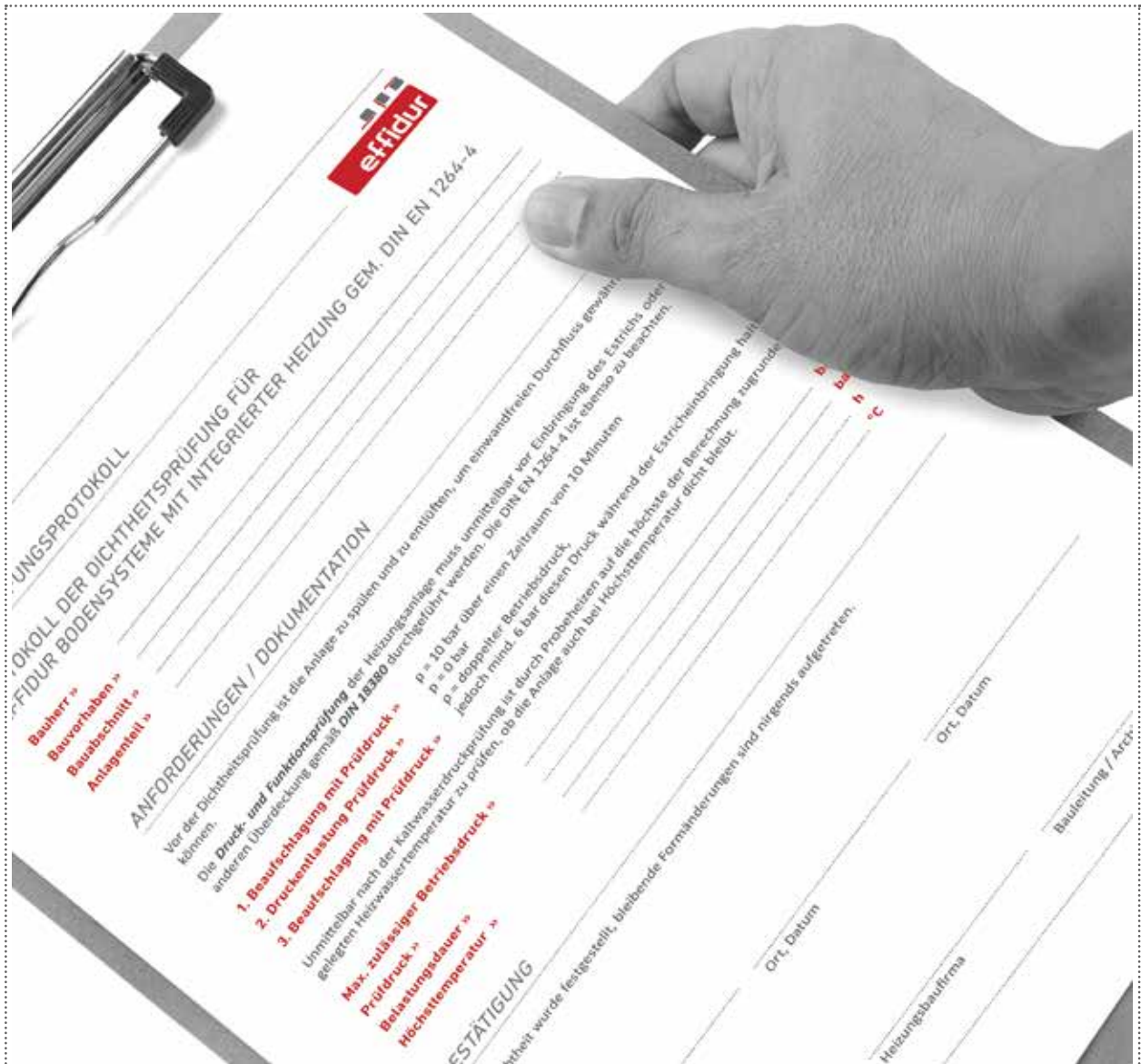


PROTOCOLS



PROTOKOLL

PROTOKOLL DER DICHTHEITSPRÜFUNG FÜR EFFIDUR BODENSYSTEME MIT INTEGRIERTER HEIZUNG GEM. DIN EN 1264-4

Bauherr »
Bauvorhaben »
Baubeschneid »
Anlagenteil »

ANFORDERUNGEN / DOKUMENTATION

Vor der Dichtungsprüfung ist die Anlage zu spülen und zu entlüften, um einwandfreien Durchfluss gewährleisten zu können.

Die **Druck- und Funktionsprüfung** der Heizungsanlage muss unmittelbar vor Einbringung des Estrichs oder anderen Überdeckung gemäß **DIN 18380** durchgeführt werden. Die Dichte EN 1264-4 ist ebenso zu bescheinigen.

1. Beaufschlagung mit Prüfdruck »
 $p = 10 \text{ bar}$ über einen Zeitraum von 10 Minuten
 $p = 0 \text{ bar}$
 $p = \text{doppelter Betriebsdruck}$
 jedoch mind. 6 bar diesen Druck während der Estrichbringung halten

2. Druckentlastung mit Prüfdruck »
 Unmittelbar nach der Kaltwasserdruckprüfung ist durch Probeheizen auf die höchste der Berechnung zugrunde gelegten Heizwassertemperatur zu prüfen, ob die Anlage auch bei Höchsttemperatur dicht bleibt.

3. Beaufschlagung mit Prüfdruck »
 $p = 10 \text{ bar}$ über einen Zeitraum von 10 Minuten
 $p = 0 \text{ bar}$
 $p = \text{doppelter Betriebsdruck}$
 jedoch mind. 6 bar diesen Druck während der Estrichbringung halten

Max. zulässiger Betriebsdruck »
Prüfdruck »
Belastungsdauer »
Höchsttemperatur »

BESTÄTIGUNG

Die Dichtigkeit wurde festgestellt, bleibende Formänderungen sind nirgends aufgetreten.

Ort, Datum

Ort, Datum

Heizungsbaufirma

Bauleitung / Arch.



PRESSURE TEST PROTOCOL

effidur

PROTOCOL FOR LEAK TEST OF EFFIDUR FLOOR SYSTEMS WITH INTEGRATED HEATING ACC. TO DIN EN 1264-4

Building principle »
Building project »
Construction stage »
Building component »

REQUIREMENTS / DOCUMENTATION

Before testing the heating facility for leak tightness it shall be rinsed and ventilated in order to guarantee a proper flow. In case of the risk of freezing appropriate measure (e.g. heating the room) shall be taken.

The **pressure** and **functional test** of the heating facility needs to be started with cold water (10 - 23 °C) immediately before pouring the screed SFM or any other backfilling material according to **DIN 18380**. Furthermore, pay attention to DIN EN 1264-4.

- 1. Charge with testing pressure »** p = 2 bar for a period of 10 minutes
- 2. Pressure discharge »** p = 0 bar
- 3. Charge with testing pressure »** p = 10 bar for a period of 10 minutes

Immediately after the cold water pressure test and before pouring the screed the permanent tightness of the heating facility needs to be tested through a test heating with 3 - 6 bar and the planned maximum heat water temperature, but not exceeding 55 °C.

When pouring the screed keep twice the operating pressure, but at least 6 bar and not exceeding 10 bar (with cold water!!)

Max. licit operating pressure »	.....	bar
Testing pressure »	.....	bar
Load duration »	.....	h
Maximum temperature »	.....	°C
Pressure at end of test »	.....	bar

CONFIRMATION

The tightness has been determined, overstrain did not occur.

..... location, date	..... location, date	..... location, date
..... Principle	..... Heating Installer	..... Site Manager / Architect



PROTOCOL OF FUNCTIONAL HEATING / HEATING READY FOR COVERING FOR SCREED SFM

Building principle »

Building project »

Floor layer »

Heating installer »

Heating system »

effidur floor system CLIMATE



WP 1000



WP 2000

Pouring of screed SFM at »

Average thickness of SFM »

(in mm)

PRELIMINARY NOTES

Border insulation tapes» In order to form border joints install the appropriate border insulation tapes (RDS 1000 / RDS 2000) with brackets (HK) (only cutting-off after installation of the floor covering).

Movement joints» Movement / expansion joints , e.g. effidur professional joint (PF) need to be available at all upcoming building parts, at area projections, within large or long and narrow floor areas resp. at L-forms, within doorway areas and for the separation of heated and unheated areas. Therefor pay attention to the joint plan, which is to be provided by the construction engineer according to DIN 18560 and to the information sheets of IGE / IGM. For the application of joint dowels (FD / FDS) within the professional joint (PF) see chapter INSTALLATION INSTRUCTIONS OF COMB PANELS.

Nominal thickness of system screed (SFM)» Depending on the anticipated loads according to DIN EN 1991-1-1(/ NA), the existing resp. planned insulation layer, the floor covering etc. the comb panels are to be backfilled with a minimum thickness of screed SFM. For evaluation take the excerpt from survey report of MPA-Stuttgart into consideration (see chapter FLOOR RENOVATION SYSTEM WP – INTRODUCTION). An additional thickness might be necessary depending on the underground / planned floor set- up!

Drying of SFM» The freshly poured SFM is to be protected for 2 days from air draught, frost and direct solar irradiation. Subsequently, start ventilating. The screed SFM is to be dried through heating. The drying period depends on the screed thickness, temperature, air humidity and the room air exchange rate. The drying period is essentially accelerated through the heat-up of the screed using the underfloor heating. Therefor assure sufficient ventilation. Several times per day open opposing doors and windows for approx. 15 minutes, in order exchange the heated, humid air with cooler, dryer air through a so-called intermittent ventilation. When backfilling heated floor constructions with system screed during wintertime, it has proven successful to fit the screed with the floor heating operating with a maximum flow temperature of approx. 20 °C. This way you achieve the heating of the building structure and the surrounding air and the occurrence of excessive thermal strains during the heating-up process is minimized.

HEAT-UP INSTRUCTIONS

A functional heating needs to be executed a heating screed before laying the floor covering according to DIN EN 1264. Additionally the screed SFM needs to be dried through heating (heating ready for covering). The present heat-up instructions combine the functional heating and the heating ready for covering.

START OF HEAT-UP» 24 HOURS AFTER FITTING OF THE SYSTEM SCREED SFM

1. Adjust flow temperature after 1 day to 25 °C and keep for 5 days
2. Subsequently raise flow temperature to 35°C*
3. The functional heating is completed if the flow temperature has been kept at 35°C* for 2 days without failure.

4. Within the scope of the subsequent heating ready for floor covering the flow temperature is still kept at 35 °C* until the screed SFM is dry. (Approximate value for the drying period at a maximum flow temperature of 35 °C and a screed thickness of 25 m: approx. 7 - 10 days).

Test for remaining humidity with applied foil and subsequently execute CM-measurement (see» “Test / Control of drying”).

5. After drying the flow temperature is to be lowered gradually to 20 °C according to instruction “Cooling-down”.
6. Now the flow temperature is adjusted in a way to achieve a floor surface temperature of 15 - 18 °C (corresponds to approx. 20 - 25 °C at the flow).
7. Subsequently the screed SFM is ready for covering.

HEAT-UP

DATE	FLOW TEMPERATURE IN °C	SIGNATURE
	25	
	35	
	(40)*	
	(45)*	

TEST OF DRYING (FOIL TEST)

DATE	DRY » YES / NO	SIGNATURE

CONTROL OF DRYING (CM-MEASUREMENT)

DATE	% (RESIDUAL MOISTURE)	SIGNATURE

COOLING-DOWN

DATE	FLOW TEMPERATURE IN °C	SIGNATURE
	30	
	20	

HEATING READY FOR COVERING FINISHED

DATE	OUTDOOR TEMPERATURE IN °C	SIGNATURE

LOWERING OF FLOW TEMPERATURE

DATE	FLOW TEMPERATURE IN °C	SIGNATURE

HEATING READY FOR COVERING FINISHED (IF REQUIRED FOR FOLLOW-UP WORKS)

DATE	OUTDOOR TEMPERATURE IN °C	SIGNATURE

Test of drying acc. to point 4 of the heat-up instructions»

Put PE-foil (measurements approx. 50 cm x 50 cm) on top of the heated SFM surface, seal borders with adhesive tape. When heating (flow temperature: 35 °C) no condensation water shall form underneath the foil within 24 hours, else continue heating and ventilating. **The testing of the drying process with the help of a foil test only serves as decision-making tool and does not replace the CM-measuring before flooring!**

Flooring of the SFM»

The screed SFM needs to be dry (ready for covering = 1,3 CM-% resp. = 1,8 CM-% residual moisture) before installing diffusion tight / diffusion permeable floor covering.

Hard and steam-tight coverings shall be fit approx. 1 – 3 days after cooling-down. If the floor covering is delayed for more than 3 days, the system screed needs to be re-tested for drying as described before with a foil and if required a CM-measurement needs to re-assure that the screed is ready for covering. If the time period between finished screed drying and floor covering is more than 1 week, the implementation of an evaporation protection becomes necessary! Before flooring clean the completely dried SFM mechanically, vacuum with an industrial vacuum cleaner and apply a suited primer. Use flooring adhesives that are suited for underfloor heating, for rigid covering (tiles, natural stone) use plasticised adhesive or joint grout.

For the heated floor systems WP 1000 / WP 2000 it is absolutely necessary to file a protocol for functional heating / heating ready for covering and to present it upon demand to the foorer according to VOB, part C flooring works DIN 18365, edition 2012, point. 3.1.1 and 3.1.2)!

***The mentioned maximum flow temperature (35 °C) is considered as minimum requirement. If the design temperature is higher than 35 °C, then an increase of 5 K per 24 hours needs to be implemented for heat-up after the execution of point 2 and until the required temperature level. Within the further progress of the functional heating / heating ready for covering apply the actual design temperature instead of the assumed 35 °C, however not exceeding 45 °C.**

CONFIRMATION

Principal	location, date	stamp, signature
Site Manager / Architect	location, date	stamp, signature

