

Experiences with technology transfer of SAS in SR

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Office for Technology and Knowledge Transfer
and the Protection of Intellectual Property of SAS

Content

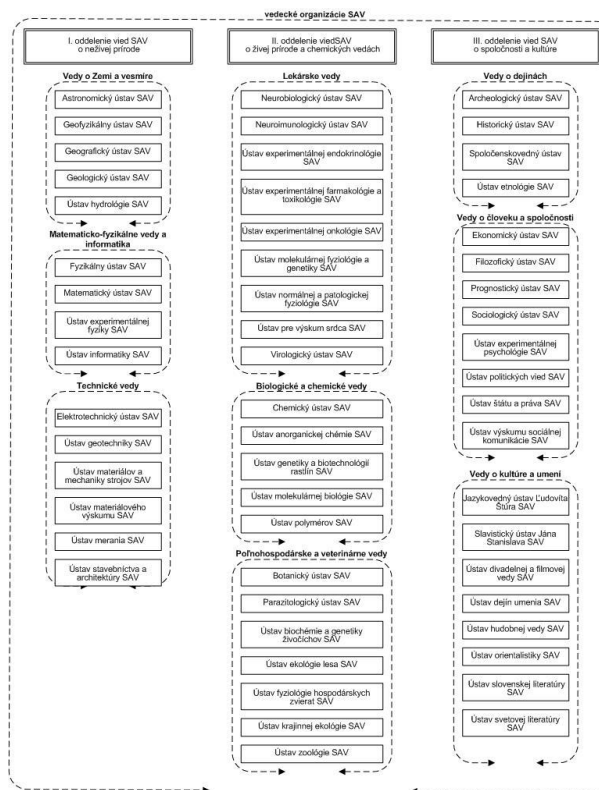
- Few words about TTO SAS
- Beginnings, first steps leading to first "cases" and experience
- Provided services in the field of TT
- Concrete example of realized transfer
- Barriers



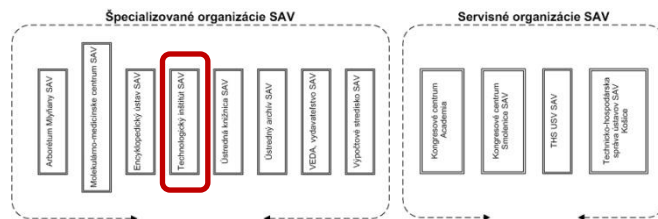
Office for Technology and Knowledge Transfer and the Protection of Intellectual Property of SAS

Slovak Academy of Sciences

Scientific Organizations



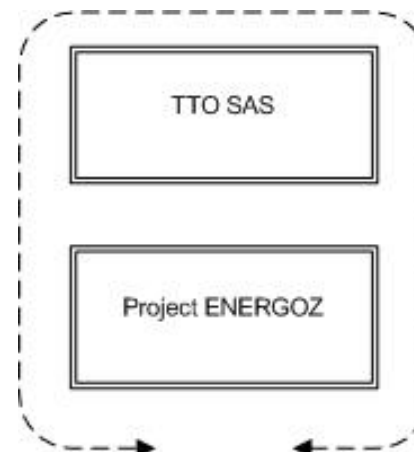
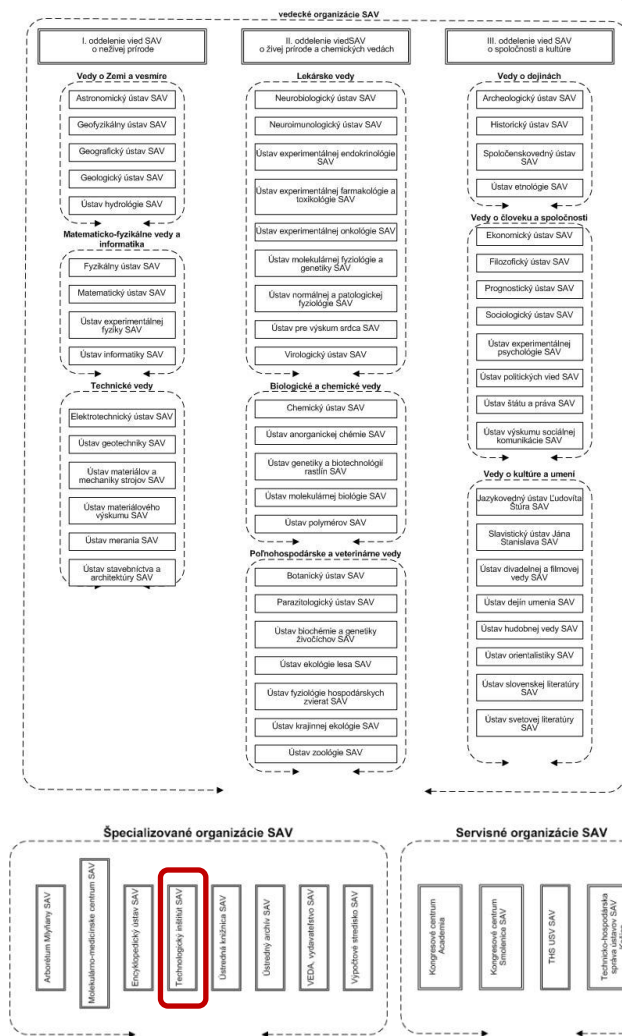
Specialized Organizations



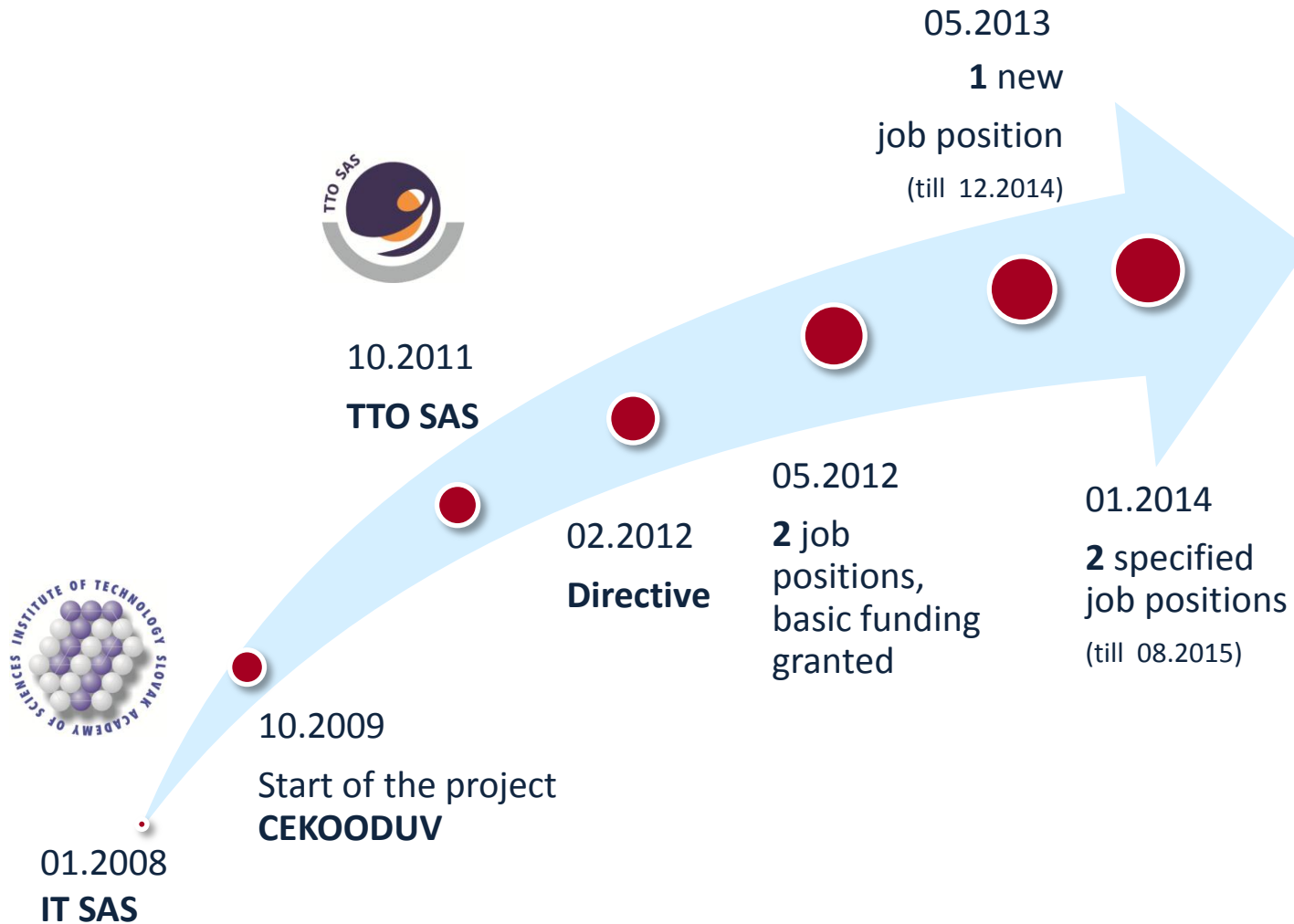
Slovak Academy of Sciences

Scientific Organizations

Specialized Organizations



TTO of SAS



First steps

Directive

**Exercise, protection and use of laws
to industrial property of SAS organization**



Barriers:

- absence of skills and complex view on TT issue
- low awareness of the issue of IP protection and commercialization
- insufficient perception of TT issue
- unreadiness

Technology scouting

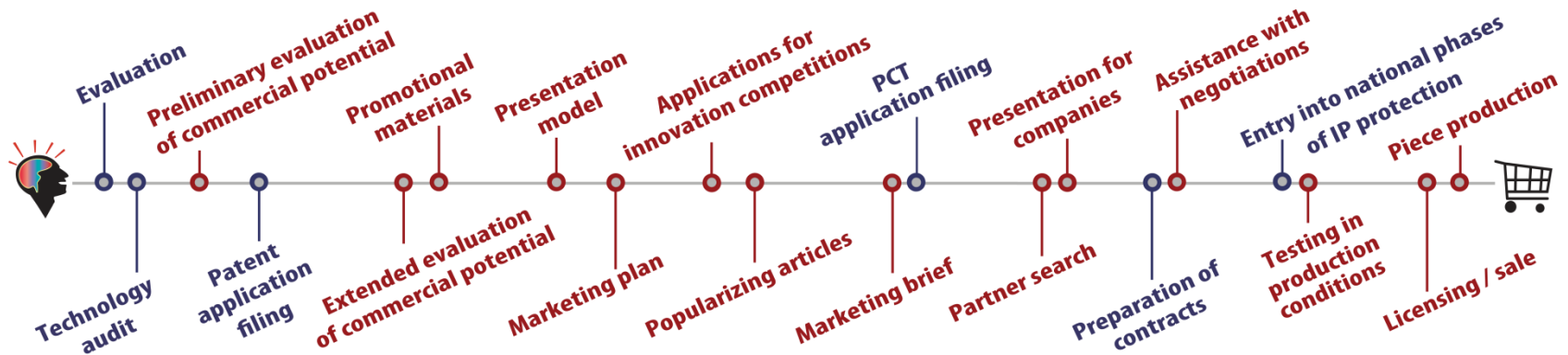
identifying emerging technologies



The first „cases“
at the end of 2011

Our activities

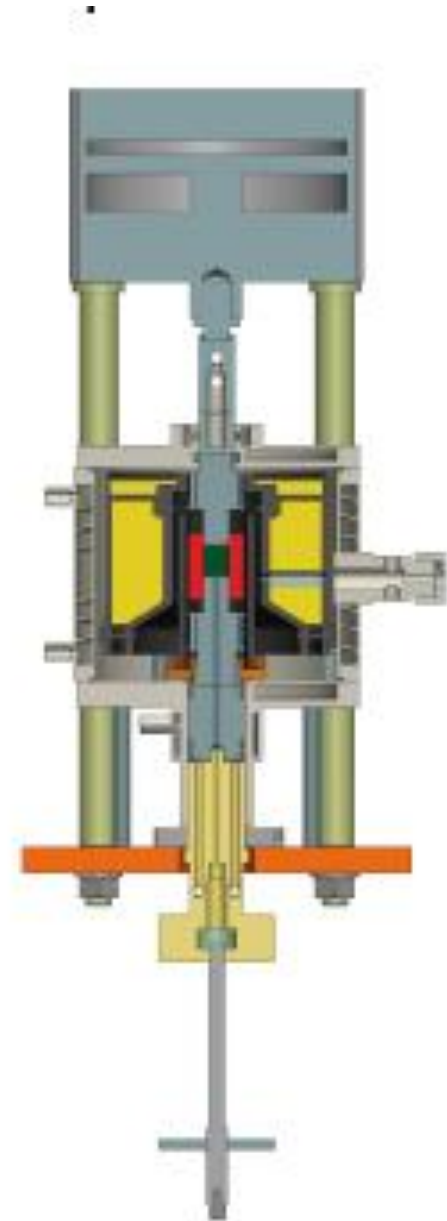
for SAS organization – to individual cases:



for SAS organization :

- services in the field of IP protection
- services in the field of commercialization
- detection of new knowledge and technologies
- system of IP management
- marketing communication and PR, including participation in competitions and fairs
- awareness, education, consulting
- development of methodology

Laboratory Hot Press ONE!



Laboratory hot press



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search... CZ  | EN  | RU 

TOP MODULE EMPTY

CLASIC

El. pece, měření, regulace

MAIN MENU

- Homepage
- Laboratory furnaces
- Superkanthal furnaces
- Vacuum furnaces
- Cylinder furnaces
- Top-cover furnaces
- Fast-firing furnaces
- Photography furnaces
- Calibration furnaces
- Jewellery furnaces

- Apparatus
- Dry kilns
- Regulation units
- Controller CLARE 4.0

- CLARES 2.4
- Industrial software
- Software development

Quicksearch...



Laboratorní pece



Vysokoteplotní pece (nad 1300°C)



Vakuově pece



Přístroje - požární odolnost



Protivýbuchová ochrana



Přístroje - sklo a keramika



Tavicí pece



Válcově pece



Víkové pece



Rychlovýpalové pece



Pozorovací pece



Sušárny



Kelímkové pece



Sintrační pece



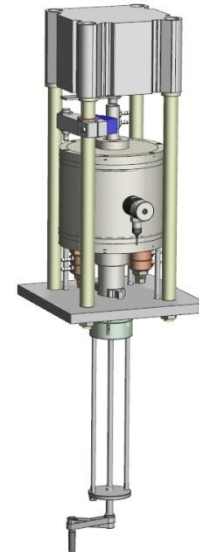
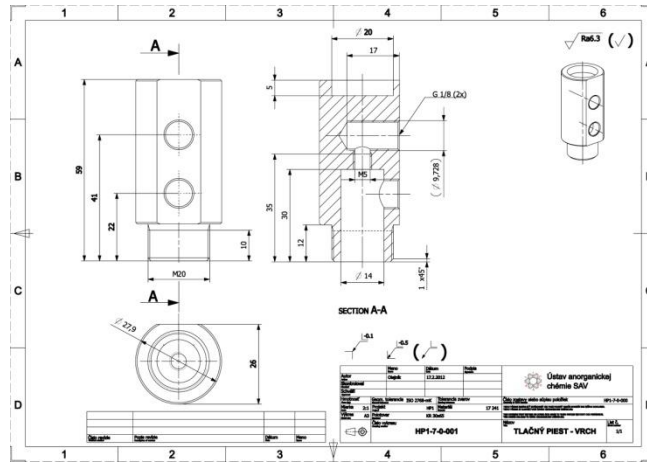
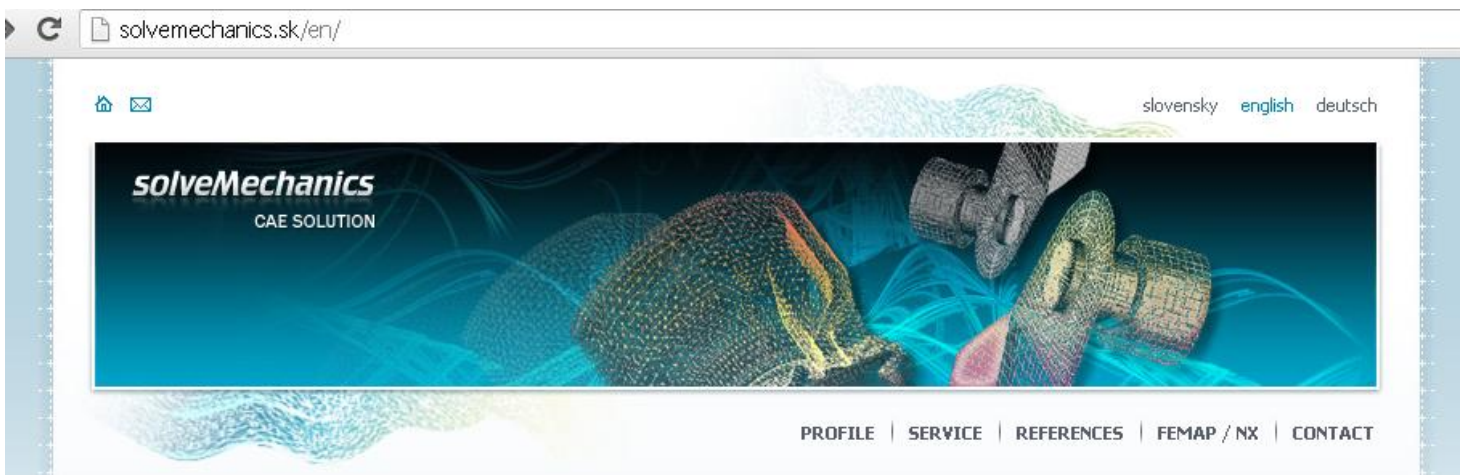
Zlatnické pece



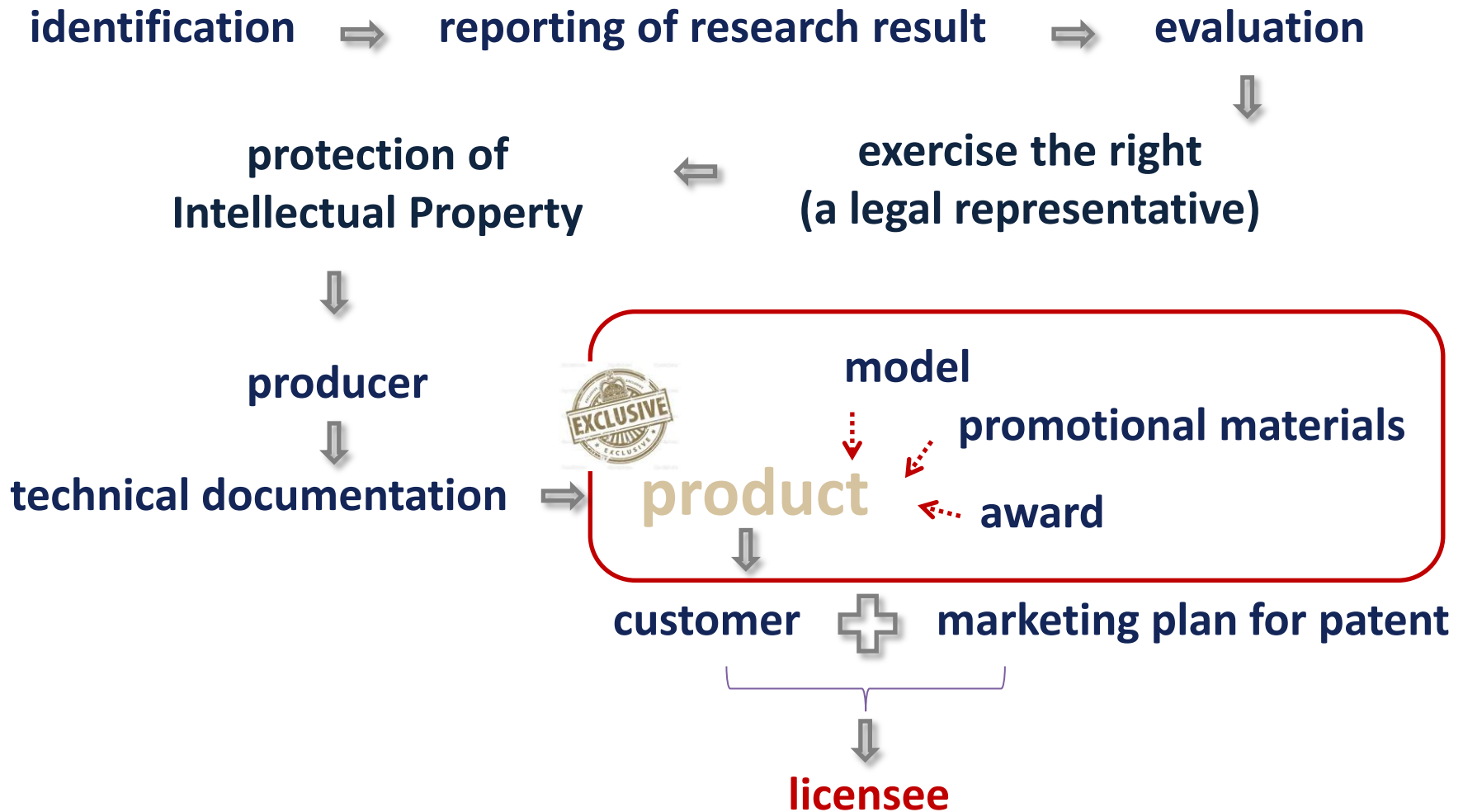
Vozokomorové pece

Laboratory hot press





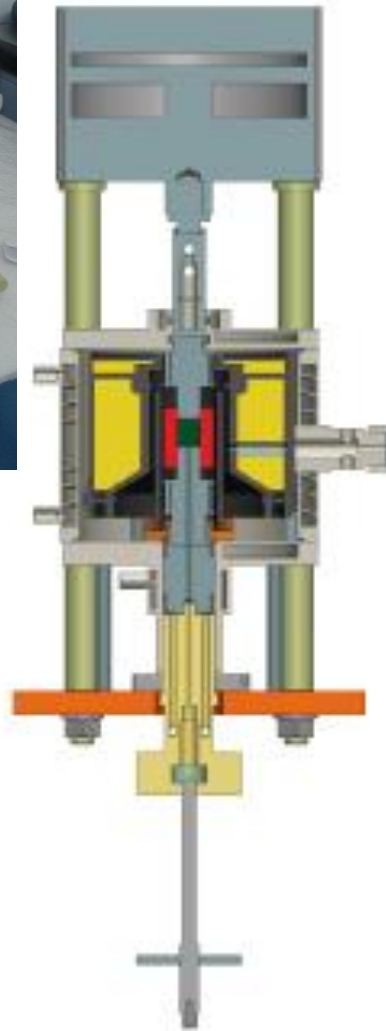
Laboratory hot press



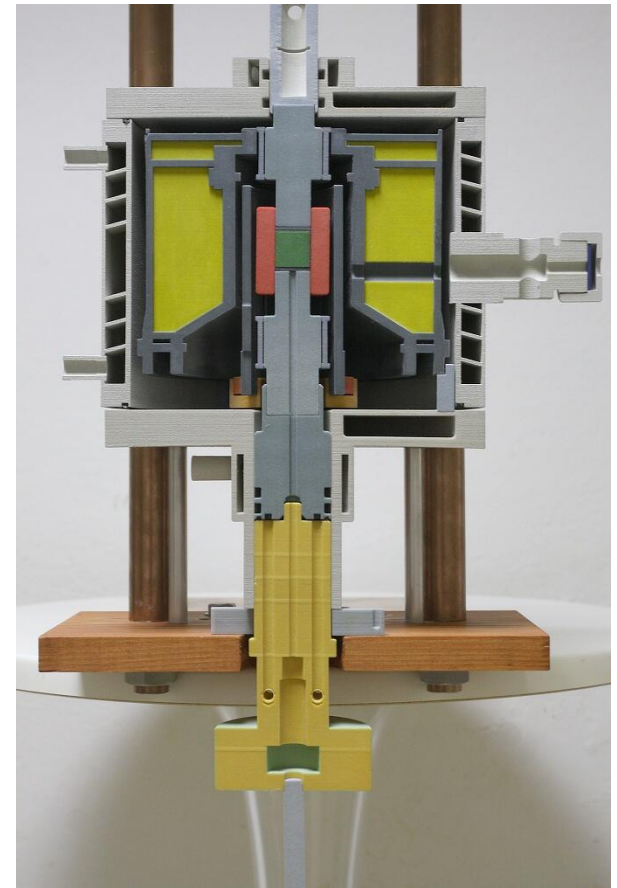


- solveMechanics
- IMMM SAS

Model
1:1



Printed on a 3D
printer



Promotional materials

ÚSTAV ANORGANICKEJ CHÉMIE SLOVENSKEJ AKADEMIE VIED
www.uach.sav.sk

LABORATÓRNY ŽIAROVÝ LIS ONE-DZ

Využitím žiarovky lisovania pripravuje hmotných keramických a keramicko-kovových spojov. Je súčasťou pracovnice horúcej, izolovanej, s izoláciou atmosférou inertného plynu. Konštrukcia permituje dosiahnuť vysokú účinnosť, alebo menšie parametre hmotnosti.

Cena súčiastky pripravené na ONE-DZ je mikrokonštrukčné súčiastky, alebo súčiastky pripravené na výrobu zariadení.

Prehľad ONE-DZ pripravených súčiastok: 0,4-0,5 mm Ø pri 1000-1200 °C, 0,5-1 mm Ø pri 1100-1200 °C, 0,5-1 mm Ø pri 1200-1300 °C.

Technické parametre žiarovky:
Max. pracovná teplota: 2100 °C
Max. pracovná rýchlosť: 40 MPa
Max. výška: 100 mm
Max. priemer: 20 mm
Výška: 100 mm

Výhody výroby na žiarovke na výrobu keramických a keramicko-kovových spojov:
- Absolutná čistota
- Možnosť výroby
- Možnosť výroby
- Možnosť výroby

Možnosti uplatnenia:
- pri výrobe keramických spojov
- pri výrobe keramicko-kovových spojov
- pri výrobe keramických spojov
- pri výrobe keramicko-kovových spojov

8216 Informácie na: www.keramiky.uach.sav.sk

Využitie na: keramické spojovacie materiály, keramické spojovacie materiály, keramické spojovacie materiály, keramické spojovacie materiály

Institute of Inorganic Chemistry, Slovak Academy of Sciences
www.uach.sav.sk

2012 TAIPEI INT'L INVENTION SHOW & TECHNOMART
BRONZE MEDAL
for
Laboratory Hot Press ONE!

The ONE! enables cost-effective, fast and highly effective preparation of samples for testing materials. ONE! allows the consolidation of ceramic and cermet powders into dense bodies by the application of uniaxial load at elevated temperatures under inert atmosphere in vacuum or under slight overpressure (~5bars).

- Much lower price of manufactured samples
- Fast heating rate and **77% energy saving**

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2012 TAIPEI INT'L INVENTION SHOW & TECHNOMART
BRONZE MEDAL
for
Laboratory Hot Press ONE!

- Much lower price of manufactured samples
- 77% energy saving

Technical characteristics of ONE!:
Max. operating temperature: 2100 °C
Max. heating rate: 100 °C/min up to 1400 °C
50 °C/min up to 2100 °C
Max. sample diameter: 20 mm
Max. height of sample: 10 mm
Max. load: 40 MPa
Atmosphere: Ar, N₂

The size of the sintered body is sufficient for the characterizations of mechanical properties, chemical composition and functional properties.

Producer: www.clasic.cz

Institute of Inorganic Chemistry, Slovak Academy of Sciences www.uach.sav.sk

Laboratory hot press ONE! is a unique device developed by the Institute of Inorganic Chemistry of the Slovak Academy of Sciences. It allows preparation of dense ceramics and other materials by sintering of powders through simultaneous application of high temperature (up to **2100 °C**) and axial pressure (up to **40 MPa**) in an inert atmosphere or vacuum. The furnace is constructed in a way, which allows the work under slight overpressure of an inert gas (nitrogen, argon).

Laboratory hot press ONE! was developed by a team of internationally recognized inventors Prof. Pavol Šajgalik, Assoc. Prof. Miroslav Hnatko and Dr. Zdeněk Pánek.

Prof. Šajgalik is a prominent expert in the field of ceramics and composite materials based on oxides, nitrides and carbides with more than 30 years of experience. He was elected academicien of the World Academy of Ceramics and scientist of the year 2006 in Slovakia. Current chairman of European Ceramic Society. Author of 2 patents.

Assoc. Prof. Hnatko is a deputy director at Department of Ceramics Institute of Inorganic Chemistry with more than 10 years of experience in the field. He focuses on ceramics, phase transformation and preparation of dense materials by hot-pressing. Author of 2 scientific books.

THE INVENTORS ARE LOOKING FOR A RESELLER/DISTRIBUTOR PARTNER TO SELL THE LABORATORY HOT PRESS ONE! TO END USERS AND/OR LICENSING THE TECHNOLOGY.

Laboratory hot press ONE! opens new markets. In the past such type of technology was utilized mainly by large companies, due to its financial, space, and materials costs. Our device facilitates low cost, fast, and highly efficient preparation of samples for materials testing also in small laboratories. The energy costs of one experiment are **reduced by 77%**.

The construction of the furnace allows fast heating (min **50 °C/min** up to **2100 °C**) and a sufficiently long zone with constant temperature. Accurate measurement of the real temperature directly on the sample is ensured.

The final specimens are **20 mm** in diameter, and **10 mm** thick, which is sufficient for a complete characterization of the prepared material from the point of view of its functional and mechanical properties, and its chemical and phase analysis.

The construction of **Laboratory hot press ONE!** is unique, and reflects recent demands on energy saving and decreased impact on environment.

Institute of Inorganic Chemistry, Slovak Academy of Sciences
www.uach.sav.sk

Laboratory Hot Press ONE!

The Laboratory hot press (LHP) allows the consolidation of ceramic and cermet powders into dense bodies by the application of uniaxial load at elevated temperatures in vacuum or under inert atmosphere.

- Several times lower price of manufactured parts
- 77% energy saving

Technical characteristics of LHP:
Max. operating temperature: 2100 °C
Max. heating rate: 100 °C/min up to 1400 °C
50 °C/min up to 2100 °C
Max. sample diameter: 20 mm
Max. height of sample: 10 mm
Max. load: 40 MPa
Atmosphere: vacuum, Ar, N₂
Temperature: 1 up to 1200 °C, up to 2100 °C

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TTO SAS

Technical characteristics of ONE!:

- Max. operating temperature: 2100 °C
- Max. heating rate: 100 °C/min up to 1400 °C
50 °C/min up to 2100 °C
- Max. sample diameter: 20 mm
- Max. height of sample: 10 mm
- Max. load: 40 MPa
- Atmosphere: vacuum, Ar, N₂

<http://laboratoryhotpress.blogspot.sk>

The size of the sintered body is sufficient for the characterizations of mechanical properties, chemical composition and functional properties.

Producer: www.clasic.cz



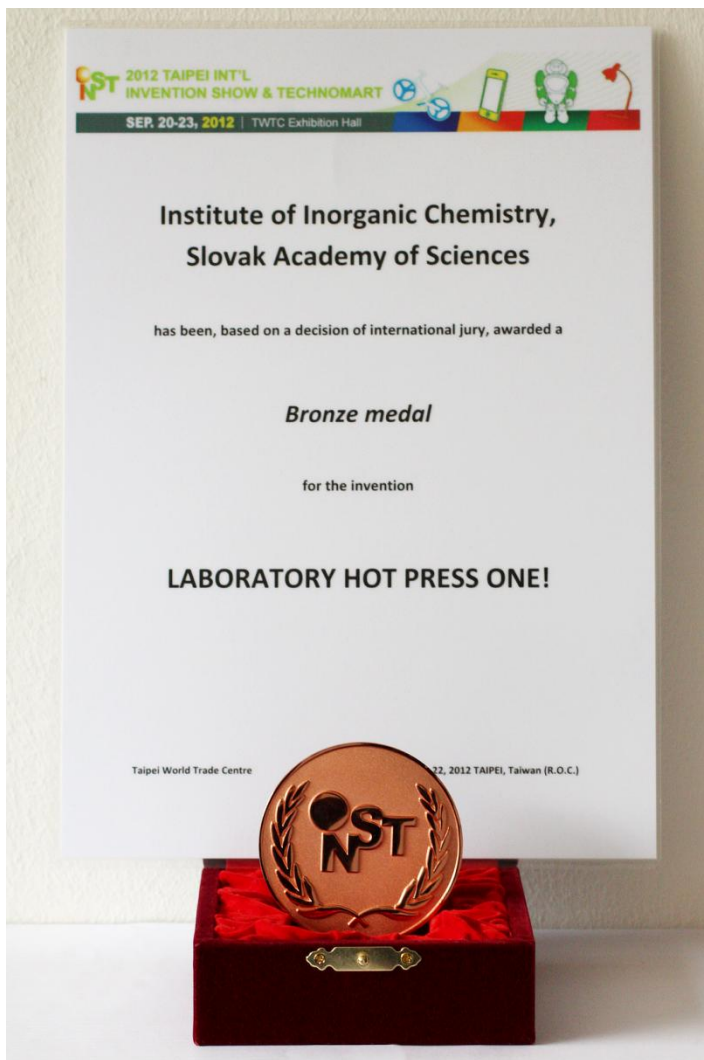
Office for Technology and Knowledge Transfer and the Protection of Intellectual Property of SAS

www.ktt.sas.sk
info.ktt@saxba.sk

Patent pending
(application PCT/SK2011/000024)



Award



Laboratory hot press





Laboratory hot press



Barriers

inwards:

low capacities (personal, financial)



poor propagation of activities, results



poor global awareness

outwards:

insufficiently developed environment



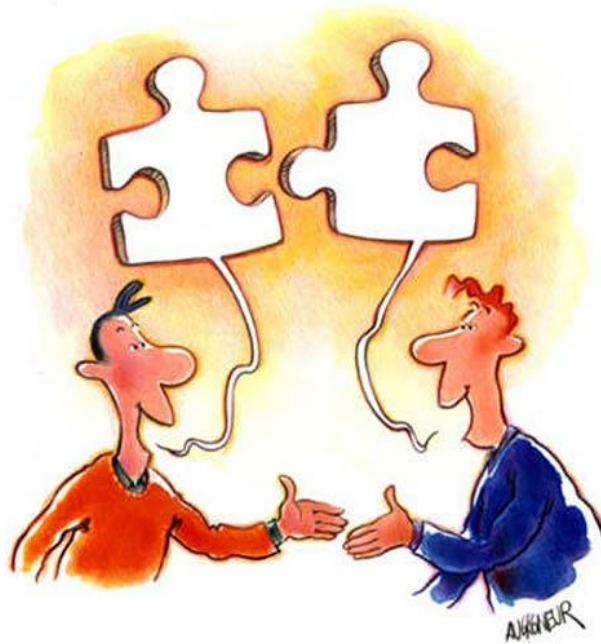
- limited offer of services
- lack of experiences and skills
- limited realization of some steps in the TT process
- little interest from Slovak companies

Laboratory hot press



<http://depositphotos.com/11639866/stock-illustration-Exclusive-stamp.html>

Thanks for your kind attention



zdroj: <http://lindzpagel.blogspot.sk/2011/04/seven-deadly-sins-of-writing-bad.html>

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