

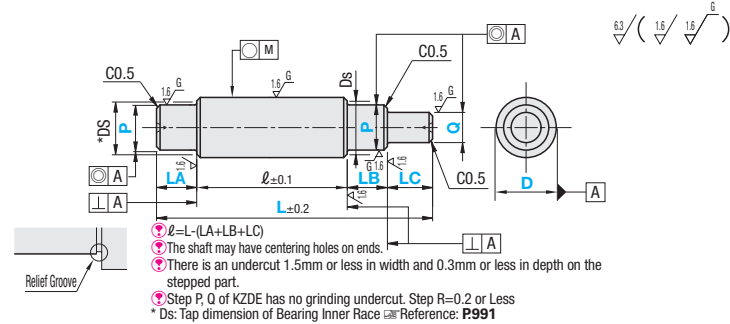
Driving Shafts

One End Stepped One End Double Stepped

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



Type	D, P, Q Tolerance	Concentricity	Perpendicularity	Material	Hardness	Surface Treatment	D	Tolerance h7	h6	D	Circularity M	KZDE	Others
KZDE	h7	00.05	0.05	S45C	-	Black Oxide	10	0	0	10	0.004	-	0.003
KZDN				S45C	-	Black Oxide	12	0	0	12	0.005	-	-
KZDC				S45C	-	Black Oxide	15	-0.018	-0.011	15	0.005	-	-
KZDP				SUS304	-	Electroless Nickel Plating	20	0	0	20	0.006	-	-
KZDS	h6	00.01	0.01	SUS304	-	-	25	0	0	25	0.006	-	-
KZDF				S45C	Induction Hardened	-	30	0	0	30	0.006	-	-
					Surface Hardness 50HRC-		35	0	0	35	0.005	-	-
							40	-	-0.016	40	-	-	-
							50	-	-	50	-	-	-



RoHS10

Part Number	0.5mm Increment	Selection	0.5mm Increment	1mm Increment	0.5mm Increment	*Ds	
Type	D	L	P	LA	LB	Q	LC
KZDE (D10~30)	10	50.0~300.0	6	4.0~40.0	4.0~40.0	5~7	3.0~30.0
	8		8			4.0~40.0	
	10		10			4.0~40.0	
KZDN	12	100.0~400.0	10	5.0~50.0	5.0~50.0	7~9	5.0~50.0
	15		12			5.0~60.0	
	20		15			5.0~75.0	
KZDC	25	100.0~500.0	17	5.0~100.0	10.0~60.0	10~16	5.0~100.0
	30		20			10.0~100.0	
	35		25			10.0~125.0	
KZDP	40	200.0~500.0	30	15.0~150.0	15.0~70.0	20~29	15.0~150.0
	45		35			20~34	
			40			20~39	
KZDS			45	20.0~150.0	20.0~70.0	20~44	20.0~150.0
KZDF							

Ordering Example Part Number - L - P - LA - LB - Q - LC
KZDN25 - 500 - P20 - LA100 - LB60 - Q15 - LC80

■ **About KZDF (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.

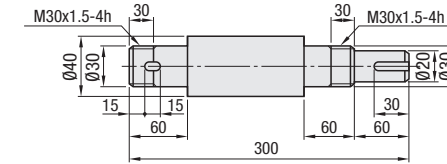
Type	KZDE					KZDN					KZDC				
D	Min. L	L100.5	L200.5	L300.5	L400.5	Min. L	L100.5	L200.5	L300.5	L400.5	Min. L	L100.5	L200.5	L300.5	L400.5
10	~100.0	~200.0	~300.0	~400.0	~500.0	~100.0	~200.0	~300.0	~400.0	~500.0	~100.0	~200.0	~300.0	~400.0	~500.0
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Type	KZDP					KZDS					KZDF				
D	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
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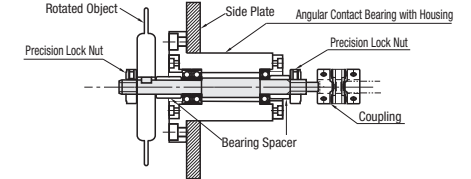
■ Selection of Driving Shaft

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: Two Threaded Ends, Two Keyways



<App. Example>



Alterations Part Number - L - P - LA - LB - Q - LC - (MA, NA, KA, TA, SA, WA--etc.)
KZDN40 - 300 - P30 - LA60 - LB60 - Q20 - LC60 - MMA30 - MMB30 - KA15 - HA15 - KC0 - HC30

Alterations	Code	Spec.
Left End	Right End	
Threaded Ends M=P M=Q MA MSA MMA MB MSB MMB MC MSC MMC	MB MSB MMB MC MSC MMC	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, LC)-2 Code Left End Right End Screw Accuracy MA MB MC Coarse JIS 6h (Class 2) MSA MSB MSC Fine (Standard) JIS 6h (Class 2) MMA MMB MMC Fine (Precision) JIS 4h (Class 1) When P, Q=M, thread length can be specified. Fine (Precision Grade) is not available for KZDE.
Tapped Ends NA NC NAX2 NCX2	NA NC	Adds taps on shaft ends. Select the thread diameter. Ordering Code NA5-NC5 NA,NC≤P(Q)-4 NA (Coarse) NC (Coarse) Selection M3 M4 M5 M6 M8 M10 M12 M16 M20 M24
Keyway Machining KA KB KC KD HA HB HC HD	KA KB KC KD	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 ZB ZC ZD HA HB HC HD	ZA ZC ZD	Adds a flat at any designated angle besides the datum plane 0°. Specify the length and width for each keyway, and the angle for the set screw flat. 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° 3: 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 D, P, Q 5 6-17 18-40 41-50 H 0.5 1 2 3 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 TB TC m	TA TB TC	Adds a retaining ring groove. Specify the position of a retaining ring groove. Ordering Code TA10-TB10-TC10 TA, TB, TC = 1mm Increment 4: TA ≤ LA-3 Retaining rings are included. For dimensions of the retaining ring groove, P820 Not available for Q = 27, 31, 33-34, 36-39, 41-44. P, Q: 8: Retaining Ring Type E, P, Q: 9: Retaining Ring Type C Retaining Ring Material Hardness Surface Treatment Material S45C - Black Oxide Spring Steel SUS304 Electroless Nickel Plating SUS304-CSP S45C Surface 50HRC - Spring Steel
Wrench Flats SA SD SC W W1 l	SA SD SC	Adds a wrench flat. Specify the position of a wrench flat. Ordering Code SA5 SA, SB, SD = 1mm Increment SA, SC, SD ≥ 0 SA ≤ LA-l, SC ≤ LC-l, SD ≤ LB-LC-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, Q 5 6 7 8-10 11-13 14-15 16-18 19-21 22-25 26-28 29-31 32-37 38-41 42-45 W1 4 5 5.5 7 10 13 14 17 19 22 27 30 36 38 l 8 10 15 20
2 Set Screw Flats (Angle Specified) WA WB WC WD WE GA GB GC GD GE H	WA WB WC WD WE	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, WC, WD, WE, GA, GB, GC, GD, GE = 1mm Increment AA, AB, AC, AD = 30° Increment 0° ≤ AA, AB, AC, AD ≤ 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 WD GD AC WE GE AD WE is applicable for KZDE only.
Tolerance Change PJ (jS6) PK (k6)	PJ (jS6) PK (k6)	Changes the tolerance of P Dimension of the stepped part to js6 or k6. Ordering Code PJ or PK Both LA and LB tolerances will be changed. Not available for KZDE.