



# Magnetic Tubes & Grates

Round & Square Tubes & Tube Accessories

TRAMP METAL

TG-02A

Industrial Magnetics, Inc. • PO Box 80 • Boyne City, MI 49712 • p: 888.582.0821 • f: 231.582.2704 • w: www.magnetics.com • e: imi@magnetics.com

## Round and Square Magnetic Grate Tubes:

IMI's round or square style magnetic tubes are ideal for custom installations that require magnetic separation, but lack the space for a housing or grate assembly. Tapped mounting holes located in each end of the tube allow for easy bolt-in installation. Customers can arrange these tubes in a configuration that works best for their magnetic separation needs.

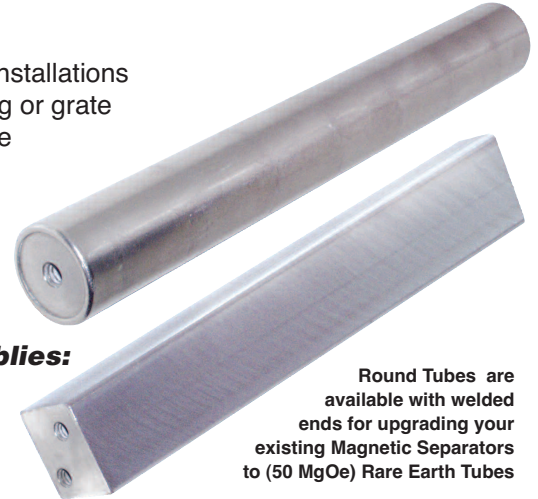
These tubes are constructed from 304 stainless steel and are available in Ceramic and Rare Earth (UHI-50).

## Magnet Materials for Grate Tubes and Grate Assemblies:

**Ceramic:** Used for small to larger ferrous particle separation such as nails, bolts, washers, etc.

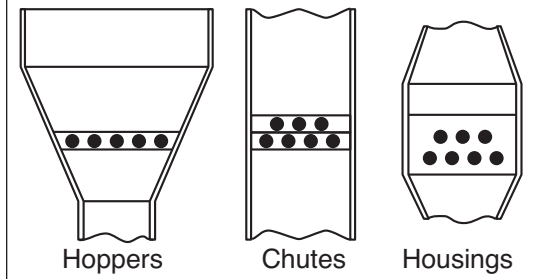
**Rare Earth UHI-50™ (50 MgOe Circuit):** Extremely powerful magnet is used for "fine particle" separation such as metal filings, shavings, metal wear residue, work hardened stainless steel, etc.

**Alnico (Custom Designs):** High heat applications up to 1100° F. Particle size and separation performance is the same as ceramic/Rare Earth.



Round Tubes are available with welded ends for upgrading your existing Magnetic Separators to (50 MgOe) Rare Earth Tubes

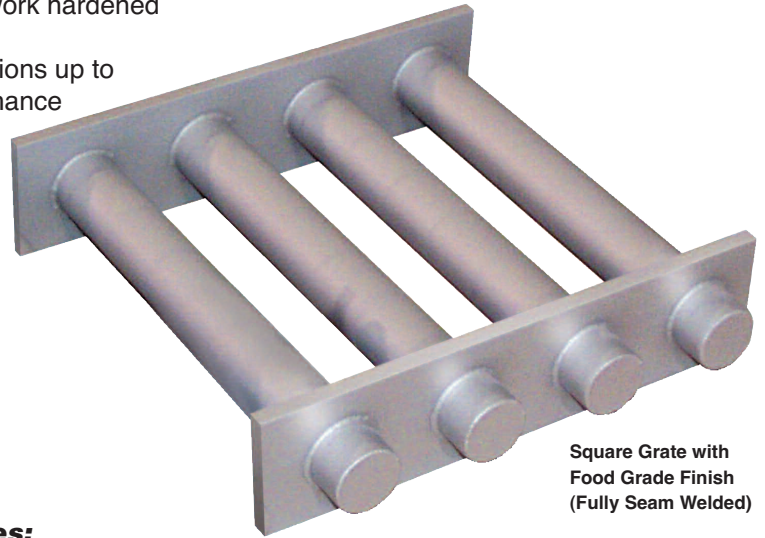
## Typical Grate Installations



Hoppers

Chutes

Housings



Square Grate with Food Grade Finish (Fully Seam Welded)

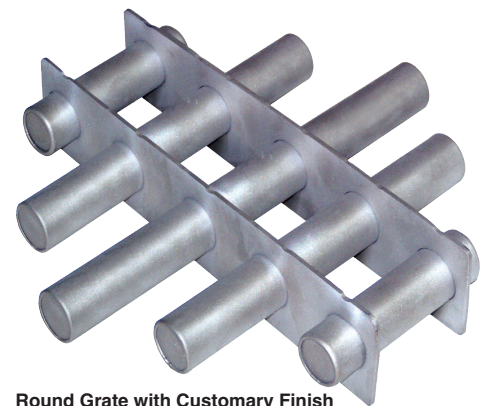
## Round Tube Magnetic Grate Assemblies:

Ideal for ferrous metal separation in (square, rectangular, or round) bins, chutes, drawers, bag dumps and hoppers.

IMI grates are constructed with 1" diameter magnetic tubes placed on 2" centers in a heavy duty 304 stainless steel framing. Magnetic grates are available in a variety of round, square and rectangular configurations (see charts on page 3). Special sizes, shapes and configurations are available upon request.

## Square Tube Magnetic Grate Assemblies:

Square tube grates are used for heavy duty applications where high product volume is involved. The powerful square tubes are installed with the leading edge toward the flow to eliminate material bridging and protect against wash-off of collected metal. Over 50 standard sizes available. Custom design requirements are welcome.



Round Grate with Customary Finish (Rolled & Staked)

## Key Markets

Mid-stream magnets for dry, free flow powders to granular products; i.e. food, feed, grain, plastics, chemical

## Related Products

Drawer-In-Housings, Large Tube Housings, The Ox, Clean-Flow Magnets, Pipe Magnet

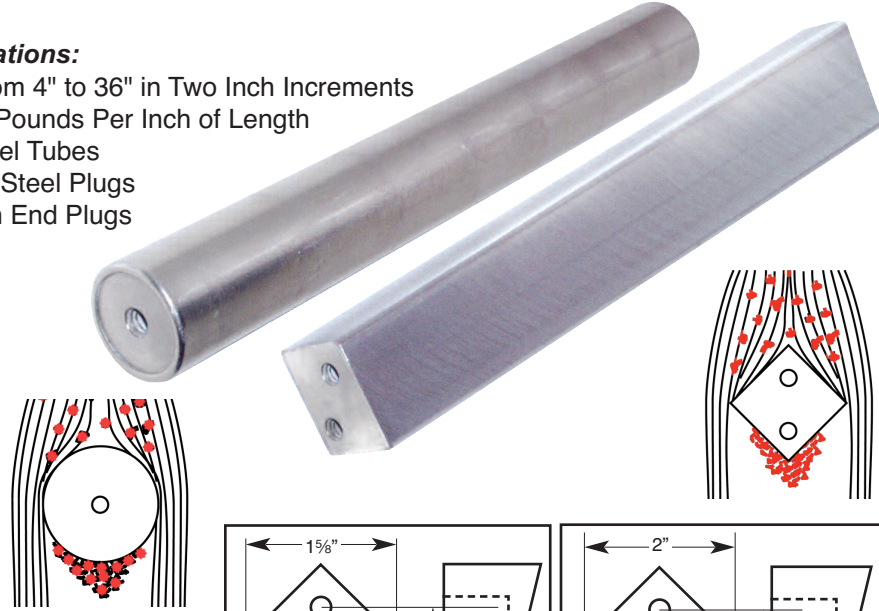
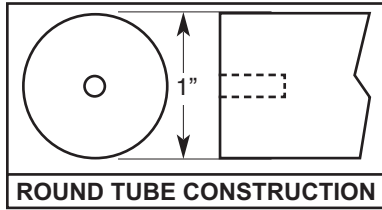
# Magnetic Tubes & Grates

## Round and Square Tube Magnetic Grate Selection Factors

Product consistency, density and moisture content, which influence flow characteristics, are important factors in grate magnet applications. In order to choose the correct magnetic grate to ensure positive flow, it is important to recognize materials that have tendencies to bridge between the magnetic tubes. While diverter systems are helpful in directing the material flow to the magnets, be aware they tend to increase bridging and reduce uniform product flow.

### Round Grate Tube (GT) Specifications:

- Available in Standard Lengths from 4" to 36" in Two Inch Increments
- Round Grate Tubes Weigh 0.15 Pounds Per Inch of Length
- One Inch Diameter Stainless Steel Tubes
- Rolled Ends with Solid Stainless Steel Plugs
- 1/4-20 Tapped Mounting Holes in End Plugs



### GT & ST Grate Tube Options:

- Welded Ends
- Custom Lengths
- Special Coating for Abrasive Products

## Round Tube Grate Assemblies

IMI's round tube magnetic grates deliver ferrous tramp metal separation in round or square bins, chutes, drawers, hoppers and enclosures. These grates can be equipped with diverters (see diverter styles on page 3).

### Features:

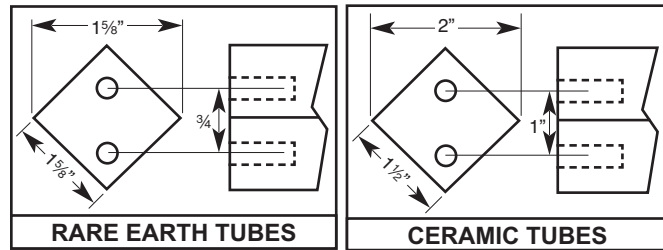
- 1/8" thick by 2" wide stainless steel stringers
- 1" diameter stainless steel magnetic tubes
- Tubes on 2" centers

### Options:

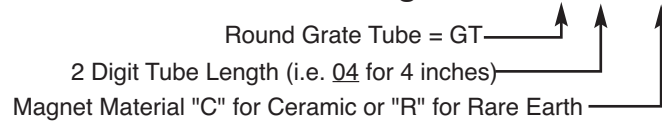
- Custom sizes and designs available
- Sanitary or food grade construction
- Three styles of diverters available
- Customer specified tube spacing
- Special Coating for Abrasive Products

**Standard Models listed with the prefix "N" are without diverters.**

When ordering grates with diverters, replace the prefix N with the diverter style letter (A, B or C).

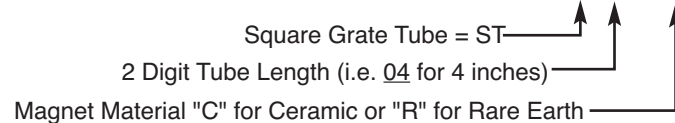


### Round Grate Tube Ordering Guide: GT 00



**Example: GT0800R = 8" Long, Rare Earth Grate Tube**

### Square Grate Tube Ordering Guide: ST 00



**Example: ST1200C = 12" Long, Ceramic Grate Tube**

### Square Tube (ST) Specifications:

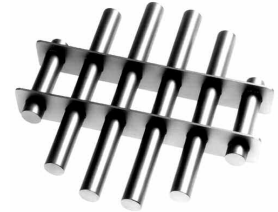
- 1-1/2" Square Stainless Steel Tube (Ceramic)
- 1-1/8" Square Stainless Steel Tube (Rare Earth)
- Welded Ends with Solid Stainless Steel Plugs
- Two, 1/4-20 Tapped Mounting Holes in End Plugs
- Standard Lengths from 4" to 48" in Two Inch Increments
- Square Tubes Weigh 0.4 Pounds Per Inch of Length

# Magnetic Tubes & Grates

**Round magnetic grates are available in 30 standard diameters ranging from 4" to 36". Special sizes are also available.**

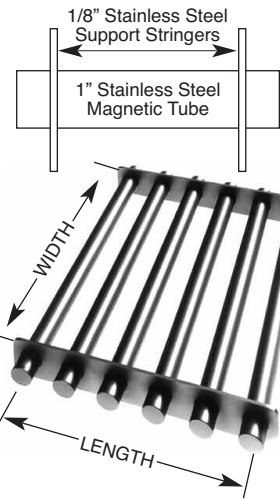
## Round Grate Specification Guide:

- To order a round grate with a diverter replace the "N" in the part number with the letter for the desired diverter type.
- Also, add "C" for Ceramic or "R" for Rare Earth to the end of the part number. Example Part Number: A 6" dia. Rare Earth (R) grate with 60° diverter (style B) would be B06DR.



**Notes:** • For 20 lbs/cu.ft., divide the number in the 40 lbs/cu.ft. column by 2.

Size and Flow Chart for Round Shaped (Round Tube Grates)									
Part No.	Grate Dia.	No. of Tubes	Square Inches	CuFt/ Hr.	Wt. Lbs.	Flow Capacity By Bulk Density (lbs./hr.)			
						40 lb./ft <sup>3</sup>	50 lb./ft <sup>3</sup>	60 lb./ft <sup>3</sup>	70 lb./ft <sup>3</sup>
N06D	6"	3	28	353	2.8	14,130	17,663	21,195	24,728
N08D	8"	4	50	800	5.0	32,000	40,000	48,000	56,000
N10D	10"	5	78	1,250	7.9	50,000	62,500	75,000	87,500
N12D	12"	6	113	1,800	11.3	72,000	90,000	108,000	126,000
N14D	14"	7	153	2,450	15.4	98,000	122,500	147,500	171,500
N16D	16"	8	201	3,200	20.1	128,000	160,000	192,000	224,000
N18D	18"	9	254	4,050	25.5	162,000	202,500	243,500	283,500
N20DW	20"	10	314	5,000	31.4	200,000	250,000	300,000	350,000
N22DW	22"	11	380	6,050	38.0	242,000	302,500	363,000	423,500
N24DW	24"	12	452	7,200	45.2	288,000	360,000	432,000	504,000
N26DW	26"	13	530	8,450	53.0	338,000	422,500	507,000	591,500
N28DW	28"	14	615	9,800	61.5	392,000	490,000	588,000	686,000
N30DW	30"	15	706	11,250	70.6	450,000	562,500	675,000	787,500
N32DW	32"	16	804	12,800	80.4	512,000	640,000	768,000	896,000
N34DW	34"	17	907	14,450	90.7	578,000	722,500	867,000	1,011,500
N36DW	36"	18	1,017	16,200	101.7	648,000	810,000	972,000	1,134,000



6" - 18" diameter are stuck and rolled. Above 18" diameter are welded.

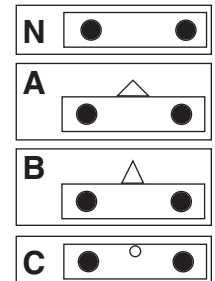
**Rectangular magnetic grates are available with standard widths and lengths from 4" to 36" in 2" increments. Special sizes are also available.**

Flow Chart for Rectangular (Round Tube Grates)									
Size W x L	# of Tubes	Square Inches	CuFt/ Hr.	Wt. Lbs.	Flow Capacity By Bulk Density (lbs./hr.)				
					40 lb./ft <sup>3</sup>	50 lb./ft <sup>3</sup>	60 lb./ft <sup>3</sup>	70 lb./ft <sup>3</sup>	
04W04L	2	16	200	1.6	8,000	10,000	12,000	14,000	
06W06L	3	36	450	3.3	18,000	22,500	27,000	31,500	
08W08L	4	64	800	5.5	32,000	40,000	48,000	56,000	
10W10L	5	100	1,250	8.4	50,000	62,500	75,000	87,500	
12W12L	6	144	1,800	11.4	72,000	90,000	108,000	126,000	
14W14L	7	196	2,450	15.8	98,000	122,500	147,000	171,500	
16W16L	8	256	3,200	20.0	128,000	160,000	192,000	224,000	
18W18L	9	324	4,050	25.2	162,000	202,500	243,000	283,500	
20W20LW	10	400	5,000	30.3	200,000	250,000	300,000	350,000	
22W22LW	11	484	6,050	36.7	242,000	302,500	363,000	423,500	
24W24LW	12	576	7,200	43.1	288,000	360,000	432,000	504,000	
26W26LW	13	676	8,450	50.5	338,000	422,500	507,000	591,500	
28W28LW	14	784	9,800	58.2	392,000	490,000	588,000	686,000	
30W30LW	15	900	11,250	66.5	450,000	562,500	675,000	787,500	
32W32LW	16	1,024	12,800	75.3	512,000	640,000	768,000	896,000	
34W34LW	17	1,156	14,450	84.7	578,000	722,500	867,000	1,011,500	
36W36LW	18	1,296	16,200	94.6	648,000	810,000	972,000	1,134,000	

6" - 18" diameter are stuck and rolled. Above 18" diameter are welded.

## Diverter Style Specifications:

- "N" = Standard Grate with No Diverters
- "A" = The popular 90° angle gives optimum direction of material to the magnet. Ideal for capturing fines. Peak is 1-5/8" (4.127cm) from the center of the magnet.
- "B" = Ideal for medium or soft materials, 60° angle allows material to flow freely but doesn't force as much material contact with the magnet.
- "C" = For coarse materials with minimum flow restriction. 3/8" (.9525cm) dia. stainless rod.



## Rectangular Grate Specification Guide:

• To order a rectangular grate list the 2 digit width followed by a "W" and then list a 2 digit length followed by a "L". If a diverter is desired, replace the "N" at the beginning of the part number with the letter for the desired diverter type.

• Also, add "C" for Ceramic or "R" for Rare Earth to the end of the part number.

Example: The part number for a 6" wide by 10" long Ceramic (C) grate with a 90° diverter (style A) would be A06W10LC.

**Notes:** For 20 lbs/cu.ft., divide the number in the 40 lbs/cu.ft. column by 2.

# Magnetic Tubes & Grates

## Round & Square Tubes & Tube Accessories

Square tube magnetic grates are available in 66 standard sizes with widths and lengths from 8" to 48" in 4" increments. Special sizes are also available.

Square tube magnetic grates are ideal for point-of-entry receiving areas and heavy duty applications where high product volume is involved. These powerful square tubes are installed with the leading edge toward the material flow. This positioning helps eliminate material bridging and provides a protected collecting area along the bottom of the magnet where ferrous tramp metal remains out of the material flow.

**CERAMIC CONSTRUCTION**  
 Frame Work: 1/4" thick x 2-1/2" high 304 stainless steel.  
 Tube Spacing: 4" on center

**RARE EARTH CONSTRUCTION**  
 Frame Work: 1/8" thick x 2" high 304 stainless steel.  
 Tube Spacing: 2-5/8" on center

**OPTIONS:**

- Custom sizes and designs
- Sanitary construction
- Custom tube spacing
- Special Coating for abrasive products

**Rectangular Grate Specification Guide:**

• To order a rectangular square tube grate (S) list the 2 digit width followed by a "W" and then list a 2 digit length followed by a "L".

• Also, add "C" for Ceramic or "R" for Rare Earth to the end of the part number.

Example: The part number for a 8" wide by 12" long Ceramic (C) grate would be S08W12LC.

**Notes:** For flow capacities of product bulk densities (lb./ft<sup>3</sup>) not listed, divide or multiply one of the given product density flow results to calculate the estimated flow capacity.

Flow Chart for Square Tube (S) Rectangular Magnetic Grates					Flow Capacity By Bulk Density (lbs./hr.)			
Size W x L	Square Inches	CuFt/ Hr.	Wt. Lbs.		40 lb./ft <sup>3</sup>	50 lb./ft <sup>3</sup>	60 lb./ft <sup>3</sup>	70 lb./ft <sup>3</sup>
S08W08L	64	800	12.3		32,000	40,000	48,000	56,000
S10W10L	100	1,250	15.5		50,000	62,500	75,000	87,500
S12W12L	144	1,800	23.9		72,000	90,000	108,000	126,000
S14W14L	196	2,450	28.0		98,000	122,500	147,000	171,500
S16W16L	256	3,200	39.1		128,000	160,000	192,000	224,000
S18W18L	324	4,050	44.1		162,000	202,500	243,000	283,500
S20W20L	400	5,000	57.9		200,000	250,000	300,000	350,000
S22W22L	484	6,050	63.8		242,000	302,500	363,000	423,500
S24W24L	576	7,200	80.3		288,000	360,000	432,000	504,000
S26W26L	676	8,450	87.1		338,000	422,500	507,000	591,500
S28W28L	784	9,800	106.3		392,000	490,000	588,000	686,000
S30W30L	900	11,250	114.0		450,000	562,500	675,000	787,500
S32W32L	1,024	12,800	135.9		512,000	640,000	768,000	896,000
S34W34L	1,156	14,450	144.5		578,000	722,500	867,000	1,011,500
S36W36L	1,296	16,200	169.1		648,000	810,000	972,000	1,134,000
S40W40L	1,600	20,000	206.0		800,000	1,000,000	1,200,000	1,400,000
S44W44L	1,936	24,200	246.3		968,000	1,210,000	1,452,000	1,694,000
S48W48L	2,304	28,800	290.3		1,152,000	1,440,000	1,728,000	2,016,000

