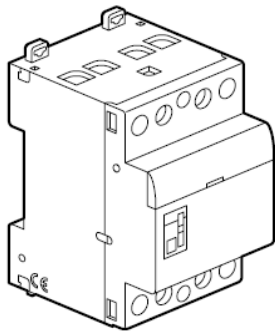


## Power contactors 40 A and 63 A with or without handle

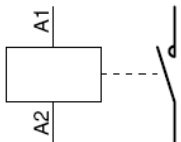
Cat. N°(s) : 412 506, 507, 511, 512, 515, 516, 518,  
519, 525 to 528, 530, 531, 537 to 542, 545 to 550,  
552 to 557, 559, 560, 562, 563



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### 1. DESCRIPTION - USE

Symbol :



Technology :

. Electromagnetic contactor

Use :

. remote control of a load by the mean of a switch

### 2. RANGE

Rated thermal current :

. I<sub>th</sub> = 40 and 63 A

Types of contacts :

. « NO », normally open contact

. « NC », normally closed contact

Poles :

. Double pole in 2 module (2 x 17,8 mm = 35,6 mm)

- « 2NO »

- « 2NC »

. Four pole in 3 modules (3 x 17,8 mm = 53,4 mm)

- « 3NO »

- « 4NO »

- « 4NC »

- « 3NO + 1NC »

Rated voltage (power contacts) :

. U<sub>n</sub> = 250 V / 400 V ~

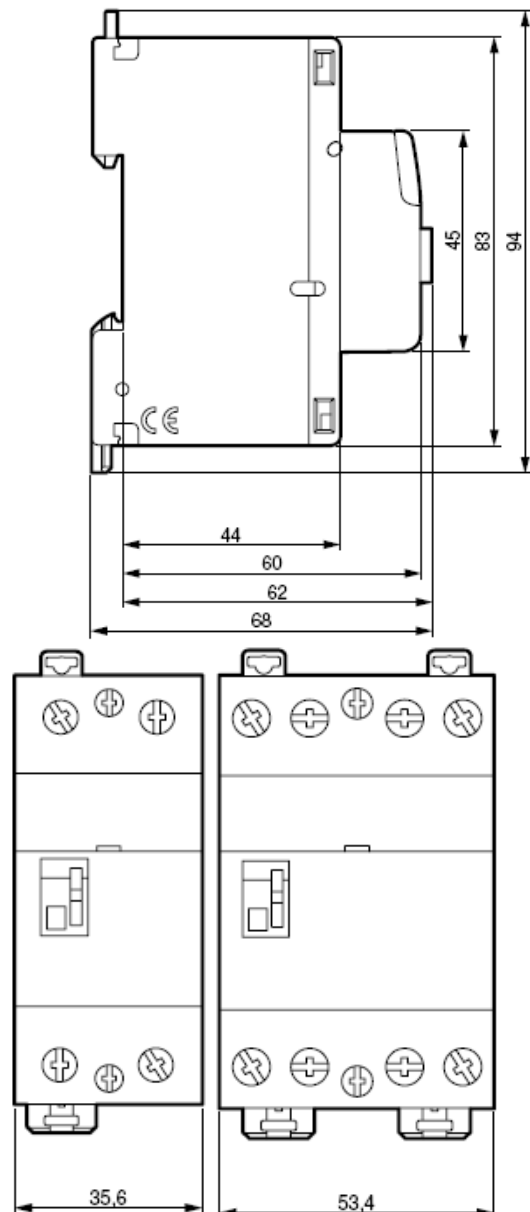
Rated control voltage :

. 24 V and 230 V ~

Rated frequency, power and control :

. 50 / 60 Hz

### 3. OVERALL DIMENSIONS



# Power contactors 40 A and 63 A with or without handle

Cat. N°(s) : 412 506, 507, 511, 512, 515, 516, 518,  
519, 525 to 528, 530, 531, 537 to 542, 545 to 550,  
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## 4. PREPARATION - CONNECTION

### Installation software :

. XL PRO

### Operational positions :

. Vertical, horizontal, upside down, on the side

### Fixing :

. On symmetrical rail EN 50-055 or DIN 35 by the mean of two plastic clamps.

### Recommended tools :

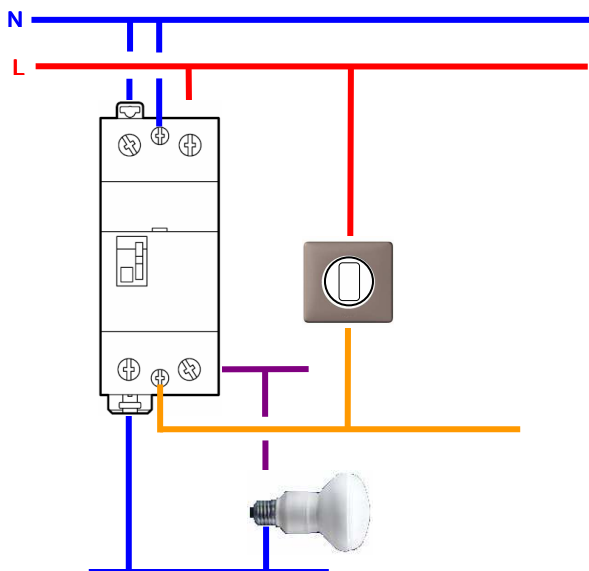
. For control terminal screws : screwdriver, insulated or not, Pozidriv n°1 or plate (4mm wide).

. For power terminal screws : screwdriver, insulated or not, Pozidriv n°2 or plate (6.5mm wide).

. For fixing : Pozidriv n°1 or plate (5.5 mm max) screwdriver

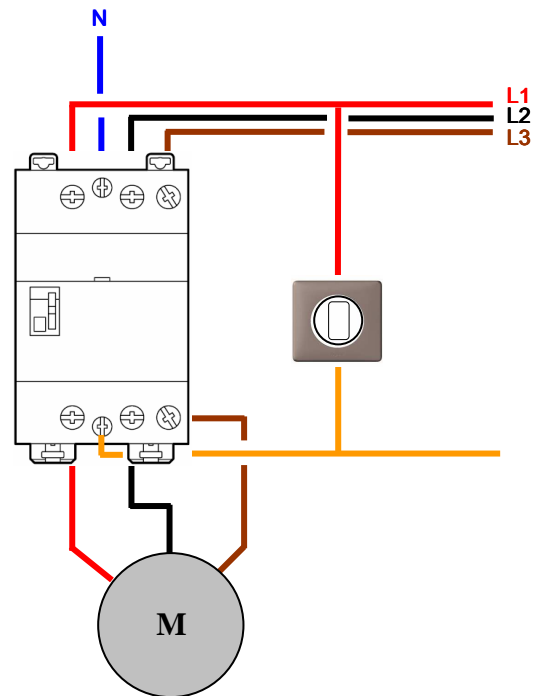
### Examples of wiring diagrams :

. Contactor « 2 NO »

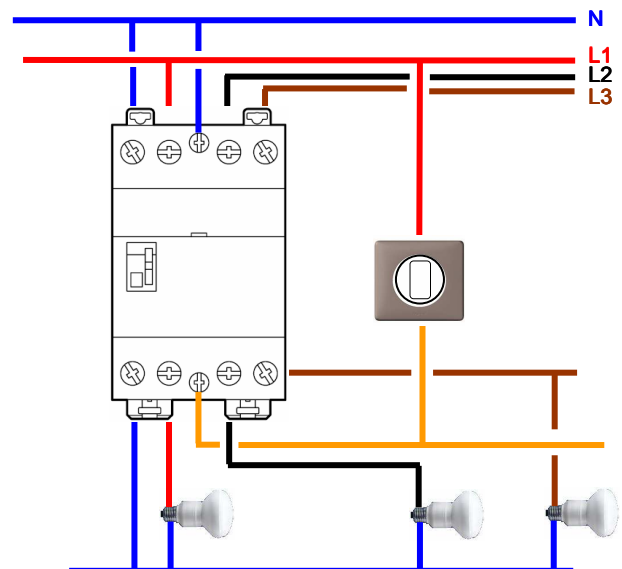


## 4. PREPARATION - CONNECTION (continued)

. Contactor « 3 NO »



. Contactor « 4 NO »



# Power contactors 40 A and 63 A with or without handle

Cat. N°(s) : 412 506, 507, 511, 512, 515, 516, 518,  
519, 525 to 528, 530, 531, 537 to 542, 545 to 550,  
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## 4. PREPARATION - CONNECTION *(continued)*

### Connection :

- . Control screw terminals :
  - Type of terminal : cage terminals
  - Terminal depth : 12 mm
  - Terminal capacity (h x w) : 4.7 x 4.7 mm
  - Copper cables
- Rigid : 1 x (0.75 to 6 mm<sup>2</sup>) or 2 x (0.75 to 2.5 mm<sup>2</sup>)
- Flexible without ferrule : 1 x (0.75 to 6 mm<sup>2</sup>) or 2 x (0.75 to 2.5 mm<sup>2</sup>)
- Flexible with single ferrule : 1 x (0.75 to 6 mm<sup>2</sup>)
- Flexible with double ferrule : 1 x (0.75 to 4 mm<sup>2</sup>)
  - Screw head type: mixed, Posidriv n° 1 and slotted 4 mm
  - Type of screw : M3
  - Tightening torque : mini = 0.5 Nm / max = 1.2 Nm / recommended = 0.8 Nm
- . Power screw terminals :
  - Type of terminal : cage terminals
  - Terminal depth : 14 mm
  - Copper cables
- Rigid : 1 x (0.75 to 25 mm<sup>2</sup>) or 2 x (0.75 to 10 mm<sup>2</sup>)
- Flexible without ferrule : 1 x (0.75 to 25 mm<sup>2</sup>) or 2 x (0.75 to 10 mm<sup>2</sup>)
- Flexible with single ferrule : 1 x (0.75 to 16 mm<sup>2</sup>)
- Flexible with double ferrule : 1 x (0.75 to 16 mm<sup>2</sup>)
  - Screw head type: mixed, Posidriv n° 2 and slotted 6.5 mm
  - Type of screw : M5
  - Tightening torque : mini = 1.3 Nm / max = 3.5 Nm / recommended = 2.5 Nm

### Length of control lines :

- . 24 V contactor : 100 m with 1.5 mm<sup>2</sup> copper wire
- . 230 V contactor : 300 m whatever the wire cross-section.

### Protection degree :

- . Terminal ingress protection : IP2x (device connected)
- . Front face ingress protection : IP3XD
- . Classe II, front face behind a cabinet faceplate
- . Protection against mechanical shocks : IK04

### Shaking resistance :

- . No change of contact state during shaking test in accordance with EN 60898 standard

### actuation :

- . By electric remote control (switch)
- . By ergonomic 3 position (I, auto, O) handle when contactor is equipped with

### Display of contacts state :

- . By orange indicator when manual or electric control is on
- . When contactor is fitted with a handle,
  - Position « I » : permanent control ON
  - Position « O » : permanent control OFF
  - Position « auto » : electric control by switch

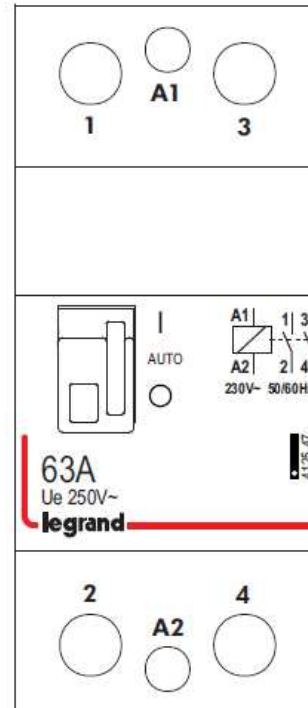
### Labelling :

- . Circuit may be labelled by the mean of the label holder on the front face of the latching relay

## 5. GENERAL CHARACTERISTICS

### Marking :

By permanent ink pad printing :



### Isolation :

- . > 3 mm in compliance with EN 61095 standard

### Isolation rated voltage (Ui) :

- . Double pole : 250 V~
- . Triple pole / Four pole : 400 V~

### Pollution degree :

- . 2 according to EN 61095 standard

### Isolation voltage between control and load :

- . 4 000 V.

### Rated impulse withstand voltage (Uimp) :

- . 4 kV

# Power contactors 40 A and 63 A with or without handle

Cat. N°(s) : 412 506, 507, 511, 512, 515, 516, 518,  
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## 5. GENERAL CHARACTERISTICS (continued)

### Withstand to electromagnetic disturbances (EMC) :

. Schock wave 1,2 / 50  $\mu$ s : class 4 (2 kV between lines, 4 kV between line and earth)

### Influence of altitude :

. no effect up to 2 000 m

### Rated frequency :

. 50 / 60 Hz

### Rated current for each category of use (Ie) :

Type of contact	AC1 / AC7a heating		AC3 / AC7b motors	
	Ie	P	Ie	P
2NO / 2NC	<b>40 A</b>	<b>9 kW</b>	<b>22 A</b>	<b>5.5 kW</b>
3NO / 4NO / 3NO+1NC / 4 NC	<b>40 A</b>	<b>26 kW</b>	<b>22 A</b>	<b>11 kW</b>
2NO / 2NC	<b>63 A</b>	<b>14 kW</b>	<b>30 A</b>	<b>8 kW</b>
3NO / 4NO / 3NO+1NC / 4 NC	<b>63 A</b>	<b>40 kW</b>	<b>30 A</b>	<b>15 kW</b>

### Operation rated voltage (Ue) :

. Ue = 250 V ~ for double pole  
. Ue = 400 V ~ for triple pole and four pole

### Protection against short-circuits :

. Conditionnal short-circuit current Iq = 3 000 A according to EN 61095 standard  
. Maximum thermal stress : 18 000 A<sup>2</sup>s  
. To protect 40 A and 63 A contactors against short-circuits in accordance with conditionnal current Iq = 3 000 A (EN 61095 standard), we recommend to use a  $\leq$  40 A rated current M.C.B. or gG fuse for a 40 A contactor and a  $\leq$  63 A rated current M.C.B. or gG fuse for a 63A contactor

### Control voltage (Uc) :

. Uc = 230 V~ or 24 V~

### Operating control voltage :

. from 0.85 to 1.1 Uc

### Release control voltage :

. from 0.2 to 0.75 Uc

### Control impulse time :

. 100 ms mini

### Rated duty :

. Intermittent duty : 600 operating cycles per hour according to EN 61095 standard (class 600)

### Force by handle operation :

. 500 g for closing and opening operation

### Operation under 400 Hz :

. not possible

## 5. GENERAL CHARACTERISTICS (continued)

### Endurance :

In number of operating cycles (ON + OFF)

. Control by handle : 1000 operating cycles

. Electrical control :

- 1 000 000 operating cycles with no load
- 100 000 operating cycles at Ie AC-7a in accordance with EN 61095 (same at Ie AC1)
- 30 000 operating cycles at Ie AC-7b in accordance with EN 61095 (same at Ie AC3)

### Use with Direct Current (DC) :

. Control : do not operate with DC

. Power circuit : NO and NC contacts may be used to control loads supplied with DC in accordance with the table of max current below for 63 A contactors

Ue	DC 1 (resistiv load)			DC 3 (motors)		
	number of poles in series			number of poles in series		
	1 p	2 p	3 p	1 p	2 p	3 p
8 V=	<b>63 A</b>	<b>63 A</b>	<b>63 A</b>	<b>54 A</b>	<b>63 A</b>	<b>63 A</b>
12 V=	<b>63 A</b>	<b>63 A</b>	<b>63 A</b>	<b>50 A</b>	<b>63 A</b>	<b>63 A</b>
24 V=	<b>63 A</b>	<b>63 A</b>	<b>63 A</b>	<b>40 A</b>	<b>63 A</b>	<b>63 A</b>
48 V=	<b>53 A</b>	<b>63 A</b>	<b>63 A</b>	<b>20 A</b>	<b>45 A</b>	<b>63 A</b>
110 V=	<b>18 A</b>	<b>40 A</b>	<b>63 A</b>	<b>4 A</b>	<b>16 A</b>	<b>40 A</b>

### Control consumption :

Type of contact	Control voltage	Current in mA (at Un)	
		sustain	inrush
2NO	24 V~	<b>250</b>	<b>1750</b>
4NO		<b>270</b>	<b>1500</b>
2NO	230 V~	<b>130</b>	<b>150</b>
2NC		<b>130</b>	<b>150</b>
3NO+1NC		<b>30</b>	<b>200</b>
3NO / 4NO / 4NC		<b>30</b>	<b>200</b>

Type of contact	Control voltage	Power in W (at Un)
		sustain
2NO	24 V~	<b>1.8</b>
4NO		<b>1.9</b>
2NO	230 V~	<b>0.9</b>
2NC		<b>0.9</b>
3NO+1NC		<b>2.1</b>
3NO / 4NO / 4NC		<b>2.1</b>

# Power contactors 40 A and 63 A with or without handle

Cat. N°(s) : 412 506, 507, 511, 512, 515, 516, 518,  
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## 5. GENERAL CHARACTERISTICS (continued)

### Average dissipated power per contact at 230V :

- . 1.8 W per contact of 40 A contactor
- . 3.5 W per contact of 63 A contactor

### Annual energy consumption of contactors :

- . Loads supplied in 230/400V 50Hz network
- . Global energy consumption, control + power contacts, with an « average » use.

Type of contact	Control voltage	in kWh (at Un)
2NO	24 V~	3.1
4NO		4.8
2NO	230 V~	2.4
2NC		2.4
3NO		4.1
3NO+1NC		5
4NC		5
4NO		5

### Noise (holding) :

- . Standard contactor  $\leq 50$  dB at 1 cm and  $\leq 30$  dB at 1 m
- . Noiseless contactor  $\leq 32$  dB at 1 cm and  $\leq 20$  dB at 1 m

### Operating temperatures :

- . A standard contactor is set to operate at its rated current (40 A or 63 A) in an ambient temperature of  $+30^{\circ}\text{C}$
- . In order to limitate overheating, we recommend to use a spacing element (cat. n° 044 40)
  - Every 2 contactors if the ambient temperature  $\leq 40^{\circ}\text{C}$
  - Every contactors if the ambient temperature  $> 40^{\circ}\text{C}$
- . Depending on ambient temperature, deratings below must be used :
  - from  $-25^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$ , no derating
  - from  $+40^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$  derating as in table below

Contacteur rated current	40°C	50°C	60°C
le = 40 A	40 A	36 A	32 A
le = 63 A	63 A	57 A	50 A

### Storage temperature :

- . from  $-40^{\circ}\text{C}$  up to  $+70^{\circ}\text{C}$

### Moulded case material :

- . Polyamid

### Characteristics of the plastic material :

- . Resistance to glow wire test during 30 s according to IEC 695-2-1:
  - Handle :  $650^{\circ}\text{C}$
  - Other components :  $850^{\circ}\text{C}$

### Weight :

- . 0.240 kg per double pole device
- . 0.330 kg per triple pole / four pole device

### Packaged volume :

- .  $0.4\text{ dm}^3$  for double pole individually packaged units
- .  $0.6\text{ dm}^3$  for triple pole and four pole individually packaged units

## 5. GENERAL CHARACTERISTICS (continued)

### Contactors choice table :

For a life time of 10 years with 200 days of annual use

#### . Heating

Maximum power according to the number of operations per day (kW)						
Number of operations per day		$\leq 50$	75	100	250	500
230 V~ single phase heating	40 A	9	7.5	6	4	2.5
	63 A	14	12	9.5	6	4.5
400 V~ three phase heating	40 A	26	22	17	8	6
	63 A	41	35	26	13	9

#### . Motors (AC-7b)

Maximum power (kW)		
230 V~ single phase motor	40 A	2.5
	63 A	4
400 V~ three phase motor	40 A	7.5
	63 A	15

#### . Lighting

Maximum number of lamps per contact of the contactor in 230 V~ single phase network and 400 V~ three phase and neutral network.  
. In 230 V~ three phase network with no neutral, values of the table must be divided by  $\sqrt{3}$ .

- Incandescent lamps

Tungsten filament 230 V~ and low voltage halogen				
Unit power	40 W	60 W	75 W	100 W
40 A	96	77	61	48
63 A	154	123	97	77

Tungsten filament 230 V~ and low voltage halogen (continued)				
Unit power	150 W	200 W	500 W	1000 W
40 A	32	24	10	5
63 A	51	38	15	8

Very Low Voltage halogen lamps with ferromagnetic ballast						
Unit power	20 W	35 W	50 W	75 W	100 W	150 W
40 A	68	39	31	21	16	10
63 A	88	51	41	27	20	14

Very Low Voltage halogen lamps with electronic ballast						
Unit power	20 W	35 W	50 W	75 W	100 W	150 W
40 A	112	70	56	36	28	18
63 A	157	98	78	51	39	25

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## 5. GENERAL CHARACTERISTICS (continued)

- Fluorescent lamps with ferromagnetic ballast

Single parallel compensated					
Unit power	18 W	20 W	36 W	58 W	115 W
40 A	<b>43</b>	<b>39</b>	<b>33</b>	<b>22</b>	<b>12</b>
63 A	<b>56</b>	<b>51</b>	<b>42</b>	<b>29</b>	<b>15</b>

Twin serial compensated					
Unit power	2 x 20 W	2 x 36 W	2 x 40 W	2 x 58 W	2 x 140
40 A	<b>68</b>	<b>57</b>	<b>53</b>	<b>36</b>	<b>15</b>
63 A	<b>101</b>	<b>86</b>	<b>79</b>	<b>54</b>	<b>23</b>

Four serial compensated	
Unit power	4 x 18 W
40 A	<b>36</b>
63 A	<b>54</b>

Compact with integrated starter				
Unit power	7 W	10 W	18 W	26 W
40 A	<b>78</b>	<b>65</b>	<b>55</b>	<b>36</b>
63 A	<b>101</b>	<b>85</b>	<b>71</b>	<b>47</b>

- Fluorescent lamps with electronic ballast

Single				
Unit power	18 W	30 W	36 W	58 W
40 A	<b>165</b>	<b>102</b>	<b>87</b>	<b>54</b>
63 A	<b>248</b>	<b>153</b>	<b>131</b>	<b>81</b>

Twin			
Unit power	2 x 18 W	2 x 36 W	2 x 58 W
40 A	<b>84</b>	<b>45</b>	<b>29</b>
63 A	<b>126</b>	<b>68</b>	<b>43</b>

Triple serial compensated		
Unit power	3 x 14 W	3 x 18 W
40 A	<b>62</b>	<b>51</b>
63 A	<b>84</b>	<b>69</b>

Four serial compensated		
Unit power	4 x 14 W	4 x 18 W
40 A	<b>52</b>	<b>39</b>
63 A	<b>73</b>	<b>55</b>

With integrated electronic supply					
Unit power	7 W	11 W	15 W	20 W	23 W
40 A	<b>280</b>	<b>175</b>	<b>126</b>	<b>98</b>	<b>84</b>
63 A	<b>392</b>	<b>245</b>	<b>176</b>	<b>137</b>	<b>118</b>

## 5. GENERAL CHARACTERISTICS (continued)

- Discharge lamps with compensator

Metal halide						
Unit power	35 W	70 W	100 W	150 W	250 W	400 W
40 A	<b>23</b>	<b>14</b>	<b>11</b>	<b>8</b>	<b>5</b>	<b>3</b>
63 A	<b>34</b>	<b>20</b>	<b>16</b>	<b>11</b>	<b>7</b>	<b>5</b>

Low pressure sodium						
Unit power	18 W	35 W	55 W	90 W	135 W	180 W
40 A	<b>30</b>	<b>15</b>	<b>11</b>	<b>8</b>	<b>5</b>	<b>5</b>
63 A	<b>45</b>	<b>23</b>	<b>16</b>	<b>11</b>	<b>7</b>	<b>7</b>

High pressure sodium					
Unit power	70 W	150 W	250 W	400 W	1000 W
40 A	<b>15</b>	<b>14</b>	<b>9</b>	<b>6</b>	<b>3</b>
63 A	<b>23</b>	<b>20</b>	<b>14</b>	<b>9</b>	<b>5</b>

High pressure mercury					
Unit power	50 W	80 W	125 W	250 W	400 W
40 A	<b>21</b>	<b>14</b>	<b>11</b>	<b>6</b>	<b>4</b>
63 A	<b>29</b>	<b>20</b>	<b>16</b>	<b>8</b>	<b>6</b>

Mixed high pressure				
Unit power	100 W	160 W	250 W	400 W
40 A	<b>14</b>	<b>9</b>	<b>7</b>	<b>4</b>
63 A	<b>19</b>	<b>12</b>	<b>8</b>	<b>5</b>

## 6. CONFORMITIES AND APPROVALS

### Compliance :

. EN 61095 / NFC 61-480 – IEC 61095

### Certificates :

. NF (France)  
. VDE (Germany)  
. GOST (Russia)

### Tropicalization :

. execution 2 (all climates) according to U.T.E. C 63-100 guide

### Environment :

. complying with RoHS  
. without halogen

## 7. AUXILIARIES

### Auxiliaries :

. Signalling change-over switch NO+NC auxiliary cat. n° 412431.  
. Used to indicate the position status of the contacts of the product with which it is associated.

### Association of the auxiliaries :

. Auxiliaries are fitted on left hand side of contactor  
. Maximum of 1 change-over switch auxiliary per contactor