

Squeeze casting process

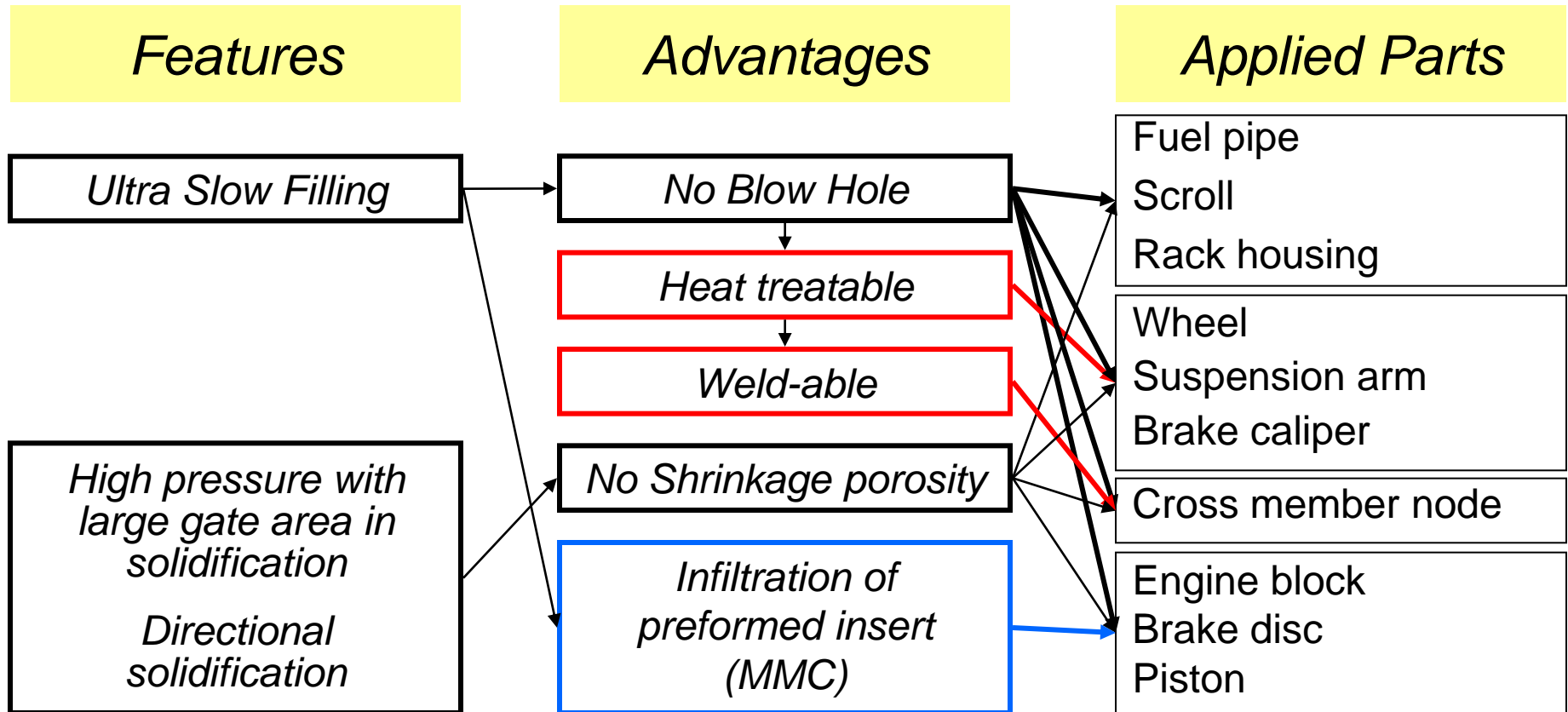
SQZ aims no porosity and high quality castings for pressure tightness, heat treat-able and weld-able structure.

- **Blow hole less**
 - ✓ *Ultra slow filling possible*
 - ➔ *Vertical shot sleeve with tilting motion*
 - ➔ *Less temperature drop in shot sleeve*
- **Shrinkage porosity less**
 - ✓ *Higher metal pressure in solidification*
 - ✓ *Large gating system for better pressure propagation*

<i>Item</i>	<i>SQZ</i>	<i>HPDC</i>
Shot speed	Max. 0.5m/s =19.69IPS =1.12mile/h	Max. 10m/s =22.4mile/h
Gate speed	0.4m/s =1.4km/h =0.89mile/h	50m/s =180km/h =112mile/h
Casting pressure	100MPa =14,504psi	50-80MPa =7,252-11,603psi
Gate ratio*	Less than 10	About 20

* Gate ratio = Tip area / gate area

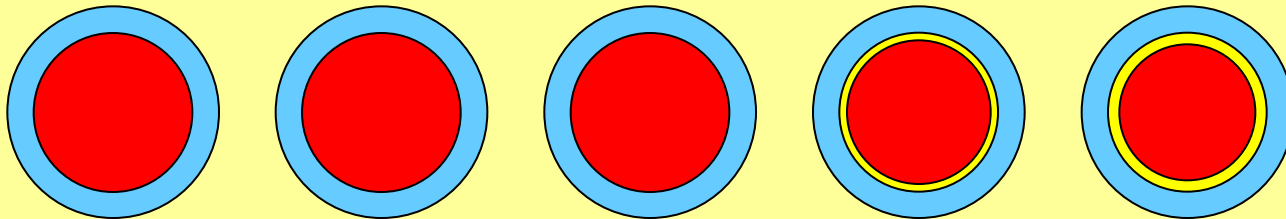
Features of UBE SQZ and Applied Parts



Vertical and Horizontal shot sleeve

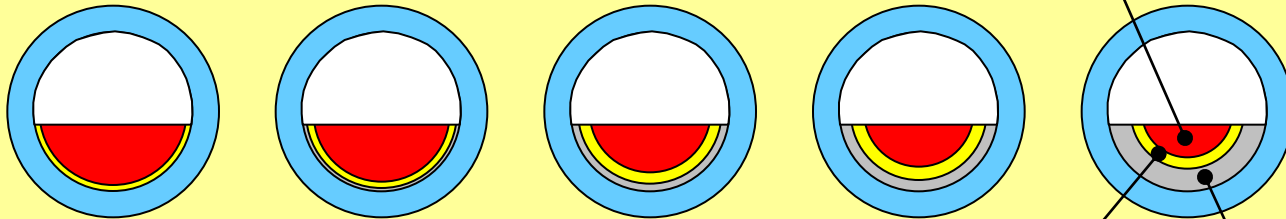
SQZ

Vertical shot sleeve



0 1 2 3 4 5 6 7 8 9

Time after pouring [sec]



Liquid phase

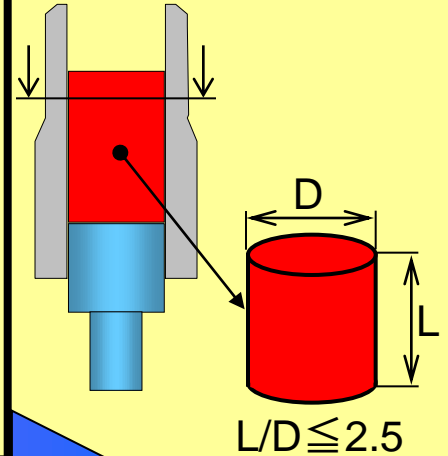
Semi-solid phase

Solid phase

HPDC

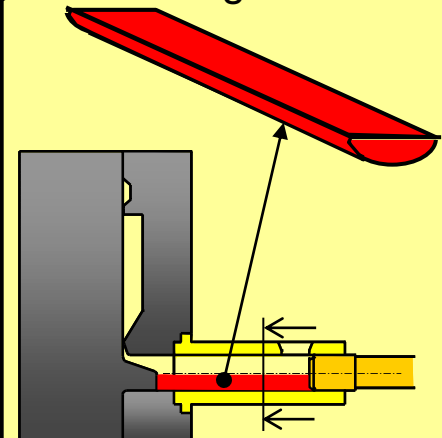
Horizontal shot sleeve

AL shape in sleeve



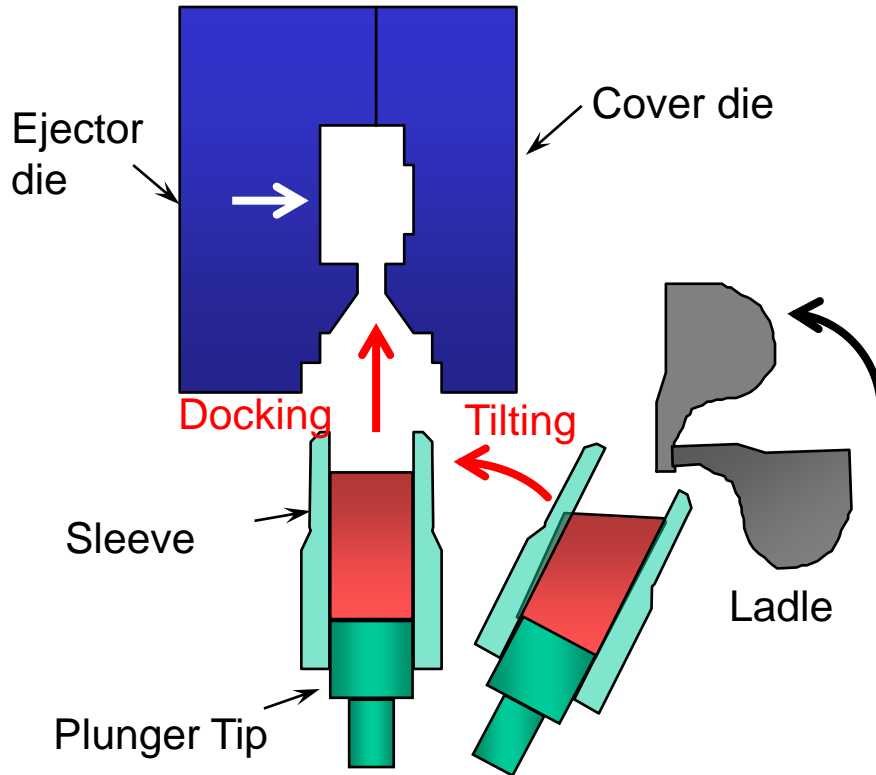
$L/D \leq 2.5$

Long and thin



Squeeze casting machine type

HVSC Horizontal-die-clamping Vertical-shot Squeeze Casting machine

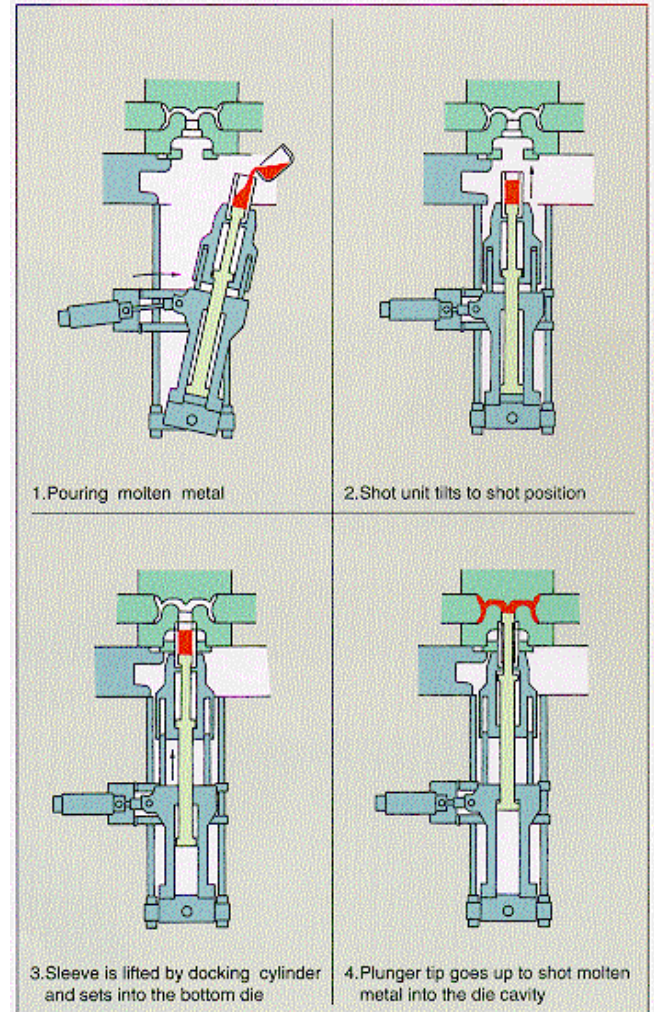


<Tilting and docking system>

- Minimize the cycle time by simultaneous operation between die closing and tilting
- Gentle pouring to shot sleeve
- Less heat transfer from sleeve to die

VSC Vertical-die-clamping Vertical-shot Squeeze Casting machine

■ UBE Tilting-Docking Shot Unit



SQZ sample

The image displays four distinct automotive components against a dark blue background. On the left is a large, complex metal cross member with various mounting points and a central longitudinal bar. Below it is a smaller, Y-shaped metal arm with two circular ends. In the center is a knuckle, a multi-ported metal casting. On the right is a large, five-spoke aluminum alloy wheel with a polished finish. The labels are positioned directly below their respective parts.

Cross member

Arm

Knuckle

AL wheel

SQZ sample

ABS valve body



Brake caliper



HP pump case



Flange

