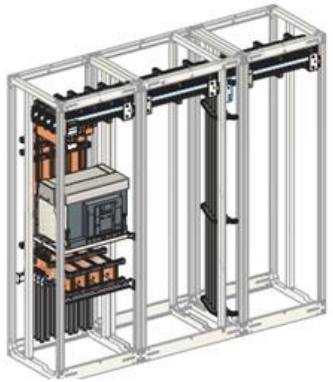
המעבדה לחשמל ואלקטרוניקה

מכון התקנים הישראלי

לוחות חשמל על פי ת"י 61439-2
מספר ליקויים שכחים בלוחות החשמל








8 Constructional requirements

8.5 Incorporation of switching devices and components

8.5.4 Installation of switching devices and components

Switching devices and components shall be installed and wired in the ASSEMBLY in accordance with instructions provided by their manufacturer and in such a manner that their proper functioning is not impaired by interaction, such as heat, switching emissions, vibrations, electromagnetic fields, which are present in normal operation. In the case of electronic assemblies, this may necessitate the separation or screening of all electronic signal processing circuits.

When fuses are installed the original manufacturer shall state the type and rating of the fuse-links to be used.

מכון התקנים הישראלי

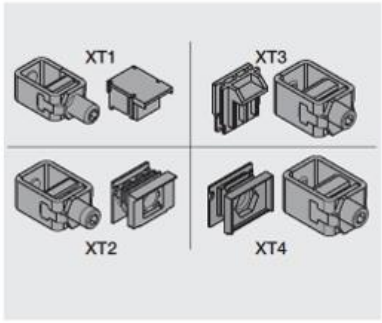
- התקני מיתוג ורכיבים יותקנו בלוח בהתאם להוראות יצרן הציוד הרכיב, ובאופן אשר לא יפגע בתיפקוד התקין שלהם כגון חום, פליטה ממיתוג, רעידות, שדות אלקטרומגנטים כאשר מופעים כאשר המתקן עובד באופן רגיל, במקרה של ציוד אלקטרוני מחיוב לבצע הפרדה או סיכוך לכל ציוד אלקטרוני

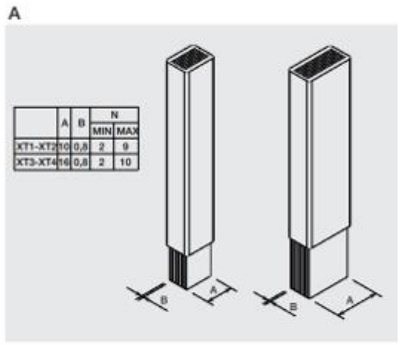
מכון התקנים הישראלי

Doc. N.° 1SDH000719R0814 - B0020

SACE Tmax XT

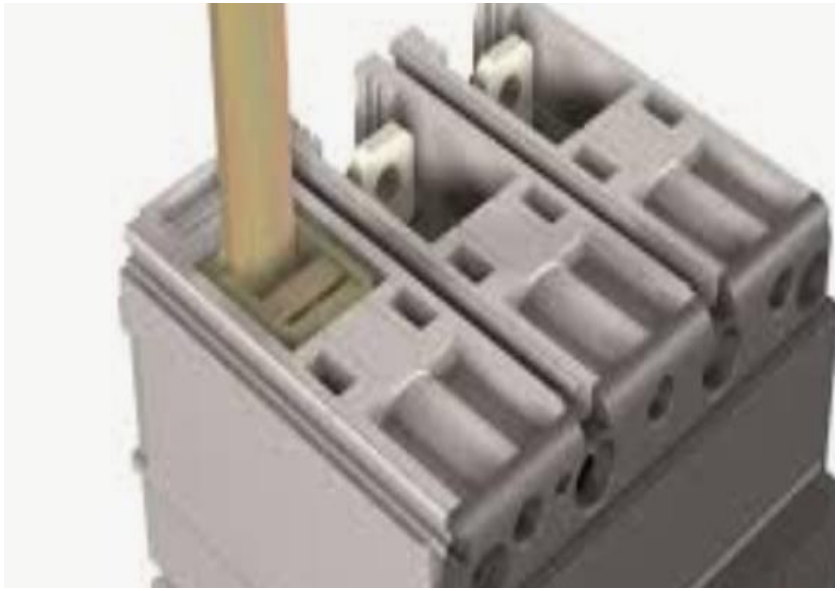
FB - Terminali per cavi Flexible Bar XT1-XT2-XT3-XT4
FB - Terminals for cables Flexible Bar XT1-XT2-XT3-XT4
FB - Anschlüsse für Kabel Flexible Bar XT1-XT2-XT3-XT4
FB - Prises pour câbles Flexible Bar XT1-XT2-XT3-XT4
FB - Terminales para cables Flexible Bar XT1-XT2-XT3-XT4



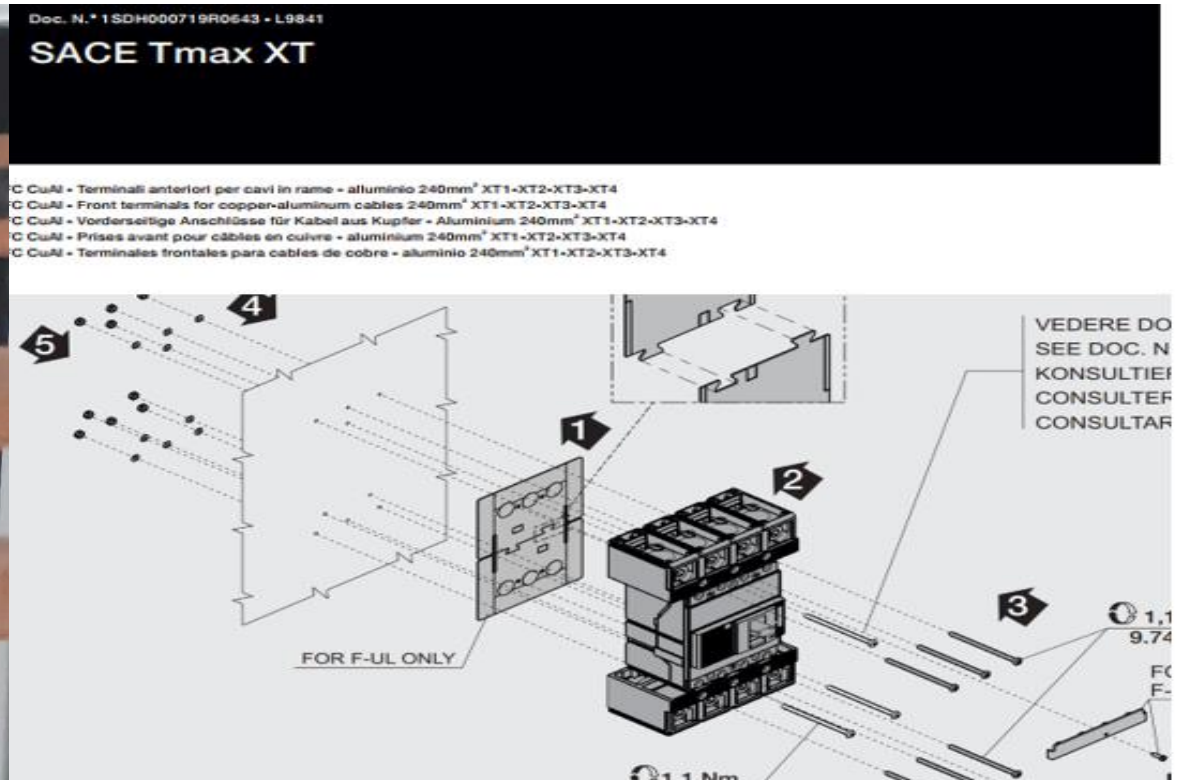


- לאחר שהבנו את דרישת התקן מצורפים מספר ליקויים אשר נפוצים
  - בחירת הדקים אשר מתאימים למוליך מבחינת שטח חתך, חומר המוליך אלומניום נחושת, סוג המוליך פס או מוליך עגול.

הורכב הדק המתאים למוליכים עגולים – נדרש הדק עבור פס גמיש



הורכב כבל בעל שטח חתך 120 ממ"ר להדק מפסק XT1 , המפסק הורכב שוכב- הדק המפסק לא חוזק כנדרש



- הרכבת סוללת קבלים ללא שמירת מרחק בין קבל לקבל כנדרש

CIRCUTOR

CLZ-FP-HD

CLZ-FPT-HD

INSTRUCCIONES DE SERVICIO PARA CONDENSADORES TUBULARES DE POTENCIA DE BAJA TENSIÓN

SERVICE INSTRUCTIONS FOR LOW VOLTAGE POWER TUBULAR CAPACITOR

GB

1. INSTALLATION

The installation of the capacitors should take into account the rules and recommendations of **IEC 60831-1-1/2** Standard.

The capacitors are for **indoor** installation away from heat sources and in well ventilated places.

There shall be a minimum distance of **20 mm** between capacitor.

Check that the voltage and frequency given on the capacitor name plate are appropriate for the mains where it is to be installed.

Connection cables will be sized for minimum **1.43 times the rated current** of the capacitor.

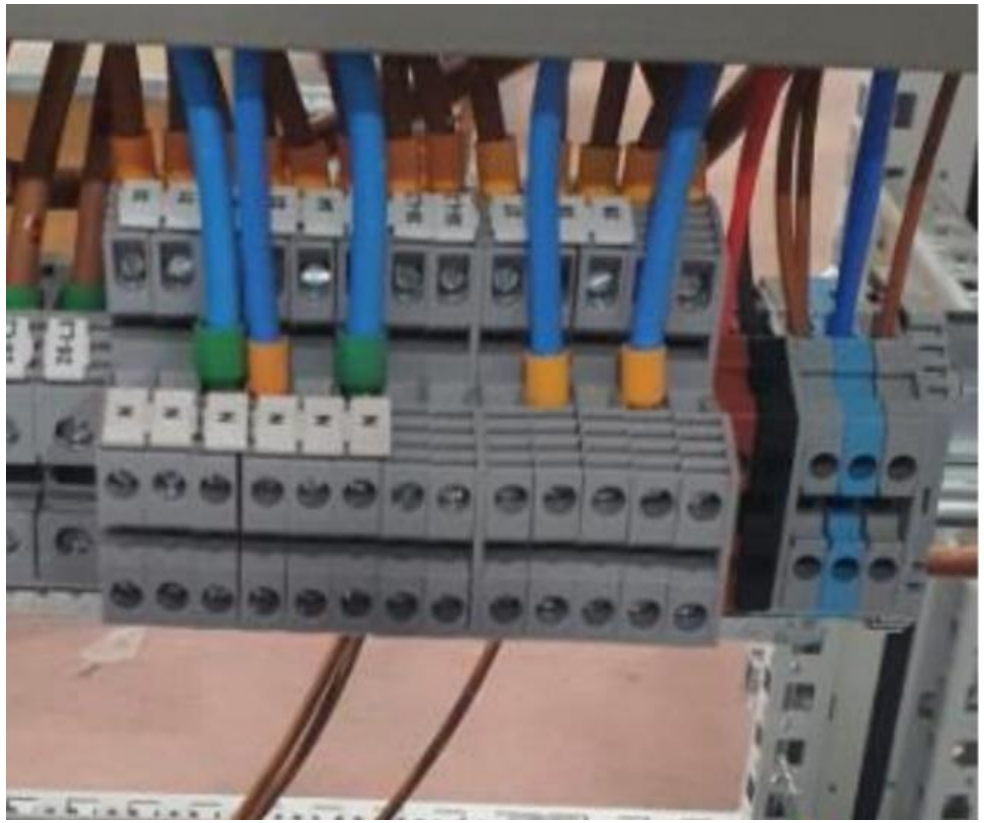
Do not use the capacitor terminals to connect in parallel other capacitors.

The control equipment shall be of sufficient capacity to withstand the heavy capacitor switch in currents which can arrive to be **100 times their rated current** (we recommend that you check with the equipment manufacturers and use contactors with preload resistors and/or limiting choke coils).

מכון התקנים הישראלי

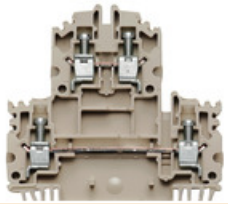
המעבדה לחשמל ואלקטרוניקה

מהדק דו קומתי עבור מוליך גמיש עם סופית עד שטח חתך 4 ממ"ר- ניתן לראות כי החיווט עם מוליך גמיש בעל שטח חתך 6 ממ"ר



Online Catalogue » Cor e technology » W-Series »

WDK 4N



Conductors for clamping (rated connection)	
Blade size	0.6 x 3.5 mm
Clamping range, max.	6 mm²
Clamping range, min.	0.13 mm²
Clamping screw	M 3
Connection cross-section, stranded, max.	6 mm²
Connection cross-section, stranded, min.	1.5 mm²
Connection direction	on side
Gauge to IEC 60947-1	A4
Number of connections	4
Stripping length	8 mm
Tightening torque, max.	1 Nm
Tightening torque, min.	0.5 Nm
Torque level with DMS electric screwdriver	2
Type of connection	Screw connect
Type of connection 2	Screw connect
Wire connection cross section AWG, max.	AWG 12
Wire connection cross section AWG, min.	AWG 26
Wire connection cross section, finely stranded, max.	4 mm²
Wire connection cross section, finely stranded, min.	0.5 mm²
Wire connection cross-section, finely stranded with wire-end ferrules DIN 46228/1, max.	4 mm²
Wire connection cross-section, finely stranded with wire-end ferrules DIN 46228/1, min.	0.5 mm²

- חיווט של הגנת מנוע תלת פאזית לעבור מעגל חד פאזי
- תזכורת בהגנת מנוע קיימת הגנה אי סימטריה אשר מגינה על מנועים בפני אי סמטריה בהזנה.
- כאשר קיים אי סימטריה של מעל ל 40% ההגנה תפעל.

לכן כאשר מעוניינים לחווט מעגלים חד פאזים יש לחווט על פי ההוראות של היצרן על מנת שההגנה תעבוד כנדרש.

מתוך ת"י 60947-4.1 ציוד מיתוג ובקרה למתח נמוך: מגעונים ומתנעי מנועים מגעונים - ומתנעי מנועים אלקטרומכניים

3.4.16
phase loss sensitive overload relay or release
multipole overload relay or release which operates in the case of overload and also in case of loss of phase in accordance with specified requirements

Table 4 – Limits of operation of three-pole time-delay overload relays when energized on two poles only

Type of overload relay	Multiples of current setting		Reference ambient air temperature
	A	B	
Thermal, compensated for ambient air temperature variations or electronic	3 poles 1,0	2 poles 1,32	+20 °C
Not phase loss sensitive		1 pole 0	
Thermal, not compensated for ambient air temperature variations	3 poles 1,0	2 poles 1,25	+40 °C
Not phase loss sensitive		1 pole 0	
Thermal, compensated for ambient air temperature variations or electronic	2 poles 1,0	2 poles 1,15	+20 °C
Phase loss sensitive	1 pole 0,9	1 pole 0	

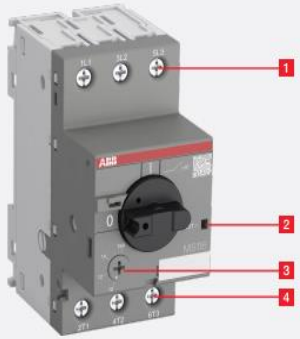
2.1.6 Phase loss sensitivity

Phase loss sensitivity is a characteristic of an inverse time-delay and thermal over-current releases. A strong imbalance between phases can damage motors and other loads. Manual motor starters are designed to detect these conditions and trip to prevent load-side circuit and motor damage.

According to IEC 609471-4-1, phase loss sensitivity is a characteristic of an inverse time-delay thermal over-current release. In the case of a loss of incoming power or a strong imbalance of the phases, this ensures that the manual motor starter trips.

Limits of operation	
No tripping within 2 hours	2 Pole : 1.0 x I_e 1 Pole : 0.9 x I_e
Tripping within 2 hours	2 Pole : 1.15 x I_e 1 Pole : 0 x I_e

Table 4: The information above is based IEC 60947-4-1



Functional description

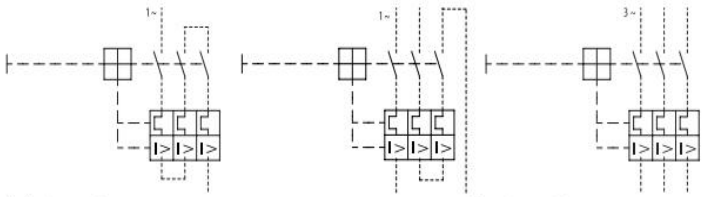
1. Terminals 1L1, 3L2, 5L3
2. Test function
3. Current setting range / Adjustable current setting for overload protection
4. Terminals 2T1, 4T2, 6T3

Application

Manual motor starters (also known as motor protection circuit breakers or manual motor protectors) protect the load and the installation against short-circuits and overloads. They are three pole protection devices with thermal tripping elements for overload protection and electromagnetic tripping elements for short-circuit protection. Furthermore, they provide a disconnect function for safe isolation of the installation and the supply and they can be used for manual switching of loads.

Manual motor starters have a setting scale in amperes, which allows direct adjusting of the device without any additional calculation. In compliance with international and national standards, the setting current is the rated current of the motor and not the tripping current (no tripping at 1.05 x I, tripping at 1.2 x I; I = setting current).

Operation mode



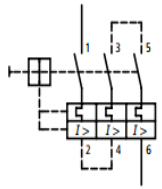
Single-phase operation Single-phase operation Three-phase operation

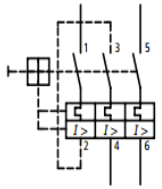
Wiring diagram

Moeller series

Engineering

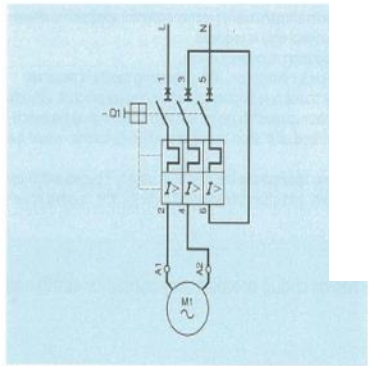
PKZM0(1) and PKZM4 in 1- and 2-pole switching with DC and AC operation





How can I use a motor protection circuit breaker type GV2, GV3, GV4, GV5, GV6 or GV7 with a single-phase load?

The GV range of motor protection circuit breakers (MPCB) can be used on a single-phase network by connecting 2 of the poles in series. In this way, all 3 motor protection circuit breaker poles are used.



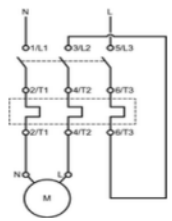
Single-phase motor control using motor circuit breaker

GV2LE *GV2P* *GV2ME*

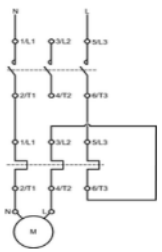
NOTE The GV7 range is now obsolete, replaced by GV5 and GV6. Please visit our website www.se.com for further information.

Released for: Schneider Electric UK

Connection to overload relay and contactor assembled



Connection to standalone overload relay



- הרכבה של ווסת מהירות ללא שמירה על המרחק הנדרש מפתח האוורור