



Precision granite and industrial products

THE TECHNICAL GUIDE

The complete guide to granite properties, material and manufacturing considerations, insert design, assembly hardware, thru hole, counterbore and other design standards.

Granite properties guide

GRANITE PROPERTY	BARRE GRAY ®	AMERICAN BLACK ®	IMPALA BLACK *	UNITS
Coefficient of thermal expansion	3.42E-06	3.18E-06	2.16E-06	in/in/°F
	6.16E-06	5.73E-06	3.89E-06	mm/mm/°C
Modulus of elasticity (young's)	3.10E+06	1.05E+07	1.14E+07	psi
	21.4	72.4	78.7	Gpa
Thermal conductivity	2.0	-	1.8	BTU/Hr.Ft.°F
	3.46	-	3.2	W/M°K
Compressive strength	3.00E+04	4.35E+04	3.26E+04	psi
	207	300	225	Mpa
Absorption	0.200%	0.023%	0.090%	-
Poisson's ratio	0.23	-	0.23	-
Density	167	192.3	190	Lb./Ft ³
	2681	3087	3050	kg/M ³
Specific heat	0.2	-	0.2	BTU/Lb/°F

*Impala Black material and granite properties provided by independent distributors.

Barre Gray & American Black
Updated 1/1/2012



Material considerations guide

GRANITE		BARRE GRAY [®]	SALISBURY PINK [®]	AMERICAN BLACK [®]	IMPALA BLACK
Length	Small - medium stock	Up to 96"	Up to 60"	Up to 60"	Up to 60"
	Large stock	96" - 180"	60" - 144"	60" - 120"	60" - 120"
	Oversize stock	Up to 240"	Up to 180"	Please call to discuss	Please call to discuss
	Special order	Please call to discuss	Please call to discuss	Please call to discuss	Please call to discuss
Width*	Small - medium stock	Up to 60"	Up to 48"	Up to 36"	Up to 36"
	Large stock	60" - 96"	48" - 72"	36" - 60"	36" - 60"
	Oversize stock	96" - 144"	72" - 96"	60" - 72"	60" - 72"
	Special order	Please call to discuss	Please call to discuss	Please call to discuss	Please call to discuss
Thickness*	Small - medium stock	Up to 18"	Up to 12"	Up to 12"	Up to 12"
	Large stock	18" - 24"	12" - 24"	12" - 24"	12" - 24"
	Oversize stock	24" - 48"	24" - 36"	24" - 36"	24" - 36"
	Special order	Please call to discuss	Please call to discuss	Please call to discuss	Please call to discuss

Thickness	Nominal stock sizes	2", 4", 6", 8", 10" & 12"
	Non-standard < 12"	Grind from stock
	Non-standard > 12"	Cut to order

*Dependent on other dimension and weight considerations or restrictions

Manufacturing considerations guide

DIMENSIONAL TOLERANCE	UP TO 24"	24" - 72"	OVER 72"
Saw	0.063"	0.125"	0.250"
Grind	0.032"	0.063"	0.063"
Precision grind	0.005"	0.015"	0.032"

FLATNESS OF DIAGONAL	UP TO 24"	24" - 72"	OVER 72"
Grind	0.005" - 0.010"	0.010" - 0.020"	0.020" - 0.030"
Precision grind	0.002" - 0.003"	0.003" - 0.005"	0.005" - 0.010"
Lap	Please call to discuss	Please call to discuss	Please call to discuss

PARALLEL SIDE/ SIDE OR TOP/BOTTOM	UP TO 24"	24" - 72"	OVER 72"
Saw	0.063"	0.125"	0.125"
Grind 1 surface	0.032"	0.063"	0.063"
Grind 2 surface	0.010"	0.032"	0.032"
Precision grind	0.005"	0.010"	0.010"
Lap	Please call to discuss	Please call to discuss	Please call to discuss

FINISHES	COST
As-sawn	Standard
Cosmetically smooth	Inexpensive
Ground	By quotation
Honed	By quotation
Polished	By quotation
Sandblast	By quotation

Insert design guide

Standard

Insert size	Recommended spacing		Minimum spacing	Insert		Allowable torque (FT-LB)
	Edge to center	Center to center	Center to center	Diameter	Length	
4-40	0.750	1.000	0.500	0.500	1.000	-
6-32						
8-32						
10-32						
M4x0.7						
M5x0.8	0.940	1.250	0.625	0.625	1.250	7
.25-20						
.25-28						
M6x1	1.130	1.500	0.750	0.750	1.630	15
.31-18						
.31-24						
M8x1.25						
38-16						
.38-24	1.500	2.000	1.000	1.000	2.000	20
M10x1.5						
.50-13						
.50-20	1.880	2.500	1.250	1.250	2.000	25
M12x1.75						
.62-11						
M14x2						
M16x2						
.75-10	2.250	3.000	1.500	1.500	3.000	30
.75-16						
M20x2.5						
.88-9						
.88-14						
M22x2.5	15					
1.00-8						
M24x3	50					
	70					

Non-standard

4-40	0.57	0.75	0.38	0.375	1.00	-
6-32						
8-32						
10-32						
M4x0.7						
M5x0.8	1.130	1.500	0.750	0.750	3.250	-
.375-16						
M10x1.5	1.130	1.500	0.750	0.750	2.000	-
.750-10	1.875	2.500	1.250	1.250	3.250	-
1.25-7	-	-	-	2.000	2.500	-
1.50-6	-	-	-	2.000	4.000	-
.25-20 INVAR	0.750	1.000	0.500	0.500	1.500	7
M6 X 1 INVAR	0.750	1.000	0.500	0.500	1.500	7
.31-18 INVAR	0.940	1.250	0.630	0.627	2.000	15
.375-24 INVAR						
.375-16 INVAR						
M8x1.25 INVAR						
M10x1.5 INVAR						
.50-13 INVAR	1.500	2.000	1.000	1.000	2.625	25

Revised 12/1/2021



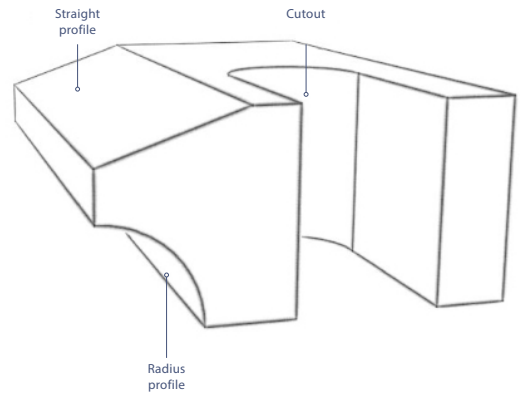
Assembly hardware thru hole and counterbore design standards

THREADED FASTENER SIZE	THROUGH HOLE DIAMETER RANGE (In inches)	COUNTERBORE*	
		DIAMETER (In inches)	DEPTH (In inches)
.25-20	0.38 - 0.50	0.75	0.50
.25-28			
M6x1			
.31-18	0.44 - 0.62	1.00	0.75
.31-24			
.38-16	0.50 - 0.62	1.00	0.75
.38-24			
M8x1.25			
M10x1.5			
.50-13	0.75 - 0.88	1.50	1.00
.50-20			
.62-11	0.88 - 1.00	2.00	1.25
M12x1.75			
M14x2			
M16x2			
.75-10	1.00 - 1.25	2.25	1.50
.75-16			
.88-9			
.88-14			
M20x2.5			
M22x2.5			
1.00-8	1.25 - 1.50	2.50	2.00
M24x3			

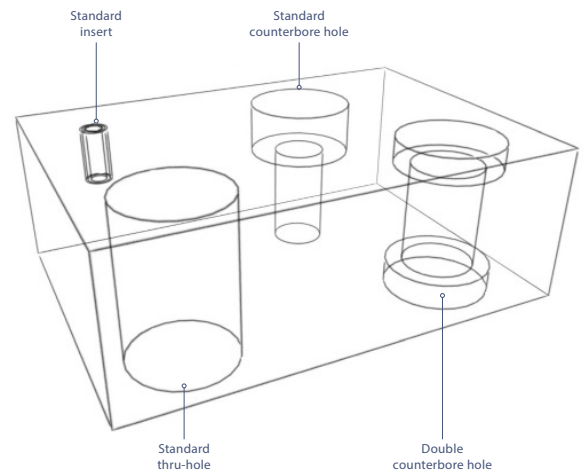
* Recommend use of larger OD washers

Revised 4/6/2016

CUTOUTS - THRU	CAPABILITIES
Saw cut	18" max depth
Contour saw	84" max height
Saw & grind	Please call to discuss
Saw, grind & lap	Please call to discuss

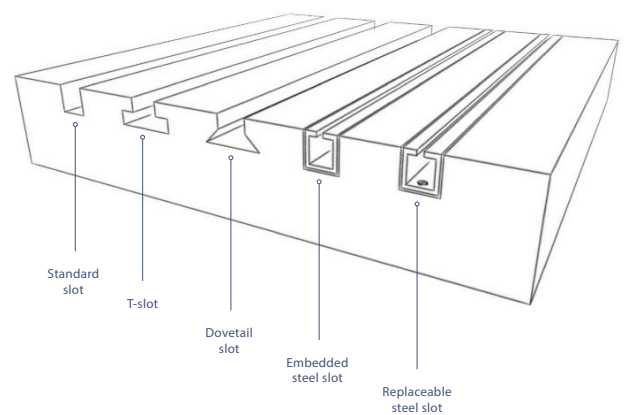


HOLES & COUNTERBORES	CAPABILITIES
Small drill	Inch sizes standard
Large drill	Limited sizes over 5.00"
Metric drill	Please call to discuss
Obround	Please call to discuss
Contoured	Please call to discuss



INSERTS	303 OR 304 STAINLESS STEEL
Blank cylindrical	.38", .50", .63", .75", 1.00", 1.25" & 1.50" Dia.
Inch threaded	Inch standard - please see insert guide
Metric threaded	Metric ISO standard - please see insert guide
Custom cylindrical	Please call to discuss
Custom rectangular	Please call to discuss
Studs/shaft	Please call to discuss

CUT-OUTS - BLIND	CONSIDERATION
Drill/mill	Shallow, need dead zone
Drill/mill & grind	Shallow, need dead zone
Drill/mill, grind & lap	Very difficult, need dead zone



Before you manufacture get some solid advice.

Often our experts can suggest alternate design considerations that meet customer specifications at a much lower cost, and always with proprietary protection.

TO REACH A SALES ENGINEER

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