

FUNCTION IN FIRE EXPERT JUDGEMENT REPORT WITH CLASSIFICATION FIRES-JR-085-16-NURE

Cable bearing system VERGOKAN with cables DÄTWYLER and PRYSMIAN

This is an electronic version of a classification report which was made as a copy of classification report officially issued in a paper form. The electronic version of a classification report shall be used only for informative purpose. Any information listed in this classification report is the property of the sponsor and shall not be used or published without written permission. Contents of this file may only be modified by the editor i.e. FIRES, s.r.o., Batizovce. Sponsor is allowed to publish this classification report in parts only with written permission of the editor.

FUNCTION IN FIRE EXPERT JUDGEMENT REPORT WITH CLASSIFICATION IN ACCORDANCE WITH ČSN 73 0895

FIRES-JR-085-16-NURE

Name of the product: Cable bearing system VERGOKAN with cables DÄTWYLER and PRYSMIAN

Sponsor: VERGOKAN
Meersbloem Melden 16
9700 Oudenaarde
Belgium

Prepared by: FIRES, s.r.o.
Approved Body No. SK01
Osloboditeľov 282
059 35 Batizovce
Slovak Republic

Task No.: PR-16-0102

Date of issue: 14. 06. 2016

Reports: 3
Copy No.: 2

Distribution list:

Copy No. 1 FIRES, s. r. o., Osloboditeľov 282, 059 35 Batizovce, Slovak Republic
(electronic version)
Copy No. 2 VERGOKAN, Meersbloem Melden 16, 9700 Oudenaarde, Belgium
(electronic version)
Copy No. 3 VERGOKAN, Meersbloem Melden 16, 9700 Oudenaarde, Belgium

This expert judgement report consists of 9 pages and 13 annexes and may only be used or reproduced in its entirety.



1. INTRODUCTION

This expert judgement report with classification defines the function in fire classification assigned to element: cable bearing system VERGOKAN with cables DÄTWYLER and PRYSMIAN in accordance with the classes given in ČSN 73 0895.

This expert judgement report defines field of application which is outside the field of direct application according test standard or outside the field of extended application according to relevant extended application standard. This expert judgement expresses the opinion of the FIRES and is based on the experience or internal rules of FIRES.

This products have already been classified by FIRES, s.r.o. and number of previous fire resistance expert judgement report with classification is FIRES-JR-051-11-NURE Issue 2, issued on 14. 12. 2011 with validity until 31. 08. 2016. Document FIRES-JR-085-16-NURE replaces expert judgement report with classification FIRES-JR-051-11-NURE Issue 2.

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL

The element, Cable bearing system VERGOKAN with cables DÄTWYLER and PRYSMIAN, is defined as a cable bearing system for power and communication halogen free cables with circuit integrity maintenance in fire.

2.2 PRODUCT DESCRIPTION

The element comprise of cable bearing system VERGOKAN – cable trays with accessories (consoles, brackets, screws etc.) with power and communication halogen free cables DÄTWYLER and PRYSMIAN with circuit integrity maintenance in fire.

Cable trays KBSI

Cable trays are made of steel sheet 0,75 mm thick. Height of side wall is 60 mm. Width of tray is 300 mm. The trays are perforated on the sides and on the bottom. Cable tray is equipped with integrated junction. Trays are jointed together with 5 pcs of screws VMK 6x10 (new trademark is VMK6.10). Maximum load of trays is 20 kg.m⁻¹. Tested trays were KBSI 60x300x0,75 (new trademark is KBSI60.300.075).

Brackets WKM

Brackets are made of steel sheet 2,5 mm thick. Dimensions of the base steel sheet is (70x175) mm and 8,0 mm thick and is equipped by holes for installation. Holes for installation of trays are in upper part of the brackets.

Tested brackets were WKM 300 (new trademark is HDWKM300).

Consoles HSMU

Consoles are made from steel sheet and are composed of a head plate and the U 50 profile. Dimensions of the base head is (123x123) mm and 4,0 mm thick or (135x135) mm and 5,0 mm thick and is equipped by holes for installation. Dimensions of the U profile is (50x50) mm and 2,5 mm thick and is equipped by holes for installation of brackets. Tested consoles were HSMU 50x1000 (new trademark is HDHSMU50.1000).

SPACER TSU50 and HDTSU50

Spacers are made of steel sheet 1,0 mm thick (TSU50) or 1,5 mm thick (HDTSU50).

Cables

Power and communication free halogen cables are specified for stationary distribution of electrical energy in dry and damp premises. Since they are free from halogens and exhibit enhanced fire performance, these cables are used in those applications where in the event of fire, the negative effect on concentrations of people and valuable material goods must be minimized. Suitable for hotels, hospitals, underground railways, airport etc. to protect people and technical building equipment in the event of fire where there is requirement for maintaining the functional integrity all cable installation in the event of fire. The cables develop in case of fire low heat released rate and smoke and no burning particles drop away



during fire accident. Functional integrity all cable installation in the event of fire is guaranteed only with use specified supporting member and cables grips.

Used cables by test:

DÄTWYLER cables (producer Dätwyler AG, Gotthardstrasse 31, CH-6460 Altdorf, Switzerland):

- cable (N)HXH FE180 E30-E60 4x50 RM (2x);
- cable (N)HXH FE180 E30-E60 4x1,5 RE (2x);
- cable (N)HXCH FE180 E30-E60 4x50 RM/25 (2x);
- cable (N)HXCH FE180 E30-E60 4x1,5 RE/1,5 (2x);
- cable (N)HXH FE180 E90 4x50 RM (2x);
- cable (N)HXH FE180 E90 4x1,5 RE (2x);
- cable (N)HXCH FE180 E90 4x50 RM/25 (2x);
- cable (N)HXCH FE180 E90 4x2,5 RE/2,5 (2x);
- cable JE-H(St)H...Bd FE180 E30-E90 2x2x0,8 (2x);
- cable JE-H(St)HRH...Bd FE180 E30-E90 2x2x0,8 (2x).

PRYSMIAN cables (producer Prysmian, Viale Sarca 222, IT-20126 Milano, Italy):

- cable (N)HXH-J E30 4x50 RM (2x);
- cable (N)HXH-J E30 4x1,5 R (2x);
- cable (N)HXCH E30 4x50 RM/25 (2x);
- cable (N)HXCH E30 4x1,5 RE/1,5 (2x);
- cable (N)HXHX-J E90 4x50 RM (2x);
- cable (N)HXHX-J E90 4x1,5 RE (2x);
- cable (N)HXCHX E90 4x50 RM/25 (2x);
- cable (N)HXCHX E90 4x2,5 RE/2,5 (2x);
- cable JE-H(St)H E30 2x2x0,8 (2x).

The length of supporting constructions and cables was 5,5 m, 4 m from that was exposed to fire. Power and communication cables were fixed to the steel sheet trays in the points of allowed bending radius by steel clamps according to the cable diameter.

More detailed information about product construction is shown in the drawings which form an integral part of test report [1]. Drawings were delivered by sponsor.

3. TEST REPORTS AND EXTENDED APPLICATION REPORTS IN SUPPORT OF CLASSIFICATION

3.1 TEST REPORTS AND EXTENDED APPLICATION REPORTS

| No. | Name of laboratory | Name of sponsors | Test report No. | Date of the test | Test method |
|-----|---------------------------------|---|--------------------------|------------------|--------------------------|
| [1] | FIRES, s.r.o., Batizovce, SK | VERGOKAN, Meersbloem Melden 16, 9700 Oudenaarde, Belgium | FIRES-FR- 171-11-AUNE | 17. 08. 2011 | DIN 4102 – 12:1998-11 |

3.2 TEST RESULTS

| Test report No. /Test method | Specimen No. | Cables | Track No. | Time to first failure / interruption of conductor |
|------------------------------|--------------|---|-----------|---|
| [1] DIN 4102-12 | S1 | cable (N)HXCH FE180 E30-E60 4x50 RM/25 - Dätwyler | W1 - A | 93 minutes no failure / interruption |
| | S2 | cable (N)HXCH FE180 E30-E60 4x50 RM/25 - Dätwyler | W1 - A | 92 minutes |
| | S3 | cable (N)HXCH FE180 E90 4x50 RM/25 - Dätwyler | W1 - B | 93 minutes no failure / interruption |
| | S4 | cable (N)HXCH FE180 E90 4x50 RM/25 - Dätwyler | W1 - B | 93 minutes no failure / interruption |
| | S5 | cable (N)HXH FE180 E90 4x50 RM - Dätwyler | W1 - C | 93 minutes no failure / interruption |
| | S6 | cable (N)HXH FE180 E90 4x50 RM - Dätwyler | W1 - C | 93 minutes no failure / interruption |
| | S7 | cable (N)HXH FE180 E30-E60 4x50 RM - Dätwyler | X1 - D | 87 minutes |



| Test report No. /Test method | Specimen No. | Cables | Track No. | Time to first failure / interruption of conductor |
|------------------------------|--------------|--|-----------|---|
| [1] DIN 4102-12 | S8 | cable (N)HXH FE180 E30-E60 4x50 RM - Dätwyler | X1 - D | 74 minutes |
| | S9 | cable (N)HXCH FE180 E30-E60 4x1,5 RE/1,5 - Dätwyler | X1 - E | 93 minutes no failure / interruption |
| | S10 | cable (N)HXCH FE180 E30-E60 4x1,5 RE/1,5 - Dätwyler | X1 - E | 93 minutes no failure / interruption |
| | S11 | cable (N)HXH FE180 E30-E60 4x1,5 RE - Dätwyler | X1 - E | 93 minutes no failure / interruption |
| | S12 | cable (N)HXH FE180 E30-E60 4x1,5 RE - Dätwyler | X1 - E | 93 minutes no failure / interruption |
| | S13 | cable (N)HXCH FE180 E90 4x2,5 RE/2,5 - Dätwyler | X1 - F | 93 minutes no failure / interruption |
| | S14 | cable (N)HXCH FE180 E90 4x2,5 RE/2,5 - Dätwyler | X1 - F | 93 minutes no failure / interruption |
| | S15 | cable (N)HXH FE180 E90 4x1,5 RE - Dätwyler | X1 - F | 93 minutes no failure / interruption |
| | S16 | cable (N)HXH FE180 E90 4x1,5 RE - Dätwyler | X1 - F | 93 minutes no failure / interruption |
| | S17 | cable (N)HXH-J E30 4x50 RM - Prysmian | Y1 - G | 83 minutes |
| | S18 | cable (N)HXH-J E30 4x50 RM - Prysmian | Y1 - G | 91 minutes |
| | S19 | cable (N)HXH-J E30 4x1,5 RE - Prysmian | Y1 - H | 73 minutes |
| | S20 | cable (N)HXH-J E30 4x1,5 RE - Prysmian | Y1 - H | 84 minutes |
| | S21 | cable (N)HXCH E30 4x1,5 RE/1,5 - Prysmian | Y1 - H | 87 minutes |
| | S22 | cable (N)HXCH E30 4x1,5 RE/1,5 - Prysmian | Y1 - H | 81 minutes |
| | S23 | cable (N)HXHX-J E90 4x1,5 RE - Prysmian | Y1 - I | 93 minutes no failure / interruption |
| | S24 | cable (N)HXHX-J E90 4x1,5 RE - Prysmian | Y1 - I | 93 minutes no failure / interruption |
| | S25 | cable (N)HXCHX E90 4x2,5 RE/2,5 - Prysmian | Y1 - I | 93 minutes no failure / interruption |
| | S26 | cable (N)HXCHX E90 4x2,5 RE/2,5 - Prysmian | Y1 - I | 93 minutes no failure / interruption |
| | S27 | cable (N)HXCH E30 4x50 RM/25 - Prysmian | Z1 - J | 78 minutes |
| | S28 | cable (N)HXCH E30 4x50 RM/25 - Prysmian | Z1 - J | 90 minutes |
| | S29 | cable (N)HXHX-J E90 4x50 RM - Prysmian | Z1 - K | 93 minutes no failure / interruption |
| | S30 | cable (N)HXHX-J E90 4x50 RM - Prysmian | Z1 - K | 69 minutes |
| | S31 | cable (N)HXCHX E90 4x50 RM/25 - Prysmian | Z1 - L | 93 minutes no failure / interruption |
| | S32 | cable (N)HXCHX E90 4x50 RM/25 - Prysmian | Z1 - L | 93 minutes no failure / interruption |
| | S52 | cable JE-H(St)HRH...Bd FE180 E30-E90 2x2x0,8 -Dätwyler | W1 - A | 29 minutes |
| | S53 | cable JE-H(St)HRH...Bd FE180 E30-E90 2x2x0,8 -Dätwyler | W1 - B | 25 minutes |
| | S54 | cable JE-H(St)H...Bd FE180 E30-E90 2x2x0,8 - Dätwyler | W1 - C | 25 minutes |
| | S55 | cable JE-H(St)H...Bd FE180 E30-E90 2x2x0,8 - Dätwyler | X1 - D | 33 minutes |
| | S56 | cable JE-H(St)H E30 2x2x0,8 - Prysmian | Y1 - G | 61 minutes |
| | S57 | cable JE-H(St)H E30 2x2x0,8 - Prysmian | Z1 - J | 66 minutes |

[1] The fire test was discontinued in 94th minute at the request of test sponsor.

Specimens S1 – S32 were tested by three-phase voltage supply 3 x 230/400V with bulbs 240V / 60 W. Specimens S52 – S57 were tested by one-phase voltage supply 1 x 110V with LED diodes 3V /0,03W. Circuit breakers with rating 3 A and performance characteristics B(gL) were used.



4. CLASSIFICATION AND FIELD OF APPLICATION

4.1 CLASSIFICATION ACCORDING TO ČSN 73 0895

The element, cable bearing system VERGOKAN – cable trays with accessories (consoles, brackets, screws etc.) with power and communication halogen free cables DÄTWYLER and PRYSMIAN with circuit integrity maintenance in fire is classified according to the following combinations of performance parameters and classes as appropriate.

Cables DÄTWYLER used by the test are classified as follows:

| Cable | Type of tested cable, single cross-sections and number of conductors | Arrangement | Classification for type of tested cable (by cross-sections and number of conductors) | Classification for cable |
|---------------------------------------|--|--|--|---|
| (N)HXH FE180 E30-E60 | (N)HXH FE180 E30-E60 4x1,5 RE | In cable trays KBSI60.300.075. Ceiling consoles HDHSMU50.1000 wits brackets HDWKM300. Loading 20 kg.m ⁻¹ . Consoles in spacing of 1500 mm. Non-standard track X1-D and X1-E. | P90-R | n x ≥ 1,5 mm ² n ≥ 2 P60-R |
| | (N)HXH FE180 E30-E60 4x50 RM | | P60-R | |
| (N)HXCH FE180 E30-E60 | (N)HXCH FE180 E30-E60 4x1,5 RE/1,5 | In cable trays KBSI60.300.075. Ceiling consoles HDHSMU50.1000 wits brackets HDWKM300. Loading 20 kg.m ⁻¹ . Consoles in spacing of 1500 mm. Non-standard track W1-A and X1-E. | P90-R | n x ≥ 1,5/1,5 mm ² n ≥ 2 P90-R |
| | (N)HXCH FE180 E30-E60 4x50 RM/25 | | P90-R | |
| JE-H(St)HRH... Bd FE180 E30-E90 | JE-H(St)HRH...Bd FE180 E30-E90 2x2x0,8 | Non-standard track W1-A and W1-B. | P15-R | n x 2 x ≥ 0,8 mm n ≥ 2 P15-R |
| (N)HXH FE180 E90 | (N)HXH FE180 E90 4x1,5 RE | In cable trays KBSI60.300.075. Ceiling consoles HDHSMU50.1000 wits brackets HDWKM300. Loading 20 kg.m ⁻¹ . Consoles in spacing of 1500 mm. Non-standard track W1-C and X1-F. | P90-R | n x ≥ 1,5 mm ² n ≥ 2 P90-R |
| | (N)HXH FE180 E90 4x50 RM | | P90-R | |
| JE-H(St)H... Bd FE180 E30-E90 | JE-H(St)H...Bd FE180 E30-E90 2x2x0,8 | Non-standard track W1-C and X1-D. | P15-R | n x 2 x ≥ 0,8 mm n ≥ 2 P15-R |
| (N)HXCH FE180 E90 | (N)HXCH FE180 E90 4x2,5 RE/2,5 | In cable trays KBSI60.300.075. Ceiling consoles HDHSMU50.1000 wits brackets HDWKM300. Loading 20 kg.m ⁻¹ . Consoles in spacing of 1500 mm. Non-standard track W1-B and X1-F. | P90-R | n x ≥ 2,5/2,5 mm ² n ≥ 2 P90-R |
| | (N)HXCH FE180 E90 4x50 RM/25 | | P90-R | |



Cables PRYSMIAN used by the test are classified as follows:

| Cable | Type of tested cable, single cross-sections and number of conductors | Arrangement | Classification for type of tested cable (by cross-sections and number of conductors) | Classification for cable |
|------------------|--|--|--|---|
| (N)HXH E30 | (N)HXH-J E30 4x1,5 RE | In cable trays KBSI60.300.075. Ceiling consoles HDHSMU50.1000 wits brackets HDWKM300. Loading 20 kg.m ⁻¹ . Consoles in spacing of 1500 mm. Non-standard track Y1-G and Y1-H. | P60-R | n x ≥ 1,5 mm ² n ≥ 2 P60-R |
| | (N)HXH-J E30 4x50 RM | | P60-R | |
| JE-H(St)H E30 | JE-H(St)H E30 2x2x0,8 | Non-standard track Y1-G and Z1-J. | P60-R | n x 2 x ≥ 0,8 mm n ≥ 2 P60-R |
| (N)HXCH E30 | (N)HXCH E30 4x1,5 RE/1,5 | In cable trays KBSI60.300.075. Ceiling consoles HDHSMU50.1000 wits brackets HDWKM300. Loading 20 kg.m ⁻¹ . Consoles in spacing of 1500 mm. Non-standard track Y1-H and Z1-J. | P60-R | n x ≥ 1,5/1,5 mm ² n ≥ 2 P60-R |
| | (N)HXCH E30 4x50 RM/25 | | P60-R | |
| (N)HXHX E90 | (N)HXHX-J E90 4x1,5 RE | In cable trays KBSI60.300.075. Ceiling consoles HDHSMU50.1000 wits brackets HDWKM300. Loading 20 kg.m ⁻¹ . Consoles in spacing of 1500 mm. Non-standard track Y1-I and Z1-K. | P90-R | n x ≥ 1,5 mm ² n ≥ 2 P60-R |
| | (N)HXHX-J E90 4x50 RM | | P60-R | |
| (N)HXCHX E90 | (N)HXCHX E90 4x2,5 RE/2,5 | In cable trays KBSI60.300.075. Ceiling consoles HDHSMU50.1000 wits brackets HDWKM300. Loading 20 kg.m ⁻¹ . Consoles in spacing of 1500 mm. Non-standard track Y1-I and Z1-L. | P90-R | n x ≥ 2,5/2,5 mm ² n ≥ 2 P90-R |
| | (N)HXCHX E90 4x50 RM/25 | | P90-R | |

The element, cable bearing system VERGOKAN – cable trays with accessories (consoles, brackets, screws etc.) with power and communication halogen free cables DÄTWYLER and PRYSMIAN with circuit integrity maintenance in fire are classified to classes according to achieved test results of tested cables at tracks. Other classification is not allowed.



4.2 FIELD OF APPLICATION

This classification is valid for the following end use applications:

General

- **test results are applicable only for tested bearing systems VERGOKAN with cables DÄTWYLER and PRYSMIAN;**
- cable track functionality shall not be affected negatively by adjacent building or technological elements, another cable tracks, piping tracks or other technological device;
- test results are applicable only in case the cable track in practice will be fixed to a building construction which is sufficient in term of its statics performance for period of functionality in fire, i. e. the element meets the loadbearing criterion R according to EN 13501-2+A1;
- if the cable track is fixed directly to a building construction element made of material such as concrete, bricks, aerated concrete or steel supporting structure, such anchoring components shall be used, which, in term of their properties, are suitable with respect to used material, used installation method, required thermal attack curve, required period of functionality in fire, mechanical actions caused by cable support construction with cables;
- the cable track can be fixed for example by means of bolted joints, riveted joints, welded joints, joints of direct assembling (inserting). Suitability of fixing type for the purpose shall be demonstrated by a test or statics calculation;
- the number of cables placed on the cable support construction in horizontal arrangement is limited just by area disposition, but the maximal load acting on the cable support construction, stated by manufacturer, shall not be exceeded. Manufacturer specification of the number of cables, if available, shall also be respected;
- if cables run freely they need not be fixed by clips when they are arranged horizontally on trays or ladders;
- on their whole length the cables shall be installed in such a manner, that the minimal bend radius stated by manufacturer is observed;
- also cables without functionality in fire may be placed on cable system together with cables with functionality in fire but only under the condition, that minimum distance of 200 mm is observed between them or they are separated by means of suitable fire screen. In addition the common cable management is possible only in case when each power cable or conductor is insulated to maximal voltage used in power management system;
- communication, data and signal cables shall be placed in such a way, that at all events a distance minimum of 100 mm is provided between those cables and power cables;
- when the cable routes are installed in sloped or vertical position following shall be met: in points where it turns from horizontal to other orientation the cable route shall be effectively attached and in orientation other than horizontal the cables shall be fixed firmly also in places of bending whereas the allowable support position maximal distances and the allowable minimal bend radius are retained;
- cables with vertical orientation shall be installed individually into clips arranged with spacing maximum of 300 mm; to reduce the longitudinal tension they have to be effectively attached after each 3500 mm length;
- cable tracks installed in arrangement with the angle between the horizontal plane and their longitudinal axis is less than 20° are considered as horizontal;
- suitable methods for the longitudinal tension reduction are as follows: the standard clips of cables are protected from direct thermal attack by means of a fire casing or the meander dilatation arrangement or the sealing in floor apertures;

Cables and cable support systems

- test results are applicable to tested cable route, it means to combination of type, cross-section and manufacturer of the cable and of type and manufacturer of the cable support system;
Test results for power cables are directly applicable as follows:
- where test specimens according to ČSN 73 0895 are used, the worst test result obtained from testing of these specimens applies to all dimensions and tested arrangement method of tested cable;
- if cables with maximal cross-section of the core less than 50 mm² are tested, the worst test result applies to all cross-sections of cables in range of tested cross-sections;
- test result obtained from testing of cables with five or four conductors applies also to cables of the same type with smaller or greater number of conductors;



- in case only cables with minimal or maximal tested cross-section passed successfully the test, the test result is applicable only to the same type of cable, section and arrangement method as tested;
Test results obtained from testing of communication or signal cables are directly applicable as follows:
- test results are applicable to all constructions of specified type with diameter (cross-section) and number of cores equal to or greater than that of test specimen;
Test results obtained from testing of metallic data cables are directly applicable as follows:
- test results from perimeter integrity test apply for tested arrangement method for all dimensions of specified type with diameter (cross-section) and number of cores equal to or greater than that of test specimen;
Test results for cable supports systems are directly applicable as follows:
- in case the cables are attached into cable clips it is allowed to apply test results also to arrangement of more than one cable into one clip but maximum of 3. For arrangement of more than 3 cables into one clip it is necessary to demonstrate the functionality of the assembly by a separate test;
- test results obtained from testing of cables attached under the floor using clips are applicable also for attachment by means of cable clips to a wall horizontally;
- test results obtained from testing of installation on cable trays or cable ladders suspended on floor suspension devices are allowed to be applied to support constructions attached to a wall;
- In case the test was carried out with cable tray or ladder with jointing point placed in the middle between support constructions ($\pm 5\%$ of their distance) the test results apply to any position of jointing point between support constructions;
- Test results from test with specimen of cable trays or ladders are applicable also to event when the surface is treated with a colour painting or spraying in layer of surface density $< 1,0 \text{ kg/m}^2$ or of thickness $< 1,0 \text{ mm}$ in accordance with EN 13501-1+A1. When the thickness or surface density of this layer is of greater value it is necessary to carry out a test according to this standard;
- When test specimens of support constructions made in conformity with EN 61537 ed. 2 form steel with surface treatment are used, the test results are directly applicable to support constructions of the same type made of stainless steel but not vice versa;
Test results for standard cable support constructions are directly applicable as follows:
- test results from tests of functionality of cables arranged on standard cable support construction by one manufacturer are applicable to tested standard cable support constructions made by another manufacturer. The applicability of test results between constructions which differ from standard constructions in any parameter is not possible;
- in case the test is carried out on nonstandard cable support construction differing from standard support construction just in one parameter, it is possible to apply the test results also to standard cable support construction provided the different parameter within its range covers also parameter of standard cable support construction (e. g. nonstandard cable support construction with attachment spacing greater than that of standard support construction);
For non-standard cable support constructions the test results are directly applicable as follows:
- results from tests carried out on cable trays and cable ladders are applicable to all cable trays and cable ladders of identical construction of smaller width than tested.
- direct application of test results from test on a test specimen is not possible to different design nor to any other product made by another manufacturer;
Direct application for vertical arrangement:
- for cables arranged vertically or with a slope test results obtained from cables arranged individually in cable clips under the floor apply;
- test results carried out on horizontally arranged cable support constructions apply also to vertical or sloped arrangements provided the conditions given in this application;
- **test result is applicable to welded head plate to steel U-shaped ceiling profiles;**
- **heavy joined steel brackets WKM... shall be fixed to steel U-shaped ceiling profiles HSMU from one or from two sides, providing the maximum loading of U-shaped ceiling profiles is not more than during the fire test and only if sufficient type of fixation of the head plates to ceiling is provided;**
- **use the new type of spacer TSU50 instead of spacer HDTSU50;**
- **change the construction of tested console (base of console) type HDHSMU in accordance with drawings in annex.**



5. LIMITATIONS

Load-bearing construction elements for fixing of cable systems must be proved for at least the same fire resistance compare to classified function in fire of cable system.

The construction contractor is solely responsible for proper preparation.

This classification document does not represent type approval or certification of the product.

The classification is valid until 14. 06. 2021 provided that the product, field of application and standards and regulations are not changed.

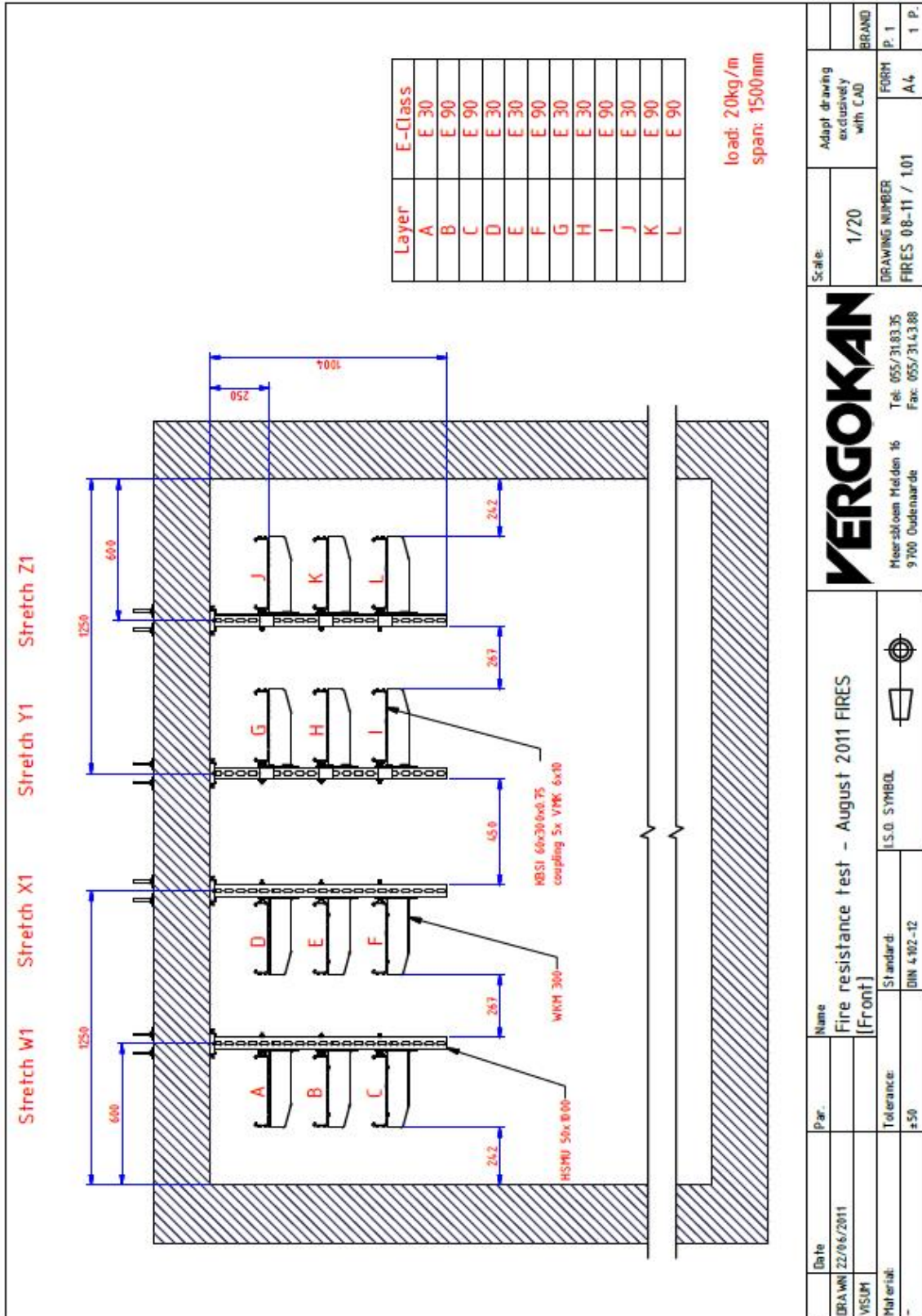
Approved:

Ing. Štefan Rástocký
leader of the testing laboratory

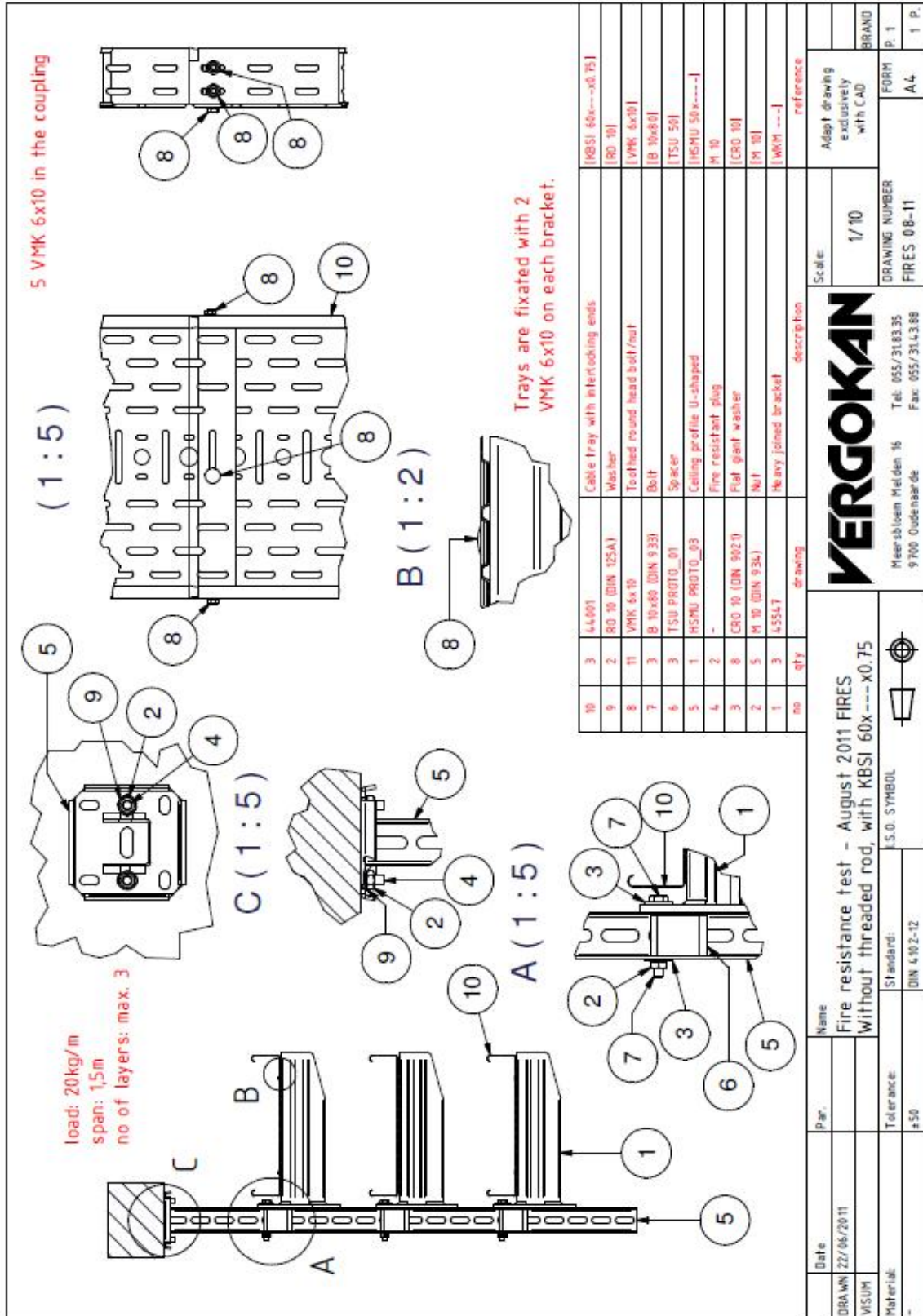


Signed:

Miroslav Hudák
technician of the testing laboratory



| | | | |
|----------|------------|--|--|
| Date | 22/06/2011 | Name | Fire resistance test - August 2011 FIRES |
| DRAWN | MSJM | Par. | [Front] |
| Material | - | Tolerance | ±50 |
| | | Standard | DIN 4102-12 |
| | | I.S.O. SYMBOL | |
| | | | |
| | | Meerslooten Velden 16 9700 Oudenaarde | |
| | | Tel: 055/31.83.35 Fax: 055/31.43.88 | |
| | | Scale: | 1/20 |
| | | DRAWING NUMBER | FIRES_08-11 / 1.01 |
| | | Adapt drawing exclusively with CAD | FORM A4 |
| | | BRAND | p. 1 |
| | | | 1 p. |





Material dikte : 0.8/1/1.25

NOT FOR PRODUCTION

| Type | Binnenmaat breedte : | Maat B | MD 0.8 | MD 1.0 | MD 1.25 |
|-------------|----------------------|--------|--------|--------|---------|
| KBSI 60*75 | 73 | 74.6 | 75 | 75.5 | 75.5 |
| KBSI 60*100 | 98 | 99.6 | 100 | 100.5 | 100.5 |
| KBSI 60*150 | 148 | 149.6 | 150 | 150.5 | 150.5 |
| KBSI 60*200 | 198 | 199.6 | 200 | 200.5 | 200.5 |
| KBSI 60*250 | 248 | 249.6 | 250 | 250.5 | 250.5 |
| KBSI 60*300 | 298 | 299.6 | 300 | 300.5 | 300.5 |
| KBSI 60*350 | 348 | 349.6 | 350 | 350.5 | 350.5 |
| KBSI 60*400 | 398 | 399.6 | 400 | 400.5 | 400.5 |
| KBSI 60*500 | 498 | 499.6 | 500 | 500.5 | 500.5 |
| KBSI 60*600 | 598 | 599.6 | 600 | 600.5 | 600.5 |

| | | | | | |
|-------------------|---|--|-------------------|------------|------|
| 1 | A | Ontwerp: ahrqzqzqzqzqzqz (M: 08/05/2010) (M: 25/05/2010) (M: 25/05/2010) | Datum: 25/05/2010 | Status: | Vrij |
| Naam: | | Beschrijving: | | Materiaal: | |
| GET: | | Schaal: | | GET: | |
| Vrij: | | 1/4 | | Tekening: | |
| Plannummer: | | 44.001 | | m.b.v. CAD | |
| Tolerantie: | | / 4 / | | aanpassen | |
| 1.0037 (Bendings) | | FORM: | | GS/MS | |
| 12 p. | | k. | | 12 p. | |

MERKMAN
 Hoofdstraat 16
 6195 Oudewaarde

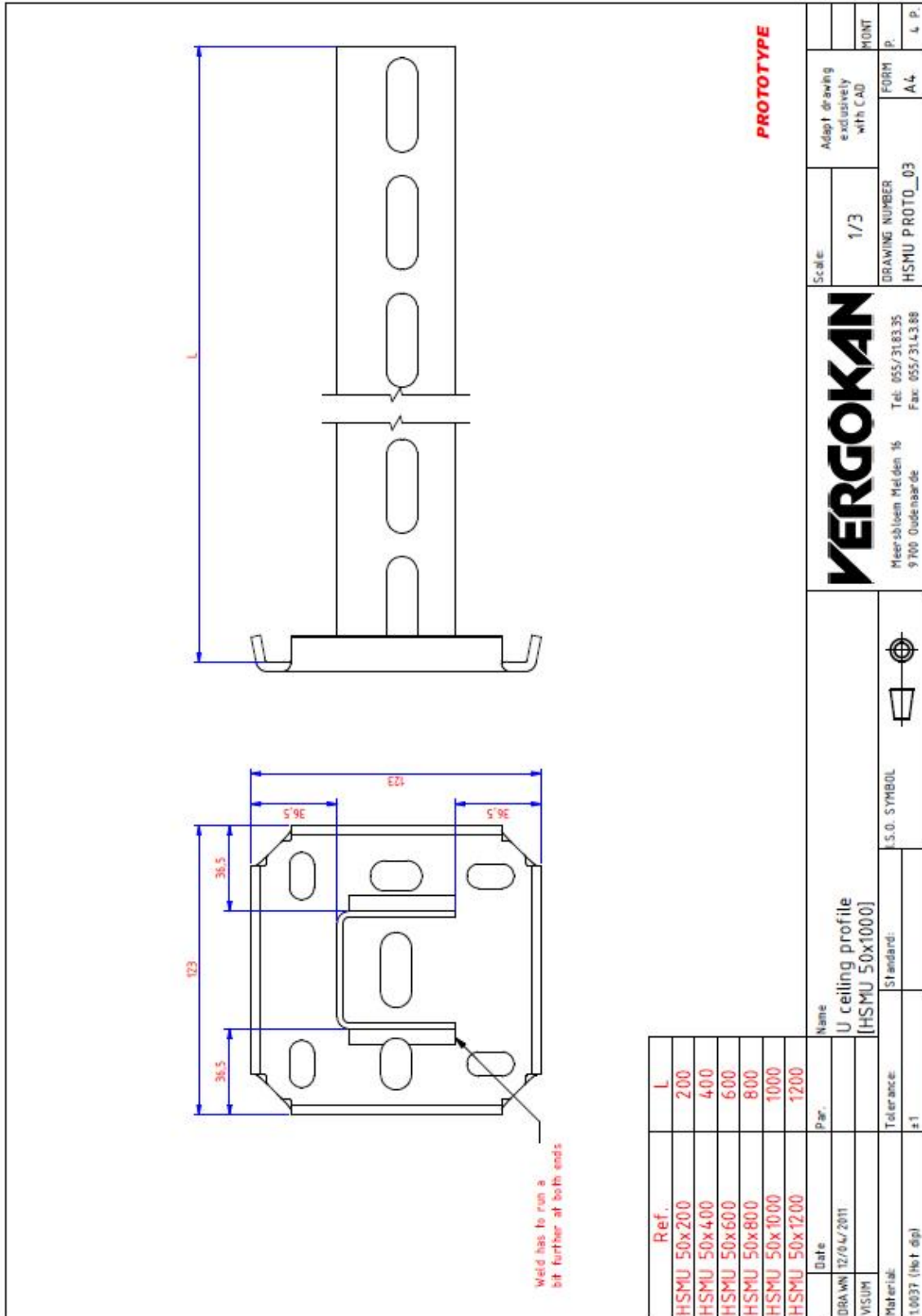
Tel: 055/340335
 Fax: 055/340336

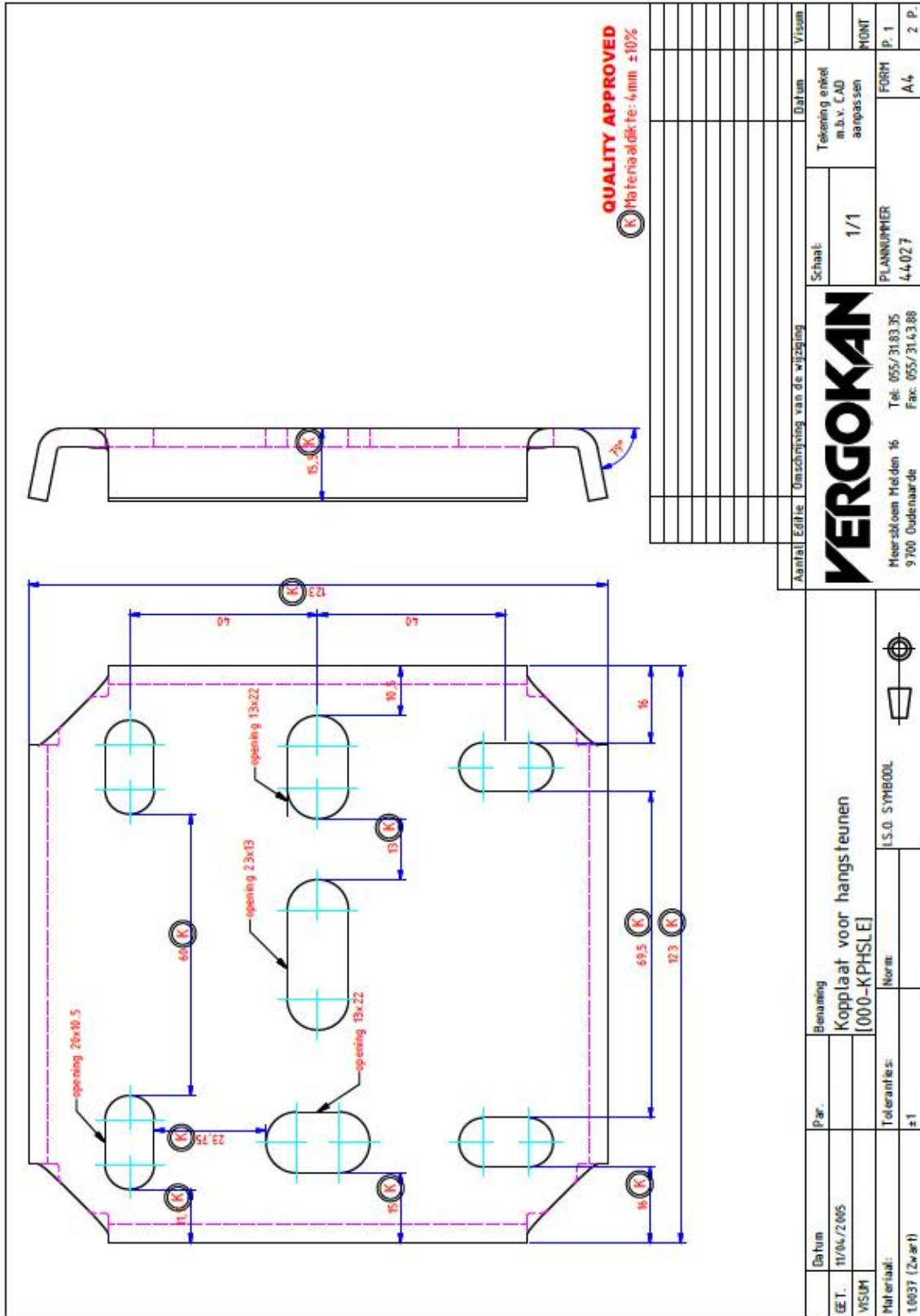
PLANNUMMER
 44.001 / 4 / -



NOT FOR PRODUCTION

| | | | | | |
|-------|-----|--|-------------------------------------|------------|--------|
| 1 | A | Scherptekening afwerkingspatroon (NF 484) voor type 100, 200, 300, 400, 500, 600 | 02/05/2010 | 10/05/2010 | - |
| soort | Nr. | omschrijving afwerkpatroon | tabak | GET. | VISION |
| | | Schaal : 1/5 | Tekening enkel m.b.v. CAD aanpassen | | |
| | | PLANNUMMER 44.001 | FORM GS/MS | k. 1) | 12 p. |
| | | Tel. 055/244335 Fax. 055/244338 | | | |
| | | Meer weten? Mailen! 6 010 Oudewaarde | | | |
| | | MERCKMAN | | | |
| | | Benaming: Kabelbaan ineenschuurbaar Perforatiepatronen | | | |
| | | Par. <rev> - | | | |
| | | Datum: 02-01-08 | | | |
| | | Naam: - | | | |
| | | Toleranties: 10 - 5 | | | |
| | | Material: 1.0037, Standaard 1.1 | | | |
| | | Naam: - | | | |
| | | U.S.A. SYMBOL | | | |
| | | VISION | | | |
| | | GET. | | | |

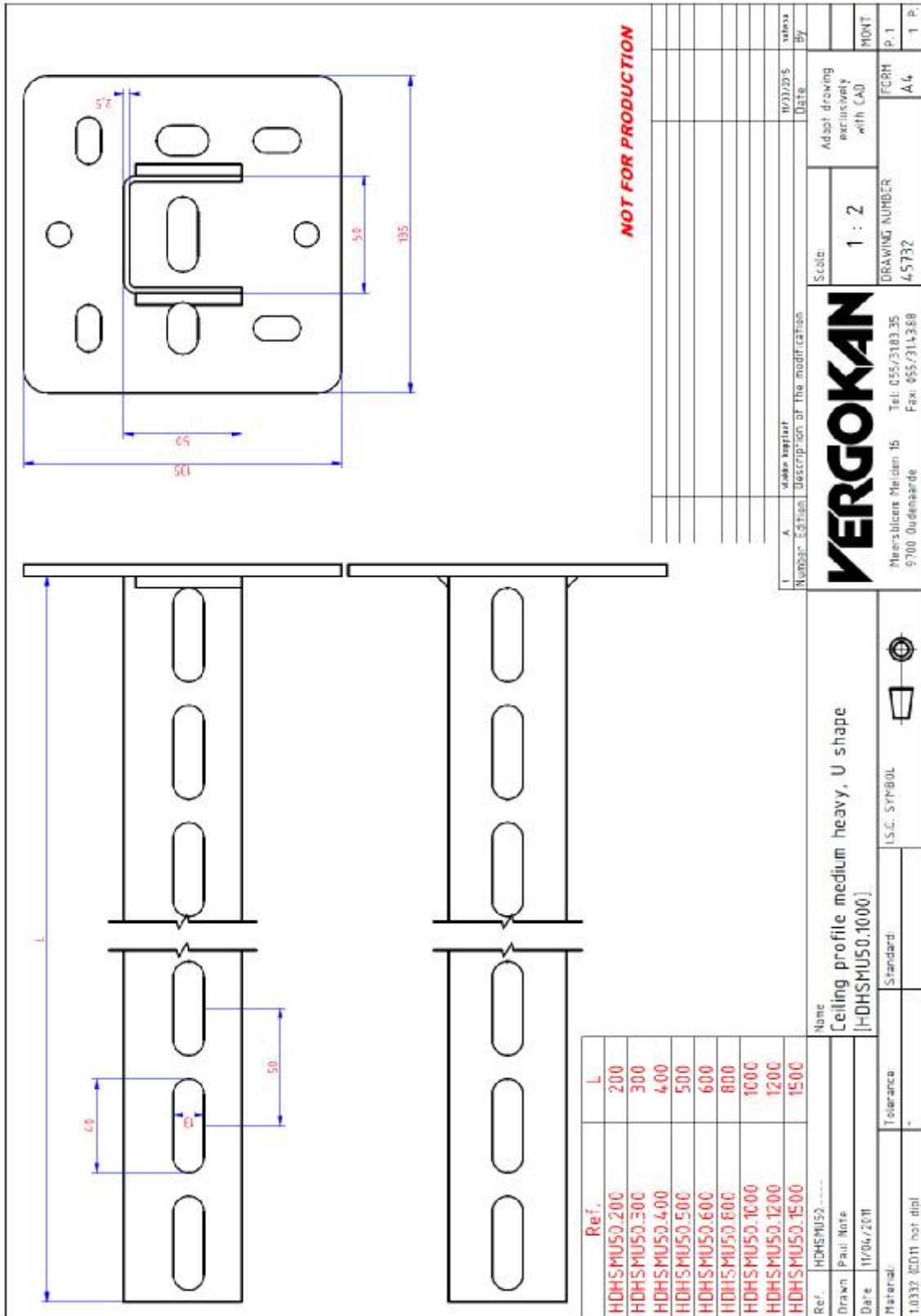


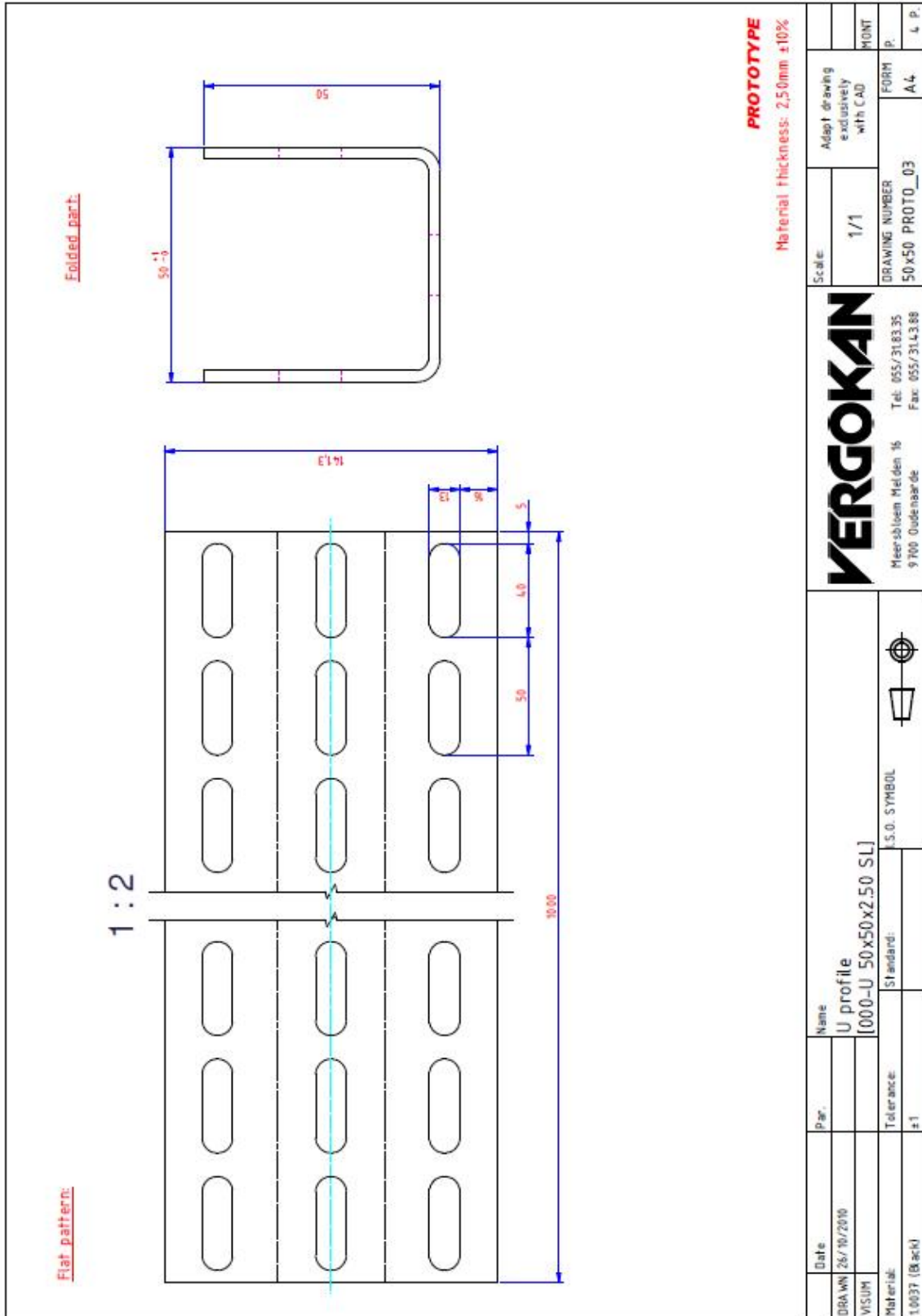




NOT FOR PRODUCTION

| | | | |
|-----------|-------------------------|---|------------------------------------|
| Ref.: | OKPHSLE3 | Name: | Head plate type HSLE3.--- |
| Drawn: | relpaest | Standard: | [OKPHSLE3] |
| Date: | 18/03/2014 | Tolerance: | - |
| Material: | 1.0332 (CD11 untreated) | U.S.C. SYMBOL: | |
| Number: | | Description of the modification: | |
| A | | Teerageen ar galdit (ander wf) | |
| SC: | By: | Scale: | Adapt drawing exclusively with CAD |
| | | 1 : 2 | |
| | | DRAWING NUMBER: | FCRM P.2 |
| | | 4.6059 | A.4 |
| | | | |
| | | Meersblom Merden 16 Tel: 055/3183.35 9700 Oudegrande Fax: 055/314.388 | |

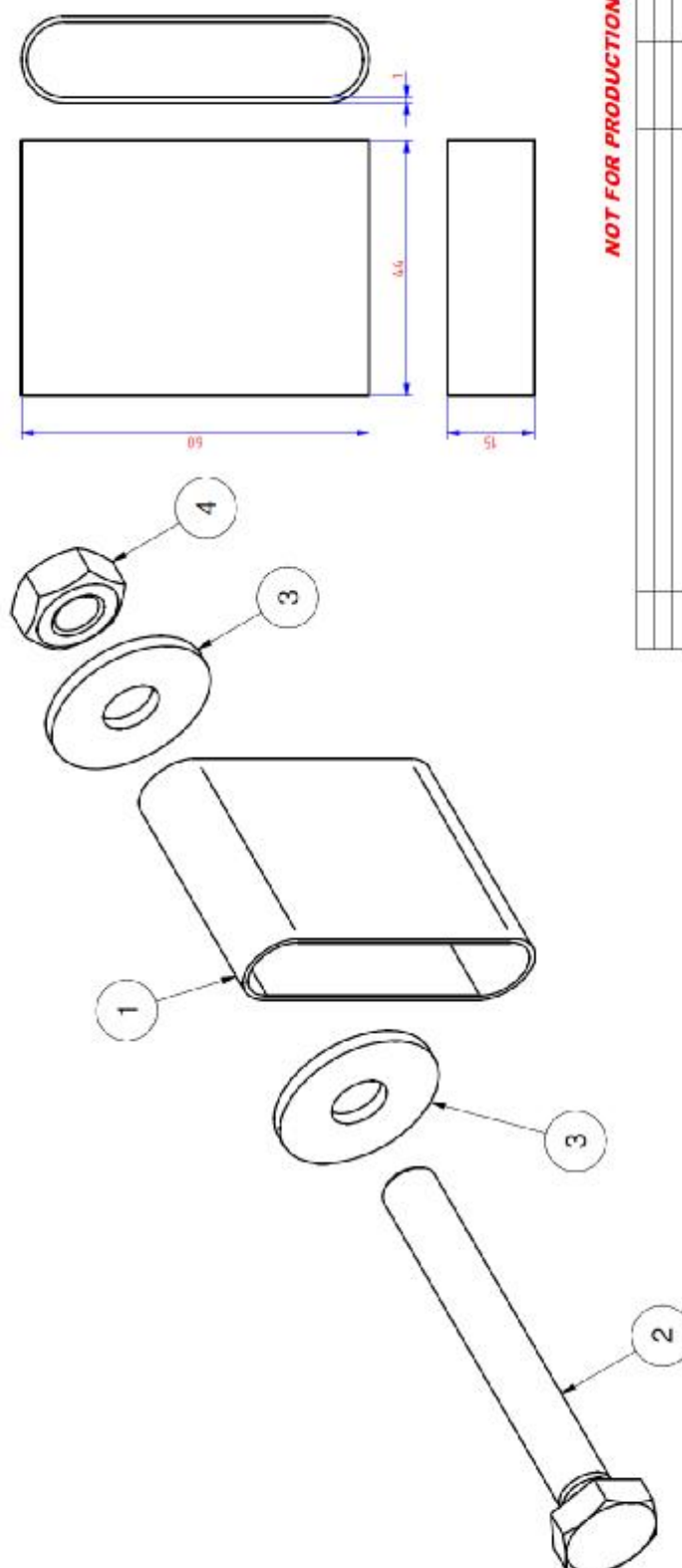






| | | | | |
|-------|-----|------------------|------------|----------------------|
| 1 | 1 | L5129 | [2TSU50] | TSU verzinkt |
| 2 | 1 | B 10x80 [DN 933] | [HDB10.80] | HD Zerkantbout |
| 3 | 2 | CRO 10 [DN 902] | [HDCRO.10] | HD Carrossierwaaier |
| 4 | 1 | M 10 [DN 944] | [HDM10] | Zerkantmoer M10 [HD] |
| #item | qty | drawing | reference | description |

| | |
|------------|--|
| Parts list | |
| | |



NOT FOR PRODUCTION

| | | | | | | | | | |
|--------|---------|---------------------------------|--|-------|------------------------------------|---------------------|----------------|-----------------|------|
| | | | | | | | | | |
| Number | Edition | Description of the modification | | | Date | By | | | |
| | | | | Scale | Adapt drawing exclusively with CAD | | MUNT | | FORM |
| | | | | 1 : 1 | | | DRAWING NUMBER | | A.4 |
| | | | | | | DRAWING NUMBER | | A.4 | |
| | | | | | | Meersboen Molten 15 | | Tel: 055/318335 | |
| | | | | | | 9330 Dudenarde | | Fax: 055/314300 | |

| | | | | |
|------------------|------------|------------------|-------------|--|
| Ref: HOTSU-- | Name | Spacer HCHSMU 50 | | |
| Drawn Paul Nite | | | | |
| Date 15/05/2011 | | | | |
| Material: | Tolerance: | Standard | ISO: SYV80L | |
| 1.0037 [Hot-dip] | - | | | |



| | | | |
|---|------------------|----------|-----------------|
| 1 | M10x80 (DIN 933) | [B10.00] | Zeskambout |
| 2 | M10 (DIN 934) | [C10.00] | Carassiermondel |
| 3 | M10 (DIN 934) | [M10] | Zeskantloer |
| 4 | 4-5178 | [TTSU50] | Spacer, HSMU 50 |

| Item | Qty | drawing | reference | description |
|------------|-----|---------|-----------|-------------|
| Parts list | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

NOT FOR PRODUCTION

| | | | |
|---|--------|--------------------------------------|------|
| 1 | HSMU50 | 20/02/2015 | Date |
| | | | |
| Mearsbloem Melden 16 9100 Oudewaarde | | Tel: 055/3183.35 Fax: 055/310.388 | |

| | | | |
|-----------|------------------------|----------------|----------------|
| Ref. | TSMU-- | Name | Spacer HSMU 50 |
| Drawn | | Part Note | [TSMU50] |
| Date | 15/06/2011 | Truerec: | |
| Material: | 1.0226 (DX51 Pregalva) | Standard: | |
| | | I.S.O. SYMBOL: | |

| | | | | | | | |
|--------|-------|----------------|-------|------------------------------------|----|------|------|
| Scale: | 1 : 2 | DRAWING NUMBER | 45730 | FORM | AA | P | 3 P. |
| | | | | Adapt drawing exclusively with CAD | | MONT | |



WKM 100 and WKM 200

WKM 300 and WKM 400

PROTOTYPE

| Ref. | H | W |
|---------|-------|-----|
| WKM 100 | 76,3 | 125 |
| WKM 200 | 85,0 | 225 |
| WKM 300 | 93,8 | 325 |
| WKM 400 | 102,5 | 425 |

| | | | |
|---|--|--|--|
| Date: 21/03/2011 | | Name: Heavy joined bracket [WKM 400] | |
| Material: 1.0037 (Hot dip) | | Tolerance: ±1 | |
| Standard: S.O. SYMBOL | | S.O. SYMBOL | |
| Scale: 1/5 | | Adapt drawing exclusively with CAD | |
| DRAWING NUMBER: WKM FIRES 05-2011 | | FORM P. A4 | |
| Meersbloem Meiden 16 9700 Oudenaarde | | Tel: 055/31.83.35 Fax: 055/31.43.88 | |
| VERGOKAN | | MONT | |
| PROTTO_05 | | 14 P. | |



| Ref. | Head plate | Thickness head plate | Bracket | Thickness bracket | H | W |
|-------------|---------------|----------------------|--------------|-------------------|-------|-----|
| 000-WKM 100 | 000-KPWK 300 | 5,00mm ±10% | 000-CWKM 100 | 2,50mm ±10% | 76,3 | 125 |
| 000-WKM 200 | 000-KPWK 400 | 5,00mm ±10% | 000-CWKM 200 | 2,50mm ±10% | 85,0 | 225 |
| 000-WKM 300 | 000-KPWKZ 300 | 8,00mm ±10% | 000-CWKM 300 | 2,50mm ±10% | 93,8 | 325 |
| 000-WKM 400 | 000-KPWKZ 300 | 8,00mm ±10% | 000-CWKM 400 | 2,50mm ±10% | 102,5 | 425 |

000-CWKM 100

000-CWKM 200

000-CWKM 300

000-CWKM 400

PROTOTYPE

| | | | | | |
|------------------|------------------------------------|----------------|---------------------------------|------------------------------------|-------|
| Date | Name | Number | Description of the modification | Date | Visum |
| DRAWN 21/03/2011 | Heavy joined bracket [000-WKM 100] | | | | |
| VISUM | | Scale: | 1/5 | Adapt drawing exclusively with CAD | |
| Material: | Tolerance: | DRAWING NUMBER | WKM FIRES 05-2011 | FORM | |
| 1.0037 (Zwart) | #1 | | | A4 | |
| | Standard: | | | | |
| | S.S.O. SYMBOL | | | | |

Meersbloem Meiden 16
9700 Oudenaarde
Tel: 055/31.83.35
Fax: 055/31.43.88