

## 用于医疗设备的镍钛管

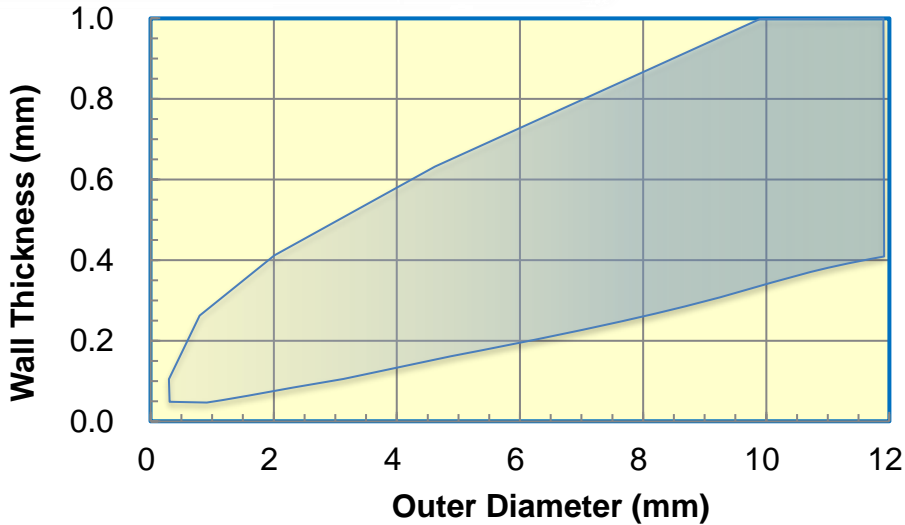
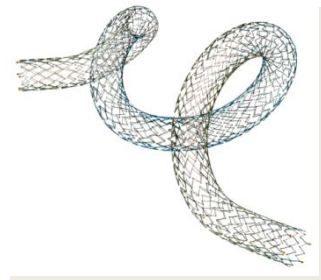
古河科技材料株式会社

2E-GISI-08-01\_Rev.4

古河镍钛管被广泛应用于支架等多种医疗设备。古河镍钛管尺寸范围广，可满足各种医疗设备的需求。我们有能力完美对应您对壁厚均匀度及外径·内径公差准确度的严格要求。

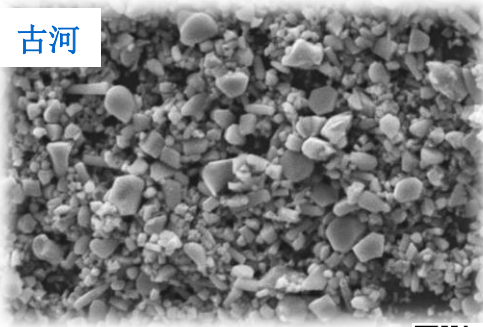
古河拥有独创的真空铸造·加工制造技术。我们的产品符合医用镍钛产品的国际标准ASTM F 2063，可安全使用于人体。另外，通过杂质的细微化处理及分布控制，实现优异的耐久性，并由此受到欧美各国客户的高度评价。

我们采用从熔铸到成品的一条龙生产方式，甚至连镍钛合金的成分比例都可根据客户需求自由调配。因此，必定能生产出最符合您要求的超弹性镍钛产品。今后，我们还会持续改进生产技术，力求不断提高尺寸精度及特性品质。

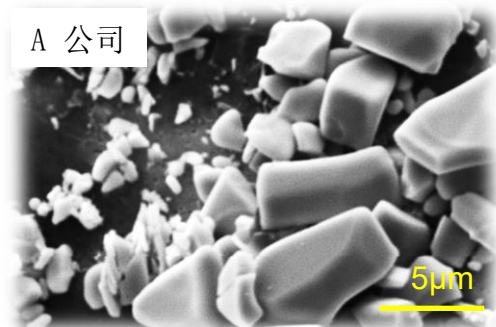


杂质颗粒大小·分布比较（通过SPEED法提取杂质后）

古河



A 公司



## Ni-Ti Tube for Medical Devices

古河科技材料株式会社

2E-GISI-12-23 Rev.3

### 1. Alloy type & composition

Alloy type	Composition		Ingot Af (°C)
	(at%)	(mass%)	
NT-N	50.95Ni-Ti	56.01Ni-Ti	-10 ~ 12
NT-E4	50.85Ni-Ti	55.91Ni-Ti	5 ~ 28
NT-E9	50.70Ni-Ti	55.76Ni-Ti	20 ~ 35

Minor elements (mass%)	
C	max. 0.040
Co	max. 0.050
Cu	max. 0.010
Cr	max. 0.010
H*	max. 0.005
Fe	max. 0.050
Nb	max. 0.025
O	max. 0.040
N	max. 0.005

Metallurgical properties	
Dimension of inclusions and porosities	Area
< 39 μm	< 2.8 %

Comply with ASTM F 2063-18

Comply with ASTM F 2063-18

\* H: final tube

### 2. Dimension

Available range		Standard tolerance	
Outer diameter	Wall thickness	OD	WT
0.3 ~	0.040 ~ 0.100	± 0.013	± 0.013
0.8 ~	0.060 ~ 0.250	± 0.015	± 0.015
1.6 ~	0.070 ~ 0.300	± 0.020	± 0.015
2.0 ~	0.080 ~ 0.400	± 0.020	± 0.020
2.6 ~	0.160 ~ 0.450	± 0.025	± 0.025
5.0 ~	0.200 ~ 0.500	± 0.030	± 0.030
10.0 ~	0.350 ~ 0.600	± 0.040	± 0.030
11.0 ~ 13.0	0.400 ~ 0.700	± 0.040	± 0.030

Available range		Standard tolerance	
Outer diameter	Wall thickness	OD	WT
0.012 ~	0.0016 ~ 0.0039	± 0.0005	± 0.0005
0.031 ~	0.0024 ~ 0.0098	± 0.0006	± 0.0006
0.063 ~	0.0028 ~ 0.0118	± 0.0008	± 0.0006
0.079 ~	0.0031 ~ 0.0157	± 0.0008	± 0.0008
0.102 ~	0.0063 ~ 0.0177	± 0.0010	± 0.0010
0.197 ~	0.0079 ~ 0.0197	± 0.0012	± 0.0012
0.394 ~	0.0138 ~ 0.0236	± 0.0016	± 0.0012
0.433 ~ 0.512	0.0157 ~ 0.0276	± 0.0016	± 0.0012

### 3. Transformation temperature and mechanical property

Alloy type	Mechanical Af* (°C)	3% UPS (MPa (ksi))	6% PS (%)	UTS (MPa (ksi))	Elongation (%)
NT-N	-10 ~ 10	> 400 (58)	0.5	> 1050 (152)	> 10
NT-E4	-5 ~ 15	> 350 (50)	0.5	> 1000 (145)	
NT-E9	10 ~ 25	> 320 (46)	—	> 1000 (145)	

\* Based on BFR (Bending Free Recovery)

\*\* Tensile test at Room Temperature

### 4. Surface condition

Outer	No oxide	Centerless grinding
		Pickled
	Thin oxide	
Inner	No oxide	Pickled
		Thin - black oxide



\*\*\*Specifications shall be as agreed upon between the customer and the supplier.

