

GUIDE TO SELECTION Tool Steel

Tool steels are extra high quality steels with special properties that allow them to hold up under conditions of extreme duress, including high pressure, heat and abrasion. They are used in a variety of applications, most of which involve metal working other metals.

W1

A water hardening grade of tool steel. This grade is a high carbon steel, dependent on carbon content (.70-1.30%) for hardenability. O'Neal inventories this item only in drill rod.

O1

A general purpose oil hardening grade which can be hardened at relatively low temperatures. It has good wear resistance, is safe hardening and has a good machinability rating. Inventoried in drill rod, flat ground, and round. Typical applications include cold forming and blanking dies, forming rolls and gauges.

A2

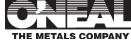
A 5% chromium, air hardening tool steel with an intermediate wear resistance which falls between O1 and D2. Has a good combination of wear resistance and toughness for cold work applications. It is also deep hardening and has excellent non-deforming properties. Typical applications include dies, punches, and forming and blanking tools. Inventoried in round, flat and square.

D2

An air hardening grade of high-carbon, high-chromium die steel suited for long run tool and die applications. It has excellent abrasion resistance and minimum distortion during heat treatment. Commonly used in tools and dies for blanking, punching, forming, and cold extruding. Inventoried in round and flat.

S7

An air or oil hardening die steel offering a good combination of toughness and wear resistance. This grade is versatile enough to be used in both cold and hot tooling applications and also offers maximum shock resistance, ease of heat treatment, excellent resistance to distortion during air hardening, and good machinability. Inventoried in round and flat, this grade is commonly used for cold work tools such as shear blades, chisels, punches, and gripper dies.



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H13

An air hardening, 5% chromium die steel used in a wide variety of hot and cold work applications. It offers excellent resistance to thermal fatigue, good red hardness, shock resistance, machinability, and dimensional stability. H13 is commonly used for aluminum, zinc, and magnesium die casting dies. In forging applications, it is often used for die blocks, inserts, piercers, and punches.

VISCOUNT 44 (H13)

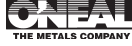
A prehardened free machining grade similar to H13. Designed for hot work applications, this grade has a hardness of 42-46 Rc. Often used as a high-strength machinery part. Inventoried in round, flat and drill rod.

BRAKE DIE / 4150

A medium alloy steel, heat treated by oil quenching and tempering. The original term "Brake Die" was a Bethlehem Steel trade name and although it is no longer produced, AISI 4140 and 4150 grades are still commonly referred to as Brake Die. It is designed to resist severe wear and has high compressive strength and toughness. Inventoried in flat and square. This product has a surface hardness of 269-321 Brinell.

TOOL STEEL FOIL WRAP

A stainless steel foil wrap used for surface protection of tool steel parts during heat treatment. When properly used, this item will prevent decarburization.



TOOL STEEL

DRILL RODS

STOCK LENGTHS – 36 INCHES

Size In Inches	Weight Per Each	W1	O1
1/8	.13		
5/32	.20		
3/16	.28		
1/4	.50		
5/16	.78		
3/8	1.13		
7/16	1.53		
1/2	2.00		
9/16	2.53		
5/8	3.13		
11/16	3.78		
3/4	4.50		
13/16	5.29		
7/8	6.13		
1	8.00		
1-1/8	10.10		
1-1/4	12.50		
1-3/8	15.10		
1-1/2	18.00		
1-3/4	24.51		
2	32.04		

NOTE: Other sizes, lengths, and grades available upon request.

TOOL STEEL 



TOOL STEEL ROUNDS

ASTM A681 – DECARB FREE

STOCK LENGTHS – 10 FOOT RANDOM

Size In Inches	Lbs. Per Foot	A2	D2	O1	S7	Viscount 44
1/2	.667					
3/4	1.502					
1	2.670					
1-1/8	3.379					
1-1/4	4.172					
1-1/2	6.007					
2	10.680					
2-1/2	16.687					
3	24.030					
3-1/2	32.708					
4	42.721					
4-1/2	54.068					
5	66.751					
6	96.121					
8	170.882					

NOTE: Other sizes, lengths, and grades available upon request.



TOOL STEEL FLATS

DIE STEELS – A2, S7

STOCK LENGTHS – 10 FOOT RANDOM

BRAKE DIE 4150

STOCK LENGTHS – 20 FOOT RANDOM

FLAT GROUND – O1

STOCK LENGTHS – 18 INCHES

VISCOUNT 44

STOCK LENGTHS – 10 FOOT RANDOM

Size In Inches	Lbs. Per Foot	A2	S7	Flat Ground O1	Viscount 44	Brake Die 4150
1/16 x 3/4	.160					
4	.847					
1/8 x 1/2	.213					
3/4	.320					
1	.427					
2	.847					
3	1.273					
4	1.700					
6	2.547					
3/16 x 1	.640					
1-1/2	.953					
2-1/2	1.593					
1/4 x 3/4	.640					
1	.847					
1-1/4	1.060					
1-1/2	1.273					
2	1.700					
4	3.400					
5/16 x 1	1.060					
3/8 x 1	1.273					
1-1/2	1.913					
2	2.547					
1/2 x 1	1.700					
1-1/2	2.547					
2	3.400					
2-1/2	4.250					

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TOOL STEEL FLATS

DIE STEELS – A2, S7

STOCK LENGTHS – 10 FOOT RANDOM

BRAKE DIE 4150

STOCK LENGTHS – 20 FOOT RANDOM

FLAT GROUND – O1

STOCK LENGTHS – 18 INCHES

VISCOUNT 44

STOCK LENGTHS – 10 FOOT RANDOM

Size In Inches	Lbs. Per Foot	A2	S7	Flat Ground O1	Viscount 44	Brake Die 4150
1/2 x 3	5.100					
4	6.800					
6	10.200					
5/8 x 2-1/2	5.313					
3/4 x 1	2.547					
1-1/2	3.830					
2	5.100					
2-1/2	6.380					
3	7.650					
4	10.200					
1 x 2	6.800					
2-1/2	8.500					
3	10.200					
4	13.600					
6	20.400					
1-1/4 x 3	12.750					
4	17.000					
5	21.250					
8	34.000					
1-1/2 x 2	10.200					
2-1/2	12.750					
3	15.300					
4	20.400					
5	25.500					
6	30.600					
2 x 2-1/2	17.000					
3	20.400					

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TOOL STEEL FLATS

DIE STEELS – A2, S7

STOCK LENGTHS – 10 FOOT RANDOM

BRAKE DIE 4150

STOCK LENGTHS – 20 FOOT RANDOM

FLAT GROUND – O1

STOCK LENGTHS – 18 INCHES

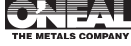
VISCOUNT 44

STOCK LENGTHS – 10 FOOT RANDOM

Size In Inches	Lbs. Per Foot	A2	S7	Flat Ground O1	Viscount 44	Brake Die 4150
2 x 4	27.200					
8	54.540					
2-1/2 x 3	25.500					
5	42.500					
6	55.390					
8	73.850					
10	91.780					
3 x 4	40.800					
5	51.000					
6	61.200					
10	108.850					
11	119.640					
12	130.430					
3-1/2 x 4	48.970					
6	73.080					
11	133.300					
12	145.420					
13	157.340					
4 x 5	68.000					
6	81.600					
10	138.220					
13	183.200					
18-1/2	255.180					

NOTE: Other sizes, lengths, and grades available upon request.

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TOOL STEEL SQUARE

BRAKE DIE 4150

STOCK LENGTHS – 20 FOOT RANDOM

VISCOUNT 44

STOCK LENGTHS - 10-12 FOOT RANDOM

Size In Inches	Lbs. Per Foot	Brake Die 4150	Viscount 44
1-1/4	5.313		
1-1/2	7.650		
1-3/4	10.400		
2	13.600		
2-1/2	21.250		
3	30.600		
3-1/2	41.650		
4	54.400		
5	85.000		
6	122.400		

NOTE: Other sizes and grades available upon request.

TOOL STEEL FOIL WRAP

Size In inches	50 Ft. Roll	100 Ft. Roll
.002 x 24	X	X

TOOL STEEL

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