

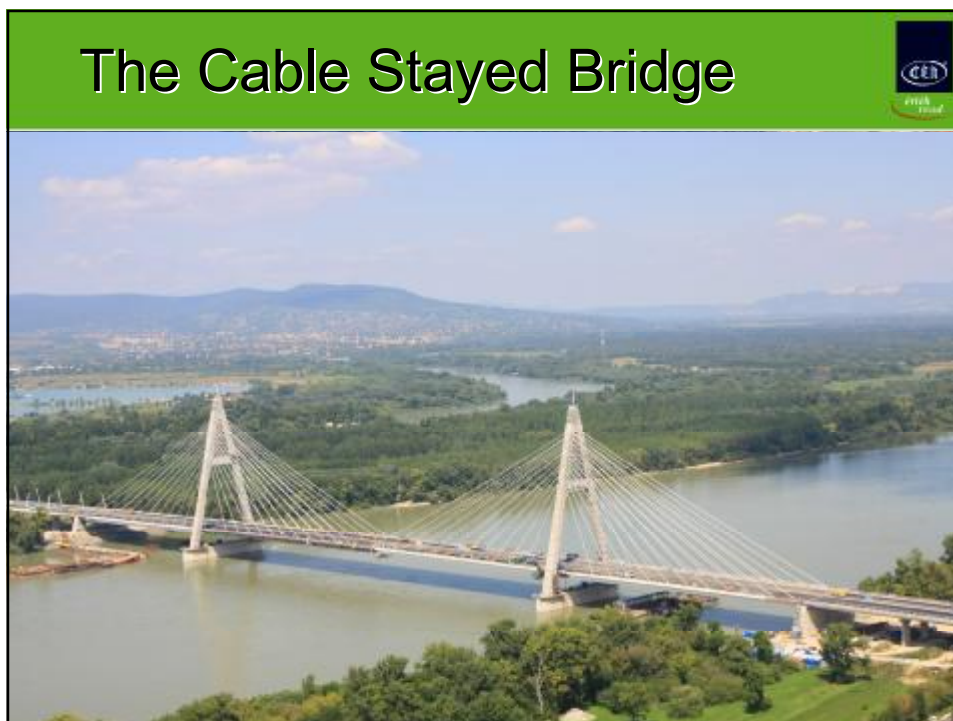
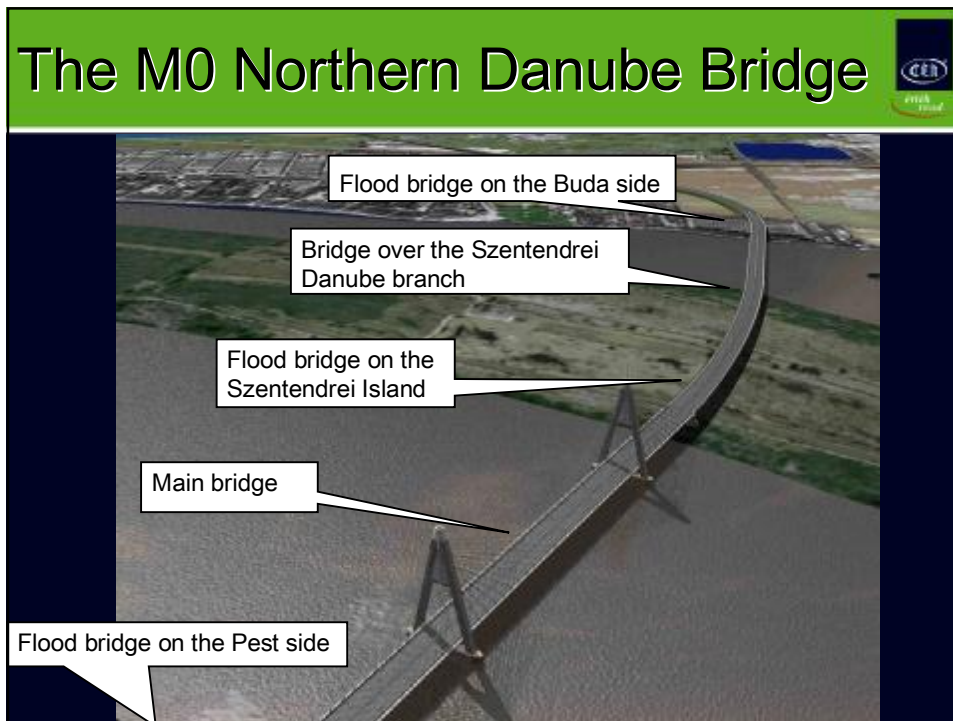
M0 Northern Danube Bridge Budapest, Hungary

The Bridge across the Wide Danube Branch

Dr. Kisbán Sándor CÉH zRt

M0 Highway Ring Crossing Over The Danube

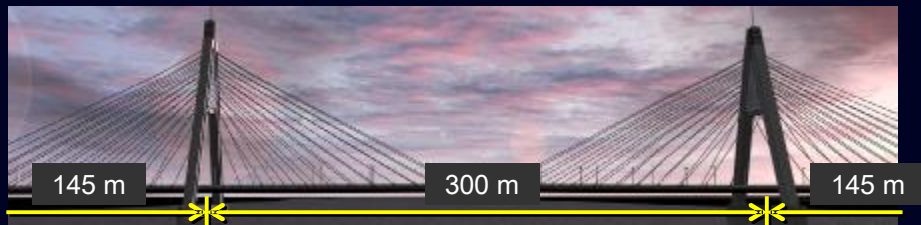




Three Span Cable Stayed Bridge



- Bridge length 590 m
 - middle span 300 m
 - side spans 145 m
- Pylon height 100 m
- The longest stay cable 163 m



The girder



- Cross section
- 2x2 traffic lanes with emergency stop lane
 - Width 36,83 m
- Steel structure
 - Depth 3,63 m
- Open cross section with edge box girders
- Surface 21 700 m²
- Orthotrop deck
- Steel volume 8 455 tons



Stay Cables




Geometrical Data of Stay Cables

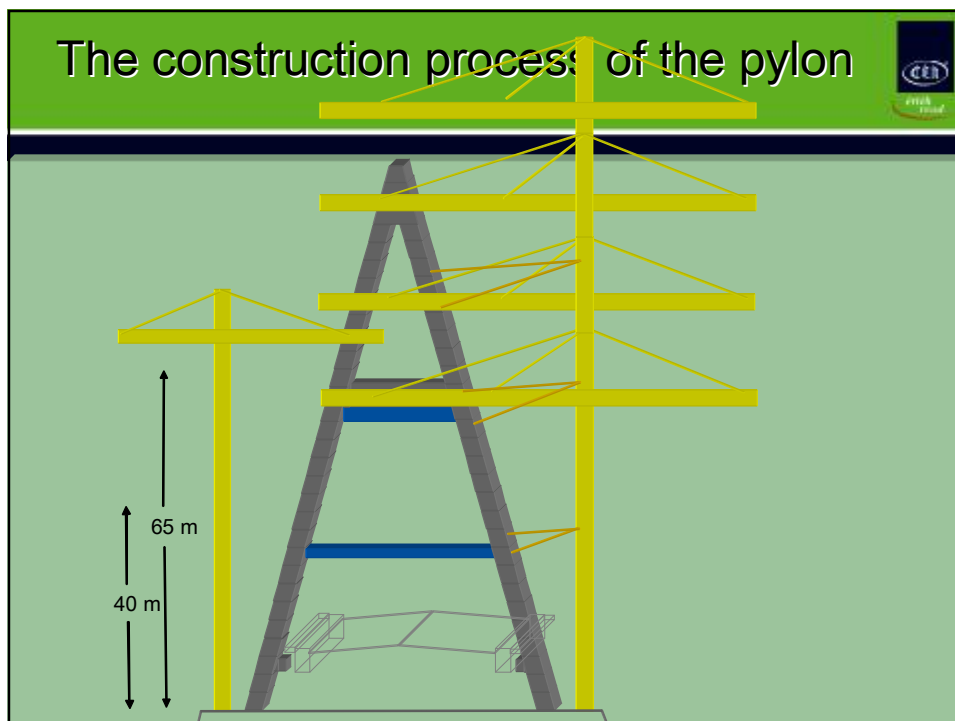


- Two cable planes
 - cables per cable plane 4x11 db
 - total 88 db
- Stay cable
 - max length 163 m
 - min length 56 m
- Total volume of cables 460 t


Pylon geometrical data



- Height 100 m
- Bottom width 51 m
- Pylon leg : variable cross section
 - outside 5.0 x 4.0 m - 3.5 x 4.0 m
 - wall thickness 1.0 m - 0.5 m




Post-tensioned pylon




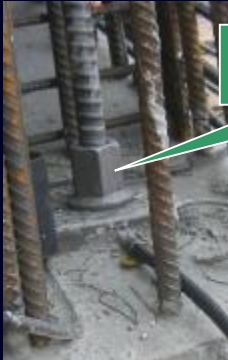
Post-tensioned outer walls

- stress bar $\phi 40$
- quality: 1030




coupler splices

Post-tensioned pylon






Upper anchorage



Lower anchorage

Pylon legs reinforcement



- main reinforcement :
 $\phi 28 - \phi 25$
- strength class: B500B
- concrete cover 40 mm

Pylon Stay Cable Anchorage



Bearing on the supporting cantilever of the pylon



• Vertical support	Rga	7000 kN	+/- 120 mm
• Horizontal support	MHD	2400 kN	+/- 240 mm
• Wind support	LHB	2700 kN	+/- 120 mm

Service traffic inside the pylon Stairs



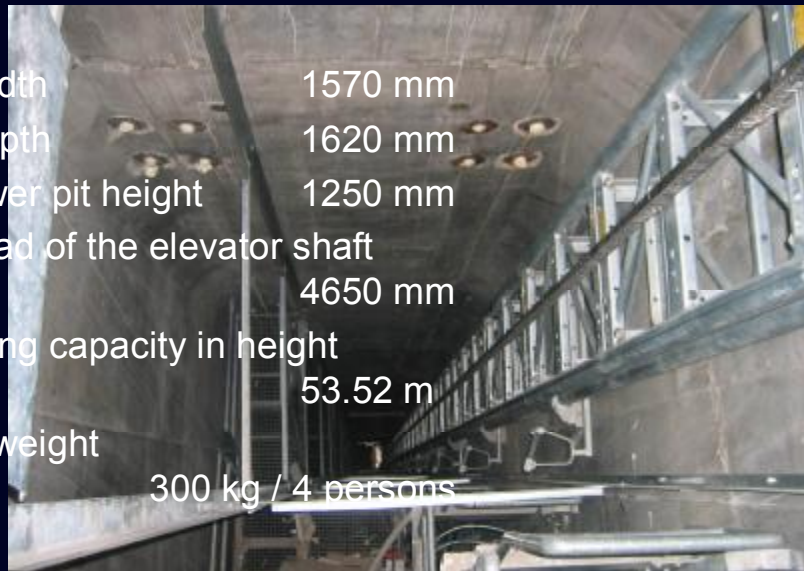
- storey height 2.88 m
- number of storeys 20
- max member length 2.50 m
- max member weight 36.2 kg
- fastening: HILTI M12 glued dowel screw
- corrosion protection galvanized
- total weight 10 t



Service traffic inside the pylon Industrial elevators in pylon legs



- Width 1570 mm
- Depth 1620 mm
- lower pit height 1250 mm
- head of the elevator shaft 4650 mm
- lifting capacity in height 53.52 m
- in weight 300 kg / 4 persons




Industrial elevator in pylon head



- Width 1450 mm
- Depth 1200 mm
- lower pit height 1400 mm
- head of the elevator shaft 3560 mm
- lifting capacity in height 32.53 m
- in weight 320 kg / 4 persons






Quantities of materials used for the pylons

● Quantities per pylon

— concrete	C40/50	1700 m ³
— reinforcing steel	B500B	370 t
— prestressing bar	1030	19 t
— anchorage device		80 t





The bridge on the last lap



The bridge on the last lap



The test charging



Thank you for your attention !

