

HFMI – the advantages of PIT

the currently leading
HFMI method

tolerance
compensation for
automated use

very low hand-arm
vibrations of just
 $\sim 5\text{m/s}^2$

robust design for
industrial application

most versatile
application

sustainable
quality concept



lighter & cheaper
than ultrasonic-
systems but with an
absolutely similar
effect

HFMI is more
effective than
other methods

widest range of
accessories

full power at only
250 l/min
at 6 bar

speeds:
of 20 cm/min
or 10 cm²/min

probably the most
experienced HFMI
team

The leading HFMI experts:

(HFMI = High Frequency Mechanical Impact)



The PIT effects

- Substantially increased vibration resistance
- Prevention and/or avoidance of fatigue damage
- Also effective with retroactive use
- Substantially more efficient than conventional methods
- Reduction of shrinking stress
- Specific introduction of high residual compressive stress

Your benefits

- Higher & more sustainable quality
- Great lightweight construction potential
- Substantial cost and time savings
- Better system availability, including on existing systems
- Reduction and/or avoidance of warping
- Prevention of stress corrosion
- Increased safety

PIT Consulting



PIT System Sale



PIT Operator Training



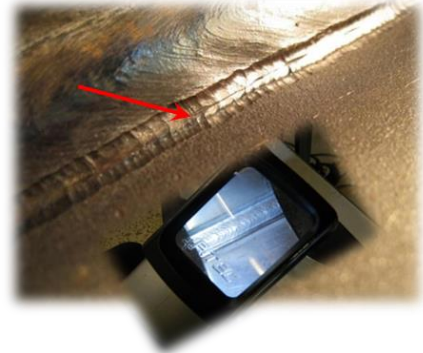
PIT Service



PIT Rental Systems

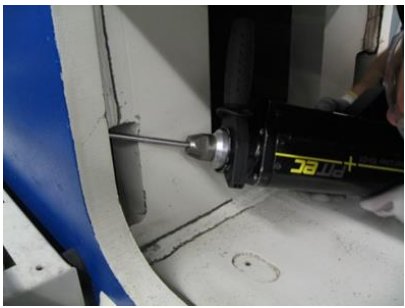


PIT Quality Service



for applications

- various radii of pins, depending on objective
- various lengths of pins, depending on accessibility
- concave pins for treating edges
- hose package extensions
- different controls
- aids for better guidance



for quality assurance

- LED loupe for visual control
- LED camera for visual control and documentation
- PIT Almen test to test the intensity of the System

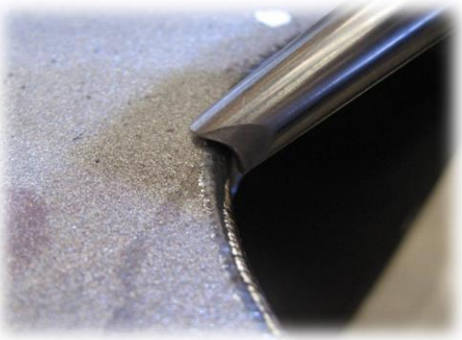


PIT Behandlungsanweisung Nr.: 13.04.20.04.001			
Beauftragter:		Bestand: Temperatur-Sonden	
Projekt Nr.:	13.04.20.04	Projekt Beschreibung	
Beschreibung:	Strahlprozess	Behandlung von Werkstoffen mit Strahlprozessoren	
Material-Nr.:	4.001		
Ziel der Behandlung: Inregung der Umringungsstellen/ Holzfest			
Behandlungsparameter			
Geräte-Identifikation			
Anwender:	Modell:	Geräte-Nummer:	Stufe:
zur geschulter Anwender:	PIT Wave Line	Max:	2.000 Hz
Behandlungsabstand:		Vorlaufgeschwindigkeit:	
~ 30-60°		~ 5-20 cm/min	
Sitzhalter und Bolzen			
Form des Sitzhalters:	Bolzen:	Durchmesser:	Länge des/h Bolzen/s:
Standard	Standard	8 mm	Standard 100 mm/150 mm
Behandlung basiert auf folgenden Unterlagen:		Dokument-Nr.: 100.04.20.02	
An dieser Behandlungsanweisung haben mitgewirkt:			
Organisation:	Name:	Funktions:	
PITec GmbH	Frank Schiller	Technischer Consultant / Sales Manager	

PIT treatment of the weld toe
fatigue prevention



PIT treatment of edges
fatigue prevention



flat PIT treatment of complete weld including HEZ
prevention of fatigue and stress corrosion cracking (SCC)



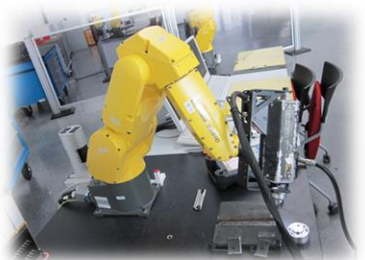
flat PIT treatment of every layer
to avoid shrinkage and distorsion



by Hand



by Roboter



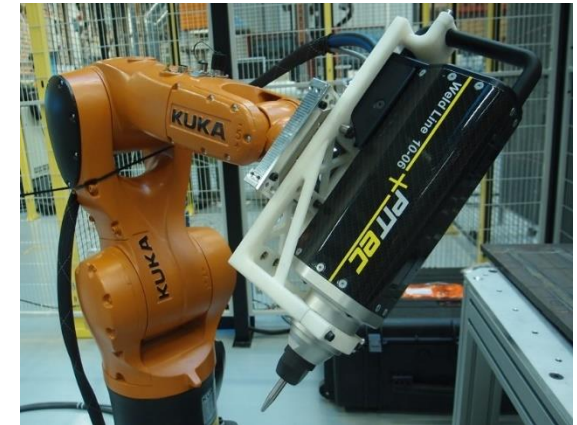
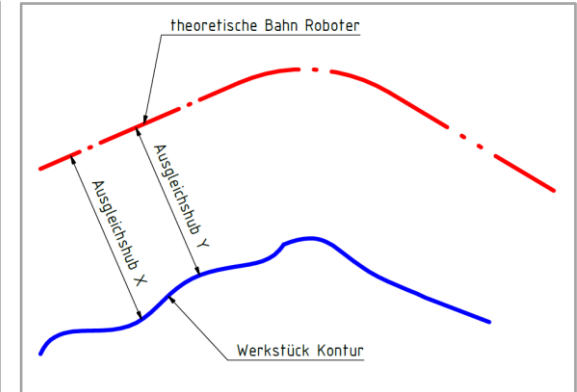
under water



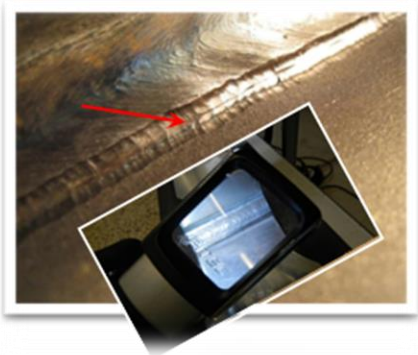
The striking mechanism, mounted on spring bearings for optimum reproducibility, offers further advantages for automated applications

- 1) The spring range of the decoupling system automatically corrects tolerances in the surface contour without influencing the strike intensity.**
- 2) The integrated switch starts if the necessary compression of the spring is achieved, making a separate control command superfluous.**
- 3) The load on the robot will be minimum due to the low vibration level of approximately $\sim 5\text{m/sec}^2$ means the load on the robot is very slight.**

An optimised mounting frame also allows a change from manual operation to automated use in just a few steps.



Quality Assurance for the "High Frequency Hammer Peening Method" International "High Frequency Mechanical Impact (HFMI)" Technology



PIT Behandlungsanweisung Nr.: 12.08.00.000		PITEC	
Kunde:	Bayerische Transporten GmbH		
Beschaffungsnummer:			
Projekt Nr.:	12.09.12.04	Projekt Beschreibung:	
Beschreibung:	Druckluft	Behandlung von Ventilen der Druckleitungen	
Material Bez.:	1.033		
Ziel der Behandlung:		Erhöhung der Ermüdungswechsellast / Festigkeit	
Behandlungsparameter			
Anwender:	Geräte-Identifizierung:	Einbaulage:	
Modell:	Geräteversion:	Stufe:	Strick:
hier geschulter Anwender:	PIT 9000 Line	400	2.082.043 4.000
Behandlungsrichtung:	Vorwärtsgeschwindigkeit:		
	~ 50-60°		
Behandlungseinstellungen			
Form des Behälterfüßers:	Behälter:	Drehmoment:	Länge der/h Behälter:
Standard	Standard	8 Nm	100mm
Behandlung basiert auf folgenden Unterlagen: Zeichnung Nr.: 100 14 22 42			
An dieser Behandlungsanweisung haben teilgenommen			
Organisation:	Name:	Funktion:	
PITEC GmbH	Frank Schäfers	Technical Consultant / Sales Manager	

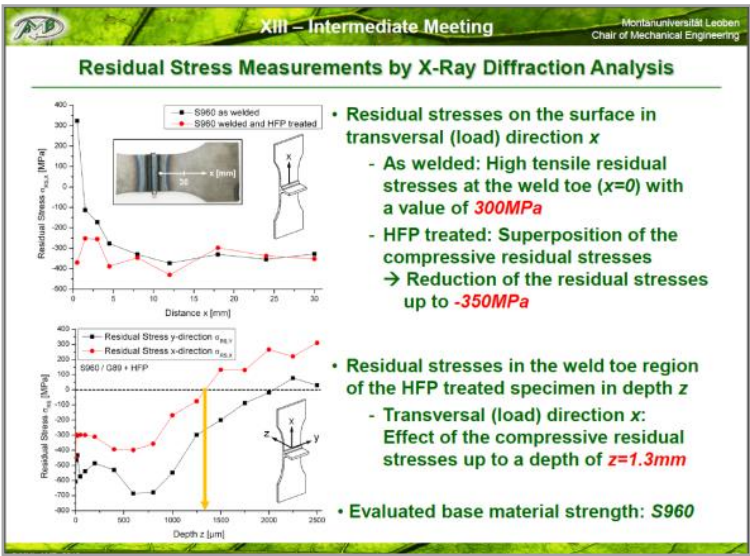
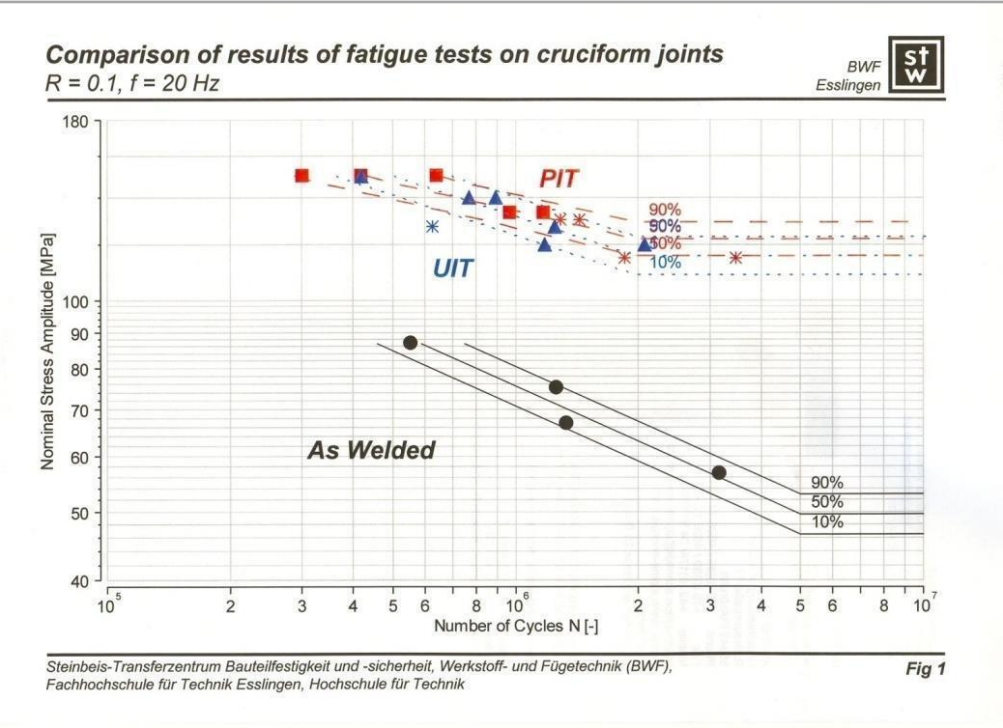
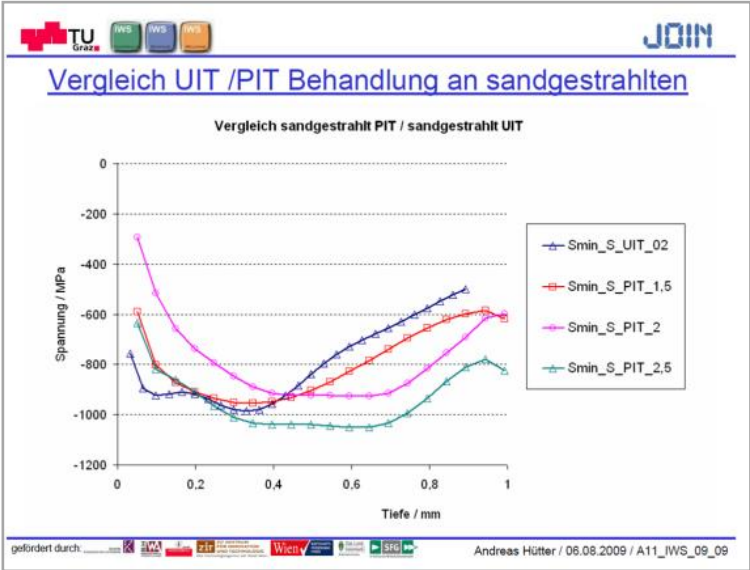


This representation is based on the long-standing experience of the PIT team with PIT technology, as well as on other HFMI methods, and is meant to describe the main criteria for ensuring high reproducibility.
For more details, please take a look to our Downloads www.pitec-gmbh.com

Because of a very innovative development, PIT is absolutely comparable with the clearly heavier and more expensive ultrasonic systems regarding the effect of compressive stresses and Fatigue-improvement.

Hence, PIT is also led with the IIW as an equivalent HFMI system.

Furthermore PIT has a very high safety level because of less voltage from only 24 V in the Hand-tool and a hand-arm-vibration level of only 5m/sec².



TRUMPF



„At Trumpf, we were already convinced of the HFMI effect in 2009 and decided in favour of PIT after comparing several providers. The fact, that the systems we bought are still work perfectly shows that we made the right decision. Even in a service case PITEC always reacts quickly and reliably, that makes the cooperation very efficient.“

Damien Clog – welding technology / Trumpf Machines SARL | 67500 Haguenau, France



“In our opinion, PIT technology will play a decisive role in the future for dynamically loaded highly stressed areas. We are pleased about the pleasant cooperation. Not only a great product, but also an open-minded and friendly team!”

Helmut Scherhauser-Kremmer, CEO LOC-matic GmbH
Stefan Allmeier, Welding engineer



LOC
matic



“Through the PIT Effect, Sennebogen became able to improve the already good fatigue life of their steel constructions. This is also confirmed by our customers.”

Dipl. Ing. Ldg.J. Reischer, IWE +IWI, Ltg QS Stahlbau



SENNEBOGEN



“DCC tested PIT technology on test structures and found their expected results confirmed. We are successfully applying the PITEC system to improve the service life of our rails.”

Thomas Krimmer, Head of Procurement, Doppelmayr Cable Car GmbH & Co KG



“A rate of damage instances of just 6 months motivated us at the end of 2010 to go for PIT technology. Because, after more than 2 years, we have not had any new fractures, we will in future rely on PIT for our customers.”

Vito Pirone, Salzbergen 04.04.2013, Beckmann und Volmer Service GmbH

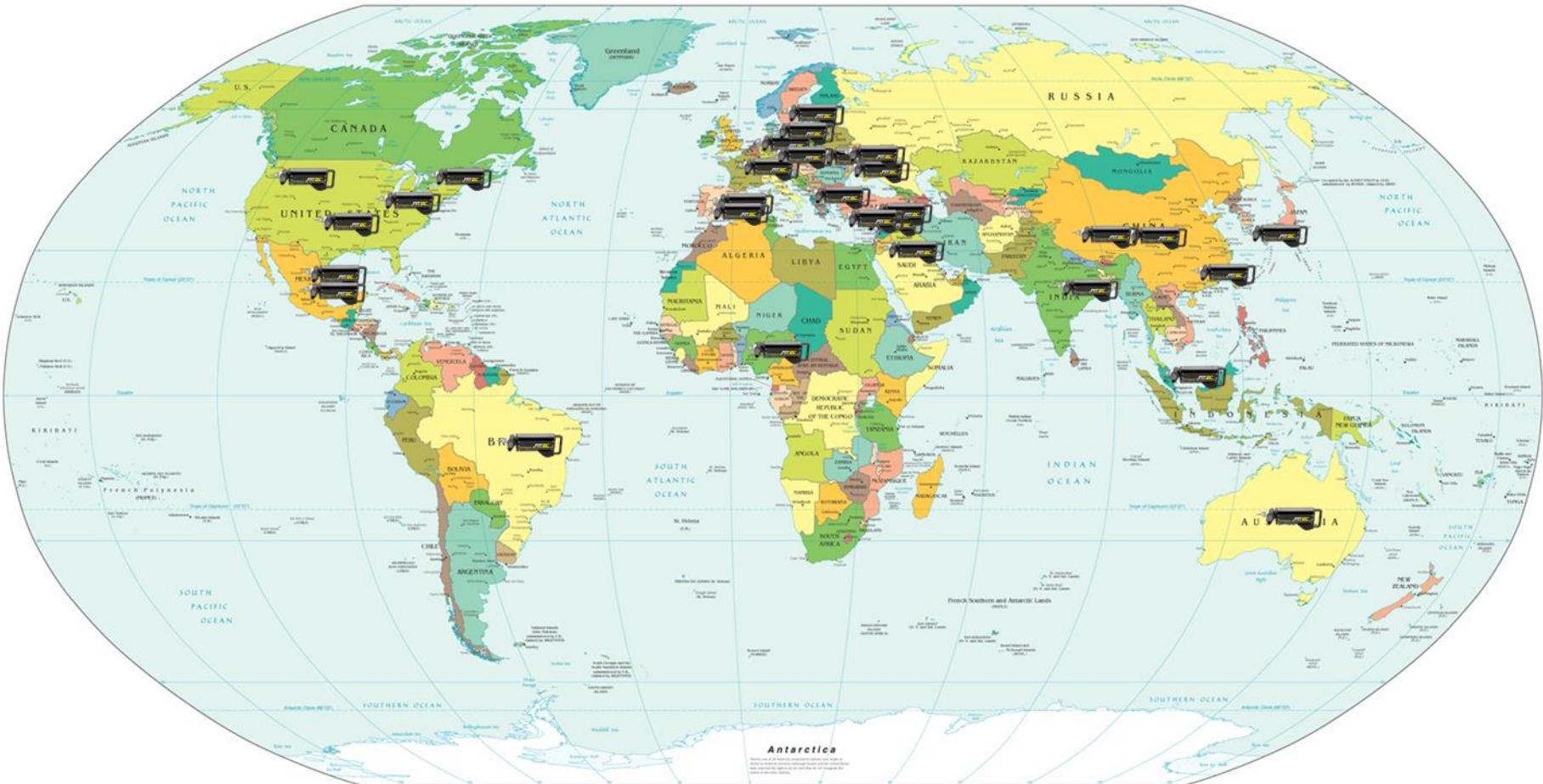


“In addition to our repair services we are also offering our customers a PIT treatment option on request, based on the increased resistance to vibrations. Due to excellent cooperation with PITEC, our repair times have remained virtually unchanged.”

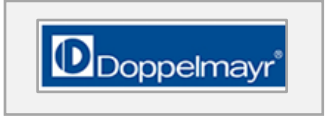
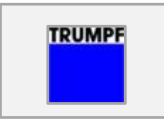
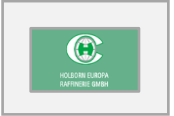
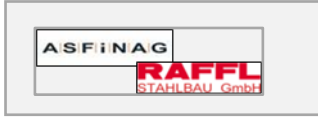
Dipl. Ing. Mario Krech, Sales/Welding repairs center, Schüler Pressen GmbH



Our long time experience and the high efficiency of our PIT Systems allows us to be the leading supplier of HFMI technology in this moment.



...let us convince you too!



Thank you for your attention.



PITEC Deutschland GmbH

Headquarters (commercial)

Essenberger Straße 85-93

D-47059 Duisburg

www.pitec-gmbh.com

Sales & Technic (operational)

Siemensstraße 1b

D-50170 Kerpen/Sindorf

Tel.: +49 (0) 2273 /95108-60

Fax: +49 (0) 2273/95108-61

info@pitec-gmbh.com

