



## **WHO WE ARE**

KOLZER started its business 1952. Since then we gain more and more experience within the field of high vacuum technology. This means that KOLZER works intensively for more than 50 years on research and technology, on commissioning of plants as well as on new applications mainly for high vacuum coating technology.

Today the technologies of KOLZER meet the market requirements and even get ahead of them. KOLZER designs, plans, produces and delivers all needed components like diffusion pumps, power supplies, automatic system controls and of course the consumption materials by its own. This complete solution guarantees good operation of the plants as well as reliable production.

As a result of the unquestioned reliability of its products as well as of the high degree of specialization of its technicians KOLZER gives major support to development and production in all industries in the high vacuum field. KOLZER exports its know how in advanced technologies and thus promoting the creation of new applications and new markets.

On the basis of its long experience in business KOLZER plays a leading role in the field of high vacuum metallization. This role is confirmed today by more than 300 big dimension coating systems in Europe and in total more than 600 coating systems world wide.

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## Vacuum Metallization

The high vacuum coating process

Generally during the high vacuum coating process executed by evaporation a solid metal melts and generates a cloud of metal vapour, e.g. aluminium vapour. Due to the vacuum condition ( $10^{-4}$  Torr) the evaporated metallic particles gravitate without an influence of air or gas particles in all directions so that they can reach the surface of parts which are placed inside the vacuum chamber. Thus the metal vapour condenses on the parts, e.g. on plastic parts. By this condensation within the vacuum chamber a thin metallic layer is deposited.

If the parts which have to be coated are not moulded with a "mirror like" surface the parts need to be levelled before metallization by a primer coat (varnish) in order to get a shiny surface. This primer coat also promotes the adhesion of the following metallic layer.

After the vacuum deposition of the metallic layer a transparent top layer is needed. This transparent top layer protects the aluminium against oxidising and mechanical wear as well as against chemical degradation (e.g. by perfumes, essences or sweat). It represents the final coating step within the multi layer package. It can be neutral transparent or coloured transparent:





The top coat layer can be produced by plasma polymerisation within the vacuum chamber (mainly for reflectors and lamps) or outside the chamber by a varnishing process.

Aluminium and other metallic layer systems enable both decorative and functional features. Today about 80% of environmental friendly high vacuum metallization processes are used for decorative purposes. But also functional applications have been rapidly coming up because of needed changes within galvanic processes. Those processes become currently very expensive due to higher costs for protection of the environment incurred today.

Recently with the high vacuum metallization process various layers have been developed for different fields, such as electronics, optics, electromagnetic insulation, etc. These layers offer first class results from both the decorative and functional point of view.