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AK27300X4D NC TURRET

AK27300X4D NC Turret Operating Instruction

YANTAI UNIVERSAL MACHINE TOOL
ACCESSORY GROUP CO., LTD PRC

Dear Customers:

We may take this opportunity to thank you for purchasing our products.

In order to make products work well, please surely read this operating instruction before starting it up. And also we should like you keep this operating instruction and we believe it would serve the solution of your any questions or troubles.

Note: we would not undertake the responsibility for your lost, which is caused by your understanding improperly instructions; these drawings is only reference , please consult objects accurately; at last ,we explicitly reserve the right to make changes arising out of the continuous further development of product.

Version: AK27300X4D--v01-201306

Contents

1. NC Turret Characteristics and Parameters

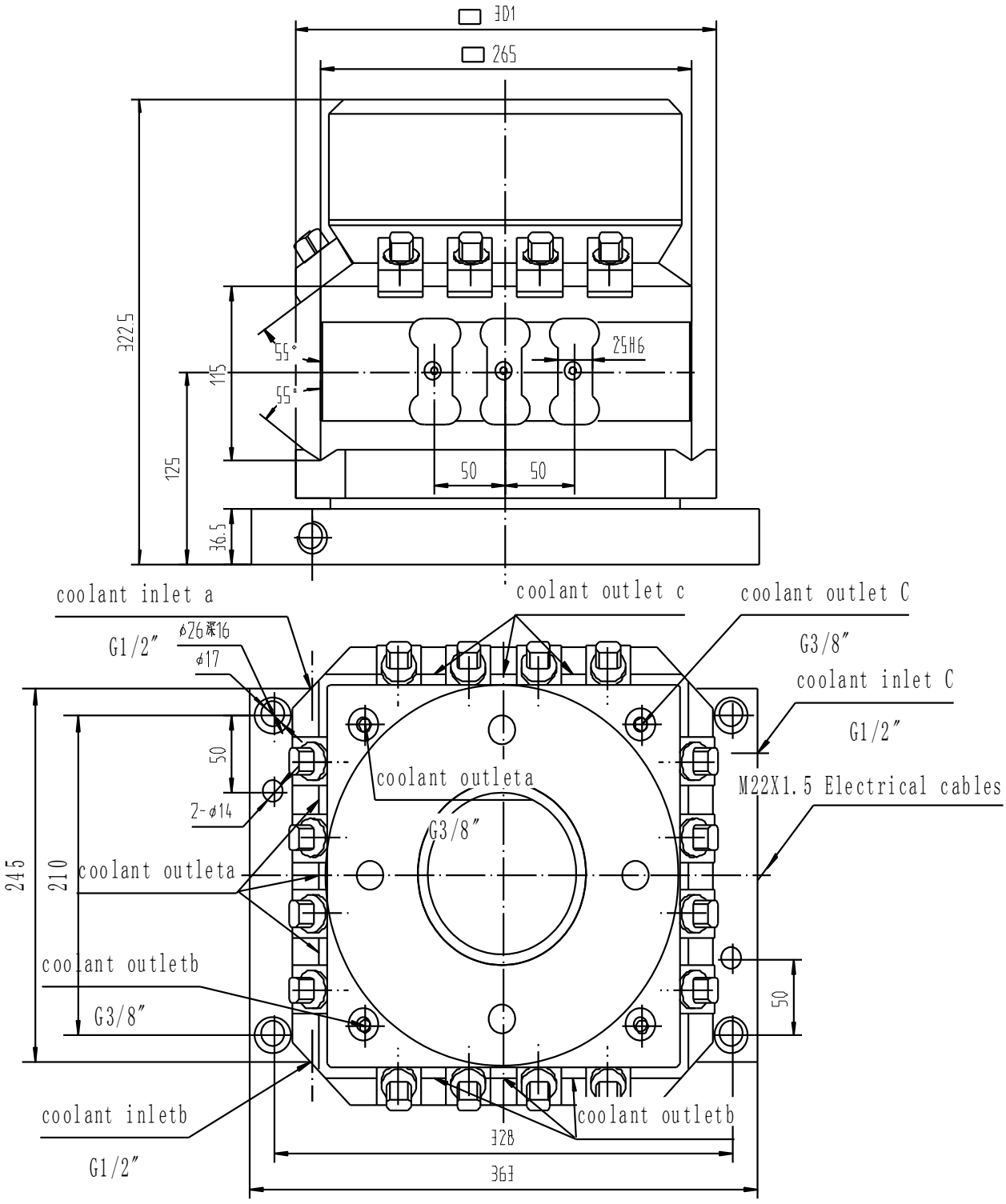
The AK27300X4D NC turret is specially designed for NC lathes, it uses the popular built-in motor, index by two pairs of coupling, clamp and unclamp by rectangular thread, it can rotate and machining without lifting up tool post. It has high indexing accuracy, reliable transfer, stable clamp, and it's well sealed.

Main Technical Data:

No.	Item	Parameter
1	Tool post size	301mm
2	Tool stations	4
3	Repeatability accuracy	0.005mm
4	Torque of the motor	5Nm
5	Clamping force	27500N
6	Indexing time for 90°(unclamp-rotate-clamp)	4s

2. Overall Dimensions

Before installation, make sure the mounting surface is clean. Fix the turret by bolt and pin. During installation, pay attention to the working and cooling position, because the cooling water is drained from the top of the tool post. According to actual using condition, installing the turret refers to relative outer sketch strictly, otherwise could cause some matters as damage the electronic component and the turret cannot work abnormally.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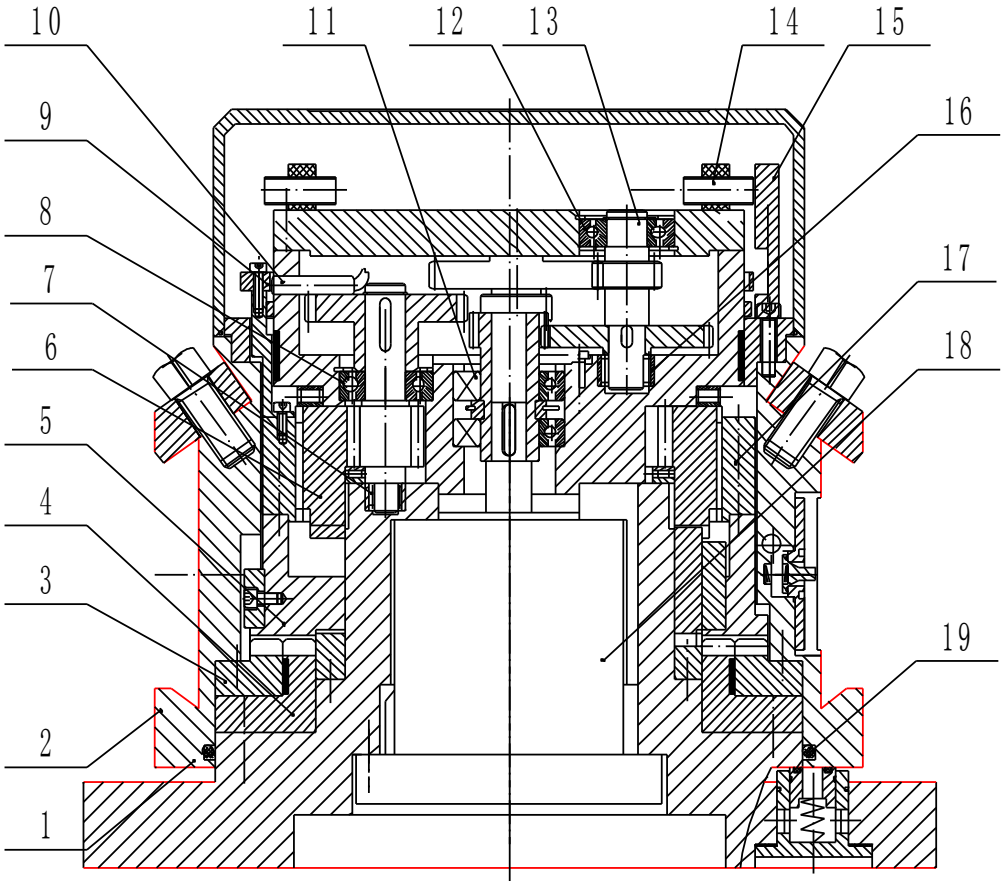
φ17
coolant outlet c
coolant outlet C
G3/8″
coolant inlet C
G1/2″
M22X1.5 Electrical cables
coolant outleta
G3/8″
coolant outletb
G3/8″
coolant inletb
G1/2″
coolant outletb
322.5
115
125
36.5
55°
55°
25H6
50
50
245
210
50
Z-φ14
50
328
363

3. Turret Structure



Structure Diagram

1.Turret base 2.Tool post 3.Rotary front coupling 4.Fixed front coupling 5.Dual coupling 6.Shift plate 7.Bearing(NK10/12) 8.Bearing(203) 9.Signal ring 10.Sensor(DW-AD-623-M8) 11.Bearing(7005C) 12.Bearing(203) 13.Gear shaft 14. Sensor(DW-AD-603-M12)
15.Signal block 16.Bearing(NA4902) 17.Nut 18.Motor
19.O-ring seal(250X5.3)

Working principle: System sends out rotation dictation, motor arrester loosen →Motor (18) starts to rotate counterclockwise →Shift plate rotate by gear →Dual coupling (5) rises by nut →Signal ring (9) rise →Sensor (10) restoration →Turret unclamped →Shift plate (6) bring tool post (2)→Turret start to rotate →Turret rotate to the working position, sensor (14) induce signal block (15), sent position signal →The motor start to rotate clockwise →Pre-position dowel inter pre-position slot →Nut (17) bring dual coupling (5) to descend →Turret clamped →Sensor (10) send out clamp signal →Motor delay some proper time →Motor break start to work →the motor stop working and indexing is complete.

4. Electric Wiring

The inner wiring of turret is the connection between the position sensor, clamp sensor, motor and the control system. Sensor's power cable and signal cable, motor's power cable, and arrester cable are Included

There are two terminals, one of them connect to the motor power cable, the other connect to the sensors. Please tell them apart by cables' color.

The terminal which connect to motor power:

The three green cables is three-phase power, the yellow-green one is GND, two black ones is the break, and two red ones is temperature control.

The terminal which connect to sensors:

Yellow, Green, Brown, Blue: tool position 1-4;

Gray: clamp; Red: power +; Black: power –

Motor: YLER5-6T2, Voltage: 380V, Power: 1KW, Current: 2A. There are 8 cables at all, three are power cables (green), and two are break cables (black), and two are temperature control cables (red, normally close at normal temperature, it will open when temperature is above 120℃), the other one is GND (yellow-green).

Break: Voltage: DC24V, Current: 0.46A, Torque: 4.0NM.

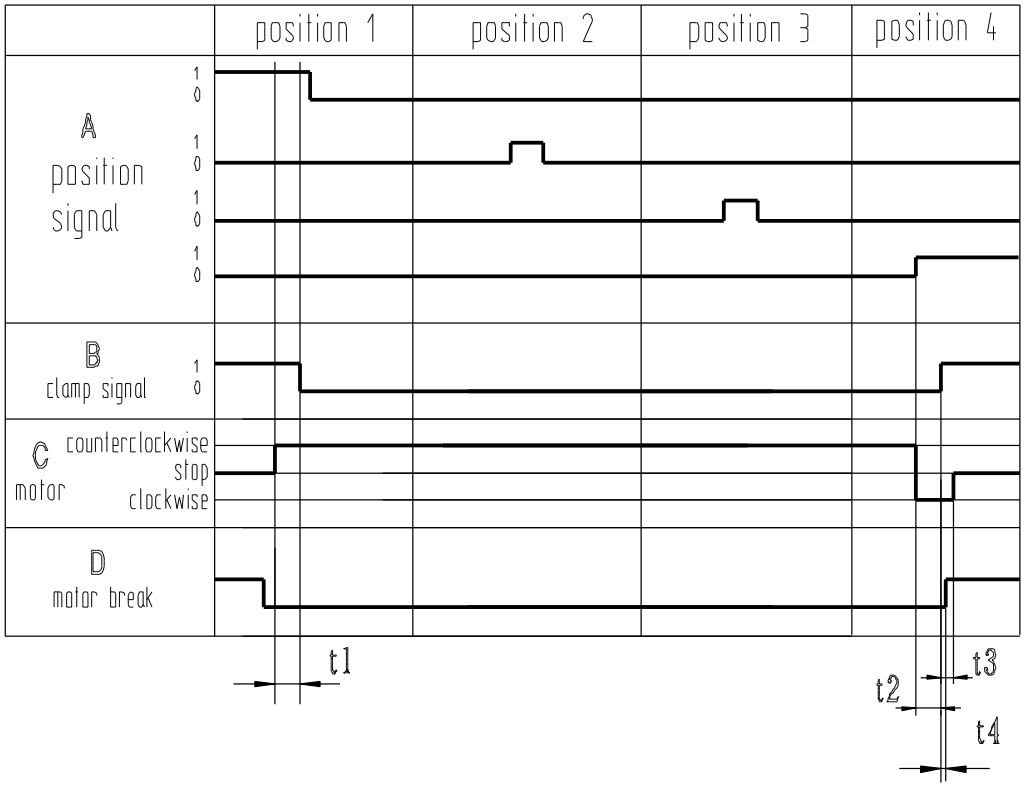
Tool position sensor: DW-AD-603-M12 (CONTRINEX AG), DC PNP NO, Rated voltage: 10-30V, Rated current: 200mA, Sensing distance: 2mm.

Clamp sensor: DW-AD-623-M8 (CONTRINEX AG), DC PNP NO, Rated voltage: 10-30V, Rated current: 200mA, Sensing distance: 2mm.

5. Electric Description

The following waveform indicates the turret's rotary process from the first position to the forth position. The process as follows:

First of all, turret receive rotating signal from the control system, the break is turned off →motor rotates(suppose motor is in clockwise rotation) →turret unclamping and the clamping signal is off →the turret rotates along desired direction →the sensor signal on the position "1" turns level "1" into level "0" →the turret rotates to position"2", the sensor signal on the position "2" turns level "0" into level "1" →the turret keeps on rotating→ when turret gets to the working position "4" , the sensor on the position "4" set signal →the motor rotates in counterclockwise and turret starts be clamped →delay for 1.8s →the break turn on →delay for 0.2s,motor is power off (the break is still working). →check the clamping signal →if having signal, working process can be started now, otherwise, system gives an alarm and check reason.



t1: unclamping time t2: clamping time
t3: 0.2s t4: unclamping delay time

6. Notice When First Run

Observe whether the turret rotates well on trial run. If the turret doesn't rotate in 1.8 seconds after power on, it is indicating that the power supply phase sequence reversed. Exchange any two-phase of motor cable, and try again.

7. Troubles and Solutions

Troubles	Causation	Solutions
Turret doesn’t rotate	1.Motor isn't power-on 2.The power supply phase sequence is wrong 3.Motor abnormal	1.Turn on the power 2. Exchange any two-phase of motor cable 3.Replace motor
Turret doesn't stop at required position	1.The distance between signal block and sensor is too long to send a signal 2.sensor cable is broken or terminal wiring abnormal 3.sensor abnormal	1.Adjust the distance between signal block and sensor 2.Change sensor cable or adjust terminal wiring 3.Replace sensor
After arriving target position and being clamped, tool position return to previous one	Signal block position abnormal	Fine-turn signal block (opposite to turret rotate direction)
Turret can stop at target position, but during being clamped, turret table back clearly	Signal block position abnormal	Fine-turn Signal block (same with turret rotate direction)
Bad clamping or turret rotates during clamping	Clamping power loose phase or the power is not transferred	Repair clamping power
No clamp signal after 1.8s from clamping	1.Clamp signal cable connection is bad 2.The distance of proximity switches is so long 3.Proximity switch abnormal	1.Connect the signal cable securely 2.Adjust the distance 3.Replace proximity switch
Motor hot excessively	1.Clamping time is so long 2.Tool position changes too frequently 3.Motor abnormal	1. Adjust clamping time to 1.8s 2. Set indexing interval＞10s 3.Replace motor

8. Lubrication

Any relative moving part of this product, must maintain good lubrication. We have already filled these parts with grease when assembling. Please re-lubricate when re-assembling in order to maintain the product life.