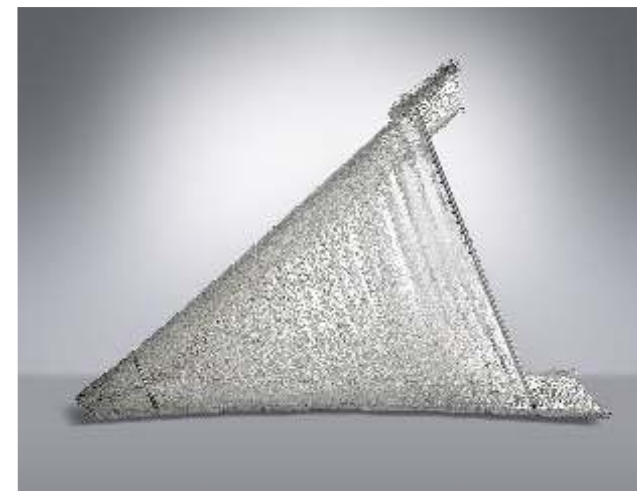
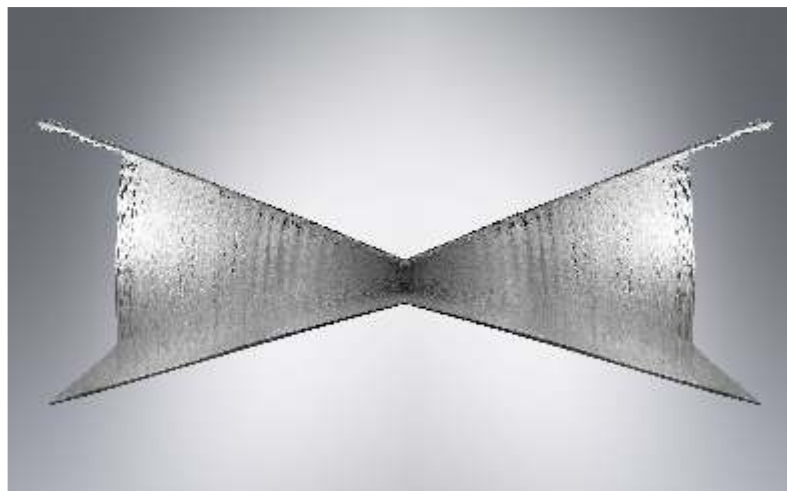


# DIFA

**R&D PROJECT**

3D Woven Distance Fabrics by Automatized Air-jet Weaving Machine



# DIFA

New development of automatized air jet weaving machine “**DIFA**” predicted for industrial weaving of **3D distance fabrics** (high-strength polyester silk).



**STATUS: 05/2017**



**CONTROL TOUCH PANEL**



## **TECHNICAL SPECIFICATION**

### • **MACHINE DRIVE, BEAT-UP AND SHEDDING MECHANISMS**

Individual drives of the mechanisms, with synchronous servomotors controlled in the electronic cam mode

Cam beat-up mechanism with a profile slay from C/E composite material

Shedding mechanism with the Stäubli S3060 electronic rotary dobby (12 heald shafts)

### • **PNEUMATIC WEFT PICKING**

ROJ Super Elf G2 HD 3mm weft feeders

ABS automatic weft brake

Tandem nozzles (two color change)

Main nozzles (two color change)

Left (input) weft cutting, with diamond edges, with an electronically controlled step motor

Profile reed

Relay nozzles

Stretching nozzle

Opto-electric weft stop motion

Right (arrival) weft cutting, with diamond edges, with an electronically controlled step motor

Automatic air pressure control of main and tandem nozzles

Automatic timing of the sections of relay nozzles

### • **LET-OFF MOTION AND BACK RESTS**

2x electronic let-off motion, 1x high-speed, electronically controlled unwinding system

Lower warp beam (binder warp thread system): warp beam face diameter 1000 mm

Upper warp beam (ground warp thread system): warp beam face diameter 700 mm

Fixed back rest system with three rotary rollers

Overall width tensometric sensing, independent for both warping systems

### • **WARP STOP MOTION**

Two-row electric (binder warp thread system)

Four-row electric (ground warp thread system)

### • **TAKE-UP AND PACKAGING**

Electronic take-up motion, controlled in the electronic cam mode

Electronically controlled large-batch winder, type NVS C222S/2300, Cedima

### • **SELVEDGE MOTIONS**

Propeller Leno, Gebr. Klöcker

K-Glass, Selvedge Motion, Gebr. Klöcker, with Mechatronical Drive

### • **DISTANCE FABRIC FORMATION MECHANISM**

Electronically controlled inserting mechanism

Electronically controlled distance mechanism

### • **MACHINE CONTROL**

Machine drive control and distance fabric weaving technology system control, large and variable distances

ACOPUSmulti system and CPU 1585, central processing unit, B&R Automation Color LCD touch communication terminal in a size of 10.1"

Weaving technology continuous monitoring and machine operational diagnostics

External communication via VNC Client and Ethernet

### • **PRODUCTION OUTPUT**

Automatic discontinuous process of distance fabric production

Weaving mode: operational speed 400 rpm (max. 500 rpm)

Distance mode: approx. 20 s

### • **WIDTH**

Nominal reed width 190 cm | Minimum reed width 160 cm | Maximum reed width 220 cm

Distance fabric width in the reed - nominal 150 cm | minimum 120 cm | maximum 180 cm

### • **DISTANCE**

Constant minimum 10 cm

Constant maximum 50 cm

Variable from 10 up to 50 cm (maximum „theoretical“ angle of inclination  $\pm 45^\circ$ )

### • **PROCESSED FIBERS**

High-strength polyester fibers (multifilament): 250 up to 1000 den

High-strength polyamide fibers (multifilament): 250 up to 1000 den

DIFA functional model has been developed in the frame of the R&D project:  
**3D Woven Distance Fabrics by Automated Air-jet Weaving Machine**



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