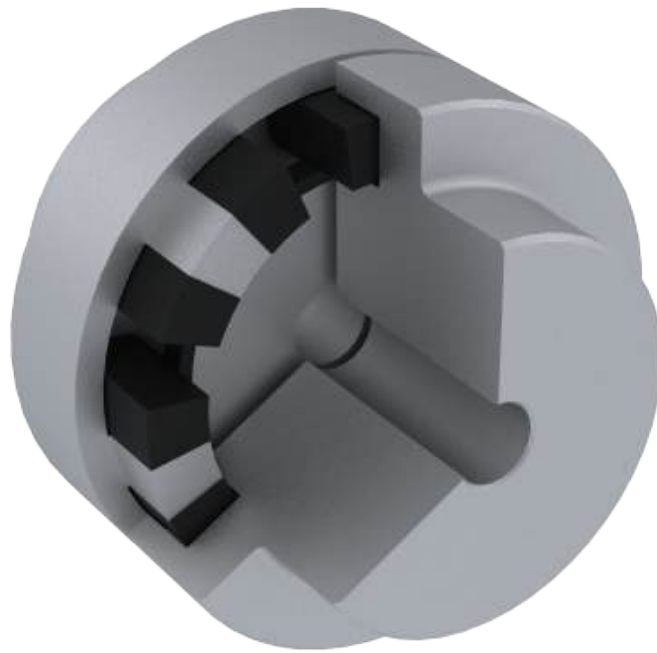




# ESCOFLEX A - R - S series





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## We connect the world

We are more than a 75 years old family-owned company specialized in designing and manufacturing high-quality custom-made power transmission products.

Because we believe each transmission challenge is different, we create much more than off-the shelf products: we work hand in hand with our customers to develop the coupling solutions that best fit their specific needs.

Superior product quality is what guarantees our customer's success, it is what enables us to cherish long term partnerships with them. The ESCO quality has been worldly renown for decades and we work tirelessly to raise these standards even further.

We strive to be a significant contributor to the development of effective and clean industrial, transportation and energy supply applications. We want our couplings to power a more sustainable world.

We strongly believe that both the future of our economy and the best guarantee for long term return lie in sustainable development. And we want to do our part.

Once we get involved into a specific sector, we make sure to embrace the quality standards that the market requires. This is why, we are ISO 9001 certified.



A global footprint, with a family of  
9 companies located all across the world



9

offices across  
the world

3

manufacturing  
sites

● ESCO Couplings SRL  
*Saintes, Belgium*  
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We work with you to design the right  
solution for your application







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Versatility, robustness, efficiency and long life, these are only a few of the many high demands on the gear couplings. These properties are the reason why gear couplings are that popular in multiple industries as they can get along with all different harsh conditions.

---

Since the competitiveness of the technical and economic aspects of the production needs to be more and more effective in the long-term, the machines used in the applications need to be able to run continuously, without failure. Furthermore, maintenance operations should be as short and seamless as possible to minimize costly production down time.

Minimizing the life cycle cost of the installation requires careful attention when selecting the elements of the driveline. A high-quality coupling will make a difference between an efficient, cost effective transmission, and a poorly optimized one.

This is where ESCO can help you. We have been helping our customers by designing high-quality tailor-made couplings for more than 40 years:

**Quality is our motto, our core competency:** ESCO products are amongst the most reliable in the market; so much so that the main hurdle in our capacity to innovate is the lack of market feedback: our couplings just keep running without issues.

**Low lifecycle cost might well be the biggest challenge for ESCO to tackle, but we do work tirelessly to optimize the life time value of our couplings:** fair initial price, smaller footprint (space and weight), longer design life, lubrication-free alternatives, extended maintenance steps...

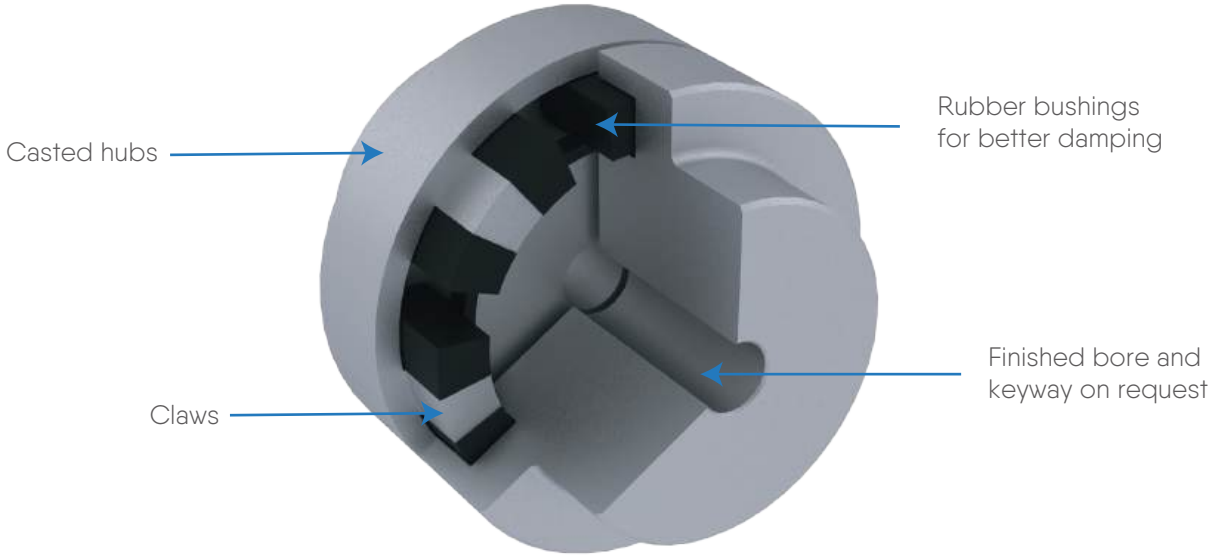
**Service is an important part of our business:** to best serve your needs, you can count on our experienced team and advanced testing capability. We are more than happy to assist in performing field interventions, maintenance and repair.

Our relationship with customers does not stop once couplings are delivered. We have a team of experienced people ready to perform service on the field, repair, inspections, testing... We can also do the maintenance on our couplings for you. This guarantees proper execution of the maintenance instructions and contributes to improving the lifetime of your application.

**ESCO specializes in the design of custom made couplings. If you cannot find a solution that fits your needs, please contact us: we will work hard to engineer the coupling that fits your application specifications.**

# ESCOFLEX Types

## A-Type



The ESCOFLEX range of flexible sleeves provides sufficient flexibility for the majority of standard applications.

The flexible sleeves for coupling sizes A28 to A85 are annular, while sizes A90 and A100 are available as separate units.

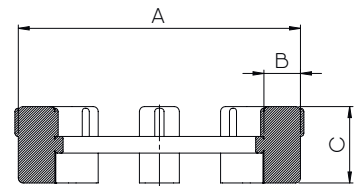
The number of contacts varies with coupling size.

All flexible sleeves are made of NBR (Nitrile Butadiene Rubber). They have a hardness of up to 78° Shore A.

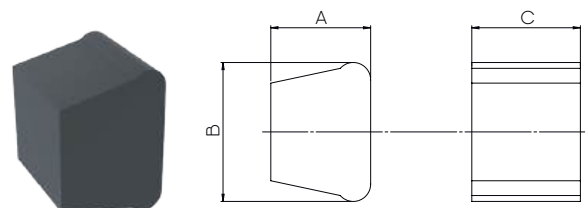
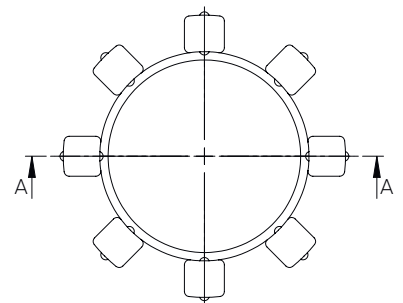
Their permissible ambient temperature ranges from -30°C to +80°C. The resonance factor VR of the coupling is 6.

The dynamic torsional stiffness values CT<sub>dyn</sub> of the couplings are given in the table below.

These values are approximate and have been calculated in accordance with the NF-E 22613 and DIN 740 standards and are given for a torque close to the nominal torque, with an ambient temperature of 20°C and vibrations of 10 Hz.



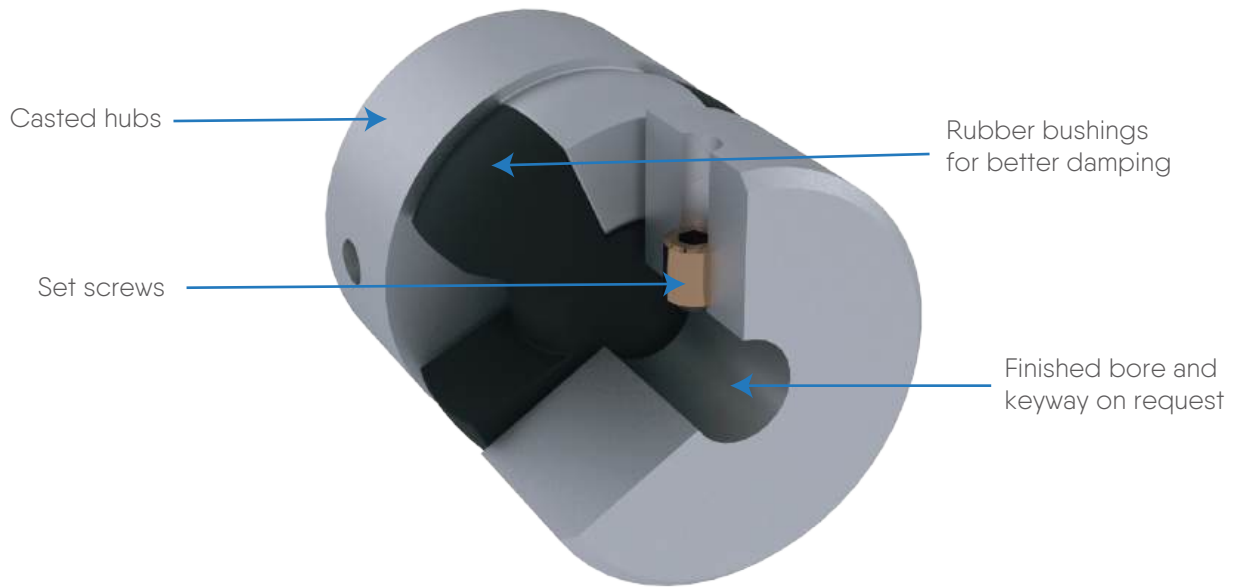
sizes A28 to A85



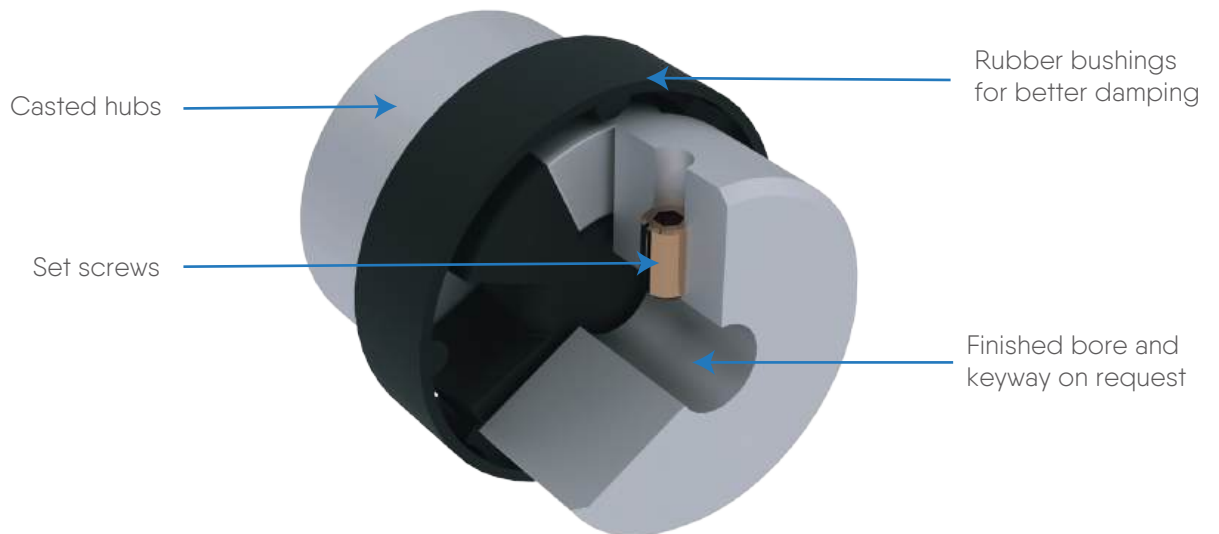
sizes A90 & A100

size	A	B	C	Number of contact	Torsional Stiffness	weight (5)
A-series					Nm/rad	kg
A28	59	8.5	16	8	4 900	0.01
A32	69	10	18	8	6 800	0.02
A38	77	10	18	10	9 500	0.025
A42	85	11	23	10	17 500	0.035
A48	95	12	24	12	22 200	0.05
A55	107	12	26	12	29 000	0.065
A60	118	14	28	12	48 500	0.085
A65	127	15	30	12	60 500	0.12
A75	145	15	35	12	81 000	0.17
A85	165	18	42	12	120 000	0.245
A90	20	29.8	23	24	170 000	0.015
A100	23	33.8	25	24	225 000	0.02

## S-Type

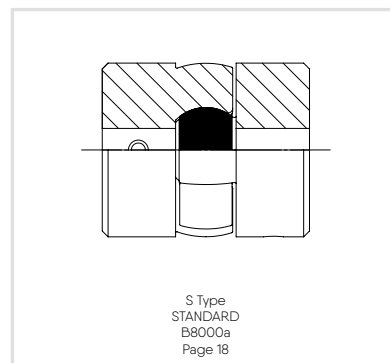
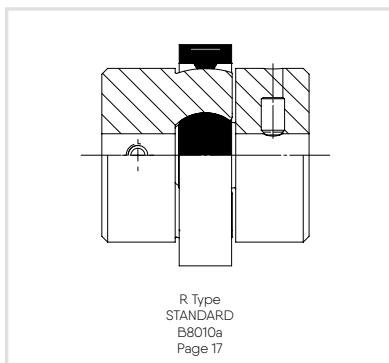
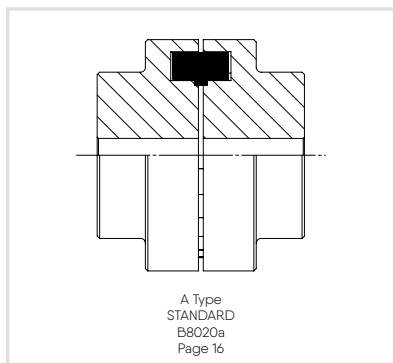


## R-Type



## Availabilities

ESCO proposes a range of couplings available with Exposed Metric (EM) or Exposed Inch (IM) bolts and nuts.



# A160a

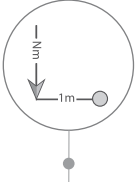
## How to select the right coupling size

### Coupling size selection

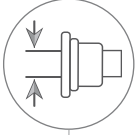
To be sure to select the right ESCOFLEX coupling for your application, it is necessary to know the following preliminary data:

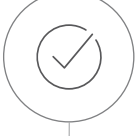
- The shaft diameter
- The type of driving machine
- The type of driven machine
- The duration and type of the daily service
- The application peak torque
- The presence of shocks or very high load peaks

To select the right ESCOFLEX coupling size, please follow these steps:


- 

Calculate the required torque capacity by using this formula:  $T = \frac{9550 \times P \times F_v}{n}$  with:

  - a. P = power in kW
  - b. n = speed in rpm
  - c.  $F_v$  = service factor according to the application.
- 

Select the size of ESCOFLEX coupling that will accommodate the largest shaft diameter (see Technical data tables,  $\varnothing d_{max}$  = Maximum possible bore).
- 

Make sure the selected coupling has an equal or greater torque capacity than the result figure obtained in ①. If it is not the case to be used, please select a larger size coupling.

  - Check if the application peak torque does not exceed the chosen coupling peak torque (see Technical data tables,  $T_p$  = Maximum peak torque).
  - Check the maximum allowable misalignment
  - Check if the shaft/hub connection will transmit the torque.  
If necessary, select a longer hub.
- 

Read carefully the Assembly and Maintenance Instructions IM/B600a

Table 1: Service factor ( $F_u$ )

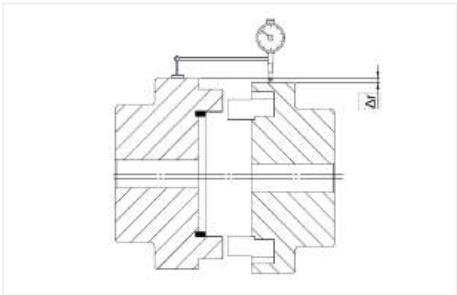
For ATEX applications the minimum Service Factor ( $F_u$ ) should be 2.0 independently of the below given values.

Applications		DRIVER MACHINE			
		Electric motors & Turbines	Hydraulic motors & Gear drivers	Reciprocating engine & Electric motors frequent starts	
		Service Factor $F_u$			
DRIVEN MACHINES	UNIFORM	Generators - Blowers: centrifugal vanes, fans - Centrifugal pumps & compressors - Machine tools: auxiliary drives - Conveyors: belt and chain, uniformly loaded, escalators - Can filling machines & bottling machinery - Agitators: pure liquids	0.8 to 1.25	1 to 1.5	1.25 to 1.75
		Propellers - Waterjet pumps	1.25	1.5	1.75
	MODERATE SHOCKS	Blowers: lobe - Pumps: gear and lobe types - Vane compressors - Machine tools: main drives - Conveyors: belt & chain not uniformly fed bucket & screw - Elevators, cranes, tackles & winches - Wire winding machines, reels, winders (paper industry) - Agitators: liquids and solids, liquids of variable density	1.25 to 1.5	1.5 to 1.75	1.75 to 2
	HEAVY SHOCKS	Generators (welding) - Reciprocating pumps & compressors - Laundry washers - Bending roll, punch press, tapping machines - Barkers, calenders, paper presses - Briquetter machines, cement furnace - Crushers: ore & stone, hammer mill, rubber mill - Metal mills: forming machines, table conveyors - Draw bench, wire-drawing & flattening machines - Road & railroad equipment	1.5 to 2	1.75 to 2.25	2 to 2.5

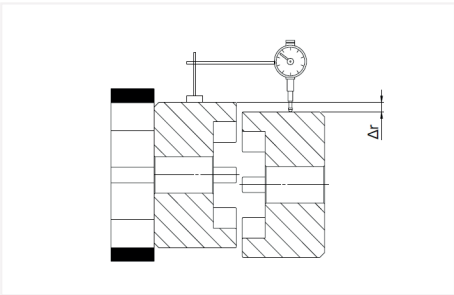
1) Misalignment control

- a) Measure X (Total Indicator Readout - TIR)
- b) Measure Y - Z
- c) Verify the relationship for the misalignment control:

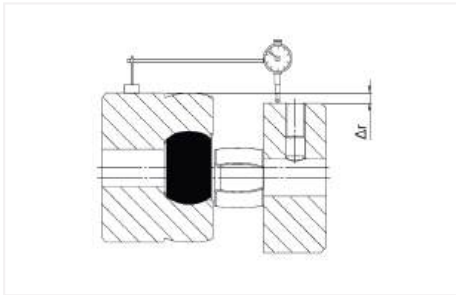
$$\Delta K_w \min \leq \frac{X}{K_x} + \frac{Y - Z}{K_y} \leq 0.75 \times \Delta K_w \max$$



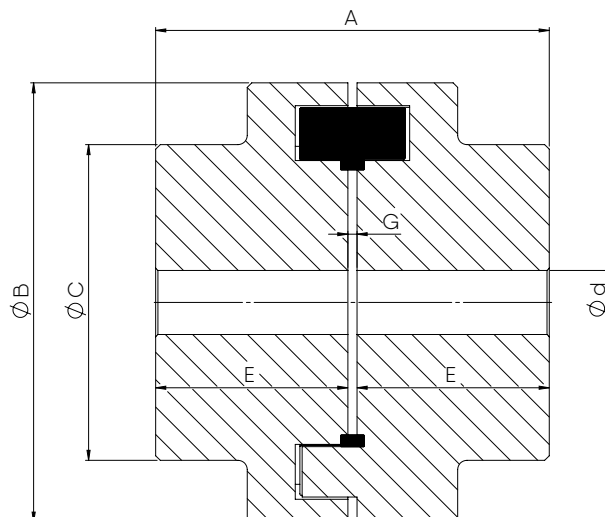
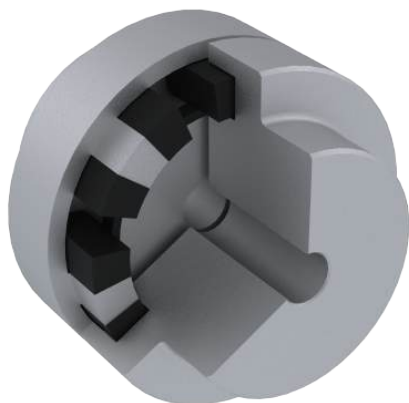
A-Type



R-Type



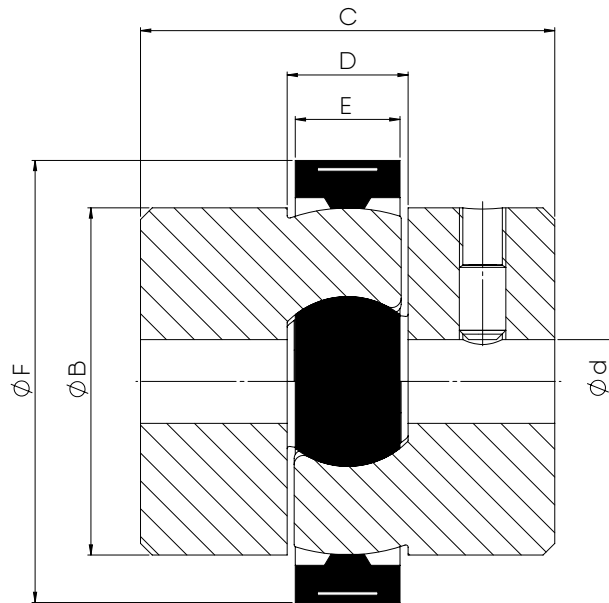
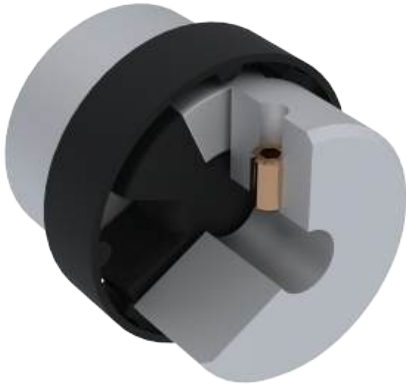
S-Type



A-Type	torque	n max.	Ød min. (1)	Ød max. (2)	A	ØB	ØC	E	G	Weight (3)	Inertia J (3)	n (4)
	T max.											
ESCOFLEX	Nm	rpm	dimensions in mm							kg	kgm <sup>2</sup>	
A28	38	5 000	9	28	58	69	46	28	2 <sup>+1/-0</sup>	0.9	0.0002	16
A32	58	5 000	9	32	66	78	53	32	2 <sup>+2/-0</sup>	1.4	0.0004	16
A38	86	5 000	14	38	78	87	62	38	2 <sup>+2/-0</sup>	2.0	0.0008	20
A42	150	5 000	14	42	86	96	69	42	2 <sup>+2/-0</sup>	2.7	0.0013	20
A48	215	5 000	18	48	98	106	78	48	2 <sup>+3/-0</sup>	3.7	0.0021	24
A55	300	5 000	18	55	112	118	90	55	2 <sup>+3/-0</sup>	5.5	0.0035	24
A60	410	5 000	24	60	122	129	97	60	2 <sup>+3/-0</sup>	6.9	0.0056	24
A65	550	4 900	26	65	132	140	105	65	2 <sup>+3/-0</sup>	8.8	0.0087	24
A75	850	4 300	32	75	152	158	123	75	2 <sup>+3/-0</sup>	13.5	0.014	24
A85	1 350	3 700	42	85	172	182	139	85	2 <sup>+4/-0</sup>	19.5	0.026	24
A90	2 000	3 400	42	90	182	200	148	90	2 <sup>+4/-0</sup>	23.2	0.045	24
A100	2 850	3 000	48	100	203	224	165	100	3 <sup>+/-0</sup>	31.9	0.08	24

- (1) Min. finish machine bore diameter
- (2) Max. bore diameter with one keyway acc. DIN 6885/1
- (3) For pre-bored/unbored hubs
- (4) Number of rubber bushes required for one complete coupling

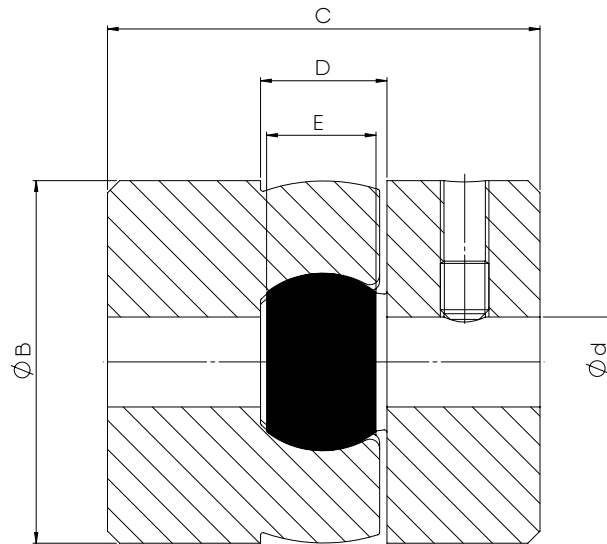
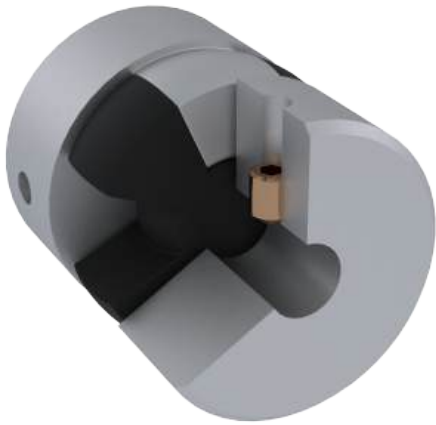
- For the correct coupling selection please refer to page 12 et seqq. (A160a)
- For special executions or requirements, please contact us
- Technical modifications reserved and given values without engagement



R-Type	torque	n max.	Ød min. (1)	Ød max. (2)	ØA	ØB	C	D	E	ØF	weight (3)	max. misalignment			
	T max.											angular	radial	axial (±)	
ESCOFLEX	Nm	rpm	dimensions in mm									kg	degree	mm	mm
1 R	1.69	3 500	6	16	16	27.5	38	11	9.5	37	0.12	2.0	0.5	1.5	
2 R	6.92	3 000	9.8	24	24	42	52	14	12.7	54	0.37	2.0	0.5	2.0	
3 R	20.43	2 500	13.8	35	35	58.5	71	22	19	70	1	1.5	1.5	2.5	
4 R	38.4	2 000	18.8	42	42	75	89	27	22.5	89	2.07	1.5	1.5	3.0	

- (1) Min. finish machine bore diameter
- (2) Max. bore diameter with one keyway acc. DIN 6885/1
- (3) For pre-bored/unbored hubs

- For the correct coupling selection please refer to page 12 et seqq. (A160a)
- For special executions or requirements, please contact us
- Technical modifications reserved and given values without engagement



S-Type	torque	n max.	Ød min. (1)	Ød max. (2)	ØA	ØB	C	D	E	weight (3)	max. misalignment			
	T max.										angular	radial	axial (±)	
ESCOFLEX	Nm	rpm	dimensions in mm								kg	degree	mm	mm
1 S	1.28	6 000	6,0	16	16	27,5	38	11	9,5	0,11	3	1	1,5	
2 S	4,35	5 500	9,8	24	24	42,0	52	14	12,7	0,35	3	1	2,0	
3 S	17,9	4 500	13,8	35	35	58,5	71	22	19	0,82	2	2	2,5	
4 S	33,5	4 000	18,8	42	42	75,0	89	26	22,5	2,05	2	2	3,0	

- (1) Min. finish machine bore diameter
- (2) Max. bore diameter with one keyway acc. DIN 6885/1
- (3) For pre-bored/unbored hubs

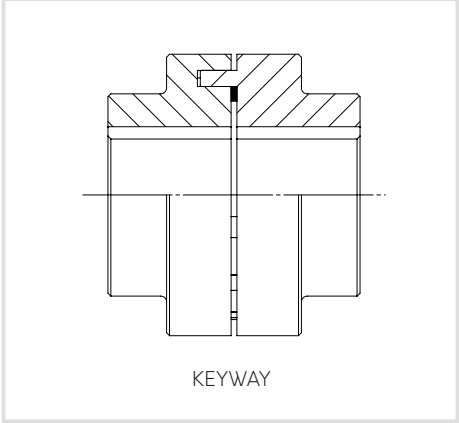
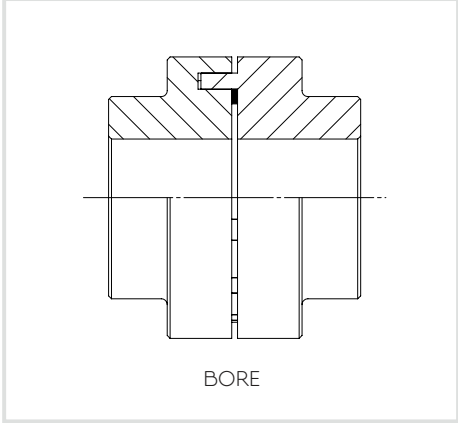
- For the correct coupling selection please refer to page 12 et seqq. (A160a)
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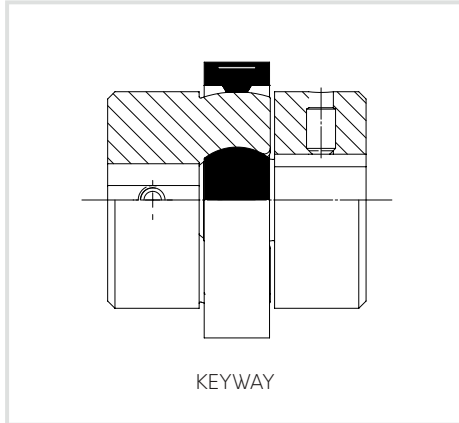
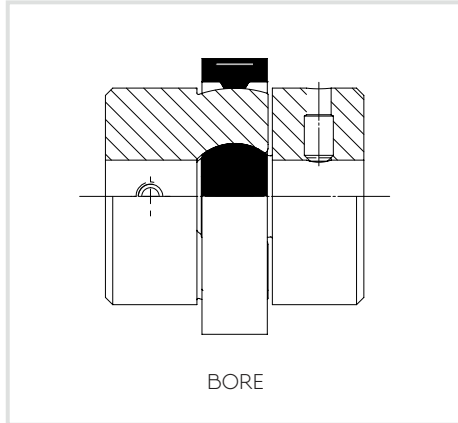
Further details and options

Shaft connections

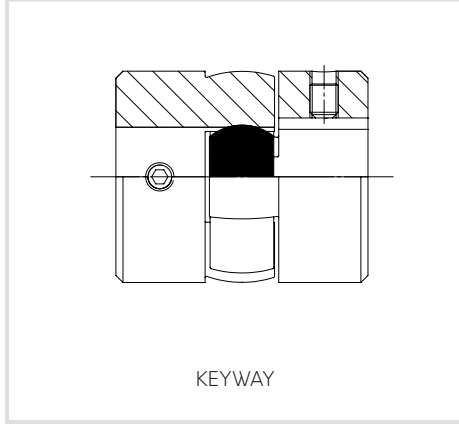
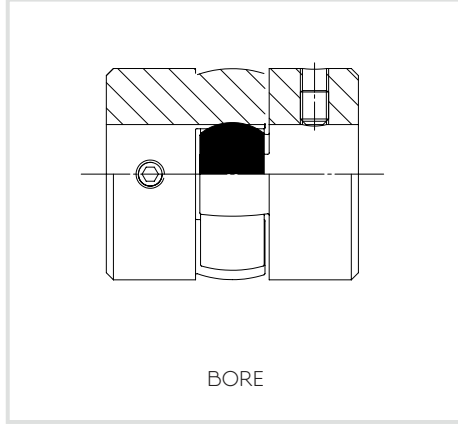
A-Type



R-Type



S-Type



# Installation and maintenance

## FLEX Series

### 1) Introduction

Coupling must be properly selected according to selection chart on page B8000a, B8010a and B8020a corresponding charts. These documents are available in coupling catalogue ESCOFLEX series or on our website "www.escogroup.com".

Maximum misalignment figures during assembly and operations are given in above-cited document (values used in section 4: Assembly). Maximum misalignment, speed and torque may not be applied simultaneously as mentioned in the selection chart.

In case of any change or adaptation not performed by ESCO on the coupling, it is customer's responsibility to size and manufacture it properly to guarantee safe torque transmission and absence of unbalance that could affect the life of the coupling and the connected machines.

If the interfaces are not calculated and machined by ESCO, it is customer's responsibility to make sure that:

- In case of key
  - Shaft and key material, size and tolerance to suit the application
  - Hub length, bore diameter and machining tolerances will allow to transmit the torque; maximum bore capacity is given for information in the catalogue for DIN 6885/1 or NF E22-175.
- In case of interference fit
  - Interference and machining tolerances will transmit the torque and not exceed the permissible stress of hub material.

The hubs must be axially secured on the shaft by means of either a setscrew or an end plate or a sufficient interference. It is customer's responsibility to protect the coupling and to comply with the local safety rules regarding the protection of rotating parts.

e.g.: coupling guards

### 2) Preparation

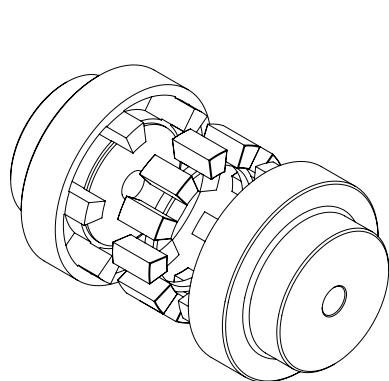
Ensure the conformity of the supplied equipment:

- Verify coupling size and conformity (see catalogue or website)
- Check for any damaged and/or missing parts
- Verify conformity of the coupling/machine interfaces

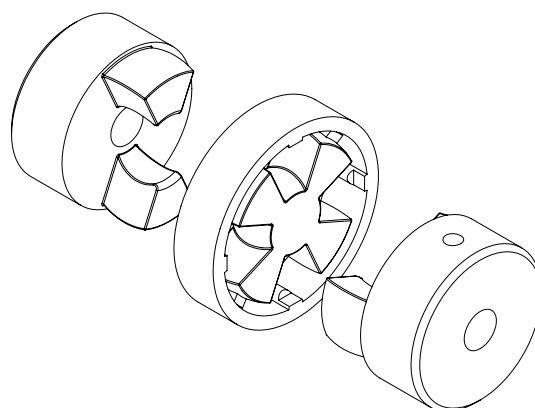
For longer periods, it is customer responsibility to protect the parts properly. Instructions are a part of the supply of the coupling. Be sure valid and complete assembly, operation and maintenance instructions are available. Make sure they are well understood. In case of doubt, refer to ESCO. Assembly, disassembly, and maintenance must be performed by qualified, trained and competent fitters.

Before starting with assembly, disassembly, and maintenance, verify the availability of the tooling necessary

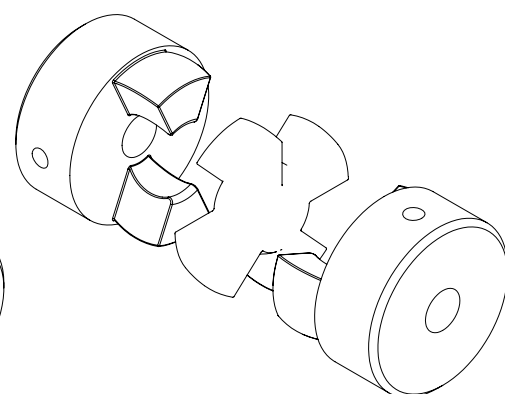
- To manipulate the parts
- To assemble the interfaces
- To align the coupling
- To tighten the set screws



A-Type



R-Type



S-Type

### 3) Warnings

In-charge installer and plan foreman are responsible of the installation safety. All adequate safety rules must be put in place for the assembly process.

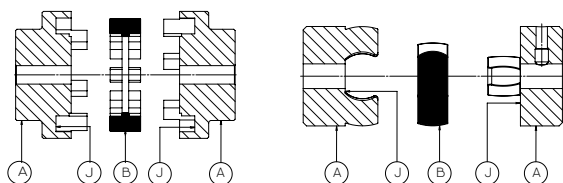
Before removing the coupling guard and proceeding with any assembly, operation, or maintenance operation of the coupling, make sure the complete system is completely shut down and definitively disengaged from any possible source

of rotation, such as e.g.: electrical power supply or any loss of braking effect.

Make sure everyone present in the equipment area will be properly informed (for example by means of warnings properly located) about the maintenance or assembly situation.

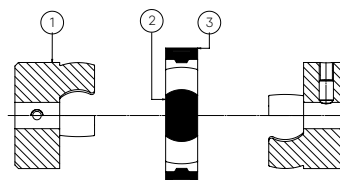
### 4) Assembly

#### 4.1. Coupling assembly - A & S types



- 4.1.1. Ensure that the parts are clean and then mount the hub in the correct position on the shaft. Hub face must be flushed with shaft end. Mount the other hub on the shaft.
- 4.1.2. Slide the other hub on the shaft and insert the set screws. Do not tighten the set screws since the hub needs to be re-positioned and aligned. Slide the flexible element on one side of the hub.
- 4.1.3. In case of an interference fit
  - Heat both the hubs, taking care not to exceed 100°C. Mount the hub on shaft until hub is flushed with shaft end.
- 4.1.4. Fix the flexible element on one side of the hub.
- 4.1.5. Slide the other hub towards the flexible element by aligning both the shafts and maintaining the DBSE of the application.

#### 4.2. Coupling assembly - R type



- 4.2.1. Ensure that the parts are clean and then mount the hub in the correct position on the shaft. Hub face must be flushed with shaft end. Mount the other hub on the shaft.
- 4.2.2. In case of a slide fit
  - Axial securing is either assured by a set screw holding the key or an axial fixation screw. The hub face must be flushed with shaft end (Slide fit is preferable for easy maintenance).
  - Slide the other hub on the shaft and insert the set screws. Do not tighten the set screws since the hub needs to be re-positioned and aligned. Slide the flexible element on one side of the hub.
- 4.2.3. In case of an interference fit
  - Heat both the hubs, taking care not to exceed 100°C. Mount the hub on shaft until hub is flushed with shaft end.
- 4.2.4. Insert the cover on one side of the hub and fix the flexible element on one side of the hub.
- 4.2.5. Slide the other hub towards the flexible element by aligning both the shafts and maintaining the DBSE of the application.
- 4.2.6. Slide the cover over flexible element and align it.
- 4.2.7. Tighten cover and flexible element with screws.

### 5) Inspection and maintenance

#### 5.1. Inspection

Inspection regular inspection (audio-visual) must occur for noise, vibration, and loss of parts.

#### 5.2. Maintenance

- Visual Inspection of flexible element for any fatigue crack and verify alignment. Unmounting of coupling is not needed.
- Disassemble and inspect coupling.
- Coupling should be dis-assembled only in case of occurring fatigue cracks or damage in flexible element.

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