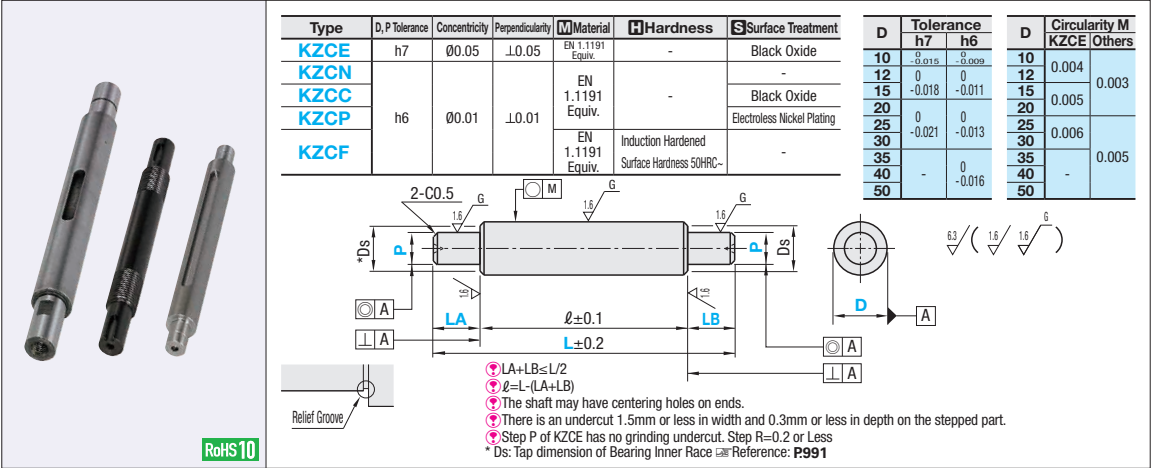


Driving Shafts

Both Ends Stepped

■ **Features:** Rotary Shafts suitable for driving motion. Accuracies and shapes needed for rotary driving applications are selectable.



Part Number Type	D	0.5mm Increment		0.5mm Increment		*Ds
		L	P	LA	LB	
KZCE (D10~30)	10	50.0~300.0	6	4.0~40.0	4.0~40.0	8
	12		8			9.5
	15		10	5.0~50.0		10
	20	100.0~400.0	12			11.5
	25		15	5.0~75.0	5.0~50.0	13
KZCN KZCC KZCP KZCF	30	100.0~500.0	17	5.0~100.0		14
	*35		20	10.0~100.0		18
			25	10.0~125.0		19
	*40	200.0~500.0	30	15.0~150.0	15.0~70.0	21
	*50		40	20.0~150.0	20.0~70.0	24

Ordering Example: **Part Number** - L - P - LA - LB
KZCF50 - 450 - P45 - LA80 - LB50

• **About KZCF (Induction Hardened)**
When alterations on the right-hand page are specified, the shafts are induction hardened (except the threaded sections) after machining.
As a result, these may occur:
①: Due to thermal conduction to the thread, the threads may be hardened by 2 ~ 3mm.
②: Induction Hardened may shrink the keyway width (around -0.01 ~ -0.02). If the key becomes hard to fit, adjust it by gauging.

⚠ * marked sizes are not available for KZCE.

Type	KZCE					KZCN					KZCC				
	Min. L	L100.5	L200.5	L300.5	L400.5	Min. L	L100.5	L200.5	L300.5	L400.5	Min. L	L100.5	L200.5	L300.5	L400.5
10	~100.0	~200.0	~300.0	~400.0	~500.0	~100.0	~200.0	~300.0	~400.0	~500.0	~100.0	~200.0	~300.0	~400.0	~500.0
12				-	-				-	-				-	-
15				-	-				-	-				-	-
20				-	-				-	-				-	-
25				-	-				-	-				-	-
30				-	-				-	-				-	-
35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

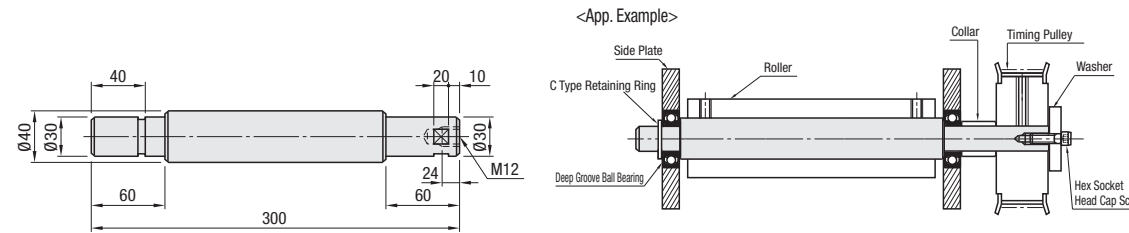
Type	KZCP					KZCF				
	Min. L	L100.5	L200.5	L300.5	L400.5	Min. L	L100.5	L200.5	L300.5	L400.5
10	~100.0	~200.0	~300.0	~400.0	~500.0	~100.0	~200.0	~300.0	~400.0	~500.0
12				-	-				-	-
15				-	-				-	-
20				-	-				-	-
25				-	-				-	-
30				-	-				-	-
35	-	-	-	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-
50	-	-	-	-	-	-	-	-	-	-

■ Selection of Driving Shaft

In selecting a driving shaft, select the basic shape and size from the specification table, then select necessary alterations such as thread machining, keyway addition etc.

<Selection Example of Part Number>

• Alteration Selection: A retaining ring groove, two set screw flats at 0° and 90° and a tap.



Alterations: **Part Number** - L - P - LA - LB - (MA, NA, KA, TA, SA, WA---etc.)
KZCF40 - 300 - P30 - LA60 - LB60 - NB12 - TA40 - WB10 - GB20 - AB90

Alterations	Code			Spec.
	Left End	Middle	Right End	
Threaded Ends	MA MSA MMA	MC MSC MMC MMD	MB MSB MMB	Adds threads at shaft ends. Specify the length of the threads. (Accuracy, coarse or fine threads can be specified by ordering code.) Ordering Code MA15-MSB15 1mm Increment 5≤ Thread Length ≤Mx5, LA(LB)-2 Code Screw Accuracy Left, Middle, Right, Middle, Middle MA MC MB MD Coarse JIS 6h (Class 2) MSA MSC MSB MSD Fine (Standard) JIS 6h (Class 2) MMA MMC MMB MMD Fine (Precision) JIS 4h (Class 1) ⚠ When D, P=M, thread length can be specified. ⚠ Fine (Precision Grade) is not available for KZCE.
Tapped Ends	NA	-	NB	Adds taps on shaft ends. Select the thread diameter. Ordering Code NA5-NB5 ⚠ NA, NB≤P-4 NA (Coarse) NB (Coarse) Selection M3 M4 M5 M6 M8 M10 M12 M16 M20 M24 M30 M36
Keyway Machining	KA	KC KD	KB	Adds a keyway. Specify the position and the length of the keyway. Ordering Code KA10-HA30-KB100-HB50 KA, HA, KB, HB, KC, HC, KD, HD = 1mm Increment ⚠ 3≤HA, HB, HC, HD≤100 ⚠ Keyway Details P820 ⚠ When more than 2 keyways are added, the tolerances may shift by up to 0.2°. ⚠ Specify the keyway position more than 2mm away from the stepped part.
Keyway Machining + Set Screw Flat	ZA	ZC ZD	ZB	Adds a flat at any designated angle based on the keyways. Specify the position and the length for each keyway, and the angle for the set screw flats. Ordering Code ZA40-HA20-AA90 ZA, HA, ZB, HB, ZC, HC, ZD, HD = 1mm Increment AA, AB, AC, AD = 30° Increment 30°≤AA, AB, AC, AD≤330° ⚠ HA, HB, HC, HD≤100 ⚠ Keyway Details P820 ⚠ Specify the keyway position more than 2mm away from the stepped part. Ordering Code Keyway Position Specified Keyway Width Specified Angle Specified 30° Increment ZA HA AA ZB HB AB ZC HC AC ZD HD AD ⚠ The length of each set screw flat is the same as that of each keyway. ⚠ For a keyway and the angle of a set screw flat, the tolerances may shift by up to ±0.2°.
Retaining Ring Groove	TA	TC TD	TB	Adds a retaining ring groove. Specify the position of a retaining ring groove. Ordering Code TA10-TB10 TA, TB = 1mm Increment 4≤TA(TB)≤LA(LB)-3 ⚠ Retaining rings are included. ⚠ For dimensions of the retaining ring groove, P820 P=6, 8; Retaining Ring Type E, P≥10, D≥10; Retaining Ring Type C, Driving Shafts Material Hardness Surface Treatment Material EN 1.1191 Equiv. Black Oxide Electroless Nickel Plating Spring Steel Surface 50HRC~
Wrench Flats	SA	SD	SB	Adds a wrench flat. Specify the position of a wrench flat. Ordering Code SA5 SA, SB, SD = 1mm Increment SA, SB, SD ≥ 0 SA≤LA-ℓ, SB≤LB-ℓ, SD≤LA-LB-ℓ D 10 12 15 20 25 30 35 40 50 W 8 10 13 17 22 27 30 36 41 ℓ 8 10 15 20 P 6 8, 10 12 15 17 20 25 30 35 40 45 W1 5 7 10 13 14 17 19 27 30 36 38 ℓ 8 10 15 20
2 Set Screw Flats (Angle Specified)	WA	WC	WB	Adds a flat at any designated angle besides the datum plane 0°. Specify the position, the length and the angle of the set screw flats. When 0° is specified, only one set screw flat is machinable. Ordering Code WA15-GA10-AA0 WA, WB, WC, GA, GB, GC = 1mm Increment AA, AB, AC = 30° Increment 0°≤AA, AB, AC≤330° Ordering Code Set Screw Flat Position Specified Set Screw Flat Width Specified Angle Specified 30° Increment WA GA AA WB GB AB WC GC AC D, P 6~17 20~40 45, 50 H 1 2 3
Tolerance Change	PJ (j6)	PK (k6)		Changes the tolerance of P Dimension of the stepped part to j6 or k6. Ordering Code PJ or PK ⚠ Both LA and LB tolerances will be changed. ⚠ Not available for KZCE.