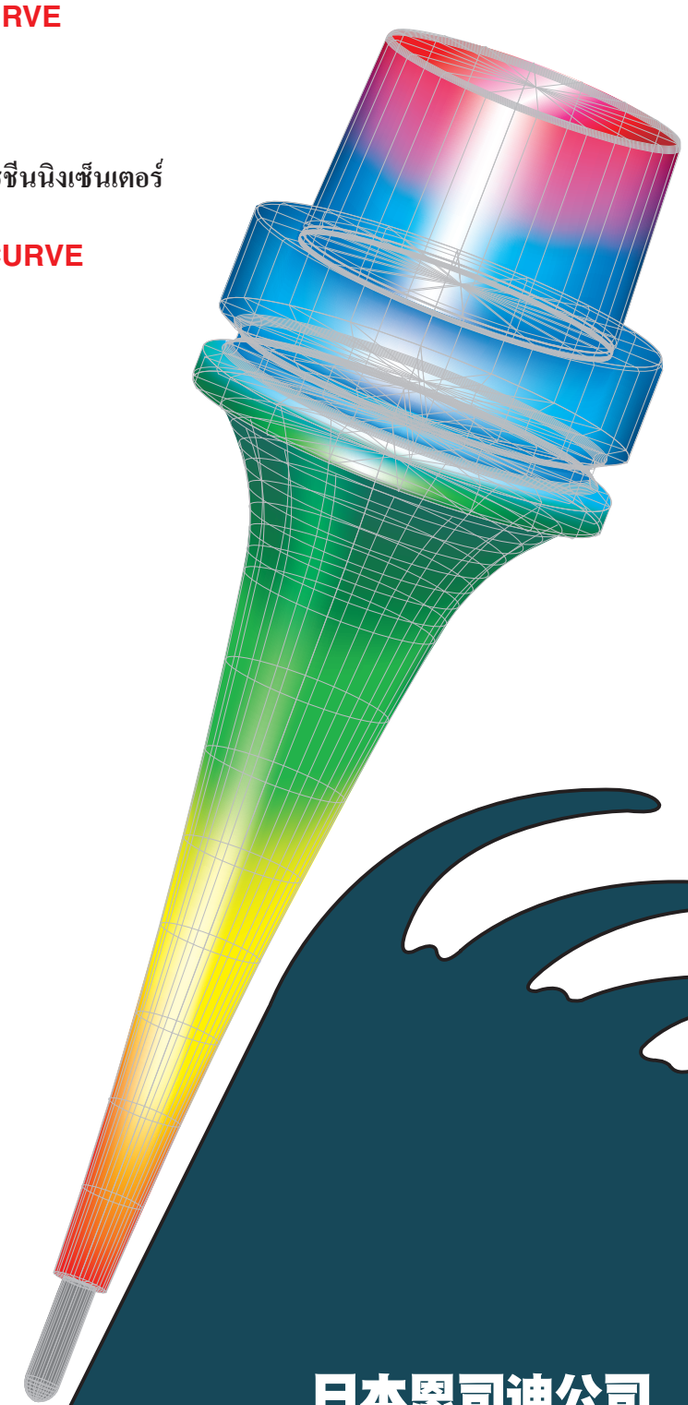
5 轴控制加工中心用最佳刀柄
热装式刀柄
SLIMLINE MONO CURVE

5축 가공센터를 위한 최적의 공구 홀더
열박음 홀더 SLIMLINE MONO **CURVE**

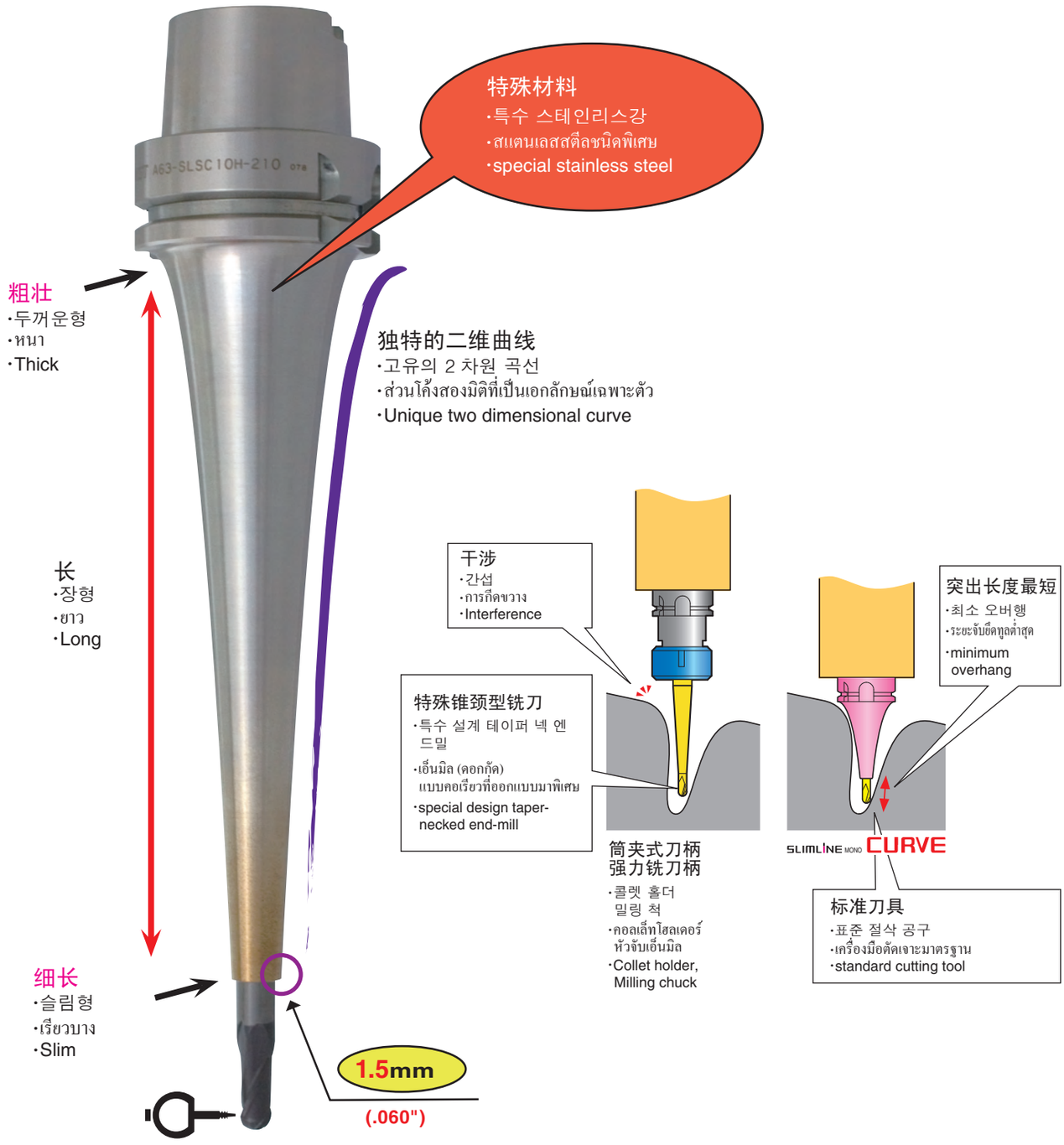
ทูลโฮลเดอร์ที่เหมาะสมสำหรับเครื่องแมชชีนนิงเซ็นเตอร์
ระบบ 5 แกน
ชริงฟิต โฮลเดอร์ SLIMLINE MONO **CURVE**

Optimum tool holder for 5 axis
machining center
SHRINK-FIT HOLDER
SLIMLINE MONO **CURVE**



0910

日本恩司迪公司
MST corporation
MADE IN JAPAN



高精度

3μm

高夹持力

筒夹式刀柄的（与之相比较）

3倍

高刚性

3倍

MST 的热装式流线型刀柄[Slimline Curve]是前端极限细长，根部尽可能粗壮，不仅体长而且具有刚性的刀柄。

초정밀 런아웃 정확도

3μm

강력한 체결력

콜렛 홀더와 비교

3배

높은 강성

3배

MST의 최첨단 열박음 공구 홀더 "Slimline" Curve는 매우 얇은 노즈와 고정 베이스의 독특한 설계를 통해 긴 게이지 길이에서도 대단히 높은 강성을 제공합니다.

ความร่วมศูนย์ (run-out) ที่เที่ยงตรงอย่างยิ่ง

3μm

แรงจับยึดที่แข็งแรง

เมื่อเปรียบเทียบกับคอลเล็ทโฮลเดอร์

3เท่า

ความแข็งแรงสูง

3เท่า

"Slimline curve" ชริงฟิตทูลโฮลเดอร์ที่ทันสมัยที่สุดของ MST ได้รับการออกแบบมาให้มีส่วนหัวเรียวบางและส่วนฐานแข็งแกร่งเป็นเยี่ยม ด้วยการออกแบบที่เป็นเอกลักษณ์เฉพาะทำให้ทูลโฮลเดอร์รุ่นนี้มีความแข็งแกร่งเป็นเลิศ แม้จะมีความยาวรวมมากก็ตาม

super run-out accuracy

3μm (.0001")

Strong chucking force

compared with collet holder

3times

High rigidity

3times

MST's state of the art shrink fit tool holder "Slimline curve" has remarkable slim nose and rigid base design. It achieves super rigidity even though long gauge length with using this unique design.

5 轴控制加工中心 – 控制轴的构成 .

5 축 가공센터 - 축 제어 형식

เครื่องแมชชีนนิงเซ็นเตอร์ระบบ 5 แกน - รูปแบบการควบคุมระบบแกน

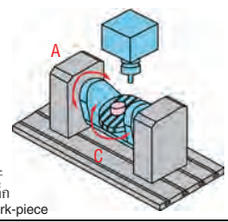
5-Axis Machining Center - Axis control type.

5 轴控制
·5 축 제어
·การควบคุมระบบ 5 แกน
·5 axis control

3 轴直进 (X, Y, Z)
·3 축 직선 운동
·การเคลื่อนที่แนวตรงระบบ 3 แกน
·3 axis straight movement

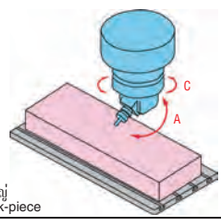
2 轴回转 (A, C)
·2 축 테이블 포지셔닝
·การวางตำแหน่งโต๊ะงานระบบ 2 แกน
·2 axis table positioning

工作台 旋转型
·테이블 틸트 형식
·แบบปรับเอียงโต๊ะงาน
·Table Tilt type



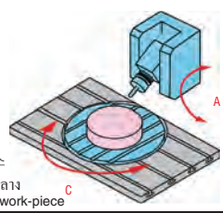
小型工件
·소형 워크피스
·ชิ้นงานขนาดเล็ก
·Small size work-piece

主轴头 旋转型
·헤드 틸트 형식
·แบบปรับเอียงหัวสปินเดิล
·Head Tilt type



大型工件
·대형 워크피스
·ชิ้นงานขนาดใหญ่
·Large size work-piece

工作台、主轴混合 旋转型
·테이블 · 헤드 틸트 형식
·แบบปรับเอียงโต๊ะงาน·หัวสปินเดิล
·Table·Head Tilt type



中型工件
·중형 워크피스
·ชิ้นงานขนาดกลาง
·Medium size work-piece

加工实例 사례 연구 กรณีศึกษา Case study

5 轴联动加工

·동시 5 축 가공
·การทำงานพร้อมกันทั้ง 5 แกน
·Simultaneous 5 axis machining

5 个轴同时运动，加工复杂的三维形状

· 동시 5 축 가공은 복잡한 3D 형상의 워크피스에 적합합니다 .

· การทำงานพร้อมกันทั้ง 5 แกน เหมาะสำหรับชิ้นงานที่มีรูปทรงสามมิติที่ซับซ้อน

· Simultaneous 5 axis machining is suitable for complicated 3D geometry work-pieces.

航空零部件
·항공기 부품
·ชิ้นส่วนอุปกรณ์ทางอากาศยาน
·Aviation components

整体叶盘
·블리스크
·บลิสก์
·Blisk

医疗器械零部件
·의료 부품
·ชิ้นส่วนอุปกรณ์ทางการแพทย์
·Medical components

人工骨
·인공 뼈
·กระดูกเทียม
·Artificial bone

人工关节
·인공 관절
·ข้อเทียม
·Artificial joint

2+3 轴加工

·2+3 축 가공
·การทำงานในระบบ 2+3 แกน
·2+3 axis machining

用回转 2 轴分度，用直线 3 轴进行加工

· 2 축 테이블을 회전 및 틸팅하여 워크피스를 인덱싱하고 스핀들이 3 축 직선 운동으로 작동합니다 .

· ในการแบ่งพิกัดชิ้นงานโดยการหมุนและเอียงโต๊ะงานระบบ 2 แกน เพลาหมุนจะทำงานร่วมกับใช้การเคลื่อนที่แนวตรงระบบ 3 แกน

· Indexing a work piece by rotating and tilting 2 axis table, a spindle works with using 3 axis straight movement.

复杂形状零部件
·복잡한 형상의 부품
·ชิ้นส่วนที่มีรูปทรงซับซ้อน
·Complicated geometry components

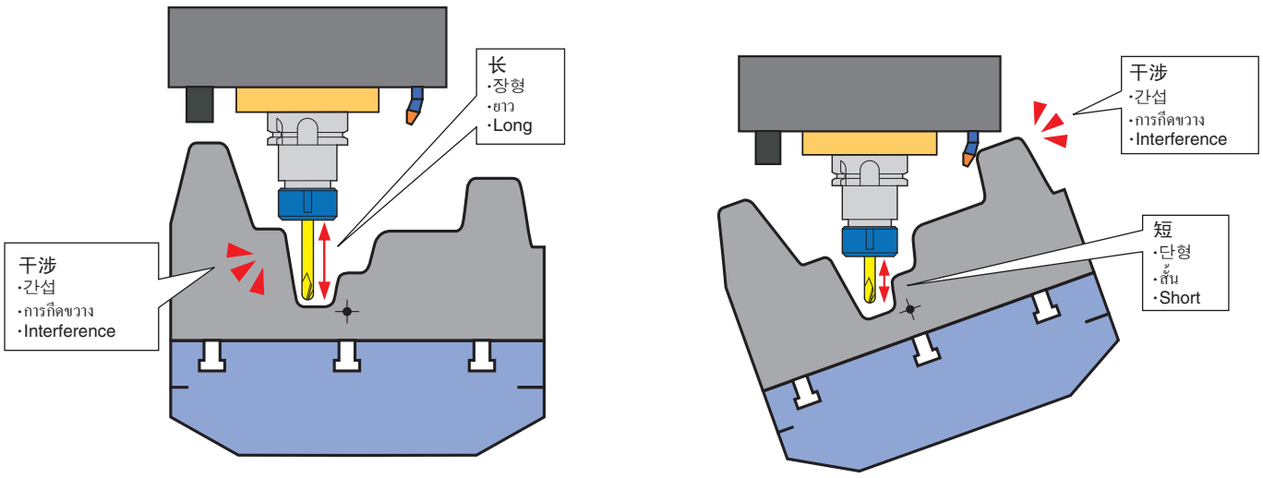
射出成型模具
·사출 몰드
·แม่พิมพ์ฉีด
·Injection mold

5 轴加工时最佳刀柄形状

5 축 가공을 위한 최적의 공구 홀더 설계

การออกแบบทูลโฮลเดอร์ที่เหมาะสมสำหรับการทำงานระบบ 5 แกน

The optimum tool holder design for 5 axis machining.



深腔 陡壁

3 轴加工

- 在 3 轴加工深腔且有陡壁的工件时，为了避免和刀柄前端部的干涉，刃具的突出量需要放长。

5 轴加工

- 5 轴加工时，工件相对于主轴自由倾斜旋转，刀柄的干涉减少，刃具的突出长度可放短。。。
- 但是，主轴头和工件之间会产生干涉。

깊은 구멍 급경사 벽면

3 축 가공

- 깊은 구멍 또는 급경사 벽면을 가공할 경우 3 축 가공의 간섭을 피하기 위해 절삭 공구의 돌출량을 길게 해야 합니다 .

5 축 가공

- 5 축 가공에서는 2 축 테이블을 회전 및 틸팅하여 워크피스를 자유롭게 틸팅할 수 있으므로 공구 홀더의 간섭을 줄이고 커터 돌출을 짧게 할 수 있습니다 .
- 이러한 이점이 있는 반면 , 스핀들 노즈와 워크피스 사이에 간섭이 발생합니다 .

ร่องลึก ผนังชัน

การทำงานในระบบ 3 แกน

- ในการตัดเฉือนชิ้นงานที่มีร่องลึกหรือผนังชันจำเป็นจะต้องใช้ทูลที่มีความยาวเพิ่มมากขึ้นเพื่อหลีกเลี่ยงสิ่งกีดขวางในการทำงานที่พบในการทำงานระบบ 3 แกน

การทำงานในระบบ 5 แกน

- ในการทำงานระบบ 5 แกนนั้น สิ่งกีดขวางทูลโฮลเดอร์จะน้อยกว่าและระยะจับยึดทูลจะสั้นกว่า เนื่องจากสามารถเอียงชิ้นงานได้อย่างอิสระด้วยการหมุนและการเอียงโต๊ะหมุนระบบ 2 แกน
- แทนที่จะเกิดผลดี แต่กลับทำให้เกิดการกีดขวางระหว่างหัวเพลาหมุนกับชิ้นงาน

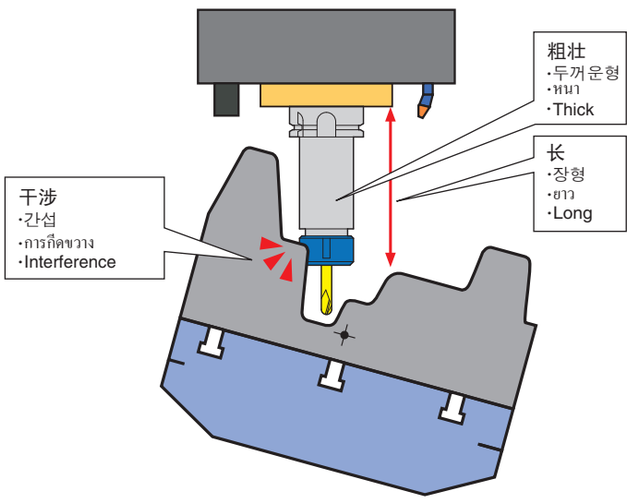
Deep cavity Steep wall

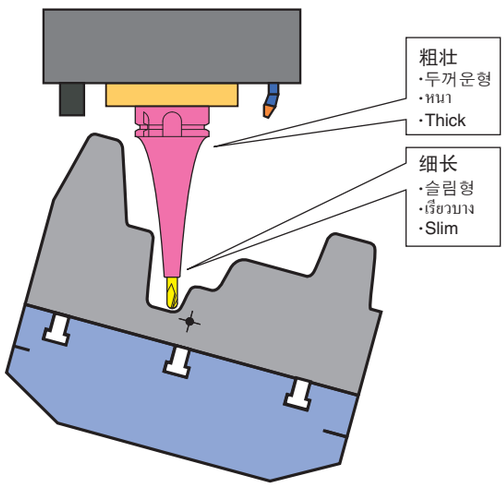
3 axis machining

- Longer cutter projection is required in deep cavity or steep wall machining in order to avoid an interference in 3 axis machining.

5 axis machining

- It becomes less interference of tool holder and cutter projection shorter in 5 axis machining because of freely tilting a work-piece by rotating and tilting 2 axis table.
- Instead of this advantage, it creates an interference between spindle nose and work-piece.





理想的刀柄设计是

- 为了避免干涉，工具（刀柄 + 刀具）的全长必然会变长。
- 传统的刀柄（筒夹式刀柄、强力铣刀柄）由于前端部体积大，容易对工件产生干涉。

- 前端极限的细长，根部尽可能粗壮，不仅体长而且又具有刚性。

최적 공구 홀더 설계

- 이와 같은 간섭을 피하기 위해 5 축 가공은 불가피하게 더 긴 공구 셋업 (공구 홀더 + 절삭 공구) 이 필요합니다 .
- 일반적으로 사용되는 콜렛 홀더와 밀링 척의 경우 홀더의 노즈가 크고 쉽게 간섭이 발생할 수 있습니다.

- SLIMLINE 공구 홀더는 매우 얇은 노즈와 슬림한 디자인으로 긴 게이지 길이에서도 탁월한 강성을 제공합니다 .

การออกแบบทูลโฮลเดอร์ที่เหมาะสมที่สุด

- การทำงานในระบบ 5 แกน จำเป็นต้องใช้ทูลที่ยาวกว่า (โฮลเดอร์+ทูล) เพื่อหลีกเลี่ยงการกีดขวางที่เกิดขึ้น
- ในคอลเล็ทโฮลเดอร์และหัวจับดอกสว่านที่ใช้กันโดยทั่วไป ส่วนหัวของโฮลเดอร์จะใหญ่กว่าและก่อให้เกิดอุปสรรคในการทำงานได้มากกว่า

- ทูลโฮลเดอร์ซึ่งมีส่วนหัวและรูปแบบเรียวบางเป็นพิเศษนี้ มีความแข็งเป็นพิเศษแม้จะต้องใช้ทูลที่ยาว

Optimum tool holder design

- To avoid this interference, 5 axis machining inevitablyrequires longer tool set-up (Tool holder+cutting tool).
- With commonly used collet holder and milling chucks,the nose of the holder is larger and more likely to interfere.

- The tool holder which has remarkable slim nose and design achieves super rigidity even though long gauge length.

刚性（弯曲量）

강성（휨）
ความแข็งแรง (การโก่งตัว)
Rigidity (Deflection)

弯曲量计算公式

휨량 계산 공식

สูตรการคำนวณหาค่าการโก่งตัว

Calculating formula of deflection amount

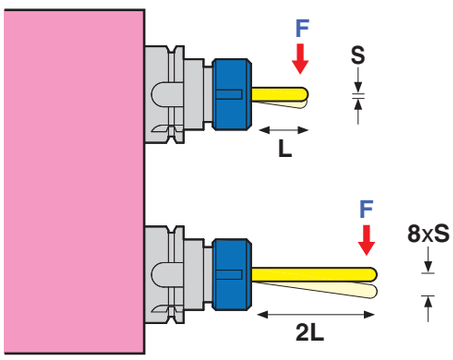
弯曲量和长度的 3 次方成正比。	휨량은 길이의 3 승에 비례합니다 .	ค่าการโก่งตัวจะเป็นสัดส่วนโดยตรงกับค่าความยาวยกกำลังสาม	Deflection amount is proportional to the cube of length.

$$S = \frac{6.8 \times F \times L^3}{E \times D^4}$$

弯曲量和直径的 4 次方成反比。	휨량은 직경의 4 승에 반비례합니다 .	ค่าการโก่งตัวจะเป็นสัดส่วนผกผันกับขนาดเส้นผ่านศูนย์กลางยกกำลังสี่	Deflection amount is inversely proportional to the fourth power of diameter.

S ：弯曲量	S ： 휨량	S ：ค่าการโก่งตัว	S ： Deflection amount
D ：轴径	D ： 샹크 직경	D ：เส้นผ่านศูนย์กลางของก้าน	D ： Shank Diameter
L ：突出长度	L ： 돌출	L ：ระยะจับยึด	L ： Projection
F ：负荷	F ： 부하	F ：แรงที่มากระทำ	F ： Load
E ：杨氏系数	E ： 종탄성계수 (Young's module)	E ：ค่าโมดูลัสของยัง (Young's module)	E ： Young's module

1 8 倍弯曲
·휨 8 배
·การโก่งตัว 8 เท่า
·Deflection 8 times



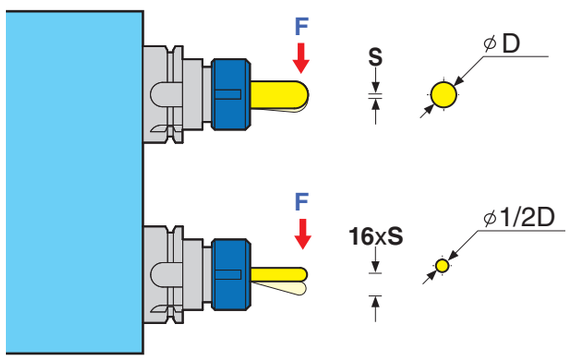
轴径相同，突出长度为 2 倍时

직경은 같으며 , 커터 돌출은 2 배입니다 .

เส้นผ่านศูนย์กลางเท่าเดิม ระยะจับยึดทูลเพิ่มเป็น 2 เท่า

Diameter is same,cutter projection is twice.

2 16 倍弯曲
·휨 16 배
·การโก่งตัว 16 เท่า
·Deflection 16 times



突出长度相同，轴径为 2 倍时

커터 돌출은 같으며 직경은 절반입니다 .

ระยะจับยึดทูลเท่าเดิม เส้นผ่านศูนย์กลางลดลงครึ่งหนึ่ง

Cutter projection is same, diameter is half.

最佳刀柄选择软件

최적 공구 홀더 선정 소프트웨어

ซอฟต์แวร์สำหรับเลือกทูลโฮลเดอร์ที่เหมาะสมที่สุด

Software of selecting optimum tool holder.

自动选定刚性较高的刀柄

只需输入工件以及刀具信息，就可自动选择刚性最高的刀柄。

자동으로 최고 강성의 공구 홀더를 선정해 줍니다 .

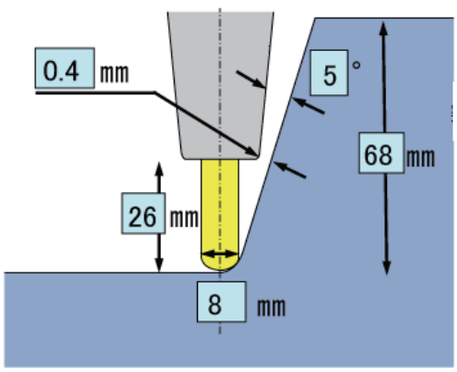
워크피스와 절삭 공구 정보를 입력하면 자동으로 최고 강성의 Slimline 홀더를 선정해 줍니다 .

การเลือกทูลโฮลเดอร์ที่มีความแข็งแรงสูงโดยอัตโนมัติ

เมื่อป้อนข้อมูลของชิ้นงานและทูลเข้าไป สลิมไลน์โฮลเดอร์ที่มีความแข็งแรงสูงสุดจะถูกเลือกโดยอัตโนมัติ

Automatic selection of high rigidity tool holder

When input the information of work-piece and cutting tool, the highest rigidity slimline holder is selected automatically.



Priority	Type	Model no.	Collet no.	Deflection amount	L/D	Projection	Angle	Effective depth
1	MONO	BT40-SLSA8-95-M42		3.433	6.2	26.0	5.0	68.3
2	2P	BT40-SLK12-45F	CS12-8-55	3.625	6.3	26.0	5.0	71.1
3	2P	BT40-SLK12-45	CS12-8-55	3.643	6.3	26.0	5.0	71.1
4	MOND	BT40-SLSA8-125-M42		5.316	6.3	26.0	5.0	68.3
5	MOND	BT40-SLSA-8-155-M42	CR12-6-55	5.332	6.4	26.0	5.0	68.3

利用刀柄刀具形状尺寸数据进行刀轨模拟

공구 홀더 및 절삭 공구를 사용한 공구 패스 시뮬레이션

การจำลองการทำงานของทูลขณะที่ติดตั้งเข้ากับโฮลเดอร์

Simulation for a tool pass with a tool holder and cutting tool.

下列 CAM 软件，可以搭载热装式刀柄的全部外观形状数据资料。

아래 CAM 시뮬레이터에는 모든 Slimline 형상 데이터가 포함되어 있습니다 .

เครื่องจำลองแบบ CAM มีข้อมูลทางเรขาคณิตทั้งหมดของสลิมไลน์

Below CAM simulators have all of Slimline geometry datas.

VERICUT6.2

HYPER MILL

EDGECAM

TEBIS

JBM

WORK NC

G-NAVI

TOOLS V3

热装专用短尺寸铣刀

열박음 홀더용 짧은 전장 엔드밀

เอ็นมิล (ดอกกัด) ที่มีความยาวรวมสั้นสำหรับชริงฟิต โฮลเดอร์

Short allover length end-mill for shrink-fit holder.

对于热装式刀柄最佳的 [柄部短]、[刃部短] 的热装专用短尺寸铣刀，由以下各刀具公司提供。

柄部短 → 突出量最短

刃部短 → 刚性提高

짧은 절삭 플루트가 있는 열박음 공구 홀더용 짧은 전장 엔드밀은 아래 제조업체에서 제공됩니다 .

짧은 샹크 → 최소 커터 돌출

짧은 커터 플루트 → 강성 증가

บริษัทผู้ผลิตเอ็นมิล(ดอกกัด)ที่มีความยาวรวมสั้นสำหรับใช้กับชริงฟิตทูลโฮลเดอร์ที่มีก้านดอกกัดและระยะกินลึกสั้นจะแสดงอยู่ด้านล่าง

ก้านสั้น → ระยะจับยึดทูลต่ำสุด

ระยะกินลึกสั้น → ความแข็งแรงที่เพิ่มขึ้น

The short allover length end-mill for shrink-fit holder which has short cutter shank, short cutting flute is provided by manufacturers below.

Short shank → Minimum cutter projection

Short cutting flute → Increasing rigidity

普通的铣刀
- 표준 엔드밀
- เอ็นมิล (ดอกกัด) มาตรฐาน
- Standard end-mill

热装专用短尺寸铣刀
- 열박음 공구 홀더용 짧은 전장 엔드밀
- เอ็นมิล (ดอกกัด) ที่มีความยาวรวมสั้นสำหรับชริงฟิตทูลโฮลเดอร์
- short allover length end-mill for shrink-fit tool holder

MITSUBISHI MATERIALS

UNION TOOL

DIJET INDUSTORY

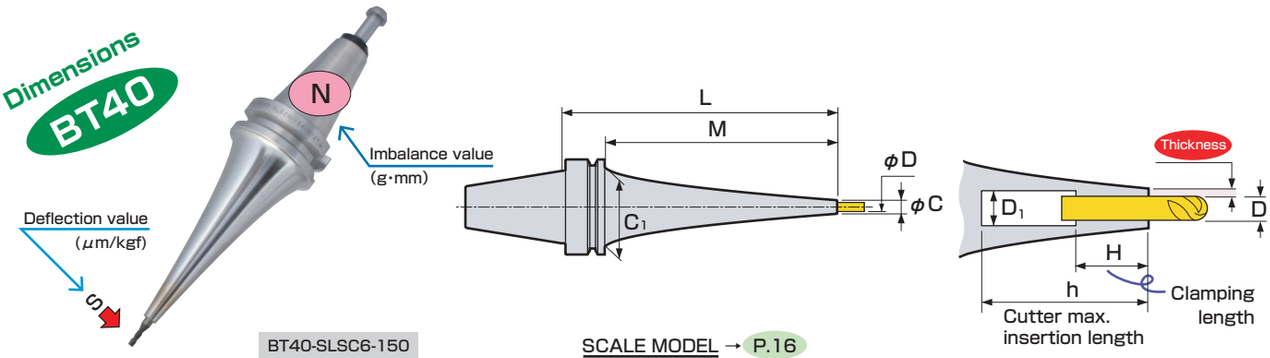
HITACHI TOOL

NS TOOL

OSG CORPORATION

SUMITOMO HARD METAL

Dimensions BT40

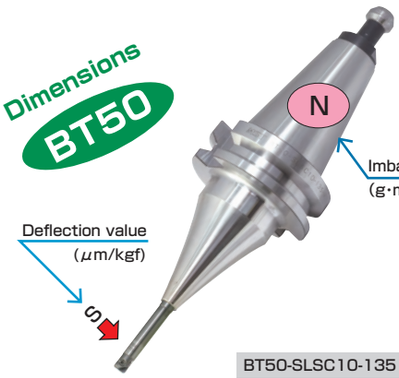


BT40-SLSC6-150

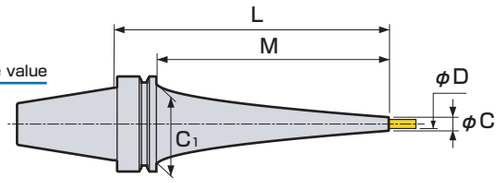
SCALE MODEL → P.16

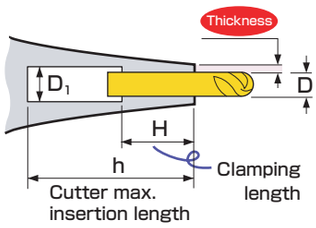
Code	φD	φC	Thickness	L	M	φC1	φD1	H	h	Kg	N	S
BT40 — SLSC 4 — 90	4	7	1.5	90	63	53	5	12	125	1.2	3.3	1.8
— 120				120	93				175	1.3	3.8	2.7
— 150				150	123				205	1.5	4.4	4.0
— 180				180	153				235	1.5	4.8	6.6
— 210				210	183				265	1.6	4.9	11.6
— 240				240	213				295	1.8	5.8	14.0
BT40 — SLSC 6 — 90	6	9		90	63		7	18	125	1.2	3.3	1.6
— 120				120	93				175	1.3	3.8	2.3
— 150				150	123				205	1.5	4.3	3.6
— 180				180	153				235	1.5	4.9	5.7
— 210				210	183				265	1.7	5.7	7.3
— 240				240	213				295	1.8	5.9	12.0
BT40 — SLSC 8 — 90	8	11		90	63		9	24	125	1.2	3.3	1.4
— 120				120	93				175	1.3	4.0	2.0
— 150				150	123				205	1.5	4.8	2.7
— 180				180	153				235	1.6	4.9	5.0
— 210				210	183				265	1.7	5.8	6.6
— 240				240	213				295	1.9	6.7	8.3
BT40 — SLSC10 — 90	10	13		90	63		11	30	125	1.2	3.3	1.8
— 120				120	93				175	1.5	4.3	1.3
— 150				150	123				205	1.6	4.9	2.2
— 180				180	153				235	1.7	5.6	3.4
— 210				210	183				265	1.7	6.0	6.0
— 240				240	213				295	2.0	7.9	5.8
BT40 — SLSC12 — 90	12	15		90	63		14	30	125	1.3	3.7	1.5
— 120				120	93		13		175	1.5	4.6	1.2
— 150				150	123				205	1.5	4.9	2.4
— 180				180	153				235	1.7	5.7	3.3
— 210				210	183				265	1.9	6.6	4.6
— 240				240	213				295	2.0	8.0	5.5
BT40 — SLSC16 — 90	16	21	2.5	90	63		17	32	100	1.3	4.2	0.6
— 120				120	93				130	1.5	5.5	0.8
— 150				150	123				160	1.6	6.2	1.5
— 180				180	153				190	1.9	7.5	1.9
— 210				210	183				220	2.0	8.2	3.0
— 240				240	213				250	2.2	9.5	3.7
BT40 — SLSC20 — 90	20	26	3	90	63	50.5	21	40	100	1.3	4.4	0.5
— 120				120	93	53			130	1.5	5.8	0.8
— 150				150	123				160	1.6	6.7	1.3
— 180				180	153				190	1.9	8.0	1.8
— 210				210	183				220	2.1	9.4	2.3
— 240				240	213				250	2.4	10.7	3.0

Dimensions BT50



BT50-SLSC10-135



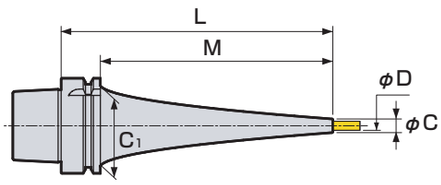


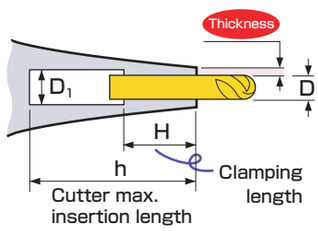
SCALE MODEL → P.18

Code	φD	φC	Thickness	L	M	φC1	φD1	H	h	Kg	N	S
BT50 — SLSC 4 — 165	4	7	1.5	165	127	85	5	12	220	5.2	15.4	1.8
— 195				195	157				250	5.3	15.9	2.6
— 225				225	187				280	5.5	16.4	3.8
— 255				255	217				310	5.6	16.9	5.7
— 285				285	247				340	6.4	19.5	5.9
— 315				315	277				370	8.3	26.0	7.7
BT50 — SLSC 6 — 165	6	9		165	127		7	18	220	5.1	15.1	1.5
— 195				195	157				250	5.2	15.5	2.4
— 225				225	187				280	5.7	16.8	2.9
— 255				255	217				310	5.9	18.4	4.0
— 285				285	247				340	6.2	19.5	5.2
— 315				315	277				370	8.4	26.8	6.9
BT50 — SLSC 8 — 165	8	11		165	127		9	24	220	4.9	14.7	1.4
— 195				195	157				250	5.3	16.1	1.9
— 225				225	187				280	5.8	17.7	2.3
— 255				255	217				310	5.8	17.9	3.7
— 285				285	247				340	6.0	19.1	4.9
— 315				315	277				370	8.4	28.0	5.0
BT50 — SLSC10 — 165	10	13		165	127		11	30	220	4.9	14.9	1.2
— 195				195	157				250	5.5	16.9	1.5
— 225				225	187				280	5.4	16.8	2.4
— 255				255	217				310	6.1	19.8	2.6
— 285				285	247				340	6.3	21.2	3.7
— 315				315	277				370	8.4	28.6	4.6
BT50 — SLSC12 — 165	12	15		165	127	83	13		220	4.8	14.6	1.2
— 195				195	157	85			250	5.6	17.6	1.2
— 225				225	187				280	5.8	18.5	1.8
— 255				255	217				310	6.0	19.3	2.6
— 285				285	247				340	6.2	21.2	3.5
— 315				315	277				370	8.5	29.2	3.6
BT50 — SLSC16 — 165	16	21	2.5	165	127		17	32	220	5.4	17.8	0.6
— 195				195	157				250	5.4	17.7	1.1
— 225				225	187				280	6.3	21.1	1.2
— 255				255	217				310	6.1	20.9	2.0
— 285				285	247				340	7.0	24.3	2.0
— 315				315	277				370	8.6	30.9	2.6
BT50 — SLSC20 — 165	20	26	3	165	127		21	40	220	5.4	17.4	0.6
— 195				195	157				250	6.1	20.8	0.7
— 225				225	187				280	5.8	20.5	1.2
— 255				255	217				310	6.7	23.9	1.3
— 285				285	247				340	7.0	25.4	1.7
— 315				315	277				370	8.9	32.4	2.3

Dimensions A63

A63-SLSC10- 90

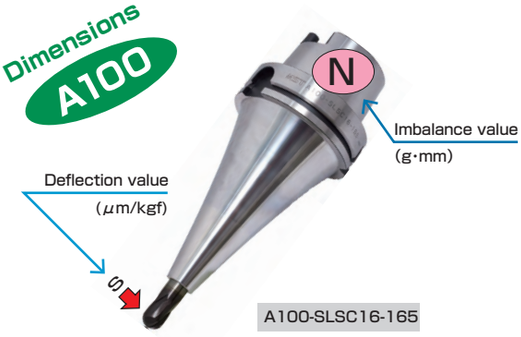




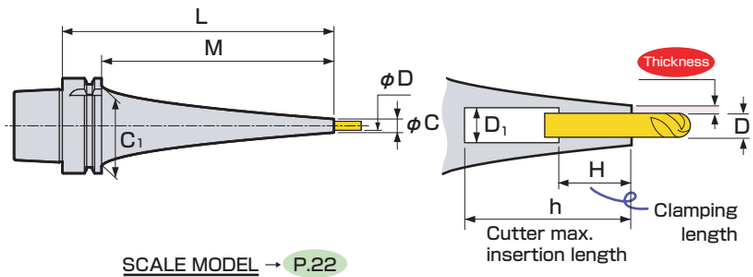
SCALE MODEL → P.20

Code	φD	φC	Thickness	L	M	φC1	φD1	H	h	Kg	N	S
A63 — SLSC 4 — 90	4	7	1.5	90	64	53	5	12	65	1.0	9.3	1.8
— 120				120	94				95	1.1	10.1	2.7
— 150				150	124				125	1.3	11.0	4.0
— 180				180	154				154	1.4	11.6	6.6
— 210				210	184				185	1.4	11.8	11.6
— 240				240	214				214	1.6	13.1	14.0
— 270				270	244				245	2.0	15.4	11.9
— 300				300	274				275	2.1	16.3	15.9
A63 — SLSC 6 — 90	6	9		90	64		7	18	65	1.0	9.4	1.6
— 120				120	94				95	1.1	10.1	2.3
— 150				150	124				125	1.3	11.0	3.6
— 180				180	154				154	1.4	11.7	5.7
— 210				210	184				184	1.6	13.0	7.3
— 240				240	214				214	1.6	13.3	12.0
— 270				270	244				245	2.1	16.3	8.5
— 300				300	274				275	2.3	17.2	11.7
A63 — SLSC 8 — 90	8	11		90	64		9	24	65	1.0	9.4	1.4
— 120				120	94				94	1.1	10.3	2.0
— 150				150	124				124	1.3	11.5	2.7
— 180				180	154				155	1.4	11.8	5.0
— 210				210	184				184	1.6	13.2	6.6
— 240				240	214				214	1.8	14.4	8.3
— 270				270	244				244	2.2	17.2	6.9
— 300				300	274				274	2.4	18.5	8.9
A63 — SLSC10 — 90	10	13		90	64		11	30	65	1.0	9.4	1.8
— 120				120	94				95	1.3	10.9	1.3
— 150				150	124				125	1.4	11.8	2.2
— 180				180	154				154	1.6	12.9	3.4
— 210				210	184				184	1.6	13.3	6.0
— 240				240	214				212	2.1	16.0	5.8
— 270				270	244				244	2.1	17.5	6.6
— 300				300	274				274	2.3	18.7	8.5
A63 — SLSC12 — 90	12	15		90	64		14	30	64	1.1	9.9	1.5
— 120				120	94		13		94	1.3	11.3	1.2
— 150				150	124				124	1.4	11.8	2.4
— 180				180	154				154	1.6	13.0	3.3
— 210				210	184				184	1.8	14.3	4.6
— 240				240	214				212	2.1	16.2	5.5
— 270				270	244				244	2.3	18.4	5.4
A63 — SLSC16 — 90	16	21	2.5	90	64		17	32	62	1.1	10.5	0.6
— 120				120	94				92	1.5	12.4	0.8
— 150				150	124				122	1.6	13.5	1.5
— 180				180	154				152	1.9	15.4	1.9
— 210				210	184				182	2.1	16.5	3.0
— 240				240	214				212	2.4	18.4	3.7
— 270				270	244				242	2.2	20.3	4.6
A63 — SLSC20 — 90	20	26	3	90	64	52	21	40	62	1.2	10.7	0.5
— 120				120	94	53			92	1.5	12.8	0.8
— 150				150	124				122	1.7	14.1	1.3
— 180				180	154				152	2.0	16.2	1.8
— 210				210	184				182	2.4	18.2	2.3
— 240				240	214				212	2.7	20.2	3.0
— 270				270	244				242	2.5	22.8	3.4

Dimensions A100



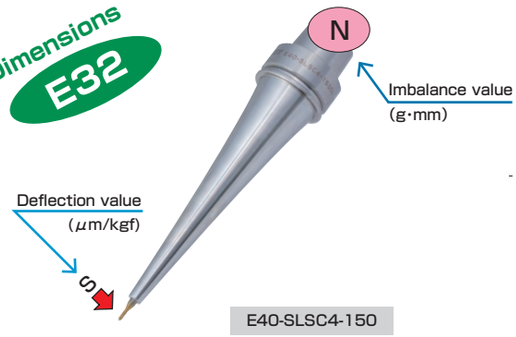
A100-SLSC16-165



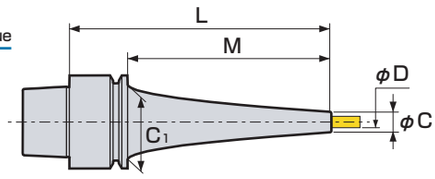
SCALE MODEL → P.22

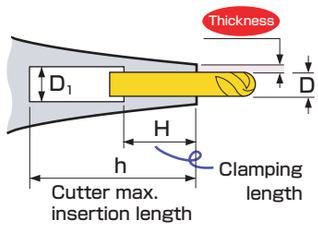
Code	φD	φC	Thickness	L	M	φC1	φD1	H	h	Kg	N	S
A100 — SLSC 4 — 165	4	7	1.5	165	127	85	5	12	220	3.4	29.0	2.5
— 195				195	157				250	3.7	30.6	3.3
— 225				225	187				280	4.3	33.0	3.8
— 255				255	217				310	4.4	34.1	5.6
— 285				285	247				340	4.6	35.5	7.6
— 315				315	277				370	4.9	37.1	9.8
— 345				345	307				400	5.2	38.8	12.4
A100 — SLSC 6 — 165	6	9		165	127		7	18	220	3.3	28.8	2.1
— 195				195	157				250	4.0	32.0	2.3
— 225				225	187				280	4.1	32.4	3.6
— 255				255	217				310	4.8	35.9	3.9
— 285				285	247				340	5.0	37.4	5.2
— 315				315	277				370	5.3	38.9	6.8
— 345				345	307				400	5.6	40.3	8.7
A100 — SLSC 8 — 165	8	11		165	127		9	24	220	3.7	30.7	1.4
— 195				195	157				250	3.7	31.0	2.3
— 225				225	187				280	4.6	35.3	2.3
— 255				255	217				310	4.6	35.9	3.6
— 285				285	247				340	4.9	37.4	4.8
— 315				315	277				370	5.7	41.9	5.0
— 345				345	307				400	6.1	45.1	6.0
A100 — SLSC10 — 165	10	13		165	127		11	30	220	3.5	29.4	1.4
— 195				195	157				250	4.3	33.6	1.5
— 225				225	187				280	4.2	33.4	2.4
— 255				255	217				310	4.5	34.3	3.5
— 285				285	247				340	5.1	38.3	3.6
— 315				315	277				370	5.1	39.9	4.8
— 345				345	307				400	5.9	42.7	5.5
A100 — SLSC12 — 165	12	15		165	127		13	30	220	4.2	34.1	1.2
— 195				195	157				250	4.1	33.6	1.2
— 225				225	187				280	4.8	38.3	1.8
— 255				255	217				310	4.8	37.8	2.6
— 285				285	247				340	5.5	42.5	3.5
— 315				315	277				370	5.9	44.6	4.3
— 345				345	307				400	6.2	46.7	5.3
A100 — SLSC16 — 165	16	21	2.5	165	127		17	32	220	4.2	34.2	0.6
— 195				195	157				250	4.0	33.7	1.1
— 225				225	187				280	4.8	38.4	1.2
— 255				255	217				310	4.7	38.0	2.0
— 285				285	247				340	5.5	42.6	2.0
— 315				315	277				370	5.9	44.8	2.6
— 345				345	307				400	6.2	46.9	3.3
A100 — SLSC20 — 165	20	26	3	165	127		21	40	220	4.0	33.6	0.6
— 195				195	157				250	4.9	38.1	0.7
— 225				225	187				280	4.6	37.4	1.2
— 255				255	217				310	5.5	42.1	1.3
— 285				285	247				340	5.2	41.2	2.1
— 315				315	277				370	6.1	46.0	2.3
— 345				345	307				400	6.4	47.9	2.9

Dimensions E32



E40-SLSC4-150





SCALE MODEL → P.24

Code	φD	φC	Thickness	L	M	φC1	φD1	H	h	Kg	N	S
E32 — SLSC 4 — 60	4	7	1.5	60	40	26	5	12	43	0.2	0.6	2.4
— 90				90	70				73	0.2	0.8	6.1
E32 — SLSC 6 — 60	6	9		60	40		7	18	43	0.2	0.7	1.9
— 90				90	70				73	0.2	0.9	4.9
E32 — SLSC 8 — 60	8	11		60	40		8.6	24	38	0.2	0.7	1.6
— 90				90	70					0.2	1.0	4.0
E32 — SLSC10 — 60	10	13		60	40		10.6	30	48	0.2	0.8	1.4
— 90				90	70				60	0.2	1.1	3.5

Dimensions E40

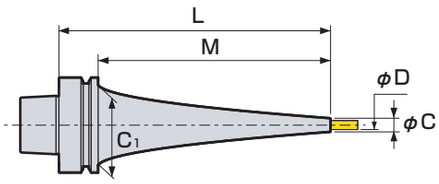
Code	φD	φC	Thickness	L	M	φC1	φD1	H	h	Kg	N	S
E40 — SLSC 4 — 90	4	7	1.5	90	70	34	5	12	74	0.3	1.5	2.9
— 120				120	100				104	0.4	1.8	6.5
— 150				150	130				134	0.5	2.4	8.6
E40 — SLSC 6 — 90	6	9		90	70		7	18	74	0.3	1.6	2.5
— 120				120	100				104	0.4	1.9	5.6
— 150				150	130				134	0.5	2.5	7.7
E40 — SLSC 8 — 90	8	11		90	70		9	24	74	0.3	1.7	2.2
— 120				120	100				104	0.4	2.0	3.4
— 150				150	130				134	0.5	3.0	5.1
E40 — SLSC10 — 90	10	13		90	70		11	30	74	0.3	1.7	2.0
— 120				120	100				104	0.4	2.4	3.2
— 150				150	130				134	0.5	3.1	5.0

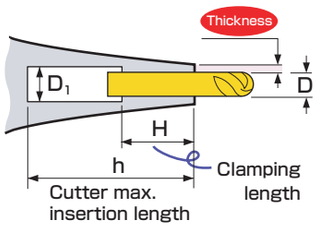
Dimensions E50

Code	φD	φC	Thickness	L	M	φC1	φD1	H	h	Kg	N	S
E50 — SLSC 4 — 90	4	7	1.5	90	64	42	5	12	74	0.6	2.2	1.8
— 120				120	94				104	0.6	2.6	4.2
— 150				150	124				134	0.7	3.3	6.0
— 180				180	154				164	0.8	3.5	12.0
E50 — SLSC 6 — 90	6	9		90	64		7	18	74	0.6	2.3	1.6
— 120				120	94				104	0.6	2.7	3.5
— 150				150	124				134	0.7	3.4	5.4
— 180				180	154				164	0.9	4.2	7.6
E50 — SLSC 8 — 90	8	11		90	64		9	24	74	0.6	2.5	1.4
— 120				120	94				104	0.7	3.2	2.2
— 150				150	124				134	0.7	3.5	4.9
— 180				180	154				164	0.8	4.2	7.1
E50 — SLSC10 — 90	10	13		90	64		11	30	74	0.6	2.5	1.3
— 120				120	94				104	0.7	3.3	2.1
— 150				150	124				134	0.8	4.1	3.4
— 180				180	154				164	0.8	4.3	6.9

Dimensions F63

F63-SLSC6- 90

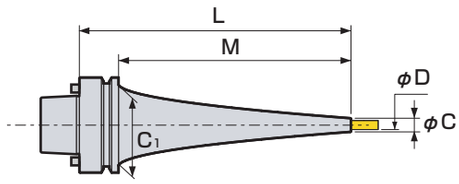


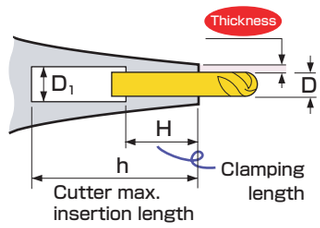


SCALE MODEL → P.26

Code	φD	φC	Thickness	L	M	φC1	φD1	H	h	Kg	N	S
F63 — SLSC 4 — 90	4	7	1.5	90	64	53	5	12	65	0.9	2.7	1.8
— 120				120	94				95	1.0	3.6	2.7
— 150				150	124				125	1.2	4.4	4.0
— 180				180	154				154	1.3	5.0	6.6
— 210				210	184				185	1.3	5.3	11.6
— 240				240	214				214	1.6	6.5	14.0
— 270				270	244				245	1.9	8.8	11.9
— 300				300	274				275	2.0	9.7	15.9
F63 — SLSC 6 — 90	6	9		90	64		7	18	65	0.9	2.8	1.6
— 120				120	94				95	1.0	3.6	2.3
— 150				150	124				125	1.2	4.4	3.6
— 180				180	154				154	1.3	5.2	5.7
— 210				210	184				184	1.5	6.4	7.3
— 240				240	214				214	1.6	6.7	12.0
— 270				270	244				245	2.0	9.7	8.5
— 300				300	274				275	2.2	10.6	11.7
F63 — SLSC 8 — 90	8	11		90	64		9	24	65	0.9	2.9	1.4
— 120				120	94				94	1.1	3.8	2.0
— 150				150	124				124	1.3	5.0	2.7
— 180				180	154				155	1.3	5.2	5.0
— 210				210	184				184	1.5	6.6	6.6
— 240				240	214				214	1.8	7.8	8.3
— 270				270	244				244	2.1	10.7	6.9
— 300				300	274				274	2.3	11.9	8.9
F63 — SLSC10 — 90	10	13		90	64		11	30	65	0.9	2.9	1.8
— 120				120	94				95	1.2	4.4	1.3
— 150				150	124				125	1.3	5.2	2.2
— 180				180	154				154	1.5	6.3	3.4
— 210				210	184				184	1.6	6.8	6.0
— 240				240	214				212	2.0	9.4	5.8
— 270				270	244				244	2.1	10.9	6.6
— 300				300	274				274	2.3	12.2	8.5
F63 — SLSC12 — 90	12	15		90	64		14	30	64	1.0	3.4	1.5
— 120				120	94		13		94	1.2	4.7	1.2
— 150				150	124				124	1.3	5.2	2.4
— 180				180	154				154	1.5	6.5	3.3
— 210				210	184				184	1.7	7.7	4.6
— 240				240	214				212	2.0	9.6	5.5
— 270				270	244				244	2.2	11.8	5.4
F63 — SLSC16 — 90	16	21	2.5	90	64		17	32	62	1.1	3.9	0.6
— 120				120	94				92	1.4	5.8	0.8
— 150				150	124				122	1.5	6.9	1.5
— 180				180	154				152	1.9	8.8	1.9
— 210				210	184				182	2.0	9.9	3.0
— 240				240	214				212	2.3	11.8	3.7
— 270				270	244				242	2.2	13.7	4.6
F63 — SLSC20 — 90	20	26	3	90	64	52	21	40	62	1.1	4.2	0.5
— 120				120	94	53			92	1.4	6.2	0.8
— 150				150	124				122	1.6	7.6	1.3
— 180				180	154				152	2.0	9.6	1.8
— 210				210	184				182	2.3	11.6	2.3
— 240				240	214				212	2.6	13.7	3.0
— 270				270	244				242	2.4	16.3	3.4

Dimensions
F80PD
For Makino





F80PD-SLSC16- 75

SCALE MODEL → P.28

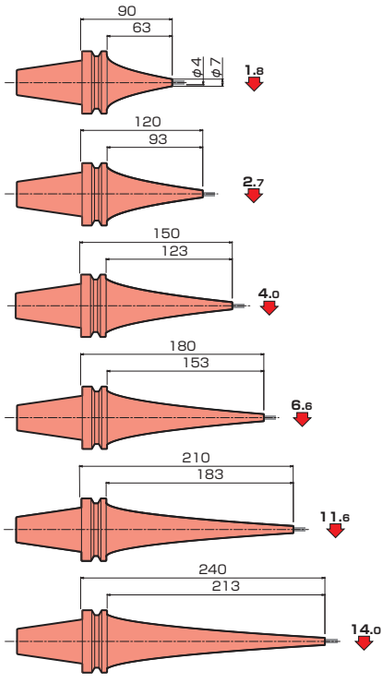
Code	φD	φC	Thickness	L	M	φC1	φD1	H	h	Kg	N	S
F80PD-SLSC12- 75	12	26	7	75	49	67	13	30	48	1.4	4.8	0.4
- 90				90	64				63	1.4	5.3	0.5
-120				120	94				93	1.9	8.5	0.5
-180				180	154				153	2.5	12.8	0.9
-240				240	214				213	2.9	15.7	1.8
F80PD-SLSC16- 75	16	32	8	75	49		17	32	48	1.5	5.4	0.3
- 90				90	64				63	1.6	6.7	0.3
-120				120	94				93	2.1	9.9	0.4
-180				180	154				153	2.7	14.1	0.8
-240				240	214				213	3.4	19.5	1.3
F80PD-SLSC20- 75	20	38	9	75	49		21	40	48	1.5	5.8	0.3
- 90				90	64				63	1.7	7.2	0.2
-120				120	94				93	2.1	10.5	0.4
-180				180	154				153	2.8	15.8	0.7
-240				240	214				213	3.7	22.1	1.1
F80PD-SLSC25- 75	25	45	10	75	49		26	42	48	1.6	6.6	0.2
- 90				90	64				63	1.9	8.6	0.2
-120				120	94				93	2.3	11.9	0.3
-180				180	154				153	3.1	18.6	0.6
-240				240	214				213	4.1	25.2	1.0

SCALE MODEL
BT40

Dimensions → P.9

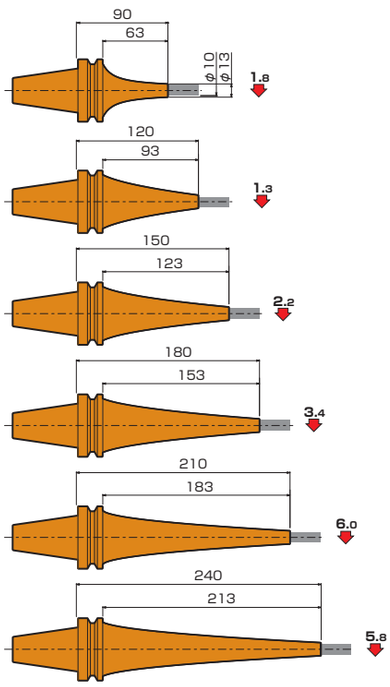
S Deflection value S (μm/kgf) :
at the 3D cutter projection.

Φ4



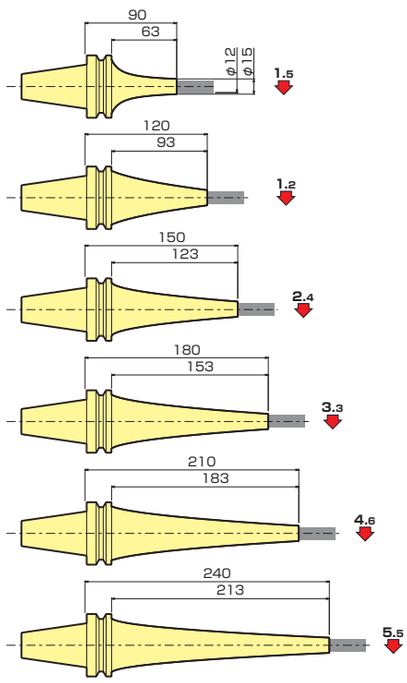
BT40-SLSC4- 90
BT40-SLSC4-120
BT40-SLSC4-150
BT40-SLSC4-180
BT40-SLSC4-210
BT40-SLSC4-240

Φ10



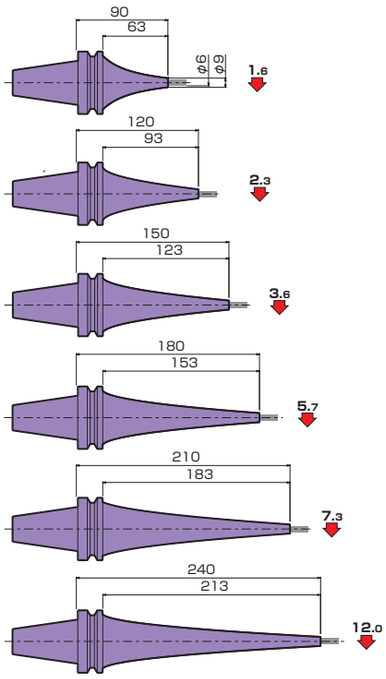
BT40-SLSC10- 90
BT40-SLSC10-120
BT40-SLSC10-150
BT40-SLSC10-180
BT40-SLSC10-210
BT40-SLSC10-240

Φ12



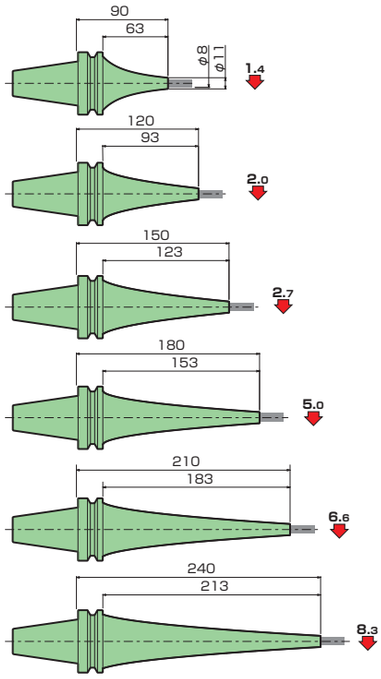
BT40-SLSC12- 90
BT40-SLSC12-120
BT40-SLSC12-150
BT40-SLSC12-180
BT40-SLSC12-210
BT40-SLSC12-240

φ6



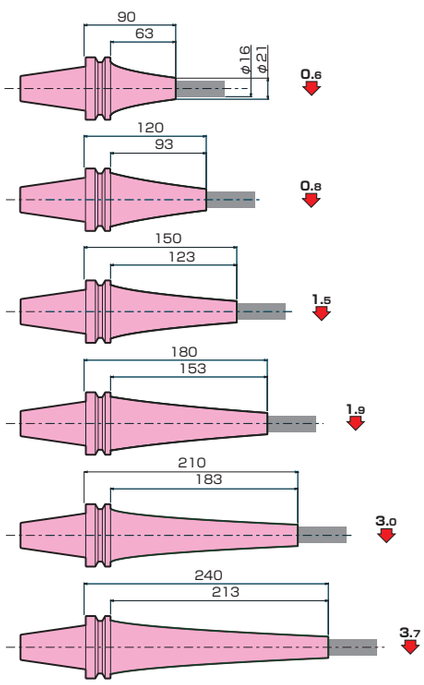
BT40-SLSC6- 90
BT40-SLSC6-120
BT40-SLSC6-150
BT40-SLSC6-180
BT40-SLSC6-210
BT40-SLSC6-240

φ8



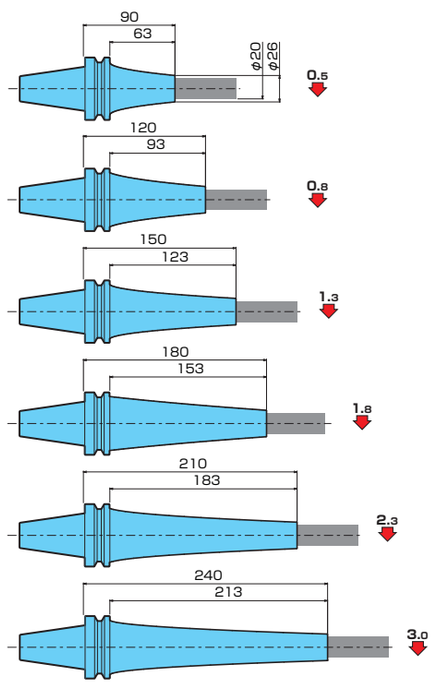
BT40-SLSC8- 90
BT40-SLSC8-120
BT40-SLSC8-150
BT40-SLSC8-180
BT40-SLSC8-210
BT40-SLSC8-240

φ16



BT40-SLSC16- 90
BT40-SLSC16-120
BT40-SLSC16-150
BT40-SLSC16-180
BT40-SLSC16-210
BT40-SLSC16-240

φ20



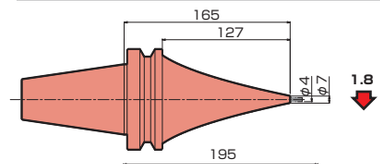
BT40-SLSC20- 90
BT40-SLSC20-120
BT40-SLSC20-150
BT40-SLSC20-180
BT40-SLSC20-210
BT40-SLSC20-240

SCALE MODEL
BT50

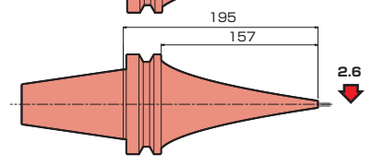
Dimensions → P.10

S Deflection value S (μm/kgf) :
at the 3D cutter projection.

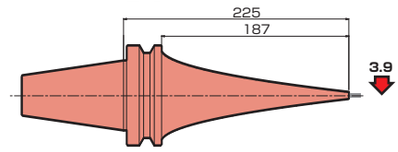
φ4



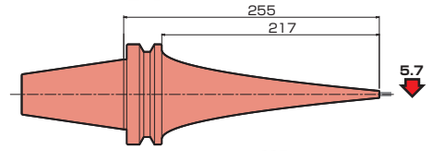
BT50-SLSC4-165



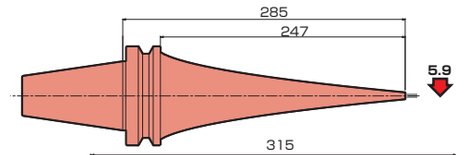
BT50-SLSC4-195



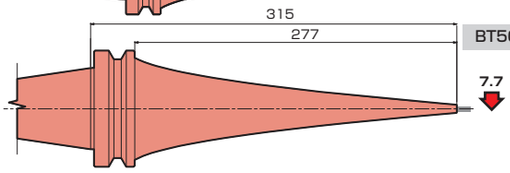
BT50-SLSC4-225



BT50-SLSC4-255

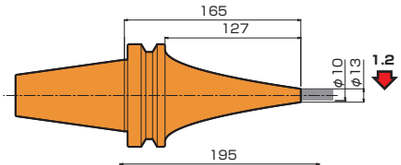


BT50-SLSC4-285

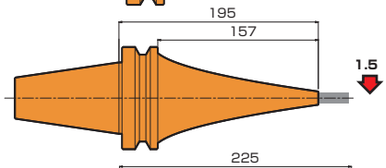


BT50-SLSC4-315

φ10



BT50-SLSC10-165



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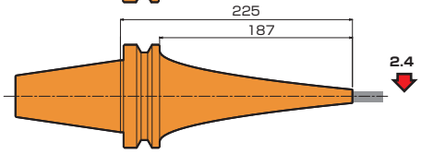

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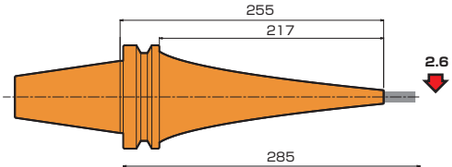

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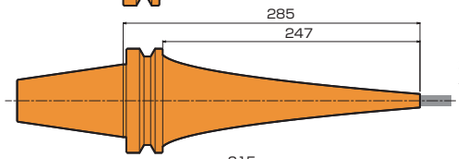
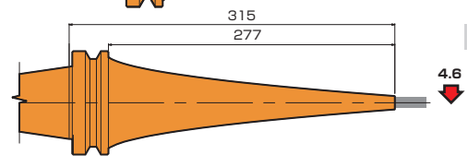
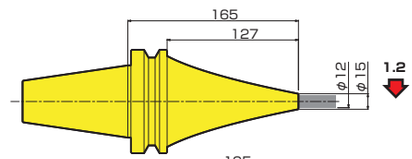


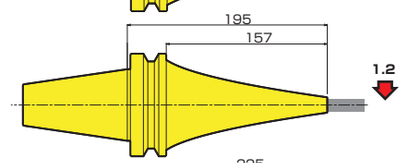
BT50-SLSC10-315



φ12



BT50-SLSC12-165



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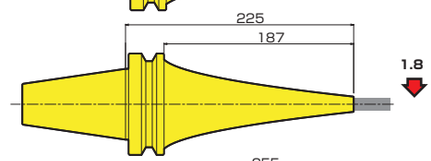

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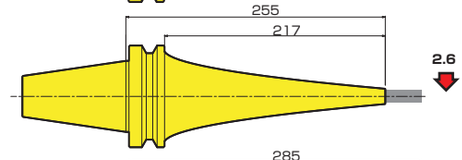

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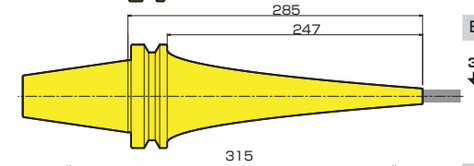

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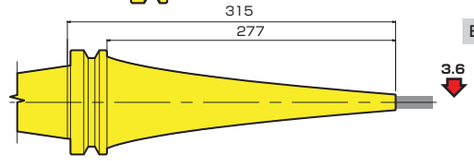
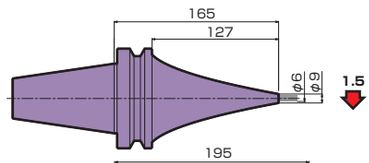
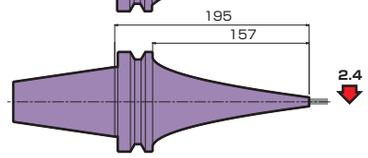


BT50-SLSC12-315

φ6



BT50-SLSC6-165



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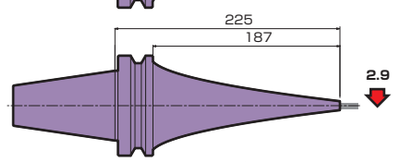

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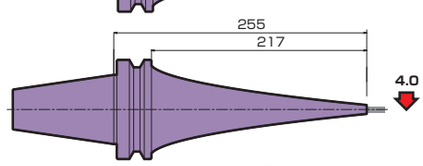
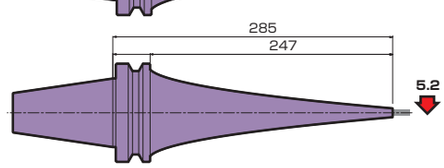
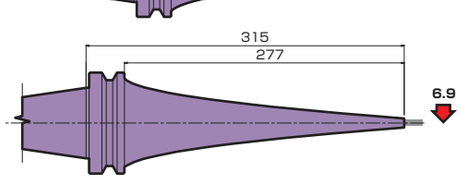


BT50-SLSC6-255

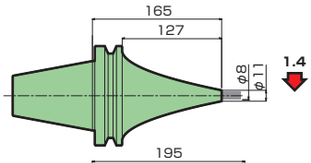


BT50 -SLSC6-285

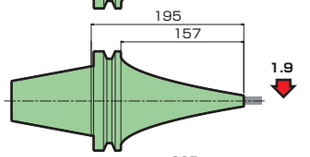


BT50 -SLSC6-315

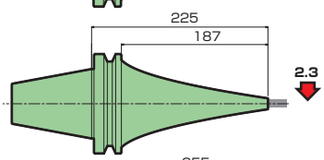
φ8



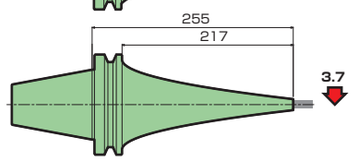
BT50-SLSC8-165



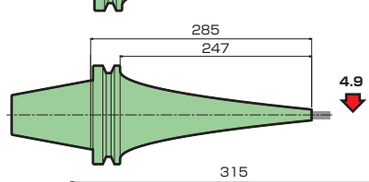
BT50-SLSC8-195



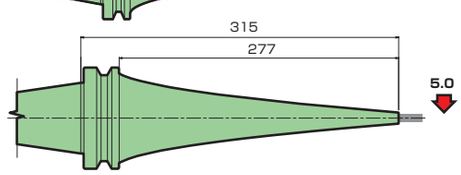
BT50-SLSC8-225



BT50-SLSC8-255

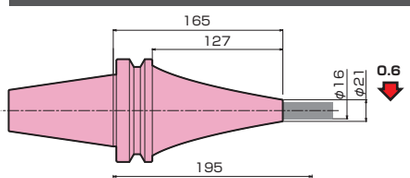


BT50-SLSC8-285

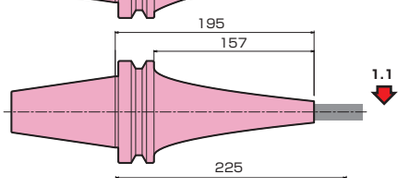


BT50-SLSC8-315

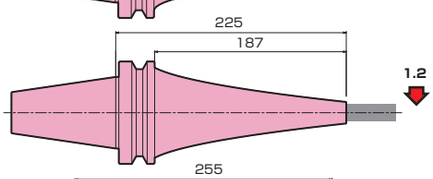
φ16



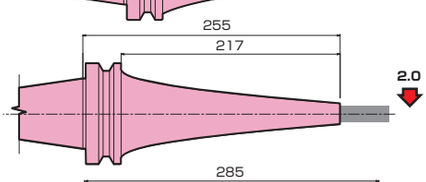
BT50-SLSC16-165



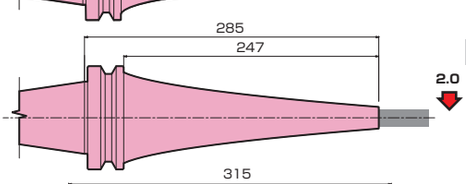
BT50-SLSC16-195



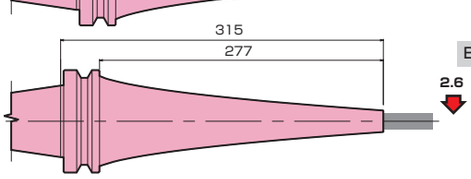
BT50-SLSC16-225



BT50-SLSC16-255

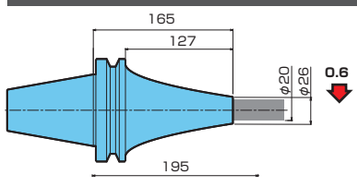


BT50-SLSC16-285

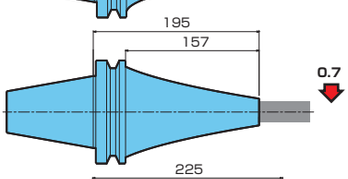


BT50-SLSC16-315

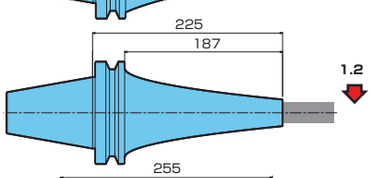
φ20



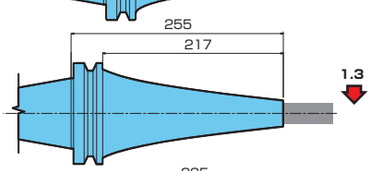
BT50-SLSC20-165



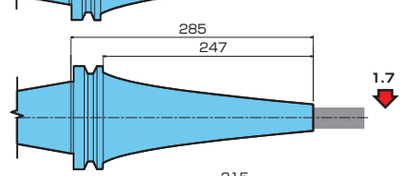
BT50-SLSC20-195



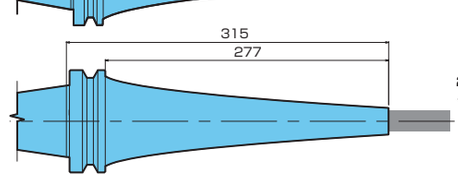
BT50-SLSC20-225



BT50-SLSC20-255



BT50-SLSC20-285



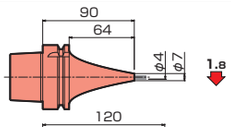
BT50-SLSC20-315

SCALE MODEL A63

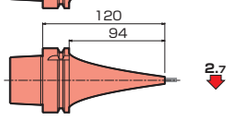
Dimensions → P.11

S Deflection value S (μm/kgf) : at the 3D cutter projection.

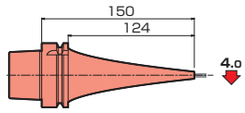
Φ4



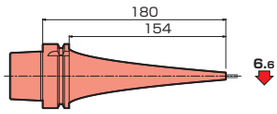
A63-SLSC4- 90



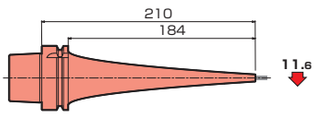
A63-SLSC4-120



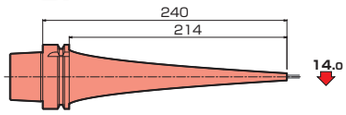
A63-SLSC4-150



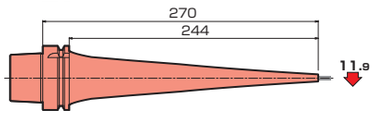
A63-SLSC4-180



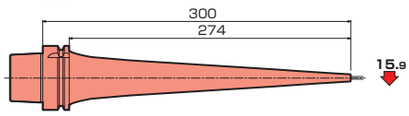
A63-SLSC4-210



A63-SLSC4-240

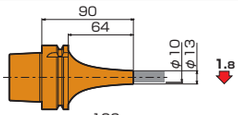


A63-SLSC4-270

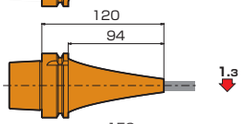


A63-SLSC4-300

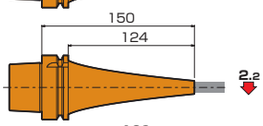
Φ10



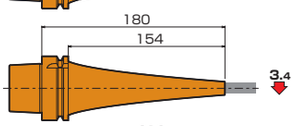
A63-SLSC10- 90



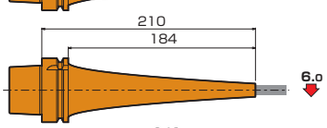
A63-SLSC10-120



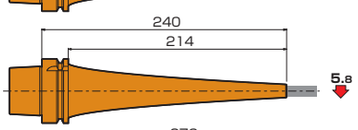
A63-SLSC10-150



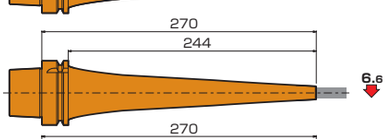
A63-SLSC10-180



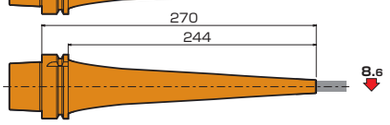
A63-SLSC10-210



A63-SLSC10-240

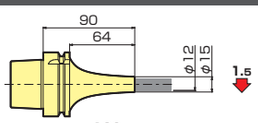


A63-SLSC10-270

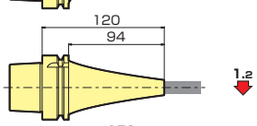


A63-SLSC10-300

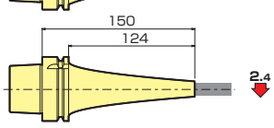
Φ12



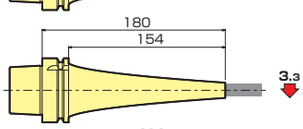
A63-SLSC12- 90



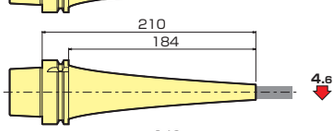
A63-SLSC12-120



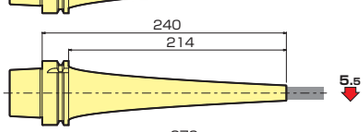
A63-SLSC12-150



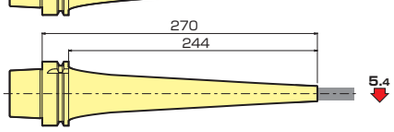
A63-SLSC12-180



A63-SLSC12-210

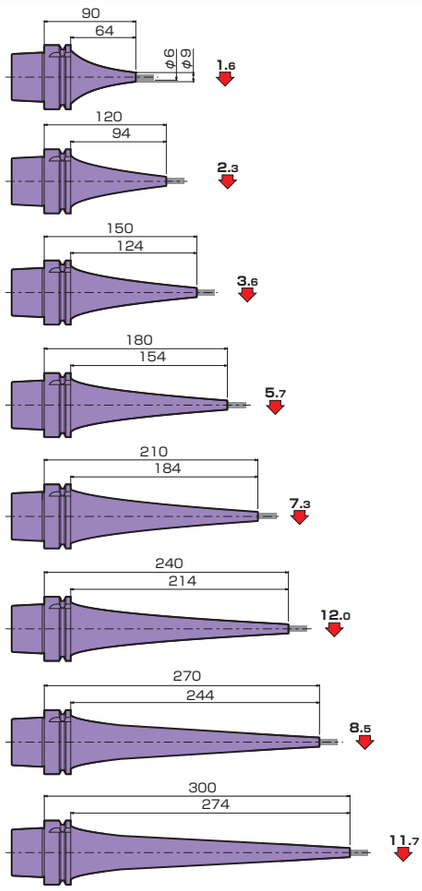


A63-SLSC12-240



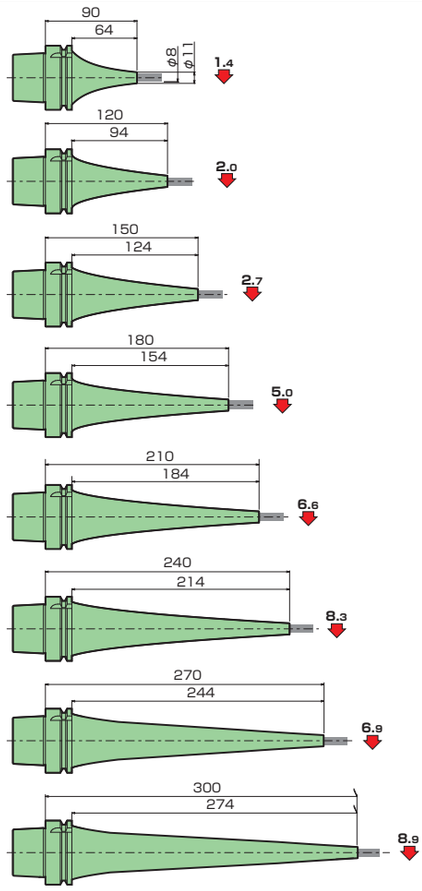
A63-SLSC12-270

Φ6



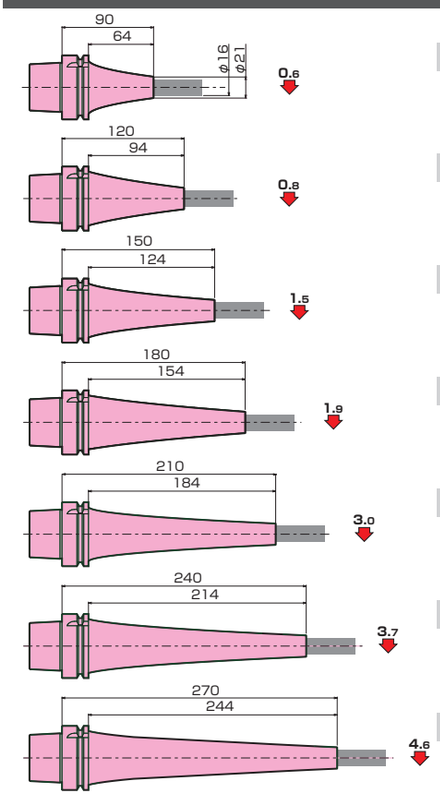
A63-SLSC6- 90
A63-SLSC6-120
A63-SLSC6-150
A63-SLSC6-180
A63-SLSC6-210
A63-SLSC6-240
A63-SLSC6-270
A63-SLSC6-300

Φ8



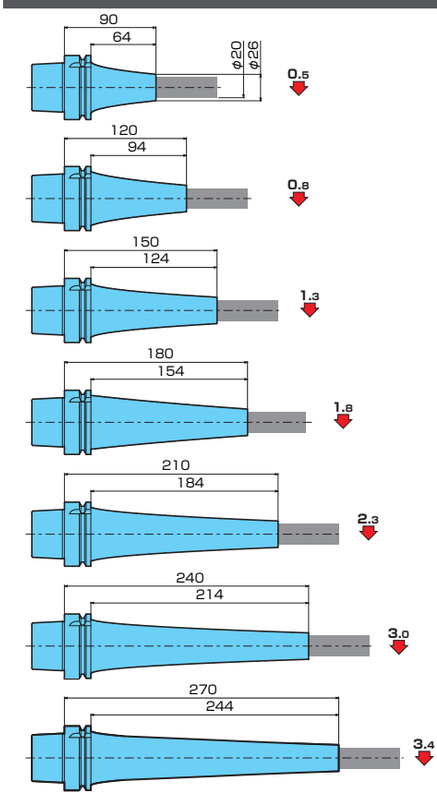
A63-SLSC8- 90
A63-SLSC8-120
A63-SLSC8-150
A63-SLSC8-180
A63-SLSC8-210
A63-SLSC8-240
A63-SLSC8-270
A63-SLSC8-300

Φ16



A63-SLSC16- 90
A63-SLSC16-120
A63-SLSC16-150
A63-SLSC16-180
A63-SLSC16-210
A63-SLSC16-240
A63-SLSC16-270

Φ20



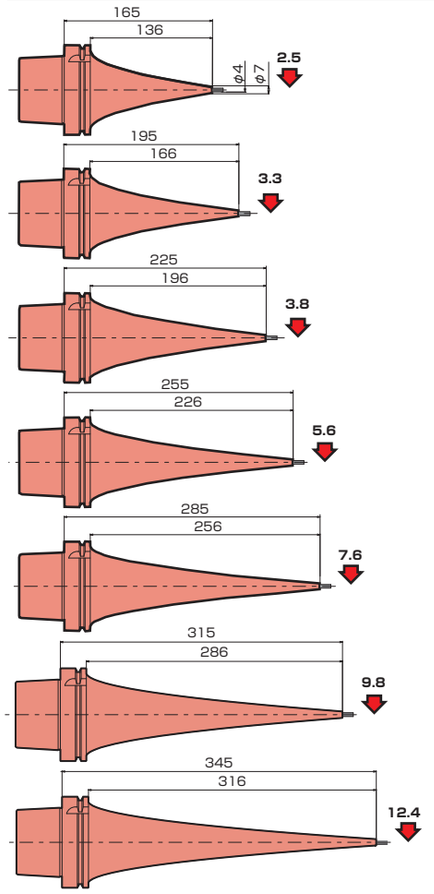
A63-SLSC20- 90
A63-SLSC20-120
A63-SLSC20-150
A63-SLSC20-180
A63-SLSC20-210
A63-SLSC20-240
A63-SLSC20-270

SCALE MODEL A100

Dimensions → P.12

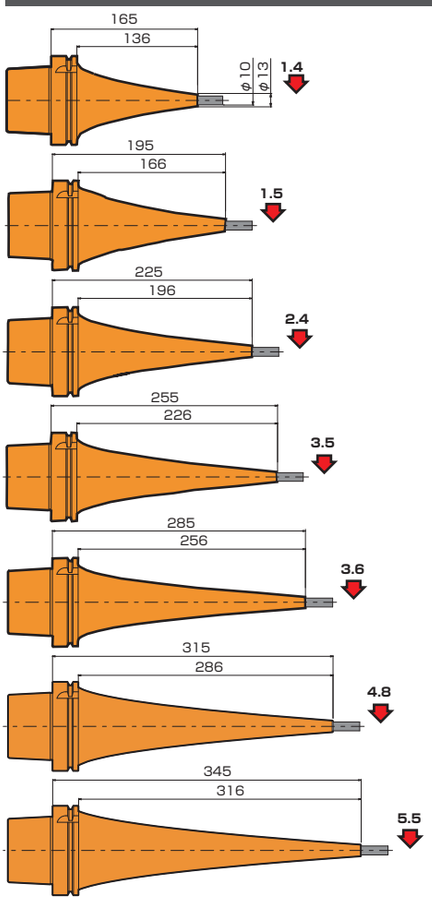
S Deflection value S (μm/kgf) : at the 3D cutter projection.

φ4



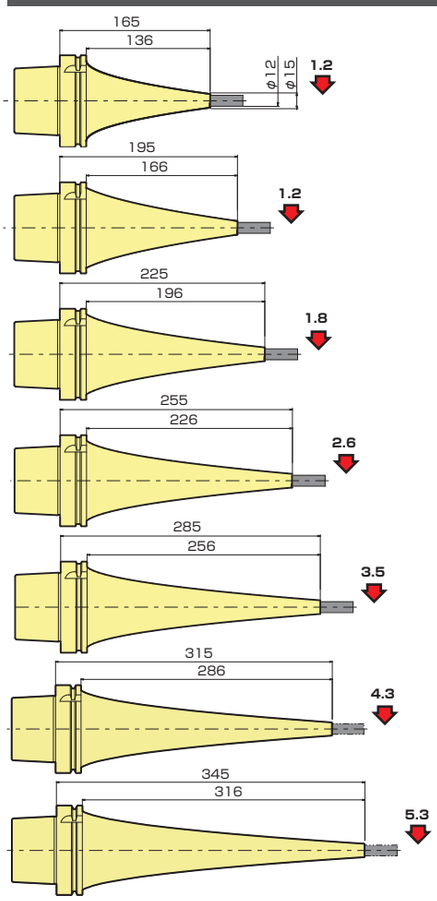
A100-SLSC4-165
A100-SLSC4-195
A100-SLSC4-225
A100-SLSC4-255
A100-SLSC4-285
A100-SLSC4-315
A100-SLSC4-345

φ10



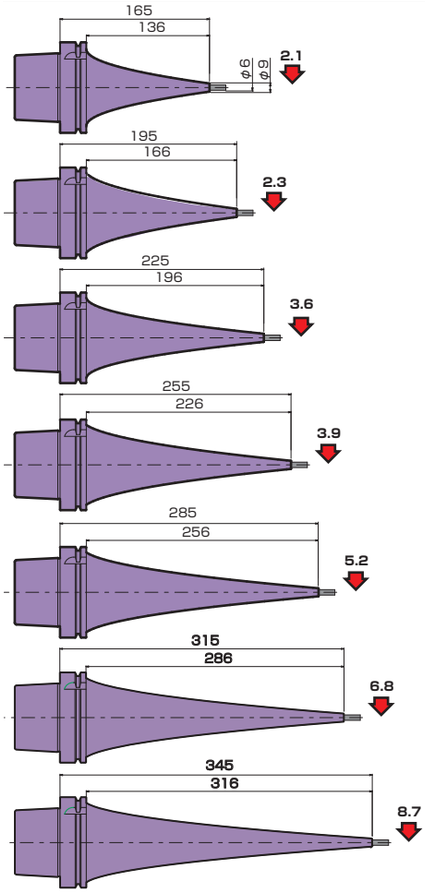
A100-SLSC10-165
A100-SLSC10-195
A100-SLSC10-225
A100-SLSC10-255
A100-SLSC10-285
A100-SLSC10-315
A100-SLSC10-345

φ12



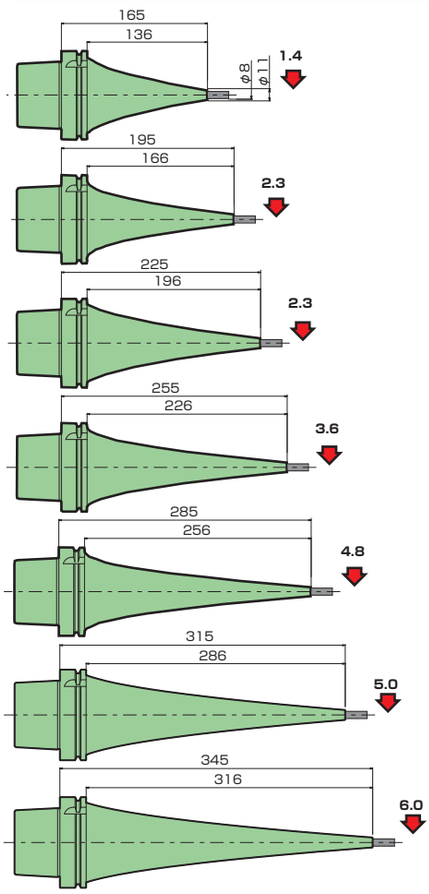
A100-SLSC12-165
A100-SLSC12-195
A100-SLSC12-225
A100-SLSC12-255
A100-SLSC12-285
A100-SLSC12-315
A100-SLSC12-345

φ6



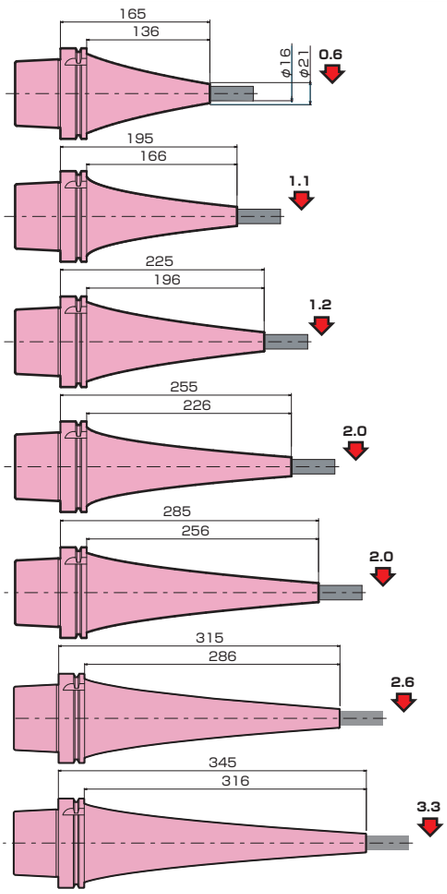
A100-SLSC6-165
A100-SLSC6-195
A100-SLSC6-225
A100-SLSC6-255
A100-SLSC6-285
A100-SLSC6-315
A100-SLSC6-345

φ8



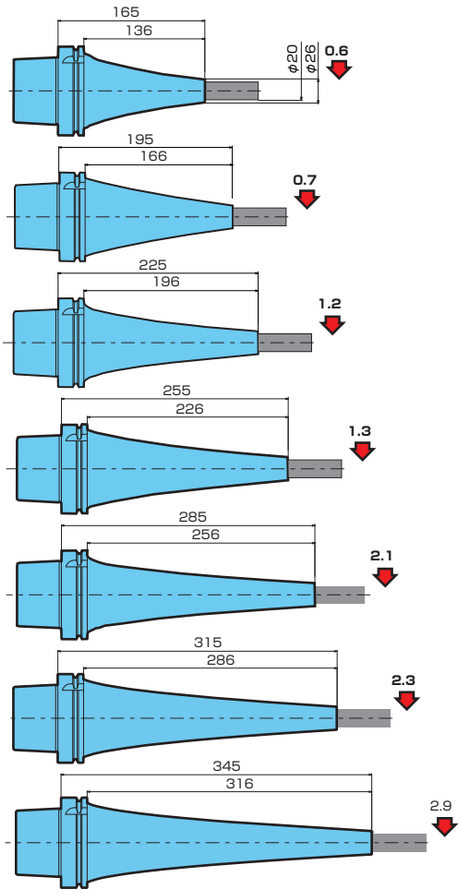
A100-SLSC8-165
A100-SLSC8-195
A100-SLSC8-225
A100-SLSC6-255
A100-SLSC8-285
A100-SLSC6-315
A100-SLSC8-345

φ16



A100-SLSC16-165
A100-SLSC16-195
A100-SLSC16-225
A100-SLSC16-255
A100-SLSC16-285
A100-SLSC16-315
A100-SLSC16-345

φ20



A100-SLSC20-165
A100-SLSC20-195
A100-SLSC20-225
A100-SLSC20-255
A100-SLSC20-285
A100-SLSC20-315
A100-SLSC20-345

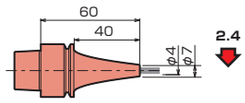
SCALE MODEL

E32 E40 E50

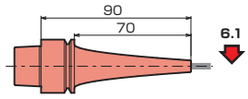
Dimensions → P.13

S Deflection value S (μm/kgf) :
at the 3D cutter projection.

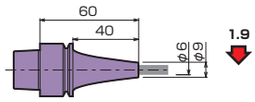
E32(φ4～φ10)



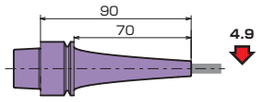
E32-SLSC4-60



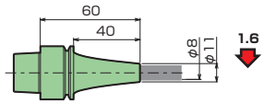
E32-SLSC4-90



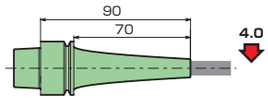
E32-SLSC6-60



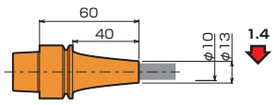
E32-SLSC6-90



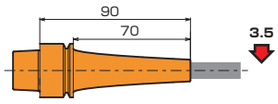
E32-SLSC8-60



E32-SLSC8-90

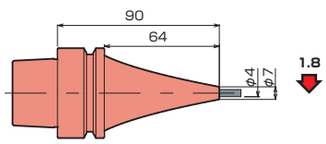


E32-SLSC10-60

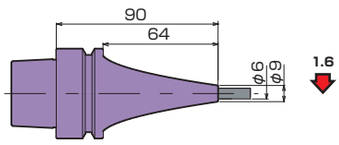


E32-SLSC10-90

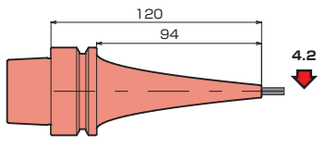
E50 (φ4 , φ6)



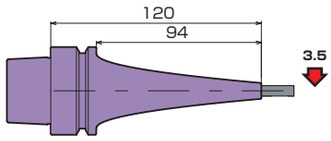
E50-SLSC4-90



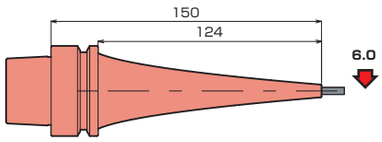
E50-SLSC6-90



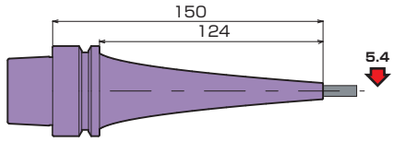
E50-SLSC4-120



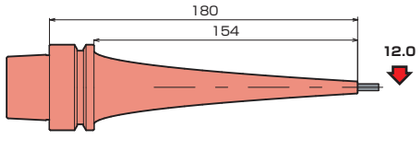
E50-SLSC6-120



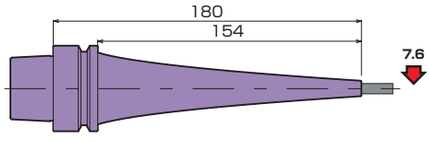
E50-SLSC4-150



E50-SLSC6-150

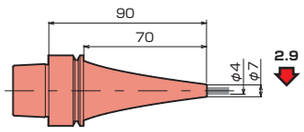


E50-SLSC4-180

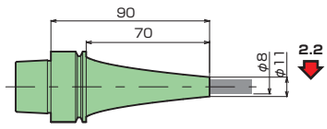


E50-SLSC6-180

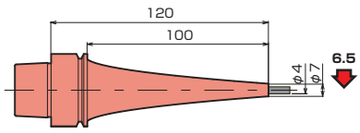
E40(φ4～φ10)



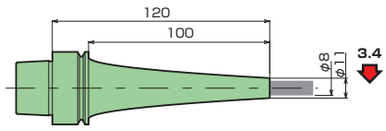
E40-SLSC4-90



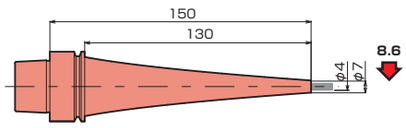
E40-SLSC8-90



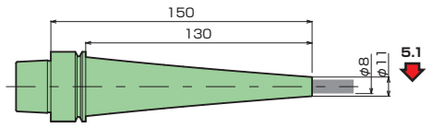
E40-SLSC4-120



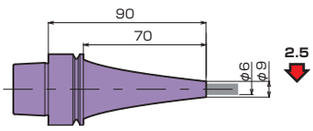
E40-SLSC8-120



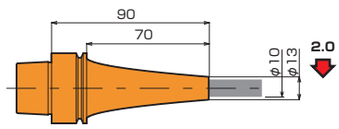
E40-SLSC4-150



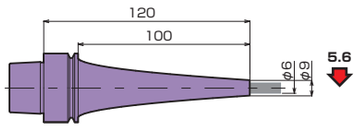
E40-SLSC8-150



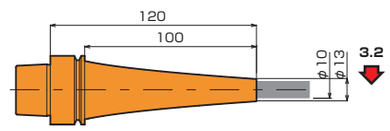
E40-SLSC6-90



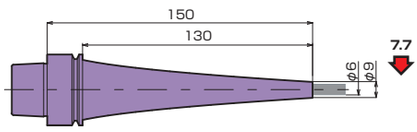
E40-SLSC10-90



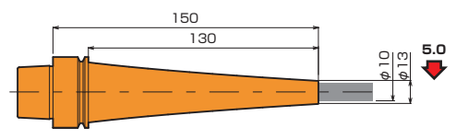
E40-SLSC6-120



E40-SLSC10-120

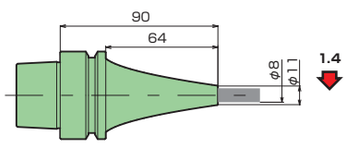


E40-SLSC6-150

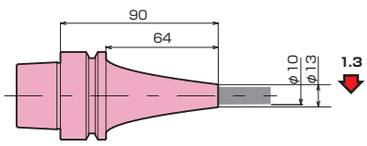


E40-SLSC10-150

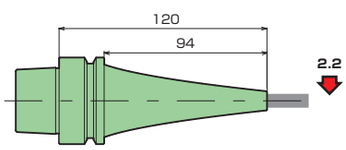
E50 (φ8 , φ10)



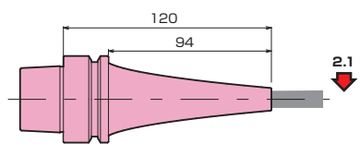
E50-SLSC8-90



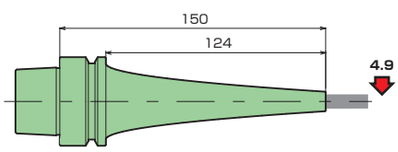
E50-SLSC10-90



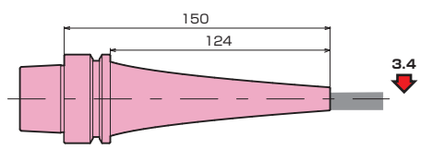
E50-SLSC8-120



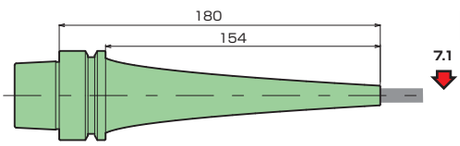
E50-SLSC10-120



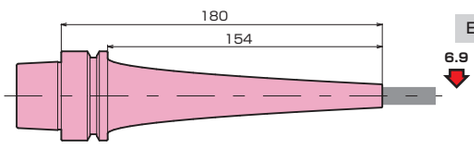
E50-SLSC8-150



E50-SLSC10-150



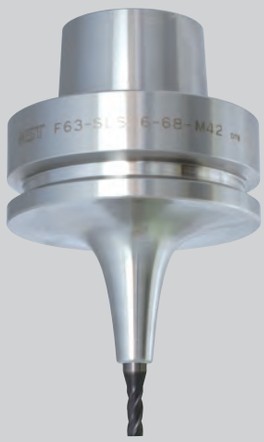
E50-SLSC8-180



E50-SLSC10-180

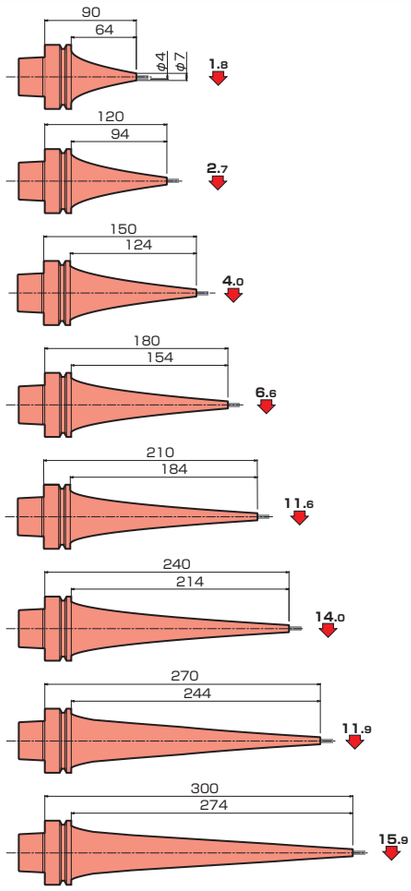
SCALE MODEL
F63

Dimensions → P.14



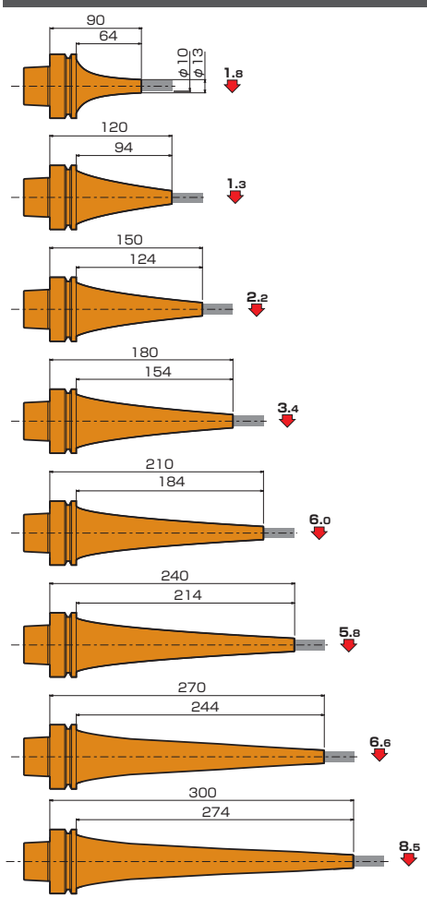
S Deflection value S (μm/kgf) :
at the 3D cutter projection.

Φ4



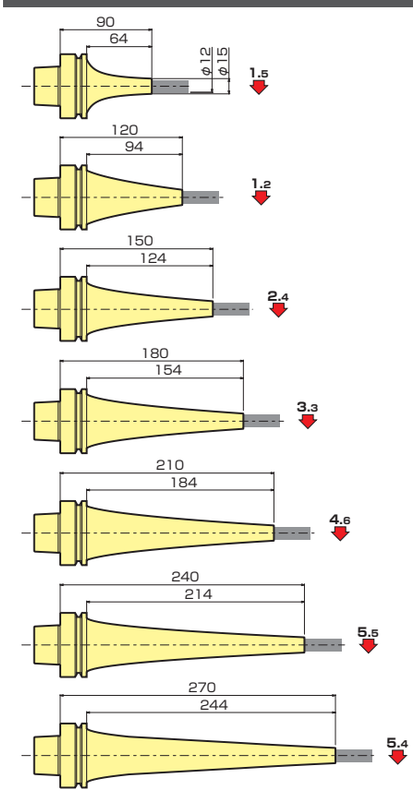
F63-SLSC4- 90
F63-SLSC4-120
F63-SLSC4-150
F63-SLSC4-180
F63-SLSC4-210
F63-SLSC4-240
F63-SLSC4-270
F63-SLSC4-300

Φ10



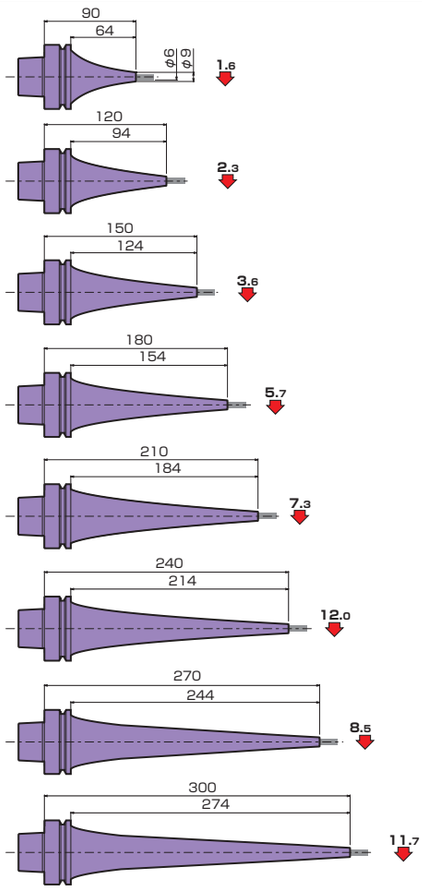
F63-SLSC10- 90
F63-SLSC10-120
F63-SLSC10-150
F63-SLSC10-180
F63-SLSC10-210
F63-SLSC10-240
F63-SLSC10-270
F63-SLSC10-300

Φ12



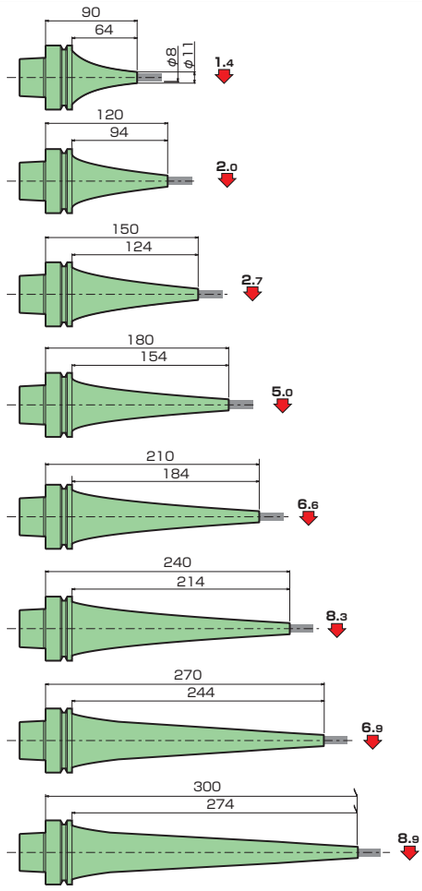
F63-SLSC12- 90
F63-SLSC12-120
F63-SLSC12-150
F63-SLSC12-180
F63-SLSC12-210
F63-SLSC12-240
F63-SLSC12-270

Φ6



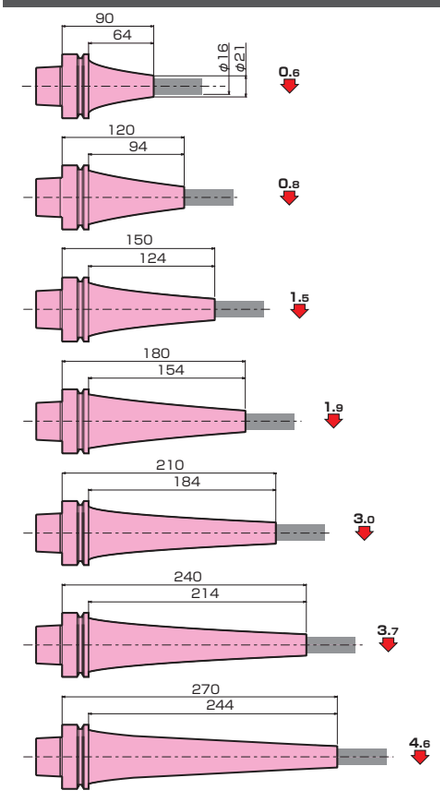
F63-SLSC6- 90
F63-SLSC6-120
F63-SLSC6-150
F63-SLSC6-180
F63-SLSC6-210
F63-SLSC6-240
F63-SLSC6-270
F63-SLSC6-300

Φ8



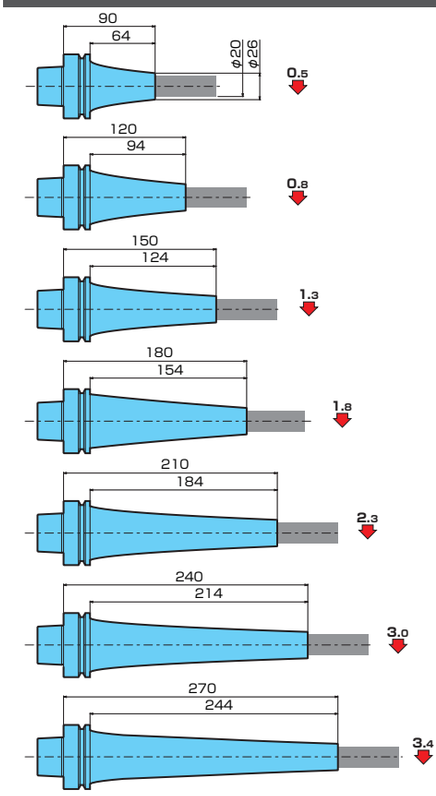
F63-SLSC8- 90
F63-SLSC8-120
F63-SLSC8-150
F63-SLSC8-180
F63-SLSC8-210
F63-SLSC8-240
F63-SLSC8-270
F63-SLSC8-300

Φ16



F63-SLSC16- 90
F63-SLSC16-120
F63-SLSC16-150
F63-SLSC16-180
F63-SLSC16-210
F63-SLSC16-240
F63-SLSC16-270

Φ20



F63-SLSC20- 90
F63-SLSC20-120
F63-SLSC20-150
F63-SLSC20-180
F63-SLSC20-210
F63-SLSC20-240
F63-SLSC20-270

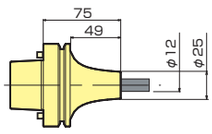
SCALE MODEL
F80PD
For Makino

PIN

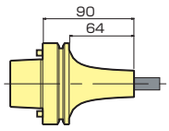
Dimensions → P.15

S Deflection value S (μm/kgf) : at the 3D cutter projection.

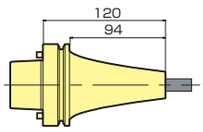
Φ12



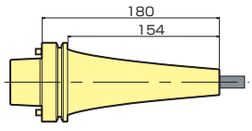
0.4 — F80PD-SLSC12- 75



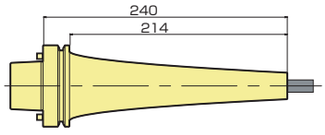
0.5 — F80PD-SLSC12- 90



0.5 — F80PD-SLSC12-120

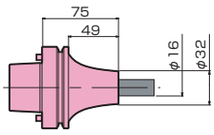


0.9 — F80PD-SLSC12-180

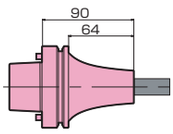


1.8 — F80PD-SLSC12-240

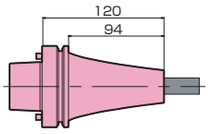
Φ16



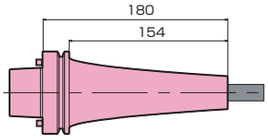
0.3 — F80PD-SLSC16- 75



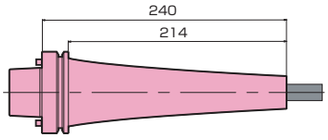
0.3 — F80PD-SLSC16- 90



0.4 — F80PD-SLSC16-120

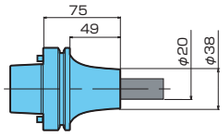


0.8 — F80PD-SLSC16-180

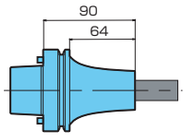


1.3 — F80PD-SLSC16-240

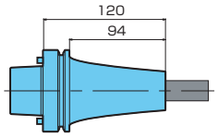
Φ20



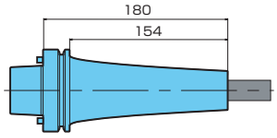
0.3 — F80PD-SLSC20- 75



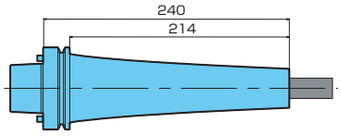
0.2 — F80PD-SLSC20- 90



0.4 — F80PD-SLSC20-120

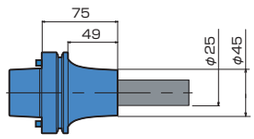


0.7 — F80PD-SLSC20-180

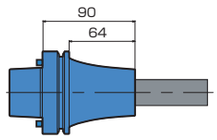


1.1 — F80PD-SLSC20-240

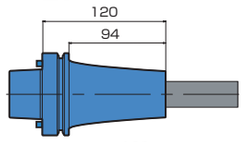
Φ25



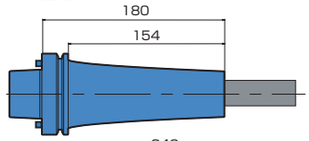
0.2 — F80PD-SLSC25- 75



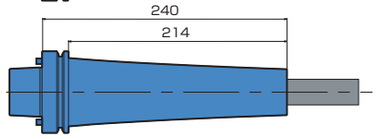
0.2 — F80PD-SLSC25- 90



0.3 — F80PD-SLSC25-120



0.6 — F80PD-SLSC25-180



1.0 — F80PD-SLSC25-240

MST corporation
日本恩司迪公司
U.S.Patent No.5,311,654 ; U.S.Patent No.5,582,494

1738 Kita-tahara, ikoma, Nara 630-0142 Japan
TEL : +81 (0)743 78 1931
FAX : +81 (0)743 78 3854
http://www.mst-corp.co.jp