



## MAGNESIUM ANODE-DURAMAG

Magnesium anode is the most common material used as sacrificial anode in cathodic protection system because of its higher driving voltage, easy installation and limited maintenance. It is typically used for buried transmission oil & gas pipelines, and also can be used to protect structures in fresh water.

Our DuraMag anodes are all manufactured and tested according to the latest international standards, such as ASTM B843 and ASTM G97, it is available from both M1C (high potential) or AZ63B (Std potential) alloy with an annual capacity of 8,000 metric tons. In the past decade, our anodes were widely used in North America, Europe, Middle East, and Asia markets, and we have been approved as a vendor by Saudi Aramco since 2006.

### Features:

- High purity raw material.
- Rigid process control.
- Automatic production.
- Advanced testing facilities.

### Specification:

#### ■ High Potential Magnesium Anode

Alloy: ASTM B843-M1C

### Chemical composition:

| Aluminum  | Manganese  | Copper     | Silicon   | Nickel     | Fe        | Single Impurity | Total Impurity | Remaining |
|-----------|------------|------------|-----------|------------|-----------|-----------------|----------------|-----------|
| 0.01% Max | 0.50-1.30% | 0.005% Max | 0.05% Max | 0.001% Max | 0.01% Max | 0.05% Max       | 0.30% Max      | Magnesium |

### Electrochemical properties:

| Open Voltage (-V) | Closed Voltage (-V) | Actual capacity A.h/kg | Efficiency % |
|-------------------|---------------------|------------------------|--------------|
| 1.70-1.75(-V) SCE | 1.58-1.62(-V) SCE   | 1100                   | 50           |

#### ■ Standard Potential Magnesium Anode

Alloy: ASTM B843-AZ63B

### Chemical composition:

| Aluminum | Manganese | Copper    | Silicon   | Nickel     | Zn       | Fe         | Single Impurity | Total Impurity | Remaining |
|----------|-----------|-----------|-----------|------------|----------|------------|-----------------|----------------|-----------|
| 5.3-6.7% | 0.15-0.7% | 0.02% Max | 0.10% Max | 0.002% Max | 2.5-3.5% | 0.003% Max | 0.05% Max       | 0.30% Max      | Magnesium |

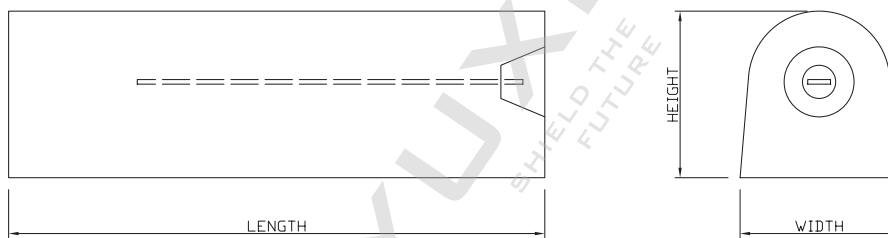
### Electrochemical properties:

| Open Voltage (-V) | Closed Voltage (-V) | Actual capacity A.h/kg | Efficiency % |
|-------------------|---------------------|------------------------|--------------|
| 1.50-1.55(-V) SCE | 1.45-1.50(-V) SCE   | 1230                   | 55           |



## ■ "D" Shape Anode

### Dimension and Weight:



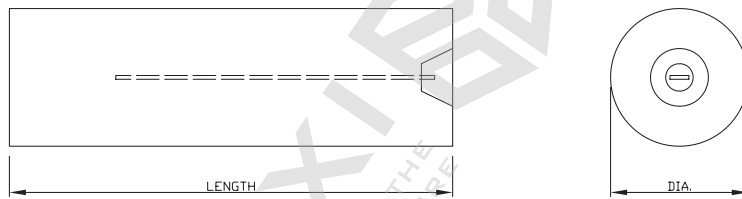
| 'D' Type     | High Potential(-1.7V) |        |        |        | Standard Potential(-1.5V) |        |        |        | Item No. |
|--------------|-----------------------|--------|--------|--------|---------------------------|--------|--------|--------|----------|
|              | Width                 | Length | Height | Weight | Width                     | Length | Height | Weight |          |
| YX-MG-5D2    | 70                    | 310    | 76     | 2.3    | 70                        | 305    | 76     | 2.3    | 1        |
| YX-MG-9D2    | 70                    | 560    | 76     | 4.1    | 70                        | 550    | 76     | 4.1    | 2        |
| YX-MG-9D2-1  | 63.5                  | 650    | 67     | 4.1    | 63.5                      | 640    | 67     | 4.1    | 3        |
| YX-MG-20D2   | 70                    | 1524   | 76     | 9.1    | 70                        | 1495   | 76     | 9.1    | 4        |
| YX-MG-20D2-1 | 63.5                  | 1450   | 67     | 9.1    | 63.5                      | 1420   | 67     | 9.1    | 5        |
| YX-MG-14D2   | 70                    | 850    | 76     | 6.36   | 70                        | 830    | 76     | 6.36   | 6        |
| YX-MG-17D2   | 63.5                  | 1210   | 67     | 7.7    | 63.5                      | 1188   | 67     | 7.7    | 7        |
| YX-MG-5D3    | 89                    | 190    | 95     | 2.3    | 89                        | 180    | 95     | 2.3    | 8        |
| YX-MG-9D3    | 89                    | 345    | 95     | 4.1    | 89                        | 325    | 95     | 4.1    | 9        |
| YX-MG-17D3   | 89                    | 645    | 95     | 7.7    | 89                        | 610    | 95     | 7.7    | 10       |
| YX-MG-32D5   | 140                   | 498    | 146    | 14.5   | 140                       | 472    | 146    | 14.5   | 11       |
| YX-MG-48D5   | 140                   | 750    | 146    | 21.8   | 140                       | 710    | 146    | 21.8   | 12       |
| YX-MG-17D4   | 102                   | 525    | 108    | 7.7    |                           |        |        |        | 13       |
| YX-MG-60D4   | 112                   | 1524   | 112    | 27.3   | 114                       | 1485   | 114    | 27.3   | 14       |

\*All dimensions and weights shown are nominal (mm/kg). actual dimensions/weight will be adjusted according to drawings



### ■ "R" Shape Anode

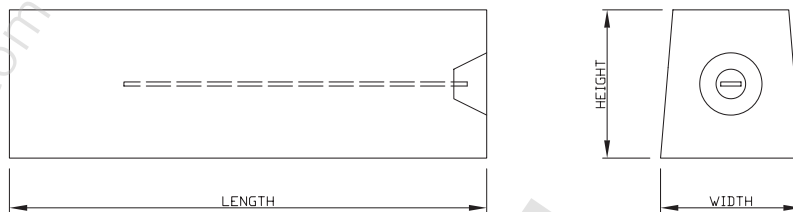
Dimension and Weight:



| 'R' Type   | High Potential(-1.7V) |        |        | Standard Potential(-1.5V) |        |        | Item No. |
|------------|-----------------------|--------|--------|---------------------------|--------|--------|----------|
|            | Diameter              | Length | Weight | Diameter                  | Length | Weight |          |
| YX-MG-R50  | 114                   | 288    | 5.0    | 114                       | 275    | 5.0    | 1        |
| YX-MG-R77  | 114                   | 440    | 7.7    | 114                       | 410    | 7.7    | 2        |
| YX-MG-R100 | 114                   | 565    | 10.0   | 114                       | 545    | 10.0   | 3        |
| YX-MG-R145 | 146                   | 505    | 14.5   | 146                       | 475    | 14.5   | 4        |
| YX-MG-R273 | 114                   | 1524   | 27.3   | 114                       | 1450   | 27.3   | 5        |

### ■ "S" Shape Anode

Dimension and Weight:



| 'S' Type   | High Potential(-1.7V) |        |        |        | Standard Potential(-1.5V) |        |        |        | Item No. |
|------------|-----------------------|--------|--------|--------|---------------------------|--------|--------|--------|----------|
|            | Width                 | Length | Height | Weight | Width                     | Length | Height | Weight |          |
| YX-MG-3S3  | 86.25                 | 120    | 76     | 1.4    | 86.25                     | 115    | 76     | 1.4    | 1        |
| YX-MG-5S3  | 86.25                 | 204    | 76     | 2.3    | 86.25                     | 198    | 76     | 2.3    | 2        |
| YX-MG-9S3  | 86.25                 | 365    | 76     | 4.1    | 86.25                     | 345    | 76     | 4.1    | 3        |
| YX-MG-17S3 | 86.25                 | 680    | 76.2   | 7.7    | 86.25                     | 650    | 76     | 7.7    | 4        |
| YX-MG-32S5 | 117                   | 563    | 127    | 14.5   | 117                       | 535    | 127    | 14.5   | 5        |
| YX-MG-48S5 | 117                   | 845    | 127    | 21.8   | 117                       | 820    | 127    | 21.8   | 6        |



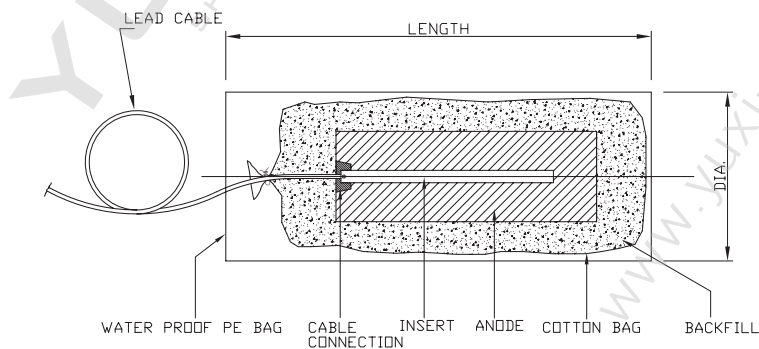
### ■ Pre-packaged Magnesium Anode

YUXI pre-packed anodes are made of recyclable material and easily decomposable material, the content of harmful element in the backfill is lower than safety standards, which is absolutely environmental friendly.

The available cables type are PVC/PVC, XLPE/PVC, HMWPE, THHN, TW at any required size.

| Backfill Element |     |
|------------------|-----|
| Gypsum           | 75% |
| Bentonite        | 20% |
| Sodium Sulphate  | 5%  |

| Harmful Elements |        |
|------------------|--------|
| Cadmium (Cd)     | ≤1ppm  |
| Arsenicum (As)   | ≤1ppm  |
| Mercury (Hg)     | ≤1ppm  |
| Phosphorus (Pb)  | ≤10ppm |





### Dimension and Weight:

| Part No.     | Diameter | Lenght | Weight | Item No. |
|--------------|----------|--------|--------|----------|
| YX-PMG-5D2   | 127      | 450    | 8.2    | 1        |
| YX-PMG-9D2   | 140      | 690    | 16     | 2        |
| YX-PMG-9D2-1 | 130      | 810    | 16     | 3        |
| YX-PMG-20D2  | 140      | 1650   | 38     | 4        |
| YX-PMG-5D3   | 160      | 300    | 9.0    | 5        |
| YX-PMG-9D3   | 160      | 550    | 16     | 6        |
| YX-PMG-17D3  | 160      | 780    | 22     | 7        |
| YX-PMG-32D5  | 200      | 680    | 30     | 8        |
| YX-PMG-48D5  | 205      | 960    | 45     | 9        |
| YX-PMG-R50   | 160      | 480    | 13.5   | 10       |
| YX-PMG-R77   | 175      | 640    | 22     | 11       |
| YX-PMG-R100  | 175      | 710    | 25     | 12       |
| YX-PMG-R145  | 200      | 650    | 30     | 13       |
| YX-PMG-R273  | 175      | 1650   | 58     | 14       |
| YX-PMG-5S3   | 160      | 350    | 10     | 15       |
| YX-PMG-9S3   | 160      | 550    | 16     | 16       |
| YX-PMG-17S3  | 160      | 800    | 23     | 17       |
| YX-PMG-32S5  | 195      | 700    | 30     | 18       |
| YX-PMG-48S5  | 200      | 1000   | 45     | 19       |

\*All dimensions and weights shown are nominal (mm/kg).