



- Bellows and internal gear couplings
- Force-locked and backlash-free torque transmission
- Connecting shafts
- Synchronisation of toothed belt axes

Accessories for electrical positioning systems

Key features

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At a glance

Bellows couplings

5 / 2.3-3

- The one-piece bellows coupling is suitable for force-locked and backlash-free transmission of low and medium torque between electric motors and axes
- Sizes: 15 and 19 mm
- System product for positioning applications



Internal gear couplings

5 / 2.3-3

- The three-part internal gear coupling is suitable for force-locked and backlash-free transmission of high torques between electric motors and axes
- Sizes: 30, 40, 65 mm
- System product for positioning applications



Connecting shafts

5 / 2.3-8

- For synchronisation of toothed belt axes
- For torsion-resistant transmission of torques
- For slip-free transmission of an identical feed speed to a second axis
- Sizes: 25, 40, 63 mm



Couplings KSE

Type code

Type code

KSE – 19 – 24 – D06 – D09

Type

KSE	Bellows coupling
	Internal gear coupling

Diameter (∅) [mm]

15	∅ 15 mm
19	∅ 19 mm
30	∅ 30 mm
40	∅ 40 mm
65	∅ 65 mm

Overall length

22	22 mm
24	24 mm
35	35 mm
66	66 mm
90	90 mm

Hole D1

Hole D2

Couplings KSE

Selection aid

FESTO

Size	Couplings Type	Hole for drive shaft			Transferable torque ²⁾ [Nm]
		D1 Ø H7 [mm]	D2 Ø H7 [mm]	max. Ø H7 [mm]	
Toothed belt axes DGE-...-ZR...					
8	KSE-15-22-D04-D05	4 ¹⁾	5	9	1
	KSE-15-22-D04-D07	4 ¹⁾	7	10	1
12	KSE-15-22-D04-D05	4 ¹⁾	5	9	1
	KSE-15-22-D04-D07	4 ¹⁾	7	10	1
	KSE-15-22-D04-D09	4 ¹⁾	9	10	1
18	KSE-19-24-D06-D06,35	6 ¹⁾	6.35	12	1.5
	KSE-19-24-D06-D09	6 ¹⁾	9	12	1.5
25	KSE-30-35-D06,35-D08	8	6.35	12	6.3
	KSE-30-35-D08-D11	8	11	12	6.8
	KSE-30-35-D08-D12	8	12	12	6.8
40	KSE-40-66-D15-D19	15	19	20	21.2
	KSE-40-66-D15-D20	15	20	20	21.2
	KSE-40-66-D15-D24	15	24	24	16.2
	KSE-40-66-DXX-D15	15	3)	20	-
63	KSE-65-90-D24-D25	24	25	38	64
	KSE-65-90-DXX-D25	25	3)	38	-
Spindle axes DGE-...-SP...					
18	KSE-15-22-D05-D05	5 ¹⁾	5	9	1
	KSE-15-22-D05-D07	5 ¹⁾	7	10	1
	KSE-15-22-D05-D09	5 ¹⁾	9	10	1
25	KSE-30-35-D06-D06,35	6	6.35	12	6.3
	KSE-30-35-D06-D09	6	9	12	6.3
40	KSE-30-35-D11-D12	12	11	12	7.5
	KSE-40-66-D11-D12	12	11	20	19.5
	KSE-40-66-D12-D19	12	19	20	19.8
63	KSE-40-66-D19-D20	20	19	20	23.1
	KSE-40-66-D20-D20	20	20	20	23.6
	KSE-40-66-DXX-D20	20	3)	24	-
Boom axes DGEA-...-ZR					
18	KSE-30-35-D08-D11	8	11	12	6.8
25	KSE-40-66-D11-D11	11	11	20	19.5
	KSE-40-66-D11-D12	11	12	20	19.5
40	KSE-40-66-D15-D20	15	20	20	19.5
	KSE-65-90-D15-D24	15	24	38	57

- 1) Tolerance field g6
- 2) For drive shafts with tolerance field h6
- 3) Must be drilled by the user

Couplings KSE

Technical data

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Bellows coupling KSE

∅ - Diameter
15 and 19 mm



General technical data		
∅	15	19
Mass moment of inertia [kg mm ²]	0.13	0.47
Tightening torque for locking screw [Nm]	1.5	1.5
Weight [g]	6	12
Materials	Hubs	Aluminium
	Bellows	Stainless steel

Dimensions Download CAD data → www.festo.com/en/engineering

Type	D1 ∅ H7	D2 ∅ H7	D3 ∅	D4	L1	L2	L3	X
KSE-15-22-D04-D05	4	5	15	M3	22	6.5	2	-
KSE-15-22-D04-D07	4	7	15	M3	22	6.5	2	-
KSE-15-22-D04-D09	4	9	15	M3	22	6.5	2	-
KSE-15-22-D05-D05	5	5	15	M3	22	6.5	2	-
KSE-15-22-D05-D07	5	7	15	M3	22	6.5	2	-
KSE-15-22-D05-D09	5	9	15	M3	22	6.5	2	-
KSE-19-24-D06-D06,35	6	6.35	19	M3	24	7.5	2	120
KSE-19-24-D06-D09	6	9	19	M3	24	7.5	2	120

Ordering data		
∅ [mm]	Part No.	Type
15	530 084	KSE-15-22-D04-D05
	184 260	KSE-15-22-D04-D07
	184 262	KSE-15-22-D04-D09
	530 085	KSE-15-22-D05-D05
	184 261	KSE-15-22-D05-D07
	529 953	KSE-15-22-D05-D09
	19	530 086
184 263		KSE-19-24-D06-D09

Couplings KSE

Technical data



Internal gear coupling KSE

∅ - Diameter
30, 40 and 65 mm



General technical data				
∅		30	40	65
Mass moment of inertia	[kg mm ²]	6.1	42.3	417
Tightening torque for locking screw	[Nm]	2.9	10.5	25
Weight	[g]	45	139	535
Materials	Hubs	Aluminium		
	Internal gear	Polyurethane		

Dimensions Download CAD data → www.festo.com/en/engineering

KSE-30

KSE-40

KSE-65

1) Compress coupling to specified length only
2) Min. installation ∅

Type	D1 ∅ H7	D2 ∅ H7
KSE-30-35-D06-D06,35	6	6.35
KSE-30-35-D06,35-D08	6.35	8
KSE-30-35-D06-D09	6	9
KSE-30-35-D08-D08	8	8
KSE-30-35-D08-D10	8	10
KSE-30-35-D08-D11	8	11
KSE-30-35-D08-D12	8	12
KSE-30-35-D11-D12	11	12
-		
-		
-		
-		

Type	D1 ∅ H7	D2 ∅ H7
KSE-40-66-D11-D11	11	11
KSE-40-66-D11-D12	11	12
KSE-40-66-D12-D19	12	19
KSE-40-66-D15-D16	15	16
KSE-40-66-D15-D19	15	19
KSE-40-66-D15-D20	15	20
KSE-40-66-D15-D24	15	24
KSE-40-66-D16-D20	16	20
KSE-40-66-D19-D20	19	20
KSE-40-66-D20-D20	20	20
KSE-40-66-DXX-D15 ¹⁾	XX	15
KSE-40-66-DXX-D20 ¹⁾	XX	20

Type	D1 ∅ H7	D2 ∅ H7
KSE-65-90-D15-D24	15	24
KSE-65-90-D24-D25	24	25
KSE-65-90-D25-D28	25	28
KSE-65-90-DXX-D25 ¹⁾	XX	25
-		
-		
-		
-		
-		
-		
-		

1) Hubs predrilled to ∅5 mm

Couplings KSE

Technical data

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Ordering data		
∅ [mm]	Part No.	Type
30	530 087	KSE-30-35-D06-D06,35
	530 088	KSE-30-35-D06,35-D08
	530 941	KSE-30-35-D06-D09
	123 044	KSE-30-35-D08-D08
	123 050	KSE-30-35-D08-D10
	123 042	KSE-30-35-D08-D11
	123 043	KSE-30-35-D08-D12
	123 051	KSE-30-35-D11-D12
40	176 036	KSE-40-66-DXX-D15
	176 037	KSE-40-66-DXX-D20
	530 090	KSE-40-66-D11-D11
	525 864	KSE-40-66-D11-D12
	529 952	KSE-40-66-D12-D19
	123 846	KSE-40-66-D15-D16
	123 844	KSE-40-66-D15-D19
	123 845	KSE-40-66-D15-D20
	176 033	KSE-40-66-D15-D24
	123 848	KSE-40-66-D16-D20
	123 847	KSE-40-66-D19-D20
	123 849	KSE-40-66-D20-D20
65	179 038	KSE-65-90-DXX-D25
	530 940	KSE-65-90-D15-D24
	123 852	KSE-65-90-D24-D25
	123 854	KSE-65-90-D25-D28

Connecting shafts KSK

Key features and type code



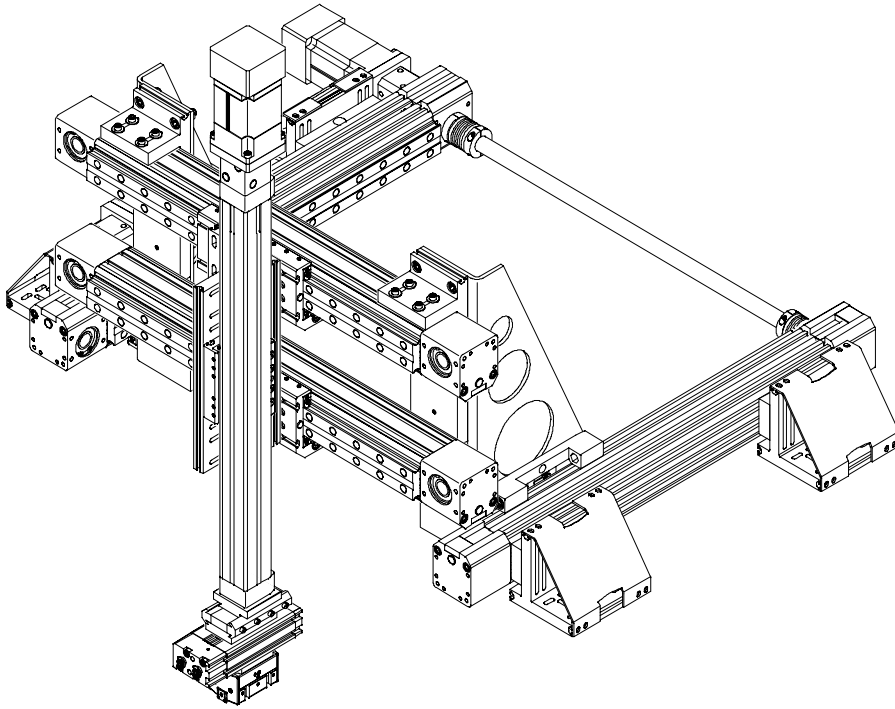
At a glance

Electrical axes DGE-... are often combined to form multi-axis systems. It is particularly important when realising gantry systems with a long gantry axis

and heavy loads that the two basic axes be driven synchronously. For these systems, two axes with toothed belt drive are generally coupled with a

shared motor and synchronised using a connecting shaft.

Connecting shafts are available for sizes 25, 40 and 63.



Type code

		KSK	—	25	—	800
Type						
KSK	Connecting shaft					
Size						
25	for toothed belt axis DGE-25-...-ZR-KF					
40	for toothed belt axis DGE-40-...-ZR-KF					
63	for toothed belt axis DGE-63-...-ZR-KF					
Centre-to-centre distance between the axes						

Connecting shafts KSK

Technical data



⌀ - Size
25, 40 and 63 mm



General technical data				
Size		25	40	63
Moment of inertia if L1 = 0 mm	[kg cm ²]	0.31	1.47	13.10
Moment of inertia per 1 m L1	[kg cm ² /m]	0.34	0.80	3.35
Max. permissible axial offset	[mm]	±2		
Basic weight if L1 = 0 mm	[kg]	0.22	0.36	1.8
Additional weight per 1 m L1	[kg/m]	0.32	0.48	0.8

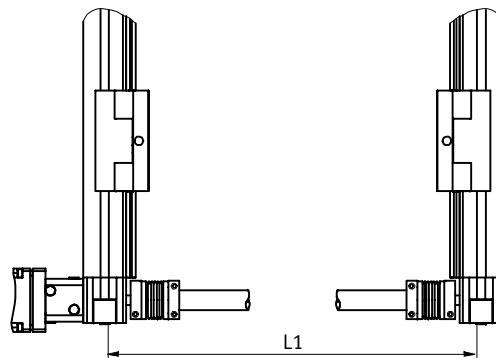
Operating and environmental conditions				
Size		25	40	63
Ambient temperature	[°C]	-10 ... +40		
Corrosion resistance class CRC ¹⁾		2		
Materials	Hubs	Wrought aluminium alloy		
	Bellows	High-alloy steel		
Materials	Connecting tube	High-alloy steel		

1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a surrounding industrial atmosphere or media such as cooling or lubricating agents.

Distance (centre-to-centre distance L1) between the axes

A connecting shaft consists of a connecting tube with two couplings attached to its ends. The connecting shaft transmits the required torque, and thus avoids misalignment between the axes. It also ensures

slip-free transmission, resulting in identical travel at both axes. The centre-to-centre distance between the two axes must be entered under distance (see table).



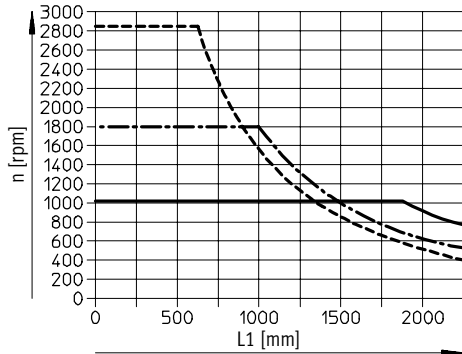
Size		25	40	63
L1 _{min.}	[mm]	200	250	350
L1 _{max.}	[mm]	2 000	2 000	2 000

Connecting shafts KSK

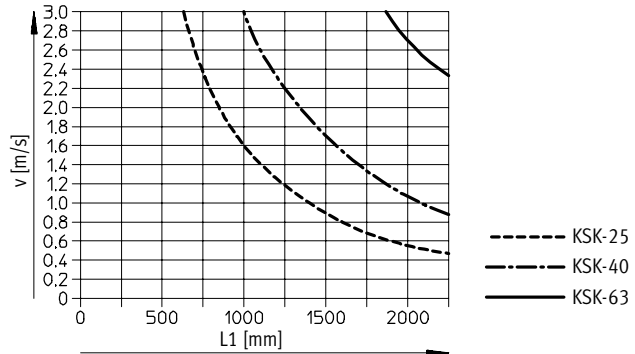
Technical data



Max. rpm [n] as a function of the centre-to-centre distance L1

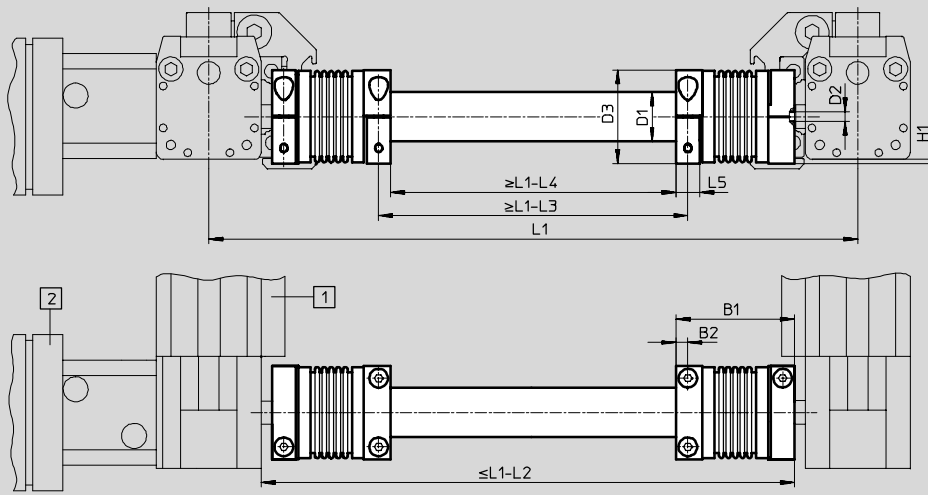


Max. axis velocity [v] as a function of the centre-to-centre distance L1



Dimensions

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Type	B1	B2	D1 ∅	D2 ∅	D3 ∅	H1	L1	L2	L3	L4	L5
KSK-25-...	50	5.1	21.27	8	40	1.6	Required centre-to-centre distance between the axes	51.4	133.6	156.4	10.2
KSK-40-...	59	6.5	26.52	15	49	2.5		71.4	164.4	194.6	13.1
KSK-63-...	94	10.8	41.6	25	81	6		114.6	261.4	305.6	21.6

Ordering data

Type	Part No.	Type
KSK-25	196 587	KSK-25-...
KSK-40	196 588	KSK-40-...
KSK-63	196 589	KSK-63-...

- - Note

Specify the centre-to-centre distance L1 in the type code when ordering.

Ordering example:
Two toothed belt axes DGE-40-ZR are to be linked using a connecting shaft and a centre-to-centre distance L1 = 1 000 mm

The following connecting shaft must be ordered:
Type: KSK-40-1 000
Part No.: 196 588