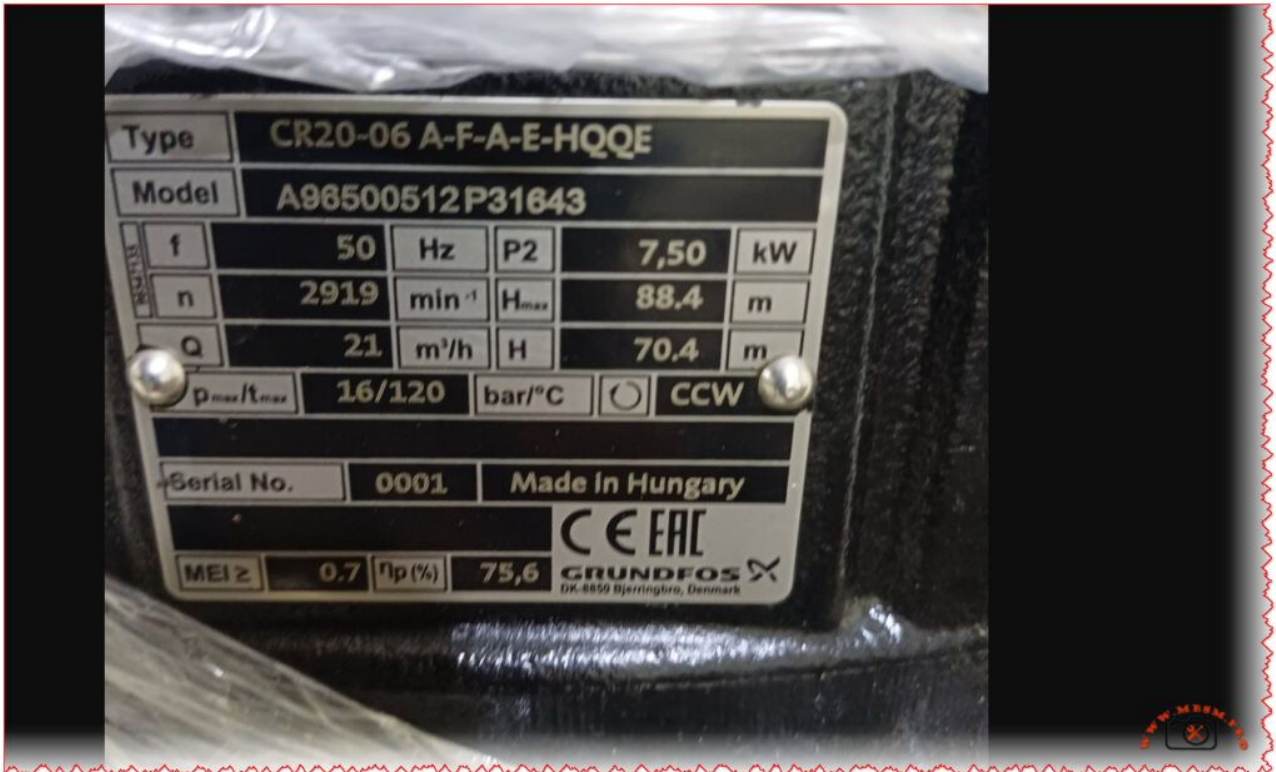


CR20-06 A-F-A-E-HQQE

Category: Equipment

written by www.mbsm.pro | 22 December 2025



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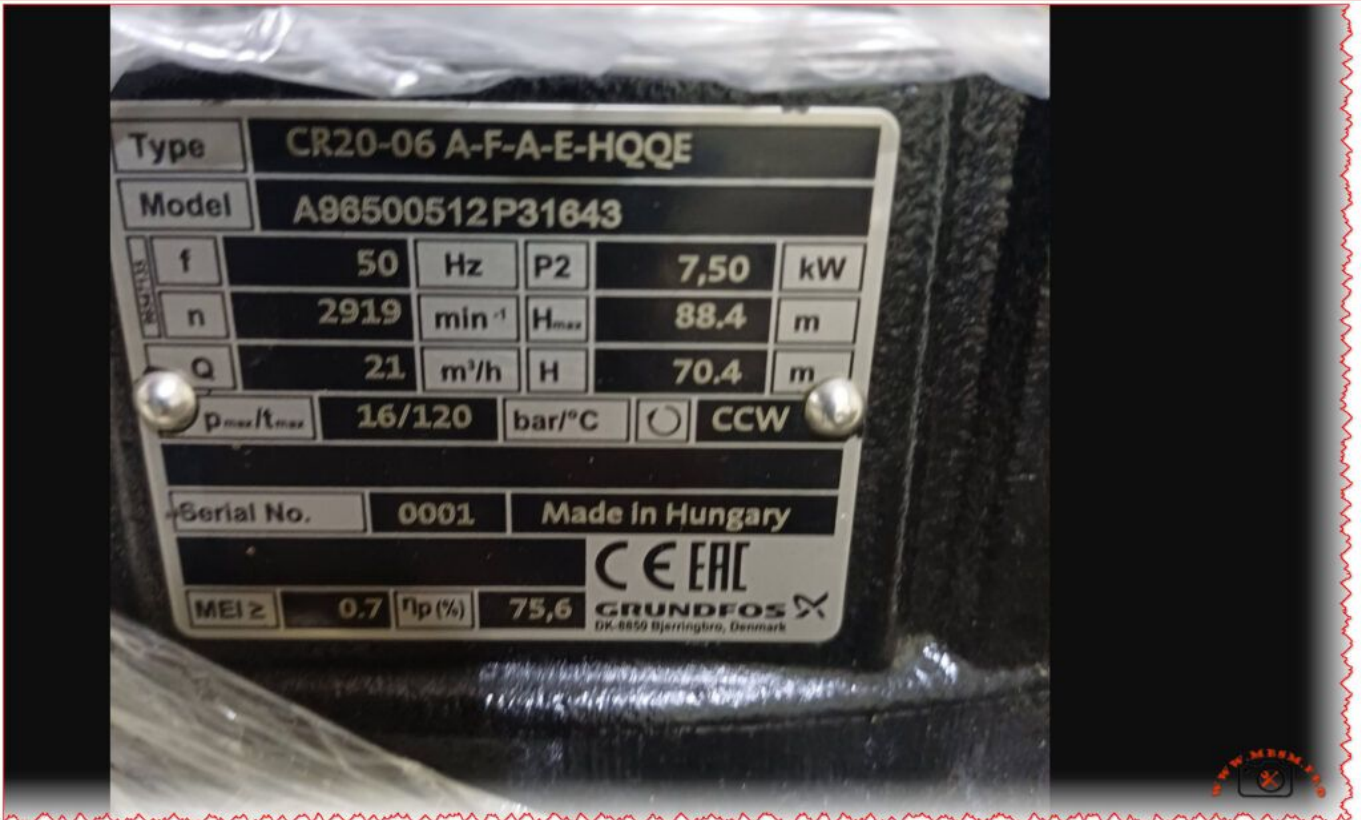
Type	CR90-1 A-F-A-E-H00E				
Model	B96124075P11522				
f	50	Hz	P2	7,50	kW
n	2919	min ⁻¹	H _{max}	35.5	m
Q	90	m ³ /h	H	20.2	m
p _{max} /t _{max}	16/120	bar/°C	CCW		
Serial No.	0001				







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The Grundfos CR20-06 A-F-A-E-HQQE is a vertical multistage centrifugal pump delivering 21 m³/h at 70.4 m head with a 7.5 kW IE3 motor, designed for demanding water boosting and industrial applications.□□

Its cast-iron base, stainless-steel internals and HQQE mechanical seal make it a durable, energy-efficient solution for process water, HVAC, boiler feed and general pressure boosting systems.□

Introduction

In modern industry and building services, stable water pressure is no longer a luxury but a basic requirement. The Grundfos CR20-06 A-F-A-E-HQQE has become one of the quiet workhorses in this field, combining compact vertical design with serious performance for installations where downtime is simply not an option.□

Technical profile of the CR20-06

The pump in the photo is clearly identified on its nameplate as a Grundfos CR20-06 A-F-A-E-HQQE with a 7.50 kW motor operating at 50 Hz and about 2919 rpm.□□

It delivers a nominal flow of 21 m³/h at a rated head of 70.4 m, with a maximum head up to 88.4 m and a maximum operating pressure of 16 bar at liquid temperatures up to 120 °C.□

Main nameplate data

Item	Value
Pump type	CR20-06 A-F-A-E-HQQE
Rated power P2	7.5 kW
Frequency / speed	50 Hz / ≈2919 rpm
Rated flow Q	21 m ³ /h
Rated head H	70.4 m
Maximum head Hmax	88.4 m
Maximum pressure / temp.	16 bar / 120 °C
Shaft seal code	HQQE (single mechanical seal)
Pump orientation	Vertical, inline
Efficiency (pump)	≈75.6% (MEI ≥ 0.70)

□□
The pump uses a vertical, inline layout with suction and discharge on the same level (DN 50 flanged connections, PN 25 rating), simplifying installation in compact plant rooms and on rigid pipe manifolds.□
Its IE3 motor (size 132SB) offers motor efficiencies above 90% at typical loads, helping operators reduce long-term energy costs.□

Construction, materials and seal

The CR20-06 belongs to the widely used CR multistage family, where several impellers are stacked in series to build pressure while maintaining moderate

flow.□

In this specific model, the base and pump head are in cast iron, while all wetted parts such as impellers and chambers are stainless steel AISI 304, providing a good balance between robustness and corrosion resistance for clean water duties.□

The HQQE mechanical seal is a single cartridge seal with silicon carbide/silicon carbide faces, EPDM elastomers and a stainless-steel spring, designed for long service life and easy replacement.□

This configuration suits cold and hot water, mildly aggressive media used in HVAC and process plants, and reduces the risk of dry-running damage during commissioning or transient operating conditions.□

Typical applications and operating benefits

With its 21 m³/h at 70.4 m operating point, the CR20-06 is well suited to medium-pressure boosting in commercial buildings, industrial wash and rinse systems, boiler feed for small to mid-size boilers, and general process water circulation.□

Installers appreciate the inline design, which often allows direct replacement of older horizontal pumps without major changes to the pipework, while plant operators value the quiet operation and low vibration levels of the multistage design.□

From an energy perspective, the combination of high hydraulic efficiency and IE3 motor makes this model a strong candidate in projects where life-cycle cost analysis is required or where regulations demand a minimum efficiency index (MEI ≥ 0.70).□

Paired with an external frequency converter, the CR20-06 can be turned into a variable-speed booster, maintaining constant pressure in domestic water systems, process loops or district cooling circuits while cutting energy consumption during partial-load operation.□

Practical selection notes for engineers

When selecting a CR20-06 for a project, engineers typically start from the required duty point on the pump curve and verify that 21 m³/h at around 70 m head fits the system's pressure losses, static height and safety margin.□

System designers also check NPSH requirements, temperature range from -20 to 120 °C, and maximum ambient temperature up to 60 °C to ensure trouble-free operation in machinery rooms and outdoor installations.□

Because the pump offers a maximum operating pressure of 16 bar with PN 25 flanges, it can be integrated into higher-pressure manifolds and ring mains, provided that upstream valves, fittings and vessels share compatible ratings.□

For users planning future upgrades, the CR range gives a modular platform: additional models and variants can be combined in parallel booster sets, or replaced one-to-one if system demand increases.

Mbsm.pro, Compressor, GM70AZ, 1/5 hp,
ZMC, Cooling, R134a, 150 W, 1.3 A,
1Ph 220-240V 50Hz, LBP capacity,
RSIR, -30°C to -10°C

Category: compressor

written by www.mbsm.pro | 22 December 2025



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Le ZMC GM70AZ est un compresseur hermétique à piston fonctionnant au R134a, destiné aux applications à basse pression d'aspiration dans les réfrigérateurs et congélateurs ménagers alimentés en 220–240 V, 50 Hz. Fabriqué par Misr Compressor Manufacturing Co. en Égypte, il fournit une puissance d'environ 1/5 HP et une plage d'évaporation de $-30\text{ }^{\circ}\text{C}$ à $-10\text{ }^{\circ}\text{C}$, ce qui en fait une solution courante et fiable pour le froid domestique dans la région MENA

Mbsm.pro, compressors, QD43H, QV30H, QD52H, QD65H, QD75H, WV43YB, QD91YB

Category: compressor

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AFT hermetic refrigerator compressors, including R134a models QD43H, QV30H, QD52H, QD65H and QD75H, alongside R600a models WV43YB and QD91YB, each supplied with starting components and packed in branded cartons for retail or OEM use. The power range spans from approximately 1/10 HP up to 1/4–1/5 HP

Mbsm.pro, compressor, EGM91AA,
refrigerators, Freezing, Cooling,
R134a, ZMC compressors, 1/4 hp, Lbp

Category: compressor

written by www.mbsm.pro | 22 December 2025



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The EGM91AA compressor from ZMC Egypt is a key component of modern household refrigeration, combining advanced engineering, R134a compatibility, and 220–240 V operation to deliver efficient, reliable cooling performance that appeals to appliance manufacturers and field technicians alike.

Mbsmpro.com, ZB38, 5HP, R404, MBP

Category: Refrigeration

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ZB38 5HP R404A MBP scroll compressor has become a reference point in medium-temperature commercial refrigeration, providing a compact, efficient and reliable heart for cold rooms, display cabinets and food service equipment worldwide. This article explores how it works, where it fits best and what technicians should verify before installing or replacing this type of compressor.

Mbsm.pro, LRA to Ton

Category: expertise

written by www.mbsm.pro | 22 December 2025

How to Convert

LRA to TON

1 Phase

Formula

TOP COOLING SERVICE

$$\text{Ton} = \frac{\text{LRA}}{36}$$

$$\text{Ton} = \frac{54}{36}$$

TOP COOLING SERVICE

Ton = 1.5 Answer



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how to convert LRA (Locked Rotor Amps) into refrigeration tons using a simple formula, making HVAC system sizing and diagnostics accessible to field technicians. Using LRA values found on equipment labels, one can quickly estimate system tonnage, ensuring correct sizing for repairs or upgrades in air conditioning and refrigeration systems.

Mbsmpro, Pdf, Convert LRA to Cooling Tons

Category: Pdf

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How to Convert

LRA to TON

1 Phase

Formula

TOP COOLING SERVICE

$$\text{Ton} = \frac{\text{LRA}}{36}$$

$$\text{Ton} = \frac{54}{36}$$

TOP COOLING SERVICE

$$\text{Ton} = 1.5 \text{ Answer}$$



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R134a compressor, 1/3 HP, LBP, commercial refrigeration, domestic freezer, cooling capacity, COP, mbsm.pro, mbsmgroup.tn, mbsmgroup, mbsmpro, mbsmpro.com, Siberia, Panasonic, Embraco, Secop, Tecumseh, Donper, Cubigel, Zero, ZMC, Samsung

Category: Refrigeration

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A technical comparison of the 10 best LBP R134a compressors (1/3 HP) for professional refrigeration and freezing applications—complete with specs, cooling capacities, and application tips.

mbsm.pro , Compresseur Aspera , Embraco , NEK2168GK , R404a/R507 , LBP

,3/4 HP,nominal output: 707 W

Category: Technologie,Tester ok

written by www.mbsm.pro | 22 December 2025



PictureS Mbsm Dot Pro : www.mbsm.pro

EMBRACO is a company specialized in cooling solutions and world leader in the hermetic compressor market. Our mission: provide innovative solutions for a better quality of life, always attentive to technological excellence and sustainability. Technological leadership, operational excellence and sustainability are some of the pillars which ensure the EMBRACO differential over other companies in the world market. Its products are now considered the favorite leading home appliance manufacturers by major automakers and are spotlighted by manufacturers of commercial refrigeration equipment. With global operations and production capacity exceeding 34 million units a year, the company offers solutions that are differentiated for their innovation and low energy consumption. Its 11.500 employees work in factories and offices located in Brazil (headquarters), China, Italy, Slovakia, Mexico, the United States and Russia. Energy efficiency is constantly sought in the processes, products and relationships with

the communities where it operates. Our company is the absolute leader in this segment, being able to offer products that meet the most restrictive international standards regarding energy consumption. As a worldwide leader, EMBRACO tries to anticipate market changes, and in doing so, our company is in a state of permanent transformation. We continuously assess our processes in order to maintain our leadership within the industry and promote growth, without forgetting the pillars of our organization.

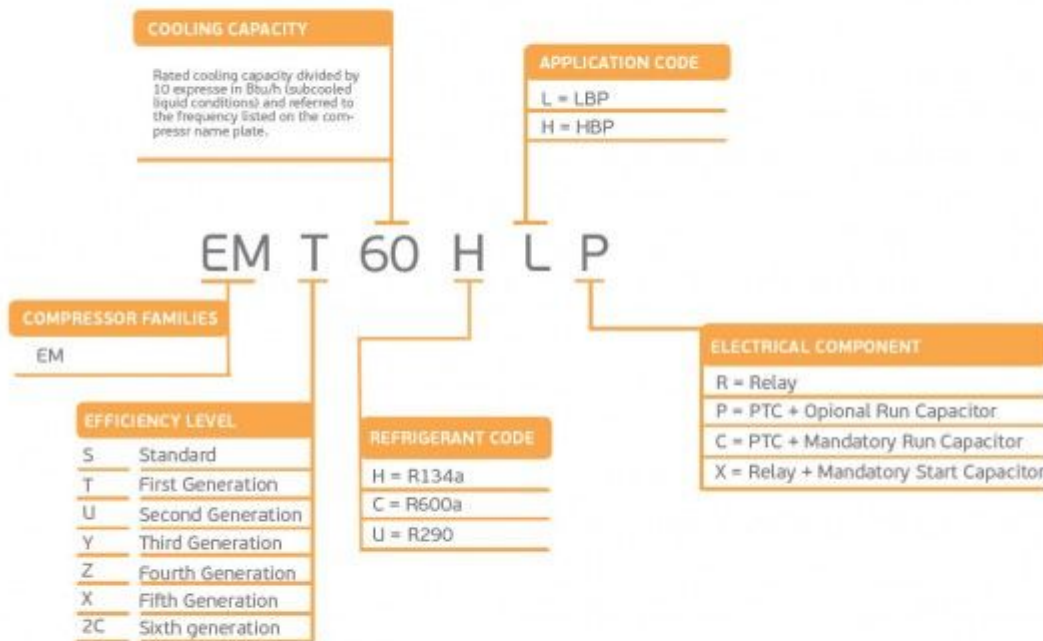
Compressor ASPERA NEK2168GK | NEK 2168 GK

Refrigerant	R404/R507
Working range[stC] LBP	-40 to -10
Nominal capacity [W] (evaporating temperature -23,3C, Condensing temperatur +54,4C)	688
Power supply	220-240V 50Hz
Engine type	CSIR
Displacement [cm ³]	14,28
Weight [kg]	11,6
Evaporating temperature +55 C	

Evaporating Temperature	Cooling Capacity +/-5%	Power Consumption +/-5%	Current Consumption +/-5%	Gas Flow Rate +/-5%	Efficiency +/-7%			
					(W)	(A)	(kg/h)	(kcal/Wh)
°C	(kcal/h)	(W)	(Btu/h)	(W)	(A)	(kg/h)	(kcal/Wh)	(W/W)
-40	226	263	897	370	3,46	6,01	0,61	0,71
-35	309	359	1.224	435	3,57	8,22	0,71	0,82
-30	413	481	1.640	506	3,73	11,06	0,82	0,95
-25	541	629	2.146	584	3,95	14,52	0,93	1,08
-20	691	803	2.740	668	4,21	18,64	1,03	1,20
-15	863	1.004	3.424	759	4,53	23,43	1,14	1,32
-10	1.058	1.230	4.197	856	4,90	28,92	1,24	1,44

Refrigerant: R404A, R507

		R404A / R507							
		LBP	VOLT. FREQ.	COOL. CAP. [W]	DISPL. [cc]	MBP	VOLT. FREQ.	COOL. CAP. [W]	DISPL. [cc]
NE NEK	NEK2117GK	A	125	4,51	NEK6144GK	A	550	4,51	
	NEK2121GK	A	151	5,44	NEK6165GK	A	743	6,20	
	NEK2125GK	A	182	6,20	NEK6181GK	A	841	7,28	
	NEK2130GK	A	213	7,37	NEK6210GK	A / N	1.005	8,77	
	NEK2134GK	A / N	248	8,77	NEK6213GK	A	1.337	12,11	
	NEK2150GK	A	329	12,11	NEK6217GK	A / N	1.164	14,28	
	NEK2168GK	A	378	14,28					
	NEK2172GK	C	819	16,80					



embraco **NEK**



R404A **LBP**

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Picture5 Mbsm Dot Pro : www.mbsm.pro

mbsm.pro , Compresseur Aspera , Embraco NEK2168GK , R404A , LBP ,3/4 HP
Compresseur hermetique de Aspera – Embraco NEK2168GK – R404A
3/4 HP
220-240V 50 Hz
Cylindrée = 14.3 CM3
APPLICATIONS = LBP
Moteur type: CSR

www.mbsm.pro , when capacitor explodes , Pictures

Category: Pictures,Technologie,Tester ok
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A capacitor is a device used to store an electric charge, consisting of one or more pairs of conductors separated by an insulator.

Unexpectedly the electrolytic capacitors explodes with huge sound and sometime it smoke.

Get started , how to explode a capacitor ???

All capacitors have a maximum voltage and their destruction depends upon the internal construction. Explosions are understood only by delving into the internal construction of electrolytic capacitors – the primary culprit.

Most small value capacitors are simple sandwiches of conductor and insulator and when the voltage exceeds the dielectric strength of the insulation, they short out and burn, crack, pop, open, or smoke. Explosions are rare for these. Popping open is more likely. Their failure is self evident either visually or by failure to function in the circuit.

Most large value capacitors in order to be as small in physical size as possible, have to get the conductive plates of the capacitor as close together as possible and at the same time not so small that the voltage rating is impractical.

It is for this reason that the family of electrolytic capacitors was developed. The trick they use to get high capacity with small separations and reasonable voltage is that they use the “anodizing” of chemical electrolysis on one surface and a water based electrolyte for the other surface. Take one apart and see.

Notice that when a conductive metal is “anodized” by electrochemical process it turns into a dull film that is rather tough and is an insulator. This means that the actual conductive plate of the capacitor has this film entirely between itself and the other plate.

Then the other plate uses a trick too. There’s a water base solution soaked into a paper separator. Now if there was no water, the paper would be the dielectric of a normal capacitor separating the plates. But not here. Here the water has an alkali added to become a fair conductor. And as a liquid it soaks right into the surface structures of the capacitor. So it’s not the paper thickness at all – and not even the insulating surface on the other plate, but the inner recesses of the anodized surface that determine the dielectric distances.

So the operating voltage that a capacitor can tolerate depends upon how thick this anodized film is. And that is a function of it’s manufacture. Now there is a most useful characteristic that tells us we are nearing the max voltage, called leakage.

Here is a way you can check this out. Put in series, a test electrolytic capacitor (polarize it correctly), a variable power supply, a microammeter, and

a 1 meg resistor (to limit and protect the meter). From zero as you increase the voltage there will be no current initially, then as you approach the spec op voltage, there will start a small leakage current. Since you have a limiting resistor here, you can increase the voltage without damage. continuing to increase the voltage discovers an increasing leakage current. It is a matter of practice how much safety you apply between the rating and the actual voltage of the circuit.

You can now see how it is that an electrolytic capacitor fails, it is not a voltage breakdown of the dielectric material, but the increase of leakage current that is troublesome. A rising leakage means heat which will boil the water and make steam – that's the explosion process.

This is explosion as occasional failure of the few. But there is a more spectacular explosion process – it's explosion by mistake – namely being installed backward. In such a case, the anodizing chemistry is reversed and rather rapidly, the anodized film starts to reverse, and quickly thins out at a weak spot in the rather large effective film area of the capacitor. Then we have short circuit currents and steam generation rather quickly. This sort of explosion usually fills the space (the casing or the whole room if exposed) with little shreds of aluminum foil and alkali soaked paper.

This insightful solution is most successful to achieve capacitors with large values in small spaces, but has a lot of lesser characteristics as the price to pay.

The worst limit, is storage. Electrolytic capacitors store very poorly, and the voltage rating can reduce substantially as the internal chemistry deteriorates. Some equipment manufacturers recommend that capacitors stored for a few years have their inner anodizing conditions restored by simply putting them to the spec voltage for a day to restore full spec.

At the least, if you replace capacitors with old stock, and it didn't explode when power was restored, be aware that it may not reach it's spec capacity value for a few hours. A capacitor in use will always be maintained by the voltage in the circuit you use it in.

When electrolytics are used without the circuit supplying a maintenance voltage to keep the anodized film that all depends upon, such as in speaker cross over applications that have no sustaining DC, then the values of the capacitor will deteriorate at least at storage rates, and if AC currents are substantial, even faster.

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