Innovations for a better world.

Retrofit Kits for 3D.

Customer Service Sales Booklet
Retrofit Solutions for 3D Machines
Customer Support and Services.
Always on hand to sustain your business.

• Bühler Leybold Optics provides retrofits for complete machines and upgrades of control systems on old systems.

• Bühler’s worldwide customer service as well as the fast delivery of replacement and wear-and-tear parts are just two important aspects of customer support. Preventive maintenance and inspection together with machine re-conditioning and upgrading round-off the after-sales services.
Retrofit Solutions
General Retrofit Solutions for Bühler 3D Machines.

Solution:
• Monomer supply box, with flow controller, tempering of monomer and monomer level detection
• Exchange of SSV, Hüttinger Scalo or Tig against actual NEW “True Plasma”
• Exchange SV630F with actual new SV630B

Added value:
• ECO-Mode (electrical power saving) in stand by: power saving up to 30%
• Upgrade from Beckhoff -Windows NT or XP based PC systems to Windows ®7
• Upgrade of Siemens PLC  system to Windows based PC system
• Implementation of process “Haze No More“
Retrofit Solutions
AluMet 1800V.

Solution:
• Cold trap spiral => helix (improved H2O pumping)
• Diffusion pump HS20 <= DIP 20t or 30t
• MF-Glow process: Hüttinger TIG10
  => Advanced Energy PEII5K
• Installation of LeyboldOptics DC glow discharge system
• Stand alone DC or MF (40kHz) power supplies, with or without feed through and electrodes
• Manual operated monomer / gas supply system for glow discharge processes

Added value:
• New control system
• Overhaul of old horizontal LO-systems (BALZERS: BAH or old LeyboldOptics A machines)
• New electrical system (Beckhoff) and new pump sets + glow process (Top Coat)
• Diverse filament fixtures for easy and stabilized production
• Higher output and latest technology products
Retrofit Solutions
CompactMet GEN1/2 to GEN3.

Solution:
• Wipe out function (V4.8) for improved cold trap function (remove maximum of H₂O)
• Program pre-selection via additional push bottoms at each door
• New plasma electrode for CompactMet
• New electrode design
• New evaporator design
• New feed through V1 and cold trap valve (cartridge system for fast maintenance)

Added value:
• Stabilized production
• Less maintenance necessary
• Reduced complexity due to less and simple components
Retrofit Solutions
CompactMet.

Optimized Aluminum evaporator:
• Less vibration: less breaking of filaments
• Simple and safe clamping mechanism:
  best electrical contact, suitable for different shapes of filaments

DIP 20000 instead of DIP 12000
• Pump speed to 1-EXP-5mBar in 5-6min at empty/ clean chamber
• Faster cycle time
• Increased productivity
Retrofit Solutions
CompactMet: Optimized Vacuum feed through cold trap valve V.3.2.

Solution:
• Bigger flange allows complete disassembly of the pneumatic cylinder
• Separate sealing and bushing unit (can be exchanged in one piece)
• Sealing unit can be stock part
• Same sealing unit of cold trap and of diffusion pump valve feed-through

Added value:
• Increased lifetime of sealing due to better mechanical protection and lubrication
• Easy disassembly and reassembly of wear parts (e.g. x-rings)
• Less replacement time, less machine downtime and less spare parts
• Easy maintenance
Retrofit Solutions
CompactMet: Optimized Vacuum feed through diffusion pump valve V.1.1.

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• Bigger flange allows complete disassembly of the pneumatic cylinder
• Separate sealing and bushing unit, which can be exchanged in one piece
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• Less replacement time, less machine downtime and less spare parts
• Easy maintenance
Retrofit Solutions
PylonMet.

Solution:
• Retrofit of automatic door movement
• MF-Glow process: Hüttinger TIG10 => AE PEII5K
• Door side recipe mapping
• HS20

Added value:
• Change from “safety mats” to touch free scanner system
• Clocked water for target tempering (avoiding of moisture)
• Higher safety (no steps in operator area)
• Reduced operating costs
Retrofit Solutions
DynaMet 4V.

Solution:
• Retrofit TMP 1000C to Pfeiffer HiPace 2300 incl. software and circuit diagram
• Overhaul: Main drum / Lock feed through / incl. installation
• Upgrade: RFG 3001 or RFDS against successor Advanced Energy “Paramount 13,56”
• Upgrade: old Alan Bradley control system to actual Beckhoff WIN7 based system
• Upgrade handling: pneumatic to electro mechanical gear box incl. software and circuit diagram
• Upgrade: SSV60/75 or TIG90 or Scalo to actual “TruPlasma” power supplies with 2khz Arc management

Added value:
• Stabilized production
Retrofit Solutions
TruPlasma Generation for PylonMet and DynaMet.

Solution:
- Necessary power supplies for one D4V installed in a cabinet with a rack system, plus additional components for interface, cooling water supply and power distribution
- Cabinet:
  - 19” rack system
  - Height: 2000mm + 200mm socket
  - Width: 600mm
  - Depth: 800mm

Added value:
- Improved power supply for PylonMet and DynaMet machines
- Stabilized production

Installation and setup time of the interface: 1 week
Retrofit Solutions
Retrofits of Non-Bühler systems.

Key benefits:
• Continuous usage of latest substrate holders / tools etc.
• Latest state of the art PC “Windows7®”- based & Monitoring System (CompactMet)
• Complete new electrical system
• Spare parts availability
• Latest safety devices CE (if required)
• Stabilized production
• Bühler support via remote possible

Bühler Leybold Optics offers upgrades of complete electrical systems incl. Galileo software and upgrades of similar machines.

Examples for Retrofits of Non-Bühler systems
Retrofit Matrix for 3D Machines
## Retrofit Matrix for 3D Machines

### Retrofit Kits for 3D Machines

<table>
<thead>
<tr>
<th></th>
<th>CompactMet</th>
<th>AluMet</th>
<th>DynaLine</th>
<th>DynaMet</th>
<th>PylonMet</th>
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<tr>
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[Diagram of retrofit matrix]
## Retrofit Matrix for 3D Machines.

<table>
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<tr>
<th>Models</th>
<th>AluMet 1800 V</th>
<th>CompactMet</th>
<th>PylonMet 1V / VXL</th>
<th>DynaMet 4V</th>
<th>DynaMet 3H</th>
<th>DynaMet 2H</th>
<th>DynaLine 4V / 5V</th>
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### Features

- **Beckhoff/ WPF/ Win7 Flash PC**
- **Beckhoff PLC, I/Os/ Intouch 10/ Win7**
- **Feed through V1**
- **Feed through cold trap valve**
- **Optimized aluminum evaporator**
- **TruPlasma Generation**

*Note: The table indicates compatibility with different models.*
Consumables for 3D Machines
Retrofit Solutions
Filaments.

Solution:
• Bühler Leybold Optics offers a wide range of filaments in standard and customized shapes and sizes
• Types: W-shape or spiral shape

Key benefits:
• Customized parts meeting highest quality expectations
• Reliable and highest quality standard products
• Process technology support

We develop tailored and optimized products to suit your specific applications upon request.
Retrofit Solutions
Targets.

Solution:
• All sizes can be tailor-made as per customer’s standard
• Bonding service
• Backing plate manufacturing
• Sputtering targets offered include: pure metals, precious metals, oxides and fluorides

Key benefits:
• Customized parts meeting highest quality expectations
• Reliable and highest quality standard products
• Broad product range and high quality sputtering targets

We develop tailored and optimized products to suit your specific applications upon request.
Retrofit Solutions
Glipoxan.

Solution:
• For the production of a corrosion-resistant coating
• For high reflectivity on the surface of workpieces, especially reflector inserts formed from plastic
• Processed in a vacuum chamber with a glow-discharge cathode and an evaporator

We develop tailored and optimized products to suit your specific applications upon request.
Retrofit Solutions
Aluminum wires and coils.

Key benefits:
• Aluminum wires with different impurity levels
• Offer an excellent electrical conductivity
• High corrosion resistance and good weldability
• Tensile strength
• High formability

We develop tailored and optimized products to suit your specific applications upon request.
In the Region for the Region. Differentiation through expansion of global service network.

90 service stations worldwide...

… for customer service along the entire lifecycle of their solutions.

- Continued investment in our skills on-site with our Service Academy.
- Ongoing initiatives for the reduction of our reaction time for customer enquiries.
- Commitment to highest service quality.
Engineering Customer Success.