



DEUTSCHER  
FUSSBALL-BUND



**Initiative to Promote Innovative Technologies and Services in the Stadium, Security, and Event Sectors of the DFL and the DFB**

**Final Report: SKW system GmbH & Co KG**

The following is the pilot project report for the innovation by SKW system GmbH & Co KG. The SKW system improves the flow properties of water, thereby reducing water consumption and saving energy.

The report consists of a description of the innovation, an evaluation of the participating clubs, and an assessment of the innovation from the association’s perspective.

The clubs’ experience report, as presented at the project group meeting, and a test report from the provider can be found below.

**Pilot Project Report**

**Key Data**

Clubs	Borussia Mönchengladbach MSV Duisburg 1. FC Union Berlin
Contact	Bernhard Nießen ( <a href="mailto:bernhard.niessen@borussia.de">bernhard.niessen@borussia.de</a> ) Rainer Hester ( <a href="mailto:rainer.hester@msv-duisburg.de">rainer.hester@msv-duisburg.de</a> ) Dirk Thieme ( <a href="mailto:dirk.thieme@adaf-sbg.de">dirk.thieme@adaf-sbg.de</a> )
Innovation Partners	SKW system GmbH & Co.KG
Contact	Stephan Strack ( <a href="mailto:s.strack@skw-system.de">s.strack@skw-system.de</a> )
Test phase period	In continuous use since installation
Site visit data	January 17, 2023 (Borussia Mönchengladbach) January 23, 2023 (MSV Duisburg) February 9, 2023 (Union Berlin)

**Description of the innovation**

- SKW systems are installed in water supply networks to positively alter the flow properties of water (e.g., reducing water consumption, improving water distribution)
- The SKW system utilizes the Lorentz force, which triggers an electromagnetic pulse to restructure the molecules
- Reduction in energy consumption by increasing flow/throughput velocity
- Removal of long-term mineral deposits / “incrustations”

**Pilot phase process / resources**

- In continuous use since installation
- The system requires no separate power connection and is maintenance-free



DEUTSCHER  
FUSSBALL-BUND



- Functionality requires electrical conductivity and low water hardness
- Service provider adapts existing water connections (piping) to the system
- Sufficient space for installation
- After installation, the pipes must be flushed, as biofilm and deposits in the water pipes will be dislodged

#### Potential benefits / expectations of the clubs

- Improved water quality through a reduction of deposits in the piping system
- Reduction of scale, crusting, and biofilms, resulting in overall improved water quality
- Positive effects on water distribution in the turf area, leading to reduced water consumption and improved turf characteristics, including faster root growth
- More efficient use of resources such as water, fertilizer, and energy

#### Investment costs for purchase and operation

- Upon request



Example of an SKW unit

(Borussia Mönchengladbach: Installation to supply the hotel and administrative complex)



DEUTSCHER  
FUSSBALL-BUND



*Example of the SKW system (installed in Mönchengladbach directly connected to the stadium's main water supply, which also serves the irrigation systems)*



*Example of the SKW system (installation in Mönchengladbach directly connected to the main water supply for the training fields, which also supplies the irrigation systems)*

### **Evaluation by the clubs participating in the pilot project (average values)**

#### **Field irrigation (Borussia Mönchengladbach / Union Berlin / MSV Duisburg):**

- The innovation offers added value for the club: positive / 4.3 (scale 1–5)
- Cost-benefit ratio: positive / 4
- This innovation can be recommended to other clubs in the Bundesliga, 2. Bundesliga, and 3. Liga: positive / 4.3

#### **Fresh water lines (Borussia Mönchengladbach / MSV Duisburg):**

- The innovation offers added value for the club: very positive / 4.5
- Cost-benefit ratio: positive / 4
- The innovation can be recommended to other clubs in the Bundesliga, 2. Bundesliga, and 3. Liga: very positive / 4.5

Heating technology (Union Berlin):

- The innovation offers added value for the club: somewhat applicable / 3
- Cost-benefit ratio: partially applicable / 3
- The innovation can be recommended to other clubs in the Bundesliga, 2. Bundesliga, and 3. Liga: partially applicable / 3

**Assessment of the innovation from the association's perspective**

- The innovation stands out for its simple implementation structure across various areas of stadium operations
- Given the largely positive feedback from the three participating clubs, a recommendation for other clubs appears warranted
- Particularly in the area of groundskeeping, the innovation enables optimized resource utilization, especially water savings



# SKW SYSTEM (FIELD IRRIGATION)



## Clubs' Assessment of the Innovation

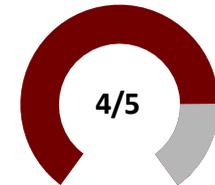
### Comments/Explanations:

- › Achieves improved throw distance / water distribution
- › Reduction of mineral deposits and improved penetration depth
- › Increased infiltration
- › Resource-efficient
- › Fewer lawn diseases than in the previous two years

### Quantitative rating\*:



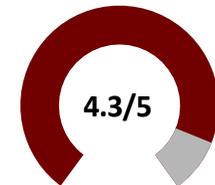
Club Value



Cost/Benefit

System already  
permanently  
installed

Use beyond the trial period



Recommendation

*\*Average ratings*

# SKW SYSTEM (FRESHWATER PIPELINES)



## Clubs' assessment of the innovation

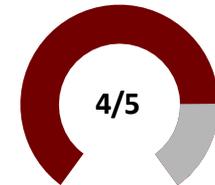
### Comments/explanations:

- › The level of Legionella bacteria in the water has dropped to undetectable levels
- › The reduction in limescale is noticeable
- › The water supply network is significantly cleaner than before installation

### Quantitative rating\*:



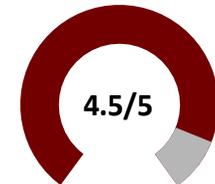
Club Value



Cost/Benefit

System already permanently installed

Use beyond the trial period



Recommendation

*\*Average ratings from submitted reviews*

# SKW SYSTEM (HEATING TECHNOLOGY)

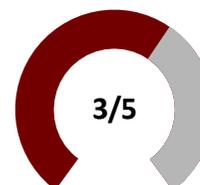


## Club's Evaluation of the Innovation

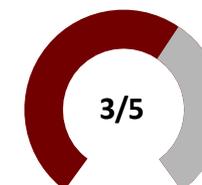
### Comments/Explanations:

- › The implementation of the SKW system should aim to improve heating water quality
- › The goal is to prevent existing corrosion caused by poor heating water quality
- › The expected effect (improvement in water quality measurements) is currently not verifiable

### Quantitative evaluation:



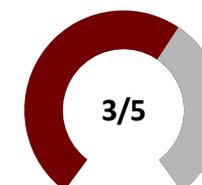
Value-Added Club



Cost/Benefit

System already permanently installed

Use beyond the trial period



Recommendation

# SKW system ... we're here for water!



## Pitch irrigation with the SKW® system

We would like to extend our sincere thanks to the DFL/DFB, all those involved, and the clubs that placed their trust in us and gave us the opportunity, as part of the “Stadium Innovation Project,” to showcase our **SKW® system**, which has already been installed in numerous clubs. We would also like to thank the clubs for their cooperation and outstanding support, as they stood by us with advice and helpful information.

Our **SKW® system** offers you a wide range of benefits for irrigation in various applications—here are just a few.

- **Improved distribution accuracy**
- **Reduction in water usage**
- **Reduction of crusting caused by biological and mineral deposits**
- **Up to 5% more oxygen in the soil**
- **No waterlogging**
- **Reduction of leaf fungal diseases (gray leaf spot)**
- **Improved root growth**
- **Optimized energy consumption**

Please feel free to schedule an on-site appointment with us to learn more about the benefits of **the SKW® system**—we look forward to meeting you!



**SKW system® GmbH & Co.KG**

Klöcknerstr. 3 ; D-32257 Bünde,  
Germany Stephan Strack

Mobile 0049-(0)15122325532

Email:[s.strack@skw-system.de](mailto:s.strack@skw-system.de) ; [www.skw-system.de](http://www.skw-system.de)

