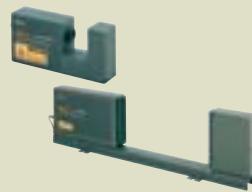


Laser Scan Micrometer  
Measuring Unit

Laser Scan Micrometer  
LSM

Laser Scan Micrometer  
Display Unit



Pages 343–344



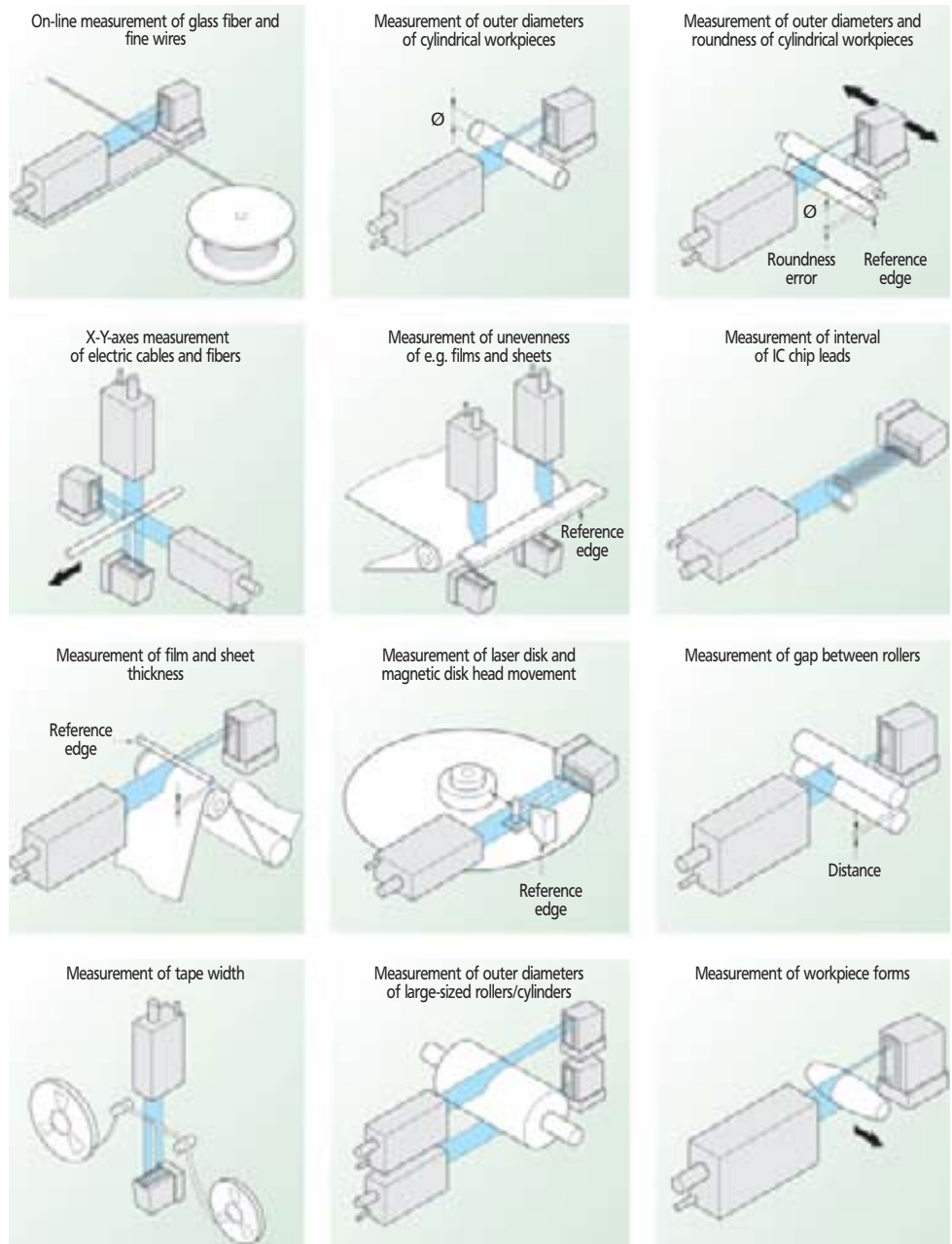
Pages 345–346



Pages 347–348

# Laser Scan Micrometer – Sample Application –

## Series 544



## Laser Scan Micrometer – Application –

The Laser wave measuring instrument is provided with the Mitutoyo Laser measuring systems LSM-503 or LSM-506. Length measurement is executed by a Mitutoyo glass scale. Longitudinal and rotation axis are motor driven. The measuring program enables an easy creation of learning programs by means of the detected part contour. All outside dimensions relevant for lathe works as diameter, distances, runs or approach angle are easily measurable. The stored measuring programs can be repeated in the CNC run. The measuring results can be stored and evaluated statistically by the Mitutoyo analysis software Statpak-WIN.

### Series 544

#### Laser Wave Measuring Instrument



544-032

#### Specifications

Repeatability for diameter measurement: 1  $\mu\text{m}$   
 Repeatability for distance measurements: 10  $\mu\text{m}$

# Laser Scan Micrometer Measuring Unit



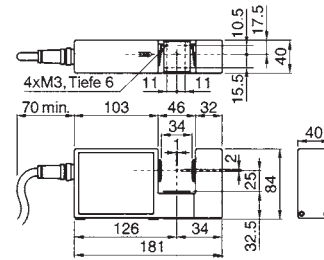
## Specifications

Appropriate display unit  
for LSM-500 H = LSM-5100 / LSM-6100  
see page 347

### Series 544 LSM-500 H



544-453



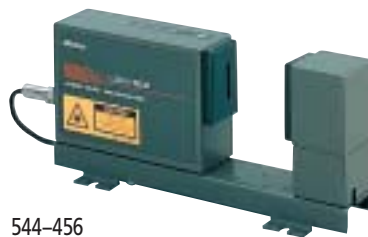
No.	Model	Type of Laser	Protection Standard	Measuring range	Resolution (selectable)
544-553*	LSM-500 H	Visible (650 nm)	IEC Class 2	0,005-2 mm	0,01 μm-10 μm

\* Protection IP-64

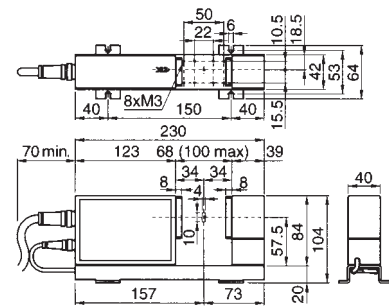
## Specifications

Appropriate display unit  
for LSM-501 H = LSM-5100 / LSM-6100  
see page 347

### Series 544 LSM-501 H



544-456



No.	Model	Type of Laser	Protection Standard	Measuring range	Resolution (selectable)
544-556*	LSM-501 H	Visible (650 nm)	IEC Class 2	0,05-10 mm	0,01 μm-10 μm

\* Protection IP-64

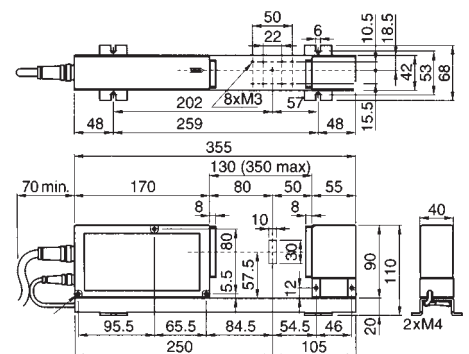
## Specifications

Appropriate display unit  
for LSM-503 H = LSM-5100 / LSM-6100  
see page 347

### Series 544 LSM-503 H



544-459



No.	Model	Type of Laser	Protection Standard	Measuring range	Resolution (selectable)
544-559*	LSM-503 H	Visible (650 nm)	IEC Class 2	0,3-30 mm	0,02 μm-100 μm

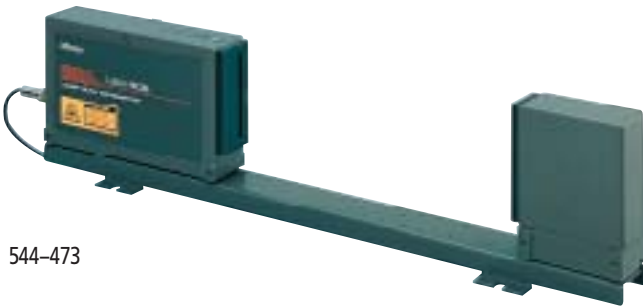
\* Protection IP-64

Detailed information on these and other products can be found in the product brochures which you can request on the Internet at [www.mitutoyo.de](http://www.mitutoyo.de) or tel: +49 (0)2137-102-0 and fax: +49 (0)2137-8685.

# Laser Scan Micrometer Measuring Unit

## Series 544

LSM-506 H



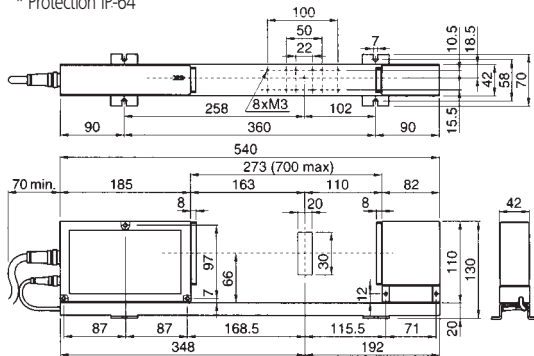
544-473

### Specifications

Appropriate display unit  
for LSM-506 H = LSM-5100 / LSM-6100  
see page 347

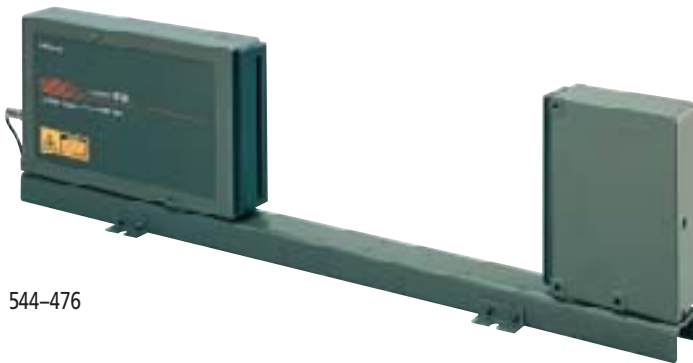
No.	Model	Type of Laser	Protection Standard	Measuring range	Resolution (selectable)
544-573*	LSM-506 H	Visible (650 nm)	IEC Class 2	1-60 mm	0,05 μm-100 μm

\* Protection IP-64



## Series 544

LSM-512 H



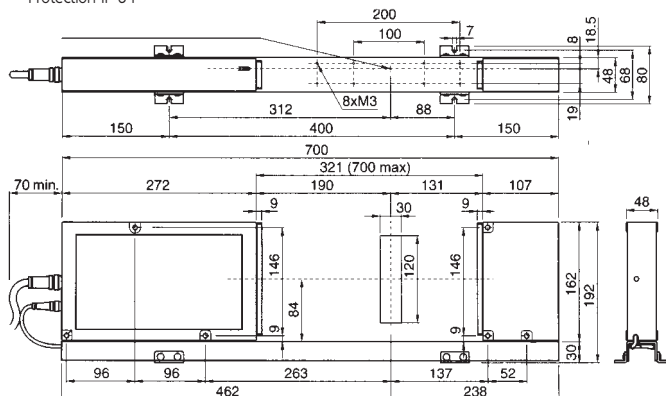
544-476

### Specifications

Appropriate display unit  
for LSM-512 H = LSM-5100 / LSM-6100  
see page 347

No.	Model	Type of Laser	Protection Standard	Measuring range	Resolution (selectable)
544-576*	LSM-512 H	Visible (650 nm)	IEC Class 2	1-120 mm	0,1 μm-100 μm

\* Protection IP-64



Detailed information on these and other products can be found in the product brochures which you can request on the Internet at [www.mitutoyo.de](http://www.mitutoyo.de) or tel: +49 (0) 2137-102-0 and fax: +49 (0) 2137-8685.

# Laser Scan Micrometer LSM-9506

## Series 544

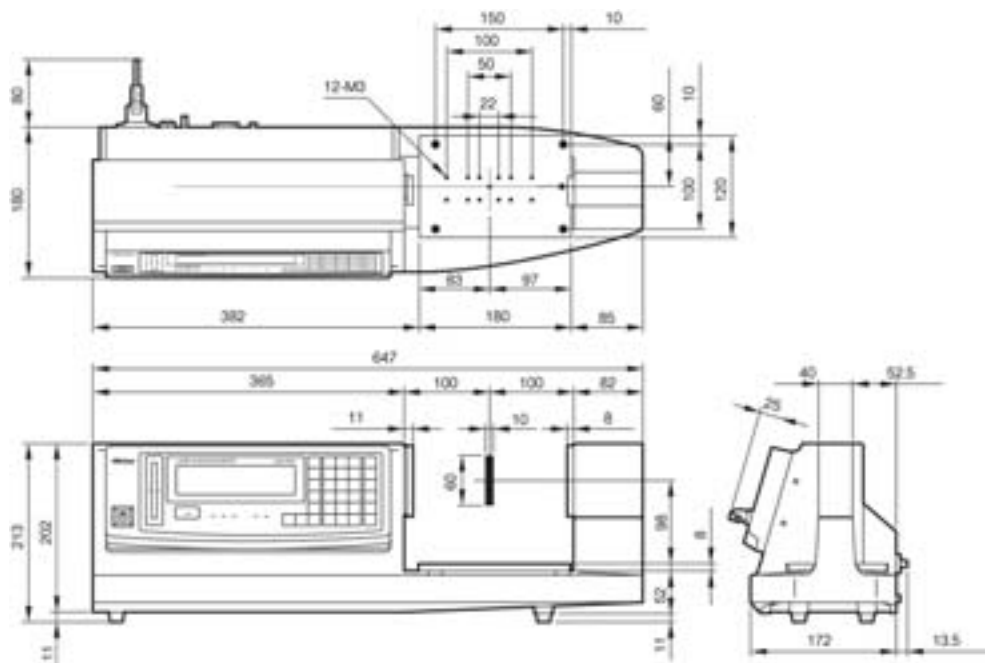
incl. Counter

Sending and receiving unit can not be separated



544-115

No.	Model	Type of Laser	Protection Standard	Measuring range	Resolution (selectable)
544-115	LSM-9506	Visible (670 nm)	IEC Class 2	0,5-60 mm	0,01 $\mu\text{m}$ -100 $\mu\text{m}$



Detailed information on these and other products can be found in the product brochures which you can request on the Internet at [www.mitutoyo.de](http://www.mitutoyo.de) or tel: +49 (0)2137-102-0 and fax: +49 (0)2137-8685.

# Laser Scan Micrometer LSM-902

Laser scan micrometer with a measuring range of 25 mm.

One of the most accurate laser scan micrometers currently available in its class.

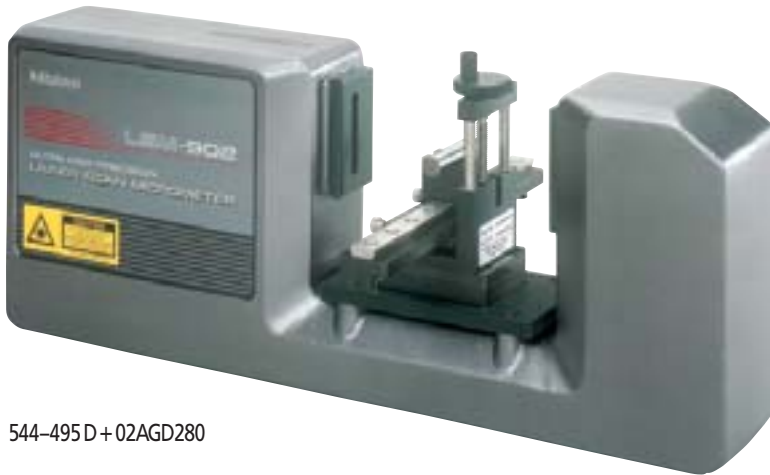
Due to good reproducibility when measuring test gauges, limit plug gauges, roller bearings, shafts and other precise workpieces, the user will be guaranteed satisfaction.

A newly developed laser diode reduces error that may be caused by temperature influences.

A combination of sophisticated lenses and the use of a special compensation method reduces linearity and positional error.

## Series 544

incl. Counter LSM-6900 High clock-pulse rate



544-495 D + 02AGD280

No.	Model	Type of Laser	Protection Standard	Measuring range	Resolution
544-495 D	LSM-902 + LSM-6900	Visible (650 nm)	IEC Class 2	0,1-25 mm	0,01 $\mu\text{m}$

## Series 544

LSM-6900

Desktop type (only useable for LSM-902)



LSM-6900

## Specifications

Repeatability ( $2\sigma$ ):  $\pm 0,05 \mu\text{m}$

Linearity

(entire measuring range):  $\pm 0,5 \mu\text{m}$

Linearity

(short measuring range):  $\pm (0,3 + 0,1\Delta D) \mu\text{m}^*1$

Width of laser beam:  $40 \mu\text{m}$

Number of Scans: 800 Scans / second

Measuring field:  $\pm 1,5 \text{ mm} \times 25 \text{ mm}$

\* 1 diameter difference with the master workpiece

# Laser Scan Micrometer Display Unit

## Specifications

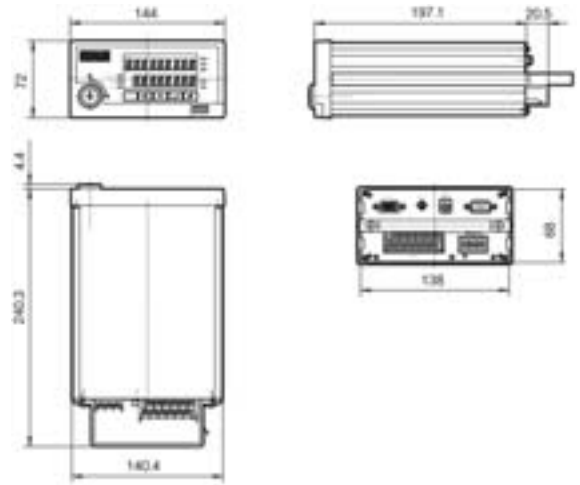
No. 544-039      LSM-5100  
 Power supply:    + 24 V AC/DC  
 Interface / data output: RS-232 C  
                                  I/O  
                                  analogue

## Series 544

LSM-5100  
 Built-in type



544-039



## Specifications

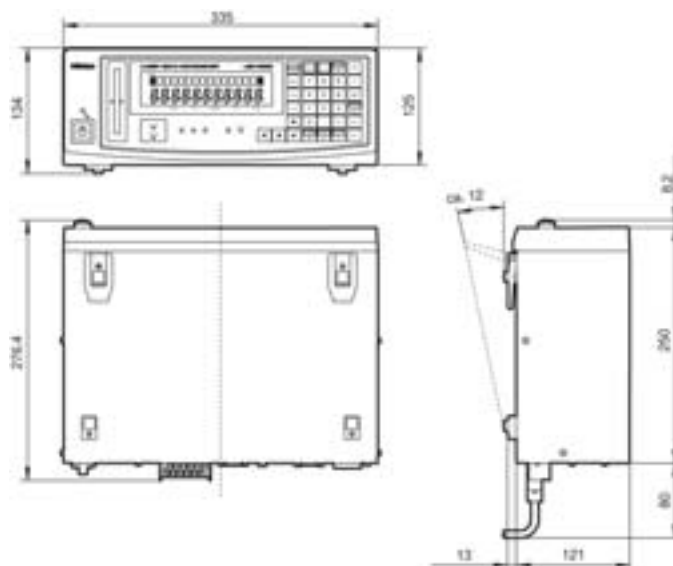
No. 544-069 D      LSM-6100  
 Power supply:      via mains connection  
                                  230 V  
 Interface / data output: RS-232 C  
                                  I/O  
                                  analogue

## Series 544

LSM-6100  
 Desktop type



544-069 D



Detailed information on these and other products can be found in the product brochures which you can request on the Internet at [www.mitutoyo.de](http://www.mitutoyo.de) or tel: +49 (0) 2137-102-0 and fax: +49 (0) 2137-8685.

# Laser Scan Micrometer

## Function Comparison Chart for Counters

### Series 544

	LSM-5100 Built-in type	LSM-6900 LSM-6100 Multifunction type	LSM-9506 Compact type
<b>Functions</b>			
Segment selection (seg. 1 – seg. 7)	●	●	●
Edge selection (1–255 positions)	●	●	●
Arithmetical mean (1–2048 scans)	●	●	●
Mean value displacement (32–2048 scans)	●	●	●
Memory function for measuring conditions (progr. 0 – progr. 9)	—	●	●
GOOD/± NG judgement	●	●	●
Multi tolerance selection (1–6)	—	●	●
Group judgement	—	●	●
GOOD/± NG and analog output signal in standby mode	●	●	—
ZERO setting	●	●	●
Offset function	●	●	●
Setting of reference values	●	●	●
Mastering	●	●	●
Elimination of abnormal data	●	●	●
Automatic workpiece determination	●	●	●
Random sampling (sample 2–999)	●	●	●
Statistical processing (MAX, MIN, range, mean, $\sigma$ )	□	●	●
Data output interval (1 s – 999 s)	●	●	●
Automatic measurement with edge detection	●	●	●
Measurement of transparent workpieces (seg. 1 – seg. 3)	●	●	●
Simultaneous (DUAL) measurement	—	●	●
Measurement of ultra fine wires (with LSM-500 H)	●	●	—
Measurement with two measuring instruments	—	●	—
Display of workpiece position	●	●	●
Locking button function	●	●	●
Double calibration (HIGH and LOW)	●	●	●
Determination of the model number	●	●	—
Resolution selection	●	●	●
Switching mm/inch	●	●	●
Thousands display by decimal point/comma	●	●	●
Selection of digits after decimal point	●	●	●
Monitoring of laser force	●	●	●
Scanning control signal connector	●	●	●
Remote control	●	●	●
SPC (Digimatic) output	—	▲	●
RS-232 C Interface	●	●	●
I/O Interface	●	●	—
Analog Signal output	●	●	—
2. I/O Interface with analog connection	—	▲	—
BCD Interface	—	▲	—
GP-IB Interface	—	▲	—
Footswitch	—	▲	▲
Thermal printer	▲	▲	▲
Dual Unit	—	▲	—

● Standard accessory

▲ Optional accessory

— not included

□ only if an external PC is connected via RS-232 C Interface

# Laser Scan Micrometer Optional Accessory

## Series 544

	Order No.	Designation	For application with:
	02AGD110	Calibration set Ø 0,1 mm, Ø 2 mm	LSM-500(H)
	02AGD120	Calibration set Ø 0,1 mm, Ø 10 mm	LSM-501(H)
	02AGD130	Calibration set Ø 1,0 mm, Ø 30 mm	LSM-503(H)
	02AGD140	Calibration set Ø 1,0 mm, Ø 60 mm	LSM-506(H)
	02AGD150	Calibration set Ø 20 mm, Ø 120 mm	LSM-512(H)
	02AGD170	Calibration set Ø 1,0 mm, Ø 60 mm	LSM-9506
	02AGK400	Additional for dual application	LSM-6900/6100
	02AGC840	Digimatic output	LSM-6900/6100
	02AGC880	Additional I/O & analog interface	LSM-6900/6100
	02AGC910	BCD interface	LSM-6900/6100
	02AGC940	GP-IB interface	LSM-6900/6100
	02AGC330A	Output signal cable (5 m)	All LSM models
	02AGC330B	Output signal cable (10 m)	All LSM models
	02AGC150A	Add. connecting cable (1 m)	All LSM models*
	02AGC150B	Add. connecting cable (3 m)	All LSM models*
	02AGC150C	Add. connecting cable (5 m)	All LSM models*
	936937	SPC signal cable (1 m)	LSM-6900/6100 / LSM-9506
	02AGD400	Adjustable workstage	LSM-501(H)
	02AGD490	Adjustable workstage	LSM-503(H)
	02AGD520	Adjustable workstage	LSM-506(H)
	02AGD680	Adjustable workstage	LSM-9506
	02AGD270	Workstage	LSM-902
	02AGD280	Adjustable workstage	LSM-902
	02AGD440	Center support	LSM-501(H) / 503(H)
	02AGD580	Center support	LSM-506(H) / 9506
	02AGD450	Adjustable V-Block	LSM-501(H) / 503(H)
	02AGD590	Adjustable V-Block	LSM-506(H) / 9506
	02AGD200	Wire guide pulley	LSM-500(H)
	02AGD210	Wire guide pulley	LSM-501(H)
	02AGD220	Air blow cover	LSM-500(H)
	02AGD230	Air blow cover/richtung	LSM-501(H)
	02AGD240	Air blow cover	LSM-503(H)
	02AGD250	Air blow cover	LSM-506(H)
	02AGD260	Air blow cover	LSM-512(H)
	957608	Air filter	All LSM models
	02AGD600C	Thermal printer	All LSM models

\* except LSM-500/-500 N