

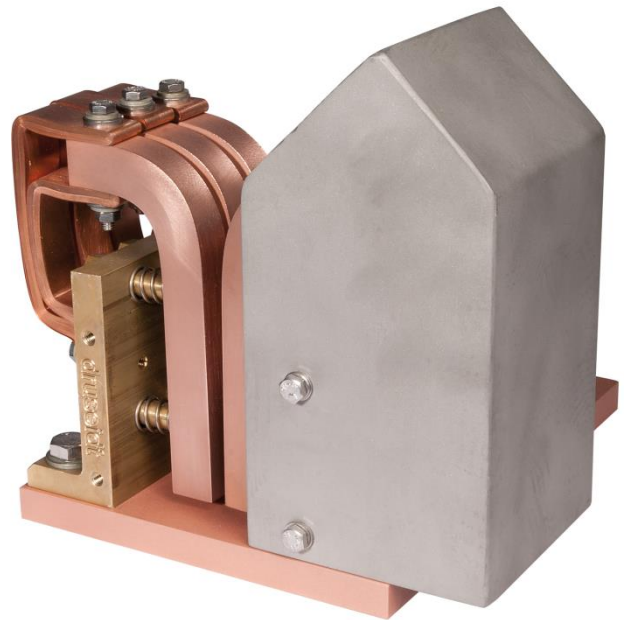
# druseidt

## Elektrotechnik

Electroplating baths with high current densities are normally high energy consumers. Ensuring a consistently high quality of the coating, energy saving, increasing plant availability, shortening cycle times and thus increasing productivity and reducing costs are therefore the essential requirements which are now being placed on a modern galvanic or anodizing plant.

An essential prerequisite for the best possible process implementation is that the power, required for the process, can be transferred to the goods carriers as loss free as possible. This makes the contacts mounted on the baths particularly important.

Current transfer elements and electrical contacts are often responsible for both the generation of electrical power losses and standstill of the plants due to repair works. Contacts in electroplating plants are subject not only to high electrical but also to mechanical and chemical stress. Because even a sufficiently dimensioned bus-bar system alone does not provide a guarantee for a cost-effective and smooth operation of the plant by using insufficiently effective contact systems.



### **Wrong cost-cutting**

Not least for reasons of cost, simple castings are used as contacts in electroplating plants, which neither correspond to the requirements of the plant either from their construction or from the electrical cross section.

Contacts inside of electroplating plants, as already mentioned, are subject to high electrical, chemical and mechanical stress. Long-term operation requires the use of low transition resistors to ensure the current-dependent bath parameters and to avoid energy losses. Thus, for example, water cooling of contacts, that are often carried out, is not a cost-effective energy saving solution, since the heat/power losses generated here at the contact is dissipated with the cooling water. The aim is therefore to make contacts which allow the economical use of the energy and which are also suitable for a low-maintenance work inside of fully automatic driven plants.

## Why offer so many different contact-systems

It is simply because there are a lot of different plants and constructions in the market. It is therefore not possible to develop a contact series which is equally suitable for all systems or can be used anywhere.

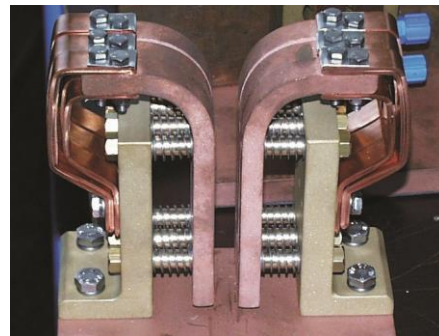
The shape, weight and design of the contact points of the goods carriers are extremely different. Thus, in addition to rectangular or H-shaped contact points, there are also profiles at the ends of the goods carriers. Also, there are extremely light or extremely heavy carriers, which all require a suitable designed and adapted contact.

The chemical stresses or degree of contamination of plants can also be extremely different and must be considered. Last but not least the available installation space also plays a not insignificant role.

Often a standard solution can not be used and the contacts have to be dimensioned individually. Important criteria for the selection of contacts are:

- the current load
- the cycle time, i.e. the duration of the current load
- weight and the dimension of the goods carriers
- shape and dimensions of the contact points on the goods carriers
- chemical reactions and contamination
- possible mechanical stress
- possible existing bath movements

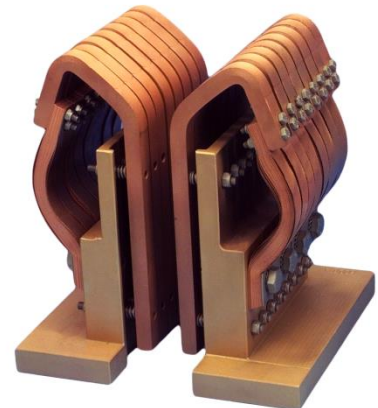
In order to cover as many applications as possible we offer various types of standard contacts which can be easily adapted as a modular system to many applications.



## The following systems are offered:

### Spring-actuated contact systems

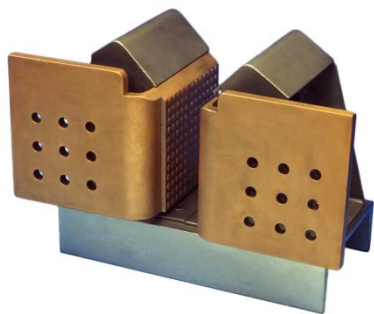
As standard for current up to approx.. 14000 A



The principle is based on two contact halves which are equipped with spring-mounted movable contact fingers. The mounting distance of the contact halves is thereby less than the thickness of the goods rail so that the contact surfaces can be cleaned by abrasion during the retraction of the goods rail.

The retraction itself is made possible by the weight of the goods rail/goods carrier. In order to protect the contacts from contamination and mechanical damage, they can be equipped with sturdy protective covers made out of stainless steel.

An inexpensive system with a large spring travel for currents up to 5000 A is offered as standard. A system with a sturdy cast body and integrated guidance for currents up to 4000 A as well as a design for higher currents from 4000 A up to 14000 A



### **Pneumatically driven contacts**

Optional as finger- or panel contacts

In order to increase the contact pressure or to enable the clamping of extremely light goods rails (because the weight is not sufficient for a self running retraction) pneumatically actuated contact systems are offered optionally as finger contacts up to 5000 A or plate contacts up to 12000 A.



### **Hydro-pneumatically contacts**

Unique Druseidt-system for currents from 3000 A up to 20000 A or more. No comparable system in the market works with such high contact forces.



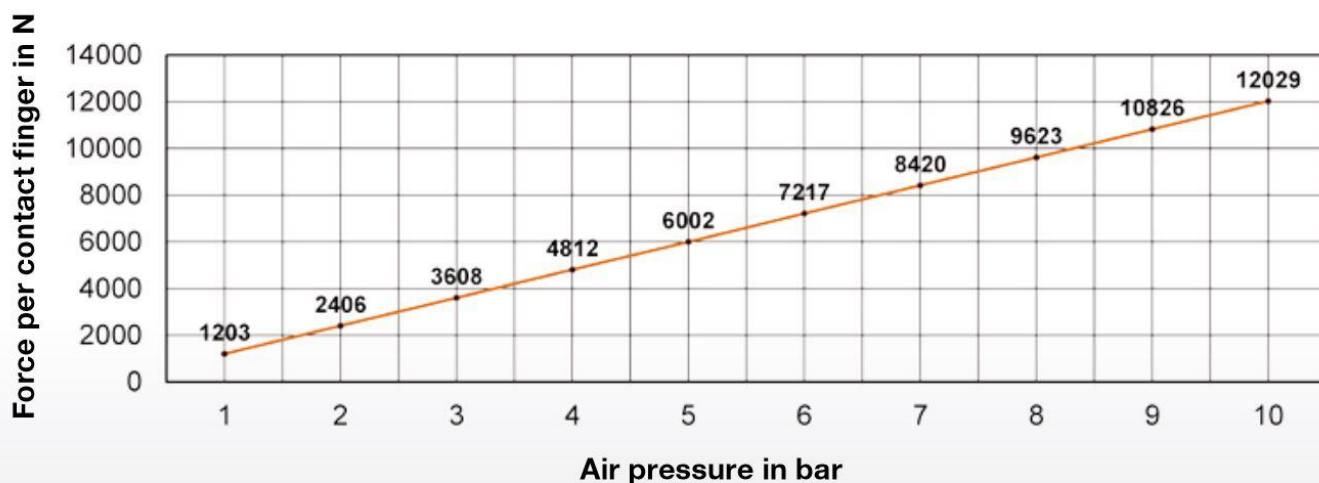
The quality of an electrical connection depends on the material, the cross-section, the dimension and the finishing of the contact areas as well as on the contact pressure. Such facts define the electrical contact resistance and finally the operation and life time of the connection. So when working with a higher contact pressure the electrical resistance will be reduced.

Based on this facts we have developed its system called Titan.

The contact-fingers of the Titan system are operated by a special hydro-pneumatically activated force-booster. This new developed force-booster dissipates the incoming air pressure into a very high contact pressure by a hydraulic system. The installed hydraulic system is actuated with water and do not need any form of oil.

So is by a leakage a contamination of the plating tanks absolutely impossible. All sealing elements are tested over a long period and are designed in compliance with the specific demands of the electroplating and anodizing industry.

This unique system is deliverable for currents from 3000 A up to 20000 A or more. You find no comparable system in the market which works with such high contact forces. The following diagram shows the pressure development per contact as a function of the air pressure



By an air pressure of 6 bar the total contact pressure of one complete contact-saddle achieve the following values:

Design model 6000 A = ca. 57,7 kN

Design model 8000 A = ca. 72,2 kN

Design model 10000 A = ca. 101,0 kN

Design model 12000 A = ca. 115,5 kN

Design model 15000 A = ca. 144,3 kN

## Cleaning-systems

Since plants with a very high degree of contamination are often encountered in the electroplating sector, the cleaning of contacts and contact points is a permanent topic. Contamination of contacts and contact surfaces leads to a strong increase in electrical resistance, heating problems up to the destruction of the components. In order to optimize the automated process flow and minimize repair and maintenance costs, we have also developed a comprehensive range of cleaning systems.

