TRANSDERMAL INNOVATION
Success starts with a vision. An idea that will make a difference. A goal you never lose sight of. At LTS, this goal has always been clear: To offer alternatives to patients who experience discomfort, swallowing difficulties or undesirable side effects caused by conventional dosage forms. In creating alternatives for our patients’ well-being and comfort for over 30 years, we have been setting milestones with innovative systems that release their active substances through the skin and through the oral mucosa.
AN IDEA GETS THROUGH THE SKIN

As an innovative dosage form, Transdermal Therapeutic Systems (TTS) are among the specialty solutions in the pharmaceuticals. The unique benefits of TTS are numerous and differentiated from other dosage forms: Constant drug plasma levels over long duration of action and high efficiency provide patients comfort and improve patient compliance.

As the pharmaceutical actives enter the bloodstream directly via the skin, transdermal delivery bypasses the gastrointestinal tract. This provides great relief for the patient and prevents a potential ‘food effect’ of orally taken substances. The application through the skin can in some cases even work for active ingredients that are not effective in traditional dosage forms. This way, LTS is making crucial contributions to expanding therapy options for patients, physicians and caregivers.
TTS – therapeutic alternatives

Transdermal patches consist of an integrated active drug layer. They adhere to the skin and deliver their pharmaceutical substances into the bloodstream through the skin.

- **Duration of action up to 7 days**
- **Suitable for all age groups**
- **Safe, reliable, painless**

Thin films, great effects

Oral Thin Films (OTF) are transmucosal films that are placed on or under the tongue. They dissolve quickly or melt away slowly while releasing pharmaceutical substances through the oral mucosa.

- **Easy to use**
- **Ideal when traveling**
- **Taste masking possible**

The next transdermal revolution

MAP (Micro Array Patches) have tiny needles containing the drug. These needles penetrate the top layer of the skin, dissolve in the skin and release their active substances.

- **Painless**
- **For small molecules/vaccines**
- **Simple to use in self-administration**
COMPETENCE MEETS INNOVATIVE STRENGTH

For more than 30 years LTS’ mission has been to improve the patients’ well-being. Our focussed research, expertise and close cooperation with our pharmaceutical partners make us a strong, competent partner in the development of modern, patient-oriented transdermal dosage forms.

LTS ensures a cost effective delivery of an active substance into a successful TTS or OTF. Starting with feasibility studies, followed by an efficient product development program from concept to launch, LTS provides all required capabilities. Each partner is supported by a team of experts focused on their tasks dedicated to maximise the success of the final product. Experienced, competent and tailored to the needs of our partners: This is how we create the best prerequisites for the greatest possible success of a drug transdermally delivered.
>20 active substances have been introduced as commercial transdermal products, 12 of which LTS has developed with multiple partners from the pharmaceutical industry. Experts suggest that at least 30 more active substances should be suitable for transdermal administration.

>1,250 people work at LTS. Their extensive expertise in pharmaceutics, engineering and pharmaceutical management makes LTS a competent partner. 140 of them alone work in the field of research and development, dedicated to developing innovative products and solutions.

>3,000 patents document our relentless drive and creativity. As the market leader for transdermal systems, our aim is to generate creative solutions and implement new ideas. More than 300 patent families in the development of formulations and processes testify to LTS’ innovative passion.
Selected from LTS references and their indications

Neupro® (rotigotine)
Morus Parkinson

Exelon® (rivastigmine)
Morus Alzheimer

Deponit® (nitroglycerine)
Angina Pectoris

Matrifin® (fentanyl)
Severe Pain

Nicotinell® (nicotine)
Smoking Cessation

Evra® (norelgestromin ethinylestradiol)
Contraception

Estraderm® (estradiol)
Menopause Hormone Therapy

Butrans®/Transtec® (buprenorphine)
Moderate to Severe Pain
VERSATILE PRODUCTION COMPETENCE

LTS offers versatile production competence to manufacture most demanding customized transdermal products. Equipment dedicated to products enables LTS to supply the requirements of the global market competitively.

At LTS, an innovative development competence meets reliable production. From a small laboratory scale to a large scale commercial production for the global market – we complement our partners strengths. Starting with a pilot plant for laboratory needs, our engineering department designs high-tech large volume production facilities to meet global demands. If so required, LTS designs and builds completely new production lines for the realization of new product designs. Our identical production facilities in Europe and the US ensure the highest degree of supply reliability and can be used interchangeably, if required.

Comprehensive solutions from a single source
Additional services for successful market launch:
• Support in obtaining approval
• Packaging development
• Assembly/packaging
At LTS, we combine outstanding research and development expertise with the standard setting level of quality awareness. Our quality management meets the most stringent requirements imposed by international health authorities. As a pharmaceutical manufacturer, LTS has been approved by all relevant authorities around the world including FDA, EMA, ANVISA and PMDA. We assure our partners the very best product quality – impacting the health of countless patients all over the world.

With operations in Andernach/Germany, West Caldwell/USA, and represented in Shanghai/China, LTS is present on three continents – for the benefit of the personal, collaborative relationship with our partners and business associates.

THE QUALITY REFERENCE FOR GLOBAL MARKETS
Global presence
LTS quality management meets the most stringent requirements imposed by national and international health authorities. As a pharmaceutical manufacturer, LTS has been approved by: the FDA, EMA, ANVISA, PMDA and numerous other authorities.