

# CIVIL ENG

Since its establishment till nowadays, *PPT Engineering* has realized numerous electro-hydraulic and electro-pneumatic systems in the area of civil engineering, such as heavy load lifting systems, sliding casings (silos and columns by means of especially constructed so called “monkey” hydraulic cranes, telescopic tunnel casings, tilting and unloading platforms, hydraulic freight and passenger elevators, opening of extremely heavy doors (for caponiers), pneumatic systems for opening windows, doors and gates. For lifting heavy loads to certain levels, in civil engineering, electro hydraulic systems of *PPT Engineering* have been applied. The examples for this use are raising of the concrete structure for the sports hall in Majdanpek (RS) and raising of the dome of the Saint Sava Temple in Vračar in Belgrade. The dome weighing 4,000 tons, dia. 40 meters, height 27 meters, was raised to the level of 43 meters, by using 16 hydraulic cylinders (manufactured by *PPT*) and manipulators for reinforced concrete slabs planting. This construction project which is unique in the world was accomplished by using special computer control system, synchronizing strokes of all 16 cylinders, whereby the horizontal position of the dome was maintained with the accuracy of 5 mm. Presence of *PPT Engineering* in civil engineering included elaboration of the main mechanical project of stage equipment in the National Theatre in Belgrade (with installation and putting into operation), then hydraulic telescopic casing for concreting of the Shargan tunnel in Serbia and hydraulic tunnel casing used for construction of the subway in Almata in Kazahstan. In civil engineering *PPT Engineering* has also designed, manufactured, delivered, installed and commissioned pneumatic and electro-pneumatic installations for actuation of windows, doors and gates on numerous industrial halls as well as other structures: *Energoprojekt*, office building in New Belgrade, Institute for manufacturing banknotes Belgrade – the entrance gate, hospital in Kragujevac - lead door of X-ray chamber, TPP *Ugljevik*...



*The Saint Sava Temple, Belgrade, Serbia  
Erection of the Saint Sava Temple, Belgrade, Serbia, 1989*

# ENGINEERING



# The Saint Sava Temple, Serbia

Works performed: 1989  
Electro-hydraulic system for raising of the temple dome, weighing 4,000 tons, to the level of 43 meters

*The Saint Sava Temple dome Kupola*



*Hydraulic cylinders for lifting of dome*



*Principle of lifting the Saint Sava Temple dome*

# Shargan tunnel, Serbia



Hydraulic telescopic casing for concreting of tunnel

Buyer: Putevi Užice, Užice, Serbia  
Commissioned: 2007

# Subway in Almata, Kazakhstan



Buyer: Energoprojekt, Serbia  
Commissioned: 2008

Hydraulic telescopic casing