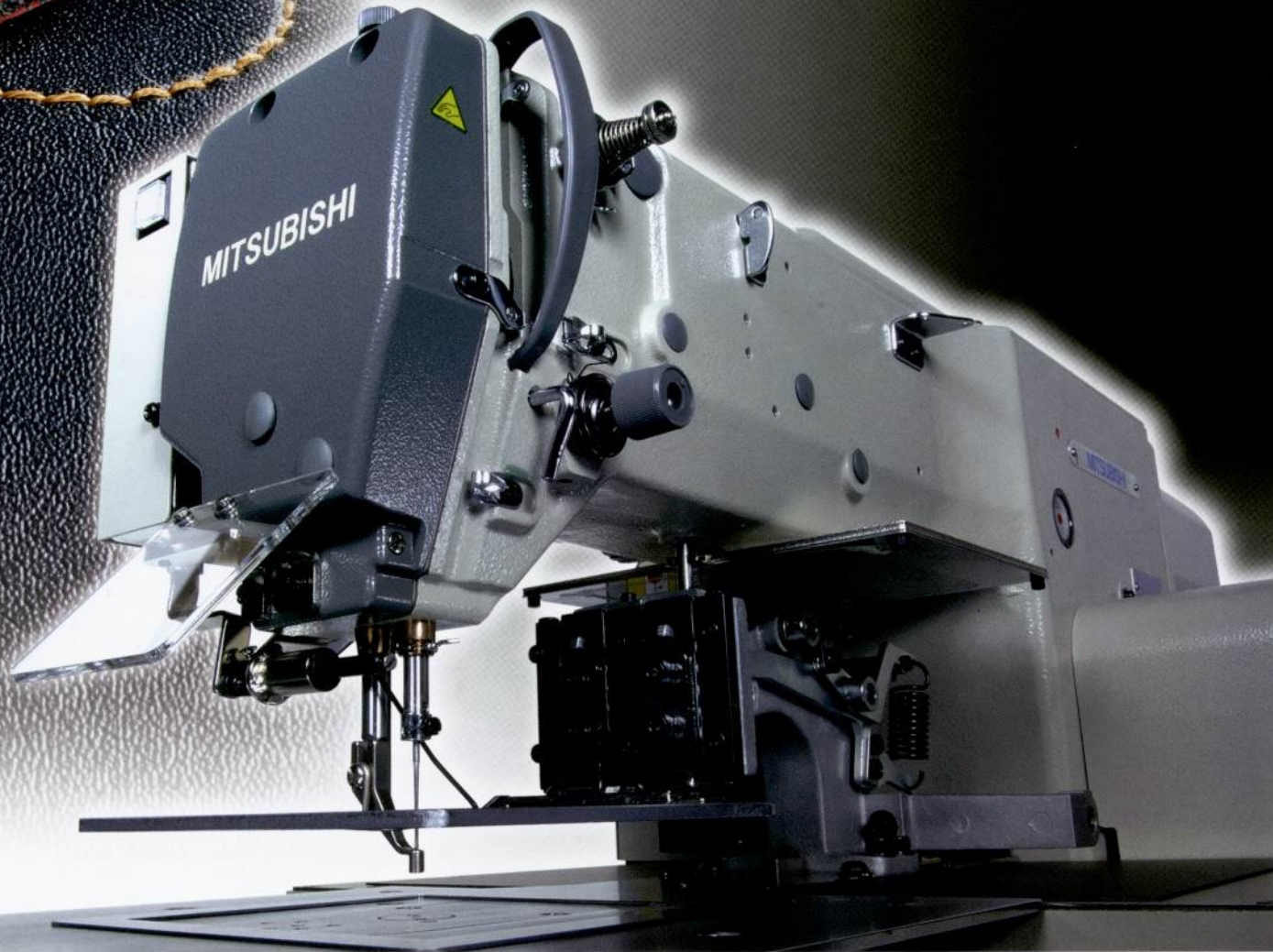## MITSUBISHI ELECTRIC

Changes for the Better

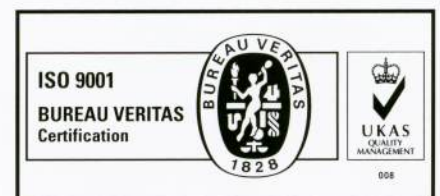INDUSTRIAL SEWING MACHINES

PLK-G Series

PLK-G1010/K2
PLK-G2010R
PLK-G2516R
PLK-G2516

Unlimited application potential

Automation Technology BY MITSUBISHI ELECTRIC

ISO 9001
BUREAU VERITAS
Certification

BUREAU VERITAS 1828

UKAS
QUALITY MANAGEMENT
008

Advanced G Series—Equipped with industry-leading machine specifications

1

High-speed sewing with industry-leading tact time
2800 stitches/minute

(As of March 2009)

Industry-leading sewing speed

2

Powerful penetration force even at the start of stitching and thread trimming
750W direct servomotor increases sewing applications

(As of March 2009)

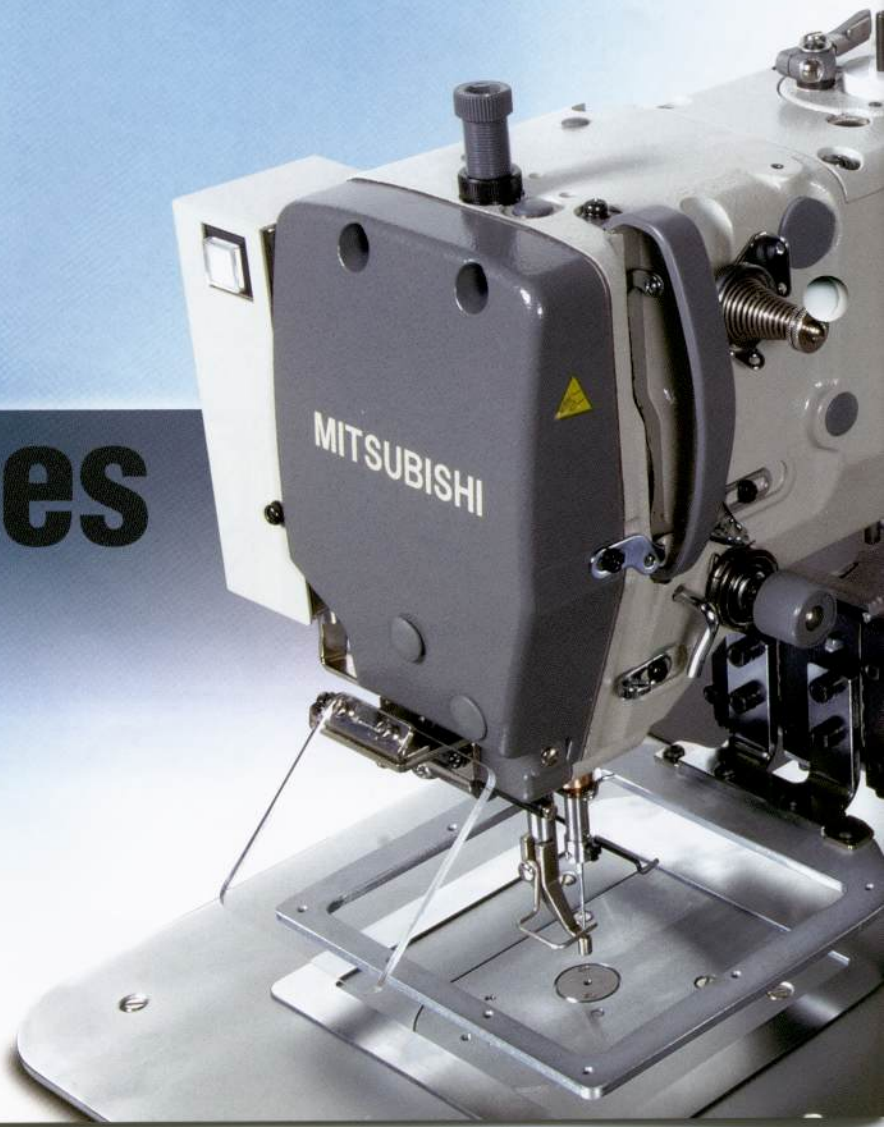**Industry's top-class penetration force**

3

Prevention of skipped stitches and thread breakage even when stitching material thickness changes is ensured using the programmable presser foot height adjustment function.
Digital Feedback Control

Sewing quality improved with new control method
(Digital sewing technology)

G Series

MITSUBISHI

4

Quicker processing of pattern data with high stitch count
Pattern creation time minimized up to **one-tenth**
Work efficiency increased by **3 to 10-fold**
(Comparison with PLK-E series)

USB memory & High-speed processing

5

Direct-drive method reduces power consumption by **approximately 40%**
(Compared to previous Mitsubishi Electric modeld)

Power consumption reduced in consideration of the environment

6

Easy expandability for customization and automation
Superior **compatibility** with **host control units** (Mitsubishi Electric programable controller)

Automation support functions

MITSUBISHI

PLK-G

MITSUBISHI

Industry-leading Sewing Speed-2800 stitches/min

Feedback for the XY table mechanism is incorporated to realize high-speed intermittent feed sewing. Machine time has been reduced by 20% compared to conventional models.

[Measurement conditions]
Sewing data   :Square (100mm x 100mm) + diagonal line
Number of stitches :232 stitches
Stitch length   :3mm
Sewing speed   :2,800 stitches/min (PLK-G series)
                  (2,440 stitches/min (PLK-E series))

Comparison of machine time

PLK-G series	6.9 sec *20% reduction*
PLK-E series	8.6 sec

0   2   4   6   8   10 (sec)
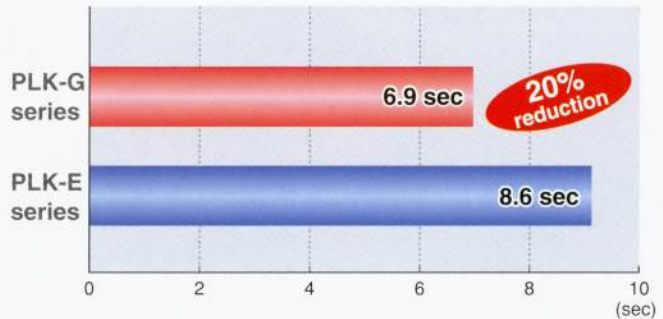
Beautiful Stitches

The improved presser foot mechanism and feed mechanism rigidity together with the latest feed control (feedback control) realize beautiful stitches, from low to high speeds, in all areas including corners which follow the sewing data and stitch linearity.
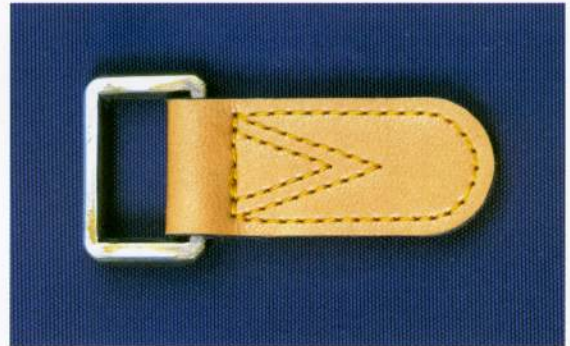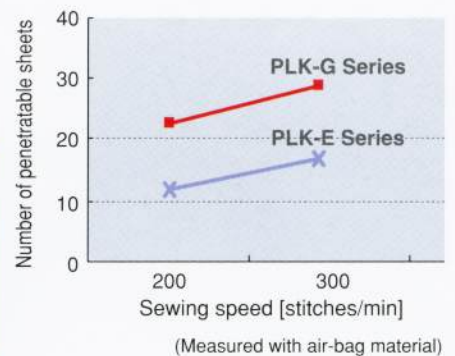
Industry Top-class Penetration Force

The increased power of the 750W direct-drive servo motor provides the industry top-class penetration force. Low-speed sewing (200rpm) at the start of sewing and thread cutting, which was conventionally difficult to carry out, can now be performed with ease.

Increased applications!! **Improved stability!!**

Number of penetratable sheets

40
30   PLK-G Series
20   PLK-E Series
10
0

200   300
Sewing speed [stitches/min]
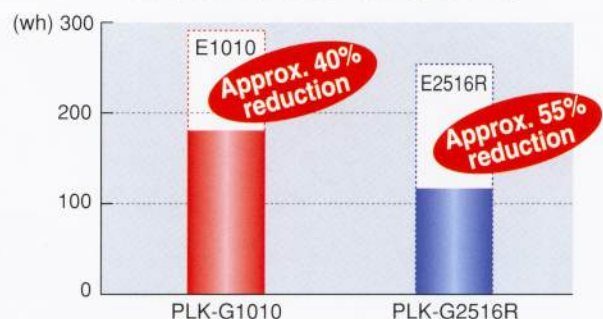
(Measured with air-bag material)

Reduced Power Consumption

The direct-drive method helps to reduce the power consumed during sewing by approximately 40%. Power consumed while waiting is also reduced by approximately 50% by incorporating an XY drive feedback control method.
This electronic sewing machine boasts the market's lowest power consumption in the industrial sewing machine category.
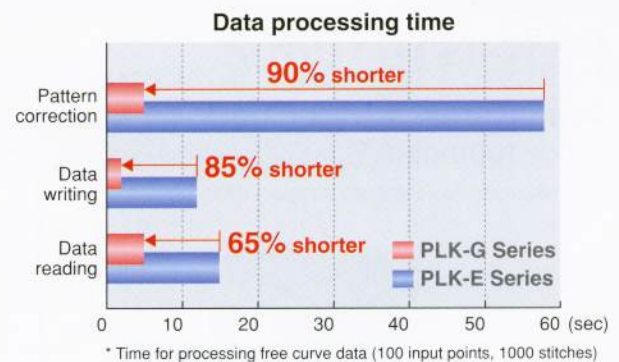
Power consumption during sewing

(wh) 300

E1010 *Approx. 40% reduction*
E2516R *Approx. 55% reduction*

200

100

0

PLK-G1010   PLK-G2516R

Improved Work Efficiency

Adoption of a USB memory and high-speed processing system has greatly shortened the time required to input and correct data for patterns with many stitches. The inching key greatly improves the speed during clamp movement, and improves work efficiency.

Data processing time

Pattern correction — **90% shorter**

Data writing — **85% shorter**

Data reading — **65% shorter**

PLK-G Series
PLK-E Series

0 10 20 30 40 50 60 (sec)

* Time for processing free curve data (100 input points, 1000 stitches)

Programmable Presser Foot Height Control

A programmable presser foot height function is incorporated. Skipped stitches and thread breakage can be prevented by changing the presser foot height according to the material thickness. The programmed presser foot data is saved in the sewing data, so the presser foot height does not need to be adjusted even if the material thickness changes.

Presser foot up   Presser foot down
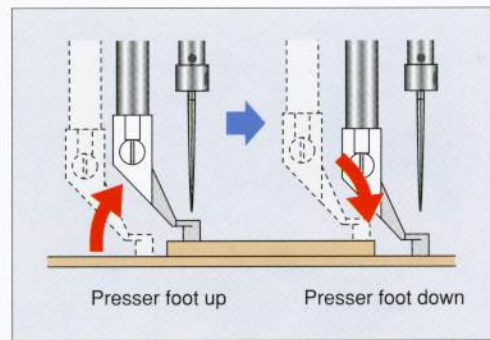
Large, High-visibility, Easy-to-use LCD Touch-type Operation Panel

In addition to the basic sewing machine operations[1], this panel can be used to process patterns[2], confirm the status of the various sensor input and solenoid output signals, and individually set the sewing machine functions and input/output ports.
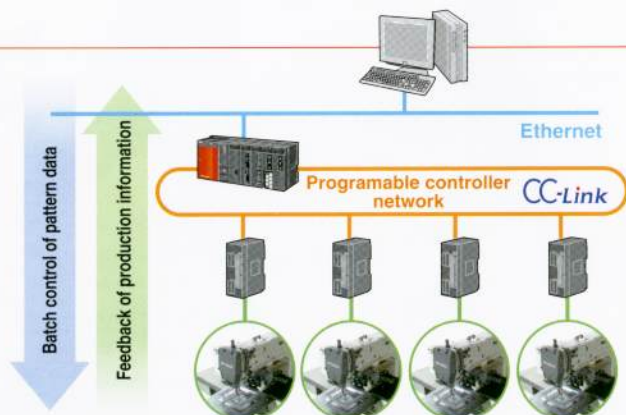
•Frequently used switching patterns can be selected quickly with the shortcut button.
•A simple explanation function is incorporated to display the application of each screen button when the button is touched.
•When inputting patterns, the clamp frame movement speed can be selected from three different settings.
•An easy-to-carry and use shape has been adopted.

1: Home return, jog, speed change, pattern call, up/down counter, bobbin winding, etc.
2: Pattern call, write, input, correction, conversion, etc.

Factory Automation

Various functions to connect to a production factory's network and support production control, including popular pattern selection using a barcode reader, are incorporated. Compatibility with Mitsubishi Electric programable controllers is outstanding.

Batch control of pattern data
Feedback of production information
Ethernet
Programable controller network CC-Link

PLK-G1010/K2

Sewing area
100 x 100mm

K2: Pneumatic two-stage clamp specifications

PLK-G2516

Sewing area
250 x 160mm

PLK-G2010R

Sewing area
200 x 100mm

PLK-G2516R

Sewing area
250 x 160mm

Options

•PC Software

PTN-G

● Sewing data creation software
PTN-G
Stitching data can be created easily using a personal computer. CAD data can also be read.

● Sewing machine parameter setting software
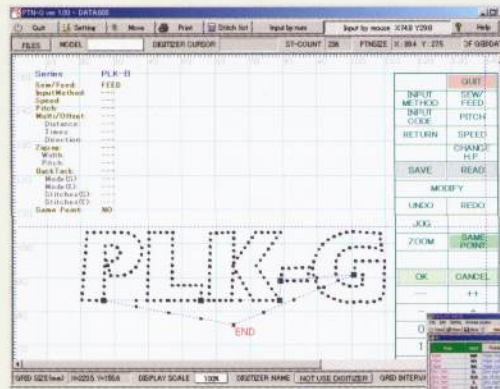### PLKG-SET
Settings made using the sewing machine's operation panel can be set using a personal computer.
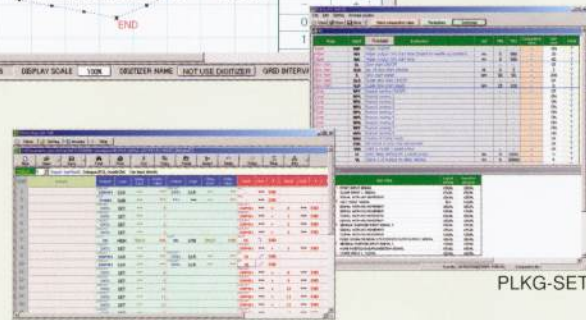
● Sewing machine sequence software
PLKG-STEP
The sewing machine and external device operations can be programmed.

Powerful Automation Support Functions

PTN-G

PLKG-SET

PLKG-STEP

•Optional Devices

MP-G10-AT
Pneumatic 2-step tensioner

MP-G10-TS
Upper-thread breakage detector

MP-G10-K2
2-step left/right alternating clamp

Part name	Type	G1010	G2010R	G2516R	G2516	Application
Pneumatic clamp	MP-G10-AO	●	—	—	—	Suitable for materials requiring clamp holding force.
Pneumatic two-stage clamp	MP-G10-K2	●	—	—	—	The left and right clamps can be lowered independently, simplifying part and label stitching.
Label sewing unit	MP-G10-AH	●	—	—	—	Used to stitch the entire periphery of parts or labels.
Manual type clamp	MP-G20-MF	—	●	—	—	The sewing material position can be fine-tuned manually.
	MP-G25-MF	—	—	●	●	
Pneumatic 2-step tensioner	MP-G10-AT	●	—	—	—	Differences in the thread tension, caused by changes in the stitching direction or thickness, are eliminated.
	MP-G20-AT	—	●	●	●	
Sewing area extension kit	MP-G10-EX	●	—	—	—	The X-axis direction can be expanded by 210mm.
Upper-thread holding device	MP-G10-TH	●	—	—	—	Holds trimmed needle thread, preventing the thread from tangling at the start of stitching.
	MP-G20R-TH	—	●	●	●	
Upper-thread breakage detector	MP-G10-TS	●	—	—	—	Stops the sewing machine when needle thread breakage is detected.
	MP-G25-TS	—	●	●	●	
Needle cooler	MP-G10-NC	●	—	—	—	Needle thread breakage caused by heat is prevented by cooling the needle with air.
	MP-G20-NC	—	●	●	●	
Sewing machine head tilting auxiliary component	MP-G10-GS	●	—	—	—	Force required to lift the sewing machine head is reduced with a gas spring.
	MP-G20-GS	—	●	—	—	
I/O expansion unit	MP-G10-TE	●	—	—	—	The number of input/output ports which can be connected to the sewing machine are expanded. (12 extra input ports, 12 extra output ports)
	MP-G20-TE	—	●	●	●	

•Specifications

Model / Item	G1010 / K2	G2010R	G2516R	G2516
Stitching style	Single needle lockstitch			
Hook type	Large-size shuttle hook	Double-size rotary hook		Large-size shuttle hook
Sewing area (XxY)	100mm x 100mm	200mm x 100mm	250mm x 160mm	
Maximum sewing speed	2,800 stitches/min			
Feed method	Intermittent or continuous (switchover method)			
Stitching pitch	0.1mm to 20.0mm (resolution 0.1mm)			
Maximum no. of stitches	20,000 stitches/pattern			
Maximum no. of stored patterns	512 patterns (control panel internal memory)			
Enlargement/ reduction function	10 to 200% for both X and Y axes (variable in 0.1% steps)			
Memory medium	USB flash memory (not included with sewing machine) (USB-connected FDD can also be connected)			
Total weight	133kg	147kg	168.5kg	161.5kg
Work holder lift stroke	25mm max.	30mm max.		
Work holder method	Electromagnetic	Pneumatic		
Presser foot lift stroke	15mm max. (variable in 0.2mm steps)			
Presser foot stroke	4 to 10mm			
Spindle motor	Mitsubishi Electric 750W direct servo motor			
Applicable needle	DP x 17 #18			
Operation panel	5.7" LCD touch panel, white LED backlight			
Outline dimensions	1,200mm (W) x 867mm (D) x 1,225mm (H) (excluding thread stand)	1,200mm (W) x 930mm(D) x 1,230mm (H) (excluding thread stand)	1,200mm (W) x 1,068mm (D) x 1,230mm (H) (excluding thread stand)	
Power supply	220 to 240V, single-phase/3-phase 110 to 120V, 380 to 415V (option unit required)			

New publication, effective Jul. 2009.
Specifications subject to change without notice.