

FUNCTION IN FIRE EXPERT JUDGEMENT REPORT WITH CLASSIFICATION FIRES-JR-088-16-NURE

Cable bearing system VERGOKAN with cables DÄTWYLER, FABER and PRAKAB

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

FIRES-JR-088-16-NURE

Name of the product: Cable bearing system VERGOKAN with cables DÄTWYLER, FABER and PRAKAB

Sponsor: VERGOKAN
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Belgium

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1. INTRODUCTION

This expert judgement report with classification defines the function in fire classification assigned to element: cable bearing system VERGOKAN with cables DÄTWYLER, FABER and PRAKAB 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-062-12-NURE, issued on 10. 07. 2012 with validity until 31. 08. 2016. Document FIRES-JR-088-16-NURE replaces expert judgement report with classification FIRES-JR-062-12-NURE.

2. DETAILS OF CLASSIFIED PRODUCT

2.1 GENERAL

The element, Cable bearing system VERGOKAN with cables DÄTWYLER, FABER and PRAKAB, 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, FABER and PRAKAB with circuit integrity maintenance in fire.

Cable trays KBSI

Cable trays are made of steel sheet 1,0 mm thick. Height of side wall is 60 mm. Width of tray is 400 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 60x400x1,00 (new trademark is KBSI60.400.100).

Cable trays KBSTI

Cable trays are made of steel sheet 1,0 mm thick. Height of side wall is 60 mm. Width of tray is 300 mm or 400 mm. The trays are perforated on the sides and on the bottom. Cable tray is equipped with integrated junction. Trays are jointed together with 3 pcs of screws VMK 6x10 (new trademark is VMK6.10). Maximum load of trays is 20 kg.m⁻¹. Tested trays were KBSTI 60x300x0,75 (new trademark is KBSTI60.300.075) and KBSTI 60x400x1,00 (new trademark is KBSTI60.400.100).

Brackets WKM

Brackets are made of steel sheet 2,5 mm thick. Dimensions of the head plate 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) and WKM 400 (new trademark is HDWKM400).

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 (6x);
 cable JE-H(St)HRH...Bd FE180 E30-E90 2x2x0,8 (6x).

FABER cables (producer Klaus Faber AG, Lebacher Str. 152-156, D-66009 Saarbrücken, Germany)

cable (N)HXCH FE 180 E90 4x50 RM/25 FACAB (2x);
 cable (N)HXCH FE 180 E90 4x1,5 RE/1,5 FACAB (2x).

PRAKAB cables (producer PRAKAB PRAŽSKÁ KABELOVNA, s.r.o., Ke Kablu 278, 102 09 Praha 15, Czech Republic)

cable JE-H(St)H FE180 E90 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- 172-11-AUNE	18. 08. 2011	DIN 4102 – 12:1998-11

3.2 TEST RESULTS

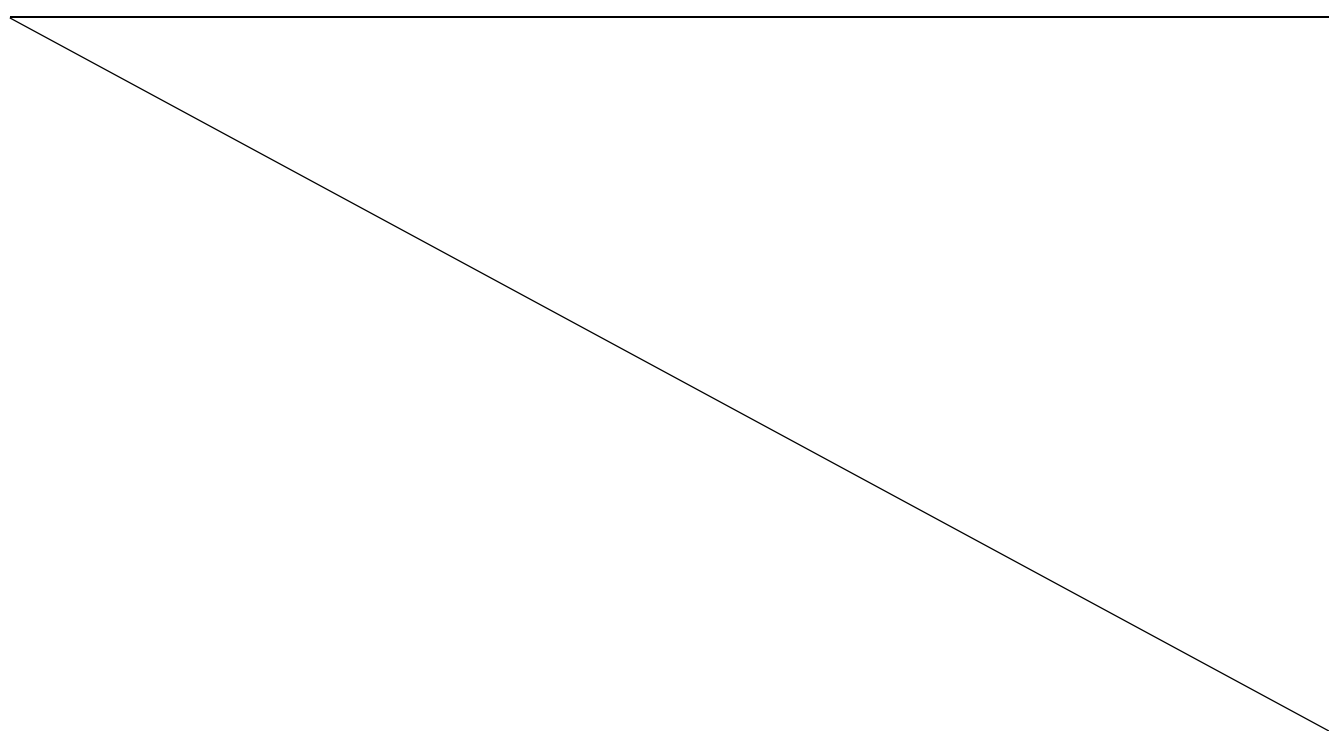
Test report No. /Test method	Specimen No.	Cables	Track No.	Time to first failure / interruption of conductor
[1] DIN 4102-12	S1	cable (N)HXH FE180 E30-E60 4x50 RM - Dätwyler	X2 - M	93 minutes no failure / interruption
	S2	cable (N)HXH FE180 E30-E60 4x50 RM - Dätwyler	X2 - M	93 minutes no failure / interruption
	S3	cable (N)HXH FE180 E90 4x50 RM - Dätwyler	X2 - N	93 minutes no failure / interruption
	S4	cable (N)HXH FE180 E90 4x50 RM - Dätwyler	X2 - N	93 minutes no failure / interruption
	S5	cable (N)HXCH FE180 E90 4x50 RM/25 - Dätwyler	X2 - O	93 minutes no failure / interruption
	S6	cable (N)HXCH FE180 E90 4x50 RM/25 - Dätwyler	X2 - O	93 minutes no failure / interruption
	S7	cable (N)HXCH FE180 E30-E60 4x50 RM/25 - Dätwyler	Y2 - P	93 minutes no failure / interruption



Test report No. /Test method	Specimen No.	Cables	Track No.	Time to first failure / interruption of conductor
[1] DIN 4102-12	S8	cable (N)HXCH FE180 E30-E60 4x50 RM/25 - Dätwyler	Y2 - P	93 minutes no failure / interruption
	S9	cable (N)HXCH FE180 E30-E60 4x1,5 RE/1,5 - Dätwyler	Y2 - Q	93 minutes no failure / interruption
	S10	cable (N)HXCH FE180 E30-E60 4x1,5 RE/1,5 - Dätwyler	Y2 - Q	93 minutes no failure / interruption
	S11	cable (N)HXH FE180 E30-E60 4x1,5 RE - Dätwyler	Y2 - Q	93 minutes no failure / interruption
	S12	cable (N)HXH FE180 E30-E60 4x1,5 RE - Dätwyler	Y2 - Q	73 minutes
	S13	cable (N)HXCH FE180 E90 4x2,5 RE/2,5 - Dätwyler	Y2 - R	93 minutes no failure / interruption
	S14	cable (N)HXCH FE180 E90 4x2,5 RE/2,5 - Dätwyler	Y2 - R	93 minutes no failure / interruption
	S15	cable (N)HXH FE180 E90 4x1,5 RE - Dätwyler	Y2 - R	93 minutes no failure / interruption
	S16	cable (N)HXH FE180 E90 4x1,5 RE - Dätwyler	Y2 - R	93 minutes no failure / interruption
	S17	cable (N)HXCH FE 180 E90 4x50 RM/25 FACAB - Faber	Z2 - U	93 minutes no failure / interruption
	S18	cable (N)HXCH FE 180 E90 4x50 RM/25 FACAB - Faber	Z2 - U	81 minutes
	S19	cable (N)HXCH FE 180 E90 4x1,5 RE/1,5 FACAB - Faber	Z2 - U	93 minutes no failure / interruption
	S20	cable (N)HXCH FE 180 E90 4x1,5 RE/1,5 FACAB - Faber	Z2 - U	93 minutes no failure / interruption
	S52	cable JE-H(St)H...Bd FE180 E30-E90 2x2x0,8 - Dätwyler	X2 - M	35 minutes
	S53	cable JE-H(St)H...Bd FE180 E30-E90 2x2x0,8 - Dätwyler	X2 - N	24 minutes
	S54	cable JE-H(St)HRH...Bd FE180 E30-E90 2x2x0,8 -Dätwyler	X2 - O	23 minutes
	S55	cable JE-H(St)HRH...Bd FE180 E30-E90 2x2x0,8 -Dätwyler	Y2 - P	29 minutes
	S56	cable JE-H(St)HRH...Bd FE180 E30-E90 2x2x0,8 -Dätwyler	Z2 - S	33 minutes
	S57	cable JE-H(St)HRH...Bd FE180 E30-E90 2x2x0,8 -Dätwyler	Z2 - S	93 minutes no failure / interruption
	S58	cable JE-H(St)H...Bd FE180 E30-E90 2x2x0,8 - Dätwyler	Z2 - S	30 minutes
	S59	cable JE-H(St)H...Bd FE180 E30-E90 2x2x0,8 - Dätwyler	Z2 - S	93 minutes no failure / interruption
	S60	cable JE-H(St)HRH...Bd FE180 E30-E90 2x2x0,8 -Dätwyler	Z2 - T	41 minutes
	S61	cable JE-H(St)HRH...Bd FE180 E30-E90 2x2x0,8 -Dätwyler	Z2 - T	51 minutes
	S62	cable JE-H(St)H...Bd FE180 E30-E90 2x2x0,8 - Dätwyler	Z2 - T	35 minutes
	S63	cable JE-H(St)H...Bd FE180 E30-E90 2x2x0,8 - Dätwyler	Z2 - T	93 minutes no failure / interruption
	S64	cable JE-H(St)H FE180 E90 2x2x0,8 - Prakab	Z2 - U	93 minutes no failure / interruption
	S65	cable JE-H(St)H FE180 E90 2x2x0,8 - Prakab	Z2 - U	12 minutes

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

Specimens S1 – S20 were tested by three-phase voltage supply 3 x 230/400V with bulbs 240V / 60 W.
 Specimens S52 – S65 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 by company DÄTWYLER, FABER and PRAKAB 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 KBSTI60.300.075. Ceiling consoles HDHSMU50.1000 wits brackets HDWKM300. Loading 20 kg.m ⁻¹ . Consoles in spacing of 1500 mm. Non-standard track X2-M and Y2-Q.	P60-R	n x ≥ 1,5 mm ² n ≥ 2 P60-R
	(N)HXH FE180 E30-E60 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 X2-M and X2-N.	P15-R	n x 2 x ≥ 0,8 mm n ≥ 2 P15-R
(N)HXCH FE180 E30-E60	(N)HXCH FE180 E30-E60 4x1,5 RE/1,5	In cable trays KBSTI60.300.075. Ceiling consoles HDHSMU50.1000 wits brackets HDWKM300. Loading 20 kg.m ⁻¹ . Consoles in spacing of 1500 mm. Non-standard track Y2-P and Y2-Q.	P90-R	n x ≥ 1,5/1,5 mm ² n ≥ 2 P90-R
	(N)HXCH FE180 E30-E60 4x50 RM/25		P90-R	
(N)HXH FE180 E90	(N)HXH FE180 E90 4x1,5 RE	In cable trays KBSTI60.300.075. Ceiling consoles HDHSMU50.1000 wits brackets HDWKM300. Loading 20 kg.m ⁻¹ . Consoles in spacing of 1500 mm. Non-standard track X2-N and Y2-R.	P90-R	n x ≥ 1,5 mm ² n ≥ 2 P90-R
	(N)HXH FE180 E90 4x50 RM		P90-R	
(N)HXCH FE180 E90	(N)HXCH FE180 E90 4x2,5 RE/2,5	In cable trays KBSTI60.300.075. Ceiling consoles HDHSMU50.1000 wits brackets HDWKM300. Loading 20 kg.m ⁻¹ . Consoles in spacing of 1500 mm. Non-standard track X2-O and Y2-R.	P90-R	n x ≥ 2,5/2,5 mm ² n ≥ 2 P90-R
	(N)HXCH FE180 E90 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 X2-O and Y2-P.	P15-R	n x 2 x ≥ 0,8 mm n ≥ 2 P15-R
JE-H(St)H... Bd FE180 E30-E90	JE-H(St)H...Bd FE180 E30-E90 2x2x0,8	In cable trays KBSTI60.400.100. Ceiling consoles HDHSMU50.1000 wits brackets HDWKM400. Loading 20 kg.m ⁻¹ . Consoles in spacing of 1500 mm. Non-standard track Z2-S.	P30-R	n x 2 x ≥ 0,8 mm n ≥ 2 P30-R



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
JE-H(St)HRH... Bd FE180 E30-E90	JE-H(St)HRH...Bd FE180 E30-E90 2x2x0,8	In cable trays KBSTI60.400.100. Ceiling consoles HDHSMU50.1000 wits brackets HDWKM400. Loading 20 kg.m ⁻¹ . Consoles in spacing of 1500 mm. Non-standard track Z2-S.	P30-R	n x 2 x ≥ 0,8 mm n ≥ 2 P30-R
JE-H(St)H... Bd FE180 E30-E90	JE-H(St)H...Bd FE180 E30-E90 2x2x0,8	In cable trays KBSI60.400.100. Ceiling consoles HDHSMU50.1000 wits brackets HDWKM400. Loading 20 kg.m ⁻¹ . Consoles in spacing of 1500 mm. Non-standard track Z2-T.	P30-R	n x 2 x ≥ 0,8 mm n ≥ 2 P30-R
JE-H(St)HRH... Bd FE180 E30-E90	JE-H(St)HRH...Bd FE180 E30-E90 2x2x0,8	In cable trays KBSI60.400.100. Ceiling consoles HDHSMU50.1000 wits brackets HDWKM400. Loading 20 kg.m ⁻¹ . Consoles in spacing of 1500 mm. Non-standard track Z2-T.	P30-R	n x 2 x ≥ 0,8 mm n ≥ 2 P30-R

Cables FABER 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)HXCH FE 180 E90 FACAB	(N)HXCH FE 180 E90 4x1,5 RE/1,5 FACAB	In cable trays KBSI60.400.100. Ceiling consoles HDHSMU50.1000 wits brackets HDWKM400. Loading 20 kg.m ⁻¹ . Consoles in spacing of 1500 mm. Non-standard track Z2-U.	P90-R	n x ≥ 1,5 mm ² n ≥ 2 P60-R
	(N)HXCH FE 180 E90 4x50 RM/25 FACAB		P60-R	

Cables PRAKAB 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
JE-H(St)H FE180 E90	JE-H(St)H FE180 E90 2x2x0,8	In cable trays KBSI60.400.100. Ceiling consoles HDHSMU50.1000 wits brackets HDWKM400. Loading 20 kg.m ⁻¹ . Consoles in spacing of 1500 mm. Non-standard track Z2-U.	Without classification	Without classification

The element, cable bearing system **VERGOKAN** – cable trays with accessories (consoles, brackets, screws etc.) with power and communication halogen free cables by company **DÄTWYLER**, **FABER** and **PRAKAB** 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, FABER and PRAKAB;**
- 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.

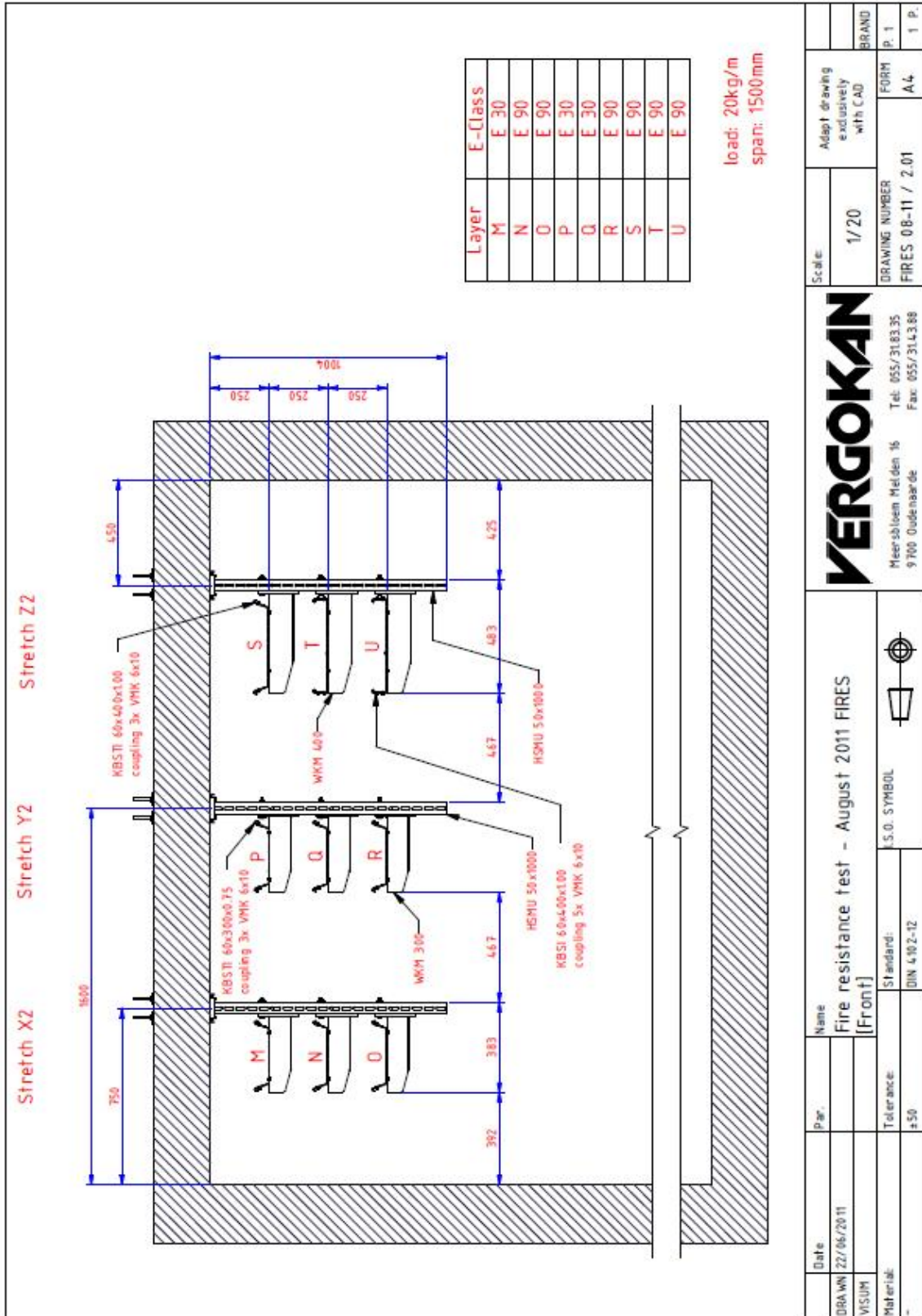
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Ing. Štefan Rástocký
leader of the testing laboratory



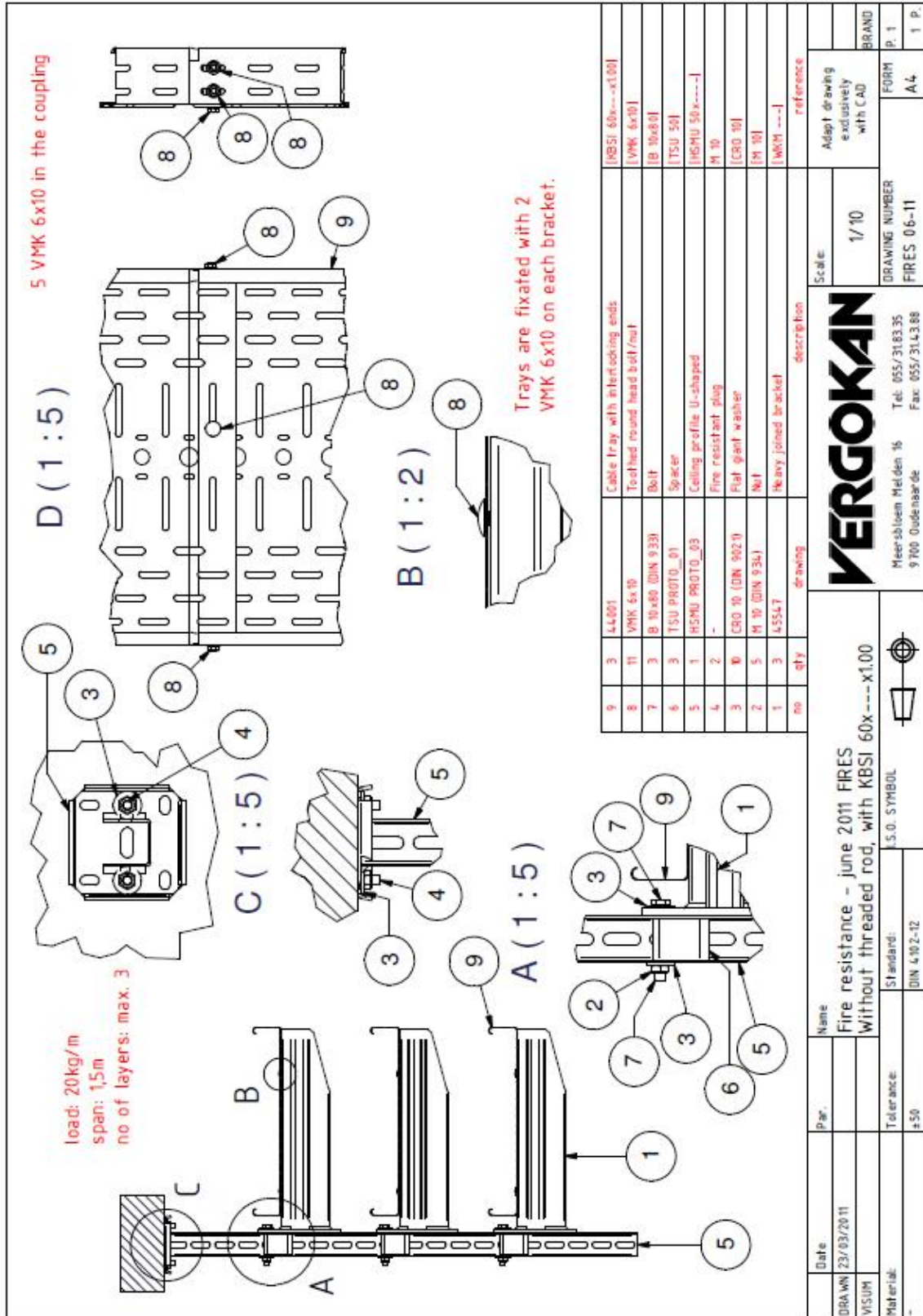
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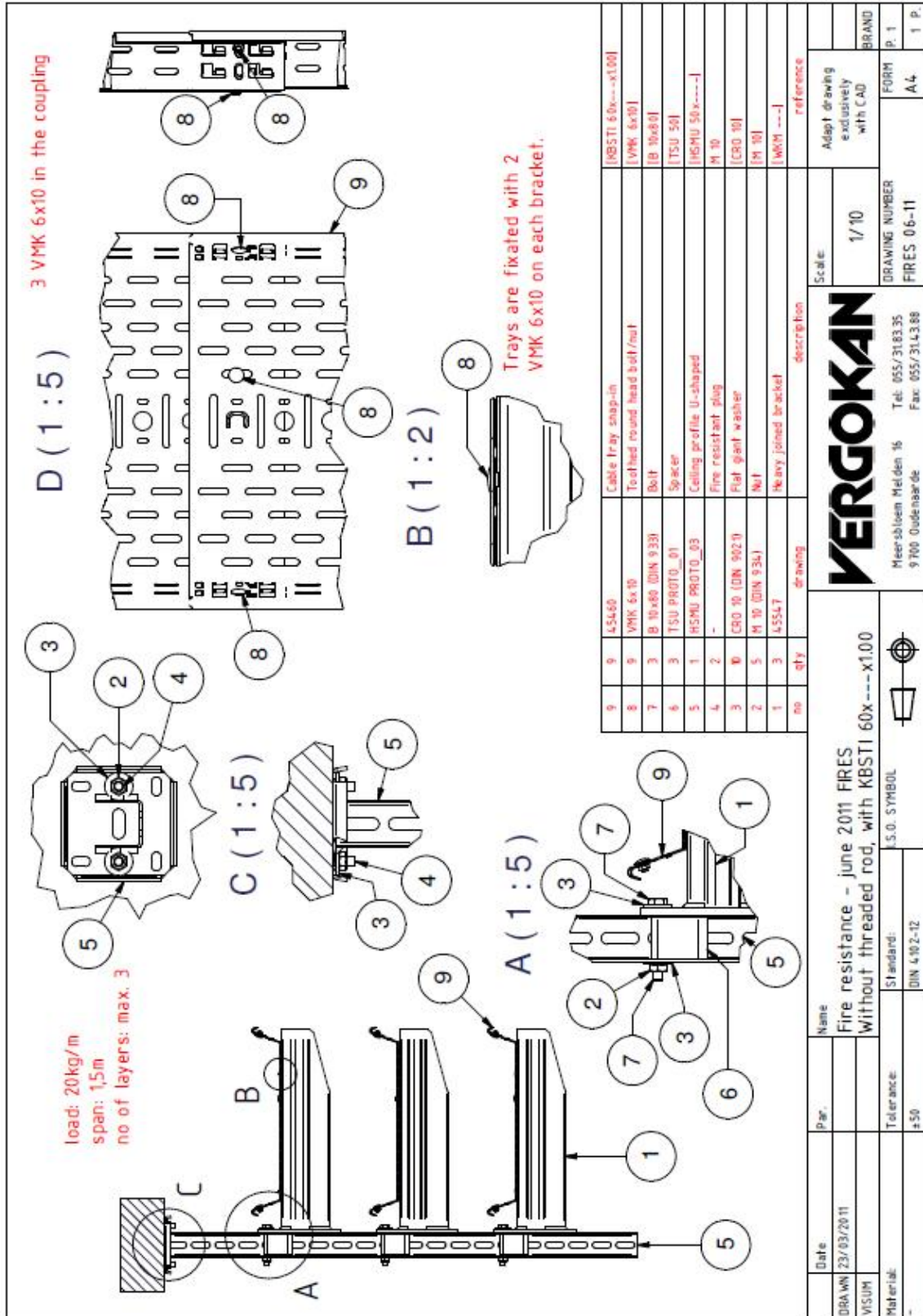
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technician of the testing laboratory

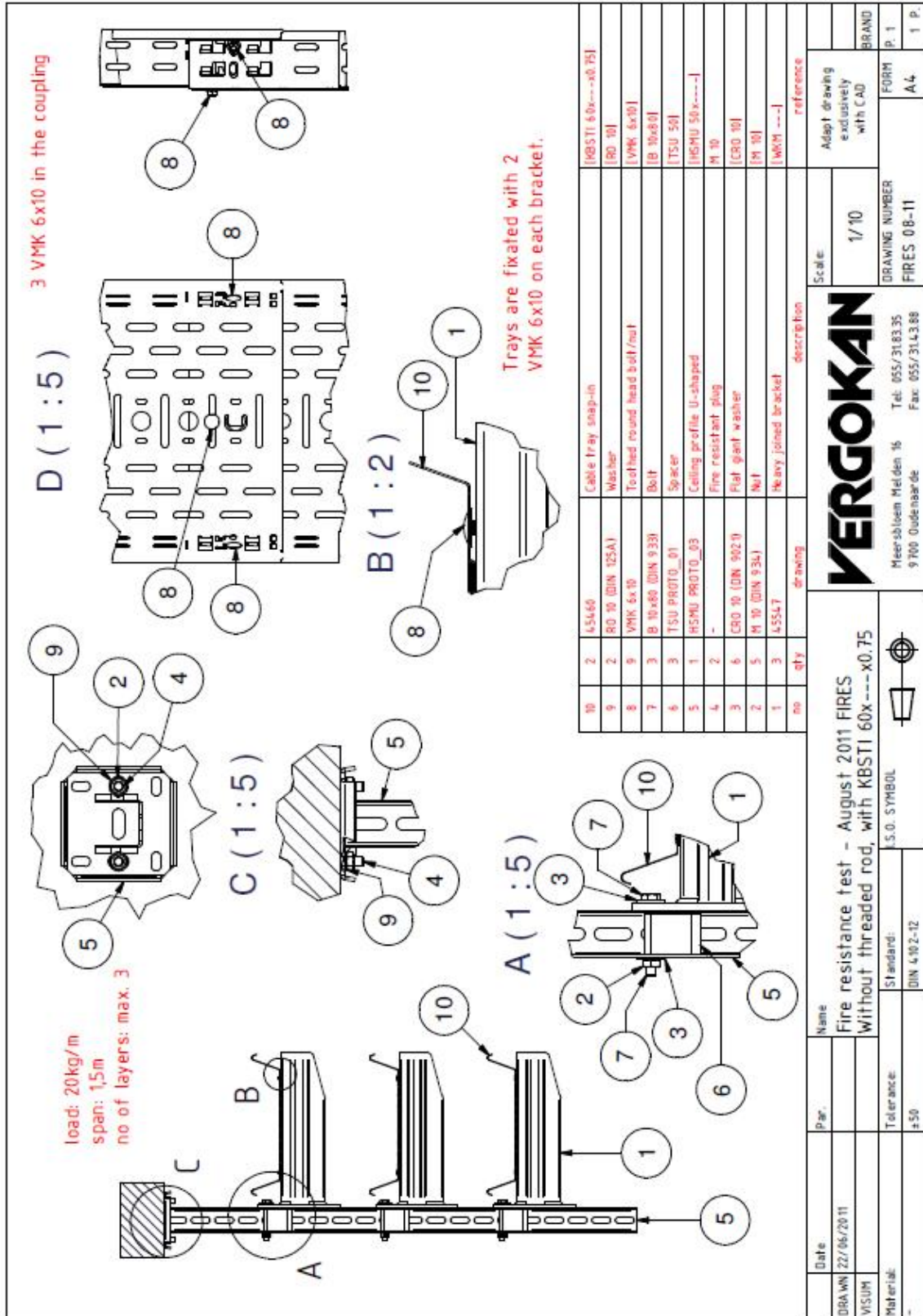


Meerslooten Merden 15
9700 Oudehaarde
Tel: 055/318335
Fax: 055/314388

Date	22/06/2011	Scale	1/20	Adapt drawing exclusively with CAD
DRAWN	MSJIM	DRAWING NUMBER	FIRES_08-11 / 2.01	FORM p. 1
Name	Fire resistance test - August 2011 FIRES [Front]			A4
Par.				1 P.
Tolerance	±50			
Standard	DIN 4102-12			
S.O. SYMBOL				







VERGOKAN

Date: 22/06/2011
 DRAWN: VISUM
 Material: -
 Par.:
 Tolerance: +50
 Name: Fire resistance test - August 2011 FIRES Without threaded rod, with KBSTI 60x---x0.75
 Standard: S.S.O. SYMBOL
 DIN 4102-12
 Scale: 1/10
 DRAWING NUMBER: FIRES 08-11
 Meersbloem Meiden 16
 9700 Oudenaarde
 Tel: 055/31.83.35
 Fax: 055/31.43.88
 Adapt drawing exclusively with CAD
 BRAND
 FORM p. 1
 A4
 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

Naam	Kabelbaan ineen-schrijfbaar	
GET.	02-01-98	Par.
VISUM		
Auteursid.	L.0037 (Bendrijn,el)	Toleranties :
		U.S. SYMBOL

1	A	Verpakking afvoersysteem (NF 682) voor bus 1 tot 25/05/2010	05/05/2010		
aanpak	M3:	Gevoel: 1/40-1/100	Material	GET.	VISUM
Schied :			1/4	Tekening enkel m.b.v. CAD aanpakken	
PLANNUMMER			44.001	FORM	GS/MS
			/ 4 /		k 12
					12 p.

Logo: **MERCKMAN**

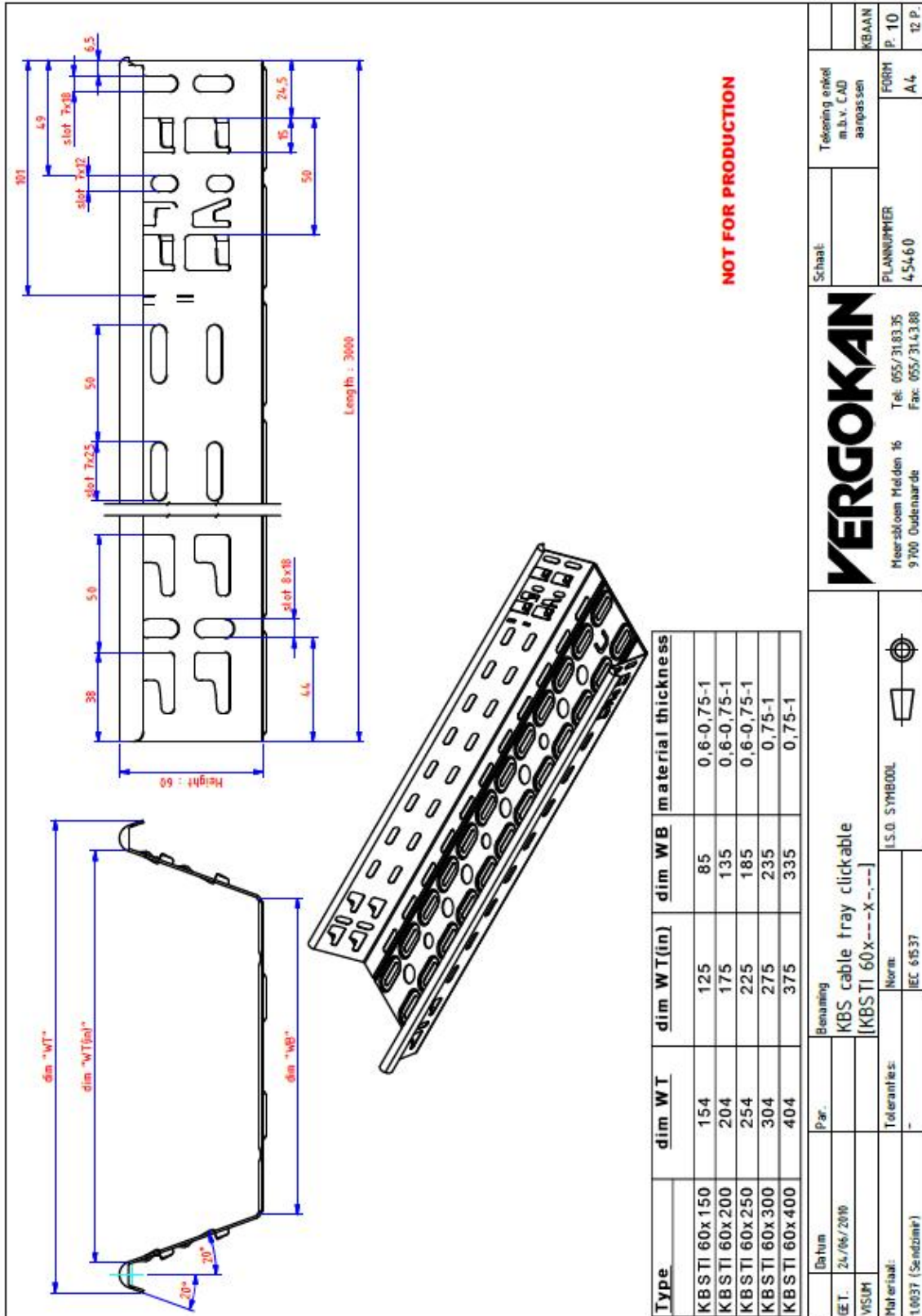
Hoofdstraat 16
9700 Oudegraven
Tel: 055/340335
Fax: 055/343388



1	A	Scherptekening afschuifpatroon (NF 484) Schuifpatroon (NF 484)	05/05/2010	-
naam	Nr.:	omschrijving afwijking	tabak	GET.
GET.	Schied : 1/5		Tekening aantal m.b.v. CAD aanpassen	VISION
VISION	PLANNUMMER 44.001 / 4 / -		FORM GS/MS	revisie
Materiaal : 1.0037, Sinterzilver		Tel. 055/514335 Fax. 055/514348		k. 1)
Toleranties : 0,05		U.S.A. SYMBOOL		12 p.

NOT FOR PRODUCTION

Naam	Par.	Benaming	Naam
van van Compent	<next>	Kabelbaan ineenschuurbaar Perforatiepatronen	
GET.			
VISION			





KBSTI 300

KBSTI 400

KBSTI 150

KBSTI 200

KBSTI 250

NOT FOR PRODUCTION

Revisie tabel : zie P1

Datum	Par.	Benaming	Schaal:	Tekening eikel	KBAAN
GET. 3/03/2009		Bodemperforatie : KBSTI 60x x	1/5	m.b.v. CAD	
VISUM		Bottom perforation	PLAANNUMMER	aangepassen	FORM P. 12
Materiaal:		Norm:	45460		A4
1.0037 (Sendzimir)		S.S.O. SYMBOL			

VERGOKAN

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



Weld has to run a bit further at both ends

PROTOTYPE

Ref.	L	Date	Par.	Name	S.O. SYMBOL	Tolerance
HSMU 50x200	200			U ceiling profile		#1
HSMU 50x400	400			[HSMU 50x1000]		
HSMU 50x600	600					
HSMU 50x800	800					
HSMU 50x1000	1000					
HSMU 50x1200	1200					

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Meersbloem Meiden 16
9700 Oudenaarde

Tel: 055/31.83.35
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Scale: 1/3

DRAWING NUMBER
HSMU PROTO_03

Adapt drawing exclusively with CAD

FORM A4

MONT L.P.



QUALITY APPROVED

K Materiaaldikte: 4mm ±10%

Aantal Editie		Omschrijving van de wijziging		Datum		Visum	
				Tekening enkel			
				m.b.v. CAD			
				aanpassen			
Schaal:		1/1		FORM		p. 1	
				PLANNUMMER		A4	
				4.4.02.7			
				Tel: 055/31.83.35			
				Fax: 055/31.43.88			
				Meersloem Velden 16 9700 Oudenaarde			

Datum	11/04/2005	Benaming	Kopplaat voor hangs teunen	I.S.O. SYMBOL	
GET.	MSJM		[000-KPHSLE]	⊕	
Materiaal:	1.0037 (Zwart)	Tolerantie:	±1	□	
		Norm:		⊕	



The drawing shows a technical drawing of a head plate with dimensions and a 3D perspective view. The technical drawing includes a top view with dimensions: overall width 135, overall height 80, and a central width of 80. It features two circular holes with a diameter of $\varnothing 10.5$ and two elongated oval holes. A detail 'A' is indicated. A side view shows a thickness of 5. The 3D view shows a perspective of the plate with rounded corners and the holes.

NOT FOR PRODUCTION

1	A	Toevoegen van gaten d10 (zonder Wf)	13/06/2014	SC	By
Number		Edition		Description of the modification	
				Date	
				Adapt drawing exclusively with CAD	
				FORM	
				P.2	
				A.4	
				2 P.	

VERGOKAN

Meersbloem Melden 16
9700 Oudenaarde

Tel: 055/3183.35
Fax: 055/314.388

Scale: 1 : 2

DRAWING NUMBER: 46059

Ref.	0KPHSLE3	Name	Head plate type HSLE3:---		
Drawn	colpaest		[0KPHSLE3]		
Date	18/03/2014				
Material:	1.0332 (0D11 untreated)	Tolerance:	-	I.S.O. SYMBOL	
		Standard:			



NOT FOR PRODUCTION

1	A	vlakke kopplaat	Description of the modification
Number		Edition	
		Date	
		By	
		Date	
		11/03/2015	
		notepa	

Ref.	L
HDHSMU50.200	200
HDHSMU50.300	300
HDHSMU50.400	400
HDHSMU50.500	500
HDHSMU50.600	600
HDHSMU50.800	800
HDHSMU50.1000	1000
HDHSMU50.1200	1200
HDHSMU50.1500	1500

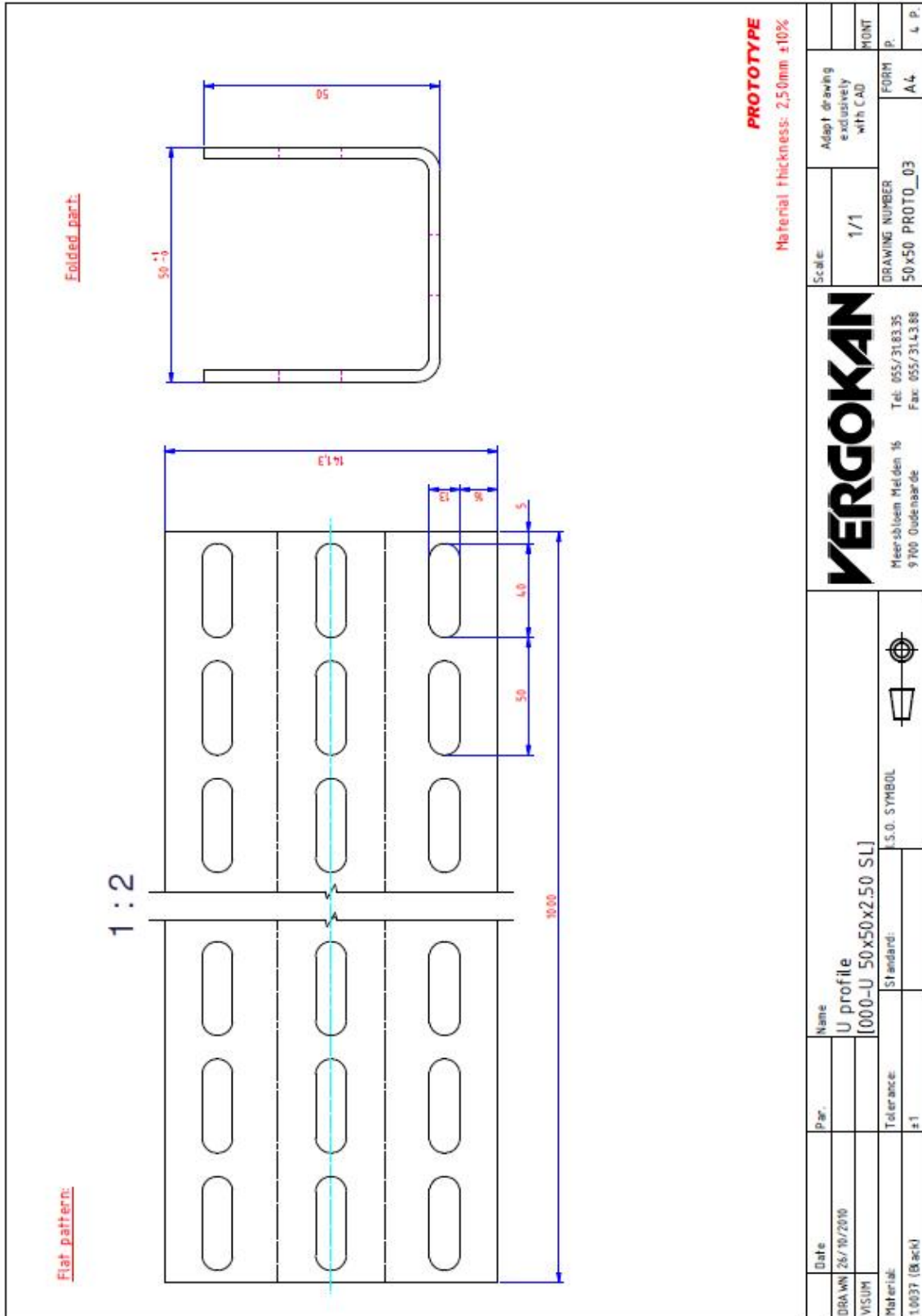
VERGOKAN

Meersbloem Meiden 16
9700 Oudenaarde

Tel: 055/3183.35
Fax: 055/314.388

Name	Ceiling profile medium heavy, U shape
Drawn	Paul Note
Date	11/04/2011
Material	1.0332 (DD11 hot dip)
Tolerance	-
Standard	I.S.O. SYMBOL

Scale:	1 : 2	FORM	A4
DRAIVING NUMBER		P.1	
45732		1 P.	
Adapt drawing exclusively with CAD		MONT	





1		45729	[2TSU50]	TSU verzinkt
2	1	B 10x80 (DIN 933)	[HDB10.80]	HD Zeskantbout
3	2	CRO 10 (DIN 9021)	[HDCRO.10]	HD Carosserierondsel
4	1	M 10 (DIN 934)	[HDM10]	Zeskantmoer M10 (HD)
item	qty	drawing	reference	description
Parts list				

NOT FOR PRODUCTION

Number	Edition	Description of the modification	Date	By

VERGOKAN

Meersbloem Meiden 16 Tel: 055/3183.35
9700 Oudenaarde Fax: 055/314388

Scale: **1 : 1**

DRAWING NUMBER: **45730**

FORM: **A4**

MONT: **3 P.**

Ref.: HOTSU--	Name: Spacer HDHSMU 50		I.S.O. SYMBOL
Drawn: Paul Note	[HDTSU50]	Standard:	
Date: 15/06/2011		Tolerance:	
Material: 1.0037 (Hot-dip)			



1	M10x80 (DIN 933)	[B10.80]	Zeskantbout
2	M10 (DIN 9021)	[CRO10]	Carrossieronderstel
3	M10 (DIN 934)	[M10]	Zeskantmoer
4	4.5728	[TTSU50]	Spacer, HSMU 50
item	qty	drawing	reference
Parts list			

NOT FOR PRODUCTION

1	A	Herontwerp naar aanleiding brandtesten 2015 (zie WF HDHSMU50.000 - 21 10 2015)	27/02/2015
Number	Edition	Description of the modification	Date

VERGOKAN	Scale: 1 : 2	Adapt drawing exclusively with CAD
Meersbloem Meiden 16 9700 Oudenaarde	DRAWING NUMBER 45730	FORM A4
Tel. 055/3183 35 Fax. 055/314388		MONT P. 3 P.



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:		Name:	
DRAWN 21/03/2011		Heavy joined bracket	
MSUM		[WKM 400]	
Material:		Standard:	
1.0037 (Hot dip)		S.O. SYMBOL	
Tolerance:			
±1			

VERGOKAN		Meersbloem Meiden 16 9700 Oudenaarde	
Tel: 055/31.83.35		Fax: 055/31.43.88	
Scale: 1/5		DRAWING NUMBER	
Adapt drawing exclusively with CAD		WKM FIRES 05-2011	
MONT		FORM P.	
A4		PROTTO_05	



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				

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PROTO_05

14 P.