

SLIDING AND ANTIFRICTION BEARINGS

1. *Sliding* and *antifricition bearings* ensure the position of *fixed* and *rotating* parts of *components* and *transfer shaft load* to them.

2. They are two types of *bearings*:

2.1. *Sliding bearings* – there is a thin *layer* of *lubricant* between *surfaces*.

2.2. *Antifricition bearings* – *balls*, *rollers* roll away between *surfaces*. They are *antifricition particles*.

3. *Sliding bearings*

There is *sliding friction* between a *bearing* and a *shaft*. These *friction* causes *wear* of *components* and loss of energy.

The size of *friction* depends on for example:

- the *pressure* in the *bearing*
- the *bearing* material
- the *shaft* material

Sliding bearings are *divided* into *radial* and *axial*. The size of *sliding friction* is reduced by *lubrication*. The *reliability* and *durability* of *sliding bearings* depend on the material properties of the *bearing* and the *shaft*.

4. *Antifricition bearings*

They are used more often than *sliding bearings*. They are *divided* into *axial* and *radial* too.

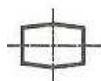
4.1 *Antifricition particles* used can be:



ball



roller



barrel-shaped roller

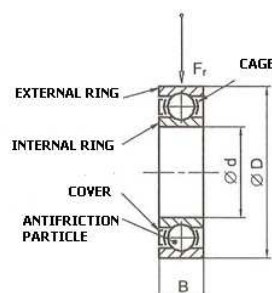


tapered roll



needle

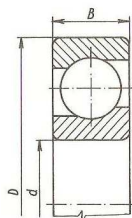
4.2 *Radial ball bearing* – description



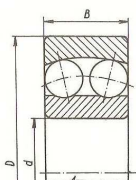
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4.3 Bearing types (examples only)

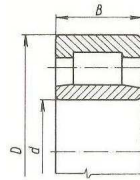
Their names are coming from *antifriction particles* and their methods of use:



ball with oblique contact



ball tilting



roller

5. A comparison of *sliding* and *antifriction bearing* properties:

<i>Sliding bearing advantages as opposed to antifriction bearings</i>	<i>Antifriction bearing advantages as opposed to sliding bearings</i>
simple <i>assembly</i> and <i>disassembly</i>	less <i>friction</i>
less <i>external</i> diameter	smaller <i>bearing length</i>
<i>calm</i> and quiet <i>running</i>	are standardized

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VOCABULARY

advantage	výhoda	layer	vrstva
antifriction	valivý	length	délka
antifriction particle	valivé tělísko	load	zatížení
assembly	montáž	lubricant	mazivo
axial	axiální, osový	lubrication	mazání
ball	kulička	needle	jehla
ball tilting	kuličkový naklápěcí	particle	tělísko
barrel-shaped roller	soudeček	pressure	tlak
bearing	ložisko	radial	radiální
cage	klec	reliability	spolehlivost
calm	klidný	ring	kroužek
component	součástka	roller	váleček
cover	kryt	rotating	otáčivý
disassembly	demontáž	shaft	hřídel
divide	rozdělit	sliding	kluzný
durability	životnost	surface	povrch, plocha
ensure	zajistit	tapered roll	kuželík
external	vnější	taper-shaped	kuželíkový
fixed	pevný	transfer	přenášet
friction	tření	wear	opotřebení
internal	vnitřní		

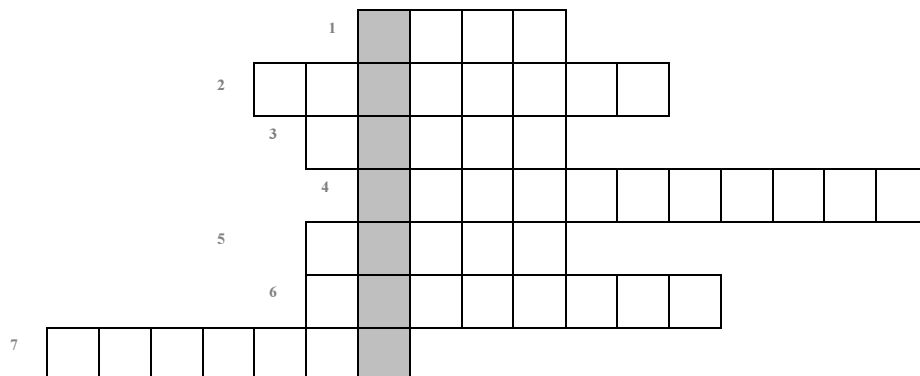
COMPREHENSION QUESTIONS

1. What do bearings ensure?
2. What is the difference between a sliding and antifriction bearing?
3. What do you know about sliding bearings?
4. What do you know about antifriction bearings?
5. What antifriction particles do we distinguish?
6. What advantages does a sliding bearing have?
7. What advantages does an antifriction bearing have?

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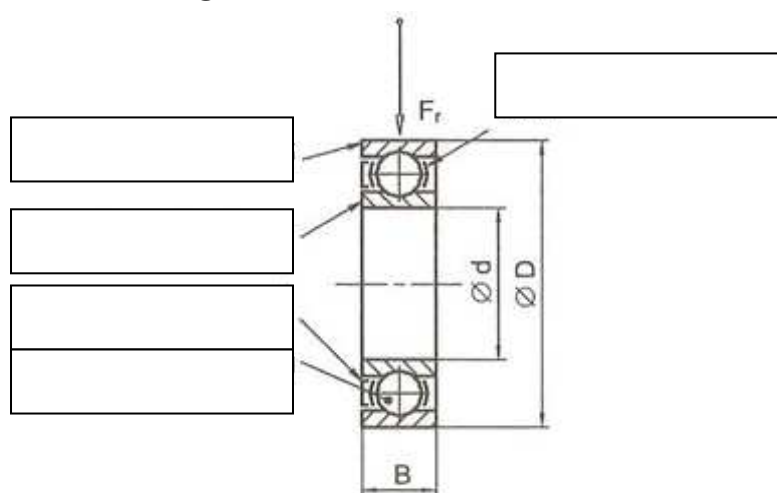
EXERCISES

1. Complete the crossword and translate the vertical word:



- | | |
|---|--------------|
| 1 | kulička |
| 2 | tlak |
| 3 | vrstva |
| 4 | spolehlivost |
| 5 | pevný |
| 6 | vnitřní |
| 7 | kluzný |

2. Describe the radial ball bearing below:



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3. Unscramble the words or expressions. Then translate into Czech:

- a) FSUCARE _____
- b) EEDENL _____
- c) XAAIL NAD AAIDLR _____
- d) NRCFIITO _____
- e) DGAAATVNE _____

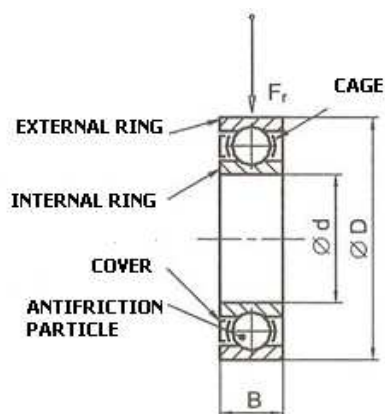
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KEY – for teachers only

1. BEARING - ložisko

- | | |
|---|-------------|
| 1 | ball |
| 2 | pressure |
| 3 | layer |
| 4 | reliability |
| 5 | fixed |
| 6 | internal |
| 7 | sliding |

2.



3.

- | | |
|---------------------|--------------------|
| a) surface | povrch |
| b) needle | jehla |
| c) axial and radial | axiální a radiální |
| d) friction | tření |
| e) advantage | výhoda |