



# RAUCH MAGNESIUM GMA



GMD - Gas mixing unit pressure controlled  
GZE - Gas distribution cabinet  
MFC - Mass flow controller  
N2 - Nitrogen  
EK/PC - Pump chamber  
SK/MC - Melt chamber

Schematic overview gas distribution cabinet GZE

## Magnesium gas mixing unit GMA

To avoid a chemical reaction of the liquid magnesium melt with oxygen (air), the area above the melt in the crucible is continuously supplied with protective gas. Basically, this protective gas consists of a carrier gas and the protective gas itself (e.g. HFC, SO<sub>2</sub>, R134a,...).

The preparation (mixing and flow control of the supplied protective gas) is done in the so-called gas mixing unit, this unit is available as single unit (for one Mg furnace), or as central gas mixing unit (for several furnaces).

## Advantages

- Quantity and concentration is variable, depending on the operating condition of the furnace (values change automatically during the casting process, depending on the settings).
- Parameters (desired values) can be changed at any time at the central control panel of the furnace.
- Very high accuracy of continuous controlling of gas flow and concentration of the protective gas.
- Automatically switch over function between gas bottles, including a warning message on the operator panel.
- Continuous monitoring of all gas pressures and gas flows.
- Central display of malfunctions and messages at the furnaces operator panel.



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- Melting process and continuously stable casting process.
- In case of malfunction: possibility of immediate switch over to emergency mode (necessary to cool down in safe conditions) - also in case of power failure!
- Temperature controlled heating system inside the cabinet (only for SO<sub>2</sub>), to avoid malfunctions due to low ambient temperature.
- The SO<sub>2</sub> gas mixing unit is equipped with an SO<sub>2</sub> sensor, in case of a leakage inside the cabinet an exhaust fan starts up automatically and a warning message will be displayed on the panel.

Our systems are equipped with Siemens PLC's (S7) are used and due to the continuous monitoring of all parameters a high reliability of the system is ensured.

## Design

- GMM - flow controlled gas mixing unit
- GMD - pressure controlled gas mixing unit
- GZE - Gas distribution cabinet
- Gas mixing container

GMA		GMM SO <sub>2</sub>	GMM HFC	GMD SO <sub>2</sub>	GMD HFC	GZE
Protective gas		SO <sub>2</sub>	HFC/ R134a	SO <sub>2</sub>	HFC/ R134a	SO <sub>2</sub> , HFC/R134a
Carrier gas N <sub>2</sub>		x	x	x	x	x
Number of furnaces to be supplied		1	1	4+	4+	adding station **
Gas cabinet, 50 l each		2	2	3	3	adding station **
Number of possible mixtures		2	2	2	2	adding station **
Safety cabinet		x		x		
Gas sensor in cabinet		x		x		x (SO <sub>2</sub> )
Connected load	[kW]	2,5	2,5	2,5	2,5	0,5
Installed heating	[W]	400/800		2 x 400/800		
Net weight	[kg]	450	240	600	600	50
Dimensions						
Width	[mm]	1100	1000	1400	1400	500
Depth	[mm]	500	500	500	500	340
Height	[mm]	2050	2000	2050	2050	500
All units are equipped with Siemens control; electrical power connection 3 x 400 VAC, 50/60 Hz; other voltages on request.						24 VDC

\*\* Depending on customers requirements