

EXJECTION®

... Explore New Moulding Dimensions



EXJECTION®

© IB STEINER – 14. April 2009
rx09odekt01v01.han

www.exjection.com

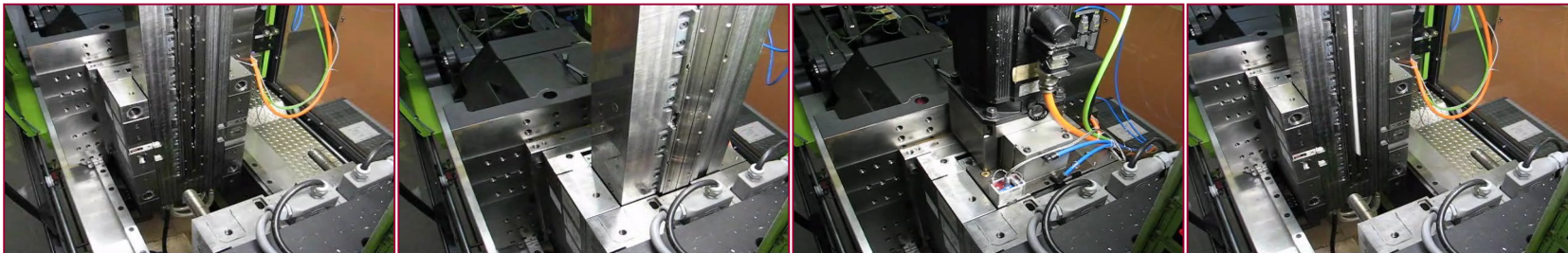


Powered by
HYBRID COMPOSITE PRODUCTS GmbH
and **IB STEINER**

EXJECTION®

... Explore New Moulding Dimensions

- **EXJECTION®** combines the advantages of the legacy technologies of extrusion und injection moulding while avoiding their disadvantages!
- **EXJECTION®** allows the economic production of long, thin-walled plastic profiles with excellent part properties!



EXJECTION® ... Explore New Moulding Dimensions

EXJECTION®

... The Economic Dimension

80 % reduced energy consumption

40 % reduced investment

20 % reduced manufacturing costs

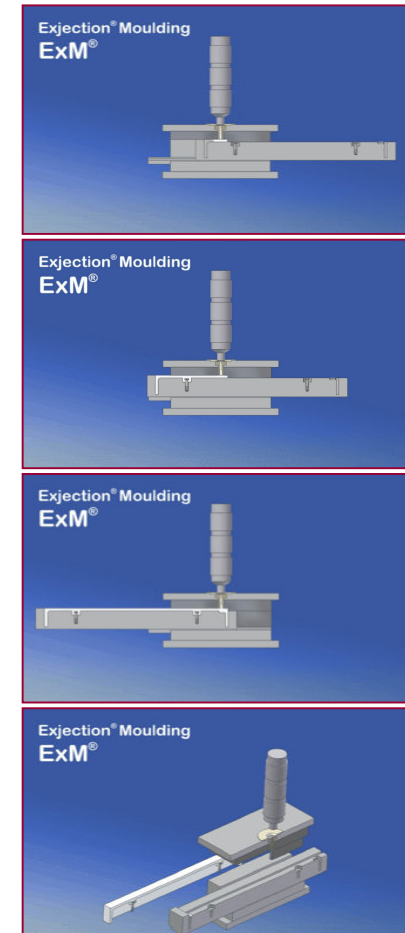
Formula for success: 80 / 40 / 20

EXJECTION® ... Explore New Moulding Dimensions

© IB STEINER – rx09odekt01v01.han – 14. April 2009
Geistiges Eigentum von IB STEINER / intellectual property rights by IB STEINER

EXJECTION® Mould in Motion

- Injection of melt into the moving mould
- Gentle filling of the cavity
- A pressure profile in the emerging part ensures the defined melt compression and acts as after pressure
- Positive effect: Proper reproduction of surface structures and the avoidance of sink marks at functional elements and wall thickness changes



© IB STEINER – rx09odekt01v01.han – 14. April 2009
Geistiges Eigentum von IB STEINER / intellectual property rights by IB STEINER

EXJECTION® ... Explore New Moulding Dimensions

EXJECTION® Is Gentle to the Decor

Your product success ...

- Trim strip with genuine wood veneer
- PC/ABS with solid wood insert
- Total length 1.200 mm
- Clamp force demand 500 kN

EXJECTION® enables the back moulding of sensitive decor materials such as films, textile sheets, leather or even wood.

- Low shear rates
- A minimum of erosion effects at the decor



*TRIM STRIP with wood veneer
© 2009 IB STEINER*

© IB STEINER – rx09odekt01v01.han – 14. April 2009
Geistiges Eigentum von IB STEINER / intellectual property rights by IB STEINER

EXJECTION® ... Explore New Moulding Dimensions

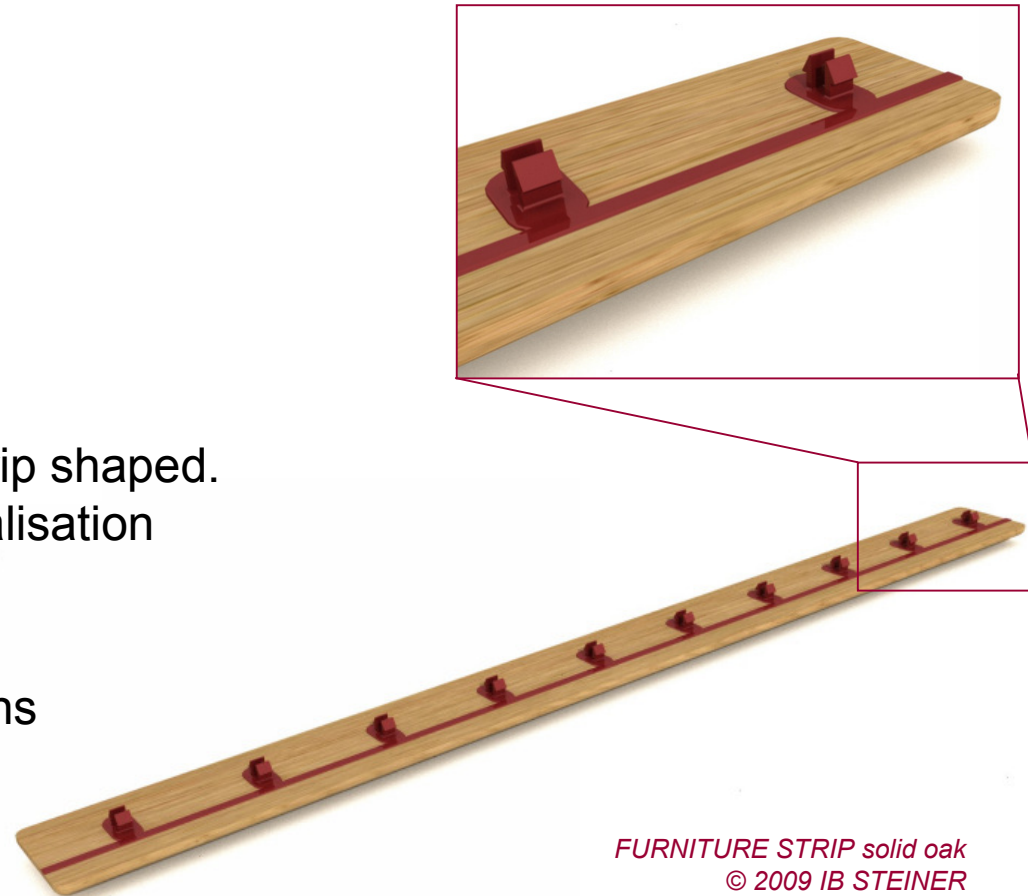
EXJECTION® Makes Functional

Your Product Success ...

- Furniture strip in solid oak
- Integrated mounting elements
- Total length 1.800 mm
- Machine size below 500 kN clamp force

Many wooden components are strip shaped. **EXJECTION®** enables a functionalisation of these products with benefits not known so far.

- Thinking in new applications



*FURNITURE STRIP solid oak
© 2009 IB STEINER*

EXJECTION® ... Explore New Moulding Dimensions

EXJECTION® Covers

Your Product Success ...

- Metal tube coated, 950 mm
- Steel tube 35 mm x 2 mm with 0,5 mm Polypropylene coating
- 4 cavity mould on a 1.000 kN clamp force press
- Handling for inlaying and removal

EXJECTION® offers new possibilities for covering of metal profiles with thin thermoplastic layers.

- Surface protection together with high surface quality
- Product branding by improved design



*FUNCTIONAL PIPE with PP cover
© 2009 IB STEINER*

© IB STEINER – rx09odekt01v01.han – 14. April 2009
Geistiges Eigentum von IB STEINER / intellectual property rights by IB STEINER

EXJECTION® ... Explore New Moulding Dimensions

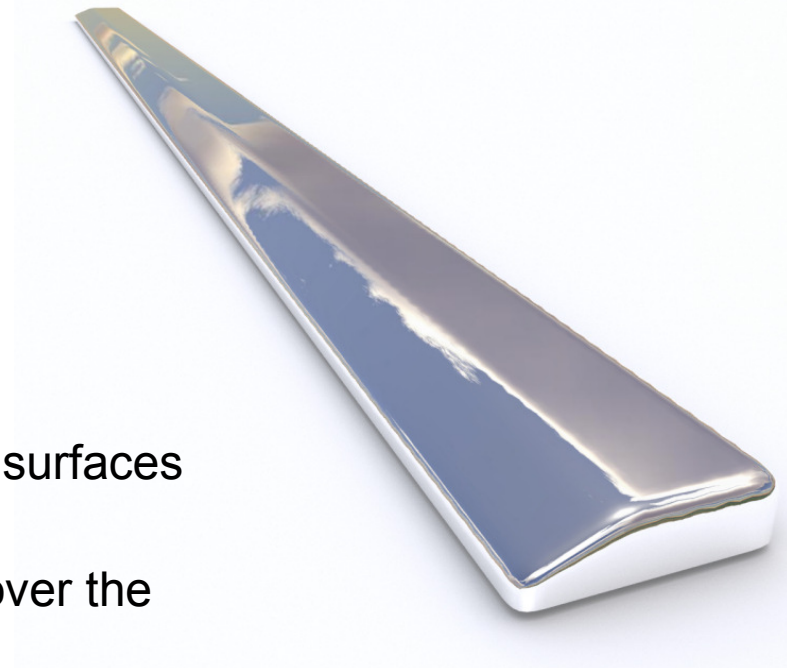
EXJECTION® Shines

Your Product Success ...

- Automotive chrome plated trim strip,
- 970 mm x 35 mm x 12 mm
- ABS with galvanic treatment
- Single cavity mould
- Max. 500 kN clamp force demand

EXJECTION® produces very homogeneous surfaces that are just like meant to be chrome plated

- Homogeneous surface morphology over the whole length of the component
- Highest quality for the whole part



*Chrome Plated TRIM STRIP
© 2009 IB STEINER*

EXJECTION® ... Explore New Moulding Dimensions

EXJECTION® Establishes Connections

Your Product Success ...

- High performance cable tie
1,500 mm at 1.5 mm wall thickness
- Material: VICTREX PEEK
- 4 cavity mould
- Clamp force demand below 500 kN

EXJECTION® makes it possible to produce long parts with only one gate.
Without weld lines.

- Fully utilize the material strength
- Thin walls without weak spots



High Performance CABLE TIE
© 2009 IB STEINER

EXJECTION® ... Explore New Moulding Dimensions

EXJECTION® Reduces Wear

Your Product Success ...

- Slide rail
- 1,000 mm with 3.5 mm wall thickness
- Material: HMW-PE
- 1 cavity mould
- Clamp force demand below 500 kN

Producing slide rails without cost intensive processing of sheet material. With **EXJECTION®** this becomes reality.

- High quality material grades for high operational demands



SLIDE RAIL
© 2009 IB STEINER

© IB STEINER – rx09odekt01v01.han – 14. April 2009
Geistiges Eigentum von IB STEINER / intellectual property rights by IB STEINER

EXJECTION® ... Explore New Moulding Dimensions

EXJECTION® Keeps the Distance

Your Product Success ...

- Spacer for concrete reinforcements
- 2,500 mm x 40 mm x 40 mm
- PP recyclate, rigid PVC
- 4 cavity mould on a 1,500 kN clamp force press

EXJECTION® enables the economic production of very long components with real 3D geometries. Spacers for concrete works can thus be tailored for the application they are intended for.

- Functionality where needed



SPACER © 2009 IB STEINER

EXJECTION® ... Explore New Moulding Dimensions

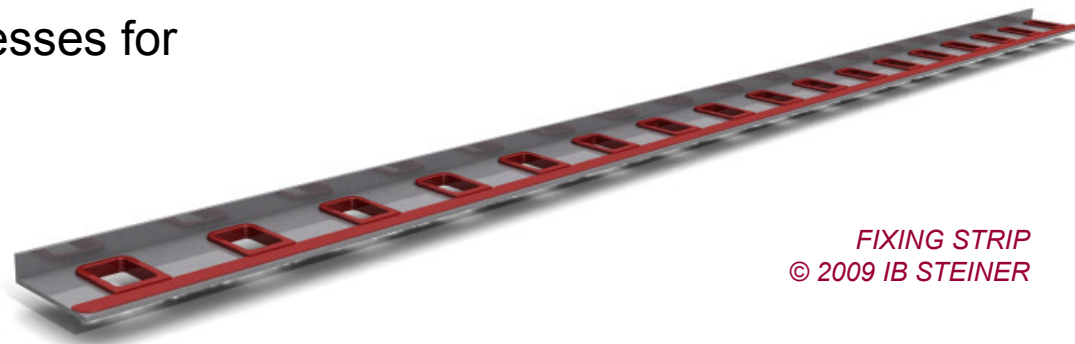
EXJECTION® Insulates

Your Product Success ...

- Insulated fixing strip for control cabinets
- 935 mm x 40 mm x 10 mm
- Passivated steel sheet over moulded with PPE (e.g. NORYL)
- Vertical clamp unit with 250 kN clamp force
- 1 cavity mould

Conventional outsert moulding is state of the art. Nevertheless the limits are known. Not always there is a machine with 15,000 kN clamp force available. **EXJECTION®** breaks through that barrier.

- Employ small sized presses for very long parts



FIXING STRIP
© 2009 IB STEINER

EXJECTION® ... Explore New Moulding Dimensions

EXJECTION® Illuminates

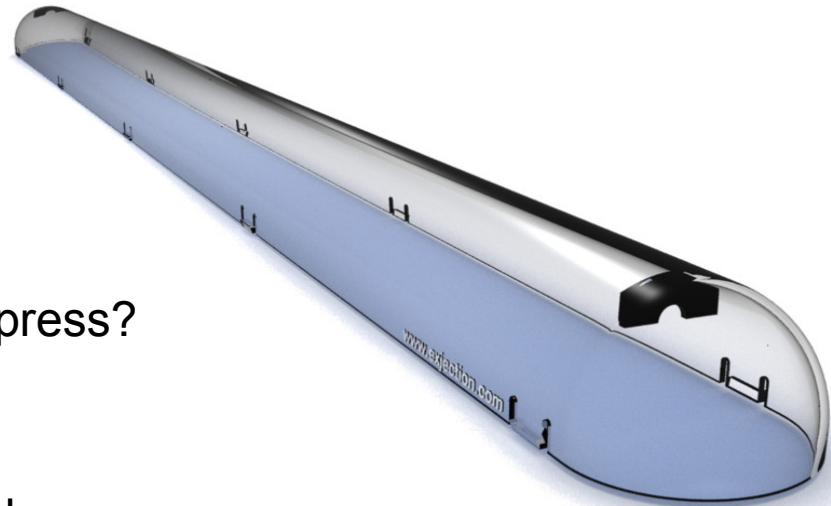
Your Product Success ...

- Transparent lamp cover
- 1,200 mm x 100 mm x 70 mm
- Polycarbonate, crystal clear
- Production on a 1,000 kN clamp unit

Production of lamp covers on a 1,000 kN press?

Only possible with **EXJECTION®**.

- Short flow paths
- A minimum of clamp force demand
- Homogeneous filling



LAMP COVER
© 2009 IB STEINER

EXJECTION® ... Explore New Moulding Dimensions

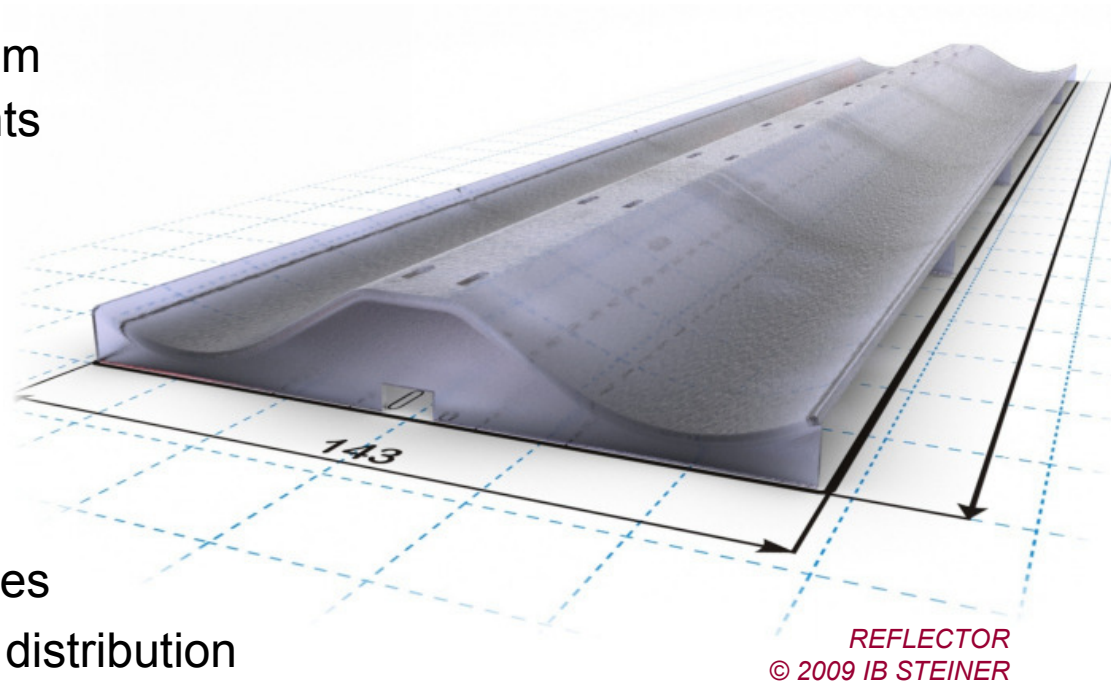
EXJECTION® Reflects

Your Product Success ...

- Reflector for design lamp
- 1,400 mm x 140 mm x 30 mm
- PMMA, with diffusor pigments
- 1,500 kN clamp unit

For the production of lamp reflectors **EXJECTION®** offers more than only one advantage.

- Minimum wall thicknesses
- Homogeneous pigment distribution
- Employment of significantly smaller clamping units



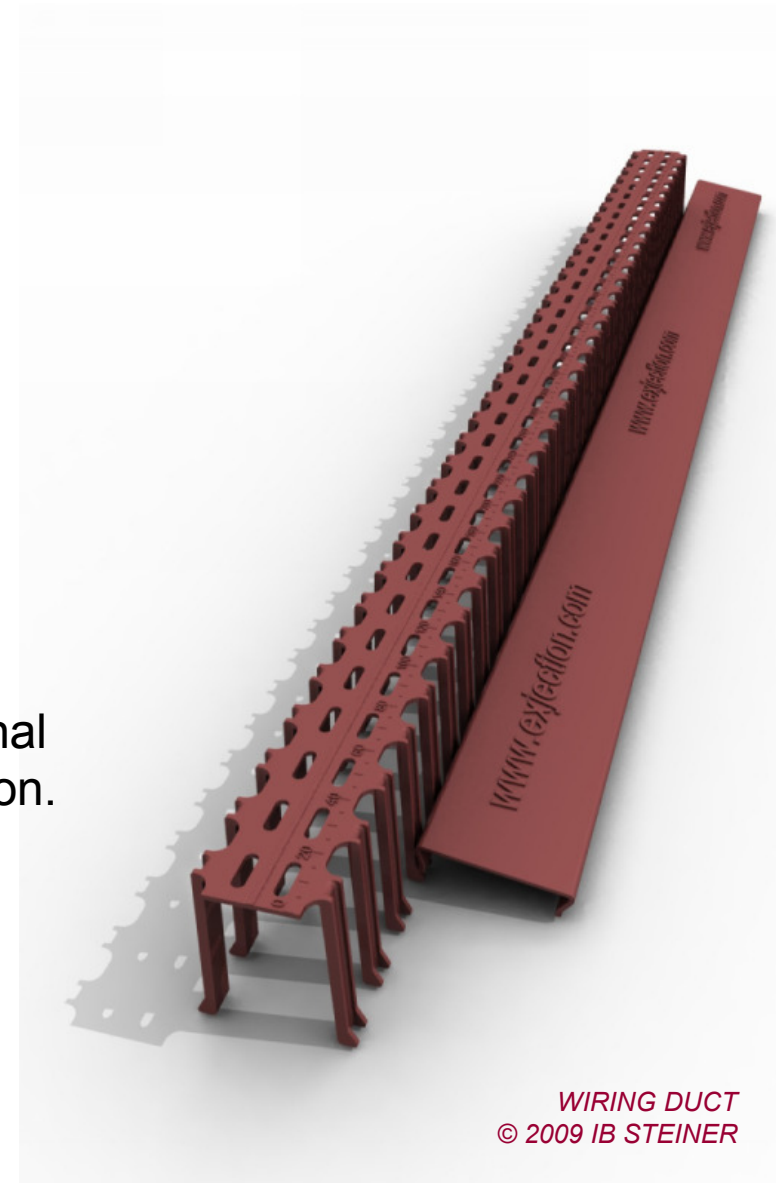
EXJECTION® Guides

Your Product Success ...

- Wiring duct
- 2,000 mm x 50 mm x 70 mm
- PPE (z.B. Noryl®, Luranyl®)
- 2 cavities mould
- 1,000 kN clamp unit

EXJECTION® enables really three dimensional products. A combination of design and function.

- Optimization of the materials usage
- Increasing the functionality
- Improvement of product design



EXJECTION® ... Explore New Moulding Dimensions

EXJECTION® Decorates

Your Product Success ...

- Decoration strip with decor
- 900 mm x 40 mm x 6 mm
- ABS/PC with decor film
- 2 cavities mould
- 1,000 kN clamping unit

Profiles with ribs. **EXJECTION®** makes possible what the extrusion guys desire.

- Real 3D geometry
- Integrated Functionality
- Unimagined possibilities in design



*DECORATION STRIP
with ribs and film decoration
© 2009 IB STEINER*

EXJECTION® ... Explore New Moulding Dimensions

EXJECTION® Transmits

Your Product Success ...

- Gear rack
- 1,320 mm x 40 mm x 15 mm
- POM, HOSTACOM C2521
- Vertical machine with 500 kN clamping unit

EXJECTION® enables the use of even high viscosity POM resins for the production of gear racks. For improved performance characteristics of the components.

- High cristallinity causes superior mechanical values and high abrasion resistance
- Low molecular orientation results in reduced warpage



GEAR RACK
© 2009 IB STEINER

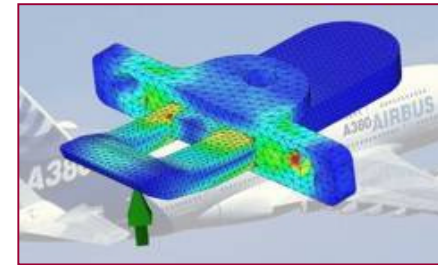
© IB STEINER – rx09odekt01v01.han – 14. April 2009
Geistiges Eigentum von IB STEINER / intellectual property rights by IB STEINER

EXJECTION® ... Explore New Moulding Dimensions

EXJECTION® - Built on Competence

EXJECTION® is a cooperative development of

- IB STEINER Innovation Business,
A-8724 Spielberg
www.ibsteiner.com



- HYBRID COMPOSITE PRODUCTS GmbH,
A-8724 Spielberg
www.hcp0.com



EXJECTION® ... Explore New Moulding Dimensions

Your Contact to EXJECTION®

- Additional technical facts and details
- Feasibility studies and development cooperation
- Information concerning licensing policy



IB STEINER

Innovation Business

Poststrasse 12

A-8724 Spielberg

Tel.: + 43 / 35 12 / 72 77 6 - 0*

Fax.: + 43 / 35 12 / 72 77 66

Email: exjection@ibsteiner.com



© IB STEINER – rx09odekt01v01.han – 14. April 2009
Geistiges Eigentum von IB STEINER / intellectual property rights by IB STEINER

EXJECTION® ... Explore New Moulding Dimensions

Disclaimer

The results of the actual document correspond to the state of engineering at the moment of the preparation of this document. These results are based on various investigations and/or tests and measurements, which have been done with high competence. The data of third parties which were used during the investigation were checked on plausibility. IB STEINER take on no liability for these data.

Later modifications of interpretations of the results of this report based on newer knowledge and/or newer data and unclarity in the interpretation of the results have to be discussed with the author and represent a new state of knowledge.

At simulations the reality is described exemplarily. Due to the huge amount of data and the complexity of the applied material data no check of single parameters in the databases is possible with acceptable effort. All information and results that are mentioned in this document are without obligation. Therefore IB STEINER take on no liability for differences of calculated results from reality which are caused by software errors or deviations of material data.

IB STEINER take on no guarantee, liability or other responsibility for decisions and steps of the customer, which will be made in reference to this report and on the basis of the results of this report.

The replication or the utilization of the documents in parts without a reference on the present document is not allowed. If only parts of the document are used the total context of this document is to be presented in an objective and not tendentious manner.