



OWN
MANUFACTURING

PROTECTORS (ANODES) FOR ANTI-CORROSION DEFENSE

UNDERWATER
INSTALLATION



PURPOSE OF PROTECTORS (ANODES)



Protectors (anodes) are designed for the corrosion protection of metal trestles, piers, and other offshore structures related to oil and gas extraction - whether in the design, construction, or operational phases. They are also designed to protect metal hydraulic structures, underground metal structures and communications.

OPERATING PRINCIPLE

The method of anti-corrosion protection is to prevent the destruction of structures and pipelines, as well as to avoid environmental contamination.

During the protection process, the protectors (anodes) dissolve and pass into the seawater, soil in an ionic state, practically without increasing the content of aluminum and zinc (the main materials of the protectors) in seawater and soil, and do not have a toxicological effect on the ecosystem.

PROTECTOR (ANOD) SELECTION

The choice of protector (anod) depends on the service life of the specific structure and is determined by the regulatory and technical documentation for the corrosion protection of designed or existing facilities.

For the calculation of projects for the protection of hull structures and metal structures from corrosion, the mass of the alloy is used according to the design documentation.

INSTALLATION

The protectors (anodes) are installed by welding the protectors' carcass to the protected structure, or by mechanical attachment using a bolted connection, or by connecting a conductor to a pre-prepared contact point on the structure. The methods of attaching the protectors (anodes) are developed in the corrosion protection project in accordance with current standards and regulations.

The protectors (anodes) are operated in accordance with the safety standards of the protected objects.



PHYSICO-CHEMICAL CHARACTERISTICS OF PROTECTOR (ANOD) ALLOYS

Protectors (Anodes) are manufactured in accordance with TU U 45.3-30376734.001-2002 (with amended in 2026) and are available for custom production based on individual specifications

| Alloy Grade | Density, g/cm ³ | Stationary potential | | Theoretical current capacity (Electrochemical capacity), Ah/kg | Utilization factor (Efficiency), %, min. |
|-------------|----------------------------|---|---|--|--|
| | | vs. AgCl (Silver chloride) reference electrode, V | vs. CSE (Copper Sulfate) reference electrode, V | | |
| ZP6 | 7.1 | 1.06 | 1.17 | 820 | 95 |
| ZP7 | 7.1 | 1.06 | 1.17 | 820 | 95 |
| ZP8 | 7.1 | 1.06 | 1.17 | 820 | 95 |
| AZC | 3.0 | 0.95 | 1.1-1.15 | 2100 | 85 |
| AZC-Mg | 2.8 | 0.84-0.95 | 0.95-1.06 | 2300 | 70 |

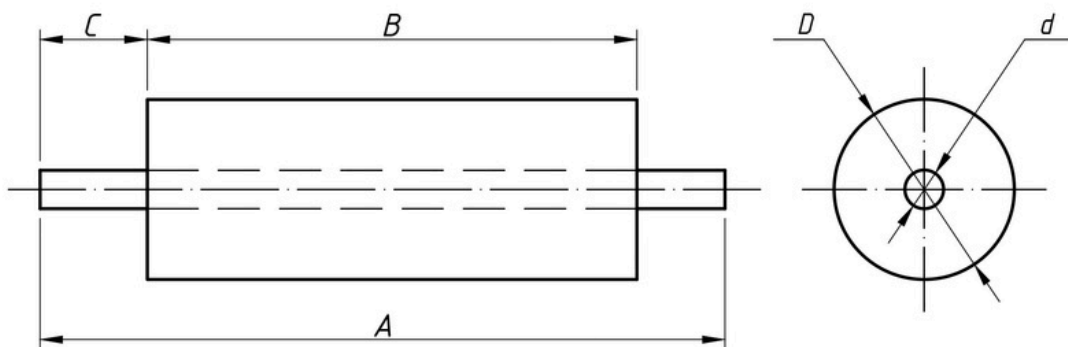


PROTECTORS PACM

(ALUMINUM PROTECTOR (ANOD) FOR MARINE STRUCTURES)

Designed to protect hydraulic structures that are constantly operated in seawater: pile foundations, sheet pile walls, berthing groups, stationary offshore platforms, oil rigs, cranes.

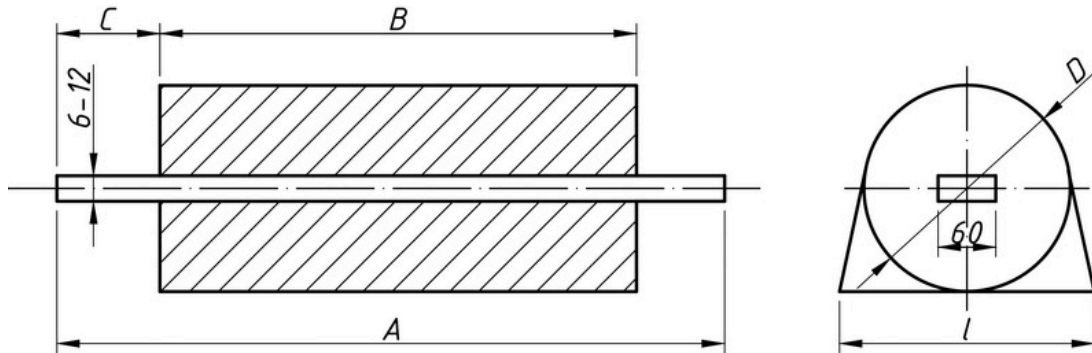
PROTECTOR PACM (CYLINDRICAL)



| Protector type/size | Dimensions, mm | | | | | Weight, kg |
|---------------------|----------------|---------|--------|--------|----|------------|
| | A | B | C | D | d | |
| PACM-40 | 1900±10 | 1400±10 | 250±10 | 120±10 | 20 | 40 |
| PACM-65 | 1700±10 | 1200±10 | 250±10 | 170±10 | 57 | 65 |
| PACM-80 | 1800±10 | 1300±10 | 250±10 | 180±10 | 57 | 80 |



PROTECTOR PACM (TROUGH-SHAPED)



| Protector type/size | Dimensions, mm | | | | | Weight, kg |
|---------------------|----------------|---------|--------|--------|--------|------------|
| | A | B | C | D | ℓ | |
| PACM-40 | 1660±10 | 1030±10 | 250±10 | 120±10 | 140±10 | 40 |
| PACM-44* | 3200±15 | 3000±15 | 100±10 | 80±3 | 80±3 | 44 |
| PACM-55 | 1400±10 | 900±10 | 250±10 | 170±10 | 185±10 | 65 |
| PACM-80 | 1600±10 | 1100±10 | 250±10 | 180±10 | 180±10 | 80 |

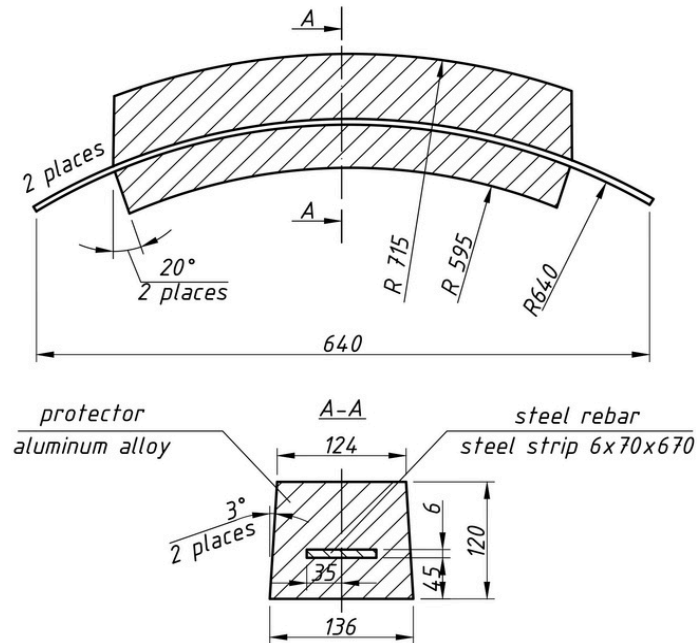


Installation of protectors intended for anti-corrosion protection of the underwater part of marine structures and pipelines must be carried out in accordance with the requirements of DBN A.3.2-2-2009, the Unified Safety Rules for Diving Operations, as well as industry-specific documents on occupational health and safety.

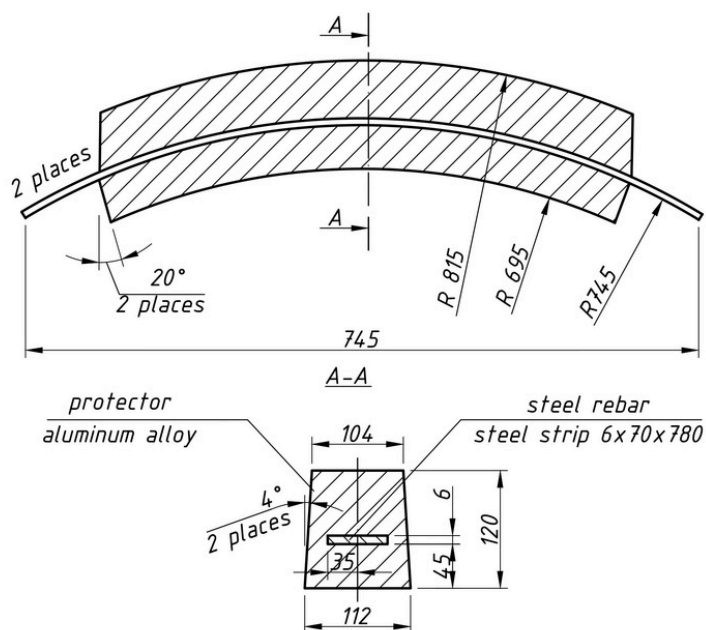
PROTECTOR PBA

(ALUMINUM BRACELET PROTECTOR (ANOD))

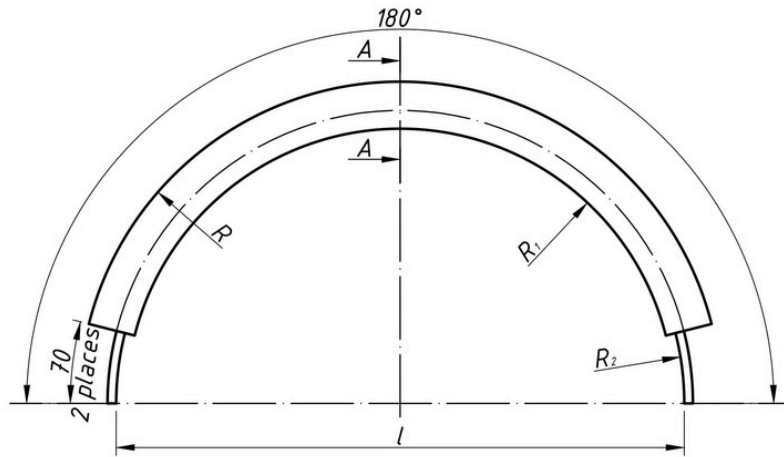
Designed for protection of pile hydraulic structures, which are constantly operated in sea water, pipelines and other objects of tubular construction.



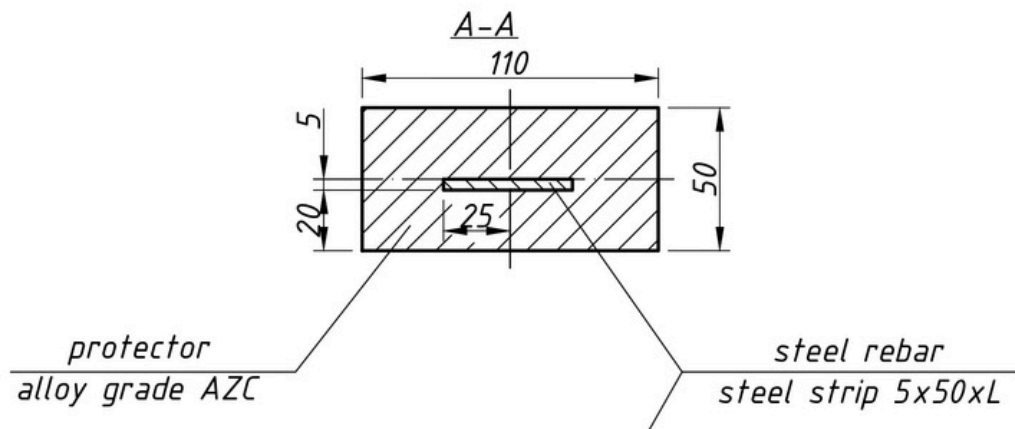
PROTECTOR PBA-1020 BRACELET TYPE



PROTECTOR PBA-1220 BRACELET TYPE



ROTECTOR PBA 219, 325 AND 426 BRACELET TYPE

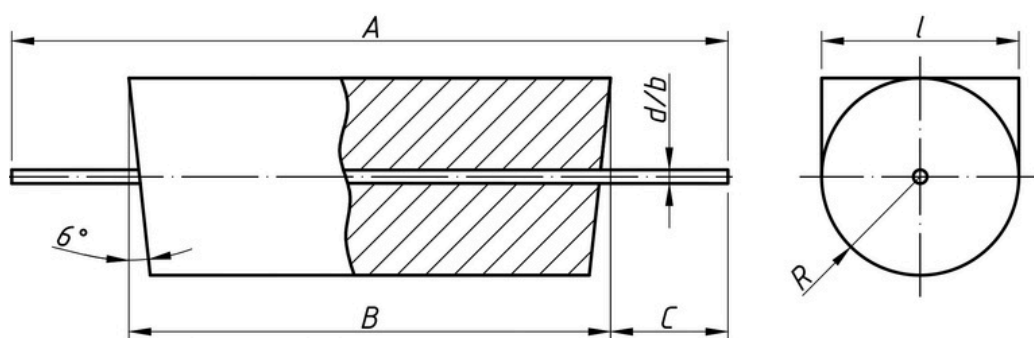


| Protector type/size | Dimensions, mm | | | | | Weight, kg |
|---------------------|----------------|----------------|----------------|-------|-----|------------|
| | R | R ₁ | R ₂ | L | I | |
| PBA-219 | 161 | 111 | 131 | 412±5 | 262 | 13 |
| PBA-325 | 214 | 164 | 184 | 578±5 | 368 | 18 |
| PBA-426 | 317 | 267 | 287 | 902±5 | 574 | 27 |

PROTECTOR P-AUSC

(ALUMINUM PROTECTOR (ANOD) FOR UNDERGROUND STRUCTURES AND COMMUNICATIONS)

PROTECTOR P-AUSC



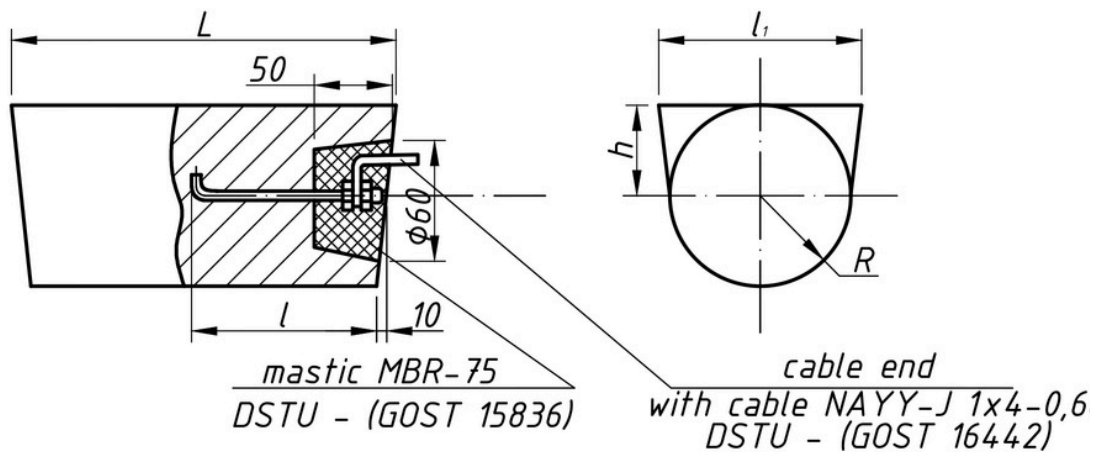
| Protector type/size | Dimensions, mm | | | | | | | Weight, kg |
|---------------------|----------------|--------|--------|----|-----------|---|-------|------------|
| | A | B | C | R | φ | d | b | |
| P-AUSC-10 | 600±10 | 500±10 | 100±1 | 40 | 100 | 6 | - | 10 |
| P-AUSC-17.5 | 3400±10 | 2700±5 | 350±50 | 25 | 52 | 6 | - | 17,5 |
| P-AUSC-60 | 1000±10 | 900±10 | 100±1 | 85 | 185 | - | 60x12 | 60 |



PROTECTOR P-AUSCC

(ALUMINUM PROTECTOR (ANOD) FOR UNDERGROUND STRUCTURES AND COMMUNICATIONS WITH CABLE CONNECTION)

PROTECTOR P-AUSCC



| Protector type/size | Dimensions, mm | | | | | Weight, kg |
|---------------------|----------------|-----|----------------|------|----|------------|
| | L | l | l ₁ | h | R | |
| P-AUSCC-10 | 500±10 | 230 | 100±3 | 50±5 | 40 | 10 |
| P-AUSCC-20 | 610±10 | 287 | 140±3 | 65±5 | 60 | 20 |

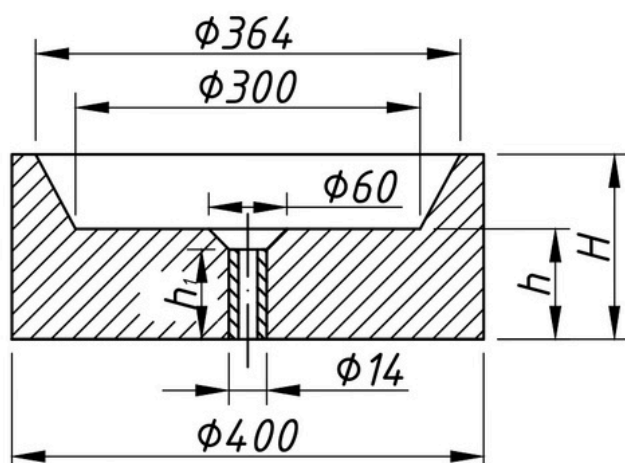
Installation of protectors intended for anti-corrosion protection of underground structures and pipelines must be carried out in accordance with the requirements of DBN A.3.2-2-2009, as well as the Safety Rules for Geological Exploration Works.

PROTECTOR PAR

(ALUMINUM PROTECTOR (ANOD) FOR TANKS)

Designed to protect against corrosion of the internal surfaces of storage tanks, oil clarifiers, separators, and other structures.

PROTECTOR PAR



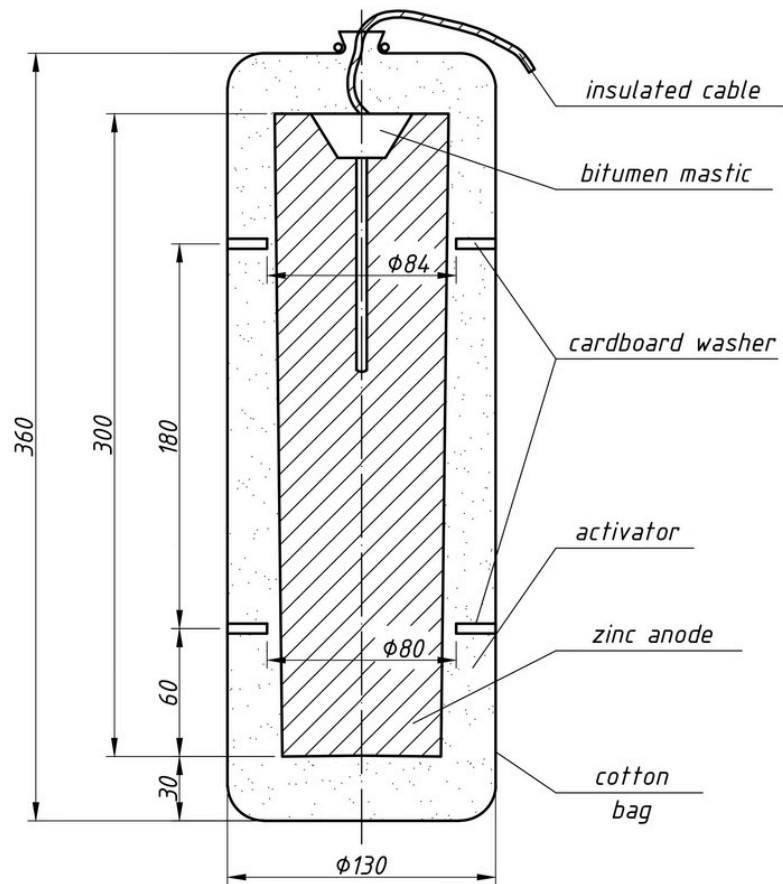
| Protector type/size | Alloy Grade | Dimensions, mm | | | Weight, kg |
|---------------------|-------------|----------------|----|----------------|------------|
| | | H | h | h ₁ | |
| PAR-30 | ATsK | 140 | 80 | 70 | 30 |
| PAR-15 | ATsK | 70 | 40 | 30 | 15 |



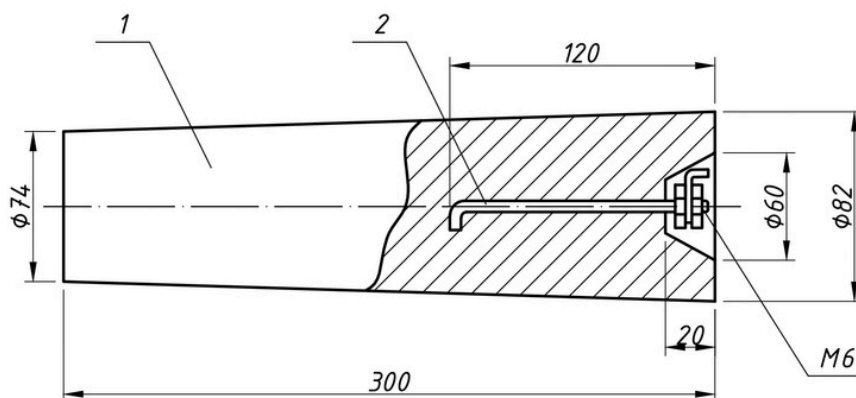
PROTECTOR P-ZAC

((ZINC PROTECTOR (ANOD) FOR UNDERGROUND STRUCTURES AND COMMUNICATIONS WITH ACTIVATOR))

PROTECTOR P-ZAC



Drawing 11. Protector P-ZAC-10 (weight 10 kg)






CONTACTS

LLC "INIA"

 +38 (094) 948-92-85

 tech.inialab@gmail.com


 Off. 202, 47 Kosivska St.,
Odesa, 65074, Ukraine

 www.inia.com.ua

LLC "CORAL"

 +38 (067) 909-57-00

 mega2814@gmail.com

 8 Hazovyi Ln., Odesa,
65003, Ukraine

 www.echemprotect.com