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TX Control and Power Unit

Stud Welding in the Automotive Industry with cutting-edge Tucker Platform Technology

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For digitalization, big data and industry 4.0, TX generation control and power units are the central components of a future-oriented stud welding system. Control and monitor all internal processes, including the precise execution, parameterization and documentation of welds. Proven components from the TE generation have been further improved and enhanced with the latest, state-of-the-art components. The TX has a future-oriented design and is equipped with advanced sensors for your system-specific optimization. In the modern, digital production environment, the TX supports central production control with its software options. Integrated analysis functions, automatic software updates and a dynamic system overview (topology view) are all part of this.

Furthermore, the TX energy sources offer:

Energy Efficiency
- Reduction in electricity >15 % and compressed air consumption > 30 % compared to the DCE generation
- Reduction of the basic power consumption compared to TE
- Latest energy-saving functions and PROFIenergy ready
- Integration of the newest Tucker «Less-Air» technologies to reduce air and power consumption

System Security
- IT security – Linux real-time operating system
- Safe, central air supply to the connected feeders and other peripheral components
- Three doors for easy access management

Software & HMI
- Unified Platform Architecture (UPA); shared software architecture with other equipment technologies from Stanley Engineered Fastening
- Entirely improved, new, web-based HMI
- Functional extension stages: Standard - Advanced - Expert

Customer Benefits
- Future-proof investment
- Adaptation to your individual needs
- Even better service life
- Minimization of energy requirements
- Reduction of cycle time
- Maximum reproducible welding quality
- Part of the UPA family
- Web-based HMI
- Anybus update via HMI
- New «X» weld modes
- New «X» feed modes for compressed air reduction
- Software-based analyses and recommendations

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Options and Comparison to Previous Versions

TX Options

- 1–5 outlets for weld tools
- DC & AC weld current
- Regional & customer standards: Power input, interlocks and access options
- Safety connection: AIDA, Han8U, HanM and others
- Fieldbuses: Profinet, EtherNet/IP, Profibus, Interbus, ...
- Data interfaces: MQTT, (S)FTP, IPM, ...
- T-Link networking software for visualization of the production line and advanced analysis
- Robot dresspacks to improve technical availability
- Content by License - Software function enhancements

Comparison to Previous Generations (excerpt)

Feature	**Generation**		
	DCE 1999–2000	**TE** since 2012	**TX** since 2020
Weld programs	1,023	3,000	10,000*
Weld segments	–	100	100*
Measurements (WIP/ WOP)	256 WOPs	5,000 WOPs/5,000 WIPs	30,000*
Graphical measurement data (process data)	●	●●●	●●●●
Events (errors, warnings, component replacement, etc.))	256 Faults only	5,000	30,000*
Parameter change history	–	1,000	1,000
Content by license	–	–	O
Authentication options	●	●●	●●●●
Automated Software-Updates	–	O TE-Link	● HMI/O T-Link
Feeder max.	5 feeders	10 feeders	10 shared feeders
Optimized „X" weld modes	–	–	●
Optimized „X" feed processes	–	–	●
			

O Optional ● Strength * Max. stage

Integration into existing stud welding systems of the TE generation is possible. Only the control and energy unit needs to be replaced. Compatibility with existing system components such as TH weld heads and TF feed units is guaranteed. **When using a DCE system, all components need to be upgraded to the TX generation.

**Feeder topology for cross-outlet use and air supply of the feeder & peripheral devices needs to be checked and adapted if necessary.

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A Range of Variants Adapted to Your Needs

TX control- and power units are available in three configuration stages. **Standard** – Functional scope similar to DCE series. **Advanced** – Range of functions comparable to TE series. **Expert** – Extended range of functions for comprehensive digital production optimization.

Single functions of expansion stages can be booked individually to ensure ideal coverage of functions and keep costs to a minimum. The TX15AC system for sophisticated welding applications is available from the ‹Advanced' stage onwards.

Variant-Dependent Functions (excerpt)

		TX1500, TX1800		TX15AC
	TX Control- & Power Unit	**Standard since 2020**	**Advanced since 2023***	**Expert since 2024***
HMI	Dashboard	●	●	●
	Basic setup assistant	●	●	●
	Application related assistants	–	–	●
	Advanced help	–	●	●
	Offline programming	–	–	●
	Mesh diagramm (Topology View)	●	●	●
Data	WIP / WOP	1.000	10.000	30.000
	Events	500	5.000	30.000
	Programms	1.000	3.000	10.000
	Backup converter TE -> TX	●	●	●
	Weld program segments	5	50	100
	Backup & restore	USB	USB + SFTP	USB + SFTP
	XML - import, export parameter	USB + SFTP	USB + SFTP	USB + SFTP
M2M	Inter device data transfer	–	–	●
	Cluster devices to visualize faults on one HMI	–	–	●
	Customer interface history (graphical)	–	●	●
Analyse/Predictive Maintentance	Top 10 faults / warnings	–	●	●
	Graphical parameter monitor (I/O-Trace)	–	●	●
	CPK, standard deviation	–	–	●
	Energy and pressure monitor	–	●	●
	Maintenance forecast	–	–	●
	Statistical monitoring	–	–	●
	Process paramter optimization wizard	–	–	●
	TA calculation	–	●	●
	TR61x & TH539 Tucker CleanJet support	–	●	●
	Advanced energy safe modes & monitoring	–	●	●

*available with restrictions

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Facts & Figures

Attributes	TX1500 (DC) TX1800 (DC)	TX15AC
Current	DC – Gleichstrom (Stahlanwendungen)	AC – Wechselstrom (Aluminium- & Stahlanwendungen)
Weight	~125 kg	~200 kg
Dimensions L x W x H	673 x 500 x 989 mm 26.5 x 19.7 x 39"	673 x 500 x 1316* mm 26.5 x 19.7 x 51.8"
Weld tool outlets (up to)	4/5*	3
Input Voltage (V)	400/440/500	400/440/500
Nominal Current (A)	32	32
IP Level	54	54
Input Line Frequenzy + - 5% (Hz)	50/60	50/60
Pneumatic system pressure	4–8 bar	4–8 bar
Protective gas sys. pressure	4–8 bar	4–8 bar
Weld current (A)*	100–1500/1800	100–1500
Weld time (ms)*	6–100	6–200

Welds per minute, parameter examples	TX1500	TX15AC
I=700A t=100ms	20**	25**
I=1500A t=20ms	20**	25**

* High Cube housing for alternating current ‹AC› and direct current ‹DC› with 5 outlets for weld tools
** Larger rates are possible and need to be agreed with the manufacturer. The number of welds needs to be considered as part of the overall process and must be individually checked and subsequently optimized for the respective system/application.


Standard Flange


Large Flange


LWS


Ground Studs

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