

Thermal Test Report

LHX+ 10kW

Revision 1.0

DUT type:	LHX+ 10kW	Test date:	20200115
DUT p/n:	29714-016	Firmware:	-
DUT s/n:	Engineering sample	Test also applies to p/n:	-
Test item:	Determine the total/global airflow of the LHX+ 10kW		
Results:	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL <input type="checkbox"/> MIXED		
Document history:			
Revision	Date	Author	Description of changes
1.0	20210312	DD	Initial release



Information about producer:
 Schrott GmbH
 D-75334 Straubenhardt
nvent.com

The details in this manual have been carefully compiled and checked.
 Schrott GmbH cannot accept any liability for errors or misprints. The company reserves the right to amend this technical specification due to additional development and improvement of product.
 Copyright © 2018

List of contents

1 Test purpose	3
2 Description of the test	3
3 Test Setup	4
3.1 Test resources/equipment.....	4
3.1.1 Air performance test rig for fans according ISO 5801	4
3.2 Test object.....	5
4 Measurement results	6
4.1 Heat exchanger at overall operation	6
4.2 Heat exchanger at Fan failure	6

List of Figures

Figure 1 Air performance test rig_1	4
Figure 2 Air performance test rig_2	4
Figure 3 Measurement setup_1	5
Figure 4 Measurement setup_2	5

List of Tables

Table 1 Heat exchanger at overall operation.....	6
Table 2 Heat exchanger at Fan failure	6

1 Test purpose

In this report you will find the measurement results of the **total air volume** of the heat exchanger **LHX+ 10kW (29714-016)**.

The system was tested with the **air performance test rig** (description see page 4) at **normal operation** and **fan failure**.

2 Description of the test

The heat exchanger was fixed to the **air performance test rig**. Operating conditions for the fans were **10VDC (max. fan speed), 9VDC, 8VDC, 7VDC, 6VDC, 5VDC, 4VDC and 3VDC** control voltage.

3 Test Setup

3.1 Test resources/equipment

3.1.1 Air performance test rig for fans according ISO 5801

- The test rig allows flow measurements up to 5.000 m³/h at a test pressure of 3.000 Pa
- The flow rate is determined using high precision orifice meters according to DIN EN ISO 5167-2

- Specially developed from ILK Dresden

- Measurements:

- Air flow volume of fans in cases, cabinets and systems
- Determination air drag characteristic curves of filter mats, perforations and openings
- Fan comparison, air flow volume, speed, power input, power, AC, DC clamping



Figure 1 Air performance test rig_1

- Output characteristic curves of fans with characteristic drag curves or characteristic systems curves

- The control and data acquisition is realized by a PC-based data acquisition system



Figure 2 Air performance test rig_2

3.2 Test object

The heat exchanger was equipped with following components:

- Heat exchanger: Leel Coils W2S1G041704001410061HLDAOR—PE / Schroff 69714-093
- 2 fans: Ziehl Abegg RH20V-4IP.Z8.AR
- No control unit
- Water connection → for measurements not needed

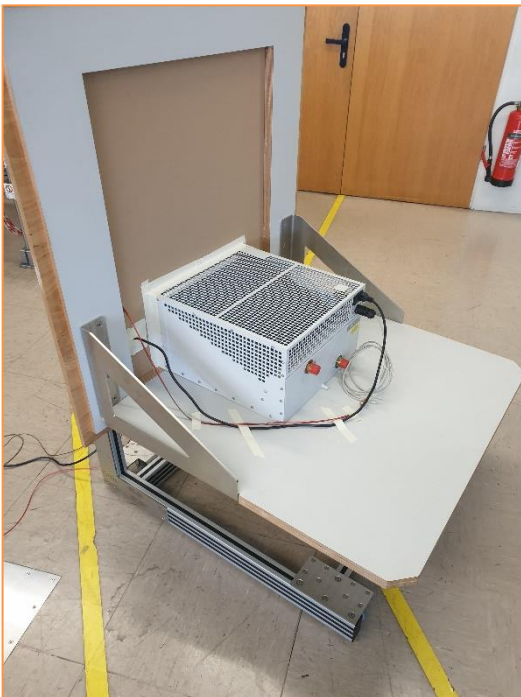


Figure 3 Measurement setup_1

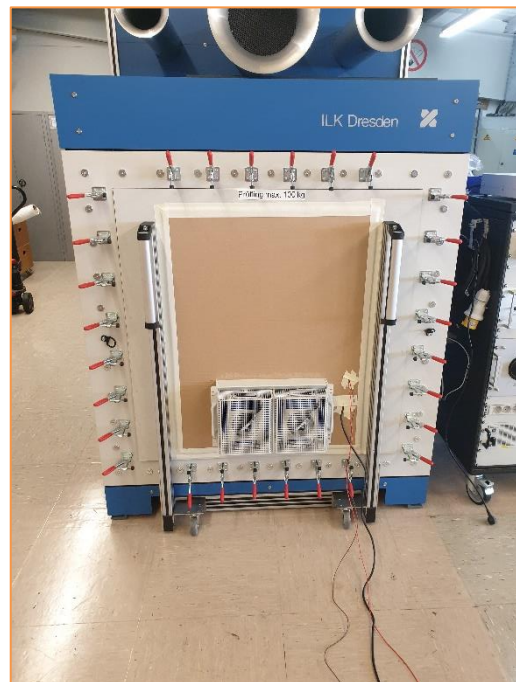


Figure 4 Measurement setup_2

4 Measurement results

4.1 Heat exchanger at overall operation

Control voltage [VDC]	Fan Speed [1/min]	Total air flow	
		[m ³ /h]	[CFM]
10	4214	1790	1053,5
9	4204	1785	1050,6
8	3753	1598	940,5
7	3254	1377	810,4
6	2737	1155	679,8
5	2222	926	545,0
4	1712	707	416,1
3	1193	478	281

Table 1 Heat exchanger at overall operation

4.2 Heat exchanger at Fan failure

	Total air flow	
	[m ³ /h]	[CFM]
Fan failure of the left fan	837	492,6
Fan failure of the right fan	839	493,8

Table 2 Heat exchanger at Fan failure