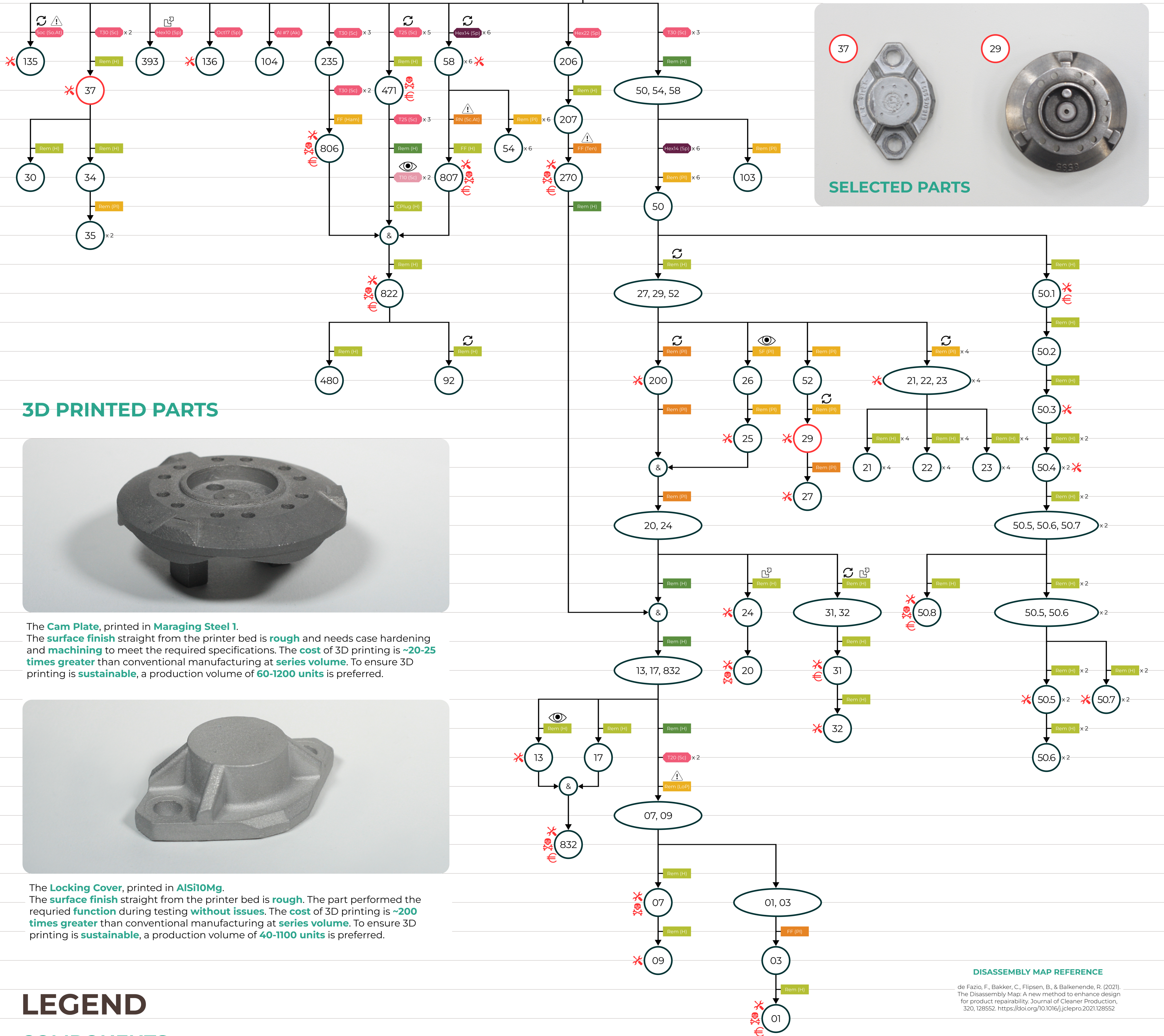
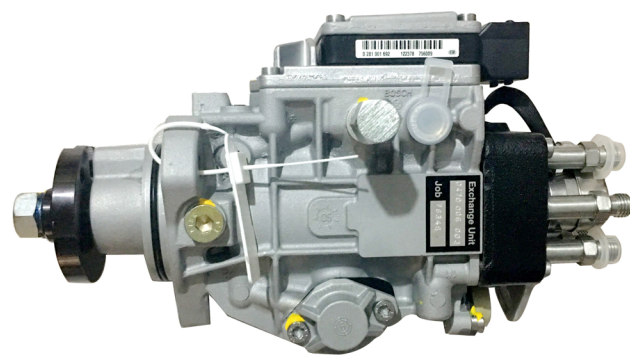
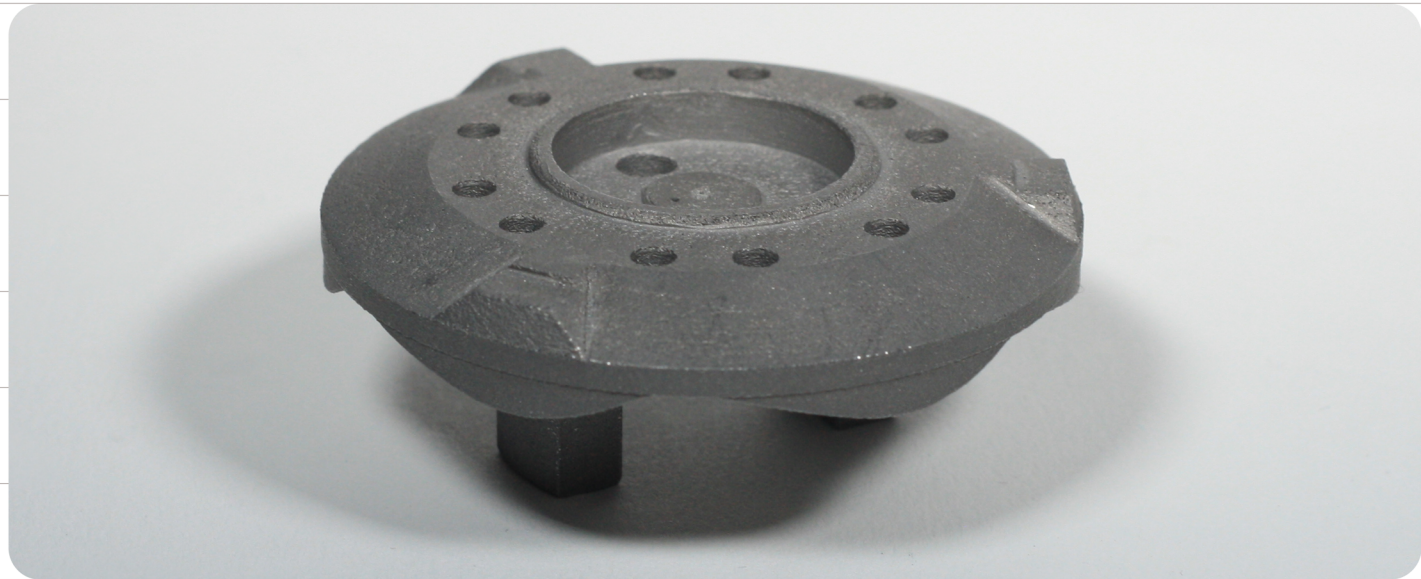


# BOSCH VP30 DISTRIBUTOR PUMP DISASSEMBLY MAP

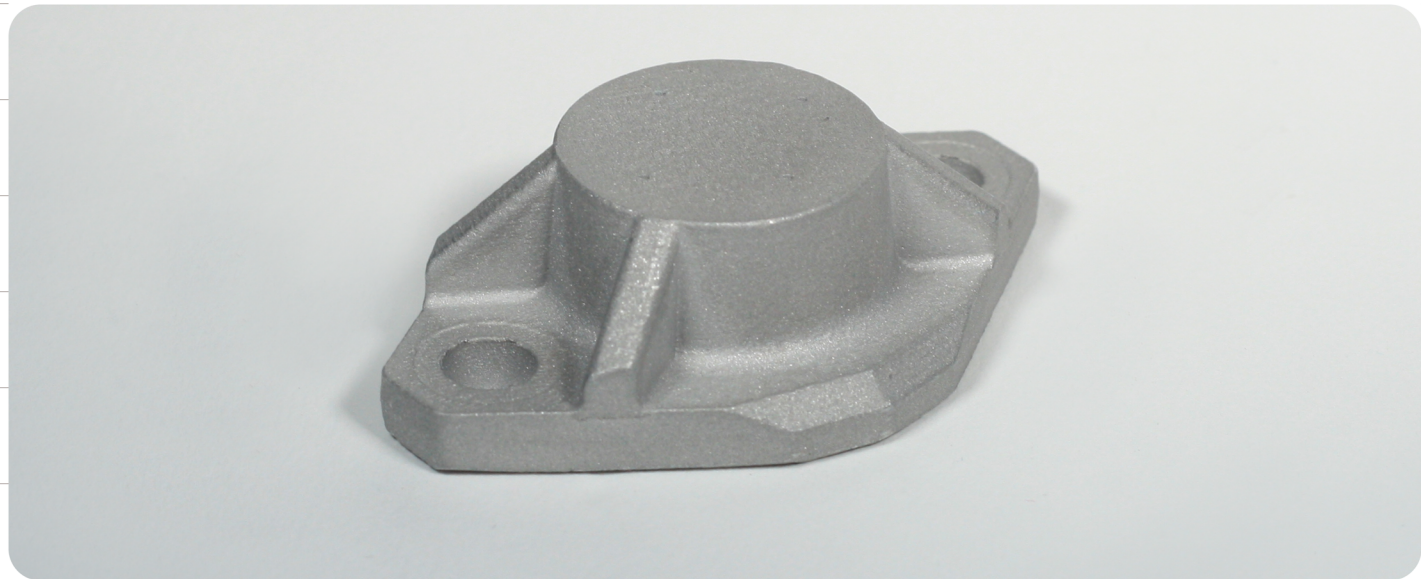
A disassembly map showcasing the product architecture, priority components with emphasis on 3D printed spare parts



## 3D PRINTED PARTS



The **Cam Plate**, printed in **Maraging Steel 1**. The **surface finish** straight from the printer bed is **rough** and needs case hardening and **machining** to meet the required specifications. The **cost** of 3D printing is **~20-25 times greater** than conventional manufacturing at **series volume**. To ensure 3D printing is **sustainable**, a production volume of **60-1200 units** is preferred.



The **Locking Cover**, printed in **AISI10Mg**. The **surface finish** straight from the printer bed is **rough**. The part performed the required **function** during testing **without issues**. The **cost** of 3D printing is **~200 times greater** than conventional manufacturing at **series volume**. To ensure 3D printing is **sustainable**, a production volume of **40-1100 units** is preferred.

## LEGEND

### COMPONENTS

- |                                      |  |
|--------------------------------------|--|
| 01- Pumpengehause                    | 103 - Dichtring                          |
| 03 - Wellendichtring                 | 104 - Verschlusscharaube                 |
| 07 - Kraftstoff-forderpumpe          | 135 - Regelventil                        |
| 09 - Stutzring                       | 136 - Überstromventil                    |
| 13 - Scheibenfeder                   | 200 - Druckfeder                         |
| 17 - Gleitscheibe                    | 206 - Sechskantmutter                    |
| 20 - Rollenring                      | 207 - Federring                          |
| 21 - Lagerbolzen                     | 235 - Stutzplatte                        |
| 22 - Laufrolle                       | 270 - Kuplungshälfte                     |
| 23 - Anlaufscheibe                   | 393 - Verschlusscharaube                 |
| 24 - Verstellbolzen                  | 471 - Verschlussdeckel                   |
| 25 - Haltebolzen                     | 480 - O Ring                             |
| 26 - Haltebugel                      | 806 - Teilesatz Magnetventil (SA)        |
| 27 - Kreuzscheibe                    | 807 - Teilesatz Magnetventil DMV 11 (SA) |
| 29 - Hubscheibe                      | 822 - Teilesatz Steuergerät (SA)         |
| 30 - Dichtblech                      | 832 - Teilesatz Antriebswelle            |
| 31 - Spritzverstellerkolben          |  |
| 32 - Gleitstück                      |  |
| 34 - Druckfeder                      |  |
| 35 - Aushwahlgruppe Distanzscheibe   |  |
| 37 - Verschlussdeckel                |  |
| 50 - Verteilerkörper (SA)            |  |
| 52 - Aushwahlgruppe Ausgleichscheibe |  |
| 54 - Dichtscheibe                    |  |
| 58 - Anschlussstutzen                |  |
| 92 - Dichtring                       |  |
|                                      | 50.1 - Verteilerkolben                   |
|                                      | 50.2 - Ausgleichscheibe                  |
|                                      | 50.3 - Federbrücke                       |
|                                      | 50.4 - Druckfeder                        |
|                                      | 50.5 - Federteller                       |
|                                      | 50.6 - Aushwahlgruppe Distanzscheibe     |
|                                      | 50.7 - Führungsstift                     |
|                                      | 50.8 - Anschlussflansch                  |

### MOTION INTENSITY

	LOW	MID	HIGH	
HAND				SINGLE MOTION ACTION
TOOL				MULTIPLE MOTION ACTION

### CONNECTORS

T30 - Torx T30  
T25 - Torx T25  
T20 - Torx T20  
T10 - Torx T10  
Hex22 - Hexagonal Head #22  
Hex14 - Hexagonal Head #14  
Hex10 - Hexagonal Head #10  
Oct17 - Octagonal Head #17  
Al #7 - Allen Head #7  
CPlug - Cable Plug  
Soc - Socket  
SF - Snap Fit  
FF - Friction Fit  
RN - Retaining Nut  
Rem - Removal Action

### TOOLS

Sc - Screwdriver  
PI - Pliers  
Ham - Hammer  
H - Hands  
Sp - Spanner  
Ak - Allen Key  
Ten - Tensioner  
Sc.At - Screw Attachment  
LoP - Locking Pin  
So.At - Socket Attachment

### PART INDICATOR

- PRIORITY PART
- ENVIRONMENTAL IMPACT
- ECONOMIC VALUE

### PENALTY POINTS

- PRODUCT MANIPULATION
- LOW VISIBILITY/IDENTIFIABILITY
- UNCOMMON TOOL
- DIFFERENT REASSEMBLY SEQUENCE

DISASSEMBLY MAP REFERENCE  
de Fazio, F., Bakker, C., Flipsen, B., & Balkenende, R. (2021). The Disassembly Map: A new method to enhance design for product reparability. Journal of Cleaner Production, 320, 128552. <https://doi.org/10.1016/j.jclepro.2021.128552>

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Remanufacturing Fuel Injection Pumps  
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Integrated Product Design - MVE

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