VÁHOSTAV-SK-PREFA

HORNÝ HRIČOV

PRESTRESSED BEAMS VPH-PTMN

for the road bridges and the bridge accessories

PRODUCT ASSORTMENT OUTLINE

Tel: +421 (0)41 505 9911, +421 (0)911 868 110, **E-mail:** info@vph.sk, **Web:** www.vph.sk

Content

1. Introduction

Certificates

TECHNICKÝ A SKÚŠOBNÝ ÚSTAV STAVEBNÝ, n. o.
BUILDING TESTING AND RESEARCH INSTITUTE, Slovak Republic
Studená 3, 821 04 Bratislava

ES CERTIFIKÁT VNÚTROPODNIKOVEJ KONTROLY

1301 – CPD – 0397

V súlade so smernicou Rady č. 89/106/EHS z 21. decembra 1988 o zbližovaní právnych predpisov a administratívnych opatrení členských štátov, ktoré sa týkajú stavebných výrobkov (Smernica o stavebných výrobkoch - CPD), v znení smernice Rady č. 93/68/EHS z 22. júla 1993, sa potvrdzuje, že stavebné výrobky

Betónové prefabrikáty

charakterizované ako
- **tyčové mostné dielce podľa EN 15050**
- **schodiská podľa EN 14843**
- **tyčové nosné prvky podľa EN 13225**
- **stropné dosky pre filigránové stropy podľa EN 13747**
- **základové prvky podľa EN 14991**
- **stenové prvky podľa EN 14992**
- **skriňové priepusty podľa EN 14844**

so zamýšľaným použitím: podľa prílohy 1 uvedenej na rube tohto certifikátu.

vyrábané výrobcom

VÁHOSTAV-SK-PREFA, s. r. o.
013 42 Horný Hričov
Slovenská republika

vo výrobni

VÁHOSTAV-SK-PREFA, s. r. o., Horný Hričov

sú výrobcom podrobené počiatočným skúškam typu, vnútropodnikovej kontrole a plánovaným skúškam vzoriek výrobku odoberaných vo výrobni v súlade s predpísaným plánom skúšok a notifikovaná osoba č.

1301 - Technický a skúšobný ústav stavebný, n. o.

vykonala počiatočnú inšpekciu výrobne a vnútropodnikovej kontroly a vykonáva priebežné inšpekcie, hodnotenie a schvaľovanie vnútropodnikovej kontroly.

Týmto certifikátom sa potvrdzuje, že všetky ustanovenia týkajúce sa vnútropodnikovej kontroly výrobku uvedené v prílohe ZA noriem

EN 15050: 2007, EN 14843: 2007, EN 13225: 2004/AC: 2006, EN 13747: 2005+A2: 2010, EN 14991: 2007, EN 14992: 2007, EN 14844: 2006+A1: 2008

sa uplatnili.

Tento certifikát, vydaný prvýkrát dňa 24. júla 2008, ostáva v platnosti pokiaľ sa podmienky ustanovené uvedenými harmonizovanými technickými špecifikáciami, alebo podmienky výroby vo výrobni alebo vnútropodnikovej kontroly významne nezmenia.

Bratislava 23. Septembra 2010

Technický a skúšobný ústav stavebný, n. o. TSÚS -1- Notifikovaná osoba 1301

Ing. Daša Kozáková
vedúca notifikovanej osoby 1301

038017

Notifikovaná osoba č. 1301

TECHNICKÝ A SKÚŠOBNÝ ÚSTAV STAVEBNÝ, n. o.
BUILDING TESTING AND RESEARCH INSTITUTE
Studená 3, 821 04 Bratislava, Slovenská republika

Certifikát o nemennosti parametrov

1301 – CPR – 0515

V súlade s nariadením Európskeho parlamentu a Rady (EÚ) č. 305/2011 z 9. marca 2011 (Nariadenie o stavebných výrobkoch – CPR) sa tento certifikát vzťahuje na stavebný výrobok

Betónové prefabrikované zvodidlá
typy GMV-120/H4b a GMV-120/H2

sú obojstranné záchytné bezpečnostné zariadenia pre vozidlá na pozemných komunikáciách.

Uvedený na trh pod menom

VÁHOSTAV-SK-PREFA, s. r. o.
013 42 Horný Hričov
Slovenská republika

a vyrábaný vo výrobni

VÁHOSTAV-SK-PREFA, s. r. o.
013 42 Horný Hričov

Týmto certifikátom sa potvrdzuje, že všetky ustanovenia týkajúce sa posudzovania a overovania nemennosti parametrov uvedených v prílohe ZA normy

EN 1317-5: 2007+A2: 2012, EN 1317-5: 2007+A2: 2012/AC: 2012

podľa systému 1 pre parametre stanovené v tomto certifikáte sú uplatnené a že systém riadenia výroby vykonávaný výrobcom sa posúdil na zabezpečenie

nemennosti parametrov stavebného výrobku.

Tento certifikát bol prvýkrát vydaný dňa 3. júla 2009 (podľa CPD) a ostáva v platnosti dovtedy, kým sa harmonizované normy, stavebný výrobok, metódy posudzovania a overovania nemennosti parametrov a ani výrobné podmienky vo výrobni významne nezmenia a pokiaľ nebude pozastavený alebo zrušený notifikovanou osobou na certifikáciu výrobkov.

Bratislava 27. októbra 2016

Technický a skúšobný ústav stavebný, n. o. TSÚS -1- Notifikovaná osoba 1301

Ing. Daša Kozáková
vedúca Notifikovanej osoby 1301

082137

Certificate of the in-house inspection for the production of the bar-shaped bridge elements according to standard EN 15050.

Certificate of compliance for the concrete crush barriers GMV-120 with the level of H2 and H4b retention.

A manufacturing of precast elements according to standards DIN 10-45, 10-48 has been established since 1989. Other certificates can be found on the website of the Precast Plant: www.vph.sk

Precasting Plant

Our Precasting Plant for the production of concrete and precast elements is situated in Horný Hričov near the city of Žilina.
It was established in 1964 as a part of the company VÁHOSTAV, a.s.
For the transportation purposes a D1 Motorway connection is only 3km of distance away and there is also a possibility of railway transportation by means of our own railway siding.

In the production hall, there are two 80 m long forms installed with the prestressing line designated for a production of prestressed, combined and also post-tensioned concrete elements.

The capacity of each single pre-stressing line is 6000kN for the pre-stressing of the bottom flange and 800kN for the prestressing of the top flange of each beam.

Concrete for the Precasting Plant and other purchasers is produced by the mixing centre STETTER with the capacity of 40m^3 per hour.

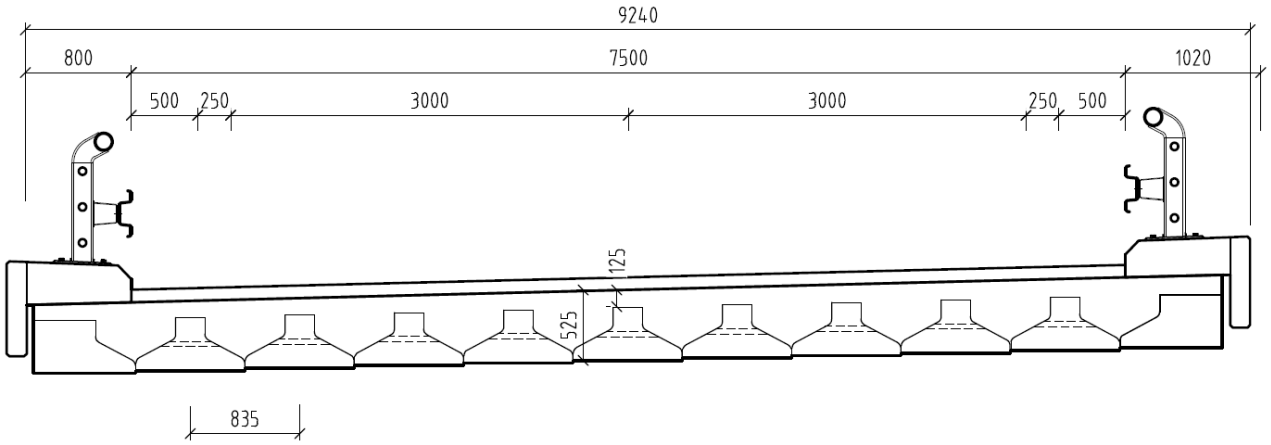
Production and storage of the precast elements.

Transport of the precast elements.

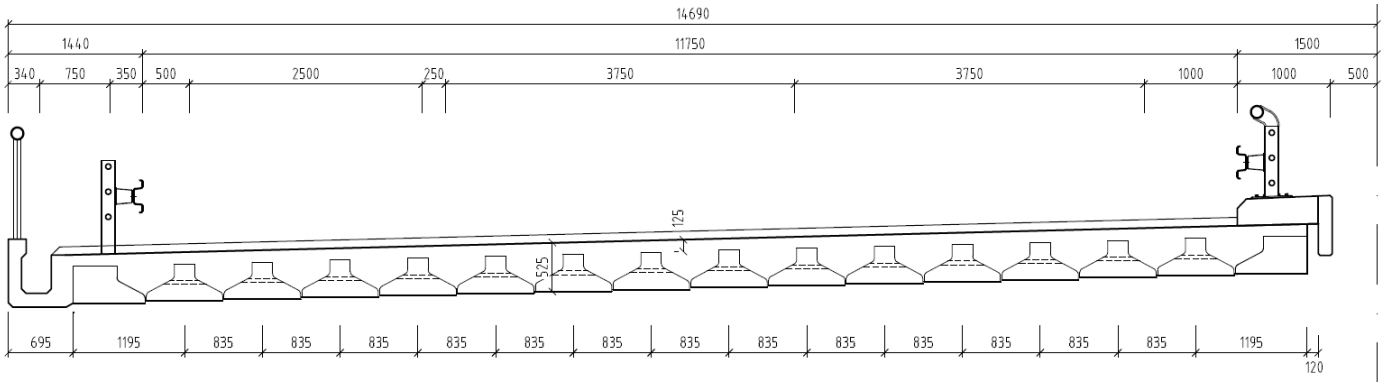
2. Prestressed precast bridge elements of the rank VPH-PTMN for the road bridges

2.1. Inverted T-beams with a length of 11, 13 and 15m for the slab bridges (VPH-PTMN 2016 - PM), 11m

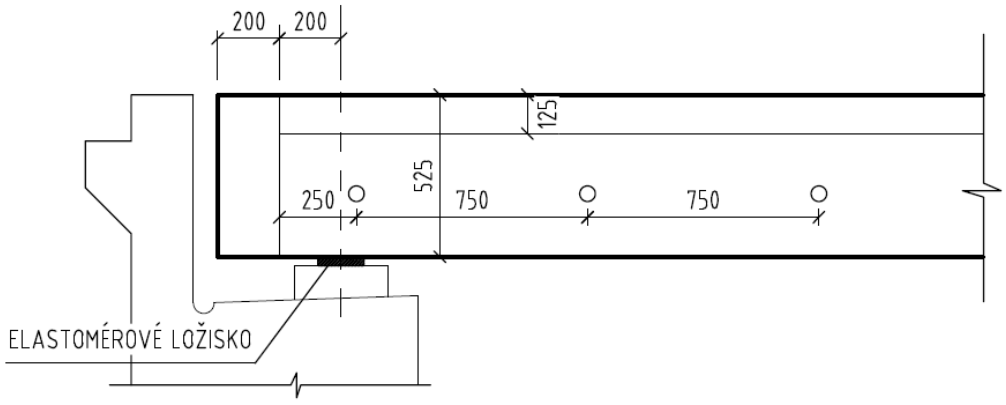
TYPICAL CROSS-SECTION WITH THE C7.5 WIDTH



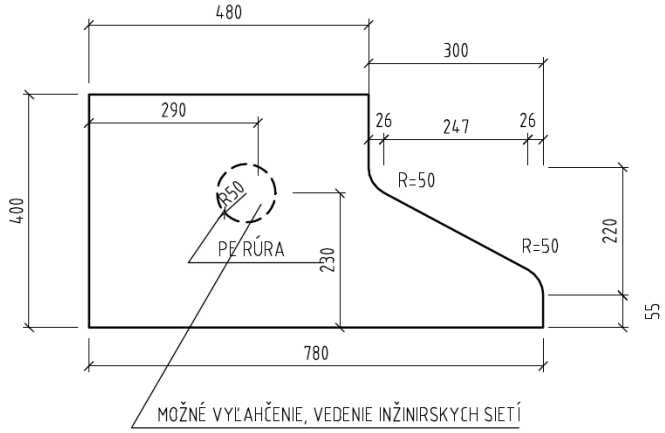
TYPICAL CROSS-SECTION WITH D26.5 WIDTH



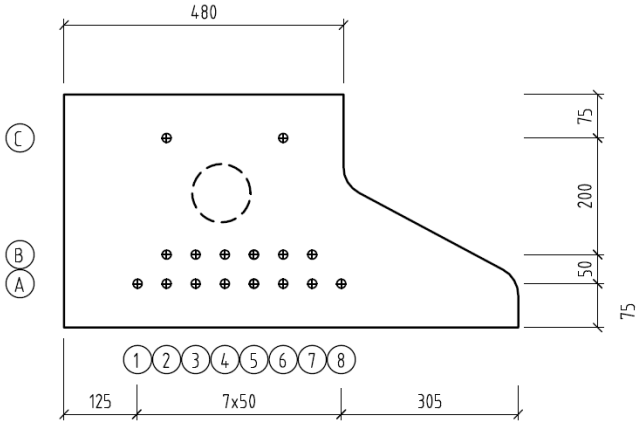
LONGITUDINAL SECTION, LAYOUT DETAIL



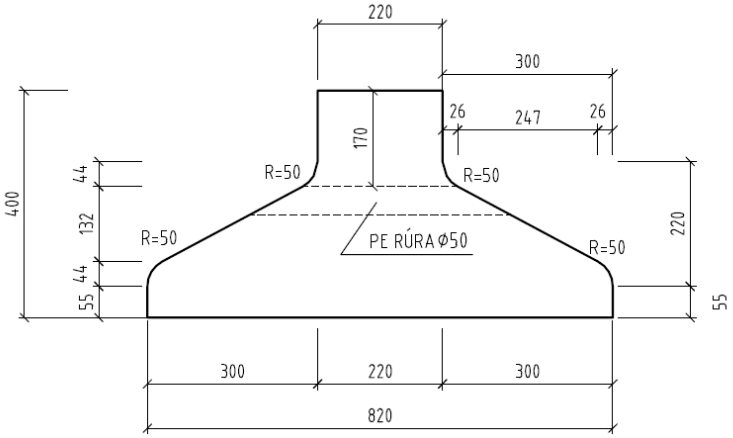
SHAPE, BASIC PARAMETERS AND THE TYPICAL CROSS-SECTION
BEAM VPH-PTMN 2016 – PM, 11m



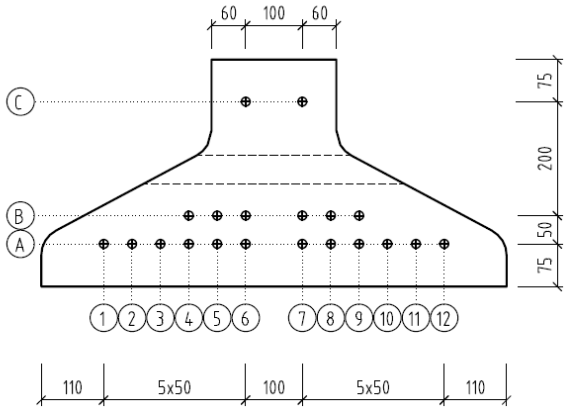
SHAPE OF THE OUTER PRECAST ELEMENT „K“



POSITION OF THE PRESTRESSED WIRES



SHAPE OF THE INTERMEDIATE PRECAST ELEMENT „M“



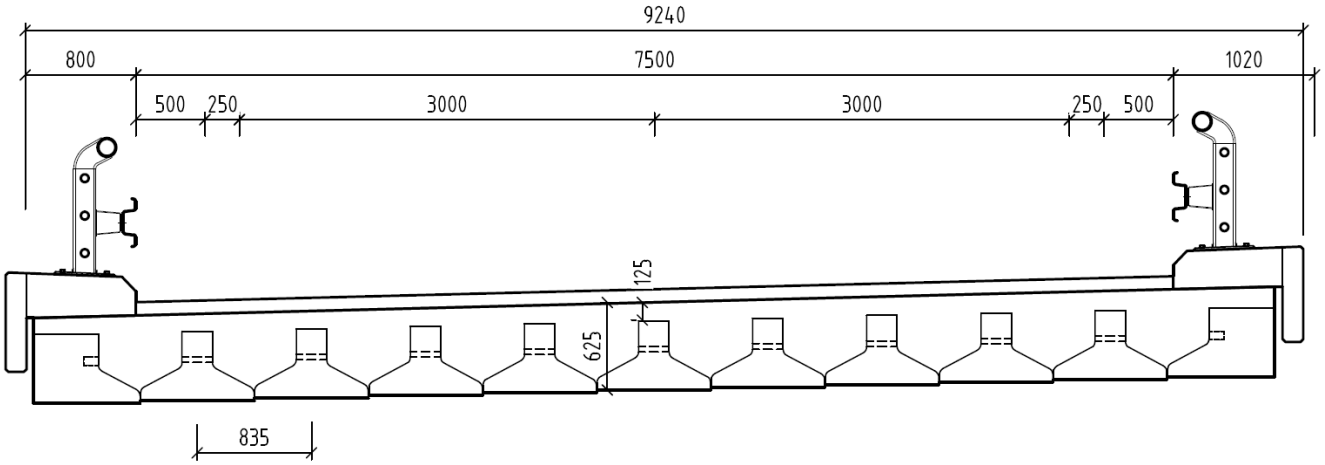
POSITION OF THE PRESTRESSED WIRES

CHARAKTERISTICS OF THE PRECAST ELEMENT

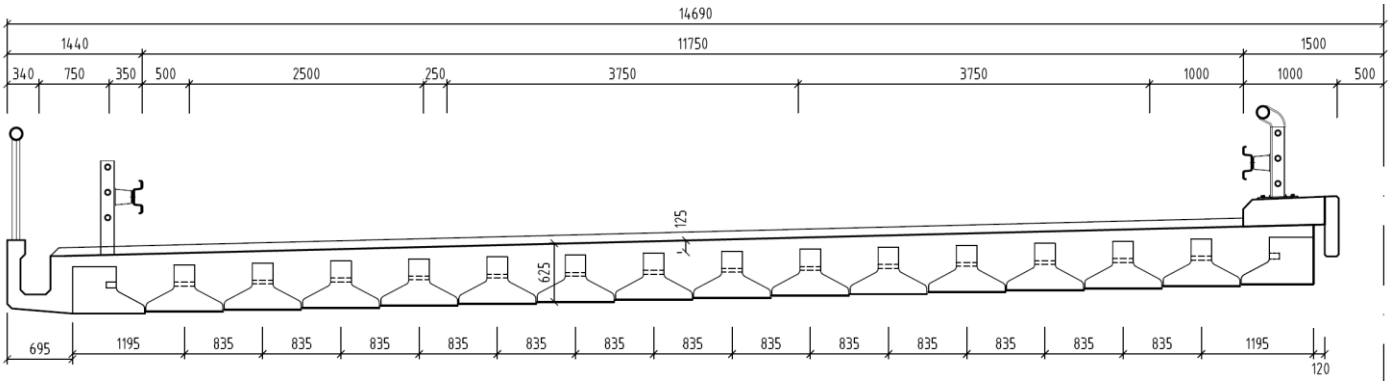
	BASIC PARAMETRES AND WEIGTH					SECTION CONSTANTS		
	Production length	Span	Height	Volume	Weight	Cross-section area	Centroid from the bottom edge „yt“	Moment of inertia „Iy“
	[m]	[m]	[m]	[m^3]	[t]	[m^2]	[m]	[m^4]
VPH-PTMN 2016-PM 11m -K	11.0	10.6	0.400	2.65	6.63	0.241	0.177	0.003195
VPH-PTMN 2016-PM 11m-M	11.0	10.6	0.400	2.05	5.14	0.187	0.141	0.002068

Inverted T-beams with a length of 13m for the slab bridges VPH-PTMN 2016 – PM, 13m

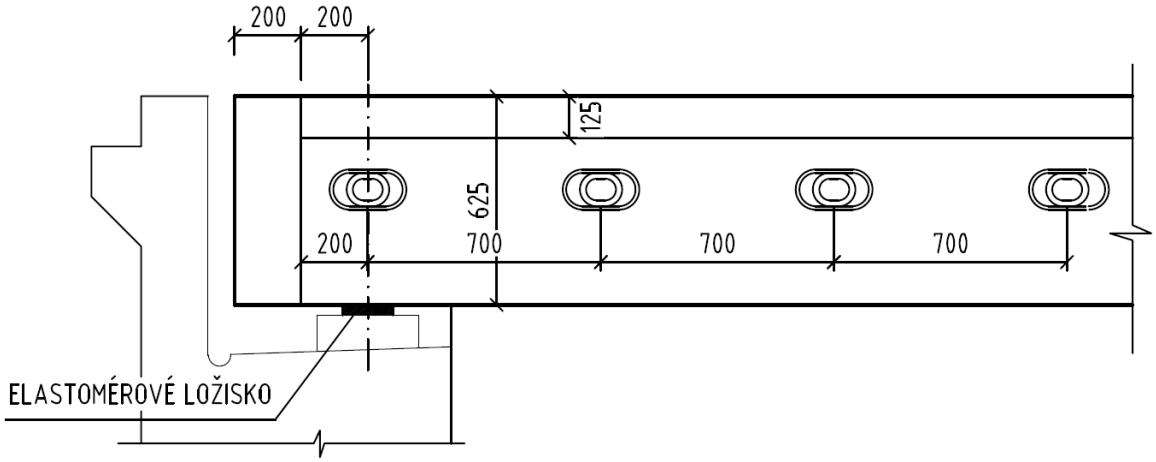
TYPICAL CROSS-SECTION WITH THE C7.5 WIDTH



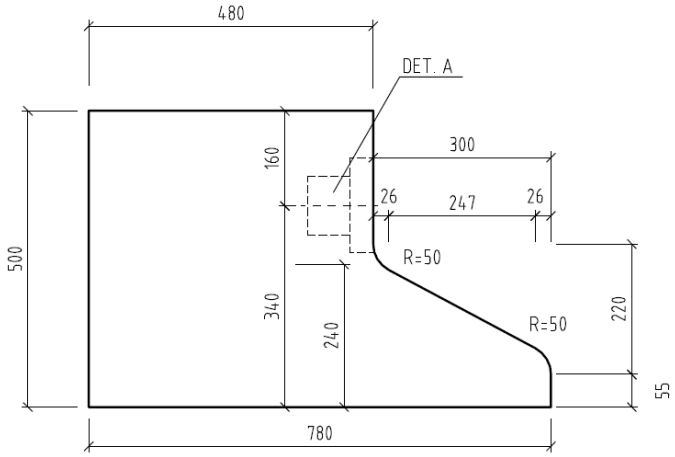
TYPICAL CROSS-SECTION WITH THE D26.5 WIDTH



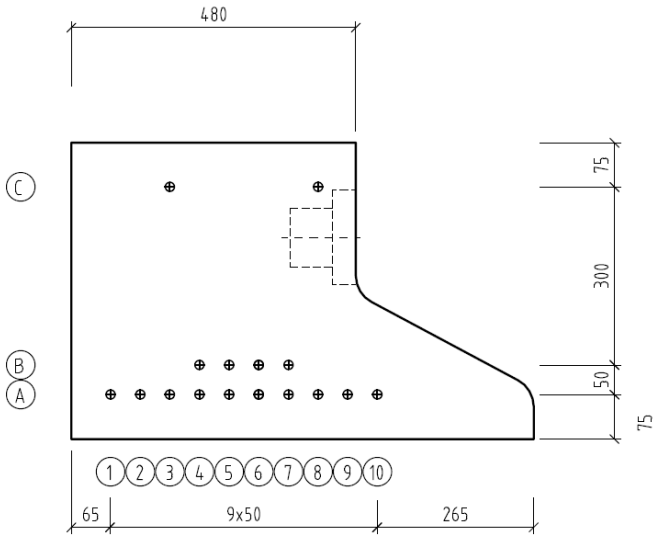
LONGITUDINAL SECTION, LAYOUT DETAIL



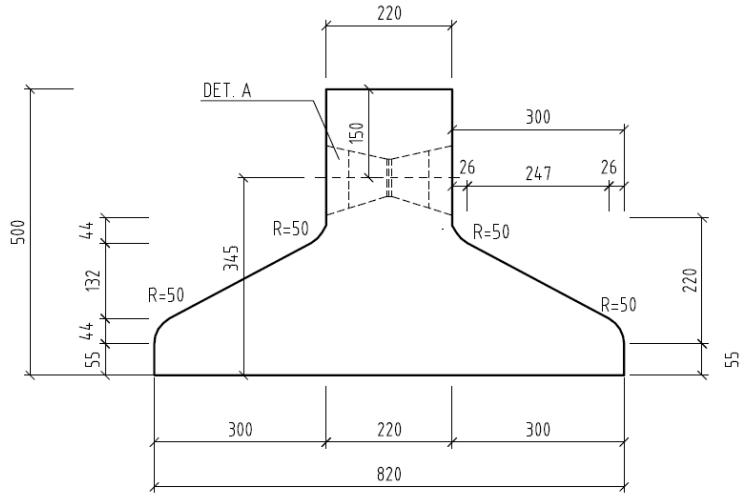
SHAPE, BASIC PARAMETERS AND THE TYPICAL CROSS-SECTION
BEAM VPH-PTMN 2016 – PM, 13m



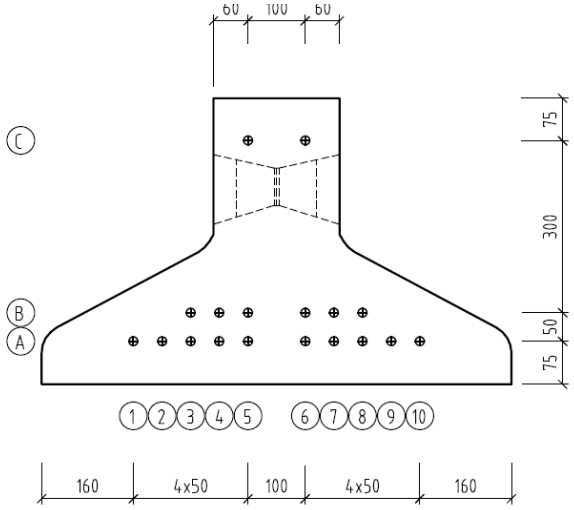
SHAPE OF THE OUTER PRECAST ELEMENT „K“



POSITION OF THE PRESTRESSED WIRES



SHAPE OF THE INTERMEDIATE PRECAST ELEMENT „M“



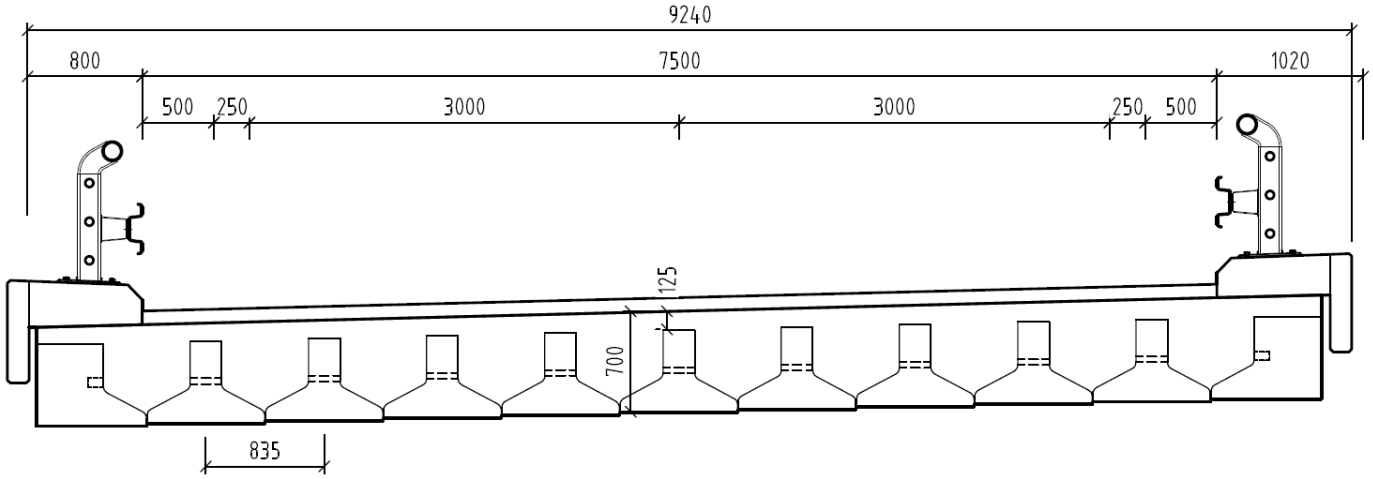
POSITION OF THE PRESTRESSED WIRES

CHARAKTERISTICS OF THE PRECAST ELEMENT

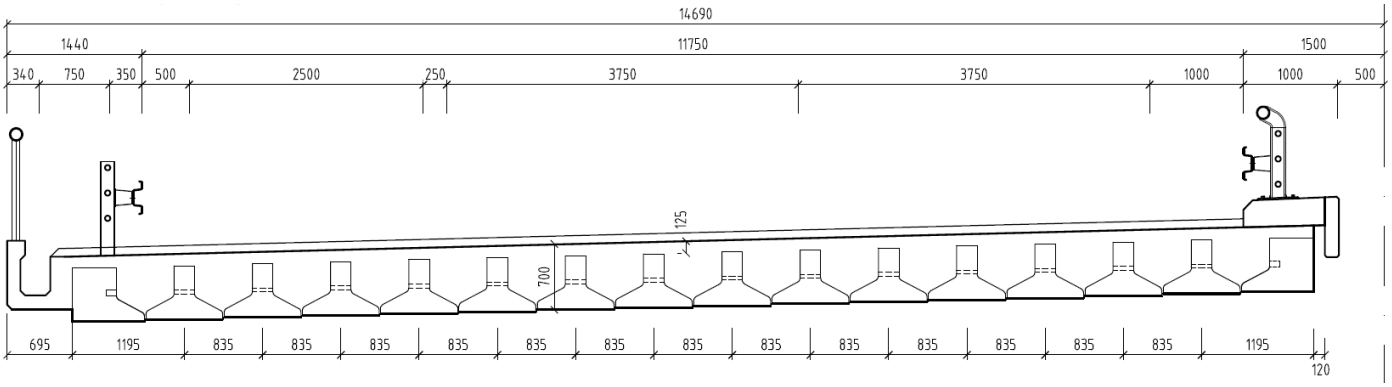
	BASIC PARAMETRES AND WEIGTH					SECTION CONSTANTS		
	Production length	Span	Height	Volume	Weight	Cross-section area	Centroid from the bottom edge „yt“	Moment of inertia „Iy“
	[m]	[m]	[m]	[m^3]	[t]	[m^2]	[m]	[m^4]
VPH-PTMN 2016-PM 13m -K	13.0	12.6	0.500	3.76	9.4	0.289	0.222	0.006205
VPH-PTMN 2016-PM 13m-M	13.0	12.6	0.500	2.71	6.8	0.208	0.173	0.003956

Inverted T-beams with a length of 15m for the slab bridges VPH-PTMN 2016 – PM, 15m

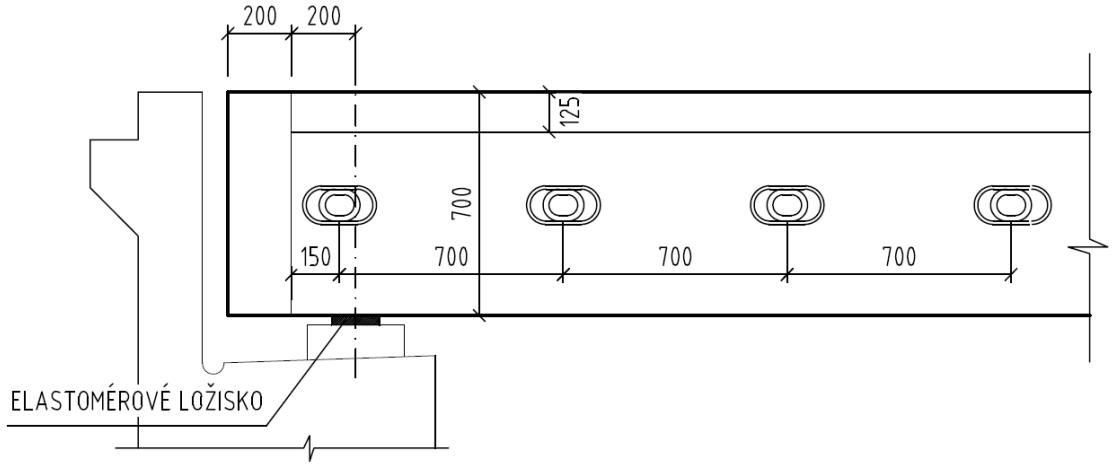
TYPICAL CROSS-SECTION WITH THE C7.5 WIDTH



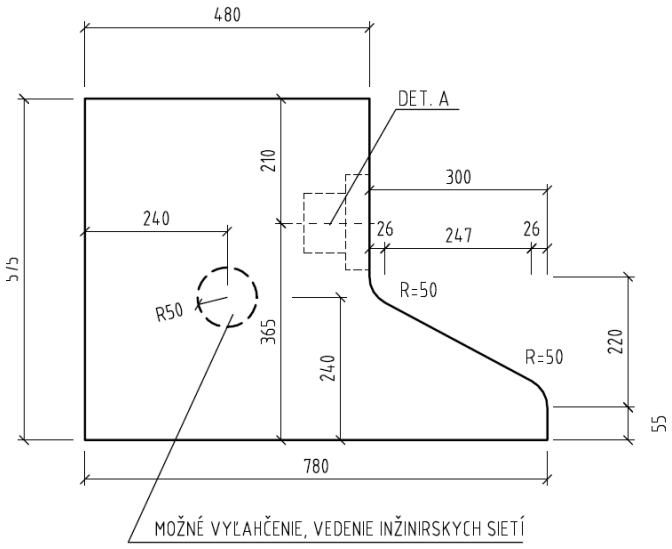
TYPICAL CROSS-SECTION WITH THE D26.5 WIDTH



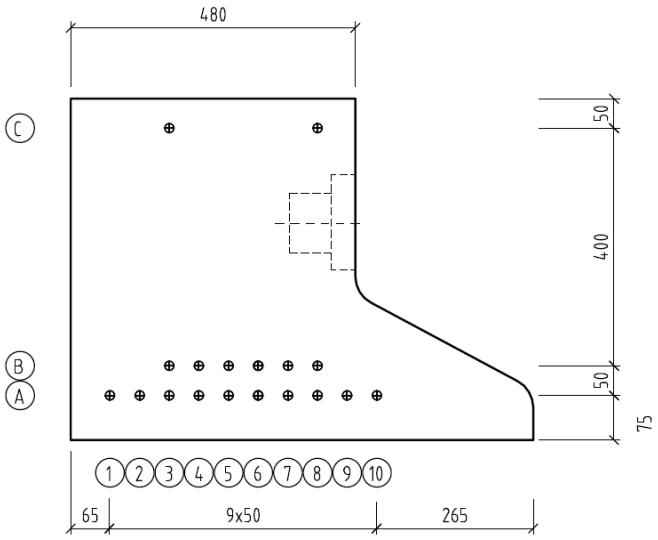
LONGITUDINAL SECTION, LAYOUT DETAIL



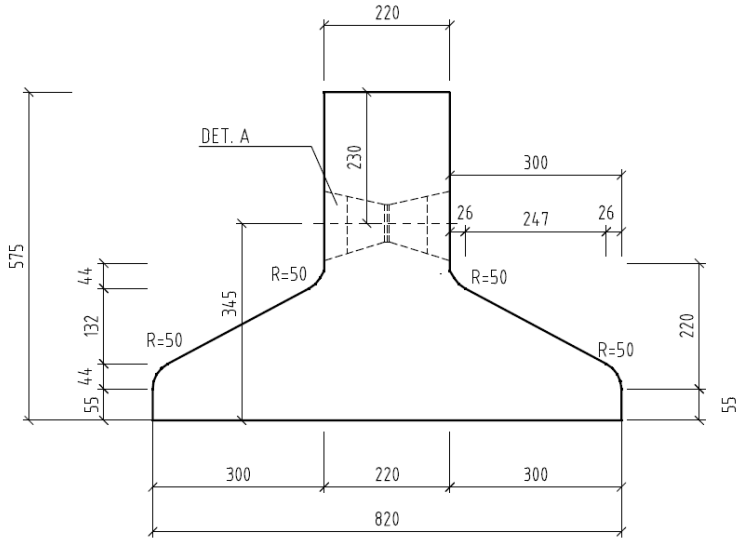
SHAPE, BASIC PARAMETERS AND THE TYPICAL CROSS-SECTION
BEAM VPH-PTMN 2016 – PM, 15m



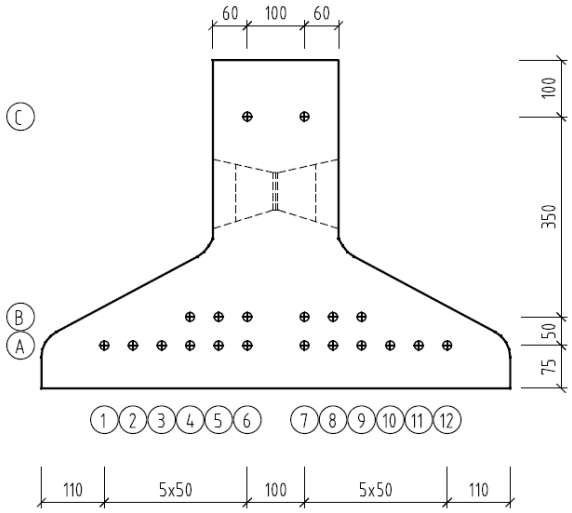
SHAPE OF THE OUTER PRECAST ELEMENT „K“



POSITION OF THE PRESTRESSED WIRES



SHAPE OF THE INTERMEDIATE PRECAST ELEMENT „M“



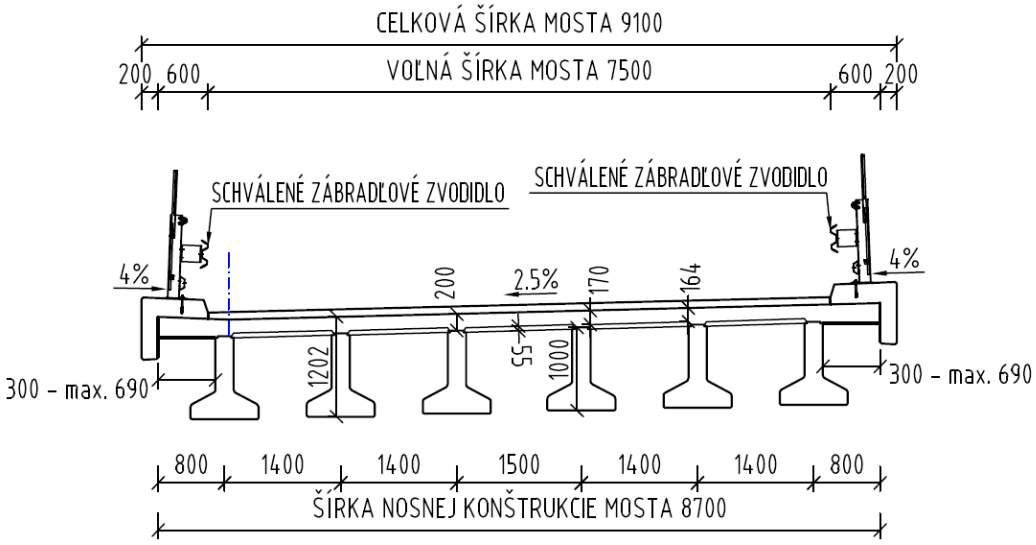
POSITION OF THE PRESTRESSED WIRES

CHARAKTERISTICS OF THE PRECAST ELEMENT

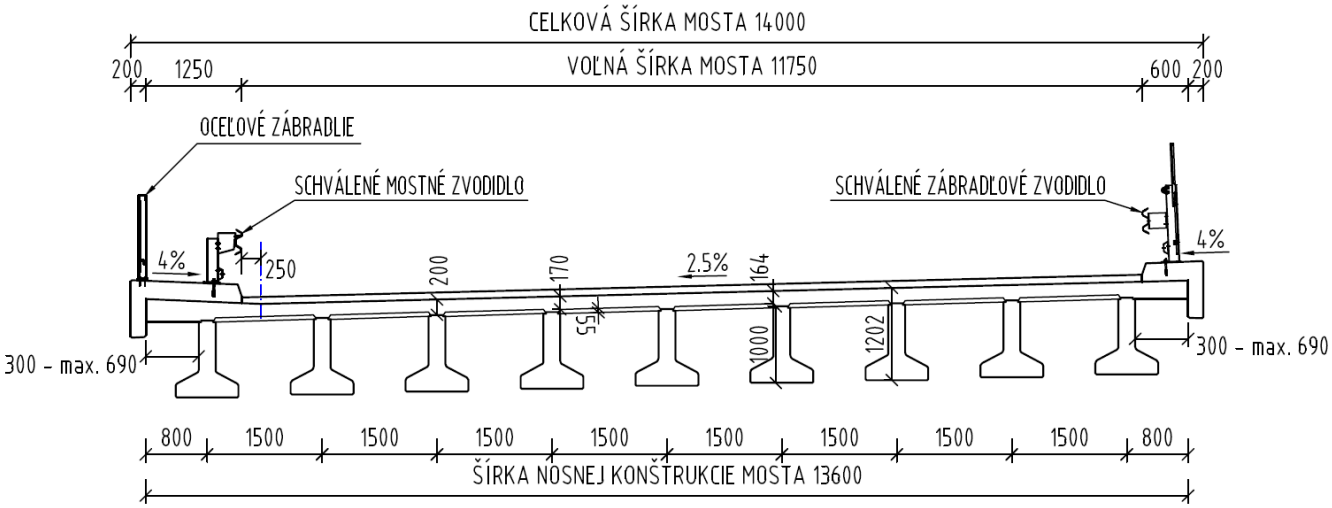
	BASIC PARAMETRES AND WEIGTH					SECTION CONSTANTS		
	Production length	Span	Height	Volume	Weight	Cross-section area	Centroid from the bottom edge „yt“	Moment of inertia „Iy“
	[m]	[m]	[m]	[m^3]	[t]	[m^2]	[m]	[m^4]
VPH-PTMN 2016-PM 15m -K	15.0	14.6	0.575	4.88	12.19	0.325	0.257	0.009392
VPH-PTMN 2016-PM 15m-M	15.0	14.6	0.575	3.38	8.45	0.225	0.200	0.005981

2.2. Inverted T-beams with a length of 18 – 21 - 24m and a reduced height of 1.0m (VPH-PTMN 2016-T)

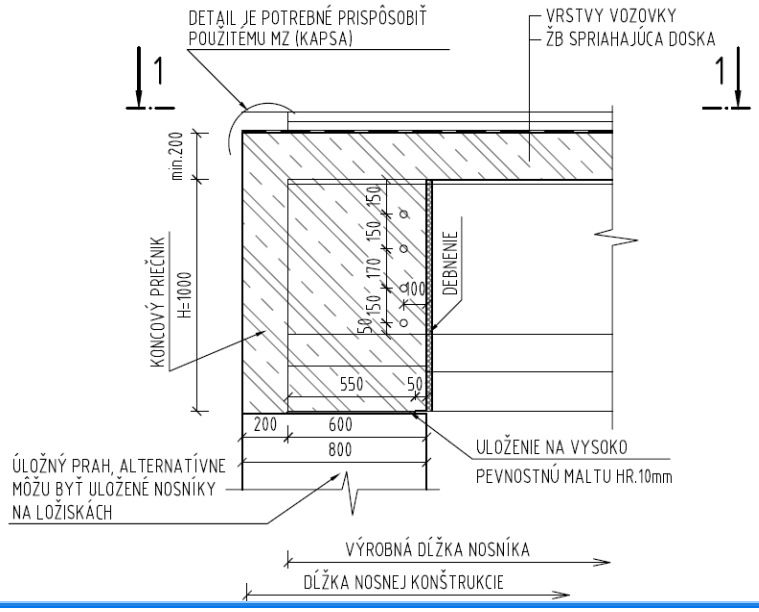
TYPICAL CROSS-SECTION WITH THE C7.5 WIDTH



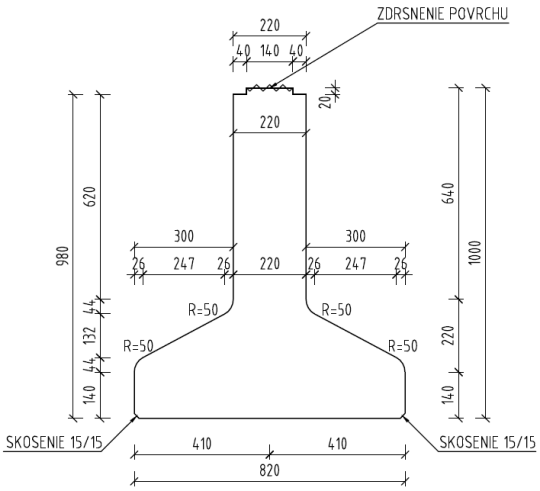
TYPICAL CROSS-SECTION WITH THE D26.5 WIDTH



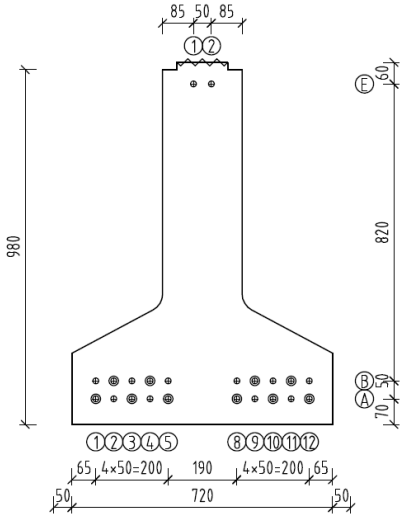
LONGITUDINAL SECTION, LAYOUT DETAIL



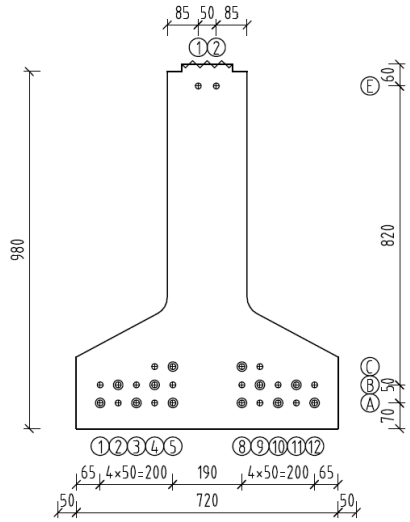
SHAPE, BASIC PARAMETERS AND THE TYPICAL CROSS-SECTION
BEAM VPH-PTMN 2016-T, 18m-21m-24m



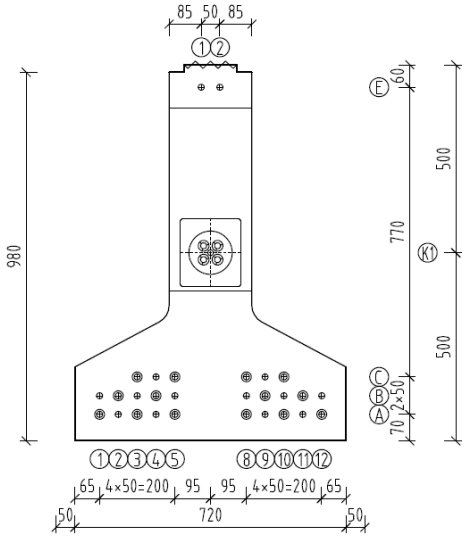
SHAPE OF THE PRECAST ELEMENT



POSITION OF THE PRESTRESSED WIRES 18m



POSITION OF THE PRE-STRESSED WIRES 21m



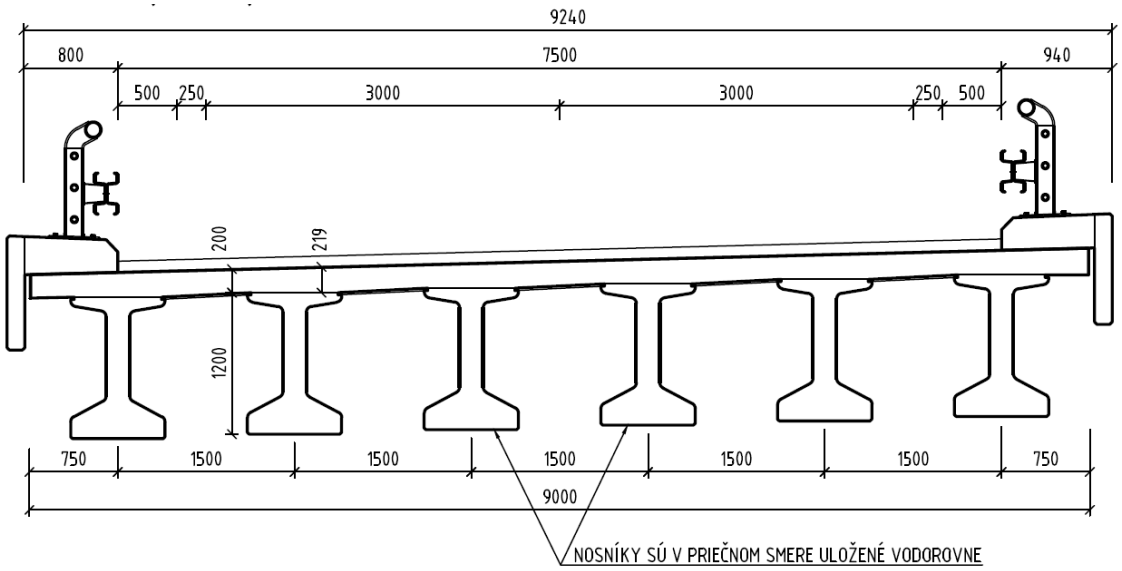
POSITION OF THE PRESTRESSED WIRES AND CABLE 24m

CHARAKTERISTICS OF THE PRECAST ELEMENT

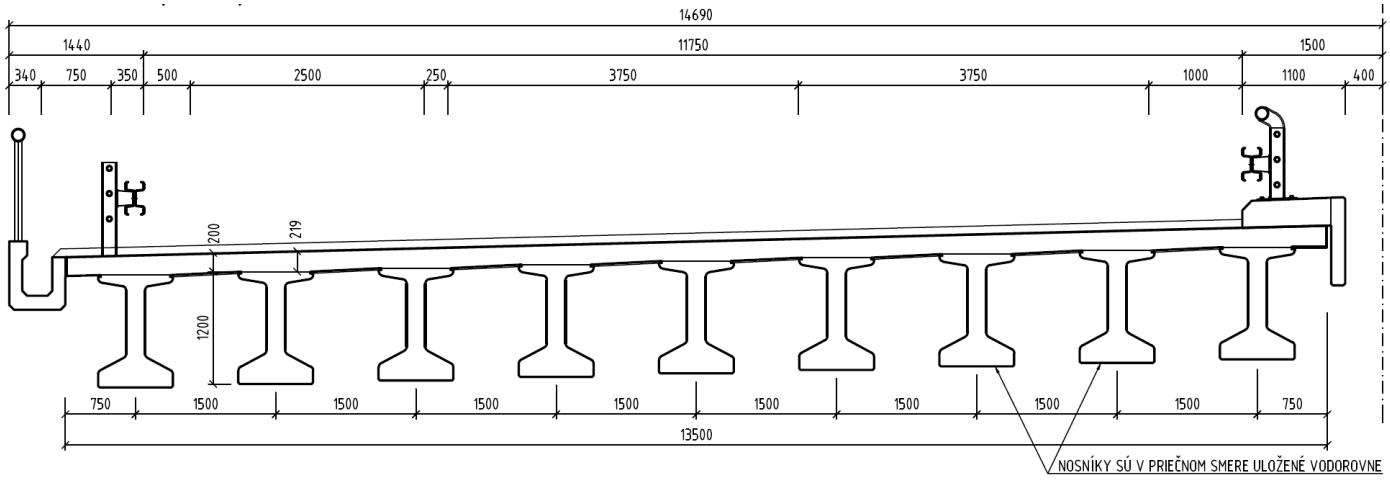
	BASIC PARAMETRES AND WEIGTH					SECTION CONSTANTS		
	Production length	Span	Height	Volume	Weight	Cross-section area	Centroid from the bottom edge „yt“	Moment of inertia „Iy“
	[m]	[m]	[m]	[m^3]	[t]	[m^2]	[m]	[m^4]
VPH-PTMN 2016-T 18M	18.0	17.4	1.0	6.63	16.6	0.36857	0.348	0.0310
VPH-PTMN 2016-T 21m	21.0	20.4	1.0	7.74	19.4	0.36857	0.348	0.0310
VPH-PTMN 2016-T 24m	24.0	23.4	1.0	8.85	22.1	0.36857	0.348	0.0310

2.3. I-beams with a length of 18 -21 -24m and a height of 1.2m (VPH-PTMN 2010)

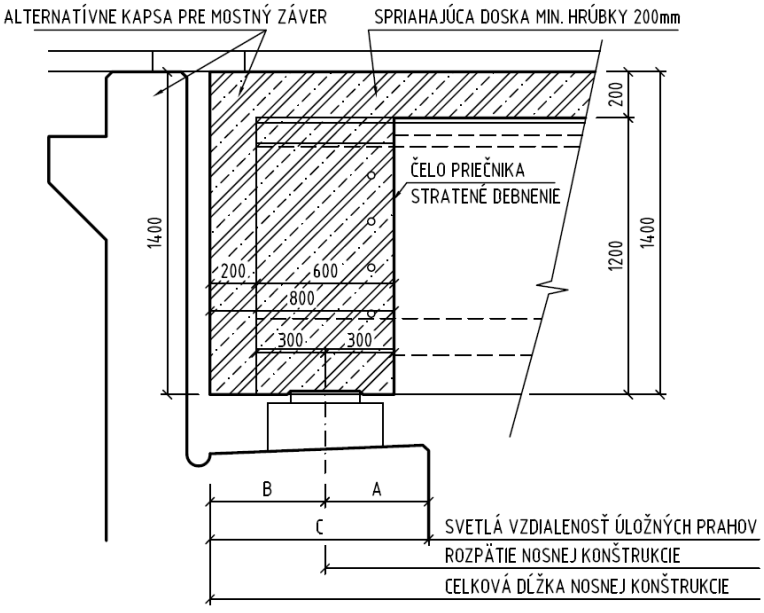
TYPICAL CROSS-SECTION WITH THE C7.5 WIDTH



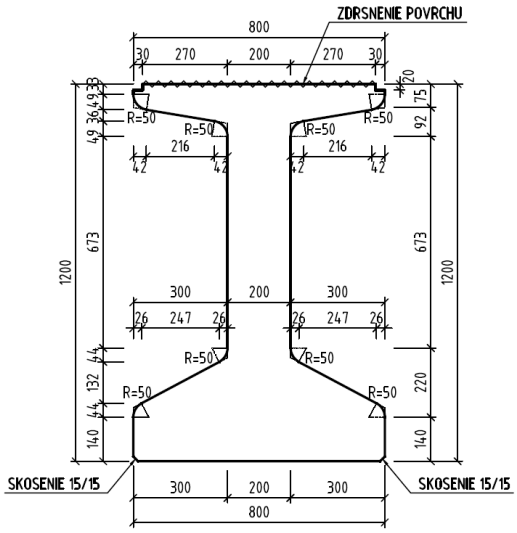
TYPICAL CROSS-SECTION WITH THE D26.5 WIDTH



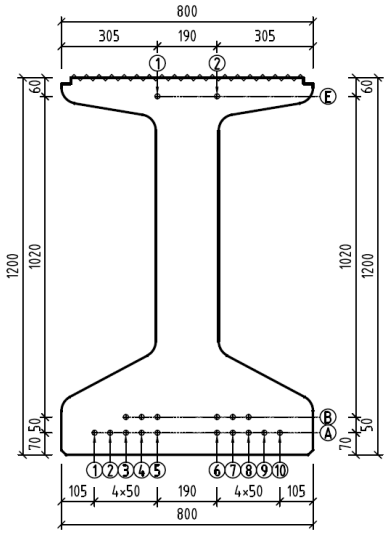
LONGITUDINAL SECTION, LAYOUT DETAIL



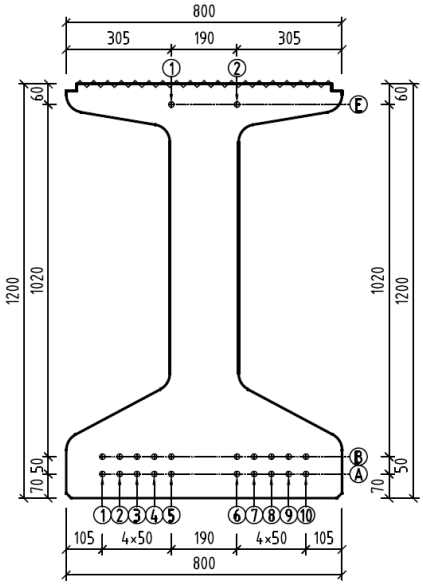
SHAPE, BASIC PARAMETERS AND THE TYPICAL CROSS-SECTION
BEAM VPH-PTMN 2016-T, 18m-21m-24m



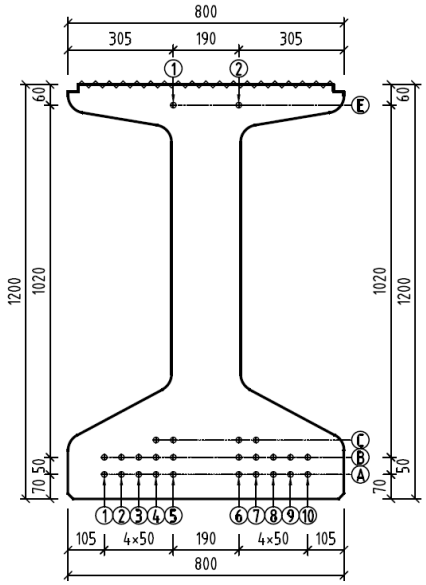
SHAPE OF THE PRECAST ELEMENT



POSITION OF THE PRESTRESSED WIRES 18m



POSITION OF THE PRESTRESSED WIRES 21m



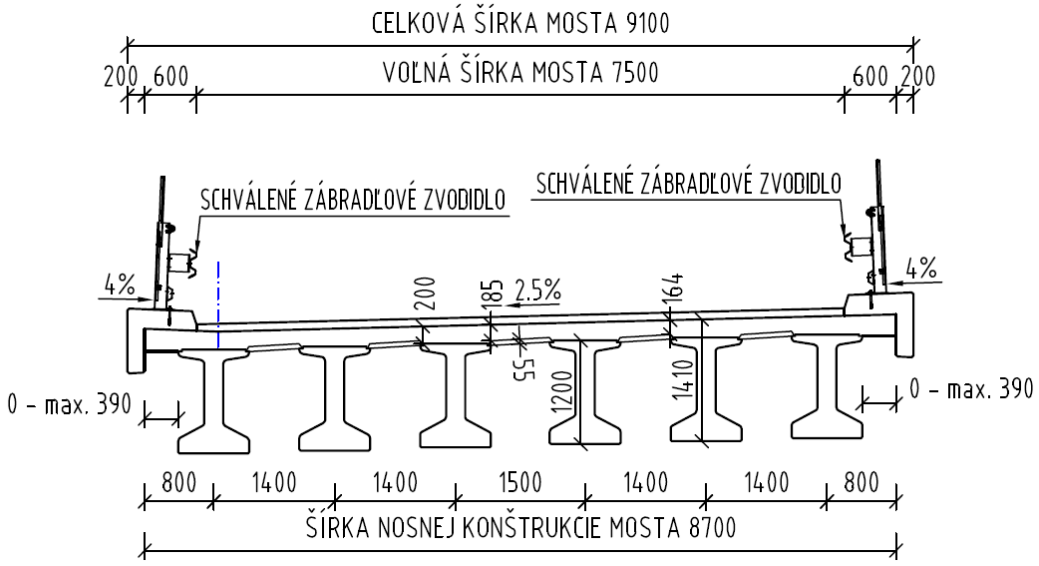
POSITION OF THE PRESTRESSED WIRES AND CABLE 24m

CHARAKTERISTICS OF THE PRECAST ELEMENT

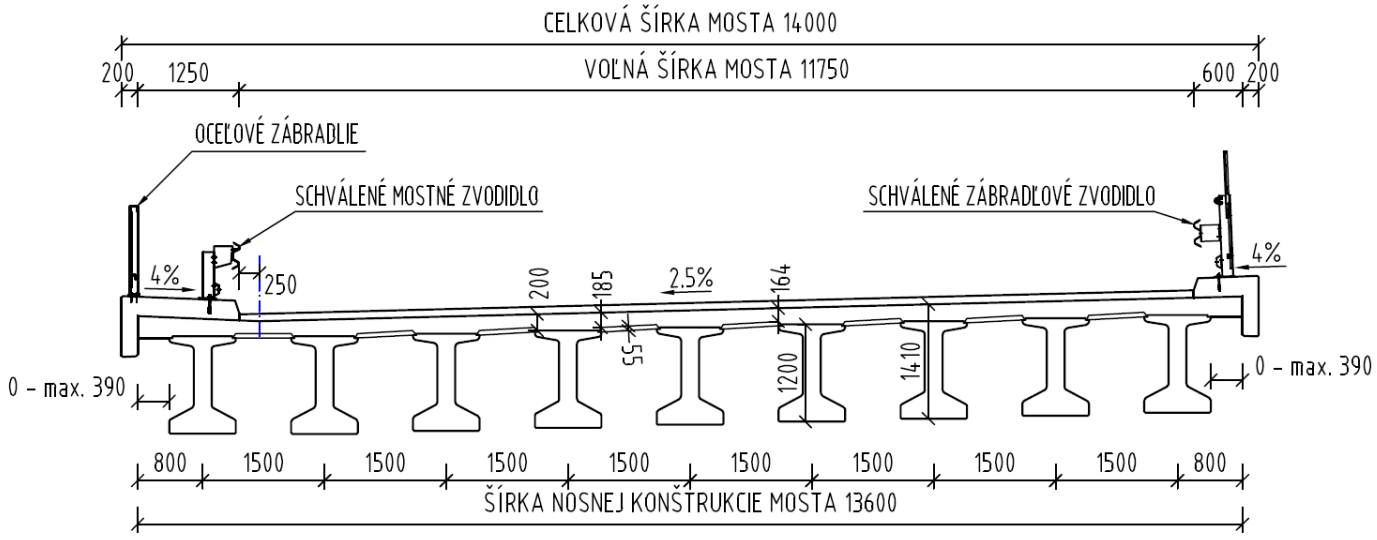
	BASIC PARAMETRES AND WEIGTH					SECTION CONSTANTS		
	Production length	Span	Height	Volume	Weight	Cross-section area	Centroid from the bottom edge „yt“	Moment of inertia „Iy“
	[m]	[m]	[m]	[m^3]	[t]	[m^2]	[m]	[m^4]
VPH-PTMN 2010 I 18m	18.0	17.4	1.2	8.01	20.3	0.4486	0.515	0.07727
VPH-PTMN 2010 I 21m	21.0	20.4	1.2	9.36	23.39	0.4486	0.515	0.07727
VPH-PTMN 2010 I 24m	24.0	23.4	1.2	10.7	26.76	0.4486	0.515	0.07727

2.4 I-beams with a length of 27-30-32m and a reduced height of 1.2m (VPH-PTMN 2016-I)

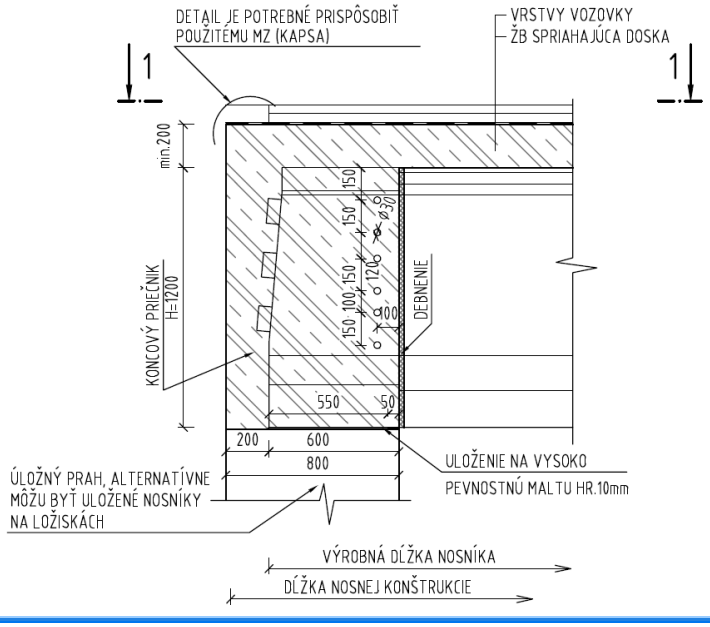
TYPICAL CROSS-SECTION WITH THE C7.5 WIDTH



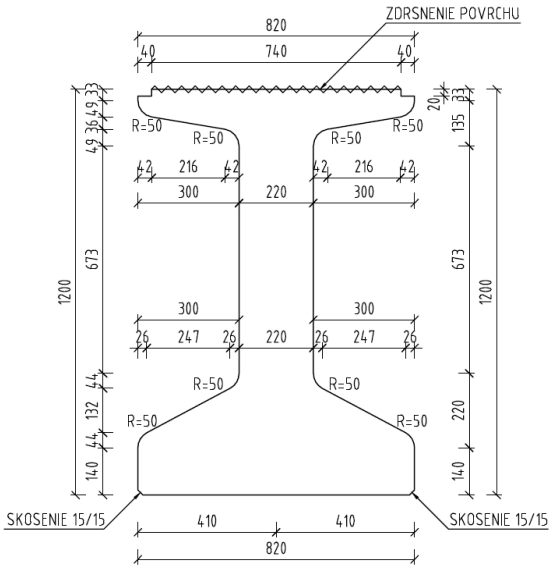
TYPICAL CROSS-SECTION WITH THE D26.5 WIDTH



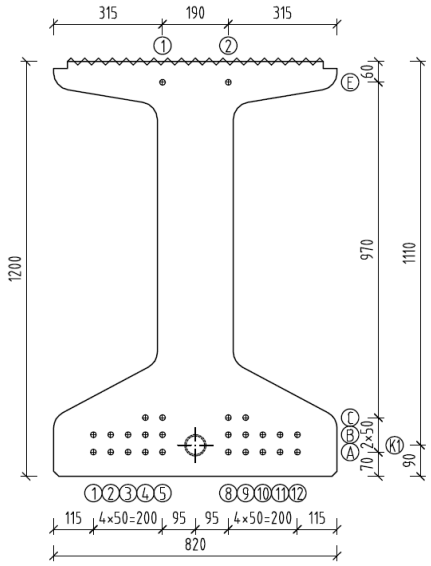
LONGITUDINAL SECTION, LAYOUT DETAIL



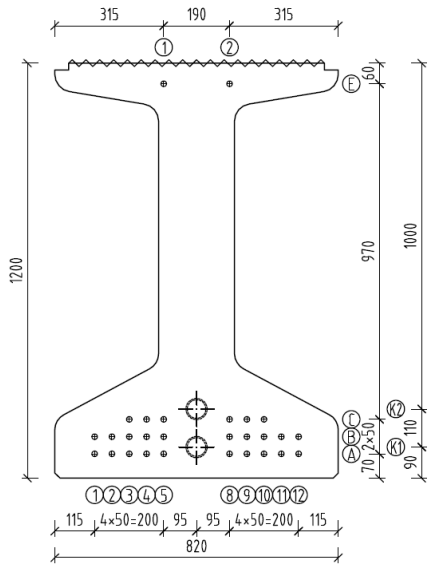
SHAPE, BASIC PARAMETERS AND THE TYPICAL CROSS-SECTION
BEAM VPH-PTMN 2016-I, 27m-30m-32m



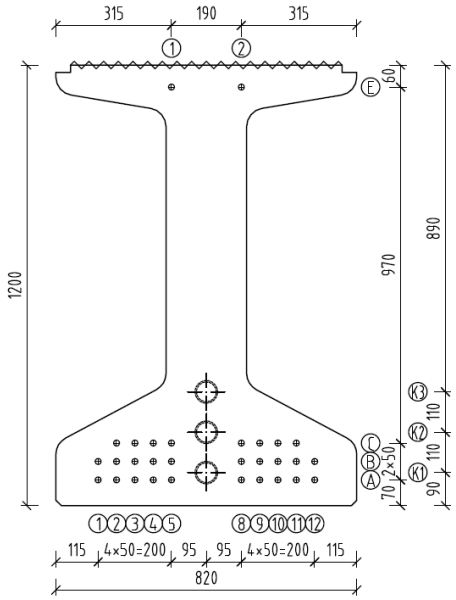
SHAPE OF THE PRECAST ELEMENT



POSITION OF THE PRESTRESSED WIRES AND CABLE 27m



POSITION OF THE PRESTRESSED WIRES 30m



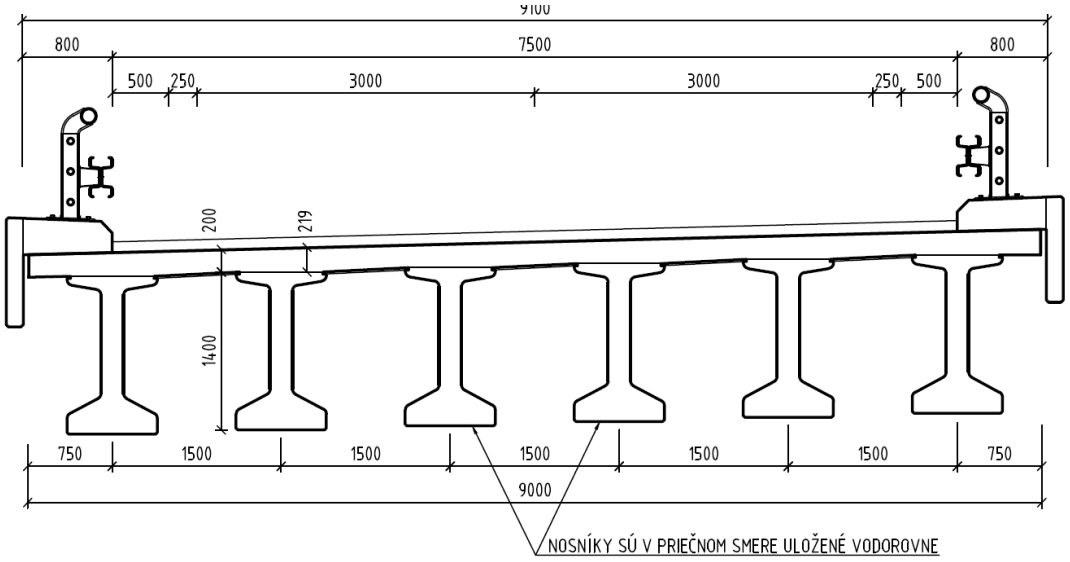
POSITION OF THE PRESTRESSED WIRES AND CABLE 32m

CHARAKTERISTICS OF THE PRECAST ELEMENT

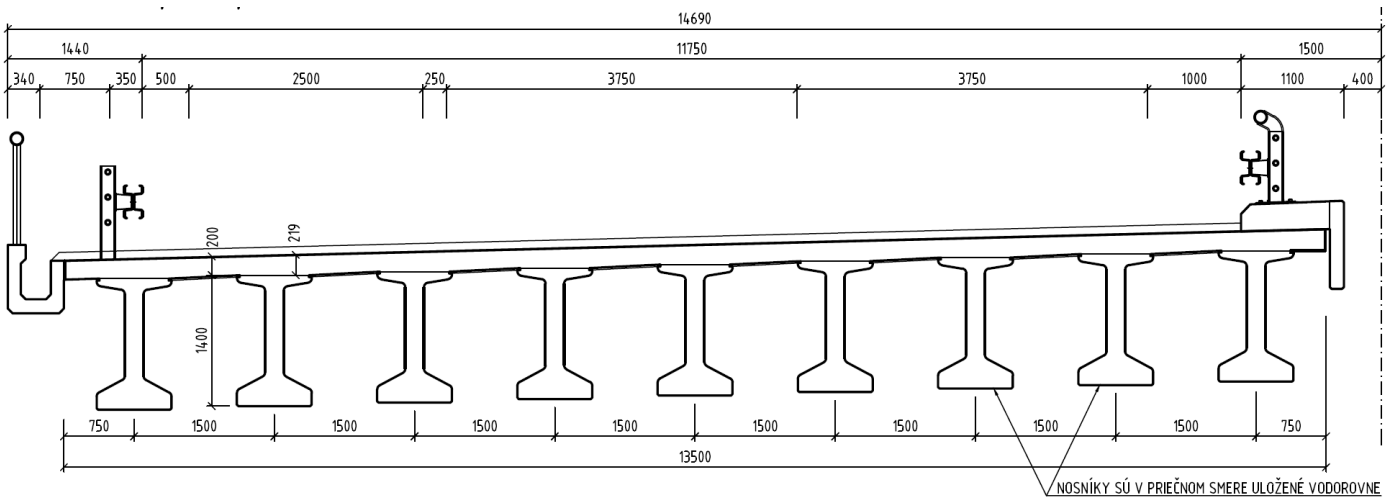
	BASIC PARAMETRES AND WEIGTH					SECTION CONSTANTS		
	Production length	Span	Height	Volume	Weight	Cross-section area	Centroid from the bottom edge „yt“	Moment of inertia „Iy“
	[m]	[m]	[m]	[m^3]	[t]	[m^2]	[m]	[m^4]
VPH-PTMN 2016-I 27m	27.0	26.4	1.2	12.76	31.9	0.47257	0.519	0.0803
VPH-PTMN 2016-I 30m	30.0	29.4	1.2	14.18	35.4	0.47257	0.519	0.0803
VPH-PTMN 2016-I 32m	32.0	31.4	1.2	15.12	37.8	0.47257	0.519	0.0803

2.5 I-beams with a length of 27-30-32m and a height of 1.4m (VPH-PTMN 2010)
with the prestressed wires and alternatively with a combined prestressing

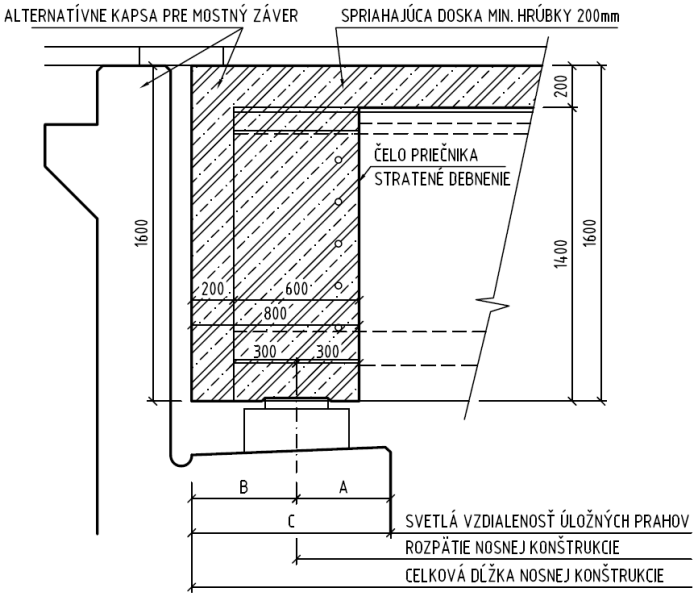
TYPICAL CROSS-SECTION WITH THE C7.5 WIDTH



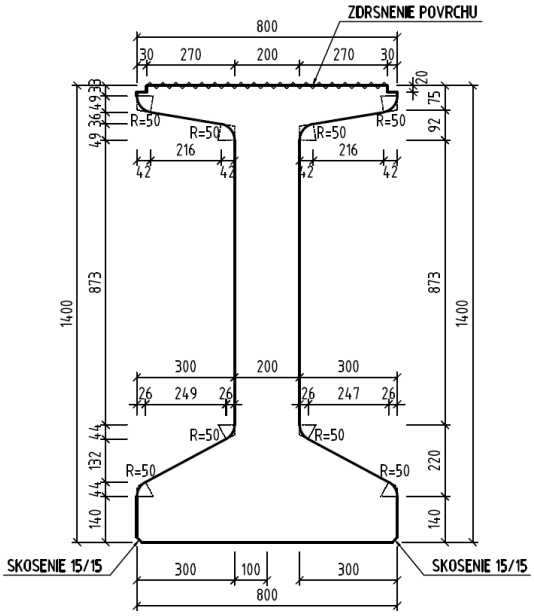
TYPICAL CROSS-SECTION WITH THE D26.5 WIDTH



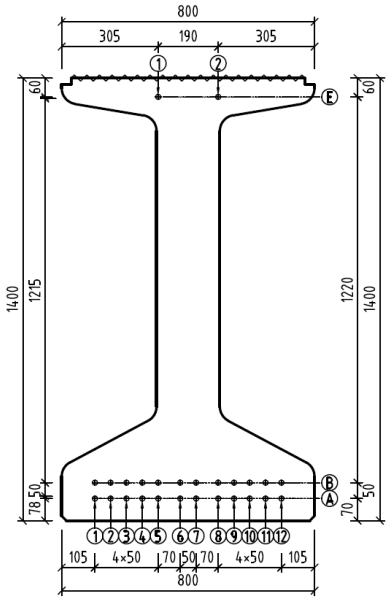
LONGITUDINAL SECTION, LAYOUT DETAIL



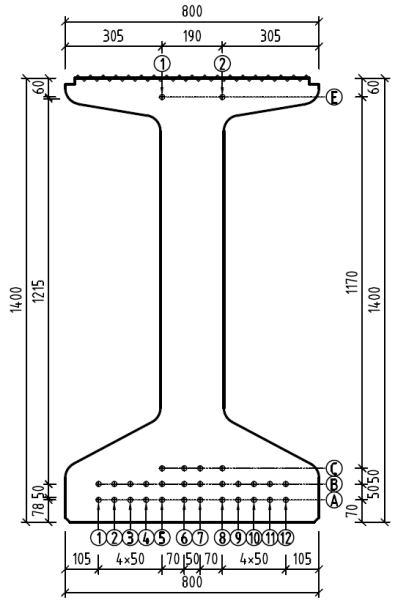
SHAPE, BASIC PARAMETERS AND THE TYPICAL CROSS-SECTION
BEAM VPH-PTMN 2010 I, 27m-30m-32m with only prestressed wires



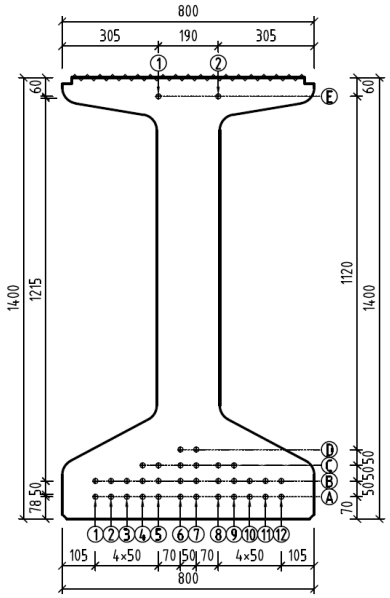
SHAPE OF THE PRECAST ELEMENT



POSITION OF THE PRESTRESSING 27m



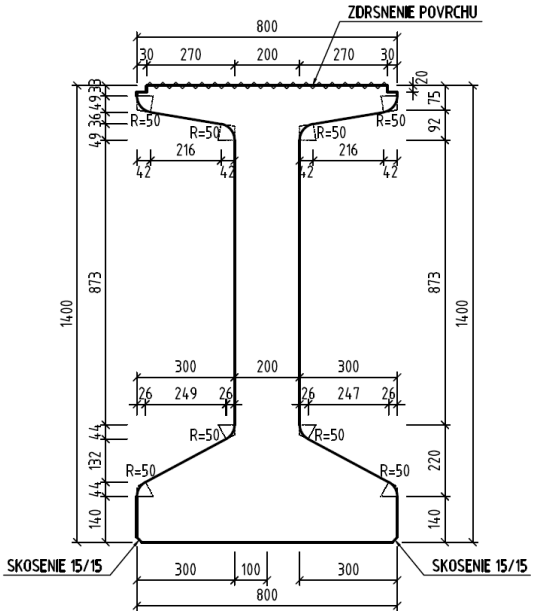
POSITION OF THE PRESTRESSING 30m



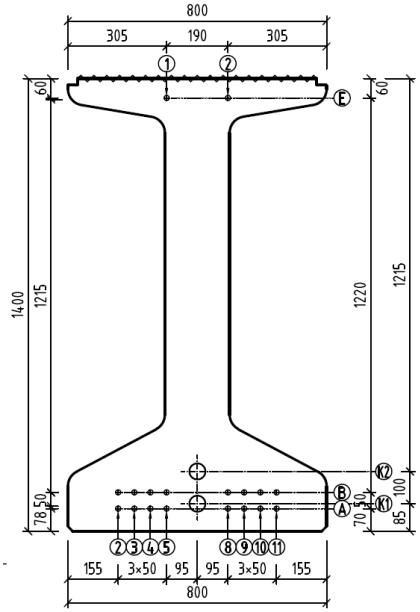
POSITION OF THE PRESTRESSING 32m

SHAPE, BASIC PARAMETERS AND THE TYPICAL CROSS-SECTION

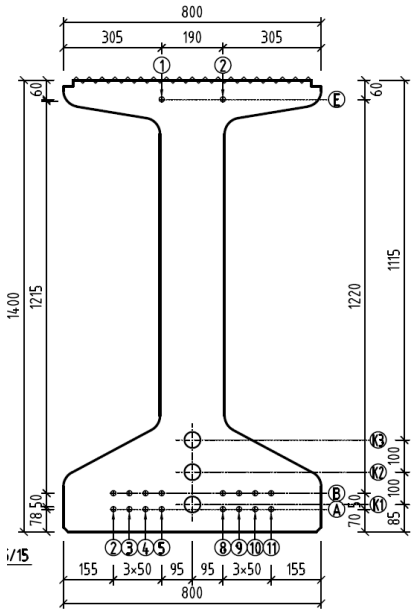
BEAM VPH-PTMN 2010 I, 27m-30m-32m with a combined prestressing



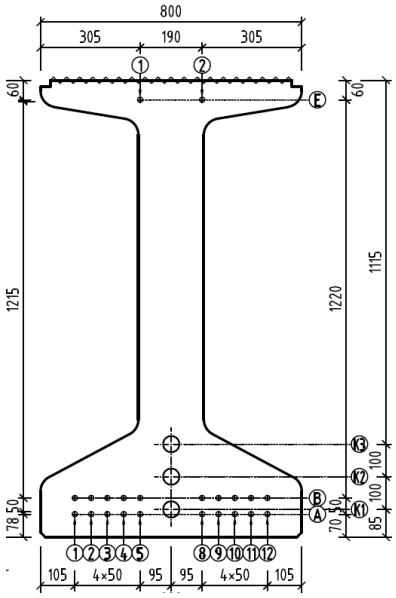
SHAPE OF THE PRECAST ELEMENT



POSITION OF THE PRESTRESSING 27m



POSITION OF THE PRESTRESSING 30m



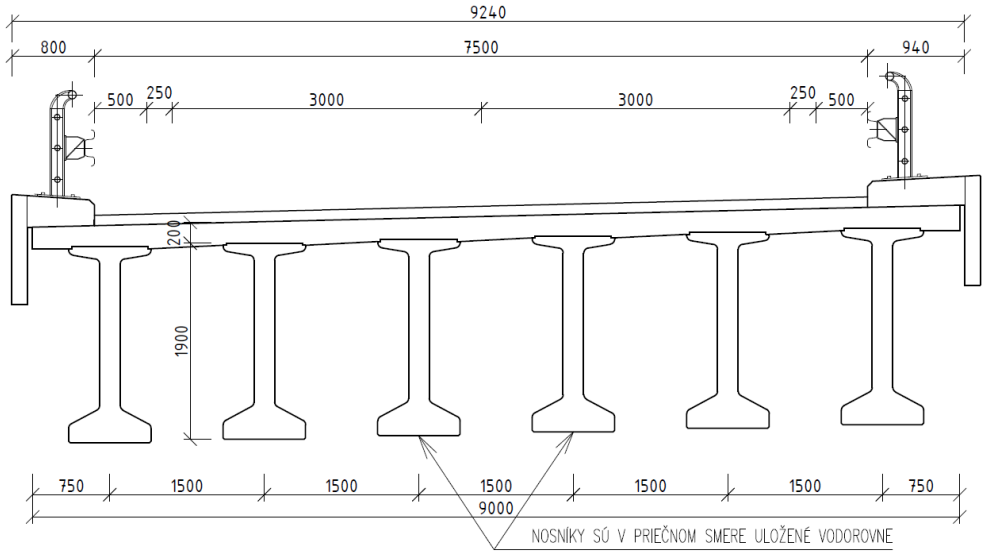
POSITION OF THE PRESTRESSING 32m

CHARAKTERISTICS OF THE PRECAST ELEMENT

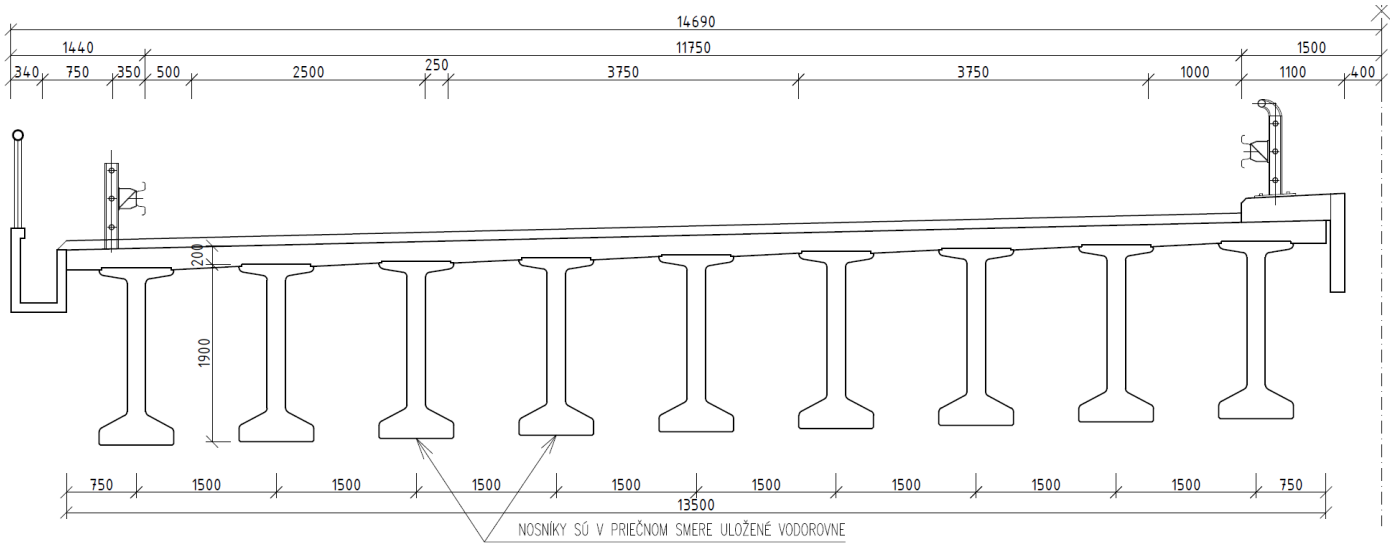
	BASIC PARAMETRES AND WEIGTH					SECTION CONSTANTS		
	Production length	Span	Height	Volume	Weight	Cross-section area	Centroid from the bottom edge „yt“	Moment of inertia „Iy“
	[m]	[m]	[m]	[m^3]	[t]	[m^2]	[m]	[m^4]
VPH-PTMN 2010 I 27m	27.0	26.4	1.4	13.13	32.82	0.4886	0.603	0.11549
VPH-PTMN 2010 I 30m	30.0	29.4	1.4	14.59	36.49	0.4886	0.603	0.11549
VPH-PTMN 2010 I 32m	32.0	31.4	1.4	15.57	38.93	0.4886	0.603	0.11549

2.6 I-beams with a length of 38m and a height of 1.9m (VPH-PTMN 2010-R2) with post tensioned cables

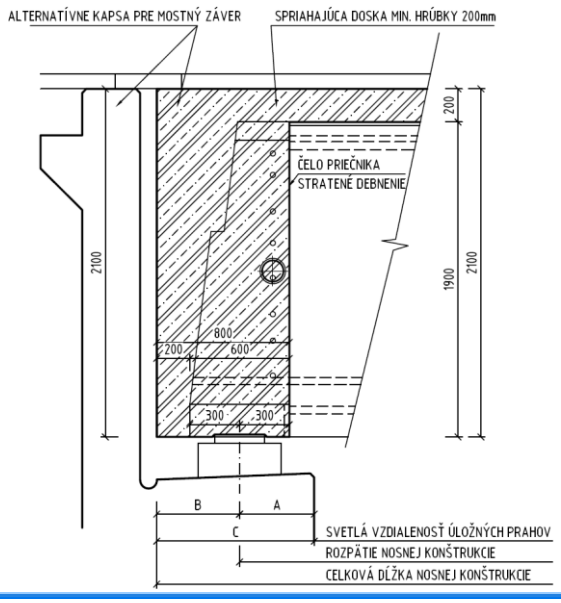
TYPICAL CROSS-SECTION WITH THE C7.5 WIDTH



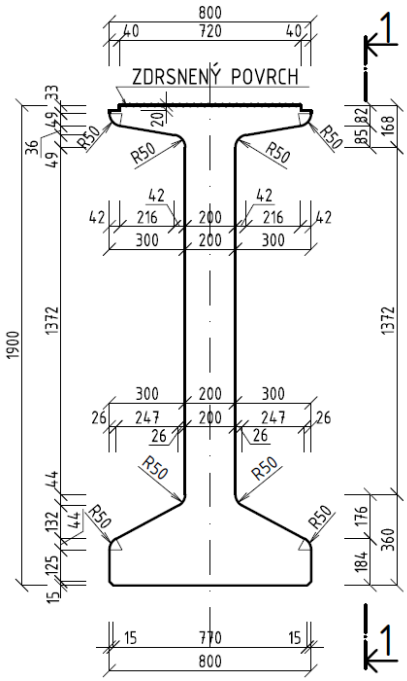
TYPICAL CROSS-SECTION WITH THE D26.5 WIDTH



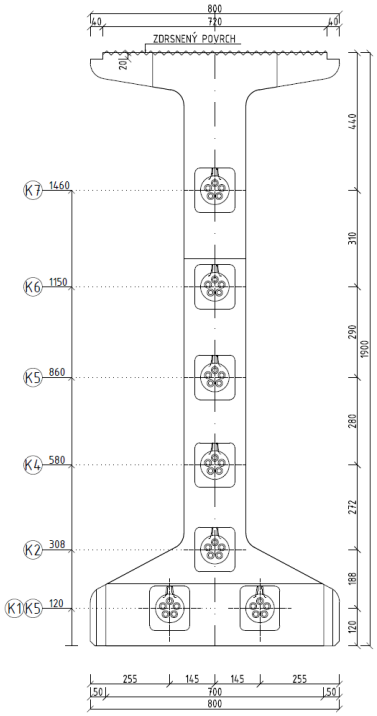
LONGITUDINAL SECTION, LAYOUT DETAIL



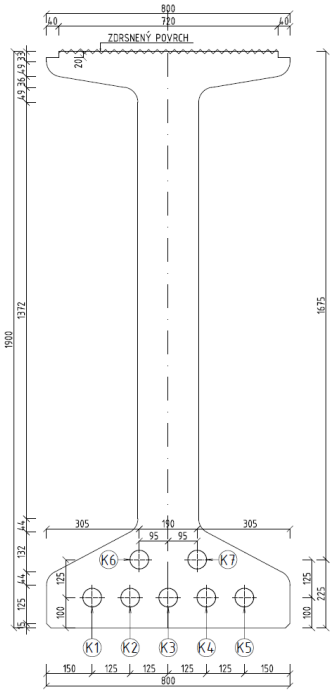
SHAPE, BASIC PARAMETERS AND THE TYPICAL CROSS-SECTION
BEAM VPH-PTMN 2010 I, 38m with post tensioned cables



SHAPE OF THE PRECAST ELEMENT



POSITION OF THE PRESTRESSING IN THE FRONT OF THE BEAM



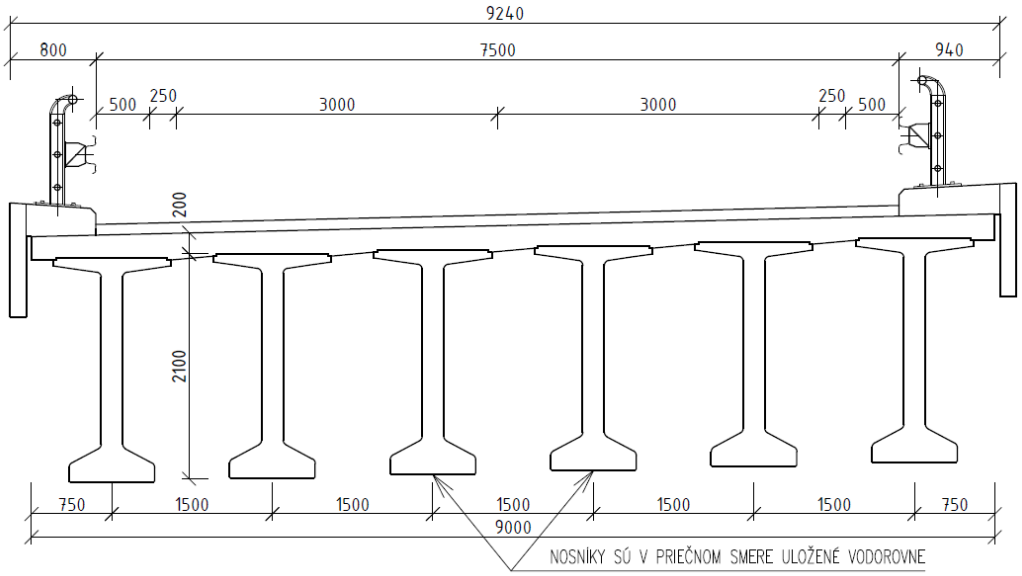
POSITION OF THE PRESTRESSING IN THE CENTRE OF THE BEAM

CHARAKTERISTICS OF THE PRECAST ELEMENT

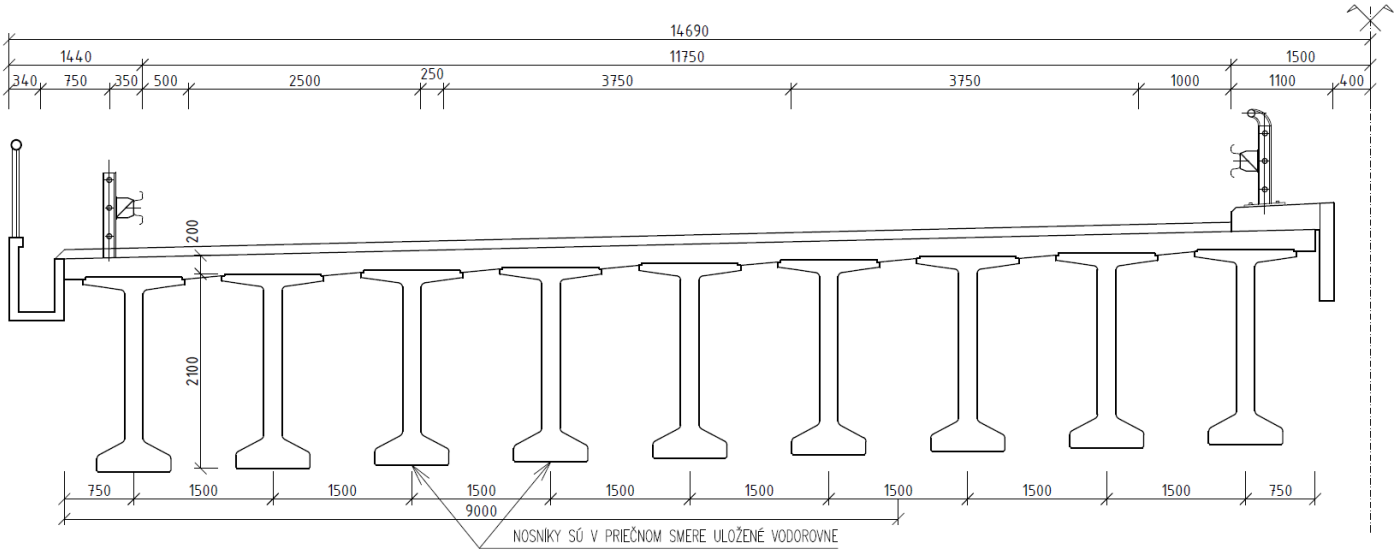
	BASIC PARAMETRES AND WEIGTH					SECTION CONSTANTS		
	Production length	Span	Height	Volume	Weight	Cross-section area	Centroid from the bottom edge „yt“	Moment of inertia „Iy“
	[m]	[m]	[m]	[m^3]	[t]	[m^2]	[m]	[m^4]
VPH-PTMN 2010 R2 38m	38.0	37.4	1.9	22.39	58.23	0.5888	0.831	0.25527

2.8 I-beams with a length of 42m and a height of 2.1m (VPH-PTMN 2010-R2) with post tensioned cables

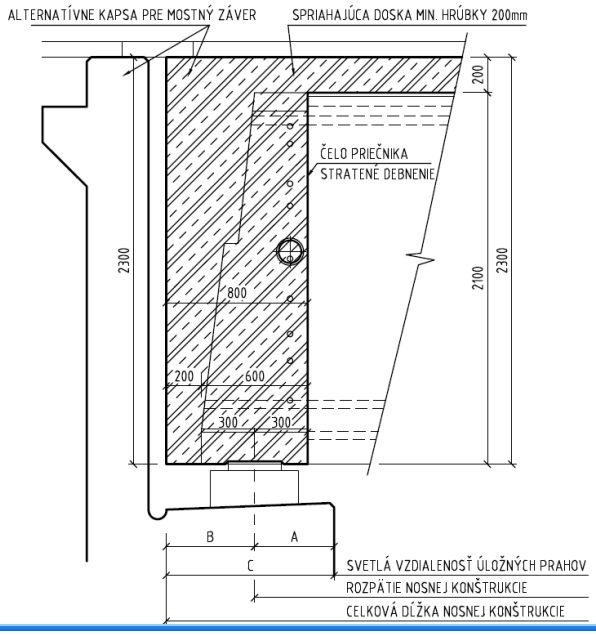
TYPICAL CROSS-SECTION WITH THE C7.5 WIDTH



TYPICAL CROSS-SECTION WITH THE D26.5 WIDTH

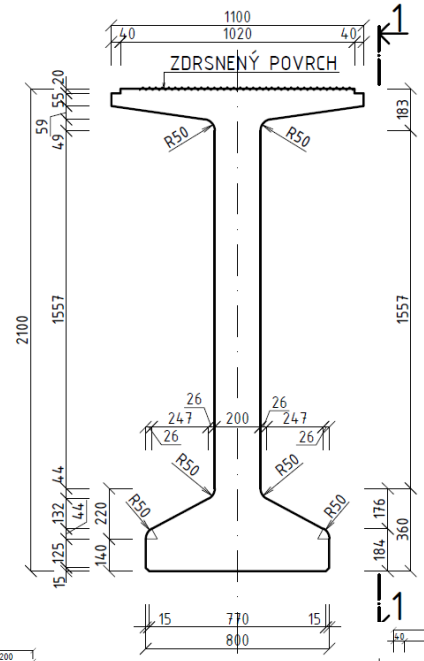


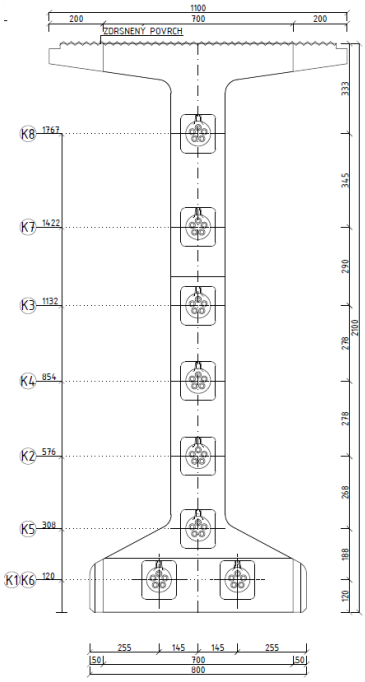
LONGITUDINAL SECTION, LAYOUT DETAIL



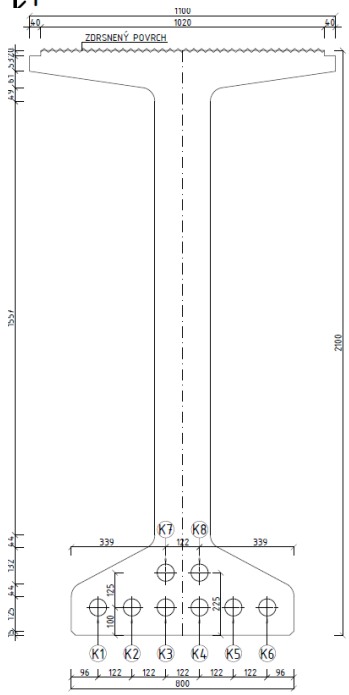
SHAPE, BASIC PARAMETERS AND THE TYPICAL CROSS-SECTION
BEAM VPH-PTMN 2010 I, 42m with the post-tensioning

SHAPE OF THE PRECAST ELEMENT





POSITION OF THE PRESTRESSING IN THE FRONT OF THE BEAM



POSITION OF THE PRESTRESSING IN THE CENTRE OF THE BEAM

CHARAKTERISTICS OF THE PRECAST ELEMENT

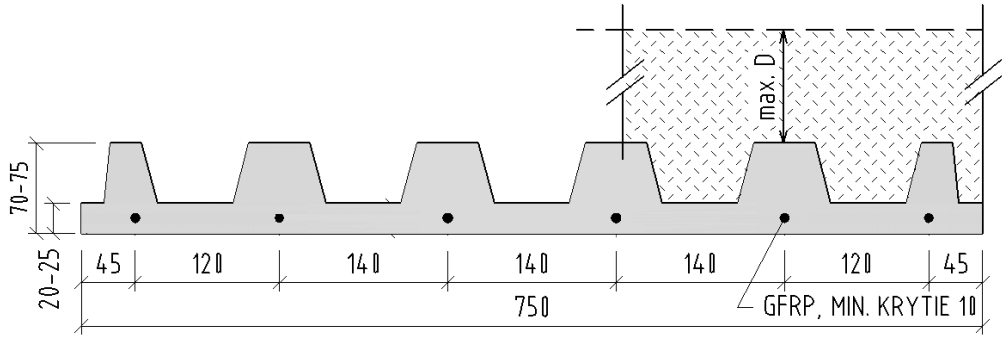
	BASIC PARAMETRES AND WEIGTH					SECTION CONSTANTS		
	Production length	Span	Height	Volume	Weight	Cross-section area	Centroid from the bottom edge „yt“	Moment of inertia „Iy“
	[m]	[m]	[m]	[m^3]	[t]	[m^2]	[m]	[m^4]
VPH-PTMN 2010 R2 42m	42.0	41.4	2.1	27.98	72.75	0.6664	1.016	0.39284

3. DDFRS/GFRP - grid panel made of glass-fibre (GFRP) reinforced concrete

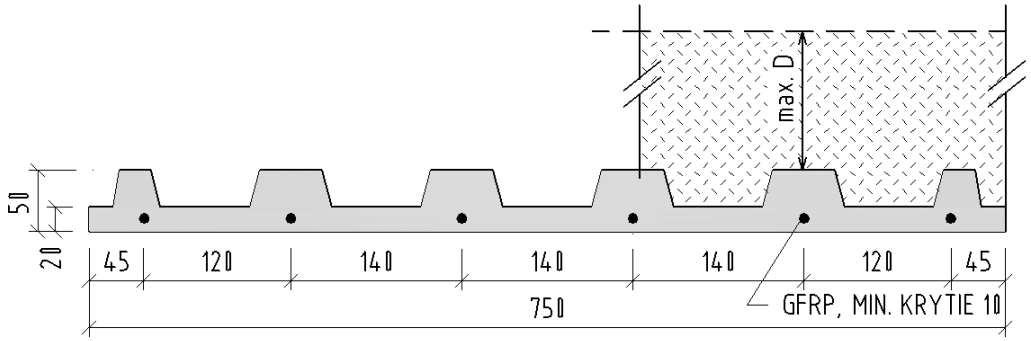
DDFRC/GFRP grid panels are used as a formwork for concreting the monolithically continuous reinforced concrete slabs of the precast bridge beams VHP-PTMN. Grid panel that becomes a part of bridge deck is designed to support the weight of fresh concrete as well as the workers carrying out concreting. The precast grid panel is made of a self-compacted fibre-concrete (polypropylene fibres Kalcifil). In the direction of load transfer the slab is strengthened by the composite fibre-glass reinforcement ARMASTEK. The width of the slab can be adjusted according to maximum manipulation weight of the element (manual/crane manipulation).

BASIC TYPES OF THE GRID PANELS DDFRC/GFRP

DDT 70/20 - DDT 75/25



DDT 50/20



DDF 30; DDF 40

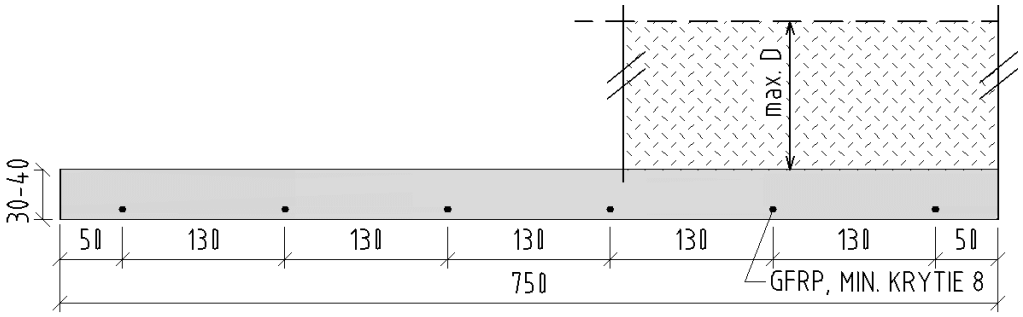


Table of spans and loadings

TYPE	Maximum span (mm)*	Max. thickness of cast in-situ layer "D" (mm)
DDF 30; DDF 40 flat	1300	250
DDT 50/20 trapez	1600	230
DDT 70/20 – DDT 75/25 trapez	2000	230

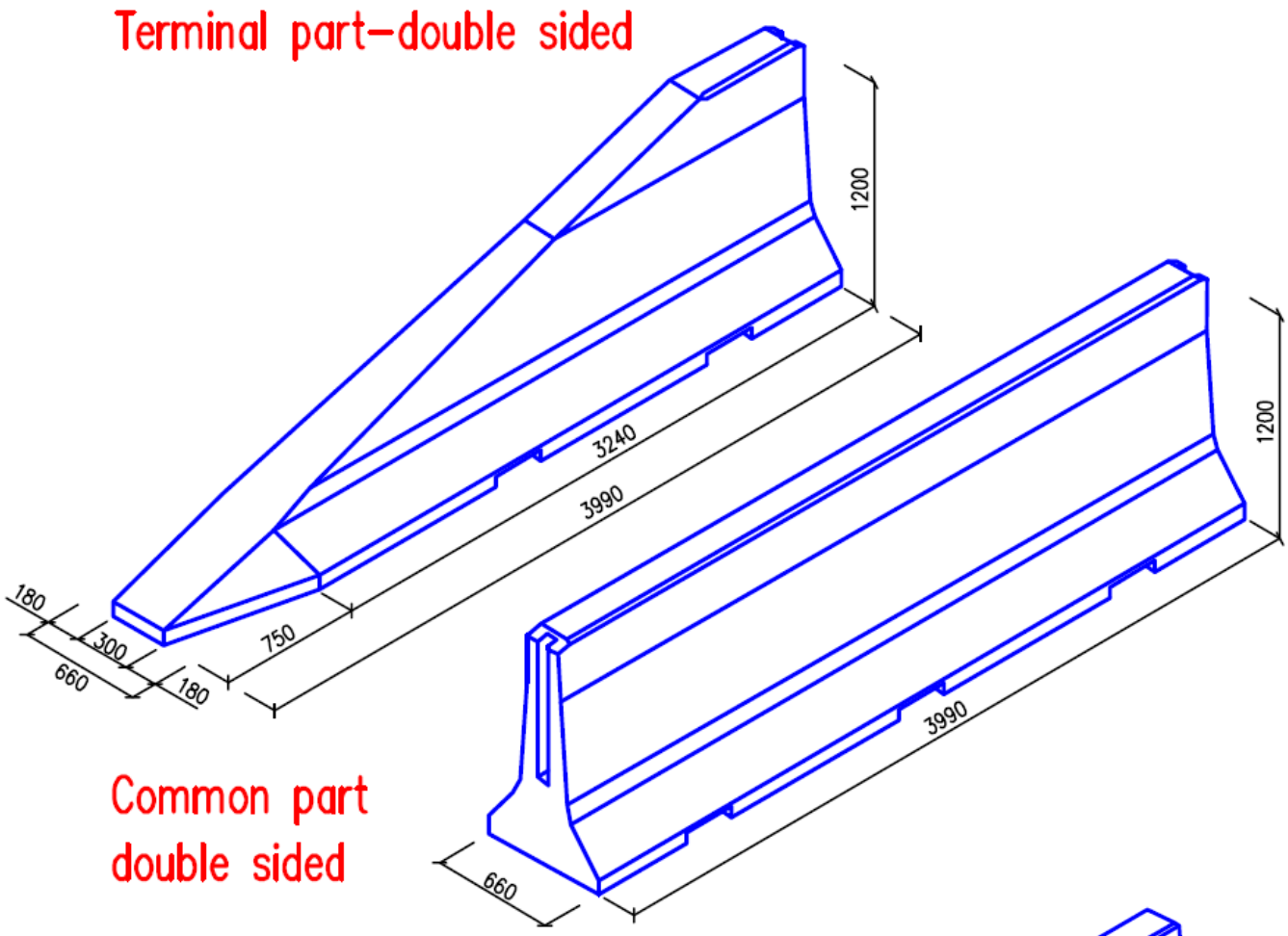
* Distance between upper flanges of bridge beams

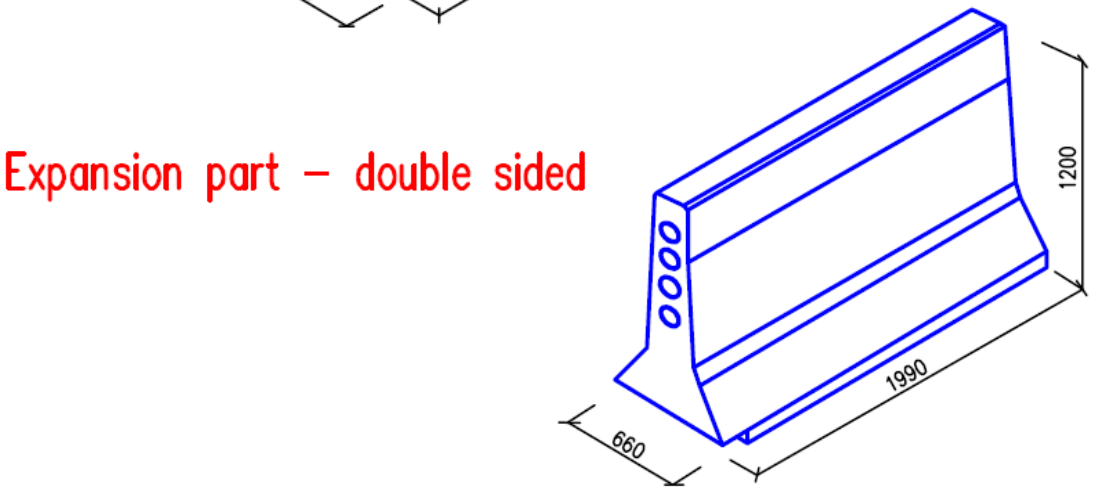
4. CONCRETE CRUSH BARRIER GMV-120/H2, H4b

Double-sided, precast concrete crush barrier with a steel movable pull-slide lock with height of 1.2m

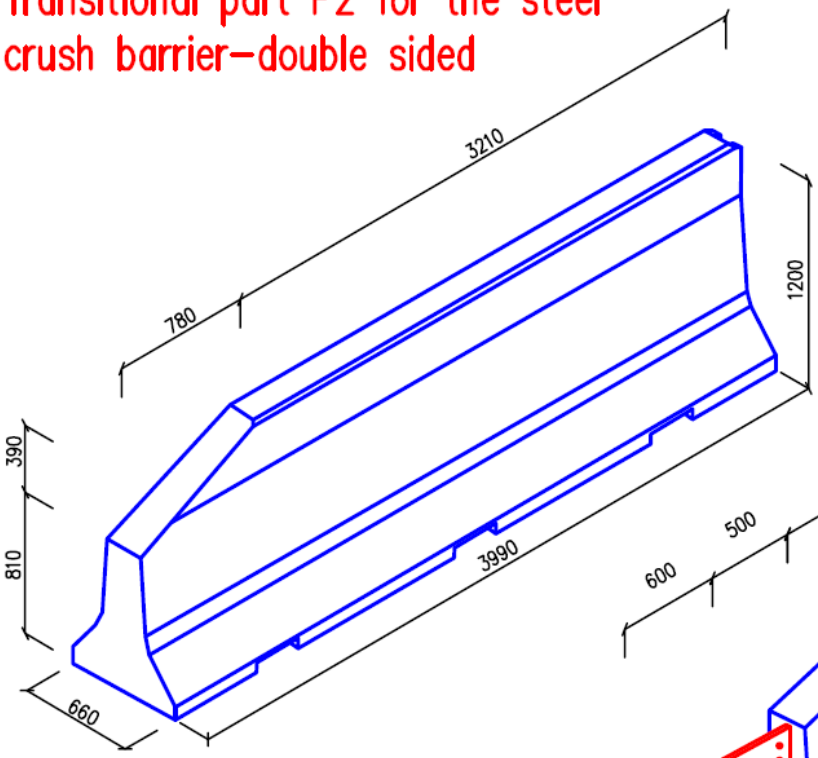
Concrete crush barrier is one of the restraining security devices on the road communications, placed either at the median or the edge of the road. The cross-section of the concrete crush barrier GMV-120 is „New Jersey"-shaped on both sides according to the requirements for the collision side (TP 02/2004).
We offer crush barriers with the designed level of restraining according to STN EN 1317-2:

- **H2** certified by an impact test TB51 and TB11,
- **H4b** certified by an impact test TB81 and TB11.

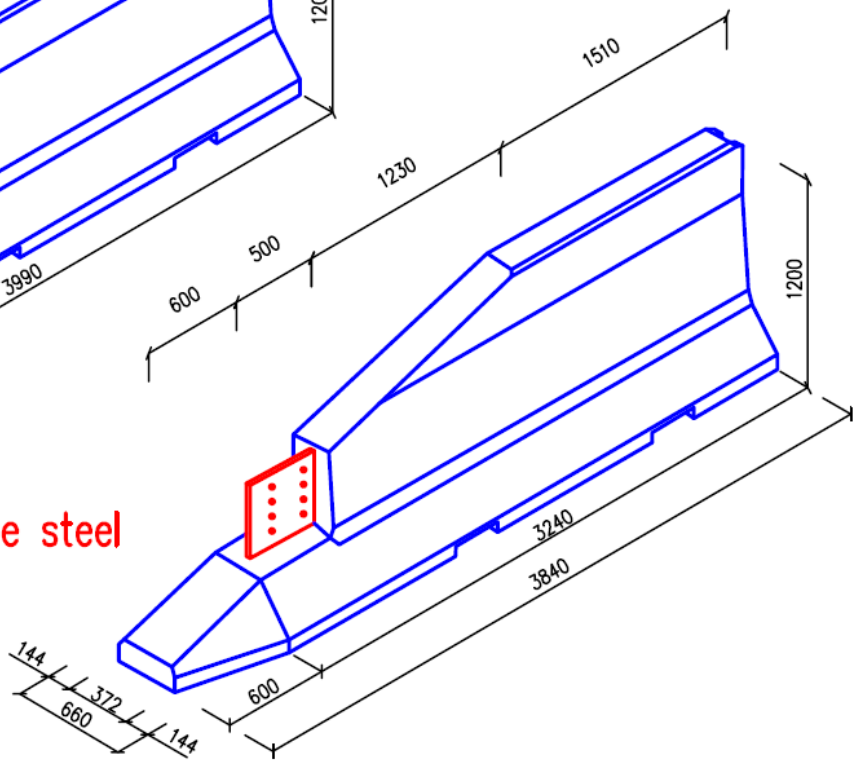




Transitional part P2 for the steel crush barrier–double sided



Transitional part P1 for the steel crush barrier–double sided

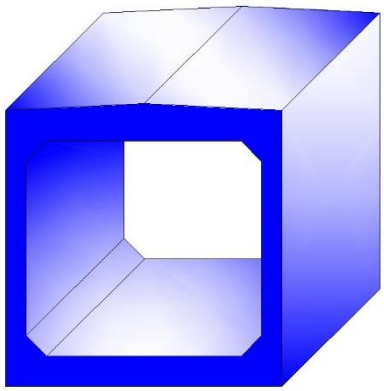


Example of the actual construction

5. BOX CULVERTS IZM / DZR

Box culverts are suitable for the construction of culverts under road and railway communications, for the construction of underpasses, tunnels and other underground spaces. The advantage is the simplicity and the velocity of such construction.

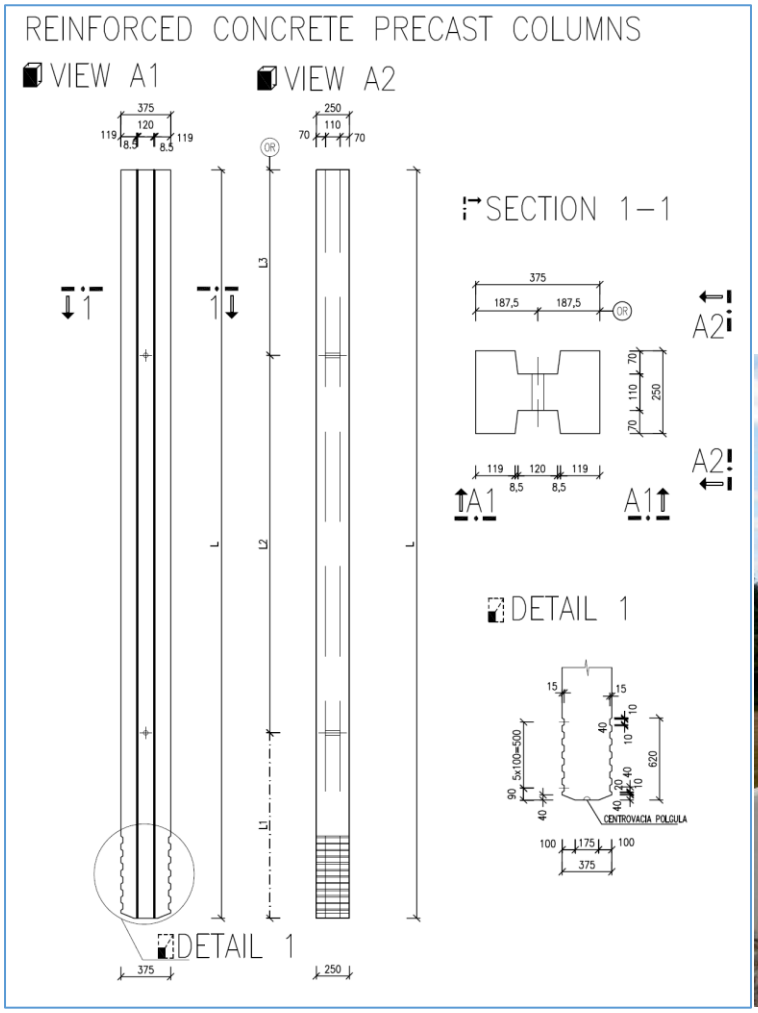
We build the culverts in variable sizes ranging from the type IZM 2100x1350 to the large railway culverts DZR 4450/3400.
We can also produce atypical culverts according to the precise requirements of the client.



6. COLUMNS AND WALL PANELS OF THE NOISE BARRIERS

Shape, parameters and colour can be adjusted by the requirements of the client.

Example of the actual motorway construction:



7. PRECAST ELEMENTS OF THE SKELETON STRUCTURES – CIVIL ENGINEERING

VÁHOSTAV-SK-PREFA, s.r.o. in Horný Hričov offers a wide range of precast elements designated for the construction of the civil engineering structures:

- Foundation bells
- Foundation beams
- Loading ramps
- Columns
- Outer and inner walls
- Stair flights
- Joining truss (prestressed, non-prestressed) – parallel chord, double-pitched, single-pitched
- Purlins (prestressed, non-prestressed) - parallel chord, double-pitched, single-pitched
- Supporting joists, beams, cramps
- Pre-slabs
- Balcony units
- Loggia units

Furthermore, we offer you a production by order of atypical precast elements with the weight of up to 40t.

Examples of completed structures - references

Volkswagen Bratislava - Hall H3A

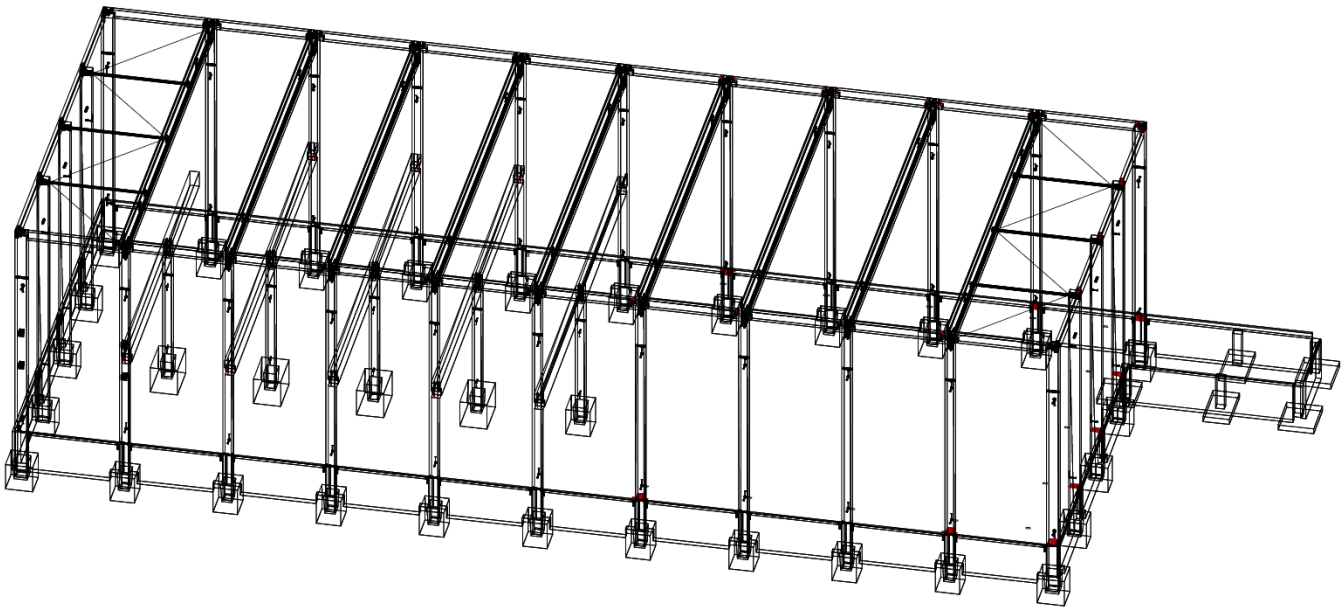
KINEKUS ŽILINA

COOP JEDNOTA TRENČÍN

PHA BYTČA

MEDIAPRINT KAPA Bratislava

DAMOSLOVAKIA, Trenčianske Stankovce



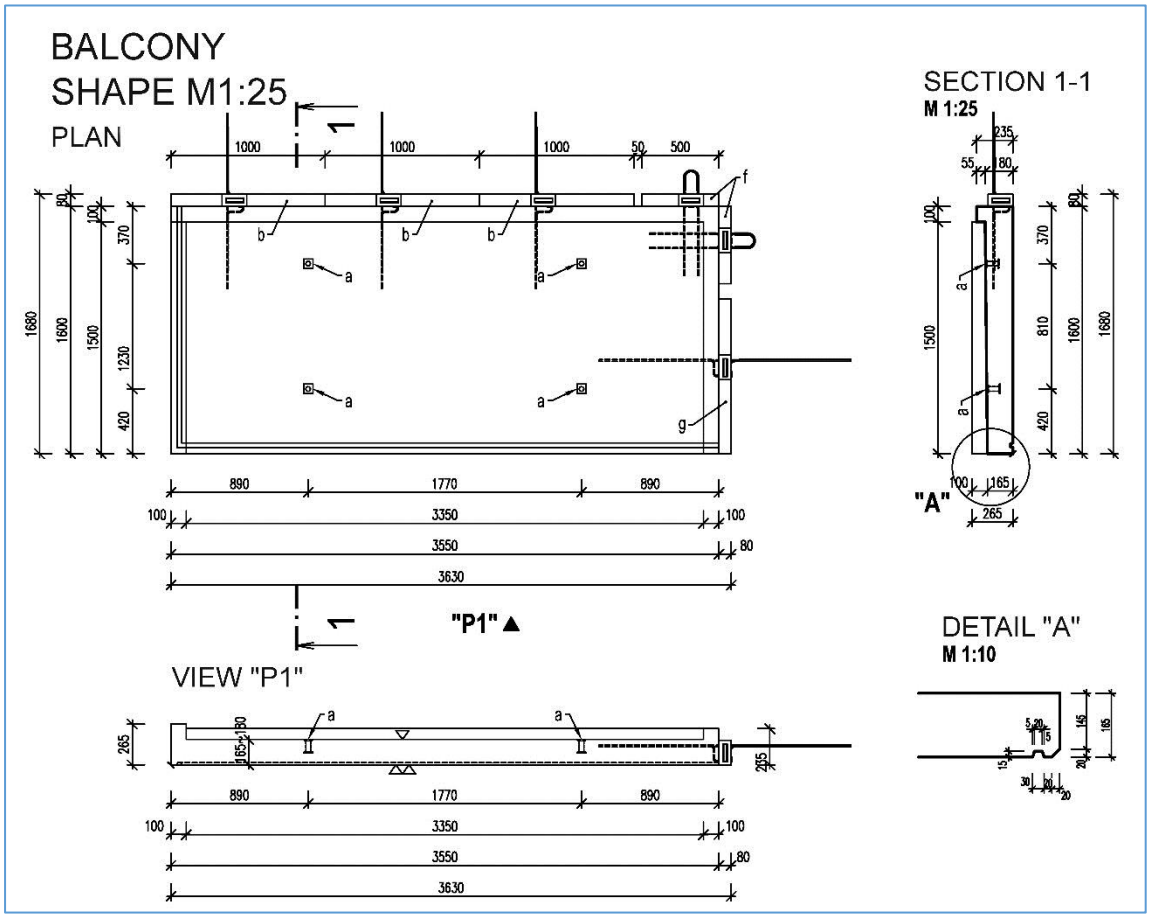
Further referential construction:

- Autovia Renault Žilina,
- Immopark Dolný Hričov, KFTS Rajec,
- Storage Hall Hagleitner Senec,
- TIA Trnava,
- SUKUPCAK Považský Chlmec,
- BILLA Most pri Bratislave
- BILLA Levice
- MARIUS PEDERSEN Pezinok
- OG Žilina
- Sports Hall HANGAIR BA

PRECAST STAIR FLIGHTS AND BALCONY UNITS

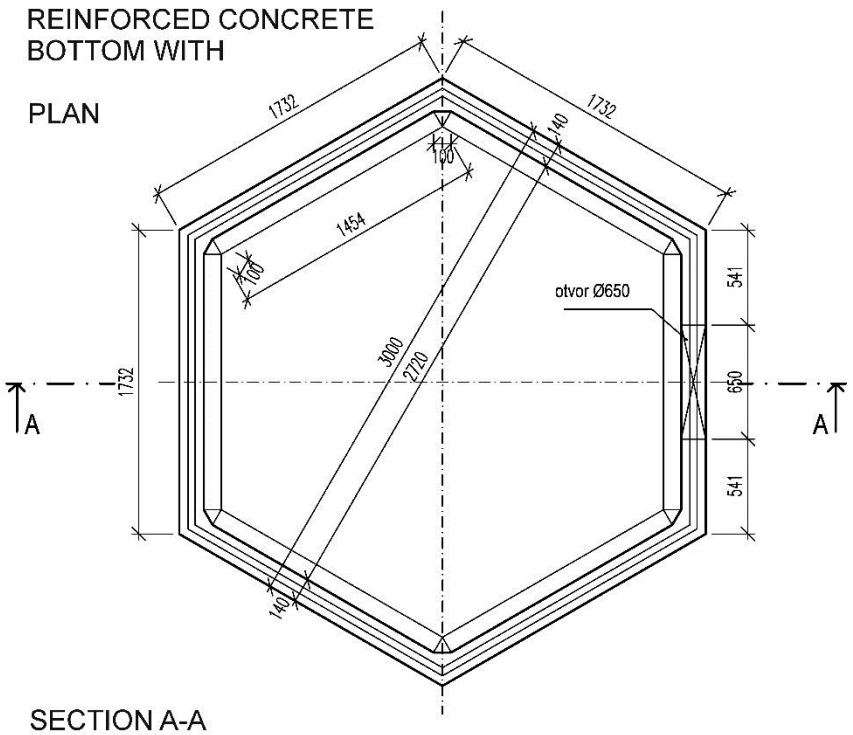
Examples of completed precast stair flights:

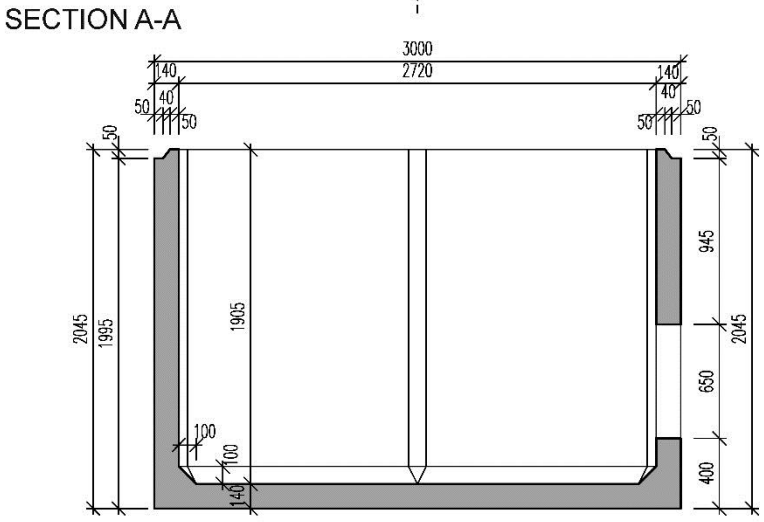
Precast balcony units – example of production:

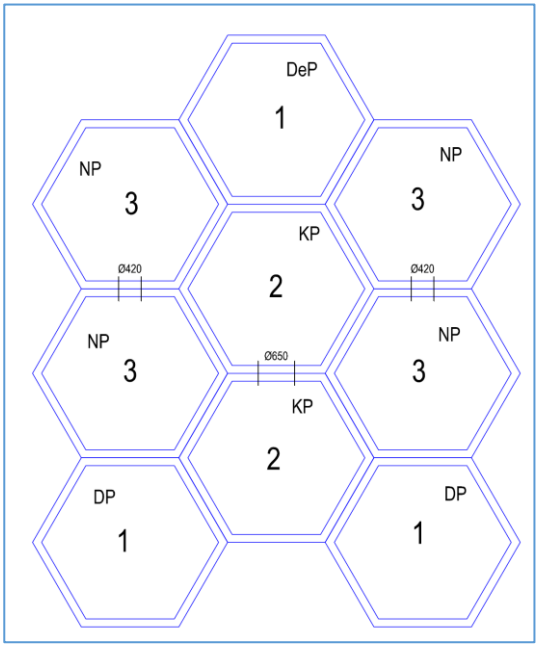


8. SYSTEM OF WATER TREATMENT PLANTS – WATERMANAGEMENT STRUCTURES

Reinforced concrete units for the water treatment plants are designated for construction of sewage water chambers for 50 - 2000 equivalent residents.







Reinforced concrete bottoms– top view
The required capacity is achieved by placing and connecting the precast units into a system of chambers.