Electrical Project Description

FPP-25 Rewinder

FPP-Eng

Command

Sensors

Magnetic

Control – PLC/HMI

Suggested inverters

Emergency

Pulse NA

Pulse NF

Selector

Inductive

Signage

Spreader

Unwinder

Winder

Flare Tower

Stepper Motor Drive

Stepper Motor

Inverter

Encoder

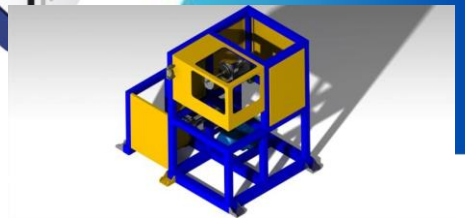
Engin

Inverter

Engine

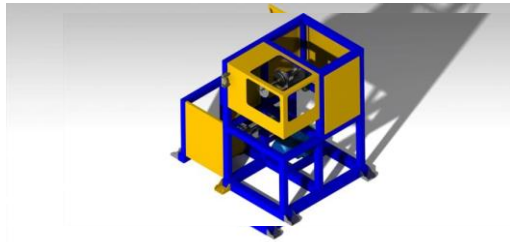
Optional remote for central panel development

Data for Project



- Service Voltage = 220V / 60Hz
- Command Voltage = 24 Vdc
- Command Type = Pending
- Control interface = Siemens HMI
- CPU = Siemens S7-1200 / S7 1214-DC/DC/RLY
- Communication networks = Profinet/modbus tcp
- Drive = Inverters and Stepper Drive
- Axis 1 = Unwinding motor
- Axis 2 = Winder Motor
- Axis 3 = Spreader motor

Data for Project



- Braking System -> Electric Hydraulic
- Power Panel -> Decentralized
- Control Panel -> Articulated Lectern

Unwinder Components

- **Motor = Weg**
  - **Power = 7.5 hp / 5.5 Kw**
  - **Current = 21 /150 Amp (Nominal/Start)**
  - **Factor = 0.89**
  - **Voltage = 220V**
  - **RPM = 1750**

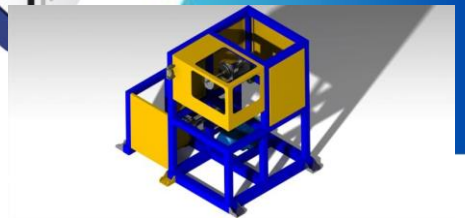
- Drive = WEG / Delta / Bonfiglioli (check values to study the best option)
  - WEG
    - CFW500 - CFW500C24P0T2 DB20 (24A /220V)
      - Communication card (check values to study the best option)
        - Profinet = CFW500-CEPN-IO (2DI/1AI/1AO/1RLO)
        - Modbus TCP = CFW500-CEMB-TCP (2DI/1AI/1AO/1RLO)

  - Delta
    - MS300 - VFD25AMS23ANSAA (24A /220V)
      - Communication card (check values to study the best option)

- Profinet = CMMM-PN02
- Modbus TCP = CMM-EIP03
- Bonfiglioli
  - ACU210 - ACU 210- 19 (24A /220V)
    - Communication card (check values to study the best option)
      - Profinet = CM-PROFINET
      - Modbus TCP = CM-Modbus/TCP-2P
- Control = Closed loop
  - 600p incremental encoder – Dynapar (required to set the inverter so we can set a card for the inverter or expansion for the PLC)
- Network = Profinet/Modbus TCP (Set Inverter Vendor)
- Note = braking resistor

Control Type Unwinder

- Closed-loop system (encoder in motor)
- Communication via industrial network
- Watchdog system for braking
- Vector system
- FB/FC Block (SCL/Ladder)

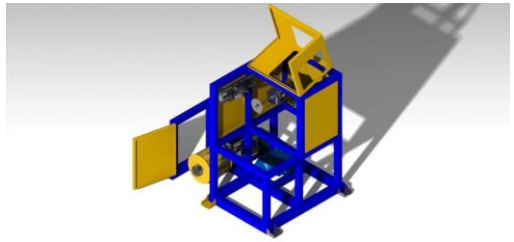


- **Motor = Weg**
  - **Power = 3.0 hp / 2.2 Kw**
  - **Current = 8.25 /61.1 Amp (Nominal/Start)**
  - **Factor = 0.89**
  - **Voltage = 220V**
  - **RPM = 1745**

- Drive = WEG / Delta / Bonfiglioli (check values to study the best option)
  - WEG
    - CFW500 - CFW500A09P6T2 DB20 (9.6A /220V)
      - Communication card (check values to study the best option)
        - Profinet = CFW500-CEPN-IO (2DI/1AI/1AO/1RLO)
        - Modbus TCP = CFW500-CEMB-TCP (2DI/1AI/1AO/1RLO)

  - Delta
    - MS300 - VFD11AMS23ANSAA (9.6A /220V)
      - Communication card (check values to study the best option)
        - Profinet = CMMM-PN02
        - Modbus TCP = CMM-EIP03

  - Bonfiglioli
    - ACU210 - ACU 210- 13 (9.6A /220V)
      - Communication card (check values to study the best option)
        - Profinet = CM-PROFINET
        - Modbus TCP = CM-Modbus/TCP-2P
- Control = Closed loop
  - PID system with feedback
- Network = Profinet/Modbus TCP (Set Inverter Vendor)
- Note = braking resistor



Winder Control Type

- Closed-loop system (analog port feed)
- PID system (dedicated block PLC)
- Communication via industrial network
- Watchdog system for braking
- Vector system
- FB/FC Block (SCL/Ladder)

- **Stepper Motor = NEMA 34 - OBR**
  - **Torque = 68 kgf.cm**
  - **Current = 5.0 A**
  - **Voltage = 2.0 Vdc**
  - **Model = MPS34CM68-50A 14B**

- Drive = DRIVE FOR STEPPER MOTOR 7.2A /24~80V
  - OBR
    - MPS860A
      - Code = T5261

Alimentação	24~80 VAC ou 30~110 VDC
Corrente de saída	2.0~6.0 A nominal / Pico de 7,2A
Corrente de entrada de sinal	7~20mA
Frequência	0~200kHz
Motores compatíveis	NEMA 23 e NEMA 34 (até 120 kgF.cm)
Isolação dielétrica	>= 500 MΩ
Tensão de comando	5 ~ 24VDC

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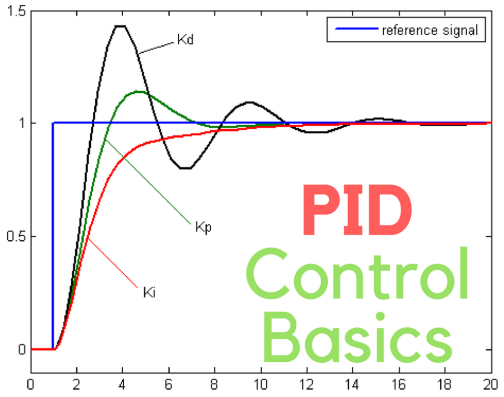
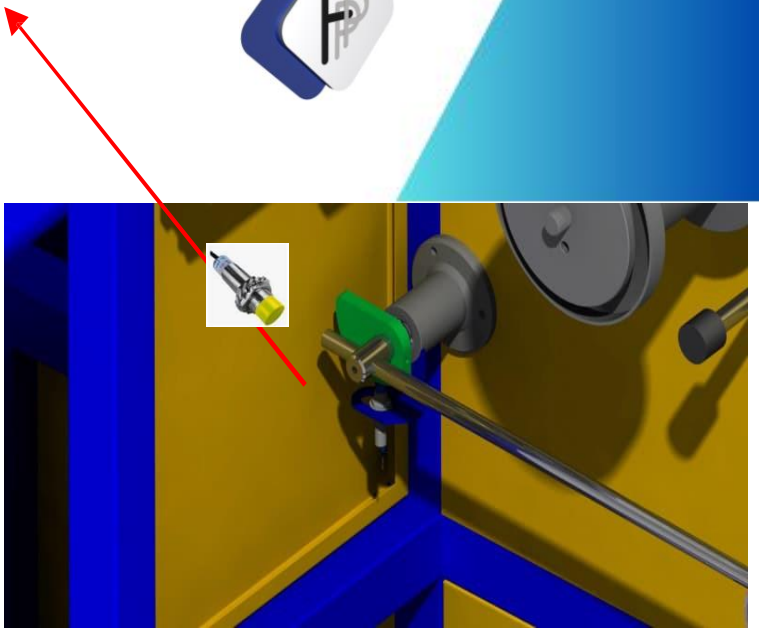
Spreader Control Type

- Controle via Motion Control Siemens
- TIA PORTAL Technology Block
- Precise positioning
- Return to the starting position at the end of the process
- Magnetic safety sensor

- Control System
- Feedback
- Control intervals
- Stop
- Departure
- Wire Routing Mode
- Dead zone
- Direct start
- If you pull the wire part into jog (sprinkler does not turn on)





- Articulated arm
- HMI with production and signaling data
- Starting and stopping parameterization
- Emergency button

Signage

Production signage (at HMI)

- Signaling Tower - Producing (Blue)
- Signaling tower - stopped machine (Yellow)
- Signal tower signaling - fault (Red)

Operation

- Description of operation will be provided with the equipment manual.
- By default the machine should follow the steps;
  - Entering Coil Data in the Unwinder (Weight/Yardage/Throw)
  - Select Coil Type on the Winder (Spreader Step Setting)
  - Insert Yardage Parameter (Meters/Weight)
  - Check security limits and keys
  - Select machine reset
  - Select start (system will calculate the footage/number of reels/stop to clear reel unlocks

Hardware

- Siemens CPU – S7-1200 / 6ES7-213
- Siemens HMI - KTP400 COMFORT
- Inverter Decoiler – Weg CFW 500 (or similar)
- Inverter Winder - Weg CFW 500 (or similar)
- Drive step – MPS860A OBR

Control and control panel

Item	Description	Code (model)	Manufacturer	Quantity	Status
01	Power panel box (select display option)	Power panel – 1000x600x350 or Pulpit	PressMat/Lumibras/Industriagomes	1	Lectern option with panel and control
02	Control Panel Box (select Presentation option)	Control Panel – 300x300x100 or Pulpit	PressMat/Lumibras/Industriagomes	1	
03	Frequency inverter – 7.5HP/24A – 220Vac/3 phases	Unwinder	W eg/ Delta/ Bonfiglioli (Similar)	1	Inverter that meets power and connections
04	Frequency inverter – 3.0Hp / 9.6A – 220Vac / 3 phases	Winder	W eg/ Delta/ Bonfiglioli (Similar)	1	Inverter that meets power and connections
05	Stepper motor drive – NEMA 34 – 5.0A/68kgf.cm	Spreader	OBR	1	FX Supply
06	CPU 1212C, DC/DC/RL 8DI/6DO/2AI/6ES72121HE400XB0	PLC - automation	Siemens	1	LHR Proposal
07	SM 1223, 16DI/16DO RELAY / 6ES72231PL320XB0	Expansion card	Siemens	1	LHR Proposal
08	SIMATIC HMI KTP400 COMFORT / 6AV21242DC010AX0	Command interface	Siemens	1	LHR Proposal
09	Incremental Encoder – nm702nr3v	600 pulse sensor	Dynapar	1	LHR Proposal
10	Scalance xb008-6GK5008-0BA10-1AB2	Switch Siemens	Siemens	1	LHR Proposal
11	Disconnect Machine LB 263 B33 YR TOPO / 63A/3-pole	General Disconnector	Schneider	1	LHR Proposal
12	32A three-pole circuit breaker – curve C	Decoiler protection	Siemens	1	LHR Proposal
13	16A three-pole circuit breaker – curve C	Winder protection	Siemens	1	LHR Proposal
14	Bipolar circuit breaker 10A – curve C	Stepper motor protection	Siemens	1	LHR Proposal
15	Single-pole circuit breaker 4A – curve C	24vdc command circuit breaker	Siemens	2	LHR Proposal
16	Single-pole circuit breaker 2A – curve C	110vac control circuit breaker (secondary)	Siemens	2	LHR Proposal
17	Bipolar circuit breaker 2A – curve C	220vac command circuit breaker (primary)	Siemens	1	LHR Proposal
18	Transformer 300VA – 220/110	Command Trafo 220/110 vac	TRA	1	LHR Proposal
19	Voltage supply 24vdc / 2.5A	Command source	Siemens	1	LHR Proposal
20	Fan with filter 20cm	Panel exhaust fan		2	RB Quote
21	LED lamp 300mm	Interior lighting panel		1	RB Quote
22	Missing/Reversing phase relay	Monitor network and phase failure	Schneider	1	LHR Proposal
23	Power Contactor 3rt2025 1bb40	Brake Contactor	Siemens	1	LHR Proposal
24	Bridge Rectifier Brake	Brake Rectifier		1	RB Quote

Articulated arm general panel

Parts Lists:

Option 2:

Control Lectern with Command Embarks

Item	Description	Code (model)	Manufacturer	Quantity	Status
25	Braking resistor	Chopper Inverter Unwinder	W eg/Delta/Bonfliglioli	1	RB Quote
26	RJ45 Connector - 6GK1901-1BB10-2AA0	Profinet connector	Siemens	6	LHR Proposal
27	Emerg button with retention	Emergency	Schneider	2	LHR Proposal
28	1NA Push Button	Alloy/Reset/	Schneider	2	LHR Proposal
29	1NF Push Button	Hang up	Schneider	1	LHR Proposal
30	Coupler relay 1 Rev	Interface, sensors, and commands	Finder/Murr	15	LHR Proposal
31	Terminal block W ago 2.5 mm	Terminal strip	Phoenix	40	LHR Proposal
32	Terminal block W ago 4.0 mm	Terminal strip	Phoenix	9	LHR Proposal
33	Terminal block W ago 6.0 mm	Terminal strip	Phoenix	9	LHR Proposal
34	Inductive sensor	Pulse counter	Phoenix	1	RB Quote
35	1NA/NC pedal	Release Brake/Jog	ACR	1	RB Quote
36	Magnetic sensor	Limit Security Spreader	Schneider	1	LHR Proposal

Manual de instrucciones

contato@fppengenharia.com.br
comercial@fppengenharia.com.br
www.fppengenharia.com.br