

## S-2 TOOL STEEL BALLS (ROCKBIT)

S-2 Tool Steel balls are designed to achieve extreme ruggedness. The ball surface has a smooth ground and polished finish. These balls provide the toughness and strength necessary for severe shock loads. S-2 Tool Steel balls are hardened throughout and have unusually good wear characteristics.

S-2 Tool Steel balls find most frequent use in oil field equipment and offshore drilling operations. They provide good service in withstanding the abrasion of pulverized rock and mud slurries.

Material	AISI	Military	ASTM	UNS	AMS	DIN	JIS/SUJ
S-2 Tool Steel	S-2		A-681	T-41902			

*Additional testing may be required to certify that materials comply with specific standards.*

### Material Analysis

S-2 Tool Steel (Rockbit) balls are manufactured to the following chemical analysis:

Chemical Analysis	
Carbon	0.47% to 0.55%
Manganese	0.30% to 0.50%
Silicon	0.90% to 0.1.10%
Molybdenum	0.30% to 0.60%
Phosphorus	0.030% maximum
Sulphur	0.030% maximum
Vanadium	0.5% maximum

### Mechanical Properties

Hardness as measured on parallel flat surfaces is Rockwell "C" 55-58. Ball of special hardness are available upon request.

Tensile strength	310,000 psi
Yield strength	290,000 psi
Elongation in two inches	7%
Reduction in area	25%
Modulus of elasticity	30,000,000 psi
Density	0.283 lbs./cu. in

### AVAILABLE GRADES AND SIZES

Grade	Size Range in Inches and Millimeters	
50-200	5/32 - 1 1/2	3.968 - 38.100

Balls Per Pound		
Size		
Inches	Millimeters	Balls Per Pound
5/32	3.968	1,770
3/16	4.762	1,020
7/32	5.556	645
1/4	6.350	432
9/32	7.143	303
5/16	7.937	221
11/32	8.731	166
3/8	9.525	128
7/16	10.318	101
15/32	11.112	80.6
1/2	11.906	65.5
5/8	12.700	54.0
17/32	13.493	45.0
9/16	14.282	37.9
5/8	15.875	27.6
11/16	17.462	20.8
3/4	19.050	16.0
13/16	20.637	12.6
7/8	22.225	10.1
1	25.400	6.75
1 1/8	28.575	4.74
1 1/4	31.750	3.46
1 1/2	38.100	2.00