

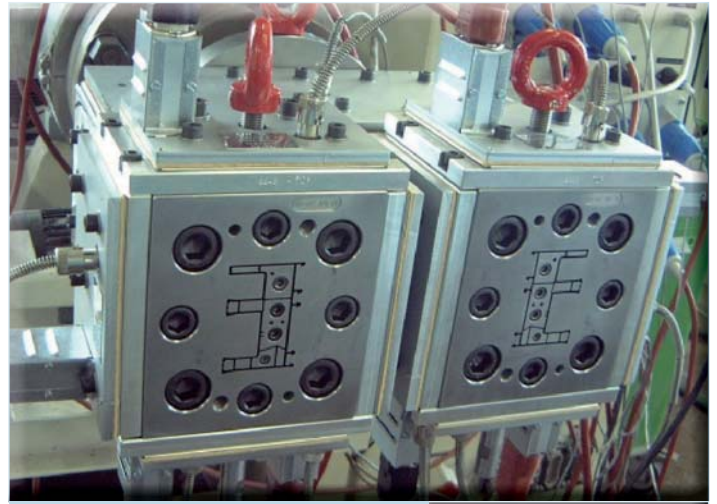
# PVC Profile extrusion A Theysohn core competence

No matter if your task is production of window profiles, cable channels, gutters or technical profiles. If cost efficiency, reliability and quality is your target, Theysohn Extrusion, Austria, is your contact to get in touch with.

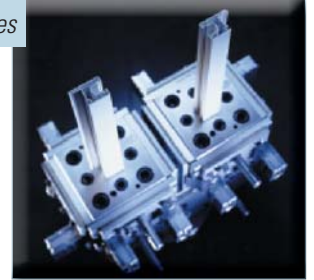
Author: Peter Berger (pbe@theysohn.at)  
General Manager Sales & Marketing Theysohn Group



Theysohn Extrusion - Headquarter Korneuburg, Austria



Double strand diehead for window profiles



Beginning a technical article on profile extrusion the author always tries to attract your attention by emphasizing the technical aspect of his message. No doubt, this is important. But beside this fact let us also have another view into the matter: A glance into the philosophy behind the investment.

Let us look at what investors may see as the major key point for their decision. One should believe, it is the trust in the technical capability to realize the investment, to correctly execute what has been ordered. Investors must be convinced that the investment is in good hands. And at the end of the day it is not the technical aspect alone that is driving the decision into one specific direction, it is the assumption of a long term partnership that results in success. It is the fact that a company is reliable and that the plant they establish guarantees a long term payback based on a solid technical solution, an efficient process layout and an excellent relationship

between output and a long term period of safe and secure function of the goods invested in. This is what forms the basics of Theysohn philosophy: Based on a long term and solid partnership a reliable company with committed staff is establishing a process layout with best known machinery and tooling to allow an efficient production for decades. This is what the people of Theysohn stand for.

Based on this philosophy for almost three decades extrusion solutions have been developed and realized with numerous customers worldwide. And profile

		<b>WINDOW SYSTEM ENGINEERING</b>		<b>Project:</b> Tuzana Tehni Material Enterprise Co. China		Date: 11/2014	
<b>80 MM</b>		<b>80 MM</b>		<b>88 MM</b>		<b>OTHERS</b>	
IR 58 YT 	GB 34 YT 	HF 80 YT 	GB 8 YT 	HF 88 YT 	IL 35-42 YT 	CP 2 YT 	
SE 74 YT 	FL 16 YT 	SF 55 YT 	GB 20 YT 	HF 60 YT 	GB 10 YT 	CP 6 YT 	
FR 77 YT 	FL 18 YT 	SF 66 YT 	HF 32 YT 	SF 57 YT 	GB 25 YT 	PP 150 YT 	
SF 77 YT 	FR 102 YT 	IL 31 YT 	FB 44 YT 	SF 66-42 YT 	HF 41 YT 		
GB 19 YT 	SF 102 YT 	IL 36 YT 	SP 60 YT 	IL 32 YT 	FB 51 YT 		
			IL 36 YT 		SP 67 YT 		
Scale 1:1		It reserves the right for technical changes				Date: 08/2013	

extrusion always was our key competence. Starting from the largest project ever established in window profile extrusion down to single toolings or extruders, a full range of technologies is put together to form an ideal and well set solution for production of window profiles as well as window sills and panels for doors and shutters. Cable ducts and gutters are also available. Solutions for all mentioned profiles can be offered for PVC in solid as well as foam applications in single layer and co-extrusion in single, double and quadruple strand production.

## Extrusion lines

1000 extruders and downstreams as well as more than 5000 toolings are a solid ground to develop solutions. At Theysohn all major parts forming an extrusion plant can be ordered from one company. The extrusion lines are based on own developments for extruders with special plastification units developed and optimised for PVC compound as well as cyclone based and sucking-pump-technology oriented downstream and tooling concepts, both well known in the industry. In addition complete fully automatic mixing plants can be offered



Large scale extrusion plant with Theysohn technology in China

to allow a cost saving compounding of PVC dryblend in an optimised formulation. The development of a complete window profile system can also be a part of the contract as well as the total layout of the extrusion plant. Theysohn's know-how is built on a fundamental experience with production plants

## Standard components of a modern profile extrusion line



### A EXTRUDER

A wide scale of models (conical and parallel) offering an output range from 10 - 1370 kg/h.

- high torque gearboxes allow back pressure up to 600 bar
- high quality wear protection for screws and barrels
- high safety factors for gearboxes
- special screw design allocated to material specification
- colour feed systems allow inline colour changes
- elliptic barrel shape and continuous temperature control of zone 5 <sup>1) 2)</sup>
- water cooling or active screw core temperature control system <sup>1)</sup>
- ceramic screwshaft coating <sup>1)</sup>
- levelling pads for ideal setting <sup>1)</sup>

<sup>1)</sup> unique Theysohn technical solution

<sup>2)</sup> patents registered

### B EXTRUSION TOOLING

Profile tooling is a highly engineered piece of equipment giving the inner and outer shape to the profile.

- 1 - 6 calibrating systems
- PCE - post coextrusion for gasket applications
- COEX for colour skin and recycled material
- product specific tooling concepts
- several patents pending

### C CALIBRATION TABLE

Constant and flexible management of process media such as cooling water and vacuum distributed to all sections of the extrusion tooling including low energy consumption concepts.

- 3.5 - 20 m calibrating length
- single and double strand
- adjustment and tilting function
- additional options, e.g. PCE units

### D HAUL-OFF

Caterpillars offering a force ranging from 1.2 to 3.0 kN for production speeds in excess of 10 m/min allowing a profile width up to 900 mm.

- single and double strand
- synchronisation to extruder control system
- free access at operator side for easy startup

### E CUTTING UNIT

Synchronised cutting of profiles.

- up to a width of 900 mm
- single and double strand
- various saw blades
- saw and cutter blade solutions

### F TILTING TABLE

Final component is a table to handle profiles for transport and packaging.

- 6 m standard
- special length available

with capacities of up to 600.000 yato produced.

The fundamental understanding of the profile extrusion process allows a perfect settlement of production layout. A wide range of extruders is available starting with smaller co-extruder versions growing to various types of conical and parallel extruders up to an output of almost 1000 kg/h for profile extrusion (e.g. siding). Altogether Theysohn is offering standard solutions around a well set combination of components up to special solutions for extraordinary products not regularly available on the market.

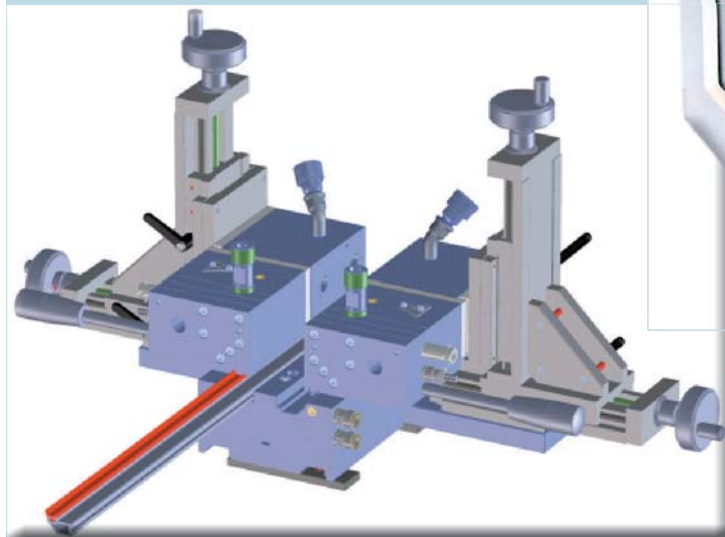
## Window profiles

Profile for window production is the largest market in profile extrusion. More than 30 years ago PVC started its winning path replacing other frame materials as timber and aluminium based on its extraordinary combination of technical properties and price. In some countries like Turkey the market share of PVC windows in the meantime almost reaches unexpected 90%. In western Europe the market share is not far away from 50%. In eastern Europe and Russia the grow rate of PVC is extraordinary. Even in hot areas like Iran PVC with special UV resistant formulations has proved to be the better raw material for frames to go for.

Theysohn Extrusion offers the total package from product development including window system engineering and project management up to turn key supply of complete plants including mixing facilities and training. Theysohn is offering two tooling and two downstream concepts to realize production concepts based on our experience and the preference given by the customer.

A major success was the inline co-extrusion of soft-PVC-gaskets onto glass bead profiles or into main profiles allowing to save a major cost factor on windows, the application of the gasket. In the meantime this so called post-co-extrusion-process is a well known co-extrusion technology.

*Schematic view of post co-extrusion solution*



The main profiles are extruded in single or double strand. On glass beads there are also 4-strand-solutions available for highest output. A logical extension is to produce window sills as well as panels. Whilst window sills are made from web-based or foamed boards, panels are typically web-based structures. Both types of products can be produced on window lines but are also available on highly specialized extrusion lines.



*Rain gutter*

## Cable ducts and gutters

Electrical installation ducts in simple or highly structured designs are a speciality where Theysohn with no doubt is one of the worldwide leading companies offering turn-key extrusion lines. Ducts are produced from PVC in many colours and constructions, from easy-fitted profiles to highly engineered large channels. Special tooling concepts have been developed to form a save technical standard.

*Typical PVC window construction*



On rain gutters the system of profiles ranges from pipes and half-pipes to rectangular shaped solutions. Co-extrusion with UV-resistant polymers like ASA allows special surface appearances that are well accepted by Theysohn's customers worldwide.

## Foam profiles

There are many applications ranging from flat sheet to more sophisticated geometries. In order to save material expanded PVC (foam) has been developed especially for cover profiles and pipes. Originally confronted with scep-

*Window sill*



ticism, today the technology of extruding expanded PVC to form foam profiles has worked out successfully.

*Topf cable channel tooling concept*



Place your inquiries to

Theysohn Extrusionstechnik GmbH  
Girakstrasse 2, Industriepark Nord  
A-2100 Korneuburg, Austria

Phone: +43 2262 75511 0  
Fax: +43 2262 75505  
Email: [office@theysohn.at](mailto:office@theysohn.at)

## Go the safe way, discuss your project now

The experts at Theysohn and Topf have shown their capability to realize almost any project a customer is interested in worldwide. At three production plants (Korneuburg/Austria, Kirchdorf/Austria and Salzgitter/Germany) all products are made by Theysohn. This allows each production location to specialize in their local processes and therefore to offer an extraordinary relation between technology and price of the investment.

So if you are in the phase of evaluating the next step of investment, no matter if you are planning to build up a new factory or to invest in a single tooling or extrusion machine, do not forget to call Theysohn for your individual project quotation and to trust them. They know their job well!

For your inquiry do not hesitate to contact Mr. Peter Berger directly, send it to the above mentioned office or personally discuss your project with the experts from Theysohn Extrusion.

Mr. Peter Berger

Phone: +43 2262 75511 200  
Mobile: +43 676 83511 200  
Fax: +43 2262 75511 23  
Email: [pbe@theysohn.at](mailto:pbe@theysohn.at)  
<http://www.theysohn.at>