

# 01

## Servo Table Up Broaching Machines

Servo Table Up Broaching Machines apply cutting-edge broaching technology for advanced precision, longer tool life, and better power efficiency. The working height is the same as most of the devices such as lathes, milling machines, etc., making it very easy to integrate automation



# 03

## CNC Helical Broaching Machine

Axisco's CNC helical broaching machine is built to make any internal helical angle precisely and efficiently. With this machine, you don't need high technical skills to make a complex helical shape with high accuracy and a good surface finish



# 07

## Hydraulic Internal Broaching Machine

The most common broaching machines for making internal teeth and spline fast and easy



# 09

## Hydraulic Surface Broaching Machine

A surface broaching machine is used for remove material from the surface of the workpiece, creating a precise shape or contour with a high degree of accuracy and precision



# 11

## Applications & Automation

Complete broaching solutions including machines, tools, fixtures, and automation



# 13

## CNC Broach Tool Sharpening Machine

CNC broach sharpening machines make the process of sharpening broaches more precise and easier. The grinding wear is relatively small which makes tool life longer



# 17

## Samples

Let's see the broaching samples from aerospace, automobile, gear, bicycle, hand tools, locks, valve parts, electronic parts, and many industries



# 15

## Conventional Broach Tool Sharpening Machine

Sharpen broach edge with different cutting angles and tooth pitches. Users can learn how to operate the machine quickly for its quick and easy operation settings



# Servo Broaching Machine Series

## Cutting-edge Broaching Technology

Axisco developed a variety of servo table-up broaching solutions, including CHU series for Internal linear broaching, CHX series for helical broaching, and CHH series for hard broaching. The turnkey solutions include the machines, the broach tools, the fixtures, and the automation

## Go Green with Axisco

A broaching machine with a servo system is more precise and environmentally friendly, with lower noise and energy consumption than a hydraulic broaching machine. The difference in energy consumption can be up to 40%

CHU  
CHX  
CHH

**Axisco**

Help customers succeed  
Sustainable coexistence with the Earth



## Servo Table Up Broaching Machine



### Highlights

- ✓ Driven by the servo motor and ball screw, the broaching process is consistent with low vibration. It helps increase tool life by up to 20 %
- ✓ Compare with the traditional hydraulic machines, the electrical mechanical design saves up to 40% on electricity.
- ✓ The HMI makes it easy to operate and diagnose the machine.
- ✓ Adjust the broaching speed and stroke through HMI.
- ✓ Low working height. No need for digging pits.
- ✓ The broach retriever holds the broach to reduce vibration during broaching.
- ✓ CE-certified safety design with easy maintenance.

### Media



Servo table-up broaching machines apply the cutting-edge broaching technology for advanced precision, longer tool life, and better power efficiency. The working height is the same as most of the devices such as lathes, milling machines, etc. It is very easy to integrate automation



Broaching Force: 10 - 40 Ton  
Broaching Stroke: 1500 - 3000 mm



CHX-1015

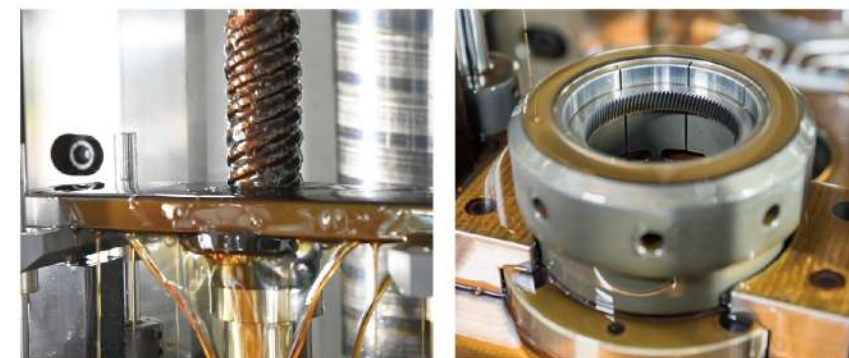
## CNC HELICAL BROACHING MACHINE

### Highlights



### Media

Axisco's CNC helical broaching machine is built to make any internal helical angle precisely and efficiently. With this machine, you don't need high technical skills to make a complex helical shape with high accuracy and a good surface finish.



- ✓ The broach rotates while the table goes up.
- ✓ The helical angle is controlled by CNC.
- ✓ Equip servo motor and ball screw, consistent speed, low vibration, increase tool life up to 20%.
- ✓ Compare with traditional hydraulic machine, the electrical mechanical design saves up to 40% electricity.
- ✓ The HMI makes it easy to operate and diagnose the machine.
- ✓ Adjust the broaching speed and stroke through HMI.
- ✓ Low working height. No need for digging pits.
- ✓ The broach retriever holds the broach to reduce vibration during broaching.





#### Features

- ✓ The ultimate broaching solution for heat-treated splines
- ✓ The table moves upward to finish all internal teeth in a blink
- ✓ High rigidity structure along with high strength SKF roller screw
- ✓ FANUC CNC system
- ✓ Workpiece hardness up to 50 - 62 HRC can be machined
- ✓ Hard broaching speed 40 - 60 m/min
- ✓ Soft broaching speed 1 - 10 m/min



#### Smart Interface

- ✓ Visual interface for easy interpretation and operation
- ✓ Broaching speed, machining stroke, and various functions can be set through the human-machine interface

## CNC Hard Broaching Machine

# Hydraulic Broaching Machine Series

## The classic choice for broaching mass production

Axisco has various hydraulic broaching solutions, including CHI series for internal straight broaching, YST series for surface profile broaching. We provide one-stop complete service including machines, broaches, fixtures and automation.

## One of The Few Gigantic Broaching Machine Makers in The World

Common hydraulic broaching machines range from 3 to 15 tons. When there is a requirement to go bigger, with a higher pulling force, the difficulty of design and manufacturing increases exponentially. Axisco supplies up to 100-ton broaching machines, is the only maker in Taiwan, and is one of the few major manufacturers of gigantic broaching machines worldwide.

CHI  
YST

**Axisco**

Help customers succeed  
Sustainable coexistence with the Earth



# Hydraulic Internal Broaching Machine



## Highlights

- ✓ Broaching internal spline or keyway
- ✓ Make complicated internal shapes in one-pass
- ✓ Accurate positioning, high speed broaching, high accuracy
- ✓ Heavy duty design, long life time
- ✓ 40 years experience on fixture design
- ✓ Stepless broaching speed adjustment
- ✓ Automatic loading/unloading devices are optional
- ✓ Automatic broach retrieval devices are optional
- ✓ Up to 3 broaching station
- ✓ CE specification based on requirement

## Media

Internal broaching is the most cost-effective way to mass-produce keyways, involute splines, grooves, squares, and irregular or custom internal forms





# Hydraulic Surface Broaching Machine



## Highlights

- ✓ Broaching the surfaces of workpieces
- ✓ Accurate positioning, high speed broaching, high accuracy
- ✓ Make complicated surface profile in one-pass
- ✓ Heavy duty design, build for last
- ✓ 40 years experience in fixture design
- ✓ Stepless broaching speed adjustment
- ✓ Automatic loading/unloading devices are optional
- ✓ Up to 3 broaching station
- ✓ CE specification based on requirement

Surface broaching is 2X to 10x faster than milling and hobbing.

Contact us to put wings on your productivity.

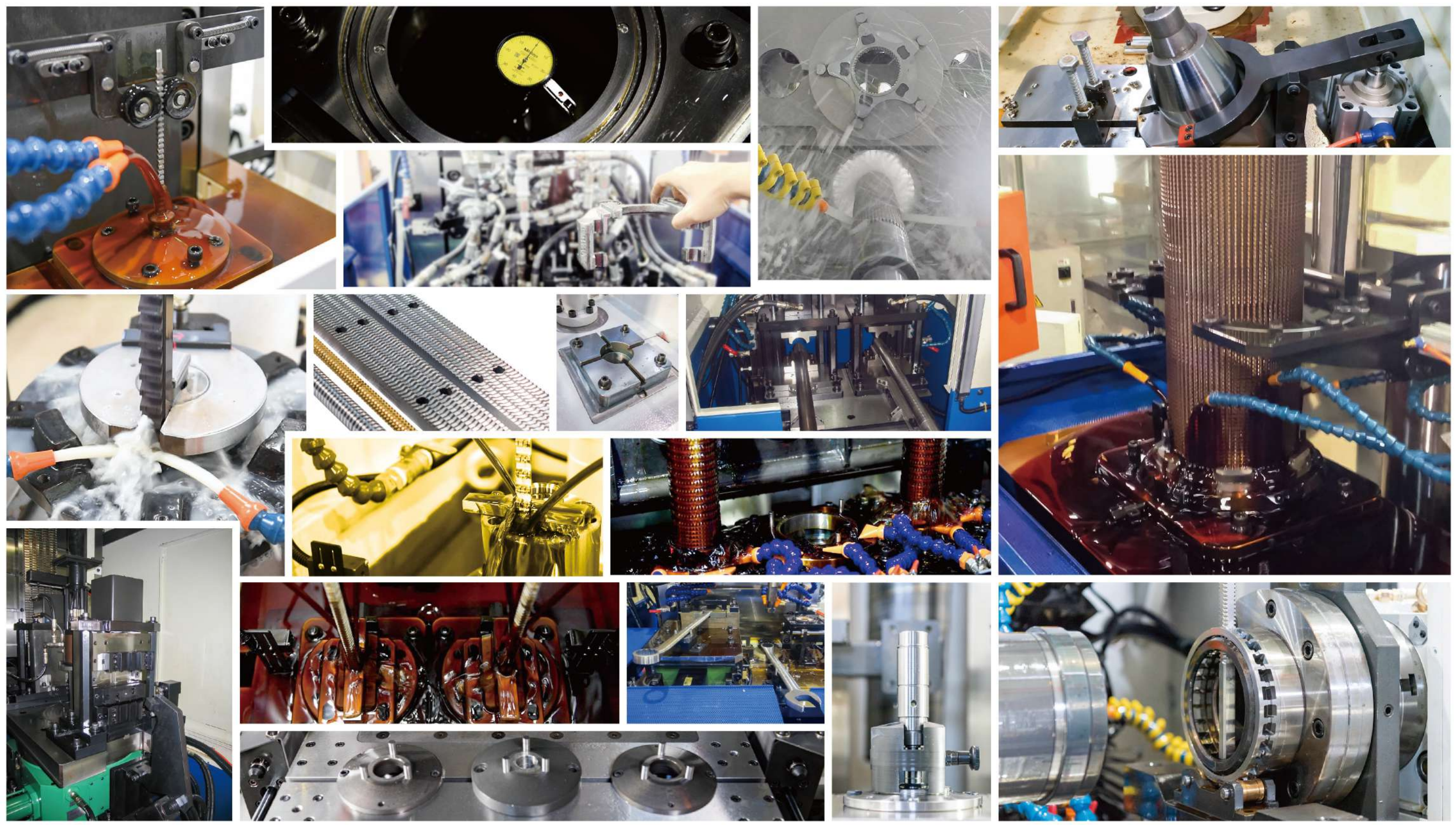


## Media



# BROACHING APPLICATIONS

AXISCO





# Good Sharpening is the Key to Long-term Broach Performance

## Introduction of Broach Tools

A broach is a tool with a number of small to large blades, suitable for rapid and extensive broaching of various shapes. A standard broach consists of a shank section for clamping and guiding, a cutting teeth section containing roughing and finishing teeth, and a lifter section for lifting the tool

## Good Broach Sharpening is the Key to Long-term Broach Performance

After hundreds to thousands of cuts in the broaching mass production process, the broach edges become passivated and need to be sharpened to ensure remarkable accuracy and surface finish. There are manual sharpeners or CNC sharpeners to bring you the best sharpening results



## Workpiece Sample

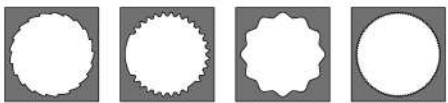
Round Broach



Polygon Broach



Serration Broach



Spline Broach



Special Keyway Broach



UBS  
GRI

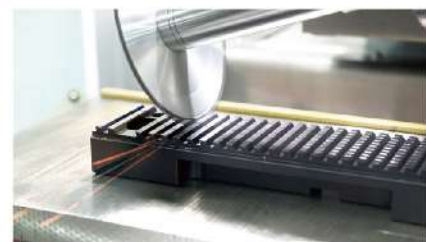


# CNC Broach Tool Sharpening Machine



## MACHINE APPLICATIONS

Flat broaches 



Round broaches 



Helical broaches 



## THE AUTO CHIP FILTRATION SYSTEM



◀ Windows OS



▲ Auto chip filtration system

◀ Tool length up to 80 inch / 2000mm

## MACHINE AXIS

### 3<sup>AXIS</sup>

**Flat Broach Sharpening**(straight and tilt angle):  
B Axis, C Axis manual adjustment with round scale)  
**Round Broach Resharpener**  
(manually adjust hook angle with round scale)

### 4<sup>AXIS</sup>

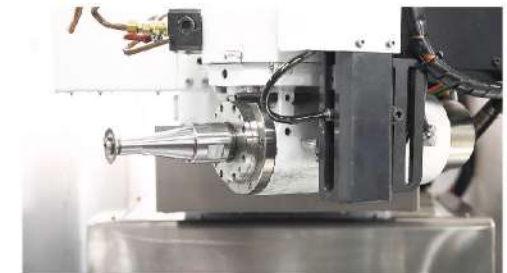
**Flat Broach Sharpening**  
(Tilt Angle Resharpener:  
C Axis manual adjustment with optic scale,  
B Axis is CNC - controlled)  
**Round Broach Sharpening**  
(CNC - controlled B Axis, Manual C Axis)

### 5<sup>AXIS</sup>

**Flat Broach(CNC) Straight angle and Tilt angle.**  
**Round Broach Sharpening**  
(CNC - controlled)

### 6<sup>AXIS</sup>

**Flat Broach(CNC control)**  
**Round Broach Sharpening**  
(CNC - controlled B Axis and C axis)  
**Helical Broach Sharpening**  
(CNC-controlled A,B and C axis)



▲ Grinding Wheel Speed(MAX):10000 RPM



▲ Alignment setting



▲ Grinding position detection

Machine Model		UBS60				UBS80			
Mechanical Axis	X axis	60 Inch / 1500mm				80 Inch / 2000mm			
	Y axis	8 Inch / 200 mm							
	Z axis	10 Inch / 250 mm							
	A axis	N/A		360°		N/A		360°	
	B axis	N/A	0-90°	N/A	0-90°	N/A	0-90°	N/A	0-90°
	C axis	N/A		±45°		N/A		±45°	
Motor	X	1.5 KW				1.8 KW			
	Y	1.5 KW				1.8 KW			
	Z	1.5 KW				1.8 KW			
	A	3 HP Motor			3 KW	3HP Motor			3 KW
	B	Manual	1.5 KW		1.8 KW	Manual	1.5 KW		1.8 KW
	C	N/A		1.2KW		N/A		1.2 KW	
Capacity	Minimum Tool Dia.	0.8 Inch / 20 mm							
	Maximum Tool Dia.	6 Inch / 150 mm							
Spindle	Max speed	10000 RPM							
CNC System	Model	MITSUBISHI M80							

The specification is for reference only. All rights are reserved by AXISCO.

# Conventional Broach Tool Sharpening Machine



## BROACH TOOL SHARPENING MACHINE

The heavy duty design is built for stable performance with long life time. Different hook angles and pitches can be set manually with ease. The precise positions are shown on the screen of the optic scale



GRI-1500

## BROACH

### Helical Broaches

Widely applied in ring gear manufacturing



### Round Broaches

Integrate rough broaching, fine broaching, and burnishing in one cut



### Spline Broaches

Making internal splines in high-torque transmission parts



### Involute Spline Broaches

Internal gearing of marine parts, such as high-precision automotive parts assemblies



### Planetary Gear Spline Broaches

Used in gearboxes and parts with variable speed functions



### Special Shape Broaches

Customized broaches designed to meet special shapes or tolerance requirements



### Surface Broaches

Used to process the surface profile of the part and make complex shapes in one cut



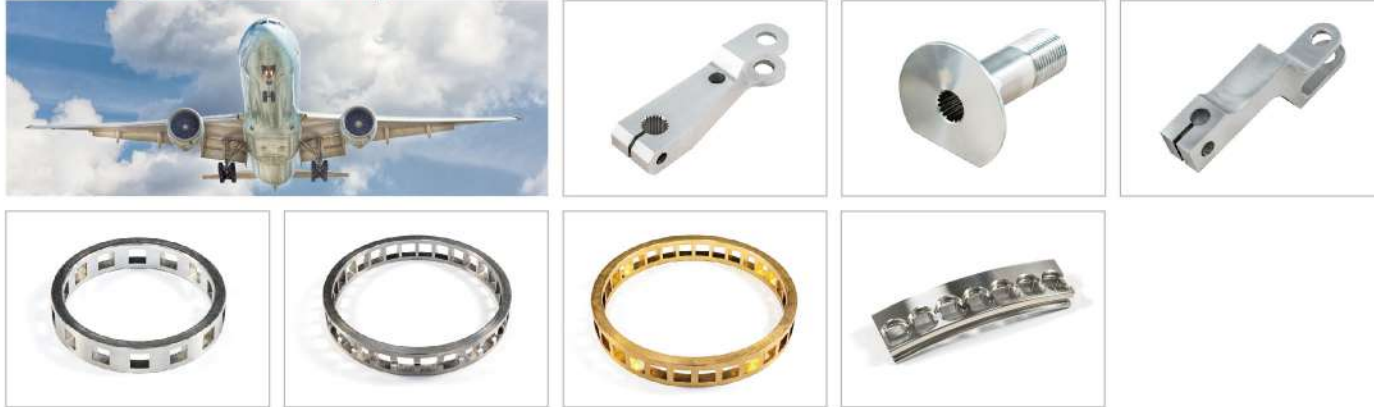
### Hard Broaches

Hard broach is made of carbide. It is used to remove the internal spline distortion after heat treatment



# EXAMPLES

## Aerospace Industry



## Automotive Industry



## Locomotive Industry



## Surface Broaching Parts



## Helical Spline Parts



## Involute Splines



## Bicycle Industry



## Special Shapes





## CHU

MODEL		CHU-0510	CHU-0813	CHU-1015	CHU-1516	CHU-2020	CHU-3020	CHU-4020
Pulling force	Ton	5	8	10	15	20	30	40
Max. stroke	mm	1000	1300	1500	1600	2000	2000	2000
Cutting speed	m/min, 60Hz	8	8	8	8	10	10	10
Return speed	m/min, 60Hz	12	12	12	12	15	12	12
Working table height	mm	960	1072	1072	1255	1280	1350	1350
Max. workpiece outer diameter	mm	180	225	225	200	225	225	225
Main motor	kw	5	7	11	15	11*2	15*2	22*2
Machine weight	kg	3500	5500	6200	8000	10000	12500	12500
Machine height	mm	3230	3700	4000	4500	5300	5500	5800
Floor space	mm	1550*2600	2030*2900	2030*2900	2550*3000	4700*1900	5000*2000	5200*2000

- √ CHU-0813 and CHU-1015 can be designed in 1 to 2 station. CHU-1516 and above can be designed in 1 to 3  
√ The above specifications are for reference only and may be subject to change over time by Axisco team

## CHX

MODEL		CHX-1015	CHX-1518
Pulling force	Ton	10	15
Max.stroke	mm	1500	1800
Cutting speed	m/min,60Hz	0.5-8	0.5-8
Return speed	m/min,60Hz	12	15
Max.workpiece outer diameter	mm	Φ190	Φ190
Helix angle setting range	degree	0-70°	0-70°
Min. helical angle	degree	0.001°	0.001°
Teble height	mm	1320	1600
Machine weight	kg	6200	8200
Main motor	kw	11	15
Machine height (H)	mm	4200	4650
Floor space (WxL)	mm	2030*2900	2550*3000

- √ The above specifications are for reference only and may be subject to change over time by Axisco team

## CHI

MODEL		CHI-0308	CHI-0510	CHI-0813	CHI-1015	CHI-1516	CHI-2018
Broaching force	Ton	3 Ton	5 Ton	7.5 Ton	10 Ton	15 Ton	20 Ton
Broaching stroke	mm	800	1000	1300	1500	1600	1800
Cutting speed	m/min, 60Hz	3-8	3-8	3-8	3-8	3-8	3-8
Return speed	m/min, 60Hz	18	20	12	13	12	13
Max. hole diameter	mm	Φ40	Φ50	Φ80	Φ80	Φ110	Φ110
Max. workpiece outer diameter	mm	Φ250	Φ250	Φ300	Φ300	Φ350	Φ350
Driving motor	kw	3.75 ( 5HP )	5.625 ( 7.5HP )	7.5 ( 10HP )	11.25 ( 15HP )	18.75 ( 25HP )	30 ( 40HP )
Working table height	mm	1855	2060	2330	2670	2910	3210
Machining height (with retrieval)	mm	3166	3728	4407	4530	5390	5800
Machining height (without retrieval)	mm	2500	3018	3532	4097	4915	5200
Weight	Kg	3000	4000	5500	7000	10000	12000

- √ 25 to 100 ton hydraulic broaching machines are customized according to requirements.  
√ The above specifications are for reference only and may be subject to change over time by Axisco team

## YST

MODEL		YST-0306/0308	YST-0508/0510	YST-0808/0810	YST-1010/1013	YST-1512/1515/1518	YST-2015/2018
Pulling force	Ton	3	5	8	10	15	20
Max.stroke	mm	600/800	800/1000	800/1000	1000/1300	1200/1500/1800	1500/1800
Cutting speed	m/min, 60Hz	3-8	3-8	3-8	3-8	3-8	3-8
Return speed	m/min, 60Hz	18	20	12	13	12	13
Working table height	mm	830 / 900	900 / 1050	900 / 1050	1100 / 1400	1250 / 1600 / 1900	1600 / 1900
Working table area	mm	300x470	300x540	360x620	480x730	420x850	480x850
Main motor	kw	3.75 ( 5HP )	5.625 ( 7.5HP )	7.5 ( 10HP )	11.25 ( 15HP )	18.75 ( 25HP )	30 ( 40HP )
Machine height (H)	mm	2000/2200	2250/2700	2400/2800	3000/3900	3450/4350/5250	4500
Floor space (WxL)	mm	1150*1350	1250*1550	1360*1700	1520*2000	1700*2100	1850*2200

- √ The above specifications are for reference only and may be subject to change over time by Axisco team