Homologation

Document no: 007/2022

Fixtured Spindle

Type: **Cleco - 4BD-4B500A-4K2D-4ZA**

Order no.: **4BD500T1S-A**

This homologation also applies to type(s):

Cleco - 4BD-4B500A-2/4K2D-4ZA
Cleco - 4BDU-4B500A-4K2D-4ZA
Cleco - 4BDU-4B500A-2/4K2D-4ZA

Cleco - 4BD-4B500A-4K2D-4ZA

Fixtured Spindle

Order no.: 4BD500T1S-A

Included	*Type*	*Order no.*
	Cleco - 4BD-4B500A-2/4K2D-4ZA	4BD500T2S-A
	Cleco - 4BDU-4B500A-4K2D-4ZA	4BDU500T1S-A
	Cleco - 4BDU-4B500A-2/4K2D-4ZA	4BDU500T2S-A

Machine type:	Fixtured Spindle
Torque range:	50 Nm to 500 Nm
Max speed:	269 rpm
Certified serial nos.:	1016282, 1016283, 1016284

Contents:

Overview C_m/C_{mk} values
General specifications tool and controller
Power Tools Sales & Service Centers
Machine capability study and graphs
Measurement capability test

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°
4BD-4B500A-4K2D-4ZA		Break time	5 s	5 s	5 s	40 s	5 s	80 s
		Test torque	**185,00 Nm**		**410,00 Nm**		**500,00 Nm**	
		Speed in 1st stage	269 rpm	269 rpm	269 rpm	269 rpm	269 rpm	269 rpm
		Speed in last stage	50 rpm	50 rpm	50 rpm	50 rpm	50 rpm	50 rpm
		Angle start torque	92,50 Nm		205,00 Nm		250,00 Nm	
	1016282	C_m	14,42	13,03	15,29	11,13	14,76	15,70
		C_{mk}	11,88	12,04	13,37	10,65	13,53	15,31
	1016283	C_m	8,43	10,69	13,48	12,24	11,99	13,12
		C_{mk}	6,63	10,04	13,13	12,10	10,76	12,67
	1016284	C_m	7,95	8,10	11,11	18,25	11,01	11,90
		C_{mk}	6,19	7,28	10,41	17,84	10,58	11,86
Min. C_m/C_{mk}		C_m	7,95	8,10	11,11	11,13	11,01	11,90
		C_{mk}	6,19	7,28	10,41	10,65	10,58	11,86

	Target:	≥ 1.67	**Rating**
Capability index	**C_m**	**7,95**	**OK**
	C_{mk}	**6,19**	**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	100,00 Nm		100,00 Nm	
		Test torque	300,00 Nm		400,00 Nm	
		Speed in 1st stage	269 rpm		269 rpm	
		Speed in last stage	50 rpm		50 rpm	
	1016282	Torque	±	0,80 %	±	0,45 %
		Angle	±	1,4°	±	2,0°
	1016283	Torque	±	0,88 %	±	0,48 %
		Angle	±	2,5°	±	3,0°
	1016284	Torque	±	0,73 %	±	0,51 %
		Angle	±	3,0°	±	2,9°

Torque	Target: ±	7 %	Target: ±	7 %
	Actual: ±	0,88 %	Actual: ±	0,51 %
Rating	**OK**		**OK**	
Angle	Target: ±	5°	Target: ±	10°
	Actual: ±	3,0°	Actual: ±	3,0°
Rating	**OK**		**OK**	

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Test sheet no. 1a

General specifications

Manufacturer:	Apex Tool Group	**Assembly tool type**	Fixtured Spindle
Tool model:	4BD-4B500A-4K2D-4ZA	**Serial numbers:**	1016282, 1016283, 1016284
Torque range:	50 Nm to 500 Nm		

Operating voltage:	380	VDC
Power consumption:	1880	W
Weight:	19,20	kg
Control cable length:	15	m
Diameter of control cable:	14	mm
Maximum speed at the first stage:	269	rpm
Maximum speed at the final stage:	269	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)	61,5	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:	25 °C	55 °C
on the handle:	-	-

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