

VDI 6036

More security and reliability in radiator installations



The importance of the VDI guidelines

- VDI-guideline is the foundation and direction for installation of radiators. It origins from Germany and VDI stands for "Voreinigen Deutsche Ingeniören"
- VDI-guidelines is the instrument used to make correct decisions, and to make a technical irreproachable installation.
- VDI-guidelines gives the professionals the security and assurance to work with a recognized norm within the EU.
- In a legal dispute, any court will, based on experience, pursue a policy of the existing norms and guidelines, if there are any. The only existing norm in this area of work is the VDI-norm.



The use of VDI 6036

- The guidelines support the architects, consultants and other professionals in the calculations of additional weights of the radiator, to increase the reliability and security of the installation.
- It is a well-known fact that panel radiators often are used to sit on or lean against. They
 can also be used as ladders or climbing devises.
- There are 3 different categories plus 1 "open category", in which radiators can be installed and used:
- AWK 1 = "normal " demands
- AWK 2 = "higher" demands
- AWK 3 = "high" demands
- AWK 4 = "very high" demands

What is taken into consideration?

The categories AWK 1-4 shall reflect daily situations, in which redictable use, where also faulty use have to be take into consideration. The faulty use could be:

- Sitting on the radiator
- Climbing on the radiator
- Using the radiator as shelving
- Using the radiator as a ladder
- ...and others







How is the radiator tested?

Vertical load

Anti-lift devise

F1 = What is the loading capacity of the radiator/brackets F2 = Protection of lift-off of the radiator from the brackets

F3 = Protection of pull/push of the radiator front/back

Side movements

Pressure front/back

F4 = Protection of side movements of the radiator

Calculation examples

Max load capacity of a radiator type $22 - 600 \times 1200$ for F1 i AWK 1-2 = ca. 99,4 kg/bracket (Calculation of 1 bracket) for F1 i AWK 3 = ca. 158,0 kg/bracket

Max load capacity of a radiator type $33 - 600 \times 1200$ for F1 i AWK 1-2 = ca. 116,8 kg/bracket (Calculation of 1 bracket) for F1 i AWK 3 = ca. 190,1 kg/bracket



Category AWK 1 demands

AWK 1 "normal" demands:

Your own home, villas, flats etc. only in the apartments and in some cases in company

staff areas.

but...

in public areas, jointly-owned facilities, staircases, the

AWK 2 will be used. In escape routes the AWK 3 will be used.







Category AWK 2 demands

AWK 2 "higher" demands:

daycare centres, welfare centres, hotel rooms, staff accommodations etc.

but...

only in staff areas it is possible to use the AWK 1. The AWK 3 should always be used in escape routes.





Category AWK 3 demands

AWK 3 "high" demands:

Schools, youth centres, public areas, railway stations, and all escape routes in all other buildings

but...

in staff areas and only there, the AWK 1 can be used.









Category AWK 4 demands

AWK 4 "very high" demands*:

prisons, psychiatric hospitals, other harsh environments

*The class 4 demands will always be decided from case to case together with the customer in question.

but...

In staff areas and only there, the AWK 1 can be used.







The wall material is important

The VDI 6036 pays attention to the wall material.

It is of great importance what building material the wall consists of, when you judge how much weight the brackets can carry.

...or, the weaker the wall material is, the less weight the radiator and brackets can carry.

The consequence is that in weak wall material there has to be more points of attachments to reach the different

demands of VDI.





Testing

The number of brackets is decided by the values in AWK 1-3 and by the test report from **IFBT** in Leipzig Germany.

The tests by **IFBT** was made in the following building materials:

- Concrete
- Limestone
- Brick wall
- Poroton

in connection with screws/plugs and wall brackets.

IFBT GmbH - Institut für Fassaden- und Befestigungstechnik

ANERKANNTE PRÜF-, ÜBERWACHUNGS- UND ZERTIFIZIERUNGSSTELLE nach Landesbauordnung - SAC21; nach Bauproduktengesetz - NB 1109

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Untersuchungsbericht

Nr. 11-131

vom 08.12.2011

Gegenstand: experimentelle Untersuchung zur Ermittlung der charakteristischen Tragfähigkeit von Heizkörperkonsolen nach VDI 6036 (Entwurf)

Auftraggeber: Sigarth GmbH Waterstroate 38 D-48231 Warendorf

Ansprechpartner: Institut für Fassaden- und Befestigungstechnik Dipl.-Ing. (FH) Michael Loff (Tel. 0341/652278-0)

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Michael Loff Projektleiter Sonderprojekte

Der Bericht umfasst 13 Seiten und 3 Anlage mit 47 Seiten.

Jedwede Verwendung, einschließlich der Veröffentlichung, auch auszugsweise, bedarf der vorherigen schriftlichen Zustimmung der IFBT GmbH

Sitz: Hans-Weigel-Straße 2b, D - 04319 Leipzig Geschäftsführer Amtsgericht Leipzig Dr. Lothar Höher Handelsregister HRB 17868 Steuer-Nr.: 232/111/02284





The MONCLAC wall bracket MCA 27 / MCA 32,41,44 for installation in the classes AWK 1 - 3 n. VDI 6036

For installations in class AWK 4 one has to use at least wall bracket MCA... and our safety corners. For the class AWK 4 the demands and the loading capacity has to be defined together with the consultants and builders.

There are MONCLAC brackets for assembly of panel radiators with or without lugs and for radiators with or without top grills.

All bracket sets are includes: 4 screws 8 x 75mm with integrated lock washer and 4 MONCLAC special plugs 10 x 60mm







Brackets MCA27 for assembly of panel radiators with lugs.

If there are more brackets needed than there are lugs available on the radiator in relation to the VDI 6036 demands, we recommend to add bracket types MCA 32, 41 or 44.

SIGARTH

With integrated anti lift-off devise, and protected against sidewards moving.



MCA 41U for radiators without lugs and assembly under the top grill



This MONCLAC bracket version can be used for radiator installations under the top grills.

As the upper part of the bracket can glide on the welding seam underneath the grill, an accessory, MCA-SFS, which prevents the sidewards movements, can be added, to fulfil the VDI-demands.







Brackets MCA27 for assembly of panel radiators with lugs.

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With integrated anti lift-off devise, and protected against sidewards moving

Safety corners for class AWK 4





The MONCLAC security corners are used as complements to the wall brackets, at least on the two upper corners, depending on the needs.

All is however depending on the individual needs in every special installation



The VDI 6036 in day-to-day practice

To give a simplified picture of where (in which environments) to use the different classifications AWK, here are some examples:

Private use AWK 1 & 2

- Private houses
- Rented appartments
- Condominiums
- Consulting-rooms
- etc.

*in all escape routes- and/or in areas where shopping trolley s, service trolleys, wheel chairs, hospital beds etc. are used

Public areas AWK 3*

- Civil service departments
- Restaurants
- Offices
- Schools
- Daycare centres
- Hospitals
- Old people's home
- etc.

Number of brackets in relation to wall materialsand VDI-classes AWK

The VDI 6036 also takes the walls and wall material into consideration. First of all it is logical that if the wall does not have enough strength, the load capacity of the brackets is unimportant. Both factors has to be considered, and therefore it could be necessary to use more brackets then planned in some installations. Se table below.

Wandmaterial	ndmaterial Kalksandvollstein KS & Beton				Hochlochziegel HLzW (z.B. Poroton etc.)			
Bauhöhe	300 - 400 50		500 - 950	Bauhöhe	300 - 400		500 - 950	
	Anwendungklassen				Anwendungsklassen			
Baulänge	AWK 1-2	AWK 3	AWK 1-2-3	Baulänge	AWK 1-2	AWK 3	AWK 1-2	AWK 3
400	2	2	2	400	2	2	2	2
500	2	2	2	500	2	2	2	2
600	2	2	2	600	2	2	2	2
700	2	2	2	700	2	2	2	2
800	2	2	2	800	2	2	2	2
900	2	2	2	900	2	2	2	2
1000	2	2	2	1000	2	2	2	2
1200	2	2	2	1200	2	3	2	2
1400	2	3	2	1400	3	3	2	3
1600	2	3	2	1600	3	3	3	3
1800	3	3	3	1800	3	3	3	3
2000	3	3	3	2000	3	4	3	4
2200	3	4	3	2200	4	4	3	4
2400	3	4	3	2400	4	4	4	4
2600	3	4	3	2600	4	5	4	5
2800	3	4	3	2800	4	5	4	5
3000	3	4	3	3000	4	5	4	5

Note:

The character of the wall has to be regognized in every occasion, to see if the screws and plugs in the bracket packages could be used.



Quality for mutual success

- The VDI 6036 is a new guideline, which controls and regulates the security and reliability for brackets in radiator installations
- The VDI-norm is a great help for architects, planners, builders and installers to secure longlasting installations for the end-user.







Please contact us for further information

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