

# VOEN

VÖHRINGER GmbH & Co KG

**COVERING SYSTEMS**

- Rain Proof
- Wind Proof
- Hail proof
- Easy assembly
- Optimal microclimate
- Reliable bird protection
- Insect protection
- Frost protection



**Professional  
Covering Systems  
for Stone Fruits  
and Berries**



VÖHRINGER GmbH & Co KG

---

COVERING SYSTEMS

## Your Competent Partner for Covering Systems and Services.

The demands on manufacturers by customers, representatives and dealers rise continuously. Profitable prices can only be achieved with absolutely top class products, which are reliably available to the marketing partners for a continuous and long period of time. Within the interaction of the four essential factors:

- **growing conditions,**
- **assured production,**
- **marketing and**
- **customer,**

we would like to be a building block for a successful cultivation of stone fruit and berries with our covering systems and services. This catalogue is to show you our whole spectrum of products and services. You will be convinced, as we are, that our covering and tunnel systems can be that building block to your success.



Self-venting VOEN covers near Lake Constance / Germany

Since the year of foundation in 2002 we have specialized in the development and distribution of covering systems with our worldwide patented VOEN mesh covers.

Born from an idea by Reinhard Vöhringer to develop a new covering system, which in addition to protect the crop from rain, hail, frost and wind, is also promoting the growth and health of the crop, our company has grown over the years into one that is worldwide active in the market place.

Important factors for our development:

- **high quality of materials**
- **distinctive range of services**
- **trustful cooperation between customers and suppliers**

Meanwhile, we have satisfied customers in more than 20 countries with a covered area of several 100 hectares.

For the production of individual system components we trust in local companies.

Local production means to us:

- **high quality**
- **long established relationships, that guarantee flexibility and availability of products**
- **prompt deliveries**
- **continuous improvement of our covering systems in consultation with our partners**



# Covering Systems –



The VOEN mesh cover offers a maximum light transmission up to 82% for the covered crop.

## Rainproof – Windproof – Hailproof

Similar to a tiled roof, sheets of mesh cover are stitched overlapping onto a carrier fabric (hail net). Because of the steep gradient, rain water and hail can run off into the valley. During strong wind and storm conditions, the covers do not offer resistance, because the sheets move with the wind.

## Healthy Growth of Crops – Best Stability

Permanent ventilation ensures an optimal microclimate below the covers, so that the plants can grow healthily without any stress of heat. Positive results of this climate mean a reduced pressure from diseases, pests and minimal risk of fungal infestation.

The overall pressure on tension of the covering system is very small, as the wind can be dispersed across the orchard.

Because of this conservation, a longevity of structure and covers can be guaranteed.



The pollination of flowers is also possible with "closed roof" without any problems.

# for Stone Fruit and Berries



## Simple and Quick – Construction in Steel, Wood and Concrete

The construction of the VOEN covering system with steel, wooden or concrete poles offers great flexibility. The height of the construction is adapted to the topographical circumstances, and depending on its location and crop is between 3 metres and 5 metres high.

Because of the flexible production of the mesh covers, orchards with row spacings between 2 metres (narrow berry planting) and 6 metres (wider cherry planting) can be covered. Slopes with a steep gradient, independent from the planting of the rows vertically or horizontally across the slope, present no obstacle to structure or covers.



### Your Advantages:

- quick construction and dismantling
- variable in structure height and row spacing
- few assembly items
- favourable cost due to intense self contribution
- no cables in the valley (along and across)
- no eyelets, snap hooks or expanders

### Steel Construction:

- durability for decades
- structure can be dismantled easily and replaced elsewhere
- no requirement for heavy machinery

### Wood Construction:

- maximum amount of safety and stability
- slowly grown Scandinavian poles
- cost effective





## Secure Anchoring – also in Difficult Ground Conditions

Depending on the ground condition suitable anchors are chosen. Choosing the correct anchor ensures security for your VOEN covering system.

- screw anchors for soft and sandy ground without stones
- impact anchors for stony ground
- short screw anchors with extra large diameter for especially difficult ground
- custom made anchors upon request

## Installation of Covers – Uncomplicated and Time Efficient

The self ventilating VOEN covers are fixed with specially designed top clips to the top cable, and secured in the valley with joining clips.

This fixation enables quick and efficient work with a high level of security and stability.

In close cooperation with a manufacturer of farm machinery, we have developed a special fruit wrap machine for fixing the covers, to enable you to save even more time.



Double benefit: the top clip fixes to the VOEN plastic and also the black protection plastic during the summer.

## Flexible Production of Covers – Always the Appropriate Size

For each project the width of the covers is manufactured determined by aspects such as row spacing, topography or weather conditions. The appropriate width of the covers assures the drainage of rain in the valley, therefore preventing formation of rain pockets etc.

- width of covers is adapted according to the gradient of the slope
- width of covers is tailored to the spacing between rows
- sheets of mesh cover can individually be either stitched closed or self ventilated
- special one sheet construction for berry cover systems
- sheets with differing width of net within the valley area





The joining clip V10 is installed at a distance of 80 cm. This way bird protection is secured.

## VOEN Top Clips

- conical shape means a maximum of clamping power
- ease of assembly and dismantling without the use of tools
- clips consists of only two parts
- diameter of cable up to 6mm possible
- suitable for any type of covers or materials

## VOEN Joining Clip V10

- one-off installation of clip and hibernation in the orchard
- quick opening and closing of covers and netting in the valley
- additional stabilisation in the joining area through implementation of a cable
- special clamping tool for fast installation



**Calmed joining area!**



## Complete Bird and Insect Protection



The VOEN covering system offers a range of options to protect the covered crop in addition to weather condition also from birds, wasps and insects (SWD). In new constructions there is the possibility to add a covered cage to the front faces of the system, to move freely in the enclosed system during mulching or spraying.

- bird and insect netting in varying mesh sizes available
- netting is integrated onto the existing cover with little effort
- roll system for easy rolling and unrolling of side netting in headlands



Secure bird- and insect protection for new and already installed VOEN covering systems.

## Cherry Fruit Fly and SWD Secure System for Organic Fruit Production

To guarantee protection against the penetration of insects, netting, in addition to the side netting, is required in the roof as well as the valley area. The specific construction of the covers consisting of base netting with stitched sheets of mesh covers offers unique flexibility. The mesh covers can be variably manufactured depending on the insect risk and planted crop.

- the entire roof covers can be fitted with a finely meshed insect net
- final sheet of netting to be fitted with fine mesh size for reduced risk of insects
- increasing the width of the final sheet of netting to create a hanging net curtain for maximum security in the valley
- drainage of the system during heavy rain fall and hail unrestricted
- air circulation and automatic ventilation maintained





Hibernated VOEN covers in an organic cherry orchard.

## Protection of Covers During Winter

The wrapped covers are hibernated onto the top cable within the orchard. The VOEN covers are secured to the top cable with bungee cords and are protected by black protective plastic for many years.

Combined with the joining clip V10 a quick response, especially at danger of frost, is possible. The roof structure can be closed within a short period of time.

### Advantages of Hibernation of Covers within the Orchard

- quick response and opening of covers
- use of high quality UV stable PE plastic
- one-off assembly for the protective covers
- no stretching and risky cutting of protective covers required
- no disposal requirement
- unproblematic retrofit to existing systems possible
- time and cost efficient
- insect and bird netting can also be hibernated in the orchard



The hibernation wagon "Cover Master" offers enormous time-savings because of quick work flow when covers are hibernated.



# VOEN Covering System for Single Rows



VOEN covers for single rows are used for many years to protect raspberries in Austria.

## The VOEN Single Row Covering System

- especially suitable for crops with frequently changing sites or small parcels of land
- offers protection for all berry crops and vines as well as shrub crops and vegetables
- due to the low height of the construction, cross cables are therefore not necessary, a very time and cost efficient construction is possible
- the wooden construction can simultaneously be utilised as a planting structure or for attaching the crops, construction can be done yourself



## Advantages of the VOEN Single Row Covering System

- permanent ventilation of the covered crop
- no heat built up below the covers
- optimal microclimate also on hot summer days
- high storm resistance during extreme weather conditions
- hail protection
- sun protection
- bird and insect protection, retrofitting any time possible
- installation possible in orchards with high gradient

## Easy Assembling

- wire construction with wooden poles, positioned at 8m distance
- wooden construction can be used for crop protection as well as attaching the trees
- lateral yoke on each pole for fixation of two tension cables
- the top cable is tensioned with a ground anchor at the end of the row
- the single sheet VOEN cover is fixed to the top cable with top clips, and additionally clipped to the two tension cables
- the covers have a ventilation area of 60cm on both sides, solid covers are used at the ridge
- the flexible wooden construction can be installed in orchards with high gradient without any problems



**Insect protection!**

# VOEN Tunnel Systems



Permanent covers ensure healthy flowering without frost damages.

- Simple Construction
- Automatic Ventilation
- Highly Variable

Because of the easy exchange of covers using a zip system and unrestricted dimensions for tunnel hoops the VOEN tunnel system is the ideal solution for the cultivation of fruits, vegetables, ornamental plants and cut flowers.

By use of the patented VOEN mesh covers on the sides we offer for the first time a tunnel with **automatic and permanent ventilation**.



Permanent ventilation and secure insect protection – VOEN offers both options to you.



## Complete Bird and Insect Protection with Simultaneous Permanent Ventilation

In conventional polytunnels the risk of infestation in the crop is especially high during ventilation periods, on the other hand ventilation of the tunnel is imperative for the healthy growth of the crop. The VOEN tunnel system with the fine mesh insect netting on the side ventilation panels prevents penetration by birds, wasps and insects (SWD).

Nonetheless, the patented construction of the covers enables a continuous ventilation of the tunnel.

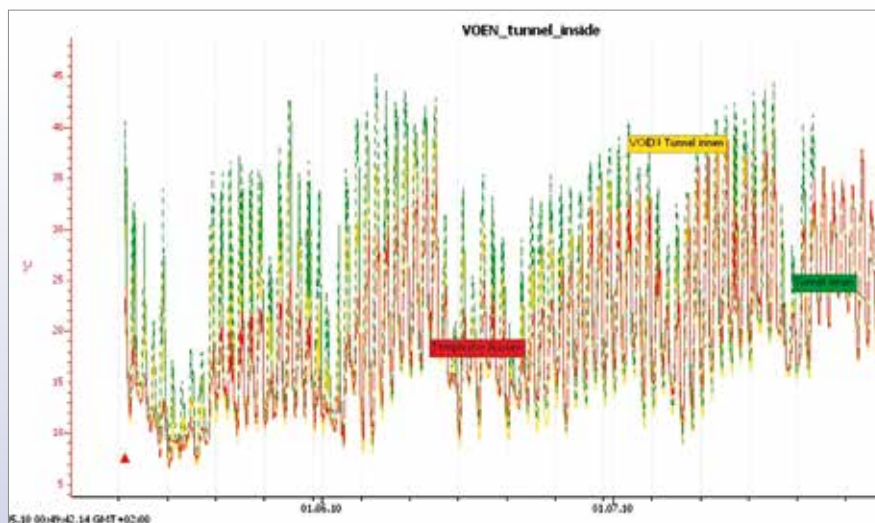
- Depending on the pressure posed by insects the entire ventilation cover sheet, or only the lower part, can be fitted with insect netting.
- organic cultivation of fruit and vegetables possible
- optimal microclimate achieved through permanent ventilation
- simple form of attaching insect netting on the front faces completes the insect protection



The new self-venting VOEN tunnel on apricots in a research station at Lake Constance / Germany.

### Advantages of the self-ventilating tunnel system

- continuous ventilation
- reduction of the temperature inside the tunnel
- avoidance of built up of heat
- no condensation
- plants can grow healthily without heat stress
- regulation of humidity
- reduced threat of fungal and other diseases
- economy of time and labour, no manual ventilation required



Temperatures in closed polytunnels are about 2 to 4° Celsius higher compared to polytunnels with VOEN venting covers at the sides.

## Variable Tunnel Construction – Simple and Uncomplicated Installation

Depending on whether you require a movable tunnel for strawberries, a tunnel for premature ripening of crops or an all-year-round tunnel for apricots and berries, we offer the appropriate tunnel structure.

- use of quality steel hoops made in Europe
- the two part hoops are preshaped, predrilled and easily transportable
- simple installation of the tunnel hoops on small ground anchors
- the customer can self install the tunnel construction
- diagonally fitted strong struts and a top cable offer high stability

### Overview of Advantages

- individual width and height of tunnel
- robust construction for highest level of security
- VOEN self ventilating covers for optimal climate inside the tunnel promoting healthy growth of crops
- first tunnel system with automatic ventilation with complete insect protection (SWD – Spotted wing drosophila)
- type of cover freely selectable and combinable due to zip system
- simple installation of construction and covers, as well as quick replacement of covers
- use of tunnel for premature ripening and/or cold and protection
- suitable for fruit, vegetables, ornamental plants and cut flowers
- practical experience shows a notable reduction of use of chemicals, especially fungicides, due to the microclimate

The hoops can be individually adjusted in width and height. Depending on final use the dimensions of the poles in regard to diameter and wall thickness can be adjusted.

- use of thinner dimensioned poles for movable and premature ripening tunnels
- variable widths and heights
- snow load secure construction for all-year-around closed tunnels available
- highest stability of tunnels due to „gothic-style“ shaping of the hoops



The „gothic“ shape of tunnel hoops offers an efficient use of space.



# VOEN Service Package

## Competent Service – From Planning to After Care

In addition to the use of high quality system components we focus on an all-encompassing service package.

We offer from the first personal consultation to the finished installation of the covering system a wide range of services, depending on your requirements.

### Planning

- measuring of the area in person in situ
- individual consultation and planning
- detailed offer with precise costing for materials
- choice of suitable anchors in dependance of local topography

### Delivery of Materials

- organising of transport for our customers
- coordinating delivery dates according to customer requirements
- palletised freight for ease of unloading
- cooperation with long established partners

### Construction Support

- competent attendance of our head technician, if required
- coordination of date of construction with customer
- provision of tools and machinery (anchor drill)
- arrangement/hire of fruit wrap machine for installation of covers

### After Care

- fast and uncomplicated processing of complaints
- fast delivery of additional materials
- contact person for all questions and problems
- cost efficient disposal of old covers



Advice and support from VOEN technicians provides optimum stability and security for the covering system.



VOEN covers are installed with the fruit wrap machine in only two work steps within a short time.

# VOEN Experiences



## Successful Growing – High Fruit Quality



Raspberries benefit from the well-ventilated VOEN roof. Through that Botrytis decay can be almost completely minimized.

»The covers are flexible and light, the netting is stitched well onto the covers. The climate is very good during the growth period, good ventilation throughout the orchard. We have not had split fruit, but good sizing of fruit and no stress during harvest. «

Fruit Farm Schmidt, Styria / Austria

»No problems with the steel construction, all materials are ok. We roll up the covers to the top at the end of the season and hibernate them in the orchard. «

Chicory Crops, Herefordshire / UK

»Construction of the wooden structure is no problem. We have noticed a stronger healthy growth of the trees. Harvest during rain is no problem. Working during heat is good. Harvest under covers is a little later, no stress during harvest time. «

Fruit Farm Osowski, Samborzec / Poland





VOEN covering system on cherries in Norway

»The steel construction is very simple, the materials met our expectations. Putting up the covers and taking them down is very comfortable work with the use of the fruit wrap machine. Better ripening results and higher fruit weight. «  
Fruit Farm Huemer, Scharten / Austria

»The construction of the wooden structure went well, no problems. The materials are of high quality. The crop is protected and dry, the fruit is big. «  
Fyvie Farming, Eastern Free State / South Africa



Apricots benefit from the dry and ventilated climate in VOEN tunnels. Pseudomonas is not a problem.



Blueberries in Croatia: Much more yield increase, healthy fruits and more volume of bushes.



# Projects – Worldwide



Great Britain

The challenges posed by the demands of international markets and more extreme weather conditions are growing for the producers of stone fruit and berries.

Differences in weather conditions and topographic specifications require a covering system, that is flexible enough to adapt to the prevailing circumstances. The simple construction and the variable width of the covers enable the use of the VOEN covering system worldwide.



Australia



Germany



## South of France

Topographically difficult conditions including rocky grounds, rows across the slopes and row spacing of more than 6m require a high level of adaptability of the covering system. Strong storms (Mistral) from the sea mean a maximum of stability of the covering system.

## Spain

Strong storms and high gradients within the orchard require the installation of additional security for construction and covers. The covers are fixed to the poles with bungee cords to avoid a „flipping up“ of the covers.

## Germany

Organic production of cherries requires mechanical protection against cherry fruit fly and SWD. The use of fine mesh insect netting near the ridge and the sides enables organic production in a protected environment. The cage allows free movement in the area.

The VOEN tunnel system offers automatic ventilation with complete insect protection. Because of all year weather protection, cultures such as apricots can be grown successfully. The strong tunnel construction can be flexibly self installed.

## Australia

Due to heat and the special dryness in the regions around Sydney, the covers, in addition to good ventilation, need to provide a reduction in heat within the orchard. The patented VOEN covers deliver convincing results.

## Chile

Extreme climatic conditions in the South along with high precipitation and strong winds demand special durability of the covers.

For many years the VOEN covering system convinces with durability and first class yields.



Spain



Canada



### VOEN – at home in many countries

- America
- Australia
- Chile
- Croatia
- Czech Republic
- France
- Germany
- Great Britain
- Netherlands
- Norway
- Poland
- Switzerland
- South Africa
- Turkey

# List of Components



## VOEN Mesh Covers

Self-ventilating mesh covers to protect stonefruit and berries against rain, hail, frost and wind.

Cover width and roll length on request.



### VOEN Mesh Covers for Single Rows

Width: 2,10 meter  
Roll length: 150,00 meter



### VOEN Top Clip

Two-part, conic clip to fix covers on the top cable.

Packaging unit: 300 pc. / box



### VOEN Cover Joining Clip V10

Easy mounting clip to connect covers and net in joining area. Possibility to hibernate in the system.

Packaging unit: 175 pc. / box



### 2 Points Clip

Use in woven fabric and nets.

Packaging units: 500 pc. / box



### VOEN Mounting Tool V10

Tool for easier assembling of cover joining clip V10



### Net Clip with Hook

It can be anchored directly to wires thanks to the hook located on the upper side and clipped to nets with a two clip point.

Packaging unit: 500 pc. / box



### Joining Clip

Model with key. Use if covers are removed annually.

Packaging unit: 350 pc. / box



### Clip "Magnum"

Use to stretch the net with elastic.

Packaging unit: 200 pc. / box

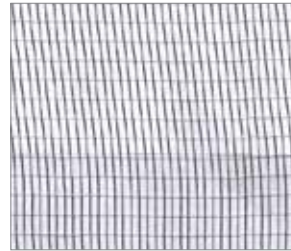




#### Plastic Clip with Screw

Use to fix plastic film with high resistance to weather distress. Special self-tapping screw included.

Dimensions: 70 x 60mm



#### Hail and Insect Net

Protection nets with different mesh sizes.

Sizes and roll length on request.

Colour: crystal or black



#### Wooden Pole, Milled

Slowly grown nordic pine. Origin: Scandinavia. Impregnated according to nordic standard

Length: 4,00m to 6,00m on request



#### Top Fixing Plate for Wooden Poles

Plastic caps incl. mounting parts suitable for poles up to 20cm diameter Pole caps also available without mounting parts.



#### VOEN Steel Poles

Galvanised steel. 60mm diameter incl. top fixing plate, ground anchor and steel plate.

Length: 3,30m / 3,80m / 4,50m / 5,00m.



#### Steel Cable 6,00mm / 8,00mm

Galvanised litz wire with steel core and high tensile force. Origin: Europe. Cable bracing system for hail net and cover systems.

8mm cable: 500m / roll

6mm cable: 1.000m / roll



#### VOEN Top Fixing for Steel Poles

Complete mounting parts for steel poles to fix top row and transversal cables on top of the pole.



#### Cable Tensioner with Shackle

Secure tensioning of top row and cross cables. Incl. blocking screw and shackle. All parts also separately available.



#### Perimeter Ground Drill Anchors 1,00m / 1,60m

Stable drill anchor with welded eyelet for anchoring at perimeter sides. Length of steel bar: 1,00m / 1,60m Diameter of disc: 20cm / 25cm / 30cm



#### VOEN Top Tensioner

Secure tensioning of top row and cross cables on top of VOEN steel poles. Incl. blocking screw.

**Innovation**



#### Impact Ground Anchor 1,60m

Anchor for stony and gravelly soil structure to be hammered in the ground. Extra large plate for anchoring at perimeter sides.

Length of steel bar: 1,60m



#### Cable Clamps 6mm / 8mm

Galvanised. Suitable for steel cables with 6mm to 8mm diameter.

6mm: 100 pc. / box

8mm: 50 pc. / box



#### **Hibernation Plastic, Black**

UV-resistant plastic. Use for several years to store and hibernate rain covers.

Width 80cm  
Packaging unit: 500m / roll



#### **Ferrule, Galvanised**

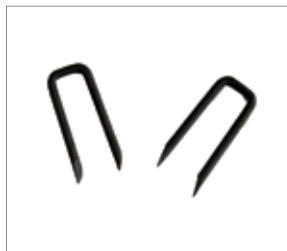
90mm diameter. Used in plastic caps for wooden poles to protect perimeter pole caps when steel cables are tensioned.



#### **VOEN Elastic with Wrapping Hooks**

Ready assembled. Use to wrap rain covers on top row cable before hibernating with black plastic.

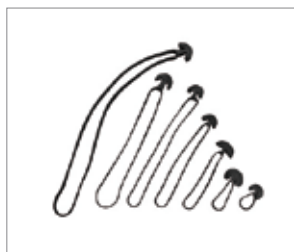
Length: 60cm / 70cm / 80cm  
Packaging unit: 200pc. / box



#### **Cramps, Galvanised**

Big model to fix steel cables and wires to wooden constructions.

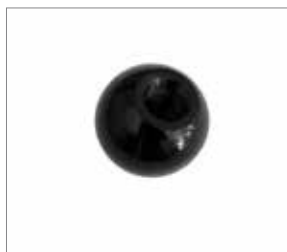
Packaging unit: 5kg / cca. 220 pc.



#### **Elastic Strap**

Used to fix black hibernation plastic on the top row cable.

Length: 90mm / 160mm / 230mm / 300mm



#### **PVC Ball**

with thread (M10) to protect covers and nets on perimeter sides



#### **Elastic Bungee, Black**

For connection of plastic and nets.

Packaging unit: 250m / roll



#### **Pipe Clamp with Screw Nut**

Suitable for 60mm steel tubes. Wires or steel cables can be fixed with pipe clamps to steel poles

Packaging unit: 50pc / box



#### **Connecting Hook, Black**

For connecting elastic bungees with clips or eyelets



#### **Steel Cross Bar**

1,60m width with drill holes at the sides to fix steel wires. Suitable for single row systems and trellis systems in orchards.

#### **Notes:**

---



---



---



---



## Your VOEN Contacts

No matter if you have a general question about our covering system, require an in depth consultation for your future covering project or technical advice during the realisation of your project, our team is here for you.

Because of us being active worldwide, we work closely with independent trade partners in some countries or regions, who are your competent contact for all question regarding our covering system.

## VOEN Head Office Germany

### Directors:



#### Reinhard and Doris Vöhringer

Tel.: +49 (0) 751 48742

Fax.: +49 (0) 751 45915

info@voen.de

### Sales:

#### Ferdinand Sailer

Tel.: +49 (0) 751 48742

Mob.: +49 (0) 173 881 83 75

Fax.: +49 (0) 751 45915

f.sailer@voen.de

#### Rainer Weiß

Tel.: +49 (0) 751 48742

Mob.: +49 (0) 176 10 58 99 67

Fax.: +49 (0) 751 45915

r.weiss@voen.de

### Finance/Logistics:

#### Petra Kempf

Tel.: +49 (0) 751 48742

Fax.: +49 (0) 751 45915

info@voen.de

### Northern Germany

#### Dirk Bohn



Tel.: +49 (0) 173 219 53 13

Fax.: +49 (0) 4775 212

dirkbohn@gmx.net

### Poland



#### Barbara Mocha

Tel.: +49 (0) 163 986 340 7

Fax.: +49 (0) 751 4 59 15

barbara.ma@web.de

### Switzerland Kurt Waldis GmbH



Tel.: +41 (0) 71 463 441 4

Fax.: +41 (0) 71 463 441 5

info@kurtwaldis.ch

### Czech Republic Tomas Hyttner



Tel.: +42 (0) 374 723 616

Fax.: +42 (0) 374 722 897

info@fortico.cz

### UK



#### Matt Foster

Tel.: +44 7887 747 917

Fax.: +44 1299 890 476

matt@mgflimited.plus.com

### Australia



#### Franklin Trouw

Tel.: +61 35364 2266

Fax.: +61 35961 9131

franklinhbt@gmail.com

### Chile



#### Mauricio Frias

Tel.: +56 75318068

mauricio@scsf.cl

## Our Partners

### Denmark/ Sweden



#### Henning B. Hansen

Tel.: +45 (0) 253 220 90

Fax.: +45 (0) 659 782 73

HBH194@os.dk

### Netherlands / Belgium Peter ter Sluysen



Tel.: +49 (0) 177 255 651 9

Fax.: +49 (0) 2182 570 875 9

peter@tersluysen.de



# VOEN

VÖHRINGER GmbH & Co KG

**COVERING SYSTEMS**

VOEN Vöhringer GmbH & Co. KG  
Aichach 1  
D-88276 Berg/Germany

Tel: +49 751 - 4 87 42  
Fax: +49 751 - 4 59 15

E-Mail: [info@voen.de](mailto:info@voen.de)

[www.voen.de](http://www.voen.de)

