Welcome to SOLVIS.

The new heating.
Development of the product.

<table>
<thead>
<tr>
<th>Year</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>solarheating for swimming pools</td>
</tr>
<tr>
<td>1988</td>
<td>solarheating for tap water</td>
</tr>
<tr>
<td>1996</td>
<td>solarheating combined for heating and tap water</td>
</tr>
<tr>
<td>1998</td>
<td>solarheating SolvisMax gas</td>
</tr>
<tr>
<td>2001</td>
<td>solarheating SolvisMax oil, adjoining pellet heating</td>
</tr>
<tr>
<td></td>
<td>energy manager SolvisMax</td>
</tr>
<tr>
<td>2004</td>
<td>SolvisMax system heat pump</td>
</tr>
<tr>
<td>2007</td>
<td>SolvisMax system distric heating</td>
</tr>
<tr>
<td>2011</td>
<td>SolvisLino 3</td>
</tr>
<tr>
<td>2012</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td></td>
</tr>
</tbody>
</table>
History of the company.

<table>
<thead>
<tr>
<th>Year</th>
<th>Event Description</th>
<th>Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>formation of Solvis</td>
<td>5 employees</td>
</tr>
<tr>
<td>1988</td>
<td>formation limited partnership (Kommanditgesellschaft)</td>
<td>34 employees</td>
</tr>
<tr>
<td>1994</td>
<td>nationwide service network</td>
<td>34 employees</td>
</tr>
<tr>
<td>1998</td>
<td>zero emission factory</td>
<td>91 employees</td>
</tr>
<tr>
<td>2002</td>
<td>absorber production at Solvis</td>
<td>150 employees</td>
</tr>
<tr>
<td>2006</td>
<td>sales company in Spain</td>
<td>300 employees</td>
</tr>
<tr>
<td>2010</td>
<td>25 years Solvis</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The new heating.
Solvis 2012.

- unique concept for solar heating system
- 64 million € business volume in 2011
- ca. 280 employees, including 35 shareholders
- 29 sale agencies and 29 service partners in Germany
- subsidiary company in Spain
- sale agencies in Italy, Portugal, Belgium, Luxembourg, Austria, Switzerland, Baltic States, and Greece
- Europe’s largest zero emission factory
- the most energy-efficient commercial property in 2008
- technological leader of solar heating systems in Germany and Europe
Solvis sales areas.

The new heating.
Solvis business volume from 1988 to 2011.
Global energy reserves.

global energy demand per year

global uranium reserves

global gas reserves

global oil reserves

global coal reserves

solar energy per year
Price development of different fuels in Germany.

source: Deutscher Energie-Pellet-Verband e.v.
Energy consumption in a regular domestic home.

- **heating**: 75%
- **hot water**: 12%
- **electricity**: 13%

Source: dena
Comparing 1 m² solarheating to 1 m² photovoltaics.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 m² solarheating</td>
<td>ca. 500 kWh/a</td>
<td>demand for heat: ca. 87%</td>
</tr>
<tr>
<td>1 m² photovoltaics</td>
<td>ca. 100 kWh/a</td>
<td>demand for electricity: ca. 13%</td>
</tr>
</tbody>
</table>
Massive reduction of energy costs.

- **50%** with **SolvisMax** with solar heating
- **33%** with **SolvisMax Pur**
- **18%** with **standard heating system** with caloric value
- **standard heating system:** no reduction of costs

*The new heating.*
An example.

Family home, Salzgitter-Gebhardshagen, year of construction: 1985
110 m², 4 people

heating upgrading in 2006:
solarheating SolvisMax gas 650 l,
2 collectors SolvisFera F-552 (11 m²),
Inside roof-installation

average demand of the old old heating to 2006:
3.900 m³ gas
demand of the new solarheating SolvisMax gas (2007):
1.800 m³ gas

54 % fuel + 54 % CO₂ reduction!

A comment of the customer/owner:
“The Solvis-partner made us feel secure, we gave ourselves in the best possible hands. I am totally satisfied with the whole project.”
Why should we rely on solar energy?

- the largest and the most secure energy source for at least a few billion years.
- clean and for free: no emissions and no hidden costs.
- think local: the energy is used where it is produced.
- no use of imported fossil energy: independence of politics, crisis and rising prices.
- solar heating systems are effective and have a long-life guarantee.
- solar energy creates and secures workplaces.
- increases the value of the property.
- saving resources and the environment.
The products.

SolvisMax

Solar collectors

SolvisLino 3

SolvisDirekt and SolvisVital

The new heating.
Energy management at its best.

- Solar collector
- Gas with caloric value
- Oil with caloric value
- Heat pump
- District heating
- Pellet (Solvis Lino)
- Furnace
- Combined heat and power plant
- Hot water
- Heating
- Washing machine
- Dish washer
- Swimming pool

The new heating.
The unique flexible system.

<table>
<thead>
<tr>
<th>solarheating SolvisMax</th>
<th>heating SolvisMax Pur</th>
<th>solarstorage SolvisMax Futur</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Diagram" /></td>
<td><img src="image2.png" alt="Diagram" /></td>
<td><img src="image3.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>

**the perfect solution.**

Start reducing the energy costs dramatically with the Solvis Max solarheating system.

**add the collector later.**

Get the new heating system first and add the collector later.

**add the burner later.**

Leave the (old) heating system at work and add the efficient collector. The flexible system allows to integrate a new burner into the storage later.
This is how the system works.
Stratified storage.

The new heating.
Caloric value.

- **Old heating system:**
  - Annual use efficiency: 68%
  - (incl. water heating at summer operation)

- **Caloric value heating system:**
  - Annual use efficiency: 92%
  - (incl. water heating at summer operation)

- **SolvisMax Gas:**
  - Annual use efficiency: 106%
  - (incl. water heating at summer operation)

**Consumption**

- **Old heating system:** 4,000 m³ gas/a.
- **Caloric value heating system:** reduced to 3,000 m³ gas/a.
- **SolvisMax Gas:** reduced to 2,600 m³ gas/a.

The new heating.
The assembly of a solar heating collector SolvisFera.

- mirotherm®-absorber
- isolation
- pipe system
- aluminium rear panel
- solar safety glass
- aluminium framework

The new heating.
Maximum efficiency: evacuated tube collector.

1 sunlight
2 special glass tube
3 high selectiv laminated inner tube
4 vacuum
5 copper tube
6 heat conduction layer (aluminium)
7 ceramic laminated mirror

- vacuum for minimal heat loses
- ceramic laminated mirror: high efficiency and weather resistant
- up to 25% more earnings compared to a plain collector
The compact collector SolvisCala.
SolvisFera in Geesthacht near Hamburg.
Join the Solvis family.

Bachelor and master assignments

**these are the assignment offerings:**
- large solar/heating plants
- SolvisMax heat pump
- collector development/sun simulation
- SolvisMax pellet
- solar cooling Solare Kühlung
- Development and improvement SolvisMax

**what we are looking for:**
- you already passed most of your exams
- Aim of your Studies: energy or mechanical engineering
- six month time for your assignment
- you are adept at working with your hands

**what we offer you:**
- individual assistance
- self dependent working eigenverantwortliches Arbeiten
- volle Einbindung in die Arbeitsprozesse
- Solvis payment
Zero emission factory.
Upgrade a zero emission factory to a solar energy factory.

- photovoltaics: 120 kW → 320 kW
- Combined heat and power plant (BHKW)
  160 kW therm.
  100 kW el.
- Heat storage: 100,000 l
  8,000 l
- Laser welding
- Absorption cooling
- Exhaust air heat pump
- Heat recovery
- 180 m² solar collectors
- Rapeseed oil
- Rejected heat

The new heating.
Thank you for your attention.

... here are a few of our rewards earned