Section 6.3

Stacked Bale Storage Conveyor, KF-S

Quantity Required: 1
Design Operating Data (Per Unit):

Raw Material:	Stacked SW pulp bales, individually wired
Mode of Operation:	Manual load from end, automatic discharge
Motor Rating:	5 hp (3.7 kW)
Motor Speed:	1750 rpm
Stack Design Height:	90" maximum (2286 mm)
Bale Design Size:	Typical SW bale size: 33" L x 33" W x 16" High or 36" L x 33" W x 18" High
Bale Stack Size:	(5) high for std. 16-18" high bales
Stack Capacity:	(5) stacks for std. 33-36"
Conveyor Speed:	25 fpm (0.13 m/s)
Conveyor Length:	20'-0" (6096 mm)
No. of Chains:	3 strand
Equipment Weight:	7071 lb (3207 kg)

1 **Conveyor Assembly**

Fabricated frame constructed of rectangular steel tubing and steel plate. Extended framework on both sides of conveyor, constructed of rectangular steel tubing to prevent inadvertent tipping of a bale stack.

Horizontal chain conveyor is 42" (1067 mm) wide inside to inside of frame.

Wear resistant ½" (13 mm) thick UHMW thermoplastic replaceable strips provide a low friction bearing area for H78 mill chain, fully heat treated, welded steel carring chains.

All sprockets are pre-mounted and shafts supported by antifriction bearings, complete with manually adjusted take-up assembly.

1 **Drive**

A shaft mounted helical worm geareducer, 150:1 ratio direct connected to drive shaft.

1 **Guard**

Wire mesh guarding is supplied to prevent contact with return chain runs and nip points. (See control section for safety interlocks).

Materials Of Construction
Mild steel painted.

Reference Document
Drawing: Similar to D77-999523

Note To Customer:
Customer is to supply field wiring to termination box, motor starter and C-face motor.

Customer to supply one 5 hp, 1750 rpm reversing C-face motor with brake.

Section 6.4

Bale Stack Downender, KF-DE

Quantity Required: 1
Design Operating Data (Per Unit):

Raw Material:	SW pulp bales, individually wired
Mode of Operation:	Automatic, individual discharge
Stack Design Height:	90" maximum (2286 mm)
Bale Design Size:	Typical bale size: 33" L x 33" W x 16" High or 36" L x 33" W x 18" High
Bale Capacity:	(5) high stack for std. 16-18" high bales
Bale Tipper Length:	91.0"
Hydraulic Unit Motor Rating:	5 hp (3.7 kW)
Hydraulic Unit Motor Speed:	1750 rpm
Chain Drive Motor Rating:	1.5 hp (1.1 KW)
Chain Drive Motor Speed:	1750 rpm
Equipment Weight:	3630 lb (1646 kg)

1 Bale Tipper

Tipping frame constructed of structural steel channel and heavy-duty steel plate. Deck constructed of 1/4" (6 mm) thick steel plate with 1/2" (13 mm) thick UHMW Thermoplastic wear strip under chains. Side plates of 1/2" (13 mm) and 1/4" (6 mm) thick steel is angled to center bales over the outfeed conveyor chains.

Tipping frame is connected to a heavy steel fabricated base by one, 3" (76 mm) diameter pivot pin. Base is constructed of structural steel and 0.75" (19 mm) thick steel plate.

The outfeed conveyor on the tipping frame consists of three strands of H78 mill chain.

The tipping frame is actuated by two, 3-1/4" (83 mm) bore x 21" (533 mm) stroke hydraulic cylinders.

1 Guards

Wire mesh barrier guarding supplied to prevent operator entry into rotation zone.

1 Hydraulic Power Pack

Hydraulic power unit consisting of hydraulic pump with relief valve, 15 gallon reservoir, 5 hp motor and piping from power pack to cylinder.

1 Drive

A shaft mounted helical worm geareducer directly coupled to the drive shaft, 200:1 ratio.

Materials Of Construction

Mild steel structural and plate, painted.

Reference Document

Drawing Similar to D77-999365

Notes To Customer:

Customer is to supply field wiring to termination box, motor starter, and motor.

Customer is to supply one 1.5 hp (1.1 kW) 1750 rpm C-face motor for chain drive.

Customer to supply hardpiping to equipment termination points from power unit if remote mounted.

Section 6.5

Manual Dewiring Conveyor, KF-E

Quantity Required: 1
Design Operating Data (Per Unit):

Raw Material:	SW pulp bales, wired
Mode of Operation:	Manual dewire, Automatic stage and discharge
Motor Rating:	2 hp (1.5 kW)
Motor Speed:	1750 rpm
Bale Design Size:	Typical bale size: 33" L x 33" W x 16" High or 36" L x 33" W x 18" High
Bale Capacity:	(5) Bales
Conveyor Length:	20'-0" (6096 mm)
Conveyor Speed:	30 fpm (0.15 m/s)
No. of Chains:	(2) strand
Equipment Weight:	3680 lb (1669 kg)

1 Conveyor Assembly

Fabricated Frame constructed of rectangular steel tubing and steel plate.

Horizontal chain conveyor 24" (610 mm) wide with special "RR" attachments on every fifth link to hold bales above the chain side bars for ease of dewiring.

Wear resistant ½" (13 mm) thick UHMW Thermoplastic replaceable strips provide a low friction bearing area for H78 mill chain, fully heat treated, welded steel carring chain.

All sprockets are pre-mounted and shafts supported by anti-friction bearings. Complete with manually adjusted take-up assembly.

2 Bale Centering Guides

Bales are positioned automatically, when loading, by tapered ½" (13 mm) steel bale guides, one on each side of the conveyor.

1 Bale Cushion

Pivoting steel cushion is supplied to eliminate shock loads of bales dropping onto the conveyor chain. Pneumatic flow control and pressure reducing valve allow precise adjustment of cylinder exhaust rate lowering bale.

1 Bale Dewiring Turntable

A heavy 2.00 inch (51 mm) thick by 14 inch (356 mm) diameter steel turntable, pneumatically actuated by a foot treadle allows lifting individual bales off the chains surface. Bales are supported by 2.00" (51 mm) diameter steel pins protruding from the top of the turntable.

The turntable is mounted on a 3.00" (76 mm) diameter bearing so the operator can rotate the bale for easy wire removal.

1 Drive

A shaft mounted helical worm reducer directly coupled to the drive shaft; 125:1 ratio.

1 Guard

Wire mesh guarding on both sides of the conveyor protecting the operator from the return run of the chains.

Materials Of Construction

Mild steel, painted.

Reference Document

Drawing: Similar to D77-999366

Notes To Customer:

Customer to supply field wiring to termination box, motor starter, and motor.

Customer is to supply one 2 hp (1.5 kW), 1750 rpm C-face reversing motor for chain drive.

Customer is to suppy 60 P.S.I.G. air supply including field piping to bale cushion and dewiring turntable.

Item 6.6

Belt Conveyor for Continuous Pulper

Quantity Required: 1
Design Operating Data (Per Unit):

Furnish:	Softwood Pulp Bales
Mode of Operation:	Continous
Conveyor Width:	42" (1067 mm)
Conveyor Length	44'-1" (13436 mm) (Approx)
Discharge Height:	14'-4" (4363 mm) (Approx)
Incline Angle:	17° (ref)
Live Load on Conveyor:	6050 lb (2744 kg) (design)
Motor Rating:	5.0 hp (3.7 kW)
Motor Speed:	1750 rpm
Conveyor Speed:	30 fpm (0.15 m/s)

1 **Frame**

Fabricated structural framework complete with legs and cross bracing.

Conveyor deck is 0.25" (6 mm) thick steel plate supported by mild steel structural ribbing.

Sidewalls are 0.25" (6 mm) thick steel plate with structural steel ribbing. Walls are 12.00" (305 mm) high both sides.

1 **Belt**

Conveyor belt is a 3-ply, 330 pli, bareback rubber covered, 0.31" (8 mm) thick.

1 **Features**

Head pulley is 14.00" (356 mm) diameter.

Tail pulley is 14.00" (356 mm) diameter.

Return and training idlers 5.00" (127 mm) diameter spaced as required.

Drive pulley is 14.00" (356 mm) diameter rubber covered.

Take-up pulley is 14.00" (356 mm) diameter.

Safety lanyard switch, belt scraper, and all safety guards included.

1 Drive

Drive consists of one concentric shaft reducer, high-speed coupling, motor mount, slide base, sprockets, roller chain drive, and fabricated oil tight chain case for oil bath lubrication.

Materials Of Construction

Mild steel structural framework, painted.

Reference Documents

Drawing:	Similar to incline conveyor shown on D77-999960

Notes To Customer:

Customer to furnish one 5 hp (3.7 kW), 1750 rpm C-Face brake motor and starter.

Customer to field splice (vulcanized splice) at installation.

Customer to furnish field wiring to terminal box, motor starter and motor.

Item 6.7

One Control Package System

Quantity Required: 1

The Control System for a Bale Handling System will include the following:

Main Control Station – NEMA 12.

Sufficient photoeyes and limit switches for automatic and manual operation of the complete system.

Vehicle detector loop at loading area to Stack Storage Conveyor.

Total of (2) emergency pull cord switches with cable and mounts for the Pulper Feed Conveyor and manual dewiring conveyor. Additional E-stop pushbutton located at operator panel.

The limit switches and photocells would be mounted and wired to junction boxes on the related equipment.

Programming, ladder logic and wiring drawings per customer's specifications for Voith Sulzer supplied Allen Bradley PLC.

Sequence Of Operation

The following general description of operation is preliminary and can be changed to suit customer's requirements.

In operation, a fork truck driver would load a stack of bales onto the Stack Storage Conveyor. On the way into the loading zone, the truck would pass over an imbedded loop detector, which would prevent the Stack Storage Conveyor from starting while loading the stack. Upon exiting, the loop detector zone clears which enables the Conveyor to start indexing the stack one space forward. By repeating this operation, the Stack Storage Conveyor will be filled with equally spaced stacks.

The stacks are then discharged to the Bale Stack Downender, which tips the stack and discharges individual bales to the Manual Dewiring Conveyor. Each bale is indexed forward filling the Dewiring Conveyor with equally spaced bales for manual dewiring. Once dewired, bales are then passed onto the Pulper Feed Belt Conveyor for transfer on a continuous basis to the pulper.

The entire system could be programmed for two modes of operation; i.e., manual and automatic. In manual, each piece of equipment would be capable of being jogged forward or reverse by momentary contact pushbuttons. In automatic, each piece of equipment will operate to index bales forward until filling the pulper feed conveyor.

Section 6.8

Repulper, Vertical Shaft, Type 28-2 VSHO012

Quantity Required: 1
Design Operating Data (Per Unit):

Furnish:	Softwood Bales
Application:	Continuous
Pulping Capacity:	100 BDSTPD Nominal 120 BDSTPD Maximum
Pulping Consistency:	4.5% B.D.
Operating Volume:	400 cu ft (11 cu m) @ 120 BDSTPD
Motor Rating:	125 hp
Motor Speed:	1200 rpm
Pulper Rotor Speed:	472 rpm
Extraction Plate Hole Size:	0.375" diameter
Maximum Flow Rate:	1326 gpm
Empty Weight:	11,000 lb
Operating Weight:	36,000 lb

1 **Pulping Unit**

Model 28-2 HOAVST pulping unit with 28" diameter model 207 cast rotor blade, rotor hub and gland housing.

Extraction plates with Stellite wear bars.

Extraction chamber with 10" diameter flanged outlet.

1 **Tank**

Fabricated, circular, bottom rotor tank with external support ribbing, assembly flanges, support legs and pads and pulping unit mounting ring. Tank will be equipped with necessary baffles for proper circulation, 10" drain nozzle and 3" level transmitter flange.

Number of tank sections: 1

1 **Drive**

V-belt drive with sheaves, belts, bushings and guard with inspection door.

1 **Lubrication Pump**

With 0.5 hp, 460 V, 3 phase, 60 HZ motor.

1 Support Structure For Pulping Unit, Motor And Guard

Special Tools

Puller tool for removal of rotor hub.

Materials Of Construction

Non-wetted parts:	Mild steel, painted
Wetted parts:	316L SS fabrications, 316 SS castings & machined parts

Reference Documents

Drawing:	Similar to D21-999289
Dimension sheet:	D21-999198

Notes To Customer

Customer to furnish one, 125 hp, 1200 rpm (1190 f.l.s.), 1.15 service factor induction motor with standard torque characteristics.

Customer to furnish motor slide base.

Customer to furnish controls.

Customer is responsible for interlocking the lubrication system pressure switch with the pulper drive prior to operating the pulping unit.

Installation of pulping unit and installation and limited assembly of tank is by customer.