

Electrical Design

Drawing: Single line diagram (11 X 17 – B size)

All conductors are **XHHW-2 copper** conductor and with an insulation level of **1000V**.

All field device **control** cables are **#12AWG** size

All **motors** protected by **MCP**

All other loads are protected by **MCCB**

All **motors** are controlled by **H/O/A** device located in field (by motor location)

Motor #1 (A/B): 75 HP, FVNR, motor code 'J' (to set MCP)

Field switch (Flow switch); 2 wires and an extra, total 3. (Part of control circuit)

Motor #2 (A/B): 100 HP, FVNR, motor code 'K' (to set MCP)

S.F. = 1.2

In a hazardous location with a CLASS 1 Group II-C (Group B). Product is **Hydrogen**. (Design it for most explosive gas. Zone 2)

Motor #3 (A/B): 125 HP, FVNR, motor code 'J' (to set MCP)

S.F. = 1.2

Correct pf to 0.94 from existing 0.82. Locate pf correction outside MCC (Physically located above MCC). Take efficiency from the table provided.

Motor #4 (A/B): 150 HP, FVNR, motor code 'H' (to set MCP)

Controlled by a Variable Frequency Drive (VFD), (Could be with by pass and with filter)

S.F. = 1.18

Use **inverted rated** cable on loads that will be switched at a high frequency (All the bells and whistle)

Transformer #1: 45 KVA, dry type epoxy filled 480/120-208V (3P-4W)

Feed 225 A panel board

Panel Board #1: 400A, 480V, for welding receptacles

NOTE: 70% of the motor are FVNR

All motors and controls are duplicated (**TWINNED**)