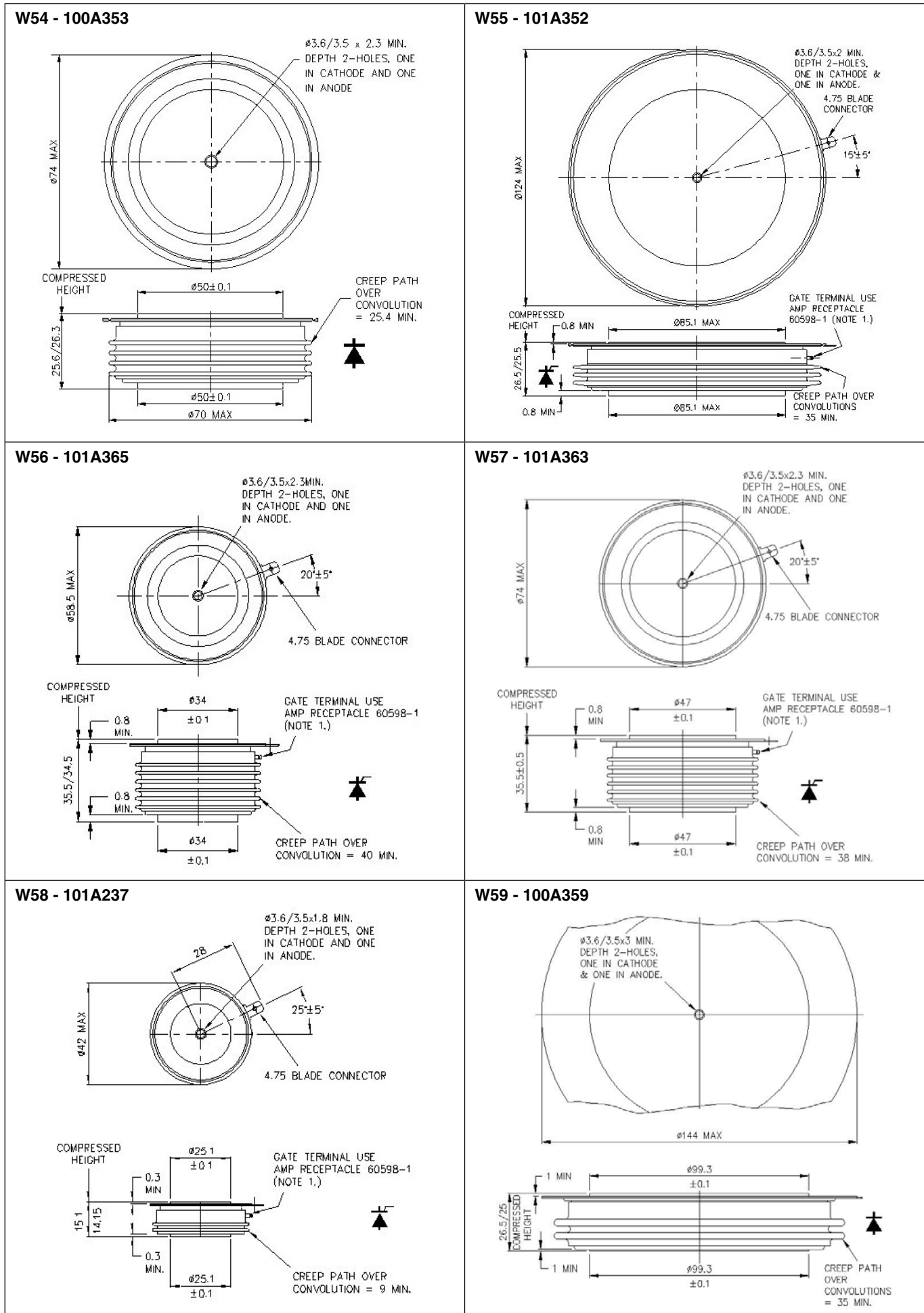


# Outline drawings



Dimensions in mm and inches (1 mm = 0.0394")



# Outline drawings



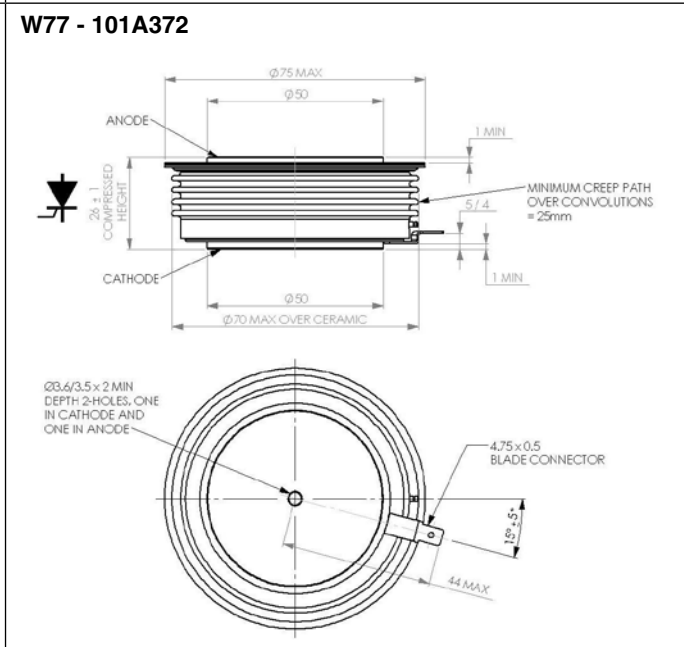
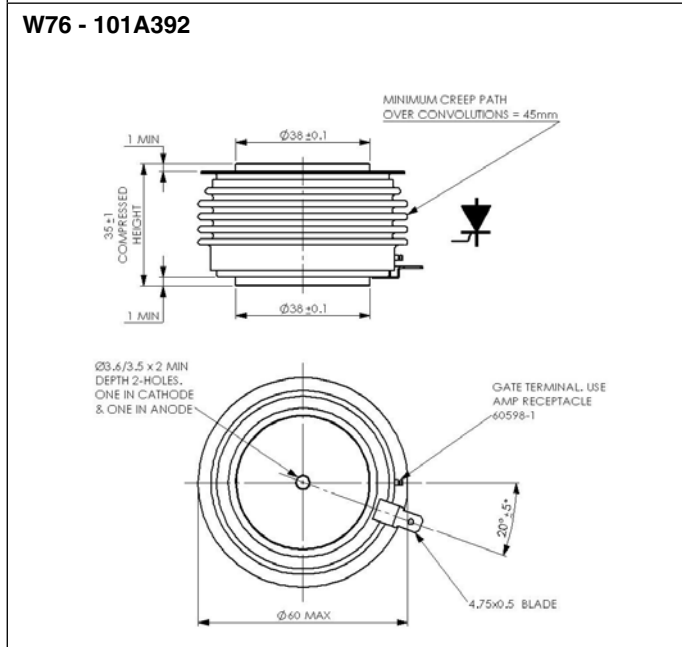
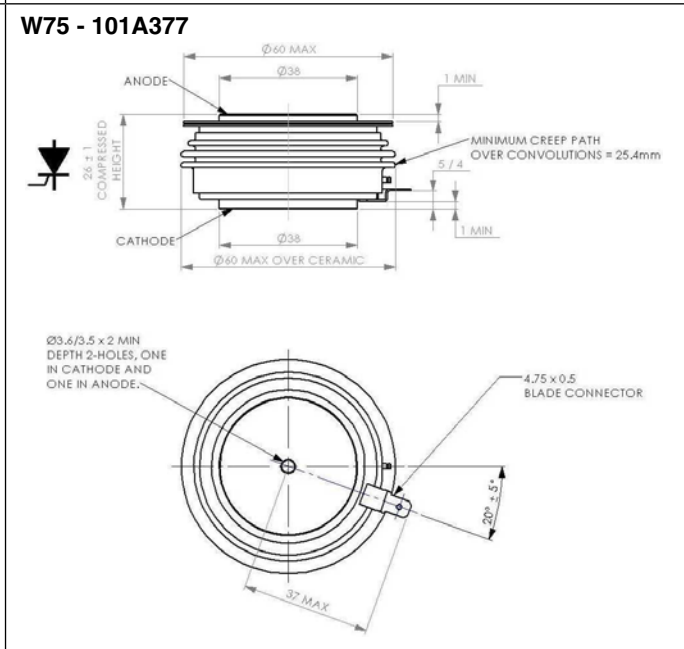
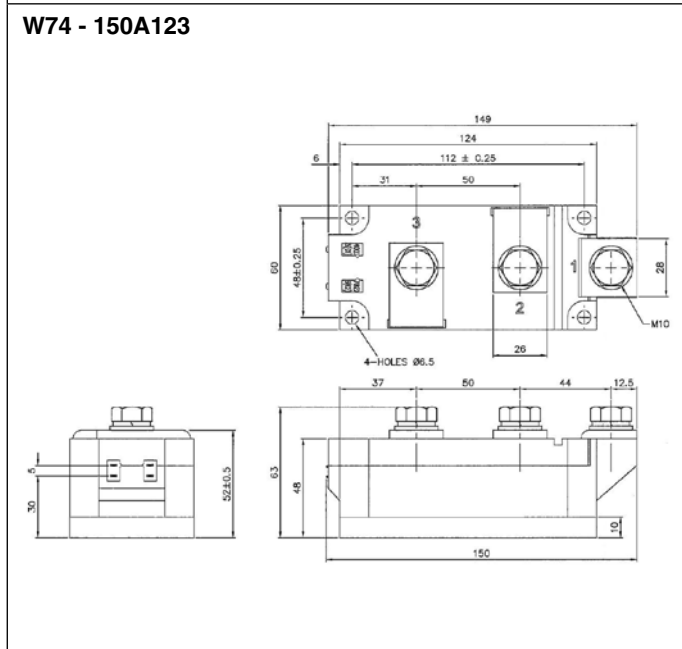
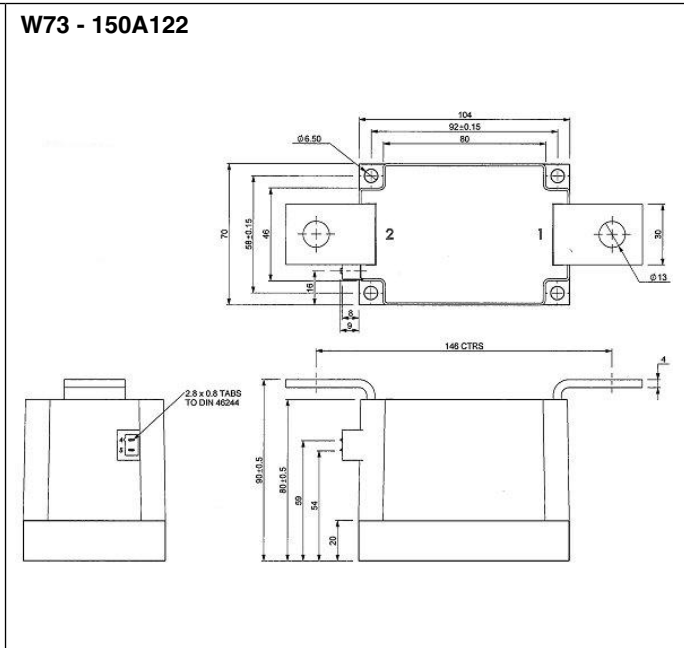
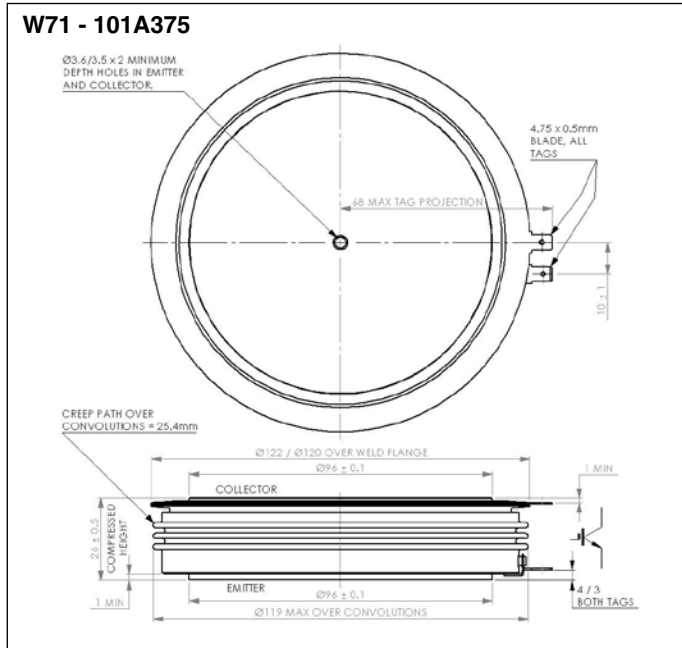
Dimensions in mm and inches (1 mm = 0.0394")

<p><b>W62 - 101A314</b></p> <p>Ø3.6/3.5 x 2.7/2.3 DEPTH 2-HOLES, ONE IN CATHODE &amp; ONE IN ANODE.</p> <p>4.75 BLADE CONNECTOR</p> <p>20±5°</p> <p>Ø100 MAX</p> <p>Ø62.85</p> <p>CATHODE</p> <p>GATE TERMINAL USE AMP RECEPTACLE 60598-1 (NOTE 1.)</p> <p>0.8 MIN</p> <p>27 / 25.5 COMPRESSED HEIGHT</p> <p>0.8 MIN</p> <p>CREEP PATH OVER CONVOLUTIONS = 25.4 MIN</p> <p>ANODE</p>	<p><b>W63 - 150A111</b></p> <p>12.50 44 50 37 6 8</p> <p>28 1 2 3 4</p> <p>M10 x 18DP</p> <p>112 CTRPS</p> <p>124</p> <p>Ø6.50</p> <p>48 CTRPS</p> <p>60</p> <p>2.8 x 0.8</p> <p>17.70</p> <p>4</p> <p>Ø20</p> <p>54±0.5</p> <p>150</p> <p>10</p>
<p><b>W64 - 150A113</b></p> <p>12.5 44 50 37 6 8</p> <p>28 1 2 3 4</p> <p>M10 x 18DP</p> <p>112 CTRPS</p> <p>124</p> <p>Ø6.50</p> <p>48 CTRPS</p> <p>60</p> <p>2.8 x 0.8</p> <p>10.00</p> <p>35</p> <p>4.5</p> <p>Ø20</p> <p>54±0.5</p> <p>150</p> <p>37</p> <p>108.5</p> <p>20</p> <p>Ø10.8</p> <p>24</p>	<p><b>W67 - 101A366</b></p> <p>57 MAX</p> <p>Ø3.6/3.5 x 2.3 MIN DEPTH 2-HOLES, ONE IN CATHODE AND ONE IN ANODE.</p> <p>BOTH TAGS 4.75 x 0.5</p> <p>GATE</p> <p>EMITTER</p> <p>10</p> <p>Ø100 MAX</p> <p>26±0.5</p> <p>COMPRESSED HEIGHT</p> <p>COLLECTOR</p> <p>Ø62.85±0.1</p> <p>CREEP PATH OVER CONVOLUTIONS = 25.4 MIN.</p> <p>0.8 MIN 4 TYP</p> <p>Ø62.85±0.1</p> <p>Ø90 MAX OVER CONVOLUTIONS</p>
<p><b>W68 - 100A367</b></p> <p>ANODE</p> <p>1 MIN</p> <p>MINIMUM CREEP PATH OVER CONVOLUTIONS = 25.4mm</p> <p>1 MIN</p> <p>CATHODE</p> <p>Ø38</p> <p>Ø60 MAX OVER CERAMIC</p> <p>Ø60 MAX</p> <p>Ø38</p> <p>26 ± 1 COMPRESSED HEIGHT</p> <p>Ø3.6/3.5 x 2 MIN DEPTH 2-HOLES, ONE IN CATHODE AND ONE IN ANODE.</p>	<p><b>W70 - 101A357</b></p> <p>Ø3.6/3.5 x 2.3 MIN. DEPTH 2-HOLES, ONE IN CATHODE AND ONE IN ANODE.</p> <p>20°</p> <p>Ø74 MAX</p> <p>COMPRESSED HEIGHT</p> <p>0.8 MIN</p> <p>Ø50±0.1</p> <p>GATE TERMINAL USE AMP RECEPTACLE 60598-1 (NOTE 1.)</p> <p>25.6 / 25.3</p> <p>0.8 MIN</p> <p>Ø50±0.1</p> <p>Ø70 MAX</p> <p>CREEP PATH OVER CONVOLUTION = 25.4 MIN.</p>

# Outline drawings



Dimensions in mm and inches (1 mm = 0.0394")



# Outline drawings



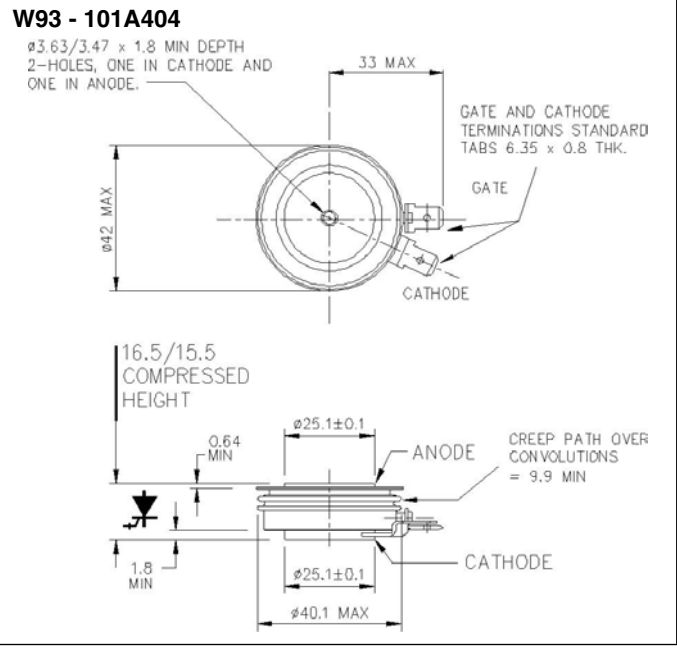
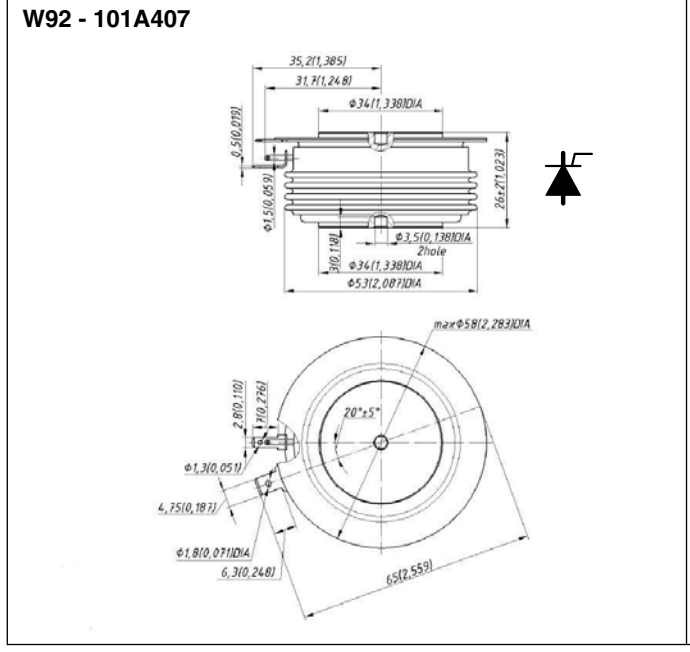
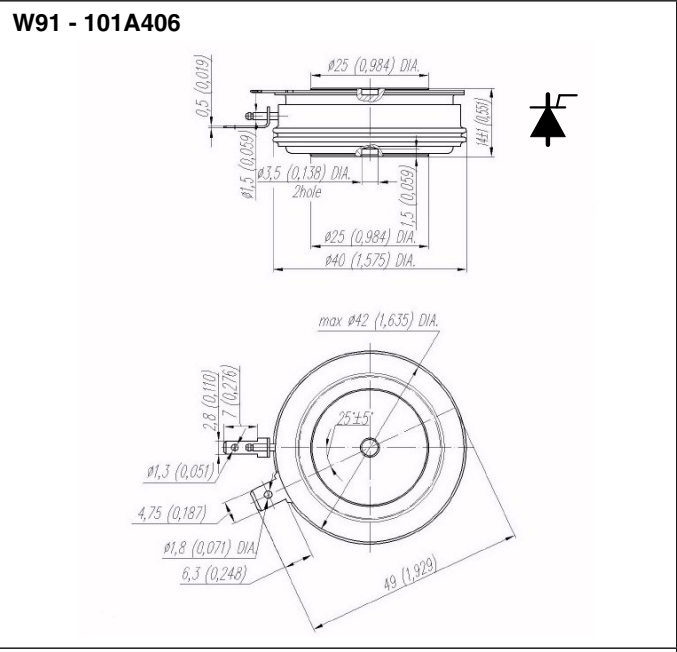
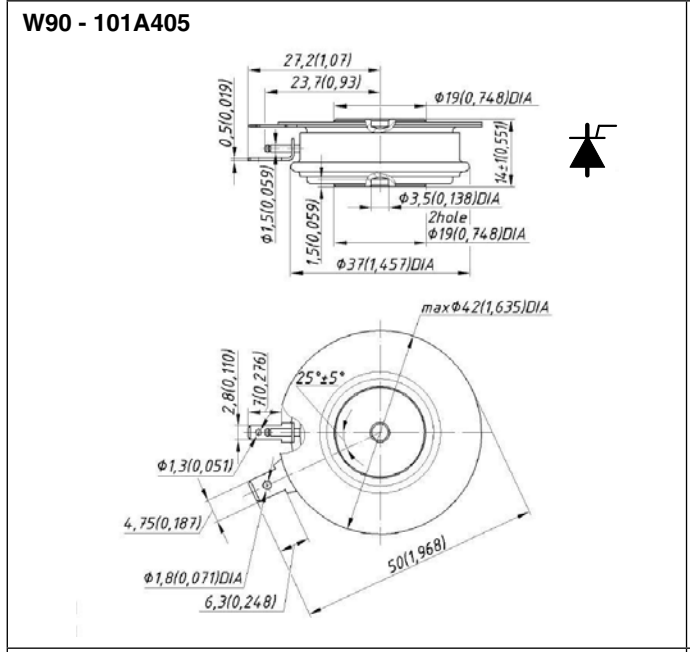
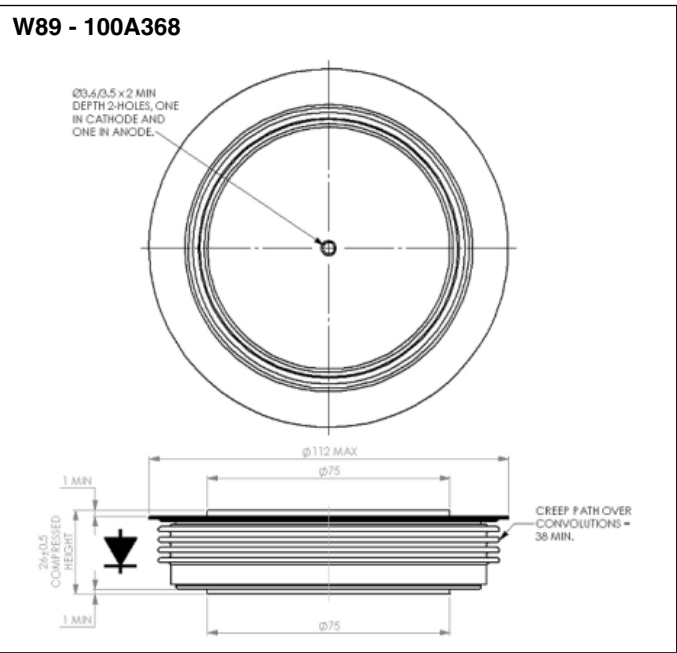
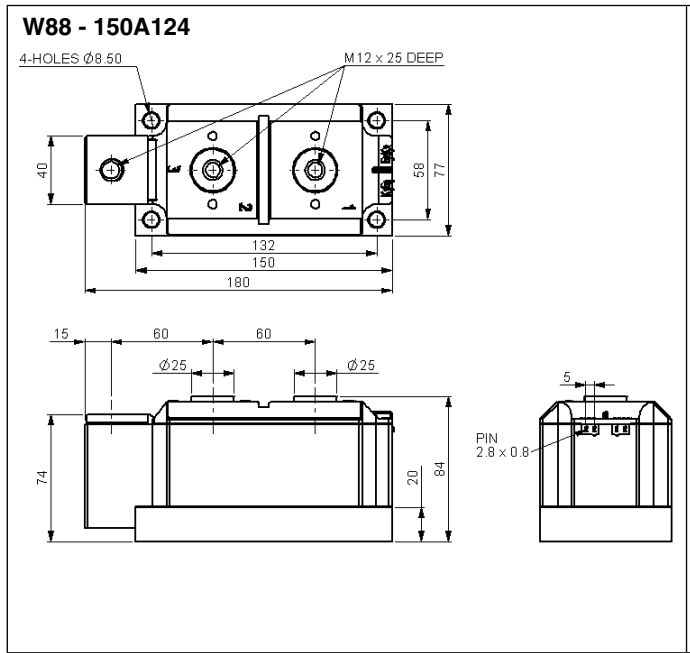
Dimensions in mm and inches (1 mm = 0.0394")

<p><b>W78 - 101A393</b></p> <p>MINIMUM CREEP PATH OVER CONVOLUTIONS = 40mm</p> <p>1 MIN</p> <p>35 ± 1 COMPRESSED HEIGHT</p> <p>1 MIN</p> <p>Ø50 ± 0,1</p> <p>Ø50 ± 0,1</p> <p>Ø3,6/3,5 x 2 MIN DEPTH 2-HOLES, ONE IN CATHODE &amp; ONE IN ANODE</p> <p>GATE TERMINAL USE AMP RECEPTACLE 60598-1</p> <p>15° ± 5°</p> <p>4.75x0.5 BLADE</p> <p>Ø75 MAX</p>	<p><b>W81 - 101A373</b></p> <p>Ø3,6/3,5 x 2 MIN DEPTH 2-HOLES, ONE IN CATHODE AND ONE IN ANODE</p> <p>4.75 x 0.5 BLADE CONNECTOR</p> <p>44 MAX</p> <p>Ø112 MAX</p> <p>Ø75</p> <p>26 ± 0.5 COMPRESSED HEIGHT</p> <p>CREEP PATH OVER CONVOLUTIONS = 38 MIN.</p> <p>GATE TERMINAL USE AMP RECEPTACLE 60598-1.</p> <p>4 TYP</p> <p>Ø75</p> <p>Ø105,60 MAX OVER GLAZE</p>
<p><b>W82 - 101A395</b></p> <p>MINIMUM CREEP PATH OVER CONVOLUTIONS = 55mm</p> <p>1 MIN</p> <p>35 ± 1 COMPRESSED HEIGHT</p> <p>1 MIN</p> <p>Ø75 ± 0,1</p> <p>Ø75 ± 0,1</p> <p>Ø3,6/3,5 x 2 MIN DEPTH 2-HOLES, ONE IN CATHODE &amp; ONE IN ANODE</p> <p>GATE TERMINAL USE AMP RECEPTACLE 60598-1</p> <p>15° ± 5°</p> <p>4.75x0.5 BLADE</p> <p>Ø112 MAX</p>	<p><b>W85 - 101A388</b></p> <p>Ø3,6/3,5 x 2 MIN DEEP HOLES (ANODE &amp; CATHODE)</p> <p>6.35 x 0.8 CONNECTORS</p> <p>20° ± 5°</p> <p>56 MAX</p> <p>Ø100 MAX OVER WELD FLANGE</p> <p>Ø66</p> <p>1 MIN</p> <p>26 ± 0.5 COMPRESSED HEIGHT</p> <p>4 TYP</p> <p>Ø66</p> <p>1 MIN</p>
<p><b>W86 - 101A316</b></p> <p>Ø3,6/3,5 x 2 MIN DEPTH 2-HOLES, ONE IN CATHODE AND ONE IN ANODE.</p> <p>GATE AND CATHODE TERMINATIONS: STANDARD TABS 6.35 x 0.8 THICK.</p> <p>GATE</p> <p>20° ± 5°</p> <p>CATHODE</p> <p>65 MAX BOTH TABS</p> <p>Ø112</p> <p>Ø75</p> <p>ANODE</p> <p>MIN CREEP PATH OVER CONVOLUTIONS = 35.</p> <p>4 TYP</p> <p>CATHODE</p> <p>0.8 MIN</p> <p>0.8 MIN</p> <p>26 ± 0.5 COMPRESSED HEIGHT</p> <p>Ø75</p>	<p><b>W87 101A376</b></p> <p>LEAD LENGTH = 510 ± 10</p> <p>6.35 x 0.8 FASTON CONNECTOR</p> <p>M6 x 1.0</p> <p>14 A/F</p> <p>15</p> <p>6</p> <p>0.80</p> <p>55 ± 1</p> <p>GATE TERMINAL</p> <p>Ø31,50 MAX</p> <p>10 ± 0.2</p> <p>30 MAX</p> <p>20 ± 0.5</p> <p>M20 x 1.5</p> <p>VIEW FROM ABOVE WITH LEAD REMOVED</p> <p>31,50 ± 0.2</p> <p>Ø4,30</p> <p>AUXILIARY CATHODE TERMINAL</p>

# Outline drawings



Dimensions in mm and inches (1 mm = 0.0394")



# Outline drawings



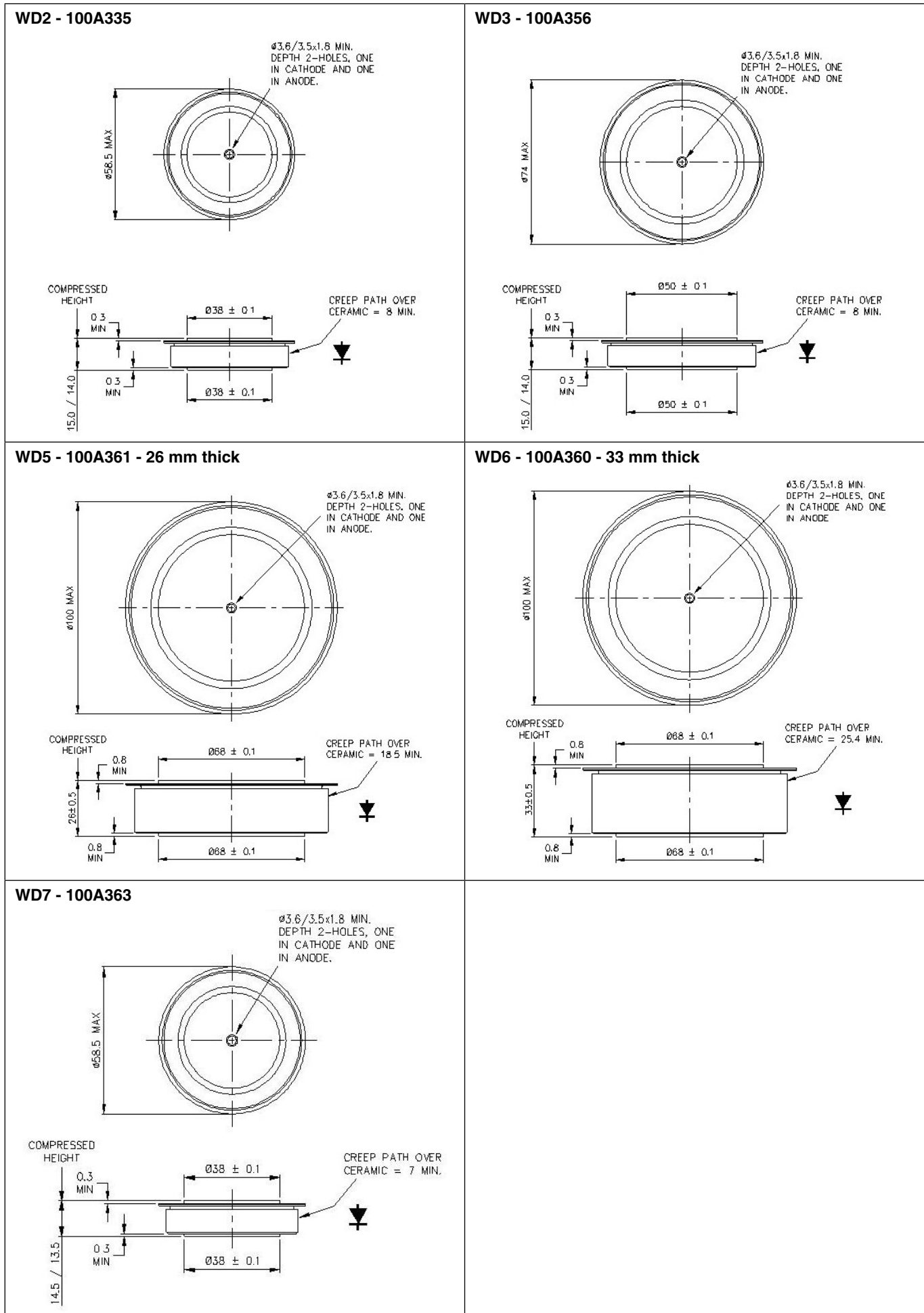
Dimensions in mm and inches (1 mm = 0.0394")

<p><b>W94 - 100A372</b></p> <p>1 MIN</p> <p>35±1 COMPRESSED HEIGHT</p> <p>1 MIN</p> <p>MINIMUM CREEP PATH OVER CONVOLUTIONS = 55mm</p> <p>Ø75±0.1</p> <p>Ø75±0.1</p> <p>Ø112 MAX</p> <p>Ø3.6/3.5 x 2 MIN DEPTH 2-HOLES. ONE IN CATHODE &amp; ONE IN ANODE</p>	

# Outline drawings



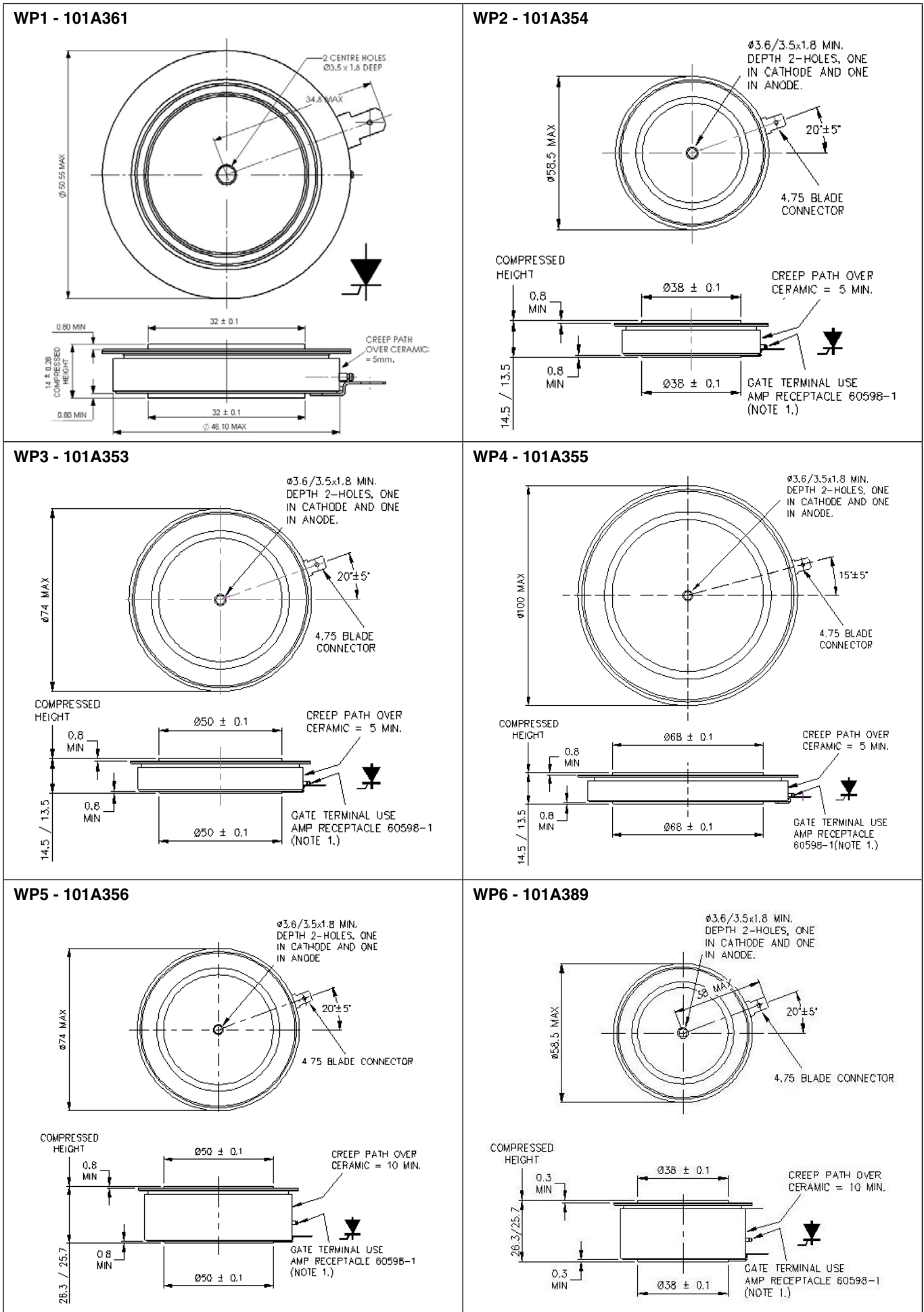
Dimensions in mm and inches (1 mm = 0.0394")



# Outline drawings



Dimensions in mm and inches (1 mm = 0.0394")

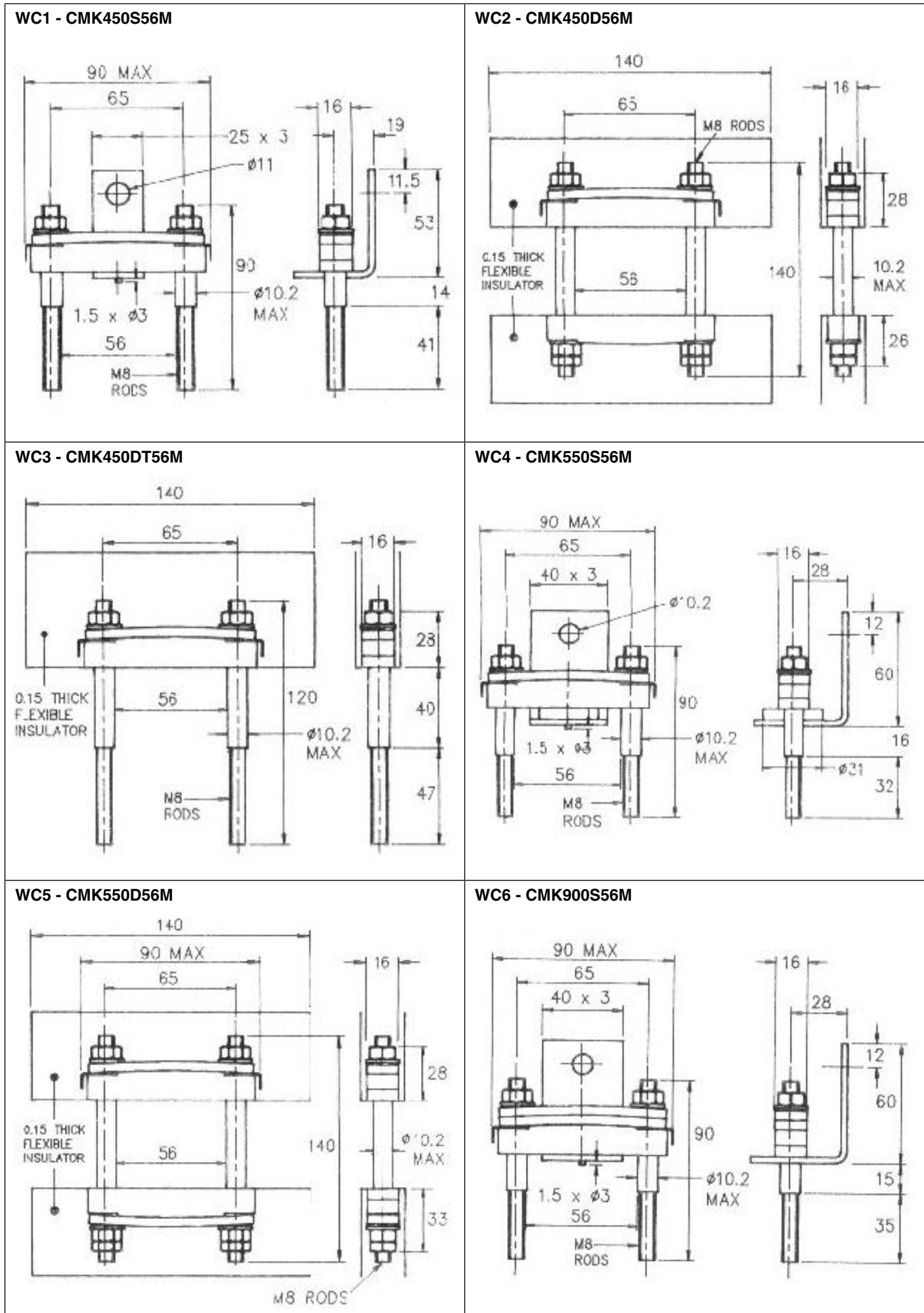




# Outline drawings



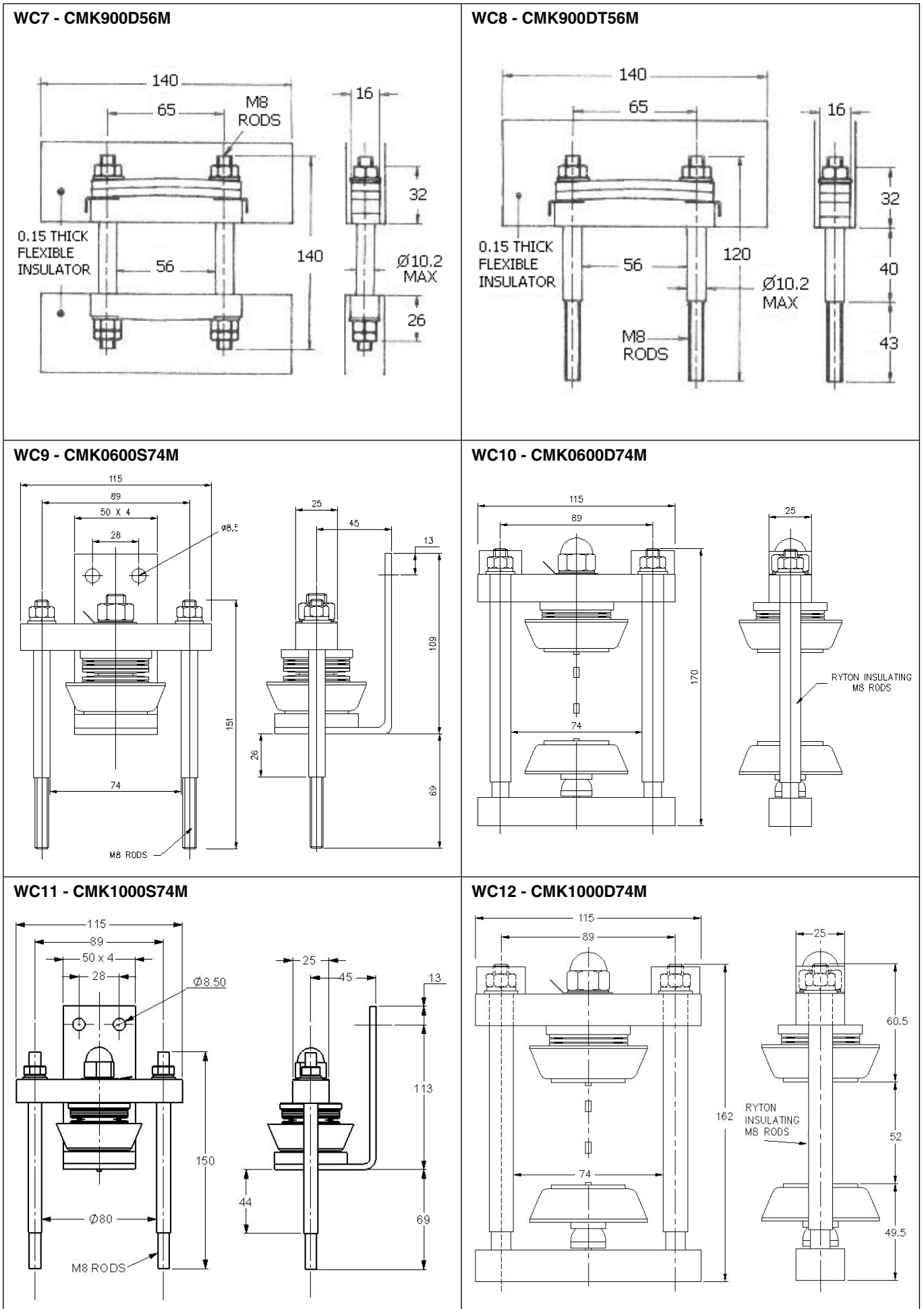
Dimensions in mm and inches (1 mm = 0.0394")



# Outline drawings



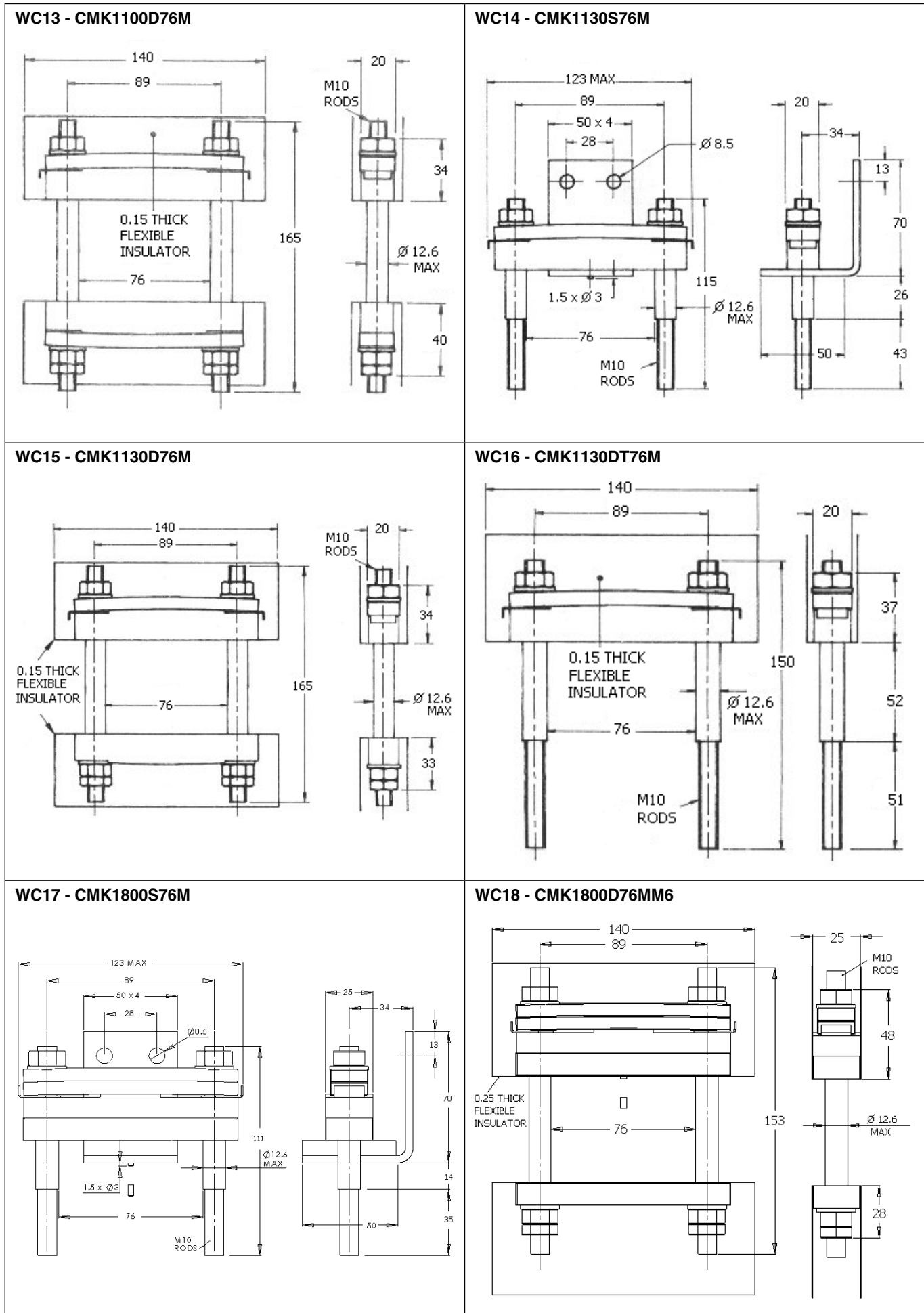
Dimensions in mm and inches (1 mm = 0.0394")



# Outline drawings



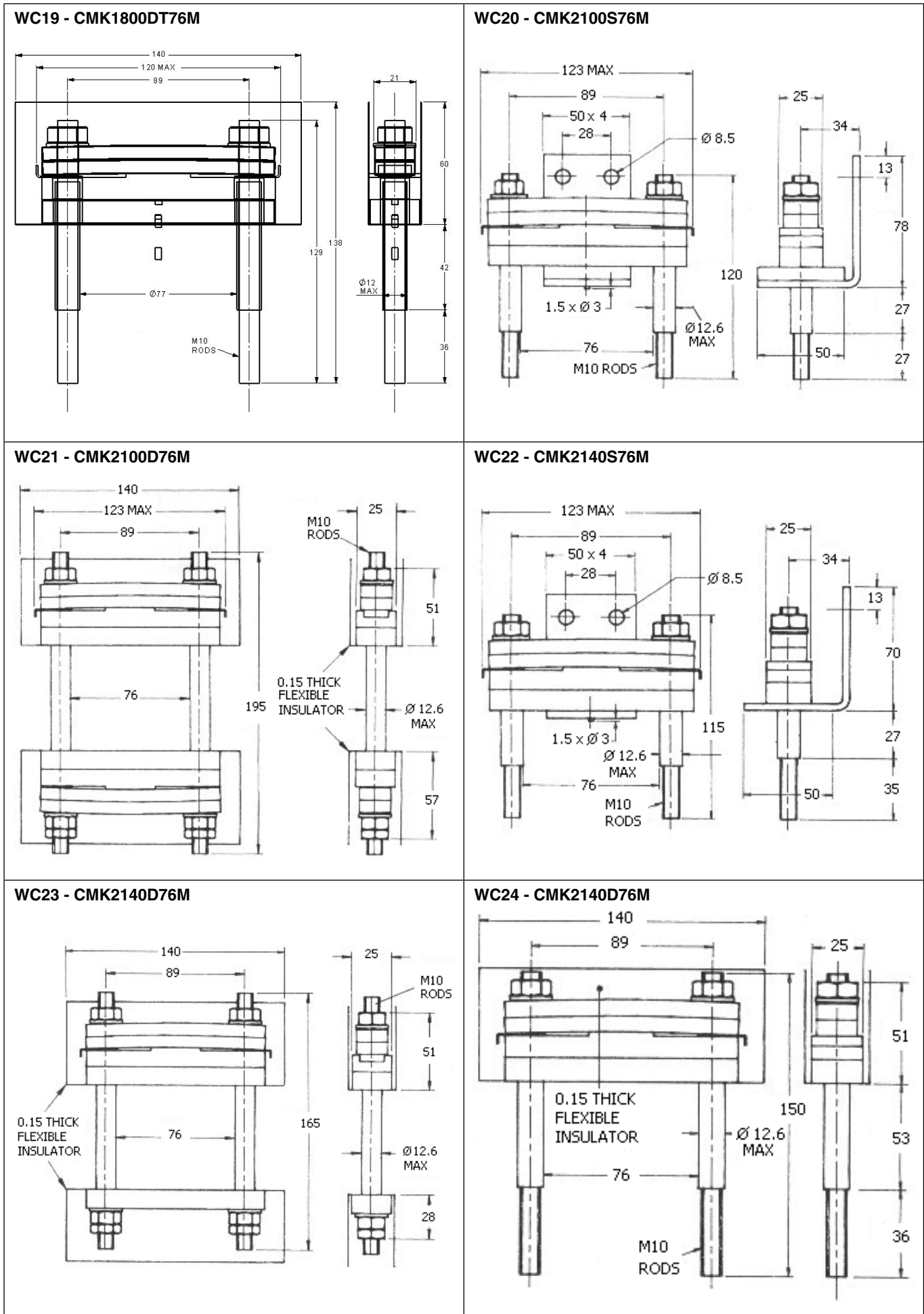
Dimensions in mm and inches (1 mm = 0.0394")



# Outline drawings



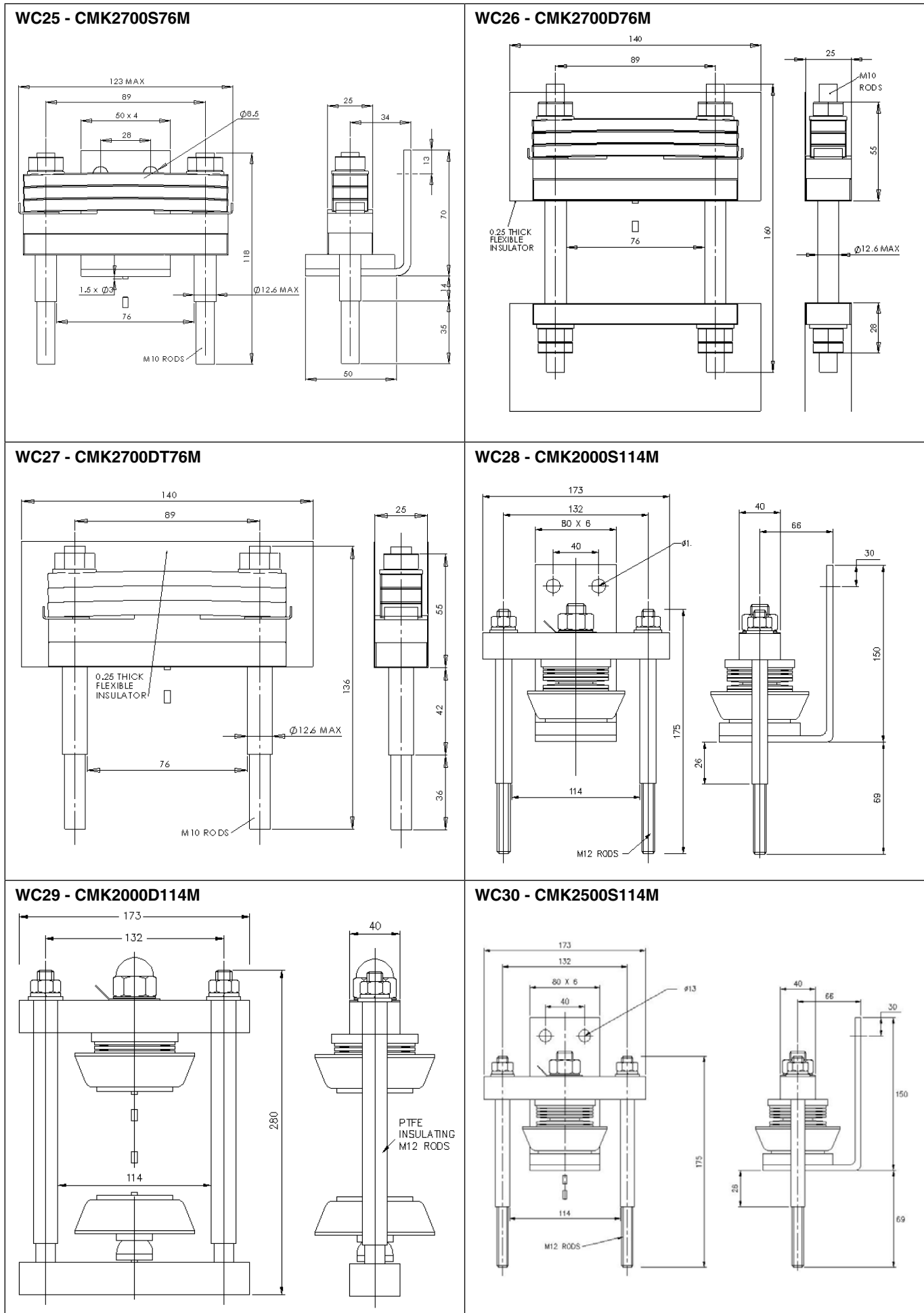
Dimensions in mm and inches (1 mm = 0.0394")



# Outline drawings



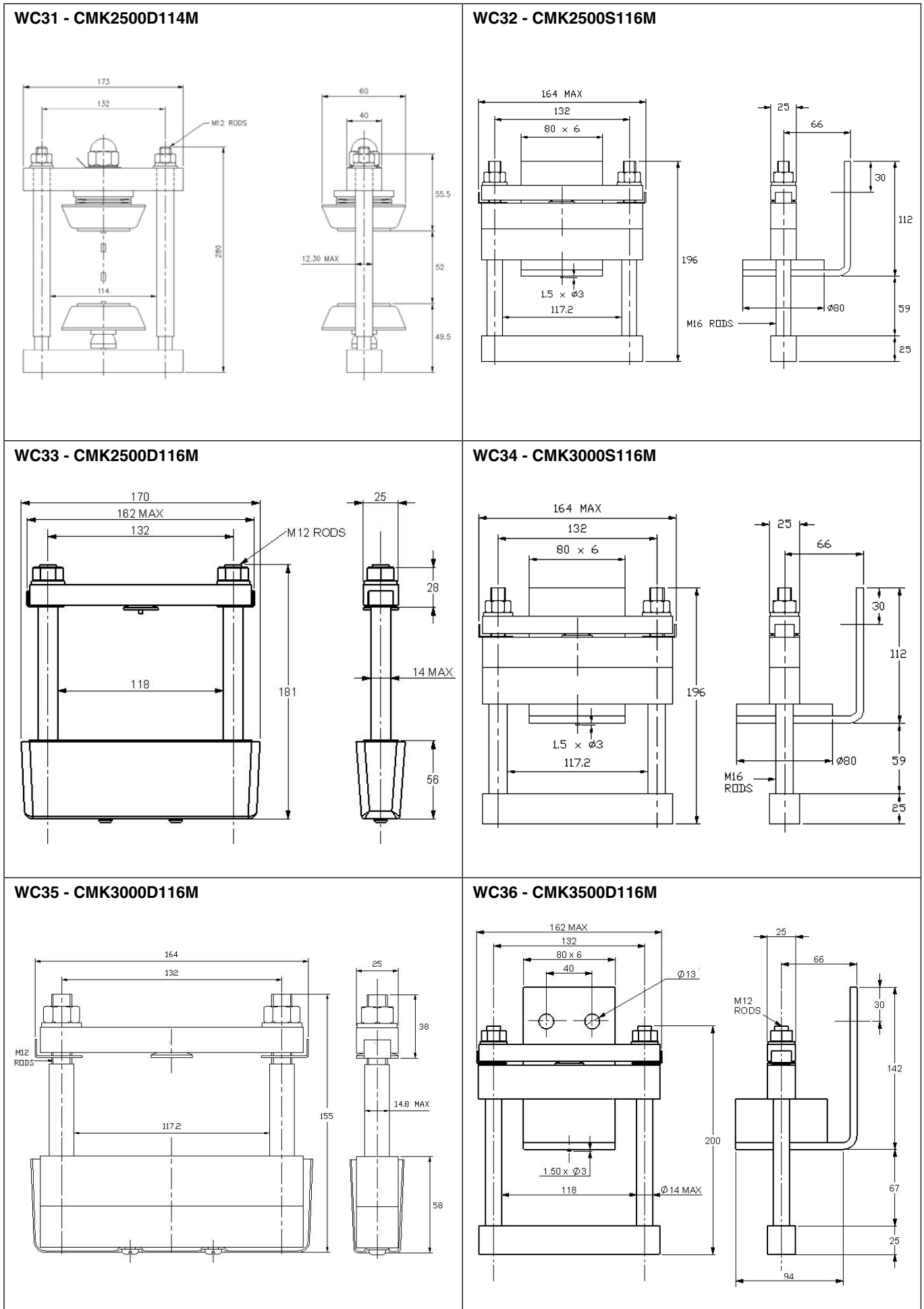
Dimensions in mm and inches (1 mm = 0.0394")



# Outline drawings



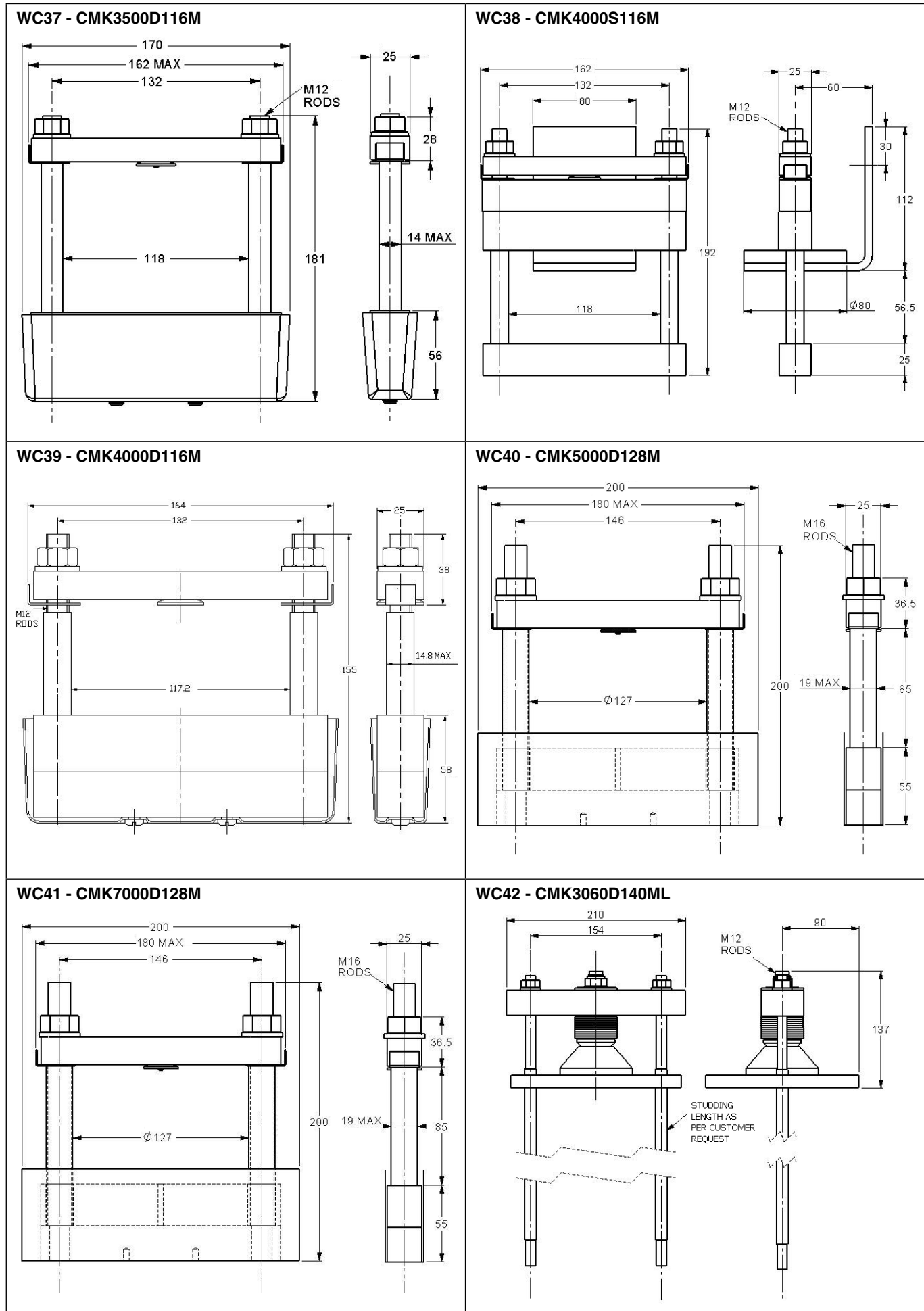
Dimensions in mm and inches (1 mm = 0.0394")



# Outline drawings



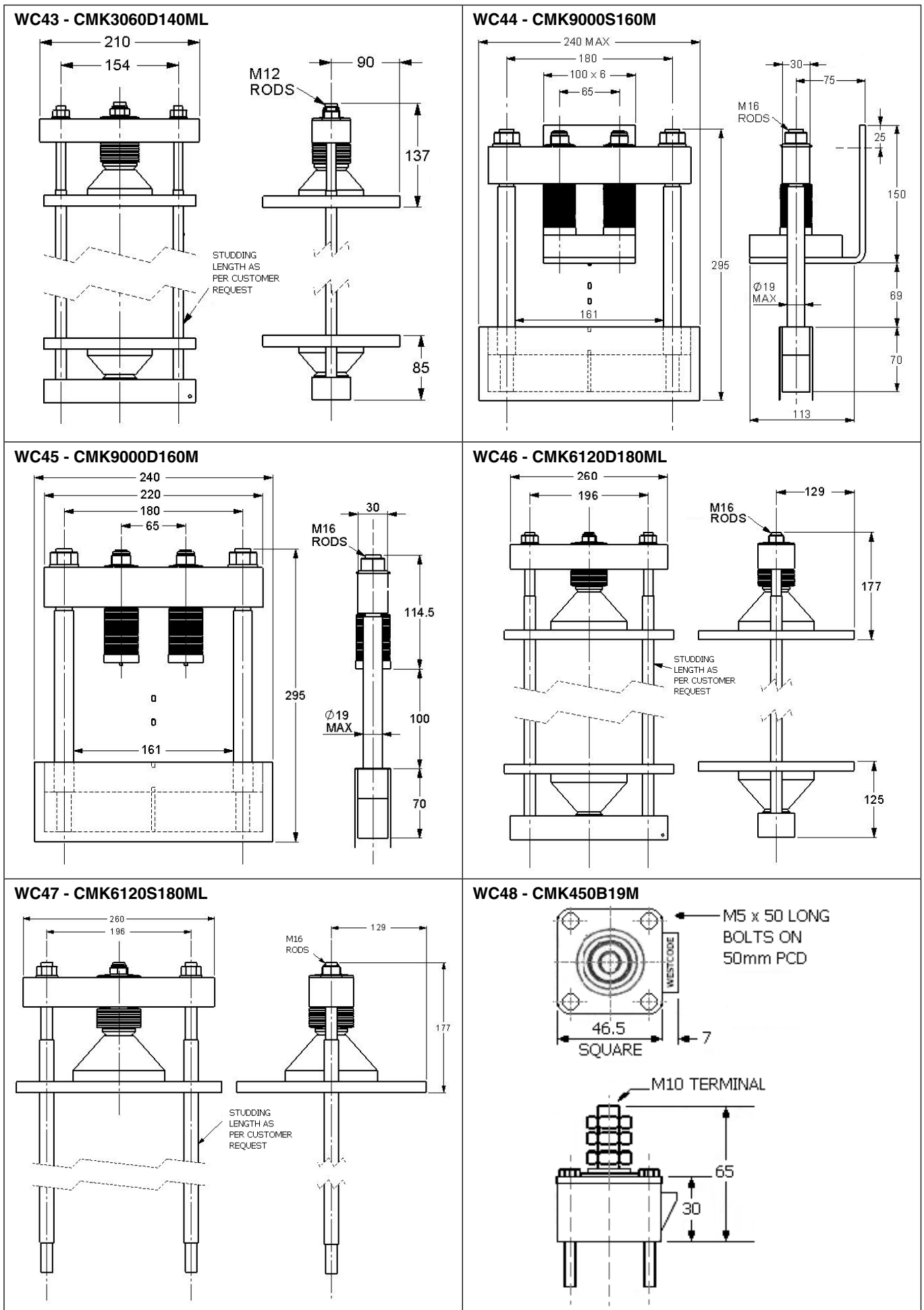
Dimensions in mm and inches (1 mm = 0.0394")



# Outline drawings



Dimensions in mm and inches (1 mm = 0.0394")



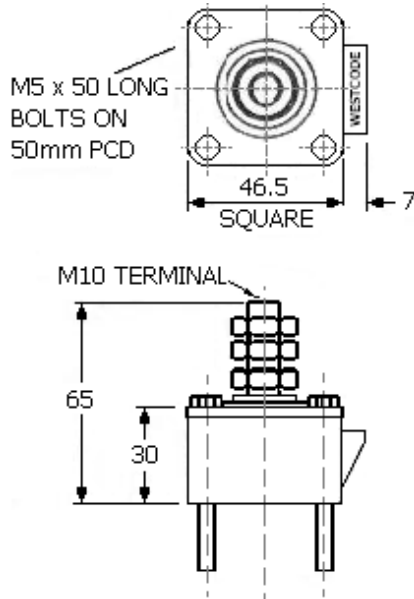


# Outline drawings

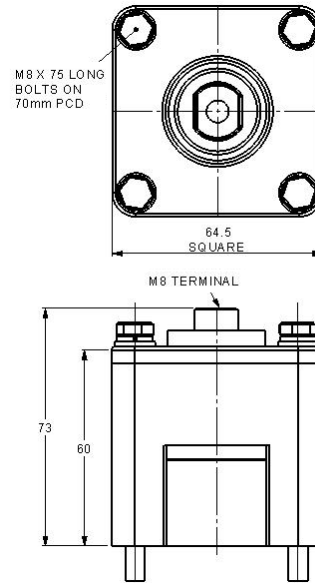


Dimensions in mm and inches (1 mm = 0.0394")

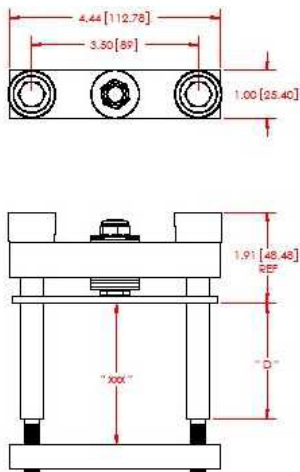
**WC49 - CMK450B25M**



**WC50 - CMK150B34M**



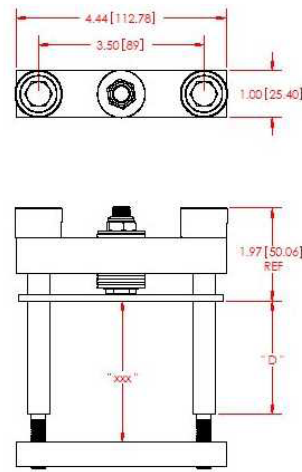
**WC51 XSK1500DA076xxx**



**Notes:**

1. DIMENSIONS IN INCHES [ MILLIMETERS ].
2. " Z " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.
3. " D " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.

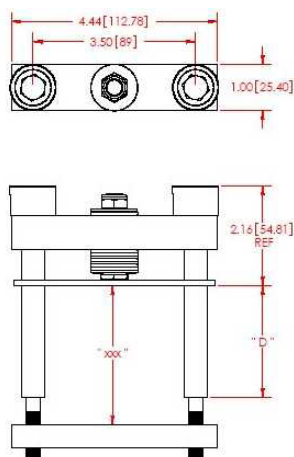
**WC52 XSK2000DA076xxx**



**Notes:**

1. DIMENSIONS IN INCHES [ MILLIMETERS ].
2. " Z " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.
3. " D " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.

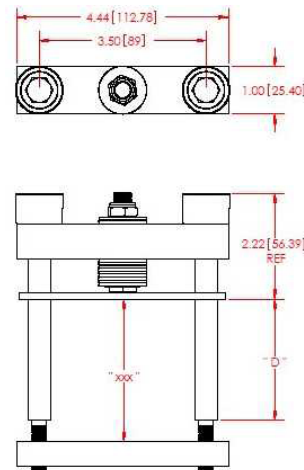
**WC53 XSK3000DA076xxx**



**Notes:**

1. DIMENSIONS IN INCHES [ MILLIMETERS ].
2. " Z " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.
3. " D " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.

**WC54 XSK3400DA076xxx**



**Notes:**

1. DIMENSIONS IN INCHES [ MILLIMETERS ].
2. " Z " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.
3. " D " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.

# Outline drawings



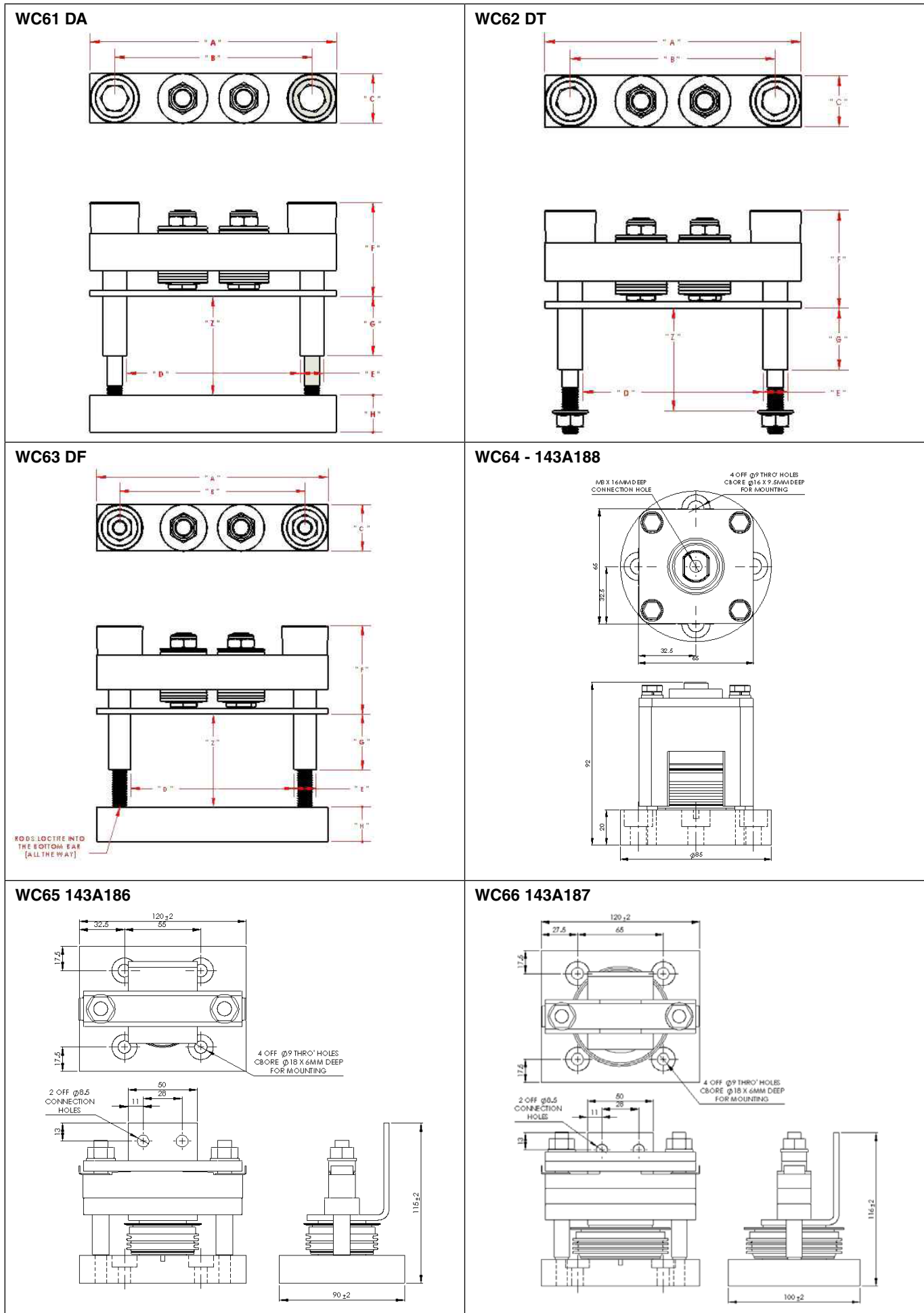
Dimensions in mm and inches (1 mm = 0.0394")

<p><b>WC55 XSK3800DA116xxx</b></p> <p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>1. DIMENSIONS IN INCHES [ MILLIMETERS ].</li> <li>2. " Z " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.</li> <li>3. " D " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.</li> </ol>	<p><b>WC56 XSK4400DA116xxx</b></p> <p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>1. DIMENSIONS IN INCHES [ MILLIMETERS ].</li> <li>2. " Z " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.</li> <li>3. " D " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.</li> </ol>
<p><b>WC57 XSK6000DA116xxx</b></p> <p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>1. DIMENSIONS IN INCHES [ MILLIMETERS ].</li> <li>2. " Z " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.</li> <li>3. " D " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.</li> </ol>	<p><b>WC58 DA</b></p>
<p><b>WC59 DT</b></p>	<p><b>WC60 DF</b></p> <p>KOBY LOCTITE INTO THE BOTTOM BAR [ALL THE WAY]</p>

# Outline drawings



Dimensions in mm and inches (1 mm = 0.0394")



# Outline drawings



Dimensions in mm and inches (1 mm = 0.0394")

<p><b>WH1 - G FIN</b></p>	<p><b>WH2 - GA FIN</b></p>	<p><b>WH3 - H FIN</b></p>
<p><b>WH4 - T FIN</b></p>	<p><b>WH5 - TB FIN</b></p>	<p><b>WH6 - TC FIN</b></p>
<p><b>WH7 - LP100</b></p>	<p><b>WH8 - WS46</b></p>	<p><b>WH9 - WS30 - COPPER</b></p>



# Outline drawings



Dimensions in mm and inches (1 mm = 0.0394")

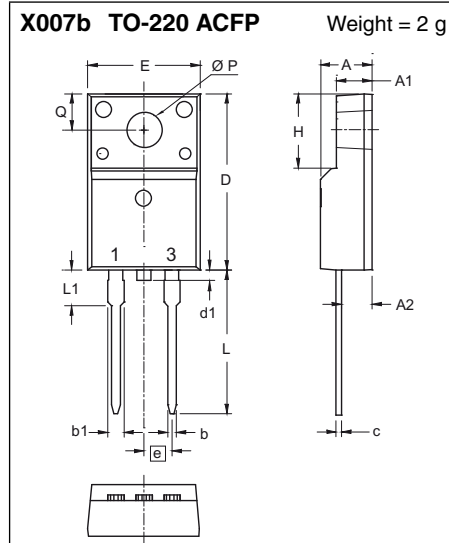
<p><b>WCL10 - WS69 COOLER</b></p>	<p><b>WCL11 - WS70 COOLER</b></p>	<p><b>WCL12 - WS71-1 COOLER</b></p>
<p><b>WCL13 - WS71-2 COOLER</b></p>	<p><b>WCL14 - WS72-1 COOLER</b></p>	<p><b>WCL15 - WS72-2 COOLER</b></p>
<p><b>WCL16 XW127ExxxA</b></p>	<p><b>WCL17 XW127ExxxB</b></p>	<p><b>WCL18 XW180GN25A</b></p>



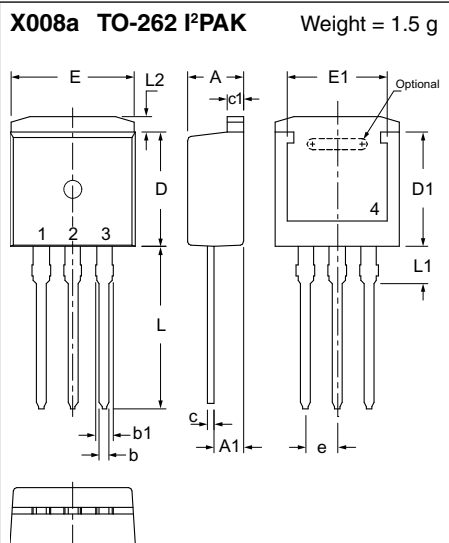
# Outline drawings



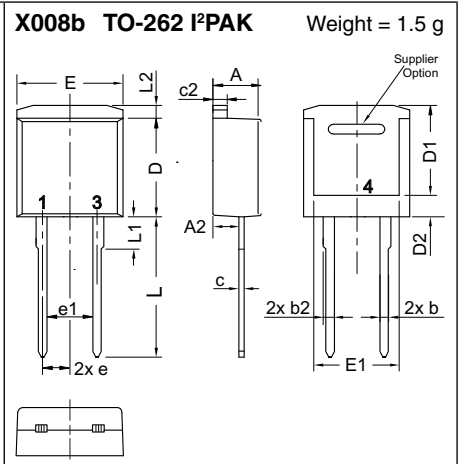
Dimensions in mm and inches (1 mm = 0.0394")



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.50	4.90	0.177	0.193
A1	2.34	2.74	0.092	0.108
A2	2.56	2.96	0.101	0.117
b	0.70	0.90	0.028	0.035
b1	1.27	1.47	0.050	0.058
c	0.45	0.60	0.018	0.024
D	15.67	16.07	0.617	0.633
d1	0.00	1.10	0.000	0.043
E	9.96	10.36	0.392	0.408
e	2.54 BSC		0.100 BSC	
H	6.48	6.88	0.255	0.271
L	12.68	13.28	0.499	0.523
L1	3.03	3.43	0.119	0.135
Ø P	3.08	3.28	0.121	0.129
Q	3.20	3.40	0.126	0.134

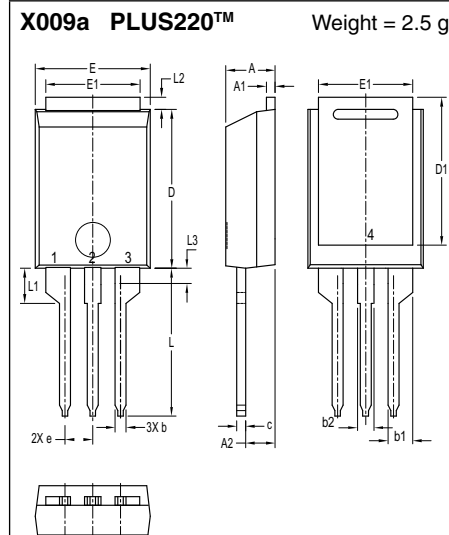


Dim.	Millimeters		Inches	
	min	max	min	max
A	4.30	4.70	0.169	0.185
A1	2.20	2.60	0.087	0.102
b	0.70	0.90	0.028	0.035
b1	1.37	1.57	0.054	0.062
c	0.45	0.60	0.018	0.024
c1	1.25	1.40	0.049	0.055
D	9.00	9.40	0.355	0.370
D1	7.20		0.284	
E	9.70	9.90	0.382	0.390
E1	7.00		0.276	
e	2.54 BSC		0.100 BSC	
L	12.88	13.28	0.507	0.523
L1	3.00	-	0.118	-
L2	1.00	1.40	0.039	0.055

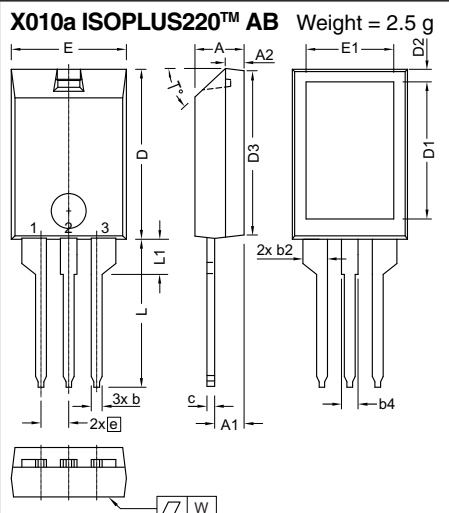


Dim.	Millimeters		Inches	
	min	max	min	max
A	4.06	4.83	0.160	0.190
A2	2.41		0.095	
b	0.51	0.99	0.020	0.039
b2	1.14	1.40	0.045	0.055
c	0.40	0.74	0.016	0.029
c2	1.14	1.40	0.045	0.055
D	8.38	9.40	0.330	0.370
D1	8.00	8.89	0.315	0.350
D2	2.5		0.098	
E	9.65	10.41	0.380	0.410
E1	6.22	8.50	0.245	0.335
e	2.54 BSC		0.100 BSC	
e1	4.28		0.169	
L	13.00	13.60	0.512	0.535
L1	2.90	3.10	0.114	0.122
L2	1.02	1.68	0.040	0.066

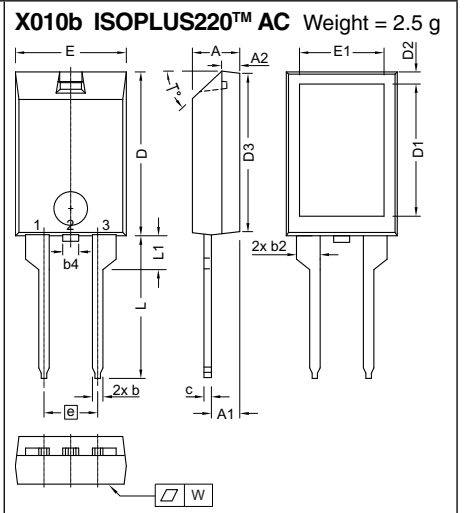
*All dimensions conform with and/or within JEDEC standard*



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.30	4.70	0.169	0.185
A1	0.70	0.90	0.028	0.035
A2	2.50	3.00	0.098	0.118
b	0.90	1.20	0.035	0.047
b1	2.03	2.41	0.080	0.095
b2	1.37	1.63	0.054	0.064
c	0.70	0.90	0.028	0.035
D	14.00	15.00	0.551	0.591
D1	13.00	13.70	0.512	0.539
E	10.00	11.00	0.394	0.433
E1	8.40	8.80	0.331	0.346
e	2.54 BSC		0.100 BSC	
L	13.00	14.00	0.512	0.551
L1	3.00	3.50	0.118	0.138
L2	0.90	1.30	0.035	0.051
L3	1.20	1.50	0.047	0.059



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.00	5.00	0.157	0.197
A1	2.50	3.00	0.098	0.118
A2	1.60	1.80	0.063	0.071
b	0.90	1.30	0.035	0.051
b2	2.35	2.55	0.093	0.100
b4	1.25	1.65	0.049	0.065
c	0.70	1.00	0.028	0.039
D	15.00	16.00	0.591	0.630
D1	12.00	13.00	0.472	0.512
D2	1.10	1.50	0.043	0.059
D3	14.90	15.50	0.587	0.610
E	10.00	11.00	0.394	0.433
E1	7.50	8.50	0.295	0.335
e	2.54 BSC		0.100 BSC	
L	13.00	14.50	0.512	0.571
L1	3.00	3.50	0.118	0.138
T°	42.5	47.5	-	-
W	-	0.10	-	0.004



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.00	5.00	0.157	0.197
A1	2.50	3.00	0.098	0.118
A2	1.60	1.80	0.063	0.071
b	0.90	1.30	0.035	0.051
b2	1.25	1.65	0.049	0.065
b4	2.35	2.55	0.093	0.100
c	0.70	1.00	0.028	0.039
D	15.00	16.00	0.591	0.630
D1	12.00	13.00	0.472	0.512
D2	1.10	1.50	0.043	0.059
D3	14.90	15.50	0.587	0.610
E	10.00	11.00	0.394	0.433
E1	7.50	8.50	0.295	0.335
e	5.08 BSC		0.200 BSC	
L	13.00	14.50	0.512	0.571
L1	3.00	3.50	0.118	0.138
T°	42.5	47.5	-	-
W	-	0.10	-	0.004

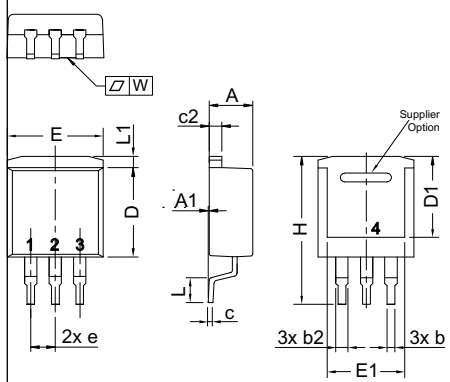


# Outline drawings



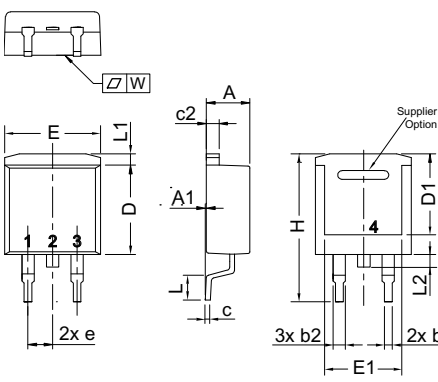
Dimensions in mm and inches (1 mm = 0.0394")

**X011a TO-263 AA (D<sup>2</sup>PAK)** Weight = 1.5 g



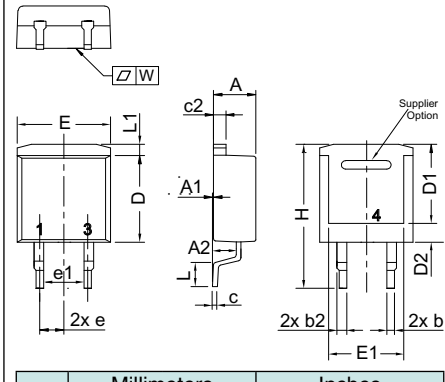
Dim.	Millimeter		Inches	
	min	max	min	max
A	4.06	4.83	0.160	0.190
A1	typ. 0.10		typ. 0.004	
b	0.51	0.99	0.020	0.039
b2	1.14	1.40	0.045	0.055
c	0.40	0.74	0.016	0.029
c2	1.14	1.40	0.045	0.055
D	8.38	9.40	0.330	0.370
D1	8.00	8.89	0.315	0.350
E	9.65	10.41	0.380	0.410
E1	6.22	8.13	0.245	0.320
e	2,54 BSC		0,100 BSC	
H	14.61	15.88	0.575	0.625
L	1.78	2.79	0.070	0.110
L1	1.02	1.68	0.040	0.066
W	typ. 0.02	0.040	typ. 0.0008	0.002

**X011b TO-263 AB (D<sup>2</sup>PAK)** Weight = 1.5 g



Dim.	Millimeter		Inches	
	min	max	min	max
A	4.06	4.83	0.160	0.190
A1	typ. 0.10		typ. 0.004	
b	0.51	0.99	0.020	0.039
b2	1.14	1.40	0.045	0.055
c	0.40	0.74	0.016	0.029
c2	1.14	1.40	0.045	0.055
D	8.38	9.40	0.330	0.370
D1	8.00	8.89	0.315	0.350
E	9.65	10.41	0.380	0.410
E1	6.22	8.13	0.245	0.320
e	2,54 BSC		0,100 BSC	
H	14.61	15.88	0.575	0.625
L	1.78	2.79	0.070	0.110
L1	1.02	1.68	0.040	0.066
W	typ. 0.02	0.040	typ. 0.0008	0.002

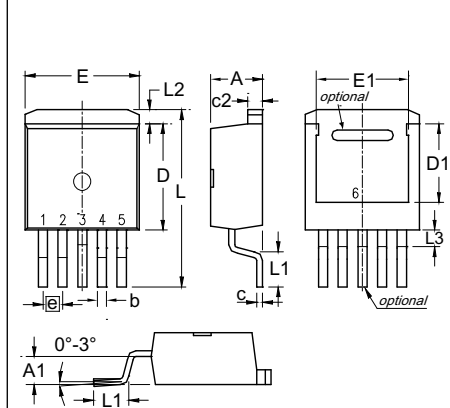
**X011c TO-263 AB (D<sup>2</sup>PAK)** Weight = ?? g



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.06	4.83	0.160	0.190
A1	typ 0.10		typ 0.004	
A2	2.41		0.095	
b	0.51	0.99	0.020	0.039
b2	1.14	1.40	0.045	0.055
c	0.40	0.74	0.016	0.029
c2	1.14	1.40	0.045	0.055
D	8.38	9.40	0.330	0.370
D1	8.00	8.89	0.315	0.350
D2	2.5		0.098	
E	9.65	10.41	0.380	0.410
E1	6.22	8.50	0.245	0.335
e	2.54 BSC		0.100 BSC	
e1	4.28		0.169	
H	14.61	15.88	0.575	0.625
L	1.78	2.79	0.070	0.110
L2	1.02	1.68	0.040	0.066
W	typ 0.02	0.040	typ 0.0008	0.002

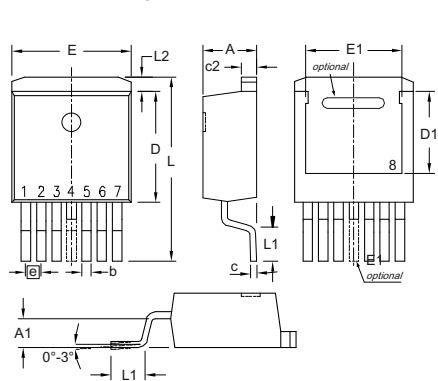
All dimensions conform with and/or within JEDEC standard

**X012a TO-263 (5)** Weight = 1.5 g



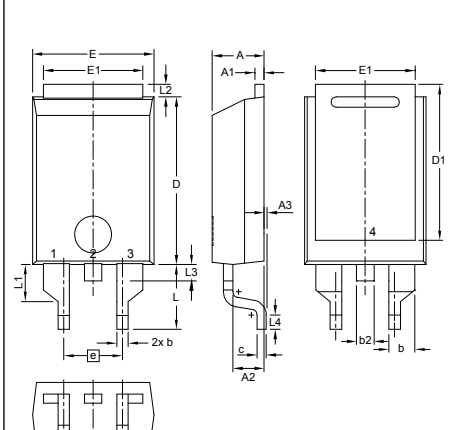
Dim.	Millimeter		Inches	
	min	max	min	max
A	4.20	4.80	0.160	0.190
A1	2.10	2.70	0.083	0.106
b	0.60	0.99	0.024	0.039
c	0.40	0.70	0.016	0.028
c2	1.20	1.40	0.047	0.055
D	8.80	9.50	0.346	0.374
D1	6.60	7.20	0.260	0.283
E	9.65	10.30	0.380	0.406
E1	7.50	8.20	0.295	0.323
e	1.70 BSC		0.067 BSC	
L	14.80	15.80	0.583	0.622
L1	2.24	2.84	0.088	0.112
L2	1.00	1.40	0.039	0.067
L3	1.20	1.70	0.047	0.067

**X012b TO-263 (7)  
c) middle leg cut** Weight = 2.5 g



Dim.	Millimeter		Inches	
	min	max	min	max
A	4.20	4.60	0.165	0.181
A1	2.45	2.75	0.096	0.108
b	0.65	0.90	0.026	0.035
c	0.40	0.60	0.016	0.024
c2	1.14	1.40	0.045	0.055
D	8.38	8.64	0.330	0.340
D1	6.10	6.35	0.240	0.250
E	10.00	10.30	0.394	0.406
E1	7.34	8.00	0.290	0.315
e	1.27 BSC		0.050 BSC	
L	14.73	15.75	0.580	0.620
L1	2.24	2.84	0.088	0.112
L2	1.35	1.55	0.053	0.061

**X013 PLUS220™ (SMD)** Weight = 2 g



Dim.	Millimeter		Inches	
	min	max	min	max
A	4.30	4.70	0.169	0.185
A1	0.70	0.90	0.028	0.035
A2	2.50	3.00	0.098	0.118
A3	0.00	0.25	0.000	0.010
b	0.90	1.20	0.035	0.047
b1	2.03	2.41	0.080	0.095
b2	1.37	1.63	0.054	0.064
c	0.70	0.90	0.028	0.035
D	14.00	15.00	0.551	0.591
D1	13.00	13.70	0.512	0.539
E	10.00	11.00	0.394	0.433
E1	8.40	8.80	0.331	0.346
e	5.08 BSC		0.200 BSC	
L	5.30	5.80	0.209	0.228
L1	3.00	3.50	0.118	0.138
L2	0.90	1.30	0.035	0.051
L3	1.20	1.50	0.047	0.059
L4	1.00	1.50	0.039	0.059

# Outline drawings



Dimensions in mm and inches (1 mm = 0.0394")

**X014a TO-247 AD** Weight = 6 g

Dim.	Millimeter		Inches	
	min	max	min	max
A	4.70	5.30	0.185	0.209
A1	2.21	2.59	0.087	0.102
A2	1.50	2.49	0.059	0.098
b	0.99	1.40	0.039	0.055
b2	1.65	2.39	0.065	0.094
b4	2.59	3.43	0.102	0.135
c	0.38	0.89	0.015	0.035
D	20.79	21.45	0.819	0.845
D1	13.07	-	0.515	-
D2	0.51	1.35	0.020	0.053
E	15.48	16.24	0.610	0.640
E1	13.45	-	0.53	-
E2	4.31	5.48	0.170	0.216
e	5.45 BSC		0.215 BSC	
L	19.80	20.30	0.078	0.800
L1	-	4.49	-	0.177
Ø P	3.55	3.65	0.140	0.144
Ø P1	-	7.39	-	0.290
Q	5.38	6.19	0.212	0.244
S	6.14 BSC		0.242 BSC	

**X014b TO-247 AD** Weight = 6 g

Dim.	Millimeter		Inches	
	min	max	min	max
A	4.70	5.30	0.185	0.209
A1	2.21	2.59	0.087	0.102
A2	1.50	2.49	0.059	0.098
b	0.99	1.40	0.039	0.055
b2	1.65	2.39	0.065	0.094
b4	2.59	3.43	0.102	0.135
c	0.38	0.89	0.015	0.035
D	20.79	21.45	0.819	0.845
D1	13.07	-	0.515	-
D2	0.51	1.35	0.020	0.053
E	15.48	16.24	0.610	0.640
E1	13.45	-	0.530	-
E2	4.31	5.48	0.170	0.216
e	10.90 BSC		0.430 BSC	
L	19.80	20.30	0.078	0.800
L1	-	4.49	-	0.177
Ø P	3.55	3.65	0.140	0.144
Ø P1	-	7.39	-	0.290
Q	5.38	6.19	0.212	0.244
S	6.14 BSC		0.242 BSC	

**X015a PLUS247™** Weight = 7 g

Dim.	Millimeter		Inches	
	min	max	min	max
A	4.83	5.21	0.190	0.205
A1	2.29	2.54	0.090	0.100
A2	1.91	2.16	0.075	0.085
b	1.14	1.40	0.045	0.055
b1	1.90	2.10	0.075	0.084
b2	2.92	3.12	0.115	0.123
C	0.60	0.80	0.024	0.031
D	20.80	21.34	0.819	0.840
E	15.75	16.13	0.620	0.635
e	5.45 BSC		0.215 BSC	
L	19.80	20.30	0.078	0.800
L1	3.80	4.30	0.150	0.170
Q	5.60	6.20	0.220	0.244
R	4.32	4.83	0.170	0.190

**X016a ISOPLUS247™** Weight = 4.5 g

Dim.	Millimeter		Inches	
	min	max	min	max
A	4.83	5.21	0.190	0.205
A1	2.29	2.54	0.090	0.100
A2	1.91	2.16	0.075	0.085
b	1.14	1.40	0.045	0.055
b2	1.91	2.20	0.075	0.087
b4	2.92	3.24	0.115	0.128
c	0.61	0.83	0.024	0.033
D	20.80	21.34	0.819	0.840
D1	15.75	16.26	0.620	0.640
D2	1.65	2.15	0.065	0.085
D3	20.30	20.70	0.799	0.815
E	15.75	16.13	0.620	0.635
E1	13.21	13.72	0.520	0.540
e	5.45 BSC		0.215 BSC	
L	19.81	20.60	0.780	0.811
L1	3.81	4.38	0.150	0.172
Q	5.59	6.20	0.220	0.244
R	4.25	5.50	0.167	0.217
W	-	0.10	-	0.004

**X016b ISOPLUS247™** Weight = 4.5 g

Dim.	Millimeter		Inches	
	min	max	min	max
A	4.83	5.21	0.190	0.205
A1	2.29	2.54	0.090	0.100
A2	1.91	2.16	0.075	0.085
b	1.14	1.40	0.045	0.055
b2	1.91	2.20	0.075	0.087
b4	2.92	3.24	0.115	0.128
c	0.61	0.83	0.024	0.033
D	20.80	21.34	0.819	0.840
D1	15.75	16.26	0.620	0.640
D2	1.65	2.15	0.065	0.085
D3	20.30	20.70	0.799	0.815
E	15.75	16.13	0.620	0.635
E1	13.21	13.72	0.520	0.540
e	10.90 BSC		0.430 BSC	
L	19.81	20.60	0.780	0.811
L1	3.81	4.38	0.150	0.172
Q	5.59	6.20	0.220	0.244
R	4.25	5.50	0.167	0.217
W	-	0.10	-	0.004

**X016c ISO247™** Weight = 4.5 g

Dim.	Millimeter		Inches	
	min	max	min	max
A	4.70	5.30	0.185	0.209
A1	2.21	2.59	0.087	0.102
A2	1.50	2.49	0.059	0.098
b	0.99	1.40	0.039	0.055
b2	1.65	2.39	0.065	0.094
b4	2.59	3.43	0.102	0.135
c	0.38	0.89	0.015	0.035
D	20.79	21.45	0.819	0.844
E	15.49	16.24	0.610	0.639
E2	4.31	5.48	0.170	0.216
e	5.46 BSC		0.215 BSC	
L	19.80	20.30	0.780	0.799
L1	-	4.49	-	0.177
Ø P	3.55	3.65	0.140	0.144
Q	5.38	6.19	0.212	0.244

# Outline drawings



Dimensions in mm and inches (1 mm = 0.0394")

**X016d ISO247™** Weight = 4 g

Dim.	Millimeter		Inches	
	min	max	min	max
A	19.81	20.32	0.780	0.800
B	20.80	21.46	0.819	0.845
C	15.75	16.26	0.610	0.640
D	3.55	3.65	0.140	0.144
E	4.32	5.49	0.170	0.216
F	5.40	6.20	0.212	0.244
G	1.65	2.13	0.065	0.084
H	-	4.50	-	0.177
J	1.00	1.40	0.040	0.055
K	10.80	11.00	0.426	0.433
L	4.70	5.30	0.185	0.209
M	0.40	0.80	0.016	0.031
N	1.50	2.49	0.087	0.102

**X017a TO-3P** Weight = 5.5 g

Dim.	Millimeter		Inches	
	min	max	min	max
A	4.70	4.90	0.185	0.193
A1	1.30	1.50	0.051	0.059
A2	1.45	1.65	0.057	0.065
b	0.90	1.15	0.035	0.045
b2	1.90	2.20	0.075	0.087
b4	2.90	3.20	0.114	0.126
c	0.55	0.80	0.022	0.031
D	19.80	20.10	0.780	0.791
D1	16.90	17.20	0.665	0.677
E	15.50	15.80	0.610	0.622
E1	13.50	13.70	0.531	0.539
e	5.45 BSC		0.215 BSC	
L	19.80	20.20	0.780	0.795
L1	3.40	3.60	0.134	0.142
Ø P	3.20	3.40	0.126	0.134
Ø P1	6.90	7.10	0.272	0.280
S	4.90	5.10	0.193	0.201

All metal area are tin plated.

**X017b TO-3P** Weight = 5.5 g

Dim.	Millimeter		Inches	
	min	max	min	max
A	4.70	4.90	0.185	0.193
A1	1.30	1.50	0.051	0.059
A2	1.45	1.65	0.057	0.065
b	0.90	1.15	0.035	0.045
b2	1.90	2.20	0.075	0.087
b4	2.90	3.20	0.114	0.126
c	0.55	0.80	0.022	0.031
D	19.80	20.10	0.780	0.791
D1	16.90	17.20	0.665	0.677
E	15.50	15.80	0.610	0.622
E1	13.50	13.70	0.531	0.539
e	5.45 BSC		0.215 BSC	
L	19.80	20.20	0.780	0.795
L1	3.40	3.60	0.134	0.142
L2	0.00	1.40	0.000	0.055
Ø P	3.20	3.40	0.126	0.134
Ø P1	6.90	7.10	0.272	0.280
S	4.90	5.10	0.193	0.201

All metal area are tin plated.

**X017c TO-3PFP** Weight = 5.5 g

1 - GATE  
2 - DRAIN (COLLECTOR)  
3 - SOURCE (EMITTER)

Dim.	Millimeter		Inches	
	min	max	min	max
A	5.40	5.80	0.213	0.228
A1	3.10	3.50	0.122	0.138
A2	2.90	3.30	0.114	0.130
A3	1.90	2.30	0.075	0.091
b	0.65	0.95	0.026	0.037
b2	1.90	2.30	0.075	0.091
c	0.80	1.10	0.031	0.043
D	24.30	24.70	0.957	0.972
D1	1.30	1.70	0.051	0.067
D2	1.80	2.2	0.071	0.087
E	15.40	15.80	0.606	0.622
E1	3.90	4.30	0.154	0.169
e	5.45 BSC		0.215 BSC	
H	19.00	19.50	0.748	0.768
L	4.30	4.70	0.169	0.185
Ø P	3.40	3.80	0.134	0.150
R	5.30	5.70	0.209	0.224
S	4.30	4.70	0.169	0.185

**X018 TO-268 I<sup>3</sup>PAK** Weight = 4.5 g

Dim.	Millimeter		Inches	
	min	max	min	max
A	4.90	5.10	0.193	0.201
A1	2.70	2.90	0.106	0.114
b	1.15	1.45	0.045	0.057
b2	1.90	2.10	0.075	0.083
C	0.40	0.65	0.016	0.026
C 2	1.45	1.60	0.057	0.063
D	13.80	14.00	0.543	0.551
D1	12.40	12.70	0.488	0.500
E	15.85	16.05	0.624	0.632
E1	13.30	13.60	0.524	0.535
e	5.45 BSC		0.215 BSC	
H	34.67	35.43	1.365	1.395
L	19.81	20.32	0.780	0.800
L1	2.00	2.30	0.079	0.091
L2	1.00	1.15	0.039	0.045

**X019 TO-268 AA (D<sup>3</sup>PAK)** Weight = 4 g

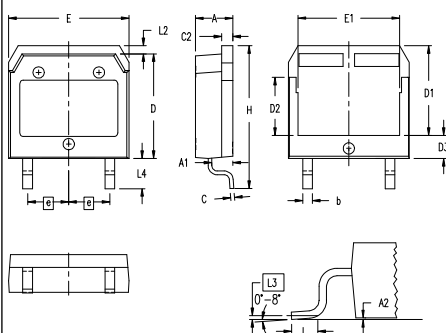
Dim.	Millimeter		Inches	
	min	max	min	max
A	4.90	5.10	0.193	0.201
A1	2.70	2.90	0.106	0.114
A2	0.02	0.25	0.001	0.100
b	1.15	1.45	0.045	0.057
b2	1.90	2.10	0.075	0.083
C	0.40	0.65	0.016	0.026
C 2	1.45	1.60	0.057	0.063
D	13.80	14.00	0.543	0.551
D1	12.40	12.70	0.488	0.500
E	15.85	16.05	0.624	0.632
E1	13.30	13.60	0.524	0.535
e	5.45 BSC		0.215 BSC	
H	18.70	19.10	0.736	0.752
L	2.40	2.70	0.094	0.106
L1	1.20	1.40	0.047	0.055
L2	1.00	1.15	0.039	0.045
L3	2.54 BSC		0.100 BSC	
L4	3.80	4.10	0.150	0.161

# Outline drawings



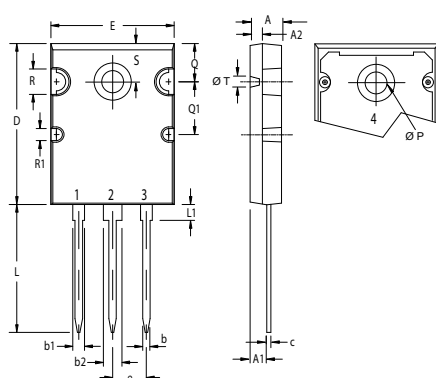
Dimensions in mm and inches (1 mm = 0.0394")

**XO19a TO-268 AA (D<sup>3</sup>PAK) Weight = 4 g**



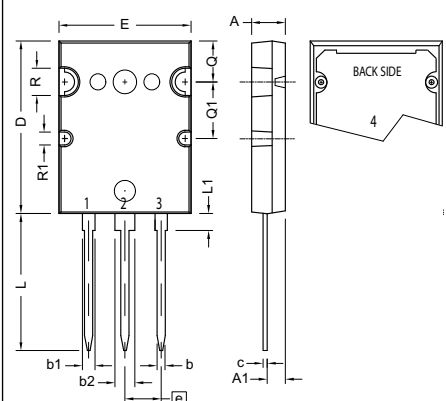
Dim.	Millimeter		Inches	
	min	max	min	max
A	4.90	5.10	0.193	0.201
A1	2.70	2.90	0.106	0.114
A2	0.02	0.25	0.001	0.100
b	1.15	1.45	0.045	0.057
C	0.40	0.65	0.016	0.026
C 2	1.45	1.60	0.057	0.063
D	13.80	14.00	0.543	0.551
D1	11.80	12.10	0.465	0.476
D2	7.50	7.80	0.295	0.307
D3	2.90	3.20	0.114	0.126
E	15.85	16.05	0.624	0.632
E1	13.30	13.60	0.524	0.535
e	5.45 BSC		0.215 BSC	
H	18.70	19.10	0.736	0.752
L	1.70	2.00	0.067	0.079
L2	1.00	1.15	0.039	0.045
L3	0.25 BSC		0.010 BSC	
L4	3.80	4.10	0.150	0.161

**XO20a TO-264 AA Weight = 10 g**



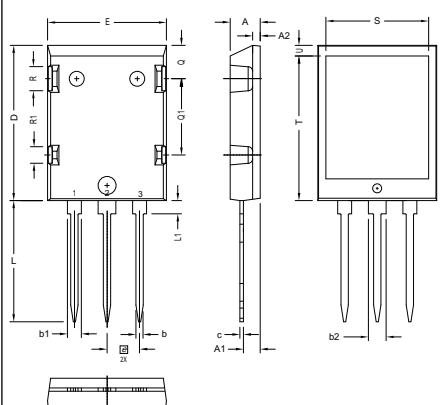
Dim.	Millimeter		Inches	
	min	max	min	max
A	4.82	5.13	0.190	0.202
A1	2.54	2.89	0.100	0.114
A2	2.00	2.10	0.079	0.083
b	1.12	1.42	0.044	0.056
b2	2.90	3.09	0.114	0.122
c	0.53	0.83	0.021	0.033
D	25.91	26.16	1.020	1.030
E	19.81	19.96	0.780	0.786
e	5.45 BSC		0.215 BSC	
J	0.00	0.25	0.000	0.010
K	0.00	0.25	0.000	0.010
L	20.32	20.83	0.800	0.820
L1	2.29	2.59	0.090	0.102
P	3.17	2.66	0.125	0.144
Q	6.07	6.27	0.239	0.247
Q1	8.38	8.69	0.330	0.342
R	3.81	4.32	0.150	0.170
R1	1.78	2.29	0.070	0.090
S	6.04	6.30	0.238	0.248
T	1.57	1.83	0.062	0.072

**XO21a PLUS264™ Weight = 10 g**



Dim.	Millimeter		Inches	
	min	max	min	max
A	4.70	5.31	0.185	0.209
A1	2.59	3.00	0.102	0.118
b	0.94	1.40	0.037	0.055
b1	2.21	2.59	0.087	0.102
b2	2.79	3.20	0.110	0.126
c	0.43	0.74	0.017	0.029
D	25.58	26.59	1.007	1.047
E	19.30	20.29	0.760	0.799
e	5.45 BSC		0.215 BSC	
L	19.79	21.39	0.779	0.842
L1	2.21	2.59	0.087	0.102
Q	6.10	6.50	0.240	0.256
Q1	8.38	8.79	0.330	0.346
Ø R	3.94	4.75	0.155	0.187
ØR1	2.16	2.36	0.085	0.093

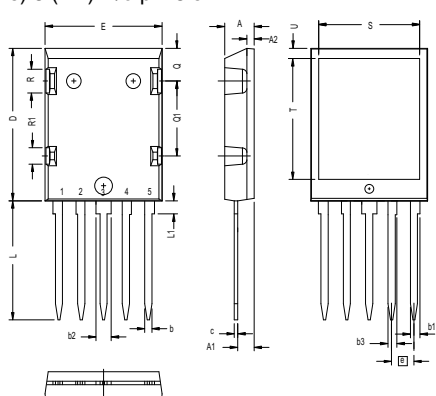
**XO22a ISOPLUS264™ Weight = 7.5 g**



Dim.	Millimeter		Inches	
	min	max	min	max
A	4.83	5.21	0.190	0.205
A1	2.59	3.00	0.102	0.118
A2	1.17	1.40	0.046	0.055
b	1.14	1.40	0.045	0.055
b1	1.60	1.83	0.063	0.072
b2	2.54	2.79	0.100	0.110
b3	1.47	1.73	0.058	0.068
c	0.51	0.74	0.020	0.029
D	25.91	26.42	1.020	1.040
E	19.56	20.29	0.770	0.799
e	3.81 BSC		0.150 BSC	
L	19.81	21.83	0.780	0.820
L1	2.03	2.59	0.080	0.102
Q	5.33	5.97	0.210	0.235
Q1	12.45	13.03	0.490	0.513
R	3.81	4.57	0.150	0.180
R1	2.54	3.30	0.100	0.130
S	16.97	17.53	0.668	0.690
T	20.34	20.85	0.801	0.821
U	1.65	2.03	0.065	0.080

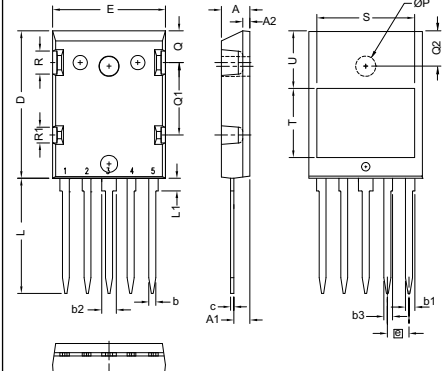
**XO22 ISOPLUS264™ Weight = 7.5 g**

- c) 5 pin
- d) 3 (sym) w/o pin 2 & 4
- e) 3 (HV) w/o pin 3 & 4



Dim.	Millimeter		Inches	
	min	max	min	max
A	4.83	5.21	0.190	0.205
A1	2.59	3.00	0.102	0.118
A2	1.17	1.40	0.046	0.055
b	1.14	1.40	0.045	0.055
b1	1.60	1.83	0.063	0.072
b2	2.54	2.79	0.100	0.110
b3	1.47	1.73	0.058	0.068
c	0.51	0.74	0.020	0.029
D	25.91	26.42	1.020	1.040
E	19.56	20.29	0.770	0.799
e	3.81 BSC		0.150 BSC	
L	19.81	21.83	0.780	0.820
L1	2.03	2.59	0.080	0.102
Q	5.33	5.97	0.210	0.235
Q1	12.45	13.03	0.490	0.513
R	3.81	4.57	0.150	0.180
R1	2.54	3.30	0.100	0.130
S	16.97	17.53	0.668	0.690
T	20.34	20.85	0.801	0.821
U	1.65	2.03	0.065	0.080

**XO23 ISO264™ Weight = 6.5 g**



Dim.	Millimeter		Inches	
	min	max	min	max
A	4.83	5.21	0.190	0.205
A1	2.59	3.00	0.102	0.118
A2	1.17	1.40	0.046	0.055
b	1.14	1.40	0.045	0.055
b1	1.60	1.83	0.063	0.072
b2	2.54	2.79	0.100	0.110
b3	1.47	1.73	0.058	0.068
c	0.51	0.74	0.020	0.029
D	25.91	26.42	1.020	1.040
E	19.56	20.29	0.770	0.799
e	3.81 BSC		0.150 BSC	
L	19.81	21.83	0.780	0.820
L1	2.03	2.59	0.080	0.102
P	3.30	3.68	0.130	0.145
Q	5.33	5.97	0.210	0.235
Q1	12.45	13.03	0.490	0.513
Q2	5.96	6.48	0.235	0.255
R	3.81	4.57	0.150	0.180
R1	2.54	3.30	0.100	0.130
S	16.97	17.53	0.668	0.690
T	11.94	12.45	0.470	0.490
U	9.91	10.41	0.390	0.410

# Outline drawings



Dimensions in mm and inches (1 mm = 0.0394")

<b>X024a ISOPLUS i4-PAC™</b> Weight = 6 g		<b>X024b ISOPLUS i4-PAC™</b> Weight = 5.5 g		<b>X024c ISOPLUS i4-PAC™</b> Weight = 5.5 g																																																																																																																																																																																																																																																																																																																														
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Millimeter		Inches		min	max	min	max	A	4.83	5.21	0.190	0.205	A1	2.59	3.00	0.102	0.118	A2	1.17	2.16	0.046	0.085	b	1.14	1.40	0.045	0.055	b2	1.47	1.73	0.058	0.068	c	0.51	0.74	0.020	0.029	D	20.80	21.34	0.819	0.840	D1	14.99	15.75	0.590	0.620	D2	1.65	2.03	0.065	0.080	D3	20.30	20.70	0.799	0.815	E	19.56	20.29	0.770	0.799	E1	16.76	17.53	0.660	0.690	e	3.81 BSC		0.150 BSC		L	19.81	21.34	0.780	0.840	L1	2.11	2.59	0.083	0.102	Q	5.33	6.20	0.210	0.244	R	2.54	4.57	0.100	0.180	W	-	0.10	-	0.004	<table border="1"> <thead> <tr> <th rowspan="2">Dim.</th> <th colspan="2">Millimeter</th> <th colspan="2">Inches</th> </tr> <tr> <th>min</th> <th>max</th> <th>min</th> <th>max</th> </tr> </thead> <tbody> <tr><td>A</td><td>4.83</td><td>5.21</td><td>0.190</td><td>0.205</td></tr> <tr><td>A1</td><td>2.59</td><td>3.00</td><td>0.102</td><td>0.118</td></tr> <tr><td>A2</td><td>1.17</td><td>2.16</td><td>0.046</td><td>0.085</td></tr> <tr><td>b</td><td>1.14</td><td>1.40</td><td>0.045</td><td>0.055</td></tr> <tr><td>b2</td><td>1.47</td><td>1.73</td><td>0.058</td><td>0.068</td></tr> <tr><td>c</td><td>0.51</td><td>0.74</td><td>0.020</td><td>0.029</td></tr> <tr><td>D</td><td>20.80</td><td>21.34</td><td>0.819</td><td>0.840</td></tr> <tr><td>D1</td><td>14.99</td><td>15.75</td><td>0.590</td><td>0.620</td></tr> <tr><td>D2</td><td>1.65</td><td>2.03</td><td>0.065</td><td>0.080</td></tr> <tr><td>D3</td><td>20.30</td><td>20.70</td><td>0.799</td><td>0.815</td></tr> <tr><td>E</td><td>19.56</td><td>20.29</td><td>0.770</td><td>0.799</td></tr> <tr><td>E1</td><td>16.76</td><td>17.53</td><td>0.660</td><td>0.690</td></tr> <tr><td>e</td><td colspan="2">15.24 BSC</td><td colspan="2">0.600 BSC</td></tr> <tr><td>L</td><td>19.81</td><td>21.34</td><td>0.780</td><td>0.840</td></tr> <tr><td>L1</td><td>2.11</td><td>2.59</td><td>0.083</td><td>0.102</td></tr> <tr><td>Q</td><td>5.33</td><td>6.20</td><td>0.210</td><td>0.244</td></tr> <tr><td>R</td><td>2.54</td><td>4.57</td><td>0.100</td><td>0.180</td></tr> <tr><td>W</td><td>-</td><td>0.10</td><td>-</td><td>0.004</td></tr> </tbody> </table>		Dim.	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Millimeter		Inches		min	max	min	max	A	29.70	30.30	1.170	1.194	B	19.70	20.30	0.776	0.800	C	17.00	18.00	0.670	0.709	D	4.70	4.90	0.185	0.193	E	10.80	11.20	0.426	0.441	F	2.30	2.70	0.091	0.106	G	3.10	3.40	0.122	0.134	H	3.40	3.80	0.134	0.150	I	4.40	4.80	0.173	0.189	J	2.50	2.90	0.099	0.114	K	0.60	0.80	0.024	0.032	L	2.00	2.40	0.079	0.095	M	0.90	1.10	0.035	0.043	N	9.80	10.20	0.386	0.402	O	7.30	7.70	0.288	0.303	P	3.80	4.20	0.150	0.165	Q	(3.0) x 45°		(0.118) x 45°		Ø R	3.1	3.4	0.122	0.134																				
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b	1.14	1.40	0.045	0.055																																																																																																																																																																																																																																																																																																																														
b2	1.47	1.73	0.058	0.068																																																																																																																																																																																																																																																																																																																														
c	0.51	0.74	0.020	0.029																																																																																																																																																																																																																																																																																																																														
D	20.80	21.34	0.819	0.840																																																																																																																																																																																																																																																																																																																														
D1	14.99	15.75	0.590	0.620																																																																																																																																																																																																																																																																																																																														
D2	1.65	2.03	0.065	0.080																																																																																																																																																																																																																																																																																																																														
D3	20.30	20.70	0.799	0.815																																																																																																																																																																																																																																																																																																																														
E	19.56	20.29	0.770	0.799																																																																																																																																																																																																																																																																																																																														
E1	16.76	17.53	0.660	0.690																																																																																																																																																																																																																																																																																																																														
e	15.24 BSC		0.600 BSC																																																																																																																																																																																																																																																																																																																															
L	19.81	21.34	0.780	0.840																																																																																																																																																																																																																																																																																																																														
L1	2.11	2.59	0.083	0.102																																																																																																																																																																																																																																																																																																																														
Q	5.33	6.20	0.210	0.244																																																																																																																																																																																																																																																																																																																														
R	2.54	4.57	0.100	0.180																																																																																																																																																																																																																																																																																																																														
W	-	0.10	-	0.004																																																																																																																																																																																																																																																																																																																														
Dim.	Millimeter		Inches																																																																																																																																																																																																																																																																																																																															
	min	max	min	max																																																																																																																																																																																																																																																																																																																														
A	29.70	30.30	1.170	1.194																																																																																																																																																																																																																																																																																																																														
B	19.70	20.30	0.776	0.800																																																																																																																																																																																																																																																																																																																														
C	17.00	18.00	0.670	0.709																																																																																																																																																																																																																																																																																																																														
D	4.70	4.90	0.185	0.193																																																																																																																																																																																																																																																																																																																														
E	10.80	11.20	0.426	0.441																																																																																																																																																																																																																																																																																																																														
F	2.30	2.70	0.091	0.106																																																																																																																																																																																																																																																																																																																														
G	3.10	3.40	0.122	0.134																																																																																																																																																																																																																																																																																																																														
H	3.40	3.80	0.134	0.150																																																																																																																																																																																																																																																																																																																														
I	4.40	4.80	0.173	0.189																																																																																																																																																																																																																																																																																																																														
J	2.50	2.90	0.099	0.114																																																																																																																																																																																																																																																																																																																														
K	0.60	0.80	0.024	0.032																																																																																																																																																																																																																																																																																																																														
L	2.00	2.40	0.079	0.095																																																																																																																																																																																																																																																																																																																														
M	0.90	1.10	0.035	0.043																																																																																																																																																																																																																																																																																																																														
N	9.80	10.20	0.386	0.402																																																																																																																																																																																																																																																																																																																														
O	7.30	7.70	0.288	0.303																																																																																																																																																																																																																																																																																																																														
P	3.80	4.20	0.150	0.165																																																																																																																																																																																																																																																																																																																														
Q	(3.0) x 45°		(0.118) x 45°																																																																																																																																																																																																																																																																																																																															
Ø R	3.1	3.4	0.122	0.134																																																																																																																																																																																																																																																																																																																														

# Outline drawings



Dimensions in mm and inches (1 mm = 0.0394")

**X025b GUPF** Weight = 8.5 g

Dim.	Millimeter			Inches		
	min	typ.	max	min	typ.	max
A	5.40	5.50	5.60	0.213	0.217	0.221
A2	3.90	4.00	4.10	0.154	0.158	0.162
A3	0.95	1.00	1.10	0.037	0.039	0.043
A4	0.95	1.00	1.05	0.037	0.039	0.041
A5	1.60	1.70	1.80	0.063	0.067	0.071
A6	1.25	1.30	1.35	0.049	0.051	0.053
b	0.95	1.00	1.05	0.037	0.039	0.041
b2	1.95	2.00	2.05	0.077	0.079	0.081
C	0.45	0.50	0.55	0.018	0.020	0.022
D	24.80	25.00	25.20	0.977	0.985	0.993
E	34.70	35.00	35.30	1.367	1.379	1.391
e	BSC	7.50		BSC	0.296	
F	2.40	2.50	2.60	0.095	0.099	0.102
L	2.30	20.40	2.50	0.091	0.804	0.099
L1	3.70	3.75	3.80	0.146	0.148	0.150
O	17.40	17.50	17.60	0.686	0.690	0.693
Ø P	4.10	4.20	4.30	0.162	0.165	0.169
Q	9.20	9.30	9.40	0.362	0.366	0.370
ø/2 R	-	1.77	-	-	0.070	-
s1	3.45	3.50	3.55	0.136	0.138	0.140
s2	1.45	1.50	1.55	0.057	0.059	0.061
t1	0.95	1.00	1.05	0.037	0.039	0.041
t2	0.95	1.00	1.05	0.037	0.039	0.041
x1	3.20	3.30	3.40	0.126	0.130	0.134
x2	1.90	2.00	2.10	0.075	0.079	0.083
y1	1.60	1.65	1.70	0.063	0.065	0.067
y2	4.65	4.70	4.75	0.183	0.185	0.187
z1	2.80	2.90	3.00	0.110	0.114	0.118

**X026c ISOPLUS™-DIL (SMD)** Weight = 13 g

**X026d ISOPLUS™-DIL (SMD)** Weight = 13 g

# Outline drawings



Dimensions in mm and inches (1 mm = 0.0394")

**X027a SOT-227 B miniBLOC** Weight = 29 g  
**X027b SOT-227 UI miniBLOC**

Dim.	Millimeter		Inches	
	min	max	min	max
A	31.50	31.88	1.240	1.255
B	7.80	8.20	0.307	0.323
C	4.09	4.29	0.161	0.169
D	4.09	4.29	0.161	0.169
E	4.09	4.29	0.161	0.169
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	37.80	38.23	1.488	1.505
J	11.68	12.22	0.460	0.481
K	8.92	9.60	0.351	0.378
L	0.74	0.84	0.029	0.033
M	12.50	13.10	0.492	0.516
N	25.15	25.42	0.990	1.001
O	1.95	2.13	0.077	0.084
P	4.95	6.20	0.195	0.244
Q	26.54	26.90	1.045	1.059
R	3.94	4.42	0.155	0.174
S	4.55	4.85	0.179	0.191
T	24.59	25.25	0.968	0.994
U	-0.05	0.10	-0.002	0.004
V	3.20	5.50	0.126	0.217
W	19.81	21.08	0.780	0.830
Z	2.50	2.70	0.098	0.106

**X028 ISOPLUS227™** Weight = 19 g

Dim.	Millimeter		Inches	
	min	max	min	max
A	31.50	32.26	1.240	1.270
B	7.87	8.38	0.310	0.330
C	3.94	4.19	0.155	0.165
D	3.94	4.19	0.155	0.165
D1	3.81	3.98	0.150	0.157
E	4.06	4.27	0.160	0.168
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	37.80	38.23	1.489	1.505
J	11.81	12.22	0.465	0.481
K	9.40	9.65	0.370	0.380
L	0.76	0.84	0.030	0.033
M	12.60	12.85	0.496	0.506
N	25.15	25.42	0.990	1.001
O	2.54	2.64	0.100	0.105
P	4.95	5.97	0.195	0.235
Q	26.54	26.90	1.045	1.059
R	4.06	4.32	0.160	0.170
S	4.72	4.85	0.186	0.191
T	24.59	25.07	0.968	0.987
U	-0.03	0.05	-0.001	0.002
V	3.30	4.06	0.130	0.160
W	19.81	21.08	0.780	0.830
X	19.56	20.57	0.770	0.810
Y	17.27	18.29	0.680	0.720
Z	22.48	22.66	0.885	0.892

**X030a SMPD-B** Weight = 8.5 g

**Notes:**

- potrusion may add 0.2 mm max. on each side
- additional max. 0.05 mm per side by punching misalignement or overlap of dam bar or bending compression
- DCB area 10 to 50 μm convex; position of DCB area in relation to plastic rim: ±25 μm (measured 2 mm from Cu rim)
- terminal plating: 0.2 - 1 μm Ni + 10 - 25 μm Sn (gal v.) cutting edges may be partially free of plating

**X030b SMPD-B** Weight = 8.5 g

# Outline drawings



Dimensions in mm and inches (1 mm = 0.0394")

**X031a SMPD-X** See data sheet for pin arrangement Weight = 8.5 g

Dim.	Millimeter		Inches	
	min	max	min	max
A	5.30	5.70	0.209	0.224
A1	3.90	4.10	0.154	0.161
A2	1.40	1.60	0.055	0.063
b	0.90	1.15	0.035	0.045
c	0.45	0.65	0.018	0.026
D	24.80	25.25	0.976	0.994
E	22.80	23.25	0.898	0.915
E1	13.80	14.20	0.543	0.559
e	2.00	BSC	0.079	BSC
e1	8.00	BSC	0.315	BSC
H	32.30	33.30	1.272	1.311
L	4.60	5.30	0.181	0.209
L1	1.30	1.70	0.051	0.067
L2	0.00	0.15	0.000	0.006
S	18.85	20.12	0.742	0.792
S1	1.45	2.08	0.057	0.082
T	20.90	22.17	0.823	0.873
T1	1.42	2.03	0.056	0.080
a	4°	-	4°	-

Note:  
 1. Bottom heatsink meets 2.6 kV AC isolation to the other pins.  
 2. All leads are matte pure tin plated.

**X031b SMPD-X**

SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.209	.224	5.30	5.70
A1	.154	.161	3.90	4.10
A2	.055	.063	1.40	1.60
b	.035	.045	0.90	1.15
c	.018	.026	0.45	0.65
D	.976	.994	24.80	25.25
E	.898	.915	22.80	23.25
E1	.543	.559	13.80	14.20
e	.079 BSC		2.00 BSC	
e1	.394 BSC		10.00 BSC	
e2	.315 BSC		8.00 BSC	
H	1.272	1.311	32.30	33.30
L	.181	.209	4.60	5.30
L1	.051	.067	1.30	1.70
L2	.000	.006	0.00	0.15
S	.742	.792	18.85	20.12
S1	.057	.082	1.45	2.08
T	.823	.873	20.90	22.17
T1	.069	.089	1.75	2.25
α	0	4°	0	4°

NOTE:  
 1. Bottom heatsink meets 2.6KV AC isolation to the other pins.  
 2. All leads are matte pure tin plated.



# Outline drawings



Dimensions in mm and inches (1 mm = 0.0394")

**X031c SMPD-X** Weight = 8.5 g

SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.209	.224	5.30	5.70
A1	.154	.161	3.90	4.10
A2	.055	.063	1.40	1.60
b	.035	.045	0.90	1.15
c	.018	.026	0.45	0.65
D	.976	.994	24.80	25.25
E	.898	.915	22.80	23.25
E1	.543	.559	13.80	14.20
e	.157 BSC		4.00 BSC	
e1	.394 BSC		10.00 BSC	
e2	.472 BSC		12.00 BSC	
H	1.272	1.311	32.30	33.30
L	.181	.209	4.60	5.30
L1	.051	.067	1.30	1.70
L2	.000	.006	0.00	0.15
S	.748	.807	19.00	20.50
S1	.039	.079	1.00	2.00
T	.826	.886	21.00	22.50
T1	.039	.079	1.00	2.00
α	0	4°	0	4°

NOTE:  
 1. Bottom DCB heatsink meets 2.6KV AC, 2 Sec isolation to the other pins.  
 2. All leads are matte pure tin plated.

**X101 ECO-PAC1** Weight = 19 g

See data sheet for pin arrangement

**X102 ECO-PAC2** Weight = 23 g

See data sheet for pin arrangement

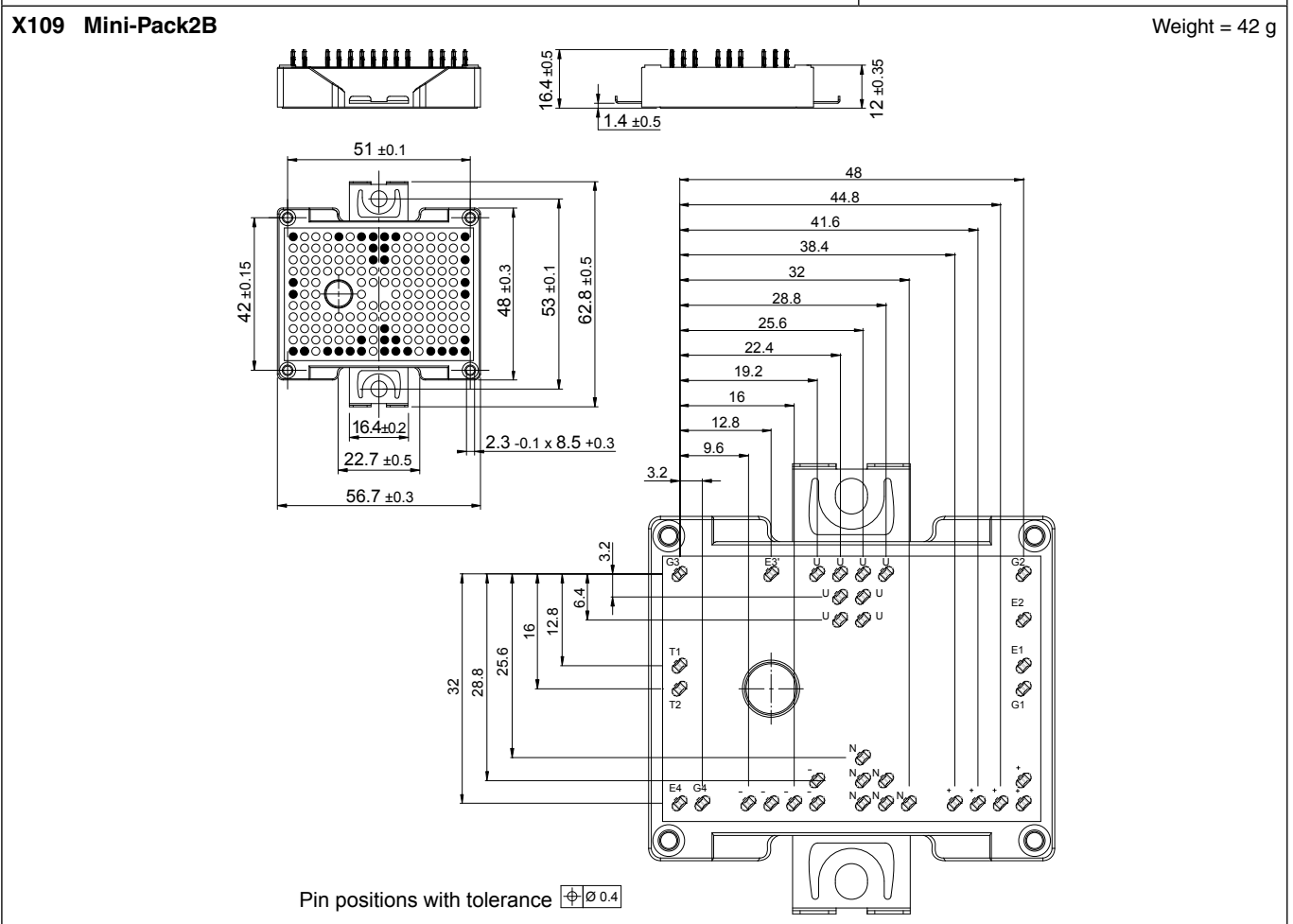
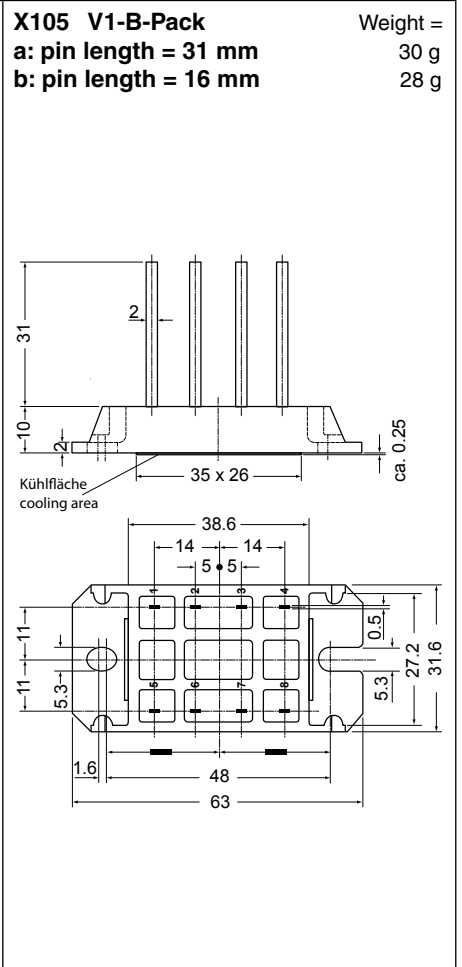
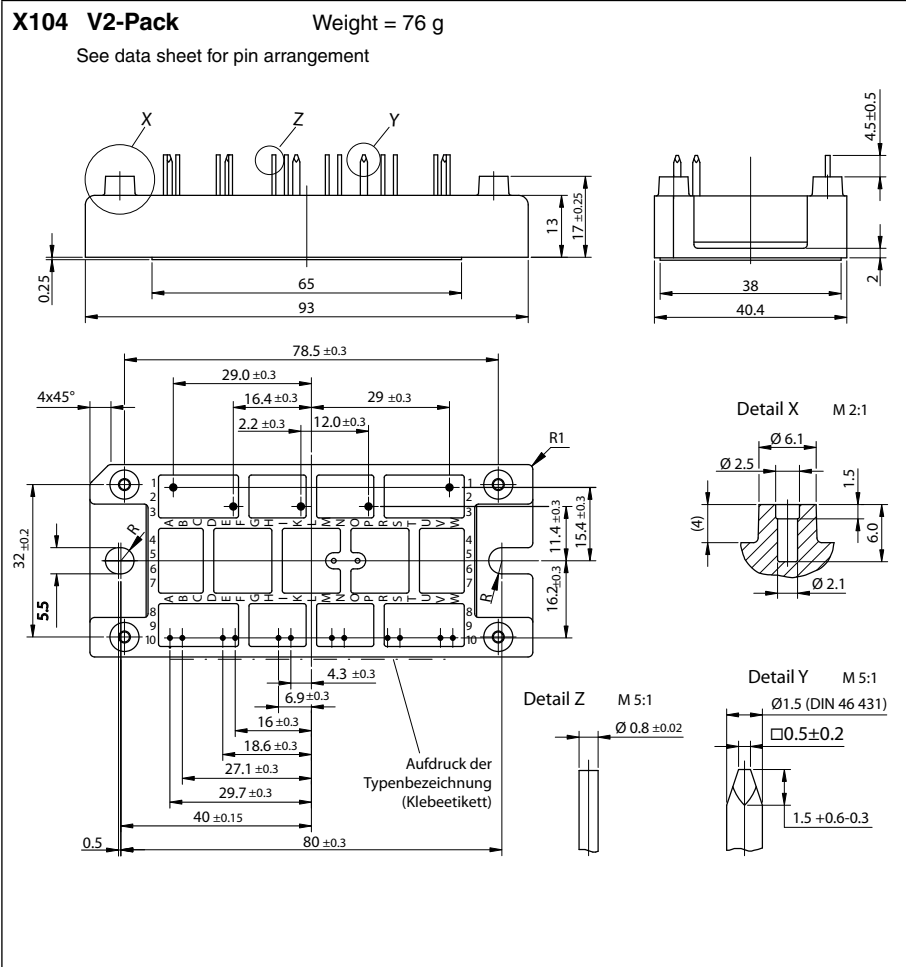
**X103 V1-A-Pack** Weight = 37 g

See data sheet for pin arrangement

# Outline drawings



Dimensions in mm and inches (1 mm = 0.0394")



# Outline drawings



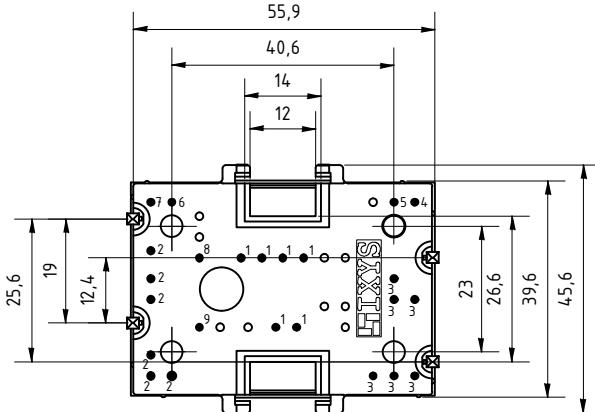
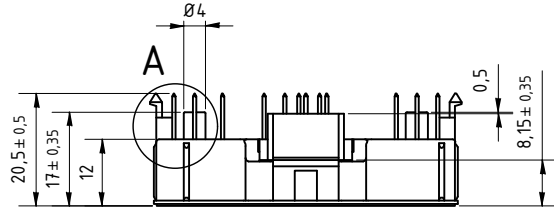
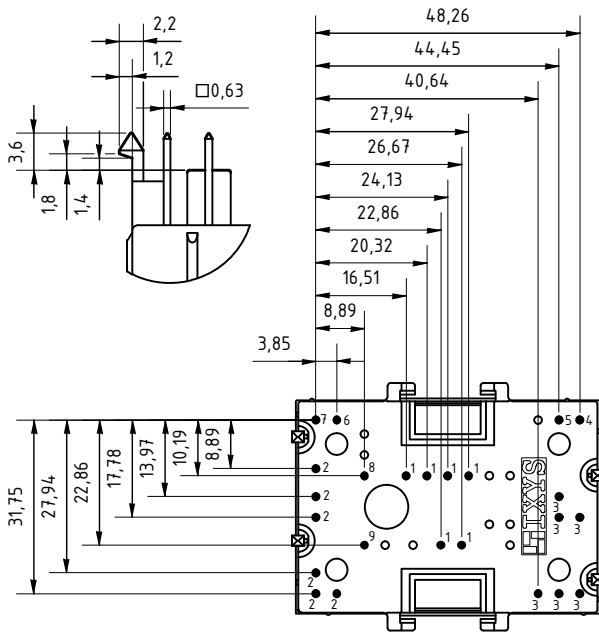
Dimensions in mm and inches (1 mm = 0.0394")

## X110 MiniPack2

See data sheet for pin arrangement

Weight = 37 g

A (2:1)



**Bemerkungen:**

- 1) Toleranz für Pin Positionen entsprechend  $\Phi \pm 0,4$
- 2) Vorgesehen für die Montage auf Leiterplatten mit einer Dicke von  $1,6 \pm 0,2$  mm

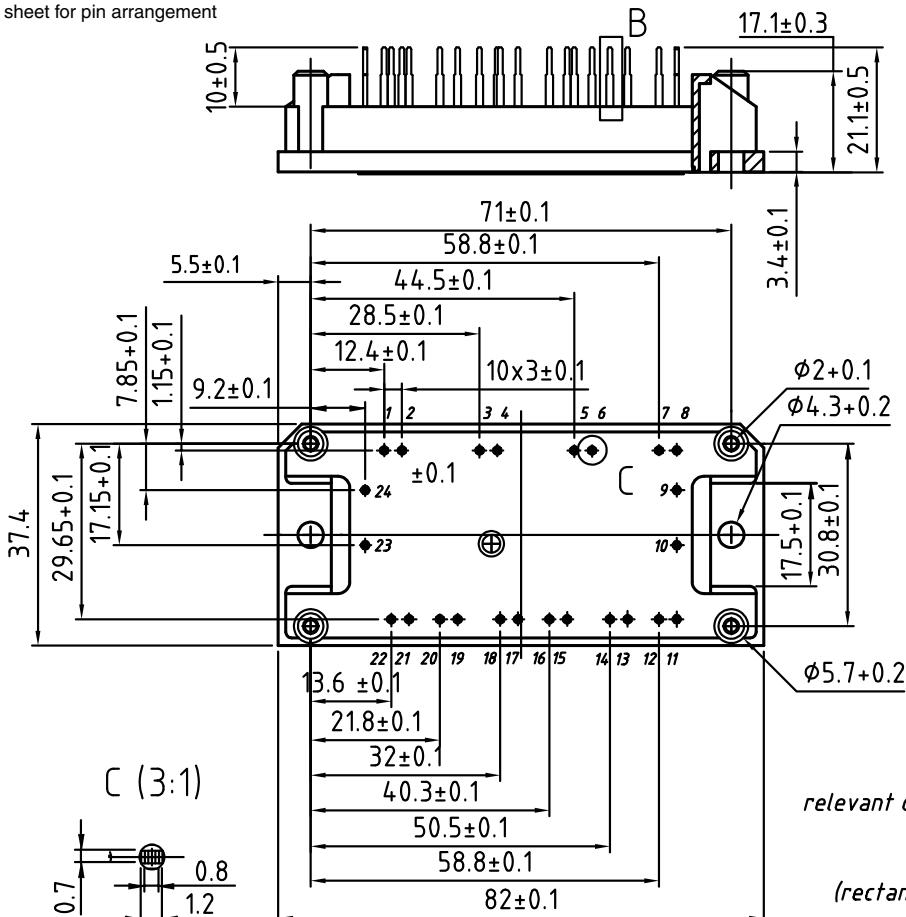
**Remarks:**

- 1) Pin positions with tolerance  $\Phi \pm 0.4$
- 2) Mounting on PCB with thickness of  $1.6 \pm 0.2$  mm

## X111 E1-Pack

See data sheet for pin arrangement

Weight = 39 g



B (3:1)

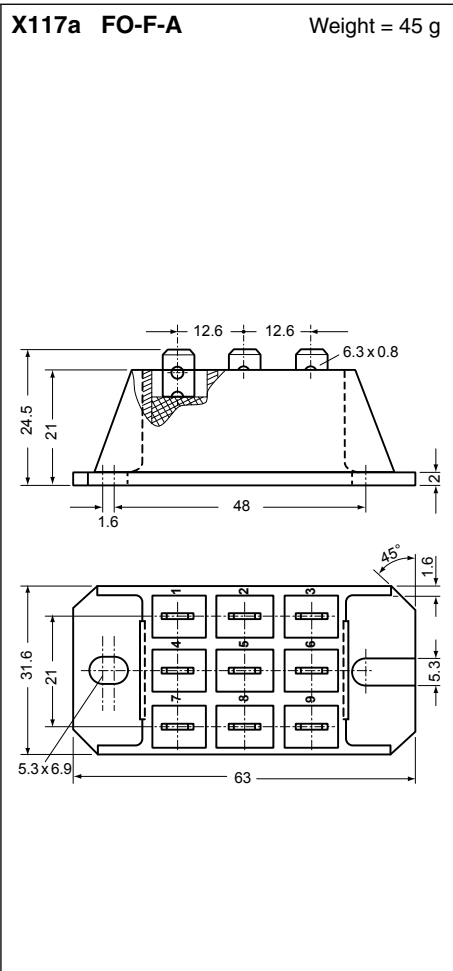
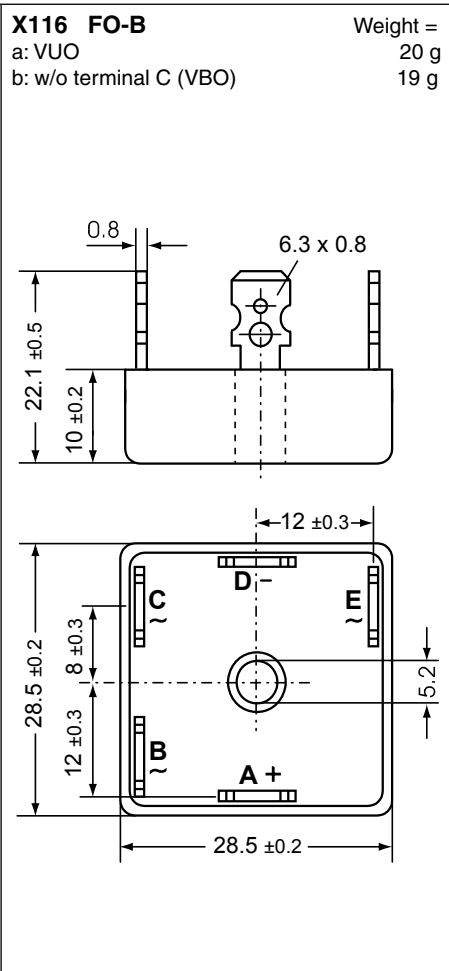
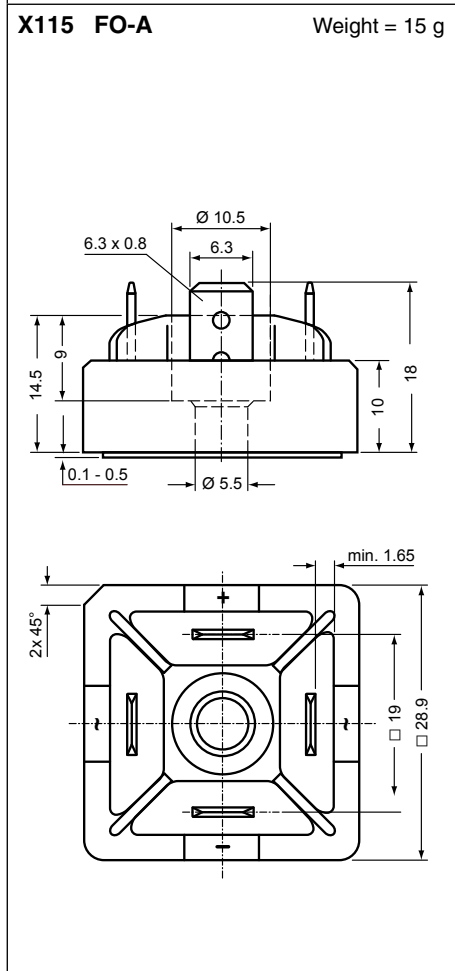
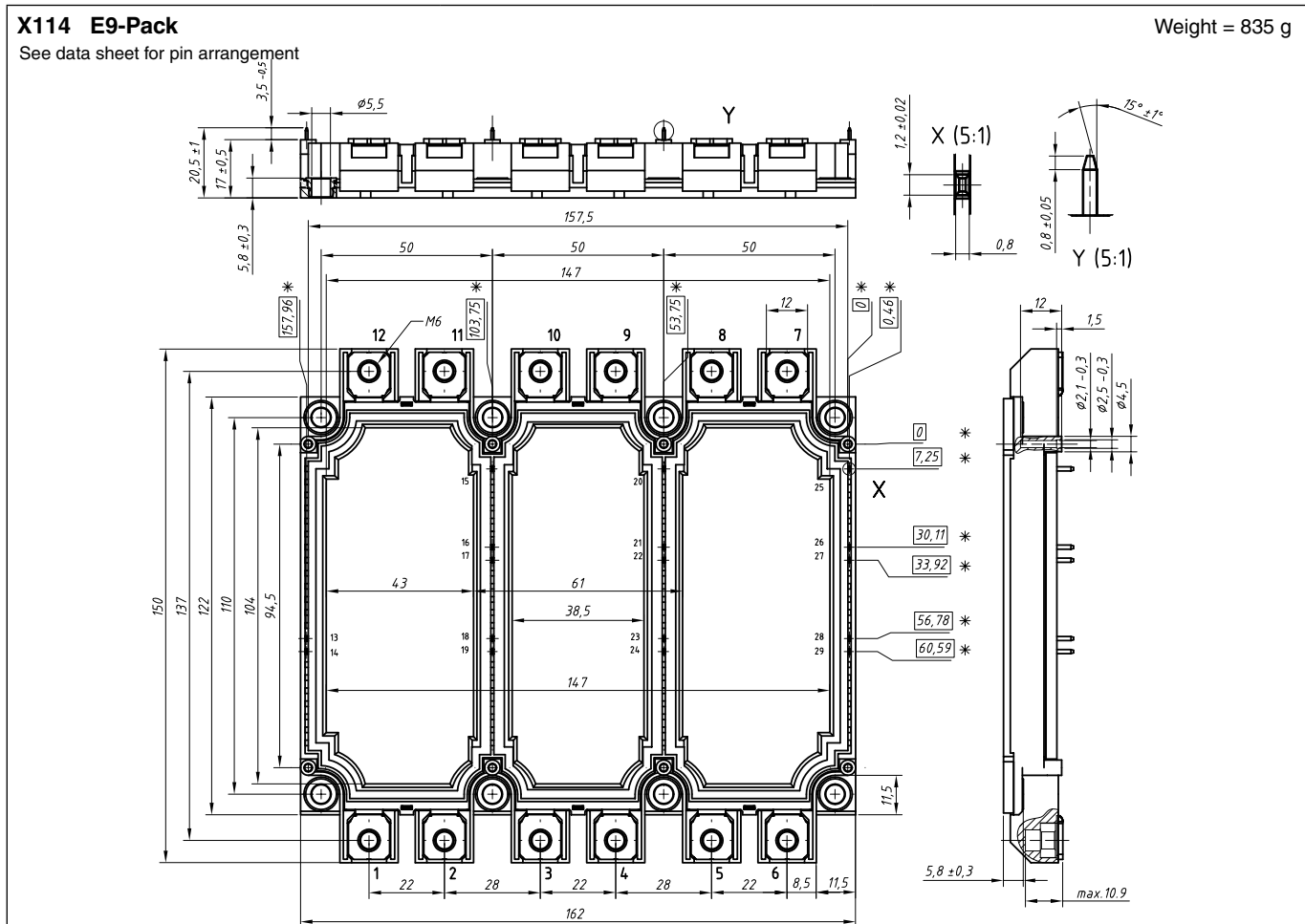
relevant cross section for PCB hole 0.8x0.7 mm (rectangular shape)



# Outline drawings



Dimensions in mm and inches (1 mm = 0.0394")



# Outline drawings



Dimensions in mm and inches (1 mm = 0.0394")

<p><b>X117b FO-F-B</b> Weight = 45 g</p>	<p><b>X118 FO-T-A</b> Weight = 104 g                  c: w/o terminal 4, 5, &amp; 6 (VVZ &amp; VVZF)                  d: w/o terminal 1, 2, 3, 4, 5, &amp; 6 (VUO)</p> <p>See data sheet for pin arrangement</p>	
<p><b>X119 PWS-A</b> Weight = 104 g                  a: VUO                  b: w/o terminal D (VBO)</p>	<p><b>X120 PWS-B</b> Weight = 203 g                  a: VUO                  b: w/o terminal D (VBO)</p>	<p><b>X121 PWS-C</b> Weight = 250 g                  a: VUO                  b: w/o terminal D (VBO)</p>

# Outline drawings



Dimensions in mm and inches (1 mm = 0.0394")

<p><b>X122 PWS-D</b> Weight =                  a: VUO 159 g                  b: w/o terminal C (VBO) 153 g</p>	<p><b>X122 PWS-D Flat</b> Weight =                  c: VUO 118 g</p> <p>Max. allowed screw-in depth: 6 mm</p>	<p><b>X123 PWS-E</b> Weight =                  a: VTO 284 g                  b: w/o terminal 4, 5 &amp; 6 (VVZ) 284 g                  c: w/o terminal 1, 2, 3, 4, 5 &amp; 6 (VUO) 284 g                  d: w/o terminal D, 3, 4, 5 &amp; 6 (VHF) 273 g                  e: w/o terminal D, 1, 2, 3, 4, 5 &amp; 6 (VBO) 273 g</p>
<p><b>X123 PWS-E Flat</b> Weight = 220 g                  h: w/o terminal 1, 2, 3, 4, 5 &amp; 6 (VUO)</p> <p>Max. allowed screw-in depth: 7.2 mm</p>	<p><b>X125 TO-240 AA</b> Weight =                  a: + Kelvin contact (MCC) 81 g                  b: + Kelvin contact, w/o pin 6 &amp; 7 (MCD) 81 g                  c: w/o Kelvin contact 4 &amp; 7 (MCC) 81 g                  d: w/o Kelvin contact 4, 7 &amp; pin 6 (MCD) 81 g                  e: w/o pin 4, 5, 6 &amp; 7 (MDD) 81 g                  f: w/o terminal 2 and pin 4 &amp; 7 (VMO) 74 g                  g: + Kelvin contact, w/o pin 7 (VMM) 81 g</p> <p>A 2.8 - 0.8 DIN 46244</p> <p>General tolerance: DIN ISO 2768 class „c“</p> <p>Optional accessories: Keyed gate/cathode twin plugs                  Wire length: 350 mm, gate = white, cathode = red                  UL 758, style 3751                  Type ZY 200L (L = Left for pin pair 4/5)                  Type ZY 200R (R = Right for pin pair 6/7)</p>	

# Outline drawings



Dimensions in mm and inches (1 mm = 0.0394")

<p><b>X126 Y4-M6</b> Weight =</p> <p>a: + Kelvin cont., w/o pin 8 up to 11 (MCC) 131 g                  b: + Kelvin cont., w/o pin 6 up to 11 (MCD) 131 g                  c: w/o pin 4 up to 11 (MDD) 126 g                  d: w/o terminal 2 &amp; pin 4 up to 11 (MEO) 108 g</p> <p>Optional accessories for modules                  Keyed gate/cathode twin plugs with wire length = 350 mm, gate = white, cathode = red                  Type ZY 180L (L = Left for pin pair 4/5) } UL 758, style 3751                  Type ZY 180R (R = Right for pin pair 6/7)</p>	<p><b>X127 Y4-M5</b> Weight =</p> <p>a: w/o pin 8 up to 11 (MII) 110 g                  b: w/o pin 6 up to 11 (MID) 108 g                  c: w/o pin 4, 5 &amp; 8 up to 11 (MDI) 108 g</p> <p>General tolerances:                  DIN ISO 2768-T1-m</p>	<p><b>X128 Y3-DCB</b> Weight =</p> <p>a: w/o pin 4 up to 7 (VMM, MII) 222 g                  b: w/o pin 4 up to 9 (MID) 220 g                  c: w/o pin 4 up to 7, 10 &amp; 11 (MDI) 220 g                  d: w/o terminal 3 &amp; pin 6 up to 11 (VMO) 200 g</p>
<p><b>X129 Y2-DCB</b> Weight =</p> <p>a: + Kelvin contact (MCC) 245 g                  b: + Kelvin contact, w/o pin 6 &amp; 7 (MCD) 245 g                  c: w/o pin 4, 5, 6 &amp; 7 (MDD) 244 g</p>	<p><b>X130 Y3-Li</b> Weight =</p> <p>a: w/o pin 4-7, low inductance (VMM, MII) 226 g                  b: w/o pin 4-9, low inductance (MID) 226 g                  c: w/o pin 4-7, 10&amp;11, low inductance (MDI) 226 g                  d: w/o terminal 1&amp;pin 6-11, low ind. (VMO) 206 g                  e: w/o pin 4&amp;5, low ind. (VMM, MII+NTC) 226 g                  f: w/o pin 4, 5, 8 &amp; 9, low ind. (MID+NTC) 226 g</p>	<p><b>X131 Y1-CU</b> Weight =</p> <p>a: + Kelvin contact (MCC) 680 g                  b: + Kelvin contact, w/o pin 6&amp;7 (MCD) 680 g                  c: w/o pin 4, 5, 6 &amp; 7 (MDD) 680 g</p> <p>Optional accessories for modules                  Keyed gate/cathode twin plugs with wire length = 350 mm, gate = white, cathode = red                  Type ZY 180L (L = Left for pin pair 4/5) } UL 758, style 3751                  Type ZY 180R (R = Right for pin pair 6/7)</p>



# Outline drawings

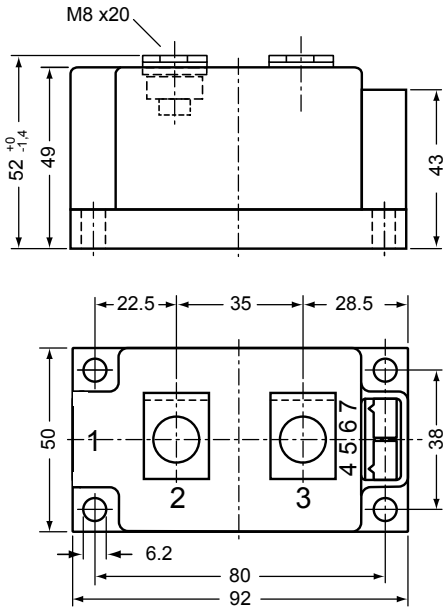


Dimensions in mm and inches (1 mm = 0.0394")

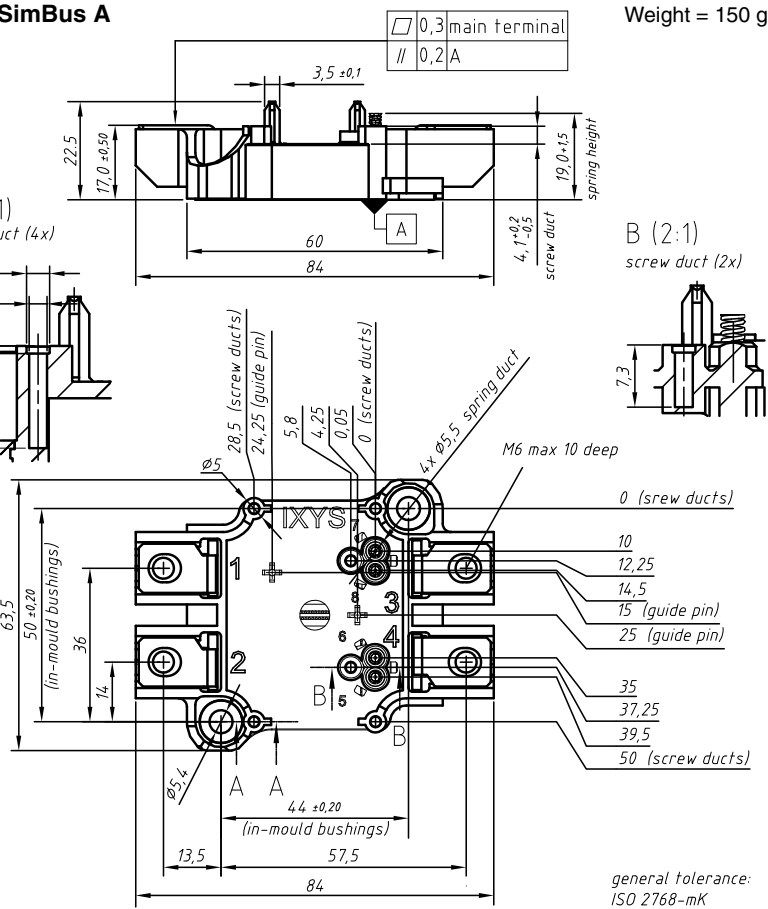
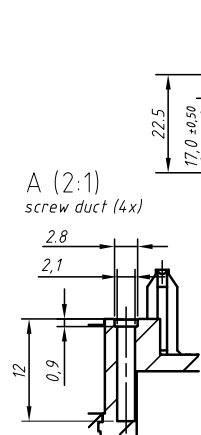
## X132 Y1-2-CU

a: + Kelvin contact and pin 6&7 (MCO)  
b: w/o pin 4, 5, 6 & 7 (MDO)

Weight = 650 g  
650 g



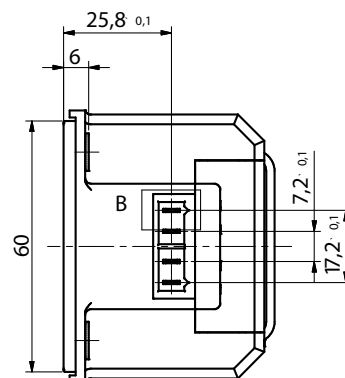
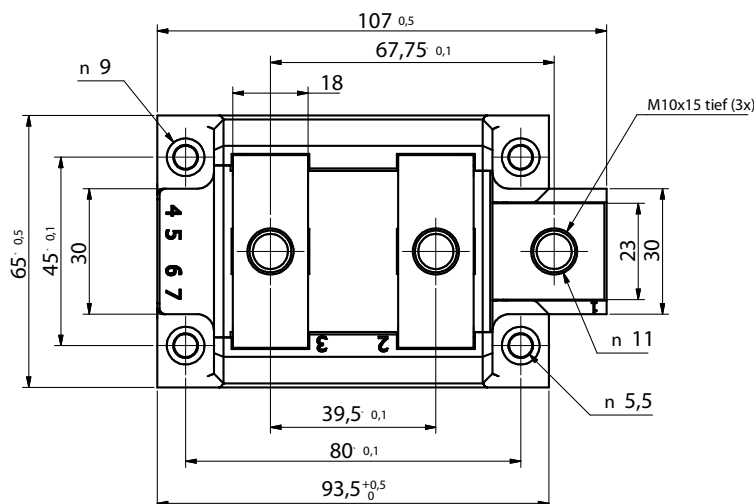
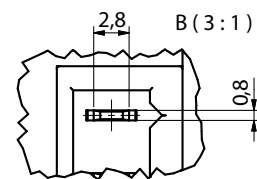
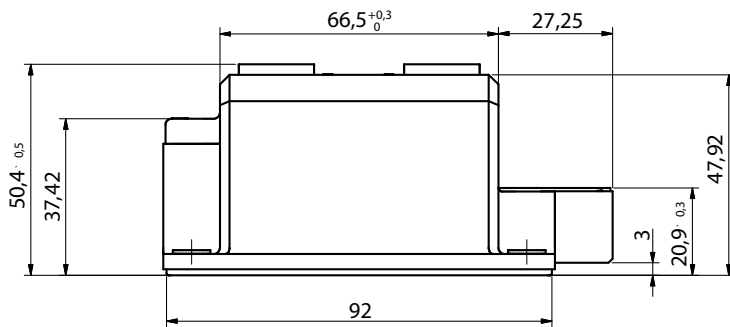
## X141 SimBus A



Weight = 150 g

## X142a ComPack

Weight = ??? g





# Outline drawings



Dimensions in mm and inches (1 mm = 0.0394")

<p><b>X200 Metal-can</b> Weight = 2.5 g</p>	<p><b>X201 FP-Case (oilproof)</b> Weight = 0.9 g</p>	<p><b>X202 BOD-Package</b> Weight = 9.5 g</p>																																																																					
<p><b>X203 TO-204 AE</b> Weight = 18 g</p> <table border="1"> <thead> <tr> <th rowspan="2">Dim.</th> <th colspan="2">Millimeter</th> <th colspan="2">Inches</th> </tr> <tr> <th>Min.</th> <th>Max.</th> <th>Min.</th> <th>Max.</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>38.61</td> <td>39.12</td> <td>1.520</td> <td>1.540</td> </tr> <tr> <td>B</td> <td>-</td> <td>22.22</td> <td>-</td> <td>0.875</td> </tr> <tr> <td>C</td> <td>6.40</td> <td>11.4</td> <td>0.252</td> <td>0.449</td> </tr> <tr> <td>D</td> <td>1.45</td> <td>1.60</td> <td>0.057</td> <td>0.063</td> </tr> <tr> <td>E</td> <td>1.52</td> <td>3.43</td> <td>0.060</td> <td>0.135</td> </tr> <tr> <td>F</td> <td colspan="2">30.15 BSC</td> <td colspan="2">1.187 BSC</td> </tr> <tr> <td>G</td> <td>10.67</td> <td>11.17</td> <td>0.420</td> <td>0.440</td> </tr> <tr> <td>H</td> <td>5.21</td> <td>5.71</td> <td>0.205</td> <td>0.225</td> </tr> <tr> <td>J</td> <td>16.64</td> <td>17.14</td> <td>0.655</td> <td>0.675</td> </tr> <tr> <td>K</td> <td>11.18</td> <td>12.19</td> <td>0.440</td> <td>0.480</td> </tr> <tr> <td>Q</td> <td>3.84</td> <td>4.19</td> <td>0.151</td> <td>0.165</td> </tr> <tr> <td>R</td> <td>25.16</td> <td>26.66</td> <td>0.991</td> <td>1.050</td> </tr> </tbody> </table>	Dim.	Millimeter		Inches		Min.	Max.	Min.	Max.	A	38.61	39.12	1.520	1.540	B	-	22.22	-	0.875	C	6.40	11.4	0.252	0.449	D	1.45	1.60	0.057	0.063	E	1.52	3.43	0.060	0.135	F	30.15 BSC		1.187 BSC		G	10.67	11.17	0.420	0.440	H	5.21	5.71	0.205	0.225	J	16.64	17.14	0.655	0.675	K	11.18	12.19	0.440	0.480	Q	3.84	4.19	0.151	0.165	R	25.16	26.66	0.991	1.050	<p><b>X204 DO-203 AA [M] (DO-4)</b> Weight = 6 g</p>	<p><b>X205 DO-203 AA [UNF] (DO-4)</b> Weight = 5.5 g</p>
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# Application Notes Highlights



<b>Power Factor Correction</b>	
IXAN0001	3-Phase PFC using Vienna Rectifier Approach and Modular Construction for Improved Overall Performance, Efficiency and Reliability
IXAN0002	Single and Three-Phase Rectifiers with Active Power Factor Correction for Enhanced Mains Power Quality
IXAN0003	Rectifiers with Power Factor Correction
IXAN0004	Design and Experimental Investigation of a Three-Phase, High Power Density, High Efficiency, Unity Power Factor PWM (VIENNA) Rectifier Employing a Novel Integrated Power Semiconductor Module
IXAN0005	Status of the Techniques of Three-Phase Rectifier Systems with Low Effects on the Mains
<b>MOSFETs and IGBTs Drivers</b>	
IXAN0012	MOSFET/IGBT Drivers - Theory and Applications
IXAN0011	Driving Your MOSFETs Wild to Obtain Greater Efficiencies, Power Densities and Lower Overall Cost
<b>BiMOSFETs Applications</b>	
IXAN0013	Capacitor Charge/Discharge Circuits, utilizing High Voltage IGBTs and ZCS Resonant Mode Techniques
IXAN0014	Comparative Performance of BiMOSFETs in Fly-back Converter Circuits
IXAN0015	Use of BiMOSFETs in Modern Radar Transmitters
IXAN0016	IXBH40N160 BiMOSFET Developed for High Voltage and High Frequency Applications
IXAN0017	New 1600V BiMOSFET Transistors Open Up New Applications
<b>Automotive Applications</b>	
IXAN0018	A High Current Dual Inline Packaged Trench MOSFET Three Phase Full Bridge as Contribution to Automotive System Integration
IXAN0019	High Power TrenchMOSFETs Solutions in Automotive Designs
IXAN0020	Power Electronic Supply for Automotive Starter Generator
IXAN0021	New Trench Power MOSFETs in Isolated Packages
<b>Isolation Techniques, Mounting, Soldering and Cooling</b>	
IXAN0071	The SMPD Package and its Mounting Instructions
IXAN0022	Capitalizing on the Advantages of ISOPLUS Products
IXAN0023	General Mounting Instructions
IXAN0025	ISOPLUS-The Revolution in Discrete Isolation Technique
IXAN0026	Combining the Features of Modules and Discretes in a New Power Semiconductor Packages
IXAN0028	The Revolution in Discrete Isolation Technique
IXAN0030	Surface Mount Soldering Recommendations for TO-263 and TO-268 case styles
IXAN0031	New ISOPLU247 Power Package Features 2500V Internal Isolation Revolutionary Approach Improves Thermal Conductance and Reliability
<b>Power Modules</b>	
IXAN0034	Recommended Use of the Integrated NTC Thermistor Temperature Sensor in IXYS Power Modules
IXAN0035	Mounting Instructions for _A7, _E7, _A8 and _E8 Module Series
IXAN0036	Investigations on Electromagnetic Compatibility of Power Semiconductor Modules Integrated in a Module
IXAN0037	Power Cycle Capability of solder contact DCB-Modules
<b>FREDs and Schottky Diodes</b>	
IXAN0042	Is the Lowest Forward Voltage Drop Schottky Diode Always the Best Choice?
IXAN0043	Input Rectifiers with Semifast Diodes for DC link.
IXAN0044	Characteristics and Applications of Fast Recovery Epitaxial Diodes.
IXAN0060	Optimized Ultra Fast Diodes for Switching Applications
<b>Power MOSFETs</b>	
IXAN0057	Series Operation of MOSFET and IGBT Switches
IXAN0061	Power MOSFET Basics
IXAN0062	IXYS Power MOSFET Products
IXAN0063	Application note on Depletion-mode
IXAN0064	IXYS P-Channel MOSFET
IXAN0065	IXYS Power MOSFET Datasheet Parameters Definition
IXAN0068	Linear Power MOSFETS Basic and Application
IXAN0069	Synchronous DC to DC Converter Design
<b>IGBTs</b>	
IXAN0063	IGBTs
IXAN0070	Drive with the IXYS XPT IGBT
IXAN0072	Discrete 600V GenX3 XPT IGBTs