Homologation

LiveWire Tool

Type: Cleco-17BPYPB13QL

Order no.: 17BPYPB13QL

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Homologation 010/2017

Cleco-17BPYPB13QL

LiveWire Tool

Order no.: 17BPYPB13QL

Machine type:	LiveWire Tool
Torque range:	3 Nm to 13 Nm
Max speed:	930 rpm (with 44 Volt battery)
Certified serial nos.:	737457, 737458, 737459

Contents:

Overview C_m/C_{mk} values
General specifications tool and controller
Machine capability study and graphs
Measurement capability test

Apex Tool Group GmbH

LiveWire Tool

C_m/C_{mk} values achieved

Accuracy class: 7 %

Tool	Serial nos.	Test data	30 %		80 %		100 %	
			30° ±5°	360° ±15°	30° ±5°	360° ±15°	30° ±5°	360° ±15°
Cleco-17BPYPB13QL		Break time	5 s	5 s	5 s	15 s	5 s	30 s
		Test torque	**6.00 Nm**		**11.00 Nm**		**13.00 Nm**	
		Speed in 1st stage	629 rpm	629 rpm	629 rpm	629 rpm	629 rpm	629 rpm
		Speed in last stage	50 rpm	50 rpm	50 rpm	50 rpm	50 rpm	50 rpm
		Angle start torque	3.00 Nm		5.50 Nm		6.50 Nm	
	737457	C_m	3.04	5.96	8.99	14.17	4.25	10.28
		C_{mk}	2.93	4.10	8.64	12.05	4.01	8.47
	737458	C_m	2.79	6.81	8.37	4.60	4.05	9.45
		C_{mk}	2.50	4.99	7.97	4.09	3.70	7.73
	737459	C_m	3.66	7.50	5.27	6.04	5.13	6.57
		C_{mk}	3.46	4.64	5.04	5.32	5.12	5.09
Min. C_m/C_{mk}		C_m	2.79	5.96	5.27	4.60	4.05	6.57
		C_{mk}	2.50	4.10	5.04	4.09	3.70	5.09

	Target:	≥ 1.67	**Rating**
Capability index	C_m	**2.79**	**OK**
	C_{mk}	**2.50**	**OK**

Tolerances of rotational angle homologation
Measurements without angle correction

Tool	Serial nos.	Test data	60 % of max. torque	80 % of max. torque
			40°	**180°**
Cleco-17BPYPB13QL		Break time	5 s	5 s
		Angle start torque	2.60 Nm	2.60 Nm
		Test torque	7.80 Nm	10.40 Nm
		Speed in 1st stage	300 rpm	300 rpm
		Speed in last stage	50 rpm	50 rpm
	737457	Torque	± 1.64 %	± 1.31 %
		Angle	± 1°	± 2°
	737458	Torque	± 1.71 %	± 1.96 %
		Angle	± 1°	± 2°
	737459	Torque	± 2.02 %	± 1.50 %
		Angle	± 1°	± 2°

Torque	Target: ± 7.00 %	Target: ± 7.00 %
	Actual: ± 2.02 %	Actual: ± 1.96 %
Rating	**OK**	**OK**

Angle	Target: ± 5°	Target: ± 10°
	Actual: ± 1°	Actual: ± 2°
Rating	**OK**	**OK**

* The homologation was performed with a 26 volt battery.
Comparative measurements with a 44 volt battery resulted in similar values.

Investigation no.: 010/2017
Date: 25.09.2017

Test sheet no. 1a

General specifications

Manufacturer: Apex Tool Group GmbH

Machine type: Battery-operated tool

Model: Cleco-17BPYPB13QL

Serial numbers: 737457, 737458, 737459

Torque range: 3 Nm to 13 Nm

Battery voltage:		**26 V**		**44 V**
Rated capacity:		1600 mAh		1600 mAh
Weight (without battery):		1.24 kg		1.24 kg
Weight (with battery):		1.73 kg		2.09 kg
Maximum speed at the first stage:		629 rpm		930 rpm
Maximum speed at the final stage:		629 rpm		930 rpm
Minimum speed at the final stage:		0 rpm		0 rpm
Sound pressure level at maximum speed: (acc. to DIN EN 60745-1:2010-01, DIN EN 60745-2-2:2011-01)		59.1 dB(A)		67.8 dB(A)
Number of duty cycles with a battery at 100% rated power	Soft joint (L):	225 runs		
	Hard joint (H):	595 runs		
Temperature of electrical tools: (After 100 measurements in tq 80% soft)		start	end	
	at the output drive:	20 °C	32 °C	
	on the electric motor:	20 °C	37 °C	
	on the handle:	20 °C	29 °C	
Output type:		Quick change		
Output drive size:		1/4 "		

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Test sheet no. 1b

Specifications of controller

Manufacturer:	Apex Tool Group GmbH	**Serial number:**	B30365
Model:	MPRO400SE	**Software version:**	S168804-404 May 23 2014 Q

Fastening Strategy:	Current shut-off:	Yes
	Torque control:	Yes
	Torque control, angle monitoring:	Yes
	Angle control, torque monitoring:	Yes
	Yield point control:	Yes
	Pre-load control:	No
Options:	Prevailing torque:	Yes
	Angle correction:	No
	Pulsing:	No
	Tighten - loosen - tighten:	Yes
	Tapping screw monitoring:	Yes
	Left-hand rundown:	Yes
	Other procedures:	Yes, see user manual
Angle of rotation resolution:		1 degree
Torque accuracy:		1 %
Programming:	Keyboard:	Yes
	External PC:	Yes
	Text display:	Yes
	Display:	Yes
	LCD display:	No
Printer interface:		Yes (RS232)
Additional inputs and outputs:		CON1-4, I/O map, Profibus, USB USB - -
Isolation transformer:		No
Network:		Ethernet

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