



HP PRECISION FEED TECHNOLOGY

Ensuring easy, reliable scanning

CONTENTS

Technology overview	2
Benefits	2
How does it work?	2
Two ADF architectures	2
Multiphase pick process	3
Advanced separation	4
Intelligent picking	4
Mixed-stack handling	5
Ultrasonic multi-feed	5
Summary	5



TECHNOLOGY OVERVIEW

Have confidence that your documents are reliably scanned with HP Precision Feed technology, a set of innovative technologies created to ensure a dependable on-ramp to your digital workflow. These technologies enable reliable scanning of almost any document type, even mixed stacks of different paper sizes and weights. Whether you scan correspondence that has been folded, mixed stacks, business documents or even ID cards, HP scanners with HP Precision Feed technology deliver the peace of mind that comes with knowing that you'll never miss a page.

BENEFITS

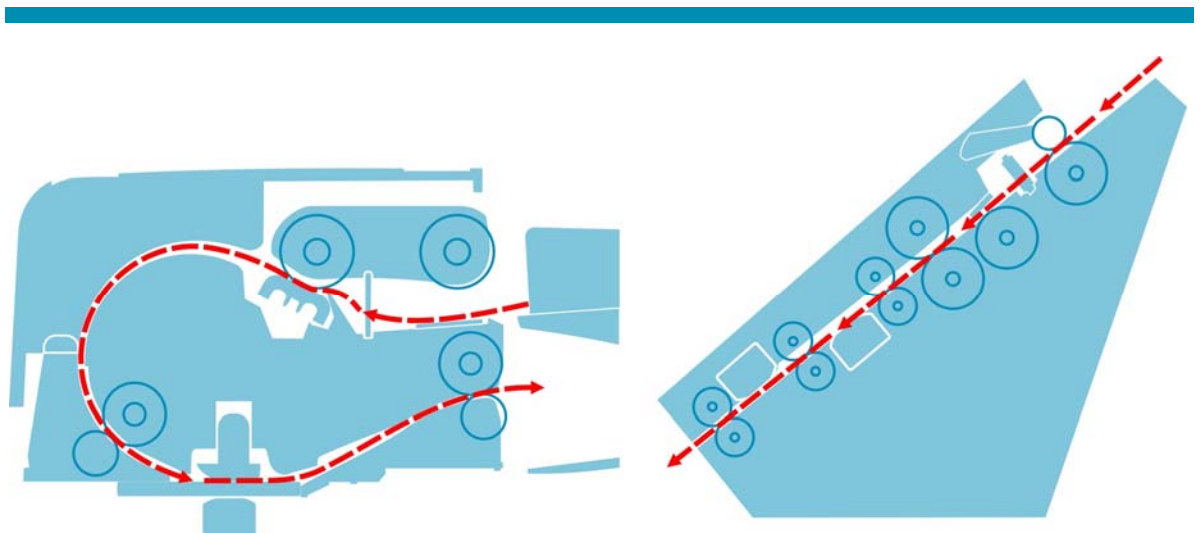
HP Precision Feed technology provides the following benefits:

1. Rely on simple, hassle-free scanning for nearly any kind of input, including mixed stacks of documents.
2. Minimize your downtime due to misfeeds and stoppages with precise, variable pick technologies that accommodate a variety of input types in almost any environment and deliver fast, efficient scanning.
3. Enjoy peace of mind, knowing that all of your data has been captured, with HP Precision Feed technology's innovative safeguards in the event of a misfeed or stoppage.

HOW DOES IT WORK?

Two ADF architectures

First, a word on the two types of automatic document feeders (ADF) employed by HP scanners with HP Precision Feed. Depending on the scanner type, either a C-path or straight-path ADF is used. The C-path ADF picks the top page from the input tray and feeds it through a half-circle, "C" path for processing. The straight-path ADF picks the bottom page from the input tray and feeds it through the ADF. Both ADF types preserve the page order of the paper placed in the input tray. The two paths are illustrated below.



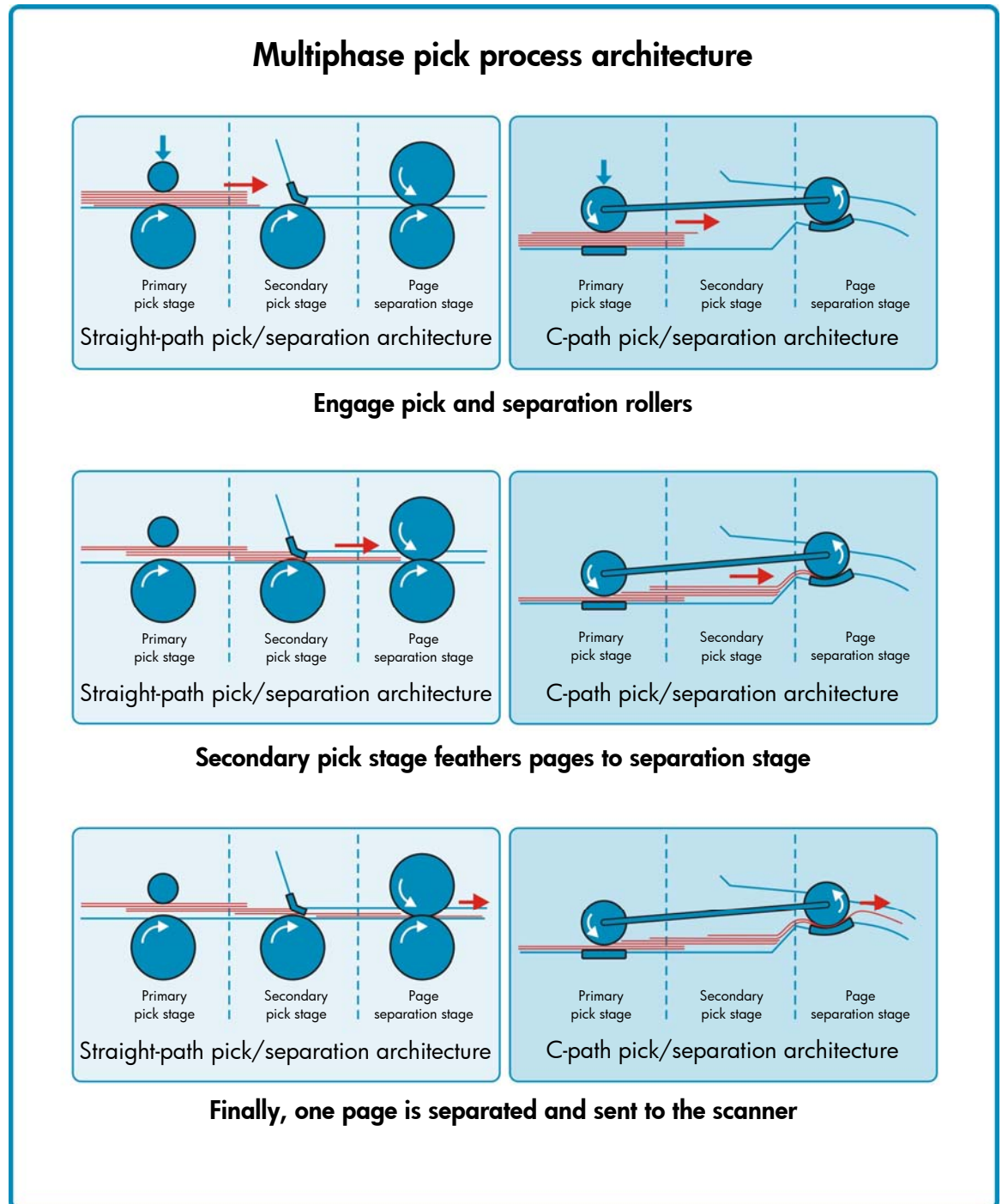
C-path ADF cross section

Straight-path ADF cross section

Multiphase pick process

The multiphase pick process separates a stack of paper into increasingly smaller stacks for accurate scanning of each page. Separation occurs in stages, minimizing the possibility of feeding multiple pages to the scanner. From the full stack of paper in the input tray, the scanner first selects a small stack. This small stack is then further reduced as it passes through three separation stages, until a single sheet is separated and scanned. The final separation of one page is described in greater detail under "Advanced separation" on page 4.

The diagrams below illustrate this process for C-path and straight-path ADFs.

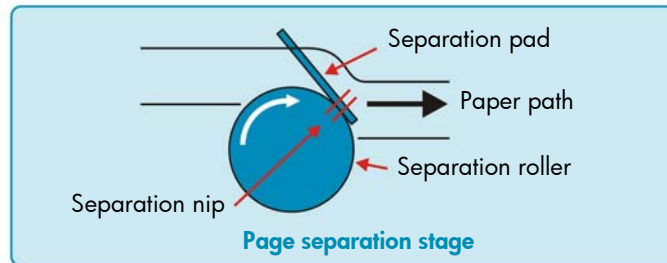


Advanced separation

Advanced separation technology ensures that a single page is separated from a stack and fed to be scanned. In this third and final stage of the pick process, the scanner picks a single page at the point where the driver roller contacts a surface (such as a pad or a roller) that produces the separation. HP scanners with HP Precision Feed technology employ an advanced separation surface—which is called a nip—that complements the shape of the roller. The nip's effectiveness is determined by its shape, its surface area, and the material used. The contact surface area of the nip used in HP scanners with HP Precision Feed technology is typically greater than that of traditional page separation technologies, resulting in greater performance and greatly reducing the possibility of feeding multiple pages to the scanner.

Traditional low-cost separation stage

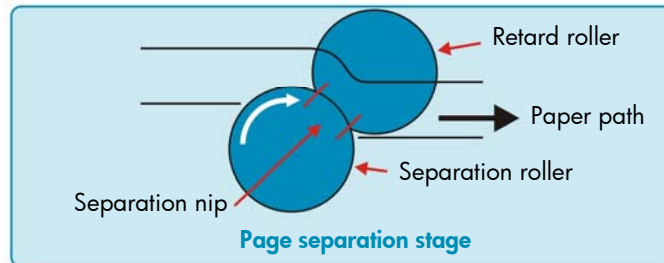
Separation roller with stiff separation pad



1. Paper separation occurs only in the separation nip
2. Separation nip for this design type is 1 to 1.5 mm in length
3. Separation force is single peak

Advanced separation stage

Separation roller with compliant retard roller or pad



1. Paper separation occurs only in the separation nip
2. Separation nip for this type design is 5 to 6 mm in length
3. Separation force is spread over area with dual peaks to provide significantly enhanced separation performance

Intelligent picking

Intelligent picking prevents stoppages and page damage. HP scanners with intelligent picking first apply the minimum amount of force required to pick a page from the stack. If this amount of force is not adequate, the scanner makes a second attempt, adjusting the roller speed and/or pressure. This process minimizes document wear and tear while ensuring that pages process without interruption.

In the event that the scanner is unable to pick a page, the scanner stops the scanning process, and the user is prompted to reload the pages that were not scanned. Pages that have already been scanned are stored in memory, so that you don't have to process the entire stack again.

Mixed-stack handling

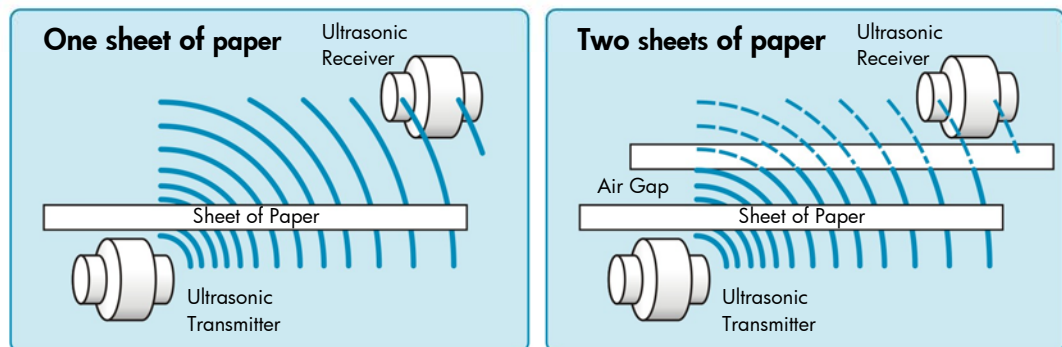
Mixed stack handling saves you time by allowing you to scan papers of different sizes and types, which means that you don't have to presort input for scanning. Paper is available in many sizes and weights, such as magazine paper, newspaper, receipts, postcards, and ID cards. HP scanners with HP Precision Feed technology are engineered to support this wide range of paper availability, while maintaining high scanning performance.

Ultrasonic multi-feed

Ultrasonic multi-feed technology uses sound waves to verify that a single sheet has been separated from the stack for processing. If the scanner detects multiple pages, the scanner stops the feeding process and notifies you of the error. Pages that have already been scanned are stored in scanner memory, which means that you don't have to restart your scan from the beginning.

Ultrasonic multi-feed detection

- Ultrasonic waves are high-frequency (inaudible) sound.
- They pass easily through a single sheet of paper.
- If two sheets overlap, the small air gap between them reduces the signal at the receiver. The scanner senses that reduced signal, stops, and then displays a message to the user on the computer screen.



SUMMARY

HP Precision Feed technology provides the peace of mind that comes with knowing that your documents will be reliably digitized for archiving or integration into your digital workflow. HP Precision Feed technology delivers reliable separation and picking that minimizes the chance of a misfeed, as well as intelligent safeguards that save the work you've already performed. HP scanners with HP Precision Feed technology deliver robust input processing, accommodating paper of various sizes and weights, and even mixed stacks of paper. Count on HP for reliable scanning for accurate digitizing of your documents.

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