

# MURATA MACHINERY, LTD.

## TEXTILE MACHINERY DIVISION

Green-Bldg, 2-6-26, Kitahama, Chuo-ku, Osaka, 541-0041, JAPAN  
TEL: +81-(0)6-6202-1385 FAX: +81-(0)6-6202-3096  
http://www.muratec.co.jp

## INQUIRIES REGARDING OPERATIONS

**MURATA MACHINERY, LTD.**  
**TEXTILE MACHINERY DIVISION**  
**TECHNICAL SERVICE DEPARTMENT**  
136, Takeda-Mukaishiro-cho, Fushimi-ku, Kyoto, 612-8686, JAPAN  
TEL: +81-(0)75-672-8230 FAX: +81-(0)75-672-8304

## INQUIRIES REGARDING PARTS

**MURATA PARTS SALES, LTD.**  
136, Takeda-Mukaishiro-cho, Fushimi-ku, Kyoto, 612-8686, JAPAN  
TEL: +81-(0)75-672-8371 FAX: +81-(0)75-671-0789  
http://www.muratec.net/parts.html

## GLOBAL SALES & SERVICE NETWORK

**MURATA MACHINERY USA INC.**  
2120 Queen City Drive, P.O.Box 667609,  
Charlotte, N.C. 28208, U.S.A.  
TEL: +1-704-394-8331 FAX: +1-704-392-6541  
http://www.muratec-usa.com

**MURATA MACHINERY MEXICO S. DE R. L. DE C. V.**  
Londres 226, Piso 6, Colonia Juarez,  
CP 06600, Delegacion Cuauhtemoc,  
Mexico Distrito Federal, MEXICO  
TEL:+52-(0)55-52073064

**MURATA DO BRASIL, LTDA.**  
Estrada de Santa Isabel, 3383-KM 38,5,  
Itaquaquecetuba-SP, CEP 08599-000, BRASIL  
TEL: +55-(0)11-4648-6222 FAX: +55-(0)11-4648-6737

**MURATA MACHINERY EUROPE GMBH**  
Hanns-Martin-Schleyer-Strasse 3, D-47877,  
Willich, GERMANY  
TEL: +49-(0)2154-914-0 FAX: +49-(0)2154-914-188

**MURATA MACHINERY INDIA PRIVATE LTD.**  
**NEW DELHI OFFICE (REGISTERED OFFICE)**  
1010, Hemkunt Tower, 98, Nehru Place,  
New Delhi, 110019, INDIA  
TEL: +91-11-2628-0046/47 FAX: +91-11-2628-0048

**MURATA MACHINERY INDIA PRIVATE LTD.**  
**MUMBAI OFFICE**  
Unit No.401, 4th Floor, Madhava Building,  
Bandra Kurla Complex, Bandra East,  
Mumbai, 400051, INDIA  
TEL: +91-22-2659-0275-77 FAX: +91-22-2659-0280

**MURATA MACHINERY INDIA PRIVATE LTD.**  
**COIMBATORE OFFICE**  
7-A1/A2, Avinashi Road, Thottipalayam Pirivu,  
Civil Aerodrome(P.O) Coimbatore-641014,  
Tamilnadu, INDIA  
TEL: +91-422-450-4184/85 FAX: +91-422-450-4186

**MURATA (THAILAND) CO., LTD.**  
898/43-44 SV CITY TOWER 2, 25th Floor, Rama 3 Road  
Bangpongpan, Yannawa, Bangkok 10120, THAILAND  
TEL: +66-(0)2294-7734-40 FAX: +66-(0)2294-7732

**PT.MURATA MACHINERY INDONESIA**  
Ruko Gyan Plaza D-4, Jl. Terusan Pasirkoja Blok 8,  
Bandung, 40222,INDONESIA  
TEL: +62-(0)22-604-6633 FAX: +62-(0)22-604-6612

**MURATA MACHINERY (SHANGHAI) CO., LTD.**  
150 Xin Gao Rd., Qingpu Industrial Zone,  
Shanghai, 201700, CHINA  
TEL: +86-(0)21-6921-2300 FAX: +86-(0)21-6921-2311  
[Registry Add]  
135 Fu Te Xi Yi Rd., Wai Gao Qiao Free Trade Zone,  
Pudong, Shanghai, CHINA

**MURATA MACHINERY (SHANGHAI) CO., LTD.**  
**BEIJING BRANCH**  
Rm.309 Yu Lin Bldg., Xiang Jun Nan Li Er Xiang Jia No.5,  
Chaoyang-qu, Beijing, 100020, CHINA  
TEL: +86-(0)10-6597-8829 FAX: +86-(0)10-6591-1768

**MURATA MACHINERY (SHANGHAI) CO., LTD.**  
**GUANGZHOU BRANCH**  
Room 1018, No.238 Chang Gang Zhong Rd., Haizhu-qu,  
Guangzhou, 510250, CHINA  
TEL: +86-(0)20-8434-2882 FAX: +86-(0)20-8434-3463

**MURATA MACHINERY (SHANGHAI) CO., LTD.**  
**SHANDONG OFFICE**  
Room No. 1517, 15 Floor B block Yuquan Simpson Hotel  
Jinan, Shandong 250011, CHINA  
TEL: +86-(0)531-8510-8966 FAX: +86-(0)531-8510-8966

**MURATA MACHINERY (SHANGHAI) CO., LTD.**  
**JIANGSU OFFICE**  
Room No.1105, Huafang International Building, No.178,  
Chengbei Road(M), Zhangjiagang 215600, CHINA  
TEL: +86-(0)512-5879-5318 FAX: +86-(0)512-5879-5308

**MURATA MACHINERY (SHANGHAI) CO., LTD.**  
**ZHEJIANG OFFICE**  
Room 2309, 23F, Huiyu Bldg, No.2, South Tonghui Rd,  
Xiaoshan, Hangzhou,Zhejiang 311202, CHINA  
TEL: +86-(0)571-8272-2193 FAX: +86-(0)571-8272-2193

**MURATA MACHINERY (H.K.) LTD.**  
Unit A, 31/F., Legend Tower, 7 Shing Yip Street,  
Kwun Tong, Kowloon, Hong Kong, CHINA  
TEL: +852-2332-0009 FAX: +852-2780-6340

**MURATA MACHINERY TAIWAN, LTD.**  
18F., No.17, Sec.1, Chengde Rd.,  
Taipei 10351, Taiwan, CHINA  
TEL: +886-(0)2-2558-3908 FAX: +886-(0)2-2558-3907

**(LIAISON OPERATIONS)**  
**MURATA MACHINERY, LTD.**  
**HO CHI MINH LIAISON OFFICE**  
58 Street No.1, An Phu Ward, District2, Ho Chi Minh City,  
VIETNAM.  
TEL:+84-(0)8-6281-0601 FAX:+84-(0)8-6281-0860

**MURATA MACHINERY, LTD.**  
**CAIRO LIAISON OFFICE**  
APT 604, 6th Floor, 8, El Mansour Mohamed Street,  
Zamalek, Cairo, A.R.EGYPT  
TEL: +20-(0)2-7355168 FAX: +20-(0)2-7355168

**MURATA MACHINERY, LTD.**  
**TURKEY LIAISON OFFICE**  
Cavusoglu Mahallesi, Coban Yildizi Caddesi No.14, Daire 1,  
34873, Kartal, Istanbul, TURKEY  
TEL: +90-(0)216-374-5698 FAX: +90-(0)216-374-0614

**(AUTHORIZED SERVICE AGENCIES)**  
**KIWOONGUP CO., LTD.**  
**SEOUL OFFICE**  
1520 Gwanghwamun Officia, 163 Shinmunno-1ga,  
Jongno-gu, Seoul, 110-999, KOREA  
TEL: +82-(0)2-732-9408 FAX: +82-(0)2-732-9409

**KIWOONGUP CO., LTD.**  
**DAEGU OFFICE**  
18F, Yeongnamtower, 111 Sincheon-dong, Dong-gu,  
Daegu, 701-020, KOREA  
TEL: +82-(0)53-745-0217 FAX: +82-(0)53-745-0219

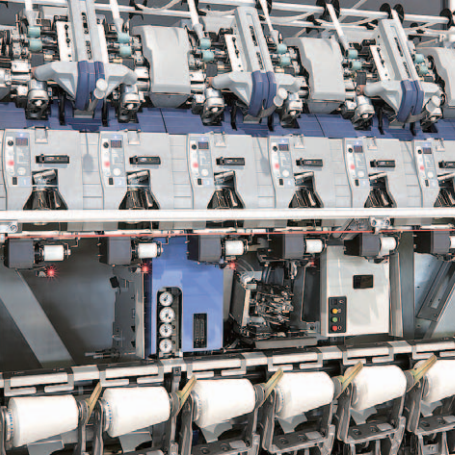
**TEXCONE ENGINEERING**  
Hassan Plaza (7th Floor) 53, Kawran Bazar,  
Kazi Nazrul Islam Avenue, Dhaka-1215, BANGLADESH  
TEL: +880-(0)2-912-9044 Fax: +880-(0)2-912-1908

**SPINTEX (PRIVATE) LTD.**  
C-92, KDA Scheme No.1, Karachi, PAKISTAN  
TEL:+92-(0)21-34523729,34523739 FAX:+92-(0)21-34523727

**M.B. DI MASSIMO BARBERIS**  
Via Arduino Giuseppe 4, 13853 Lessona,(BI), ITALY  
TEL:+39-015-981903 Fax:+39-015-981903

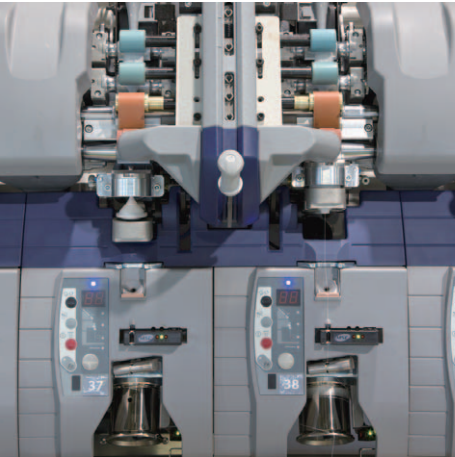
**ANTONIO LEITAO UNIPessoal LDA.**  
Rua do Padrão N° 356 4150-558 Porto, PORTUGAL  
TEL: +351-917-546-613

**JOSE ALBERTO MUNUERA LOPEZ**  
C/Girona, 12 08339-VILASSAR DE DALT Barcelona, SPAIN  
TEL: +34-654-31-67-37



Spinning System

VORTEX III 870





Spinning System

## VORTEX III 870

VORTEX III 870, newly introduced in ITMA Barcelona 2011, has been highly evaluated for performance, quality, and easier operations. The accumulated delivery of VORTEX III 870 has already exceeded one thousand. Nowadays the market demands have been diversified, and we will continue our efforts to develop VORETX technology for further applications, functions, applicable yarn kinds and yarn counts.



### Superior Quality

- STS system
- Spinning sensor
- MSC (Muratec Spin Clearer)

### User-friendly

- Easy operation
- Easy maintenance
- Easy setting

**Value  
Vantage  
Versatility**

### Higher Performance

- Spinning speed : 500m/min
- Up to 96 spinning units
- Eco-friendly



# VORTEX Yarn

## VORTEX yarn superior quality

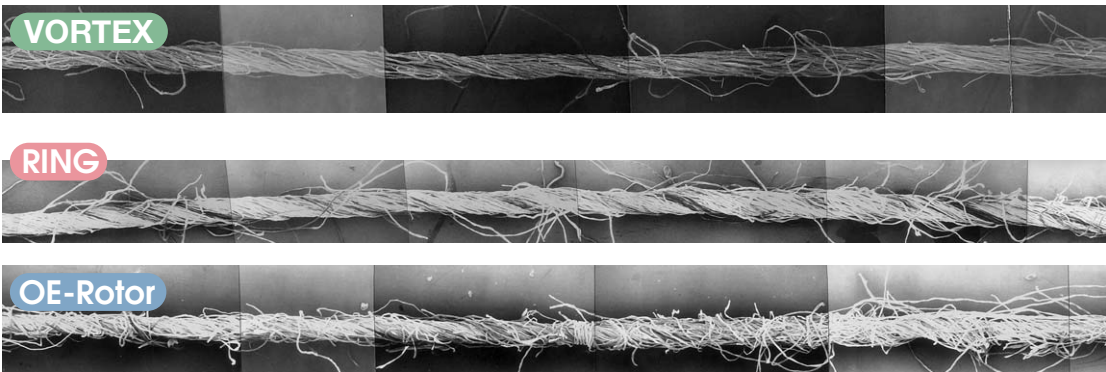


During spinning, the longer fibers converge to the core and short fibers diverge to the outer layer by the air. The unique yarn construction gives VORTEX yarn the following advantages.



- Less Hairiness & Clear Appearance
- Resistance to Pilling & Abrasion
- Water Absorption & Wash Resistance
- Stability against Deformation

## Comparison of yarn formation

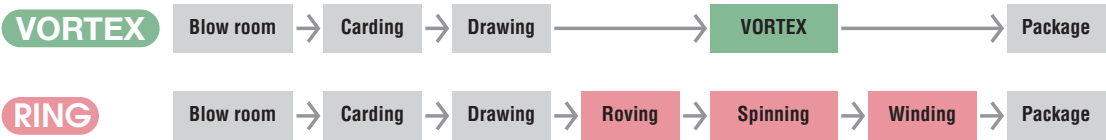


## Yarn count range

| Tex 80 | 60 | 40 | 30 | 24 | 20 | 17 | 15 | 13 | 12 | 11 | 10 | 9  | 8.5 | 8  | 7.5 |
|--------|----|----|----|----|----|----|----|----|----|----|----|----|-----|----|-----|
| Ne 5   | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70  | 75 | 80  |
|        |    |    |    |    |    |    |    |    |    |    |    |    |     |    |     |

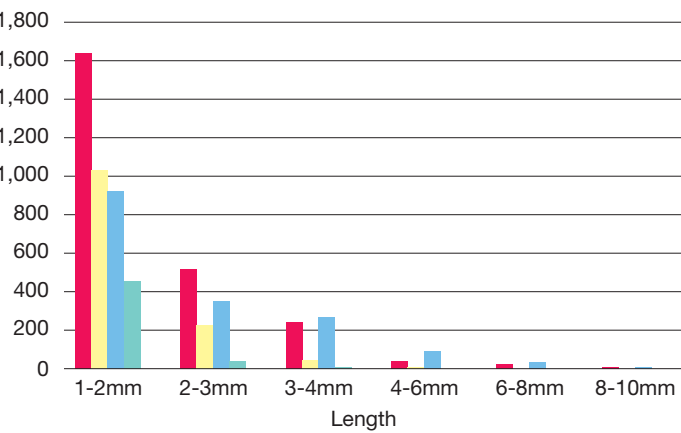
## Process Integration

The VORTEX yarn is spun directly from slivers and wound to packages.



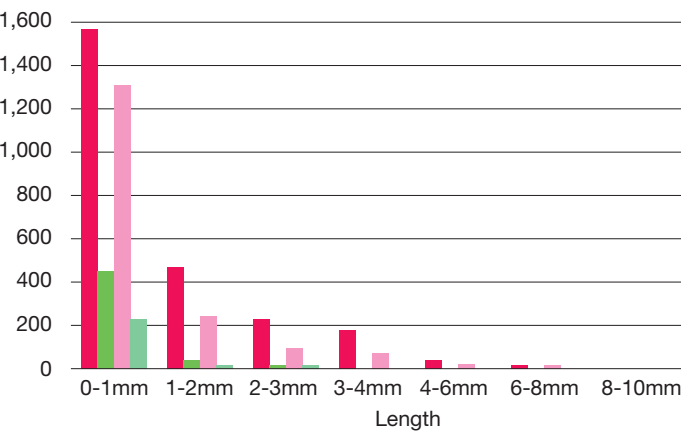
## Comparison of hairiness

### Cotton 100%



Carded cotton 100%  
Ne30/1 (20/1tex)  
The number of hairiness per 100m  
Measured by Zweigle G565, Japan, 2000

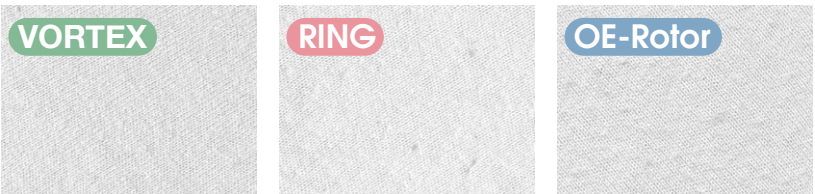
### Polyester 100%



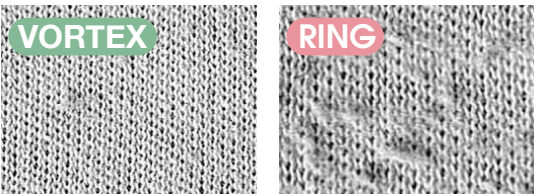
Polyester 100% 1.7dtex, 38mm  
Ne20/1 (30/1tex) for weaving, Ne30/1 (20/1tex) for knitting  
The number of hairiness per 10m  
Measured by Zweigle G565, Japan, 2000

## Comparison of pilling

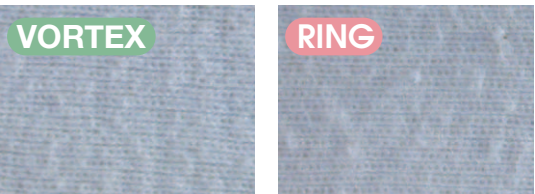
### Knitting



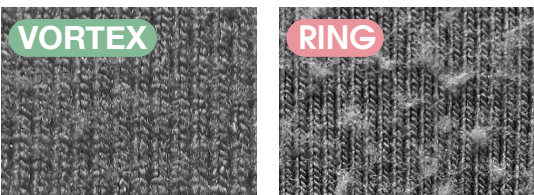
Single Jersey Ne30/1 (20/1tex) Cotton 100%



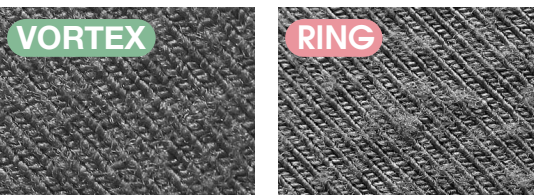
Single Jersey Ne30/1 (20/1tex) PE50/C50



Single Jersey Ne30/1 (20/1tex) Tencel 100%



Single Jersey with spandex rayon 100% Ne30 + spandex 40d



Single Jersey with spandex rayon 100% Ne30 + spandex 40d

### Weaving



200-count sheet Ne41/1 (14/1tex) PE50/C50



# Smart Layout

**1 Sliver**

**2 Relax Zone**

Twist concentration is relaxed for stable drafting.

**3 Draft Part**

The independent drive of 3rd - 4th lines and the wide range of drafting allow for flexible spinning parameters and variation of materials.

**4 Spinning Part**

Highly functional VORTEX yarn is created with VORTEX spinning method. Newly developed nozzles allow for even faster spinning.

**5 Monitoring Part**

MSC and the spinning sensor are installed in the spinning zone. These sensors also provide real time monitoring of spinning conditions.

**6 Winding Part**

Building of yarn packages from parallel up to 5° 57' under high speed winding conditions.

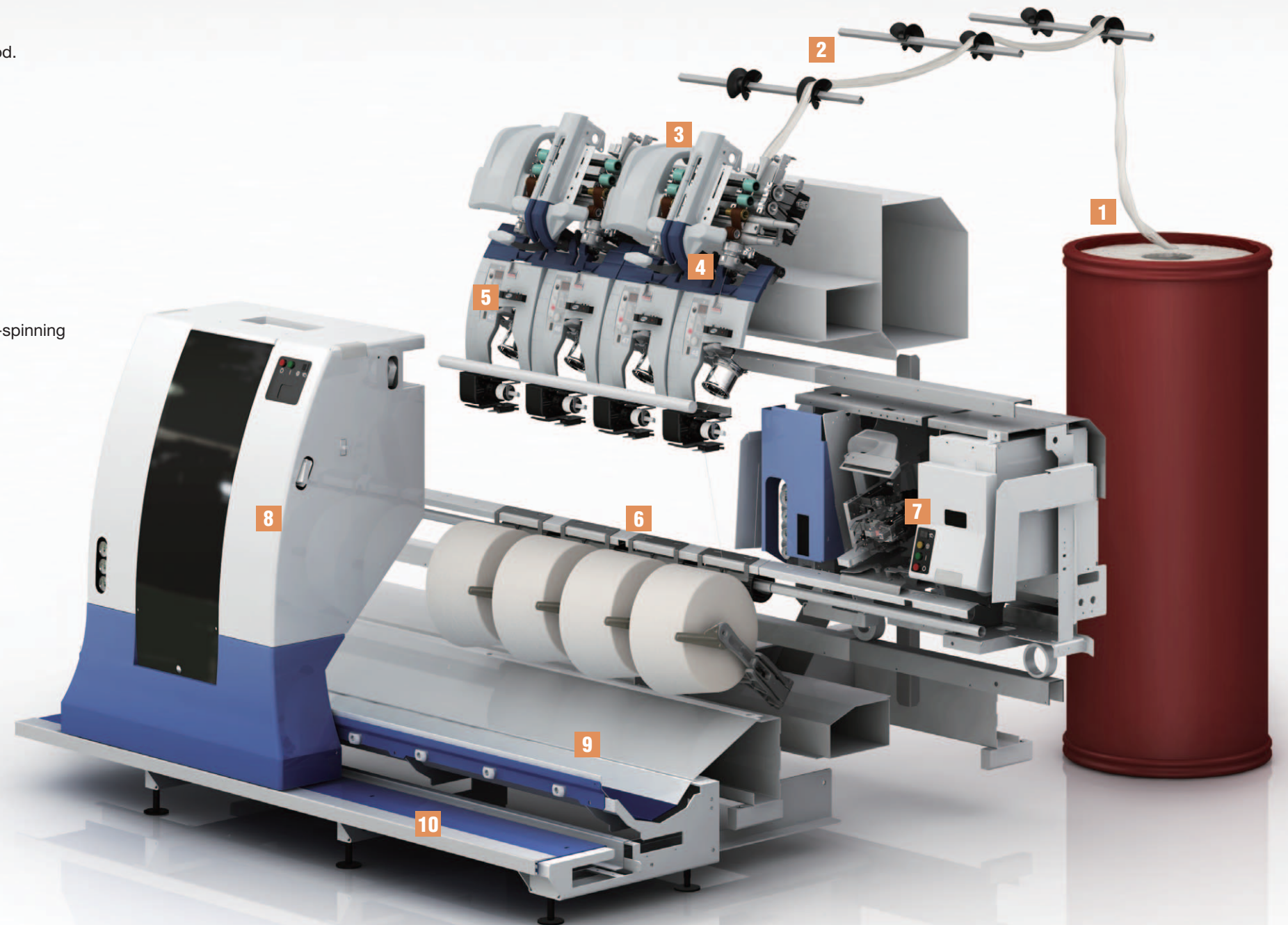
**7 Splicer Carriage**

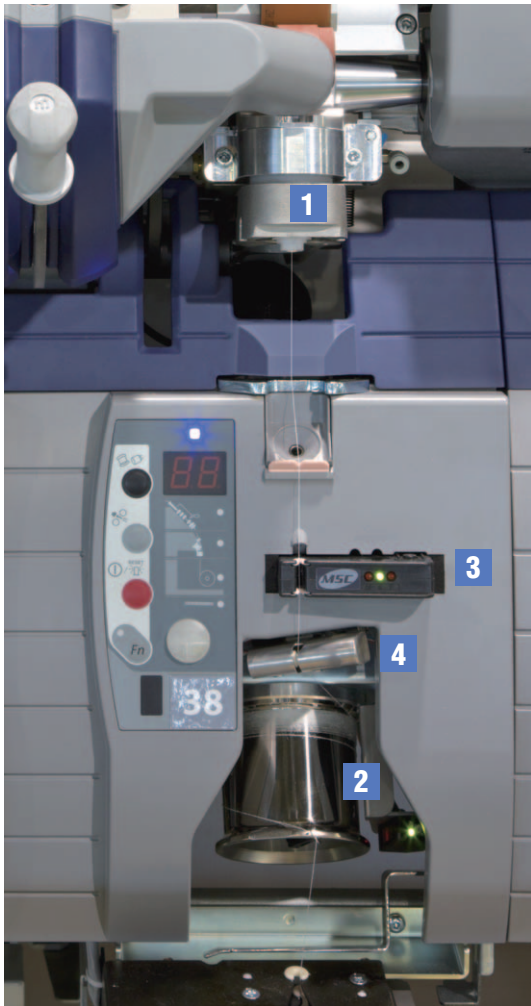
A global standard splicer is mounted. This is made possible by the self-spinning technology.

**8 Auto Doffer**

**9 Package conveyor**

**10 Maintenance Step**





The STS(Spinning Tension Stabilizing)System is a unique and landmark spinning system first used on the VORTEX III 870. Newly developed Friction Roller is equipped in stead of nip roller. More precise control of the drawing of yarn from the spinning. Integrating the clearing part into the spinning part results in the optimum spinning monitoring.

- 1

**Spinning Chamber**
- 2

**Friction Roller**  
Frictional force is generated between yarn and roller by winding a preset amount of yarn onto the friction roller. This frictional force contributes to draw the yarn from the spinning chamber with the roller rotating.
- 3

**MSC**  
Clearing is more precise due to the stable tension provided by the STS system.
- 4

**Spinning Sensor**  
Located between the spinning chamber and the friction roller, the spinning sensor directly monitors spinning conditions. This sensor allows for detection of any irregular conditions which may occur during spinning.

### Precise Detection & Feedback by MSC - Muratec Spin Clearer

MSC - Muratec Spin Clearer is a digital clearer for precise monitoring of yarn quality. It includes a wider tolerance setting and improved defect detection. In addition, it supplies spinning performance data to the VOS. Foreign fiber detection is also possible when equipped with the MSC-F (optional).

### The Function of MSC

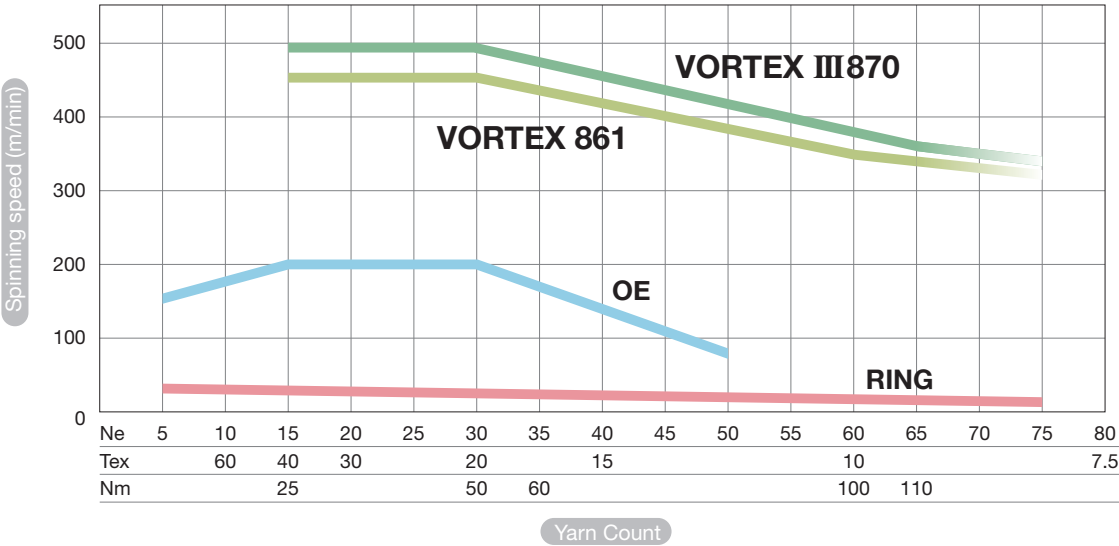
**Yarn defect detection**  
S(Slub), L(Thick), T(Thin)-channel  
TT(Long Thin)-channel  
LL (Long Thick)-channel  
Nep channel  
Yarn diameter index detection channel  
Foreign Fiber Detector (FFD) as option (MSC-F)  
Trash Filter (MSC-F) \*option

**Quality control**  
Continuous CV% measuring  
Precision Classification Data  
Periodic defects (short and long)  
IPI Data  
Hairiness (yarn structure change) Data

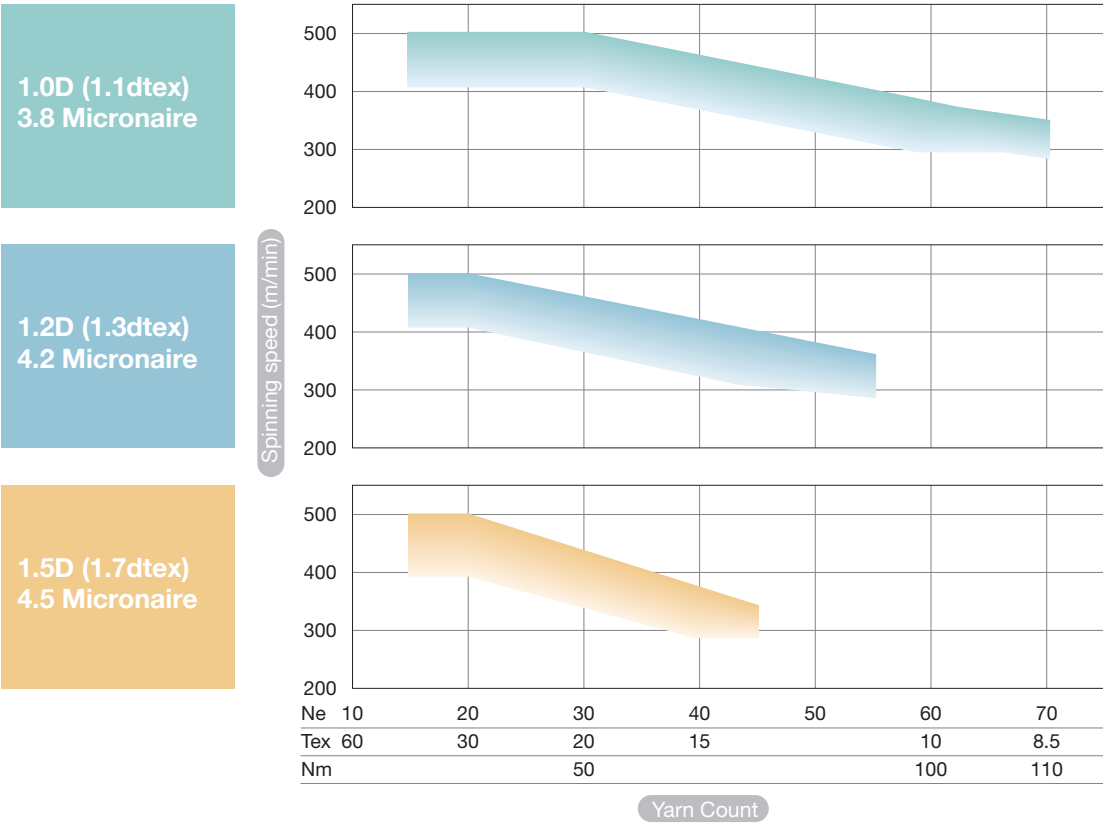
500m/min – World's Fastest Spinning

The VORTEX III 870 boasts the world's fastest spinning of staple yarns at 500m/min. This provides 20 times the production of ring spinning. The VORTEX provides 3 times the productivity even against OE spinning.

Comparison of Spinning Speed by Model/Yarn Count



Relationship of yarn count and spinning speed by Fiber Fineness.



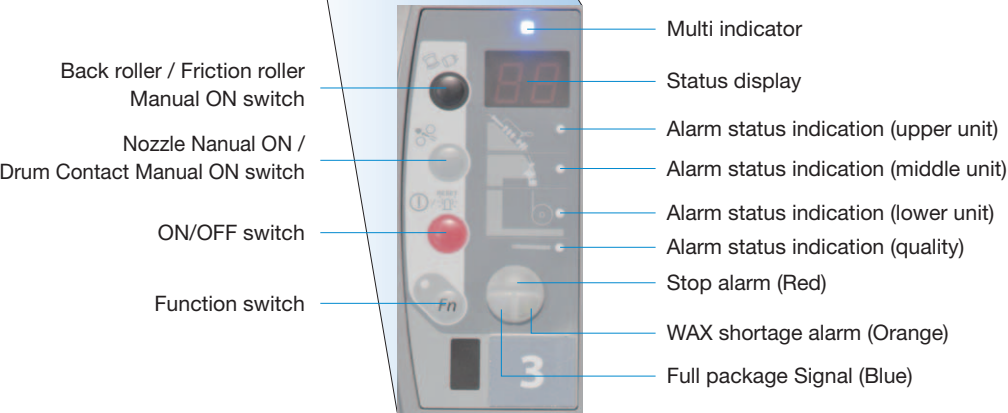


# User-Friendly Equipments



## Unit indicator

Indicates the operational condition of each spindle to the operator. When the unit stops, the indicator shows the problem in the status displays and the location in red lamps. The indicators for a full package, wax shortage and yarn stoppage are easily visible. Also, the each device function can be checked by maintenance mode.



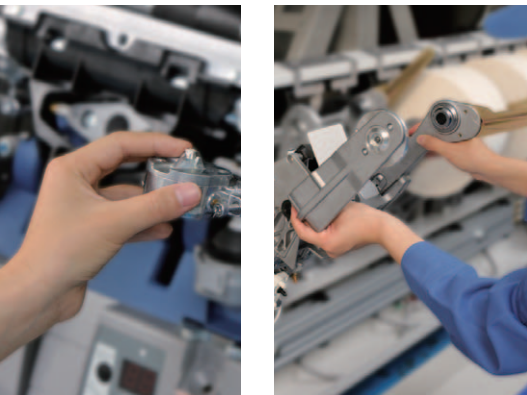
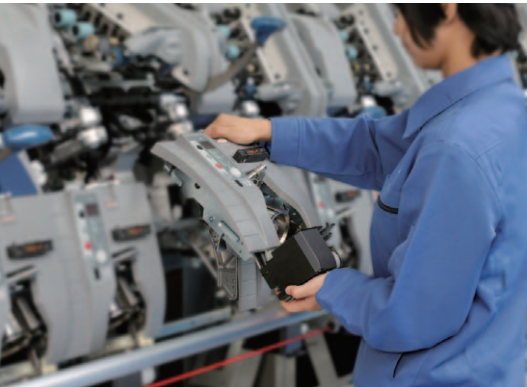
## Easy Operational Layout

A front bar is installed along the entire length of the machine to allow for safe and reliable operation. In addition, a maintenance step is set at the front of the machine for easy operation without damaging packages.



## Modular Design

Major parts are modularly designed for easy maintenance. These parts can be attached and dis-attached without difficulty.



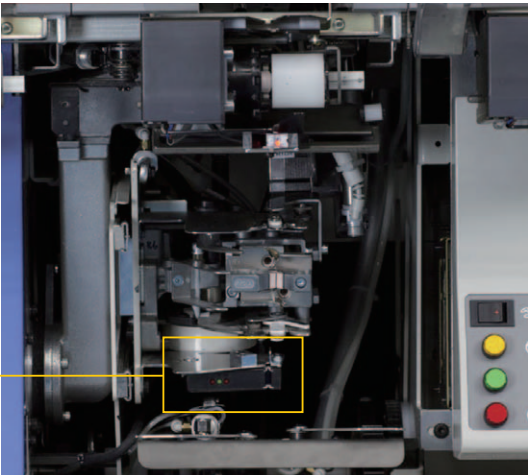
## Splicer Carriage

A maximum of 6 carriages (for 96 units) can be mounted. The Splice Monitor is also available as option. To achieve a quality splice, splicing is fulfilled at the ordinal yarn path by relocating the splicer head. The splicing cycle begins and the end down is restarted.

|                       |                  |
|-----------------------|------------------|
| Cycle Time            | 10seconds        |
| Traveling speed       | 35m/min          |
| Frequency of splicing | 100 times/h/unit |

## Splice Monitor (option)

Checks yarn splice quality.



## AD (Auto Doffer)

Travels in front of the spinning units. After full package is doffed, a empty tube is set on the cradle and a transfer tail is formed first, then starts winding. Doffed packages are automatically placed on the package conveyer.

|                 |             |
|-----------------|-------------|
| Cycle Time      | 15seconds   |
| Traveling speed | 25m/min     |
| Package dia.    | Max. ø300mm |



## Bobbin Stocker

|                        |     |
|------------------------|-----|
| Number of bobbin stock | 160 |
|------------------------|-----|

## Package conveyor

Reduces the operator's work load by transporting full packages to a pickup point at the machine end. A speed adjusting function, automatically slows the conveyor when the packages approach to the machine end and stop when a package reaches the pickup point.

## Package Lifter (option)

A package lifter is available which helps operators to collect packages and contributes to working efficiency.



## POLYMASTER(option)

The special finishing fluid is added to the VORTEX air from the tank mounted in the rear of the machine. The VORTEX air containing this fluid especially helps to solve the problems in 100% polyester or polyester rich materials.





# Total Support

## VOS III – Visual On Demand System

The VOS III visual on-demand system is a data management system which is both flexible and easy to use. It is the product of Muratec's accumulated technology and knowhow. Operation status, yarn quality management, operation management, maintenance management and a variety of other data are graphically displayed on the easily viewable large screen touch panel. Can also be used for production and quality trend analysis.

### Operating summary

Provides various datas of operation conditions. 200 different lots settings can be stored. Spinning Parameters can be either be recalled from the reserved lots or new lot settings can be created. Different spinning parameters can be compared simultaneously.

- Spinning parameters
- Clearing condition
- Setting of package parameters



### Operation management

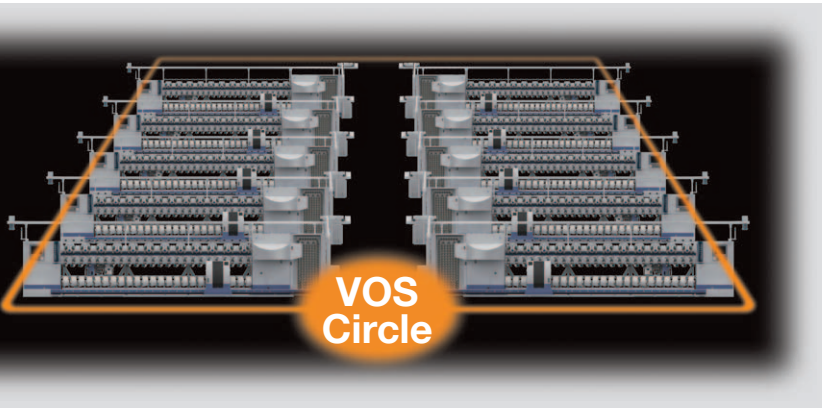
Reports efficiency and reasons for loss in efficiency.



### VOS Circle (option)

Every machine condition can be shown on the VOS monitor of the other machines connected on the network on the same floor. And also, a memory lot can be copied to the several machines simultaneously. (max. 90 machines)

\*Please prepare your network facilities.



### Quality control

Shows the quality report, as yarn defects and IPI. Also shows the trends of machine and spindle.



### Maintenance control

Supports maintenance work with alarm display and shift reports.

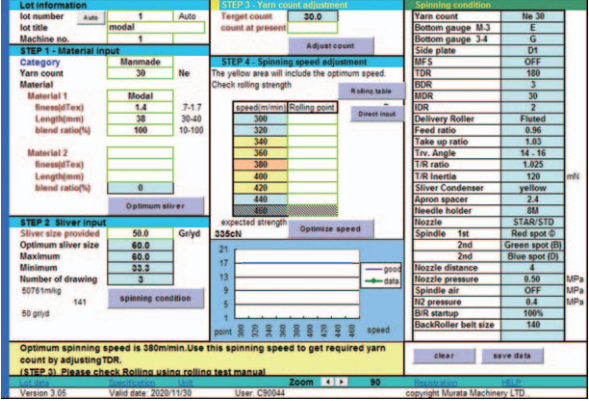


### Clearing simulator

Simulates yarn breakage, at case of changing of clearing parameters.



## Spinning Navigator



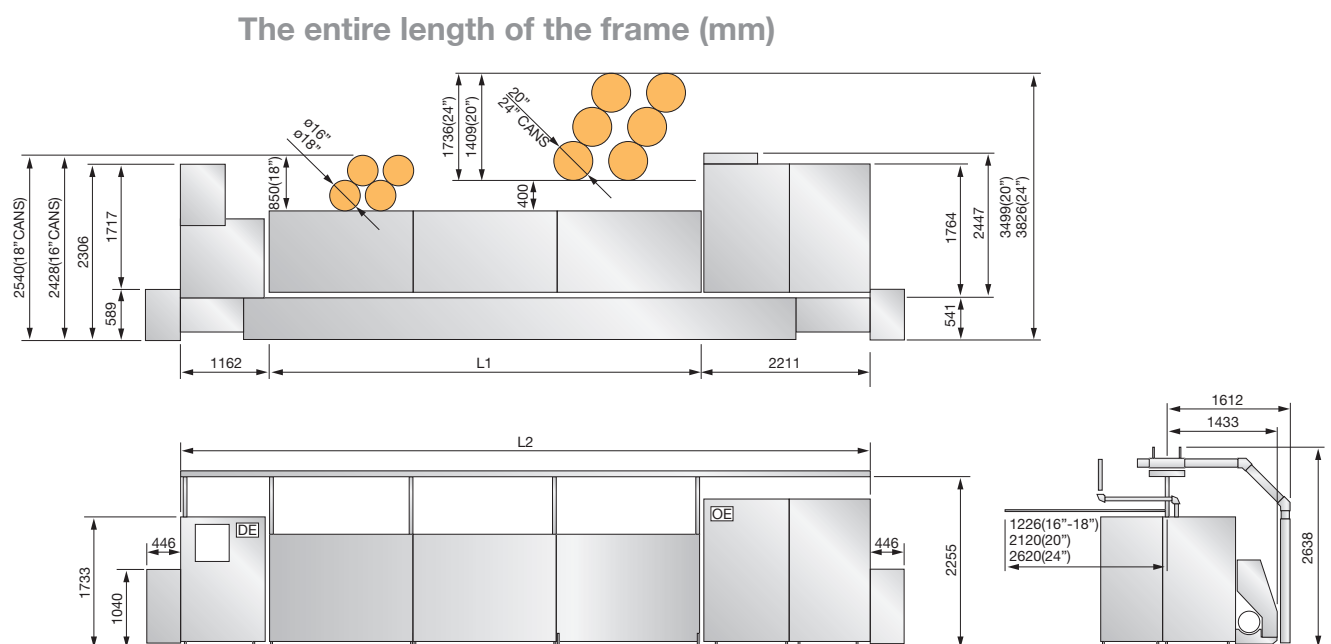
To support setting spinning condition. Spinning Navigator is provided on PC-based software that displays recommended optimal equipment settings and spinning conditions for each yarn count and material used, based on Muratec's proven experience and knowhow.

## VORTEX-LABO (option)

VORTEX-LABO allows for real-time quality and production management, and is an optimal comprehensive management system for VORTEX spinning. It gives a simpler management of operation, production and quality for lots or entire plants rather than for individual frames.



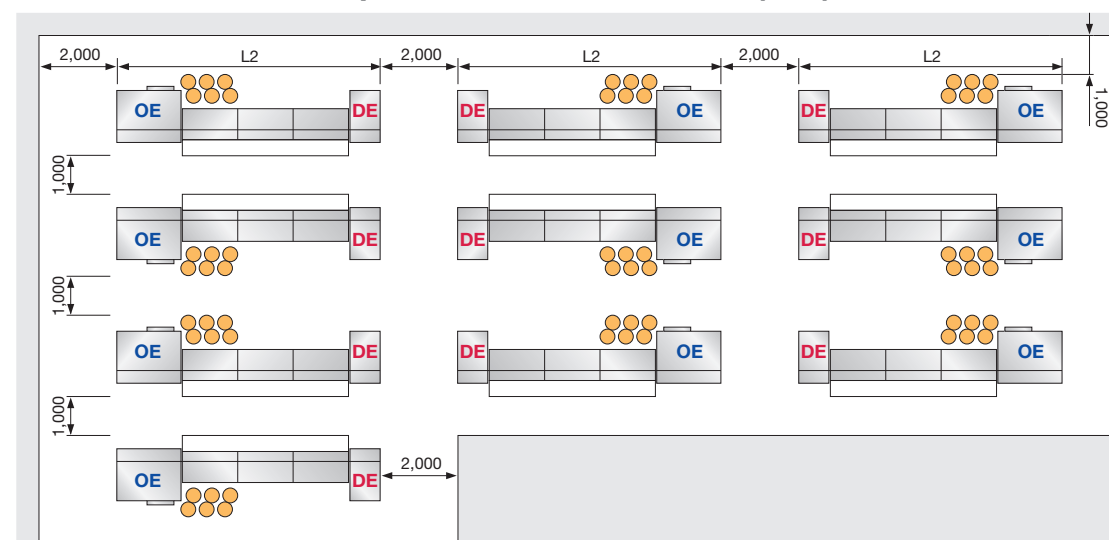
# Machine Dimension



### Dimensions (mm)

| Number of units | 24units | 32units | 40units | 48units | 56units | 64units | 72units | 80units | 88units | 96units |
|-----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| L2              | 9,013   | 10,893  | 12,773  | 14,653  | 16,533  | 18,413  | 20,293  | 22,173  | 24,053  | 25,933  |
| L1              | 5,640   | 7,520   | 9,400   | 11,280  | 13,160  | 15,040  | 16,920  | 18,800  | 20,680  | 22,560  |

### Minimum installation space between the frames (mm)



# Main Specification

|                       |                           |   |
|-----------------------|---------------------------|---|
| <b>Spinning</b>       | Material                  | Cotton 100%, Synthetic/cotton, Synthetic 100% |
|                       | Yarn count range <Note 1> | Ne15 to Ne60 (39tex - 10tex)                  |
|                       | Maximum fiber length      | 38mm (1.5”) max.                              |
|                       | Sliver weight             | 70 to 35Grain/yd (5 to 2.5ktex)               |
| <b>Take-up system</b> | Traverse width            | 6”  |
|                       | Winding shape             | 0’ / 4°20’ / 5°57’                            |
|                       | Maximum diameter          | 300mm   |

<Note 1> Yarn count range may vary with a fiber denier or other properties.

### Standard equipment

|                            |   |
|----------------------------|---|
| VOS III control panel      | 2 Splicer carriages (~48 spindles : 1 carriage) |
| Spinning Sensor            | 1 Auto Doffer                                   |
| MSC (Muratec Spin Clearer) | Automatic Waste Fiber Extracting System         |
| Splicer                    | Package Conveyor                                |

## Optional equipment

|                                |                             |
|--------------------------------|-----------------------------|
| MSC-F (Foreign Fiber Detector) | Additional splicer carriage |
| Waxing device                  | Additional spindle          |
| Package lifter                 | Splice monitor              |
| Over head blow cleaner         | POLYMASTER                  |
| For 51 mm (2 inch) fiber       |                             |

## WEBSITE

The VORTEX website continually provides all of the latest VORTEX information, as well as information on VORTEX partners who can provide VORTEX yarn.



**www.muratec-vortex.com**

