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FIRE TESTING STATION VESELI NAD LUZNICI
Testing laboratory accredited by the Czech Institute for Accreditation, o. p. s.
registered under the number 1026

REPORT ON FIRE RESISTANCE TESTING

No. Pr-06-2.073

issued 2006-06-28

for the product

Fire barrier

**JAP 400 cover in the ceiling structure with the hinged
folding string »LUSSO PP«
thermally exposed from the front side**

Client: **“J. A. P.” spol. s r. o. (Ltd.)**
Prerov III – Lovesice 67
750 02 Prerov

Testing method:

CSN EN 1634-1
» Testing of fire resistance of door and barrier assemblies –
Part 1: Fire resistant doors and opening closings «

Report contains: 26 pages
(5 text pages + 4 Annexes)

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1 INTRODUCTION

The test of the fire resistance of the fire barrier - JAP 400 cover with the hinged folding string LUSO – was carried out on the basis of the order made by the company "J. A. P." spol. s r. o. (Ltd.) in the Testing laboratory in Veseli nad Luznici.

The test was prepared, executed and evaluated on the base of the following documents:

- [1] CSN EN 1634-1: 2000 Testing of fire resistance of door and barrier assemblies – Part 1: Fire resistant doors and opening closings
- [2] CSN EN 1363-1: 2000 Testing of fire resistance – Part 1: Basic requirements
- [3] Technical documentation of the sample (provided by the client)

The following definitions described in [1] and [2] are valid for the purposes of this report together with the following abbreviations:

TC	thermoelectric couple
TST	thermoelectric sensor of temperature made from cable with mineral fibre insulation
DST	slab temperature sensor containing TST Ø 1 mm
ES	thermally exposed side of the sample
NS	thermally non-exposed side of the sample
PHMV	initial values of the measured values according to [2] article No. 10.3
MTC	mobile thermoelectric couple

2 SUBJECT OF THE TEST

The sample of the horizontal fire barrier was the subject of the test – **JAP 400 cover with the hinged folding string LUSO PP** – installed in the supporting reinforced concrete structure with the external dimension 3500 mm (width) x 2000 mm (length). The total height of the supporting ceiling reinforced concrete structure is 150 mm.

Sight size of the opening with the tolerance for the sample installation is 700 x 1200 mm (width x length), external dimension of the fire barrier is 700 x 1200 mm.

The sample is exposed to the fire from the side of the hinges – from under.

Sample design:

The frame with the dimension of 1200 x 700 x 260 mm creates the load-bearing part of the sliding string. Grate made from the spruce wood (sections with the dimension 70 x 30 mm) is installed on the steel frame that is a part of the lid cover.

Mineral felt ORSIL L, thickness 30 mm (volume weight 50 kg/m³) is used as thermal insulating filling. The upper part of the cover (non-exposed side of the cover) is coated by the chipboard board DTD with the thickness of 10 mm. All wooden parts of the barrier are impregnated by water glass (manufacturer - LUKAPOL Lukavec).

Front side (thermally exposed side) of the cover is coated by SIBRAL Standard board with the thickness of 16 mm (volume weight 300 kg/m³).

All boards are glued to the load-bearing frame by means of the VSK – 120 binding material (manufacturer - KERAUNION, a. s. Dubi) and bolted down to the load-bearing frame by means of 30 pieces of wood screws 4 x 30 mm.

The whole sandwich structure is coated by galvanized sheets with the thickness of 0.6 mm and it is covered by the intumescent tape INTERAM I - 10 with the thickness of 2 mm and width of 10 mm (imported from Germany).

The total thickness of the cover is 56 mm.

The cover contains two hinges, pawl and small bath on the front side that is used for the handling. Steel reinforcement made from the steel plate with the thickness of 0.8 mm is riveted at the places of the hinges on the cover.

The cover is hinged in the frame made from the steel rolled metal sheet with the thickness of 1.2 mm by means of two hinges. Steel L – sections 40 x 20 x 3 mm are fixed by means of 10 bolts on the upper part of the cover. They fix the folding string together with other accessories (spring, spring holder and connecting rods) of the folding string LUSO.

The weight of the whole complete structure, it means the cover and the folding string with the accessories, is 61 kg.

The joint between the frame (doorframe) of the fire barrier and the opening itself in the reinforced concrete panel is filled by plaster milk.

The fire barrier is anchored into the opening in the panel over the edges by means of steel triangle plates with the openings together with the beams of U-section and M 10 screws.

The sample is exposed according to [1] article No. 7 and Annex 2 of this report. The client is the producer of the tested sample.

General description of the sample including the drawings is attached to the report as Annex 3.

The sample was delivered to the testing laboratory on 7th April 2006 trouble-free in accordance with the submitted documentation. The sample was inserted on the horizontal test furnace for the fire resistance test on 1st June 2006.

3 TEST PERFORMANCE

3.1 General

The test was executed according to CSN EN 1634-1 on 1st March 2004 in the horizontal test furnace with the internal dimension 3.00 m (width) x 8.50 m (length) x 2.40 m (height); the length was changed for 2.60 m.

The sample was exposed to the fire from under.

The used measuring and test equipment is described in Annex 1.

Representative of the client was presented at the test.

3.2 Furnace regulation

The test furnace is heated by the system of diesel burners. The temperatures inside the furnace are measured by means of seven DST and they are recorded in the interval of one minute. The measuring ends of DST are evenly placed at the distance of 100 mm from the exposed surface of the sample. The temperatures inside the furnace are regulated within the limits of the prescribed tolerances (see [2], article 5.1.2) and they must correspond with the formula according to [2], article 5.1.1:

$$T = 345 \log (8t + 1) + 20, \text{ where } T (^{\circ}\text{C}) = \text{required temperature inside the furnace at time } t$$

$t (\text{min}) = \text{time from the beginning of the test}$

Overpressure inside the test furnace was measured and regulated in such way that the values corresponded with the conditions [2], article 5.2.1.

3.3 Sample measurement

The temperatures on the non-heated surface of the sample were measured by disc TC of K type (see [2] art. 4.5.1.2) and they were recorded in 1 minute intervals. TCs were fixed on the surface of the sample according to [1], articles 9.1.2.2, 9.1.2.3 a 9.1.2.4.

One MTC was available for the measurement of the places with the supposed higher temperatures on the sample (see [2] article 4.5.1.3).

Measurement of the joint size was carried out according to [1], article 10.1.2 by means of the sheet gauge for the joints measurement and slide calliper.

The size of the horizontal deformation related to the reference plain surface created by the rotating laser beam and it was measured by steel gauge according to [1], article 9.3.2 and [2], article 9.3.

Initial conditions of the test correspond with the standard values according to [2], article 10.3.

3.4 Ambient temperature

The ambient temperature was measured during the test by one TST of K type (see [2], article 4.5.1.5) according to the conditions [2], article 5.6.

3.5 Conditioning

The conditioning of the sample was started on 7th April 2006 in the test hall, where the sample was stored from the date of the test, it means 1st June 2006 at 09:00 o'clock. The following values of the atmosphere properties were measured during the period:

Value	minimum	maximum
Relative humidity (%)	48.9	55.2
Temperature (°C)	13.9	16.2

4 COURSE OF TEST

Time (min): Observation:

2. NS – slight release of smoke on the circumference of the cover - barrier
3. ES – darkening of the cover on the circumference, flaking off of the paint flakes from the surface of the barrier cover
4. ES – darkening of the cover moves on the cover surface
5. NS – slight smoke release on the side of the hinges and close to the pawl of the lock on the opposite side
7. ES – the surface of the cover is bleached out, only black edge remains on the cover circumference, slight deformation of the frame edge – doorframe edge
12. ES – flaking off of the paint from the doorframe edge
15. ES – „pick off“ of concrete particles from different places on the surface of the reinforced concrete panel
21. NS – darkening of edges at the place of the lock pawl, increasing release of smoke in the corners
27. ES – the whole surface is bleached out, „pick off“ of concrete particles from different places on the surface of the reinforced concrete panel continues
31. ES – „pick off“ of particles from the surface of the reinforced concrete panel stops
42. ES – slight „concavity“ of the plate on the cover
50. ES – metal plate in red heat
61. Further test course without any changes
71. The test was finished after the agreement with the client.

The temperatures inside the furnace during the test fulfil the requirements [2]. Time dependence of the measured temperatures is described in Annex 2.

5 TEST RESULTS

5.1 Criteria for the achievement of limit states

- ✦ **Integrity** (according to [2], article 11.2). Time is the criterion during which the test sample maintains its separating function without the following:

- a) Ignition of cotton pad attached according to [2], article 10.4.5.2; or
- b) Facilitation of the gauge passage according to the specification in [2], article 10.4.5.3; or
- c) Permanent flame firing.

✦ **Insulation** (according to [1], article 11.2 and [2], article 11.3). Time is the criterion during which the test sample maintains its separating function without the achievement of the situation, in which the temperatures are achieved on the non-exposed side that would cause the following:

- a) Increasing of average temperature above the value of the initial average temperature for more than 140 °C; or
- b) Increasing of the temperature at any place above the initial average temperature for more than 180 °C with the exception of the case, when the limit for the temperature increase on the doorframe is 360 °C.

5.2 Formulation of test results

Integrity	- cotton pad	70 minut, without failure
	- joint gauge	70 minut, without failure
	- permanent flame firing	70 minut, without failure
Insulation	- average temperature	70 minut, without exceeding
	- maximum temperature	68 minutes, TC 26
	- maximum temperature – addit.procedure ¹⁾	23 minutes, TC 30
	- maximum temperature - doorframe ($\Delta T = 180\text{ °C}$)	70 minutes, without exceeding
	- maximum temperature - doorframe ($\Delta T = 360\text{ °C}$)	70 minutes, without exceeding

Note: ¹⁾ Criterion "insulation" according to the additional procedure (see [1], article 9.1.2.4).

5 CONCLUSION

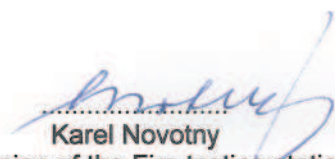
The test results are related only to the tested sample, including its installation on the structure (see part No. 2 of this report).

This report describes in details the way of the sample version, test conditions and results obtained during the testing of the described specific element of the structure according to the procedure described in CSN EN 1363-1 and CSN EN 1634-1. The report does not describe any important deviations related to the size, design details, loading, stress, edge or final conditions.

Sheets of the report and Annexes are valid only with the print of relief stamp.



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ANNEX 1: TESTING AND MEASURING EQUIPMENT, MEASUREMENT UNCERTAINTY

Testing equipment:	Identification No.:
Horizontal furnace (+ equipment for the control of pressure and temperature inside the furnace)	2.001
Probes inside the furnace	2.006
Joint gauge Ø 6 mm	2.011
Joint gauge Ø 25 mm	2.012
Frame for the cotton pad	2.013

Measuring devices:	Metrological identification No.:
Differential manometer AMR DPS	3 09 10
Measuring switch board ALMEMO 5990-2	3 10 35
DST – temperature inside the furnace (TST K Ø 1 mm)	3 10 08
TC (K) – temperature of NS sample	3 10 09
TST K Ø 3 mm – ambient temperature	3 10 15
Tape rule	3 01 05
Stop watch	3 05 01
Thermohygrograph THZ1int	3 13 05
THERM 2260 + MTC (K)	3 10 06

Metrological relationship of the equipment is described in the metrological registration card of the equipment that is unambiguously determined by the metrological registration number of the equipment.

With regard to the character of the fire resistance tests and related difficult quantification of the measurement uncertainty of the fire resistance measurement, it is not possible to ensure the specified level of the result accuracy.

Measured value			Extended uncertainty of measurement
Name	mark	unit	
Time from the test beginning	T	(min)	$3.4 \cdot 10^{-2} \text{ min}$, for $t \leq 240 \text{ min}$
Time of integrity failure		(min)	$< 0.5 \text{ min}$
Temperature: TC, event. TST type K + compensation leads (both 2 nd tolerance class) + THERM 5500-3	T	(°C)	$\sqrt{(6.40 \cdot 10^{-6} \cdot T^2 + 1.57 \cdot 10^{10} \text{C}^2)}$, pro $40^\circ\text{C} < T \leq 375^\circ\text{C}$ $\sqrt{(8.04 \cdot 10^{-5} \cdot T^2 + 7.84 \text{C}^2)}$, pro $375^\circ\text{C} < T \leq 1000^\circ\text{C}$
Pressure difference in the furnace compared with the surrounding	p	(Pa)	$\sqrt{(5.3 \cdot 10^{-4} \cdot p^2 + 1.1 \cdot 10^{-5} \text{Pa}^2)}$

The described extended uncertainties of the measurement are arithmetic product of the standard uncertainty of the measurement and extension coefficient $k = 2$. It corresponds with the coverage probability of 95 % for the normal division.

Standard uncertainty of the measurement was determined in accordance with the document EA-4/02 (EAL R2).

ANNEX 2: MEASUREMENT

TEMPERATURES AND PRESSURE INSIDE THE FURNACE, AMBIENT TEMPERATURE

Time t (min)	Temperatures in the furnace (°C)						Deviat. d _e (%)		Temp. ambient	Pressure (100 mm under samp.)		
	T	40	41	42	43	T _s	permiss.	actual		requir.	actual	deviat.
PHMV		19	18	19	18	19			13		(Pa)	
0	20	107	116	107	117	112			13		0,3	-
5	576	605	597	602	600	601	-	2,0	13		15,9	-
10	678	691	673	680	683	682	±15	1,0	13	17,0 ±5	14,7	-2,3
15	739	742	737	737	746	740	±12,5	0,8	13	17,0 ±5	15,7	-1,3
20	781	791	754	771	764	770	±10	0,4	12	17,0 ±5	15,7	-1,3
25	815	824	768	819	792	801	±7,5	0,0	12	17,0 ±5	17,0	0,0
30	842	847	848	847	858	850	±5	0,0	12	17,0 ±5	17,7	0,7
35	865	870	866	847	850	858	±4,6	-0,1	12	17,0 ±5	18,3	1,3
40	885	909	893	878	876	889	±4,2	-0,1	12	17,0 ±5	17,4	0,4
45	902	924	915	896	898	908	±3,8	-0,1	12	17,0 ±5	17,9	0,9
50	918	922	913	899	900	909	±3,3	-0,2	12	17,0 ±5	17,0	0,0
55	932	947	940	923	926	934	±2,9	-0,2	12	17,0 ±5	18,4	1,4
60	945	954	944	933	932	941	±2,5	-0,2	12	17,0 ±5	18,1	1,1
65	957	972	958	951	948	957	±2,5	-0,2	12	17,0 ±5	17,0	0,0
70	968	984	969	962	959	969	±2,5	-0,2	12	17,0 ±5	18,3	1,3

Temperatures and pressures measured every minute, data processed in the table in the interval of 5 min.

XX Marking of the measuring joint TST

T (°C) = average temperature in the furnace determined according to [2], article 5.1.1: $T = 345 \log_{10} (8t + 1) + 20$

t (min) = time from the beginning of the test

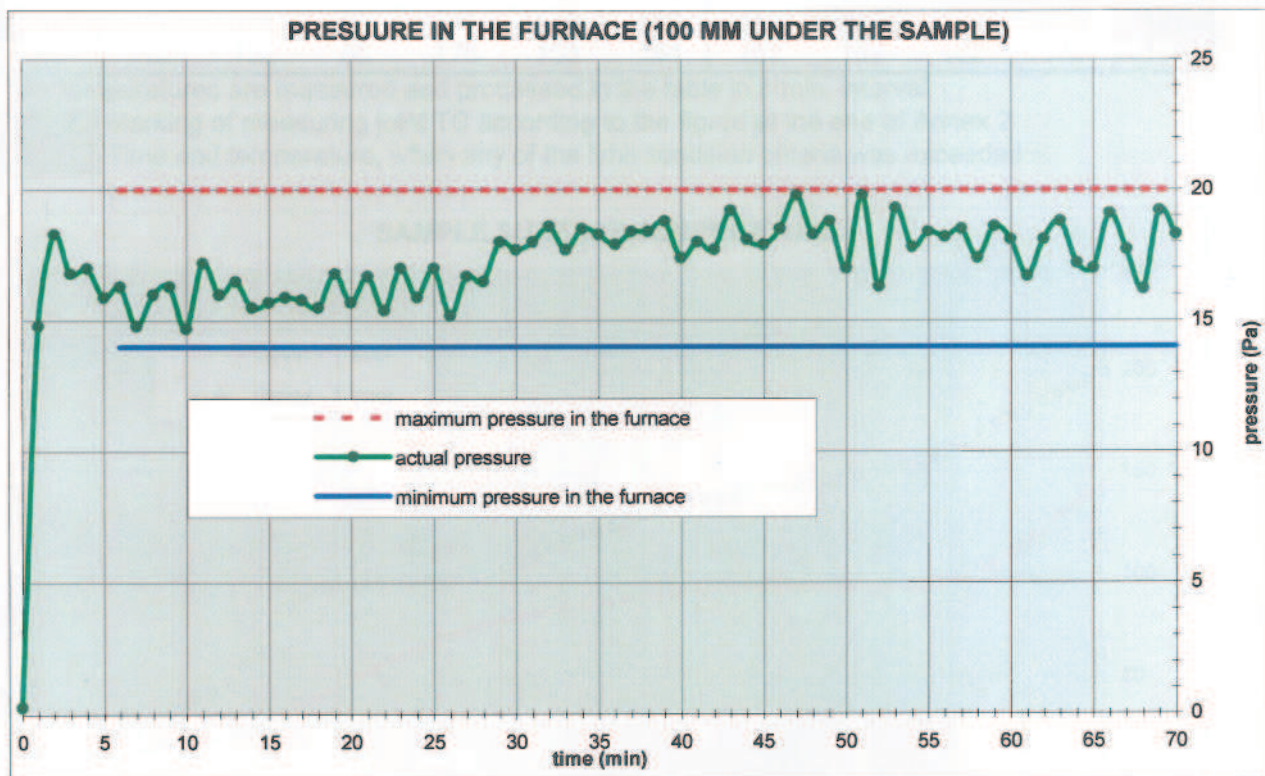
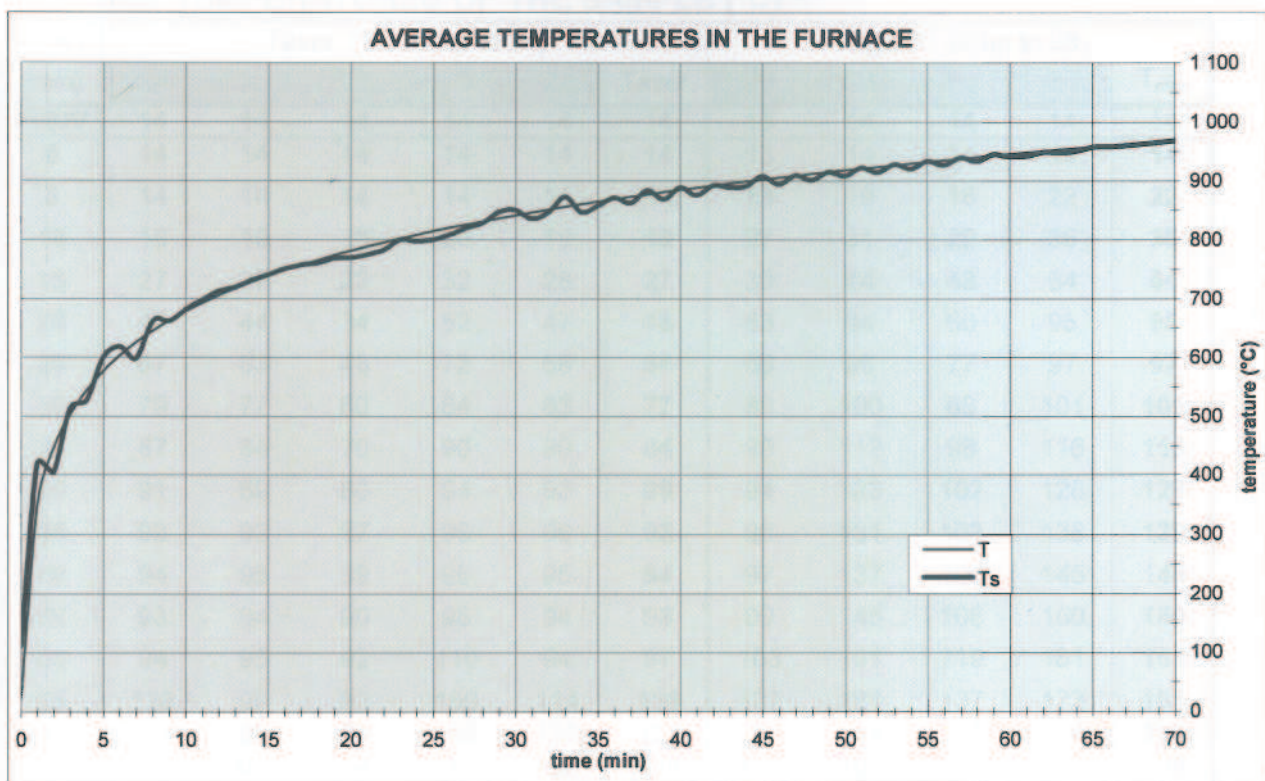
T_s (°C) = real temperature in the furnace according to [2], article 5.1.2

d_e (%) = percentage deviation in the curve area of the average temperature in the furnace from the area of standard temperature curve – permitted according to [2], article 5.1.2,

- real according to [2], article 5.1.2: $d_e = ((A - A_s)/A_s) * 100$, where

A = area below the real temperature curve in the furnace

A_s = area below the standard temperature curve



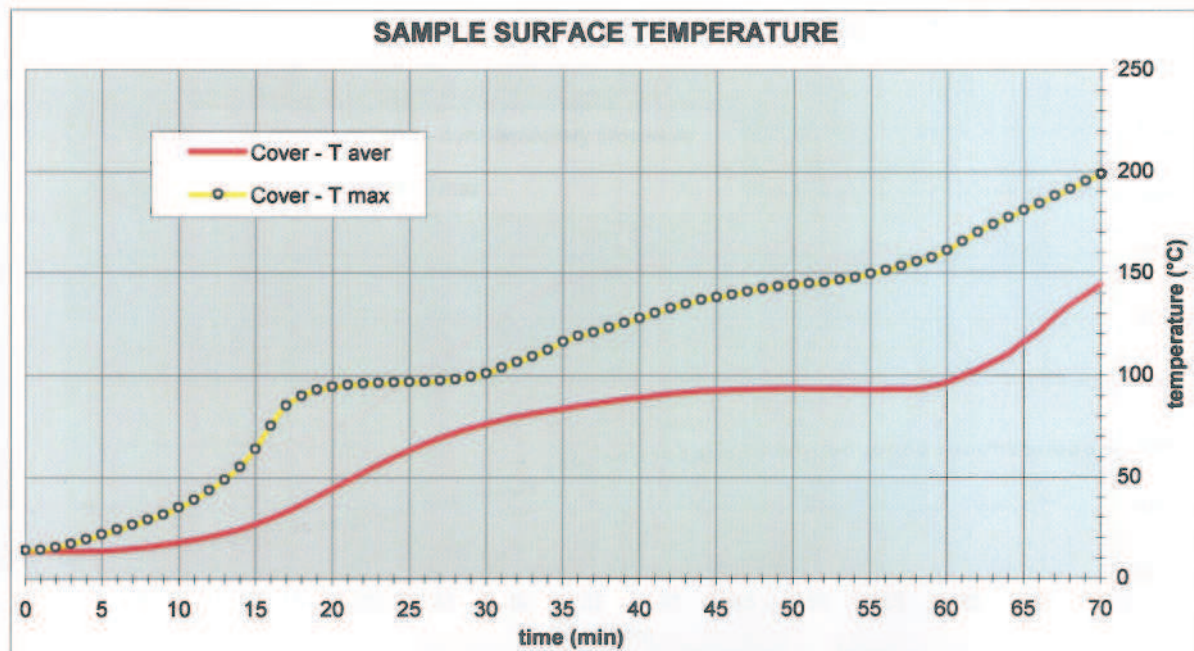
SURFACE TEMPERATURES OF THE SAMPLE (°C)

Time t (min)	Taver. (TC 20 up to 24)						T _{max} (TC 20 up to 28)				
	20	21	22	23	24	Taver.	25	26	27	28	T _{max}
PHMV	14	14	14	14	14	14	13	14	14	14	14
0	14	14	14	14	14	14	13	14	14	14	14
5	14	14	14	14	14	14	13	19	18	22	22
10	18	19	16	20	19	18	27	31	29	35	35
15	27	27	22	32	28	27	39	44	43	64	64
20	47	44	34	52	47	45	53	94	60	95	95
25	67	63	48	72	68	64	68	96	77	97	97
30	79	77	60	84	83	77	83	100	89	101	101
35	87	84	70	90	90	84	93	112	98	116	116
40	91	89	80	94	93	89	94	123	102	128	128
45	93	93	87	96	96	93	96	131	103	138	138
50	94	95	89	95	95	94	97	137	106	145	145
55	93	94	90	95	94	93	99	145	108	150	150
60	94	95	92	110	94	97	103	161	119	161	161
65	128	96	93	150	114	116	127	181	137	173	181
66	137	99	93	155	123	121	137	184	141	174	184
67	143	108	94	161	136	128	146	188	144	175	188
68	149	118	94	167	142	134	152	192	149	175	192
69	156	126	95	173	148	139	152	195	154	175	195
70	162	132	96	178	153	144	155	199	162	176	199

The temperatures are measured and processed in the table in 5 min. interval

XX Marking of measuring joint TC according to the figure at the end of Annex 2

Time and temperature, when any of the limit condition criteria was exceeded.



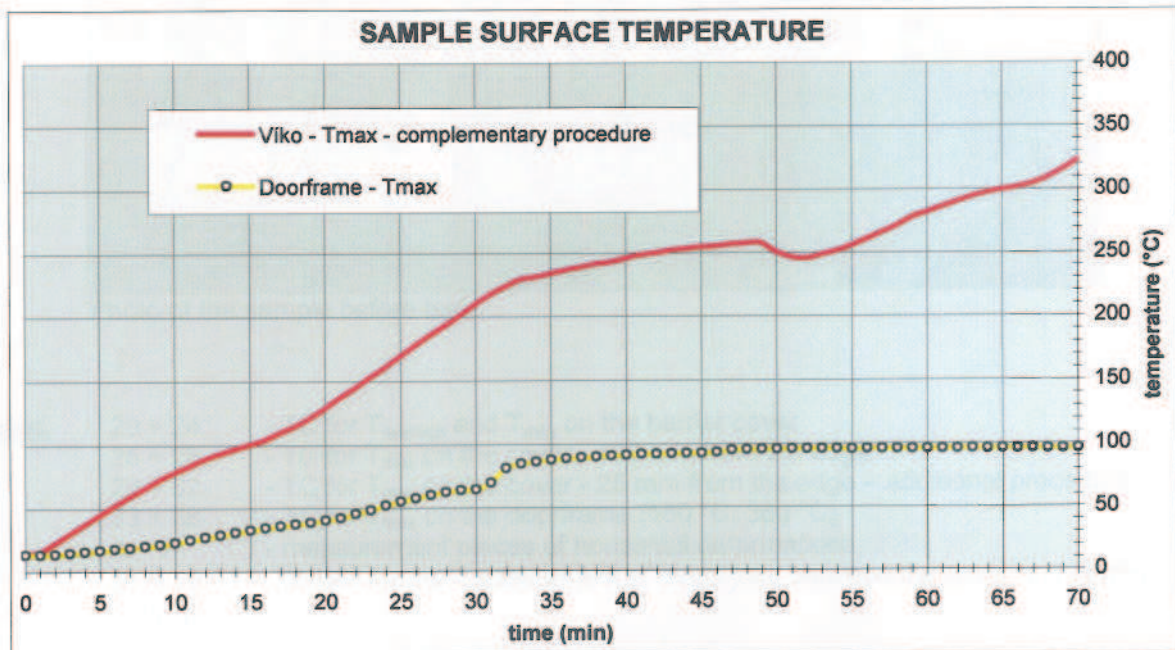
SURFACE TEMPERATURES OF THE SAMPLE (°C)

Time t (min)	T _{max} - complem.procedure (TC 29 up to 32)					T _{max} doorframe (TC 33 up to 38)						T _{max}
	29	30	31	32	Taver.	33	34	35	36	37	38	
PHMV	14	15	14	15	14	14	14	14	14	14	13	14
0	15	15	14	15	14	14	14	14	14	14	14	14
5	42	52	31	55	45	15	16	15	15	17	15	17
10	71	89	57	98	79	20	23	21	20	23	20	23
15	90	111	83	119	101	27	33	30	28	31	28	33
20	112	149	102	153	129	38	40	40	39	41	38	41
21	118	163	106	162	137	41	42	42	42	42	41	42
22	126	174	110	170	145	43	43	46	46	44	44	46
23	132	187	113	181	153	45	44	49	48	45	47	49
24	137	199	114	192	161	47	45	52	51	47	50	52
25	147	213	114	203	169	50	46	55	54	49	53	55
30	181	269	124	266	210	65	54	64	65	59	56	65
35	202	283	151	301	234	88	87	48	71	68	60	88
40	225	286	169	305	246	90	92	22	80	74	63	92
45	233	302	176	309	255	91	93	17	92	76	62	93
50	251	313	136	304	251	92	93	18	96	78	64	96
55	283	320	121	299	256	93	93	18	96	78	67	96
60	313	323	192	300	282	94	93	19	96	78	54	96
65	334	332	229	305	300	94	93	20	96	79	48	96
70	360	347	273	311	323	94	93	21	96	81	51	96

The temperatures are measured and processed in the table in 5 min. interval

XX Marking of measuring joint TC according to the figure at the end of Annex 2

Time and temperature, when any of the limit condition criteria was exceeded.



SCHEME OF ARRANGEMENT OF TC, JOINTS AND MEASURED DEFORMATION POINTS OF NS OF THE SAMPLE

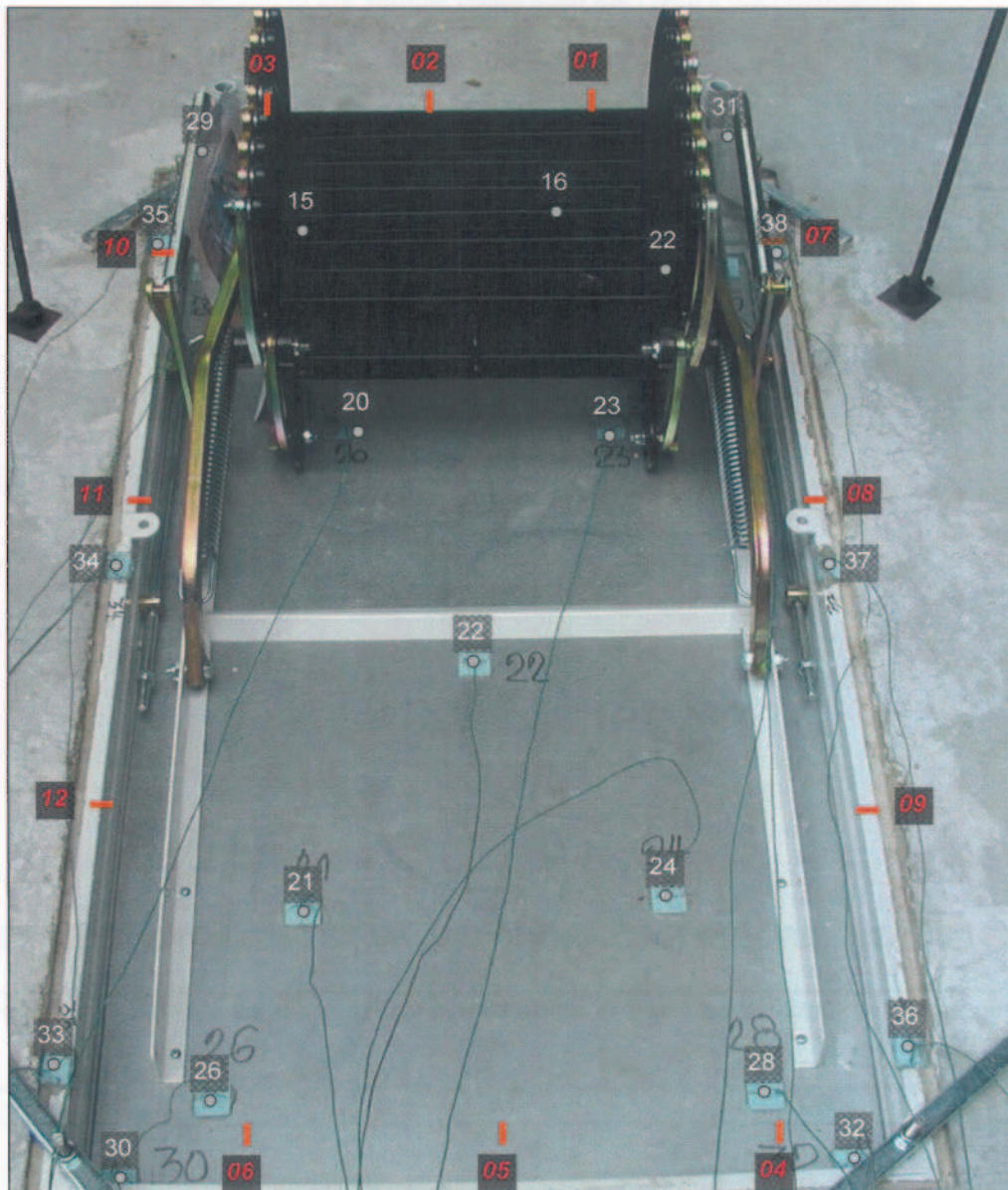
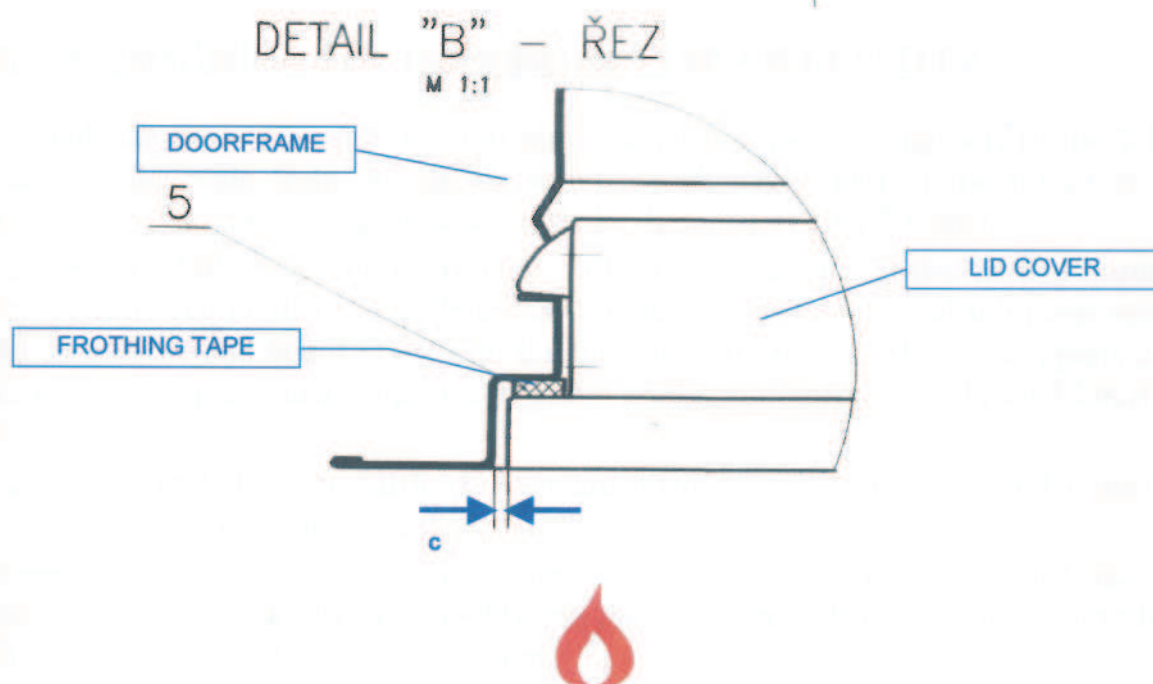


Photo of the sample before test

Legend:	20 ÷ 24	- TC for $T_{average}$ and T_{max} on the barrier cover
	25 ÷ 28	- TC for T_{max} on the cover - 100 mm from the edge
	29 ÷ 32	- TC for T_{max} on the cover - 25 mm from the edge – additional procedure
	33 ÷ 38	- TC for T_{max} on the doorframe (180 °C, 360 °C)
	A + F	- measurement places of horizontal deformations
	01 ÷ 12	- places for the measurement of direct joint between the cover and barrier doorframe.

SCHEME OF THE JOINT MEASUREMENT ON THE SAMPLE (cross-section of the sample taken from the client's documentation)



JOINT MEASUREMENT BETWEEN DK AND DOORFRAME BEFORE THE TEST BEGINNING

Joint	Transverse at the hinges			Transverse at the lock			Right longitudinal			Left longitudinal		
	01	02	03	04	05	06	07	08	09	10	11	12
c	2,1	1,6	2,1	0,5	1,4	1,5	1,3	0,4	1,5	1,1	0,1	1,5

Joint size in mm

ANNEX 3: DOCUMENTATION

Documentation ordered by the client



PŮDNÍ, TOČITÁ, SEGMENTOVÁ, KLASICKÁ SCHODIŠTĚ / STAVEBNÍ POUZDRA JAP / PLOTY / KONTRAZÁRUBNĚ

"J. A. P." spol. s r.o.

založeno v roce 1991

Technical description of the tested sample - JAP 400 LUSO PP

Frame with the size 1200 x 700 x 260 mm created the load-bearing part of the folding staircase. Grate made from the spruce wood, which was a part of the lid cover, was installed on the the steel frame (sections with the dimensions 70 x 30 mm).

The mineral felt ORSIL L with the thickness of 30 mm was used as the thermal insulating filling (volume weight 50 kg/m³). Upper part of the cover (non-exposed side) was boarded by the shredded-wood board DTD with the thickness of 10 mm. All wooden parts of the product were impregnated with water-glass (sodium silicate) (producer LUKAPOL Lukavec).

The cover is boarded by the SIBRAL Standard board with the thickness of 16 mm from the view-side (volume weight 300 kg/m³).

All boards are glued on the load-bearing frame by means of the binding agent VSK – 120 (produced by KERAUNION, a. s. Dubí) and they are screwed to the load-bearing frame by 30 pieces if the wood screws 4 x 30 mm.

The whole sandwich structure is lagged by the galvanized sheets with the thickness of 0.6 mm and it is taped up by intumescent tape INTERAM I – 10 with the thickness of 2 mm and width of 10 mm on the girth (imported from Germany).

Total thickness of the cover is 56 mm.

The cover is equipped by two hnges, pawl and small bath on the view-side that is used for handling. The reinforcement made from the steel plate with the thickness of 0.8 mm is rivetted on the cover at the places of the hinges.

The cover is suspended into the frame made from the steel rolled plate with the thickness of 1.2 mm by means of two hinges. Steel L-sections 40 x 20 x 3 mm are fixed on the upper part of the cover by means of 10 pieces of screws that fix the folding string LUSO together with accessories (springs, spring holder and drawbars).

The weight of the whole structure, it means the cover and the folding string with accessorie, is 61 kg.

The joint between the frame (doorframe) of the fire barrier and the opening in the reinforced concrete panel itself is filled by plaster milk.

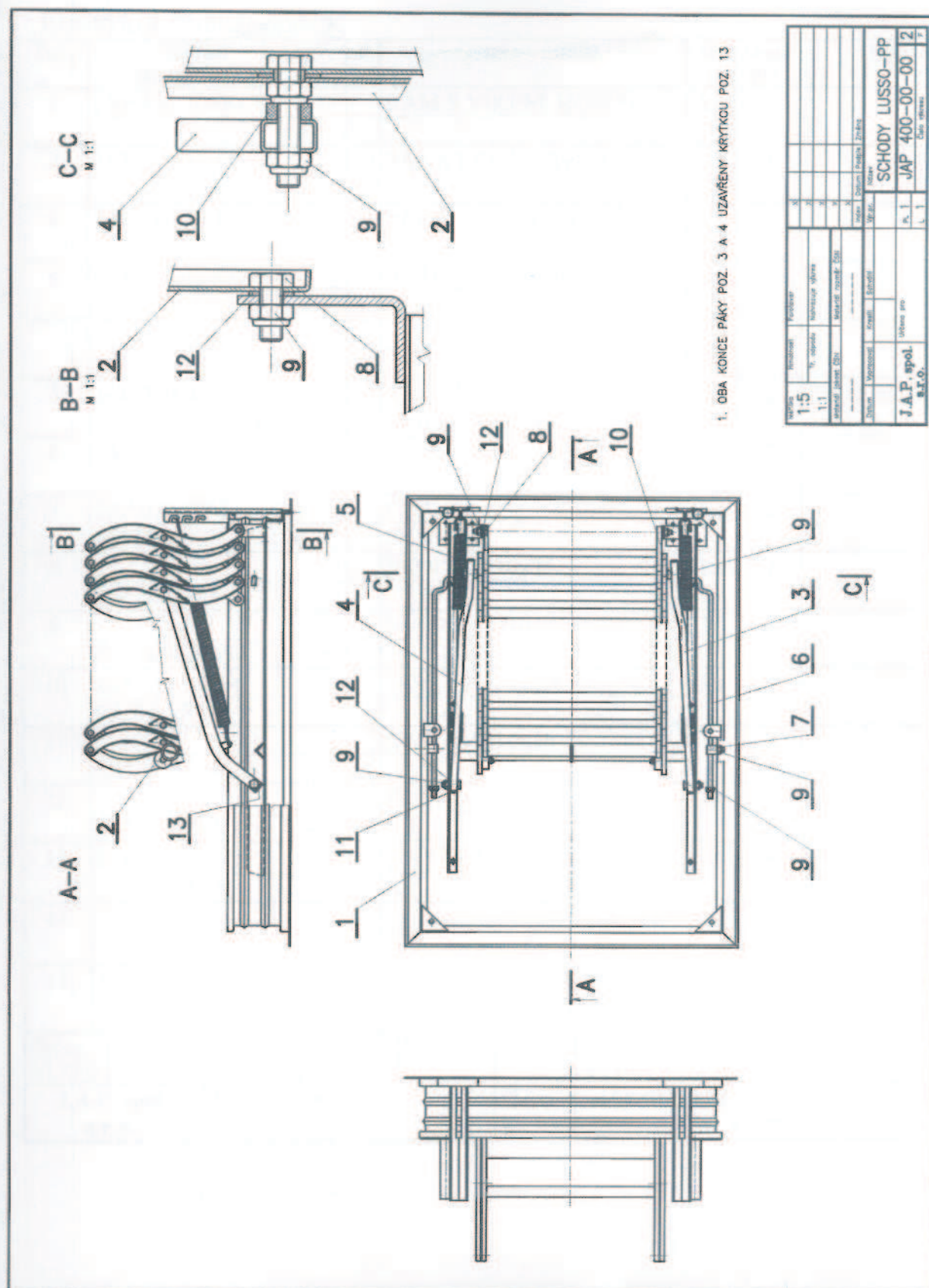
The fire barrier is anchored into the opening in the panel in the corners by means of steel triangular plates with the opening together with the U-section beams and M 10 screws.



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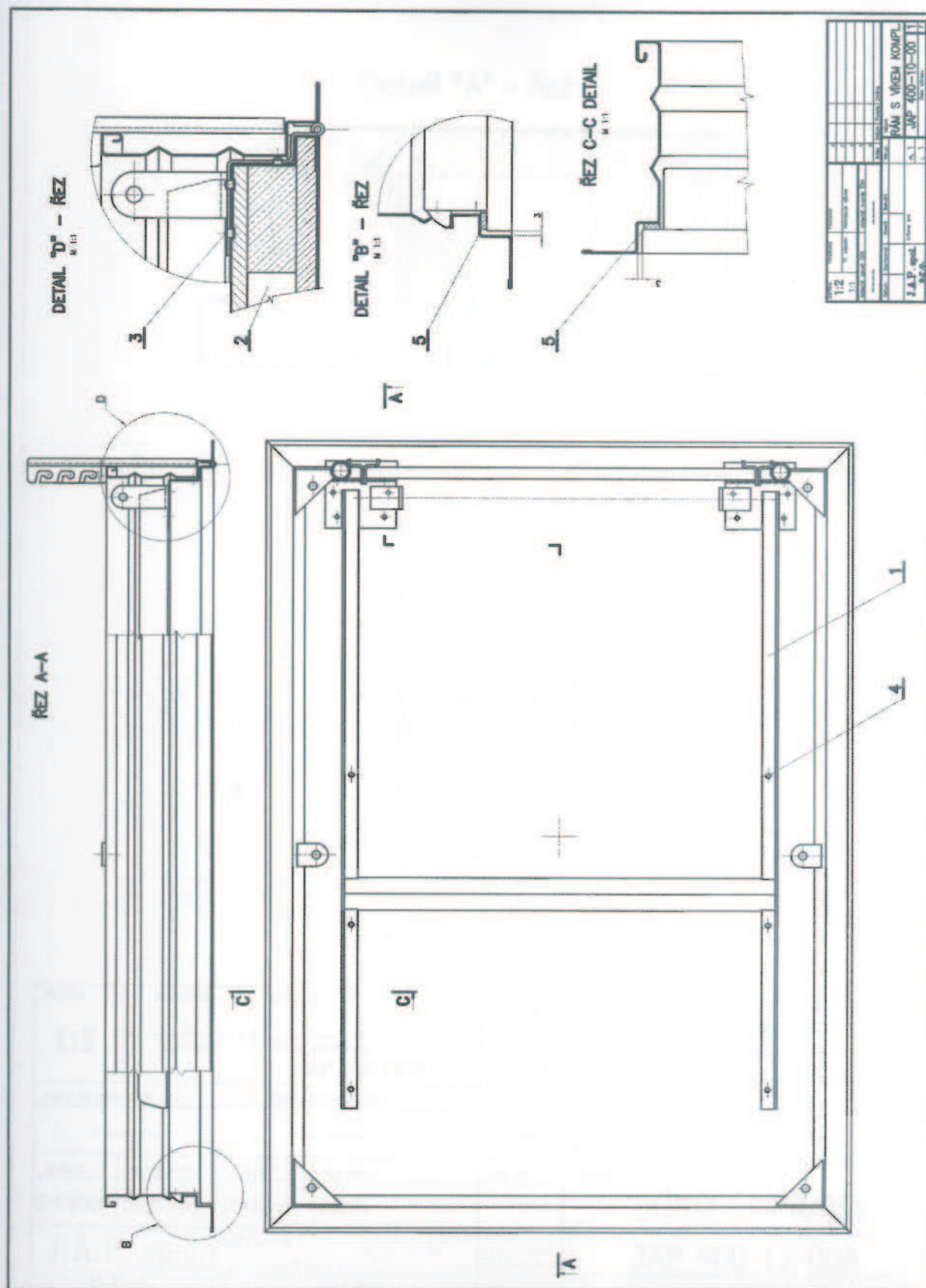


KONSTRUKČNÍ KUSOVNÍK

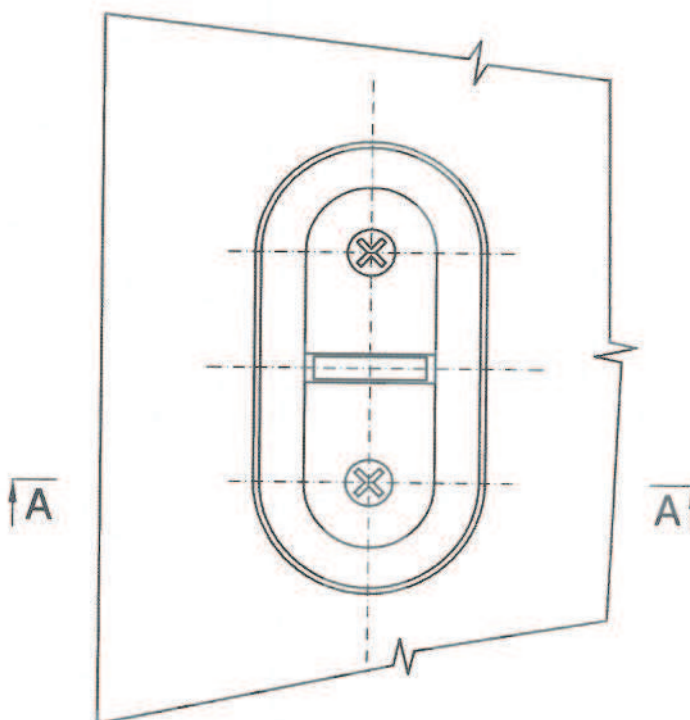
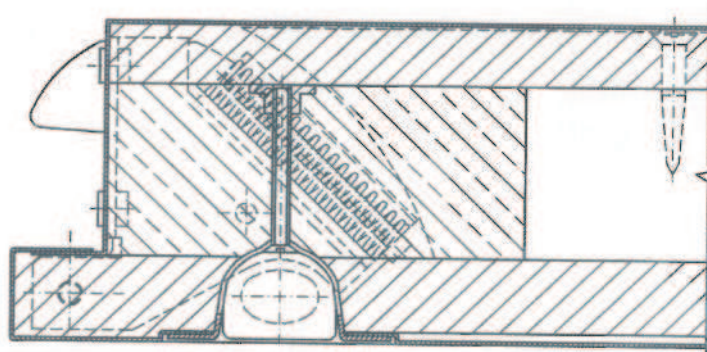
Poz.	Označení číslo výkresu	F	Název – rozměr	Mj.	Množ- ství	Poznámka
1	JAP 400-10-00		RÁM S VÍKEM KOMPL.	ks	1	
2	JAP 010-11-00		PÁKA LEVÁ – SVAŘ.	ks	1	
3	JAP 010-12-00		PÁKA PRAVÁ – SVAŘ.	ks	1	
4	JAP 010-13-00		SESTAVA SCHODNIC	ks	1	
5	JAP 010-00-01 13251 ČSN 426450.21		TAŽNÁ PRUŽINA Rozměry dle provedení	ks	2	Provedení dle zakázky
6	JAP 010-00-02 11373.0 ČSN 426510.12		TÁHLO Ø 8,8 – 601	ks	2	
7	JAP 010-00-03 11373.0 ČSN 426510.12		ČEP Ø 20 - 43	ks	2	
8	ČSN 021303		ŠROUB M10x25	ks	2	
9	ČSN EN 24032		MATICE M10	ks	10	
10	JAP 010-00-04 PA 6 ČERNÝ		DIST. KROUŽEK	ks	2	
11	ČSN EN 021303		ŠROUB M10x35	ks	2	
12	ČSN 021702		PODLOŽKA 10,5	ks	4	
13	JAP 010-00-06 PA 6 ČERNÝ		KRYTKA	ks	4	
14						
15	JAP 400-55-00		PŘÍSLUŠENSTVÍ – BAL. (zábr., stah. tyč, nosník, atd.)	ks	1	
Datum	Vypsal	Kontrol.	Schválil	Normal.	Výr. pr.	Název
9.1.2002	Štěpánek					SCHODY LUSO PP
J.A.P. spol. s r.o.	Určeno	pro	PL 1	JAP 400-00-00		
			L 1	Číslo výkresu		F

KONSTRUKČNÍ KUSOVNÍK

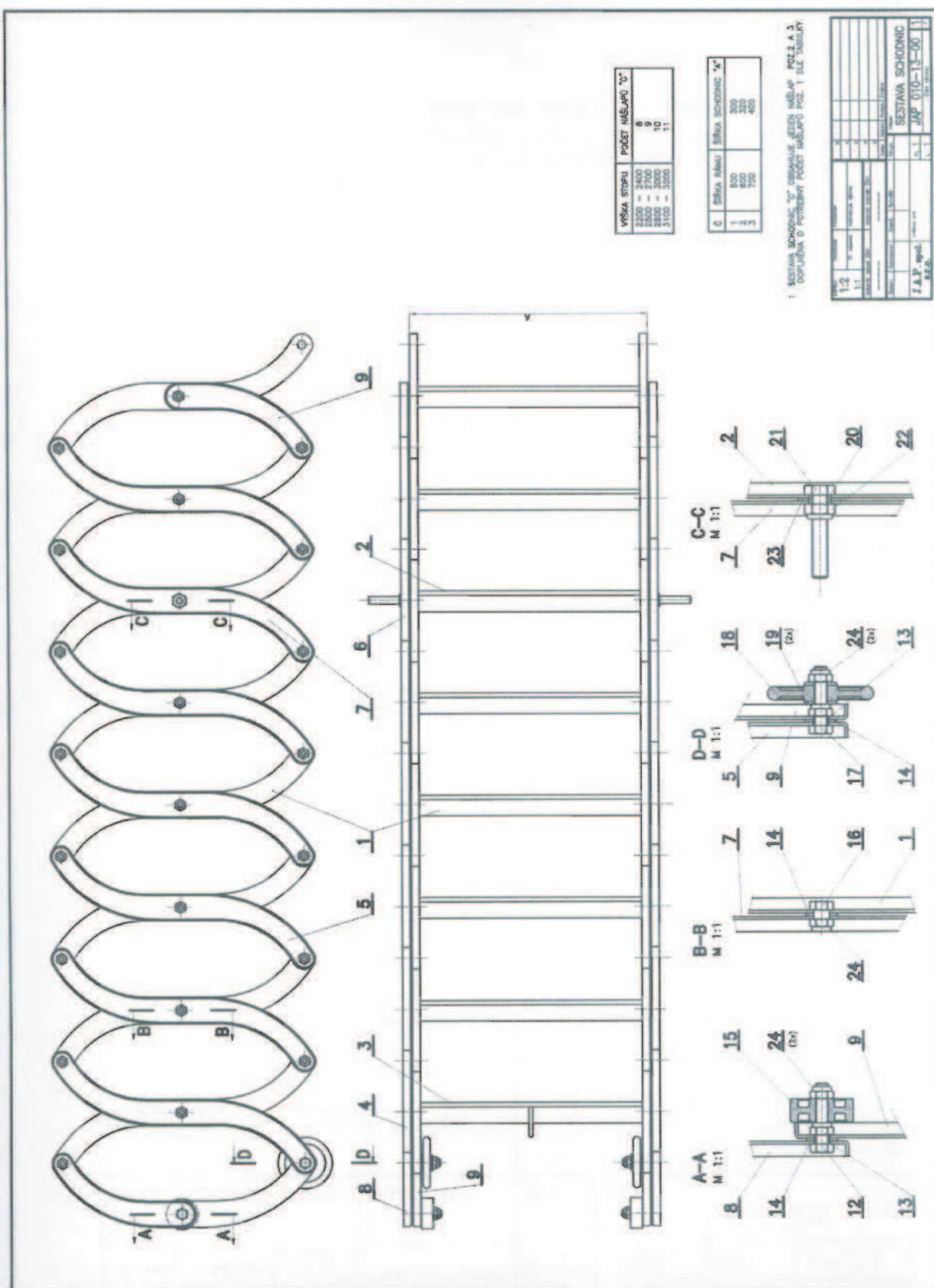
[illegible]

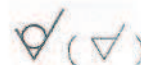


Detail "A" - řez



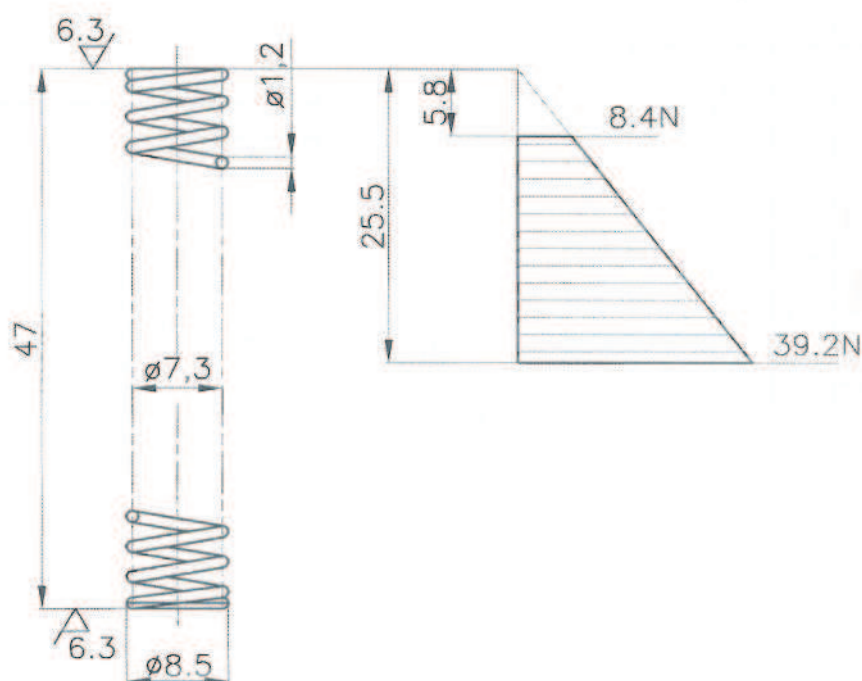
Měřítko	Hmotnost	Početovar	X			
1:5	Tř. odpadu	Nahrazuje výkres JAP 400-12-00	X			
			X			
Materiál jakost ČSN		Materiál rozměr ČSN	X			
-----		-----	X			
			Index	Datum	Podpis	Změna
Datum	Vypracoval	Kreslil	Schválil	Výr.pr.	Název	
5.4.2006	Štěpánek	Oprchal	Paclík		VÍKO - ÚPRAVA	
J.A.P. spol. s.r.o.	Určeno pro		PL		JAP 400-12-00A	2
			L		Číslo výkresu	F





PRUŽINA TLAČNÁ OBROBENÁ
POČET ZÁVITŮ ČINNÝCH
CELKOVÝ POČET ZÁVITŮ

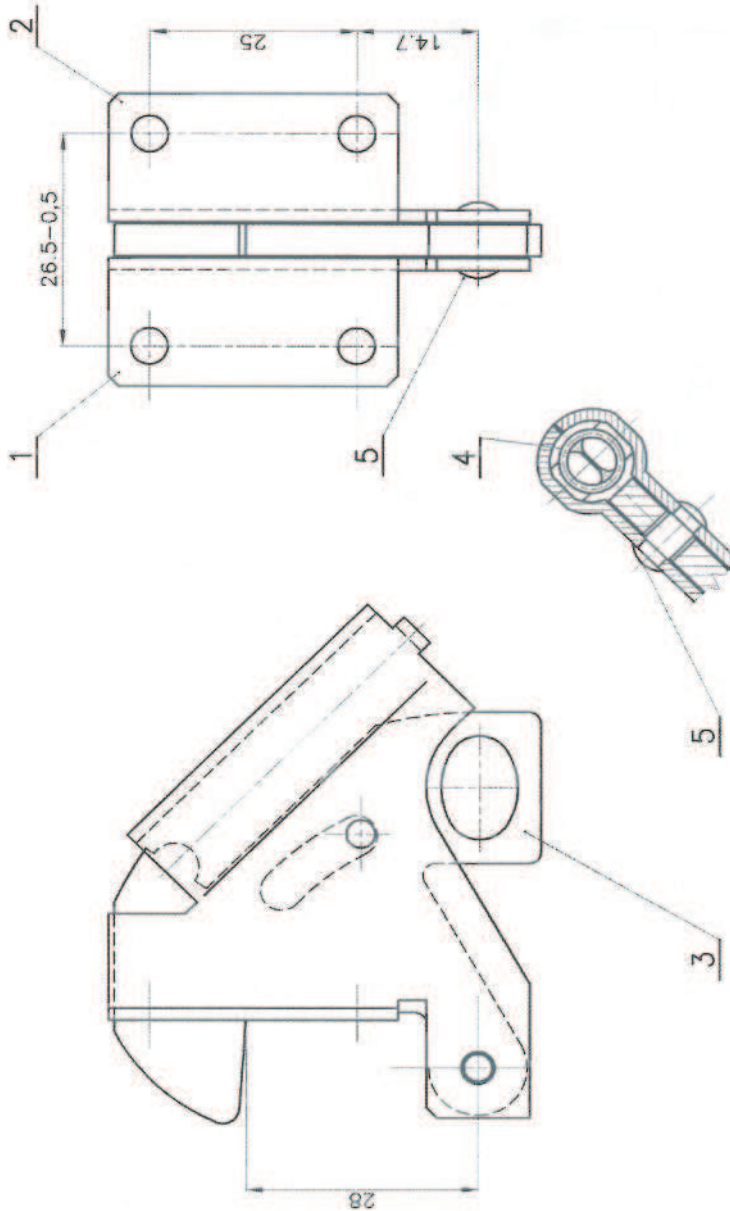
15,5
17,5



1. Fe/Zn5c

Měřítko 2:1	Hmotnost	Polotovary		X			
	Tř. odpadu	Nahrazuje výkres		X			
				X			
Materiál jakost ČSN		Materiál rozměr ČSN		X			
42 6450,2				X			
			Index	Datum	Podpis	Změna	
Datum	Vypracoval	Kreslil	Schválil	Výr.pr.	Název		
					PRUŽINA		
J.A.P. spol. s.r.o.		Určeno pro		PL 1	JAP 400-17-04		4
				L 1	Číslo výkresu		F

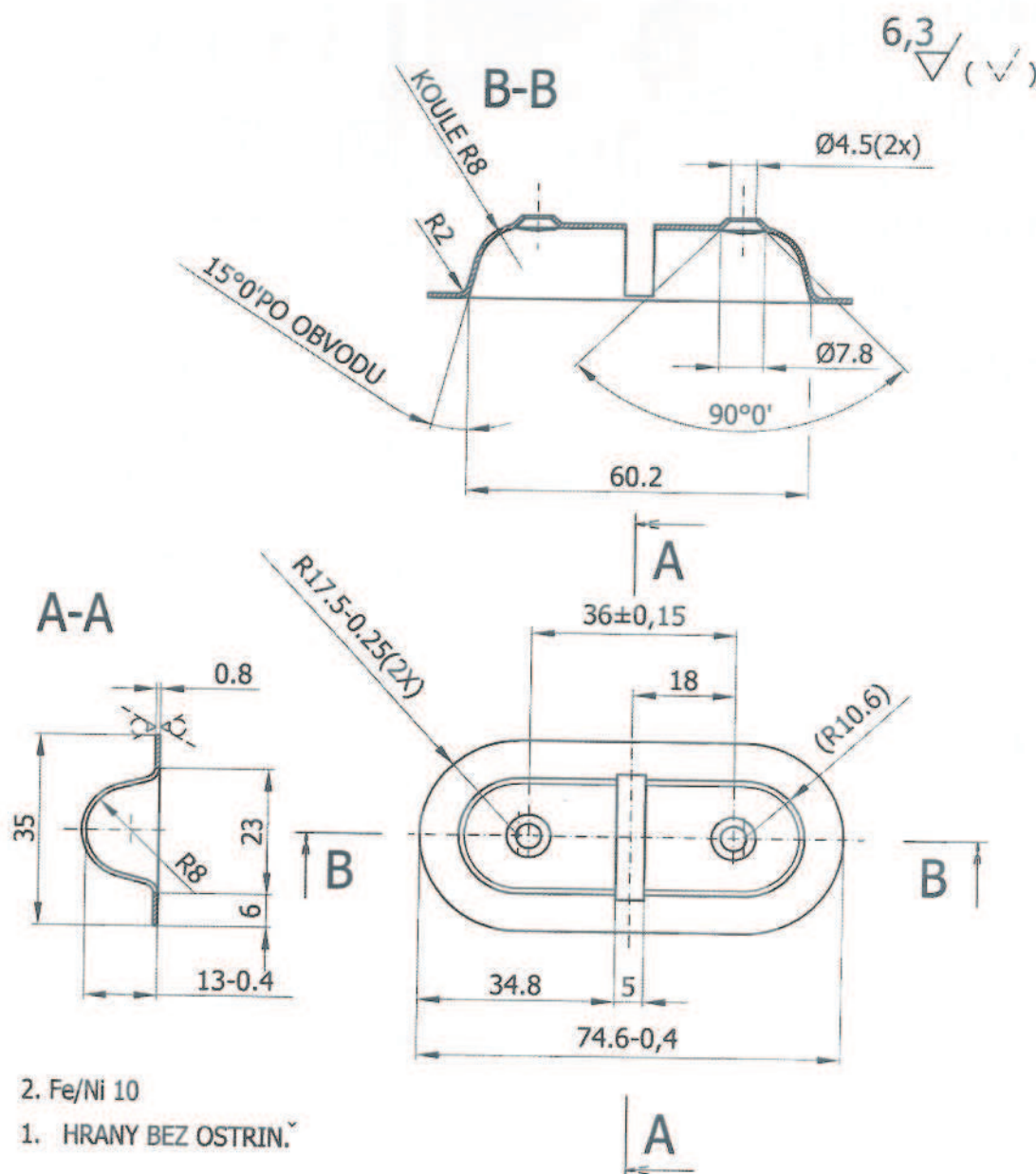
6.3/√(✓)



1. ČEPY POZ.5 ZANÝTOVAT
2. KONZERVOVAT OLEJEM KONKOR 101

Stav	Průřez	Podstav	Index	Stav	Průřez	Změna
2:1	Tr. odpadu	Nahrazení výkres	X	X		
Material list	ČSN	Material list	X	X		
Datum	Vypracoval	Kreslil	X	X		
J.A.P. spol. s r.o.	Uřeno pro		FL 1	L 1	JAP 400-17-00	3
					Číslo výkresu	F

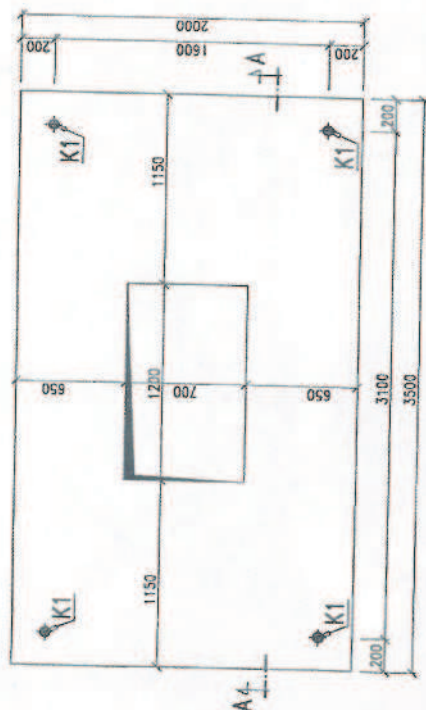
ZÁPADKA KOMPLETNÍ



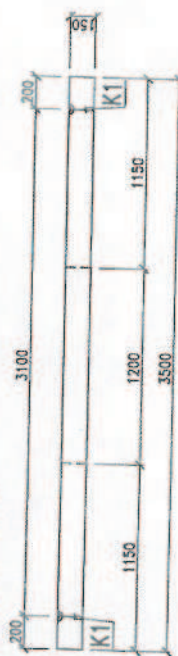
Měřítko 1:1	Hmotnost	Polotovár	X			
	Tř. odpadu	Nahrazuje výkres	X			
			X			
Materiál/jakost CSN *	Materiál/rozměr CSN *		X			
11 320.31	42 6312.31		X			
			Index	Datum	Podpis	Změna
Datum	Vypracoval	Kreslil	Schválil	Vyr. pr.	Název	
					MISKA	
J.A.P. spol. s.r.o.	Urceno pro		PL 1	JAP 400-12-04		4
			L 1	Číslo výkresu		F

Ing. H.+J. ZEMAN s.r.o. Pod Rochusem 1388 Uh. Hradiště, 572 553717	akce STROPNÍ PANEL PRO ZKOUŠKU ODOLNOSTI POŽÁRNÍHO UZÁVĚRU JAP 400 – PÚDNÍ	Zakázka č. 06-36	MERÍTKO	datum 27.3.2006 kresli 1-25	Název dílce STROPNÍ PANEL	Označení	Výkres č. 101
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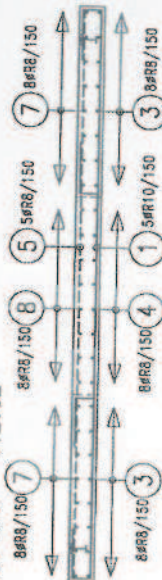
PŪDORYS - TVAR



ŘEZ A-A - TVAR



ŘEZ A-A - VÝZTUŽ



POZNÁMKA

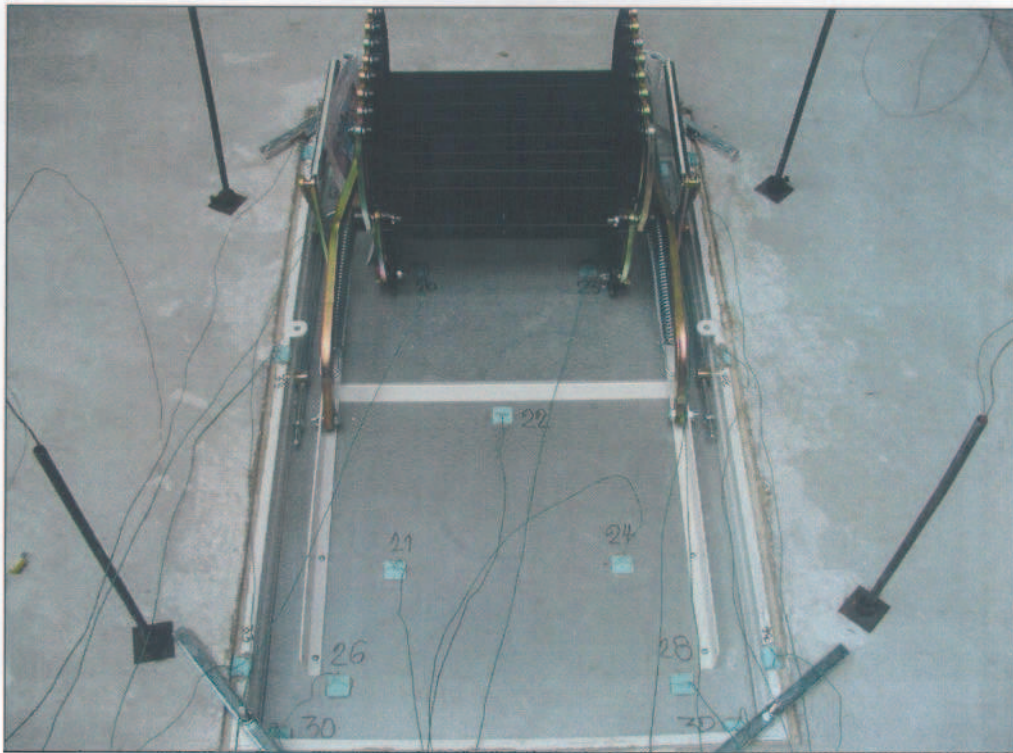
HRANY ZKOSIT 10/10mm

WYPIIS WYZTUŻE

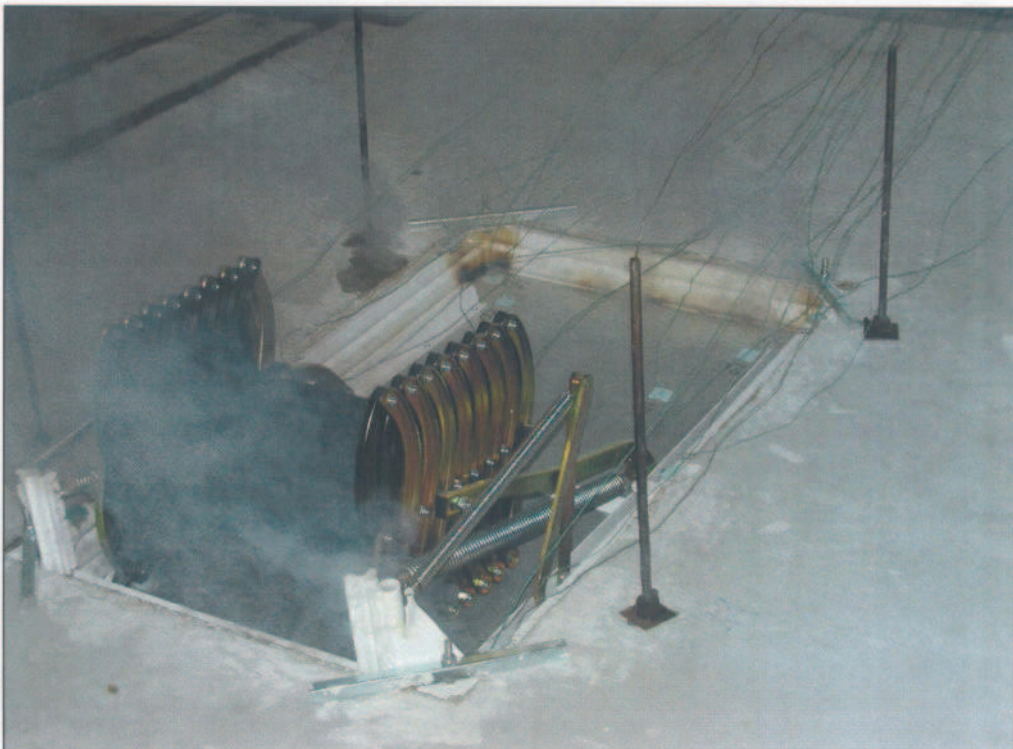
[illegible]

K1 MANIPULAČNÍ ZÁVĚSÝ DEHA
6000-5,0-0120 - 425

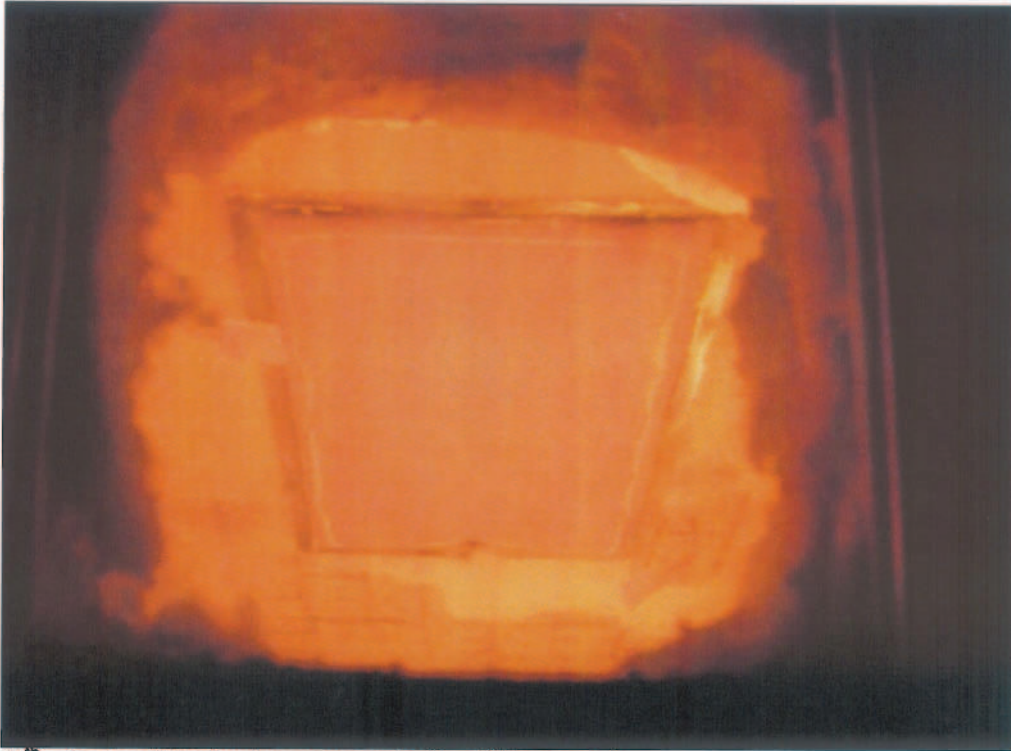
ANNEX 4 - PHOTODOCUMENTATION



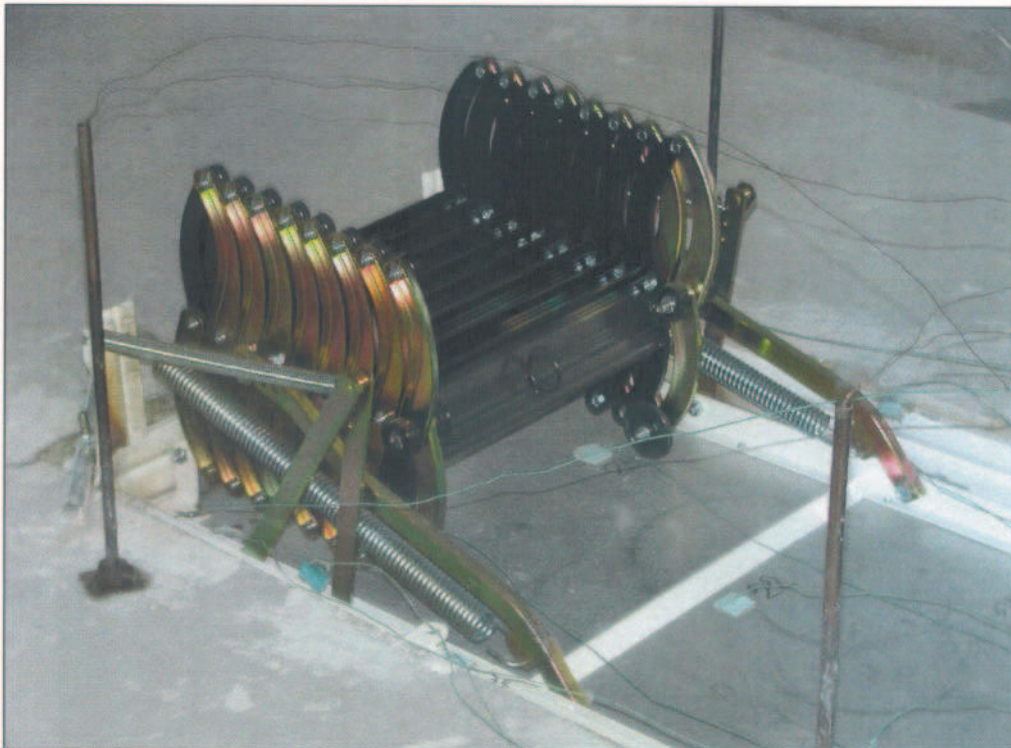
View on the sample before the test beginning



35th minute of the test



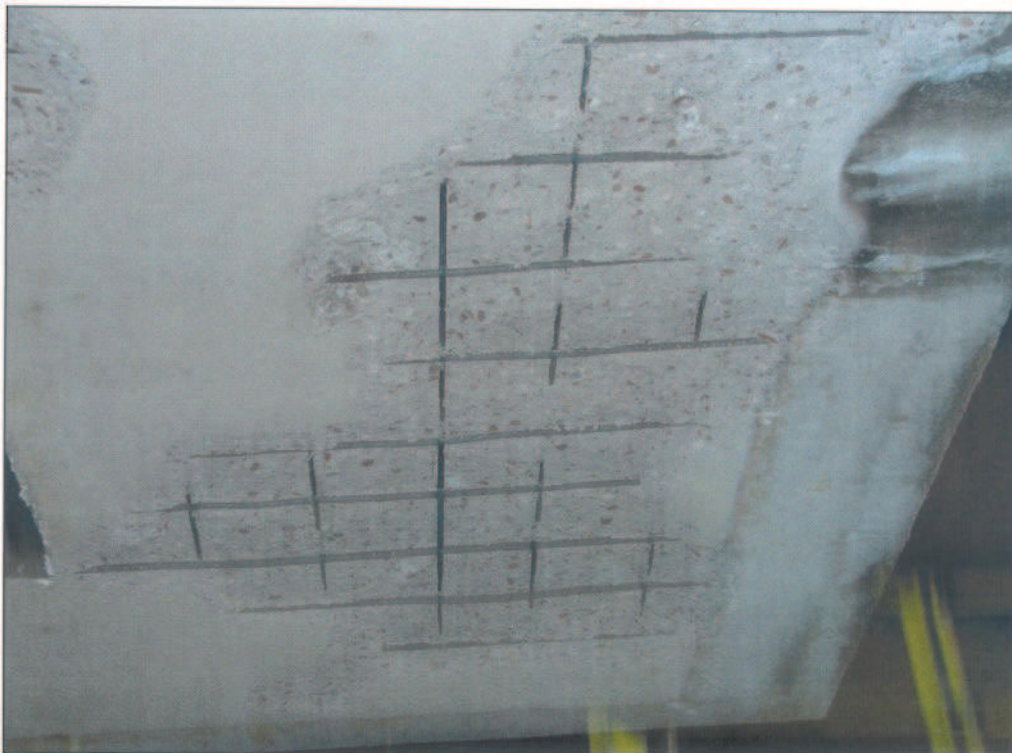
60th minute of the tests – exposed side of the sample



NS of the sample after the finished test of fire resistance



ES of the sample after the finished test of fire resistance



ES of supporting structure – reinforced concrete panel after the finished test of fire resistance