Machining processes Open ended lab

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Program: bs industrial engineering

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Outer keyhole is turned.

And inner keyway was wire cut.

Before machining on cylindrical workpiece of aluminum.

Dia= 50mm

Length=256mm

After machining on cylindrical workpiece of aluminum.

Two pieces were made.

Dia = 40mm keyhole

Keyway inner circle Dia = 19mm

Objective:

To find the machining time and material removal rate.

Note:

1. Approximate energy requirements in cutting operations (at drive motor, corrected for 80% efficiency; multiply by 1.25 for dull tools.)

Material: aluminum alloys: 0.4-1.1 or 0.15-0.4

1. General recommendations for turning operations:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| General Recommendations for Turning Operations | | | | | | | |
|  | General-purpose starting conditions | | | | Range for roughing and finishing | | |
| Workpiece Material | Cutting tool | Depth of cut mm (in.) | Feed mm/rev (in./rev) | Cutting speed m/min (ft/min) | Depth of cut mm (in.) | Feed mm/rev (in./rev) | Cutting speed m/min (ft/min) |
| Aluminum alloys, free machining | Uncoated | 1.5-5.0 | 0.45 | 490 | 0.25-8.8 | 0.08-0.62 | 200-670 |
| Carbide | (0.06-0.20) | (0.018) | (1600) | (0.01-0.35) | (0.003-0.025) | (650-2000) |
| TiN-coated | " | " | 550 | " | " | 60-915 |
| Carbide | " | " | (1800) | " | " | (200-3000) |
| Cement | " | " | 490 | " | " | 215-795 |
|  |  |  | (1600) |  |  | (700-2600) |

N=rotational speed of the workpiece, rpm

F=feed, mm/rev or in.rev

v=feed rate, or linear speed of the tool along workpiece length, mm/min or in./min=fN

V=surface speed of workpiece, m/min or ft/min

=(for maximum speed)

= (for average speed)

L=length of cut, mm or in.

= original diameter of workpiece, mm or in.

=final diameter of workpiece, mm or in.

=average diameter of workpiece, mm or in.

.

.

.

t=cutting time, s or min

=l/fN

MRR=

=

Torque=

.

, where

**High Precision Hf Control CNC EDM Wire Cut Machine**

**Basic Info.**

Model NO.

DK7745

Application

Metal

Process Usage

Metal-Cutting CNC Machine Tools

Movement Method

Point to Point Control

Control Method

Open-Loop Control

Numerical Control

CNC/MNC

Processing Precision

0.01~0.02(mm)

Performance Classification

Economical CNC Machine Tools

Certification

CE

Condition

New

Key Selling Points

Long Service Life

Applicable Industries

Machinery Repair Shops, Manufacturing Plant

Showroom Location

Viet Nam, Philippines, Peru, India, Russia, Uzbeki

Core Components

Motor, Pump, CNC System, Casting

After Warranty Service

Video Technical Support, Online Support, Spare PAR

Local Service Location

Turkey, Viet Nam, Philippines, Peru, India, Mexico

X/Y/Z Stroke

550/450/500

Weight

1250kg

Standard Cutting Speed

110-120

Max. Cutting Speed

160-180

Control System

Autocut/Hf/Hl/X8

Transport Package

Standard Export Packing, with Wooden Box

Trademark

LINGFENG

Origin

China

HS Code

8456301090

Production Capacity

400 Set/Sets Per Month

**Main Features:**  
Roller for X/Y axis,  also called hard rail ( V rail)   
With  ±3° taper as standard,  ±15°, ±30°, ±45° as option.  
Accuracy: ±0.01/300mm   
Roughness: Ra 1.0-2.5 µm  
Low consumption, material saving.  
**Different controller  and  different software:**  
a) High speed single cutt controller.  
b) Multi-cut controller ( which improve the accuracy and finish).  
Software:  AUTOCUT,  X8, HL, HF  
**All kinds of voltage: 220/380/415/440V**