



• METALNA •

HEAVY INDUSTRIES AND PROJECT ENGINEERING SERVICES

Established 1920

HEAD OFFICE: Zagrebška 20, 62000 Maribor, Yugoslavia

Phone: (062) 32 751, telex: 033115 yumetmb, cables:

METALNA MARIBOR, P.O.B.: 103

BRANCH OFFICES: Beograd, Rijeka, Sarajevo, Skopje

DIVISIONS:

Heavy Equipment Plant -
Maribor

Heavy Equipment Erection
Division - Maribor

Light Structures Plant -
Krmelj

Construction Machinery
Plant - Senovo

Agricultural Machinery
Plant - Maribor

PRODUCTION PROGRAMME:

Gates and hoists for hydraulic projects
Penstocks
Materials handling equipment
Industrial equipment
Steel hatch covers

Heavy equipment erection

Steel building construction
Steel bridges

Building cranes and hoists

Farm sprayers and tractor attachments

Research and development institute,
specialised design offices, after-sales
service

S 9/IX 6 *trabelu*



02012/3485

Legends for Photographs
of Water Control Equipment
in Album

- 1 - THE DJERDAP (IRON GATE) HYDROELECTRIC POWER PLANT on the Danube was built jointly by Rumania and Yugoslavia. METALNA manufactured and erected 9000 tonnes of water control equipment for the dam and navigation lock. Main part of equipment delivered: three sets of four gates each, size: 27 x 2,6 x 4,1 m, weight: 65 - 75 tonnes each; seven spillway gates of 25 x 15.8 m and 300 tonnes each. Other equipment: portal cranes, embedded metal and guides for gates, trashrack cleaning machine, linings and embedded parts for navigation lock.
- 2 - Handling 65-tonne stop log for DJERDAP (IRON GATE) Hydrel Plant
- 3 - Erecting one of the eighteen 47-tonne gates for the Buttress Dam of Tarbela Dam Project
- 4 - The largest dam under construction in the world - TARBELA DAM - on the Indus in West Pakistan. By the end of 1974 Metalna will have delivered 600 rail-wagon loads worth 7,000,000 dollars for that project. Twenty-eight 10 x 6 m wheel gates, six 14 x 5,5 m gates and sixteen 15 x 19 m radial gates will be installed. Each radial crest gate weighs 180 tonnes each, and each drum with gear weighs 11 tonnes. Tarbela Dam is the 87th power generating project fitted with METALNA's equipment.
Photo: BUTTRESS DAM with 28 wheel gates.
- 5 - Partial view of BUTTRESS DAM
- 6 - Trial shop erection of 180-tonne radial crest gate of 15 x 20 m size for auxiliary spillway, TARBELA DAM PROJECT
- 7 - Trial shop erection of 180-tonne radial crest gate for TARBELA DAM PROJECT
- 8 - Two 60-tonne electromechanical hoists of 200-tonne hoisting capacity each for 180-tonne radial crest gate for spillway for TARBELA DAM PROJECT
- 9 - In the manufacture and trial erection of heavy hydraulic gates METALNA uses overhead travelling, portal and mobile cranes of relevant capacities
- 10 - MATATILA DAM in India - the 600-metre long dam is provided with 23 gates of 18 x 7 m size
- 11 - Manufacture of gates for Matatila Dam in India
- 12 - DANUBE - TISA - DANUBE CANAL - mitre gate of Kucura navigation lock

Legenda for Photographs
of Water Control Equipment
in Album

- 1 - THE DARBEEZ (IRON GATE) HYDROELECTRIC POWER PLANT on the Danube was built jointly by Rumania and Yugoslavia. METALMA manufactured and erected 3000 tonnes of water control equipment for the dam and navigation lock. Main part of equipment delivered: three sets of four gates each, size: 27 x 2.6 x 4.1 m, weight: 52 - 75 tonnes each; seven spillway gates of 25 x 12.8 m and 30 tonnes each. Other equipment: portal cranes, embedded metal and rubber for gates, tramsack cleaning machine, linings and embedded parts for navigation lock.
- 2 - Handling 62-tonne stop for DARBEEZ (IRON GATE) Hydro Plant
- 3 - Erecting one of the eighteen 47-tonne gates for the Buttress Dam of Tarbela Dam Project
- 4 - The largest dam under construction in the world - TARBELA DAM - on the Indus in West Pakistan. By the end of 1974 Metalma will have delivered 600 rail-wagon loads worth 7,000,000 dollars for the project. Equipment for the dam when delivered will include: 12 radial gates of 15 x 19 m radial gates will be installed, each radial gate gate weighs 180 tonnes each, and each drum with gear weighs 11 tonnes. TARBELA DAM is the 87th power generating project fitted with METALMA's equipment.
- 5 - Partial view of BUTRESS DAM, with 28 wheel gates.
- 6 - Trial shop erection of 180-tonne radial gate gate of 15 x 20 m size for spillway, TARBELA DAM PROJECT
- 7 - Trial shop erection of 180-tonne radial gate gate for spillway for TARBELA DAM PROJECT
- 8 - Two 60-tonne electric hoists of 200-tonne hoisting capacity each for 180-tonne radial gate gate for spillway for TARBELA DAM PROJECT
- 9 - In the manufacture of heavy hydraulic gates METALMA uses special travelling cranes and mobile cranes of relevant capacities. Large cranes are provided in the manufacture of gates for metallic dam in India.
- 10 - METALMA DAM in India - the 600-metre dam is provided with 23 gates of 18 x 7 m size
- 11 - Manufacture of gates for metallic dam in India
- 12 - DANUBE - TISA - DANUBE GATE - main gate of navigation lock

Handwritten signature



202 / 3485

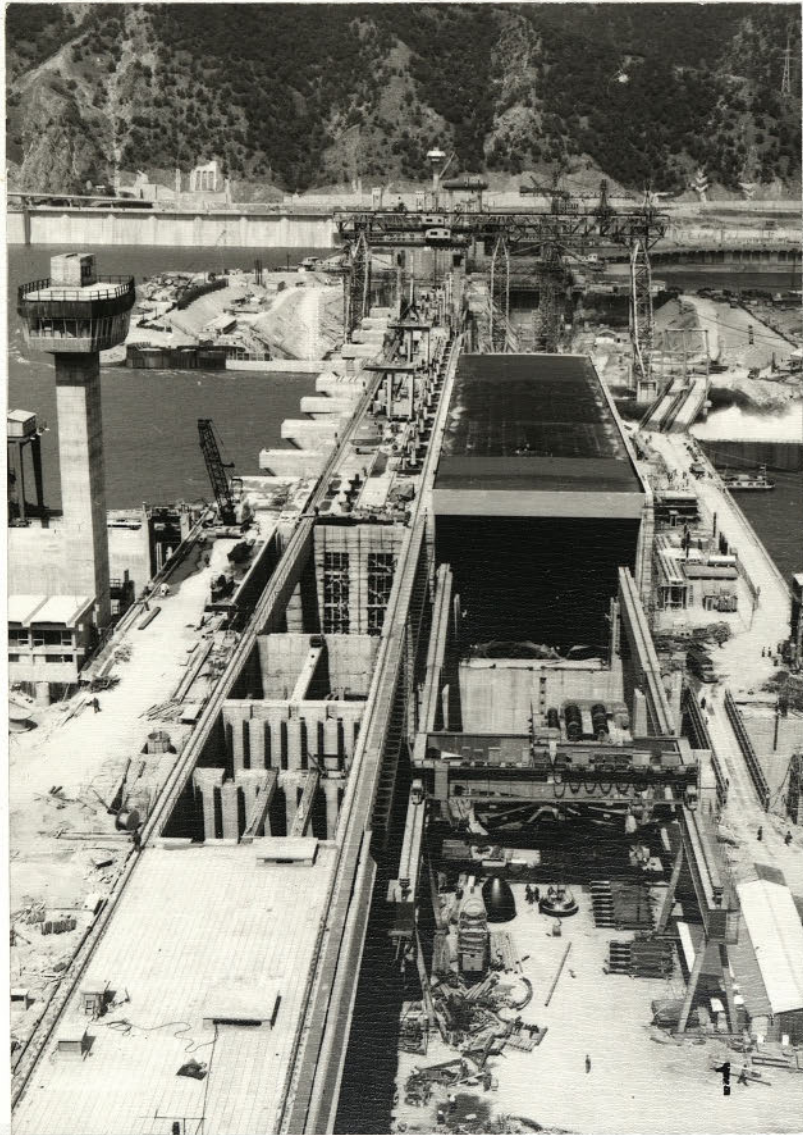
- 13 - 12 x 12 m mitre gate for navigation lock at Novi Sad, DANUBE-TISA-DANUBE CANAL
- 14 - Stop log of 12 x 1,3 m size for DANUBE-TISA-DANUBE CANAL
- 15 - Wheeled stop logs for KOKIN BROD Hydel Plant
- 16 - Radial gate for JAJCE I Hydel Plant
- 17 - Stop log for 18-metre spillway bay of ZVORNIK Hydel Plant
- 18 - Loading and sealing test of draft tube gate for AWASH Hydel Plant, Ethiopia
- 19 - 2700 mm dia ring-follower gate for BAJINA BAŠTA Hydel Plant
- 20 - 18 x 8 m drum gate for one of the spillway bays in ZVORNIK DAM
- 21 - Radial gate with flap for Šumečica dam of Senj Hydel Plant
- 22 - Roller gates for GUJRANWALA Hydel Plant in Pakistan
- 23 - Radial gate for MAHABAD Hydel Plant
- 24 - Non-return flap valves preventing underground drainage - for PERUCICA Hydel Plant
- 25 - OŽBALT Hydel Plant - power and manually operated gate hoist with sprocket chain, 2 x 100-tonne hoisting capacity
- 26 - Fixed-dispersion cone valve (HOWELL BUNGER type) for Modrac Dam
- 27 - MAHABAD Hydel Plant in Iran - installing bottom outlet regulating gate
- 28 - SPLIT Hydel Plant - Tee of 5000 mm dia penstock
- 29 - VUHRED Hydel Plant - Electrically operated 12.5-tonne lifting capacity trash rack cleaning machine
- 30 - TIKVEŠ Hydel Plant - 4700 mm dia manifold with 2500 mm bifurcates
- 31 - PERUČICA Hydel Plant - penstock 2064 m long, 2200/1200 mm dia
- 32 - MAHABAD Hydel Plant in Iran - 3200/2 x 1600 mm dia penstock
- 33 - Bottom outlet transition piece for MAHABAD Hydel Plant
- 34 - Overhead travelling cranes of 150/10-tonne capacity in SREDNJA DRAVA I Hydroelectric Power House
- 35 - 75-tonne capacity gantry crane in HIRAKUD DAM, India
- 36 - VUHRED Hydel Plant on Drava river - 2 x 70-tonne capacity crane

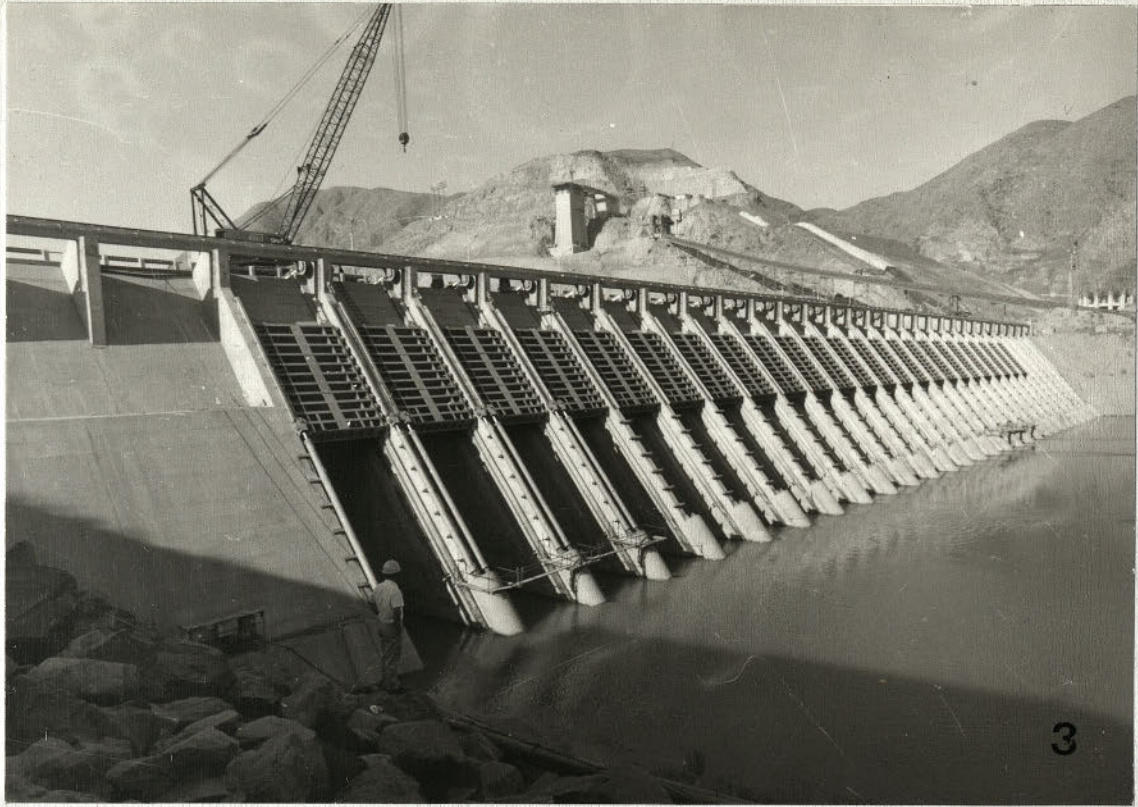
- 13 - 12 x 12 m mine gate for navigation lock at level 844, DANUBE-TISA-DANUBE CANAL
- 14 - Stop lock of 12 x 12 m size for DANUBE-TISA-DANUBE CANAL
- 15 - Wheeled stop lock for KONIN 1900 Hydrol Plant
- 16 - Radial gate for LANCE 1 Hydrol Plant
- 17 - Stop lock for 18-metre railway bay of ZVOZNIK Hydrol Plant
- 18 - Loading and unloading gate at draft tube gate for AWASH Hydrol Plant, ETHIOPIA
- 19 - 250 mm dia pipe-lower gate for BALINA BRATA Hydrol Plant
- 20 - 18 x 2.5 m draw gate for one of the spillway bays in ZVOZNIK DAM
- 21 - Radial gate with flap for summer dam of Bent Hydrol Plant
- 22 - Roller gates for GUBANWALA Hydrol Plant in Pakistan
- 23 - Radial gate for SAHABAD Hydrol Plant
- 24 - Non-return flap valves preventing underground drainage for BERNICA Hydrol Plant
- 25 - OXBOW Hydrol Plant - power and auxiliary operated gate hoist with approach chain, 2 x 100-tonne pointing capacity
- 26 - 1200-tonne capacity concrete gate (HUBER HUNTER type) for Madaya Dam
- 27 - 1200-tonne capacity concrete gate for bottom outlet
- 28 - 1200-tonne capacity concrete gate for penstock
- 29 - 1200-tonne capacity concrete gate operated 12.5-tonne electrically operated gate opening machine
- 30 - 1200-tonne capacity concrete gate with 2500 mm diameter
- 31 - 1200-tonne capacity concrete gate, 2500/1200 mm diameter
- 32 - 1200-tonne capacity concrete gate, 2500/1200 mm dia
- 33 - Bottom outlet for SAHABAD Hydrol Plant
- 34 - Overhead travelling crane of 12.5-tonne capacity in BRINJA DAVA 1 hydroelectricity house
- 35 - 12-tonne capacity gantry crane for BIRLA DAM, India
- 36 - 12-tonne capacity gantry crane for BIRLA DAM, India

S 9/x/6 J. J. J.

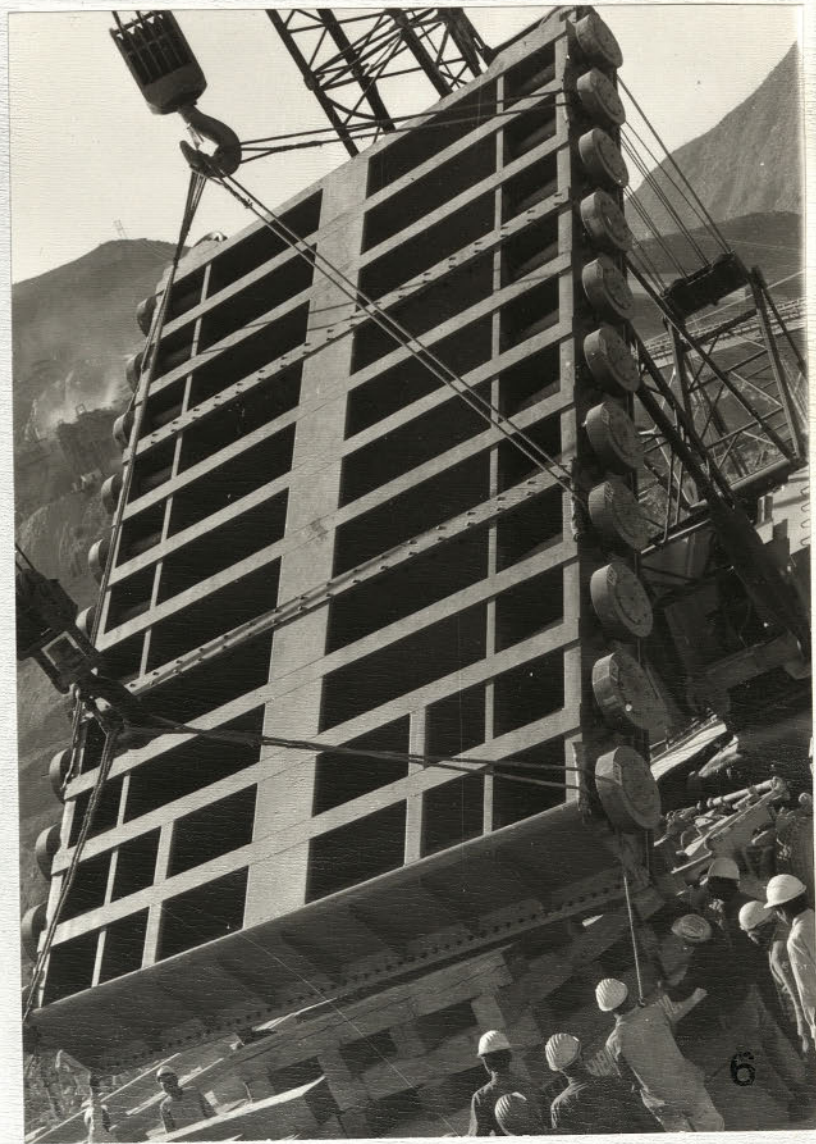


2012/3485

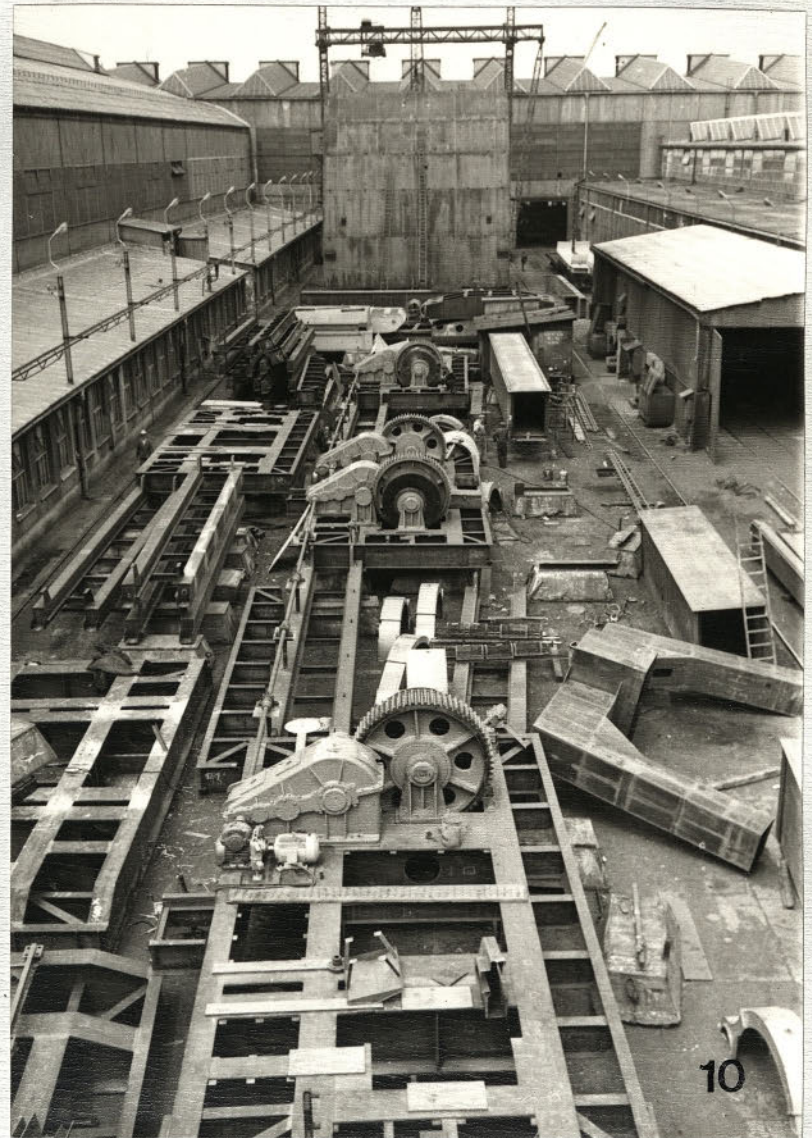






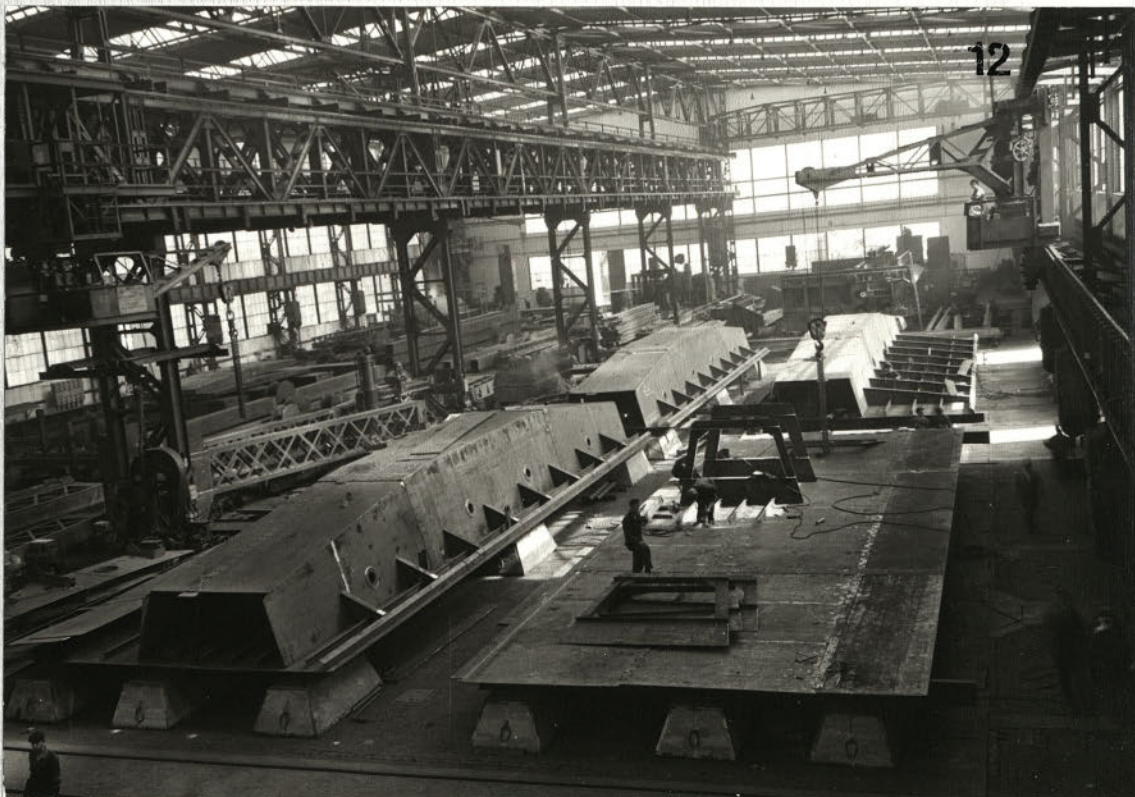








11



12

