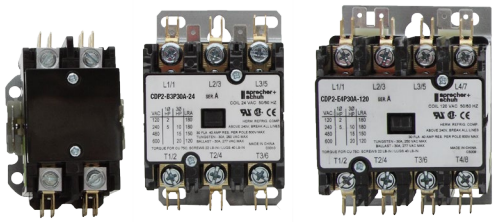
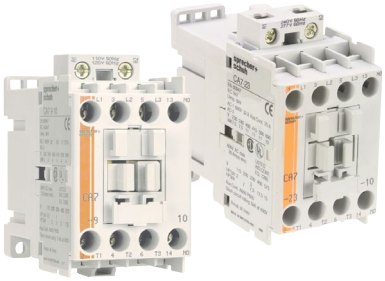
sprecher+schuh

Compare and Cross Reference Definite Purpose (DP) Contactors to General Purpose (IEC) Contactors





QUESTION: How can I compare and cross reference a Definite Purpose Contactor product to an IEC Contactor product?

Characteristics comparison between IEC style (CA7) and Definite Purpose (CDP2) contactors

Definite Purpose contactors have been around for a long time – the design is well established (older) and innovative features have not been incorporated into the design. General Purpose (UL rated IEC style) contactors have been around for a long time as well, but improvements have been continuously made as new technology became available – the CA7 line is the seventh generation of IEC contactors and represents a modern and flexible power contactor available today. Sprecher+Schuh CA7 line of contactors are manufactured in Aarau, Switzerland, where we have been located for 100+ years. In addition to the production facility in Switzerland, Sprecher+Schuh utilizes other locations in different countries to complete some required sub-assembly work.

Technical Differences

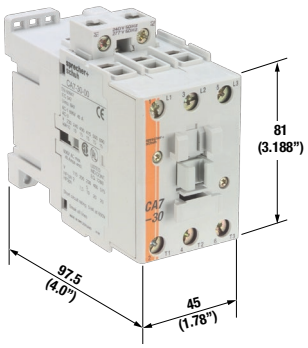
Using the following as a guide, a list of technical differences can be determined between definite purpose contactors and general purpose contactors .

Sprecher+Schuh CDP2 series = definite purpose contactors
Sprecher+Schuh CA7 series = general purpose contactors

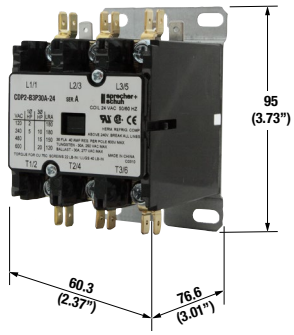
- The expected service life (longevity) of a general purpose contactor (CA7) will exceed the length of time that a definite purpose contactor will remain in operation just due to the fact that there would be a greater number of operations using CA7s'. In both circumstances of application, inductive and resistive, it is proven that a CA7 will last longer in operation.
- The CA7 contactors are UL Listed (unrestricted white card approval), the definite purpose contactors are UL Recognized (restricted yellow card approval).
- The CA7 design incorporates arc chutes to quench the arc and provide quick arc extinction, as well as high contact pressure and bounce free contacts.
- The entire CA7 line of contactors features mechanically linked or positively-guided contacts. This insures that if main contacts weld , auxiliary contacts do not change state when power from coil is removed – this could be a very important safety consideration in many applications. The CDP2 definite purpose contactors are not designed with positively-guided contacts.
- In our CA7 contactors, the reliability of auxiliary contacts is assured by cross stamped auxiliary contacts that provide multiple point reliability in low current , low voltage application. Cross-stamping is not a design feature on the definite purpose contactors.
- In a comparison amongst 'Amps for Amps' . . . generally, the CA7 contactors have a smaller foot print compared to CDP2 definite purpose contactors – which provide valuable panel space savings.
- In general, CA7 contactors have less coil noise when compared to the definite purpose contactor. Further, CA7 contactor coils are easily removed and replaceable. We do not sell replacements coils for CDP2 definite purpose contactors.

Comparison by Size

CA7-30-00



CDP2-B3P30A



Compare and Cross Reference Definite Purpose (DP) Contactors to CA7 (IEC) Contactors

- From a price perspective, the consumer gets what they pay for – Definite purpose contactors are less expensive, but they also have a shorter life cycle.

  General purpose contactors may cost a little bit more, however, the extra expense provides the extra savings of not having to replace the item as often.

Selection by Ratings

Definite purpose contactors are typically rated by motor Full Load Current (FLC) or resistive current, and often have restrictions as to the maximum Locked Rotor Current (LRC) allowed. General purpose contactors are typically rated by motor horsepower (HP) or inductive current.

As an example - a definite purpose contactor with a FLC rating of 30A may have only a 15HP rating at 460V. While in comparison, an IEC style contactor with a 30A FLC rating generally has a 20HP rating at 460V. The difference is due to the maximum allowed Locked Rotor Current of the definite purpose contactor. Typically, a definite purpose contactor with a 30A FLC rating has a 120A LRC rating at 460V. Assuming that LRC is equal to six times the FLC rating, the largest motor that this contactor can control at 460V has a FLC of only 20A. This limited Ampere rating at higher voltages (460 and 575V) is reflected in the lower HP ratings at these voltages. Generally, IEC style contactors have constant current ratings through 460V or even 575V.

As a summary of selection, a comparison of contactors in terms of ampere ratings alone is not correct, because ampere ratings on definite purpose contactors are not the same as ampere ratings on IEC style contactors.

Cross-referencing between styles

In addition to the difficulty that many customers have understanding the ratings differences, cross-referencing is complicated by the fact that there are not as many definite purpose contactor sizes as there are IEC style contactor sizes. Many manufacturers of definite purpose contactors do not offer sizes smaller than 25A and most manufacturers of IEC contactors offer 3 or 4 contactor sizes with ratings less than 25A.

Because of this, it is difficult to cross reference the 25A DP contactor to an IEC 23A or 30A contactor, because chances are, the Horsepower (HP) rating of the motor is within the range of a small IEC contactor. For example, when using a 25A Definite purpose contactor to control a 5 HP or less motor at 460V, the IEC equivalent maybe a 9A contactor. Also understand if a Definite Purpose contactor controls a resistive load, the AC1 operating current ratings of IEC contactor must be used to select an IEC equivalent contactor. For example, if the load is 30 Amps resistive, the cross reference for a 30A DP contactor will be a 23A contactor, because it has an AC1 rating of 32A.

Cross referencing a definite purpose contactor to an IEC contactor involves an analysis of the application. Do not attempt to cross reference by the catalog number or ampere rating. Instead, determine the application requirements and follow the table below to select the correct IEC Contactor.

Application	Determining Factors of the Application	Select IEC Contactor Based on...
Resistive	Load Current	IEC Utilization Category AC1 (Ie = Rated Operational Current)
Inductive	• Motor Horsepower (HP) and Line Voltage • IEC Load Utilization Category • Expected Mechanical and Electrical Life of the Contactor	• HP Ratings • AC2, AC3, AC4 (Ie = Rated Operational Current) • Load Life Curves of the contactor

Sprecher + Schuh US Division Headquarters
15910 International Plaza Dr., Houston, TX 77032
Tel: (281) 442-9000; Fax: (800) 739-7370
www.sprecherschuh.com

Sprecher + Schuh Canadian Division
10 Spy Court, Markham, Ontario L3R 5H6
Tel: (905) 475-6543; Fax: (905) 475-0027

Publication No: TECH-CA7vsCDP_114 June 2014