Homologation

Document no: 005/2022

Fixtured Spindle

Type: **Cleco - 2BD-2B200A-2K3D-2ZB**

Order no.: **2BD200T1S-A**

This homologation also applies to type(s):

Cleco - 2BD-2B200A-2/2K3D-2ZB
Cleco - 2BDU-2B200A-2K3D-2ZB
Cleco - 2BDU-2B200A-2/2K3D-2ZB

Cleco - 2BD-2B200A-2K3D-2ZB

Fixtured Spindle

Order no.: 2BD200T1S-A

Included	*Type*	*Order no.*
	Cleco - 2BD-2B200A-2/2K3D-2ZB	2BD200T2S-A
	Cleco - 2BDU-2B200A-2K3D-2ZB	2BDU200T1S-A
	Cleco - 2BDU-2B200A-2/2K3D-2ZB	2BDU200T2S-A

Machine type:	Fixtured Spindle
Torque range:	20 Nm to 200 Nm
Max speed:	502 rpm
Certified serial nos.:	756055, 756056, 756057

Contents:

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Cleco Production Tools

Homologation of nutrunners

Apex Tool Group

Fixtured Spindle

C_m / C_{mk} values achieved
According VDI/VDE 2647 February 2013

Accuracy class: 7 %

Tool model	Serial nos.	Test data	30 %		80 %		100 %	
			30° ±5°	360° ±15°	30° ±5°	360° ±15°	30° ±5°	360° ±15°
2BD-2B200A-2K3D-2ZB		Break time	5 s	5 s	5 s	30 s	5 s	50 s
		Test torque	**74,00 Nm**		**164,00 Nm**		**200,00 Nm**	
		Speed in 1st stage	502 rpm	502 rpm	502 rpm	502 rpm	502 rpm	502 rpm
		Speed in last stage	50 rpm	50 rpm	50 rpm	50 rpm	50 rpm	50 rpm
		Angle start torque	37,00 Nm		82,00 Nm		100,00 Nm	
	756055	C_m	13,72	14,11	20,28	24,80	15,71	27,98
		C_{mk}	12,30	12,63	19,20	24,69	14,10	27,95
	756056	C_m	10,79	14,50	19,03	20,74	18,75	23,53
		C_{mk}	8,42	14,27	14,70	18,80	15,30	21,63
	756057	C_m	10,48	11,02	15,90	19,89	17,62	27,31
		C_{mk}	8,74	10,79	12,42	18,28	15,09	25,42
Min. C_m/C_{mk}		C_m	10,48	11,02	15,90	19,89	15,71	23,53
		C_{mk}	8,42	10,79	12,42	18,28	14,10	21,63

	Target:	≥ 1.67	**Rating**
Capability index	**C_m**	**10,48**	**OK**
	C_{mk}	**8,42**	**OK**

Tolerances of rotational angle homologation
Measurements without angle correction

Tool model	Serial nos.	Test data	60 % of max. torque	80 % of max. torque
			40°	**180°**
		Break time	5 s	5 s
		Angle start torque	40,00 Nm	40,00 Nm
		Test torque	120,00 Nm	160,00 Nm
		Speed in 1st stage	300 rpm	300 rpm
		Speed in last stage	50 rpm	50 rpm
	756055	Torque	± 0,61 %	± 0,33 %
		Angle	± 1,3°	± 2,2°
	756056	Torque	± 0,27 %	± 0,46 %
		Angle	± 1,3°	± 1,5°
	756057	Torque	± 0,41 %	± 0,43 %
		Angle	± 1,2°	± 1,2°

Torque	Target: ± 7 %	Target: ± 7 %
	Actual: ± 0,61 %	Actual: ± 0,46 %
Rating	**OK**	**OK**
Angle	Target: ± 5°	Target: ± 10°
	Actual: ± 1,3°	Actual: ± 2,2°
Rating	**OK**	**OK**

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Test sheet no. 1a

General specifications

Manufacturer:	Apex Tool Group	**Assembly tool type**	Fixtured Spindle
Tool model:	2BD-2B200A-2K3D-2ZB	**Serial numbers:**	756055, 756056, 756057
Torque range:	20 Nm to 200 Nm		

Operating voltage:	380	VDC
Power consumption:	1000	W
Weight:	6,50	kg
Control cable length:	15	m
Diameter of control cable:	14	mm
Maximum speed at the first stage:	502	rpm
Maximum speed at the final stage:	502	rpm
Minimum speed at the final stage:	0	rpm
Sound pressure level at maximum speed: (acc. to DIN EN 62841-1:2016-07, DIN EN 62841-2-2:2015-05)	65,3	dB(A)

Temperature of electrical tools:

(After 100 measurements with soft jont at 80% torque)

	start	end
at the angle head:	-	-
on the electric motor:	22 °C	75 °C
on the handle:	-	-

Output type:	Square drive	
Output drive size:	1/2; 3/4	inches

Test sheet no. 1b

Specifications of controller

Manufacturer:	Apex Tool Group	**Serial number:**	AXABH0001
Controller type:	MPRO400GCD-P	**Software version:**	S168813-1.12.0.61436-Test 03.03.21

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 documentation
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
Additional inputs and outputs:		2 Serial RS232 8 Digital in, 8 Digital out (24V) 2 Fieldbus modules 3 USB 2.0
Isolation transformer:		No, galvanic isolated power supply
Network:		2 RJ45 10/100 BaseT Ethernet ports

POWER TOOLS SALES & SERVICE CENTERS

Please note that all locations may not service all products.
Contact the nearest Cleco® Sales & Service Center for the appropriate facility to handle your service requirements.

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