

# List of Working Models

**Name of the Faculty: Srikanth Rangdal**

**Courses benefitted: Machine Drawing, Machine Drawing & Modeling Lab, Computer-Aided Production Drawing & CAM Lab**

**No of Assemblies developed:** 19 (Nineteen)

**Software used:** Onshape Cloud CAD. Recently acquired by PTC - Parametric Technologies Corporation, The company that developed Pro/E or Creo/Elements Pro

**Book Referred:** Drawings from the book "Machine Drawing" by "K L Narayana" were referred for modelling the assemblies. (Creative freedom used wherever the 2D diagrams are incompatible with available CAD features.)

**Benefit to the institute:** The cost invested in physical models will be saved while actually significantly improving the overall experience of students.

**Features / Facilities:** The students will be able to carry out below-mentioned activities on the 3D Assemblies.

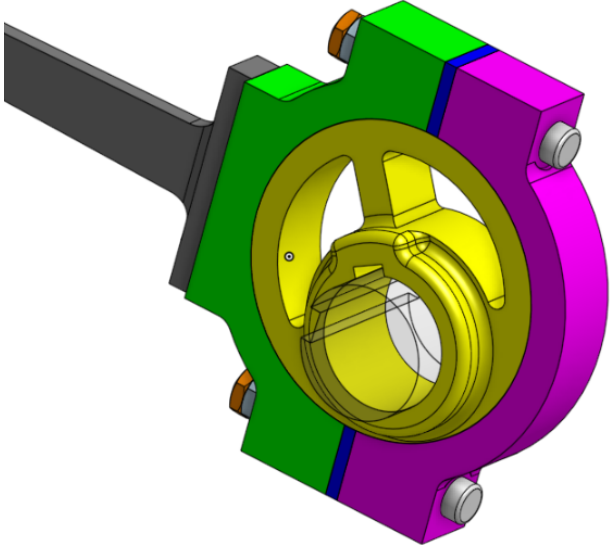
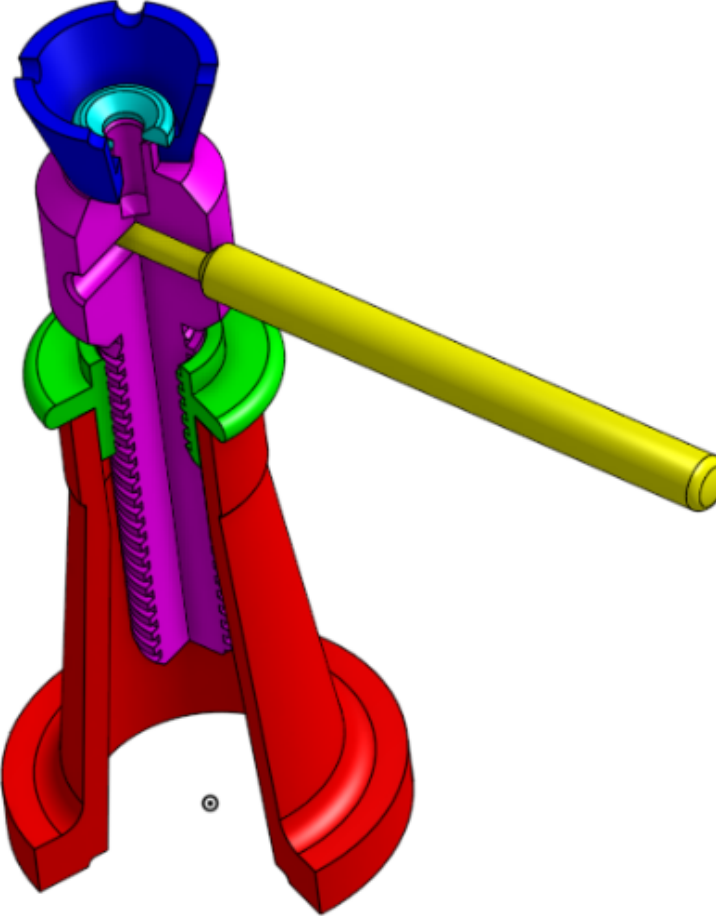
1. Interactively view 3D geometry of each part separately.
2. Apply sections on each part to observe & learn from the sectional view & hatching.
3. Assembly enables constrained Motion of parts relative to a fixed frame which students can manually drag on their smartphone screens.
4. Animation for the relative motion between constrained parts using a Desktop or Laptop.
5. Detailed drawing of each part is also provided in the same file so they can practice modelling the same in the software of their choice.
6. Drawing/s of assembly with balloons is provided for reference along with complete Bill of Materials
7. Sectional views can be created if required to watch internal components of an assembly in action.
8. Special Half sectional views or broken views provided wherever necessary for extra clear visualisation.
9. The files can be accessed easily through the link given below on any of the devices mentioned below:

**Devices Supported:**

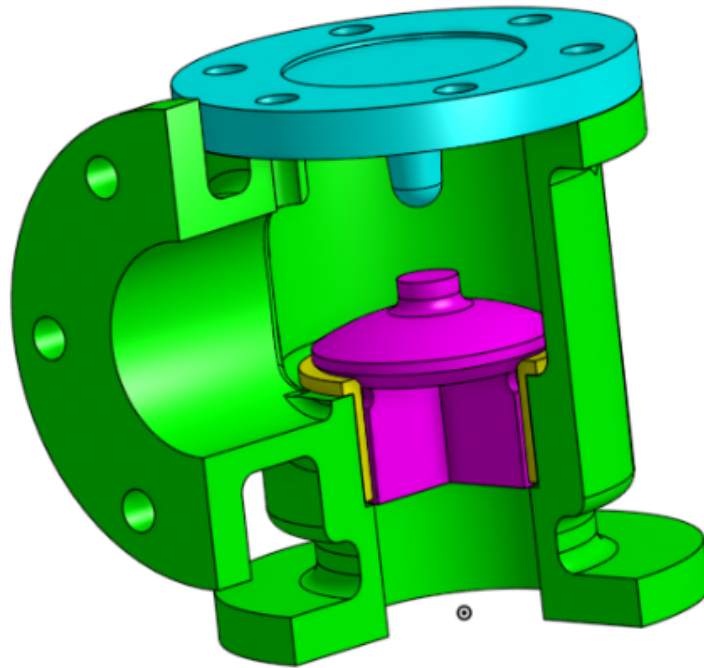
1. **Smartphones / Tabs** running **iOS** (iPhone & iPad) or **Android** or **Chrome OS**
2. **Desktops / Laptops** running **Macintosh, Windows, Chrome OS** or any variety of **Linux** with **Chrome** or other such **supported Browser**.
3. Sharing of the file to students on mobile devices through the link. (Requirements: Android or iOS smartphone or desktop/laptop with supported browser)

**Cost of equipment & software that student needs to access it**

The educational version of OnShape is **FREE**. Any student can easily create the free account & then upgrade it to an educational version by filling the details of college & purpose of use. Any smartphone can work as good hardware.

SI No	Assemblies modelled	Link
<p><b>1</b></p>	<p><b>Eccentric</b></p>	
	<p><i>Shareable Link:</i>  <a href="https://cad.onshape.com/documents/d7cf40b1ec6aa7f02d908927/w/5bc44582eca9fd7ff04b3985/e/20785cbf47c15a976390a87c">https://cad.onshape.com/documents/d7cf40b1ec6aa7f02d908927/w/5bc44582eca9fd7ff04b3985/e/20785cbf47c15a976390a87c</a>  <i>Youtube explanation Link:</i>  <a href="https://www.youtube.com/watch?v=-d65s5MIHM0">https://www.youtube.com/watch?v=-d65s5MIHM0</a></p>	
<p><b>2</b></p>	<p><b>Screw Jack</b></p>	
	<p><i>Shareable Link:</i>  <a href="https://cad.onshape.com/documents/0444a5a58ac45703de0aa2a7/w/9148e4bae9c00e4dc2033daa/e/c149eee38ed52b0e76fa6f31">https://cad.onshape.com/documents/0444a5a58ac45703de0aa2a7/w/9148e4bae9c00e4dc2033daa/e/c149eee38ed52b0e76fa6f31</a></p>	

**3**



**Non-Return Valve**

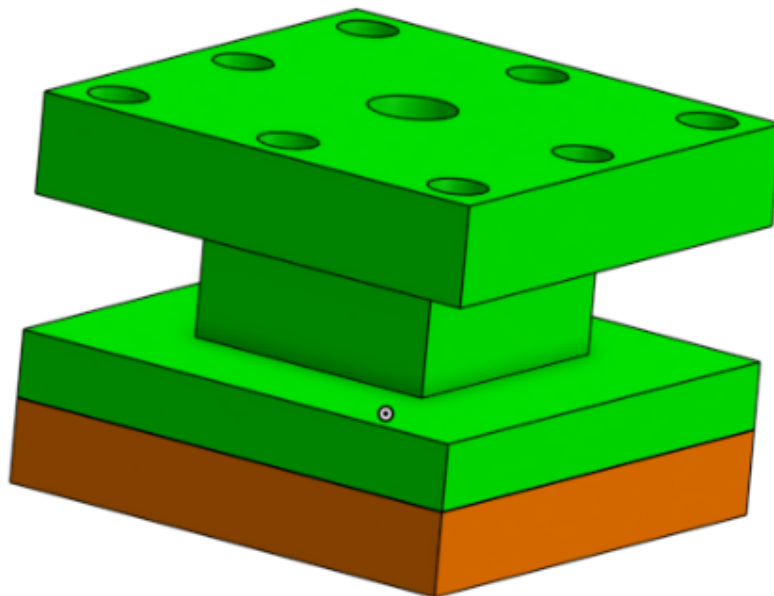
*Shareable Link:*

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*Youtube explanation Link:*

pending

**4**



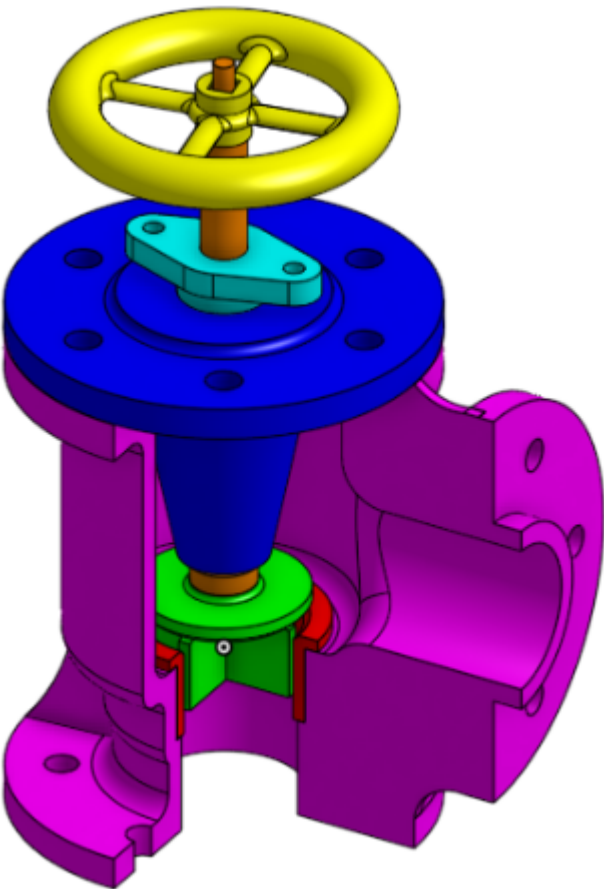
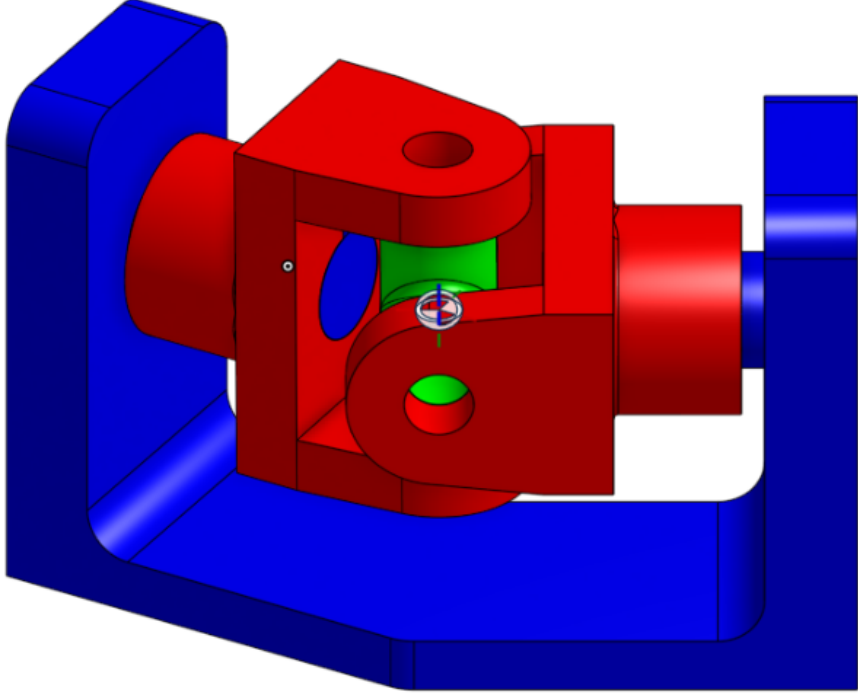
**Tool Box**

*Shareable Link:*

<https://cad.onshape.com/documents/65f8be814b242010288716bb/w/76957bb11c66919d6dedee3c/e/d2e5e1749b8e9834d1a89541>

*Youtube explanation Link:*

pending

<p style="text-align: center;"><b>5</b></p>	<p style="text-align: center;"><b>Feed Check Valve</b></p>	
	<p>Shareable Link:  <a href="https://cad.onshape.com/documents/9e6b4968d0edf1526461556b/w/69200e5a74576a9e4dbfb4a1/e/78a90c78422923e25247416e">https://cad.onshape.com/documents/9e6b4968d0edf1526461556b/w/69200e5a74576a9e4dbfb4a1/e/78a90c78422923e25247416e</a></p> <p>Youtube explanation Link:  pending</p>	
<p style="text-align: center;"><b>6</b></p>		<p>Shareable Link:  <a href="https://cad.onshape.com/documents/9f4b177ec255ce0352d5d12b/w/1cca9239a71dae6c0d26f4c2/e/6a0c00d0b47f57076d1e75be">https://cad.onshape.com/documents/9f4b177ec255ce0352d5d12b/w/1cca9239a71dae6c0d26f4c2/e/6a0c00d0b47f57076d1e75be</a></p> <p>(The model given in K L Narayana is dysfunctional).  Confirmed from the OnShape development team through mail.</p>
		<p style="text-align: center;"><b>Universal Joint</b></p>

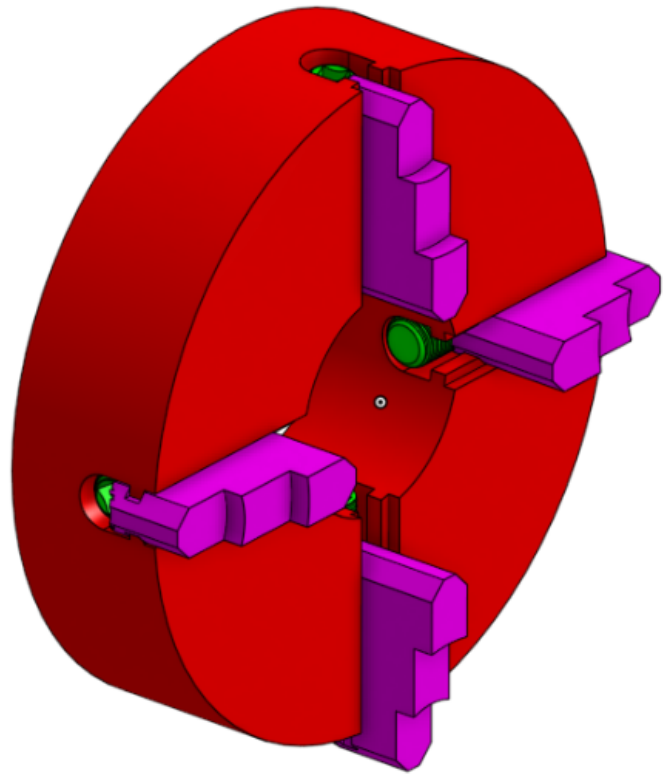
## Four Jaw Independent Chuck

7

Shareable Link:

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Youtube explanation Link:  
pending



8

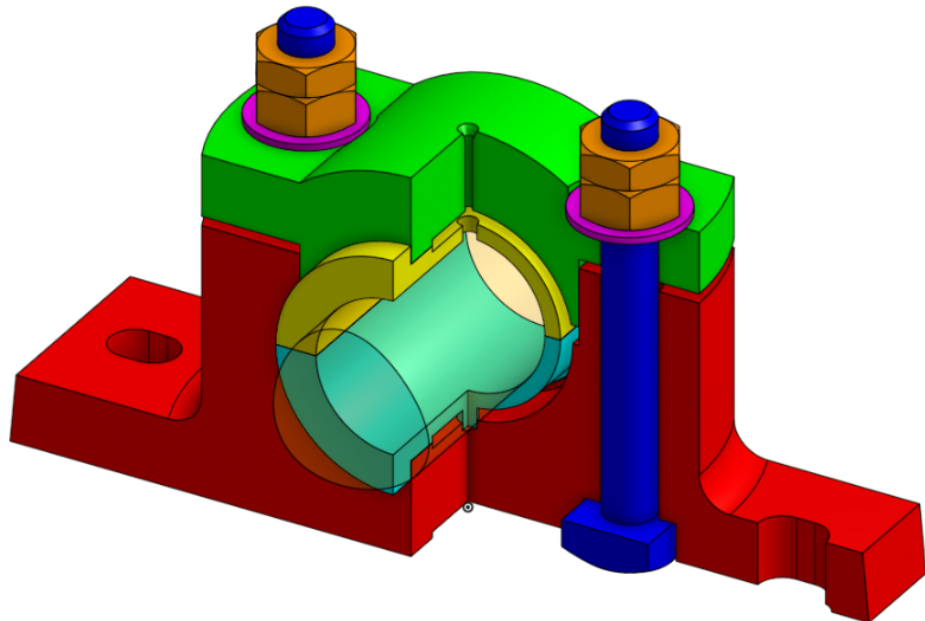
## Plummer Block

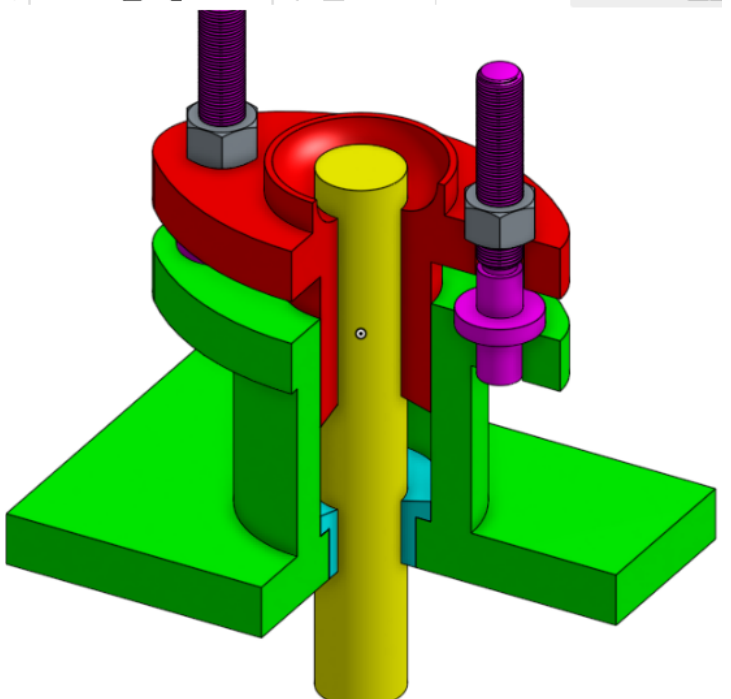
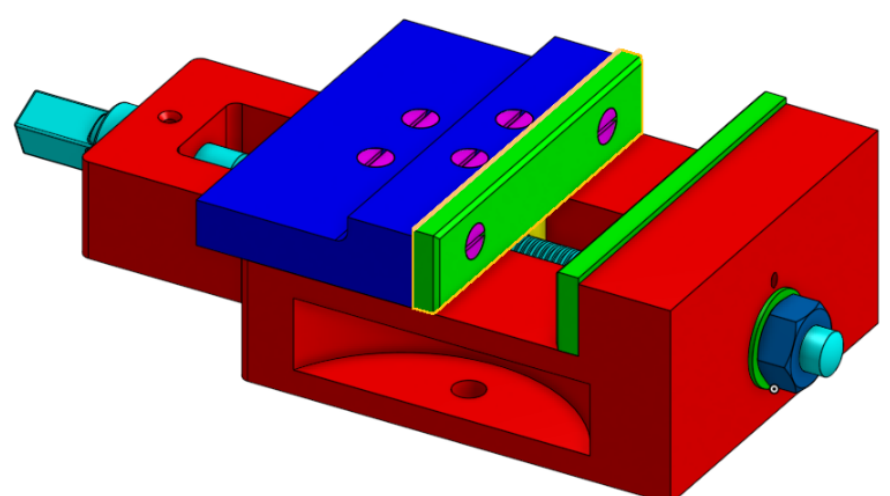
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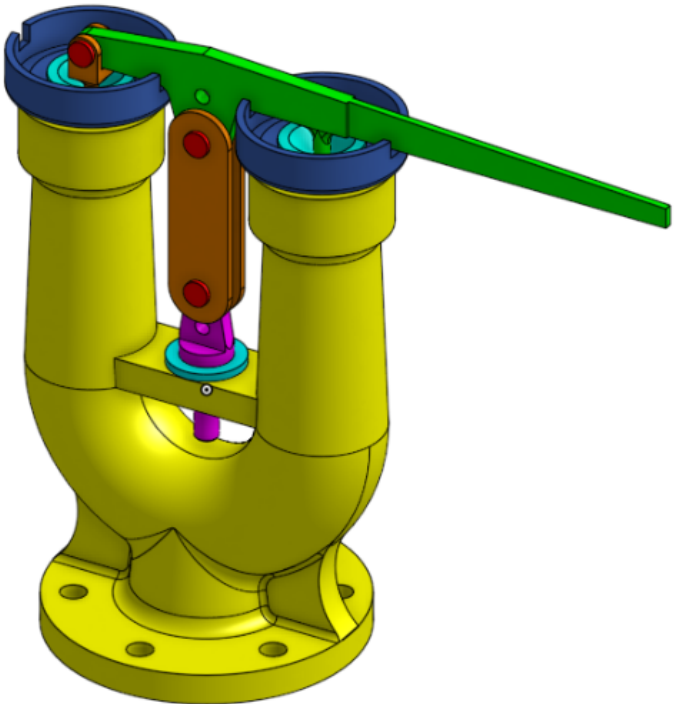
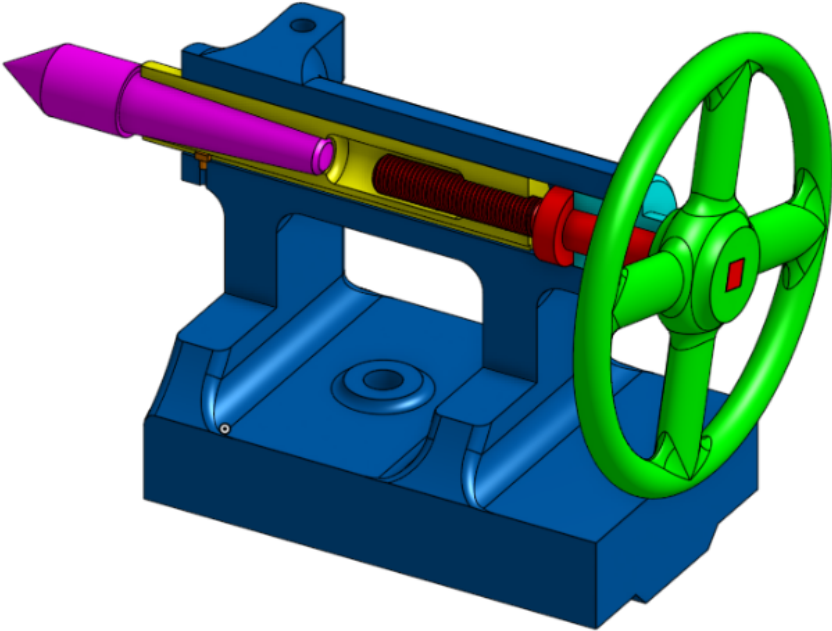
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Youtube explanation Link:

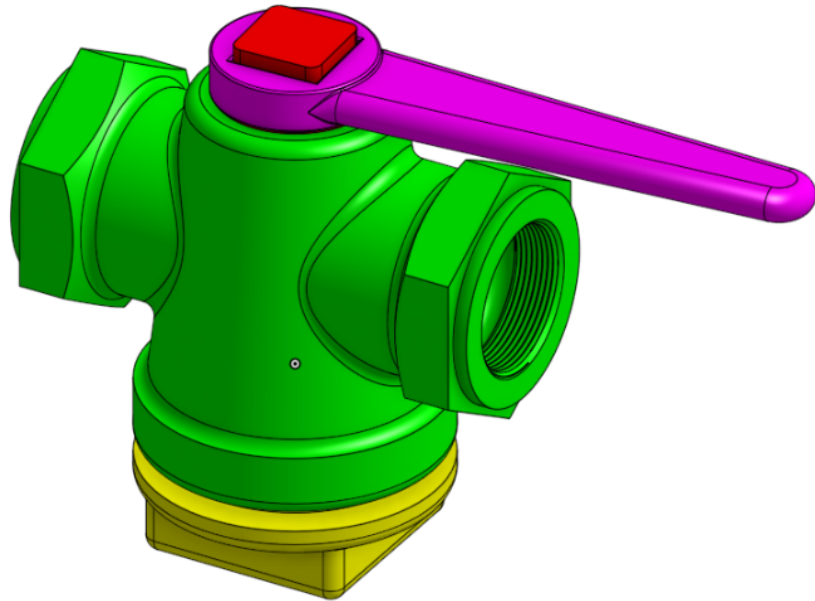
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<p style="text-align: center;"><b>9</b></p>	<p style="text-align: center;"><b>Stuffing Box</b></p>	
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<p style="text-align: center;"><b>10</b></p>		<p><i>Shareable Link:</i>  <a href="https://cad.onshape.com/documents/3de09d99c0a84f421cfa7acb/w/11b6a0b76d4b17f22a2ee2ff/e/d27331c4eb455b201f88d01b">https://cad.onshape.com/documents/3de09d99c0a84f421cfa7acb/w/11b6a0b76d4b17f22a2ee2ff/e/d27331c4eb455b201f88d01b</a></p> <p><i>Youtube explanation Link:</i>  pending</p>
	<p style="text-align: center;"><b>Machine Vice</b></p>	

<p><b>11</b></p>	<p><b>Ramsbottom Safety Valve</b></p>	
	<p>Shareable Link:  <a href="https://cad.onshape.com/documents/aa76ec10a1dcc54e85762b53/w/1d183e1b5f90555d74a58b86/e/3f82ff8fa19eb092a8a1064">https://cad.onshape.com/documents/aa76ec10a1dcc54e85762b53/w/1d183e1b5f90555d74a58b86/e/3f82ff8fa19eb092a8a1064</a></p> <p>Youtube explanation Link:  pending</p>	
<p><b>12</b></p>		
	<p><b>Tailstock</b></p>	<p>Shareable Link:  <a href="https://cad.onshape.com/documents/55ce484040bf9eaa2b218c81/w/bd8d8614e2360141a688d9dd/e/1941455c80b0d60585f6d202">https://cad.onshape.com/documents/55ce484040bf9eaa2b218c81/w/bd8d8614e2360141a688d9dd/e/1941455c80b0d60585f6d202</a></p> <p>Youtube explanation Link:  pending</p>

**13**



**Air Cock**

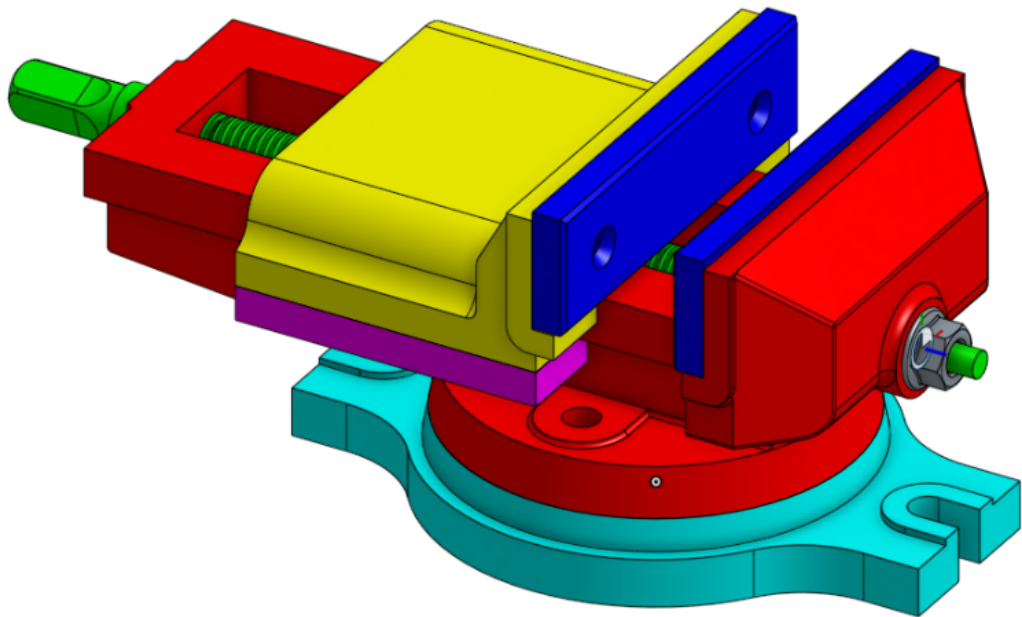
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Youtube explanation Link:

pending

**14**



**Swivel Vice**

Shareable Link:

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Youtube explanation Link:

pending



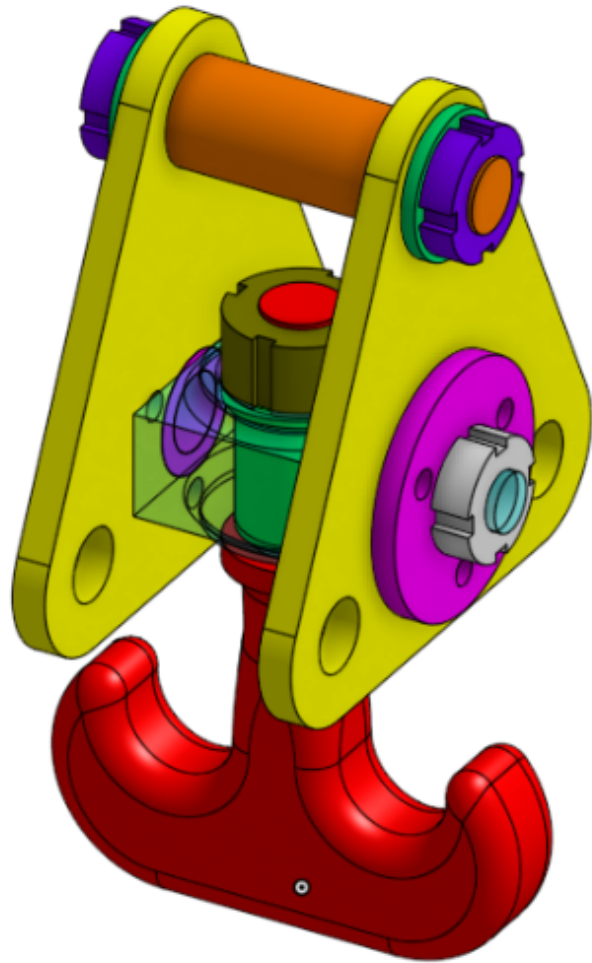
## Crane Hook

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Shareable Link:

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Youtube explanation Link:  
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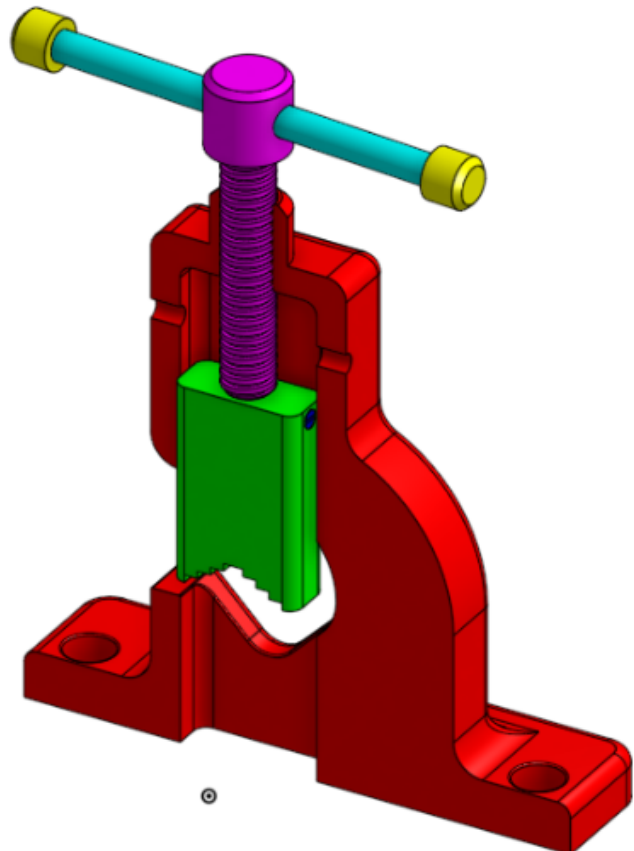
## Pipe Vice

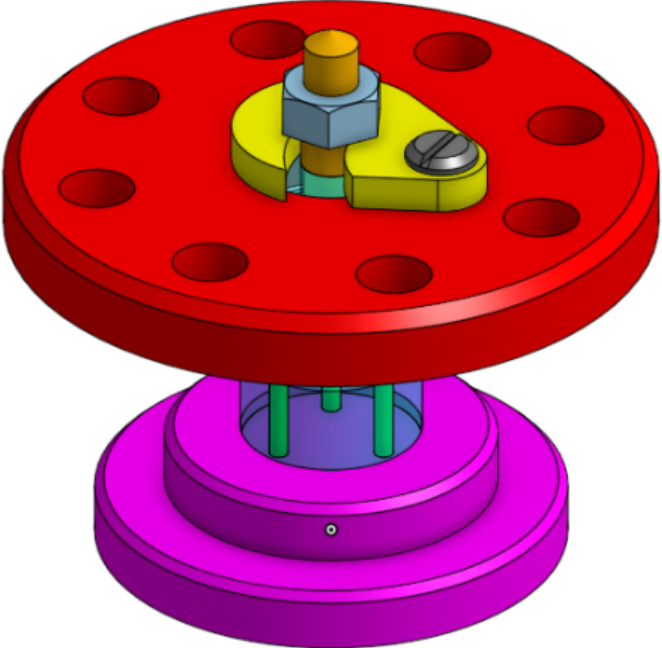
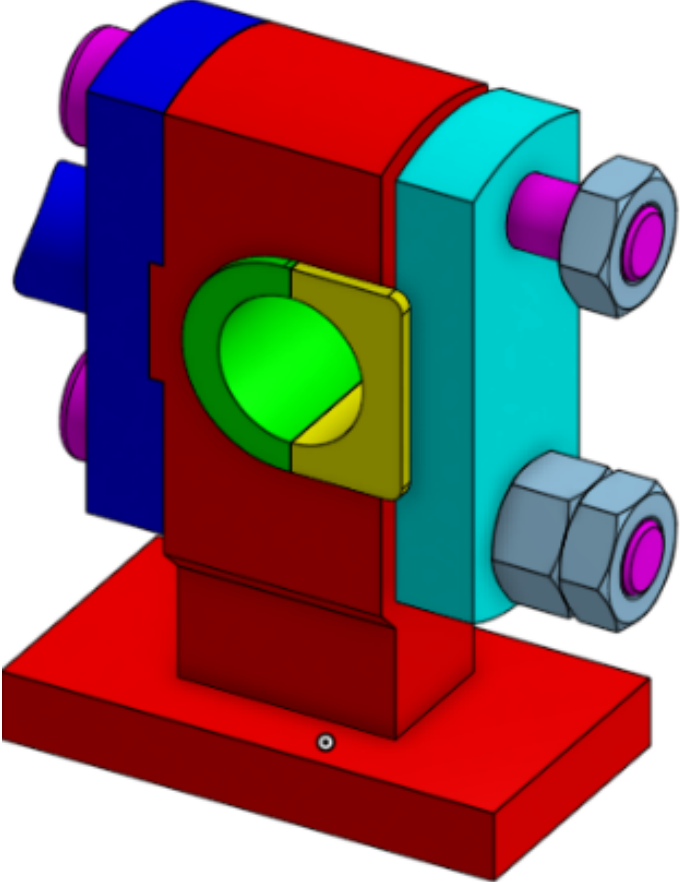
**16**

Shareable Link:

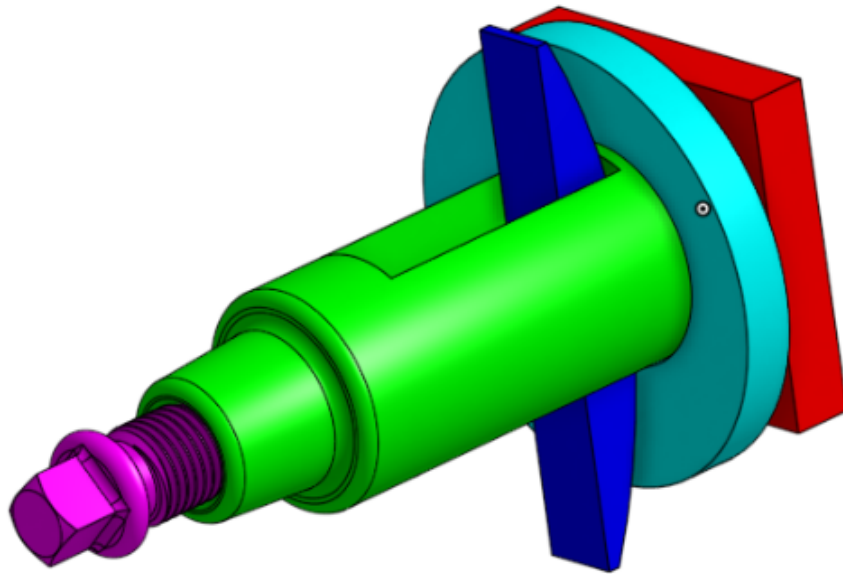
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Youtube explanation Link:  
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<p><b>17</b></p>	<p><b>Jig Plate</b></p> <p><i>Shareable Link:</i> <a href="https://cad.onshape.com/documents/09e4af5ec2b6028e417dbdb8/w/72573bce7879c634cbe79c90/e/f9032f42b6cf55c421429536">https://cad.onshape.com/documents/09e4af5ec2b6028e417dbdb8/w/72573bce7879c634cbe79c90/e/f9032f42b6cf55c421429536</a></p> <p><i>Youtube explanation Link:</i> pending</p>	
<p><b>18</b></p>	<p><b>Crosshead</b></p> <p><i>Shareable Link:</i> <a href="https://cad.onshape.com/documents/402d63784e4584b42989cb8e/w/410ac664f83512e1085e6987/e/63295a078f9435f522f34a62">https://cad.onshape.com/documents/402d63784e4584b42989cb8e/w/410ac664f83512e1085e6987/e/63295a078f9435f522f34a62</a></p> <p><i>Youtube explanation Link:</i> pending</p>	

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**Single Tool Post**

*Shareable Link:*

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*Youtube explanation Link:*

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