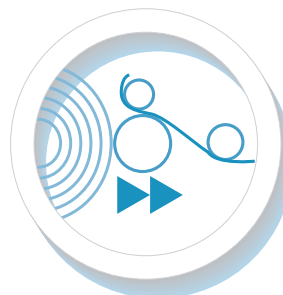


# TUSA<sup>®</sup> I TUSA<sup>®</sup> III TUSA<sup>®</sup> IV

*Automated  
Turn-Up Systems*



**SANDAR**  
INDUSTRIES, INC.

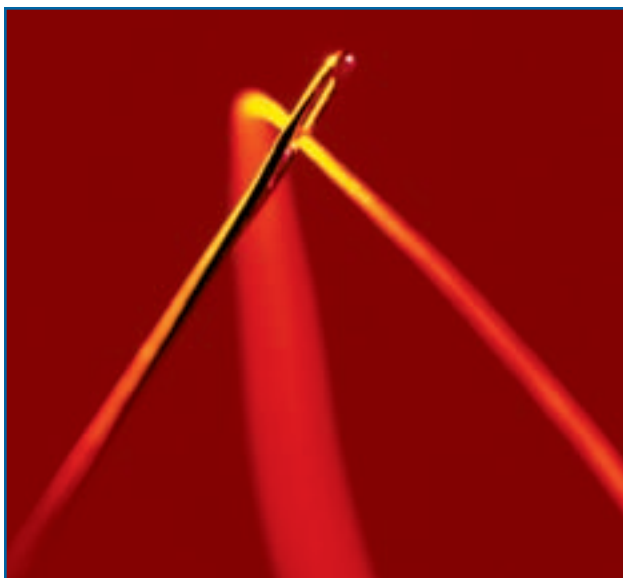


## Compare TUSA® Turn-Up System Modules

	TUSA I	TUSA III	TUSA IV
Automatic paperband loading	manual	standard	standard
Paperband supply positioned to mill requirements	standard	standard	standard
Reel Speed Selector for variable machine speeds	manual	optional	standard
Adhesive Applicator	optional	standard	standard
Automatic detection of adhesive to paperband	visual	visual	standard
Reel Speed Selector for variable machine speeds	manual	optional	standard

## Compare SANDAR Turn-Up Systems with others.

FEATURE	SANDAR			Others
	TUSA I	TUSA III	TUSA IV	
Total number of moving parts	7	7	10	60+
Number of moving parts near the nip	none	none	none	46+
Number of motors	0	1	1	3
Modular design	yes	yes	yes	no
Tension and directional control of paperband during turn-up	yes	yes	yes	no
Tools required for subassembly removal/replacement	none	none	none	yes, by trained person
Technician required for subassembly replacement	none	none	none	yes
Time to dismantle and reassemble	2-3 mins.	3-7 mins.	6-9 mins.	?
Side by side backup system	optional	optional	optional	unavailable
Paperband protected from beginning to end	100%	100%	100%	77%
Paperband that can be used	all types	all types	all types	limited
Installation Time	3-4 hours	3-4 hours	3-6 hours	12 hours
Break and exit point located at the edge of the trim	yes	yes	yes	no



*Behold, one of the greatest inventions of all times. The needle is straightforward effective and reliable. There are no moving parts. For over 20,000 years it remains the implement of choice for sewing. SANDAR applied this pure and simple philosophy in developing its Turn-Up System.*

# BAND DELIVERY SYSTEMS

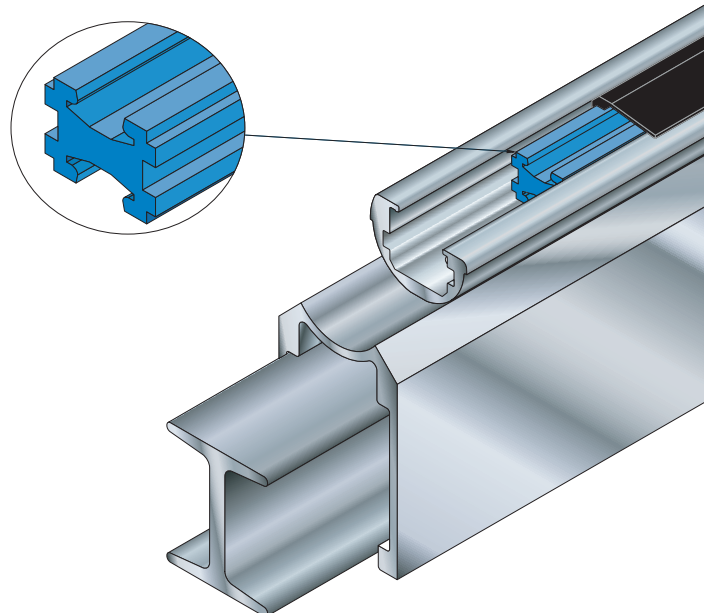
## EASYFLO®

- Anodized extruded aluminum guideway and stainless steel retaining lips virtually eliminates wear.
- Paperband rides on a bed of air.
- Totally enclosed from tending to drive side.
- Pressurized to alleviate harsh ambient conditions & contamination.
- No catch points allow for easy load, feed, & exit of band.
- Adjustable tension controlled: For maximum turn-up efficiency.
- Variable trim adjusts at tending and drive side can be easily changed by mill personnel with no tools.
- Retrofittable to all track Turn-up systems.
- 10 year limited guarantee on track wear.

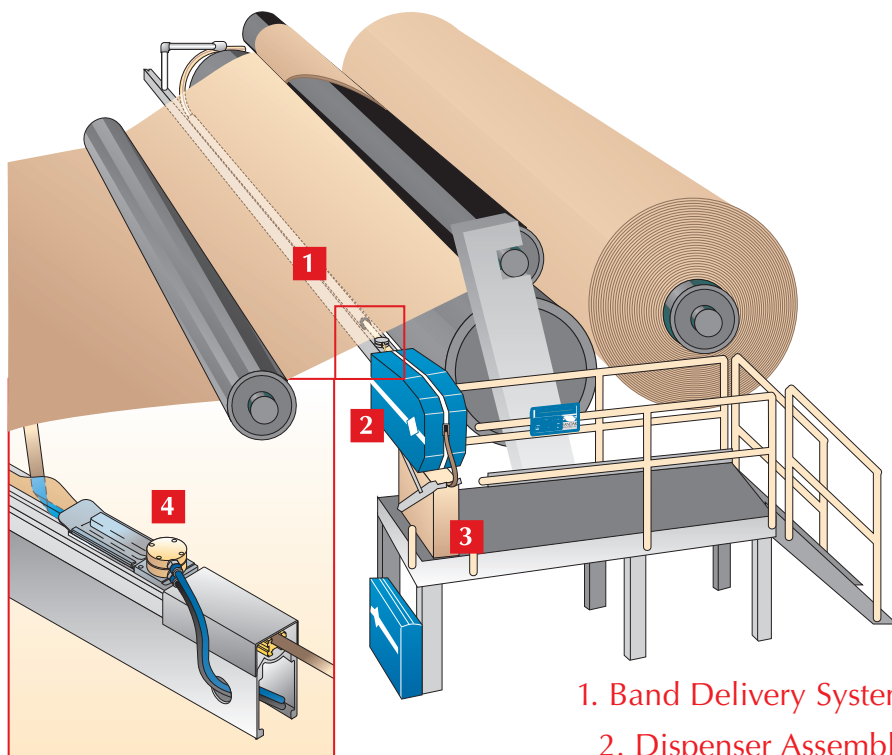


### *Standard Cross Machine Track Assembly*

- Extruded Guideway reduces friction due to smooth finish
- Dual profile track extends life 2 times more than that of single profile poly track.
- Apron covers the band path to resist contamination



# TUSA® Automated Turn-Up Systems



1. Band Delivery System
2. Dispenser Assembly
3. Paperband Supply System
4. Exit Point Assembly & Guideway Apron

## Safer and Consistent Turn-Ups Increase Production and Save Money!

Traditional reel turn-ups can be inefficient and hazardous and the production losses have a direct impact on the bottom line. TUSA® Turn-Up Systems provide consistent turn-ups by automatically delivering to the nip a specified length of paperband made of repulpable materials, that simultaneously cuts and attaches the web to your empty spool. The TUSA® virtually eliminates waste at the reel resulting in increased production and profits.

*Reel turn-up is "hands free". No operator is ever close to the speeding web or in harms way of the reel.*

## Over 1,000 Systems Installed Worldwide

Sandar has pioneered the development of what has become the industry standard for automated turn-ups. Today, mills worldwide rely on Sandar's turn-up systems to increase production, save money and assure a safer environment at the reel.

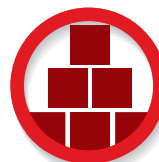
## What Features Make the TUSA® Your Best Buy?

- Adaptable to confined spaces, paper grades, machine speeds and widths.
- Works on all grades and is adaptable to virtually any space limitation (because of the compact modular design).
- No moving parts under the web or near the nip.
- The system is engineered for maximum efficiency with a single loop delivering a minimum length of paperband.
- Paperband is controlled, guided and protected from dust and moisture. During load, feed and turn-up while traveling through and exiting the patented band delivery system.



### Safety First

No longer will your operators be dangerously close to a speeding web during reel turn-up. Operator involvement is limited to loading consumable materials and routine cleaning.



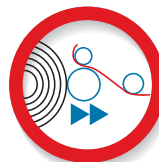
### Modular Design

All sub-assemblies are easily replaced by removal of two aircraft pins.



### An Investment That Pays for Itself in as Little as a Week.

The TUSA® executes smooth turn-ups, virtually eliminating wrinkles and wasted production. Efficient turn-ups can increase production over 2% by reducing lost saleable tonnage at the reel, easily and quickly paying for the cost of the equipment.

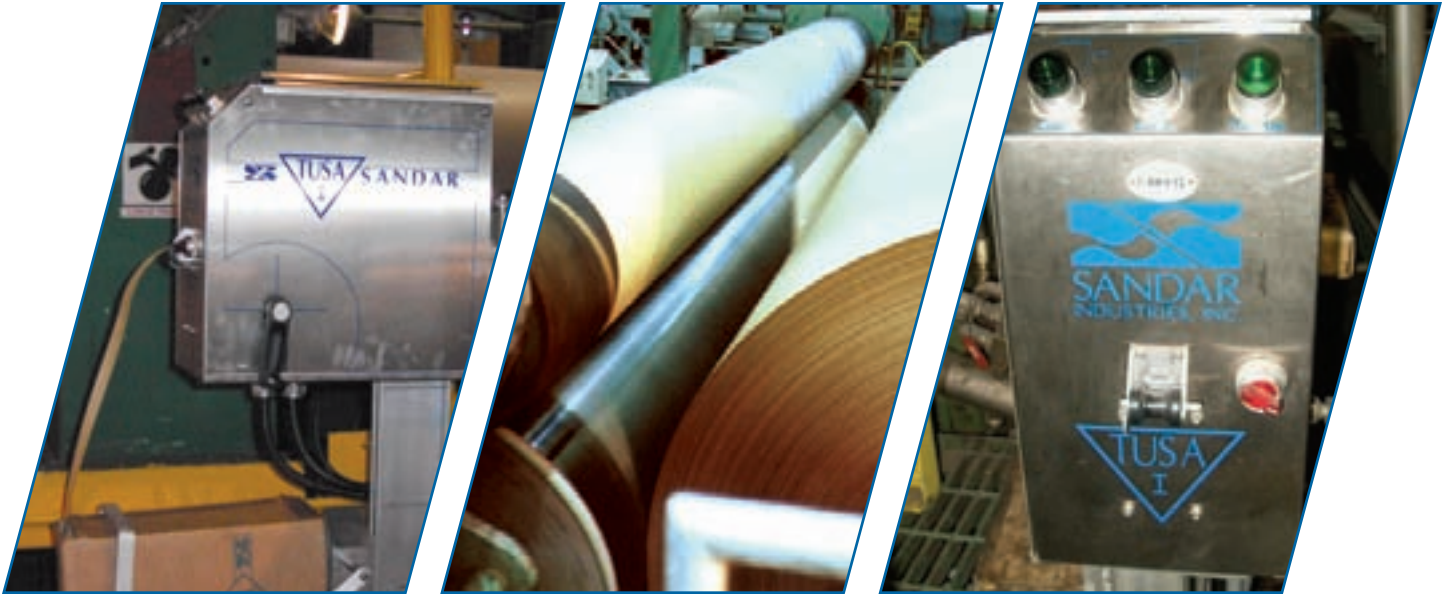


### With a Simple Signal

The primary arm position initiates the turn-up when the nip is made advancing band into nip.

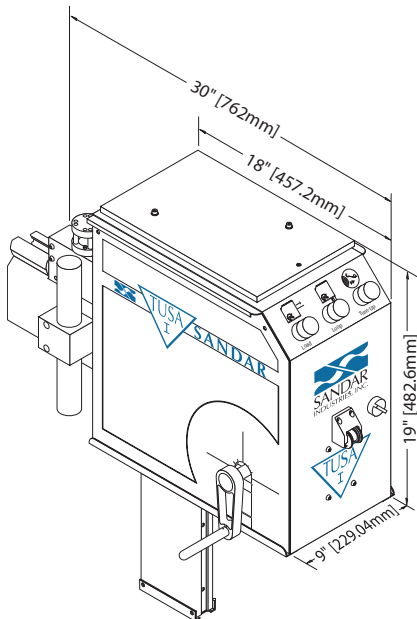


# TUSA® I



## *System's Technical Highlights*

- ✓ Integrated Siemens PLC or optional Allen Bradley PLC Control System
- ✓ Hand Crank System delivers a consistent, repeatable length of Paperband every time for Turn-Up.
- ✓ All Stainless Steel Enclosures.
- ✓ Optional Counter Displays Load and Loop lengths in Standard or Metric Units.
- ✓ Simple Three Button Operation. ● LOAD ● LOOP ● TURN UP.



## *SANDAR leads the way*

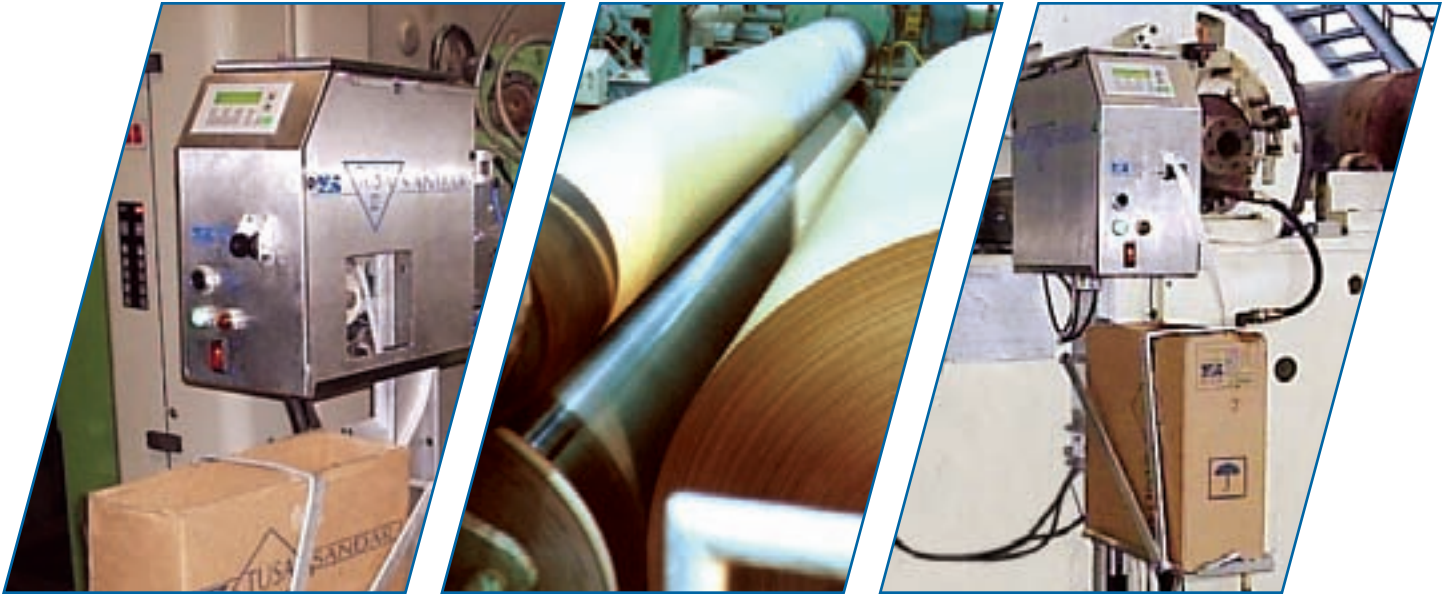
As a supplier to the pulp and paper industry since 1975, SANDAR developed and patented the first paperband reel turn-up system.

With over 1000 installations across the globe, SANDAR Turn-Up Technology remains the industry standard.



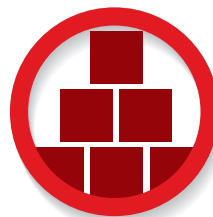
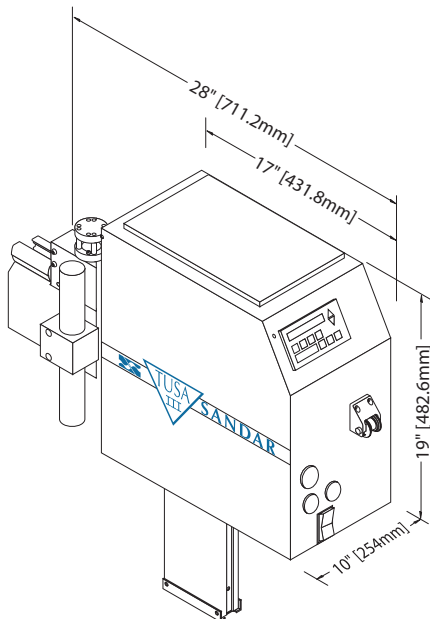


# TUSA<sup>®</sup> III



## *System's Technical Highlights*

- ✓ Automatically Applied Operator Assisted Adhesive Strip to Lead End of Paperband.
- ✓ Integrated Siemens PLC or optional Allen Bradley PLC Control System.
- ✓ All Stainless Steel Enclosures.
- ✓ DC Gear motor Drive System delivers a consistent, repeatable length of Paperband every time for Turn-Up.
- ✓ User Friendly Operator Interface Terminal mounted on Dispenser.



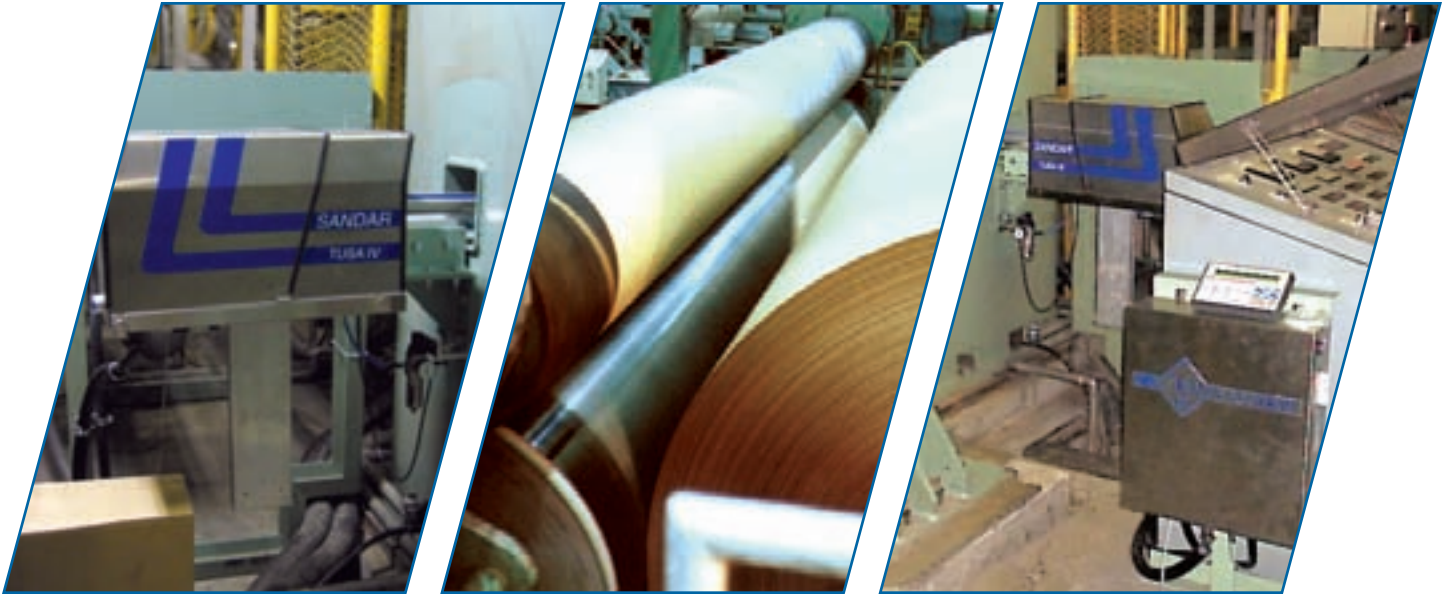
## *The Answer to Automated Turn-Ups*

Engineering Simplicity!

The maintenance or replacement of any modular component can be done by the removal of 2 aircraft pins. Assembly is achieved in a matter of seconds.

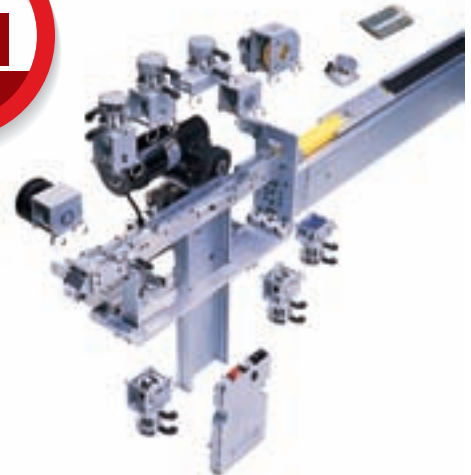
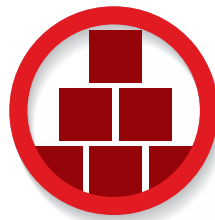
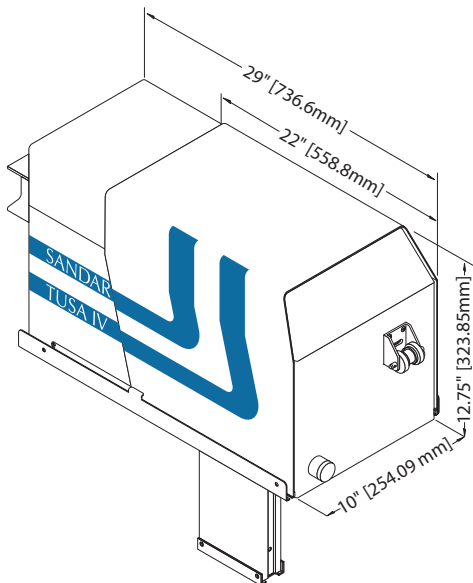


# TUSA® IV



## *System's Technical Highlights*

- ✓ Fully Automatic Adhesive Application and Detection.
- ✓ Omron PLC Control System housed in Independent Electrical Enclosure.
- ✓ All Stainless Steel Enclosures.
- ✓ DC Gear Motor Drive System delivers a consistent, repeatable length of Paperband every time for Turn-Up.
- ✓ User Friendly Operator Interface Terminal can be mounted Remotely or at Dispenser depending on customer requirements.





## PAPERBAND PRODUCTS

	Caliper	Level Wound		LINEAL UNIBAND		BIG O ROLL®	
		length/coil		length/cartridge		length/coil	
		ft.	m	ft.	m	ft.	m
<b>PREMIUM</b>	0.045"	2034	620	4200	1280	3017	920
<b>EXTRA STRENGTH</b>	0.055"	1640	500	3387	1032	2400	732
<i>m a r k l e s s</i>	0.035"	n/a	n/a	5425	1653	n/a	n/a

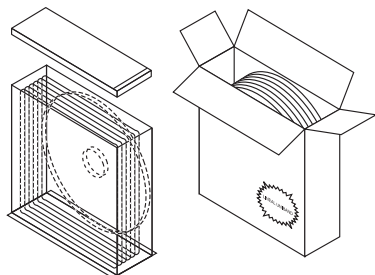
\*Note Approximate length/coil



- ✓ Up to 75% more paperband in each coil
- ✓ New level winding technology minimizes camber
- ✓ Less handling
- ✓ Reduces shipping and storage costs
- ✓ Less frequent loading

***Can be used with most paperband turn-up systems***

## Lineal Uniband



- ✓ **More protection!** With enclosed Lineal Reel Supply System
- ✓ **Less waste!** Use paperband to the end with coreless reels
- ✓ **Better performance!** Because each reel is ribbon wound, paperband is straight
- ✓ **Less shipping cost!** 100% to 120% more paperband per Cartridge

## Pressure Sensitive Adhesive Tape



Available in:

- ✓ 16 roll boxes yielding 150+ turn-ups per roll
- ✓ Different degrees of tackiness
- ✓ Dissolvable, repulpable, non-repulpable

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