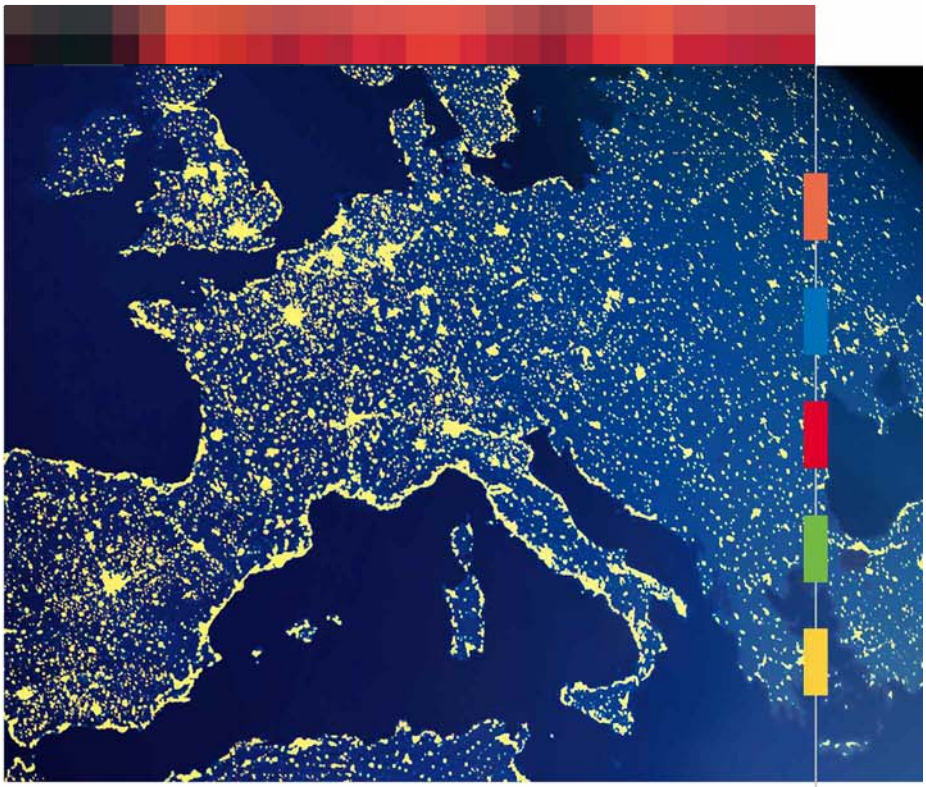
KIRSCH
energy systems



IN THE RIGHT PLACE. AT THE RIGHT TIME.

STANDBY SYSTEMS

SPECIAL GENERATING SETS

TRACTION SYSTEMS

COMBINED HEAT&POWER STATIONS

SERVICE

REFERENCE LIST

GENERATING SETS FOR TRACTION SYSTEMS

ABOUT THE ENERGY THAT MAKES US GO.

System solutions for generating sets: this is definitely the most concise way to sum up our work. Yet it doesn't really do justice to what we have been doing day in and day out for over 60 years. Because the quality of our work depends not only on what we do, but also on how we do it, which is what really makes the difference at KIRSCH.

Mobile solutions, stationary solutions, or more precisely, standby systems, special generating sets, traction systems and combined heat and power stations: these are clearly defined tasks that we keep facing anew because we are guided by our customers' unique specifications – and not, for example, by rigid product categories.

Our maxim: a system solution from KIRSCH is always a solution for the customer. That is why we start each project with an intensive consulting phase in which we view the task at hand from various angles as an indispensable first step toward achieving the best possible results.

THINKING ON MULTIPLE LEVELS

– A SKILL WE PRACTICE SYSTEMATICALLY.

It takes flexibility to devise custom-tailored problem solutions under constantly changing conditions – from planning all the way to final implementation. Especially in demand is our ability to think on various technical levels and link together different areas. This is an ability that we love to demonstrate when developing new products. It has spawned a long list of innovations.

The initial requirement is a team of highly qualified engineers and other specialists. People who are imbued with a heavy dose of passion, ambition, pioneering spirit and willingness to pitch in and give everything they've got. And our ability to get enthusiastic about every new project is especially obvious each time we put a new KIRSCH system solution through its paces.

CHRONOLOGY

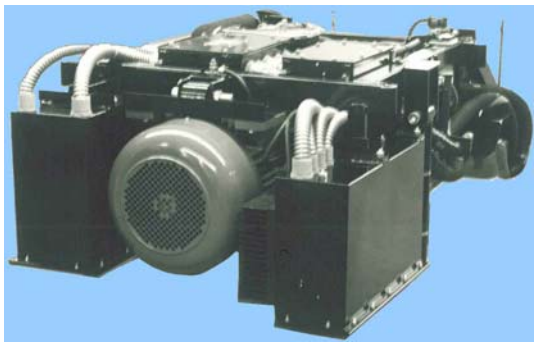
- 1945 Foundation
- 1959 Development of double-insulated welding transformers
- 1965 Development of portable generating sets
- 1970 Development of standby systems
- 1975 Development of capacitor-excited asynchronous generators
- 1980 Development of generating sets to meet military specifications
- 1990 Development of special systems, peak load plants and combined heat and power stations
- 1999 Development of PME (Permanent Magnetic Excitation) and VSCF (Variable Speed Constant Frequency) generating sets
- 2003 Development of APU (Auxiliary Power Units) to comply with the current European exhaust gas standard
- 2008 Takeover by the PRETTL Group
- 2009 Development of various hybrid systems

Chronologic Overview

Engine producer VW

Production from 1973 - 1991 more than 200 Generating Sets

Nominal power 25 kW - 40 kW



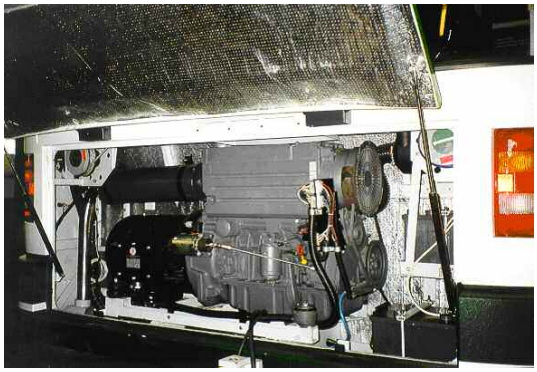
Location/City:
Bern (CH)
Geneva (CH)
Lausanne (CH)
Luzerne (CH)
Zurich (CH)
Pilsen (CZ)
Arnheim (NL)
San Francisco (USA)

Engine producer DEUTZ

Production from 1994 - 2004 more than 100 Generating Sets

Nominal power 40 kW, 45 kW and 60 kW

Location/City:
Montreux (CH)
Bern (CH)
Biel (CH)
Pilsen (CZ)
Solingen (DE)
Arnheim (NL)
Milan (IT)
Modena (IT)



Engine producers DEUTZ and IVECO

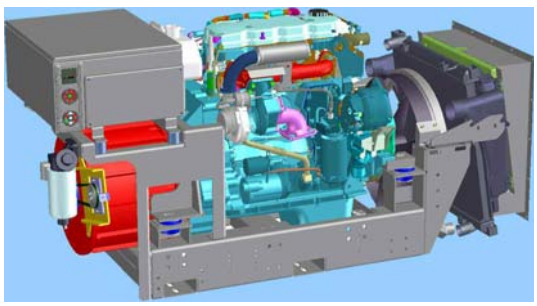
In Service of transport companies of the following cities:

Arnheim (NL)
20 units APU 50 DPE 2000 - 2002
Nominal power: 50 kW
Nominal voltage: 745 V DC
Engine: DEUTZ 1011

Bergen (NO)
6 units APU 80 DIPME (Euro III) - 2003
Nominal power: 80 kW
Nominal voltage: 708 V DC
Engine: Iveco NEF

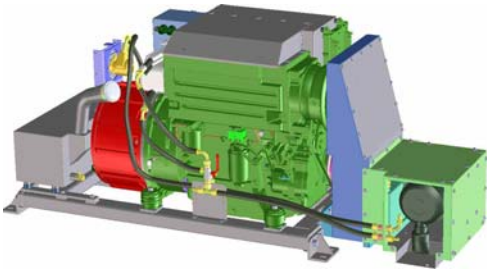
Geneva (CH)
48 units APU 50 DPE (COM II / EPA II) 2004 - 2006
Nominal power: 50 kW
Nominal voltage: 745 V DC
Engine: DEUTZ 2011

Luzerne (CH)
10 units APU 80 DIPME (Euro III) - 2006
Nominal power: 80 kW
Nominal voltage: 708 V DC
Engine: Iveco NEF



Luzern (CH)

3 units APU 50 DPE 2006
Nominal power: 50 kW
Nominal voltage: 745 V DC
Engine: DEUTZ 2011



Napeles (IT)

10 units APU 80 DIPME (Euro III) - 2004
Nominal power: 80 kW
Nominal voltage: 708 V DC
Engine: Iveco NEF

Minsk (BY)

1 unit APU 100 DIPME (Euro III) - 2006
(Prototype)
Nominal power: 100 kW
Nominal voltage: 700 V DC
Engine: Iveco NEF

Salzburg (AT)

8 units APU 50 DPE (COM II / EPA II) - 2004
Nominal power: 50 kW
Nominal voltage: 745 V DC
Engine: DEUTZ 2011

Skoda (many cities in CZ and SK)

40 units APU 100 DIPME (Euro III) 2004 - 2006
Nominal power: 100 kW
Nominal voltage: 700 V DC
Engine: Iveco NEF

Solingen (DE)

35 units APU 80 DPE 2000 - 2002
Nominal power: 80 kW
Nominal voltage: 600 V DC
Engine: DEUTZ 1013

Winterthur (CH)

10 units APU 100 DIPME (Euro III) - 2005
Nominal power: 100 kW
Nominal voltage: 700 V DC
Engine: Iveco NEF

Zurich II and BIEL (CH)

29 units APU 50 DPE (COM II / EPA II) - 2007
Nominal power/-voltage: 50 kW/745V DC
Engine: DEUTZ 2011

Zurich (CH)

17 units APU 50 DPE (COM II / EPA II) - 2006
Nominal power: 50 kW
Nominal voltage: 745 V DC
Engine: DEUTZ 2011

Model - Euro IV

Lecce (IT)

12 units APU 80 DIPME / EURO IV - 2007
Nominal power: 80 kW
Nominal voltage: 708 V DC
Engine: Iveco NEF; EURO IV

San Remo (IT)

2 units APU 80 DIPME / EURO IV - 2007
Nominal power: 80 kW
Nominal voltage: 708 V DC
Engine: Iveco NEF; EURO IV

Debrecene (HU)

11 units APU 100 DIPME / EURO IV – 2007
Nominal power: 100 kW
Nominal voltage: 708 V DC
Engine: Iveco NEF; EURO IV

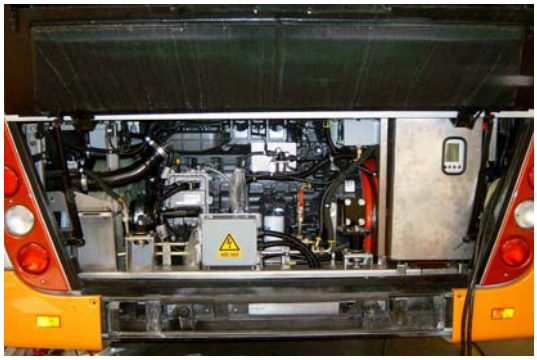
Riga (LV)

90 units APU 100 DIPME / EURO IV – 2007/08/09
Nominal power: 100 kW
Nominal voltage: 708 V DC
Engine: Iveco NEF; EURO IV

Model - Euro IV

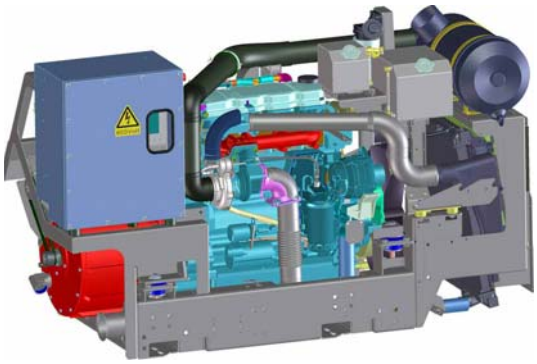
Genua (IT)

17 units MPU 175 DIPME / EURO IV - 2007
Nominal power: 100 kW
Nominal voltage: 708 V DC
Engine: Iveco NEF; EURO IV



Timisoara (RO)

50 units APU 100 DIPME / EURO IV – 2007/08
Nominal power: 100 kW
Nominal voltage: 708 V DC
Engine: Iveco NEF; EURO IV



Skoda (CZ und SK)

8 units APU 80 DIPME EURO IV - 2007
Nominal power: 80 kW
Nominal voltage: 708 V DC
Engine: Iveco NEF; EURO IV

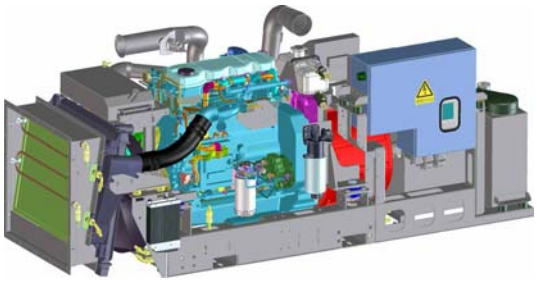
Minsk (BY)

1 unit APU 100 DIPME / EURO IV – 2008
Nominal power: 80 kW
Nominal voltage: 708 V DC
Engine: Iveco NEF; EURO IV

Model - Euro V
actually in manufacturing process

Mailand (IT)

50 units APU 100 DIPME / EURO V – 2008/09
Nominal power: 100 kW
Nominal voltage: 708 V DC
Engine: Iveco NEF; EURO V



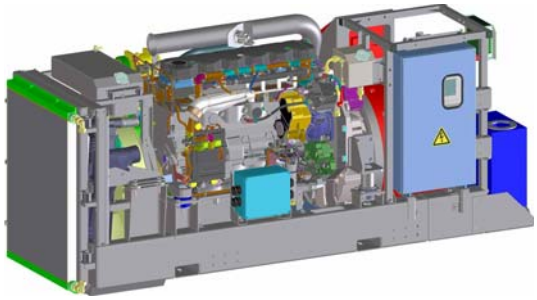
Solingen (D)

15 units APU 100 DIPME / EURO V – 2008/09
Nominal power: 100 kW
Nominal voltage: 708 V DC
Engine: Iveco NEF; EURO V

Current projects

Rimini (IT)

7 units MPU 175 DIPME / EURO IV – 2007
Nominal power: 175 kW
Nominal voltage: 700 V DC
Engine: Iveco NEF; EURO IV



St. Gallen (CH)

24 units APU 50 DPE – 2008/09/10
Nominal power: 50 kW
Nominal voltage: 745 V DC
Engine: DEUTZ; COM III / EPA III

Luzern (CH)

16 units APU 50 DPE – 2008/09
Nominal power: 50 kW
Nominal voltage: 745 V DC
Engine: DEUTZ; COM III / EPA III

Hybrid- and Duo- Buses

Eindhoven (NL)

12 units KIRSCH PME- Alternator
D 150 PME 2000 - 2003
Nominal power: 150 kW
Engine: Liquid gas engine
Generating set for charge of battery set and direct supply of the drive engines of hybrid buses Phileas - APTS

Fribourg (CH)

9 units G 175 DMPME / EURO III 2003
Nominal power: 175 kW
Nominal voltage: 600 V DC
Engine: MAN D0836
Generating set for electrical power supply of the duo - buses, outside of overhead net

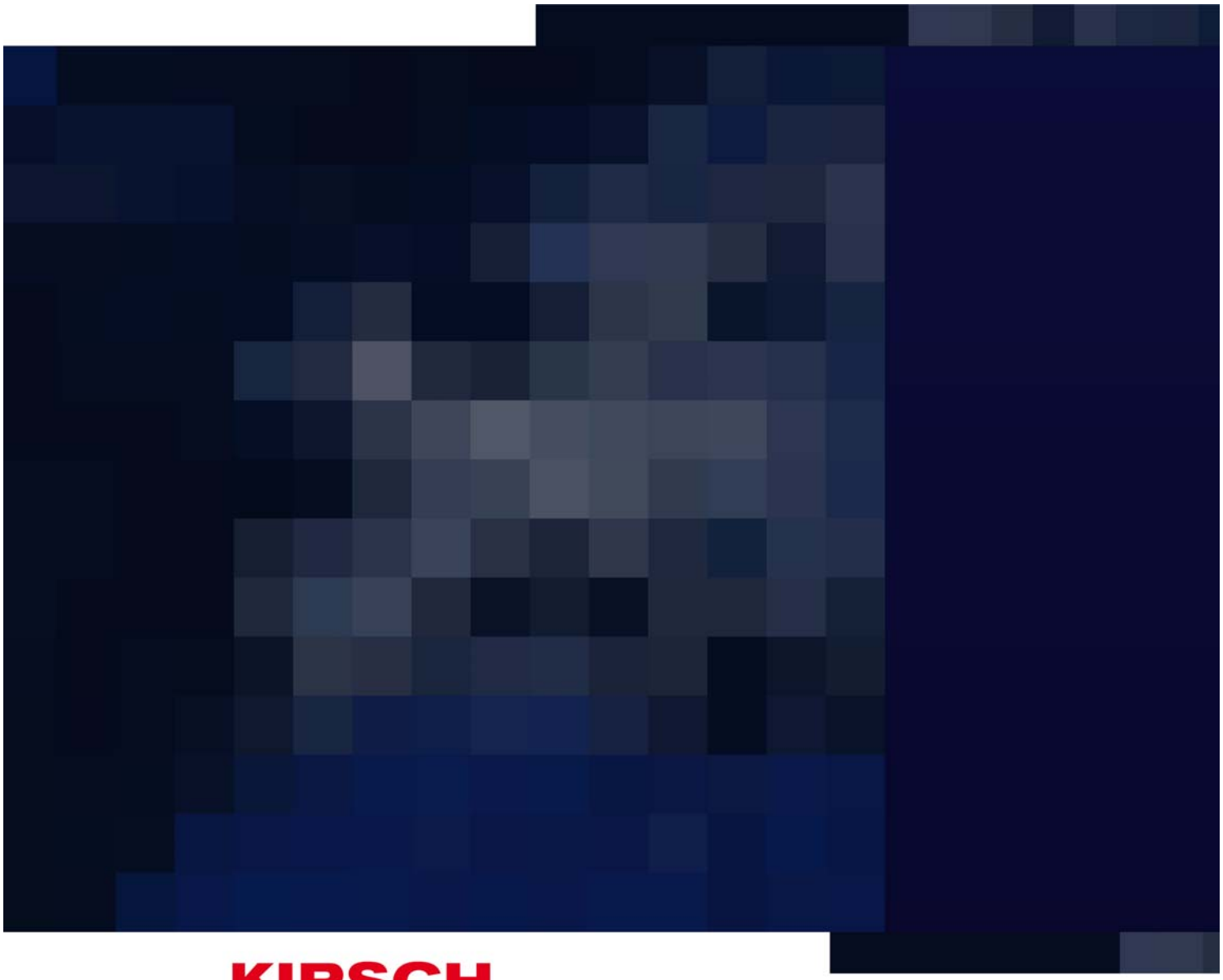
Hybrid- Locomotive

Alstom

1 unit MPU 200 DDPME (COM III A) - 2006 (Proto type)
Nominal power: 200 kW
Nominal voltage: 600 V DC
Engine: DEUTZ TCD 2013
Generating set for electrical power supply of the Alstom hybridlocomotive BR 202

Hybridbus: HESS - KIEPE

KIRSCH PME- Generator D 200 PME – 2008/09
Nominal power: 200 kW
Engine: Scania Diesel
Generating set for charge of battery set and direct supply of the drive engines of HESS hybrid bus



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