HIP Powdermet® Technologies

Jim Sheard
Agenda

- What is Powdermet®?
- Broad applications
- Current processes
- New process development
- Market and capacity growth
- Summary
Powdermet® Technologies

Bodycote’s brand name for a group of additive processes used to manufacture components using HIP technology
Powdermet® Technologies
Innovative solutions to broad market applications

Simple Shape part
(machined to final shape)

Net / Near Net Shape part
(finish machining to final shape)

Net / Near Net Shape + 3D printed hybrid
(finish machining only)
Near Net Shape (NNS) component production
Value proposition

- Significant reduction in welding
- Significant reduction in machining
- Significant reduction in material requirements

Provide customer solutions with:

- Process simplification
- Design optimisation
- Higher quality
- Reduced cost
- Shorter lead time

Conventional Manufacture - Forged, machined and welded from 5 pieces

Powdermet® Solution - 1 solid piece in 1 step
Near Net Shape (NNS) + 3D printed hybrid*

Typical gate valve + Internal liner = NNS

3D Printing + NNS = Finished valve body

Customer Response

“Properties meet / far exceed specification requirements on conventionally produced valves”

“Technical feasibility of producing high pressure valves successfully demonstrated”

*Patents pending
Value proposition

- Matching materials within a component to their specific requirements

**New process delivers:**

- Improved quality
- Reduced lead time
- Lower inventory
- Increased productivity
- Least non-conformance

**Conventional Manufacture**

TIG welded cladding of inner liner

**Powdermet® Solution**

NNS body + 3D printed liner produces finished product in one step
Powdermet® Technologies
Capacity growth to meet customer global demand
Powdermet® is an additive manufacturing technology whose potential **market size is measured in £ billions** – it will progressively replace forging plus machining.

**Rate of market adoption is the growth constraint** – broadening existing applications and diversifying into new market sectors e.g. aerospace, nuclear.

**Very limited competition**, none of which match Bodycote’s technology and breadth of service.