GRIGGS STEEL COMPANY

NORTH AMERICA'S SOURCE FOR
HIGH SPEED STEEL

800-521-1410

WWW.HIGHSPEEDSTEEL.COM

M1 M2 M3 M4 M7 M42 T1 PM M4 PM T15 PM A11 PM M48

THE GRIGGS

1200 SOUTER DRIVE TROY MI 48083
PHONE: (248) 298-0540 or (800) 521-1410 FAX (248) 298-0546

Frank Mullen
Chairman

Mark Mullen
President

Claudia Ealy
Office Manager

Ed Busi
Vice President of Sales

Lore Hillbom
Inventory Manager

LaRonda Wells
Inside Sales/Accounting

Meghan Mullen
Analyst/Accounts Payable

Teresa Sterling
Billing Clerk

GANG

WWW.HIGHSPEEDSTEEL.COM

No one stocks more grades of flat and round bars than Griggs Steel.

ISO 9001-2015 REGISTERED

SALES@GRIGGSSTEEL.COM

800-521-1410

GRIGGS STEEL INSIDE SALES TEAM

Sandy Grimm
Inside Sales

Doreen Scurto
Inside Sales

Jeff McIntyre
Inside Sales

Katrina Moceri
Inside Sales

Mary Brewer
Inside Sales

Shaena Cox
Inside Sales

INVENTORY AND OPERATIONS

No one stocks more grades and sizes of flat and round bars than Griggs. Inventory is an asset not a liability. We carry over 2,400 inventory items in grades M-1, M-2, M-3, M-4, M-7, M-42, T1, PM M-4, PM T-15, PM A-11, PM M-48, PM 23, PM 30 and PM 60. Any additional sizes can be cut from SHEET, PLATE or BLOCK.

Paul Cavataio
Operations Manager

Eric Daugherty
Operations Team Leader

Brandon Ashburn
Operations Team Leader

Bob Gerard
Warehouse/Shipping

SALES@GRIGGSSTEEL.COM

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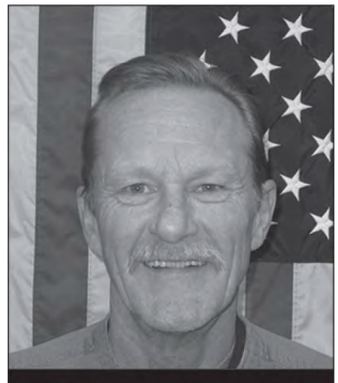
GRIGGS OPERATIONS TEAM

Adam Perry
Warehouse/Saw Operator

Beau Sykes
Warehouse/Saw Operator

Darin Idyle
Warehouse/Saw Operator

Dennis Fournier
Warehouse/Saw Operator



Wayne Thornhill
Warehouse/Saw Operator

Jason Manney
Warehouse/Saw Operator

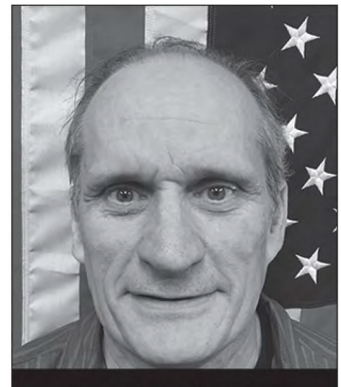
Dale Carroll
Warehouse/Saw Operator

Joe Cook
Warehouse/Saw Operator

Jerry Doering
Warehouse/ Saw Operator

Dave Benia
Warehouse/Saw Operator

Ryan Bollman
Warehouse/Saw Operator



David Koziel
Warehouse/Saw Operator

0.078 (2.0) - 0.456 (11.6)

ROUNDS

SIZE		M 1	M 2	M 3	M 4	M 7	M 42	T 1	PM T 15	PM M 48	A 11
INCHES	METRIC										
0.078	2.0		X								
0.093	2.3		X								
0.109	2.7		X								
0.118	3.0										
0.125	3.2		X			X					
0.130	3.3								X		
0.140	3.6		X			X	X				
0.148	3.8					X					
0.156	4.0		X		X	X			X		
0.172	4.4		X			X	X				
0.177	4.5		X								
0.187	4.7	X	X			X	X				
0.193	4.9		X								
0.203	5.1	X	X		X	X	X		X		
0.218	5.6		X			X	X				
0.231	5.9	X									
0.234	5.9		X			X	X				
0.250	6.3		X			X	X				
0.256	6.5	X	X			X					
0.265	6.7	X	X			X	X		X		X
0.281	7.1		X		X		X				
0.296	7.5		X				X				
0.304	7.7						X				
0.312	7.9		X		X	X	X				
0.320	8.1					X					
0.324	8.2						X				
0.328	8.3	X	X			X	X		X		
0.335	8.5	X							X		
0.343	8.7		X				X				
0.359	9.1		X		X	X	X				
0.375	9.6		X	X	X	X	X		X		
0.383	9.8		X				X				
0.390	9.9	X	X	X	X	X	X		X	X	X
0.406	10.3		X				X				
0.413	10.5	X							X		
0.421	10.7		X			X	X				
0.435	11.0								X		
0.437	11.1		X		X	X	X				
0.445	11.3				X		X				
0.446	11.3					X					
0.453	11.5		X	X		X	X		X		X
0.456	11.6										

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CALCULATE ROUND BAR WEIGHT

Diameter x Diameter x Length x 0.227
(T-15 add 2.5% - 3.0%)
(M-48 add 3.5% - 4.0%)

(measurements are in inches)

SIZE		M 1	M 2	M 3	M 4	M 7	M 42	T 1	PM M 4	PM T 15	PM M 48	A 11
INCHES	METRIC											
0.468	11.9	X	X	X	X	X	X		X	X		X
0.472	12.0								X			
0.476	12.1	X		x								
0.484	12.3		X			X	X					
0.492	12.5					X						
0.500	12.7	X	X			X	X		X			
0.506	12.9		X			X						
0.515	13.1		X	X	X	X	X	X	X	X	X	X
0.520	13.2	X										
0.531	13.5		X			X	X					
0.546	13.9		X				X					
0.562	14.2		X		X	X	X		X			
0.565	14.4			X	X							
0.575	14.6			X								
0.578	14.7		X	X	X	X	X		X	X		
0.593	15.0		X				X					
0.609	15.4		X			X						
0.619	15.7					X						
0.625	15.9		X			X	X		X			X
0.627	15.9					X						
0.632	16.0		X		X							
0.640	16.2		X	X	X	X	X	X	X	X	X	X
0.646	16.4		X									
0.656	16.7		X			X						
0.671	17.1		X			X						
0.687	17.4	X	X		X		X					
0.694	17.6		X									
0.702	17.9		X			X	X					
0.718	18.2		X			X	X					
0.719	18.2	X										
0.734	18.7		X			X	X					
0.738	18.7								X			
0.750	19.0		X	X		X	X		X			
0.758	19.2		X	X	X							
0.765	19.4		X	X	X	X	X	X	X	X	X	X
0.781	19.8		X		X	X						
0.785	19.9	X										
0.797	20.3		X				X					
0.812	20.6		X	X	X	X	X	X	X	X		
0.828	21.0		X	X	X	X	X		X			
0.843	21.4		X									
0.859	21.8		X									

0.468 (11.9) - 0.859 (21.8)

ROUNDS

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CALCULATE ROUND BAR WEIGHT

Diameter x Diameter x Length x 0.227
(T-15 add 2.5% - 3.0%)
(M-48 add 3.5% - 4.0%)

(measurements are in inches)

0.875 (22.2) - 1.468 (37.3)

ROUNDS

SIZE		M 1	M 2	M 3	M 4	M 7	M 42	T 1	PM M 4	PM T 15	PM M 48	A 11
INCHES	METRIC											
0.875	22.2		X	X		X	X					
0.883	22.4		X									
0.890	22.6		X	X	X	X	X	X	X	X	X	X
0.906	23.0		X									
0.937	23.8	X	X				X		X			
0.943	24.0		X		X							
0.953	24.2		X									
0.968	24.6		X			X	X					
0.973	24.7								X			
0.984	25.0		X									
1.000	25.4		X		X		X					
1.008	25.6					X						
1.015	25.8		X	X	X	X	X	X	X	X	X	X
1.018	25.9	X										
1.031	26.2		X			X			X			
1.046	26.6		X									
1.062	27.0		X	X	X	X	X		X	X		
1.078	27.3								X		X	
1.093	27.8	X	X									
1.125	28.5		X	X			X					
1.140	29.0		X	X	X	X	X		X	X		
1.156	29.4		X									
1.172	29.9		X									
1.187	30.2		X	X	X	X	X		X			
1.192	30.3		X									
1.203	30.5		X			X		X				
1.218	30.9		X	X		X			X			
1.250	31.7		X	X		X	X					
1.258	31.9		X									
1.265	32.1		X		X	X	X	X	X	X	X	X
1.281	32.5		X			X	X					
1.312	33.4		X	X			X					
1.328	33.7									X		
1.330	33.8						X					
1.343	34.1		X			X			X			
1.375	34.9		X		X	X	X					
1.390	35.3		X	X	X	X	X	X	X	X	X	
1.406	35.7		X									
1.437	36.5		X	X	X		X		X			
1.445	36.7			X								
1.453	36.9		X			X	X					
1.468	37.3		X									

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CALCULATE
ROUND BAR WEIGHT

Diameter x Diameter x Length x 0.227
(T-15 add 2.5% - 3.0%)
(M-48 add 3.5% - 4.0%)

(measurements are in inches)

SIZE		M 1	M 2	M 3	M 4	M 7	M 42	T 1	PM M 4	PM T 15	PM M 48	A 11
INCHES	METRIC											
1.500	38.1		X	X		X	X					
1.507	38.3		X									
1.515	38.4		X	X	X	X	X		X	X	X	X
1.518	38.5				X			X				
1.531	38.9		X			X			X			
1.562	39.7		X	X	X		X					
1.578	40.0						X		X	X		
1.593	40.3		X									
1.625	41.3		X	X			X					
1.640	41.6	X	X	X	X	X	X	X	X	X	X	X
1.656	42.1	X										
1.687	42.5		X	X			X		X			
1.750	44.4		X				X					
1.765	44.8			X	X	X						X
1.770	44.9		X				X		X	X		
1.781	45.2	X	X								X	
1.812	46.0	X	X	X	X		X					
1.843	46.8		X									
1.875	47.6		X									
1.890	48.0		X	X	X	X	X		X	X		
1.906	48.4		X	X								
1.937	49.2		X				X					
1.969	50.0						X					
2.000	50.8		X	X								
2.020	51.3		X		X	X	X		X	X		X
2.031	51.7		X				X	X			X	
2.047	52.0						X					
2.062	52.4		X	X	X	X	X		X	X		
2.125	54.0		X	X								
2.140	54.3		X				X	X	X			
2.187	55.6		X									
2.250	57.1		X	X	X							
2.265	57.5				X	X	X	X	X			
2.280	57.9	X	X						X	X		X
2.312	58.7		X				X					
2.375	60.3		X		X		X					
2.390	60.6		X		X			X	X	X		
2.437	61.9		X									
2.500	63.5		X		X							
2.515	63.9		X		X			X	X			
2.520	64.0											X
2.531	64.3		X			X	X	X		X	X	

1.500 (38.1) - 2.531 (64.3)

ROUNDS

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CALCULATE ROUND BAR WEIGHT

Diameter x Diameter x Length x 0.227
(T-15 add 2.5% - 3.0%)
(M-48 add 3.5% - 4.0%)

(measurements are in inches)

2.562 (65.1) - 5.375 (136.5)

ROUNDS

SIZE		M 1	M 2	M 3	M 4	M 7	M 42	T 1	PM M 4	PM T 15	PM M 48	A 11
INCHES	METRIC											
2.562	65.1		X				X					
2.578	65.4								X			X
2.625	66.7	X	X	X		X	X					
2.640	67.0				X				X			
2.750	69.9		X		X		X					
2.765	70.2					X						
2.780	70.7		X						X	X	X	X
2.812	71.4		X						X			
2.875	73.0		X									
2.937	74.6		X						X			
3.000	76.2		X									
3.020	76.7		X				X		X	X		
3.062	77.8		X	X	X	X	X		X	X	X	
3.125	79.3		X									
3.187	80.9			X								
3.250	82.5		X				X					
3.281	83.3				X				X			X
3.312	84.1		X					X				
3.375	85.7		X	X								
3.404	86.5								X			
3.437	87.3								X			
3.500	88.9		X									
3.531	89.7								X	X		
3.562	90.5		X		X		X		X	X	X	
3.593	91.2								X			
3.625	92.1		X						X	X		
3.750	95.2		X									
3.780	96.0						X		X			
3.812	96.8		X		X							
4.000	101.6		X									
4.062	103.2		X		X		X	X		X	X	X
4.125	104.7								X			
4.250	107.9		X									
4.312	109.5		X		X		X					
4.375	111.1			X								
4.562	115.9	X	X		X		X		X			X
4.750	120.6		X									
4.780	121.2						X					
4.812	122.2		X									
5.062	128.6	X	X		X		X		X	X		X
5.312	134.9		X				X					
5.375	136.5				X				X			

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CALCULATE
ROUND BAR WEIGHT

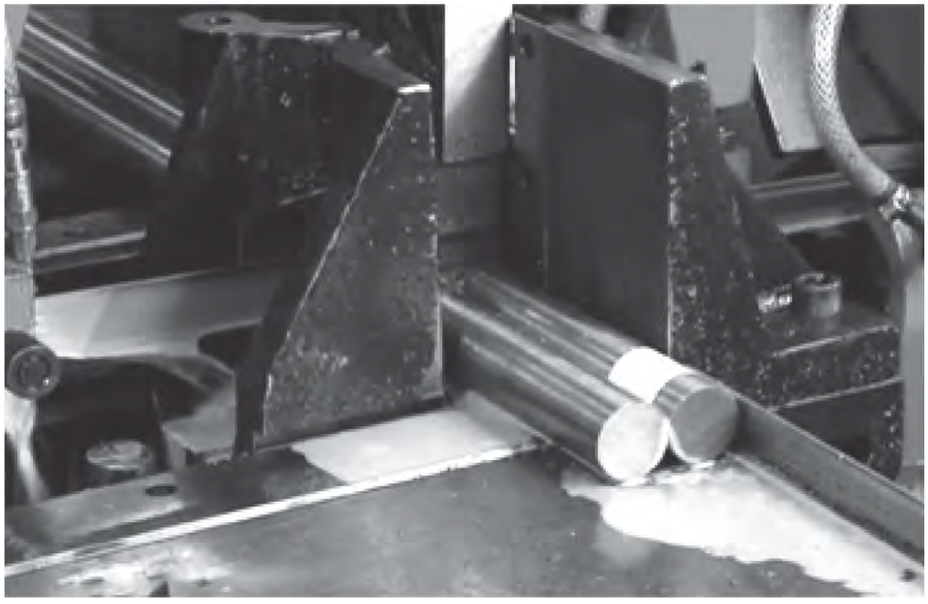
Diameter x Diameter x Length x 0.227
(T-15 add 2.5% - 3.0%)
(M-48 add 3.5% - 4.0%)

(measurements are in inches)

SIZE		M 1	M 2	M 3	M 4	M 7	M 42	T 1	PM M 4	PM T 15	PM M 48	A 11
INCHES	METRIC											
5.562	141.3		X		X				X	X		
5.812	148.7		X									
6.000	152.4		X									
6.062	154.0	X	X				X		X	X		X
6.125	155.6				X							
6.250	158.6		X						X			
6.375	161.9				X							
6.562	166.8		X						X			
6.625					X							
6.812	173.0		X		X							
7.062	179.3	X					X					
7.125	181.0		X		X				X			X
7.562	192.0	X	X									
7.625	193.5				X							X
8.093	205.6	X										
8.125	206.4		X		X		X		X			
8.562	217.4		X									
8.750	222.3						X		X			
9.125	231.8		X				X		X			
10.125	257.2		X				X					
11.125	282.3		X									
12.125	308.0		X									

5.562 (141.3) - 12.125 (308)

ROUNDS



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CALCULATE
ROUND BAR WEIGHT

Diameter x Diameter x Length x 0.227
(T-15 add 2.5% - 3.0%)
(M-48 add 3.5% - 4.0%)

(measurements are in inches)

1/8 (3.2) - 5/16 (7.9)

FLATS

SIZE		M 2	M 3	M 4	M 42	PM M 4	PM T 15	PM M 48
INCHES	METRIC							
1/8 x 3/8	(3.2 x 9.5)						X	
1/8 x 25/32	(3.2 x 19.9)	X						
1/8 x 29/32	(3.2 x 23.0)	X						
1/8 x 1-1/16	(3.2 x 27.0)	X						
1/8 x 1-3/16	(3.2 x 30.2)	X						
5/32 x 17/32	(4.0 x 13.5)				X			
5/32 x 23/32	(4.0 x 18.2)				X			
5/32 x 25/32	(4.0 x 19.9)	X					X	
5/32 x 13/16	(4.0 x 20.6)	X						
5/32 x 7/8	(4.0 x 22.2)	X						
5/32 x 1-1/32	(4.0 x 26.2)				X			
5/32 x 1-1/16	(4.0 x 27.0)	X						
5/32 x 1-7/16	(4.0 x 36.8)	X						
5/32 x 1-13/16	(4.0 x 46.0)	X						
5/32 x 2-3/8	(4.0 x 60.3)						X	
3/16 x 1/2	(4.8 x 12.7)	X						
3/16 x 3/5	(4.8 x 15.7)	X						
3/16 x 5/8	(4.8 x 15.9)	X						
3/16 x 1-1/16	(4.8 x 27.0)	X						
3/16 x 1-5/16	(4.8 x 33.3)	X						
3/16 x 1-9/16	(4.8 x 39.7)	X						
3/16 x 2-1/16	(4.8 x 52.4)	X					X	
7/32 x 1/2	(5.6 x 12.7)	X						
7/32 x 9/16	(5.6 x 14.2)				X			
7/32 x 15/16	(5.6 x 23.8)				X			
7/32 x 1	(5.6 x 25.4)				X		X	
7/32 x 1-3/16	(5.6 x 30.2)	X			X			
1/4 x 1/4	(6.4 x 6.4)	X						
1/4 x 1/2	(6.4 x 12.7)	X						
1/4 x 5/8	(6.4 x 15.9)	X						
1/4 x 3/4	(6.4 x 19.0)	X						
1/4 x 7/8	(6.4 x 22.2)	X						
1/4 x 1	(6.4 x 25.4)	X						
1/4 x 1-1/8	(6.4 x 28.6)	X						
1/4 x 1-1/4	(6.4 x 31.7)	X						
1/4 x 3-1/16	(6.4 x 77.8)	X						
9/32 x 25/32	(7.1 x 19.9)				X			
9/32 x 1-1/16	(7.1 x 27.0)				X		X	
9/32 x 1-1/8	(7.1 x 28.6)	X						
9/32 x 1-9/32	(7.1 x 32.5)				X			
5/16 x 5/16	(7.9 x 7.9)	X						
5/16 x 15/32	(7.9 x 11.9)	X					X	

LARGER FLAT SIZES CAN BE CUT FROM BLOCK OR PLATE - M-2. M-3, M-42, PM M4, PM T15, PM A11, PM M48

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CALCULATE FLAT BAR WEIGHT

Thickness x Width x Length x 0.2833
(T-15 add 2.5% - 3.0%)
(M-48 add 3.5% - 4.0%)

(measurements are in inches)

SIZE		M 2	M 3	M 4	M 42	PM M 4	PM T 15	PM M 48
INCHES	**METRIC**							
5/16 x 1/2	(7.9 x 12.7)	X						
5/16 x 5/8	(7.9 x 15.9)	X						
5/16 x 13/16	(7.9 x 20.6)	X					X	
5/16 x 1	(7.9 x 25.4)	X			X			
5/16 x 1-1/16	(7.9 x 27.0)	X						
5/16 x 1-1/4	(7.9 x 31.8)			X				
5/16 x 1-5/16	(7.9 x 33.3)			X				
.335 x .335	(8.5 x 8.5)	X						
3/8 x 3/8	(9.5 x 9.5)	X						
3/8 x 5/8	(9.5 x 15.9)	X						
3/8 x 11/16	(9.5 x 17.5)				X			
3/8 x 1	(9.5 x 25.4)	X						
3/8 x 1-1/16	(9.5 x 27.0)				X			
3/8 x 1-1/8	(9.5 x 28.5)	X						
3/8 x 1-1/4	(9.5 x 31.7)	X						
3/8 x 1-5/16	(9.5 x 33.3)				X			
3/8 x 1-3/8	(9.5 x 34.9)	X		X			X	
3/8 x 1-7/16	(9.5 x 36.5)					X		
3/8 x 1-1/2	(9.5 x 38.1)	X						
3/8 x 3-1/16	(9.5 x 77.8)	X						
13/32 x 13/32	(10.3 x 10.3)				X			
13/32 x 17/32	(10.3 x 13.5)				X			
13/32 x 1-7/16	(10.3 x 36.5)					X		
7/16 x 7/16	(11.1 x 11.1)	X						
7/16 x 11/16	(11.1 x 17.5)	X						
7/16 x 13/16	(11.1 x 20.6)			X				
7/16 x 7/8	(11.1 x 22.2)			X				
7/16 x 1	(11.1 x 25.4)	X						
7/16 x 1-1/16	(11.1 x 27.0)	X						
7/16 x 1-7/16	(11.1 x 36.8)	X						
7/16 x 1-9/16	(11.1 x 39.7)	X		X	X			
7/16 x 1-13/16	(11.1 x 46.0)	X			X		X	
7/16 x 2-3/8	(11.1 x 60.3)	X						
1/2 x 1/2	(12.7 x 12.7)	X						
1/2 x 3/4	(12.7 x 19.0)	X						
1/2 x 7/8	(12.7 x 22.2)	X						
1/2 x 1-1/8	(12.7 x 28.5)	X						
1/2 x 1-5/16	(12.7 x 33.3)	X						
1/2 x 1-1/2	(12.7 x 38.1)	X						
1/2 x 1-5/8	(12.7 x 41.2)	X						
1/2 x 1-3/4	(12.7 x 44.5)				X			
17/32 x 25/32	(13.5 x 19.8)				X		X	

LARGER FLAT SIZES CAN BE CUT FROM BLOCK OR PLATE - M-2. M-3, M-42, PM M4, PM T15, PM A11, PM M48

5/16 (7.9) - 17/32 (13.5)

FLATS

800-521-1410
CALL TODAY

CALCULATE
FLAT BAR WEIGHT

Thickness x Width x Length x 0.2833
(T-15 add 2.5% - 3.0%)
(M-48 add 3.5% - 4.0%)

(measurements are in inches)

17/32 (13.5) - 3/4 (19.0)

FLATS

SIZE		M 2	M 3	M 4	M 42	PM M 4	PM T 15	PM M 48
INCHES	METRIC							
17/32 x 1-17/32	(13.5 x 38.9)				X	X	X	
17/32 x 1-11/16	(13.5 x 42.0)	X						
9/16 x 9/16	(14.2 x 14.2)	X			X		X	
9/16 x 13/16	(14.2 x 20.6)	X						
9/16 x 15/16	(14.2 x 23.8)	X						
9/16 x 1	(14.2 x 25.4)	X						
9/16 x 1-1/16	(14.2 x 27.0)	X		X	X	X		
9/16 x 1-1/8	(14.2 x 28.5)	X						
9/16 x 1-3/16	(14.2 x 30.2)	X						
9/16 x 1-5/16	(14.2 x 33.3)	X				X	X	
9/16 x 1-7/16	(14.2 x 36.8)		X		X			
9/16 x 1-9/16	(14.2 x 39.7)	X			X	X		
9/16 x 1-11/16	(14.2 x 42.0)	X						
9/16 x 1-13/16	(14.2 x 46.0)	X						
9/16 x 2-1/16	(14.2 x 52.4)	X						
19/32 x 2-9/32	(15.0 x 53.8)						X	
5/8 x 5/8	(15.9 x 15.9)	X						
5/8 x 3/4	(15.9 x 19.0)	X						
5/8 x 1	(15.9 x 25.4)	X						
5/8 x 1-1/8	(15.9 x 28.5)	X						
5/8 x 1-1/4	(15.9 x 31.7)	X						
5/8 x 1-3/8	(15.9 x 34.9)			X				
5/8 x 1-1/2	(15.9 x 38.1)	X						
5/8 x 1-5/8	(15.9 x 41.2)	X						
5/8 x 2-1/8	(15.9 x 45.0)	X						
5/8 x 2-3/8	(15.9 x 60.3)	X						
5/8 x 2-5/8	(15.9 x 66.7)	X						
5/8 x 3-1/8	(15.9 x 79.3)			X				
21/32 x 1-17/32	(16.7 x 38.9)				X			
21/32 x 1-5/8	(16.7 x 41.3)			X				
11/16 x 11/16	(17.5 x 17.5)			X	X			
11/16 x 1-1/16	(17.5 x 27.0)	X		X				
11/16 x 1-3/16	(17.5 x 30.2)	X						
11/16 x 1-3/8	(17.5 x 34.9)	X						
11/16 x 1-7/16	(17.5 x 36.5)	X						
11/16 x 1-9/16	(17.5 x 39.7)	X		X	X			
11/16 x 1-11/16	(17.5 x 42.5)	X				X		
11/16 x 1-3/4	(17.5 x 44.4)		X					
11/16 x 1-13/16	(17.5 x 46.0)	X						
11/16 x 2-1/8	(17.5 x 54.0)				X			
3/4 x 3/4	(19.0 x 19.0)	X						
3/4 x 7/8	(19.0 x 22.2)	X						

LARGER FLAT SIZES CAN BE CUT FROM BLOCK OR PLATE - M-2. M-3, M-42, PM M4, PM T15, PM A11, PM M48

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CALCULATE FLAT BAR WEIGHT

Thickness x Width x Length x 0.2833
(T-15 add 2.5% - 3.0%)
(M-48 add 3.5% - 4.0%)

(measurements are in inches)

SIZE		M 2	M 3	M 4	M 42	PM M 4	PM T 15	PM M 48
INCHES	**METRIC**							
3/4 x 1	(19.0 x 25.4)	X						
3/4 x 1-1/16	(19.0 x 27.0)					X	X	
3/4 x 1-1/8	(19.0 x 28.5)	X						
3/4 x 1-1/4	(19.0 x 31.7)	X						
3/4 x 1-3/8	(19.0 x 34.9)	X						
3/4 x 1-7/16	(19.0 x 36.5)							
3/4 x 1-1/2	(19.0 x 38.1)	X						
3/4 x 1-5/8	(19.0 x 41.2)	X			X			
3/4 x 1-3/4	(19.0 x 44.4)	X						
3/4 x 2	(19.0 x 50.8)	X						
3/4 x 2-1/2	(19.0 x 63.5)		X					
25/32 x 1-17/32	(19.9 x 38.9)						X	
13/16 x 13/16	(20.6 x 20.6)	X			X			
13/16 x 7/8	(20.6 x 22.2)					X		
13/16 x 1-1/16	(20.6 x 27.0)	X						
13/16 x 1-5/16	(20.6 x 33.4)		X					
13/16 x 1-7/16	(20.6 x 36.5)	X						
13/16 x 1-9/16	(20.6 x 39.7)	X				X		
13/16 x 1-11/16	(20.6 x 42.5)	X						
13/16 x 1-13/16	(20.6 x 46.0)	X	X					
13/16 x 2-1/2	(20.6 x 63.5)	X						
7/8 x 7/8	(22.2 x 22.2)	X						
7/8 x 1-1/16	(22.2 x 27.0)				X			
7/8 x 1-1/8	(22.2 x 28.6)	X						
7/8 x 1-1/4	(22.2 x 31.7)	X						
7/8 x 1-3/8	(22.2 x 34.9)	X			X	X		
7/8 x 1-1/2	(22.2 x 38.1)		X					
7/8 x 1-5/8	(22.2 x 41.2)	X	X		X	X		
7/8 x 1-3/4	(22.2 x 44.4)	X						
7/8 x 1-13/16	(22.2 x 46.0)	X						
7/8 x 3-1/4	(22.2 x 82.5)	X						
15/16 x 1-1/16	(23.8 x 27.0)				X			
15/16 x 1-3/16	(23.8 x 30.2)	X						
15/16 x 1-13/32	(23.8 x 35.7)					X		
15/16 x 1-9/16	(23.8 x 39.7)	X						
15/16 x 1-5/8	(23.8 x 41.3)						X	
15/16 x 1-11/16	(23.8 x 42.5)	X						
15/16 x 1-13/16	(23.8 x 46.0)	X						
15/16 x 2-1/16	(23.8 x 52.4)			X				
15/16 x 2-1/8	(23.8 x 54.0)				X			
15/16 x 2-9/16	(23.8 x 65.1)				X			
15/16 x 3-1/16	(23.8 x 77.8)				X			

LARGER FLAT SIZES CAN BE CUT FROM BLOCK OR PLATE - M-2. M-3, M-42, PM M4, PM T15, PM A11, PM M48

3/4 (19.0) - 15/16 (23.8)

FLATS

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CALCULATE
FLAT BAR WEIGHT

Thickness x Width x Length x 0.2833
(T-15 add 2.5% - 3.0%)
(M-48 add 3.5% - 4.0%)

(measurements are in inches)

1 (25.4) - 1-3/16 (30.2)

FLATS

SIZE		M 2	M 3	M 4	M 42	PM M 4	PM T 15	PM M 48
INCHES	METRIC							
1 x 1	(25.4 x 25.4)	X						
1 x 1-3/16	(25.4 x 30.2)					X		
1 x 1-1/4	(25.4 x 31.7)	X						
1 x 1-3/8	(25.4 x 34.9)				X			
1 x 1-7/16	(25.4 x 36.5)		X					
1 x 1-1/2	(25.4 x 38.1)	X						
1 x 1-5/8	(25.4 x 41.2)							
1 x 1-3/4	(25.4 x 44.4)	X						
1 x 1-7/8	(25.4 x 47.6)	X						
1 x 2-1/4	(25.4 x 57.1)	X						
1 x 2-1/2	(25.4 x 63.5)	X						
1-1/32 x 1-1/32	(26.2 x 26.2)			X				
1-1/32 x 1-9/32	(26.2 x 32.6)							X
1-1/32 x 2-17/32	(26.2 x 64.2)						X	
1-1/16 x 1-1/16	(27.0 x 27.0)	X			X	X	X	X
1-1/16 x 1-3/16	(27.0 x 30.2)	X						
1-1/16 x 1-5/16	(27.0 x 33.3)	X	X		X		X	X
1-1/16 x 1-7/16	(27.0 x 26.5)		X		X			
1-1/16 x 1-9/16	(27.0 x 39.7)	X			X			
1-1/16 x 1-11/16	(27.0 x 42.5)	X			X			
1-1/16 x 1-13/16	(27.0 x 46.0)	X	X		X			
1-1/16 x 2-1/16	(27.0 x 52.4)	X			X	X	X	
1-1/16 x 2-3/16	(27.0 x 55.6)	X						
1-1/16 x 2-5/16	(27.0 x 58.7)				X			
1-1/16 x 2-9/16	(27.0 x 65.1)				X			
1-1/16 x 2-5/8	(27.0 x 66.7)				X			
1-1/16 x 2-7/8	(27.0 x 73.0)				X			
1-1/8 x 1-3/8	(28.5 x 34.9)	X						
1-1/8 x 1-9/16	(28.5 X 39.7)				X			
1-1/8 x 1-5/8	(28.5 x 41.2)				X			
1-1/8 x 2-1/8	(28.5 x 54.0)	X			X			
1-1/8 x 2-3/8	(28.5 x 60.3)		X					
1-1/8 x 2-1/2	(28.5 x 63.5)	X						
1-1/8 x 2-5/8	(28.5 x 66.7)				X			
1-5/32 x 1-7/32	(29.3 x 31.0)					X		
1-5/32 x 1-5/16	(29.3 x 33.3)					X		
1-3/16 x 1-3/16	(30.2 x 30.2)					X		
1-3/16 x 1-5/16	(30.2 x 33.4)	X						
1-3/16 x 1-3/8	(30.2 x 34.9)					X		
1-3/16 x 1-9/16	(30.2 x 39.7)				X			
1-3/16 x 1-5/8	(30.2 x 41.2)	X						
1-3/16 x 1-11/16	(30.2 x 42.9)				X			

LARGER FLAT SIZES CAN BE CUT FROM BLOCK OR PLATE - M-2. M-3, M-42, PM M4, PM T15, PM A11, PM M48

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CALCULATE FLAT BAR WEIGHT

Thickness x Width x Length x 0.2833
(T-15 add 2.5% - 3.0%)
(M-48 add 3.5% - 4.0%)

(measurements are in inches)

SIZE		M 2	M 3	M 4	M 42	PM M 4	PM T 15	PM M 48
INCHES	METRIC							
1-3/16 x 1-13/16	(30.2 x 46.0)	X			X			X
1-3/16 x 1-7/8	(30.2 x 47.6)				X			
1-3/16 x 1-15/16	(30.2 x 49.2)	X						
1-3/16 x 2-3/16	(30.2 x 55.6)				X			
1-3/16 x 3-7/16	(30.2 x 87.3)				X			
1-7/32 x 1-13/32	(31.0 x 35.7)					X		
1-1/4 x 1-1/4	(31.7 x 31.7)	X						
1-1/4 x 1-3/8	(31.7 x 34.9)	X			X			
1-1/4 x 1-3/4	(31.7 x 44.4)	X						
1-1/4 x 2	(31.7 x 50.8)	X						
1-1/4 x 2-1/4	(31.7 x 57.1)	X						
1-1/4 x 2-1/2	(31.7 x 63.5)	X						
1-1/4 x 3-1/2	(31.7 x 88.9)	X						
1-9/32 x 1-3/8	(32.7 x 34.9)					X		
1-9/32 x 2-1/32	(32.7 x 51.6)							X
1-9/32 x 2-9/32	(32.7 x 58.3)						X	
1-5/16 x 1-5/16	(33.4 x 33.4)	X						
1-5/16 x 1-3/8	(33.4 x 34.9)					X		
1-5/16 x 1-7/16	(33.4 x 36.5)	X						
1-5/16 x 1-9/16	(33.4 x 39.7)	X						
1-5/16 x 1-11/16	(33.4 x 42.5)	X						
1-5/16 x 1-3/4	(33.4 x 44.4)				X			
1-5/16 x 1-13/16	(33.4 x 46.0)	X			X	X		
1-5/15 x 1-7/8	(33.4 x 47.6)				X			
1-5/16 x 2-1/16	(33.4 x 52.4)	X						
1-5/16 x 2-3/16	(33.4 x 55.6)	X			X			
1-5/16 x 2-5/16	(33.4 x 58.7)				X			
1-5/16 x 2-7/16	(33.4 x 61.9)						X	
1-5/16 x 2-1/2	(33.4 x 63.5)	X						
1-5/16 x 2-13/16	(33.4 x 71.4)	X						
1-5/16 x 3-1/4	(33.4 x 82.6)				X			
1-5/16 x 3-7/8	(33.4 x 98.4)					X		
1-3/8 x 1-3/8	(34.9 x 34.9)				X			
1-3/8 x 1-1/2	(34.9 x 38.1)	X				X		
1-3/8 x 1-5/8	(34.9 x 41.2)				X			
1-3/8 x 1-3/4	(34.9 x 44.4)	X						
1-3/8 x 1-7/8	(34.9 x 47.6)						X	
1-3/8 x 2-1/16	(34.9 x 52.4)				X			
1-3/8 x 2-5/8	(34.9 x 66.7)						X	
1-3/8 x 2-3/4	(34.9 x 69.9)				X			
1-7/16 x 1-9/16	(36.5 x 39.7)	X						
1-7/16 x 1-13/16	(36.5 x 46.0)	X						

LARGER FLAT SIZES CAN BE CUT FROM BLOCK OR PLATE - M-2. M-3, M-42, PM M4, PM T15, PM A11, PM M48

1-3/16 (30.2) - 1-7/16 (36.5)

FLATS

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CALCULATE FLAT BAR WEIGHT

Thickness x Width x Length x 0.2833
(T-15 add 2.5% - 3.0%)
(M-48 add 3.5% - 4.0%)

(measurements are in inches)

1-1/2 (38.1) - 1-11/16 (42.4)

FLATS

SIZE		M 2	M 3	M 4	M 42	PM M 4	PM T 15	PM M 48
INCHES	METRIC							
1-1/2 x 1-5/8	(38.1 x 41.2)	X						
1-1/2 x 1-3/4	(38.1 x 44.4)	X						
1-1/2 x 2	(38.1 x 50.8)	X						
1-1/2 x 2-1/8	(38.1 x 54.0)	X						
1-1/2 x 2-1/4	(38.1 x 57.1)				X			
1-1/2 x 2-3/8	(38.1 x 60.3)	X						
1-1/2 x 2-5/8	(38.1 x 66.7)	X						
1-1/2 x 2-13/16	(38.1 x 71.4)				X			
1-1/2 x 2-7/8	(38.1 x 73.0)	X			X			
1-1/2 x 3	(38.1 x 76.2)	X	X					
1-1/2 x 3-1/4	(38.1 x 82.6)	X						
1-1/2 x 3-5/16	(38.1 x 84.2)				X			
1-1/2 x 6-1/8	(38.1 x 155.6)				X			
1-17/32 x 1-17/32	(38.9 x 38.9)						X	X
1-17/32 x 2-9/32	(38.9 x 58.3)							X
1-17/32 x 2-17/32	(38.9 x 64.3)							X
1-17/32 x 2-25/32	(38.9 x 70.4)						X	
1-9/16 x 1-9/16	(39.7 x 39.7)	X						
1-9/16 x 1-11/16	(39.7 x 42.5)				X			
1-9/16 x 1-13/16	(39.7 x 46.0)	X						
1-9/16 x 2-1/16	(39.7 x 52.4)	X			X			
1-9/16 x 2-1/8	(39.7 x 54.0)				X		X	
1-9/16 x 2-3/16	(39.7 x 55.6)				X			
1-9/16 x 2-9/16	(39.7 x 65.1)	X			X		X	
1-9/16 x 2-5/8	(39.7 x 66.7)						X	
1-9/16 x 2-13/16	(39.7 x 71.4)						X	
1-9/16 x 2-7/8	(39.7 x 73.0)				X			
1-9/16 x 3-1/8	(39.7 x 79.3)						X	
1-9/16 x 3-5/8	(39.7 x 92.1)				X			
1-9/16 x 4-1/4	(39.7 x 108.0)				X			
1-5/8 x 1-11/16	(41.2 x 42.9)	X						
1-5/8 x 1-7/8	(41.2 x 47.6)	X						
1-5/8 x 2-1/16	(41.2 x 52.4)	X			X			
1-5/8 x 2-1/8	(41.2 x 54.0)			X				
1-5/8 x 2-5/16	(41.2 x 58.7)	X						
1-5/8 x 2-3/8	(41.2 x 60.3)			X				
1-5/8 x 2-7/16	(41.2 x 61.9)				X			
1-5/8 x 2-5/8	(41.2 x 66.7)	X						
1-5/8 x 3-3/8	(41.2 x 85.7)	X						
1-5/8 x 3-3/4	(41.2 x 95.2)	X						
1-11/16 x 2-5/16	(42.4 x 58.7)	X						
1-11/16 x 2-9/16	(42.4 x 65.1)	X						

LARGER FLAT SIZES CAN BE CUT FROM BLOCK OR PLATE - M-2. M-3, M-42, PM M4, PM T15, PM A11, PM M48

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CALCULATE FLAT BAR WEIGHT

Thickness x Width x Length x 0.2833
(T-15 add 2.5% - 3.0%)
(M-48 add 3.5% - 4.0%)

(measurements are in inches)

SIZE		M 2	M 3	M 4	M 42	PM M 4	PM T 15	PM M 48
INCHES	METRIC							
1-3/4 x 1-13/16	(44.4 x 46.0)					X		
1-3/4 x 1-7/8	(44.4 x 47.6)	X						
1-3/4 x 2-1/16	(44.4 x 52.4)	X						
1-3/4 x 2-3/8	(44.4 x 60.3)	X						
1-3/4 x 2-1/2	(44.4 x 63.5)	X						
1-3/4 x 2-11/16	(44.4 x 68.2)				X			
1-3/4 x 2-3/4	(44.4 x 69.9)	X						
1-3/4 x 3-5/16	(44.4 x 84.2)				X			
1-3/4 x 3-3/8	(44.4 x 85.7)	X						
1-3/4 x 4-3/16	(44.4 x 106.3)				X			
1-25/32 x 1-25/32	(45.3 x 45.3)							X
1-13/16 x 2-1/8	(46.0 x 54.0)				X			
1-13/16 x 2-5/16	(46.0 x 58.7)	X						
1-13/16 x 3-3/8	(46.0 x 85.7)				X			
1-13/16 x 3-5/8	(46.0 x 92.1)				X			
1-13/16 x 4-1/4	(46.0 x 108.0)				X			
1-7/8 x 2-3/8	(47.6 x 60.3)	X						
1-7/8 x 2-3/4	(47.6 x 69.9)				X			
1-15/16 x 3-1/16	(49.2 x 77.8)	X						
2 x 2-1/2	(50.8 x 63.5)	X						
2 x 2-3/4	(50.8 x 69.9)	X						
2-1/16 x 2-9/16	(52.4 x 65.1)	X						
2-1/16 x 2-3/4	(52.4 x 69.9)				X			
2-1/16 x 5-1/4	(52.4 x 133.4)				X			
2-3/16 x 2-13/16	(55.6 x 55.6)	X						
2-1/4 x 2-5/8	(57.1 x 66.7)	X						
2-1/4 x 2-7/8	(57.1 x 73.0)	X						
2-1/4 x 4-1/16	(57.1 x 103.2)	X						
2-5/8 x 2-5/8	(66.7 x 66.7)	X						
2-5/8 x 2-7/8	(66.7 x 73.0)	X						

LARGER FLAT SIZES CAN BE CUT FROM BLOCK OR PLATE - M-2. M-3, M-42, PM M4, PM T15, PM A11, PM M48

1-3/4 (44.4) - 2-5/8 (66.7)

FLATS

800-521-1410
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CALCULATE
FLAT BAR WEIGHT

Thickness x Width x Length x 0.2833
(T-15 add 2.5% - 3.0%)
(M-48 add 3.5% - 4.0%)

(measurements are in inches)

ABOUT OUR INVENTORY

No one stocks more sizes of high speed steel flats and rounds than Griggs Steel

We carry over 2400 inventory items

We carry a large range of Powder Metal Steels

We stock a variety of sizes of M2 and M42 premium pre-hardened bar

In our cutting facility we have the ability to cut nearly any size you require from SHEET, PLATE or BLOCK.

SHEET / PLATE / BLOCK

SIZE		M2	M3	M42	PM M4	PM T15	PM M48	PM A11	2023 2030 2060
INCHES	METRIC								
0.156	4.0	X		X	X	X			
0.218	5.6	X		X	X	X			
0.281	7.2	X		X	X	X			
0.406	10.3	X		X	X	X			
0.531	13.5	X		X	X	X			
0.655	16.6	X			X	X			
0.780	19.8	X			X	X		X	
0.905	23.0	X		X	X	X			
1.030	26.2	X		X	X	X	X	X	
1.156	29.6	X			X	X			
1.280	32.5	X		X	X	X		X	
1.405	35.7			X	X	X			
1.530	38.9	X		X	X	X	X	X	
1.656	42.1	X				X			
1.780	45.2	X		X	X	X			
1.906	48.4	X							
2.030	51.6	X		X	X	X			
2.280	57.9	X		X					
2.530	64.3	X		X					
2.780	70.6	X							
BLOCK		X	X	X	X	X	X	X	X

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HIGH SPEED STEEL WEIGHT CALCULATORS

To calculate the weight of High Speed Tool Steel, use the formulas found below. Visit our website at www.HighSpeedSteel.com to use our interactive weight calculators or give us a call and we will send you one.

■ FLATS ■

Thickness x Width x Length x 0.2833
(T-15 add 2.5% - 3.0%)
(M-48 add 3.5% - 4.0%)
(measurements are inches)

● ROUNDS ●

Diameter x Diameter x Length x 0.227
(T-15 add 2.5% - 3.0%)
(M-48 add 3.5% - 4.0%)
(measurements are inches)

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HIGH SPEED STEEL TOOL BITS

Our premium quality high speed steel tool bits are manufactured using the finest domestic and European high speed steel available. Our bits are precision ground on four sides with the utmost attention to detail in terms of precision sizing and squareness tolerance. We guarantee you will be happy with their performance.

TOOL BIT SIZE	M-2 Rc 62-64	M-42 Rc 66-68	PM T-15 Rc 65-67	PM M-48 Rc 68-70
1/8 SQ X 2-1/2	X		X	
3/16 SQ X 2-1/2		X		
1/4 SQ X 2-1/2		X		
5/16 SQ X 2-1/2	X	X		X
3/8 SQ X 3	X	X	X	X
1/2 SQ X 4	X	X	X	X
5/8 SQ X 4-1/2	X	X	X	X
3/4 SQ X 5	X	X	X	X
1 SQ X 7	X	X		

Tolerance: Thickness and Width (+.002 / -.002)
Length: (+.062/ -.000) Ends at 10° (2)

CLEARANCE CONTAINER

Visit our website at www.HighSpeedSteel.com to view our Clearance Container. All of the items in our Clearance Container are the same high quality high speed tool steel that Griggs provides on a daily basis, just at a clearance price. This online page is updated from time to time with great prices on High Speed Tool Steel.

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HIGH SPEED STEEL HARDENED BARS

Using our premium pre-hardened M2 & M42 bars will save you time, energy and money. Our bars are guaranteed to be straight. They are uniformly hardened and stable. Whether you are making a drill, tap, reamer, pin, punch, or other high speed steel tool, we know you will be pleased with our product performance.

Bars are 78.7" (2000mm) long
Material sold by the bar
Pricing by the pound

HARDNESS	M2	M42
	64-66 HRC	65-67 HRC

SIZE		M 2	M 42
INCHES	METRIC		
0.101	2.57	X	
0.106	2.69		X
0.109	2.77	X	X
0.118	3.00	X	
0.128	3.25	X	
0.130	3.30	X	
0.137	3.48	X	
0.141	3.58		X
0.144	3.66	X	
0.169	4.29	X	X
0.177	4.50	X	X
0.185	4.70	X	X
0.195	4.95		X
0.196	4.98	X	
0.203	5.16	X	X
0.213	5.41		X
0.218	5.54	X	
0.224	5.69		X
0.228	5.79	X	
0.235	5.97	X	
0.240	6.10		X
0.250	6.35	X	
0.256	6.50		X
0.258	6.55		X
0.260	6.60	X	
0.267	6.78	X	
0.276	6.99		X

SIZE		M 2	M 42
INCHES	METRIC		
0.281	7.14	X	X
0.297	7.54	X	X
0.312	7.92		X
0.315	8.00	X	
0.320	8.13	X	X
0.334	8.48	X	
0.350	8.89		X
0.354	8.99	X	
0.359	9.12	X	
0.374	9.50	X	
0.383	9.73	X	
0.390	9.91		X
0.394	10.01	X	
0.406	10.31	X	X
0.420	10.67		X
0.437	11.10	X	
0.444	11.28		X
0.446	11.33	X	
0.472	11.99	X	
0.484	12.29	X	X
0.490	12.45		X
0.508	12.90	X	
0.515	13.08	X	X
0.563	14.30	X	X
0.602	15.29	X	
0.642	16.31	X	X

Diameter (inch)	Unground (UG)	Max Decarb
.0791 to .1252	+.00158, -.00079	+.002
.1253 to .1417	+.00236, -.00079	+.002
.1418 to .2362	+.00236, -.00079	+.002
.2363 to .3937	+.00315, -.00079	+.006
.3938 to .5118	+.00394, -.00079	+.010

Out of roundness is at a maximum 1/2 of the diameter tolerance.

GRIGGS STEEL COMPANY

Griggs only supplies stock from the world's finest steel mills to meet our customers demanding range of applications. A mill certificate of quality can be provided with every order.

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M1

Taps
Reamers
Punches

TYPICAL CHEMISTRY

Carbon 0.82% Chromium 3.75% Vanadium 1.15%
Tungsten 1.65% Molybdenum 8.70%

HARDNESS

Max Annealed Hardness 262Hb Typical Tempered Hardness 64 HRC

HEAT TREATMENT

Anneal 1550-1600°F Pre-Heat 1450-1550°F Austenize 2175-2225°F
Quench Medium Salt/Oil/ATM Temper 1025-1050°F

M2

Broaches
Knives
Drills
Pins
Reamers
Taps

TYPICAL CHEMISTRY

Carbon 0.85% Chromium 4.15% Vanadium 1.95%
Tungsten 6.15% Molybdenum 5.00%

HARDNESS

Max Annealed Hardness 255Hb Typical Tempered Hardness 64 HRC

HEAT TREATMENT

Anneal 1550-1600°F Pre-Heat 1500-1550°F Austenize 2175-2225°F
Quench Medium Salt/Oil/ATM Temper 1025-1050°F

M3

Broaches
Blades
Form Tools
Reamers

TYPICAL CHEMISTRY

Carbon 1.05% Chromium 4.15% Vanadium 2.50%
Tungsten 6.15% Molybdenum 5.75%

HARDNESS

Max Annealed Hardness 270Hb Typical Tempered Hardness 65 HRC

HEAT TREATMENT

Anneal 1550-1600°F Pre-Heat 1500-1550°F Austenize 2185-2210°F
Quench Medium Salt/Oil/ATM Temper 1025-1050°F

M4

TYPICAL CHEMISTRY

Carbon 1.05% Chromium 4.15% Vanadium 2.50%
Tungsten 6.15% Molybdenum 5.75%

HARDNESS

Max Annealed Hardness 270Hb Typical Tempered Hardness 65 HRC

HEAT TREATMENT

Anneal 1550-1600°F Pre-Heat 1500-1550°F Austenize 2185-2210°F
Quench Medium Salt/Oil/ATM Temper 1025-1050°F

Form Tools
Punches
Broach Inserts
Mills
Taps
Roll Dies

M7

TYPICAL CHEMISTRY

Carbon 1.02% Chromium 3.80% Vanadium 1.90%
Tungsten 1.80% Molybdenum 8.60%

HARDNESS

Max Annealed Hardness 260Hb Typical Tempered Hardness 64 HRC

HEAT TREATMENT

Anneal 1550-1600°F Pre-Heat 1500-1600°F Austenize 2175-2220°F
Quench Medium Salt/Oil/ATM Temper 1025-1050°F

Drills
Mills
Pins
Reamers
Rolls

M42

TYPICAL CHEMISTRY

Carbon 1.10% Chromium 3.90% Vanadium 1.20%
Tungsten 1.60% Molybdenum 9.50% Cobalt 8.25%

HARDNESS

Max Annealed Hardness 277Hb Typical Tempered Hardness 67 HRC

HEAT TREATMENT

Anneal 1575-1650°F Pre-Heat 1500-1550°F Austenize 2125-2175°F
Quench Medium Salt/Oil/ATM Temper 1025-1050°F

Mills
Blades
Reamers
Broaches
Roll Dies

T1

TYPICAL CHEMISTRY

Carbon 0.72% Chromium 4.10% Vanadium 1.10%
Tungsten 18.00%

HARDNESS

Max Annealed Hardness 270Hb Typical Tempered Hardness 64 HRC

HEAT TREATMENT

Anneal 1550-1650°F Pre-Heat 1500-1550°F Austenize 2100-2325°F
Quench Medium Salt/Oil/ATM Temper 1025-1050°F

Cutters
Lathe Tools
Blades
Drills

POWDER METAL STEEL

Powder Metallurgy, Powder Metal and/or PM High Speed Steels are alternatives to conventional steels since they have properties such as high hardness and toughness that cannot be attained in high speed steels that are produced through conventional methods.

PM M4

Broaches
Hobs
Punches
Mills

TYPICAL CHEMISTRY

Carbon 1.40% Chromium 4.00% Vanadium 4.00%
Tungsten 5.65% Molybdenum 5.20%

HARDNESS

Max Annealed Hardness 255Hb Typical Tempered Hardness 65 HRC

HEAT TREATMENT

Anneal 1550-1600°F Pre-Heat 1500-1550°F Austenize 2175-2220°F
Quench Medium Salt/Oil/ATM Temper 1025-1050°F

PM T15

Broaches
Mills
Form Tools
Hobs
Taps

TYPICAL CHEMISTRY

Carbon 1.60% Chromium 4.00% Vanadium 4.90%
Tungsten 12.25% Molybdenum 1.0%(max) Cobalt 5.00%

HARDNESS

Max Annealed Hardness 275Hb Typical Tempered Hardness 66 HRC

HEAT TREATMENT

Anneal 1550-1600°F Pre-Heat 1500-1550°F Austenize 2200-2250°F
Quench Medium Salt/Oil/ATM Temper 1025-1050°F

PM M48

Broaches
Blades
Form Tools
Reamers

TYPICAL CHEMISTRY

Carbon 1.50% Chromium 3.75% Vanadium 3.10%
Tungsten 9.75% Molybdenum 5.25% Cobalt 8.50%

HARDNESS

Max Annealed Hardness 300Hb Typical Tempered Hardness 68HRC

HEAT TREATMENT

Anneal 1550-1600°F Pre-Heat 1500-1550°F Austenize 2150-2175°F
Quench Medium Salt/Oil/ATM Temper 1080°F

PM 23

TYPICAL CHEMISTRY

Carbon 1.28% Chromium 4.00% Vanadium 3.10%
Tungsten 6.40% Molybdenum 5.00%

HARDNESS

Max Annealed Hardness 260Hb Typical Tempered Hardness 64HRC

HEAT TREATMENT

Anneal 1575-1625°F Pre-Heat 1500-1600°F Austenize 2150-2175°F
Quench Medium Salt/Oil/ATM Temper 1040°F

Broaches
Gear Cutters
Knives
Rolls
Taps

PM 30

TYPICAL CHEMISTRY

Carbon 1.28% Chromium 4.20% Vanadium 3.10%
Tungsten 6.40% Molybdenum 5.00% Cobalt 8.50%

HARDNESS

Max Annealed Hardness 280Hb Typical Tempered Hardness 66HRC

HEAT TREATMENT

Anneal 1575-1625°F Pre-Heat 1500-1550°F Austenize 2125-2175°F
Quench Medium Salt/Oil/ATM Temper 1040°F

Broaches
Drills
Mills
Hobs
Taps

PM 60

TYPICAL CHEMISTRY

Carbon 2.30% Chromium 4.20% Vanadium 6.50%
Tungsten 6.50% Molybdenum 7.00% Cobalt 10.50%

HARDNESS

Max Annealed Hardness 340Hb Typical Tempered Hardness 67HRC

HEAT TREATMENT

Anneal 1575-1625°F Pre-Heat 1500-1550°F Austenize 2125-2175°F
Quench Medium Salt/Oil/ATM Temper 1040°F

Broaches
Drills
Mills
Gear Cutters

PM A11

TYPICAL CHEMISTRY

Carbon 2.45% Chromium 5.25% Vanadium 9.75%
Tungsten 0.5%(max) Molybdenum 1.30% Cobalt 0.5%(max)

HARDNESS

Max Annealed Hardness 265Hb Typical Tempered Hardness 62 HRC

HEAT TREATMENT

Anneal 1600°F Pre-Heat 1500-1550°F Austenize 1850-2150°F
Quench Medium Salt/Oil/ATM Temper 1040°F

Punches
Cold Extrusion Dies
Slitter Knives
Cold Work Tooling

HIGH SPEED STEEL PROPERTIES CHART

GRADE	WEAR RESISTANCE	TOUGHNESS	RED HARDNESS	EASE OF GRINDING
M1				
M2				
M3				
M4				
M7				
M42				
T1				
PM M4				
PM T15				
PM M48				
PM 23				
PM 30				
PM 60				
PM A11			N/A	

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HIGH SPEED TOOL STEEL

(Chemistry of conventional material to ASTM A600 specifications)

TYPE	TYPICAL CHEMICAL COMPOSITION (%)						HARDNESS	
	Carbon C	Chromium Cr	Tungsten W	Molybdenum Mo	Vanadium V	Cobalt Co	Maximun Annealed Hb	Typical Tempered HrC
M1	0.82	3.75	1.65	8.70	1.15	-	255	63
M2	0.83	4.15	6.15	5.10	1.95	-	255	64
M3	1.05	4.15	6.15	5.75	2.50	-	262	66
M4	1.30	4.25	5.85	4.75	4.10	-	262	65
M7	1.02	3.80	1.80	8.60	1.90	-	262	64
M42	1.10	3.90	1.60	9.50	1.20	8.25	277	67
T1	0.72	4.10	18.00	-	1.10	-	270	65
PM M4	1.40	4.00	5.65	5.20	4.00	-	255	65
PM T15	1.60	4.00	12.25	-	4.90	5.00	275	66
PM M48	1.50	3.75	9.75	5.25	3.10	8.50	310	68
PM 23	1.28	4.00	6.40	5.00	3.10	-	260	64
PM 30	1.25	4.20	6.40	5.00	3.10	8.50	260	65
PM 60	2.30	4.20	6.50	7.00	6.50	10.50	340	67
PM A11	2.45	5.25	.5 max	1.30	9.75	.5 max	255	63

HIGH SPEED STEEL HEAT TREATING

GRADE	ANNEALING TEMP °F	PREHEAT TEMP °F	AUSTENITIZING TEMP °F	QUENCH MEDIUM	TEMPERING TEMP °F
M1	1550/1600	1450/1550	2175/2225	Salt/Oil/Atm	1025/1050
M2	1550/1600	1500/1550	2175/2225	Salt/Oil/Atm	1025/1050
M3	1550/1600	1500/1550	2185/2210	Salt/Oil/Atm	1025/1050
M4	1550/1600	1500/1550	2175/2225	Salt/Oil/Atm	1025/1050
M7	1550/1600	1550/1600	2175/2220	Salt/Oil/Atm	1025/1050
M42	1575/1650	1500/1550	2125/2175	Salt/Oil/Atm	1025/1050
T1	1600/1650	1500/1550	2275/2375	Salt/Oil/Atm	1025/1050
PM M4	1550/1600	1500/1550	2175/2220	Salt/Oil/Atm	1025/1050
PM T15	1550/1600	1500/1550	2200/2250	Salt/Oil/Atm	1025/1050
PM M48	1550/1600	1500/1550	2150/2175	Salt/Oil/Atm	1080
PM 23	1575/1625	1550/1600	2125/2175	Salt/Oil/Atm	1040
PM 30	1575/1625	1500/1550	2125/2175	Salt/Oil/Atm	1040
PM 60	1575/1625	1500/1550	2125/2175	Salt/Oil/Atm	1040
PM A11	1600	1500/1550	1850/2150	Salt/Oil/Atm	1040

HARDNESS CONVERSION TABLES BASED ON BRINELL (approximate)

Brinell Hardness		Rockwell Hardness				Diamond Pyramid Hardness Number (Vickers)	Approx. Tensile Strength 1000 psi
Diameter mm 3000 Kg	Tungsten Carbide 10 mm Ball	A-Scale 60 Kg Brale	B-Scale 100 Kg 1/16" Ball	C-Scale 150 Kg Brale	Superfi-cial 30 N		
....	....	86.5	....	70.0	86.0	1076	....
....	....	86.0	....	69.0	85.0	7004	....
....	....	85.6	....	68.0	84.4	940	....
....	....	85.0	....	67.0	83.6	900	....
....	757	84.4	....	65.9	82.7	860	....
2.25	745	84.1	....	65.3	82.2	840	....
....	722	83.4	....	64.0	81.1	800	....
....	710	83.0	....	63.3	80.4	780	....
2.35	682	82.2	....	61.7	79.0	737	....
2.40	653	81.2	....	60.0	77.5	697	....
2.45	627	80.5	....	58.7	76.3	667	323
2.50	601	79.8	....	57.3	75.1	640	309
2.55	578	79.1	....	56.0	73.9	615	297
2.60	555	78.4	....	54.7	72.7	591	285
2.65	534	77.8	....	53.5	71.6	569	274
2.70	514	76.9	....	52.1	70.3	547	263
2.75	495	76.3	....	51.0	69.4	528	253
2.80	477	75.6	....	49.6	68.2	508	243
2.85	461	74.9	....	48.5	67.2	491	235
2.90	444	74.2	....	47.1	65.8	472	225
2.95	429	73.4	....	45.7	64.6	455	217
3.00	415	72.8	....	44.5	63.5	440	210
3.05	401	72.0	....	43.1	62.3	425	202
3.10	388	71.4	....	41.8	61.1	410	195
3.15	375	70.6	....	40.4	59.9	396	188
3.20	363	70.0	....	39.1	58.7	383	182
3.25	352	69.3	(110.0)	37.9	57.6	372	176
3.30	341	68.7	(109.0)	36.6	56.4	360	170
3.35	331	68.1	(108.5)	35.5	55.4	350	166
3.40	321	67.5	(108.0)	34.3	54.3	339	160
3.45	311	66.9	(107.5)	33.1	53.3	328	155
3.50	302	66.3	(107.0)	32.1	52.2	319	150
3.55	293	65.7	(106.0)	30.9	51.2	309	145
3.60	285	65.3	(105.5)	29.9	50.3	301	141
3.65	277	64.6	(104.5)	28.8	49.3	292	137
3.70	269	64.1	(104.0)	27.6	48.3	284	133
3.75	262	63.6	(103.0)	26.6	47.3	276	129
3.80	255	63.0	(102.0)	25.4	46.2	269	126
3.85	248	62.5	(101.0)	24.2	45.1	261	122
3.90	241	61.8	100.0	22.8	43.9	253	118
3.95	235	61.4	99.0	21.7	42.9	247	115
4.00	229	60.8	98.2	20.5	41.9	241	111
4.05	223	59.7	97.3	(18.8)	....	234	....
4.10	217	59.2	96.4	(17.5)	....	228	105
4.15	212	58.5	95.5	(16.0)	....	222	102
4.20	207	57.8	94.6	(15.2)	....	218	100
4.25	201	57.4	93.8	(13.8)	....	212	98
4.30	197	56.9	92.8	(12.7)	....	207	95
4.35	192	58.5	91.9	(11.5)	....	202	93
4.40	187	55.9	90.7	(10.0)	....	196	90
4.45	183	55.5	90.0	(9.0)	....	192	89
4.50	179	55.0	89.0	(8.0)	....	188	87
4.55	174	53.9	87.8	(6.4)	....	182	85
4.60	170	53.4	86.8	(5.4)	....	178	83
4.65	167	53.0	86.0	(4.4)	....	175	81
4.70	163	52.5	85.0	(3.3)	....	171	79
4.80	156	51.0	82.9	(.9)	....	163	76
4.90	149	49.9	80.8	....	....	156	73
5.00	143	48.9	78.7	....	....	150	71
5.10	137	47.4	76.4	....	....	143	67
5.20	131	46.0	74.0	....	....	137	65
5.30	126	45.0	72.0	....	....	132	63
5.40	121	43.9	69.8	....	....	127	60
5.50	116	42.8	67.6	....	....	122	58
5.60	111	41.9	65.7	....	....	117	56

Values in ( ) are beyond normal range and are given for information only.
The Brinell values in this table are based on the use of a 10mm tungsten carbide ball; at hardness levels of 429 Brinell and below, the values obtained with the tungsten carbide ball, the Hultgren ball, and the standard ball are the same.
The Hardness Conversion Tables are based on SAE J417 and ASTM E140.

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FRACTION	DECIMAL	MM
1/64	0.0156	0.396
1/32	0.0312	0.793
3/64	0.0468	1.190
1/16	0.0625	1.587
5/64	0.0781	1.984
3/32	0.0937	2.381
7/64	0.1093	2.778
1/8	0.1250	3.175
9/64	0.1406	3.571
5/32	0.1562	3.968
11/64	0.1718	4.365
3/16	0.1875	4.762
13/64	0.2031	5.159
7/32	0.2187	5.556
15/64	0.2343	5.953
1/4	0.2500	6.350
17/64	0.2656	6.746
9/32	0.2812	7.143
19/64	0.2968	7.540
5/16	0.3125	7.937
21/64	0.3281	8.334
11/32	0.3437	8.731
23/64	0.3593	9.128
3/8	0.3750	9.525
25/64	0.3906	9.921
13/32	0.4062	10.318
27/64	0.4218	10.715
7/16	0.4375	11.112
29/64	0.4531	11.509
15/32	0.4687	11.906
31/64	0.4843	12.303
1/2	0.5000	12.700

FRACTION	DECIMAL	MM
33/64	0.5156	13.096
17/32	0.5312	13.493
35/64	0.5468	13.890
9/16	0.5625	14.287
37/64	0.5781	14.684
19/32	0.5937	15.081
39/64	0.6093	15.478
5/8	0.6250	15.875
41/64	0.6406	16.271
21/32	0.6562	16.668
43/64	0.6718	17.065
11/16	0.6875	17.462
45/64	0.7031	17.859
23/32	0.7187	18.256
47/64	0.7343	18.653
3/4	0.7500	19.050
49/64	0.7656	19.446
25/32	0.7812	19.843
51/64	0.7968	20.240
13/16	0.8125	20.637
53/64	0.8281	21.034
27/32	0.8437	21.431
55/64	0.8593	21.828
7/8	0.8750	22.225
57/64	0.8906	22.621
29/32	0.9062	23.018
59/64	0.9218	23.415
15/16	0.9375	23.812
61/64	0.9531	24.209
31/32	0.9687	24.606
63/64	0.9843	25.003
1	1.0000	25.400

M1 SILVER	M7 GOLD	PM M4 YELLOW	PM A11 OCEAN BLUE
M2 BLACK	M42 RED	PM T15 PURPLE	PM 23 SALMON
M3 BLUE	T1 PINK	PM M48 WHITE	PM 30 BROWN
M4 GREEN			PM 60 ORANGE

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We strive to make your business as productive as possible by:

Maintaining an extensive inventory - "we have it when you need it"
Providing immediate, courteous service
Stocking only the highest quality steel - GUARANTEED
Offering competitive prices
SPEED - our business is based on fast order turnaround
Accurate and effective processing. We are ISO 9001 - 2015 registered.

WWW.HIGHSPEEDSTEEL.COM

Griggs has been providing High Speed Steel to the cutting tool and forming tool industries for over 70 years. Our customers range from the largest punch and broach manufacturers in the world to thousands of smaller users.

Test our steel. We are sure that you will find it as good or better that any other. Sample orders are welcome.

We are constantly adjusting our inventory. Check with our order desk or our website for sizes not shown. All M1, M2, M3, M4, M7, M42 and T1 sizes, as well as particle metal M4, T15, M48, A11, PM23, PM30, and PM60 sizes shown are in stock or on order at all times. Our M2 & M42 hardened round bars are also available for immediate shipment. These constitute what we consider our current "standard" items. Many additional flat sizes can be cut out of block or plate.

GRIGGS STEEL COMPANY

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