



심사결과 통지서

신청인	사업장명	(주)KITO	사업장관리번호	2010E110010
	사업자등록번호	010-E1-10010	대표자 성명	KITO YOSHIO
	소재지	2000, Tsujijarai, Showa-Cho, Nakakoma-Gun, Yamanashi, Japan		
안전인증대상기계·기구명 호이스트				
형식(규격)	KM-ER2-050	용량(등급)	5 ton	

「산업안전보건법」 제34조 및 같은 법 시행규칙 제58조의4제4항에 따라 실시한

- 예비심사
 서면심사
 기술능력 및 생산체계 심사
 개별 제품심사
 형식별 제품심사
- 결과가 적 합
 부적합 함을 통지합니다.

2012년 09월 12일

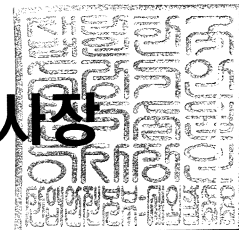
인증심사원

최 창 일

조 준 기

최창일
조준기

한국승강기안전기술원 이사장





제 CA-2012-0038 호

안 전 인 증 서

(사업장명) (주)KITO

(소재지) 2000, Tsujiarai, Showa-Cho, Nakakoma-Gun, Yamanashi,
Japan

위 사업장에서 제조하는 아래의 품목이 「산업안전보건법」 제34조 및 같은 법 시행규칙 제58조의4제4항에 따른 안전인증 심사결과 안전·보건기준에 적합하므로 안전인증표시의 사용을 인증합니다.

_____	품 명 : 호이스트	_____
_____	형식(용량): KM-ER2-050(5 ton)	_____
_____	인증번호 : 12-CA4AC-0038	_____
_____	인증기준 : 위험기계·기구 의무안전인증기준 (고용노동부고시 제2011-39호)	_____
_____	인증조건 : 산업안전보건법 "제34조 준수"	_____

2012년 11월 30일

한국승강기안전기술원 이사장



【별지 제4호서식】

동 일 형 식 일 랑 표

사업장명	KITO CORP.		개정일자 및 번호	2012.09.03	인증번호		
형식 및 모델번호		동일형식 항목 및 내역					
형식번호	모델번호	동일형식 항목1	동일형식 항목2	동일형식 항목3	동일형식 항목4		
KMS-ER2-050	KITO-ER2-050S	Lift max 30m	권상모타 3.5kW	횡행모타 없음	Trolley고정형		
	KITO-ER2-050IS		권상모타 3.5kW		Trolley 있음		
	KITO-ER2SP050S		권상모타 3.5kW		Trolley + 수동체인		
	KITO-ER2SP050IS						
	KITO-ER2SG050S						
	KITO-ER2SG050IS						
	KITO-ER2M050S-S		권상모타 3.5kW	횡행모터 0.75kW .S : 24m/min .L : 12m/min .IS : 24/4m/min .IL : 12/2m/min	전기Trolley 결합 type		
	KITO-ER2M050S-L						
	KITO-ER2M050S-IS						
	KITO-ER2M050S-IL						
	KITO-ER2M050IS-S						
	KITO-ER2M050IS-L						
	KITO-ER2M050IS-IS						
	KITO-ER2M050IS-IL						
	KITO-C-ER2M050S-S	권상모타 3.5kW					전기Trolley 결합 Clean type
	KITO-C-ER2M050S-L						
	KITO-C-ER2M050S-IS						
	KITO-C-ER2M050S-IL						
	KITO-C-ER2M050IS-S						
	KITO-C-ER2M050IS-L						
KITO-C-ER2M050IS-IS							
KITO-C-ER2M050IS-IL							



** SAFETY DEVICE SPECIFICATION **

1. 과부하 방지장치 (LOAD LIMIT)

전기식 과부하 방지장치로 권상MOTOR의 전류변화를 C.T로 감지하여 과부하시 권상을 정지하는 장치로 한국산업 안전공단의 검정 필한 제품을 사용한다.

(별첨 자료 참조)

2. 비상장치

적색 BUTTON을 조작판에 취부하여 비상시 누름동작으로 크레인을 정지 시킨다.

(회로도 참조)

3. 과권 방지 장치 (ER2 Friction Clutch)

마찰클러치 기구를 내장하여 과권시에 모터를 공전시켜 모터와 기계장치를 보호하는 안전장치이다.

4. HOOK해지 장치 (SAFETY LATCH)

HOOK에 걸린 WIRE ROPE가 운전중 충격등의 외력으로 인하여 이탈함으로써 발생할 수 있는 안전사고를 방지하기 위한 것으로 HOOK로 부터 밖으로 열리지 않는 구조다. (도면 참조)

5. 체인고정금구 (Chain Stopper)

체인이 과권하시에 체인말단의 멈춤링에 의하여 체인이 완전히 풀려져 낙하되는 것을 방지하는 안전장치이다.

6. 상하한 리미트 스위치(Upper/Lower Limit Switch)

과권상, 과권하시에 금구에 의한 감지로 자동으로 회로를 차단하여 모터를 보호하는 안전장치이다.

7. 횡행, 주행, SHUTTLE 종단 정지 장치 (기계식 STOPPER)

주행, 횡행 RAIL의 끝단에 설치하여 HOIST 또는 크레인의 운전범위 밖으로 벗어남을 방지한다.

(도면 참조)

8. 횡행, 주행, SHUTTLE 종단 정지 장치 (Photo Limit Switch)

각동작에 대한 단말부에서의 감속 및 정지가 되도록 하는 광전센서를 이용한 안전장치이다.

9) 기계식 인터록 부착 콘택터

호이스트 상승-하강, 주행 전-후, 횡행 좌-우 각각의 동작에 대한 역방향 동작으로 조작버튼을 동시에 누르지 못하도록 유선펜던트에 장착이 되어 있으며 각각의 동작이 역방향으로 동시 동작이 되지 않도록 인터락부착식 콘택터인 안전장치가 있다

10) 브레이크(Brake)

전자식 Pull - Rotor 방식의 모터 브레이크로 전원의 차단 시 모터를 정지 시키는 안전장치 이다



제 2012-BJ-0009 호



안 전 인 증 서

정호엔지니어링

경기도 광명시 노온사동 440-5

위 사업장에서 제조하는 아래의 품목이 산업안전보건법 제34조 및 같은 법 시행규칙 제58조의4제4항에 따른 안전인증 심사 결과 안전·보건기준에 적합하므로 안전인증표시의 사용을 인증합니다.

품 목

양중기용 과부하방지장치

형식·모델/용량·등급/인증번호

형식·모델
JDL-100

용량·등급
J-2

인증번호
12-AV2BJ-0009

인 증 기 준

방호장치 의무안전인증 고시(고용노동부고시 제2010-36호)

인 증 조 건

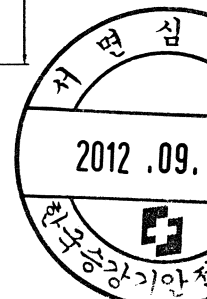
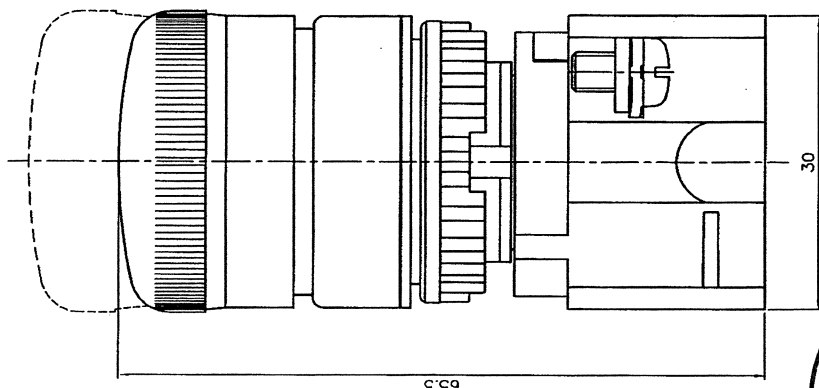
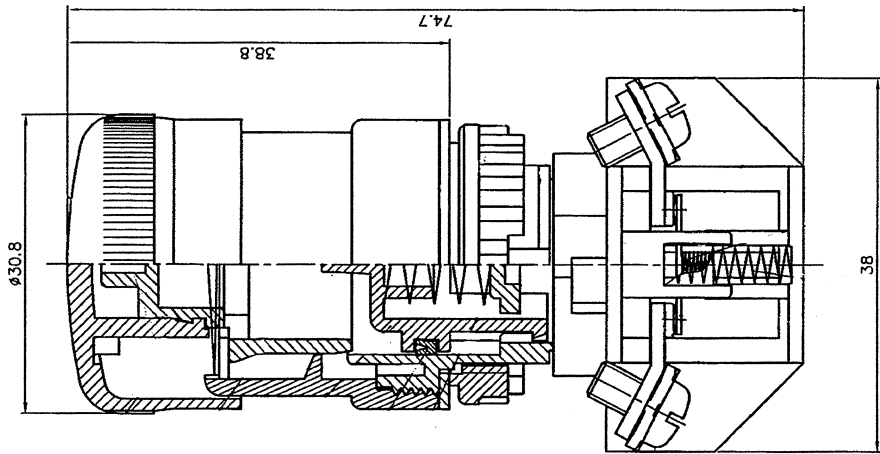
아래 주소에서 생산되는 제품에 한함.

정호엔지니어링, 경기도 광명시 노온사동 440-5

2012년 06월 11일

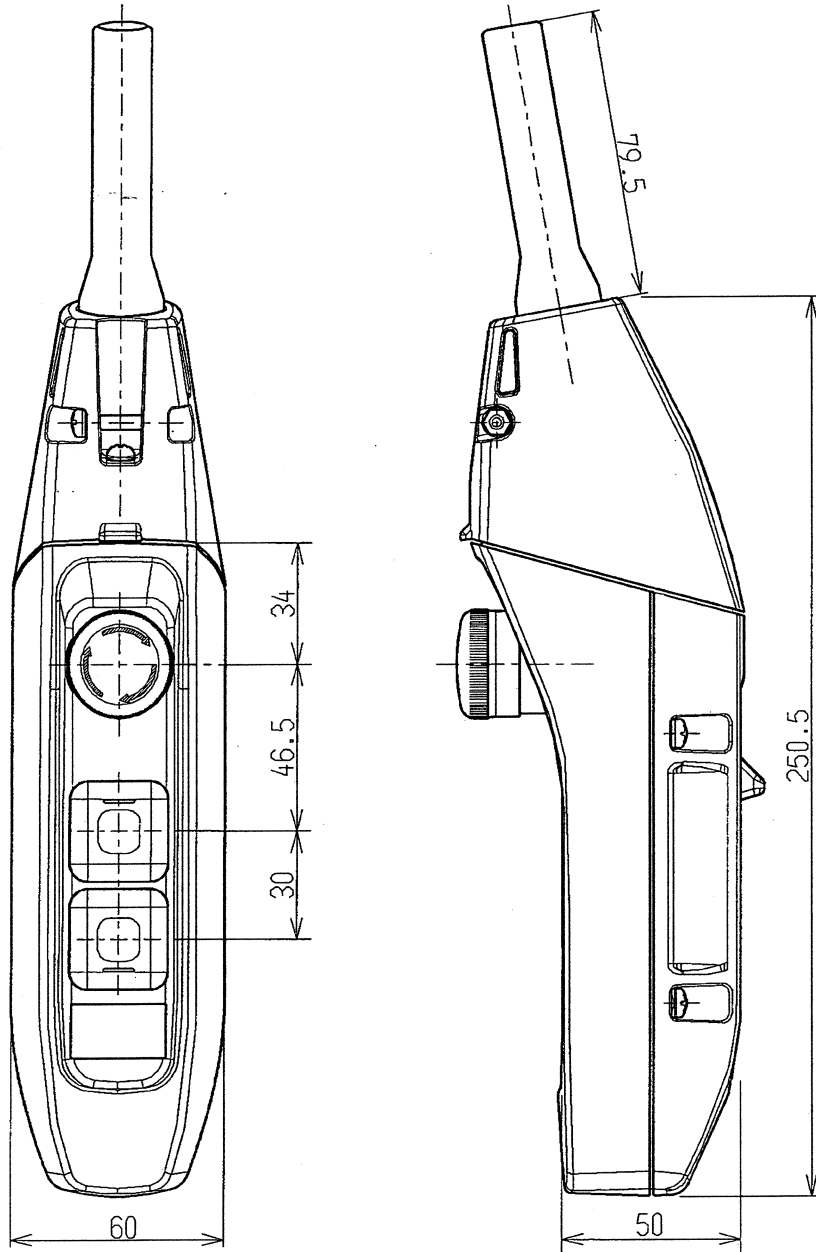
한국산업안전보건공단 이사장





7	最新修正 前次修正	30.1~60mm: ±0.3	60.1~300mm: ±0.5	模具材質	研發部 95.05.24 鐘健誌	核對	研發部 95.05.24 周家祥	繪圖	模具手數	投繪法	單位	mm	材質	表面處理	顏色	圖號	T2-BKH
8				品保 95.05.24 林建宏	核准					比例	2:1						
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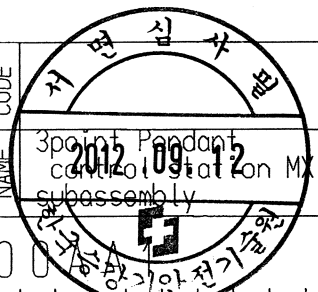
Revision	Incidence	Description	Date	Change	Approved



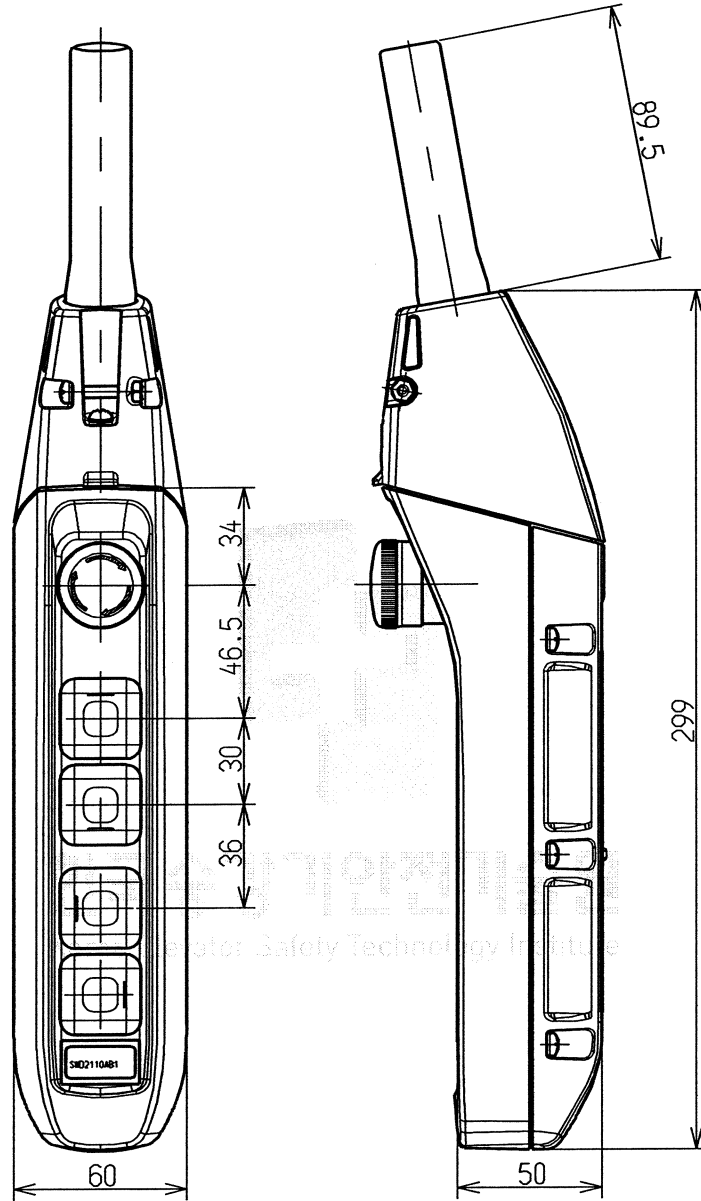
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Date issued

NOTE					MATERIAL		NAME CODE						
APPROVED	ISHIKAWA	CHECKED	FURIYA	DESIGNED	KOBAYASHI	DRAWN	KOBAYASHI	SCALE	-	DWG. NO.	SWD2X00	3point Pendant assembly 2012.09.12 Kobayashi	
	08.02.08		08.02.08		08.02.08		08.02.08						



Revision	Incidence	Description	Date	Charge	Approved

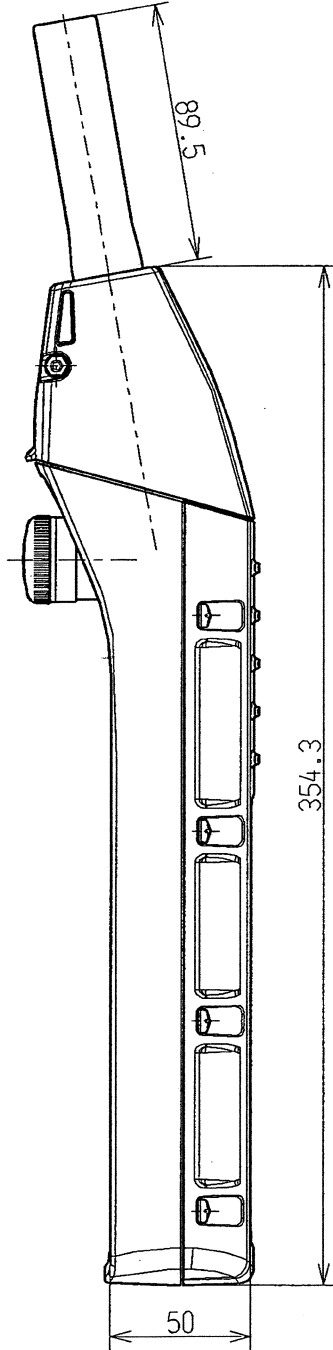
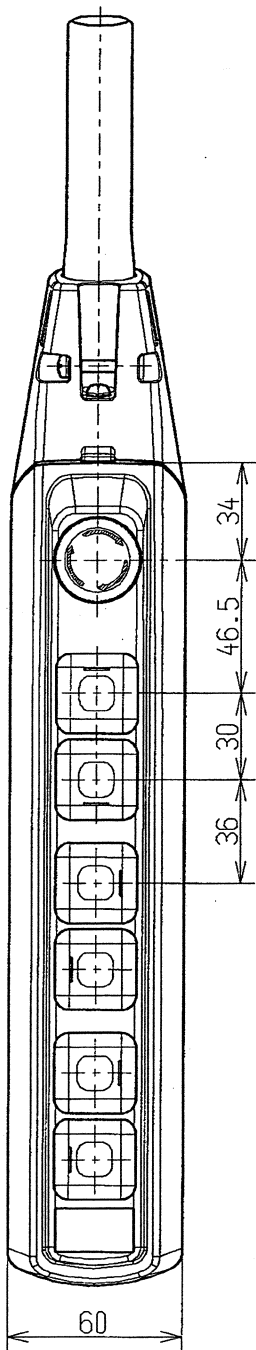


The lifting and lowering push buttons are marked with \updownarrow for single speed or $\blacktriangle\blacktriangledown$ for dual speed.
 The traveling push buttons are marked with E W or N S depending on the installed direction.

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NOTE								DIG. NO.	MATERIAL	CODE	
APPROVED	H. FURIYA	CHECKED	T. HATANO	DESIGNED	KOBAYASHI	DRAWN	KOBAYASHI	SCALE	-	NAME	CODE
Date issued	09.04.21		09.04.21		09.04.21		09.04.21				
								SWD2XX			

Revision	Incidence	Description	Date	Charge	Approved

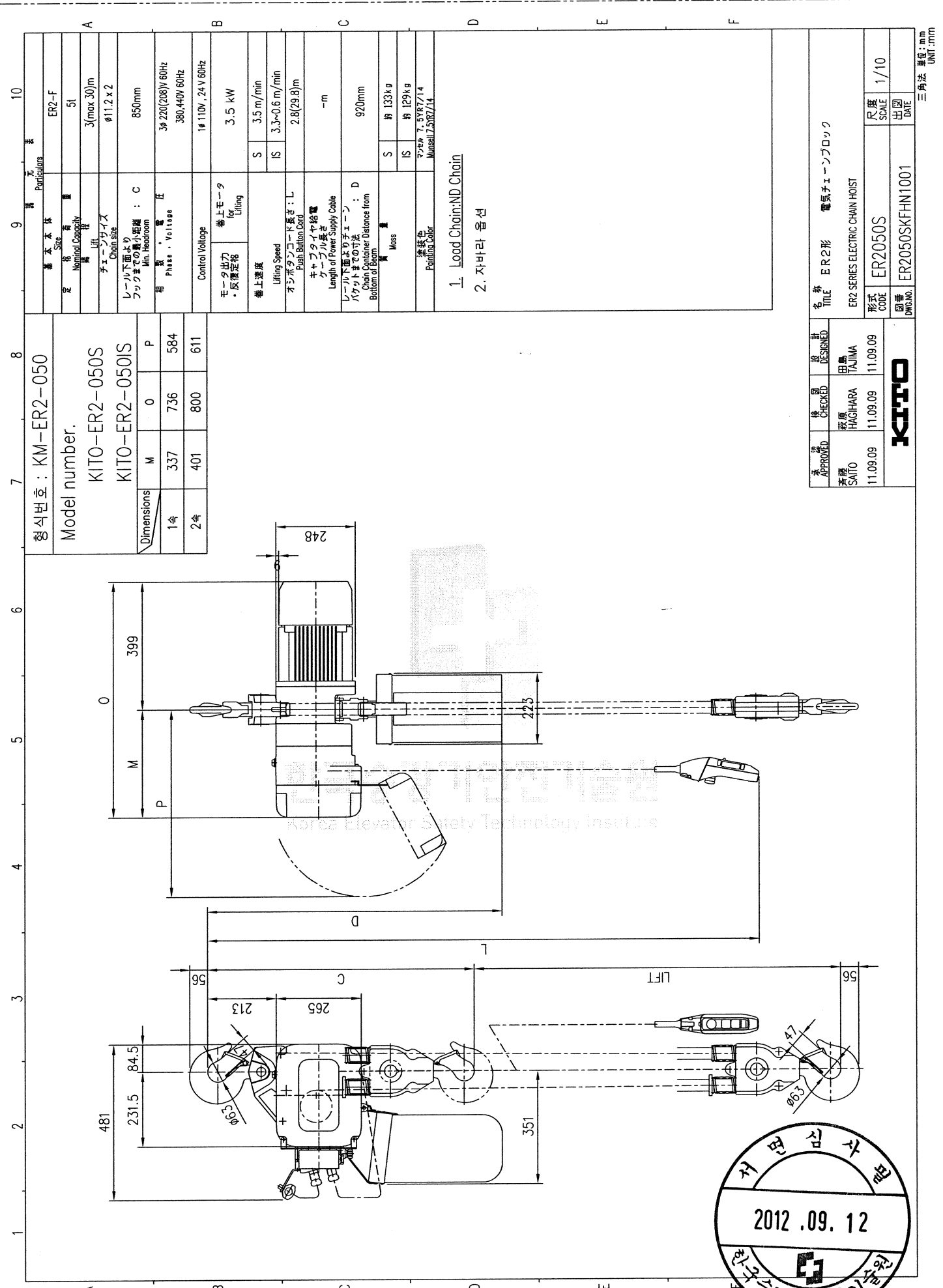


(N)
(S)
(W)
(E)

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Date issued

NOTE						DWG. NO.		NOS./UNIT MATERIAL		NAME CODE	
APPROVED	ISHIKAWA	CHECKED	FURUYA	DESIGNED	KOBAYASHI	DRAWN	KOBAYASHI	SCALE	-	DWG. NO.	SWD2XX
08.02.08		08.02.08		08.02.08		08.02.08					





형식번호 : KM-ER2-050
Model number.

KITO-ER2-050S
KITO-ER2-050IS

Dimensions	M	O	P
1속	337	736	584
2속	401	800	611

基本仕様		Particulars	
定額容量	5t	ER2-F	
チェーンサイズ	3(max.30)m		
チェーン径	φ11.2 x 2		
レール下面よりフックまでの最小距離	850mm		
相電圧	3φ 220(208)V 60Hz		
相電圧	380, 440V 60Hz		
制御電圧	1φ 110V, 24V 60Hz		
モーター出力・反復定格	巻上モーター for Lifting		
巻上速度	3.5 kW		
リフト速度	S 3.5 m/min		
オンボタンコード長さ	IS 3.3~0.6 m/min		
ケーブル長さ	2.8(29.8)m		
チェーン長さ	-m		
チェーンコンテナ距離	920mm		
質量	S 約 133kg		
	IS 約 129kg		
塗装色	アクリル 7, 5, 8, 7, 14		
	Munsell 7.5B2/14		

1. Load Chain:ND Chain
2. 자바라 옵션

承認		検査		設計	
承認者	承認日	検査者	検査日	設計者	設計日
SAITO	11.09.09	HACHIHARA	11.09.09	TAJIMA	11.09.09

名称 TITLE ER2形 電気チェーンブロック
ER2 SERIES ELECTRIC CHAIN HOIST
形式 CODE ER2050S
国番 DWG.NO. ER2050SKFHN1001

尺度 SCALE 1/10
出図 DATE

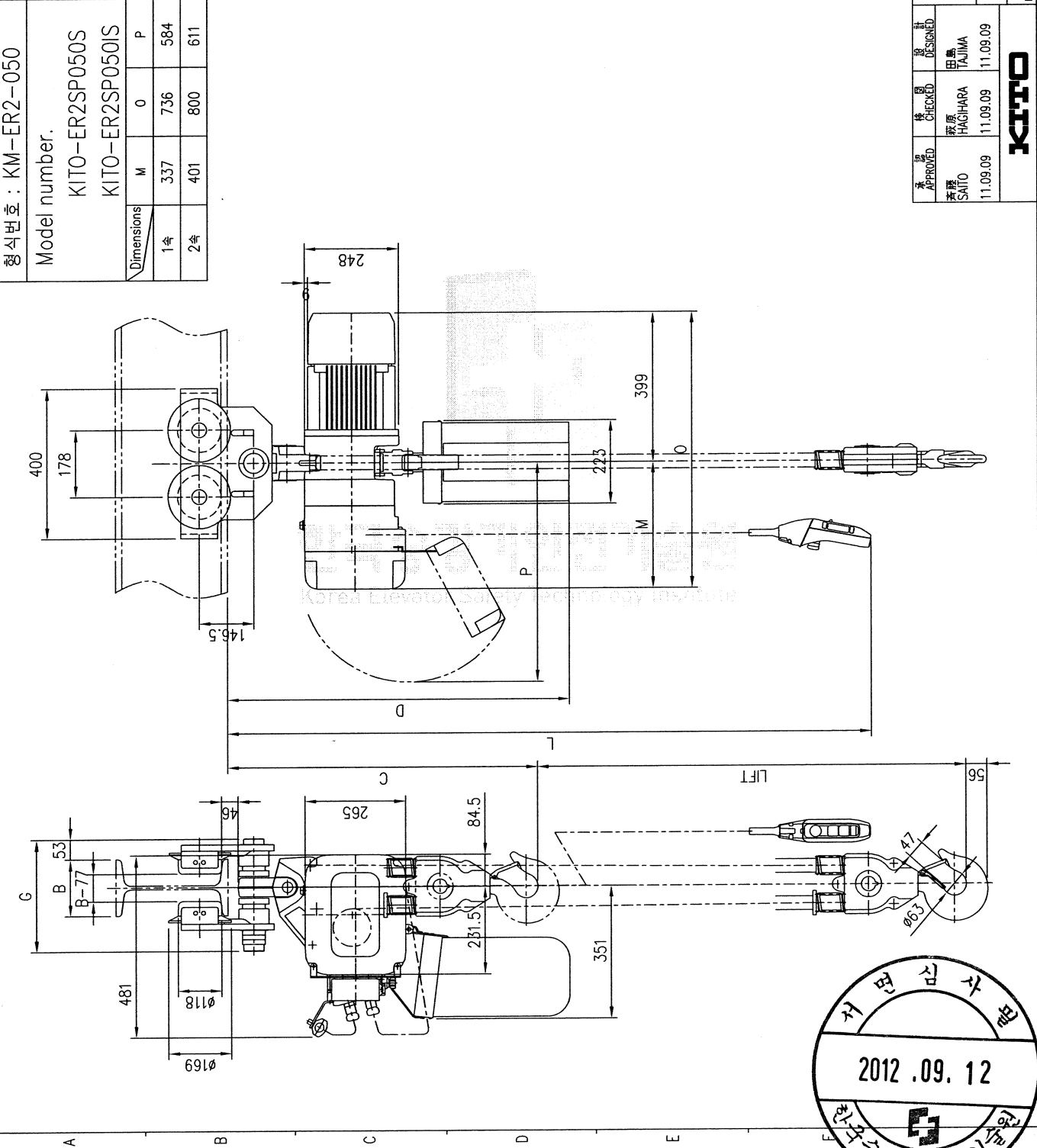
単位 : mm
UNIT : mm
三角法



1 2 3 4 5 6 7 8 9 10

型式番号 : KM-ER2-050	基本仕様	Particulars
Model number.	定容量	ER2-F
KITO-ER2SP050S	チェーンサイズ	51
KITO-ER2SP050IS	チェーンサイズ	3(max 30)m
	チェーンサイズ	φ11.2 x 2
	チェーンサイズ	840mm
	チェーンサイズ	3φ 220(208)V 60Hz
	チェーンサイズ	380,440V 60Hz
	チェーンサイズ	1φ 110V, 24 V 60Hz
	チェーンサイズ	3.5 kW

寸法	M	O	P
1寸	337	736	584
2寸	401	800	611



モーター出力・反巻定格	巻上速度	リフト速度	オンボタンコード長さ : L	ケーブル長さ	チェーン長さ	チェーン半径	チェーン径	チェーン幅	チェーン重量	チェーン色
3.5 kW	3.5 m/min	3.3~0.6 m/min	2.8(29.8)m	-m	910mm	2300mm	297mm	100 to 178mm	S 約 183kg IS 約 179kg	マゼンタ 7.5YR7/14 ムゼン 7.5BR7/14

1. Load Chain:ND Chain	名称	ER2形 電気チェーンブロック
2. 자바라 올선	TITLE	ER2 SERIES ELECTRIC CHAIN HOIST WITH PLAIN TROLLEY
	形式	ER2050SP
	図番	ER2050SKFHN1002
	尺度	1/10
	出図	DATE

承認	検査	設計
SAITO	HACHIHARA	TAJIMA
11.09.09	11.09.09	11.09.09

承認	検査	設計
SAITO	HACHIHARA	TAJIMA
11.09.09	11.09.09	11.09.09

承認	検査	設計
SAITO	HACHIHARA	TAJIMA
11.09.09	11.09.09	11.09.09

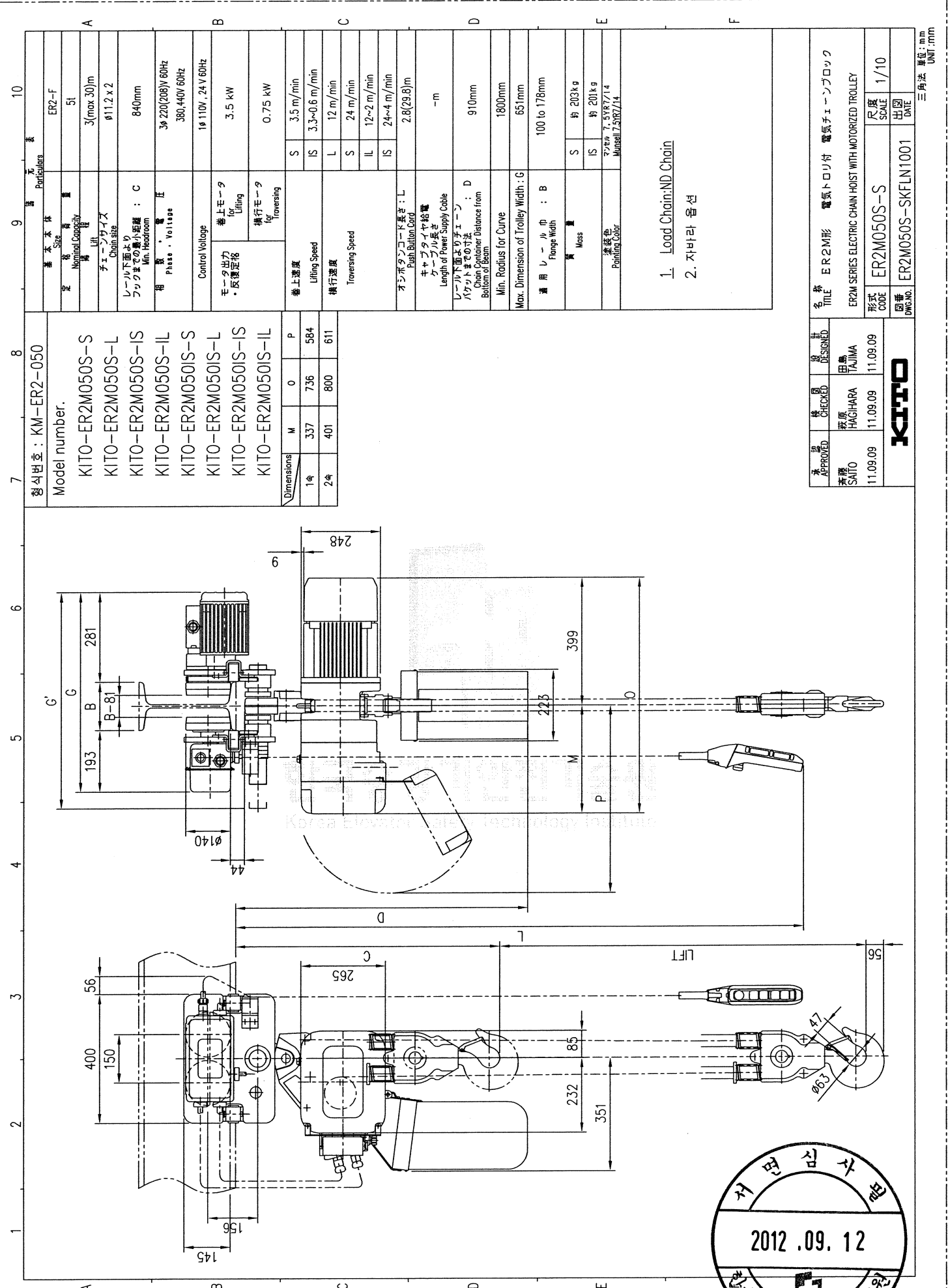
承認	検査	設計
SAITO	HACHIHARA	TAJIMA
11.09.09	11.09.09	11.09.09

承認	検査	設計
SAITO	HACHIHARA	TAJIMA
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承認	検査	設計
SAITO	HACHIHARA	TAJIMA
11.09.09	11.09.09	11.09.09

承認	検査	設計
SAITO	HACHIHARA	TAJIMA
11.09.09	11.09.09	11.09.09

承認	検査	設計
SAITO	HACHIHARA	TAJIMA
11.09.09	11.09.09	11.09.09



정식번호 : KM-ER2-050
 Model number.
 KITO-ER2M050S-S
 KITO-ER2M050S-L
 KITO-ER2M050S-IS
 KITO-ER2M050S-IL
 KITO-ER2M050S-S
 KITO-ER2M050S-L
 KITO-ER2M050S-IS
 KITO-ER2M050S-IL

Dimensions	M	O	P
1号	337	736	584
2号	401	800	611

基本仕様 Particulars		寸法 Dimension	
定額容量 Nominal Capacity	5t	全高 Overall Height	ER2-F
チェーンサイズ Chain size	3(max 30)m	チェーン径 Chain diameter	φ11.2 x 2
レール下面よりフックまでの最小距離 Min. Headroom	840mm	チェーンピッチ Chain pitch	36 220(208)V 60Hz 380, 440V 60Hz
相数・電圧 Phase・Voltage	1φ 110V, 24V 60Hz	巻上速度 Lifting Speed	3.5 m/min 3.3~0.6 m/min
制御電圧 Control Voltage	3.5 kW	横行速度 Traversing Speed	12 m/min 24 m/min 12~2 m/min 24~4 m/min
モーター出力・反接定格 Motor output・Reverse connection rating	0.75 kW	オンボタコンコード長さ : L Push Button Cord Length of Power Supply Cable	2.8(29.6)m
巻上速度 Lifting Speed	S 3.5 m/min IS 3.3~0.6 m/min	ケーブル底寸 Cable length from Bottom of Beam	-m
横行速度 Traversing Speed	L 12 m/min S 24 m/min IL 12~2 m/min IS 24~4 m/min	レール下面よりチェーン : D Chain Container Distance from Bottom of Beam	910mm
最小半径 : Min. Radius for Curve	1800mm	トロリー幅 : B Trolley Width	100 to 178mm
最大トロリー幅 : Max. Dimension of Trolley Width : G	651mm	質量 Mass	S 約 203kg IS 約 201kg
適用レール幅 : B	100 to 178mm	塗装色 Painting Color	ブラック 7.5V637/14 マンセル 7.5R67/14

1. Load Chain:ND Chain
2. 자바라 음선

承認 APPROVED	検閲 CHECKED	設計 DESIGNED	名称 TITLE
茅藤 SAITO 11.09.09	萩原 HACHIHARA 11.09.09	田島 IJIMA 11.09.09	ER2M形 電気トロリ付 電気チェーンブロック ER2M SERIES ELECTRIC CHAIN HOIST WITH MOTORIZED TROLLEY
形式 CODE ER2M050S-S			尺度 SCALE 1/10
図番 DIMC.ND. ER2M050S-SKFLN1001			出図 DATE

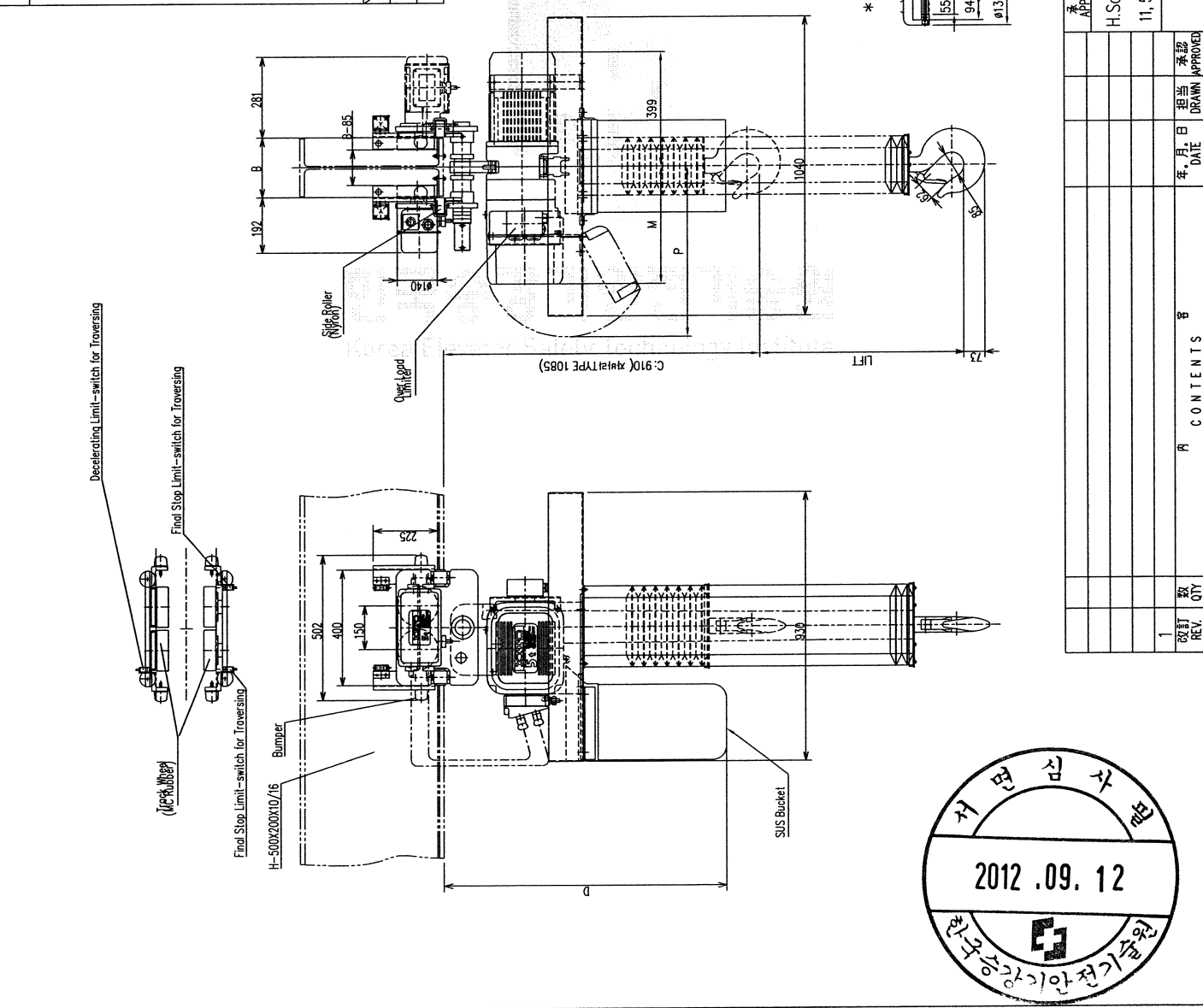


1 2 3 4 5 6 7 8 9

Particulars	
基本本体 Size	ER2-F
定額荷重 Nominal Capacity	5t
リフト Lift	5.5m(Max 30m)
チェーンサイズ Chain size	φ11.2 x 2
レール下面よりフックまでの最小距離 : C Min. Headroom	910(1085)mm
相数・電圧 Phase・Voltage	3φ 220(208)V 60Hz 380, 440V 60Hz
Control Voltage	1φ 110V, 24 V 60Hz
モーター出力・反復定格 巻上モーター for Lifting	3.5kW
横行モーター for Traversing	0.75kW
巻上速度 Lifting Speed	S 3.5 m/min IS 3.3/0.6 m/min
横行速度 Traversing Speed	L 12 m/min S 24 m/min IL 12/2 m/min IS 24/4 m/min 2.7m(Max 30m)
押しボタンコード長さ : L Push Button Cord	- m
ケーブルヤリ長さ Length of Power Supply Cable	1000mm
レール下面よりチェーン : D パケットまでの寸法 Chain Container Distance from Bottom of Beam	200 250 300 208mm 258mm 308mm
Beam Width(200~350)	Approx 270kg
通用レール巾 : B Flange Width	マンセル 7.5XR7/14 マンセル 7.5R7/14
質量 Mass	
塗装色 Painting Color	

Model number.	
KITO-C-ER2M050S-S	
KITO-C-ER2M050S-L	
KITO-C-ER2M050S-IS	
KITO-C-ER2M050S-IL	
KITO-C-ER2M050S-S	
KITO-C-ER2M050S-L	
KITO-C-ER2M050S-IS	
KITO-C-ER2M050S-IL	

Dimensions	M	O	P
1号	337	736	584
2号	401	800	611



1. Load Chain: ND Chain
2. 자바라 옵션
3. P칩수는 자바라가 없을때.



TITLE		DESIGNED		CHECKED		APPROVED	
5t ER2M SERIES ELECTRIC CHAIN HOIST WITH MOTORIZED TROLLEY		K. Horuchi		K. Nakamura		H. Saito	
製法番号 CODE	305571-1	設計 DATE	11.5.31	検査 DATE	11.5.31	承認 DATE	11.5.31
尺度 SCALE	NOT	製法会社 KORPO		年.月.日 DATE		承認 APPROVED	
変更回数 REV.	0	CONTENTS		1 REV. QTY			

4. 전 기 도 면

- 1) ELECTRICAL SPECIFICATION
- 2) SYMBOL LIST
- 3) 배선배관도 & 접지계통도
- 4) 전기회로도
- 5) PANEL 관련도



한국승강기안전기술원
Korea Elevator Safety Technology Institute



LOAD SUMMARY 1 – INVERTER사양

*POWER SOURCE : AC 3Φ 220(208)V

OBJECT	HOISTING	TRAVERSING	CONTROL CIRCUIT
MOTOR OUTPUT	3.5KW x 4P	0.75KW x 4P	
FULL LOAD CURRENT	18.7 (A)	4.8 (A)	0.5 (A)

*크레인 하중상태를 HOIST의 정격 LOAD의 100(%)를 사용했을때를 기준으로 작성하였음.

*** NOMAL 전류값 ***

권상과 황행시 : HOISTING + TRAVERSING + CONTROL CIRCUIT = 24 A

*** PEAK 전류값 ***

K= NOMAL 전류치가 50A미만일때 1.25, 50A이상일때 1.1적용

NOMAL 전류값 * K = 24 * 1.25 = 30 A

*POWER SOURCE : AC 3Φ 380(440)V

OBJECT	HOISTING	TRAVERSING	CONTROL CIRCUIT
MOTOR OUTPUT	3.5KW x 4P	0.75KW x 4P	
FULL LOAD CURRENT	9.2 (A)	4 (A)	0.5 (A)

*크레인 하중상태를 HOIST의 정격 LOAD의 100(%)를 사용했을때를 기준으로 작성하였음.

*** NOMAL 전류값 ***

권상과 황행시 : HOISTING + TRAVERSING + CONTROL CIRCUIT = 13.7 A

*** PEAK 전류값 ***

K= NOMAL 전류치가 50A미만일때 1.25, 50A이상일때 1.1적용

NOMAL 전류값 * K = 13.7 * 1.25 = 17.1 A



LOAD SUMMARY 2 – INVERTER 사양

*POWER SOURCE : AC 3Φ 220(208)V

OBJECT	HOISTING	TRAVERSING	CONTROL CIRCUIT
MOTOR OUTPUT	3.5KW x 4P	-	
FULL LOAD CURRENT	18.7 (A)	0 (A)	0.5 (A)

*크레인 하중상태를 HOIST의 정격 LOAD의 100(%)를 사용했을때를 기준으로 작성하였음.

*** NOMAL 전류값 ***

권상시 : HOISTING + CONTROL CIRCUIT = 19.2 A

*** PEAK 전류값 ***

K= NOMAL 전류치가 50A미만일때 1.25, 50A이상일때 1.1적용

NOMAL 전류값 * K = 19.2 * 1.25 = 24 A

*POWER SOURCE : AC 3Φ 380(440)V

OBJECT	HOISTING	TRAVERSING	CONTROL CIRCUIT
MOTOR OUTPUT	3.5KW x 4P	-	
FULL LOAD CURRENT	9.2 (A)	0 (A)	0.5 (A)

*크레인 하중상태를 HOIST의 정격 LOAD의 100(%)를 사용했을때를 기준으로 작성하 0

*** NOMAL 전류값 ***

권상시 : HOISTING + CONTROL CIRCUIT = 9.7 A

*** PEAK 전류값 ***

K= NOMAL 전류치가 50A미만일때 1.25, 50A이상일때 1.1적용

NOMAL 전류값 * K = 9.7 * 1.25 = 12.1 A



LOAD SUMMARY 3 - 1속형사양

*POWER SOURCE : AC 3Φ 220(208)V

OBJECT	HOISTING	TRAVERSING	CONTROL CIRCUIT
MOTOR OUTPUT	3.5KW x 4P	0.75KW x 4P	
FULL LOAD CURRENT	16.9 (A)	4.8 (A)	0.5 (A)

*크레인 하중상태를 HOIST의 정격 LOAD의 100(%)를 사용했을때를 기준으로 작성하였음.

*** NOMAL 전류값 ***

권상과 횡행시 : HOISTING + TRAVERSING + CONTROL CIRCUIT = 22.2 A

*** PEAK 전류값 ***

K= NOMAL 전류치가 50A미만일때 1.25, 50A이상일때 1.1적용

NOMAL 전류값 * K = 22.2 * 1.25 = 27.7 A

*POWER SOURCE : AC 3Φ 380(440)V

OBJECT	HOISTING	TRAVERSING	CONTROL CIRCUIT
MOTOR OUTPUT	3.5KW x 4P	0.75KW x 4P	
FULL LOAD CURRENT	8.7 (A)	3.3 (A)	0.5 (A)

*크레인 하중상태를 HOIST의 정격 LOAD의 100(%)를 사용했을때를 기준으로 작성하였음.

*** NOMAL 전류값 ***

권상과 횡행시 : HOISTING + TRAVERSING + CONTROL CIRCUIT = 12.5 A

*** PEAK 전류값 ***

K= NOMAL 전류치가 50A미만일때 1.25, 50A이상일때 1.1적용

NOMAL 전류값 * K = 12.5 * 1.25 = 15.6 A



LOAD SUMMARY 4 – 1속형사양

*POWER SOURCE : AC 3Φ 220(208)V

OBJECT	HOISTING	TRAVERSING	CONTROL CIRCUIT
MOTOR OUTPUT	3.5KW x 4P	-	
FULL LOAD CURRENT	16.9 (A)	0 (A)	0.5 (A)

*크레인 하중상태를 HOIST의 정격 LOAD의 100(%)를 사용했을때를 기준으로 작성하였음.

*** NOMAL 전류값 ***

권상시 : HOISTING + CONTROL CIRCUIT = 17.4 A

*** PEAK 전류값 ***

K= NAMAL 전류치가 50A미만일때 1.25, 50A이상일때 1.1적용

NOMAL 전류값 * K = 17.4 * 1.25 = 21.7 A

*POWER SOURCE : AC 3Φ 380(440)V

OBJECT	HOISTING	TRAVERSING	CONTROL CIRCUIT
MOTOR OUTPUT	3.5KW x 4P	-	
FULL LOAD CURRENT	8.7 (A)	0 (A)	0.5 (A)

*크레인 하중상태를 HOIST의 정격 LOAD의 100(%)를 사용했을때를 기준으로 작성하였음.

*** NOMAL 전류값 ***

권상시 : HOISTING + CONTROL CIRCUIT = 9.2 A




*** PEAK 전류값 ***

K= NAMAL 전류치가 50A미만일때 1.25, 50A이상일때 1.1적용



NOMAL 전류값 * K = 9.2 * 1.25 = 11.5 A






ROTATING MACHINE

-  SYNCHRONOUS GENERATOR, 3-PHASE
-  AC INDUCTION MOTOR, 3-PHASE
- * N : NORMAL DUTY
- S : STAND-BY
-  DC MOTOR



LIGHTNING ARRESTERS

-  LA : LIGHTNING ARRESTER
- SA : SURGE ARRESTER
- SS : SURGE SUPPRESSOR
-  DISCHARGE COUNTER















INSTRUMENT TRANSFORMERS

-  CURRENT TRANSFORMER
-  ZERO PHASE CURRENT TRANSFORMER
-  POTENTIAL TRANSFORMER




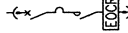
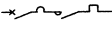
CIRCUIT BREAKERS

-  POWER CIRCUIT BREAKER, FIXED TYPE
- GCB : SF6 GAS CIRCUIT BREAKER
- VCB : VACUUM CIRCUIT BREAKER
- ACB : AIR CIRCUIT BREAKER
-  POWER CIRCUIT BREAKER, DRAWOUT TYPE





















SWITCHES

-  DISCONNECTOR SWITCH, SINGLE THROW MANUALLY OPERATED
-  LOAD BREAK SWITCH, SINGLE THROW MANUALLY OPERATED
-  EARTHING SWITCH, SINGLE THROW MANUALLY OPERATED
-  DISCONNECTOR SWITCH, SINGLE THROW MOTOR OPERATED
-  EARTHING SWITCH, SINGLE THROW MOTOR OPERATED
-  VACUUM CIRCUIT SWITCH
-  FUSED DISCONNECTOR SWITCH
-  FUSE-SWITCH
-  LIMIT SWITCH (MAKE CONTACT)
-  LIMIT SWITCH (BREAK CONTACT)
-  PUSH BUTTON, NORMALLY OPEN MOMENTARY CONTACT
-  PUSH BUTTON, NORMALLY CLOSED MOMENTARY CONTACT
-  PUSH BUTTON, NORMALLY OPEN PUSH TO LOCK, RELEASED BY KEY
-  MANUAL SELECTOR SWITCH (LOCKED)

CONTACTORS AND STARTERS

-  AUX. CONTACT, NORMALLY OPEN WHEN MAIN SWITCHING DEVICE IS DE-ENERGIZED
-  AUX. CONTACT, NORMALLY CLOSED WHEN MAIN SWITCHING DEVICE IS DE-ENERGIZED
-  MAGNETIC CONTACTOR, ELECTRICALLY OPERATED
-  COMBINATION STARTER, FULL VOLTAGE, NON-REVERSING, DRAWOUT TYPE, WITH ELECTRICALLY OPERATED CONTACTORS, WITH MAGNETIC MOTOR CIRCUIT BREAKER, BUILT IN ELECTRONIC OVER-CURRENT RELAY WITH ADJUSTABLE TRIP RATING
-  COMBINATION STARTER, FULL VOLTAGE, NON-REVERSING, FIXED TYPE, WITH ELECTRICALLY OPERATED CONTACTORS, WITH MAGNETIC MOTOR CIRCUIT BREAKER, BUILT IN THERMAL OVER-CURRENT RELAY WITH ADJUSTABLE TRIP RATING

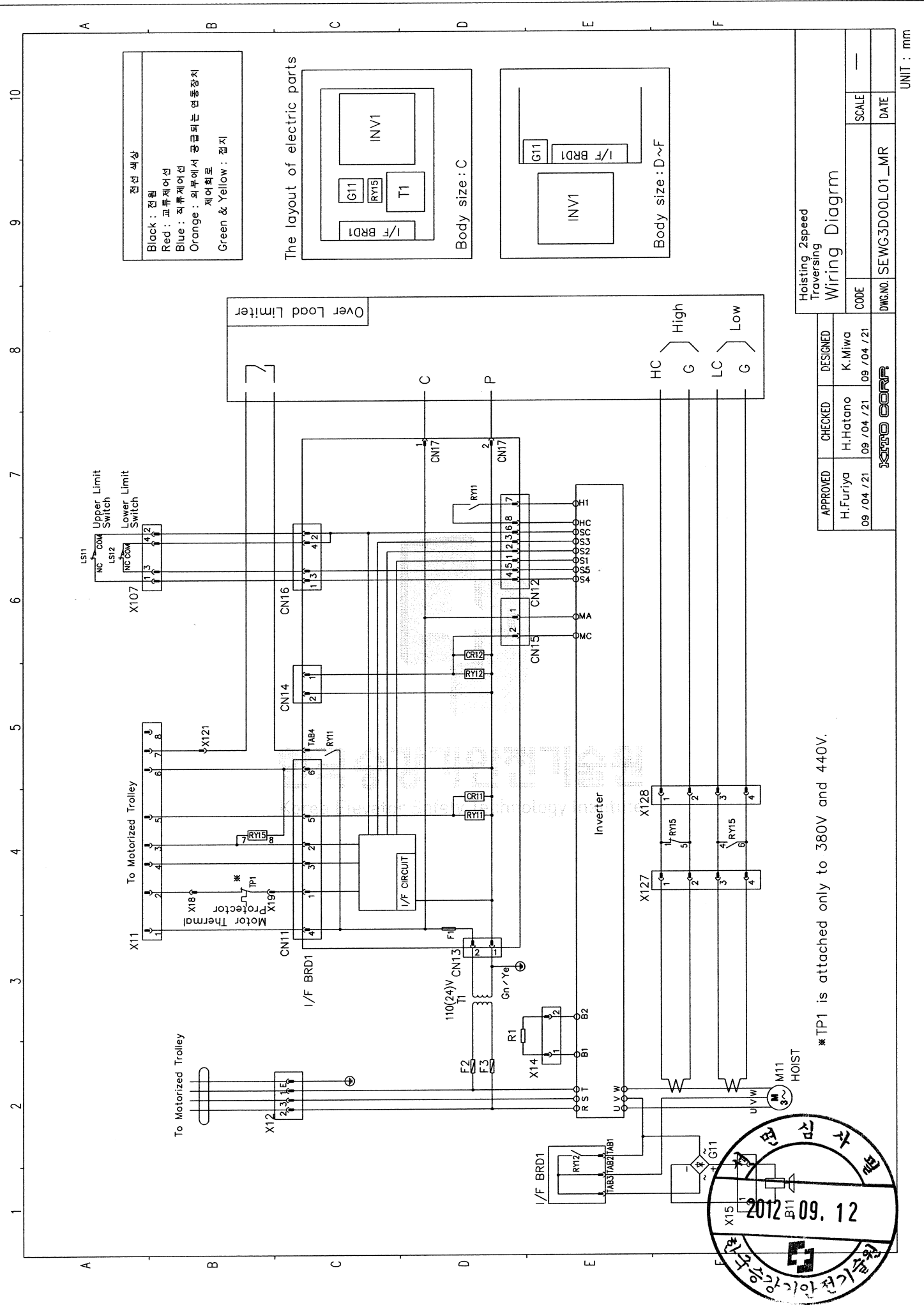
GRAPHIC SYMBOLS

-  GENERAL OPERATING COIL
-  CAPACITOR
-  CAPACITOR VOLTAGE TRANSFORMER (CVT)
-  RESISTOR
-  DIODE
-  CONTROLLED RECTIFIER
-  DC-DC CONVERTER
-  RECTIFIER, BATTERY CHARGER
-  DC-AC INVERTER
-  BATTERY BANK
-  ELECTRIC HEATER, INDICATE 1* OR 3* AND kW RATING, UNLESS OTHERWISE SPECIFIED, TO BE REGARDED AS 1*.
-  EARTHING CONNECTION
-  DISCONNECTION LINK
-  CROSSING OF CONDUCTORS NOT CONNECTED
-  JUNCTION OF CONDUCTORS OR WIRES
-  BUS DUCT
- SPB : SEGREGATED PHASE BUS DUCT
- PB : ISOLATED PHASE BUS DUCT
-  CABLE HEAD AND CABLE CONNECTION
-  AMMETER SWITCH
-  VOLTMETER SWITCH
-  SIGNAL LAMP
- * R = RED
- G = GREEN
- W = WHITE
- A = AMBER
- C = CYAN

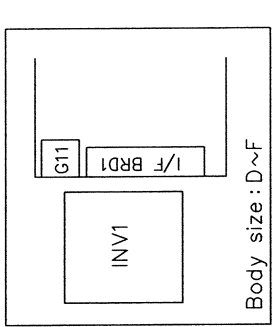
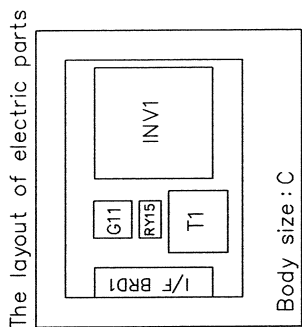
SYMBOL LIST

APPROVED	CHECKED	DESIGNED	CODE	SCALE
KOTO CORP.			SYMBOL LIST	DATE





전선 색상
 Black : 전선
 Red : 교류제어선
 Blue : 직류제어선
 Orange : 외부에서 공급되는 연동장치 제어회로
 Green & Yellow : 접지

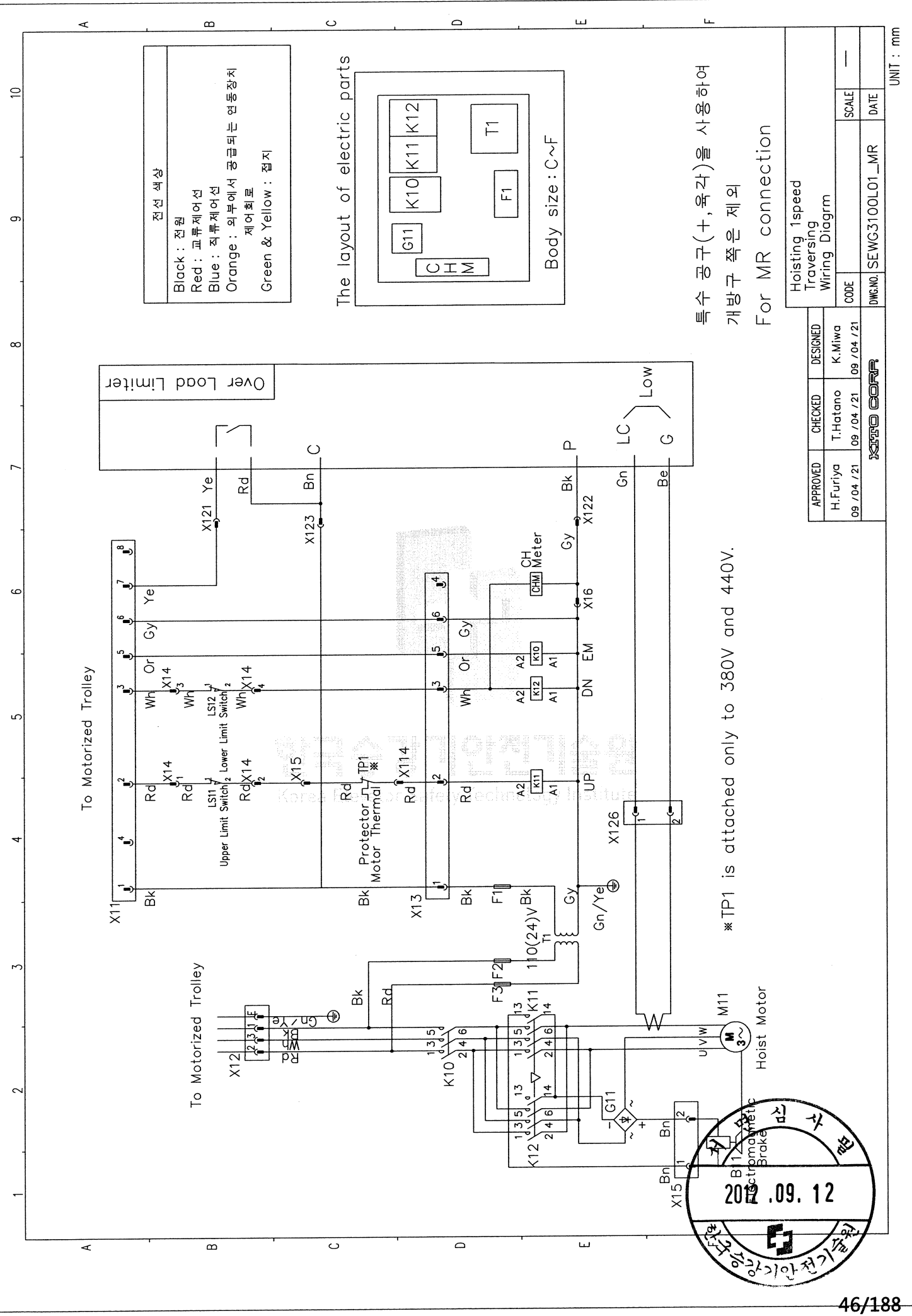


Hoisting 2speed Traversing		DESIGNED	
Wiring Diagram		K. Miwa	
APPROVED	CHECKED	DESIGNED	CODE
H. Furiya	H. Hatano	K. Miwa	—
09 / 04 / 21	09 / 04 / 21	09 / 04 / 21	DATE
KOTO CORP		DWG. NO. SEWC3D00L01_MR	

* TP1 is attached only to 380V and 440V.

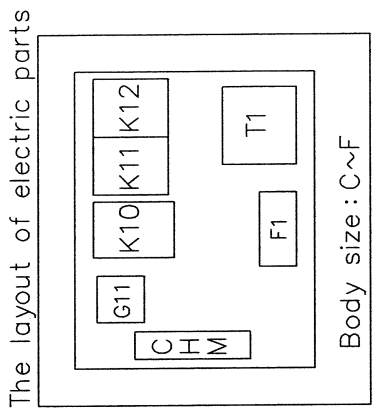


UNIT : mm



전선 색상

Black : 전원
Red : 교류제어선
Blue : 직류제어선
Orange : 외부에서 공급되는 연동장치 제어회로
Green & Yellow : 접지

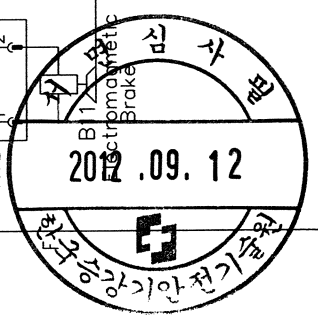


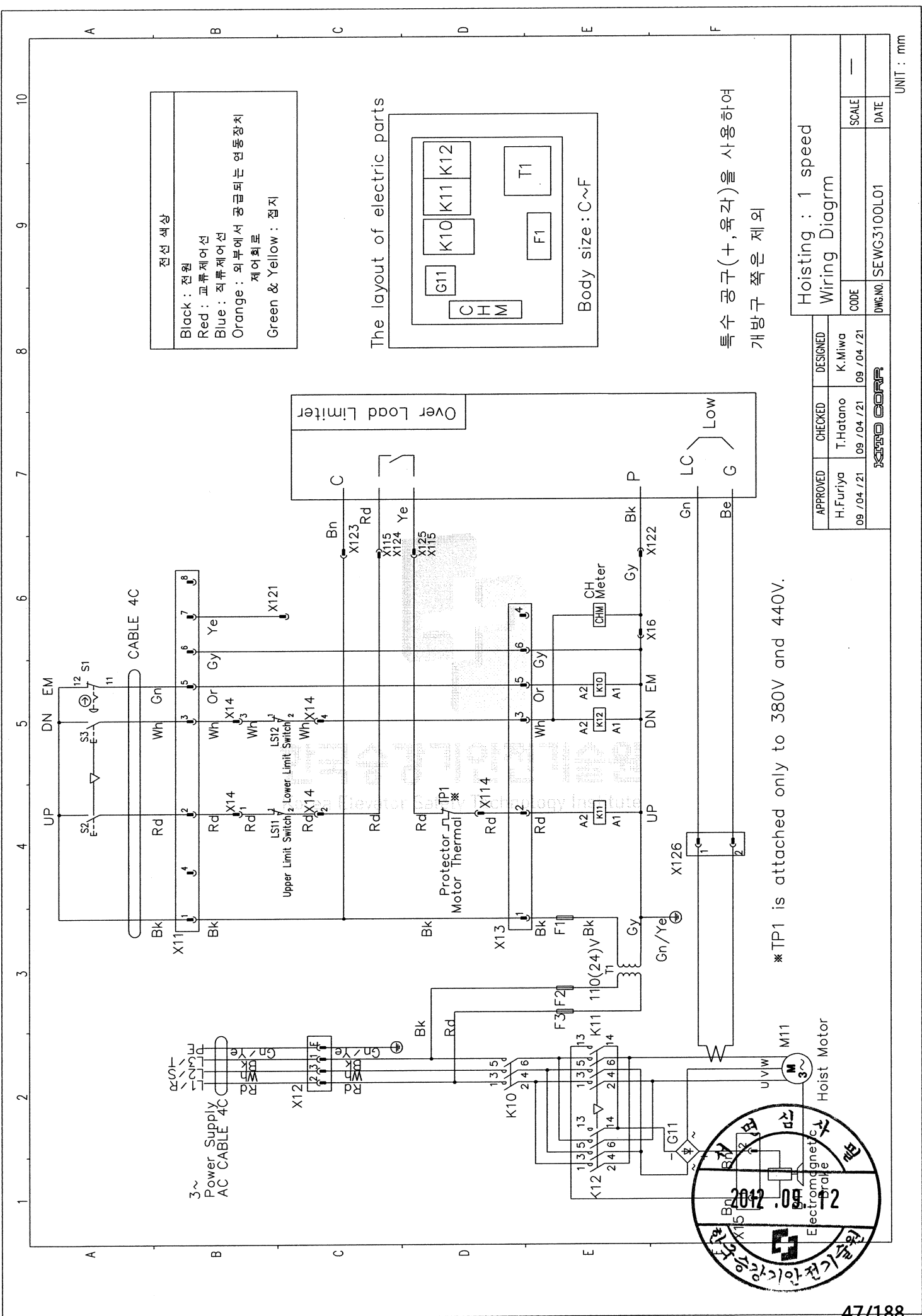
특수 공구(+, 육각)를 사용하여
개방구 쪽은 제외
For MR connection

APPROVED	CHECKED	DESIGNED	Hoisting 1speed Traversing Wiring Diagram
H.Furiya	T.Hatano	K.Miwa	
09 / 04 / 21	09 / 04 / 21	09 / 04 / 21	CODE
DWG.NO. SEWG3100L01_MR			SCALE
			DATE

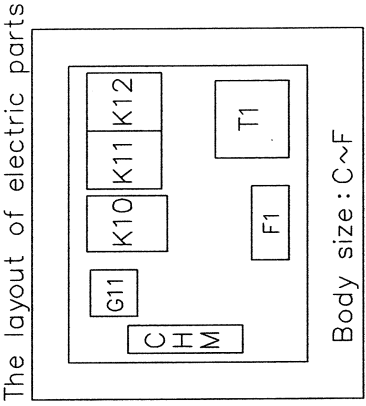
UNIT : mm

*TP1 is attached only to 380V and 440V.





전선 색상
 Black : 전원
 Red : 교류제어선
 Blue : 직류제어선
 Orange : 외부에서 공급되는 연동장치 제어회로
 Green & Yellow : 접지

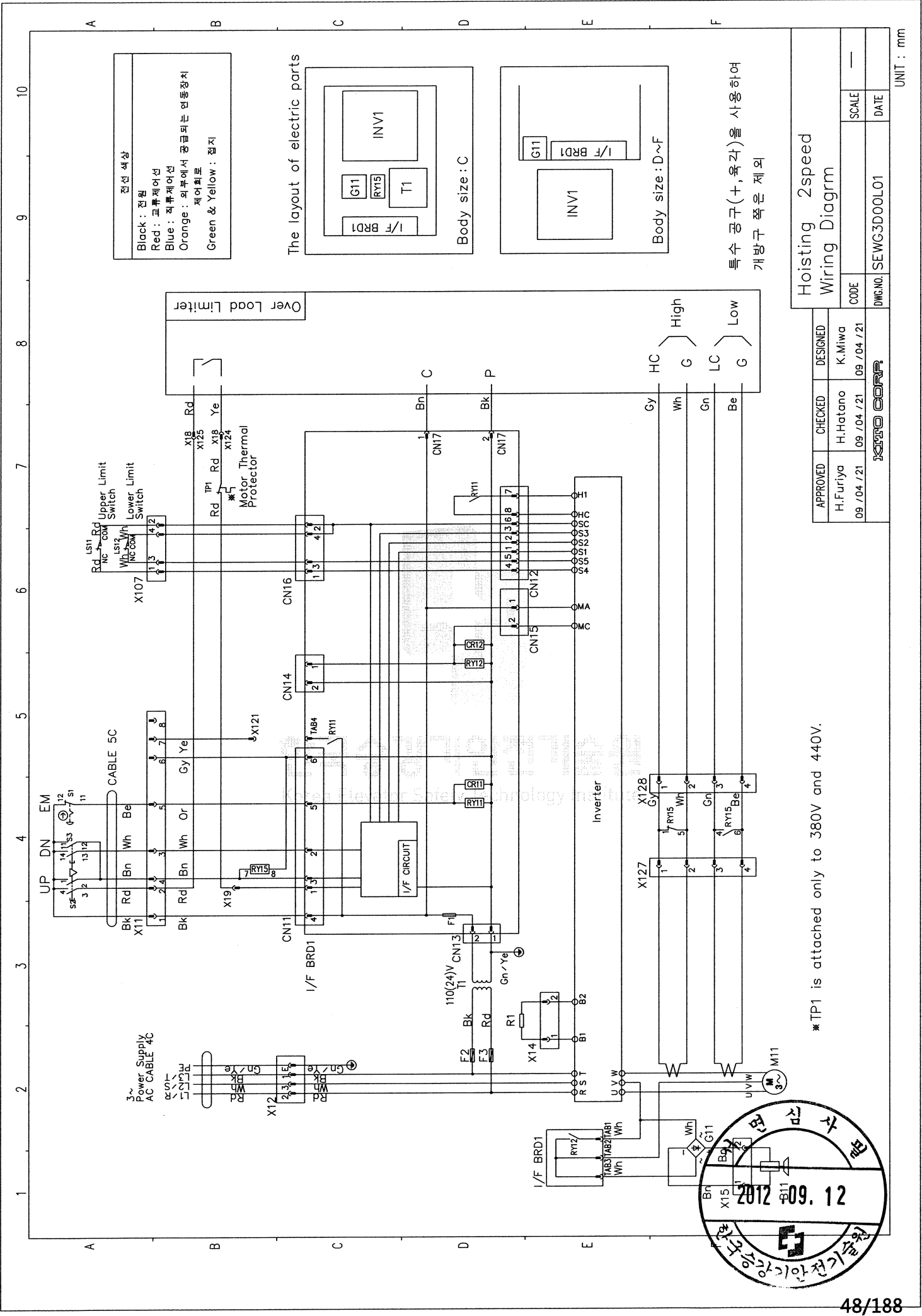


특수 공구(+, 육각)을 사용하여
 개방구 쪽은 제외

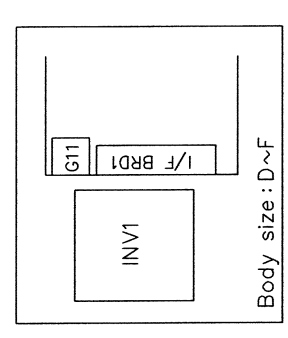
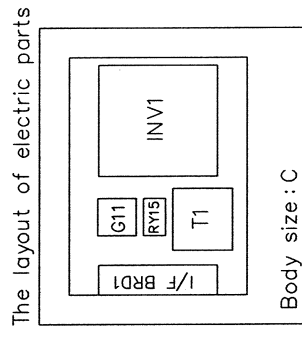
*TP1 is attached only to 380V and 440V.

APPROVED	CHECKED	DESIGNED
H.Furiya	T.Hatano	K.Miwa
09/04/21	09/04/21	09/04/21
KOTO CORP		
Hoisting : 1 speed		Wiring Diagram
CODE	SCALE	DATE
DWG.NO. SEWG3100L01	—	—

UNIT : mm



전선 색상
 Black : 전선
 Red : 교류제어선
 Blue : 직류제어선
 Orange : 외부에서 공급되는 전동장치 제어회로
 Green & Yellow : 접지

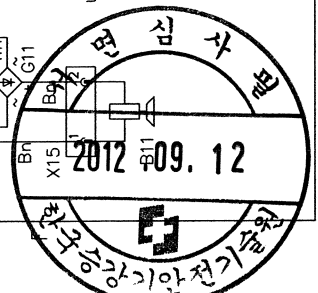


특수 공구(+ , 육각)을 사용하여
 개광구 쪽은 제외

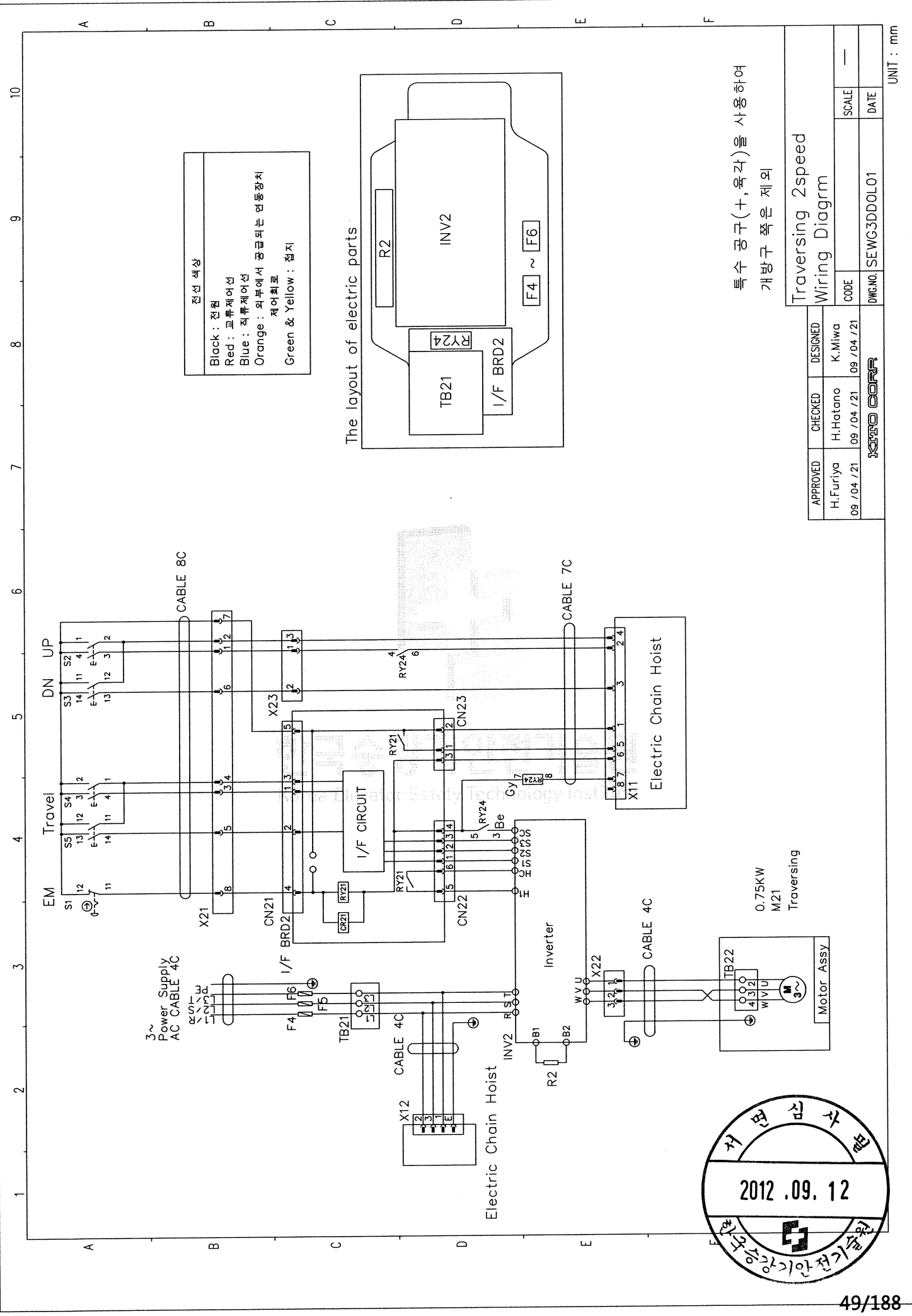
Hoisting 2speed
 Wiring Diagram

APPROVED	CHECKED	DESIGNED
H.Furiya	H.Hatano	K.Miwa
09 / 04 / 21	09 / 04 / 21	09 / 04 / 21
CODE	SCALE	DATE
DMC.NO. SEWC3D00L01		

*TP1 is attached only to 380V and 440V.

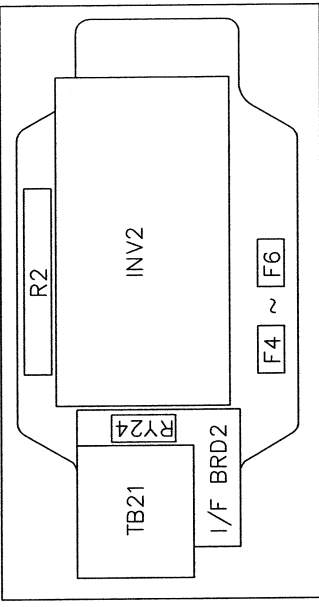


UNIT : mm



전선 색상
 Black : 전원
 Red : 교류제어선
 Blue : 직류제어선
 Orange : 외부에서 공급되는 운동장치 제어회로
 Green & Yellow : 접지

The layout of electric parts



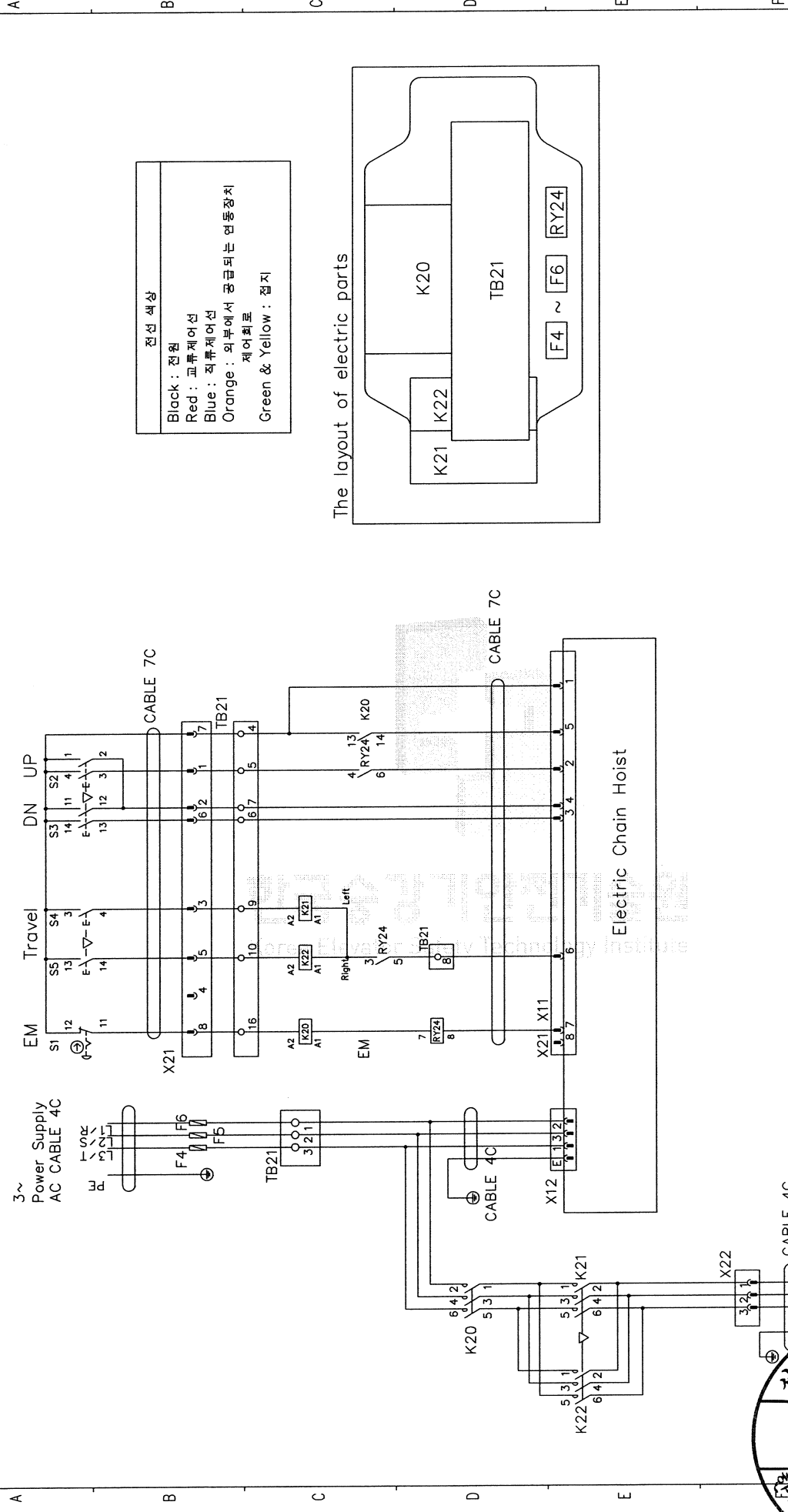
특수 공구(+, 육각)를 사용하여
 개방구 쪽은 제외

Traversing 2speed Wiring Diagram		CODE	SCALE	DATE
APPROVED	CHECKED	DESIGNED		
H.Furiya	H.Hatano	K.Miwa		
09./04./21	09./04./21	09./04./21		
KOTO CORP		DWG.NO.	SEWG3DD0L01	



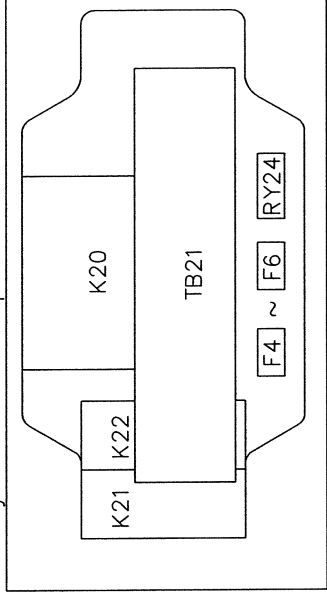
UNIT : mm

10 9 8 7 6 5 4 3 2 1



전선 색상	
Black	: 전선
Red	: 교류제어선
Blue	: 직류제어선
Orange	: 외부에서 공급되는 연동장치 제어회로
Green & Yellow	: 접지

The layout of electric parts



특수 공구(+, 육각)를 사용하여
개방구 쪽은 제외

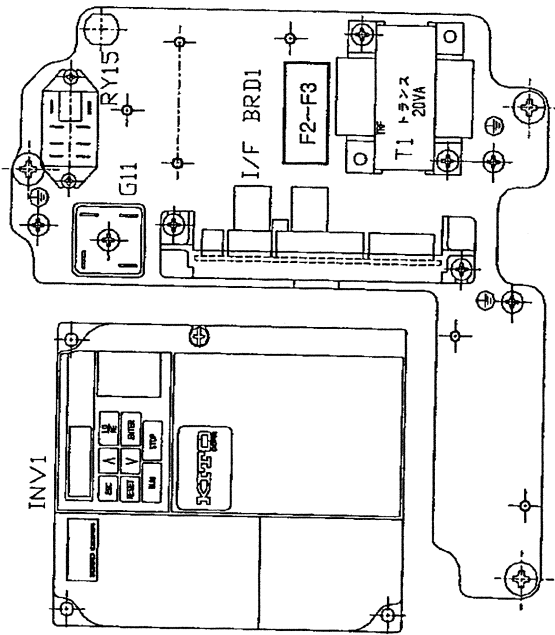
Traversing 1speed Wiring Diagram		APPROVED	CHECKED	DESIGNED
CODE	—	H.Furiya	H.Hatano	K.Miwa
DATE	—	09 / 04 / 21	09 / 04 / 21	09 / 04 / 21
DWG.NO. SEWG3DD0L01		Y&O CORP.		

UNIT : mm

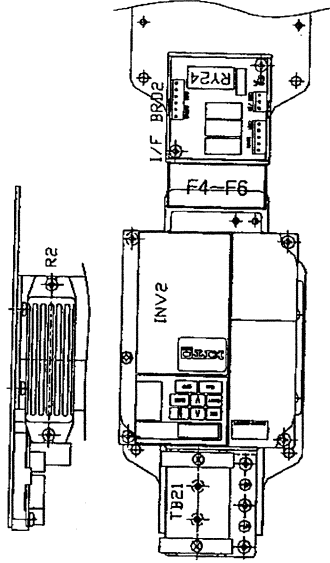


2-7. 호이스트 CONTROL BOX 배치도

HOISTING CONTROL BOX

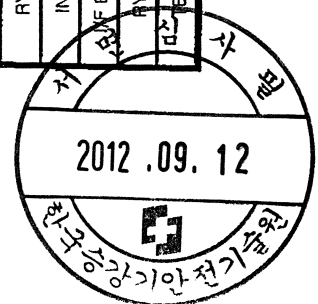


TRAVERSING CONTROL BOX



ENCLOSURE : HOIST BODY - IP55
PUSH BUTTON - IP65

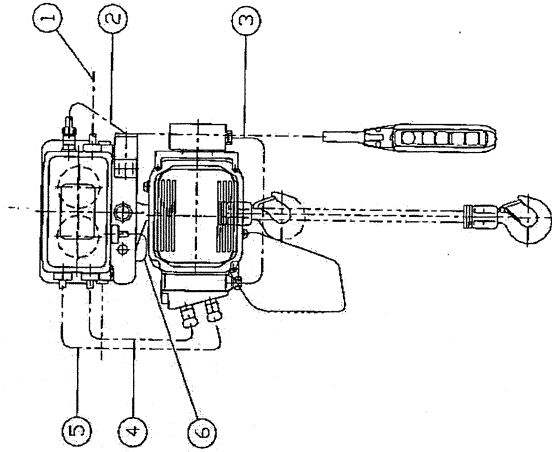
MARK	DESCRIPTION	TYPE OF MODEL				QTY	MAKER	REMARKS
		220V	380V	440V				
INV1	INVERTER	V1000	V1000	V1000	1	YASKAWA	UP/DOWN	
T1	TRANSFORMER	220V/110V 20VA	380V/110V 20VA	440V/110V 20VA	1	KITO	CONTROL CIRCUIT	
G11	BRIDGE DIODE	S15VB60	S15VB60	S15VB60	1	SHINDENGEN		
I/F BRD1	INTERFACE BOARD	10~15A	10~15A	10~15A	1	KITO		
F2-F3	GLASS FUSE	10A	10A	10A	2	FUJI		
F4-F6	GLASS FUSE	30A	30A	30A	3	FUJI		
RY15	RELAY	110V	110V	110V	1	OMRON	HIGH/LOW	
INV2	INVERTER	V1000	V1000	V1000	1	YASKAWA	RIGHT/LEFT	
I/F BRD2	INTERFACE BOARD	10~15A	10~15A	10~15A	1	KITO		
RY24	RELAY	110V	110V	110V	1	OMRON	EMERGENCY STOP	
TB21	TERMINAL BOARD 21	10~15A	10~15A	10~15A	1	KITO		



CABLE 구성도 및 사양

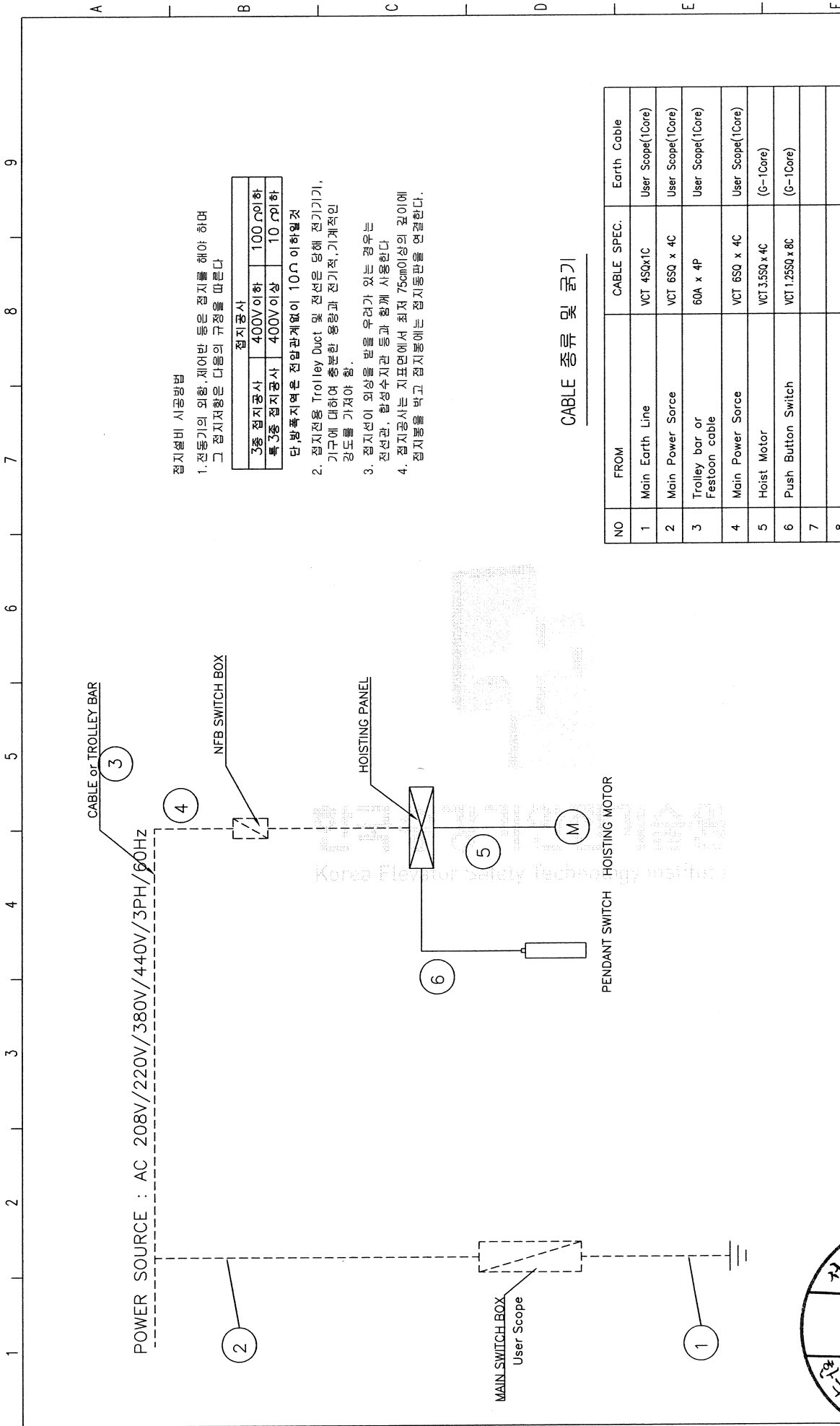
CABLE SPECIFICATION FOR ER2M

NO	ITEM	TYPE	ER2M15ISIS	
			SIZE	
①	Power Line	VCT	4sq x 4C	
②	Push Button Switch	VCT	1.5sq x 8C	
③	Loas Limit	VCT	0.75sq x 8C	
④	Power Line for ER	VCT	2.5sq x 4C	
⑤	Control Line for ER	VCT	1.5sq x 6C	
⑥	Traversing Motor With Earth	VCT	1.5sq x 4C	



(3Φ 220(208)V / 380V / 440V 60HZ)





접지설비 시공방법

1. 전동기의 외함, 제어반 등은 접지를 해야 하며 그 접지 저항은 다음의 규정을 따른다

접지공사	
3중 접지공사	400V 이하 100Ω 이하
복 3중 접지공사	400V 이상 10Ω 이하

단 방폭지역은 전압관계없이 10Ω 이하일 것

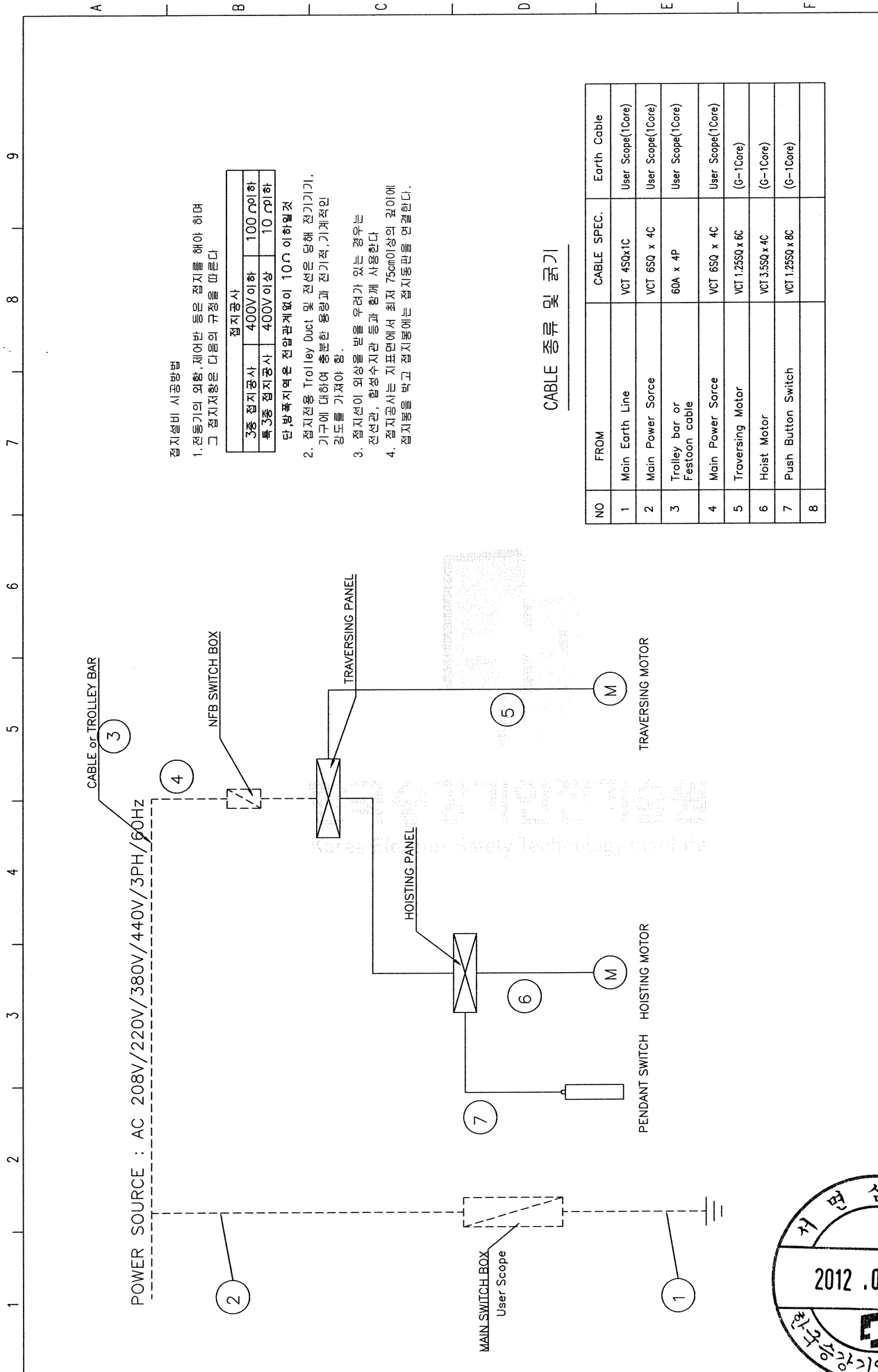
2. 접지전용 Trolley Duct 및 전선은 당해 전기기기, 기구에 대하여 충분한 용량과 전기적, 기계적인 강도를 가져야 함.
3. 접지선이 외상을 받을 우려가 있는 경우는 전선관, 합성수지관 등과 함께 사용한다
4. 접지공사는 지표면에서 최저 75cm이상의 깊이에 접지봉을 박고 접지봉에는 접지동판을 연결한다.

CABLE 종류 및 굵기

NO	FROM	CABLE SPEC.	Earth Cable
1	Main Earth Line	VCT 4SQx1C	User Scope(1Core)
2	Main Power Source	VCT 6SQ x 4C	User Scope(1Core)
3	Trolley bar or Festoon cable	60A x 4P	User Scope(1Core)
4	Main Power Source	VCT 6SQ x 4C	User Scope(1Core)
5	Hoist Motor	VCT 3.5SQ x 4C	(G-1Core)
6	Push Button Switch	VCT 1.25SQ x 8C	(G-1Core)
7			
8			

REV.	QTY	CONTENTS	DATE	DRAWN	APPROVED	CHECKED	DESIGNED	DRAWN	TITLE
									5t MOTORIZED-2점식 케이블 구성도 및 접지계통도
									MDL. 942513
									DWG NO. 3NNU942513
									REV. 0
									SCALE NOT





점지설비 시공방법

- 전동기의 외함, 제어반 등은 점지를 해야 하며 그 점지사항은 다음의 규정을 따른다.

점지공사		
3중 점지공사	400V이하	100 Ω이하
특 3중 점지공사	400V이상	10 Ω이하

- 단, 방폭지역은 전압관계없이 10Ω 이하일 것
- 점지전용 Trolley Duct 및 전선은 당해 전기기기, 기구에 대하여 충분한 용량과 전기적, 기계적인 강도를 가져야 함.
- 점지선이 외상을 받을 우려가 있는 경우는 전선관, 합성수지관 등과 함께 사용한다
- 점지공사는 지표면에서 최저 75cm이상의 높이에 점지봉을 박고 점지봉에는 점지동판을 연결한다.

CABLE 종류 및 규격

NO	FROM	CABLE SPEC.	Earth Cable
1	Main Earth Line	VCT 450x1C	User Scope(1Core)
2	Main Power Source	VCT 650 x 4C	User Scope(1Core)
3	Trolley bar or Festoon cable	60A x 4P	User Scope(1Core)
4	Main Power Source	VCT 650 x 4C	User Scope(1Core)
5	Traversing Motor	VCT 1.2550 x 6C	(G-1Core)
6	Hoist Motor	VCT 3.5500 x 4C	(G-1Core)
7	Push Button Switch	VCT 1.2550 x 8C	(G-1Core)
8			



REV.	QTY	CONTENTS	DATE	DRAWN	APPROVED	CHECKED	DESIGNED	DRAWN	TITLE
									5t MOTORIZED-4점식
							A. Shimura		케이블 구성도 및 점지계통도
							11.07.20	11.07.20	MDL. 942513
									SCALE NOT
									DWG. NO. 3NNU942513
									REV. 0

UNIT : mm

樣式 025G-05

6. FOR REFERENCE

- 1) LOAD CHAIN 시험성적서
- 2) MOTOR DATA SHEET
- 3) HOIST 사용설명서(operation manual)



한국승강기안전기술원
Korea Elevator Safety Technology Institute

Date: 2009/04/14

Certificate of Compliance

We certify that the ER2 protection degrees conform to the IP rating as follows:

Hoist body - IP55 based on JIS C 4034-5, "Rotating electrical machines – Part5: Classification of degrees of protection provided by enclosures of rotating electrical machines (IP code)".

Push button - IP65 based on JIS C 0920, "Tests to prove protection against ingress of water and degrees of protection against ingress of solid objects for electrical equipment".

Technical Control Group

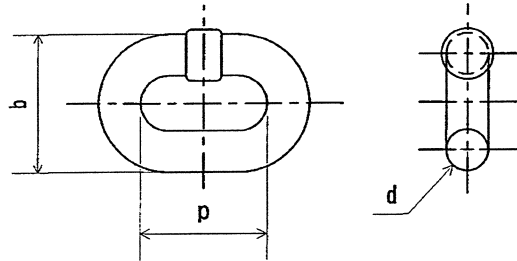
Certificate No. : FK100110

Date Issued : 2010/6/3

INSPECTION CERTIFICATE

Messrs. SAMSUNG HEAVY INDUSTRIES CO., LTD.

Commodity : NC Load Chain
 Code : KER2-112
 Lot No. : 2358
 Quantity : 1 line(s)
 Reference No. : U3-U63-00563
 Order No. : KJ-10-076B
 Production No. : 303035



1. Material : Manganese Alloy Steel

2. Dimensions (mm)

	d	p	b
Specified	11.2 ±0.4	31.2 +0.61 0	Max. 39.0
Result	Good	Good	Good

3. Breaking test

	Breaking load (kN)	Total ultimate elongation (%)
Specified	Min. 160	Min. 10
Result	Good	Good

4. Manufacturing Proof force test (Test load : 100 kN)

	Permanent elongation (%)
Specified	Max. 0.25
Result	Good

General judgment : Satisfactory



2000 Tsukijiarai, Showa-cho,
 Nakakoma-gun, Yamanashi, JAPAN

Quality Assurance Group
 Quality Assurance Department

M. Ogihara

(Manager)

Certificate No.: MM080011g

Date of Issue: 2009/3/4

Messrs. _____

Motor Test Report for Electric Chain Hoist

Motor type : Three phase squirrel cage type induction motor.

Manufacturer : Yasukawa Electric Mfg. Co.

Production No. : -

Rating

Model	Output	Pole	Intermittent Rating	Voltage	Frequency
IBQ	3.5kW	4P	60%ED	220V	60Hz

Full load characteristics

Voltage Frequency	220V 60Hz	
Load	%	100
Current	A	16.9
Speed	rpm	1670

Insulation class E

The above characteristics are obtained from calculation where the motor is assembled with an electric chain hoist and the hoist is subjected to full load



2000 Tsuijiarai, Showa-cho,
Nakakoma-gun, Yamanashi, JAPAN

Quality Assurance Group
Quality Assurance Department
Development & Technology Division

M. Ogihara (Manager)

Messrs. _____

Motor Test Report for Electric Chain Hoist

Motor type : Three phase squirrel cage type induction motor.

Manufacturer : Yasukawa Electric Mfg. Co.

Production No. :

Rating

Model	Output	Pole	Intermittent Rating	Voltage	Frequency
IBQ	3.5kW	4P	60%ED	380 - 440V	60Hz

Full load characteristics

Voltage Frequency	380 - 440V 60Hz	
Load	%	100
Current	A	8.7
Speed	rpm	1650

Insulation class B

The above characteristics are obtained from calculation where the motor is assembled with an electric chain hoist and the hoist is subjected to full load



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Nakakoma-gun, Yamanashi, JAPAN

Quality Assurance Group
Quality Assurance Department
Development & Technology Division

(Manager)

K. Kishimoto

Messrs. _____

Motor Test Report for Electric Chain Hoist

Motor type : Three phase squirrel cage type induction motor.

Manufacturer : Yasukawa Electric Mfg. Co.

Production No. : -

Rating

Model	Output	Pole	Intermittent Rating	Voltage	Frequency
IBQ	3.5kW	4P	40/20%ED	220V	Speed Control by Inverter

Full load characteristics

Voltage Frequency		220V - Speed Control by Inverter
Load	%	100
Current	A	18.7
Speed	rpm	~

Insulation class E

The above characteristics are obtained from calculation where the motor is assembled with an electric chain hoist and the hoist is subjected to full load



2000 Tsuijirai, Showa-cho,
Nakakoma-gun, Yamanashi, JAPAN

Quality Assurance Group
Quality Assurance Department
Development & Technology Division

M. Ogihara

(Manager)

Messrs. _____

Motor Test Report for Electric Chain Hoist

Motor type : Three phase squirrel cage type induction motor.

Manufacturer : Yasukawa Electric Mfg. Co.

Production No. :

Rating

Model	Output	Pole	Intermittent Rating	Voltage	Frequency
IBQ	3.5kW	4P	60%ED	380 - 440V	Speed Control by Inverter

Full load characteristics

Voltage	Frequency	380 - 440V	Speed Control by Inverter
Load	%	100	
Current	A	9.2	
Speed	rpm	~	

Insulation class B

The above characteristics are obtained from calculation where the motor is assembled with an electric chain hoist and the hoist is subjected to full load



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Nakakoma-gun, Yamanashi, JAPAN

Quality Assurance Group
Quality Assurance Department
Development & Technology Division

(Manager)

K. Kishimoto

Certificate No.: MM080012c

Date of Issue: 2009/3/4

Messrs. _____

Motor Test Report for Electric Trolley

Motor type : Three phase squirrel cage type induction motor.

Manufacturer : Yasukawa Electric Mfg. Co.

Production No. :

Rating

Model	Output	Pole	Intermittent Rating	Voltage	Frequency
IBQ-T	0.75kW	4P	40%ED	220V	60Hz

Full load characteristics

Voltage Frequency	220V 60Hz	
Load	%	100
Current	A	4.8
Speed	rpm	1700

Insulation class E

The above characteristics are obtained from calculation where the motor is assembled with an electric trolley and the trolley is subjected to full load



2000 Tsuijirai, Showa-cho,
Nakakoma-gun, Yamanashi, JAPAN

Quality Assurance Group
Quality Assurance Department
Development & Technology Division

M. Ogihara (Manager)

Messrs. _____

Motor Test Report for End Carriage

Motor type : Three phase squirrel cage type induction motor.

Manufacturer : Yasukawa Electric Mfg. Co.

Production No. :

Rating

Model	Output	Pole	Intermittent Rating	Voltage	Frequency
IBQ-T	0.75kW	4P	40%ED	380 - 440V	60Hz

Full load characteristics

Voltage Frequency	380 - 440V 60Hz	
Load	%	100
Current	A	3.3
Speed	rpm	1695

Insulation class B

The above characteristics are obtained from calculation where the motor is assembled with an electric chain hoist and the hoist is subjected to full load



2000 Tsujijarai, Showa-cho,
Nakakoma-gun, Yamanashi, JAPAN

Quality Assurance Group
Quality Assurance Department
Development & Technology Division

(Manager)

K. Kishimoto

Messrs. _____

Motor Test Report for Electric Trolley

Motor type : Three phase squirrel cage type induction motor.

Manufacturer : Yasukawa Electric Mfg. Co.

Production No. : -

Rating

Model	Output	Pole	Intermittent Rating	Voltage	Frequency
IBQ-T	0.75kW	4P	27/13%ED	220V	Speed Control by Inverter

Full load characteristics

Voltage Frequency		220V	Speed Control by Inverter
Load	%		100
Current	A		4.8
Speed	rpm		~

Insulation class E

The above characteristics are obtained from calculation where the motor is assembled with an electric trolley and the trolley is subjected to full load



2000 Tsuijirai, Showa-cho,
Nakakoma-gun, Yamanashi, JAPAN

Quality Assurance Group
Quality Assurance Department
Development & Technology Division

M. Ogihara (Manager)

Messrs. _____

Motor Test Report for End Carriage

Motor type : Three phase squirrel cage type induction motor.

Manufacturer : Yasukawa Electric Mfg. Co.

Production No. :

Rating

Model	Output	Pole	Intermittent Rating	Voltage	Frequency
IBQ-T	0.75kW	4P	40%ED	380 - 440V	Speed Control by Inverter

Full load characteristics

Voltage	Frequency	220 - 230V	Speed Control by Inverter
Load	%	100	
Current	A	4.0	
Speed	rpm	~	

Insulation class B

The above characteristics are obtained from calculation where the motor is assembled with an electric chain hoist and the hoist is subjected to full load



2000 Tsuijirai, Showa-cho,
Nakakoma-gun, Yamanashi, JAPAN

Quality Assurance Group
Quality Assurance Department
Development & Technology Division

(Manager)

K. Kishimoto

1) 과부하 방지장치

