VERTICAL MACHINING CENTER KV-3MC

CONNECTION DIAGRAM

KIRA MACHINERY CO.,LTD.

株式会社 吉良鉄工所

AK4-C9

CONTROL BOX(1)

SYMBOL	NAME	MAKER	TYPE&RATING	Q'TY	COMENTS
	ELECTRIC BOX	KINRYO	780X1370X350	1	
	FIXTURE	"		1	
	LOCK HANDLE	TAKIGEN	A-172-2	2	
	HANDLE FOR LOCK HANDLE	"		1	
ELB	LEAK BREAKER	FUJI DENKI	EG-103A 75AT 30mA	1	WITH TL COIL
	LEAK BREAKER HANDLE	"	N-6EA	1	
	TERMINAL COVER	"	A1-53	1	
CB	NO FUSE BREAKER	"	EA-33 30AT	1	
	TERMINAL COVER	"	T2-31	1	
	CIRCUIT PROTECTOR	"	CP-31 10A	3	
	"	"	CP-31 5A	2	
MCP OL1	ELECTRO MAGNETIC SWITCH	MATSUSHITA	BMP-1025244 3alb	1	DC24v 180W
MLB OL2	"	"	BMP-1025244 3alb BMK9-004K	1	DC24v 25W
MSC OL3	"	"	BMP-1025244 3alb BMK9-007K	1	DC 24v 75W
MMF 0L4	"	"	BMP-1025244 3alb BMK9-004K	1	DC24v 40W
MMR MCC	ELECTROMAGNETIC CONTACTOR	"	BMP6-5-0-5-1-4	2	DC24v
	POWER RELAY	"	MY4N	2	DC24v
"	"	"	MY2N	7	DC24v
	FIXTURE SOCKET"	"	PYF-14A	3	
"	"	"	PYF-08A	17	
	FIXTURE	"	PYC-A1	10	
	END PLATE	"	PFP-M	6	

SYMBOL	NAME	MAKER	TYPE&RATING	Q'TY	COMENTS
TM	TIMER RELAY	"	H3BA	1	DC24v
	FITURE SOCKET	"	P2CF-11	1	
T3	TRANSFORMER	GOMI DENKI	200v/100v/24v	1	800/200vA
STB	STABILIZER	NEMIC LAMDA	EC-10-24	1	DC 24v 2.1A
	BRAKE UNIT	MATSUSHITA	EUN-SMD241-T	1	
	DIODE	FUJI DENKI	SIB-01-02	15	
	SPARKE ABSOBER	MARUKON DENSHI	RFM2E-145 KPD	5	
	"	"	DCR-2-10050	13	
	SURGE ABSOBER	MATSUSHITA	ZNR 20K 431	4	
	RESISTOR		2.2KΩ 1/2Ω	2	
	FAN MOTOR	KONDO	EP-114D-25	4	
	GUARD	"	ESP-114	4	
DLS1	DOOR LIMIT SWITCH	OMRON	Z-15GQ-B	1	
JC2~4	TRANSFER UNIT	WIDEMULLER	RS-MR50F	1	
	FIXTURE	"	EW-35	2	
	CONNECTOR	HONDA TSUSHIN	MR-50LM	1	
	TERMINAL		TU-125	4	
	"		TU-15	245	
	AC SPINDLE UNIT	FANUC	A06B-6052-H003	1	MODEL-3
	RESISTER UNIT	"	A06B-6052-K050	1	
	CONNECTOR	"	A06B-6052-K009	1	

SYMBOL	NAME	MAKER	TYPE&RATING	Q'TY	COMENTS
	ELECTRIC BOX	KINRYO	600X1250X400	1	
	FIXTURE	"		1	
	LOCK HANDLE	TAKIGEN	A-172-2	2	
	HANDLE FOR LOCK HANDLE	"		1	
	BOX FAN	OHM DENKI	OC-280-200v	1	AC200v
DLS2	DOOR LIMIT SWITCH	OMRON	Z-15GQ-B	1	
	PLUG RECEPTACLE	MATSUSHITA	WF 3002EE	1	
CN1	CONNECTOR	J.A.E	DB-25S	1	
	COVER	"	DB-20962	1	
	FIXTURE	"	D20418-J2	2	
	CONNECTOR FOR CABLE	DAIWA DENGYO	YS-25	1	
	CONNECTOR	HONDA TSUSHIN	MR-20LM	5	
	"	"	MR-50LF	2	
	"	NIPPON VANDY	SMS 6P-1	1	RC16M-SCT3~6
	TERMINAL		TU-60	4	
	"		TU-15	15	
	N/C CONTROL UNIT	FANUC	A02B-0083-B501	1	SYSTEM 0M-A
	SERVO UNIT	"	A06B-6050-H203	1	FOR X.Y.AXIS
	"	"	A06B-6050-H012	1	FOR Z AXIS
	SERVO TRANSFORMER	"	A06B-6050-K200	1	MJ
	SERVO UNIT CONNECTOR	"	A06B-6050-K100	1	
	"	"	A06B-6050-H022	1	
	I/O CARD A 1	"	A02B-0083-J050	1	

OPERATION BOX

SYMBOL	NAME	MAKER	TYPE&RATING	Q'TY	COMENTS
	ELECTRIC BOX	KINRYO	530X465X250	1	
	FIXTURE	〃		1	
	PLATE	〃		1	
	RADIATE D10D0	MARUYASU	DB24-89P(R)	4	
	〃	〃	DB24-89P(G)	4	
	〃	〃	DB24-89P(O)	1	
RS3	ROTARY SWITCH	FUJITSU	U.sch-9411b	2	
RS4	ROTTARY SWITTCH	〃	Usch-511ap	2	
RS1 2	ROTARY SWITCH	〃	R sch-176a	2	
	ROTARY SWITCH KNOB	〃	R.anter-60a	4	
PB1	PUSH BUTTON SWITCH	FUJIDENKI	AH30-VR01	1	PUSH-LOCK
PB 31	〃	〃	AH25-FG10	1	
PB 32	〃	〃	AH25-FR01	1	
〃	〃	〃	AH161-TFR11	2	
	〃	〃	AH161-TFB11	4	
	LIGHTING BUTTON SWUTCH	〃	AH161-TL5Y E3	5	
	〃	〃	AH161-TL5R E3	1	
	〃	〃	AH161-TLR22 E3	2	
	〃	〃	AH161-TLG22 E3	3	
	KEY SWITCH	〃	AH160-J2A11A	1	
	TOGGLE SWITCH	〃	HST 110A	2	
	PUSH BUTTON COVER	〃	AHX-669	2	
	〃	〃	AHX-668	2	
	LOAD METER	GOMI DENKI	HM-70 0~12x10%	1	MAX 10v

SYMBOL	NAME	MAKER	TYPE&RATING	Q'TY	COMENTS
	CONNECTOR	HONDA TSUSHIN	MR-20LF	5	
	"	"	MR-20LM	1	
	"	NIPPON VANDY	SMS-6PN-5	2	
	CONNECTOR PIN	"	RC16M-SCT3	8	
	TERMINAL	"	TUS-15	85	
	MDI&CRT PANNEL	FANUC	A02B-0084-C101	1	
	MANUAL PULSE GENERATOR	"	A860-0201-T001	1	

Kira Mill

Dec 3, 2010
Following history received from Kira, Japan:

Original name of this machine is KV-3MC.

I believe Ellison and REM sold over 30 machines in USA.

After we finish business with Ellison and REM, we start business with MIYANO,

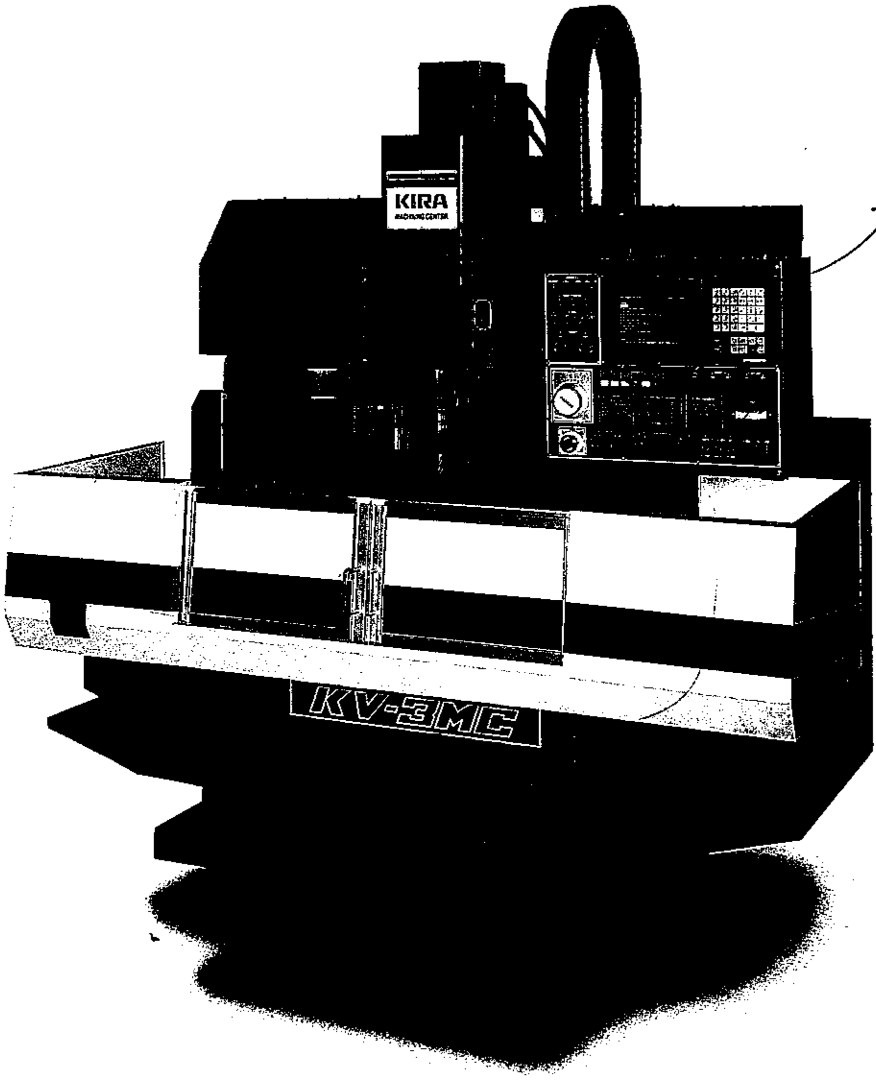
Then KSV-31 is model name of KIRA-MIYANO brand.

Please see attached file.

This is copy of KV-3MC brochure.

This machine has 8000rpm 2 shift gear drive and O-MA control.

KIRA Precision Bed-Type Vertical Machinin
Easy Operation an



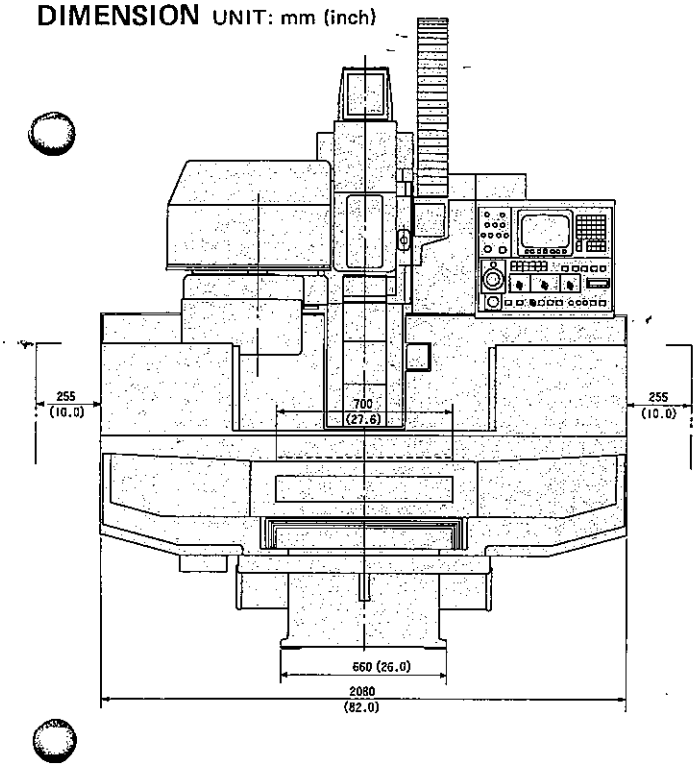
MAIN FEATURES.

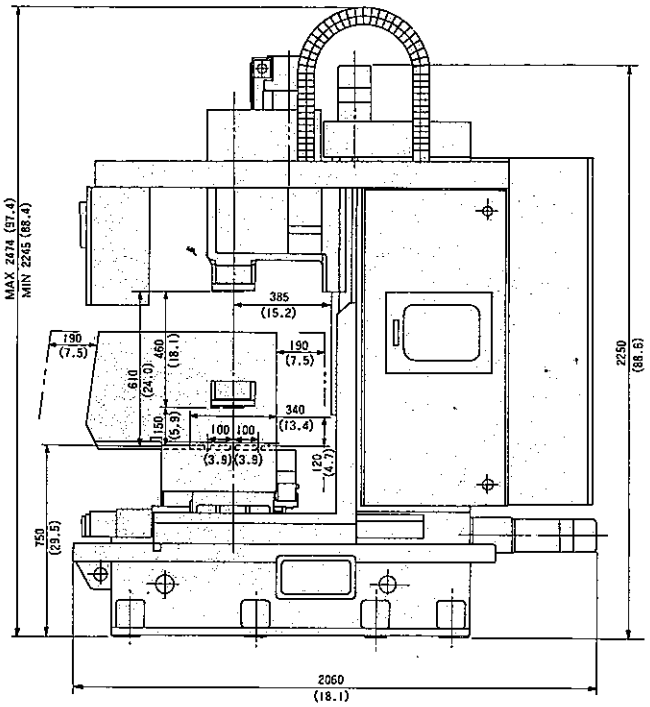
1. The CNC system and electrical control cabinets are designed as an integral part of the machine. This results in a very compact design which takes up minimum floor space.
2. Table travels are 510 mm (20 inches) in the X axis, 380 mm (15 inches) in the Y axis and 460 mm (18 inches) in the Z axis.
3. The rapid traverse rates are 18 m/minute (708 inches/minute) in the X/Y axis and 12 m/minutes (472 inches/minute) in the Z axis for extremely fast positioning.
4. The spindle drive uses a powerful 7.5 H.P. variable speed A.C. motor. The A.C. motor eliminates the brush maintenance required by D.C. motors and provides higher reliability and full horsepower through a greater range of spindle speeds. Spindle speeds are variable in 1 rpm increments within the following ranges: 110 to 3,600 rpm, 40 to 4,000 rpm, 130 to 6,000 rpm, 80 to [illegible] rpm, 200 to 10,000 rpm and 1,000 to 20,000 rpm. Spindle speeds are commanded by an S5 digit address.
5. The spindle [illegible] for smooth [illegible] Z [illegible]
6. The automatic tool changer is [illegible] convenient and [illegible] of the operator. The [illegible] magazine [illegible] 15 [illegible]

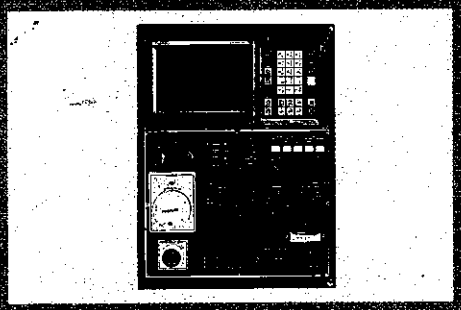
KV-3MC

Center Offers High Performance, Many Standard Features for a Machine of Its Class.

DIMENSION UNIT: mm (inch)

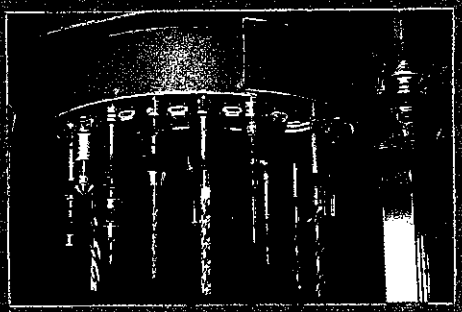






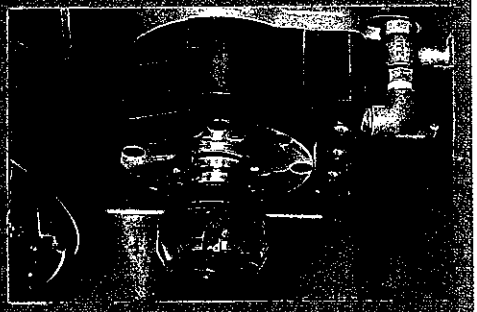
Operation panel

FANUC 0M equipped with a 9" CRT character display that visualizes various data for easy and safe operation is used for CNC system. (FANUC 11M is available for option.)



Simple, reliable random access tool-changer.

The KV-3MC have 18 position random access toolchangers respectively. Tools are inserted directly in spindle socket-no troublesome intermediate handling devices are used. Tool shanks are protected from chips and coolant.



Oil cooled spindle with speeds to 10,000 RPM.

Massive direct drive spindle head employs spindle oil cooling system that maintains constant bearing and housing temperatures within ±3°C. This allows accurate, full-horsepower continuous machining.

MACHINE SPECIFICATION

Table	Working area (X x Y)	700 x 340 mm (27.6" x 13.4")
	T-slots (No. x width x pitch)	3 x 18H8 x 100 mm (3 x 0.7" x 3.9")
	Table travel (X x Y)	510 x 380 mm (20.0" x 15.0")
	Cutting feedrate	1-5000 mm/min (0.04-196.9 IPM)
	Rapid traverse (X/Y)	18000 mm/min (708.6 IPM)
	Feed motor (X/Y)	FANUC 5M, 800W DC motor
	Maximum load capacity	400 Kg (880 lbs)
	Positioning accuracy (X/Y)	±0.008 mm/full stroke (±0.0003")
	Positioning repeatability	±0.003 mm (±0.0001")
Spindle head	Spindle head travel (Z)	460 mm (18.0")
	Cutting feedrate (Z)	1-5000 mm/min (0.04-196.9 IPM)
	Rapid traverse (Z)	12000 mm/min (472.4 IPM)
	Spindle motor	AC7.5HP 30 min. rating 5HP continuous rating
	Spindle speeds	110- 3600 RPM (direct) 40- 4000 RPM (2 steps) 180- 6000 RPM (direct) 80- 8000 RPM (2 steps) 200-10000 RPM (direct) 1000-20000 RPM (direct)
	Spindle taper	NT40 (Optional NT35)
	Pull stud	MAS-P40T-1 (PS-R3, NIKKEN)
	Feed motor (Z)	FANUC 5M, 800W DC motor
	Positioning accuracy (Z)	±0.008 mm/full stroke (±0.0003")
	Positioning repeatability	±0.003 mm (±0.0001")
Automatic tool changer (ATC)	Number of tools	18 (direct ATC)
	Tool selection	By address code, random selection
	Tool changing time	5 seconds (OP: 2.5 sec.)
	Maximum tool diameter	ϕ76 mm (3")
	Maximum tool length	250 mm (9.8")
	Maximum tool weight	4.5 Kg (9.9 lbs)
Machine weight		3500 Kg (7700 lbs)
Standard accessories for machine		Splash guard Coolant unit Automatic lubrication Lubrication failure alarm Air pressure failure alarm Overload alarm Spindle load meter Air blow Operation tools in box Leveling bolts, pads and nuts One set of spare parts
Optional accessories for machine		Program end signal light Auto power shut off equipment Full splash guard Oil mist equipment Work light Tool presetter Auto pallet changer Manual pallet changer Chip conveyer Cutting oil casting cleaner Heiden hain photo scale Automatic alignment Oil hole toolholder Multi-spindle holder Tool life management Tool breakage detection system Run hour meter Work counter Chip splashing system Automatic door Robot N/C table Index table Side mounted ATC (20) Side mounted ATC (40) Special colour

* : stantard
— : not standard
OP : optional

CNC SPECIFICATION

Controlled axes, 3 axes (X, Y and Z)	*
Simultaneous 3 axes control	—
Simultaneous 2 axes control	*
Least input command increment 0.001 mm (0.0001")	*
Decimal point programming	*
Feedrate direct programming in mm/min or inch/min	*
Positioning	*
Multi-quadrant circular interpolation	*
Circular interpolation by radius designation	*
Combined use of absolute/incremental programming in the same block	*
Programming of absolute zero point	*
Dwell	*
Miscellaneous function M2	*
Spindle function S4/S5	*
Tool function T2	*
Keyboard-type manual data input (MDI)	*
Subprogram control	*
Self diagnosis	*
Program number storage, 50	*
Backlash compensation	*
Single block operation	*
Optional stop	*
Manual absolute ON/OFF	—
Mirror image (X and Y axes)	*
Dry run	*
Interlock	*
Machine lock	*
Auxiliary function lock	—
Manual slide movement (Jog/Rapid)	*
Manual pulse generator (Movement amount per 1 step: 0.001, 0.01, 0.1 mm, 0.0001, 0.01, 0.01 inch)	*
Z-axis command neglect	—
Auxiliary function lock	—
Tape reader without reels	—
Emergency stop	*
Follow up	—
Sequence number display	*
Sequence number search	*
Program number display	*
Program number search	*
Exact stop	*
Part program storage and editing 20 m	*
Part program storage and editing 40 m	—
Stored pitch error compensation	*
Rapid traverse override (Fo, 25%, 50%, 100%)	*
Cutting feed override (0-150%)	*
Cutting feed override (0-200%)	—
Stored stroke limit 1	*
Program protect	*
Canned cycle (G-73, 74, 76, 80-89)	*
Cutter compensation C (G40, 41, 42)	*
Tool length compensation (G-43, 44, 49)	*
Reference point return (Manual/Auto)	*
Work coordinate system	—
Program stop/program end	*
Cycle start/feed hold	*
Max. compensation in memory (A type, 32)	*
Interface (RS232C)	*

Optional Features for CNC	KV-mc
Simultaneous 3 axes control	OP
Part program storage and editing 40 m	OP
Part program storage and editing 80 m	OP
Part program storage and editing 120 m	OP
Helical interpolation	OP
Custom macro	OP
Tool length measurement	OP
Work coordinate system	OP
Skip function	OP
Additional axes control	OP
Conversational automatic programming function	OP
FANUC SYSTEM 11M	OP