Tripper 0000-XX-1001 is located on conveyor 0000-XX-1004. Tripper 0000-XX-1002 is located on conveyor 0000-XX-1008.Tripper 0000-XX-1003 is located on conveyor 0000-XX-1013. Tripper 0000-XX-1004 is located on conveyor 0000-XX-1016. See section 11 for more information regarding the trippers and their associated conveyors.

2. MECHANICAL/ELECTRICAL COMPONENTS AND GENERAL DESCRIPTION

2.1 Aspects of this document may be influenced by the operation of the tripper as described by the client as follows:

2.1.1 Tripper will be relocated manually by both local and remote modes. Tripper will not be automated.

2.2 See ORG Document: 100XXX00035 EDL for equipment tagging (COUNTRY Sequence Number: COUNTRY-200-047-EQL-01001).

2.3 The tripper will be equipped with the following drive items:

a. **Drives (2):** these drives will be hollow shaft mounted right angle gearmotor drives. The electric motors will be 2.24 kW motors with motor brakes. A single VFD will be used to soft start and soft stop both motors.

NOTE: The primary means of stopping the tripper is dynamic braking through the VFD. The motor brakes will be used only as parking brakes. In an emergency stop condition, the motor brakes will be used to help stop the tripper.

b. **Rail Clamp (1):** a Johnson Industries parking brake rail clamp will be installed on one side of the tripper. A hydraulic power unit (HPU) will operate the parking brake rail clamp. The clamp is a hydraulically released, spring applied fail-safe type brake. The brake will be used for parking and for emergency stopping.

c. **Tripper PLC Control Panel mounted on the tripper (1):** The panel includes:
   i. (1) Programmable logic control (PLC) for digital I/O and analog controls. Status communication to the plant DCS with be via Ethernet radio. An interposing safety relay will be included for fail safe configuration and emergency stop controls.
   ii. (1) Control power transformer
   iii. (1) Local push button panel to locally control the tripper. The push button panel will include:
      1. Emergency stop push button
      2. Forward/reverse spring centered selector switch with direction indicator lights
      3. Tripper enabled
      4. Remote/Local mode selector switch
      5. Machine fault reset push button and light
      6. E-stop fault reset push button and light
   iv. (1) Ethernet radio modem with antenna
   v. (1) Ethernet and Profibus DP PLC modules
   vi. (1) Uninterrupted power supply (UPS)
   vii. Circuit breakers and fuses

ORIGINAL

(1) Tripper motor control panel mounted on the tripper. The panel includes:
   i. (1) VFD that will be used to soft start and soft stop the tripper drive motors. The VFD will operate two 2.24 kW motors.
   ii. Motor control for rail clamp HPU and cable reel drive
   iii. (1) Air conditioning unit
   iv. Circuit breakers and fuses
   v. (1) Surge suppressor

e. (1) Braking resistor panel mounted on the tripper. The panel includes (1) braking resistor bank used for overhauling conditions. The resistor bank will be sized for 100% overhauling loads.

f. (1) Radio Panel mounted on the building. The panel includes a 2.4 GHz unlicensed frequency Ethernet modem and a 1 to 54 Mbps RF data rate with omnidirectional antenna.

g. (2) Cable reels:
   i. (1) One powered cable reel that will be used to carry the power cable. It will be supplied with electrical motor driven monospiral wrap. 560 VAC, 3 ph, 60 Hz.
   ii. (1) One spring tensioned cable reel that will be used to carry the control cable signals. 140 VAC, 1 ph, 60 Hz.

h. (2) Cable reel directional guides for center point of conveyor feed.

i. (4) Cable reel junction boxes: Tripper mounted and building side junction boxes will be supplied with the cable reel. All junction boxes will include terminal strips. Customer to supply 440 VAC, 3ph, 60 Hz, 40 Amp with ground and
120 volt signal to building side center point junction boxes.

j. (2) Cable reel cables:
   i. (1) 3 x 25 mm"2 power, 3 x 6 mm"2 ground, 2 x 1 mm"2 pilot cores.
   ii. (1) 7 x 1.5 mm"2 core

2.4 FLSmidth will be supplying the following safety and control devices per tripper:

a. End-of-travel/position indicating limit switches (mounted on the tripper)
b. Over-travel limit switches (mounted on the tripper)
c. Belt alignment switches (mounted at tripper discharge pulley)
ct. Absolute encoder to determine tripper position and monitor tripper speed
e. Warning horn and light (mounted on the tripper)
f. Rail clamp release limit switch
g. Rail clamp hydraulic power unit oil level/oil temperature switch
h. Rail clamp hydraulic power unit pressure switch
i. Emergency stop pushbuttons
j. Cable reel over-tension switch
k. Cable reel under-tension switch
I. Cable reel direction switch
m. Radar type pile height sensor (mounted on tripper)
n. Plugged chute tilt probe
o. Pull cord switches

5.0 Functional Description Trippers

5.1 Scope

Tripper-XX-1001 is located on conveyor 0000-XX-1004. Tripper 0000-XX-1002 is located on conveyor 0000-XX-1008.Tripper 0000-XX-1003 is located on conveyor 0000-XX-1013. Tripper 0000-XX- 1004 is located on conveyor 0000-XX-1016.

5.2 Mechanical and Electrical Components and General Description

Aspects of this document may be influenced by the operation of the tripper as described by the client as follows:

- The tripper will be relocated manually by both local and remote modes. The tripper will not be automated.

See FLS Document: 100XXXX0045 EDL for equipment tagging (COUNTRY Sequence Number: COUNTRY-200-000- EQL-01001).

The tripper is equipped with the following drive items:

5.2.1 Drives

There are two drives on the tripper. These drives are hollow shaft mounted right angle gearmotor drives. The electric motors are 2.24 kW motors with motor brakes. A single VFD is used to soft start and soft stop both motors.

NOTE: The primary means of stopping the tripper is dynamic braking through the VFD. Use the motor brakes only as parking brakes. In an emergency stop condition, the motor brakes will be used to help stop the tripper.

5.2.2 Rail Clamp

One Johnson Industries parking brake rail clamp is installed on one side of the tripper. A hydraulic power unit (HPU) operates the parking brake rail clamp. The clamp is a hydraulically released, spring-applied fail-safe type brake. The brake is used for parking and for emergency stopping.

5.2.3 Tripper PLC Control Panel

One PLC panel is mounted on the tripper and includes the following items:

1. Programmable logic control (PLC) for digital I/0 and analog controls. Status communication to the plant DCS with be via Ethernet radio. An interposing safety relay is included for fail safe configuration and emergency stop controls.
2. Control power transformer
3. A local push button panel to locally control the tripper. The push button panel includes the following:
    - Emergency stop push button
    - Forward/reverse spring centered selector switch with direction indicator lights
    - The tripper is enabled
    - Remote/Local mode selector switch
    - Tripper fault reset push button and light
    - E-stop fault reset push button and light
4. Ethernet radio modem with antenna
5. Ethernet and Profibus DP PLC modules
6. Uninterrupted power supply (UPS)
7. Circuit breakers and fuses