# **Shapes and Materials of Precision Linear Shafts**

### Shapes and Materials of Precision Linear Shafts

Induction hardened shafts for linear motion applications.

Case Hardened Steel   Case Hardened Steel   Induction Hardened   Induc		Material			
Induction Hardened   Inducti	Change	Case Hardened Steel	Case Hardened Steel	440C Stainless Steel	Dance
U-SFJ	Silapes	Induction Hardened	Induction Hardened	Induction Hardened	rayes
U-SFJS U-SFJS U-SSFJS P.39  D: 1/8, 3/16, 1/4, 3/6, 1/2, 5/6, 3/4, 1', 1-1/4, 1-1/2  U-SFJT U-PSFJT U-SFJT P.41  D: 1/4, 3/8, 1/2, 5/8, 3/4, 1', 1-1/4, 1-1/2  U-SFJWS U-PSFJW U-SSFJW U-SFJWS U-SFAM U-SF		-	Hard Chrome Plating	-	
U-SFJS U-SFJS U-SSFJS P.39  D: 1/8, 3/16, 1/4, 3/8, 1/2, 5/8, 3/4, 1', 1-1/4, 1-1/2  U-SFJT U-PSFJT U-SFJW U-SSFJW U-SFJW U-SFJWS U-SFAM U		U-SFJ	U-PSFJ	U-SSFJ	
U-SFJT U-PSFJT U-SSFJT P.41  D: 1/4, 3/8, 1/2, 5/8, 3/4, 1′, 1-1/4, 1-1/2  U-SFJW U-PSFJW U-SSFJW U-SSFJW U-SFJWS U-SFJWS U-SFJWS U-SFJWS U-SFJWS U-SFAM U-S		U-SFJS	U-PSFJS	U-SSFJS	P.39
U-SFJT U-PSFJT U-SSFJT P.41  D: 1/4, 3/8, 1/2, 5/8, 3/4, 1′, 1-1/4, 1-1/2  U-SFJW U-PSFJW U-SSFJW U-SSFJW U-SFJWS U-SFJWS U-SFJWS U-SFJWS U-SFJWS U-SFAM U-S		D-1/9 2/16 1/4 2/9 1/9 5/9 2/4 1* 1.1/4 1.1/9			
U-SFJT   U-SFJT   U-SFJT   P.41		5. 1,0,0,1	7, 17, 17, 07, 07, 17, 27, 07, 07, 07, 17, 17,		
D: 1/4, 3/8, 1/2, 5/8, 3/4, 1', 1-1/4, 1-1/2		U-SFJT	U-PSFJT	U-SSFJT	D 44
U-SFJW U-PSFJW U-SSFJW U-SSFJWS U-SSFJWS U-SSFJWS U-SFJWS U-SFJWS U-SSFJWS U-SSFJWS U-SFAN U-	طز===				P.41
U-SFJWS U-PSFJWS U-SSFJWS P.43  D: 1/4, 3/8, 1/2, 5/8, 3/4, 1', 1-1/4, 1-1/2  U-SFAN U-PSFAN U-SFAN P.45  D: 1/4, 3/8, 1/2, 5/8, 3/4, 1', 1-1/4, 1-1/2  U-SFAM U-PSFAM U-SSFAM P.47  D: 1/4, 3/8, 1/2, 5/8, 3/4, 1', 1-1/4, 1-1/2  U-SFAD U-PSFAD U-SSFAD P.49		D: 1/4, 3/8, 1/2, 5/8, 3/4, 1", 1-1/4, 1-1/2			
D: 1/4, 3/8, 1/2, 5/8, 3/4, 1', 1-1/4, 1-1/2  U-SFAN U-PSFAN U-SSFAN  D: 1/4, 3/8, 1/2, 5/8, 3/4, 1', 1-1/4, 1-1/2  U-SFAM U-PSFAM U-SSFAM  P.45  U-SFAM U-PSFAM U-SSFAM  P.47  U-SFAD U-PSFAD U-SSFAD  P.49	⊢D	U-SFJW	U-PSFJW	U-SSFJW	
U-SFAN U-PSFAN U-SSFAN P.45  D: 1/4, 3/8, 1/2, 5/8, 3/4, 1', 1-1/4, 1-1/2  U-SFAM U-PSFAM U-SSFAM P.47  D: 1/4, 3/8, 1/2, 5/8, 3/4, 1', 1-1/4, 1-1/2  U-SFAD U-PSFAD U-SSFAD P.49		U-SFJWS	U-PSFJWS	U-SSFJWS	P.43
U-SFAN U-PSFAN U-SSFAN P.45  D: 1/4, 3/8, 1/2, 5/8, 3/4, 1', 1-1/4, 1-1/2  U-SFAM U-PSFAM U-SSFAM P.47  D: 1/4, 3/8, 1/2, 5/8, 3/4, 1', 1-1/4, 1-1/2  U-SFAD U-PSFAD U-SSFAD P.49	1	D: 1/4, 3/8, 1/2, 5/8, 3/4, 1", 1-1/4, 1-1/2			
P.45    D: 1/4, 3/8, 1/2, 5/8, 3/4, 1', 1-1/4, 1-1/2		II OFAN	II DODANI	II COLAN	
U-SFAM U-PSFAM U-SSFAM P.47  D: 1/4, 3/8, 1/2, 5/8, 3/4, 1', 1-1/4, 1-1/2  U-SFAD U-PSFAD U-SSFAD P.49		U-SFAN	U-PSFAN	U-55FAN	P.45
U-SFAM U-PSFAM U-SSFAM P.47  D: 1/4, 3/8, 1/2, 5/8, 3/4, 1', 1-1/4, 1-1/2  U-SFAD U-PSFAD U-SSFAD P.49		D: 1/4 3/	8 1/2 5/8 3/4 1" 1	-1/4 1-1/2	
U-SFAM U-PSFAM U-SSFAM P.47  D: 1/4, 3/8, 1/2, 5/8, 3/4, 1', 1-1/4, 1-1/2  U-SFAD U-PSFAD U-SSFAD P.49		5. 17 1, 67	0, 1,2, 0,0, 0,1, 1, 1	0.1, 1.02	
D: 1/4, 3/8, 1/2, 5/8, 3/4, 1', 1-1/4, 1-1/2  U-SFAD U-PSFAD U-SSFAD  P.49		U-SFAM	U-PSFAM	U-SSFAM	
U-SFAD U-PSFAD U-SSFAD P.49					P.47
U-SFAD U-PSFAD U-SSFAD P.49		D: 1/4, 3/	8, 1/2, 5/8, 3/4, 1", 1	-1/4, 1-1/2	
P.49	∟D	ILSEAD	II-PSEAD	ILSSEAD	
		O-GIAD	0-1 31 AD	0-001 AD	P.49
	1	D: 1/4, 3/	8, 1/2, 5/8, 3/4, 1°, 1	-1/4, 1-1/2	

	Material			
Shapes	Case Hardened Steel   Case Hardened Steel   440C Stainless Ste		440C Stainless Steel	Pages
опарсь	Induction Hardened	Induction Hardened	Induction Hardened	rayes
	-	Hard Chrome Plating	-	
	U-SFAG	U-PSFAG	U-SSFAG	P.51
1	D: 3/8, 1	/2, 5/8, 3/4, 1", 1-	1/4, 1-1/2	
	U-SFAH	U-PSFAH	U-SSFAH	P.53
	D: 3/8, 1	/2, 5/8, 3/4, 1", 1-	1/4, 1-1/2	
D	U-SFAA	U-PSFAA	U-SSFAA	P.55
t	D: 3/8, 1,	/2, 5/8, 3/4, 1", 1-	1/4, 1-1/2	
	U-SFAR	U-PSFAR	U-SSFAR	P.57
1	D: 1/4, 3	/8, 1/2, 5/8, 3/4,	1', 1-1/4	
	U-SPJ	U-PSPJ	-	P.59
1	D: 1/4, 3/8	3, 1/2, 5/8, 3/4, 1", 1	I-1/4, 1-1/2	
	U-SPJT	U-PSPJT	-	P.61
	D: 1/4, 3/8	3, 1/2, 5/8, 3/4, 1", 1	-1/4, 1-1/2	
	U-SPJW	U-PSPJW	-	P.63
	D: 1/4, 3/8	3, 1/2, 5/8, 3/4, 1", 1	-1/4, 1-1/2	

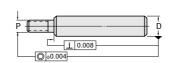
## **Basic Specifications of MISUMI's Precision Linear Shafts**

#### Accuracy Standards

**Circularity and Straightness** 

#### **Concentricity and Perpendicularity**





#### □ Circularity Circularity of D Circularity 0.1250 0.00015 0.7500 0.5000 0.00020

1.5000

Dimension L		Tolerance
over	up to	(±)
0.38	6.00	0.010
6.00	24.00	0.030
24.00	60.00	0.050

Length Tolerance

☐ Straightness Straightness of 0.0012 inch per foot TIR cumulative

#### ■ Material, Hardness and Surface Treatment

0.00025

0.7500

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Method	Material	Hardness	Hardening Depth (D Section Only)
	Case Hardened		0.020" (D = 1/8 to 3/8)
Induction Hardening	Steel	58 HRC~	0.028" (D = 1/2 to 3/4)
	Ottobi		0.040" (D = 1" to 1-1/2)
	440C Stainless Steel	56 HRC~	0.020" (D = 1/8 to 1/2)
			0.028" (D = 5/8 to 1-1/2)

#### ■ Hard Chrome Plated Shafts

Method	Material	Plating Hardness
Induction Hardening	Case Hardened Steel	750 HV

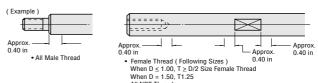
Plating Thickness: 0.0002" or more on D section only

Hard Chrome Plating: Applied on the polished D dimension surface of induction hardened Case Hardened Steel/440C Stainless Steel base material.

In the example below, induction hardening and hard chrome plating are applied only on //// D part. The other areas are not induction hard chrome plated.



Shaft edge ( Thread effective length + about 0.40 in. ) may have less hardness due to annealing



The areas that are not applied with either hardening or hard chrome plating on around 0.40 in. of the following:

All NPT Threads

- · Retaining Ring
- Wrench Flats ( Modification with SC, WSC )

  V-Groove ( Modification with VC, WVC )/Set Screw Flat ( Modification with FC, WFC )

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