

## QC91 磁力起动器 Magnetic starter



### ► 概述

#### Overview

QC91型磁力起动器是适用于AC690V及以下船舶电网中三相异步电机的控制设备，具有过载、短路保护等功能。

配置电机集中监控装置的智能型起动器（配有智能化电机管理模块），具有遥控、遥调、遥测功能，实现磁力起动器的分散布置和集中管理。

产品满足国内外船级社规范、船舶行业标准及国家标准。

QC91 Magnetic starter is a kind of control equipment used to operate the three-phase asynchronous motor in the ship power systems of AC690V and below, with overload, short circuit and other protection functions.

The magnetic starter configured with motor centralized control unit (intelligent motor management module) can realize the motor remote control, regulation and telemetry, which can realize the dispersive arrangement and centralized management of the magnetic starter.

The product meets the requirements of specifications of domestic and foreign ship classifications, shipbuilding industry standard and national standard.

### ► 产品特点

#### Product features

- 选用公司标准AE箱体,外形美观;  
Adopting the company's AE type standard box, with nice appearance;
- 智能型起动器采用CAN通信或PROFIBUS通信模式实现网络化集中管理;  
Intelligent starter can realize network-based centralized management by means of CAN or PROFIBUS communication;
- 起动器的控制电路模块化、标准化程度高;  
High modularity and standardization degree of the starter's control circuit;
- 通过配置变频器和压力、温度传感器等,可组成节能系统。  
After the VFD, pressure sensor and temperature sensor are configured, the energy-saving system can be formed.

## 产品组成

### Product composition

QC91 型磁力起动器由断路器、控制变压器、熔断器、接触器、按钮及指示灯等元器件组成。

可配置如下功能：

QC91 Magnetic starter includes breaker, transformer, fuse, contactor, button, indicator light, and so on.

Following functions can be selected:

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| <ul style="list-style-type: none"> <li>■ 外部遥控接口 (标配1个)<br/>External remote control interface (standard 1)</li> <li>■ 电流表和计时器 (选配)<br/>Ammeter and timer (optional)</li> <li>■ 电机空间加热控制旋钮 (选配)<br/>Motor space heating control knob (optional)</li> <li>■ 外部自动控制接口 (选配)<br/>External auto control interface (optional)</li> </ul> | <ul style="list-style-type: none"> <li>■ 自吸装置控制 (选配)<br/>Self-priming device control (optional)</li> <li>■ 智能化电机管理控制模块 (选配)<br/>Intelligent motor management module (optional)</li> <li>■ 应急切断接口 (选配)<br/>Emergency shutdown interface (optional)</li> </ul> |
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## 技术指标

### Technical index

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| <ul style="list-style-type: none"> <li>■ 工作电压: <math>\leq AC690V</math> (<math>\pm 10\%</math>)<br/>Working voltage: <math>\leq AC690V</math> (<math>\pm 10\%</math>)</li> <li>■ 工作频率: 50/60Hz<br/>Working frequency: 50/60Hz</li> <li>■ 电机功率: 0.37kW-900kW<br/>Motor power: 0.37kW-900kW</li> </ul> | <ul style="list-style-type: none"> <li>■ 防护等级: IP23、IP44、IP56<br/>Protection grade: IP23, IP44, IP56</li> <li>■ 环境温度: <math>-10^{\circ}C \sim 55^{\circ}C</math><br/>Surrounding temperature: <math>-10^{\circ}C \sim 55^{\circ}C</math></li> </ul> |
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### ■ 可选择的标准尺寸见下表:

Standard sizes that can be selected are shown in the following table:

直接起动方式(电机额定电压为400VAC)

Direct starting mode (the rated voltage of the motor is 400VAC)

电机功率 Motor power	断路器类型 Type of breaker	外形尺寸mm Outline dimensions (mm)			安装尺寸mm Installation dimensions (mm)		备注 Remarks
		宽 (A) W	高 (B) H	深 (C) D	宽 (D) W	高 (E) H	
15kW以下 15kW or less	MCB	300	400	210	242	432	Fig.1
18.5kW	MCB	400	400	210	342	432	
30kW以下 30kW or less	MCCB	400	500	250	280	540	
37-45kW	MCCB	400	600	250	280	640	
55-90kW	MCCB	500	800	300	380	840	
110 kW	MCCB	600	900	300	480	940	

星三角起动方式(电机额定电压为400VAC)

Star-delta starting mode (the rated voltage of the motor is 400VAC)

电机功率 Motor power	断路器类型 Type of breaker	外形尺寸mm Outline dimensions (mm)			安装尺寸mm Installation dimensions (mm)		备注 Remarks
		宽 (A) W	高 (B) H	深 (C) D	宽 (D) W	高 (E) H	
15-22kW	MCB	400	500	250	280	540	Fig.1
15-30kW	MCCB	400	600	250	280	640	
37-45kW	MCCB	500	700	250	380	740	
55-75kW	MCCB	500	800	300	380	840	
90-110kW	MCCB	600	800	300	480	840	

闭式星三角起动方式(电机额定电压为400VAC)

Closed star-delta starting mode (the rated voltage of the motor is 400VAC)

电机功率 Motor power	断路器类型 Type of breaker	外形尺寸mm Outline dimensions (mm)			安装尺寸mm Installation dimensions (mm)		备注 Remarks
		宽 (A) W	高 (B) H	深 (C) D	宽 (D) W	高 (E) H	
15-22kW	MCB	400	600	250	280	640	Fig.1
15-30kW	MCCB	500	700	250	380	740	
37-45kW	MCCB	500	800	300	380	840	
55-75kW	MCCB	600	800	300	480	840	

自耦降压启动方式(电机额定电压为400VAC)

Auto voltage-reduced starting mode (the rated voltage of the motor is 400VAC)

电机功率 Motor power	外形尺寸mm Outline dimensions (mm)			备注 Remarks
	宽 (A) W	高 (B) H	深 (C) D	
250kW以下 250kW or less	800	1800	800	Fig.2
315-400kW	1000	2000	800	
450-560kW	1200	2000	800	
650-700kW	2200	2000	800	
800-850kW	2400	2000	800	
850-1580kW	3000	2000	1000	

注:

Note:

1.尺寸为框架尺寸, 不含门板封板厚度, 不含底座和吊装尺寸

The size means the frame size, without the thickness of the door plate, excluding the base and hoisting part

2.一般适用于空载或轻载起动的场合

Generally applicable to the occasions with empty or light load starting

3.自耦变压器的副绕组有二个抽头, 可依据电网电压降、启动转矩、启动电流限制等条件来选择最佳电压比例抽头

The secondary winding of the auto-induction autotransformer has two taps, and thus, the tap with optimum ratio of voltage can be selected based on power network voltage drop, starter turning moment, starting current limit and other conditions

软启动或变频启动启动方式(电机的额定电压为400VAC)

Soft starter or variable frequency starter (the rated voltage of the motor is 400VAC)

电机功率 Motor power	外形尺寸mm Outline dimensions (mm)			备注 Remarks
	宽 (A) W	高 (B) H	深 (C) D	
45-75kW	600	1000	400	Fig.1
90-132kW	800	1600	500	Fig.2
160-250kW	800	2000	600	
315kW	1000	2000	600	
400kW	1000	2000	600	
500kW	1200	2000	600	

注: 适用于重载起动的场合, 对电网冲击小

Note: applied to the situations for heavy load starting, with a small impact on the power grid

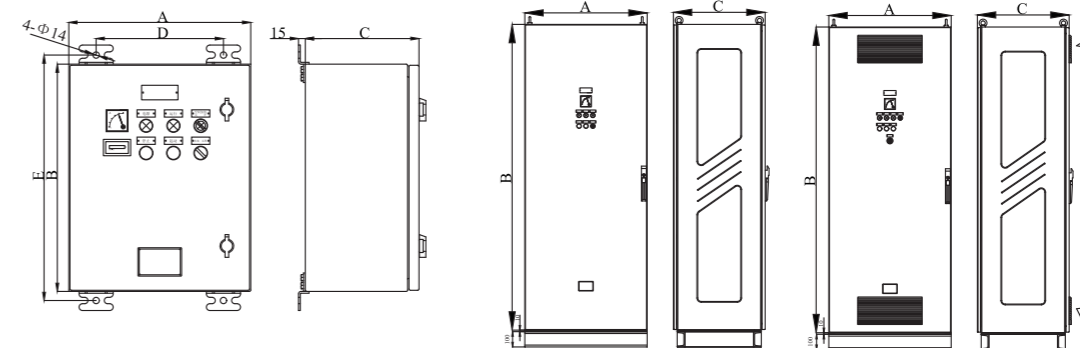


Fig.1

Fig.2

## 型号命名

### Model naming

交流磁力起动器 AC magnetic starter	QC91	<input type="checkbox"/>	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	/	<input type="checkbox"/>
起动器类型 T: 常规型; Z: 智能型 Starter types: T: common type; Z: intelligent type										
电机功率 (kW) Motor power (kW)										
起动方式 D: 直接起动; Y: 星三角起动; B: 闭式星三角; R: 软起动; Z: 自耦降压起动; C: 变频器起动; S: 双速起动 Starting mode: D: direct starting; Y: star-delta starting; B: closed star-delta; R: soft starting; Z: Auto voltage-reduced starting; C: frequency converter starting; S: double speed starting										
运转方式 1: 不可逆; 2: 可逆 Operating mode: 1: irreversible; 2: reversible										
安装方式 B: 壁挂式; L: 落地式 Installation: B: wall-mounted; L: floor type										
防护等级 3: IP23; 4: IP44; 6: IP56 Protection grade 3: IP23; 4: IP44; 6: IP56										
选配功能 Y: 遥控起停 (由第二路开始标注, 例: Y2, Y3); A: 电流表; S: 计时器; X: 手/自动选择; R: 空间加热器接口; Z: 自吸装置接口 Optional functions: Y: remote start/stop (mark from the second way, such as Y2 and Y3); A: ammeter; S: timer; X: manual/automatic selection; R: space heater interface; Z: self priming device interface										

## 选型说明

### Selection description

电机功率110kW及以下的磁力起动器一般采用壁挂式安装, 功率大于110kW一般采用落地式安装。

Magnetic starter with motor power of 110kW or below is generally wall-mounted, and that with motor power of more than 110kW is commonly floor type.

例: QC91T-30D1B4/AS

表示常规的交流起动器, 功率为30kW, 直接起动, 不可逆, IP44, 配置电流表和计时器。

It means: AC magnetic starter, power is 30kW, DOL starting mode, irreversible, IP44, with ammeter and timer.