D.C. Contactors for Electrical Traction

TECNO Series

ravioli™

D.C. Contactors
TECNO Series

Main features of the range

The TECNO series contactors' range, compact but powerful, has been designed to be suitable for the traction and material handling fields using direct current.

Such contactors can be applied to lift trucks, industrial cleaning machines, various services on board of ships and boats, as well as to road and rail transport vehicles.

Coils

The d.c. coils feature terminals with 6 mm connections for the TECNO 6 series and screw connections for the TECNO 4 series.
Standard duty is :

- for T 106, T 206 intermittent operation (80 %)
- for T 154, T 204 intermittent operation (80 %)
- for T 106 C , T 206 C intermittent operation (50%) with maximum working time of 15 minutes (temporary duty).

Normalized voltage is : 12 - 24 - 36 V
Different coils with continuous duty are available on series T 106 – **Option P**.

Integral protection

The cover is completely protected from oil, water and dust.

Main contacts

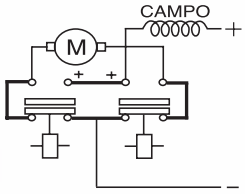
The contactors have silver alloy double breaking contacts, resistant to arc, suitable for heavy duty. The TECNO 6 Series is formed also by contactors with main contacts 1NO and 1NO+1NC; further it is possible to provide a motor reverser that includes both the d.c. contactors 1NO+1NC with the electrical connections.
NC contacts are not suitable for making or breaking current.

Correct use of the motor reverser

The used contactors have fast drop-out time (8 msec) and relatively long pull-in times (approx. 25 msec). In this way, safe reversals can be carried out the risk of the contacts being closed at the same time.

The use of suppressor diodes, however, increases drop-out time, and therefore it is important to choose the most suitable type of suppressor (diode+resistor).

Diagrams of functioning



The lines ——— represent the links supplied with the motor reverser.

D.C. Contactors
TECNO 6 Series - T 106

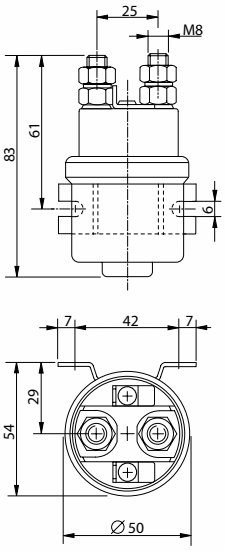
Technical features

Contactor		T-106	T-106 P	T-106 C
Nominal operating current at 50%	I_e	120A	120A	120A
Current 100%		80A	80A	80A
Nominal voltage	U_e	12V 24V	12V 24V	12V 24V
Breaking capacity with 15 ms time constant		480A	480A	480A
Category of usage		DC5	DC5	DC5
Working voltage limits		0,7-1,1Vn	0,85-1,1Vn	0,7-1,1Vn
Coil power dissipation		12W	8W	22W
Operating time	pull-in time drop-out time	30ms 10ms	30ms 10ms	25ms 8ms
Max. torque at terminal board		6 Nm	6 Nm	6 Nm
Mechanical life	op.n.	$2x10^6$	$2x10^6$	$2x10^6$
Main contacts		1NA	1NA	1NA 1NC
Part numbers		**E T106AX**	**E T106PX**	**E T106CX**

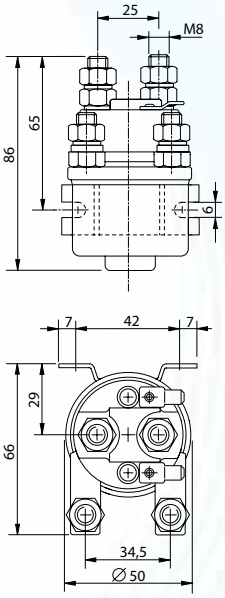
The numeric suffix identifying voltage is as follows::

Voltage	**(V)**	**12**	**24**	**36**
Suffix	**(X)**	**1**	**2**	**3**

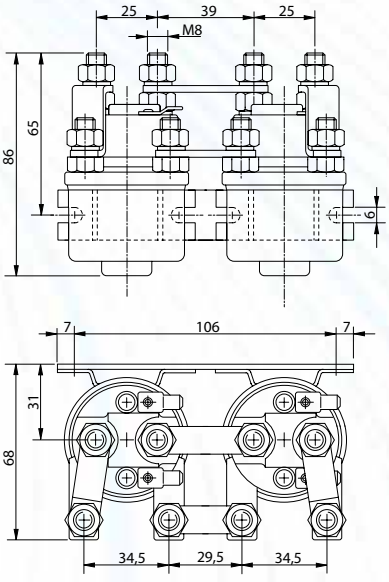
In case the nominal voltage U_e is 36 Vdc, the operating nominal current I_e is 75 A at 50% duty.



T 106



T 106C



2T 106C

D.C. Contactors
TECNO 6 Series - T 206

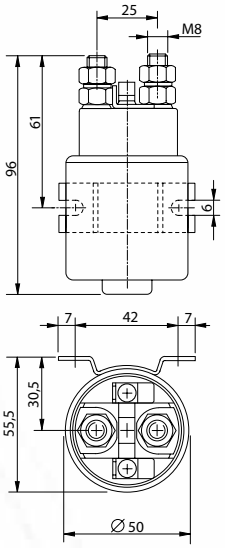
Technical features

Contactor		T-206	T-206 C
Nominal operating current at 50%	I_e	180A	180A
Current 100%		150A	150A
Nominal voltage	U_e	12V 24V	12V 24V
Breaking capacity with 15 ms time constant		720A	720A
Category of usage		DC5	DC5
Working voltage limits		0,7-1,1Vn	0,7-1,1Vn
Coil power dissipation		20W	22W
Operating time	pull-in time drop-out time	30ms 10ms	25ms 8ms
Max. torque at terminal board		6 Nm	6 Nm
Mechanical life	op.n.	$2x10^6$	$2x10^6$
Main contacts		1NA	1NA 1NC
Part numbers		**E T206AX**	**E T206CX**

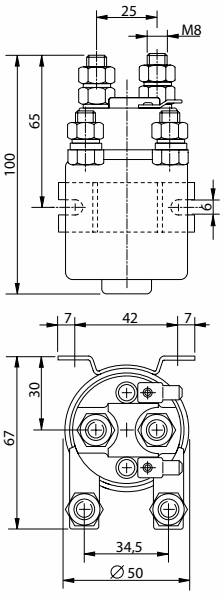
The numeric suffix identifying voltage is as follows::

Voltage	**(V)**	**12**	**24**	**36**
Suffix	**(X)**	**1**	**2**	**3**

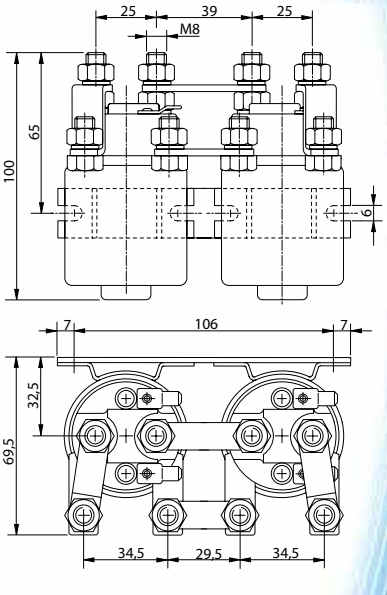
In case the nominal voltage U_e is 36 Vdc, the operating nominal current I_e is 100 A at 50% duty.



T 206



T 206C



2T 206C

D.C. Contactors
TECNO 4 Series- T 154 - T 204

Main features

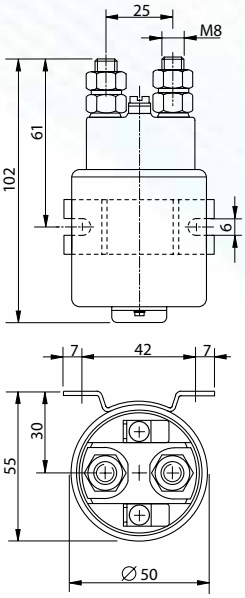
All the contactors in the TECNO series are suitable for the traction and industrial material handling sectors using direct current, and are often used on lift trucks, industrial cleaning machines , duty on board ships and boats as well as road and rail transport vehicles.

The TECNO 4 series of contactors described here has been designed for heavy duty and strict conditions such for example in the presence of prolonged or high rush currents.

The TECNO 4 series coils feature screw connections.

Technical features

Contactor		T-154	T-204
Nominal operating current 50%	I_e	150A	180A
Nominal operating current 100%		100A	150A
Nominal voltage	Ue	12V 24V	12V 24V
Breaking capacity with 15 ms time constant		600A	720A
Category of usage (NO contact)		DC5	DC5
Working voltage limits		0,7-1,1Vn	0,7-1,1Vn
Coil power dissipation		22W	22W
Operating time	pull-in time drop-out time	45ms 10ms	45ms 10ms
Max. torque at terminal board		6 Nm	6 Nm
Mechanical life	op.n.	$2x10^6$	$2x10^6$
Main contacts		1NA	1NA
Part numbers		**E T154AX**	**E T204AX**



T 154 - T 204

The numeric suffix identifying voltage is as follows::

Voltage	**(V)**	**12**	**24**	**36**
Suffix	**(X)**	**1**	**2**	**3**

In case the nominal voltage U_e is 36 Vdc, the operating nominal current I_e is 90 A at 50% duty.

For Your Safety

The range of TECNO series comply with the current safety rules, and in particular:

2006/42/CE	Machine Directive
2014/35/UE	Low Voltage Directive
2014/30/UE	EMC Directive
2011/65/UE	RoHS
EN 1175-1	Safety of industrial trucks
CEI EN 60947-4-1	Low voltage switch gear and control gear
CEI EN 61000-6-4	EMC Emission
CEI EN 60204-1	Safety of machinery - Electrical equipment of machines

The range of TECNO series contactors is guaranteed by our EC Certificate of Conformity, available upon request, in which it is declared that such product was created by RAVIOLI in accordance to defined and recognised Safety Regulations, and in compliance with the Quality standards stated in our UNI EN ISO 9001:2008 Quality System Certificate.

Respect for people and environment

Ravioli activity and production are focusing on the respect of people, following the standards which are defined in our Code of Ethic Behaviour. Such products have been developed to improve the safety of people using them, and they are free from harmful substances, in the respect of environment.

Installation and cabling instructions

The TECNO contactors must be installed by a qualified staff, according to current safety law .
Electrical current must be switched off before wiring.
For better loss of heat use proof cables according to the usage current.
Assure that the terminal power cables are locked with nut at max clamps torque of 6 Nm.
The NC contacts are not suitable for making or breaking current
The assembling can be made by the bracket.
Operating position: in horizontal and vertical axis. If assembled in vertical axis, poles must be compulsory upwards oriented.

Operating Temperature -25°C+40°C

RAVIOLI S.p.a. *declines any responsability for damage deriving from incorrect installation or improper use of the product.*

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