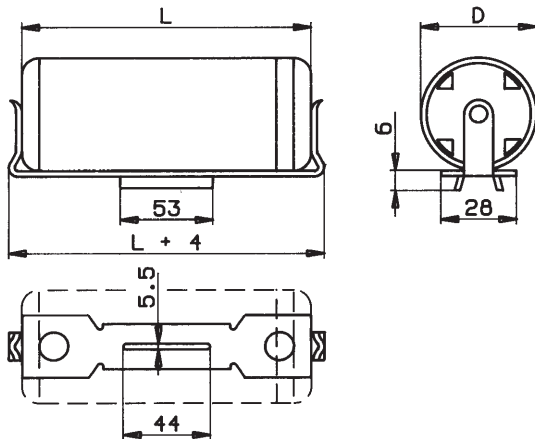


Electrolytic motor start capacitors



① Capac. type 04P - ② End cap - ③ Metal bracket: Four different mounting positions for capacitors size 3 and 4 - One position for size 5 and 6. See dimensions table 1) in the next page.

Applications

The facon AC. motor start capacitors are non-polar aluminium electrolytic capacitors designed for intermittent AC. duty, more specifically, the starting of small AC. motors.

Other applications:

- filtering alternating current (for ex: soldering units) - f 20 KHz
- filtering V.DC with high superimposed V.AC - f 1 KHz
- continuous voltage with reversed polarity
- on request, some values can be used under continuous V.AC 48 V - f = 50 ÷ 20.000 Hz - see enclosure 3/A

Manufacturing

These capacitors are interely realized with plastic case and are assembled with automatic machines to guarantee a constant quality. Facon type 04P. capacitors are normally supplied with end cup and double faston terminals (6.3 x 0.8 mm.). On request: simple faston, bipolar cable, discharge resistance, metal mounting bracket for capacitors size 3,4,5 - fixing stud M8x10 mm. for capacitors size C,D,E.

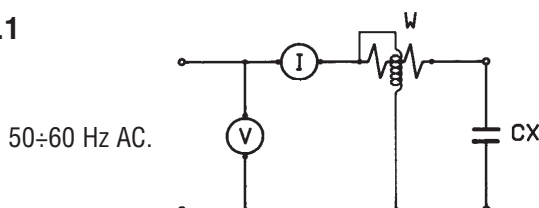
Technical characteristics

See tables 2) 3) and enclosure 1/A.

Measurements

Using the circuit shown in fig. 1, apply rated voltage to the capacitor and measure current and dissipated power. Current will be measured after 2÷3 seconds, dissipated power within 3 seconds after application of rated voltage. Capacitance and power factor must be calculated with the following formula:

Fig.1



$$C = \frac{I \cdot 10^6}{2 \cdot \pi \cdot f \cdot V}$$

$$PF\% = \frac{W \cdot 100}{V \cdot I}$$

where: C = capacitance in m F
I = current in amperes
 π = constant 3.14
f = frequency in hertz
V = applied voltage
PF = power factor
W = dissipated power in Watts

Note: to have the right measurements is required a special type of instruments.

Other characteristic

Please, inquire for information about different duty cycles or particular applications.

DIMENSION TABLE			
CASE CODE		D	L
FLAT BOTTOM	FIXING STUD	±1.5 mm	±1.5 mm
2	-	36.5	70*
3	C	36.5	98
4	D	46	98
5	E	46	124
6	-	52	124

*** Quote L without CAP; normally supplied without plastic-cap because of metal bracket not available for this length.

APPROVALS TABLE 2)						
APPROVALS	APPR. CODE	V.ac	CAPACITANCE TOLERANCE	CLIMATIC CATEGORY	NT	DUTY CYCLE
VDE 560-8	V1	260	- 0 +20%	-10 +70°C	60	3'/1.7%
	V2	330	- 0 +20%	-10 +65°C	60	3'/1.7%
	V3	330	- 0 +20%	-10 +55°C	60	3'/1.7%
IMQ EN 60252-2	I1	250	- 0 +20%	-10 +65°C	60	3'/1.7%
	I2	330	- 0 +20%	-10 +55°C	60	3'/1.7%
VDE 560-8	VS1	260	±10%	-20 +70°C	60	3'/1.7%
		330	±10%	-20 +70°C	60	1'/0.55%
C= CONFORMING WITH VDE 560-8			- 0 +20%	-10 +55°C	60	3'/1.7%

** NOTE: new serie with double voltage marking 260/330 V.ac VDE approved.

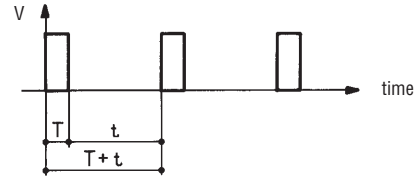
CASE, APPROVAL AND ARTICLE CODES FOR								
INDUSTRIAL APPLIANCE						HOUSEHOLD APPLIANCES		
V.ac	C (µF)	D x L (mm)	CASE CODE	APPROVALS CODE	ARTICLE CODE	D X L (mm)	CASE CODE	ARTICLE CODE
125	25	36.5x70	2	C	19638.12P2D	36.5x70	2	19638.12P2V
	31.5	36.5x70	2	C	19638.16P2D	36.5x70	2	19638.16P2V
	40	36.5x70	2	C	19638.20P2D	36.5x70	2	19638.20P2V
	50	36.5x70	2	C	19638.30P2D	36.5x70	2	19638.30P2V
	64	36.5x70	2	C	19638.44P2D	36.5x70	2	19638.44P2V
	80	36.5x70	2	C	19638.60P2D	36.5x70	2	19638.60P2V
	100	36.5x98	3/C	C	19638.80P#D	36.5x70	2	19638.80P2V
	125	36.5x98	3/C	C	19638.C5P#D	36.5x70	2	19638.C5P2V
	156	36.5x98	3/C	C	19638.E6P#D	36.5x70	2	19638.E6P2V
	200	36.5x98	3/C	C	19638.H0P#D	36.5x70	2	19638.H0P2V
	250	46x98	4/D	C	19638.K0P#D	36.5x98	3/C	19638.K0P#V
	315	46x98	4/D	C	19638.P5P#D	36.5x98	3/C	19638.P5P#V
	400	46x124	5/E	C	19638.T0P#D			
	500	46x124	5/E	C	19638.X0P#D			
600	52x124	6	C	19638.W0P#D				
160	25	36.5x70	2/C	C	19642.12P2D	36.5x70	2	19642.12P2V
	31.5	36.5x70	2/C	C	19642.16P2D	36.5x70	2	19642.16P2V
	40	36.5x70	2/C	C	19642.20P2D	36.5x70	2	19642.20P2V
	50	36.5x70	2/C	C	19642.30P2D	36.5x70	2	19642.30P2V
	64	36.5x98	3/C	C	19642.44P#D	36.5x70	2	19642.44P2V
	80	36.5x98	3/C	C	19642.60P#D	36.5x70	2	19642.60P2V
	100	36.5x98	3/C	C	19642.80P#D	36.5x70	2	19642.80P2V
	125	36.5x98	3/C	C	19642.C5P#D	36.5x70	2	19642.C5P2V
	156	36.5x98	3/C	C	19642.E6P#D	36.5x70	2	19642.E6P2V
	200	46x98	4/D	C	19642.H0P#D	36.5x98	3/C	19642.H0P#V
	250	46x98	4/D	C	19642.K0P#D			
	315	46x98	4/D	C	19642.P5P#D			
	400	46x124	5/E	C	19642.T0P#D			
	500	46x124	5/E	C	19642.X0P#D			
600	52x124	6	C	19642.W0P6D				
220	16	36.5x70	2	C	19645.04P2D	36.5x70	2	19645.04P2V
	21	36.5x70	2	C	19645.08P2D	36.5x70	2	19645.08P2V
	25	36.5x70	2	C	19645.12P2D	36.5x70	2	19645.12P2V
	31.5	36.5x70	2	C	19645.16P2D	36.5x70	2	19645.16P2V
	40	36.5x98	3/C	C	19645.20P#D	36.5x70	2	19645.20P2V
	50	36.5x98	3/C	C	19645.30P#D	36.5x70	2	19645.30P2V
	64	36.5x98	3/C	C	19645.44P#D	36.5x70	2	19645.44P2V
	80	36.5x98	3/C	C	19645.60P#D	36.5x70	2	19645.60P2V
	100	36.5x98	3/C	C	19645.80P#D	36.5x98	3/C	19645.80P#V
	125	46x98	4/D	C	19645.C5P#D	36.5x98	3/C	19645.C5P#V
	156	46x98	4/D	C	19645.E6P#D			
	200	46x98	4/D	C	19645.H0P#D			
	250	46x124	5/E	C	19645.K0P#D			
	315	46x124	5/E	C	19645.P5P#D			
	400	52x124	6	C	19645.T0P6D			
	500	52x124	6	C	19645.X0P6D			
600	52x124	6	C	19645.W0P6D				
250/260	16	36.5 x70	2	VDE	IMQ	C		
	21	36.5 x70	2	V1	I1			
	21	36.5 x98	3/C	V1	I1			

INDUSTRIAL APPLIANCE							HOUSEHOLD APPLIANCES				
V.ac	C (µF)	D x L (mm)	CASE CODE	APPROVALS CODE			ARTICLE CODE	D X L (mm)	CASE CODE	ARTICLE CODE	
				VDE	IMQ	C					
250/260	25	36.5 x98	3/C		I1		19648.12P#D	36.5x70	2	19648.12P2V	
	31.5	36.5 x98	3/C		I1		19648.16P#D	36.5x70	2	19648.16P2V	
	40	36.5 x98	3/C		I1		19648.20P#D	36.5x70	2	19648.20P2V	
	43	36.5 x98	3/C	V1	I1		19648.23P#D	36.5x70	2	19648.23P2V	
	47	36.5 x98	3/C	V1	I1		19648.27P#D	36.5x70	2	19648.27P2V	
	50	36.5 x98	3/C	V1	I1		19648.30P#D	36.5x70	2	19648.30P2V	
	53	36.5 x98	3/C	V1	I1		19648.33P#D	36.5x70	2	19648.33P2V	
	60	36.5 x98	3/C	V1	I1		19648.40P#D	36.5x70	2	19648.40P2V	
	64	36.5 x98	3/C	V1	I1		19648.44P#D	36.5x70	2	19648.44P2V	
	72	36.5 x98	3/C	V1	I1		19648.52P#D	36.5x70	2	19648.52P2V	
	72	46 x98	4/D	V1	I1		19648.52P#D				
	80	46 x98	4/D	V1	I1		19648.60P#D	36.5x70	2	19648.60P2V	
	88	46 x98	4/D	V1	I1		19648.68P#D	36.5x98	3/C	19648.68P#V	
	100	46 x98	4/D	V1			19648.80P#D	36.5x98	3/C	19648.80P#V	
	125	46 x98	4/D	V1			19648.C5P#D				
	156	46 x124	5/E	V1			19648.E6P#D				
200	52 x124	6			C	19648.H0P#D					
250	52 x124	6			C	19648.K0P#D					
315	52 x124	6			C	19648.P5P#D					
280	21	36.5 x70	2		C	19650.08P2D	36.5x70	2	19650.08P2V		
	31.5	36.5 x98	3/C		C	19650.16P#D	36.5x70	2	19650.16P2V		
	43	46 x98	4/D		C	19650.23P#D	36.5x70	2	19650.23P2V		
	47	46 x98	4/D		C	19650.27P#D	36.5x70	2	19650.27P2V		
	53	46 x98	4/D		C	19650.33P#D	36.5x70	2	19650.33P2V		
	64	46 x98	4/D		C	19650.44P#D	36.5x70	2	19650.44P2V		
	72	46 x98	4/D		C	19650.52P#D	36.5x70	2	19650.52P2V		
	80	46 x98	4/D		C	19650.60P#D	36.5x70	2	19650.60P2V		
	88	46 x98	4/D		C	19650.68P#D	36.5x98	3/C	19650.68P#V		
	100	46 x98	4/D		C	19650.80P#D	36.5x98	3/C	19650.80P#V		
	125	46 x98	4/D		C	19650.C5P#D					
	156	46 x124	5/E		C	19650.E6P#D					
	200	52 x124	6		C	19650.H0P#D					
	250	52 x124	6		C	19650.K0P#D					
	315	52 x124	6		C	19650.P5P#D					
	260/330**	16	36.5x98	3/C			C	19649.04P#D			
21		36.5x98	3/C	VS1			19649.08P#D				
40		36.5x98	3/C	VS1			19649.20P#D				
43		36.5x98	3/C	VS1			19649.23P#D				
47		36.5x98	3/C	VS1			19649.27P#D				
50		36.5x98	3/C	VS1			19649.30P#D				
53		36.5x98	3/C	VS1			19649.33P#D				
60		36.5x98	3/C	VS1			19649.40P#D				
64		36.5x98	3/C	VS1			19649.44P#D				
72		36.5x98	3/C	VS1			19649.52P#D				
80		36.5x98	3/C	VS1			19649.60P#D				
88	36.5x98	3/C	VS1			19649.68P#D					
100	46x98	4/D	VS1			19649.C5P#D					
330	16	36.5x70	2			C	19655.04P2D				
	21	36.5x70	2	V2	I2		19655.08P2D				
	21	36.5x98	3/C	V2	I2		19655.08P#D				
	25	36.5x98	3/C		I2		19655.12P#D				
	30	36.5x98	3/C		I2		19655.15P#D				
	40	46x98	4/D		I2		19655.20P#D				
	43	46x98	4/D	V2	I2		19655.23P#D				
	47	46x98	4/D	V2	I2		19655.27P#D				
	50	46x98	4/D	V2	I2		19655.30P#D				
	53	46x98	4/D	V2	I2		19655.33P#D				
	64	46x98	4/D	V2	I2		19655.44P#D				
	72	46x98	4/D	V2	I2		19655.52P#D				
	72	46x124	5/E	V2	I2		19655.52P#D				
	80	46x124	5/E		I2		19655.60P#D				
	88	46x124	5/E	V2	I2		19655.68P#D				
	88	52x124	6	V2	I2		19655.68P6D				
100	46x124	5/E	V3			19655.80P#D					
125	52x124	6	V3			19655.C5P6D					
156	52x124	6	V3			19655.E6P6D					

NOTE:# = CASE CODE; in order to complete the ARTICLE CODE put the case code up to your needs (With or without fixing stud) in the last but one position. Ex.: 80 µF / 330 V.ac with fixing stud code = 19655.60PED

TABLE 3

TECHNICAL CHARACTERISTICS		
REFERENCE STANDARD		VDE 560-8 / IEC 252
WORKING VOLTAGE	V_N	rms voltage that can be applied to the motor-starting capacitor in conformity with the specified duty cycle.
RATED FREQUENCY	Hz	50÷60
CYCLE CHARACTERISTICS	$\frac{N}{T+t}$	time V_N off
	$\frac{NT}{T+t}$ %	startere rating/hour relative operation time
	Rated duty cycle	Specified by the duty cycle duration (min) and the relative operation time (%)



TYPE	INDUSTRIAL APPLIANCES			HOUSEHOLD APPLIANCES	
	VDE - IMQ PROD. APPROVED	PRODUCT WITHOUT APPROVALS			
MAX. WORKING VOLTAGE (1/10 max. of the start period)	V_g	$1.2 V_N$	$1.2 V_N$	$1.1 V_N$	
CLIMATIC CATEGORY		see table 2)	up to 260 Vac -10/ +60/ F= JUF (DIN 40040) 280÷330 Vac -10/ +55/ F=JVF (DIN40040)	- 10/ +55/ F = =JVF (DIN40040)	
CAPACITANCE TOLERANCE	%	see table 2)	-0 +20% ; ±10% on request	±10%	
POWER FACTOR: TYPICAL VALUE MAX. VALUE	% %	7% 10%	8% 12%	10% 15%	
CYCLE CHARACTERISTICS MAX START-UP TIME = (S)	V_N °C NT N T t $\frac{T}{T+t}$ %	260 V.ac 70 (VDE) 60 6 10 ⑩ 590 1.7%	330 V.ac 55 (VDE) 60 10 ⑥ 354 1.7%	125÷330 V.ac 60° C 40° C (*)60 80 6 8 ⑩ ⑩ 590 350 1.7% 1.7%	125÷280 V.ac 40° C 40 10 ④ 356 1.1%
	NOTE: Different cycles are possible with the limits of the indicated NT and T max.; for ex. (*): NT= 60 could also represent N= 10 / T=6 or N=20 / T=3 etc				
STABILITY TEST: 8h. at $1.2 V_N$ ACCORDING TO VDE 560-8	°C	the max temperature in conformity with the specified climatic category.			
	NT N T t $\frac{T}{T+t}$ %	60 20 3 s 177 s 1.7%	60 20 3 s 177 s 1.7%		
RAPID TEST: 6h. at V_N	°C	25 °C	25 °C	25 °C	
	NT N T t $\frac{T}{T+t}$ %	120 60 2 58 3.3%	120 60 2 58 3.3%	60 30 2 118 1.7%	
EXPECTED LIFE: No. OF STARTS UP	°C NT	~ 50 °C 30 > 500.000	~ 40 °C 30 > 100.000	~ 30 °C 30 > 100.000	
STORAGE TEST at 85 °C	h	100 h	100 h	100 h	