



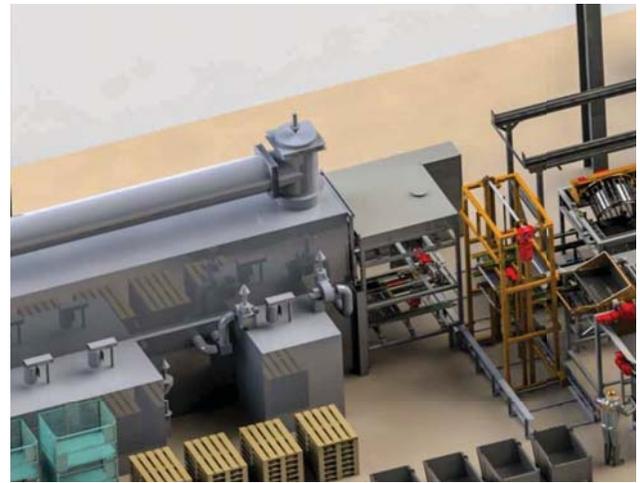
WMV Coating System

always a winning combination



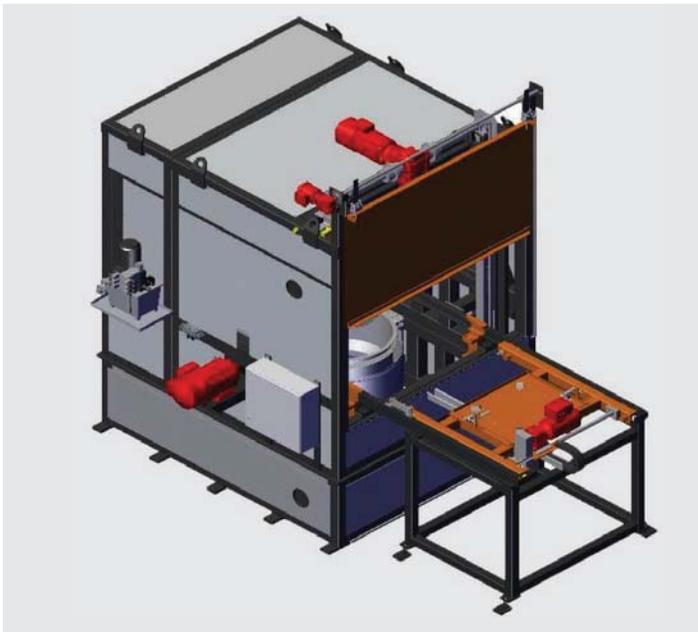
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TULZ

Centrifuge with rotating system for dipping and coating



■ TULZ600

Continuous research and development guarantees WMV systems are engineered to handle the challenges of tomorrow. For decades, WMV systems have allowed our customers to be leaders in the surface finish industry and profitably expand their operations. WMV offers a variety of solutions to apply coatings on a wide range of bulk and racked parts.

The WMV TULZ dip, spin, tilt coating module has proven itself to be the most productive and flexible coating system since its introduction more than 30 years ago. The option to tilt the basket to reorient parts during coating and spinoff enables it to produce high quality coating on difficult to coat parts. It has been continuously improved and optimized to handle the production rigors of today and the future. The system can process parts in rack and dip spin applications. The TULZ system is engineered to apply a vast array of coatings, e.g. finishes after electroplating. It is the system of choice for the application of zinc flake coatings.

The system is extremely flexible. Solution dipping tanks are mounted on a base with integrated wheels to allow it to be rolled into and out of position manually. To further increase flexibility the dipping tanks utilize quick-release couplings to enable fast changeovers of coating media. These features allow operators to change coatings with almost no reduction in material throughput. The TULZ unit's ability to tilt the coating basket to reorient parts during the coating and spin off process provides the greatest benefit to applicators. To achieve excellent coating results the parts must be reoriented to fully coat parts and then release the coating from the parts. Tilting the basket a minimum of 75 degrees off vertical is necessary to assure the reorientation of parts and maximize production. Reorientation is especially important for flat parts, complex stampings, concave or hollow parts and fasteners with internal drives. Very difficult to coat parts may require tilting the basket at an angle of greater than 75 degrees



off vertical to achieve optimal coating quality. For these challenges the TULZ system has the ability to tilt the centrifuge basket up to 90 degrees off vertical which assures parts are reoriented. The system is engineered to clamp the open side of the centrifuge basket to a flat surface to completely close it while processing the parts during the dip, spin and tilt steps. This greatly benefits productivity since baskets can process their maximum capacity at any tilt angle. Thanks to the variable, freely programmable treatment programs even small screws with internal drives (eg Torx M3) can be coated with very good quality at production level coating volumes.

The TULZ system is completely encapsulated to contain fugitive fumes, the drive motor is located outside the module and the components in the paint chamber are intrinsically safe. This makes the machine ideal for the processing of solvent based coating systems. Another advantage that the WMV system provides is the loose, independent centrifuge coating basket. In all systems, parts processing baskets or drums require change over. Thanks to the independent centrifuge basket the baskets can move into to and out of the system automatically when the coating medium is changed, or the basket needs to be changed out for cleaning. In many automated systems the basket exchange is fully automatic to achieve full change over while maintaining full production. The dip, spin, tilt TULZ coating module is available in different sizes. The TULZ 900 system (basket diameter 900 mm), for example with loading weights of up to 272 kg (600 lbs.) can be coated in cycle times of less than 2 minutes.

Machine Function TULZ

1. Loading



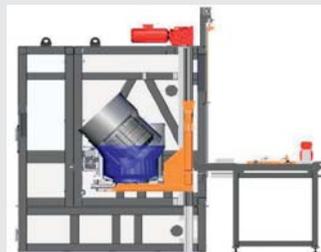
The basket or rack of parts is automatically indexed into the coating module. Low volume systems can work manually.

2. Coating



During the coating process, the product is dipped into the coating media and rotated slowly. The rotation speed is adjustable.

3. Rotation



Difficult to coat parts require reorientation. To reorient the parts the basket is tilted at angles of more than 75 degrees off vertical to assure they are reoriented. Baskets can be tilted both during and after dipping.

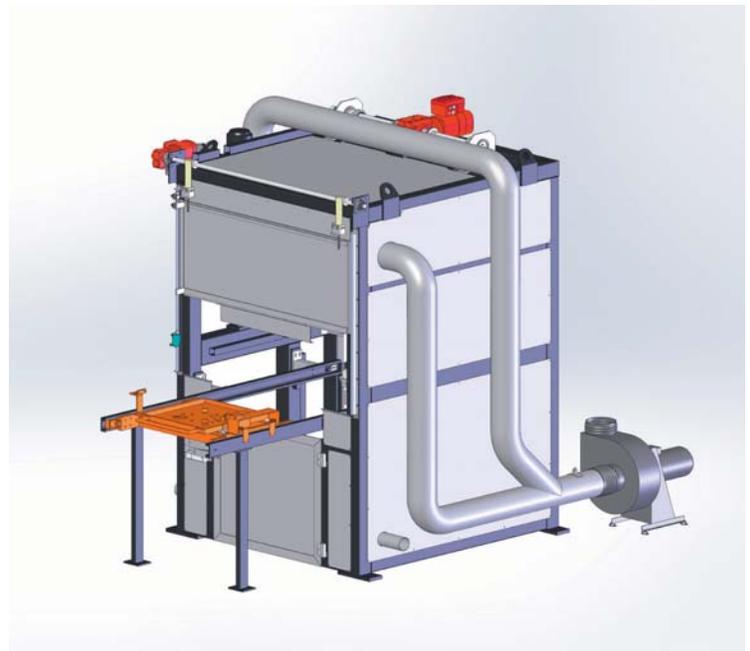
4. Centrifugation



With or without the WMV paint recovery shell the coating is centrifuged off the parts and returned to the dipping tank. When the paint recovery shield is added to the system up to 5% more of the coating is recovered.

All parameters are variable and part-specific adjustable within their limits.

For laboratory applications and sample coating the smaller TULZ 300/500 module is available. When running small samples, the coating suppliers' paint bucket (Hobock) can be used in the dip spin process. The machine can also be used for production when the 500mm centrifuge basket is used with the standard dipping tanks. The modular dip, spin, tilt coating module is engineer for integration into automated systems. This allows customers to upgrade the manual module into an integrated automated system if increased production is desired.

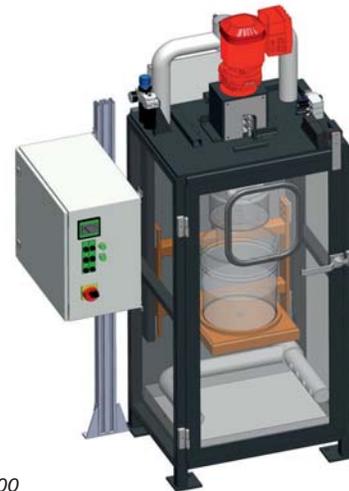


■ TULZ 300-500 with suction

Type:	Drum Volume ¹	Charging Weight ²	Production/h ²
TULZ300/500	15/35 l	100 kg	1500 kg/h
TULZ600	50 l	150 kg	2250 kg/h
TULZ700	70 l	250 kg	3750 kg/h
TULZ900	110 l	250 kg	3750 kg/h

¹(depending on part geometry) | ²(4 mn cycle)

For lab work or specialty applications the (TLZ) 300 dip spin module is a perfect option. It is capable of coating parts with a length of up to 700 mm. The parts can be directly dipped and centrifuged in the coating suppliers' paint bucket (Hobock). Difficult to coat parts can be reoriented manually due to the small centrifuge basket and charge size. The machine is suitable for coating parts with water or solvent-based coatings.



■ TLZ300

Type:	Drum Volume ¹	Charging Weight ²	Production/h ²
TLZ300 ³	15 l	20 kg	300 kg/h
TLZ900	110 l	250 kg	3750 kg/h
TLZ1000 ⁴	-	250 kg	3750 kg/h

¹(depending on part geometry) | ²(4 mn cycle) | ³(For laboratory applications) | ⁴(For rack goods)

DSC (Dip-Spin-Conveyor)

Directly transferring electroplated parts to a WMV DSC post treatment system can increase surface treatment quality and productivity to pre Cr6 levels. The DSC hoist can dip, spin and tilt centrifuge baskets to re-orient parts in a variety of chemistries. Electroplated parts can be transferred directly to centrifuge baskets and processed through passivations, waxes and seal coats in the same baskets to prevent part damage and increase surface treatment performance.

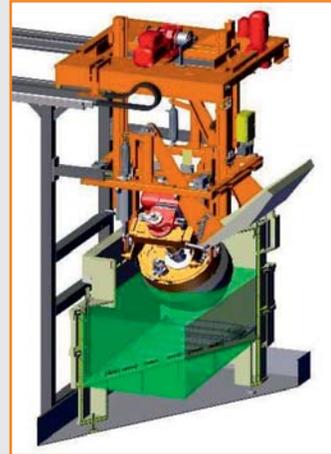
The processing of parts in the electroplating drum is extremely problematic because the plating barrel must be cleaned each time after most post electroplating treatments. Major cost savings are achievable with the DSC centrifuge system due to its ability to centrifuge off excess solution after each step of the process. Electroplating drums cannot be spun at high RPMs. This prevents solution recovery and results in non-homogeneous surface treatments. Incorporating dip spin centrifuge technology to the post finishing process to passivate, apply top coats and then dry the parts in the same basket optimizes surface treatment quality while greatly reducing the amount of chemistry used in the process when compared to barrel treatment.

Gently transferring parts directly to the DSC system is accomplished through proven WMV transfer systems. Transferring electroplated parts directly to intermediate bins or baskets can damage surface treatments. WMV provides reliable and proven solutions for these problems. With the use of these systems, the parts are transferred immediately from the electroplating process a post treatment centrifuge basket filled with solution to promote the gentle loading of parts to the basket. After transferring the parts to the centrifuge basket further treatment processes can easily be realized without transferring the parts to other containment systems for passivation, rinsing, top coating as well as drying. After discharging parts from the centrifuge basket it can be washed in an integrated basket cleaning station prior to being returned to the treatment system.

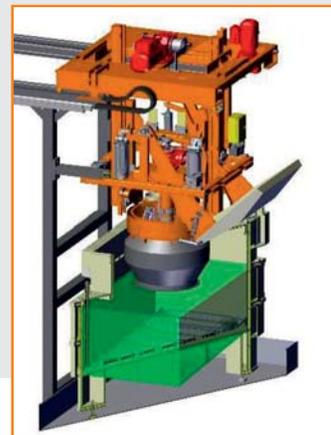
Operating Principle of DSC Machine



- 1. **Dipping**
the basket with
slow rotation



- 2. **Tilting**
the basket to
move the parts



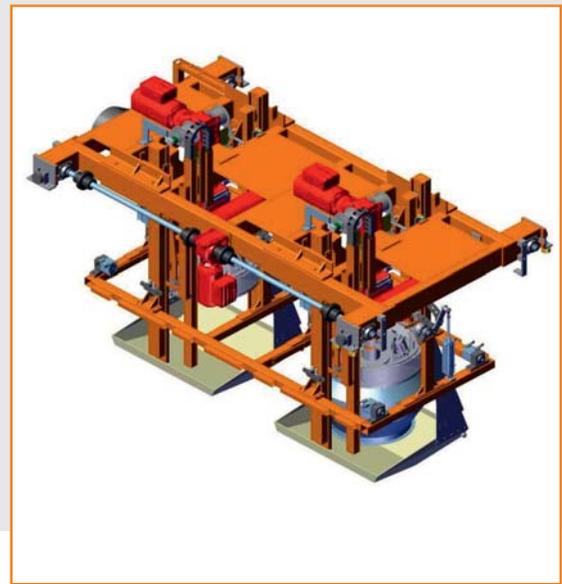
- 3. **Spinning**
the drum in upright
position to remove
excess coating
material

Steps 1 to 3 can be repeated as often as you like. Likewise, the direction of rotation as well as the drum speed (max 170/min) and the tilting angle can be adapted to the product to be coated. Due to the pivoting drip tray, the carry-over of liquids is largely prevented. In addition to the processing of drum products, it is also possible to coat rack parts in the DSC.

DSC - Dual hoist

In a double version of the galvanic drums, the DSC is produced as a double hoist.

To accommodate dual barrel electroplating lines the DSC hoist can also be supplied as a dual DSC hoist. This allows dual barrels systems to easily discharge parts to two centrifuge baskets. Like the dual barrel electroplating line the dual DSC system transfers both treatment baskets through the post treatment system simultaneously.



■ DSC900-2HW

Paint Tanks

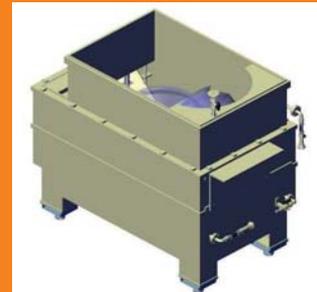
For the storage of the media, WMV offers various paint tank designs that meet every individual requirement.

For example, equipment with:

- an electric heater or a heat exchanger
- Level monitoring
- Mixers
- Air injection

The paint tanks can be integrated in a fixed position (fig. Above) or interchangeable (fig. Below). The installation of replaceable paint tanks is an excellent solution when it is necessary to change the coating medium quickly and easily.

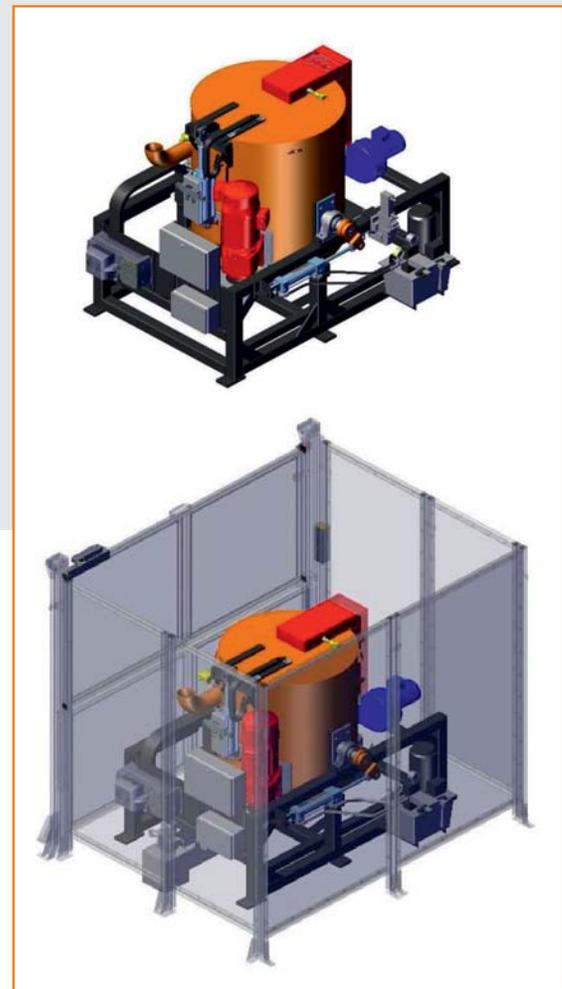
Another advantage is the compact design of these paint tanks . The amount of coating media held here in is comparatively low in these paint tanks .



SZ (Tilting Centrifuge)

To properly dry bulk parts with blind holes or complicated geometry requires special equipment. For these challenges WMV offers a tilting centrifuge dryer that is capable of reorienting parts. The Type SZ-T dryer provides perfectly dried, stain free parts every time. This system can also apply oil or topcoats to parts.

The heating capacity is variable to match the process. Depending on the application, it is also possible to choose between high temperatures in the machine or high air flow rates. The drying centrifuge is designed so that it can be used both as a manually operated machine and in automatic systems. Optionally, air humidity sensors can also be integrated to optimize treatment times. With humidity sensors the drying process is precisely adjusted to the variation of the part being processed. Controlling the drying process using humidity sensing saves energy and increases quality.



■ Z600-T with safety guard

Technical Specification

Type	Charging Weight	Effective volume in inclined position
SZ 400-T	50 kg	ca. 20 ltr.
SZ 500-T	100 kg	ca. 35 ltr.
SZ 600-T	150 kg	ca. 50 ltr.
SZ 700-T	250 kg	ca. 75 ltr.
SZ 900-T	300 kg	ca. 130 ltr.

Conclusion

The system offers flexible, highly efficient and environmentally friendly machines that are individually adjusted to customer requirements in terms of performance and parts spectrum. Top priority in our plants are performance, material conservation, energy saving, environmental protection and flexibility.

The modular system also offers the possibility of initially starting with just one basic system and retrofitting the automation at a later date.

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