

## TGS51 Series Enclosed Direct-on-line (DOL) Stater

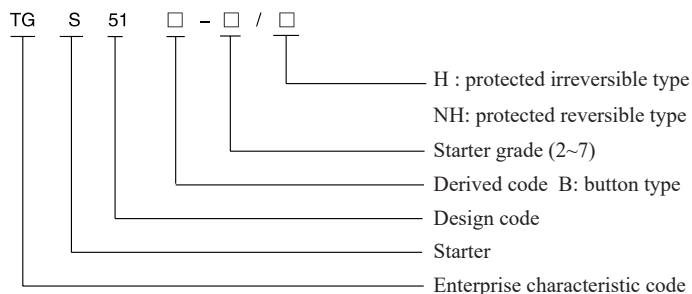


### 1 Overview

TGS51 series Enclosed Direct-on-line (DOL) Staters is mainly used to directly control the start, stop, positive rotation and inverse rotation of three-phase squirrel cage induction motor with AC 50Hz (or 60Hz), rated working voltage up to 380V and current up to 150A, and has no-voltage and overload protection functions. If equipping with a phase loss thermal relay, this stater has phase loss protection function.

Standard: IEC 60947-4-1.

### 2 Type Designation



### 3 Technical Parameters

3.1 The capacities of control motors are listed in Table below.

Model	Rated current A	Max. power of controllable motor, Pe, KW	
		220V	380V
TGS51-2 TGS51B-2	10	2.2	4
TGS51-3 TGS51B-3	20	5.8	10
TGS51-4 TGS51B-4	40	11	20
TGS51-5 TGS51B-5	60	17	30
TGS51-6 TGS51B-6	100	28	50
TGS51-7 TGS51B-7	150	43	75

3.2 Contactors and thermal relays for starter are listed in Table below

Model	Matched contactor	Matched thermal relay	Setting current range of thermal relay (A)	TGS51B supporting buttons
TGS51-2 TGS51B-2	CJT1-10	TGR36-32	0.25~0.35、0.32~0.5、0.45~0.72 0.68~1.1、1~1.6、1.5~2.4、2.2~3.5 3.2~5、4.5~7.2、6.8~11	LAY5-BE101 and LAY5-BE102
TGS51-3 TGS51B-3			6.8~11 10~16 14~22	
TGS51-4 TGS51B-4	CJT1-40	TGR36-63	14~22 20~32 28~45	
TGS51-5 TGS51B-5			28~45 40~63	
TGS51-6 TGS51B-6	CJT1-100	TGR36-160	40~63 53~85 75~120	
TGS51-7 TGS51B-7			75~120 100~160	

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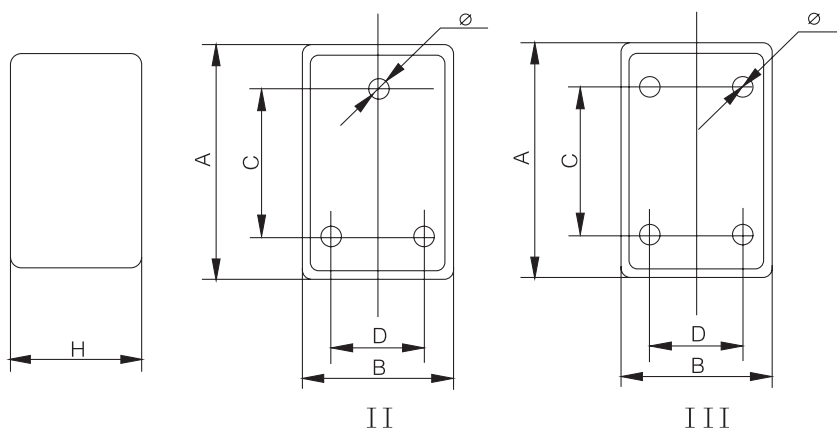
### 4 Operating Conditions

- 4.1 Altitude: Not exceed 2,000 meters.
- 4.2 Ambient air temperature: The upper limit does not exceed +40°C; the lower limit does not below -5°C (-10°C or -25°C is also available, but this shall be specified when ordering from the manufacturer).
- 4.3 Atmospheric conditions: The relative humidity of atmosphere does not exceed 50% at the maximum ambient temperature of +40°C, and a higher relative humidity at the lower temperature may be allowed; the mean monthly maximum relative humidity at the mean monthly temperature +25°C in the wettest month can be up to 90%. The necessary measures can be taken for condensation on the product surface due to temperature changes.
- 4.4 Pollution class: Class 3.
- 4.5 Installation category: III
- 4.6 The inclination with the vertical plane does not exceed 5° when installation.

### 5 Structure Features

The basic structure of the Enclosed Direct-on-line (DOL) Staters is a combination of AC contactor and thermal relay together with the mounting plate and protective cover used for installation, with one AC contactor required for irreversible type and two AC contactors required for reversible type; the controllable motor can rotate positively and reversely. TGS51B is of the button type, with 2~3 buttons LAY5-BE101 and LAY5-BE102 (two for reversible type)

### 6 Outline and Installation Dimensions



Outline and installation dimensional drawings of starter

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Model & Spec.		A	B	C	D	H	F	F	Hole type
TGS51-2 TGS51B-2	H	206 $^{+2.9}_{0}$	114 $^{+2.2}_{0}$	150 $\pm 0.5$	60 $\pm 0.37$	130 $\pm 2.7$	6 $^{+0.48}_{0}$	—	II
	NH	190 $^{+2.9}_{0}$	175 $^{+2.5}_{0}$	150 $\pm 0.5$	130 $\pm 0.5$	110 $\pm 2.7$	6 $^{+0.48}_{0}$	—	II
TGS51-3 TGS51B-3	H	239 $^{+2.9}_{0}$	135 $^{+2.5}_{0}$	175 $\pm 0.5$	80 $\pm 0.37$	137 $\pm 3.15$	6 $^{+0.48}_{0}$	—	II
	NH	220 $^{+2.9}_{2}$	225 $^{+2.9}_{2}$	165 $\pm 0.5$	170 $\pm 0.5$	136 $\pm 3.15$	6 $^{+0.48}_{0}$	—	III
TGS51-4 TGS51B-4	H	292 $^{+3.2}_{0}$	151 $^{+2.5}_{2}$	230 $\pm 0.575$	100 $\pm 0.435$	161 $\pm 3.15$	6 $^{+0.48}_{0}$	—	II
	NH	270 $^{+3.2}_{0}$	282 $^{+3.2}_{0}$	218 $\pm 0.575$	200 $\pm 0.575$	158 $\pm 3.15$	6 $^{+0.48}_{0}$	—	III
TGS51-5 TGS51B-5	H	388 $^{+3.6}_{0}$	223 $^{+2.9}_{0}$	315 $\pm 0.65$	150 $\pm 0.5$	165 $\pm 3.15$	7 $^{+0.58}_{0}$	—	III
	NH	560 $^{+4.4}_{0}$	210 $^{+2.9}_{0}$	500 $\pm 1.25$	120 $\pm 0.5$	160 $\pm 3.15$	7 $^{+0.58}_{0}$	—	III
TGS51-6 TGS51B-6	H	425 $^{+4.0}_{0}$	273 $^{+3.2}_{0}$	350 $\pm 0.7$	210 $\pm 0.575$	180 $\pm 3.15$	9 $^{+0.58}_{0}$	—	III
	NH	690 $^{+5.0}_{0}$	286 $^{+3.2}_{0}$	585 $\pm 0.875$	210 $\pm 0.575$	175 $\pm 3.15$	9 $^{+0.58}_{0}$	—	III
TGS51-7 TGS51B-7	H	425 $^{+4.0}_{0}$	273 $^{+3.2}_{0}$	350 $\pm 0.7$	210 $\pm 0.575$	180 $\pm 3.15$	9 $^{+0.58}_{0}$	—	III
	NH	690 $^{+5.0}_{0}$	280 $^{+3.2}_{0}$	585 $\pm 0.875$	210 $\pm 0.575$	175 $\pm 3.15$	9 $^{+0.58}_{0}$	—	III

Note: 1. Dimension H listed in table refers to the height of TGS51, and dimension H for TGS51B shall be a total of the value listed in table and 10mm.

### 7 Ordering Notice

- 7.1 Complete mode, name, and specification of starter (for expression method, refer to Model and Meaning section).
- 7.2 Unless otherwise specified by user, the rated control power voltage (that is, sucking coil voltage) refers to the volage of main circuit, and the frequency is 50Hz.
- 7.3 The rated working current of motor used by user shall be within the setting current range of the thermal component of thermal relay. The starter can be assembly with thermal relay of the thermal element within the different setting current range, as shown in Table 2; unless otherwise specified by user, the thermal relay of the thermal element with max. control power can be assembled.
- 7.4 Order quantity  
 For example: for Enclosed Direct-on-line (DOL) Staters TGS51-3/H with coil voltage 380V, 50Hz and with the thermal element setting current ranged 10A to 16A: 10 units  
 For example: for Enclosed Direct-on-line (DOL) Staters TGS51B-4/H with coil voltage 380V, 50Hz and with the thermal element setting current ranged 20A to 32A: 10 units