

Modules - Pyro-Bloc® Superwool® AES grades

Product Name	Pyro-Bloc Y, Y ² , M, M ²	
	Superwool® Plus	Superwool® HT
Color	white	
Density, pcf (kg/m ³)	10, 12 (160, 192)	
Thickness, in 1 inch (25 mm) increments	4 - 12 (102 - 305)	
Continuous temperature use limit, °F (°C)	1832 (1000)	2200 (1204)
Classification temperature rating, °F (°C)	2192 (1200)	2300 (1260)
Chemical Analysis, %, Weight basis after firing		
Alumina, Al ₂ O ₃	trace	
Silica, SiO ₂	62 - 68	70 - 80
Calcium Oxide + Magnesium Oxide, CaO+MgO	29 - 39	18 - 25
Other	<3	
Thermal Conductivity, BTU • in./hr • ft ² • °F (W/m • K), ASTM C 201		
measured density, pcf (kg/m ³)	10 (160)	10 (160)
mean temperature, @ 500°F (260°C)	0.48 (0.07)	0.51 (0.07)
@ 1000°F (538°C)	0.84 (0.12)	1.29 (0.19)
@ 1800°F (982°C)	1.55 (0.22)	3.02 (0.44)
@ 2100°F (1149°C)	Beyond continuous use limit	3.89 (0.56)

Availability and Packaging

Please review details for packaging and other availability specifications in the Price Book, Modules and Log section.

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Blanket Modules - folded and stacked Superwool® AES grades

Product Name	Pyro-Fold™, Pyro-Stack™, Unibloc®, Z-Blok®	
	Superwool® Plus	Superwool® HT
Color	white	
Density, pcf (kg/m ³)	8, 9.3, 10.7 (128, 149, 171)	
Thickness, in I inch (25 mm) increments	4 - 12 (102 - 305)	
Continuous temperature use limit, °F (°C)	1832 (1000)	2200 (1204)
Classification temperature rating, °F (°C)	2192 (1200)	2300 (1260)
Chemical Analysis, %, Weight basis after firing		
Silica, SiO ₂	62 - 68	70 - 80
Calcium Oxide + Magnesium Oxide, CaO + MgO	29 - 39	18 - 25
Other	<1	<3
Thermal Conductivity, BTU•in./hr•ft ² •°F (W/m•K), ASTM C 201		
measured density, pcf (kg/m ³)	8 (128)	8 (128)
mean temperature, @ 500°F (260°C)	0.40 (0.06)	0.46 (0.07)
@ 1000°F (538°C)	0.75 (0.11)	0.98 (0.15)
@ 1500°F (816°C)	1.50 (0.23)	2.01 (0.30)
@ 2000°F (1093°C)	Beyond continuous use limit	3.28 (0.49)

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Modules - Pyro-Bloc® RCF grades

Product Name	Pyro-Bloc Y, Y ¹ , M, M ¹			Pyro-Log™			Pyro-Bloc HS
	R Grade	ZR Grade	C Grade	R Grade	ZR Grade	C Grade	HS Grade
Color	white		blue / green	white		blue / green	pale green / white
Density, pcf (kg/m ³)	8*, 10, 12, 15 (128, 160, 192, 240)	10, 12, 15 (160, 192, 240)	12 (192)	8, 10, 12, 15 (128, 160, 192, 240)	10, 12, 15 (160, 192, 240)	12 (192)	23 (368), fired 30 (481) unfired
Thickness, in I inch (25 mm) increments	3 - 12 (76 - 305)			6, 8 (152, 203)		6 (152)	3 - 12 (76 - 305)
Continuous temperature use limit, °F (°C)	2200 (1204)	2450 (1343)	2500 (1371)	2200 (1204)	2450 (1343)	2500 (1371)	2000 (1093)
Classification temperature rating, °F (°C)	2400 (1316)	2600 (1427)		2400 (1316)	2600 (1427)		2200 (1204)
Melting point, °F (°C)	3200 (1760)						-
Chemical Analysis, % Weight basis after firing							
Alumina, Al ₂ O ₃	47	37.5	43	47	37.5	43	-
Silica, SiO ₂	53	47	54	53	47	54	
Zirconia, ZrO ₂	-	15.5	-	-	15.5	-	
Chromium oxide, Cr ₂ O ₃	-	-	3	-	-	3	
Loss on ignition, L.O.I.	trace			-	-	-	
Other	trace						
Thermal Conductivity, BTU•in./hr•ft²•°F (W/m•K), ASTM C 201							
measured density, pcf (kg/m ³)	10 (160)	15 (240)	12 (192)	10 (160)	15 (240)	12 (192)	23 (368)
mean temperature, @ 500°F (260°C)	0.52 (0.07)	0.49 (0.07)	0.50 (0.07)	0.52 (0.07)	0.49 (0.07)	0.50 (0.07)	0.58 (0.08)
@ 1000°F (538°C)	1.04 (0.15)	0.84 (0.12)	0.96 (0.14)	1.04 (0.15)	0.84 (0.12)	0.96 (0.14)	0.98 (0.14)
@ 1500°F (816°C)	1.81 (0.26)	1.43 (0.21)	1.66 (0.24)	1.81 (0.26)	1.43 (0.21)	1.66 (0.24)	1.57 (0.23)
@ 2000°F (1093°C)	2.69 (0.39)	2.19 (0.32)	2.45 (0.35)	2.69 (0.39)	2.19 (0.32)	2.45 (0.35)	2.24 (0.32)

* 8 pcf (128 kg/m³) R Grade are available in only Pyro-Bloc Y modules.

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Blanket Modules - folded and stacked RCF grades

Product Name	Pyro-Fold™, Pyro-Stack™, Z-Blok®, Unibloc®		
	Cerablanket® HP	Cerachem® ZR	Cerachrome® CR
Color	white		blue / green
Density, pcf (kg/m ³)	8, 9.3, 10.7 (128, 149, 171)		9.3, 10.7 (149, 171)
Thickness, in 1 inch (25 mm) increments	4 - 12 (102 - 305)		
Continuous temperature use limit, °F (°C)	2200 (1204)	2450 (1343)	2500 (1371)
Classification temperature rating, °F (°C)	2400 (1316)	2600 (1427)	
Chemical Analysis, %, Weight basis after firing			
Alumina, Al ₂ O ₃	46	35	43
Silica, SiO ₂	54	50	54
Zirconia, ZrO ₂	-	15	-
Chromium oxide, Cr ₂ O ₃		-	3
Other	trace		
Thermal Conductivity, BTU•in./hr•ft ² •°F (W/m•K), ASTM C 201			
measured density, pcf (kg/m ³)	9.3 (149)		
mean temperature, @ 500°F (260°C)	0.52 (0.07)		
@ 1000°F (538°C)	1.00 (0.14)		
@ 1500°F (816°C)	1.66 (0.24)		
@ 2000°F (1093°C)	2.45 (0.35)		

Veneering modules - RCF grades

Product Name	Kaowool®			Pyro-Bloc®			Unifelt®	
	HP Grade	ZR Grade	C Grade	R Grade	ZR Grade	C Grade	3000 (HT)	XT
Color	white		blue / green	white		blue / green	pink	orange
Density, pcf (kg/m ³)	8, 10 (128, 160)			8, 10, 12 (128, 160, 192)	10, 12 (160, 192)	12 (192)	7 (112)	9 (144)
Continuous temperature use limit, °F (°C)	2150 (1177)	2400 (1316)	2450 (1343)	2150 (1177)	2400 (1316)	2500 (1371)	2800 (1538)	2900 (1593)
Classification temperature rating, °F (°C)	2400 (1316)	2600 (1427)		2400 (1316)	2600 (1427)		3000 (1649)	3100 (1704)
Chemical Analysis, %, Weight basis after firing								
Alumina, Al ₂ O ₃	46	35	43	47	37.5	43	72	87
Silica, SiO ₂	54	50	54	53	47	54	28	13
Zirconia, ZrO ₂	-	15	-	-	15.5	-	-	-
Chromium oxide, Cr ₂ O ₃		-	3		-	3		
Loss on ignition, L.O.I.	-	-	-	trace		-	5	5
Other	trace							
Thermal Conductivity, BTU•in./hr•ft ² •°F (W/m•K), ASTM C 201								
measured density, pcf (kg/m ³)	8 (128)	10 (160)		10 (160)	12 (192)		7 (112)	9 (144)
mean temperature, @ 500°F (260°C)	0.57 (0.08)	0.55 (0.08)		0.52 (0.07)	0.50 (0.07)		0.86 (0.12)	0.87 (0.13)
@ 1000°F (538°C)	1.14 (0.16)	0.99 (0.14)		1.04 (0.15)	0.96 (0.14)		1.06 (0.15)	1.01 (0.15)
@ 1500°F (816°C)	1.93 (0.28)	1.66 (0.24)		1.81 (0.26)	1.66 (0.24)		1.45 (0.21)	1.31 (0.19)

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Blanket Modules - stacked PCW grades

Product Name	Pyro-Stack™
	Denka® Alcen™
Color	white
Density, pcf (kg/m ³)	8, 9.3 (128, 149)
Thickness, in inch (25 mm) increments	4 - 12 (102 - 305)
Continuous temperature use limit, °F (°C)	2912 (1600)
Classification temperature rating, °F (°C)	
Chemical Analysis, %, Weight basis after firing	
Alumina, Al ₂ O ₃	80
Silica, SiO ₂	20
Other	trace
Thermal Conductivity, BTU • in./hr • ft ² • °F (W/m • K), ASTM C 201	
measured density, pcf (kg/m ³)	9.3 (149)
mean temperature, @ 500°F (260°C)	0.74 (0.11)
@ 1000°F (538°C)	1.31 (0.19)
@ 1500°F (816°C)	2.36 (0.34)
@ 2000°F (1093°C)	3.66 (0.53)
@ 2500°F (1371°C)	5.05 (0.73)
@ 2700°F (1482°C)	5.61 (0.81)

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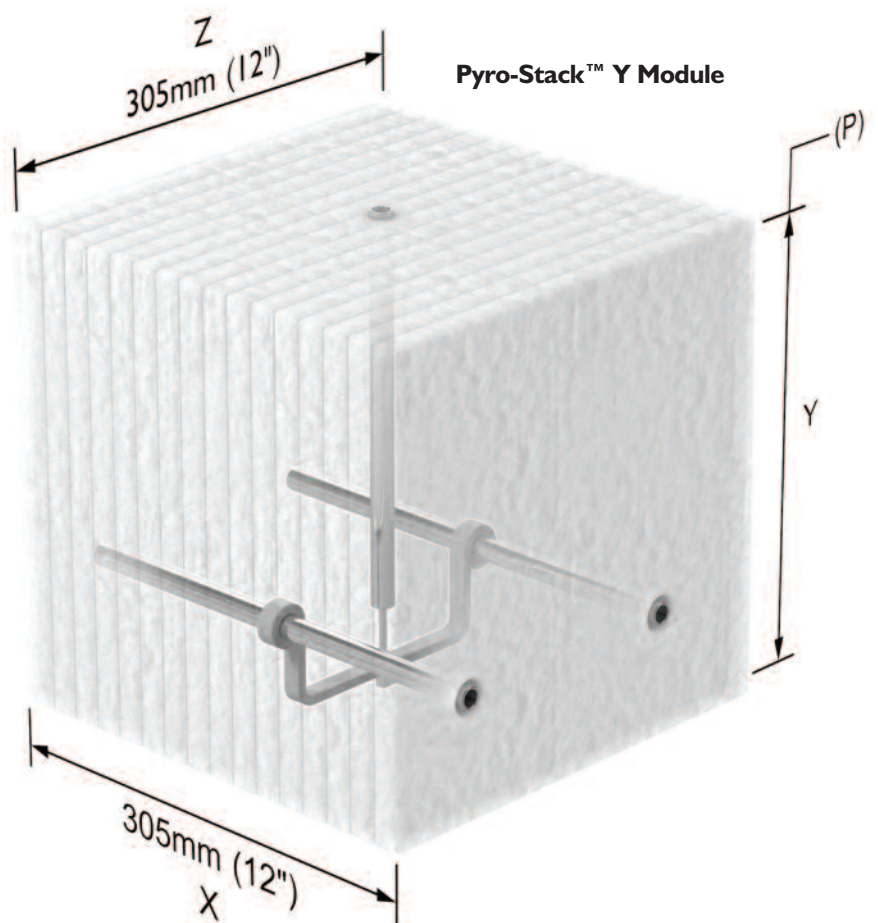
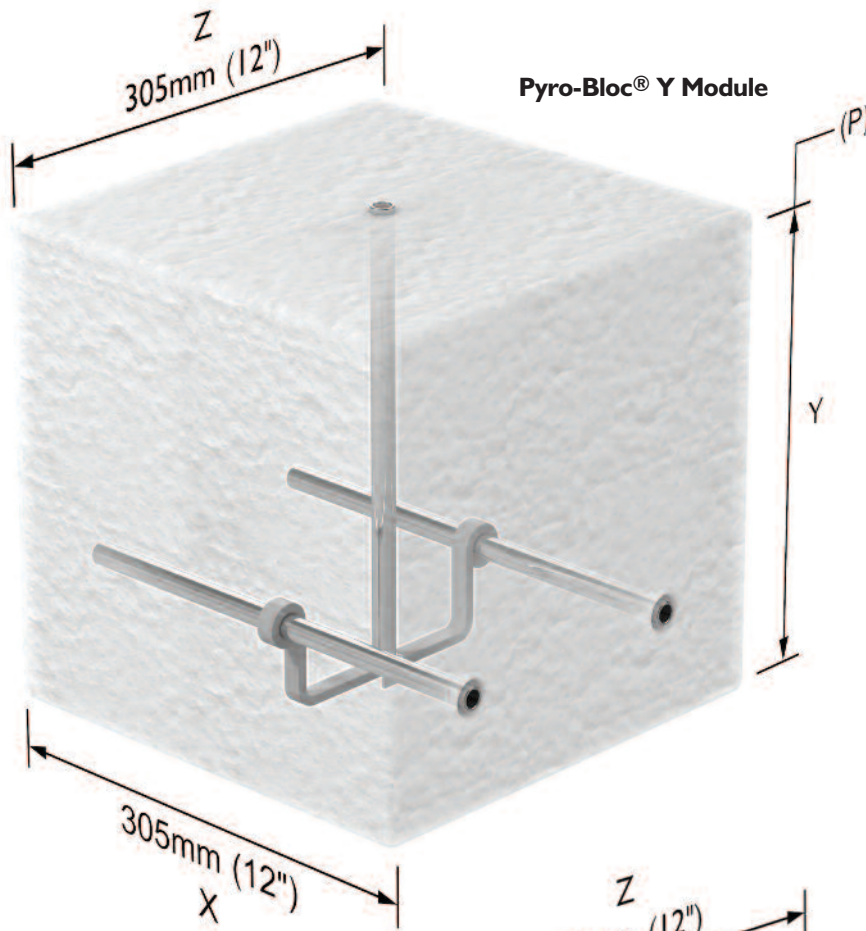
Veneering Modules - PCW grades

Product Name	Denka® Alcen™
Color	white
Density, pcf (kg/m³)	8, 9.3 (128, 149)
Continuous use limit, °F (°C)	2912 (1600)
Chemical Analysis, %, Weight basis after firing	
Alumina, Al ₂ O ₃	80
Silica, SiO ₂	20
Other	trace
Thermal Conductivity, BTU•in./hr•ft²•°F (W/m•K), ASTM C 201	
measured density, pcf (kg/m ³)	9.3 (149)
mean temperature, @ 500°F (260°C)	0.74 (0.11)
@ 1000°F (538°C)	1.31 (0.19)
@ 1500°F (816°C)	2.36 (0.34)
@ 2000°F (1093°C)	3.66 (0.53)
@ 2500°F (1371°C)	5.05 (0.73)
@ 2700°F (1482°C)	5.61 (0.81)

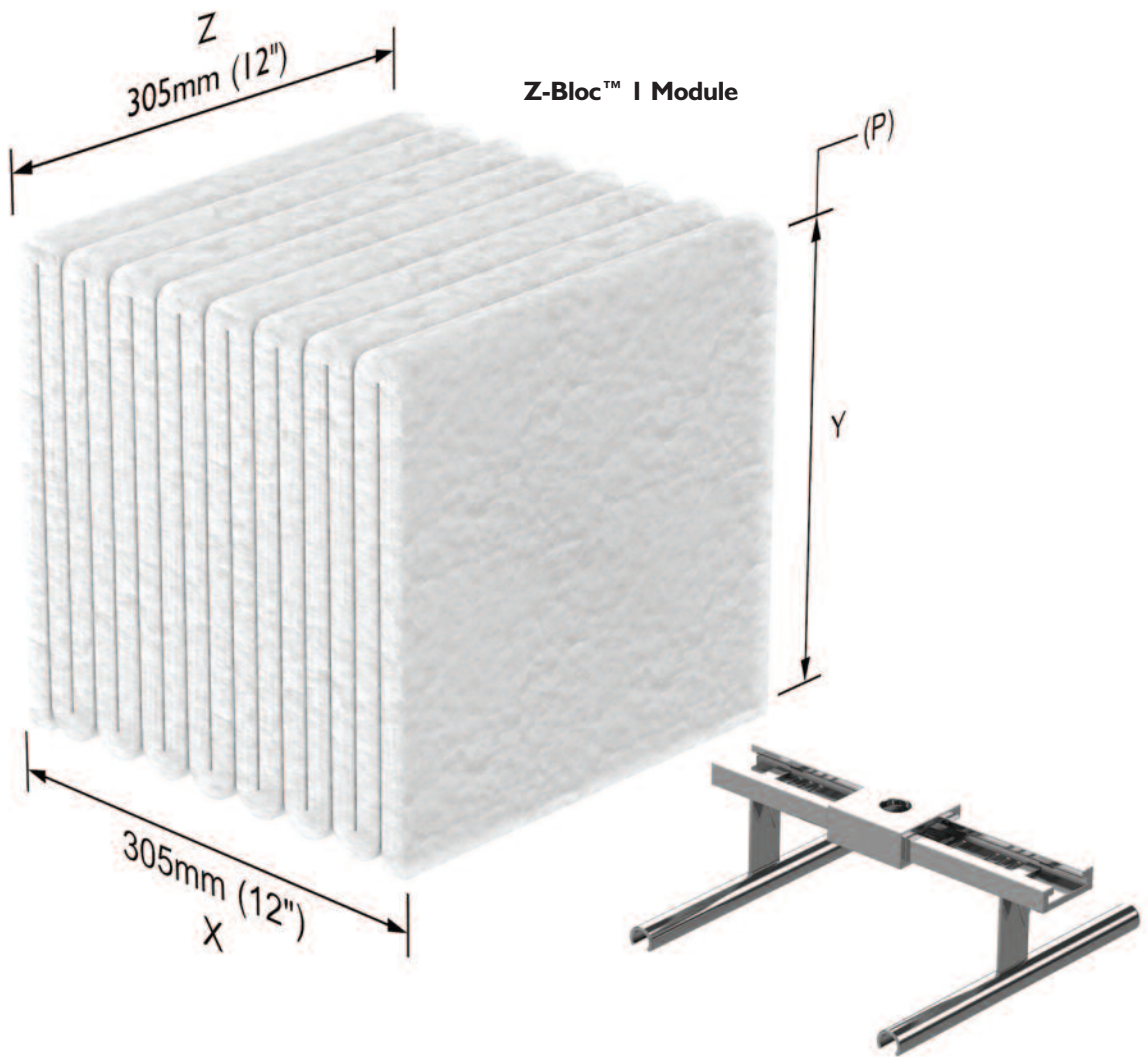
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Types of Modules and internal hardware & attachment systems

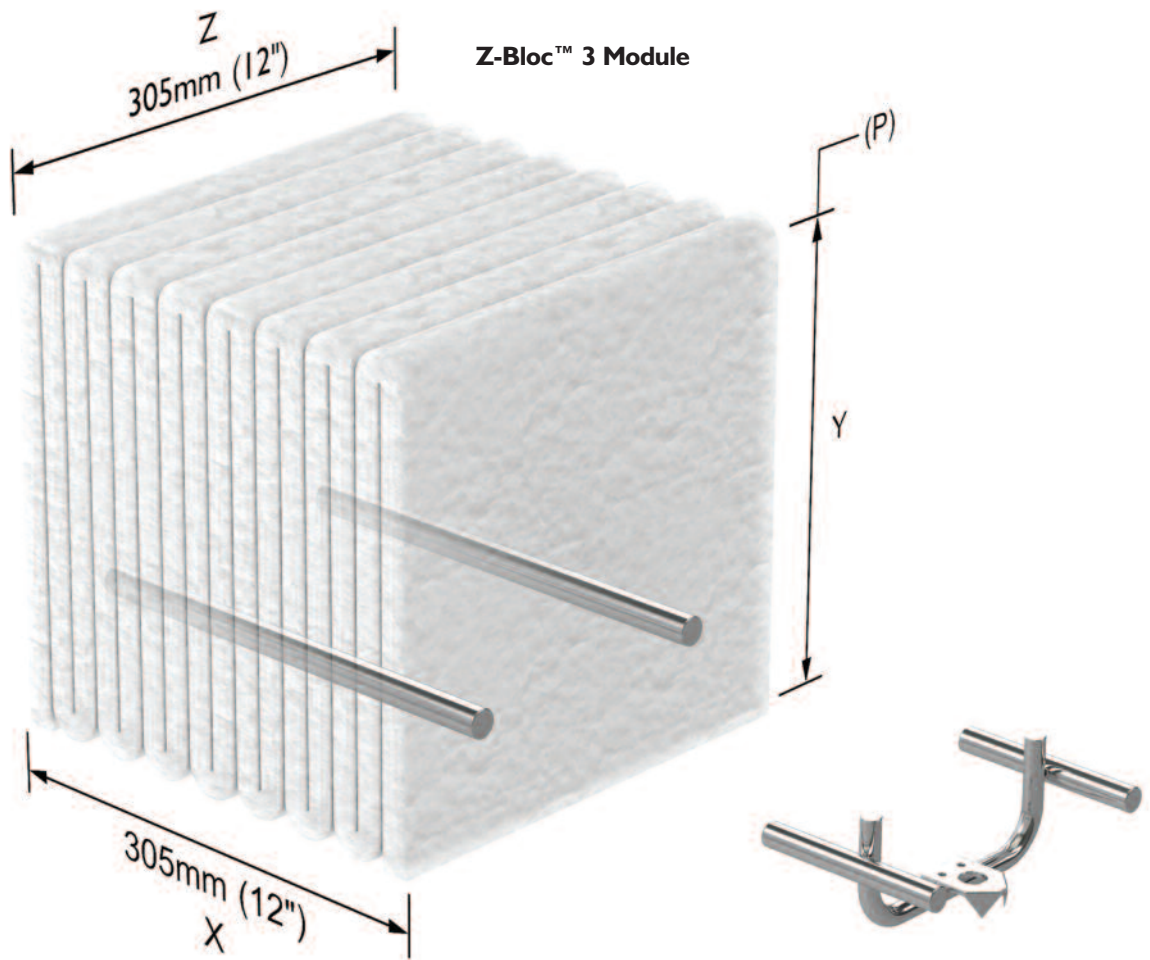


Note: Internal hardware shown are Thermal Ceramics standards

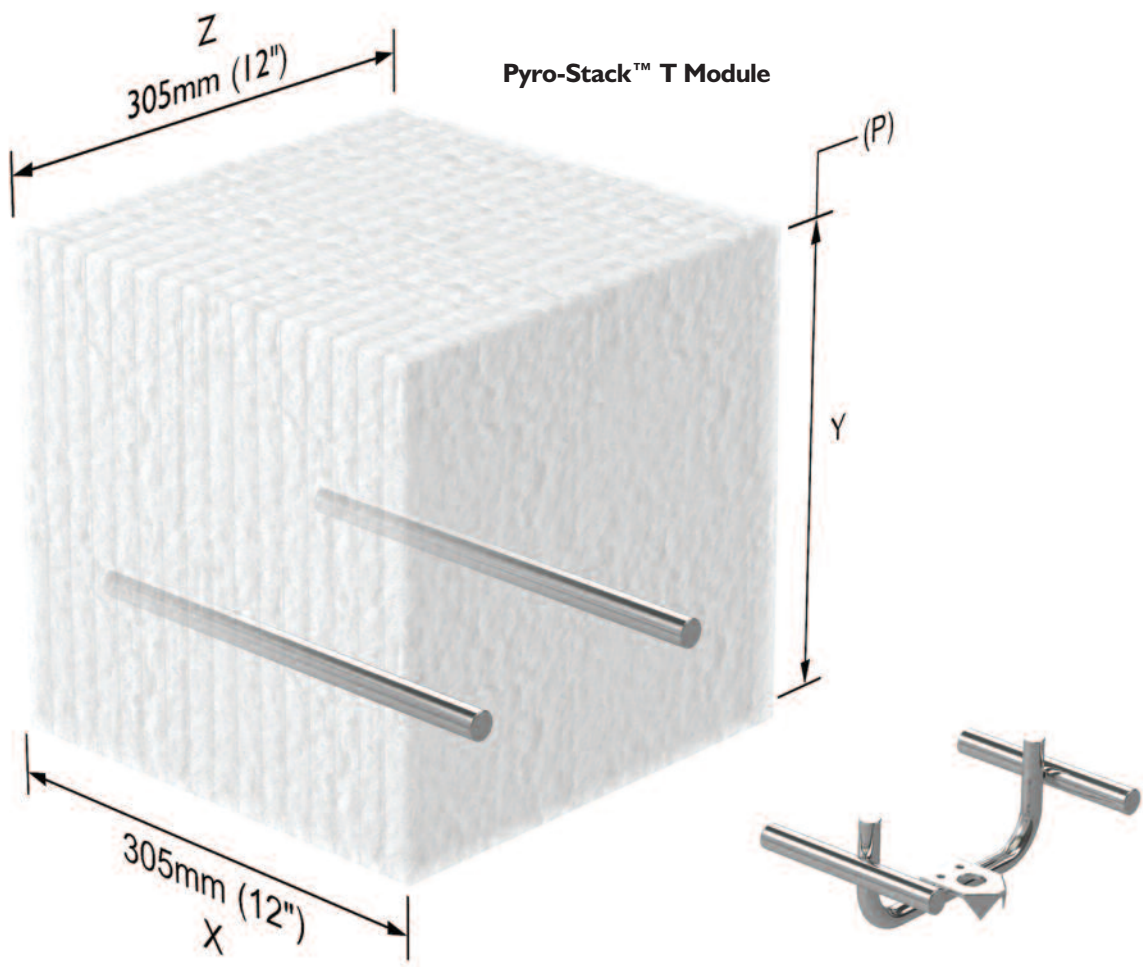


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Types of Modules and internal hardware & attachment systems

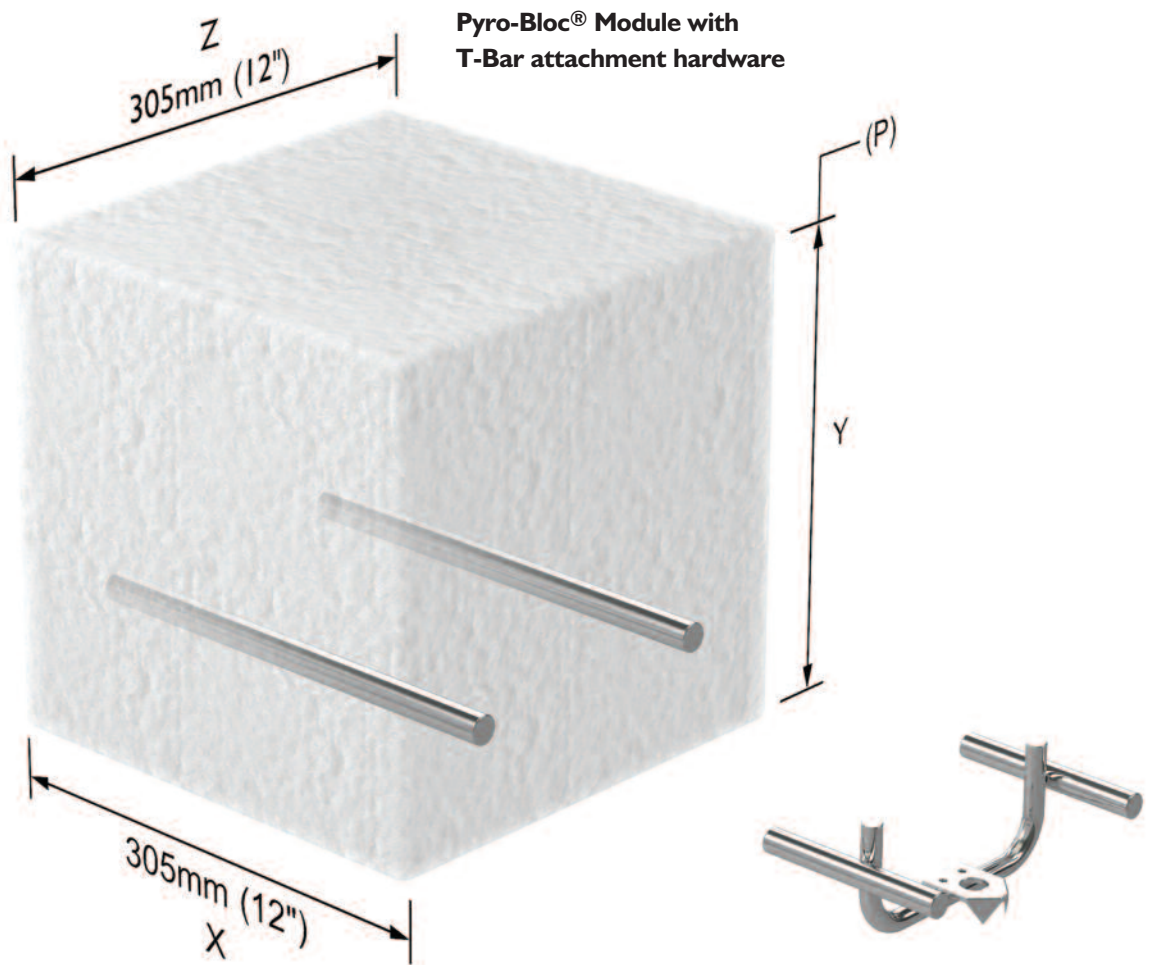


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