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Test report

on the initial type test of a residential space heating appliance fired by wood pellets according to DIN EN 14785

Test laboratory	TÜV SÜD Industrie Service GmbH Feuerungs- und Wärmetechnik Notified Body 0036 according to CPR
Subject of test	Roomheater according to DIN EN 14785
Type	**Nemaxx P9** Intended use: space heating Fuel: wood pellets
Customer	Bargain24 AG Sihleggstr. 23 8832 Wollerau Schweiz
Scope of order	Initial type test in the conformity assessment procedure according to Regulation (EU) No. 305/2011 (CPR)
Expert	Dipl.-Ing. Dirk Weisgerber
Period of Test	November 2013 to November 2014
Basis of test	DIN EN 14785:2006-09 DIN EN 14785 Berichtigung 1:2007-10

Date: 2014-11-04

Our reference IS-TAF-MUC/wei

Report no. W-O 1404-02/14
Order no. 2279554

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This document includes 8 pages and 27 enclosures

The test results refer exclusively to the units under test.

DAkkS
Deutsche Akkreditierungsstel
D-PL-14153-04-00

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1 Summary

Customer	Bargain24 AG, Schweiz 8832 Wollerau
Subject of test	Roomheater fired by wood pellets according to DIN EN 14785
Intended use	Space heating
Fuel	Wood Pellets
Type	**Nemaxx P9**
General design	Body of the appliance: steel
	Cover of the appliance: steel cover
	Front fire door with small glass inset
	Integrated fuel hopper
	Combustion in burner pot
	Combustion air supply: induced draught fan
	Convection air with fan
	Automatically fed up with auger
	Automatic ignition
	Cleaning and deashing manual
	Grate integrated in the burner
	Ash drawer

Characteristics at nominal and partial heat output

		Nominal heat output	Partial heat output
Heat output	kW	7,1	3,8
Fuel rate	kg/h	1,8	0,9
CO-Emission (13% Vol. O_2)	Vol. %	0,007	0,015
CO-Emission (13% Vol. O_2)	mg/m³	89	184
Dust-Emission (13% Vol. O_2)	mg/m³	23	23
Efficiency	%	86,2	90,2
Flue-gas temperature	°C	169	112
Flue-gas temperature behind the stove in the spigot	°C	223	151
Flue draught	Pa	12	10
Flue gas mass flow	g/s	7,1	4,3
Electrical connection		~ 230 V, 50 Hz	
Distance to combustible	cm	20 (rear wall) / 20 (side wall) 100 (front) / 0 (floor) 80 (top of stove to ceiling)	

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The essential characteristics according to appendix ZA.1 of DIN EN 14785 for room heaters fired by wood pellets were tested and the requirements are fulfilled, if the measures in clause 6 have been taken into account. This result is a prerequisite for performing the process of assessment of conformity and CE marking by the manufacturer.

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according to Regulation (EU)
No. 305/2011 (CPR)

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2 Basis of test

2.1 DIN EN 14785:2006-09 Residential space heating appliances fired by wood pellets, Requirements and test methods

2.3 DIN EN 14785 Ber 1 : 2007-10; Amendment 1 to DIN EN 14785

2.2 Documents of the customer

3 List of enclosed documents

A1 - A19 Results and analysis of the test, measuring device

B1 - B8 Drawings

4 Description of the roomheater

4.1	appliance	Roomheater fired by wood pellets
4.2	intended use	space heating appliance for domestic use
4.3	type	Nemaxx P9
4.4	defined fuel	wood pellets
4.5	dimensions in cm (width x depth x high)	46 x 51 x 97
4.6	weight	95 kg
4.7	firedoor	Front firedoor with small glass inset (Glass inset width 80 mm x height 100 mm)
4.8	general construction	▪ Body of the appliance: steel ▪ Cover of the appliance: metal casing with convection openings ▪ Integrated fuel hopper ▪ Automatically fed up with auger ▪ Operation only with closed door ▪ Manual deashing ▪ Bottom grate is integrated in the burner pot ▪ Combustion air supply with induced draught fan ▪ Convection air with fan ▪ Automatical electric ignition ▪ Combustion in the burner pot For more details see drawings in enclosure B.
4.9	operation method	not room sealed operation
4.10	flue gas connector	flue gas spigot for rear connection (diameter 80 mm)
4.11	combustion air supply	pipe connection in the back wall (diameter 50 mm)

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4.12	Equipment (defined by the manufacturer):	
	Controller system (hard- and software)	Manufacturer: Ningbo Hanks Heating Appliance Technology Co. Ltd, type and suitability unknown
	Ignition device	Manufacturer: Haishi electric heating element Co. Ltd, type: HS ø 9.5*150, AC250V - 300W
	Flue gas fan	Manufacturer: Shanghai Jakel Electrical Machinery Co. Ltd., type: E60080 J238-112-11247, Class: H, AC230V, 50 Hz, 0.5 A
	Convection air fan	Manufacturer: Ningbo Yinzhou FengTech Motor Co. Ltd, type: Ø 60 mm X 300 mm, 238-112-11233, Class:H, AC 230 V, 50 Hz, 0.23 A
	Auger motor	Manufacturer: Ningbo Yinzhou FengTech Motor Co. Ltd, type: 64TYD, Class B; AC 230 V, 50 Hz, 16 W
	Temperature sensor (flue gas)	Manufacturer: Shen Zhen minjie Electrical Technology Co. Ltd, type: 100k3990 - R25°C 100KΩ B25°C/50°C=3990
	Temperature sensor (fuel hopper)	Manufacturer: Shen Zhen minjie Electrical Technology Co. Ltd, type: 100k3990 - R25°C 100KΩ B25°C/50°C=3990
	Pressure control device	Manufacturer: Ningbo Hanks Heating Appliance Technology Co. Ltd, type: GRACE0700-25-01 Ø10.5*104*104*39

4.13	Control adjustments for		Nominal heat output	Partial heat output	
	runtime feeding screw break interval feeding screw	s s	4 4	3 7	
	flue gas fan (max. 180)	-	111	101	
	hot air blower (max. 185)	-	185	141	
	cleaning time		20 s in 1 h	20 s in 1 h	

4.14	Minimum distance to combustible materials	
	appliance to rear wall	200 mm
	appliance to side wall	200 mm
	appliance to floor	-- (bottom appliance - floor)
	appliance to ceiling	800 mm
	appliance to front	1000 mm

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4.15	Marking	The final type plate has not been available for test. The type plate must contain as a minimum the following information: • CE-Symbol in order to directive 93/68/EWG [1)] • manufacturer's name • last two digits of the year in which the marking is affixed [1] • the standard number: EN 14785 • the type or the model • description of the product [1] • emission of CO in combustion products [1] • flue gas temperature °C [1] • efficiency at nominal heat output [1] • nominal heat output in kW or W [1] • the space heating output in kW or W • the water heating output in kW or W (where relevant) • the maximum water operating pressure, in bar (where relevant) • whether or not the appliance can be used in a shared flue • permissible fuels [1] • the minimum distance to adjacent combustible materials, in mm [1] • the words "use only recommended fuels" • advice: read and consider the instructions 1) Obligatory content according to DIN EN 14785, Annex ZA

5 Performance of the test

The initial type test in accordance to DIN EN 14785, Annex ZA included the following parameters

- fire safety
- emission of combustion products
- release of dangerous substance
- surface temperature
- thermal output
- energy efficiency
- flue gas temperature

The test was performed on the basis of a previously performed test of an identical pellet stove model "Midi" from manufacturer Ningbo Hanks Heating Appliance Technology Co. Ltd., see test report W-O 1405-00/14 dated 2014-05-05.

The test of the electrical safety, the electromagnetic compatibility, the test of the user's manual, the installation manual and the marking was not part of the test order.

The description of the test assembly, the test results and the list of measurement devices are documented in enclosure A of this test report.

A description of the test procedure is given in the European standard as well as in the above mentioned enclosures of this test report.

The assessment regarding the release of dangerous substances was made on the basis of a manufacturer's declaration. During the test at nominal heat output it was proved that in the combustion process no dangerous substances are released in critical amount in the surroundings.

The test of the nominal heat output, partial heat output and the fire safety test the control parameters were used as in the table in section 4.13. The test of the requirements at lower or higher control parameters according to the table in section 4.13 was not part of the test order.

The requirements in terms of temperatures in the fuel hopper in the safety test and in case of power failure were performed. To avoid back burning four devices (drop chute, two temperature sensor, differential pressure flue outlet - combustion chamber) are provided according to the manufacturer. This fulfills the not quantified requirements of the standard EN 14785, chapter 5.5. Whether these safety devices cover all possible cases and foreseeable incidents / component failures and also signal failures in the controller (hardware and software), which may cause back burning in the fuel hopper, is not requested by EN 14785 and was not part of the test order.

Further tests were not part of the order.

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6 Summary

The	residential space heating appliance fired by wood pellets according to DIN EN 14785
type	**Nemaxx P9**
customer	Bargain24 AG Sihleggstr. 23 8832 Wollerau Schweiz

was tested according to the basis of test mentioned in clause 2.

The result of the examination is:

The essential requirements according to appendix ZA.1 of DIN EN 14785 for wood pellet stoves are fulfilled if the following amendments have been applied.

- The control parameters for nominal heat output and partial heat output according to the table in section 4.13 must be preset and must be protected that this parameters can not be changed by the installer or operator.
- The gap between the pellet hopper and the upper fireplace cover must be closed in order to avoid a fire hazard of pellets outside the combustion chamber.

Further tests of reliability, even in terms of safety against backburning into the fuel hopper was not part of the test order.

The results of this test report are taken into account in the documentation and the labeling of the manufacturer.

The further test results are documented in detail in enclosure A of this test report.

The initial type test by the Notified Body within the procedure of the system of attestation of conformity for CE marking has been carried out with positive result if the above mentioned amendments are fulfilled. All other tasks in accordance with DIN EN 14785 Annex ZA.2, such as the factory production control, the electrical safety (LVD), the electromagnetic compatibility (EMV), the requirements on the documentation and on the marking have to be fulfilled.

National rules for use and local applicable installation conditions must be met.

Feuerungs- und Wärmetechnik

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Expert of Notified Body 0036
according to Regulation (EU)
No. 305/2011 (CPR)

Dirk Weisgerber

Remark:
Notwithstanding from page 1 this test report may be used also without accompanying enclosures, otherwise, however, completely.

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Requirements on	according EN 14785	Requirem. fullfiled
Materials, design and construction		
Production documentation	4.1	
The documentation and/or the drawings shall include at least the following information::		
▪ the specification of the materials used in the construction of the appliance		1)
▪ the nominal heat output in kW using fuels recommended by the manufacturer		1)
Additional details for appliance with boiler:		
▪ the welding process used in the manufacture of the boiler shell		n.a.
▪ the permissible maximum operating water temperature in °C		n.a.
▪ the permissible maximum operating pressure in bar		n.a.
▪ the type test pressure in bar		n.a.
▪ the nominal water heating output in kW		n.a.
▪ the partial water heating output in kW		n.a.
General construction	4.2	
▪ The shape and dimensions of the components and equipment and the method of design and manufacture and, if assembled on site, the method of assembly and installation shall ensure that, when operated in accordance with the provisions of the appropriate test and exposed to the associated mechanical, chemical and thermal stresses, the appliance shall operate reliably and safely such that during normal operation no combustion gases posing a hazard can escape into the room in which the appliance is installed nor can embers fall out.		yes 2)
▪ Non-combustible materials shall be used, except that it shall be permissible to use combustible materials for the following applications: Components or accessories fitted outside the appliance, internal components of controls and safety equipment, operating handles, electrical equipment.		yes 3)
▪ No part of the appliance shall comprise any material known to be harmful.		yes 3)
▪ Component parts, which require periodic replacement and/or removal shall be either so designed or marked for identification to ensure correct fitting.		yes
▪ No part of the appliance shall comprise of or contain asbestos.		yes 3)
▪ Hard solder, containing cadmium in its formulation, shall not be used.		yes 3)
▪ Where thermal insulation is used, it shall be made of non-combustible material and shall not be a known hazard to health in its applied position. The thermal insulation should withstand normal thermal and mechanical stresses.		yes 3)

n.a. not applicable

1) The test of the documentation was not part of the test order

2) During the tests for nominal heat output and test of fire safety the requirements were met. Other requirements e.g. terms of durability could not be verified. The requirements have to be fulfilled.

3) According to visual test

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Requirements on	according EN 14785	Requirem. fullfiled
Integral boiler	4.2	
▪ The boiler shell shall be constructed from cast iron and/or steel and shall be capable of operating at the maximum operating pressure declared by the manufacturer. The materials and dimensions for the integral boiler construction shall be in accordance with the specifications given in chapter 4.12.		n.a.
▪ Parts which act as a seal shall be located securely; for example by means of bolts or welding; to prevent the ingress or leakage of air, water or combustion products.		n.a.
▪ Adjacent surfaces between metal components in the firebox or the flueways shall be gastight.		n.a.
▪ Where a seal is made with fire cement, the cement shall be supported by adjacent metal surfaces.		n.a.
Boilers constructed of steel	4.2.2.1	
▪ The materials used shall be suitable for welding (Table 1)		n.a.
▪ Boilers constructed of mild steel shall have the appropriate wall thicknesses set out in Table 2.		n.a.
▪ The tolerances on the nominal minimum wall thicknesses for non-alloyed steels given in Table 1 shall be as specified in EN 10029:1991.		n.a.
Boilers constructed of cast iron	4.12.4	
▪ The mechanical properties of cast iron used for parts subject to water pressure shall, as a minimum, correspond to the values listed in Table 4.		n.a.
▪ The wall thickness of the casting section shall be not less than the minimum thicknesses listed in Table 3.		n.a.
Boiler shell tappings	4.12.8	
▪ The threads of boiler shell tappings, for flow and return pipes, shall be not less than the minimum thread size designation given in Table 5.		n.a.
▪ Where tapered threads are used, they shall be in accordance with the requirements of ISO 7-1:1994 and EN 10226-3.		n.a.
▪ Where parallel threads are used, they shall be in accordance with ISO 228-1:2000 and ISO 228-2:1987.		n.a.
▪ The design and position of flow tappings shall be such that air will not be retained within the boiler shell.		n.a.
▪ If boilers are supplied with reducing bushes in horizontal flow tappings, these shall be eccentric and fixed so that the reduced outlet is uppermost.		n.a.
▪ The minimum depth of tapping or length of thread shall conform to Table 6.		n.a.
▪ Where a drain socket is provided in the boiler shell, it shall be a minimum thread size designation of ½ and shall be in accordance with ISO 7-1:1994 and EN 10226-3or ISO 228-1:2000 and ISO 228-2:1987.		n.a.

n.a. not applicable

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Requirements on	according EN 14785	Requirem. fullfiled
Boiler waterways	4.12.9	
Design of all boiler waterways		
▪ The design of the boiler shall ensure a free flow of water through all parts. To minimize the build up of sediments, sharp or wedge-shaped waterways with a taper towards the bottom shall be avoided.		n.a.
▪ Where inspection holes are provided in the boiler to give access for inspection and cleaning of the waterways, they shall be a minimum of 70 mm x 40 mm or have a minimum diameter of 70 mm and be sealed with a gasket and cap.		n.a.
Boiler waterways used with indirect water systems		
▪ The minimum internal dimension of waterways throughout the main body of the appliance shall be not less than 20 mm except where waterways have to be locally reduced to facilitate manufacture or are in areas not in direct contact with burning fuel, in these cases the width of the waterways shall not be less than 14 mm.		n.a.
Boiler waterways used with direct water systems		
▪ The minimum internal dimensions of waterways in boilers designed for direct water systems shall be not less than 25 mm except where waterways have to be locally reduced to facilitate manufacture or are in areas not in direct contact with burning fuel, in these cases the width of the waterways shall not be less than 12 mm.		n.a.
Venting of the water sections	4.12.6	
▪ The boiler and its components shall be designed in such a way that their respective water sections can be vented.		n.a.
▪ The boiler shall be so designed that under normal operation in accordance with the manufacturer's installation instructions, no undue boiling noises occur.		n.a.
Water tightness		
▪ Holes, for screws and similar components, which are used for the attachment or removal of parts, shall not open into waterways or spaces through which water flows. This does not apply to pockets for measuring, control and safety equipment.		n.a.
Cleaning of heating surfaces	4.14	
▪ All heating surfaces shall be accessible from the flue gas side for inspection and cleaning with brushes, scrapers or chemical agents by means of sufficient cleaning openings.		1)
▪ Where cleaning and servicing of the boiler and its components require the use of special tools (e.g. special brushes), these shall be supplied by the appliance manufacturer.		n.a.
Flue spigot or socket	4.3	
▪ suitable gastight connection between the flue gas connector and the appliance		yes 2)
▪ For horizontal flue connection, the flue spigot/socket shall be designed to allow fitting, internal or external, over a length of at least 40 mm, of a flue gas connector.		yes
▪ For vertical flue connection, the fitting shall overlap by at least 25 mm.		n.a.
▪ Adapter to increase the diameter of the connecting piece are allowed if they are part of the Pellet furnace. They must be tight and fit to the connecting piece.		n.a.

n.a. not applicable
1) Cleaning tools were not part of the delivery. Requirement must be fulfilled.
2) The plastic seal between the connection pipe of the flue gas fan and the spigot must be suitable for the existing thermal stress.

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Requirements on	according EN 14785	Requirem. fullfiled
Flueways	4.5	
▪ The size of the flueway in its minimum dimension shall be not less than 40 mm.		yes [1]
▪ The size of the flueway in its minimum dimension shall be not less than 15 mm provided an access door(s) is provided for cleaning the flueway.		n.a.
▪ It shall be possible to clean the flueways of the appliance completely using commercially available tools or brushes, unless special cleaning tools or brushes are provided by the manufacturer.		[2]
▪ If an automatic cleaning system is installed, it should clean the flueway that there is no Risk of blocking the flueways as a result of the installation.		n.a.
Ashpan and ash removal	4.11	
▪ A means for the removal of the ash residue from the appliance shall be provided		yes
▪ When an ashpan is provided, it shall be capable of containing the combustion residue from two full charges of fuel whilst retaining sufficient space above to allow adequate primary air flow through the bottomgrate or firebed.		yes
▪ If the ashpan resides in the appliance it shall locate in the ashpit in such a way that it allows the free passage of primary air and in such a position that it does not obstruct any primary air inlet control.		yes
▪ For appliances with an external fuel hopper, the ashpan shall be capable of containing the combustion residue from twelve hours of runtime at nominal heat output.		n.a.
Bottomgrate	4.10	
• Where the bottomgrate is removable it shall be so designed or marked as to ensure correct fitting.		yes
• If a de-ashing mechanism is fitted it shall be capable of effectively de-ashing the fuelbed.		n.a.
Combustion air supply	4.8	
▪ The appliance shall be fitted with either a thermostatically controlled primary air inlet control or a manual primary air inlet control.		yes
▪ The adjusting control shall be clearly visible or shall be permanently marked so that its operation is readily understandable		yes
▪ The design shall be such that during operation of the appliance, neither ash nor unburned fuel can prevent the movement or closure of the air inlet control.		yes
▪ The thermostat shall have a variable temperature range and be of the immersion or dry pocket type. The pocket shall be positioned so that the thermostat senses the temperature of the flow water from the appliance.		n.a.
▪ The adjusting of combustion air setting control for fireplaces which are designed for the use of several fuels shall be clearly visible or shall be permanently marked for each fuel, so that its operation is readily understandable.		n.a.
Secondary air inlet control	4.8.2	
▪ Where a secondary air inlet control is provided, the position of air entry shall be so designed that the passage of air is not restricted when the firebox is filled to the manufacturer's recommended capacity.		yes

n.a. not applicable
[1] According to visual test
[2] Cleaning tools were not part of the delivery. Requirement must be fulfilled.

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Requirements on	according EN 14785	Requirem. fullfiled
Internal flue gas diversion	4.9	
▪ The adjusting control shall be clearly visible or shall be permanently marked so that its operation is readily understandable		n.a.
▪ The adjusting control shall be fixable		n.a.
▪ By removability – it shall be either so designed or marked for identification to ensure correct fitting		n.a.
Control of flue gas	4.13	
▪ If a flue damper is fitted it shall be of a type, which does not block the flue totally. The damper shall be easy to operate and incorporate an aperture within the blade, which in a continuous area occupies at least 20 cm2 or 3 % of the cross-sectional area of the blade if this is greater.		n.a.
▪ The position of the damper shall be recognizable from the setting of the device.		n.a.
▪ If a draught regulator is fitted the minimum cross sectional area requirement shall not be applicable but the device shall be easily accessible for cleaning.		n.a.
▪ A flue gas damper isn't allowed-if there is forced air supply		n.a.
Firedoors and charging doors	4.7	
▪ Firedoors and charging doors shall be designed to prevent accidental opening and to facilitate positive closure.		yes

n.a. not applicable

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Requirements on	according EN 14785	Test according	Requirem. fullfiled
Safety requirements	5		
Temperature of adjacent combustible materials	5.1	A.4.7, A.4.9	
▪ the temperature of the trihedron hearth and walls or other structure surrounding the appliance e.g. ceiling comprising combustible material shall not exceed the ambient room temperature by more than 65 K.			yes
Temperature rise of the operating components	5.5	A.4.7	
▪ Temperatures, measured only in the areas to be touched, shall not exceed the ambient room temperature by more than - ≤ 35 K for metal - ≤ 45 K for porcelain, vitreous enamel or similar materials - ≤ 60 K for plastics, rubber or wood If these temperatures are exceeded, the manufacturer shall indicate in the instructions the need to use an operating tool. This tool shall be supplied with the appliance.			yes
Safety test against escape of harmful combustion and loss of the firebed	5.3	A.4.7 / A.4.9	
▪ any escape of harmful combustion gases does not occur			yes
▪ any loss of the firebed from the appliance does not occur			yes
Temperature rise in the fuel hopper	5.4	A.4.7/ A.4.9	
▪ Temperatures shall not exceed the ambient room temperature by more than 65 K			yes
Safety against back burning into the feed screw	5.5	A.4.9.1	
▪ Back burning in any state of operation differing from normal operation shall be prevented either by constructional means or by use of safety devices or any other means that gives an equal level of safety.			yes [1)]
▪ Temperature in the fuel hopper ≤ 65 K			yes
Thermal discharge control	5.6	A.4.9.6	
▪ For appliances fitted with a boiler designed to operate on a sealed system and where a thermal discharge control is fitted as part of the appliance, the control shall operate when the water flow temperature exceeds either 105°C or the manufacturer's declared operating temperature, whichever is the lower and stop the combustion			n.a.

n.a. not applicable

[1)] see explanations in section 5

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Requirements on	according EN 14785	Test according	Requirem. fullfiled
Safety requirements	5		
Discharge safety device	5.7	A.4.9.6	
▪ the safety device shall operate when the water flow temperature exceeds either 105°C or the manufacturer's declared operating temperature			n.a.
Strength and leaktightness of boiler shells	5.8	A.4.9.2/A.4.7	
▪ The boiler shell and its water carrying components shall not leak or become permanently deformed when subjected to the type pressure test and during the nominal heat output test			n.a.
Electrical safety	5.9	EN 50165	
▪ The appliance shall comply with the electrical safety requirements of EN 50165 if mains operated electrical equipment is fitted as part of the appliance			[1)]

n.a. not applicable

[1)] The evaluation was not part of the test order

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Requirements on	according EN 14785	Test according	Requirem. fullfiled
Performance requirements	6		
Flue gas temperature	6.2	A.4.7	
▪ the flue gas temperature shall be measured and the mean calculated and recorded in the installation instructions			yes
Carbon monoxide emission	6.2		
▪ carbon monoxide content at nominal heat output CO ≤ 0,04 Vol.% (500 mg/m³) related to 13 % O2		A.4.7	yes
▪ carbon monoxide content at partial heat output CO ≤ 0,06 Vol.% (750 mg/m³) related to 13 % O2		A.4.8	yes
Efficiency at nominal heat output	6.4		
▪ Efficiency ≥ 75% at nominal heat output	6.4.2	A.4.7	yes
▪ Efficiency ≥ 70% at partial heat output	6.4.2	A.4.8	yes
Nominal heat output			
▪ nominal heat output declared by the manufacturer shall not undercut the nominal heat output measured	6.5	A.4.7	1)
▪ partial heat output declared by the manufacturer shall not exceed the partial heat output measured	6.6	A.4.8	1)
Water heat output			
▪ water heat output declared by the manufacturer shall not exceed the water heat output measured	6.7	A.4.7	n.a.
Space heat output			
▪ space heat output declared by the manufacturer shall not exceed the space heat output measured	6.8	A.4.7	1)
Fuel hopper	6.9		
▪ the capacity shall not undercut the consumption at nominal heat output for 3h			yes
▪ the capacity shall not undercut the consumption at partial heat output for 6h			yes
Opertion by the operator	6.10		
• The operator must be able to execute the operations feed, clean, adjust the equipment and deashing easily, safely and effectively			yes
Release of dangerous substances	ZA.1		yes 2)

n.a. not applicable

1) The test of the documentation was not part of the test order

2) According to visual test and manufacturer's declaration materials are used with which an emission of dangerous substances is not to be expected. During the test at nominal heat output it was proved that in the combustion process no dangerous substances are released in critical amount in the surroundings.

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on	Requirements	according EN 14785	Test according	Requirem. fullfiled
Appliance instructions		7.1	A.5	[1]
•	in the language of the country in which it is to be operated			
•	containing all important details regarding the operation and installation for the concerned appliance			
•	shall not be in contradiction to the requirements or test results			
Installation instructions: The installation instructions shall contain at least the following information:		7.2	A.5	
a	a statement to the fact that "all local regulations, including those referring to national and European standards need to be complied with when installing the appliance"			
b	A assembly instruction of the fireplace, if the fireplace delivered in group of parts			
c	the type (model or number) of the appliance			
d	the nominal and partial heat output(s) in kW or W			
e	Requiremenst on electrical connection			
f	the water heating output in kW or W .			
g	the space heating output in kW or W			
h	the maximum operating water pressure in bar, where applicable			
i	the mass of the appliance in kg			
j	the safety clearances against combustible materials, and the other protective measures that shall be taken to protect the building construction			
k	the requirements for the supply of combustion air, for the simultaneous operation with other appliances and for the operation of exhaust air devices			
l	NOTE Extractor fans when operating in the same room or space as the appliance, may cause problems			
m	the need of any air inlet grilles to be so positioned that they are not liable to blockage			
n	the minimum flue draught for nominal heat output			
o	the flue gas mass flow in g/s			

[1] The test of the documentation was not part of the test order. Requirements have to be fulfilled.

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on	Requirements	according EN 14785	Test according	Requirem. fullfiled
Installation instruction		7.2	A.5	
p	the flue gas temperature directly downstream of the flue spigot/socket in °C, (with closed firedoors), under nominal heat output conditions			
q	advice on the need to provide access for cleaning the appliance, the flue gas connector and the chimney flue			
r	the installation of the damper device, if applicable			
s	the floors: the appliance shall be installed on floors with an adequate load-bearing capacity. If an existing construction doesn't meet this prerequisite, suitable measures (e.g. load distributing plate) shall be taken to achieve it			
t	the inset of roomheaters: in all cases the minimum dimensions of the required builder's opening and/or firefront opening in the surround			
u	the setting of temperature controller and method of adjusting the "cold" setting distance			
v	advice on a means of dissipating excess heat from the boiler, such as using a "heat leak" radiator			
w	the assembly of the appliance on-site, if applicable			
x	whether the appliance is suitable for installation in a shared flue system			
y	advice on the installation of any air grilles, especially in relation to the temperature of surrounding walls, floor, ceiling or other structure around the appliance			
z	the water content and instructions for fitting a drain-cock in the lowest part of the system (where applicable)			

Industrie Service

Requirements on		according EN 14785	Test according	Requirem. fullfiled
<u>User operating instructions</u> Each appliance shall be accompanied by instructions in the language of the country in which it is to be operated, containing all important details regarding the operation for the concerned appliance.		7.3	A.5	
The operating instructions shall contain at least the following information:				
a	a statement to the fact that "all local regulations, including those referring to national and European standards need to be complied with when installing the appliance"			
b	a list of the recommended fuels including type and size in accordance with this standard			
c	details of the method of refuelling and de-ashing the appliance and the maximum filling height in the firebox and typical refuelling intervals at nominal heat output for various recommended fuels			
d	a description of the correct instructions for safe and efficient operation of the appliance including the ignition procedure			
e	advice against the use of the appliance as an incinerator and the use of unsuitable and non recommended fuels, including advice that only the use of pellets is allowed			
f	the operation of all adjusting devices, dampers and controls			
g	the correct operations for seasonal use and under adverse flue draught or adverse weather conditions			
h	a warning that the firebox and ashpit cover shall be kept closed except during ignition, refuelling and removal of residue material to prevent fume spillage			
i	operation of the thermal discharge control, where applicable			
j	ventilation requirements for simultaneous operation with other heating appliances (where applicable)			
k	the need for regular cleaning of the appliance, of the flue gas connector and the chimney flue and highlighting the need to check for blockage prior to re-lighting after a prolonged shut down period			
l	advice on the adequate provision of combustion and ventilation air and on keeping air intake grilles; supplying combustion air, free from blockage			
m	instructions on simple fault finding and the procedure for the safe shut down of the appliance in event of malfunction e.g. overheating, interruption of water supply			
n	warning that parts of the appliance, especially the external surfaces, will be hot to touch when in operation and due care will need to be taken			
o	the means of protection against risk of fire in and outside the heat radiation area			
p	warning against any unauthorised modification of the appliance			

Industrie Service

on	Requirements	according EN 14785	Test according	Requirem. fullfiled
User operating instructions		7.3	A.5	
q	advice on the need for regular maintenance by a competent engineer			
r	use of only replacement parts recommended by the manufacturer			
s	advice about the actions to be taken in the event of a chimney fire			
t	declaration of efficiency and average CO-content			
u	Advice on the adjustment of any air grilles, where fitted			

Industrie Service

Requirements on	according EN 14785	Test according	Requirem. fullfiled
<u>Marking</u> Each appliance shall be permanently and legibly marked in a place where it is accessible so that the information can be read when the appliance is in its final location If a label is used it shall be durable and abrasion proof. Under normal operating conditions, the label shall not discolour, thus making the information difficult to read. Self-adhesive labels shall not become detached as a result of moisture or temperature The marking shall contain minimum following information: a the manufacturer's name or registered trade mark b the type or the model c the nominal output in kW or W, or range (if more than one fuel) of heat outputs listed in the form: 'from (lowest) kW to (highest) kW' d the space heating output in kW or W e the water heating output in kW or W f the standard number: EN 14785 g the CO-content (related to 13 % O_2) at nominal heat output h the efficiency at nominal heat output i the maximum water operating pressure (if applicable), in bar j the instruction "follow the user`s instructions" k the words "use only recommended fuels" l the minimum clearance distances from combustible materials, in mm, as appropriate m consumption of electric power	8	A.5	[1]

[1] The test of the marking was not part of the test order. Requirements have to be fulfilled.

Industrie Service

Test installation according EN 14785, A 2.2 (The test was performed with the pellet stove model Midi from manufacturer Ningbo Hanks Heating Appliance Technology Co. Ltd. according test report W-O 1404-00/14)		
trihedron		According to DIN EN 14785
Measurement section		∅ 100 mm according to DIN EN 14785
chimney connection		flue gas spigot for rear connection
distance appliance from combustible materials:		
Distance stove to the side wall	mm	200
Distance stove to the rear wall	mm	200
Distance stove to floor	mm	--
Distance to the front	mm	1000
Distance to the ceiling	mm	800

Control adjustments for		Nominal heat output	Partial heat output
runtime feeding screw break interval feeding screw	s s	4 4	3 7
flue gas fan (max. 180)	-	111	101
hot air blower (max. 180)	-	185	141
cleaning time		20 s every 1 hour	20 s every 1 hour

Test fuel

Test fuel specifications according EN 14785, Annex B								
Test fuel: Pellets according to DIN 51731	contents [%]							lower calorific value [MJ/kg]
	W	C	H	N	O	S	A	
Partial heat output	5,5	47,0	5,9	0,1	40,8	< 0,1	0,6	18,0
Nominal heat output	9,0	45,3	5,7	0,1	39,3	< 0,1	0,5	16,7

Dimension test fuel: length 10 - 30 mm, diameter 6 mm

Industrie Service

Performance test at nominal heat output and temperature safety test [1] according DIN EN 14785, A 4.7 and A.4.9				
		requirement to	test results	Requ. fulfilled
Test conditions:				
date			14.01.2014	
test fuel		Tab. B1	Pellets	
average flue draught	Pa	6.1	12	yes
average room temperature tr	°C		24	
Results:				
fuel mass	kg		10,7	
test period	min	A.4.7.3	2x180	yes
fuel mass flow	kg/h		1,8	
heat input	kW		8,3	
average flue gas temperature in the measuring section	°C	6.2	169	yes
average flue gas temperature behind the spigot	°C		223	
average CO_2-content	%		7,8	
average CO-content	ppm		72	
average CO-content (13 % O_2)	Vol.%	6.3	0,007	yes
average CO-content (13 % O_2)	mg/m³		89	
average CO-content	mg/MJ		58	
average NOx-content	ppm		62	
average NOx-content (13 % O_2)	mg/m³		125	
average NOx-content	mg/MJ		81	
average OGC-content	ppm		2	
average OGC-content (13 % O_2)	mg/m³		3	
average OGC-content	mg/MJ		2	
average Dust-content (13 % O_2)	mg/m³		23	
average Dust-content	mg/MJ		15	
losses through specific heat in the flue gases	%		13,6	
losses through latent heat in the flue gases	%		0,1	
losses through combustible constituents in the residues	%	A.4.6	0,2	
efficiency	%	6.4.2	86,2	ja
space heat output (calculated)	kW		7,1	
space heat output (quoted by the manufacturer)	kW	6.5		[2]
flue gas mass flow	g/s		7,1	

[1] The test of fire safety was performed together with the test of nominal heat output because the settings for nominal heat output and maximum possible heat output are identical according to the instructions of the client.

[2] The calculated heat output is taken into account in the documentation of the manufacturer.
The heat output declared by the manufacturer shall be not higher than the average value calculated.

Industrie Service

Test of the temperature of adjacent combustible materials and fuel hopper according EN 14785, A 4.7 and A 4.9				
		requirement to	test results	Requ. fulfilled
Test conditions:				
date			14.01.2014	
test fuel		Tab. B1	Pellets	
average flue draught	Pa	6.1	12	yes
max room temperature tr	°C		25	
Results:				
distance to rear test wall	mm		200	
max. temp. rear test wall	°C	5.1	30	yes
distance to side test wall	mm		200	
max. temp. side test wall	°C	5.1	37	yes
distance to floor	mm		0	
max. temp. floor	°C	5.1	25	yes
distance to ceiling	mm		800	
max. temp. ceiling	°C	5.1	50	yes
distance to front test wall	mm		1000	
max. temp. front test wall	°C	5.1	64	yes
max. temp. door handle	°C	5.2	58	yes
max. temp. fuel hopper	°C	5.4	88	yes

Industrie Service

Performance test at partial heat output according to DIN EN 14785, A 4.8				
		requirement to	test results	Requ. fulfilled
Test conditions:				
date			18.12.2013	
test fuel		Tab. B1	Pellets	
average flue draught	Pa	6.1	10	yes
average room temperature tr	°C		22	
Results:				
fuel mass	kg		5,1	
test period	min	A.4.7.3	360	yes
fuel mass flow	kg/h		0,9	
heat input	kW		4,3	
average flue gas temperature in the measuring section	°C	6.2	112	yes
average flue gas temperature behind the spigot	°C		151	
average CO_2-content	%		6,5	
average CO-content	ppm		125	
average CO-content (13 % O_2)	Vol.%	6.3	0,015	yes
average CO-content (13 % O_2)	mg/m³		184	
average CO-content	mg/MJ		115	
average NOx-content	ppm		65	
average NOx-content (13 % O_2)	mg/m³		157	
average NOx-content	mg/MJ		99	
average OGC-content	ppm		3	
average OGC-content (13 % O_2)	mg/m³		6	
average OGC-content	mg/MJ		4	
average Dust-content (13 % O_2)	mg/m³		23	
average Dust-content	mg/MJ		14	
losses through specific heat in the flue gases	%		9,5	
losses through latent heat in the flue gases	%		0,1	
losses through combustible constituents in the residues	%	A.4.6	0,2	
efficiency	%	6.4.2	90,2	ja
space heat output (calculated)	kW		3,8	
partial heat output (quoted by the manufacturer)	kW	6.5		1)
flue gas mass flow	g/s		4,3	

1) The calculated heat output is taken into account in the documentation of the manufacturer.

Industrie Service

Test of safety against back-burning according EN14785, 5.4, 5.5		
requirement according 5.4, 5.5 test according A.4.9.1	result	Requirem. fullfiled
safety device against back burning over the feed system into the fuel hopper	• Drop chute (length ca. 150 mm) • non-qualified safety temperature sensor outer surface of the fuel hopper (pellet stove shut down if temperature at outerc surface of the pellet hopper is higher than the default temperature) • non-qualified safety temperature sensor flue gas (pellet stove shut down if temperature in the flue gas is higher than the default temperature) • non-qualified pressure control device (difference pressure flue gas - combustion chamber; pellet stove shut down if difference presssure between flue gas and combustion chamber is lower than the default value eg door opening during operation) Manufacturer, type, switching point and suitability from the devices unknown	yes [1)]
temperature in the fuel hopper ≤ 65 K + room temperature	max. temperature in the fuel hopper during test of nominal output and power failure 63 K	yes

[1)] As a safety device against back-burning a drop chute, two safety temperature sensors and a pressure control device is installed. This fulfills the not quantified requirements of the standard EN 14785, chapter 5.5. Whether these safety devices cover all possible cases and foreseeable incidents / component failures, which may cause back burning in the fuel hopper, is not requested by EN 14785 and was therefore not performed.

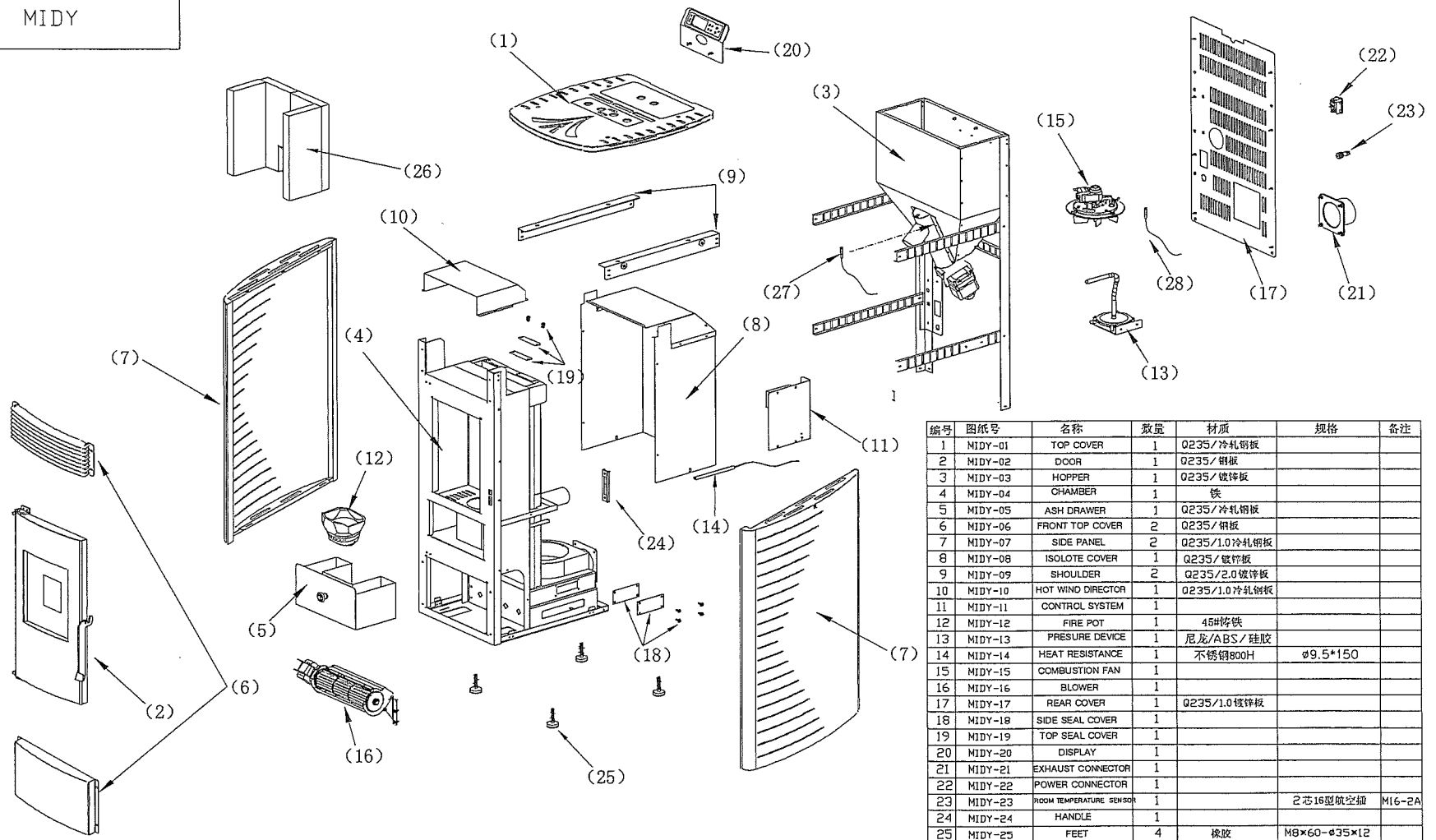
Industrie Service

List of Measuring Device

QM-No.	Device	Type
QS-33-02M0052	data logger	Ahlborn MA 5690-1
QS-33-02M0121	scale	Sartorius Waage 2000
QS-33-02M0122	scale	Sartorius MA 100
QS-33-02M0134	stop watch	Hanhart Prisma 200
QS-33-02M0221	CO/CO_2- analyzer	ABB uras 14 CO/CO2-Gasanalysator
QS-33-02M0222	NO/NOx analyzer	ECO Physics NO/NOx-Gasanalysator
QS-33-02M0224	CxHy analyzer	Testa FID CxHy-Gasanalysator
QS-33-02M0227	moisture measuring device	Testo 6651 Feuchtemessumformer
QS-33-02M0233	dust analyzer	Wöhler SM 96
QS-33-02M0303	pressure gauge, gas	MKS 127AAX-01000AS
QS-33-02M0429	temperature measuring device	Testo 925 mit Oberflächenfühler
QS-33-02M0552	scale	Sartorius Waage 34
QS-33-02M0553	scale	Sartorius Waage 32
QS-33-02M1072	thermocouple	Thermoelement Typ K
QS-33-02M1073	thermocouple	Thermoelement Typ K
QS-33-02M1074	thermocouple	Thermoelement Typ K
QS-33-02M1075	thermocouple	Thermoelement Typ K
QS-33-02M1076	thermocouple	Thermoelement Typ K
QS-33-02M1077	thermocouple	Thermoelement Typ K
QS-33-02M1078	thermocouple	Thermoelement Typ K
QS-33-02M1079	thermocouple	Thermoelement Typ K
QS-33-02M1080	thermocouple	Thermoelement Typ K
QS-33-02M1081	thermocouple	Thermoelement Typ K
QS-33-02M1082	thermocouple	Thermoelement Typ K
QS-33-02M1083	thermocouple	Thermoelement Typ K
QS-33-02M1084	thermocouple	Thermoelement Typ K
QS-33-02M1085	thermocouple	Thermoelement Typ K
QS-33-02M1086	thermocouple	Thermoelement Typ K
QS-33-02M1087	thermocouple	Thermoelement Typ K
QS-33-02M1088	thermocouple	Thermoelement Typ K
QS-33-02M1089	thermocouple	Thermoelement Typ K
QS-33-02M1090	thermocouple	Thermoelement Typ K
QS-33-02M1091	thermocouple	Thermoelement Typ K

Anlage B1
Bericht Nr.
W-O 1404-02/14
2014-11-04

MIDY



编号	图纸号	名称	数量	材质	规格	备注
1	MIDY-01	TOP COVER	1	Q235/冷轧钢板		
2	MIDY-02	DOOR	1	Q235/钢板		
3	MIDY-03	HOPPER	1	Q235/镀锌板		
4	MIDY-04	CHAMBER	1	铁		
5	MIDY-05	ASH DRAWER	1	Q235/冷轧钢板		
6	MIDY-06	FRONT TOP COVER	2	Q235/钢板		
7	MIDY-07	SIDE PANEL	2	Q235/1.0冷轧钢板		
8	MIDY-08	ISOLOTE COVER	1	Q235/镀锌板		
9	MIDY-09	SHOULDER	2	Q235/2.0镀锌板		
10	MIDY-10	HOT WIND DIRECTOR	1	Q235/1.0冷轧钢板		
11	MIDY-11	CONTROL SYSTEM	1			
12	MIDY-12	FIRE POT	1	45#铸铁		
13	MIDY-13	PRESURE DEVICE	1	尼龙/ABS/硅胶		
14	MIDY-14	HEAT RESISTANCE	1	不锈钢800H	ø9.5*150	
15	MIDY-15	COMBUSTION FAN	1			
16	MIDY-16	BLOWER	1			
17	MIDY-17	REAR COVER	1	Q235/1.0镀锌板		
18	MIDY-18	SIDE SEAL COVER	1			
19	MIDY-19	TOP SEAL COVER	1			
20	MIDY-20	DISPLAY	1			
21	MIDY-21	EXHAUST CONNECTOR	1			
22	MIDY-22	POWER CONNECTOR	1			
23	MIDY-23	ROOM TEMPERATURE SENSOR	1		2芯16型航空插	MI6-2A
24	MIDY-24	HANDLE	1			
25	MIDY-25	FEET	4	橡胶	M8×60-ø35×12	
26	MIDY-26	STONE	1			
27	MIDY-27	SAFTY SENSOR	1			
28	MIDY-28	EXHAUST SENSOR	1			

设计	
校对	
审核	
工艺	
标准	
批准	

技术要求：
1. 零件表面不允许有划伤、污渍，表面须平整，不能扭曲变形。
2. 所有尖边倒钝，尖角圆角R2
3. 未出尺寸公差按GB/T1804-m。

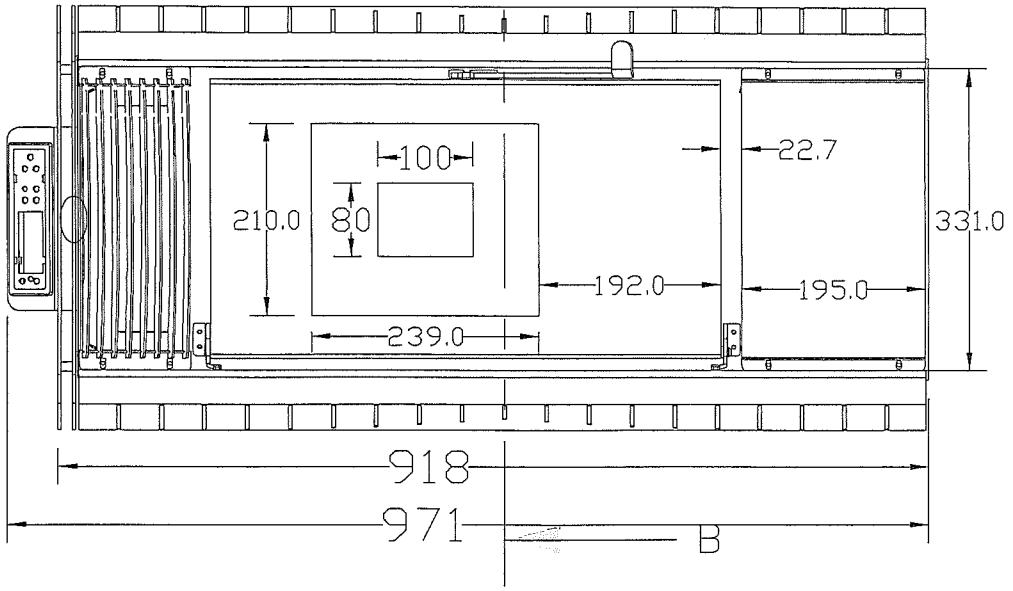
标记	处数	分区	更改文件号	签名	年 月 日
设计			标准化		
校对					
工艺			批准		

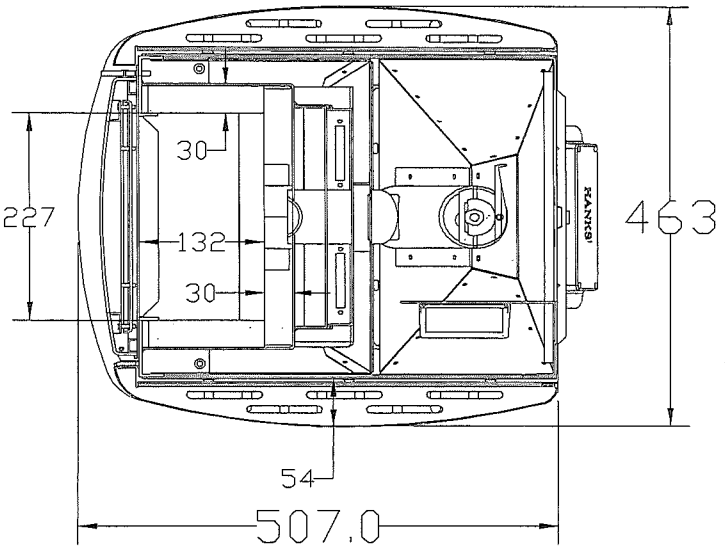
标段标记	重量	比例
共 张 第 张		

NINGBO HANKS HEATING APPLIANCE TECHOLOGY CO., LTD

MIDY EXPLORE

Model No.	MIDY





SECTION B–B

Anlage B3
Bericht Nr.
W-O 1404-02/14
2014-11-04

Projection Direction

Material	
Surface Transaction	
Weight	160g
DRAWN BY	
APPROVED BY	

NINGBO HANKS HEATING APPLIANCE TECHOLOGY CO., LTD

Part Name:

TOP EXPLORE

Part No.	MIDY		
SCALE	1:10	Date	18/12/2013

Anlage B4
Bericht Nr.
W-O 1404-02/14
2014-11-04

Model No.	MIDY

NINGBO HANKS HEATING APPLIANCE TECHOLOGY CO., LTD

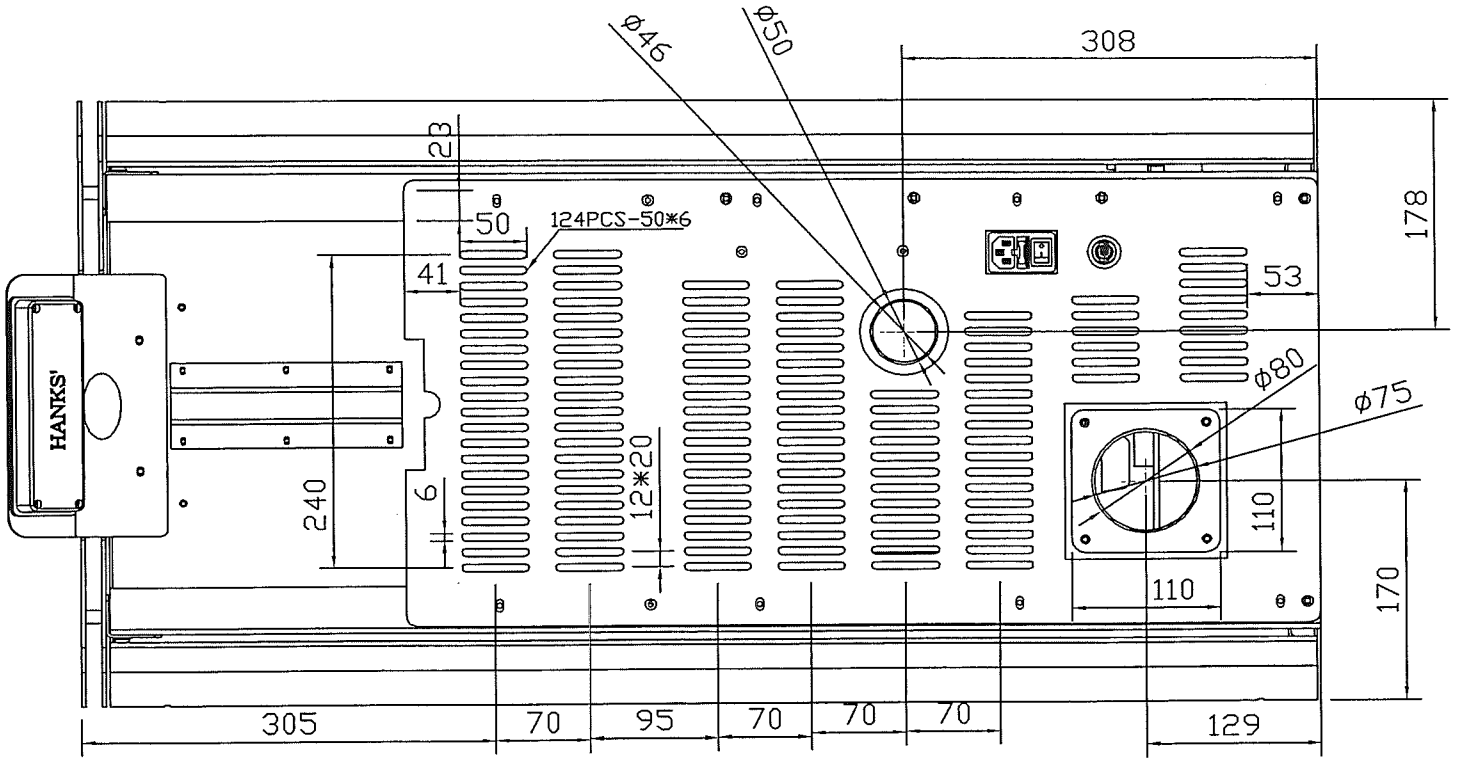
Part Name: TOP COVER

Part No.	MIDY		
SCALE	1:10	Date	18/12/2013

Projection Direction

Material	
Surface Transaction	
Weight	160g
DRAWN BY	
APPROVED BY	

Model No.	MIDY



Anlage B5
Bericht Nr.
W-O 1404-02/14
2014-11-04

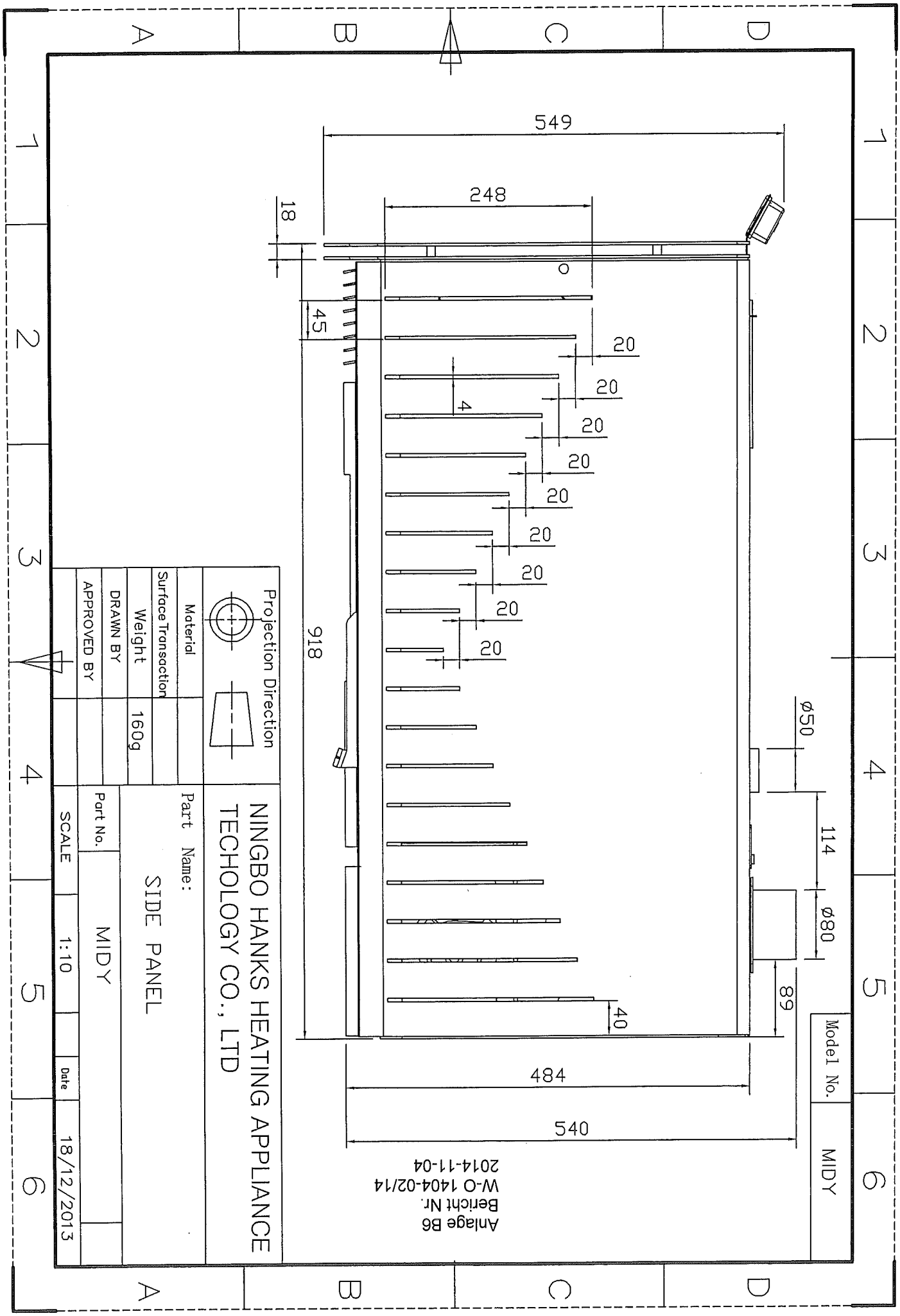
Projection Direction

NINGBO HANKS HEATING APPLIANCE TECHOLOGY CO., LTD

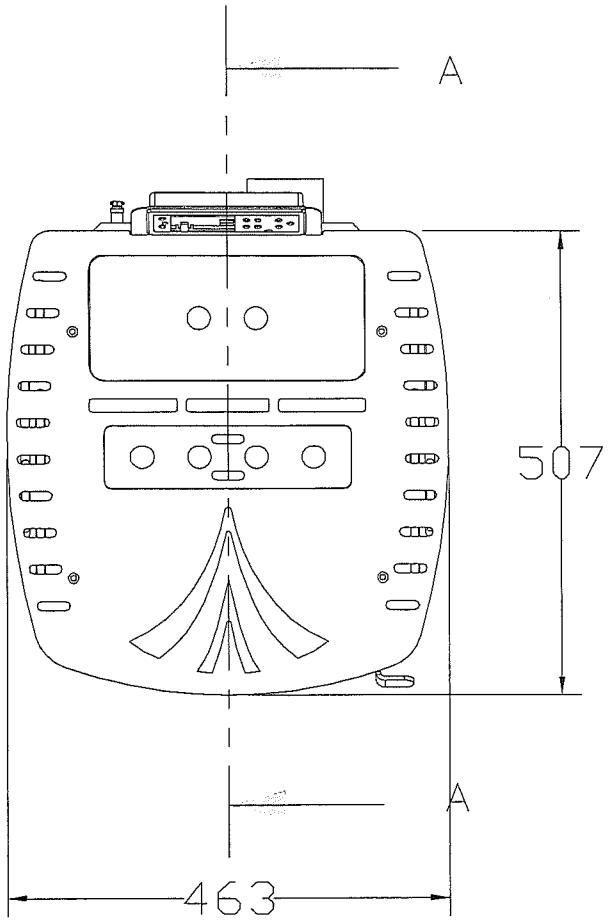
Material	
Surface Transaction	
Weight	160g
DRAWN BY	
APPROVED BY	

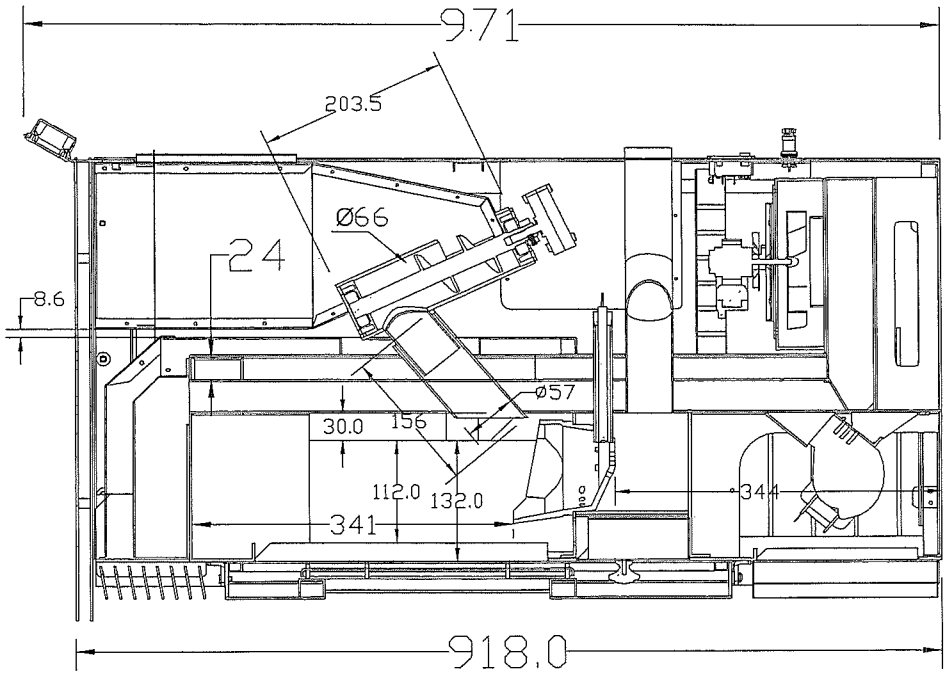
Part Name: REAR COVER

Part No.	MIDY			
SCALE	1:10		Date	18/12/2013



Model No.	MIDY



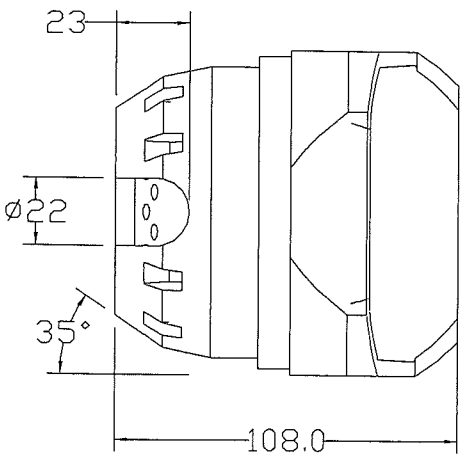


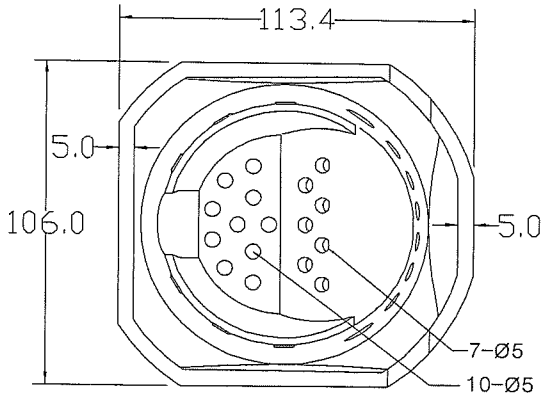
SECTION A–A

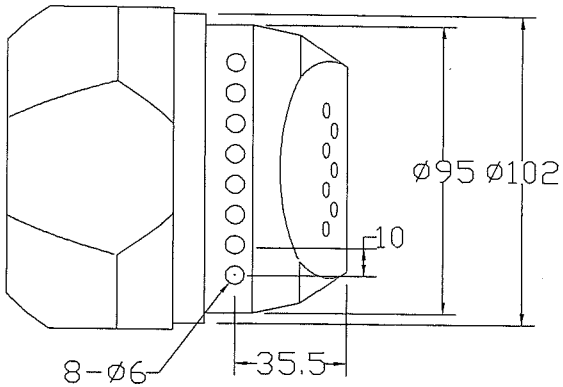
Anlage B7
Bericht Nr.
W-O 1404-02/14
2014-11-04

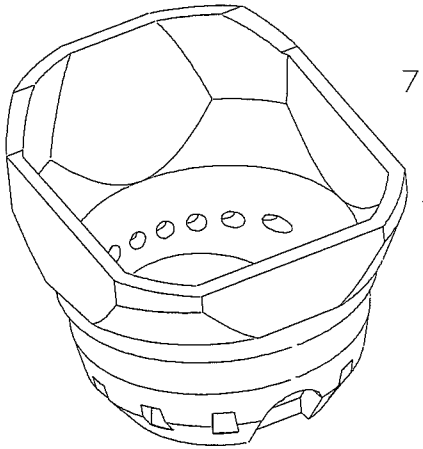
Projection Direction		NINGBO HANKS HEATING APPLIANCE TECHOLOGY CO., LTD			
Material		Part Name: SIDE EXPLORE			
Surface Transaction					
Weight	160g				
DRAWN BY		Part No.	MIDY		
APPROVED BY		SCALE	1:10	Date	18/12/2013

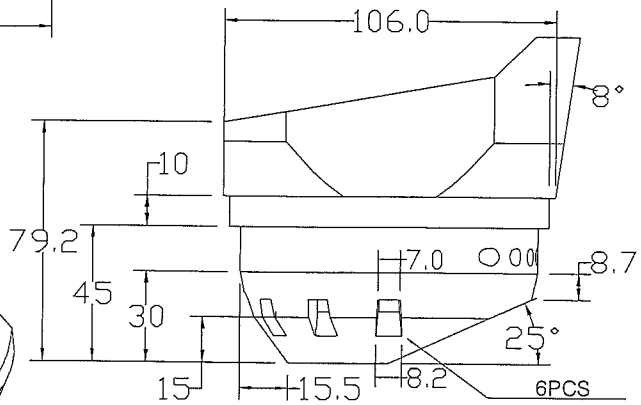
Model No.	MIDY











Anlage B8
Bericht Nr.
W-O 1404-02/14
2014-11-04

Projection Direction	NINGBO HANKS HEATING APPLIANCE TECHOLOGY CO., LTD	
Material	Part Name: FIRE POT	
Surface Transaction		
Weight	160g	
DRAWN BY	Part No.	MIDY
APPROVED BY	SCALE	1:2 Date 18/12/2013