DIRECTION CAPE

CLIMATOLOGIE - AÉRODYNAMIQUE - POLLUTION - ÉPURATION

TEST REPORT / *RAPPORT D'ESSAIS*
N° CAPE AT 15-207

concerning the determination of thermal performance of system(s) for instantaneous energy recovery from shower greywater

concernant la détermination des performances énergétiques d'un système de récupération instantanée de calories sur eaux grises de douche

This report cancels and replaces the report n° *CAPE AT 15-257* dated December 15th, 2015.
Ce rapport annule et remplace le rapport portant le n° CAPE AT 15-257 en date du 15 décembre 2015

The accreditation by the COFRAC Laboratory Section attests to the technical competence of the laboratory only for the tests covered by the accreditation.

This test report certifies only the characteristics of the object submitted for testing but does not prejudge the characteristics of similar products. So it does not constitute a product certification in the sense of Articles L 115-27 to L 115-33 and R115-1 to R115-3 of the Consumer Code.

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It comprises 4 pages and 6 annex pages.

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Ce rapport d'essais atteste uniquement des caractéristiques de l'objet soumis aux essais et ne préjuge pas des caractéristiques de produits similaires. Il ne constitue pas une certification de produits au sens des articles L 115-27 à L 115-33 et R115-1 à R115-3 du code de la consommation.

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Il comporte 4 pages et 6 pages d'annexe.

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REQUESTED BY:

A LA DEMANDE DE :

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TEST REPORT / *RAPPORT D'ESSAIS* N°CAPE AT 15-207

SCOPE / *OBJET* :

This report aims to provide the test results for the determination of thermal performance of your system for instantaneous energy recovery from shower greywater.

Le présent rapport a pour objet les résultats d'essais de détermination des performances énergétiques de votre système de récupération instantanée de calories sur eaux grises de douches.

REFERENCE TEXT / *TEXTE DE REFERENCE* :

Testing protocol CAPE / RECADO – PQE rév. 03: Measurement of performance for instantaneous energy recovery from greywater

Plan qualité essais CAPE / RECADO – PQE rév. 03 : Mesure des performances de récupération de calories sur les eaux grises

FRAMEWORK / *CADRE* :

Tests upon request / Essais à la demande.

OBJECT SUBMITTED FOR TESTING / *OBJET SOUMIS À L'ESSAI* :

Description / *Description* :	Vertical Shower Heat Recovery Unit (double walled)
Date of delivery / *Date de réception* :	07/12/2015
Identification number in the laboratory (for each sample) / *N° ordre du laboratoire (pour chaque éprouvette)* :	151211
Commercial identification of each product / *Marque commerciale du produit* :	T-DW-3 standard
Identification number by the manufacturer / Numéro d'identification client du produit	DSS/Bries T-DW-3 standard serie 11/2015
Packaging / *Conditionnement* :	None
Date(s) of each test / *Date(s) de réalisation des essais* :	08/12/2015, 10/12/2015, 11/12/2015
Test operator(s) / *Opérateur(s) d'essais* :	Patrice METAIREAU, Marc BODELLE
Report author (if different from test operator(s)) / *Rédaction du rapport (si différent de l'opérateur d'essais)* :	Gaëlle BULTEAU

Quotation reference / *Numéro d'offre SAP* : 26060517

SAP reference / *Numéro de commande SAP* : 70051242

Project reference / *Numéro de dossier* : 7649-O

Prepared at Nantes, December 15th 2015.

Fait à Nantes, le 15 décembre 2015.

Laboratory manager / *Responsable de laboratoire suppléant*

Philippe HUMEAU

1. SAMPLING (SAMPLING IS NOT COVERED BY ACCREDITATION)
ECHANTILLONNAGE *(L'ECHANTILLONNAGE N'EST PAS CONCERNE PAR L'ACCREDITATION)*

The manufacturer brought to the CSTB one sample which is representative of his product range.
Le client a apporté au CSTB un échantillon provenant de sa gamme de produits.

2. SAMPLE PREPARATION AND TEST METHOD
PREPARATION DES EPROUVETTES ET METHODE D'ESSAI

The sample was stored inside the laboratory upon reception.
A réception l'éprouvette a été stockée à l'intérieur du laboratoire.

The installation of the system on the experimental set-up was carried out in compliance with the manufacturer's instructions (described in annex). The installation was validated by the manufacturer who attended the installation and the first day of the test.
Le montage du système sur le banc d'essai a été réalisé conformément aux instructions du fabricant (décrites en annexe).
L'installation a été validée par le fabricant qui a assisté à l'installation et au premier jour d'essai.

The tests were performed according to the test method CAPE/RECADO-PQE rév.03.
Les essais ont été réalisés selon le référentiel CAPE/RECADO-PQE rév.03.

3. TEST RESULTS
RESULTATS DES ESSAIS

Measured values / *Valeurs caractéristiques mesurées*

Sample identification *Identification de l'éprouvette*	Configuration "Water heater" *Configuration "Ballon"*		Configuration "Mixer tap" *Configuration "Mitigeur"*		Configuration "Combined" (water heater + mixer tap) *Configuration "Mixte" (ballon + mitigeur)*	
	$Eff_{nom\_water\_heater}$ Eff_{nom_ballon}	$C_{trans\_water\_heater}$ C_{trans_ballon}	$Eff_{nom\_mixer\_tap}$ $Eff_{nom\_mitigeur}$	$C_{trans\_mixer\_tap}$ $C_{trans\_mitigeur}$	$Eff_{nom\_combined}$ Eff_{nom_mixte}	$C_{trans\_combined}$ C_{trans_mixte}
151211 (your ref. : T-DW-3 standard)	0.58	0.95	0.52	0.92	0.66	0.94

ANNEX

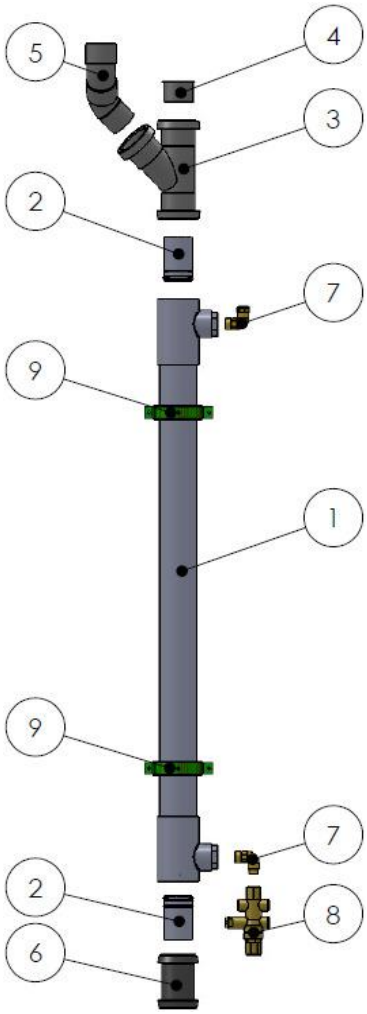
INSTALLATION INSTRUCTIONS
DSS/BRIES SHOWER HEAT RECOVERY UNIT T-DW-3 STANDARD

DUTCH SOLAR SYSTEMS

Installation instructions

DSS/Bries 3rd generation shower DWHR unit

(Drain water heat recovery unit for installation in a shower drain pipe)



1. Important information

The shower DWHR unit must be installed so that it is oriented precisely vertically.
The shower DWHR unit must be installed in a position where it can be easily accessed.
The DWHR unit must not be installed in the immediate vicinity of heat sources.
Preferably, only shower drain water should be led through the shower DWHR unit.
Placement should be in accordance with the instructions specified in ISSO 30.4.

2. Package contents

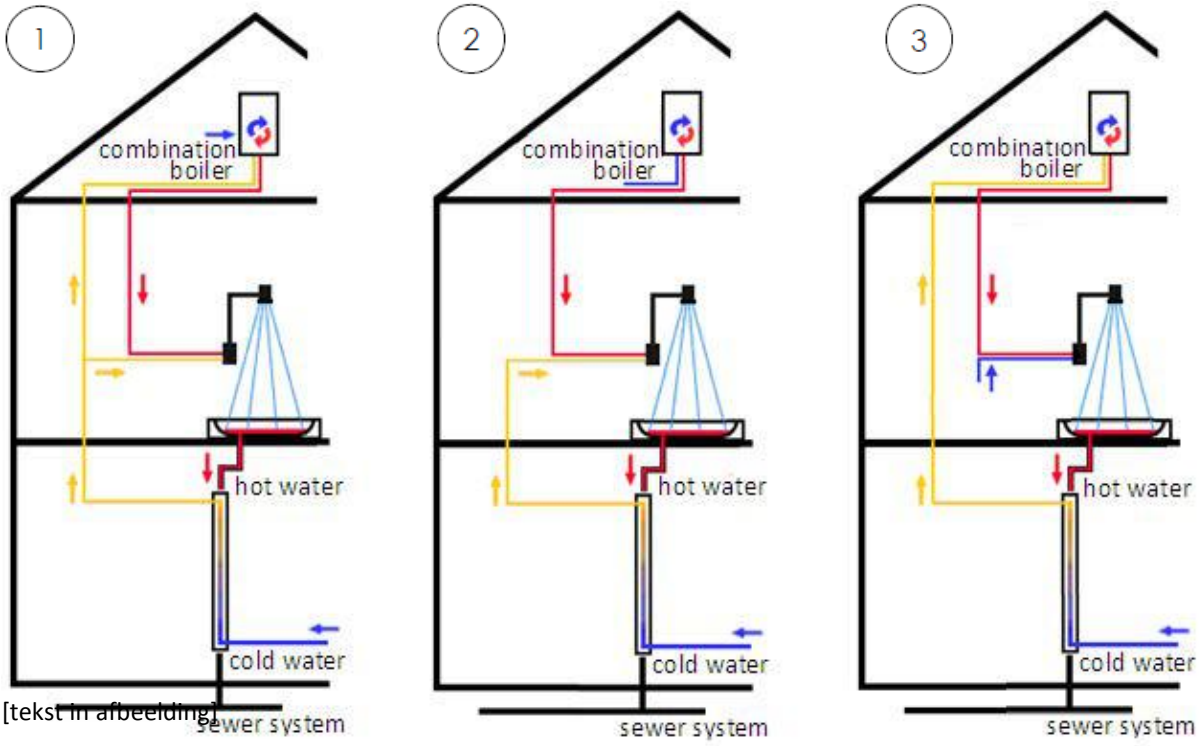
Part num	Quantit	Name	Material/Description	Standard version: Technical specifications mm)	High flow rate version: Technical specifications (c mm)
1	1	Double-walled showe unit	Interior parts: copper Exterior case: PVC (pr PN10)	Length 2010, ∅ 63 Weight: 8.3 kg Capacity: 300 ml	Identical
2	2	Coupling insert	PVC	∅ 50	,,
3	1	T-piece 45°	PP with rubber sleeve	3 x ∅ 50	,,
4	1	Cap (insert)	PP	∅ 50	,,
5	2	Curved sleeve and ins	PP with rubber sleeve	∅ 50 x 45°	,,
6	1	Coupling sleeve	PP with rubber sleeve	∅ 50	,,
7	2	Double pipe nipple, s	Brass/rubber	1/2" male thread	3/4" male thread x 22
8	1	Shutoff valve	Brass / with verifiable valve and draw-off va compression	15 x 15 Protection class EA M / Kiwa-certified	22 x 22 Protection class EA M / Kiwa-certified
9	2	Mounting bracket + v	With rubber inset	∅ 63 + M8 x 80	Identical

Please check that all these parts are present.

3. Placement

The heat recovery unit, verifiable non-return valve and shutoff valve must be easily accessible.
It is important that the shower DWHR unit be installed so that it is oriented precisely vertically. Use a spirit level to ensure vertical alignment.
The shower DWHR unit must be placed as close to the shower drain as possible. Installation at a displacement of several metres is also acceptable. The loss in efficiency is roughly 1% per metre of horizontal displacement.
Preferably, lead only shower drain water through the shower DWHR unit.
Install the shower DWHR unit in a dry, frost-free space.
Do not install the shower HR immediately adjacent to heating pipes or other heat sources. Do not insulate DWHR unit.
Installation in a meter cupboard is permitted.
The use of a thermostatic shower mixer tap is strongly recommended.
Install the shutoff valve with the arrow in the direction of the water flow.
Use Teflon tape or wire for sanitary connections.
Lightly coat the rubber gaskets of the parts used to connect the drain using a lubricant or washing up liquid to make fitting easier.

4. Connecting



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Connecting to the existing pipe system: connect the shower DWHR unit to the “cold” side of the shower mixer tap and the cold water inlet of the combination boiler (see diagram 1). Connecting the DWHR unit in this way achieves the greatest efficiency. If connection to the combination boiler involves too much work, you can also connect the DWHR unit to the shower tap only (see diagram 2). In this case, the DWHR unit will be roughly 15% less efficient (NEN 5128). If you connect the DWHR unit as shown in diagram 3, performance will be reduced by roughly 25%.

5. Performance and benefits

Standard version:

Tap water capa	Flow rate (at 40 °C)	Shower DWHR unit efficiency and power delivered (at a temperature of 10 ˚C).*	Pressure drop
CW 3	9.2 l/min,	63,7 % (12,3 kW)	34 kPa
CW 4	12.5 l/min,	60,0 % (15,6 kW)	45 kPa

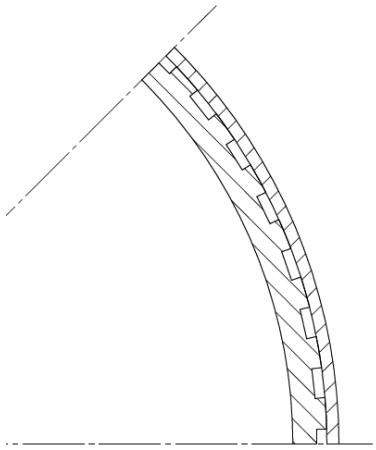
High flow rate version:

Tap water capa	Flow rate (at 40 °C)	Shower DWHR unit efficiency and power delivered (at a temperature of 10 ˚C).*	Pressure drop
CW 4	12.5 l/min,	50,2 % (13,2 kW)	11 kPa

* KIWA certificate is available.

6. Safety

European regulations (NEN 1717) require that double walls must be used to separate drain water and drinking water. In the DSS shower DWHR unit, this is accomplished by squeezing two copper pipes against each other. This creates a very sturdy and reliable construction, in which the contact between the pipes does not depend on the water pressure. The design meets all the relevant safety requirements.
The shower DWHR unit is protected against return flow through a verifiable non-return valve plus shut-off valve, which is included with the unit. It is permissible to connect the system directly to the sewer system.
The shower DWHR unit meets all TNO requirements regarding the prevention of Legionnaire's Disease: the unit does not contain any dead spaces, the volume is 0.3 litres, there is a turbulent flow through the unit and insulation of the shower DWHR unit is not permitted.



Cross-section of the shower DWHI detection ducts.

7. Maintenance and user instructions

In principle, the shower DWHR unit requires no maintenance. However, the use of cleaning agents that consist of a chalklike suspension (abrasive cleaning fluids) can lead to the formation of deposits. For this reason, the use of these kinds of cleaning agents is not recommended.
If you are an installation technician and you believe that the unit's performance is deteriorating over time due to very intensive use or specific conditions (for example, use in a hairdresser's), you can clean the unit. The unit can be cleaned by removing the cap on the T-piece and using a special flexible brush available from BRIES.

Should you have any questions, comments or possible additions related to these installation instructions, please contact us.

The DSS shower DWHR unit is a product of BRIES Energietechniek. Dutch Solar Systems is the exclusive agent for sales and distribution.

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END OF REPORT / FIN DE RAPPORT