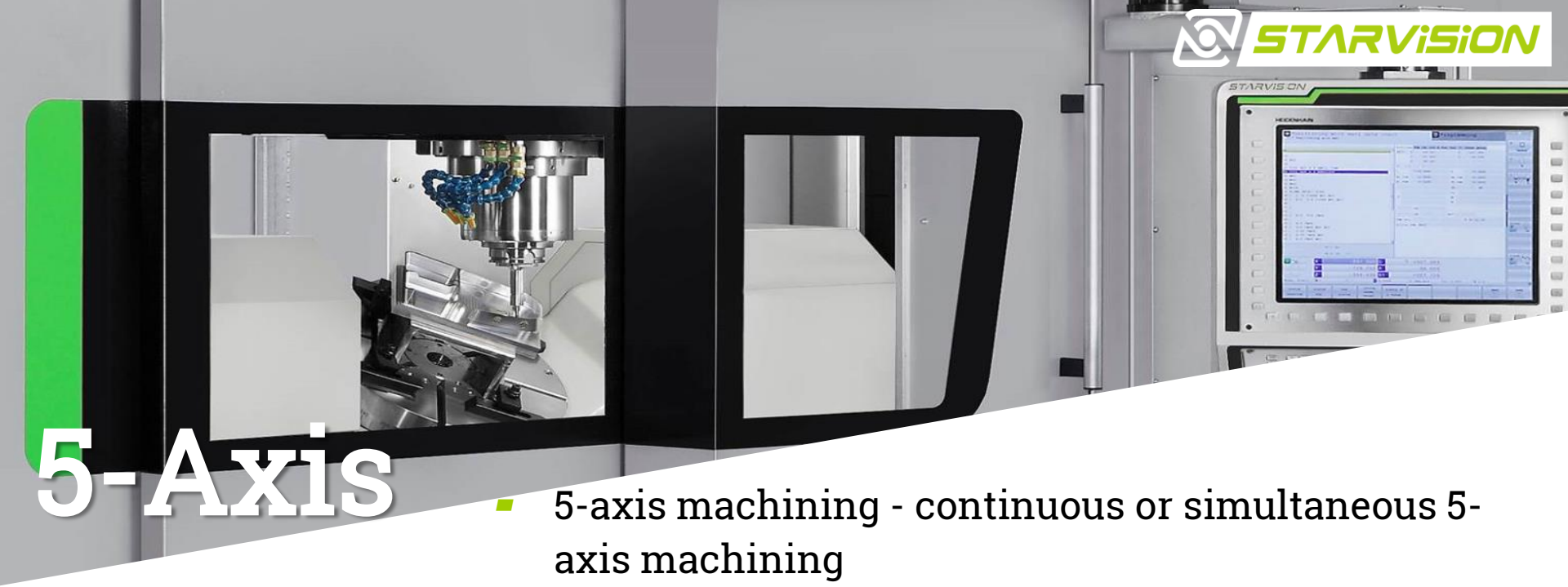
STARVISION 5-Axis Machining Solution

3+2 Axis?

5-Axis?

- 3+2 axis – Starvision offering 2 axes head, with indexing coupling. A-C axis indexing degree can be automatic rotate by every 5-5 degree/2.5-2.5 degree.
- Gear transmission, heavy torque (MAX. 1000NM) with 3000RPM spindle speed.
- Heads can be changeable, automatic tool clamping, C.T.S. available
- Suitable for machine main spindle, gear head

3+2 AXIS



5-Axis

- 5-axis machining - continuous or simultaneous 5-axis machining
- Various machine structure for 5 axes function, 2 axes rotary table, 2 axes head or, rotary table + tiliting head. .
- B-C axis movement driven by separate B-C motors.

Our Solution

- In 3+2 Axis: AC Series Milling Head
- In 5 Axis: V Series and –U/-UR Series

AC2 2-Axis Milling Head

AC2

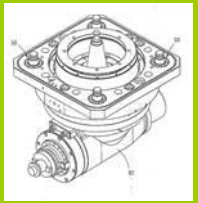
Patent clamping mechanism

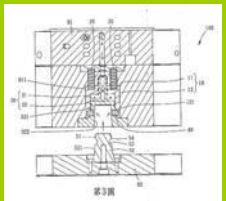
Patent

Patent Number: M540005

Issue Date: April 21, 2017

Title: Attached axis positioning and clamping mechanism of double column machining center





中華民國專利證書

新型第 M540005 號

新型名稱：龍門加工機之附加軸定位夾持機構

專利權人：星視野精密機械股份有限公司

新型創作人：陳慶榮、張挑課

專利權期間：自2017年4月21日至2025年8月5日止

上開新型業依專利法規定通過形式審查取得專利權
行使專利權如未提示新型專利技術報告不得進行警告

經濟部智慧財產局 局長 洪淑敏

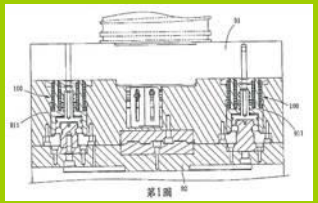
中華民國 106 年 4 月 21 日

Patent

Patent Number: M536996

Issue Date: February 21, 2017

Title: Attached axis clamping mechanism of double column machining center



中華民國專利證書

新型第 M536996 號

新型名稱：龍門加工機之附加軸夾持機構

專利權人：星視野精密機械股份有限公司

新型創作人：陳慶榮、張挑課

專利權期間：自2017年2月21日至2025年6月11日止

上開新型業依專利法規定通過形式審查取得專利權
行使專利權如未提示新型專利技術報告不得進行警告

經濟部智慧財產局 局長 洪淑敏

中華民國 106 年 2 月 21 日

AC2

- We have eight spline teeth in the castellated shaft while other companies use six spline teeth. More contact surface leads to more rigidity.

Opt. CTS function

V Series
Kessler 2-Axis Head

V Series

- Large capacity – X/Y/Z axes travels up to 6.200mm/3,800mm/1,200mm
- Ballscrew (for small size) or Rack and Pinion Drive System (big dimension models) for X-Y driving system.
- Four sets of roller type linear guide ways design in Z axis offers a stable support to the headstock.

V Series 5-AXIS

- 2-Axis Head from Kessler, Germany

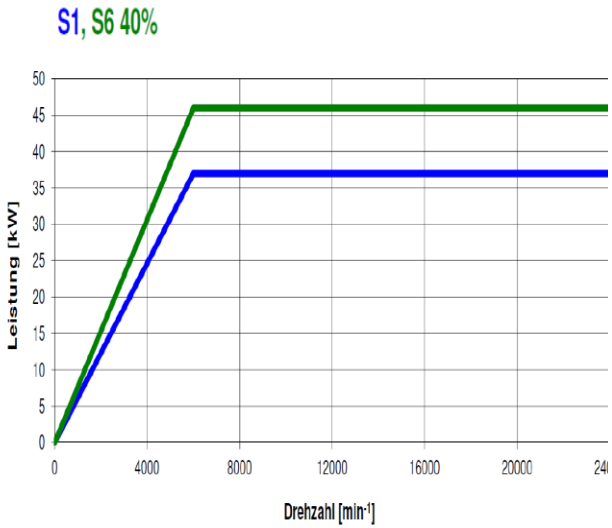
  B-C axes directly driven by torque motor, and with Pneumatic clamping system B-axis maximum torque to be 2160Nm. C-axis clamping torque to be 3025Nm.
- C.T.S. AVAILABLE

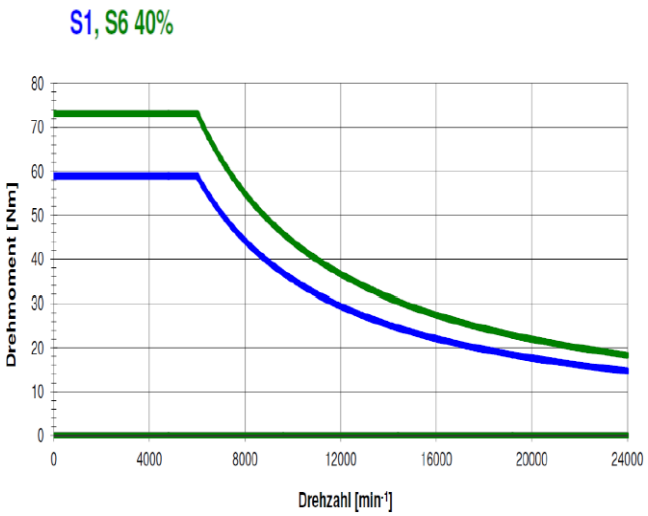
2-Axis Swiveling Head

Specification	Unit	A-Axis	C-Axis
Rated torque	Nm	764	810
Max. torque	Nm	1200	1100
Clamping torque at P max.	Nm	2160	3025
Clamping torque at P 0	Nm	1200	1675
Clamping		Pneumatic	Pneumatic
Swiveling angle		±105	±360
Swiveling accuracy		±5	±3

Spindle

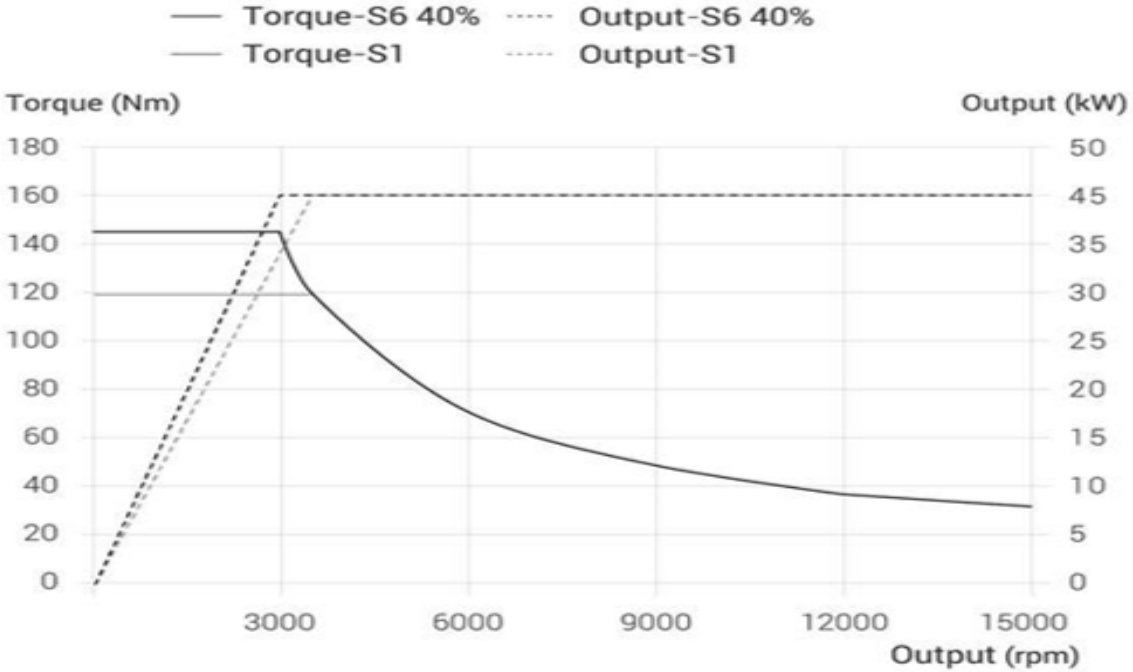
- HSK-A63 / 24000RPM (Standard)
- SPINDLE MOTOR: 37/46KW
- SPINDLE TORQUE: 60/73 NM





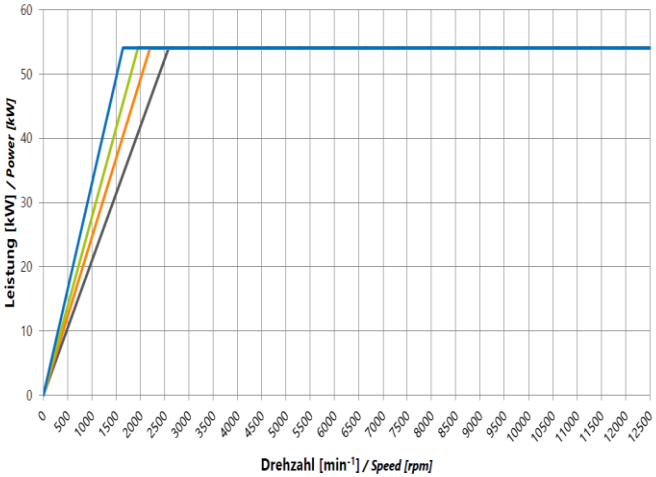
Spindle

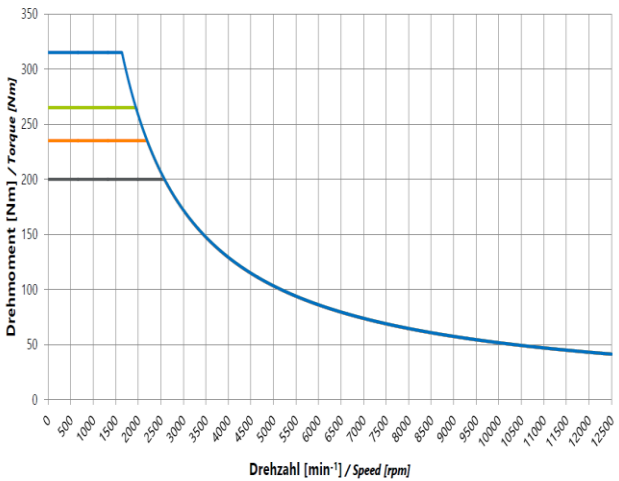
- HSK-A100 / 15000RPM (OPT.)
- SPINDLE MOTOR: 45/45KW
- SPINDLE TORQUE: 120/143 NM



Spindle

- HSK-A100 / 12500RPM (OPT.)
- SPINDLE MOTOR: 54KW
- SPINDLE TORQUE: 200/315 NM





V-SERIES (Y-2200/2600)

Model	Unit	V-2222	V-3222	V-4222	V-2228	V-3228	V-4228
Travel							
X axis	[mm]	2,200	3,200	4,200	2,200	3,200	4,200
Y axis	[mm]	2,200			2,800		
Z axis	[mm]	800			800		
Spindle nose to table	[mm]	-10-790			-10-790		
Spindle center to colum	[mm]	496			496		
Distance between colum	[mm]	1,600 (1,550)			2,100 (2,050)		
Table							
Table dimension (W)	[mm]	2,000	3,000	4,000	2,000	3,000	4,000
Table dimension (L)	[mm]	1,400			1,700		
T-slot (width x number x	-	22x7x180			22x9x180		
Max. table load	[kg]	3,000	5,000	4,000	5,000	7,000	9,000
Feed							
Rapid feed-rate (X/Y/Z)	[m/min]	24/24/12		18/24/12	24/20/12		18/20/12
Cutting feed-rate	[mm/min]	15,000			15,000		
Accuracy							
Position accuracy	[mm]	±0.005/300; ±0.015/full travel			±0.005/300; ±0.015/full travel		
		P0.03	P0.035		P0.03	P0.035	
Repeatability	[mm]	±0.003			±0.003		
		Ps0.025	Ps0.028		Ps0.025	Ps0.028	
ATC							
Tool magazine capacity	[pcs]	24 (32/40 - opt.)			24 (32/40 - opt.)		

V-SERIES (Y-3100/3400)

Model	Unit	V-3231	V-4231	V-5231	V-6231	V-3234	V-4234	V-5234	V-6234	V-8234	V-10234
Travel											
X axis	[mm]	3,200	4,200	5,200	6,200	3,200	4,200	5,200	6,200	8,200	10,200
Y axis	[mm]	3,100				3,400					
Z axis	[mm]	1,000 (1,200/1,500 - opt.)				1,000 (1,200/1,500 - opt.)					
Spindle nose to table	[mm]	150-1,150 (150-1,350/150-1,650 - opt.)				50-1,050 (50-1,250/50-1,550 - opt.)					
Spindle center to column	[mm]	508				508					
Distance between columns (max. workpiece width)	[mm]	2,500 (2,450)				2,800 (2,750)					
Table											
Table dimension (W)	[mm]	3,000	4,000	5,000	6,000	3,000	4,000	5,000	6,000	8,000	10,000
Table dimension (L)	[mm]	2,000				2,400					
T-slot (width x number x pitch)	-	x11x180				28x13x180					
Max. table load	[kg]	11,000	13,000	15,000	17,000	11,000	13,000	15,000	17,000	21,000	25,000
Feed											
Rapid feed-rate (X/Y/Z)	[m/min]	20/20/12	18/20/12	12/20/12	10/20/12	15/15/12		12/15/12	8/15/12		10/15/12
Cutting feed-rate	[mm/min]	10,000				10,000					
Accuracy											
Position accuracy	[mm]	±0.005/300; ±0.015/full travel				±0.005/300; ±0.015/full travel					
		P0.035		P0.045		P0.035		P0.045			

“

By maximizing the use of modular design, we are able to add 5-axis capability to current models.

We recognize them as the –U/-UR variations.

-U Add-on

- For a DH-1312 to add a dual-axis rota
  tilt table will become DH-1312U.

  This add-on applies to the linear guideway series (DH/DX).

-U Video

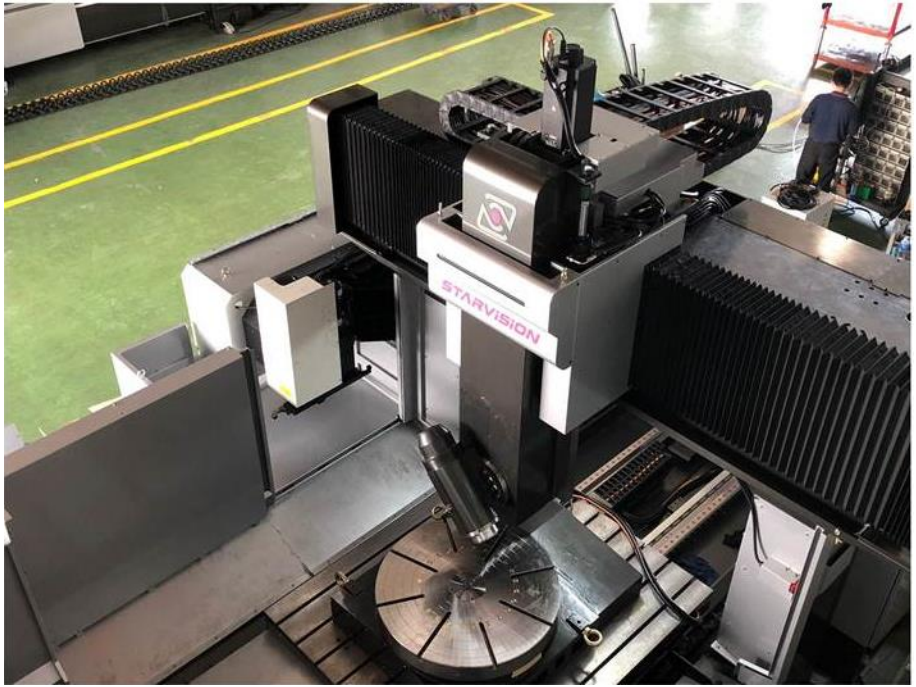
STARVISION
5-AXES MACHINING CENTER
DH-1312U

- ✓ One piece cast iron design in beam plus column and auger trough plus base to increase the stability of the machine.
- ✓ With optional 30,000rpm high speed built-in spindle motor and up to 30m/min rapid federate in three axes.
- ✓ 2-axis rotary tilt table can be integrated to achieve 5-axes simultaneous machining.
- ✓ Highly recommended for aerospace, automotive, mold & die industries.

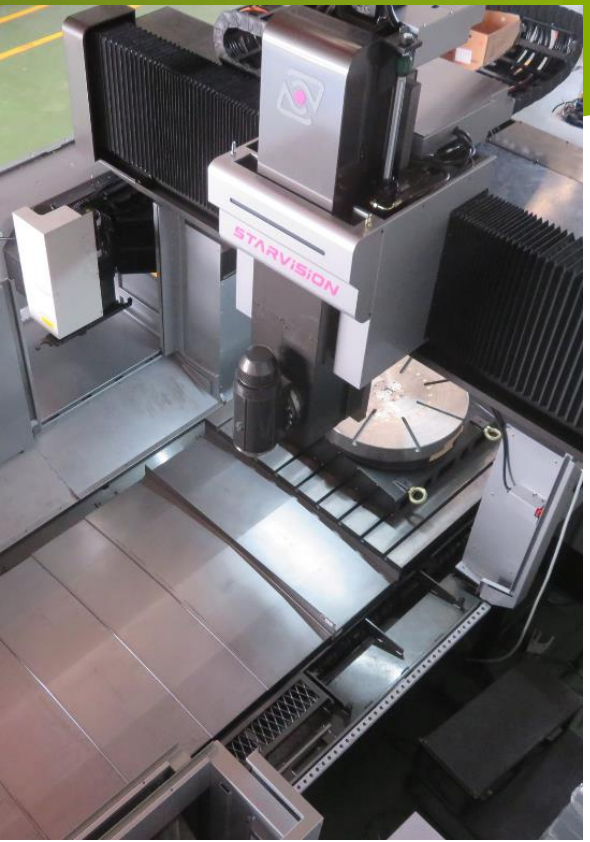
-UR Add-on

- For a DX-2220 to add an universal milling head and a rotary table will become DX-2220UR.

  This add-on applies to linear guideway series (DX/LG).



-UR Add-on



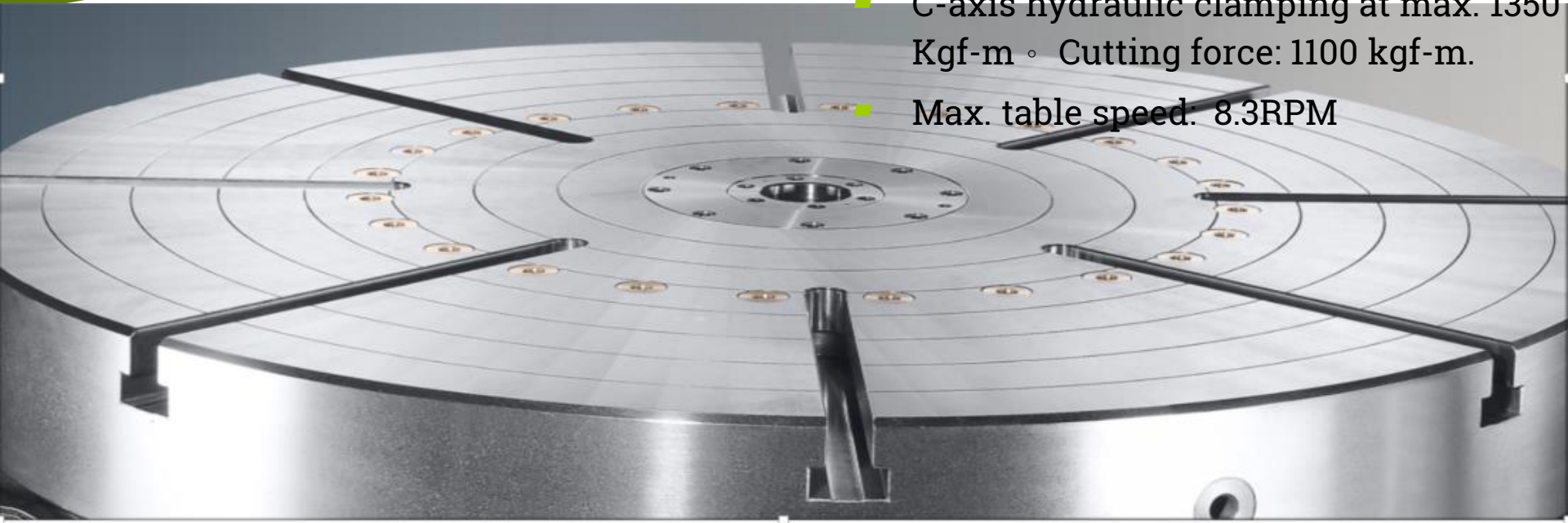
5 axes simultaneous machining

B axis with universal head, and C-axis with rotary table up to 3000mm dia.

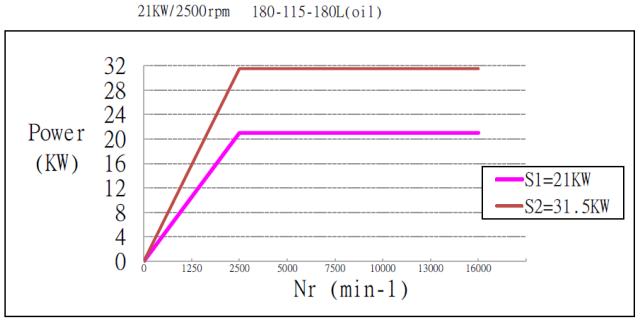
- Built-in rotary table available
- B-C axis driven by worm gear, with linear scales reading.

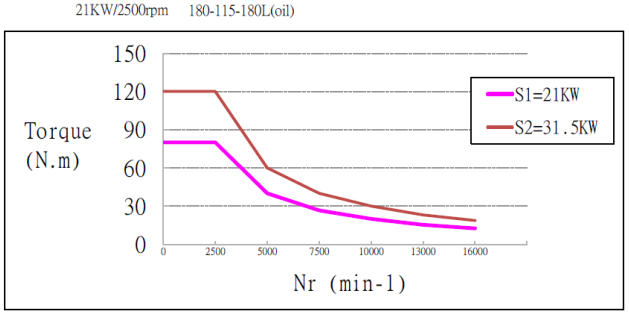
UR –ROTARY TABLE C-axis (DX-2220UR)

- Table dia: 1000mm
- Table loading: 5000 kgs
- C-axis: 360° continuous with min indexing 0.001°
- C-axis hydraulic clamping at max. 1350 Kgf-m ◦ Cutting force: 1100 kgf-m.
- Max. table speed: 8.3RPM

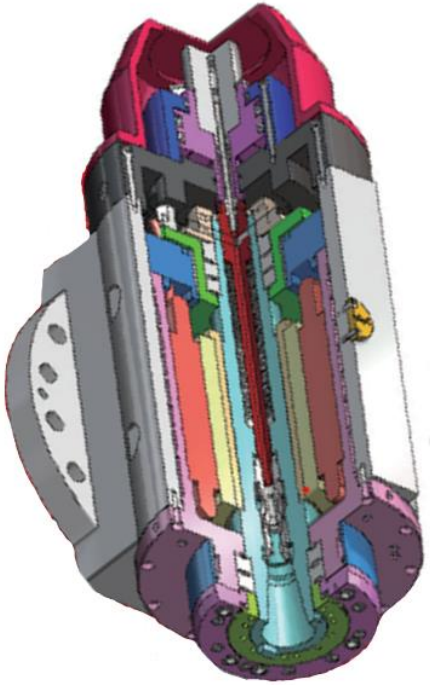


UR SPINDLE (BUILT-IN)
B-axis





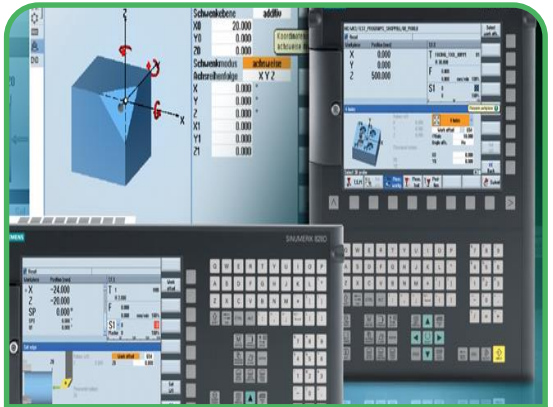
- Spindle motor: 21/31.5kw
- Spindle torque: 70/120nm
- Spindle speed: 15000RPM / HSK63A
- B-axis: +110° ~-110° with min indexing 0.001°
- B-axis hydraulic clamping at max. 153 Kgf-m 。
- Max. B axis rotating speed 16.7RPM
- C.T.S available.



CNC CONTROLLER SYSTEM

0i-F+ /31i

FANUC



840D/828D

SIEMENS

ITNC-640

HEIDENHAIN

Summary

		Controller	Description	Availability
3+2 Axis	AC2	FANUC Heidenhain Siemens	AC Milling Head	PC/LG/FG/LS/ SBM/G/CM
5-Axis	V Series	Heidenhain ITNC640 Siemens 840D	Kessler 2-Axis Swiveling Head	Individual Series
	-U add-on		Dual-axis Tilting rotary table	DH/DX
	-UR add-on		An universal milling head and a rotary table	DX/LG

Reference

- 3+2 Axis
- AC2
- Rail Industry

Reference

- 3+2 Axis
- AC2
- Automotive Industry

Reference

- 3+2 Axis
- AC2
- Automotive Industry

Reference

- 5-Axis
- V-4238
- Aerospace Industry

Thank You

Any questions?

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