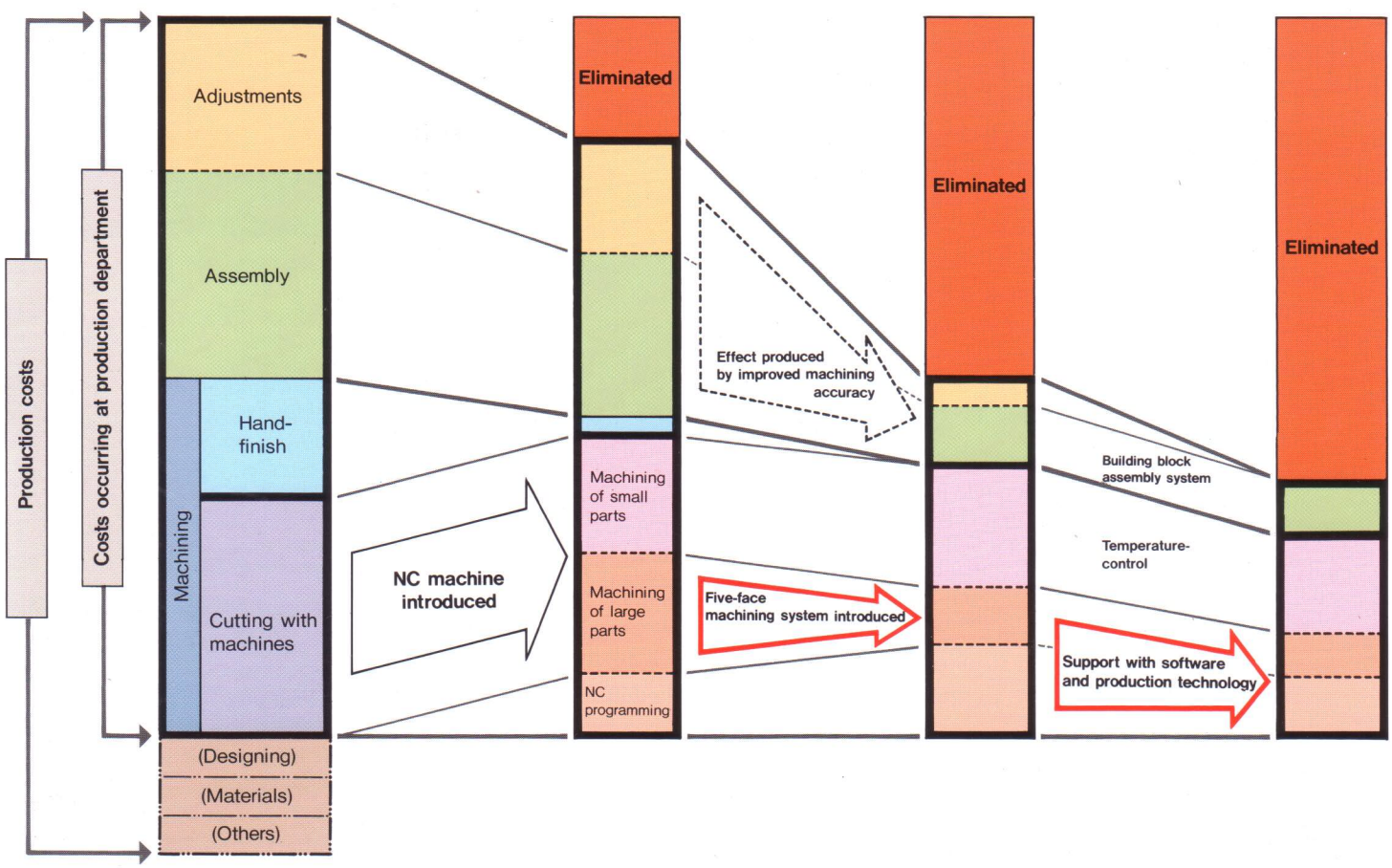
SNK
EMC-3F


Production costs
Costs occurring at production department
Adjustments
Assembly
Hand-finish
Machining
Cutting with machines
(Designing)
(Materials)
(Others)
NC machine introduced
Eliminated
Machining of small parts
Machining of large parts
NC programming
Effect produced by improved machining accuracy
Five-face machining system introduced
Eliminated
Building block assembly system
Temperature-control
Support with software and production technology
Eliminated

Machine Specifications

Model				Unit	HF-3M		HF-4	
Effective distance between columns				mm〔in〕	2,000〔78.7〕		2,500〔98	
Max. distance from table (pallet) top to spindle end				mm〔in〕	1,750〔68.8〕 (1,500〔59.0〕)	2,250〔88.5〕 (2,000〔78.7〕)	2,000〔78.7〕 (1,750〔68.8〕)	2,250〔78.7 (2,000〔78.7
Table (pallet) working surface		Length		mm〔in〕	3,000〔118.1〕	4,000〔157.4〕 5,000〔196.8〕 6,000〔236.2〕	4,000〔157.4〕	5,000〔196.8
		Width			1,500〔59.0〕		2,000〔78.	
Loading capacity on table (pallet)				kg〔lb〕	15,000〔33,000〕 (15,000〔33,000〕)	20,000〔44,000〕 (20,000〔44,000〕)	15,000〔33,000〕 (15,000〔33,000〕)	
Travels (Effective)	Table longitudinal		(X)	mm〔in〕	3,250〔127.9〕	4,250〔167.3〕 5,250〔206.6〕 6,250〔246.0〕	4,250〔167.3〕	5,250〔206.6
	Spindlehead transverse		(Y)		2,700〔106.2〕		3,200〔125.	
	Ram vertical		(Z)					
	Crossrail vertical		(W)		700〔27.5〕	1,200〔47.2〕	950〔37.4〕	1,200〔47.2
Spindlehead	Cross section of ram			—				
	Spindle diameter and nose taper							
	Spindle speed							
	Spindle drive motor and maximum torque							
	Other option for spindlehead							
Feedrates	Rapid feed	Standard: Simultaneous 3 axes feed ※2	(X・Y)	m/min〔in/min〕				
			(Z)					
			(W)					
	Cutting feed	Option: Simultaneous 4 axes feed	(X・Y・Z)	mm/min〔in/min〕				
			(W)					
Control system				—				

Standard accessories

- ATC device 60 tools
  (for both vertical and horizontal spindles)
  Max.tool dia.290mm
  (with all pots filled:110mm)
  Max.tool length 500mm
  Max.tool weight 25kg
  Max.tool moment39.2N・m
  Pull stud MAS P50T-Ⅱ
- Angular attachment for 1set
  L=300mm
  Indexing at every 90°
  Max.permissible speed 1500min^{-1}
  Max.output power 22kW
- AAC(Automatic attachment changer)
  (for one attachment and a protective cover)
- Automated lubrication with temperature control for:
  Spindle ram oil jacket
  Spindle drive gear box
  Each axis slideway
  Ball screws and nuts
  Feed gear boxes
- Operation pendant
  (Swinging type in vertical and crosswise directions)
- Spindlehead-following type hydraulic balancing for crossrail
- Twin-balancing system for ram
- Monitoring functions:
  Ladder display
  Self-diagnostic function
  Spindle load meter
- Foundation parts
- Coolant system
  Standard coolant tank
  550lit. (Effective:300lit.)
  0.4MPa 25lit./min.
- Coolant collection troughs
- Built-in five-face machining software with CNC
- Lighting equipment
  (A fluorescent light to be provided under the crossrail.)
- Slideway covers
  (X-axis:) Telescopic steel covers
  (Y-axis:) Bellows cover
  (W-axis:) Upper part:Bellows cover
  Lower part:Telescopic steel covers
- Low-oil-level alarm for lubrication unit
- Portable type manual handle operation panel
- Spindle speed display
- Earth leakage break function
- Ladder and handrail
- Arrow indication for feed axis directions
- Tool box
- Spare parts (Fuse 100%)

Selectable Options

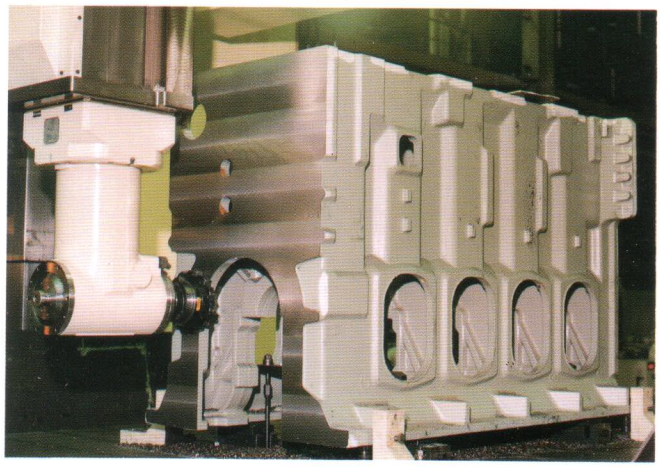
- APC (Automatic pallet changer)
  - Side-delivery type
  - Back-delivery type
- ATC (Automatic tool changer)
  - 90tools
  - 120tools
  - 180tools
  - 220 tools
  - Max.tool weight 35kg
- AAC (Automatic attachment changer)
  - for 2 attachments plus a protective cover
  - for 3 attachments plus a protective cover
  - for 4 attachments plus a protective cover
  - for 5 attachments plus a protective cover
- Attachments (AAC possible)
  - Angular attahment(L=500)(ATC possible)
  - Extension attahment(L=500)(ATC possible)
  - Special small angular attahment(L=500)
  - 45°inclined universal attahment
  - Center swing universal attahment(automatic indexing type)
  - High speed attachment 6,000min^{-1} (ATC possible)
- Coolant system
  - Level switch
  - Increased discharge rate/discharge pressure
  - Increased capacity tank
- Chip conveyor
  - Two-conveyor type
  - Three-conveyor type
- Functions for higher accuracy
  - Scale feedback (for X,Y,Z & W axes)
- Functions for automation
  - Automatic power on
  - Automatic tool length measuring function (Laser system *1, Touch sensor type) Vertical, Horizontal
  - Tool breakage detecting function (Laser system *1, Touch sensor type) Vertical, Horizontal
  - Tool breakage detecting function and spare tool changing function
  - Tool life management
  - Automatic alignment
  - Automatic measurement and alignment
  - Spindle overload prevent function
- Monitoring functions
  - Machining end indication light
  - Machining end stop(Automatic power shutoff)
  - Flashing light(three-LED type)
  - Maintenance support display
  - Output terminal for indication light
- Spot light
- Machine top warning light
- AC100V power socket
  (to be provided on saddle)
- Low-oil-level alarm for hydraulic unit
- Portable type manual handle operation panel with coordinate display
- Attachment indexing at every 5°
- Attachment indexing at every 1°
- Special software for attachment
- Lifter for operator

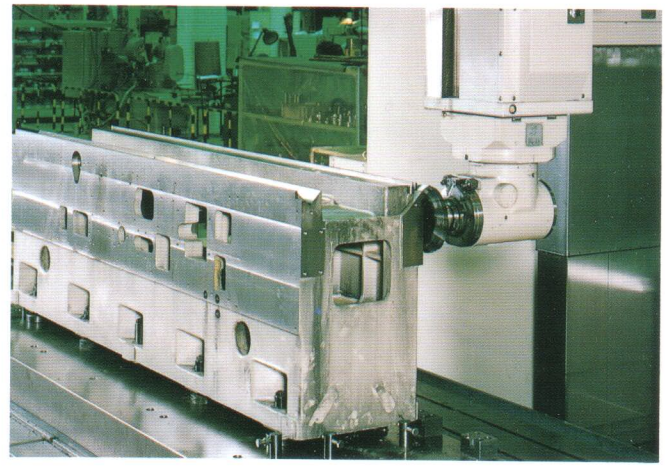
Special options

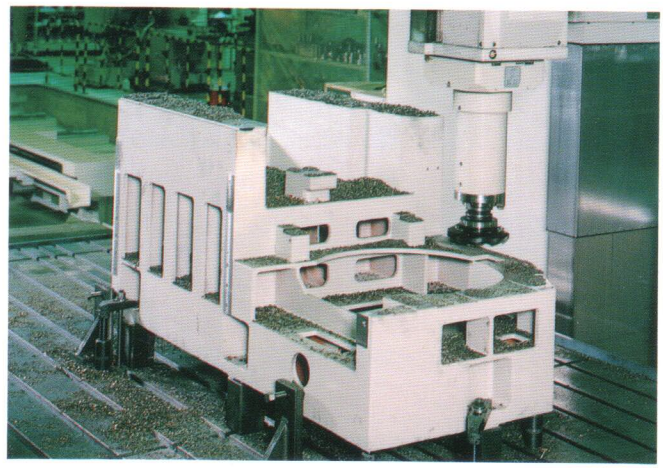
- Energy saving options
  - Electric energy monitor
  - Hydraulic unit with inverter control
  - Oil temperature control unit with inverter contro
- AAC for six attachments or more
- Special attachments
- FMS applications
- Special coating
- Others(Please contact SNK for any detail.)

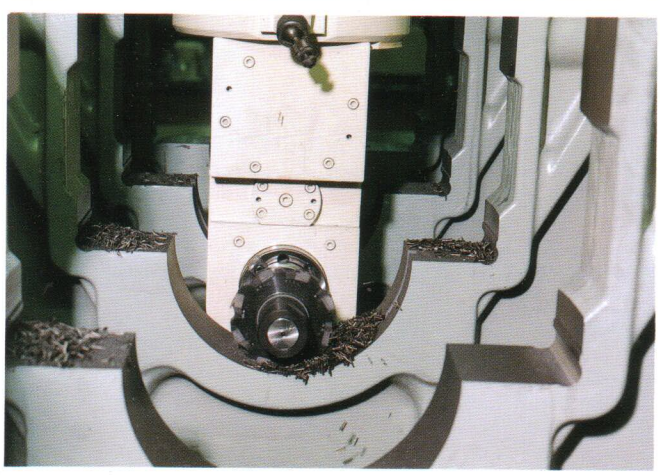
*1:The laser system can measure the tool diamet

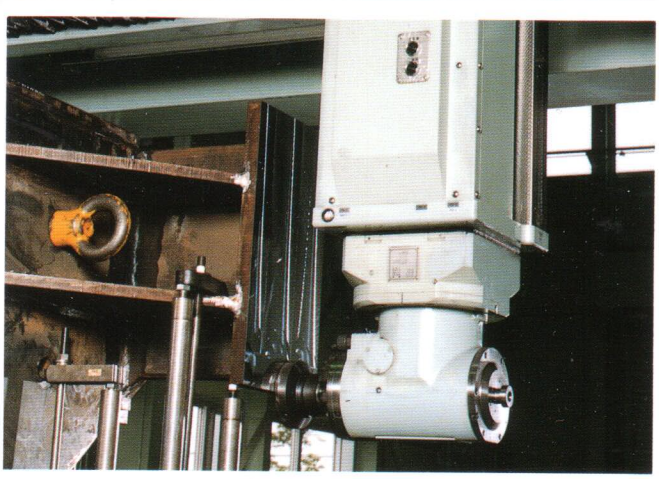
Machining samples with attachments

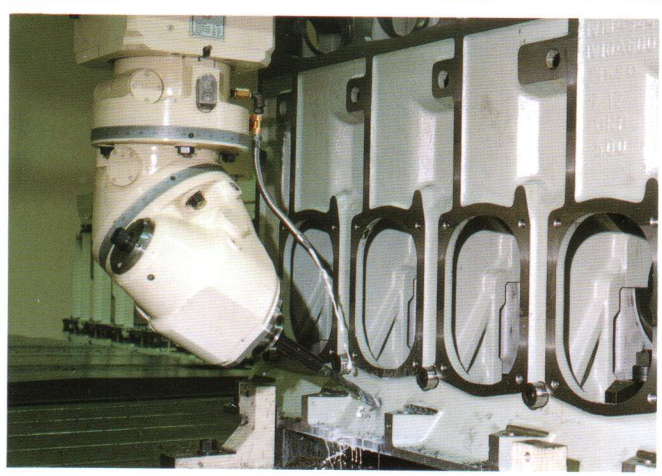






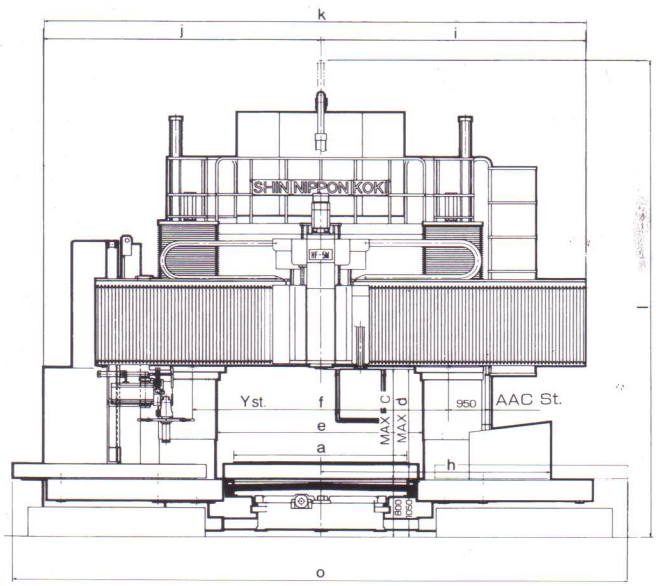




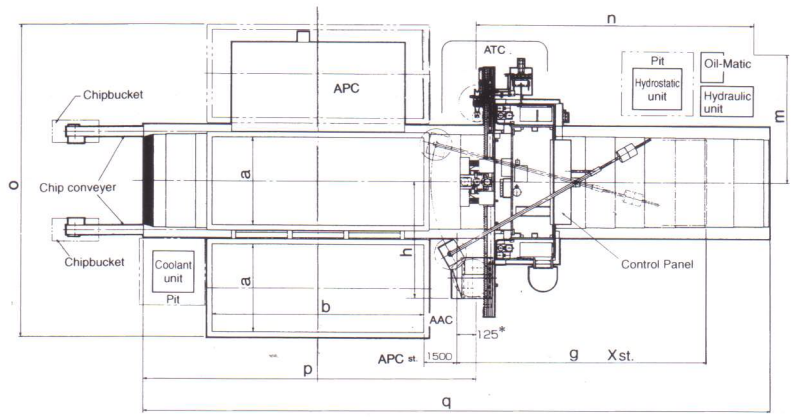


mm(in)

Floor Plan

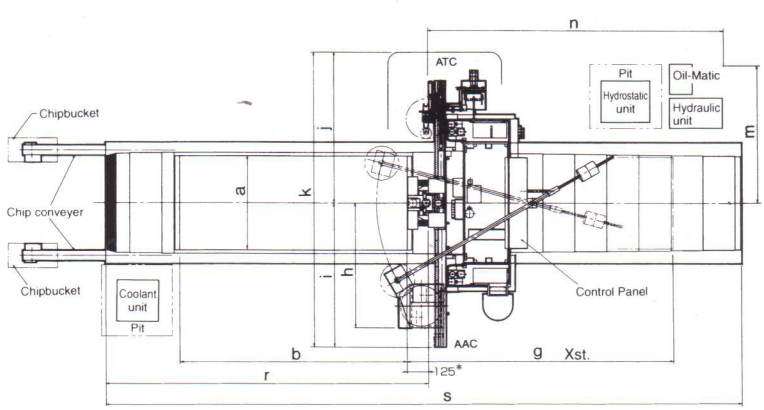


For machines with side-delivery type APC



Unit:mm(in)

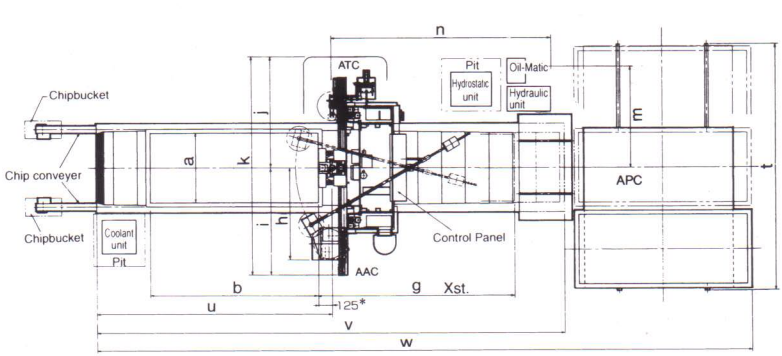
	a	b ※1	c ※1	d ※1	e	f	g ※1	h	i	j	k	l ※1	m	n ※2 ※3	o	p	q ※3
HF-3M	1500 (59.0)	4000 (157.4)	1750 (68.8)	1500 (59.0)	2000 (78.7)	2700 (106.2)	4250 (167.3)	3450 (135.9)	3750 (147.7)	3380 (133.1)	7130 (280.7)	6560 (258.3)	3350 (131.9)		5900 (232.3)	7250 (285.5)	12900 (507.9)
HF-4M	2000 (78.7)		2000 (78.7)	1750 (68.8)	2500 (98.4)	3200 (125.9)		3700 (145.7)	4000 (157.5)	3630 (143.0)	7630 (300.4)	6810 (268.2)	3600 (141.8)		7400 (291.3)		
HF-5M	2500 (98.4)	5000 (196.8)	2250 (88.5)	2000 (78.7)	3000 (118.1)	3700 (145.6)	5250 (206.6)	3950 (155.6)	4250 (167.4)	3880 (152.8)	8130 (320.1)	7060 (278.0)	3850 (151.6)	6350 (250.0)	8900 (350.4)	8280 (326.0)	14970 (589.4)
HF-6M	3000 (118.1)	6000 (236.2)	2500 (98.4)	2250 (88.5)	3500 (137.7)	4200 (165.3)	6250 (246.0)	4200 (165.4)	4500 (177.2)	4130 (162.6)	8630 (339.8)	7320 (288.2)	4100 (161.5)		10400 (409.5)	9370 (368.9)	17150 (675.2)
HF-7M	3500 (137.7)	7000 (275.5)	3000 (118.1)		4000 (157.4)	4700 (185.0)	8250 (324.8)	4450 (175.2)	4800 (189.0)	4380 (172.5)	9180 (361.5)	7820 (307.9)	4350 (171.3)				



*625mm(HF-7M)

For machines with no APC

	r	s ※3
HF-3M	5650 (222.5)	11300 (444.9)
HF-4M	6700 (263.8)	13400 (527.6)
HF-5M		
HF-6M	7720 (304.0)	15440 (607.9)
HF-7M	9900 (389.8)	19800 (779.6)



For machines with back-delivery type APC

	t	u	v ※3	w ※3
HF-3M	5900 (232.3)	5800 (228.4)	11650 (458.7)	16300 (641.8)
HF-4M	7400 (291.4)	6850 (269.7)	13750 (541.4)	19400 (763.8)
HF-5M	8900 (350.4)			
HF-6M	10400 (409.5)	7870 (309.9)	15790 (621.7)	22440 (883.5)

※1=The figures indicate standard specifications.
※2=In case that a 120-, 180- or 220-tool ATC is provided,add 2080mm(81.9")to this figure
※3=The location of the hydraulic unit may be changed for machines with shorter tables(or pallets).

Specifications are sublect to change without notice.

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