



AVS  
RÖMER



## HPC charging stations

AVS Römer components for cooling technology  
for effective thermomanagement of liquids



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**AVS RÖMER, YOUR  
SPECIALIST FOR  
CUSTOMIZED SOLUTIONS!**

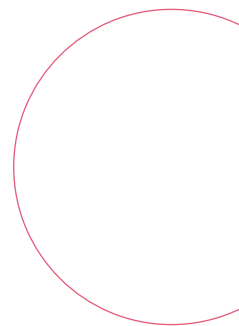
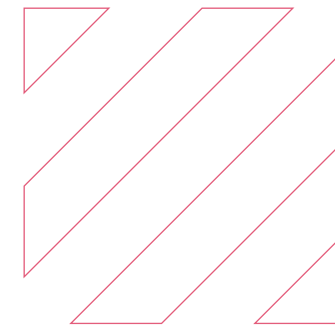


# At a Glance

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# The mobility of the future

## The challenge

AVS Römer components for cooling technology in High Power Charging stations (HPC) set new standards in liquid cooling. HPC charging stations are a key pillar of future mobility. Modern HPC stations achieve charging capacities of up to 500 kW, significantly reducing charging times and enabling smooth long-distance travel.

## Efficient cooling

High charging power generates considerable heat, both in the charging cables and charging station electronics. AVS Römer optimizes cooling technology for HPC stations with an innovative, holistic system of components that address the following challenges:

- **Extreme temperature fluctuations**  
In ambient and media temperatures
- **Highly aggressive media**  
With various chemical properties
- **Limited and predefined installation space**  
The more compact, the better
- **Durability and reliability**  
For a safe and cost-effective charging infrastructure



# AVS Römer cooling technology for HPC charging stations



## Our solution

With years of experience and technical expertise, we develop innovative components for cooling technology that are precisely tailored to the challenges of charging station cooling. Our individual consultation and careful planning set the highest standards for practical applications in cooling technology.

### ✓ **Comprehensive expertise**

AVS Römer provides in-depth knowledge in charging station and cable cooling, delivering the right solution for every requirement and system.

### ✓ **Specialist in material selection**

We assist in selecting suitable body and sealing materials for cooling with ester oils, mineral oils, silicone oils, and water-glycol mixtures.

### ✓ **Customer-oriented and customized**

We focus on close collaboration and partnership to develop solutions tailored to individual customer needs.

### ✓ **Everything from a single source**

From fittings and sensors to valves and pumps – we offer a comprehensive product portfolio and stand by our customers as a reliable partner.

### ✓ **Highest quality and reliability**

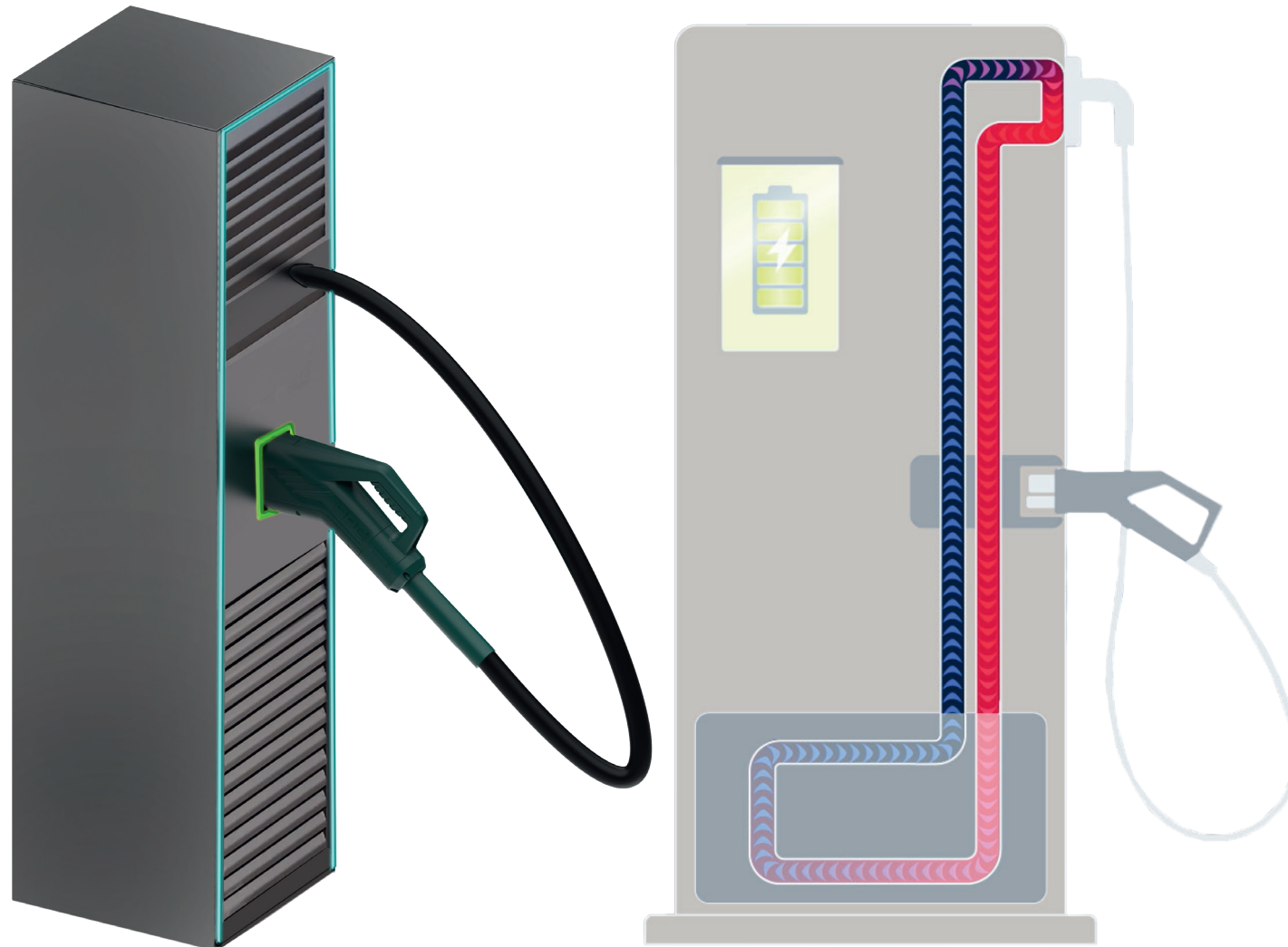
AVS Römer represents excellent product reliability, outstanding quality, and extremely durable solutions that meet the highest standards.

### ✓ **Compact design**

We provide intelligent product designs that minimize space requirements, even in confined installation spaces.

# AVS Römer components for cooling technology

## The application

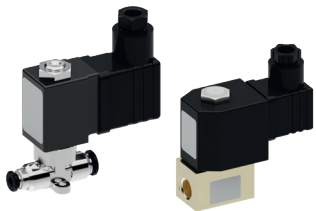


# AVS Römer components for cooling technology

## The application



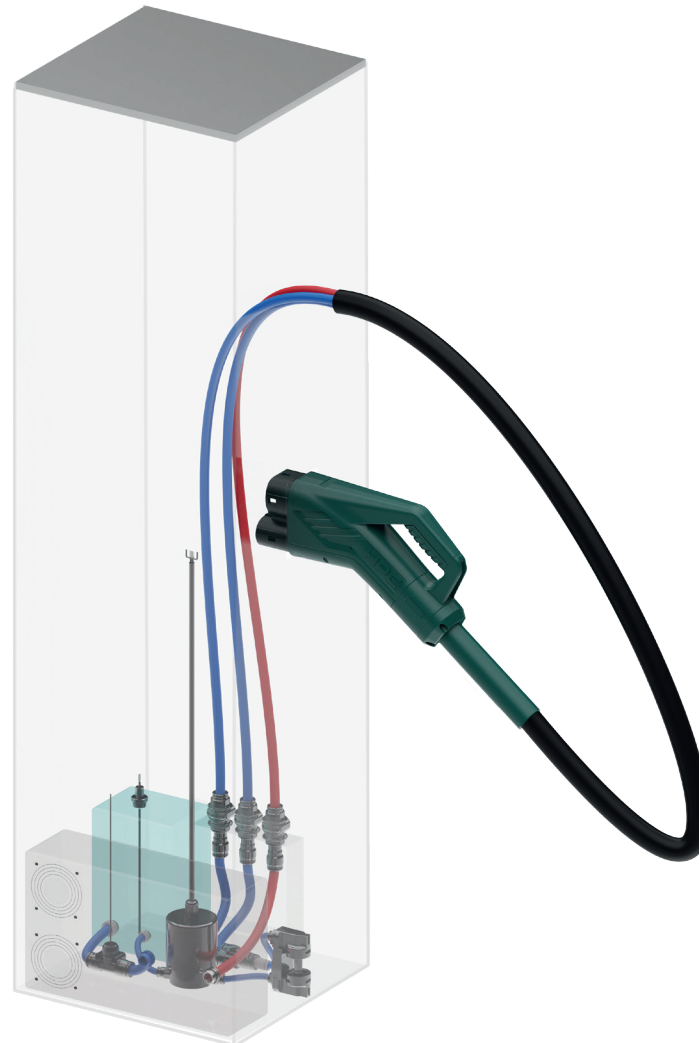
**Quick-connect couplings**  
Fast connection and disconnection of assemblies



**Direct-acting solenoid valves (DIGMA)**  
Reliable media control



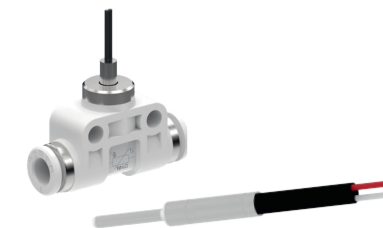
**Distribution manifold technology**  
Targeted supply, distribution, and control of media at high temperatures



**Push-in fittings**  
Simple and fast connections



**External gear pump: smartflow®**  
Precise delivery of cooling media even in negative temperature ranges



**Temperature sensors**  
Safe monitoring of temperatures to protect the complete system

# AVS Römer components for cooling technology

## Push-in fittings

Simple and fast connections

- **Lightweight and space-saving**

The compact design makes push-in fittings lightweight and requires minimal space in the application.

- **Quality**

100% leak-tightness testing.

- **Proven push-in technology**

Tool-free installation saves time and reduces downtime during maintenance. Suitable for a wide range of applications.

- **Numerous configuration options**

Various connections, geometries, sizes, and sealing materials available.

- **Unrestricted flow design**

The construction ensures high flow rates and low pressure losses.



### Characteristics

Name	Push-in Fittings
Body material	PVDF, POM, Brass, Stainless steel
Sealing material	NBR, HNBR, EPDM, FKM
Pressure range	-0.95 bar – 20 bar
Connection sizes metric	Push-in: 8, 10, 12
Connection sizes thread	1/4, 3/8, 1/2

# AVS Römer components for cooling technology

## Quick-connect couplings

Fast connection and disconnection of assemblies

- **Leakage protection**

During the coupling and uncoupling process, the couplings prevent media leakage on both sides.

- **High performance**

The flow-optimized design of the quick-release couplings ensures low hydraulic pressure losses and high flow rates.

- **Easy handling**

Quick-release couplings enable effortless assembly and disassembly with one-handed push-button operation.

- **Quality**

100% leak-tightness testing.



### Characteristics

Name	Quick Release Couplings
Body material	PVDF, POM
Sealing material	NBR, HNBR, EPDM, FKM
Pressure range	-0.95 bar – 6 bar
Connection sizes metric	Push-in: 12

# AVS Römer components for cooling technology

## External gear pump smartflow®

Precise delivery of cooling media even in negative temperature ranges

### ○ Very compact design with full performance

For maximum space savings in the charging station.

### ○ Durable and maintenance-free

The hermetic sealing between the pump housing and the drive prevents leakage. Additionally, the design of the smartflow® external gear pump enables operation without dynamic seals.

### ○ Pulsation-free

Constant flow rate without significant pulsation at a steady volumetric flow.

### ○ Customizable

Variants or customer-specific solutions possible, including flange versions.

\* The maximum achievable static pressure depends on the medium, medium temperature, available power, power limitation, and speed.

\*\* Maximum alternating and permanent pressure loads may limit the pump's service life.

\*\*\* The maximum flow rate without hydraulic resistance on the pressure side depends on hose connection, medium, medium temperature, suction height, and pump power supply.



### Characteristics

Name	smartflow® external gear pump
Body material	Stainless steel
Sealing material	NBR, HNBR, EPDM, FKM
Maximum static pressure*	12 bar
Maximum pressure under continuous load**	12 bar
Connection sizes metric	Push-in: 10, 12
Connection sizes thread	1/4
Tooth with	15 mm
Delivery rate***	0 – 5.7 l/min
Nominal voltage	24 V DC ± 10 %
Analog control	0 – 5 VDC, 0 – 10 VDC
Digital control	RS 485, I <sup>2</sup> C
Maximum power	120 W

# AVS Römer components for cooling technology

## Direct-acting solenoid valves (DIGMA)



### Reliable media control

- Fast response time and short switching cycles**

Due to the direct-acting functional principle, direct-acting solenoid valves open and close quickly. This enables short switching cycles, which is particularly advantageous in dynamic systems.

- High chemical and thermal resistance**

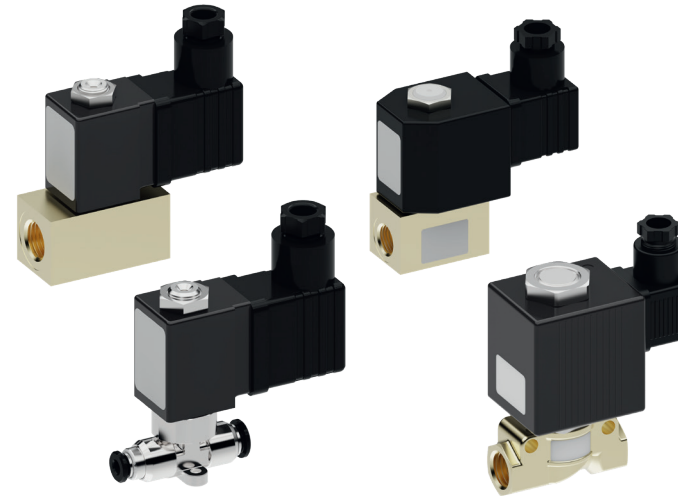
Resistant even in extreme ambient and media temperatures as well as aggressive media.

- Vibration and shock resistance**

High robustness combined with pressure and leakage safety due to a welded armature guide tube and vibration-resistant screwed solenoid drive.

- Customizable**

Variants or customer-specific special solutions with different nominal diameters and operating pressures are possible. Power consumption and current type can be configured according to specific application conditions.



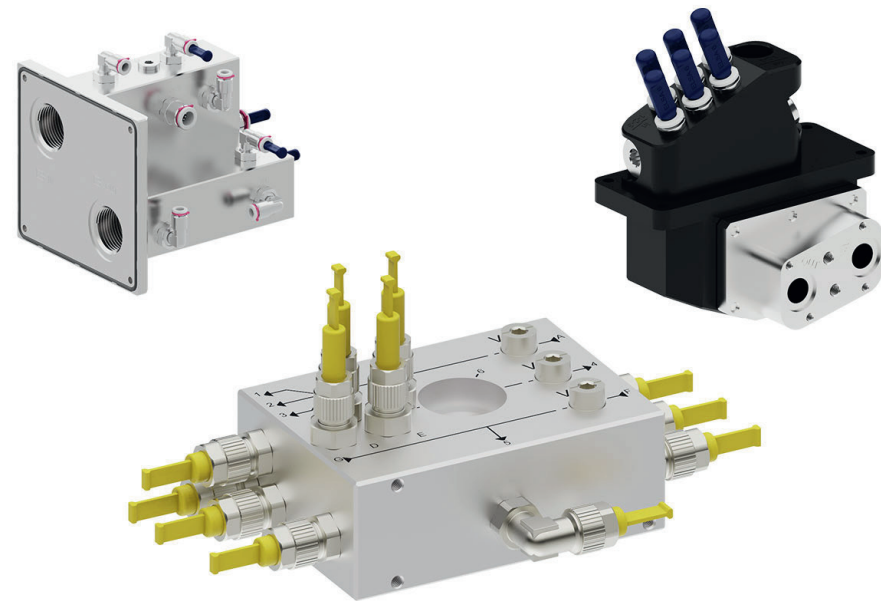
Characteristics				
Name	EAV 200	EAV 700	EBV 100	EDV 200
Constructional design	Seat valve, rubber seals			
Body material	Brass	Stainless steel 1.4404	Brass	
Sealing material	NBR, HNBR, EPDM, FKM			NBR, PTFE, HNBR, EPDM, FKM
Functions	2/2-way NC (A) 2/2-way NO (B) 3/2-way NC (C) 3/2-way NO (D)			2/2-way NC (A)
Pressure range	-0.95 bar – 40 bar	-0.95 bar – 20 bar	-0.95 bar – 16 bar	-0.95 bar – 30 bar
Connection sizes metric	-	Push-in: 6	-	-
Connection Sizes thread	M5, 1/8, 1/4	-	1/4, 3/8	3/8, 1/2
Nominal diameters	DN 1,2 – DN 3		DN 3 – DN 6	DN 3 – DN 10
Nominal voltage	12 V – 230 V AC/DC		12 V / 24 V DC	24 V DC / 230 V AC (with bridge rectifier)

# AVS Römer components for cooling technology

## Distribution manifold technology

Targeted supply, distribution, and control of media at high temperatures

- **Plug & Play**  
Simplifies professional installation.
- **Compact and multifunctional**  
Combines and integrates multiple functions in a minimal installation space.
- **Reduction**  
A well-thought-out design minimizes the number of components and sealing points as well as assembly effort.
- **Numerous configuration options**  
Various connections, geometries, sizes, and sealing materials.
- **Flow-optimized design**  
Ensures high flow rates and low pressure losses.



### Characteristics

<b>Name</b>	Distribution Manifolds
<b>Body material</b>	POM, Aluminium, Brass, Stainless steel
<b>Sealing material</b>	NBR, HNBR, FKM, EPDM
<b>Connection type</b>	Push-in, Thread

# AVS Römer components for cooling technology

## Temperature sensors

Safe monitoring of temperatures to protect the complete system

- Fast and precise**  
 Accurate and reliable measurement and monitoring.
- Wide range of variants**  
 Plug-in and inline solutions with customizable sensor elements. Also integrable for maximum space savings.
- High chemical and thermal resistance**  
 High durability even under extreme ambient and media temperatures, as well as aggressive media.



Characteristics		
Name	Inline Temperature Sensors (ITS)	Plug-in Temperature Sensors* (XTS)
Sensor Type	NTC/PT	
Body material	PVDF, POM	Stainless steel
Sealing material	NBR, HNBR, EPDM, FKM	
Connection sizes metric	Push-in: 8, 10, 12	-
Connection sizes thread	-	1/4, 3/8, 1/2

\* Combination with a compatible AVS Römer fitting is recommended.

# Success Story

## innovatek

### The Customer

Since 1999, innovatek has been designing high-quality and high-performance cooling systems. In addition to industrial and medical cooling systems, innovatek also develops highly efficient cooling solutions for the aerospace industry and e-mobility.

### The customer's requirement

A pump that precisely delivers cooling media, reliably handles highly viscous fluids, and fits within the customer's predefined installation space.

### Our solution:

#### The external gear pump smartflow®

- ✓ Precise delivery of cooling fluids
- ✓ Ultra-compact design for maximum space savings in the charging station
- ✓ Customizable to specific requirements
- ✓ Integrated temperature shut-off prevents overheating
- ✓ Suitable for high-viscosity cooling fluids
- ✓ Pulsation-free operation with high dosing accuracy



“The outstanding performance and the customized adaptations of the pump make it the perfect solution for our application. We were remarkably impressed by the fast and seamless collaboration at all levels, which played a key role in the success of our project.”

**Markus Husterer, Managing Director of innovatek OS GmbH**

## Project phases: from prototype to to serial production

**1**

### **From specifications to prototyping in record time**

Close communication and a collaborative partnership, along with the provision of test media, significantly accelerated the project progress. Innovatek was able to test the initial prototypes in its cooling systems within just a few weeks, receiving positive feedback on performance, noise level, and space requirements.

**2**

### **Perfect fit thanks to a custom solution**

Maximum space savings with a flow rate of 6 l/min—this customer requirement was met by AVS Römer with a new flange version featuring 15 mm gears. Following successful tests, additional prototypes were produced, leading to the pre-series production phase.

**3**

### **Bringing the product to series production**

Innovatek approved the delivered pre-series, followed by the official order and a coordinated ramp-up phase, culminating in full-scale series production at AVS Römer.



AVS Römer outperformed the competition with a comprehensive package of expert consultation, customer proximity, and flexibility. The customer’s requirements were fully met: the specially developed flange version integrates seamlessly into the customer’s manifold due to its compact design.

In addition to the pump, Innovatek also relies on customized fittings and quick-release couplings from AVS Römer.

# From prototype to serial production

AVS Römer is the specialist for custom solutions in fluid technology. We develop and manufacture customized products in any quantity according to your technical requirements. Our high level of in-house production, extensive expertise, and well-structured processes ensure the successful implementation from initial requirements to series production.



# Your individual product Custom solutions for your requirement



# 1

## Requirement

Your specific requirement is the starting point for your custom product.

# 2

## Project planning

The product concept is developed in close coordination and direct cooperation with you.

# 3

## Prototyping

We manufacture product samples and test them for your specific requirements.

# 4

## Industrialization

For the manufacturing of your products we produce tools, assembly and testing equipment in-house.

# 5

## Series production

From small to large series, we realize your product in flexible quantities.



# Part of your Success

## AVS Römer from Grafenau

Founded in 1970 by Joachim C. Römer, AVS Römer develops precise and application-specific solutions for connecting, controlling, measuring and transferring. In doing so, we distinguish ourselves above all through very high-quality, custom solutions. As an owner-managed family business, we focus on highest quality and customer satisfaction.



# Highest quality All from a single source



The high requirements and expectations of our national and international customers are both an obligation and a challenge for us. Our experience and expertise in fluid technology, combined with the high vertical range of manufacture and in-house processes, enable us to produce standard products and customer-specific solutions at the highest level.



## **Service & customer orientation**

Personal technical consulting and training Project planning of individual requirements, including certifications and approvals.

## **Research & development**

Development support through software tools and simulations. In-house test laboratory with high-precision measuring equipment.

## **Manufacturing**

High in-house production depth throughout the entire process. Specialization in machining of metals and plastics. Experience and know-how in processing elastomers.

## **Sample making & prototypes**

Production of samples and prototypes according to individual requirements. Fast and reliable sample delivery.

## **Toolmaking & equipment manufacturing**

Flexibility through in-house production of tools. High-precision manufacturing of assembly and testing equipment.

## **Assembly & logistics**

In-house assembly in EPA and clean room. State-of-the-art inspection and testing facilities for highest quality requirements. Automatic small parts warehouse for fast and flexible deliveries.

AVS Römer GmbH & Co. KG  
Reismühle 3  
94481 Grafenau  
Germany

+49 8552 4076 300  
info@avs-roemer.com

DE GB US

AVS G. Römer Schweiz AG  
Heidelbergstrasse 9  
8355 Aadorf  
Switzerland

+41 32 377 22 11  
info@avs-roemer.ch

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