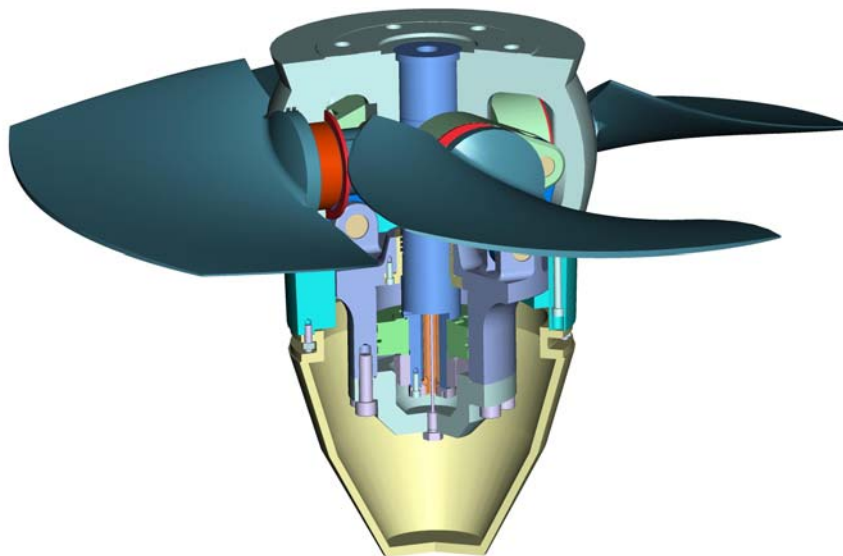


# REFERENCE LISTS



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## The chosen shared references within Litostroj Power Group

| Country         | Plant                         | Year | Type of turbine | H<br>(m) | D<br>(mm) | Number of units | Unit output<br>(kW) |
|-----------------|-------------------------------|------|-----------------|----------|-----------|-----------------|---------------------|
| India           | Bhavani Kattalai Barrage 2, 3 | 2009 | Kaplan Bulb     | 6,5      | 6 500     | 4               | 15 400              |
| Slovenia        | Boštanj                       | 2006 | Kaplan Bulb     | 7,24     | 4 800     | 3               | 10 850              |
| Canada          | Magpie                        | 2006 | Kaplan "S"      | 22,7     | 3 100     | 3               | 14 460              |
| Costa Rica      | Cariblanco                    | 2006 | Francis         | 422,3    | 1 120     | 2               | 44 746              |
| Canada          | Bésy                          | 2006 | Francis         | 80       | 1 740     | 1               | 18 435              |
| Peručica I-IV   | Montenegro                    | 2006 | Pelton          | 526      | 2 400     | 4               | 39 400              |
| Kozhner         | Kosovo                        | 2006 | Pelton          | 230      | 1 170     | 2               | 4 140               |
| Peručica VI-VII | Montenegro                    | 2005 | Pelton          | 526      | 2 100     | 1               | 59 100              |
| India           | Bhavani Kattalai Barrage I    | 2004 | Kaplan Bulb     | 6,5      | 6 500     | 2               | 15 600              |
| BH              | Peč Mlini                     | 2003 | Francis         | 111      | 1 220     | 2               | 15 880              |
| Canada          | Misema                        | 2002 | Francis         | 39,9     | 800       | 1               | 3 080               |
| Mieville        | Switzerland                   | 2001 | Pelton          | 1448     | 2 950     | 1               | 35 200              |

### The chosen references of ČKD Blansko Engineering, a.s.

| Country        | Plant   | Year | Description of activities   | Type of turbine | H (m)                    | D (mm)                       | Number of units  | Unit output (kW)                |
|----------------|---|------|---|-----------------|--------------------------|------------------------------|------------------|---------------------------------|
| Czech Republic | Vrané   | 2009 | Overhaul of Kaplan turbine of unit No. 1, hydraulic design, assembly, commissioning   | Kaplan          | 10                       | 3 600                        | 2                | 8 000                           |
| Czech Republic | Kamýk   | 2008 | Overhaul of Kaplan turbine of unit No. 3, hydraulic design, supply, assembly, commissioning   | Kaplan          | 15,5                     | 3 800                        | 4                | 12100                           |
| Czech Republic | Kroměříž  | 2008 | Modernization and overhaul of SHPP, hydraulic design, design, deliveries of new Kaplan turbines, assembly, tests, commissioning   | Kaplan          | 5,2                      | 2120<br>2200                 | 1<br>2           | 930<br>900                      |
| India          | Chokka Rao -<br>Pump Stations<br>- Gangaram,<br>- Dharmasagar<br>- Bhimghanapuram<br>- Salivagu | 2008 | Hydraulic design of pumps, design and manufacturing documentation, model manufacturing, model tests, supervision of fabrication, supervision of assembly, tests and commissioning supervision<br>Supply of 8 pcs pump runners and rotation parts<br>– under realization | Pump            | 131<br>138<br>123<br>130 | 1945<br>1980<br>1880<br>1940 | 2<br>2<br>2<br>2 | 10880<br>11350<br>9850<br>10550 |
| Poland         | Žur   | 2008 | Design, engineering, deliveries, up-grading, modernization and overhaul, assembly and commissioning of 2pcs vertical Kaplan turbines  | Kaplan          | 15,2                     | 2410                         | 2                | 4400                            |

| Country                 | Plant            | Year | Description of activities   | Type of turbine | H (m)     | D (mm) | Number of units | Unit output (kW)   |
|-------------------------|------------------|------|---|-----------------|-----------|--------|-----------------|--------------------|
| New Zealand             | Mangaio          | 2008 | Supply of new SHPP.<br>Project documentation, supply of new Francis turbine including generator, commissioning, design and supply of conical-dispersion valve and butterfly valve | Francis         | 50        | 850    | 1               | 2 000              |
| Germany                 | Markersbach      | 2008 | Rehabilitation and modernization of 6 flap gates including technical documentation and FEM computations, assembly, commissioning  | -               | -         | -      | -               | -                  |
| Poland                  | Żarnowiec HZ3    | 2008 | Modernization and overhaul of the unit HZ3 - Deliveries, technical support, engineering, elaboration of manufacturing documentation.  | Pump-Turbine    | 119,3/128 | 6 000  | 4               | 181 500<br>195 250 |
| Czech Republic          | Vrané            | 2007 | Overhaul of Kaplan turbine of unit No. 2, hydraulic design, assembly, commissioning   | Kaplan          | 10        | 3 600  | 2               | 8 000              |
| Poland                  | Żarnowiec HZ2    | 2007 | Adaptation of the start-up algorithm in order to stable unit No.2 at no-load operation  | Pump-Turbine    | 119,3/128 | 6 000  | 4               | 181 500<br>195 250 |
| Poland                  | Żarnowiec HZ4    | 2007 | Modernization and overhaul of the unit HZ4 - deliveries, technical support, engineering, elaboration of manufacturing documentation.  | Pump-Turbine    | 119,3/128 | 6 000  | 4               | 181 500<br>195 250 |
| Dem. Rep. Congo (Zaire) | Lubilanji II-UNO | 2006 | Hydraulic design, layout drawings, supply, assembly, commissioning  | Kaplan - PIT    | 13,8      | 1 500  | 3               | 1 750              |
| Dem. Rep. Congo (Zaire) | Inga             | 2006 | Supply inlet and draft tube stop-logs, assembly   | -               | -         | -      | -               | -                  |

| Country        | Plant          | Year | Description of activities   | Type of turbine | H (m)        | D (mm) | Number of units | Unit output (kW) |
|----------------|----------------|------|---|-----------------|--------------|--------|-----------------|------------------|
| Czech Republic | Střekov        | 2006 | Overhaul of unit No. 1, supply, assembly and commissioning  | Kaplan          | 10           | 4 300  | 3               | 6 000            |
| Czech Republic | Les Království | 2005 | Complete reconstruction, hydraulic design and supply of new Francis turbines include generators, assembly, commissioning  | Francis         | 22           | 1 040  | 2               | 1180             |
| Czech Republic | Dalešice       | 2005 | Delivery of new disc for butterfly flap valve - unit No. 4 - DN 5400 PN16 - design documentation, assembly, commissioning | -               | -            | -      | -               | -                |
| Germany        | Hohenwarte I   | 2005 | Measurement and calculations of the turbine runner aiming to reduction of cavitation.                                     | Francis-revers  | 67,9         | 4610   | 2               | 26 500           |
| Czech Republic | Nemilka        | 2005 | Delivery of Reiffenstein turbine  | Reiffenstein    | 16           | 370    | 1               | 110              |
| Czech Republic | Bystřička      | 2004 | Supply and assembly of slide bulkhead-gate, butterfly flap valve and conical-dispersion valve                             | -               | -            | -      | -               | -                |
| Czech Republic | Dalešice TG4   | 2004 | Hydraulic design of runner, model tests, overhaul of TG4, assembly, overhaul of rapid-closing flap valve, commissioning   | Pump-Turbine    | 89/93        | 6 000  | 4               | 121 500          |
| Germany        | Goldisthal     | 2004 | Delivery of turbine components, assembly  | Pump-Turbine    | 334<br>279,2 | 4 610  | 4               | 269 000          |
| Czech Republic | Hracholusky    | 2004 | Repairs and reconstruction of two conical-dispersion valve DN 1400  | -               | -            | -      | -               | -                |

| Country         | Plant          | Year | Description of activities   | Type of turbine | H (m)   | D (mm) | Number of units | Unit output (kW)   |
|-----------------|----------------|------|---|-----------------|---------|--------|-----------------|--------------------|
| India           | Kadana         | 2004 | Commissioning of 3 pcs Diagonal Deriaz Turbine  | Diagonal Deriaz | 48,2/51 | 5 000  | 4               | 61 700             |
| Czech Republic  | Orlík          | 2004 | Repairs of unit TG1, TG2 and TG4 after damaging by floods                             | Kaplan          | 70,5    | 4 600  | 4               | 95 900             |
| USA             | Parker Dam     | 2004 | Model tests   | Francis         | 25      | 4 740  | -               | 40 000             |
| Czech Republic  | Poděbrady      | 2004 | Completion of repairs of unit TG3 and commissioning                                   | Francis         | 4       | 290    | 5               | 1040               |
| Czech Republic  | Štěchovice III | 2004 | Completion of repairs of emergency valve servomotor and commissioning                 | Pump-Turbine    | 220/225 | 2 200  | 1               | 50 000             |
| India           | Tillari        | 2004 | Upgrading, runner hydraulic design, supervision assembly and commissioning            | Pelton          | 625,4   | 2 020  | 1               | 68 200             |
| Czech Republic  | Vydra          | 2004 | Hydraulic design of new runner, supply, assembly, commissioning                       | Francis         | 235     | 1 000  | 2               | 4 200              |
| Australia       | Burrendong     | 2003 | Supply of 2 new runners of the Francis turbine  | Francis         | 36,9    | 1 660  | 2               | 5 640              |
| Czech Republic  | Dlouhé Stráně  | 2003 | Adjustments of runner TG1, repairs guide vanes  | Pump-Turbine    | 547/554 | 4 540  | 2               | 325 000<br>301 000 |
| Slovak Republic | Domáša Ružín   | 2003 | Repairs of quick-closing gates of unit TG1  | -               | -       | -      | -               | -                  |
| Czech Republic  | Kružberk       | 2003 | Overhaul of HPP, project design of rehabilitation, supply, assembly and commissioning | Francis         | 71      | 1 000  | 1               | 4 380              |

| Country                 | Plant               | Year | Description of activities  | Type of turbine | H (m)      | D (mm) | Number of units | Unit output (kW)   |
|-------------------------|---------------------|------|--|-----------------|------------|--------|-----------------|--------------------|
| Dem. Rep. Congo (Zaire) | Lubilanji-II BIS    | 2003 | Hydraulic design, layout drawings, supply, assembly, commissioning             | Kaplan - PIT    | 13,8       | 1 500  | 3               | 1 750              |
| Pakistan                | Mangla              | 2003 | Reconstruction of Francis turbine governing mechanism - Units 5 and 6          | Francis         | 125        | 4 000  | 2               | 103 000            |
| Germany                 | Markersbach         | 2003 | Calculations and measurements of cavitation on model                           | Pump-Turbine    | 307<br>315 | 3 980  | 6               | 175 000<br>182 000 |
| USA                     | Northfield Mountain | 2003 | Model tests  | Pump-Turbine    | 251<br>255 | 5 200  | -               | 320 000<br>255 000 |
| Czech Republic          | Slapy               | 2003 | Supply, testing and handing over of temporary stop-logs of bottom outlets      | Kaplan          | 56         | 3 700  | 3               | 50 000             |
| Czech Republic          | Štěchovice I        | 2003 | Rehabilitation of Unit 1, assembly and commissioning                           | Kaplan          | 20         | 3 600  | 2               | 13 500             |
| Czech Republic          | Štěchovice III      | 2003 | Rehabilitation of Unit 3, assembly and commissioning                           | Pump-Turbine    | 220<br>225 | 2 200  | 1               | 50 000             |
| Czech Republic          | Vranov              | 2003 | Upgrading, runner hydraulic design overhaul of unit 3, assembly, commissioning | Francis         | 42         | 2 000  | 3               | 6 300              |
| Sri Lanka               | Uda Walawe          | 2003 | Repairs of Kaplan turbine wicket gates   | Kaplan          | 13         | 1 800  | 3               | 2 000              |
| Czech Republic          | Pastviny            | 2002 | Hydraulic design of new runner, supply, assembly, commissioning                | Francis         | 30         | 1 340  | 1               | 3 250              |

| Country        | Plant        | Year | Description of activities   | Type of turbine | H (m) | D (mm) | Number of units | Unit output (kW) |
|----------------|--------------|------|---|-----------------|-------|--------|-----------------|------------------|
| Pakistan       | Khari        | 2002 | Project design, assembly, commissioning   | Francis         | 65    | 1 000  | 1               | 1 520            |
| Czech Republic | Práčov       | 2002 | Overhaul of HPP, hydraulic design, model tests, supply of new turbine and governor, assembly, commissioning | Francis         | 85    | 1 300  | 1               | 10 200           |
| USA            | Round Butte  | 2002 | Model tests   | Francis         | 110   | 3 500  | 1               | 127 000          |
| Czech Republic | Vranov       | 2002 | Upgrading, runner hydraulic design overhaul of unit 2, assembly, commissioning                              | Francis         | 42    | 2 000  | 3               | 6 300            |
| USA            | Fairfield    | 2001 | Model tests   | Pump-Turbine    | -     | -      | 8               | 85 000<br>79 000 |
| New Zealand    | Botocan      | 2001 | Supply of 2 butterfly valves DN 1200 PN 22  | -               | -     | -      | -               | -                |
| Bulgaria       | Bujanovska   | 2001 | Project, assembly, commissioning  | Francis-horiz.  | 27,9  | 410    | 1               | 245              |
| Czech Republic | Dalešice TG1 | 2001 | Overhaul of unit 1, hydraulic design of guide vanes, assembly, commissioning                                | Pump-Turbine    | 89/93 | 6 000  | 4               | 112 500          |
| USA            | Grand Coulee | 2001 | Model tests   | Pump            | 110   | 4 200  | 1               | 45 000           |
| Georgia        | Khrami       | 2001 | Hydraulic design, model tests   | Francis         | 324   | 2 500  | 2               | 55 300           |
| Greece         | Messochora   | 2001 | Design, hydraulic design, model tests, supervision assembly, dry tests                                      | Francis         | 225   | 2 800  | 2               | 82 650           |
| Czech Republic | Vír          | 2001 | Overhaul of TG2, supply of new runner, upgrading of parameters, assembly, commissioning                     | Francis         | 64    | 1 150  | 2               | 6 440            |

| Country        | Plant        | Year | Description of activities  | Type of turbine  | H (m) | D (mm) | Number of units | Unit output (kW) |
|----------------|--------------|------|--|------------------|-------|--------|-----------------|------------------|
| Czech Republic | Vranov       | 2001 | Overhaul and modernization of unit TG1, supply, assembly, commissioning  | Francis          | 42    | 2 000  | 3               | 6 300            |
| Czech Republic | Morávka      | 2000 | Design of cone valves, overhaul of Francis turbine, assembly, putting into operation, commissioning  | Francis          | 38    | 250    | 1               | 52               |
| Czech Republic | Dalešice TG3 | 1999 | Overhaul of unit 3,hydraulic design of guide vanes, , overhaul of butterfly valve, assembly, commissioning   | Pump - Turbine   | 89/93 | 6 000  | 4               | 112 500          |
| Columbia       | Dolores      | 1999 | Hydraulic design, project design, assembly supervision, commissioning  | Francis - horiz. | 95    | 1 130  | 1               | 8 186            |
| Japan          | Ebara        | 1999 | Hydraulic design, licence  | Kaplan - horiz.  | -     | -      | -               | -                |
| Germany        | Eichicht     | 1999 | Modernization of unit D and E, project design of rehabilitation, design of new runner, assembly supervision, guarantee measurements, commissioning | Kaplan           | 13,3  | 1 550  | 2               | 1 760            |
| Columbia       | Pajarito     | 1999 | Hydraulic design, project design, supervision assembly, commissioning  | Francis          | 120   | 1 030  | 1               | 5 150            |
| Peru           | Curumuy      | 1998 | Hydraulic design, project design, supervision of assembly, guarantee measurements, commissioning   | Kaplan           | 39    | 1 650  | 2               | 6 354            |
| Peru           | Sullana      | 1998 | Project design, assembly, commissioning  | Kaplan           | 5,5   | 1 250  | 1               | 244              |
| Italy          | Treja        | 1998 | Project design, assembly, commissioning  | Kaplan           | 8,4   | 1 000  | 2               | 450              |
| India          | Karikayam    | 1997 | Project design   | Kaplan           | 19    | 3 000  | 1               | 7 850            |

| Country        | Plant   | Year | Description of activities               | Type of turbine | H (m) | D (mm) | Number of units | Unit output (kW) |
|----------------|---------|------|---|-----------------|-------|--------|-----------------|------------------|
| India          | Kundah  | 1997 | Project design, assembly, commissioning | Francis         | 210   | 1 800  | 1               | 36 475           |
| Czech Republic | Podbaba | 1997 | Project design, assembly, commissioning | Kaplan - PIT    | 5,6   | 1 550  | 2               | 672              |
| Indonesia      | Tapen   | 1997 | Project design, assembly, commissioning | Kaplan          | 11,35 | 1 500  | 1               | 851              |