

NX5000

Installation Packet

1. INSTALLATION

1.1 Foundation

WARNINGCUSTOMERS ARE RESPONSIBLE FOR FOUNDATION & GROUTING.SUCCESSFUL FOUNDATION AND GROUTING WORKS ARE CRITICAL
FOR MAINTAINING THE ORIGINAL MACHINE ACCURACY FOR A LONG
PERIOD OF TIME.DETAILS OF FOUNDATION & GROUTING ARE SPECIFIED ON THE NIIGATA
FOUNDATION DRAWINGS SUBMITTED TO YOU IN ADVANCE.
IF YOU ARE NOT COMFORTABLE WITH THESE JOBS, CONSULT WITH
YOUR LOCAL SPECIALIST OR CONTRACTOR.FOUNDATION CONCRETE CURES IN A LONG TIME AND FOUNDATION
LEVEL CHANGES GRADUALLY.
CHECK MACHINE LEVEL PERIODICALLY AND RELEVEL, IF NECESSARY.

1.2 Ambient Conditions

If you have a freedom of choice for the installation location, please avoid following locations which are unfavorable to make the most of the M/C:

(1) Locations with excessive temperature variation such as direct sun shines, near furnaces / heat exchangers and air blow outlet.

Preferable ambient conditions are as follows.

- Ambient temperature: 5°C ~ 40°C
 - (Average temperature in 24 hours: 35°C or less)
- Humidity: 50% or less (40°C), 90% or less (20°C)
- Note: Refer to JIS B6015 for more detailed information. Please keep in mind that severe ambient conditions affect M/C accuracy and life time.
- (2) Dusty area affected by cutting chips, dirty oil or coolant from other machines. M/C slide ways and electrical components are susceptible or damaged and/or their lives shortened.
- (3) Soft soil

If bearing capacity of the soil is not enough, drive bearing piles to establish bearing capacity of 49 kN/m² or more. Refer to the "FOUNDATION DRAWING" submitted or filed in the INSTRUCTION MANUAL.

(4) Near vibration source (another M/C or units)

In case you cannot avoid vibration from other sources, apply anti-vibration foundation and /or separation grooving around the M/C foundation to shut out vibration to the M/C.

- (5) Other cautions
 - 1) Secure enough room for operator setup jobs around the APC and ATC magazine.
 - 2) Secure door opening space for the main control panel, oil supply and maintenance space for the lubrication unit, pneumatic unit, spindle cooler and hydraulic unit.
 - 3) Secure approx. 500 mm area from the air inlet of the spindle cooler for free airflow.
 - 4) Secure enough space to move out the coolant tank or chip bucket for maintenance and cleaning.

1.3 Ground Fault Circuit Breaker

IN CASE YOU INSTALL A GROUND FAULT CIRCUIT BREAKER ON YOUR POWER SUPPLY LINES TO THE M/C, PLEASE SELECT ONE WITH FUNCTIONING CAPACITY 200 mA OR MORE.

1.3.1 Leakage Current of Machining Centers

HIGH FREQUENCY LEAKAGE CURRENT is flowing from the motor windings, power cables or amplifiers for spindle and axis drive motors because of PWM inverter control on Niigata machining centers, even though power source current is not leaked, If capacity of the leakage breaker is low, it may trip with high frequency leakage current regardless no actual leakage.

Niigata's M/Cs are equipped with 200mA capacity breaker.

If you are going to install a leakage breaker on the power supply lines to the M/C, please select one with 200mA or more ratings.

1.3.2 Importance of the Grounding job

Proper grounding connection is critical for safety of operators, maintenance engineers and those who might physically touch the M/C.

If improper grounding connection between the M/C and earth is provided, the ground fault circuit breaker does not trip even though actual leakage current is output. Also high frequency leakage current will not be carried away to the ground.

If an operator or other people touch the M/C with improper grounding, it can leak through human body. It is quite dangerous.

Grounding work is the customer's responsibility at the time of M/C installation.

1.4 Preparations for M/C Installation and Safety

Please refer to the foundation drawings, submitted in advance, to arrange and provide primary electric power and pneumatic sources at timely manner.

- (1) To avoid electric shock, connect grounding wires individually to each grounding terminal in the control cabinet and the grounding rod.
- (2) Power source connection must be executed by authorized personnel. In power wire connection, electric power from your factory side must be shut OFF.

NEVER CONNECT POWER UNTIL WIRE CONNECTIONS COMPLETION AND SECURING HUMAN BODY SAFETY.

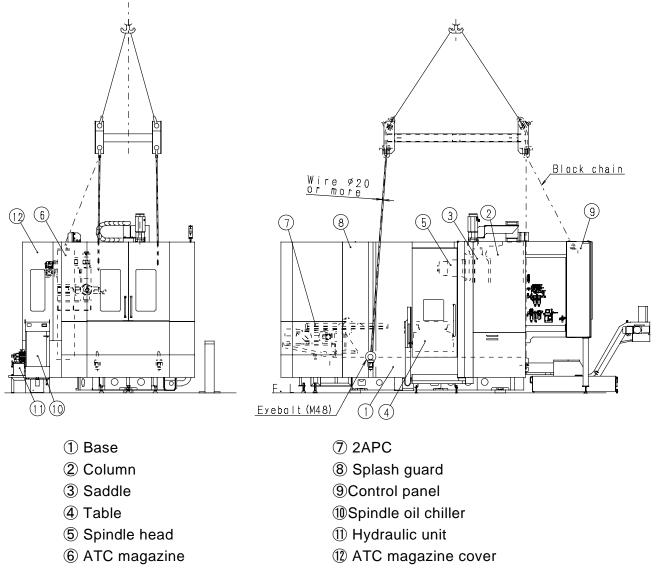
- (3) Stand warning board(s) to notify electric wire connections or grounding works in progress to other people.
- (4) If you plan to move / reinstall the M/C, contact Niigata for proper procedures to avoid accidents.
- (5) In crane and / or forklift operations and other hoisting, working must be executed by authorized personnel.
- (6) Check wire ropes, shackles, and lifting apparatuses before using whether their capacities are suitable for M/C mass.
- (7) In M/C lifting, check no other operator or people around the M/C.



NEVER ACCESS UNDER THE M/C AFTER M/C LIFTED UP.

- (8) If you plan to relocate the M/C, please inform to Niigata.
- (9) Keep primary power voltage fluctuation equal to or less than ± 10 % for rated value.

1.5 Machine Lifting



1.5.1 Machine Mass: Approx. 16,000 kg (for 60 ATC magazine)

1.5.2 Precautions in Machine Lifting

- Four (4) wire hooking points are provided on the base. Furthermore, an additional support wire point is provided at ATC magazine rear side. Attach 2-M48 eyebolts on the base front side and 1-M30 eyebolt on the ATC magazine rear side. (M48 eyebolts are not included in the machine.)
- Be sure to use four wires each with a diameter of $\varphi 20$ or more and without damage for each lifting position. Keeping the machine horizontal during lifting is critical. Use block chains at back side wires for length adjustment.

Watch that there is no contact between the wires and machine in lifting.

• Never lift the Column (2).

1.5.3 Parts to be Dismantled in Machine Lifting

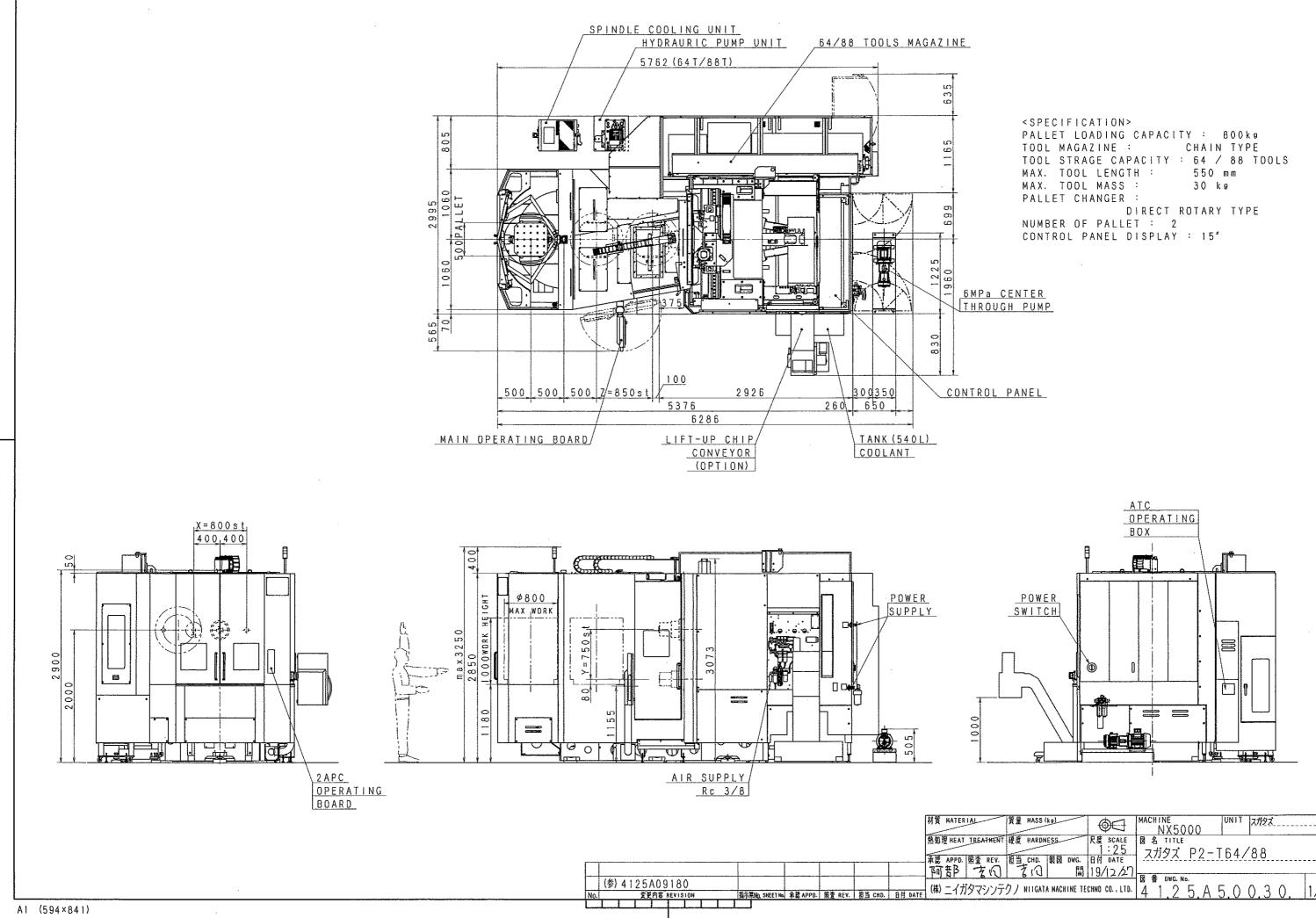
- Spindle cooling unit 1 (remove the piping.)
- · Hydraulic unit (1)
- + Two (2) round top covers of splash guard $\,\, \otimes$

1.5.4 Fixing of Movable Parts

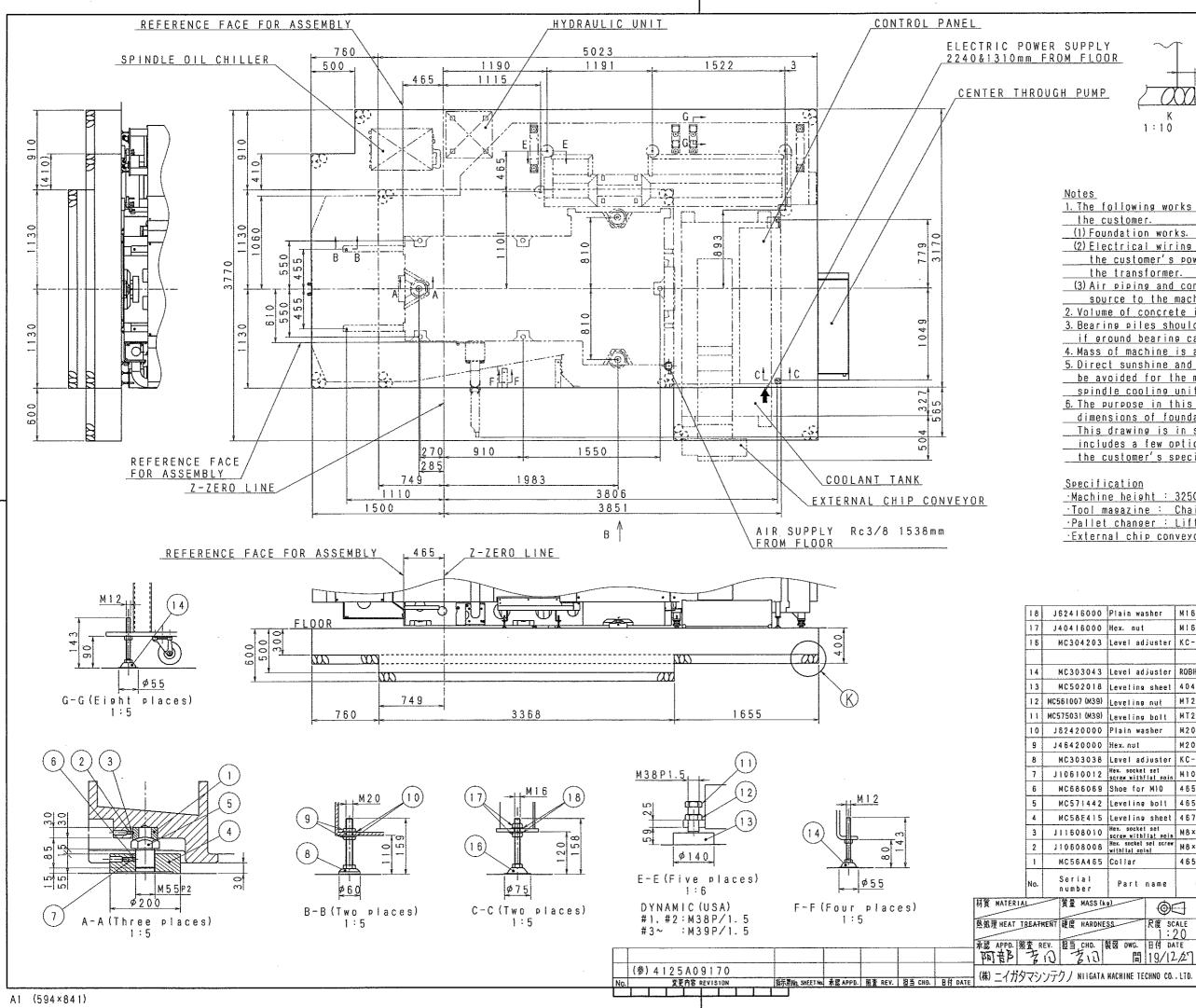
- (1) In transportation, prepare wooden supports or fixtures to securely fix the saddle ③, table ④ and spindle head ⑤.
 (Because linear motion bearings are adopted on each axis, frictional resistance is minimal and external forces influence stability of fixed axis units.)
- (2) Fix the saddle ③ at the center in the lateral direction, table ④ in the column direction, and spindle head ⑤in the downward direction.

1.5.5 Lifting Condition

• The ATC magazine (6), control panel (10), and splash guard (8) can be lifted as assembled with the machine body.



MASS (kg)	Ø€	NX5000
HARDNESS	R度 scale 1:25	図 名 TUTLE スガタズ P2-T64/88
CHD. 製図 DWG.	日付 date 19/12/27	
VIIGATA MACHINE TE		⊠ ∰ DWG.ND. 4 1,2 5,A 5,0 0,3 0, 1/1



★ <u>≑100</u> The cobblestone on the soil can be extended beyond the <u>concrete edge approx 100mm.</u> 1:10 1. The following works should be provided by the customer. (1) Foundation works. (2) Electrical wiring and connection from the customer's power supply to the machine or the transformer. (3) Air piping and connection from the customer's source to the machine. 2. Volume of concrete is approximately 6.6m³. 3. Bearing piles should be driven into soils <u>if ground bearing capacity is 49 kN/m² or less.</u> 4. Mass of machine is approximately 16600 kg. 5. Direct sunshine and heating up locations must be avoided for the machine and especially spindle cooling unit. 6. The purpose in this drawing is to show dimensions of foundation and leveling parts. This drawing is in standard specification and includes a few options, but might not include the customer's specification(s) nor option(s). Specification •Machine height : 3250_mm ·Tool magazine : Chain type 64/88 tools ·Pallet changer : Lift & turn type 2APC •External chip conveyor:Hinge pan type J62416000 Plain washer 4 MIS M16 4 M16×1.5 J40416000 Hex. nut M16×1.5 MC304203 Level adjuster KC-275-A-2 TAKIGEN 2 MC303043 Level adjuster ROBH-D60-MI2-L125 12 TAKIGEN MC502018 Leveling sheet 4046415112A 5 #1, #2:M38×1, 5 #3~:M39×1. 5 12 MC561007 (M39) Leveling nut MT220001 (M38) 5 #1. #2:M38×1.5 #3~:M39×1.5 MT205001 (M38) Leveling bolt 10 J52420000 Plain washer M20 4 M20 J46420000 Hex. nut M20×1.5 4 M20×1.5 MC303038 Level adjuster KC~275-B-2 2 J10610012 Rex. socket set screw withfiat poin M10×12 3 M10×12 MC686069 Shoe for MI0 4650672321 3 #8×10 MC571442 Leveline bolt 4650670117 3 M55P2×55 MC58E415 Leveling sheet 4676A00880 3 ≠200×55 JI1608010 Hex. socket set screw withlist poin 110508008 Hex. socket set screw MB×10 M8×10 3 JI0608008 Hex. socket set switchilal epint M8×8 M8×8 4650670325A ≠70×35 3

> MACHINE 0C NX5000 図名 TITLE 尺度 SCALE スエツケズ(P2-T64/88) FOUNDATION DWG. (P2-T64/88) 4125 A 5 0 0 2 0

Code No.

Part name

Comment

Specification

Niigata Horizontal Machining Center NX5000

<u>K2****</u>

1. Machine specifications		Standard	Options			Е	Q
 1. 6 Automatic pallet changer 1) Direct rotary type(Front center) 		2APC (Manual Idle pallet rotation)		2APC for APM 6APM 8APM 10APM 12APM Load/unload station Manual indexing, R-2 pos.			
1.7 Controlled axes X, Y, Z axis	╎	Scale feedback	_	2APC for FMS Pulse coder			
B axis		Pulse coder		Scale feedback			
 1.8 Motors Spindle drive motor Feed motors Y axis Y axis B axis 3) Hydraulic pump motor ATC Tool changer drive 		AC30kW /25kW (30 min / continuous rating) AC7.0kW (αiF30/4000) AC9.0kW (αiF40/3000F AC3.0kW (NC table) (αiF12/4000) 2.2kW(NACHI) 1.8kW (βis12/3000) AC3.0kW (60chain type) (βis22/3000)		AC1.2kW (1°) (βiS 8/3000)	/pe)		
 5) Internal chip conveyor drive motor ※ On other motor, refer Item 3 (special machine accessories). 		■ 0.2kW×2		(βiS30/2000)			
 1. 9 Power sources Electrical power supply ±10% Frequency Power supply required(Apparent Power) Wire for power supply 80mm² ×3 wires Ground(earth) wire 38mm² or more×1 wire 		AC 200V ■220V 50Hz /■60Hz 67kVA		380∨ □ ∨			
 Wiring from customer's power supply to control cabinet/transformer of the machine is required to be prepared by customer. 4) Compressed air supply Required air volume 500L/min (at atmospheric pressure) shall be supplied consecutively. 		0.5MPa or more					
 10 Tank capacity Hydraulic oil tank capacity Lubricant tank capacity for spindle bearing Spindle cooler tank capacity Coolant tank capacity 							

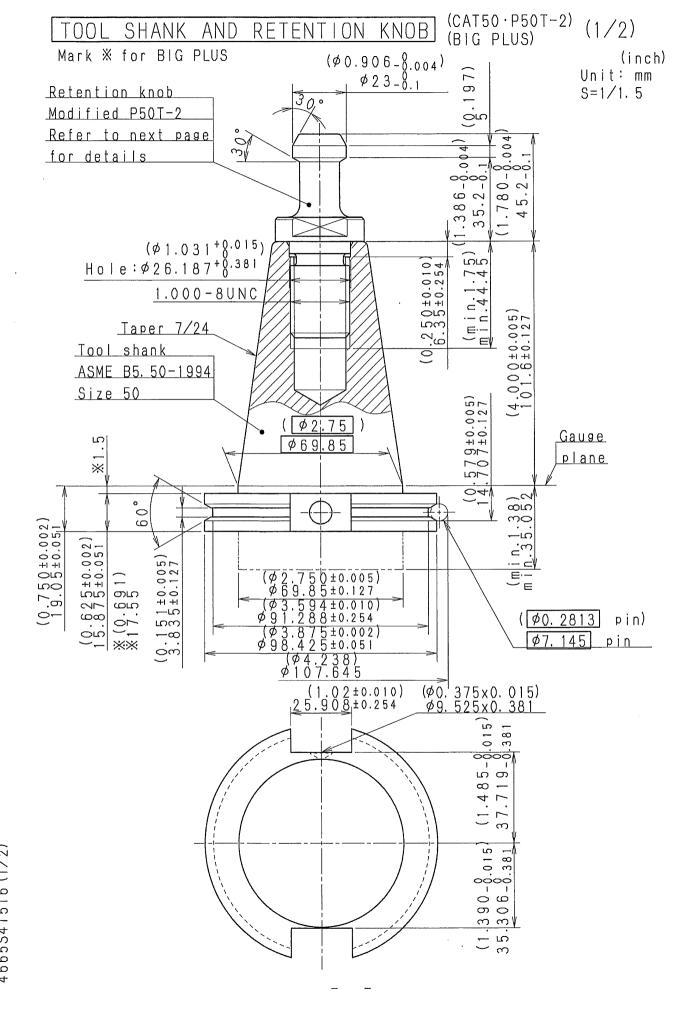
作成:2019/12/24 承認:藤田 照査:藤田 作成:藤田

Units or locations		Supply method	ISO 3448	JIS B6016	JXTG Nippon	EXXON			
for oil supply	Q'ty		Viscosity Grade	Mark of oils and lubricants	Oil & Energy	ESSO	MOBIL	SHELL	
Spindle cooling unit	50L	Automatic circulation	ISO VG10	FC10	SUPER MULPAS DX 10	SPINESSTIC 10	MOBIL VELOCITE OIL No.6	SHELL TETRA OIL 10 SP	
Spindle oil-air Iubricating unit	1.8L	Auto supply (Non-collect)	ISO VG32	FC32	FBK OIL RO32	TERESSO 32 MOBIL DTE C LIGHT		SHELL TELLUS S2 M 32	
XYZ-axes ball screws and Linear motion bearings ☆	700cm ³	Auto supply (Non-collect)	Maker : LUBE Special grease LHL-X100-7 (700ml of cartridge type)						
1 ° table	4.0L	Oil bath	ISO VG150	CKC150	BONNOC	SPARTAN	MOBIL GEAR	SHELL OMALA	
NC table	4.4L	Oirbath			TS150	EP150	629	S2 G 150	
CAM changer	11.0L	Oil bath			GEAR GRAND GL-5 80W-90	MOBILUBE \$ HD80W-90		SHELL GELCO MULTI GEAR	
Tool magazine Swing guide rail	20cm ³	Grease application		5	EPINOC			SHELL	
Sprocket wheel and tool pot chains on tool magazine	100cm ³	Grease application		XBCEB2	GREASE AP(N)2	BEACON EP2	MOBILUX EP2	ALVANIA EP GREASE 2	
Pneumatic Iubricator (Oiler)	0.13L	Auto supply (Non-collect)			SUPER			SHELL	
Hydraulic pump unit	20L	Tank	ISO VG32	HM32	MULPAS DX 32	NUTO HP32	MOBIL DTE 24	TELLUS S2 M 32	

NX5000 OIL TABLE (P2-T60&T64&T88, 12000 or 8000 min⁻¹ SPINDLE)

☆The dedicated grease, which is high liquidity, is used on X,Y,Z axes ball screws and linier guide way.

Grease other than the specified product must not be used. Otherwise these may break.

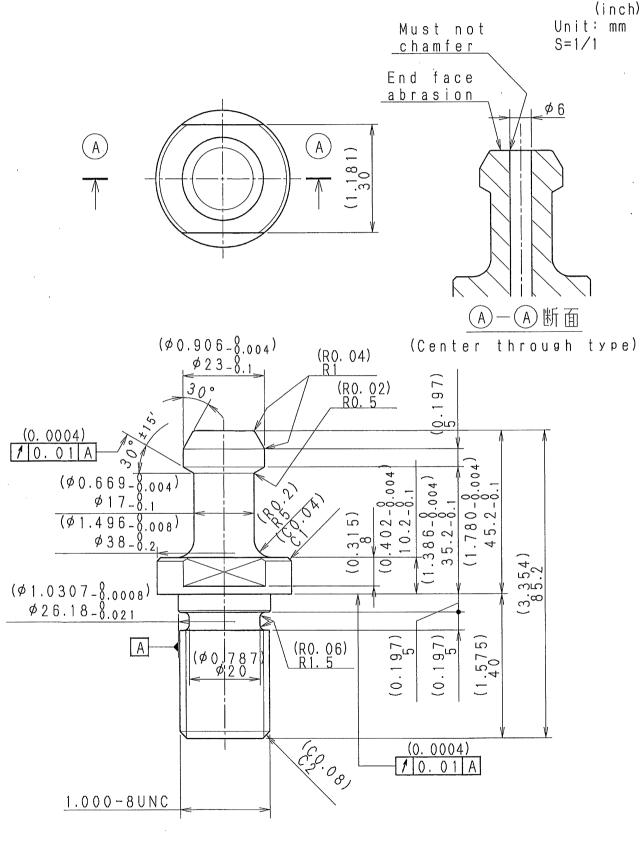


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TOOL SHANK AND RETENTION KNOB (CAT50·P50T-2) (2/2)

Retention knob : Modified P50T-2 (P50T-2 is based on JMTBA's Technical sheet 21-1988 (same as abolished MAS 403))



作成:2019/11/14 承認:阿部 照査:吉田 4665341516(2/2)

作成:伊庭