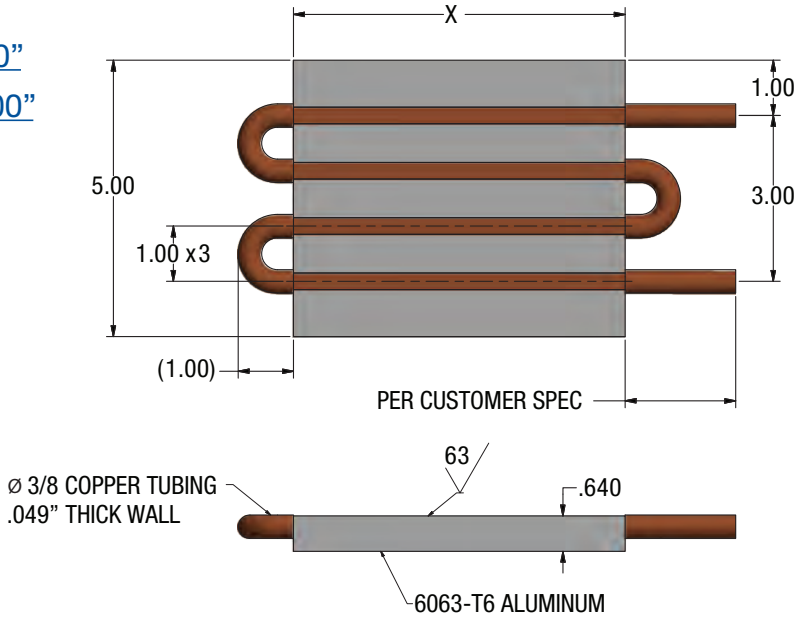
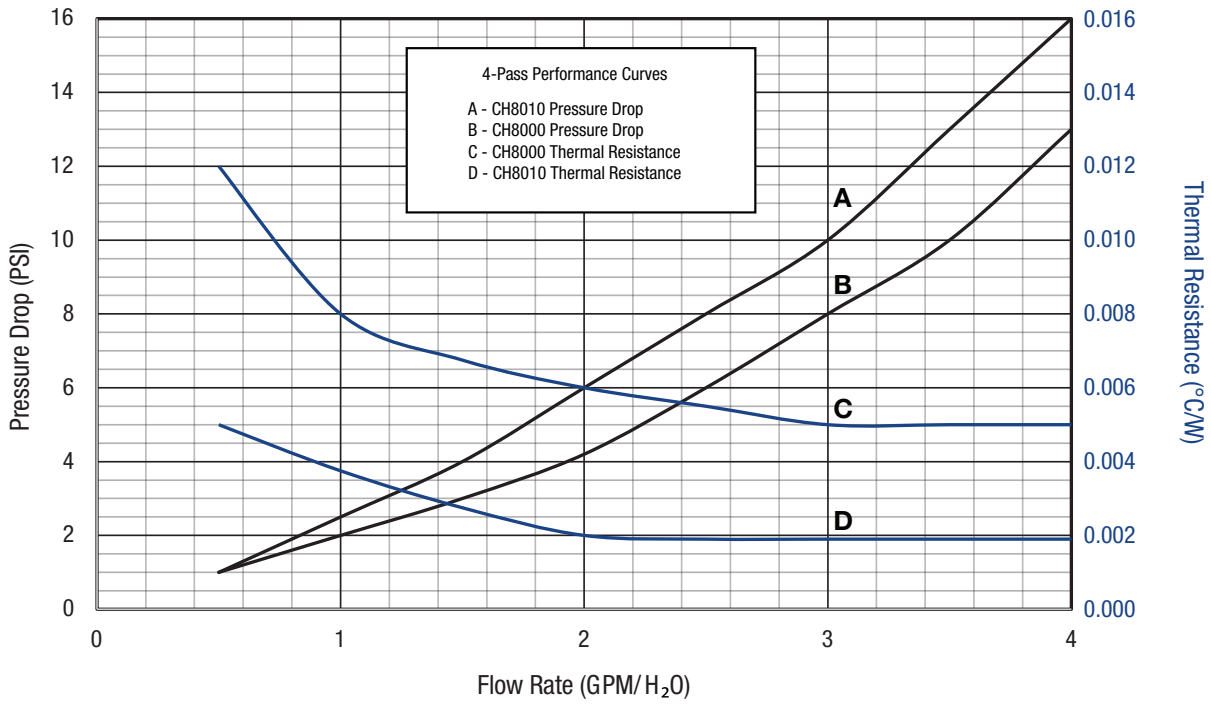
LIQUID CHILL PLATE – 4 PASS MODELS

Thermal resistance as low as 0.005°C/W. Ideal for cooling IGBT modules or other high wattage modules. Can handle extremely high heat concentrations with lower device temperature rise. Maintains lower overall junction temperatures. Precision module mounting surface. ***Custom designs are available upon request.***

CH8000: X = 6.00”
CH8010: X = 12.00”



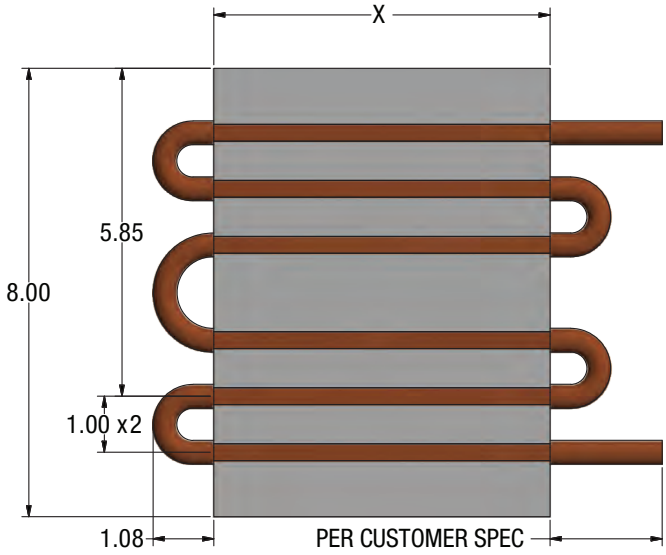


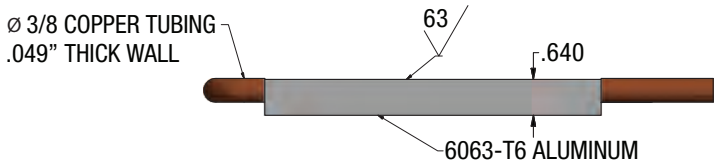
LIQUID CHILL PLATE – 6 PASS MODELS

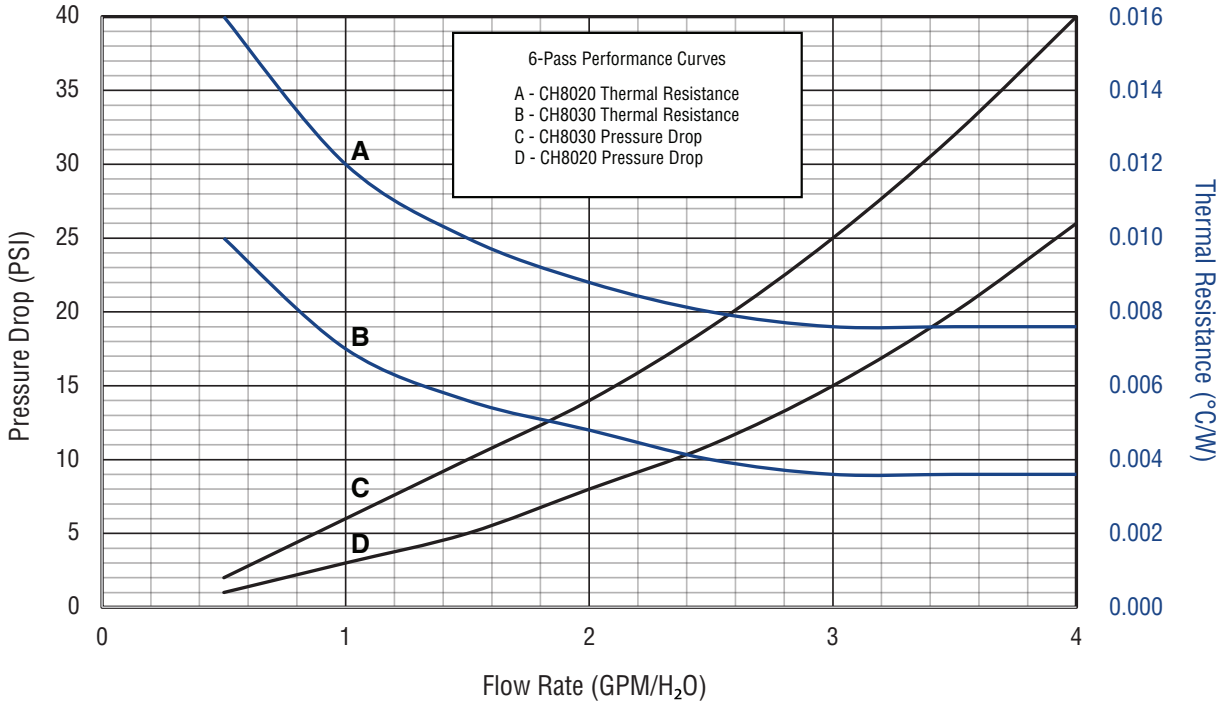
Thermal resistances as low as 0.004°C/W. Designed for larger IGBT modules or other high wattage modules. ***Custom designs are available upon request.***

CH8020: X = 6.00”

CH8030: X = 12.00”



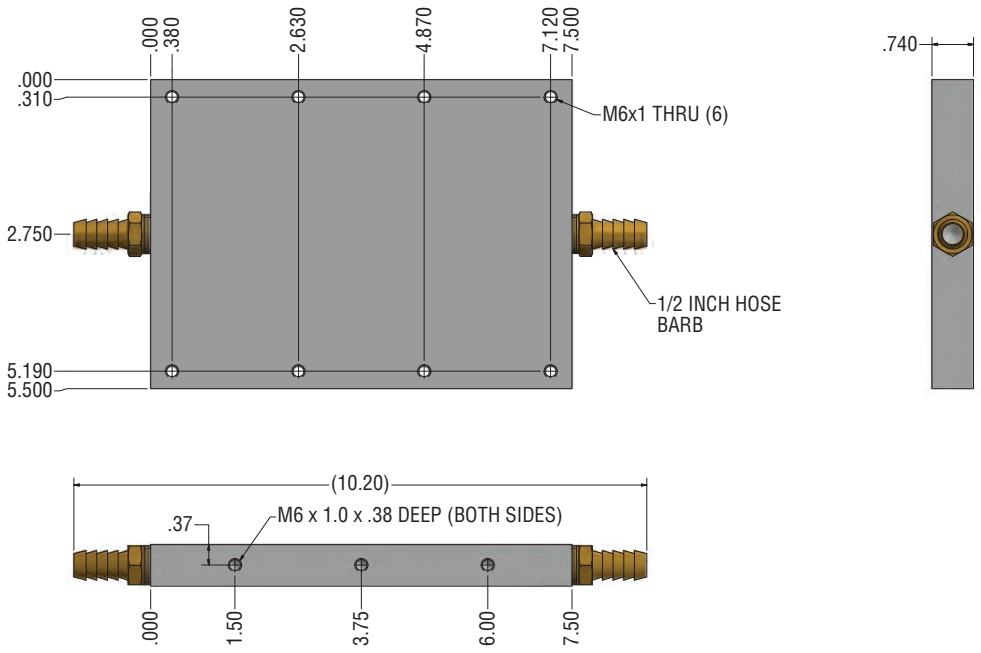


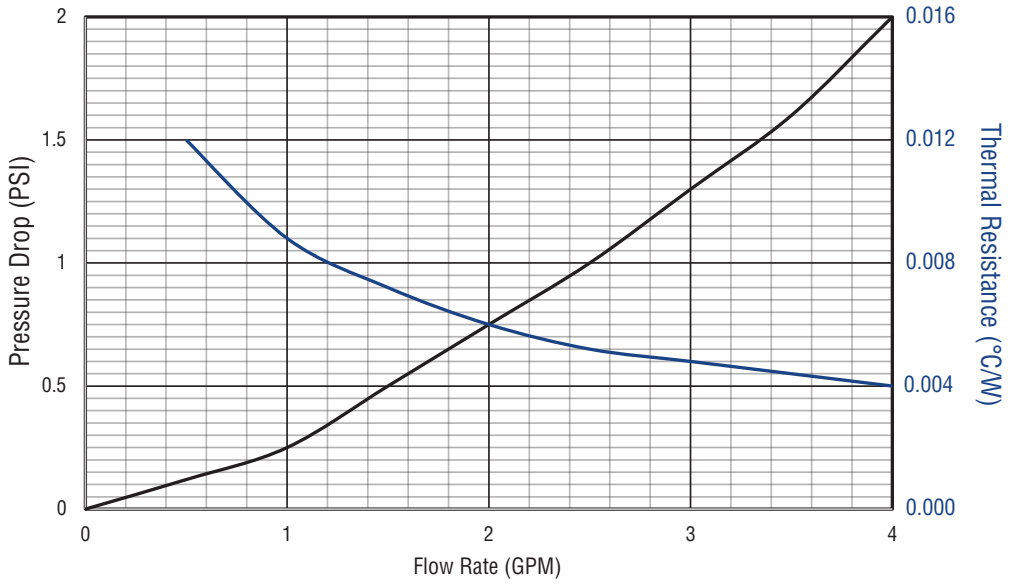


LIQUID CHILL PLATE – DOUBLE SIDED COPPER PLATE

Double Sided Copper Plate designed for high efficiency cooling of large Diode, SCR, and IGBT modules. A unique internal fin structure provides a very low thermal resistance and pressure drop when uniform temperature is applied across both contact surfaces. Nickel plated with brazed hose barb fittings. ***Custom designs are available upon request.***

CH8040

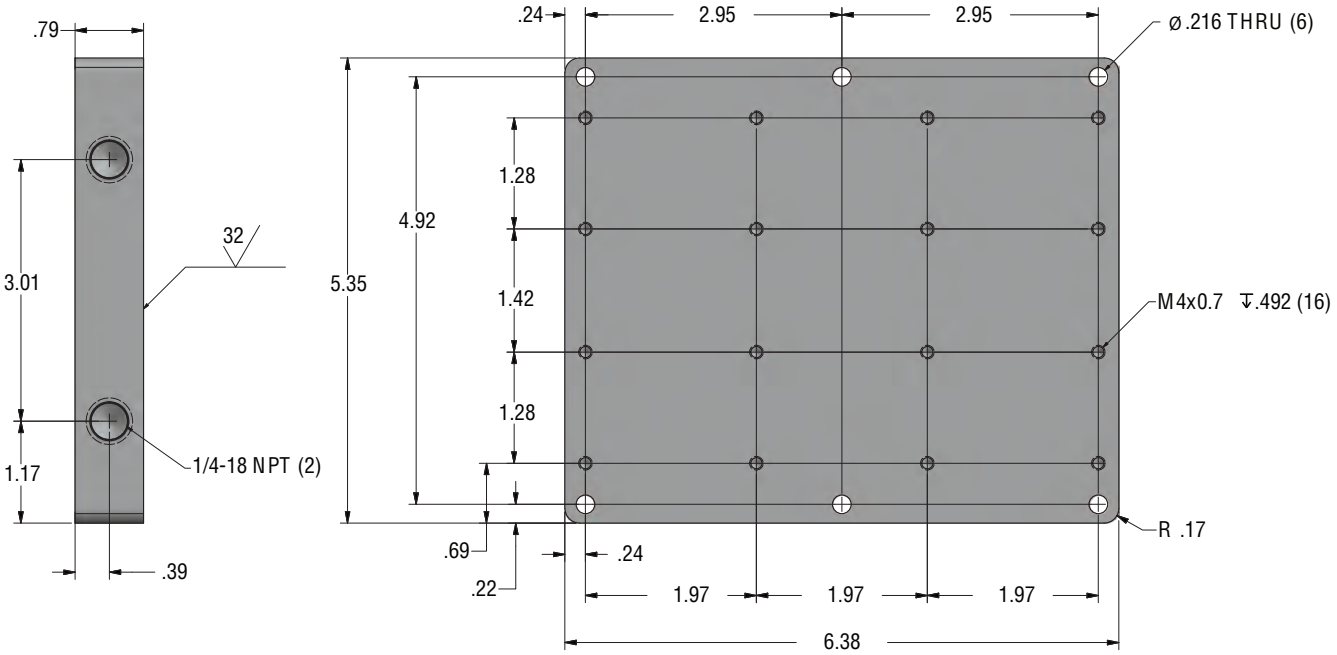


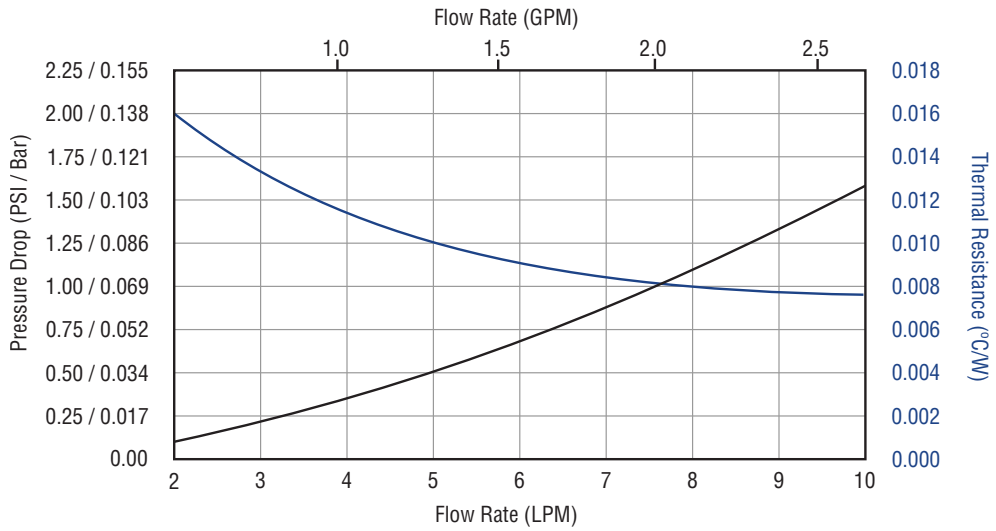


FRICTION STIR-WELDED STANDARD CHILL PLATE

The CHW001-MXQ-01 can dissipate 3000 watts of heat at a flow rate of 8 LPM. This results in a 25°C temperature rise from the fluid inlet to the maximum coldplate temperature. The internal fin structure also results in a pressure loss of 1.1 PSI at this flow rate. This performance is achieved with an empty weight of the coldplate of less than 1.0 kg. ***Custom designs and various hole patterns available upon request. Model available for both prototype test purposes and full production.***

CHW001-MXQ-01

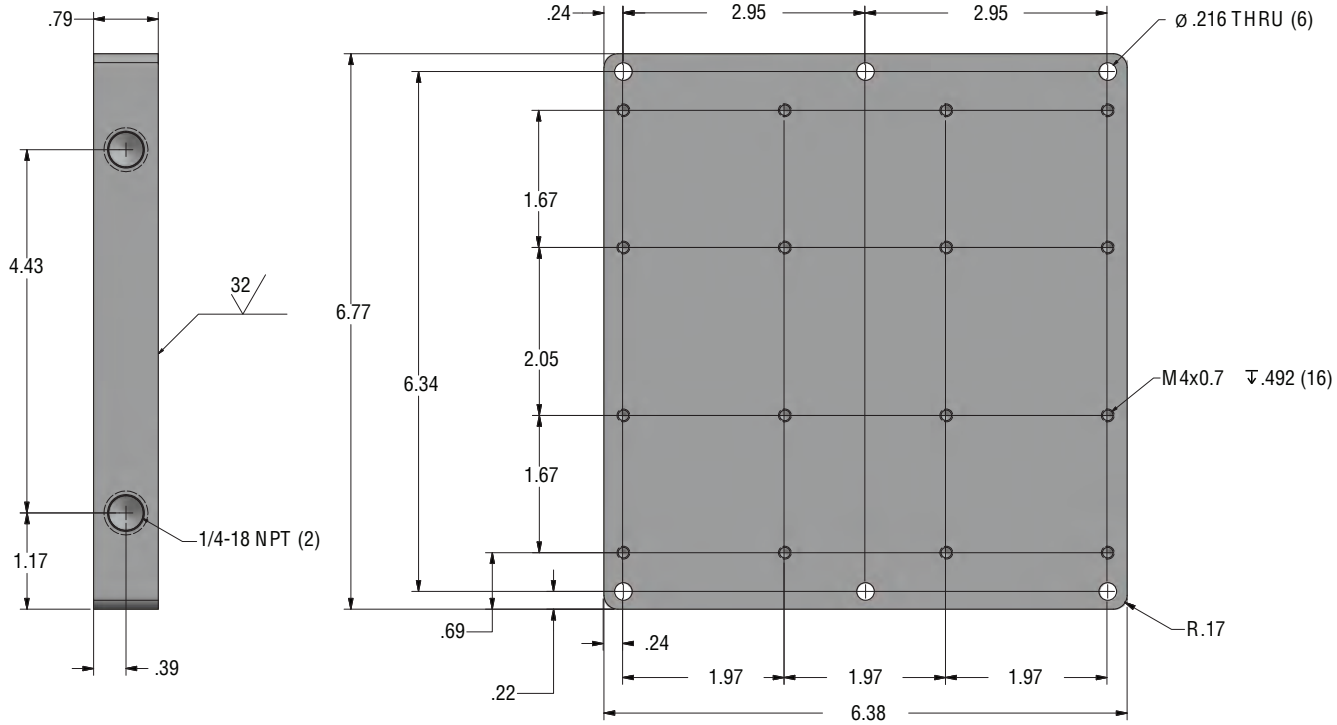


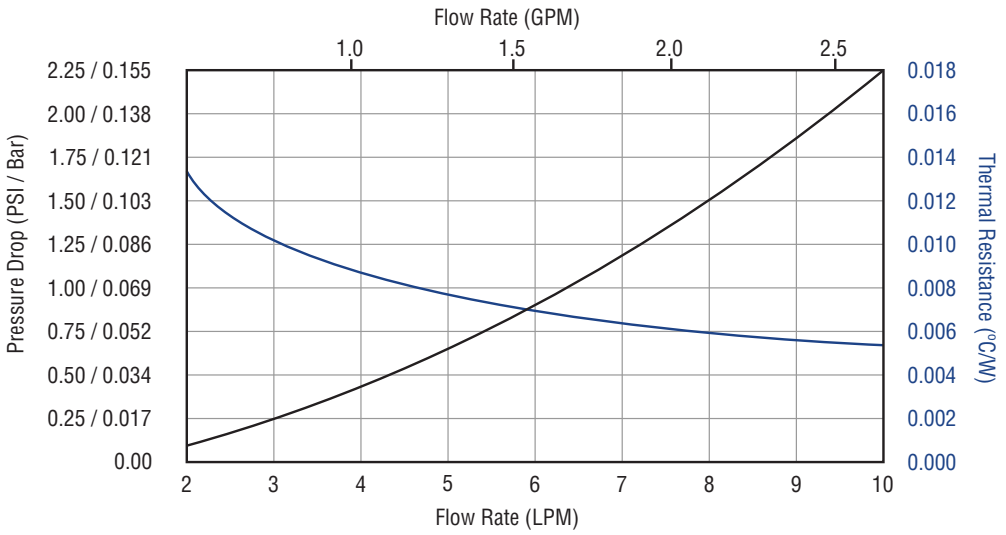


FRICTION STIR-WELDED STANDARD CHILL PLATE

The CHW003-MXQ-01 can dissipate 3000 watts of heat at a flow rate of 8 LPM. This results in only an 18°C temperature rise from the fluid inlet to the maximum coldplate temperature. The internal fin structure also results in a pressure loss of 1.5 PSI at this flow rate. This performance is achieved with an empty weight of the coldplate of less than 1.3 kg. ***Custom designs and various hole patterns available upon request. Model available for both prototype test purposes and full production.***

CHW003-MXQ-01

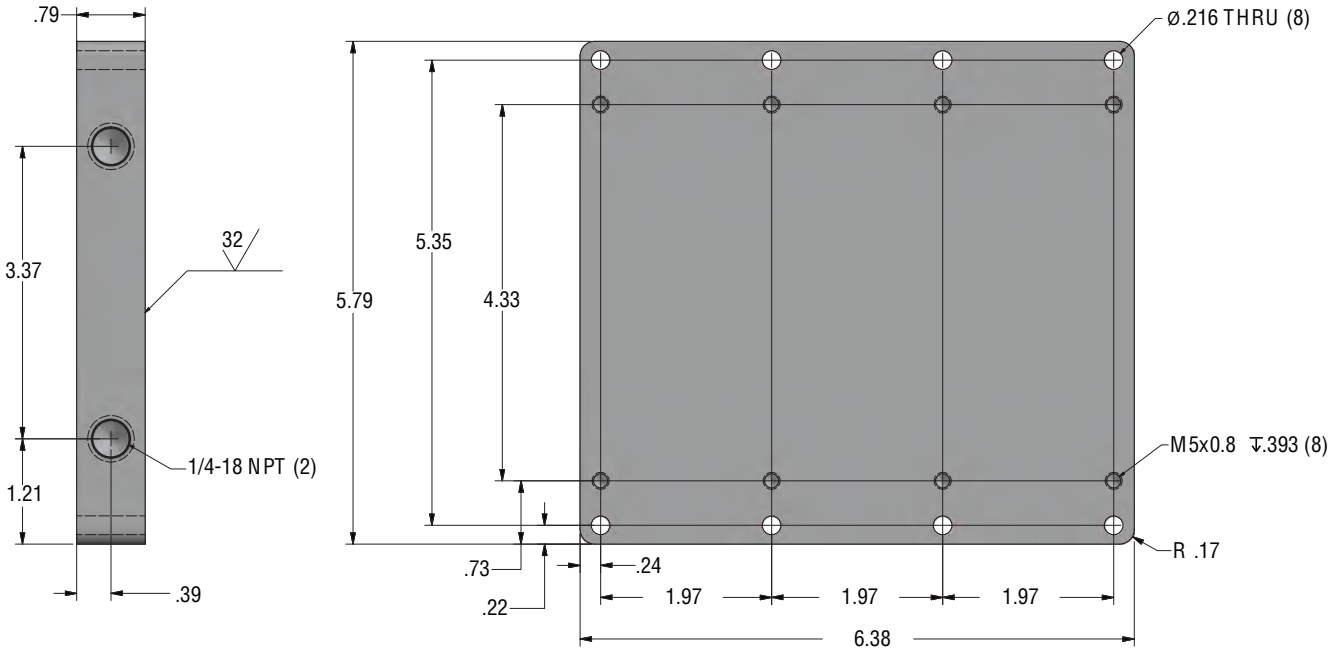


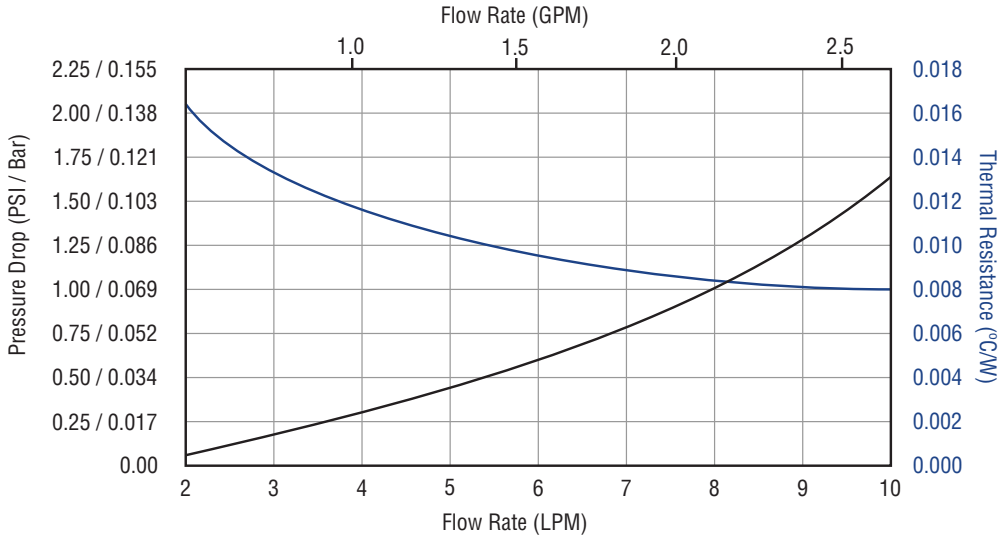


FRICTION STIR-WELDED STANDARD CHILL PLATE

The CHW005-MXQ-01 can dissipate 3000 watts of heat at a flow rate of 8 LPM. This results in a 25.7°C temperature rise from the fluid inlet to the maximum coldplate temperature. The internal fin structure also results in a pressure loss of 1.03 PSI at this flow rate. This performance is achieved with an empty weight of the coldplate of less than 1.1 kg. ***Custom designs and various hole patterns available upon request. Model available for both prototype test purposes and full production.***

CHW005-MXQ-01

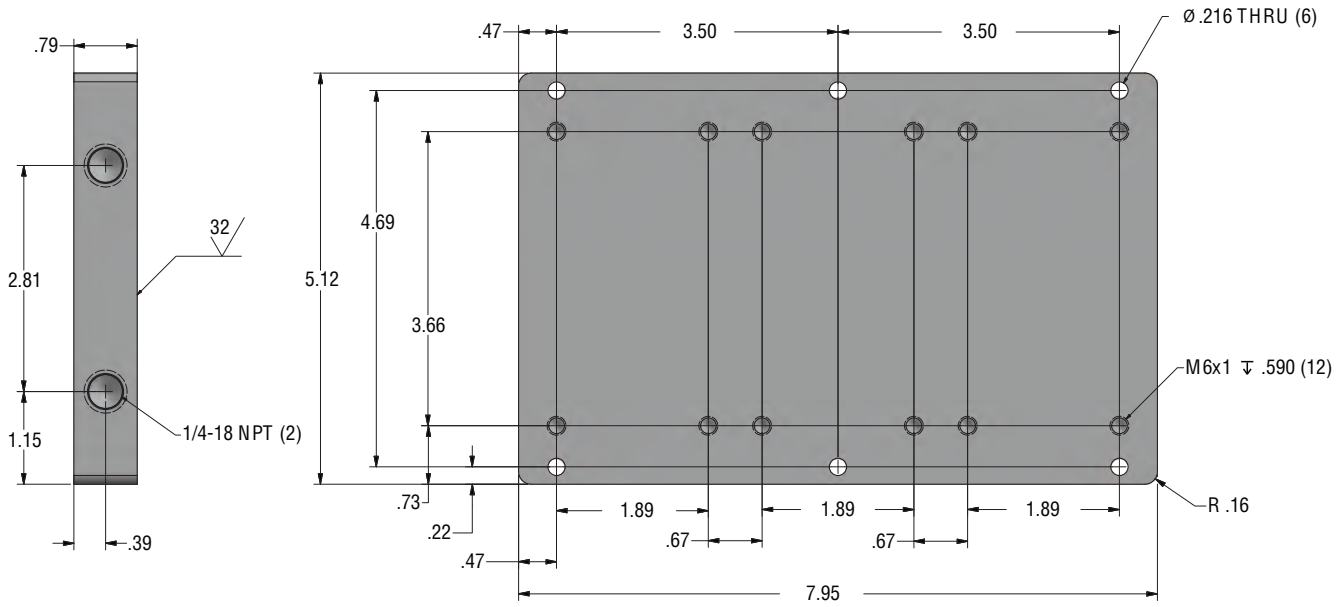


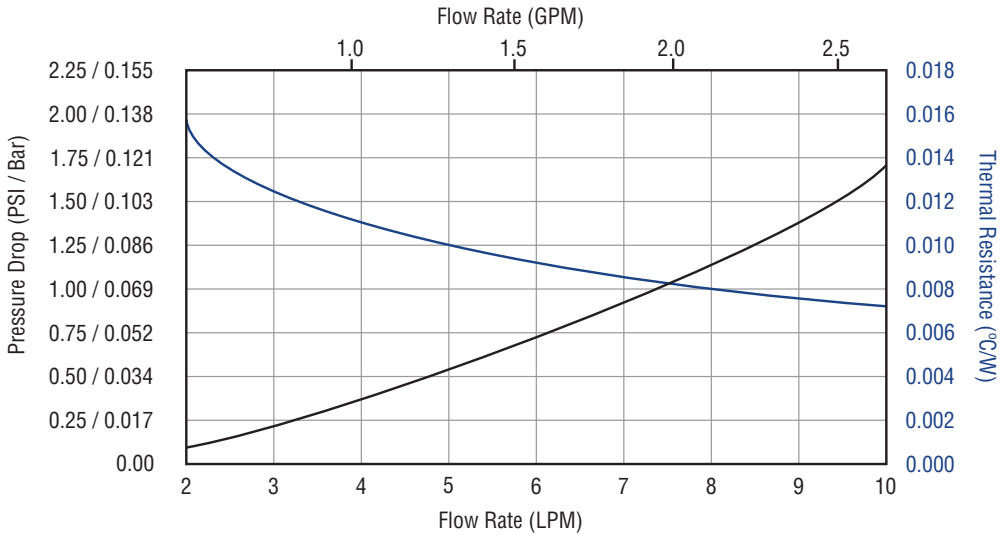


FRICTION STIR-WELDED STANDARD CHILL PLATE

The CHW007-MXQ-01 can dissipate 3000 watts of heat at a flow rate of 8 LPM. This results in a 24°C temperature rise from the fluid inlet to the maximum cold plate temperature. The internal fin structure also results in a pressure loss of 1.16 PSI at this flow rate. This performance is achieved with an empty weight of the coldplate of less than 1.2 kg. ***Custom designs and various hole patterns available upon request. Model available for both prototype test purposes and full production.***

CHW007-MXQ-01

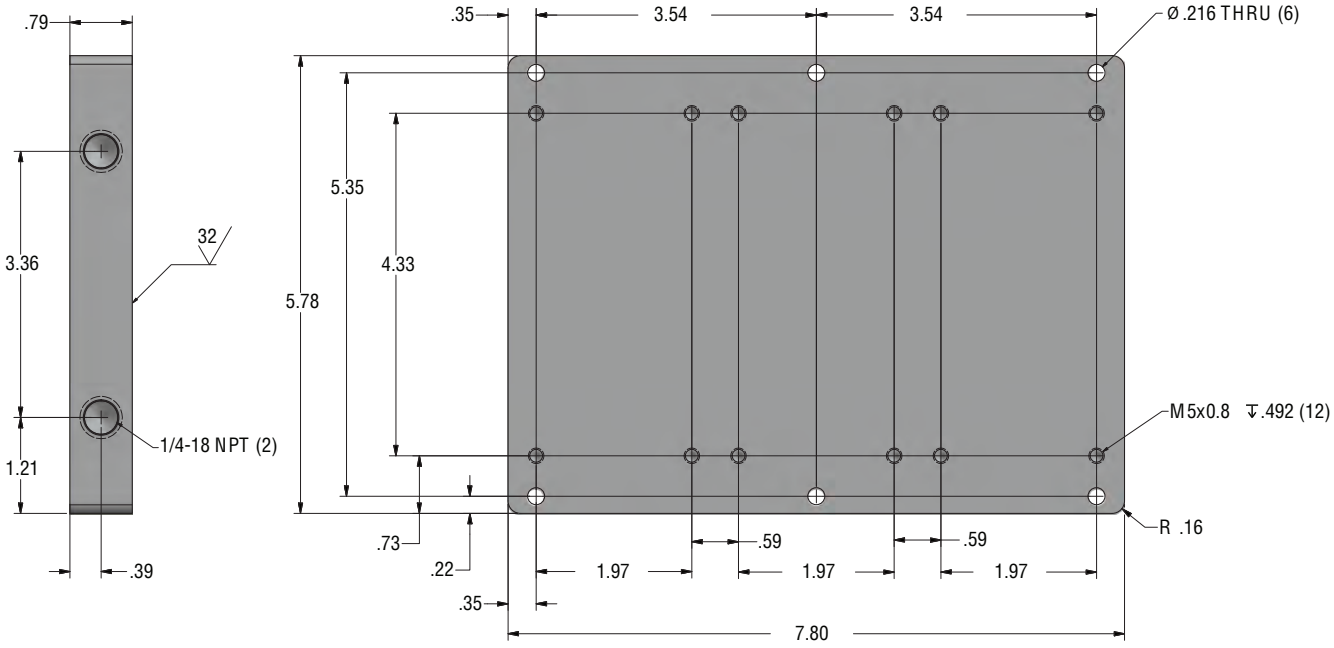


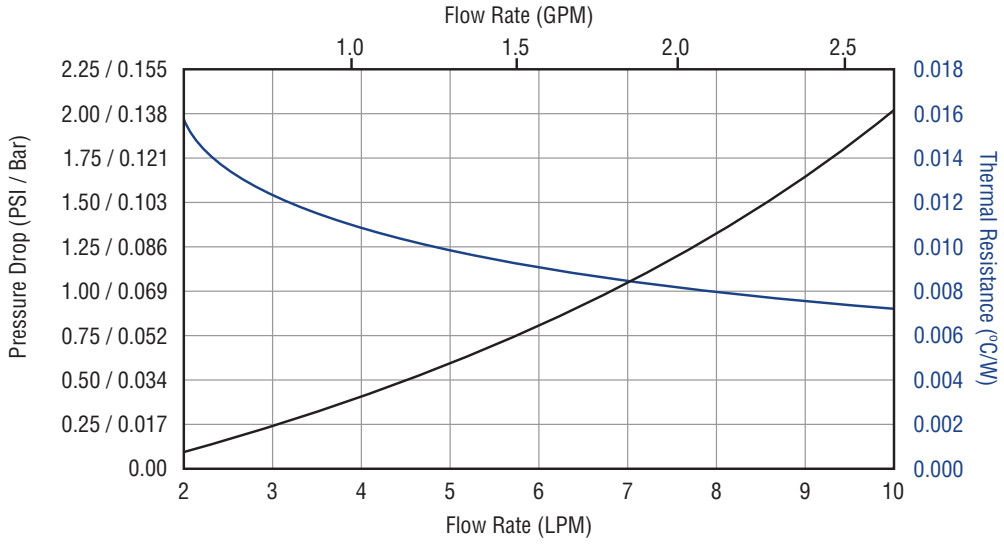


FRICTION STIR-WELDED STANDARD CHILL PLATE

The CHW009-MXQ-01 can dissipate 3000 watts of heat at a flow rate of 8 LPM. This results in a 24°C temperature rise from the fluid inlet to the maximum coldplate temperature. The internal fin structure also results in a pressure loss of 1.35 PSI at this flow rate. This performance is achieved with an empty weight of the coldplate of less than 1.33 kg. ***Custom designs and various hole patterns available upon request. Model available for both prototype test purposes and full production.***

CHW009-MXQ-01

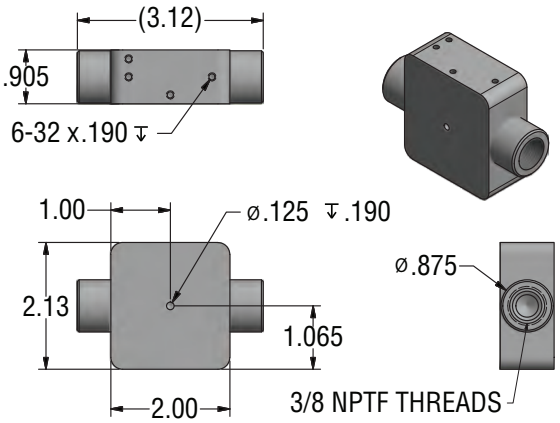




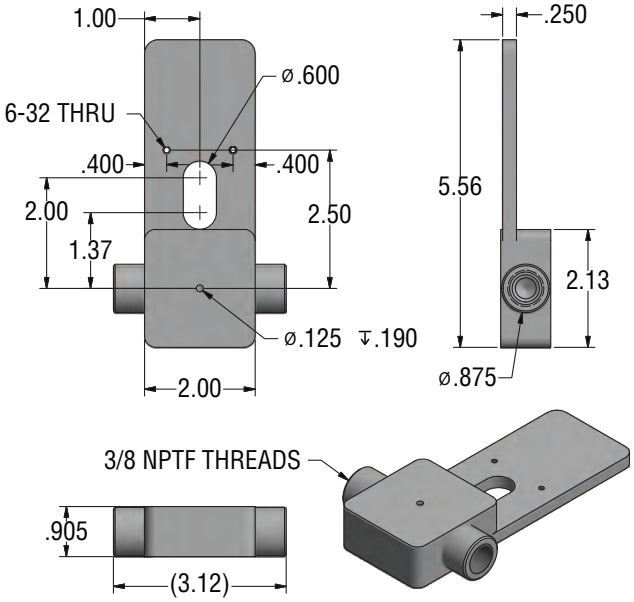
CHWC200 SERIES

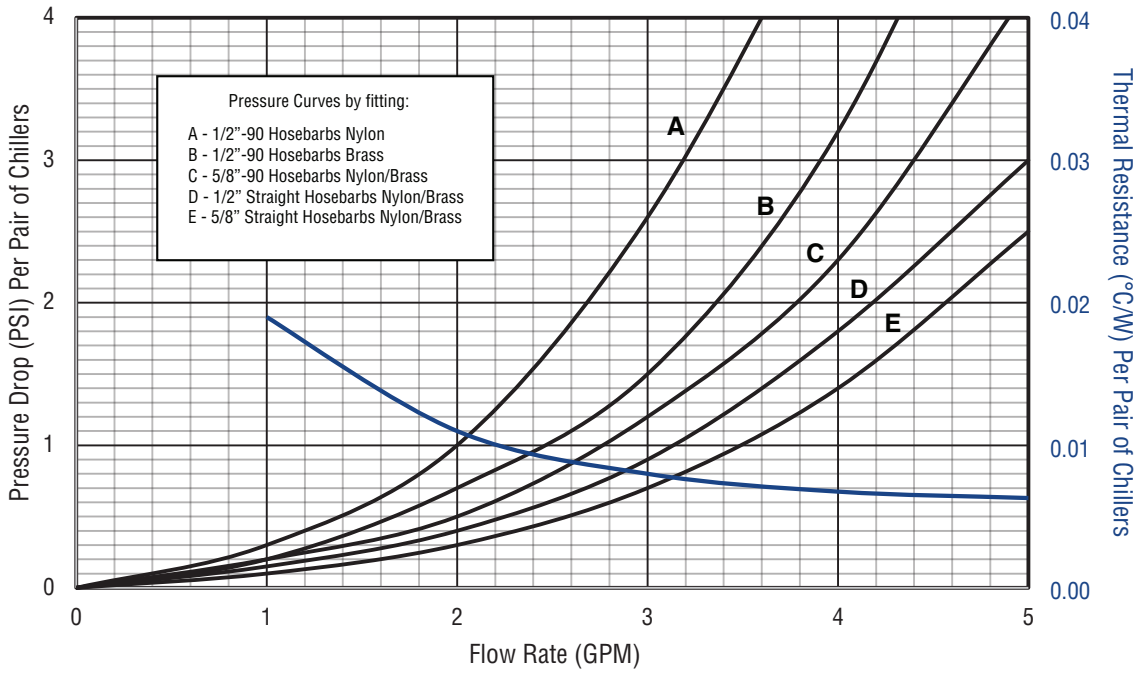
This premium Furnace Brazed Copper Chill Block is ideal for cooling disc (puk) semiconductors between 30mm and 55mm in diameter. They can achieve a thermal resistance as low as 0.008°C/W by mounting the blocks on either side of a semiconductor disc. ***Custom designs and custom hole patterns on the powertab available upon request.***

CHWC200SCU



CHWC200TSCU

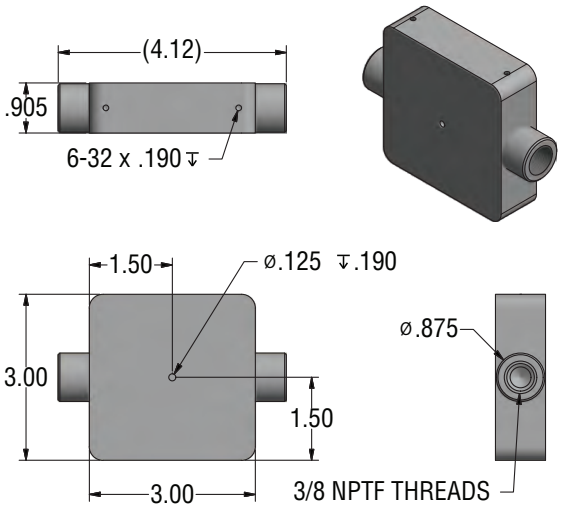




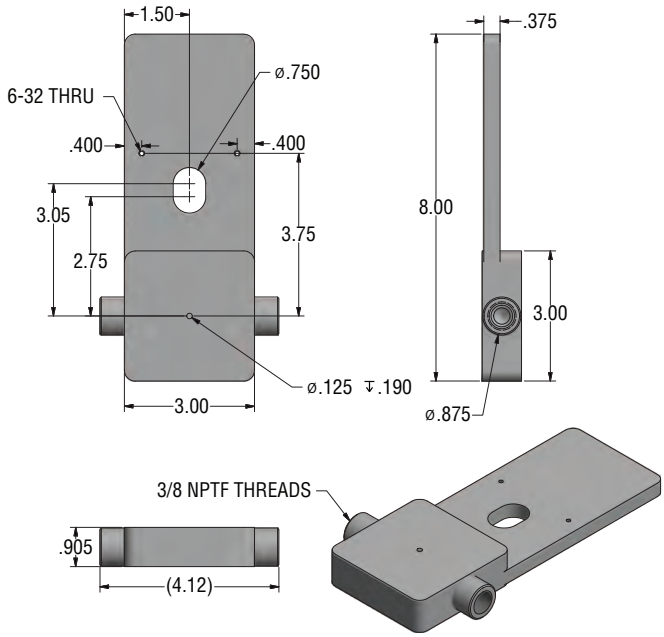
CHWC300 SERIES

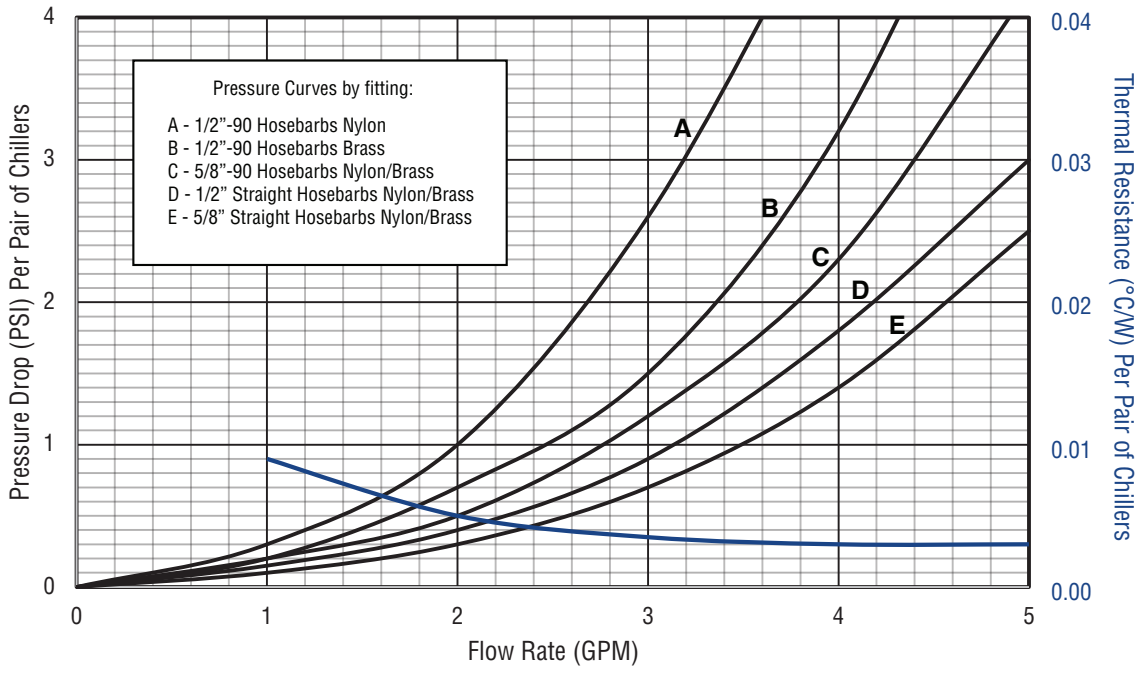
This premium Furnace Brazed Copper Chill Block is ideal for cooling disc (puk) semiconductors between 63mm and 75mm in diameter. They can achieve a thermal resistance as low as 0.005°C/W by mounting the blocks on either side of a semiconductor disc. ***Custom designs and custom hole patterns on the powertab available upon request.***

CHWC300SCU



CHWC300TSCU

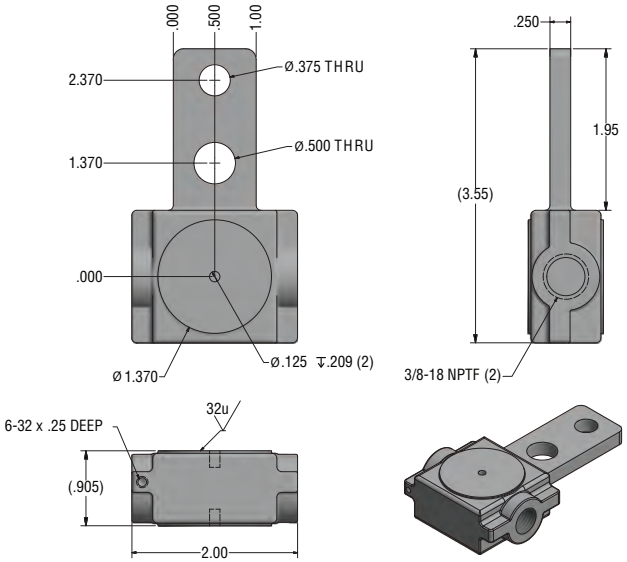




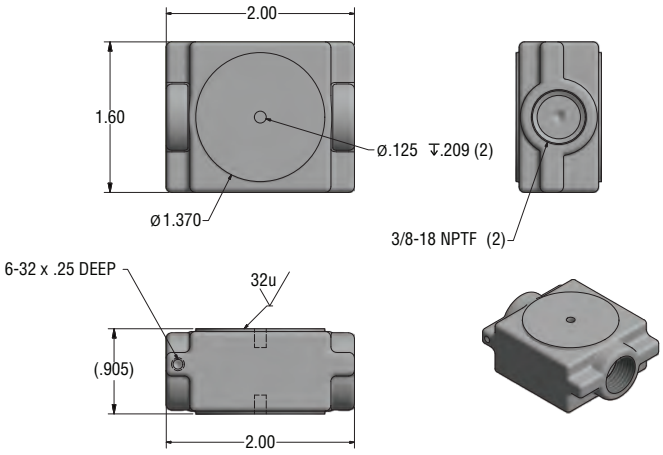
106 SERIES

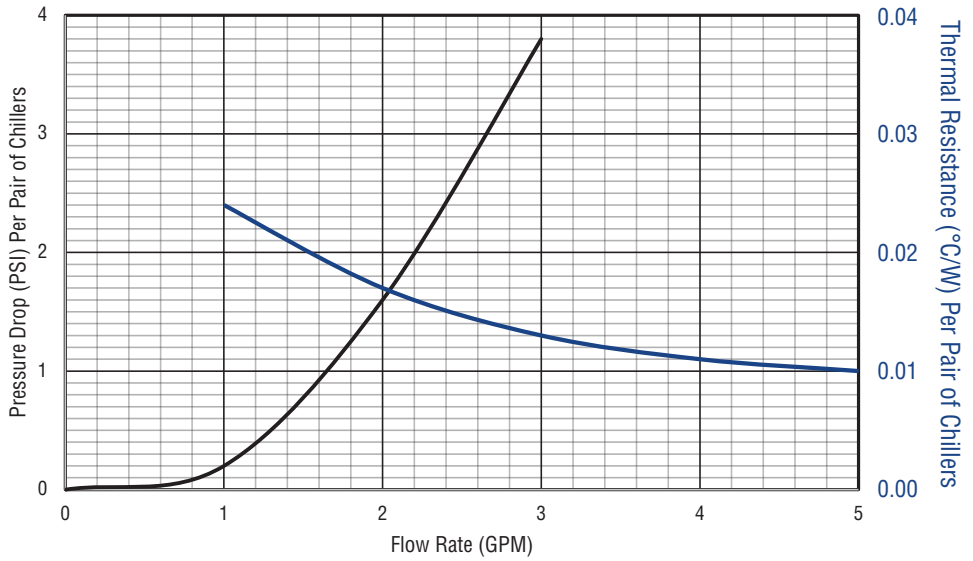
This Cast Copper Chill Block is ideal for cooling disc (puk) semiconductors between 19mm and 29mm in diameter. They can achieve a thermal resistance as low as 0.010°C/W by mounting the blocks on either side of a semiconductor disc. ***Custom designs and custom hole patterns on the powertab available upon request.***

106-1



106-2

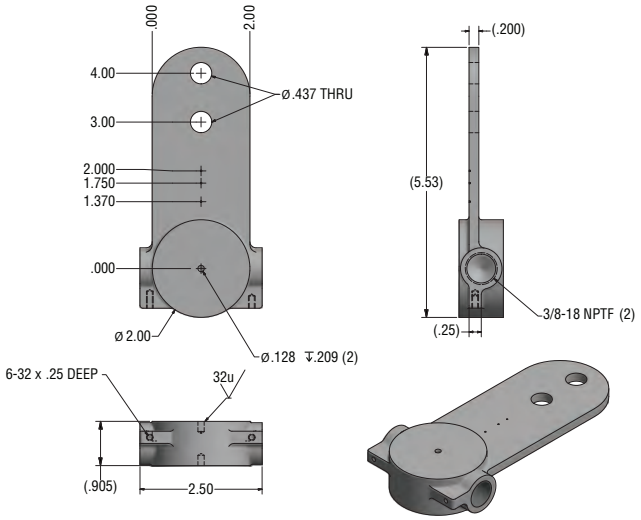




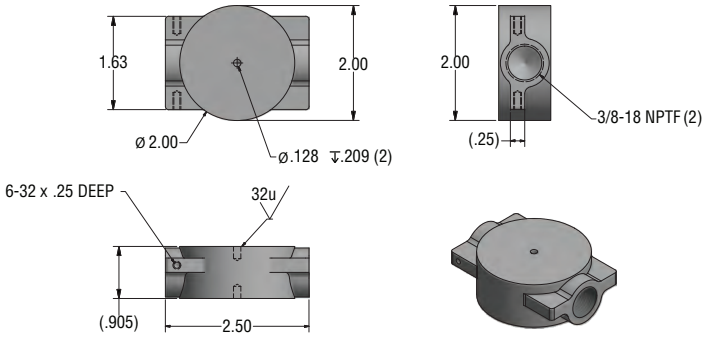
120 SERIES

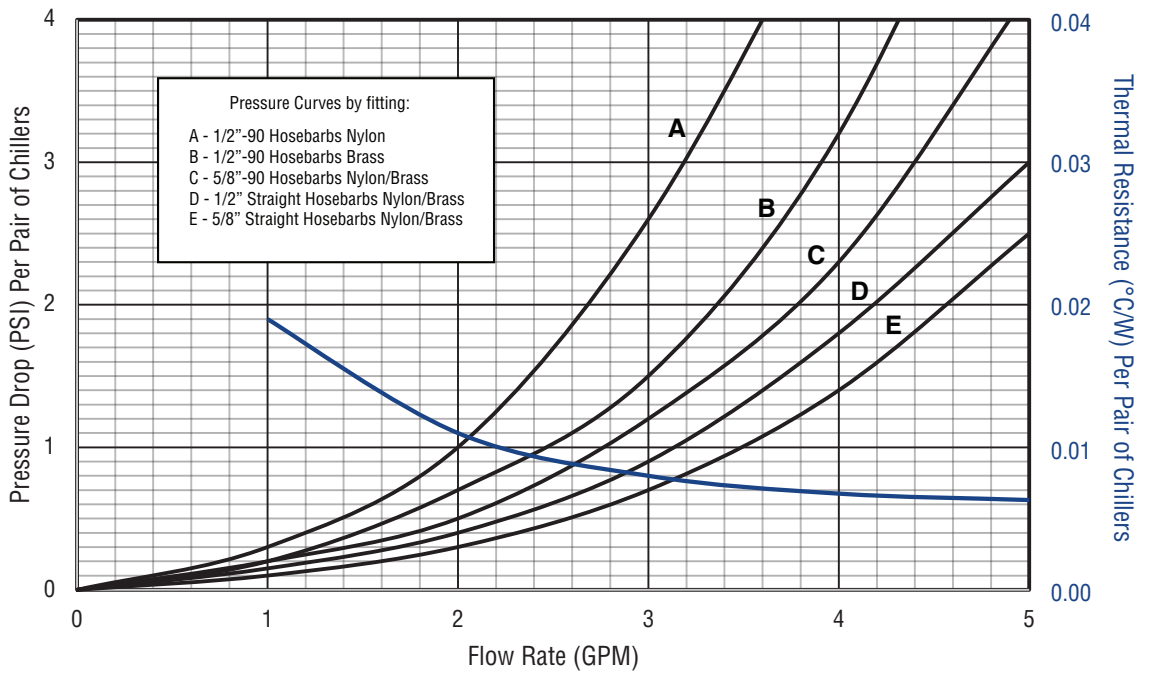
This Cast Copper Chill Block is ideal for cooling disc (puk) semiconductors between 30mm and 55mm in diameter. Achieve a thermal resistance as low as 0.006°C/W by mounting the blocks on either side of a semiconductor disc. ***Custom designs and custom hole patterns on the powertab available upon request.***

120-1



120-2

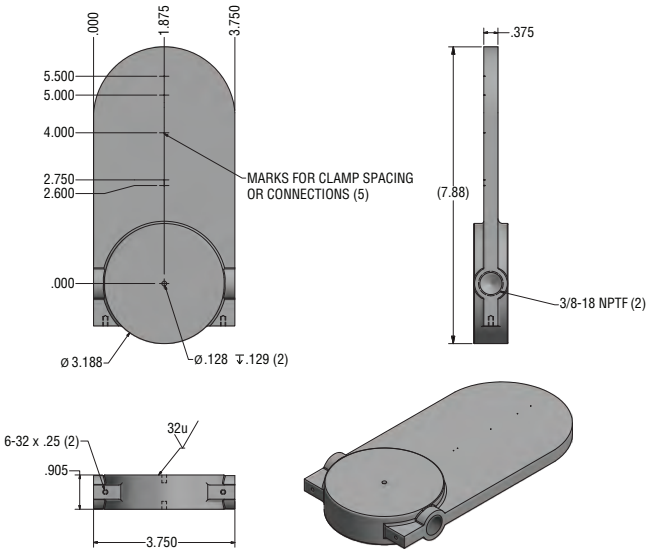




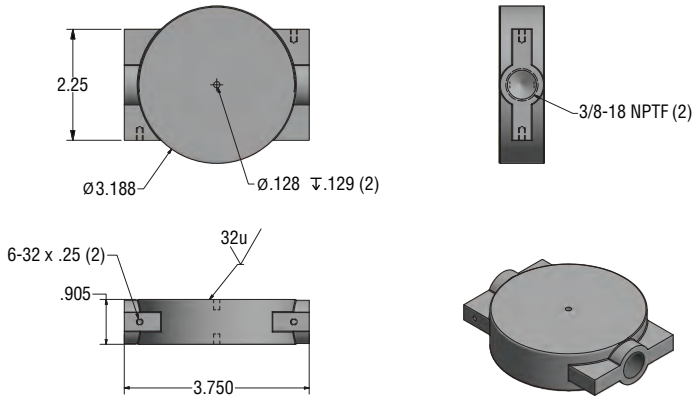
130 SERIES

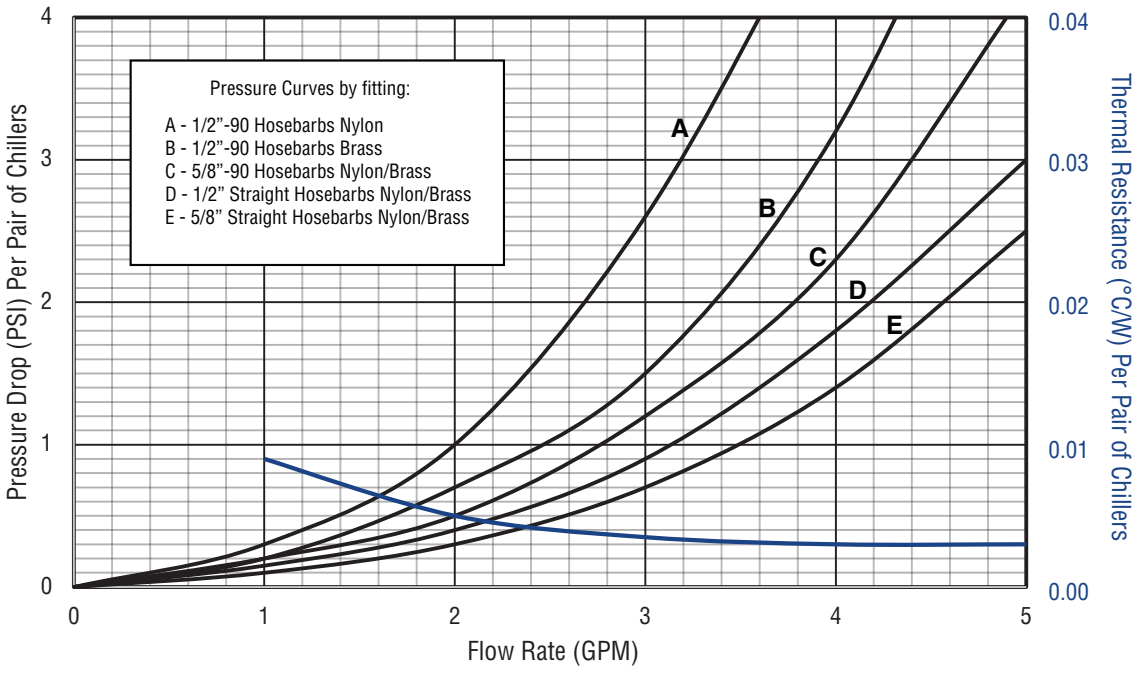
This Cast Copper Chill Block is ideal for cooling disc (puk) semiconductors between 63mm and 75mm in diameter. Achieve a thermal resistance as low as 0.003°C/W by mounting these blocks on either side of a semiconductor disc. ***Custom designs and custom hole patterns on the powertab available upon request.***

130-1



130-2





CLAMP INTRODUCTION

C&H Technology manufactures Hockey Puk Style Semiconductor Clamps for all ranges of device diameters and clamping forces. Bar clamp designs fall into three categories; Belleville Washers, Pre-Calibrated Bar, and Precision Clamps.

Belleville Washer Clamps functions by utilizing applied force in conjunction with Belleville Washers to compress and spin a flat washer indicating the precalibrated force has been met.

Pre-Calibrated Bar Clamps takes advantage of the metal elasticity of the bar material. When under the proper amount of force, an indicator arm attached to the side of the clamp snaps into the small indentation in the cross bar to indicate the precalibrated force has been met.

Precision Clamps electronically measures the deflection of the clamp under load. This technology is recommended for applications with highly accurate clamping and isolation requirements.

C&H also offers Box Clamps for single side cooling of hockey puk style semiconductors. Clamping force automatically adjusts with the thickness of the device. This family of clamps are available for devices up to 80mm in diameter.

C&H Standard Insulators have a working temperature of 105°C and a voltage capacity of 4KV for M8 models, and 7KV for M10 models. High Temperature Insulators are rated up to 170°C with an insulation voltage rating of 6kV are available upon request.

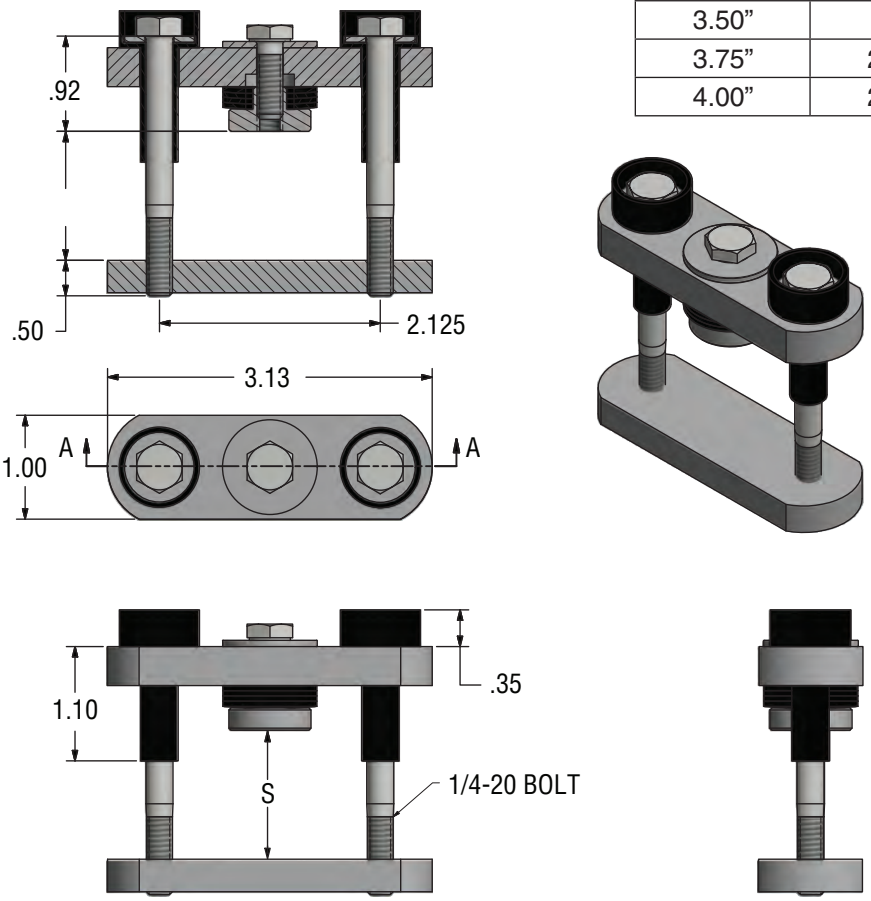
Clamping Force Conversions: 1 kN = 225 lbs, 1 kg = 9.806 N, 1 kg = 2.2 lbs

Preset Clamping Force as Required by Device	C054D	C070D	C089D	C102B	C118B	C140	C155A	C170A	C180
4kN (900 lbs)	✓	---	---	---	---	---	---	---	---
5kN (1125 lbs)	✓	✓	---	---	---	---	---	---	---
9.8kN (2205 lbs)	---	✓	✓	---	---	---	---	---	---
14kN (3150 lbs)	---	✓	✓	✓	✓	---	---	---	---
18kN (4050 lbs)	---	---	✓	✓	✓	---	---	---	---
21kN (4725 lbs)	---	---	✓	---	---	---	---	---	---
22kN (4950 lbs)	---	---	---	✓	✓	---	---	---	---
24kN (5400 lbs)	---	---	---	✓	✓	---	---	---	---
26kN (5850 lbs)	---	---	---	---	---	---	---	✓	---
27kN (6075 lbs)	---	---	---	---	---	✓	---	---	---
40kN (9000 lbs)	---	---	---	---	---	✓	✓	✓	---
45kN (10125 lbs)	---	---	---	---	---	✓	✓	✓	---
55kN (12375 lbs)	---	---	---	---	---	---	✓	✓	---
67kN (15075 lbs)	---	---	---	---	---	---	✓	---	---
80kN (18000 lbs)	---	---	---	---	---	---	---	---	✓
95kN (21375 lbs)	---	---	---	---	---	---	---	---	✓

CLAMP MODEL: C054D

PRECALIBRATED FORCES - 4, 5 kN
BOLT INTERAXYS - 54mm
MAXIMUM PUK DIAMETER - 42mm

BOLT LENGTH CALCULATOR Note: All Dimensions are in Inches		
L	S MIN	S MAX
2.50”	0.82”	1.22”
2.75”	1.07”	1.47”
3.00”	1.32”	1.72”
3.25”	1.57”	1.97”
3.50”	1.82”	2.22”
3.75”	2.07”	2.47”
4.00”	2.32”	2.72”



ORDERING INFORMATION EXAMPLE: C054D-5KNS(H)-2.50

- CLAMP MODEL
- PRECALIBRATED CLAMPING FORCE
- BOLT LENGTH (in.)
- “H” DENOTES HIGH TEMP INSULATOR
  Note: Additional bolt lengths available

Note: Bolt Insulator dimension “H” available in either 14mm or standard 24mm height
Standard Insulator working temperature is 105°C, insulation voltage 4 kV.

Custom calibrated clamping forces available upon request.
For complete mounting instructions, please visit www.chtechnology.com

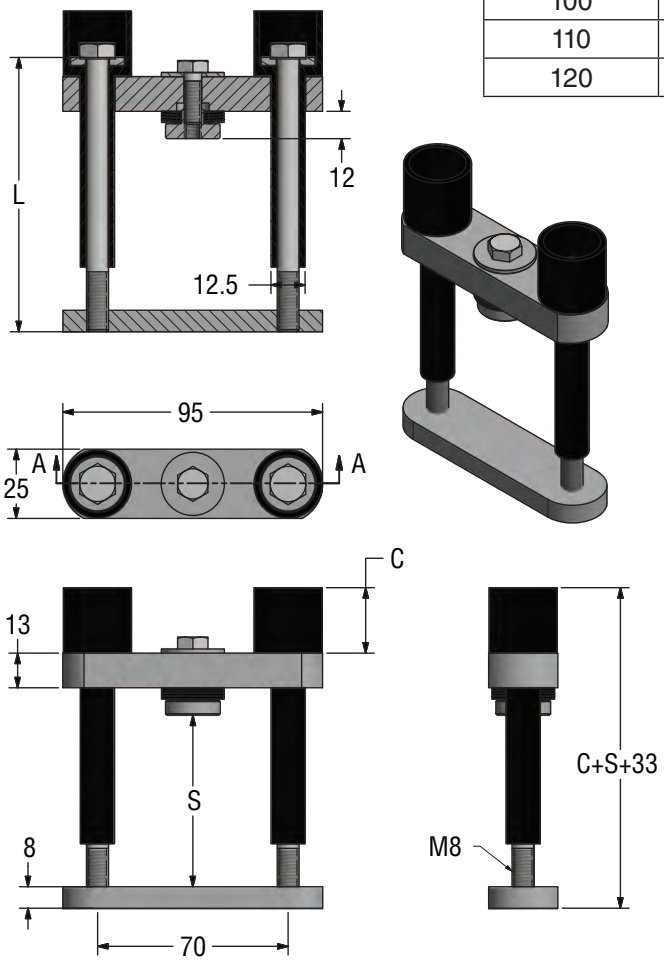
Semiconductor Clamps
Bar Clamps

CLAMP MODEL: C070D

PRECALIBRATED FORCES - 5, 9.8 kN
BOLT INTERAXYS - 70mm
MAXIMUM PUK DIAMETER - 56mm

BOLT LENGTH CALCULATOR
Note: All Dimensions are in mm

L	S MIN	S MAX
70	18	30
80	28	40
90	38	50
100	48	60
110	58	70
120	68	80



ORDERING INFORMATION EXAMPLE: C070D-5KNS(H)-90

- CLAMP MODEL
- PRECALIBRATED CLAMPING FORCE
- BOLT LENGTH (mm)
- "H" DENOTES HIGH TEMP INSULATOR
  Note: Additional bolt lengths available

Note: Bolt Insulator dimension "H" available in either 14mm or standard 24mm height
Standard Insulator working temperature is 105°C, insulation voltage 4 kV.

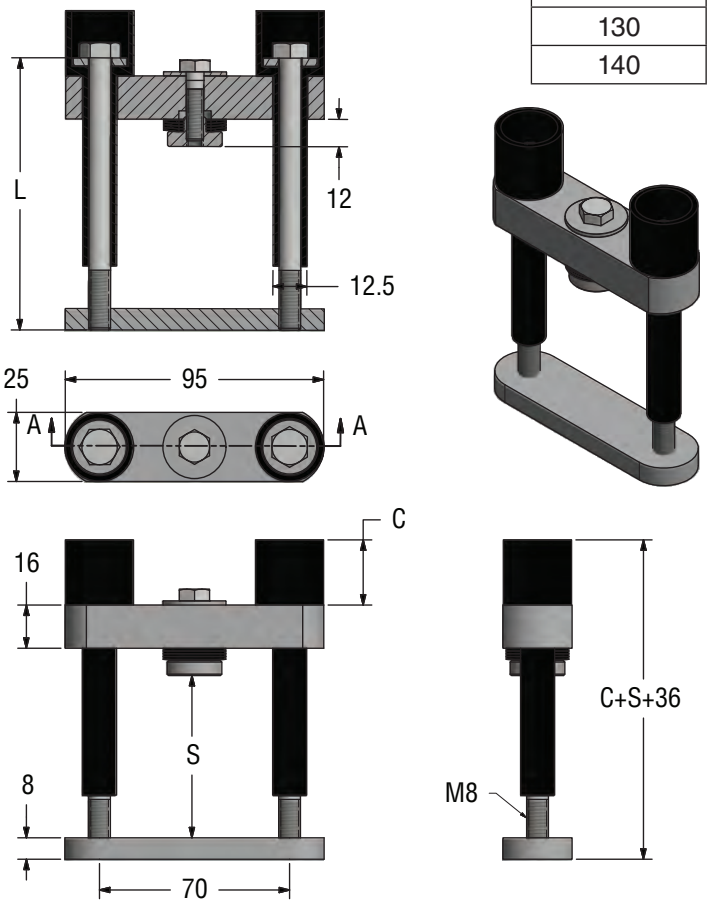
Custom calibrated clamping forces available upon request.
For complete mounting instructions, please visit www.chtechnology.com

CLAMP MODEL: C070D-14KNS

PRECALIBRATED FORCES - 14 kN
BOLT INTERAXYS - 70mm
MAXIMUM PUK DIAMETER - 56mm

BOLT LENGTH CALCULATOR
Note: All Dimensions are in mm

L	S MIN	S MAX
80	26	38
90	36	48
100	46	58
110	56	68
120	66	78
130	76	88
140	86	98



ORDERING INFORMATION EXAMPLE: C070D-14KNS(H)-90

- CLAMP MODEL / PRECALIBRATED CLAMPING FORCE
- BOLT LENGTH (mm)
- "H" DENOTES HIGH TEMP INSULATOR
  Note: Additional bolt lengths available

Note: Bolt Insulator dimension "H" available in either 14mm or standard 24mm height
Standard Insulator working temperature is 105°C, insulation voltage 4 kV.

Custom calibrated clamping forces available upon request.
For complete mounting instructions, please visit www.chtechnology.com

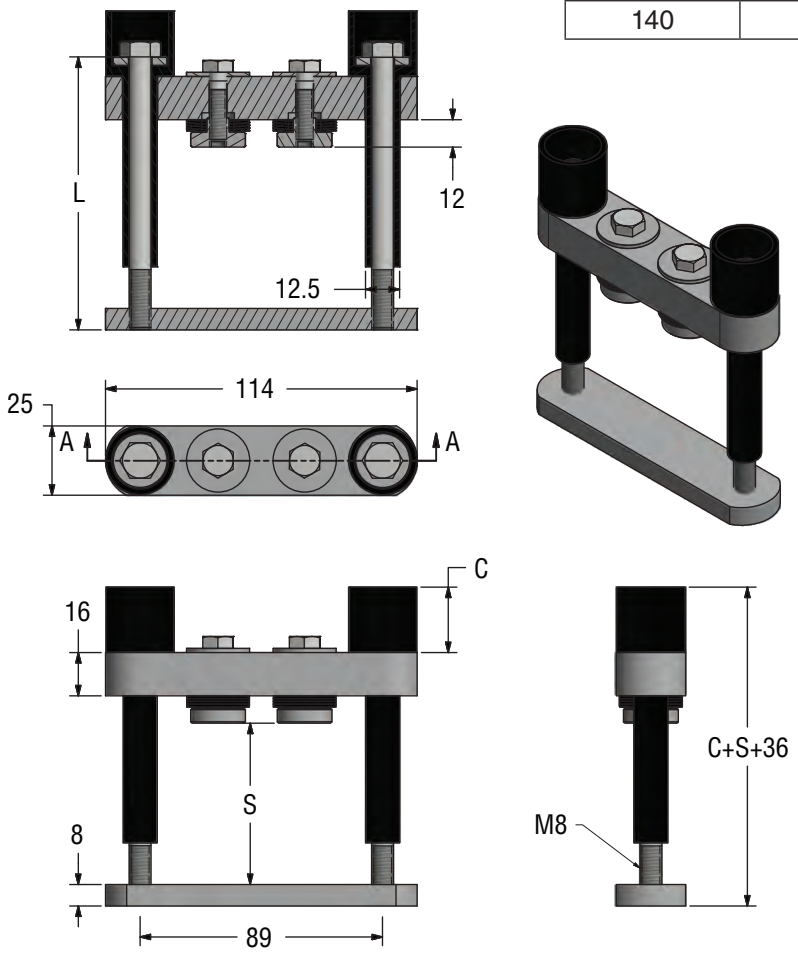
Semiconductor Clamps
Bar Clamps

CLAMP MODEL: C089D

PRECALIBRATED FORCES - 9.8, 14, 18, 21 kN
BOLT INTERAXYS - 89mm
MAXIMUM PUK DIAMETER - 76mm

BOLT LENGTH CALCULATOR
Note: All Dimensions are in mm

L	S MIN	S MAX
100	48	60
110	58	70
120	68	80
130	78	90
140	88	100



ORDERING INFORMATION EXAMPLE: C089D-18KNS(H)-110

- CLAMP MODEL
- PRECALIBRATED CLAMPING FORCE
- BOLT LENGTH (mm)
- "H" DENOTES HIGH TEMP INSULATOR
  Note: Additional bolt lengths available

Note: Bolt Insulator dimension "H" available in either 14mm or standard 24mm height
Standard Insulator working temperature is 105°C, insulation voltage 4 kV.

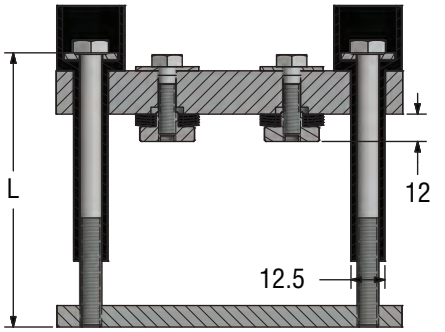
Custom calibrated clamping forces available upon request.
For complete mounting instructions, please visit www.chtechnology.com

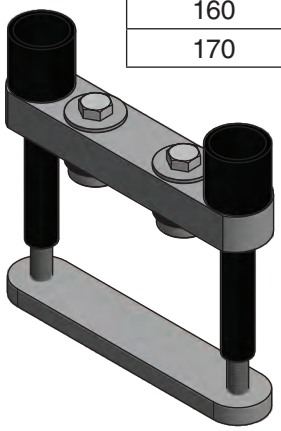
CLAMP MODEL: C102B

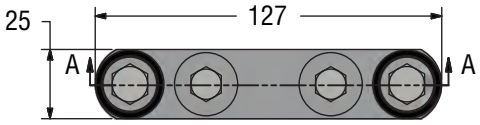
PRECALIBRATED FORCES - 14, 18, 22, 24 kN
BOLT INTERAXYS - 102mm
MAXIMUM PUK DIAMETER - 88mm

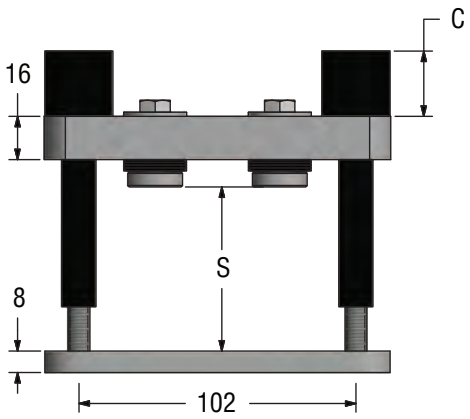
BOLT LENGTH CALCULATOR
Note: All Dimensions are in mm

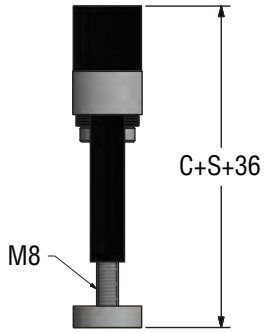
L	S MIN	S MAX
100	48	60
110	58	70
120	68	80
130	78	90
140	88	100
150	98	110
160	108	120
170	118	130











ORDERING INFORMATION EXAMPLE: C102B-22KNS(H)-110

- CLAMP MODEL
- PRECALIBRATED CLAMPING FORCE
- "H" DENOTES HIGH TEMP INSULATOR
  Note: Additional bolt lengths available
- BOLT LENGTH (mm)

Note: Bolt Insulator dimension "H" available in either 14mm or standard 24mm height
Standard Insulator working temperature is 105°C, insulation voltage 4 kV.

Custom calibrated clamping forces available upon request.
For complete mounting instructions, please visit www.chtechnology.com

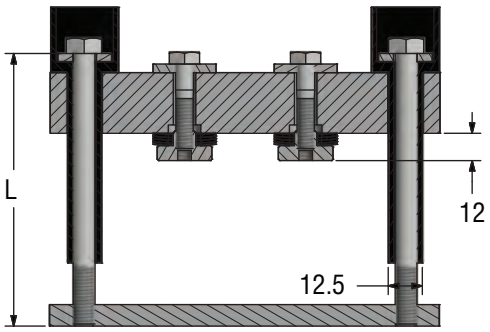
Semiconductor Clamps
Bar Clamps

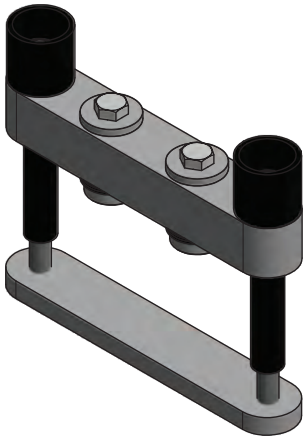
CLAMP MODEL: C118B

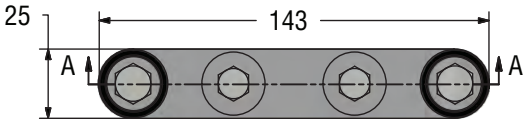
PRECALIBRATED FORCES - 14, 18, 22, 24kN
BOLT INTERAXYS - 118mm
MAXIMUM PUK DIAMETER - 88mm

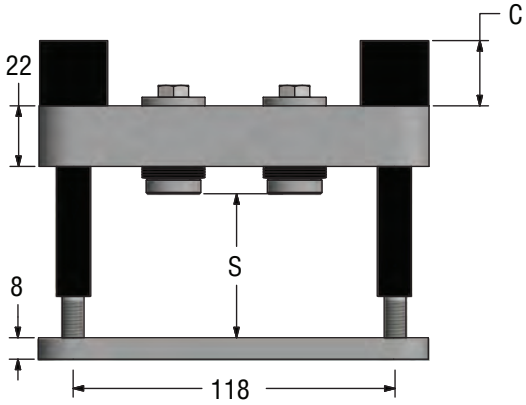
BOLT LENGTH CALCULATOR
Note: All Dimensions are in mm

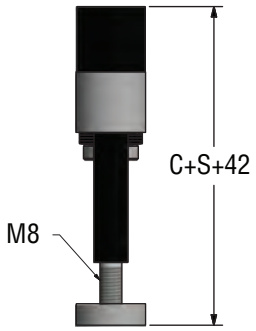
L	S MIN	S MAX
100	38	50
110	48	60
120	58	70
130	68	80
140	78	90
150	88	100
160	98	110
170	108	120











ORDERING INFORMATION EXAMPLE: C118B-22KNS(H)-110

- C118B — CLAMP MODEL
- 22 — PRECALIBRATED CLAMPING FORCE
- KN — KN
- S — S
- (H) — "H" DENOTES HIGH TEMP INSULATOR
- 110 — BOLT LENGTH (mm)

Note: Additional bolt lengths available

Note: Bolt Insulator dimension "H" available in either 14mm or standard 24mm height
Standard Insulator working temperature is 105°C, insulation voltage 4 kV.

Custom calibrated clamping forces available upon request.
For complete mounting instructions, please visit www.chtechnology.com

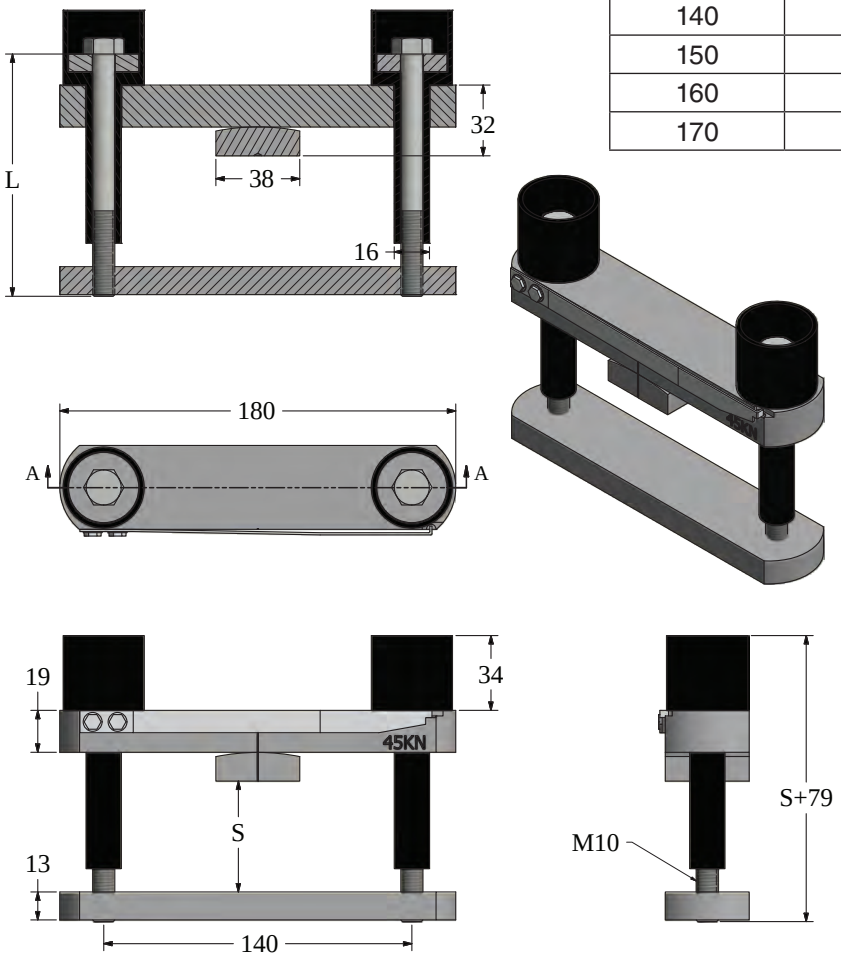
CLAMP MODEL: C140

PRECALIBRATED FORCES - 27, 40, 45kN
BOLT INTERAXYS - 140mm
MAXIMUM PUK DIAMETER - 101mm

BOLT LENGTH CALCULATOR

Note: All Dimensions are in mm

L	S MIN	S MAX
100	28	41
110	38	51
120	48	61
130	58	71
140	68	81
150	78	91
160	88	101
170	98	111



ORDERING INFORMATION EXAMPLE: C140-45KNS-110

- C140 — CLAMP MODEL
- 45KN — PRECALIBRATED CLAMPING FORCE
- 110 — BOLT LENGTH (mm)

Note: Additional bolt lengths available

Note: Standard Insulator working temperature is 105°C, insulation voltage 7 kV.

Custom calibrated clamping forces available upon request.
For complete mounting instructions, please visit www.chtechnology.com

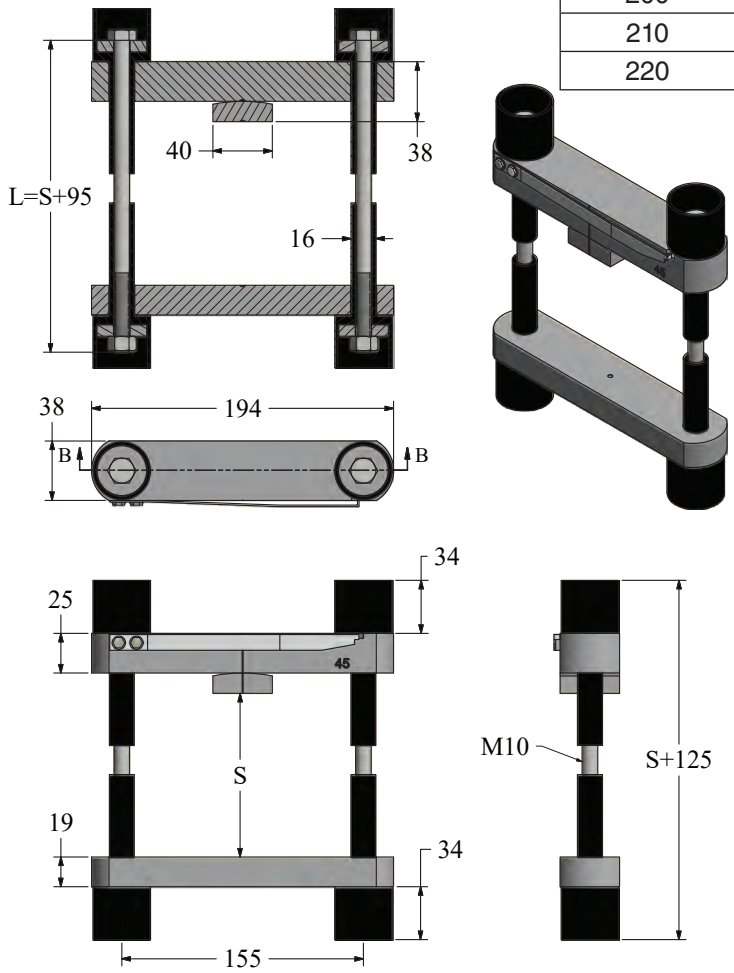
Semiconductor Clamps
Bar Clamps

CLAMP MODEL: C155A

PRECALIBRATED FORCES - 40, 45, 55 kN
BOLT INTERAXYS - 155mm
MAXIMUM PUK DIAMETER - 138mm

BOLT LENGTH CALCULATOR
Note: All Dimensions are in mm

L	S MIN	S MAX
160	52	66
170	62	76
180	72	86
190	82	96
200	92	106
210	102	116
220	112	126



ORDERING INFORMATION EXAMPLE: C155A-45KNS-200

CLAMP MODEL
PRECALIBRATED CLAMPING FORCE
BOLT LENGTH (mm)

Note: Additional bolt lengths available

Note: Standard Insulator working temperature is 105°C, insulation voltage 7 kV.

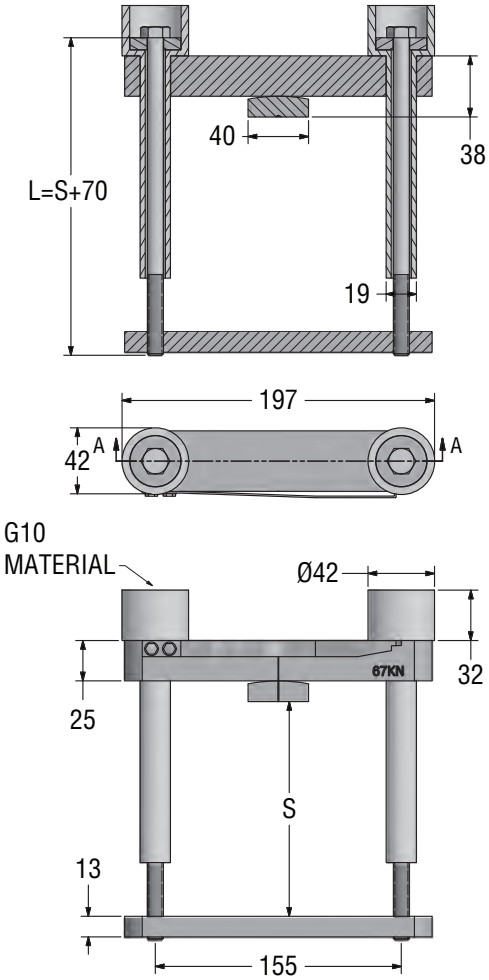
Custom calibrated clamping forces available upon request.
For complete mounting instructions, please visit www.chtechnology.com

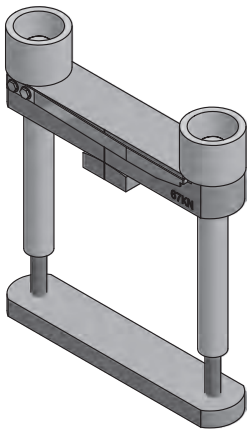
CLAMP MODEL: C155A-67KNS

PRECALIBRATED FORCES - 67 kN
BOLT INTERAXYS - 155mm
MAXIMUM PUK DIAMETER - 138mm

BOLT LENGTH CALCULATOR
Note: All Dimensions are in mm

L	S MIN	S MAX
160	74	87
170	84	97
180	94	107
190	104	117
200	114	127
210	124	137
220	134	147





ORDERING INFORMATION EXAMPLE: C155A-67KNS-200

- CLAMP MODEL
- PRECALIBRATED CLAMPING FORCE
- BOLT LENGTH (mm)

Note: Additional bolt lengths available

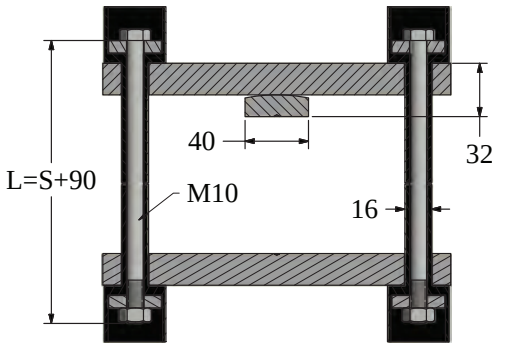
Note: Standard Insulator working temperature is 170°C, insulation voltage 7 kV.

Custom calibrated clamping forces available upon request.
For complete mounting instructions, please visit www.chtechnology.com

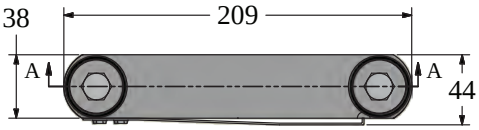
CLAMP MODEL: C170A

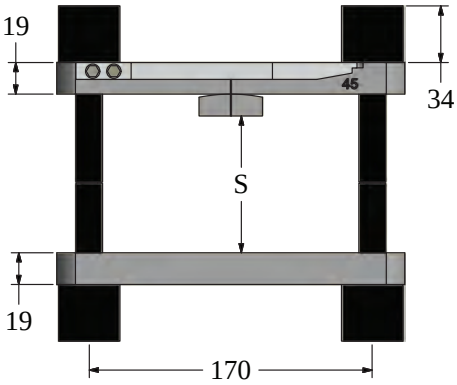
PRECALIBRATED FORCES - 26, 40, 45, 55 kN
BOLT INTERAXYS - 170mm
MAXIMUM PUK DIAMETER - 150mm

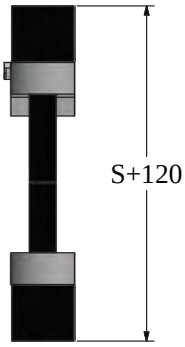
BOLT LENGTH CALCULATOR Note: All Dimensions are in mm		
L	S MIN	S MAX
160	70	80
170	80	90
180	90	100
190	100	110
200	110	120
210	120	130
220	130	140











ORDERING INFORMATION EXAMPLE: C170A-45KNS-200

- C170A — CLAMP MODEL
- 45 — PRECALIBRATED CLAMPING FORCE
- KNS — Note: Additional bolt lengths available
- 200 — BOLT LENGTH (mm)

Note: Standard Insulator working temperature is 105°C, insulation voltage 7 kV.

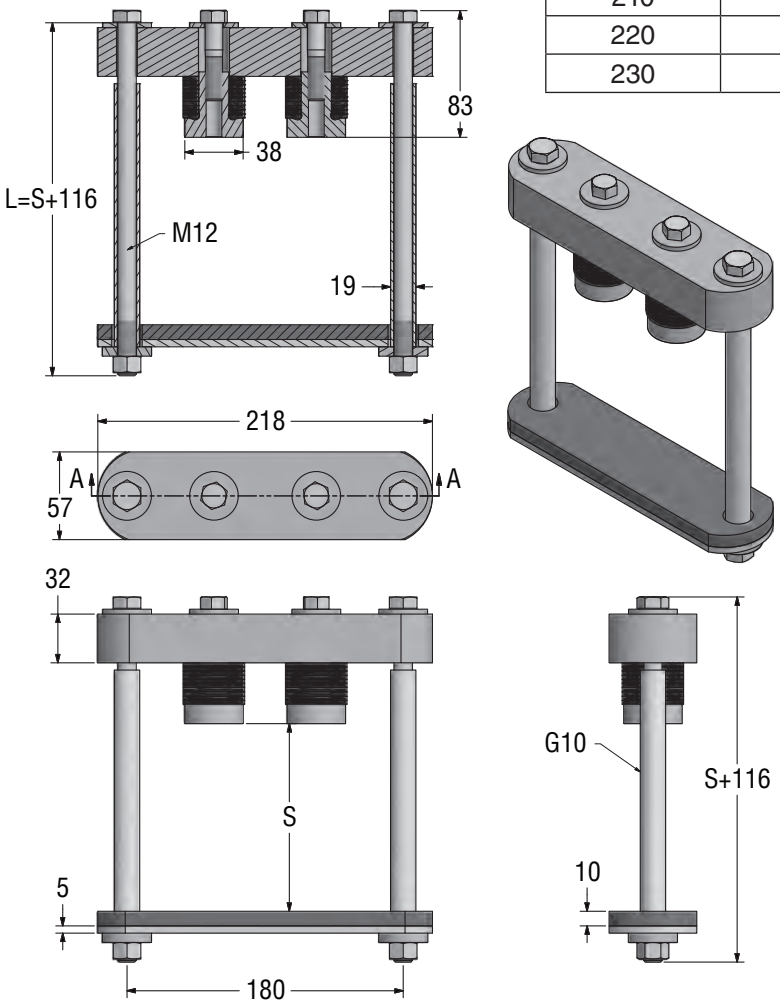
Custom calibrated clamping forces available upon request.
For complete mounting instructions, please visit www.chtechnology.com

CLAMP MODEL: C180

PRECALIBRATED FORCES - 80, 95 kN
BOLT INTERAXYS - 180mm
MAXIMUM PUK DIAMETER - 150mm

BOLT LENGTH CALCULATOR
Note: All Dimensions are in mm

L	S MIN	S MAX
180	46	70
190	56	80
200	66	90
210	76	100
220	86	110
230	96	120



ORDERING INFORMATION EXAMPLE: C180-95KNS-210

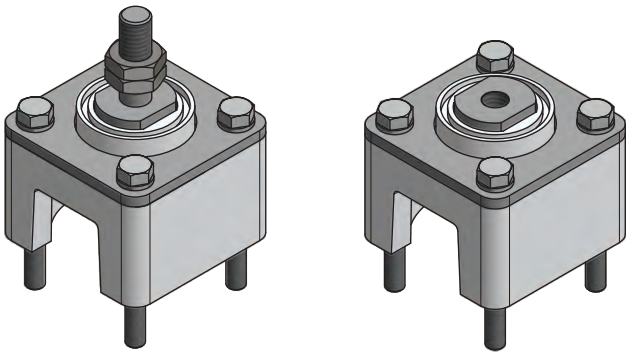
- CLAMP MODEL
- PRECALIBRATED CLAMPING FORCE
- BOLT LENGTH (mm)

Note: Additional bolt lengths available

Custom calibrated clamping forces available upon request.
For complete mounting instructions, please visit www.chtechnology.com

BOX CLAMPS

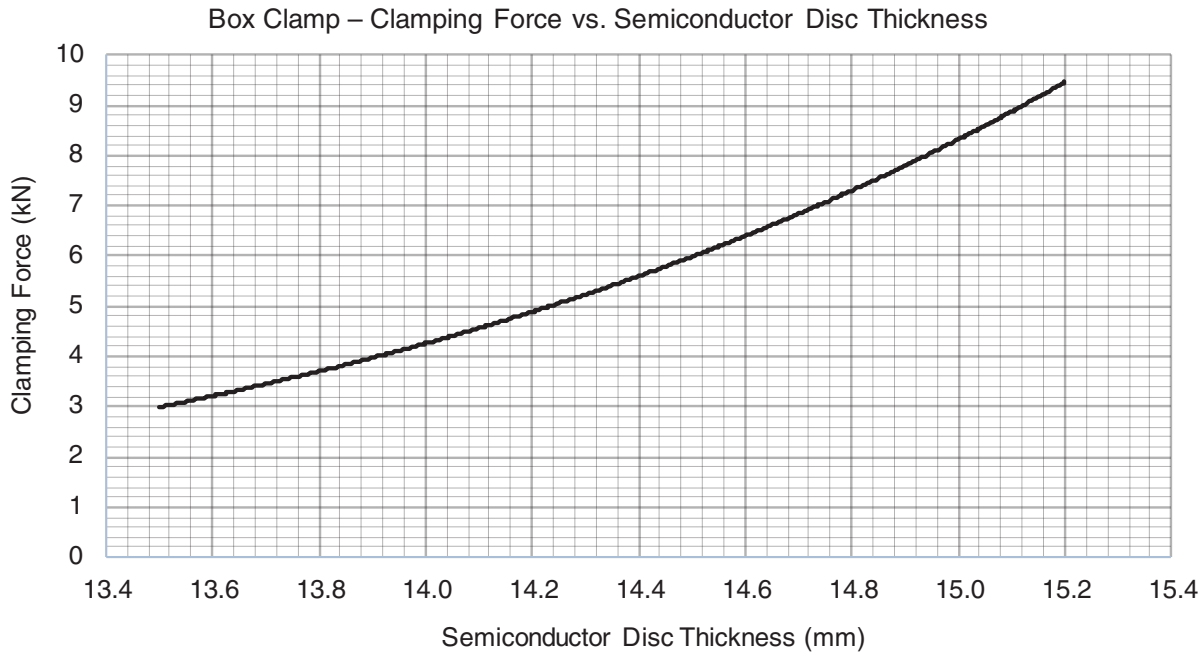
C&H Technology's Box Clamps utilize Belleville Spring Technology for single sided cooling applications. Proper clamping force is achieved when the four corner bolts are tightened evenly, and the Box Clamp housing comes in contact with the Heat Sink.



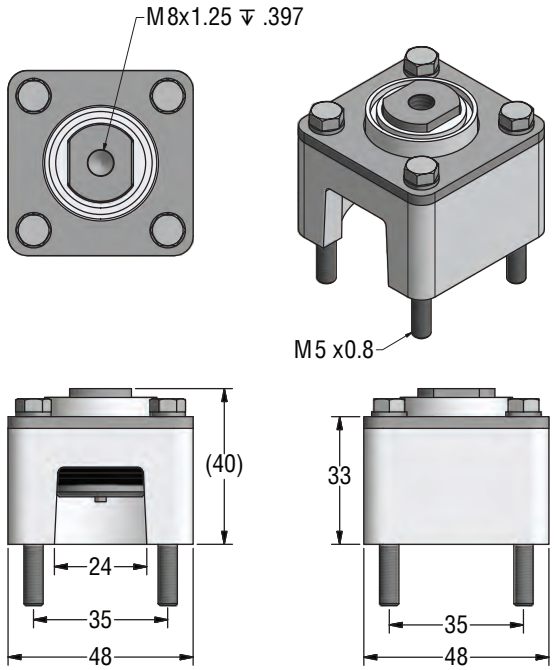
- User friendly assembly
- UL 94V0 plastic material
- M8 or M10 upper threads for threaded holes
- Rugged construction

Manufactured for Hockey Puks
DO-200AA, B-3, TO-200AB (A and E Type)
Larger Sizes available upon request.

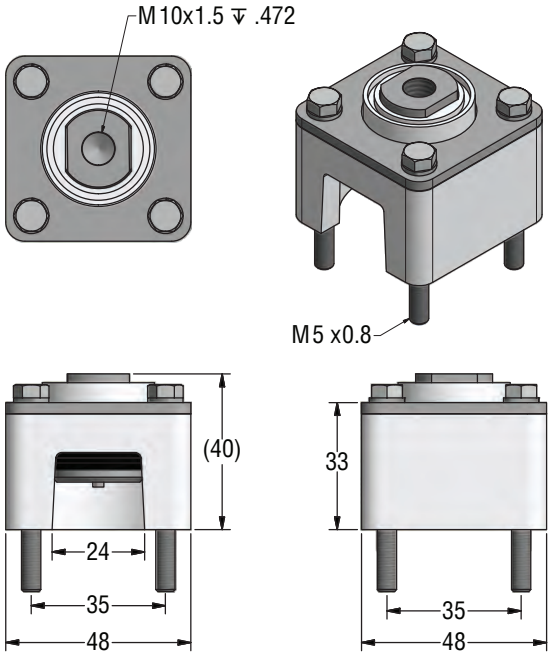
BOX CLAMP SPECIFICATIONS				
Model #	**SBVR-M8**	**SBVR-M10**	**SBMR-M8**	**SBMR-M10**
Upper Threaded Connection	M8	M10	---	---
Threaded Hole x Depth	---	---	M8 x 10	M10 x 12
Max Operating Temperature	90°C	90°C	90°C	90°C
Maximum Semiconductor Diameter	42mm	42mm	42mm	42mm
Mass (without nuts and bolts)	200 g	220 g	190 g	210 g



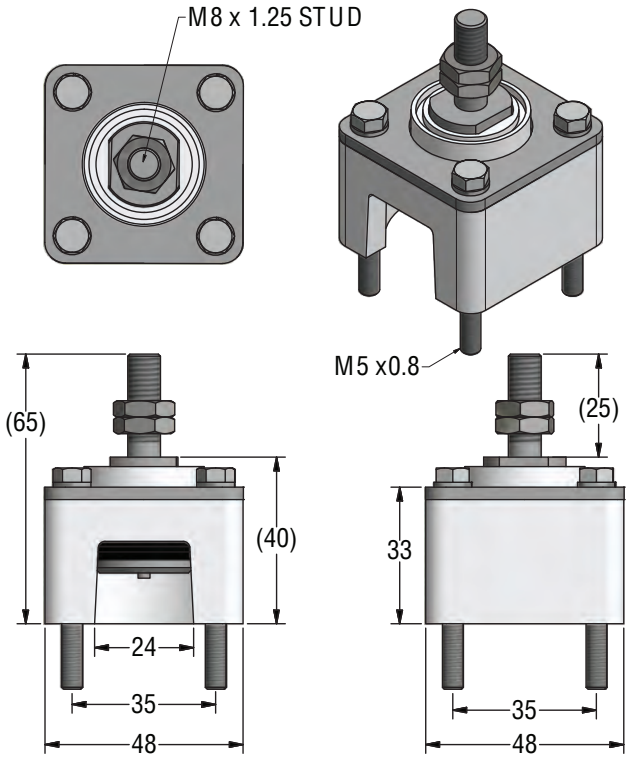
SBMR-M8



SBMR-M10



SBVR-M8



SBVR-M10

