

Accessories for electrical positioning systems

FESTO



Accessories for electrical positioning systems

Key features

At a glance

Bellows couplings

3

- The one-piece bellows coupling is suitable for force-locked and backlash-free transmission of small and medium torques between electric motors and axes
- \varnothing 15 and 19 mm
- System product for positioning technology



Internal gear couplings

3

- The three-part internal gear coupling is suitable for force-locked and backlash-free transmission of high torques between electric motors and axes
- \varnothing 15, 16, 20, 30, 40, 42, 65 mm
- System product for positioning technology



Connecting shafts

10

- For synchronising toothed belt axes
- For torsion-resistant transmission of torques
- For slip-free transmission of an identical feed speed, i.e. when connecting a second axis
- Sizes: 25, 40, 63 mm



Couplings KSE/EAMC

Type codes

| | | | | | | |
|-----------------------|------------------------|-----|----|----|-----|-----|
| | | KSE | 19 | 24 | D06 | D09 |
| Type | | | | | | |
| KSE | Bellows coupling | | | | | |
| | Internal gear coupling | | | | | |
| ∅ [mm] | | | | | | |
| 15 | ∅ 15 mm | | | | | |
| 16 | ∅ 16 mm | | | | | |
| 19 | ∅ 19 mm | | | | | |
| 30 | ∅ 30 mm | | | | | |
| 40 | ∅ 40 mm | | | | | |
| 42 | ∅ 42 mm | | | | | |
| 65 | ∅ 65 mm | | | | | |
| Overall length | | | | | | |
| 20 | 20 mm | | | | | |
| 22 | 22 mm | | | | | |
| 24 | 24 mm | | | | | |
| 32 | 32 mm | | | | | |
| 35 | 35 mm | | | | | |
| 50 | 50 mm | | | | | |
| 66 | 66 mm | | | | | |
| 90 | 90 mm | | | | | |
| Hole D1 | | | | | | |
| Hole D2 | | | | | | |

| | | | | | | |
|-----------------------|------------------------|------|----|----|---|---|
| | | EAMC | 20 | 30 | 6 | 6 |
| Type | | | | | | |
| EAMC | Internal gear coupling | | | | | |
| ∅ [mm] | | | | | | |
| 20 | ∅ 20 mm | | | | | |
| 30 | ∅ 30 mm | | | | | |
| Overall length | | | | | | |
| 30 | 30 mm | | | | | |
| 32 | 32 mm | | | | | |
| Hole D1 | | | | | | |
| Hole D2 | | | | | | |

Couplings KSE/EAMC

Technical data

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Bellows coupling KSE

∅ - Diameter
15 and 19 mm

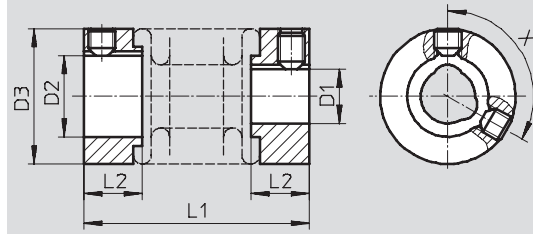


| General technical data | | |
|--|------------------|-----------------|
| Type | KSE-15 | KSE-19 |
| Mass moment of inertia [kg mm ²] | 0.13 | 0.47 |
| Tightening torque of locking screw [Nm] | 1.5 | 1.5 |
| Max. rotational speed [rpm] | 12,000 | 8,000 |
| Weight [g] | 6 | 12 |
| Corrosion resistance class CRC ¹⁾ | 1 | |
| Materials | Hubs | Aluminium |
| | Bellows | Stainless steel |
| Note on material | Conforms to RoHS | |

1) Corrosion resistance class 1 to Festo standard 940 070
Components requiring low corrosion resistance. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.

Dimensions and ordering data

Download CAD data → www.festo.com



| ∅ [mm] | D1 ¹⁾ ∅ H7 | D2 ∅ H7 | D3 ∅ | L1 | L2 | X | Transferable torque ²⁾ [Nm] | Part No. | Type |
|-----------|-----------------------------|---------------|---------|----|-----|-----|--|----------|----------------------|
| 15 | 4 | 5 | 15 | 22 | 6.5 | – | 1 | 530 084 | KSE-15-22-D04-D05 |
| | 4 | 6 | 15 | 22 | 6.5 | – | 1 | 540 750 | KSE-15-22-D04-D06 |
| | 4 | 9 | 15 | 22 | 6.5 | – | 1 | 184 262 | KSE-15-22-D04-D09 |
| | 5 | 5 | 15 | 22 | 6.5 | – | 1 | 530 085 | KSE-15-22-D05-D05 |
| | 5 | 6 | 15 | 22 | 6.5 | – | 1 | 540 751 | KSE-15-22-D05-D06 |
| | 5 | 9 | 15 | 22 | 6.5 | – | 1 | 529 953 | KSE-15-22-D05-D09 |
| 19 | 6 | 6.35 | 19 | 24 | 7.5 | 120 | 1.5 | 530 086 | KSE-19-24-D06-D06.35 |
| | 6 | 6 | 19 | 24 | 7.5 | 120 | 1.5 | 184 265 | KSE-19-24-D06-D06 |
| | 6 | 9 | 19 | 24 | 7.5 | 120 | 1.5 | 184 263 | KSE-19-24-D06-D09 |

1) Tolerance field g6

2) For drive shafts with tolerance field h6

Couplings KSE/EAMC

Technical data

Internal gear coupling KSE/EAMC

⌀ - Diameter
15 ... 65 mm



| General technical data | | KSE-15-20 | KSE-16-20 | EAMC-20-30 | KSE-30-32 | EAMC-30-32 |
|--|-----------------------|------------------|-----------|------------|-----------|------------|
| Type | | | | | | |
| Mass moment of inertia | [kg mm ²] | 0.23 | 0.3 | 1.06 | 5.87 | 5.87 |
| Tightening torque of locking screw | [Nm] | 1.3 | 0.6 | 0.76 | 4 | 4 |
| Max. rotational speed | [rpm] | 10,000 | 10,000 | 19,000 | 8,000 | 8,000 |
| Weight | [g] | 8 | 8 | 20 | 50 | 48 |
| Corrosion resistance class CRC ¹⁾ | | 1 | | | | |
| Materials | Hubs | Aluminium | | | | |
| | Internal gear | Polyurethane | | | | |
| Note on material | | Conforms to RoHS | | | | |

| Type | | KSE-30-35 | KSE-40-66 | KSE-42-50 | KSE-65-90 |
|--|-----------------------|------------------|-----------|-----------|-----------|
| Mass moment of inertia | [kg mm ²] | 6.1 | 42.3 | 35.5 | 417 |
| Tightening torque of locking screw | [Nm] | 2.9 | 10.5 | 8 | 25 |
| Max. rotational speed | [rpm] | 8,000 | 6,500 | 6,000 | 4,500 |
| Weight | [g] | 45 | 139 | 146 | 535 |
| Corrosion resistance class CRC ¹⁾ | | 1 | | | |
| Materials | Hubs | Aluminium | | | |
| | Internal gear | Polyurethane | | | |
| Note on material | | Conforms to RoHS | | | |

1) Corrosion resistance class 1 to Festo standard 940 070
Components requiring low corrosion resistance. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.

Couplings KSE/EAMC

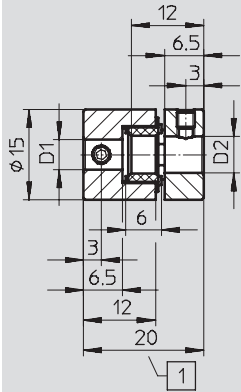
Technical data

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Dimensions and ordering data

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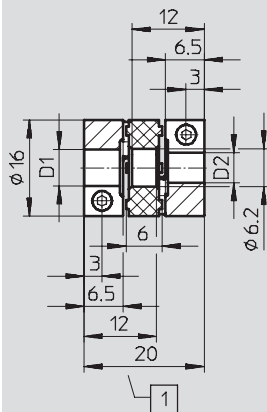
KSE-15-20



1 Compress coupling to specified length only

| ∅ | D1 | D2 | Transferable torque | Part No. | Type |
|------|------|------|---------------------|----------|-------------------|
| [mm] | ∅ H7 | ∅ H7 | [Nm] | | |
| 15 | 5 | 6 | 1.5 | 533 707 | KSE-15-20-D05-D06 |

KSE-16-20



1 Compress coupling to specified length only

| ∅ | D1 | D2 | Transferable torque | Part No. | Type |
|------|------|------|---------------------|----------|-------------------|
| [mm] | ∅ H7 | ∅ H7 | [Nm] | | |
| 16 | 5 | 6 | 1.1 | 543 419 | KSE-16-20-D05-D06 |
| | 6 | 6 | 1.6 | 543 420 | KSE-16-20-D06-D06 |

Couplings KSE/EAMC

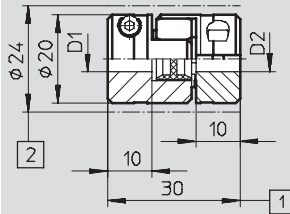
Technical data

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Dimensions and ordering data

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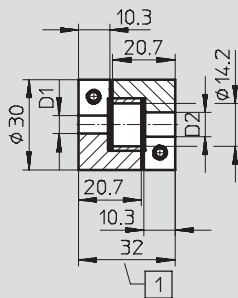
EAMC-20-30



- 1 Compress coupling to specified length only
- 2 Min. installation \varnothing (interference profile of locking screws)

| \varnothing [mm] | D1 \varnothing H7 | D2 \varnothing H7 | Transferable torque [Nm] | Part No. | Type |
|-----------------------|---------------------------|---------------------------|--------------------------------|----------|----------------|
| 20 | 5 | 6 | 2.2 | 558 902 | EAMC-20-30-5-6 |
| | 6 | 6 | 2.3 | 558 901 | EAMC-20-30-6-6 |

KSE-30-32/EAMC-30-32



- 1 Compress coupling to specified length only

| \varnothing [mm] | D1 \varnothing H7 | D2 \varnothing H7 | Transferable torque [Nm] | Part No. | Type |
|-----------------------|---------------------------|---------------------------|--------------------------------|----------|----------------------|
| 30 | 6 | 6 | 6.5 | 558 312 | EAMC-30-32-6-6 |
| | 6 | 8 | 6.5 | 533 708 | KSE-30-32-D06-D08 |
| | 6.35 | 8 | 6.5 | 543 421 | KSE-30-32-D06.35-D08 |
| | 6 | 6.35 | 6.5 | 551 002 | KSE-30-32-D06-D06.35 |
| | 6 | 9 | 6.5 | 551 003 | KSE-30-32-D06-D09 |
| | 8 | 8 | 12.5 | 543 422 | KSE-30-32-D08-D08 |
| | 8 | 9 | 12.5 | 543 423 | KSE-30-32-D08-D09 |
| | 8 | 10 | 12.5 | 558 029 | EAMC-30-32-8-10 |
| | 8 | 11 | 12.5 | 551 004 | KSE-30-32-D08-D11 |

Couplings KSE/EAMC

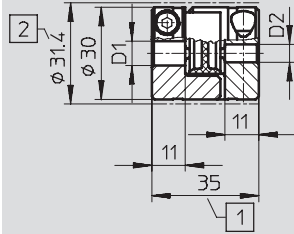
Technical data

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Dimensions and ordering data

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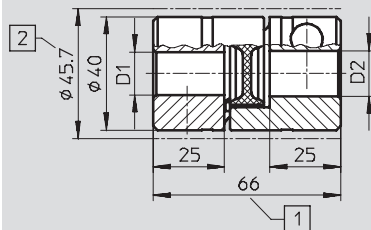
KSE-30-35



- 1 Compress coupling to specified length only
- 2 Min. installation \varnothing (interference profile of locking screws)

| \varnothing [mm] | D1 \varnothing H7 | D2 \varnothing H7 | Transferable torque [Nm] | Part No. | Type |
|-----------------------|---------------------------|---------------------------|--------------------------------|-------------------|----------------------|
| 30 | 6 | 6 | 7.5 | 123 040 | KSE-30-35-D06-D06 |
| | 6.35 | 8 | 7.5 | 530 088 | KSE-30-35-D06.35-D08 |
| | 6 | 9 | 7.5 | 530 941 | KSE-30-35-D06-D09 |
| | 8 | 8 | 8 | 123 044 | KSE-30-35-D08-D08 |
| | 8 | 9 | 8 | 557 390 | KSE-30-35-D08-D09 |
| | 8 | 10 | 8 | 123 050 | KSE-30-35-D08-D10 |
| | 8 | 11 | 8 | 123 042 | KSE-30-35-D08-D11 |
| | 8 | 12 | 8 | 123 043 | KSE-30-35-D08-D12 |
| | 9 | 12 | 8.3 | 550 996 | KSE-30-35-D09-D12 |
| | 10 | 12 | 8.6 | 552 640 | KSE-30-35-D10-D12 |
| 11 | 12 | 8.9 | 123 051 | KSE-30-35-D11-D12 | |

KSE-40



- 1 Compress coupling to specified length only
- 2 Min. installation \varnothing (interference profile of locking screws)

| \varnothing [mm] | D1 \varnothing H7 | D2 \varnothing H7 | Transferable torque [Nm] | Part No. | Type |
|-----------------------|---------------------------|---------------------------|--------------------------------|----------|-------------------|
| 40 | 11 | 11 | 17 | 530 090 | KSE-40-66-D11-D11 |
| | 11 | 12 | 17 | 525 864 | KSE-40-66-D11-D12 |
| | 11 | 15 | 17 | 550 998 | KSE-40-66-D11-D15 |
| | 11 | 20 | 17 | 550 999 | KSE-40-66-D11-D20 |
| | 12 | 19 | 17 | 529 952 | KSE-40-66-D12-D19 |
| | 15 | 16 | 17 | 123 846 | KSE-40-66-D15-D16 |
| | 15 | 19 | 17 | 123 844 | KSE-40-66-D15-D19 |
| | 15 | 20 | 17 | 123 845 | KSE-40-66-D15-D20 |
| | 15 | 24 | 17 | 176 033 | KSE-40-66-D15-D24 |
| | 19 | 20 | 17 | 123 847 | KSE-40-66-D19-D20 |
| | 20 | 20 | 17 | 123 849 | KSE-40-66-D20-D20 |
| | XX ¹⁾ | 15 | – | 176 036 | KSE-40-66-DXX-D15 |
| | XX ¹⁾ | 20 | – | 176 037 | KSE-40-66-DXX-D20 |

1) Hubs predrilled to \varnothing 5 mm

Couplings KSE/EAMC

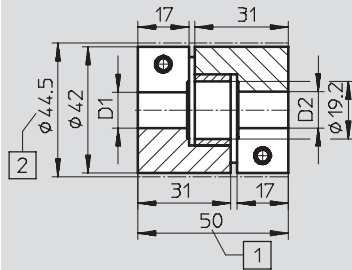
Technical data

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Dimensions and ordering data

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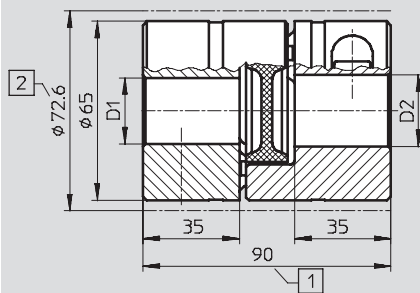
KSE-42



- 1 Compress coupling to specified length only
- 2 Min. installation \varnothing (interference profile of locking screws)

| \varnothing [mm] | D1 \varnothing H7 | D2 \varnothing H7 | Transferable torque [Nm] | Part No. | Type |
|-----------------------|---------------------------|---------------------------|--------------------------------|----------|-------------------|
| 42 | 11 | 12 | 17 | 543 424 | KSE-42-50-D11-D12 |
| | 12 | 12 | 17 | 533 709 | KSE-42-50-D12-D12 |
| | 12 | 19 | 17 | 551 005 | KSE-42-50-D12-D19 |
| | 14 | 20 | 17 | 533 710 | KSE-42-50-D14-D20 |

KSE-65



- 1 Compress coupling to specified length only
- 2 Min. installation \varnothing (interference profile of locking screws)

| \varnothing [mm] | D1 \varnothing H7 | D2 \varnothing H7 | Transferable torque [Nm] | Part No. | Type |
|-----------------------|---------------------------|---------------------------|--------------------------------|----------|-------------------|
| 65 | 15 | 24 | 80 | 530 940 | KSE-65-90-D15-D24 |
| | 19 | 25 | 85 | 551 000 | KSE-65-90-D19-D25 |
| | 20 | 25 | 85 | 176 035 | KSE-65-90-D20-D25 |
| | 24 | 25 | 92 | 123 852 | KSE-65-90-D24-D25 |
| | 25 | 25 | 92 | 123 853 | KSE-65-90-D25-D25 |
| | 25 | 40 | 62 | 551 001 | KSE-65-90-D25-D40 |
| | XX ¹⁾ | 25 | – | 176 038 | KSE-65-90-DXX-D25 |

1) Hubs predrilled to \varnothing 9.5 mm

Connecting shafts KSK

Key features and type code

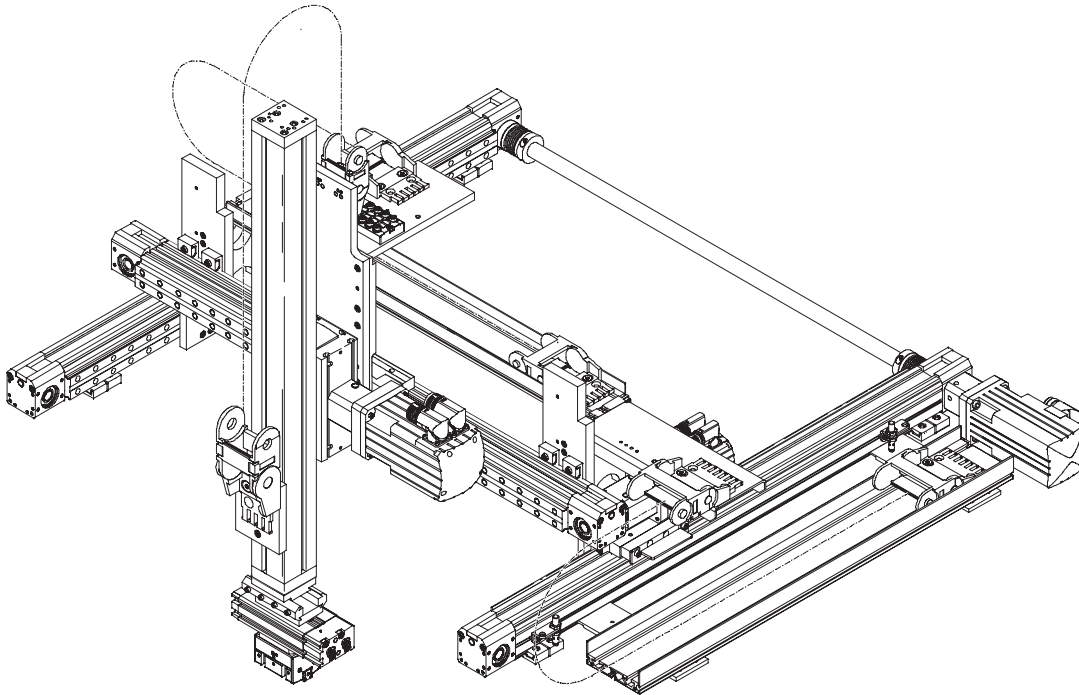
At a glance

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

Connecting shaft KSK

⌀ - Size
25, 40 and 63 mm



| General technical data | | | | |
|---|-------------------------|------|------|-------|
| Size | | 25 | 40 | 63 |
| Basic moment of inertia if L1 = 0 mm | [kg cm ²] | 0.31 | 1.47 | 13.10 |
| Additional 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 |

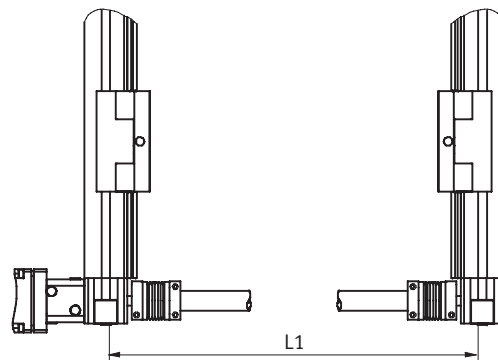
| Operating and environmental conditions | | | | |
|--|-----------------|-------------------------|----|----|
| Size | | 25 | 40 | 63 |
| Ambient temperature | [°C] | -10 ... +40 | | |
| Corrosion resistance class CRC ¹⁾ | | 2 | | |
| Materials | Hubs | Wrought aluminium alloy | | |
| Coupling | Bellows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



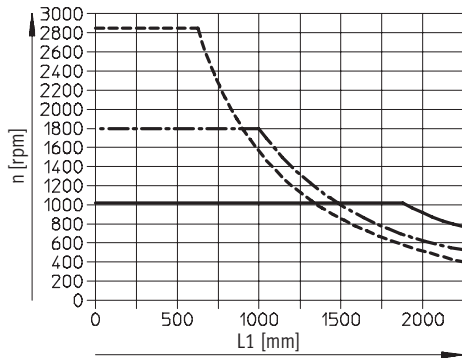
| Size | | 25 | 40 | 63 |
|---------|------|-------|-------|-------|
| L1 min. | [mm] | 200 | 250 | 350 |
| L1 max. | [mm] | 2 000 | 2 000 | 2 000 |

Connecting shafts KSK

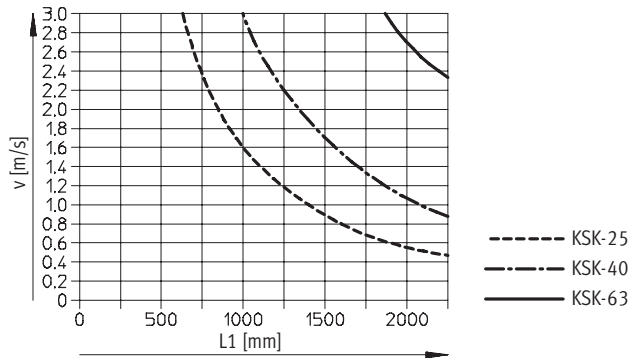
Technical data

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

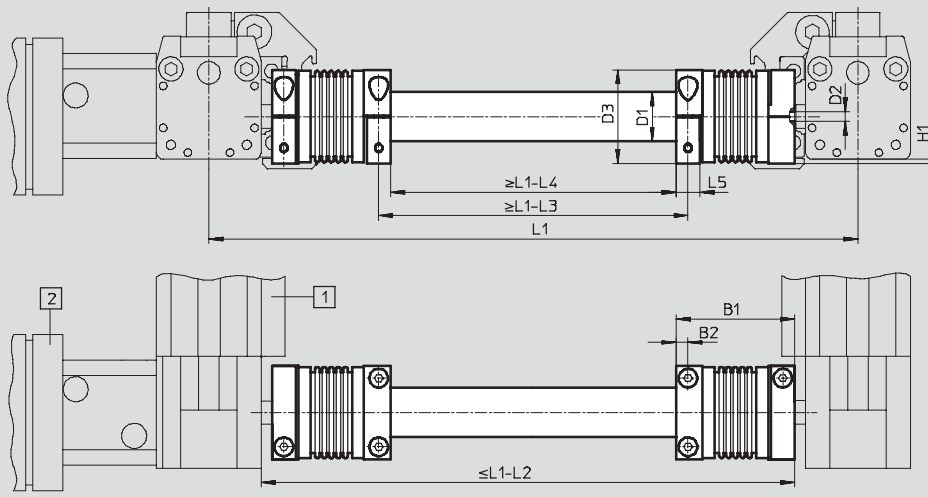


Max. axis velocity [v] as a function of the centre-to-centre distance L1



Dimensions and ordering data

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| Size [mm] | B1 | B2 | D1 ∅ | D2 ∅ | D3 ∅ | H1 | L1 | L2 | L3 | L4 | L5 | Part No. | Type |
|-----------|----|------|---------|---------|---------|-----|---|-------|-------|-------|------|----------------|-------------------|
| 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 | 196 587 | KSK-25-... |
| 40 | 59 | 6.5 | 26.52 | 15 | 49 | 2.5 | | 71.4 | 164.4 | 194.6 | 13.1 | 196 588 | KSK-40-... |
| 63 | 94 | 10.8 | 41.6 | 25 | 81 | 6 | | 114.6 | 261.4 | 305.6 | 21.6 | 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-40-1000
Part No.: 196 588