

# MSE Company Overview & Absolute Color Technologies



# About MSE

## Celebrating 17 years of quality

- Documented 99.2% product satisfaction rate
- Voted highest quality every year
  - 2005, 2006, 2007, 2008, 2009, 2010, 2011

## 900+ employees

## A technology company

- 18 patents & 20 patent-pending technologies

## The largest Manufacturer in USA

- 300,000 toner CPM Capacity

## Channel Integrity

- 100% WHOLESALE
- No “powerhouse/retail” channel

## We are a **GREEN** company



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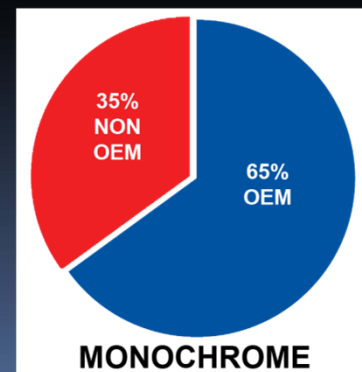
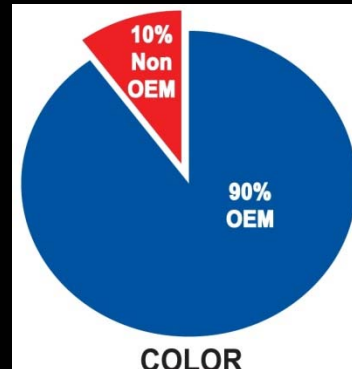
# MSE's Market Position

## PRODUCT QUALITY IN THE MARKETPLACE



## AFTERMARKET COMPETITION

- US Market Consolidation
  - 2002 more than 6,000 rechargers
  - 2011 approx 1,000 US rechargers
- Heavy competition
- Small marketshare
  - 35% monochrome
  - 10% color
- Overcrowded competition
- No branding/differentiation
- Low price = poor quality
- Low price = less profit
- Sales driven by price
  - Market pricing reflects substandard quality



## OEM COMPETITION

- Less than 50 OEM Manufacturers
- Less competition
- Large marketshare
  - 65% monochrome
  - 90% color
- Brand recognition/awareness
- Sales driven by quality and value
- Increase your profits and margins
- Target the largest market segment
- Focus on quality and value to compete
- Offer your customers a better value

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# Research and Development

## World-Class R&D Laboratories

- OEM benchmarking in environmental extremes
  - 90 Degrees / 80% Relative Humidity (High/High)
  - 75 Degrees / 35% Relative Humidity (Ambient)
  - 50 Degrees / 10% Relative Humidity (Low/Low)

## Proprietary components and equipment

## ISO 19752, ISO 19798 Yield Testing

## Direct relationships with manufacturers

- Co-develop proprietary components

## Continuous investment into R&D

## 18 patents, >20 Patent Pending Technologies

## In-House Engineering Facility

- State-of-the-art Machine Shop
- Innovative tools, fixtures, and machines
- Designed and manufactured by MSE engineers
- **MISSION:** *Increase quality and efficiencies through automation.*



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# Quality Assurance

## 100% Incoming components & raw materials testing

- Toner particle analysis
- MicroVu digital inspections
- Electrical analysis of critical components
- Environmental stress testing

**BEFORE  
PRODUCTION**

## Quality Assurance

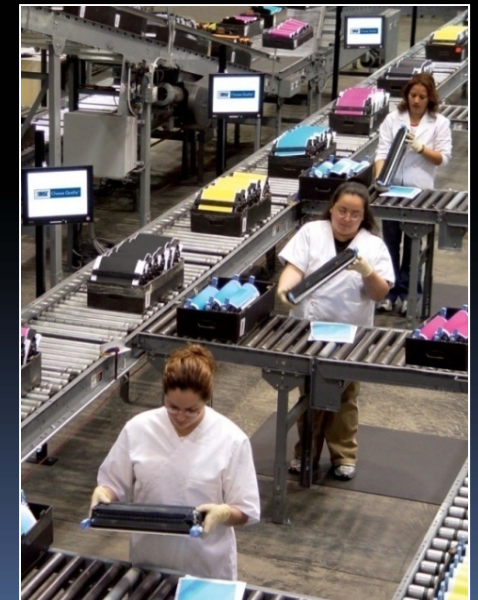
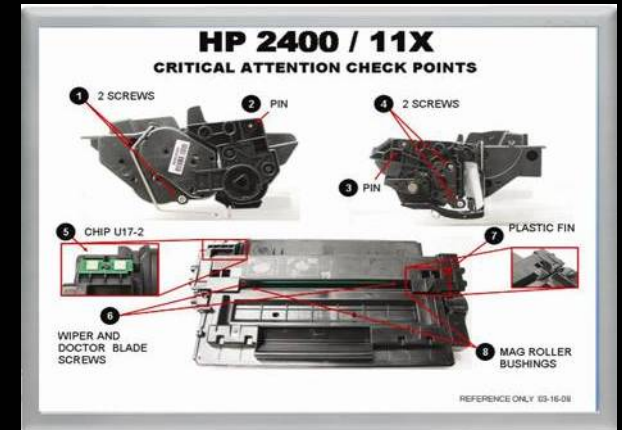
- Multiple in-process QA check points
- Final triple QA inspections
- More than 6 million test pages every month

**DURING  
PRODUCTION**

## Continuous Life Testing

- Simulated shipping
- Environmental stress testing
- Stop & Go printing
- Accelerated aging tests
- Exhaustive post pack audit testing

**AFTER  
PRODUCTION**



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# MSE Quality Standards



INTELLIGENT  
RE-ENGINEERING™

Every aspect of our products from quality and reliability to aesthetics and environmental impact is thoroughly analyzed on an ongoing basis. We look for areas of continuous improvement and create ground-breaking patented technologies to keep pace with OEM design. The result is a better built, higher quality, more consistent product.



ISO 9000 is a family of standards for quality management systems. Some of the requirements in the ISO 9001 standard include: documenting procedures, monitoring processes, keeping adequate records, taking corrective action, regularly reviewing the overall system and facilitating continuous improvement.



The ISO 19752 standard is a standardized page yield test for monochrome (b/w) laser printer cartridges. The test is done with a minimum of nine cartridges tested on three separate printers with a standard print/test page under specific environmental conditions and printer settings.



The ISO 19798 standard is a standardized page yield test for color laser printer cartridges. The test is done with a minimum of 12 cartridges (three sets of CMYK) tested on three separate printers with a standard set of five different print/test pages under specific environmental conditions and default printer settings.



The Accredited Standards Committee X9 (ASC X9) has the mission to develop, establish, maintain, and promote standards for the Financial Services Industry in order to facilitate delivery of financial services and products.

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# MSE Absolute Color Technologies – HP 4600

**1. Patented Ultrasonic Welding:** MSE's patented ultrasonic welding technologies ensure exact OEM realignment, eliminate human error, leaking and also the need for reassembly clips.

**2. Patent-Pending SCS Technology:** MSE's patent-pending secondary cleaning system addresses historical streaking and PCR additive build up issues and improves overall print quality and cartridge cleanliness.

**3. Proprietary Pin Removal System:** MSE uses a proprietary technology to remove pins without drilling. This eliminates cartridge wobble caused by improper removal.

**4. Proprietary OPC Drum:** Most MSE drums are specially formulated for MSE and are only available on MSE products. They are specially matched to our toner formulations and ensure color matching and image density and longevity.

**5. Proprietary Toner Formulations:** MSE's color matching toner formulations ensure proper image matching and accurate color density without hazing or backrounding.

**6. Patent-Pending Gasket Sealing System:** To eliminate leaking, MSE designs and manufactures automated and robotic equipment that applies a continuous waterproof gasket seal.

**7. Patented Seal:** The MSE's patented seals overcome historical challenges such as "cigar rolling" and ensure that seals pull completely out easily without getting stuck. They are available on multiple models.



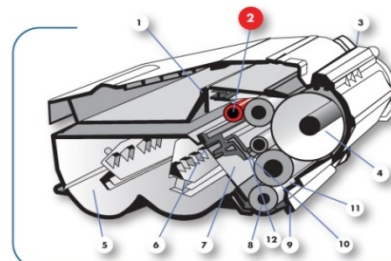
**8. Proprietary Adder Roller Treatment:** MSE's proprietary adder roller treatment evenly supplies toner to the developer roller/sleeve to produce consistent image density and accurately matched colors.

**9. Patented Separation System:** MSE's patented splitting equipment does not remove plastic or cut through OEM alignment pins like standard rotary blade splitting systems. This allows precision realignment, resulting in superior cartridge integrity and eliminates leaking.

**10. Proprietary Doctor Blade Treatment:** MSE's proprietary doctor blade treatment ensures print densities are more consistent, that toner is delivered/dispersed evenly, and it also eliminates streaking on solid images.

**11. Patent-Pending Toner Evacuation Technologies:** To eliminate potential leaking and/or "sweating" during cartridge transport, MSE has developed multiple patent-pending systems to remove any excess toner after post testing.

**12. Patented Doctor Blade Positioning:** Ensures uniform distribution of toner and optimal charging characteristics.



HP LaserJet 4600 Series  
cartridge cross section view

Complete with Smart Print Chip

SCS Technology

Patented technology

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# Historical Challenges

- **Toner Issues**
  - Backgrounding
  - PCR adherence
  - Toner additive buildup on OPC & PCR
- **Cleaning Issues**
  - Related to toner and wiper blade *tolerances*
- **Multiple versions of OEM critical parts**
  - Developer rollers and PCR's make combinations *exponential*
- **Low humidity quality issues spike**
- **All resulting in industry wide quality issues**
  - Background levels
  - Streaking
  - Banding
  - Uneven print etc...

# Testing

- **Tested over 500,000 test pages in house**
- **Environmental testing**
  - Low/Low
  - High/High
  - Ambient/Ambient
- **Print Testing**
  - Continuous page
  - Stop-Go
- **Extensive beta testing with several customers**
- **RESULTS**
  - 100% success in print quality and customer satisfaction
- **Available in – HP4600, 5500, 4700, 3525, 4525**

# Photo of cartridge after 1 full life cycle



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# Close Up

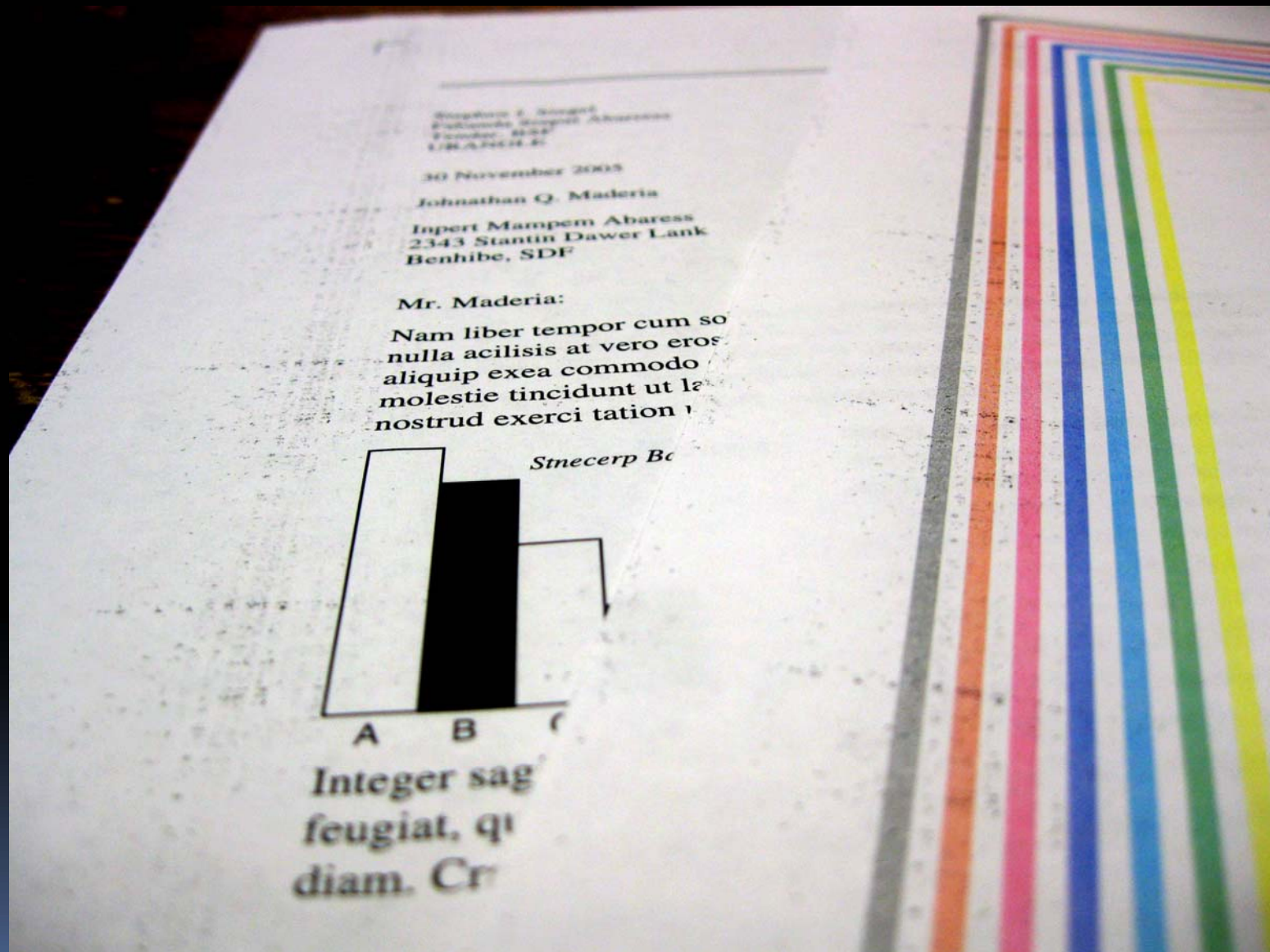


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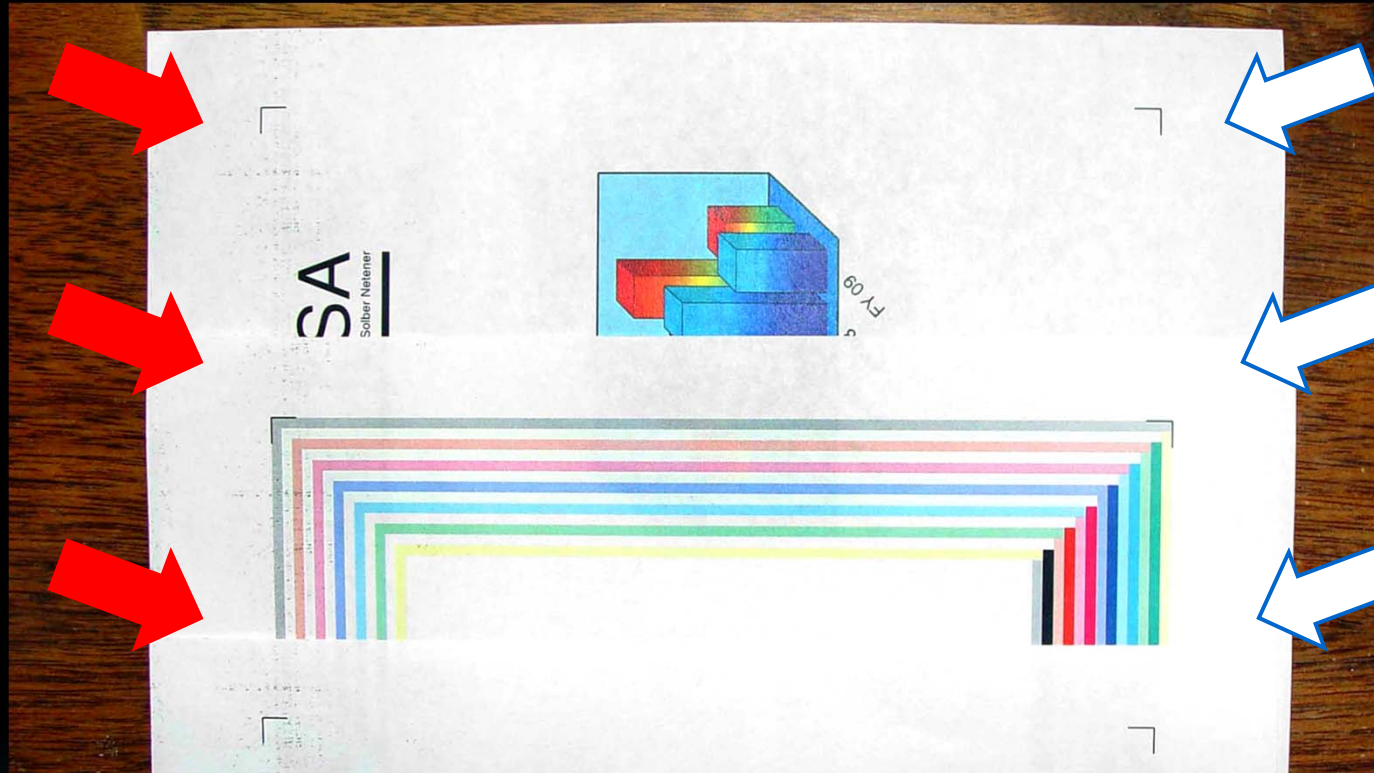


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# Test Page Example



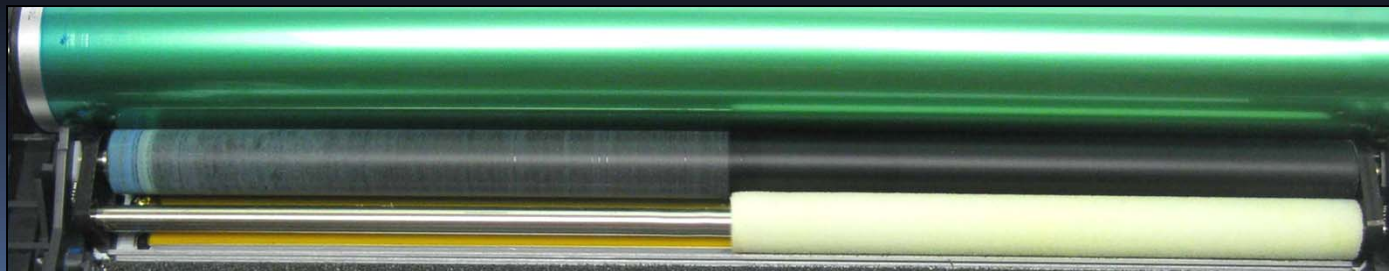
# MSE Technology eliminates print defects



Clean, clear prints  
on the  
side containing  
Patent-Pending  
Secondary Cleaning  
System

WITHOUT SCS

WITH SCS



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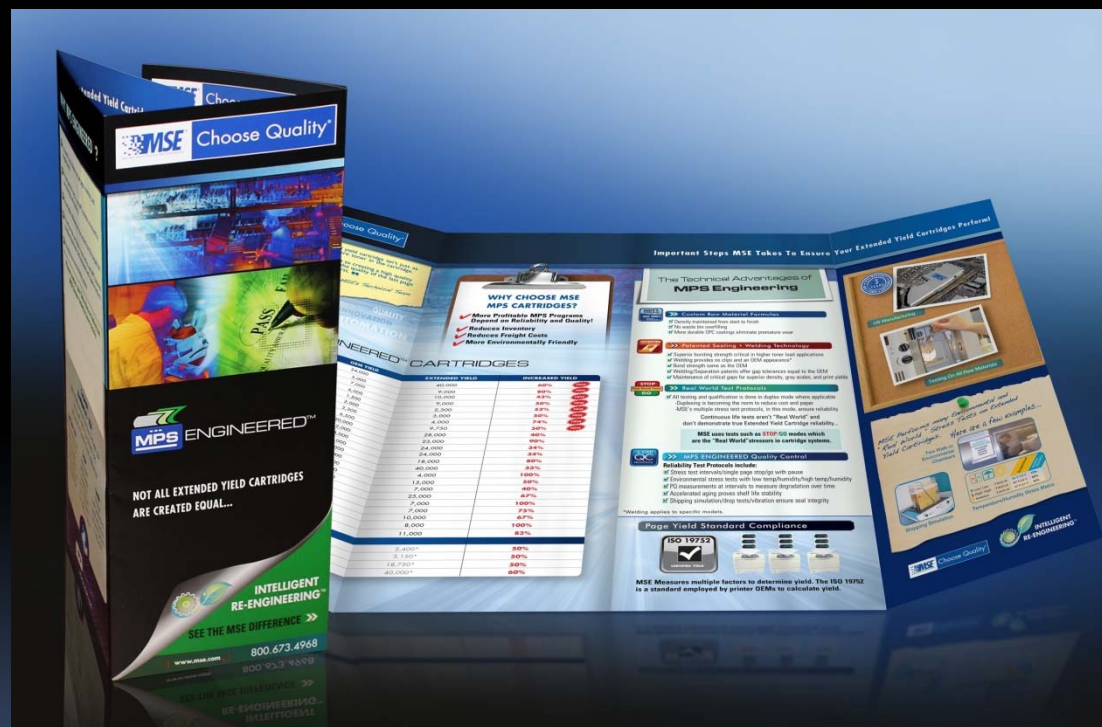
## Benefits

- Lower costs to customer and end user
- Increase margin for customers
- Reduces inventory
- Reduces freight costs
- Fewer cartridge changes
- More environmentally friendly!

## Designed for MPS solutions

## For most popular models

## Up to 100% MORE yield!



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# Extended Warranty

## OEM WARRANTY

ALMOST EVERY MAJOR  
BRAND OEM (ORIGINAL  
EQUIPMENT  
MANUFACTURER) OFFERS  
ONLY A **ONE** YEAR, LIMITED  
WARRANTY.



## MSE WARRANTY

MSE BRAND TONER  
CARTRIDGES HAVE A  
**THREE** YEAR  
100% WARRANTY



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# Sales and Marketing Support

- Joint sales calls
- Factory tours
- End User Video
- Marketing Templates
- Customer specific programs
- Customized materials
- Co-op funds

## Save up to 40% with MSE Brand Compatible Imaging Supplies



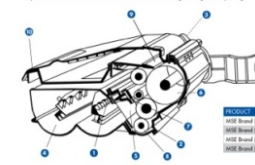
MSE Brand Compatible imaging supplies are your best choice to experience quality and value. Our products manufactured under the most stringent manufacturing protocols and is why MSE Brand quality rivals the original. We guarantee our products will perform better than any other compatible imaging supply and, as always, never void your warranty.

Some MSE Products actually print twice the life than the corresponding cartridge that was originally designed for the machine. Now that's value. If you don't mind paying less for comparable quality, make your next cartidge MSE Brand cartridge!

GENERIC MODEL	MSE Part #	YIELD	GEN #	GEN \$	MSE \$	SAVING
HP LaserJet 4000/4050 Series	02-21-2718	10,000	C4737A	\$125.00	\$67.50	46%
HP LaserJet 4200 Series	02-21-2814	12,000	G1318A	\$155.00	\$74.00	52%
HP LaserJet 4600/4600i Series	02-21-2814	9,000	C4735A	\$160.00	\$79.00	50%
HP LaserJet 4600 Color Series	02-21-2114	9,000	C4731/23/23	\$211.00	\$108.00	49%
HP LaserJet 2300 Series	02-21-2014	6,000	Q6610A	\$120.00	\$65.00	46%
HP LaserJet 1000 Series	02-21-4214	30,000	CE434X	\$240.00	\$109.00	54%
HP LaserJet 1200 Series	02-21-1810	3,500	CF110A	\$82.00	\$49.00	40%
Canon F47 Series	04-06-2714	4,500	7621A021AA	\$170.00	\$80.00	53%
Canon L30 Series	04-06-3014	5,000	4612A011AA	\$143.00	\$70.00	51%
Lexmark Optra S Series	02-24-2716	17,000	1362025	\$224.00	\$147.00	35%
Lexmark Optra S Series	02-24-2716	35,000	1344740	\$308.00	\$155.00	50%
Lexmark 1400 Series	02-24-2216	30,000	12A4763	\$340.00	\$215.00	37%
Lexmark 1200 Series	02-24-2216	30,000	12A4731	\$319.00	\$190.00	40%
Brother 1520N/1520 HL Series	02-24-2416	6,000	764400	\$74.00	\$37.00	50%

**NEW PRODUCT - 4600**

Not all cartridges are created equal. With the use of our proprietary components and Patented Technologies, MSE is able to manufacture the highest quality HP 4600 compatible toner cartridges in the market. MSE doesn't just assemble toner cartridges; they exercise innovation and utilize their state-of-the-art engineering in every design.



**Replacement for HP LaserJet 4600 Series**

GENERIC MODEL	MSE Part #	YIELD	GEN #	GEN \$	MSE \$	SAVING
HP LaserJet 4600 Series	02-21-2714	9,000	C4735A	\$160.00	\$79.00	50%
HP LaserJet 4600 Color Series	02-21-2114	9,000	C4731/23/23	\$211.00	\$108.00	49%
HP LaserJet 4600i Series	02-21-2814	9,000	C4735A	\$160.00	\$79.00	50%

- MSE Proprietary Splitting System**  
MSE's proprietary splitting system does not require a laser of the toner cartridge inside, instead for toner to be split and split. This allows precision alignment during manufacturing and results in superior toner quality.
- Proprietary New OPC Drum**  
The MSE 4600i drum was specially formulated for MSE and is only used in MSE products. It is specially formulated to ensure toner and toner proper toner coating and accurate image density.
- Proprietary treatment on Drum Blade**  
MSE's proprietary treatment of the drum blade removes 100% of residual toner and drum discoloration. By doing so, images are more consistent and are more vibrant.
- New OEM Type Roller Blade**  
MSE's roller blade design closely mimics the OEM roller blade design to provide consistent image density and accurate image density.
- MSE Wiper Blade**  
MSE's wiper blade design closely mimics the OEM wiper blade design to provide consistent image density and accurate image density.
- Full Chip Solution**  
MSE's full chip solution is a proprietary design that allows MSE to control the entire printing process from the drum to the paper.
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## MSE Compatible Imaging Supplies—Experience a Better Value!



When choosing your next replacement cartridge consider these factors to calculate your best value:

- Price - Purchase price
- Quality - Overall quality of product
- Value - The ratio of price to quality (return on investment)

**GENERIC**

The Original Equipment Manufacturer (OEM) has set the benchmark for price, quality and value for their products. Their initial design was to compete with other OEMs and maximize the quality and cost per page or selling points. Simply put, they have set the standard.

**GENERIC RETAIL**

In comparison to OEMs, most generic cartridges are built under substandard manufacturing conditions. The result is an inconsistent product of uneven quality. To calculate value in OEMs because each manufacturer is independent of one another.

**MSE**

MSE Products are always consistent and are always your best value. Our products typically cost 50-60% less than OEMs and have equal performance. Some MSE products even outperform the OEM page yields by as much as 10%. If you don't mind paying less for comparable quality make your next cartridge a MSE cartridge.



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## 100% WARRANTY

All MSE Branded toner cartridges carry a full, three-year comprehensive warranty\* beginning the date of manufacture. In addition, All MSE Branded edge cartridges carry a full, three-year comprehensive warranty\* beginning the date of manufacture. MSE warrants our compatible imaging supplies to be free from defects in full material and workmanship. At no charge, MSE will replace the toner and/or refund the full purchase price of any toner found to be nonconforming.

In addition, we further warrant that our products will not cause damage, deterioration or abnormal wear to any compatible machine for which it was originally designed. This warranty covers all equipment used within the manufacturer's specifications and does not include acts of God or misuse.

If a defect in any MSE product is found to be the sole cause of damage to any equipment, MSE will reimburse the customer for a complete repair. This warranty is dependent upon the customer providing MSE with satisfactory evidence that the damage was due to a defect in an MSE product. All claims must be accompanied with an invoice from the authorized service company that performed the repair. The invoice must clearly indicate the specific of the repair along with contact information of the full service technician that was dispatched.

Reason of the defective product is required and must be clearly marked with an official MSE record book on the outside of the package. Any sign of tampering with the product by non-MSE personnel will void this warranty.

MSE's liability shall be limited to repair, replacement or reimbursement as stated above. This warranty is exclusive and in lieu of any and all other warranties, expressed or implied.

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# The MSE Advantage Summary

## Award winning quality

- A TRUE OEM alternative

## Technology and innovations

- Intelligently Re-engineered™
- NOT a typical remanufactured product

## Geographic advantages

- 100% Made in the USA!
- Facility tours & joint sales calls

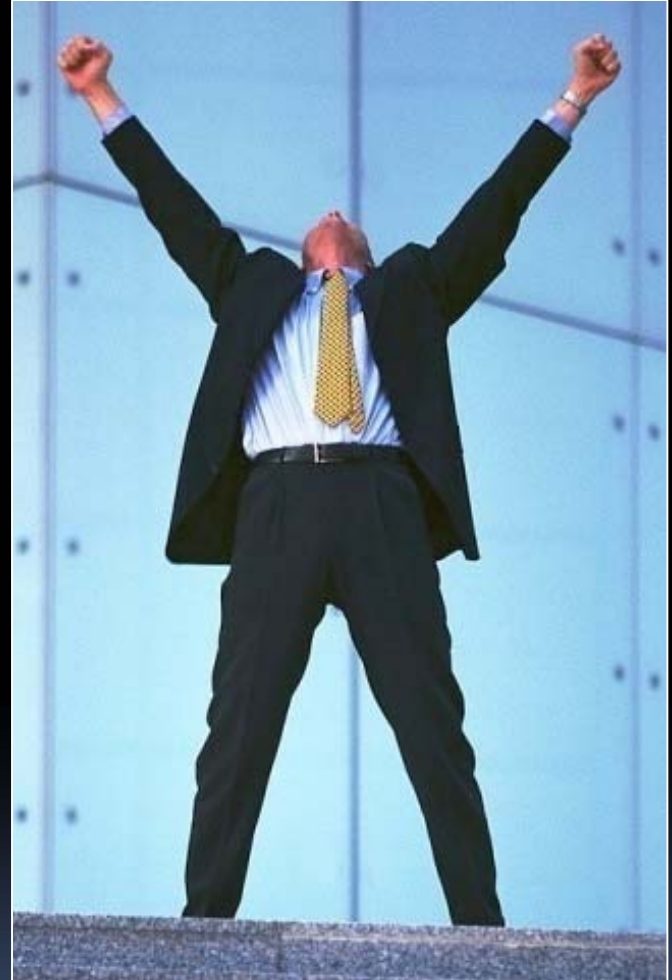
## Sales and Marketing Tools

- Complete marketing systems

## Dedicated personnel and support

- Backed by a team of MSE specialists

## Extended warranty (better than OEM)



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