

Screw and Barrel Wear

[Print](#)

[\(10\)](#) » [Single Screw Feeding](#) » [Defining Screw Performance](#) » [Screw and Barrel Wear](#)

Screw and barrel wear

Vol. 21 #1, June 1994

On occasion, we are asked how much screw or barrel wear can be tolerated. This can be answered by evaluating the quality of your product. There is no magic number or time period for determining screw or barrel replacement.

If your product is meeting your quality and output requirements, then screw/barrel wear is not a problem. If quality and output are below standards, then screw and barrel wear may need to be addressed.

To assess screw or barrel wear, the screw needs to be measured across flights and visually inspected for damage that could diminish quality or cause loss of output problems. The barrel's inside diameter should also be checked and visually inspected for damage. The measurements, along with a visual inspection, should provide enough information to determine whether screw or barrel damage has occurred.

Keep in mind that, even if the screw and barrel meet certain tolerances, other factors can cause quality problems and loss of output. For example:

- Process temperature control
- Faulty operation of water cooled heater solenoid valves
- Blower malfunction on air cooled extruders
- Feed section temperature
- Screw cooling
- Head pressure
- Melt block in feed section or screw
- Loading system
- Wrong or contaminated resin
- Wrong process temperature
- RPM of screw/motor problems/ excessive current draw
- RPM/AMP meter calibration
- Foreign object in polymer

In many cases, the hardest part of any problem is to find its origin. This must be investigated to eliminate the problem. Below is a short list of the more common causes of wear.

- Bent barrel or screw
- Alignment of barrel/feed section/ gearbox or thrust housing
- Abrasive additives in resin
- Chemical erosion
- Barrel over-pressurized
- Improper processing temperature
- Tramp metal or abrasive material in barrel

Once the cause is determined, and depending on the severity and location of wear, the screw or barrel must be repaired or replaced.

- Black Clawson Co.

See also:

- Barrel and screw wear
- Extrusion screw wear
- Where's the wear?
- Where's the wear? Part II
- Screw cooling in extrusion

Return to [Consultants' Corner](#)