

Motor running and starting capacitors

Type: TC886
Ordering code: TC886** ***** * - see this document
Date: Jan 31st 2024
Version: 3.0

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Usage

- Capacitors are designed as running and starting capacitors for AC asynchronous motors
- The power supply of these motors can be both single-phase and three-phase with a sinusoidal course of the supply voltage

Construction

- Metallized polypropylene film
- Plastic case and top material according to UL 94 V2
- Potting material VEROPAL

Properties

- Self-healing
- Low loss-factor
- Safety class S0 according to ČSN EN 60252-1(2) ed.2
- High insulation resistance

Design

The coil of the capacitor is made of polypropylene foil, which is vacuum metallized with a very thin layer of zinc and aluminum alloy, and its face is completely covered with a conductive material ensuring non-induction design and high-quality contact. The coil is encased in a plastic self-extinguishing case using ecological resin ensuring good electrical and mechanical properties. The caps of the capacitors are also made of self-extinguishing material. The capacitors are supplied with different types of outputs according to the customer's choice, for example different types of knife connectors, output cable, output cables or wires - see the overview of type symbols later in the text. The capacitor is not equipped with a mechanical disconnection device that would disconnect the circuit in the event of a fault - the design is classified as class S0 according to ČSN EN 60252-1, ed.2



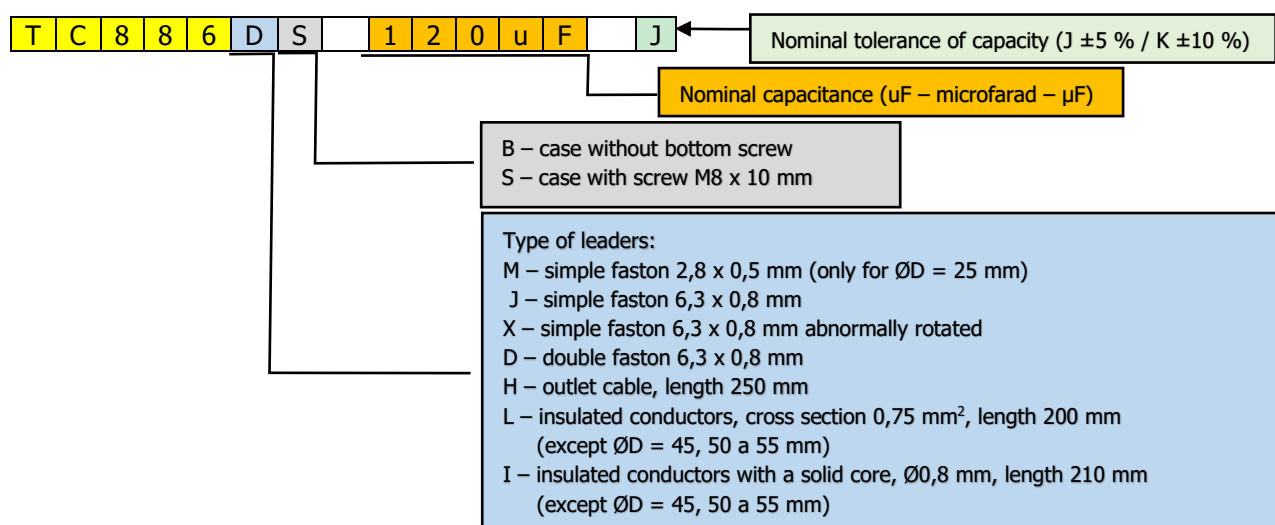
Electrical parameters	
Nominal capacitance	from 1,0 µF to 150,0 µF
Nominal voltage	until 500 V AC (see the life expectancy)
Tolerance of capacitance	±5 % (J); ±10 % (K)
Starting operation mode (maximal starting time)	≤3 s
Test voltage between terminals	2 x U _N , 50 Hz / 60 s (type test), 2 s (production)
Reference standards	ČSN EN 60252-1 ed.2 / ČSN EN 60252-2 ed.2 ČSN ISO 2859-1
Safety class according to ČSN EN 60252-1(2) ed.2	S0
Expected lifetime according to ČSN EN 60252-1(2) ed.2 and climatic categories	500 V AC / 40/070/21: 1 000 h (class D) 450 V AC / 40/085/21: 3 000 h (class B) 400 V AC / 40/070/21: 30 000 h (class A)
Nominal frequency f _R	50 / 60 Hz
Climate resistance category	40/085/21 according to ČSN EN 60068-1
Low temperature limit	-40 °C
High temperature limit	+85 °C
Mean lifetime for test of damp heat	21 days
Loss factor tg δ for capacitor leads M./J./X./D.	If C≤10 µF at 50 Hz: <6,0 x 10 ⁻⁴ at 1 kHz: <40 x 10 ⁻⁴ If C≤30 µF at 50 Hz: <8,0 x 10 ⁻⁴ at 1 kHz: <80 x 10 ⁻⁴ If C>30 µF at 50 Hz: <15,0 x 10 ⁻⁴ at 1 kHz: <150 x 10 ⁻⁴
Loss factor tg δ for capacitor leads H./L./I.	If C≤10 µF at 50 Hz: <12,0 x 10 ⁻⁴ at 1 kHz: <80 x 10 ⁻⁴ and length of leads 120 mm If C≤30 µF at 50 Hz: <16,0 x 10 ⁻⁴ at 1 kHz: <160 x 10 ⁻⁴ and length of leads 120 mm If C>30 µF at 50 Hz: <30,0 x 10 ⁻⁴ at 1 kHz: <300 x 10 ⁻⁴ and length of leads 120 mm

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Maximum voltage rise rate dV/dt	15 V/μs, applies to both the rising and falling edges
Other properties	
Plastic case and top cap material	Meet ČSN EN 60252-1(2) ed.2
- Compatible with UL 94 V2 - Glow wire test according to IEC 60695-2-1/0 and 2-1/1 - Test temperature 550 °C for $I_R < 0,5$ A - Test temperature 850 °C for $I_R > 0,5$ A	Self-extinguishing within 30 seconds after pulling out the glow wire and without igniting the wrapping fabric
Directive compliance 2002/95/ES	
	Directive compliance LV 2014/35/EU

Order code - example of the layout and meaning of the letters in the label



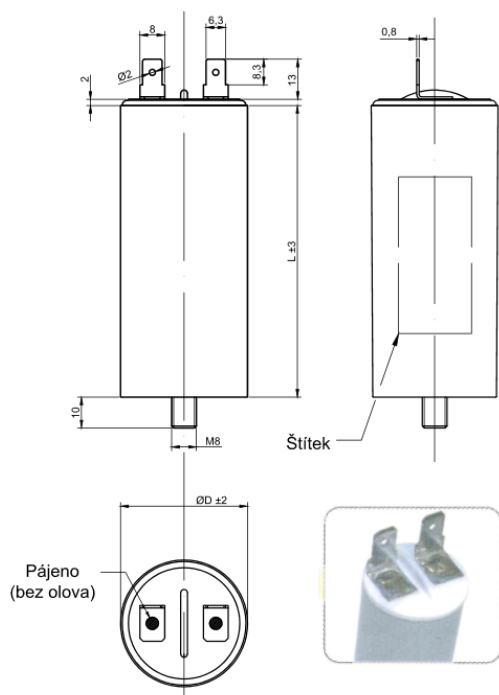
Standard sizes of capacitors manufactured:

Capacity tolerance	Nominal capacitance C_R [μ F]	Basic dimensions D x L [mm]	Alternative dimensions D x L [mm]
$\pm 10\%$ $\pm 5\%$	1,0	25 x 60	
	1,5	25 x 60	
	2,0	25 x 60	
	2,5	25 x 60	
	3,0	25 x 60	
	3,5	25 x 60	
	4,0	25 x 60	
	4,5	25 x 60	
	5,0	30 x 60	25 x 75
	6,0	30 x 60	25 x 75
	7,0	30 x 60	25 x 75
	7,5	30 x 60	25 x 75
	8,0	30 x 75	
	9,0	30 x 75	
	10,0	30 x 75	
	12,0	30 x 75	
	14,0	35 x 75	
	15,0	35 x 75	
	16,0	35 x 75	
	18,0	35 x 75	
	20,0	40 x 75	
	22,0	35 x 96	40 x 75
	25,0	35 x 96	40 x 75
	30,0	40 x 96	45 x 96
	35,0	40 x 96	45 x 96
	40,0	45 x 96	
	45,0	45 x 96	
	50,0	45 x 120	
	55,0	45 x 120	
	60,0	45 x 120	
	65,0	45 x 120	
	70,0	50 x 120	
	80,0	50 x 120	
	90,0	55 x 120	
	100,0	55 x 120	
	110,0	65 x 120	
	120,0	65 x 120	
	130,0	65 x 120	
	140,0	65 x 120	
	150,0	65 x 120	

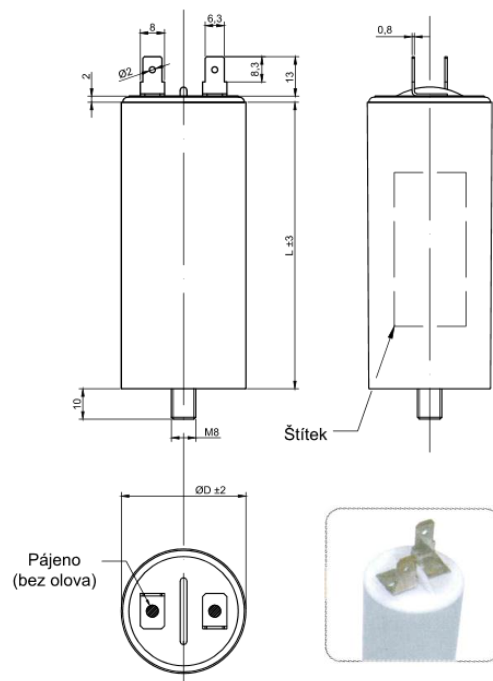
If a different capacity is required, which is not listed in the table above, it can be produced according to the customer's request. The same goes for case size.

Dimensional drawings including design of outlets

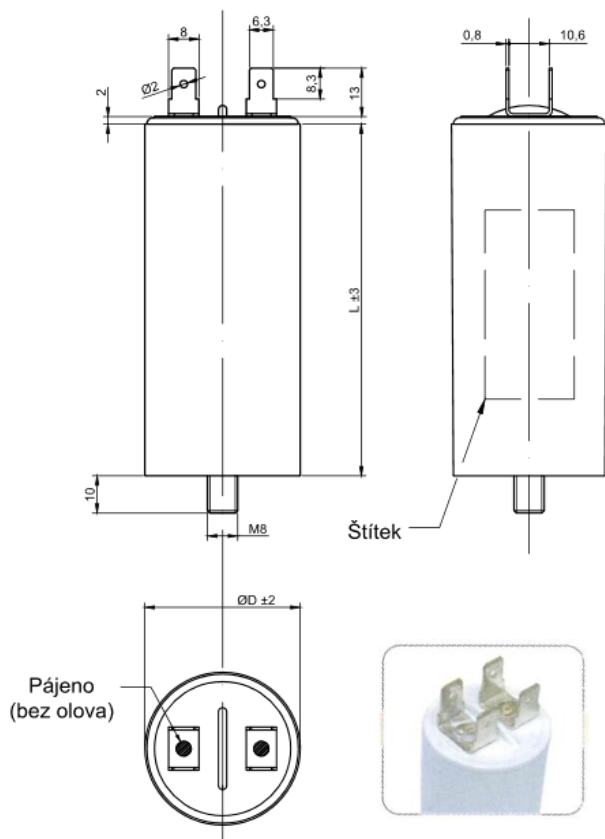
Design with simple knife connectors 6,3
x 0,8 mm (marking „J“)



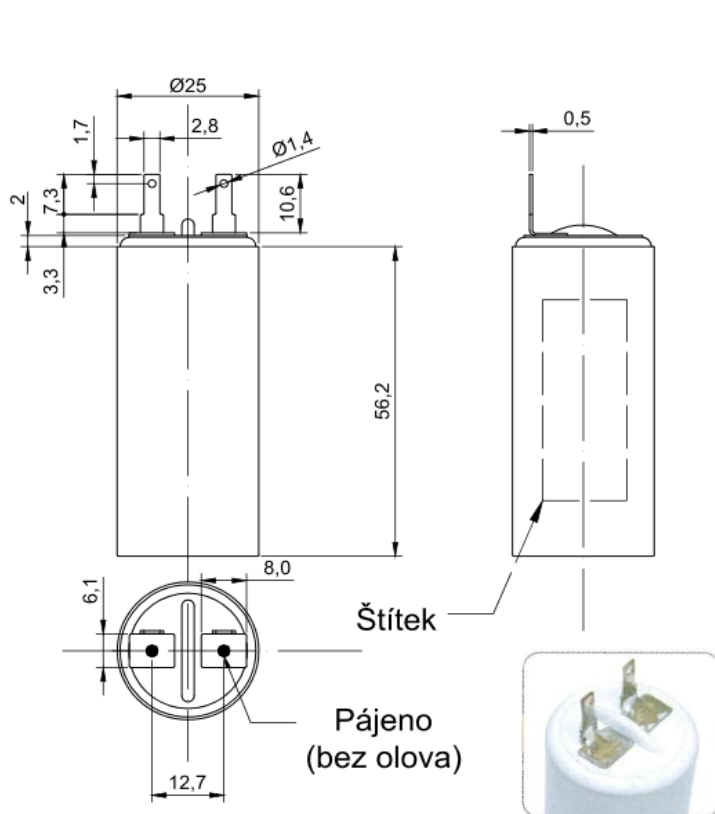
Design with simple knife connectors 6,3
x 0,8 mm (marking „X“)



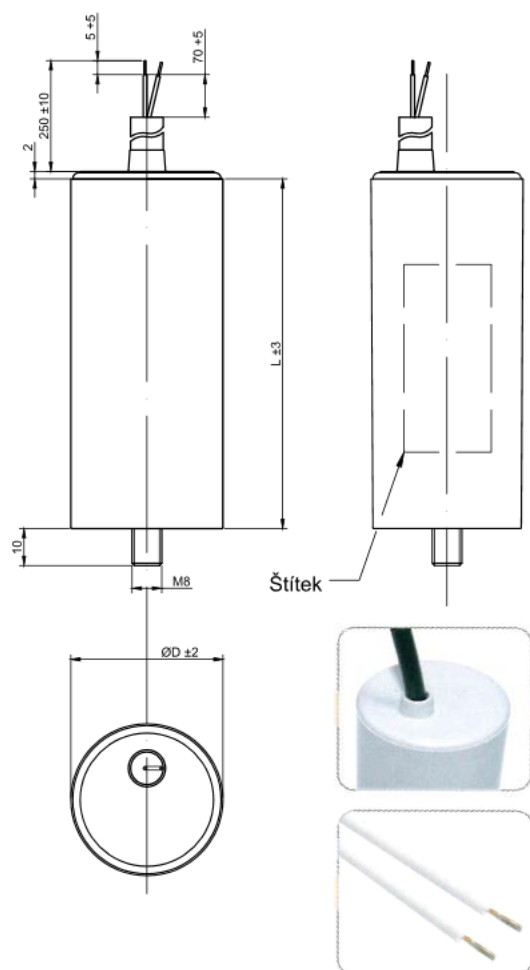
Design with double knife connectors
6,3 x 0,8 mm (marking „D“)



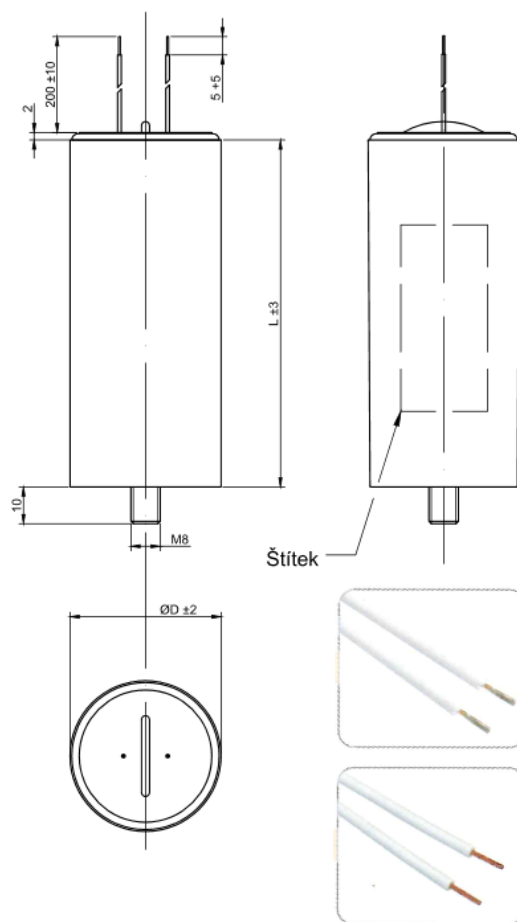
Design with simple knife connectors 2,8 x 0,5 mm (marking „M“) – only for D=25 mm



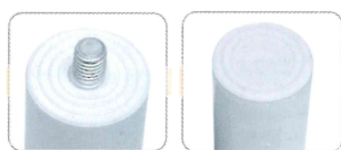
Design with outlet cable passing axially (marking „H“)



Version with cable (wire) outlets – (marking „L“ or „I“)



Screw M8 on bottom side of case (A-YES/N-NO)



Assembly

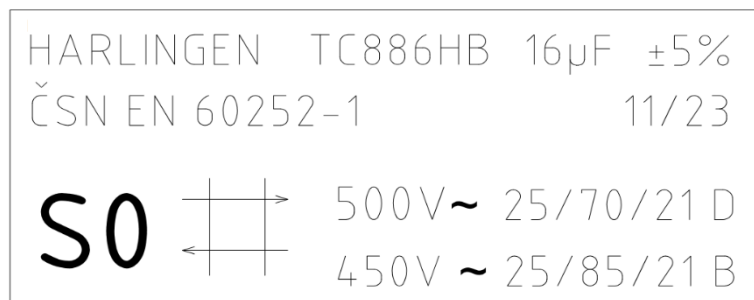
Mounting options – condensers can be mounted both vertically and horizontally but at a sufficient distance from heat sources. The maximum tightening torque of the M8 screw on the bottom side is **5 Nm**.

Recommended method of montage

Design	Recommended fasteners	Part of the shipment
TC 886*B	Any of the user's choice *)	
TC 886*S	Nut M8 according to ČSN 02 1403.27 (or 02 1403.25)	yes
	Washer according to 8.4 ČSN 02 1745.07 (or 02 1745.05)	yes

*) The installation of TC 886 motor capacitors in the MB, JB, XB or DB version must be carried out in accordance with the ČSN EN 60252-1 standard, point 4.1, Surface paths and aerial distances, table no. 5, points 4 and 5

Capacitor marking - example of a label on the case:



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6. Our production plant applies the ISO 9001 standard. The certification confirms our compliance with the requirements for a quality management system. With reference to customer requirements and customer specific requirements ("CC, SC"), Harlingen always has and will follow a policy of honoring individual agreements. For the sake of clarification, we would like to emphasize that ISO 9001 commitments only become legally binding if they are individually agreed upon.
7. Storage temperature conditions must not exceed the operating temperature range of the condenser.
8. Further information can be found on the Internet at <http://www.harlingen.cz>.