



Other Products

其它产品



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egyéb

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DINE

Other Products

其它产品

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Tool Master/Image Processing 刀具预调仪/图象处理

E-PRO는 기존의 투영기를 대체하고, 가장 발전된 Image Processing 기술을 사용하여, 피삭재의 형상과 치수를 측정하는 최신의 카메라 측정 방식입니다. 마우스로 간단하게 조작이 가능한 대화방식이며, 인식 반경은 R0.3~2.0mm, 각도 측정이 자동적으로 화면에 인식되고 표시 됩니다.

The E-PRO(Electronic projector) replaces in the configuration the well-known standard profile projector. It is a state-of-the art camera-measuring system for the evaluation and presentation of object geometries using the most advanced image processing technology. The dialogue display is very easy to operate with a mouse, Tool tip radius between R0.3-20mm and tip angles are automatically recognized and displayed in the status window.

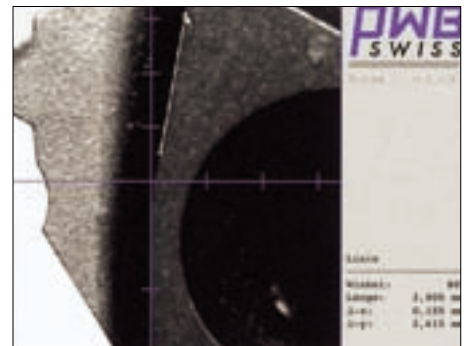
E-PRO(电子投影仪) 用于取代众所周知的标准轮廓投影仪, 它采用最先进的成象处理技术和现代化的照相测量系统对几何物体进行界定和检测



E-PRO(고정축)
E-PRO with fixed axes
带固定数轴



E-PRO(이동축)
E-PRO with floating axes
带可移数轴



공구검사 및 측정
Visual inspection and measuring of tool tips
刀片的可视检验和测量



Tool Master 250 E-PRO

- X축 = Ø250mm • Z축 = 360 또는 500mm • 최소 측정치 : 0.001mm
- X - axis = Ø250mm • Z- axis = 360 or 500mm
- resolution : 0.001mm



Tool Master 4 E-PRO

- X축 = Ø400mm 또는 600mm • Z축 = 600 또는 900mm • 최소 측정치 : 0.001mm
- X - axis = Ø400 or 600mm • Z- axis = 600 or 900mm
- resolution : 0.001mm

사양 Technical data 技术参数

1. Camera 1/2"
2. CCD chip and telecentric objective
3. Telecentric LED illumination
4. LCD Color Monitor 10.4" magnification 20X

1. 照相机 1/2英寸
2. CCD电路和聚焦镜
3. LED 聚焦显示
4. LCD 彩色显示器, 放大倍数 20倍



Tool Master 250 T-CAM

특징 Features 特性

TM250의 투영장치 위에 부착되어, 공구의 형상이 자동인식되며, 공구의 반경, 각도등을 측정할 수 있습니다.

The image display is mounted on the measuring column above the illumination.

Automatic recognition of tool shape for rapid and precise measuring enhances the unit's productivity. The additional possibilities of tool radius and angle determination provide valuable extra information

图象显示器安装在测量柱上
刀具现状快速精确的自动识别, 效率高. 另外还有可能提供有关刀具半径及角度的额外有价值信息.

사양 Technical Data 技术参数

1. Camera 1/2"
2. CCD -chip and telecentric objective.
3. Telecentric LED Illumination
4. Display 4.7" black / white LCD

1. 照相机1/2
2. CCD 芯片和聚焦镜
3. LED 聚焦显示
4. LCD 黑白显示器

Tool Master 4/刀具预调仪 TM4

새로운 공구 셋팅과 측정장치에 최신기술을 접목

X축은 톨포트가 예압이된 니들 가이드위에서 이동하며, Z축은 투영기가 예압되어 순환 또는 이동하는 볼가이드 위에서 이동.

The new tool setting and measuring device incorporating latest technology.

X axis : Tool carrier slide on preloaded needle guide, Z axis : Projector carrier slide on preloaded, 4-track recirculating ball guide.

结合现代技术的新型刀具预调仪

X 轴: 刀具在带预紧的滚针导轨上移动, Z轴: 投影装置在带预紧的4列可循环式球导轨上移动

PC软件数据转送至 WINDOW-EXCEL



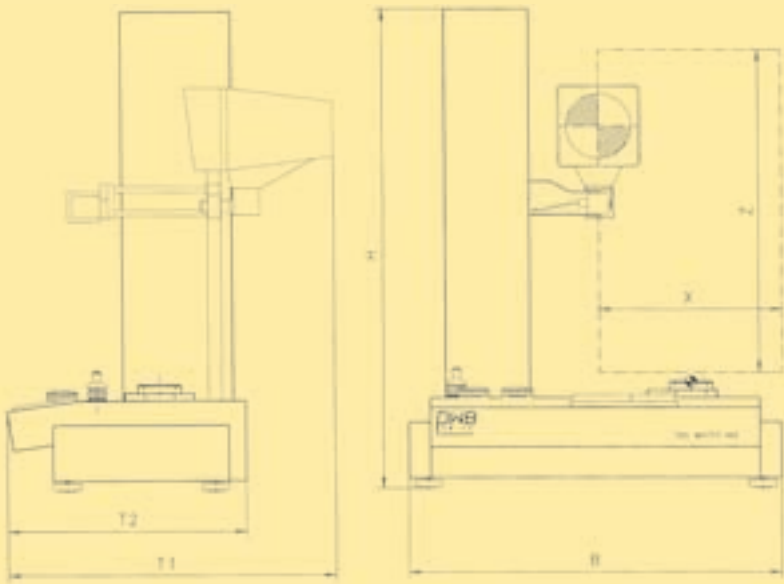
Measuring Electronic TMA 2000

- 최소측정치 0.001mm, 정도 $\pm 0.003\text{mm/m}$
- 직경 150mm, 배울 20배의 투영기 부착(표준)
- X, Z축 평행보정 "0" point setting 메모리 : 99개
- 원호 측정기능 (3 ~ 15개) • 각도 측정기능 (2 ~ 15개)
- RS 232 /아스키코드로 인터페이스 가능
- Pc-Software Data transfer to WINDOWS - Excel

- Glass scales with 0.001mm, resolution $\pm 0.003\text{mm/m}$
- Projector : Diameter 150mm, magnification 20X (Standard)
- Axis parallelism compensation for X and Z axes
99 adapter resp machine reference zero points
- Circle measurement (3 to 15 points), Angle measurement with 2 to 15 points
- Serial interface RS232 /ASCII code including software for data tranfer to WINDOWS EXCEL

- 玻璃光栅尺分辨率0.001mm, 精度0.003mm/m
- 投影仪: 直径 150mm., 放大倍数 20 倍 (标准)
- X轴Z轴误差补偿
- 99 个机床参考零点
- 圆测量(3 至15 点), 角度测量, 2至15点
- 系列界面 RS232/ASCII 码包括数据传送WINDOW EXCEL软件

Tool Master 4



Tool Master Model 4	X-axis(Ø) mm	Z-axis mm	B mm	H mm	T1 mm	T2 mm	Weight kg
4/345	350	40-450	850	950	700	550	115
4/460	400	40-600	850	1100	700	550	125
4/490	400	40-900	850	1400	700	550	140
4/660	600	40-600	1000	1100	700	550	140
4/690	600	40-900	1000	1400	700	550	155

Standard/标准

Manual
Tool holder (needle taper sleeve : ISO 50 or ISO 40)
Lubrication unit for air supply
Dust cover
Diskette and data transfer cable for WINDOWS EXCEL

手动
刀套(滚针锥套: ISO50, 40)
润滑装置供应空气
防尘罩
软盘及WINDOWS EXCEL数据传送线

Options/选项

Projector(Diameter 150mm, magnification 50x)
E-PRO (Image Processing)
X axis dial indicator : 0.002mm
Tool adapter vacuum clamping
Air clamp TMC - ISO 40/50
TMC - HSK - A 50/B63
TMC - HSK - A 63/B80
TMC - HSK - A 100/B125

投影仪(直径150mm, 放大倍数 50倍)
/形象处理
X轴读数 : 0.002mm
空气夹紧 TMC - ISO 40/50
TMC - HSK - A 50/B63
TMC - HSK - A 63/B80
TMC - HSK - A 100/B125

Test Bar
Adapter :
ISO 50/ISO 40, ISO 50/ISO 30, ISO40/30
ISO/HSK without clamping device
ISO/HSK with pneumatic clamping device
ISO/VDI 6880 with indexing 4 x 90°
ISO/VDI with clamping grip
ISO/KM without clamping device

检验芯棒
刀套:
ISO 50/ISO 40, ISO 50/ISO 30, ISO40/30
无夹紧装置
带气动夹紧装置
带 4X90度分度
带夹紧槽



빠르고 정밀한 조정
Rapid and fine adjustment
快速精确调整



Tool holder(Needle bearing taper sleeve : ISO 50, ISO 40)
刀套(滚针锥套: ISO50, 40)



투영기 (Ø150mm, 배율 20배)
Projector (Diameter 150mm, magnification 20X)
投影仪(直径150mm, 放大倍数 20倍)



부속품 Accessories
附件
Test bar
ISO 50-50-300/220
ISO 40-50-300/220

Tool Master 250/刀具预调仪 TM250

간편한 조작
축의 자동잠금
최신의 전자측정장치
최소 측정치 0.001mm
RS-232 인터페이스
투영기 Ø110mm

Single handed operation
Automatic locking of axis
State-of- the art measuring electronics
Glass scales 0.001mm
RS 232 Interface
Projector Diameter 110mm

简便的手动操作
自动轴锁紧
先进的电子测量装置
光栅尺 0.001mm
RS232界面
投影仪直径 110



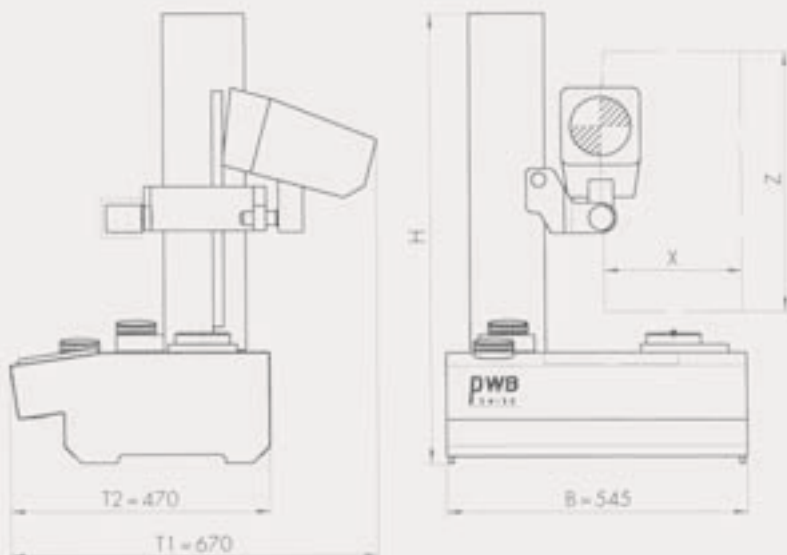
Measuring Electronics TMA 21-P

- 최소측정치 0.001mm, 정도 $\pm 0.003\text{mm/m}$
- "0" Point 메모리 : 99개
- mm/inch 전환기능
- 직경/반경 전환기능
- 절대값/증분값 전환기능
- 3점 입력으로 R크기 측정
- X, Z축 평행보정
- 8자리 공구번호
- 공구 메모리 : 50개
- RS 232 /아스키코드로 인터페이스 가능

- 測量分辨率0.001mm, accuracy精度 $\pm 0.003\text{mm/m}$
- 99个机床参考零点
- 公制/英制 转换
- 半径/直径 转换
- 绝对值/增量值 转换
- 圆测量(3点)
- 轴向平行补偿X-, +Z 轴
- 8位读数, 任意选取
- 刀具清单记忆, 达50把刀
- RS232/V42 ASCII 代码

- Measurement resolution 0.001mm, accuracy $\pm 0.003\text{mm/m}$
- 99 adapter resp. machine reference zero points
- mm/inch switchable
- Radius/diameter switchable
- Absolute/incremental switchable
- Circle measurement(3 points) on graticule
- Axis Parallelism compensation for X-and Z-axis
- 8 digit tool number, random selection.
- Tool list memory, upto 50 tools
- RS232/ASCII code

Tool Master 250



Tool Master	Tool Holder	X-axis(Ø) mm	Z-axis mm	H	Weight kg
TM 250-40/360	ISO 40	250	40-360	820	63
TM250-50/360	ISO 50	250	40-360	820	63
TM250-40/500	ISO 40	250	40-500	960	70
TM250-50/500	ISO 50	250	40-500	960	70

Standard/标准

Manual
Tool holder (needle bearing)
Taper sleeve : ISO 50 or ISO40
Maintenance unit for air supply
Dust cover
Test record/warranty certificate

手动
刀套(滚针轴承)
锥套(ISO50,40)
空气供给装置
防尘罩
测试记录/保修证书

Options/选项

E-PRO(Image processing)
T-CAM(Image processing)
X axis dial indicator : 0.002mm
Z axis dial indicator : 0.01mm
TMA 2000(S/W)
Tool adapter with air bearing
Tool adapter vacuum clamping
Air clamp TMC - ISO 40/50
TMC - HSK - A50/B63
TMC - HSK - A 63/B80
TMC - HSK - A 100/B125

图象处理
图象处理
X轴最小读数:0.002mm
Y轴最小读数:0.01mm
带空气轴承刀套
带真空夹紧刀套
空气夹紧 TMC - ISO 40/50
TMC - HSK - A50/B63
TMC - HSK - A 63/B80
TMC - HSK - A 100/B125

Test Bar
Adapter
ISO 50/ ISO 40
ISO 50/ ISO 30
ISO 40/ ISO 30
ISO/HSK without clamping device
ISO/HSK with pneumatic clamping device
ISO/VDI 69880 with clamping-grip
ISO/VDI 69880 with indexing 4 x 90°
ISO/KM without clamping device

检验芯棒
刀套

ISO 50/ ISO 40
ISO 50/ ISO 30
ISO 40/ ISO 30
带夹紧装置
带气动夹紧装置
带夹紧槽
4X90度分度
不带夹紧装置



빠르고 정밀한 조정
Rapid and fine adjustment
快速精确调整



Tool holder(Needle bearing taper sleeve : ISO 50, ISO 40)
刀套(滚针锥套: ISO50, 40)



투영기 (Ø110mm, 배율 20배)
Projector (Diameter 110mm, magnification 20X)
投影仪(直径110mm, 放大倍数 20倍)



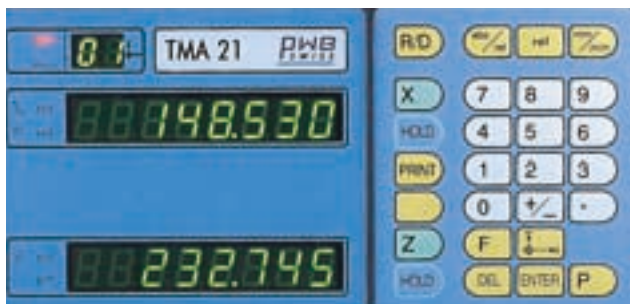
부속품 Accessories
附件
Test bar
ISO 50-50-300/220
ISO 40-50-300/220

Tool Master 310/刀具预调仪 TM310

저비용, 고효율로 공구 셋팅 및 측정이 가능한 장치

Tool setting and measuring device a cost effective solution with a good return on investment.

经济实用的刀具预调仪



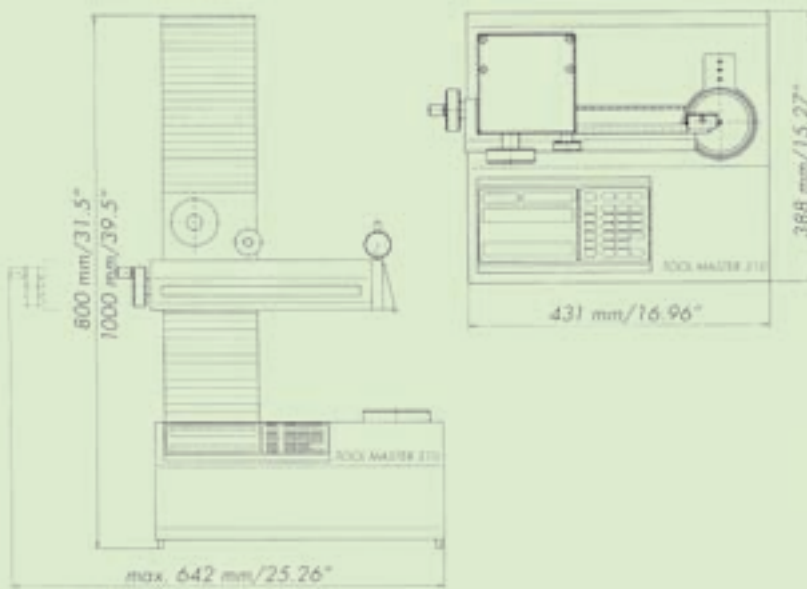
Measuring Electronic TMA 21

- 최소 측정치 0.005mm 반복정밀도 $\pm 0.005/\text{mtr}$
- 15mm LED 표시판 • "0" Point : 100개
- 공구 메모리 : 50개 • mm/inch 전환기능
- 반경 / 직경 전환기능 • 절대 / 증분 전환기능
- 8개의 공구번호 표시 • X, Z축 평행보정
- 축에서 선보정

- Resolution 0.005mm, reliability $\pm 0.005/\text{mtr}$
- 15mm LED readout green
- Memory for 100 adapter / position machine zero point
- Tool Memory : 50 • mm/inch switchable
- Radius/diameter switchable
- Absolute/incremental dimension switchable
- 8 digit tool number
- Compensation of axis parallelism, X-, +Zaxis
- Liner compensation of axis errors.

- 分辨率 0.005mm, 可靠度 $\pm 0.005/\text{mtr}$
- 15mm LED 数显(绿色) • 100个机床零点位置记忆
- 刀具记忆 : 50 • 公制/英制 转换
- 半径/直径 转换 • 绝对值/增量值 转换 • 8位读数
- 轴向平行补偿X-, +Z 轴 • 轴向误差线性补偿

Tool Master 310



Description	Tool Holder	X axis(Ø) mm	Z axis mm	Weight(kg)
TM310-40/50-360	ISO40 ISO50	310	42-360	55
TM310-40/50-360 (X: 500mm)	ISO40 ISO50	500	42-360	65
TM310-40/50-500	ISO40 ISO50	310	82-500	60
TM310-40/50-500 (X: 500mm)	ISO40 ISO50	500	82-500	70
TM310-40/50-360P (Options)	ISO40 ISO50	250	42-360	55
TM310-40/50-500P (Options)	ISO40 ISO50	250	42-500	60

Standard

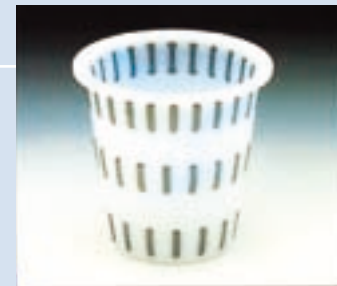
Manual
Measuring electronics TM21
Tool holder (Needle bearing taper sleeve : ISO 50 or ISO 40)
Dial gauge
Dust cover

手动操作
电子测量仪 TM21
刀柄(滚针轴承锥套: ISO50,40)
百分表
防尘护罩

Options

Minimum resolution : 0.001mm
Projector : Diameter 80mm, magnification 20X
Tool adapter with Air bearing
Tool adapter with vacuum clamping
Test bar
Adapter : ISO 50/ISO 40, ISO 50/ISO 30, ISO 40/ISO 30

最小分辨率: 0.001mm
投影仪 : 直径80mm, 放大倍数20X
/带空气轴承的刀具接套
带真空夹紧的刀具接套
/检验芯棒
接套:ISO 50/ISO 40, ISO 50/ISO 30, ISO 40/ISO 30



Tool holder (Needle bearing sleeve)
刀套(滚针轴承套)



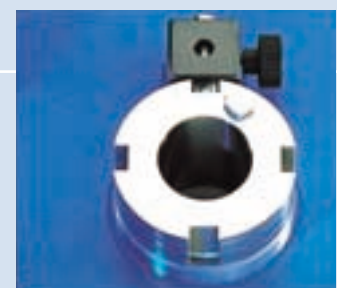
측정장치
2D measuring probe
2D检测探头



미세정밀조정
Infinite fine adjustment
无级精细调整



부속품 Accessories
附件
Test bar
ISO 50-50-300/220
ISO 40-50-300/220



VDI indexing
VDI 分度

Tool Boy modular/刀具小童模块

특징 Features 特性

- 톨 홀더를 자유롭게 교환할 수 있습니다.
- 90° x 4방향으로 회전이 자유롭습니다.
- 공구를 다시 클램핑하지 않고, 공구의 손상없이, 자유롭게 조립 및 장착 할 수 있습니다.
- 적은 힘으로 작은 공간(140 x 100mm)에서 사용할 수 있습니다.
- Interchangeable tool holders
- 4 x 90°indexable
- Tool assembly without reclamping.
- Accident free mounting of cutting tools
- Prevents tool and spindle damage
- Minimum locking force required
- Mounting space 140 x 100mm
- 刀柄可互换
- 4X90度定位
- 刀具装配无需重新夹紧
- 安装刀具安全
- 避免刀具及主轴损伤
- 锁紧力小
- 安装空间 140X100mm



Basic Unit/基本体

- 모든 타입의 공구에 적용 할수 있습니다.
- 테이블 또는 공구대에 견고하게 장착할 수 있습니다.
- Mounting on table or tool cart
- Rigid interface between basic unit and tool holder
- 安装在桌子上或刀具台上
- 基本体与刀柄之间刚性界面
- 품번 : 400500 Item No : 400500
- Item No编号: 400500

Bracket/托架

- 2개의 톨홀더를 장착할 수 있음.
- 2 Tool holders for table and wall mounting.
- 适于桌上安装及墙上安装的两件刀套



DIN 69871/DIN 2080
JIS B 6339 (MAS-BT)
ANSI-CAT- V-Flange
SK30, SK35, SK40,
SK45, SK50



DIN 69893
HSK-Form A
HSK-A32, HSK-A40
HSK-A50, HSK-A63
HSK-A80, HSK-A100



DIN 69880
VDI 3425
VDI20, VDI25
VDI30, VDI40
VDI50



KENNAMETAL
Widia/Tizit
KM32, KM40
KM50, KM63

3D-Taster/ 3D巡边器

모든 NC기계와 방전기(EDM)를 위한 신속한 제로 셋팅
For all machine tools with numeric control and EDM
(spark-erosion machine)

可用于所有的数控机床和EDM(电加工机床)



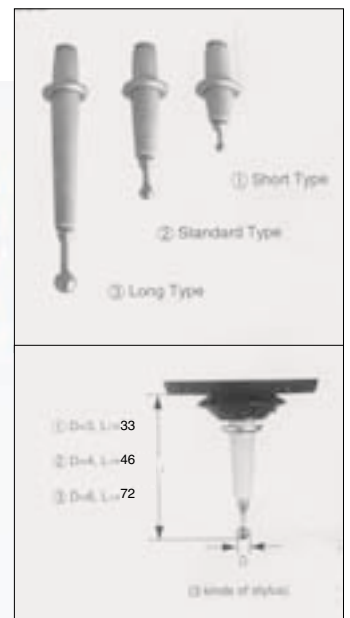
Zero setting of processed subject

Accurace	0.01mm
Indicator	50
Notch	0.01mm
Clamping Shank	φ 20(h5)

1. 눈금바늘의 아날로그 수치에 의한 모든 3축(X, Y, Z)에 있어서의 내, 외경 측정과 신속한 제로셋팅-모든 3축(X, Y, Z)의 edge 측정시, 바늘이 12시 방향을 가리킬 때, 스프링 축은 피삭재의 제로 포인트위에 정확히 위치함. 계산이 필요없고 시행착오가 없음.
2. 폭 넓은 상용성 : 한개의 톨로 캘리퍼링 등을 측정 (길이, 높이, 직경 및 센터를 결정).
3. 뛰어난 안전성 : 스타일러스(stylus)에 디자인된 명목상의 파괴점, 오일, 먼지 등 이물질의 침투방지, 특별한 기어장치에 의한 충격방지 및 충분한 안전거리 (X와 Y축에서 long stylus 로 19mm까지 안전)
4. 3종류에 stylus에 의한 다양한 이용과 신속한 교환 : 특수공구도 불필요하고 스크류도 풀지 않고 간편하고 정확한 plug-in 고정 메카니즘(동일한 stylus 교환 시 재조정이 필요치 않음).
5. 출고전 max 0.01mm 의 중심이 사전 조정됨.

1. Quick zero setting in all 3 axis by analog difference value of indicator.
2. Universal applicability - calipering and measuring with only one tool(determine of length, height, diameter and center)
3. Enormous security for workpiece and 3D-Taster due to a "nominal fracture point" designed into stylus. Oil dust and water protection. Active shock protection due to special gear mechanism and generous security distance after touching the workpiece(up to 19mm with long stylus in X and Y- axis)
4. Variable use of 3D-Taster due to three different styluses(precision plug-in mechanism without any screws to loosen up).
5. All 3D-Taster are pre-adjusted to a concentricity of max. 0.01mm by the manufacturer : quick and easy adjustment due to machine tolerances possible.

1. 在3个方向上快速设置零点
2. 应用广泛—1种工具即可进使各种测量(长度、高度、直径和中心)
3. 由于探头的“微裂点”设计, 安全性好采用特殊齿轮结构和足够的安全距离, 可防尘、防水和防震(X轴Y轴采用长探头可达19mm)
4. 通过更换3种型号测头可实现多种用途(精密机械结构, 无需螺钉零件避免松动)
5. 所有的巡边器都在出厂前进行了同心度0.001mm以内预调, 在机床误差允许范围内可快速简单的调整



Touch-Setter(Zeropoint Setting Gauge)(刀长测定仪)

TOUCH-SETTER

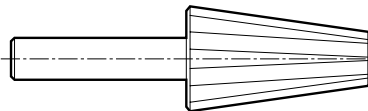


- PWB사 텃치-셋터는 다양한 셋팅 게이지이며, 범용 보링, 밀링머신이나 CNC머시닝센터에서, 툴의 길이를 셋팅하거나 머신 스피들의 Z축 제로(0)점을 스피디하게 결정할 수 있음.
스프링조정에 의해 인선(날)을 보호함. 높이 : 50mm, 정도 : + - 0.003mm.
- 사용방법 : 툴을 끼우거나 아니면 스피들단면이, 인디케이터가 제로(0)를 가르킬 때까지 측정면을 눌러면 됨. 그러면, 툴 또는 스피들단면이 기준바닥면으로부터 정확히 50mm가 됨.
- 측정면(Probe surface) Ø45mm/HRc60-62
하우징(Housing) Ø68mm
다이얼 인디케이터눈금(Dial indicator) 0.01mm
품번(Product No.) 700101

- The PWB-Touch-Setter is a versatile setting gauge. It can be used to set the tool length and determine the reference zero point of the machine spindle on conventional boring and milling machines as well as on CNC machining center.
- Application : feed tool or spindle face onto spring-loaded probe surface until dial indicator shows (0). The tool or machine spindle face will now be exactly 50.00mm above the reference plane.

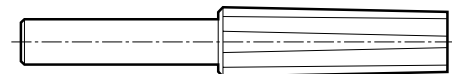
Spindle Cleaner : ISO (主轴锥孔清洁棒) SC-NT/MT type

SC-NT/MT



Order No.	Taper No.	Stock
SC 20	BT20(NT20)	
30	BT30(NT30)	
40	BT40(NT40)	
45	BT45(NT45)	
50	BT50(NT50)	

(mm)



Order No.	Taper No.	Stock
SC 1	MT1	
2	MT2	
3	MT3	
4	MT4	
5	MT5	
6	MT6	

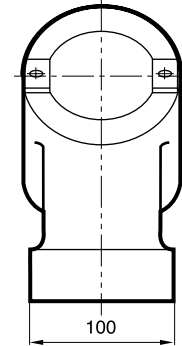
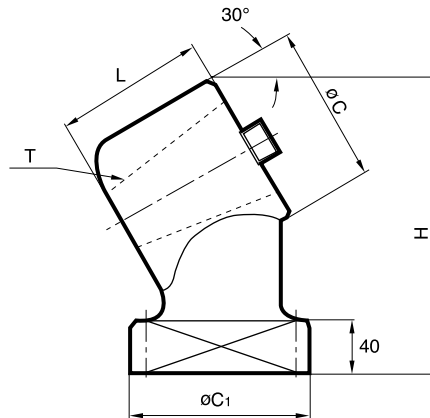
(mm)

- 특수 레저는 기름 및 더러움을 완전히제거
- 부드러운 촉감의 레저는 스피들들을 상하게 하지 않음.
- 제품이 가벼워서 조작이 용이 • 게이지의 청소에도 편리
- NT 및 MT 상크까지 모든 기종의 주축에 사용
- 기계 주축 에서 툴 상크 부분의 청소에도 사용

- 特殊皮質去除油垢
- 軟皮不損傷主軸
- 簡便易行
- 可用于所有型号的主轴
- 用于清洁于机床主轴了解的刀柄
- 清洁量具很方便

- Special leather eliminates oil and dirt.
- Soft leather can not be scratch the spindle.
- Due to light, easy to handle.
- Using all kind of spindle (BT, NT, MT etc.)
- Using clean of tool shank in the spindle of machine.
- Convenience of gauge cleaning.

Tool Setting Stand (刀具装御台) TSS type



Order No.	T	øC	øC1	H	L	Stock
TSS-30	NT30/BT30/SK30	64	120	141	48	●
40	NT40/BT40/SK40	76	120	166	66	●
50	NT50/BT50/SK50	106	140	197	90	●

(mm)

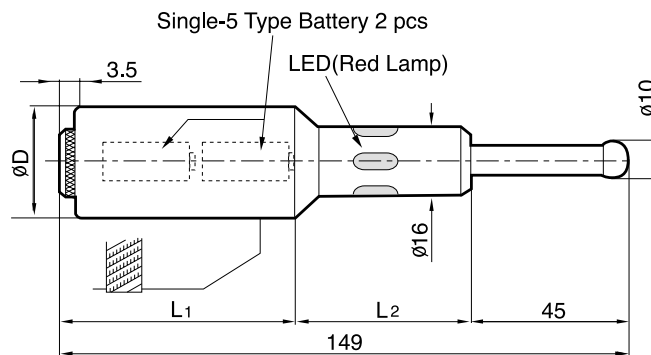
- 재질: 고급 알루미늄 재질을 사용함으로써 Tool shank에 상처를 주지 않음.
- 기계 주변의 정반 혹은 작업대 등에 설치하여 가까운 위치에서 안전하고 신속히 공구의 착탈이 가능.
- Pull Stud bolt를 쉽게 착탈.

- 材质: 高级铝材. 对柄部无碰伤
- 可在机床边的平台上使用, 简单易行
- 可在机床旁边安全快速装卸刀具
- 易于拆装拉钉

- Material: using by high class aluminum. No scratch tool shank.
- By install of surface flat or work bench where around machine can be using safety and fast.
- Mounting or dismounting of cutting tools saftly and fast where around machine.
- Mounting or dismounting of pull stud bolt easily.

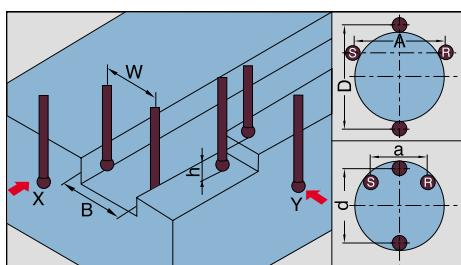
	Spare Parts 配件				
	Basic 基本		Option 选配件		
	Key	Wrench Bolt	Wrench	Wrench Bolt	Wrench
Type					
TSS-30	K16	BX0520	LW-4	BX0835	LW-6
TSS-40	K16	BX0525	LW-4	BX0835	LW-6
TSS-50	K25	BX0630	LW-5	BX0835	LW-6

Touch Point TP type



Order No.	øD	L ₁	L ₂	Stock
TP-32	32	71	33	●

(mm)



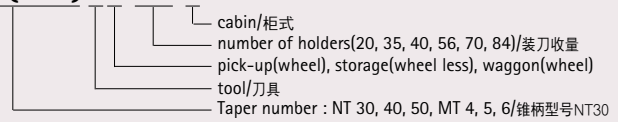
Measurement of
out-diameter and
centering
外径及圆心测量

Measurement of
inner-diameter and
centering
内径及圆心测量

- 3차원 전자식 기준점 검출기로 넓은 응용범위와 다방향 측정 가능
- 다인 밀링척 등에 고정 간단히 사용
- 가공물이 비전도물질일 때는 사용 불가능
- 由于3D电子测量仪, 可广泛应用于多向测量.
- 可与铣夹头刀柄连接
- Due to 3D electronic reference point detector, it can be wide application range and measurement of multi-direction.
- Milling chuck used as a basic holder.
- Workpiece of non-conduction materials can't be used

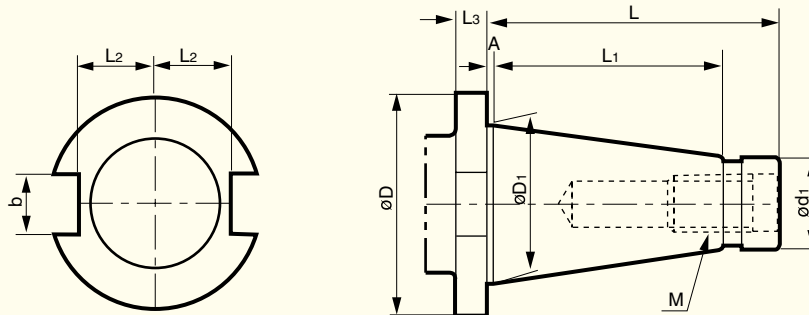
Tool Storage (装刀架)

(例) 50(40)TP20C



	Order No.	Size(LxWxH)(mm)	Shelves	Perm. Load
	Tool Pick-Up / 刀具装御架			
	50(40)TP 20	480×600×880	20×1	320kg
	50(40)TP 40	480×600×880	20×2	320kg
	Tool Waggon / 刀具装御架			
	50(40)TW 20	500×820×1100	5×4×1L	200kg
	50(40)TW 35	500×1120×1300	7×5×1L	350kg
	50(40)TW 56	700×1120×1100	7×4×2L	560kg
	50(40)TW 70	700×1120×1300	7×5×2L	700kg
	50(40)TW 84	700×1120×1500	7×6×2L	840kg
	Tool Storage / 可移动刀具架			
	50(40)TS 20	500×820×870	5×4×1L	400kg
	50(40)TS 35	500×1120×1070	7×5×1L	700kg
	50(40)TS 56	700×1120×870	7×4×2L	840kg
	50(40)TS 70	700×1120×1070	7×5×2L	1400kg
	50(40)TS 84	700×1120×1270	7×6×2L	1700kg
	Tool Waggon Cabin / 固定刀具架			
	50(40)TW 20C	500×820×1350	5×4×1L	200kg
	50(40)TW 35C	500×1120×1550	7×5×1L	350kg
	50(40)TW 56C	700×1120×1350	7×4×2L	420kg
	50(40)TW 70C	700×1120×1550	7×5×2L	700kg
	50(40)TW 84C	700×1120×1750	7×6×2L	840kg
	Tool Storage Cabin / 可移动刀具柜			
	50(40)TS 20C	500×820×1120	5×4×1L	400kg
	50(40)TS 35C	500×1120×1320	7×5×1L	700kg
	50(40)TS 56C	700×1120×1120	7×4×2L	840kg
	50(40)TS 70C	700×1120×1320	7×5×2L	1400kg
	50(40)TS 84C	700×1120×1520	7×6×2L	1700kg
	Tool Holder / 刀柄保护套			
	TH30,40,50	90×77×55		20kg

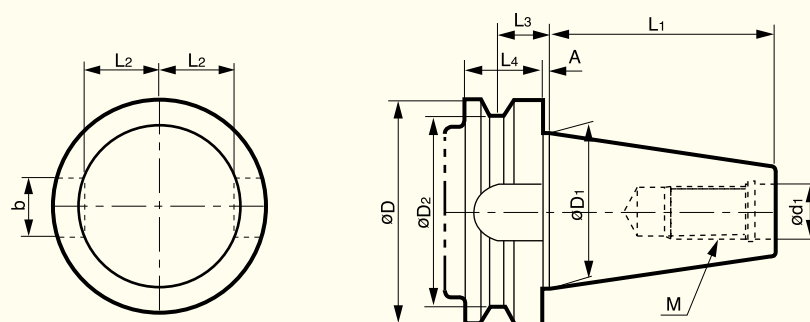
ISO 锥度标准 (ISO Taper)



NT No.	ϕD	ϕD_1	ϕd_1	L	L ₁	L ₂	L ₃	A	b	M
30	46	31.75	17.4	70	16.2	16.2	10	1.6	16.1	M12 x 1.75
40	63	44.45	25.3	95	65.4	22.5	12	1.6	16.1	UNC 5/8"-11"
50	98	69.85	39.6	130	35.3	35.3	14	3.2	25.7	UNC 1"-8"
60	158	107.95	60.2	210	60	60	16	3.2	25.7	UNC 1,1/4"-7"

(mm)

Bottle Grip Taper(MAS 403-BT)/MAS 锥度标准 (日本JIS标准)

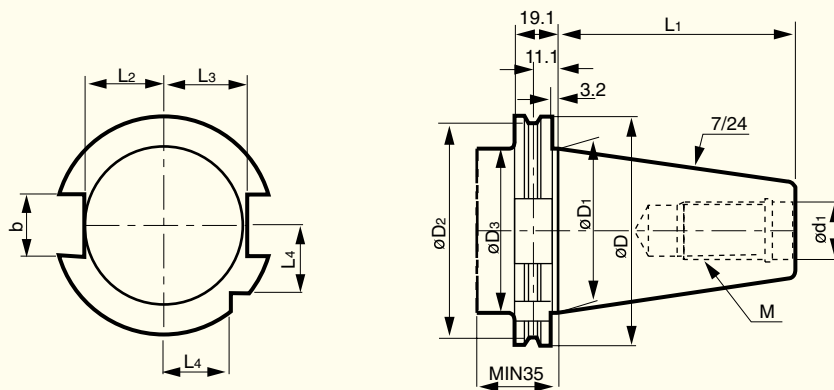


16.1
16.1
25.7
25.7

BT No.	ϕD	ϕD_1	ϕD_2	ϕd_1	L ₁	L ₂	L ₃	L ₄	A	b	M
30	46	31.75	38	12.5	48.4	16.3	13.6	20	2	16.1	M12 X 1.75
40	63	44.45	53	17	65.4	22.6	16.6	25	2	16.1	M16 X 2
50	100	69.85	85	25	101.8	35.4	23.2	35	3	25.7	M24 X 3
60	155	107.95	135	31	161.8	60.1	28.2	45	3	25.7	M30 X 3.5

(mm)

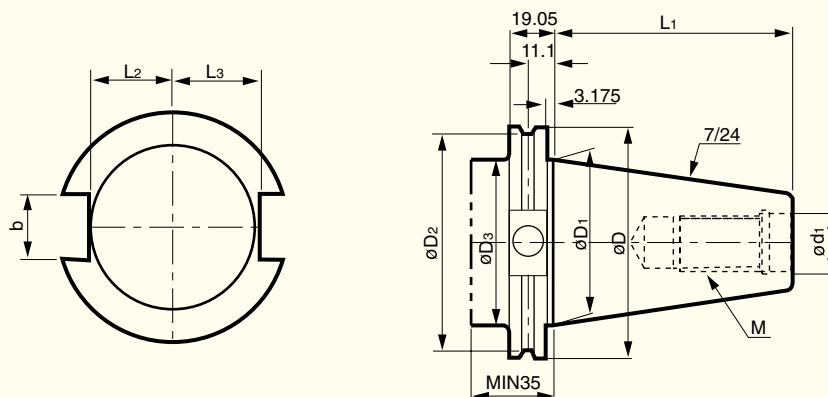
DIN 69871(ISO7388)/DIN69871 锥度标准



SK No.	øD	øD ₁	øD ₂	øD ₃	ød ₁	L ₁	L ₂	L ₃	L ₄	b	M
DIN30	50	31.75	44.3	38	13	47.8	16.4	19	15	16.1	M12 X 1.75
DIN40	63.55	44.45	56.25	50	17	68.4	22.8	25	18.5	16.1	M16 X 2.0
DIN50	97.5	69.85	91.25	80	25	101.75	35.5	37.7	30	25.7	M24 X 3.0
DIN60	155	107.95	147.7	130	32	161.8	54.2	59.3	49	25.7	M30 X 3.5

(mm)

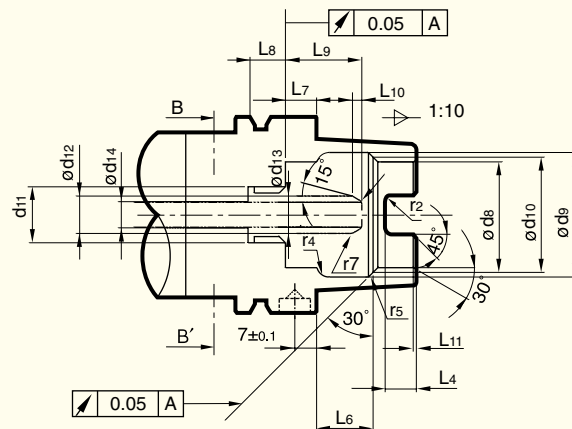
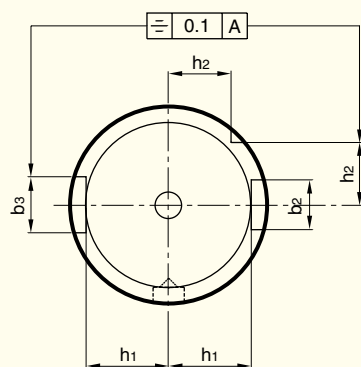
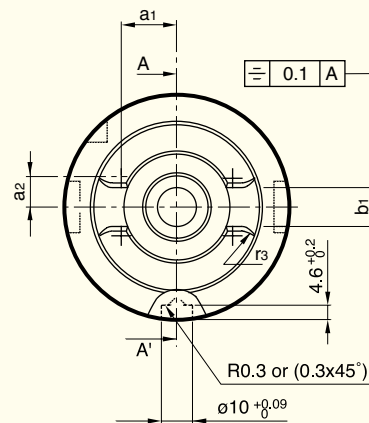
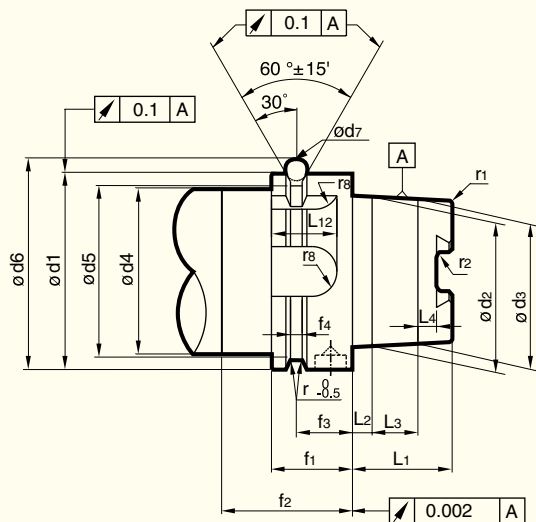
CAT Shank 锥度标准



SK No.	øD	øD ₁	øD ₂	øD ₃	ød ₁	L ₁	L ₂	L ₃	b	M
CAT30	50	31.75	44.3	31.75	13	47.625	16.25	18.67	16.1	UNC1/2-13
CAT40	63.55	44.45	56.25	44.45	17	68.25	22.60	25	16.1	UNC5/8-11
CAT50	97.5	69.85	91.25	70.1	25	101.6	35.3	37.7	25.7	UNC1-18
CAT60	155	107.95	132.56	108	32	161.93	54	59.3	25.7	UNC1,1/4-7

(mm)

HSK Shank(DIN 69893)/DIN69893 HSK 短锥标准



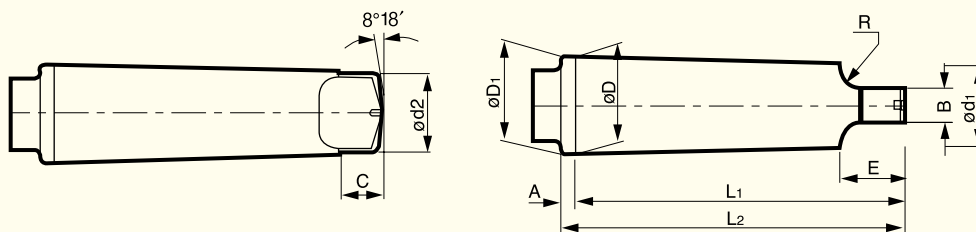
HSK No.	b_1	b_2	b_3	ϕd_1	ϕd_2	ϕd_3	ϕd_4	ϕd_5	ϕd_6	ϕd_7	ϕd_8	ϕd_9	ϕd_{10}	d_{11}	ϕd_{12}	ϕd_{13}	ϕd_{14}	a_1	a_2
HSK50	10.54	12	14	50	38	36.90	42	43	59.3	7	26	32	29	M16 X 1	10	6.8	6.8	13.997	7.648
63	12.5	16	14	63	48	46.53	53	55	72.3	7	34	40	37	M18 X 1	12	8	8.4	17.862	9.25
100	20	20	14	100	75	72.80	85	92	109.75	7	53	63	58	M24 X 1.5	16	12	12	27.329	15.00

(mm)

HSK No.	f_1	f_2	f_3	f_4	b_1	b_2	L_1	L_2	L_3	L_4	L_5	L_6	L_7	L_8	L_9	L_{10}	L_{11}	L_{12}	r_1	r_2	r_3	r_4	r_5	r_6	r_7	r_8
HSK50	26	42	18	3.75	21	15.5	25	5	11	7.5	4.5	14.13	10	10	23	3	1	19	1	1.5	2.38	6	0.5	1	2	6
63	26	42	18	3.75	28.5	20	32	6.3	14.7	10	6	18.13	10	12	24.5	3	1	21	1.2	1.5	3	8	0.6	1.5	3	8
100	29	45	20	3.75	44	31.5	50	10	24	15	10	28.56	12.5	16	28	3	1.5	24	2	2	3	12	1	1.5	3	10

(mm)

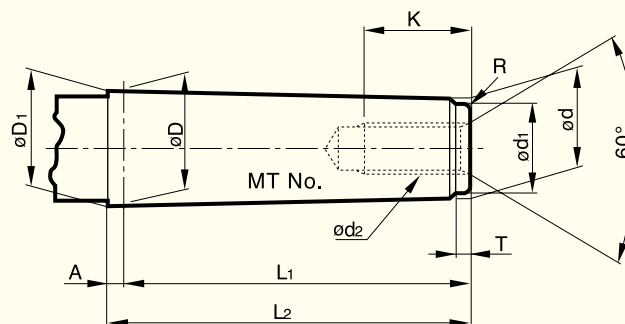
List of Taper Morse Taper Tang type / 莫式锥度标准



MT No.	Taper	Taper Angle(α)	øD	A	øD ₁	ød ₁	L ₁	L ₂	ød ₂	B	C	E	R	r
0	1/19.212	1° 29' 27"	9.045	3	9.201	6.104	56.5	59.5	6.0	3.9	6.5	10.5	4	1
1	1/20.047	1° 25' 43"	12.065	3.5	12.240	8.972	62.0	65.5	8.7	5.2	8.5	13.5	5	1.2
2	1/20.020	1° 25' 50"	17.780	5	18.030	14.034	75.0	80.0	13.5	6.3	10	16	6	1.6
3	1/19.922	1° 26' 16"	23.825	5	24.076	19.107	94.0	99.0	18.5	7.9	13	20	7	2
4	1/19.254	1° 29' 15"	31.267	6.5	31.605	25.164	117.5	124.0	24.5	11.9	16	24	8	2.5
5	1/19.002	1° 30' 26"	44.399	6.5	44.741	36.531	149.5	156.0	35.7	15.9	19	29	10	3
6	1/19.180	1° 29' 36"	63.348	8	63.765	52.399	210.0	218.0	51.0	19.0	27	40	13	4
7	1/19.231	1° 29' 22"	83.058	10	83.578	68.186	286.0	296.0	66.8	28.6	35	54	19	5

(mm)

Morse Taper – Screw type 莫式锥度-无扁尾型 (螺纹型)



MT No.	Taper	Taper Angle(α)	øD	A	øD ₁	d	L ₁	L ₂	ød ₁	d ₂	K	T	R
0	1/19.212	1° 29' 27"	9.045	3	9.201	6.442	50	53	6	-	-	4	0.2
1	1/20.047	1° 25' 43"	12.065	3.5	12.230	9.396	53.5	57	9	M6	16	5	0.2
2	1/20.020	1° 25' 50"	17.780	5	18.030	14.583	64	69	14	M10	24	5	0.2
3	1/19.922	1° 26' 16"	23.825	5	24.076	19.759	81	86	19	M12	28	7	0.6
4	1/19.254	1° 29' 15"	31.267	6.5	31.605	25.943	102.5	109	25	M16	32	9	1
5	1/19.002	1° 30' 26"	44.399	6.5	44.741	37.584	129.5	136	35.7	M20	40	9	2.5
6	1/19.180	1° 29' 36"	63.348	8	63.765	53.859	182	190	51	M24	50	12	4
7	1/19.231	1° 29' 22"	83.058	10	83.578	70.058	250	260	65	M33	80	18.5	5

(mm)

Comparison of Tooling System

比较表





Comparison of Tooling System (Domestic)

Dine, JE-IL, ATOM

Comparison of Tooling System (Overseas)

Dine, NIKKEN, BIG

New DINE New Challenger

Comparison of Tooling System(Domestic) 比交表 韩国

Dine		JE-IL		ATOM	
Tool Name	Specification	Tool Name	Specification	Tool Name	Specification
Collet Chuck	BT-SDC	Spring Collet Chuck	BT-DCC	ER Collet Chuck	BT-ER
High Speed Collet Chuck	BT-HPS	-	-	-	-
Collet Chuck (Slim type)	BT-SDC/S	-	-	-	-
Oil hole type Collet Chuck	BT-SDC/C	-	-	-	-
Super Chuck	BT-SP	-	-	-	-
NC Drill Chuck	BT-NPU	NC Drill Chuck	BT-NPU	Super Lock Drill Chuck	BT-ASL
Jacobs Taper Arbor	BT-JTA	Jacobs Taper Arbor	BT-JTA	Jacobs Taper Adapter	BT-JTA
Morse Taper Holder A Type	BT-MTA	Morse Taper Holder A Type	BT-MTA	Morse Taper Adapter A Type	BT-MT
MT Shank Milling Chuck	MT-DMG	Double Bearing Chuck	MT-DBC	Milling Chuck	MT-C
MT Shank Small Chuck	MT-SDC	-	-	ER Collet Chuck	MT-ER
MT Shank Facemill Arbor	MT-FMA	-	-	-	-
Morse Taper Holder B Type	BT-MTB	Morse Taper Holder B Type	BT-MTB	Morse Taper Adapter B Type	BT-MTB
Side Lock Holder A Type	BT-SLA	Endmill Holder	BT-EMH	Endmill Holder: Side Lock Holder A Type	BT-EMH BT-SLA
Milling Chuck	BT-DMG(강력형) BT-DPSN(일반형)	Milling Chuck	BT-DBC(강력형) BT-C(일반형)	Milling Chuck	BT-C
Straight Collet (길이방향 조절형)	CS-	-	-	Endmill Collet (길이방향 조절형)	CK-
Straight Collet (일반형)	C-	Straight Collet (일반형)	K-	Straight Collet (일반형)	K-
Taper Collet	TC-	MT Collet	K-MT	Taper Collet	K-MT
Straight Shank Tooling to suit Milling Chuck					
Straight Shank Super Chuck	S-SP	-	-	-	-
Straight Shank Small Chuck	S-SDC	Baby Chuck	K-DCC	Extension ER Collet Chuck	K-ER
				ER Collet Chuck	NC-ER
Straight Shank Small Chuck	S-SDC/S (Slim Type)	Long Mini Endmill Chuck	S-MEC	Slim type ER Collet Chuck	K-ER/M
		Long Mini Drill Chuck	S-MDC		
Centering & Chamfering Tool	CC-	-	-	-	-
Straight Shank Drill Chuck Holder	S-NPU	-	Straight Shank NC Drill Chuck	-	K-NPU
Modular type Micro Boring Head	S/W-FBH	Straight Shank Boring Head	K-BCA	Micro Cut Boring Bar	ST-BCA
Small Micro Boring Head	S/W-FBH	Straight Carbide Boring Bar	S-BDC	-	-
Straight Shank Tapping Holder	S-KTN	-	-	Straight Shank Tapping Chuck	K-TC
Pro-Cutter	PC-	-	-	-	-
Straight Facemill Arbor	SFA-	-	-	-	-
Drill Chuck Arbor	DJT-	Straight Drill Chuck	K-JT	Drill Chuck Arbor	K-JT
Touch Point	TP-	Touch Sensor	TP-	Touch Point Sensor	K32-UMT
Facemill Arbor	BT-FMA,FMB,FMC	Facemill Arbor	BT-FMA,FMB,FMC	Facemill Arbor	BT-FMA,FMB,FMC
Pro-Cut Facemill	BT-PC	-	-	Pro-Cut Facemill	BT-PC

Dine		JE-IL		ATOM	
Tool Name	Specification	Tool Name	Specification	Tool Name	Specification
Shell Endmill Arbor	BT-SMA	Shell Endmill Arbor	BT-SMA	Shell Endmill Arbor	BT-SMA
Side Cutter Arbor	BT-SCA	Side Cutter Arbor	BT-SCA	Side Cutter Arbor	BT-SCA
Tapping Holder	BT-KTN	Tapping Chuck	BT-TC	Tapping Chuck	BT-TC
Tap Adapter	TCA-	Tap Collet	SES-	Tap Collet	TCS-
Synchro Tap Chuck	BT-SDT	-	-	-	-
Collet	KT-	-	-	-	-
Collet Tap Chuck	BT-TCC	-	-	-	-
Collet	KT-,FER-	-	-	-	-
Balance Cut Tool	BT-DBC	Basic Holder(BT-BH)에 카트리지를 교환하여 사용	-	-	-
Square Boring Bar	BT30,40,50-BSA (45 ° Type)	Square Boring Bar	BT40,50-BSA (45 ° Type)	Square Boring Bar	BT30,40,50- BSA(45 ° Type)
	BT40,50-BSB (90 ° Type)		BT40,50-BSB (90 ° Type)		BT40,50- BSB(90 ° Type)
Small Micro Boring Head	BT40,50-SMH	-	-	-	-
	BT40,50-SMB	-	-	-	-
	BT40,50-KMB	-	-	-	-
Micro Boring Bar	BT-BKA (53 ° 08'Type) BT-BKB (90 ° Type) BT-BCF (90 ° Type) BT-MUP (90 ° Type, 53 ° 08'Type) BT-FBH	MBF Boring Bar Micro Boring Bar	BT-MBF(90 ° Type) BT-BCA	Micro Cut Boring Bar	BT-BCA
FZ Boring Bar BCF Boring Bar FF Balance Cut Tool	BT50-BRF BT50-BCF(중경용) BT50-BCF(대경용)	Ring Head Boring Bar	BT-BRA	Large Size Micro Boring Bar	BT50-BRA
Body(Basic Holder)	BT-MD,MT-MD,S-MD	Basic Holder	BT-BH	-	-
Extension Bar	EXT-	Extension Bar	P-	-	-
Reducer Bar	RDC-	Reducer	R-	-	-
Chamfering Cutter	CF-	Chamfering Cutter	CH-	-	-
Angular Head	1.Attachment Type BT50,40-KAG 2.Index Type (30 °): BT-KHI 3.Center Type (20 °): BT-KHC 4.Universal Type: BT-KHU 5.Modular Type (90 °) Type : BT40,50-KAH (45 °) Type : BT40,50-KAC High Speed Type (90 °) Type : BT40,50-KAHZ (45 °) Type : BT40,50-KACX	Angular Head	90 ° Type : CAR-0,1,2,3	Angle Head	1.Universal Type : PVI 2.Modular Type 90 ° Type: PVM-ER32
Spindle Speeder	BT40,50-KSH	Spindle Speeder	MV-3 ~ 8	-	-

Comparison of Tooling System(Overseas) 比交表 在外

Dine		NIKKEN		BIG	
Tool Name	Specification	Tool Name	Specification	Tool Name	Specification
Collet Chuck	BT-SDC 1.Collet : -FER : 6 μ m -FER-AA : 3 μ m -Oil hole type : FER-C-	Slim Chuck	BT-SK 1.Collet :SK- -A Class : 3 μ m -Oil hole type : SK-	New Baby Chuck	BT-NBS 1.Collet :NB- -A Class : 7 μ m, AA Class : 3 μ m -Oil hole type : ONBC- -Oil hole type : JNBC-
High Speed Collet Chuck	BT-HPS 1.Collet(AA Class) : 3 μ m	High Speed Slim Chuck	BT-SK-P 1.Collet(A Class) : 3 μ m	Mega New Baby Chuck for High Speed	BBT30,40-MEGA/N 1.Collet(A Class) : NBC-AA :3 μ m
Collet Chuck (Slim type)	BT-SDC/S 1.Collet (FER): 6 μ m	-	-	-	-
Oil hole type Collet Chuck	BT-SDC/C	Center Through Coolant type Slim Chuck	BT-SK-C	Coolant type	BT-NBS -Oil hole type : ONBC- (for Coolant Through Tool) -Oil hole type : JNBC- (for Coolant Directed at Tool)
Super Chuck	BT-SP 1.Collet:PC-	Mini-Mini Chuck	BT-MMC 1.Collet:MMK-	Mega Micro Chuck for High Speed	BBT30,40-MEGA/S 1.Collet : NBC/S-AA
				BT Shank type	BT-NBS/S 1.Collet:NBC/S-AA
Drill Chuck Holder (Uni-Body)	BT-NPU	NC Drill Chuck	BT-NPU	-	-
Jacobs Taper Arbor	BT-JTA	Drill Chuck Adapter	BT-JTA	Jacobs Taper Arbor	BT-JTA
Morse Taper Holder A Type	BT-MTA	Morse Taper Adapter A Type	BT-MTA	Morse Taper Adapter A Type	BT-MTA
MT Shank Milling Chuck	MT-DMG	-	-	Morse Taper Shank	HMC-T,U
MT Shank Small Chuck	MT-SDC	-	-	New Baby Chuck Morse Taper Shank Type	MT2,3,4-NBS
MT Shank Facemill Arbor	MT-FMA	-	-	-	-
Morse Taper Holder B Type	BT-MTB	Morse Taper Adapter with Draw bolt	BT-MTB	-	-
Side Lock Holder A Type	BT-SLA	Side Lock Holder A Type	BT-SLA	Side Lock Endmill Holder	BT-ISL
Milling Chuck	BT-DMG(Heavy Duty Type) BT-DPSN(General Type)	Milling Chuck	BT-C	New Hi-Power Milling Chuck BT Shank type	BT-HMC
Straight Collet (with Axial Adjustment)	CS-	Straight Collet (with Axial Adjustment)	NK-	Adjustable Straight Collet	AC-
Straight Collet	C-	Straight Collet	KM-	Straight Collet	C-
Taper Collet	TC-	Morse Taper Collet	K-MT	Adjustable Morse Taper Collet	AC-MT
Straight Shank Tooling to suit Milling Chuck					
Straight Shank Super Chuck	S-SP	Straight Shank Mini-mini Chuck	K-MMP K-MMC	Micro Chuck Cylindrical Shank Type	ST-NBS/S
Straight Shank Small Chuck	S-SDC	Straight Shank Slim Chuck	K-SK	New Baby Chuck Cylindrical Shank Type	ST-NBS
Straight Shank Small Chuck	S-SDC/S(Slim Type)	Straight Shank Ultra long Type	S-SK	New Baby Chuck Carbide Cylindrical Shank Type	ST/W-NBS
Centering & Chamfering Tool	CC-	Centering Tool	CC-	-	-
Straight Shank Drill Chuck Holder	S-NPU	Straight Shank NC Drill Chuck	D-NPU	-	-

Dine		NIKKEN		BIG	
Tool Name	Specification	Tool Name	Specification	Tool Name	Specification
Modular type Micro Boring Head	S/W-FBH	Straight Shank ZMAC Boring Bar	K-ZMAC	Cemented Carbide Shank with Extra Deep Hole	ST/W-CK
Small Micro Boring Head	S/W-FBH	-	-	EW Micro Head with Cemented Carbide Shank	ST/W-EW
Straight Shank Tapping Holder	S-KTN	Straight Shank Tapper Chuck	NZ-	-	-
Pro-Cutter	PC-	Straight Shank Pro Endmill	S-PE	-	-
Straight Facemill Arbor	SFA-	-	-	Adjustable Facemill Arbor	AC-F
Drill Chuck Arbor	DJT-	-	-	Adjustable Jacobs Taper Arbor	AC-JT
Touch Point	TP-	Touch Point	TP-	New Gold	PMG-
Facemill Arbor	BT-FMA,FMB,FMC	Facemill Arbor	BT-FMA,FMB,FMC	Facemill Arbor	BT-FMA,FMB,FMC
Pro-Cut Facemill	BT-PC	Pro Endmill	PE-H	-	-
Shell Endmill Arbor	BT-SMA	Shell Endmill Arbor	BT-SMA	-	-
Side Cutter Arbor	BT-SCA	Stub Arbor	BT-SCA	Side Cutter Arbor	BT-SCA
Tapping Holder	BT-KTN 1.Tap Adapter:TCA-	Floating Taper Chuck	BT-Z 1.Tap Collet:ZK-	Auto Tapper type	BT-AUTO-E 1.Tap Collet:TCE-
Synchro Tap Chuck	BT-SDT 1.Collet : KT10,13,20,26	-	-	Auto Tapper type	BT-AUTO-B 1.Tap Collet : TC-
Collet Tap Chuck	BT-TCC 1.Collet : KT-,FER-	-	-	-	-
Balance Cut Tool	BT-DBC	Balance Cut Boring Arbor	BT-RAC	-	-
Balance Cut Tool (for Large Bore)	BT-DBC	Balance Cut Boring Arbor (for Large Bore)	BT-RAC	RW Boring Head for Large Bore	FL+SL+CB+RW
Square Boring Bar	BT30,40,50-BSA(45 ° Type) BT40,50-BSB(90 ° Type)	Square Boring Bar	BT40,50-BSA(45 ° Type) BT40,50-BSB(90 ° Type)	-	-
Micro Boring Bar	BT-BKA(53 ° 08' Type) BT-BKB(90 ° Type) BT-BCF(90 ° Type) BT-MUP 1.53 ° 08' Type(MUP-A), 90 ° Type(MUP-V) BT-FBH	ZMAC Boring Bar	BT-ZMAC	EWN Boring Head for Finishing	EWN-CKB EWB-CK
FZ Micro Boring Bar FF Micro Boring Bar FF Balance Cut Tool	BT50-BRF BT50-BCF BT50-BCF	Balance Cut MAC Boring Arbor	BT-BAC	EW Finish Boring Head for Large Bore	FL+SL+CB+EW
Small Micro Boring Head	BT40,50-SMH BT40,50-SMB BT40,50-KMB	DJ Boring Bar	BT30,40,50-DJ	EWN Boring Head for Finishing	EW-CK
Oil hole holder	Morse Taper Type : BT40,50-OHMT Collet Type : BT40,50-OHDC10,20,26	Oil hole holder	Morse Taper Type: BT40,50-MOM Slim Type : BT30-SKO BT40, 50-MOK	Oil Feed Holder	Morse Taper Type:BT-OMT New Baby Chuck Type: BT-ONBS-P
	Side Lock Type : BT40,50-OHDL		Side Lock Type : BT40,50-SLO		Side Lock Type : BT40,50-OSL
	Center Through Type: BT-SDC/C		Center Through Type : BT-SK-C		BT-NBS(Collet:JNBC)

Dine		NIKKEN		BIG	
Tool Name	Specification	Tool Name	Specification	Tool Name	Specification
Angular Head	1.Attachment Type BT50-KAG BT40-KAG 2.Index Type(30 ° Type):BT-KHI 3.Center Type(20 ° Type):BT-KHC 4.Universal Type:BT-KHU 5.Modular Type 90 ° Type : BT40,50-KAH 45 ° Type : BT40,50-KAC High Speed Type: -90 ° Type: BT40,50-KAHZ -45 ° Type : BT40,50-KACX	Angular Head	1.Quick Type (1)Off-set Type : BT-AFT(90 ° Type) (2)90 ° Type : BT-AHT (3)30,45,60 ° Type : BT-AHT-30,45,60 2.Modular Type Body:BT40,50-AHM Head(90 ° Type) : AHM90-SK Head(30 ° Type) : AHM30-SK Head(45 ° Type) : AHM45-SK Head(60 ° Type) : AHM60-SK 3.Solid Type (1)Off-set Type : BT-AFK (2)90 ° Type : BT-AHK-90 (3)45 ° Type : BT-AHK-45	Angle Head	Build Up Type:BT-AG/AGH AGU Series : BT-AGU/NBS AG90 Series:BT-AG90/NBS AG45 Series:BT-AG45/NBS
Modular System				CK Boring System	
Body (Basic Holder)	BT-MD,MT-MD,S-MD	BT Shank Base Holder	BT-Q, K-Q	CK Shank	BT-CK,ST-CK
Extension Bar	EXT-	Extension Spacer	SP-	Extension	CK-
Reducer Bar	RDC-	Stepped Spacer	SP-	Reduction	CK-
Chamfering Cutter	CF-	Chamfering Cutter	CAF-	CK Chamfering Tool	CR-
Collet Chuck Type	MD-SDC	-	-	New Baby Chuck	CK-NBS
Balance Cutter Head	MD-DBC	Balance Cut Boring Head	Q-RAC	RW Boring Head	RW-CK/A,VPS-
FZ Boring Head	MD-BKA	Modular Type ZMAC Boring Head	Q-ZMAC,Q-BCB	-	-
FF Boring Head	MD-BCF	-	-	-	-
Tap Chuck Head	MD-KTN	-	-	-	-
Side Lock Head	MD-SLA	-	-	-	-
Shellmill Arbor Head	MD-SMA	-	-	-	-
Facemill Arbor Head	MD-FMA	-	-	-	-
Drill Chuck Head	MD-NPU	-	-	-	-
Small Micro Boring Head	MD-SMH MD-SMB MD-KMB	DJ Head with Carbide Cored Bit	Q-DJ	-	-
Spindle Speeder	BT-KSH 1.Collet : FER-AA	High Speed Spindle Speeder	BT40,50-NX,PX 1.Collet : SK-A	High Spindle	BBT-GTR,GTG 1.Collet : NBC-AA

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