Maintenance and rehabilitation - Fives' service centers

HIGH SAFETY LEVEL

— Heavy duty equipment
— High quality material fabrication
— Dynamic balance at high speed
— Vibration level below 2.5 $mm.s^{-1}$ at full capacity
— Safety locking device for tie-rods
— Highly robust design

CUSTOMIZED DRIVE SOLUTIONS

— Medium Voltage electric motor or steam turbine
— 1 or 2 motors on rotor shaft
— Electronic or electrolytic starter or VFD
— Small motor starting main drive ("Pony" motor)

SERVICE

— On-site repair with Fives' experts
— Maintenance in Fives' approved local workshop
— Compatible with Cail & Fletcher SMART Control™

A PROVEN TECHNOLOGY

— Major groups trusted Fives' technology: SIPH, TEREOS, PANTALEON on the 4 continents
— After trying it once, customers usually demand Cail & Fletcher in-line shredder technology for new projects

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Industry can do it

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PROCESS TECHNOLOGIES

SUGAR

Cail & Fletcher heavy duty in-line shredder

Improves the plant energy balance for a maximum of opened cells (up to 110" and 20,000 tcd)

- **Quick return on investment**
- **Maximizes cane utilization**
- **Flexible and upgradeable**
- **Easy installation and operation**

Cail & Fletcher heavy duty in-line shredder produces a maximum proportion of opened cells providing for excellent sugar juice extraction

EASY INSTALLATION AND OPERATION

— Unique equipment for all cane preparation
— Installation on existing carriers
— No cane knives required
— Small footprint, reduced civil works
— Fully automatic operation
— Simplified removal of hammers
— Patented adjustable anvil

FLEXIBLE AND UPGRADEABLE

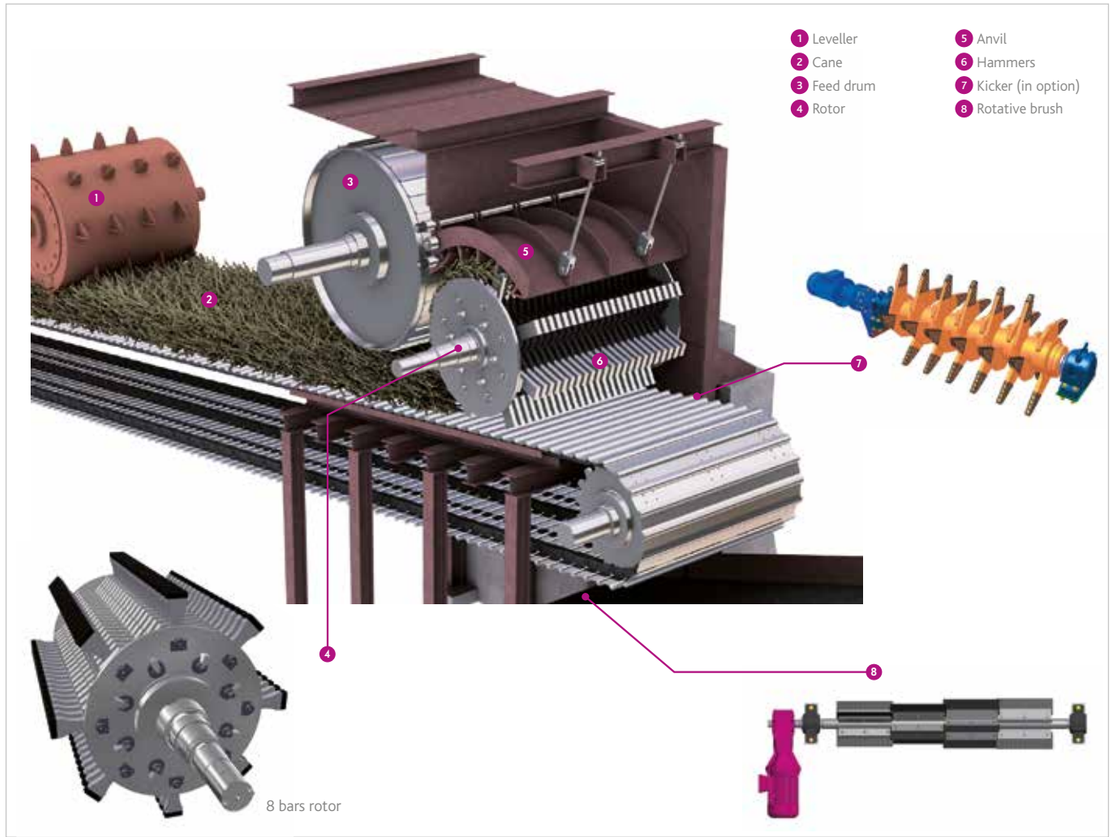
Adapts to the market's fluctuations
— Accepts long or short cane
— Optimization of preparation index for a better energy and mass balance
— Settings adjustment on cane flow variation

MAXIMIZES CANE UTILIZATION

— Longer fibers for improved juice drainage and combustion efficiency in boilers
— Less bagacillo production = Less bagasse flight
— Cleaner plant

DESIGNED TO MEET CUSTOMER'S NEED

— 6, 8 or 10 bars of hammers
— 3 rotor sizes: Ø 1,680, 1,900 and 2,140 mm
— Speed up to 1,200 rpm



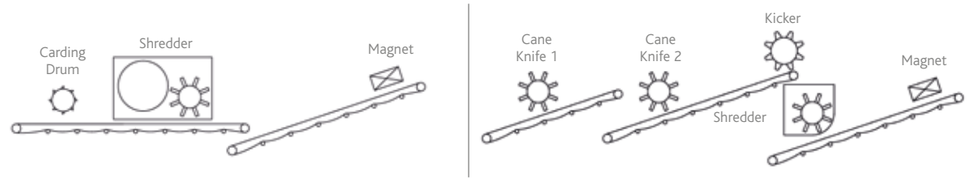
IMPROVED EXTRACTION

— Preparation index up to 92%
— Longer fibers for better drainage
— Increased extraction with conventional mills, Cail & Fletcher MillMax® or diffusers up to 98.5%

LOW MAINTENANCE COSTS

— New hammer technology increases consumables lifetime (up to 500,000 tons of cane shredded with the same hammers)
— Hardfaced discs
— Rotor lifetime extended between two repairs

CASE STUDY: RESULT OVER A ONE CROP PERIOD OF 180 DAYS – 12,600 TCD – LINE 84" – PI > 90%



	Cail & Fletcher heavy duty in-line shredder			Conventional technology (vertical or in-line)		
	Carding drum	Feed drum	Shredder	Cane knife #1	Cane knife #2	Shredder
Power installed	1.25 kW/tfiber	1.25 kW/tfiber	50 kW/tfiber	11 kW/tfiber	15 kW/tfiber	45 kW/tfiber
Consumables	0	0	3,260 hammers	2,381 knives	9,764 knives	3,810 hammers
Line stoppage	25 hours			122 hours		
Workmanship	75 hours			488 hours		
Consumption	18.4 GWh			24.2 GWh		

QUICK RETURN ON INVESTMENT

— High efficiency, low maintenance drives
— Reduced maintenance and downtime
— Reduced spares inventory and overheads

REDUCED ENVIRONMENTAL FOOTPRINT

— Increased potential for cogeneration and energy savings
— Reduced power consumption for equivalent cane preparation

— 25% energy savings
— Line stoppage divided by 5
— Labor costs divided by 6+