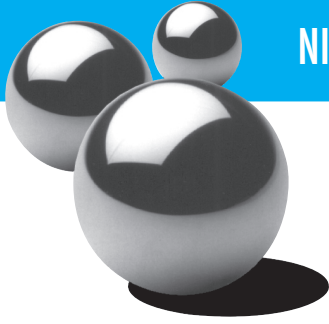


# NICKEL ALLOY BALLS



## Hastelloy®

### Applications:

Hastelloy® is used extensively in check valves where maximum resistance to corrosion and wear are required.

### Features:

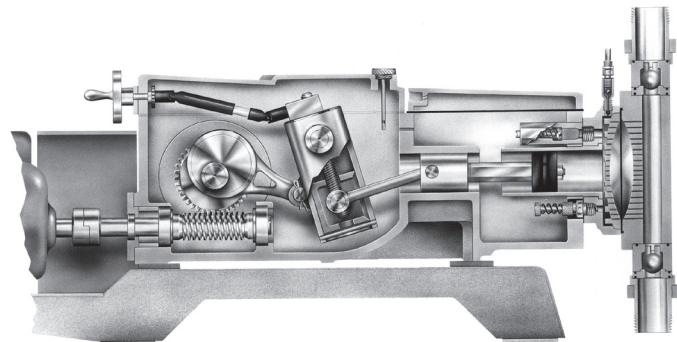
Hastelloy C is resistant to strong oxidizing agents such as nitric acid, free chlorine and aqueous solutions of ferric or cupric salts. It is also resistant to hydrochloric acid at room temperature and highly resistant to acetic, formic, phosphoric, sulfurous and hydrofluoric acids. Hastelloy C also has excellent resistance to mixtures of zinc and ammonium chlorides.

Hastelloy D is exceptionally resistant to sulfuric acid of all concentrations and temperatures up to its boiling point.

	HASTELLOY	HASTELLOY	HASTELLOY
MATERIAL ANALYSIS	B-2	C-276	D
Chromium.....	1.00 max.	14.5/16.5	1% max.
Carbon .....	.02 max.	0.02% max.	0.12% max.
Molybdenum .....	.26/30	15/17	—
Silicon .....	0.10 max.	0.8% max.	7.5/10%
Manganese .....	1.0 max.	1% max.	0.5/1.25%
Iron.....	2.0 max.	4/7%	2% max.
Nickel.....	Balance	Balance	Balance
Tungsten.....	—	3.0/4.5	—
Cobalt .....	1.00 max.	2.50% max.	1.5% max.
Copper.....	—	—	2/4%
<b>PHYSICAL PROPERTIES</b>			
Specific Gravity .....	9.22	8.88	7.81
Density .....	0.333 lbs/in. <sup>3</sup>	0.321 lbs/in. <sup>3</sup>	0.282 lbs/in. <sup>3</sup>
<b>MECHANICAL PROPERTIES</b>			
Tensile Strength.....	138 Kpsi	114 Kpsi	124 Kpsi
Yield Strength .....	76 Kpsi	52 Kpsi	86 Kpsi
Elongation (2") .....	53%	61%	2.3%
Hardness.....	R <sub>B</sub> 95	R <sub>B</sub> 90	R <sub>C</sub> 34

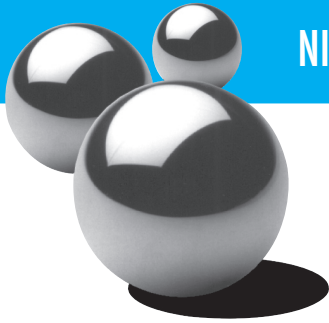
## Stock availability

MATERIAL	BALL GRADE	AVAILABLE STOCK SIZES	ROUNDNESS DIA. TOL./BALL	BASIC DIA. TOLERANCE	SURFACE FINISH
		INCHES	INCHES	INCHES	MICRO INCH
Hastelloy C-276	50V	1/8 -1/2	.000050	±.001	3
	100V	7/16 -1-1/8	.0001	±.002	5



*Diaphragm pump.*

# NICKEL ALLOY BALLS



**Monel**

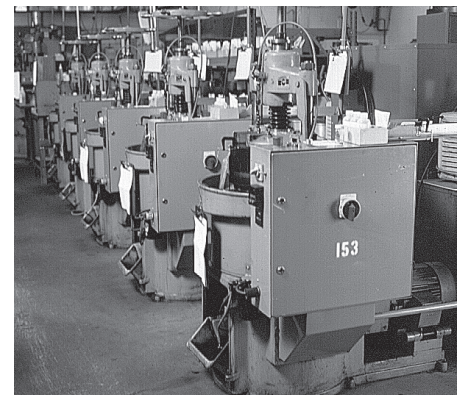
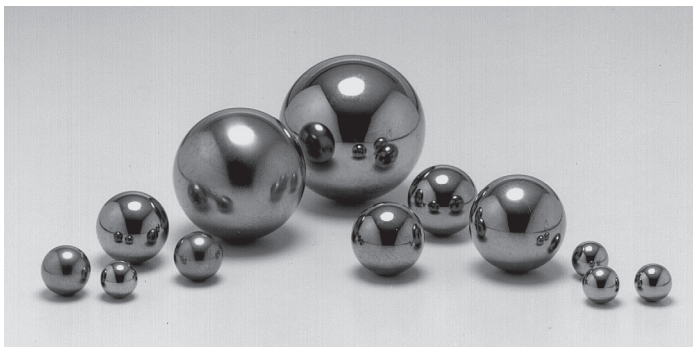
**Uses:**

Monel is used in non-oxidizing corrosive environments as are encountered in chemical, pharmaceutical, marine, petroleum, textile, laundry, pulp and paper applications. It is commonly used with sea water, dilute sulfuric acid and it is highly resistant to alkaline (caustic) solutions.

**Features:**

K-Monel has corrosion resistance similar to Monel and is used where additional strength and hardness is required.

MATERIAL ANALYSIS	MONEL (400)	K-MONEL (500)
Nickel.....	63.00/70.00%	63.00/70.00%
Aluminum.....	—	2.00/4.00%
Iron.....	2.50% max.	2.00% max.
Manganese .....	2.00% max.	1.50% max.
Carbon .....	0.30% max.	0.25% max.
Silicon .....	0.50% max.	1.00% max.
Copper.....	Balance	Balance
<b>Physical Properties</b>		
Specific Gravity .....	8.83	8.42
Density (Nominal).....	0.319 lbs./in <sup>3</sup>	0.305 lbs./in <sup>3</sup>
<b>Mechanical Properties</b>		
	<b>Annealed</b>	<b>Age Hardened</b>
Tensile Strength.....	79/90 Ksi	130/165 Kpsi
Yield Strength .....	25/40 Kpsi	85/120 Kpsi
Elongation (2") .....	60/35%	35/20%
Hardness.....	BHN 110 min.	BHN 264 min.



INDUSTRIAL TECTONICS INC

A Kaydon Company  
 7222 W. Huron River Dr.  
 Dexter, MI 48130  
 Fax (734) 426-4333  
 Phone (734) 426-4681  
 Call toll-free: 1-800-482-2255

Visit us on the web: [www.itiball.com](http://www.itiball.com)  
 e-mail: [itiball@kaydon.com](mailto:itiball@kaydon.com)