

AR- / AR- HG SERIES

ALUMINIUM ELECTROLYTIC CAPACITORS GENERAL PURPOSE

Series	Capacitance range	Voltage Range	Temperature range	Case $\Phi \times H$	Applications
AR / ARU	100 - 470000	25 – 450	-40 °C , +85°C	35 x 59	High capacitance, reduced volume, long life, industrial applications
AR-HG ARU-HG				76 x 147	High CV product for applications where dimensions are very important

MECHANICAL OUTLINES:

CASE: aluminium made

TERMINALS: screw

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

PRESSURE RELEASE VENT: made in silicone-rubber

SLEEVE: self-extinguishing thermoshrinkable 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: -40 °C/ +85 °C Climatic category : 40/85/56	Tolerance shall be within the following limits: <ul style="list-style-type: none"> • standard tolerance -10% +30% • or available on request -20% +20%

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	$I_f \leq 0,004 * C * V$
Operating limit	at 25 °C:	$I_f \leq 0,001 * C * V$

where I_f = leakage current (μA)

C = capacitance (μF)

V = rated voltage (V)

IMPORTANT

- 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	25	40	50	63	75	100	160	200	250	350	400	420	450
Surge Voltage	29	46	58	73	86	115	185	230	290	385	440	460	495

RIPPLE CURRENT:

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

$$I_{rip} = K_t \cdot K_f \cdot I_{r85}$$

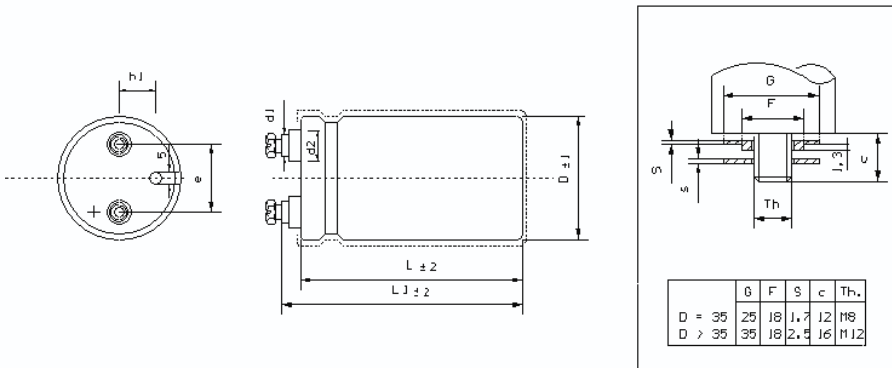
where I_{r85} is the limit given by tables, referred to a temperature of 85 °C and to a frequency of 100 HZ and K_t or K_f are values here below tabulated:

Note . Ripple current is function of the capacitance tolerance

°C	40	55	65	75	85
K_t	2.1	1.8	1.6	1.3	1.0

V_n Hz	K_f					
	V=50	50<V=300	V>300	V=50	50<V=300	V>300
	Code Diameter A,B			Code Diameter C,D		
50	0.82	0.79	0.76	0.86	0.78	0.72
100	1	1	1	1	1	1
120	1.03	1.04	1.04	1.01	1.02	1.03
300	1.12	1.16	1.28	1.03	1.08	1.24
500	1.15	1.22	1.39	1.03	1.09	1.32
>1000	1.18	1.25	1.45	1.03	1.09	1.37

DIMENSIONS

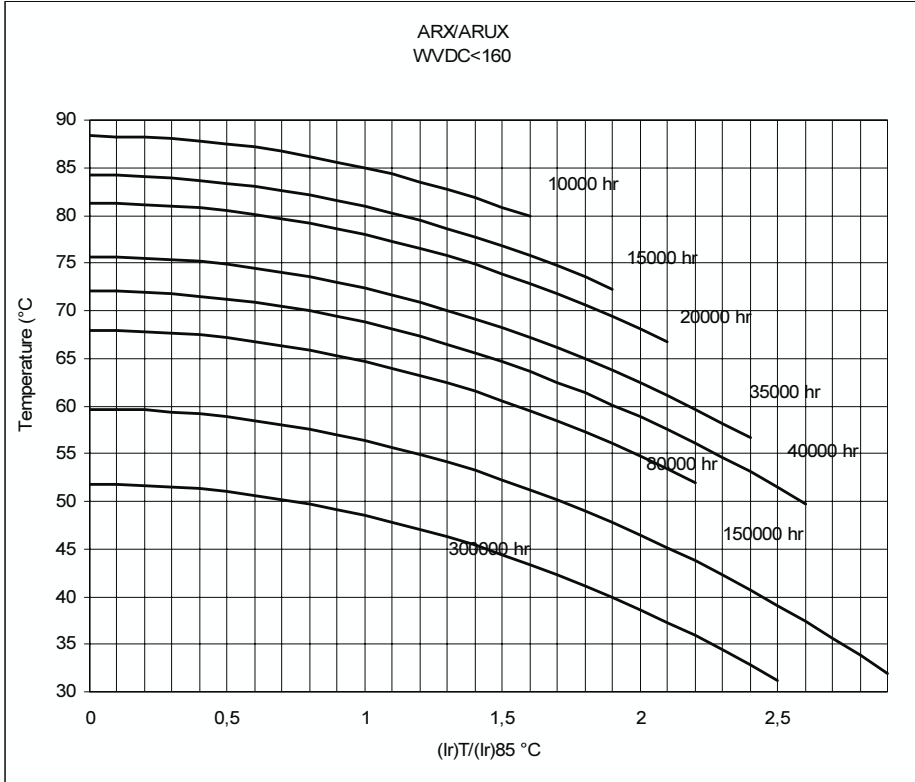


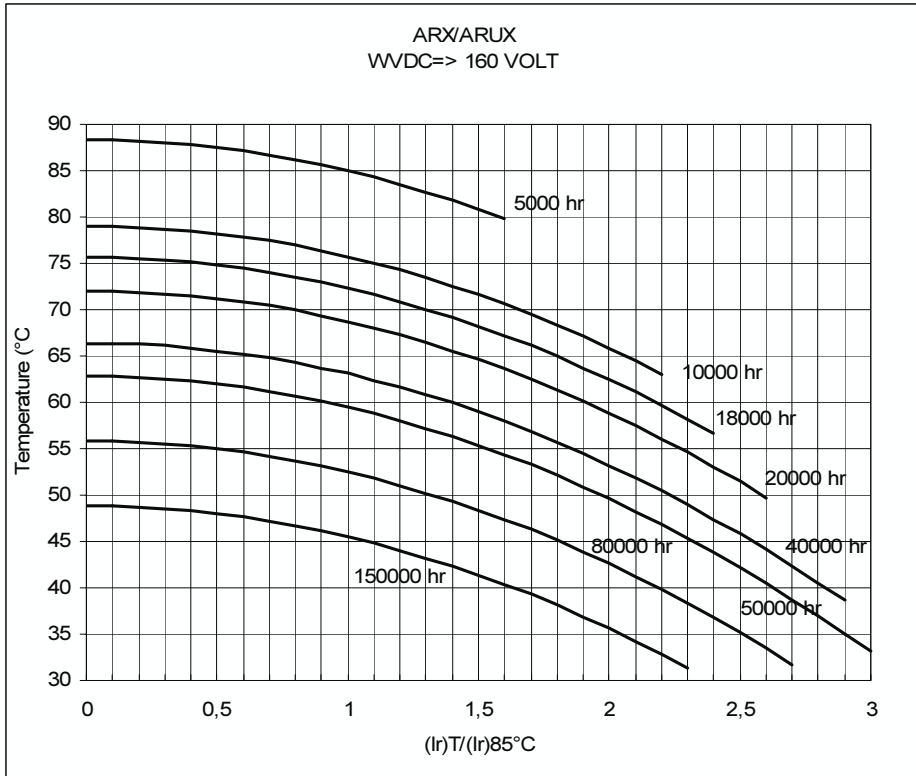
Insert screw thread = m5	Screw torque for hex nuts m8 = 4 Nm.
Insert screw torque max. (m5) = 2 Nm.	Screw torque for hex nuts m12 = 10 Nm
Insert screw length (terminal code "-x") = 10 mm.	

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
AA	35 x 59	65	8	12	8	12,7	CC	63 x 107	111	13	18	16	28,6
AB	35 X 83	89	8	12	8	12,7							
AC	35 X 105	109	8	12	8	12,7	DC	76 x 107	111	13	18	19	31,8
BB	51 x 83	89	13	18	13	22,2							
BC	51 x 105	109	13	18	13	22,2	DF	76 x 147	151	13	18	19	31,8

STANDARD MOUNTING STUD HARDWARE - INSULATING PLASTIC WASHER AND METALLIC NUT

EXPECTED LIFE VS. TEMPERATURE AND RIPPLE CURRENT





Expected life criteria: see introduction

ARX - HG / ARUX - HG

CAP (μ F)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100Hz	ESR	ESR	Z	I ripple	I ripple	CATALOGUE NUMBER	
					max 100Hz (mOhm)	typ 100Hz (mOhm)	max 10KHz (mOhm)	55°C 100Hz (A)	85°C 100Hz (A)	Flat bottom	Mounting stud
15000	25	AA	35 x 59	0,35	33	27	26	8,6	5,0	ARX-HG153X25AA1	ARUX-HG153X25AA1
22000		AB	35 x 79	0,42	27	22	23	11,6	6,7	ARX-HG223X25AB1	ARUX-HG223X25AB1
33000		AC	35 x 105	0,47	20	16	17	15,2	8,9	ARX-HG333X25AC1	ARUX-HG333X25AC1
47000		BB	51 x 83	0,70	21	17	16	16,2	9,4	ARX-HG473X25BB1	ARUX-HG473X25BB1
68000		BC	51 x 105	0,75	16	13	14	21,3	12,4	ARX-HG683X25BC1	ARUX-HG683X25BC1
100000		BC	51 x 105	0,85	12	10	10	24,2	14,1	ARX-HG104X25BC1	ARUX-HG104X25BC1
150000		CC	63 x 107	0,90	9	7	8	32,5	18,9	ARX-HG154X25CC1	ARUX-HG154X25CC1
220000		DC	76 x 107	1,00	7	5	6	41,5	24,2	ARX-HG224X25DC1	ARUX-HG224X25DC1
330000		DF	76 x 147	1,30	6	5	5	50,9	29,7	ARX-HG334X25DF1	ARUX-HG334X25DF1

CAP (μ F)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100Hz	ESR	ESR	Z	I ripple	I ripple	CATALOGUE NUMBER	
					max 100Hz (mOhm)	typ 100Hz (mOhm)	max 10KHz (mOhm)	55°C 100Hz (A)	85°C 100Hz (A)	Flat bottom	Mounting stud
10000	40	AA	35 x 59	0,27	39	31	30	8,0	4,6	ARX-HG103X40AA1	ARUX-HG103X40AA1
15000		AB	35 x 79	0,35	33	27	25	10,5	6,1	ARX-HG153X40AB1	ARUX-HG153X40AB1
22000		AC	35 x 105	0,42	27	22	18	13,2	7,7	ARX-HG223X40AC1	ARUX-HG223X40AC1
33000		BB	51 x 83	0,45	20	16	18	16,9	9,8	ARX-HG333X40BB1	ARUX-HG333X40BB1
47000		BB	51 x 83	0,48	15	12	18	16,9	11,4	ARX-HG473X40BB1	ARUX-HG473X40BB1
47000		BC	51 x 105	0,51	16	12	14	21,4	13,3	ARX-HG473X40BC1	ARUX-HG473X40BC1
100000		CC	63 x 107	0,70	10	8	9	30,0	17,5	ARX-HG104X40CC1	ARUX-HG104X40CC1
150000		DC	76 x 107	0,90	9	7	8	36,1	21,1	ARX-HG154X40DC1	ARUX-HG154X40DC1
220000		DF	76 x 147	1,30	8	7	7	41,6	24,3	ARX-HG224X40DF1	ARUX-HG224X40DF1

CAP (μ F)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100Hz	ESR	ESR	Z	I ripple	I ripple	CATALOGUE NUMBER	
					max 100Hz (mOhm)	typ 100Hz (mOhm)	max 10KHz (mOhm)	55°C 100Hz (A)	85°C 100Hz (A)	Flat bottom	Mounting stud
4700	63	AA	35 x 59	0,15	46	37	30	7,4	4,1	ARX-HG472X63AA1	ARUX-HG472X63AA1
6800		AB	35 x 79	0,20	42	34	27	9,3	5,2	ARX-HG682X63AB1	ARUX-HG682X63AB1
10000		AB	35 x 79	0,22	32	25	21	10,8	6,0	ARX-HG103X63AB1	ARUX-HG103X63AB1
15000		AC	35 x 105	0,25	24	19	18	14,1	7,8	ARX-HG153X63AC1	ARUX-HG153X63AC1
22000		BB	51 x 83	0,33	21	17	17	16,1	8,9	ARX-HG223X63BB1	ARUX-HG223X63BB1
33000		BC	51 x 105	0,38	17	13	14	20,8	11,6	ARX-HG333X63BC1	ARUX-HG333X63BC1
47000		CC	63 x 107	0,33	10	8	9	30,0	16,7	ARX-HG473X63CC1	ARUX-HG473X63CC1
68000		DC	76 x 107	0,39	8	7	7	36,9	20,5	ARX-HG683X63DC1	ARUX-HG683X63DC1
100000		DF	76 x 147	0,45	6	5	6	47,7	26,5	ARX-HG104X63DF1	ARUX-HG104X63DF1

CAP (μ F)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100Hz	ESR	ESR	Z	I ripple	I ripple	CATALOGUE NUMBER	
					max 100Hz (mOhm)	typ 100Hz (mOhm)	max 10KHz (mOhm)	55°C 100Hz (A)	85°C 100Hz (A)	Flat bottom	Mounting stud
2200	100	AA	35 x 59	0,12	78	63	47	5,6	3,1	ARX-HG222X100AA1	ARUX-HG222X100AA1
3300		AB	35 x 79	0,12	52	42	34	8,4	4,7	ARX-HG332X100AB1	ARUX-HG332X100AB1
4700		AB	35 x 79	0,12	37	29	27	9,7	5,4	ARX-HG472X100AB1	ARUX-HG472X100AB1
6800		AC	35 x 105	0,12	25	20	20	13,2	7,3	ARX-HG682X100AC1	ARUX-HG682X100AC1
10000		BB	51 x 83	0,12	17	14	17	15,6	8,7	ARX-HG103X100BB1	ARUX-HG103X100BB1
15000		BC	51 x 105	0,12	11	9	13	21,6	12	ARX-HG153X100BC1	ARUX-HG153X100BC1
22000		CC	63 x 107	0,12	8	6	9	27,8	15,4	ARX-HG223X100CC1	ARUX-HG223X100CC1
33000		DC	76 x 107	0,12	5	4	8	35,9	20	ARX-HG333X100DC1	ARUX-HG333X100DC1
47000		DF	76 x 147	0,12	4	3	7	46,7	26	ARX-HG473X100DF1	ARUX-HG473X100DF1

CAP (μ F)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100Hz	ESR	ESR	Z	I ripple	I ripple	CATALOGUE NUMBER	
					max 100Hz (mOhm)	typ 100Hz (mOhm)	max 10KHz (mOhm)	55°C 100Hz (A)	85°C 100Hz (A)	Flat bottom	Mounting stud
1000	160	AA	35 x 59	0,12	172	138	94	4,2	2,3	ARX-HG102X160AA1	ARUX-HG102X160AA1
1500		AB	35 x 79	0,12	115	92	62	6,2	3,4	ARX-HG152X160AB1	ARUX-HG152X160AB1
2200		AC	35 x 105	0,12	78	63	41	8,5	4,7	ARX-HG222X160AC1	ARUX-HG222X160AC1
3300		BB	51 x 83	0,12	52	42	29	11,3	6,3	ARX-HG332X160BB1	ARUX-HG332X160BB1
4700		BC	51 x 105	0,12	37	29	25	14,0	7,8	ARX-HG472X160BC1	ARUX-HG472X160BC1
6800		CC	63 x 107	0,12	25	20	20	18,9	10,5	ARX-HG682X160CC1	ARUX-HG682X160CC1
10000		CC	63 x 107	0,12	17	14	18	20,5	11,4	ARX-HG103X160CC1	ARUX-HG103X160CC1
12000		DC	76 x 107	0,12	14	11	15	25,0	13,9	ARX-HG123X160DC1	ARUX-HG123X160DC1
22000		DF	76 x 147	0,12	8	6	8	36,4	20,2	ARX-HG223X160DF1	ARUX-HG223X160DF1

CAP (μ F)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100Hz	ESR	ESR	Z	I ripple	I ripple	CATALOGUE NUMBER	
					max 100Hz (mOhm)	typ 100Hz (mOhm)	max 10KHz (mOhm)	55°C 100Hz (A)	85°C 100Hz (A)	Flat bottom	Mounting stud
680	200	AA	35 x 59	0,12	253	202	111	3,8	2,1	ARX-HG681X200AA1	ARUX-HG681X200AA1
1000		AB	35 x 79	0,12	172	138	78	5,6	3,1	ARX-HG102X200AB1	ARUX-HG102X200AB1
1500		AC	35 x 105	0,12	115	92	51	7,9	4,4	ARX-HG152X200AC1	ARUX-HG152X200AC1
2200		BB	51 x 83	0,12	78	63	36	10,3	5,7	ARX-HG222X200BB1	ARUX-HG222X200BB1
3300		BC	51 x 105	0,12	52	42	30	12,8	7,1	ARX-HG332X200BC1	ARUX-HG332X200BC1
4700		CC	63 x 107	0,12	37	29	21	17,2	9,6	ARX-HG472X200CC1	ARUX-HG472X200CC1
10000		DC	76 x 107	0,12	17	14	14	25,5	14,2	ARX-HG103X200DC1	ARUX-HG103X200DC1
15000		DF	76 x 147	0,12	11	9	12	32,0	17,8	ARX-HG153X200DF1	ARUX-HG153X200DF1

CAP (μF)	Rated Voltage (Vn)	Case Code	$\Phi \times h$ (mm)	TG δ 100Hz	ESR	ESR	Z	I ripple	I ripple	CATALOGUE NUMBER	
					max 100Hz (mOhm)	typ 100Hz (mOhm)	max 10KHz (mOhm)	55°C 100Hz (A)	85°C 100Hz (A)	Flat bottom	Mounting stud
470	250	AA	35 x 59	0,12	366	293	155	3,2	1,8	ARX-HG471X250AA1	ARUX-HG471X250AA1
680		AB	35 x 79	0,12	253	202	107	4,7	2,6	ARX-HG681X250AB1	ARUX-HG681X250AB1
1000		AC	35 x 105	0,12	172	138	86	6,1	3,4	ARX-HG102X250AC1	ARUX-HG102X250AC1
1500		BB	51 x 83	0,12	115	92	59	8,0	4,5	ARX-HG152X250BB1	ARUX-HG152X250BB1
2200		BC	51 x 105	0,12	78	63	44	10,5	5,8	ARX-HG222X250BC1	ARUX-HG222X250BC1
3300		CC	51 x 105	0,12	52	42	30	12,8	7,1	ARX-HG332X250CC1	ARUX-HG332X250CC1
4700		BC	63 x 107	0,12	37	29	23	17,2	9,6	ARX-HG472X250CC1	ARUX-HG472X250CC1
6800		DC	76 x 107	0,12	25	20	20	21,1	11,7	ARX-HG682X250DC1	ARUX-HG682X250DC1
10000		DF	76 x 147	0,12	17	14	17	26,1	14,5	ARX-HG103X250DF1	ARUX-HG103X250DF1

CAP (μF)	Rated Voltage (Vn)	Case Code	$\Phi \times h$ (mm)	TG δ 100Hz	ESR	ESR	Z	I ripple	I ripple	CATALOGUE NUMBER	
					max 100Hz (mOhm)	typ 100Hz (mOhm)	max 10KHz (mOhm)	55°C 100Hz (A)	85°C 100Hz (A)	Flat bottom	Mounting stud
330	350	AA	35 x 59	0,12	521	417	217	2,7	1,5	ARX-HG331X350AA1	ARUX-HG331X350AA1
470		AB	35 x 79	0,12	366	293	155	3,9	2,2	ARX-HG471X350AB1	ARUX-HG471X350AB1
680		AC	35 x 105	0,12	253	202	107	5,3	2,9	ARX-HG681X350AC1	ARUX-HG681X350AC1
1000		AC	35 x 105	0,12	172	138	78	6,4	3,6	ARX-HG102X350AC1	ARUX-HG102X350AC1
1500		BB	51 x 83	0,12	115	92	51	8,6	4,8	ARX-HG152X350BB1	ARUX-HG152X350BB1
2200		BC	51 x 105	0,12	78	63	35	11,7	6,5	ARX-HG222X350BC1	ARUX-HG222X350BC1
3300		CC	63 x 107	0,12	52	42	25	16,1	9	ARX-HG332X350CC1	ARUX-HG332X350CC1
4700		DC	76 x 107	0,12	37	29	22	19,2	10,7	ARX-HG472X350DC1	ARUX-HG472X350DC1
6800		DF	76 x 147	0,12	25	20	18	26,4	14,6	ARX-HG682X350DF1	ARUX-HG682X350DF1

CAP (μF)	Rated Voltage (Vn)	Case Code	$\Phi \times h$ (mm)	TG δ 100Hz	ESR	ESR	Z	I ripple	I ripple	CATALOGUE NUMBER	
					max 100Hz (mOhm)	typ 100Hz (mOhm)	max 10KHz (mOhm)	55°C 100Hz (A)	85°C 100Hz (A)	Flat bottom	Mounting stud
330	400	AA	35 x 59	0,12	521	417	221	2,7	1,5	ARX-HG331X400AA1	ARUX-HG331X400AA1
470		AB	35 x 79	0,12	366	293	155	3,9	2,2	ARX-HG471X400AB1	ARUX-HG471X400AB1
680		AC	35 x 105	0,12	253	202	111	5,3	2,9	ARX-HG681X400AC1	ARUX-HG681X400AC1
1000		BB	51 x 83	0,12	172	138	78	7,0	3,9	ARX-HG102X400BB1	ARUX-HG102X400BB1
1500		BB	51 x 83	0,12	115	92	78	8,0	4,5	ARX-HG152X400BB1	ARUX-HG152X400BB1
1500		BC	51 x 105	0,12	115	92	50	9,7	5,4	ARX-HG152X400BC1	ARUX-HG152X400BC1
2200		CC	63 x 107	0,12	78	63	40	12,4	6,9	ARX-HG222X400CC1	ARUX-HG222X400CC1
3300		DC	76 x 107	0,12	52	42	29	16,5	9,2	ARX-HG332X400DC1	ARUX-HG332X400DC1
4700		DF	76 x 147	0,12	37	29	21	22,5	12,5	ARX-HG472X400DF1	ARUX-HG472X400DF1
330		AA	35 x 59	0,12	521	417	221	2,7	1,5	ARX-HG331X400AA1	ARUX-HG331X400AA1

CAP (μ F)	Rated Voltage (Vn)	Case Code	Φ x h (mm)	TG δ 100Hz	ESR max 100Hz (mOhm)	ESR typ 100Hz (mOhm)	Z max 10Khz (mOhm)	I ripple 55°C 100Hz (A)	I ripple 85°C 100Hz (A)	CATALOGUE NUMBER	
					100Hz (mOhm)	100Hz (mOhm)	100Hz (A)	100Hz (A)	Flat bottom	Mounting stud	
220	450	AA	35 x 59	0,12	782	625	480	1,8	1,0	ARX-HG221X450AA1	ARUX-HG221X450AA1
330		AB	35 x 79	0,12	521	417	323	2,6	1,5	ARX-HG331X450AB1	ARUX-HG331X450AB1
470		AC	35 x 105	0,12	366	293	237	4,6	2,5	ARX-HG471X450AC1	ARUX-HG471X450AC1
680		BB	51 x 83	0,12	253	202	166	4,7	2,6	ARX-HG681X450BB1	ARUX-HG681X450BB1
1000		BC	51 x 105	0,12	172	138	112	6,4	3,6	ARX-HG102X450BC1	ARUX-HG102X450BC1
1500		CC	63 x 107	0,12	115	92	75	8,9	4,9	ARX-HG152X450CC1	ARUX-HG152X450CC1
2200		DC	76 x 107	0,12	78	63	56	12,0	6,7	ARX-HG222X450DC1	ARUX-HG222X450DC1
4700		DF	76 x 147	0,12	37	29	28	20,0	11,1	ARX-HG472X450DF1	ARUX-HG472X450DF1