

Film dielectric trimmers

2222 808

Ø5 mm

FEATURES

- Housing diameter 5 mm
- Top and bottom or top adjustment
- Round or hexagonal head
- Vertical version.

APPLICATIONS

- For consumer and industrial equipment.

DESCRIPTION

The vanes of the trimmer are stacked on a sturdy plastic base. The colour of the base indicates the maximum capacitance (see Tables 4, 5 and 6). The dielectric is a film of polypropylene (PP) or polytetrafluorethylene (PTFE) for the standard versions and polycarbonate (PC) for the economic and hexagonal head versions. The dielectric supports the vanes in such a way that good stability is ensured and no microphony can occur.

Flux absorption between the vanes is prevented.

Cleaning with solvents is not advised.

For outline drawings and dimensions see Figs 1 and 2.

QUICK REFERENCE DATA

DESCRIPTION	VALUE
C_{min}/C_{max}	0.35/1.5 to 4/27 pF
Rated voltage (DC)	150 V
Test voltage (DC) for 1 minute	300 V
Maximum contact resistance	10 mΩ
Minimum insulation resistance	10000 MΩ
Tan δ at C_{max} , 1 MHz:	
PC	$\leq 70 \times 10^{-4}$
PP, PTFE	$\leq 10 \times 10^{-4}$
Category temperature range:	
PP	−40 to +70 °C
PC, PTFE	−40 to +85 °C
Climatic category (IEC 60068):	
PP	40/070/21
PC, PTFE	40/085/21
Minimum storage temperature	−55 °C
Related specification	IEC 60418-1 and 4

MECHANICAL DATA

DESCRIPTION	VALUE
Effective angle of rotation	180°
Operating torque:	
$C_{max} < 20$ pF	1 to 15 mNm
$C_{max} \geq 20$ pF	1 to 25 mNm
Maximum axial thrust	2 N

QUALITY LEVEL

Sampling and data evaluation for quality level in accordance with "MIL-STD-105D" and "IEC 60410".

<0.15% major defects

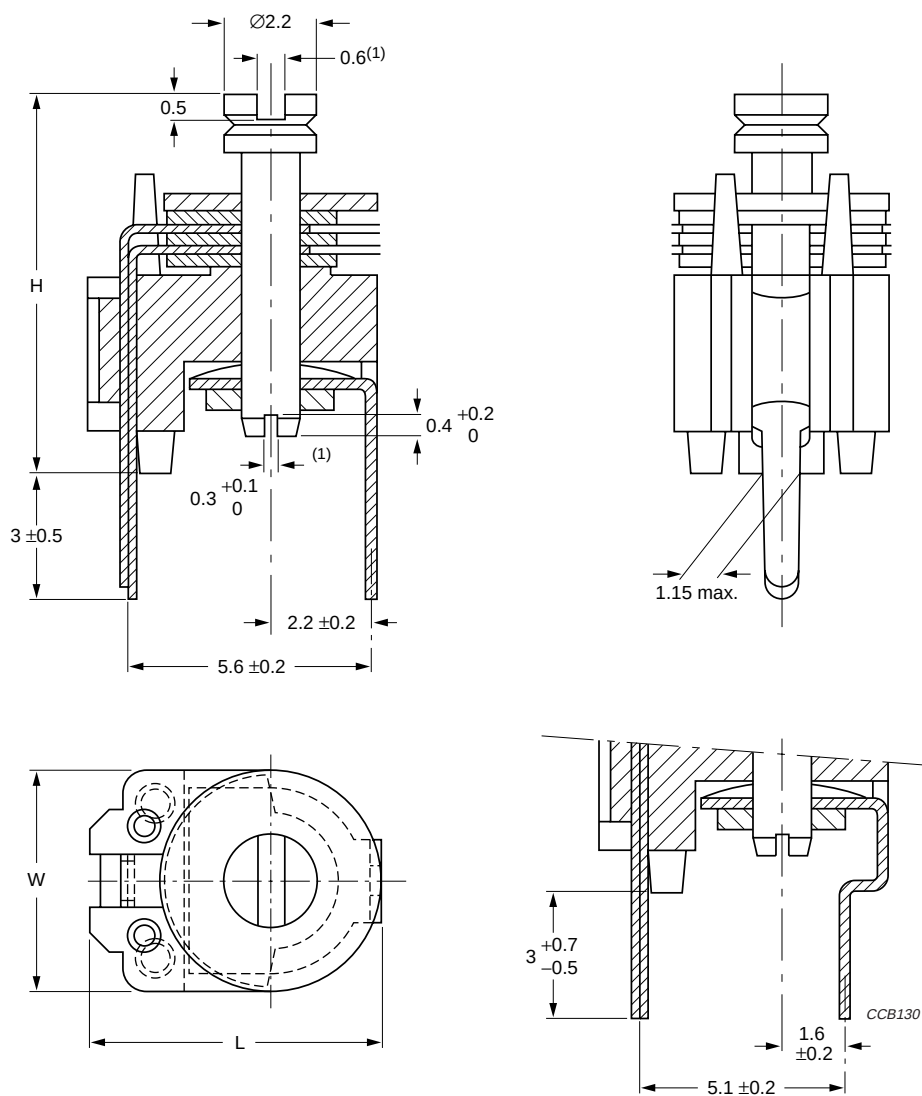
<0.65% minor defects.

Each capacitor is tested for minimum C_{max} and is also subjected to the full test voltage.

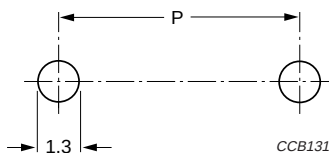
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a. Dimensional outlines.



b. Hole pattern.

Dimensions in mm.

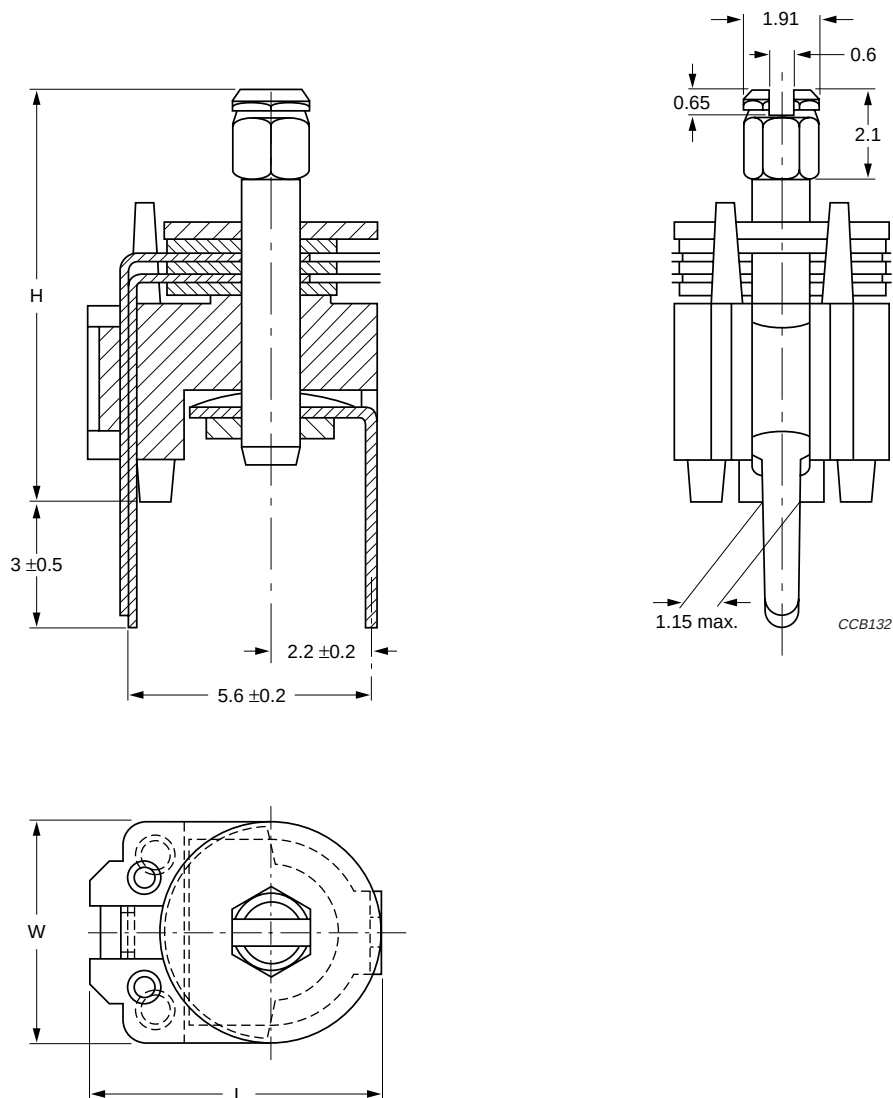
For dimensions H, W and L, see Tables 1 and 2.

For dimension P, see Table 3.

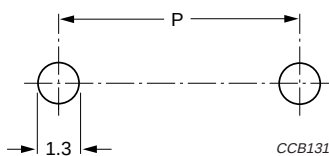
(1) The position of the shaft is not relative to the position of the vanes.

Fig.1 Trimmers 2222 808 series, with round head.

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a. Dimensional outlines.



b. Hole pattern.

Dimensions in mm.

For dimensions H, W and L, see Table 2.

For dimension P, see Table 3.

Fig.2 Trimmers 2222 808 series, with hexagonal head.

Film dielectric trimmers

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Ø5 mm**Table 1** Standard versions; capacitance and relevant physical dimensions; see Fig.1

$C_{\min}/C_{\max}$ (pF)	$H_{\max}$ (mm)	$W_{\max}$ (mm)	$L_{\max}$ (mm)
0.35/1.5	7.0	5.5	7.3
1.5/5	7.0	5.5	7.3
3/10	7.0	5.5	7.3
3/15	8.8	5.5	7.3
4/20	8.8	5.5	7.3
4/27	9.0	6.2	7.8

Table 2 Hexagonal and economic versions; relevant physical dimensions; see Fig.2

TYPE OF HEAD	$H_{\max}$ (mm)	$W_{\max}$ (mm)	$L_{\max}$ (mm)
Hexagonal	9.7	5.5	7.3
Round	7.7	5.5	7.3

MOUNTING

The trimmer has a lead pitch of 5.08 mm or 5.6 mm and can be mounted on printed-circuit boards with a minimum hole diameter of 1.25 mm.

PACKAGING

Bulk packaged in cardboard boxes lined with expanded plastic, 1000 units per box.

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ORDERING INFORMATION

Table 3 Selection chart; see Figs 1 and 2

C_{min}/C_{max} (pF)	CATALOGUE NUMBER 2222 808		
	TOP AND BOTTOM ADJUSTMENT (P = 5.6 mm)	TOP ADJUSTMENT ONLY (P = 5.6 mm)	TOP ADJUSTMENT ONLY (P = 5.08 mm)
Standard versions: polytetrafluorethylene, round head			
0.35/1.5	22158	—	—
Standard versions: polypropylene, round head			
1.5/5	23508	—	20508
3/10	23109	—	20109
3/15	23159	—	20159
4/20	23209	—	20209
4/27	23279	—	20279
Economic versions: polycarbonate, round head			
1.5/7	—	20126	—
1.6/15	—	20127	—
3/20	—	20123	—
3.5/27	—	20128	—
Economic versions: polycarbonate, hexagonal head			
1.5/7	—	21708	—
1.6/15	—	21159	—
3/20	—	21209	—
3.5/27	—	21279	—

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ELECTRICAL DATA

Table 4 Standard versions with round head

GUARANTEED MAX. C_{min} / MIN. C_{max} at 200 kHz (pF)	$\tan \delta$ at $C_{max} \times 10^{-4}$		TEMP. COEFF. ⁽¹⁾ ($10^{-6}/K$)	MIN. f_{res} at C_{max} (MHz)	COLOUR OF BASE	SMALLEST PACKAGING QUANTITY	CATALOGUE NUMBER
	1 MHz	100 MHz					
0.35/1.5	≤ 10	—	-450 ± 550	—	—	1000	2222 808 22158
1.5/5	≤ 10	≤ 25	-200 ± 550	700	grey	1000	2222 808 20508
							2222 808 23508
3/10	≤ 10	≤ 25	-250 ± 550	500	yellow	1000	2222 808 20109
							2222 808 23109
3/15	≤ 10	≤ 25	-250 ± 550	400	blue	1000	2222 808 20159
							2222 808 23159
4/20	≤ 10	≤ 25	-250 ± 400	300	green	1000	2222 808 20209
							2222 808 23209
4/27	≤ 10	≤ 25	-250 ± 400	300	red	1000	2222 808 20279
							2222 808 23279

Note

1. C : 60% to 80% of C_{max} ; T_{amb} : from +20 °C to +70 °C.

Table 5 Economic versions with round head

REFERENCE C_{min}/C_{max} (pF)	$\tan \delta$ at $C_{max} \times 10^{-4}$ (1 MHz)	TEMP. COEFF. ($10^{-6}/K$)	COLOUR OF BASE	SMALLEST PACKAGING QUANTITY	CATALOGUE NUMBER
1.5/7	≤ 70	-50 ± 550	grey	1000	2222 808 20126
1.6/15	≤ 70	-50 ± 550	blue	1000	2222 808 20127
3/20	≤ 70	-50 ± 550	green	1000	2222 808 20123
3.5/27	≤ 70	-100 ± 400	red	1000	2222 808 20128

Table 6 Versions with hexagonal head

REFERENCE C_{min}/C_{max} (pF)	$\tan \delta$ at $C_{max} \times 10^{-4}$ (1 MHz)	TEMP. COEFF. ($10^{-6}/K$)	COLOUR OF BASE	SMALLEST PACKAGING QUANTITY	CATALOGUE NUMBER
1.5/7	≤ 70	-50 ± 550	grey	1000	2222 808 21708
1.6/15	≤ 70	-50 ± 550	blue	1000	2222 808 21159
3/20	≤ 70	-50 ± 550	green	1000	2222 808 21209
3.5/27	≤ 70	-100 ± 400	red	1000	2222 808 21279

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TESTS AND REQUIREMENTS

Table 7 Test procedures and requirements

IEC 60418-1 CLAUSE	IEC 60068 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
4.2		method of mounting	method A	
14		capacitance drift	after TC measurement	$\Delta C/C: \leq 3\%$ for $C_{\max} \leq 10$ pF $\Delta C/C: \leq 2\%$ for $C_{\max} > 10$ pF
19		thrust	axial thrust of 2 N	$\Delta C/C: \leq 0.4\%$
21		robustness of terminations:		
21.1	Ua	tensile	1 N	no damage
21.2	Ub	bending	1 cycle	no damage
22	Na	rapid change of temperature	1 cycle; 0.5 hours at lower and 0.5 hours at upper category temperature	$\Delta C/C: \leq 2.5\%$
23	T	soldering:		
	Ta	solderability	solder bath immersion 3 mm; 235 °C; 2 s	good wetting no mechanical damage
	Tb	resistance to heat	solder bath: 260 °C; 10 s	no mechanical damage
24	Eb	impact bump	4000 $\pm$ 10 bumps; 40 g; 6 ms	$\Delta C/C: \leq 1\%$; no mechanical damage
25	Fc	vibration	frequency 10 to 55 Hz; amplitude 0.75 mm; 1.5 hours	$\Delta C/C: \leq 1\%$; no mechanical damage
26		climatic sequence:		
26.1	B	dry heat	16 hours at upper category temperature	$\Delta C/C: \leq 4\%$ tan δ for PP and PTFE foil: $\leq 15 \times 10^{-4}$ tan δ for PC foil: $\leq 80 \times 10^{-4}$ $R_{\text{ins.}}: \geq 10000$ M Ω rotor contact R: ≤ 10 m Ω
26.2	D	damp heat accelerated, first cycle	1 cycle; 24 hours; +40 °C; 95 to 100% RH	voltage proof: 300 V for 1 minute
26.3	Aa	cold	16 hours; -40 °C	visual examination: no mechanical damage
26.5		damp heat accelerated, remaining cycles	1 cycle; 24 hours; +40 °C; 95 to 100% RH	operating torque: 1 to 20 mNm for $C_{\max} < 20$ pF; 1 to 30 mNm for $C_{\max} \geq 20$ pF

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IEC 60418-1 CLAUSE	IEC 60068 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
27	Ca	damp heat steady state	21 days; +40 °C; 90 to 95% RH	$\Delta C/C$: $\leq 3\%$ $\tan \delta$ for PP and PTFE foil: $\leq 15 \times 10^{-4}$; $\tan \delta$ for PC foil: $\leq 80 \times 10^{-4}$ R_{ins} : $\geq 10000 \text{ M}\Omega$; rotor contact R: $\leq 10 \text{ m}\Omega$ voltage proof: 300 V for 1 minute visual examination: no mechanical damage operating torque: 1 to 20 mNm for $C_{max} < 20 \text{ pF}$; 1 to 30 mNm for $C_{max} \geq 20 \text{ pF}$
29		mechanical endurance	10 cycles	$\Delta C/C$: $\leq 3\%$ $\Delta C/C$ after axial thrust: $\leq 0.3\%$; rotor contact R: $\leq 10 \text{ m}\Omega$ voltage proof: 300 V for 1 minute visual examination: no mechanical damage operating torque: 0.5 to 22.5 mNm for $C_{max} < 20 \text{ pF}$; 0.5 to 30 mNm for $C_{max} \geq 20 \text{ pF}$

Film dielectric trimmers

2222 808
Ø7.5 mm

FEATURES

- Housing diameter 7.5 mm
- For a basic grid of 2.54 mm (0.1") or 2.50 mm
- Top and bottom or top adjustment
- Vertical and horizontal versions
- Round or hexagonal head.

APPLICATIONS

- For consumer and industrial equipment.

DESCRIPTION

The vanes of the trimmer are stacked on a sturdy plastic base. The colour of the base indicates the maximum capacitance (see Table 2). The dielectric is a film of polypropylene (PP), polyethylene (PE), polycarbonate (PC), polytetrafluorethylene (PTFE), or polyethyleneterephthalate (PET) which supports the vanes in such a way that good stability is ensured and no microphony can occur.

Flux absorption between the vanes is prevented.

Cleaning with solvents is not advised.

Versions are available with either a vertical spindle (see Fig.1), or a horizontal spindle (see Fig.2). Both versions have top adjustment by means of a screwdriver or trimming key and bottom adjustment by means of a key as shown in Fig.5.

For outline drawings and dimensions see Figs 1 and 2.

QUICK REFERENCE DATA

DESCRIPTION	VALUE
C_{min}/C_{max}	1.4/5.5 to 3/50 pF
Rated voltage (DC)	250 V
Test voltage (DC) for 1 minute	500 V
Maximum contact resistance	10 mΩ
Minimum insulation resistance	10000 MΩ
Category temperature range:	
PP	−40 to +70 °C
PE, PC, PTFE, PET	−40 to +85 °C
Climatic category (IEC 60068):	
PP	40/070/21
PE, PC, PTFE, PET	40/085/21
Minimum storage temperature	−55 °C
Related specification	IEC 60418-1 and 4

MECHANICAL DATA

DESCRIPTION	VALUE
Effective angle of rotation	180°
Operating torque:	
$C_{max} < 33$ pF	1 to 15 mNm
$C_{max} \geq 33$ pF	1 to 25 mNm
Maximum axial thrust	2 N

QUALITY LEVEL

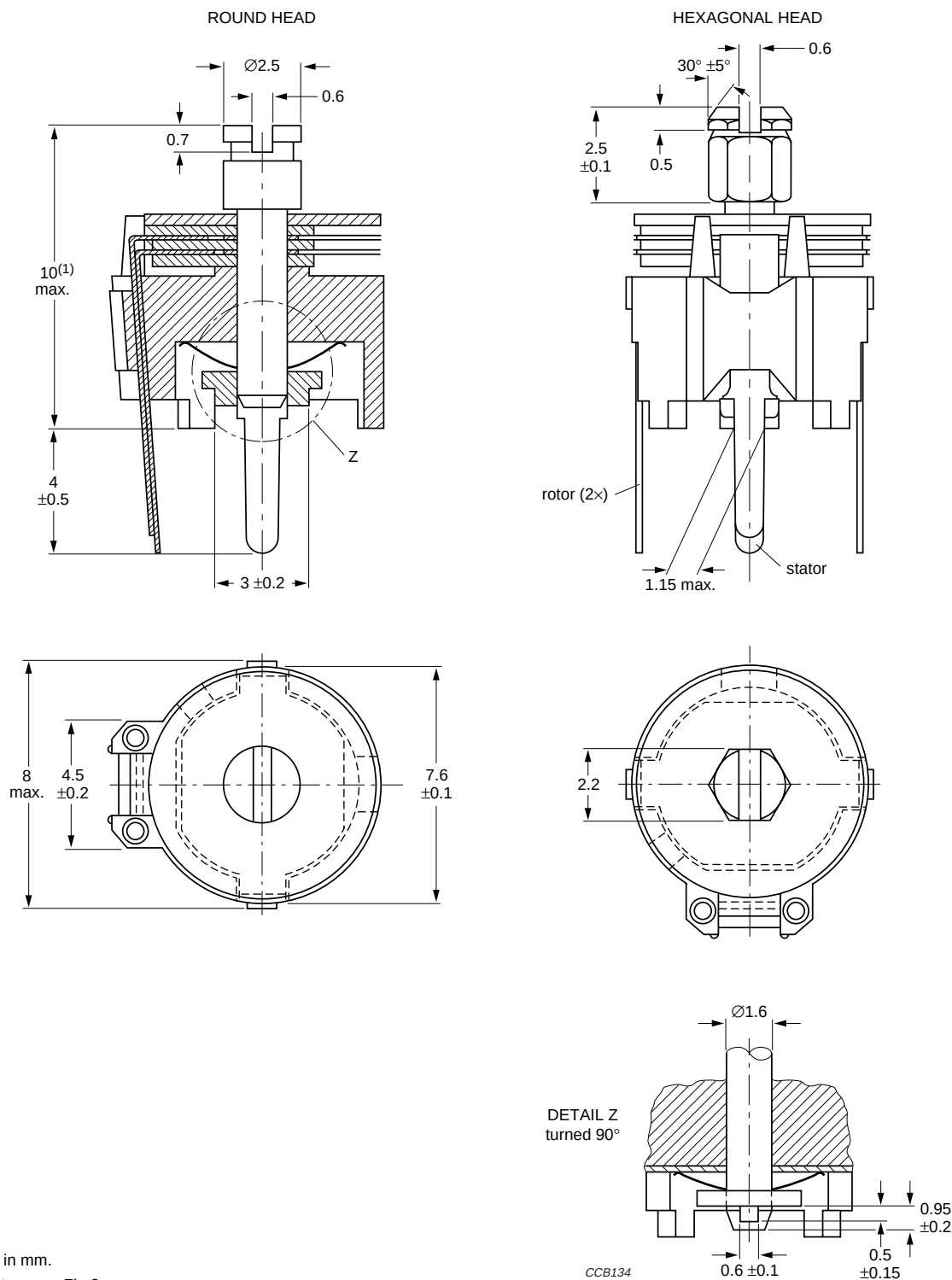
Sampling and data evaluation for quality level in accordance with "MIL-STD-105D" and "IEC 60410".

<0.15% major defects

<0.65% minor defects.

Each capacitor is tested for minimum C_{max} and is also subjected to the full test voltage.

Film dielectric trimmers

2222 808
Ø7.5 mm

Dimensions in mm.

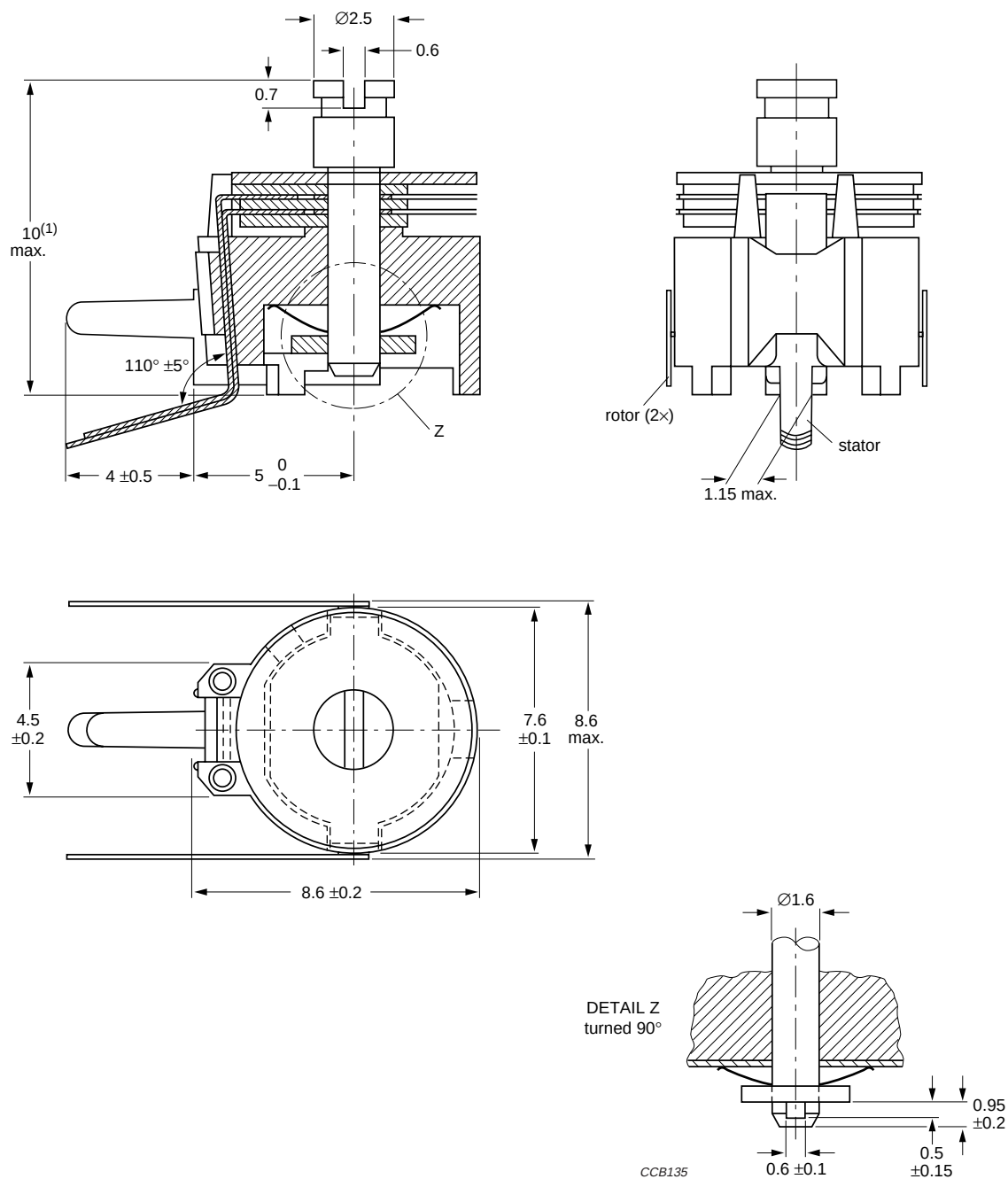
For hole pattern see Fig.3.

(1) 11 max. for $C_{max} = 40$ pF and 50 pF.

Fig.1 Trimmers 2222 808 series, vertical version.

Film dielectric trimmers

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 $\varnothing 7.5$ mm



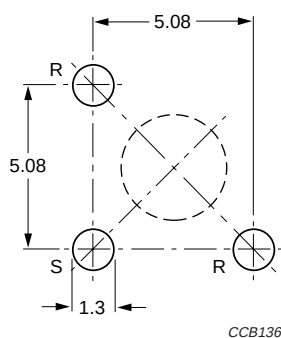
Dimensions in mm.

For hole pattern see Fig.4.

(1) 11 max. for $C_{\text{max}} = 40 \text{ pF}$ and 50 pF .

Fig.2 Trimmers 2222 808 series, horizontal version.

Film dielectric trimmers

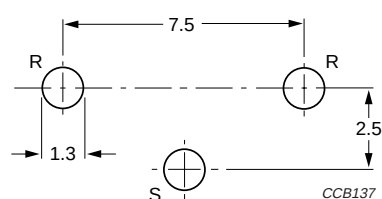
2222 808
Ø7.5 mm

Dimensions in mm.

R = rotor, S = stator.

The large hole is for bottom adjustment and the diameter is determined by user's requirements.

Fig.3 Hole pattern; see Fig.1.



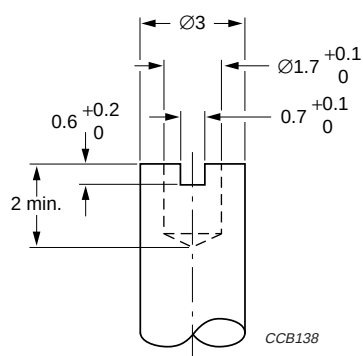
Dimensions in mm.

R = rotor, S = stator.

Fig.4 Hole pattern; see Fig.2.

Adjustment

For top adjustment a screwdriver or trimming key can be used; for bottom adjustment a key is required as shown in Fig.5.



Dimensions in mm.

Fig.5 Bottom adjustment key.

Film dielectric trimmers

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Ø7.5 mm

ORDERING INFORMATION

Table 1 Selection chart

$C_{\min}/C_{\max}$ (pF)	CATALOGUE NUMBER 2222 808			
	VERTICAL VERSION			HORIZONTAL VERSION
	ROUND HEAD		HEXAGONAL HEAD	ROUND HEAD
	TOP AND BOTTOM ADJUSTMENT	TOP ADJUSTMENT ONLY	TOP AND BOTTOM ADJUSTMENT	TOP AND BOTTOM ADJUSTMENT
1.4/5.5	11558	00004	—	51558
2/9	00018	—	—	—
2/10	11109	00005	17109	51109
2/10	—	11004	—	—
2/15	11159	—	—	—
2/18	00016	—	—	—
2.5/20	—	11006	—	—
2.5/22	11229	00006	17229	51229
2.5/27	11279	—	—	51279
3/33	11339	—	—	—
3/40	11409	—	17409	51409
3/50	11509	—	17509	51509

MOUNTING

The trimmer can be mounted on printed-circuit boards with a grid of 2.50 mm or 2.54 mm and a minimum hole diameter of 1.25 mm. For hole patterns see Figs 3 and 4.

PACKAGING

Bulk packaged in cardboard boxes lined with expanded plastic. For smallest packaging quantity (SPQ) see Table 2.

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ELECTRICAL DATA

Table 2 Electrical characteristics, smallest packaging quantities and catalogue numbers

GUARANTEED MAX. C_{min} / MIN. C_{max} at 200 kHz (pF)	SPINDLE	SHAPE OF HEAD	FIG.	ADJ. MODE	DIEL.	tan δ at $C_{max} \times 10^{-4}$		TEMP. COEFF. ($10^{-6}/K$)	MIN. f_{res} at C_{max} (MHz)	COL. OF BASE	SPQ	CATALOGUE NUMBER
						1 MHz	100 MHz					
1.4/5.5	vertical	round	1	top + bottom	PE	≤ 10	≤ 25	-250 ± 350	850	grey	1400	2222 808 11558
			1	top							1400	2222 808 00004
	horizontal	round	2	top + bottom							1200	2222 808 51558
2/9	vertical	round	1	top + bottom	PTFE	≤ 10	≤ 15	-150 ± 800	400	yellow	1400	2222 808 00018
2/10	vertical	round	1	top + bottom	PP	≤ 10	≤ 25	-250 ± 800	480	yellow	1400	2222 808 11109
			1	top							1400	2222 808 00005
		hexag.	1	top							1400	2222 808 17109
	horizontal	round	2	top + bottom							1200	2222 808 51109
	vertical	round	1	top	PC	≤ 70	≤ 100	-150 ± 800	250	yellow	1000	2222 808 11004
2/15	vertical	round	1	top + bottom	PP	≤ 10	≤ 25	-250 ± 600	450	blue	1400	2222 808 11159
2/18	vertical	round	1	top + bottom	PTFE	≤ 10	≤ 15	-250 ± 350	350	green	1400	2222 808 00016
2.5/20	vertical	round	1	top	PET	≤ 160	–	0 ± 1100	250	green	1000	2222 808 11006
2.5/22	vertical	round	1	top + bottom	PP	≤ 10	≤ 25	-200 ± 500	350	green	1400	2222 808 11229
			1	top							1400	2222 808 00006
	vertical	hexag.	1	top							1400	2222 808 17229
	horizontal	round	2	top + bottom							1200	2222 808 51229
2.5/27	vertical	round	1	top + bottom	PC	≤ 70	–	-50 ± 500	350	red	1400	2222 808 11279
	horizontal	round	2	top + bottom							1200	2222 808 51279
3/33	vertical	round	1	top + bottom	PP	≤ 10	–	-250 ± 350	300	brown	1400	2222 808 11339
3/40	vertical	round	1	top + bottom	PC	≤ 70	–	-50 ± 400	300	violet	1400	2222 808 11409
	vertical	hexag.	1	top							1400	2222 808 17409
	horizontal	round	2	top + bottom							1200	2222 808 51409
3/50	vertical	round	1	top + bottom	PC	≤ 70	–	-50 ± 500	250	black	1400	2222 808 11509
	vertical	hexag.	1	top							1400	2222 808 17509
	horizontal	round	2	top + bottom							1200	2222 808 51509

Film dielectric trimmers

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Ø7.5 mm

TESTS AND REQUIREMENTS

Table 3 Test procedures and requirements

IEC 60418-1 CLAUSE	IEC 60068 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
4.2		method of mounting	method A	
14		capacitance drift	after TC measurement	$\Delta C/C: \leq 1\%$ for $C_{\max} < 40$ pF; $\Delta C/C: \leq 2.5\%$ for $C_{\max} \geq 40$ pF
19		thrust	axial thrust of 2 N	$\Delta C/C: \leq 0.3\%$
21		robustness of terminations:		
21.1	Ua	tensile	1 N	no damage
21.2	Ub	bending	1 cycle	no damage
22	Na	rapid change of temperature	1 cycle; 0.5 hours at lower and 0.5 hours at upper category temperature	$\Delta C/C: \leq 2\%$
23	T	soldering:		
	Ta	solderability	solder bath immersion 3 mm; 235 °C; 2 s	good wetting no mechanical damage
	Tb	resistance to heat	solder bath: 260 °C; 10 s	no mechanical damage
24	Eb	impact bump	4000 $\pm$ 10 bumps; 40 g; 6 ms	$\Delta C/C: \leq 0.6\%$; no mechanical damage
25	Fc	vibration	frequency 10 to 55 Hz; amplitude 0.35 mm; 1.5 hours	$\Delta C/C: \leq 0.6\%$; no mechanical damage
26		climatic sequence:		
26.1	B	dry heat	16 hours at upper category temperature	$\Delta C/C: \leq 4$ $\tan \delta: \leq 10 \times 10^{-4}$ for $C_{\max} < 27$ pF; $\tan \delta: \leq 70 \times 10^{-4}$ for $C_{\max} \geq 27$ pF; $\tan \delta: \leq 80 \times 10^{-4}$ for $C_{\max} \geq 40$ pF $R_{\text{ins}}: \geq 10000$ M Ω ; rotor contact R: ≤ 10 m Ω
26.2	D	damp heat accelerated, first cycle	1 cycle; 24 hours; +40 °C; 95 to 100% RH	voltage proof: 500 V for 1 minute
26.3	Aa	cold	16 hours; -40 °C	visual examination: no mechanical damage
26.5		damp heat accelerated, remaining cycles	1 cycle; 24 hours; +40 °C; 95 to 100% RH	operating torque: 1 to 15 mNm for $C_{\max} < 33$ pF; 1 to 25 mNm for $C_{\max} \geq 33$ pF

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IEC 60418-1 CLAUSE	IEC 60068 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
27	Ca	damp heat steady state	21 days; +40 °C; 90 to 95% RH	$\Delta C/C$: $\leq 5\%$ $\tan \delta$: $\leq 30 \times 10^{-4}$ for $C_{\max} < 27 \text{ pF}$; $\tan \delta$: $\leq 70 \times 10^{-4}$ for $C_{\max} \geq 27 \text{ pF}$; $\tan \delta$: $\leq 80 \times 10^{-4}$ for $C_{\max} \geq 40 \text{ pF}$ R_{ins} : $\geq 10000 \text{ M}\Omega$; rotor contact R: $\leq 10 \text{ m}\Omega$ voltage proof: 500 V for 1 minute visual examination: no mechanical damage operating torque: 1 to 15 mNm for $C_{\max} < 33 \text{ pF}$; 1 to 25 mNm for $C_{\max} \geq 33 \text{ pF}$
29		mechanical endurance	10 cycles	$\Delta C/C$: $\leq 1.5\%$ $\Delta C/C$ after axial thrust: $\leq 0.3\%$; rotor contact R: $\leq 10 \text{ m}\Omega$ voltage proof: 500 V for 1 minute visual examination: no mechanical damage operating torque: 1 to 15 mNm for $C_{\max} < 33 \text{ pF}$; 1 to 25 mNm for $C_{\max} \geq 33 \text{ pF}$

Film dielectric trimmers

2222 808
Ø10 mm

FEATURES

- Housing diameter 10 mm
- For a basic grid of 2.54 mm (0.1") or 2.50 mm
- Top and bottom or top adjustment
- Vertical and horizontal versions
- Round or hexagonal head.

APPLICATIONS

- For consumer and industrial equipment.

DESCRIPTION

The vanes of the trimmer are stacked on a sturdy plastic base. The colour of the base indicates the maximum capacitance (see Table 2). The dielectric is a film of polypropylene (PP), polycarbonate (PC) or polytetrafluorethylene (PTFE), which supports the vanes in such a way that good stability is ensured and no microphony can occur.

Flux absorption between the vanes is prevented.

Cleaning with solvents is not advised.

Versions are available with either a vertical spindle (see Figs 1 and 2), or a horizontal spindle (see Fig.3). Both versions have top adjustment by means of a screwdriver or trimming key and bottom adjustment by means of a key as shown in Fig.7.

For outline drawings and dimensions see Figs 1, 2 and 3.

QUICK REFERENCE DATA

DESCRIPTION	VALUE
C_{min}/C_{max}	2.5/15 to 7/105 pF
Rated voltage (DC)	150 V
Test voltage (DC) for 1 minute	300 V
Maximum contact resistance	10 mΩ
Minimum insulation resistance	10000 MΩ
Category temperature range:	
PP	−40 to +70 °C
PC, PTFE	−40 to +85 °C
Climatic category (IEC 60068):	
PP	40/070/21
PC, PTFE	40/085/21
Minimum storage temperature	−55 °C
Related specification	IEC 60418-1 and 4

MECHANICAL DATA

DESCRIPTION	VALUE
Effective angle of rotation	180°
Operating torque	2 to 25 mNm
Maximum axial thrust	2 N

QUALITY LEVEL

Sampling and data evaluation for quality level in accordance with "MIL-STD-105D" and "IEC 60410".

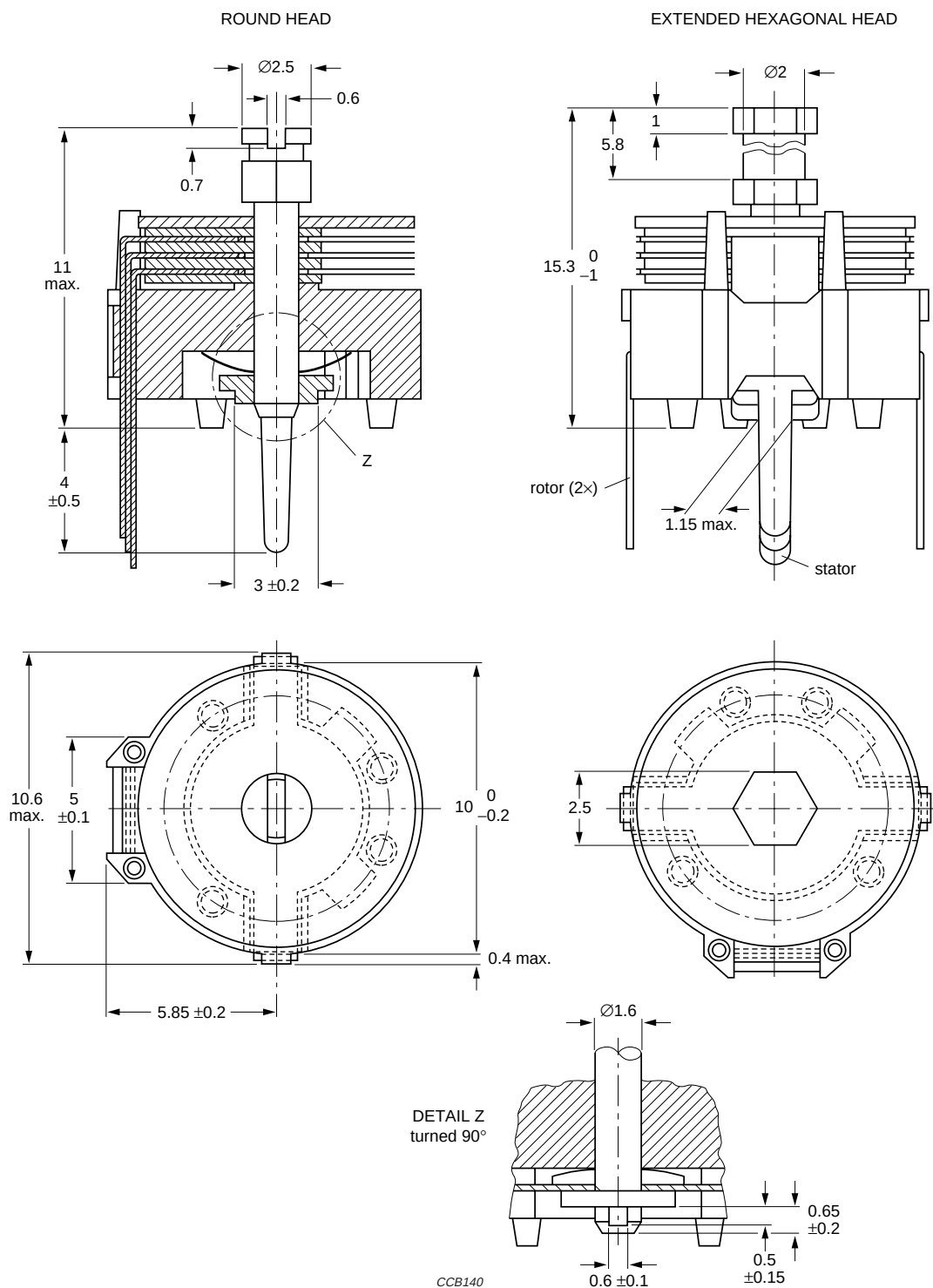
- <0.15% major defects
- <0.65% minor defects.

Each capacitor is tested for minimum C_{max} and is also subjected to the full test voltage.

Film dielectric trimmers

2222 808

Ø10 mm



Dimensions in mm.

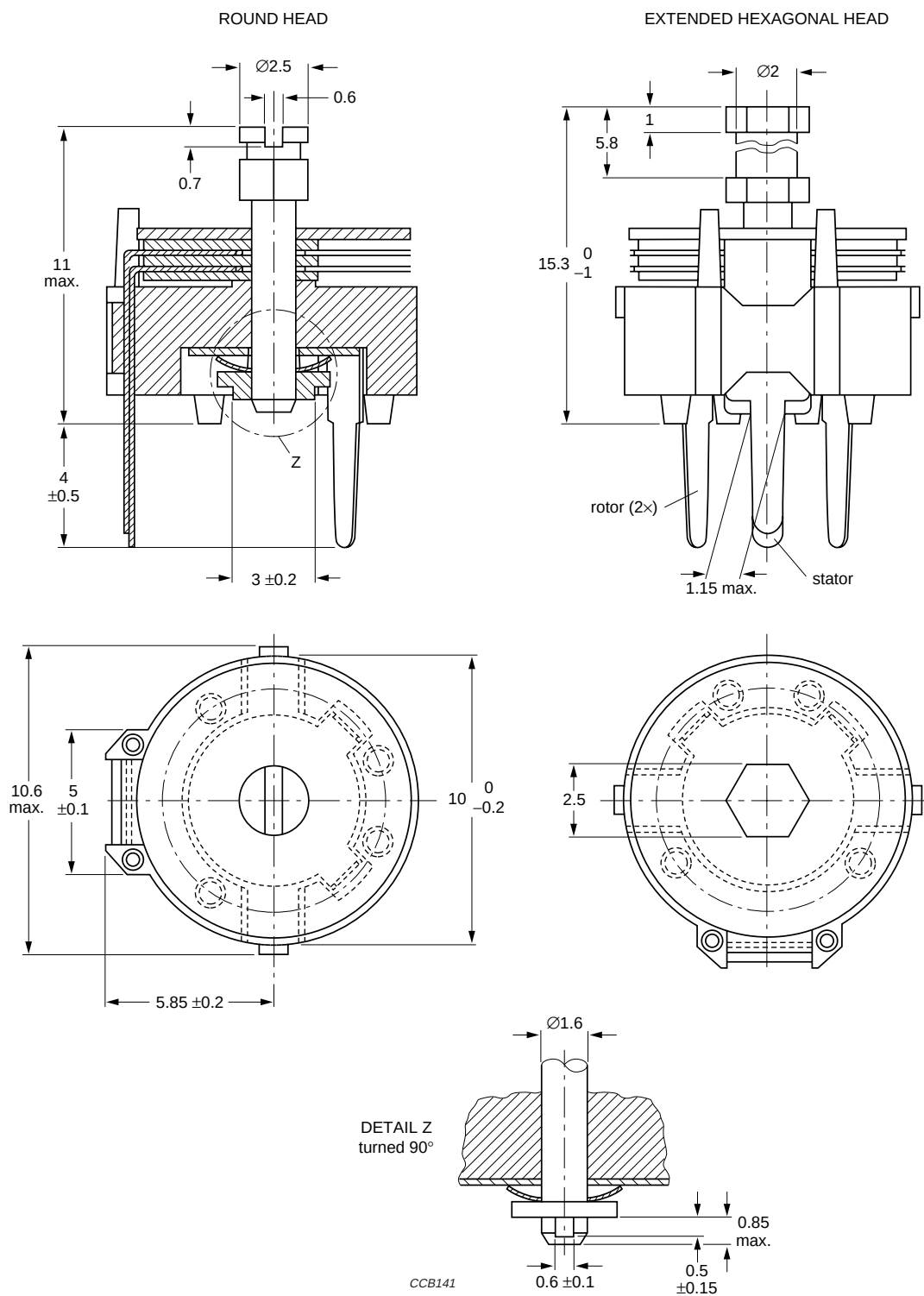
Hole pattern 5 mm $\times$ 10 mm; see Fig.4.

Fig.1 Trimmers 2222 808 series, vertical version.

Film dielectric trimmers

2222 808

Ø10 mm



Dimensions in mm.

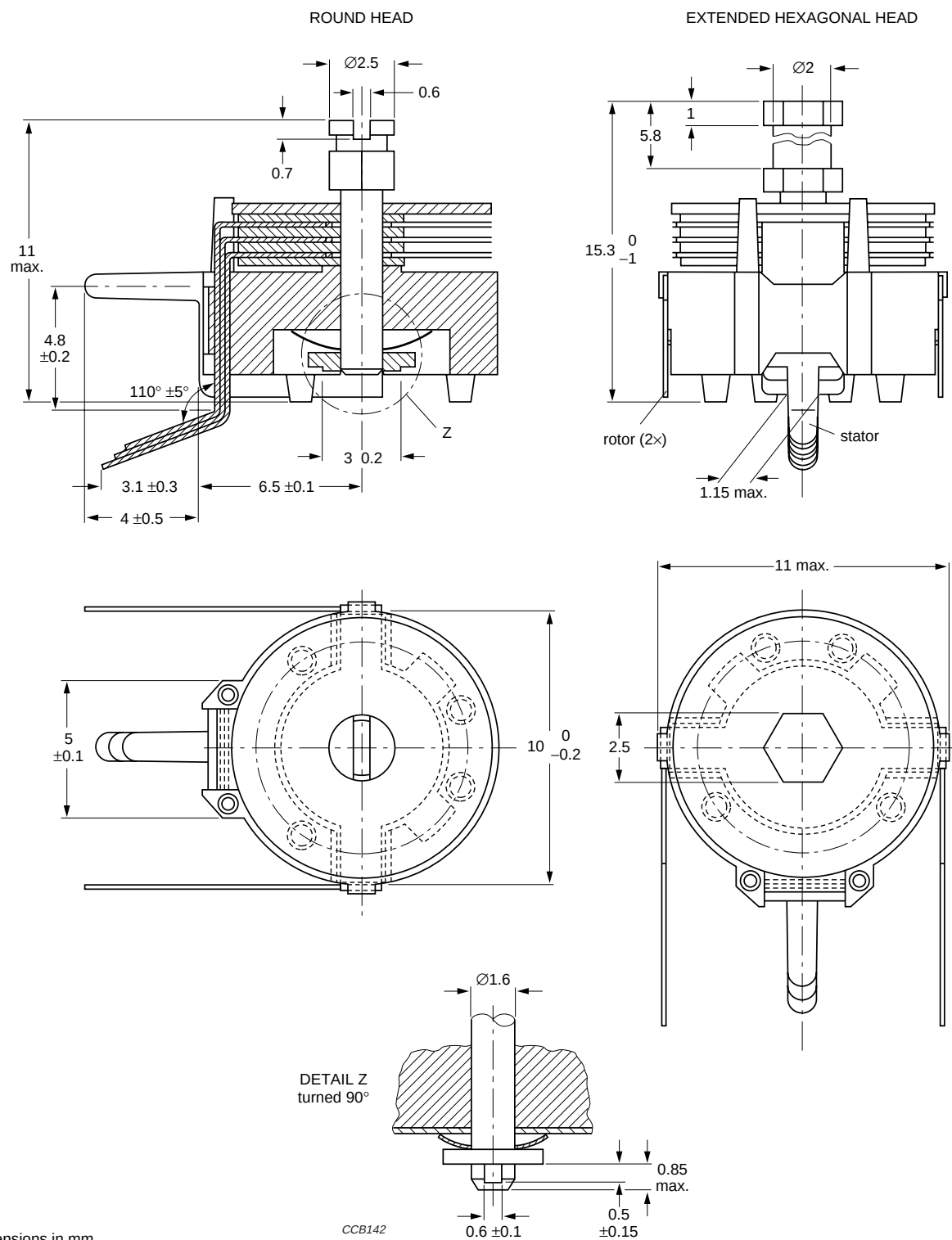
Hole pattern 7.5 mm $\times$ 5 mm; see Fig.5.

Fig.2 Trimmers 2222 808 series, vertical version.

Film dielectric trimmers

2222 808

Ø10 mm

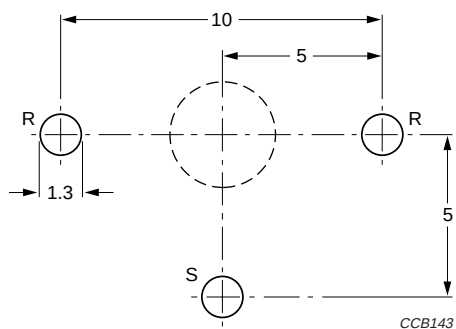


Dimensions in mm.

Hole pattern 5 mm × 10 mm; see Fig.6.

Fig.3 Trimmers 2222 808 series, horizontal version.

Film dielectric trimmers

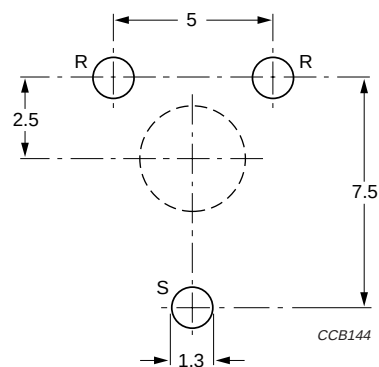
2222 808
Ø10 mm

Dimensions in mm.

R = rotor, S = stator.

The large hole is for bottom adjustment and the diameter is determined by user's requirements.

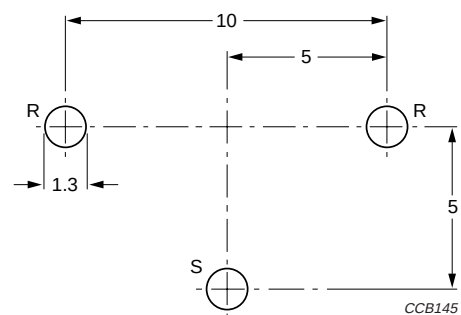
Fig.4 Hole pattern; see Fig.1.



Dimensions in mm.

R = rotor, S = stator.

Fig.5 Hole pattern; see Fig.2.



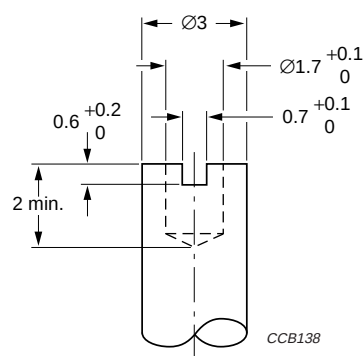
Dimensions in mm.

R = rotor, S = stator.

Fig.6 Hole pattern; see Fig.3.

Adjustment

For top adjustment a screwdriver or trimming key can be used; for bottom adjustment a key is required as shown in Fig.7.



Dimensions in mm.

Fig.7 Bottom adjustment key.

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Ø10 mm

ORDERING INFORMATION

Table 1 Selection chart

C_{min}/C_{max} (pF)	CATALOGUE NUMBER 2222 808						
	HORIZONTAL VERSION		VERTICAL VERSION				
	HOLE PATTERN 5 mm × 10 mm		HOLE PATTERN 5 mm × 10 mm		HOLE PATTERN 7.5 mm × 5 mm		
	ROUND HEAD	HEX HEAD	ROUND HEAD	HEX. HEAD	ROUND HEAD	HEX. HEAD	ROUND HEAD
	TOP AND BOTTOM ADJUSTMENT		TOP AND BOTTOM ADJUSTMENT				TOP ADJUSTMENT
2.5/15	61159	–	31159	–	32159	–	–
3/22.5	61229	–	31229	–	32229	–	–
5.5/40	61409	–	31409	–	32409	–	–
5.5/50	–	–	01029	–	01006	–	–
5.5/65	61659	64659	31659	34659	32659	–	01001
6/80	61809	64809	31809	34809	32809	35809	–
7/105	61101	64101	31101	–	32101	–	–
6/120	–	–	31121	–	–	–	–

MOUNTING

The trimmer can be mounted on printed-circuit boards with a grid of 2.50 mm or 2.54 mm and a minimum hole diameter of 1.25 mm. For hole patterns see Figs 4, 5 and 6.

PACKAGING

Bulk packaged in cardboard boxes lined with expanded plastic. For smallest packaging quantities (SPQ) see Table 2.

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ELECTRICAL DATA

Table 2 Electrical characteristics and catalogue numbers

GUARANTEED MAX. C _{min} / MIN. C _{max} at 200 kHz (pF)	SPINDLE	SHAPE OF HEAD	FIG.	ADJ. MODE	DIEL.	tan δ at C _{max} × 10 ⁻⁴		TEMP. COEFF. (10 ⁻⁶ /K)	MIN. f _{res} at C _{max} (MHz)	COL. OF BASE	SPQ	CATALOGUE NUMBER
						1 MHz	100 MHz					
2.5/15	vertical	round	1	top + bottom	PP	≤10	≤25	-200 ±700	420	blue	800	2222 808 31159
	2		800								2222 808 32159	
	horizontal		3								700	2222 808 61159
3/22.5	vertical	round	1	top + bottom	PP	≤10	≤25	-200 ±700	200	green	800	2222 808 31229
	2		800								2222 808 32229	
	horizontal		3								700	2222 808 61229
5.5/40	vertical	round	1	top + bottom	PP	≤10	≤25	-200 ±400	200	grey	800	2222 808 31409
	2		800								2222 808 32409	
	horizontal		3								700	2222 808 61409
5.5/50	vertical	round	1	top + bottom	PTFE	≤10	≤25	-200 ±400	170	yellow	800	2222 808 01029
			2								800	2222 808 01006
5.5/65	vertical	round	2	top	PP	≤10	≤25	-200 ±500	170	yellow	800	2222 808 01001
		round	1	top + bottom							800	2222 808 31659
		round	2								800	2222 808 32659
		hexag.	1								700	2222 808 34659
	horizontal	round	3								700	2222 808 61659
		hexag.	3	600							2222 808 64659	
6/80	vertical	round	1	top + bottom	PC	≤70	-	-50 ±400	170	red	800	2222 808 31809
		hexag.	1								700	2222 808 34809
		round	2								800	2222 808 32809
		hexag.	2								700	2222 808 35809
	horizontal	round	3								700	2222 808 61809
		hexag.	3								600	2222 808 64809
7/105	vertical	round	1	top + bottom	PC	≤70	-	-50 ±400	170	violet	800	2222 808 31101
		round	2								800	2222 808 32101
	horizontal	round	3								700	2222 808 61101
		hexag.	3								600	2222 808 64101
6/120	vertical	round	2	top + bottom	PC	≤70	-	-50 ±400	170	violet	800	2222 808 31121

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TESTS AND REQUIREMENTS

Table 3 Test procedures and requirements

IEC 60418-1 CLAUSE	IEC 60068 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
4.2		method of mounting	method A	
14		capacitance drift	after TC measurement	$\Delta C/C: \leq 4.5\%$ for $C_{\max} < 40$ pF; $\Delta C/C: \leq 2.5\%$ for $C_{\max} \geq 40$ pF
19		thrust	axial thrust of 2 N	$\Delta C/C: \leq 0.3\%$
21		robustness of terminations:		
21.1	Ua	tensile	1 N	no damage
21.2	Ub	bending	1 cycle	no damage
22	Na	rapid change of temperature	1 cycle; 0.5 hours at lower and 0.5 hours at upper category temperature	$\Delta C/C: \leq 1.5\%$
23	T	soldering:		
	Ta	solderability	solder bath immersion 3 mm; 235 °C; 2 s	good wetting no mechanical damage
	Tb	resistance to heat	solder bath: 260 °C; 10 s	no mechanical damage
24	Eb	impact bump	4000 $\pm$ 10 bumps; 40 g; 6 ms	$\Delta C/C: \leq 0.4\%$; no mechanical damage
25	Fc	vibration	frequency 10 to 55 Hz; amplitude 0.35 mm; 1.5 hours	$\Delta C/C: \leq 0.8\%$; no mechanical damage
26		climatic sequence:		
26.1	B	dry heat	16 hours at upper category temperature	$\Delta C/C: \leq 3\%$ for $C_{\max} < 80$ pF; $\Delta C/C: \leq 6\%$ for $C_{\max} \geq 80$ pF $\tan \delta: \leq 15 \times 10^{-4}$ for $C_{\max} < 80$ pF; $\tan \delta: \leq 80 \times 10^{-4}$ for $C_{\max} \geq 80$ pF $R_{\text{ins}}: \geq 10000$ M Ω ; rotor contact R: ≤ 10 m Ω
26.2	D	damp heat accelerated, first cycle	1 cycle; 24 hours; +40 °C; 95 to 100% RH	voltage proof: 300 V for 1 minute
26.3	Aa	cold	16 hours; -40 °C	visual examination: no mechanical damage
26.5		damp heat accelerated, remaining cycles	1 cycle; 24 hours; +40 °C; 95 to 100% RH	operating torque: 2 to 35 mNm

Film dielectric trimmers

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IEC 60418-1 CLAUSE	IEC 60068 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
27	Ca	damp heat steady state	21 days; +40 °C; 90 to 95% RH	$\Delta C/C$: $\leq 3\%$ for $C_{\max} < 100$ pF; $\leq 3.5\%$ for $C_{\max} \geq 100$ pF $\tan \delta$: $\leq 20 \times 10^{-4}$ for $C_{\max} < 80$ pF; $\tan \delta$: $\leq 80 \times 10^{-4}$ for $C_{\max} \geq 80$ pF R_{ins} : ≥ 10000 M Ω ; rotor contact R: ≤ 10 m Ω voltage proof: 300 V for 1 minute visual examination: no mechanical damage operating torque: 2 to 35 mNm
29		mechanical endurance	10 cycles	$\Delta C/C$: $\leq 1\%$ $\Delta C/C$ after axial thrust: $\leq 0.4\%$; rotor contact R: ≤ 10 m Ω voltage proof: 300 V for 1 minute visual examination: no mechanical damage operating torque: 1.5 to 37 mNm