected to glow-wire test of IEC 60695-2-1/1 (IEC 60695-2-11) at 750 °C		<b>P</b>
	No visible flame or sustained glowing,		<b>N/A</b>
	Flames and glowing extinguished within 30 s of the removal of the glow-wire (s) .....		<b>P</b>
13.1.3.2	Non-metallic and composite conduits subjected to 1 kW flame of IEC 60695-2-4/1 (IEC 60695-11-2), according to the arrangement of figure 7, applied for the period given in table 11		<b>P</b>
	▪ Sample does not ignite, or		<b>N/A</b>
	▪ In case of ignition:		
	a) Flame extinguishes within 30 s .....		<b>P</b>
	b) No ignition of the tissue paper		<b>P</b>
	c) No evidence of burning or charring within 50 mm of the lower extremity of the upper clamp		<b>P</b>

<b>14</b>	<b>EXTERNAL INFLUENCES</b>		<b>P</b>
14.1	Degree of protection provided by enclosure		<b>P</b>
	Conduit systems, when assembled in accordance with the manufacturer's instructions, have adequate resistance to external influences according to the classification declared by the manufacturer, with a minimum requirement of IP30 .....	IP30 (manufacturer's declared)	<b>P</b>
14.1.1	Degree of protection – Ingress of foreign solid objects	IP30	<b>P</b>
14.1.2	Degree of protection – Ingress of water		<b>N/A</b>
14.2	Resistance against corrosion		<b>N/A</b>
	Resistance to corrosion classification for painted and zinc coated steel and steel composite conduits and conduit fittings (table 10).....		—
	For non-ferrous metallic and composite conduit systems, the manufacturer provided information about its protection against corrosion		<b>N/A</b>
14.2.2	Tests for resistance to corrosion for painted and zinc coated steel and steel composite conduits systems		<b>N/A</b>

**IEC 61386-22**

Clause	Requirement + Test	Result - Remark	Verdict
14.2.2.1	Low protection conduit and conduit fittings inspected for completeness of covering by the protective coating, both inside and outside		N/A
14.2.2.2	Test for medium protection conduit and conduit fittings: after completion of the test, the samples showed no more than two blue coloured spots on each square centimetre of the surface, and no blue spot had a dimension larger than 1,5 mm		N/A
14.2.2.3	Test for high protection conduit and conduit fittings: after the test, the sample showed no precipitation of copper which cannot be scrubbed off in running water, if necessary after immersion for 15 s in a 10% solution of hydrochloric acid in water		N/A
<b>15</b>	<b>ELECTROMAGNETIC COMPATIBILITY</b>		<b>N/A</b>
	Products covered by this standards are, in normal use, passive in respect of electromagnetic influences (emission and immunity)		N/A

Clause	Requirement + Test	Result - Remark	Verdict
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**ATTACHMENT 1**

**Equipment of measurements**

Equipment No	Kind of equipment	Model Type	Manufacturer	Last Cal Date	Next Cal Date	Last Ver Date	Next Ver Date
E-054	CE Multitester	C.A 6160	Chauvin Arnoux	3.01.2022	3.01.2023	21.12.2021	21.06.2022
E-003	Datalogger	DL40	CSK Elektrik Elektronik San. ve Tic. Ltd. Şti	5.06.2021	5.06.2022	14.12.2021	14.06.2022
E-004	Humidity cabinet	---	ULMEKA mekatronik	18.10.2021	18.10.2022	14.11.2021	14.05.2022
E-011	Multimeter	UT61B	UNI-T	11.10.2021	11.10.2022	22.10.2021	22.04.2022
E-021	Probe B	TS015/1000-B	CSK Elektrik Elektronik San. ve Tic. Ltd. Şti	6.04.2020	6.04.2022	15.11.2021	15.05.2022
E-091	Temperature-Humidity Meter	351077	TFA	23.03.2022	23.03.2023	---	---
E-037	Force gauge	SF-500	Geratech	6.10.2021	6.10.2022	---	---
E-042	Variac	---	VARSAN	---	---	---	---
E-045	Ball pressure mass	---	TEKNİK MEKATRONİK	22.03.2021	22.03.2023	---	---
E-034	Oven	T12	HERAEUS	18.10.2021	18.10.2022	18.11.2021	18.05.2022
E-005	Glow wire test	---	ULMEKA mekatronik	18.10.2021	18.10.2022	21.10.2021	21.04.2022
E-007	Needle flame	---	ULMEKA mekatronik	19.10.2021	19.10.2022	20.10.2021	20.04.2022

**ATTACHMENT 2**  
**Photo Documentation**

Photo documentation



Top View





Top View

Photo documentation



Top View