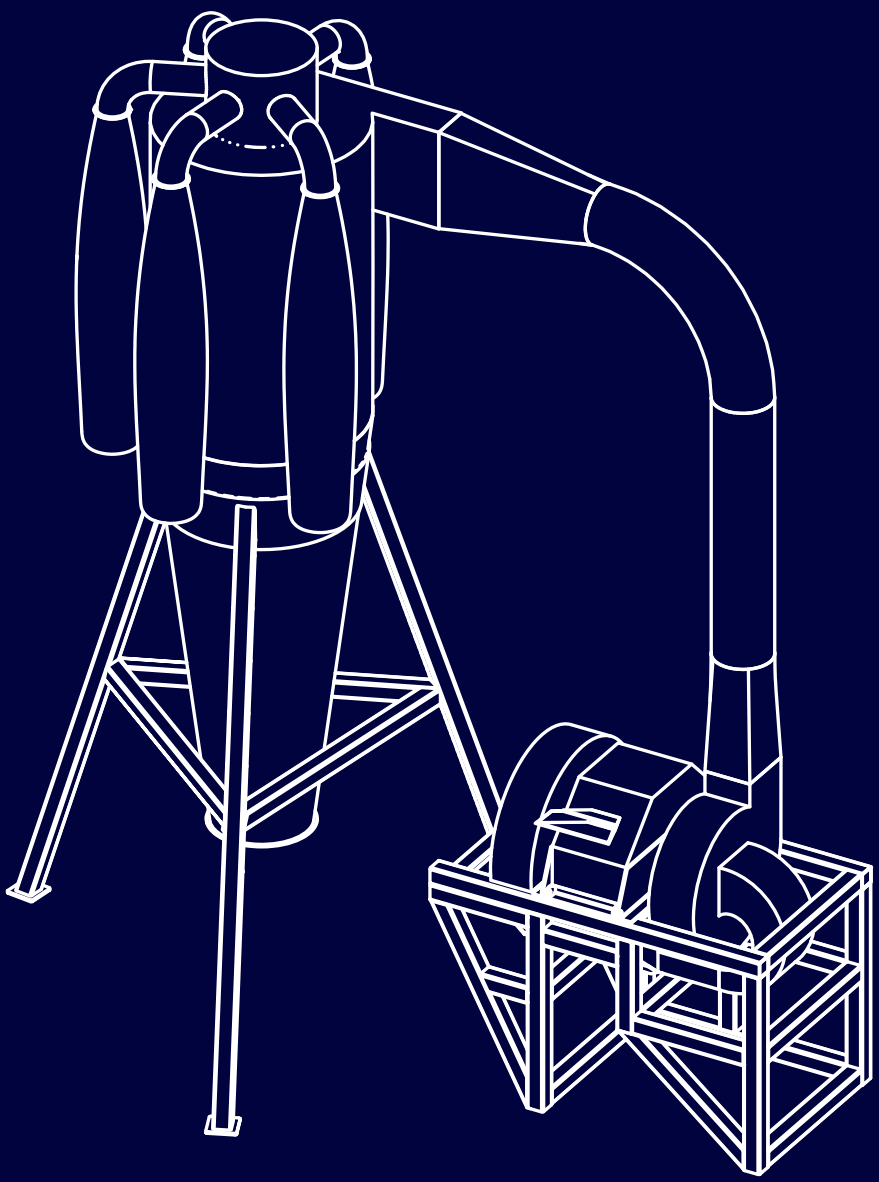
Multipurpose hammermill

Construction guide



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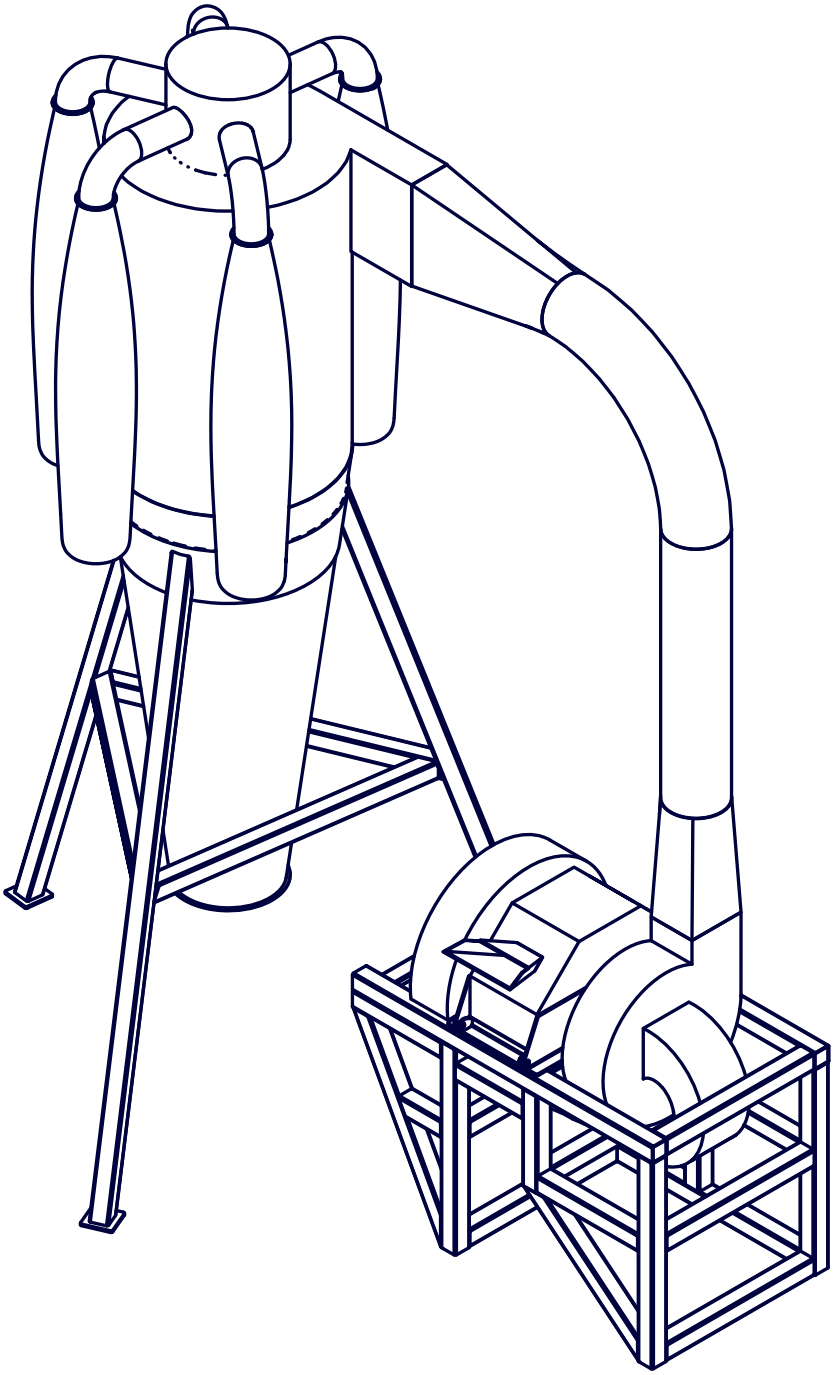
UNIVERSITY OF GREENWICH
Natural Resources Institute

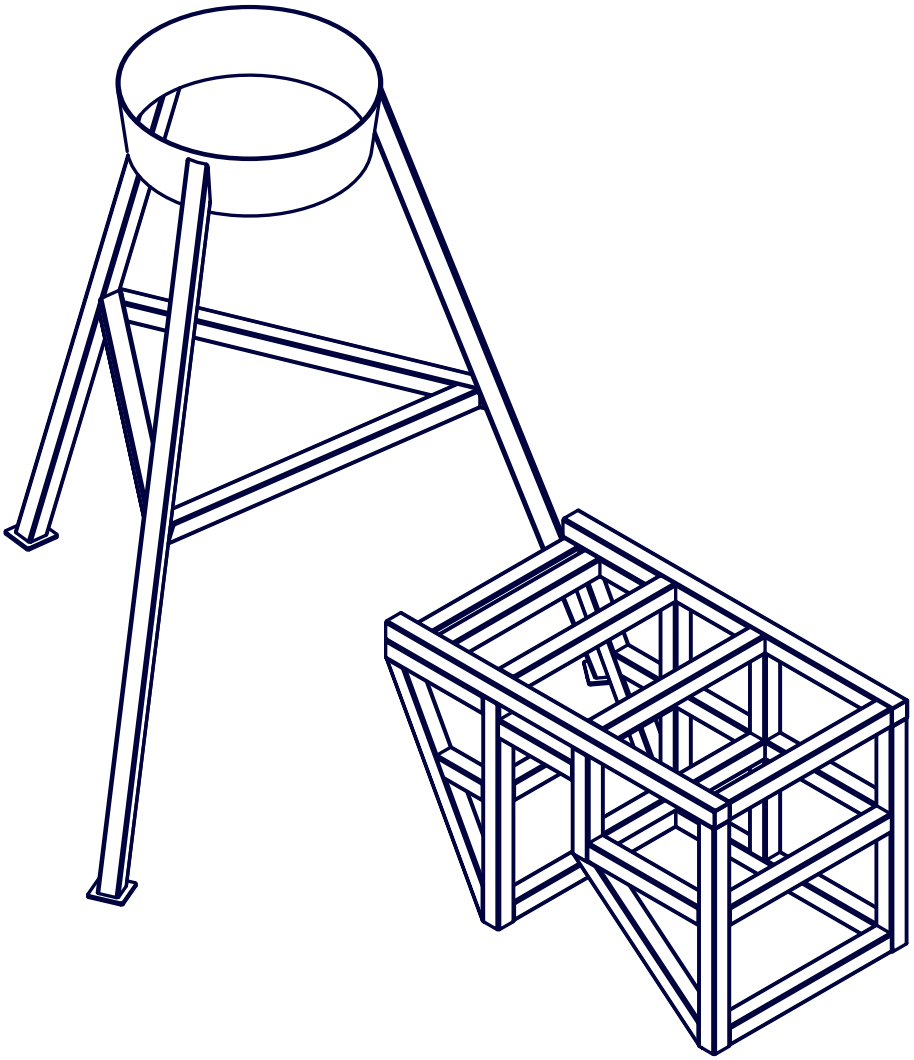
November 2022

Multipurpose hammermill

Able to great fresh material and mill dried products.

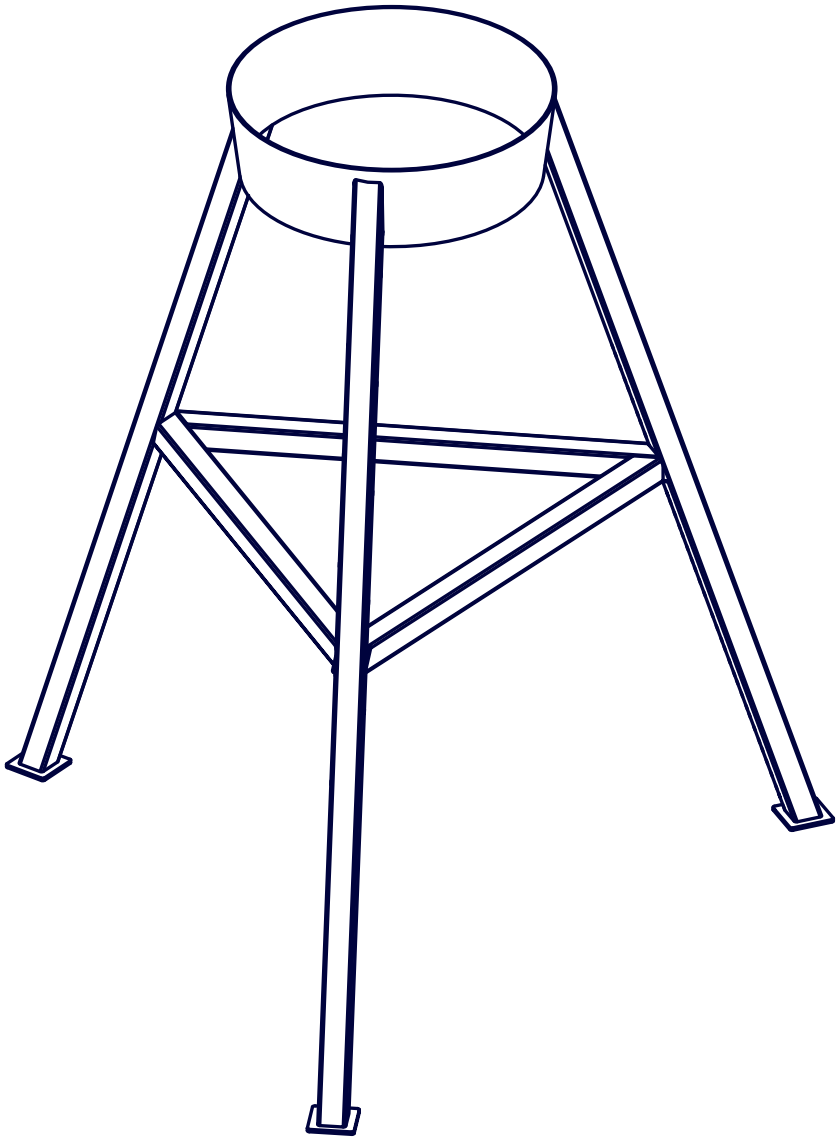


Base



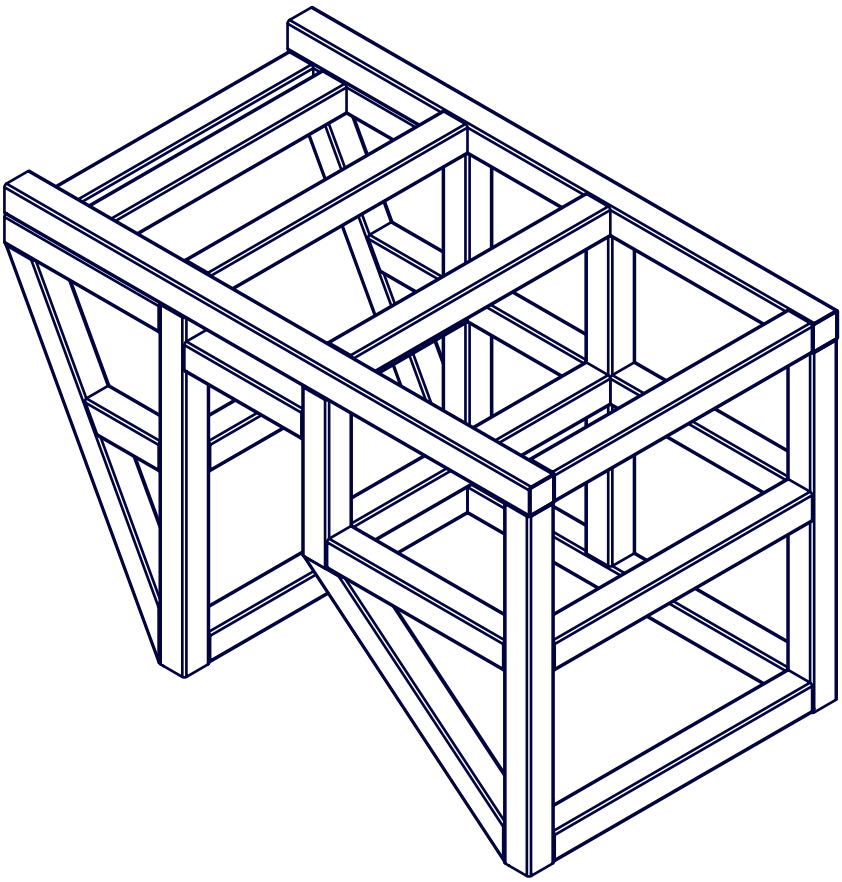
Cyclone support

Built with 60 mm × 60 mm square mild steel tubes with 3 mm thick walls, or similar material. It should be coated with corrosion-resistant paint.



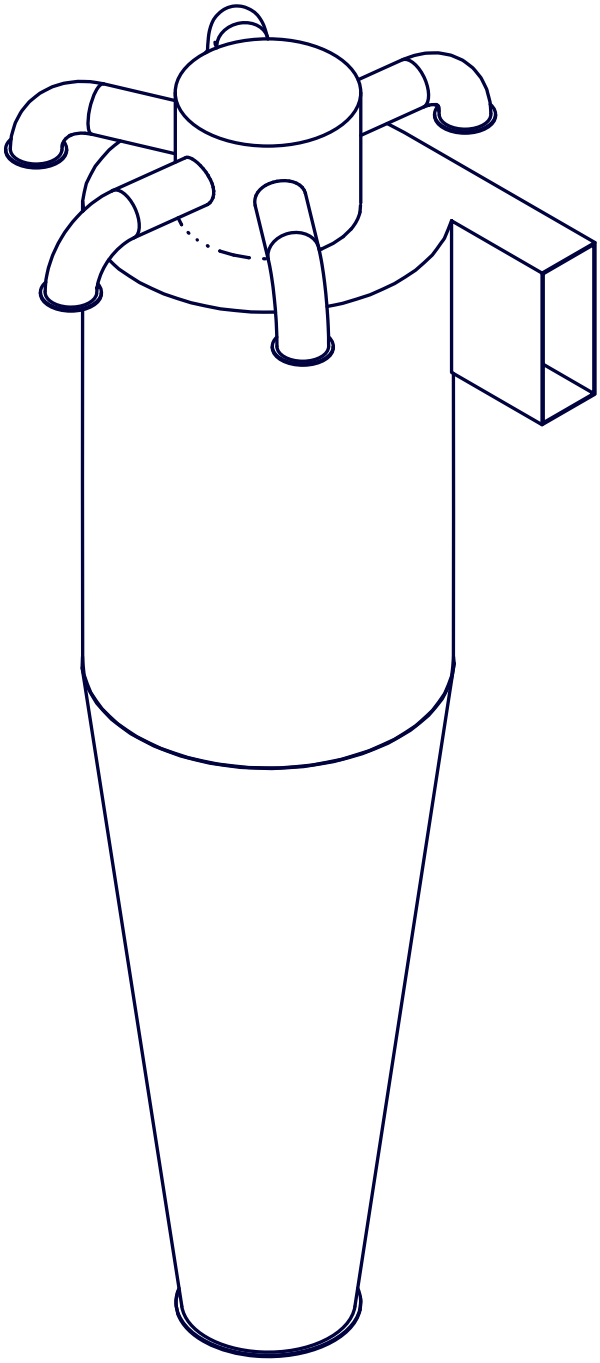
Hammermill support

Built with 60 mm × 60 mm square mild steel tubes with 3 mm thick walls, or similar material. It should be coated with corrosion-resistant paint.



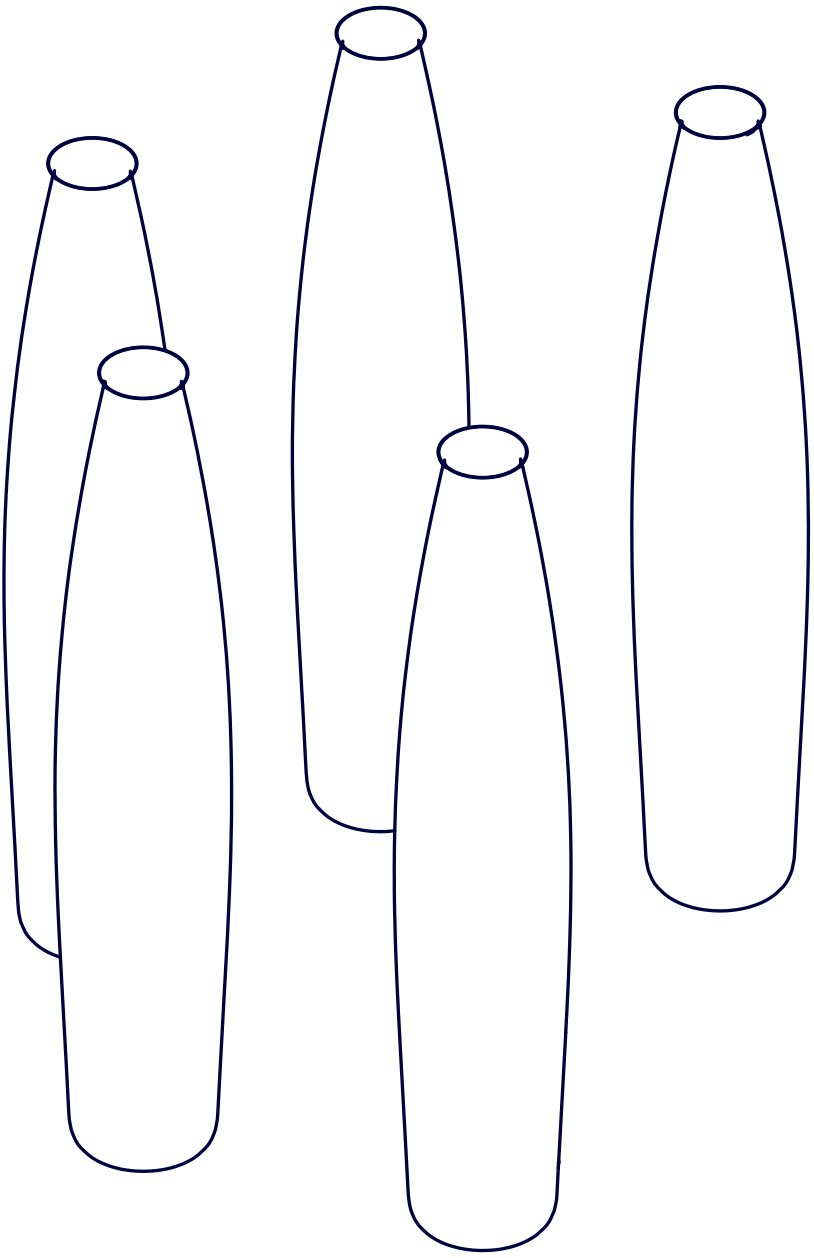
Cyclone separator

Built with 3 mm thick stainless steel sheets but could also be built with thinner material.



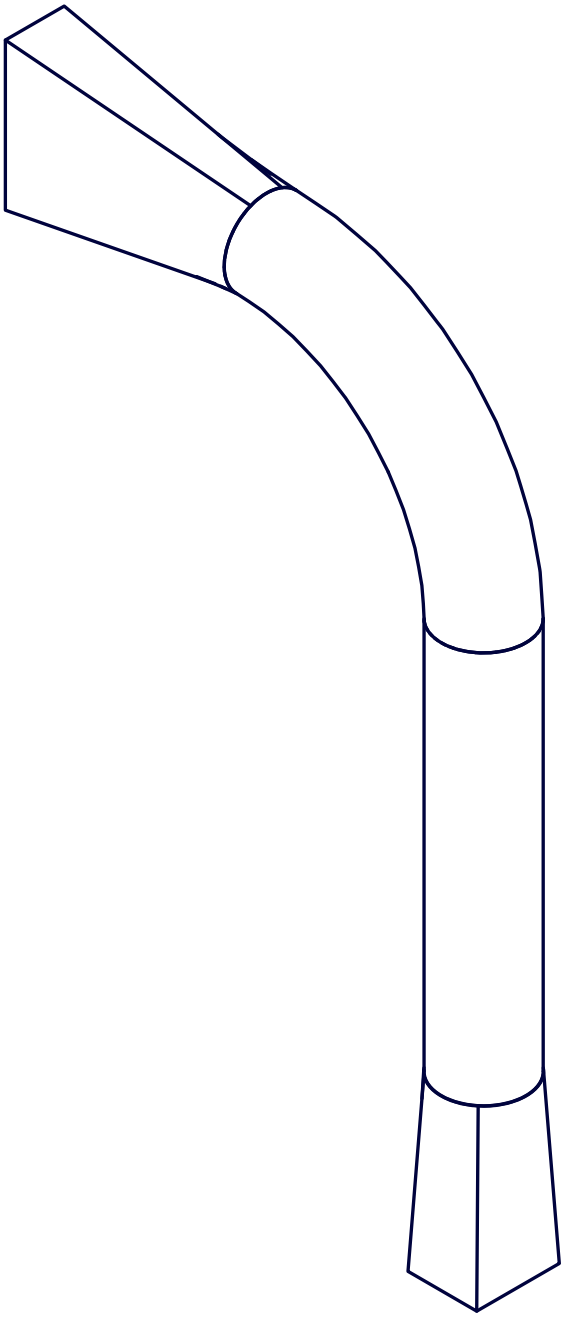
Cyclone filter bags

Made of cotton fabric, attached to the cyclone air outlet to avoid dust.



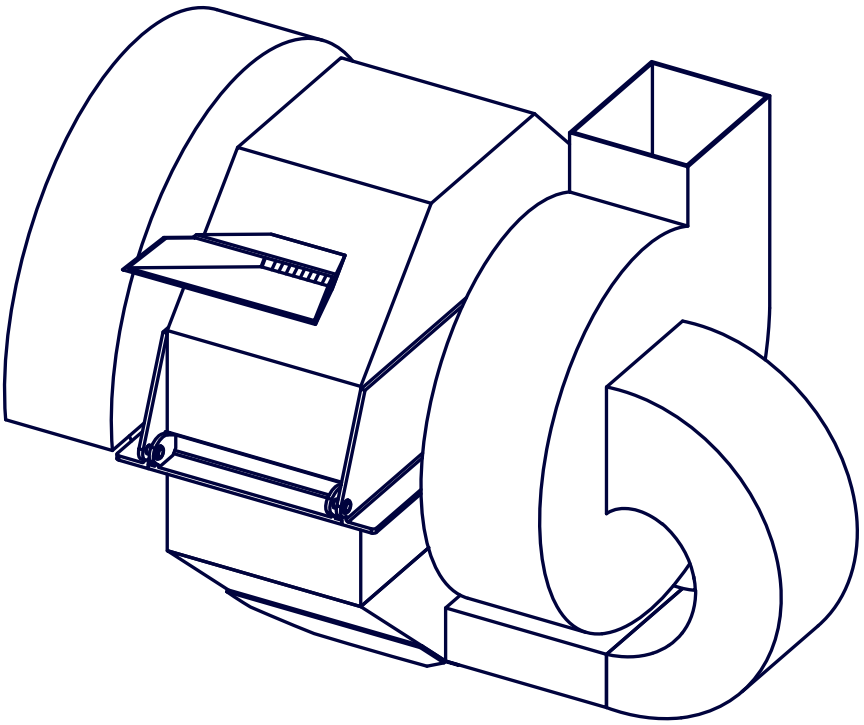
Duct to cyclone

Built with 3 mm thick stainless steel sheets but could also be built with thinner material.



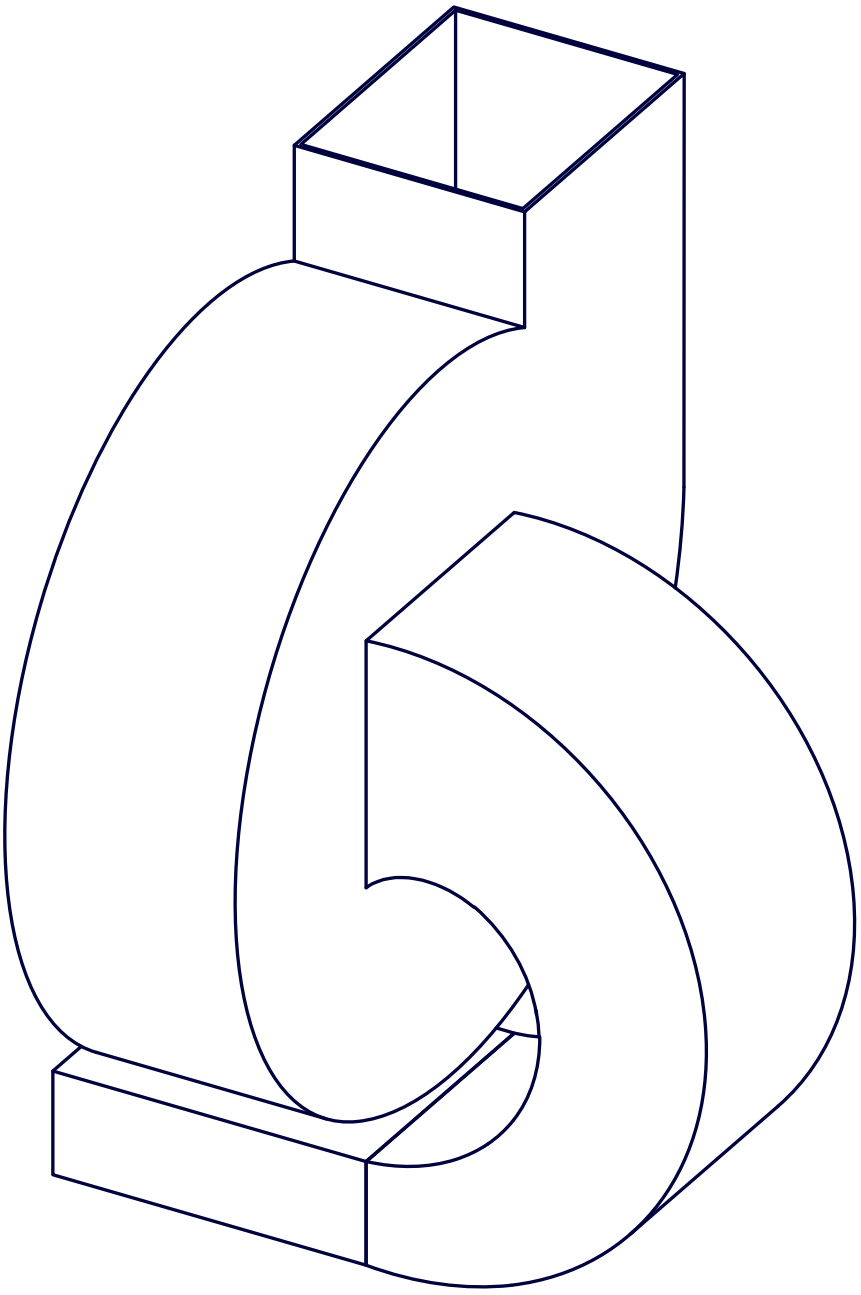
Hammermill blower

The fan creates a negative pressure forcing the dried material to move.



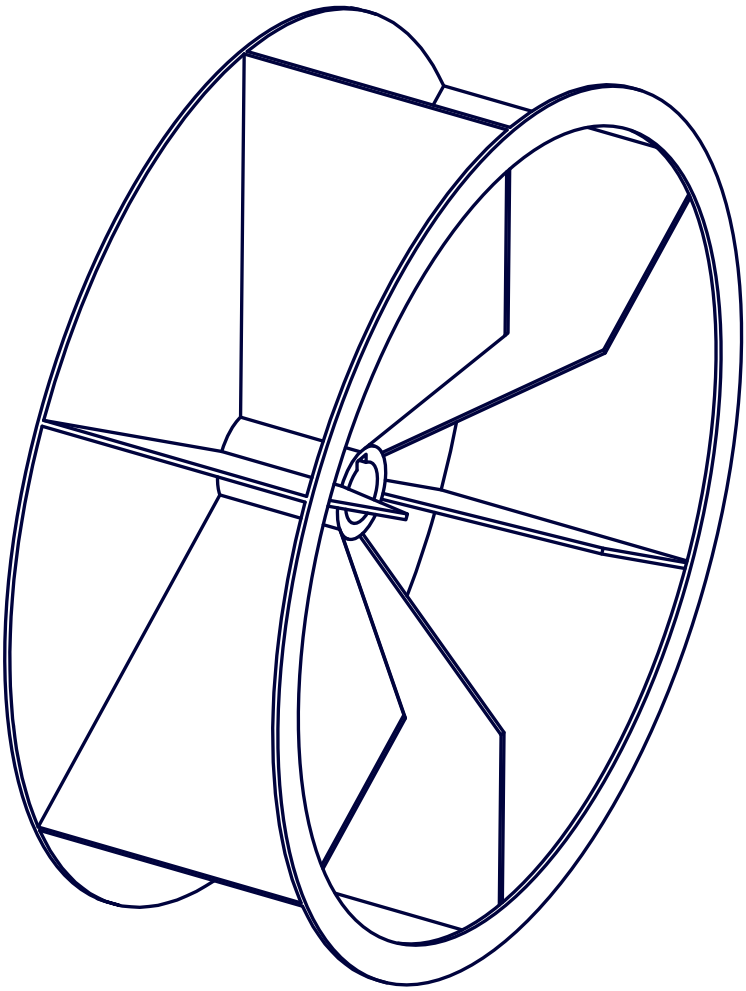
Hammermill’s blower

Built with 3 mm thick stainless steel sheets.



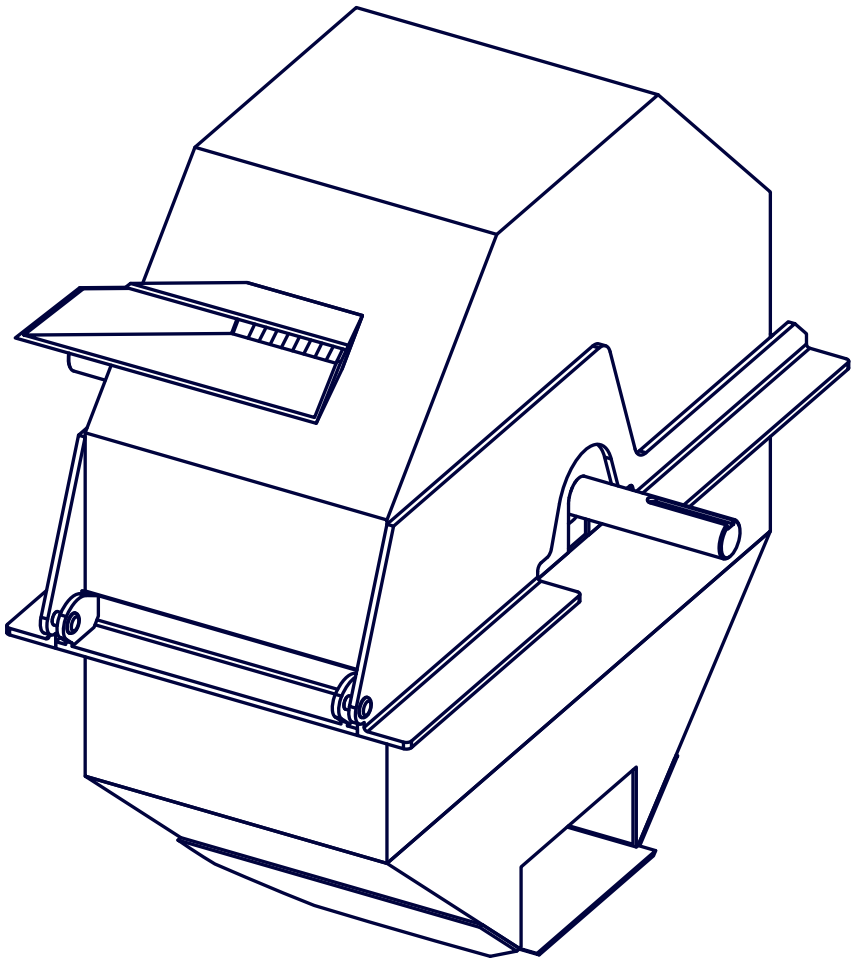
Blower impeller

Also built with 3 mm thick stainless steel sheets.



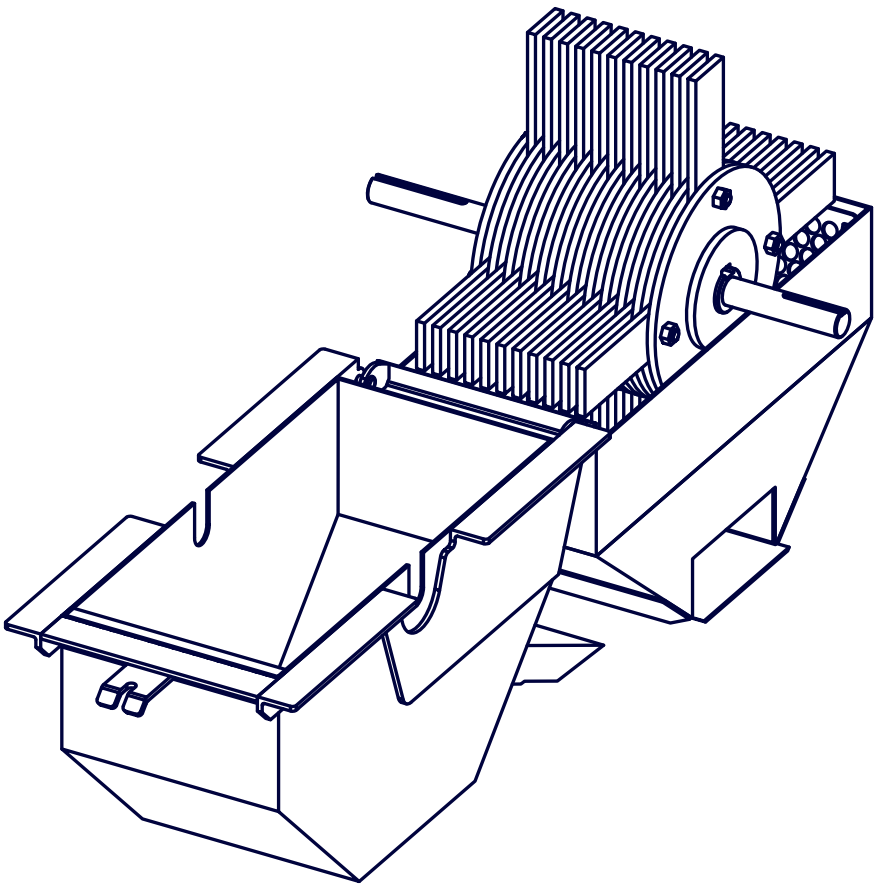
Hammermill housing

Built with 3 mm thick stainless steel sheets. Reinforcement built with 6 mm thick mild steel.



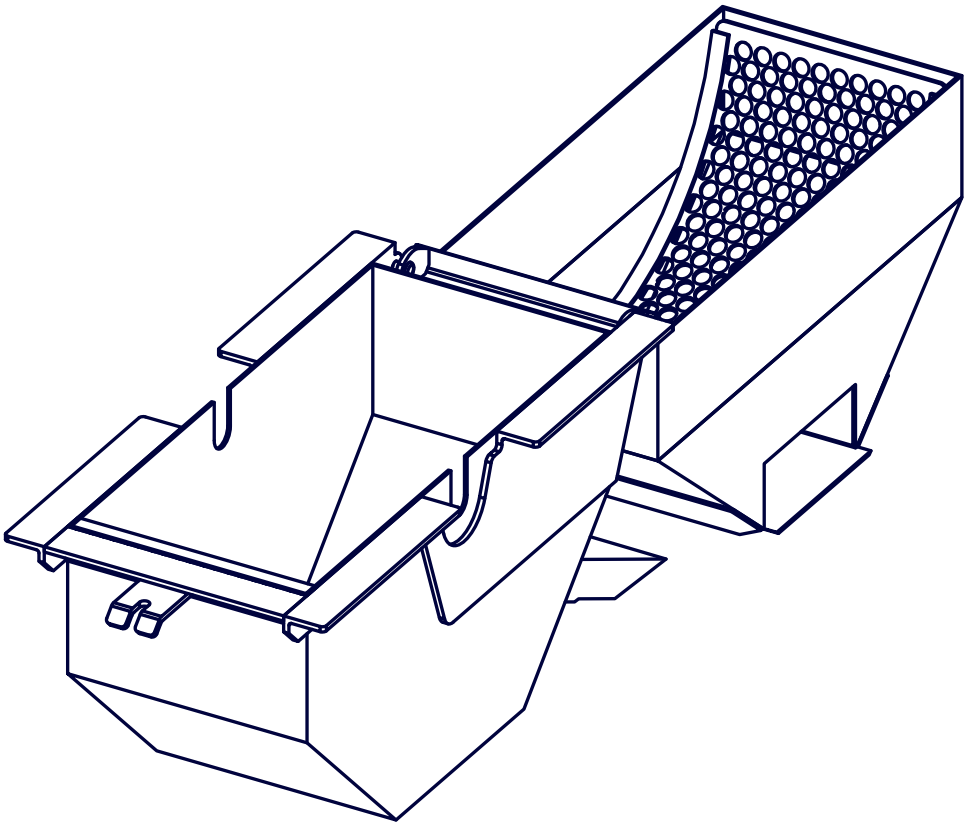
Hammermill housing

Can be open for swapping the mesh



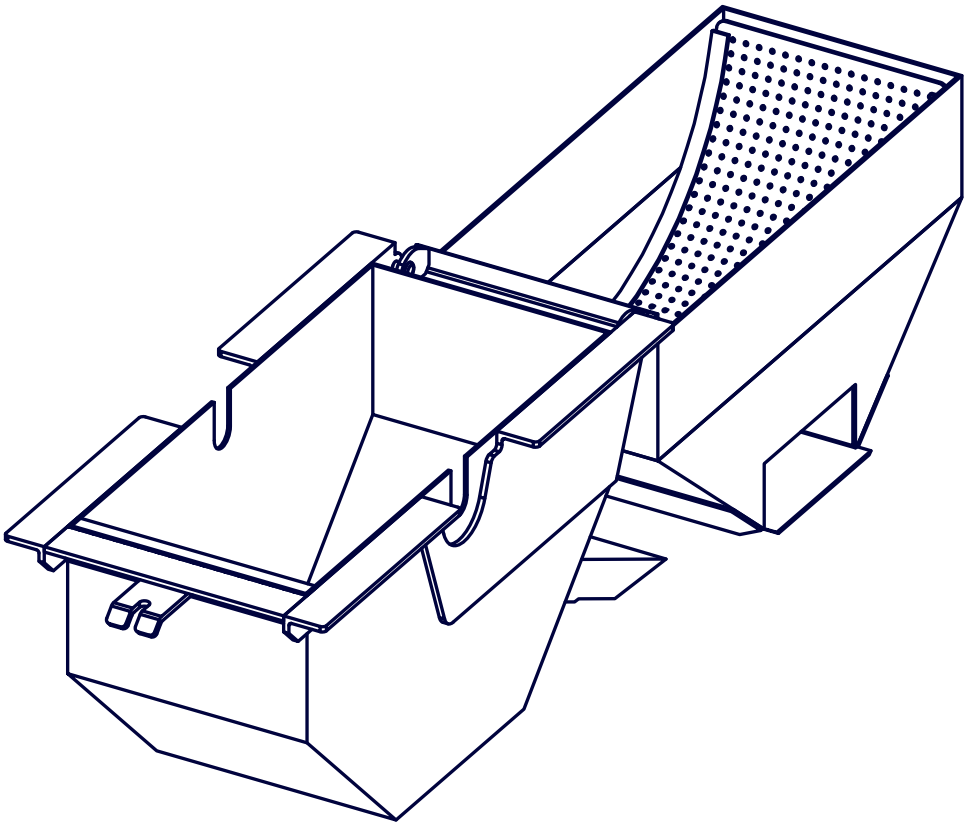
Hammermill mesh

Coarser mesh is used to grate fresh material.



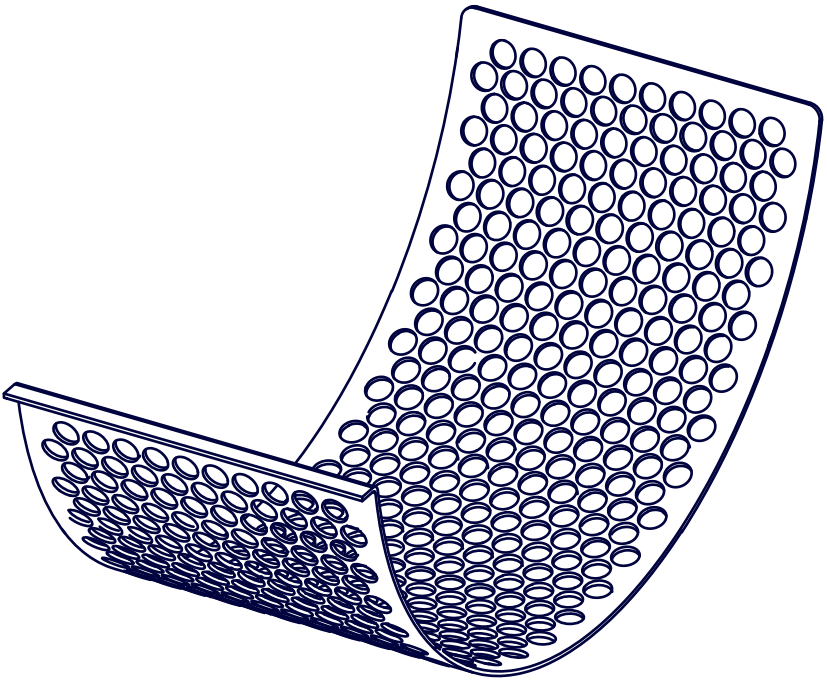
Hammermill mesh

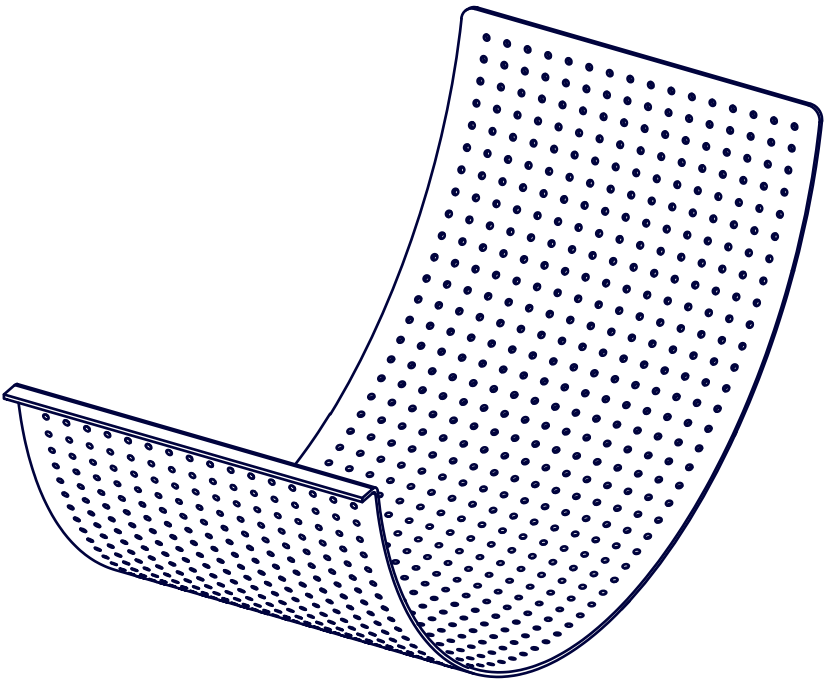
with thinner mesh is used to mill dried material.



Hammermill mesh

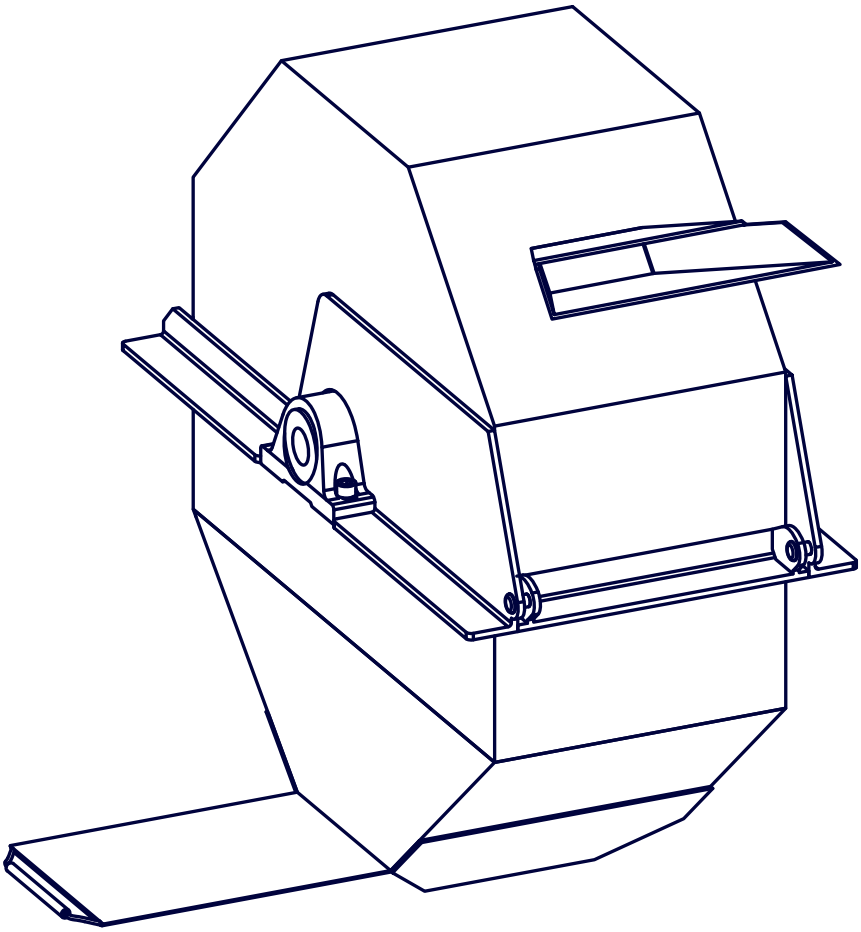
Made of stainless-steel, 3 mm thick.





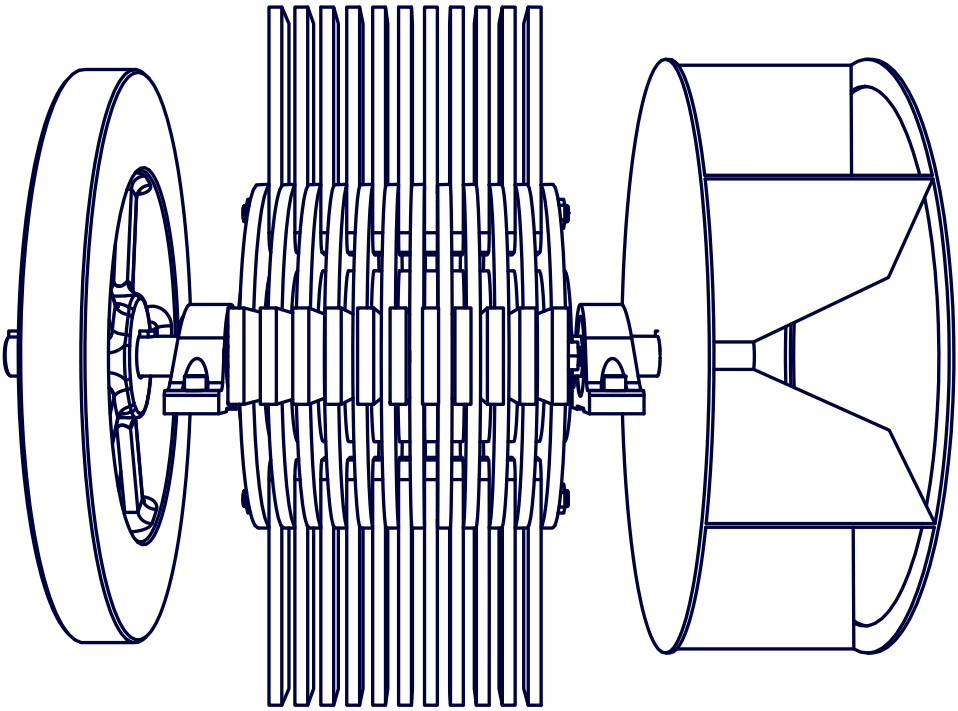
Sliding door at the bottom

Is open for grating fresh products.



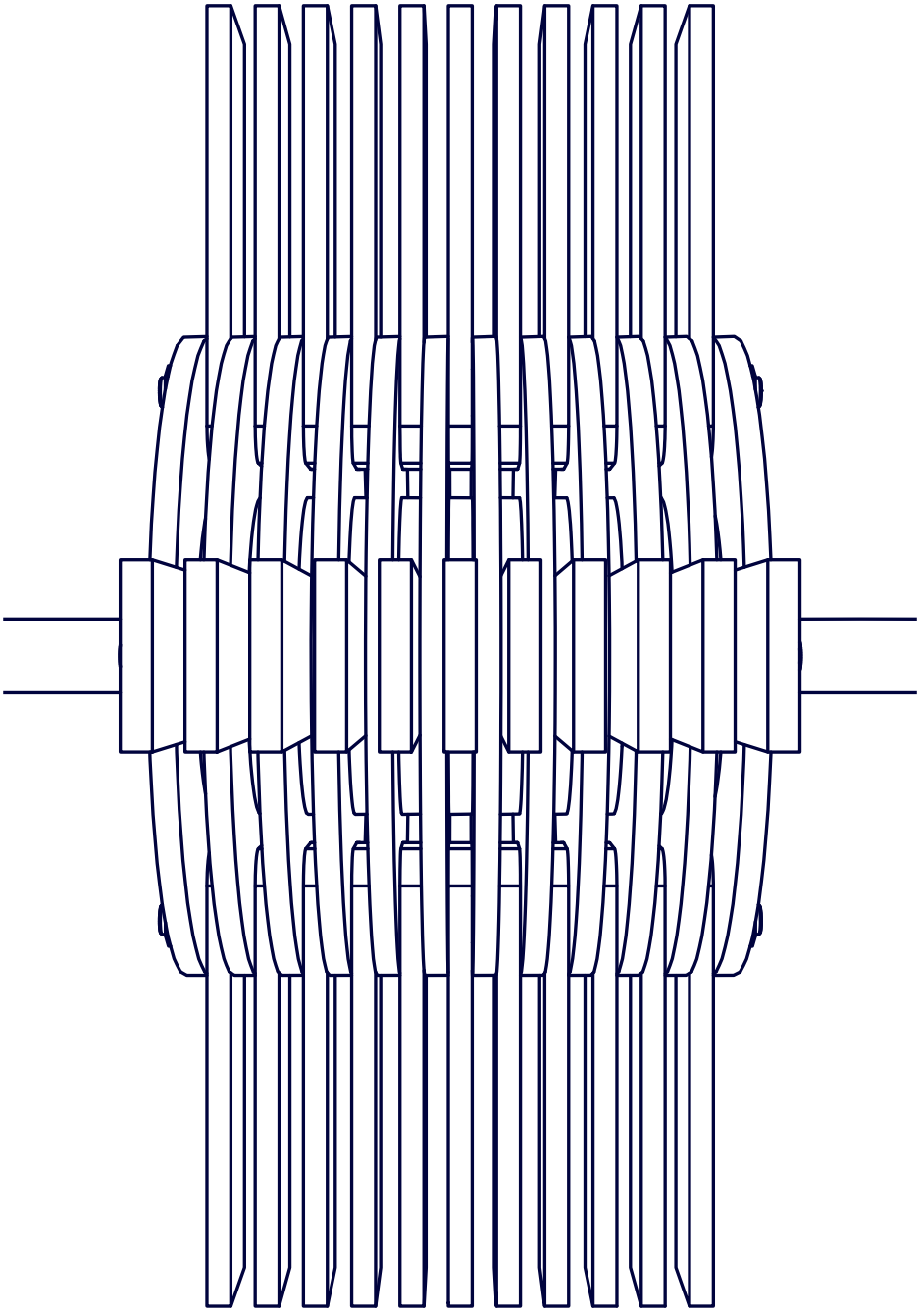
Flywheel, rotor, impeller

All at the same shaft, directly connected to the motor shaft. The shaft is held by ball bearings.



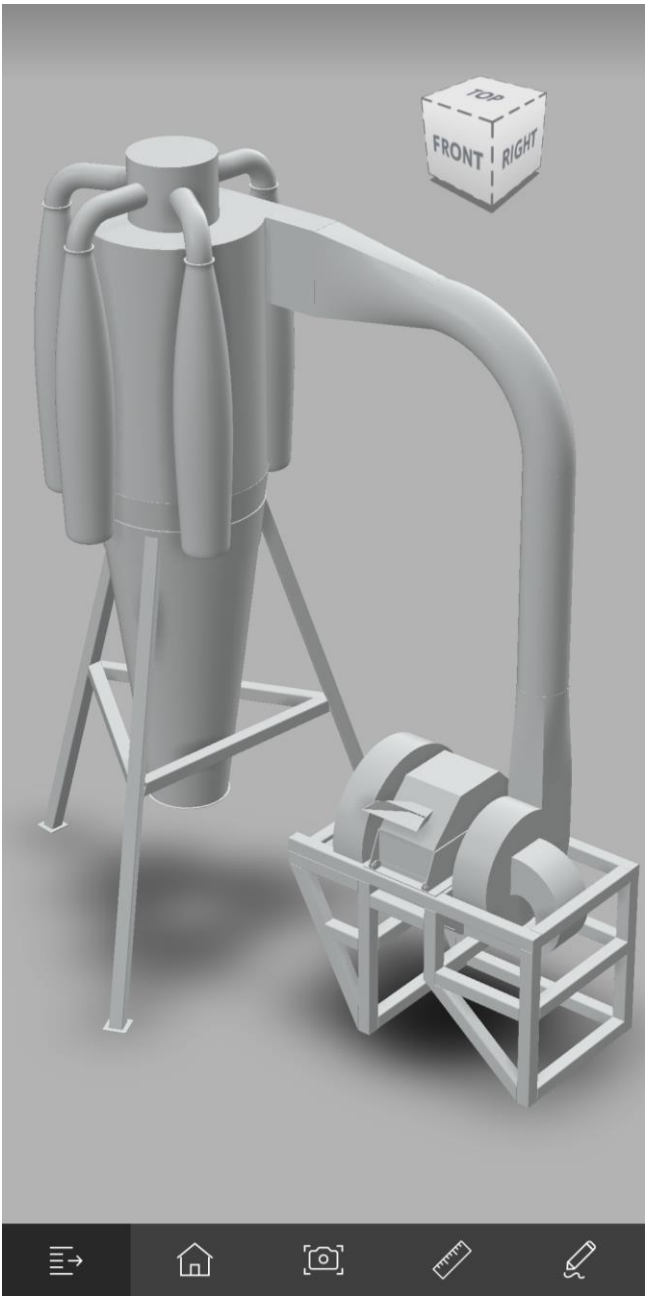
Hammers, rods, spacers

Made of 10 mm thick stainless steel.



3D CAD model download

https://a360.co/3twVLAj
https://autode.sk/3TBodLL
https://bit.ly/3OazGAU

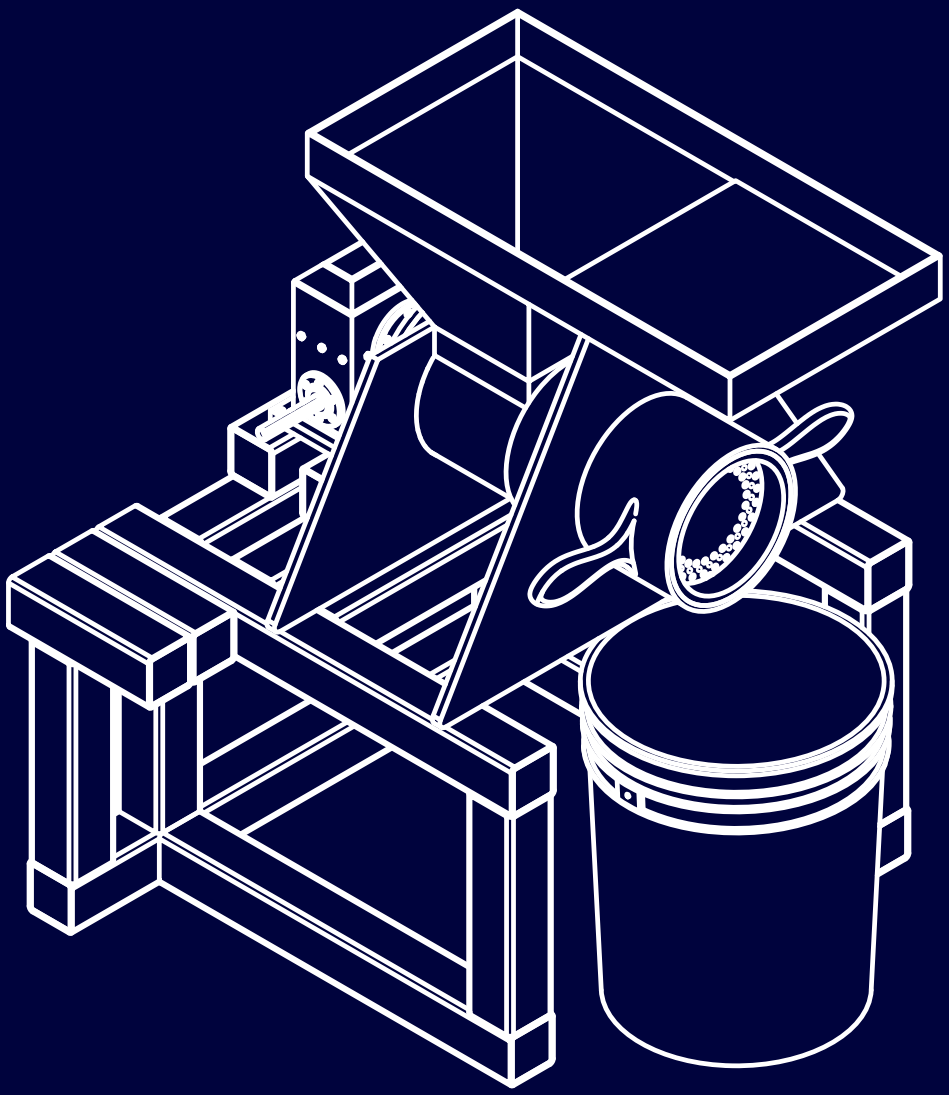


UNIVERSITY OF GREENWICH

Natural Resources Institute

Pellet Machine

Construction guide



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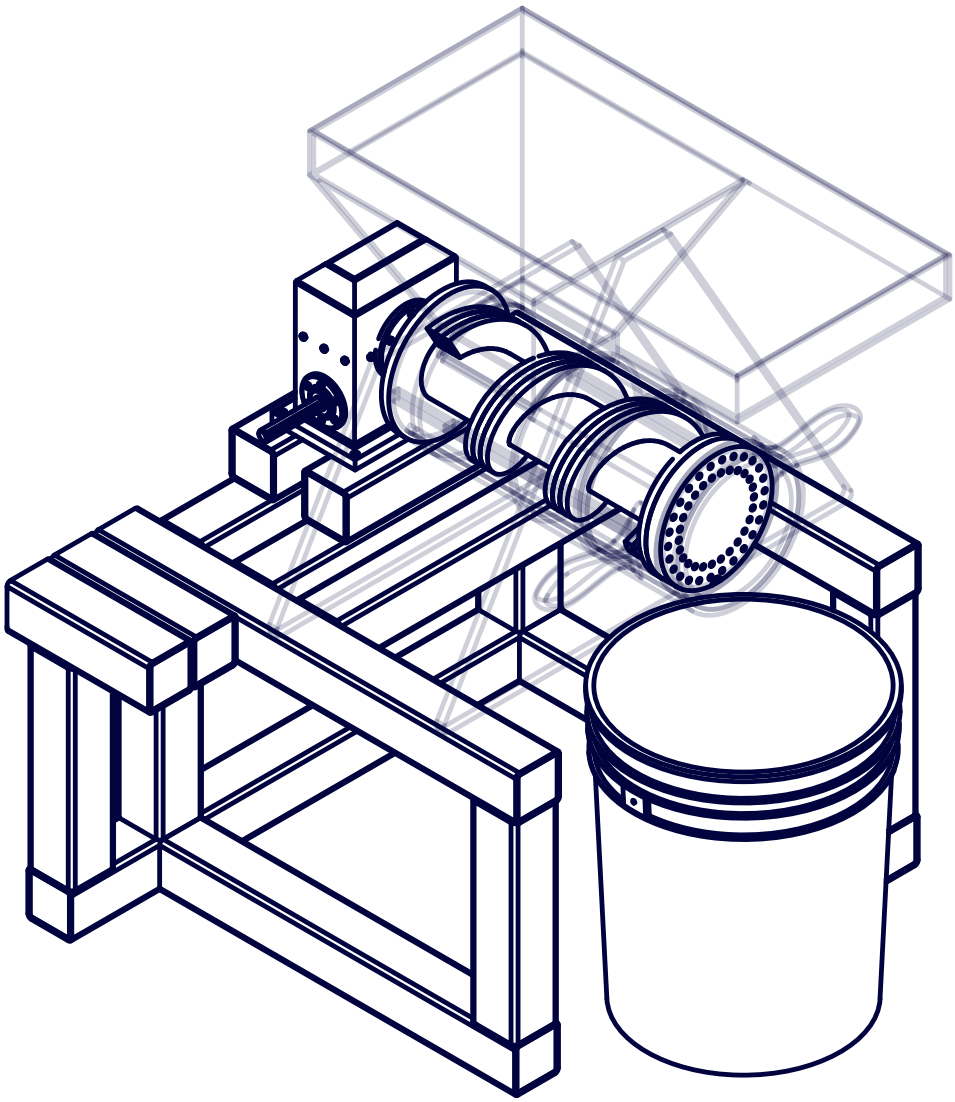
UNIVERSITY OF GREENWICH
Natural Resources Institute

December 2022

Pellet Machine

This simplified pellet machine consists of a rotating screw firmly fitted inside a stationary cylinder.

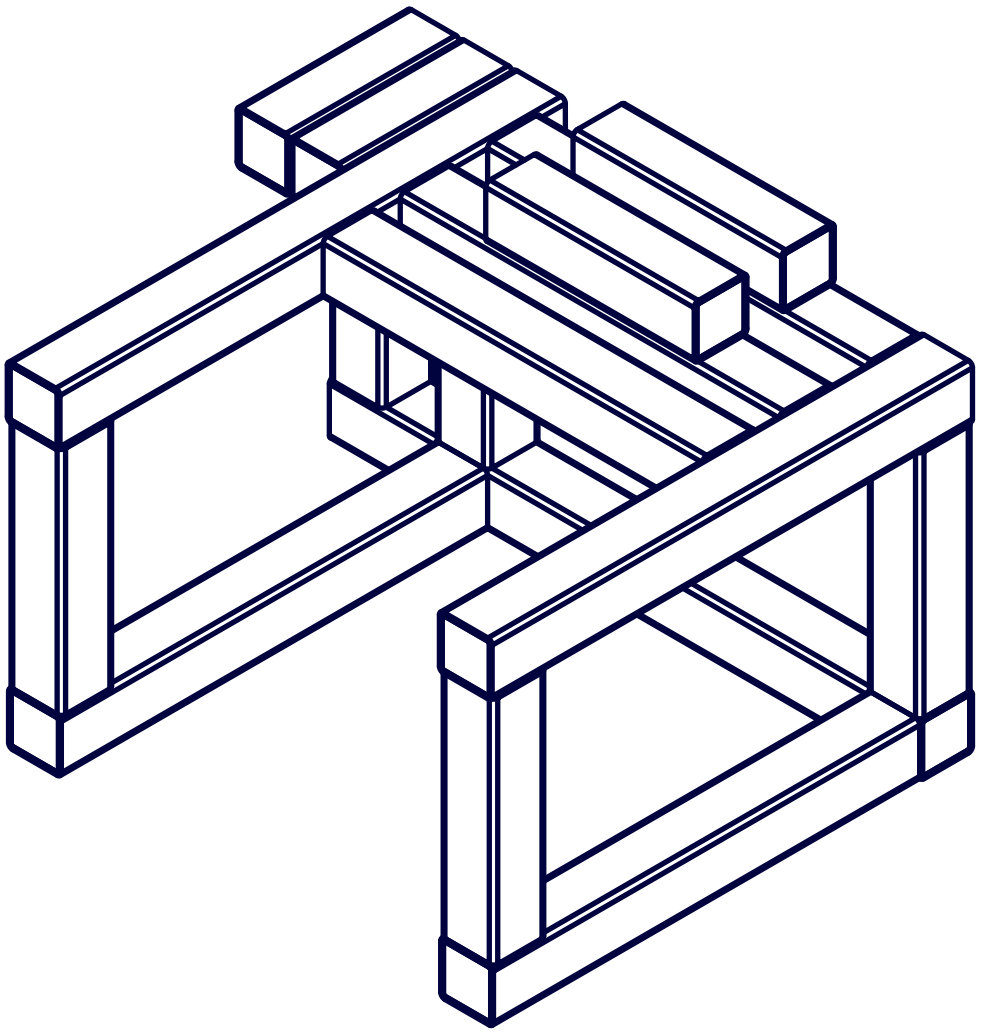


Equipment overview

Equipment overview

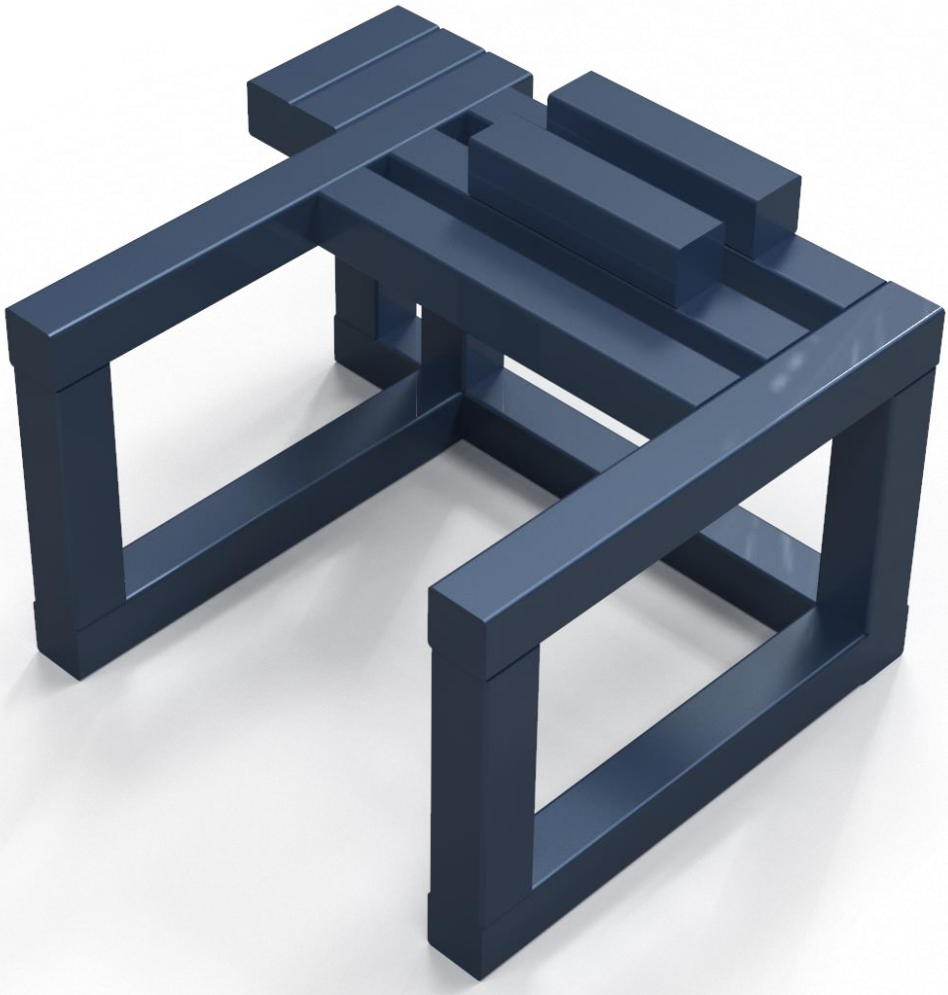
Pellet machine base

Constructed of 6.0 cm x 6.0 cm square mild steel tubing with 0.3 cm thick walls, or similar.

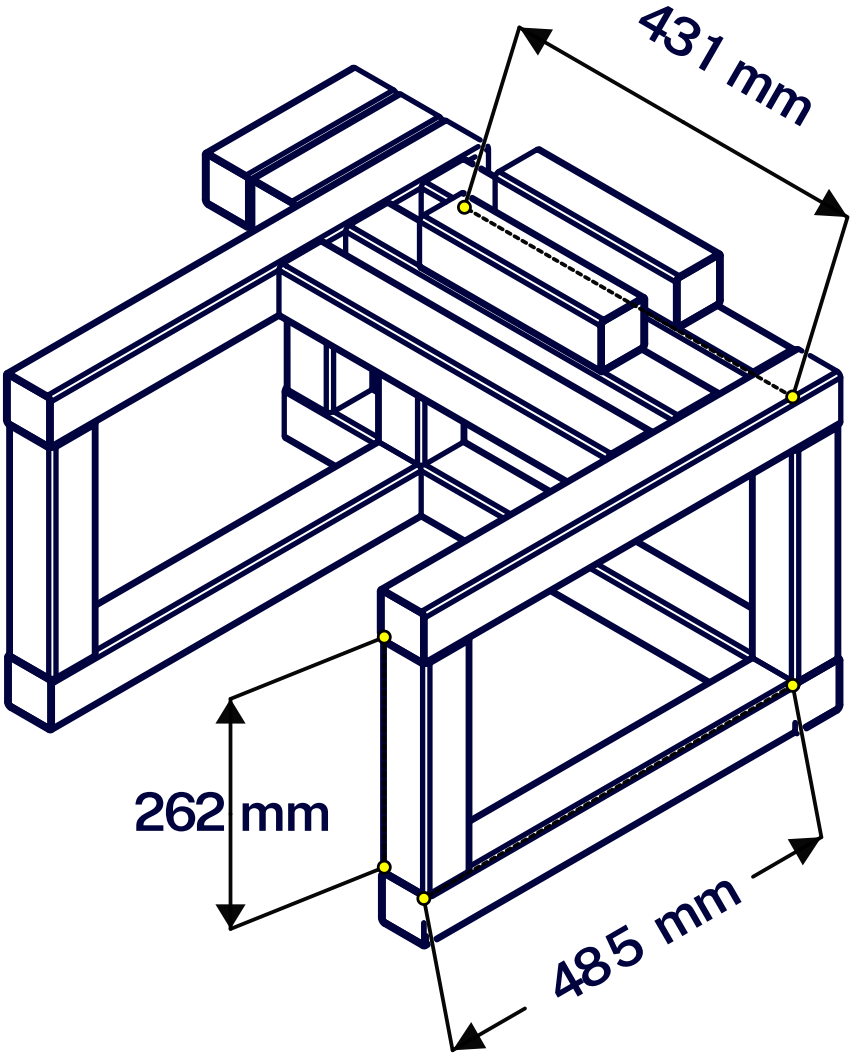


Pellet machine base

Coated with corrosion-resistant paint.

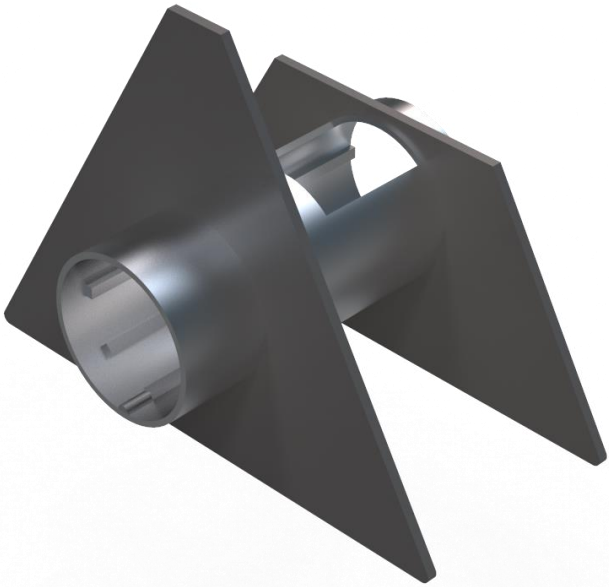


Pellet machine base

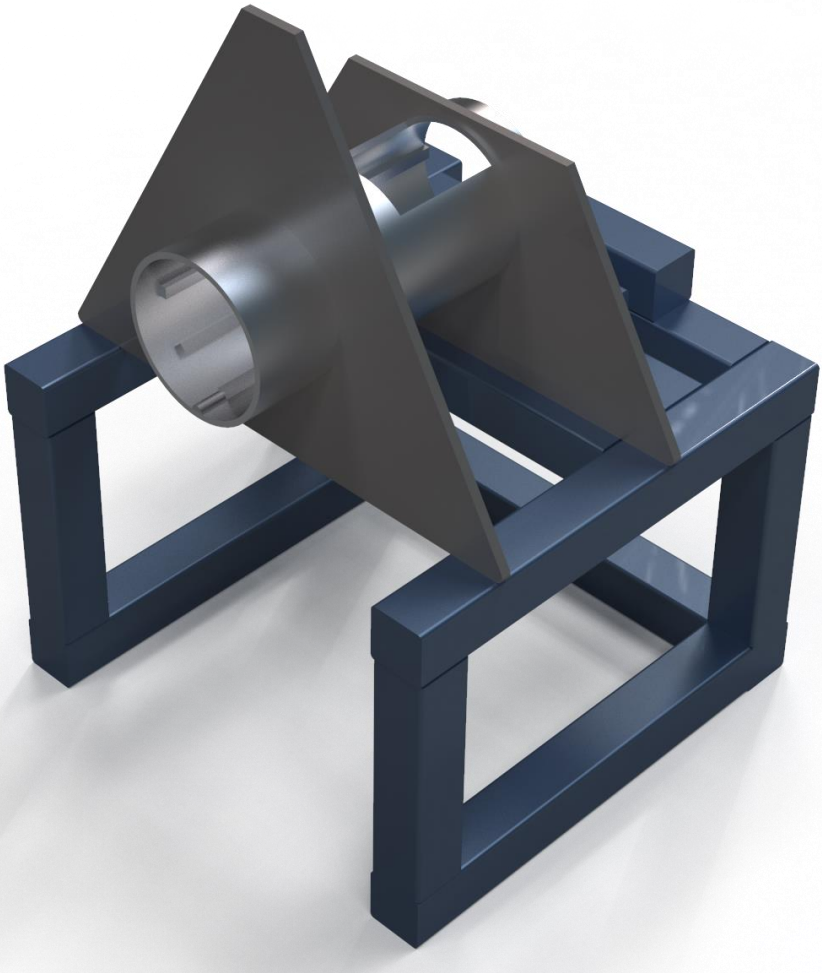


Cylinder support

Cylinder support

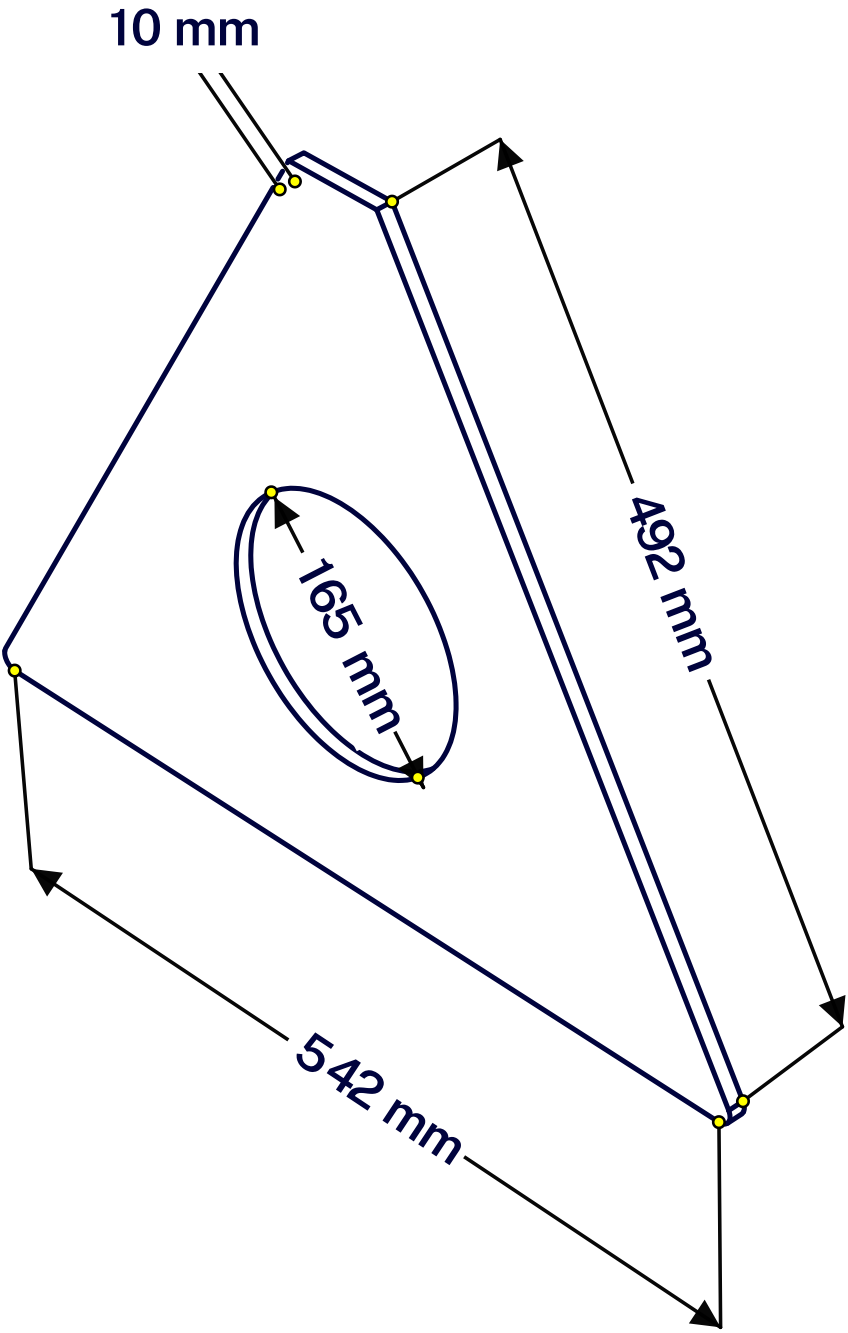


Cylinder support

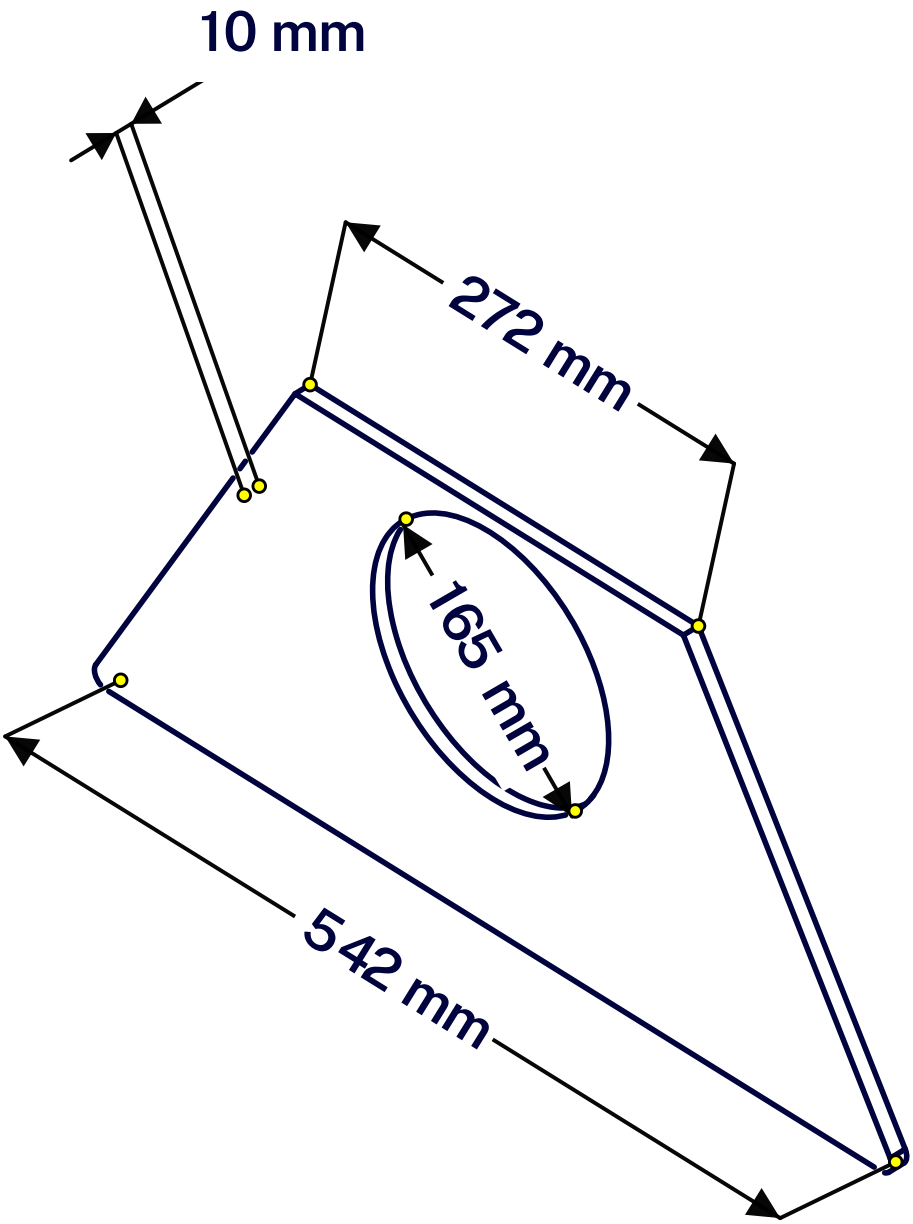


Cylinder support

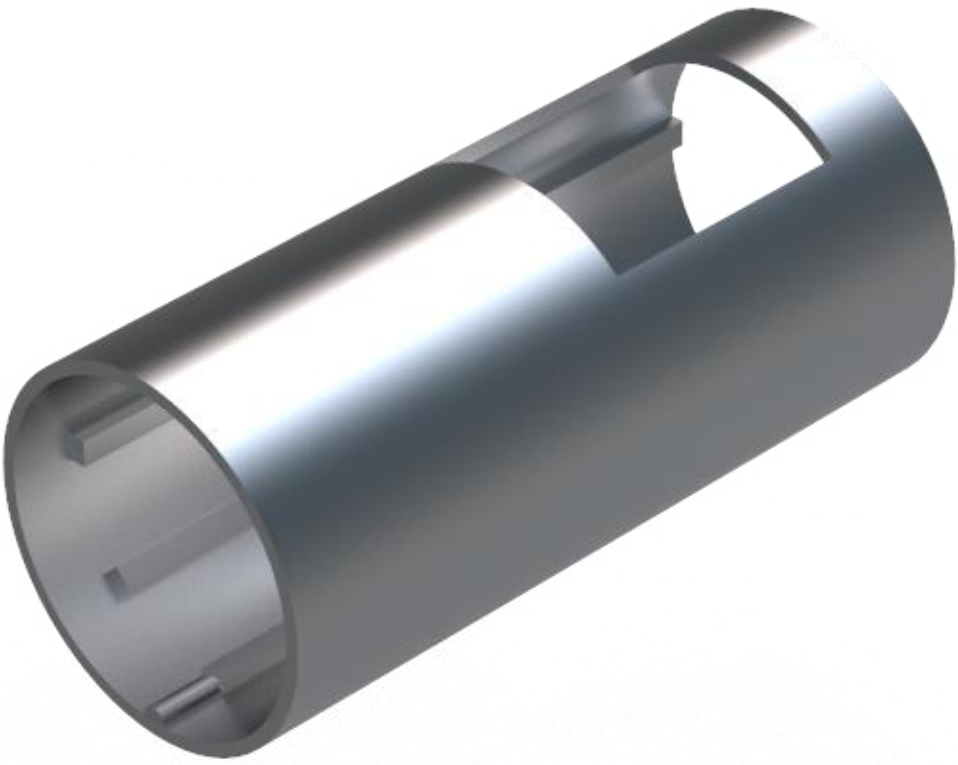
Constructed of ¼” thick mild steel (or similar) and coated with corrosion-resistant paint.



Cylinder support

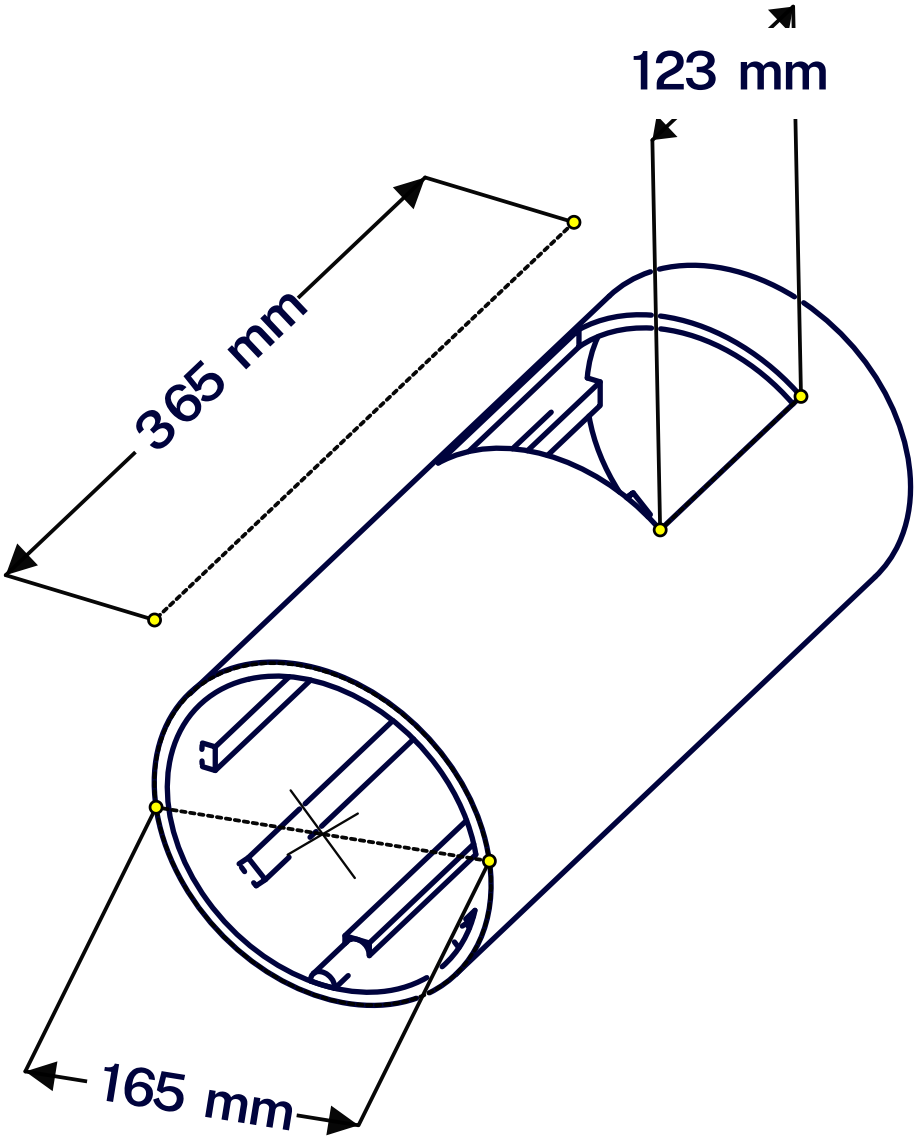


Stainless steel cylinder

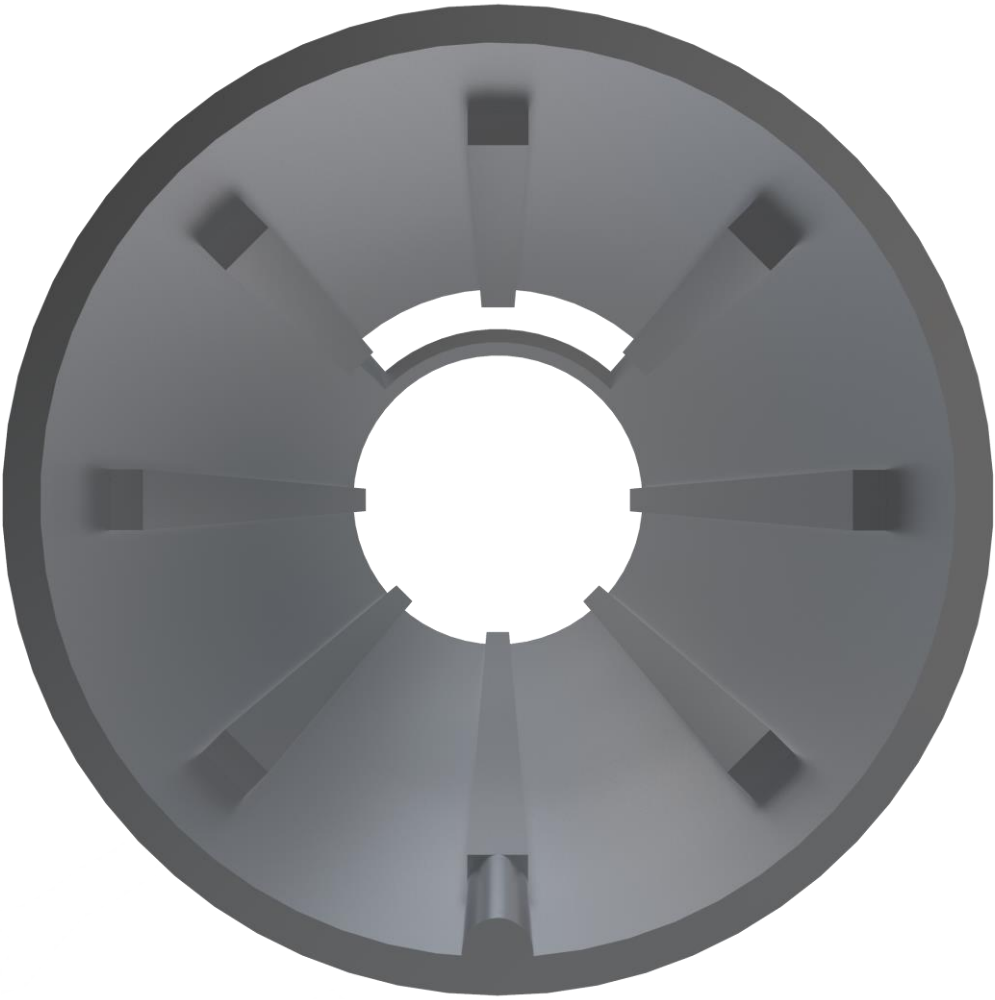


Stainless steel cylinder

Constructed with ¼” thick wall or similar.

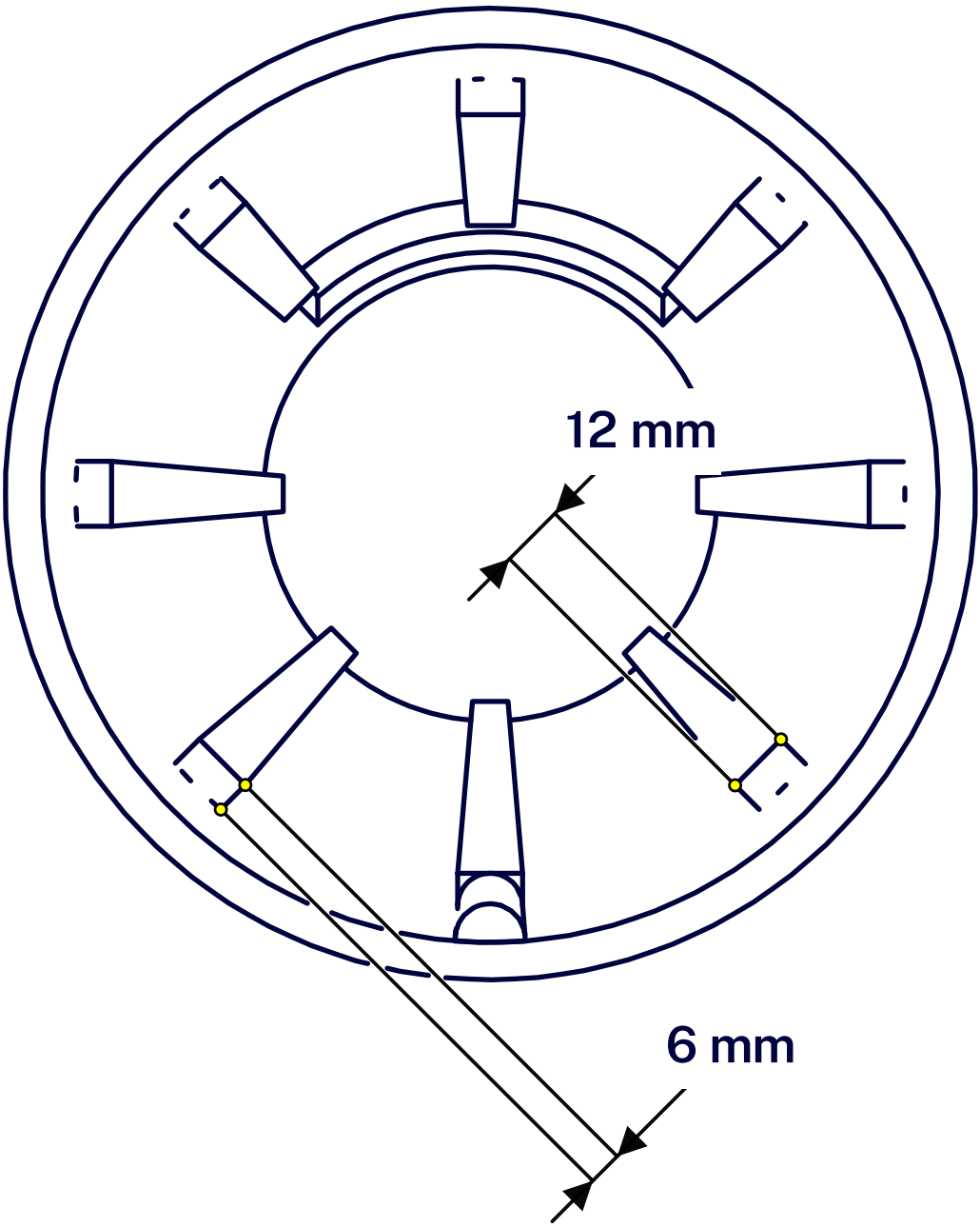


Cylinder grooves



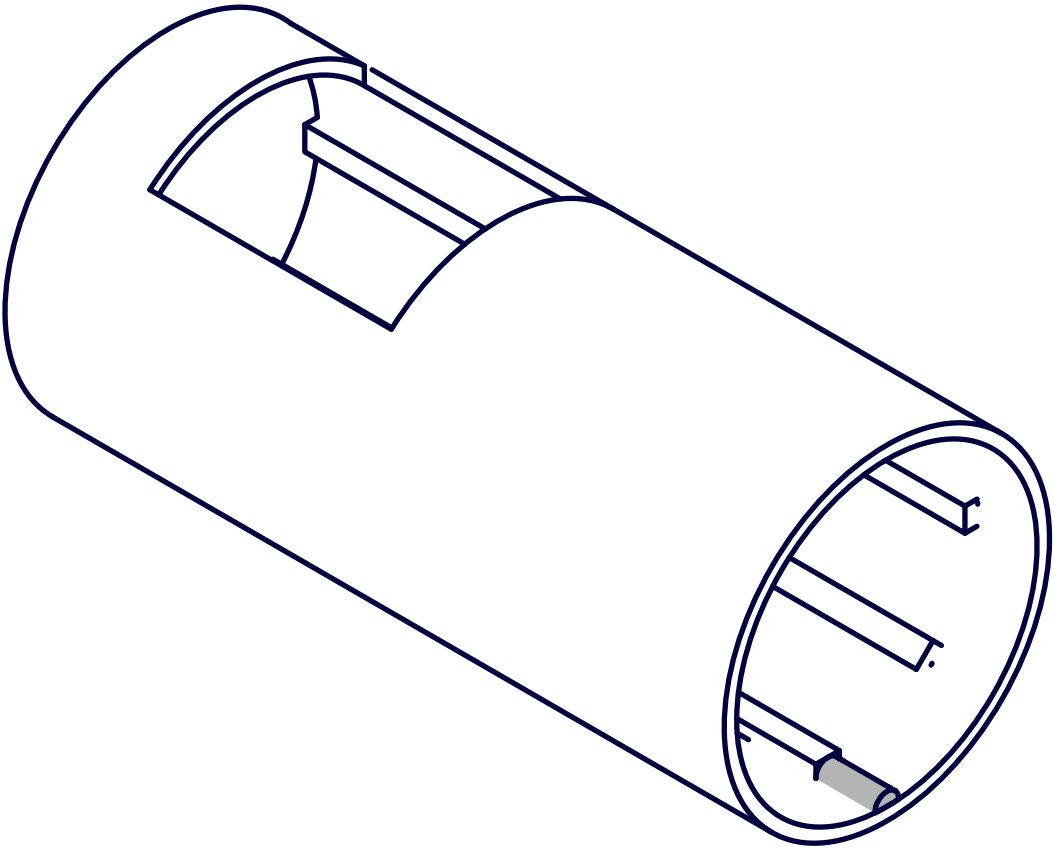
Cylinder grooves

Constructed of ¼” thick stainless steel, or similar.



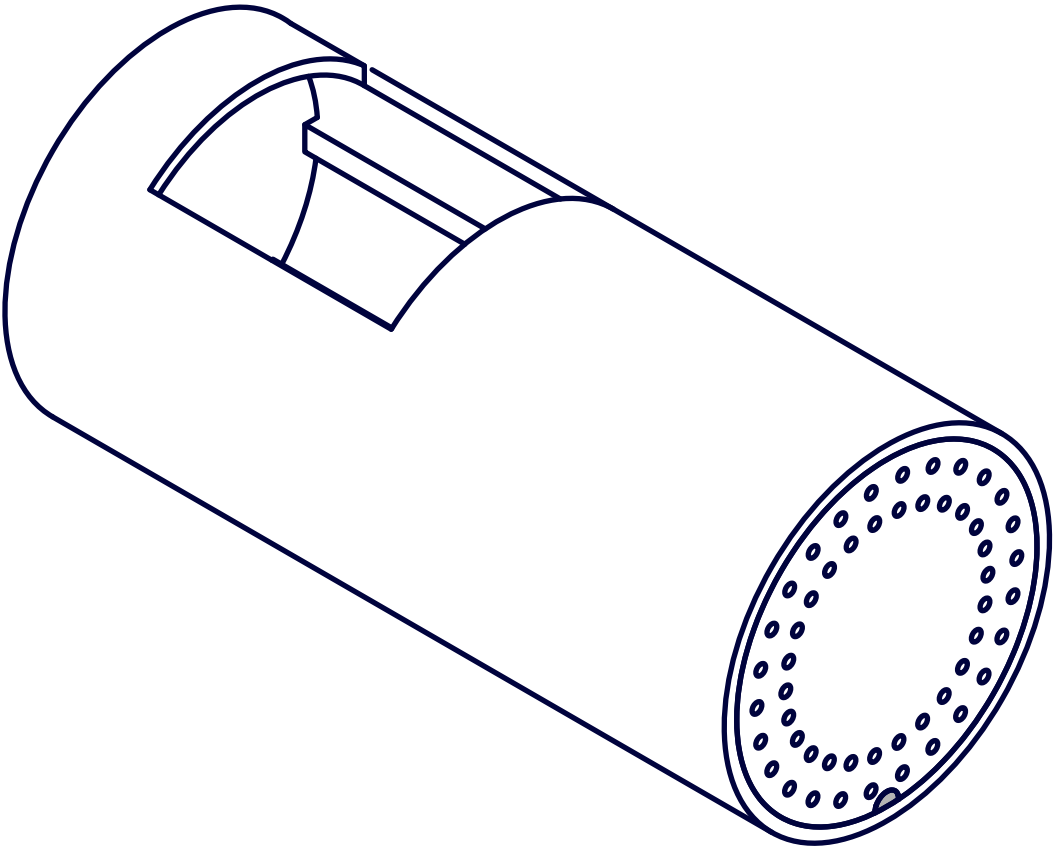
Guide for the mesh

Constructed with stainless steel.



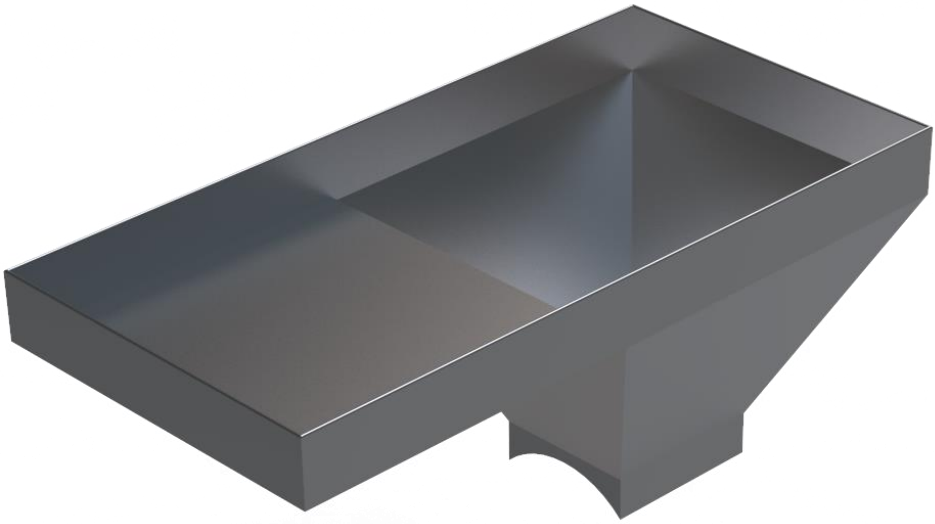
Guide for the mesh

It prevents the mesh from rotating.

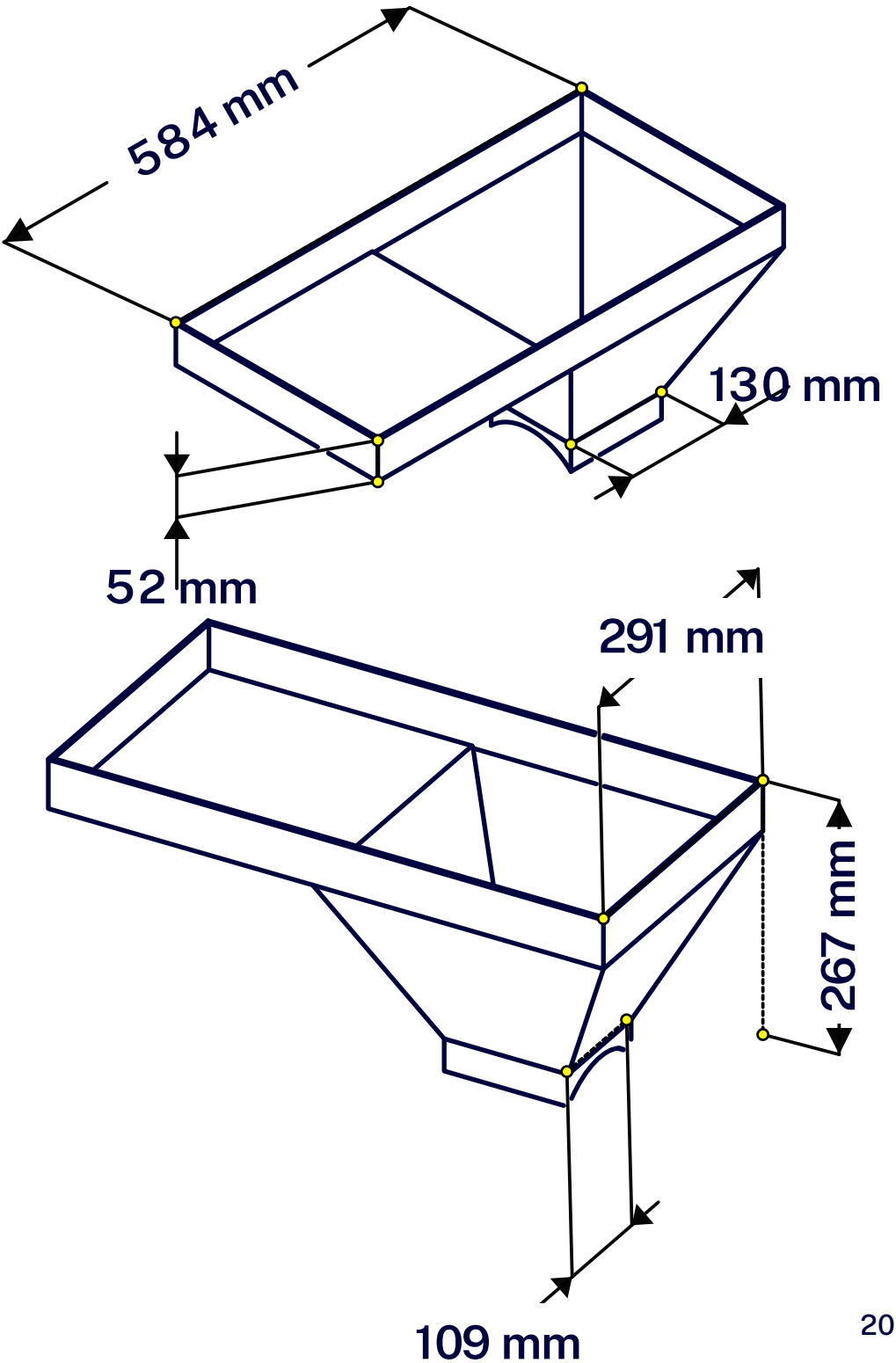


Material hopper

Constructed with 0.3 cm thick stainless steel.



Material hopper

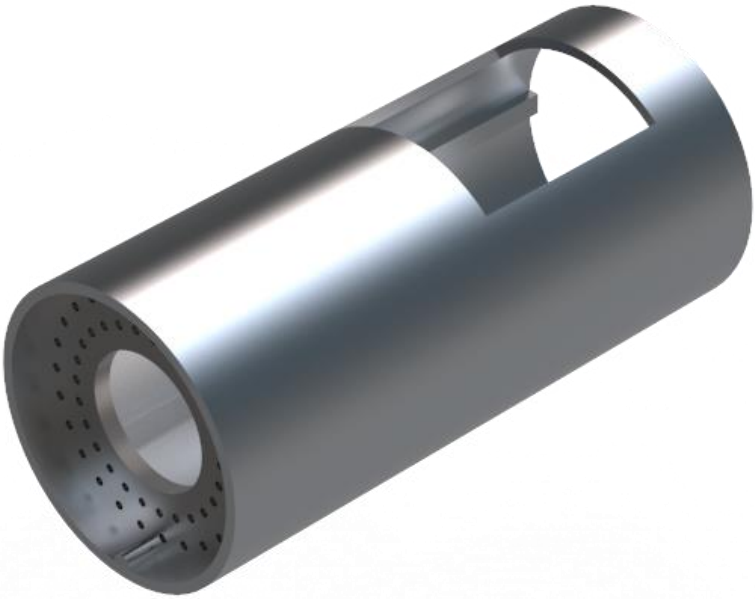


Mesh for small feed

The first mesh supports the screw.

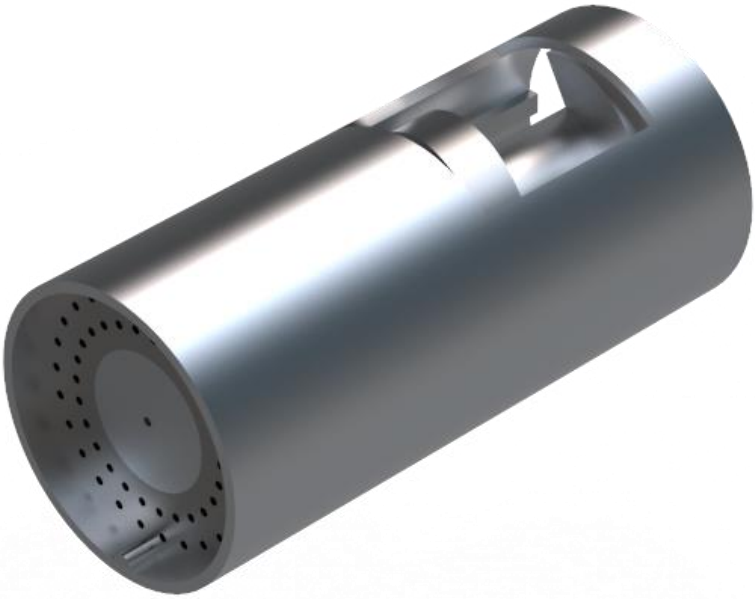
Mesh for small feed

The first mesh supports the screw.



Mesh for small feed

The first mesh supports the screw.



Mesh for small feed

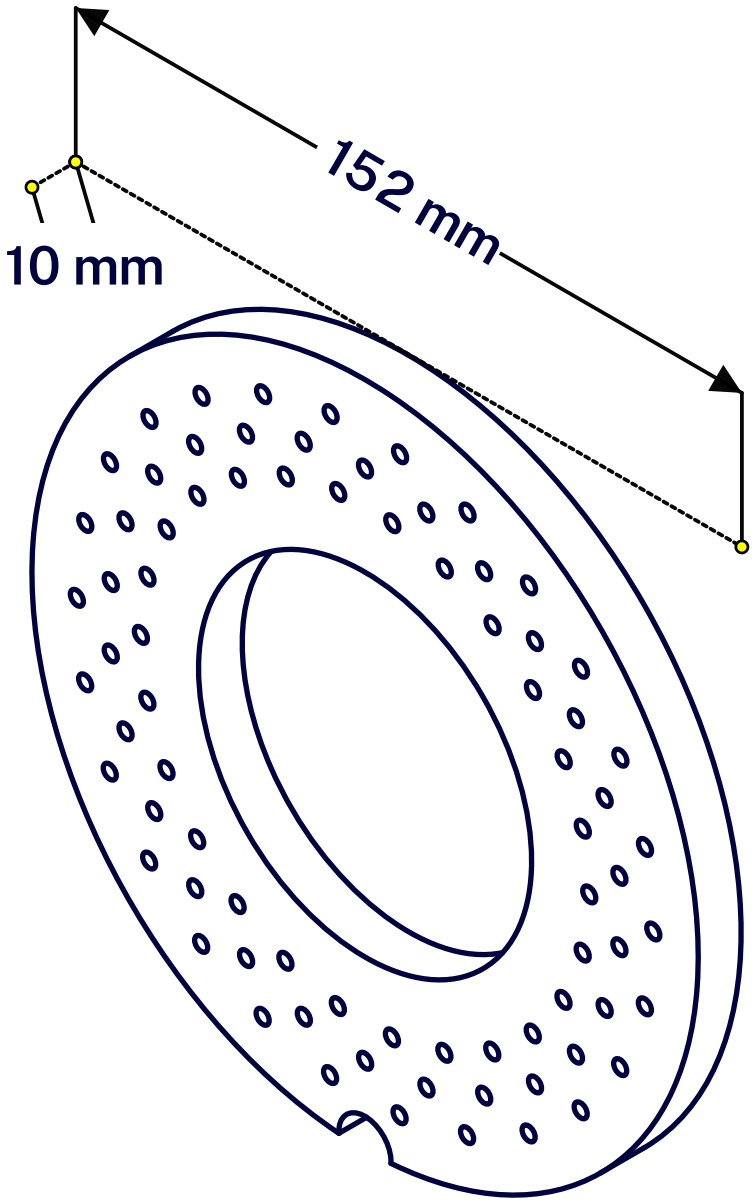
Second mesh provides strength.

Mesh for small feed

Second mesh provides strength.

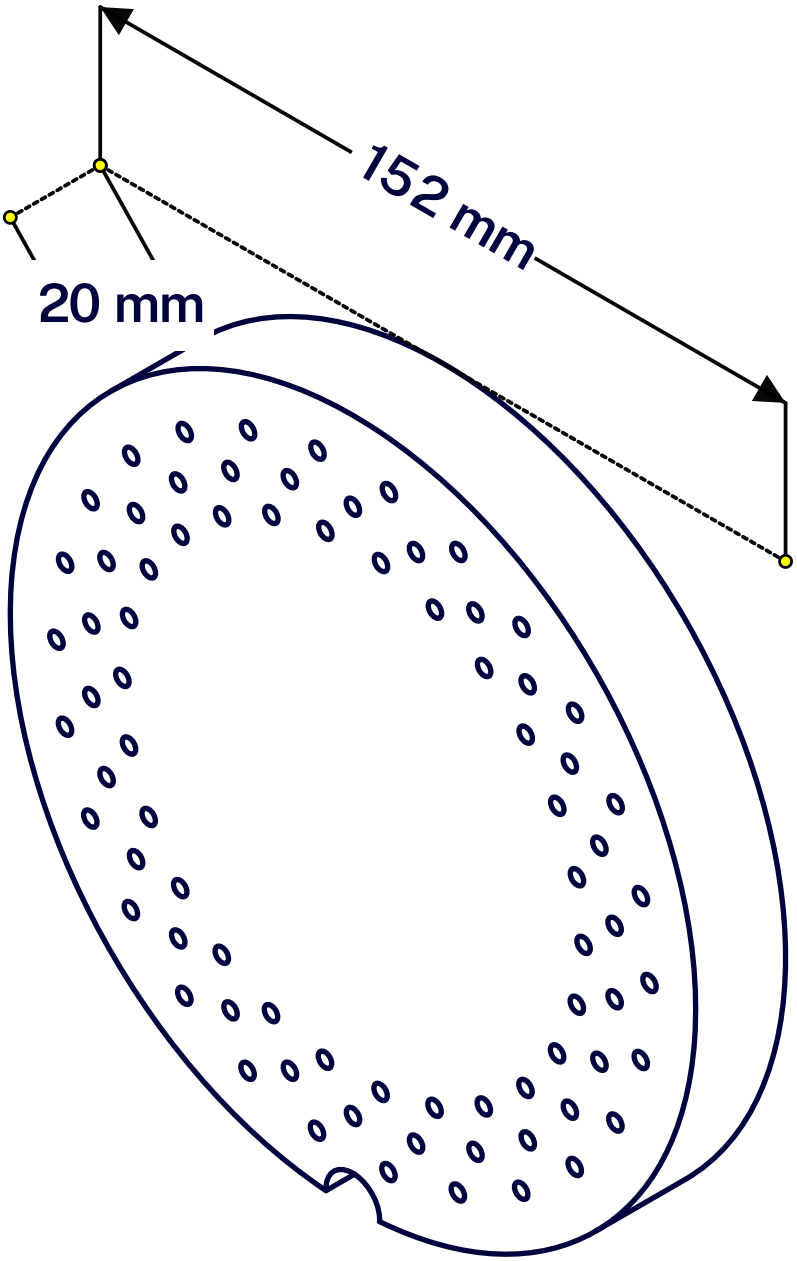
Mesh for small feed

First mesh is built with 10 mm thick stainless steel.



Mesh for small feed

Second mesh is built with 20 mm thick stainless steel.

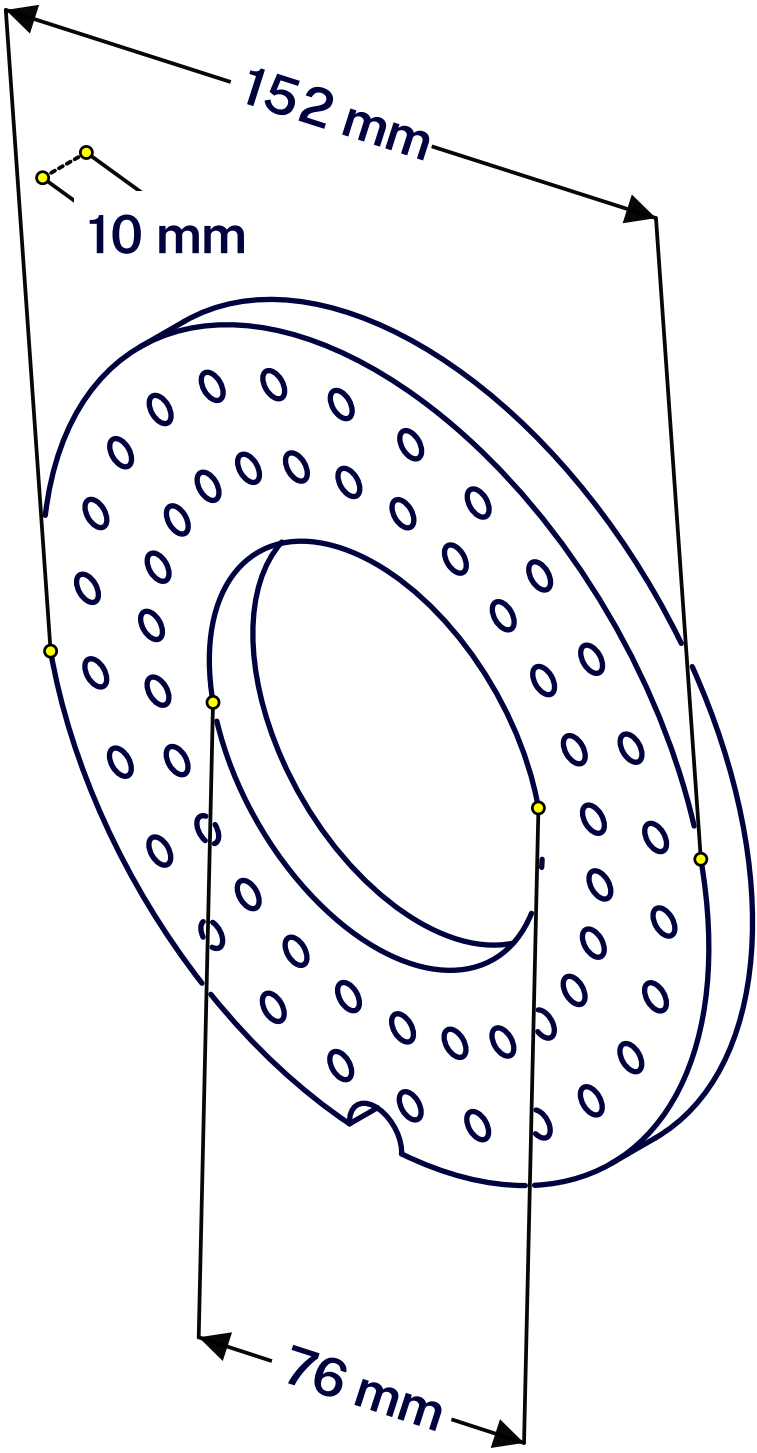


Mesh for large feed

First mesh

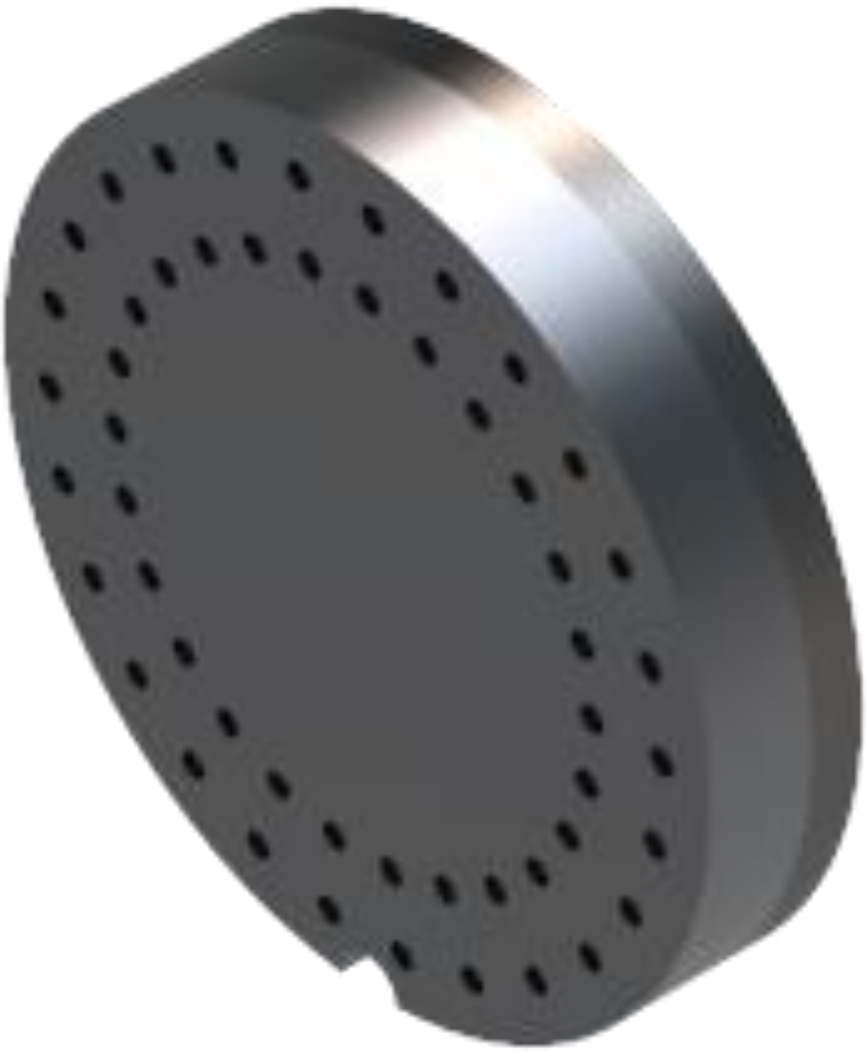
Mesh for large feed

First mesh



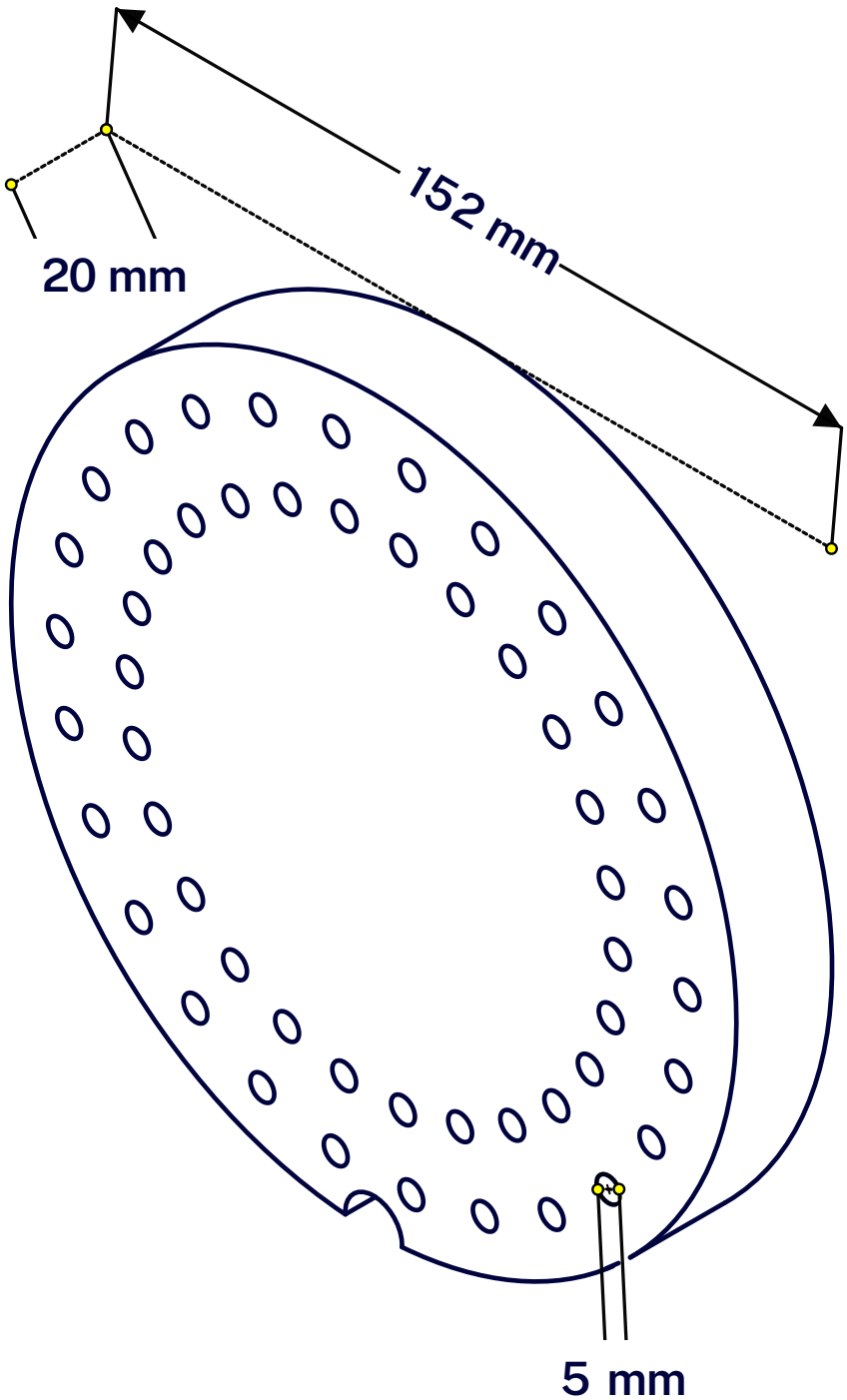
Mesh for large feed

Second mesh



Mesh for large feed

Second mesh

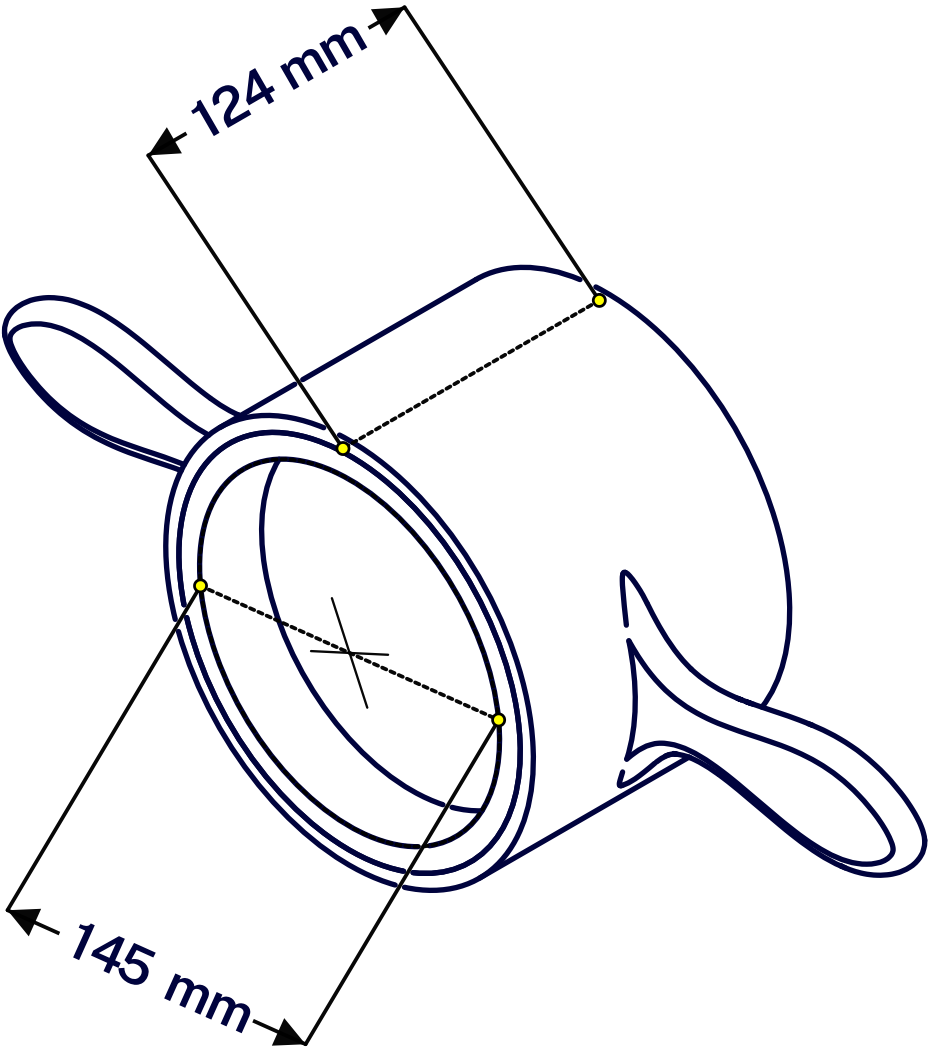


Holder for the meshes

Holder for the meshes

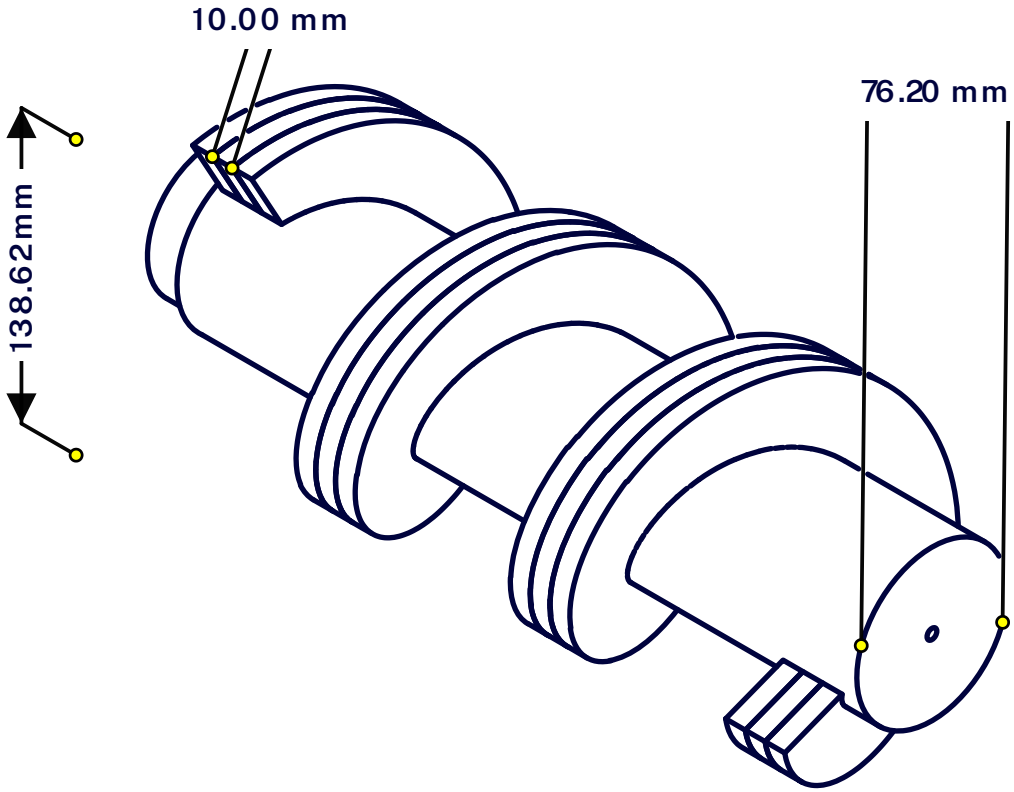
Holder for the meshes

Constructed of ¼” thick mild steel and coated with corrosion-resistant paint. It screws into the cylinder.

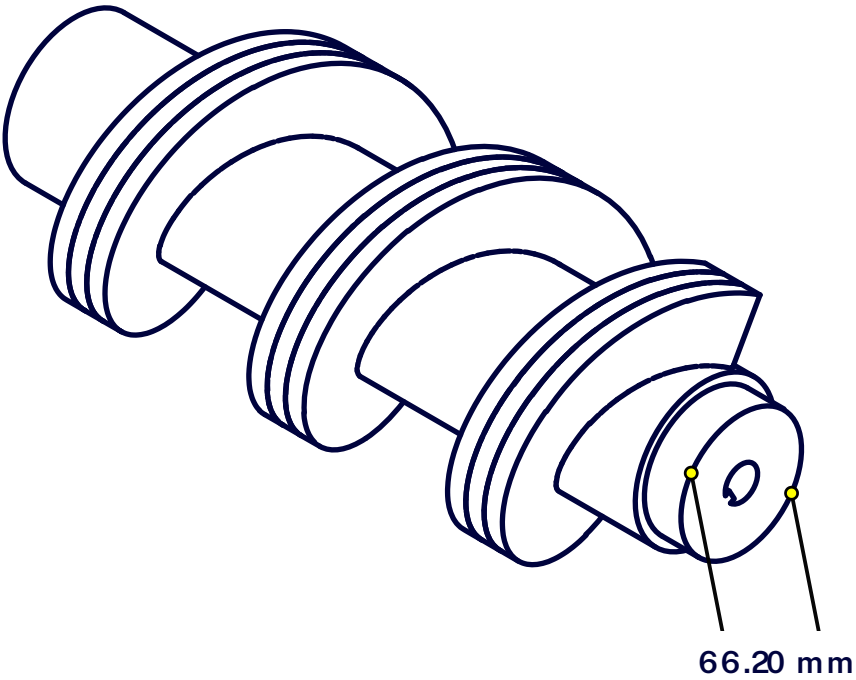


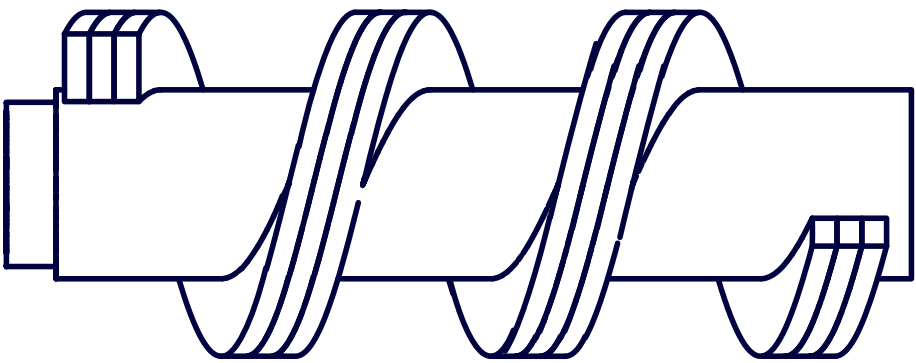
Reinforced screw

Constructed with stainless steel.



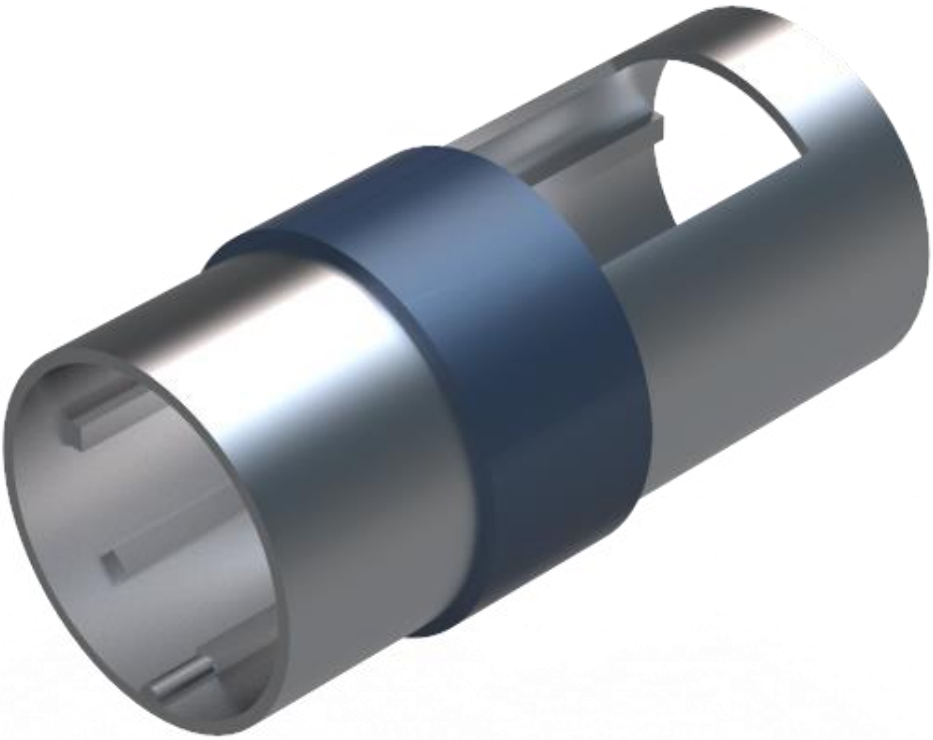
Reinforced screw





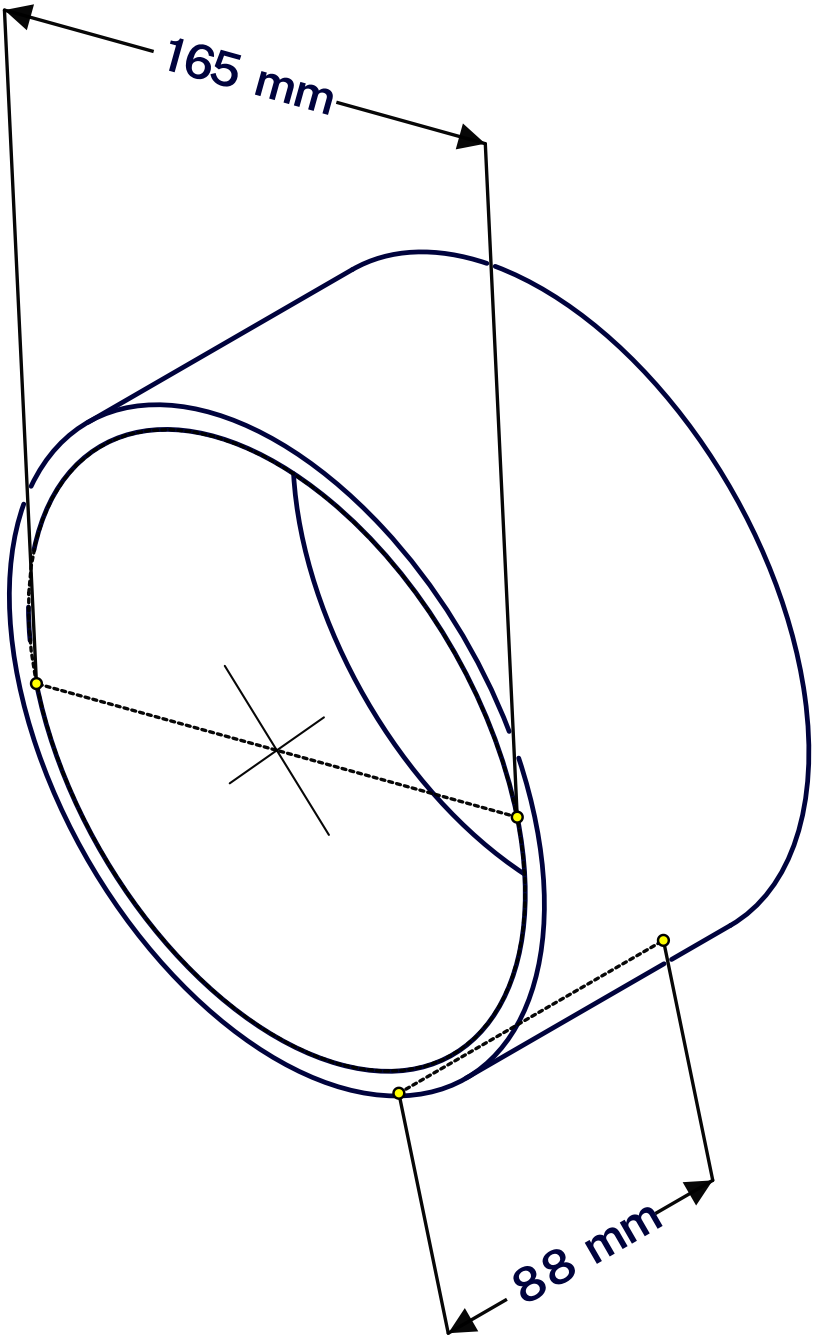
Cylinder reinforcement

Cylinder reinforcement



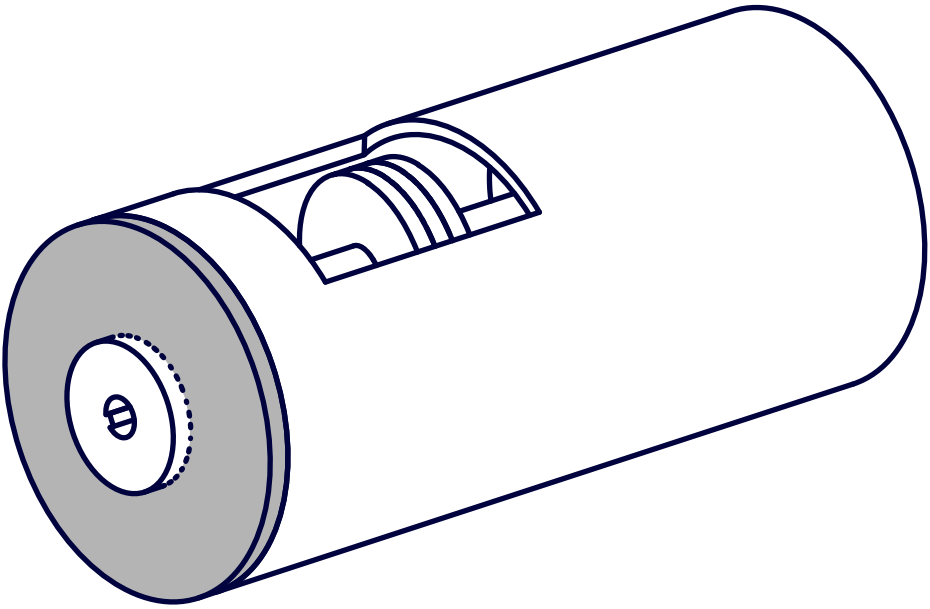
Cylinder reinforcement

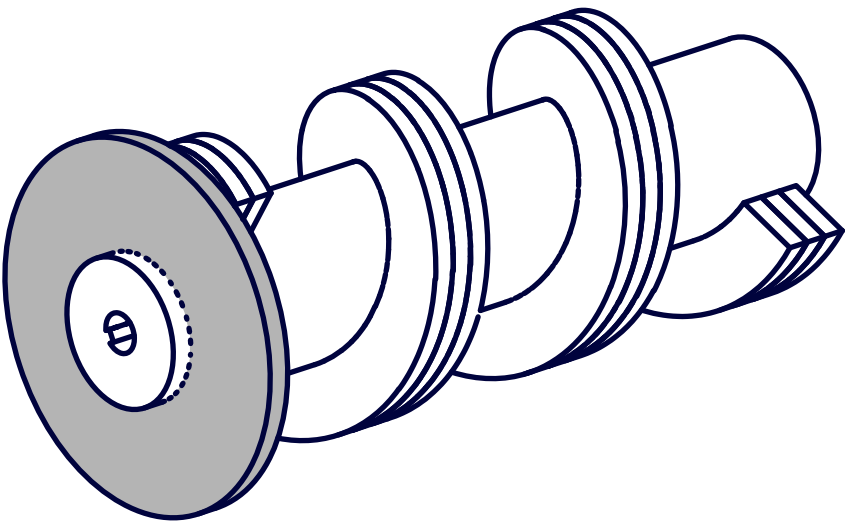
Constructed of ¼” thick mild steel, or similar, and coated with corrosion-resistant paint.



Cylinder back disk

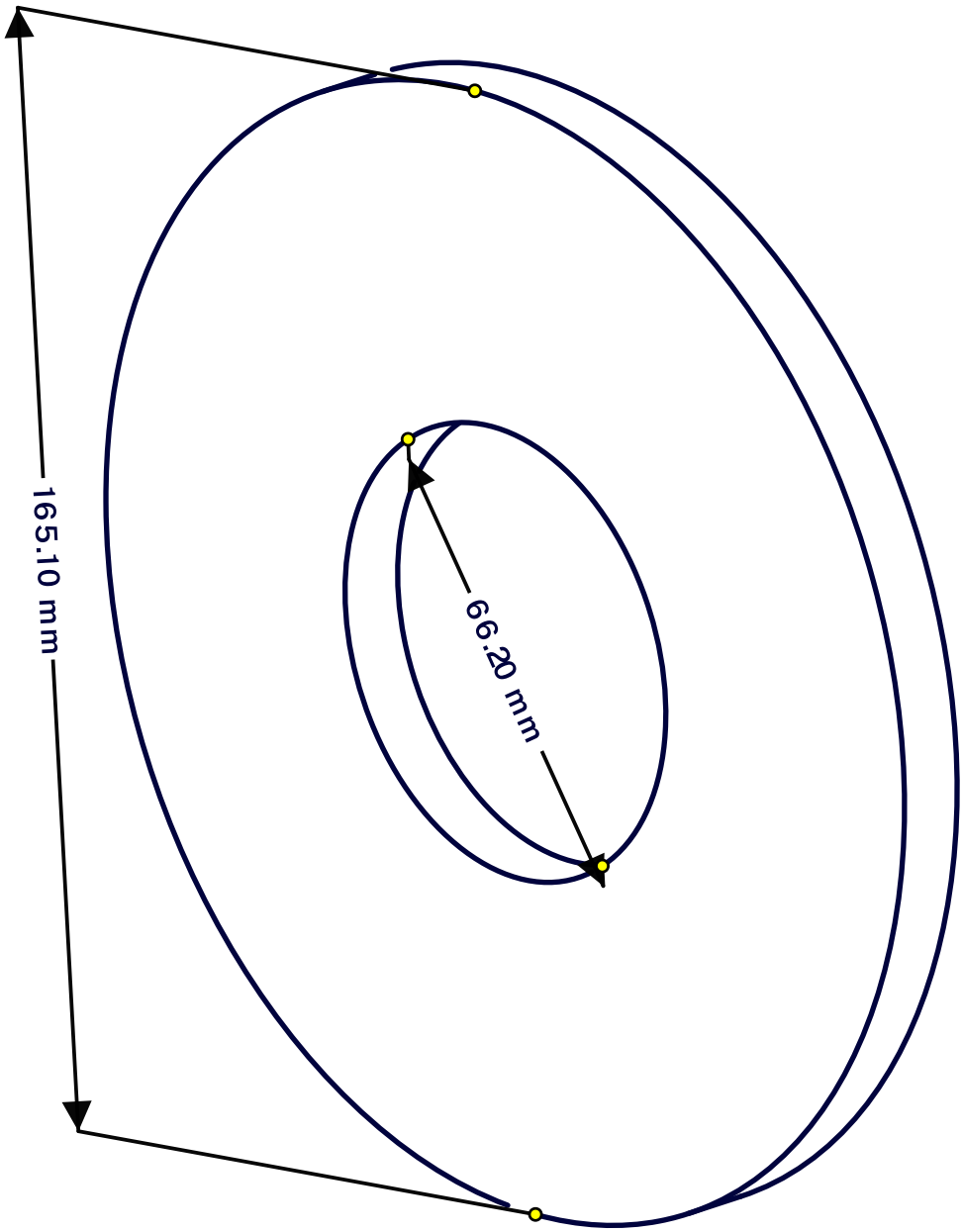
Keeps screw in place.





Cylinder back disk

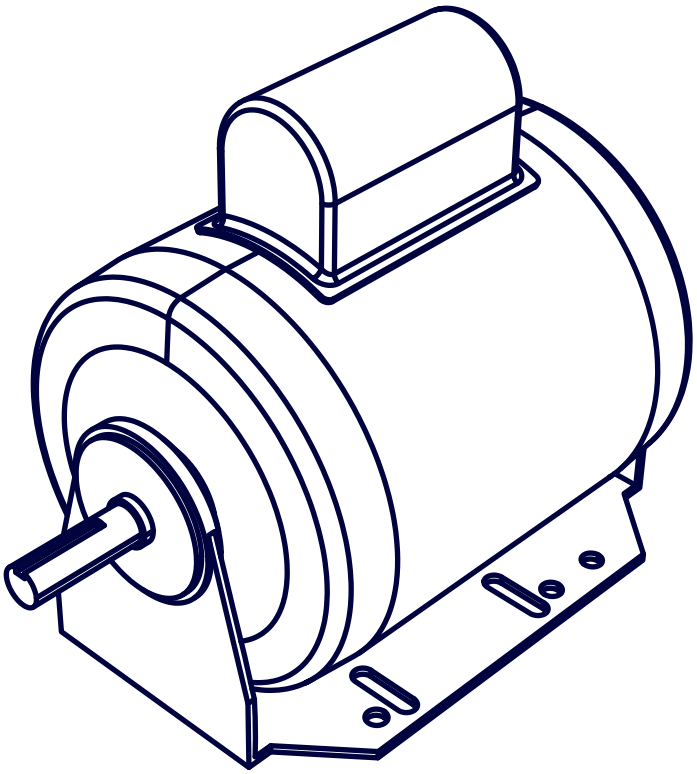
Made with 10 mm thick stainless steel.



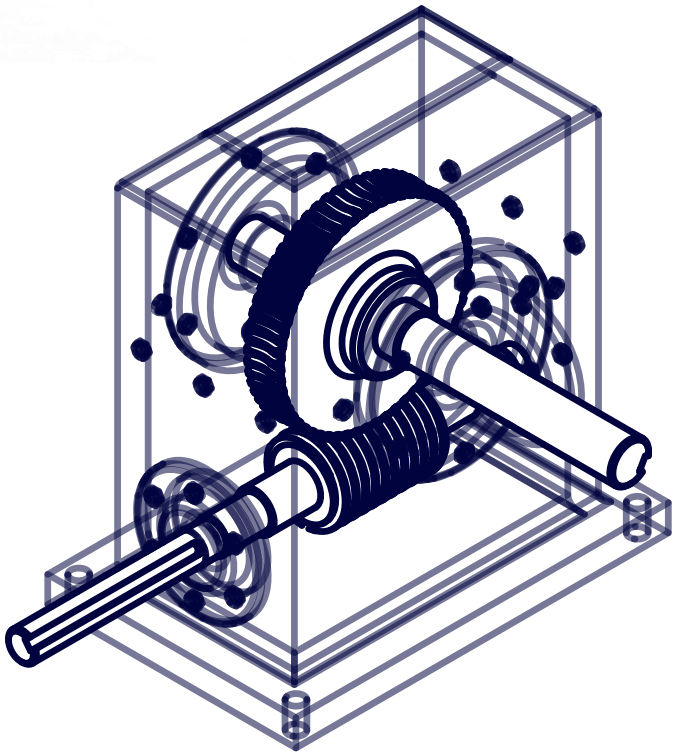
Single phase AC motor

Power: 1 ½ hp

Speed: 1725 rpm



60:1 speed reducer



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Simple machines that solve complex problems

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