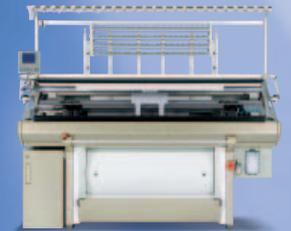


*your choice*  
**SHIMA SEIKI**



# LAPIS

Computerized Warp-Weft Hybrid Flat Knitting Machine



## A UNIQUE MACHINE FOR CREATING UNPRECEDENTED FINE GAUGE FASHION.

Heralded as a historic breakthrough in knitting technology, Shima Seiki's original SPL of 1971 was the world's first machine to offer warp insertion in a flat (weft) knitting machine. Now, Shima Seiki revolutionizes the industry once again by combining fully modernized warp insertion capability with the latest in weft shaping technology. Introducing the new LAPIS<sup>®</sup> warp-weft hybrid knitting machine. Only the most advanced mechatronics engineering can realize such a sophisticated technological combination. The result is evident in the unique products LAPIS<sup>®</sup> can produce. Multi-color intarsia patterns can be combined with warp knitting patterns such as vertical stripes and warp jacquard to provide an unprecedented range of head-turning fabrics. Available in 10 and 12 gauge, LAPIS<sup>®</sup> allows today's knit designers to explore entirely new creative opportunities with colorful fine gauge hybrid fabrics.

### Warp Insertion Technology: A Revolutionary Concept

Warp insertion on LAPIS<sup>®</sup> is performed with the use of special plating cams found on each side of the single-Knitran<sup>®</sup> system on the front carriage. Warp and weft functions can be carried out simultaneously, yielding unexpected new patterns and color combinations. Weft is fed by up to 22 yarn carriers while warp is inserted through the use of 4 lace bars, making it possible to knit well over a hundred colors into a single garment.

### Superior Transfers with the SlideNeedle™

In pursuing ideal conditions for warp-weft knitting, Shima Seiki has turned to its own SlideNeedle™ for its superior transfer capability.

A flexible two-piece slider mechanism splits and extends beyond the needle hook for increased potential especially in complex transfers. This also eliminates the transfer clip and allows the needle to be mounted in the center of the needle groove, thereby achieving perfectly symmetrical loop formation for knitting the highest possible quality fabrics.

### The World's Premier Digital Stitch Device

LAPIS<sup>®</sup> comes standard with Shima Seiki's market-proven Digital Stitch Control System (DSCS<sup>®</sup>). Considered one of the most significant breakthroughs in flatbed knitting technology, our patented DSCS<sup>®</sup> continuously adjusts yarn feed and tension to yield loop consistency with tolerance to within a remarkable  $\pm 1\%$ . The result is quality control capability that is virtually impossible with conventional analog systems.



Knitting Width



Knitran<sup>®</sup> Systems



Ultra-Lightweight Carriage



Belt-Drive Operation



Tough Needle Bed



Gauge Range



Warp Insertion



Electromagnetic Needle Selection



SlideNeedle™



Stitch Presser



Front bed only



Yarn Gripper and Cutter



Digital Knitting



Setup Device



Takedown Rollers



Dust Cleaner



Schedule Knit



Back-Lit LCD Panel



Network Interface



Pattern Memory

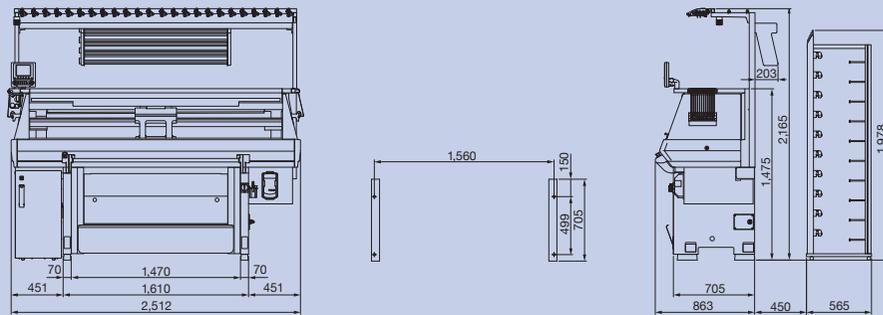


USB Memory Interface



Back-up Power

## DIMENSIONS



## Average Weight

LAPIS (machine)	895kg (1,969 lbs)
Creels	75kg (165 lbs)

Actual weight is dependent upon gauge and optional equipment.

All dimensions are in millimeters.

## SPECIFICATIONS

Type	L122
Gauge	S10, S12
Knitting width (max.)	Variable stroke. 48" (122cm)
Knitting speed	Max 1.3m / sec. Knitting speed varies according to gauge and knitting condition. Variably adjustable speed levels. 10 additional programmable speeds.
Stitch density	60 levels, electronically controlled.
Second Stitch	Motor-controlled second stitch cam allows individual adjustment of loose/tight stitches for shaping.
Racking	Motor-driven. Max 1-inch racking in each direction (2 inches total).
Knitting system	Front carriage: Center Knitran <sup>®</sup> cam + 2 plating cams. Rear carriage: Center Knitran <sup>®</sup> cam + 2 knitting cams.
Transfer	Simultaneous transfer, front and back, independent of carriage direction (Knitran <sup>®</sup> cam system only). Split stitch.
Sinker system	Front bed : Spring-type moveable full sinker system. Rear bed: Fixed sinker
Stitch presser	Special motor-driven system allows individual adjustment for on/off in knit and transfer ( front carriage only).
Yarn guide	Moveable yarn guide ( front: move with stitch presser; rear: fixed).
Needles	SlideNeedle™ for ideal loop formation and support of delicate yarns.
Needle selection	Electromagnetic direct selection.
Lace bar	Four 40" bars working independently on 4 tracks over 2 lace bar rails ( Two additional 8" lace bars included ).
Lace bar blocks	2-inch wide lace bar blocks with lace pipes for warp yarn. One-touch attachment onto lace bars.
Lace bar racking	40" lace bar: 8-inch racking ( 8" lace bar: 40-inch racking ).
Warp yarn creels	3 creels with 20 yarn cone attachments each standard. Warp yarn tension device standard.
Setup device	Takedown comb with special setup needles.
Takedown device	Main/sub rollers. Changeable 31 levels, automatically adjustable on each level. Automatic opening and closing.
Yarn cutter	Single-unit system includes 1 yarn cutter and 2 yarn grippers. Both sides standard. Warp yarn gripper/cutter standard.
DSCS <sup>®</sup>	Consistent loop length by digital control method. Left side standard ( 6 positions ). Left side yarn feed roller ( yarn feed: 8 positions ).
Side tensions	12 on each side
Yarn carriers	14 intarsia carriers <sup>1</sup> + 2 carriers
Top tensions	24 tension devices. One-touch easy threading. Large knots cause machine stop. Small knots cause 0-9 courses at specified knot detection speed, then automatically resume at set speed.
Stop motion	Yarn break, large knot, wraparound check, shock detection, piece count, over-torque, program error, etc.
Drive system	Belt drive. AC servo motor. No lubrication necessary.
Cleaner	Special blower operated cleaner.
Safety devices <sup>2</sup>	Full safety cover for noise-suppression and dust-proofing with stop motion sensor and interlock mechanism. Stop button. Power supply disconnecting device. Ultra-low speed "crawl" setting. Indicator lamps ( see below ).
Operation lamp	Green/normal operation. Flashing green/normal stop. Flashing amber/abnormal stop.

## CONTROLLER

Data input	USB memory interface. USB 3.5" MO disk interface. Ethernet 10 / 100 BASE-T network.
Pattern memory	25165,824 bits (1,024 wales × 8192 addresses)
Control system	Stored program for flat knitting machine.
Control display	Back-lit monochrome LCD panel. Editing possible via display panel operation. Available in English, French, Italian, Spanish, Portuguese, German, Turkish, Chinese, Korean and Japanese.
Back-up power	Power supply for resuming knitting after power failure.
Power	3 phase AC200V ± 10% 3.0KVA

**OPTIONS :** (1) Additional intarsia carriers ( up to 22 carriers ). (2) CE Mark.

*your choice*  
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Shima Seiki maintains a policy of continuous improvement for its products, and therefore specifications and appearances are subject to change without notice.

Please contact your nearest authorized sales representative for the latest information.



## SAFETY NOTICE

In order to ensure safe operation of the equipment, please review all operation manuals carefully before use.

LAPIS Printed in Japan