
CENTA

# CENTAFLEX-KF

ENGLISH

# CENTAFLEX-KF



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# CENTAFLEX-KF
# AT A GLANCE

CENTAFLEX-KF – a very cost efficient torsionally stiff and light weight coupling for the application in diesel hydraulic drives. A good choice where compensation of radial misalignments of up to 0.7 mm and temperature resistance up to a short-termed maximum of 120°C – specially in sealed machines – are an issue.

High torsional stiffness for subcritical operation. Axially short build, a special advantage for flywheel connections. Easy adaption to many flywheel and hub connections ensure flexibility of your drive.

CENTAFLEX-KF consists of a lasered adapter plate for the flywheel connection, a secondary flange made of moulded reinforced plastic and a thin vulcanised layer of temperature resistant elastomer.

Features

high torsional stiffness

high temperature resistance

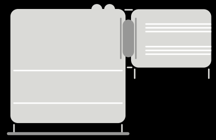
low weight

maximum mounting ease

cost efficient

Areas of application

hydrostatic drives



Torque range

up to 800 Nm

higher torques on request

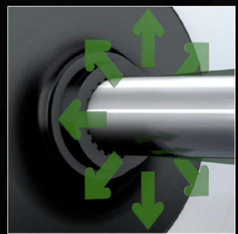
for subcritical operation

# LEADING BY INNOVATION

## TORSIONAL STIFFNESS

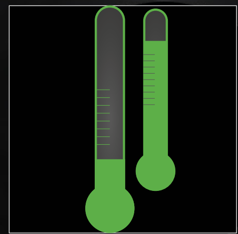
Due to high torsional stiffness the CENTAFLEX-KF leads to subcritical operation.

The ideal choice for sealed, hydraulic pump drives and combustion engines. .



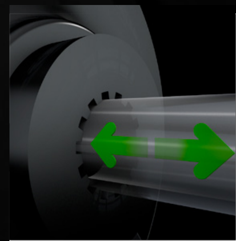
## COMPENSATION OF MISALIGNMENTS

Superior high allowable radial misalignment of up to 0.7 mm at permanent running is the distinguish mark of this coupling.



## TEMPERATURE

An optimum choice where high temperature ranges are required. Short-termed allowance for up to 120°C maximum temperature.



## ASSEMBLY

Axiale plug in assembly for customer specific splines. In addition the hub materal makes this coupling absolutely low in wear.

Very short, extremely small assembly dimension for the flywheel connection.


## QUALITY

When the going gets tough, quality is priceless. With an exemplary Quality Management, CENTA ensures products that withstand the roughest assignments. CENTA's coupling systems are more than the sum of their parts. CENTA entertains the vision of intelligent products that meet the highest requirements in terms of design and quality.

## CENTAFLEX-KF

# SIZES

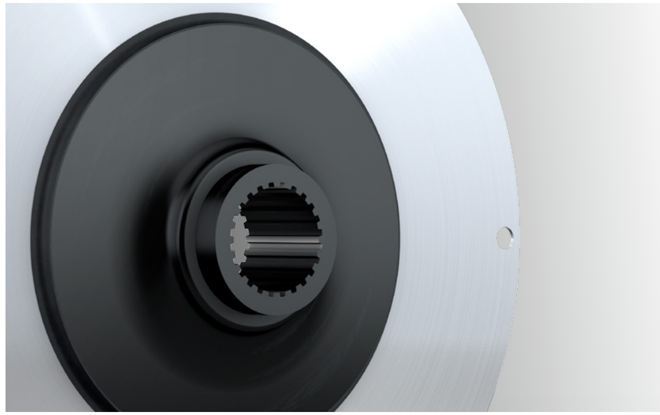
# CENTAFLEX-KF
# DESIGN TYPES

SIZES 30–50

This design type has the connecting geometry of the CENTAFLEX-A/H coupling range. The bolting lies within the reinforced plastic.

SIZES 80

This design type has the connecting geometry of the CENTAFLEX-KE coupling range. The bolting lies within the reinforced plastic.



SIZES 90

This design has a variable connecting geometry which can be realized by specially fit flanges. The coupling can be connected from both sides at different lengths.

CENTAFLEX-KF

# TECHNICAL DATA



Questions on product selection?
We will gladly assist → www.centa.info/contact

# CENTAFLEX-KF

**TECHNICAL DATA** | ↓ **SIZES 30–50** | → SIZE 89 | → SIZES 94–98

| 1 | 3 | 4 | 5 | 7* | | | | 8 | 9 | 12 | 14 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | Nominal torque $T_{KN}$ [kNm] | Maximum torque $T_{Kmax}$ [kNm] | Continuous vibratory torque $T_{KW}$ [kNm] | Dynamic torsional stiffness cold $C_{Tdyn}$ [kNm/rad] | | | | Relative damping $\psi$ | Speed $n_{max}$ [$min^{-1}$] | Permissible radial displacement $\Delta K_r$ [mm] | Permissible angular displacement $\Delta K_W$ [°] | Flange size |
| | | | | 25% | 50% | 75% | 100% | | | | | |
| 30 | 0,50 | 1,00 | 0,20 | 51 | 64 | 70 | 74 | 0,6 | 4500 | 0,5 | 0,2 | 205 |
| 35 | 0,40 | 0,80 | 0,16 | 31 | 39 | 42 | 45 | 0,6 | 5000 | 0,5 | 0,2 | 170 |
| 50 | 0,80 | 1,60 | 0,32 | 40 | 50 | 54 | 58 | 0,6 | 4500 | 0,5 | 0,2 | 205 |

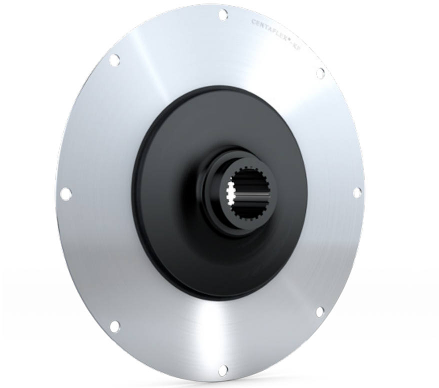
* preliminary values

# CENTAFLEX-KF

**TECHNICAL DATA** | ↓ **SIZE 89** | ← SIZES 30–50 | → SIZES 94–98

| 1 | 3 | 4 | 5 | 7 | | | | 8 | 9 | 12 | 14 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | Nominal torque $T_{KN}$ [kNm] | Maximum torque $T_{Kmax}$ [kNm] | Continuous vibratory torque $T_{KW}$ [kNm] | Dynamic torsional stiffness cold $C_{Tdyn}$ [kNm/rad] 25% | 50% | 75% | 100% | Relative damping $\Psi$ | Speed $n_{max}$ [$min^{-1}$] | Permissible radial displacement $\Delta K_r$ [mm] | Permissible angular displacement $\Delta K_W$ [°] | Flange size |
| 89 | 0,80 | 1,60 | 0,32 | 51 | 64 | 70 | 74 | 0,6 | 5000 | 0,7 | 0,2 | 205 |

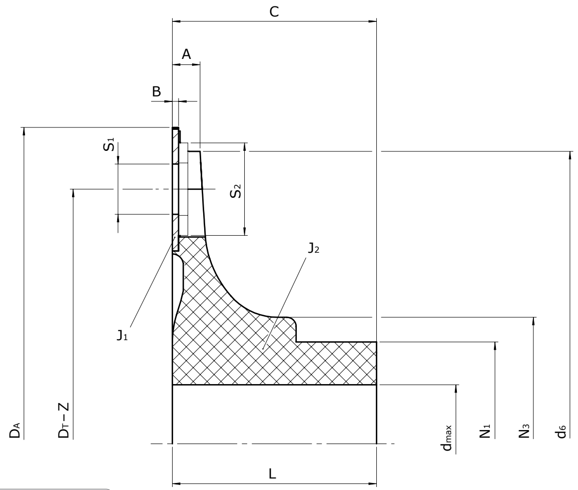
# CENTAFLEX-KF



**TECHNICAL DATA** | ↓ **SIZE 94–98** | ← SIZES 30– 50 | ← SIZES 89

| 1 | 3 | 4 | 5 | 7 | | | | 8 | 9 | 12 | 14 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | Nominal torque $T_{KN}$ [kNm] | Maximum torque $T_{Kmax}$ [kNm] | Continuous vibratory torque $T_{KW}$ [kNm] | Dynamic torsional stiffness cold $C_{Tdyn}$ [kNm/rad] | | | | Relative damping $\Psi$ | Speed $n_{max}$ [min$^{-1}$] | Permissible radial displacement $\Delta K_r$ [mm] | Permissible angular displacement $\Delta K_W$ [°] | Flange size |
| | | | | 25% | 50% | 75% | 100% | | | | | |
| 94 | 0,40 | 0,80 | 0,16 | 47 | 51 | 54 | 56 | 0,6 | 5000 | 0,7 | 0,2 | 6,5 - 7,5 - 8 - 10 |
| 98 | 0,80 | 1,60 | 0,32 | 120 | 128 | 132 | 138 | 0,6 | 4500 | 0,7 | 0,2 | 8 - 10 - 11,5 |

# CENTAFLEX-KF

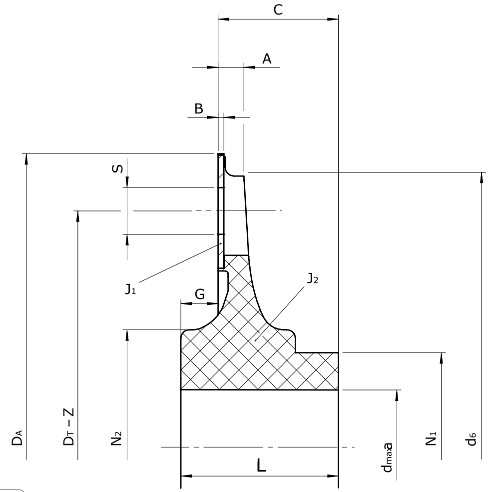



**DIMENSIONS** | ↓ **SIZES 30–50** | → SIZE 89 | → SIZES 94–98

| Size | Dimensions | | | | | | | | Flange dimensions | | | | | Mass moments of intertia and masses | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | $d_{max}$ | $d_6$ | L** | $N_1$ | $N_3$ | $D_A$ | $D_T$ ±0,2 | Z | $S_1$ | $S_2$ | $J_1$ [kgm²] | $J_2$ | $m_1$ | $m_2$ [kg] | $m_{total}$* |
| 30 | 9 | 2 | 66 | 40<br>55 | 192 | 66 | 66 | 82 | 205 | 165 | 3x120° | 16,3 | 30 | 0,0015 | 0,0024 | 0,33 | 0,63 | 0,96 |
| 35 | 8 | 2 | 55 | 40 | 162 | 55 | 51 | 67 | 170 | 140 | 3x120° | 14,3 | 28 | 0,0011 | 0,0006 | 0,22 | 0,37 | 0,59 |
| 50 | 9 | 2 | 66 | 40<br>55 | 192 | 66 | 66 | 82 | 205 | 165 | 4x90° | 16,3 | 30 | 0,0024 | 0,0014 | 0,33 | 0,56 | 0,89 |

* can differ according variation
** Standard length, can be varied as required.

# CENTAFLEX-KF

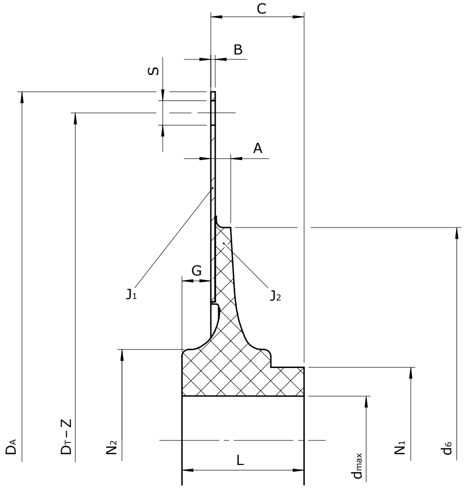



**DIMENSIONS** | ↓ **SIZE 89** | ← SIZE 50 | → SIZES 94–98

| Size | Dimensions | | | | | | | | | Flange dimensions | | | | Mass moments of intertia and masses | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | $d_{max}$ | $d_6$ | G | L** | $N_1$ | $N_2$ | $D_A$ | $D_T$ ±0,2 | Z | S | $J_1$ [kgm²] | $J_2$ | $m_1$ [kg] | $m_2$ | $m_{total}$* |
| 89 | 9 | 2 | 42 | 55 | 192 | 13 | 55 | 66 | 82 | 205 | 165 | 3x120° | 16,3 | 0,0024 | 0,0014 | 0,34 | 0,56 | 0,90 |

* can differ according variation
** Standard length, can be varied as required.

# CENTAFLEX-KF




**DIMENSIONS** | ↓ **SIZE 94–98** | ← SIZE 50 | ← SIZES 89

| Size | Assembly situation | A | B | C | $d_{max}$ | $d_6$ | G | L** | $N_1$ | $N_2$ | SAE J620 | $D_A$ ±0,15 | $D_T$ ±0,2 | Z | S | $J_1$ [kgm²] | $J_2$ [kgm²] | $m_1$ [kg] | $m_2$* [kg] | $m_{total}$* [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 94 | A | 8 | 2 | 30 | 40 | 162 | 13 | 43 | 51 | 67 | 6,5 | 215,9 | 200,0 | 6x60° | 9 | 0,0032 | 0,0006 | 0,43 | 0,35 | 0,78 |
| | C | | | 39 | | | 4 | | | | | | | | | | | | | |
| | A | 8 | 2 | 30 | 40 | 162 | 13 | 43 | 51 | 67 | 7,5 | 241,3 | 222,3 | 8x45° | 9 | 0,0050 | 0,0006 | 0,57 | 0,35 | 0,92 |
| | C | | | 39 | | | 4 | | | | | | | | | | | | | |
| | A | 8 | 2 | 30 | 40 | 162 | 13 | 43 | 51 | 67 | 8 | 263,5 | 244,5 | 6x60° | 11 | 0,0072 | 0,0006 | 0,71 | 0,35 | 1,06 |
| | C | | | 39 | | | 4 | | | | | | | | | | | | | |
| | A | 8 | 2 | 30 | 40 | 162 | 13 | 43 | 51 | 67 | 10 | 314,3 | 295,3 | 8x45° | 11 | 0,0147 | 0,0006 | 1,06 | 0,35 | 1,41 |
| | C | | | 39 | | | 4 | | | | | | | | | | | | | |
| 98 | A | 9 | 2 | 42 | 55 | 192 | 13 | 55 | 66 | 82 | 8 | 263,5 | 244,5 | 6x60° | 11 | 0,0071 | 0,0015 | 0,68 | 0,58 | 1,26 |
| | C | | | 49 | | | 6 | | | | | | | | | | | | | |
| | A | 9 | 2 | 42 | 55 | 192 | 13 | 55 | 66 | 82 | 10 | 314,3 | 295,3 | 8x45° | 11 | 0,0146 | 0,0015 | 1,04 | 0,58 | 1,62 |
| | C | | | 49 | | | 6 | | | | | | | | | | | | | |
| | A | 9 | 2 | 42 | 55 | 192 | 13 | 55 | 66 | 82 | 11,5 | 352,4 | 333,4 | 8x45° | 11 | 0,0233 | 0,0015 | 1,35 | 0,58 | 1,93 |
| | C | | | 49 | | | 6 | | | | | | | | | | | | | |

* can differ according variation
** Standard length, can be varied as required.

# CENTAFLEX-KF
# EXPLANATION OF THE TECHNICAL DATA

This appendix shows all explanations of the technical data for all CENTA products.

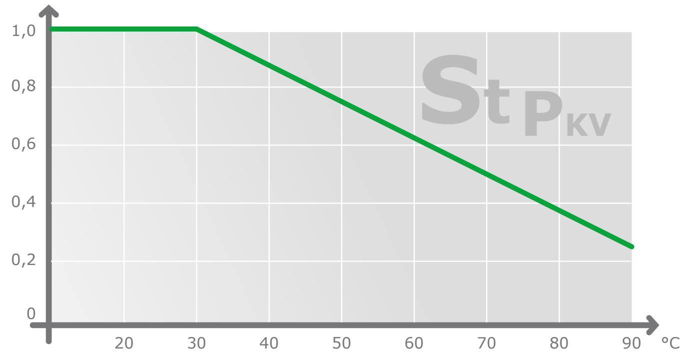
**the green marked explanations are relevant for this catalog:**



Are these technical explanations up to date?
click here for an update check!

# CENTAFLEX-KF

## EXPLANATION OF THE TECHNICAL DATA




### 1

**Size**

This spontaneously selected figure designates the size of the coupling.

### 2

**Rubber quality**
**Shore A**

This figure indicates the nominal shore hardness of the elastic element.

The nominal value and the effective value may deviate within given tolerance ranges.

### 3

**Nominal torque**
**$T_{KN}$ [kNm]**

Average torque which can be transmitted continuously over the entire speed range.

### 4

**Maximum torque**
**[kNm]**

| | |
|---|---|
| $T_{Kmax}$ | This is the torque that may occur occasionally and for a short period up to 1.000 times and may not lead to a substantial temperature rise in the rubber element. |

In addition the following maximum torques may occur:

| | |
|---|---|
| $\Delta T_{Kmax} = 1{,}8 \times T_{KN}$ | Peak torque range (peak to peak) between maximum and minimum torque, e.g. switching operation. |
| $T_{Kmax1} = 1{,}5 \times T_{KN}$ | Temporary peak torque (e.g. passing through resonances). $\Delta T_{Kmax}$ or $T_{Kmax1}$ may occur 50.000 times alternating or 100.000 times swelling. |
| $T_{Kmax2} = 4{,}5 \times T_{KN}$ | Transient torque rating for very rare, extraordinary conditions (e.g. short circuits). |

### 5

**Continuous vibratory torque**
**$T_{KW}$ [kNm]**

Amplitude of the continuously permissible periodic torque fluctuation with a basic load up to the value $T_{KN}$.

The frequency of the amplitude has no influence on the permissible continuous vibratory torque. Its main influence on the coupling temperature is taken into consideration in the calculation of the power loss.

**Operating torque**
**$T_{Bmax}$ [kNm]**

The maximum operating torque results of $T_{KN}$ and $T_{KW}$.

### 6

**Permissible Power Loss**
**$P_{KV}$ [kW] or [W]**

Damping of vibrations and displacement results in power loss within the rubber element.

The permissible power loss is the maximum heat (converted damping work into heat), which the rubber element can dissipate continuously to the environment (i.e. without time limit) without the maximum permissible temperature being exceeded.

The given permissible power loss refers to an ambient temperature of 30° C. If the coupling is to be operated at a higher ambient temperature, the temperature factor $St_{PKV}$ has to be taken into consideration in the calculation.

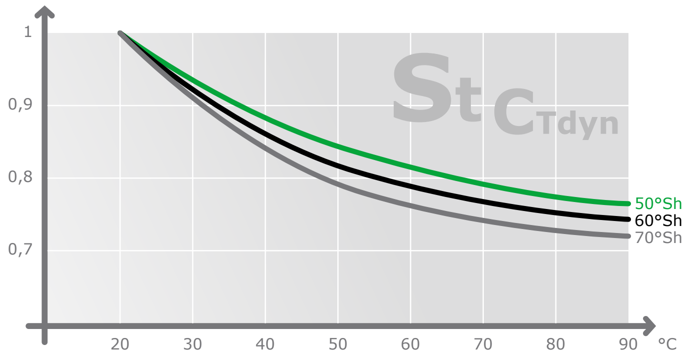
The coupling can momentarily withstand an increase of the permissible power loss for a short period under certain operation modes (e.g. misfiring).

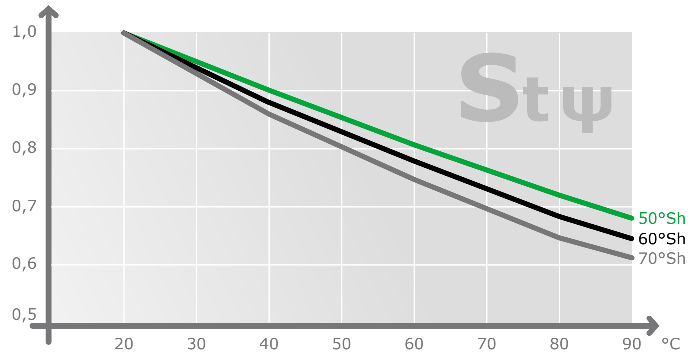
**$P_{KV30}$ [kW] or [W]**

For a maximum period of 30 minutes the double power loss $P_{KV30}$ is permissible. CENTA keeps record of exact parameters for further operation modes.

# CENTAFLEX-KF

## EXPLANATION OF THE TECHNICAL DATA




### 7 – Dynamic torsional stiffness

$C_{Tdyn}$ [kNm/rad]

The dynamic torsional stiffness is the relation of the torque to the torsional angle under dynamic loading.

The torsional stiffness may be linear or progressive depending on the coupling design and material.

The value given for couplings with linear torsional stiffness considers following terms:

- Pre-load: 50% of $T_{KN}$
- Amplitude of vibratory torque: 25% of $T_{KN}$
- Ambient temperature: 20°C
- Frequency: 10 Hz

For couplings with progressive torsional stiffness only the pre-load value changes as stated.

The tolerance of the torsional stiffness is ±15% if not stated otherwise.

The following influences need to be considered if the torsional stiffness is required for other operating modes:

- Temperature
  Higher temperature reduces the dynamic torsional stiffness.
  Temperature factor $S_{t\,C_{Tdyn}}$ has to be taken into consideration in the calculation.
- Frequency of vibration
  Higher frequencies increase the torsional stiffness.
  By experience the dynamic torsional stiffness is 30% higher than the static stiffness. CENTA keeps record of exact parameters.
- Amplitude of vibratory torque
  Higher amplitudes reduce the torsional stiffness, therefore small amplitudes result in higher dynamic stiffness. CENTA keeps record of exact parameters.

### 8 – Relative damping

ψ

The relative damping is the relationship of the damping work to the elastic deformation during a cycle of vibration.

The larger this value [ψ], the lower is the increase of the continuous vibratory torque within or close to resonance.

The tolerance of the relative damping is ±20%, if not otherwise stated.

The relative damping is reduced at higher temperatures.

Temperature factor $S_{t\psi}$ has to be taken into consideration in the calculation.

The vibration amplitude and frequency only have marginal effect on the relative damping.

### 9 – Speed

[$min^{-1}$]

| | |
|---|---|
| $n_{max}$ | The maximum speed of the coupling element, which may occur occasionally and for a short period (e.g. overspeed).<br>The characteristics of mounted parts may require a reduction of the maximum speed (e.g. outer diameter or material of brake discs). |
| $n_d$ | The maximum permissible speed of highly flexible coupling elements is normally 90% thereof. |

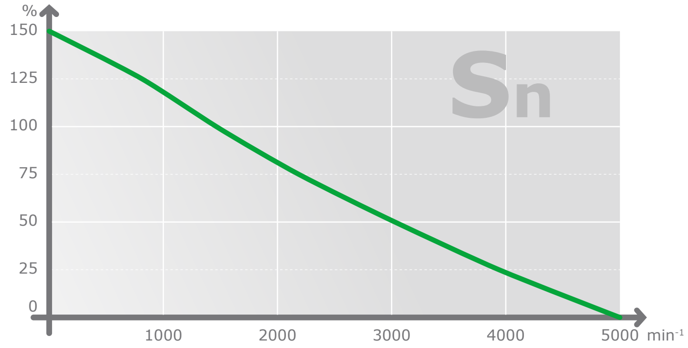
### 10 – Permissible axial displacement

[mm]

| | |
|---|---|
| $\Delta K_a$ | The continuous permissible axial displacement of the coupling.<br>This is the sum of displacement by assembly as well as static and dynamic displacements during operation. |
| $\Delta K_{a\,max}$ | The maximum axial displacement of the coupling, which may occur occasionally for a short period (e.g. extreme load).<br>The concurrent occurrence of different kinds of displacements is handled in technical documents (displacement diagrams, data sheets, assembly instructions). |

# CENTAFLEX-KF

## EXPLANATION OF THE TECHNICAL DATA




| 11 | |
|---|---|
| **Axial stiffness [kN/mm]** | |
| $C_a$ | The axial stiffness determines the axial reaction force on the input and output sides upon axial displacement. |
| $C_{a\ dyn}$ | By experience the dynamic stiffness is higher than the static one. The factor depends on the coupling series. |

| 12 | |
|---|---|
| **Permissible radial displacement [mm]** | |
| $\Delta K_r$ | The continuous permissible radial displacement of the coupling.<br>This is the sum of displacement by assembly as well as static and dynamic displacements during operation.<br>The continuous permissible radial displacement depends on the operation speed and may require adjustment (see diagrams $S_n$ of the coupling series). |
| $\Delta K_{r\ max}$ | The maximum radial displacement of the coupling, which may occur occasionally and for a short period without consideration of the operation speed (e.g. extreme overload).<br>The concurrent occurrence of different kinds of displacements is handled in technical documents (displacement diagrams, data sheets, assembly instructions). |

| 13 | |
|---|---|
| **Radial stiffness [kN/mm]** | |
| $C_r$ | The radial stiffness determines the radial reaction force on the input and output sides upon radial displacement. |
| $C_{rdyn}$ | By experience the dynamic stiffness is higher than the static one. The factor depends on the coupling series. |

| 14 | |
|---|---|
| **Permissible angular displacement [∢°]** | |
| $\Delta K_w$ | The continuous permissible angular displacement of the coupling.<br>This is the sum of displacement by assembly as well as static and dynamic displacements during operation.<br>The continuous permissible angular displacement depends on the operation speed and may require adjustment (see diagrams $S_n$ of the coupling series). |
| $\Delta K_{w\ max}$ | The maximum angular displacement of the coupling, which may occur occasionally and for a short period without consideration of the operation speed (e.g. extreme overload).<br>The concurrent occurrence of different kinds of displacements is handled in technical documents (displacement diagrams, data sheets, assembly instructions). |

| 15 | |
|---|---|
| **Angular stiffness [kNm/°]** | |
| $C_w$ | The angular stiffness determines the restoring bending moment on the input and output sides upon angular displacement. |
| $C_{wdyn}$ | By experience the dynamic stiffness is higher than the static one. The factor depends on the coupling series. |

1. This catalog supersedes previous editions.

   This catalog shows the extent of our coupling range at the time of printing. This program is still being extended with further sizes and series. Any changes due to technological progress are reserved.

   We reserve the right to amend any dimensions or detail specified or illustrated in this publication without notice and without incurring any obligation to provide such modification to such couplings previously delivered. Please ask for an application drawing and current data before making a detailed coupling selection.

2. We would like to draw your attention to the need of preventing accidents or injury. No safety guards are included in our supply.

3. TRADEMARKS

   CENTA, the CENTA logo, Centacone, CENTADISC, CENTAFIT, Centaflex, CENTALINK, Centalock, Centaloc, Centamax, Centastart, CENTAX and HYFLEX are registered trademarks of CENTA Antriebe Kirschey GmbH in Germany and other countries.

   Other product and company names mentioned herein may be trademarks of their respective companies.

4. Torsional responsibility

   The responsibility for ensuring the torsional vibration compatibility of the complete drive train, rests with the final assembler. As a component supplier CENTA is not responsible for such calculations, and cannot accept any liability for gear noise/-damage or coupling damage caused by torsional vibrations.

   CENTA recommends that a torsional vibration analysis (TVA) is carried out on the complete drive train prior to start up of the machinery. In general torsional vibration analysis can be undertaken by engine manufacturers, consultants or classicfication societies. CENTA can assist with such calculations using broad experience in coupling applications and torsional vibration analysis.

5. 

6. The dimensions on the flywheel side of the couplings are based on the specifications given by the purchaser. The responsibility for ensuring dimensional compatibility rests with the assembler of the drive train. CENTA cannot accept liability for interference between the coupling and the flywheel or gearbox or for damage caused by such interference.

7. All technical data in this catalog are according to the metric SI system. All dimensions are in mm. All hub dimensions (N, $N_1$ and $N_2$) may vary, depending on the required finished bore. All dimensions for masses (m), inertias (J) and centres of gravity (S) refer to the maximum bore diameter.


CENTA is the leading producer of flexible couplings for rail, industrial, marine and power generating applications. Worldwide.

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