

# EBH-NV

Large can, Screw terminals, Endurance 4.000h at 105°C  
 Rated voltage range: 6,3V to 100V, Nominal capacitance range: 1.500µF to 560.000µF  
 Size range: Ø 36 x 58mm to Ø 66 x 123mm  
 RoHS compliant  
 Special types on request



## Specifications

	Characteristics										
<b>Temperature range</b>	- 40°C to +105°C										
<b>Rated voltage range</b>	6,3V to 100V										
<b>Capacitance tolerance</b>	±20% (at 20°C, 100Hz)										
<b>Leakage current I<sub>ra</sub></b>	I <sub>ra</sub> =0,006·C <sub>R</sub> ·V <sub>R</sub> + 4µA (I <sub>ra</sub> [µA], C <sub>R</sub> : Rated capacitance [µF], V <sub>R</sub> : Rated voltage [V]) (at 20°C, 5 minutes)										
<b>Dissipation factor tan δ (D.F.)</b>	Less than shown in Standard Ratings (at 20°C, 100Hz)										
<b>Endurance</b>	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 4.000hours at 105°C.										
	Capacitance change	ΔC/C0 ≤ ±20%									
	D.F. (tan δ)	Δtan δ ≤ +200% of the initial specification value									
	Leakage current (I <sub>ra</sub> )	I <sub>ra</sub> ≤ the initial specified value									
<b>Shelf life</b>	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1.000 hours at 105°C without voltage applied.										
	Capacitance change	ΔC/C0 ≤ ±20%									
	D.F. (tan δ)	Δtan δ ≤ +200% of the initial specification value									
	Leakage current (I <sub>ra</sub> )	I <sub>ra</sub> ≤ +200% of the initial specification value									
<b>Surge voltage test</b>	Rated voltage (V <sub>R</sub> )	6,3V	10V	16V	25V	35V	40V	50V	63V	100V	
	Surge voltage (V <sub>S</sub> )	7,2V	11,5V	18,4V	28,8V	40,3V	46V	57,5V	72,5V	115V	
	The capacitors shall be subjected to 1.000 cycles each consisting of charging with the specified surge voltage for 30±5 seconds through a protective resistor (R=0,1/C <sub>R</sub> ) and open-circuiting for 330 seconds at 105°C. The following specifications shall be satisfied when the capacitors are restored to 20°C.										
	Appearance	No significant damage									
	Capacitance change	ΔC/C0 ≤ ±10%									
	D.F. (tan δ)	Δtan δ ≤ the initial specified value									
	Leakage current (I <sub>ra</sub> )	I <sub>ra</sub> ≤ the initial specified value									

## FROLYT Kondensatoren und Bauelemente GmbH

ISO 9001

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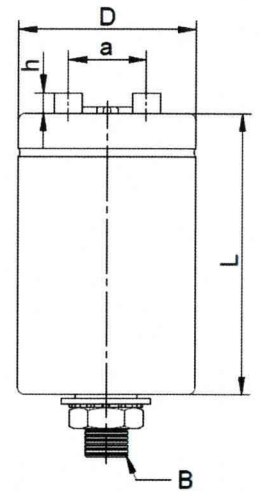
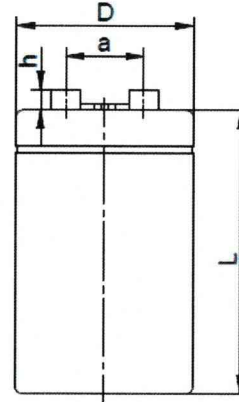
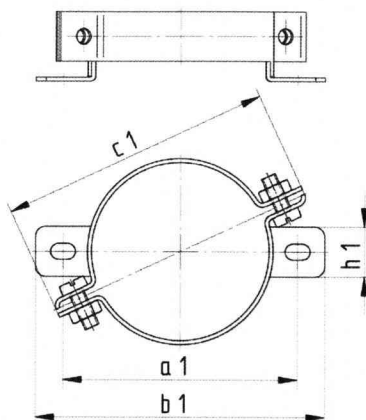
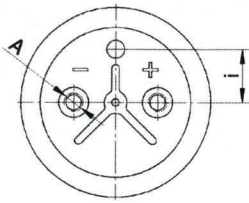
Germany-09599 Freiberg/ Saxony

# FROLYT

Large size type, Insulated, Polarized, Pulse proof,  
Endurance at least 4.000h at +105°C



EBH-NV



**Generic specification:**  
DIN EN 60384-1

**Sectional specification:**  
DIN EN 60384-4  
without quality assessment

**Operating temperature range:**  
- 40°C to +105°C

**Climatic category:**  
40/105/56

**Capacitance tolerance:**  
±20%

**Surge voltage  $V_S$ :**  
 $V_S = 1,15 \cdot V_R$

**Leakage current  $I_{ra}$ :**  
measured at  $V_R$  at +20°C  
 $I_{ra} \leq 0,01 \cdot C_R \cdot V_R + 4\mu A$   
(typical after 1 min.)  
 $I_{ra} \leq 0,006 \cdot C_R \cdot V_R + 4\mu A$   
(after 5 min.)  
 $C_R$ : Rated capacitance ( $\mu F$ )  
 $V_R$ : Rated voltage (V)

D x L	D	L	a	h	A	B	i	c1	h1	a1	b1
	max	max	±0,2	max	±0,2	+ 1,0	±0,2	max	±0,2	±0,2	max
36 x 58	36,0	58,0	13,0	6,0	M5 x 8,0	M8 x 12,0	8,0	55,0	10,0	47,0	58,0
36 x 83	36,0	83,0	13,0	6,0	M5 x 8,0	M8 x 12,0	8,0	55,0	10,0	47,0	58,0
36 x 103	36,0	103,0	13,0	6,0	M5 x 8,0	M8 x 12,0	8,0	55,0	10,0	47,0	58,0
51 x 83	51,0	83,0	22,0	6,0	M5 x 8,0	M12 x 18,0	14,0	75,0	12,0	62,0	72,0
51 x 103	51,0	103,0	22,0	6,0	M5 x 8,0	M12 x 18,0	14,0	75,0	12,0	62,0	72,0
51 x 123	51,0	123,0	22,0	6,0	M5 x 8,0	M12 x 18,0	14,0	75,0	12,0	62,0	72,0
66 x 103	66,0	103,0	28,5	6,0	M5 x 8,0	M12 x 18,0	15,0	90,0	15,0	77,0	87,0
66 x 123	66,0	123,0	28,5	6,0	M5 x 8,0	M12 x 18,0	15,0	90,0	15,0	77,0	87,0

Endurance at least	
Ambient temperature	
≤ +40°C	400.000h
+85°C	16.000h
+105°C	4.000h

Dimensions Overview D x L									
Capacitance $C_R$ [ $\mu F$ ]	Rated Voltage $V_R$ [V]								
	6,3	10	16	25	35	40	50	63	100
1 500									36 x 58
1 800									36 x 58
2 200						36 x 58	36 x 58	36 x 58	36 x 58
3 300						36 x 58	36 x 58	36 x 58	36 x 83
3 900						36 x 58	36 x 58	36 x 58	36 x 83
4 700						36 x 58	36 x 58	36 x 58	36 x 103
5 600									51 x 83
6 800						36 x 58	36 x 58	36 x 83	36 x 103
8 200						36 x 58	36 x 58	36 x 83	51 x 83
10 000						36 x 58	36 x 58	36 x 83	36 x 103
12 000							36 x 83	51 x 83	
15 000				36 x 58	36 x 83	36 x 83	36 x 83	51 x 83	51 x 103
18 000							36 x 103		
22 000			36 x 58	36 x 83	36 x 83	36 x 103	51 x 83	51 x 83	66 x 103
					51 x 83	51 x 83		51 x 103	

Dimensions overview D x L									
Capacitance $C_R$ [ $\mu$ F]	Rated voltage $V_R$ [V]								
	6,3	10	16	25	35	40	50	63	100
27 000			36 x 58	36 x 83	36 x 103	36 x 103	51 x 83	51 x 103	66 x 103
33 000		36 x 58	36 x 83	36 x 83	36 x 103	51 x 83	51 x 83	51 x 103	66 x 123
39 000				36 x 103			51 x 103	66 x 103	
47 000	36 x 58	36 x 58	36 x 83	36 x 103	51 x 83	51 x 83	51 x 103	66 x 103	
56 000			36 x 83	51 x 103	51 x 83		66 x 103	66 x 103	
68 000	36 x 58	36 x 83	36 x 103	51 x 83	51 x 103	51 x 103	66 x 103	66 x 123	
82 000	36 x 83	36 x 103	51 x 83	51 x 103	66 x 103	66 x 103	66 x 103	66 x 123	
100 000	36 x 83	36 x 103	51 x 83	51 x 103	66 x 103	66 x 103	66 x 123	66 x 123	
	36 x 103	51 x 83							
120 000	36 x 103	51 x 83	51 x 83	66 x 103	66 x 123	66 x 123			
150 000	51 x 83	51 x 83	51 x 103	66 x 103					
180 000	51 x 83	51 x 103	66 x 103	66 x 103					
220 000	51 x 83	51 x 103	66 x 103	66 x 103					
	51 x 103								
270 000	51 x 103	66 x 103	66 x 103						
330 000	51 x 103	66 x 103	66 x 103						
390 000	66 x 103	66 x 103							
470 000	66 x 103	66 x 103							
560 000		66 x 123							

## Technical specifications

Rated capacitance $C_R$ [ $\mu$ F]	Rated voltage $V_R$ [V]	Size D x L [mm]	$\tan \delta$ 100Hz +20°C (max)	Z [m $\Omega$ ] 10kHz +20°C (max)	I~ [A <sub>rms</sub> ]* 100Hz +105°C (max)	Ordering information for FROLYT electrolytic capacitors
47 000	6,3	36 x 58	0,60	33,0	5,3	<ul style="list-style-type: none"> <li>• Series</li> <li>• Rated capacitance / Rated voltage</li> <li>• Capacitance tolerance</li> <li>• Dimensions (Diameter x Length)</li> <li>• Additional requirements</li> </ul> Ordering example: EBH 47,000 $\mu$ F 6,3V $\pm$ 20%, 36 x 58mm, Stud mounting.
56 000	6,3	36 x 58	0,66	30,5	5,6	
68 000	6,3	36 x 83	0,72	28,0	6,5	
82 000	6,3	36 x 83	0,79	23,0	6,8	
100 000	6,3	36 x 83	0,85	18,0	7,2	
		36 x 103	0,85	18,0	7,4	
120 000	6,3	36 x 103	0,95	17,0	7,6	
150 000	6,3	51 x 83	1,05	16,0	9,0	
180 000	6,3	51 x 83	1,15	14,0	9,5	
220 000	6,3	51 x 83	1,25	12,0	10,0	
		51 x 103	1,25	12,0	10,6	
270 000	6,3	51 x 103	1,35	11,5	11,3	
330 000	6,3	51 x 103	1,45	11,0	12,1	
390 000	6,3	66 x 103	1,55	10,0	13,9	
470 000	6,3	66 x 103	1,65	9,0	14,8	
33 000	10	36 x 58	0,35	26,3	5,9	
39 000	10	36 x 58	0,40	25,0	6,0	
47 000	10	36 x 58	0,45	22,0	6,2	
56 000	10	36 x 83	0,50	20,0	7,1	
68 000	10	36 x 83	0,55	18,0	7,4	
82 000	10	36 x 103	0,60	15,0	7,9	
		36 x 103	0,65	12,0	8,4	
100 000	10	51 x 83	0,65	12,0	9,4	
120 000	10	51 x 83	0,70	11,5	9,9	
150 000	10	51 x 83	0,75	11,0	10,7	
180 000	10	51 x 103	0,83	10,0	11,8	
220 000	10	51 x 103	0,90	9,0	12,5	
270 000	10	66 x 103	0,98	8,5	14,5	
330 000	10	66 x 103	1,05	8,0	15,5	
390 000	10	66 x 103	1,10	7,5	16,5	
470 000	10	66 x 103	1,20	7,0	17,3	
560 000	10	66 x 123	1,30	6,5	19,6	

\* I~ (Rated ripple current) refers to an increase in temperature of 3K, special requirements or special types on request

**Technical specifications**

Rated capacitance $C_R$ [ $\mu$ F]	Rated voltage $V_R$ [V]	Size D x L [mm]	$\tan \delta$ 100Hz +20°C (max)	Z [m $\Omega$ ] 10kHz +20°C (max)	$I_{\sim}$ [ $A_{rms}$ ]* 100Hz +105°C (max)	Ordering information for FROLYT electrolytic capacitors
22 000	16	36 x 58	0,36	29,0	4,7	<ul style="list-style-type: none"> <li>• Series</li> <li>• Rated capacitance / Rated voltage</li> <li>• Capacitance tolerance</li> <li>• Dimensions (Diameter x Length)</li> <li>• Additional requirements</li> </ul>
27 000	16	36 x 58	0,37	26,2	5,2	
33 000	16	36 x 83	0,38	23,8	6,2	
39 000	16	36 x 83	0,40	20,5	6,6	
47 000	16	36 x 58	0,65	25,0	5,1	
		36 x 83	0,41	17,1	7,1	
56 000	16	36 x 103	0,43	16,2	7,7	
68 000	16	36 x 103	0,45	15,2	8,3	
82 000	16	51 x 83	0,50	12,4	9,7	
100 000	16	51 x 83	0,54	9,5	10,3	
120 000	16	51 x 83	0,59	9,1	10,8	
150 000	16	51 x 103	0,63	8,6	12,4	
180 000	16	66 x 103	0,70	8,1	14,0	
220 000	16	66 x 103	0,77	7,6	14,8	
270 000	16	66 x 103	0,85	7,2	15,6	
330 000	16	66 x 103	0,94	6,7	16,4	
15 000	25	36 x 58	0,29	25,7	4,3	
18 000	25	36 x 58	0,31	23,3	4,6	
22 000	25	36 x 83	0,32	20,9	5,5	
27 000	25	36 x 83	0,33	18,1	6,0	
33 000	25	36 x 83	0,36	15,2	6,4	
		36 x 103	0,36	15,2	6,5	
39 000	25	36 x 103	0,39	13,4	6,8	
47 000	25	36 x 103	0,45	12,0	6,9	
		51 x 103	0,40	11,4	8,7	
56 000	25	51 x 83	0,41	11,0	8,8	
68 000	25	51 x 83	0,43	10,5	9,5	
82 000	25	51 x 103	0,47	9,1	10,6	
100 000	25	51 x 103	0,50	7,6	11,3	
120 000	25	66 x 103	0,54	7,2	13,1	
150 000	25	66 x 103	0,59	6,7	14,0	
180 000	25	66 x 103	0,63	6,2	14,8	
220 000	25	66 x 103	0,67	5,7	15,9	
8 200	35	36 x 58	0,18	34,0	4,1	
10 000	35	36 x 58	0,20	26,6	4,3	
12 000	35	36 x 58	0,23	24,3	4,4	
15 000	35	36 x 83	0,25	21,9	5,2	
18 000	35	36 x 83	0,26	18,6	5,6	
22 000	35	36 x 83	0,27	15,2	6,0	
		51 x 83	0,30	16,0	6,5	
27 000	35	36 x 103	0,29	13,8	6,5	
33 000	35	36 x 103	0,30	12,4	7,1	
39 000	35	51 x 83	0,32	11,0	8,3	
47 000	35	36 x 103	0,33	9,5	8,1	
		51 x 83	0,37	10,0	8,5	
56 000	35	51 x 103	0,35	9,1	10,2	
68 000	35	51 x 103	0,36	8,6	11,0	
82 000	35	66 x 103	0,41	7,7	12,4	
100 000	35	66 x 103	0,45	6,7	13,1	
120 000	35	66 x 123	0,49	6,4	14,8	

 Ordering example: EBH 47.000 $\mu$ F 6,3V  $\pm$ 20%, 36 x 58mm, Stud mounting

 \* I<sub>~</sub> (Rated ripple current) refers to an increase in temperature of 3K, special requirements or special types on request

**Technical specifications**

Rated capacitance $C_R$ [ $\mu$ F]	Rated voltage $V_R$ [V]	Size D x L [mm]	$\tan \delta$ 100Hz +20°C (max)	Z [ $m\Omega$ ] 10kHz +20°C (max)	$I_{\sim}$ [ $A_{rms}$ ]* 100Hz +105°C (max)	Ordering information for FROLYT electrolytic capacitors
2 200	40	36 x 58	0,08	28,0	3,2	<ul style="list-style-type: none"> <li>• Series</li> <li>• Rated capacitance / Rated voltage</li> <li>• Capacitance tolerance</li> <li>• Dimensions (Diameter x Length)</li> <li>• Additional requirements</li> </ul>
3 300	40	36 x 58	0,10	28,0	3,5	
3 900	40	36 x 58	0,12	28,0	3,4	
4 700	40	36 x 58	0,14	28,0	3,5	
5 600	40	36 x 58	0,17	27,5	3,5	
6 800	40	36 x 58	0,19	27,0	3,6	
8 200	40	36 x 58	0,20	27,0	3,9	
10 000	40	36 x 58	0,20	26,0	4,3	
12 000	40	36 x 58	0,20	20,0	4,7	
15 000	40	36 x 83	0,20	14,0	5,8	
18 000	40	36 x 83	0,22	14,0	6,0	
22 000	40	36 x 103	0,24	14,3	6,5	
		51 x 83	0,27	14,7	6,8	
27 000	40	36 x 103	0,30	13,0	6,4	
33 000	40	51 x 83	0,33	11,0	7,6	
39 000	40	51 x 83	0,34	10,5	8,1	
47 000	40	51 x 83	0,34	10,0	8,9	
56 000	40	51 x 103	0,35	9,5	10,2	
68 000	40	51 x 103	0,35	9,0	11,2	
82 000	40	66 x 103	0,36	7,5	13,2	
100 000	40	66 x 103	0,36	6,0	14,6	
120 000	40	66 x 123	0,38	5,7	16,8	
2 200	50	36 x 58	0,16	38,0	2,2	
3 300	50	36 x 58	0,17	36,0	2,7	
3 900	50	36 x 58	0,18	34,0	2,8	
4 700	50	36 x 58	0,19	32,0	3,0	
5 600	50	36 x 58	0,20	30,0	3,2	
6 800	50	36 x 58	0,22	28,0	3,4	
8 200	50	36 x 58	0,23	27,0	3,6	
10 000	50	36 x 58	0,23	19,0	4,0	
		36 x 83	0,23	19,0	4,4	
12 000	50	36 x 83	0,23	19,0	4,8	
15 000	50	36 x 83	0,24	19,0	5,3	
	50	36 x 103	0,24	19,0	5,4	
18 000	50	36 x 103	0,26	16,7	5,6	
22 000	50	51 x 83	0,27	14,3	6,8	
27 000	50	51 x 83	0,27	12,4	7,6	
33 000	50	51 x 83	0,28	10,5	8,2	
		51 x 103	0,28	10,5	8,7	
39 000	50	51 x 103	0,28	9,6	9,5	
47 000	50	51 x 103	0,28	9,0	10,4	
		66 x 103	0,29	8,6	11,1	
56 000	50	66 x 103	0,29	8,0	12,2	
68 000	50	66 x 103	0,29	7,2	13,4	
82 000	50	66 x 103	0,29	6,5	14,7	
100 000	50	66 x 123	0,30	6,0	17,3	

 Ordering example: EBH 47.000 $\mu$ F 6,3V  $\pm$ 20%, 36 x 58mm, Stud mounting

 \*  $I_{\sim}$  (Rated ripple current) refers to an increase in temperature of 3K, special requirements or special types on request

**Technical specifications**

Rated capacitance $C_R$ [ $\mu$ F]	Rated voltage $V_R$ [V]	Size D x L [mm]	$\tan \delta$ 100Hz +20°C (max)	Z [m $\Omega$ ] 10kHz +20°C (max)	I~ [A <sub>rms</sub> ]* 100Hz +105°C (max)	Ordering information for FROLYT electrolytic capacitors
2 200	63	36 x 58	0,12	40,0	2,6	<ul style="list-style-type: none"> <li>• Series</li> <li>• Rated capacitance / Rated voltage</li> <li>• Capacitance tolerance</li> <li>• Dimensions (Diameter x Length)</li> <li>• Additional requirements</li> </ul> Ordering example: EBH 47.000 $\mu$ F 6,3V $\pm$ 20%, 36 x 58mm, Stud mounting
3 300	63	36 x 58	0,13	36,1	3,0	
3 900	63	36 x 58	0,13	34,7	3,3	
4 700	63	36 x 58	0,14	33,3	3,5	
5 600	63	36 x 58	0,15	30,0	3,7	
6 800	63	36 x 83	0,16	28,0	4,3	
8 200	63	36 x 83	0,17	23,0	4,6	
10 000	63	36 x 103	0,18	17,0	5,1	
		51 x 83	0,18	17,0	5,6	
12 000	63	36 x 103	0,21	15,7	5,1	
15 000	63	51 x 83	0,21	14,3	6,4	
18 000	63	51 x 83	0,23	13,0	6,7	
22 000	63	51 x 83	0,24	10,0	7,2	
		51 x 103	0,24	9,0	7,7	
27 000	63	51 x 103	0,26	9,0	8,2	
33 000	63	51 x 103	0,26	8,0	9,0	
		66 x 103	0,26	8,0	9,9	
39 000	63	66 x 103	0,28	7,0	10,3	
47 000	63	66 x 103	0,29	6,0	11,1	
56 000	63	66 x 123	0,29	5,5	13,1	
68 000	63	66 x 123	0,29	4,7	14,5	
82 000	63	66 x 123	0,29	4,5	15,9	
100 000	63	66 x 123	0,29	4,3	17,6	
1 500	100	36 x 58	0,06	30,0	3,0	
1 800	100	36 x 58	0,06	30,0	3,3	
2 200	100	36 x 58	0,07	25,0	3,4	
3 300	100	36 x 83	0,08	21,0	4,3	
3 900	100	36 x 83	0,08	18,0	4,7	
4 700	100	36 x 103	0,08	14,0	5,2	
		51 x 83	0,08	14,0	5,8	
5 600	100	36 x 103	0,10	14,0	5,1	
6 800	100	36 x 103	0,12	14,0	5,1	
		51 x 83	0,13	14,0	5,5	
8 200	100	51 x 83	0,14	12,5	5,8	
10 000	100	51 x 83	0,15	11,0	6,2	
12 000	100	51 x 83	0,15	10,0	6,8	
15 000	100	51 x 103	0,15	10,0	8,0	
18 000	100	66 x 103	0,15	9,0	9,6	
22 000	100	66 x 103	0,15	8,0	10,6	
27 000	100	66 x 103	0,16	7,0	11,4	
33 000	100	66 x 123	0,16	6,0	13,6	

\* I~ (Rated ripple current) refers to an increase in temperature of 3K, special requirements or special types on request

**Rated ripple current: Frequency multipliers**

Frequency	Multipliers
100Hz	1,0
1kHz	1,3
10kHz to 100kHz	1,4

All information provided in printed form requires a written confirmation in order to be legally binding within the meaning of §§463 and 480 II BGB (German Civil Code). Hence, the given data imply exclusively a product description and are not to be understood as assured qualities.