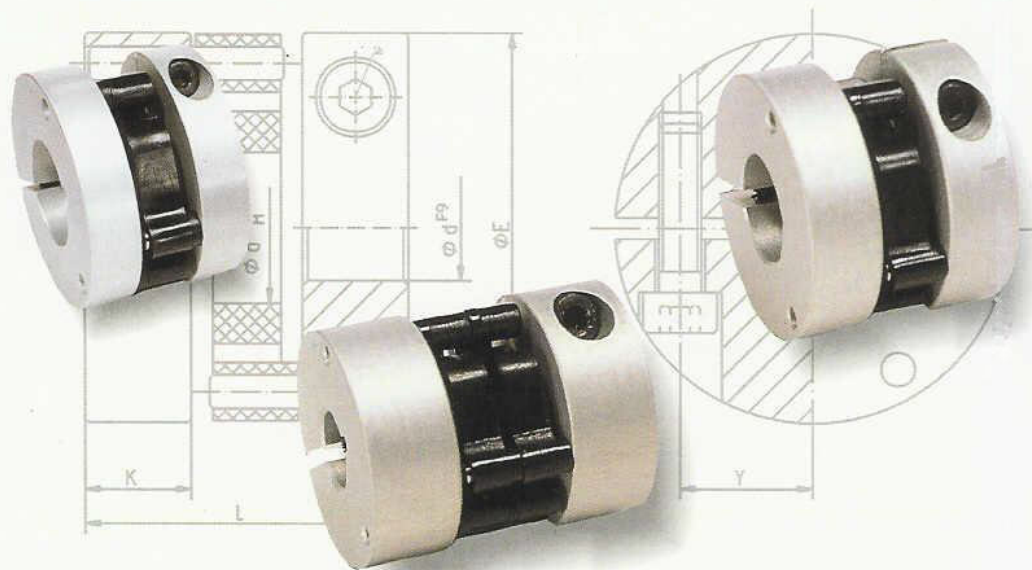




# CONTROLFLEX®



C O U P L I N G S



**Francis and Francis Limited**

The Stables Works, Station Road, Kenley, Surrey, CR8 5JA.

Phone: 020-8668-9792/3

Fax: 020-8668-9793

E-Mail: [sales@powertransmissions.co.uk](mailto:sales@powertransmissions.co.uk)

[Http://www.powertransmissions.co.uk](http://www.powertransmissions.co.uk)





# Controlflex®

## APPLICATION

The Controlflex® is a compact and precise shaft coupling with excellent kinematical properties which makes it the ideal coupling for shaft encoders.

All types of shaft misalignments are accommodated via the proven Controlflex® design.

## TECHNICAL FEATURES and BENEFITS TO THE USER

### Constant Angular Velocity

The patented middle element is torsionally stiff and radially flexible. It is specifically designed to accommodate shaft misalignment while at the same time transmitting torque at constant angular velocity.

### No Side Loads

The Controlflex® compensates for shaft misalignment inducing very low side loads, increasing the operating life of other machine components.

### Compact Design

The Controlflex® requires remarkably little axial space. In spite of that the Controlflex® has a large misalignment capacity. Other types of encoder couplings can only provide further misalignment capacity by extending the length of the coupling.

### Large Misalignment Capacity

Misalignment compensation is a prime reason for using a shaft coupling. The patented Controlflex® design provides large misalignment capacity with good torsional stiffness and low side loads.

### Easy Installation

The clamp hubs install easily on to the shaft. Furthermore, the modular design of the Controlflex® allows each hub to be independently mounted on different shafts and then to be connected by the middle element.

### Modular Construction

The modular construction of the Controlflex® with two clamp hubs and either one or two middle elements makes it possible to realize all possible bore combinations from stock. This keeps costs down and delivery times short.

### Robust

The Controlflex® is not overly sensitive to brief periods of excess strain during handling, installation and operation.

### Absorbs Vibration

### Electrically Insulating

The middle element is molded from Delrin yielding long life, vibration dampening, and electrical insulation (ca.  $10^{14} \Omega \text{ cm}$ ).

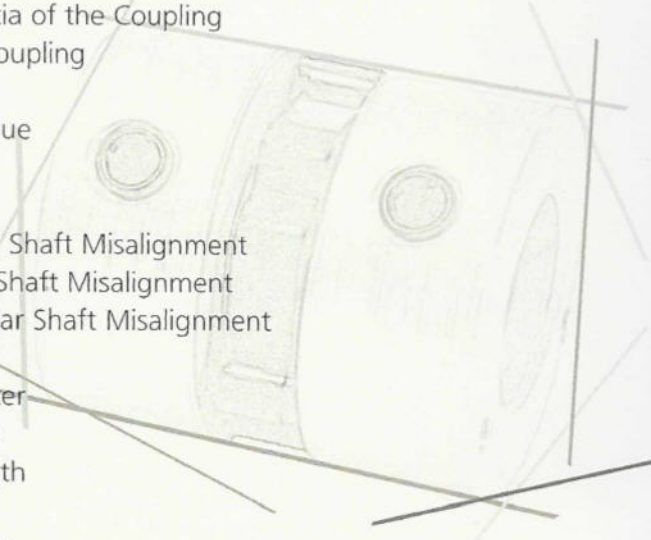




## LEGEND



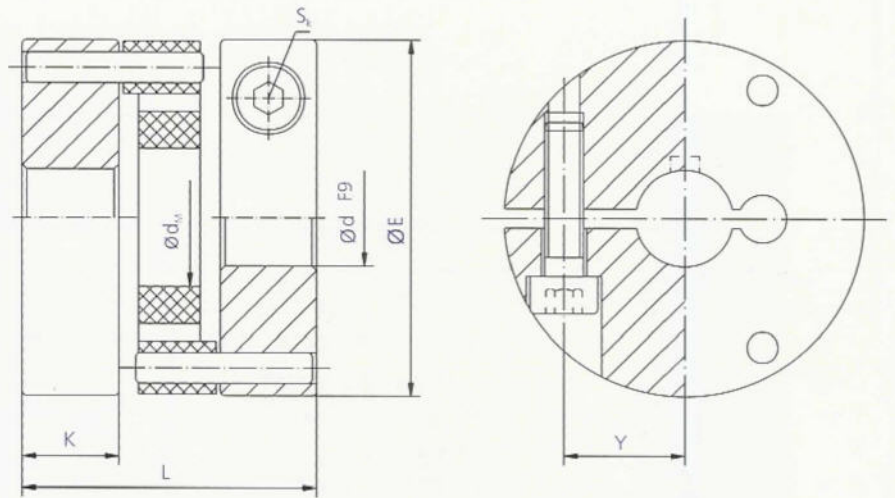
$T_{KN}$	Continuous Torque Rating of the Coupling	Nm
$T_{Kmax}$	Maximum Torque Capacity of the Coupling	Nm
$n_{max}$	Maximum Speed of the Coupling	1/min
$\Delta K_r$	Maximum Radial Misalignment Capacity of the Coupling	mm
$\Delta K_a$	Maximum Axial Misalignment Capacity of the Coupling	mm
$\Delta K_w$	Maximum Angular Misalignment Capacity of the Coupling	°
$C_R$	Radial Stiffness of the Coupling	N/mm
$J$	Moment of Inertia of the Coupling	g cm <sup>2</sup>
$m$	Weight of the Coupling	g
$T_N$	Continuous Torque	Nm
$T_S$	Peak Torque	Nm
$n_N$	Shaft RPM	1/min
$\Delta W_r$	Maximum Radial Shaft Misalignment	mm
$\Delta W_a$	Maximum Axial Shaft Misalignment	mm
$\Delta W_w$	Maximum Angular Shaft Misalignment	°
$\emptyset E$	Coupling Diameter	mm
$L$	Coupling Length	mm
$K$	Clamp Hub Length	mm
$\emptyset d$	Bore Diameter	mm
$S_k$	Clamp-Hub Screw	
$M_A$	Tightening Torque of the Clamp-Hub Screw	Nm
$\emptyset d_M$	Center-Bore Diameter of the Middle Disc	mm
$Y$	Distance from Center to Clamp-Hub Screw	mm



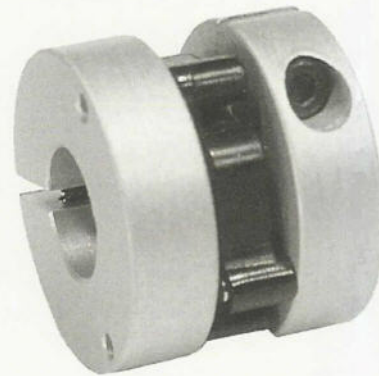
## PERFORMANCE



- Constant velocity
- Large misalignment capacity
- Electrically insulating
- Absorbs radial vibrations
- Low side loads
- Hub bores can be freely combined
- Easy installation
- Maintenance free
- Proven technology
- Cost saving
- Space saving
- "Zero" backlash for precision drives
- Press-fit version



/1



**CPS**

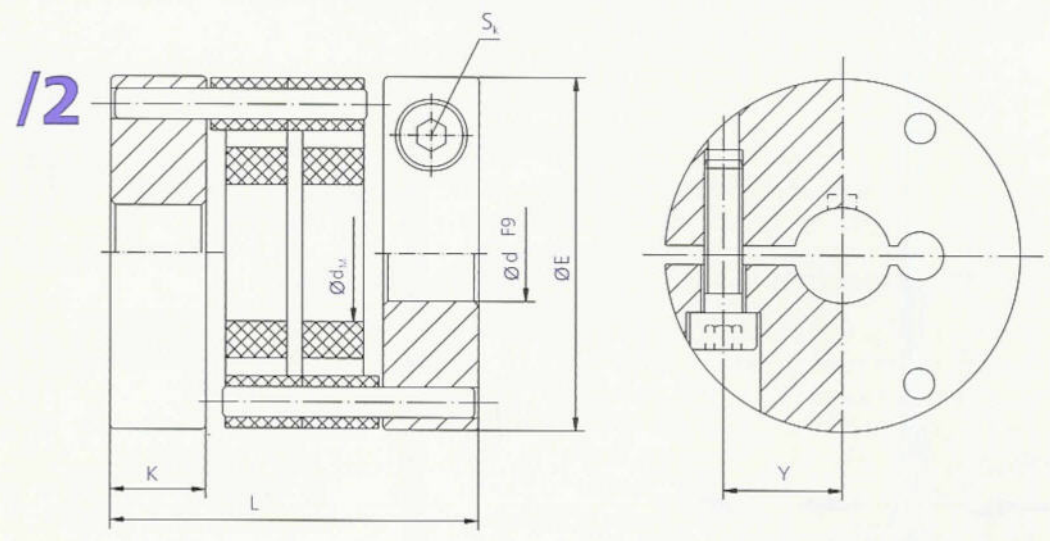
	T <sub>K</sub> Nm	T <sub>K max</sub> Nm	n <sub>max</sub> 1/min	ΔK <sub>r</sub> mm	ΔK <sub>a</sub> mm	ΔK <sub>w</sub> °	C <sub>R</sub> N/mm	J kg cm <sup>2</sup>	m g
8/1	0,3	0,7	25.000	0,4	0,3	1,5	15	4	8
9/1	0,7	1	22.000	1	0,5	1,5	17	16	18
10/1	0,7	1	22.000	1	0,5	1,5	17	21	25
14/1	2	3	15.000	1	0,7	1,5	22	100	42
15/1	2	3	15.000	1	0,7	1,5	22	110	59
22/1	7	10	10.000	1,5	1	1,5	34	800	163
23/1	7	10	10.000	1,5	1	1,5	34	920	200
30/1	15	22	10.000	2	1,5	1,5	50	3.800	430
8/2	0,6	1,4	25.000	0,4	0,3	1	30	5	9
9/2	1,4	2	22.000	1	0,5	1	34	17	20
10/2	1,4	2	22.000	1	0,5	1	34	23	27
14/2	4	5	15.000	1	0,7	1	44	110	47
15/2	4	6	15.000	1	0,7	1	44	120	65
22/2	14	16	10.000	1,5	1	1	68	900	182
23/2	14	18	10.000	1,5	1	1	68	1.020	220
30/2	30	40	7.500	2	1,5	1	100	3.800	475





# CONTROLFLEX

## DIMENSIONS



**CPS**

	ØE	L	K	Ød max	Ød <sub>v</sub>	S <sub>k</sub>	M <sub>A</sub> Nm	Y
8/1	19	16	5,6	10	7	UNC 2-56×6	0,4	6,4
9/1	25	20,5	7	12,7	8	M2,5×12	0,7	8
10/1	25	25,5	9,5	12	8	M3×12	1,3	7,7
14/1	37	24	7	22	14,3	M3×12	1,3	14
15/1	37	30	10	20	14,3	M4×16	3	12,4
22/1	56	39	12	34	21,4	M5×20	5,7	21
23/1	56	45	15	30	21,4	M6×25	8	19,3
30/1	75	57	18	40	28,5	M8×30	24	25
8/2	19	20	5,6	10	7	UNC 2-56×6	0,4	6,4
9/2	25	26	7	12,7	8	M2,5×12	0,7	8
10/2	25	31	9,5	12	8	M3×12	1,3	7,7
14/2	37	32	7	22	14,3	M3×12	1,3	14
15/2	37	38	10	20	14,3	M4×16	3	12,4
22/2	56	51	12	34	21,4	M5×20	5,7	21
23/2	56	57	15	30	21,4	M6×25	8	19,3
30/2	75	73	18	40	28,5	M8×30	24	25





SELECTION PROCEDURE

Information required

All information refers to operational conditions:

- Service factor (see table)
- Continuous torque:  $T_N$
- Peak torque:  $T_S$
- RPM:  $n_N$
- Axial misalignment:  $\Delta W_a$
- Radial misalignment:  $\Delta W_r$
- Angular misalignment:  $\Delta W_w$
- Shaft diameter
- Space limitation

Selection

1. Calculate the design torque:  
 $T_N \times \text{service factor}$
2. Choose a coupling so that:
  - Design torque < continuous rated torque  $T_{KN}$
  - Peak torque:  $T_S < T_{K \max}$
  - RPM:  $n_N < n_{\max}$
  - Axial misalignment  $\Delta W_a < \Delta K_a$
  - Radial misalignment  $\Delta W_r < \Delta K_r$
  - Angular misalignment  $\Delta W_w < \Delta K_w$
  - $\Delta W_r / \Delta K_r + \Delta W_w / \Delta K_w < 1$
3. Check to be sure that the coupling fits the required dimensions such as available space envelope and bore sizes.
4. If the coupling size and type meet the torque, misalignment, and space envelope criteria, selection of a Controlflex® is complete.
5. If no Controlflex® coupling is found that meets these criteria, consult the factory. We will work with you to meet your needs.

Controlflex®  
ORDERING PROCEDURE

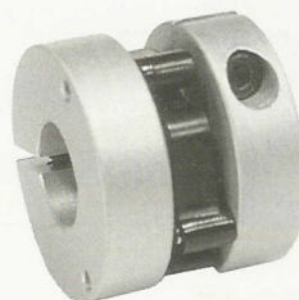
1. Use the selection procedure to choose a coupling. Example: CPS 15/1
2. Specify Clamp hub bore size (optional keyway DIN 6885/1). Note the maximum value in the dimension table  $\varnothing d$ .  
 Examples:  $\varnothing 10, \varnothing 12N$

Examples

- CPS 15/1  $\varnothing 10 \varnothing 10$
- CPS 15/2  $\varnothing 10 \varnothing 12N$

Service factors

Load	Service factor
uniform	1,0
light shocks	1,5
medium shocks	2,0
heavy shocks	2,5







ADDITIONAL INFORMATION

**General**

If the standard couplings listed in the catalog do not meet your requirements, consult the factory. We will work with you to meet your needs.

Many factors influence a coupling's operating life. The influence of torque, RPM and misalignment are discussed in the following.

**Torque**

The maximum torque  $T_{KN}$  should not be exceeded. The design torque is calculated as follows:

$$T_N \times \text{Service factor}$$

The torque carrying capacity decreases as radial misalignment and speed increase. For complex applications consult the factory.

**RPM**

Due to the design of the coupling, higher speeds lead to higher stress on the coupling. The maximum speed should not be exceeded.

**Radial misalignment**

At no time should the radial misalignment  $\Delta K_r$  be exceeded. If the catalog values do not fit your application, consult the factory. We can design a coupling that will.

**Axial misalignment**

The axial space available for the coupling must be at least the coupling length  $L$ . The capacity to compensate for thermal expansion and assembly tolerances is given by the value  $\Delta K_a$ . An operating length close to  $L$  is beneficial. The coupling is axially free. This can be used when an axial assembly is advantageous.

**Angular misalignment**

Angular misalignment has an effect on the operating life of the coupling. The angular misalignment must always remain within the values given.

**Copyrights**

The copyright, trademarks, patents, drawings and other information in this catalog are property of Schmidt-Kupplung GmbH. No part may be reproduced without the prior written consent of Schmidt-Kupplung GmbH.

**Caution**

Failure, improper selection, or improper use of these products can cause malfunctions in connected equipment. Malfunctions in connected equipment can cause failure in these products.

Information in this catalog provides product options for further investigation by users having technical expertise. The user must analyze all aspects of the application and review the information regarding the product in the current product catalog. Due to the variety of applications for these products and the diversity of operating conditions that may prevail, the user, through its own analysis and testing, is solely responsible for making the final selection of these products and assuring that all performance, safety and warning requirements relevant to the application are met.

The specifications, availability and pricing of products described in this catalog are subject to change without notice.

