

Industrial Equipment for the North-American market (2022)

Siemens Industry Day 19 mei 2022

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Speaker

Marco Klopman

Project Engineer

With UL since: 2012

Current Technical Areas: - **Industrial Control Panels UL508A**

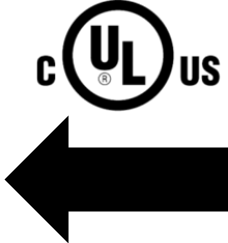
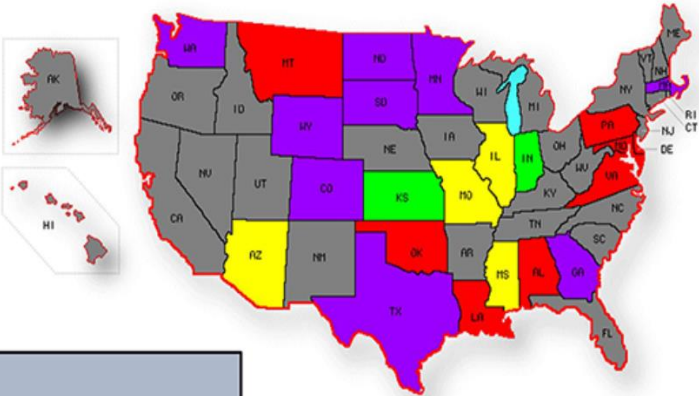
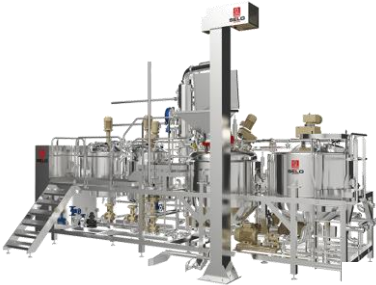
- **Machinery UL2011, EN60204-1**

- **Industrial Control Panels Enclosures UL50, UL50E**



Paspoort naar de VS

NEC® in Effect
2/1/2021

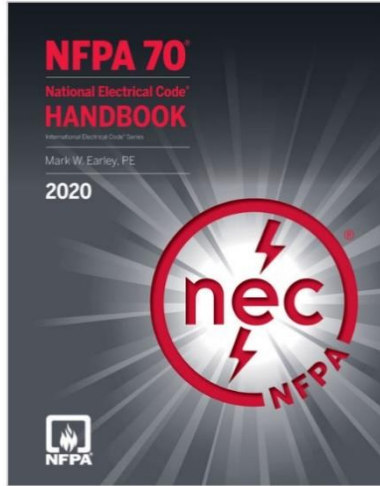


- 2020 NEC® - 9
- 2017 NEC® - 27
- 2014 NEC® - 8
- 2008 NEC® - 2
- County/Municipality NEC® regulation only - 4

Source: Symyx.net()



AHJ = Authority Having Jurisdiction (bv “Sheriff”)



ARTICLE 409 Industrial Control Panels

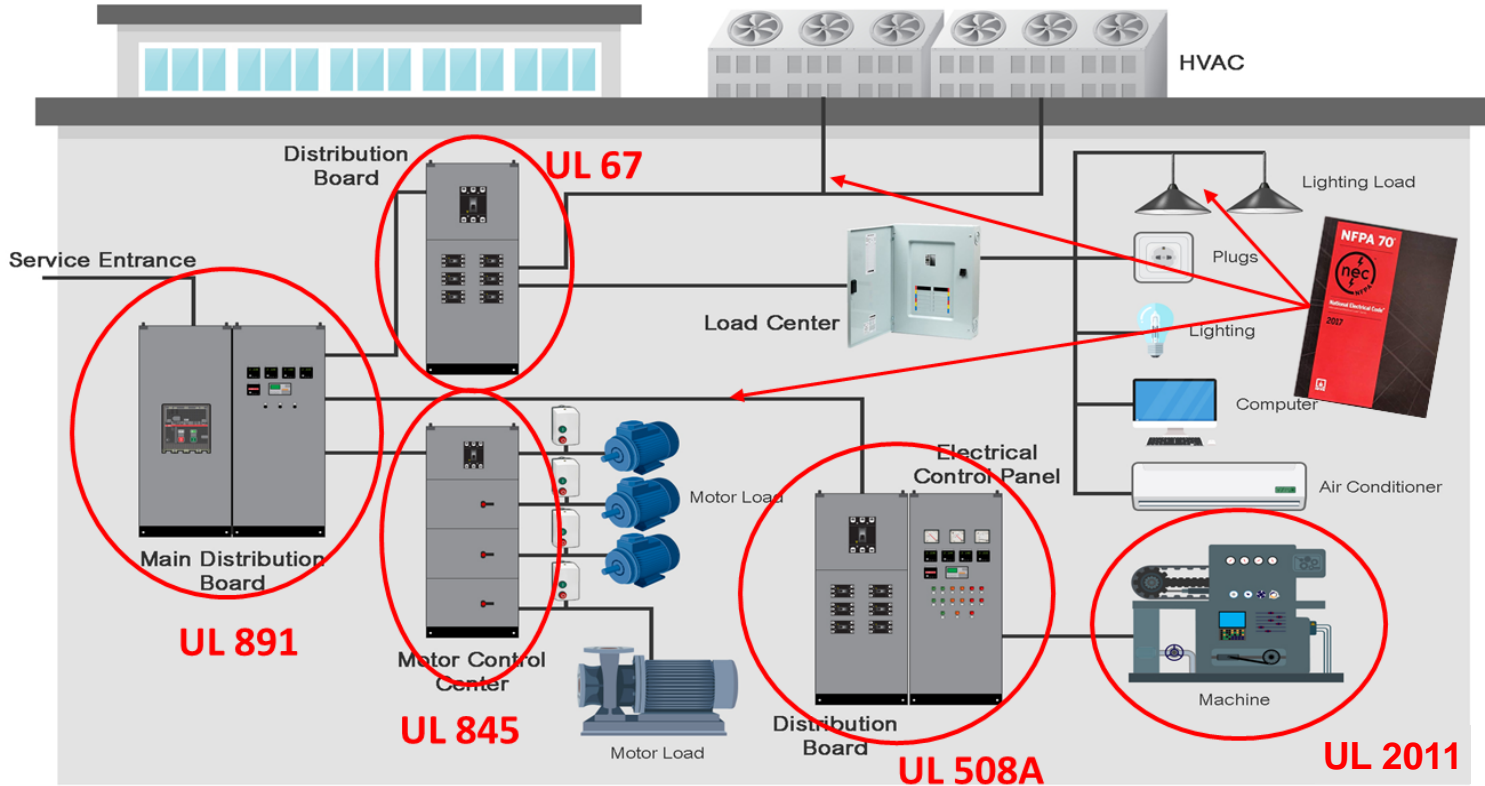
Part I. General

409.1 Scope. This article covers industrial control panels intended for general use and operating at 1000 volts or less.

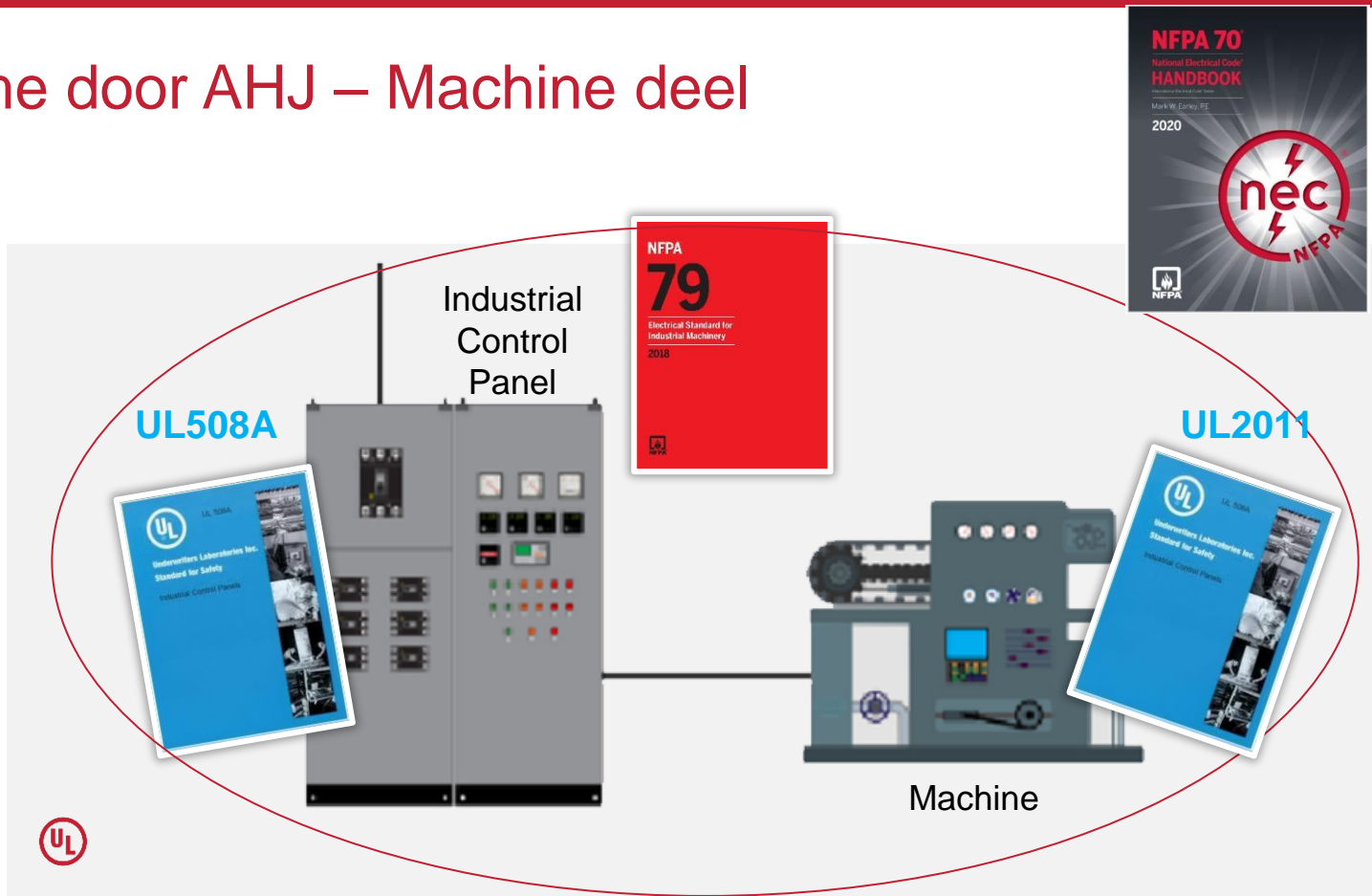
Informational Note: ANSI/UL 508A, *Standard for Industrial Control Panels*, is a safety standard for industrial control panels.



Afname door AHJ



Afname door AHJ – Machine deel

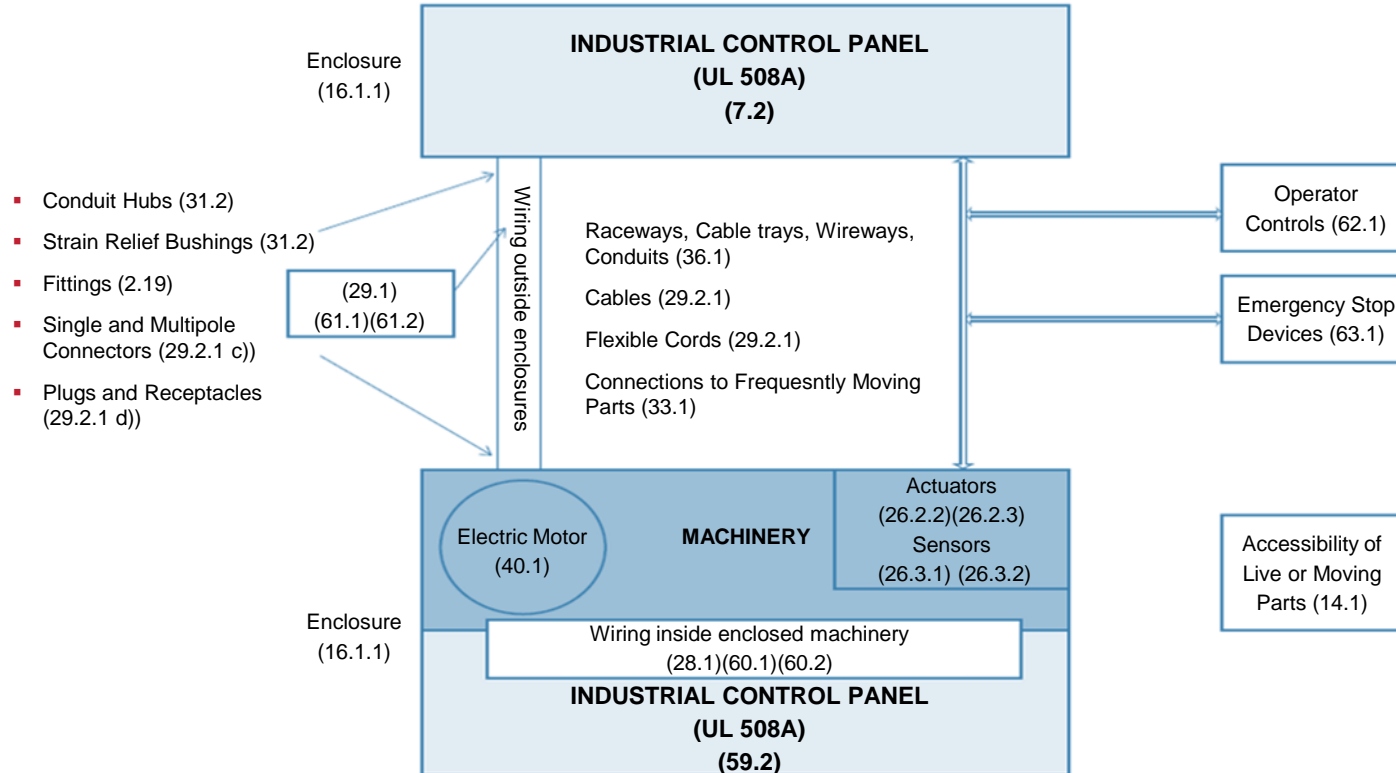


Installatie conform de NEC





Afname door AHJ – Machine deel

Figure 6.1
Description of terminology

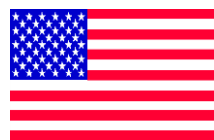


UL-Recognition and UL-Listing

UL-Recognition	UL-Listing
 <p>a. Components only b. Incomplete devices c. "Construction Only"</p> <p>Note: Always "Condition of Acceptabilities"</p>	 <p>End product</p>



UL-Recognition and UL-Listing



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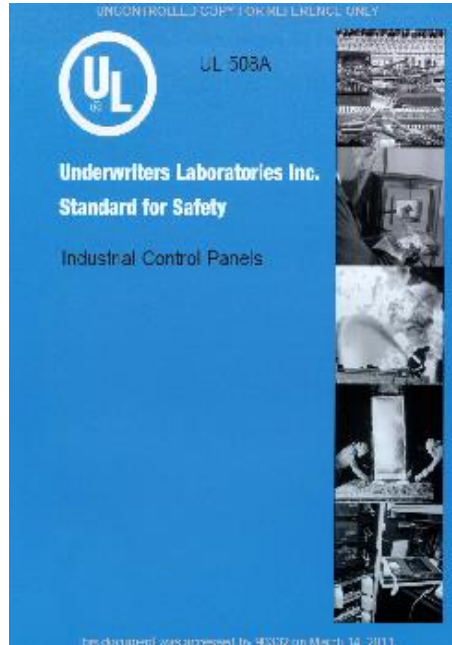
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UL508A – Industrial Control Panels



Part 1
General Use

Part 2
Specific Use

Supplement SA
Specific Component
Requirements

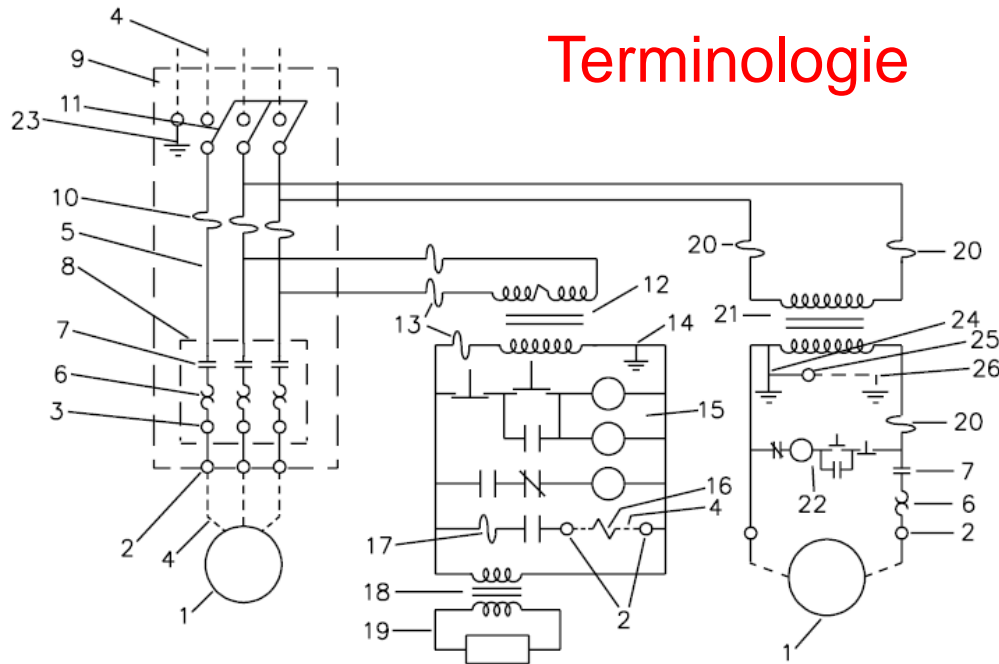
Supplement SB
Short Circuit Current Ratings

Appendix A
Standards for Components

Appendix B
Use of Unlisted Components



Terminologie



1 Load (provided in field)

2 Field wiring terminals

3 Alternate field terminals

4 Field wiring

5 Power circuit internal wiring

6 Overload relay & heater elements

7 Contactor/Controller

8 Starter

9 Combination motor controller

10 Branch circuit protection

11 Fused disconnect switch or circuit breaker

12 Control transformer

13 Control transformer fuse/supplementary protection

14 Control transformer ground (for 1000 VA max control transformer)

15 Control circuit devices and wiring/Class 1 circuit/isolated secondary circuit

16 Solenoid or other control device – provided in field

17 Supplementary protection

18 Class 2 transformer

19 Class 2 circuit

20 Power transformer fuse/branch circuit protection

21 Power transformer – for motor load and control circuit

22 Control circuit/Class 1 circuit/common control circuit

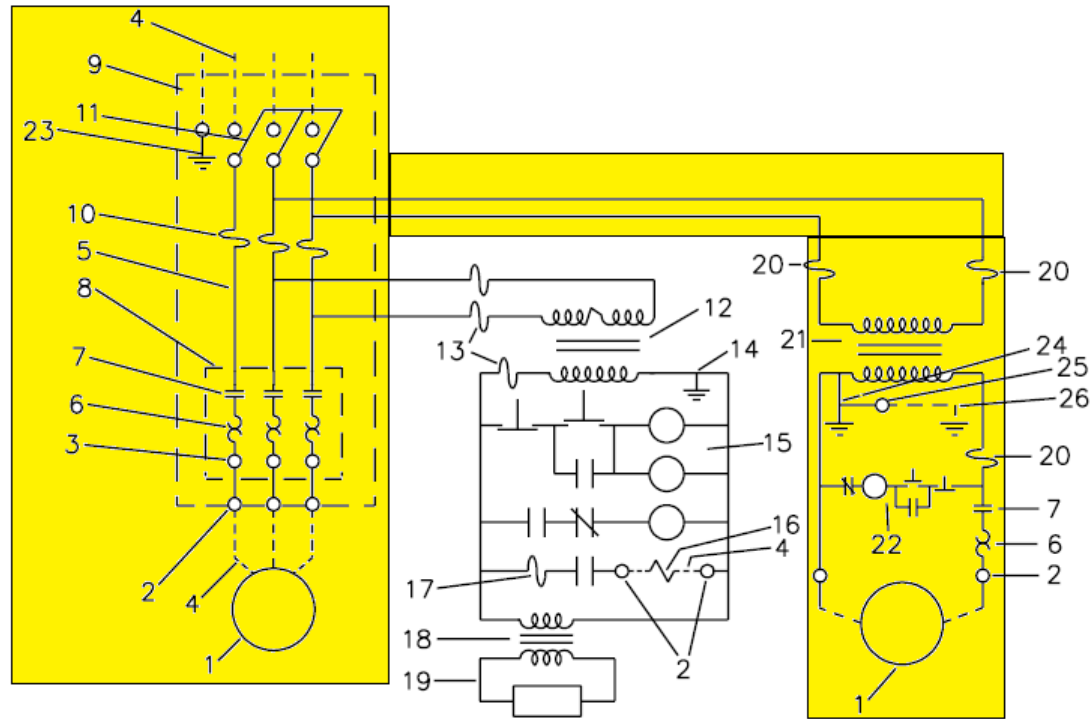
23 Equipment ground and equipment ground terminal

24 Bonding conductor/bonding jumper

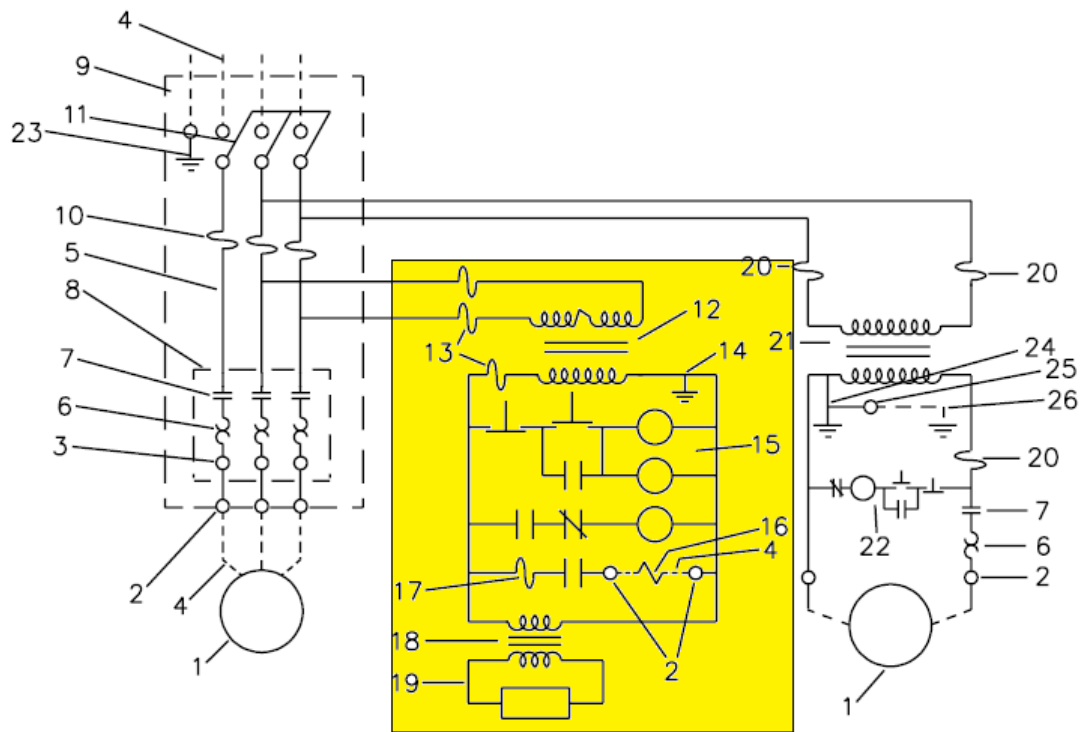
25 Grounding electrode conductor terminal

26 Grounding electrode conductor (provided in field)

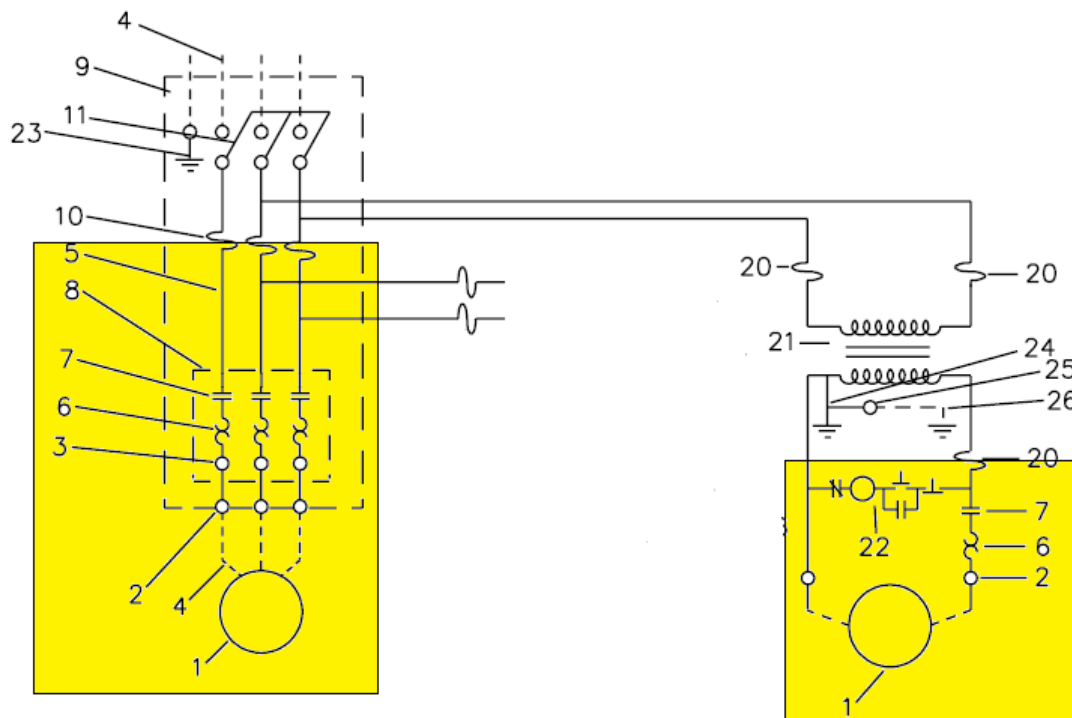
POWER CIRCUIT



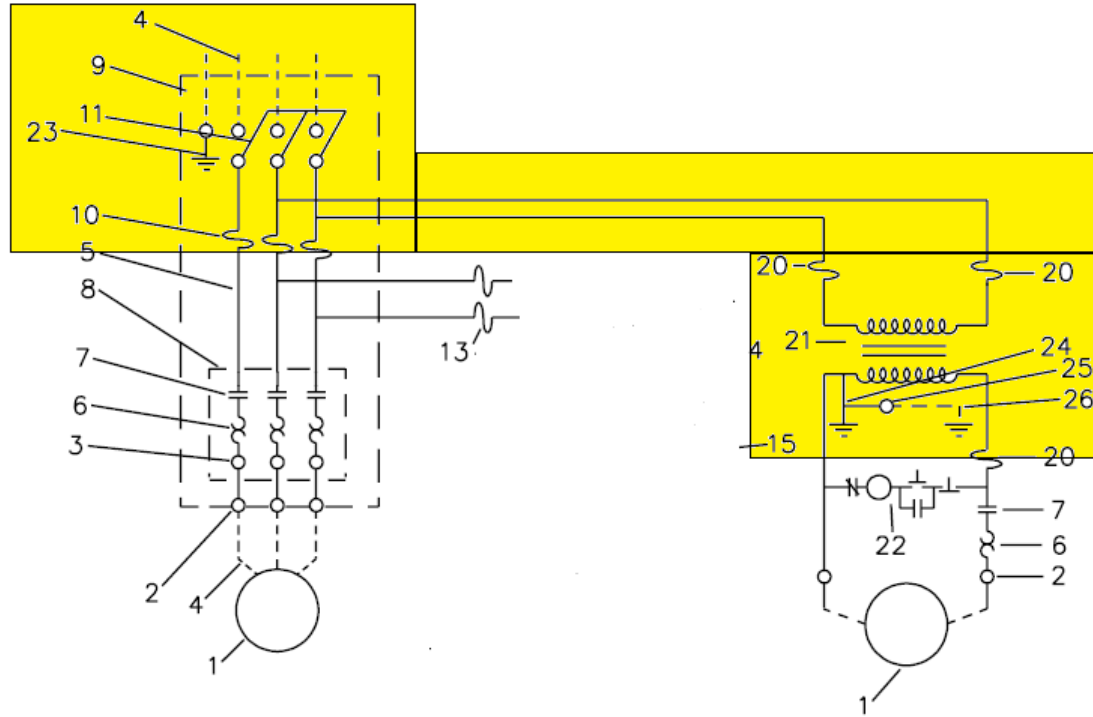
CONTROL CIRCUIT



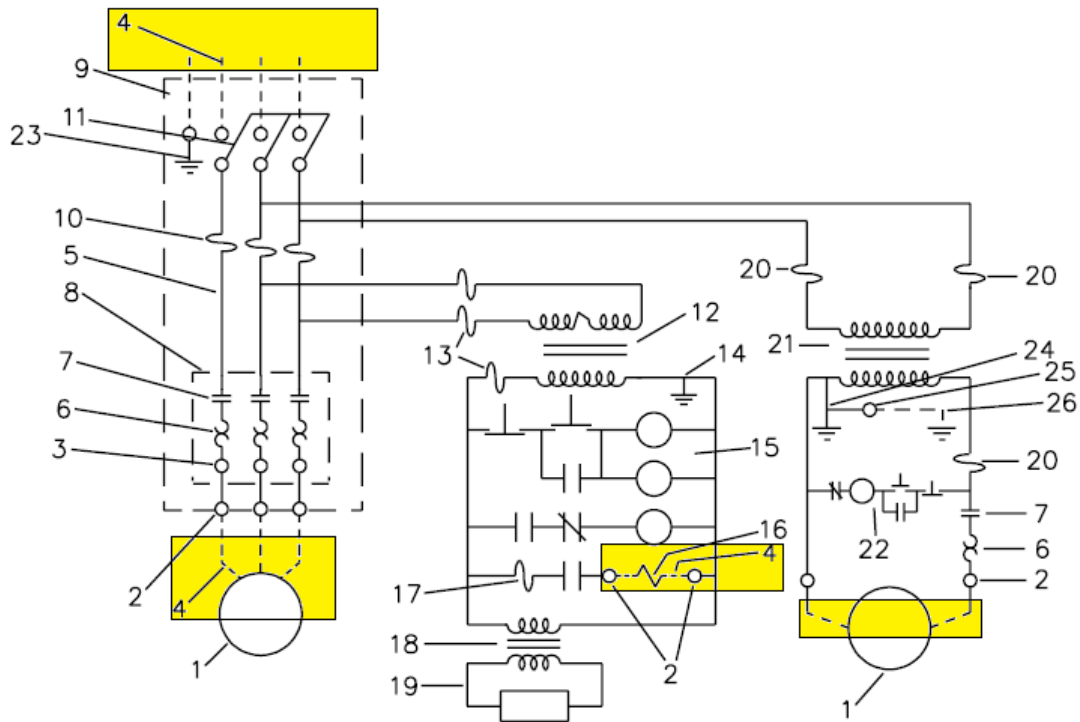
BRANCH CIRCUIT












FEEDER CIRCUIT

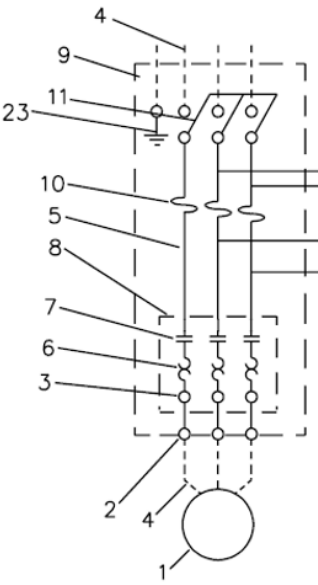


FIELD WIRING



Samenstellen Motor circuits

	Component	Example 1	Example 2	Example 3	Example 4	Example 5
		 FEEDER (MAIN) FUSE				
FEEDER CIRCUIT	Disconnecting Means 	Manual Disconnect UL98	Circuit Breaker UL489	Manual Disconnect UL98	Manual Disconnect UL98	Combination Motor Controller UL508 
	Branch Circuit Protection 	Fuse UL248		Fuse UL248	Semiconductor or Fuse UL248-13	
BRANCH CIRCUIT	Load Controller 	Magnetic Motor Controller UL508	Solid State Motor Controller UL508	Manual Motor Controller UL508	Power Conversion Equipment UL508C	
	Thermal Overload Protection 	Thermal Overload Relay UL508	Thermal Overload Relay UL508			
		 MOTOR				



Meest gemaakte fouten



De verkeerde norm gebruiken.
Voorbeeld: UL 508A gebruiken voor het certificering van een frequentieregelaar



Kortsluitstroom berekening



Verkeerde kleuren van de interne bedrading.



Hoofdschakelaar :

- Locatie
- Dimensioneren



Type rating van de behuizing
(UL/IP/NEMA)

- UL Type 1, 2, 3, 4x, 12, enz.



Waarschuwing markeringen



Motor beveiliging:

- Overstroom (Overcurrent)
- Thermisch (Overload)

Meest gemaakte fouten

Use of Supplementary Protectors as branch circuit protection



Supplementary
Protector
QVNU2
UL1077



Circuit Breaker
DIVQ
UL489



Services

Industrial Control Panel (UL 508A - NITW)

Preliminary Investigation

- Construction Analysis
- GAP Analysis

Single Drawing

- Single Model Certification

Limited Production

- Single Model Certification – no audits

Listing Program

- Certification according UL508A e CSA C22.2 N0.14

Machinery (UL 2011 - GPNY)

Preliminary Investigation

- Construction Analysis
- GAP Analysis

Limited Production

- Single Model Certification – no audits

Listing Program

- Certification according UL 2011 e CSA C22.2 N0.14

Field Evaluation

- Single Model Certification – no audits
Preliminary investigation at factory
Labelling at end use location in the US

Face to face Meetings

- Training on the Standard
- Refresh Training
- Advisory

Webinar & Seminars

- For Your Employees
- For Your Customer
- For Your Provider
- Public

Custom Made Service

- Desk Review
- Training on Specific Topic



Vragen ?





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<https://www.ul.com/offerings/industrial-control-panels-and-panel-shop-program>

Bedankt voor uw deelname

