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REFERENCE LIST IN THE FIELD OF AUTOMATION

BEER AND BEVERAGE

<u>CUSTOMER</u>	<u>PERIOD</u>	<u>DESCRIPTION</u>
"ZAGREBACKA PIVOVARA" InBev ZAGREB, Croatia		
	1994.	Design, automation, erection, commissioning, start up of following plants: - Reconstruction of line for charging and packing of beer bottles in boxes: - SIMATIC S5 115U; OP393; 64DI; 32DO
	1995.	- Production supervision - bottles counting: - SIMATIC S5 95U; COROS; OP15 - 2 pcs
	1996.	- Controlling of the cold block and beer fermentation, including: - wort cooling - beer fermentation and maturation - production and distribution of the deaerated water - beer filtration - SIMATIC S5 135U; ET200 - 11 PCs; PC supervising station with FIX dMACS; communication SINEC H1 with other parts of the plant
	1996.	- Long-term contract for maintenance of all automation systems and production assistance
	1997.	- Old plate filter automation: S5-103U - Pallet counting for three bottling lines (reporting of quantity per shift/line/type of beer): S5-95U, 2x OP15, report printing
	1998.	- New BBT room and CIP automation as a subcontractor of GEA-TUCHENHAGEN Belgium for electrical engineering, automation, electrical panels supply, erection and start-up. S5-135U, profibus ET200, industrial ethernet SINEC H1. Supervision system is based on INTELLUTION FIX for Win NT. Total number of signals is 700.
	1998.	- Automation of glycol distribution - S7-300, supervision system Intellution Fix for Win NT.



1998. - Hot Wort tank automation – Decanter, in cooperation with Tractabel, Belgium
- S7-300, supervision system Intellution Fix for Win NT.
- 1998.-1999. - New filtration automation in cooperation with Filtrox, Switzerland
- electrical engineering, automation, electrical panels supply, erection and start up
- S7-400, CPU 416, profibus ET200, industrial Ethernet SINEC H1
- supervision system is based on Intellution FIX for Win NT; total number of signals is 1000.
- 1998.-1999. - Reconstruction of supervision system for Diversey CIP new fermentation.
- new supervision system is Intellution Fix for Win NT.
1999. - New fermentation expansion with new tanks and new cooling system - glycol.
- supervision of tanks and cooling station.
- project, program, electrical panel supply, erection, start up.
1999. - reconstruction of control and power supply for elevators of full and empty boxes - line 3 in filling plant; Simatic S7-300.
2000. Connecting of automation system in brewhouse with industrial ethernet; connecting of brew house and fermentation plant with industrial ethernet (optic).
- Automation of syrup dosing plant in brew house; S7-300, Intellution FIX.
2001. Automation of malt transport and silo:
- existing cabinets reconstruction,
- Simatic S7300-DP, Intellution iFix for W2000, Industrial ethernet
2001. Expanding of new fermentation with new tanks (2 new tanks, up till now 13 tanks installed)
- project, program, cabinet making, erection and start up.
2002. Tetra dosing unit:
- Delivery of the complete (mechanic, measuring and electric parts) unit, max 6l/600h/h also suitable for EEx
- Simatic S7300-DP, OP17 and control with Intellution iFix of Filter
2002. Reconstruction of control and power supply of 4 ammoniac compressors, 355kW each
- project, program, cabinet making, erection and start up
- Danfoss soft start MCD3000, Simatic S7- 416
- Intellution iFix for W2000, server + view
- 2002/2003. New Wastewater treatment plant



- delivery of electrical panels, measuring equipment, electrical erection, project, program and start up.

2003. Expanding of new fermentation with new tanks (2 new tanks, up till now 15 tanks installed)
- project, program, cabinet making, erection and start up.
2003. Control system for electrical energy control – peak power monitoring
- project, program, cabinet making, erection and start up.
2004. Brewhouse automation; re-automation for existing part of the brewhouse, automation for new equipment. Project, program, cabinet making, erection and start up:
- Simatic S7- 416, Intellution iFix for W2000, server + view,
2004. – 2005. Water treatment plant reconstruction; re-automation for existing part of the plant, automation for new equipment. Project, program, cabinet making, erection and start up:
- Simatic S7- 416, Intellution iFix for W2000, server + view,
2005. – 2006. Brewhouse automation; reconstruction of brewhouse as subsupplier of Ziemann. automation for new equipment; new mash tun, energy recovery, additives dosing, CIP, wort kettle, lactic acid plant. Project, program, cabinet making, erection and start up:

"KARLOVACKA PIVOVARA", Heineken

KARLOVAC, Croatia

- 1998.-1999. - Expansion of water plant automation – EUWA with plant status display on OP25 (S5-95U-DP, OP25)
1999. - Electrical erection and start up of new separator ALFA-LAVAL
- 2000.- 2001. - Reconstruction of fermentation automation, new control monitoring PC with Intellution iFIX , PLC S7-300 .
2004. - Electrical installation and automation for new lager tanks, PLC S7-300 .
2005. – 2006. - New automation for yeast plant, change S5-S7, new WinCC
2005. - Cooperation in adaptation of automation for many smaller units
2006. - Utilities reconstruction: new low voltage distribution, new control system and installation for complete utilities area.



"PROBERCO" – InBev

BAIA MARE, Romania

- 1996.-1997. - Brewery extension to 600.000 HI/year - project for automation and automation software for whole brewery except bottling line (Brew house, fermentation and filtration).
 - SIMATIC S5 135U; PC supervising station with FIX dMACS; SIMATIC S5 100U several pieces.
- 1999. - Automation of 6 new fermentation tanks and fermentation CIP, addition of automation in brewhouse
 - Simatic S5-135U, Profibus ET200, industrial Ethernet SINEC H1
 - two supervision systems Intellution Fix for Win NT.
- 2004. - Adaptation of fermentation automation system

"BIANCA-BERGENBIER" InBev

BLAJ, Romania

- 1999. - Reconstruction of palletizing and de-palletizing machines in bottle filling plant
 - 2 x Simatic S5-100U
 - project, program, erection, start up.

"DESNA CHERNIGIV" InBev

CHERNIGIV, Ukraine

- 1999. - New fermentation and CIP automation
 - Simatic S7-300, CPU 316, Profibus ET200, industrial Ethernet SINEC H1
 - cooperation with Fisher-Austria (supplier of CIP equipment)
 - supervision system Intellution Fix for Win NT
 - delivery of electrical panels, cabling equipment, erection supervision, project, program and start up.
- 2003. - Extension of new fermentation and Yeast plant automation
 - Simatic S7-300, CPU 316, Profibus ET200, industrial Ethernet
 - delivery of electrical panels, cabling equipment, erection supervision, project, program and start up.
- 2003. Complete reconstruction of brewhouse with new Meura mash filter, as subcontractor of MEURA - Belgium.
 - Simatic S7-400, CPU 416, Profibus ET200, Industrial Ethernet,
 - supervising system Intellution iFix for Win 2000 with 2 master PC and 1 view nodes,
 - delivery of electrical panels, cabling material, frequency controllers, erection supervision, project, program and start up.
- 2003. Lactic Acid plant automation, integration in brewhouse automation



- delivery of electrical panels, cabling material, frequency controllers, erection supervision, project, program and start up.
- 2004. Fermentation plant extension, new PLC and supervision system, yeast plant extension
 - delivery of electrical panels, cabling material, frequency controllers, erection supervision, project, program and start up.
 - Simatic S7-400, Intellution iFIX
- 2004. – 2005. New filtration line automation, new PLC and supervision system, as subcontractor of Unitec Belgium
 - delivery of electrical panels, cabling material, frequency controllers, erection supervision, project, program and start up.
 - Simatic S7-400, Intellution iFIX
- 2006. Complete reconstruction of brewhouse with new line (Meura mash filter), as subcontractor of MEURA - Belgium.
 - delivery of electrical panels, cabling material, frequency controllers, erection supervision, project, program and start up.
- 2006. Fermentation plant extension,
 - delivery of electrical panels, cabling material, frequency controllers, erection supervision, project, program and start up.
 - Simatic S7-400, Intellution iFIX
- 2006. Yeast plant extension, subcontractor of Alfa Laval
 - delivery of electrical panels, cabling material, frequency controllers, erection supervision, project, program and start up.
 - Simatic S7-400, Intellution iFIX

**“ROGAN”- InBev
CHARKOW, Ukraine**

- 2003. Complete reconstruction of brewhouse with new Meura mash filter, as subcontractor of MEURA - Belgium.
 - Simatic S7-400, CPU 416, Profibus ET200, Industrial Ethernet,
 - supervising system Intellution iFix for Win 2000 with 2 master PC and 1 view nodes,
 - delivery of electrical panels, cabling material, frequency controllers, erection supervision, project, program and start up.
- 2004. Decanter and wort cooling, integration in brewhouse automation, as subcontractor of Unitec - Belgium.
 - delivery of electrical panels, cabling material, frequency controllers, erection supervision, project, program and start up.



- 2004.- 2005. Brewhouse reconstruction, revamping of later tuns, integration of existing Hupmann brewhouse in new automation system, as subcontractor of Steinecker, Germany.
 - supervision system, project, program and start up.
- 2006. Malt Silo area automation, adaptation of brewhouse automation system with new part, direct contract with brewery
 - electrical panels, engineering, erection, program and start up. / current project

“Yantar”- InBev
Mikolaiev, Ukraine

- 2005. Complete reconstruction of filtration area with new Steinecker line and revamping of existing Schenk line, as subcontractor of Steinecker - Germany.
 - Simatic S7-400, CPU 416, Profibus ET200, Industrial Ethernet,
 - supervising system Intellution iFix for Win 2000,
 - supervision system, software development, commissioning and start up.
- 2005. Flash pasteuriser automation, as subcontractor of Unitec - Belgium.
 - software development, commissioning and start up.

“ROSAR OMSK” - InBev
OMSK, Russia

- 2000. Reconstruction of brewhouse for working with 17 brews per day, as subcontractor of MEURA - Belgium.
 - Simatic S7-400, CPU 416, Profibus ET200, Industrial Ethernet,
 - supervising system Intellution iFix for Win NT with 1 master PC and 2 view nods,
 - delivery of electrical panels, cabling material, frequency controllers, erection supervision, project, program and start up.
- 2001. Brewhouse reconstruction for 24 brews per day, as subcontractor of MEURA - Belgium
 - supervision system Intellution iFix for Win NT, 2 additional stations,
 - delivery of electrical panels, cabling material, erection supervision, project, program and start up.
- 2002. Brewhouse reconstruction with new milling line and 5^h mash tun, as subcontractor of MEURA - Belgium
 - delivery of electrical panels, cabling material, erection supervision, project, program and start up.



2003. Brewhouse reconstruction for 30 brews per day, as subcontractor of STEINECKER – Germany. Reprogramming of all malt handling and milling, installation of part of new 3rd line for brewhouse, upgrade of HW and SW for supervision system for control of three brewhouse lines
- supervision system Intellution iFix for Win 2000, 5 stations,
 - delivery of electrical panels, cabling material, erection supervision, project, program and start up.
2004. Brewhouse reconstruction for 36 brews per day, as subcontractor of STEINECKER – Germany. Installation of new 3rd line for brewhouse, upgrade of malt handling with new mill
- supervision system Intellution iFix for Win 2000, 5 stations,
 - delivery of electrical panels, cabling material, erection supervision, project, program and start up.
2004. CO2 plant supervision system, as subcontractor of STEINECKER – Germany. Installation of new iFIX supervision system for all 4 CO2 plants.
- 2004.-2005. New brewhouse Nr. IV automation, as subcontractor of Ziemann – Germany. Installation of complete new brewhouse, with malt handling and milling
- supervision system Intellution iFix for Win 2000, 3 stations,
 - delivery of electrical panels and material, erection, project, program and start up.
2006. Changes in automation in all 4 brewhouses; as subcontractor of Ziemann – Germany.
- delivery of electrical panels and material, erection, project, program and start up. / current project

“POVOLZHJE” - InBev
Volshky, Russia

- 2001/2002. Brewhouse reconstruction including new Meura filter, as subcontractor of MEURA - Belgium.
- Simatic S7-400, CPU 416, Profibus ET200, Industrial Ethernet,
 - supervising system Intellution iFix for Win 2000 with 1 master PC and 2 view nodes,
 - delivery of electrical panels, cabling material, frequency controllers, erection supervision, project, program and start up.
- 2002/2003. Brewhouse reconstruction with new milling line, new buffer tanks and water plant reconstruction, as subcontractor of MEURA - Belgium
- supervision system Intellution iFix for Win2000, 1 additional station,
 - delivery of electrical panels, cabling material, erection supervision, project, program and start up.



- 2003. **BBT and filtration area re-automation (24 fully automatic BBT with CIP, Schenk filtration line with CIP, plate filter). Old supervision system and PLC (Braumat with S5-115U, CPU945) is replaced with Montelektro supervision system with S7-400 and Intellution iFIX. Complete integration of Centrifuge, Aldox and Carboblend in new automation system.**
 - delivery of electrical panels, cabling material, erection, project, program and start up

- 2004. **New Steinecker TFS beer filter automation. Integration in new automation system for filtration and BBT**
 - programming and start up

- 2004. **Brewhouse reconstruction with new second line – 24brew/day, as subcontractor of MEURA - Belgium**
 - supervision system Intellution iFix for Win2000, 3 stations,
 - delivery of electrical panels, cabling material, erection supervision, project, program and start up.

- 2004.-2005. **Automation of complete production, brewery extension to 3 MHI/year, brewhouse: Meura, fermentation: Alfa Laval, Filtration&BBT: Kieselmann with Steinecker equipment**
 - 4 automation systems in Industrial Ethernet network
 - 4 x S7-416-3
 - 4 x iFIX v6.0 automation system, in total 10 computers with 20 screens

“Saransk” - InBev
Saransk, Russia

- 2005. **Cold block automation, as subcontractor of Kieselmann - Germany. New automation for BBT, fermentation and yeast plant**
 - Simatic S7-400, CPU 416, Profibus ET200, Industrial Ethernet,
 - supervising system Intellution iFix for Win 2000 with 1 master PC and 2 view nodes,
 - delivery of electrical panels, cabling material, frequency controllers, erection supervision, project, program and start up.

“TREBJESA” - InBev
NIKŠIĆ, Monte-Negro

- 2000. **- New fermentation automation**
 - Simatic S7-300, CPU 315, OP37,
 - delivery of fermentation electrical panel, project, program, erection and start up.

- 2003. **Tetra dosing unit:**
 - Delivery of the complete (mechanic, measuring and electric parts) unit, max 6l/600h/h also suitable for EEx
 - Simatic S7300-DP, OP17



2006. Electrical installation for dry goods upgrade, as subcontractor of BRIGGS:
 - delivery of electrical installation material and erection work

"UNILINE" - InBev

GRUDE, Bosnia and Herzegovina

1999.-2000.

- Automation of the whole brewing process including brew house, fermentation, laagering, yeast plant and engine room (air, glycol and water). Engineering, erection, electrical panels supply, programming and start up. Brewery size 400.000 HI/year
- SIMATIC S7 400, CPU414 2pcs; S7300 several PCs, 2 PC supervising station with Intellution iFIX.

"SCHINCARIOL" BRASIL

2002.-2004.

- Control system for mash filter MEURA2001 for 3 breweries, subcontractor of MEURA
- Allen Bradley PLC, delivery of fermentation electrical panel, project, program, erection and start up

"Jadranska pivovara Split"

SPLIT, Croatia

2000.

- New FILTROX filtration line
- Electrical erection and commissioning

2002/2003.

- New Wastewater treatment plant
- delivery of electrical panels, measuring equipment, electrical erection, project, program and start up.

2002/2003.

- New steam boiler and utilities automation (S7-300, WinCC, Industrial Ethernet)
- delivery of electrical panels, measuring equipment, electrical erection, project, program and start up.

2004.

- New brewhouse – Steinecker: electrical erection

"ShimkentPivo"

SHYMKENT, Kazakhstan

2002/2003.

- Complete reconstruction of brewhouse with new Meura mash filter, as subcontractor of MEURA - Belgium.
- Simatic S7-400, CPU 416, Profibus ET200, Industrial Ethernet,
 - supervising system Intellution iFix for Win 2000 with 2 master PC and 1 view nods,



- delivery of electrical panels, cabling material, frequency controllers, erection supervision, project, program and start up.
- 2003. Bright beer tanks automation, as subcontractor of MEURA - Belgium.
 - Simatic S7-300, CPU 316, Profibus ET200, Industrial Ethernet,
 - supervising system Intellution iFix for Win 2000,
 - delivery of electrical panels, cabling material, frequency controllers, erection supervision, project, program and start up.
- 2003-2004. Cold block automation, Fermentation and CIP, as subcontractor of MEURA - Belgium.
 - Simatic S7-400, CPU 416, Profibus ET200, Industrial Ethernet,
 - supervising system Intellution iFix for Win 2000 with 2 master PC and 2 view nods,
 - delivery of electrical panels, cabling material, frequency controllers, erection supervision, project, program and start up.
- 2003-2004. Yeast plant automation, as subcontractor of MEURA - Belgium.
 - Simatic S7-400, CPU 416, Profibus ET200, Industrial Ethernet,
 - supervising system Intellution iFix for Win 2000 with 1 master PC,
 - delivery of electrical panels, cabling material, frequency controllers, erection supervision, project, program and start up.

“Stara Zagora” - Heineken
Bulgaria

- 2003/2004. Complete reconstruction of brewhouse with new Meura mash filter, as subcontractor of MEURA - Belgium.
 - Simatic S7-400, CPU 416, Profibus ET200, Industrial Ethernet,
 - supervising system Intellution iFix for Win 2000 with 2 master PC and 1 view nods,
 - delivery of electrical panels, cabling material, frequency controllers, erection supervision, project, program and start up.

“Slavutich” - BBH
Kiev, Ukraine

- 2003/2004. Greenfield brewery, New Meura Brewhouse, brewhouse and malt house automation, as subcontractor of MEURA - Belgium.
 - Simatic S7-400, CPU 416, Profibus ET200, Industrial Ethernet,
 - supervising system Siemens WinCC v6.0 with 2 master PC and 1 view nods,



- delivery of electrical panels, cabling material, frequency controllers, erection supervision, project, program and start up.

2005. Adaptation of brewhouse with new sugar tank, as subcontractor of MEURA - Belgium.
- delivery of electrical panels, cabling material, frequency controllers, erection supervision, project, program and start up.

"InBev, Nanjing" China

2003. – 2004. Control system for mash filter MEURA2001 and hammer mill, subcontractor of MEURA
- Siemens S7-400 PLC, MP370, delivery of electrical panels, project, program, start up

"Laihian Mallas" Finland

2004. Malt extract plant automation with mash filter MEURA2001 and hammer mill, subcontractor of MEURA
- Siemens S7-400 PLC, supervision system iFIX, delivery of electrical panels, project, program, start up

"Brewery in Japan"

2004. Double mash filter automation with 2 mash filter MEURA2001 and Meura clean, carbomill, subcontractor of MEURA
- Siemens S7-400 PLC, supervision system iFIX, delivery of electrical panels, project, program, start up

"Cuca, Luanda" Angola

2006. Brewhouse automation, subcontractor of MEURA
- Siemens S7-400 PLC, WinCC, delivery of electrical panels and material, erection supervision, project, program, start up

"St. George, Adis Abeba" Ethiopia

2006. Control system for mash filter MEURA2001 and premasher, subcontractor of MEURA
- Siemens S7-400 PLC, WinCC, delivery of electrical panels, project, program, start up

"Sjabar" Detroit group, Belarus

2006. Control system for mash filter MEURA2001 and hammer mill, subcontractor of MEURA
- Siemens S7-400 PLC, WinCC, delivery of electrical panels, project, program, start up

