



**Министерство науки и высшего образования Российской Федерации  
Федеральное государственное бюджетное образовательное учреждение высшего образования  
«Московский государственный технический университет имени Н.Э. Баумана  
(национальный исследовательский университет)» (МГТУ им. Н.Э. Баумана)**

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**ФАКУЛЬТЕТ «ИНФОРМАТИКА И СИСТЕМЫ УПРАВЛЕНИЯ»  
КАФЕДРА «СИСТЕМЫ АВТОМАТИЧЕСКОГО УПРАВЛЕНИЯ»**

## **Самостоятельная работа №1.11**

### **"Редактирование детали на уровне модели во FreeCAD" Вариант 12**

Студент группы

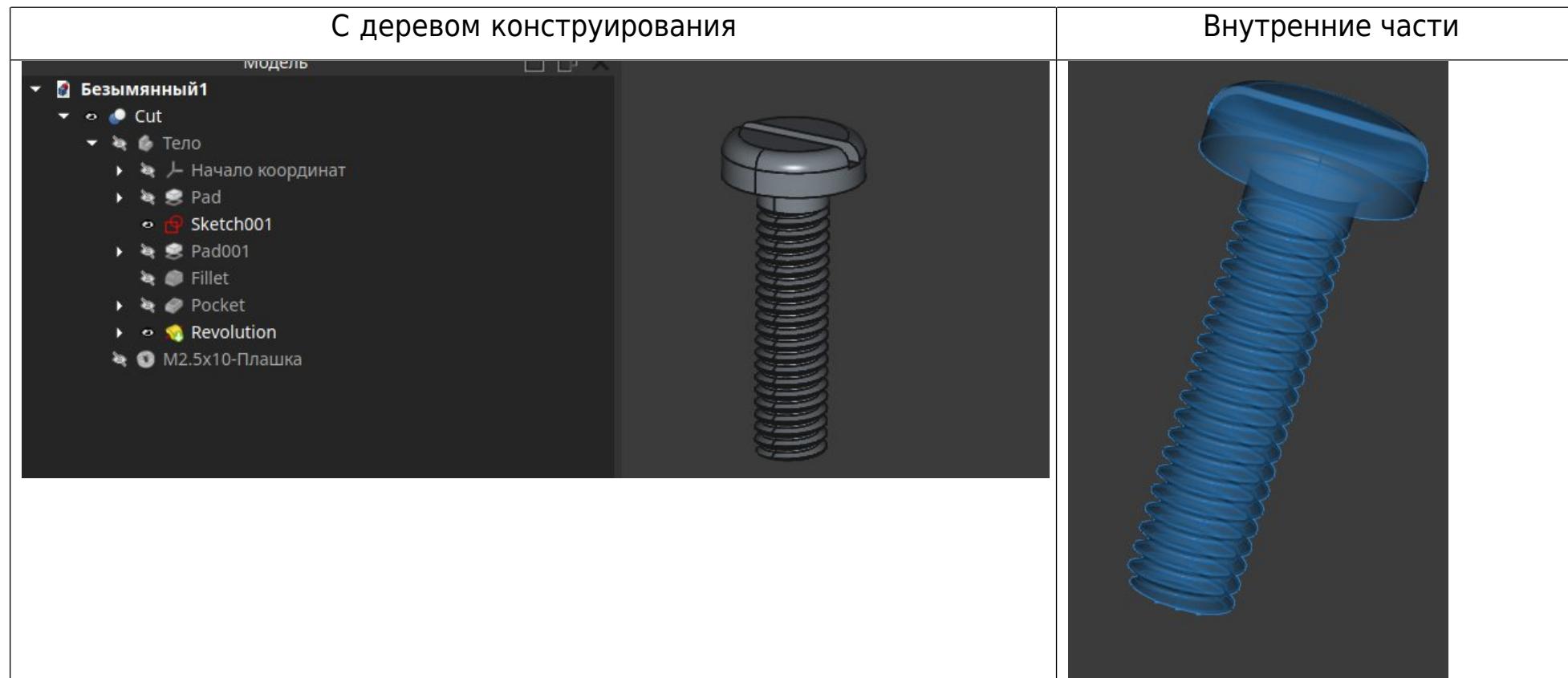
Соин А. Д.  
6 марта 2025 г.

Преподаватель

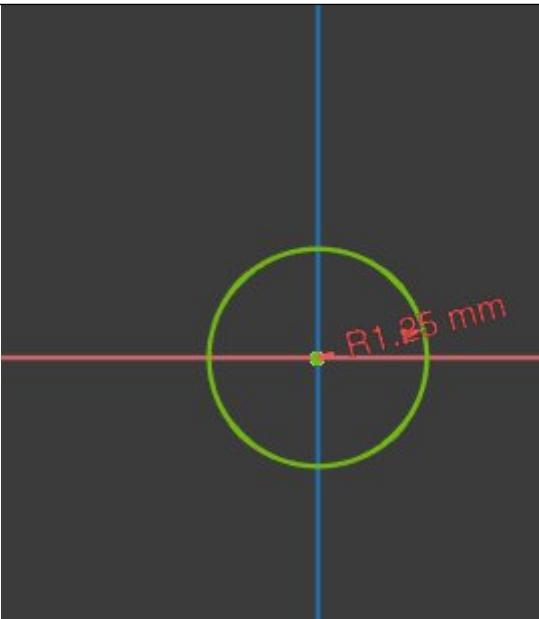
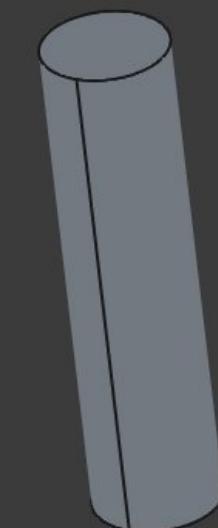
Викулов А. Н.  
«\_» 2025 г.

# ВИНТ

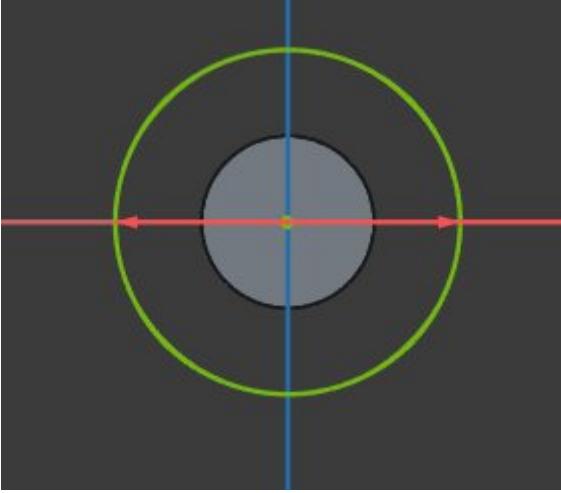
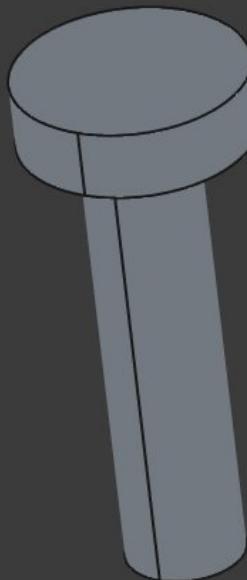
## ОБЩИЙ ВИД ДЕТАЛИ



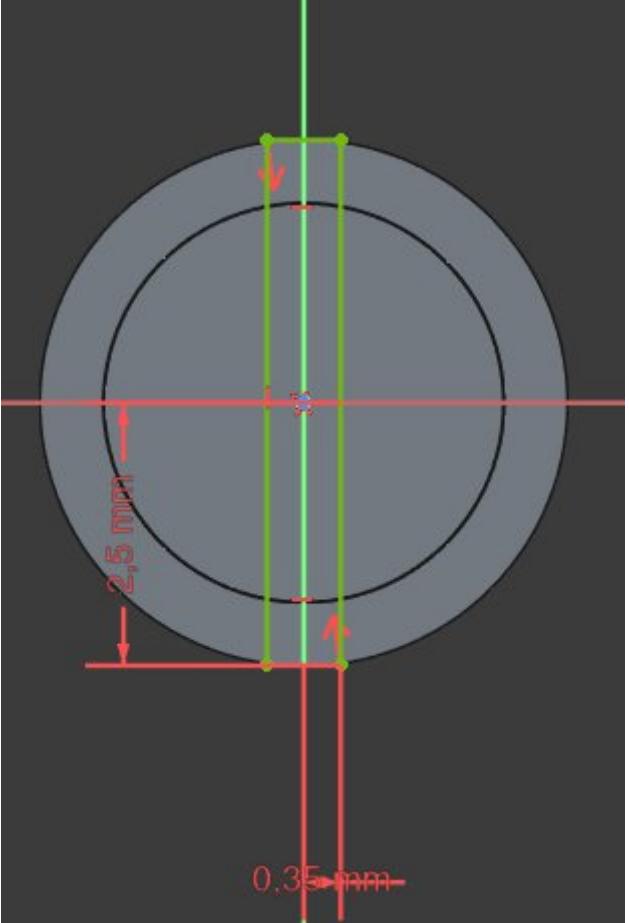
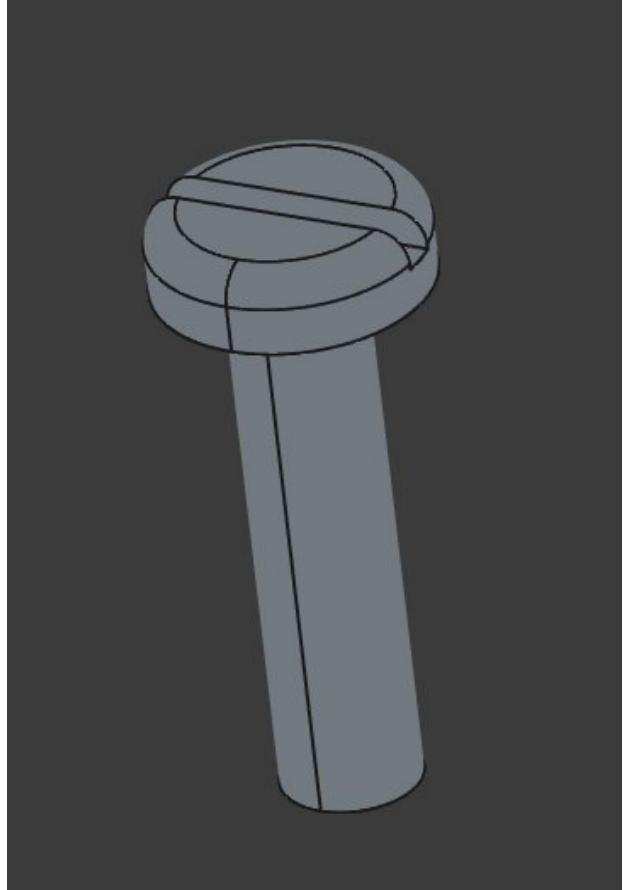
# ТЕЛО ВИНТА

Эскиз	В материале
 A technical sketch showing a green circle centered at a point marked with a green dot. A horizontal red line passes through the center of the circle. A vertical blue line passes through the center of the circle. The radius of the circle is labeled "R1.25 mm".	 A 3D model of a cylinder, representing the body of a screw in material. The cylinder is oriented vertically and has a grey gradient texture.

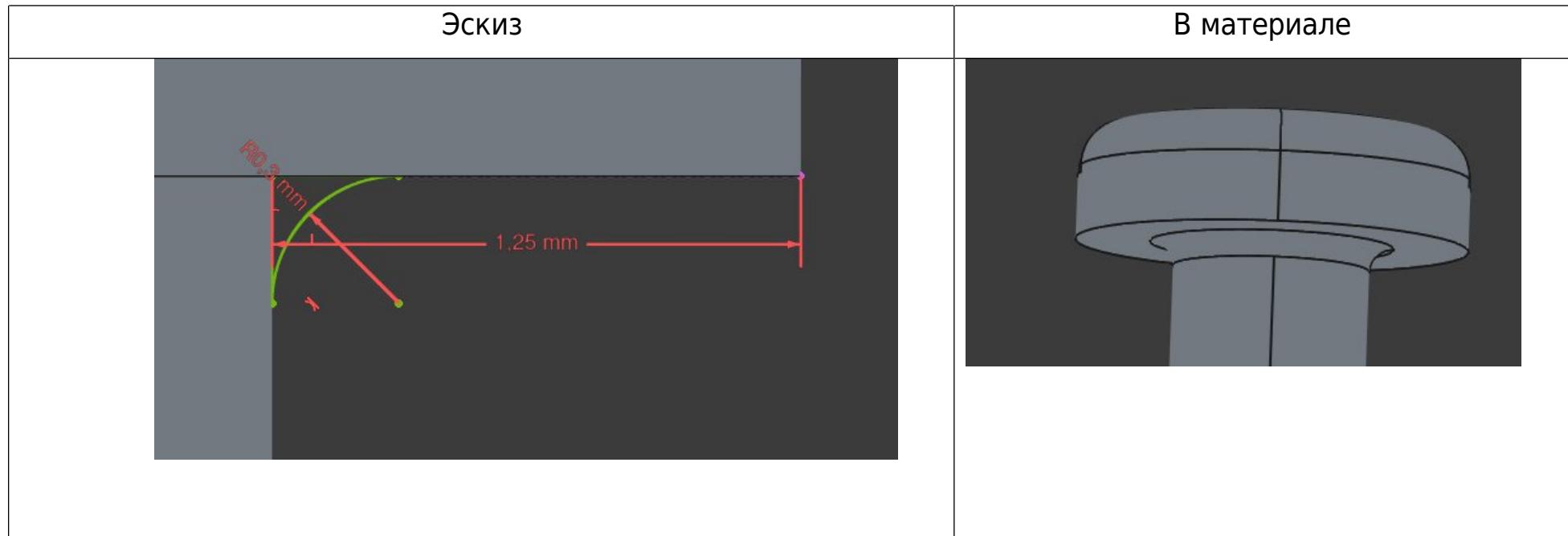
# ШЛЯПКА ВИНТА

Эскиз	В материале
 A technical sketch showing a cross-section of a bolt cap. It features two concentric circles: an outer green circle and an inner grey circle. A vertical blue line passes through the center of both circles. A horizontal red line also passes through the center, intersecting the blue line at a right angle. Arrows on the red line indicate its extension beyond the sketch area.	 A 3D perspective view of the bolt cap. It consists of a cylindrical top part and a tapered cylindrical bottom part. The top part has a flat, circular top surface. The bottom part tapers down to a narrower base. The entire model is rendered in a dark grey color.

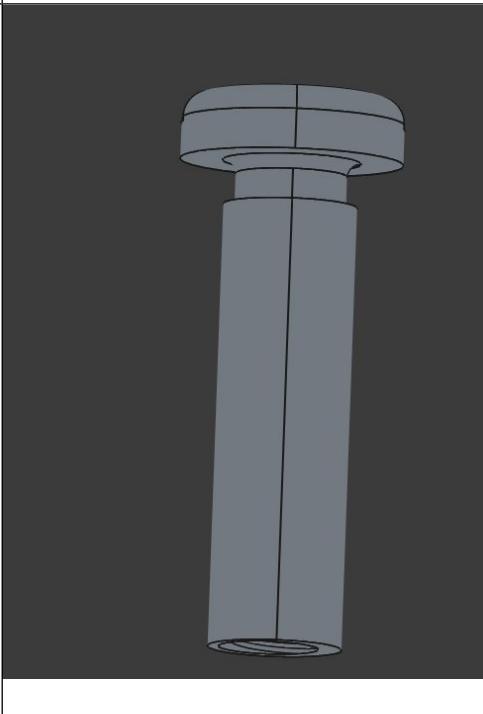
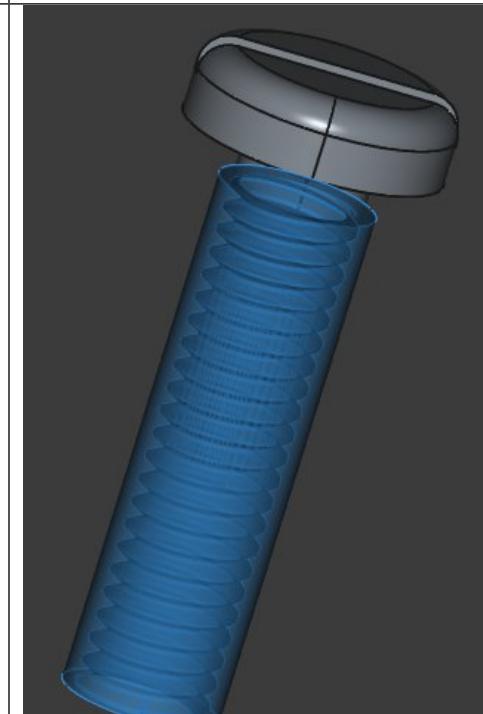
# УГЛУБЛЕНИЕ НА ШЛЯПКЕ ВИНТА

Эскиз	В материале
 <p>Technical sketch showing a circular feature with a diameter of 2.5 mm and a width of 0.35 mm.</p>	 <p>3D model of the bolt head as it appears in the material, showing the physical dimensions and shape.</p>

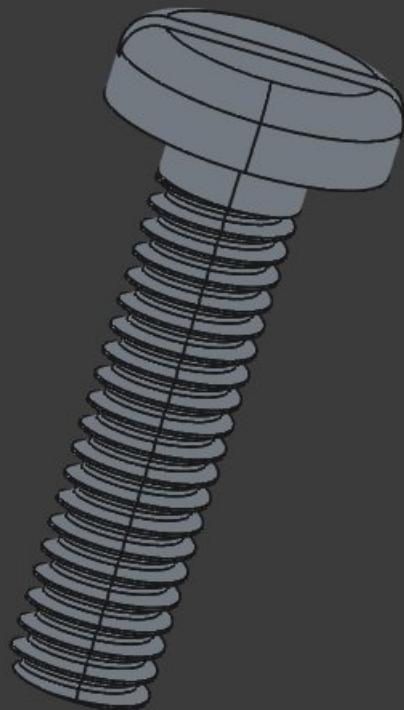
# СКРУГЛЕНИЕ ПОД ШЛЯПКОЙ ВИНТА



## M2.5-10-ПЛАШКА

Эскиз	В материале	Внутренняя резьба
<p><b>База</b></p> <p>▶ Placement [(0,00 0,00 1,00); 0,00 °; (0,00 mm 0,00 mm 9,00 m...] Label M2.5x10-Плашка</p> <p><b>Parameters</b></p> <p>Base Object Diameter M2.5 Diameter Cus... 6,00 mm Invert false Left Handed false Length 10,00 mm Match Outer false Offset 0,00 mm Offset Angle 0,00 ° Pitch Custom 1,00 mm Thread true Type ScrewDie</p> <p>Вид Данные</p>		

# РЕЗЬБА

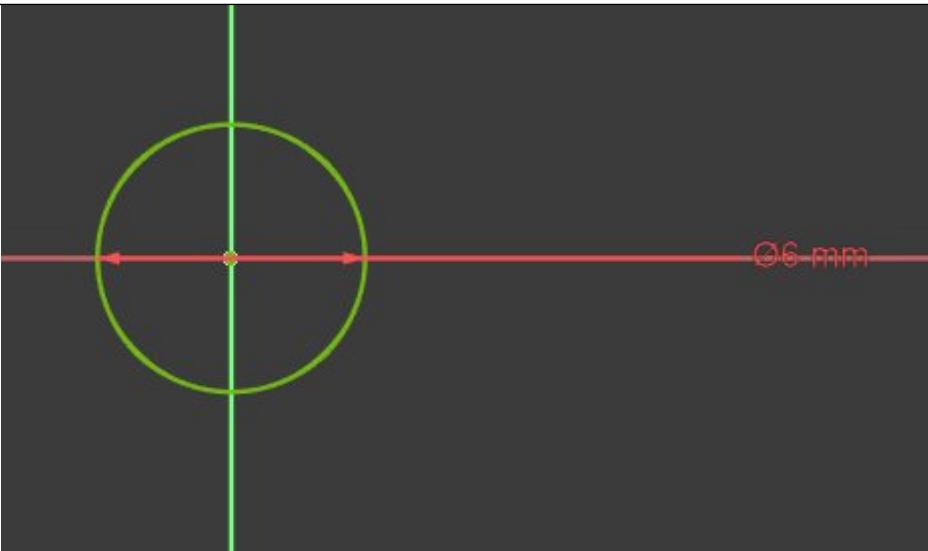
Эскиз	В материале										
<p><b>База</b></p> <table><tr><td>База</td><td>Body (Тело)</td></tr><tr><td>Tool</td><td>ScrewDie (M2.5x10-Плашка)</td></tr><tr><td>▶ Placement</td><td>[(0,00 0,00 1,00); 0,00 °; (0,00 mm 0,00 mm 0,00 mm)]</td></tr><tr><td>Label</td><td>Cut</td></tr><p><b>Boolean</b></p><tr><td>Refine</td><td>true</td></tr></table>	База	Body (Тело)	Tool	ScrewDie (M2.5x10-Плашка)	▶ Placement	[(0,00 0,00 1,00); 0,00 °; (0,00 mm 0,00 mm 0,00 mm)]	Label	Cut	Refine	true	
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Tool	ScrewDie (M2.5x10-Плашка)										
▶ Placement	[(0,00 0,00 1,00); 0,00 °; (0,00 mm 0,00 mm 0,00 mm)]										
Label	Cut										
Refine	true										

# БОЛТ

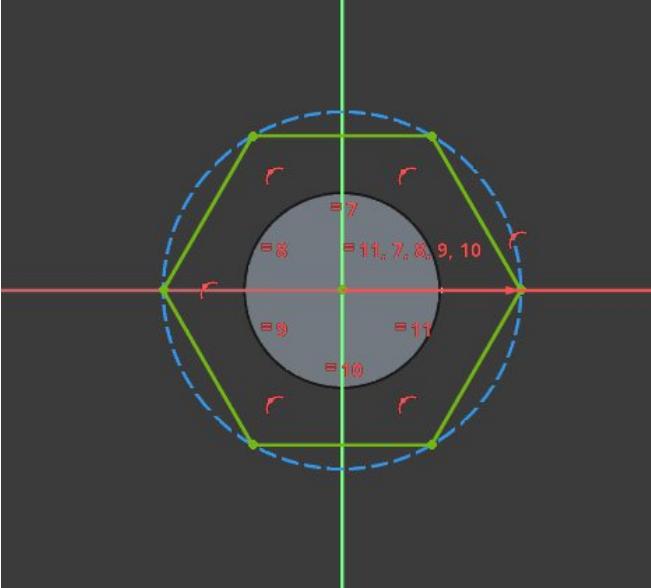
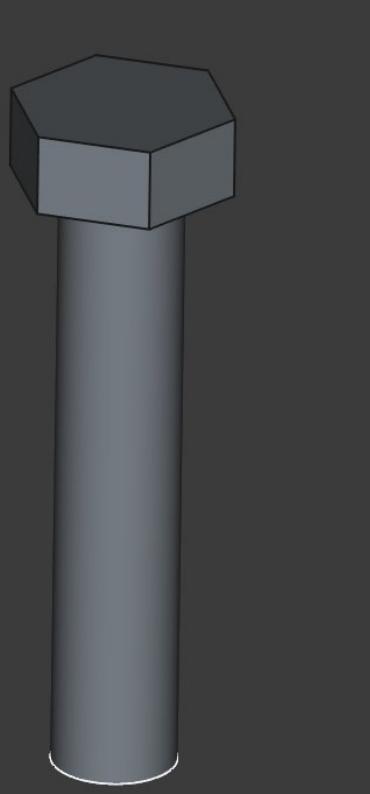
## ОБЩИЙ ВИД ДЕТАЛИ

С деревом конструирования	Внутренние части
<pre>Болт └── Cut     ├── Body     │   ├── Начало координат     │   ├── Pad     │   ├── Pad001     │   ├── Groove     │   ├── Revolution     │   └── Chamfer     └── М6х18-Плашка</pre>	

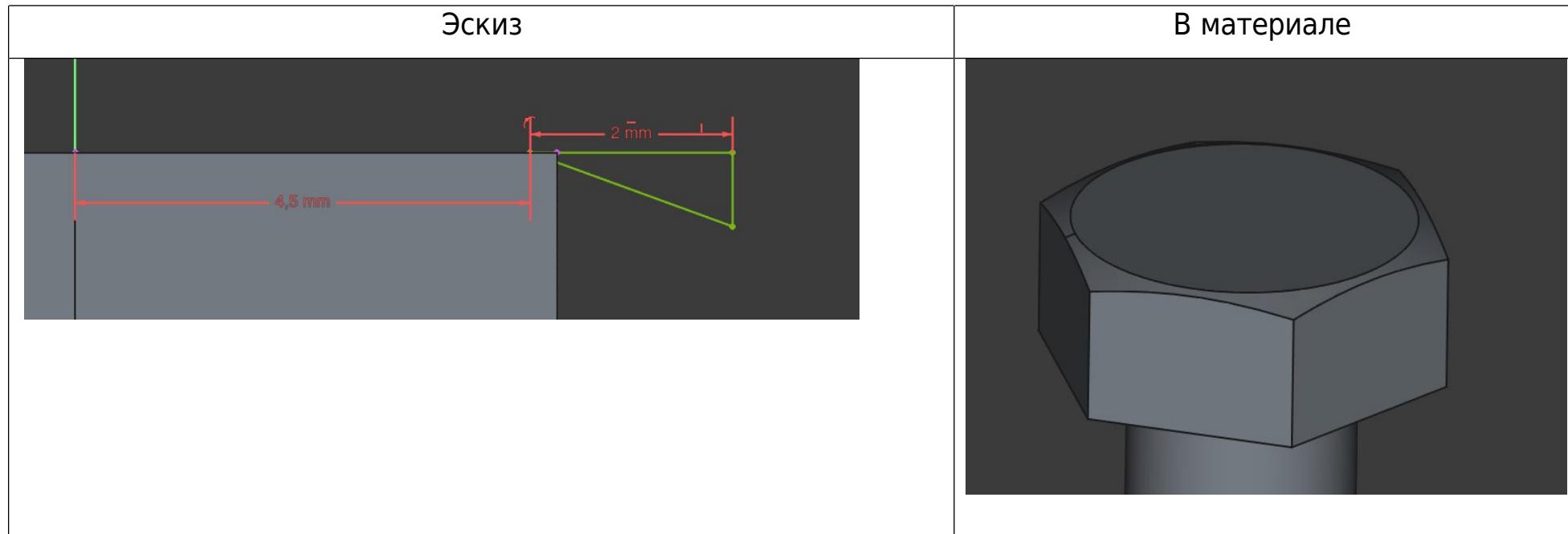
# ТЕЛО БОЛТА

Эскиз	В материале
 <p>Sketch showing a circular cross-section with a diameter of Ø6 mm. A horizontal dimension line with arrows at the top and bottom passes through the center of the circle, labeled Ø6 mm.</p>	 <p>3D representation of the bolt shank as a solid gray cylinder with a green outline at the bottom.</p>

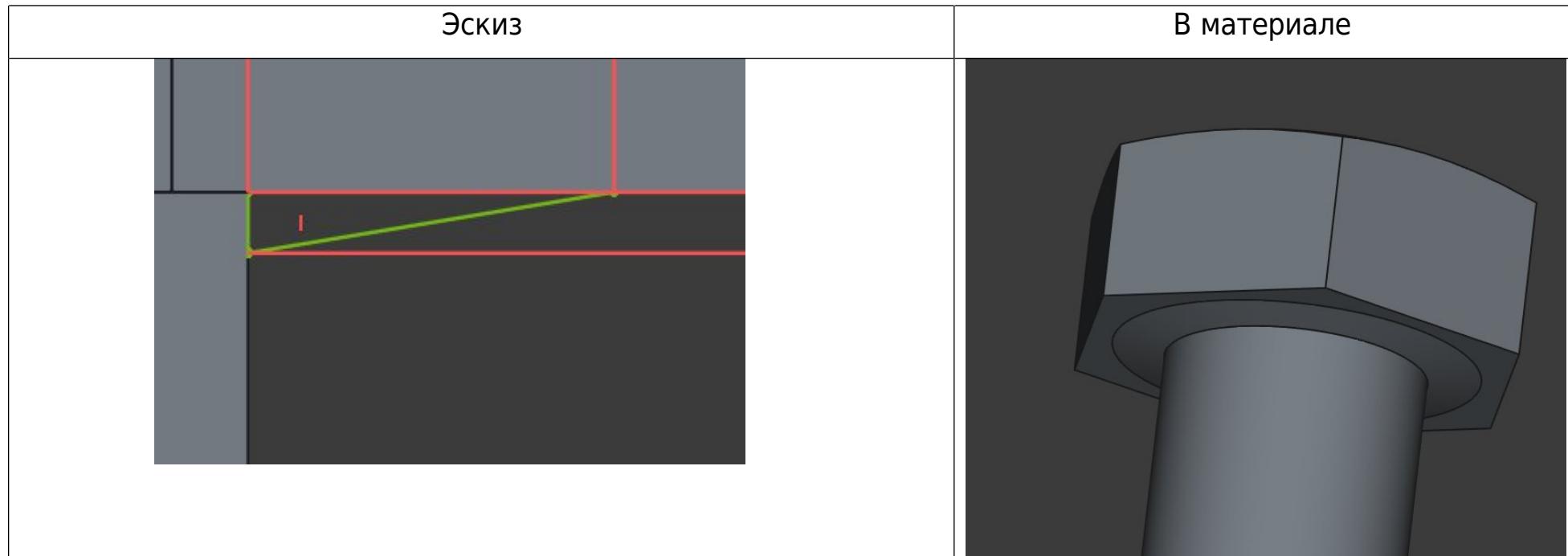
# ШЛЯПКА БОЛТА

Эскиз	В материале
 A technical sketch of a bolt cap's cross-section. It features a central circle with radius 'r'. Around it is a ring with outer radius 'r' and inner radius 'r'. The outermost boundary is a hexagon with side length 'r'. The sketch includes a green vertical center line and a red horizontal center line. Red text labels indicate dimensions: 'r' for the central circle, 'r' for the ring, 'r' for the hexagonal side, and '11' for the total height of the cap.	 A 3D rendering of a bolt cap in a dark gray material. It has a hexagonal top surface and a cylindrical body. The cap is shown from a slightly elevated angle, highlighting its geometric form.

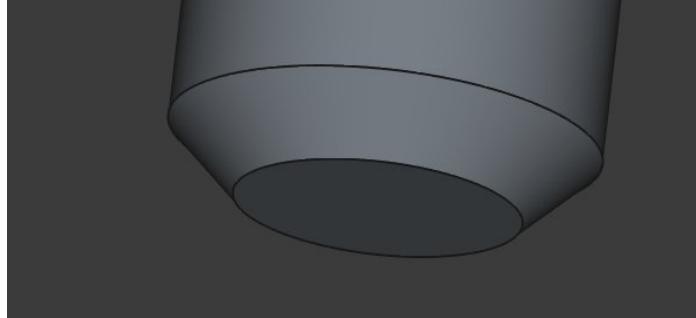
# СКРУГЛЕНИЕ НА ШЛЯПКЕ ВИНТА



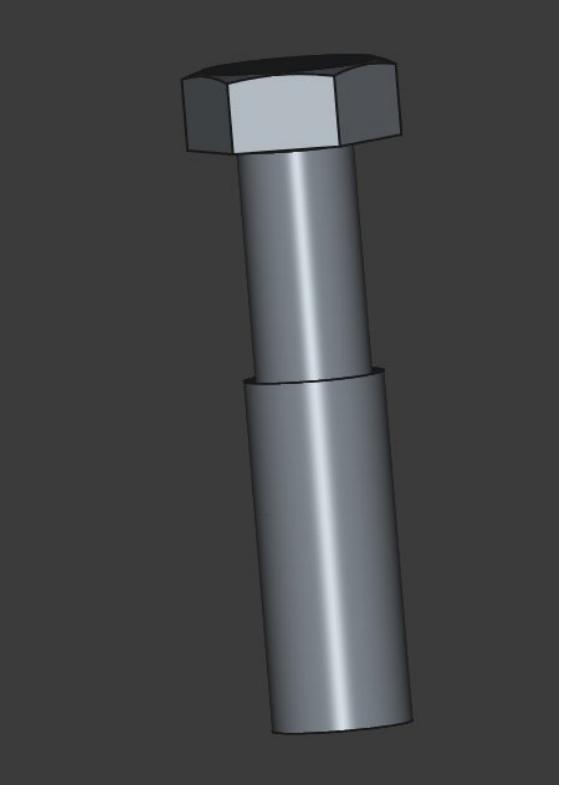
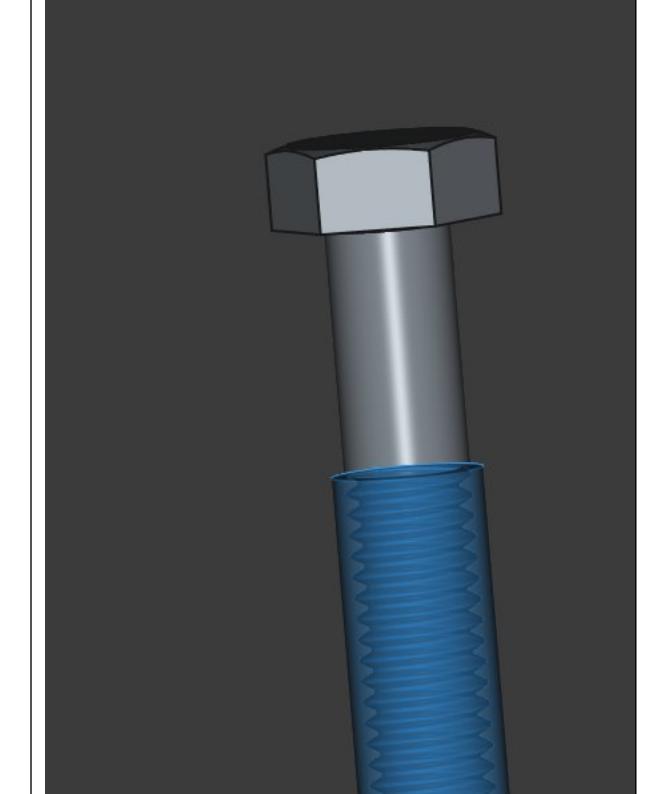
# СКРУГЛЕНИЕ ПОД ШЛЯПКОЙ БОЛТА



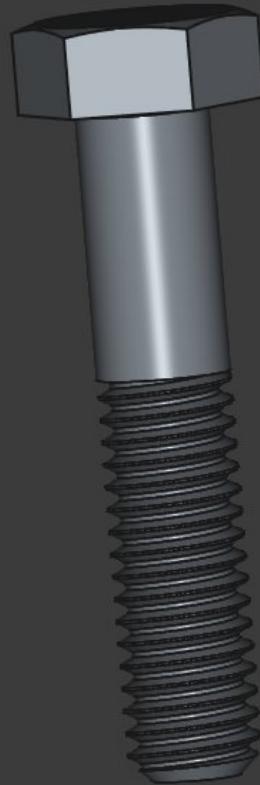
# ФАСКА

Эскиз		В материале
<b>База</b> База Revolution [Edge10] Support Tran... false Label Chamfer Suppressed false <b>Chamfer</b> Chamfer Type Equal distance Size 1,00 mm Size2 1,00 mm Угол 45,00 ° Flip Direction false Use All Edges false <b>Part Design</b> Refine true		

# М6-18-ПЛАШКА

Эскиз	В материале	Внутренняя резьба																								
<p><b>База</b></p> <p>▶ Placement [(0,00 0,00 1,00); 0,00 °; (0,00 mm 0,00 mm 18,00 ...)</p> <p>Label М6x18-Плашка</p> <p><b>Parameters</b></p> <table><tr><td>Base Object</td><td></td></tr><tr><td>Diameter</td><td>M6</td></tr><tr><td>Diameter Cus...</td><td>6,00 mm</td></tr><tr><td>Invert</td><td>false</td></tr><tr><td>Left Handed</td><td>false</td></tr><tr><td>Length</td><td>18,00 mm</td></tr><tr><td>Match Outer</td><td>false</td></tr><tr><td>Offset</td><td>0,00 mm</td></tr><tr><td>Offset Angle</td><td>0,00 °</td></tr><tr><td>Pitch Custom</td><td>1,00 mm</td></tr><tr><td>Thread</td><td>true</td></tr><tr><td>Type</td><td>ScrewDie</td></tr></table>	Base Object		Diameter	M6	Diameter Cus...	6,00 mm	Invert	false	Left Handed	false	Length	18,00 mm	Match Outer	false	Offset	0,00 mm	Offset Angle	0,00 °	Pitch Custom	1,00 mm	Thread	true	Type	ScrewDie		
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# РЕЗЬБА

Эскиз	В материале										
<p><b>База</b></p> <table><tr><td>База</td><td>Body</td></tr><tr><td>Tool</td><td>ScrewDie (М6x18-Плашка)</td></tr><tr><td>▶ Placement</td><td>[(0,00 0,00 1,00); 0,00 °; (0,00 mm 0,00 mm 0,00 m...]</td></tr><tr><td>Label</td><td>Cut</td></tr></table> <p><b>Boolean</b></p> <table><tr><td>Refine</td><td>true</td></tr></table>	База	Body	Tool	ScrewDie (М6x18-Плашка)	▶ Placement	[(0,00 0,00 1,00); 0,00 °; (0,00 mm 0,00 mm 0,00 m...]	Label	Cut	Refine	true	
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▶ Placement	[(0,00 0,00 1,00); 0,00 °; (0,00 mm 0,00 mm 0,00 m...]										
Label	Cut										
Refine	true										