



## **TI-200 Series Torque Insert Product Guide**



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# TI-200 Series Torque Insert Guide



## 1. General Information

Designed to be over-molded with glass-filled nylon, the TI-200 is available in two package sizes, with torques from 1.5 - 8.0 N-m. It features Reell's "differential" torque, which provides 100% of the specified torque in one direction and 60% of the specified torque in the opposite. This makes it ideal for positioning applications where gravity is acting upon the positioned object. Differential torque reduces the force needed to move in the upward direction while still providing full holding force against gravity in the downward direction.

All TI-200 Series inserts use Reell's ReellTorq® technology, which ensures consistent smooth long-life position control without adjustment.

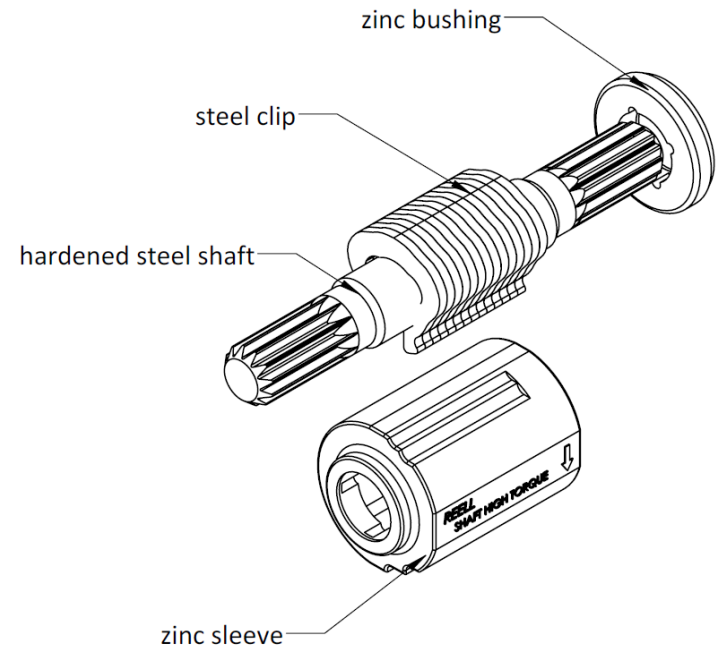
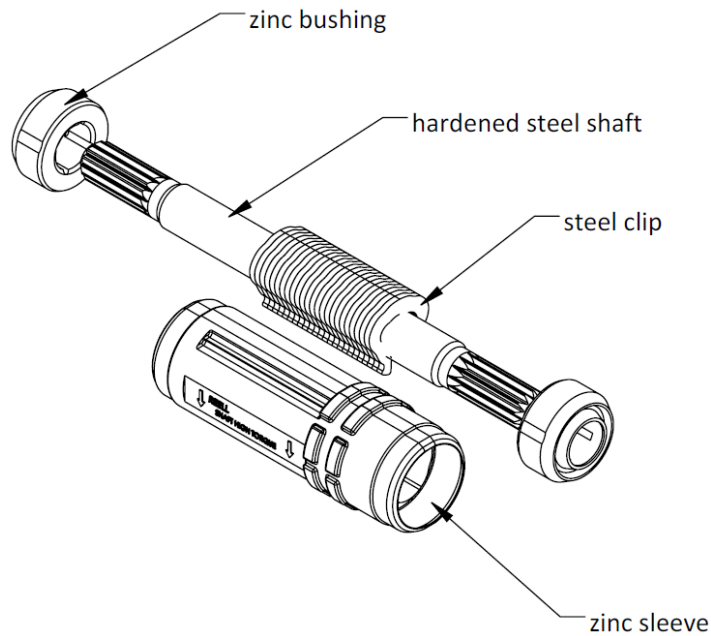
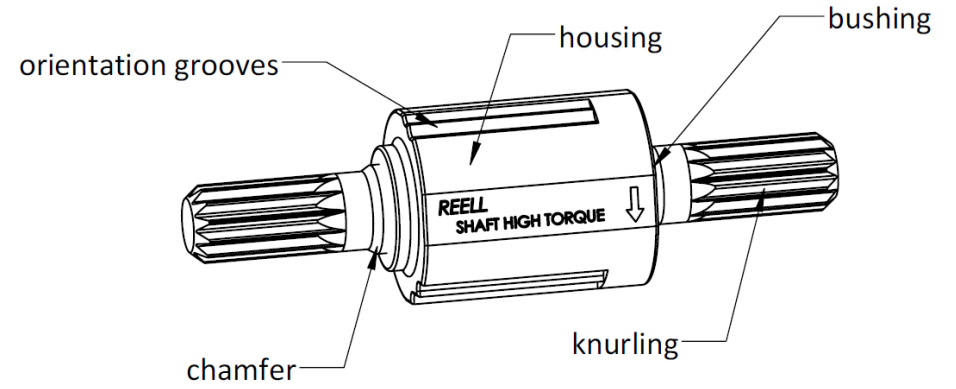
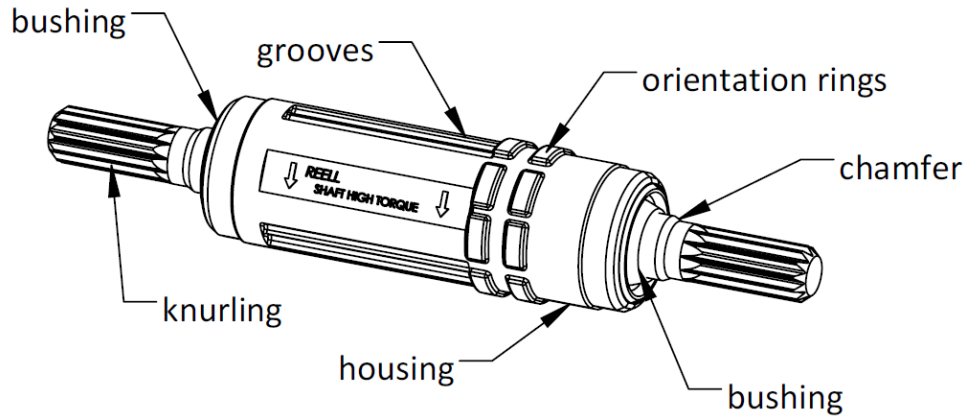
Product	TI-240							TI-220				
	Weight (g)	44							21			
Overall Length (mm)	80							47.4				
High Torque Direction (N-m)	2.0	3.0	4.0	5.0	6.0	7.0	8.0	1.5	2.0	2.5	3.0	3.5
Low Torque Direction (N-m)	1.25	1.88	2.50	3.13	3.75	4.38	5.00	0.94	0.94	0.94	1.88	2.19

The numbers given in this table are nominal values.

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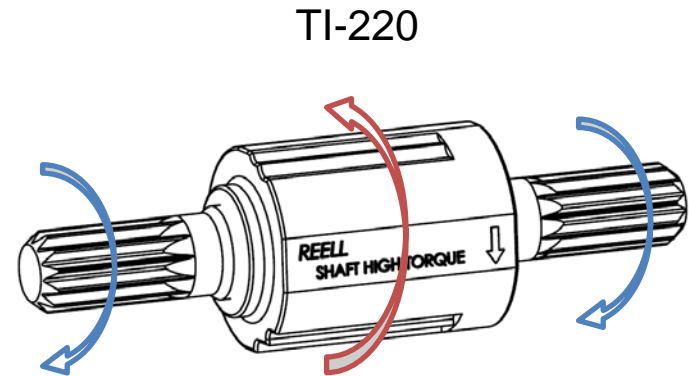
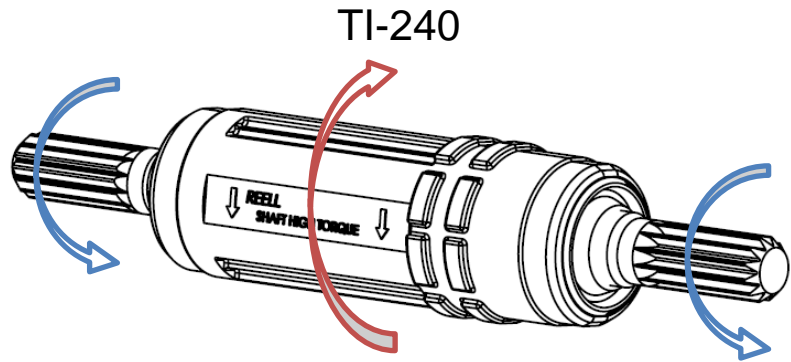
## 2. Physical Features of the TI-200 Series



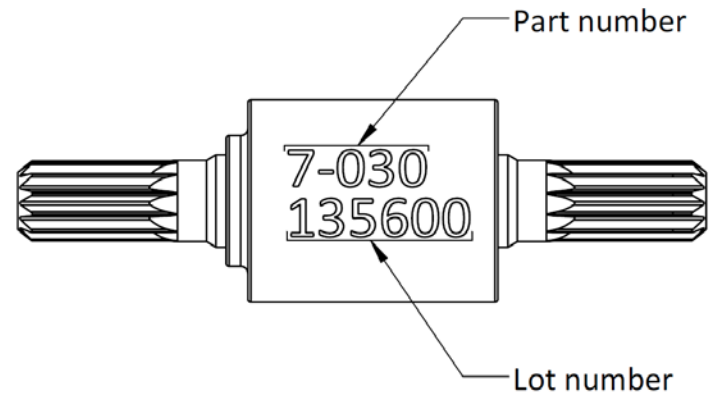
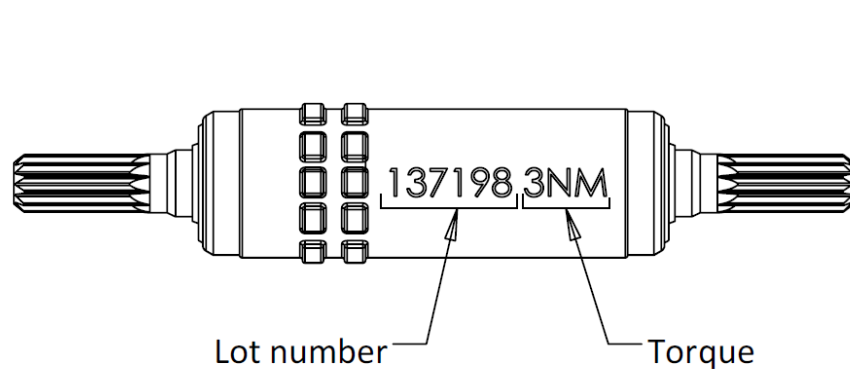
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## 3. TI-200 Series Part Markings



TI-200 Series parts feature text on the zinc sleeve to show the direction they apply 100% of their torque. With the parts positioned as shown, the marking on the part and blue arrows indicate the direction of high torque if the housing is held in place and the shaft is moved. The red arrow indicates the direction of high torque if the shaft is held in place and the housing moved.

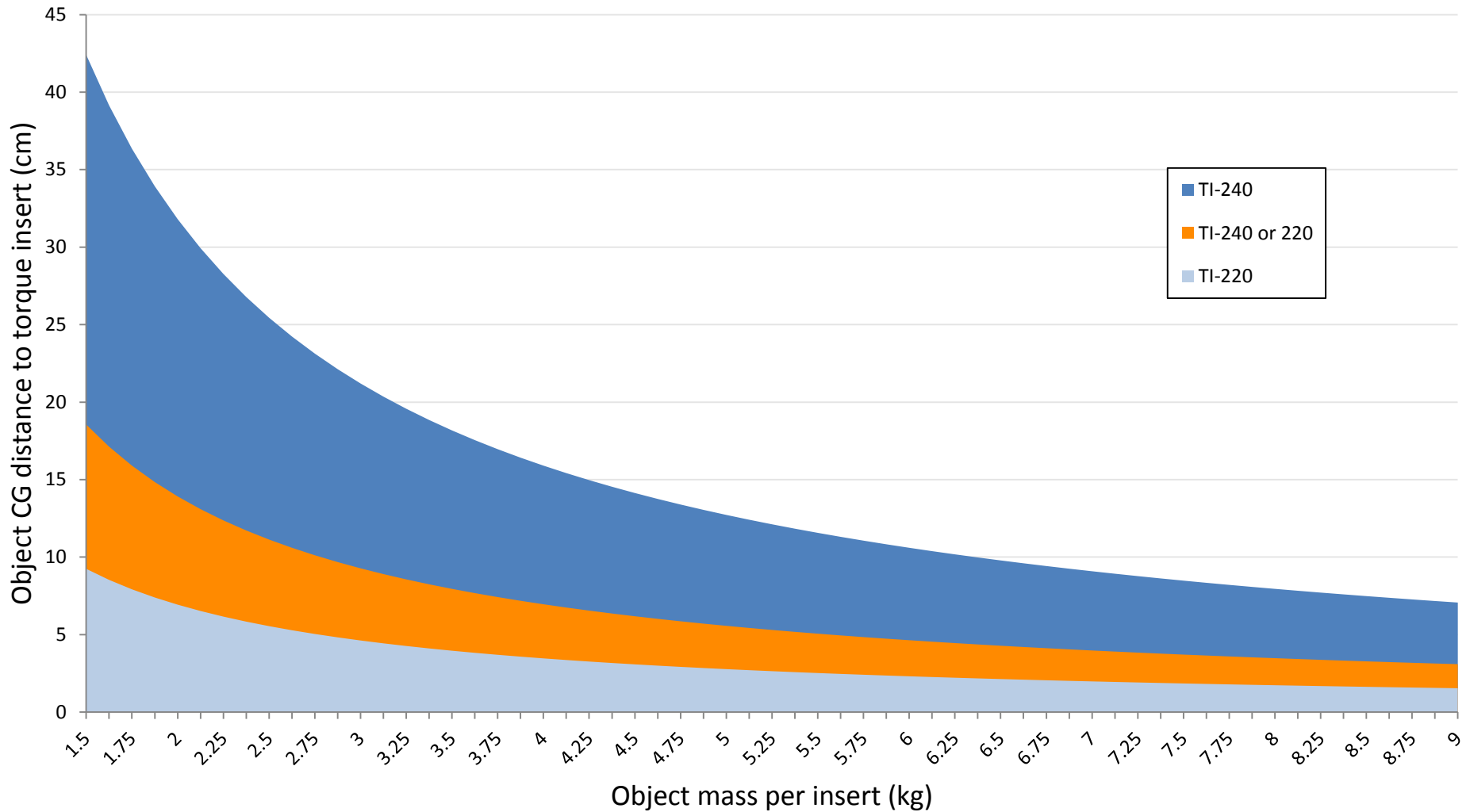


Additionally, the TI-240 is marked with the lot number and the nominal torque of the insert in N-m. The catalog number can be found by appending the torque to the TI-240 prefix. In the example shown the catalog number would be TI-240-3.0. The TI-220 is marked with the lot number and part number. The nominal torque is specified by the last two digits of the part number. In the example shown the last two numbers are 30, which indicates a nominal torque of 3.0 N-m and a catalog number of TI-220-3.0.

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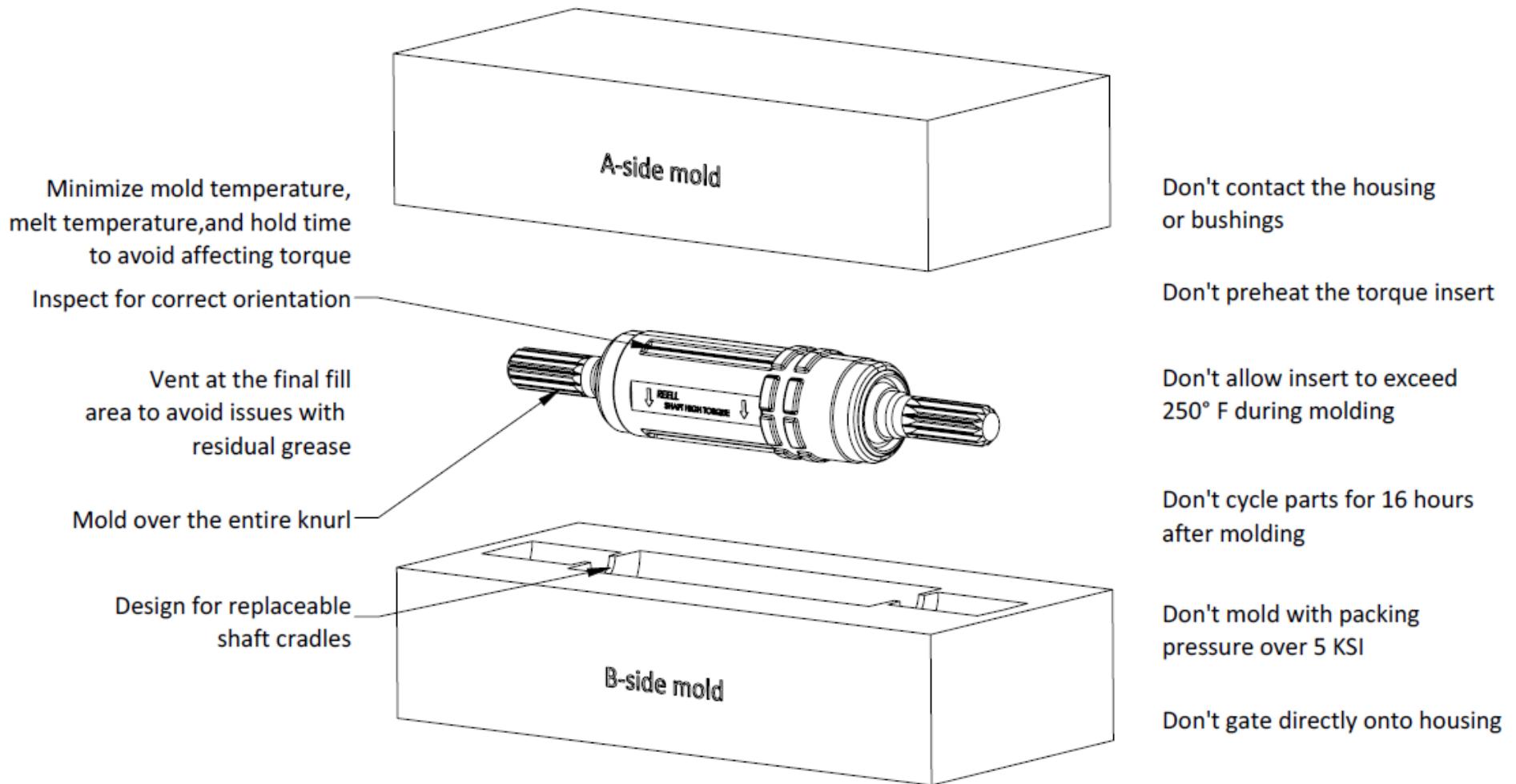
## 4. Selecting the Right Torque Insert



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## 5. General Over-Molding Guidelines

Reell recommends over-molding TI-200 series torque inserts with 30% glass filled nylon. The portion of the mold over the torque insert's housing should have a diameter of 16-17mm for best performance. Shaft cradle depth for the TI-200 series should be 2.80 mm minimum. Follow the guidelines in the diagram below to maximize success when molding.



## 6. Mold Design Part Centering Options

There are several methods that can be used to center the insert in the mold prior to molding.

### **Center using Shaft Chamfers**

- The best cosmetic result, but the least secure for insert placement.
- The shaft will only be visible at the shaft cradles.

### **Center using Shaft Ends**

- The most secure for insert placement, but the least cosmetic result.
- The shaft will be visible at the cradles and at the shaft-end.

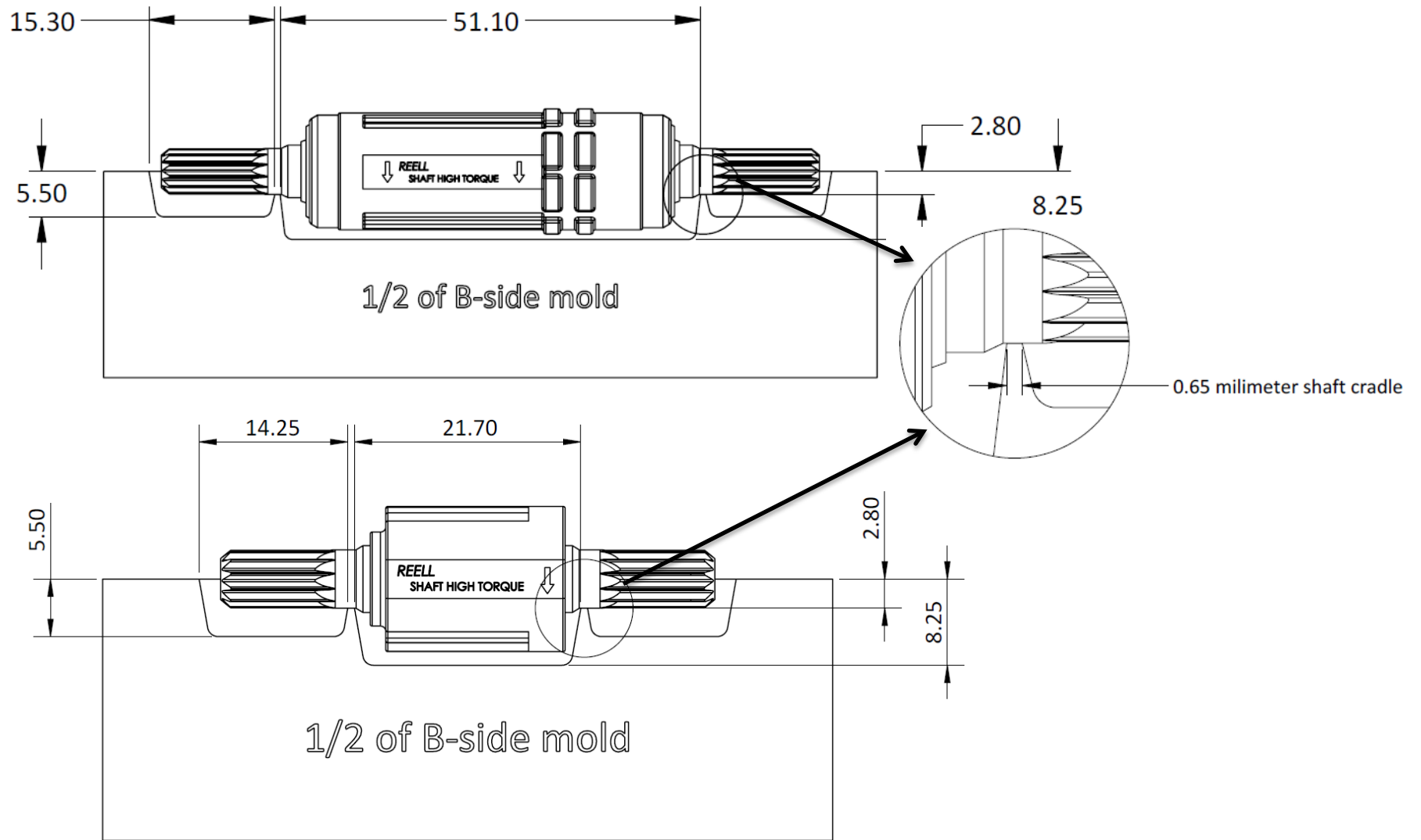
### **Center using Coring**

- A compromise between performance and appearance.
- The shaft will be visible at the cradles and in the pockets formed by the centering pins.



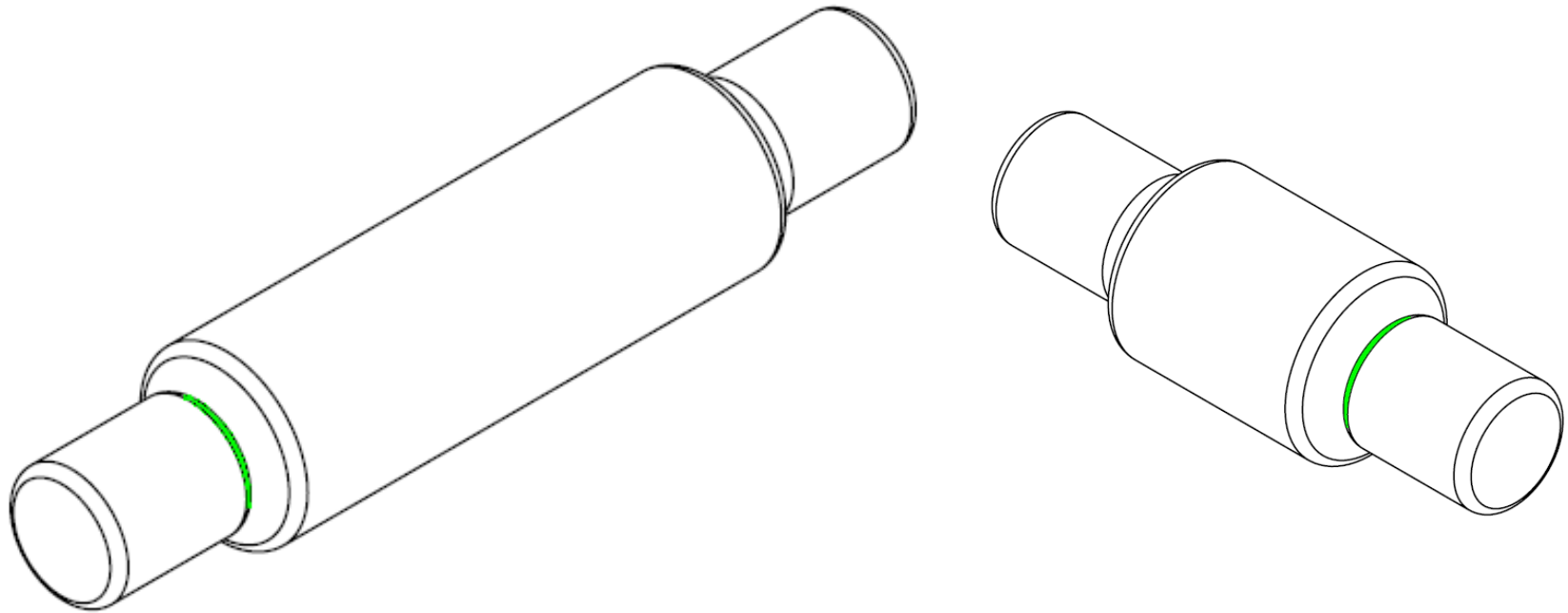
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## a) Center with Shaft Chamfers



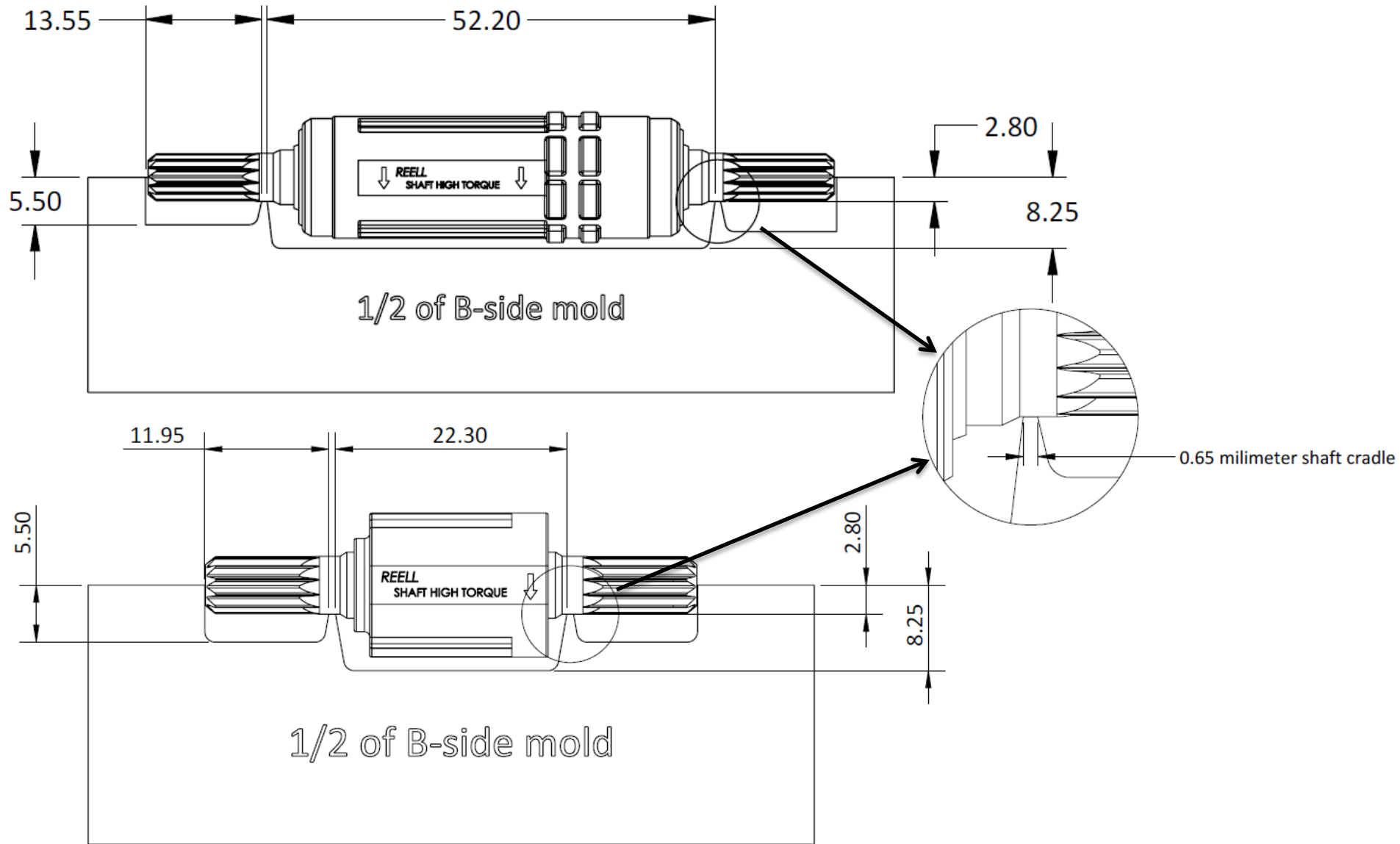
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Resulting parts: The shaft will only be visible at the shaft cradles.



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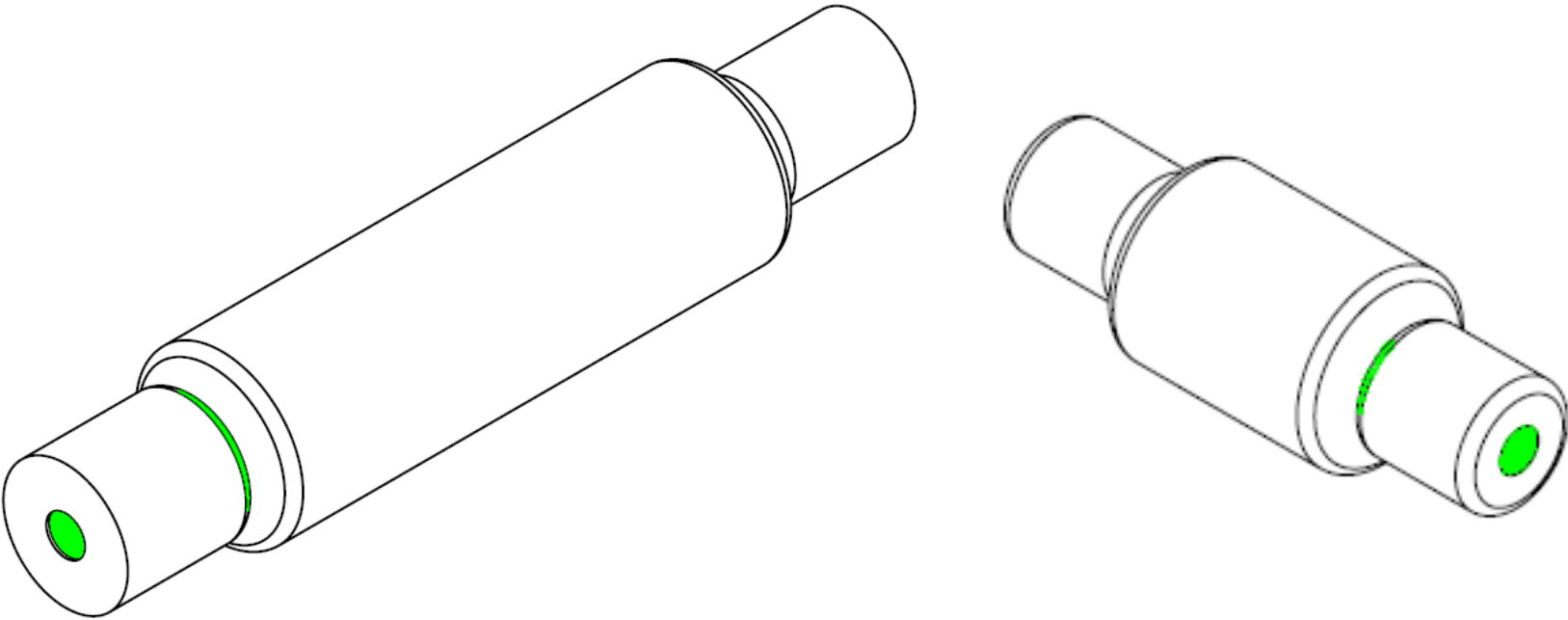
## b) Center with Shaft Ends



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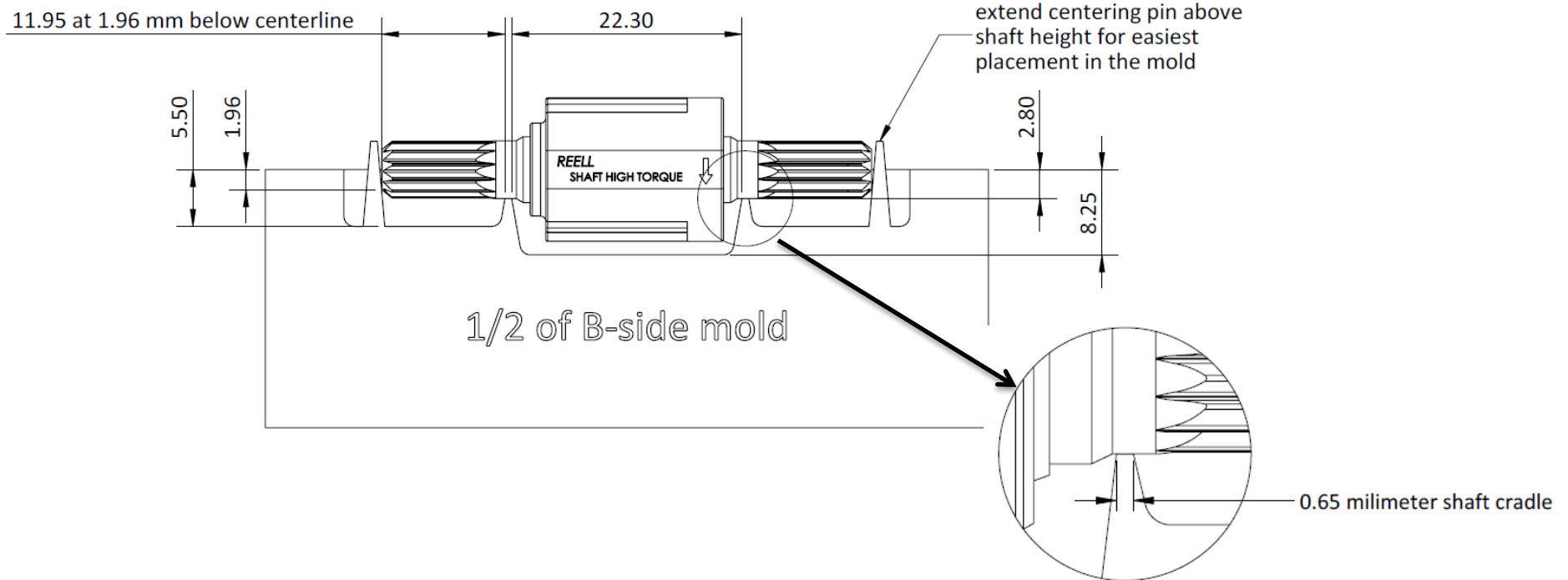
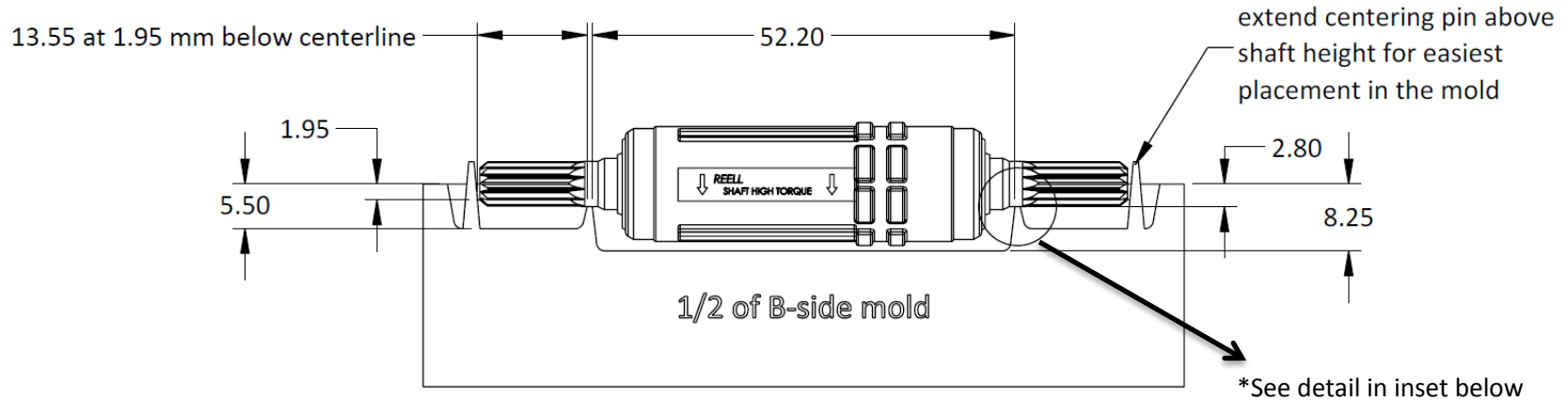


Resulting parts: The shaft will be visible at the cradles and at the ends of the mold.



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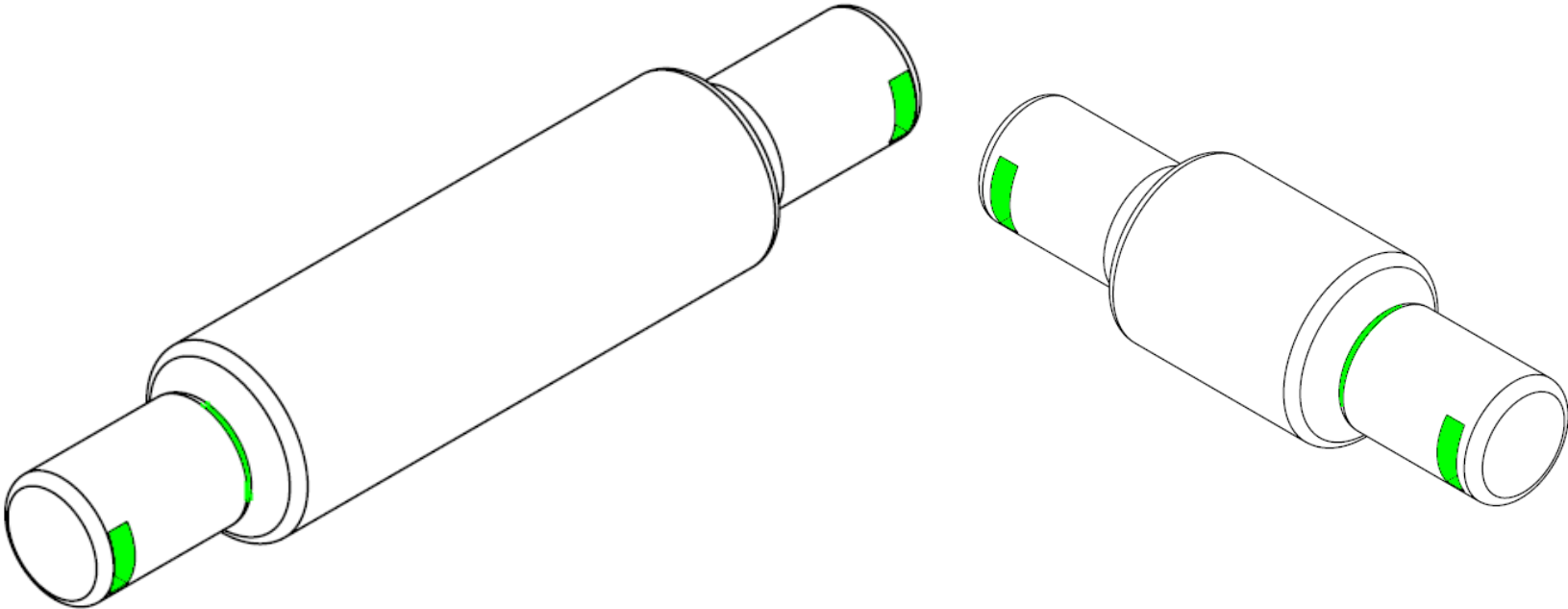
## c) Center with Coring



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Resulting parts: The shaft will be visible at the cradles and in the pockets formed by the centering pins.



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## 7. TI-200 Series Over-Molded Examples



Reell's MH15 position hinge utilizes the TI-240 in its over-molded design. The TI-240 is centered in the mold using the shaft chamfers, which completely covers the shaft ends and has no visible holes in the plastic over the knurled portion of the shaft.



Reell's VTilt VESA Monitor Mount also utilizes the TI-240. It is over-molded in two stages:

1. The center plastic piece is molded using the shaft ends to center the torque insert.
2. The monitor bracket is then molded, using the centered plastic piece to position the assembly in the second mold.