

# Magnetron Head

Type: MH3000S-210CV



## Operating instructions

### English version

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MH3000S-210CV00008100102.doc

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# 1. Identification

## 1.1 Product brand and type designation

Product brand: Magnetron head  
Type designation: MH3000S-210CV  
Version: 000  
Revision: 01

### 1.1.1 Rating plate

The rating plate identifies the system and also displays any customizations if applicable.

The rating plate is attached on the side of the casing above the water connections.

It contains the following technical data:

Type designation  
Version  
Revision  
Serial number

## 1.2 Document identification

Validity of the documentation:  
MH3000S-210CV00008100102

Version: 03/2011

## 1.3 Manufacturer's data

Manufacturer: Roth & Rau Muegge GmbH  
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Internet: [www.muegge.de](http://www.muegge.de)

## 1.4 EC Declaration of Incorporation

The manufacturer: Roth & Rau Muegge GmbH,  
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D-64385 Reichelsheim  
Germany

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E-mail: [info@muegge.de](mailto:info@muegge.de)  
Web: [www.muegge.de](http://www.muegge.de)

hereby declares that the following product:

product designation: Magnetron head

consisting of:

Type designation	Serial number	Year of manufacture
MH3000S-210CV		2011

complies with the basic requirements of the **Machine Directive (2006/42/EC)**:  
Appendix I, Articles 1.1.2, 1.1.3, 1.1.5, 1.3.2, 1.3.4 and 1.5.1.

The partly completed machine moreover complies with all requirements of the  
**Electrical Equipment Directive (2006/95/EC)** and the **Electromagnetic  
Compatibility Directive (2004/108/EC)**.

The following harmonized standards were applied:

- |                    |  |
|--------------------|--|
| DIN EN ISO 12100-1 | Safety of machinery - Basic concepts, general principles for design, Part 1: Basic terminology, methodology          |
| DIN EN ISO 12100-2 | Safety of machinery - Basic concepts, general principles for design, Part 2: Technical principles and specifications |
| DIN EN 60204-1     | Safety of machinery - Electrical equipment of machines, Part 1: General requirements                                 |

The partly completed machine must not be put into service until such time as the machine into which the partly completed machine is to be incorporated has been declared to be in conformity with the provisions of the Machine Directive (2006/42/EC).

The manufacturer undertakes to electronically transmit the specific documentation regarding the partly completed machine to national authorities upon justified request. The specific technical documentation associated with the machine in accordance with Annex VII Part B has been compiled.

Name of the person authorized to compile the documentation: Boris Ihrig

Address of the person authorized to compile the documentation: see manufacturer's address

Reichelsheim,

Date  
26.02.10

Signatory and information regarding the signatory  
Klaus Muegge CEO

## 2. Product description

### 2.1 Scope of application / General functions


- Generation of microwaves
- Use of microwaves in suitable applications

### 2.2 Intended use

The MH3000S-210CV magnetron head is used for the generation of microwaves and their use in suitable applications.

The intended use includes your:

- Being qualified to work on the MH3000S-210CV
- Reading and observing these operating instructions
- Complying with the technical data
- Performing the maintenance works on time

	<b>CAUTION</b>
	The MH3000S-210CV may only be operated in conjunction with an appropriate MW power supply.

### 2.3 Dimensions

Dimensions and weight:

Dimensions: LxWxH in mm	550x200x395
Weight in kg	14.5



## 2.4 Electrical data

Power circuit:

Type	Size and unit
Mains voltage	400V AC
Mains frequency	50-60Hz
Mains current	500mA
Rated output	350VA
Mains tolerance	±10%

Control voltage circuit:

Type	Size and unit
Mains voltage	24V DC
Mains frequency	
Mains current	1.5A
Rated output	36VA
Mains tolerance	±10%

## 2.5 Microwave data

Type	Size and unit
Anode voltage	-5,100V DC
Anode current	-1.45A
Frequency	2,450MHz
MW output (CW / Pulse)	3kW / 4.5kW-



## 2.6 Cooling water

Type	Value and unit
Flow	4 l/min.
Pressure	4 bar
Temperature	20 – 25°C
Connection	Locking coupling SOGS 26KBAW17MPXS

### Cooling water quality

#### Requirements for and care of the water in the cooling circuits!

Depending on the type of the system to be cooled, the cooling water must meet certain requirements regarding its quality. In order to protect the system parts from corrosion and deposits, Muegge GmbH on principle recommends that the water in closed circuits be treated with a suitable agent (corrosion protection with non-ferrous metal protection and hardness stabilisation). Moreover, in both open and closed circuits the following water qualities must be observed subject to the materials installed, the temperature and the procedure.

Hydrological data	Max.	Unit
pH value	7.5 – 8.5	-
Conductivity	<150	mS/m
Total hardness	<15	°dH
Carbonate hardness	<4	°dH
Carbonate hardness with hardness stabilisation	<20	°dH
Chloride Cl	<100	mg/l
Sulphate So4	<150	mg/l
Ammonium NH4	<1	mg/l
Iron Fe	<0.2	mg/l
Manganese	<0.1	mg/l
Free of solids		

Systems with aluminium:                      pH value min. 7.0    max. 8.0

Systems with stainless steel:    Chloride Cl                      max. 100mg/l



## 2.7 IP code / Plain text

The MH3000S-210CV magnetron head complies with protection class IP20.

Position	Index number	Protection	Explanation
First index number	2	Against foreign bodies	Protection against ingress of foreign bodies with a diameter exceeding 12.5mm.
Second index number	0	No protection	No water protection

## 2.8 Environmental conditions

**Not in operation:  
(Storage / Transport)**

- Drain water
- Non-condensing


Temperature	- 25°C - + 70°C, 70kPa – 106kPa
Relative humidity	80% up to 30°C, afterwards linearly reduced to 50% at 45°C

**In operation:**

Temperature	5°C - 45°C non-condensing, T max. = 45°C < 3h / day
Relative humidity	80% up to 30°C, afterwards linearly reduced to 50% at 45°C

### 3. Safety information

**MUST** be read entirely

	<p style="text-align: center;"><b>NOTE</b></p> <p>Read this chapter entirely prior to starting work with the <b>MH3000S-210CV!</b> It contains important information for your personal safety. This chapter must be read entirely and understood by all persons working on this system in any product life cycle of the <b>MH3000S-210CV.</b></p>
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#### 3.1 Residual hazards

The MH3000S-210CV is state-of-the-art and was built in consideration of the recognized safety-related regulations. The MH3000S-210CV was subjected to a thorough safety test and safety approval.

Nevertheless, residual hazards cannot be excluded regarding the use of the MH3000S-210CV.

Hazards exist:

- For life and limb of the operator
- For the MH3000S-210CV and other material assets

Therefore it is required that all activities in connection with the MH3000S-210CV be carried out by trained personnel in accordance with the information contained within these operating instructions. The technical data must be observed as a matter of principle.

#### 3.2 Responsibility

##### **Areas of responsibility of Roth & Rau Muegge GmbH**

Roth & Rau Muegge GmbH is responsible for the safety of the MH3000S-210CV. This is based on the presupposition that the MH3000S-210CV has not been modified in any way following the final acceptance.

##### **Operator's areas of responsibility**

The operator is responsible for the safety in the area surrounding the MH3000S-210CV. Moreover, it is the operator's responsibility to ensure that the general safety regulations are complied with for all works on the MH3000S-210CV.





### 3.3 General safety regulations

#### 3.3.1 Personnel

All persons working on the MH3000S-210CV must be technically qualified and trained accordingly. They must be aware of all hazards and risks associated with the MH3000S-210CV.

#### 3.3.2 Notes and alerts within these operating instructions

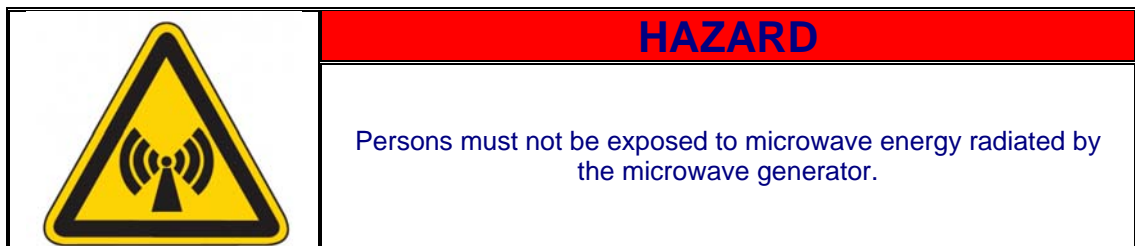
The hazards and alerts within these operating instructions are basically divided into four levels.

	<p style="text-align: center;"><b>HAZARD</b></p> <p>HAZARD marks an immediate hazard with high risk which will result in death or severe physical injury if not avoided.</p>
	<p style="text-align: center;"><b>CAUTION</b></p> <p>CAUTION marks a potential hazard with medium risk which may result in death or severe physical injury if not avoided.</p>
	<p style="text-align: center;"><b>ATTENTION</b></p> <p>ATTENTION marks a hazard with low risk which might result in minor or medium-grade physical injury or damage to property if not avoided.</p>
	<p style="text-align: center;"><b>NOTE</b></p> <p>A note such as this one points to particularly important, however not immediately hazardous information.</p>

### 3.3.3 Threshold values for the microwave stray radiation

According to current knowledge and until the completion of the research currently being conducted in several countries, the microwave stray radiation density must not exceed **50 Wm<sup>-2</sup> (5mWcm<sup>-2</sup>) at a distance of 0.05m** from any accessible system part **under normal operating conditions**.

Moreover, the **power density of 100Wm<sup>-2</sup> at a distance of 0.05m** from any accessible point of the system part must not be exceeded under conditions referred to as "**exceptional operation**".



### 3.3.4 Improper use

Any use of the MH3000S-210CV deviating from the uses described in [2.1](#) and [2.2](#) is prohibited. Improper use may result in hazards.

### 3.3.5 Service and maintenance works

All works on the MH3000S-210CV may only be carried out by persons who, based on their technical qualifications, knowledge and professional experience, as well as knowledge of the relevant regulations, are able to assess and execute the work to be performed and are able to recognize the potential risks.

For any type of work the following principle must absolutely be observed:

#### **ONLY WORK ON A SYSTEM THAT HAS BEEN DISCONNECTED FROM THE MAINS**

In order to ensure proper disconnection from the mains, the following safety regulations must be observed.

- Disconnect from the mains
- Secure against restarting
- Ensure that the system has been properly disconnected
- Earth and short-circuit
- Cover or make inaccessible nearby live parts

### 3.3.6 Modifications

Any modifications require the written consent of the manufacturer.

### 3.3.7 Interlock

The safety of systems of this application class is based on the principle of single-error safety.

In other words, if an error occurs, the safe condition must persist and the system turns off.

Microwave systems are equipped with at least two safety circuits working independently of each other which allow for dual-channel monitoring.

**In accordance with standard EN 60519-6, the following applies, among other things:**

"When clearing an access opening of the microwave heating system, at least two microwave interlocking devices (interlocking switch) of the microwave system must be activated with elevated safety requirements and high reliability.

The failure of a mechanical or electrical interlocking device on access openings must set off an alarm and deactivate the microwave system.

The failure of an electrical or mechanical component must not lead to all interlocking devices for the access openings becoming ineffective.

At each opening, at least one microwave interlocking device must be covertly placed in such a way that it cannot be operated with the aid of a human body part, neither during the open, closed nor any intermediate position of the access opening."

## 4. Preparation of the product for use

### 4.1 Transport and storage

The MH3000S-210CV is delivered on a conventional Euro pallet. The dimensions of the MH3000S-210CV are LxWxH 550x200x395mm, and its weight is 14.5kg. The magnetron head is initially wrapped in bubble wrap and packed in a transport box. Moreover, each edge is equipped with an edge protector, and the transport box is strapped to the pallet with steel straps.

The MH3000S-210CV is stored under specific conditions defined in Chapter [2.8](#).

### 4.2 Unpacking

First loosen the steel straps and then remove the edge protection and the bubble wrap.

The packaging material consists of metal, plastic and cardboard and must be disposed of according to the applicable regulations.

### 4.3 Safety precautions prior to use

Ensure that the MH3000S-210CV is properly installed in the MW Power Supply Cabinets.



## 4.4 Overview of the components

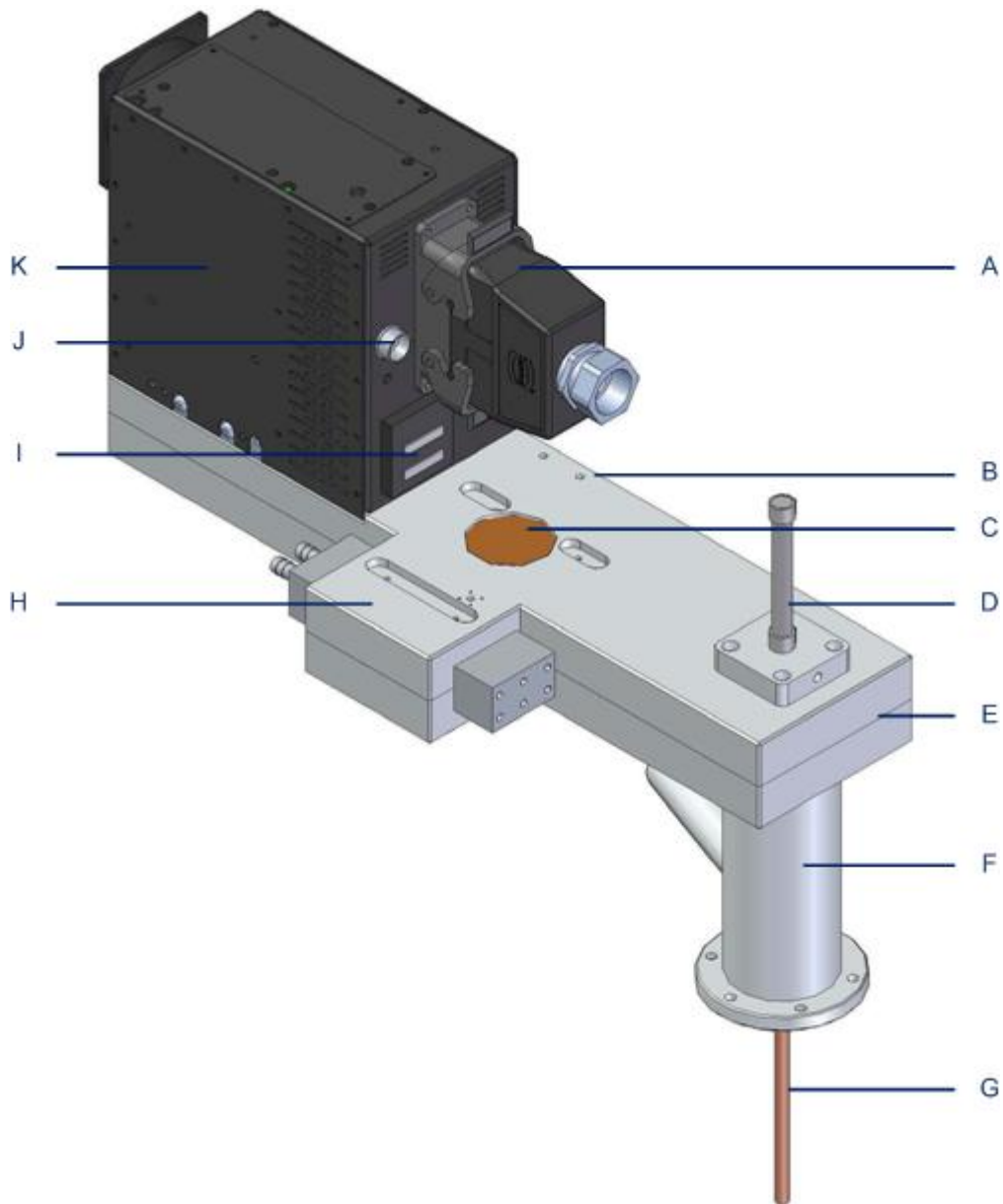


Figure 1

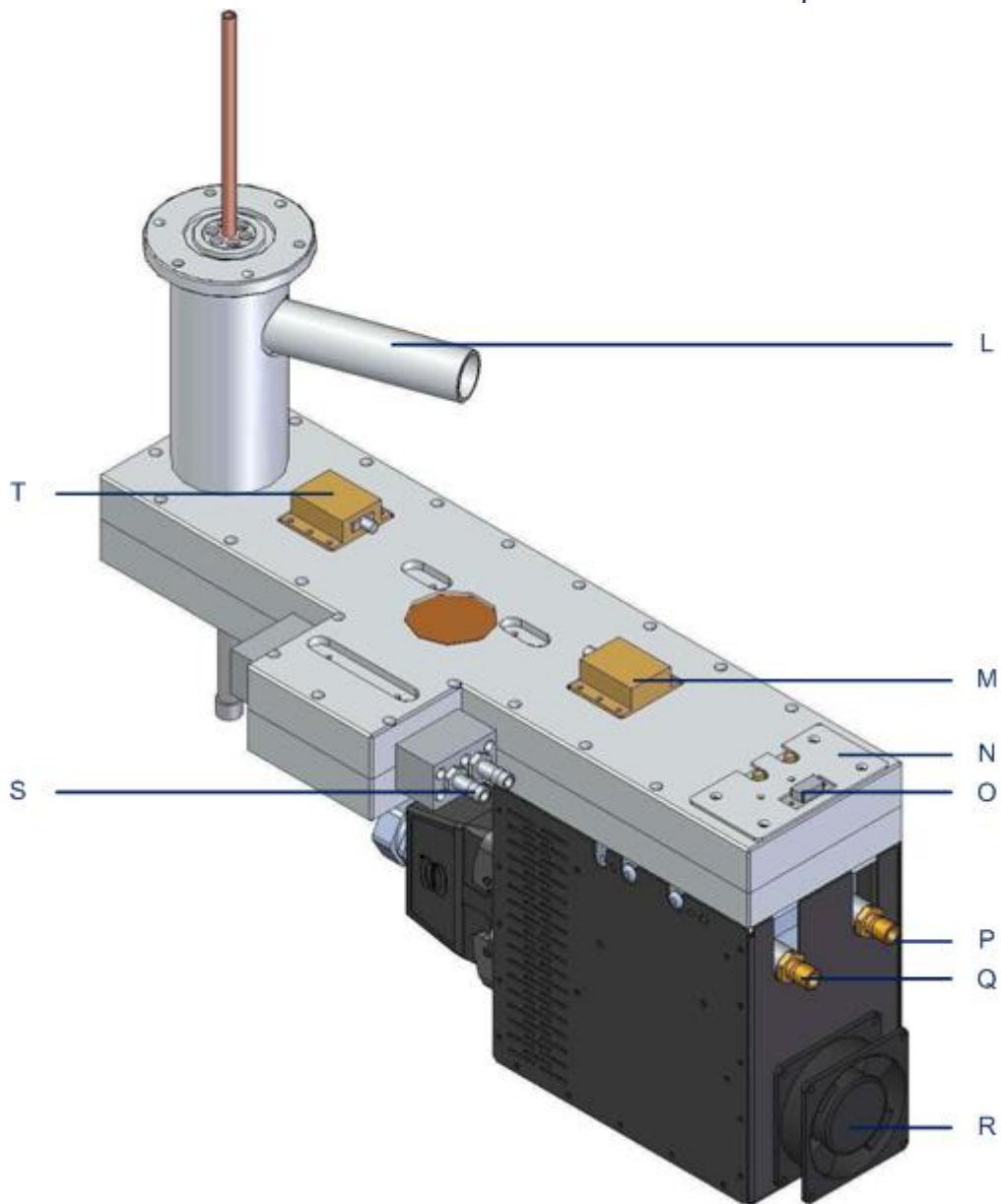


Figure 2

#### 4.4.1 Legend of the components

- A. Connecting plug to the mains
- B. PE connection
- C. Isolator
- D. Cylinder
- E. Coupling unit
- F. Coax line with connecting flange
- G. Outer tube
- H. Water load
- I. Operating hours meter
- J. Connecting plug to the coupling unit
- K. Magnetron unit
- L. Air connection
- M. Loop coupler for power measurement
- N. Reflexion measurement amplifier
- O. Connecting plug to the magnetron unit
- P. Water connection for the magnetron unit
- Q. Water connection for the magnetron unit
- R. Ventilator
- S. Water connections for the water load
- T. Loop coupler for reflexion measurement

## 4.5 Installation and assembly


The assembly of the MW Power Supply may only be carried out by qualified personnel.

Magnetron heads and their waveguides and / or coaxial conductors must be tightly bolted together with the application. **No leakage radiation must escape to the outside! (Chapter Security)**

After having checked the tight fitting of the magnetron heads, the cooling of the devices must first be ensured.

In the case of air-cooled devices (magnetron heads / power supplies) cooling (insofar as no other information is given) is effected internally via ventilators!

In the case of water-cooled devices (magnetron heads / power supplies) the water circuit must be set up! The water inlet is marked **IN** and the water outlet is marked **OUT**. The required amount for this purpose is defined in the **Chapter Cooling Water**. Following the setting up of the cooling circuit, the latter must be inspected for its water-tightness.

	<p style="text-align: center;"><b>NOTE</b></p> <p><b>The plug connections of the cooling circuits may only be connected or disconnected, at zero pressure.</b></p> <p><b>The ingress of water into the devices (magnetron heads / power supplies) as well as the condensation of the cooled components in the devices must be prevented!</b></p>
--	--

Only upon completion of the above steps can the electrical connection between the power supplies and the magnetron heads be established!

The electrical connection must be established in accordance with the **installation plan!**

The connection cables must be in impeccable condition!

Pay attention to the **Chapter "Security"**, as voltages of several thousand V occur in microwave systems!

Finally the MW Power Supply is connected to the mains! In order to do so, the earth wire must first be connected! Proceed according to the **installation plan!**

**Prior to turning on the system, the individual points must be checked once more!**

## 4.6 Storage and protection

If the MH3000S-210CV is to be taken out of operation for any longer period of time, it is essential that the following steps be taken.

- Drain cooling water
- Clean cooling circuit

Also take note of Chapter 2.8 Environmental conditions (not in operation).

## 4.7 User qualifications

This document is intended only for technically qualified personnel who have received training on the MH3000S-210CV. Such training must have been carried out or authorized by Roth & Rau Muegge GmbH. Only trained personnel are able to properly implement the safety precautions contained in this document.

Persons who have not undergone said training are considered unauthorized. Unauthorized persons are prohibited from carrying out any kind of work on the MH3000S-210CV. Roth & Rau Muegge GmbH shall exonerate themselves accordingly against the consequences from any claims resulting from non-compliance with these provisions.

### 4.7.1 Operating personnel

The system is operated by operating personnel during the normal production cycle.

**Required experience:**

Manufacturer's training.

#### 4.7.2 Maintenance personnel

The maintenance personnel has the same authorizations as the operating personnel and, in addition, performs all maintenance work.

**Required experience:**

Maintenance personnel must be experienced in mechanical work. In order to work on the electrical equipment electrotechnical professional training and experience in working with high-voltage installations is required.

Manufacturer's training.

#### 4.7.3 Service personnel

The service personnel has the same authorizations as the maintenance personnel and additionally performs all service work.

**Required experience:**

Service personnel must be experienced in mechanical work. For work on the electrical equipment electrotechnical professional training and experience in working with high-voltage installations is required.

Manufacturer's training.

### 4.8 Where to store the instructions

These instructions must be stored directly with the MH3000S-210CV.

## 5. Operating instructions

### 5.1 Operation of the magnetron head

The MH3000S-210CV can only be operated after connection to a suitable MW power supply. As the MH3000S-210CV is compatible to several MW power supplies which are different in operation, the correct type of operation must be determined from the documentation of the MW power supply.

## 6. Protection of persons


To protect persons during normal operation, the following personal protective equipment is required:

- Safety shoes
- Heat resistant gloves


## 7. Maintenance and cleaning


### 7.1 Safety precautions

Maintenance and cleaning work may only be performed on a system that has been disconnected from the mains.

	<b>NOTE</b>
	<ul style="list-style-type: none"> <li>• Disconnect from the mains</li> <li>• Secure against restarting</li> <li>• Ensure that system has been properly disconnected</li> <li>• Earth and short-circuit</li> <li>• Cover or make inaccessible nearby live parts</li> </ul>

**Non-compliance with these safety precautions results in potential hazards for persons and material property.**

	<b>HAZARD</b>
	<b>Due to microwave leakage radiation!</b>

	<b>HAZARD</b>
	<b>From electric shock!</b>



## 7.2 Troubleshooting, diagnosis and measures

Faults are indicated by the MW power supply. Cause of failure, diagnosis and appropriate measures are defined in the documentation of the MW power supply.

## 7.3 Maintenance plan for the operating and maintenance staff

Measure	Comment	Maintenance interval			Operating	Maintenance
		weekly	monthly	annually	Staff	
*Checking the connecting cables for damage	Visual check		X		X	
Checking the cooling system for tightness	Visual check		X		X	
Functional check of the safety switch			X			X

\* Not required if cables are laid in a cable duct or cable bridge.



## 7.4 Maintenance work for the maintenance staff

### 7.4.1 Replacing the magnetron unit

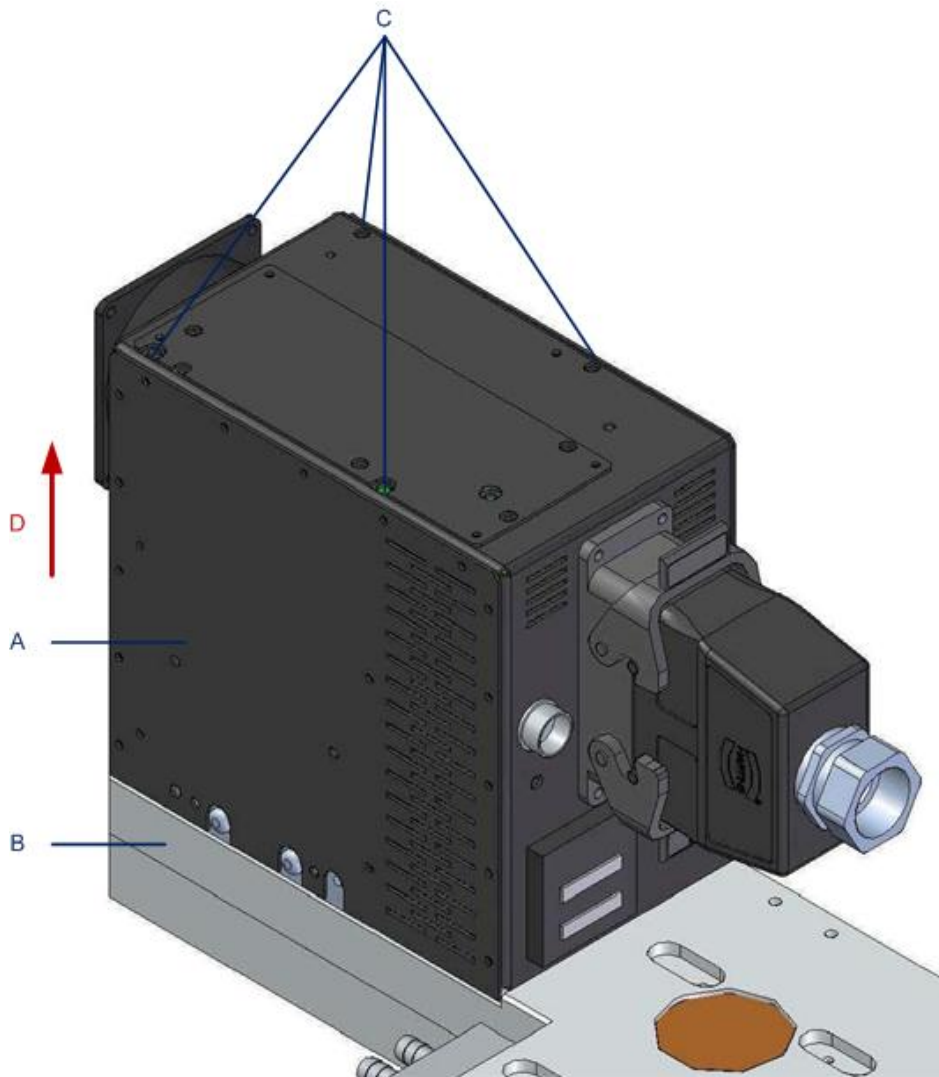



Figure 3

- A. Magnetron unit
- B. Coupling unit
- C. Mounting screws (cylinder screw DIN 912 A2 M5x130)
- D. Direction of removal of the magnetron unit

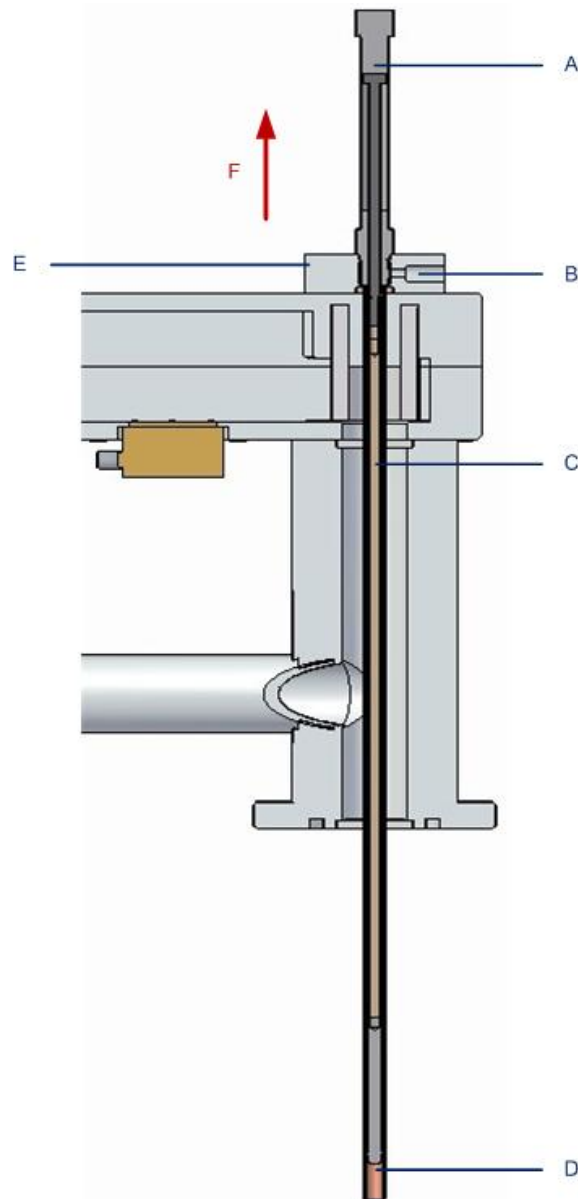
## 7.4.2 How to replace the magnetron unit

1. Disconnect system
2. Loosen all connecting cables from the magnetron unit
3. Disconnect cooling water supply and release pressure
4. Remove cooling water hoses from the magnetron unit
5. Loosen mounting screws **crosswise** with a size 4 Allen key
6. Remove magnetron unit in the direction of the arrow

	<b>ATTENTION</b>
	Make sure not to damage the ceramic arbour of the magnetron antenna when removing it from and/or inserting it in the coupling unit!

7. Apply the new magnetron unit in the same direction to the coupling unit
8. Tighten mounting screws **crosswise** with a size 4 Allen key
9. Connect cooling water hoses to the magnetron unit
10. Provide cooling water supply
11. Connect all connecting cables to the magnetron unit

### 7.4.3 Replacing the antenna




**Figure 4**


- A. Standard cylinder
- B. Threaded pin DIN 913 M4x5 A2
- C. Antenna (consists of part 1 and part 4)
- D. Outer tube
- E. Cylinder support
- F. Direction of removal of antenna and outer tube

#### 7.4.4 How to replace the antenna

1. Disconnect system
2. Pull off air pipes from the standard cylinder
3. Loosen threaded pin with a size 2 Allen key
4. Screw off standard cylinder from cylinder support
5. Remove standard cylinder and antenna in direction of removal from the outer tube
6. Unscrew the four screws of the cylinder support from the cylinder support using a size 4 Allen key
7. Remove cylinder support and pull out outer tube from the coupling unit in direction of removal
8. Unscrew antenna from the standard cylinder

	<b>NOTE</b>
	Should the screw combination be hard to be dismantled, the screw combination can be warmed up carefully with a hot-air gun. Clean the thread of the standard cylinder push rod with detergent Loctite 7063.

9. Apply glue (**NOW screw locking device with low strength**) to the thread of the standard cylinder push rod
10. Screw standard cylinder and new antenna together
11. Insert new outer tube into the coupling unit in opposite direction of removal
12. Screw the cylinder support onto the coupling unit using four screws (**tighten the four screws crosswise applying 3Nm**)
13. Insert standard cylinder and antenna into the outer tube in opposite direction of removal
14. Screw standard cylinder into the cylinder support
15. Check that the antenna is running easily in the outer tube. If applicable repeat the steps 12 – 14.
16. Tighten threaded pin with a size 2 Allen key
17. Connect the air pipes to the standard cylinder

	<b>NOTE</b>
	Make sure not to mix up the air pipes!

## 8. Maintenance and repair by the Customer Service

### 8.1 Maintenance cycles for safe operation

In order to ensure safe operation, the system must be inspected by the Customer Service once a year.

### 8.2 Contact details for our Customer Service

Contact person: Mr. Reinhold Jost (Manager Global Customer Service)

Address: Roth & Rau Muegge GmbH  
Hochstraße 4-6  
64385 Reichelsheim  
Germany

Tel.: +496164 9307 54  
Fax: +496164 9307 93

E-mail: [jost@muegge.de](mailto:jost@muegge.de)

Internet: [www.muegge.de](http://www.muegge.de)



## 9. List of spare parts and consumer goods

List of mating plugs and spare parts for the MH3000S-210CV magnetron head.

Item	Manufacturer designation	Muegge article no.:	Qty.
1	3 kW magnetron unit	ME0118P-035AB	1
2	Cable set from cabinet to magnetron head	ME0100K-030AB	1
3	Connecting cable for measuring amplifier	1010251	1
4	Antenna part 1	2101321	1
5	Antenna part 4	2101326	1
6	Outer tube	2101093	1
7	Standard cylinder DSNU-10-50-P-A-MQ-S6	2000240	1
8	Proximity switch SME-8M-DS-24V-K-0,3-M8D	2000242	2
9	Mounting set SMBR-8-10	2000241	2
10	Plug-in connector QMS-M5-4-I	1030154	2
11	Loctite7063 detergent	4001601	1
12	50 mL low strength screw locking device NOW	4001603	1

## 10. Appendix

- 10.1 Table of illustrations
- 10.2 Circuit diagram
- 10.3 Data sheets



## 10.1 Table of illustrations

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## 10.2 Circuit diagram

- Cover sheet
- Technical data
- Equipment
- Connection diagram
- Plan
- Circuit diagram
- List of components



# Technical Data

Mains supply : 400V AC  
 Mains rated current : 500mA  
 Mains nominal power : 350VA

## code from Conductor:

main circuit 400VAC, L1 : black  
 main circuit 400VAC, L2 : black  
 main circuit 400VAC, L3 : black  
 Earth protection wire PE : green / yellow  
 Control circuit 24VDC, + : dark blue  
 Control circuit 24VDC, - : dark blue  
 Interlock circuit and Safety circuit 24VDC : orange

## Cooling water circuit:

Cooling water flow : min. 4L  
 Cooling water temperature range : 20-25°C  
 Cooling water connector : Rectus Series 87 (300)

			Date	10.03.2011	MH3000S-210CV		Technische Daten	Roth & Rau Muegge GmbH Hochstraße 4-6 D-64385 Reichelsheim	= Doku	DN MH3000S-210CV00004400001 Page 2	
			Ed.	bih					320900793		+ Daten
Modification	Date	Name	Original					Replaced by	Replaced by		

# device

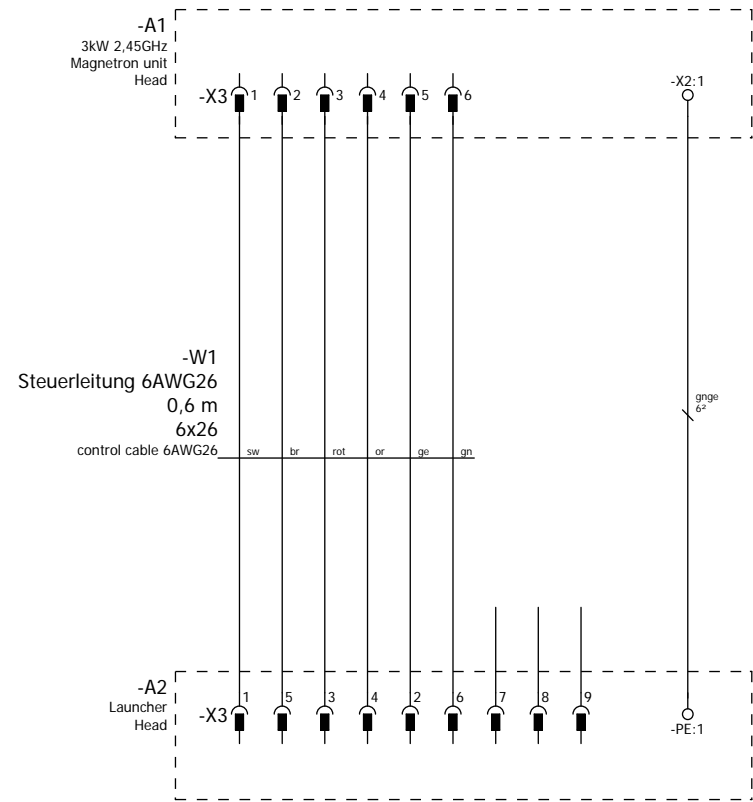
## function

## manufacturer

Filter : -  
Terminals : Phoenix  
signal devices : -  
cooling : Muegge  
Relays contactors : -  
switch; selector : Schmersal  
safety devices : -  
plug : Harting, Phoenix  
Transformer : Lannert  
motor : -

			Date	10.03.2011	MH3000S-210CV		device manufacturer	Roth & Rau Muegge GmbH Hochstraße 4-6 D-64385 Reichelsheim	= Doku	Page 3	
			Ed.	bih					320900793		+ Daten
Modification	Date	Name	Original					Replaced by	Replaced by		DN





+0/1

=AUSW+KAP/1

		Date	10.03.2011			Roth & Rau Muegge GmbH Hochstraße 4-6 D-64385 Reichelsheim		= AP	
		Ed.	bih	MH3000S-210CV				+ ST1	
		Appr						320900793	
Modification	Date	Name	Original	Replaced by	Replaced by	DN		MH3000S-210CV00004400001	
								Page	1
								Page	













## Technical Data

Mains supply : 400V AC  
 Mains rated current : 500mA  
 Mains nominal power : 350VA

### code from Conductor:

main circuit 400VAC, L1 : black  
 main circuit 400VAC, L2 : black  
 main circuit 400VAC, L3 : black  
  
 Earth protection wire PE : green / yellow  
  
 Control circuit 24VDC, + : dark blue  
 Control circuit 24VDC, - : dark blue  
  
 Interlock circuit and Safety circuit 24VDC : orange

### Cooling water circuit:

Cooling water flow : min. 4L  
 Cooling water temperature range : 20-25°C  
 Cooling water connector : Rectus Series 87 (300)

			Date	14.03.2011	ME0118P-035AB		Technische Daten	Roth & Rau Muegge GmbH Hochstraße 4-6 D-64385 Reichelsheim	= Doku	DN ME0118P-035AB00004400003 Page 13
			Ed.	bih				+ Daten		
Modification	Date	Name	Original	Replaced by				Replaced by		

# device

## function

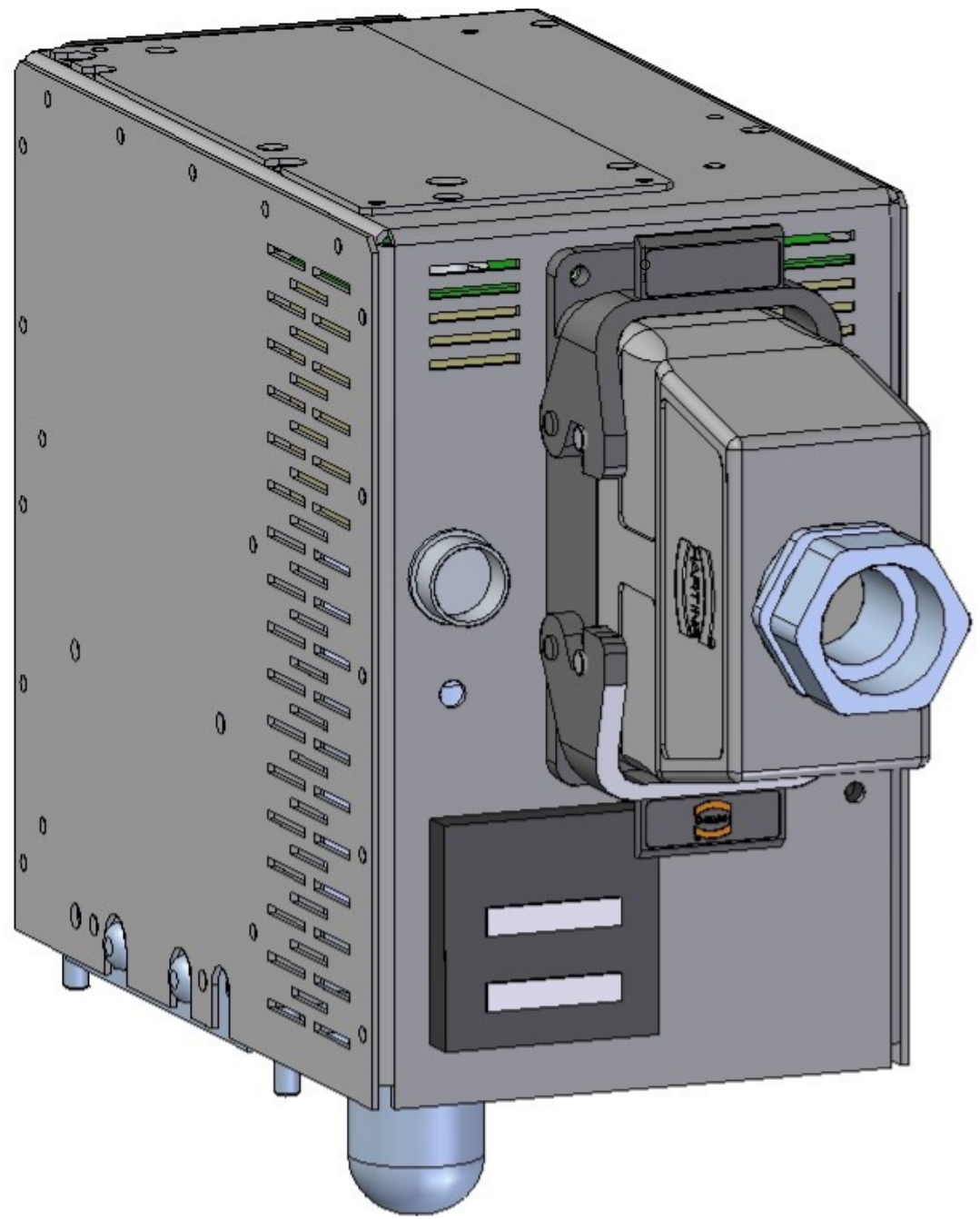
## manufacturer

Filter : -  
 Terminals : Phoenix  
 signal devices : -  
 cooling : Muegge  
 Relays contactors : -  
 switch; selector : Schmersal  
 safety devices : -  
 plug : Harting, Phoenix  
 Transformer : Lannert  
 motor : -

			Date	14.03.2011	ME0118P-035AB		device manufacturer	Roth & Rau Muegge GmbH Hochstraße 4-6 D-64385 Reichelsheim	= Doku	DN ME0118P-035AB00004400003 Page 13	
			Ed.	bih					1001624		+ Daten
Modification	Date	Name	Original					Replaced by	Replaced by		



-U1  
Magnetron unit

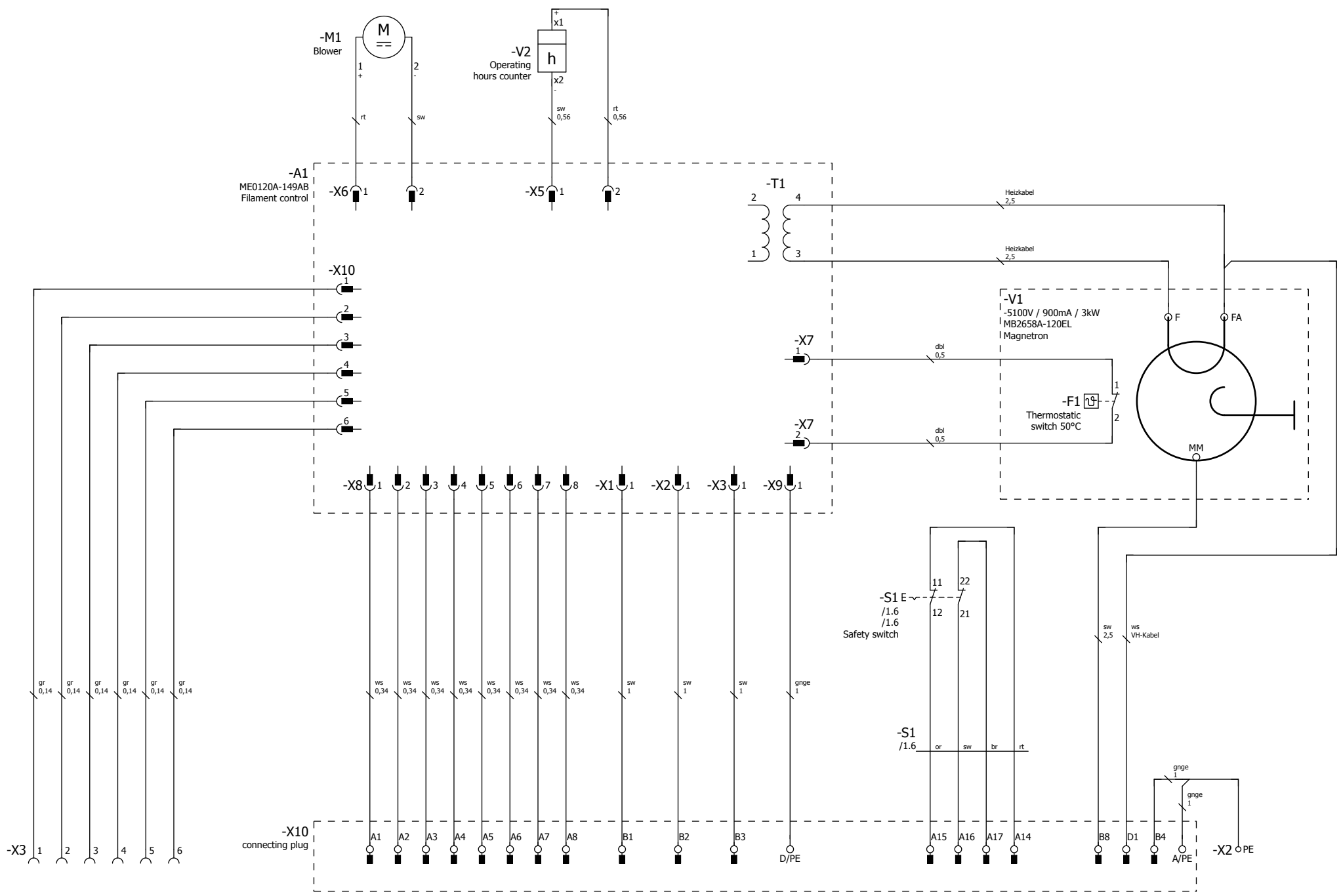


=Doku+Inhalt/1

Modification	Date	Name	Date	14.03.2011	ME0118P-035AB	View	Roth & Rau Muegge GmbH Hochstraße 4-6 D-64385 Reichelsheim	= AP + 0	Page 1
			Ed.	bih					







+0/2

=AUSW+STK/1

		Date	14.03.2011			Roth & Rau Muegge GmbH Hochstraße 4-6 D-64385 Reichelsheim	1001624	= AP + ST1	Page 1
		Ed.	bih	ME0118P-035AB					Page 13
Modification	Date	Name	Original	Replaced by	Replaced by		DN ME0118P-035AB00004400003		



# Parts list

Muegge-Artikelstk

DT	Quantity	designation	Type number	manufacturer	part number	Page
=AP+0-U1	1	Abdeckhaube	Magnetron Head Mechanische Komponenten	Muegge	2101154	=AP+0/1
=AP+0-U1	1	Seitenteil	Magnetron Head Mechanische Komponenten	Muegge	2101050	=AP+0/1
=AP+0-U1	1	Seitenteil	Magnetron Head Mechanische Komponenten	Muegge	2101051	=AP+0/1
=AP+0-U1	1	Abdeckblech	Magnetron Head Mechanische Komponenten	Muegge	2101052	=AP+0/1
=AP+0-U1	1	Druck zu 2101154 Abdeckhaube	Oberflächen	Muegge	4050088	=AP+0/1
=AP+0-U1	1	Druck zu 2101050 Seitenteil	Oberflächen	Muegge	4050082	=AP+0/1
=AP+0-U1	1	Druck zu 2101051 Seitenteil	Oberflächen	Muegge	4050083	=AP+0/1
=AP+0-U1	8	Sicherheitsschraube ISO7380 M3x8	Schrauben	Sch.,fer+pe	4000935	=AP+0/1
=AP+0-U1	26	Linsenflanschschaube NB602 M3x6-A2	4001042 Linsenflanschschaube NB602 M3x6-A2		4001042	=AP+0/1
=AP+0-U1	4		Schrauben		4001561	=AP+0/1
=AP+ST1-A1	1	Heizungsregelung	ME0120A-149AB Heizungsregelung	Muegge	ME0120A-149AB	=AP+ST1/1
=AP+ST1-A1	7	Sicherheitsschraube ISO7380 M3x8	Schrauben	Sch.,fer+pe	4000935	=AP+ST1/1
=AP+ST1-A1	7		Maschinenelemente	Ettinger	4001571	=AP+ST1/1
=AP+ST1-A1	7	Sechskantmuttern M 3 DIN 934 V2A	Sechskantmuttern DIN 934 M 3	Diverse	4000151	=AP+ST1/1
=AP+ST1-A1-X1	1	Konf. Kabel Zul. PE0118P-035AB	Kabel	Hi-Kabelkonfektionierungs G	1010615	
=AP+ST1-A1-X5	1	Konf. Kabel V2 PE0118P-035AB	Kabel	Hi-Kabelkonfektionierungs G	1010616	
=AP+ST1-A1-X6	1	Steckverbinder FK-MC 0,5/ 2-ST-2,5 2polig	Steckverbinder	Phoenix	1400737	
=AP+ST1-A1-X7	1	Konf. Kabel F1 PE0118P-035AB	Kabel	Hi-Kabelkonfektionierungs G	1010617	
=AP+ST1-A1-X8	1	Konf. Kabel X8 PE0118P-035AB	Kabel	Hi-Kabelkonfektionierungs G	1010620	
=AP+ST1-A1-X9	1	Kabelsteckverb. 6,3 x 0,8 unisoliert, 0,5-1 mm_	Kabelsteckverbinder BA 638		1430011	
=AP+ST1-A1-X9	1	Isolationstuelle BP-6/PA / 1 VE = 100 Stck!	BP-6/PA		1430002	
=AP+ST1-M1	1	Lüfter 8114N 24V 2,0W	Motoren	PAPST	0800094	=AP+ST1/1
=AP+ST1-M1	1	Schutzgitter aus Stahldraht f r Serie 8000	LZ 32-4	PAPST	0800074	=AP+ST1/1
=AP+ST1-M1	4	Sicherh.Schraube Flachrundkopf ISO 7380 A2	Sicherh.Schraube Flachrundkopf ISO 7380 A2	Diverse	4001446	=AP+ST1/1
=AP+ST1-M1	4		4000381Scheibe DIN125-B4,3-A2	Diverse	4000381	=AP+ST1/1
=AP+ST1-M1	4		4000188 Zahnscheibe DIN 6797-A4,3-A2	Diverse	4000188	=AP+ST1/1
=AP+ST1-S1	1	Sicherheitsschalter ST 14, 250V/6A	ST 14 2 <sup>TM</sup> -1m	Schmersal	0660133	=AP+ST1/1
=AP+ST1-S1	2		4000188 Zahnscheibe DIN 6797-A4,3-A2	Diverse	4000188	=AP+ST1/1
=AP+ST1-S1	2	Sechskantmuttern M 4 DIN 934 V2A	Sechskantmuttern DIN 934 M 4	Diverse	4000240	=AP+ST1/1
=AP+ST1-S1	2	Sicherheitsschraube ISO7380 M4x20-A2	Schrauben	J,ger	4001559	=AP+ST1/1
=AP+ST1-V1	1	Magnetron 3kW 2450MHz w/c	Vakuumröhren	Muegge	MB2658A-120EL	=AP+ST1/1
=AP+ST1-V1	2	Abstandsbolzen Type A M4x55-VZK	Schrauben	Ettinger	4001560	=AP+ST1/1
=AP+ST1-V1	2	Sicherheitsschr Rundkopf M4x/ 8 A2 i/Torx pin	Sicherheitsschraube M 4x 8/Torx Pin A2	Sch.,fer+pe	4000735	=AP+ST1/1
=AP+ST1-V1	2	Keramikst tzer 338/25Bolzen/Buchse M4	HV Isolator Keramikst tzer 338/25Bolzen/Buchse M4	Ackermann	4000900	=AP+ST1/1
=AP+ST1-V1	2	Abstandsbolzen M4x10 I/A verzinkt	Abstandsbolzen M4x10 I/A verzinkt	Ettinger	4001416	=AP+ST1/1
=AP+ST1-V1	2	Zylinderschraube DIN912 M4x8-A2	4000185 Zylinderschraube DIN912 M4x8-A2	Diverse	4000185	=AP+ST1/1
=AP+ST1-V1	3		4000188 Zahnscheibe DIN 6797-A4,3-A2	Diverse	4000188	=AP+ST1/1
=AP+ST1-V1	3		4000381Scheibe DIN125-B4,3-A2	Diverse	4000381	=AP+ST1/1

=AP+ST1/1

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Modification		Date	Name	Original	Replaced by	Replaced by	Parts list : 2101154 - 4000381		Roth & Rau Muegge GmbH Hochstraße 4-6 D-64385 Reichelsheim		= AUSW + STK		Page Page
		14.03.2011		bih							1001624		1
					ME0118P-035AB						DN ME0118P-035AB00004400003		1





# Summarized parts list

F02\_MUE1

Order number	Quantity	description designation	Type number part number	manufacturer supplier	unit price	total price	Pos
210115400005300000	1	Abdeckhaube	Magnetron Head Mechanische Komponenten 2101154	Muegge	0,00	0,00	
210105000005300000	1	Seitenteil	Magnetron Head Mechanische Komponenten 2101050	Muegge	0,00	0,00	
210105100005300000	1	Seitenteil	Magnetron Head Mechanische Komponenten 2101051	Muegge	0,00	0,00	
210105200005300000	1	Abdeckblech	Magnetron Head Mechanische Komponenten 2101052	Muegge	0,00	0,00	
405008800005300000	1 Stk	Druck zu 2101154 Abdeckhaube	Oberflächen 4050088	Muegge B□rger	0,00	0,00	
4050082	1 Stk	Druck zu 2101050 Seitenteil	Oberflächen 4050082	Muegge B□rger	0,00	0,00	
4050083	1 Stk	Druck zu 2101051 Seitenteil	Oberflächen 4050083	Muegge B□rger	0,00	0,00	
136004	15	Sicherheitsschraube ISO7380 M3x8	Schrauben 4000935	Sch„fer+pe Schrauben-J„ger, Viernh	0,00	0,00	
	26	Linsenflanschschraube NB602 M3x6-A2	4001042 Linsenflanschschraube NB602 M3x 4001042	Schrauben-J„ger, Viernh	0,06	0,00	
DIN912 M5x120-A2	4		Schrauben 4001561	Schrauben-J„ger, Viernh	0,00	0,00	
ME0120A-149AB	1	Heizungsregelung	ME0120A-149AB Heizungsregelung ME0120A-149AB	Muegge Visatronic GmbH	0,00	0,00	
05.03.151	7		Maschinenelemente 4001571	Ettinger ETTINGER GMBH, HOF	0,00	0,00	
Sechskantmuttern DIN	7 Stk	Sechskantmuttern M 3 DIN 934 V2A	Sechskantmuttern DIN 934 M 3 4000151	Diverse Schrauben-J„ger, Viernh	0,01	0,00	
1010615	1	Konf. Kabel Zul. PE0118P-035AB	Kabel 1010615	Hi-Kabelkonfektionierun HI-KABELKONFEKTIONI	0,00	0,00	
1010616	1	Konf. Kabel V2 PE0118P-035AB	Kabel 1010616	Hi-Kabelkonfektionierun HI-KABELKONFEKTIONI	0,00	0,00	
1881325	1	Steckverbinder FK-MC 0,5/ 2-ST-2,5 2polig	Steckverbinder 1400737	Phoenix Phoenix Contact Deutsc	0,00	0,00	
1010617	1	Konf. Kabel F1 PE0118P-035AB	Kabel 1010617	Hi-Kabelkonfektionierun HI-KABELKONFEKTIONI	0,00	0,00	
1010620	1	Konf. Kabel X8 PE0118P-035AB	Kabel 1010620	Hi-Kabelkonfektionierun HI-KABELKONFEKTIONI	0,00	0,00	
Kabelsteckverbinder BA	1 Stk	Kabelsteckverb. 6,3 x 0,8 unisoliert, 0,5-1 mm_	Kabelsteckverbinder BA 638 1430011	Sonepar Deutschland	55,40	0,00	

+STK/2

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Modification		Date	Name	Original	Replaced by	Replaced by	Summarized parts list : 2101154 - 1430011		Roth & Rau Muegge GmbH Hochstraße 4-6 D-64385 Reichelsheim		= AUSW + BL		Page 1
		14.03.2011					ME0118P-035AB		1001624		DN ME0118P-035AB00004400003		Page 13



# Summarized parts list

F02\_MUE1

Order number	Quantity	description designation	Type number part number	manufacturer supplier	unit price	total price	Pos
BP-6/PA	1 Stk	Isolationstuelle BP-6/PA / 1 VE = 100 Stck!	BP-6/PA 1430002	SES-STERLING GMBH,	2,89	0,00	
8414N	1	Lüfter 8114N 24V 2,0W	Motoren 0800094	PAPST ebm-papst St. Georgen	0,00	0,00	
LZ 32-4	1 Stk	Schutzgitter aus Stahldraht für Serie 8000	LZ 32-4 0800074	PAPST SPOERLE ELECTRONIC	3,00	0,00	
M4x30 A2	4	Sicherh.Schraube Flachrundkopf ISO 7380 A2	Sicherh.Schraube Flachrundkopf ISO 7380 A 4001446	Diverse Schrauben-J.,ger, Viernh	0,00	0,00	
Scheiben DIN 125 für	7 Stk		4000381Scheibe DIN125-B4,3-A2 4000381	Diverse Schrauben-J.,ger, Viernh	0,00	0,00	
Zahnscheiben V2A DIN	9 Stk		4000188 Zahnscheibe DIN 6797-A4,3-A2 4000188	Diverse Schrauben-J.,ger, Viernh	0,32	0,00	
ST 14 2™-1m	1 Stk	Sicherheitsschalter ST 14, 250V/6A	ST 14 2™-1m 0660133	Schmersal SCHMERSAL, Wuppertal	38,29	0,00	
Sechskantmuttern DIN	3 Stk	Sechskantmuttern M 4 DIN 934 V2A	Sechskantmuttern DIN 934 M 4 4000240	Diverse Schrauben-J.,ger, Viernh	0,01	0,00	
136090	2	Sicherheitsschraube ISO7380 M4x20-A2	Schrauben 4001559	J.,ger J.,ger GmbH & Co KG, R	0,00	0,00	
MB2658A-120EL	1 Stk	Magnetron 3kW 2450MHz w/c	Vakuümrohren MB2658A-120EL	Muegge MUEGGE ELECTRONIC	0,00	0,00	
05.04.551	2	Abstandsbolzen Type A M4x55-VZK	Schrauben 4001560	Ettinger ETTINGER GMBH, HOF	0,00	0,00	
Sicherheitsschrauben	6 Stk	Sicherheitsschr Rundkopf M4x/ 8 A2 i/Torx pin	Sicherheitsschraube M 4x 8/Torx Pin A2 4000735	Sch.,fer+pe Sch.,fer + Peters GmbH,	0,19	0,00	
338/25	2	Keramikstücker 338/25Bolzen/Buchse M4	HV Isolator Keramikstücker 338/25Bolzen/B 4000900	Ackermann KARL H. ACKERMANN K	1,25	0,00	
05.14.102	2	Abstandsbolzen M4x10 I/A verzinkt	Abstandsbolzen M4x10 I/A verzinkt 4001416	Ettinger ETTINGER GMBH, HOF	0,00	0,00	
Zylinderschraube mit I	2 Stk	Zylinderschraube DIN912 M4x8-A2	4000185 Zylinderschraube DIN912 M4x8-A2 4000185	Diverse Schrauben-J.,ger, Viernh	0,02	0,00	
Zylinderschraube mit I	1 Stk		4000154 Zylinderschraube DIN912 M4x10-A 4000154	Diverse Schrauben-J.,ger, Viernh	0,12	0,00	
NB602 M4x8-A2	4	Linsenflanschschraube NB602 M4x8-A2	4001040 Linsenflanschschraube NB602 M4x 4001040	Schrauben-J.,ger, Viernh	0,07	0,00	
430628	1 Stk	Betriebsstundenzähler HC 77 3.550.401.351	Messmittel / Messger.,te 0820050	Köbler Sonepar Deutschland	0,00	0,00	
Scheiben DIN 125 für	3 Stk	Scheibe DIN125-B6,4-A2	4000162 Scheibe DIN125-B6,4-A2 4000162	Diverse Schrauben-J.,ger, Viernh	0,01	0,00	

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Date		14.03.2011		ME0118P-035AB		 Summarized parts list : 1430002 - 4000162		Roth & Rau Muegge GmbH Hochstraße 4-6 D-64385 Reichelsheim		= AUSW + BL	
Ed.		bih						1001624		DN	
Appr								ME0118P-035AB00004400003		Page 2	
Modification	Date	Name	Original	Replaced by	Replaced by			Page 13			

# Summarized parts list

F02\_MUE1

Order number	Quantity	description designation	Type number part number	manufacturer supplier	unit price	total price	Pos
Zahnscheiben V2A DIN	1 Stk	Z-Scheibe M 6 V2A DIN 6797 Type:A	Zahnscheiben V2A DIN 6797 M6 4000163	Diverse Schrauben-J,,ger, Viernh	0,02	0,00	
Sechskantmuttern DIN	2 Stk	Sechskantmuttern M 6 DIN 934 V2A	Sechskantmuttern DIN 934 M 6 4000164	Diverse Schrauben-J,,ger, Viernh	0,01	0,00	
Kontaktscheibe ART 55	1 Stk	Kontaktscheiben M 6 ART 55 BIC	Kontaktscheibe ART 55 BIC 4000417	Diverse Schrauben-J,,ger, Viernh	0,01	0,00	
Zylinderschraube mit I	1 Stk		4000161 Zylinderschraube DIN912 M6x25-A 4000161	Diverse Schrauben-J,,ger, Viernh	0,03	0,00	
1010613	1	Konf.Kabel Flachbandkabel 6 pol PE0118P-035AB	Kabel 1010613	Hi-Kabelkonfektionierun HI-KABELKONFEKTIONI	0,00	0,00	
09300160301	1 Stk	Anbaueh,,use HAN 16B-agg-QB	Steckverbinder 1410503	Harting Harting Deutschland G	6,75	0,00	
2100834	1 Stk	Arretierung u. Isolierung 3 HV-Kabel	2100834 Arretierung u. Isolierung 3 HV-Kab 2100834	Muegge B+S VORRICHTUNGSBA	0,00	0,00	
09 14 016 0303	1 Stk	Modulrahmen HAN16MOD-RAHMEN F.GEH.OT	Steckverbinder 1410517	Harting Harting Deutschland G	0,00	0,00	
09 14 002 3021	1 Stk	Kontakteinsatz HAN2MOD-STI-C5kV	Steckverbinder 1410518	Harting Harting Deutschland G	0,00	0,00	
09 14 008 3001	1 Stk	Kontakteinsatz HAN8MOD-STI-C16A	Steckverbinder 1410519	Harting Harting Deutschland G	0,00	0,00	
09 14 017 3001	1 Stk	Kontakteinsatz HAN17MOD-M-C10A	Steckverbinder 1410520	Harting Harting Deutschland G	0,00	0,00	
1674804	1 Stk	Crimpkontakt CK2,5-ED-0,50ST AU	Steckverbinder 1410521	Phoenix Phoenix Contact GmbH	0,00	0,00	
1663585	4 Stk	Crimpkontakt CK2,5-ED-0,75ST AG	Steckverbinder 1410522	Phoenix Phoenix Contact GmbH	0,00	0,00	
1663611	1 Stk	Crimpkontakt CK2,5-ED-2,50ST AG	Steckverbinder 1410523	Phoenix Phoenix Contact GmbH	0,00	0,00	
1663336	12 Stk	Crimpkontakt CK1,6-ED-0,37ST AG	Steckverbinder 1410524	Phoenix Phoenix Contact GmbH	0,00	0,00	
1010618	1	Konf. Kabel Masse PE0118P-035AB	Kabel 1010618	Hi-Kabelkonfektionierun HI-KABELKONFEKTIONI	0,00	0,00	
1010619	1	Konf. Kabel PE PE0118P-035AB	Kabel 1010619	Hi-Kabelkonfektionierun HI-KABELKONFEKTIONI	0,00	0,00	
1010622	1	Konf. Kabel D PE PE0118P-035AB	Kabel 1010622	Hi-Kabelkonfektionierun HI-KABELKONFEKTIONI	0,00	0,00	
1010621	1	Konf. Kabel A PE PE0118P-035AB	Kabel 1010621	Hi-Kabelkonfektionierun HI-KABELKONFEKTIONI	0,00	0,00	

+VER/3

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Date		14.03.2011		ME0118P-035AB		 Summarized parts list : 4000163 - 1010621		Roth & Rau Muegge GmbH Hochstraße 4-6 D-64385 Reichelsheim		= AUSW	
Ed.		bih						1001624		+ BL	
Appr								DN		ME0118P-035AB00004400003	
Modification	Date	Name	Original	Replaced by	Replaced by			Page	3		
								Page	13		

# Connection list

Muegge\_Verbindungsliste

connection	source	Target	cross-section	Color	Length	Page / column 1	Page / column 2	function definition
	=AP+ST1-A1-X8:1	=AP+ST1-X10	0,34	ws		=AP+ST1/1.2	=AP+ST1/1.2	Conductor / wire
	=AP+ST1-A1-X8:2	=AP+ST1-X10	0,34	ws		=AP+ST1/1.3	=AP+ST1/1.3	Conductor / wire
	=AP+ST1-A1-X8:3	=AP+ST1-X10	0,34	ws		=AP+ST1/1.3	=AP+ST1/1.3	Conductor / wire
	=AP+ST1-A1-X8:4	=AP+ST1-X10	0,34	ws		=AP+ST1/1.3	=AP+ST1/1.3	Conductor / wire
	=AP+ST1-A1-X8:5	=AP+ST1-X10	0,34	ws		=AP+ST1/1.3	=AP+ST1/1.3	Conductor / wire
	=AP+ST1-A1-X8:6	=AP+ST1-X10	0,34	ws		=AP+ST1/1.3	=AP+ST1/1.3	Conductor / wire
	=AP+ST1-A1-X8:7	=AP+ST1-X10	0,34	ws		=AP+ST1/1.4	=AP+ST1/1.4	Conductor / wire
	=AP+ST1-A1-X8:8	=AP+ST1-X10	0,34	ws		=AP+ST1/1.4	=AP+ST1/1.4	Conductor / wire
	=AP+ST1-A1-X1:1	=AP+ST1-X10	1	sw		=AP+ST1/1.4	=AP+ST1/1.4	Conductor / wire
	=AP+ST1-A1-X3:1	=AP+ST1-X10	1	sw		=AP+ST1/1.5	=AP+ST1/1.5	Conductor / wire
	=AP+ST1-A1-X2:1	=AP+ST1-X10	1	sw		=AP+ST1/1.4	=AP+ST1/1.4	Conductor / wire
	=AP+ST1-A1-X9:1	=AP+ST1-X10:D/PE	1	gnge		=AP+ST1/1.5	=AP+ST1/1.5	Conductor / wire
	=AP+ST1-X2:PE	=AP+ST1-X10:A/PE	1	gnge		=AP+ST1/1.8	=AP+ST1/1.8	Conductor / wire
	=AP+ST1-A1-T1:3	=AP+ST1-V1:F	2,5	Heizkabel		=AP+ST1/1.5	=AP+ST1/1.8	Conductor / wire
	=AP+ST1-A1-T1:4	=AP+ST1-V1:FA	2,5	Heizkabel		=AP+ST1/1.5	=AP+ST1/1.8	Conductor / wire
	=AP+ST1-A1-X7:1	=AP+ST1-V1-F1:1	0,5	dbl		=AP+ST1/1.5	=AP+ST1/1.7	Conductor / wire
	=AP+ST1-A1-X7:2	=AP+ST1-V1-F1:2	0,5	dbl		=AP+ST1/1.5	=AP+ST1/1.7	Conductor / wire
	=AP+ST1-V1:MM	=AP+ST1-X10	2,5	sw		=AP+ST1/1.8	=AP+ST1/1.7	Conductor / wire
	=AP+ST1-V1:FA	=AP+ST1-X10	VH-Kabel	ws		=AP+ST1/1.8	=AP+ST1/1.8	Conductor / wire
	=AP+ST1-A1-X10:1	=AP+ST1-X3:1	0,14	gr		=AP+ST1/1.2	=AP+ST1/1.0	Conductor / wire
	=AP+ST1-A1-X10:2	=AP+ST1-X3:2	0,14	gr		=AP+ST1/1.2	=AP+ST1/1.0	Conductor / wire
	=AP+ST1-A1-X10:3	=AP+ST1-X3:3	0,14	gr		=AP+ST1/1.2	=AP+ST1/1.0	Conductor / wire
	=AP+ST1-A1-X10:4	=AP+ST1-X3:4	0,14	gr		=AP+ST1/1.2	=AP+ST1/1.1	Conductor / wire
	=AP+ST1-A1-X10:5	=AP+ST1-X3:5	0,14	gr		=AP+ST1/1.2	=AP+ST1/1.1	Conductor / wire
	=AP+ST1-A1-X10:6	=AP+ST1-X3:6	0,14	gr		=AP+ST1/1.2	=AP+ST1/1.1	Conductor / wire
	=AP+ST1-X2:PE	=AP+ST1-X10	1	gnge		=AP+ST1/1.8	=AP+ST1/1.8	Conductor / wire
	=AP+ST1-A1-X5:1	=AP+ST1-V2:x2	0,56	sw		=AP+ST1/1.4	=AP+ST1/1.4	Conductor / wire
	=AP+ST1-A1-X5:2	=AP+ST1-V2:x1	0,56	rt		=AP+ST1/1.4	=AP+ST1/1.4	Conductor / wire
	=AP+ST1-A1-X6:1	=AP+ST1-M1:1		rt		=AP+ST1/1.2	=AP+ST1/1.2	Conductor / wire
	=AP+ST1-A1-X6:2	=AP+ST1-M1:2		sw		=AP+ST1/1.3	=AP+ST1/1.2	Conductor / wire
S1	=AP+ST1-S1:12	=AP+ST1-X10	AWG26	or		=AP+ST1/1.6	=AP+ST1/1.6	Conductor / wire
S1	=AP+ST1-S1:21	=AP+ST1-X10	AWG26	sw		=AP+ST1/1.6	=AP+ST1/1.6	Conductor / wire
S1	=AP+ST1-S1:22	=AP+ST1-X10	AWG26	br		=AP+ST1/1.6	=AP+ST1/1.7	Conductor / wire
S1	=AP+ST1-S1:11	=AP+ST1-X10	AWG26	rt		=AP+ST1/1.6	=AP+ST1/1.7	Conductor / wire

+BL/3

			Date	14.03.2011			Connection list : - S1		Roth & Rau Muegge GmbH Hochstraße 4-6 D-64385 Reichelsheim		= AUSW	
			Ed.	bih	ME0118P-035AB				1001624		+ VER	
			Appr						DN		ME0118P-035AB00004400003	
Modification	Date	Name	Original	Replaced by	Replaced by							Page 13



# Technical Data

Mains supply : -  
 Mains rated current : -  
 Mains nominal power : -

## code from Conductor:

main circuit 400VAC, L1 : -  
 main circuit 400VAC, L2 : -  
 main circuit 400VAC, L3 : -  
 Earth protection wire PE : green / yellow  
 Control circuit 230VAC, L230VAC : -  
 Control circuit 230VAC, N : -  
 Interlock circuit and Safety circuit 24VDC : -

## Cooling water circuit:

Cooling water flow : min. 4L / min  
 Cooling water temperature range : 20-25°C  
 Cooling water connector : Rectus Series 87 (300)



# device

## function

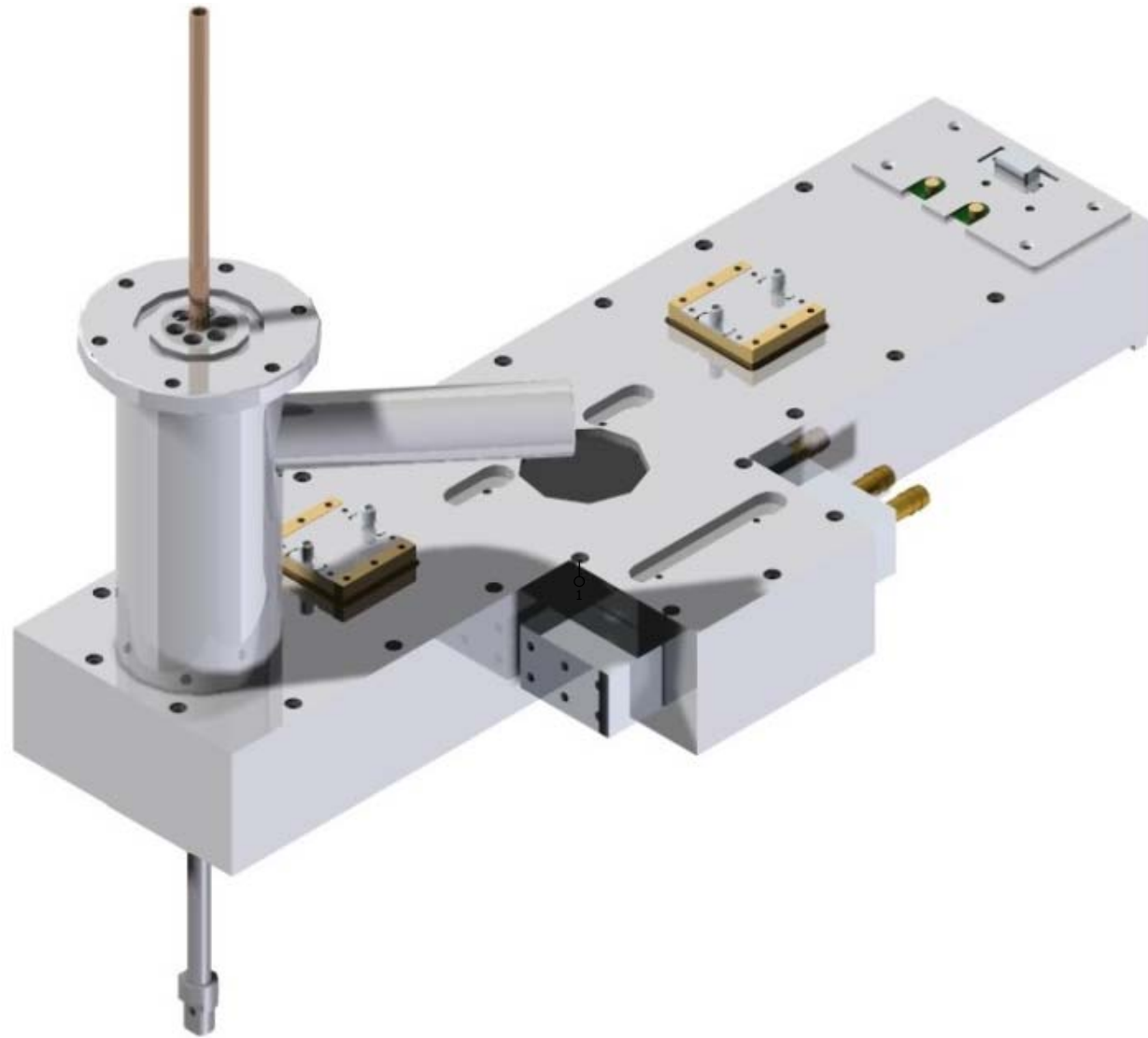
## manufacturer

Filter	: -
Terminals	: -
signal devices	: -
cooling	: Muegge
Relays contactors	: -
switch; selector	: -
safety devices	: -
plug	: -
Transformer	: -
motor	: -

			Date	12.03.2011			device manufacturer	Roth & Rau Muegge GmbH Hochstraße 4-6 D-64385 Reichelsheim	= Doku	
			Ed.	bih					+ Daten	
			Appr		ME0118P-034AB				320900793	
Modification	Date	Name	Original		Replaced by	Replaced by			DN ME0118P-034AB00004400002	Page 3
										Page 9

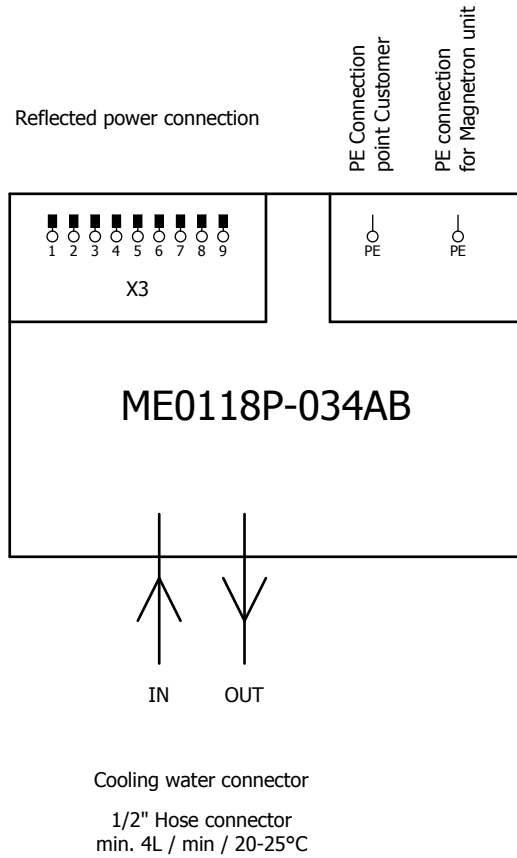


-U1  
Launcher



=Doku+Daten/3

		Date	12.03.2011				View	Roth & Rau Muegge GmbH Hochstraße 4-6 D-64385 Reichelsheim		= AP	
		Ed.	bih	ME0118P-034AB				320900793		+ 0	
Modification	Date	Name	Original	Replaced by	Replaced by			DN ME0118P-034AB00004400002		Page	1
								Page	1		

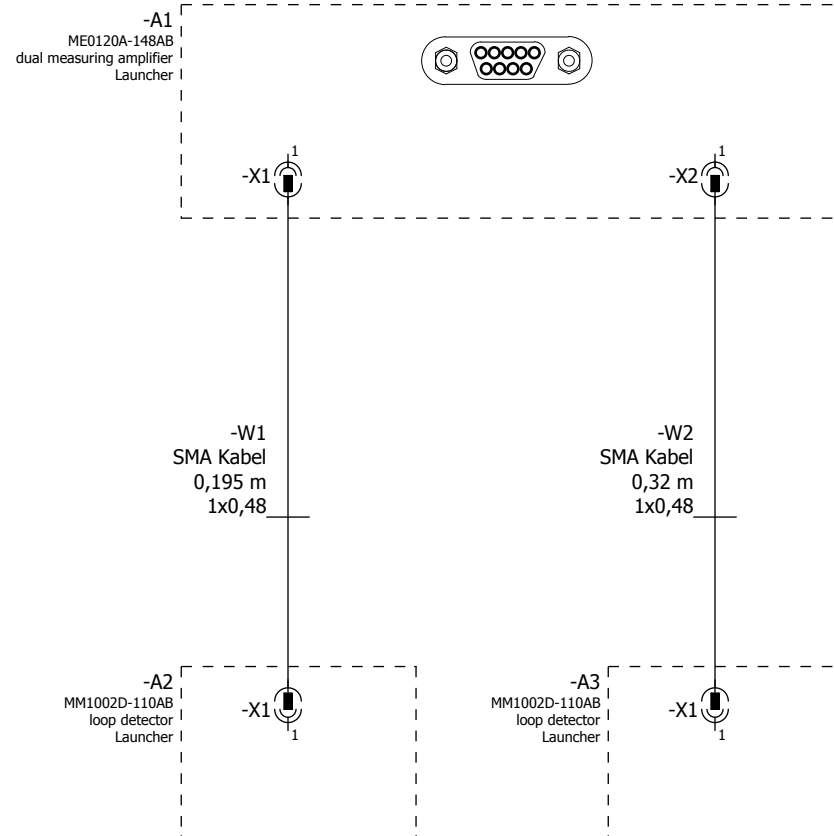


1

+ST1/1

			Date	12.03.2011				Roth & Rau Muegge GmbH Hochstraße 4-6 D-64385 Reichelsheim		= AP	
			Ed.	bih					320900793	+ 0	
			Appr		ME0118P-034AB						
Modification	Date	Name	Original		Replaced by	Replaced by			DN	ME0118P-034AB00004400002	Page 2 Page 9





+0/2

=AUSW+STK/1

			Date	12.03.2011	ME0118P-034AB		Roth & Rau Muegge GmbH Hochstraße 4-6 D-64385 Reichelsheim	320900793	= AP + ST1	Page 1	
			Ed.	bih							Page 9
Modification	Date	Name	Original				Replaced by	Replaced by	DN	ME0118P-034AB00004400002	



# Summarized parts list

F02\_MUE1

Order number	Quantity	description designation	Type number part number	manufacturer supplier	unit price	total price	Pos
ST 14-B5	1 Stk	Bet,tiger 90ø f□r Sicherheitsschalter ST 14	ST 14-B5 0660134	Schmersal SCHMERSAL, Wuppertal	38,29	0,00	
Zylinderschraube mit I	2 Stk	Zylinderschraube DIN912 M4x12-A2	4000379 Zylinderschraube DIN912 M4x12-A 4000379	Diverse Schrauben-J,,ger, Viernh	0,04	0,00	
Scheiben DIN 125 für	2 Stk		4000381Scheibe DIN125-B4,3-A2 4000381	Diverse Schrauben-J,,ger, Viernh	0,00	0,00	
Zahnscheiben V2A DIN	2 Stk		4000188 Zahnscheibe DIN 6797-A4,3-A2 4000188	Diverse Schrauben-J,,ger, Viernh	0,32	0,00	
87KBIW13MVX	1 Stk	Verschlúakupplung 87KBIW13MVX G1/4x9mm	Anschlussamaturen 1300800	RECTUS RECTUS AG, Eberdingen	6,15	0,00	
Si-Schl. 9,5 x 3,7 m	1 m	Silicon-Schlauch 9,5 x 3,7mm mit Gewebereinlage rot	Silicon-Schlauch 9,5 x 3,7mm mit Gewebereinlage 1050011	Tecno Plas TECNO PLAST, D□sseld	6,77	0,00	
41003	1 Stk	MET-Schneckenengewindeschelle 12-20mm Spannbereich,	LSGL 12/20 1030018	LAGRA LAGRA ELEKTROTECHN	0,67	0,00	
Zylinderschraube mit I	2 Stk	Zylinderschraube DIN912 M6x16-A2	4000219 Zylinderschraube DIN912 M6x16-A 4000219	Diverse Schrauben-J,,ger, Viernh	0,03	0,00	
Scheiben DIN 125 f□r	2 Stk	Scheibe DIN125-B6,4-A2	4000162 Scheibe DIN125-B6,4-A2 4000162	Diverse Schrauben-J,,ger, Viernh	0,01	0,00	
Zahnscheiben V2A DIN	2 Stk	Z-Scheibe M 6 V2A DIN 6797 Type:A	Zahnscheiben V2A DIN 6797 M6 4000163	Diverse Schrauben-J,,ger, Viernh	0,02	0,00	
Kontaktscheibe ART 55	2 Stk	Kontaktscheiben M 6 ART 55 BIC	Kontaktscheibe ART 55 BIC 4000417	Diverse Schrauben-J,,ger, Viernh	0,01	0,00	
2200323	1	Launcher Baugruppe links	Launcher Mechanische Komponenten 2200323		0,00	0,00	
Gewinde: G1/4" x 9mm	1 Stk	Aussengewindet□lle MS G1/4x9mm	Gewinde: G1/4" x 9mm 1300025	Diverse PRESSLUFT GOETZ GM	0,71	0,00	
901-9887-RFX	1	SMA Panel Receptacle Jack	Coax-Stecker SMA 901-9887-RFX 1460107	Spinner Spinner GmbH, Münche	0,00	0,00	
ME0120A-148AB	1	Dual Messverst,,rker	ME0120A-148AB ME0120A-148AB	Muegge Visatronic GmbH	0,00	0,00	
05.13.061	4 Stk		Abstandsbolzen M3x6Typ B I/A 4001501	Ettinger ETTINGER GMBH, HOF	0,17	0,00	
M3x4 DIN 965 A2	4	Senkschraube H	M3x4 DIN 965 A2 H 4001064	Diverse Schrauben-J,,ger, Viernh	0,00	0,00	
MM1002D-110AB	2 Stk	Directional Loop Detector MM1002D-110AB	MM1002D-110AB 1480004	Muegge Bloxom Technologies Lt	204,00	0,00	
Zylinderschraube DIN9	12 Stk	Zylinderschraube DIN912 M3x8-A2	4000190 Zylinderschraube DIN912 M3x8-A2 4000190	Diverse Schrauben-J,,ger, Viernh	0,02	0,00	

+STK/1

2

Modification		Date	Name	Original	Replaced by	Replaced by	Summarized parts list : 0660134 - 4000190		Roth & Rau Muegge GmbH Hochstraße 4-6 D-64385 Reichelsheim		320900793		= AUSW + BL		Page 1
		12.03.2011		bih			ME0118P-034AB				DN ME0118P-034AB00004400002				Page 1





## 10.3 Data sheets

- Magnetron



# CONTENTS

Spec No.

8266100 A

Model No.

2M266-M12WJ

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## 1 . Application

This specifications is applied for CW magnetron model 2M266 which is supplied to Muegge using for microwave oven.

## 2 . Construction of this specifications

Item No.	Contents	Spec. No.	Page
1	Cover Sheet		
2	Contents	8266100 A	1/10
3	Record of Revision	8266100 B	2/10
4	Product Specifications	8266100 C	3/10 ~ 7/10
5	Outline Drawing	8266100 D	8/10
6	Technical Note	8266100 E	9/10 ~ 10/10

## 3 . Others

If any questions or modifications occur on this specifications, or concerning the matter which is not specified on this specifications, it should be determined by agreement between customer and Panasonic.

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# RECORD OF REVISION

Spec No.

8266100 B

Model No.

2M266-M12WJ

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Date	Spec No.	Page	Summary
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# PRODUCT SPECIFICATIONS

Spec No.

8266100 C

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Model No.

2M266-M12WJ

This Specifications is based on the General Rules of Inspection for Electron Tubes ED-1101 and the Testing Methods for Continuous Wave Magnetrons ED-1501 set by the Electronic Industries Association of Japan (EIAJ).

Description	Continuous wave Magnetron (Fixed Frequency, Packaged Magnet, Probe Output)											
Outline	Refer Outline Drawing						Net weight		Approx. 2.3 Kg			
Absolute Maximum Ratings	Item	Ef	Ef	tk	Ebm	lb	lbm	Pi	L	Tp	Tc	Storage
		Stand-by	Operation	( <sup>3</sup> )						( <sup>4</sup> )	( <sup>4</sup> )	
	Unit	V	V	sec	kV	mAdc	A	kW	-			
	Max.	4.4	( <sup>2</sup> )	-	5.5	900	3.1	4.7	2	180	120	60
Min.	3.8	( <sup>2</sup> )	5	-	-	-	-	-	-	-	-30	
Standard Test Conditions ( <sup>1</sup> )	4.0	2.2	8	-	840	-	-	MAX 1.1	-	-	-	

## Test Specifications

Test Item ( <sup>8</sup> )	Test Method (ED-1501)	Test Conditions ( <sup>1</sup> )	Symbol	Nominal	Limit		Unit
					Min.	Max.	
* Filament Current	4.1.1	tk=120s	If	22	20	24	A
Peak Anode Voltage	4.3.1	( <sup>5</sup> )	ebm	5.1	4.9	5.3	kV
Average Output Power (1)	4.3.3.1	( <sup>5</sup> )	Po(1)	3000	2800	-	W
Frequency	4.3.4	( <sup>5</sup> )	f	2455	2440	2470	MHz
Breakdown Voltage	4.2	Eb=10kVdc or 7.1kVac ( <sup>6</sup> ) gradual voltage up	BVaf	No unusual phenomenon occur			
Stability Moding	4.3.11.2	L=4 or less	ST	No moding occurrence			
Emission Moding	4.3.11.3	Ef=2.8V	Efm	No moding occurrence			
Insulation	-	1kVdc	Raf	-	100	-	M

## Classification of tests.

\*\* mark : Type approval Test.

\* mark : Design Test.

None : Production Test.

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# PRODUCT SPECIFICATIONS

Spec No.

8266100 C

Model No.

2M266-M12WJ

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## Note

- (<sup>1</sup>) The tube shall be mounted on the output coupler (shown in the attached drawing) or similar one. Ambient temperature is 25 .  
Single phase full wave rectifier without filter shall be used for power supply.
- (<sup>2</sup>) Filament voltage should be regulated as shown in Fig.1. at operating.
- (<sup>3</sup>) Apply for half wave doubler power supply. If power supply is different, this figure shall be reviewed.
- (<sup>4</sup>) This figure shall be reviewed, after confirmed load impedance of customer's instrument. The point for measuring anode/ $T_p$  and filter case/ $T_c$  temperature are shown in the outline drawing.
- (<sup>5</sup>) Figures are specified at  $25 \pm 1$  of the magnets' temperature. Measured shall be done within 30 seconds after anode voltage supplied.
- (<sup>6</sup>) No continuous spark occur in the wave-guide.

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Fig.1 Cut back of Filament voltage on operation condition

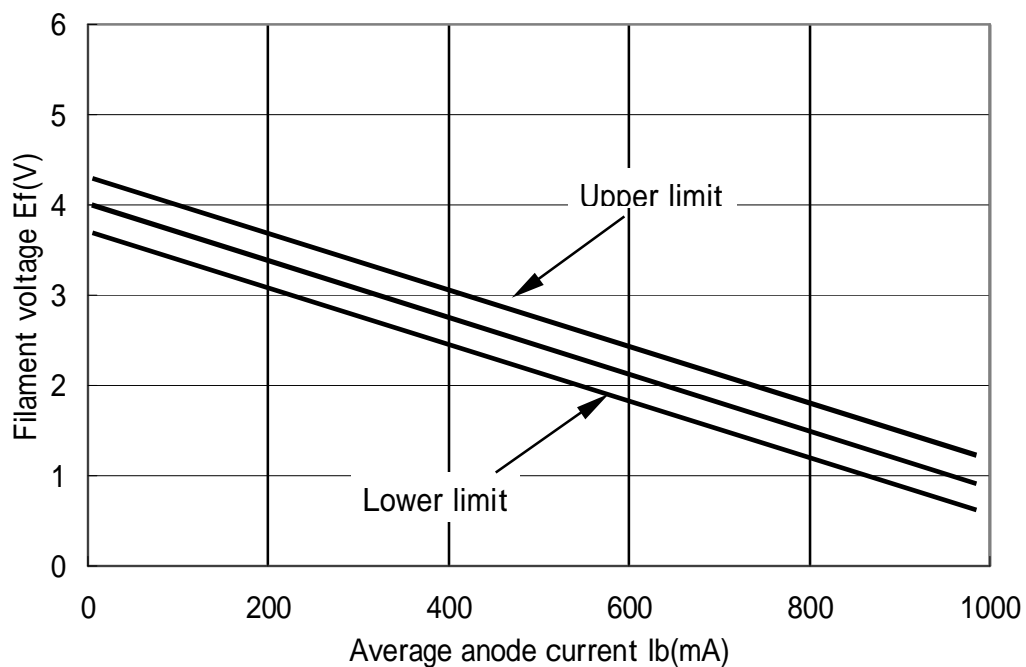
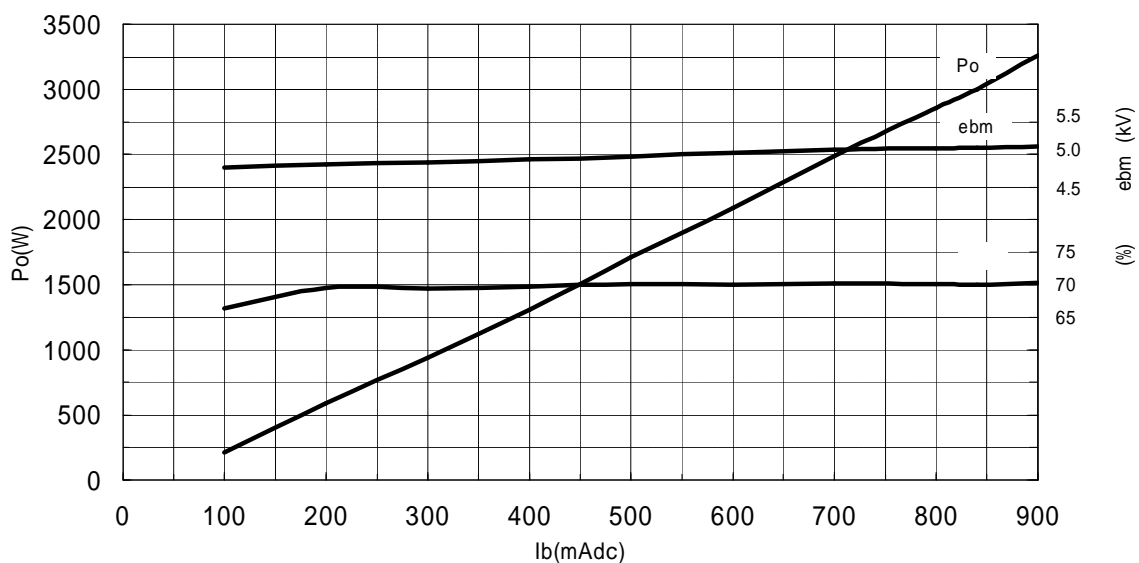


Fig.2 Performance Chart

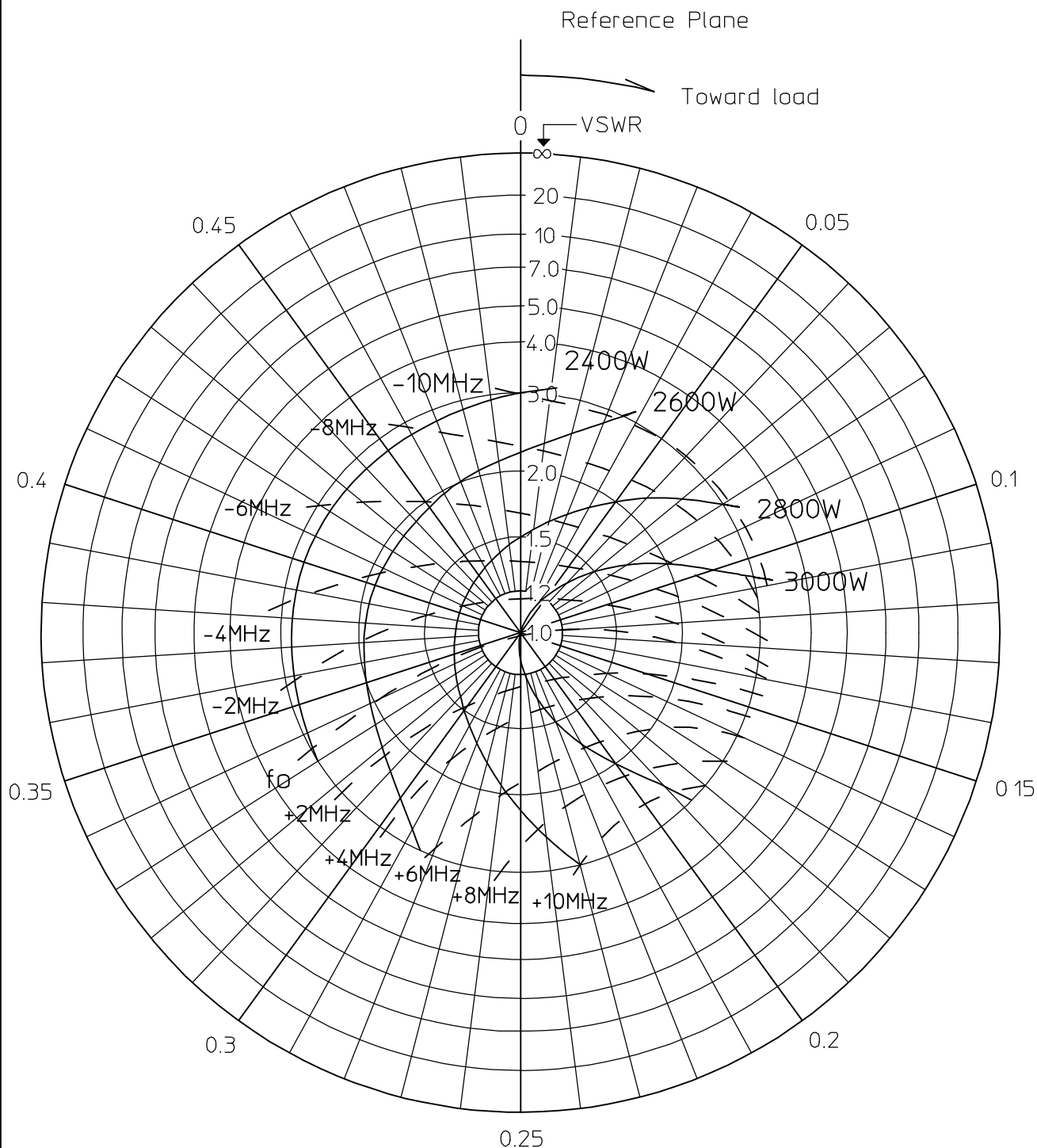


# PRODUCT SPECIFICATIONS

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Model No.	2M266-M12WJ		

Fig.3 Typical Rieke Diagram

Anode supply	: Single phase full wave rectifier without filter.	Matched load condition
Filament voltage	: 2.2 V	Peak anode voltage : 5.1 kV
Mean anode current	: 840 mA	Mean output power : 3000 W
Reference plane	: Antenna	Frequency : 2455 MHz



**PRODUCT SPECIFICATIONS**

Spec No.

8266100 C

Model No.

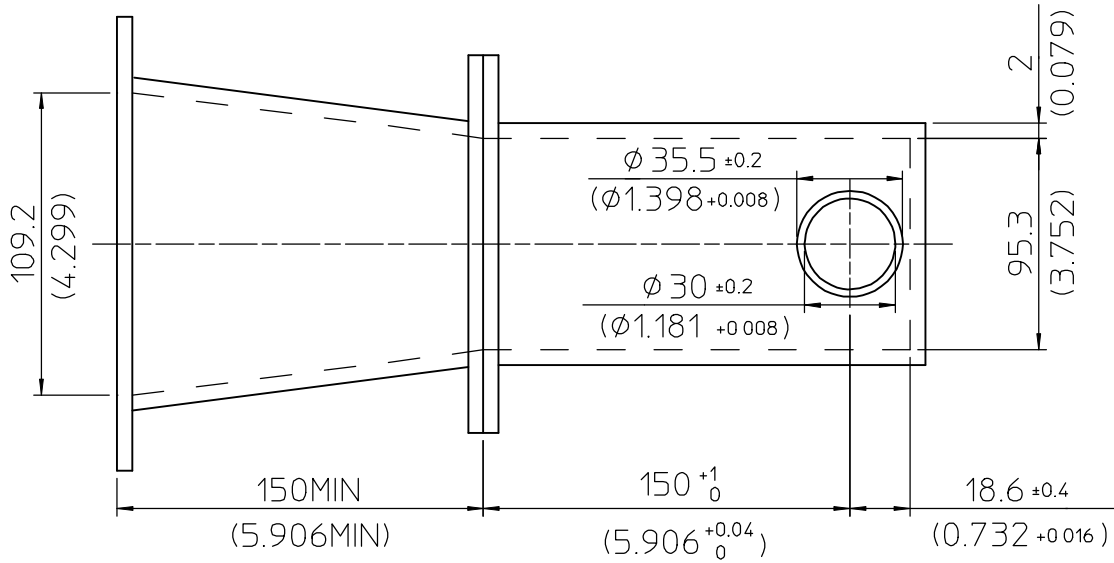
2M266-M12WJ

Page

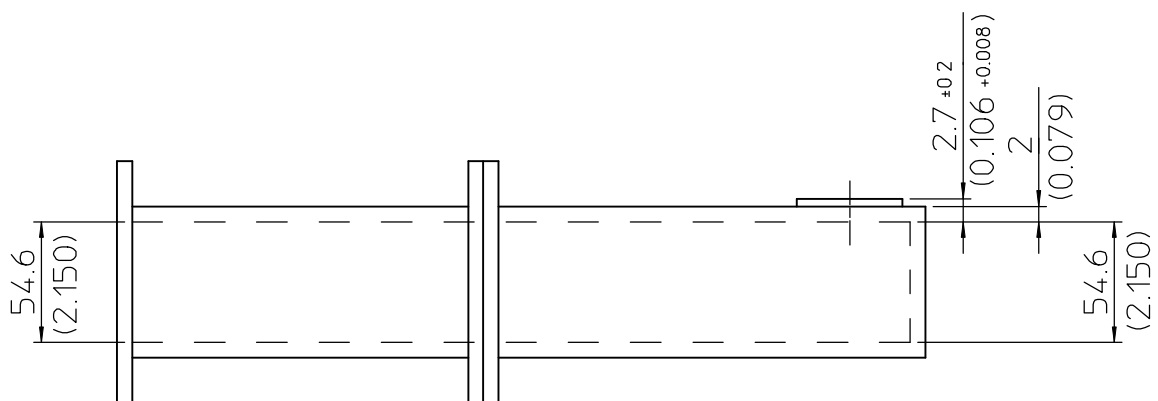
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Fig.4 R.F.coupler

Unit : mm (inch)



The flange mates with Japanese standard BRJ-2.



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# OUTLINE DRAWING

Spec No.

8266100 D

Model No.

2M266-M12WJ

Page

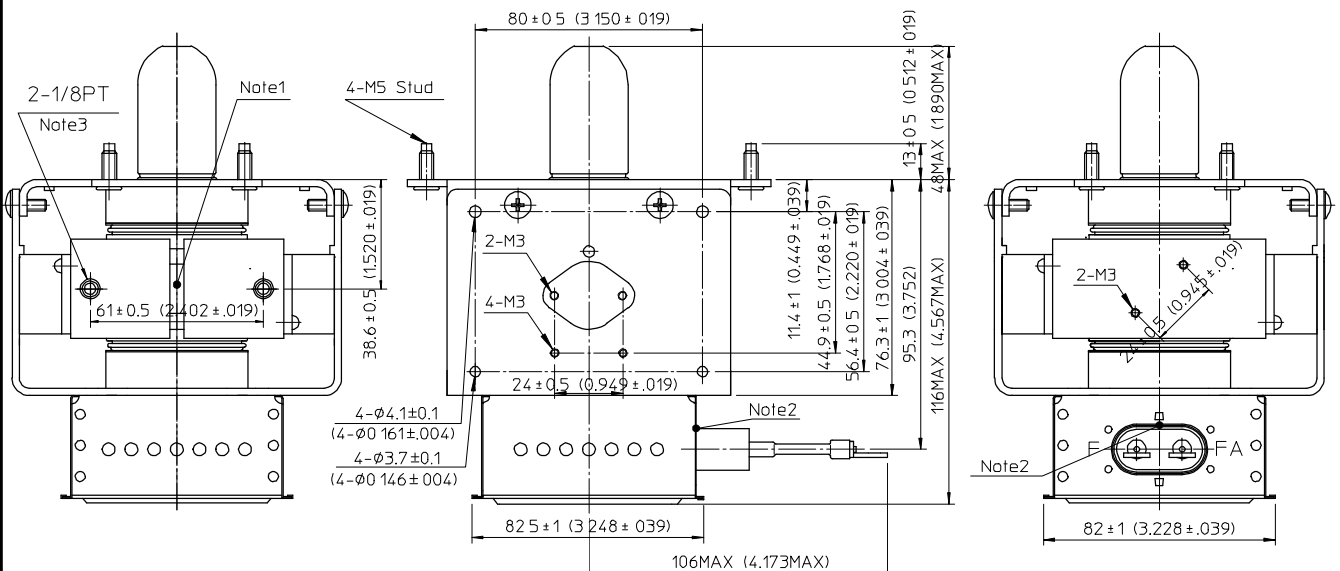
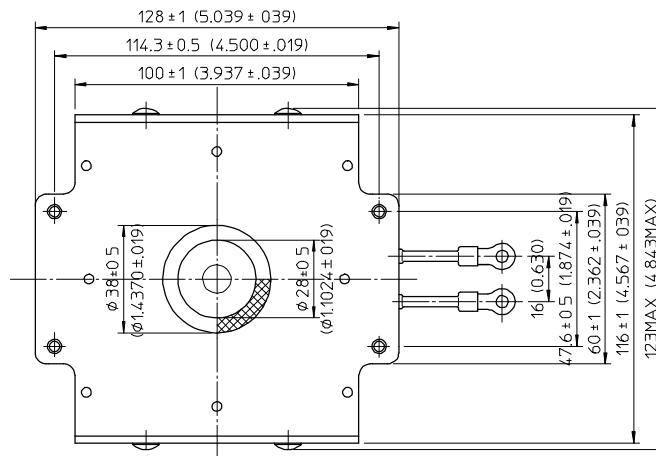
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Unit : mm (inch)

Note1. Anode temperature measuring point. To be measured at the outlet side of air flow.

Note2. Filter case temperature measuring point.

Note3. For 1/8 nipples. Hole size are as following dimintions.





TECHNICAL NOTE

1.Preheating and cut back operation

Preheating of filament for more than 3 seconds before apply high voltage desirable for long life and minimize transient voltage (surge voltage). Also when applying high voltage, filament voltage should be reduced to proper value of anode current (Ib) refer to Fig.1 of this specifications cut back operation is recommended.

2.Connection of filament terminals

The filament terminal of magnetron shall be connected as good as possible electrically and mechanically to protect defect, because poor mechanical contact easily cause poor connections.

3.Handling

Magnetron has strong construction in mechanical and thermal because it's constructed with ceramic and metal. However filament has poor mechanical strength against vibration or shock. Due to particular fact that filament use is made of thoriated-tungsten wire, the surface of which has been specially treated (known as carbonization) in order to ensure good electron emission. Therefore, the user has to pay enough attention to handling. Also magnetron shall be prevented against mechanical vibration of 300 ~ 400 Hz frequency because filament has synclonous mechanical vibration at that frequency.

As the magnetron is operated with a high voltage supply to the cathode terminal, it is necessary that hands should be kept away from the terminals of the tube being operated.

Microwave leakage from magnetron input (filament terminal) is prevented by filter circuit. However leakage from output shall be pay attention to confirm electrical contact of magnetron gasket and wave-guide lip.

4.Load impedance

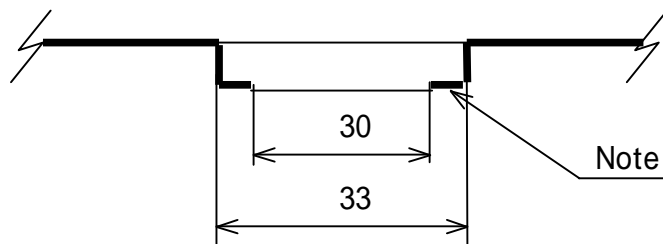
In designing microwave ovens, it is important for the magnetron life and stable oscillation that the V.S.W.R. (voltage standingwave ratio) shall be kept as low as possible even when the smallest load is applied.

When a magnetron is operated with the V.S.W.R. beyond the maximum ratings, it will appear unusual phenomena like high antenna or anode temperature, antenna spark, moding or runaway and may cause the tube to damage.

5.Recommended waveguide design

Recommended structure of launcher

To prevent microwave leakage from launcher, we recommend to design launcher as shown below.



Unit : mm

Note : Flatness of embossed edge should be kept. Also electrical contact should be kept as low as possible.