

# EURO TREND ENERGY

Company for the manufacutreand sale electicity from renewable sources



### **EURO TREND ENERGY d.o.o. – small steps to big goals**

- We are dedicated to developing and investing in projects in the field of renewable energy sources.
- We are focused on a realistic assessment based on actual data and we aim to invest in this sector.
- ❖ We looked at the problems of the sector and successfully overcome them.
- We approach our projects maxi responsibly and professionally.
- We are committed to protecting the environment, so we are working on creating and installing only environmentally friendly projects and facilities which have a range of certificates.
- In this sense, we provide cooperation and collaboration with leading equipment manufacturers, design offices and engineering teams.

### **OUR OBJECTIVES**

- Install a cca 100 MW of new power systems from renewable sources by 2015. vol.
- Generate between 120-240 GWh of electricity per year by 2015. year.
- Begin building the first plant to the end of 2011.
- Let the first plant in operation until the beginning of 2012th In
- Establish sustainable partnerships with organizations and individuals to the end of 2011.
- Develop a feasibility study to eight p.m. October 2011th
- Let the work of ten the mini hydro through partnerships to October 2012<sup>th</sup>
- The Complete strongly motivated team to provide excellent services
- Establish sustainable partnerships with organizations and individuals



### **OUR CORE VALUES**

### ✓ The natural growth based on sustainable partnerships

We believe that a strong cooperation with organizations and individuals a basis for a stronger impact of small projects. Our projects include both: to build a mini hydro system, but ii lasting partnerships.

### **✓** Participation of local people

We believe that BiH citizens are adequately trained in these and other interested parties, should be actively involved in the project to ensure its economic, technical and environmental sustainability. We invite you to participate in various ways, including co-ownership, credit, membership, volunteering, part-time work as an employee or full time.

### ✓ Environmentally clean technologies and proven start with proven technology

Believes that only the establishment of new organizations in a dynamic energy sector sufficiently challenging. Mini hydro plants using proven technologies, which have been successfully applied in Bosnia and Herzegovina, dozens of times. People are what makes us different

### ✓ People are what makes us different

We are confident that our staff is our strength, resources and assets. People who work in our organization are friendly, experienced and well trained and can provide answers to any questions about our activities.



### HOW TO JOIN AND BE PART OF THE ORGANIZATION

### We offer you several options to join and support the development of clean energy:

- ➤ <u>Become part of our organization by purchasing its shares</u>. This is the riskiest, because if the project goes well it can not happen to lose money, but also if you fail, you can earn great.
- ➤ <u>Provide us the necessary studies</u>, be part of us the way to completion and defense studies necessary for a successful and positive work of the company. Your company or association is engaged in developing these studies, you are able to possess the necessary knowledge, you are a young and promising.
- ➤ <u>Become a member</u>. We will send you our newspapers, inviting you to our workshops and learn about you from other activities.
- <u>Become a volunteer</u>. If you are interested to actively support clean electricity in your community, you can help us as a volunteer. You to organize meetings, inform your neighbors, etc.
- ➤ <u>Become an employee</u>. We are constantly searching for quality and motivated staff in order to develop sustainable projects. If you are interested, please contact us.



### **ORGANIZATION**



## Euro Trend Energy

- Geramex
- Aplik
- Sigma
- ISH&MSA
- ČKD Blansko
- Cink Hydro Energy
- Eko-San
- ENERGOINVEST

### **SMALL HYDROELECTRIC POWER PLANTS**

- > Theory of using pumps in reverse regime, i.e. in turbine operation is generally well known, but only the Research Institute of Pumps in Olomouc put the great theory in practice more than 20 years ago. Since that time more than 80 pump sets provided with pump-turbines were put into operation and they have worked successfully up to now.
- We do not know another Company in the world outside of the Czech Republic acting on the market of pump-turbines. So, it is the unique design, and know how and experience are in sole possession of several Czech firms and companies.
- The Company "GERAMEX, spol. s r.o" have got their own development and engineer's facilities and workforce for designing turbines on the basis of pumps; the company's staff brought into being the first SHPPs with turbines on the basis of pumps and took part in designing and putting into operation of dozens SHPPs with pump-turbines. During designing and building our pump-turbines we cooperate very closely with pumps producers, namely with Companies SIGMA Lutín and ISH MSA Olomouc.
- Small hydroelectric power plants provided with pump-turbines require minimal servicing.
- References
- References include these business transactions in which the present employees of the Company GERAMEX, spol. s r.o. participated either as employees of our Company or other Companies during their previous employments (SIGMA VVÚ, VÚČ, ČKD Blansko).

1991 MVE Bedřichov 94kW

1992 MVE Souš 19kW

1992 MVE Nová Bystrica 175kW

> 1993 MVE Bobrovecká Dolina 22kW

> 1995 MVE Karolinka 55 kW

1996 MVE Košice 70 kW

> 1996 MVE Klenovec 110 kW

1997 MVE Boskovice 40 kW

1999 MVE Zelinkovice 60 kW

2000 MVE Hrdlořezy-Praha 110 a 75 kW

2001 MVE Moravolen BRUNTÁL 340 kW

> 2002 MVE Gudaj 2 x 110 kW

2003 MVE Letohrad 45 kW

2005 MVE Nová Bystrica 90 kW

2006 MVE Čierno 22 kW

> 2007 MVE ORAVICE 132 a 90 kW

1992 MVE Velké Losiny 45kW

1992 MVE ČSHlavatice 70kW

1993 MVE ORION 90 - 160kW

1993 MVE Vodojem Pružina 55kW

1995 MVE Ludvíkov 63 kW

1996 MVE Zábřeh – Moravská Sázava 35 kW

1996 MVE Mýtnai 33 kW

1996 MVE Kosovo 52 kW

1996 MVE Kysucké Nové Město 44 kW

1997 MVE Torvsa 58 kW

2006 MVE Tunel 90 kW

2006 MVE Mor ho 132 kW

PUMP TURBINES TRADITIONAL HYDRAULIC TURBINES 5 kW - 1 000 kW GERAMEX, spol. s r.o.

DRDY 489/42, 641 00 BRNO

CZECH REPUBLIC







#### Technologiezentrum Wasser (TZW) Karlsruhe Prüfstelle Wasser



#### PRÜFZEUGNIS (V)

über die Untersuchung von Flachdichtungscualität "Powergaske: 300 (green)" gemäß KTW-Empfehlungen des Bundesgesundheitsamtes

: Pokorny spot. s.r.o., Brno. Tschechei, Produktionsstätte: Rio de Janeiro, Brasil

Art der Proben : Flachdichtunesqualität Bezeichnung der Proben : "Powergasket 300 (green)"

Art der Prüfkörper Probeplatten 10.03.1994 Eingang der Proben Probenehmer Auftraggeber

#### Untersuchungsergebnisse

#### 1. Rezeptur wurde vorgelegt und überprüft.

2. Grundanforderungen: O:V-Verhalbris 1:50 om/lom\*

	13. Tag	46. Tag	79. Tag	Richtwert für 3. Extraktion	
Klarheit, Färtsung, Gersch, Geschmack, Schaumbildung	nnb	nnb	nnb	nicht nennenswert beeinflußt	
C-Abgabo [mg C/m²d]	80	30	20	s 125,0	
Cl <sub>e</sub> -Zehrung (mg Cl <sub>e</sub> /m²d)	260	160	160	≤150,0	
3. Zusatzanforderungen:					
Aromatische Amine [mg/m²d]	0,25	0,23	0,20		
Phenoie [mg/m*d]	0.30	0.22	0,18		

Die untersuchten Proben Flachdichtungsqualität "Powergasket 300 (green)" entsprechen den Anforderungen der KTW-Empfehlungen des Bundesgesundheitsamtes (BGes.Bl. Jg. 77, 1, u. 2. Mitt. ff) im Bereich Dichtungen D2.

Karlsruhe, den 20.07 1999

Die Veröffentlichung des Prützeugnisses - vollständig oder in Auszügen - ist ohne ausdrückliche Genehnligung von seiten der Prütstelle nicht gestat

Dea Technologiscentrum Wasser lat eine Einstiftung des DYGIN Deutscher Verein des Gas und Nassentbohes s. V. D. 76139 Kasterune Testisc +49(5)721-321-63 - Telefox -49(5)721-321-63 - T

INŠPEKTORÁT BEZPEČNOSTI PRÁCE V BRATISLAVE





#### OSVEDČENIE

FEATO: 878 DM 1995 BZ P AJR EL-1

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Bod. 41. 02/07/2/1978

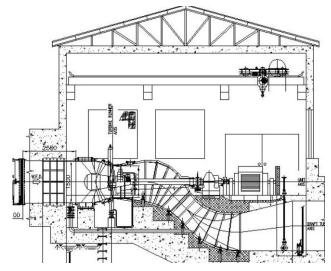






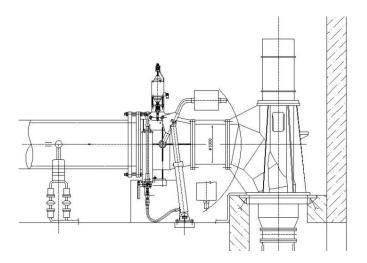
## **Systems Performance Project**

Property



- With building traditional turbines, workers of the Company "GERAMEX,spol. s r.o" derive benefit from designs of the Design and Engineer's Office Blansko. Manufacture of these traditional turbines is namely contracted with small manufacturers being experienced in turbine manufacture, while for all the time of manufacture our Company's workers are monitoring and checking rigid adherence of required quality.
- In this manner we are capable to gain competitive prices and great economic returns for investors.

Plant



• Company "GERAMEX, spol. s r.o" deliver also Small hydroelectric power plants with Francis, Pelton and Kaplan turbines wherever it is efficient and suitable, and even with Banki turbines.

## APLIK spol, sr.o.





## **Company profile**

Company APLIK spol. s.r.o. is an engineering company established by people with experience in a wide range of activities required in applications based on control systems.

We are implementing control systems in industry, infrastructure, buildings and houses.

#### Our activities include:

Design of HVAC and electrical distribution equipment.

Design of intelligent houses and buildings.

Programming of PLCs from various manufactures (ABB, Schneider Electric / Modicon, Telemecanique / Simatic, TAC, ...).

Development and programming/configuration of intelligent installations

KNX/EIB comprising products of various manufacturers – ABB, B + B Automation, Berker, Gira, Insta, Intesis, Jung, LINGG

& JANKE, MDT Automation, Merten, Schneider Electric, Siemens, Theben, WHD, Zennio, ...,

LON, Inels, Cybro, Bticino and others.

Programming of visualization systems (MMI, SCADA) Vijeo Citect, In Touch, WinCC, ControllWeb, Promotic.

Development of application software in C++, VB, JAVA.

Consulting, commissioning, training and service for PLCs, controllers, visualization systems, variable speed drives, LAN.

Production of switchboards for control systems and HVAC.

On request, the turn-key delivery of HVAC, KNX/EIB, LV equipment including:

analysis

project

delivery

installation

software development/configuration

commissioning

operator training

service

after-warranty service contract with availability starting from 2 hours already

We are solving requests from our customers quickly, with high quality and at keen price.



Energy			Water management			
2003 Slovenská sporiteľňa, Bratislava	Control system for automatic switch operational modes for LV power's switchboards, monitoring of status generators, uninterruptible power's (UPSs), and position of main circuin switchboards IT Operation Cent	property for diesel DNV Energo 2005 Dubnica nad	Reconstruction of cooling water o, pump station, delivery and installation of variable speed drive with control card for three pumps			
2006 Bodet & Horst, Vrbové	System for controlling of quarter-henergy consumption maximum and monitoring of important consumpt	DNV Energo ons 2006 Dubnica nad	1 0,			
2006 Schneider Electric SK	Delivery and installation of contro and visualization for substation Da Zlaté Moravce	•	consumption maximum monitoring of pump station			
Water	2003 BVS, Bratislava	Delivery and installation of switchboard with control system, visualization, and connection to supervisory control system of turbo-compressor system TD5 in WTP Petržalka				
treatment plant (WTP)	2003 Transmisie, Martin	Project, delivery, and installa for trash washing machine ir Vrakuňa				
	2004 BVS, Bratislava	Project, delivery, and installation of control system for aeration tanks in WTP Bratislava – Petržalka				
	2006 Transmisie, Martin	Project, delivery, and installation of control system for rake system in WTP MCHB Slovnaft				
	POVS, a. s. Považská Bystrica	Project, delivery, and installa and visualization for water to Streženice				
	2008 BVS, Bratislava	Design, delivery, installation system for controlling oxyge variable speed drives in WTF	n in aeration tanks using			



**Visits production facility Sigma** 

Agreements on exclusive representation

### **ABOUT AS**

#### PRODUCTION PROGRAM

Production SIGMA STATION BOUNDARIES, Ltd. and its subsidiary Sigma 1868, Ltd. is very broad.

It produces and sells consumer pumps for house and garden, home water, and water pumping stations, self-priming pumps and their aggregation, pumps for chemicals, submersible pumps, sewage pumps, Centrifugal Pumps in the horizontal and vertical, diagonal pump, turbine pump, circulating pump and pumps for hot water and condensate, water-ring vacuum pumps and compressors, emergency stop, gear pumps, external gear and the triple-screw pumps for pumping viscous lubricating fluid, progressive cavity pumps, rotary positive displacement rotary piston pumps for viscous liquids, plunger and piston pumps with oscillating movement and aggregation, high-pressure pumps for the chemical and petrochemical industry, high-mining units, and pumps for oil extraction, irrigation units, homogenizers, hydro-cleaners, diaphragm pumps, pressure and flow.

### DELIVERY OF OUR PUMPS ARE TARGETED TO PARTICULAR AREAS: Food Chemistry

Petrochemical

Metallurgy

Heavy machinery

Mining Our company covers the needs of commodities in those domestic markets and exports pumps, inter alia, in European countries, countries of former USSR, Asia, the Middle and Near East. The pumps produced výjezdovou provide marketing and servicing of pumps in operation, older pumps overhauls. By introducing new technologies in the production and use of cutting-edge programs in the construction of pumps, we meet the new trends in manufacturing pumps.

We have a team of highly skilled workers and technicians, who greatly influence the technical level and quality of our products and spread the good name of SIGMA. The company has built a quality system and certified to ISO9001: 2000 certification awarded by RW TUV. On the basis of active cooperation with its suppliers, customers and inspection by RW TUV established quality system continues to improve and develop.

Our company goal is to provide the most comprehensive services in the shortest possible time and in excellent quality.

#### **HISTORY**

The tradition of manufacturing pumps in Hranice in Moravia dates back to 1883. The company was famous for the production of wind engines used for power supply and watering pumps and pumps for agriculture.

Founder of pump Hranice in Moravia Anthony Kunz was industrious in the short term led his company FIRST WINE FACTORY FOR WATER PUMP AND the leading companies in the country. A very important focus of the company in the construction of water mains in the towns and cities throughout the former Austro-Hungarian Empire, the imperial and royal supplier.

After the death of founder Anthony Kunz, in 1912 a change of ownership form and the company became a joint-stock company period has significant business development, which becomes part of the group of manufacturers of pumps and valves in SIGMA. In this form of production pump becomes part of the production in many industries in the country and abroad.





### SIGMA REFERENCE

- I SIGMA GROUP a. s. Divize prùmyslová èerpadla
- I SIGMA GROUP a. s. Divize spotøební èerpadla
- 1 SIGMA PUMPY HRANICE s. r. o.
- 1 SIGMA ENERGOIN.ENÝRING spol. s r. o.
- I SIGMA VODOHOSPODÁØSKÉ CELKY spol. s r. o.
- 1 SIGMA CHEMA spol. s r. o.
- 1 SIGMA MONTÁ.E spol. s r. o.
- 1 SIGMA Výzkumný a vývojový ústav, s. r. o.
- 1 SIGMA SLU.BY spol. s r. o.
- 1 SIGMA MODELÁRNY spol. s r. o.
- 1 SIGMA OBCHODNÍ SLU.BY, s. r. o.



REFERENCE KLASICKÁ ENERGETIKA Země Místo Počet Výkon Dopravní výška Rok uvedení iednotek na jednotku m v. sl. do provozu ČERPACÍ STANICE NAPÁJECÍ VODY Česká republika Hodonín 2 52 1415 1996 Slovenská republika Bratislava Matadorex2 18 390 1996 Česká republika Tp Brno Červený Mlýn 2 6 165 1997 Česká republika Tp Brno Červený Mlýn 2 34 1090 1997 Česká republika Tp Karviná 3 168 770 1998 Česká republika Tp Karviná 4 87 500 1998 Česká republika Tušimice II B24 1 208 2380 1999 Česká republika ECKG Kladno K4 2 59 1850 1999 Česká republika ECKG Kladno K5 2 59 1850 1999 Česká republika Vřesová 2 109 2040 2000 ČERPACÍ STANICE CHLADÍCÍ VODY Česká republika Trmice 3 2108 22 1997 Česká republika ECKG Kladno I. etapa 2 540 20,5 1998 Česká republika Třebovice 2 1000 20 1998 Česká republika Ledvice 2 1700 34,7 1998 Česká republika Tp Plzeň 3 765 23 1998 Polsko Jaworzno III 1 8610 23 1999 Česká republika ECKG Kladno II. etapa 2 4200 20,5 1999 Polsko Jaworzno III 2 8610 23 2000 Česká republika Tp Zlín 2 38 1325 2000 Česká republika Tp Přerov 2 44 1538 2000 VODNÍ HOSPODÁŘSTVÍ PRO PRŮMYSL A ZEMĚDĚLSTVÍ ZÁVLAHOVÉ A ODVODŇOVACÍ ČERPACÍ STANICE Česká republika Brod 4 148 25 1994 Česká republika Valtice 3 1575 45 1994 Česká republika Božice-Borotice 2 540 60 1994 Česká republika Leváre-Malacky 6 600 20 1994 3 90 45 Slovenská republika Obid 5 2925 35 1994 Slovenská republika VSN 5/1, 5/2 5 2250 40 1995 Slovenská republika Ubrež-Hnojné 2 1020 40 1995 3 720 50 3 180 20 Egypt El-Radissia 4 2500 20 1996 Egypt El-Rakaba 2 1000 20 1995

Egypt Eprim 3 6000 15 1995 Egypt El–Kab 4 4500 20 1997

## ISH&MSA ČERPADLA

The company ISH&MSA ČERPADLA a.s. was established in 2004 through the merger of ISH-Čerpadla a.s. Olomouc and MSA Čerpadla a servis armatur s.r.o. Dolni Benesov. The tradition of pump manufacture in both former companies dates back to the period of their existence within the framework of the SIGMA concern. Following the break-up of the concern, the individual companies were privatized, and ISH a.s. and MSA a.s. were founded. The departments engaged in the manufacture of pumps, irrigation equipment and investment units detached and began to function as separate legal entities. A new merger of the manufacturing capacities and assortments of these two companies gave rise to a unit which, thanks to its manufacturing program, ranks among the largest manufacturers of industrial pumps in the Czech Republic.



### The company's manufacture and sale is dominated by pumps, delivered mostly for the following industries:

nuclear power engineering classic power engineering petrochemical and chemical industry water management mining and processing industry

#### Manufacturing and sales assortment:

Industrial pumps
Process pumps
Hermetic pumps
Dredge pumps, sludge pumps and submerged pumps
Pumping sets

Flexible couplings for rotary machines Specialized cooperative manufacture

#### Services:

Manufacture of spare parts
Repairs and reworking of pumps
Consultancy and advisory service
Professional trainings and courses for the customers
Designing preparation of the locations for pumping sets
Installation, supervised assembly and commissioning of pumps
Operational monitoring

#### **Investment units:**

Building of new pumping stations

Redevelopment and optimization of the operation of pumping stations Complete deliveries in the field of water management, including water treatment (filtration, chemical treatment, thermal treatment, etc.) Building of small power plants on water courses or main pipelines Other specialized work in the area of water treatment and transport

### **Warrants and certificates**

The development, production sales and servicing of the engineering production are carried out under the ISO 9001 quality assurance system which has been certified in 1996 by the RW TÜV Cert company.

The company also has a certificate of Institut technické inspekce Praha for the production of pump assemblies for nuclear power plants.

The company has also been audited by companies ČEZ and Moteurs-Leroy Somer and following the positive audit, it has been included in their list of authorized suppliers.



### Reference

Since the start of production in 1972, we have delivered over **380 000** pieces of single-stage pumps to customers from the fields of energetic, chemical, processing industries, water management and agriculture, and spheres of investment. Since the implementation of the A1 block in Jaslovské Bohunice, we have delivered pumps to nuclear power plants. Since 1992, we have manufactured ecological pumps with a magnetic coupling for the chemical industry. In 1998, we delivered pumps for the Armenia Nuclear Power Plant through the mediation of Burns and Roe Enterprises, New Jersey, USA. Since 1999, we have manufactured process pumps according to the requirements of API 610 Standard.

We manufactured our first irrigation assembly in the end of the sixties. We have progressively delivered irrigation technologies to the former Soviet Union which are capable of irrigating the area of 1.2 million hectares. Customers in the former Czechoslovakia have been provided with the irrigation technology which is capable of irrigating over 310 000 hectares.



## ČKD Blansko Engineering, a.s.

#### **Company profile**







ČKD Blansko Engineering, a.s. is an engineering - supply company whose main area of activities consists in complete supplies of mechanical equipment and technology of hydro power plants and pump stations - hydraulic turbines of all types and sizes, pump turbines and pumps including outline and detail design documentation, hydraulic design, model tests, erection, and guarantee measurements at site.

ČKD Blansko Engineering, a.s. is focused not only on new equipment supplies, but also on rehabilitations, operating , and overhauls of existing machines.

ČKD Blansko Engineering, a.s. is a member of international organizations IAHR, IHA, EuroPump, IEC, Czech calibration association (ČKS), Association of pump producers of the Czech Republic.

ČKD Blansko Engineering, a.s. continues a long-time experience in research and fabrication of hydraulic turbines in Blansko.

Great emphasis is laid on high quality hydraulic and mechanical design of our machines conforming to the latest world trends. The state-of-the-art CFD and FEM computation methods are applied to optimize particular components and complete hydraulic machines to assure high efficiency and lifetime without any operation problems. Modern, cavitation-proof, and environment-friendly materials are applied in the machine design.

Since 2006 the ČKD Blansko Engineering, a.s. has been a member of the <u>Litostroj Power</u> association and, at the same time, of the <u>CIMOS Group</u> incorporating another 19 companies with business activities in seven countries and with almost 7.000 employees. In addition to a significant consolidation of economic background the company also obtained a direct connection with a reputable producer of hydraulic turbines with a modern technology and a wide experience in hydro power.

### **Genneral**

- Supplies of new turbines, rehabilitation and uprating of existing turbines
- Optimization of machines to meet required performances of new or rehabilitated machines

An increase in efficiency, output, and reliability at minimum investment costs

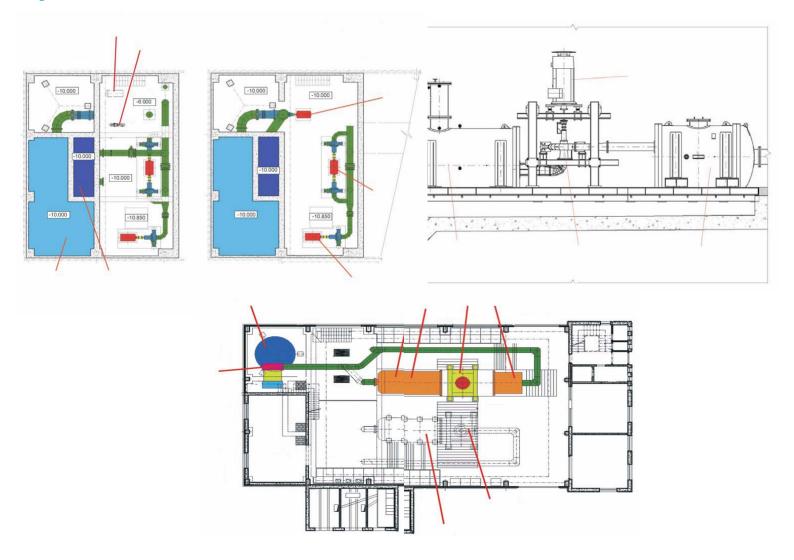
- Design of hydraulic turbine components by CFD flow numeric simulation (CFX, Fluent)
- Design by means of 3D computer models (ProEngineer, Unigraphics)
- Stress analysis of hydraulic machine components (Ansys, WorkBench)
- Performance verification by measurements on laboratory models and at hydro power plants
- Design concept with modern, cavitation-resistant and environment- friendly materials







## **Hydraulic Research Center Blansko**



### **QUALITY**

#### **Scheme of Integrated management system:**

**IMS - Integrated Management System** 

QMS - Quality Management System

**EMS - Environmental Management System** 

SMS - Safety Management System

**WQ** - Welding Quality

The Integrated Management System in ČKD Blansko Engineering respects the requirements of standards:

**ISO 9001 - quality** 

ISO 14001 - environment

OHSAS 18001 - safety

**ISO 3834-2 - welding** 

Scope of certification: design, engineering, project management, erection, sales, commissioning, servicing, testing and measuring of technology for hydro power plants, pump stations, hydro projects and pipe line systems.

The Organization maintains certificates accredited with the Bureau Veritas and Tesydo for all standards. The certified QMS has been continuously maintained since 1998; EMS and SMS since 2008, and WQ since 2006.

The company has also incorporated in the IMS / WQ "Large Certificate of Qualification for design and fabrication of welded steel structures as per ČSN EN 1990, ČSN 73 2601, ČSN EN 1090-2, DIN 18800-7, and DIN 19704". The company has maintained the certificate since 2006.

The basic document of IMS is Policy of ČKD Bansko Engineering, a.s., which integrates Quality Police and Policy of Environment Protection, Occupational Safety, and Health Protection.

The basic description of IMS is included in the IMS Manual, which is used as a general manual defining the Integrated System processes in the Organization and relations among them; and moreover, documented procedures (or references hereto) created for the Integrated System in the Organization. A part of the SMS is also assurance of the fire prevention system pursuant to Czech regulations.

### **CINK HYDRO ENERGY**

- Hydro Turbines and Small Hydro Power Plants: Cink Hydro Energy
- We rank among the leaders in deliveries of technology for small and medium-sized hydropower stations. The goal of the development team of CINK Hydro-Energy is to change water potentials together with our customers all over the world into profitable and environmentally-friendly sources of energy.
- We are one of the few companies in the world using the know-how that is necessary for the realization of technically perfect deliveries of all important types of turbines, such as the Crossflow, Kaplan, Pelton and Francis turbines, up to a capacity of 3 MW per unit. Besides that, CINK Hydro-Energy specializes in the installation of hydropower stations in drinking water systems and holds several licences for that purpose.
- Each of our Hydro Turbines is tailor-made for a specific purpose and guarantees:
- High efficiency
- Extremely long service life
- High operational safety
- Minimum maintenance requirements
- Low operating costs
- Perfect customer care prior to and following the purchase, multilingual team and <u>ISO 9001:2001</u> + <u>ISO 14001:2004</u> certification, all this supports our positive-minded company profile.



## **Complete hydropower stations**

"There is water at the beginning and there is a connection to the electricity supply network at the end"





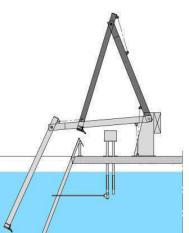




















### **OFFER**

Assembly

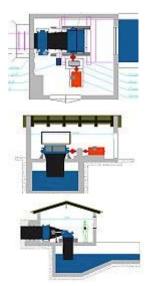
Small hydro power plants : complete offer

CINK Hydro-Energy is your partner in designing and constructing complete hydropower stations

Our delivery will include:

A trash-rack cleaning machine, including accessories Closing valves of the inlet and by-pass Turbines Piping and steel structures Gearboxes / belt drives / clutches Asynchronous or synchronous generators Control systems of turbine sets Generator control panels Hydraulic systems Planning and design





The optimal adjustment of included components, as well as their high efficiency, will ensure fast return of your investment.

#### Power stations in drinking water systems

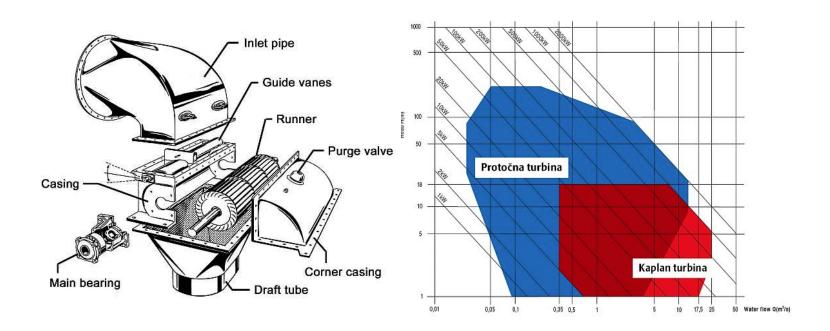
CINK Hydro – Energy is specialized in deliveries of turbine sets for drinking and wastewater systems. This is possible due to the structure of the used Crossflow and Francis turbines, which are designed hydraulically in such a manner that the smallest possible hydraulic impacts are achieved even with big lengths of pipes. Crossflow turbines may be used in wastewater systems thanks to the self-cleaning capacity of the runner.

The used system of the turbine control and the turbine bearing system guarantee that the hygienic quality of working water and its permanent classification as drinking water are maintained at 100%. Waterworks and sewage disposal plants are facilities with high power consumption. The installation of a small hydropower station will change them into energetically self-sufficient units and will in many cases even enable sale of excess energy to the public electricity network. During installation of a small hydropower station in drinking water systems, it is not necessary to stop the water supply to residents for a long time, and it will not get polluted.

We utilise our experience in numerous installations in the Czech Republic, Slovakia, Italy, Finland, Romania, Bulgaria and other countries around the world.

## **Hydro Turbine – Crossflow – Ossberger**

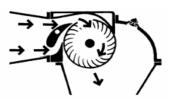
Crossflow turbines have a long service life and they are maintenance-free. During operation, they do not require any costly or complex spare parts; repairing them is feasible on site. A specific advantage of Crossflow turbines is the possibility of using them in gravitation drinking water systems, even in very long conduits, not causing undesirable hydraulic impacts and thus not affecting the quality of drinking water during operation. This has been successfully tested by our company several times in numerous countries around the world.

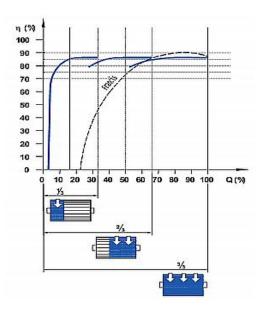






Picture 1: Horizontal inlet





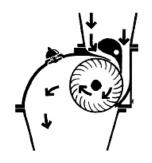








Picture 2 Vertical inlet





## **REFERENCE**

Project name	Customer (	Country	Year of	Max
			installat.	turbine
ČABRANKA		HR	1991	315
ČABRANKA		HR	1991	315
ČABRANKA		HR	1991	315
ČABRANKA		HR	1991	315
LJUBLJANA	Kokolj	SLO	1993	24
CELJE	Papež	SLO	1993	34
CELJE	Papež	SLO	1993	34
ČABRANKA II	Finvest Corp	HR	1993	31
KRANJ	Gorjanc	SLO	1995	87
SEDOVNIK	Kokolj	SLO	1996	72
SEDOVNIK	Kokolj	SLO	1996	72
ČESNEV LOK	Kokolj	SLO	1996	270
ČESNEV LOK	Kokolj	SLO	1996	270
<b>JEZERNICA</b>	Kokolj	SLO	1996	270
JEZERNICA	Kokolj	SLO	1996	270
BISTRICA	Anton Aljančič	SLO	1996	128,7
AČKO	Kokolj	SLO	1996	66
ČABRANKA I.	Finvest Press	HR	1997	315
ČABRANKA I.	Finvest Press	HR	1997	315
LUNĚŽNIK	Kokolj	SLO	1998	205
PUŠNAR	Kokolj	SLO	1998	33
CEZLAK	Vlado Globovni	k SLO	2002	210
CEZLAK	Vlado Globovni	k SLO	2002	450
CEKRNICA		SLO	2004	5

CO UN TR Y	PROJECT NUMBER	PROJECT NAME	CUSTOMER	Н	Q	TURBINE TYPE	Pt (kW)	Pg (kW)	g A/S
RO	0039/MVE/RO/0406	CAMPINA I PD 4 B2/F2	ELSID	37,3	800	SH 5.045/10 g	246	220	Α
RO	0037/MVE/RO/0406	CAMPINA I PD 3 B1/F2	ELSID	26,3	800	SH 5.054/10 g	171	154	Α
CZ	0048/MVE/CZ/0506	NEJDEK	VOHRALİK	27	1.200	SH 5.060/11	267	241	Α
GR	0032/GR/MVE/0406	TRIPOTAMOS	PAPANIKOS	12	1.700	SH 5.127/11 g	160	147	Α
RO	0042/MVE/RO/0406	CAMPINA I PD 6 BR/F2	ELSID	51,7	500	SH 5.027/9g	216	202	Α
RO	0041/MVE/RO/0406	CAMPINA I PD 6 BR/F1	ELSID	33,7	500	SH 4.030/8 g	135	124	Α
RO	0040/MVE/RO/0406	CAMPINA I PD 5 MV	ELSID	17,8	500	SH 4.039/8 g	73	63	Α
RO	0038/MVE/RO/0406	CAMPINA I PD 4 B2/F1	ELSID	35	500	SH 4.039/8 g	141	130	A
RO	0036/MVE/RO/0406	CAMPINA I PD 3 B1/F1	ELSID	24	500	SH 4.045/8 g	96,50	89,50	Α
RO	0035/MVE/RO/0406	CAMPINA I PD 1VE	ELSID	18,4	3.000	SH 8.114/16 g	454	418	S
RO	0052/MVE/RO/0606	CAMPINA II PD 1 S/A	ELSID	25,2	6.000	SH 125.150/26 g	1.231	1.123	S
RO	0053/MVE/RO/0606	CAMPINA II PD 1 S/B	ELSID	25,2	6.000	SH 125.150/26 g	1.231	1.123	S
RO	0049/MVE/RO/0606	CAMPINA II PT 1 GV/A	ELSID	29	5.000	SH 125.117/26 g	1.180	1.098	S
RO	0050/MVE/RO/0606	CAMPINA II PT 1 GV/B	ELSID	29	2.000	SH 8.072/15 g	472	439	S
RO	0051/MVE/RO/0606	CAMPINA II PT 1 GV/C	ELSID	29	5.000	SH 125.117/26 g	1.180	1.098	S
RO	0056/MVE/RO/0606	CAMPINA III DI 1M/A	ELSID	70	3.330	SH 125.056/28 l g	2.190	1.830	S
RO	0057/MVE/RO/0606	CAMPINA III DI 1M/B	ELSID	70	3.330	SH 125.056/28 l g	2.190	1.830	S
RO	0058/MVE/RO/0606	CAMPINA III DI 1M/C	ELSID	70	3.330	SH 125.056/28 l g	2.190	1.830	S
RO	0054/MVE/RO/0606	CAMPINA III PD 2 S/A 1000	ELSID	8,2	6.000	SH 125.150/26 g	1.734	1.149	S
RO	0055/MVE/RO/0606	CAMPINA III PD 2 S/B 800	ELSID	8,2	6.000	SH 125.150/26 g	1.734	1.149	S
RO	0059/RO/MVE/0606	DUMBRAVA	Eiberlondt	4,2	477	TVN 355	14,30	11	S
RO	0069/RO/MVE/0706	VALEA DE PESTI	CONSMIN PETROSANI	32,9	800	G 5.036/10 g	224	198	
PL	0088/PL/MVE/1106	NOWY SACZ	GLOCKENBACH	17	120	SH 3.013/6 g	16,50	Х	Χ
RO	0095/RO/MVE/1106	VALENI DE MUNTE	S.C.ENERGOMONTAJ	5,5	2.000	60-3L-6M, 2x CHEK	2 x 90	2 x 79	A
CZ	0097/MVE/CZ/1106	HORKA I+C	ENERGO	33	130	SH 3.010/6 II	35	32	Α
RO	0105/MVE/RO/1206	CAMPINA IV/I - PT2 CM/ T1	ELSID	37,2	3.400	SH 1.120/22 l g	1.029	948	S
RO	0106/MVE/RO/1206	CAMPINA IV/I - PT2 CM/ T2	ELSID	37,2	3.400	SH 1.120/22 l g	1.029	948	S
RO	0107/MVE/RO/1206	CAMPINA IV/I - DI 2P/ T1	ELSID	45,8	4.000	G 1.129/22   g	1.545	1.423	S
RO	0108/MVE/RO/1206	CAMPINA IV/II - DI 3P/T1	ELSID	40,1	4.000	G 1.138/22   g	1.337	1.232	S
RO	0109/MVE/RO/1206	CAMPINA IV/II - DI 4F/ T1	ELSID	54,16	4.000	G 125.098/26 l g	1.827	1.683	S
RO	0110/MVE/RO/1206	CAMPINA IV/II - PD 3S/T1	ELSID	22,65	6.000	SH 125.210/26 g	1.106	998	S
RO	0111/MVE/RO/1206	CAMPINA IV/III - PT 3CM/ T1	ELSID	26,5	3.400	SH 8.180/18 l g	715	663	S
RO	0112/MVE/RO/1206	CAMPINA IV/III - PT 3CM/ T2	ELSID	26,5	3.400	SH 8.180/18 l g	715	663	S
RO	0113/MVE/RO/1206	CAMPINA IV/IV - DI 2P/ T2	ELSID	45,8	4.000	G 1.129/22   g	1.545	1.423	S
RO	0114/MVE/RO/1206	CAMPINA IV/IV - DI 3P/T2	ELSID	40,1	4.000	G 1.138/22 l g	1.337	1.232	S
RO	0115/MVE/RO/1206	CAMPINA IV/IV - DI 4P/T2	ELSID	54,16	4.000	G 125.098/26 l g	1.827	1.683	S
RO	0116/MVE/RO/1206	CAMPINA IV/V - DI 2P/ T3	ELSID	45,8	4.000	G 1.129/22 I g	1.545	1.423	S
RO	0117/MVE/RO/1206	CAMPINA IV/V - PD 3S/T2	ELSID	22,65	6.000	SH 125.210/26 q	1.106	998	S

### MHE Oravice, Slovakia. Power plants on the water supply system

































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