

# Sacrificial anodes

- Hull Anodes
- Bolt-on Anodes
- Disc Anodes
- Tank Anodes
- Pitguard Anodes
- Pencil Anodes
- Rod Anodes
- Mounting Material

*A Longer Life*



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MME GROUP

[www.mme-group.com](http://www.mme-group.com)

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# About MME Group

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MME Group is based in the Rotterdam area in The Netherlands. The company was established in 1963 and has since grown to become one of the most experienced and specialized companies in its field of activity. MME Group serves customers around the globe in industries such as machine building, oil & gas, offshore renewable energy (wind and tidal), shipping and shipbuilding.

MME Group activities:

- Cathodic Protection (SA, ICCP)
- MGPS (Impressed Current Anti-Fouling)
- Harbinger Boarding Equipment
- Non-destructive Testing
- Metallurgical Laboratory
- Marine Surveys
- Rope Access
- NDT Training Courses
- Playground & Recreational Safety

Contact us to find out how we can help you realise 'A Longer Life' for your assets or products.



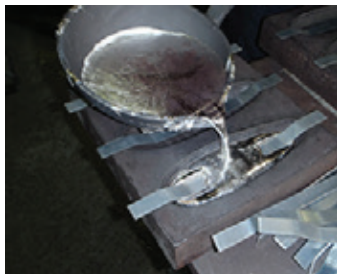
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# MME Group sacrificial anodes

**Corrosion is one of the largest threats to the long-term integrity and profitability of seagoing vessels and offshore structures. In fact, 4% of our total GDP is wasted due to corrosion. If you don't select the right protection method and solution provider, the vessel you construct or operate might also end up in those statistics. In the end, this will not only damage your reputation, but could even harm people as well as the environment.**

Thankfully, MME Group has decades of accumulated knowledge and experience in applying sacrificial anodes and impressed current systems to protect these objects. With in-house corrosion engineering (FEM-analysis) and value added services such as Non-Destructive Testing, Marine Inspections, IRATA certified Rope Access and a Destructive Testing and Corrosion Laboratory, MME Group helps you realise 'A Longer Life' for your vessel.

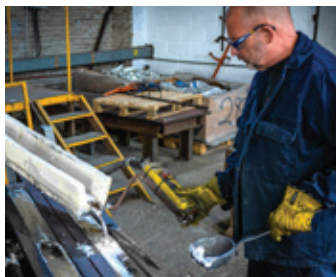


## Why choose our anodes?

This catalogue gives you an overview of our sacrificial anode product range for sea and river going vessels. All MME Group anodes are engineered in-house and are produced at our fully owned foundry in the United Kingdom. This allows us to closely control product quality and guarantee short delivery times. From our warehouse in The Netherlands, we can supply most types directly from stock to any location in Europe within a few days.

## Harbour and offshore applications

We are also specialised in engineering and production of sacrificial anodes for harbour and port structures (jetties and sheet pile walls) and offshore constructions (jackets, drilling rigs, offshore wind foundations). As these anodes usually require project specific engineering, they are not listed in this catalogue. Please contact us for more information if you are interested in these applications: [sal@mme-group.com](mailto:sal@mme-group.com) / +31 180 48 28 28



# Alloy specifications of standard Sacrificial Anodes

## General

The below mentioned alloys have been chosen with great care to ensure an even corrosion pattern, reliable electrical capacity and a long working life. These alloys are used for standard sacrificial anodes. Upon request, MME Group can cast anodes with different alloy specifications.

## Aluminium Alloy

| Element       | Impurities   | Range (%)    |
|---------------|--------------|--------------|
| Zinc (Zn)     |              | 3.50 - 5.00  |
| Titanium (Ti) |              | 0.01 - 0.05  |
| Silicon (Si)  |              | 0.05 - 0.20  |
| Bismuth (Bi)  |              | 0.05 - 0.15  |
| Indium (In)   |              | 0.015 - 0.05 |
| Aluminium     |              | Remainder    |
|               | Copper (Cu)  | 0.01 max     |
|               | Iron (Fe)    | 0.15 max     |
|               | Others each  | 0.02 max     |
|               | Others total | 0.05 max     |

Nominal electrical capacity: 2700 AmpHr/Kg

Nominal open circuit potential: -1100 mV vs Ag/AgCl (seawater) reference cell

## ZINC ALLOY acc. US MIL Spec. A-18001K

| Element        | Impurities   | Range (%)    |
|----------------|--------------|--------------|
| Aluminium (Al) |              | 0.10 - 0.5   |
| Cadmium (Cd)   |              | 0.025 - 0.07 |
| Zinc (Zn)      |              | Remainder    |
|                | Copper (Cu)  | 0.005 max    |
|                | Iron (Fe)    | 0.005 max    |
|                | Lead (Pb)    | 0.006 max    |
|                | Others total | 0.10 max     |

Nominal electrical capacity: 780 AmpHr/Kg

Nominal open circuit potential: -1050 mV vs Ag/AgCl (seawater) reference cell

# Choosing Zinc or Aluminium as alloy for Sacrificial Anodes

---

## General

Traditionally, many companies prefer to use zinc instead of aluminium. MME Group advises the use of aluminium instead of zinc for the following reasons:

## Price of anode material

Due to the fact that the capacity of aluminium (2700 A hr/Kg) is almost 3.5 times higher than that of zinc (780 A hr /Kg), the total amount of required anode material (Kg) is less. This results in a cheaper Cathodic Protection System to that given by zinc with an equal level of protection.

## Price of transport & installation

As the total weight of anode material for a system using aluminium is less compared to a system using zinc anodes, the installation cost for a system using aluminium anodes will also be lower.

## Multi-effective

In brackish water, aluminium anodes work more effectively than zinc, due to the higher driving voltage of aluminium.

## Environmental Pollution

Compared to zinc, aluminium alloys are considered less harmful to the environment.

For anodes used in water ballast and other tanks see chapter "Choosing tank anodes" (page 7).

# Anode Recommendations

## Saltwater

**Zn**

**Al**



In saltwater, both Zinc and Aluminium are suitable, but aluminium has a better re-activation performance.

## Brackish Water



**Al**



Aluminium is the recommended material for brackish water.

## Fresh Water



**Al**

**Mg**

In pure fresh water magnesium is the best performing anode material. With polluted water or when a boat is temporarily in brackish water, aluminium is the preferred material.

These recommendations apply to steel structures. For more detailed information, please consult your local distributor or contact MME Group.

# Choosing Tank Anodes

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## General

Traditionally, many vessels are fitted with sacrificial anodes for external protection (hull). For achieving the same protection of the internal construction of the vessel (mainly water ballast tanks) sacrificial anodes can also be used. However, due to the fact that tanks are inherently complex structures as well as being confined spaces, the use of anodes has to be well engineered and the following rules must be adhered to:

## Effect of ballast tank anodes

The ballast tank anodes will be without effect when the ballast tanks are empty. It will take some time to obtain full effect (polarisation) of submerged steel surfaces after filling with seawater. In the ullage space or under deck area on top of tanks, the anodes will not be effective unless the tank is completely filled.

## The use of zinc / aluminium or magnesium alloy anodes

Anode alloy materials based on zinc or aluminium are acceptable, magnesium alloy is not allowed. Ballast tanks adjacent to tanks for liquid cargo with a flash point  $< 60^{\circ}\text{C}$  are to be considered as dangerous areas. Aluminium alloy anodes are to be located in such way that the kinetic energy which is developed in case of loosening and falling down will be  $< 275\text{ J}$ . This means that in these areas the maximum height (in mtr) of an aluminium anode above tank bottom, deck or stringer may not exceed the value obtained by  $\sqrt{28 / W}$ , where "W" is the gross weight of the anode.

Furthermore classification societies may require structures to be installed to protect the aluminium anodes from being hit by falling objects. Please consult your local surveyor / classification society branch office for full details.

## Welding or bolting type anodes

For a good operation of the anodes it is vital to have a good electrical conductivity between the ship's structure and the anodes. This can be obtained either by welding (preferably) or bolting the anodes to the ship's structure. In case bolting type anodes are requested, the optional "M" clamps can be used (see page 151).

For the pros and cons of the use of zinc or aluminium alloys for sacrificial anodes used see chapter "Choosing zinc or aluminium as alloy for sacrificial anodes" (page 5).

# Our other products & systems

## ICCP Systems

Intelligent electronic systems that generate an impressed current that prevents the corrosion process from taking place. Reference cells measure the underwater potential and the output of the system is set accordingly to guarantee a constant level of protection.



[mme.group/iccp](https://mme.group/iccp)



[mme.group/icaf](https://mme.group/icaf)

## ICAF (MGPS) Systems

Marine growth in sea chests, piping systems and heat exchangers jeopardises the performance of your vessel. To deal with this, MME Group has developed the Marine Growth Prevention System (MGPS), also known as Impressed Current Anti-Fouling (ICAF). The system dissolves a tiny amount of copper ions in the water making it impossible for biological growth to attach itself. We supply spare parts (anodes & power units) for both our own systems and for those produced by other OEMs.

## Shaft Grounding Systems

Our shaft grounding systems drain any possible current sent out by the ICCP system and sacrificial anodes that may enter into the propeller shaft through the propeller. If left undrained, the potential difference between the propeller shaft and the hull may cause stray currents in the propeller shaft bearings or gearboxes, which could lead to corrosion and subsequent premature failure.



[mme.group/sg](https://mme.group/sg)

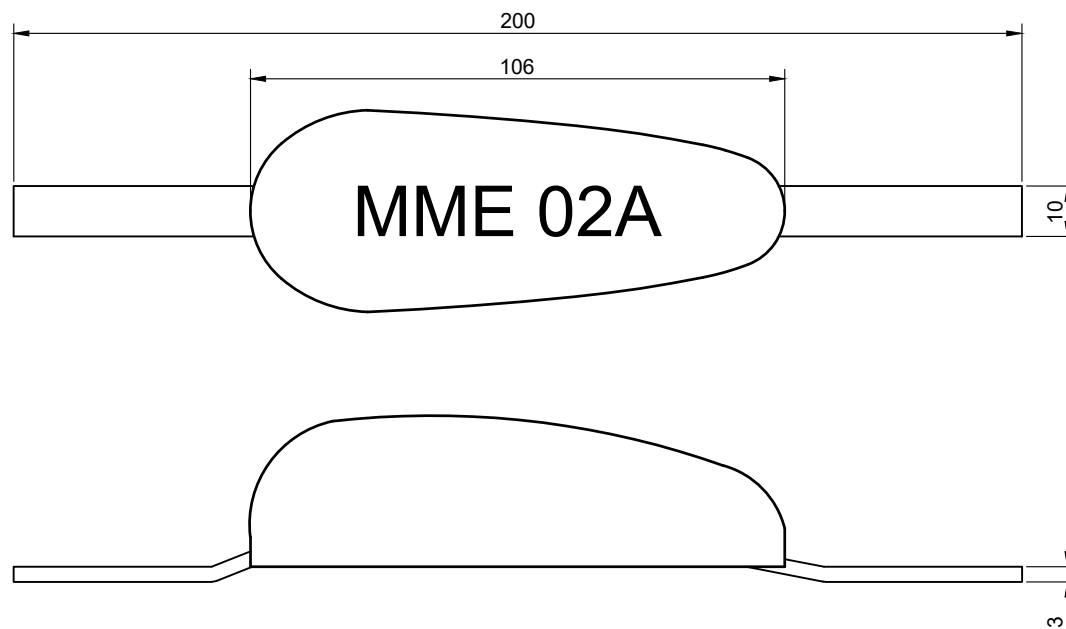


[mme.group/harb](https://mme.group/harb)

## Harbinger Boarding Equipment

'A Longer Life' is not limited to the object itself. The crew must be able to safely get to and from their working area. Under the brand name "Harbinger", MME Group supplies a broad range of seawater resistant gangways and accommodation ladders for (seagoing) vessels and offshore installations. We also supply tailor-made solutions according to the customer's specifications.

# **ALUMINIUM WELD-ON HULL ANODES**



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Galvanized steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 0.20 Kg

Gross Weight: 0.25 Kg



**Cathodic Protection Division**

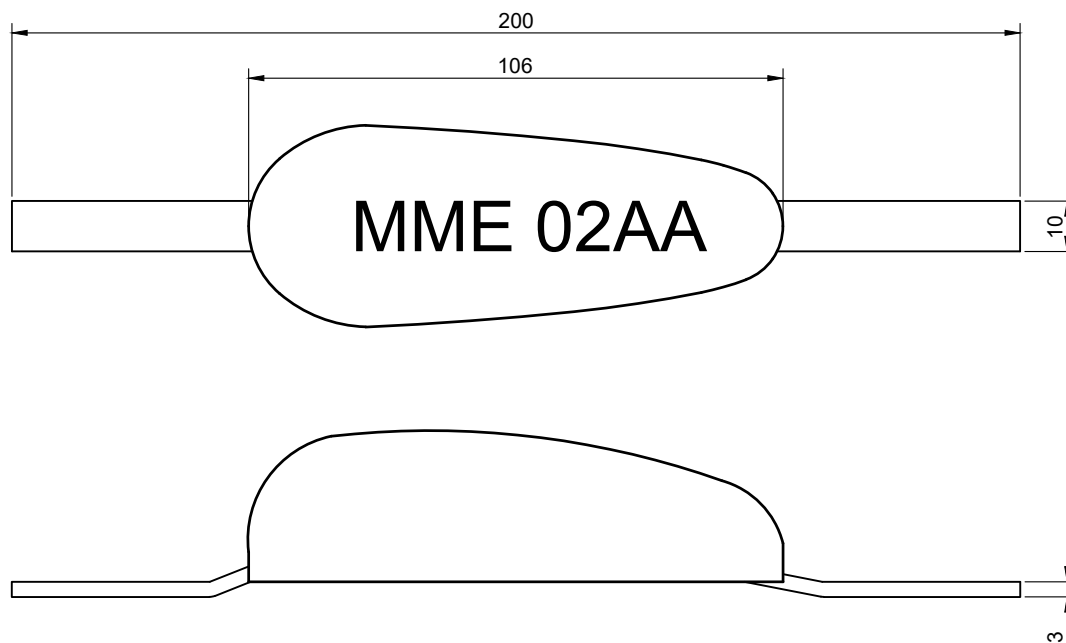
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### Aluminium Alloy Anode MME 02A

|                           |                            |                             |                                                                                                    |
|---------------------------|----------------------------|-----------------------------|----------------------------------------------------------------------------------------------------|
| Dwg: SAA 0002-01          |                            |                             | Revision: 0                                                                                        |
| Drawn:<br>ESM<br>22-03-21 | Checked:<br>PP<br>22-03-21 | Approved:<br>OT<br>22-03-21 | <br>Paper: A4 |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Aluminium for applications with aluminium structures

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 0.20 Kg

Gross Weight: 0.22 Kg



**Cathodic Protection Division**

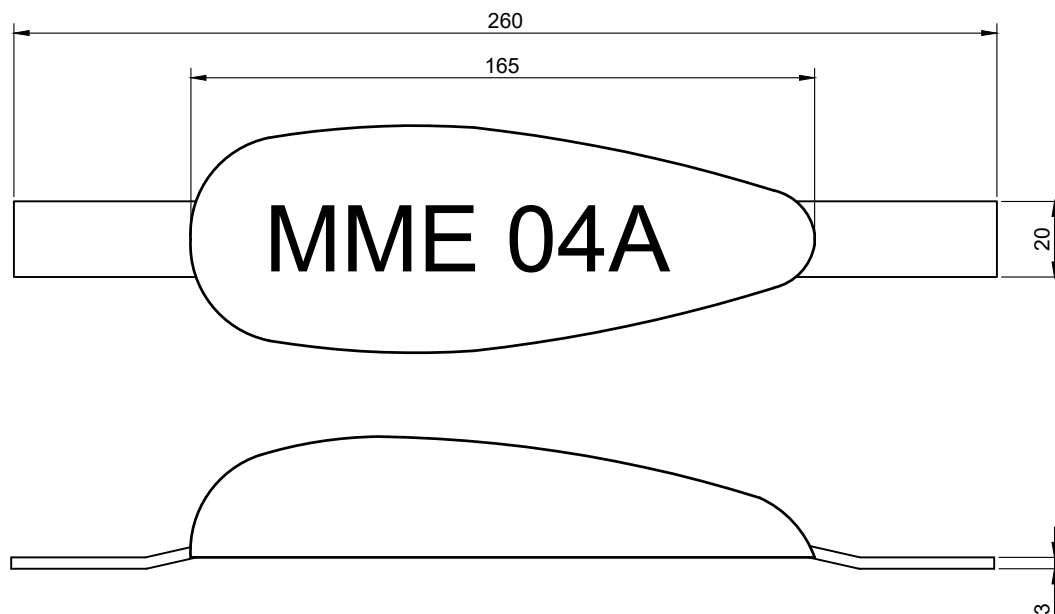
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### Aluminium Alloy Anode MME 02AA - Aluminium insert

|                  |                |                 |             |
|------------------|----------------|-----------------|-------------|
| Dwg: SAA 0002-02 |                |                 | Revision: 0 |
| Drawn:<br>ESM    | Checked:<br>PP | Approved:<br>OT |             |
| 23-03-21         | 23-03-21       | 23-03-21        |             |
|                  |                |                 | Paper: A4   |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Galvanized steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 0.40 Kg  
Gross Weight: 0.52 Kg



**Cathodic Protection Division**

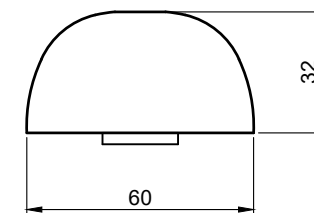
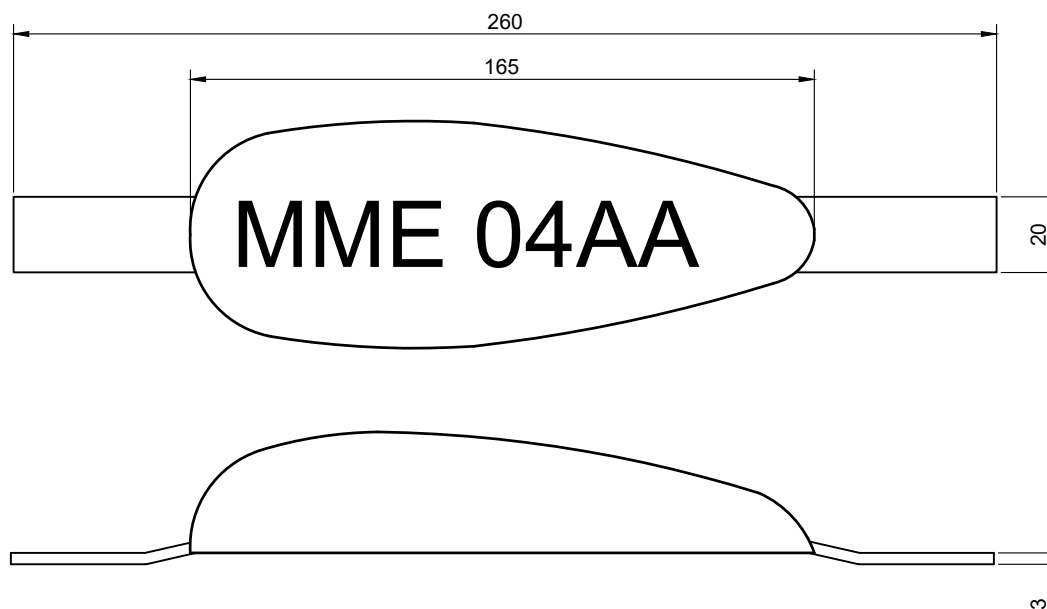
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### Aluminium Alloy Anode MME 04A

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAA 0004-04          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>23-03-21 | Checked:<br>PP<br>23-03-21 | Approved:<br>OT<br>23-03-21 |             |
|                           |                            |                             |             |
|                           |                            |                             | Paper: A4   |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Aluminium for applications with aluminium structures

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 0.40 Kg

Gross Weight: 0.45 Kg



**Cathodic Protection Division**

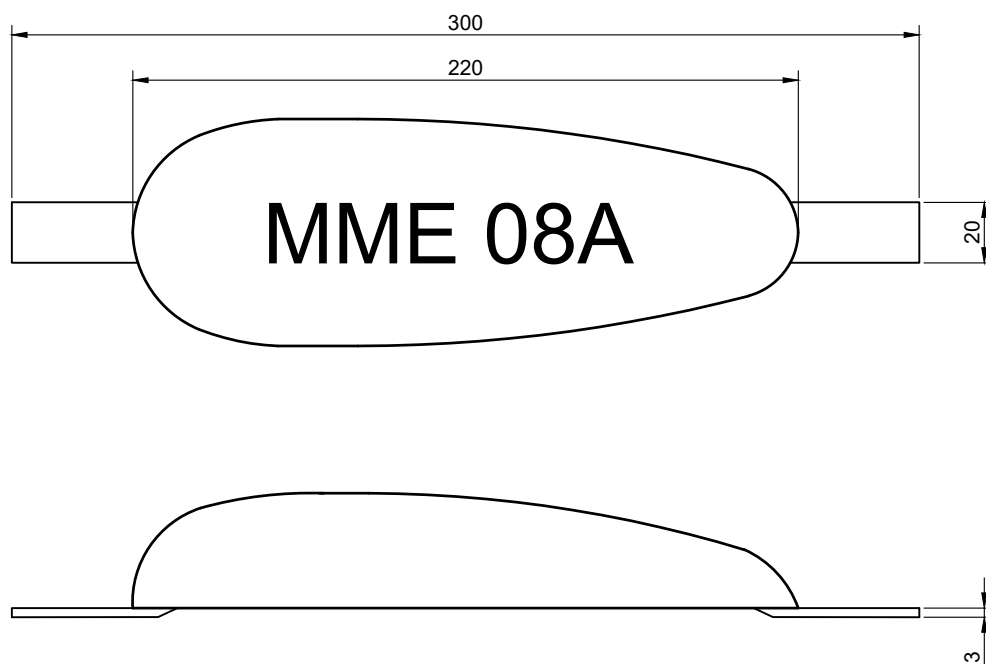
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### Aluminium Alloy Anode MME 04AA - Aluminium insert

|                                   |                                    |                                     |                                                                                       |
|-----------------------------------|------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------|
| Dwg: SAA 0004-03                  |                                    |                                     | Revision: 0                                                                           |
| Drawn:<br><br>ESM<br><br>23-03-21 | Checked:<br><br>PP<br><br>23-03-21 | Approved:<br><br>OT<br><br>23-03-21 |  |
|                                   |                                    |                                     | Paper: A4                                                                             |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 Ahr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Galvanized steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 0.80 Kg

Gross Weight: 0.94 Kg



**Cathodic Protection Division**

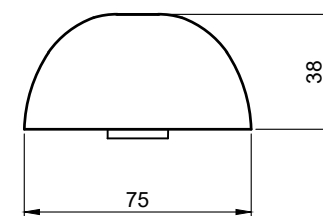
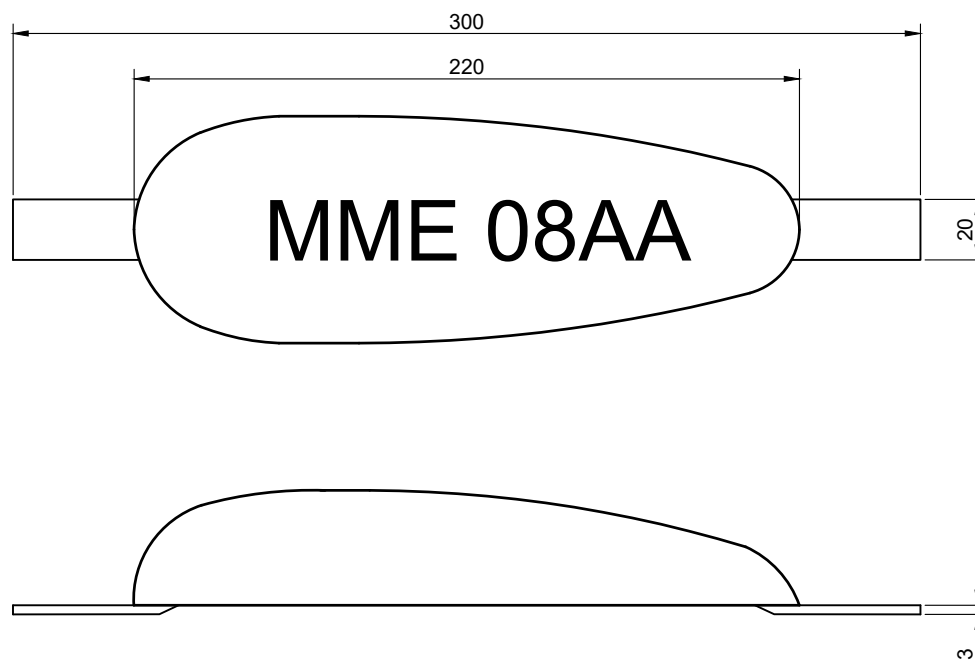
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### Aluminium Alloy Anode MME 08A

|                           |                            |                             |                  |
|---------------------------|----------------------------|-----------------------------|------------------|
| Dwg: SAA 0008-01          |                            |                             | Revision: 0      |
| Drawn:<br>ESM<br>23-03-21 | Checked:<br>PP<br>23-03-21 | Approved:<br>OT<br>23-03-21 | <p>Paper: A4</p> |
|                           |                            |                             |                  |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Aluminium for applications with aluminium structures

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 0.80 Kg

Gross Weight: 0.85 Kg



**Cathodic Protection Division**

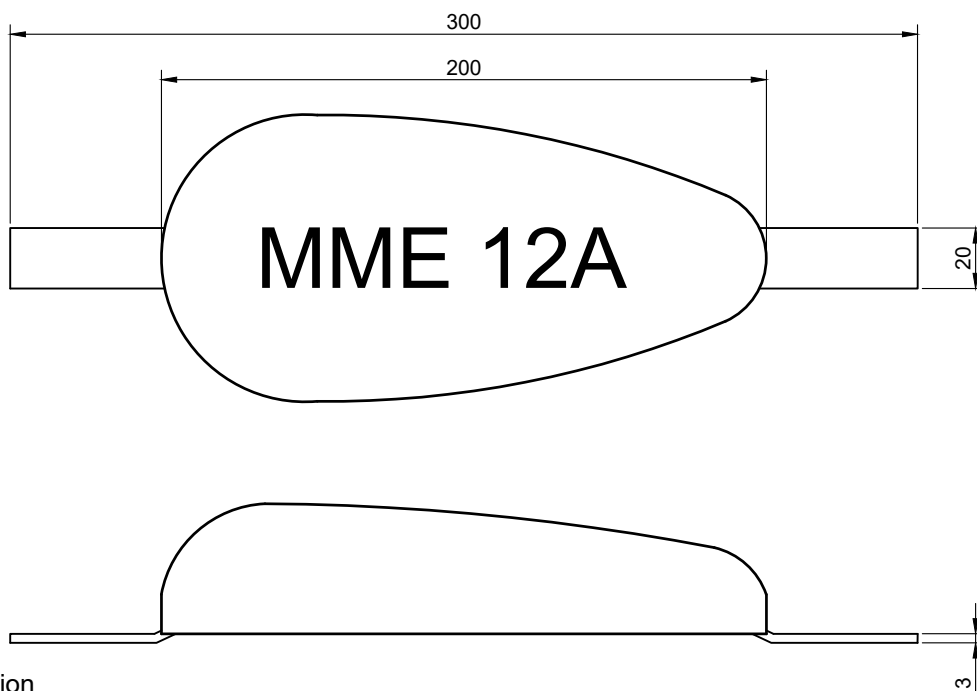
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### Aluminium Alloy Anode MME 08AA - Aluminium insert

|                  |                |                 |             |
|------------------|----------------|-----------------|-------------|
| Dwg: SAA 0008-03 |                |                 | Revision: 0 |
| Drawn:<br>ESM    | Checked:<br>PP | Approved:<br>OT |             |
| 23-03-21         | 23-03-21       | 23-03-21        |             |
|                  |                |                 | Paper: A4   |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Galvanized steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 1.2 Kg

Gross Weight: 1.4 Kg



**Cathodic Protection Division**

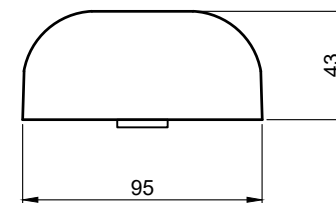
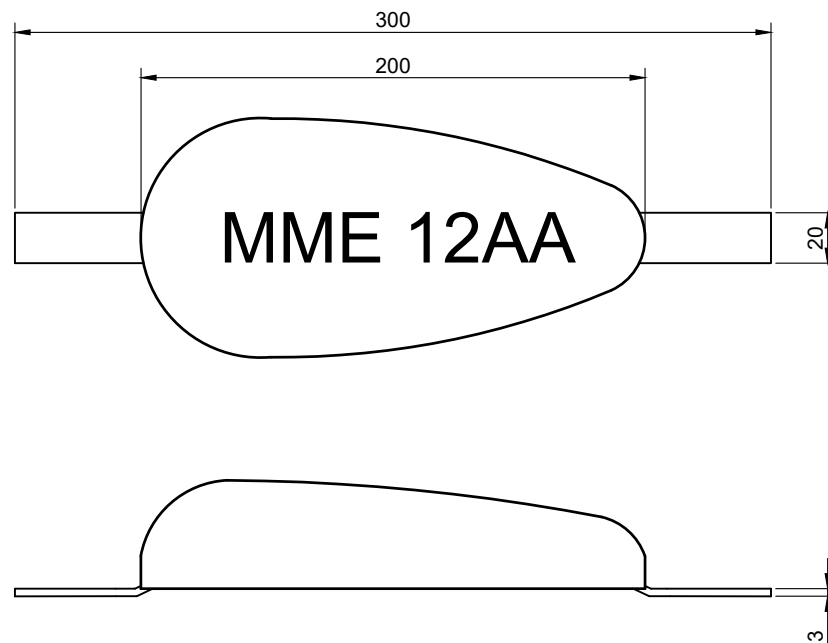
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### Aluminium Alloy Anode MME 12A

|                  |                |                 |             |
|------------------|----------------|-----------------|-------------|
| Dwg: SAA 0012-03 |                |                 | Revision: 0 |
| Drawn:<br>ESM    | Checked:<br>PP | Approved:<br>OT |             |
| 23-03-21         | 23-03-21       | 23-03-21        |             |
|                  |                |                 | Paper: A4   |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Aluminium for applications with aluminium structures

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 1.2 Kg  
Gross Weight: 1.3 Kg



**Cathodic Protection Division**

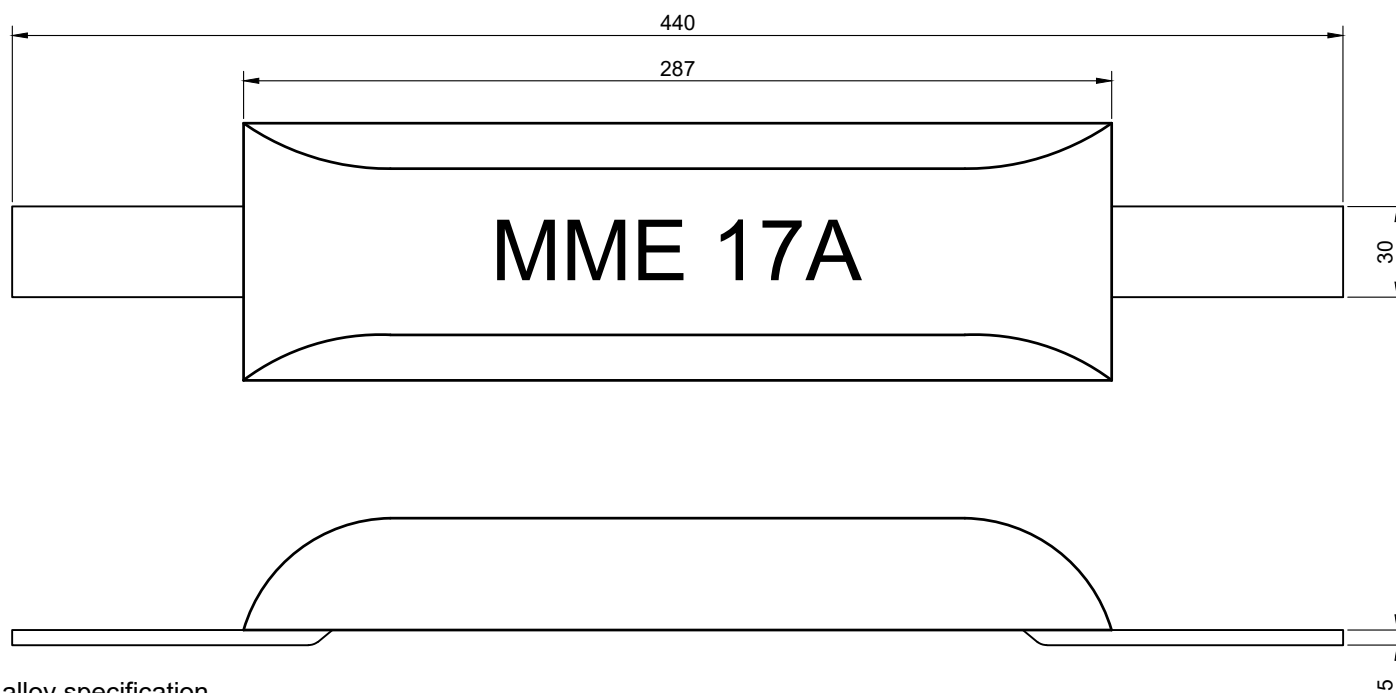
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 12AA - Aluminium insert

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAA 0012-01          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>22-03-21 | Checked:<br>PP<br>22-03-21 | Approved:<br>OT<br>22-03-21 |             |
|                           |                            |                             |             |
|                           |                            |                             | Paper: A4   |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 1.7 Kg

Gross Weight: 2.3 Kg



**Cathodic Protection Division**

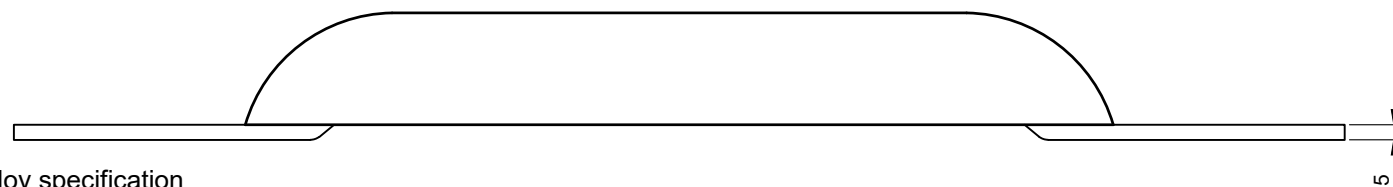
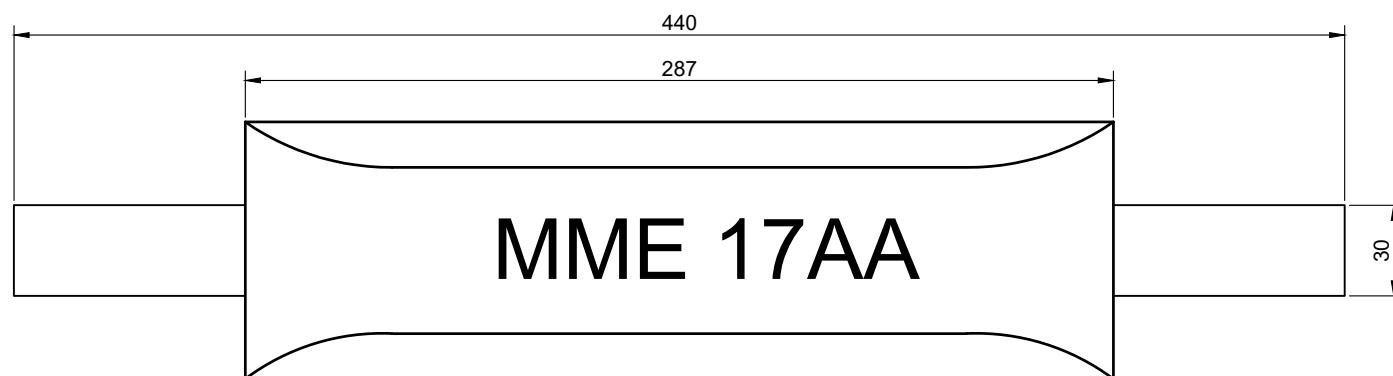
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 17A

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAA 0017-02          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>23-03-21 | Checked:<br>PP<br>23-03-21 | Approved:<br>OT<br>23-03-21 |             |
|                           |                            |                             | Paper: A4   |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Aluminium for applications with aluminium structures

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 1.7 Kg

Gross Weight: 1.9 Kg



**Cathodic Protection Division**

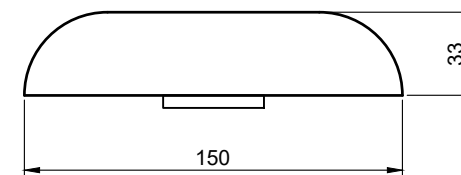
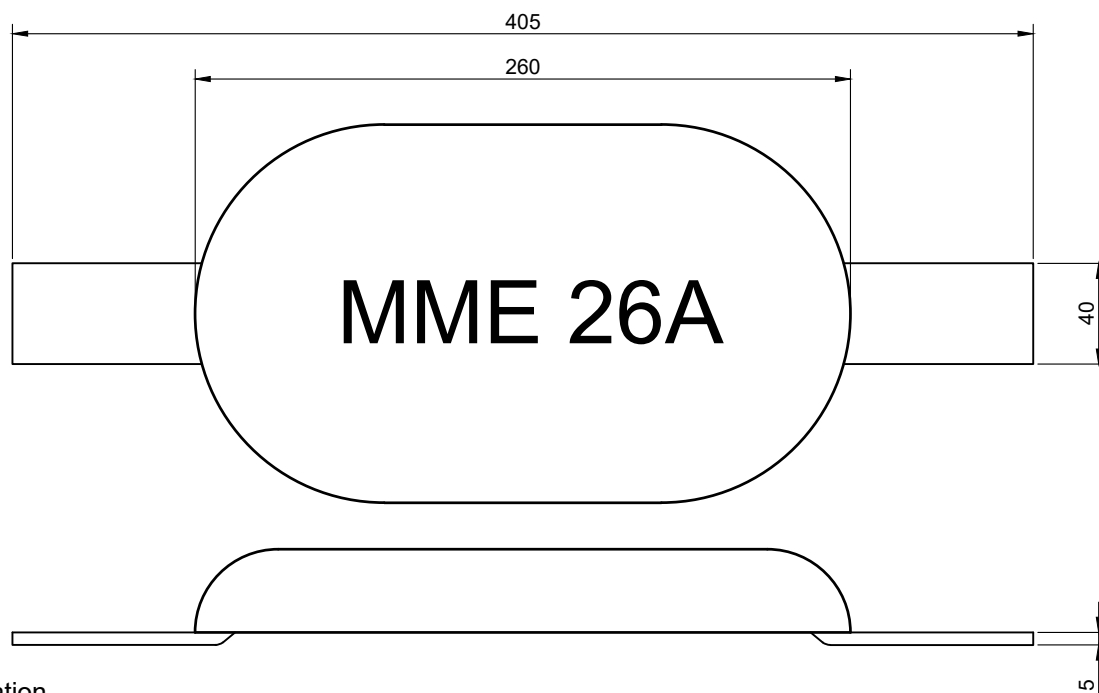
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 17AA - Aluminium insert

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAA 0017-01          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>23-03-21 | Checked:<br>PP<br>23-03-21 | Approved:<br>OT<br>23-03-21 |             |
|                           |                            |                             | Paper: A4   |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 2.6 Kg

Gross Weight: 3.2 Kg



**Cathodic Protection Division**

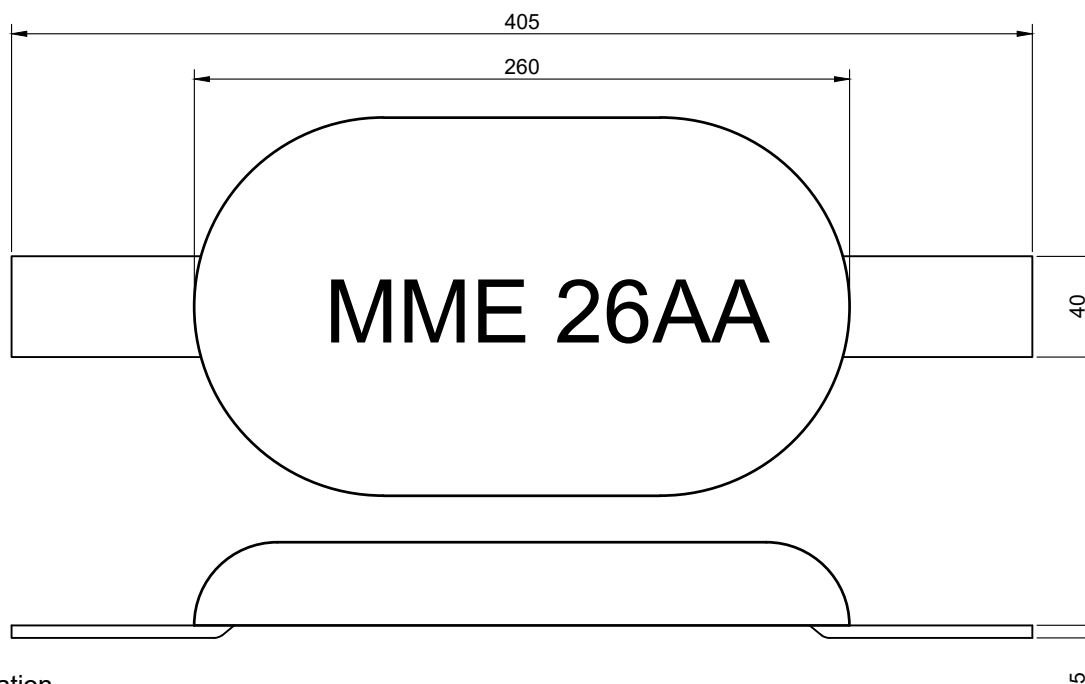
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 26A

|                  |                |                 |             |
|------------------|----------------|-----------------|-------------|
| Dwg: SAA 0026-03 |                |                 | Revision: 0 |
| Drawn:<br>ESM    | Checked:<br>PP | Approved:<br>OT |             |
| 23-03-21         | 23-03-21       | 23-03-21        |             |
|                  |                |                 | Paper: A4   |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Aluminium for applications with aluminium structures

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 2.6 Kg  
Gross Weight: 2.8 Kg



#### Cathodic Protection Division

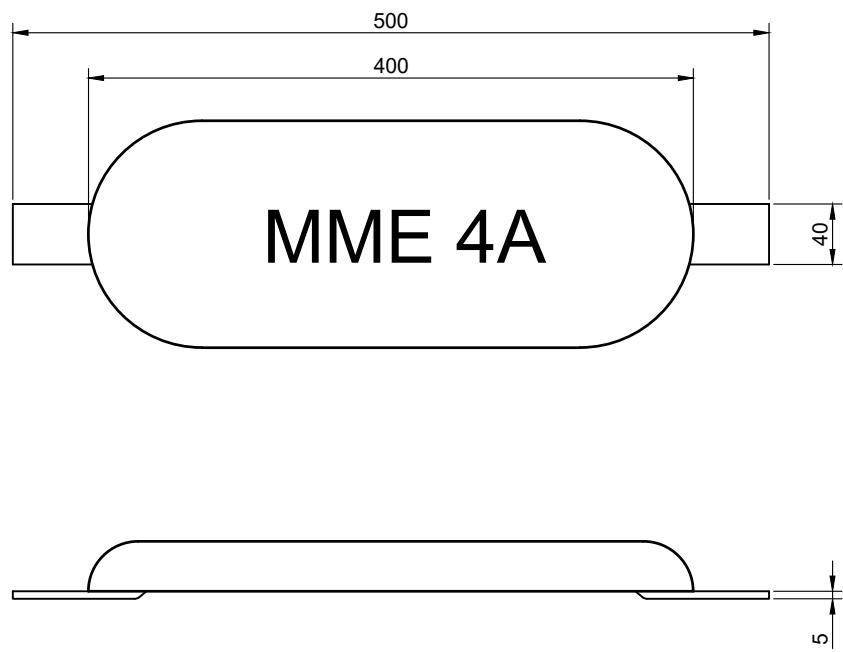
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 26AA - Aluminium insert

|                  |                |                 |             |
|------------------|----------------|-----------------|-------------|
| Dwg: SAA 0026-02 |                |                 | Revision: 0 |
| Drawn:<br>ESM    | Checked:<br>PP | Approved:<br>OT |             |
| 23-03-21         | 23-03-21       | 23-03-21        |             |
|                  |                |                 | Paper: A4   |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 4.0 Kg

Gross Weight: 4.8 Kg



**Cathodic Protection Division**

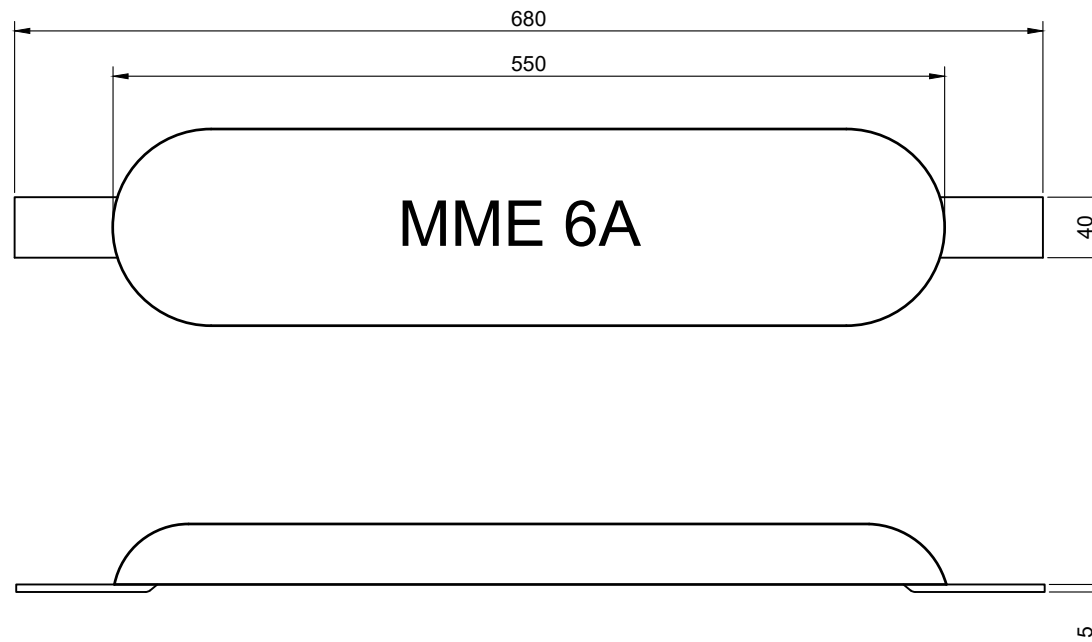
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 4A

|                  |             |              |             |
|------------------|-------------|--------------|-------------|
| Dwg: SAA 0040-01 |             |              | Revision: 0 |
| Drawn: ESM       | Checked: PP | Approved: OT |             |
| 23-03-21         | 23-03-21    | 23-03-21     |             |
|                  |             |              | Paper: A4   |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 6.0 Kg

Gross Weight: 7.0 Kg



**Cathodic Protection Division**

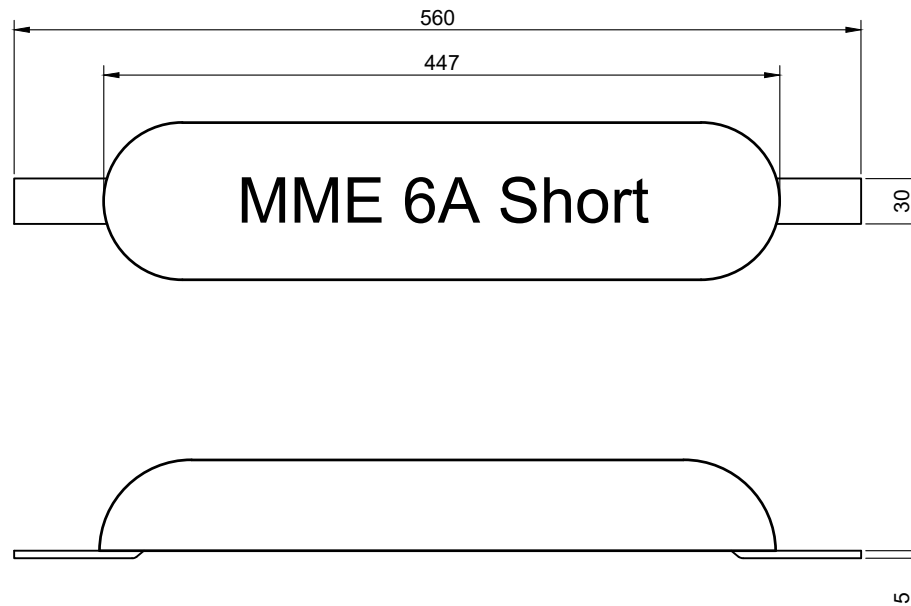
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 6A

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAA 0060-01          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>23-03-21 | Checked:<br>PP<br>23-03-21 | Approved:<br>OT<br>23-03-21 |             |
|                           |                            |                             |             |
|                           |                            |                             | Paper: A4   |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 6.0 Kg

Gross Weight: 6.7 Kg



**Cathodic Protection Division**

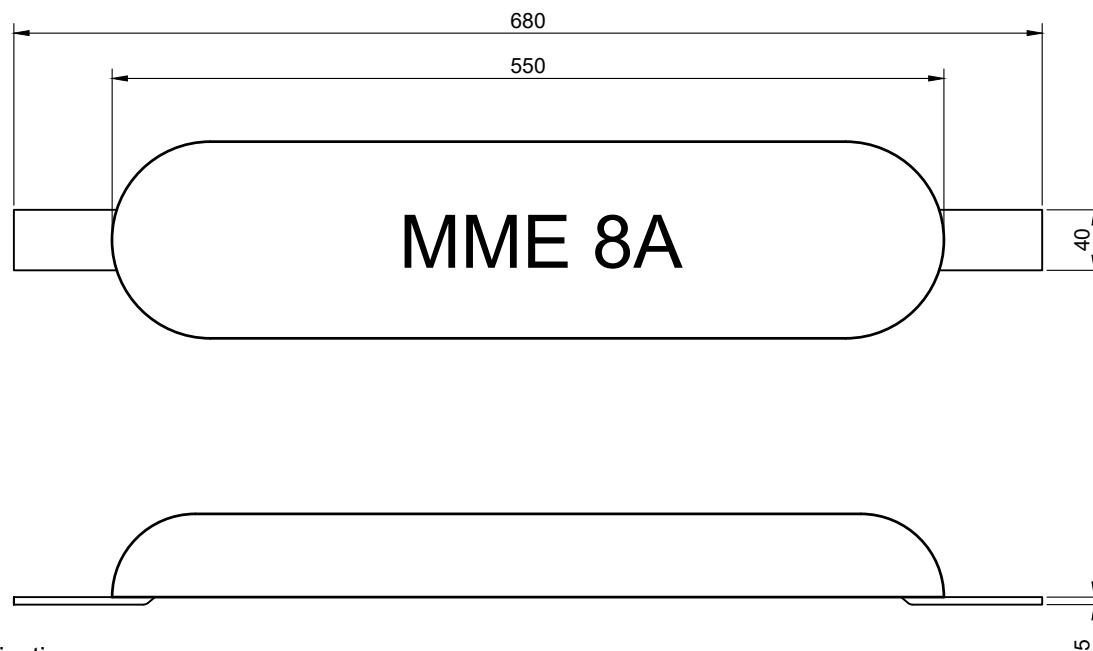
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 6A Short

|                           |                            |                             |                                                                                                    |
|---------------------------|----------------------------|-----------------------------|----------------------------------------------------------------------------------------------------|
| Dwg: SAA 0060-02          |                            |                             | Revision: 0                                                                                        |
| Drawn:<br>ESM<br>23-03-21 | Checked:<br>PP<br>23-03-21 | Approved:<br>OT<br>23-03-21 | <br>Paper: A4 |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 8.0 Kg  
Gross Weight: 9.0 Kg



**Cathodic Protection Division**

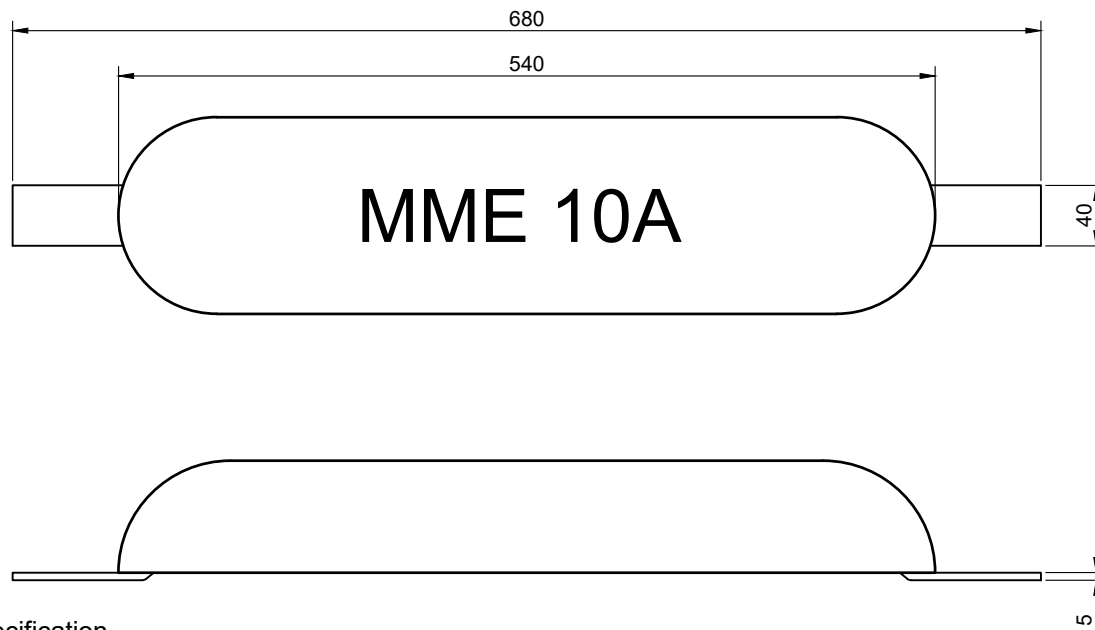
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 8A

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAA 0080-03          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>23-03-21 | Checked:<br>PP<br>23-03-21 | Approved:<br>OT<br>23-03-21 |             |
|                           |                            |                             |             |
|                           |                            |                             | Paper: A4   |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 10.0 Kg

Gross Weight: 11.0 Kg



**Cathodic Protection Division**

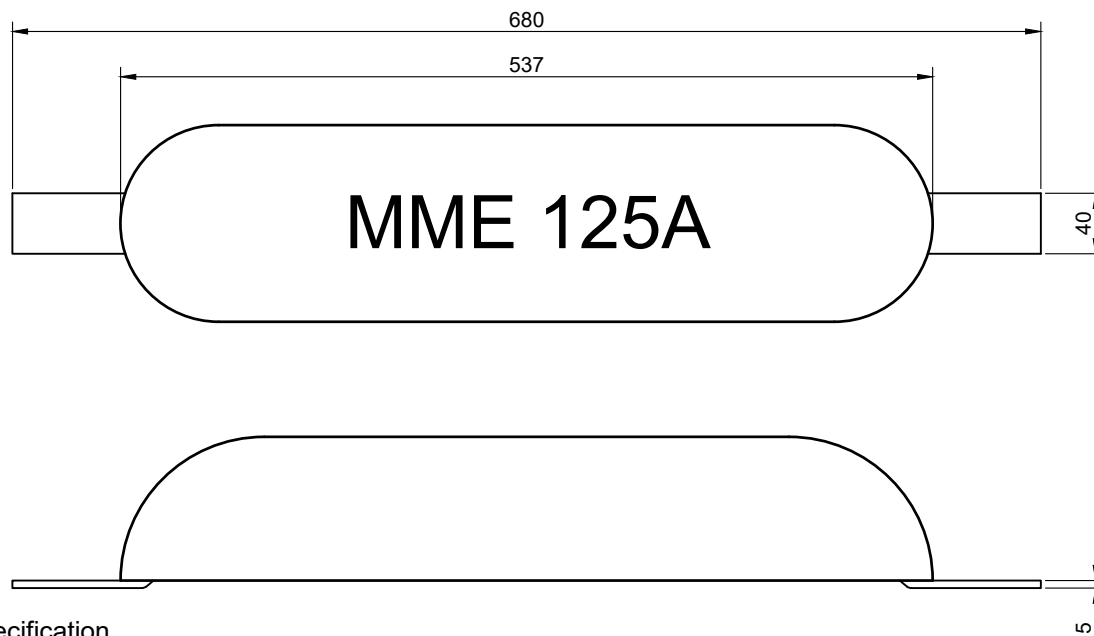
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 10A

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAA 0100-03          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>24-03-21 | Checked:<br>PP<br>24-03-21 | Approved:<br>OT<br>24-03-21 |             |
|                           |                            |                             |             |
|                           |                            |                             | Paper: A4   |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 12.5 Kg

Gross Weight: 13.5 Kg



**Cathodic Protection Division**

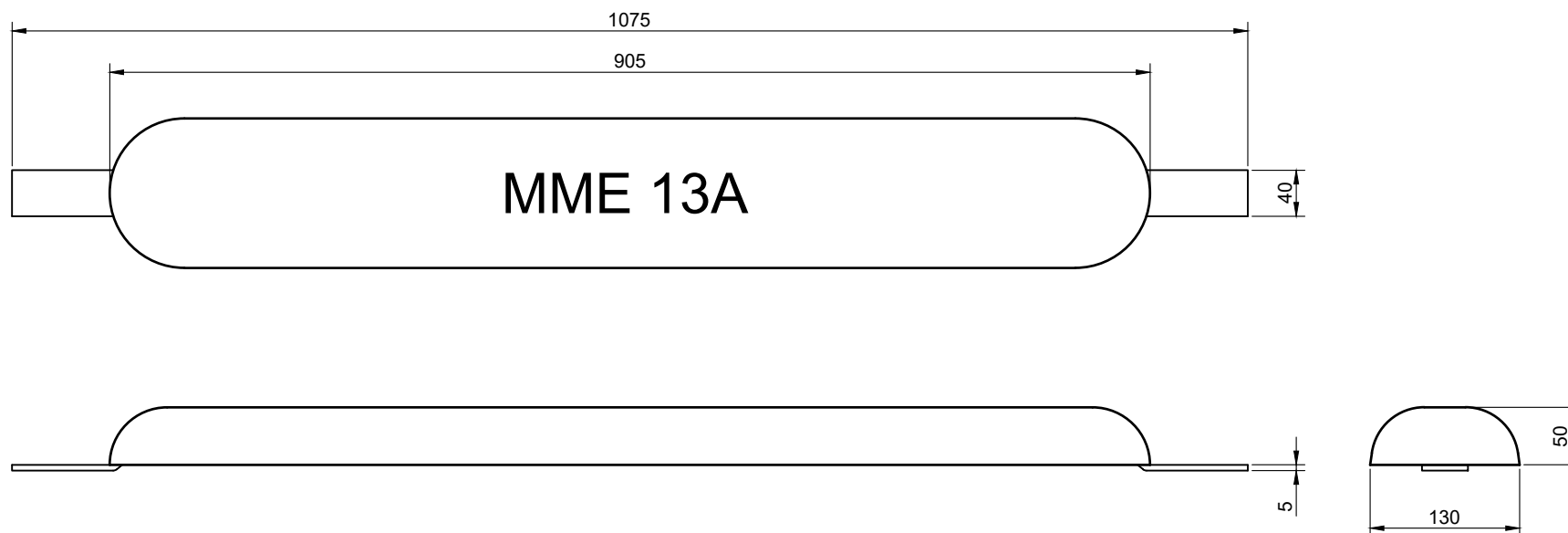
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 125A

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAA 0125-02          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>24-03-21 | Checked:<br>PP<br>24-03-21 | Approved:<br>OT<br>24-03-21 |             |
|                           |                            |                             |             |
|                           |                            |                             | Paper: A4   |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 13.0 Kg

Gross Weight: 14.7 Kg



**Cathodic Protection Division**

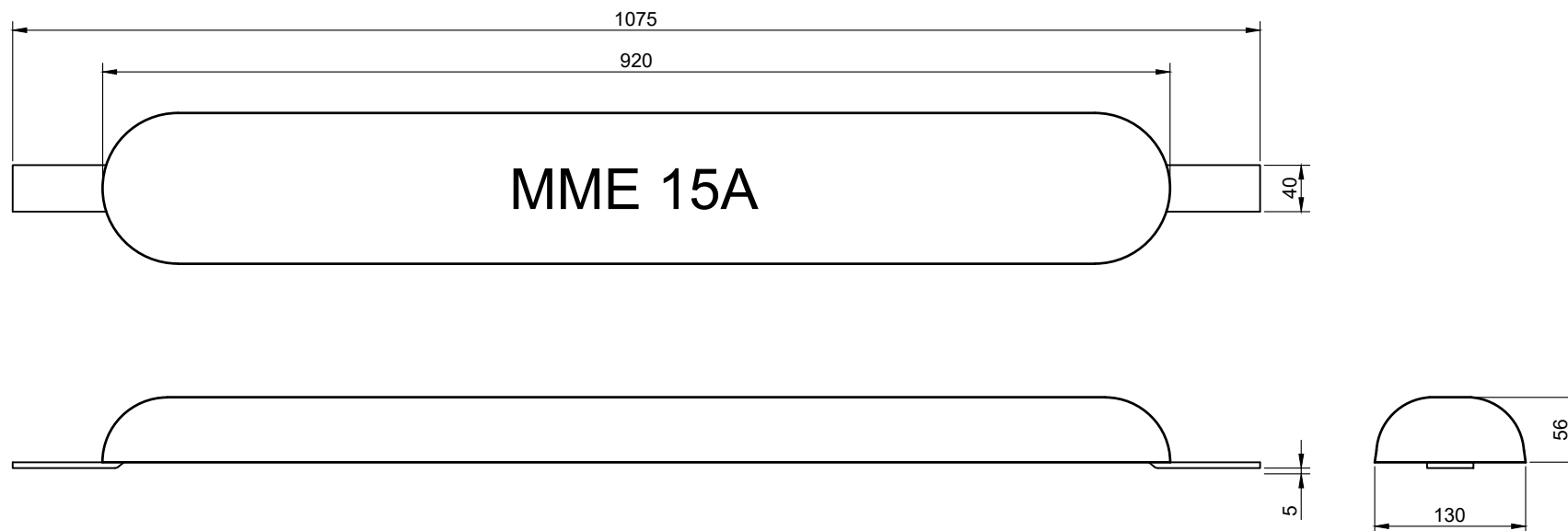
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 13A

|                                   |                                    |                                     |                                                                                       |
|-----------------------------------|------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------|
| Dwg: SAA 0130-01                  |                                    |                                     | Revision: 0                                                                           |
| Drawn:<br><br>ESM<br><br>24-03-21 | Checked:<br><br>PP<br><br>24-03-21 | Approved:<br><br>OT<br><br>24-03-21 |  |
|                                   |                                    |                                     | Paper: A4                                                                             |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 15.0 Kg

Gross Weight: 16.7 Kg



**Cathodic Protection Division**

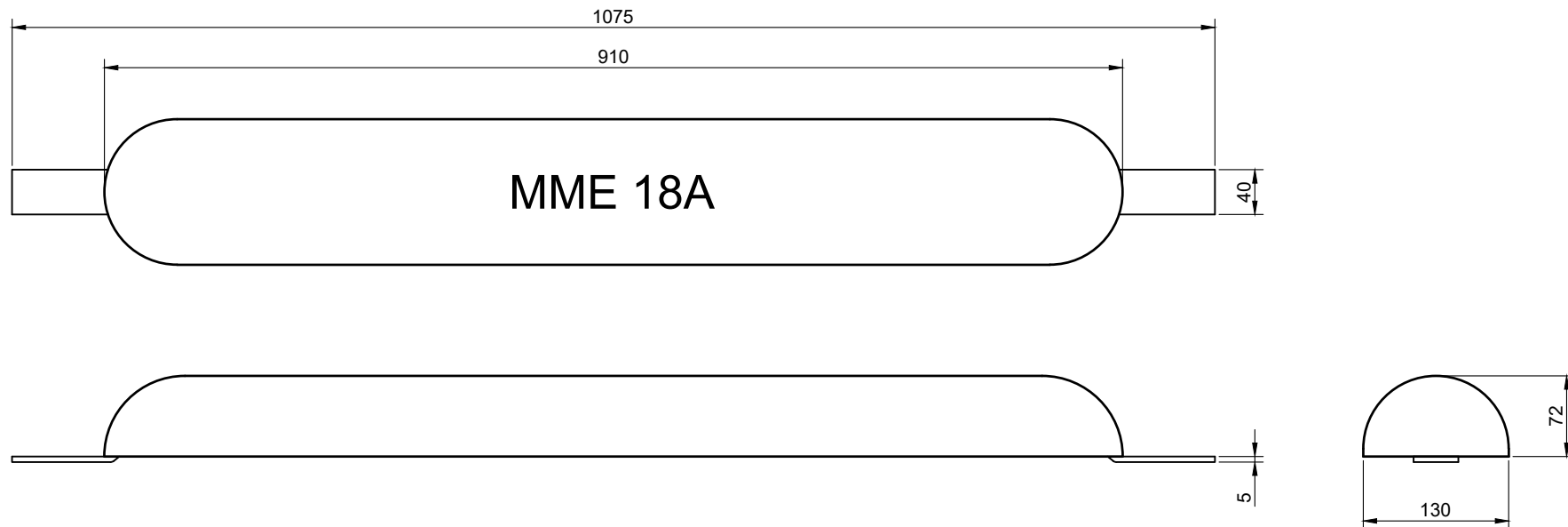
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 15A

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAA 0150-01          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>24-03-21 | Checked:<br>PP<br>24-03-21 | Approved:<br>OT<br>24-03-21 |             |
|                           |                            |                             | Paper: A4   |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 18.0 Kg

Gross Weight: 19.7 Kg



**Cathodic Protection Division**

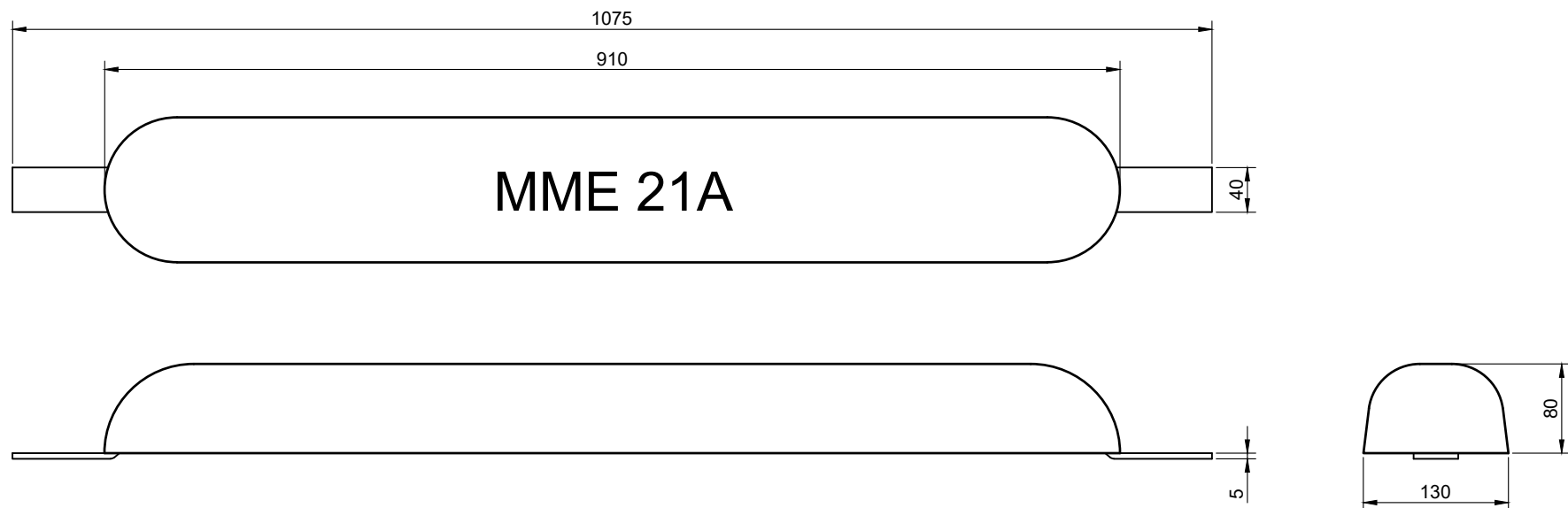
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

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### Aluminium Alloy Anode MME 18A

|                                   |                                    |                                     |                                                                                                            |
|-----------------------------------|------------------------------------|-------------------------------------|------------------------------------------------------------------------------------------------------------|
| Dwg: SAA 0180-01                  |                                    |                                     | Revision: 0                                                                                                |
| Drawn:<br><br>ESM<br><br>25-03-21 | Checked:<br><br>PP<br><br>25-03-21 | Approved:<br><br>OT<br><br>25-03-21 | <br><br><br>Paper: A4 |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 21.0 Kg

Gross Weight: 22.7 Kg



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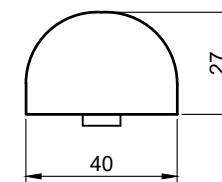
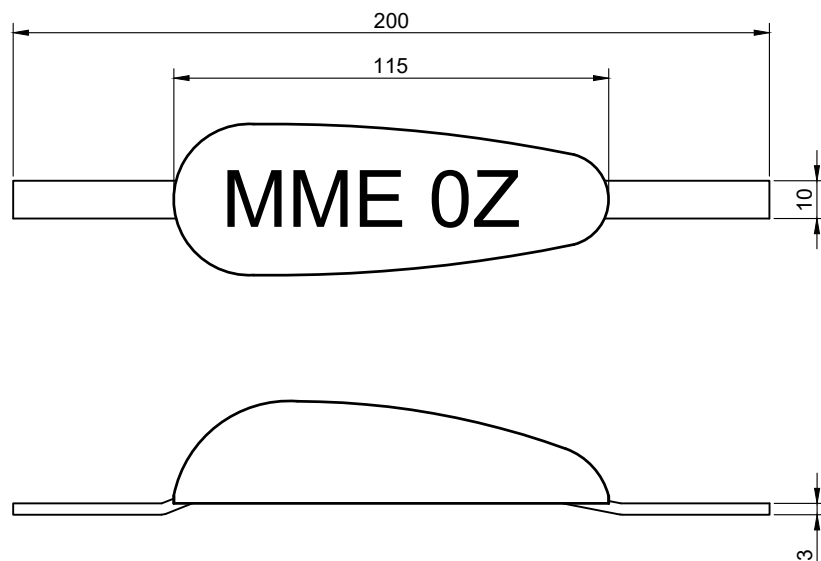
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### Aluminium Alloy Anode MME 21A

|                  |                |                 |             |
|------------------|----------------|-----------------|-------------|
| Dwg: SAA 0210-01 |                |                 | Revision: 0 |
| Drawn:<br>ESM    | Checked:<br>PP | Approved:<br>OT |             |
| 25-03-21         | 25-03-21       | 25-03-21        |             |
|                  |                |                 | Paper: A4   |

# **ZINC WELD-ON HULL ANODES**



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode can also be provided backside coated  
 Insert material: Galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

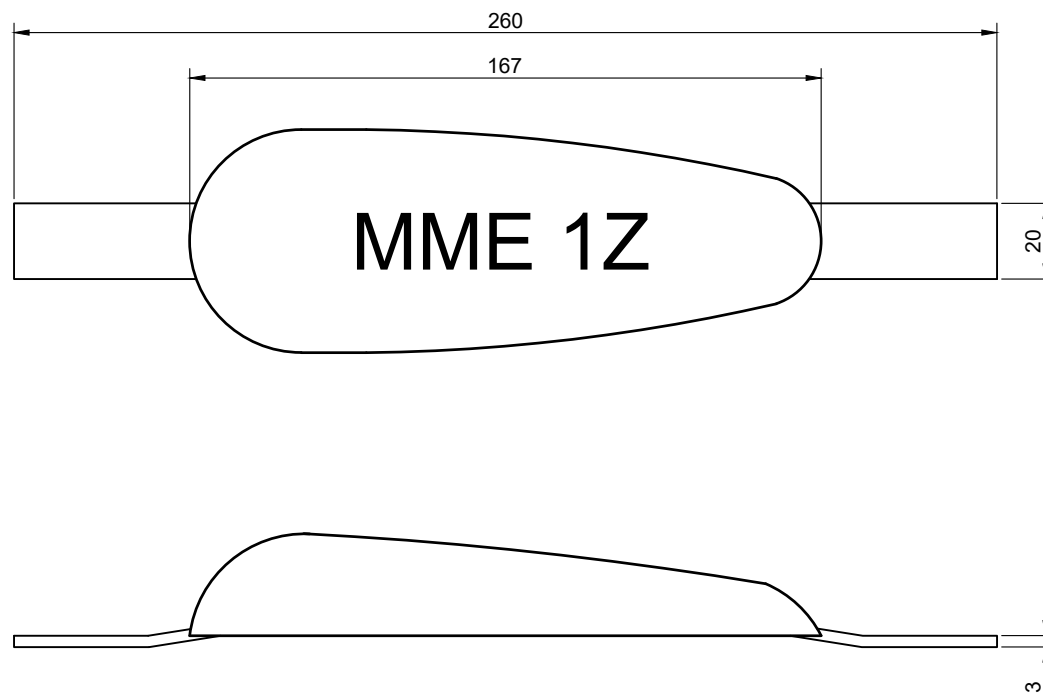
Nett Weight: 0.50 Kg  
 Gross Weight: 0.55 Kg



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### Zinc Alloy Anode MME 0Z

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAZ 0005-02          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>21-04-21 | Checked:<br>PP<br>21-04-21 | Approved:<br>OT<br>21-04-21 |             |
|                           |                            |                             |             |
|                           |                            |                             | Paper: A4   |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode can also be provided backside coated  
 Insert material: Galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

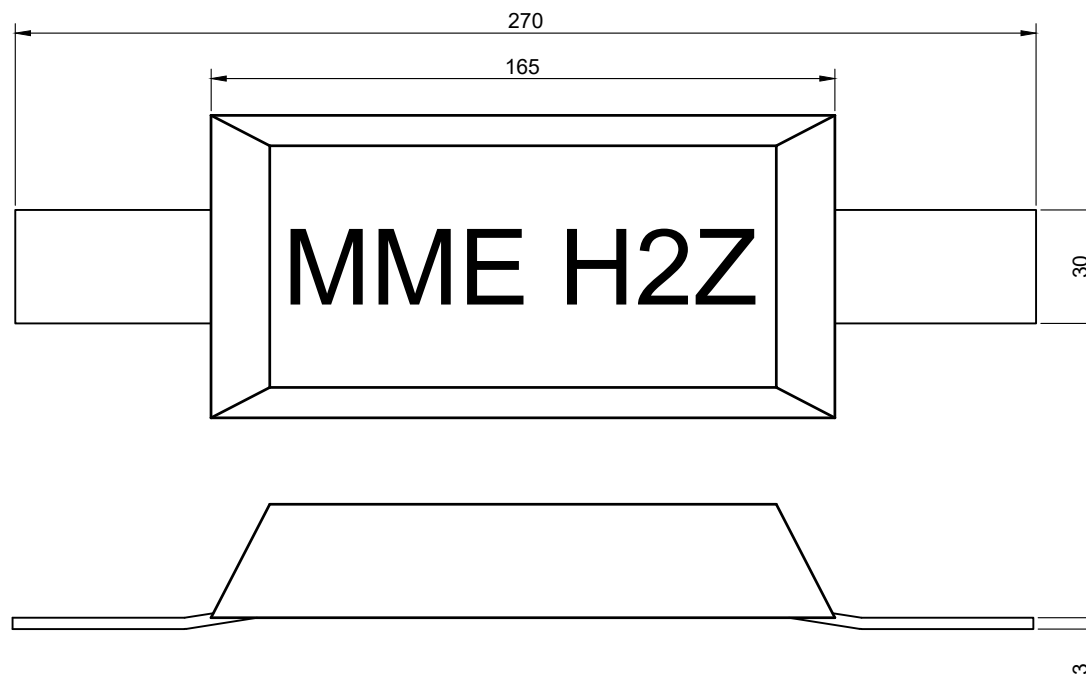
Nett Weight: 1.0 Kg  
 Gross Weight: 1.1 Kg



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#### Zinc Alloy Anode MME 1Z

|                  |             |              |             |
|------------------|-------------|--------------|-------------|
| Dwg: SAZ 0010-05 |             |              | Revision: 0 |
| Drawn: ESM       | Checked: PP | Approved: OT |             |
| 31-03-21         | 31-03-21    | 31-03-21     |             |
|                  |             |              | Paper: A4   |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode can also be provided backside coated  
 Insert material: Galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

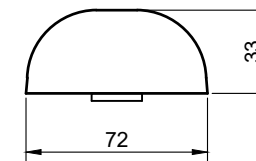
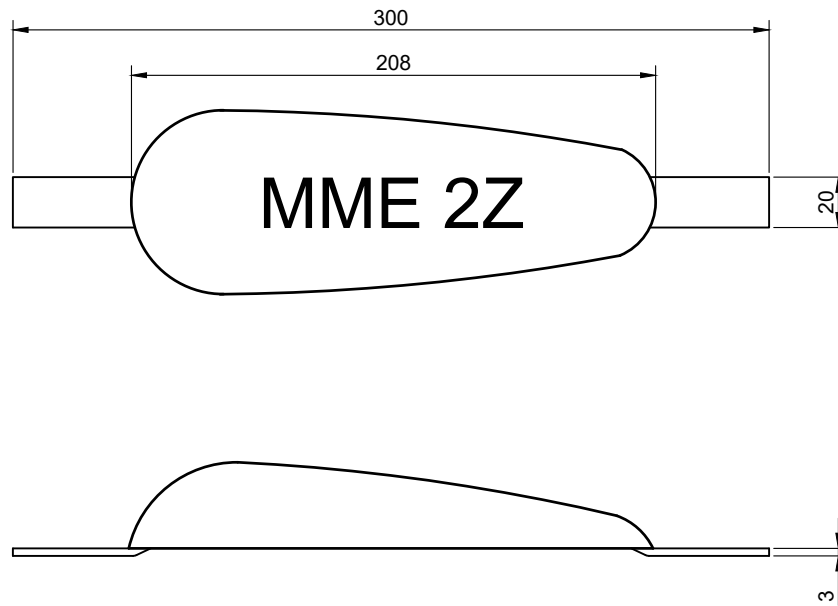
Nett Weight: 2.0 Kg  
 Gross Weight: 2.2 Kg



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#### Zinc Alloy Anode MME H2Z

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAZ 0020-03          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>23-04-21 | Checked:<br>PP<br>23-04-21 | Approved:<br>OT<br>23-04-21 |             |
|                           |                            |                             |             |
|                           |                            |                             | Paper: A4   |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode can also be provided backside coated  
 Insert material: Galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

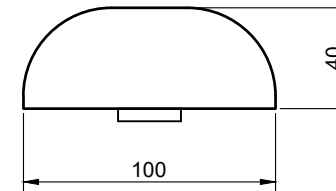
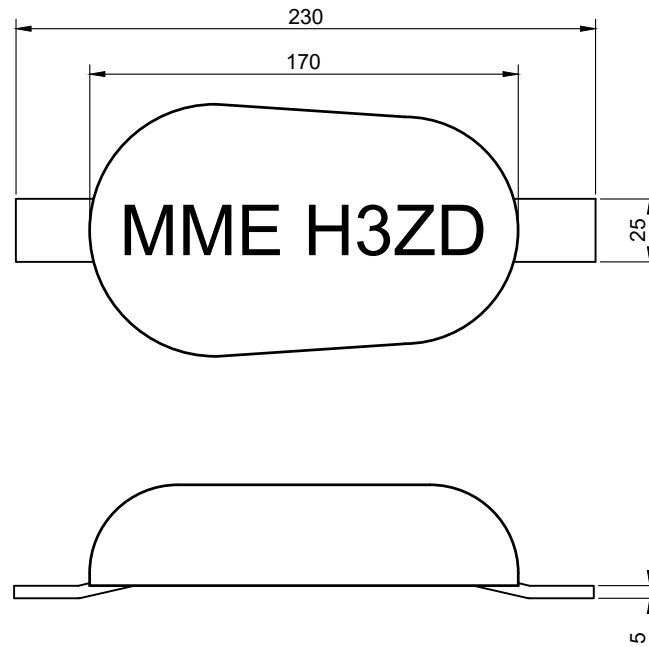
Nett Weight: 2.0 Kg  
 Gross Weight: 2.1 Kg



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#### Zinc Alloy Anode MME 2Z

|                           |                            |                             |                                                                                                    |
|---------------------------|----------------------------|-----------------------------|----------------------------------------------------------------------------------------------------|
| Dwg: SAZ 0020-04          |                            |                             | Revision: 0                                                                                        |
| Drawn:<br>ESM<br>23-04-21 | Checked:<br>PP<br>23-04-21 | Approved:<br>OT<br>23-04-21 | <br>Paper: A4 |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode can also be provided backside coated  
 Insert material: Galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

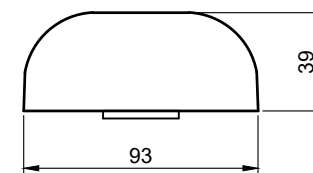
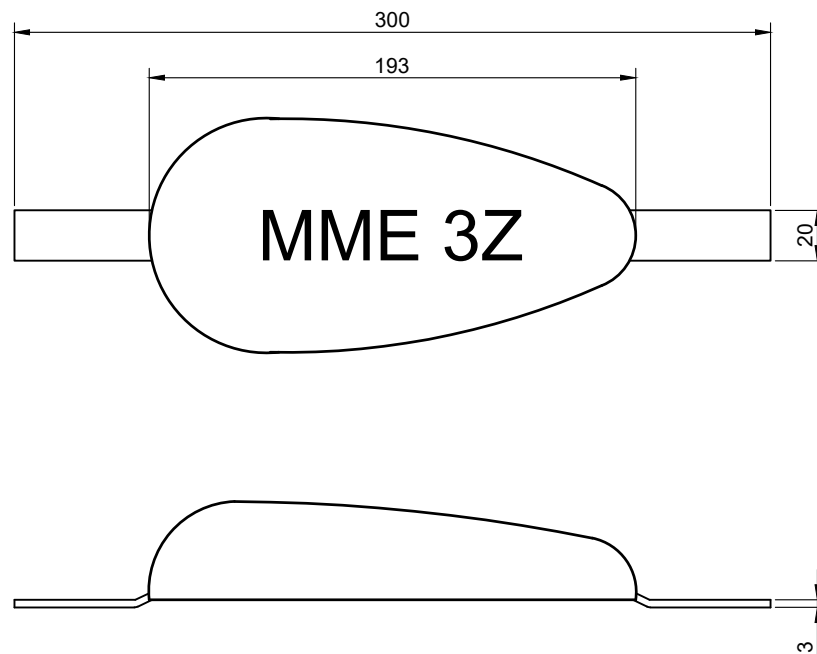
Nett Weight: 3.0 Kg  
 Gross Weight: 3.3 Kg



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#### Zinc Alloy Anode MME H3ZD

|                  |             |              |             |
|------------------|-------------|--------------|-------------|
| Dwg: SAZ 0030-02 |             |              | Revision: 0 |
| Drawn: ESM       | Checked: PP | Approved: OT |             |
| 23-04-21         | 23-04-21    | 23-04-21     |             |
|                  |             |              | Paper: A4   |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode can also be provided backside coated  
 Insert material: Galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

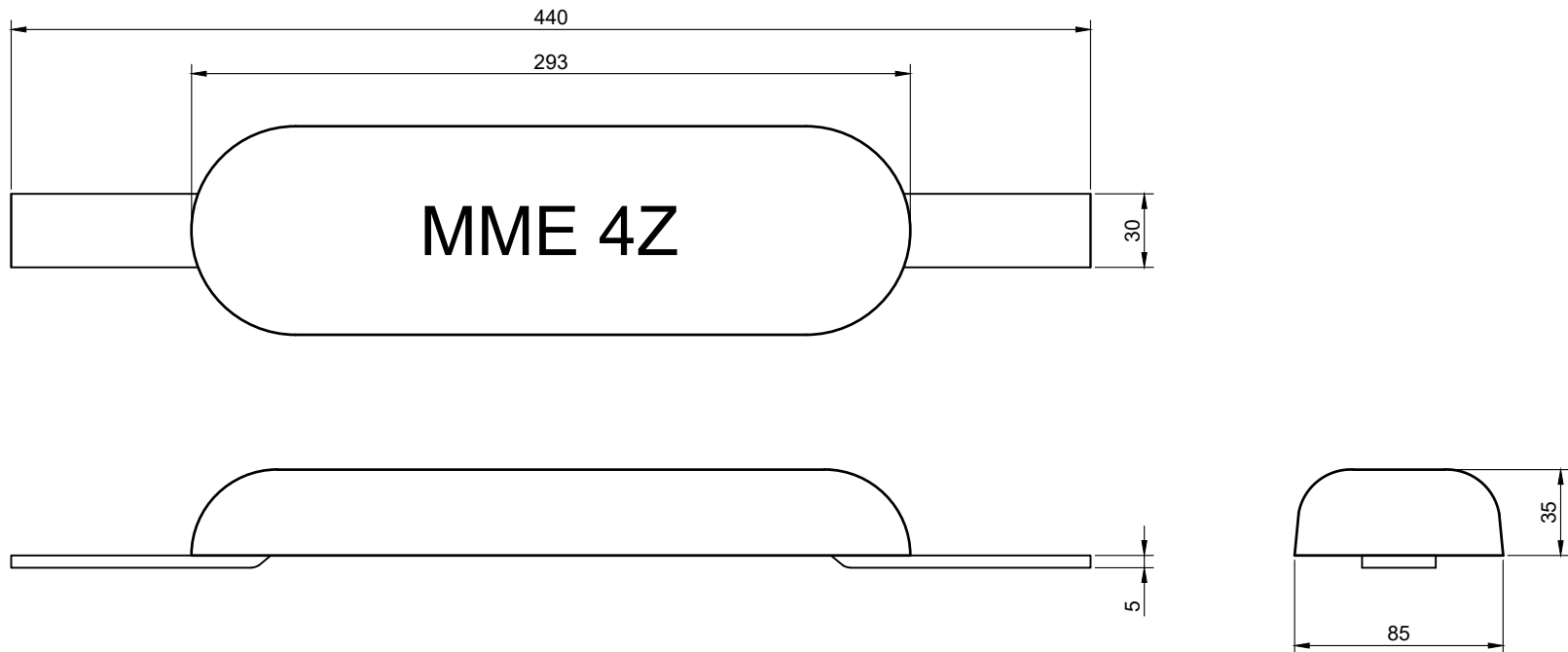
Nett Weight: 3.0 Kg  
 Gross Weight: 3.1 Kg



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#### Zinc Alloy Anode MME 3Z

|                  |             |              |             |
|------------------|-------------|--------------|-------------|
| Dwg: SAZ 0030-03 |             |              | Revision: 0 |
| Drawn: ESM       | Checked: PP | Approved: OT |             |
| 23-04-21         | 23-04-21    | 23-04-21     |             |
|                  |             |              | Paper: A4   |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

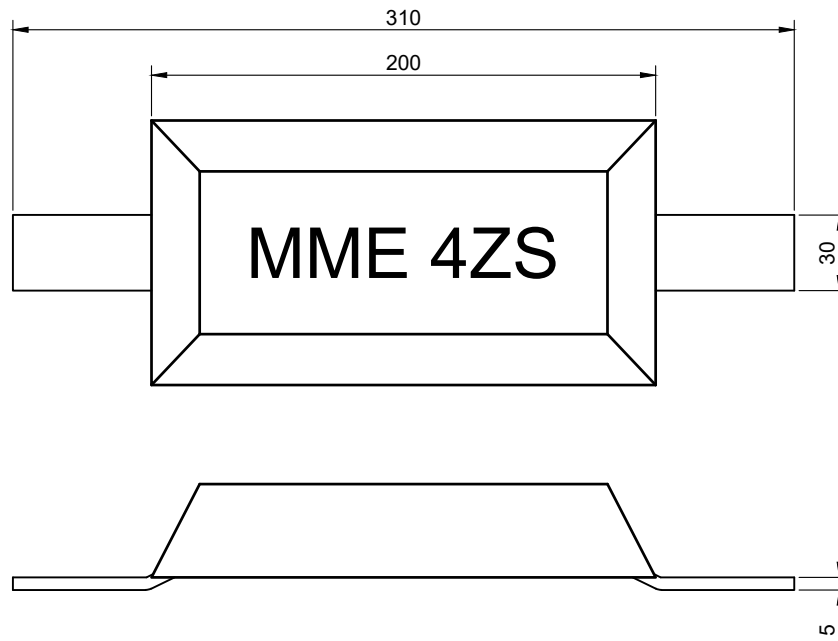
Nett Weight: 4.0 Kg  
 Gross Weight: 4.6 Kg



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### Zinc Alloy Anode MME 4Z

|                           |                            |                             |               |
|---------------------------|----------------------------|-----------------------------|---------------|
| Dwg: SAZ 0040-02          |                            |                             | Revision: 0   |
| Drawn:<br>ESM<br>21-04-21 | Checked:<br>PP<br>21-04-21 | Approved:<br>OT<br>21-04-21 | <br>Paper: A4 |
|                           |                            |                             |               |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

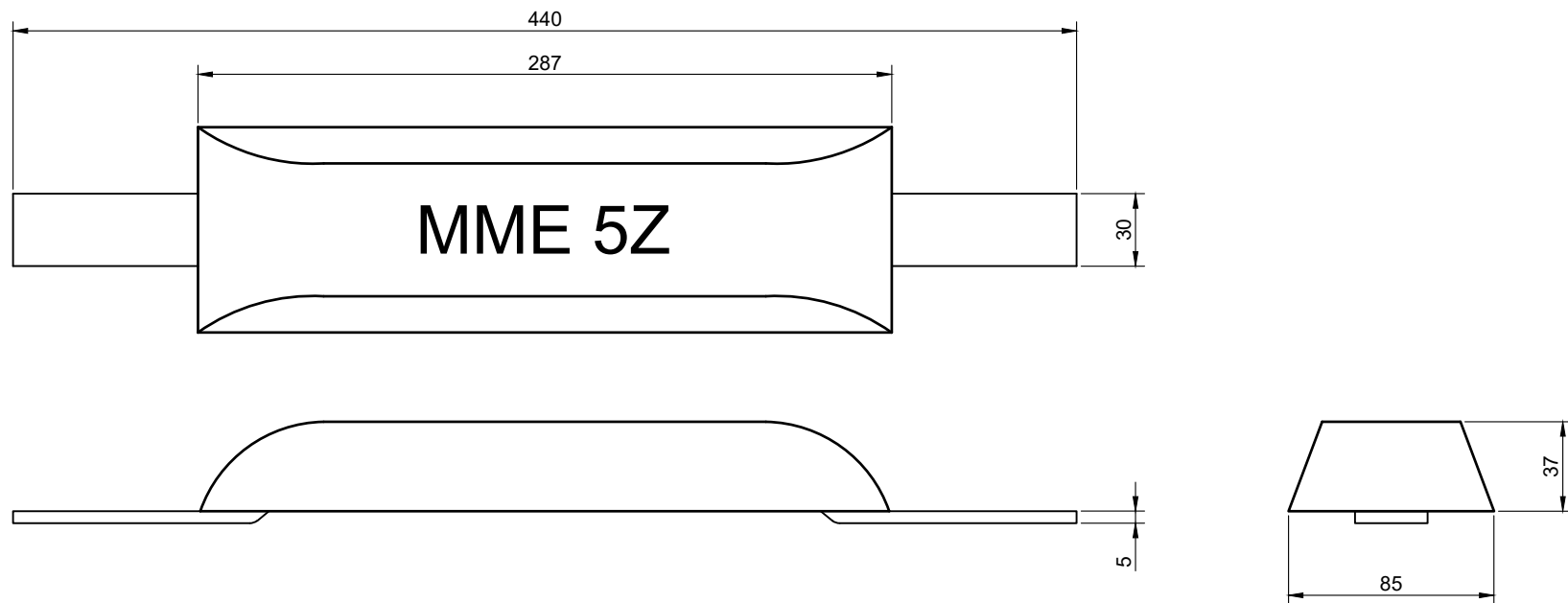
Nett Weight: 4.0 Kg  
 Gross Weight: 4.4 Kg



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#### Zinc Alloy Anode MME 4ZS

|                           |                            |                             |                                                                                                    |
|---------------------------|----------------------------|-----------------------------|----------------------------------------------------------------------------------------------------|
| Dwg: SAZ 0040-05          |                            |                             | Revision: 0                                                                                        |
| Drawn:<br>ESM<br>23-04-21 | Checked:<br>PP<br>23-04-21 | Approved:<br>OT<br>23-04-21 | <br>Paper: A4 |
|                           |                            |                             |                                                                                                    |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 5.0 Kg

Gross Weight: 5.6 Kg



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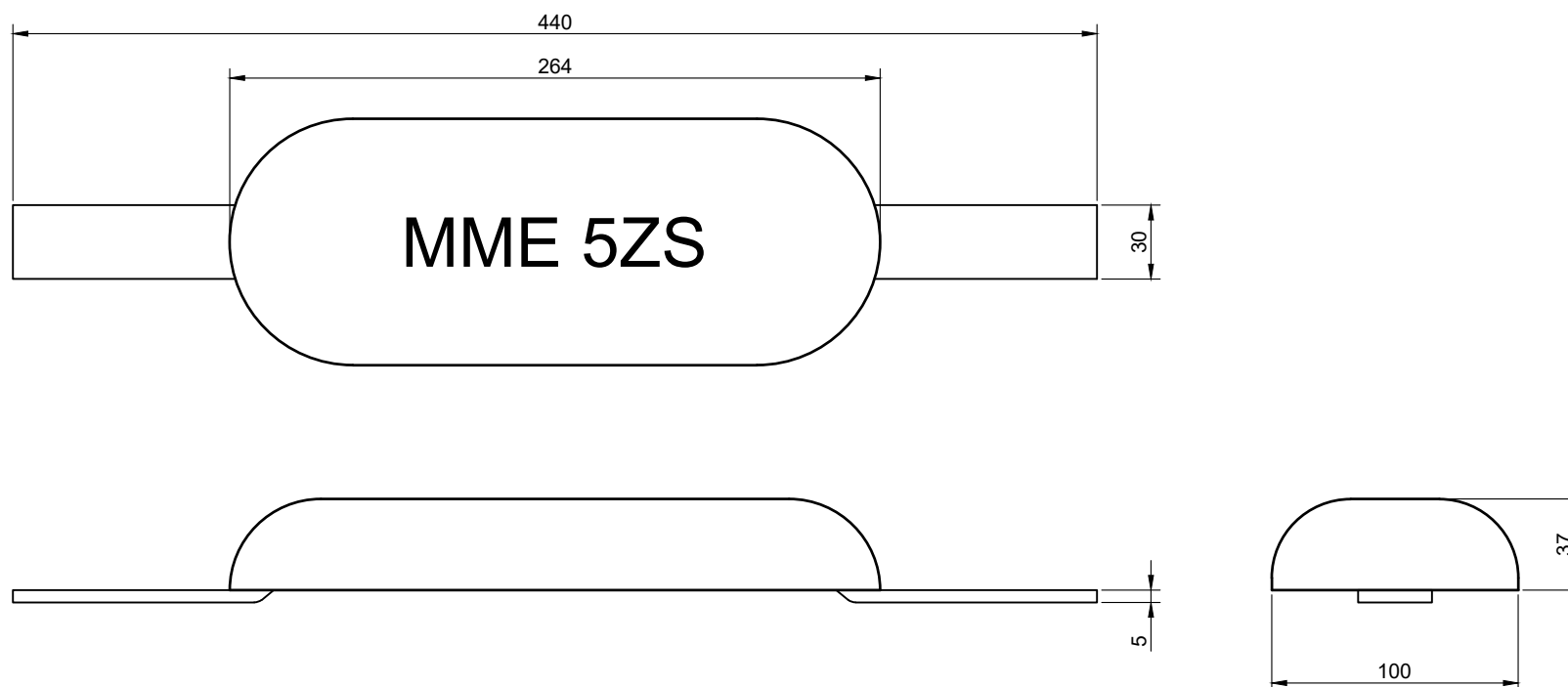
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

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### Zinc Alloy Anode MME 5Z

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAZ 0050-01          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>21-04-21 | Checked:<br>PP<br>21-04-21 | Approved:<br>OT<br>21-04-21 |             |
|                           |                            |                             | Paper: A4   |



# Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

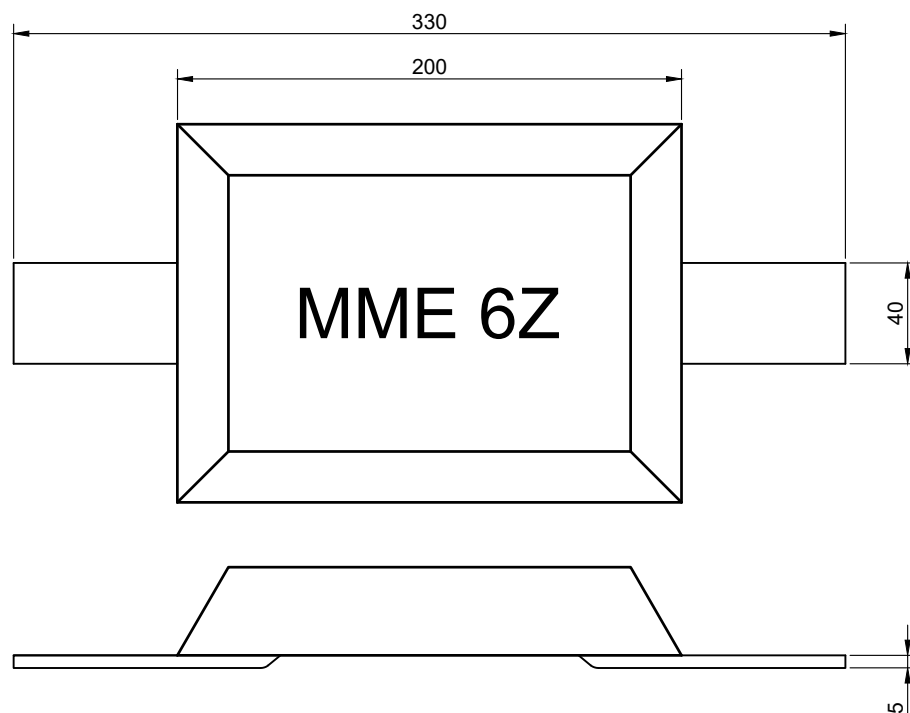
Nett Weight: 5.0 Kg  
 Gross Weight: 5.6 Kg



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## Zinc Alloy Anode MME 5ZS

|                  |             |              |             |
|------------------|-------------|--------------|-------------|
| Dwg: SAZ 0050-02 |             |              | Revision: 0 |
| Drawn: ESM       | Checked: PP | Approved: OT |             |
| 21-04-21         | 21-04-21    | 21-04-21     |             |
|                  |             |              | Paper: A4   |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

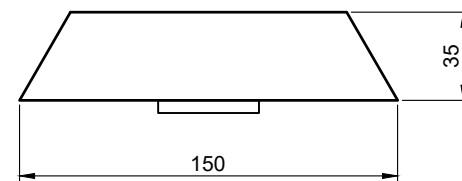
| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$



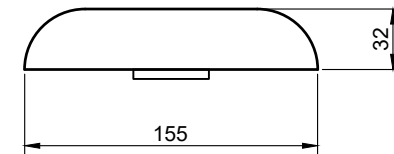
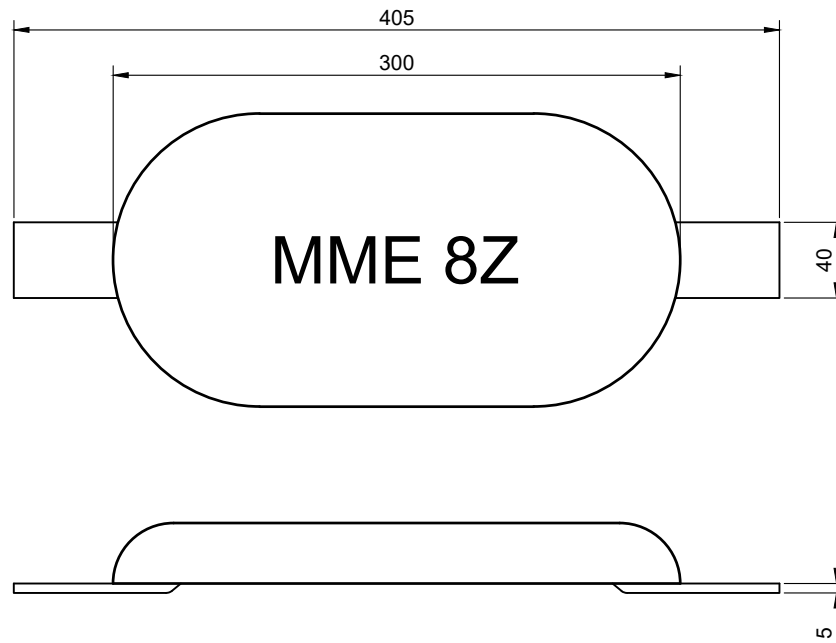
Nett Weight: 6.0 Kg  
 Gross Weight: 6.5 Kg



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#### Zinc Alloy Anode MME 6Z

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAZ 0060-06          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>23-04-21 | Checked:<br>PP<br>23-04-21 | Approved:<br>OT<br>23-04-21 |             |
|                           |                            |                             |             |
|                           |                            |                             | Paper: A4   |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 8.0 Kg

Gross Weight: 8.6 Kg



**Cathodic Protection Division**

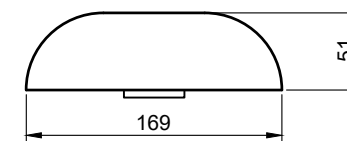
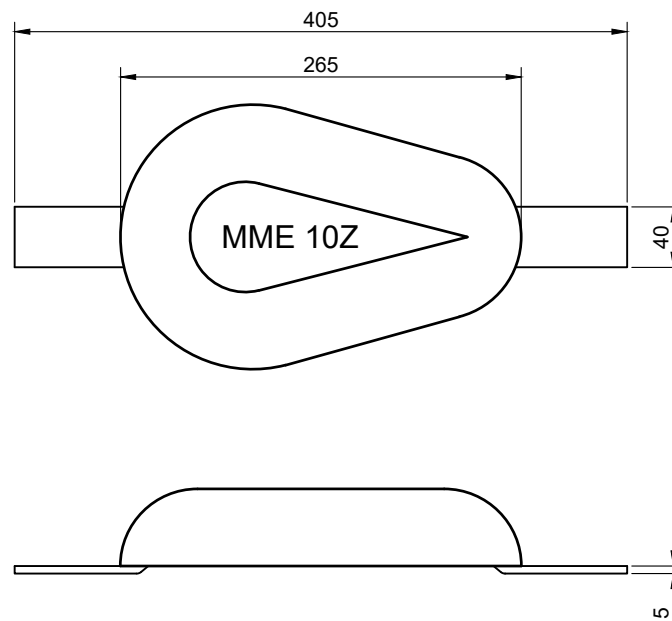
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

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### Zinc Alloy Anode MME 8Z

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAZ 0080-02          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>21-04-21 | Checked:<br>PP<br>21-04-21 | Approved:<br>OT<br>21-04-21 |             |
|                           |                            |                             |             |
|                           |                            |                             | Paper: A4   |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

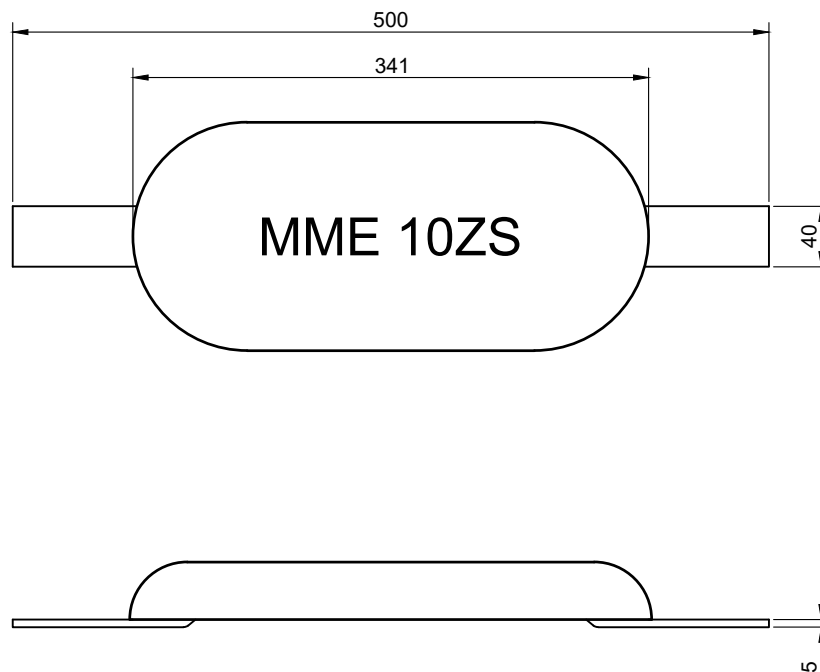
Nett Weight: 10.0 Kg  
 Gross Weight: 10.6 Kg



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### Zinc Alloy Anode MME 10Z

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAZ 0100-06          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>23-04-21 | Checked:<br>PP<br>23-04-21 | Approved:<br>OT<br>23-04-21 |             |
|                           |                            |                             |             |
|                           |                            |                             | Paper: A4   |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

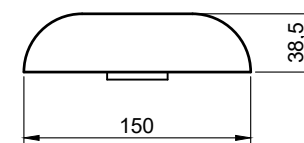
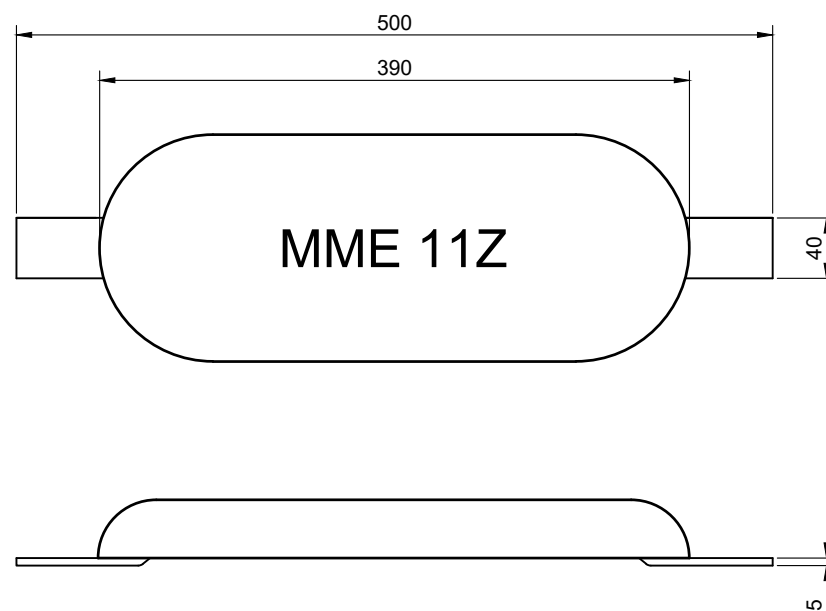
Nett Weight: 10.0 Kg  
 Gross Weight: 10.8 Kg



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#### Zinc Alloy Anode MME 10ZS

|                           |                            |                             |                                                                                                    |
|---------------------------|----------------------------|-----------------------------|----------------------------------------------------------------------------------------------------|
| Dwg: SAZ 0100-01          |                            |                             | Revision: 0                                                                                        |
| Drawn:<br>ESM<br>21-04-21 | Checked:<br>PP<br>21-04-21 | Approved:<br>OT<br>21-04-21 | <br>Paper: A4 |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

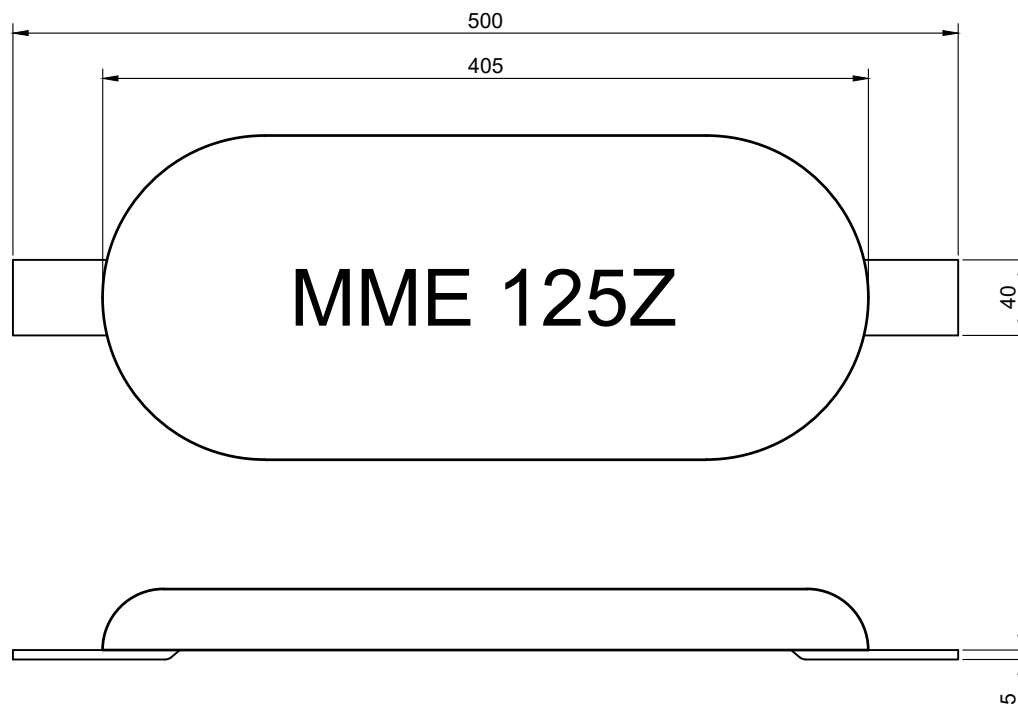
Nett Weight: 11.0 Kg  
 Gross Weight: 11.8 Kg



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#### Zinc Alloy Anode MME 11Z

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAZ 0050-02          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>21-04-21 | Checked:<br>PP<br>21-04-21 | Approved:<br>OT<br>21-04-21 |             |
|                           |                            |                             |             |
|                           |                            |                             | Paper: A4   |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 12.5 Kg

Gross Weight: 13.3 Kg



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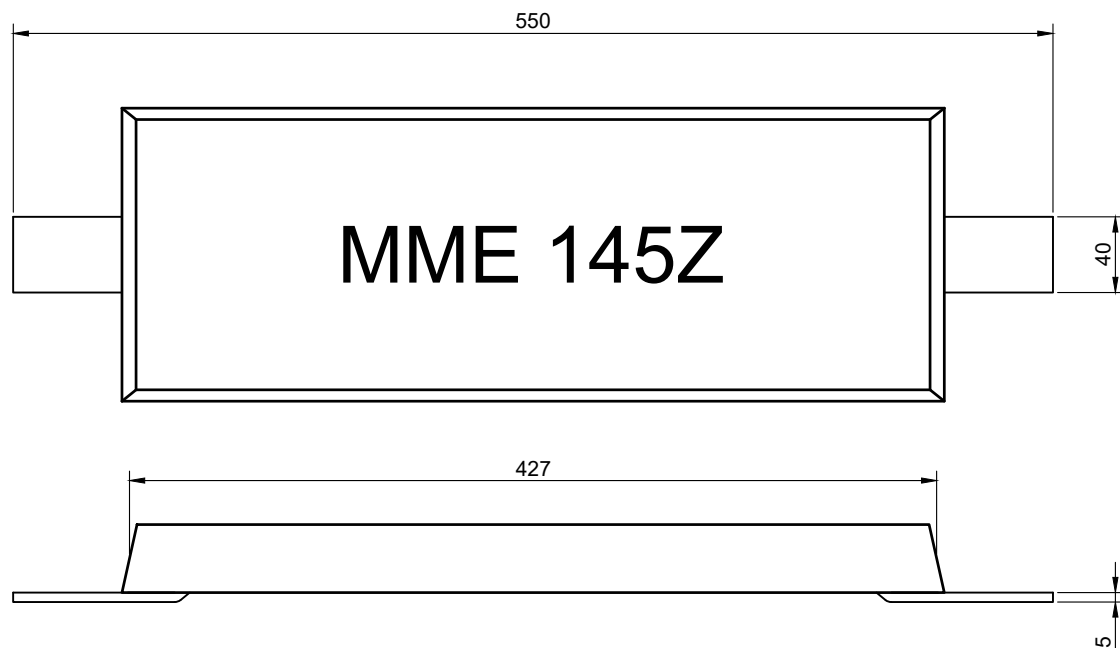
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Zinc Alloy Anode MME 125Z

|                  |                |                 |             |
|------------------|----------------|-----------------|-------------|
| Dwg: SAZ 0125-01 |                |                 | Revision: 0 |
| Drawn:<br>ESM    | Checked:<br>PP | Approved:<br>OT |             |
| 31-03-21         | 31-03-21       | 31-03-21        |             |
|                  |                |                 | Paper: A4   |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 14.5 Kg

Gross Weight: 15.4 Kg



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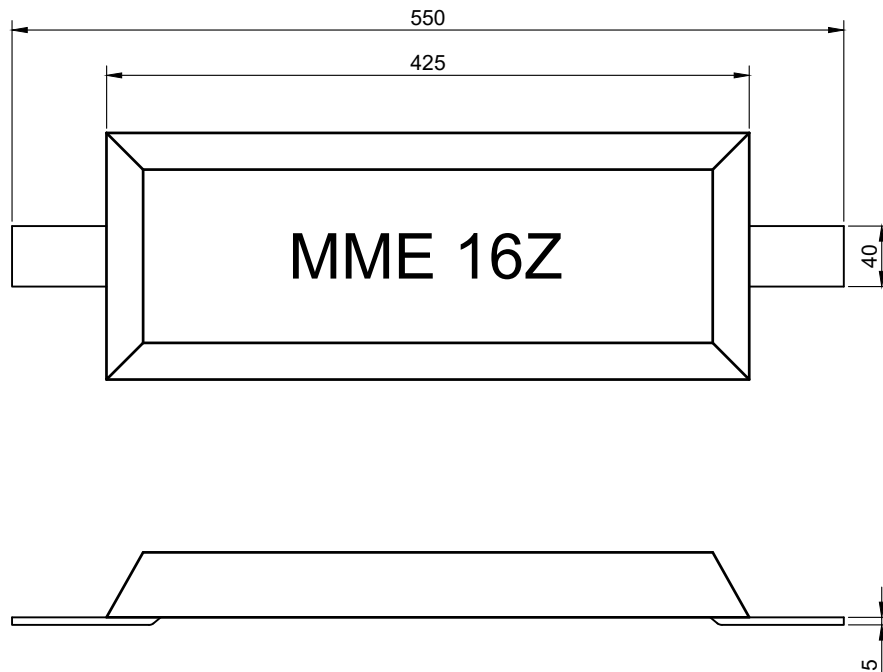
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Zinc Alloy Anode MME 145Z

|                  |                |                 |             |
|------------------|----------------|-----------------|-------------|
| Dwg: SAZ 0145-01 |                |                 | Revision: 0 |
| Drawn:<br>ESM    | Checked:<br>PP | Approved:<br>OT |             |
| 31-03-21         | 31-03-21       | 31-03-21        |             |
|                  |                |                 | Paper: A4   |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 Ahr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

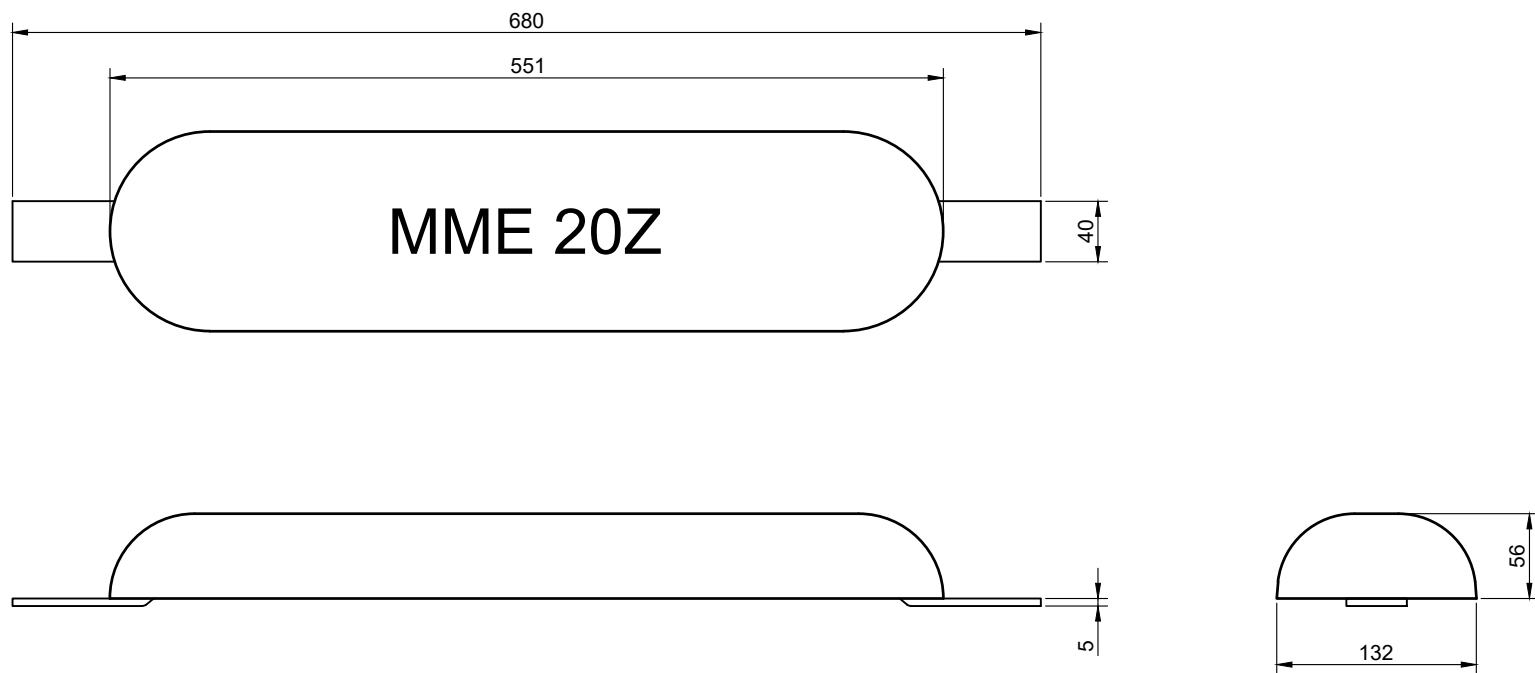
Nett Weight: 16.0 Kg  
 Gross Weight: 16.9 Kg



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#### Zinc Alloy Anode MME 16Z

|                           |                            |                             |                                                                                                    |
|---------------------------|----------------------------|-----------------------------|----------------------------------------------------------------------------------------------------|
| Dwg: SAZ 0160-01          |                            |                             | Revision: 0                                                                                        |
| Drawn:<br>ESM<br>21-04-21 | Checked:<br>PP<br>21-04-21 | Approved:<br>OT<br>21-04-21 | <br>Paper: A4 |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

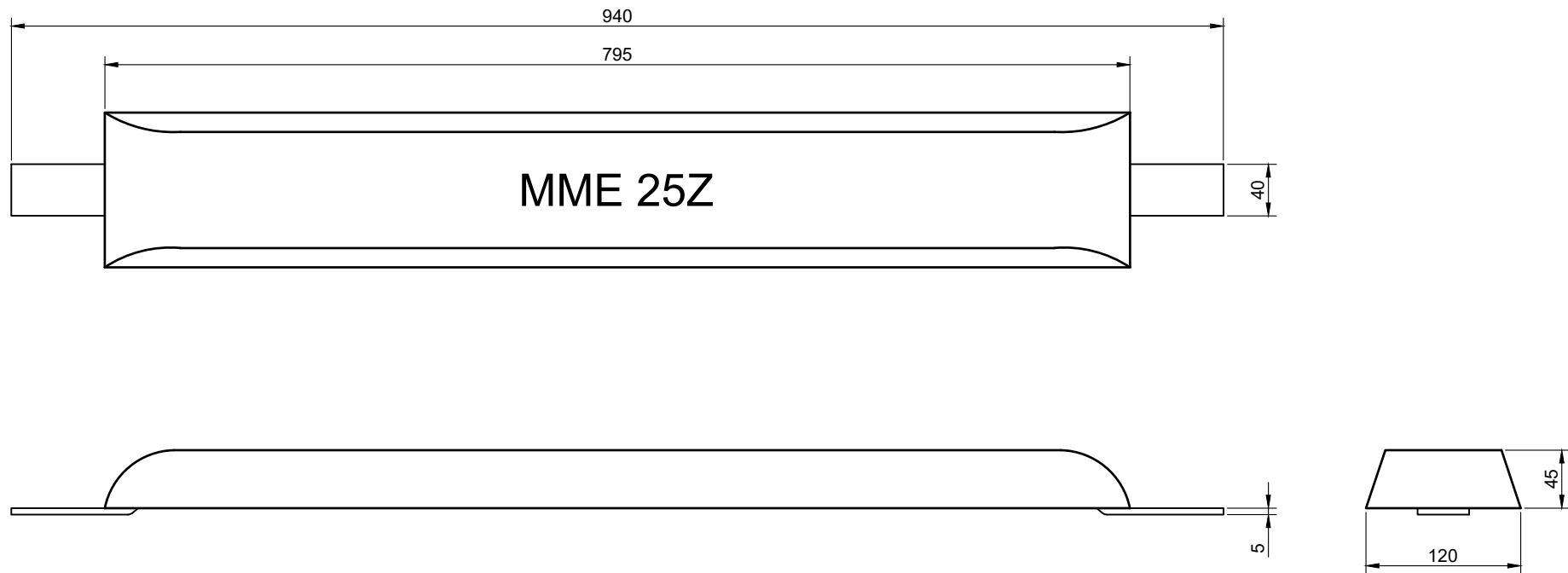
Nett Weight: 20.0 Kg  
 Gross Weight: 21.0 Kg



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#### Zinc Alloy Anode MME 20Z

|                           |                            |                             |               |
|---------------------------|----------------------------|-----------------------------|---------------|
| Dwg: SAZ 0200-01          |                            |                             | Revision: 0   |
| Drawn:<br>ESM<br>30-03-21 | Checked:<br>PP<br>30-03-21 | Approved:<br>OT<br>30-03-21 | <br>Paper: A4 |
|                           |                            |                             |               |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 25.0 Kg

Gross Weight: 26.5 Kg



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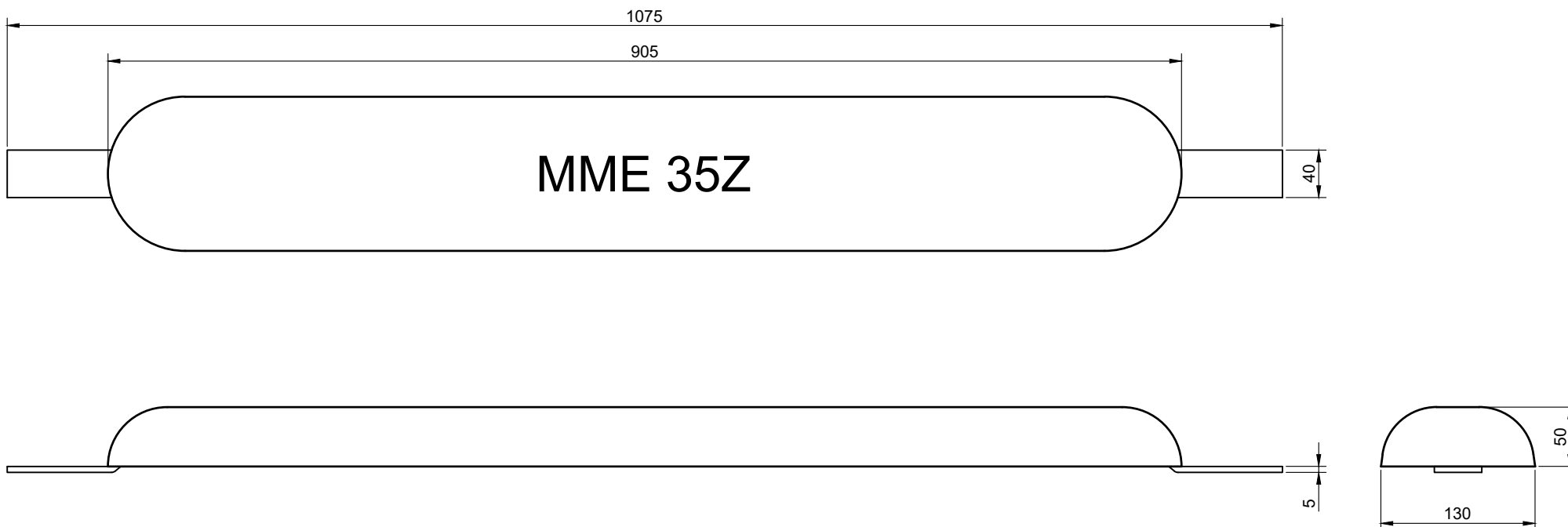
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Zinc Alloy Anode MME 25Z

|                  |             |              |                             |
|------------------|-------------|--------------|-----------------------------|
| Dwg: SAZ 0250-01 |             |              | Revision: A                 |
| Drawn: MB        | Checked: PP | Approved: OT | <br>Scale: 1:5<br>Paper: A4 |
| 23-08-2023       | 23-08-2023  | 23-08-2023   |                             |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 35.0 Kg  
 Gross Weight: 36.7 Kg



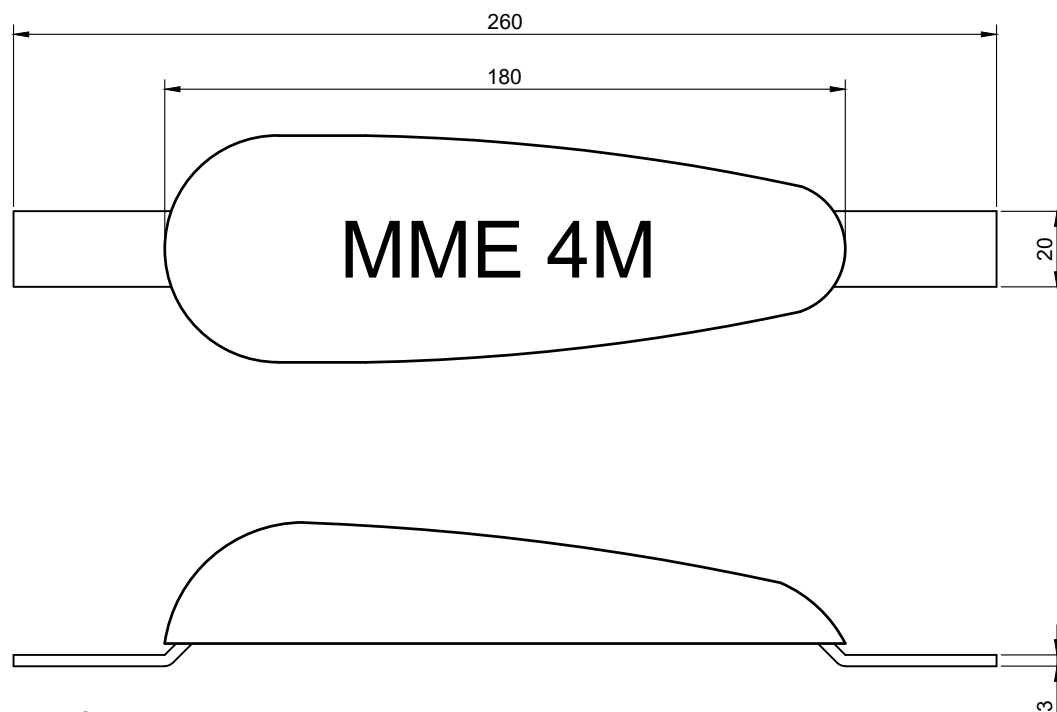
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 E-mail: sales@mme.nl  
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### Zinc Alloy Anode MME 35Z

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAZ 0350-01          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>30-03-21 | Checked:<br>PP<br>30-03-21 | Approved:<br>OT<br>30-03-21 |             |
|                           |                            |                             | Paper: A4   |



# **MAGNESIUM WELD-ON HULL ANODES**



Magnesium alloy specification acc. to EN12496: 2013 alloy M1

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Aluminium  |              | 5.0 - 7.0      |
| Zinc       |              | 2.0 - 4.0      |
| Manganese  |              | 0.15 - 0.70    |
| Magnesium  |              | Remainder      |
|            | Iron         | 0.005 max      |
|            | Copper       | 0.08 max       |
|            | Silicon      | 0.30 max       |
|            | Lead         | 0.03 max       |
|            | Nickel       | 0.003 max      |
|            | Others total | 0.30 max       |

Electrical capacity: 1200 Ahr / Kg nominal  
Solution potential: -1500 mV vs. Ag / AgCl reference cell nominal (in seawater)

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

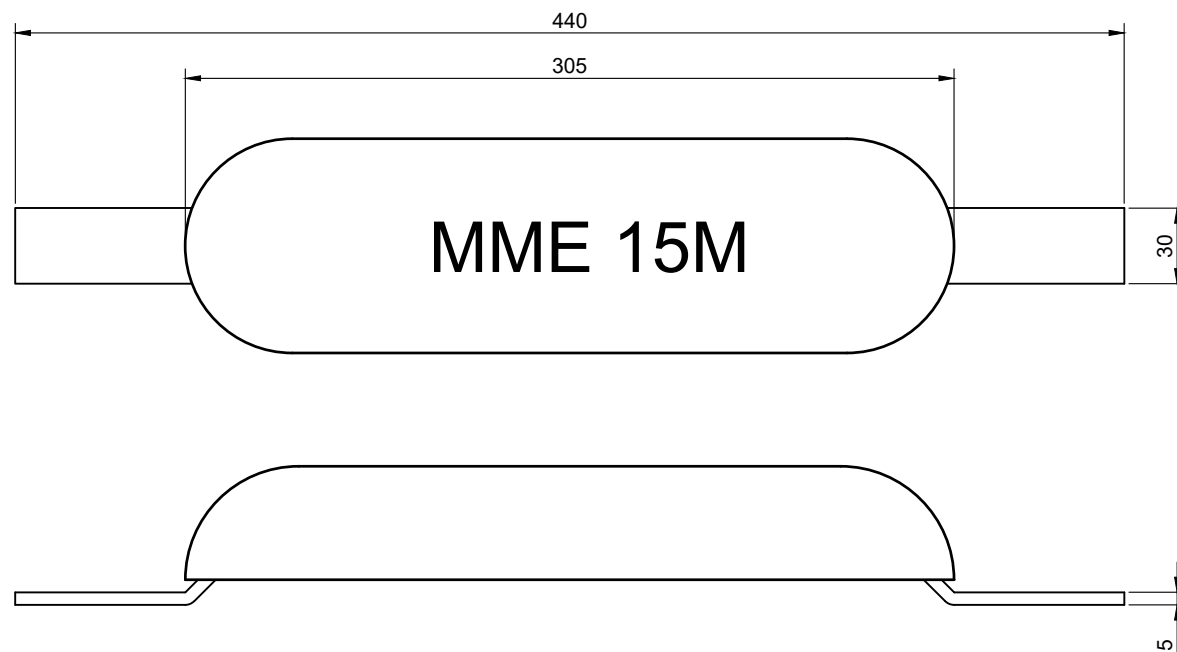
Nett Weight: 0.24 Kg  
 Gross Weight: 0.44 Kg



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## Magnesium Alloy Anode MME 4M

|                           |                            |                             |                                                                                                    |
|---------------------------|----------------------------|-----------------------------|----------------------------------------------------------------------------------------------------|
| Dwg: SAM 0002-04          |                            |                             | Revision: 0                                                                                        |
| Drawn:<br>ESM<br>25-05-21 | Checked:<br>PP<br>25-05-21 | Approved:<br>OT<br>25-05-21 | <br>Paper: A4 |



**Magnesium alloy specification acc. to EN12496: 2013 alloy M1**

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Aluminium  |              | 5.0 - 7.0      |
| Zinc       |              | 2.0 - 4.0      |
| Manganese  |              | 0.15 - 0.70    |
| Magnesium  |              | Remainder      |
|            | Iron         | 0.005 max      |
|            | Copper       | 0.08 max       |
|            | Silicon      | 0.30 max       |
|            | Lead         | 0.03 max       |
|            | Nickel       | 0.003 max      |
|            | Others total | 0.30 max       |

Electrical capacity: 1200 AHr / Kg nominal  
Solution potential: -1500 mV vs. Ag / AgCl reference cell nominal (in seawater)

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

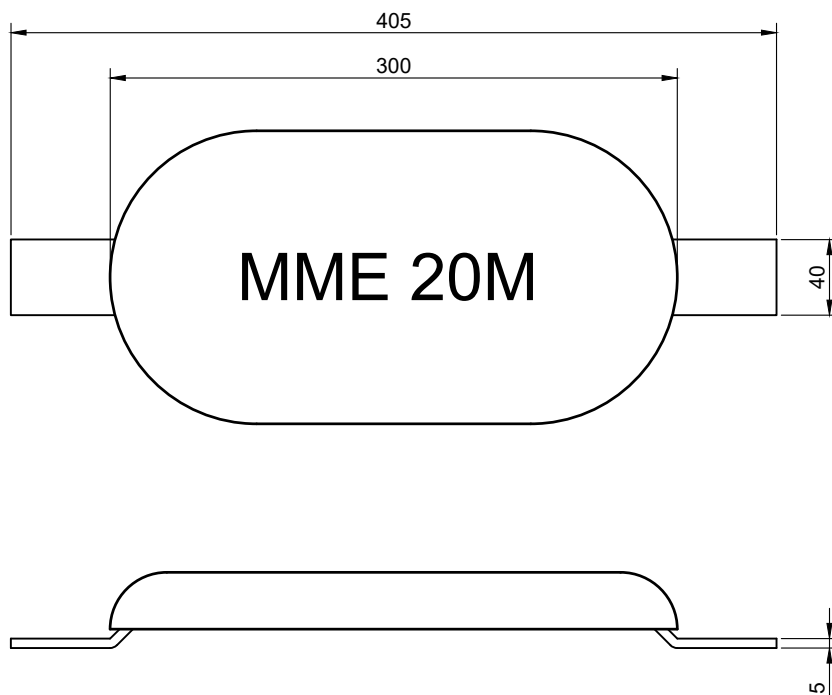
Nett Weight: 1.0 Kg  
 Gross Weight: 1.4 Kg



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**Magnesium Alloy Anode**  
**MME 15M**

|                           |                            |                             |               |
|---------------------------|----------------------------|-----------------------------|---------------|
| Dwg: SAM 0010-07          |                            |                             | Revision: 0   |
| Drawn:<br>ESM<br>25-05-21 | Checked:<br>PP<br>25-05-21 | Approved:<br>OT<br>25-05-21 | <br>Paper: A4 |
|                           |                            |                             |               |

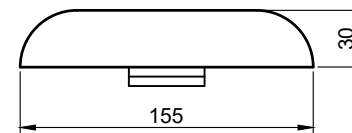


#### Magnesium alloy specification acc. to EN12496: 2013 alloy M1

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Aluminium  |              | 5.0 - 7.0      |
| Zinc       |              | 2.0 - 4.0      |
| Manganese  |              | 0.15 - 0.70    |
| Magnesium  |              | Remainder      |
|            | Iron         | 0.005 max      |
|            | Copper       | 0.08 max       |
|            | Silicon      | 0.30 max       |
|            | Lead         | 0.03 max       |
|            | Nickel       | 0.003 max      |
|            | Others total | 0.30 max       |

|                             |                                                             |
|-----------------------------|-------------------------------------------------------------|
| <u>Electrical capacity:</u> | 1200 AHr / Kg nominal                                       |
| <u>Solution potential:</u>  | -1500 mV vs. Ag / AgCl reference cell nominal (in seawater) |

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$



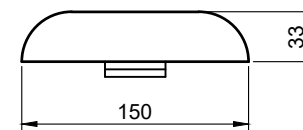
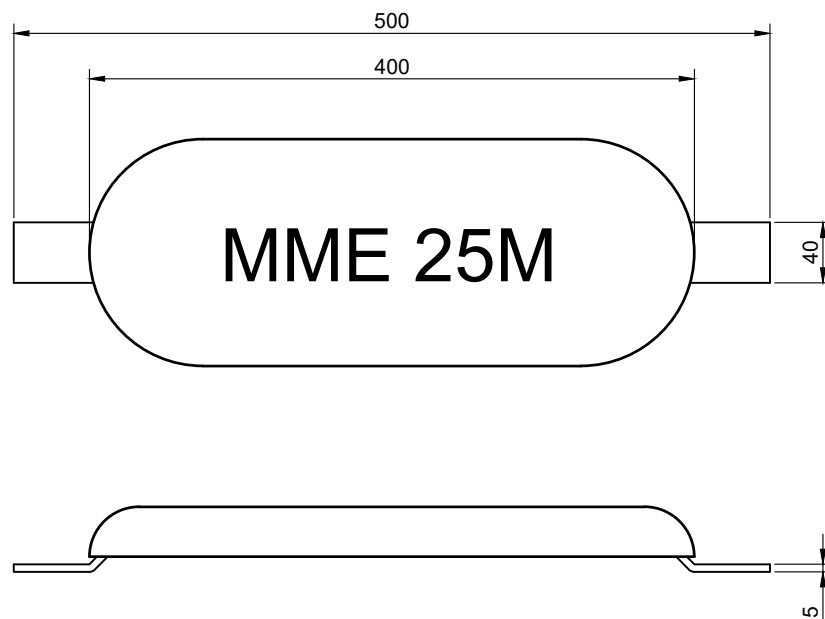
Nett Weight: 2.0 Kg  
 Gross Weight: 2.6 Kg



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 www.mme-group.com

#### Magnesium Alloy Anode MME 20M

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAM 0020-05          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>25-05-21 | Checked:<br>PP<br>25-05-21 | Approved:<br>OT<br>25-05-21 |             |
|                           |                            |                             |             |
|                           |                            |                             | Paper: A4   |



#### Magnesium alloy specification acc. to EN12496: 2013 alloy M1

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Aluminium  |              | 5.0 - 7.0      |
| Zinc       |              | 2.0 - 4.0      |
| Manganese  |              | 0.15 - 0.70    |
| Magnesium  |              | Remainder      |
|            | Iron         | 0.005 max      |
|            | Copper       | 0.08 max       |
|            | Silicon      | 0.30 max       |
|            | Lead         | 0.03 max       |
|            | Nickel       | 0.003 max      |
|            | Others total | 0.30 max       |

Electrical capacity: 1200 AHr / Kg nominal

Solution potential: -1500 mV vs. Ag / AgCl reference cell nominal (in seawater)

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 2.6 Kg

Gross Weight: 3.4 Kg



**Cathodic Protection Division**

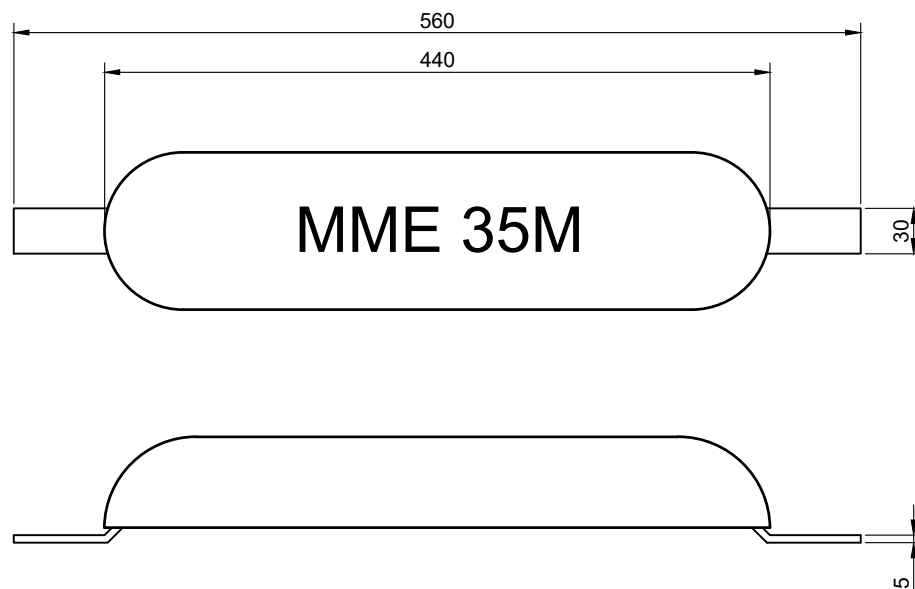
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Magnesium Alloy Anode MME 25M

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAM 0026-04          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>25-05-21 | Checked:<br>PP<br>25-05-21 | Approved:<br>OT<br>25-05-21 |             |
|                           |                            |                             |             |
|                           |                            |                             | Paper: A4   |



#### Magnesium alloy specification acc. to EN12496: 2013 alloy M1

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Aluminium  |              | 5.0 - 7.0      |
| Zinc       |              | 2.0 - 4.0      |
| Manganese  |              | 0.15 - 0.70    |
| Magnesium  |              | Remainder      |
|            | Iron         | 0.005 max      |
|            | Copper       | 0.08 max       |
|            | Silicon      | 0.30 max       |
|            | Lead         | 0.03 max       |
|            | Nickel       | 0.003 max      |
|            | Others total | 0.30 max       |

|                             |                                                             |
|-----------------------------|-------------------------------------------------------------|
| <u>Electrical capacity:</u> | 1200 AHr / Kg nominal                                       |
| <u>Solution potential:</u>  | -1500 mV vs. Ag / AgCl reference cell nominal (in seawater) |

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

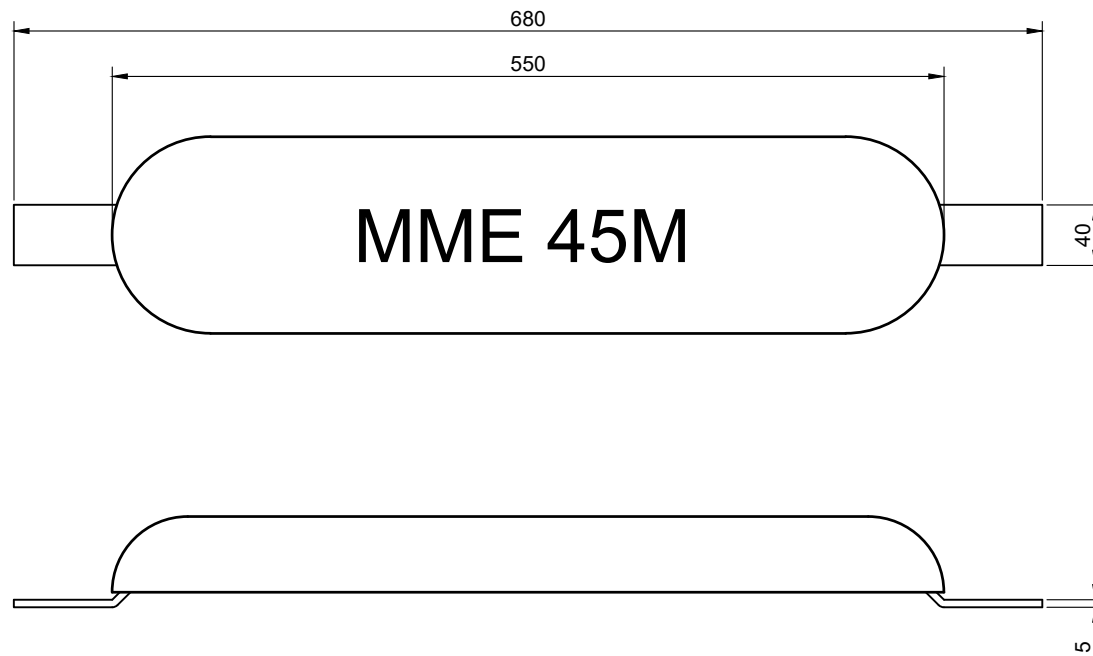
Nett Weight: 3.8 Kg  
 Gross Weight: 4.5 Kg



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### Magnesium Alloy Anode MME 35M

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAM 0038-01          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>25-05-21 | Checked:<br>PP<br>25-05-21 | Approved:<br>OT<br>25-05-21 |             |
|                           |                            |                             |             |
|                           |                            |                             | Paper: A4   |



#### Magnesium alloy specification acc. to EN12496: 2013 alloy M1

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Aluminium  |              | 5.0 - 7.0      |
| Zinc       |              | 2.0 - 4.0      |
| Manganese  |              | 0.15 - 0.70    |
| Magnesium  |              | Remainder      |
|            | Iron         | 0.005 max      |
|            | Copper       | 0.08 max       |
|            | Silicon      | 0.30 max       |
|            | Lead         | 0.03 max       |
|            | Nickel       | 0.003 max      |
|            | Others total | 0.30 max       |

Electrical capacity: 1200 AHr / Kg nominal

Solution potential: -1500 mV vs. Ag / AgCl reference cell nominal (in seawater)

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 5.1 Kg

Gross Weight: 6.2 Kg



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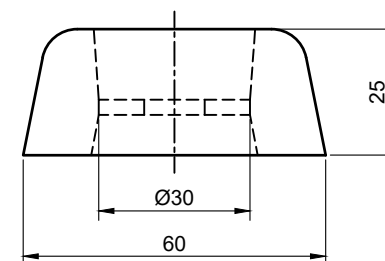
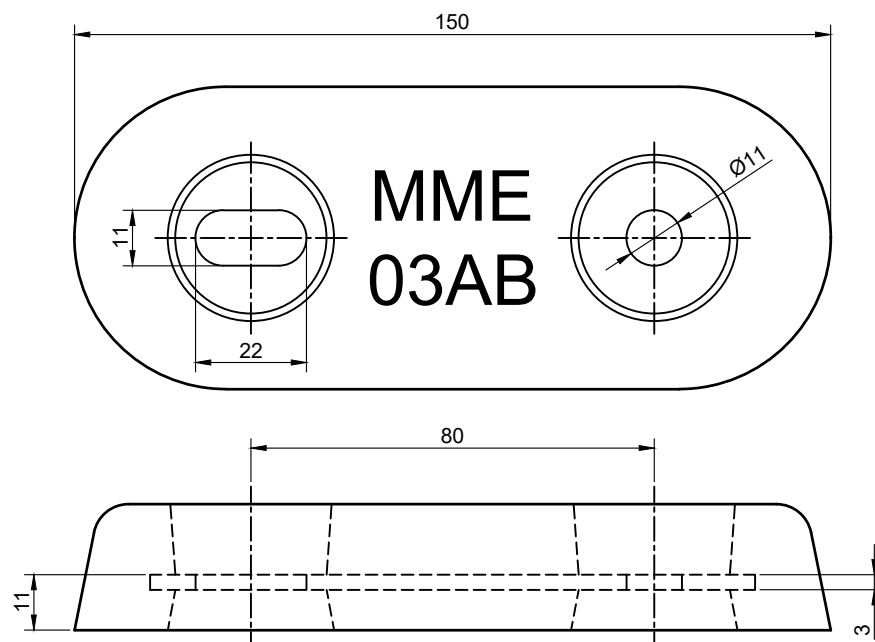
E-mail: sales@mme.nl

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### Magnesium Alloy Anode MME 45M

|                  |                |                 |             |
|------------------|----------------|-----------------|-------------|
| Dwg: SAM 0051-02 |                |                 | Revision: 0 |
| Drawn:<br>ESM    | Checked:<br>PP | Approved:<br>OT |             |
| 25-05-21         | 25-05-21       | 25-05-21        |             |
|                  |                |                 | Paper: A4   |

# **ALUMINIUM BOLT-ON HULL ANODES**



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode is fitted with holes suitable for M10 studs and nuts

Anode can also be provided with backing sheet or backside coated

Insert material: Non galvanized steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 0.37 Kg

Gross Weight: 0.45 Kg



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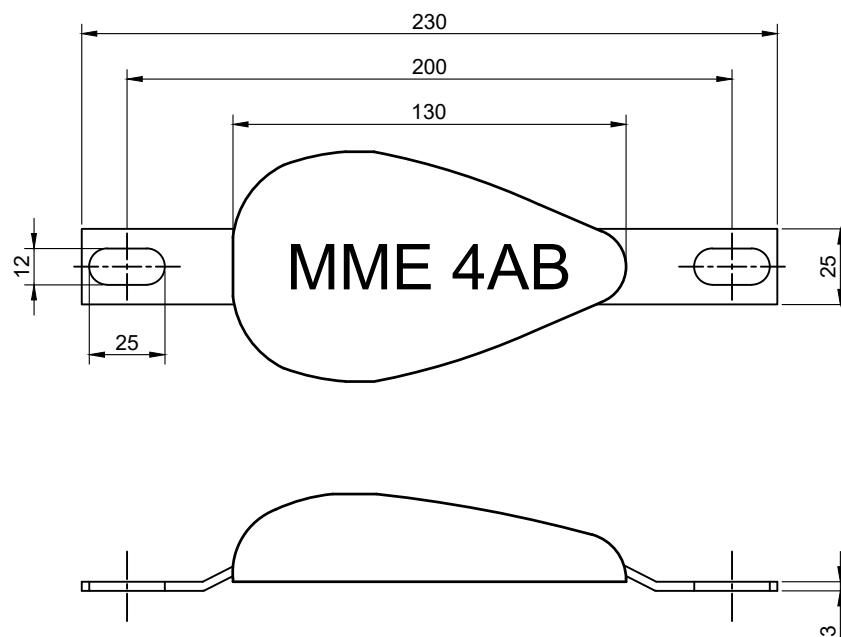
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

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### Aluminium Alloy Anode MME 03AB

|                  |             |              |                               |
|------------------|-------------|--------------|-------------------------------|
| Dwg: SAA 0004-01 |             |              | Revision: A                   |
| Drawn: MB        | Checked: PP | Approved: OT | <br>Scale: 1:1.5<br>Paper: A4 |
| 23-08-2023       | 23-08-2023  | 23-08-2023   |                               |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode is fitted with holes suitable for M10 studs and nuts

Anode can also be provided with backing sheet or backside coated

Insert material: Non galvanized steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 0.40 Kg

Gross Weight: 0.52 Kg



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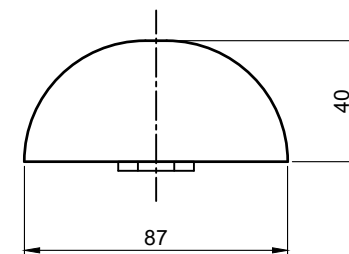
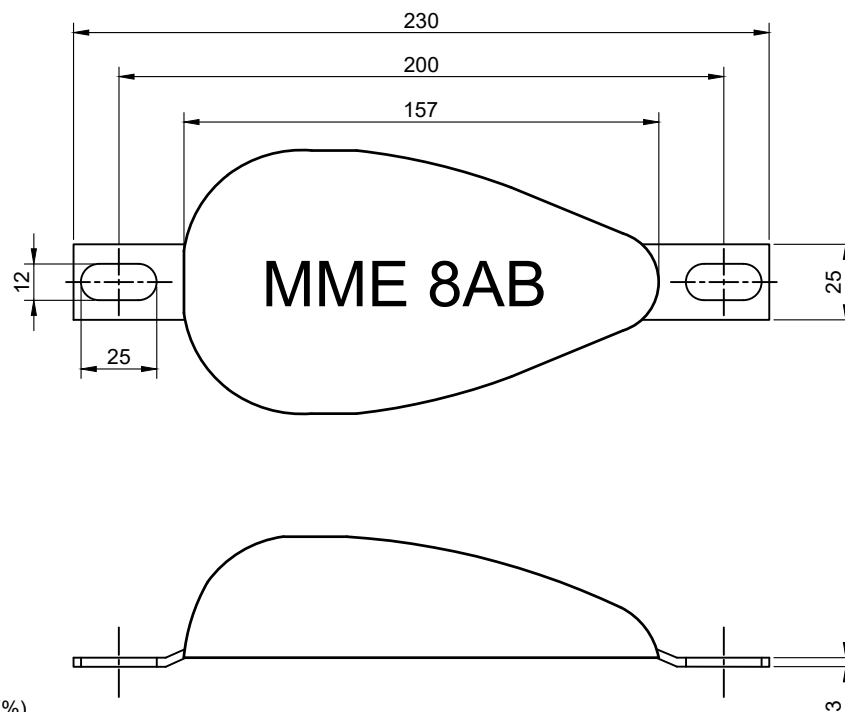
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 4AB

|                  |             |              |             |
|------------------|-------------|--------------|-------------|
| Dwg: SAA 0004-05 |             |              | Revision: 0 |
| Drawn: ESM       | Checked: PP | Approved: OT |             |
| 24-03-21         | 24-03-21    | 24-03-21     |             |
|                  |             |              | Paper: A4   |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode is fitted with holes suitable for M10 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Non galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

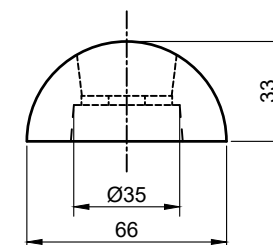
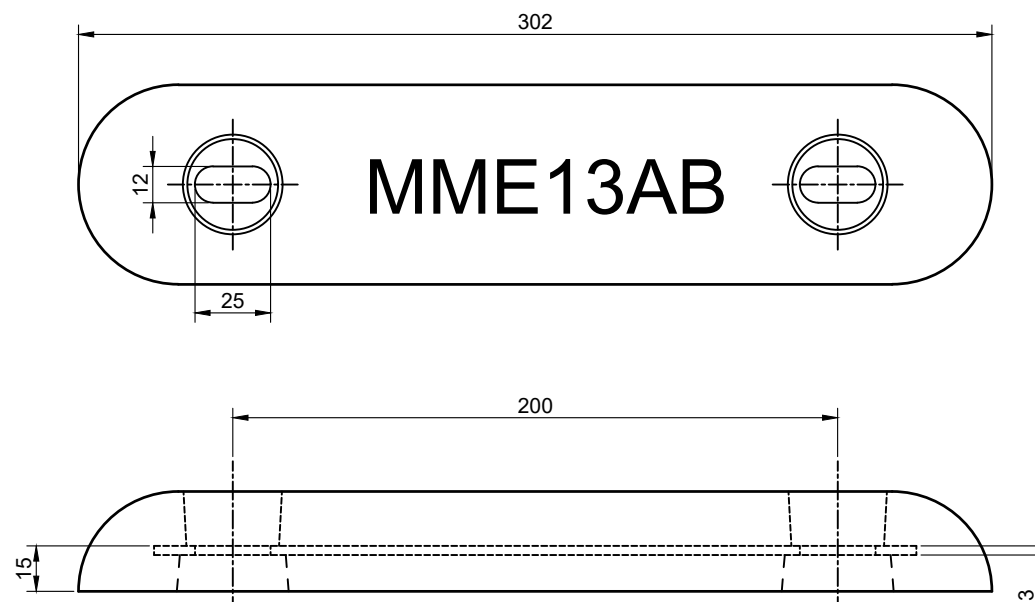
Nett Weight: 0.80 Kg  
 Gross Weight: 0.92 Kg



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### Aluminium Alloy Anode MME 8AB

|                           |                            |                             |               |
|---------------------------|----------------------------|-----------------------------|---------------|
| Dwg: SAA 0008-02          |                            |                             | Revision: 0   |
| Drawn:<br>ESM<br>19-03-21 | Checked:<br>PP<br>19-03-21 | Approved:<br>OT<br>19-03-21 | <br>Paper: A4 |
|                           |                            |                             |               |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode is fitted with holes suitable for M10 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Non galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

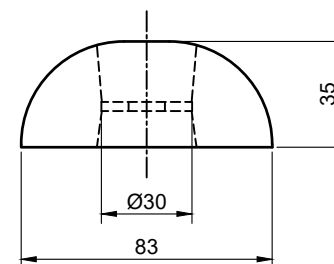
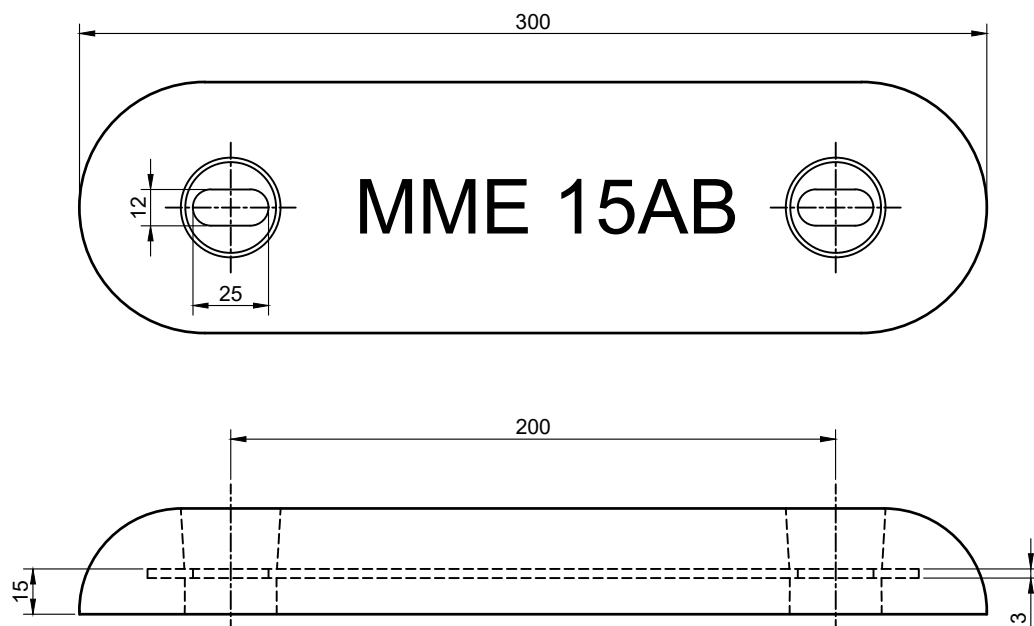
Nett Weight: 1.3 Kg  
 Gross Weight: 1.5 Kg



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#### Aluminium Alloy Anode MME 13AB

|                         |                           |                            |                                                                                                                    |
|-------------------------|---------------------------|----------------------------|--------------------------------------------------------------------------------------------------------------------|
| Dwg: SAA 0013-01        |                           |                            | Revision: A                                                                                                        |
| Drawn: MB<br>23-08-2023 | Checked: PP<br>23-08-2023 | Approved: OT<br>23-08-2023 | <br>Scale: 1:2.5<br>Paper: A4 |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode is fitted with holes suitable for M10 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Non galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

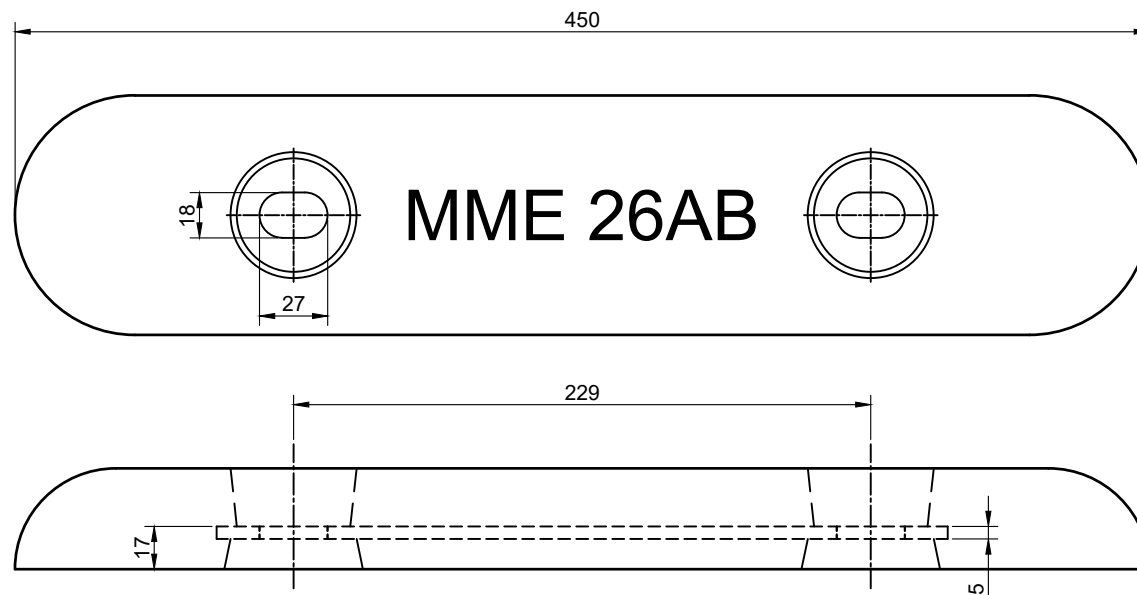
Nett Weight: 1.5 Kg  
 Gross Weight: 1.7 Kg



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#### Aluminium Alloy Anode MME 15AB

|                  |             |              |             |
|------------------|-------------|--------------|-------------|
| Dwg: SAA 0015-01 |             |              | Revision: 0 |
| Drawn: ESM       | Checked: PP | Approved: OT |             |
| 19-03-21         | 19-03-21    | 19-03-21     |             |
|                  |             |              | Paper: A4   |



### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode is fitted with holes suitable for M16 studs and nuts

Anode can also be provided with backing sheet or backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 2.6 Kg

Gross Weight: 3.1 Kg



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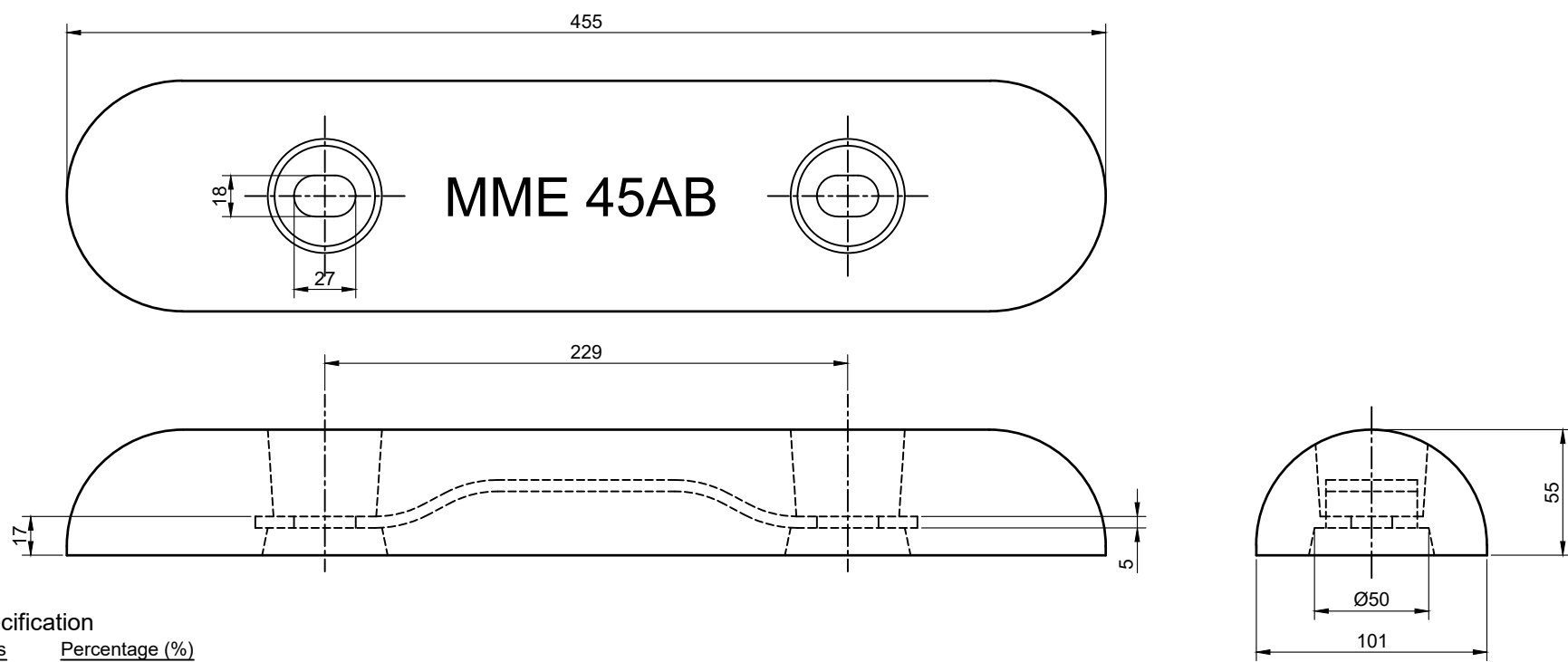
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### Aluminium Alloy Anode MME 26AB

|                  |             |              |                             |
|------------------|-------------|--------------|-----------------------------|
| Dwg: SAA 0026-01 |             |              | Revision: A                 |
| Drawn: MB        | Checked: PP | Approved: OT | <br>Scale: 1:3<br>Paper: A4 |
| 23-08-2023       | 23-08-2023  | 23-08-2023   |                             |



### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

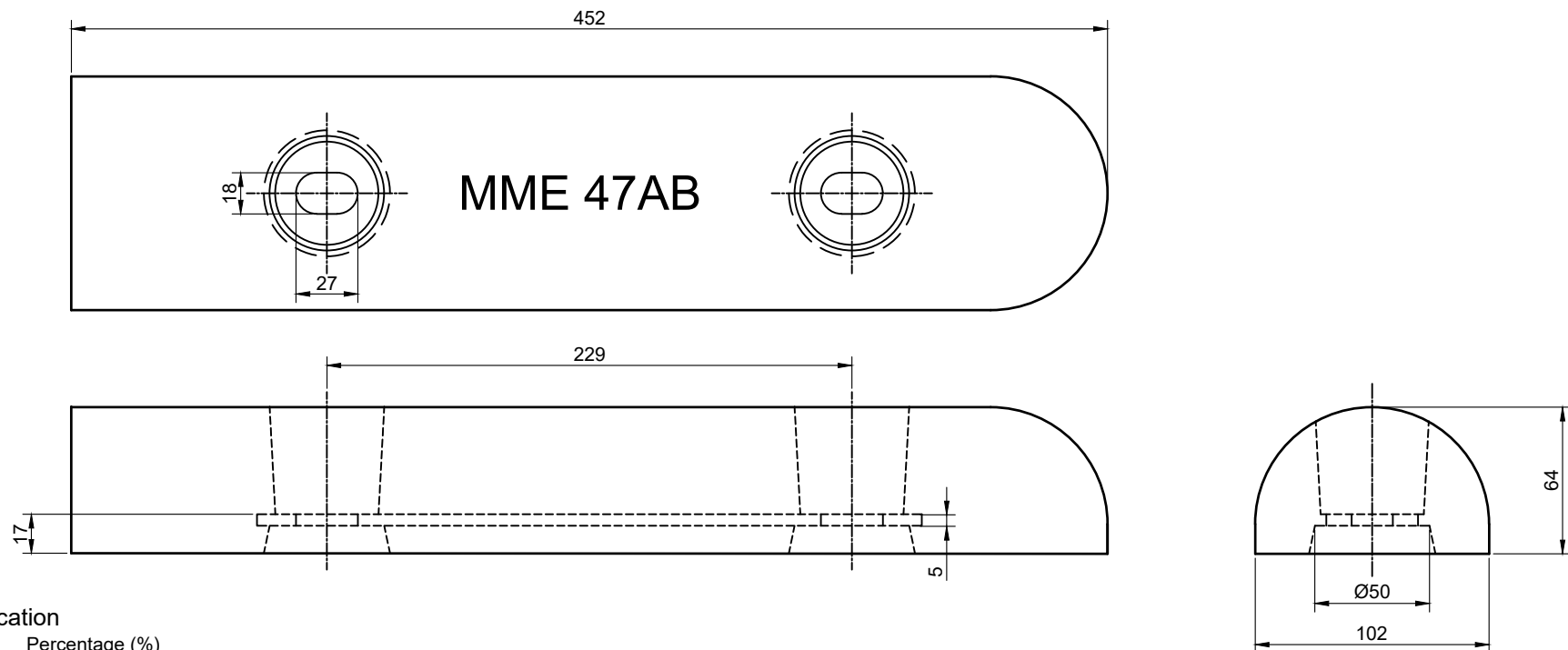
Electrochemical capacity: 2700 AHr / Kg nominal  
Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode is fitted with holes suitable for M16 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 4.5 Kg  
 Gross Weight: 5.0 Kg

|                                                                                       |             |                                                                                                              |                                                                                                                  |
|---------------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
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|                                                                                       |             | <b>Aluminium Alloy Anode</b><br><b>MME 45AB</b>                                                              |                                                                                                                  |
| Dwg: SAA 0045-01                                                                      |             | Revision: A                                                                                                  |                                                                                                                  |
| Drawn: MB                                                                             | Checked: PP | Approved: OT                                                                                                 | <br>Scale: 1:3<br>Paper: A4 |
| 23-08-2023                                                                            | 23-08-2023  | 23-08-2023                                                                                                   |                                                                                                                  |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode is fitted with holes suitable for M16 studs and nuts

Anode can also be provided with backing sheet or backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 4.7 Kg

Gross Weight: 5.2 Kg



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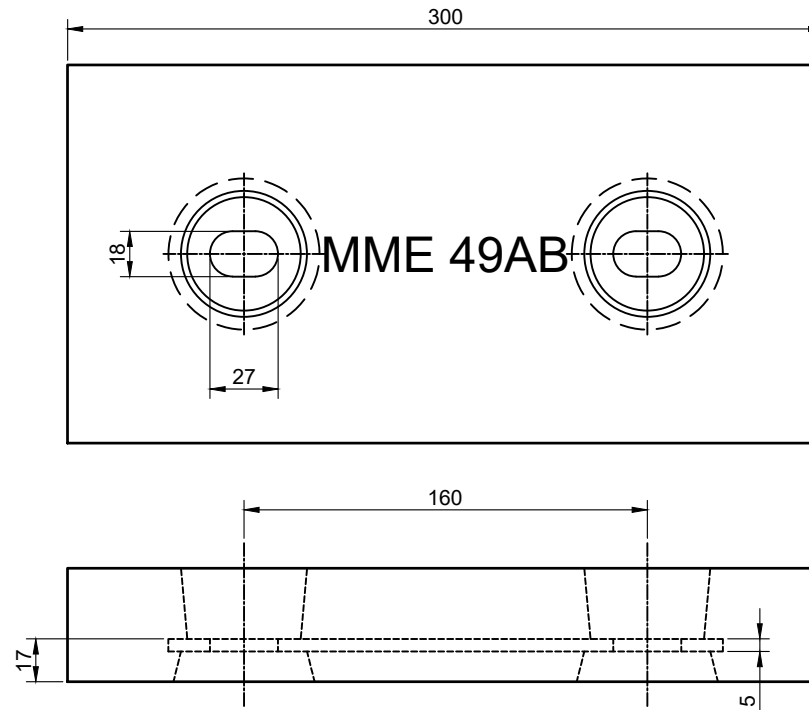
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### Aluminium Alloy Anode MME 47AB

|                  |             |              |                             |
|------------------|-------------|--------------|-----------------------------|
| Dwg: SAA 0047-01 |             |              | Revision: A                 |
| Drawn: MB        | Checked: PP | Approved: OT | <br>Scale: 1:3<br>Paper: A4 |
| 23-08-2023       | 23-08-2023  | 23-08-2023   |                             |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

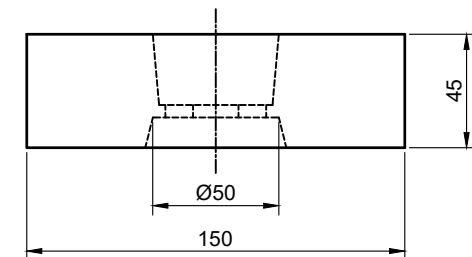
Text on anode is indicative and will not always be identical to this drawing

Anode is fitted with holes suitable for M16 studs and nuts

Anode can also be provided with backing sheet or backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$



Nett Weight: 4.9 Kg

Gross Weight: 5.2 Kg



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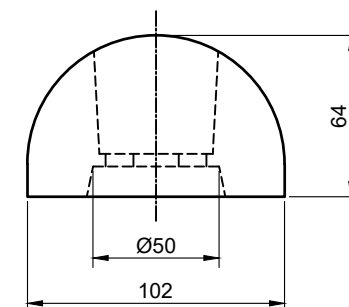
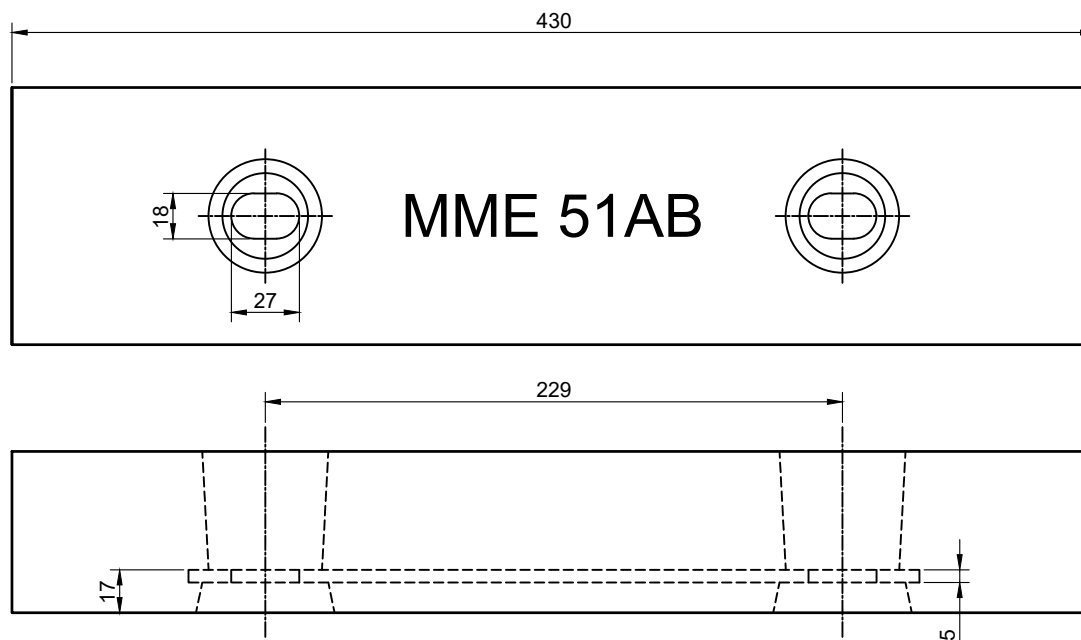
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

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### Aluminium Alloy Anode MME 49AB

|                  |             |              |                             |
|------------------|-------------|--------------|-----------------------------|
| Dwg: SAA 0049-01 |             |              | Revision: A                 |
| Drawn: MB        | Checked: PP | Approved: OT | <br>Scale: 1:3<br>Paper: A4 |
| 23-08-2023       | 23-08-2023  | 23-08-2023   |                             |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode is fitted with holes suitable for M16 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

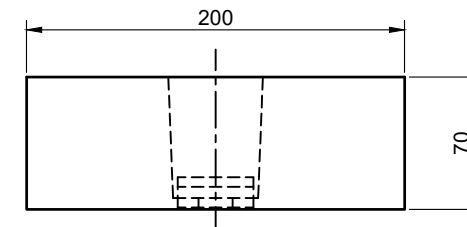
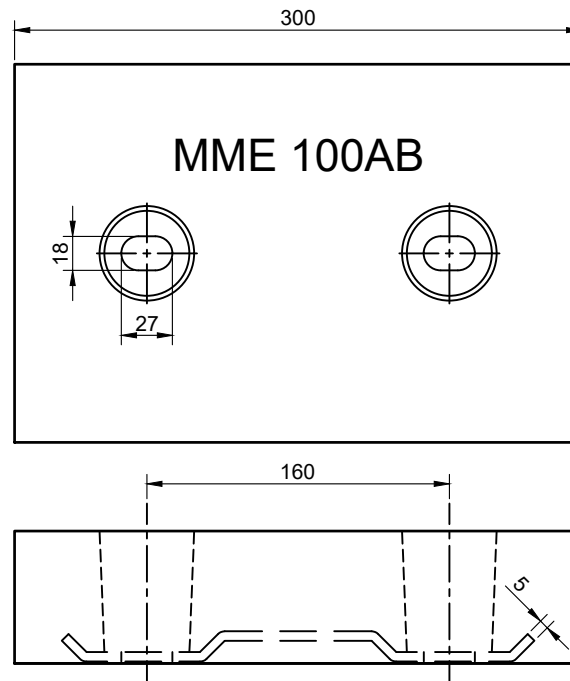
Nett Weight: 5.1 Kg  
 Gross Weight: 5.6 Kg



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#### Aluminium Alloy Anode MME 51AB

|                  |             |              |                             |
|------------------|-------------|--------------|-----------------------------|
| Dwg: SAA 0051-01 |             |              | Revision: A                 |
| Drawn: MB        | Checked: PP | Approved: OT | <br>Scale: 1:3<br>Paper: A4 |
| 23-08-2023       | 23-08-2023  | 23-08-2023   |                             |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode is fitted with holes suitable for M16 studs and nuts

Anode can also be provided with backing sheet or backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 10.0 Kg

Gross Weight: 10.4 Kg



**Cathodic Protection Division**

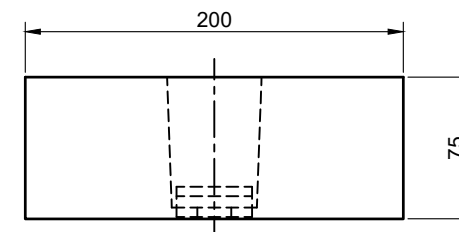
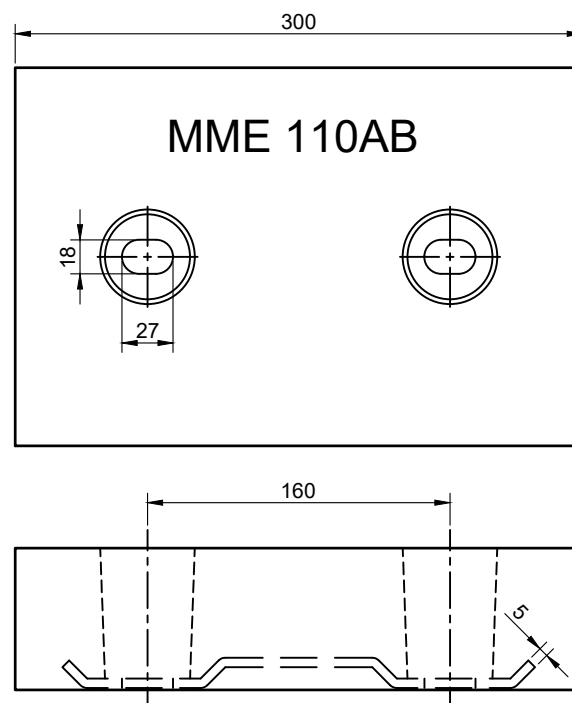
Tel: +31 (0)180 48 28 28

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### Aluminium Alloy Anode MME 100AB

|                  |             |              |                                                                                                                  |
|------------------|-------------|--------------|------------------------------------------------------------------------------------------------------------------|
| Dwg: SAA 0100-02 |             |              | Revision: A                                                                                                      |
| Drawn: MB        | Checked: PP | Approved: OT | <br>Scale: 1:4<br>Paper: A4 |
| 23-08-2023       | 23-08-2023  | 23-08-2023   |                                                                                                                  |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Anode is fitted with holes suitable for M16 studs and nuts

Anode can also be provided with backing sheet or backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 11.0 Kg

Gross Weight: 11.4 Kg



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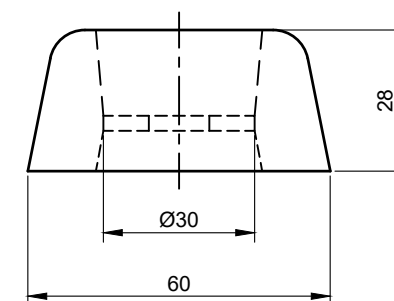
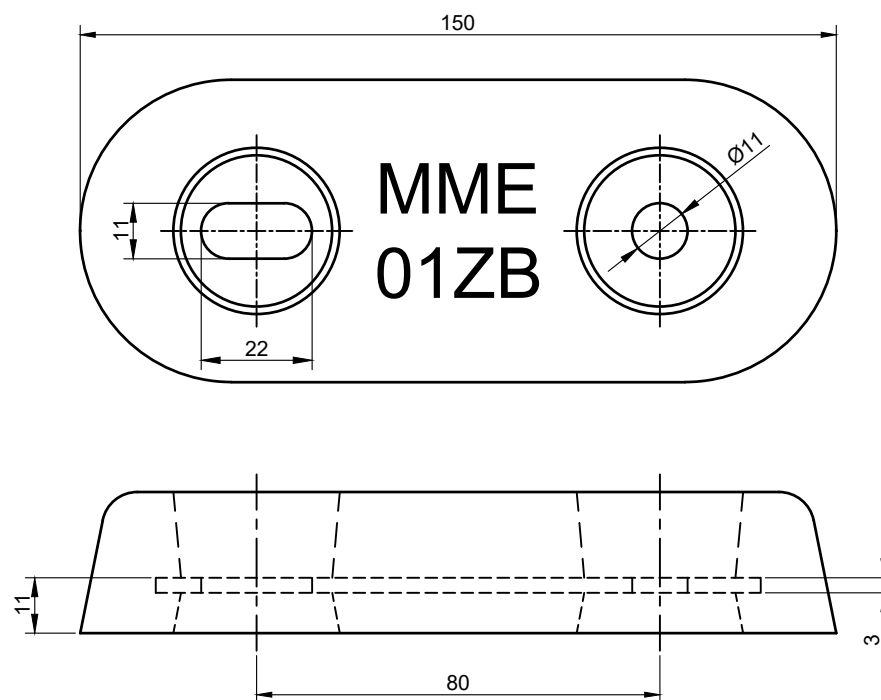
E-mail: sales@mme.nl

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### Aluminium Alloy Anode MME 110AB

|                  |             |              |                             |
|------------------|-------------|--------------|-----------------------------|
| Dwg: SAA 0110-01 |             |              | Revision: A                 |
| Drawn: MB        | Checked: PP | Approved: OT | <br>Scale: 1:4<br>Paper: A4 |
| 23-08-2023       | 23-08-2023  | 23-08-2023   |                             |

# **ZINC BOLT-ON HULL ANODES**



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode is fitted with holes suitable for M10 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

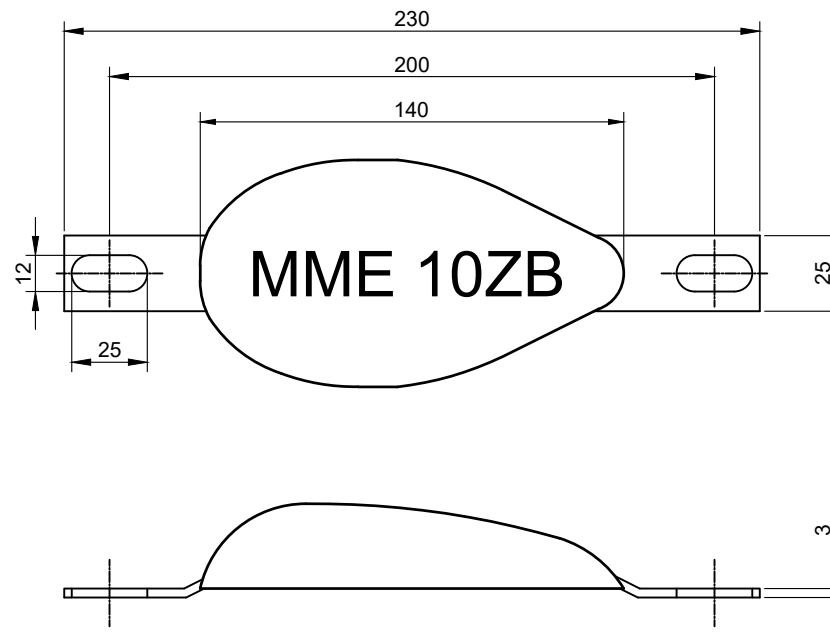
Nett Weight: 1.0 Kg  
 Gross Weight: 1.1 Kg



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#### Zinc Alloy Anode MME 01ZB

|                         |                           |                            |                               |
|-------------------------|---------------------------|----------------------------|-------------------------------|
| Dwg: SAZ 0010-03        |                           |                            | Revision: A                   |
| Drawn: MB<br>23-08-2023 | Checked: PP<br>23-08-2023 | Approved: OT<br>23-08-2023 | <br>Scale: 1:1.5<br>Paper: A4 |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode is fitted with holes suitable for M10 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

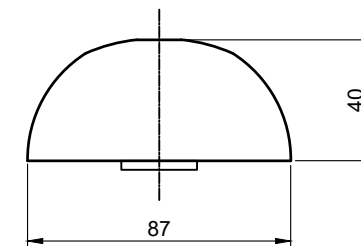
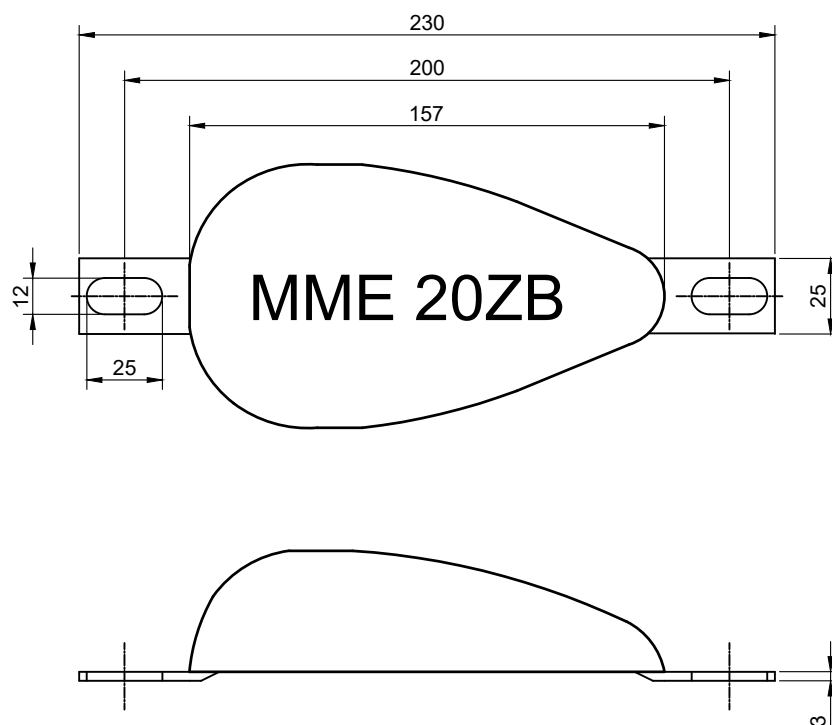
Nett Weight: 1.0 Kg  
 Gross Weight: 1.1 Kg



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### Zinc Alloy Anode MME 10ZB

|                           |                            |                             |               |
|---------------------------|----------------------------|-----------------------------|---------------|
| Dwg: SAZ 0010-02          |                            |                             | Revision: 0   |
| Drawn:<br>ESM<br>26-03-21 | Checked:<br>PP<br>26-03-21 | Approved:<br>OT<br>26-03-21 | <br>Paper: A4 |
|                           |                            |                             |               |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode is fitted with holes suitable for M10 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

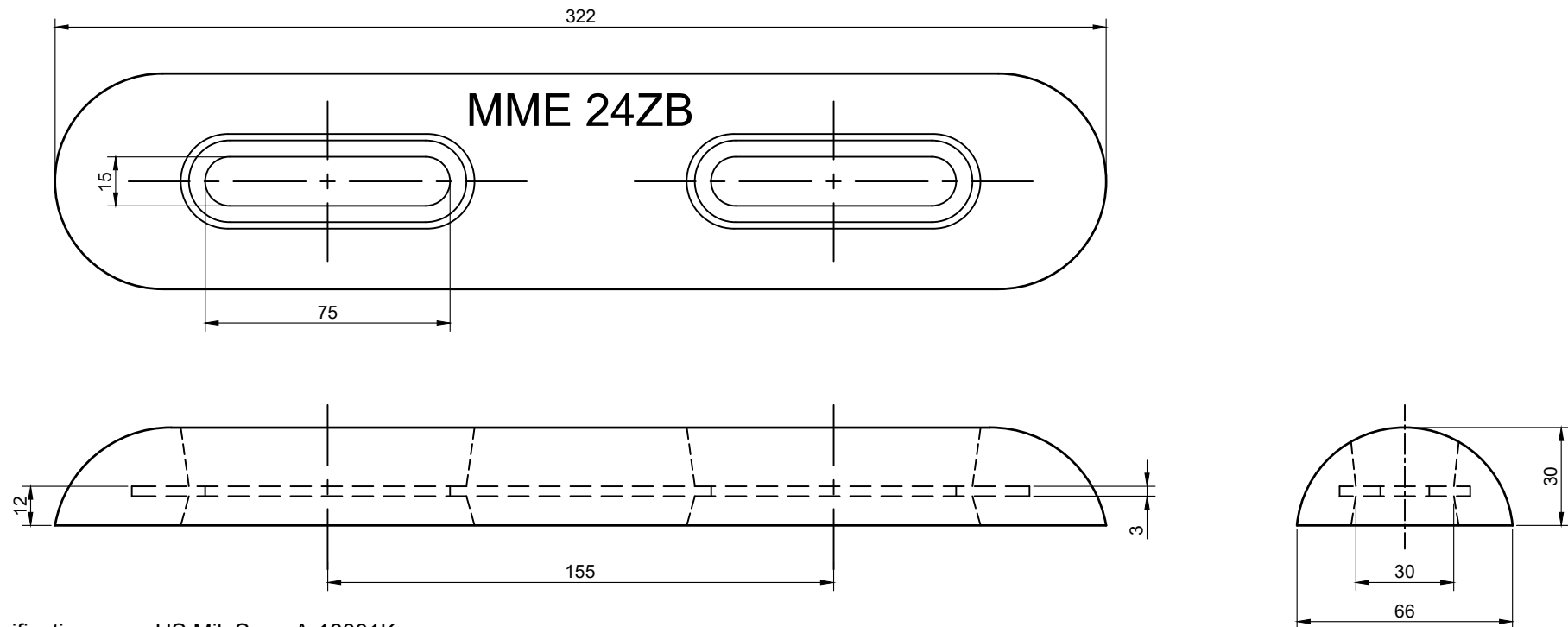
Nett Weight: 2.0 Kg  
 Gross Weight: 2.1 Kg



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### Zinc Alloy Anode MME 20ZB

|                           |                            |                             |               |
|---------------------------|----------------------------|-----------------------------|---------------|
| Dwg: SAZ 0020-01          |                            |                             | Revision: 0   |
| Drawn:<br>ESM<br>26-03-21 | Checked:<br>PP<br>26-03-21 | Approved:<br>OT<br>26-03-21 | <br>Paper: A4 |
|                           |                            |                             |               |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode is fitted with holes suitable for M12 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

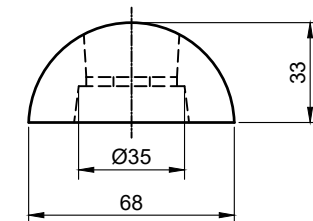
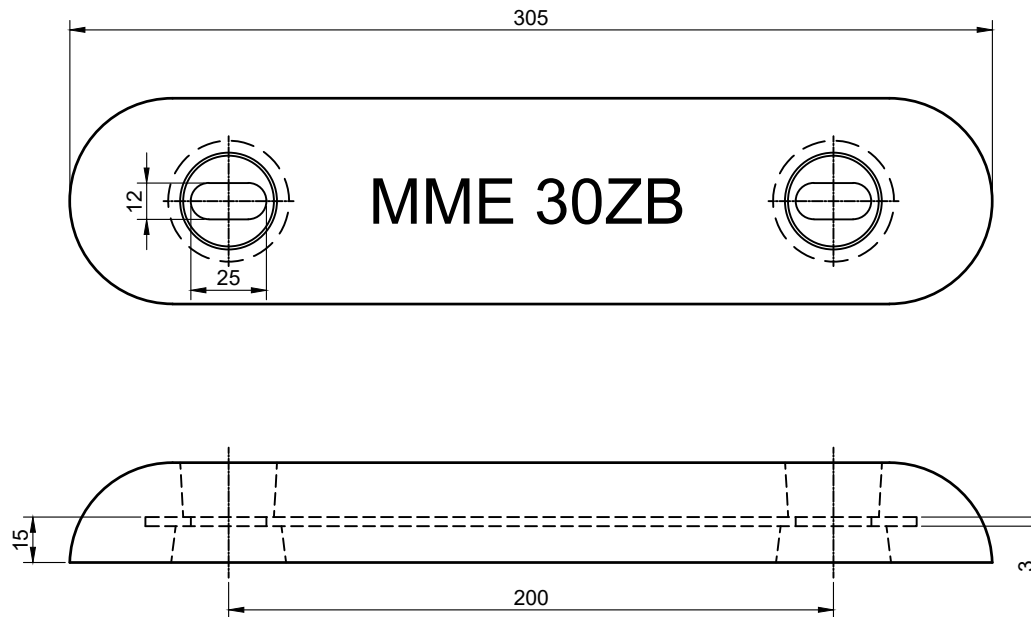
Nett Weight: 2.4 Kg  
 Gross Weight: 2.6 Kg



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#### Zinc Alloy Anode MME 24ZB

|                  |             |              |                             |
|------------------|-------------|--------------|-----------------------------|
| Dwg: SAZ 0024-01 |             |              | Revision: A                 |
| Drawn: MB        | Checked: PP | Approved: OT | <br>Scale: 1:2<br>Paper: A4 |
| 23-08-2023       | 23-08-2023  | 23-08-2023   |                             |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode is fitted with holes suitable for M10 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

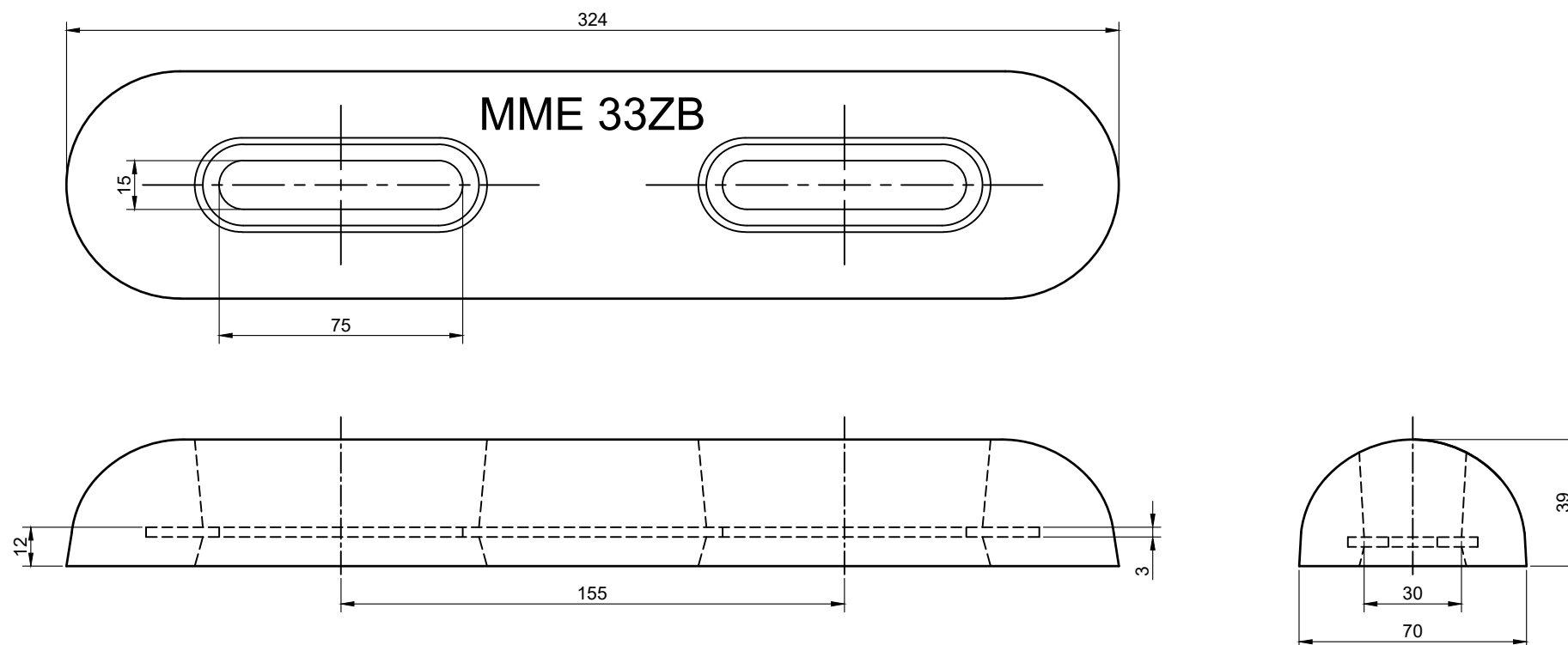
Nett Weight: 3.0 Kg  
 Gross Weight: 3.2 Kg



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### Zinc Alloy Anode MME 30ZB

|                         |                           |                            |                                                                                                                    |
|-------------------------|---------------------------|----------------------------|--------------------------------------------------------------------------------------------------------------------|
| Dwg: SAZ 0030-01        |                           |                            | Revision: A                                                                                                        |
| Drawn: MB<br>23-08-2023 | Checked: PP<br>23-08-2023 | Approved: OT<br>23-08-2023 | <br>Scale: 1:2.5<br>Paper: A4 |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode is fitted with holes suitable for M12 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

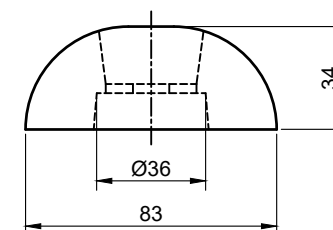
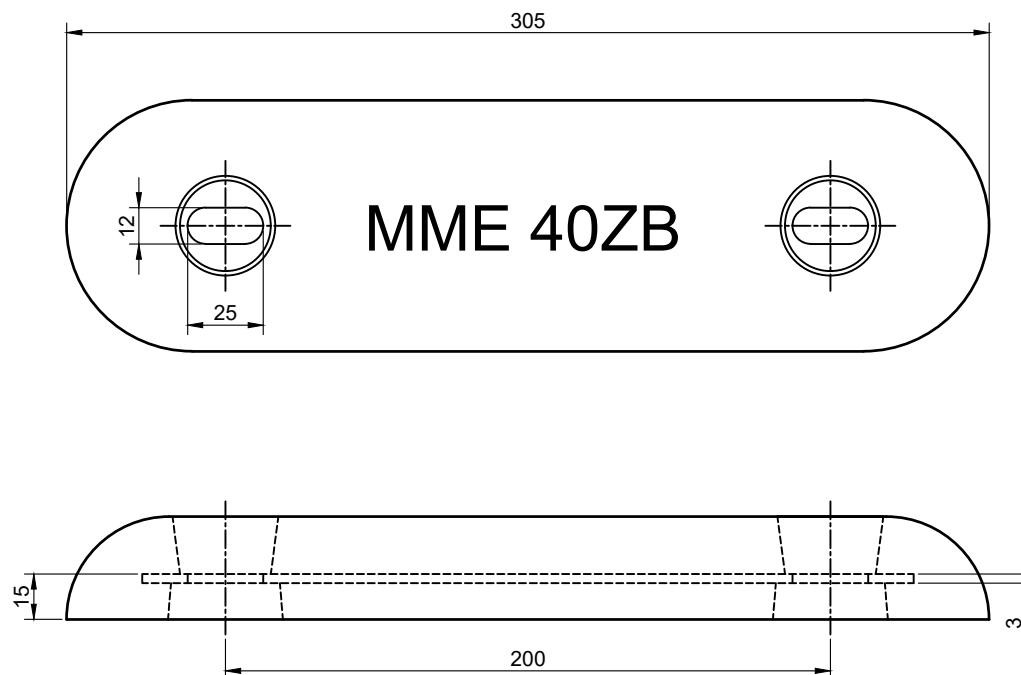
Nett Weight: 3.3 Kg  
 Gross Weight: 3.5 Kg



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#### Zinc Alloy Anode MME 33ZB

|                  |             |              |                             |
|------------------|-------------|--------------|-----------------------------|
| Dwg: SAZ 0033-03 |             |              | Revision: A                 |
| Drawn: MB        | Checked: PP | Approved: OT | <br>Scale: 1:2<br>Paper: A4 |
| 23-08-2023       | 23-08-2023  | 23-08-2023   |                             |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode is fitted with holes suitable for M10 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

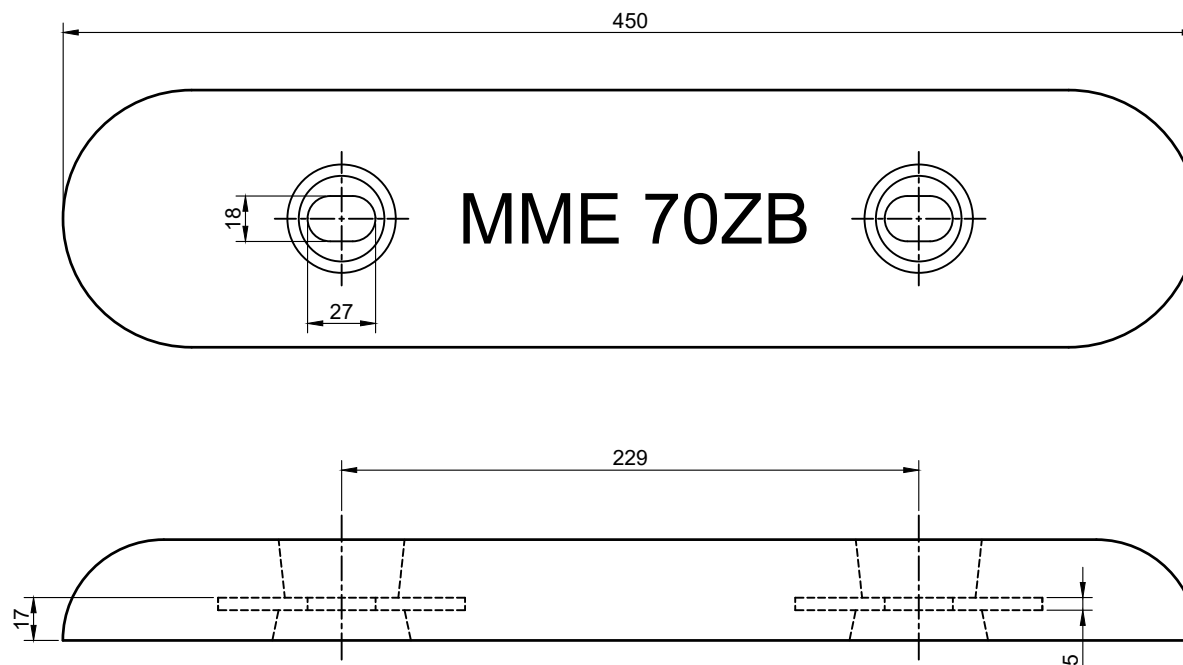
Nett Weight: 4.0 Kg  
 Gross Weight: 4.2 Kg



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#### Zinc Alloy Anode MME 40ZB

|                         |                           |                            |                                                                                                                    |
|-------------------------|---------------------------|----------------------------|--------------------------------------------------------------------------------------------------------------------|
| Dwg: SAZ 0040-03        |                           |                            | Revision: A                                                                                                        |
| Drawn: MB<br>23-08-2023 | Checked: PP<br>23-08-2023 | Approved: OT<br>23-08-2023 | <br>Scale: 1:2.5<br>Paper: A4 |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode is fitted with holes suitable for M16 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

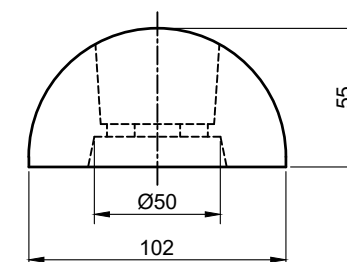
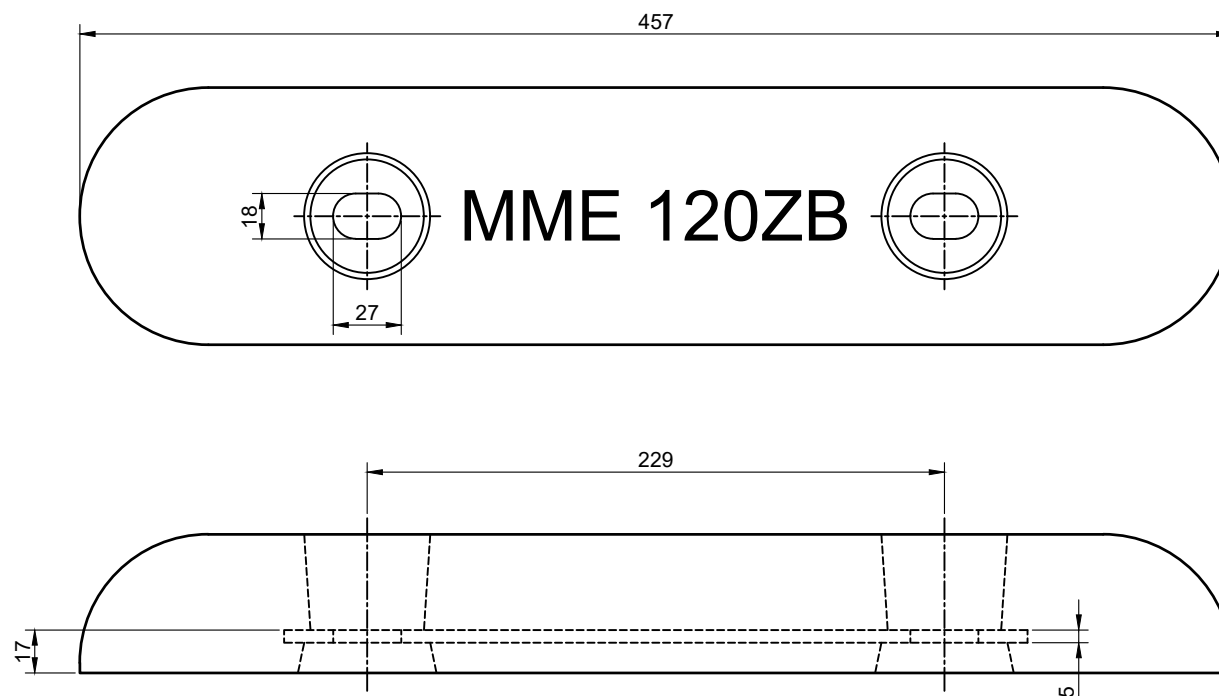
Nett Weight: 7.0 Kg  
 Gross Weight: 7.1 Kg



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#### Zinc Alloy Anode MME 70ZB

|                         |                           |                            |                                                                                                                  |
|-------------------------|---------------------------|----------------------------|------------------------------------------------------------------------------------------------------------------|
| Dwg: SAZ 0070-01        |                           |                            | Revision: A                                                                                                      |
| Drawn: MB<br>23-08-2023 | Checked: PP<br>23-08-2023 | Approved: OT<br>23-08-2023 | <br>Scale: 1:3<br>Paper: A4 |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 Ahr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode is fitted with holes suitable for M16 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

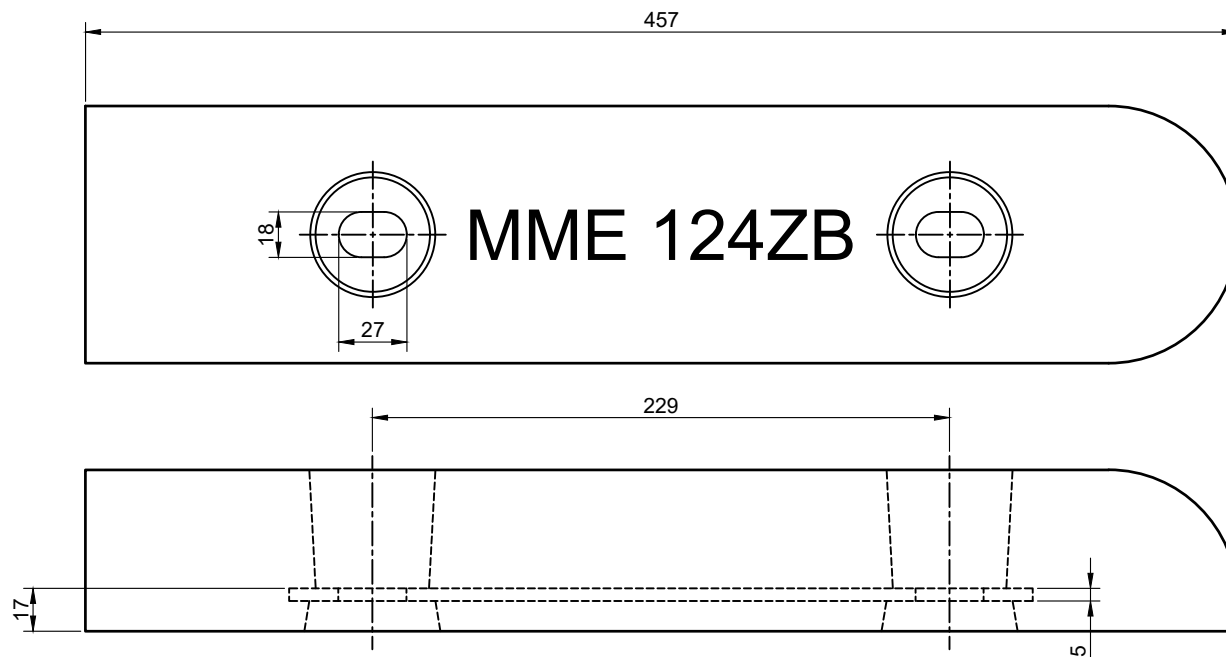
Nett Weight: 12.0 Kg  
 Gross Weight: 12.5 Kg



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#### Zinc Alloy Anode MME 120ZB

|                         |                           |                            |                                                                                                                  |
|-------------------------|---------------------------|----------------------------|------------------------------------------------------------------------------------------------------------------|
| Dwg: SAZ 0120-02        |                           |                            | Revision: A                                                                                                      |
| Drawn: MB<br>23-08-2023 | Checked: PP<br>23-08-2023 | Approved: OT<br>23-08-2023 | <br>Scale: 1:3<br>Paper: A4 |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode is fitted with holes suitable for M16 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

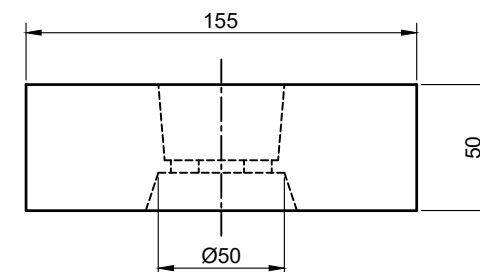
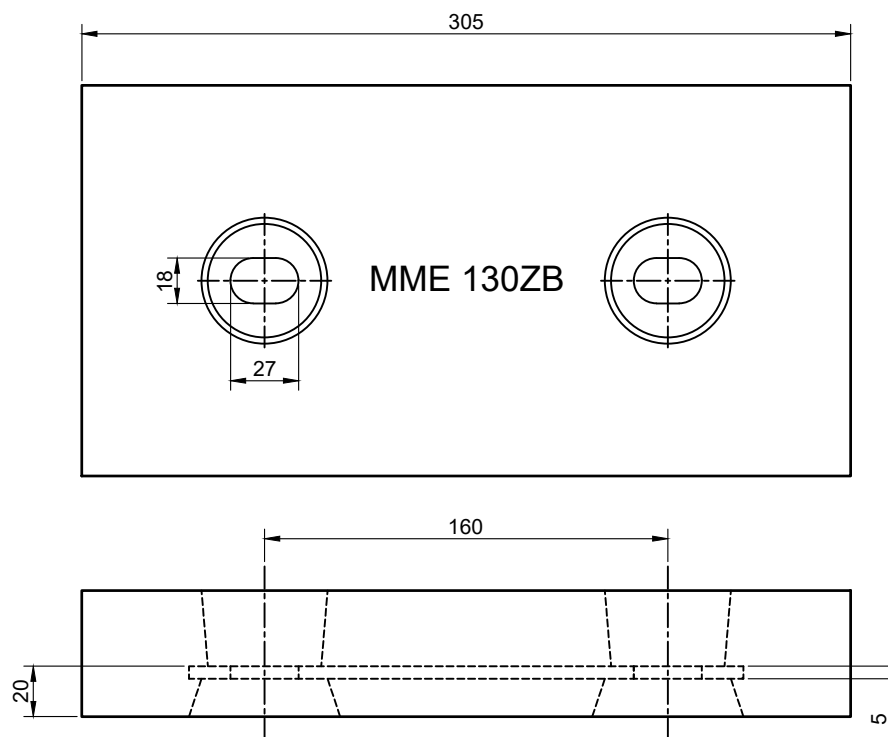
Nett Weight: 12.4 Kg  
 Gross Weight: 12.9 Kg



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#### Zinc Alloy Anode MME 124ZB

|                  |             |              |                             |
|------------------|-------------|--------------|-----------------------------|
| Dwg: SAZ 0124-01 |             |              | Revision: A                 |
| Drawn: MB        | Checked: PP | Approved: OT | <br>Scale: 1:3<br>Paper: A4 |
| 23-08-2023       | 23-08-2023  | 23-08-2023   |                             |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode is fitted with holes suitable for M16 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

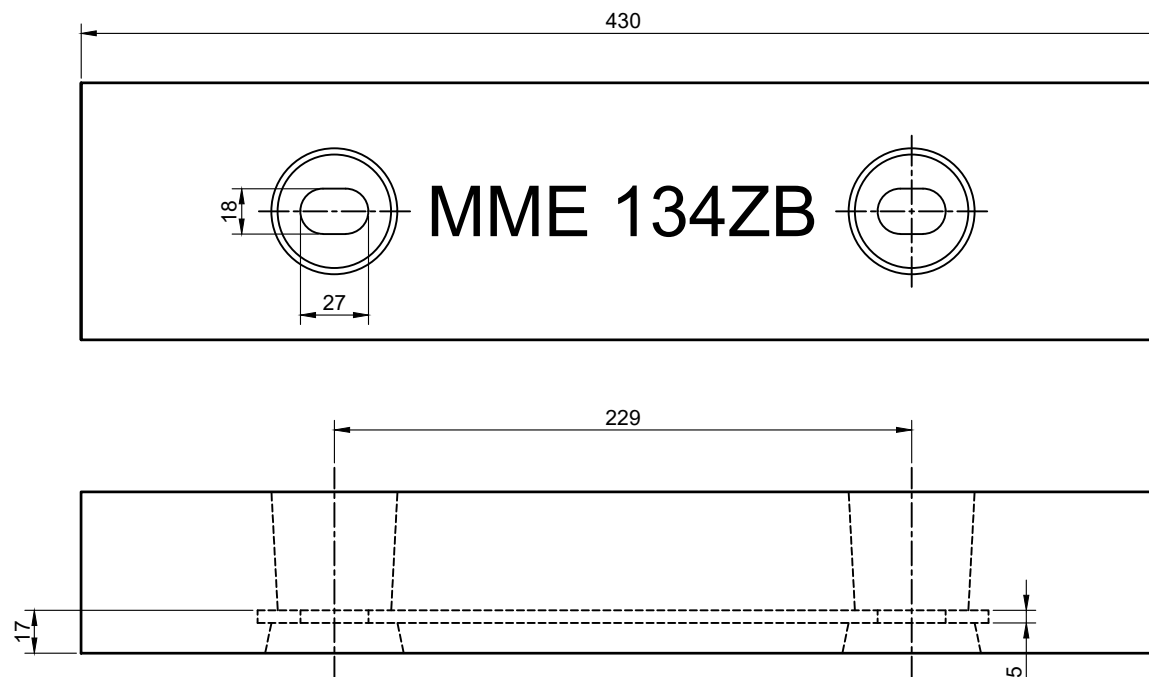
Nett Weight: 13.0 Kg  
 Gross Weight: 13.3 Kg



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#### Zinc Alloy Anode MME 130ZB

|                         |                           |                            |                                                                                                                  |
|-------------------------|---------------------------|----------------------------|------------------------------------------------------------------------------------------------------------------|
| Dwg: SAZ 0130-02        |                           |                            | Revision: A                                                                                                      |
| Drawn: MB<br>23-08-2023 | Checked: PP<br>23-08-2023 | Approved: OT<br>23-08-2023 | <br>Scale: 1:3<br>Paper: A4 |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode is fitted with holes suitable for M16 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 13.4 Kg  
 Gross Weight: 13.9 Kg

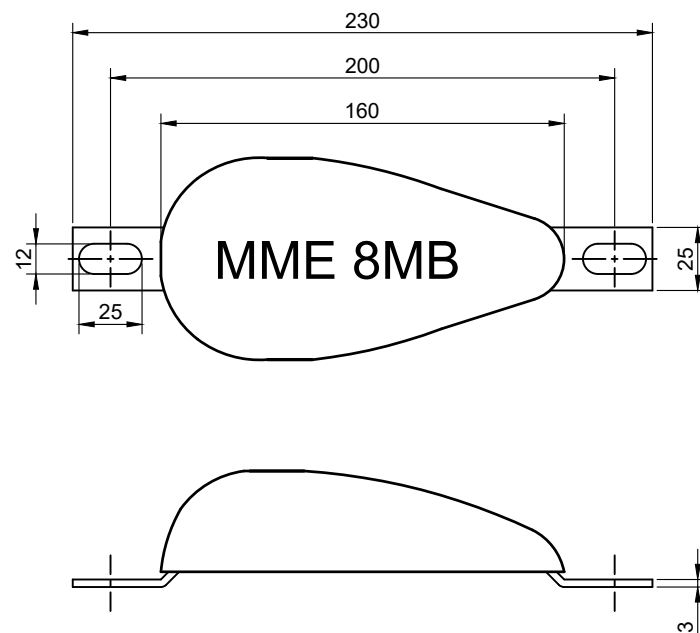


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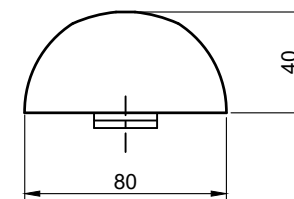
#### Zinc Alloy Anode MME 134ZB

|                  |             |              |                             |
|------------------|-------------|--------------|-----------------------------|
| Dwg: SAZ 0134-01 |             |              | Revision: A                 |
| Drawn: MB        | Checked: PP | Approved: OT | <br>Scale: 1:3<br>Paper: A4 |
| 23-08-2023       | 23-08-2023  | 23-08-2023   |                             |

# **MAGNESIUM BOLT-ON HULL ANODES**



**MME 8MB**



#### Magnesium alloy specification acc. to EN12496: 2013 alloy M1

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Aluminium  |              | 5.0 - 7.0      |
| Zinc       |              | 2.0 - 4.0      |
| Manganese  |              | 0.15 - 0.70    |
| Magnesium  |              | Remainder      |
|            | Iron         | 0.005 max      |
|            | Copper       | 0.08 max       |
|            | Silicon      | 0.30 max       |
|            | Lead         | 0.03 max       |
|            | Nickel       | 0.003 max      |
|            | Others total | 0.30 max       |

Electrical capacity: 1200 AHr / Kg nominal

Solution potential: -1500 mV vs. Ag / AgCl reference cell nominal (in seawater)

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode is fitted with holes suitable for M10 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

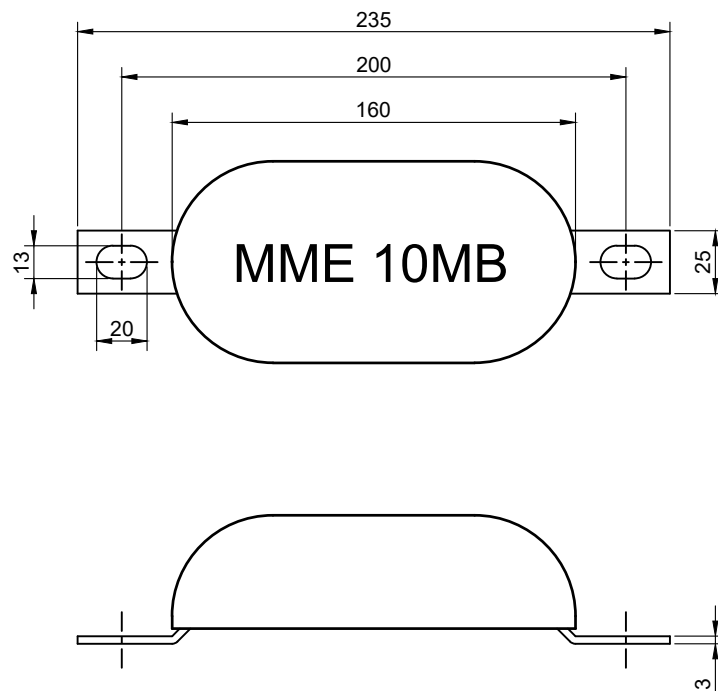
Nett Weight: 0.50 Kg  
 Gross Weight: 0.74 Kg



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#### Magnesium Alloy Anode MME 8MB

|                  |             |              |             |
|------------------|-------------|--------------|-------------|
| Dwg: SAM 0005-03 |             |              | Revision: 0 |
| Drawn: ESM       | Checked: PP | Approved: OT |             |
| 25-05-21         | 25-05-21    | 25-05-21     |             |
|                  |             |              | Paper: A4   |



#### Magnesium alloy specification acc. to EN12496: 2013 alloy M1

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Aluminium  |              | 5.0 - 7.0      |
| Zinc       |              | 2.0 - 4.0      |
| Manganese  |              | 0.15 - 0.70    |
| Magnesium  |              | Remainder      |
|            | Iron         | 0.005 max      |
|            | Copper       | 0.08 max       |
|            | Silicon      | 0.30 max       |
|            | Lead         | 0.03 max       |
|            | Nickel       | 0.003 max      |
|            | Others total | 0.30 max       |

Electrical capacity: 1200 AHr / Kg nominal

Solution potential: -1500 mV vs. Ag / AgCl reference cell nominal (in seawater)

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

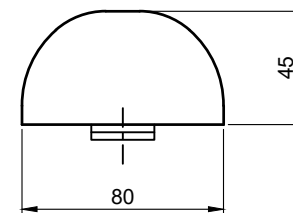
Text on anode is indicative and will not always be identical to this drawing

Anode is fitted with holes suitable for M10 / M12 studs and nuts

Anode can also be provided with backing sheet or backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$



Nett Weight: 0.80 Kg

Gross Weight: 0.82 Kg



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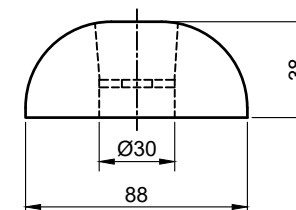
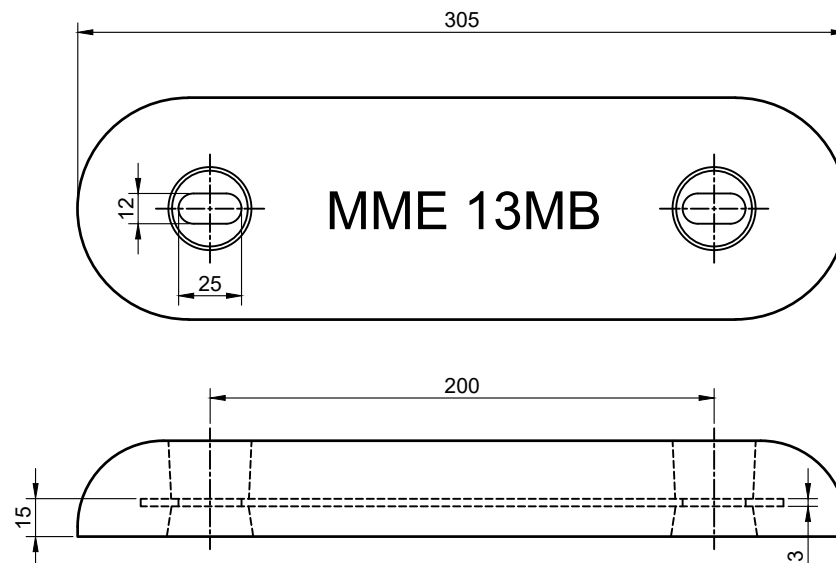
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

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### Magnesium Alloy Anode MME 10MB

|                  |             |              |             |
|------------------|-------------|--------------|-------------|
| Dwg: SAM 0008-05 |             |              | Revision: 0 |
| Drawn: ESM       | Checked: PP | Approved: OT |             |
| 25-05-21         | 25-05-21    | 25-05-21     |             |
|                  |             |              | Paper: A4   |



#### Magnesium alloy specification acc. to EN12496: 2013 alloy M1

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Aluminium  |              | 5.0 - 7.0      |
| Zinc       |              | 2.0 - 4.0      |
| Manganese  |              | 0.15 - 0.70    |
| Magnesium  |              | Remainder      |
|            | Iron         | 0.005 max      |
|            | Copper       | 0.08 max       |
|            | Silicon      | 0.30 max       |
|            | Lead         | 0.03 max       |
|            | Nickel       | 0.003 max      |
|            | Others total | 0.30 max       |

Electrical capacity: 1200 AHr / Kg nominal

Solution potential: -1500 mV vs. Ag / AgCl reference cell nominal (in seawater)

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode is fitted with holes suitable for M10 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

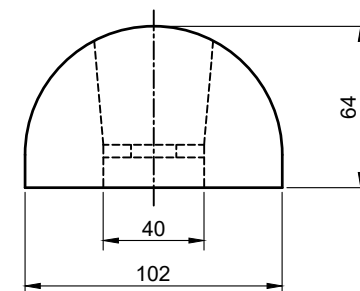
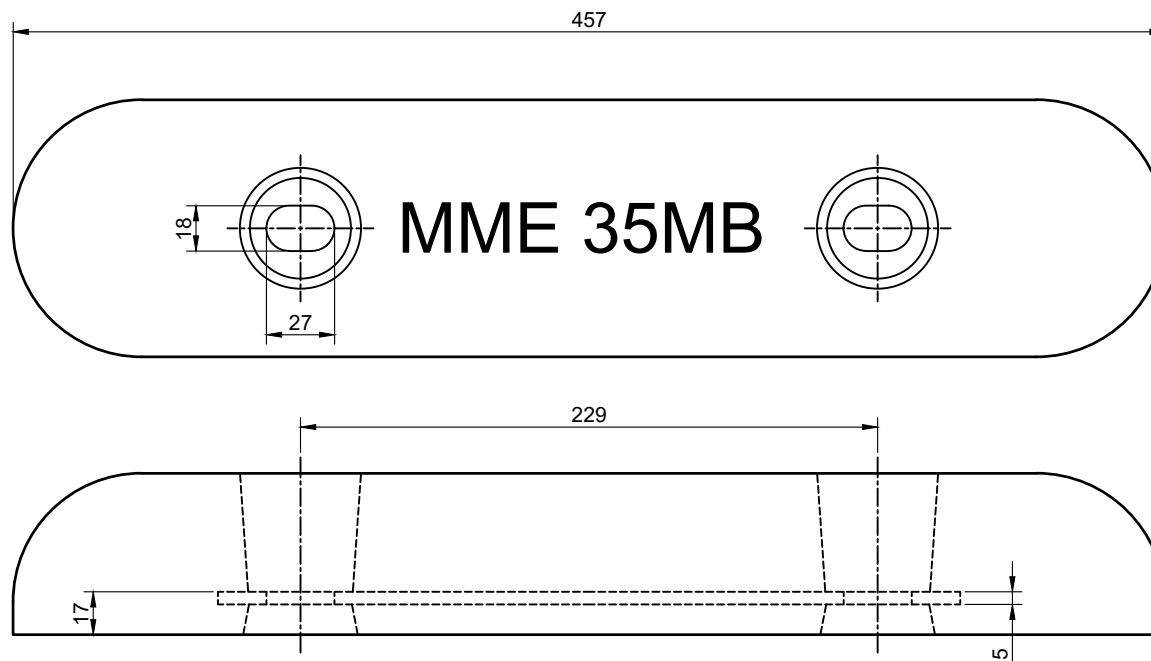
Nett Weight: 1.0 Kg  
 Gross Weight: 1.2 Kg



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#### Magnesium Alloy Anode MME 13MB

|                                   |                                    |                                     |                                                                                                                |
|-----------------------------------|------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Dwg: SAM 0010-06                  |                                    |                                     | Revision: 0                                                                                                    |
| Drawn:<br><br>ESM<br><br>25-05-21 | Checked:<br><br>PP<br><br>25-05-21 | Approved:<br><br>OT<br><br>25-05-21 | <br><br><br><br>Paper: A4 |



#### Magnesium alloy specification acc. to EN12496: 2013 alloy M1

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Aluminium  |              | 5.0 - 7.0      |
| Zinc       |              | 2.0 - 4.0      |
| Manganese  |              | 0.15 - 0.70    |
| Magnesium  |              | Remainder      |
|            | Iron         | 0.005 max      |
|            | Copper       | 0.08 max       |
|            | Silicon      | 0.30 max       |
|            | Lead         | 0.03 max       |
|            | Nickel       | 0.003 max      |
|            | Others total | 0.30 max       |

Electrical capacity: 1200 AHr / Kg nominal

Solution potential: -1500 mV vs. Ag / AgCl reference cell nominal (in seawater)

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Anode is fitted with holes suitable for M16 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 2.9 Kg  
 Gross Weight: 3.4 Kg

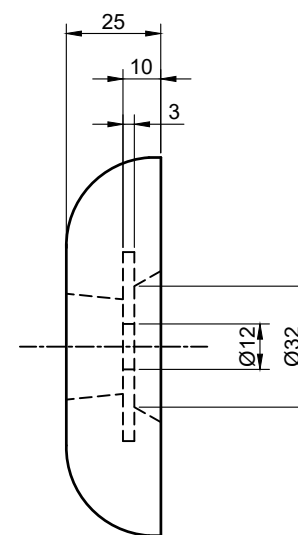
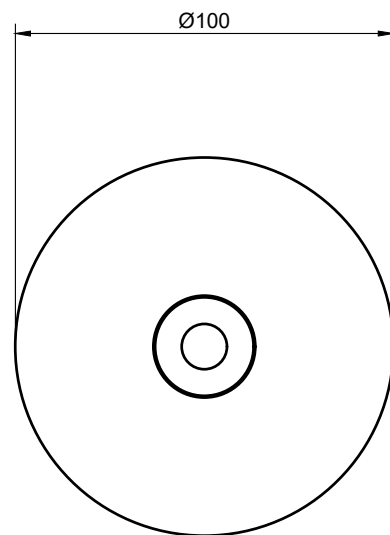


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#### Magnesium Alloy Anode MME 35MB

|                                   |                                    |                                     |                                                                                                                |
|-----------------------------------|------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Dwg: SAM 0029-01                  |                                    |                                     | Revision: 0                                                                                                    |
| Drawn:<br><br>ESM<br><br>25-05-21 | Checked:<br><br>PP<br><br>25-05-21 | Approved:<br><br>OT<br><br>25-05-21 | <br><br><br><br>Paper: A4 |

# **ALUMINIUM BOLT-ON DISC ANODES**



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Anode is fitted with holes suitable for M10 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Non galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

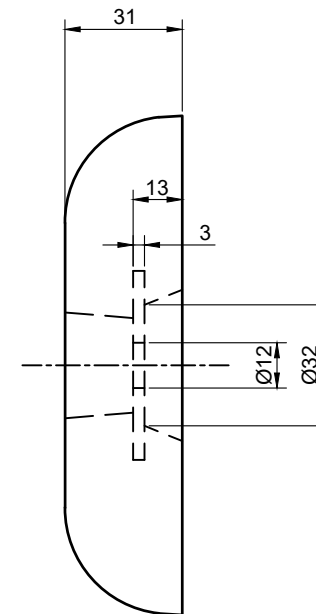
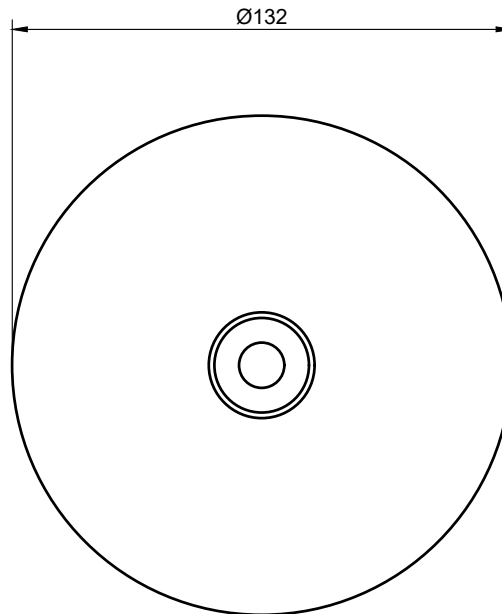
Nett Weight: 0.40 Kg  
 Gross Weight: 0.45 Kg



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### Aluminium Alloy Anode MME 04AB

|                  |             |              |                             |
|------------------|-------------|--------------|-----------------------------|
| Dwg: SAA 0004-02 |             |              | Revision: A                 |
| Drawn: MB        | Checked: PP | Approved: OT | <br>Scale: 1:2<br>Paper: A4 |
| 23-08-2023       | 23-08-2023  | 23-08-2023   |                             |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Anode is fitted with holes suitable for M10 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Non galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

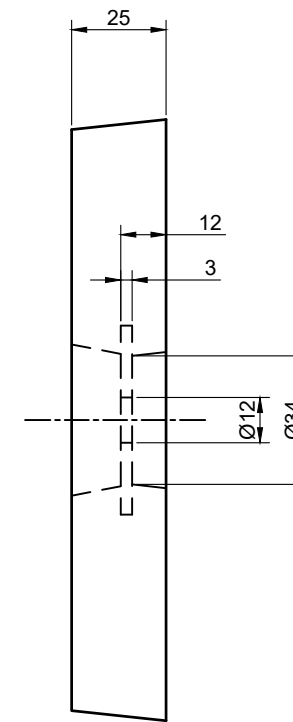
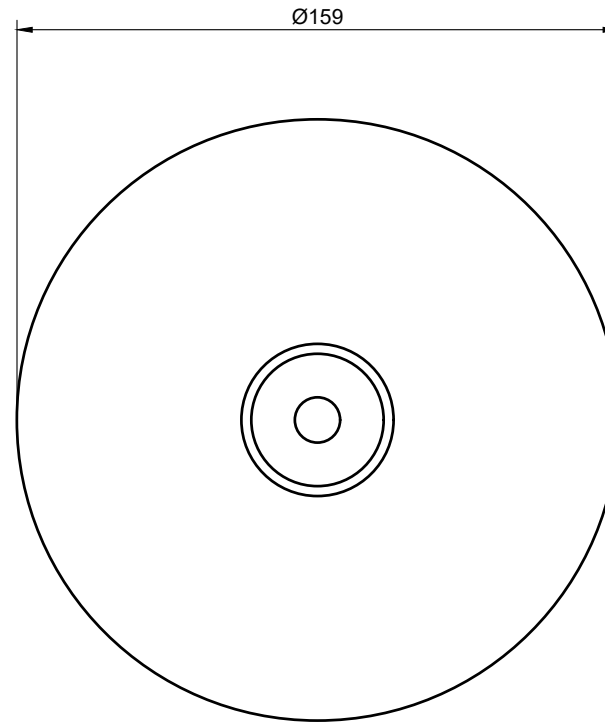
Nett Weight: 0.80 Kg  
 Gross Weight: 0.85 Kg



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### Aluminium Alloy Anode MME 08AB

|                  |             |              |                             |
|------------------|-------------|--------------|-----------------------------|
| Dwg: SAA 0008-04 |             |              | Revision: A                 |
| Drawn: MB        | Checked: PP | Approved: OT | <br>Scale: 1:2<br>Paper: A4 |
| 23-08-2023       | 23-08-2023  | 23-08-2023   |                             |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Anode is fitted with holes suitable for M10 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Non galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

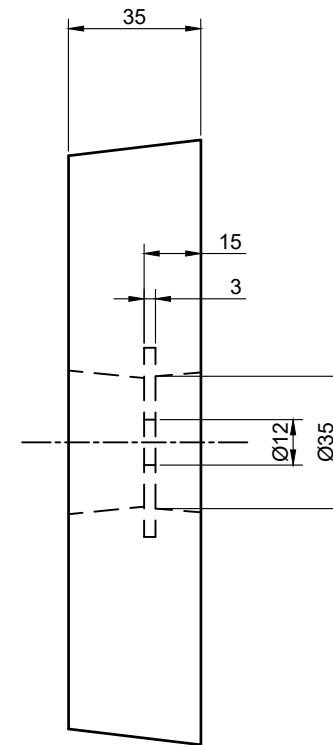
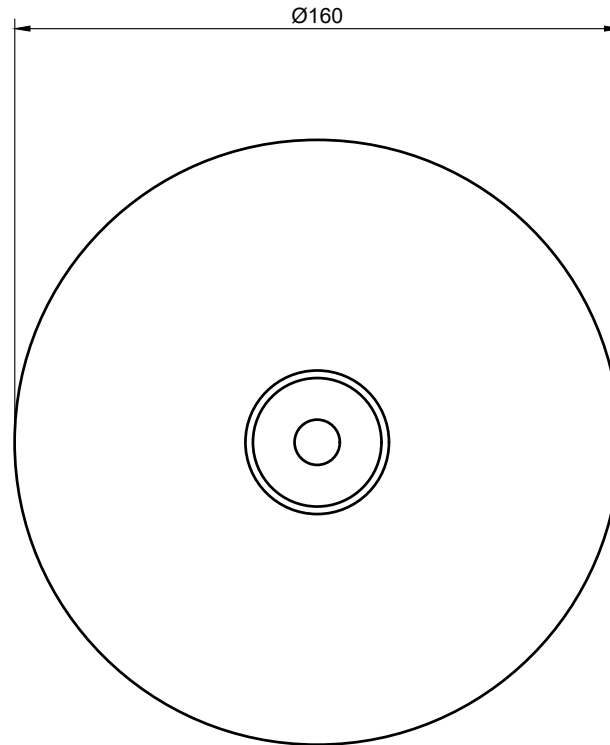
Nett Weight: 1.2 Kg  
 Gross Weight: 1.3 Kg



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### Aluminium Alloy Anode MME 12AB

|                  |             |              |                             |
|------------------|-------------|--------------|-----------------------------|
| Dwg: SAA 0012-02 |             |              | Revision: A                 |
| Drawn: MB        | Checked: PP | Approved: OT | <br>Scale: 1:2<br>Paper: A4 |
| 23-08-2023       | 23-08-2023  | 23-08-2023   |                             |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Anode is fitted with holes suitable for M10 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Non galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 1.6 Kg

Gross Weight: 1.7 Kg



**Cathodic Protection Division**

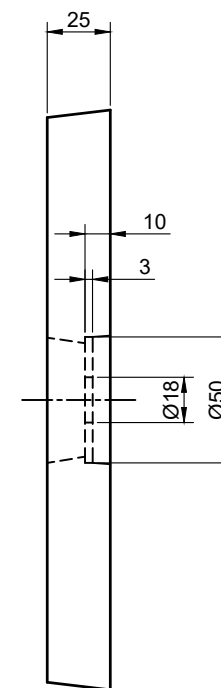
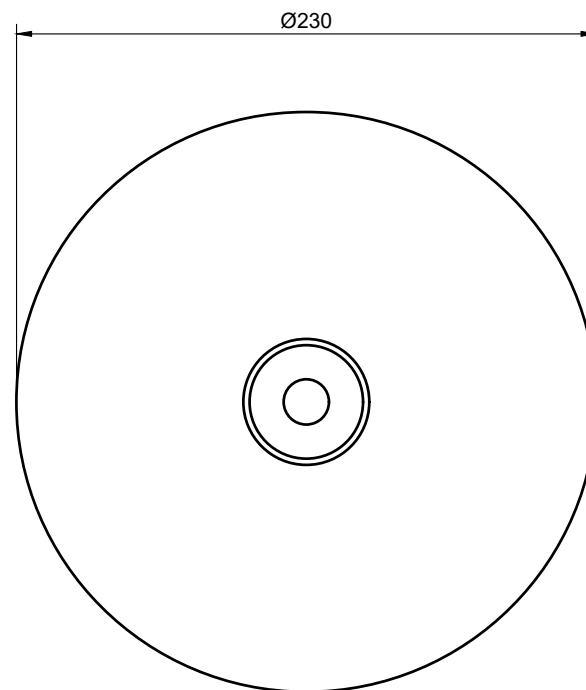
Tel: +31 (0)180 48 28 28

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### Aluminium Alloy Anode MME 16AB

|                  |             |              |                             |
|------------------|-------------|--------------|-----------------------------|
| Dwg: SAA 0016-01 |             |              | Revision: A                 |
| Drawn: MB        | Checked: PP | Approved: OT | <br>Scale: 1:2<br>Paper: A4 |
| 23-08-2023       | 23-08-2023  | 23-08-2023   |                             |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Anode is fitted with holes suitable for M16 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Non galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

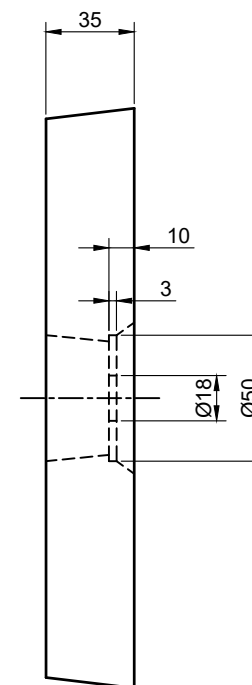
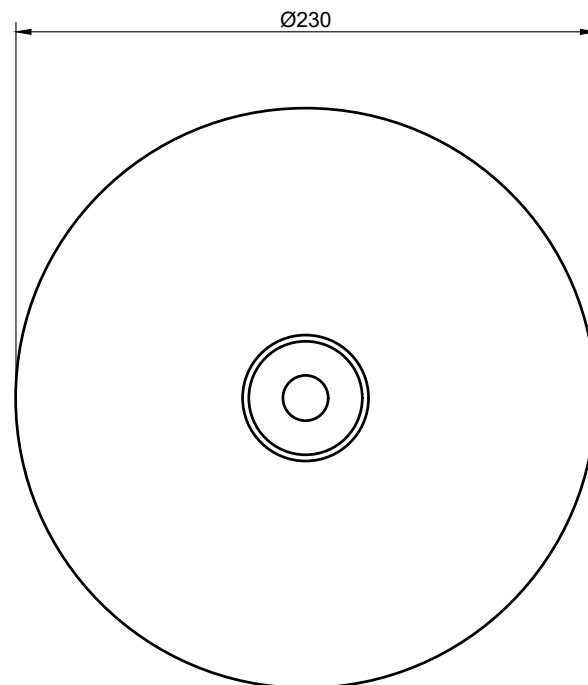
Nett Weight: 2.8 Kg  
 Gross Weight: 2.9 Kg



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### Aluminium Alloy Anode MME 28AB

|                         |                           |                            |                                                                                                                  |
|-------------------------|---------------------------|----------------------------|------------------------------------------------------------------------------------------------------------------|
| Dwg: SAA 0028-01        |                           |                            | Revision: A                                                                                                      |
| Drawn: MB<br>23-08-2023 | Checked: PP<br>23-08-2023 | Approved: OT<br>23-08-2023 | <br>Scale: 1:3<br>Paper: A4 |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Anode is fitted with holes suitable for M16 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Non galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 3.7 Kg  
 Gross Weight: 3.8 Kg

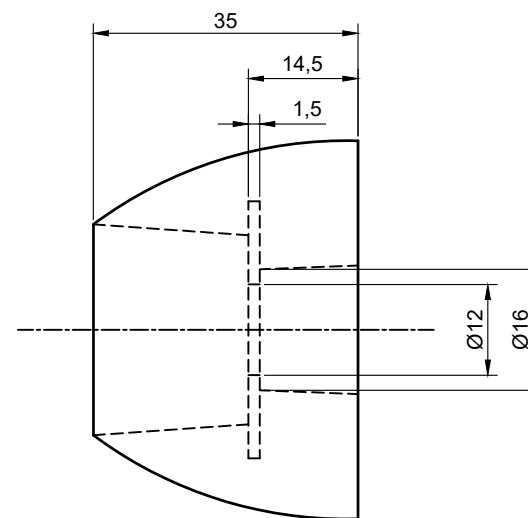
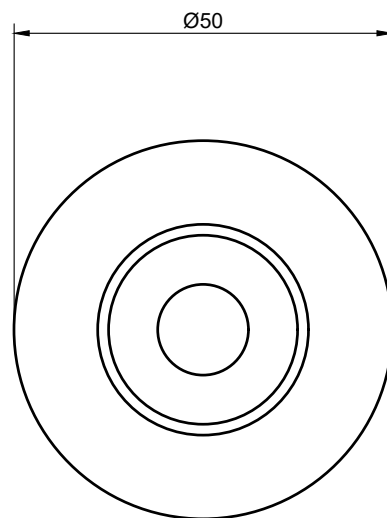


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### Aluminium Alloy Anode MME 37AB

|                  |             |              |                             |
|------------------|-------------|--------------|-----------------------------|
| Dwg: SAA 0037-01 |             |              | Revision: A                 |
| Drawn: MB        | Checked: PP | Approved: OT | <br>Scale: 1:3<br>Paper: A4 |
| 23-08-2023       | 23-08-2023  | 23-08-2023   |                             |

# **ZINC BOLT-ON DISC ANODES**



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Anode is fitted with holes suitable for M10 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

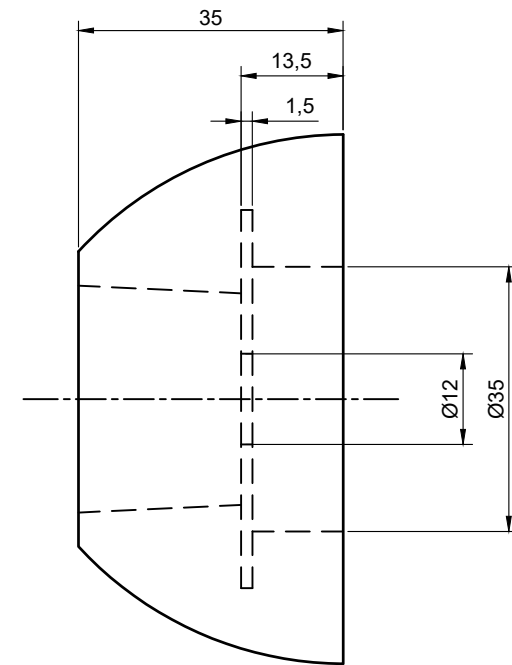
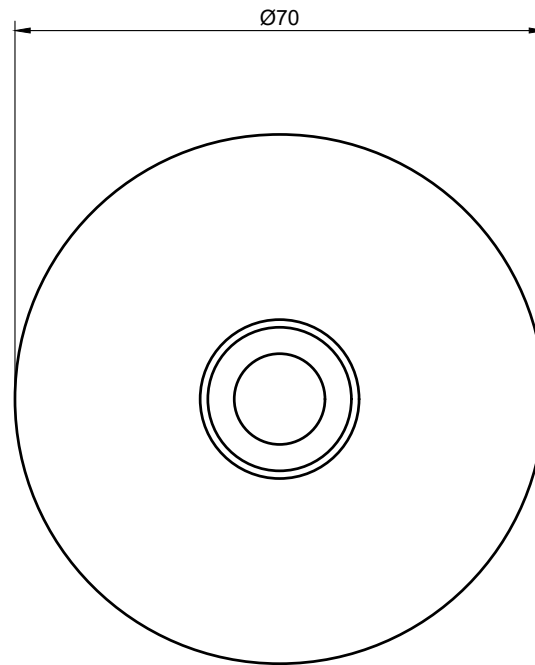
Nett Weight: 0.25 Kg  
 Gross Weight: 0.26 Kg



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 Tel: +31 (0)180 48 28 28  
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 www.mme-group.com

#### Zinc Alloy Anode MME 03ZB

|                         |                           |                            |                                                                                                                  |
|-------------------------|---------------------------|----------------------------|------------------------------------------------------------------------------------------------------------------|
| Dwg: SAZ 0003-01        |                           |                            | Revision: A                                                                                                      |
| Drawn: MB<br>23-08-2023 | Checked: PP<br>23-08-2023 | Approved: OT<br>23-08-2023 | <br>Scale: 1:1<br>Paper: A4 |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Anode is fitted with holes suitable for M10 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

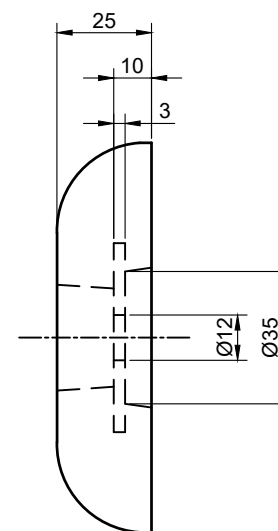
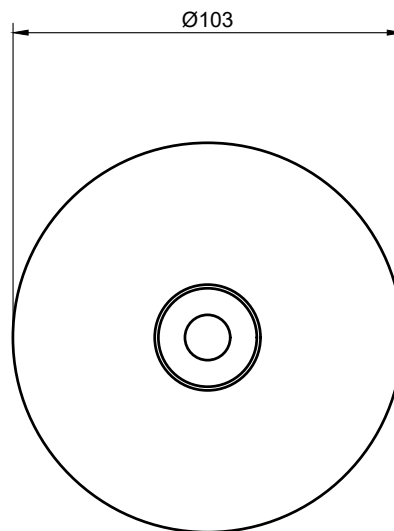
Nett Weight: 0.50 Kg  
 Gross Weight: 0.52 Kg



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### Zinc Alloy Anode MME 05ZB

|                         |                           |                            |                                                                                                                  |
|-------------------------|---------------------------|----------------------------|------------------------------------------------------------------------------------------------------------------|
| Dwg: SAZ 0005-01        |                           |                            | Revision: A                                                                                                      |
| Drawn: MB<br>23-08-2023 | Checked: PP<br>23-08-2023 | Approved: OT<br>23-08-2023 | <br>Scale: 1:1<br>Paper: A4 |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Anode is fitted with holes suitable for M10 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

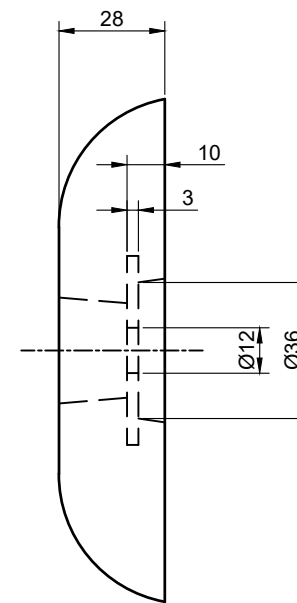
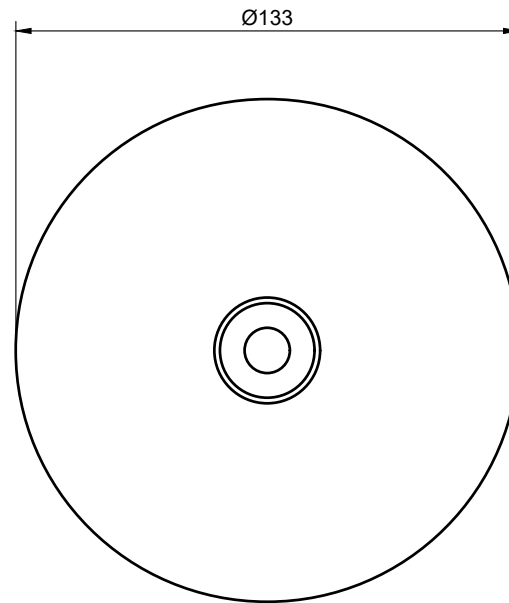
Nett Weight: 1.00 Kg  
 Gross Weight: 1.05 Kg



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#### Zinc Alloy Anode MME 1ZB

|                         |                           |                            |                                                                                                                  |
|-------------------------|---------------------------|----------------------------|------------------------------------------------------------------------------------------------------------------|
| Dwg: SAZ 0010-01        |                           |                            | Revision: A                                                                                                      |
| Drawn: MB<br>23-08-2023 | Checked: PP<br>23-08-2023 | Approved: OT<br>23-08-2023 | <br>Scale: 1:2<br>Paper: A4 |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Anode is fitted with holes suitable for M10 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

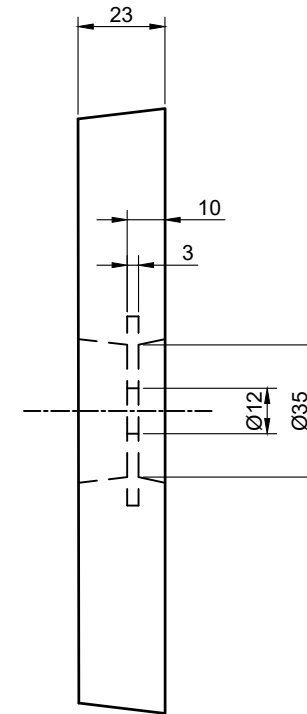
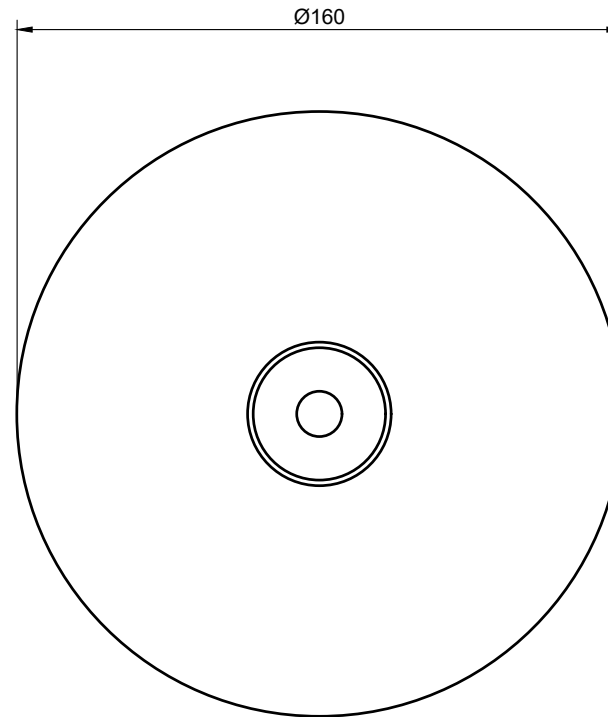
Nett Weight: 2.0 Kg  
 Gross Weight: 2.1 Kg



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#### Zinc Alloy Anode MME 2ZB

|                         |                           |                            |                                                                                                                  |
|-------------------------|---------------------------|----------------------------|------------------------------------------------------------------------------------------------------------------|
| Dwg: SAZ 0020-02        |                           |                            | Revision: A                                                                                                      |
| Drawn: MB<br>23-08-2023 | Checked: PP<br>23-08-2023 | Approved: OT<br>23-08-2023 | <br>Scale: 1:2<br>Paper: A4 |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Anode is fitted with holes suitable for M10 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

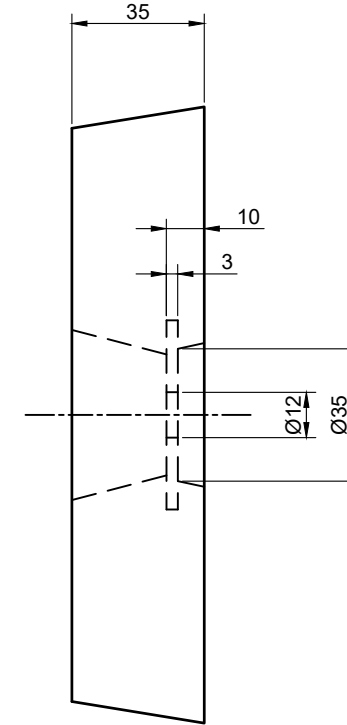
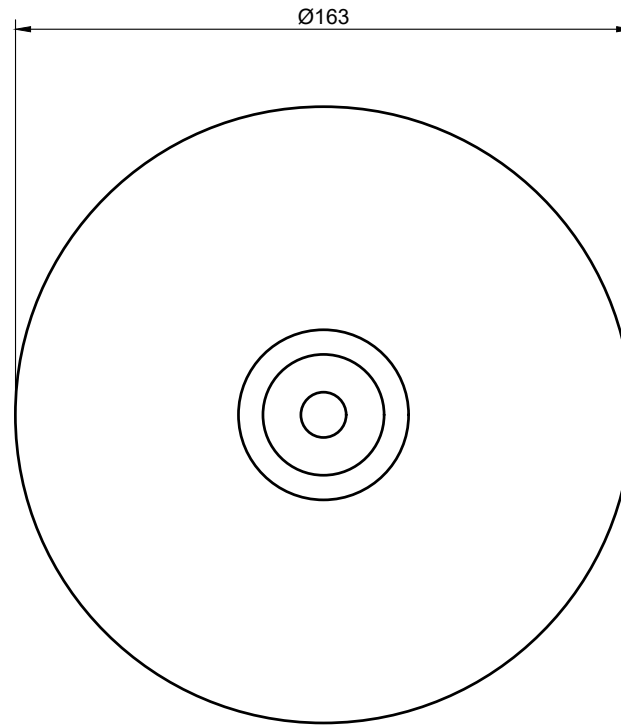
Nett Weight: 2.7 Kg  
 Gross Weight: 2.8 Kg



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#### Zinc Alloy Anode MME 27ZB

|                  |             |              |                             |
|------------------|-------------|--------------|-----------------------------|
| Dwg: SAZ 0027-01 |             |              | Revision: A                 |
| Drawn: MB        | Checked: PP | Approved: OT | <br>Scale: 1:2<br>Paper: A4 |
| 23-08-2023       | 23-08-2023  | 23-08-2023   |                             |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Anode is fitted with holes suitable for M10 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

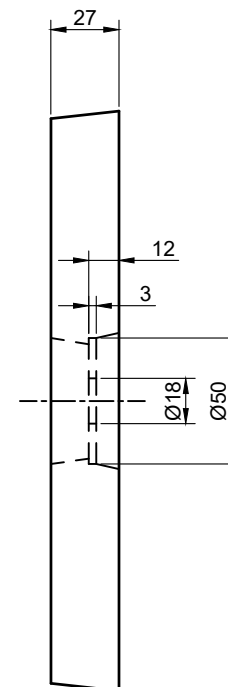
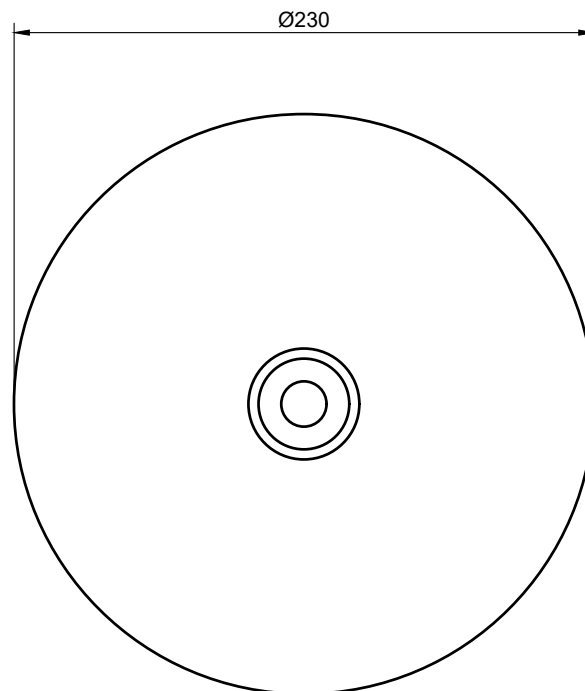
Nett Weight: 4.1 Kg  
 Gross Weight: 4.2 Kg



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#### Zinc Alloy Anode MME 41ZB

|                  |             |              |                             |
|------------------|-------------|--------------|-----------------------------|
| Dwg: SAZ 0041-01 |             |              | Revision: A                 |
| Drawn: MB        | Checked: PP | Approved: OT | <br>Scale: 1:2<br>Paper: A4 |
| 23-08-2023       | 23-08-2023  | 23-08-2023   |                             |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Anode is fitted with holes suitable for M16 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

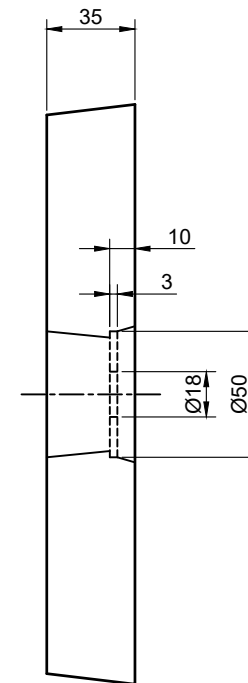
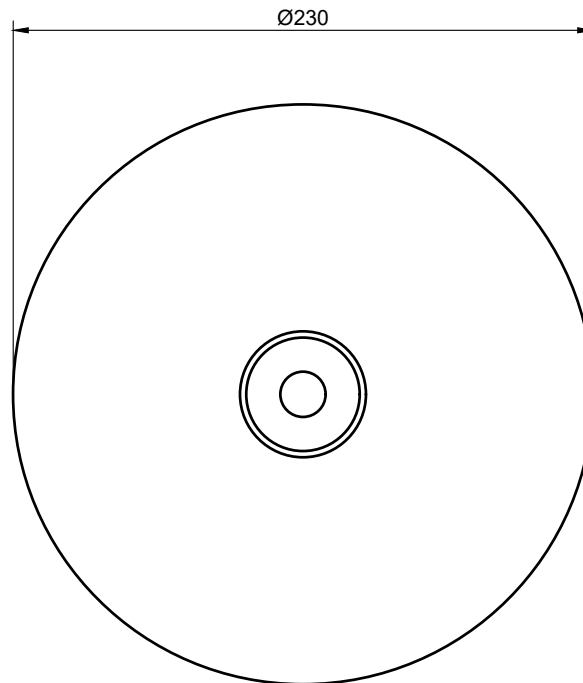
Nett Weight: 7.1 Kg  
 Gross Weight: 7.2 Kg



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#### Zinc Alloy Anode MME 71ZB

|                  |             |              |                             |
|------------------|-------------|--------------|-----------------------------|
| Dwg: SAZ 0071-02 |             |              | Revision: A                 |
| Drawn: MB        | Checked: PP | Approved: OT | <br>Scale: 1:3<br>Paper: A4 |
| 23-08-2023       | 23-08-2023  | 23-08-2023   |                             |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 Ahr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Anode is fitted with holes suitable for M16 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Galvanized steel  
 Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 8.9 Kg  
 Gross Weight: 9.0 Kg

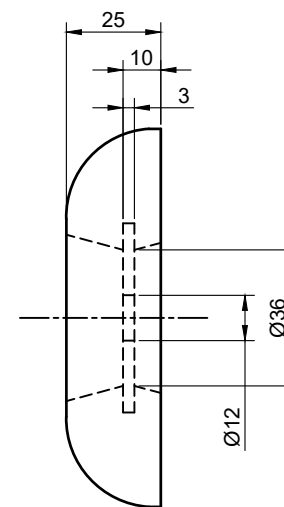
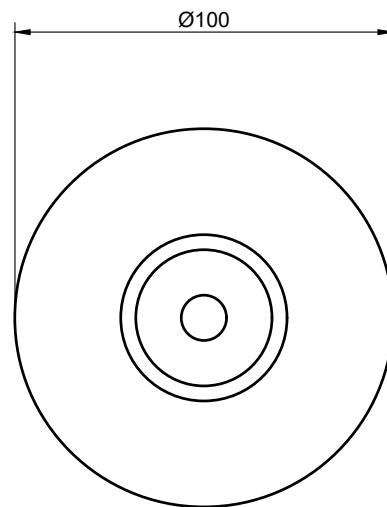


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#### Zinc Alloy Anode MME 89ZB

|                  |             |              |                             |
|------------------|-------------|--------------|-----------------------------|
| Dwg: SAZ 0089-01 |             |              | Revision: A                 |
| Drawn: MB        | Checked: PP | Approved: OT | <br>Scale: 1:3<br>Paper: A4 |
| 23-08-2023       | 23-08-2023  | 23-08-2023   |                             |

# **MAGNESIUM BOLT-ON DISC ANODES**



#### Magnesium alloy specification acc. to EN12496: 2013 alloy M1

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Aluminium  |              | 5.0 - 7.0      |
| Zinc       |              | 2.0 - 4.0      |
| Manganese  |              | 0.15 - 0.70    |
| Magnesium  |              | Remainder      |
|            | Iron         | 0.005 max      |
|            | Copper       | 0.08 max       |
|            | Silicon      | 0.30 max       |
|            | Lead         | 0.03 max       |
|            | Nickel       | 0.003 max      |
|            | Others total | 0.30 max       |

Electrical capacity: 1200 AHr / Kg nominal  
Solution potential: -1500 mV vs. Ag / AgCl reference cell nominal (in seawater)

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Anode is fitted with holes suitable for M10 studs and nuts  
 Anode can also be provided with backing sheet or backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 0.24 Kg  
 Gross Weight: 0.32 Kg



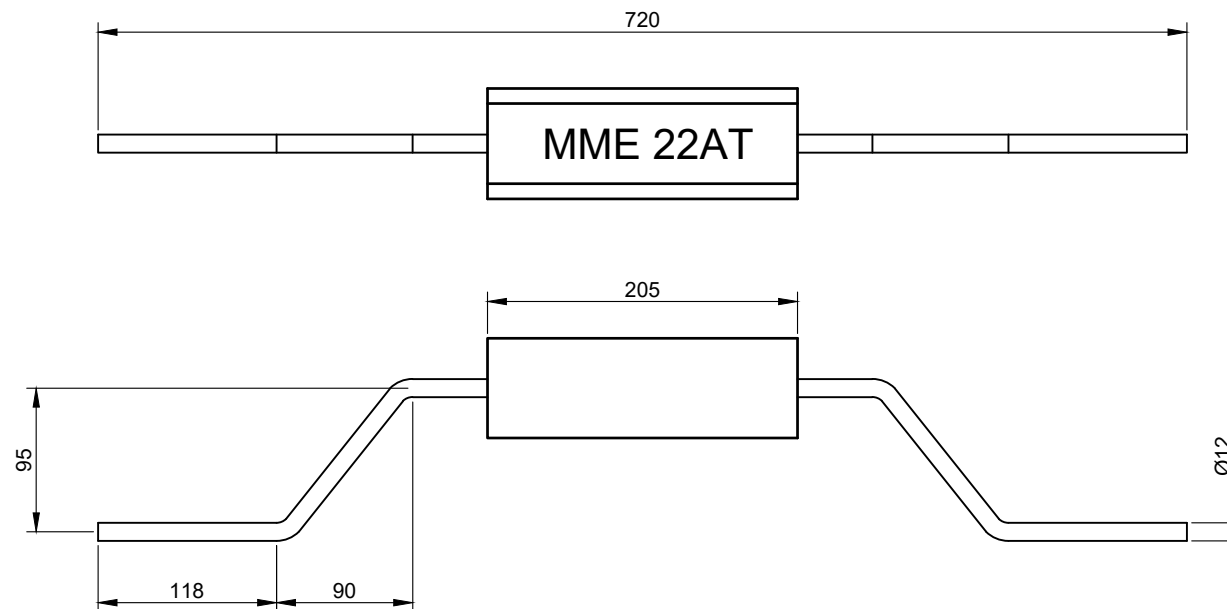
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 E-mail: sales@mme.nl  
 www.mme-group.com

#### Magnesium Alloy Anode MME 4MB

|                           |                            |                             |                                                                                                    |
|---------------------------|----------------------------|-----------------------------|----------------------------------------------------------------------------------------------------|
| Dwg: SAM 0002-03          |                            |                             | Revision: 0                                                                                        |
| Drawn:<br>ESM<br>25-05-21 | Checked:<br>PP<br>25-05-21 | Approved:<br>OT<br>25-05-21 | <br>Paper: A4 |



# **ALUMINIUM TANK ANODES**



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Tank anodes available with Z-cranked (shown) or straight insert

Other insert arrangements available on request

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 2.2 Kg

Gross Weight: 2.9 Kg



**Cathodic Protection Division**

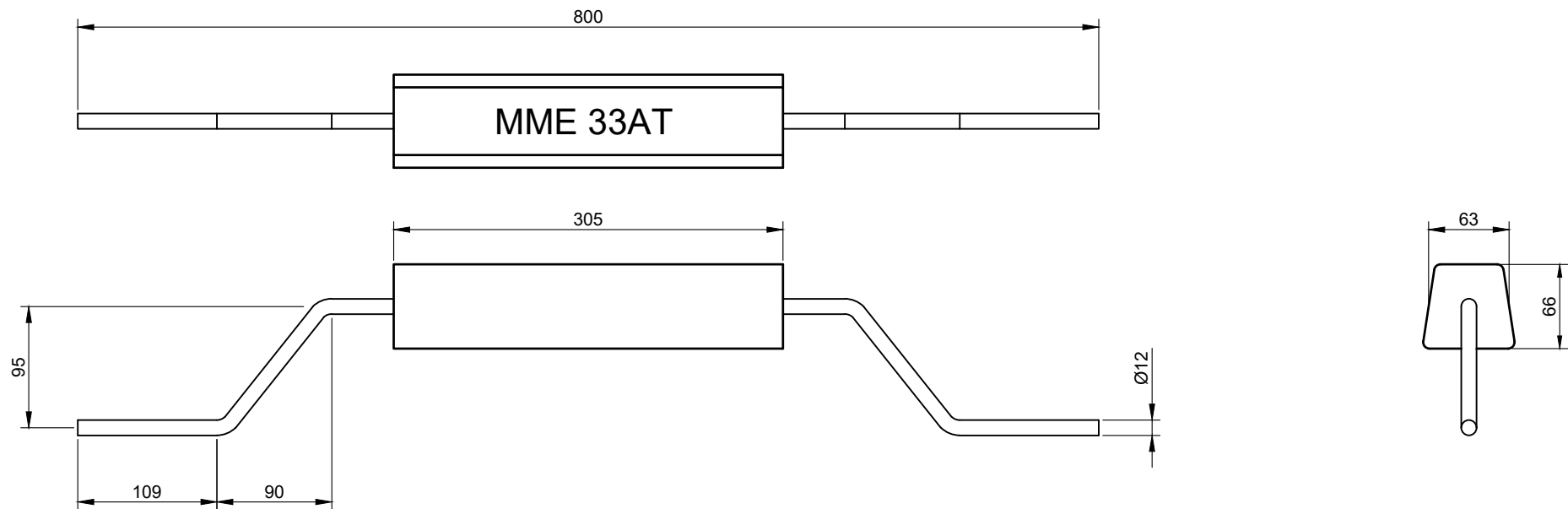
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 22AT

|                  |             |              |             |
|------------------|-------------|--------------|-------------|
| Dwg: SAA 0022-02 |             |              | Revision: 0 |
| Drawn: ESM       | Checked: PP | Approved: OT |             |
| 25-03-21         | 25-03-21    | 25-03-21     |             |
|                  |             |              | Paper: A4   |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Tank anodes available with Z-cranked (shown) or straight insert

Other insert arrangements available on request

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 3.3 Kg

Gross Weight: 4.1 Kg



**Cathodic Protection Division**

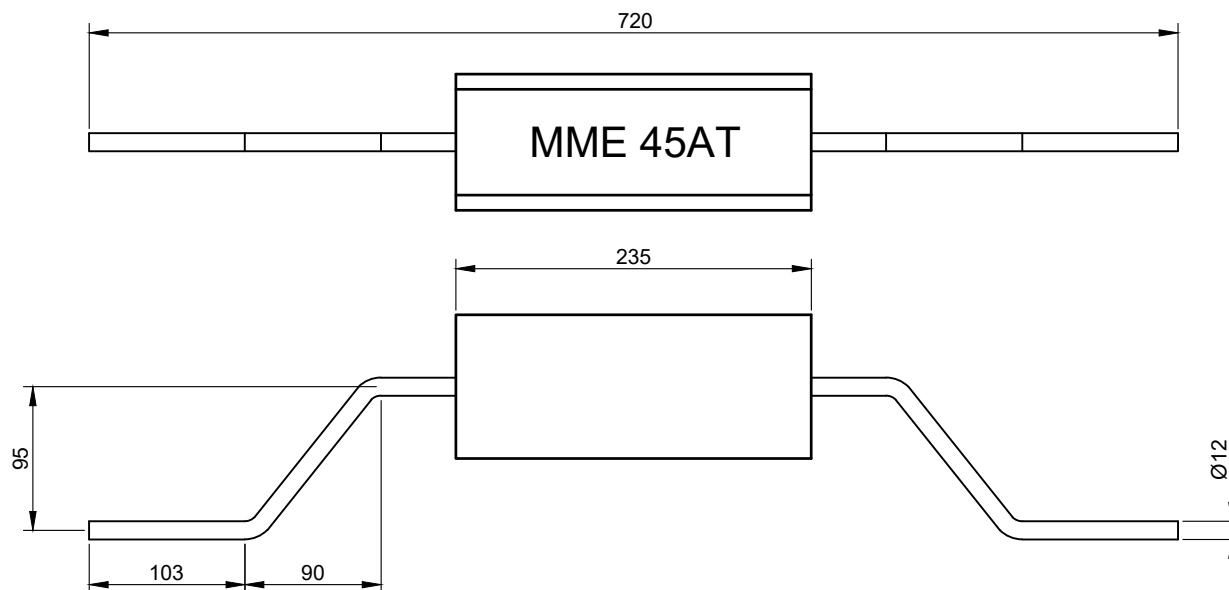
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 33AT

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAA 0033-02          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>25-03-21 | Checked:<br>PP<br>25-03-21 | Approved:<br>OT<br>25-03-21 |             |
|                           |                            |                             |             |
|                           |                            |                             | Paper: A4   |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 Ahr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Tank anodes available with Z-cranked (shown) or straight insert

Other insert arrangements available on request

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 4.5 Kg

Gross Weight: 5.2 Kg



**Cathodic Protection Division**

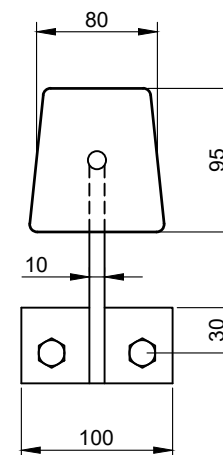
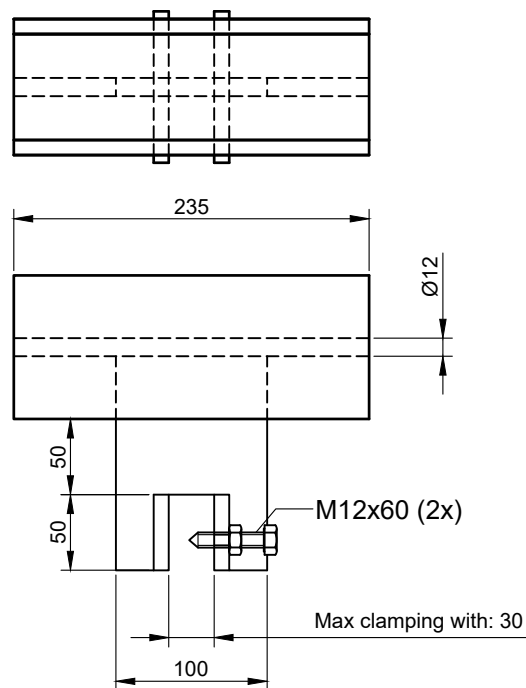
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E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 45AT

|                  |             |              |             |
|------------------|-------------|--------------|-------------|
| Dwg: SAA 0045-04 |             |              | Revision: 0 |
| Drawn: ESM       | Checked: PP | Approved: OT |             |
| 25-03-21         | 25-03-21    | 25-03-21     |             |
|                  |             |              | Paper: A4   |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

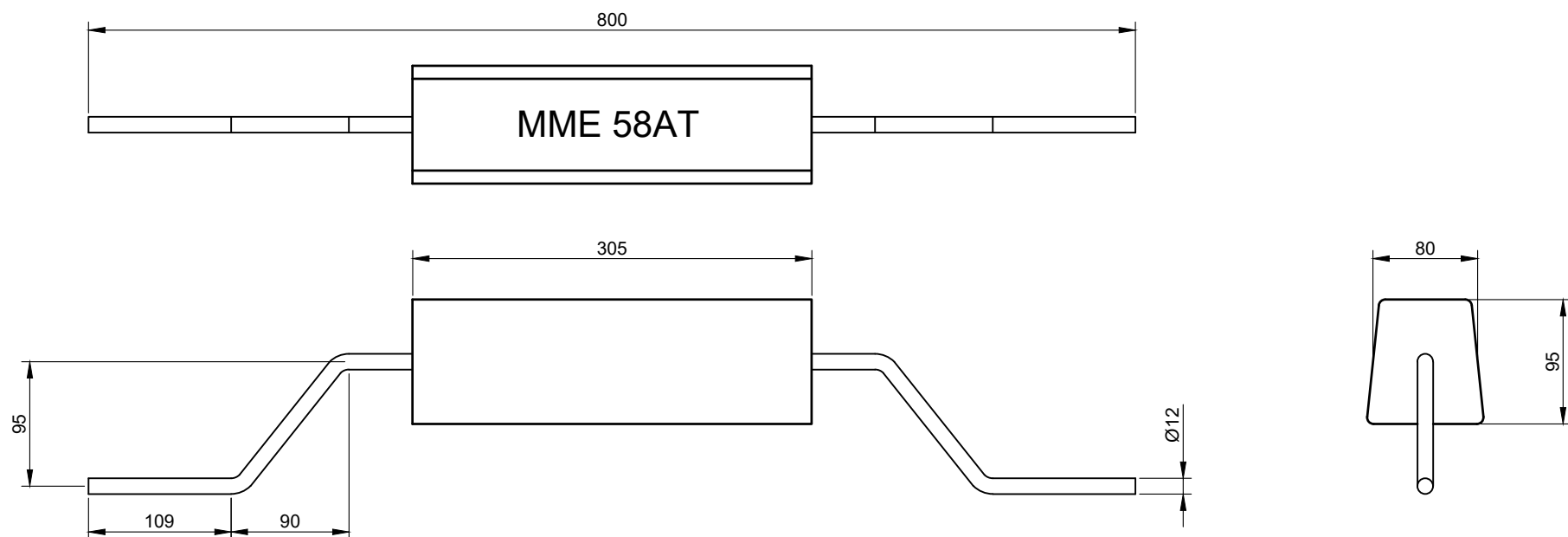
Nett Weight: 4.5 Kg  
 Gross Weight: 5.7 Kg



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#### Aluminium Alloy Anode MME 45AT Clamp

|                  |                |                 |             |
|------------------|----------------|-----------------|-------------|
| Dwg: SAA 0045-03 |                |                 | Revision: 0 |
| Drawn:<br>ESM    | Checked:<br>PP | Approved:<br>OT |             |
| 25-03-21         | 25-03-21       | 25-03-21        |             |
|                  |                |                 | Paper: A4   |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Tank anodes available with Z-cranked (shown) or straight insert

Other insert arrangements available on request

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 5.8 Kg

Gross Weight: 6.6 Kg



**Cathodic Protection Division**

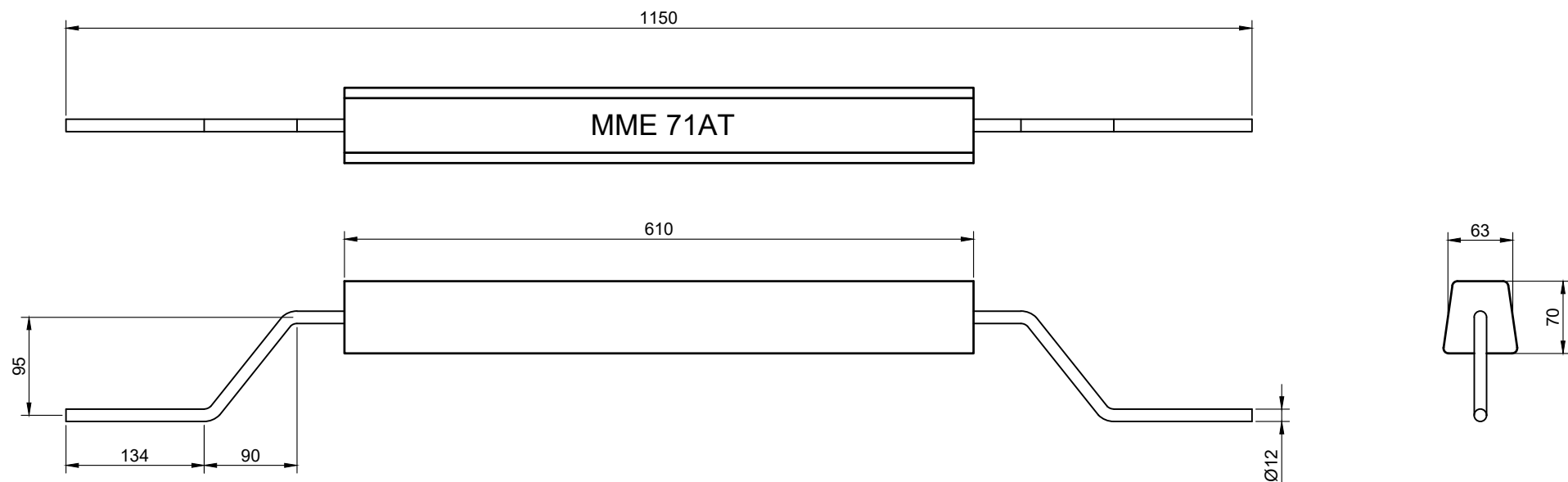
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 58AT

|                                   |                                    |                                     |                                                                                                                |
|-----------------------------------|------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Dwg: SAA 0058-02                  |                                    |                                     | Revision: 0                                                                                                    |
| Drawn:<br><br>ESM<br><br>25-03-21 | Checked:<br><br>PP<br><br>25-03-21 | Approved:<br><br>OT<br><br>25-03-21 | <br><br><br><br>Paper: A4 |
|                                   |                                    |                                     |                                                                                                                |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Tank anodes available with Z-ported (shown) or straight insert

Other insert arrangements available on request

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 7.1 Kg

Gross Weight: 8.2 Kg



**Cathodic Protection Division**

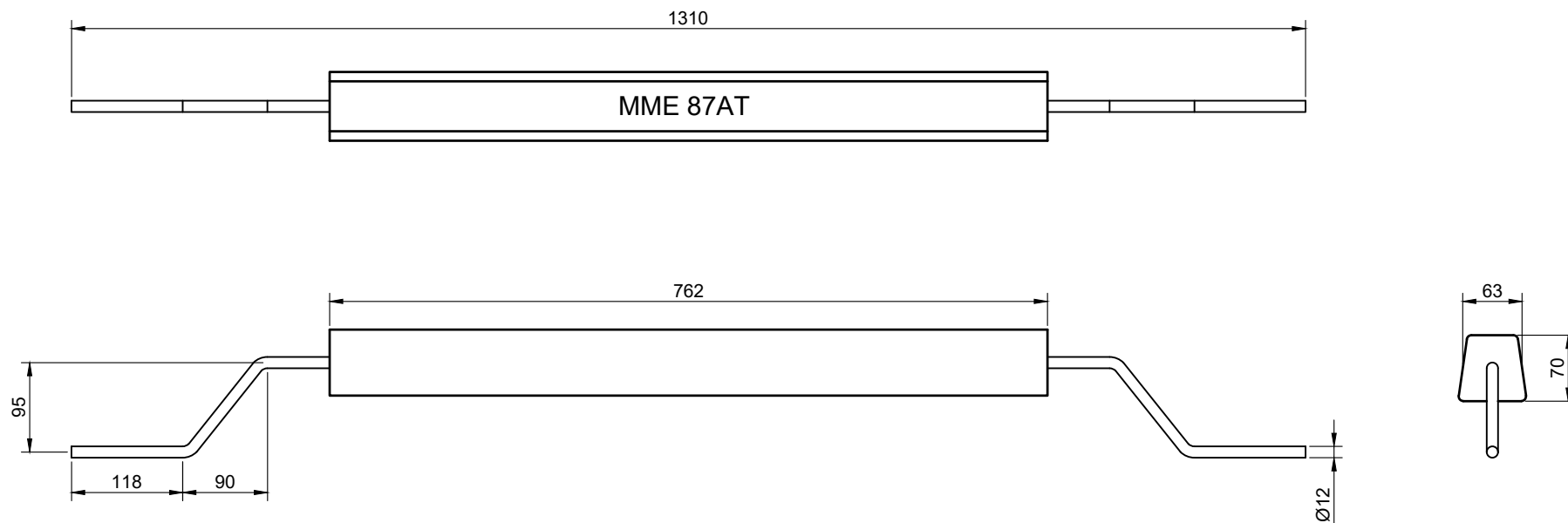
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 71AT

|                                   |                                    |                                     |                                                                                                                |
|-----------------------------------|------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Dwg: SAA 0071-01                  |                                    |                                     | Revision: 0                                                                                                    |
| Drawn:<br><br>ESM<br><br>25-03-21 | Checked:<br><br>PP<br><br>25-03-21 | Approved:<br><br>OT<br><br>25-03-21 | <br><br><br><br>Paper: A4 |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Tank anodes available with Z-ported (shown) or straight insert

Other insert arrangements available on request

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 8.7 Kg

Gross Weight: 9.9 Kg



**Cathodic Protection Division**

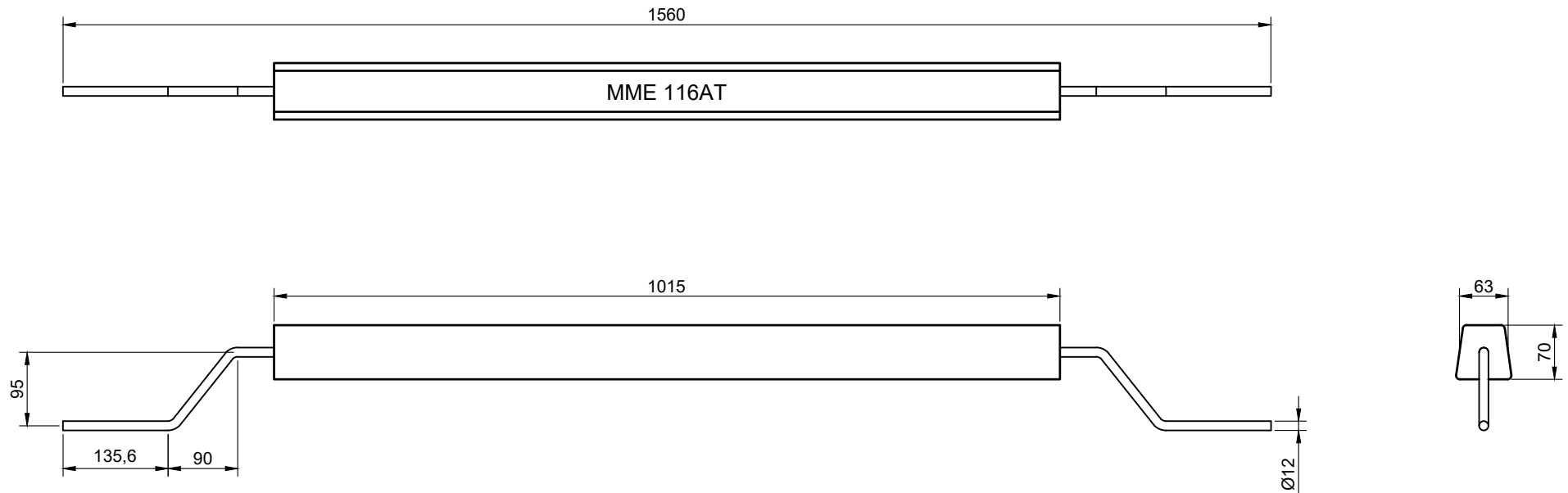
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 87AT

|                                   |                                    |                                     |                                                                                                                |
|-----------------------------------|------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Dwg: SAA 0087-01                  |                                    |                                     | Revision: 0                                                                                                    |
| Drawn:<br><br>ESM<br><br>25-03-21 | Checked:<br><br>PP<br><br>25-03-21 | Approved:<br><br>OT<br><br>25-03-21 | <br><br><br><br>Paper: A4 |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 Ahr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Tank anodes available with Z-ported (shown) or straight insert

Other insert arrangements available on request

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 11.6 Kg

Gross Weight: 13.1 Kg



**Cathodic Protection Division**

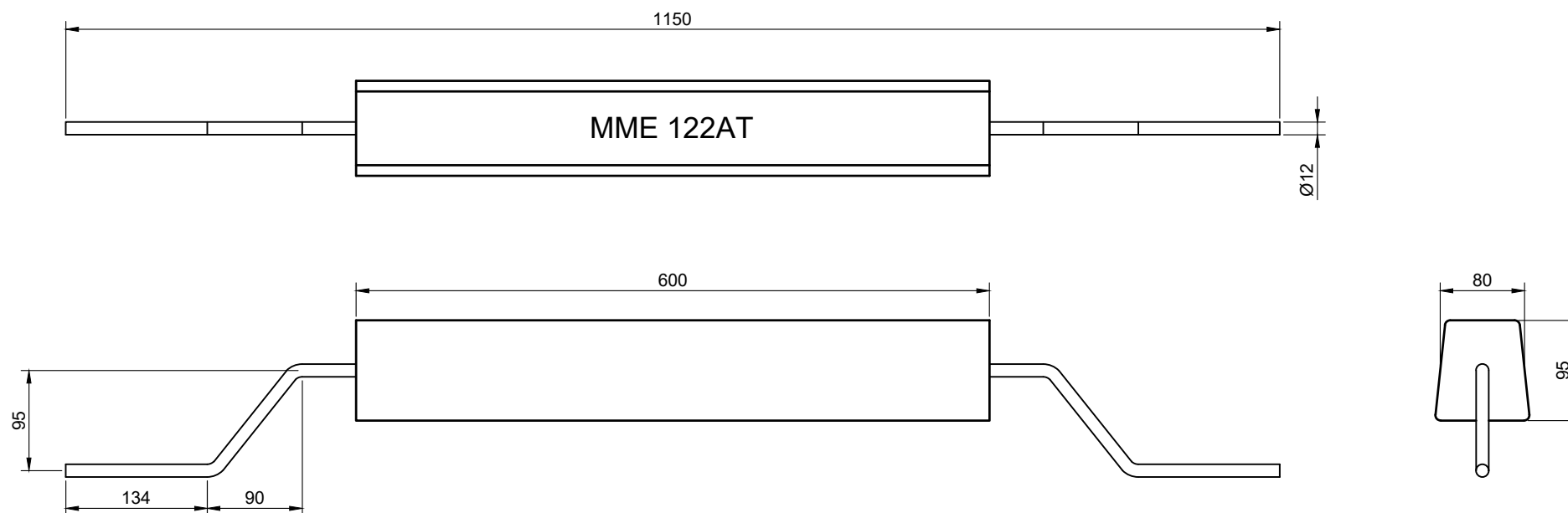
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 116AT

|                                   |                                    |                                     |                                                                                       |
|-----------------------------------|------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------|
| Dwg: SAA 0116-01                  |                                    |                                     | Revision: 0                                                                           |
| Drawn:<br><br>ESM<br><br>25-03-21 | Checked:<br><br>PP<br><br>25-03-21 | Approved:<br><br>OT<br><br>25-03-21 |  |
|                                   |                                    |                                     |                                                                                       |
|                                   |                                    |                                     | Paper: A4                                                                             |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Tank anodes available with Z-cranked (shown) or straight insert

Other insert arrangements available on request

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 12.2 Kg

Gross Weight: 13.3 Kg



**Cathodic Protection Division**

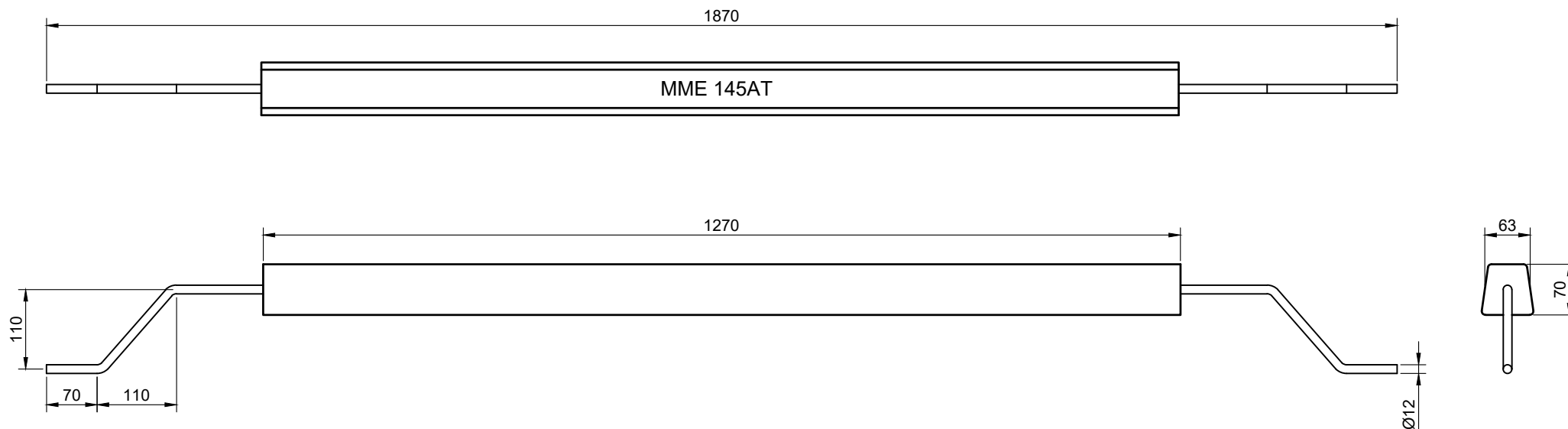
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 122AT

|                                   |                                    |                                     |                                                                                                                |
|-----------------------------------|------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Dwg: SAA 0122-01                  |                                    |                                     | Revision: 0                                                                                                    |
| Drawn:<br><br>ESM<br><br>26-03-21 | Checked:<br><br>PP<br><br>26-03-21 | Approved:<br><br>OT<br><br>26-03-21 | <br><br><br><br>Paper: A4 |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Tank anodes available with Z-ported (shown) or straight insert

Other insert arrangements available on request

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 14.5 Kg

Gross Weight: 16.3 Kg



**Cathodic Protection Division**

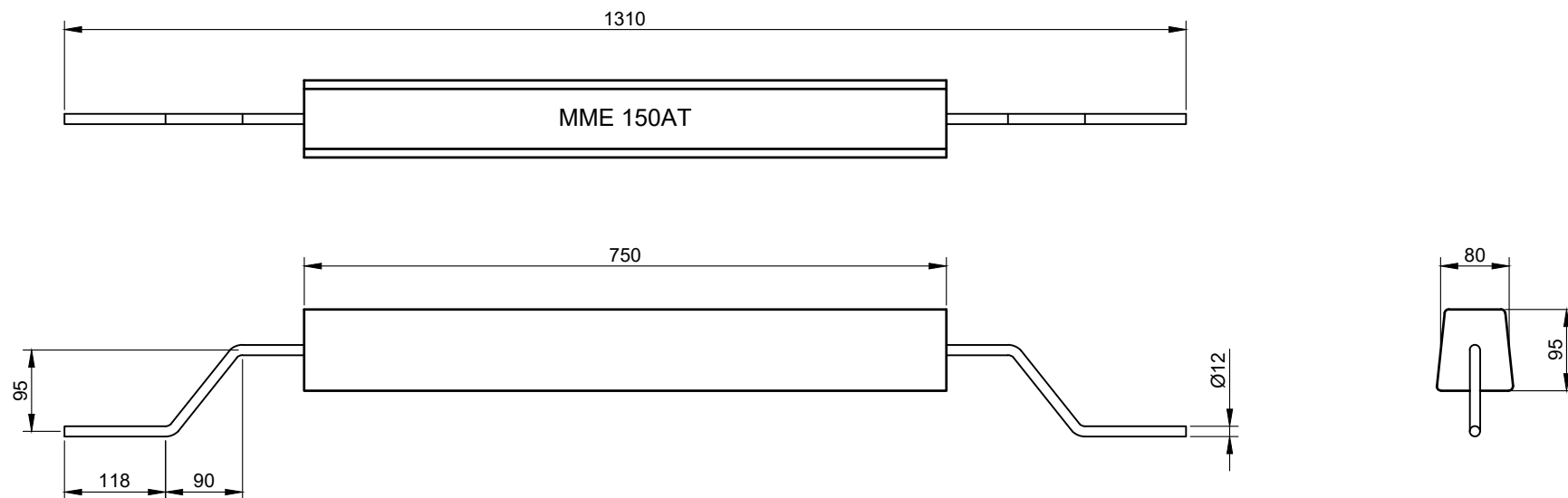
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 145AT

|                                   |                                    |                                     |                                                                                                                |
|-----------------------------------|------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Dwg: SAA 0145-02                  |                                    |                                     | Revision: 0                                                                                                    |
| Drawn:<br><br>ESM<br><br>26-03-21 | Checked:<br><br>PP<br><br>26-03-21 | Approved:<br><br>OT<br><br>26-03-21 | <br><br><br><br>Paper: A4 |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Tank anodes available with Z-cranked (shown) or straight insert

Other insert arrangements available on request

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 15.0 Kg

Gross Weight: 16.2 Kg



**Cathodic Protection Division**

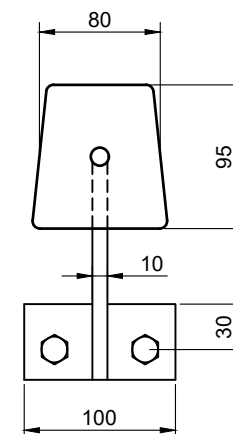
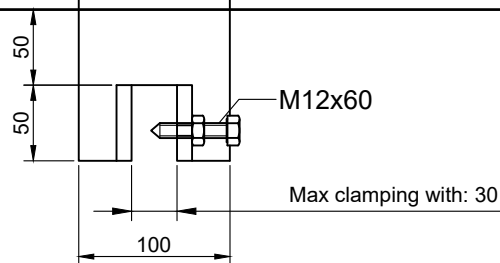
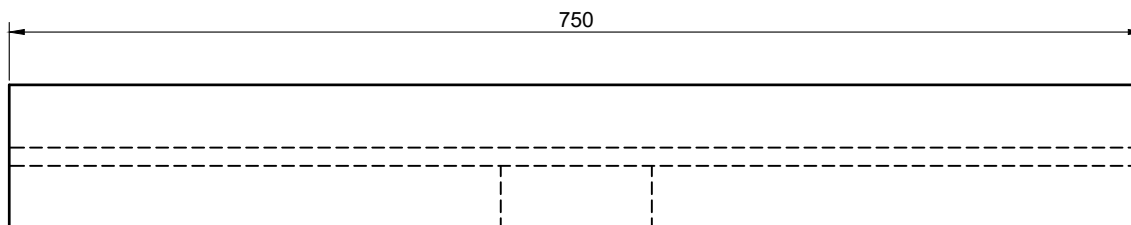
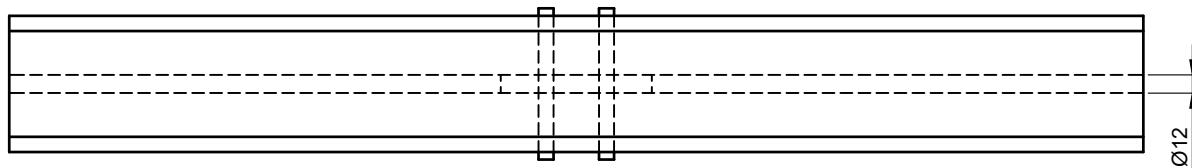
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 150AT

|                                   |                                    |                                     |                                                                                                                                   |
|-----------------------------------|------------------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Dwg: SAA 0150-03                  |                                    |                                     | Revision: 0                                                                                                                       |
| Drawn:<br><br>ESM<br><br>26-03-21 | Checked:<br><br>PP<br><br>26-03-21 | Approved:<br><br>OT<br><br>26-03-21 | <div></div> <div></div> <div>Paper: A4</div> |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

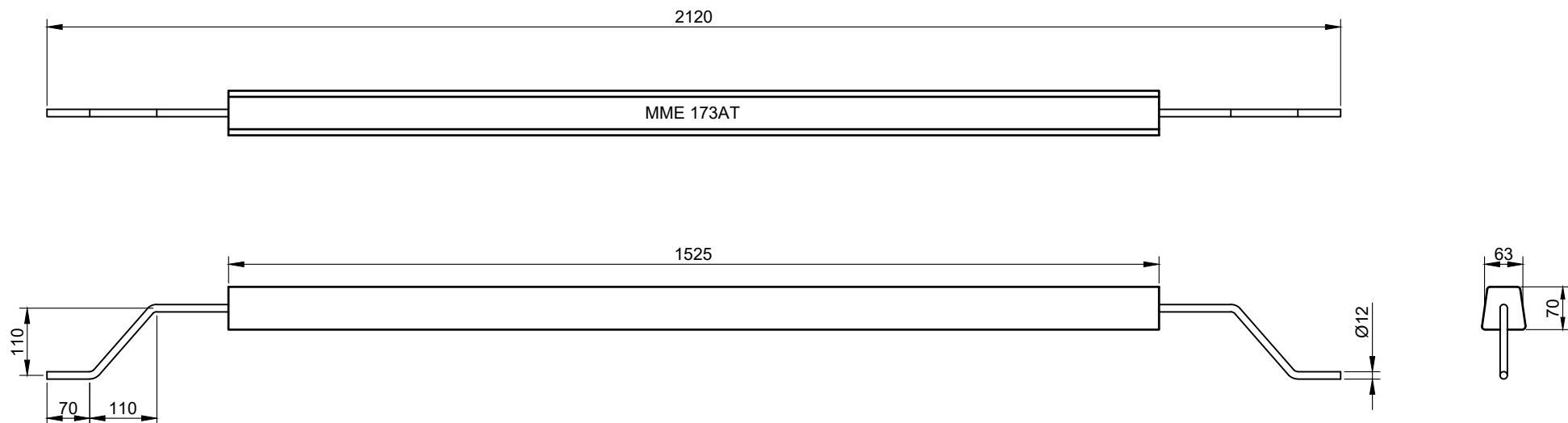
Nett Weight: 15.0 Kg  
 Gross Weight: 17.0 Kg



**Cathodic Protection Division**  
 Tel: +31 (0)180 48 28 28  
 E-mail: sales@mme.nl  
 www.mme-group.com

### Aluminium Alloy Anode MME 150AT Clamp

|                  |                |                 |             |
|------------------|----------------|-----------------|-------------|
| Dwg: SAA 0150-02 |                |                 | Revision: 0 |
| Drawn:<br>ESM    | Checked:<br>PP | Approved:<br>OT |             |
| 26-03-21         | 26-03-21       | 26-03-21        |             |
|                  |                |                 | Paper: A4   |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Tank anodes available with Z-cranked (shown) or straight insert

Other insert arrangements available on request

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 17.3 Kg

Gross Weight: 19.3 Kg



**Cathodic Protection Division**

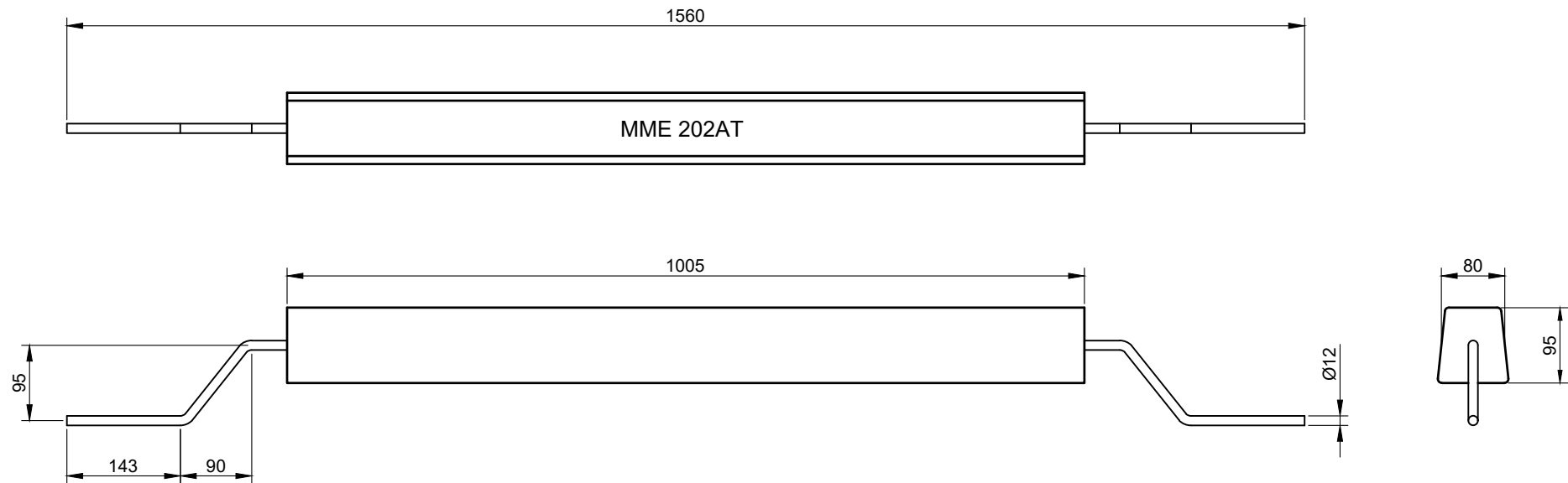
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 173AT

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAA 0173-01          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>26-03-21 | Checked:<br>PP<br>26-03-21 | Approved:<br>OT<br>26-03-21 |             |
|                           |                            |                             | Paper: A4   |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Tank anodes available with Z-cranked (shown) or straight insert

Other insert arrangements available on request

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 20.2 Kg

Gross Weight: 21.7 Kg



**Cathodic Protection Division**

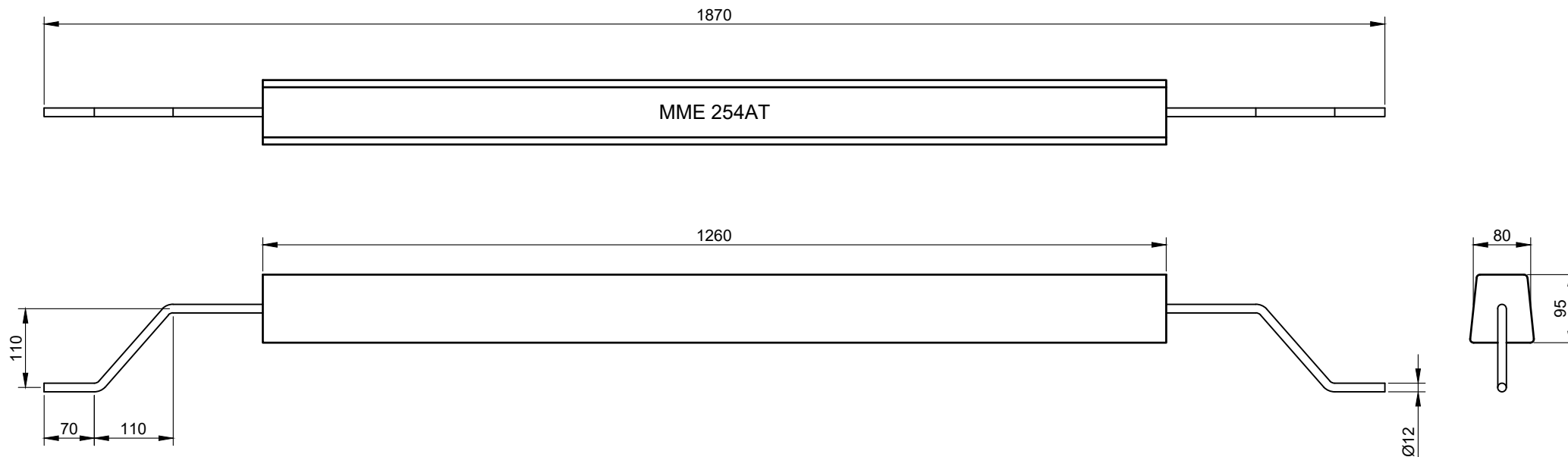
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 202AT

|                                   |                                    |                                     |                                                                                                                |
|-----------------------------------|------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Dwg: SAA 0202-01                  |                                    |                                     | Revision: 0                                                                                                    |
| Drawn:<br><br>ESM<br><br>26-03-21 | Checked:<br><br>PP<br><br>26-03-21 | Approved:<br><br>OT<br><br>26-03-21 | <br><br><br><br>Paper: A4 |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Tank anodes available with Z-ported (shown) or straight insert

Other insert arrangements available on request

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 25.4 Kg

Gross Weight: 27.2 Kg



**Cathodic Protection Division**

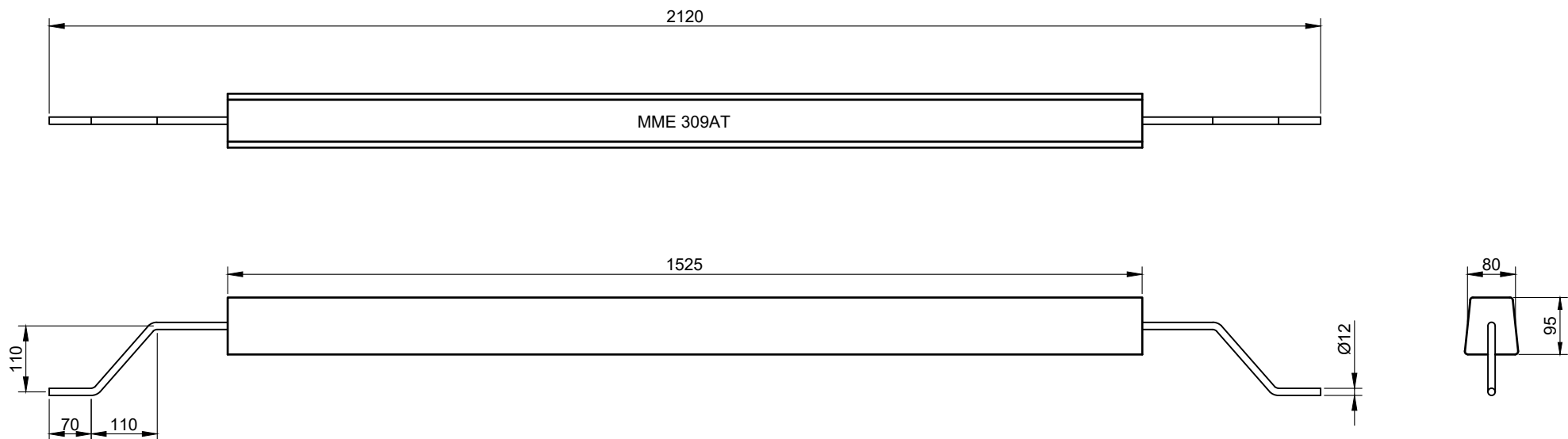
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 254AT

|                                   |                                    |                                     |                                                                                                                |
|-----------------------------------|------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Dwg: SAA 0254-01                  |                                    |                                     | Revision: 0                                                                                                    |
| Drawn:<br><br>ESM<br><br>26-03-21 | Checked:<br><br>PP<br><br>26-03-21 | Approved:<br><br>OT<br><br>26-03-21 | <br><br><br><br>Paper: A4 |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm

All data is subject to change without prior notice

Text on anode is indicative and will not always be identical to this drawing

Tank anodes available with Z-ported (shown) or straight insert

Other insert arrangements available on request

Anode can also be provided backside coated

Insert material: Mild steel

Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 30.9 Kg

Gross Weight: 32.9 Kg



**Cathodic Protection Division**

Tel: +31 (0)180 48 28 28

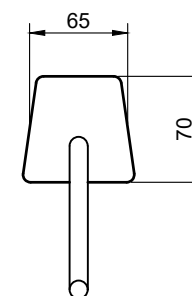
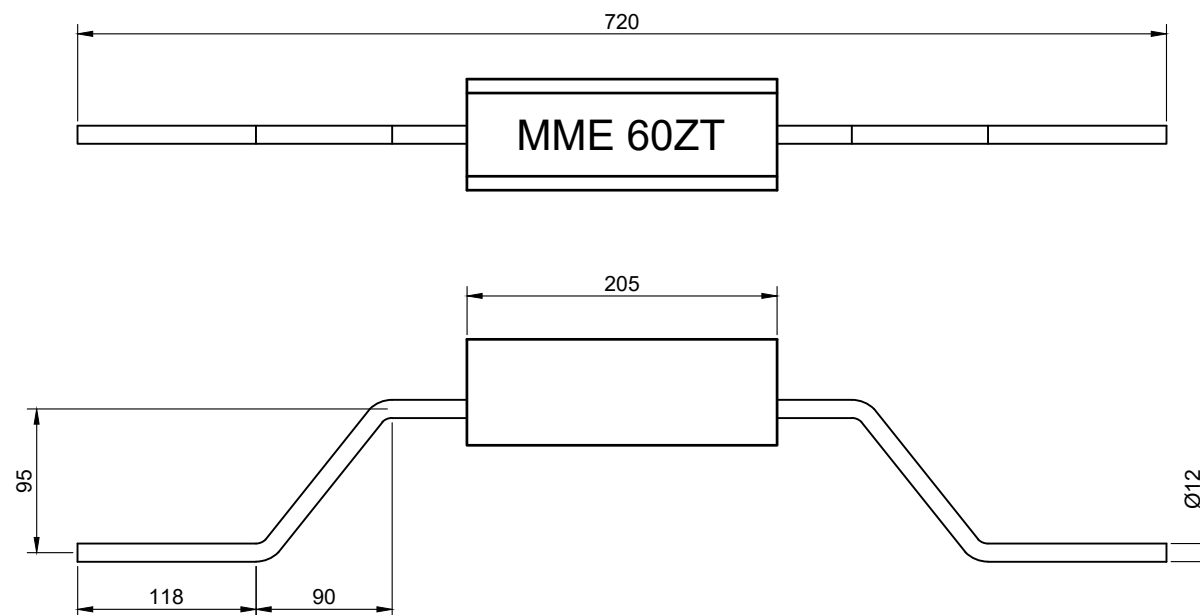
E-mail: sales@mme.nl

www.mme-group.com

### Aluminium Alloy Anode MME 309AT

|                  |             |              |             |
|------------------|-------------|--------------|-------------|
| Dwg: SAA 0309-01 |             |              | Revision: 0 |
| Drawn: ESM       | Checked: PP | Approved: OT |             |
| 26-03-21         | 26-03-21    | 26-03-21     |             |
|                  |             |              | Paper: A4   |

# **ZINC TANK ANODES**



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Tank anodes available with Z-cranked (shown) or straight insert  
 Other insert arrangements available on request  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

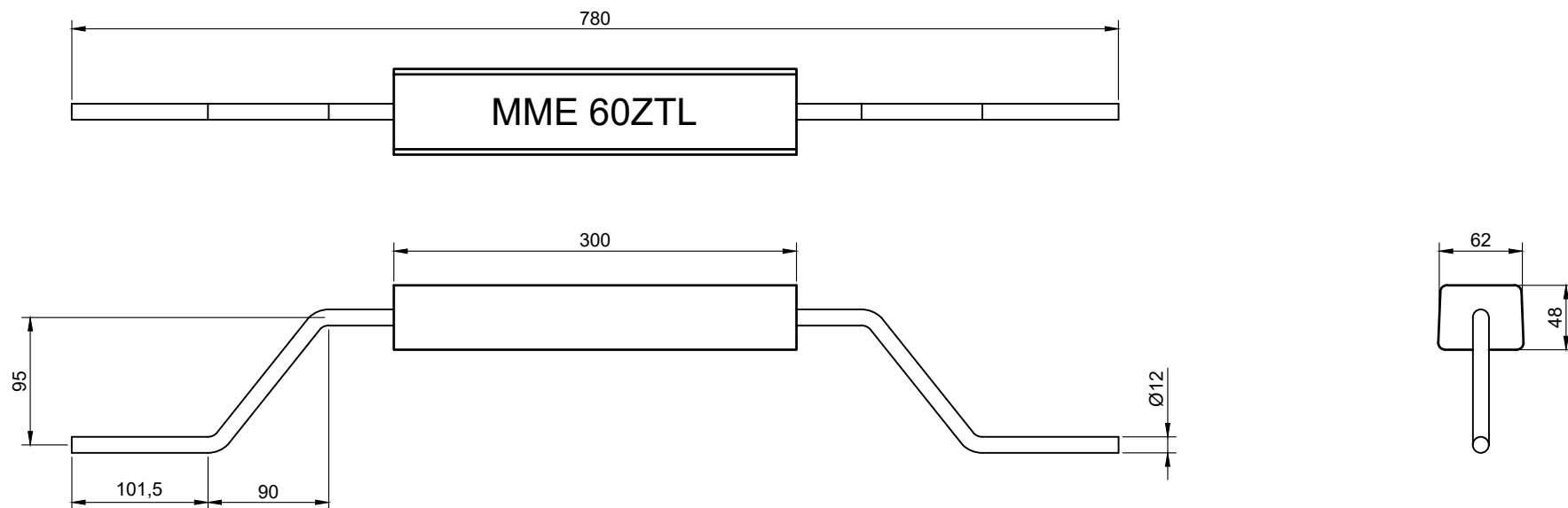
Nett Weight: 6.0 Kg  
 Gross Weight: 6.7 Kg



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 E-mail: sales@mme.nl  
 www.mme-group.com

#### Zinc Alloy Anode MME 60ZT

|                  |             |              |             |
|------------------|-------------|--------------|-------------|
| Dwg: SAZ 0060-05 |             |              | Revision: 0 |
| Drawn: ESM       | Checked: PP | Approved: OT |             |
| 14-04-21         | 14-04-21    | 14-04-21     |             |
|                  |             |              | Paper: A4   |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Tank anodes available with Z-cranked (shown) or straight insert  
 Other insert arrangements available on request  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

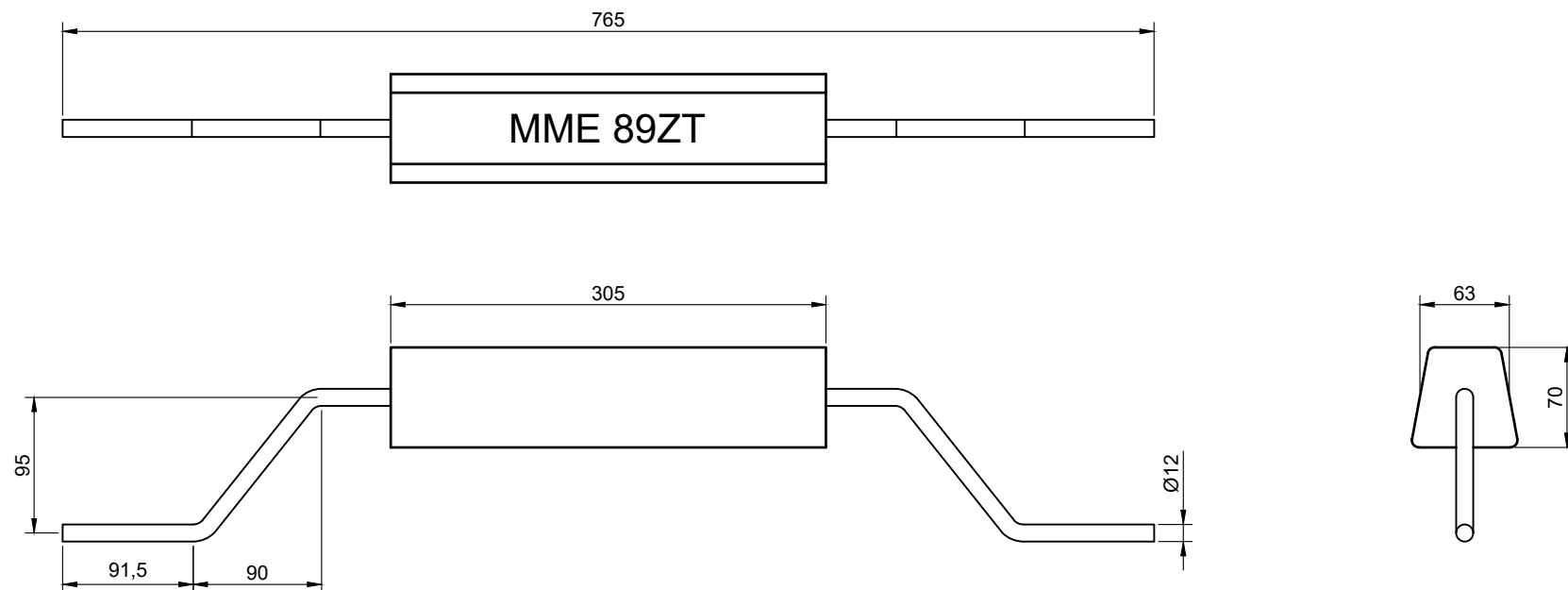
Nett Weight: 6.0 Kg  
 Gross Weight: 6.9 Kg



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#### Zinc Alloy Anode MME 60ZTL

|                           |                            |                             |                                                                                                    |
|---------------------------|----------------------------|-----------------------------|----------------------------------------------------------------------------------------------------|
| Dwg: SAZ 0060-04          |                            |                             | Revision: 0                                                                                        |
| Drawn:<br>ESM<br>14-04-21 | Checked:<br>PP<br>14-04-21 | Approved:<br>OT<br>14-04-21 | <br>Paper: A4 |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Tank anodes available with Z-cranked (shown) or straight insert  
 Other insert arrangements available on request  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

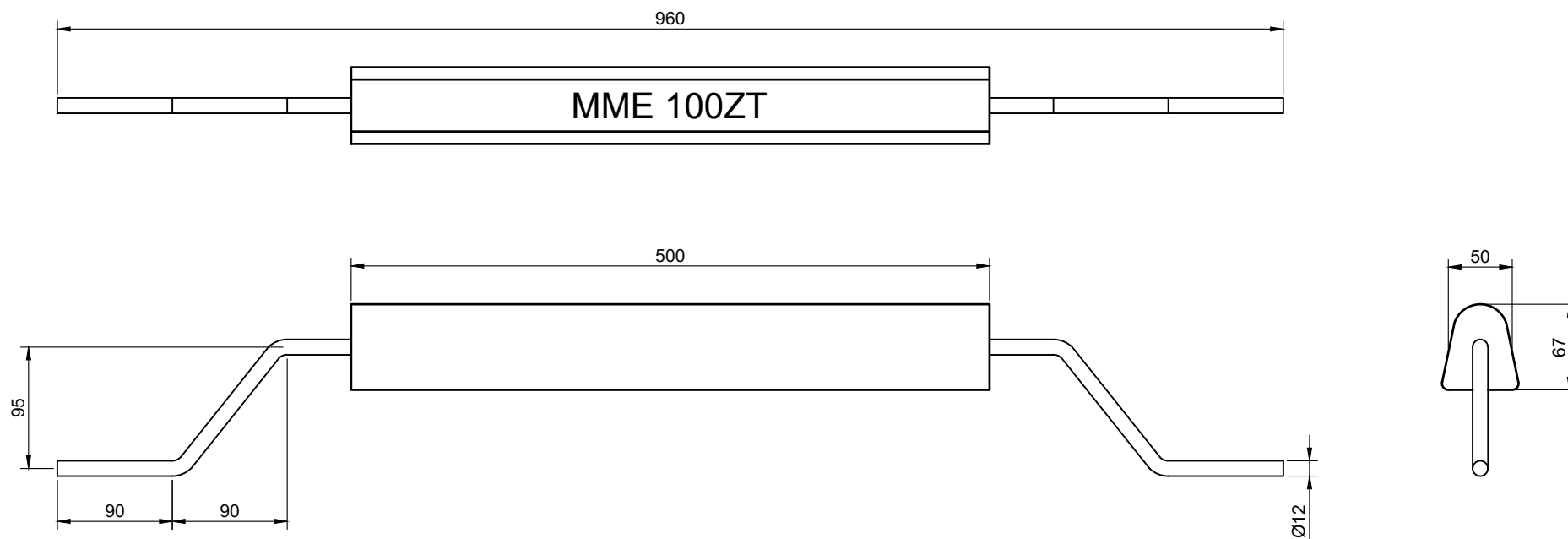
Nett Weight: 8.9 Kg  
 Gross Weight: 9.7 Kg



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#### Zinc Alloy Anode MME 89ZT

|                           |                            |                             |               |
|---------------------------|----------------------------|-----------------------------|---------------|
| Dwg: SAZ 0089-03          |                            |                             | Revision: 0   |
| Drawn:<br>ESM<br>14-04-21 | Checked:<br>PP<br>14-04-21 | Approved:<br>OT<br>14-04-21 | <br>Paper: A4 |
|                           |                            |                             |               |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Tank anodes available with Z-cranked (shown) or straight insert  
 Other insert arrangements available on request  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

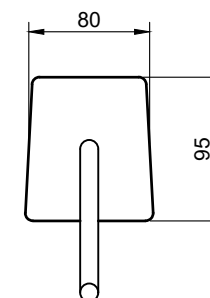
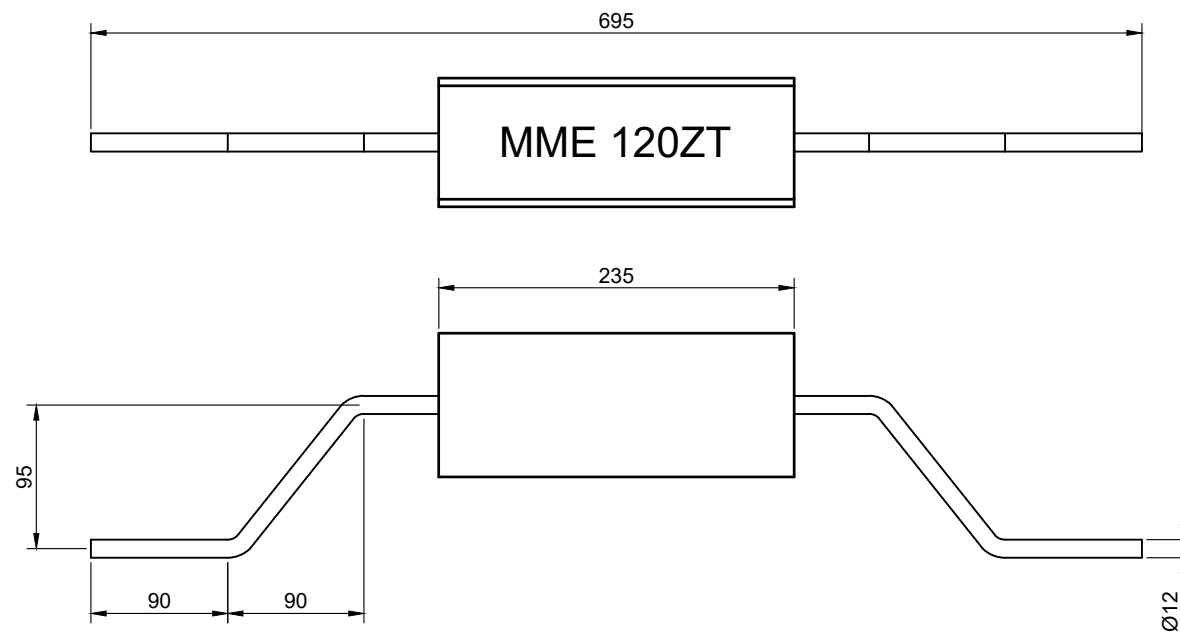
Nett Weight: 10.0 Kg  
 Gross Weight: 10.9 Kg



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#### Zinc Alloy Anode MME 100ZT

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAZ 0100-05          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>19-04-21 | Checked:<br>PP<br>19-04-21 | Approved:<br>OT<br>19-04-21 |             |
|                           |                            |                             |             |
|                           |                            |                             | Paper: A4   |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Tank anodes available with Z-ported (shown) or straight insert  
 Other insert arrangements available on request  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

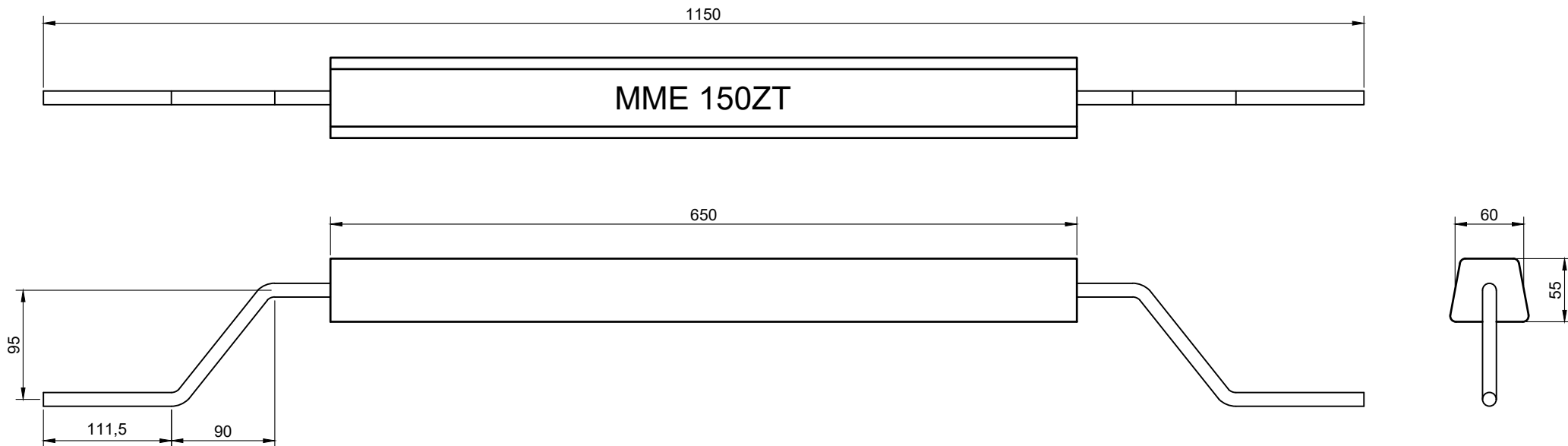
Nett Weight: 12.0 Kg  
 Gross Weight: 12.7 Kg



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### Zinc Alloy Anode MME 120ZT

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAZ 0120-04          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>19-04-21 | Checked:<br>PP<br>19-04-21 | Approved:<br>OT<br>19-04-21 |             |
|                           |                            |                             |             |
|                           |                            |                             | Paper: A4   |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Tank anodes available with Z-cranked (shown) or straight insert  
 Other insert arrangements available on request  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

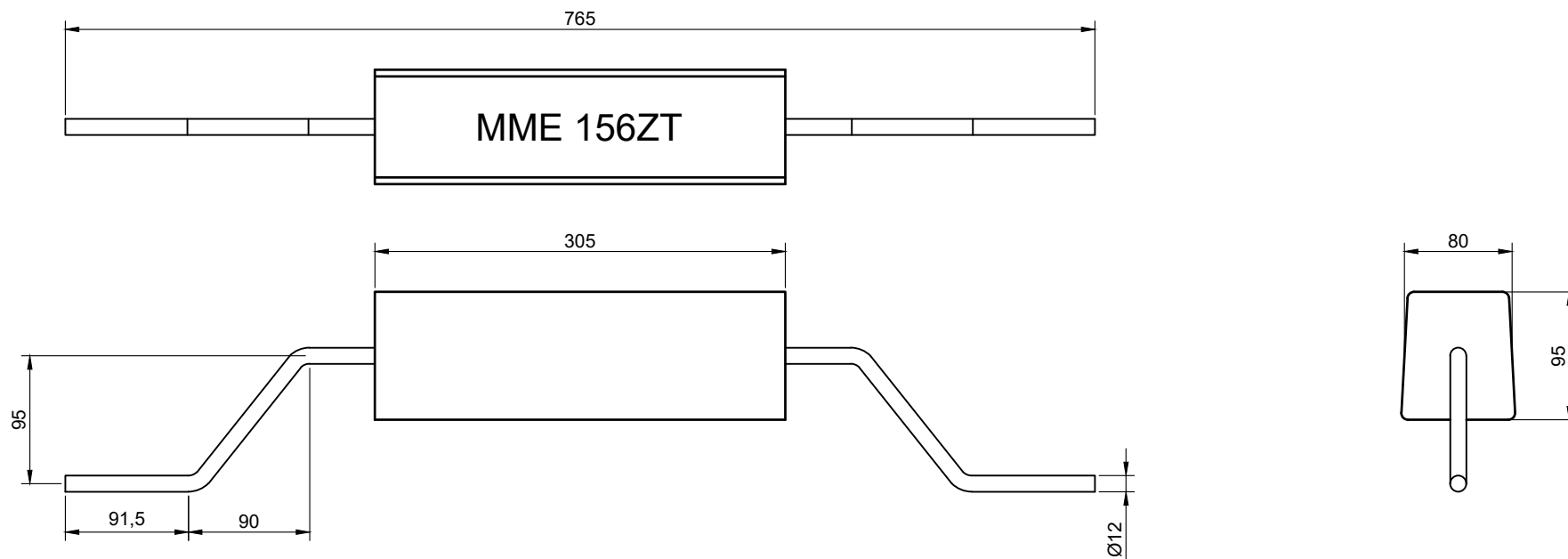
Nett Weight: 15.0 Kg  
 Gross Weight: 16.1 Kg



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### Zinc Alloy Anode MME 150ZT

|                                   |                                    |                                     |                                                                                                                |
|-----------------------------------|------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Dwg: SAZ 0150-05                  |                                    |                                     | Revision: 0                                                                                                    |
| Drawn:<br><br>ESM<br><br>19-04-21 | Checked:<br><br>PP<br><br>19-04-21 | Approved:<br><br>OT<br><br>19-04-21 | <br><br><br><br>Paper: A4 |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Tank anodes available with Z-cranked (shown) or straight insert  
 Other insert arrangements available on request  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

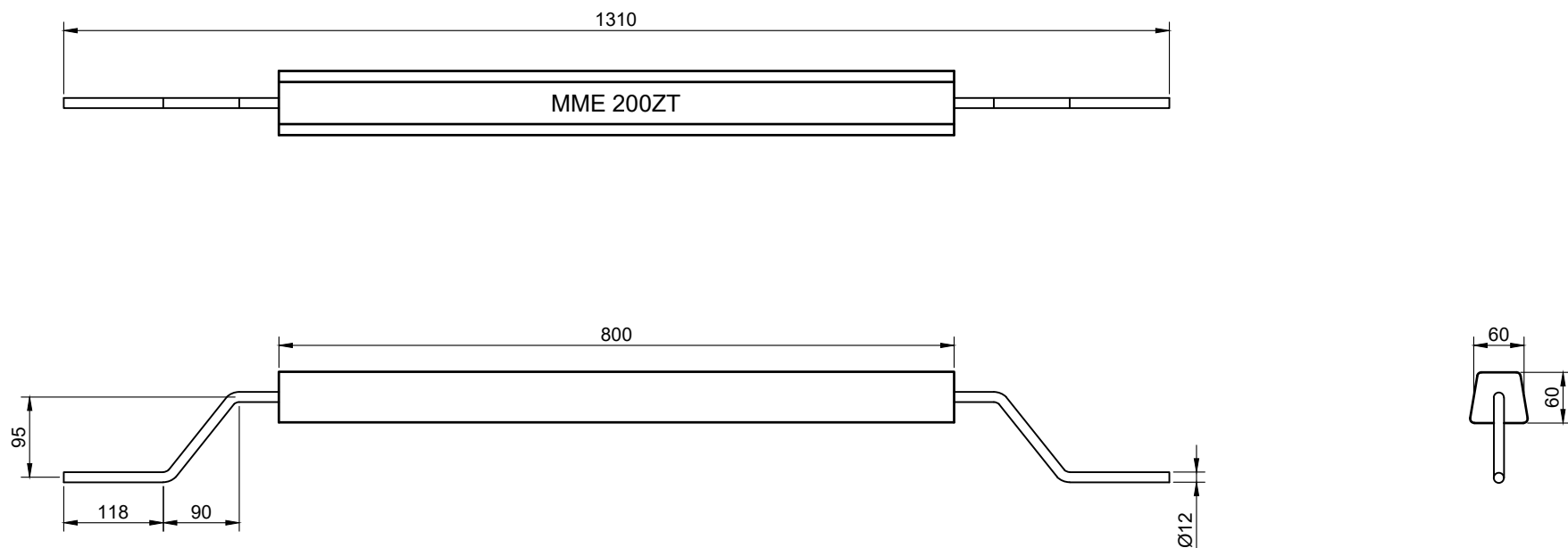
Nett Weight: 15.6 Kg  
 Gross Weight: 16.4 Kg



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#### Zinc Alloy Anode MME 156ZT

|                                   |                                    |                                     |                                                                                                                |
|-----------------------------------|------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Dwg: SAZ 0156-02                  |                                    |                                     | Revision: 0                                                                                                    |
| Drawn:<br><br>ESM<br><br>19-04-21 | Checked:<br><br>PP<br><br>19-04-21 | Approved:<br><br>OT<br><br>19-04-21 | <br><br><br><br>Paper: A4 |
|                                   |                                    |                                     |                                                                                                                |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Tank anodes available with Z-cranked (shown) or straight insert  
 Other insert arrangements available on request  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

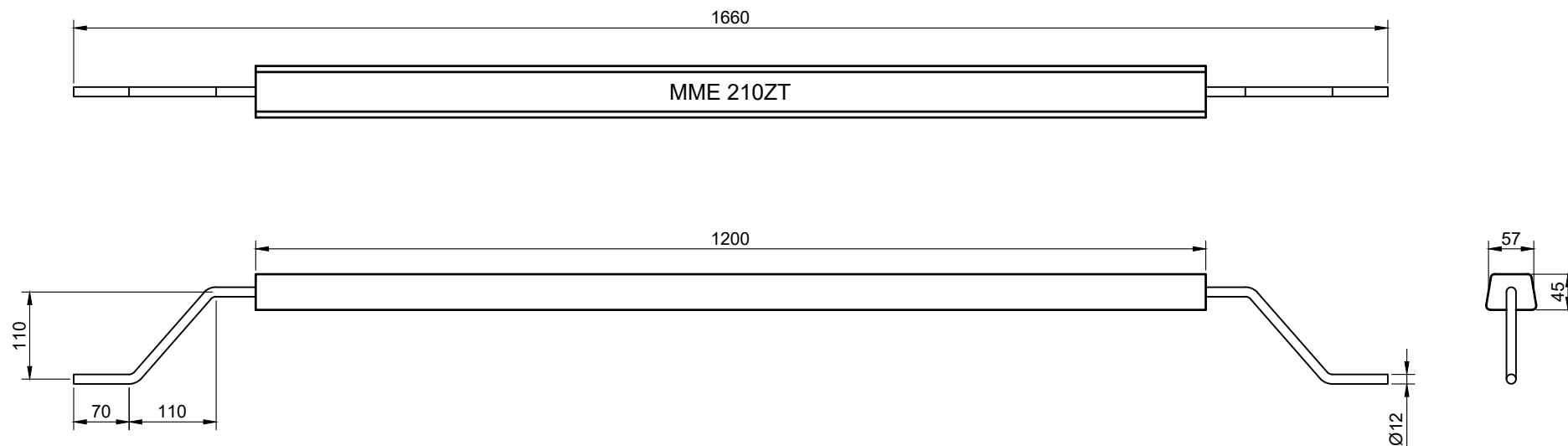
Nett Weight: 20.0 Kg  
 Gross Weight: 21.2 Kg



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#### Zinc Alloy Anode MME 200ZT

|                           |                            |                             |                                                                                                    |
|---------------------------|----------------------------|-----------------------------|----------------------------------------------------------------------------------------------------|
| Dwg: SAZ 0200-02          |                            |                             | Revision: 0                                                                                        |
| Drawn:<br>ESM<br>20-04-21 | Checked:<br>PP<br>20-04-21 | Approved:<br>OT<br>20-01-21 | <br>Paper: A4 |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Tank anodes available with Z-cranked (shown) or straight insert  
 Other insert arrangements available on request  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

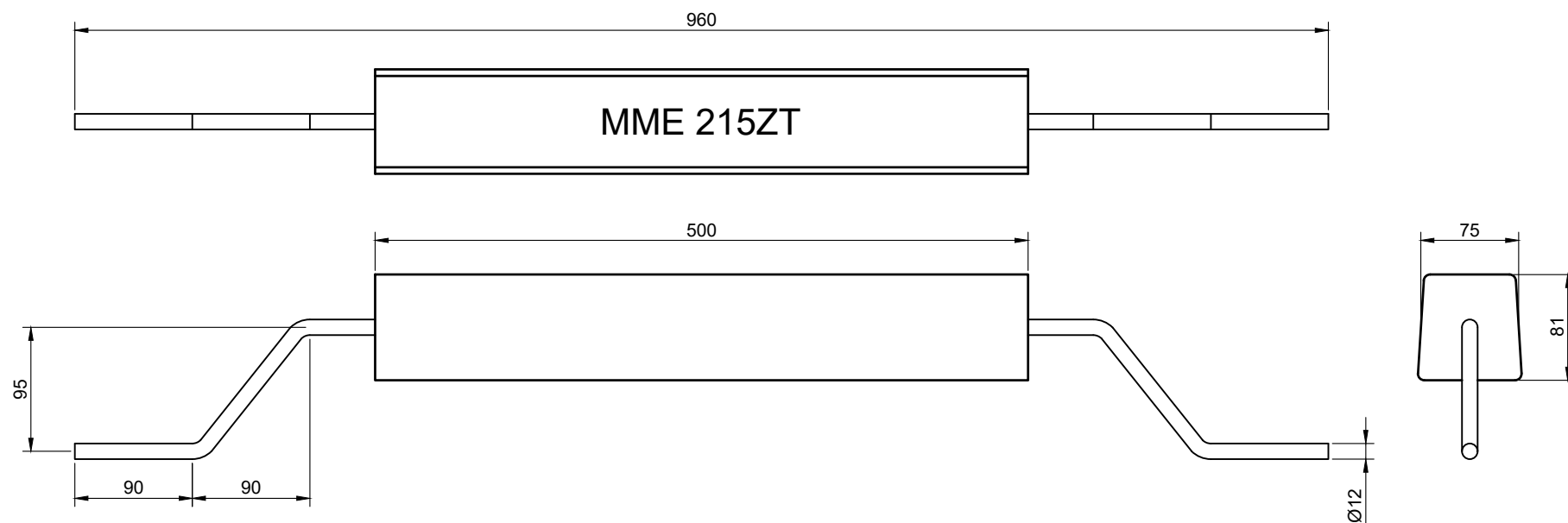
Nett Weight: 21.0 Kg  
 Gross Weight: 22.5 Kg



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#### Zinc Alloy Anode MME 210ZT

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAZ 0210-02          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>20-04-21 | Checked:<br>PP<br>20-04-21 | Approved:<br>OT<br>20-01-21 |             |
|                           |                            |                             | Paper: A4   |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Tank anodes available with Z-cranked (shown) or straight insert  
 Other insert arrangements available on request  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

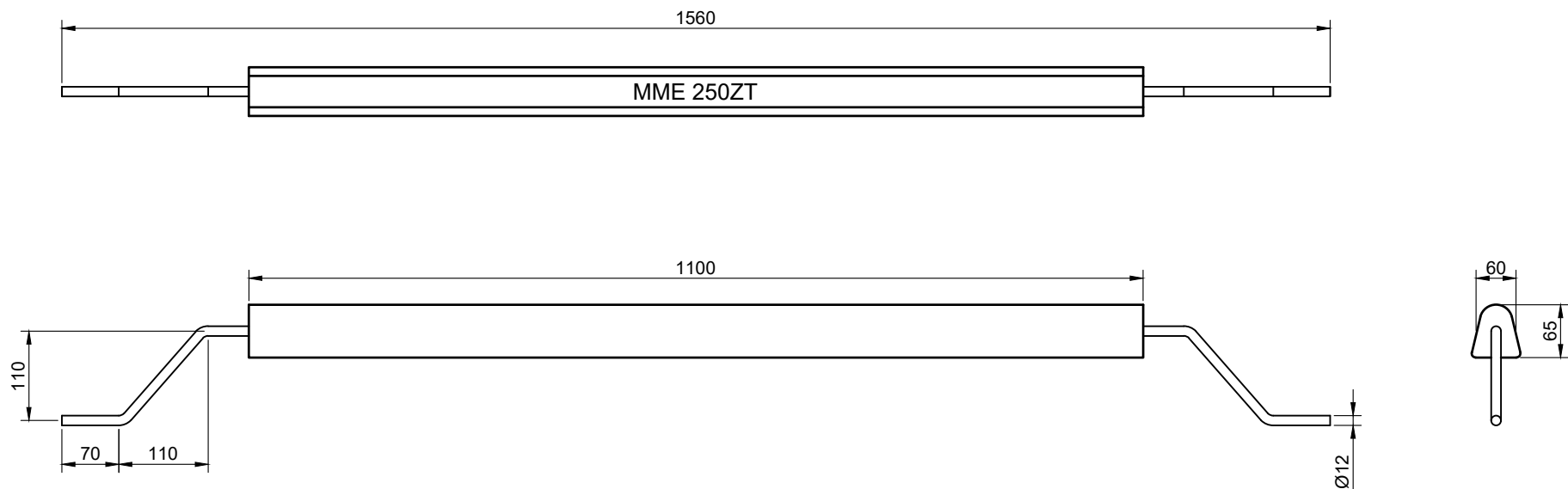
Nett Weight: 21.5 Kg  
 Gross Weight: 22.4 Kg



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### Zinc Alloy Anode MME 215ZT

|                                   |                                    |                                     |                                                                                                                |
|-----------------------------------|------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Dwg: SAZ 0215-01                  |                                    |                                     | Revision: 0                                                                                                    |
| Drawn:<br><br>ESM<br><br>20-04-21 | Checked:<br><br>PP<br><br>20-04-21 | Approved:<br><br>OT<br><br>20-01-21 | <br><br><br><br>Paper: A4 |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Tank anodes available with Z-cranked (shown) or straight insert  
 Other insert arrangements available on request  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

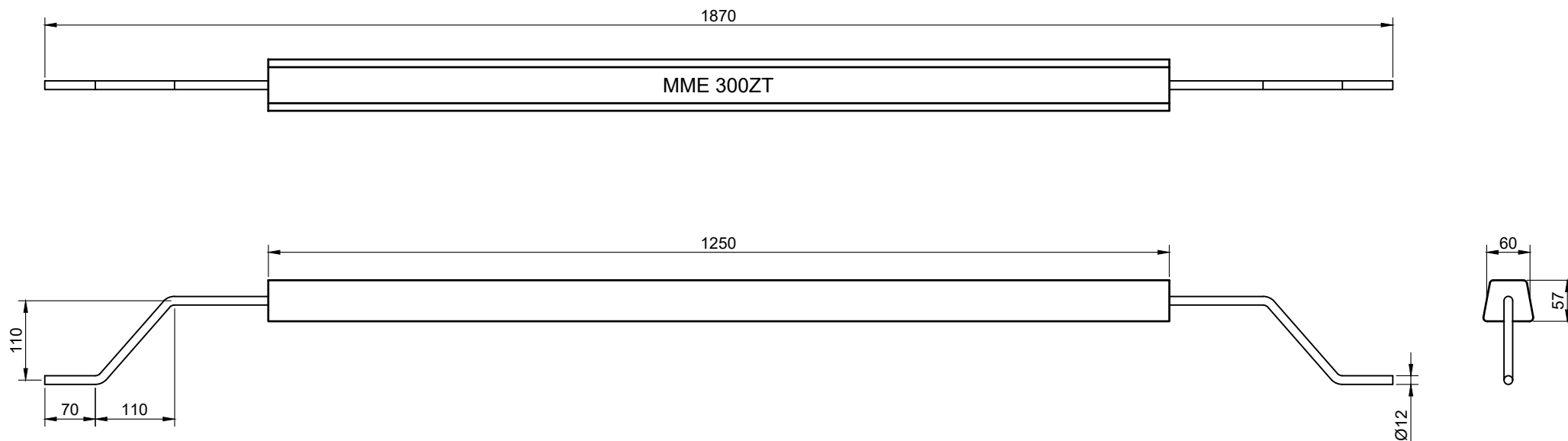
Nett Weight: 25.0 Kg  
 Gross Weight: 26.5 Kg



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### Zinc Alloy Anode MME 250ZT

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAZ 0250-02          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>20-04-21 | Checked:<br>PP<br>20-04-21 | Approved:<br>OT<br>20-01-21 |             |
|                           |                            |                             |             |
|                           |                            |                             | Paper: A4   |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Tank anodes available with Z-cranked (shown) or straight insert  
 Other insert arrangements available on request  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

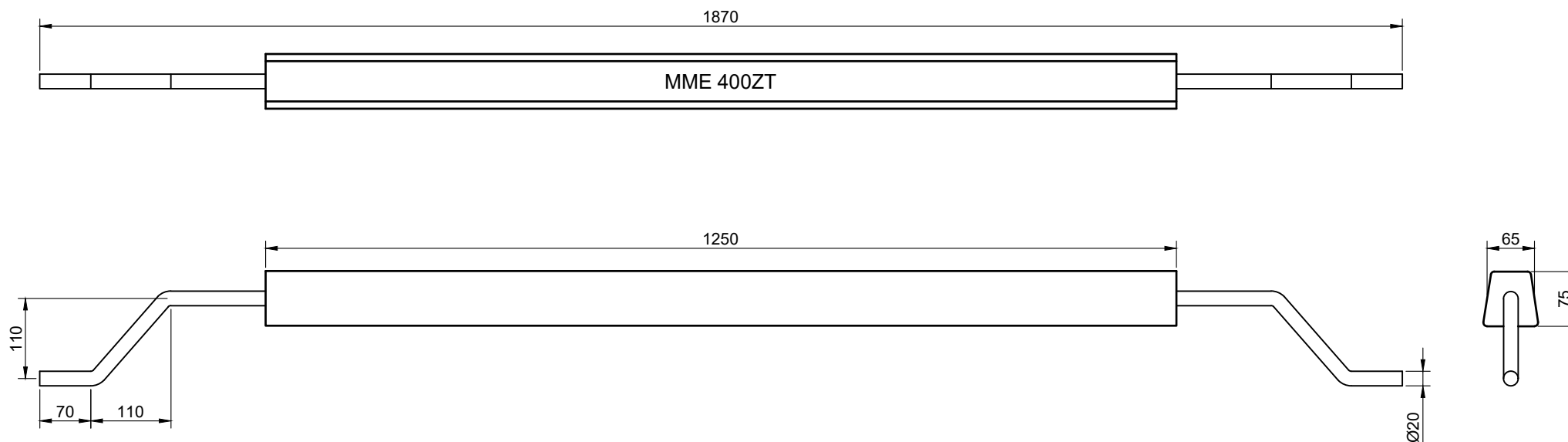
Nett Weight: 30.0 Kg  
 Gross Weight: 31.8 Kg



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### Zinc Alloy Anode MME 300ZT

|                                   |                                    |                                     |                                                                                                                |
|-----------------------------------|------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Dwg: SAZ 0300-01                  |                                    |                                     | Revision: 0                                                                                                    |
| Drawn:<br><br>ESM<br><br>20-04-21 | Checked:<br><br>PP<br><br>20-04-21 | Approved:<br><br>OT<br><br>20-01-21 | <br><br><br><br>Paper: A4 |
|                                   |                                    |                                     |                                                                                                                |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Tank anodes available with Z-cranked (shown) or straight insert  
 Other insert arrangements available on request  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 5\%$

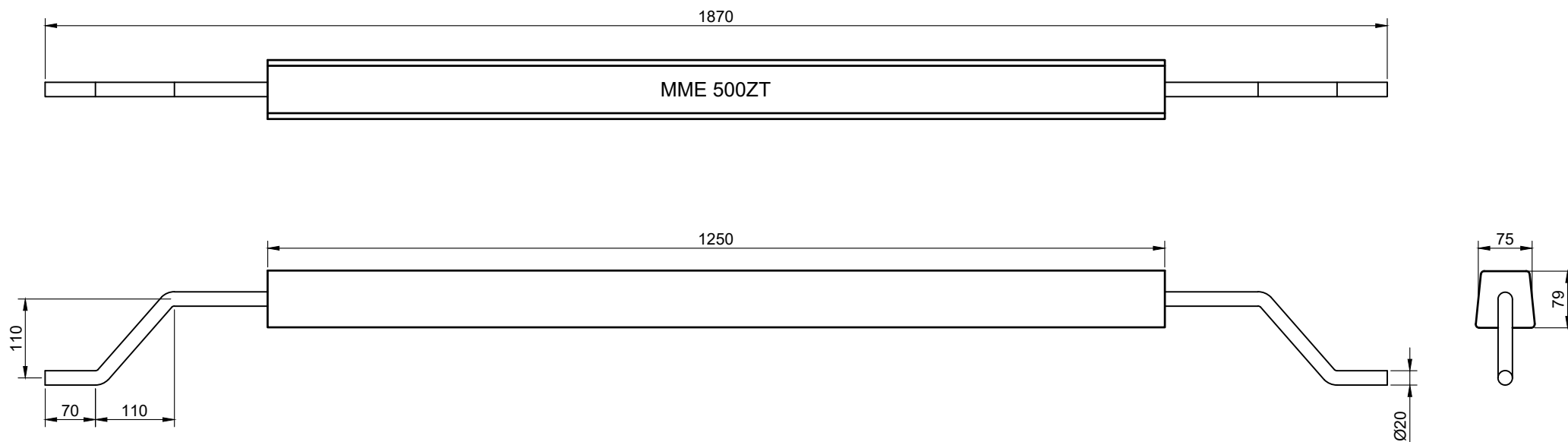
Nett Weight: 40.0 Kg  
 Gross Weight: 44.8 Kg



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### Zinc Alloy Anode MME 400ZT

|                                   |                                    |                                     |                                                                                       |
|-----------------------------------|------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------|
| Dwg: SAZ 0400-01                  |                                    |                                     | Revision: 0                                                                           |
| Drawn:<br><br>ESM<br><br>20-04-21 | Checked:<br><br>PP<br><br>20-04-21 | Approved:<br><br>OT<br><br>20-01-21 |  |
|                                   |                                    |                                     | Paper: A4                                                                             |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Tank anodes available with Z-cranked (shown) or straight insert  
 Other insert arrangements available on request  
 Anode can also be provided backside coated  
 Insert material: Mild steel  
 Minimum/maximum anode weight  $\pm 2.3$  Kg

Nett Weight: 50.0 Kg  
 Gross Weight: 54.8 Kg

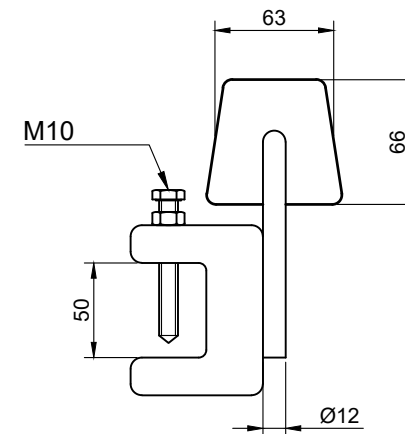
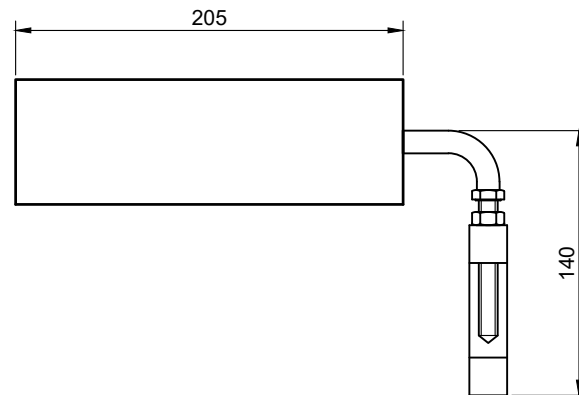
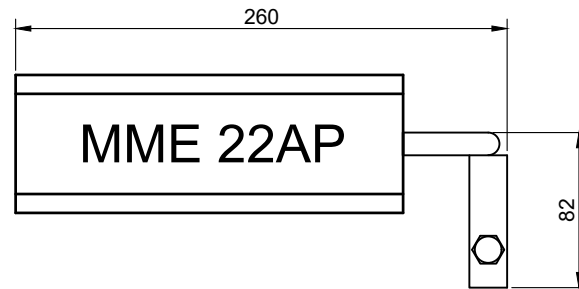


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#### Zinc Alloy Anode MME 500ZT

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAZ 0500-01          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>20-04-21 | Checked:<br>PP<br>20-04-21 | Approved:<br>OT<br>20-01-21 |             |
|                           |                            |                             | Paper: A4   |

# **ALUMINIUM PITGUARD ANODES**



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Insert material: Steel  
 Minimum/maximum anode weight  $\pm 5\%$

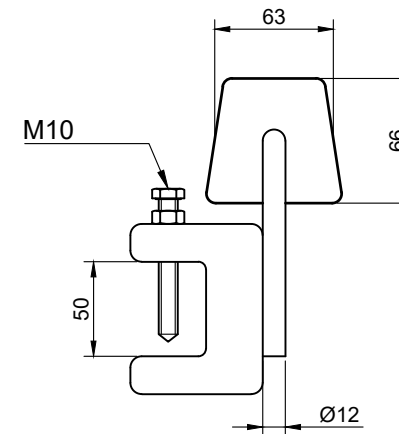
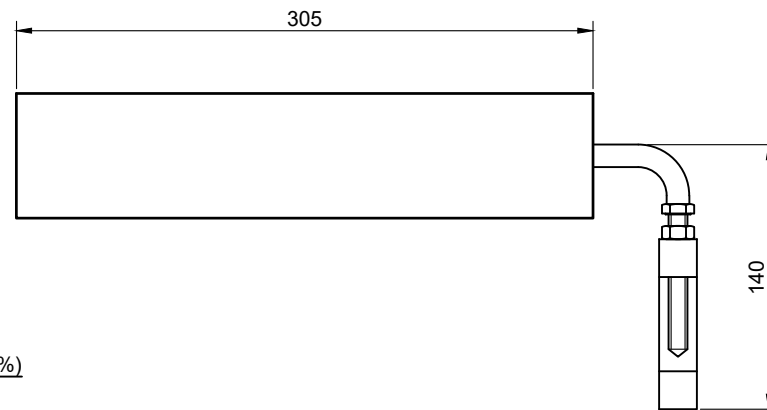
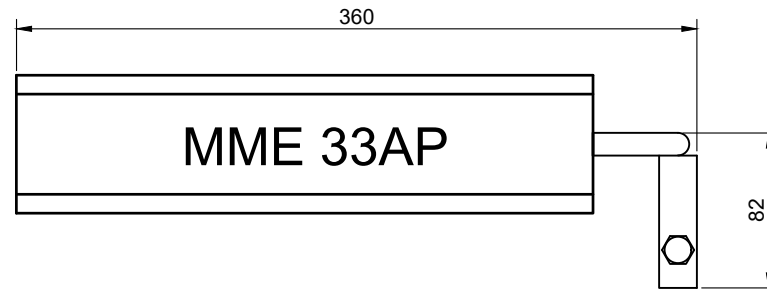
Nett Weight: 2.2 Kg  
 Gross Weight: 3.1 Kg



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### Aluminium Alloy Anode MME 22AP

|                  |                |                 |             |
|------------------|----------------|-----------------|-------------|
| Dwg: SAA 0022-01 |                |                 | Revision: 0 |
| Drawn:<br>ESM    | Checked:<br>PP | Approved:<br>OT |             |
| 25-03-21         | 25-03-21       | 25-03-21        |             |
|                  |                |                 | Paper: A4   |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 Ahr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Insert material: Steel  
 Minimum/maximum anode weight  $\pm 5\%$

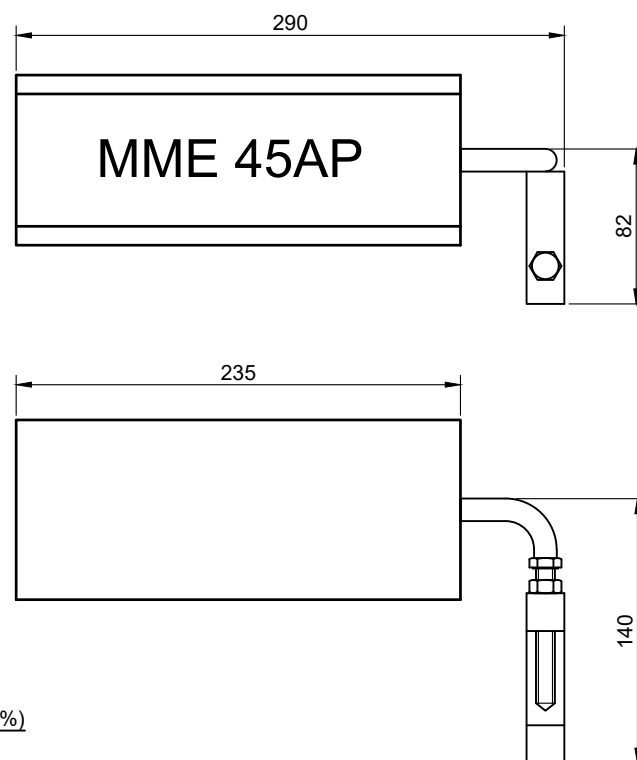
Nett Weight: 3.3 Kg  
 Gross Weight: 4.3 Kg



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### Aluminium Alloy Anode MME 33AP

|                  |                |                 |             |
|------------------|----------------|-----------------|-------------|
| Dwg: SAA 0033-01 |                |                 | Revision: 0 |
| Drawn:<br>ESM    | Checked:<br>PP | Approved:<br>OT |             |
| 25-03-21         | 25-03-21       | 25-03-21        |             |
|                  |                |                 | Paper: A4   |



#### Aluminium alloy specification

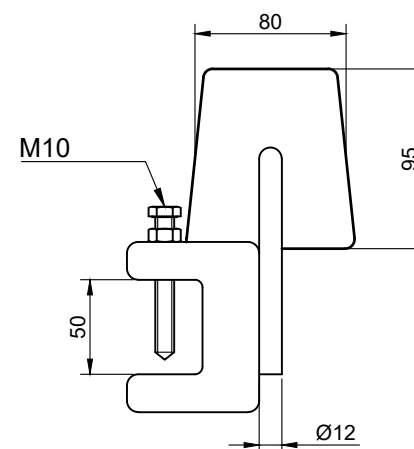
| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Insert material: Steel  
 Minimum/maximum anode weight  $\pm 5\%$



Nett Weight: 4.5 Kg

Gross Weight: 5.4 Kg



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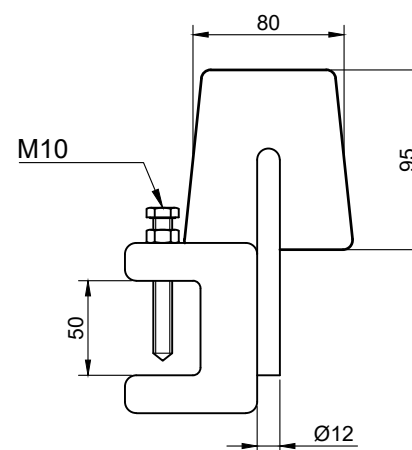
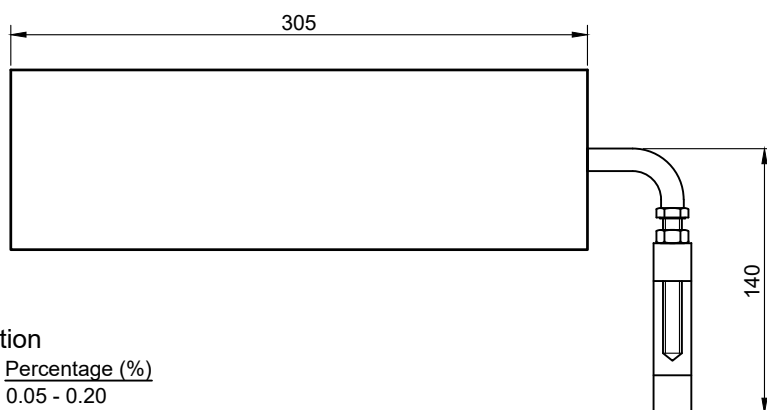
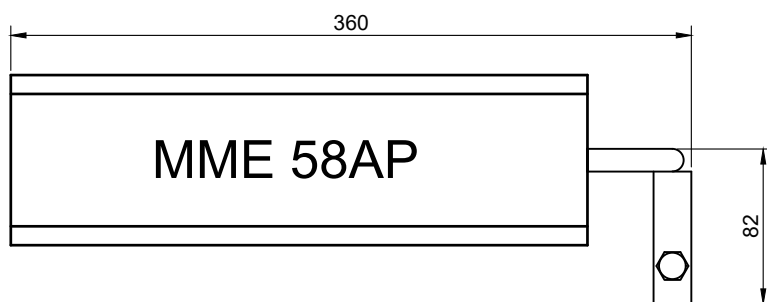
Tel: +31 (0)180 48 28 28

E-mail: sales@mme.nl

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### Aluminium Alloy Anode MME 45AP

|                  |             |              |             |
|------------------|-------------|--------------|-------------|
| Dwg: SAA 0045-02 |             |              | Revision: 0 |
| Drawn: ESM       | Checked: PP | Approved: OT |             |
| 25-03-21         | 25-03-21    | 25-03-21     |             |
|                  |             |              | Paper: A4   |



#### Aluminium alloy specification

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Silicon    |              | 0.05 - 0.20    |
| Zinc       |              | 3.50 - 5.00    |
| Titanium   |              | 0.01 - 0.05    |
| Bismuth    |              | 0.05 - 0.15    |
| Indium     |              | 0.02 - 0.05    |
| Aluminium  |              | Remainder      |
|            | Copper       | 0.01 max       |
|            | Iron         | 0.15 max       |
|            | Others each  | 0.02 max       |
|            | Others total | 0.05 max       |

Electrochemical capacity: 2700 AHr / Kg nominal

Solution potential: -1100 mV vs. Ag / AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Insert material: Steel  
 Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 5.8 Kg  
 Gross Weight: 6.8 Kg

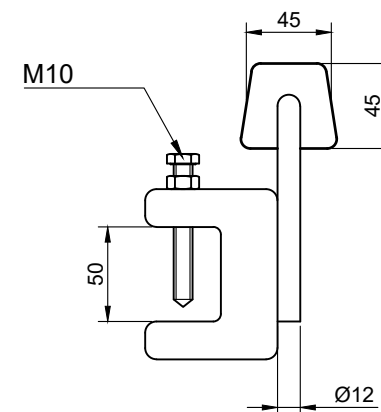
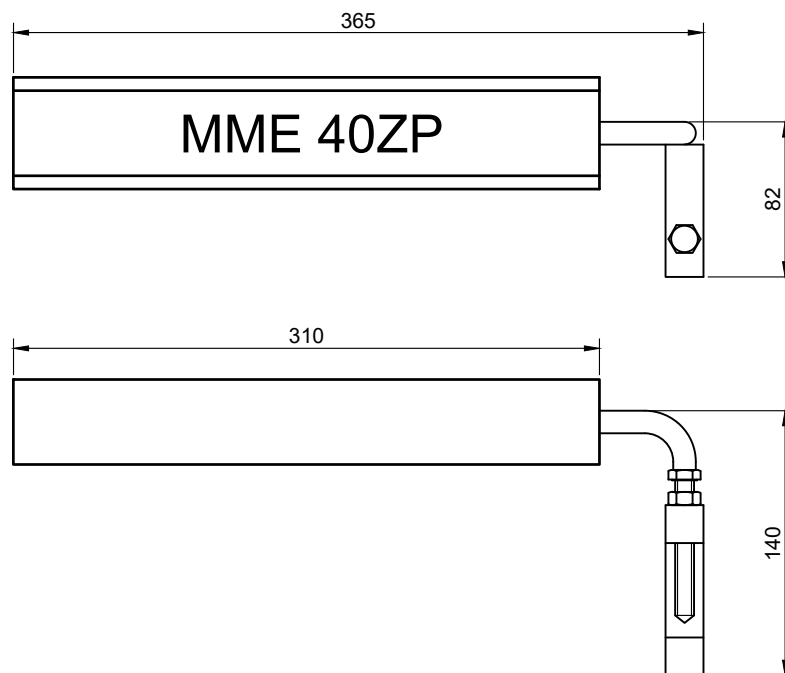


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### Aluminium Alloy Anode MME 58AP

|                  |                |                 |             |
|------------------|----------------|-----------------|-------------|
| Dwg: SAA 0058-01 |                |                 | Revision: 0 |
| Drawn:<br>ESM    | Checked:<br>PP | Approved:<br>OT |             |
| 25-03-21         | 25-03-21       | 25-03-21        |             |
|                  |                |                 | Paper: A4   |

# **ZINC PITGUARD ANODES**



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Insert material: Steel  
 Minimum/maximum anode weight  $\pm 5\%$

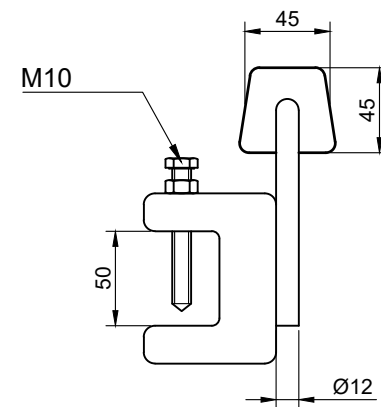
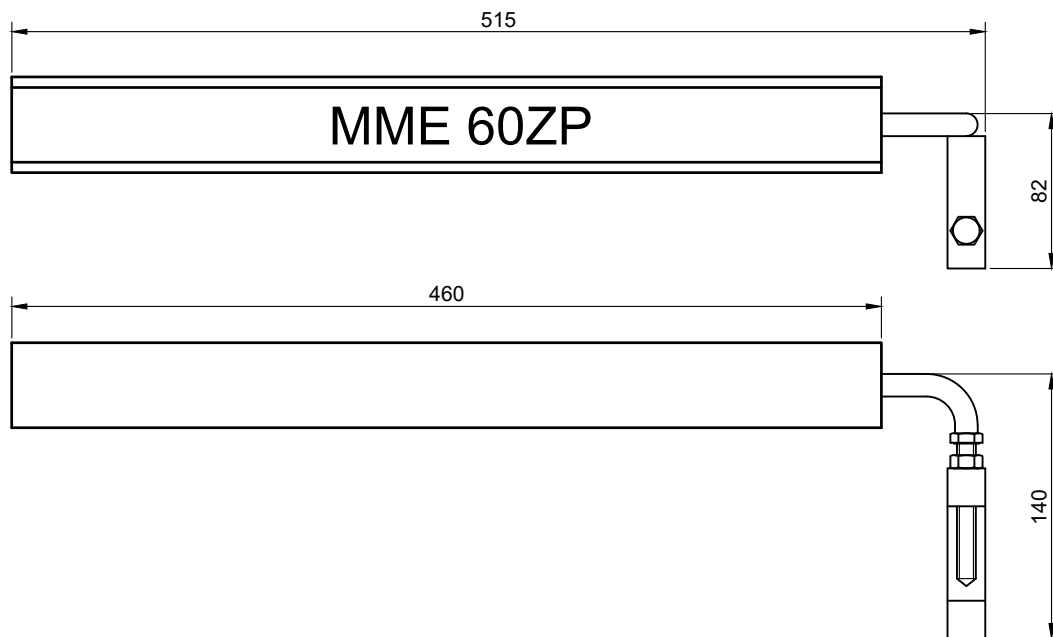
Nett Weight: 4.0 Kg  
 Gross Weight: 5.0 Kg



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#### Zinc Alloy Anode MME 40ZP

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAZ 0040-04          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>12-04-21 | Checked:<br>PP<br>12-04-21 | Approved:<br>OT<br>12-04-21 |             |
|                           |                            |                             | Paper: A4   |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Insert material: Steel  
 Minimum/maximum anode weight  $\pm 5\%$

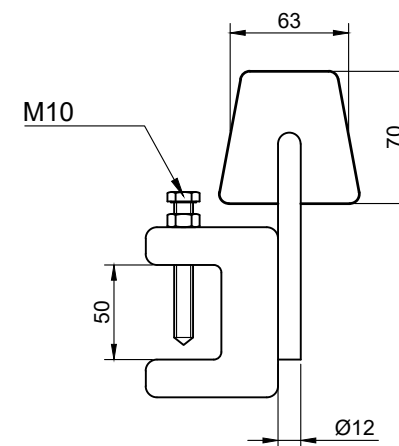
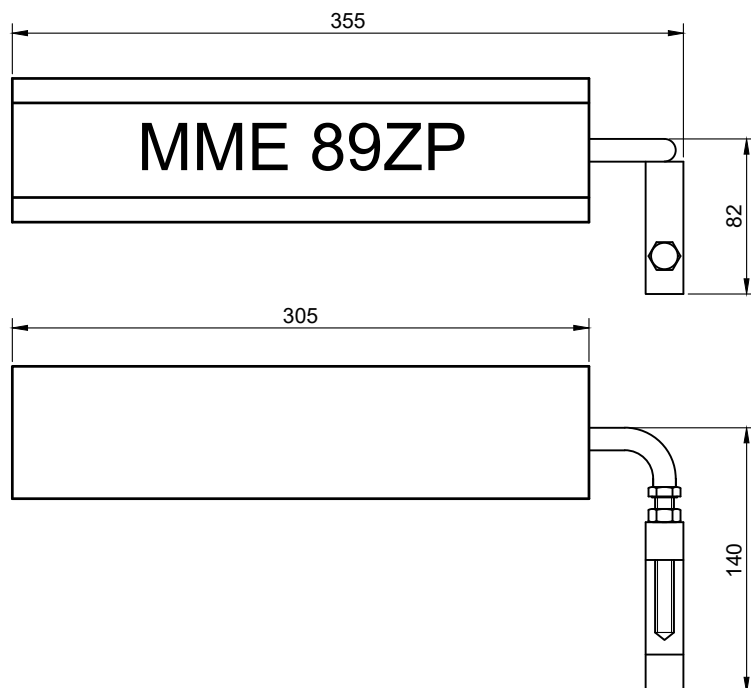
Nett Weight: 6.0 Kg  
 Gross Weight: 7.2 Kg



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#### Zinc Alloy Anode MME 60ZP

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAZ 0060-03          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>12-04-21 | Checked:<br>PP<br>12-04-21 | Approved:<br>OT<br>12-04-21 |             |
|                           |                            |                             | Paper: A4   |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Insert material: Steel  
 Minimum/maximum anode weight  $\pm 5\%$

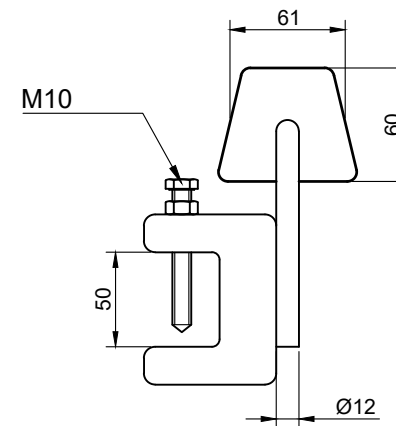
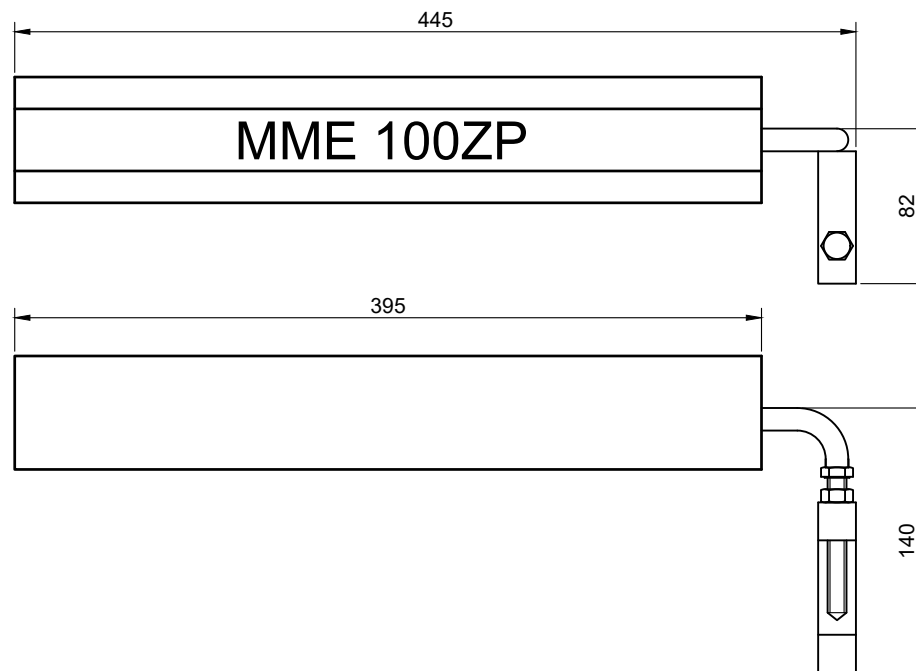
Nett Weight: 8.9 Kg  
 Gross Weight: 10.4 Kg



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#### Zinc Alloy Anode MME 89ZP

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAZ 0089-02          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>13-04-21 | Checked:<br>PP<br>13-04-21 | Approved:<br>OT<br>13-04-21 |             |
|                           |                            |                             | Paper: A4   |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Insert material: Steel  
 Minimum/maximum anode weight  $\pm 5\%$

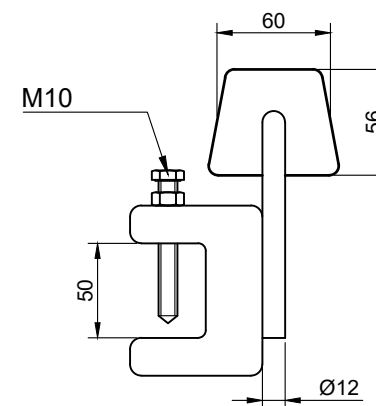
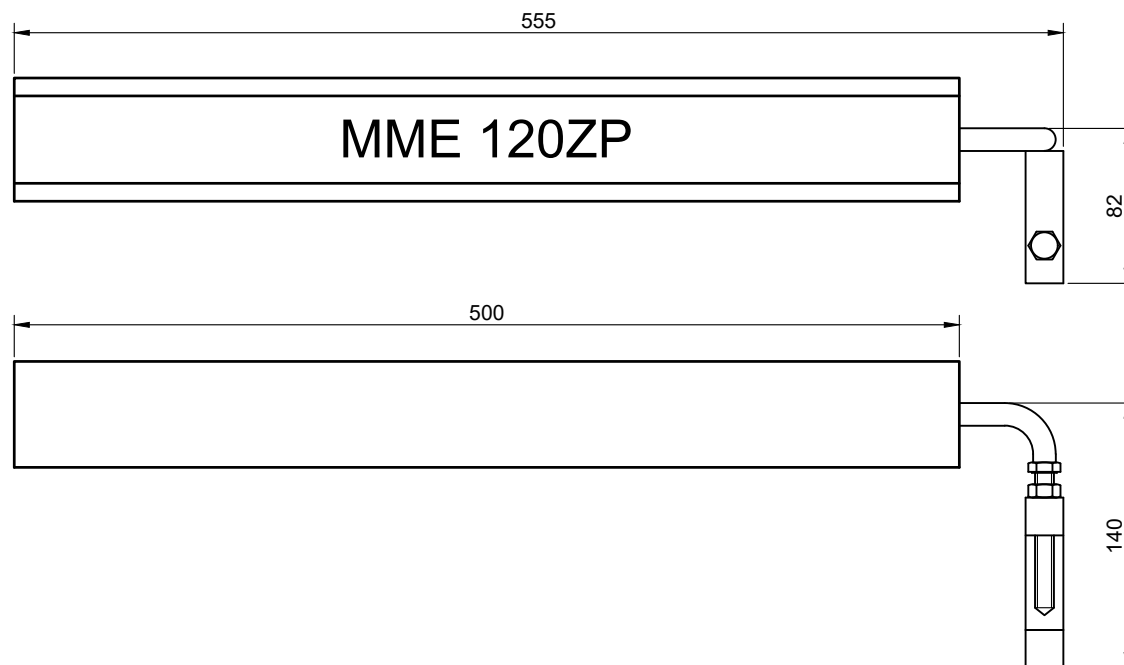
Nett Weight: 10.0 Kg  
 Gross Weight: 11.5 Kg



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#### Zinc Alloy Anode MME 100ZP

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAZ 0100-04          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>13-04-21 | Checked:<br>PP<br>13-04-21 | Approved:<br>OT<br>13-04-21 |             |
|                           |                            |                             | Paper: A4   |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Insert material: Steel  
 Minimum/maximum anode weight  $\pm 5\%$

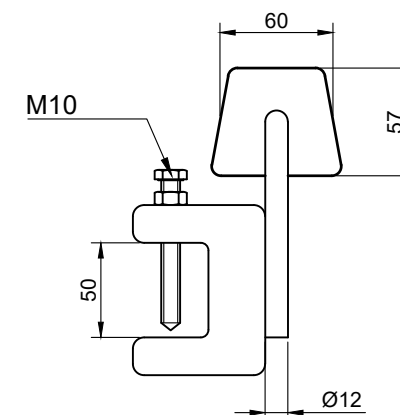
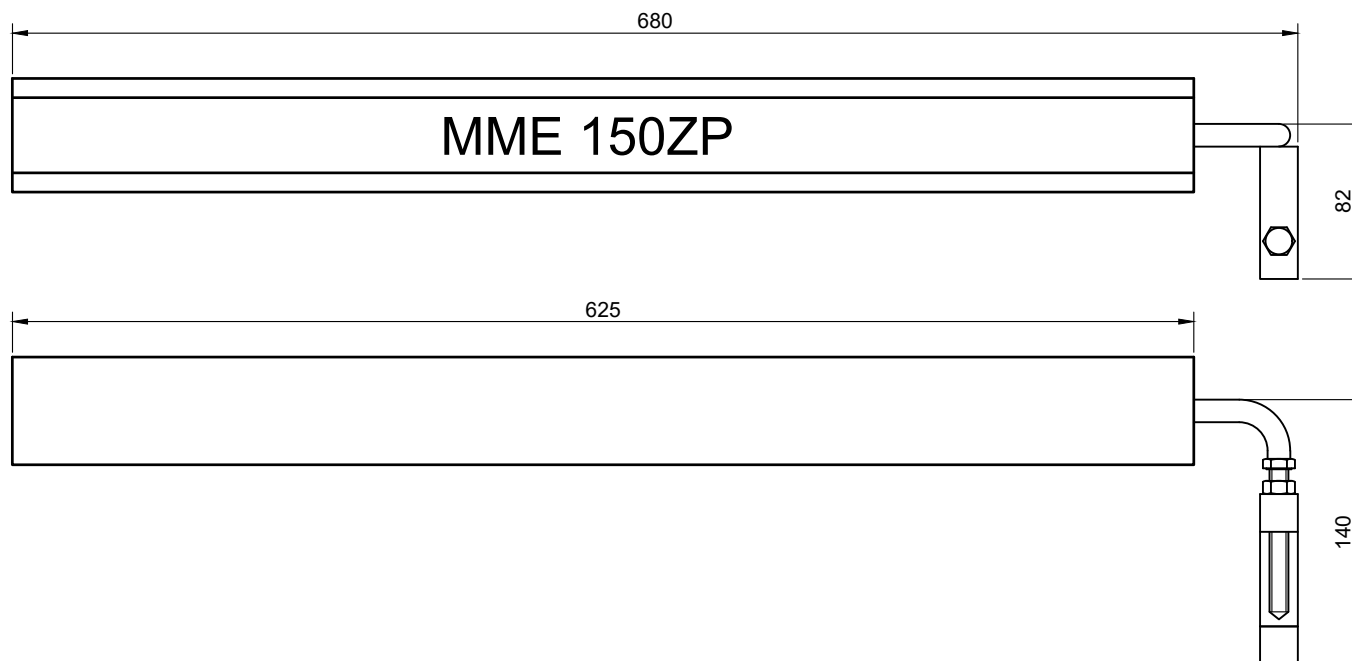
Nett Weight: 12.0 Kg  
 Gross Weight: 13.2 Kg



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### Zinc Alloy Anode MME 120ZP

|                           |                            |                             |             |
|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAZ 0120-03          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>13-04-21 | Checked:<br>PP<br>13-04-21 | Approved:<br>OT<br>13-04-21 |             |
|                           |                            |                             | Paper: A4   |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Insert material: Steel  
 Minimum/maximum anode weight  $\pm 5\%$

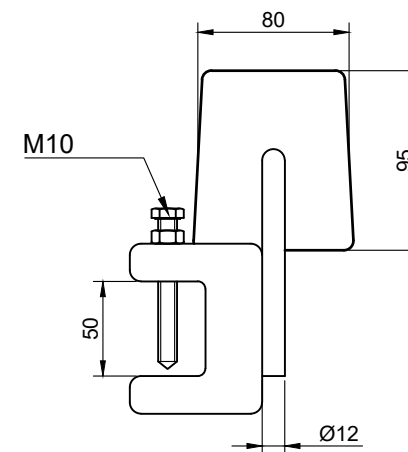
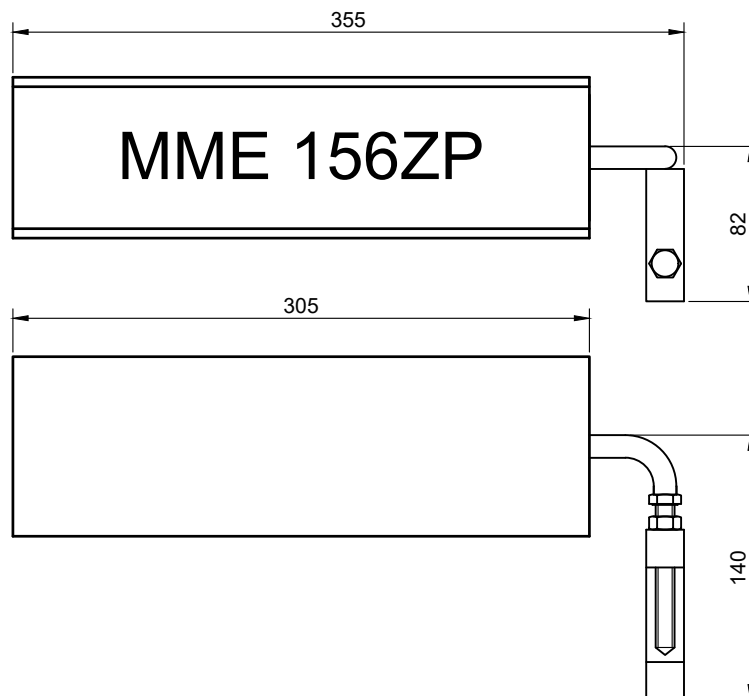
Nett Weight: 15.0 Kg  
 Gross Weight: 16.2 Kg



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#### Zinc Alloy Anode MME 150ZP

|                  |                |                 |             |
|------------------|----------------|-----------------|-------------|
| Dwg: SAZ 0150-04 |                |                 | Revision: 0 |
| Drawn:<br>ESM    | Checked:<br>PP | Approved:<br>OT |             |
| 13-04-21         | 13-04-21       | 13-04-21        |             |
|                  |                |                 | Paper: A4   |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 Text on anode is indicative and will not always be identical to this drawing  
 Insert material: Steel  
 Minimum/maximum anode weight  $\pm 5\%$

Nett Weight: 15.6 Kg  
 Gross Weight: 17.1 Kg



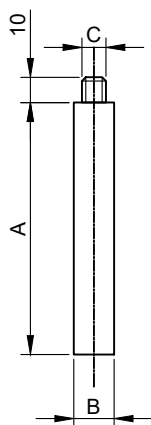
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#### Zinc Alloy Anode MME 156ZP

|                  |             |              |             |
|------------------|-------------|--------------|-------------|
| Dwg: SAZ 0156-01 |             |              | Revision: 0 |
| Drawn: ESM       | Checked: PP | Approved: OT |             |
| 13-04-21         | 13-04-21    | 13-04-21     |             |
|                  |             |              | Paper: A4   |



# **ZINC PENCIL ANODES**



| type         | Dimensions in mm |     | Thread | Plug type | Nett Weight gr. |
|--------------|------------------|-----|--------|-----------|-----------------|
|              | A                | B   | C      |           |                 |
| MME ZP10-50  | 50               | Ø10 | 1/4 W  | BP1       | 26              |
| MME ZP10-100 | 100              | Ø10 | 1/4 W  |           | 54.3            |
| MME ZP12-50  | 50               | Ø12 | 1/4 W  | BP2       | 38.4            |
| MME ZP12-100 | 100              | Ø12 | 1/4 W  |           | 79.2            |
| MME ZP16-50  | 50               | Ø16 | 3/8 W  | BP3       | 67.3            |
| MME ZP16-100 | 100              | Ø16 | 3/8 W  |           | 139.6           |
| MME ZP20-50  | 50               | Ø20 | 3/8 W  | BP4       | 108             |
| MME ZP20-100 | 100              | Ø20 | 3/8 W  |           | 221.1           |
| MME ZP25-50  | 50               | Ø25 | 3/8 W  | BP5       | 171.6           |
| MME ZP25-100 | 100              | Ø25 | 3/8 W  |           | 348.3           |

Thread weight  
1/4" tread: 5.5 g  
3/8" tread: 13 g

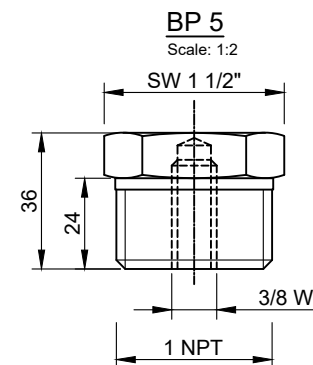
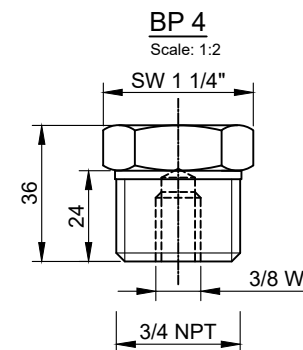
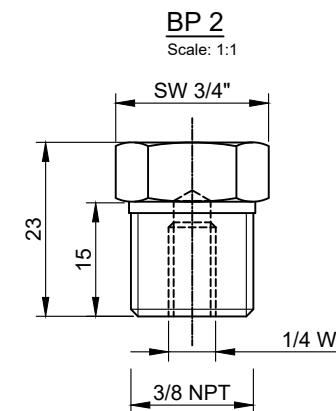
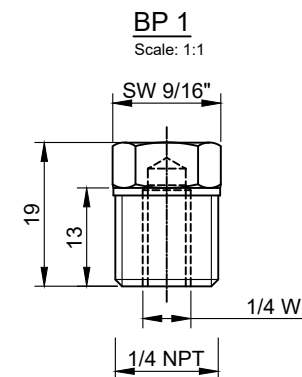
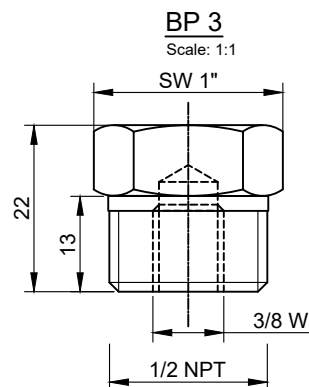
#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal  
Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
All data is subject to change without prior notice  
Plugs for pencils are made of brass



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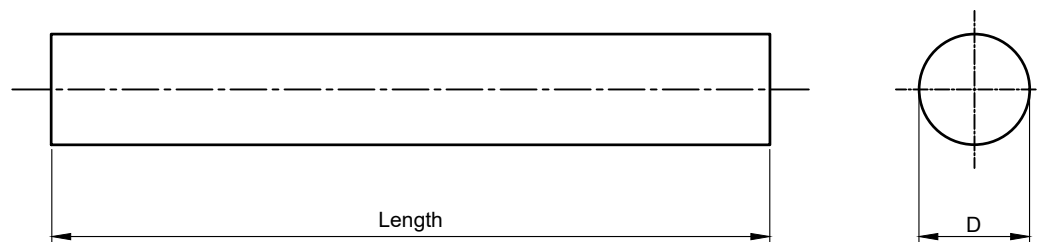
### Zinc Alloy Anode MME ZP

|                  |             |              |               |
|------------------|-------------|--------------|---------------|
| Dwg: SAZ 0004-06 |             |              | Revision: 0   |
| Drawn: ESM       | Checked: PP | Approved: OT | <br>Paper: A4 |
| 26-03-21         | 26-03-21    | 26-03-21     |               |



# **ZINC ROD ANODES**

| Type           | Dimensions in mm |        | Weight in kg |
|----------------|------------------|--------|--------------|
|                | D                | Length |              |
| MME ZR20 - 500 | 20               | 500    | 1.12         |
| MME ZR20 - 600 | 20               | 600    | 1.35         |
| MME ZR25       | 25               | 500    | 1.75         |
| MME ZR30       | 30               | 500    | 2.52         |
| MME ZR40       | 40               | 500    | 4.49         |
| MME ZR50       | 50               | 500    | 7.01         |
| MME ZR60       | 60               | 500    | 10.09        |
| MME ZR70       | 70               | 500    | 13.74        |
| MME ZR80       | 80               | 500    | 17.94        |
| MME ZR90       | 90               | 500    | 22.71        |
| MME ZR100      | 100              | 500    | 28.04        |
| MME ZR125      | 125              | 500    | 43.81        |
| MME ZR150      | 150              | 500    | 63.09        |



#### Zinc alloy specifications acc. US Mil. Spec-A-18001K

| Components | Impurities   | Percentage (%) |
|------------|--------------|----------------|
| Cadmium    |              | 0.025 - 0.07   |
| Aluminium  |              | 0.10 - 0.5     |
| Zinc       |              | Remainder      |
|            | Copper       | 0.005 max      |
|            | Iron         | 0.005 max      |
|            | Lead         | 0.006 max      |
|            | Others total | 0.10 max       |

Electrochemical capacity: 780 AHr/Kg nominal

Solution potential: -1050mV vs. Ag/AgCl reference cell nominal (in seawater)

Other specifications are available on request.

Note: All dimensions and weights are nominal. Dimensions in mm  
All data is subject to change without prior notice



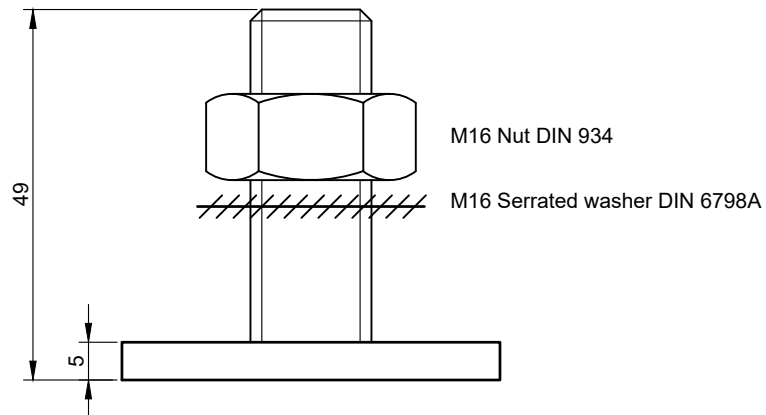
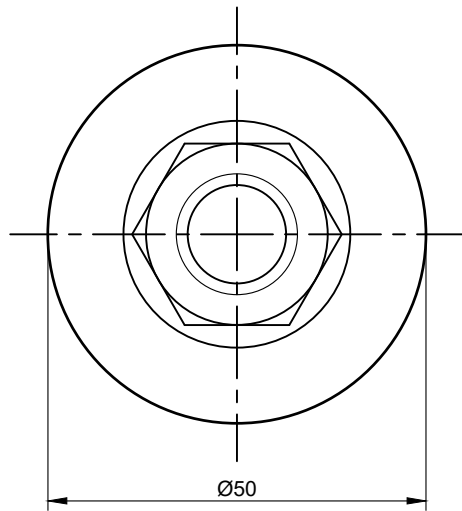
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### Zinc Alloy Anode MME ZR

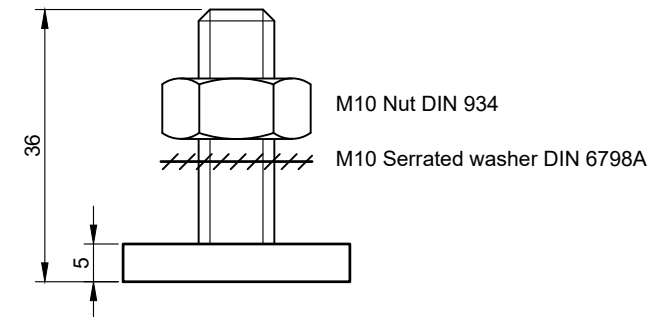
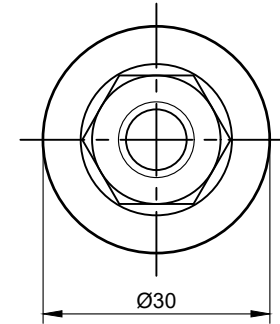
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|---------------------------|----------------------------|-----------------------------|-------------|
| Dwg: SAZ 0631-01          |                            |                             | Revision: 0 |
| Drawn:<br>ESM<br>26-03-21 | Checked:<br>PP<br>26-03-21 | Approved:<br>OT<br>26-03-21 |             |
|                           |                            |                             |             |
|                           |                            |                             | Paper: A4   |

# **MOUNTING MATERIAL**

M16 Stud assembly



M10 Stud assembly



Note: All dimensions are nominal. Dimensions in mm  
All data is subject to change without prior notice  
To be used for bolt-on anodes  
Available in mild steel and stainless steel

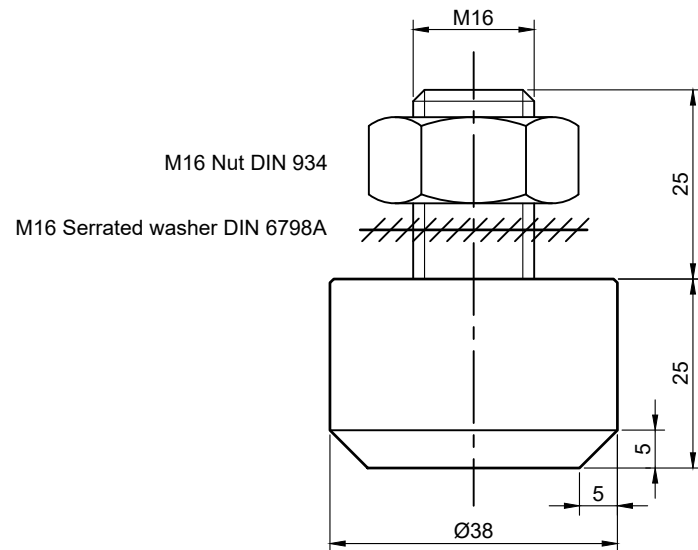
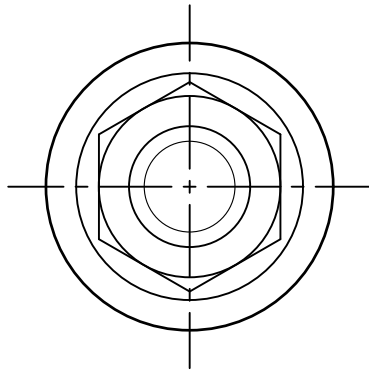


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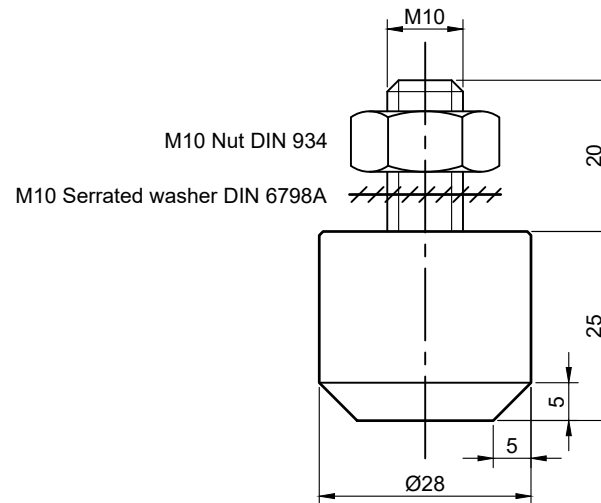
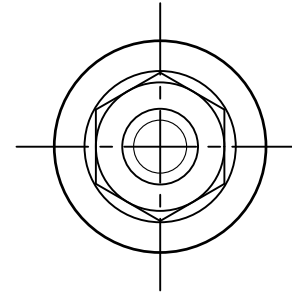
### Studs Assembly type A M10 & M16

|                            |                            |                             |                                                                                                    |
|----------------------------|----------------------------|-----------------------------|----------------------------------------------------------------------------------------------------|
| Dwg: Studs Assembly type A |                            |                             | Revision: 0                                                                                        |
| Drawn:<br>ESM<br>25-05-21  | Checked:<br>PP<br>25-05-21 | Approved:<br>OT<br>25-05-21 | <br>Paper: A4 |
|                            |                            |                             |                                                                                                    |

M16 Stud assembly



M10 Stud assembly



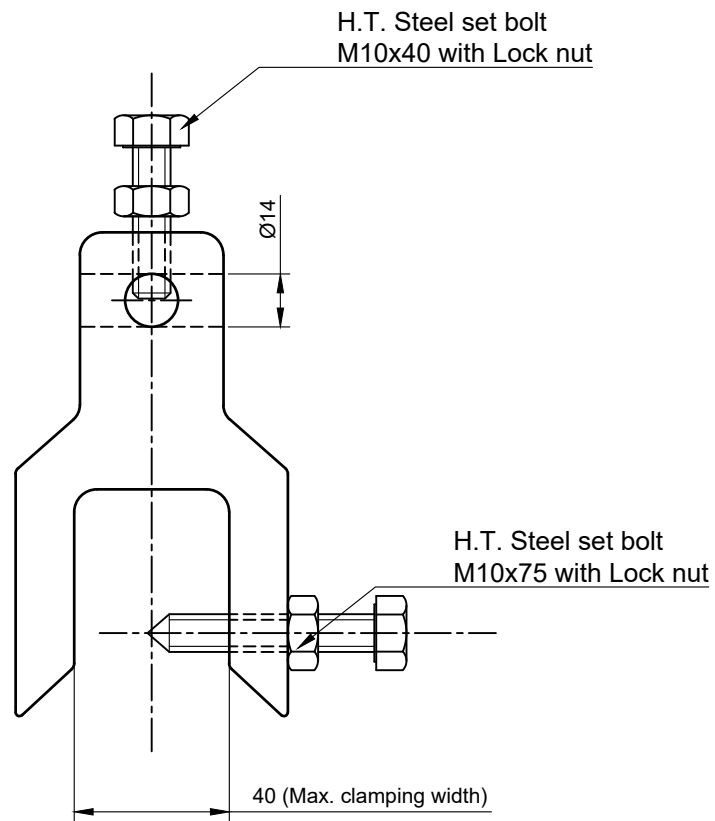
Note: All dimensions are nominal. Dimensions in mm  
 All data is subject to change without prior notice  
 To be used for bolt-on anodes  
 Available in mild steel and stainless steel



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## Studs Assembly type B M10 & M16

|                            |                            |                             |                                                                                                    |
|----------------------------|----------------------------|-----------------------------|----------------------------------------------------------------------------------------------------|
| Dwg: Studs Assembly type B |                            |                             | Revision: 0                                                                                        |
| Drawn:<br>ESM<br>25-05-21  | Checked:<br>PP<br>25-05-21 | Approved:<br>OT<br>25-05-21 | <br>Paper: A4 |
|                            |                            |                             |                                                                                                    |



Nett Weight: 0.95 Kg  
Gross Weight: 0.95 Kg



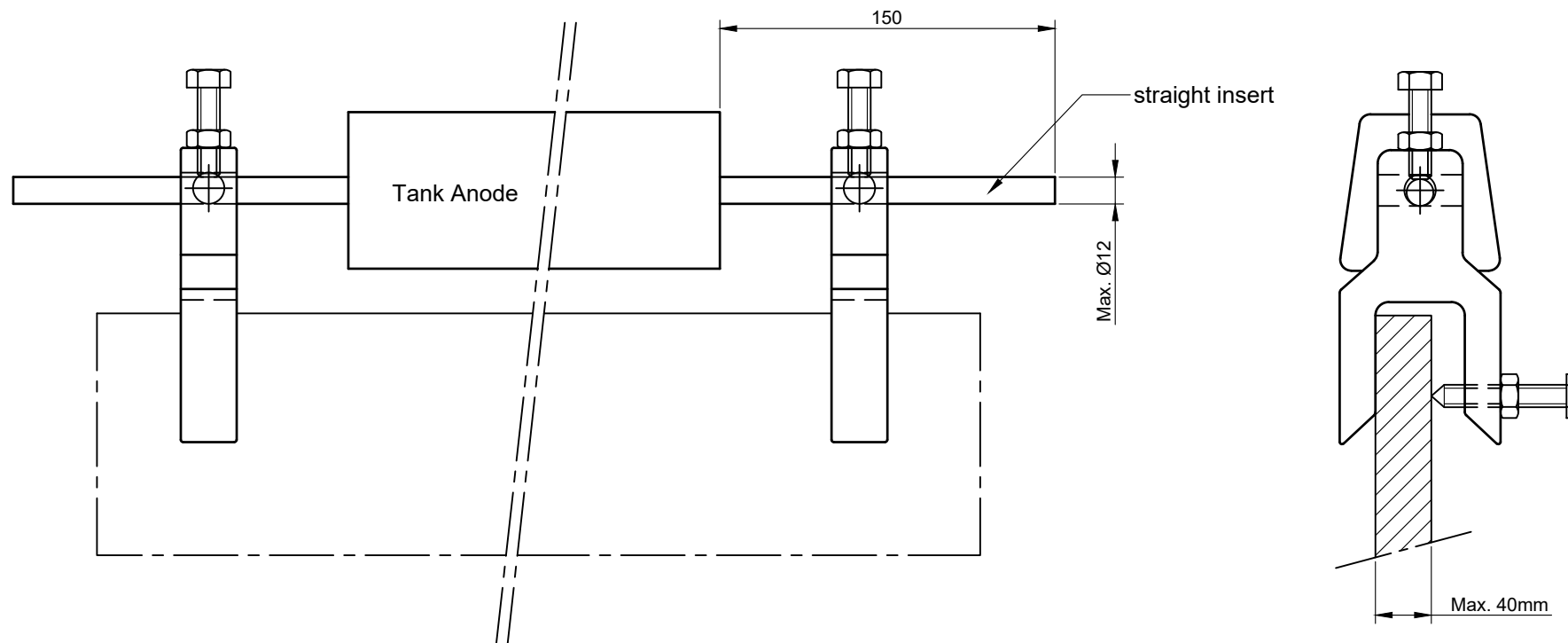
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### "M" - Clamp Mild Steel

|                |                |                 |             |
|----------------|----------------|-----------------|-------------|
| Dwg: M - Clamp |                |                 | Revision: 0 |
| Drawn:<br>ESM  | Checked:<br>PP | Approved:<br>OT |             |
| 25-05-21       | 25-05-21       | 25-05-21        |             |
|                |                |                 | Paper: A4   |

Note: All dimensions and weights are nominal. Dimensions in mm  
For installing tank anodes without welding  
2pcs per installed tank anode required

## Tank anode arrangement with M-clamps



All our tank anodes are also available with straight inserts for this type of installation!

Note: All dimensions and weights are nominal. Dimensions in mm  
For installing tank anodes without welding  
Two m-clamps per installed tank anode required



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### "M" - Clamp Installation Tank Anode With Straight Insert

|                             |             |              |                                                                                                    |
|-----------------------------|-------------|--------------|----------------------------------------------------------------------------------------------------|
| Dwg: M - Clamp Installation |             |              | Revision: 0                                                                                        |
| Drawn: ESM                  | Checked: PP | Approved: OT | <br>Paper: A4 |
| 25-05-21                    | 25-05-21    | 25-05-21     |                                                                                                    |



## Inspection, Testing and Corrosion Specialist

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MME Group has a large, professional and fully owned foundry for the manufacturing of sacrificial anodes for the marine, offshore, renewable energy and civil engineering industries.

*A Longer Life*



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Houma, LA 70363  
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