



FOR SMART HIGHSPEED INJECTION

**SHORTER** CYCLE TIME

**LESS** SHEAR RATE

**REDUCED** PRESSURE



[fdu-hotrunner.com](http://fdu-hotrunner.com)

## FDU - THE FUTURE OF INJECTION MOULDING

The „Flat Die Unit“ is a development synergy project. It combines the benefits of the injection moulding and extrusion technology.

The FDU is a establish hot-runner nozzle system for injection moulds. The flow channel in the nozzle has been projected onto a flat nozzle. The plastic flows evenly into the cavity through a defined narrow gap.

With FDU technical plastics and filled materials such as recycling material can also be used.

Finalised projects show that we achieved significant reductions of cycle time and injection pressures.

Benefit from the advantages of the FDU and the resulting higher productivity and use the future of injection moulding already right now!

## FDU PRODUCT PORTFOLIO

	FDU MIDI open & SLS	FDU MAXI open & SLS
<b>Nozzle lengths</b>	120-320 mm (stepless)	160-520 mm (stepless)
<b>Melt channel open</b>	16 mm	20-24 mm
<b>Melt channel SLS</b>	16 mm	20-24 mm
<b>Cross-sectional area at the outlet open*</b>	21 mm <sup>2</sup>	50 mm <sup>2</sup>
<b>Cross-sectional area at outlet SLS*</b>	42 mm <sup>2</sup>	100 mm <sup>2</sup>
<b>Shot capacities open*</b>	50-1.000 cm <sup>3</sup> /sec.	300-2.000 cm <sup>3</sup> /sec.
<b>Shot capacities SLS*</b>	50-750 cm <sup>3</sup> /sec.	300-1.700 cm <sup>3</sup> /sec.

\* The shot capacities and cross-sectional areas at the outlet are standard values for medium-viscosity, unreinforced plastics. The nozzle design will be checked project-related by your FDU team.

FDU MIDI

open



FDU MAXI

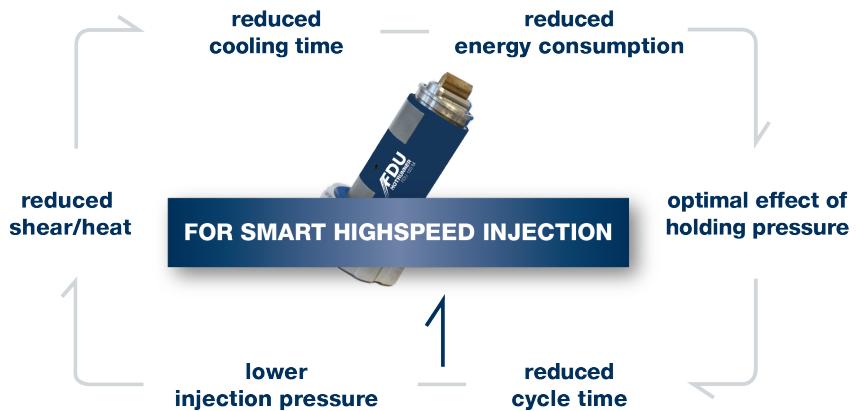


SLS



## ADVANTAGES FDU

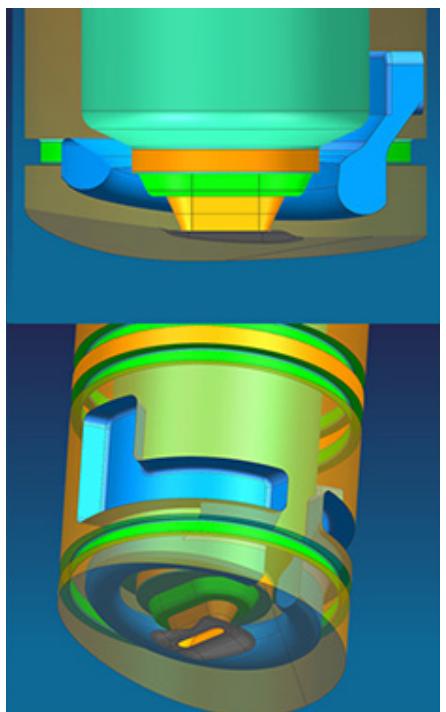
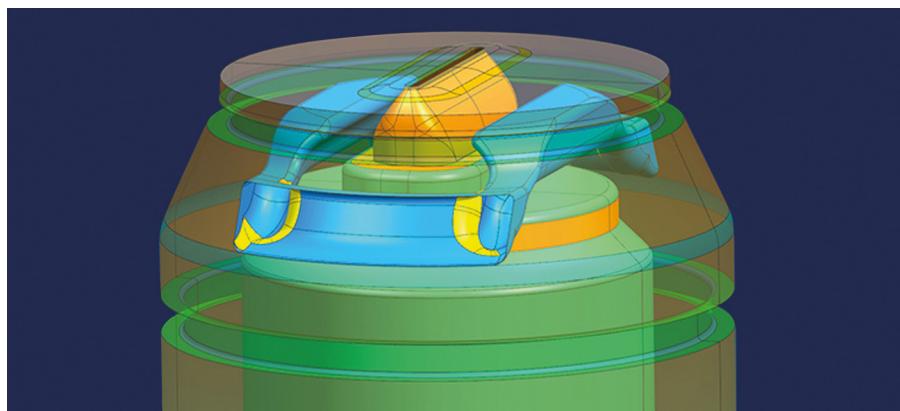
- **Reduction** of injection time
- **Reduction** of holding pressure time
- **Optimum effect** of holding pressure
- **Shorter** cooling times
- **Reduction** of shear
- **Improvement** of part quality
- **Use** of new materials/recycling-material
- **No** jetting
- **New** constructive connectivity options



## COMPARISON FDU VS. ROUND NOZZLE

	Cross-section area FDU	Outlet diameter round nozzle	Cross-section area round nozzle
Midi 14 SO x 1,0	14 mm <sup>2</sup>	Ø 4,2	14 mm <sup>2</sup>
Midi 14 SLS x 2	28 mm <sup>2</sup>	Ø 6	28 mm <sup>2</sup>
Midi 14 SO x 1,5	21 mm <sup>2</sup>	Ø 5,2	21 mm <sup>2</sup>
Midi 14 SLS x 2,85	40 mm <sup>2</sup>	Ø 7,1	40 mm <sup>2</sup>
Maxi 25 SO x 2	50 mm <sup>2</sup>	Ø 8	50 mm <sup>2</sup>
Maxi 25 SLS x 2,5	62,5 mm <sup>2</sup>	Ø 9	62,5 mm <sup>2</sup>
Maxi 25 SO x 2,5	62,5 mm <sup>2</sup>	Ø 8,9	62,5 mm <sup>2</sup>
Maxi 25 SLS x 4,1	100 mm <sup>2</sup>	Ø 11,4	102,4 mm <sup>2</sup>

## FDU COOLING SLEEVE



The FDU cooling bushings are available in several versions. Our experts will be happy to help you make the best choice, perfectly matched to your requirements and needs:

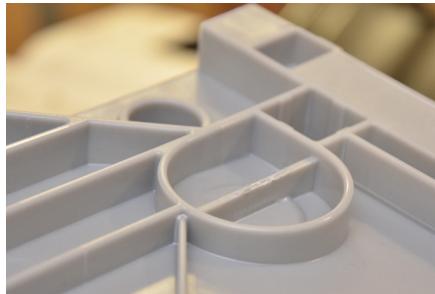
- Drilled variant
- Cooling bush manufactured by means of metal 3D printing
- Hybrid laser-engineered bushing
- Lasertec welded cooling bush

## REALISED PROJECTS AND THEIR BENEFITS



### LOGISTICS CONTAINER

- Cycle time reduction 17 %
- 300 bar less pressure drop
- Direct connection on the rib



### WHITE GOOD

- Cycle time reduction 14 %
- 22 % less pressure drop
- Energy saving 2,6 ct/pc.



### WRINKLE-POT

- Sequential injection with FDU SLS
- Optimal holding pressure effect
- Especially for foamed material



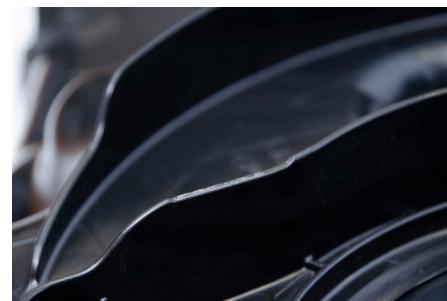
### MOUTH NOSE COVER

- Material TPE / TPU
- Cosmetic tear-off quality with SLS
- Reduced injection pressure



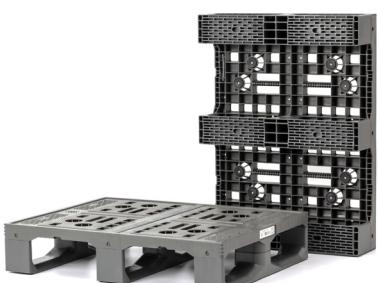
### FIBRE OPTICS

- Low-friction filling
- Improved holding pressure
- Variable profile of injection speed



### AUTOMOTIVE

- Cycle time reduction
- Very good filling behavior
- No restriction of injection speed



### PALLET DECK AND SKIDS

- Cycle time reduction 10 %
- Higher shot weights per nozzle possible
- Gentle fiberglass processing



### FLOW CHANNEL

- Cosmetic tear-off quality
- Cycle time reduction by 16%
- Gentle processing of the polymers and their additives



### SEAT SHELL

- Cycle time reduction by 22%
- Fast color change
- Optimal surfaces and filling behavior



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