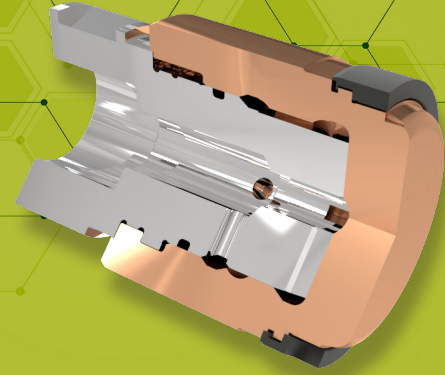


# PLUNGER TIPS

# ARP/CRP

Allper Ring Plunger  
Castool Ring Plunger



## PURPOSE

- ▶ Prevent alloy from penetrating between the shot sleeve and plunger, prolonging tooling life.
- ▶ Move smoothly and consistently, with a minimum of lubrication, through the shot sleeve bore increasing casting properties.
- ▶ Maintain a secure seal with the shot sleeve wall necessary for an effective vacuum to be drawn reducing porosity.
- ▶ Cool the biscuit quickly to reduce cycle times.

## FUNCTION

The function of the plunger tip is the extension of the plunger rod, which pushes the molten alloy into the mould. There are a number of functions that must be satisfied by an effective plunger tip.

- ▶ To repeatedly transmit the force of the plunger rod, at high temperature, to the alloy.
- ▶ To maintain a seal with the shot sleeve wall during the shot, eliminating flash or blow-by and preventing air from being drawn into the alloy when using a vacuum.
- ▶ To remain thermally and therefore dimensionally stable throughout the shot allowing consistent and repeatable shot velocities.
- ▶ Since the tip is dimensionally stable, and the gap controllable, steel wear rings can be attached to the plunger tip body to provide a guarantee that the seal is maintained.

*FUNCTION continued on next page*

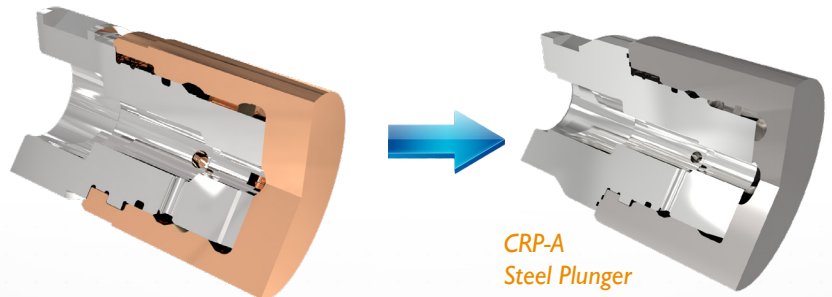
## THE ARP/CRP PLUNGER

**The ARP** is used mainly for medium sized machines, but can be used from 40 mm up to 300 mm diameter. The plunger body is made of A-52 copper alloy. The A-52 is forged ultra high strength beryllium copper alloy. The alloy has minimum 750 MPa tensile strength and 240 W/mK thermal conductivity.

**Con-Duct** is lower cost alternative with good thermal conductivity 42 W/mK and very good toughness 1000 MPa. A replaceable steel or copper split wear ring provides good seal and long life. A stainless steel holder with a quick release bayonet coupling with water flows directly to the inside face of the plunger tip where a turbulent flow is generated to maximize the heat transfer.

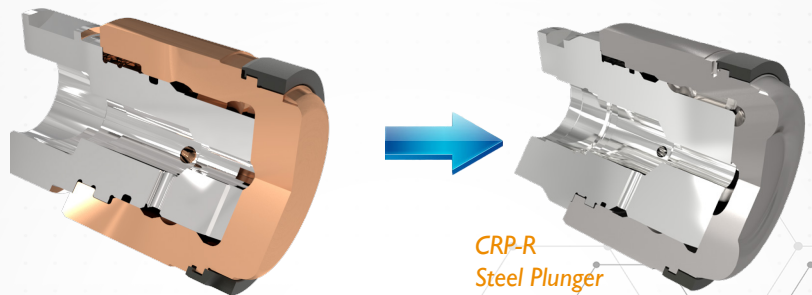
*The ARP has excellent thermal stability and high strength.*

## ARP/CRP



CRP-A  
Steel Plunger

**ARP-A:** A solid forged beryllium copper or Con-Duct tip is fastened to a stainless steel holder with a quick release bayonet coupling



CRP-R  
Steel Plunger

**ARP-R:** An expanding steel (H-13) or copper wear ring (A-52 or A-25) wear ring is attached to the beryllium copper or Con-Duct plunger tip.

FUNCTION continued..

- ▶ Because the rings is flexible, it makes continuous contact with the inside of the shot sleeve. Flash, which is a major cause of wear, is essentially eliminated. Shot speeds are consistent.
- ▶ Since the expanding wear ring ensures a secure seal between the plunger and the shot sleeve, a better vacuum can be drawn.
- ▶ An additional advantage is that the face of these is considerably cooler than that of other plunger tips. This cools the biscuit much faster, and reduces the cycle time significantly.

## BENEFITS OF THE CASTOOL ALLPER PLUNGER TIP

- ▶ Reduce cost per shot
- ▶ Increase plunger life
- ▶ Increase shot sleeve life
- ▶ Improve vacuum seal
- ▶ Reduce scrap rate
- ▶ Reduce downtime

*With the CASTOOL Allper Ring Plunger,* Castool again sets a new standard of excellence in the die casting industry.

Results may vary depending on individual press characteristics and setup.



✉ sales@castool.com

☎ +1.905.852.0121

🌐 www.castool.com

## PLUNGER ROD

### CASTOOL'S PLUNGER ROD LUBRICATION SYSTEM

with splash guard offers safety and increased longevity of all tooling components for long shot sleeves. A small measured amount of lubricant is applied only when and where it is needed.



CASTOOL ROD-LUBE

### CLS 200 Plunger Lube

Vegetable ester based lubricant that is biodegradable. It is blue in colour, remains in solution and has a high flashpoint. It also has low smoke, and is very well priced.

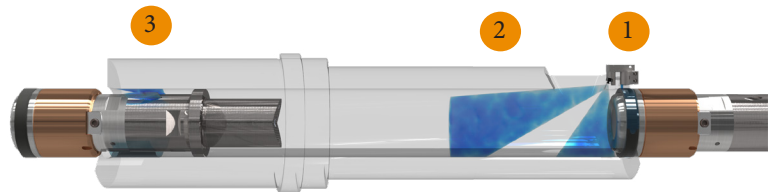
Type : CLS-200 Vegetable ester based  
Part No : CLS-200 Lubricant  
Packaging : 19 L pail, 208 L drum or 1,250 L tote

#### Usage

Plunger tip lubricant formulated for lubrication of all types of plunger tips: beryllium copper, bronze, steel and all diameters



## LUBRICATION



*Lubrication should only be applied where it is needed. Every effort should be made to eliminate the possibility of non-metallic substance getting into the casting.*

- 1) For small shot sleeves, the bolt-on Allper Lube-Drop (ALD) or a slot and lubrication channel can be machined into the shot sleeve that delivers lube on top of the plunger ring.
- 2) For medium shot sleeves, the bolt-on Allper Combi-Lube (ACL) system delivers a precisely measured amount of lubricant directly on top of the plunger or plunger ring and on shot sleeve bore under the pour spout.
- 3) For long shot sleeves, Castool Rod Lube (CRL) systems delivers a small amount of lube on the die-end bore of the shot sleeve prior to plunger return/ in addition ALD or ACL

**SCHMELZMETALL**  
HIGH VACUUM COPPER

**ALLPER**  
PLUNGER SYSTEMS

**Swiss Steel**  
International  
HOT WORK TOOL STEELS

CASTOOL MAKES DIE CASTING BETTER