# K50-77

ALUMINUM ELECTROLYTIC CAPACITOR

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**AZHYAR.673541.007 TU**

Capacitor is used for operation in direct current and ripple current circuits, secondary power sources and converter equipment. Capacitor is available in all-climate (isolated and non-isolated) and temperate / cold climate version (isolated).
It is recommended to use this capacitor type as substitution for capacitors K50-37, K50-18 types.

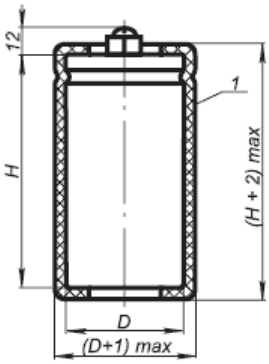
## MAIN PARAMETERS

| Name | Value |
|---|---|
| Rated voltage, V | 250...450 |
| Rated capacitance, μF | 1 000...4 700 |
| Temporary overvoltage within 10 sec., V | 1.15 $U_R$ ($U_R$ = 250)<br>1.1 $U_R$ ($U_R$ > 250) |
| Capacitance tolerance (25 °C, 50 Hz), % | +50...-10; ±20 |
| Maximum operating temperature Tenv, °C | +85 |
| Minimal operating temperature Tenv, °C | -40 |

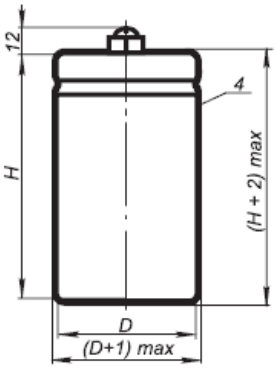
# CAPASITOR PHYSICAL CONFIGURATION

## Variant A

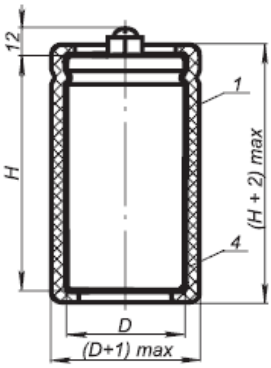
Temperate/cold climate version (Isolated)




All climate version (Nonisolated)

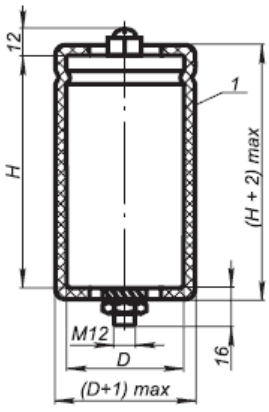


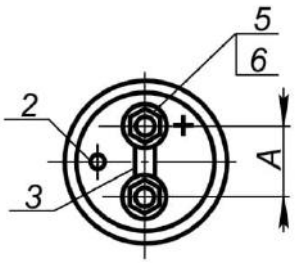

All climate version (Isolated)




## Variant B

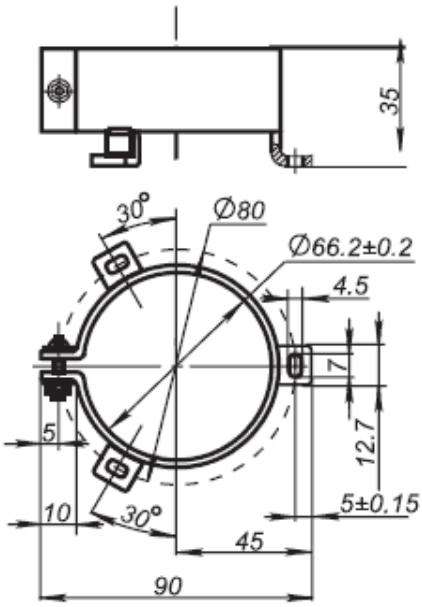
Temperate/cold climate version (Isolated)




1 – Isolation sleeve
2 – Explosion-proof valve
3 – Connecting strip for discharge
4 – Lacquer coating
5 – Screw BM5-6g
6 – Washer 5.65

## OVERALL AND FITTING DIMENSIONS OF A CAPACITOR CLAMP




## CAPACITOR RATINGS

| $U_R$, V | 250 | 400 | 450 |
|---|---|---|---|
| $C_R$, µF | | | |
| 1 000 | | ✓ | |
| 1 500 | | ✓ | ✓ |
| 2 200 | | ✓ | |
| 3 300 | | ✓ | |
| 4 700 | ✓ | | |

## CAPACITORS OVERALL DIMENSIONS AND MASS

| $U_R$, V | $C_R$, µF | D, mm | H, mm | A±0.15, mm | Mass, g, max |
|---|---|---|---|---|---|
| 250 | 4 700 | 65 | 140 | 28.5 | 800 |
| 400 | 1 000 | 65 | 70 | 28.5 | 380 |
| 400 | 1 500 | 65 | 105 | 28.5 | 600 |
| 400 | 2 200 | 65 | 105 | 28.5 | 600 |
| 400 | 3 300 | 65 | 105 | 28.5 | 600 |
| 450 | 1 500 | 65 | 105 | 28.5 | 600 |

## CAPACITORS RELIABILITY

| Reliability<br>Operation modes | Minimal nonfailure operating time, $t_\lambda$, hours | Capacitor failure rate, λ, 1/hour, max |
|---|---|---|
| Maximum-permissible mode ($U_R$, T=85 °C) | 12 000 | $5x10^{-5}$ |
| Light mode (0.5$U_R$, Tenv=50 °C) | 150 000 | $3x10^{-7}$ |
| Storageability<br>Gamma-rated time of capacitor storageability Tcy at y=95%, years, min | 20 | |

## CAPACITOR ELECTRIC PARAMETERS

| $U_R$, V | $C_R$, µF | tg δ, %, 25°C, 50 Hz, max | $I_{LEAK}$, µA, 25°C, after 5 min., max | ESR, Ohm, 25°C, 100Hz, max | Z, Ohm, 25°C, 10kHz, max | $I_R$, A, 85°C, 50 Hz, max |
|---|---|---|---|---|---|---|
| 250 | 4 700 | 10 | 5 203 | 0.04 | 0.11 | 8.8 |
| 400 | 1 000 | 10 | 2 466 | 0.11 | 0.16 | 3.7 |
| 400 | 1 500 | 10 | 3 021 | 0.09 | 0.11 | 4.8 |
| 400 | 2 200 | 10 | 3 658 | 0.05 | 0.07 | 6.65 |
| 400 | 3 300 | 10 | 5 514 | 0.04 | 0.045 | 8.8 |
| 450 | 1 500 | 10 | 3 204 | 0.07 | 0.15 | 6 |

Ripple current effective value depending on temperature and frequency can be found from the formula:
**$I = I_R \times K_T \times K_F$**,
where $I_R$ – allowable ripple current at the temperature 85°C and frequency 50 Hz (See Table “Capacitor electric parameters”)

## $K_T$ - $I_R$ CORRECTION FACTOR VERSUS TEMPERATURE

| Tenv, °C | 25 | 40 | 50 | 60 | 70 | 85 |
|---|---|---|---|---|---|---|
| $K_T$ | 1.55 | 1.44 | 1.36 | 1.25 | 1.12 | 1.0 |

## $K_F$ - $I_R$ CORRECTION FACTOR VERSUS FREQUENCY

| F, Hz | 50 | 100 | 200 | 300 | 400 | 500 | 1 000 | ≥2 000 |
|---|---|---|---|---|---|---|---|---|
| $K_F$ | 1 | 1.25 | 1.34 | 1.38 | 1.41 | 1.43 | 1.48 | 1.52 |

## EXAMPLE OF REFERENCE DESIGNATION FOR ORDERING

CAPACITOR K50-77a – 250V – 4700μF ±20% B AZHYAR.673541.007 TU
CAPACITOR K50-77a – 250V – 4700μF ±20% I B AZHYAR.673541.007 TU
CAPACITOR K50-77b – 250V – 4700μF ±20% I AZHYAR.673541.007 TU