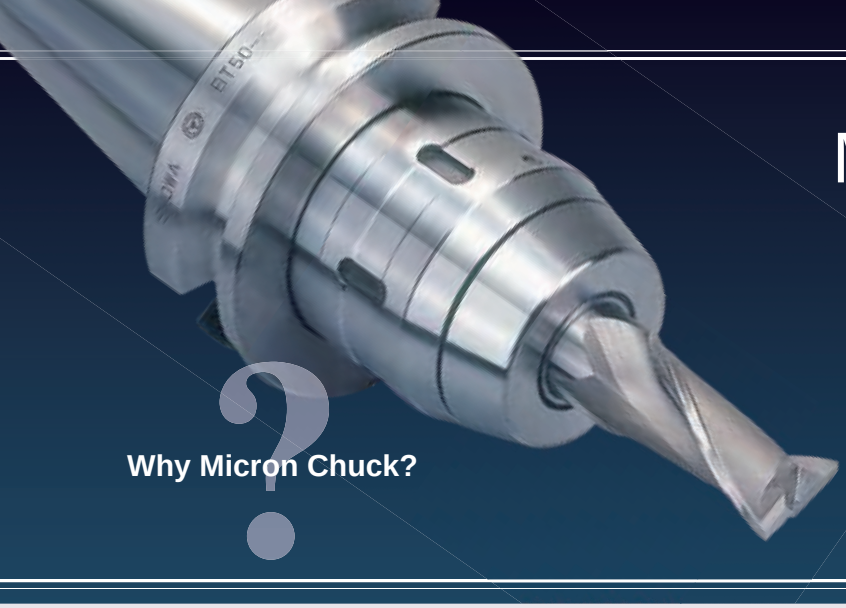


MICRON CHUCK

Why Micron Chuck?

Outstanding Clamping power.
Minimal runout.

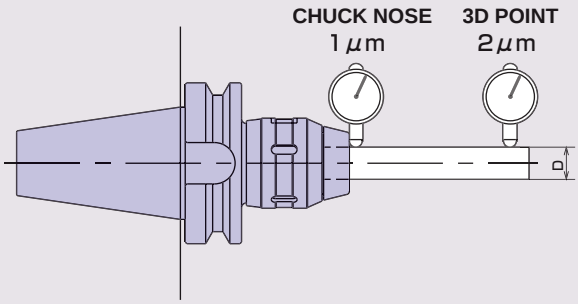
HIGH PRECISION MILLING CHUCK

POINT 1

Only Micron Chuck can guarantee such runouts as 0.001mm at chuck nose and 0.002mm at 3xD.

Micron Chuck was developed utilizing Showa original direct clamping mechanism and assembling technology acquired in manufacturing high quality machine spindles for a long experience.

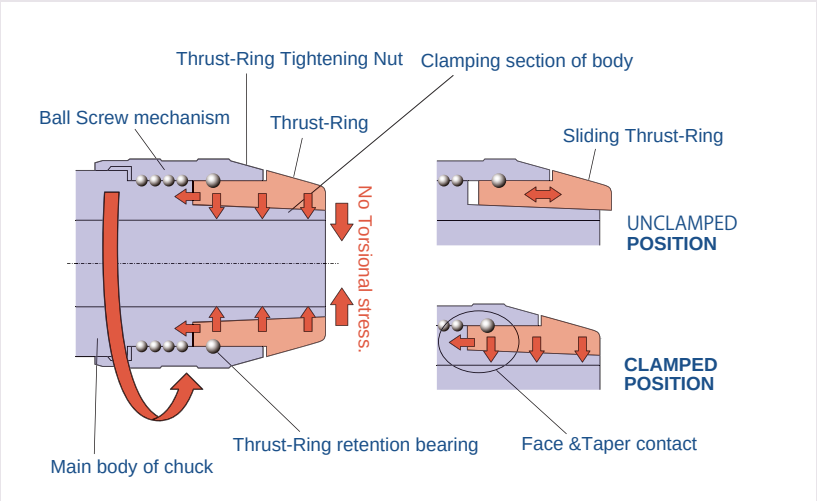
● How to measure runout



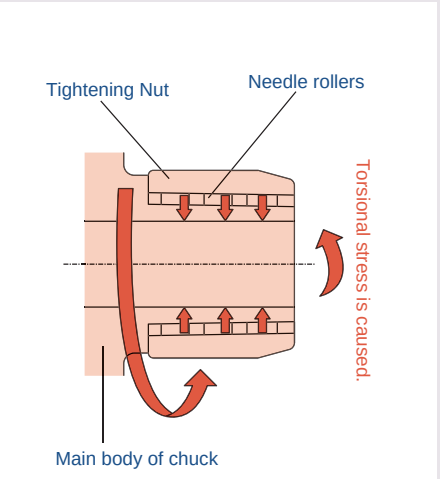
GRADE	NOSE	3D POINT
AA	1	2
A	3	5

Tool will be supplied with an inspection sheet.

● Structure of Micron Chuck



● Structure of other makers' chuck



POINT 2

Clamping power as high as other milling chucks.

High accuracy Micron Chuck has a high clamping power,too. The clamping power of ø32 ID Micron chuck is 2,450Nm, and ø6 ID 49Nm - about 2 times bigger than hydraulic chucks.

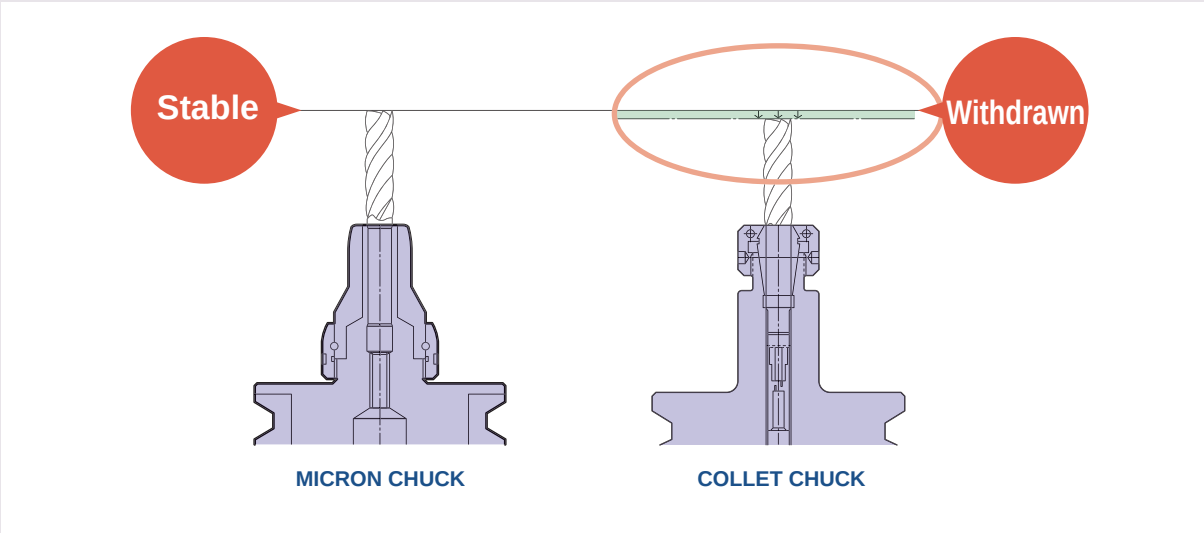
Standard type Micron Chuck

2,450N•m

POINT 3

The cutter is not axially moved by clamping

The cutter is not withdrawn by clamping like collet chucks, due to its unique mechanism. It is required in mass manufacturing line to preset cutter length to close tolerance. In case of collet chuck, the axial cutter projection is shortened by clamping. The back end of the cutter is pressed to the back-up screw at that time, which may cause bending and breakage of small dimeter cutters.



POINT 4

Highly balanced and sealed chuck.

Maximum speed :
20,000min^{-1} (Standard HPC-H chuck)
30,000min^{-1} ("G" type HPC-H chuck)

		#30,#40 HSK50, 63	#50 HSK100
Standard	A	10,000min^{-1}	8,000min^{-1}
	AA		
H	A	20,000min^{-1}	12,000min^{-1}
	AA		
	G	30,000min^{-1}	–
M	–	15,000min^{-1}	10,000min^{-1}

"G" type HPC-H chuck

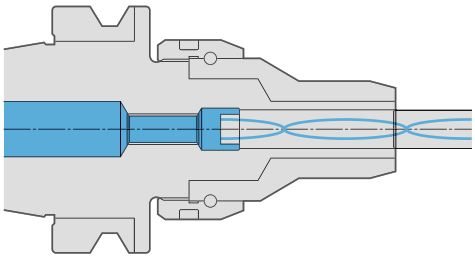
30,000min^{-1}

POINT 5

Thru-the-tool coolant type.

Thru-the-tool coolant type Micron Chucks available.
Please specify it at the time of ordering.

■ Thru-the-tool application



POINT 6

Mechanical chuck, Heater is not required.

Shrink-fit holders have restrictions of cutter material. But, Micron Chucks are applicable to any material of cutters, keeping high accuracy for a long period of time.

"M" type
Micron Chuck

POINT 7

Wide range of IDs are available.

Standard type, "H" type and "M" type Micron Chucks covers from ø3mm to ø50mm ID.

POINT 8

Wide application range.

You can extend application range of Micron Chucks by using straight collets. But, direct chucking is recommended to obtain the highest performance.

COMPARISON OF RUNOUT & SURFACE FINISH

	MICRON CHUCK	HYDRAULIC CHUCK	COLLET CHUCK	REMARKS
Runout	◎	△	△	Micron chuck : Measured runout. Others : From catalog.
	AA grade : 1μm at chuck nose, 2μm at 3×D guranteed.	3μm at chuck nose, 5μm at 3×D.	N made AA grade collet : 5μm at 4×D (There is no guarantee at the time of attaching the holder)	
Clamping Power	◎	△	◎	Measure value [ø6 49N•m] is the maximum of HPC06H long type
	ϕ6 49N·m ϕ32 2450N·m	26.5N·m (N made ø6 chuck)	49N·m Showa ø6 collet (10 ID max. holder)	
Maintenance	○	×	△	
	Periodical greasing since a mechanical chuck.	Periodical check of oil leak required.	Chips must be removed from collet.	
Presetting	◎	◎	×	
	Easy presetting, since cutter is stable.	Easy presetting, since cutter is stable.	Cutter is axially moved by chucking.	

DIMENSIONS BT›P.37-44 | SK›P.100-102 | HSK›P.109-116

Clamping power & Tightening Force

Standard

Chuck size	Clamping Power（MIN） (N・m)	Tightening Force (N・m)	Loosening Force (N・m)
HPC16	780	62	40
HPC20	1180		
HPC25	1760		
HPC32	2450		
HPC42	3920		

H-series

Chuck size	Clamping Power（MIN） (N・m)	Tightening Force (N・m)	Loosening Force (N・m)
HPC03H	10（10）	67	67
HPC04H	15（15）		
HPC06H	30（20）		
HPC08H	40（24）		
HPC10H	60（35）		
HPC12H	70（41）		
HPC14H	80		
HPC16H	90		

※Clamping power of short type chucks (L=75mm max) is shown in (　).

M-series

Chuck size	Clamping Power（MIN） (N・m)	Tightening Force (N・m)	Loosening Force (N・m)
HPC03M	5	57	57
HPC04M	7		
HPC06M	20		
HPC08M	26		
HPC10M	33		
HPC12M	46		

NEW

N-series

Chuck size	Clamping Power（MIN） (N・m)	Tightening Force (N・m)	Loosening Force (N・m)
HPC03N	2	50	50
HPC04N	4		
HPC06N	20		
HPC08N	26		
HPC10N	33		
HPC12N	46		

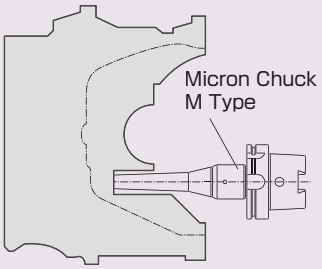
Application examples

1

Workplace	Cylinder Head Valve Guide Hole (FCD)
Cutting tool	Carbide Reamer 6mm×135L
Conventional Chuck	Competitor's Collet Chuck
SHOWA Chuck	SHOWA Micron Chuck HSKA63-HPC10H-105A
Test result	①Though conventional collet chuck required 30min to achive 10micron runout. SHOWA Micron chuck was able to achieve 3 - 5micron at 8×D with just one clamping. ②As a result, a longer tool life is realized from 50 - 100 holes to 1600 holes.

2

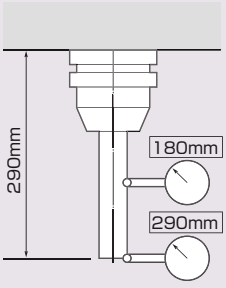
Workplace	Cylinder Block Oil Jet Hole (FC230)
Cutting tool	Carbide Reamer 9mm×180L
Conventional Chuck	Hydraulic Chuck+Straight shank shrink fit extension
SHOWA Chuck	SHOWA Micron Chuck HSKA63-HPC10M-254
Test result	Increased cutting tool life from 400 to 1000 holes, thereby reducing cutting tool costs and tool changing costs



3

Workplace	Hydraulic Parts Cover（ADC12）
Cutting tool	Carbide Step Reamer 20mm×200L
Conventional Chuck	Competitor's Milling Chuck
SHOWA Chuck	SHOWA Micron Chuck BT40-HPC25-105A
Test result	①Runout Comparison on the M/C ②No more chattering

Measuring Position	SHOWA	Competitor
180mm	0.005	0.015
290mm	0.017	0.03



4

Workplace	Cylinder Head Cubing (ADC)
Cutting tool	Diamond Reamer
Conventional Chuck	Competitor'S Hydraulic Chuck
SHOWA Chuck	SHOWA Micron Chuck HSKA63-HPC25-115AA
Test result	Hydraulic chuck produced oval holes.Micron chuck produced perfect circular holes.