EVN

УЧАСТНИК: „Филкаб" АД

Седалище и адрес на управление: гр. Пловдив, ул. „Коматевско шосе" № 92

Тел: 032 277 171 **/Факс:** 032 671 133 **/E-mail:** office@filkab.com

ЕИК/Булстат: 115328801

Адрес за кореспонденция: гр. Пловдив, ул. „Коматевско шосе" № 92,

представляван от Александър Викторов Приходков,

в качеството на Пълномощник на Изпълнителния директор на „Филкаб" АД

О Ф Е Р Т А[1]

за участие в обществена поръчка при условията на чл. 187 по реда на Глава двадесет и шеста от Закона за обществените поръчки (ЗОП)

УВАЖАЕМИ ГОСПОЖИ И ГОСПОДА,

С настоящото Ви представяме нашата оферта за участие в обявената от Вас обществена поръчка № 141-ЕР-17-МР-Д-3 с предмет: „Доставка на спирали, клеми и съединители за изолирани проводници 20 kV"

Декларираме, че сме запознати с обявата и условията за участие в обявената от Вас обществена поръчка. Съгласни сме с поставените от Вас условия и ги приемаме без възражения.

Декларираме, че сме запознати и приемаме условията в следните документи: Търговски условия, Технически описания ЕВН България Електроразпределение ЕАД – ТО 181/00 (Издание: 20.01.2017); Техническо описание ЕВН България Електроразпределение ЕАД – ТО 182/00 (Издание: 10.02.2017) и Техническо описание ЕВН България Електроразпределение ЕАД – ТО 183/00 (Издание: 10.02.2017), Общи условия на закупуване на дружествата от групата EVN, Клауза за социална отговорност на дружествата от групата на EVN.

Запознати сме с проекта на договор, приемаме го и ако бъдем определени за изпълнител, ще сключим договор в законоустановения срок.

Декларираме, че ще сключим писмен договор, който включва всички предложения от офертата ни.

Декларираме, че при сключването на договор ще представим документи, издадени от компетентен орган за удостоверяване на липсата на обстоятелствата по чл. 54, ал. 1, т. 1 – 3 и декларации за липсата на обстоятелствата по чл. 54, ал. 1, т. 4, 5 и 7 от ЗОП.

Ние сме съгласни да се придържаме към това предложение за срок от 90 дни от датата, която е посочена в обявата за дата на получаване на офертата.

При изпълнението на поръчката ще използваме/няма да използваме услугите на следните подизпълнители (невярното се зачертава):

Наименование на подизпълнителя	Обхват на дейностите, които ще извършва	Размер на участието на подизпълнителя в %
н/п	н/п	н/п
н/п	н/п	н/п

Забележка: В случай, че се използват подизпълнители се представя:

- Заверено от участника копие от документа за регистрация или единния идентификационен код (ЕИК), съгласно чл. 23 от Закона за търговския регистър, когато участникът е юридическо лице или едноличен търговец; копие от документа за самоличност, когато участникът е физическо лице;

[1] Офертата се подава на български език.

АКЦИОНЕРНО ДРУЖЕСТВО ФИЛКАБ 16 ПЛОВДИВ

- Доказателство за поетите от подизпълнителите задължения

При изпълнението на поръчката ще използваме/няма да използваме капацитета на трети лица (невярното се зачертава):

Наименование на трето лице	Вид/наименование на ресурса	Местонахождение/ Описание на дейностите, които ще се изпълняват с ресурса
н/п	н/п	н/п
н/п	н/п	н/п

Забележка: В случай, че участника се позовава на капацитета на трети лица, той трябва да докаже, че ще разполага с тези ресурси, като представя:

- Документи за поетите от третите лица задължения

Като неразделна част от настоящата оферта, прилагаме:

1. Техническо предложение (по образец);
2. Ценово предложение (по образец);
3. Декларация по чл.54, ал.1, т.1, 2 и 7 от ЗОП (по образец);
4. Декларация по чл.54, ал.1, т.3 - 5 от ЗОП (по образец);
5. Мостри на предлаганите изделия както следва:
   5.1. 1бр. (един брой) Съединител автоматичен изолиран за сечение – 35 мм² до 50 мм²;
   5.2. 1бр. (един брой) Съединител автоматичен изолиран за сечение – 70 мм² до 95 мм²;
   5.3. 1бр. (един брой) Клема токова с изолационна капачка за сечение – 50 мм² до 70 мм²;
   5.4. 1бр. (един брой) Закрепваща изолационна спирала за сечение – 35 мм² до 50 мм²;
   5.5. 1бр. (един брой) Закрепваща изолационна спирала за сечение – 70 мм² до 95 мм².

Дата 19.04.2017 г.

ДЕКЛАРАТОР: .....
(подпис и печат)

Александър Приходков

АКЦИОНЕРНО ДРУЖЕСТВО ФИЛКАБ 16 ПЛОВДИВ

EVN

ТЕХНИЧЕСКО ПРЕДЛОЖЕНИЕ

От: .....„Филкаб" АД..... *(наименование на участника)*

С представянето на нашата оферта заявяваме желанието си да участваме в обявената от възложителя обществена поръчка за възлагане чрез събиране на оферти с обява № 141-ЕР-17-МР-Д-3 с предмет: Доставка на спирали, клеми и съединители за изолирани проводници 20 kV:

Мястото за изпълнение на поръчката: Склад в гр.Стара Загора, бул. Славянски.

Срокът за изпълнение на поръчката: 30 календарни дни, след заявка (не повече от 30 дни).

Капацитет до 20 % от оферираните количества (не по-малко от 20%).

Гаранционният срок е: 36 месеца, считано от датата на приемо-предавателния протокол (не по-малко от 36 месеца).

Ние сме съгласни да се придържаме към направеното техническо предложение за срок от 90 дни от датата, която е посочена в обявата за дата на получаване на офертата.

ТЕХНИЧЕСКИ ПАРАМЕТРИ:

*Таблица № 1 – **попълването на всички полета е задължително***

№	Минимални изисквания на възложителя	Предложение на участника (Да/Не, Информация, Технически показатели)
1	Отговарят ли предлаганите от участника продукти (Спирали,клеми и съединители за изолирани проводници 20 kV) изцяло на заложените в настоящото техническо предложение Технически описания,параметри, респективно спазени ли са Технически описания ЕВН България Електроразпределение ЕАД – ТО 181/00; ЕВН България Електроразпределение ЕАД - ТО 182/00; ЕВН България Електроразпределение ЕЛД - ТО 183/00, във всичките им точки? **Ако „НЕ", моля,** опишете подробно	[X] Да [ ] Не [.....]
2	Притежават ли предлаганите от участника продукти сертификати/протоколи за успешно издържана „типова проверка" по EN 50397-2, или еквивалентен, съгласно Технически описания ЕВН България Електроразпределение ЕАД –ТО 181/00 ЕВН България Електроразпределение ЕАД - ТО 182/00 ЕВН България Електроразпределение ЕАД - ТО 183/00 изготвени от акредитирана изпитателна лаборатория, или еквивалентен орган. Моля приложете ги. В случай, че сертификатите/протоколите са издадени от еквивалентен орган, то моля представете доказателство за еквивалентността (равностойността). *Ако съответните документи са на разположение в електронен формат, моля, посочете:*	[X] Да [ ] Не [.....] (уеб адрес, орган или служба, издаващи документа, точно позоваване на документа): [.....][.....][.....][.....]
3	Към настоящето Техническо предложение приложени ли са по един брой от следните мостри:	

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	1бр. (един брой) Съединител автоматичен изолиран за сечение – 35 мм² до 50 мм²; 1бр. (един брой) Съединител автоматичен изолиран за сечение – 70 мм² до 95 мм²; 1бр. (един брой) Клема токова с изолационна капачка за сечение – 50 мм² до 70 мм²; 1бр. (един брой) Закрепваща изолационна спирала за сечение – 35 мм² до 50 мм²; 1бр. (един брой) Закрепваща изолационна спирала за сечение – 70 мм² до 95 мм². Мострите отговарят ли на всички посочени в цитираните по-горе в настоящото техническо предложение Технически описания ЕВН България Електроразпределение ЕАД – ТО181/00 ЕВН България Електроразпределение ЕАД - ТО 182/00 ЕВН България Електроразпределение ЕАД - ТО 183/00 конкретни характеристики и параметри ?	[X] Да [ ] Не [X] Да [ ] Не [X] Да [ ] Не [X] Да [ ] Не [X] Да [ ] Не [X] Да [ ] Не

Таблица № 2 – попълването на полетата е пожелателно и служи за по-пълно представяне на участника

№	Обща информация за предлаганите продукти	Предложение на участника (Да/Не, Информация, Технически показатели)
1	**Данни за поризводител и производство:**	
1.1	Данни за производственото хале на производителя	Адрес: Ensto Finland OY Ensio Miettisen katu 2 FI-06150 PORVOO Финландия Уеб сайт: .www.ensto.com

Име производител / търговска марка: ENSTO

За изпълнение на изискванията на Възложителя се счита положителен отговор (ДА) на изброените в Таблица № 1 точки, прилагане на изисканите документи, доказващи изпълнение на изискванията, както и прилагане на 5 броя от посочените по-горе мостри, отговарящи на всички посочени в цитираните по-горе в настоящото техническо предложение Технически описания ЕВН България Електроразпределение ЕАД – ТО181/00; ЕВН България Електроразпределение ЕАД - ТО 182/00 и ЕВН България Електроразпределение ЕАД - ТО 183/00 конкретни характеристики и параметри.
По свое усмотрение участникът е в правото си да приложи допълнителни документи, извън изрично посочените, като доказателства на зададените въпроси.

Офертата на участник, чието техническо предложение не изпълнява някое/и от минималните изисквания на Възложителя няма да бъде разгледана, респективно участникът няма да участва в класирането.

Дата.19.04.2017 г.

УЧАСТНИК: .....
(подпис и печат)
Александър Приходков

АКЦИОНЕРНО ДРУЖЕСТВО ФИЛКАБ 16 ПЛОВДИВ

Saves Your Energy

LABORATORY REPORT
No.: 2573S
Revision: A

Date of Test: 1.10.2012

Test object:

CC-joint kits CIL67, CIL68 and CIL69 installed on BLL-T type conductors.

Purpose of the test and relevant standards:

Tensile test at ambient temperature according to EN 50397-2:2009 clause 7.4.7.

Conclusion:

See test results.

Picture 1: Tested CC-joint kits CIL67, CIL68 and CIL69

Date of Report: 15.10.2012

Tested by: Ola Forsström

Reviewed by: Janne Lappalainen

Ordered by: P. Pulkkinen
Distribution: OHL PD-team

Ensto Utility Networks Laboratory
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Business ID: 0130215-8
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1. Test objects

CC-joint kit:

Type:	CIL67
Conductor range:	PAS 70 – 95, BLL 62
Conductor diameter:	9,27 – 12,06 mm
Colour code:	yellow / grey
No of pcs:	6

Type:	CIL68
Conductor range:	PAS 120 – 150, BLL 99
Conductor diameter:	12,75 – 14,86 mm
Colour code:	pink / black
No of pcs:	6

Type:	CIL69
Conductor range:	BLL 157
Conductor diameter:	14,73 – 18,40 mm
Colour code:	green / brown
No of pcs:	3

- Conductor diameter is the diameter of bare conductor
- Core diameter is the diameter of conductor with insulation

АКЦИОНЕРНО ДРУЖЕСТВО * ПЛОВДИВ * ФИЛКАБ 16

ВЯРНО С ОРИГИНАЛА

Conductors:

Type:	BLL-T 50
Used cross section:	50 mm^2
Manufacturer/country:	AMO Kraft / Sweden
Insulation thickness:	3,0 mm
Conductor diameter:	8,9 mm
Number of strands:	7
Insulation material:	HDPE + PE
Conductor material:	AlMgSi
Refer to standard:	EN 50397-1
Conductor ID:	62

Type:	BLL-T 70
Used cross section:	70 mm^2
Manufacturer/country:	AMO Kraft / Sweden
Insulation thickness:	3,1 mm
Conductor diameter:	10,1 mm
Number of strands:	7
Insulation material:	HDPE + PE
Conductor material:	AlMgSi
Refer to standard:	EN 50397-1
Conductor ID:	37

Type:	BLL-T 99
Used cross section:	99 mm^2
Manufacturer/country:	AMO Kraft / Sweden
Insulation thickness:	2,8 mm
Conductor diameter:	12,2 mm
Number of strands:	7
Insulation material:	HDPE + PE
Conductor material:	AlMgSi
Refer to standard:	EN 50397-1
Conductor ID:	61

Type:	BLL-T 120
Used cross section:	120 mm^2
Manufacturer/country:	AMO Kraft / Sweden
Insulation thickness:	2,8 mm
Conductor diameter:	13,7 mm
Number of strands:	7
Insulation material:	HDPE + PE
Conductor material:	AlMgSi
Refer to standard:	EN 50397-1
Conductor ID:	119

Type:	BLL-T 157
Used cross section:	157 mm^2
Manufacturer/country:	AMO Kraft / Sweden
Insulation thickness:	2,9 mm
Conductor diameter:	16,2 mm
Number of strands:	19
Insulation material:	HDPE + PE
Conductor material:	AlMgSi
Refer to standard:	EN 50397-1
Conductor ID:	66

2. Testing procedure

The tension splice was installed between two tension clamps which were installed in each end of the conductor, see Picture 2. The insulation sleeve which is part of the CC-joint kit was not used in these tests. The distance between clamp and splice (*L*) was 100 x core diameter (94 x core diameter for CIL69 installed on BLL-T 157 because of length limitations of the tensile test machine). The assembly was installed into a tensile test machine and the load was increased to 20% of SMFL 1. The conductor was then marked at both ends of the tension splice. The load was increased gradually until it reached 60% of SMFL 1 and kept there for 60 s. After that the load was increased to SMFL 1 and kept there for 60 s. Next, for evaluation purposes, the load was increased to SMFL 2 and kept there for 60 s. The load was then increased until failure occurred.

SMFL 1 = 0,80 x MBL of conductor (value in standard)
SMFL 2 = 0,90 x MBL of conductor

Picture 2

Requirement:

The test is passed if the movement of the conductor relative to the tension splice is less than 3 mm and no failure of the tension splice or covered conductor occurs below the SMFL, where SMFL = 0,80 x MBL.

Deviation for the requirement:

Structure of the automatic tension splice is such that the wedges will move more than 3 mm at the beginning of pulling. The correct requirement is that the conductor does not slip out from the splice and no failure of the tension splice or covered conductor occurs below the SMFL, where SMFL = 0,80 x MBL.

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ВЯРНО С ОРИГИНАЛА

3. Test results

Sample	CC-joint kit	Conductor	Conductor ID	MBL [kN]	20% of SMFL 1 [kN]	60% of SMFL 1 [kN]	SMFL 1 [kN]	SMFL 2 [kN]	Slippage at SMFL 1 (L/R) [mm]	Slippage at SMFL 2 (L/R) [mm]	Breaking load [kN]	Result
1	CIL 67	BLL-T 50	62	13,9	2,22	6,67	11,12	12,51	3 / 3	3 / 3	17,3	Passed
2	CIL 67	BLL-T 50	62	13,9	2,22	6,67	11,12	12,51	4 / 4	4 / 4	17,2	Passed
3	CIL 67	BLL-T 50	62	13,9	2,22	6,67	11,12	12,51	4 / 4	7 / 4	17,3	Passed
4	CIL 67	BLL-T 70	37	18,6	2,98	8,93	14,88	16,74	9 / 9	9 / 9	19,5	Passed
5	CIL 67	BLL-T 70	37	18,6	2,98	8,93	14,88	16,74	8 / 8	8 / 9	19,8	Passed
6	CIL 67	BLL-T 70	37	18,6	2,98	8,93	14,88	16,74	10 / 10	10 / 10	20,2	Passed
7	CIL 68	BLL-T 99	61	25,3	4,05	12,14	20,24	22,77	4 / 4	4 / 4	27,7	Passed
8	CIL 68	BLL-T 99	61	25,3	4,05	12,14	20,24	22,77	3 / 2	3 / 3	27,4	Passed
9	CIL 68	BLL-T 99	61	25,3	4,05	12,14	20,24	22,77	5 / 2	5 / 3	27,5	Passed
10	CIL 68	BLL-T 120	119	29,4	4,70	14,11	23,52	26,46	11 / 11	11 / 11	37,8	Passed
11	CIL 68	BLL-T 120	119	29,4	4,70	14,11	23,52	26,46	11 / 11	11 / 11	37,5	Passed
12	CIL 68	BLL-T 120	119	29,4	4,70	14,11	23,52	26,46	11 / 11	11 / 11	38,2	Passed
13	CIL 69	BLL-T 157	66	43,7	6,99	20,98	34,96	39,33	12 / 11	12 / 12	43,1	Passed
14	CIL 69	BLL-T 157	66	43,7	6,99	20,98	34,96	39,33	11 / 12	11 / 12	43,0	Passed
15	CIL 69	BLL-T 157	66	43,7	6,99	20,98	34,96	39,33	12 / 12	12 / 12	43,1	Passed

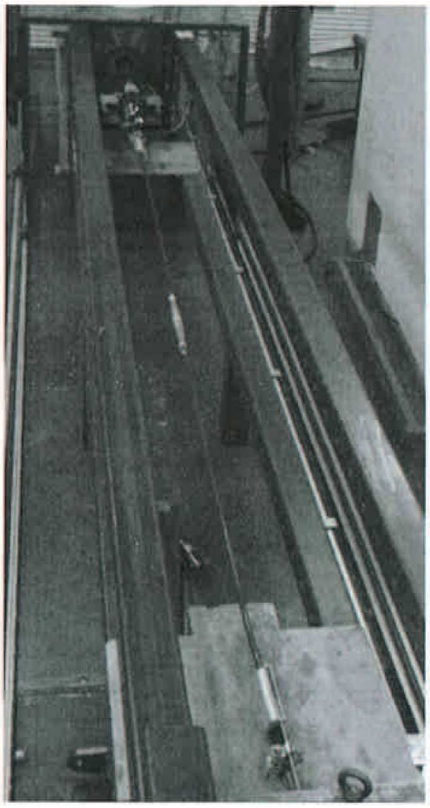
Table 1: Test data

Summary:
All samples fulfilled the test requirements as the conductor did not slip out from the tension splice and no failure of the splice or covered conductor occurred below the SMFL, where SMFL = 0,80 x MBL. The breaking load was above the target SMFL by a large margin, and for most samples even above the MBL of the conductor. In all cases the conductor broke at the tension splice.

АКЦИОНЕРНО ДРУЖЕСТВО * ФИЛКАБ 16 * ПЛОВДИВ *

ВЯРНО С ОРИГИНАЛА

4. Pictures



Picture 3: Test setup

5. Test equipment

ID	Type	Model	Purpose	Latest calibration
T1	Tensile test machine	Matertest	Tensile test	No calibration
L109	Loadcell	1220AF-250kN-B	Force measurement	23.08.2012
L110	Loadcell	1210AF-50kN-B	Force measurement	23.08.2012
L14	Torque wrench	BDS80E	Torque measurement	10.09.2012
L56	Torque wrench	BDS80E	Torque measurement	11.07.2012
A223	Slide gauge	Sylvac	Measuring dimensions	23.03.2012

6. Test Id

1850

7. Revision history

A

АКЦИОНЕРНО ДРУЖЕСТВО * ПЛОВДИВ * ФИЛКАБ 16

ВЯРНО С ОРИГИНАЛА

Saves Your Energy

INSULATION PIERCING CONNECTOR SLW25.2

Type Test Report

Test standard: EN50397-2, 2009

Ensto Utility Networks Laboratory
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Business ID: 0130215-8
Reg. Office: Porvoo

ENSTO *Saves Your Energy*

Product: SLW25.2

Contents		**Document no**
1. Specification		SLW25.2
		PK557
2. Certificate		FI 27045
3. Test reports:		
3.1. Visual examination		2109S
3.2. Dimensional and material verification		2109S
3.3. Test for permanent marking		2110S
3.4. Clamp bolt tightening test		
3.4.1.	BLL-T AlMgSi	1970S
3.4.2.	SAX-W AlMgSi	1971S
3.5. Damage to the main conductor test		
3.5.1.	BLL-T AlMgSi	1964S
3.5.2.	SAX-W AlMgSi	1965S
3.6. Branch cable pull out test		
3.6.1.	BLL-T AlMgSi	1967S
3.6.2.	SAX-W AlMgSi	1968S
3.7. Low temperature assembly		
3.7.1.	BLL-T AlMgSi	1961S
3.7.2.	SAX-W AlMgSi	1962S
3.8. Watertightness test		
3.8.1.	BLL-T AlMgSi	1973S
3.8.2.	SAX-W AlMgSi	1974S
3.9. Electrical ageing test		
3.9.1.	BLL-T AlMgSi	1976S
3.9.2.	SAX-W AlMgSi	1978S
3.10. Corrosion test		
3.10.1.	Gas atmosphere test (Method 2)	071210_SLW25-2
3.10.2.	Opening test	2138S
3.11. Climatic ageing test (Method 2)		

АКЦИОНЕРНО ДРУЖЕСТВО ФИЛКАБ 16 ПЛОВДИВ

ВЯРНО С ОРИГИНАЛА

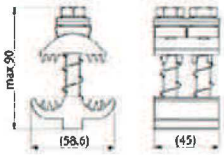
3.11.1.	End cap	2170S

Saves Your Energy

PRODUCT SPECIFICATION
27.5.2011

SLW25.2

Name:	**Insulation piercing connector**
	PAS/BLL-T 50-157 / 50-157 AlMgSi
Type:	SLW25.2
EAN:	6438100304201
Description:	The connector SLW25.2 is for non-tension aluminium to aluminium connections in MV up to 36 kV covered conductors without peeling the insulation. The connector is watertight by silicone greased teeth. The nominal insulation thickness of the conductor varies between 2.3-3.3 mm. Especially used with CC conductors. The connectors can be used with insulation cover SP16.
Package:	25/1750
Unit:	PCS



Technical specification

Bolts:	2 x M10
Branch conductor mm²:	Al 50-157 AlMgSi
Main conductor mm²:	Al 50-157 AlMgSi
Weight (kg):	0.246
Conductor diameter mm:	12.7-22.3
Tightening torque Nm:	40

Use: The connector is used for non-tension aluminium to aluminium connections in MV up to 36 kV covered conductors without peeling the insulation. The connector is watertight by silicone greased teeth. The nominal insulation thickness of the conductor varies between 2.3-3.3 mm. Especially used with CC conductors. The connectors can be used with insulation cover SP16.

Construction:

Component	Material
Body	Corrosion resistant aluminium alloy, tensile strength 300 N/mm²
Screws	Hot-dip galvanised steel, strength class 8.8

The lower section of the body protects the screws against corrosion and enables the connector to be easily reopened even after years of service. The teeth inside the connector are greased.

Installation: Unscrew the screws and place the conductors into the grooves. Tighten the screws with articulated spanner and fork wrench to a torque of 40 Nm.

Tools required: Articulated spanner ST20 or torque wrench ST30 with socket ST12. Fork wrench ST34.

Markings: ENSTO SLW 25.2
50-157mm2
40 Nm
week/year of manufacture

Standard: EN 50397-2

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www.ensto.com

CERTIFICATE FI 27045

Our Ref. 258614-6

Product	Connector for overhead lines
Type	SLW25.2
Trade mark	ENSTO
Certificate Holder	Ensto Finland Oy Ensio Miettisen katu 2 FI-06150 PORVOO, FINLAND
Manufacturer	Ensto Finland Oy Ensto Utility Networks Ensio Miettisen katu 2 FI-06150 PORVOO, FINLAND
Technical information	Insulating piercing connector PAS/BLL-T 50 – 157 mm^2 / 50 – 157 mm^2 AlMgSi conductors Conductor diameter 12,7 – 22,3 mm Tightening torque 40 Nm
The product is certified according to the following standard(s)	EN 50397-2:2009
Validity	This certificate is valid until 12 October 2016 unless the standard in question has been amended or superseded with significant changes in requirements, in which case, SGS Fimko has the right to shorten the validity of the certificate based on the legislation of the European Union. This certificate includes the right to use the FI mark under the condition that changes (if any) will be checked at SGS Fimko before the product is brought onto market and that the conditions for FI certification are met.
Date of issue	12 October 2011
	SGS Fimko Ltd
Signature	Sixten Lökfors Project Manager

This certificate has 1 appendix

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Business ID 0978538-5 Member of the SGS Group (SGS SA)

Appendix to Certificate: 27045

Manufacturing site	Ensto Ensek AS Paldiski mnt. 35 / 4A EE-76606 KEILA, ESTONIA
Additional information	Connector is watertight by silicone greased teeth Additional parts: End cap PMR2720
Is based on test	Tests made in manufacturer's premises, witnessed by SGS Fimko Ltd. Manufacturer's test reports: 2109S, 2110S, 1970S, 1971S, 1964S, 1965S, 1967S, 1968S, 1961S, 1962S, 1973S, 1974S, 1976S, 1978S, 2138S and 2170S Solar simulator test report: 071210_SLW25-2

АКЦИОНЕРНО ДРУЖЕСТВО * ФИЛКАБ 16 * ПЛОВДИВ *

ВЯРНО С ОРИГИНАЛА

Saves Your Energy

LABORATORY REPORT
No.: 2109S
Revision: A

Date of Test: 17.2.2011

Test object:

Waterproof insulation piercing connector SLW25.2.

Purpose of the test and relevant standards:

Part of type test.
Visual examination test and Dimensional and material verification test, according to EN 50397-2:2009 clause 7.1 and 7.2.

Conclusion:

The connector passed the test.

Picture 1: Tested connector SLW25.2

ENSTO
UTILITY NETWORKS
LABORATORY

Date of Report: 23.3.2011

Tested by: Patrick Ekholm

Witnessed by: Sami Hakonen / SGS Fimko

Reviewed by: Janne Lappalainen

Ordered by: V.Vilenius
Distribution: OHL PD-team

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Reg Office: Porvoo

АКЦИОНЕРНО ДРУЖЕСТВО ФИЛКАБ 15 ПЛОВДИВ

ВЯРНО С ОРИГИНАЛА

1. Test objects

Connectors:

Type:	Waterproof insulation piercing connector SLW25.2
Connector class:	B
Batch number:	0-series
Main conductor range:	50 – 157 mm^2
Branch conductor range:	50 – 157 mm^2
Tightening torque:	40Nm
No of pcs:	3

2. Testing procedure

The test was performed against the manufacturer specification sheet and standard requirement. The test included a visual examination part and a dimensional and material verification part.

Requirement:

The connector shall fulfil the manufacturer specification data and standard requirement.

АКЦИОНЕРНО ДРУЖЕСТВО * ПЛОВДИВ * ФИЛКАБ 16

ВЯРНО С ОРИГИНАЛА

3. Test results

Visual examination:

The connector was visually looking the same as in the specification drawing.

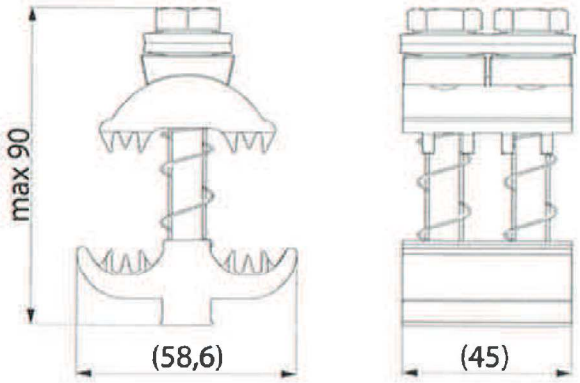
All markings required by the standard were found:

Manufacturer's logo:	ENSTO
Product code:	SLW25.2
Batch number (production date):	04/2011
Minimum and maximum cross section:	AL 50-157mm^2
Tightening torque:	40Nm

Dimensional and material verification:

All samples were within specification requirements. Connectors dimensions were within specification tolerances, see picture 2.

Distance	Requirement [mm]	Measured [mm]
Height	Max 90	85,7
Length	45±1	45
Width	58,6±2	58



Picture 2: Specification drawing

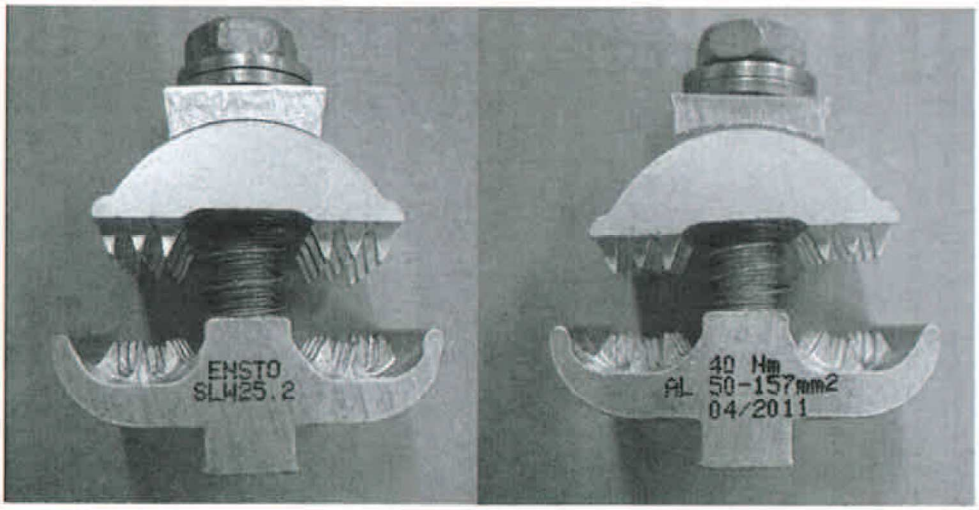
Summary:

The connectors fulfilled all test requirements.

ВЯРНО С ОРИГИНАЛА

4. Pictures

Picture 3: Connector in the test



Picture 4: Connector markings

АКЦИОНЕРНО ДРУЖЕСТВО ФИЛКАБ 16 ПЛОВДИВ

ВЯРНО С ОРИГИНАЛА

5. Test equipment

ID	TYPE	MODEL	PURPOSE
A194	Calliper	Eagle	Dimension measurements

6. Test Id

1117

7. Revision history

A

АКЦИОНЕРНО ДРУЖЕСТВО ФИЛКАБ 16 ПЛОВДИВ

ВЯРНО С ОРИГИНАЛА

Saves Your Energy

LABORATORY REPORT
No.: 2110S
Revision: A

Date of Test: 17.2.2011

Test object:

Waterproof insulation piercing connector SLW25.2.

Purpose of the test and relevant standards:

Part of type test.
Test for permanent marking according to EN 50397-2:2009 clause 7.3.

Conclusion:

The connector passed the test.

Picture 1: Tested connector SLW25.2

Date of Report: 23.3.2011

Tested by: Patrick Ekholm

Reviewed by: Janne Lappalainen

ENSTO UTILITY NETWORKS LABORATORY

Witnessed by: Sami Hakonen / SGS Fimko

Ordered by: V.Vilenius
Distribution: OHL PD-team

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АКЦИОНЕРНО ДРУЖЕСТВО ФИЛКАБ 16 ПЛОВДИВ

ВЯРНО С ОРИГИНАЛА

1. Test objects

Connectors:

Type:	Waterproof insulation piercing connector SLW25.2
Connector class:	B
Batch number:	0-series
Main conductor range:	50 – 157 mm^2
Branch conductor range:	50 – 157 mm^2
Tightening torque:	40Nm
No of pcs:	3

2. Testing procedure

The test procedure was acc. to standard.
The marking of the connector was rubbed by hand for 15 s with a piece of cloth soaked with water and another 15 s with a piece of cloth soaked with petroleum spirit.
The petroleum spirit used was Mineral turpentine from KIILTO / Finland

Requirement:

The marking shall remain clear and allow the accessory to be easily identified.

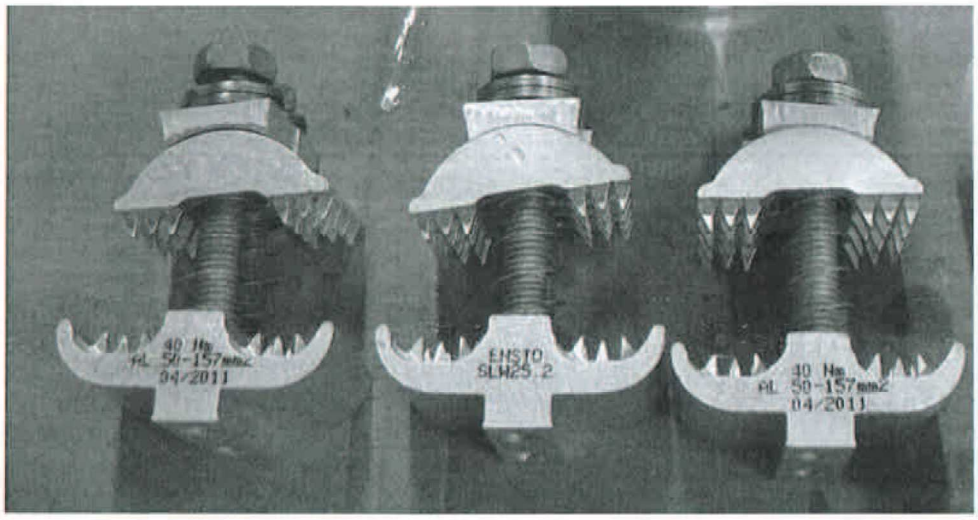
3. Test results

The marking remained clear and was not at all affected of the rubbing.

АКЦИОНЕРНО ДРУЖЕСТВО * ФИЛКАБ 16 * ПЛОВДИВ *

ВЯРНО С ОРИГИНАЛА

4. Pictures



Picture 2: Markings after test

5. Test equipment

No special test equipment needed

6. Test Id

1117

7. Revision history

A

АКЦИОНЕРНО ДРУЖЕСТВО * ФИЛКАБ 16 * ПЛОВДИВ

ВЯРНО С ОРИГИНАЛА

Saves Your Energy

LABORATORY REPORT
No.: 1970S
Revision: A

Date of Test: 28.1.2010

Test object:

Waterproof insulation piercing connector SLW25.2.

Purpose of the test and relevant standards:

Part of type test.
Connector bolt tightening test according to EN 50397-2:2009 clause 7.4.10.2.

Conclusion:

The connector passed the test.

Picture 1: Tested connector SLW25.2

ENSTO
UTILITY NETWORKS
LABORATORY

Date of Report: 11.11.2010

Tested by: Patrick Ekholm

Witnessed by: Sami Hakonen / SGS Fimko

Reviewed by: Janne Lappalainen

Ordered by: V.Vilenius
Distribution: OHL PD-team

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Business ID: 0130215-8
Reg Office: Porvoo

1. Test objects

Connectors:

Type:	Waterproof insulation piercing connector SLW25.2
Connector class:	B
Batch number:	0-series
Main conductor range:	50 – 157 mm^2
Branch conductor range:	50 – 157 mm^2
Tightening torque:	40Nm
No of pcs:	6

Conductors:

Type:	BLL-T 50
Used cross-section:	50 mm^2
Manufacturer/Country:	AMO Kraft AB / Sweden
Insulation thickness:	2,5 mm
Total diameter:	14,2 – 15,2 mm
Number of strands:	7
Insulation material:	HDPE+PE
Conductor material:	AlMgSi
Conductor MBL:	13,9 kN
Refer to standard:	EN50397-1

Type:	BLL-T 157
Used cross-section:	157 mm^2
Manufacturer/Country:	AMO Kraft AB / Sweden
Insulation thickness:	2,5 mm
Total diameter:	21,3 – 22,3 mm
Number of strands:	19
Insulation material:	HDPE+PE
Conductor material:	AlMgSi
Conductor MBL:	43,7 kN
Refer to standard:	EN50397-1

АКЦИОНЕРНО ДРУЖЕСТВО * ПЛОВДИВ * ФИЛИАЛ 15

ВЯРНО С ОРИГИНАЛА

2. Testing procedure

The conductors, on which the connectors were installed, were tensioned to approximately 20 % of the conductor MBL. Two sample were tests for each of the following conductor combinations.

Main	**Branch**
Max.	Max.
Min.	Min.
Min.	Max.

The connectors should be according to standard tightened to 1,2 x tightening torque. The tightening was carried out at a rate of approximately 1 full turn in 8 seconds.

Requirement:

The connector shall be undamaged.

3. Test results

Sample	Conductors		Tension [kN]	Tightening torque [Nm]	Result
	Main	Branch			
1	BLL-T 157	BLL-T 157	9,46	55	No damage to connector.
2	BLL-T 157	BLL-T 157	9,46	55	No damage to connector.
3	BLL-T 50	BLL-T 50	3,1	55	No damage to connector.
4	BLL-T 50	BLL-T 50	3,1	55	No damage to connector.
5	BLL-T 50	BLL-T 157	3,1	55	No damage to connector.
6	BLL-T 50	BLL-T 157	3,1	55	No damage to connector.

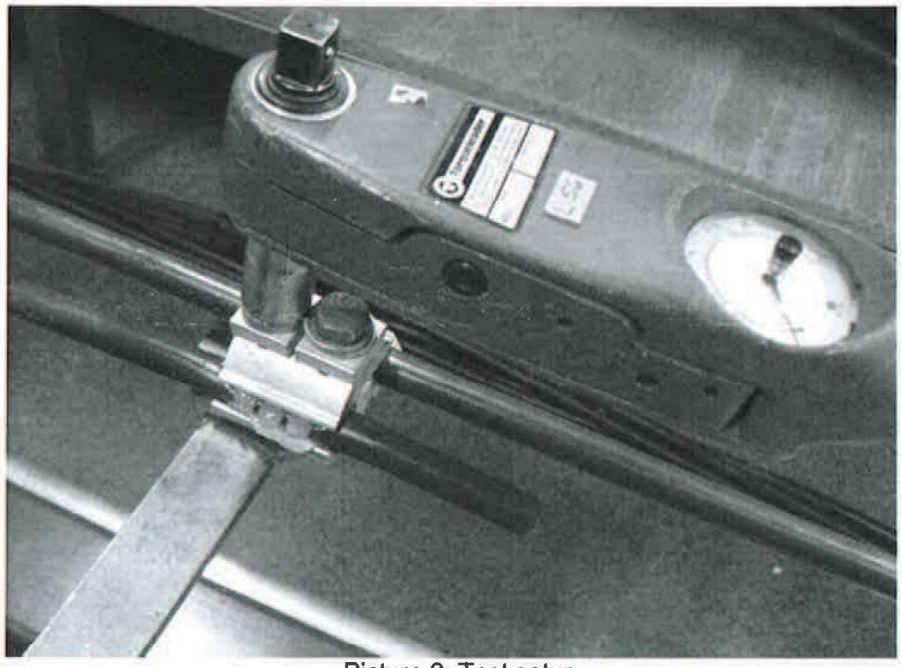
Table 1: Test data

Summary:
All samples fulfilled standard requirements.

АКЦИОНЕРНО ДРУЖЕСТВО * ФИЛКАБ 16 * ПЛОВДИВ *

ВЯРНО С ОРИГИНАЛА

4. Pictures



Picture 2: Test setup

5. Test equipment

ID	TYPE	MODEL	PURPOSE
L56	Torque wrench	BDS – 80 E	Torque adjustment
HT5	Test bench	Ensto	High temperature tests
L106	Force transducer	LLZ-1	Force measurements

6. Test Id

738

7. Revision history

A

АКЦИОНЕРНО ДРУЖЕСТВО * ФИЛКАБ 16 * ПЛОВДИВ *

ВЯРНО С ОРИГИНАЛА

Saves Your Energy

LABORATORY REPORT
No.: 1971S
Revision: A

Date of Test: 28.1.2010

Test object:

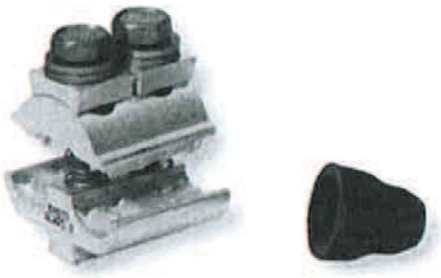
Waterproof insulation piercing connector SLW25.2.

Purpose of the test and relevant standards:

Part of type test.
Connector bolt tightening test according to EN 50397-2:2009 clause 7.4.10.2.

Conclusion:

The connector passed the test.



Picture 1: Tested connector SLW25.2

Date of Report: 11.11.2010

Tested by: Patrick Ekholm

Reviewed by: Janne Lappalainen

ENSTO UTILITY NETWORKS LABORATORY

Witnessed by: Sami Hakonen / SGS Fimko

Ordered by: V.Vilenius
Distribution: OHL PD-team

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Business ID 0130215-6
Reg Office: Porvoo

ВЯРНО С ОРИГИНАЛА

1. Test objects

Connectors:

Type:	Waterproof insulation piercing connector SLW25.2
Connector class:	B
Batch number:	0-series
Main conductor range:	50 – 157 mm^2
Branch conductor range:	50 – 157 mm^2
Tightening torque:	40Nm
No of pcs:	6

Conductors:

Type:	SAX-W 50
Used cross-sections:	50 mm^2
Manufacturer/Country:	Prysmian / Finland
Insulation thickness:	2,4 mm
Total diameter:	12,7 mm
Number of strands:	7
Insulation material:	XLPE
Conductor material:	AlMgSi
Conductor MBL:	15,5 kN
Refer to standard:	EN50397-1

Type:	SAX-W 150
Used cross-section:	150 mm^2
Manufacturer/Country:	Prysmian / Finland
Insulation thickness:	2,4 mm
Total diameter:	18,9 mm
Number of strands:	19
Insulation material:	XLPE
Conductor material:	AlMgSi
Conductor MBL:	47,3 kN
Refer to standard:	EN50397-1

АКЦИОНЕРНО ДРУЖЕСТВО * ФИЛКАБ 16 * ПЛОВДИВ *

ВЯРНО С ОРИГИНАЛА

2. Testing procedure

The conductors, on which the connectors were installed, were tensioned to approximately 20 % of the conductor MBL. Two sample were tests for each of the following conductor combinations.

Main	**Branch**
Max.	Max.
Min.	Min.
Min.	Max.

The connectors should be according to standard tightened to 1,2 x tightening torque. The tightening was carried out at a rate of approximately 1 full turn in 8 seconds.

Requirement:

The connector shall be undamaged.

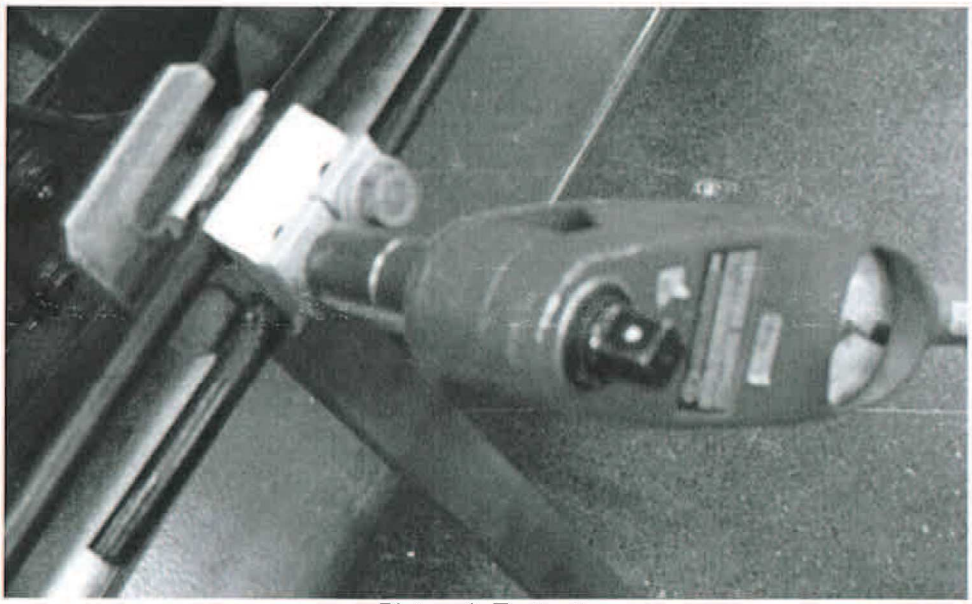
3. Test results

Sample	Conductors		Tension [kN]	Tightening torque [Nm]	Remarks
	Main	Branch			
7	SAX-W 150	SAX-W 150	9,46	55	No damage to connector.
8	SAX-W 150	SAX-W 150	9,46	55	No damage to connector.
9	SAX-W 50	SAX-W 50	3,1	55	No damage to connector.
10	SAX-W 50	SAX-W 50	3,1	55	No damage to connector.
11	SAX-W 50	SAX-W 150	3,1	55	No damage to connector.
12	SAX-W 50	SAX-W 150	3,1	55	No damage to connector.

Table 1: Test data

Summary:
All samples fulfilled standard requirements.

4. Pictures



Picture 2: Test setup

5. Test equipment

ID	TYPE	MODEL	PURPOSE
L56	Torque wrench	BDS – 80 E	Torque adjustment
HT5	Test bench	Ensto	High temperature tests
L106	Force transducer	LLZ-1	Force measurements

6. Test Id

738

7. Revision history

A

АКЦИОНЕРНО ДРУЖЕСТВО ФИЛКАБ 16 ПЛОВДИВ

ВЯРНО С ОРИГИНАЛА

Saves Your Energy

LABORATORY REPORT
No.: 1964S
Revision: A

Date of Test: 28.1.2010

Test object:

Waterproof insulation piercing connector SLW25.2.

Purpose of the test and relevant standards:

Part of type test.
Test for mechanical damage to the main conductor according to EN 50397-2:2009 clause 7.4.12.

Conclusion:

The connector passed the test.

Picture 1: Tested connector SLW25.2

ENSTO
UTILITY NETWORKS
LABORATORY

Date of Report: 10.11.2010

Tested by: Patrick Ekholm

Witnessed by: Sami Hakonen / SGS Fimko

Reviewed by: Janne Lappalainen

Ordered by: V.Vilenius
Distribution: OHL PD-team

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Fax +358 204 76 2770

Business ID 0130215-8
Reg. Office: Porvoo

1. Test objects

Connectors:

Type:	Waterproof insulation piercing connector SLW25.2
Connector class:	B
Batch number:	0-series
Main conductor range:	50 – 157 mm^2
Branch conductor range:	50 – 157 mm^2
Tightening torque:	40Nm
No of pcs:	6

Conductors:

Type:	BLL-T 50
Used cross-section:	50 mm^2
Manufacturer/Country:	AMO Kraft AB / Sweden
Insulation thickness:	2,5 mm
Total diameter:	14,2 – 15,2 mm
Number of strands:	7
Insulation material:	HDPE+PE
Conductor material:	AlMgSi
Conductor MBL:	13,9 kN
Refer to standard:	EN50397-1

Type:	BLL-T 157
Used cross-section:	157 mm^2
Manufacturer/Country:	AMO Kraft AB / Sweden
Insulation thickness:	2,5 mm
Total diameter:	21,3 – 22,3 mm
Number of strands:	19
Insulation material:	HDPE+PE
Conductor material:	AlMgSi
Conductor MBL:	43,7 kN
Refer to standard:	EN50397-1

АКЦИОНЕРНО ДРУЖЕСТВО * ПЛОВДИВ * ФИЛКАБ 15

ВЯРНО С ОРИГИНАЛА

2. Testing procedure

The conductors, on which the connectors were installed, were tensioned to 20 % of the conductor MBL (Tension 1). The connectors were tightened to 1,1 x tightening torque. After tightening the conductors were tensioned to 90% of the conductor MBL (Tension 2). The load was maintained for 60 seconds. Two sample were tests for each of the following conductor combinations.

Main	**Branch**
Max.	Max.
Min.	Min.
Min.	Max.

Requirement:

The conductor shall maintain the test for one minute without any failure or any damage that would prevent the correct function of the conductor.

3. Test results

Standard requirement for tightening torque is 1,1 x nominal tightening torque, which is 44 Nm.

Sample	Conductors		Tension 1 [kN]	Tension 2 [kN]	Tightening torque [Nm]	Result
	Main	Branch				
1	BLL-T 157	BLL-T 157	8,74	39,33	51	No damage that will prevent the correct function of the conductor.
2	BLL-T 157	BLL-T 157	8,74	39,33	51	No damage that will prevent the correct function of the conductor.
3	BLL-T 50	BLL-T 50	2,78	12,51	51	No damage that will prevent the correct function of the conductor.
4	BLL-T 50	BLL-T 50	2,78	12,51	51	No damage that will prevent the correct function of the conductor.
5	BLL-T 50	BLL-T 157	2,78	12,51	51	No damage that will prevent the correct function of the conductor.
6	BLL-T 50	BLL-T 157	2,78	12,51	51	No damage that will prevent the correct function of the conductor.

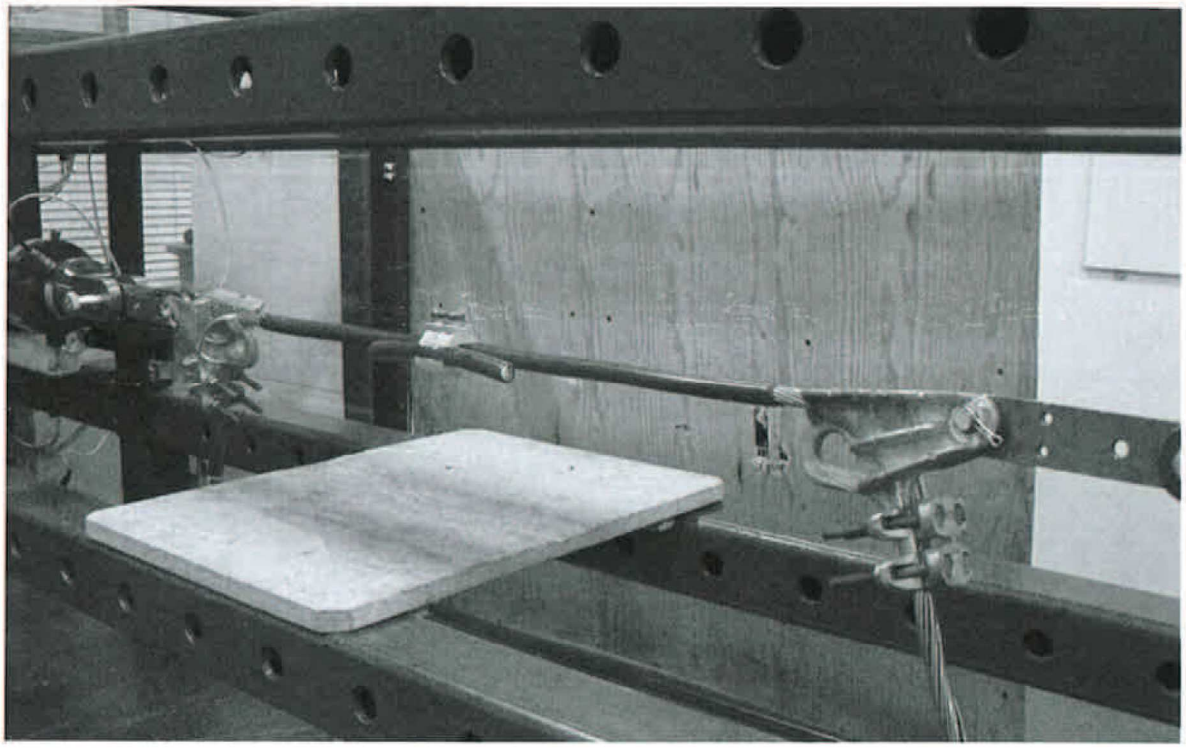
Table 1: Test data

Summary:
All samples fulfilled standard requirements.

АКЦИОНЕРНО ДРУЖЕСТВО * ФИЛКАБ 16 * ПЛОВДИВ *

ВЯРНО С ОРИГИНАЛА

4. Pictures



Picture 2: Test setup in tensile test machine

5. Test equipment

ID	TYPE	MODEL	PURPOSE
L14	Torque wrench	BDS 80 E	Torque adjustment
L110	Tensile test machine	50 kN	Tensile tests

6. Test Id

739

7. Revision history

A

АКЦИОНЕРНО ДРУЖЕСТВО * ПЛОВДИВ * ФИЛКАБ 16

ВЯРНО С ОРИГИНАЛА

Saves Your Energy

LABORATORY REPORT
No.: 1965S
Revision: A

Date of Test: 28.1.2010

Test object:

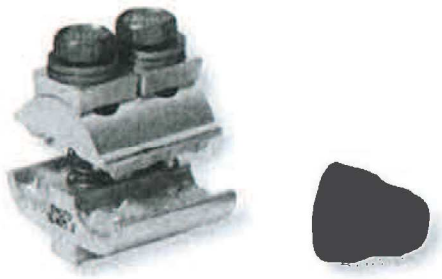
Waterproof insulation piercing connector SLW25.2.

Purpose of the test and relevant standards:

Part of type test.
Test for mechanical damage to the main conductor according to EN 50397-2:2009 clause 7.4.12.

Conclusion:

The connector passed the test.



Picture 1: Tested connector SLW25.2

ENSTO
UTILITY NETWORKS
LABORATORY

Date of Report: 10.11.2010

Tested by: Patrick Ekholm

Witnessed by: Sami Hakonen / SGS Fimko

Reviewed by: Janne Lappalainen

Ordered by: V.Vilenius
Distribution: OHL PD-team

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АКЦИОНЕРНО ДРУЖЕСТВО * ФИЛКАБ 16 * ПЛОВДИВ *

ВЯРНО С ОРИГИНАЛА

1. Test objects

Connectors:

Type:	Waterproof insulation piercing connector SLW25.2
Connector class:	B
Batch number:	0-series
Main conductor range:	50 – 157 mm^2
Branch conductor range:	50 – 157 mm^2
Tightening torque:	40Nm
No of pcs:	6

Conductors:

Type:	SAX-W 50
Used cross-sections:	50 mm^2
Manufacturer/Country:	Prysmian / Finland
Insulation thickness:	2,4 mm
Total diameter:	12,7 mm
Number of strands:	7
Insulation material:	XLPE
Conductor material:	AlMgSi
Conductor MBL:	15,5 kN
Refer to standard:	EN50397-1

Type:	SAX-W 150
Used cross-section:	150 mm^2
Manufacturer/Country:	Prysmian / Finland
Insulation thickness:	2,4 mm
Total diameter:	18,9 mm
Number of strands:	19
Insulation material:	XLPE
Conductor material:	AlMgSi
Conductor MBL:	47,3 kN
Refer to standard:	EN50397-1

АКЦИОНЕРНО ДРУЖЕСТВО * ФИЛКАБ 16 * ПЛОВДИВ *

ВЯРНО С ОРИГИНАЛА

2. Testing procedure

The conductors, on which the connectors were installed, were tensioned to 20 % of the conductor MBL (Tension 1). The connectors were tightened to 1,1 x tightening torque. After tightening the conductors were tensioned to 90% of the conductor MBL (Tension 2). The load was maintained for 60 seconds. Two sample were tests for each of the following conductor combinations.

Main	**Branch**
Max.	Max.
Min.	Min.
Min.	Max.

Requirement:

The conductor shall maintain the test for one minute without any failure or any damage that would prevent the correct function of the conductor.

3. Test results

Standard requirement for tightening torque is 1,1 x nominal tightening torque, which is 44 Nm.

Sample	Conductors		Tension 1 [kN]	Tension 2 [kN]	Tightening torque [Nm]	Result
	Main	Branch				
7	SAX-W 150	SAX-W 150	9,46	42,57	51	No damage that will prevent the correct function of the conductor.
8	SAX-W 150	SAX-W 150	9,46	42,57	51	No damage that will prevent the correct function of the conductor.
9	SAX-W 50	SAX-W 50	3,1	13,95	51	No damage that will prevent the correct function of the conductor.
10	SAX-W 50	SAX-W 50	3,1	13,95	51	No damage that will prevent the correct function of the conductor.
11	SAX-W 50	SAX-W 150	3,1	13,95	51	No damage that will prevent the correct function of the conductor.
12	SAX-W 50	SAX-W 150	3,1	13,95	51	No damage that will prevent the correct function of the conductor.

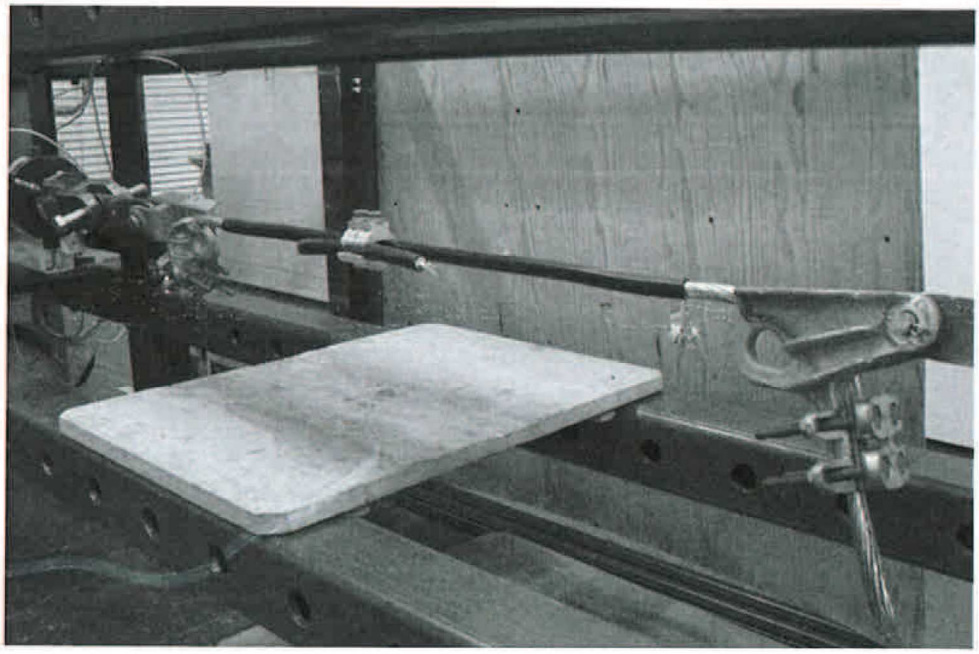
Table 1: Test data

Summary:
All samples fulfilled standard requirements.

АКЦИОНЕРНО ДРУЖЕСТВО ФИЛКАБ 16 ПЛОВДИВ

ВЯРНО С ОРИГИНАЛА

4. Pictures



Picture 2: Test setup in tensile test machine

5. Test equipment

ID	TYPE	MODEL	PURPOSE
L14	Torque wrench	BDS 80 E	Torque adjustment
L110	Tensile test machine	50 kN	Tensile tests

6. Test Id

739

7. Revision history

A

АКЦИОНЕРНО ДРУЖЕСТВО * ФИЛКАБ 16 * ПЛОВДИВ *

ВЯРНО С ОРИГИНАЛА

Saves Your Energy

LABORATORY REPORT
No.: 1967S
Revision: A

Date of Test: 28.1.2010

Test object:

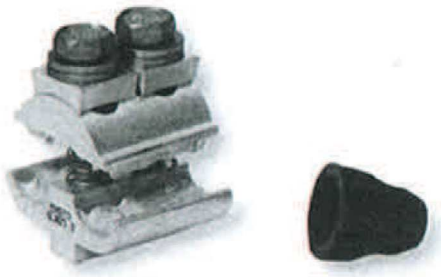
Waterproof insulation piercing connector SLW25.2.

Purpose of the test and relevant standards:

Part of type test.
Branch cable pull-out test according to EN 50397-2:2009 clause 7.4.13.

Conclusion:

The connector passed the test.



Picture 1: Tested connector SLW25.2

ENSTO
UTILITY NETWORKS
LABORATORY

Date of Report: 11.11.2010

Tested by: Patrick Ekholm

Witnessed by: Sami Hakonen / SGS Fimko

Reviewed by: Janne Lappalainen

Ordered by: V.Vilenius
Distribution: OHL PD-team

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Business ID: 0130215-8
Reg Office: Porvoo

1. Test objects

Connectors:

Type:	Waterproof insulation piercing connector SLW25.2
Connector class:	B
Batch number:	0-series
Main conductor range:	50 – 157 mm^2
Branch conductor range:	50 – 157 mm^2
Tightening torque:	40Nm
No of pcs:	4

Conductors:

Type:	BLL-T 50
Used cross-section:	50 mm^2
Manufacturer/Country:	AMO Kraft AB / Sweden
Insulation thickness:	2,5 mm
Total diameter:	14,2 – 15,2 mm
Number of strands:	7
Insulation material:	HDPE+PE
Conductor material:	AlMgSi
Conductor MBL:	13,9 kN
Refer to standard:	EN50397-1

Type:	BLL-T 157
Used cross-section:	157 mm^2
Manufacturer/Country:	AMO Kraft AB / Sweden
Insulation thickness:	2,5 mm
Total diameter:	21,3 – 22,3 mm
Number of strands:	19
Insulation material:	HDPE+PE
Conductor material:	AlMgSi
Conductor MBL:	43,7 kN
Refer to standard:	EN50397-1

АКЦИОНЕРНО ДРУЖЕСТВО ФИЛКАБ 16 ПЛОВДИВ

ВЯРНО С ОРИГИНАЛА

2. Testing procedure

The connectors were installed onto the conductors. The connectors were tightened to tightening torque. The conductors were marked so that any slippage during test could be measured. The assemblies were then tensioned to 1kN. The load was maintained for 60 seconds. Two sample were tests for each of the following conductor combinations.

Main	**Branch**
Max.	Max.
Min.	Min.

Requirement:

Conductor slippage shall not exceed more than 3mm. The conductor shall maintain the test for one minute without failure or any damage that would prevent the correct function of the cable.

3. Test results

Sample	Conductors		Tension 1 [kN]	Tightening torque [Nm]	Slippage [mm]	Result
	Main	Branch				
1	BLL-T 157	BLL-T 157	1	40	0	No damage that will prevent the correct function of the conductor.
2	BLL-T 157	BLL-T 157	1	40	0	No damage that will prevent the correct function of the conductor.
3	BLL-T 50	BLL-T 50	1	40	0	No damage that will prevent the correct function of the conductor.
4	BLL-T 50	BLL-T 50	1	40	0	No damage that will prevent the correct function of the conductor.

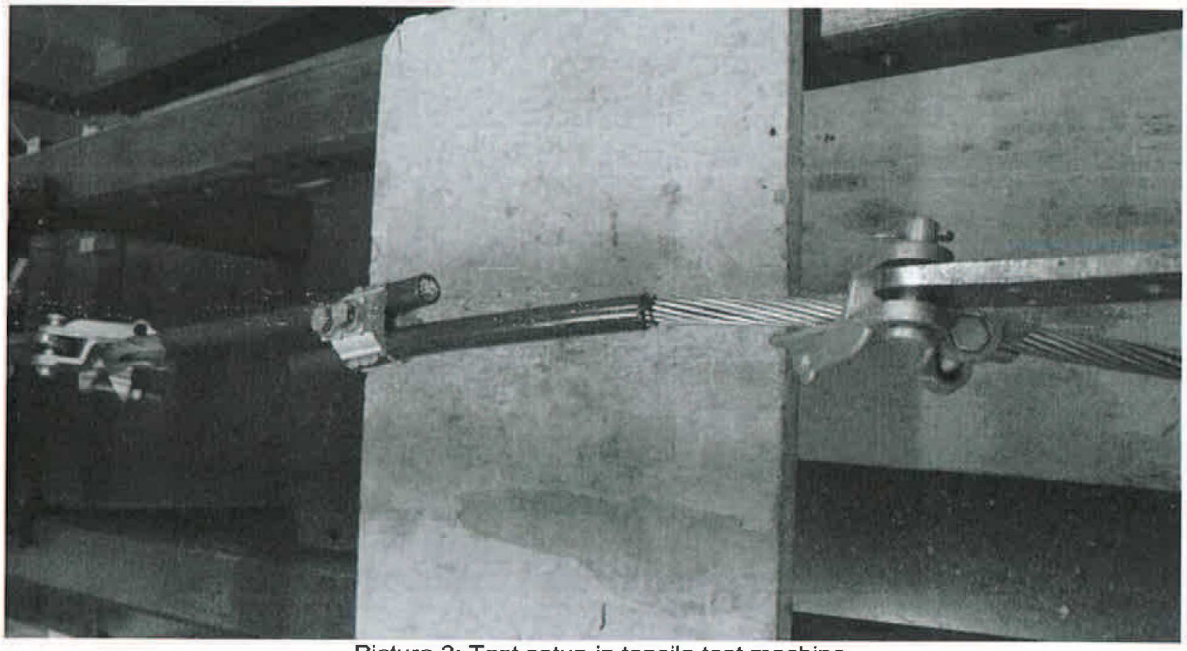
Table 1: Test data

Summary:
All samples fulfilled standard requirements.

АКЦИОНЕРНО ДРУЖЕСТВО * ФИЛКАБ 16 * ПЛОВДИВ *

ВЯРНО С ОРИГИНАЛА

4. Pictures



Picture 2: Test setup in tensile test machine

5. Test equipment

ID	TYPE	MODEL	PURPOSE
L14	Torque wrench	BDS 80 E	Torque adjustment
L110	Tensile test machine	50 kN	Tensile tests

6. Test Id

1021

7. Revision history

A

АКЦИОНЕРНО ДРУЖЕСТВО ФИЛКАБ 16 ПЛОВДИВ

ВЯРНО С ОРИГИНАЛА

Saves Your Energy

LABORATORY REPORT
No.: 1968S
Revision: A

Date of Test: 28.1.2010

Test object:

Waterproof insulation piercing connector SLW25.2.

Purpose of the test and relevant standards:

Part of type test.
Branch cable pull-out test according to EN 50397-2:2009 clause 7.4.13.

Conclusion:

The connector passed the test.

Picture 1: Tested connector SLW25.2

ENSTO
UTILITY NETWORKS
LABORATORY

Date of Report: 11.11.2010

Tested by: Patrick Ekholm

Witnessed by: Sami Hakonen / SGS Fimko

Reviewed by: Janne Lappalainen

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АКЦИОНЕРНО ДРУЖЕСТВО * ФИЛКАБ 16 * ПЛОВДИВ *

ВЯРНО С ОРИГИНАЛА

1. Test objects

Connectors:

Type:	Waterproof insulation piercing connector SLW25.2
Connector class:	B
Batch number:	0-series
Main conductor range:	50 – 157 mm^2
Branch conductor range:	50 – 157 mm^2
Tightening torque:	40Nm
No of pcs:	4

Conductors:

Type:	SAX-W 50
Used cross-sections:	50 mm^2
Manufacturer/Country:	Prysmian / Finland
Insulation thickness:	2,4 mm
Total diameter:	12,7 mm
Number of strands:	7
Insulation material:	XLPE
Conductor material:	AlMgSi
Conductor MBL:	15,5 kN
Refer to standard:	EN50397-1

Type:	SAX-W 150
Used cross-section:	150 mm^2
Manufacturer/Country:	Prysmian / Finland
Insulation thickness:	2,4 mm
Total diameter:	18,9 mm
Number of strands:	19
Insulation material:	XLPE
Conductor material:	AlMgSi
Conductor MBL:	47,3 kN
Refer to standard:	EN50397-1

АКЦИОНЕРНО ДРУЖЕСТВО ФИЛКАБ 15 ПЛОВДИВ

ВЯРНО С ОРИГИНАЛА

2. Testing procedure

The connectors were installed onto the conductors. The connectors were tightened to tightening torque. The conductors were marked so that any slippage during test could be measured. The assemblies were then tensioned to 1kN. The load was maintained for 60 seconds. Two sample were tests for each of the following conductor combinations.

Main	**Branch**
Max.	Max.
Min.	Min.

Requirement:

Conductor slippage shall not exceed more than 3mm. The conductor shall maintain the test for one minute without failure or any damage that would prevent the correct function of the cable.

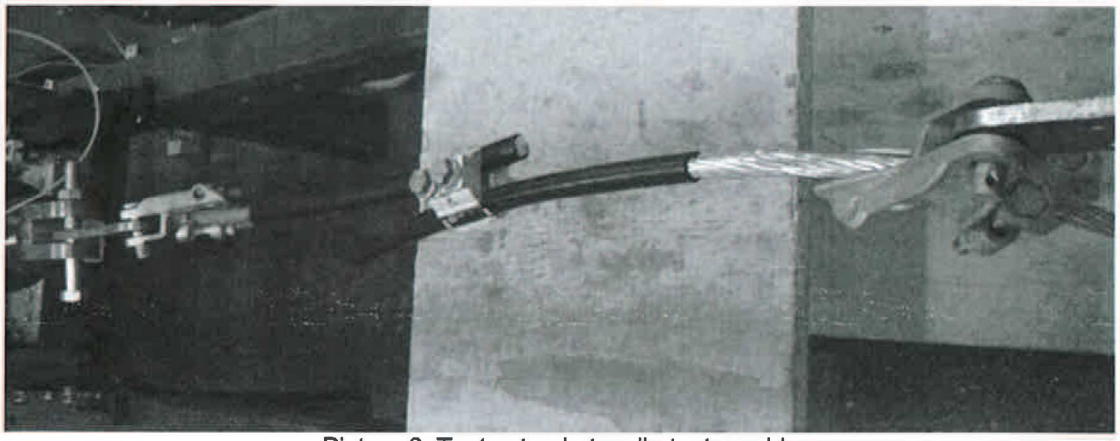
3. Test results

Sample	Conductors		Tension 1 [kN]	Tightening torque [Nm]	Slippage [mm]	Result
	Main	Branch				
5	SAX-W 150	SAX-W 150	1	40	0	No damage that will prevent the correct function of the conductor.
6	SAX-W 150	SAX-W 150	1	40	0	No damage that will prevent the correct function of the conductor.
7	SAX-W 50	SAX-W 50	1	40	0	No damage that will prevent the correct function of the conductor.
8	SAX-W 50	SAX-W 50	1	40	0	No damage that will prevent the correct function of the conductor.

Table 1: Test data

Summary:
All samples fulfilled standard requirements.

4. Pictures



Picture 2: Test setup in tensile test machine

5. Test equipment

ID	TYPE	MODEL	PURPOSE
L14	Torque wrench	BDS 80 E	Torque adjustment
L110	Tensile test machine	50 kN	Tensile tests

6. Test Id

1021

7. Revision history

A

АКЦИОНЕРНО ДРУЖЕСТВО * ФИЛКАБ 16 * ПЛОВДИВ *

ВЯРНО С ОРИГИНАЛА

Saves Your Energy

LABORATORY REPORT
No.: 1961S
Revision: A

Date of Test: 28.1.2010

Test object:

Waterproof insulation piercing connector SLW25.2.

Purpose of the test and relevant standards:

Part of type test.
Low temperature assembly test according to EN 50397-2:2009 clause 7.4.14.

Conclusion:

The connector passed the test at -25 °C.

Picture 1: Tested connector SLW25.2

ENSTO
UTILITY NETWORKS
LABORATORY

Date of Report: 10.11.2010

Tested by: Patrick Ekholm

Witnessed by: Sami Hakonen / SGS Fimko

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Reg Office: Porvoo

1. Test objects

Connectors:

Type:	Waterproof insulation piercing connector SLW25.2
Connector class:	B
Batch number:	0-series
Main conductor range:	50 – 157 mm^2
Branch conductor range:	50 – 157 mm^2
Tightening torque:	40Nm
No of pcs:	6

Conductors:

Type:	BLL-T 50
Used cross-section:	50 mm^2
Manufacturer/Country:	AMO Kraft AB / Sweden
Insulation thickness:	2,5 mm
Total diameter:	14,2 – 15,2 mm
Number of strands:	7
Insulation material:	HDPE+PE
Conductor material:	AlMgSi
Refer to standard:	EN50397-1

Type:	BLL-T 157
Used cross-section:	157 mm^2
Manufacturer/Country:	AMO Kraft AB / Sweden
Insulation thickness:	2,5 mm
Total diameter:	21,3 – 22,3 mm
Number of strands:	19
Insulation material:	HDPE+PE
Conductor material:	AlMgSi
Refer to standard:	EN50397-1

АКЦИОНЕРНО ДРУЖЕСТВО * ФИЛКАБ 16 * ПЛОВДИВ *

ВЯРНО С ОРИГИНАЛА