

# HAND DRYERS

## NOFER

### Product families

Models **CONCEPT3 / CONCEPT3 TRAS EPEJO**

Models **FUGA / FUGA EVO**

Models **VELTIA / VJET**

Models **VELTIA TRIBLADE / VJET TRIBLADE**

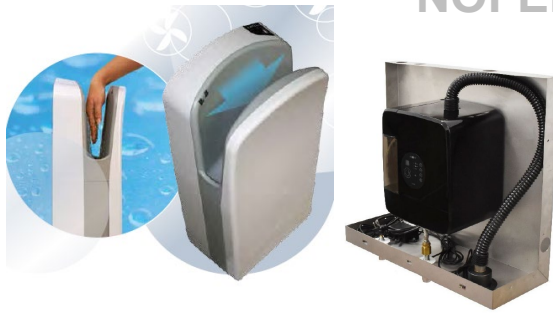
Model **VJET INOX**

Model **EVO-JET**

Model **EVO-POWER**

# NOFER HAND DRYERS

## AUTOMATIC HAND DRYERS NOFER



### High speed automatic hand dryer Product family representative and description

- FUGA / FUGA EVO:** 01931.S-800 W-10seg.
- CONCEPT3:** CONCEPT3 01901.S-1150 W-12s. 1.89 l/min.
- VELTIA/V-JET:** VJET 01303.W-1760 W-10s.
- VELTIA/V-JET TRIBLADE:** VJET TRIBLADE 01305.W-1760 W-8s.
- VJET INOX:** 01330.S-1650 W-11seg.
- EVO-JET:** 01350.S-1650 W-8seg.
- EVO-POWER:** 01425.W-1000 W-11seg.

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**Summary table: Environmental parameters, in which products have a specific contribution.**  
 Contribution detailed in VERDE, LEED and BREEM sections.

Supporting documentation		Certification: DAP, CSR, REACH, GRI			Self-declared		Potential	
Site Mobility	Solar Reflectance Index SRI	Rainwater Management	Exterior Lighting	...				
Energy Atmosphere	Embodied Energy	Greenhouse gases	Energy Demand Reduction	Equipment Efficiency	Other Polluting gases	Renewable energy	Energy management	...
Materials	Accredited location	Pre-consumer recycled content	Post-consumer recycled content	Potential reuse	Certified wood	Construction waste	Chemical composition	...
Water	Consumption < reference	Water management	...					
Indoor Environment	Low emitting VOC's	Low emitting formaldehyde	Thermal comfort	Lighting comfort	Acoustic comfort	Air quality	...	
Innovation	Design Innovation	...						

#### NOTES:

1. The information included in this document shows product compliance with environmental certification (VERDE, LEED or BREEAM) criteria. The analysis is performed based on the information provided by manufacturer. To ensure the compliance of these credits, it will be necessary during the process of any of the certifications to verify the validity of the information and data provided by the company.
2. This document does not constitute a product certification, nor does it guarantee compliance with local regulations.
3. The conclusions of this study apply only to products included in this report and are subject to the invariability of product technical conditions.
4. The validity of this document is subject to supporting documents expiration date, regulations variation, and environmental certification systems updates.
5. This document informs about products possible contribution to VERDE, LEED or BREEAM certifications. However, the final decision on whether or not a product meets certification requirements is exclusive to certification bodies: GBCI (Verde Business Certification Inc.) for LEED certification and BREEAM ES for BREEAM certification.

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# SUMMARY OF CRITERIA

## VERDE



### NATURAL RESOURCES

RN 01 Water consumption in sanitary ware

### Environmental categories VERDE



Plot and Location

Energy and Atmosphere

Natural resources

Indoor Environment

Social Aspects

Building quality

Innovation

### VERDE Certification Standards

Buildings 2020

Building

DU P

Urban Development Polygons

# CREDIT SHEET VERDE



## CATEGORY NATURAL RESOURCES

### **RN01 Water consumption in sanitary ware (VERDE BUILDINGS 2020)**

**Objective** Reduce the consumption flows of sanitary appliances to promote water savings.

**Compliance Data** The hand dryers of the CONCEPT3 series are integrated into the taps themselves.  
The water consumption of this tap is 1.89 l/min, 69%-58% below the 6-4.5 l/min used by VERDE as a reference for residential and other uses. They can therefore contribute to meeting the requirements of the criterion by saving water.

**Evaluation procedure** The percentage of reduction in drinking water consumption in sanitary appliances will be between 10 and 30% compared to the reference set by the VERDE tool.

The reference consumptions used by the VERDE tool are shown below:

Element	Flow Rate	
	<i>Private residential use</i>	<i>Uses other than private residential use</i>
<b>Kitchen faucet</b>	6 L/min	–
<b>Washbasin</b>	6 L/min	4.5 L/min
<b>Shower</b>	8 L/min	8 L/min
<b>Bathtub</b>	10 L/min	–
<b>Toilet (short flush)</b>	3 L/use	3 L/use
<b>Toilet (full flush)</b>	6 L/use	6 L/use
<b>Urinal</b>	–	4 L/use

**Example of analysis** NA

**Supporting Documents** *Concept 3 data sheets*

**Reference Standard** NA

# CREDIT SHEET

## LEED v4



### WATER USE EFFICIENCY (WE)

WE Reduction of indoor water use (prerequisite and credit)



### ENERGY AND ATMOSPHERE (EA)

EA Minimum Energy Yield (Prerequisite)  
EA Energy Performance Optimization (credit)



### MATERIALS AND RESOURCES (MR)

MR Waste Performance



### INNOVATION (ID)

ID Innovation in Design. Exemplary performance



### REGIONAL PRIORITY (RP)

RP Regional Priority

### LEED Environmental Categories



(LT)  
Location and  
Transportati  
on



(SS)  
Sustainable  
Locations



(WE)  
Water use  
efficiency



(EA)  
Energy and  
atmosphere



(MR)  
Materials  
and  
Resources



(IEQ)  
Quality of  
the Indoor  
Environment



(ID)  
Innovation  
in Design



(RP)  
Regional  
Priority

### LEED CERTIFICATION STANDARDS (v4-v4.1)

**EB** Existing Building  
**NC** New Construction  
**CI** Commercial Interiors  
**CS** Core & Shell  
**SNC** School New Construction  
**SEB** School Existing Building  
**MMR** Multifamily Mid Rise

**RNC** Retail New Construction  
**REB** Retail Existing Building  
**RCI** Retail Commercial Interiors  
**HC** Healthcare  
**HNC** Hospitality-New Constr.  
**HEB** Hospitality-Existing Building  
**HCI** Hospitality-Commercial Int.

**DCNC** Data Center NC  
**DCEB** Data Center EB  
**WNC** Warehouse NC  
**WEB** Warehouse EB  
**NDP** Neighborhood Devel. Plan  
**ND** Neighborhood Develop.  
**HM** Homes

# CREDIT SHEET

## LEED v4



### CATEGORY

## EFFICIENCY IN THE USE OF WATER (WE)

#### WE Reduced indoor water use

(EB, NC, CI, CS, SNC, SEB, RNC, REB, RCI, HC, HNC, HEB, HCI, DCNC, DCEB, WNC, WEB)

<b>Objective</b>	Reduce indoor water consumption.
<b>Compliance data</b>	The hand dryers of the CONCEPT3 series are integrated into the taps themselves. The water consumption of this tap is 1.89 l/min, which can therefore contribute to meeting the requirements of the credit by saving water.
<b>Evaluation procedure</b>	Reduce indoor water consumption from the LEED baseline. Below are the reference consumptions used by LEED:

Elements	Reference flow rates
Toilets	6 l/discharge
Urinal	1.9 l/min
Washbasin taps (public use)	1.9 l/min
Washbasin taps (private use)	8.3 l/min
Kitchen taps (excluding taps for filling pots)	8.3 l/min
Shower	9.5 l/min

NOTE: The LEED EBOM v4.1 tool awards the score based on the score obtained in the ARC tool, which depends on the comparison of the building's water consumption with the water consumption of similar buildings.

#### Exemplary performance (bonus score):

- LEED BD+C and LEED CI: Achieve at least 55% water savings compared to the reference building.
- LEED EBOM: Achieve at least 35% water savings compared to the reference building.

**Example of analysis** N/A

**Supporting Documents** *Concept 3 data sheets*

**Reference Standard**

- Energy Policy Act (EPA) of 1992 and as amended: [eere.energy.gov/femp/regulations/epact1992.html](http://eere.energy.gov/femp/regulations/epact1992.html)
- EPA 2005: [eere.energy.gov/femp/regulations/epact2005.html](http://eere.energy.gov/femp/regulations/epact2005.html)
- International Association of Plumbing and Mechanical Officials Publication IAPMO/ANSI UPC 1-2006, Uniform Plumbing Code 2006, Section 402.0, Water-Conserving Fixtures and Fittings: [iapmo.org](http://iapmo.org)

- International Code Council, International Plumbing Code 2006, Section 604, Design of Building Water. Distribution System: [iccsafe.org](http://iccsafe.org)
- ENERGY STAR: [energystar.gov](http://energystar.gov)
- Consortium for Energy Efficiency: [cee1.org](http://cee1.org)
- WaterSense: [epa.gov/watersense](http://epa.gov/watersense)
- IgCC/ASHRAE 189.1 cooling tower and evaporative condenser requirements: [ashrae.org/resources--publications/bookstore/standard-189-1](http://ashrae.org/resources--publications/bookstore/standard-189-1)





## CATEGORY ENERGY AND ATMOSPHERE (EA)

- EA Minimum energy yield (prerequisite)
- EA Optimizing Energy Performance (Credit)
- EA Energy efficiency (EBOM v4.1).  
(SNC, NC, CS, RNC, HNC, DCNC, WNC, CI, RCI, HCI, HC, MMR, EB, SEB, REB, HEB, DCEB, WEB)

**Objective** Achieving good energy efficiency of the building and its systems to reduce the environmental and economic damage caused by excessive energy use.

**Compliance data** NOFER hand dryers have power outputs between 0.8 and 1.76kW depending on the model, lower than conventional hand dryers, and require reduced drying times, between 8 and 12 seconds. They thus contribute to the reduction of the building's energy consumption.

LEED BD+ C and LEED CI NOTE: Process loads, such as office equipment and other equipment, must be estimated for the justification of LEED requirements in energy simulation. They will depend on the type of building or type of space and must be assumed to be identical in the calculation of the proposed building and the reference building, except in those cases where an innovation has been implemented and is accepted by the certifying authority. Variations may be permitted by the certifying authority in the power, schedules, or control sequences of the equipment modelled in the reference building with respect to the proposed building, based on documentation that the equipment installed in the proposed design represents a significant verifiable and documented departure from conventional practice.

*Note: The final result for determining the total points depends on the design of the building, its location, orientation, materials, definition of the envelope and systems used.*

### Evaluation procedure

#### BD+C and IC Tools, Option 1: Energy Simulation

Demonstrate, through an energy simulation, the improvement in energy efficiency of the proposed building compared to a reference building (defined according to the ANSI/ASHRAE/IESNA 90.1-2.010 standard, Appendix G, with errata).

Savings of 2-5% for the prerequisite and 3-60% for the credit must be demonstrated, which vary depending on the rating system. These savings correspond to a score between 1 and 30 points.

**EBOM Tools:** Energy efficiency will be assessed in comparison to energy bills with:

- Valid typologies for Energy Star Portfolio Manager: Energy Star Portfolio Manager Rating or Rating.
- Typologies not valid for Energy Star Portfolio Manager: Comparison with the national average of buildings of the same type. If this average is not available, it can be compared with three buildings of the same type. Comparison with historical consumption data of the building.
- LEEDv4.1: Score obtained in the ARC tool from the data obtained from similar buildings.

#### Exemplary performance (bonus score):

- LEED BD+C, option 1: Achieve at least 54% energy savings compared to the reference building.

- LEED CI: Achieve energy savings of 32% compared to the reference building.
- LEED EBOM:
  - Projects valid for Energy Star Portfolio Manager: Obtain a score of 97 in Energy Star Portfolio Manager.
  - Projects not valid for Energy Star Portfolio Manager: Compare them with three similar buildings and with the consumption history and obtain 47% savings.

### Analysis example

The case study corresponds to a typical 8-storey office building located in Madrid with a conditioned area of 6,000 m<sup>2</sup> and an occupancy level of 10 m<sup>2</sup>/person. The total energy to cover the needs of HVAC, DHW, Lighting and miscellaneous equipment is = 1984 MBTU/year (Data obtained by simulating the building with eQuest 3-65).

The occupation of the building is established as a typical occupation.

- Full-time occupants: 600 people
- Number of Hand Dryer Uses: 3 Uses/person/day
- Number of working days per year: 250.

The total energy to cover the needs of HVAC, DHW, lighting and miscellaneous equipment for the reference building (coinciding with the one proposed for this case study) is = 1984 MBTU/year.

The total consumption as a process load of a standard hand dryer (Power 2,400W drying time 35 sec):  $600 \cdot 3 \cdot 250 \cdot 2400 \cdot 35 \text{ kW} / 3600 \text{ s/h} = 10,500 \text{ kWh/year} = 35.8 \text{ MBTU/year}$

The total energy of the reference building adding the process loads:  $1984 + 35.8 \text{ MBTU} = 2,019.8 \text{ MBTU/year}$ .

#### **Secamanos CONCEPT3 / CONCEPT3 TRAS ESPEJO. 1150W-12 seg:**

Total consumption as process load:

$600 \cdot 3 \cdot 250 \cdot 12 \text{ s} \cdot 1,15 \text{ kW} / 3600 \text{ s/h} = 1725 \text{ kWh/year} = 5.89 \text{ MBTU/year}$ .

Total energy of the building adding the process loads of the hand dryer: 1989.9 MBTU.

The improvement obtained in the proposed building compared to the reference one is 1.5%.

#### **Hand dryer FUGA / FUGA EVO 800W-10 sec.:**

Total consumption as process load:

$600 \cdot 3 \cdot 250 \cdot 10 \text{ s} \cdot 0.8 \text{ kW} / 3600 \text{ s/h} = 1000 \text{ kWh/year} = 3.4 \text{ MBTU/year}$ .

Total energy of the building adding the process loads of the hand dryer: 1987.4 MBTU.

The improvement obtained in the proposed building compared to the reference one is 2%.

#### **Hand dryer VELTIA / VJET 1760W-10 seg.:**

Total consumption as process load:

$600 \cdot 3 \cdot 250 \cdot 10 \text{ s} \cdot 1.76 \text{ kW} / 3600 \text{ s/h} = 2200 \text{ kWh/year} = 7.5 \text{ MBTU/year}$ .

Total energy of the building adding the process loads of the hand dryer: 1991.5 MBTU.

The improvement obtained in the proposed building compared to the reference building is 1.4%.

#### **Hand dryer VELTIA / VJET TRIBLADE 1760W-8 seg.:**

Total consumption as process load:

$600 \cdot 3 \cdot 250 \cdot 8 \text{ s} \cdot 1.76 \text{ kW} / 3600 \text{ s/h} = 1760 \text{ kWh/year} = 6 \text{ MBTU/year}$ .

Total building energy adding hand dryer process loads: 1990 MBTU.

The improvement obtained in the proposed building compared to the reference building is 1,5%.

**VJET INOX hand dryer 1650W-11 seg.:**

Total consumption as process load:

$600 \times 3 \times 250 \times 11s \times 1.65 \text{ kW} / 3600 \text{ s/h} = 2665 \text{ kWh/year} = 7.74 \text{ MBTU/year}$ .

Total energy of the building adding the process loads of the hand dryer: 1991.7 MBTU.

The improvement obtained in the proposed building compared to the reference building is 1.4%.

**EVO-JET hand dryer 1650W-8 seg.:**

Total consumption as process load:

$600 \times 3 \times 250 \times 8s \times 1.65 \text{ kW} / 3600 \text{ s/h} = 1650 \text{ kWh/year} = 5.6 \text{ MBTU/year}$ .

Total energy of the building adding the process loads of the hand dryer: 1989.6 MBTU.

The improvement obtained in the proposed building compared to the reference one is 1.5%.

**Hand dryer EVO-POWER 1000W-11 seg.:**

Total consumption as process load:

$600 \times 3 \times 250 \times 11s \times 1 \text{ kW} / 3600 \text{ s/h} = 1375 \text{ kWh/year} = 4.7 \text{ MBTU/year}$ .

Total energy of the building adding the process loads of the hand dryer: 1988.7 MBTU.

The improvement obtained in the proposed building compared to the reference building is 1.6%.

**Support documents**

*Concept3, Concept3 tras espejo, Fuga, Fuga EVO, Veltia Vjet, Veltia Vjet Triblade, Vjet inox, EVO-jet, Evo-power technical data sheet*

**Reference Standard**

ASHRAE 90.1-2010



## CATEGORY MATERIALS AND RESOURCES (MR)

### MR Waste yield (EB, SEB, REB, HEB, DCEB, WEB) – v4.1

<b>Objective</b>	Analyse and reduce the waste generated by the building's occupants, as well as the percentage of waste that is disposed of in landfills and incinerators.
<b>Compliance data</b>	Hand dryers can replace paper towels, reducing waste generation. They therefore contribute to improving the credit score.
<b>Evaluation procedure</b>	<p><b>LEEDv4.1 Pilot Release Requirements:</b></p> <p>Have storage spaces for recyclable waste (at least paper, cardboard, glass, plastics and metals), as well as batteries and lamps, for proper management. Analyse and account for the waste that is generated and that which is recycled per year. These values will be entered into the ARC tool, which will calculate the score based on the waste generated and the waste recycled.</p>
<b>Analysis examples</b>	N/A
<b>Support documents</b>	<i>Technical data sheets</i>
<b>Reference Standard</b>	NA



## CATEGORY INNOVATION IN DESIGN/OPERATION (ID)

**ID Innovation**  
(NC, CS, SNC, RNC, HC, HNC, DCNC, WNC, CI, RCI, HCI, EB, SEB, REB, HEB, DCEB, WEB)

<b>Objective</b>	Reward projects that achieve exceptional or innovative performance in meeting LEED requirements.
<b>Compliance data</b>	NOFER can contribute to meeting the requirements of exemplary performance in credits: <ul style="list-style-type: none"> <li>• WE – Efficiency of indoor water use.</li> <li>• EA - Optimization of energy performance.</li> </ul>
<b>Evaluation procedure</b>	<b>Option 3: Exemplary Performance (EP)</b> Some LEED credits give the option of obtaining an extra point for Exemplary Performance (EP) if the requirements of said credit are exceeded, reaching the values defined by LEED as Exemplary Performance (EP).
<b>Example of analysis</b>	N/A
<b>Support document</b>	See corresponding credit.
<b>Reference Standard</b>	See corresponding credit.



## CATEGORY REGIONAL PRIORITY (RP)

**RP Regional Priority**  
(NC, CS, SNC, RNC, HC, HNC, DCNC, WNC, CI, RCI, HCI, EB, SEB, REB, HEB, DCEB, WEB)

<b>Objective</b>	Assess criteria of special relevance depending on the specific climate of each region.
<b>Compliance Data</b>	In some locations in Spain, the WE c2 Reduction of inland water consumption credit is eligible for Regional Priority, as long as the percentage of savings exceeds 40% (4 points). Applicability can be checked in: <a href="https://www.usgbc.org/regional-priority-credits">https://www.usgbc.org/regional-priority-credits</a> .
<b>Evaluation procedure</b>	Depending on the sustainability priorities in the different regions, Regional Priority credits have been established that can be obtained automatically in case of demonstrating compliance with the credit, with a certain level of compliance.  Projects are eligible, depending on location, for the following regional priority credits: <ul style="list-style-type: none"> <li>• WE Reduction of indoor water consumption</li> <li>• EA Energy Performance Optimization</li> </ul>
<b>Example of analysis</b>	N/A
<b>Supporting Documents</b>	See corresponding credit.
<b>Reference Standard</b>	See corresponding credit.

# SUMMARY OF REQUIREMENTS

## BREEAM



### WATER

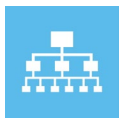
AG 01, Water consumption  
05AG004 (BREEAM in use)



### INNOVATION

INNOVATION

### BREEAM ES ENVIROMENTAL CATEGORIES



Management



Health and wellness



Energy



Transport



Water



Materials



Waste



Land use and ecology



Contamination



Innovation

### BREEAM ES Certification Standards

UR BREEAM ES Town planning  
NC BREEAM ES New building

VIV BREEAM ES housing

USE BREEAM ES in use

# REQUIREMENTS SHEET

## BREAM ES



### CATEGORY

## WATER

#### AG 01 Water consumption

#### 05AG004 (BREEAM in use)

**(BREEAM IS NEW CONSTRUCTION 2015, BREEAM IS HOUSING 2020, BREEAM IS IN USE 2014)**

#### Objective

Reduce the consumption of drinking water for sanitary use and irrigation in the building through the incorporation of water efficiency appliances and water recycling systems.

#### Compliance Data

The hand dryers of the CONCEPT3 series are integrated into the taps themselves.

The water consumption of this tap is 1.89 l/min, below the BREEAM requirements, and can therefore contribute to compliance with the requirement.

#### Evaluation procedure

#### BREEAM New Construction & Housing:

The objective of this Requirement is to reduce the demand for drinking water by installing more efficient sanitary appliances and to compensate for the final demand for non-potable water with the installation of grey or rainwater systems.

The calculation must take into account – when specified – the following domestic sanitary appliances:

- a. Toilets
- b. Urinary
- c. Faucets (washbasin and, where specified, kitchen taps, waste disposal units).
- d. Showers.
- e. Bathtubs.
- f. Dishwasher (domestic and commercial).
- g. Washing machines (domestic and commercial/industrial).

The BREEAM calculator calculates the score based on the level of efficiency achieved by both sanitary appliances and the demand for non-potable water covered by grey or rainwater systems.

#### Exemplary level:

- Office buildings, industries, shops and schools: High percentages of improvement (60-65% depending on the area of precipitation).
- Other typologies (including dwellings): When the efficiency level of sanitary appliances reaches level 5 (corresponding to 3l/min for sinks) and 95% of the toilet/urinal discharge and irrigation demand is met by using recycled non-potable water obtained through rainwater or grey water systems.
- Housing: The overall level of components achieved is 5 and a recirculation system is used to prevent the consumption of hot water in the taps at a lower temperature than that selected by the user.

**BREEAM in use:**

The percentage of low-consumption washbasin taps (4.5 l/min) is over 75%.

**Example of analysis**

NA

**Supporting Documents**

*Concept 3 Data sheet*

**Reference Standard**

NA





## CATEGORY INNOVATION



### INNOVATION

(BREEAM ES NEW CONSTRUCTION 2015 and BREEAM ES Housing 2020)

<b>Objective</b>	Incentivise innovation within the construction sector through the recognition of improvements in the area of sustainability that are not rewarded through the Standard Requirements.
<b>Compliance Data</b>	<p>NOFER can contribute to meeting the exemplary level in the following requirements:</p> <ul style="list-style-type: none"> <li>AG 1, Water consumption</li> </ul> <p>NOTE: See exemplary level criteria defined in the corresponding requirement.</p>
<b>Evaluation procedure</b>	<p>Up to a maximum of 10 Innovation Points can be earned through a combination of the following options:</p> <p><b>Exemplary level in existing Requirements</b> Some BREEAM credits give the option to earn extra points for demonstrating exemplary efficiency through the achievement of the exemplary level criteria defined in those credits.</p> <p><b>Approved innovations</b> An extraordinary point may be earned for each BREEAM ES Approved Innovation Application provided that the criteria defined in an approved innovation application form are met.</p>
<b>Example of analysis</b>	NA
<b>Supporting Documents</b>	<i>See Corresponding Requirements</i>
<b>Reference Standard</b>	<i>See Corresponding Requirements</i>