APPLICATION REPORT

FLOW MEASUREMENTS IN SWIMMING POOLS

Consulting

"Flow measurements in the pipelines are of essential importance for our hübers-safety-service, a safety inspection of suction systems in swimming pools. With the FLUXUS® *F601*, we have a measuring device that we can absolutely rely on."

Dr Frank Hülshorst, expert for suction systems in swimming pools and wellness facilities, m. hübers gmbh.

Measuring Task

Safety inspection of pool water suction systems in swimming pools – hübers-safety-service

The task of ensuring perfectly hygienic conditions and the safety of bathers and employees is a top priority for every swimming pool operator. m. hübers gmbh provides professional support in this area.

Their range of services includes the installation and maintenance of chlorination systems for disinfecting pool water and systems for dosing chemicals for water treatment. The range of services is supplemented by filter renovations, the removal of filter contamination as well as legionella control and prophylaxis in drinking water systems.

Furthermore, the hübers-safety-service offers a service inspection of pool water suction systems. In these suction systems, pool water is removed through grids in order to either feed it to the water treatment system or to operate water attraction systems, such as water slides, flow channels, massage jets and neck showers.

As part of the hübers-safety-service, the suction systems are checked for compliance with the requirements of the currently valid DIN EN 13451-1 and -3 regulations as well as directive 60.03 (DGfdB). Recommendations

for action are drawn up for standard-compliant refurbishment if any shortcomings are identified. Irregular or incorrectly installed cover grids, small suction chamber depths, opening areas that are too small as well as unsuitable pipelines and pump capacities can have fatal consequences for bathers, especially children, due to the body or hair being sucked into the grid openings with subsequent knotting, which can lead to drowning. In recent years, drowning incidents like this have made headlines in the press and on television.

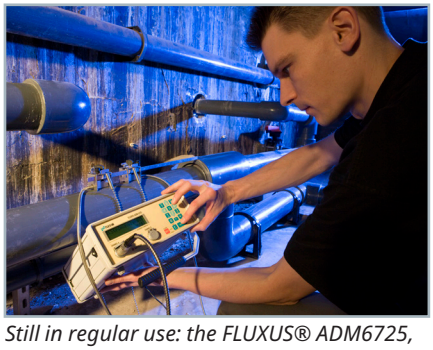
The regulations DIN EN 13451-3 and R 60.03 therefore limit the permissible flow velocity in the opening area of the outlet grid to a maximum of 1.6 ft/s and that in the suction nozzle behind the grid to 2.6 ft/s. In addition to the guidelines for flow velocities to be observed, the standard provides for hair-catching tests to be carried out as a further test criterion. However, how do you check compliance with the applicable guidelines for flow velocity? The standard explicitly mentions “externally mounted flowmeters (i.e. ultrasonic flowmeters)“.

Solution

In everyday use at m. hübers gmbh, the portable FLUXUS® F601 proves to be the ideal instrument for this type of measurement task.

As part of the safety inspection, depending on the type and number of suction systems, the flow ratios and flow conditions must be examined at up to 60 measuring points. For Dr Frank Hülshorst, project manager of the hübers-safety-service at m. hübers gmbh, absolute reliability of the measuring device is what counts: “The measurement must also function under the often inadequate free paths in front of and behind the measuring point.“ With the FLUXUS® F601, a temporary flow measuring point can be set up in next to no time: Enter the measuring point parameters in the measuring transmitter, position the transducers accordingly on the pipe – and the measurement starts.

Because the flow velocity is crucial when considering safety, DIN EN 13451-3 prescribes the calculation from the volume flow and pipe cross-section. With the FLUXUS® F601, this calculation is done by the transmitter: Just one press of a key and the current flow velocity appears in the display. This significantly facilitates the evaluation of results and documentation. In addition, users appreciate the extraordinary flexibility and absolute practicality of their FLUXUS® F601. The predecessor of the FLUXUS® F601, the FLUXUS® ADM 6725, is still regularly used at m. hübers.



Still in regular use: the FLUXUS® ADM6725, the predecessor of the FLUXUS® F601. © m. hübers

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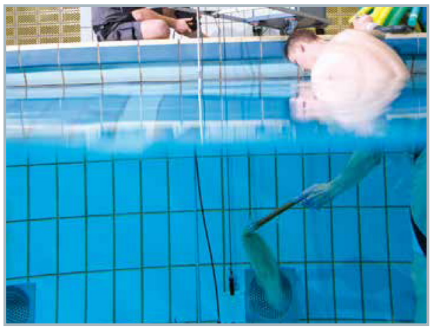

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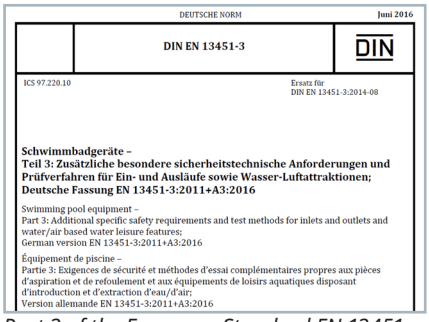

DEUTSCHE NORM Juni 2016

DIN EN 13451-3

DIN

ICS 97.220.10

Ersatz für DIN EN 13451-3:2014-08

Schwimmbadgeräte –
Teil 3: Zusätzliche besondere sicherheitstechnische Anforderungen und Prüfverfahren für Ein- und Ausläufe sowie Wasser-Luftattraktionen; Deutsche Fassung EN 13451-3:2011+A3:2016

Swimming pool equipment –
Part 3: Additional specific safety requirements and test methods for inlets and outlets and water/air based water leisure features;
German version EN 13451-3:2011+A3:2016

Équipement de piscine –
Partie 3: Exigences de sécurité et méthodes d'essai complémentaires propres aux pièces d'aspiration et de refoulement et aux équipements de loisirs aquatiques disposant d'introduction et d'extraction d'eau/d'air;
Version allemande EN 13451-3:2011+A3:2016

Part 3 of the European Standard EN 13451 provides guidance on specific safety requirements and test methos for inlets and outlets and water/air-based water leisure features. © DIN

The scope of services of the hübers-safety-service includes video documentation of the hair trap tests, demonstrated symbolically here with a doll's head. © m. hübers

With the FLUXUS® F601, a temporary flow measuring point can be set up in next to no time.

Advantages

- Fast setup of the measuring points and reliable flow measurements allow for the safety inspection to be carried out efficiently
- Direct output of the flow velocity simplifies evaluation and documentation
- Sturdy design and a powerful battery ensure full practicality

Measuring Points and Instrumentation

Pipelines	typically plastic, above all PE and PVC, nominal sizes from 1¼“ to 16“
Medium	water
Measuring devices	1 portable clamp-on ultrasonic FLUXUS® F601 flowmeter 1 pair of CDQ1NZ7 clamp-on ultrasonic transducers

Customer:

m. hübers gmbh, Wesel

m. hübers gmbh has been offering service and know-how for swimming pools, public wells, waterworks, sewage treatment plants and industry for over four decades. The family-run company develops individual solutions that comply with the latest technology and current regulations.

On the basis of careful advice and analysis, the experts for dosing and water technology at m. hübers gmbh provide solutions where there is an optimum ratio between costs and long-term benefits. Furthermore, the supervision of a project goes beyond assembly and maintenance and includes, for example, the creation of documentation, training and development programmes, instructions on occupational safety and on-call services.

www.huebers-gmbh.de

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