

BAYONET CONNECTION

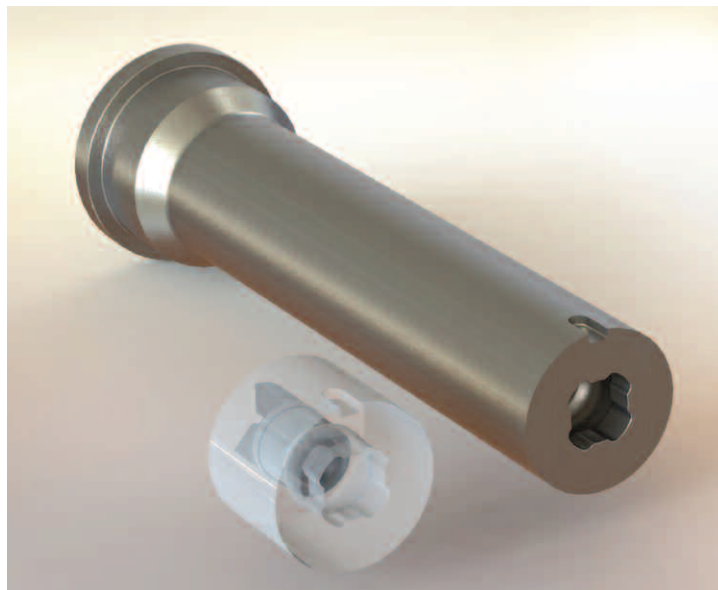
Introduction

There are really only two ways to evaluate any part of the extrusion system: by its performance, and by its life. The tooling has to work effectively and produce good quality at an efficient rate, as well as have good longevity thereby providing good value for the extruder.

The main function of the stem is straightforward. It transmits the axial forces produced during the extrusion cycle to the dummy block, pushing and pulling it through the container. Any good stem will do this well, but where a good stem can excel is in its ease of use and its life. The concept of the bayonet stem is to not only have good performance during extrusion, as every stem should, but also be quick and simple to use with little or no maintenance.

Function

The connection between the stem and block must be strong enough to withstand the repeated cyclic loading when the block is pushed and then pulled back through the container. Since the main benefit of using a fixed dummy block is the reduction of press downtime and wasted time, it is advantageous for the various features of the fixed dummy block and its corresponding stem to follow suit.

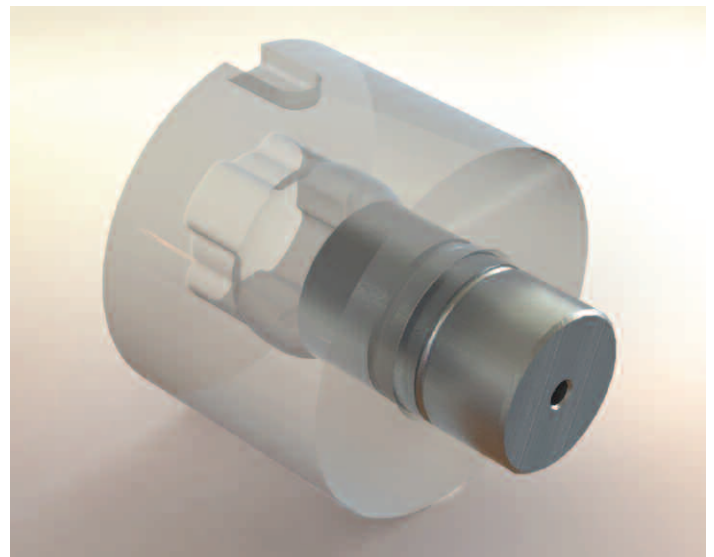


The Castool Bayonet Connection

This patented bayonet link, which involves a fitting pushed into a socket and twisted to lock, provides a time saving alternative to the usual threaded connection. This design is much easier

to use and greatly reduces the time involved to remove and replace dummy blocks, saving costly downtime.

A stabilizing stud can be used in addition to the bayonet to reduce the float between the block and stem. This small component reduces the lateral movement, which helps center the block.



The Castool Spacer

The intricate details of any block connection make it the weakest part of the stem. Therefore Castool allows the customer the chance to replace the block end of the stem by offering a replaceable spacer.

This spacer, fitted with the bayonet system, is threaded onto a modified stem and is used to replace a worn connection. It can also be used to adapt a standard stem to have the Castool bayonet system. The threaded spacer allows the extruder to benefit from the popular Castool dummy block, without the expense of a completely new stem.

One Step Ahead

To keep up with an increasingly demanding market, Castool has taken the initiative to strengthen the existing bayonet design. Analytical studies as well as Finite Element Analyses have been performed to ensure stresses are kept to a minimum within the bayonet connection.

These studies have allowed Castool to use simple design changes to reduce peak stresses during the extrusion push.

Stress Relieving

Stems should be stress relieved on a regular basis, and in accordance with the size of the press and the number of pushes. (See suggested frequency below)

The stem should be positioned vertically in the oven, and heated at no more than 100°F (55°C) per hour to 1000°F (540°C), then held at this temperature for one hour per inch (25mm) of stem diameter. Remove from furnace and allow the stem to cool in still air at room temperature.

Frequency of Stress Relieving

| Pressure | Pushes |
|---------------------|----------------|
| 180,000-200,000 psi | 20,000-30,000 |
| 160,000-180,000 | 30,000-40,000 |
| 130,000-160,000 | 40,000-50,000 |
| 100,000-130,000 | 50,000-60,000 |
| <100,000 | 100,000 cycles |

