

AZ- / AZU- SERIES

ALUMINIUM ELECTROLYTIC CAPACITORS HIGH TEMPERATURE

Series	Capacitance range	Voltage range	Temperature range	Case $\Phi \times H$	Applications
<u>AZ</u> <u>AZU</u>	150-6800	100-450	-25°C, +105°C	51 x 105 76 x 220	Wide temperature range Long life High reliability Telecom, Railways applications

MECHANICAL OUTLINES:

CASE: aluminium made

TERMINALS: screw inserts with insulating shoulder

SEALING: hermetic by beading on an EPR gasket, housed on a resin cover

PRESSURE RELEASE VENT: made in silicone-rubber

SLEEVE: self-extinguishing thermo shrinkable sleeve

SIZE: see enclosed drawings

MOUNTING HARDWARE: see hardware section

SPECIFICATIONS	TEMPERATURE RANGE	CAPACITANCE
CECC 30300 IEC 384-4 ("long life grade") MIL C62D DIN 41240 / DIN 45910	Operating: -25 °C/ +105 °C Climatic Category 25/105/86	Tolerance shall be within the following limits: -10% +30% (standard tolerance) or -20% + 20% (available on request)

LEAKAGE CURRENT:

After the rated voltage has been applied to the capacitor for 5 minutes the leakage current must be:

Maximum limit	at 25 °C	$I_f \leq 1.5 \cdot \sqrt{C \cdot V}$
Operating limit	at 25 °C:	$I_f \leq 1.3 \cdot \sqrt{C \cdot V}$

Where I_f = leakage current (μA)

C = capacitance (μF)

V = rated voltage (V)

IMPORTANT

1) When using high-capacitance and high-voltage electrolytic capacitors it is important to remember that the inner part (the rolled section) is not insulated from can: between the negative pole and the aluminium can there is a variable and not defined resistance essentially due to the electrolyte used in capacitor manufacture.

SURGE VOLTAGE:

Working Voltage	100	160	200	250	315	400	420	450
Surge Voltage	115	185	230	290	347	385	460	490

RIPPLE CURRENT:

the allowable values of ripple current in amperes, are related to temperature and frequency by the formula:

$$I_r = K_t * K_f * I_{r105^\circ}$$

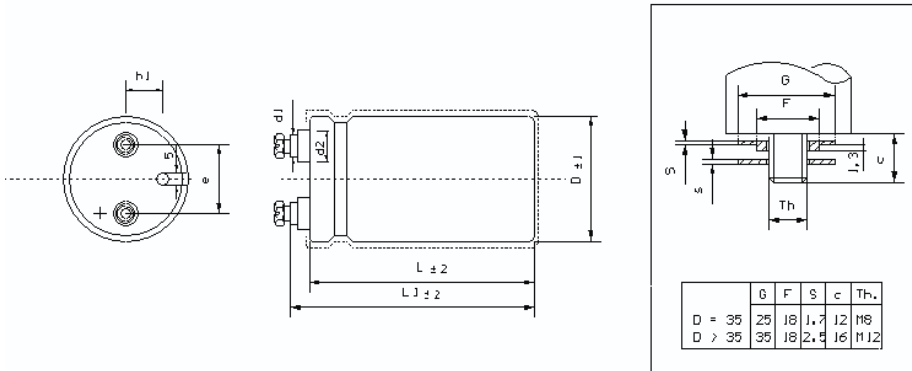
where I_{r105° is the limit given by tables, referred to a temperature of 105°C and to a frequency of 100 Hz and K_t or K_f are values here below tabulated:

Note. Ripple current is function of the capacitance tolerance

°C	40	55	65	75	85	95	105
K_t	2.5	2.4	2.2	2.0	1.8	1.3	1.0

Vn	Hz	50	100	300	400	500	>1kHz
V>250	K_f	0.88	1.00	1.20	1.25	1.35	1.40

DIMENSIONS

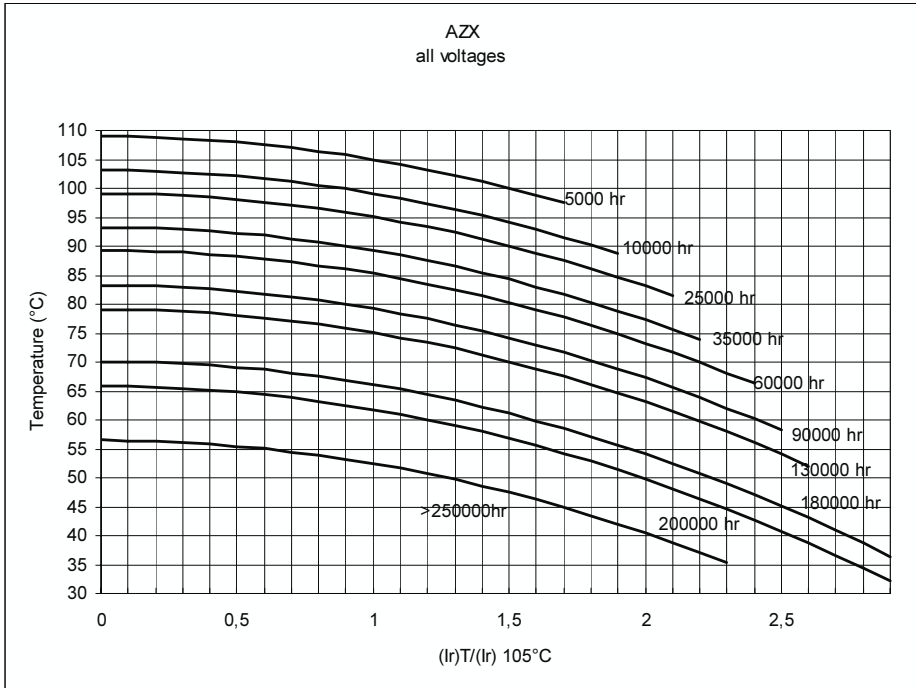


Insert Screw Thread (D= 51, 63, 76) = M5	Insert Screw Length = 10 mm.
Insert Screw Torque Max.(M5) = 2 Nm.	Screw Torque For Hex Nuts M12 = 10 Nm.

CASE CODE	Φ X L (mm)	l1	d1 +,-0.5	d2 +,-0.5	h1	e	CASE CODE	Φ X L (mm)	l1	d1 +,-0.5	d2 +,-0.5	h1	e
BC	51 x 105	109	13	18	13	22.2							
CC	63 x 107	111	13	18	16	28.6							
DC	76 x 107	111	13	18	19	31.8							
DF	76 x 147	151	13	18	19	31.8							
DJ	76 x 217	222	13	18	19	31.8							

- STANDARD MOUNTING STUD HARDWARE - INSULATING PLASTIC WASHERS AND METALLIC NUT

EXPECTED LIFE AS A FUNCTION OF TEMPERATURE AND RIPPLE CURRENT



Expected life criteria : see introduction

CAP (μ F)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100 Hz	ESR max 100 Hz (mOhm)	ESR typ. 100 Hz (mOhm)	Z max 10 KHz (mOhm)	Ripple 85°C 100 Hz (A)	Ripple 105°C 100 Hz (A)	CATALOGUE NUMBER	
										Flat bottom	Mounting stud
10000	100	BC	51 x 105	0,10	16	12	40	19,0	10,3	AZX103M100BC1	AZUX103M100BC1
15000		CC	63 x 107	0,10	11	8	10	26,0	14,2	AZX153M100CC1	AZUX153M100CC1
22000		DC	76 x 107	0,12	9	7	8	32,0	17,7	AZX223M100DC1	AZUX223M100DC1
33000		DF	76 x 147	0,12	6	4	6	45,0	24,8	AZX333M100DF1	AZUX333M100DF1

CAP (μ F)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100 Hz	ESR max 100 Hz (mOhm)	ESR typ. 100 Hz (mOhm)	Z max 10 KHz (mOhm)	Ripple 85°C 100 Hz (A)	Ripple 105°C 100 Hz (A)	CATALOGUE NUMBER	
										Flat bottom	Mounting stud
2200	160	BC	51 x 105	0,11	80	60	68	9,0	4,8	AZX222M160BC1	AZUX222M160BC1
3300		BC	51 x 105	0,11	53	40	49	10,0	5,7	AZX332M160BC1	AZUX332M160BC1
4700		CC	63 x 107	0,11	37	28	34	14,0	7,6	AZX472M160CC1	AZUX472M160CC1
6800		DC	76 x 107	0,11	26	19	23	18,0	10,2	AZX682M160DC1	AZUX682M160DC1
10000		DF	76 x 147	0,11	18	13	16	25,0	14,1	AZX103M160DF1	AZUX103M160DF1
15000		DF	76 x 147	0,12	13	10	11	30,0	16,7	AZX153M160DF1	AZUX153M160DF1

CAP (μ F)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100 Hz	ESR max 100 Hz (mOhm)	ESR typ. 100 Hz (mOhm)	Z max 10 KHz (mOhm)	Ripple 85°C 100 Hz (A)	Ripple 105°C 100 Hz (A)	CATALOGUE NUMBER	
										Flat bottom	Mounting stud
2200	200	BC	51 x 105	0,09	65	49	61	10,0	5,4	AZX222M200BC1	AZUX222M200BC1
3300		CC	63 x 107	0,09	43	33	40	13,0	7,5	AZX332M200CC1	AZUX332M200CC1
4700		DC	76 x 107	0,09	30	23	28	18,0	10,0	AZX472M200DC1	AZUX472M200DC1
6800		DF	76 x 147	0,09	21	16	18	25,0	13,7	AZX682M200DF1	AZUX682M200DF1
10000		DF	76 x 147	0,09	14	11	13	30,0	16,6	AZX103M200DF1	AZUX103M200DF1

CAP (μ F)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100 Hz	ESR max 100 Hz (mOhm)	ESR Typ. 100 Hz (mOhm)	Z max 10 KHz (mOhm)	Ripple 85°C 100 Hz (A)	Ripple 105°C 100 Hz (A)	CATALOGUE NUMBER	
										Flat bottom	Mounting stud
1500	250	BC	51 x 105	0,09	96	72	77	8	4,7	AZX152M250BC1	AZUX152M250BC1
2200		CC	63 x 107	0,09	65	49	53	12	6,4	AZX222M250CC1	AZUX222M250CC1
3300		DC	76 x 107	0,09	43	33	35	16	8,8	AZX332M250DC1	AZUX332M250DC1
4700		DF	76 x 147	0,09	30	23	25	21	11,9	AZX472M250DF1	AZUX472M250DF1
6800		DJ	76 x 217	0,09	21	16	17	31	17,3	AZX682M250DJ1	AZUX682M250DJ1
10000		DJ	76 x 217	0,09	14	11	11	38	21,0	AZX103M250DJ1	AZUX103M250DJ1

CAP (μ F)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100 Hz	ESR	ESR	Z	ripple	ripple	CATALOGUE NUMBER	
					max 100 Hz (mOhm)	Typ. 100 Hz (mOhm)	max 10 KHz (mOhm)	85°C 100 Hz (A)	105°C 100 Hz (A)	Flat bottom	Mounting stud
1500	350	BC	51 x 105	0,07	74	56	62	0,0	5,3	AZX152M350BC1	AZUX152M350BC1
2200		CC	63 x 107	0,07	51	38	42	13,0	7,2	AZX222M350CC1	AZUX222M350CC1
3300		DC	76 x 107	0,07	34	25	28	18,0	9,8	AZX332M350DC1	AZUX332M350DC1
4700		DF	76 x 147	0,07	24	18	20	24,0	13,3	AZX472M350DF1	AZUX472M350DF1
6800		DF	76 x 147	0,07	16	12	20	27,0	14,8	AZX682M350DF1	AZUX682M350DF1
6800		DJ	76 x 217	0,07	16	12	28	35,0	19,4	AZX682M350DJ1	AZUX682M350DJ1
10000		DJ	76 x 217	0,07	11	8	14	42,0	23,5	AZX103M350DJ1	AZUX103M350DJ1

CAP (μ F)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100 Hz	ESR	ESR	Z	ripple	ripple	CATALOGUE NUMBER	
					max 100 Hz (mOhm)	Typ. 100 Hz (mOhm)	Max 10 KHz (mOhm)	85°C 100 Hz (A)	105°C 100 Hz (A)	Flat bottom	Mounting stud
1000	400	BC	51 x 105	0,07	111	84	92	8,0	4,3	AZX102M400BC1	AZUX102M400BC1
1500		CC	63 x 107	0,07	74	56	62	11,0	5,9	AZX152M400CC1	AZUX152M400CC1
2200		DC	76 x 147	0,07	51	38	42	14,0	8,0	AZX222M400DC1	AZUX222M400DC1
3300		DF	76 x 147	0,07	34	25	28	20,0	11,2	AZX332M400DF1	AZUX332M400DF1
4700		DF	76 x 147	0,07	24	18	20	24,0	13,3	AZX472M400DF1	AZUX472M400DF1
6800		DJ	76 x 217	0,07	16	12	14	35,0	19,4	AZX682M400DJ1	AZUX682M400DJ1

CAP (μ F)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100 Hz	ESR	ESR	Z	ripple	ripple	CATALOGUE NUMBER	
					max 100 Hz (mOhm)	Typ. 100 Hz (mOhm)	max 10 KHz (mOhm)	85°C 100 Hz (A)	105°C 100 Hz (A)	Flat bottom	Mounting stud
1000	450	BC	51 x 105	0,08	127	96	80	8,0	4,3	AZX102M450BC1	AZUX102M450BC1
1500		CC	63 x 107	0,08	85	64	54	11,0	5,9	AZX152M450CC1	AZUX152M450CC1
2200		DC	76 x 107	0,08	58	43	54	14,0	8,0	AZX222M450DC1	AZUX222M450DC1
2200		DF	76 x 147	0,08	58	43	37	16,0	9,1	AZX222M450DF1	AZUX222M450DF1
3300		DF	76 x 147	0,08	39	29	30	20,0	11,2	AZX332M450DF1	AZUX332M450DF1
4700		DJ	76 x 217	0,08	27	20	10	29,0	16,1	AZX472M450DJ1	AZUX472M450DJ1



Itelcond s.r.l.
GENERAL CONDITIONS

1)

The general conditions presently in force are applicable to all purchases effected by the Client (Buyer) from Itelcond S.r.l. (Seller). These general conditions must not be exceeded, modified, deferred or, in any other way, altered, except if an official document is underwritten and signed by the Seller. Under no circumstances the general conditions adopted by the Buyer, printed on his purchase orders or any other document, will be deemed applicable to none of the purchase orders placed with the Seller. The execution, also partial, of the Buyer's order, or any other fulfilment from the Seller's side towards the Buyer, will not be valid and therefore not interpreted as tacit or implicit acceptance of any general condition decided by the Buyer, unless specifically agreed upon the Seller's legal representative.

2)

The products manufactured or sold by the Seller are not designed to be used into devices or equipments to be inserted surgically into the human body or, in other words, suitable to examine or preserve the human life, or used in devices or systems for the nuclear applications. If the Buyer intends to utilise the Seller's products for its application in medical, nuclear, military and/or aero spatial fields, he may do so only with prior request and receipt of a document signed by the Seller's managing director, certifying that these products are suitable to be applied in the above fields,

3)

The Seller will accept purchase orders only after written confirmation of the order, sent to the Buyer.

4)

Delivery dates shown in the confirmation order are only indicative and not binding. The Seller will do his utmost in order to respect the confirmed delivery date but, at the same time, does not take any responsibility for the eventual non-observance of the date. The delivery is linked to the payment of eventual amounts which are due and are related to previous supplies. Likewise also prices indicated in the confirmation order might vary according to increases in the energy or raw materials prices or changes in currency rates.

5)

In absence of written agreements, orders are considered fulfilled with a tolerance of plus/minus 3% or plus/minus 5 pieces.

6)

The technical specifications of the Seller's products are those contained in his last "**Data Book**" and are also traceable on his **Web Site: www.itelcond.it** .
The technical specifications may also be those agreed upon between Seller and Buyer.

7)

Seller's products will be free from vices and will be guaranteed for a period of **12 months** from delivery date to the Buyer. The law decree No.24 of 02,02,2002 will not be enforced as these products are not considered as consumer goods. The warranty is effective exclusively towards the Seller's direct Buyer. Damages claimed by third parties, although if requested by Seller's direct Buyer, will be turned down.



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8)

The warranty does not cover products which are used incorrectly. Certain types of electric products, designed and manufactured to be used as basic components to be inserted in other electric devices, are anyway such that their performance is widely related to the way they are integrated in the final product and by its general characteristics. In the range of these basic components are included both active and passive components and notably the electrolytic capacitors.

9)

Eventual defects or vices of goods will be promptly notified in writing and anyhow not after 8 days from the date of receipt of goods. In case of hidden defects, the above timing will start from the date of the discovery of these defects. In case of vices ascertained and reported in due time, defects or lack in quantity or quality of products, the Seller is entitled to the sole substitution of such products, repair or writing back of such products at his choice.

In line with the most ample applicability of the law, any different and further responsibility is excluded for damages occurring to the buyer or third parties with regard to the utilization of the Seller's products.

Samples, prototypes and products in development, will be delivered as they are and uncovered from warranty

10)

In case of missed and damaged products and units considered not in line with the technical specifications, the Buyer is entitled to inform immediately the Seller, who will decide how to proceed about the matter. No rejected goods will be accepted, unless previously authorized by the Seller.

If an authorization number for the rejection (**RMA**) has been notified to the Buyer, such a number must be reported both on packaging and on documents accompanying the units rejected to the Seller.

Products, travelling at Buyer's risk and danger, must be returned complete, not tampered with, non welded, with their eventual accessories and adequately packed and delivered free factory of Seller.

The assignment of the authorization number for rejection does not allow the Buyer to obtain the substitution of products, the credit of their value, and whatsoever responsibility on the Seller's side is not admitted.

The Buyer is obliged to comply with the rules related to the re-exportation of the products to clients or countries, if the Italian law forbids export and sale towards them.

11)

Goods are sold free factory of Seller and therefore the transportation risk is at total Buyer's charge. The delivery of products will be considered in every respect accomplished once the products are collected by the carrier or by the same Buyer at the Seller's warehouse.

12)

The sold products will remain property of the Seller until totally paid by the Buyer. In case of delayed or missed payment the Seller may, at his discretion, request to re-enter into possession of unpaid products.



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13)

The Seller will not be liable if events, not due to his will, will prevent him to accomplish, partially or totally, the contractual obligations undertaken. The Seller will not assume responsibility for his products after the same are assembled on Buyer's equipments. The Seller will not be liable, no limitations admitted, for damages caused by the loss of warranty, contracts, or other legal matters, including loss of value, profit, capital, or expenses for the substitution of equipments.

14)

Any dispute will be submitted to the law-court of Milan (Italy). Under any circumstance the contract will be exclusively governed by the Italian law.