

Advanced  
Preventive services

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## Generator characterization in a view of Nadcap accreditation

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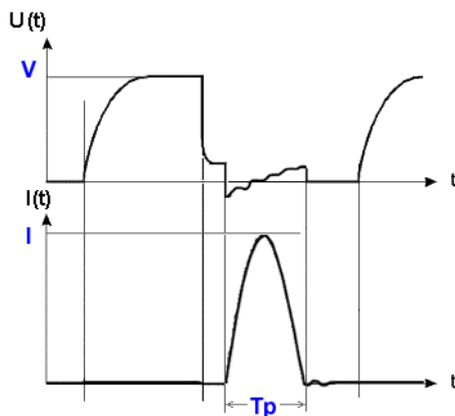
Company name  
**Korte Gravier- und  
Werkzeugtechnik GmbH**

# Generator characterization

## To facilitate your certification

### WORK SUMMARY

01



In order to guarantee the repeatability of the machine's performance, the shape of the spark is measured with electronic calibrated, electronic measuring devices through the checking of the following IPG generator erosion parameters:

- $V$  = Ignition voltage (V)
- $I$  = Machining current (A)
- $T_p$  = Pulse timing ( $\mu$ s)
- Water deionization\* ( $\mu$ S)
- Wire tension stability and adjustment\* (Kg/Nm)
- Cabinet power supplies\*

\* Insignificant parameters, on demand only

The certification of the generator is carried out to approved GF AgieCharmilles standards and does not affect the calibration of any of the machining parameters.

This certification is done by a GF AgieCharmilles expert service engineer trained at and graduated from the GF AgieCharmilles Academy.



### TOOLS USED

02

Performing accurate analysis require highly reliable measuring devices. To comply with this necessity, we use a regularly certified digital scope meter, machining current monitor, and various materials such as connectors, adaptors and contact block dedicated to the GF AgieCharmilles machines.

The detailed values and references of the tooling used are given with measured values. The certificates can be requested from GF AgieCharmilles.

# Generator characterization

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### REPORT

03

Description of the machine

Korte Gravier- und Werkzeugtechnik GmbH

Type	Excellence	Street	Am Groten Hof
Serial	C30.301.0056	ZIP code / City	58840 Plettenberg
Production year	2000	Country	DE
Machining hours	38853	Contact	Herr Korte
Ref by customer		Phone	02391/9185-20
Software version	03.04.03	Fax	02391/14232
		Email	korte@korte-gmbh.com

Comments

All measurement results are based on values from GF AgieCharmilles and results charts and hardcopy are given at the end of this document.

I, the undersigned, have carried out the tests as per the GF AgieCharmilles procedures using the test equipment specified before in this document and for which, GF AgieCharmilles hold a record of traceable certificates.

According to the measures made, I declare the machine  Operational  Non operational

GF Machining Solutions  
Customer Services technician

Korte Gravier- und Werkzeugtechnik GmbH

Name Michael Engberger

Name *Stephan Korte*

Date 04.10.2016

Date *5.10.2016*Signature *M. Engberger*Signature *Stephan Korte*

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Services

# Generator characterization

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### MEASUREMENT PROTOCOL

Machine type Excellence	Serial C30.301.0056	Company name Korte Gravier & Werkzeugtechnik GmbH	Date 21.09.2016
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Software version 03.04.03	Type of generator IPG eCUT
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- Test mode:**
- Teccut-Version: AC CUT G 0.25mm Wire: Cobra Cut A 0,25mm
  - Generator: M999, M0 & M2

**Test 1 PPV Spannung (I = 2), without wire and dielectric**

Element	UFS	O/P - V	Toleranz	Gemessen	Ergebnis
Modus 999	14	15	5%	14,3	OK
Modus 999	14	15	5%	14,5	OK
Modus 999	14	15	5%	14,5	OK
Modus 999	14	15	5%	14,8	OK
Modus 999	14	15	5%	14,7	OK
Modus 999	14	15	5%	14,9	OK
Modus 999	28	30	5%	28,6	OK
Modus 999	28	30	5%	29	OK
Modus 999	29	30	5%	28,9	OK
Modus 999	29	30	5%	29,4	OK
Modus 999	29	30	5%	29	OK
Modus 999	29	30	5%	29,5	OK
Modus 999	29	30	5%	29,4	OK

**Test 2 EDM finishing current (HPS EDM) (M=2 TON=15 REG=8 ACO=0)**

I	P	Standardwert	Toleranz	Masseinheit	Ergebnis
6	35	2,74	10%	2,5	OK
7	35	3,3	10%	3	OK
8	35	4,69	10%	4,3	OK
6	10	1,46	10%	1,32	OK
7	10	1,79	10%	1,62	OK
8	10	2,52	10%	2,45	OK

# Generator characterization

## To facilitate your certification

**Test 3 EDM roughing current and pulse timing [T] (P=3, REG=8, Vs=0.1, Str=0)  
Cobra Cut wire 0,25mm (AC CUT G 0.25)**

I	Standardwert [A]	Toleranz	Gemessen [A]	Ergebnis	Zeit [µs]
13	80	5%	80,8	OK	2,56
14	120	5%	114	OK	2,32
15	80	5%	80,8	OK	2,5
16	130	5%	128	OK	2,6
17	130	5%	128	OK	2,6
18	140	5%	137	OK	2,32
19	250	5%	242	OK	2,6
20	330	5%	328	OK	3,2
21	450	5%	444	OK	3,96
22	500	5%	488	OK	4,4

### Conclusions

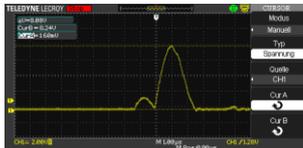
Test	Result	Comments
Test 1 EDM Ignition voltage		
Test 2 EDM finishing current		
Test 3 EDM Roughing current and pulse timing		

### Measuring devices

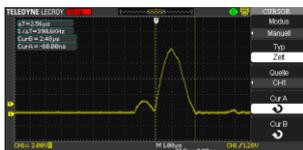
Device	Function	Brand	Model	Ser. number	Certification institute/ref./date**
Digital oscilloscope*	I & U	Lecroy	Wave Ace 1012	LCRY2150C02638	Teledyne Lecroy 25.12.2015
Multimeter	I	Fluke	196B	DM9150190	VDI/VDE/DGQ//DKD 2622 – DGUV 21.01.2016
Caniche	I	GFMS	CC Generator	_____	Measuring utility, Ratio 1V/10A 50 Ohm inline Load
Deionisation meter	µS	Greisinger	GLM 020	17821	Manufacturer's calibration

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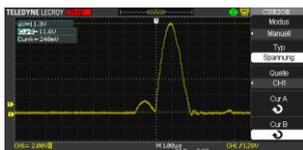
I-13 – 81A



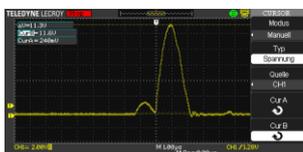
2,5µS



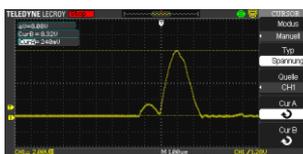
I-14 - 113 A



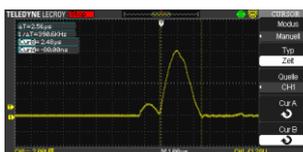
2.32µ



I-15 – 81A

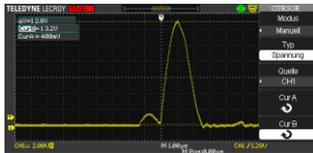


2.56µS

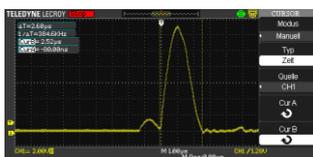


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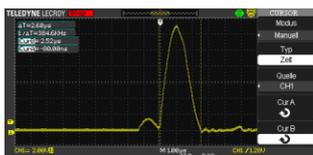
I-16 – 128A



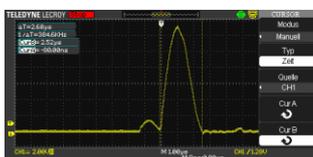
– 2.6µS



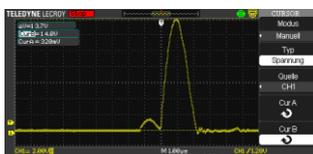
I-17 – 128A



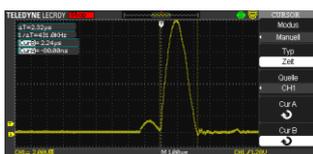
– 2.6 µS



I-18 – 137A

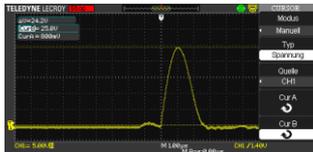


– 2.32µS

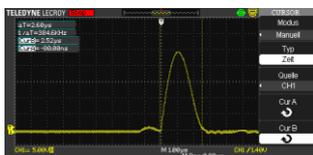


# Generator characterization To facilitate your certification

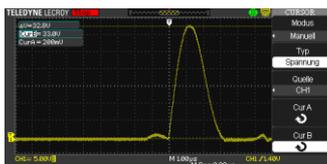
I-19 – 242A



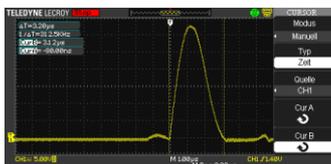
– 2.6µs



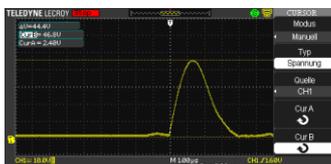
I-20 – 320A



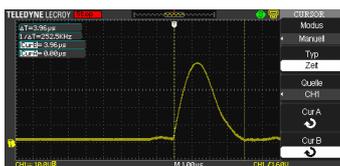
– 2.32µs



I-21 – 444A

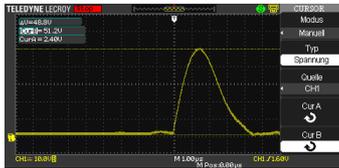


– 3.96µs

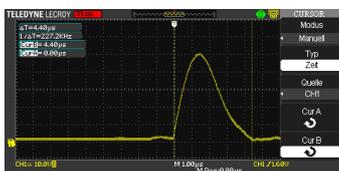


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I-22 – 488



– 4.4µS

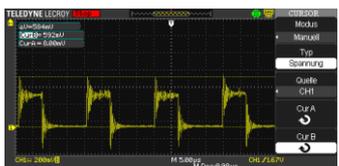


Block H Schichten

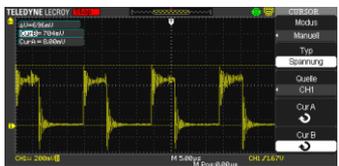
I-6



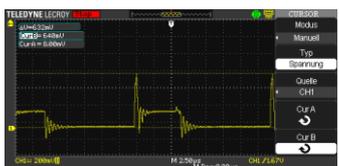
I-7



I-8



I-9



# Generator characterization To facilitate your certification

I-10



I-11



I-12

