



제 2012 - 39812 호

안 전 인 증 서

(사업장명)

극동호이스트(주)

(소 재 지) (425-833) 경기도 안산시 성곡동 630-2 반월공단 B-607-14

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

_____ 품 목 _____

호이스트

_____ 형식, 모델(용량, 등급)/인증번호 _____

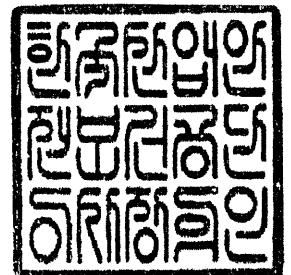
KD10-M (10Ton) / 12-AQ2AC-05015

_____ 인 증 기 준 _____

고용노동부 고시 제2012 - 33호 (위험기계, 기구 의무안전인증 고시)

_____ 인 증 조 건 _____

2012년 12월 07일



한국산업안전보건공단 이사장



심사결과 통지서

신청인	사업장명	극동호이스트(주)	사업장관리번호	134-81-013350
	사업자등록번호	134-81-01335	대표자 성명	최성찬
	소재지	(425 - 833) 경기도 안산시 성곡동630-2 반월공단 B-607-14		
안전인증대상 기계·기구명				
호이스트				
형식 (규격)		KD10-M	용량 (등급)	10 Ton

산업안전보건법 제 34조 및 같은 법 시행규칙 제58조의4에 따라 실시한

[] 예비심사

[√] 서면심사

[] 기술능력 및 생산체계 심사

결과가 [√] 적 합

[] 개별 제품심사

[] 부적합

합을 통지합니다.

[] 개별 제품심사(제작중)

[] 형식별 제품심사

2012년 12월 06일

인증심사원

김흥태 변명수

강 흥 태
(인명 또는 직인)

한국산업안전보건공단 경기서부지도원장



서 면 심 사 서 류

형식 번호 : KD10-M

극 동 호 이 스트 (주)

工場 : 경기도 안산시 단원구 성곡동 630-2 반월공단607-14

電話 : 031) 491 - 5311

산업재해예방 FAX : 031) 494 - 5315

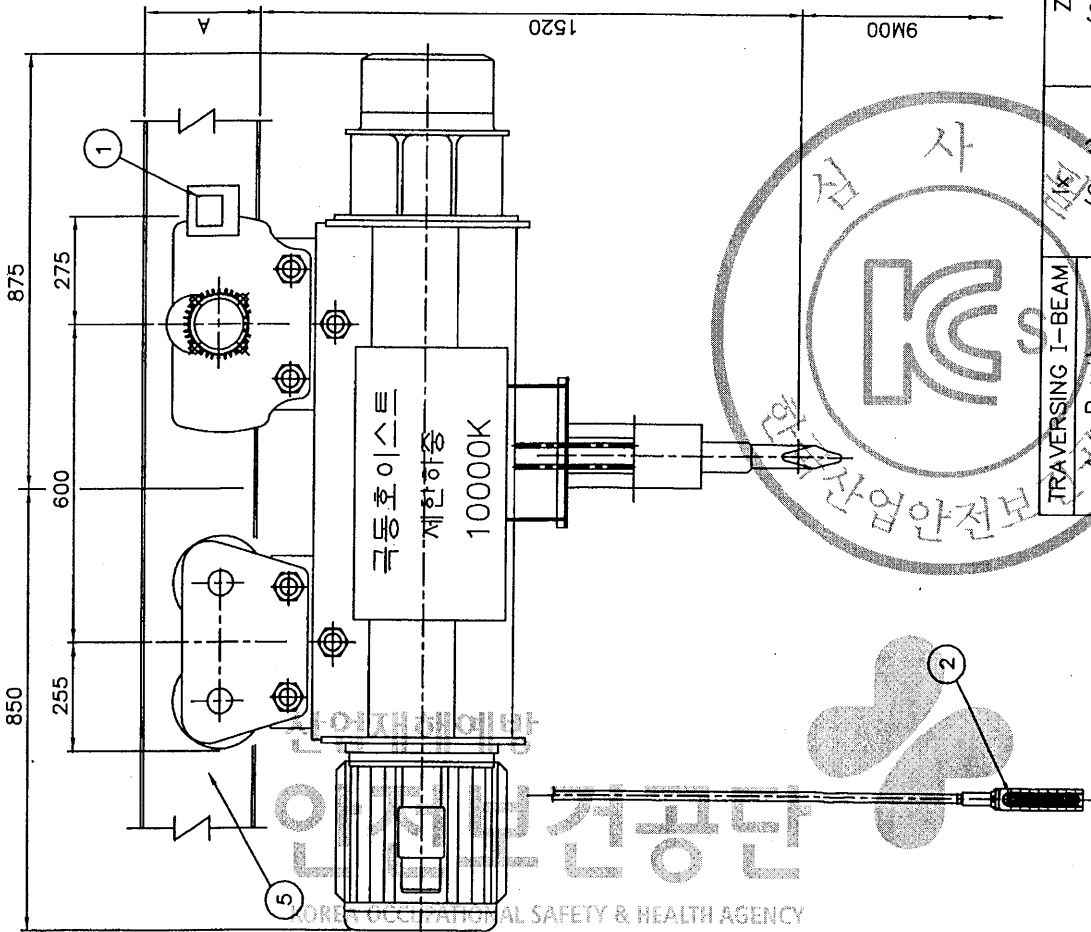
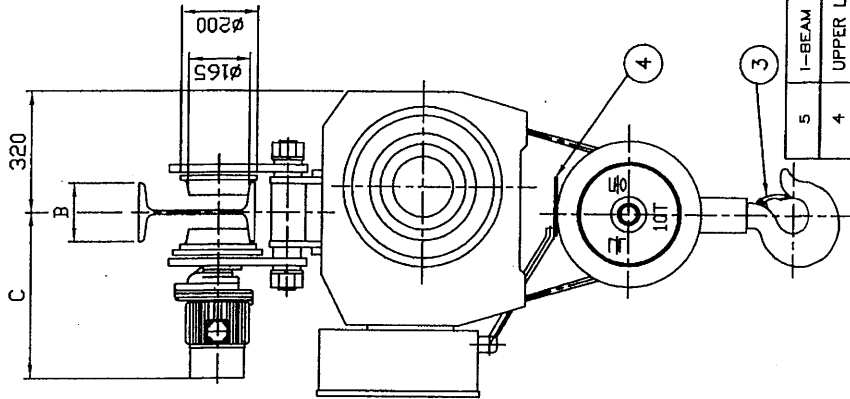
안전보건공단

KOREA OCCUPATIONAL SAFETY & HEALTH AGENCY

노동에 관한 법령

구분		내역		
형식	모델	양정(M)	권상속도(M/MIN)	회행방식
산업재해예방 안전보건공단 KD10-M KOREA OCCUPATIONAL SAFETY & HEALTH AGENCY	KD10-L9-M	9	6.0 4.5 3.0	모터구동식
	KD10-L12-M	12		
	KD10-L18-M	18		
	KD10-L24-M	24		
	KD10-L30-M	30		
	KD10-L9-M-H	9		
	KD10-L12-M-H	12	4.5/0.45	모터구동식
	KD10-L18-M-H	18		
	KD10-L24-M-H	24		
	KD10-L30-M-H	30		
	KDC10-L9-M	9		
	KDC10-L12-M	12		
	KDC10-L18-M	18		
	KDC10-L24-M	24		
	KDC10-L30-M	30		
	KDC10-L9-M-H	9		
	KDC10-L12-M-H	12		
	KDC10-L18-M-H	18		
	KDC10-L24-M-H	24		
	KDC10-L30-M-H	30		
				비고

SPECIFICATION			
HOISTING LOAD	10000	KG	
TESTING LOAD	12500	KG	
LIFT	9	M	
RATING	30	MIN	
HOISTING	H-HIGH	SPEED	6 M/MIN
		MOTOR	13 KW x 6 P
	HIGH	SPEED	4.5 M/MIN
		MOTOR	9 KW x 8 P
LOW		SPEED	3.0 M/MIN
		MOTOR	6.0 KW x 12 P
	HIGH	SPEED	15 M/MIN
		MOTOR	0.75KW x 4 P
TRAVEL-SING	LOW	SPEED	10 M/MIN
		MOTOR	0.5KW x 6 P
	DUAL HIGH	SPEED	15/7.5 M/MIN
		MOTOR	0.8/0.4KW x 4/8 P
DUAL LOW		SPEED	10/5 M/MIN
		MOTOR	0.5/0.25KW x 6/12 P
	WIRE ROPE		(6x37) Ø16 x 4FALLS
	POWER SOURCE		AC3Øx220V(380,440,460,480V)x60Hz
COLOR			10 B 3/5
WEIGHT			1100 KG



TRAVERSING I-BEAM A x B x t	Zx (Cm ⁴)	Zx (Cm ³)	C
I 300x150x10t	2700	849	490
I 350x150x12t	22400	1280	490
I 400x150x10t	24100	1200	490
I 450x175x13t	48800	2170	505
I 600x190x13t	98400	3280	520

NO.	DESCRIPTIONS	M/TL	SET QTY	UNIT	TOTAL WEIGHT KG.	REMARKS
5	I-BEAM	SS400	-			TABLE 참조
4	UPPER LIMIT S/W	SS400	1			
3	SAFETY LATCH	SS400	1			
2	PUSH BUTTON S/W	-	1			
1	LOAD LIMITER	-	1			
PROJECT						
TITLE						
DRAWN						
DESIGNED						
CHECKED						
APPROVED						
REF DRAWING						
SCALE						
A3/15						
DATE						
SHEET NO.						
DRAWING NO.						
KD10M090						



극동호이스트 주식회사
KUK DONG HOIST CO., LTD.



SPECIFICATION			
HOISTING LOAD	10000	KG	
TESTING LOAD	12500	KG	
LIFT	12	M	
RATING	30	MIN	
HOISTING	SPEED	6	M/MIN
	MOTOR	13 KW x 6 P	
	SPEED	4.5	M/MIN
	MOTOR	9 KW x 8 P	
	SPEED	3.0	M/MIN
TRAVER	MOTOR	6.0 KW x 12 P	
	SPEED	15	M/MIN
	MOTOR	0.75KW x 4 P (2UNIT)	
	SPEED	10	M/MIN
	MOTOR	0.5KW x 6 P (2UNIT)	
-SING	SPEED	15/7.5	M/MIN
	MOTOR	0.8/0.4KWx4/8 P(2UNIT)	
	SPEED	10/5	M/MIN
	MOTOR	0.5/0.25KWx6/12 P(2UNIT)	
	(6x37) Ø16 x 4FALLS		
WIRE ROPE	AC3Øx220V(380,440,460,480V)x60Hz		
POWER SOURCE			
COLOR	10 B 3/5		
WEIGHT	1210	KG	

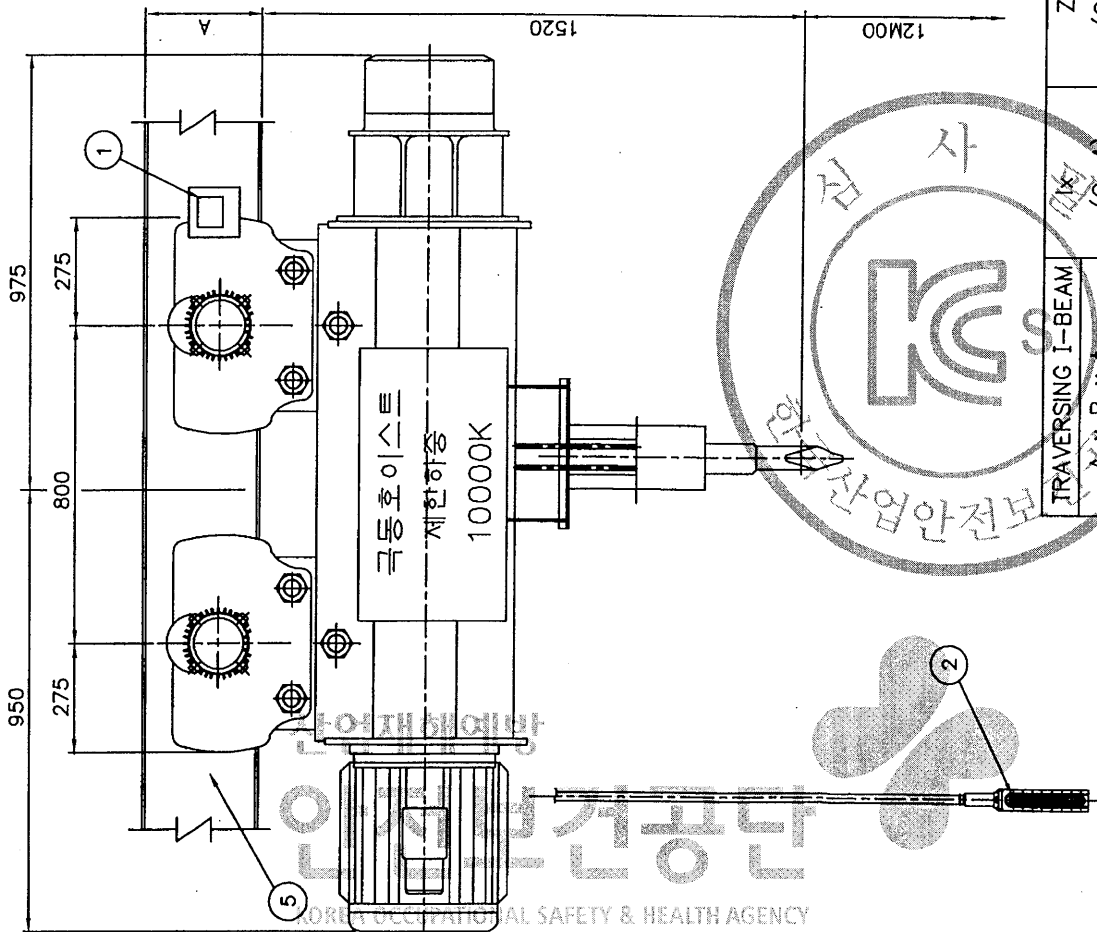
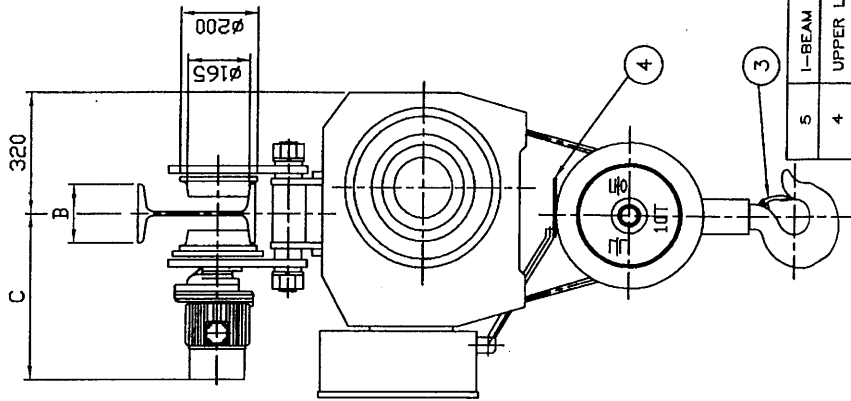


TABLE 참조		REMARKS	
5	I-BEAM	SS400	
4	UPPER LIMIT S/W	SS400	
3	SAFETY LATCH	SS400	
2	PUSH BUTTON S/W	-	
1	LOAD LIMITER	-	
NO.		DESCRIPTIONS	MTL
		SET QTY	UNIT
		TOTAL	WEIGHT KG.
PROJECT		DATE	
TITLE		SCALE	
DRAWN		REF DRAWING	
DESIGNED		APPROVED	
CHECKED		SHEET NO.	
DRAWING NO.		DRAWING NO.	

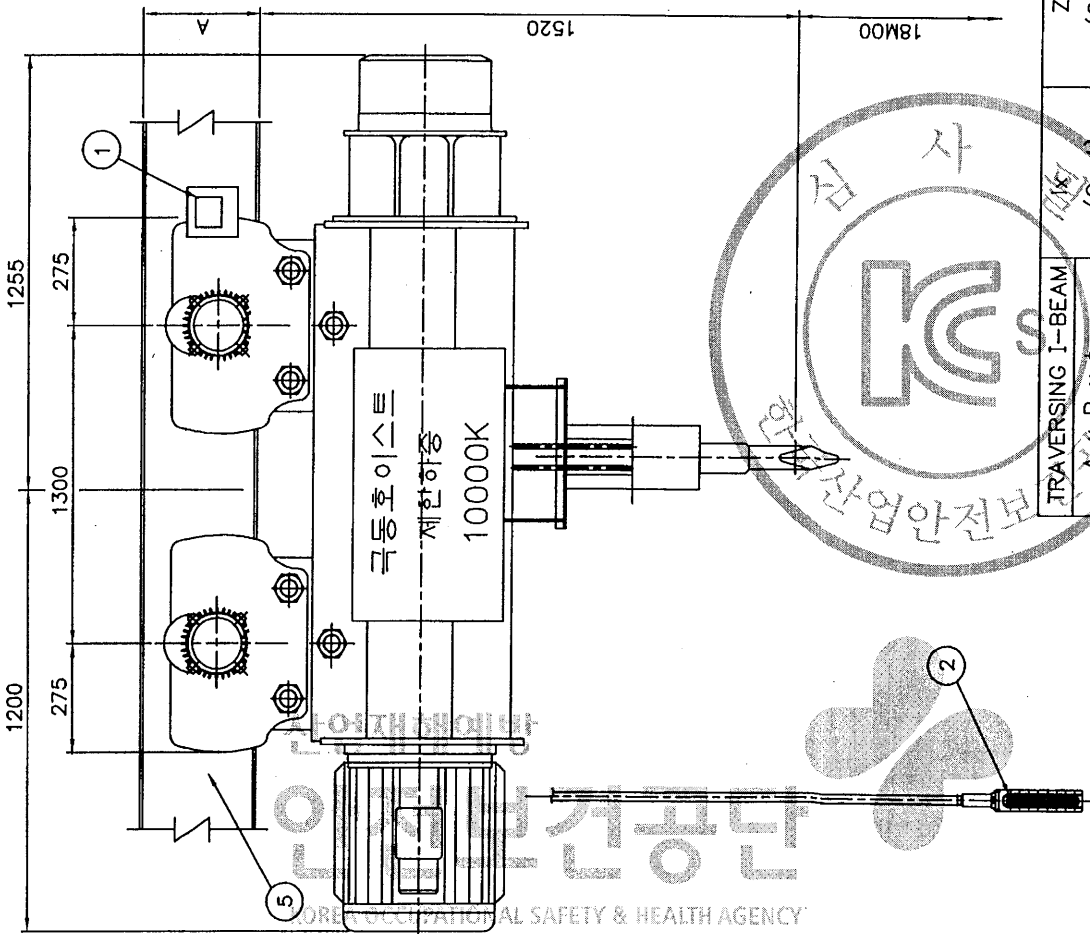
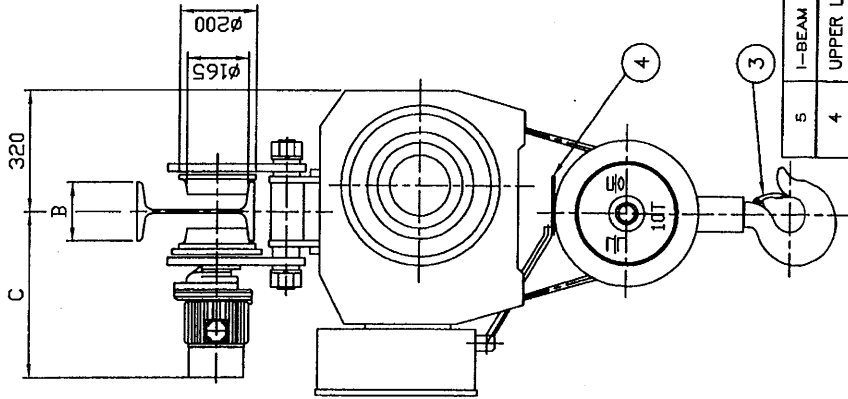
TRAVERSING I-BEAM	Zx (Cm3)	C
A x B x t		
I 300x150x10t	849	490
I 350x150x12t	1280	490
I 400x150x10t	1200	490
I 450x175x13t	2170	505
I 600x190x13t	3280	520



극동호이스트 주식회사
KUK DONG HOIST CO., LTD.



SPECIFICATION			
HOISTING LOAD	10000	KG	
TESTING LOAD	12500	KG	
LIFT	18	M	
RATING	30	MIN	
HOISTING	H-HIGH	SPEED	6 M/MIN
		MOTOR	13 KW x 6 P
	HIGH	SPEED	4.5 M/MIN
		MOTOR	9 KW x 8 P
LOW		SPEED	3.0 M/MIN
		MOTOR	6.0 KW x 12 P
	HIGH	SPEED	15 M/MIN
		MOTOR	0.75KW x 4 P (2UNIT)
TRAVEL -SING	LOW	SPEED	10 M/MIN
		MOTOR	0.5KW x 6 P (2UNIT)
	DUAL	SPEED	15/7.5 M/MIN
	HIGH	MOTOR	0.8/0.4KWx4/8 P(2UNIT)
DUAL		SPEED	10/5 M/MIN
	LOW	MOTOR	0.5/0.25KWx6/12 P(2UNIT)
	(6x37) ϕ 16 x 4FALLS		
	POWER SOURCE AC3 ϕ x220V(380,440,460,480V)x60Hz		
COLOR	10 B 3/5		
WEIGHT	1360 KG		

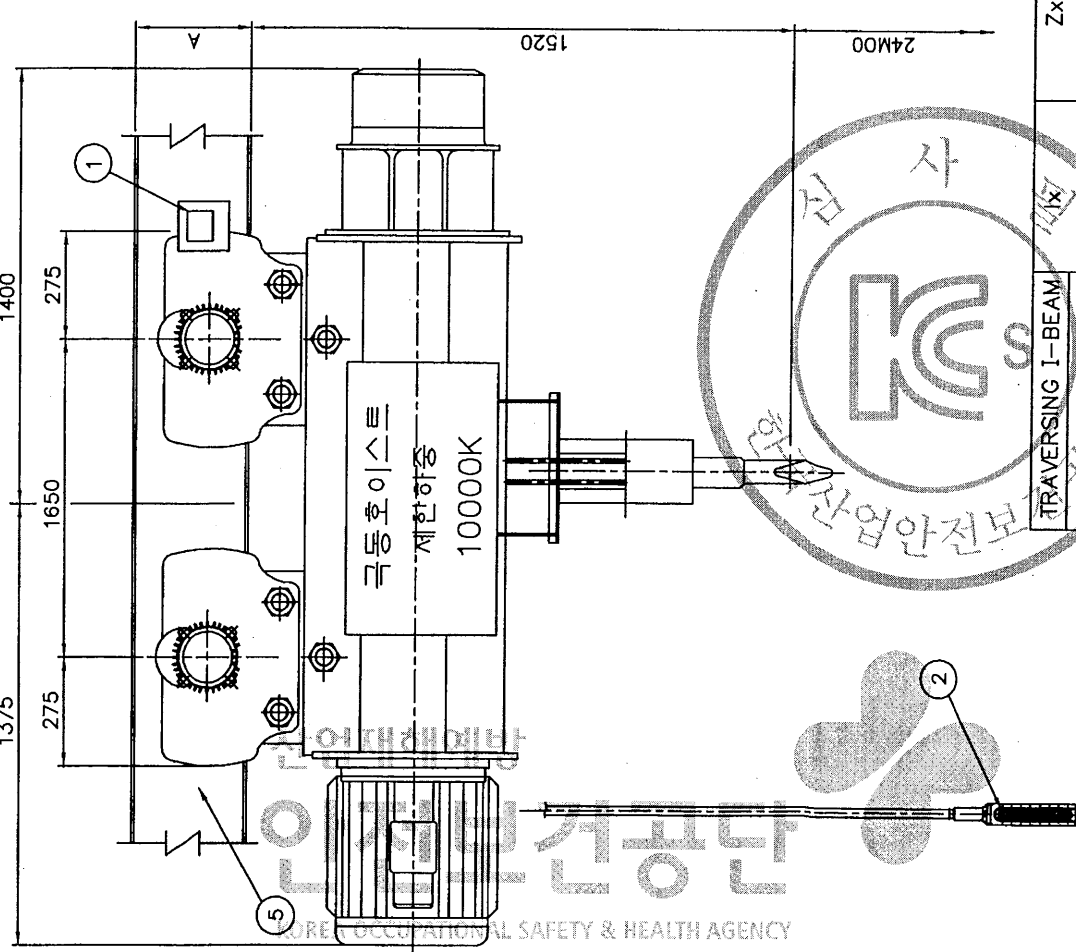
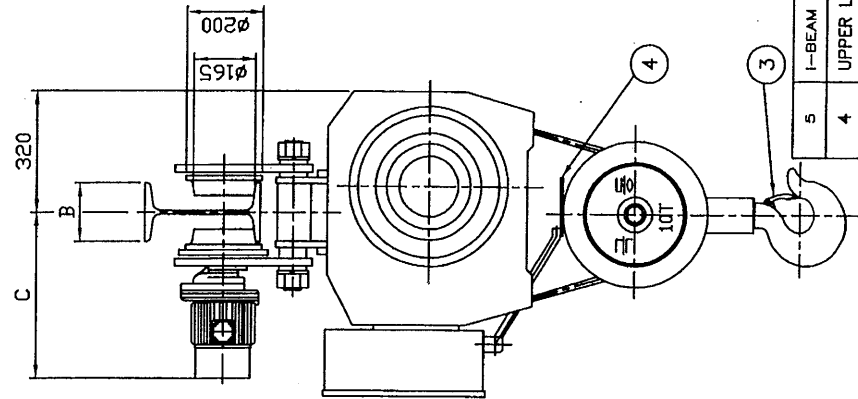


TRAVERSING I-BEAM A x B x t	Zx (Cm ³)	C
I 300x150x10t	12700	490
I 350x150x12t	22400	490
I 400x150x10t	24100	490
I 450x175x13t	48800	505
I 600x190x13t	98400	520

NO.	DESCRIPTIONS	MT'L	SET	UNIT	TOTAL	REMARKS
			QTY	WEIGHT	KG.	
5	I-BEAM	SS400	-			TABLE 참조
4	UPPER LIMIT S/W	SS400	1			
3	SAFETY LATCH	SS400	1			
2	PUSH BUTTON S/W	-	1			
1	LOAD LIMITER	-	1			

PROJECT	DATE		
TITLE	SCALE		
DRAWN	DESIGNED	CHECKED	APPROVED
ARRANGEMENT DRAWING FOR HOIST			
REF DRAWING			
SHEET NO. DRAWING NO.			
KUK DONG HOIST CO., LTD.			
KDD			
극동호이스트 주식회사			
KD10M1800			





SPECIFICATION			
HOISTING LOAD	10000	KG	
TESTING LOAD	12500	KG	
LIFT	24	M	
RATING	30	MIN	
HOISTING	H-HIGH	SPEED	6 M/MIN
		MOTOR	13 KW x 6 P
	HIGH	SPEED	4.5 M/MIN
		MOTOR	9 KW x 8 P
LOW		SPEED	3.0 M/MIN
		MOTOR	6.0 KW x 12 P
	HIGH	SPEED	15 M/MIN
		MOTOR	0.75KW x 4 P (2UNIT)
TRAVEL -SING	LOW	SPEED	10 M/MIN
		MOTOR	0.5KW x 6 P (2UNIT)
	DUAL	SPEED	15/7.5 M/MIN
	HIGH	MOTOR	0.8/0.4KWx4/8 P(2UNIT)
WIRE ROPE	DUAL	SPEED	10/5 M/MIN
	LOW	MOTOR	0.5/0.25KWx6/12 P(2UNIT)
			(6x37) Ø16 x 4FALLS
			AC3Øx220V(380,440,460,480V)x60Hz
POWER SOURCE			
COLOR			10 B 3/5
WEIGHT			1490 KG

TABLE 참조			
5	I-BEAM	SS400	-
4	UPPER LIMIT S/W	SS400	1
3	SAFETY LATCH	SS400	1
2	PUSH BUTTON S/W	-	1
1	LOAD LIMITER	-	1
NO.	DESCRIPTIONS	MTL	SET SET QTY
			UNIT TOTAL
			WEIGHT KG.
			REMARKS

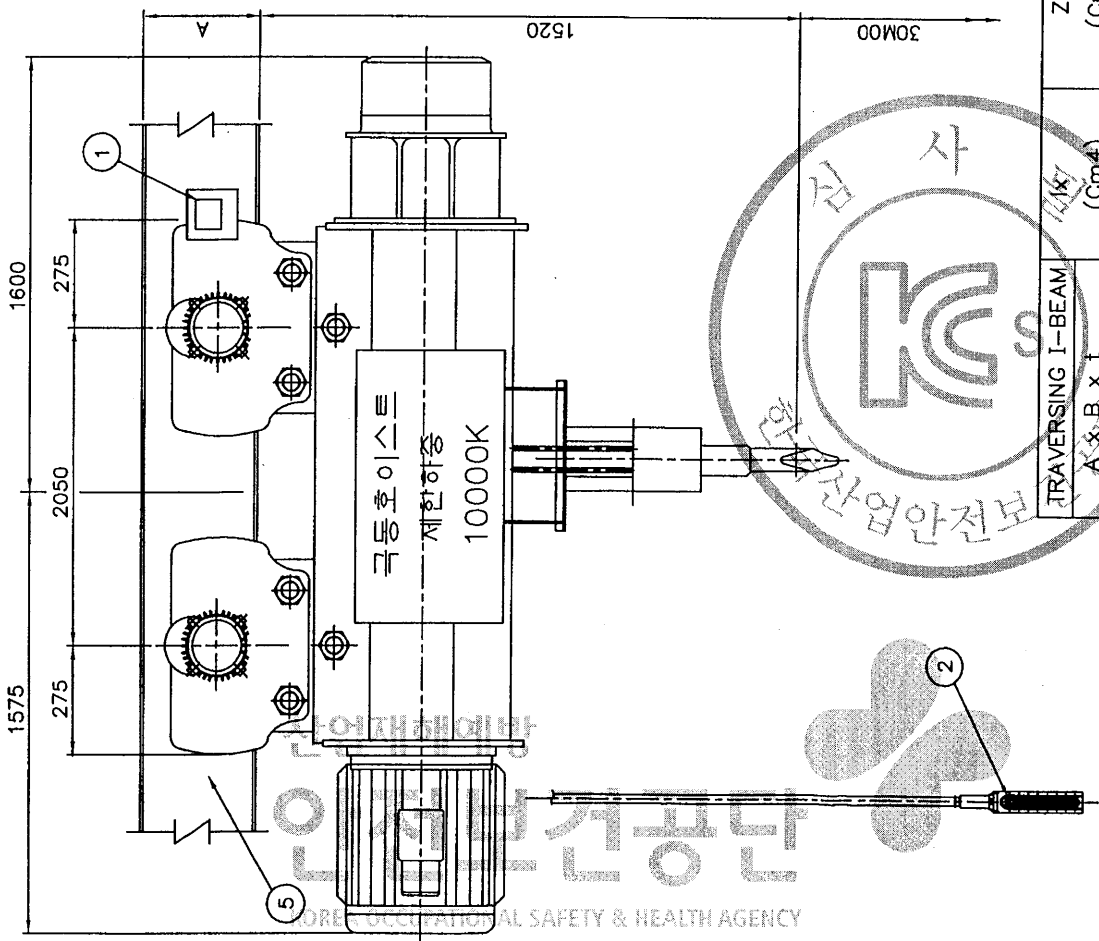
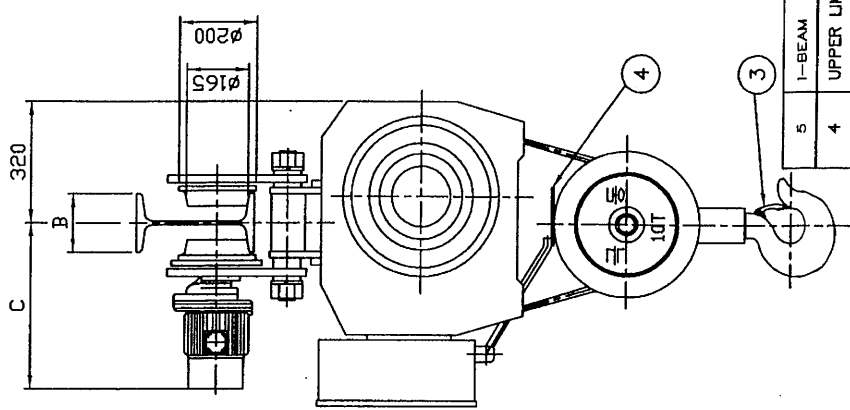
PROJECT	DATE	
TITLE	KD10-L24-M	
ARRANGEMENT DRAWING FOR HOIST	SCALE	
DESIGNED	CHECKED	APPROVED
REF DRAWING	A3/15 /	
SHEET NO.	DRAWING NO.	
	KD10M2400	

극동호이스트 주식회사
KUK DONG HOIST CO., LTD.

TRAVERSING I-BEAM		Zx (Cm ³)	C
A x B x t	I x (Cm ⁴)		
I 300x150x10t	12700	849	490
I 350x150x12t	22400	1280	490
I 400x150x10t	24100	1200	490
I 450x175x13t	48800	2170	505
I 600x190x13t	98400	3280	520



SPECIFICATION			
HOISTING LOAD	10000	KG	
TESTING LOAD	12500	KG	
LIFT	30	M	
RATING	30	MIN	
HOISTING	H-HIGH	SPEED	6 M/MIN
		MOTOR	13 KW x 6 P
	HIGH	SPEED	4.5 M/MIN
		MOTOR	9 KW x 8 P
LOW		SPEED	3.0 M/MIN
		MOTOR	6.0 KW x 12 P
	HIGH	SPEED	15 M/MIN
		MOTOR	0.75KW x 4 P (2UNIT)
TRAVER-SING	LOW	SPEED	10 M/MIN
		MOTOR	0.5KW x 6 P (2UNIT)
	DUAL HIGH	SPEED	15/7.5 M/MIN
		MOTOR	0.8/0.4KWx4/8 P(2UNIT)
DUAL LOW		SPEED	10/5 M/MIN
		MOTOR	0.5/0.25KWx6/12 P(2UNIT)
	WIRE ROPE		(6x37) ϕ 16 x 4FALLS
	POWER SOURCE		AC3 ϕ x220V(380,440,460,480V)x60Hz
COLOR			10 B 3/5
WEIGHT			1630 KG



TRAVERSING I-BEAM A x B x t (Cm4)	Zx (Cm3)	C
I 300x150x10t	849	490
I 350x150x12t	1280	490
I 400x150x10t	1200	490
I 450x175x13t	2170	505
I 600x190x13t	3280	520

TABLE 참조									
5	I-BEAM	SS400		—					
4	UPPER LIMIT S/W	SS400		1					
3	SAFETY LATCH	SS400		1					
2	PUSH BUTTON S/W	—		1					
1	LOAD LIMITER	—		1					
NO.	DESCRIPTIONS	MTL	SET/SET	QTY	UNIT	TOTAL		REMARKS	
						WEIGHT	KG.		
PROJECT						DATE			
TITLE		KD10-L30-M				SCALE			
		ARRANGEMENT DRAWING FOR HOIST				A3/15 /			
DRAWN		DESIGNED	CHECKED	APPROVED	REF DRAWING				
						SHEET NO.		DRAWING NO.	
		극동호이스트 주식회사				KD10M3000			
		KUK DONG HOIST CO., LTD.							

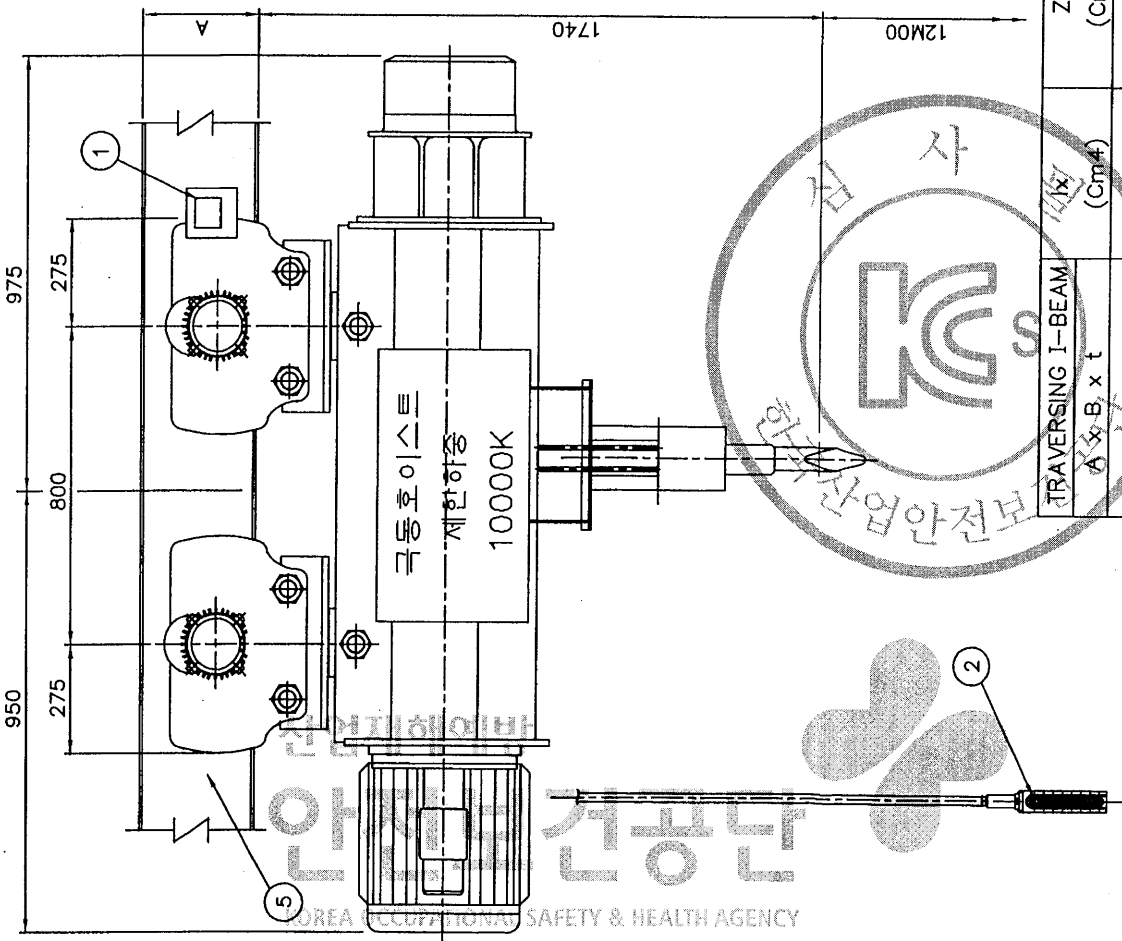
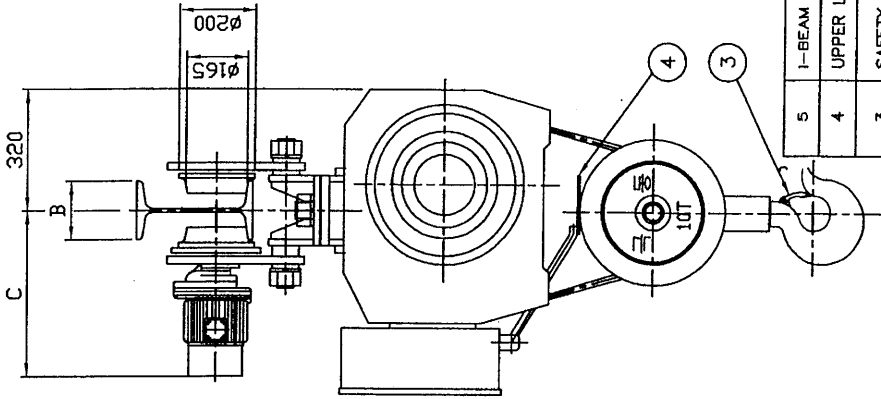




	TABLE 참조								
5	I-BEAM	SS400	-						
4	UPPER LIMIT S/W	SS400	1						
3	SAFETY LATCH	SS400	1						
2	PUSH BUTTON S/W	-	1						
1	LOAD LIMITER	-	1						
NO.	DESCRIPTIONS	M'TL	SET QTY	UNIT	TOTAL WEIGHT KG.		REMARKS		
PROJECT							DATE		
TITLE	KD10-L9-M-H ARRANGEMENT DRAWING FOR HOIST						SCALE A3 / 15 /		
DRAWN	DESIGNED	CHECKED	APPROVED				REF. DRAWING		
							SHEET NO.	DRAWING NO.	
							KUK DONG HOIST CO., LTD.		
극동호이스트 주식회사							KD10M0900H		

TRAVERSING I-BEAM	A x B x t	Vx (Cm ⁴)	Zx (Cm ³)	C
I 300x150x10t		12700	849	490
I 350x150x12t		22400	1280	490
I 400x150x10t		24100	1200	490
I 450x175x13t		48800	2170	505
I 600x190x13t		98400	3280	520

SPECIFICATION			
HOISTING LOAD	10000	KG	
TESTING LOAD	12500	KG	
LIFT	12	M	
RATING	30	MIN	
	SPEED	6 M/MIN	
HOISTING	MOTOR	13 KW x 6 P	
	SPEED	4.5 M/MIN	
	MOTOR	9 KW x 8 P	
	SPEED	3.0 M/MIN	
TRAVEL	MOTOR	6.0 KW x 12 P	
	SPEED	15 M/MIN	
	MOTOR	0.75KW x 4 P (2UNIT)	
	SPEED	10 M/MIN	
WIRE ROPE	MOTOR	0.5KW x 6 P (2UNIT)	
	SPEED	15/7.5 M/MIN	
	MOTOR	0.8/0.4KWx4/8 P(2UNIT)	
	SPEED	10/5 M/MIN	
POWER SOURCE	MOTOR	0.5/0.25KWx6/12 P(2UNIT)	
	(6x37) Ø16 x 4FALLS		
	AC3Øx220V(380,440,460,480V)x60Hz		
	COLOR	10 B 3/5	
WEIGHT		1210	KG

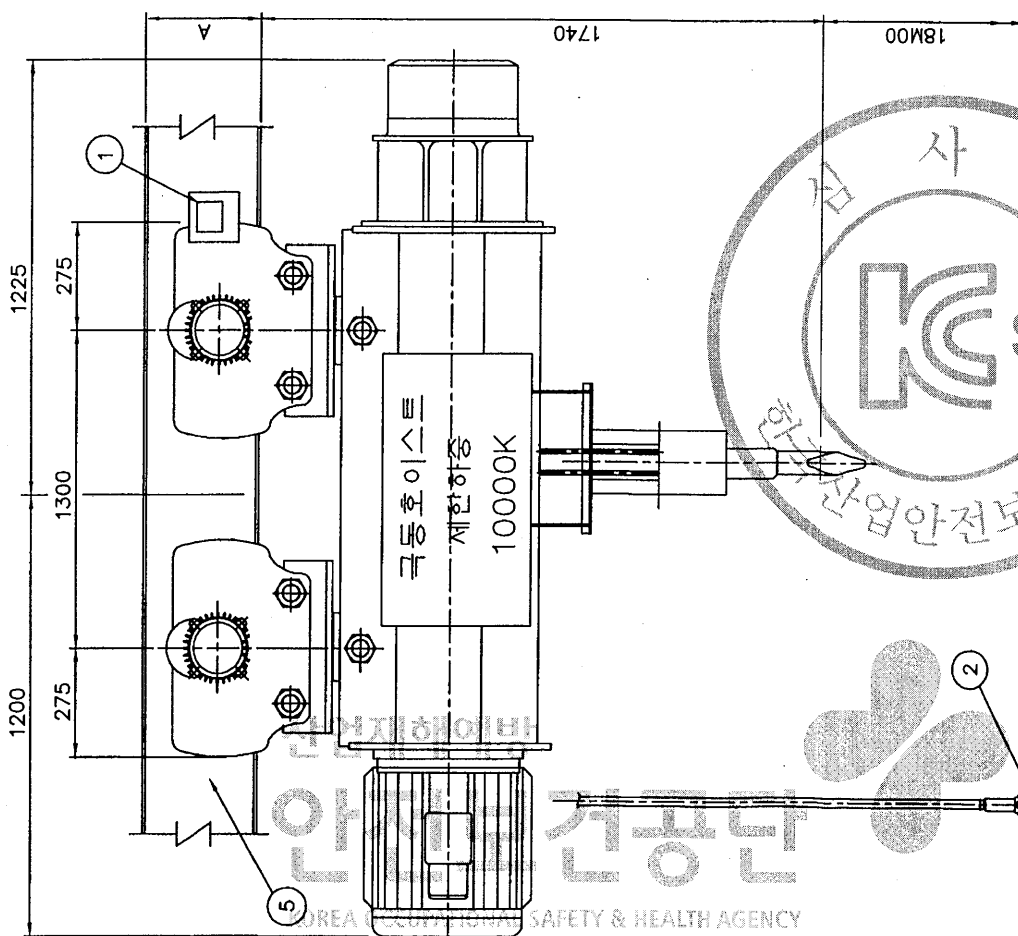


NO.	DESCRIPTIONS	M/L	SET		REMARKS
			QTY	UNIT	
5	1-BEAM	SS400	-		
4	UPPER LIMIT S/W	SS400	1		
3	SAFETY LATCH	SS400	1		
2	PUSH BUTTON S/W	-	1		
1	LOAD LIMITER	-	1		
TOTAL				WEIGHT KG.	

PROJECT	DATE	
TITLE	SCALE	
DRAWN	DESIGNED	CHECKED
APPROVED	APPROVED	REF. DRAWING
DRAWING NO.		
KUK DONG HOIST CO., LTD.		
KD10M1200H		

TRAVERSING I-BEAM	Zx (Cm3)	C
I 300x150x10t	849	490
I 350x150x12t	1280	490
I 400x150x10t	1200	490
I 450x175x13t	2170	505
I 600x190x13t	3280	520



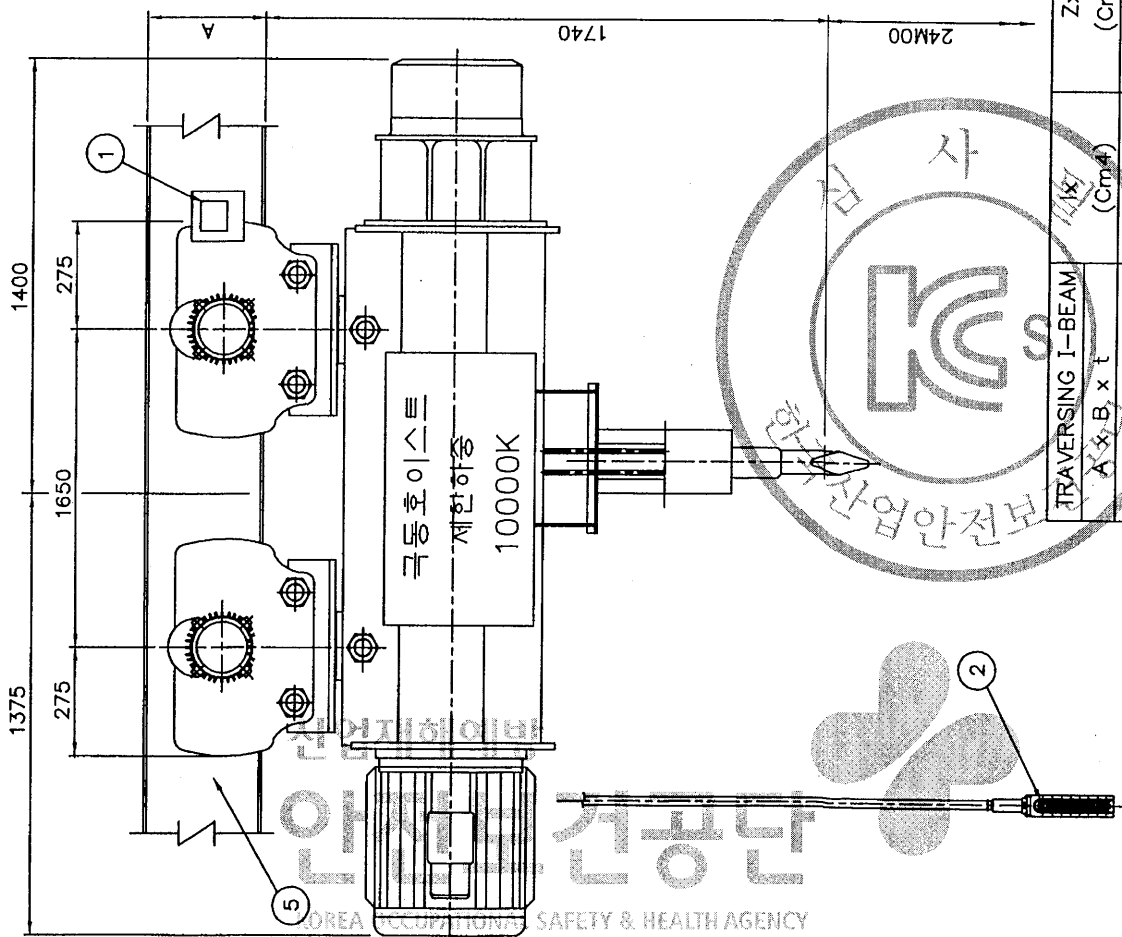
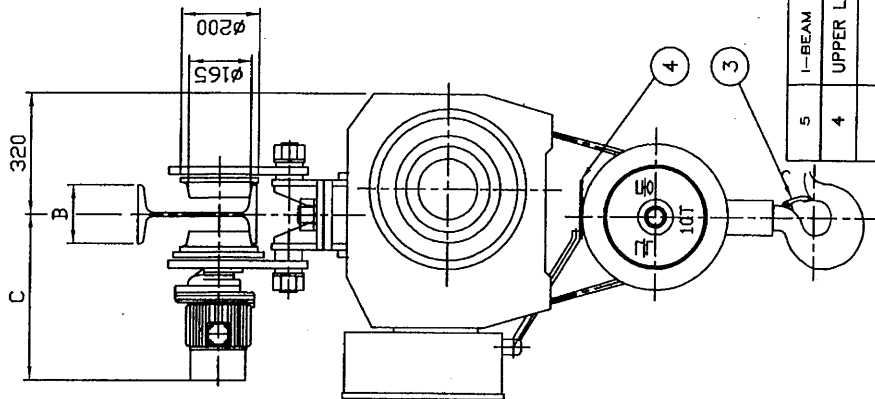


NO.	DESCRIPTIONS	M'T'L	SET	UNIT	TOTAL	REMARKS
			QTY	WEIGHT KG		
5	I-BEAM		SS400	-		TABLE 참조
4	UPPER LIMIT S/W		SS400	1		
3	SAFETY LATCH		SS400	1		
2	PUSH BUTTON S/W		-	1		
1	LOAD LIMITER		-	1		

PROJECT	TITLE	KD10-L18-M-H				DATE
		ARRANGEMENT DRAWING FOR HOIST				
DRAWN	DESIGNED	CHECKED	APPROVED	SCALE		REF. DRAWING
				A3/15 /		
 국동호이스트 주식회사 KUK DONG HOIST CO., LTD.				SHEET NO.	DRAWING NO.	KD10M1800H

TRAVERSING I-BEAM A x B x t	$\dot{V}$ (Cm ⁴)	Zx (Cm ³)	C
I 300x150x10t	12700	849	490
I 350x150x12t	22400	1280	490
I 400x150x10t	24100	1200	490
I 450x175x13t	48800	2170	505
I 600x190x13t	98400	3280	520

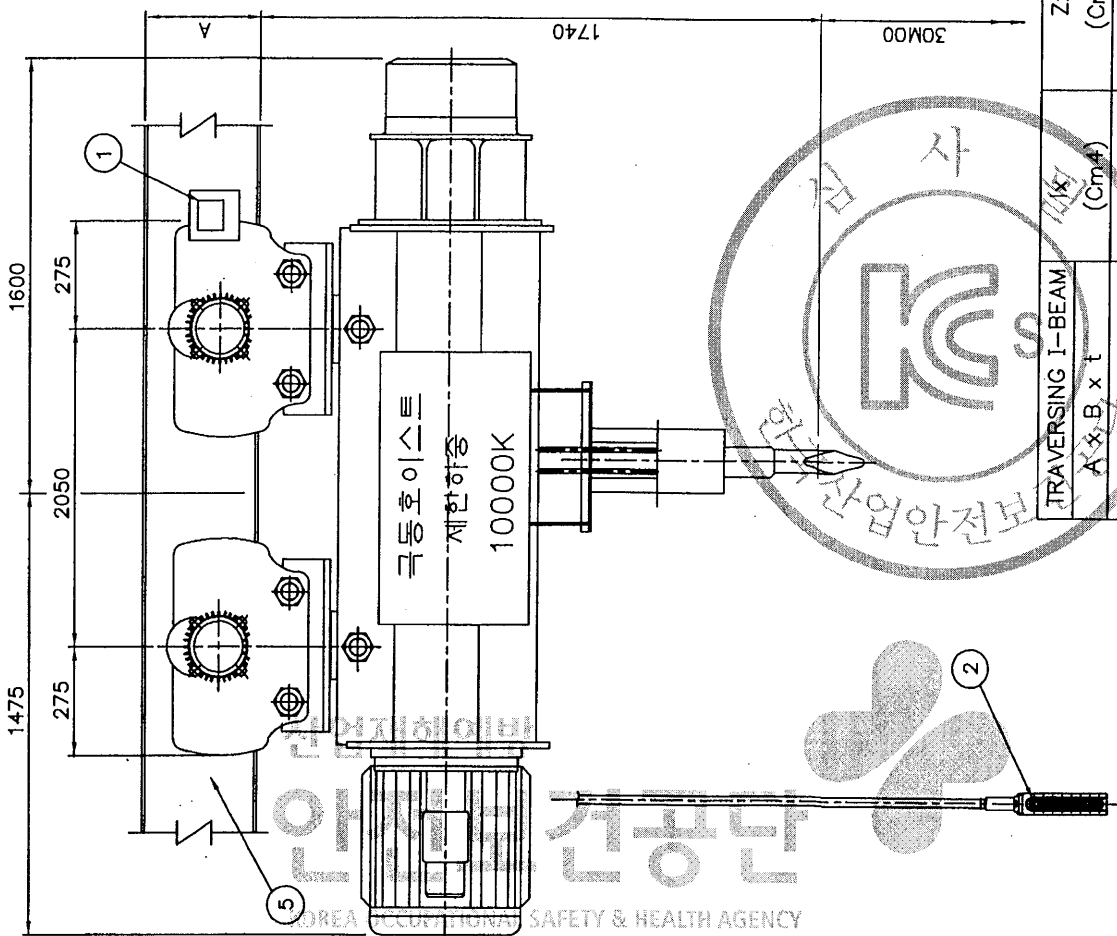
SPECIFICATION			
HOISTING LOAD	10000	KG	
TESTING LOAD	12500	KG	
LIFT	24	M	
RATING	30	MIN	
HOISTING	SPEED	6	M/MIN
	MOTOR	13 KW x 6 P	
	SPEED	4.5	M/MIN
	MOTOR	9 KW x 8 P	
LOW	SPEED	3.0	M/MIN
	MOTOR	6.0 KW x 12 P	
	SPEED	15	M/MIN
	MOTOR	0.75KW x 4 P (2UNIT)	
TRAVER-SING	SPEED	10	M/MIN
	MOTOR	0.5KW x 6 P (2UNIT)	
	SPEED	15/7.5	M/MIN
	MOTOR	0.8/0.4KWx4/8 P(2UNIT)	
DUAL LOW	SPEED	10/5	M/MIN
	MOTOR	0.5/0.25KWx6/12 P(2UNIT)	
	(6x37) Ø16 x 4FALLS		
	AC3Øx220V(380,440,460,480V)x60Hz		
WIRE ROPE			
POWER SOURCE			
COLOR	10 B 3/5		
WEIGHT	1490 KG		



TRAVERSING I-BEAM	Zx (Cm3)	C
I 300x150x10t	849	490
I 350x150x12t	1280	490
I 400x150x10t	1200	490
I 450x175x13t	2170	505
I 600x190x13t	3280	520

NO.	DESCRIPTIONS	M/TL	SET/SET QTY	UNIT	TOTAL WEIGHT KG.	REMARKS
5	I-BEAM	SS400	-			TABLE 참조
4	UPPER LIMIT S/W	SS400	1			
3	SAFETY LATCH	SS400	1			
2	PUSH BUTTON S/W	-	1			
1	LOAD LIMITER	-	1			
PROJECT						
TITLE						
DRAWN						
DESIGNED						
CHECKED						
APPROVED						
DATE						
SCALE						
ARRANGEMENT DRAWING FOR HOIST						
A3/15						
REF DRAWING						
SHEET NO.						
DRAWING NO.						
KUK DONG HOIST CO., LTD.						
KD10M2400H						





5	1-BEAM	SS400	-			TABLE 참조
4	UPPER LIMIT S/W	SS400	1			
3	SAFETY LATCH	SS400	1			
2	PUSH BUTTON S/W	-	1			
1	LOAD LIMITER	-	1			
NO.	DESCRIPTIONS	M'T'L	SET	UNIT	TOTAL	REMARKS
			QTY	WEIGHT KG		

TRAVERSING I-BEAM	$\frac{A \times B}{C}$	Zx (Cm ³)	C
A x B x t	(Cm ⁴)		
I 300x150x10t	12700	849	490
I 350x150x12t	22400	1280	490
I 400x150x10t	24100	1200	490
I 450x175x13t	48800	2170	505
I 600x190x13t	98400	3280	520

PROJECT	KD10-L30-M-H				DATE	
TITLE	ARRANGEMENT DRAWING FOR HOIST				SCALE	
					A3 / 15 /	
DRAWN	DESIGNED	CHECKED	APPROVED		REF DRAWING	
 국동호이스트 주식회사 KUK DONG HOIST CO., LTD.					DRAWING NO.	
					KD10M3000H	

[illegible][illegible]

DESCRIPTION	SYMBOLS	DESCRIPTION	SYMBOLS	DESCRIPTION	SYMBOLS	DESCRIPTION	SYMBOLS
WIRE INTERNAL TO ENCLOSURE		CONTROLLER OR REMOTE CONTROLLER CONTACTOR		SOLENOID COIL		FLOOD LIGHTING	
WIRE EXTERNAL TO ENCLOSURE		UPPER LIMIT SWITCH (LS-II)		RESISTER		RECEPTACLE	
WIRE NOT CONNECTED		THERMAL RELAY		VARIABLE RESISTOR			
WIRE CONNECTED		PILOT(SIGNAL) LAMP		SLIP RING			
TERMINAL		ROTARY LAMP		CABLE REEL			
GROUND (EARTH)		WARNING SIREN		SPACE HEATER			
PLUG & RECEPTACLE		BUZZER		SURGE ABSORBER			
MAGNETIC CONTACTOR COIL		AMMETER		LOAD CELL			
AUX. RELAY COIL		VOLT METER		BALLAST WITH RECEPTACLE			
TIMER COIL		FLUORESCENCE LAMP		FAN			

[illegible]

ELECTRICAL SPECIFICATION

POWER SOURCE : AC 3Φ 220V, 380V, 440V, 460V, 480V 60Hz
 CONTROL SOURCE : AC 1Φ 110V, 120V 60Hz

OBJECT	MOTOR OUTPUT	220V		380V		440V	460V	480V	440, 460, 480V	BRAKE	REMARK
		STATOR CURRENT	1st CABLE SIZE	STATOR CURRENT	1st CABLE SIZE	STATOR CURRENT	STATOR CURRENT	STATOR CURRENT	1st CABLE SIZE		
HIGHOIST	H-HIGH	53.0 A	16.0 sq	30.7 A	16.0 sq	26.5 A	25.4 A	24.3 A	10.0 sq	DC MAG. BRAKE	
	HIGH	45.0 A	16.0 sq	26.0 A	16.0 sq	22.5 A	21.5 A	20.6 A	10.0 sq	DC MAG. BRAKE	
	LOW	45.4 A	16.0 sq	26.3 A	16.0 sq	22.7 A	21.9 A	21.2 A	10.0 sq	DC MAG. BRAKE	
TRAVERSING	HIGH	4.10 A	4.0 sq	2.40 A	4.0 sq	2.00 A	2.00 A	1.90 A	4.0 sq	DC MAG. BRAKE	1 DRIVE
	LOW	3.40 A	4.0 sq	2.00 A	4.0 sq	1.70 A	1.70 A	1.60 A	4.0 sq	DC MAG. BRAKE	1 DRIVE
	HIGH/LOW	4.80 A	4.0 sq	2.78 A	4.0 sq	2.40 A	2.30 A	2.30 A	4.0 sq	DC MAG. BRAKE	1 DRIVE
CONTROL CIRCUIT	HIGH/LOW	3.20 A	4.0 sq	1.85 A	4.0 sq	1.60 A	1.50 A	1.40 A	4.0 sq	DC MAG. BRAKE	1 DRIVE
	CONTROL CIRCUIT	2 A	2.5 sq	2 A	2.5 sq	2 A	2 A	2 A	2.5 sq		
LIGHTING & ACC'Y CIRCUIT											
SUB TOTAL (NORMAL LOAD)	H-HIGH	57.10 A	25.0 sq	33.10 A	16.0 sq	28.50 A	27.40 A	26.20 A	10.0 sq	I(A)=M/H + T/S + ASS'Y	
	HIGH	49.10 A	25.0 sq	28.40 A	16.0 sq	24.50 A	23.50 A	22.50 A	10.0 sq	I(A)=M/H + T/S + ASS'Y	
	LOW	48.80 A	25.0 sq	28.30 A	16.0 sq	24.40 A	23.60 A	22.80 A	10.0 sq	I(A)=M/H + T/S + ASS'Y	
SUB TOTAL (PEAK LOAD)	H-HIGH	59.10 A	25.0 sq	35.10 A	16.0 sq	30.50 A	29.40 A	28.20 A	10.0 sq	I(A)=M/H + T/S + ASS'Y	
	HIGH	51.10 A	25.0 sq	30.40 A	16.0 sq	26.50 A	25.50 A	24.50 A	10.0 sq	I(A)=M/H + T/S + ASS'Y	
	LOW	50.80 A	25.0 sq	30.30 A	16.0 sq	26.40 A	25.60 A	24.80 A	10.0 sq	I(A)=M/H + T/S + ASS'Y	

*. 위 계산은 H-HIGH(MAX.)일때와 HIGH(MAX.)일때와 LOW(MIN.)일때만 계산한것임.

*. 위 계산은 LIFT 9M에 적용.

ELECTRICAL SPECIFICATION

POWER SOURCE : AC 3Φ 220V, 380V, 440V, 460V, 480V 60Hz
 CONTROL SOURCE : AC 1Φ 110V, 120V 60Hz

OBJECT	MOTOR OUTPUT	220V		380V		440V	460V	480V	440, 460, 480V	BRAKE	REMARK
		STATOR CURRENT	1st CABLE SIZE	STATOR CURRENT	1st CABLE SIZE	STATOR CURRENT	STATOR CURRENT	STATOR CURRENT	1st CABLE SIZE		
HIGH HOIST	H-HIGH	53.0 A	16.0 sq	30.7 A	16.0 sq	26.5 A	25.4 A	24.3 A	10.0 sq	DC MAG. BRAKE	
	HIGH	45.0 A	16.0 sq	26.0 A	16.0 sq	22.5 A	21.5 A	20.6 A	10.0 sq	DC MAG. BRAKE	
	LOW	45.4 A	16.0 sq	26.3 A	16.0 sq	22.7 A	21.9 A	21.0 A	10.0 sq	DC MAG. BRAKE	
TRAVERSING	HIGH	4.10 A	4.0 sq	2.40 A	4.0 sq	2.00 A	2.00 A	1.90 A	4.0 sq	DC MAG. BRAKE	2 DRIVE
	LOW	3.40 A	4.0 sq	2.00 A	4.0 sq	1.70 A	1.70 A	1.60 A	4.0 sq	DC MAG. BRAKE	2 DRIVE
	HIGH/LOW	4.80 A	4.0 sq	2.78 A	4.0 sq	2.40 A	2.30 A	2.30 A	4.0 sq	DC MAG. BRAKE	2 DRIVE
	HIGH/LOW	3.20 A	4.0 sq	1.85 A	4.0 sq	1.60 A	1.50 A	1.40 A	4.0 sq	DC MAG. BRAKE	2 DRIVE
CONTROL CIRCUIT		2 A	2.5 sq	2 A	2.5 sq	2 A	2 A	2 A	2.5 sq		
LIGHTING & ACC'Y CIRCUIT											
SUB TOTAL (NORMAL LOAD)	H-HIGH	61.20 A	25.0 sq	33.10 A	16.0 sq	30.50 A	29.40 A	28.10 A	10.0 sq	I(A)=M/H + T/S + ASS'Y	
	HIGH	58.20 A	25.0 sq	28.40 A	16.0 sq	26.50 A	25.50 A	24.40 A	10.0 sq	I(A)=M/H + T/S + ASS'Y	
	LOW	52.20 A	25.0 sq	30.30 A	16.0 sq	24.40 A	25.30 A	24.20 A	10.0 sq	I(A)=M/H + T/S + ASS'Y	
SUB TOTAL (PEAK LOAD)	H-HIGH	63.20 A	25.0 sq	35.10 A	16.0 sq	32.50 A	31.40 A	30.10 A	10.0 sq	I(A)=M/H + T/S + ASS'Y	
	HIGH	55.20 A	25.0 sq	30.40 A	16.0 sq	28.50 A	27.50 A	26.40 A	10.0 sq	I(A)=M/H + T/S + ASS'Y	
	LOW	54.20 A	25.0 sq	32.30 A	16.0 sq	28.10 A	27.30 A	26.20 A	10.0 sq	I(A)=M/H + T/S + ASS'Y	

*. 위 계산은 H-HIGH(MAX.) 일때와 HIGH(MAX.) 일때와 LOW(MIN.) 일때만 계산한것임.

*. 위 계산은 LIFT 12, 18, 24, 30M에 적용.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
NO															DESCRIPTION				
1															MAIN EARTH LINE				
2															POWER SOURCE				
3															TROLLEY BAR				
4															POWER SOURCE WITH EARTH				
5															HOST POWER SOURCE WITH EARTH				
6															HOISTING MOTOR WITH EARTH				
7															TRAVERSING MOTOR WITH EARTH				

* CV CABLE 4C중 1C는 EARTH로 사용함.

- NOTE -

1. 전동기 외함, 제어반의 프레임 등은 접지하여 그 접지 저항은

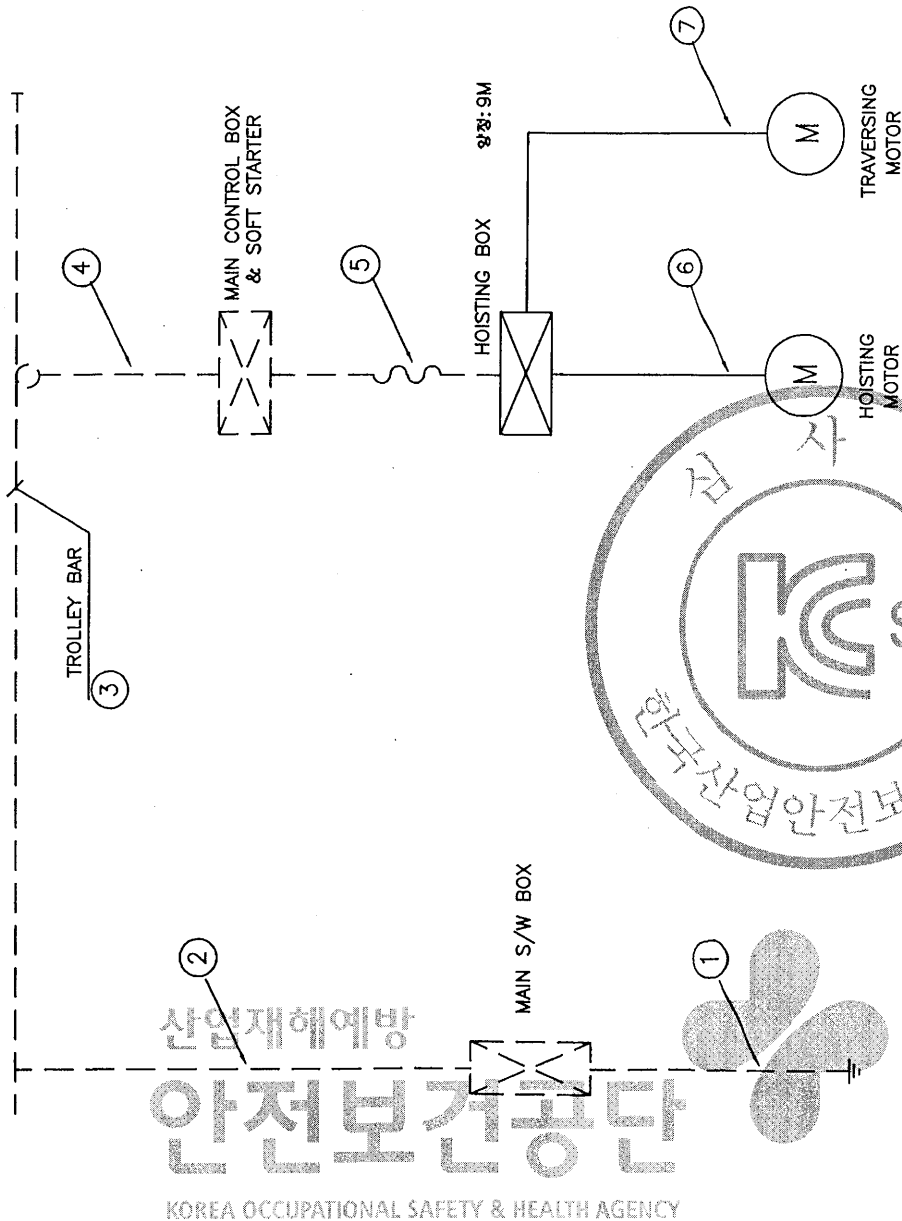
400V 미만 : 100옴 이하일것.(3중 접지)

400V 이상 : 10옴을 이하일것.(복 3중접지)

2.MAIN S/W BOX는 3중 접지 요.

USER SCOPE

KUKDONG SCOPE



동전위접지

1. 전기장비와 기계의 노출된 모든 도전부분은 보호접지회로에 연결되어야 하며 적절한 접지연속성 기능이 유지되어야 함.

2. 보호접지회로에는 개폐기, 과전류보호장치가 부착되지 않아야 한다.

시험대상 전선의 최소 유효단면적	최고전압강하(V)
1.0	3.3
1.5	2.6
2.5	1.6
4.0	1.4
>6.0	1.0

DRAWING	DESIGN	CHECKED	APPROVED	SCALE	DATE	ORDER NO.
				NONE		
KUKDONG HOIST CO., LTD.						DWG. NO.
KUKDONG HOIST CO., LTD.						
EARTH DETAILS DRAWING						
CUSTOMER						
DRAWING TITLE						
REVISIONS						
CHK.						
APP.						
DATE						

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
															NO	DESCRIPTION	CABLE SIZE		
															1	MAIN EARTH LINE	USER SCOPE		
															2	POWER SOURCE	USER SCOPE		
															3	TROLLEY BAR	USER SCOPE		
															4	POWER SOURCE WITH EARTH	USER SCOPE		
															5	HOST POWER SOURCE WITH EARTH	VCT 25(16,10)SQ x 1C		
															6	HOISTING MOTOR WITH EARTH	VCT 16(10)SQ x 1C		
															7	TRAVERSING MOTOR WITH EARTH	VCT 4.0SQ x 1C		

* CV CABLE 40종 1C는 EARTH로 사용함.

- NOTE -

- 전동기 외형, 제어반의 도면일 등은 금지하
여 그 금지 지함은

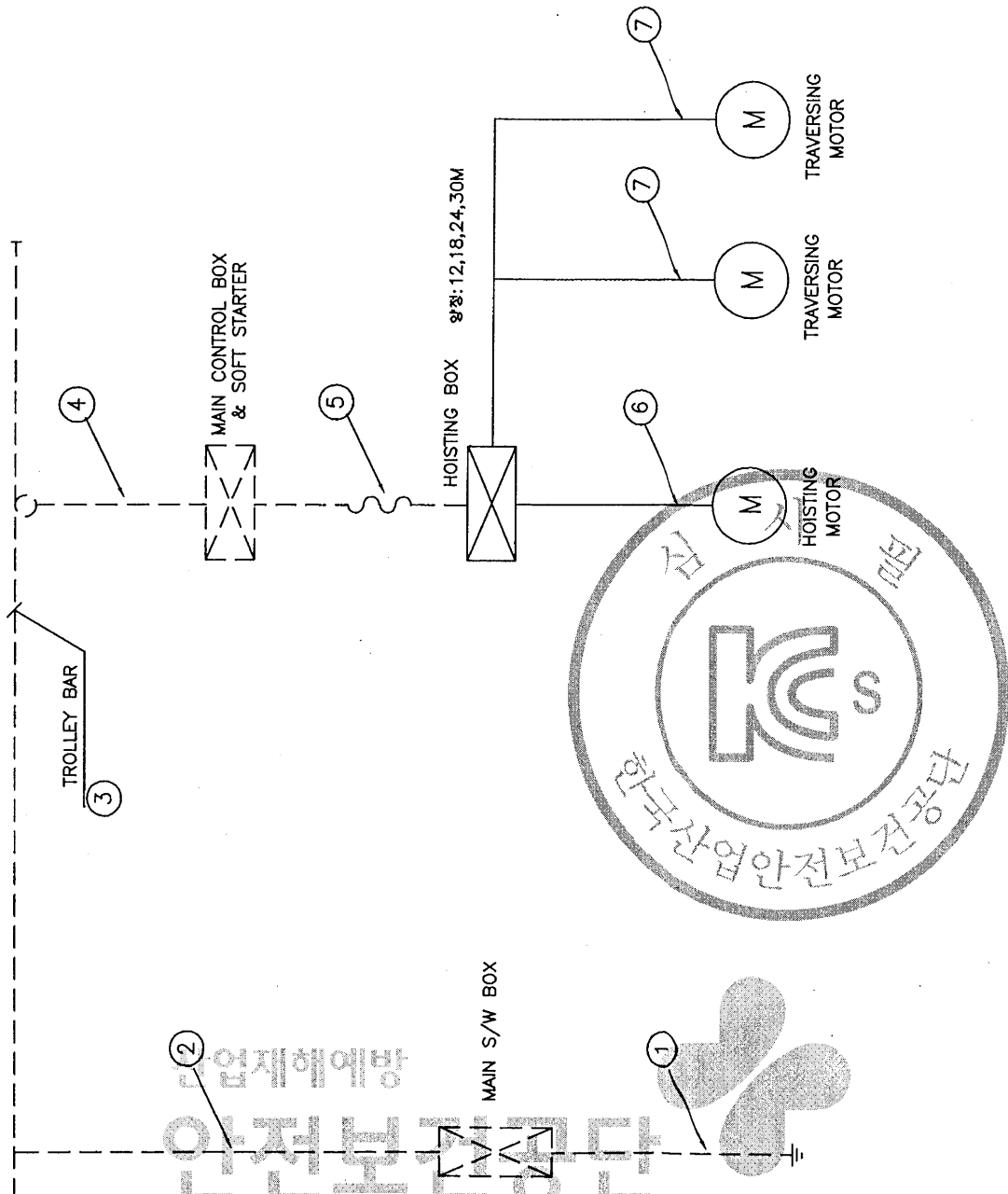
400V 미만 : 100.0을 이하필요.(3종 금지)

400V 이상 : 10.0을 이하필요.(총 3종금지)

2.MAIN S/W BOX는 3종 금지 요.

----- USER SCOPE

----- KUKDONG SCOPE



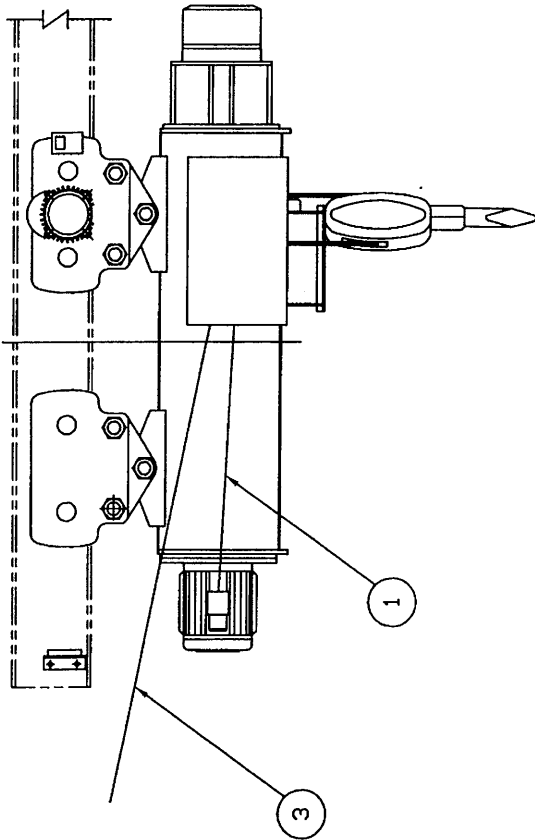
동원위험지

- 전기장비와 기계의 노출된 모든 도전부는 보호봉킹회로에 연결되어야 하며
적절한 접지연속성 기능이 유지되어야함.
- 보호봉킹회로에는 개폐기, 과전류보호장치가 부착되지 않아야 한다.

시험대상 전선의 최소 유효단면적	최고전압강하(V)
1.0	3.3
1.5	2.6
2.5	1.6
4.0	1.4
>6.0	1.0

△																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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* MAIN POWER : AC 3PH 220V,380V,440V,460V,480 60Hz (LIFT 9M)



산업재해예방

안전보건공단

KOREA OCCUPATIONAL SAFETY & HEALTH AGENCY

동전회집지

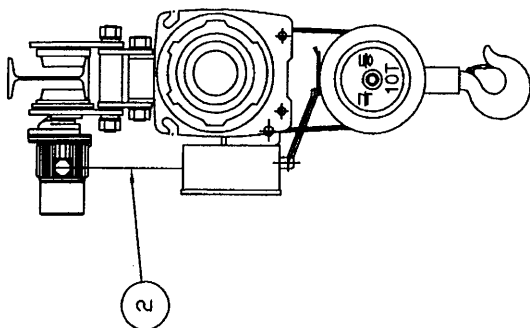
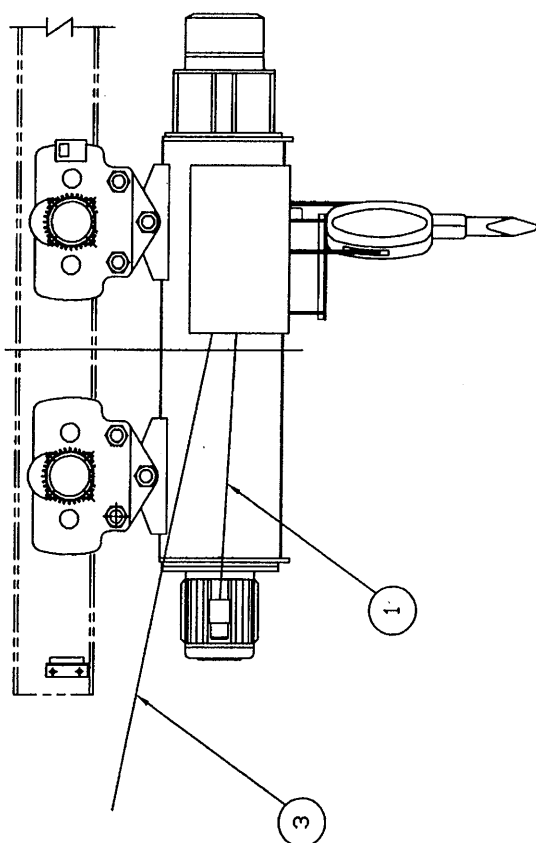
1. 전기장비와 기계의 노출된 모든 도전부는 보호본딩회로에 연결되어야 하며 적절한 접지연속성 기 능이 유지되어야 함.
2. 보호본딩회로에는 개폐기, 과전류보호장치가 부착되지 않아야 한다.

NO	CABLE		REMARK
	TYPE	SIZE	
1	VCT	380V 16sq	HOISTING MOTOR WITH EARTH
2	VCT	4.0sq	T/S MOTOR WITH EARTH
3	VCT	25sq	MAIN POWER WITH EARTH

시험대상 전선의 최소 유효단면적	최고전압강하(V)
1.0	3.3
1.5	2.6
2.5	1.6
4.0	1.4
>6.0	1.0

A	A	A	A	MK	DATE	REVISIONS	CHK.	APP.	CUSTOMER	DRAWING TITLE	GROUND WIRE SYSTEM	DRAWING	DESIGN	CHECKED	APPROVED	SCALE	DATE	ORDER NO.
										KUK DONG HOIST CO., LTD.		국동호이스트 주식회사		DWG. NO	KD10E3001			

* MAIN POWER : AC 3PH 220V,380V,440V,460V,480 60Hz (LIFT 12,18,24,30M)



등전위점지

본 도면은 EARTH를 명기하기 위한 도면으로서
실제 배치와 다를 수 있으며 HOIST 본체와의
EARTH용 CABLE은 REFERENCE

*3종 접지공사 100Ω 이하 (AC 3PH 400V 미만 이상)
*4종 중 접지공사 10Ω 이하 (AC 3PH 400V 이상)

NO	CABLE				REMARK	
	TYPE	SIZE				
		220V	380V	TYPE		
1	VCT	16sq	16sq	VCT	440V,460V,480V 10sq	HOISTING MOTOR WITH EARTH
2	VCT	4.0sq	4.0sq	VCT	4.0sq	
3	VCT	25sq	16sq	VCT	10sq	MAIN POWER WITH EARTH

시험대상 전선의 최소 유효단면적	최고전압강하(V)
1.0	3.3
1.5	2.6
2.5	1.6
4.0	1.4
>6.0	1.0

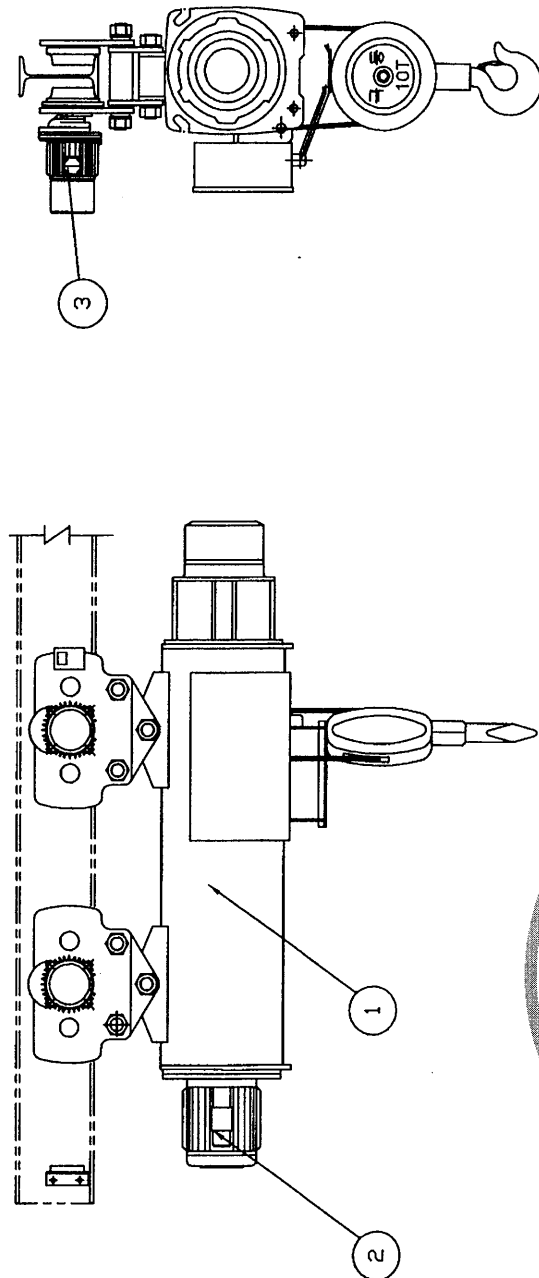
사어재해예방

안전보건공단

KOREA OCCUPATIONAL SAFETY & HEALTH AGENCY

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산업재해예방
안전보건공단
KOREA OCCUPATIONAL SAFETY & HEALTH AGENCY

ELECTRIC WIRE ROPE HOIST	
MODEL	RATING
CAPACITY	LIFT
HOIST SPEED	m/min
HOIST MOTOR	POWER SOURCE
TRAV.SPEED	m/min
TRAV.MOTOR	AMP.S R&T HOIST
WIDTH OF RAIL	AMP.S R&T TRAV.
DATE	WIRE ROPE
	WEIGHT
	Kg
	SERIAL

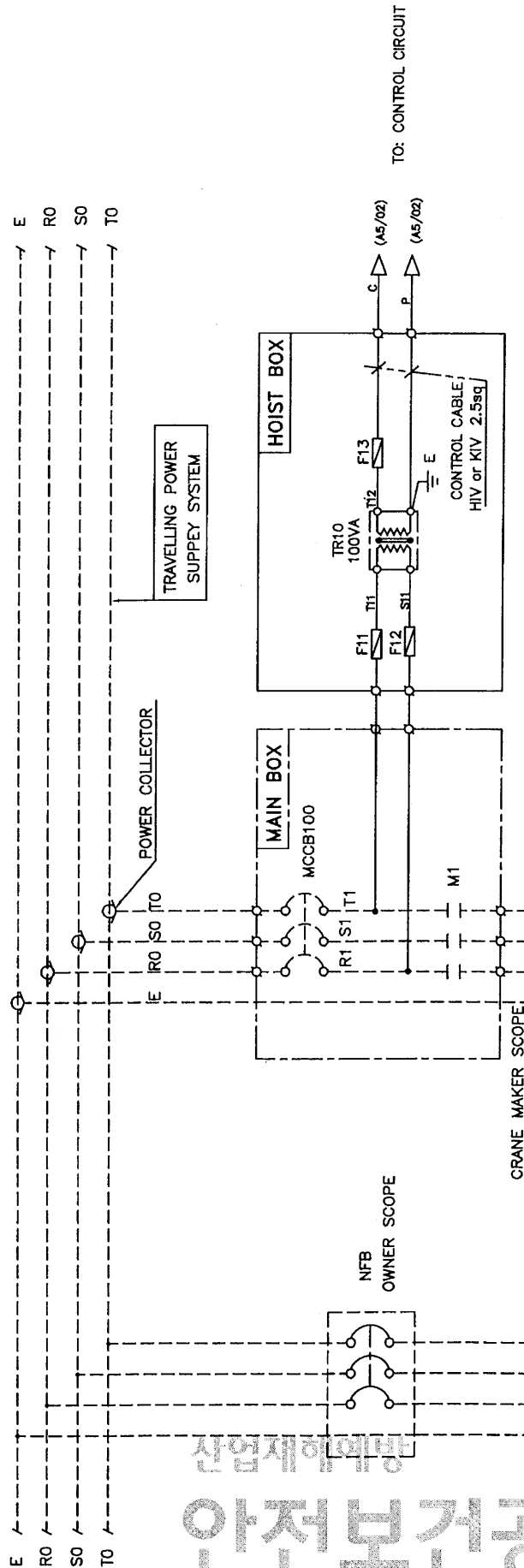
3 PHASE INDUCTION MOTOR			
KW	P	TYPE	TENV
VOLTS	V	RATING	min
AMP.S	A	AMP.TEMP	40°C
HEARTS		INS.CLASS	F
R.P.M		BEARING	
ROTOR	C	BEARING	
SERIAL.		DATE	

KUKDONG HOIST CO.,LTD

		3 PHASE INDUCTION MOTOR	
KW		PI TYPE	TENV
VOLTS		V RATING	min
AMP. S		A AMP. TEMP	40°C
HEARTS		INS. GLASS	F
R.P.M		BEARING	
ROTOR		BEARING	
SERIAL		DATE	
KUKDONG HOIST CO., LTD			

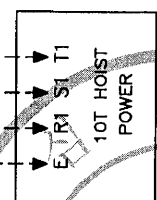
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MK	DATE	REVISIONS					CHK.	APP.					
								국동호이스트 주식회사 KUJ DONG HOIST CO., LTD.			DWG. NO		
						DRAWING		DESIGN	CHECKED	APPROVED	SCALE	DATE	ORDER NO.
						WIRE HOIST NAME PLATE					NONE		

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
POWER CIRCUIT																			
TRAVELLING POWER SUPPLY SYSTEM																			
ADR'S NO.																			A1



1. --- MARKED OWNER SCOPE
2. EARTH : 제 3종접지 공사(400V 미만전압 : 100 OHM 이하)
 제 3종접지 공사(400V 이상전압 : 10 OHM 이하)

1. 전선의 색상은 다음과 같다.
- 1) 흑색 : 고류 및 지류 전원선
 - 2) 적색 : 고류 제어선
 - 3) 청색 : 지류 제어선
 - 4) 녹색 또는 녹색과 황색 혼용 : 접지
 - 5) 흰색 : 중립
2. 표시선의 색상은 다음과 같다.
- 1) 적색 : 비상
 - 2) 황색 : 비정상
 - 3) 녹색 : 정상
 - 4) 청색 : 임무
 - 5) 흰색 : 중립
3. 조작 버튼의 색상은 다음과 같다.
- 1) 적색 : 비상
 - 2) 황색 : 비정상
 - 3) 청색 : 임무
 - 4) 흰색, 회색 또는 흑색 : 지정된 의미 없음



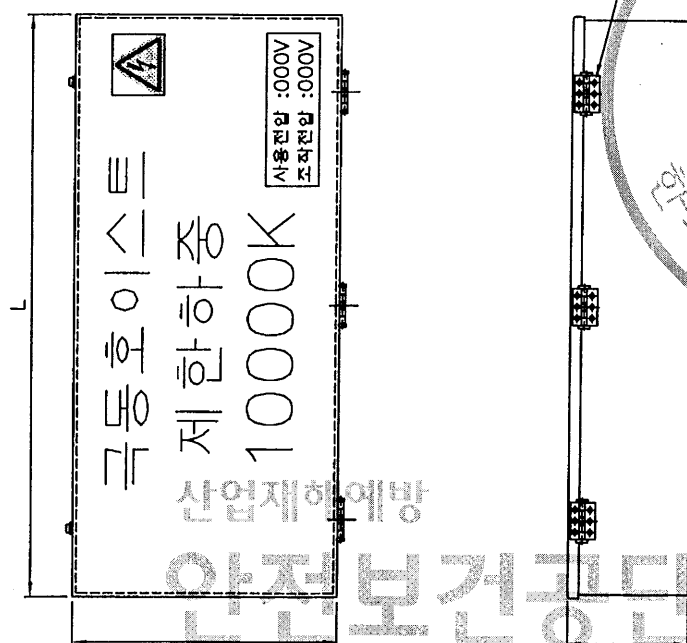
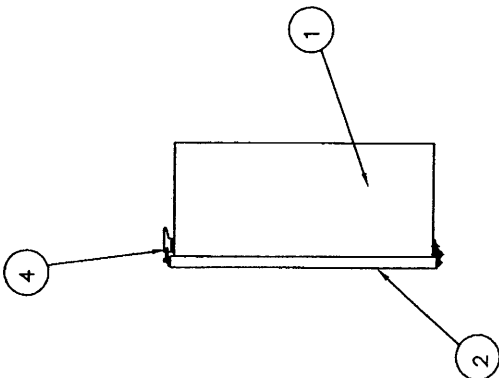
POWER SOURCE
AC 3φ 60Hz

SELECTION	VOLTAGE	F11	F12	F13	MCCB100	TR10
	220V	3A	3A	3A	103AF/75AT	220/110,120V 200VA
	380V	2A	2A	3A	53AF/50AT	380/110,120V 200VA
	440V	2A	2A	3A	53AF/40AT	440/110,120V 200VA
	460V	2A	2A	3A	53AF/40AT	460/110,120V 200VA
	480V	2A	2A	3A	53AF/40AT	480/110,120V 200VA

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KOREA OCCUPATIONAL SAFETY & HEALTH AGENCY

△							CUSTOMER		MAIN POWER CIRCUIT 1 ----- DIAGRAM										
△							DRAWING TITLE												
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ADR'S NO.



1. PROTECTION DEGREE ;
A. INDOOR TYPE : DUST PROOF
B. OUT DOOR TYPE : SPLASH PROOF
2. FINAL PAINTING COLOR (MUNSELL NO.)
A. IN SIDE : 10B 3/5
B. OUT SIDE : 10B 3/5
3. PAINTING THICKNESS : ABOVE 40 μ m
4. APPLICATION VOLTAGE : 220V, 380V, 440V, 460V, 480V
5. 제어용 전선 : 2.5sq KLV, H1V
6. 외함 개방구조는 다음과 같다.
1) 외함 개방시 증전부분이 차단되도록 한다. 2) 외함 개방 후 충전되어있는 부분은 IP2X 이상의 직접접촉 방호가 되어있을것.

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ADR'S NO.

NO	DESCRIPTION	SPECIFICATION	Q'TY	REMARK
1	CHASSIS PLATE		1	아연 도금
2	CABLE DUCT	-	1	
3	MAGNET CONTACT	DMC65C	1	M1, MAIN MAG.
4	MAGNET CONTACT	MC-130g	2	HOISTING
5	MAGNET CONTACT	DMC22C	2	TRAVERSING
7	SILICON RECTIFIER	SR-60	1	HOISTING
8	SILICON RECTIFIER	SR-30	1	TRAVERSING
9	E.O.C.R	SS-60	1	HOISTING
10	E.O.C.R	SS-30	1	TRAVERSING
11	MCCB100	103AF/75AT	1	LS-2
12	UPPER LIMIT	AC 600V/3A	1	LS-1
13	LIMIT LEVER	SS-400	1	
14	FUSE (F1,F12)	3 A	2	
15	FUSE (F13)	5 A	1	
16	TRANSFORMER	220V/110,120V, 200VA	1	
17	TERMINAL BLOCK	60A, 25A		
18	TERMINAL BLOCK	15A		
19	EARTH TERMINAL	5x25x50	1	

NOTE

1. 전선의 색상은 다음과 같다.

1) 흑색 : 교류 및 직류 전원선로 5) 청색 : 교류 제어선로

2) 회색 : 교류 제어회로

3) 주황색 : 외부 전원에서 공급되는 연동장치 제어회로

4) 녹색 또는 녹색과 황색 혼용 : 접지선

2. CABLE MATERIAL : KIV OR EQUIVALENT

MIN SIZE : 2.5sq

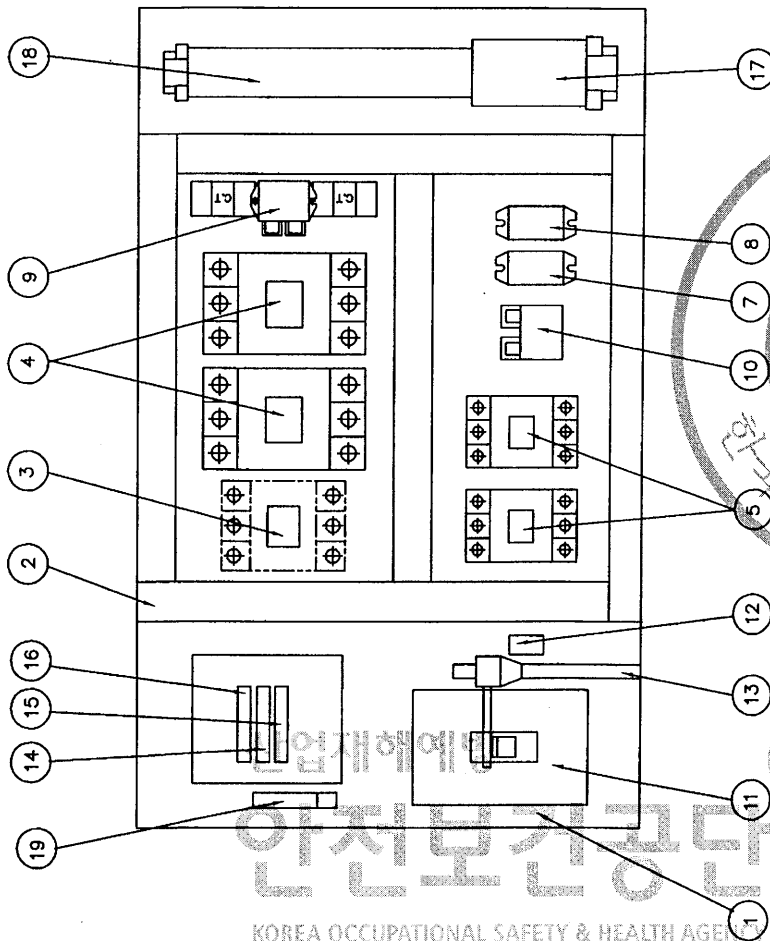
3. 제어용 전선 : 2.5mm KIV,HIV

4. 제작시 다소 변경될수있음.

5. 외함 개방구조는 다음과 같을것.

1) 외함 개방시 충전부분이 차단되도록 할것.

2) 외함 개방후 충전되어있는 부분은 IP2X 이상의 직접 접촉 방호가 되어있을것.



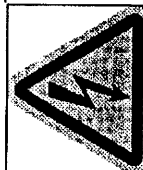
NOTE

1. UPPER LIMIT LS-1의 점선 허용 전류 용량 : AC 600V, 3A

2. UPPER LIMIT LS-2의 점선 허용 전류 용량 : NFB103AF

3. EARTH TERMINAL RESISTANCE : 0.018 Ω

4. POWER SOURCE : AC 3φ 220V 60HZ

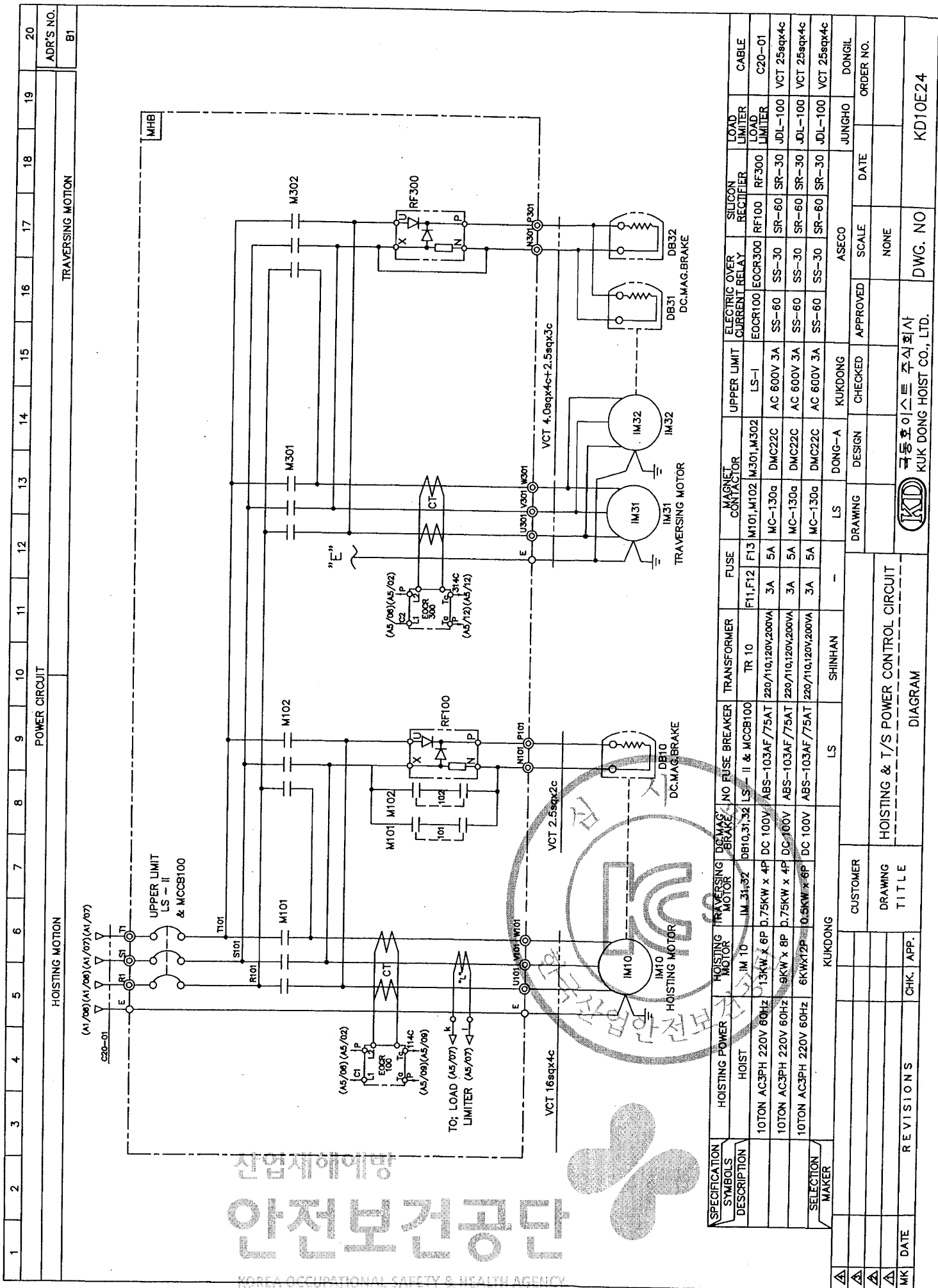


DRAWING	DESIGN	CHECKED	APPROVED	SCALE	DATE	ORDER NO.
				NONE		
HOISTING CONTROL BOX						
ARRANGEMENT DRAWING						
CUSTOMER						
DRAWING TITLE						
REVISIONS						
CHK. APP.						
DATE						
KUK DONG HOIST CO., LTD.						
DWG. NO						
KD10BA02						

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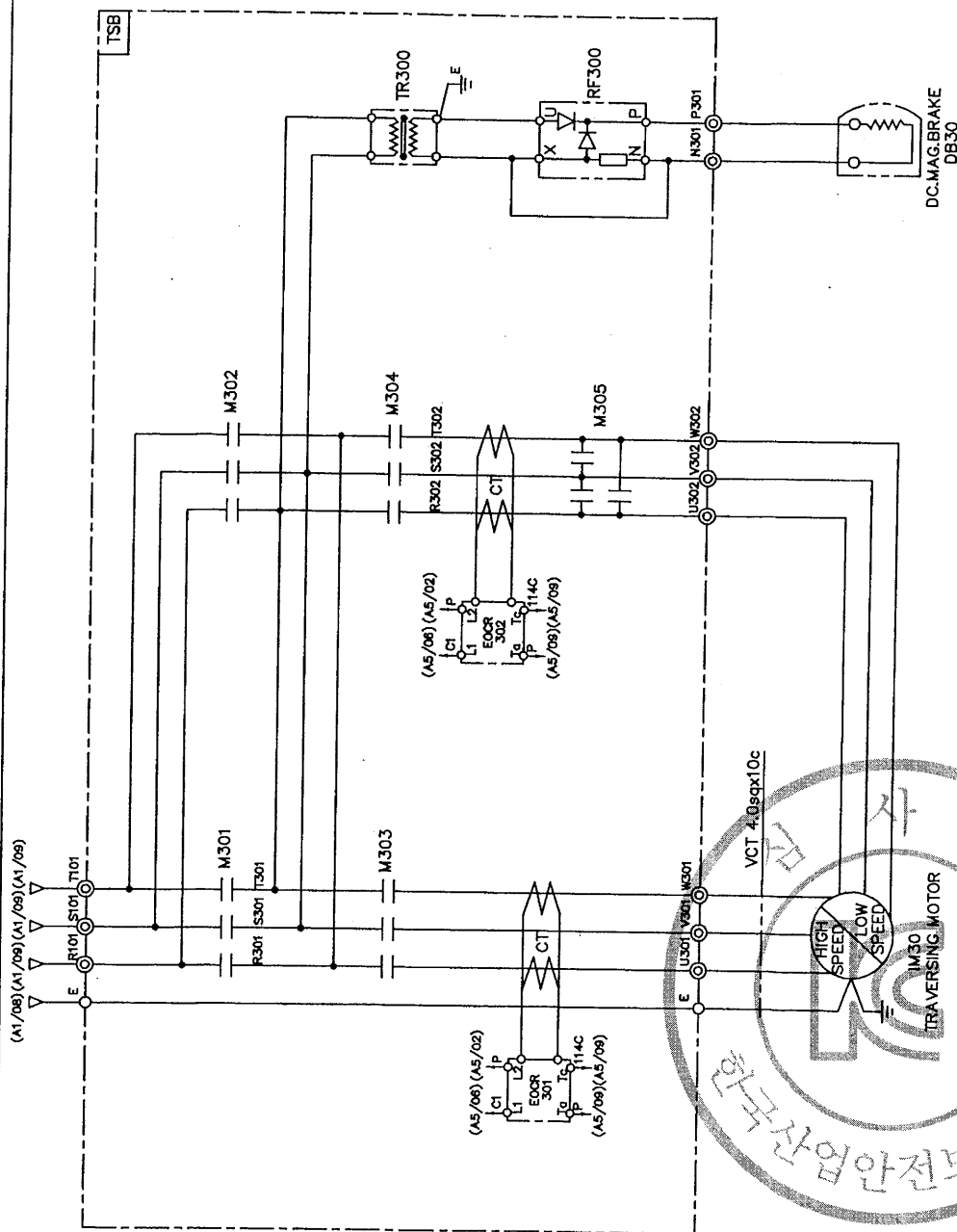
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Korea Occupational Safety & Health Agency

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
POWER CIRCUIT																			
TRAVERSING MOTION																			
ADR'S NO.																			C2

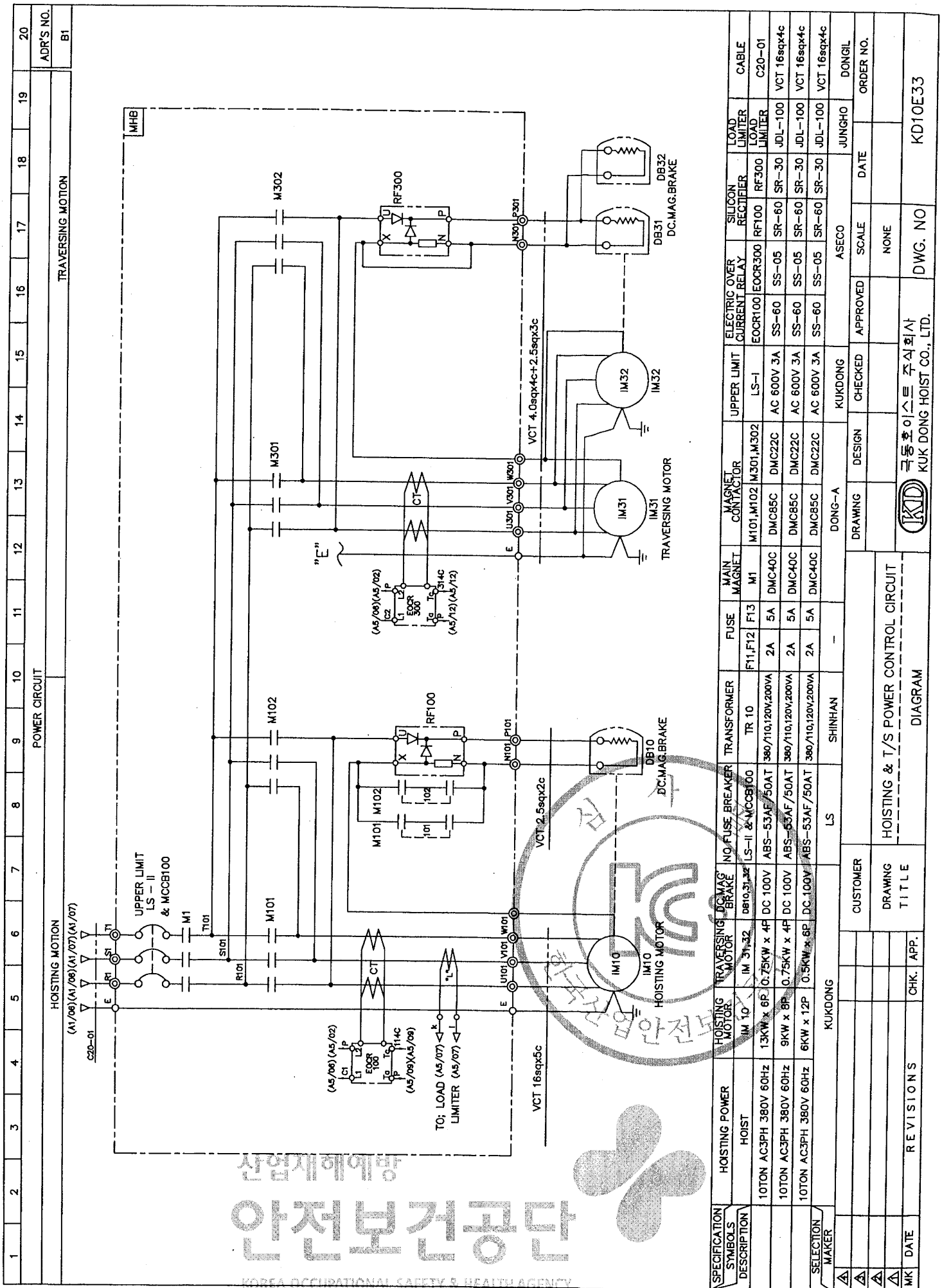


SPECIFICATION		TRAVERSING MOTOR		DC MAG' BRAKE		MAGNET CONTACTOR		SILICON RECTIFIER		ELECTRIC OVER CURRENT RELAY		TRANSFORMER	
SYMBOLS		IM 30		DB30		M301, M302, M303		M304, M305		EOCR 301,302		TR300	
DESCRIPTION		0.8/0.4KWx4/BF		AC3PH 220V 60Hz		DMC22C		DMC22C		SR-30		AC220/220V, 300VA	
220V		0.5/0.25KWx6/12P		AC3PH 220V 60Hz		DMC22C		DMC22C		SS-05		AC220/220V, 300VA	
220V										SS-05			
SELECTION													
MAKER													

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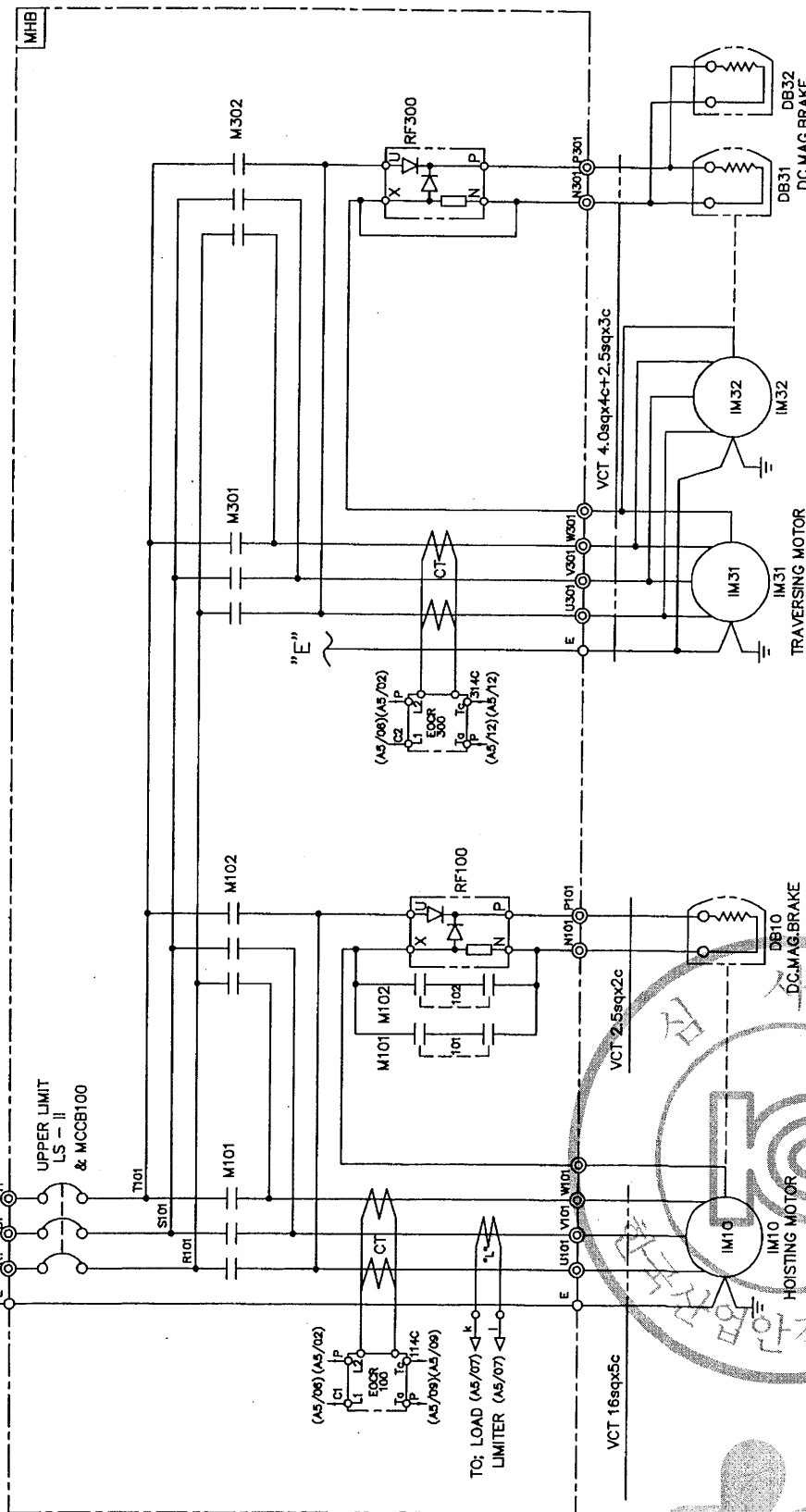
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SPECIFICATION SYMBOLS	HOISTING POWER	HOISTING MOTOR	TRAVERSING MOTOR	DC MAG. BRAKE	NO. FUSE BREAKER	TRANSFORMER	FUSE	MAIN MAGNET	MAGNET CONTACTOR		UPPER LIMIT	CURRENT RELAY	SILICON RECTIFIER	LOAD LIMITER	CABLE		
									F11, F12	F13						M101, M102	M301, M302
DESCRIPTION	HOIST	IM 10	IM 31, 32	DB10, 31, 32	LS-II & MCCB100	TR 10	F11, F12	M1	M101, M102	M301, M302	LS-I	EOCR100	EOCR300	JDL-100	C20-01		
	10TON AC3PH 380V 60Hz	13KW x 6P	0.75KW x 4P	DC 100V	ABS-53AF/50AT	380/110/120V/200VA	2A	DMC40C	DMC65C	DMC22C	AC 600V 3A	SS-60	SS-05	SR-30	VCT 16sqx4c		
	10TON AC3PH 380V 60Hz	9KW x 8P	0.75KW x 4P	DC 100V	ABS-53AF/50AT	380/110/120V/200VA	2A	DMC40C	DMC65C	DMC22C	AC 600V 3A	SS-60	SS-05	SR-30	VCT 16sqx4c		
	10TON AC3PH 380V 60Hz	6KW x 12P	0.5KW x 6P	DC 100V	ABS-53AF/50AT	380/110/120V/200VA	2A	DMC40C	DMC65C	DMC22C	AC 600V 3A	SS-60	SS-05	SR-30	VCT 16sqx4c		
SELECTION/MAKER	KUKDONG					LS	SHINHAN	DONG-A		KUKDONG		ASECO		JUNGHO	DONGIL		
				CUSTOMER											DATE		ORDER NO.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HOISTING MOTION										TRaversing MOTION									
POWER CIRCUIT																			
C20-01																			
(A1/06)(A1/06)(A1/07)(A1/07)																			
UPPER LIMIT LS-II & MCCB100																			
MHB																			
B1																			
ADR'S NO.																			



SPECIFICATION SYMBOLS	DESCRIPTION	HOISTING MOTOR	HOISTING POWER MOTOR	HOISTING MOTOR	TRaversing MOTOR	DC MAG. BRAKE	NO FUSE BREAKER	TRANSFORMER	FUSE	MAGNET CONTACTOR	UPPER LIMIT	ELECTRIC OVER CURRENT RELAY	SILICON RECTIFIER	LOAD LIMITER	CABLE
10TON AC3PH 380V 60Hz	13KW x 6P	IM 10	0.75KW x 4P	IM 31	TR 10	F1, F2	LS-II & MCCB100	2A	5A	DMC22C	AC 600V 3A	EOCR300	RF100	SR-30	C20-01
10TON AC3PH 380V 60Hz	9KW x 8P	IM 10	0.75KW x 4P	IM 31	TR 10	F1, F2	LS-II & MCCB100	2A	5A	DMC22C	AC 600V 3A	EOCR300	RF100	SR-30	VCT 16sqx4c
10TON AC3PH 380V 60Hz	6KW x 12P	IM 10	0.5KW x 6P	IM 31	TR 10	F1, F2	LS-II & MCCB100	2A	5A	DMC22C	AC 600V 3A	EOCR300	RF100	SR-30	VCT 16sqx4c
SELECTION MAKER		KUKDONG		LS		SHINHAN		-		DONG-A		ASECO		JUNGHO	
CUSTOMER		KUKDONG		LS		SHINHAN		-		DONG-A		ASECO		JUNGHO	
DRAWING TITLE		HOISTING & T/S POWER CONTROL CIRCUIT		HOISTING & T/S POWER CONTROL CIRCUIT		HOISTING & T/S POWER CONTROL CIRCUIT		HOISTING & T/S POWER CONTROL CIRCUIT		HOISTING & T/S POWER CONTROL CIRCUIT		HOISTING & T/S POWER CONTROL CIRCUIT		HOISTING & T/S POWER CONTROL CIRCUIT	
REVISIONS		CHK.		APP.		CHK.		APP.		CHK.		APP.		CHK.	
DATE		DATE		DATE		DATE		DATE		DATE		DATE		DATE	
MK		MK		MK		MK		MK		MK		MK		MK	
DWG. NO.		DWG. NO.		DWG. NO.		DWG. NO.		DWG. NO.		DWG. NO.		DWG. NO.		DWG. NO.	
KUKDONG HOIST CO., LTD.		KUKDONG HOIST CO., LTD.		KUKDONG HOIST CO., LTD.		KUKDONG HOIST CO., LTD.		KUKDONG HOIST CO., LTD.		KUKDONG HOIST CO., LTD.		KUKDONG HOIST CO., LTD.		KUKDONG HOIST CO., LTD.	
KD10E34		KD10E34		KD10E34		KD10E34		KD10E34		KD10E34		KD10E34		KD10E34	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
POWER CIRCUIT																			ADR'S NO.
TRAVERSING MOTION																			C2

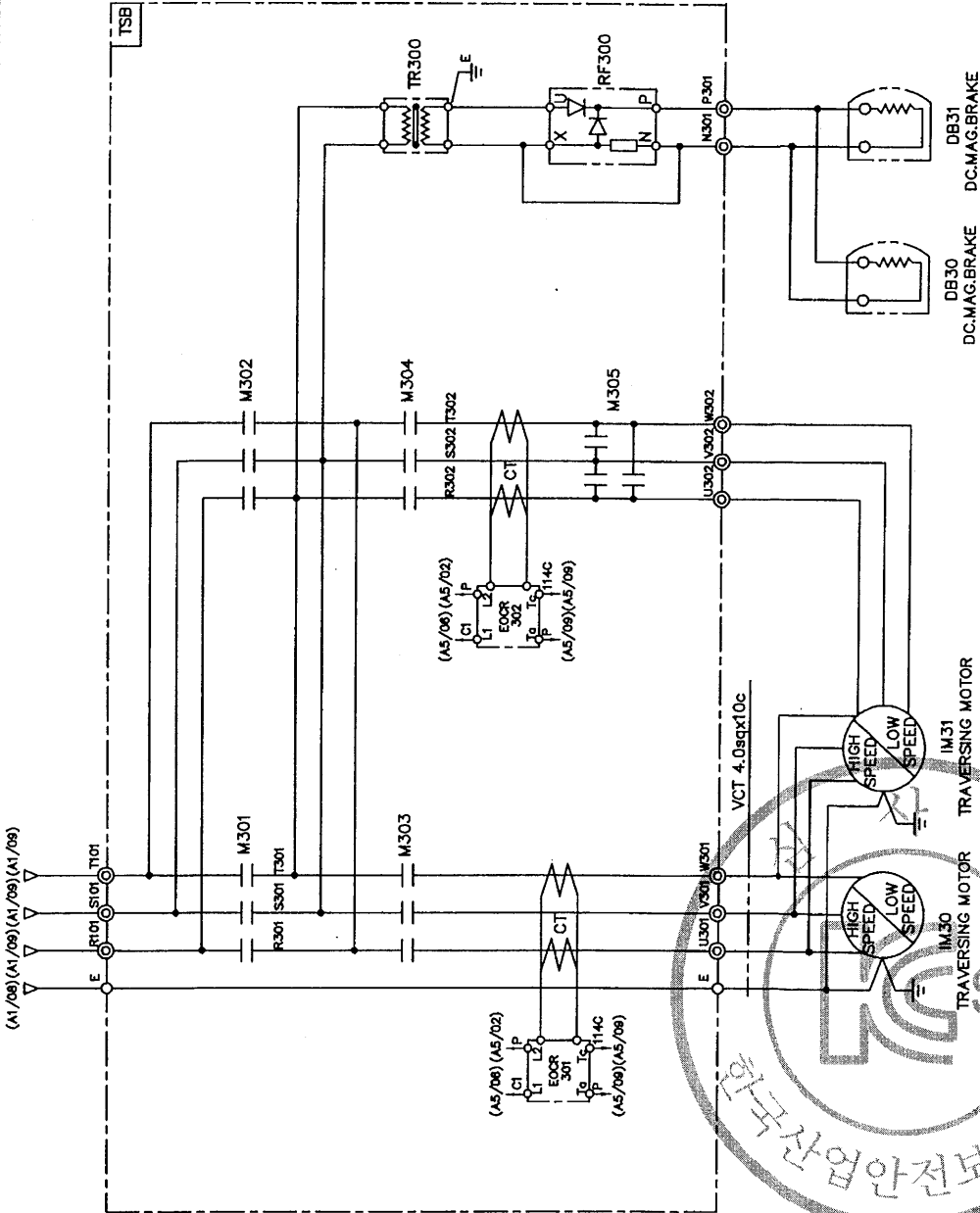
SPECIFICATION SYMBOLS	DESCRIPTION	TRAVERSING MOTOR	DC MAG. BRAKE	MAGNET CONTACTOR	SILICON RECTIFIER	ELECTRIC OVER CURRENT RELAY	TRANSFORMER
IM 30	380V 0.8/0.4kWx4/8P AC3PH 380V 60Hz	DB30	M301, M302, M303	RF 300	EOCR 301,302	TR300	
IM30	380V 0.5/0.25kWx6/12P AC3PH 380V 60Hz	DC 100V	DMC22C	SR-30	SS-05	AC380/220V, 300VA	
		DC 100V	DMC22C	SR-30	SS-05	AC380/220V, 300VA	

SELECTION MAKER	CUSTOMER	DRAWING TITLE	DATE	REVISIONS	CHK.	APP.
KUKDONG		TRAVERSING POWER CONTROL CIRCUIT				
		DIAGRAM				

DRAWING	DESIGN	CHECKED	APPROVED	SCALE	DATE	ORDER NO.
DONG-A				NONE		
ASECO						
SHINHAN						

DWG. NO	DWG. NO
KD20E35	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
POWER CIRCUIT										TRaversing Motion									
C2										ADR'S NO.									



SPECIFICATION SYMBOLS		TRAVERSING MOTOR		DC MAG' BRAKE		MAGNET CONTACTOR		SILICON RECTIFIER		ELECTRIC OVER CURRENT RELAY		TRANSFORMER					
DESCRIPTION		IM 30, 31		DB30, 31		M301, M302, M303		M304, M305		EOCR 301,302		TR300					
380V		1.5/0.75KWx4/8P AC3PH 380V 60Hz		DC 100V		DMC22C		DMC22C		SS-30		AC380/220V, 300VA					
380V		110/0.5KWx6/12P AC3PH 380V 60Hz		DC 100V		DMC22C		DMC22C		SS-30		AC380/220V, 300VA					
SELECTION MAKER		KUKDONG		DONG-A		ASECO		SHINHAN									
CUSTOMER		DRAWING TITLE		DRAWING		DESIGN		CHECKED		APPROVED		SCALE		DATE		ORDER NO.	
		TRAVERSING POWER CONTROL CIRCUIT										NONE					
CHK. APP.		REVISIONS		DIAGRAM		KUKDONG HOIST CO., LTD.		KUKDONG HOIST CO., LTD.		DWG. NO		KD10E36					

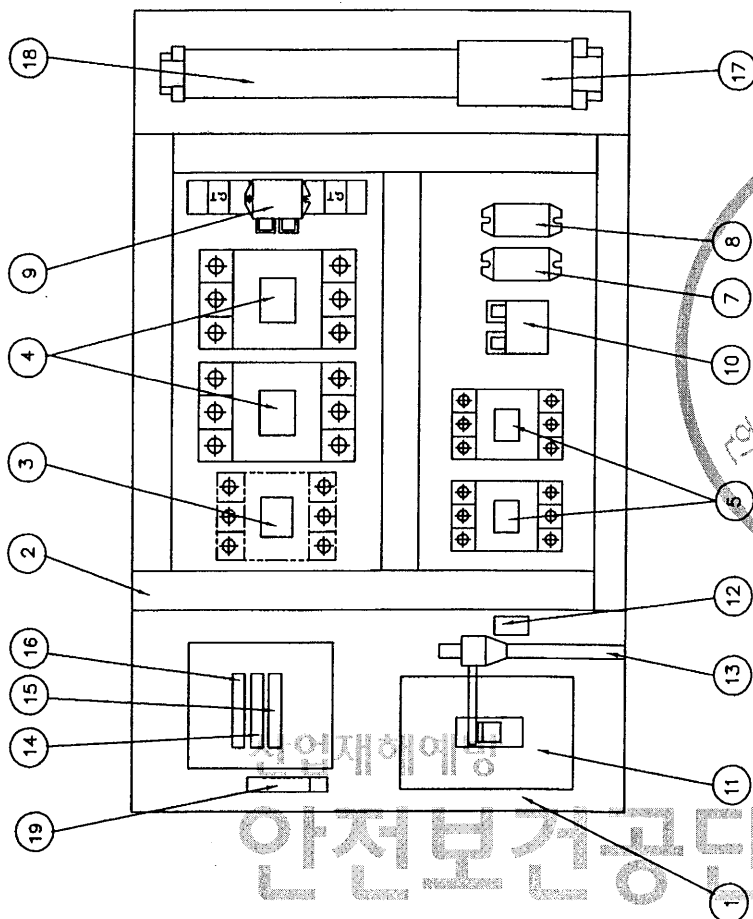
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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ADR'S NO.

NO	DESCRIPTION	SPECIFICATION	Q'TY	REMARK
1	CHASSIS PLATE		1	아연 도금
2	CABLE DUCT	-	1	
3	MAGNET CONTACT	DMC40C	1	M1, MAIN MAG.
4	MAGNET CONTACT	DMC85C	2	HOISTING
5	MAGNET CONTACT	DMC22C	2	TRAVERSING
7	SILICON RECTIFIER	SR-60	1	HOISTING
8	SILICON RECTIFIER	SR-30	1	TRAVERSING
9	E.O.C.R	SS-60	1	HOISTING
10	E.O.C.R	SS-05	1	TRAVERSING
11	MCCB100	53AF/40AT	1	LS-2
12	UPPER LIMIT	AC 800V/3A	1	LS-1
13	LIMIT LEVER	SS-400	1	
14	FUSE (F11,F12)	2 A	2	
15	FUSE (F13)	5 A	1	
16	TRANSFORMER	440V/110V,120V, 200VA	1	
17	TERMINAL BLOCK	60A,25A		
18	TERMINAL BLOCK	15A		
19	EARTH TERMINAL	5tx25x50	1	

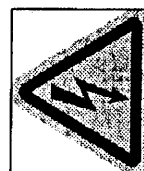
NOTE

- 전선의 색상은 다음과 같다.
1) 흑색 : 교류 및 직류 전원선로 5) 흰색 : 직류 제어선로
2) 적색 : 교류 제어회로
- 주행색 : 외부 전원에서 공급되는 연동장치 제어회로
- 녹색 또는 녹색과 황색 혼용 : 접지선
- CABLE MATERIAL : KIV OR EQUIVALENT
MIN SIZE : 2.5sq
- 제어용 전선 : 2.5mm KIV,HIV
- 제작시 다소 변경될수있음.
- 외함 개방구조는 다음과 같을것.
- 외함 개방시 충전부분이 차단되도록 할것.
- 외함 개방후 충전되어있는 부분은 IP2X 이상의 직접 접촉 방호가 되어있을것.



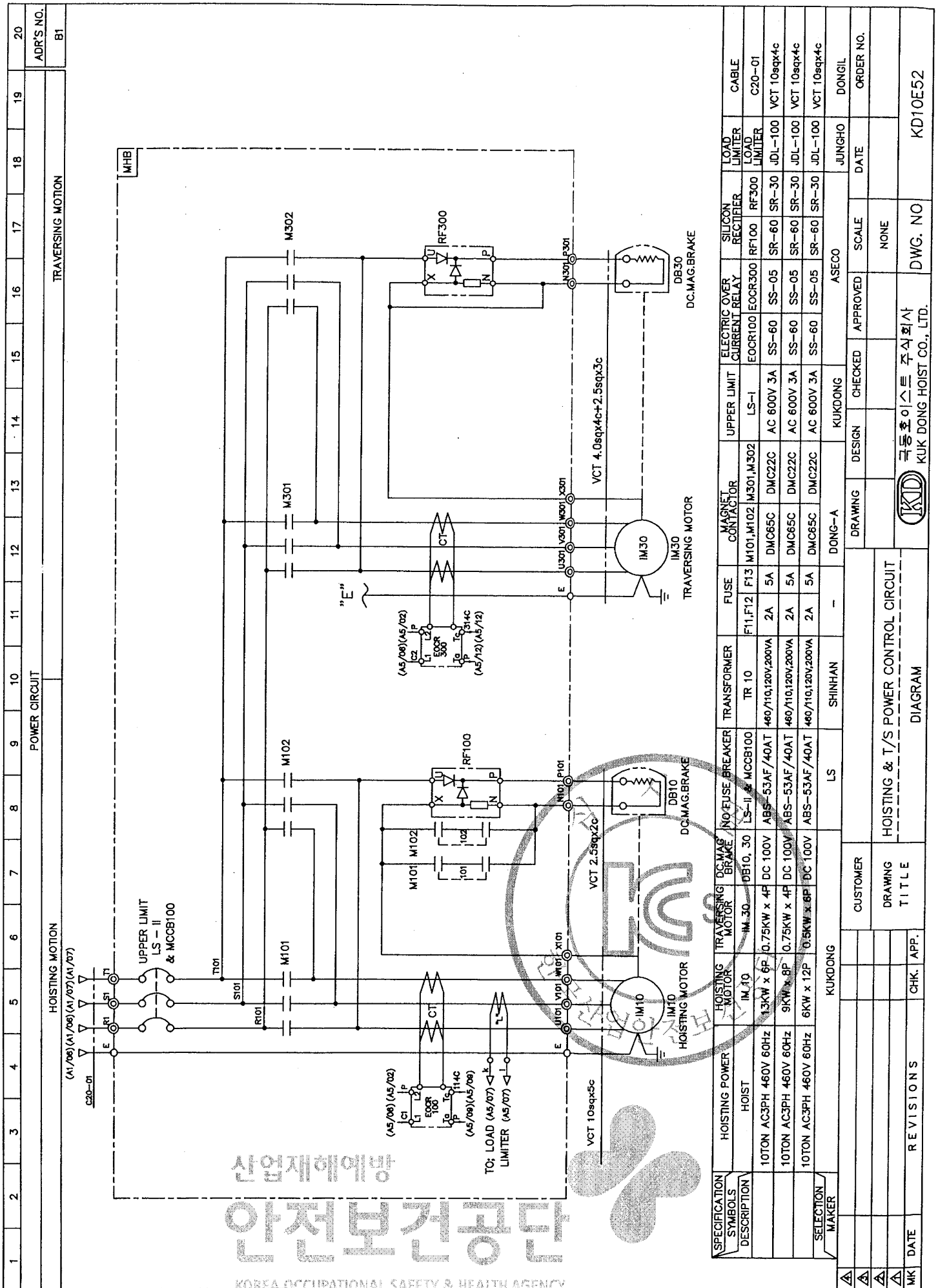
NOTE

- UPPER LIMIT LS-1의 직접 허용 전류 용량: AC-600V, 3A
- UPPER LIMIT LS-2의 직접 허용 전류 용량: NFB 53AF
- EARTH TERMINAL RESISTANCE: 0.018 Ω
- POWER SOURCE: AC-3φ 440V 60HZ



△																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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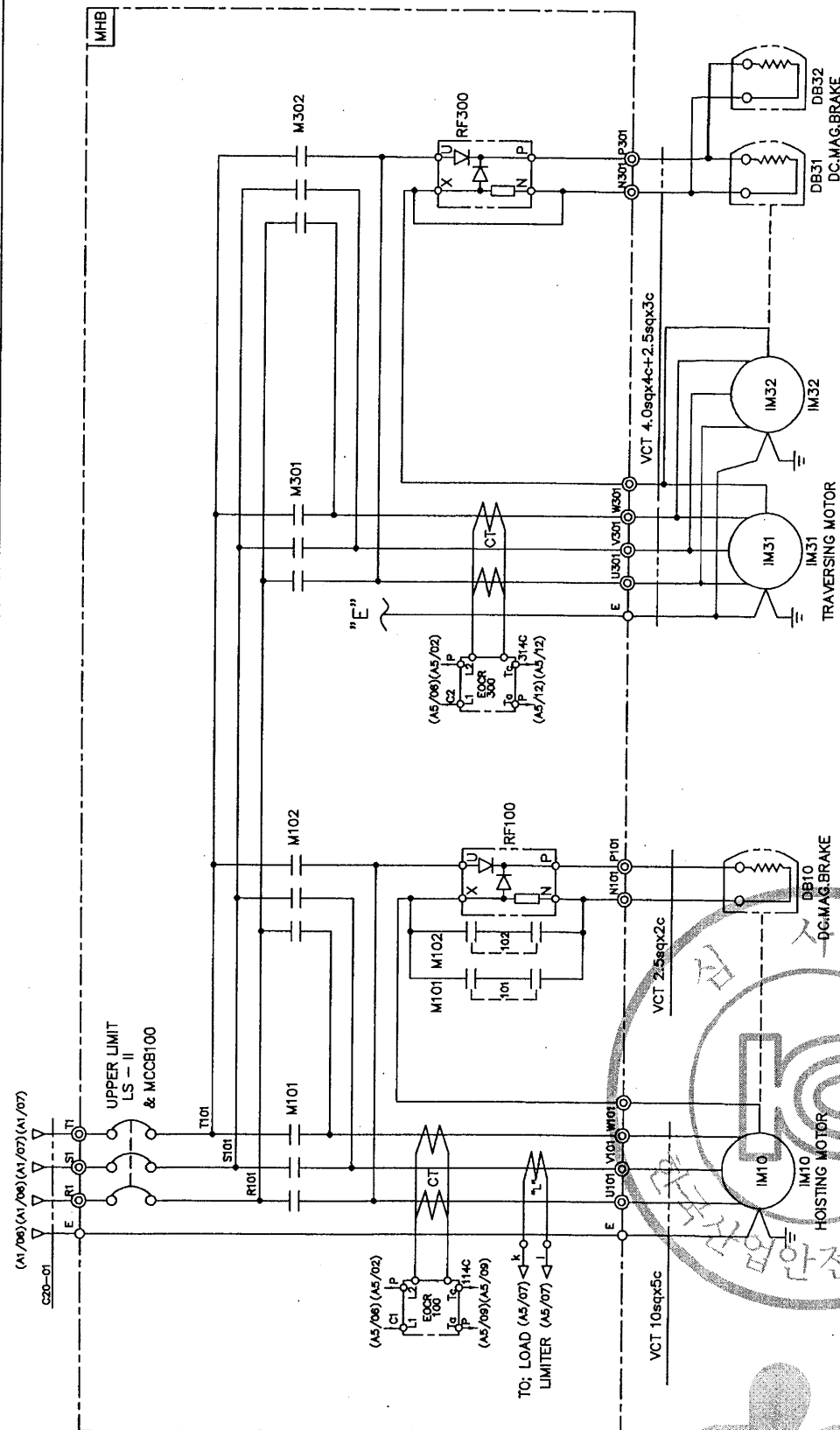


산업재해예방
안전보건공단

KOREA OCCUPATIONAL SAFETY & HEALTH AGENCY

192.168.11.38 / 2012-12-07 13:22:27

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
POWER CIRCUIT										TRaversing Motion									
HOISTING MOTION										HOISTING MOTION									
C20-01										MHB									
(A1/006)(A1/006)(A1/007)(A1/007)										ADR'S NO.									
B1										B1									

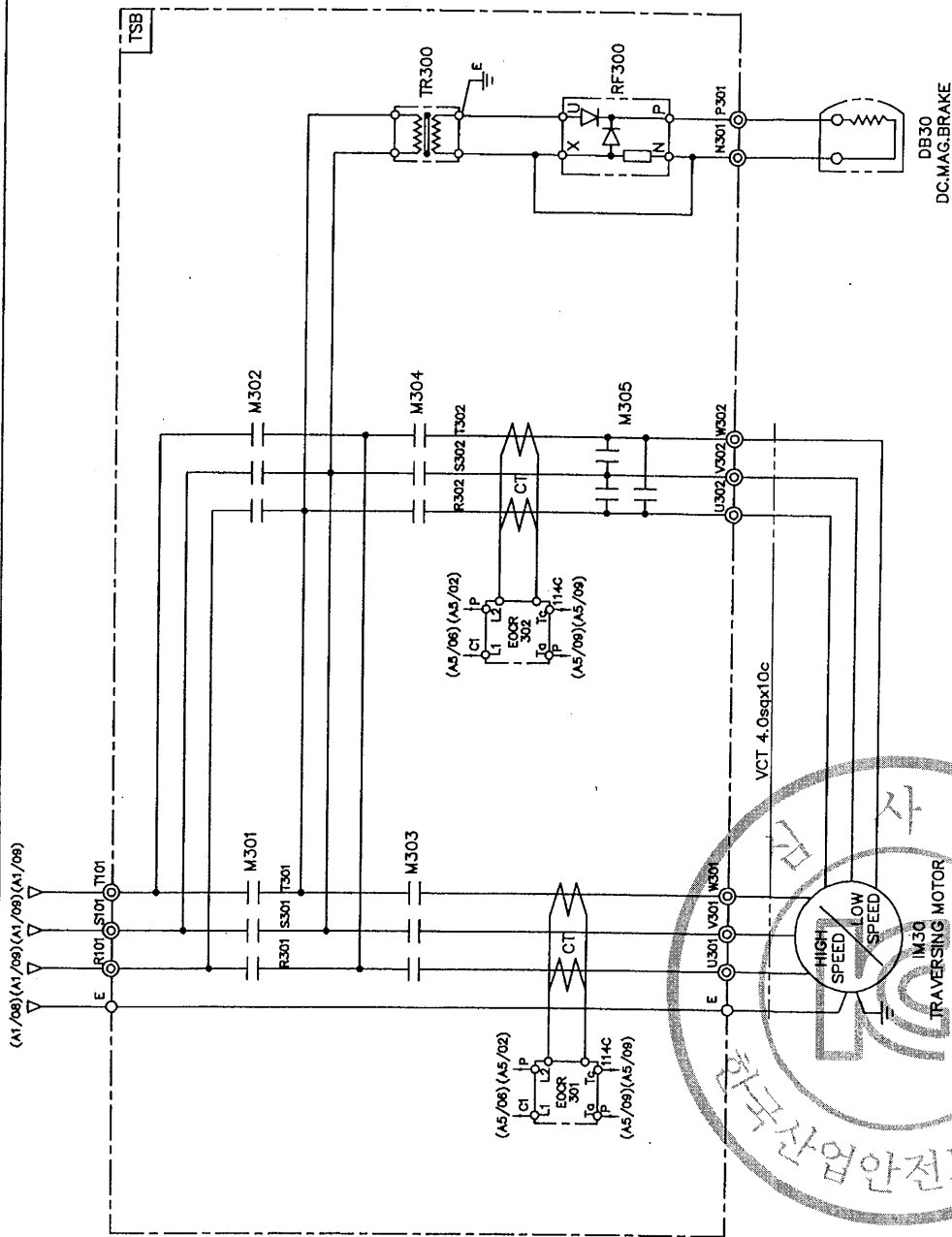


SPECIFICATION SYMBOLS	HOISTING POWER	HOISTING MOTOR	TRAVESING MOTOR	DC MAG. BRAKE	NO. FUSE BREAKER	TRANSFORMER	FUSE		MAGNET CONTACTOR	UPPER LIMIT	ELECTRIC OVER CURRENT RELAY	SILICON RECTIFIER	LOAD LIMITER	CABLE
							F11, F12	F13						
DESCRIPTION	HOIST	IM 10	IM 31, 32	DB10, 31, 32	LS-II & MCCB100	TR 10	F11, F12	F13	M101, M102, M301, M302	LS-I	EOCR100, EOCR300	RF100, RF300	LOAD LIMITER	C20-01
	10TON AC3PH 460V 60Hz	13KW x 6P	0.75KW x 4P	DC 100V	ABS-53AF/40AT	460/110,120V,200VA	2A	5A	DMC65C	AC 600V 3A	SS-60	SR-60	JDL-100	VCT 10sqx4c
	10TON AC3PH 460V 60Hz	9KW x 8P	0.75KW x 4P	DC 100V	ABS-53AF/40AT	460/110,120V,200VA	2A	5A	DMC65C	AC 600V 3A	SS-60	SR-60	JDL-100	VCT 10sqx4c
	10TON AC3PH 460V 60Hz	6KW x 12P	0.5KW x 6P	DC 100V	ABS-53AF/40AT	460/110,120V,200VA	2A	5A	DMC65C	AC 600V 3A	SS-60	SR-60	JDL-100	VCT 10sqx4c
SELECTION MAKER	KUKDONG				LS	SHINHAN	-		DONG-A	KUKDONG	ASECO		JUNCHO	DONGIL
	CUSTOMER													
	DRAWING TITLE				HOISTING & T/S POWER CONTROL CIRCUIT									
	REVISIONS				DIAGRAM									
MK	DATE	CHK.	APP.	KUKDONG HOIST CO., LTD.										
				DWG. NO										
				KD10E54										

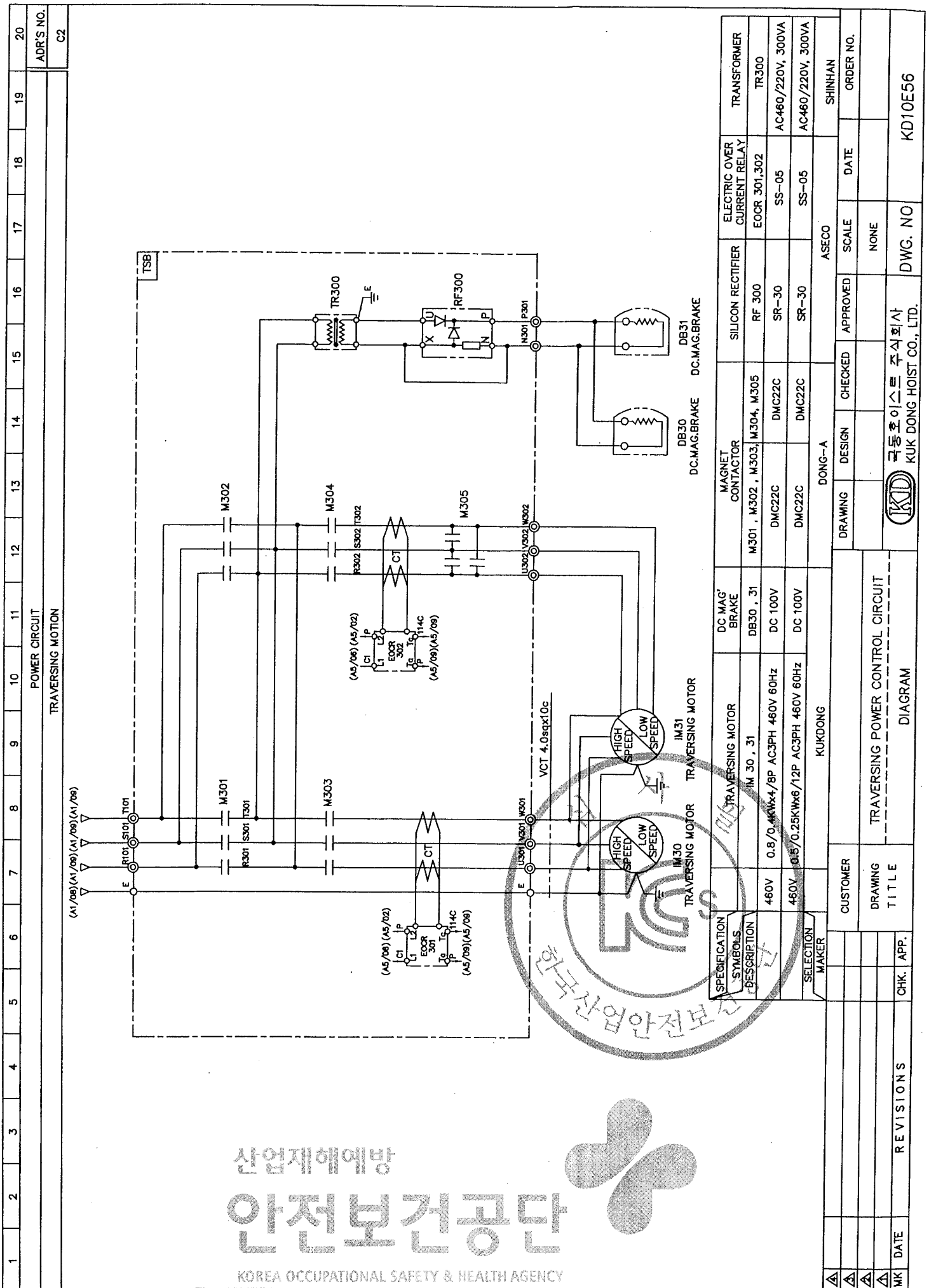
안전보건공단

KOREA OCCUPATIONAL SAFETY & HEALTH AGENCY

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
POWER CIRCUIT																			ADR'S NO.
TRAVERSING MOTION																			C2



SPECIFICATION		TRAVERSING MOTOR		DC MAG' BRAKE		MAGNET CONTACTOR		SILICON RECTIFIER		ELECTRIC OVER CURRENT RELAY		TRANSFORMER	
SYMBOLS		IM 30		DB30		M301, M302, M303, M304, M305		RF 300		EOCR 301,302		TR300	
DESCRIPTION		460V		0.8/0.4KWx4/8P AC3PH 460V 60Hz		DC 100V		DMC22C		SR-30		AC460/220V, 300VA	
		460V		0.5/0.25KWx6/12P AC3PH 460V 60Hz		DC 100V		DMC22C		SR-30		AC460/220V, 300VA	
SELECTION								DMC22C		SS-05			
MAKER				KUKDONG				DONG-A		ASECO		SHINHAN	
		CUSTOMER						DRAWING		DESIGN		CHECKED	
								APPROVED		SCALE		DATE	
		DRAWING		TRAVERSING POWER CONTROL CIRCUIT						NONE			
		TITLE		DIAGRAM									
REVISIONS		CHK.		APP.									
DATE													
DWG. NO.										KUKDONG		KUK DONG HOIST CO., LTD.	
ORDER NO.												KD10E55	



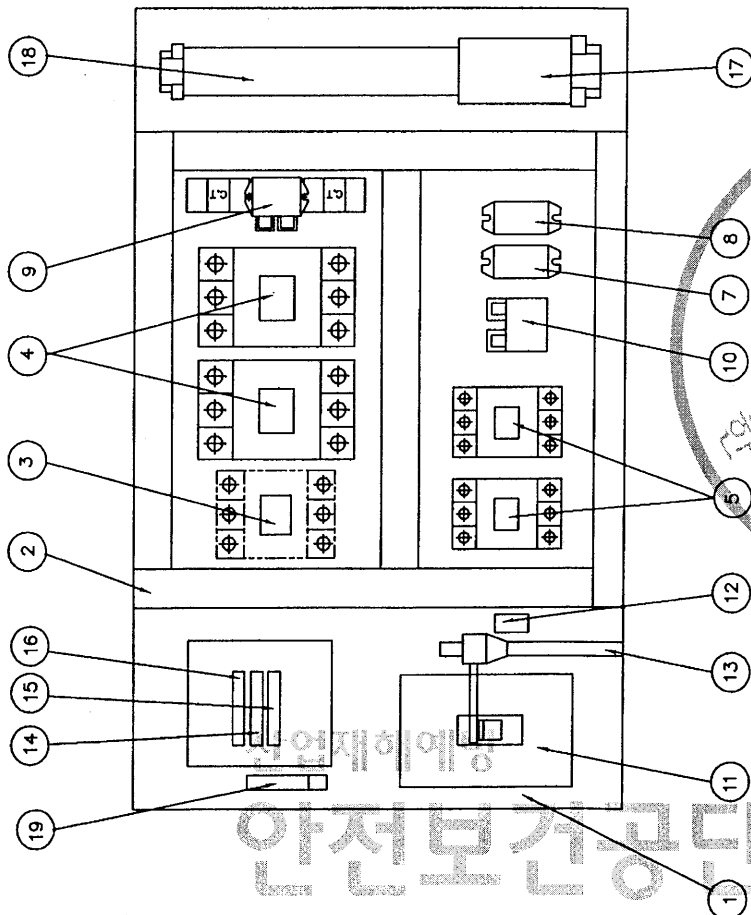
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

ADR'S NO.

NO	DESCRIPTION	SPECIFICATION	Q'TY	REMARK
1	CHASSIS PLATE		1	아연 도금
2	CABLE DUCT	-	1	
3	MAGNET CONTACT	DMC40C	1	M1, MAIN MAG.
4	MAGNET CONTACT	DMC65C	2	HOISTING
5	MAGNET CONTACT	DMC22C	2	TRAVERSING
7	SILICON RECTIFIER	SR-60	1	HOISTING
8	SILICON RECTIFIER	SR-30	1	TRAVERSING
9	E.O.C.R	SS-60	1	HOISTING
10	E.O.C.R	SS-05	1	TRAVERSING
11	MCCB100	53AF/40AT	1	LS-2
12	UPPER LIMIT	AC 600V/3A	1	LS-1
13	LIMIT LEVER	SS-41	1	
14	FUSE (F11,F12)	2 A	2	
15	FUSE (F13)	5 A	1	
16	TRANSFORMER	460V/110V,120V, 200VA	1	
17	TERMINAL BLOCK	60A,25A		
18	TERMINAL BLOCK	15A		
19	EARTH TERMINAL	56x25x50	1	

NOTE

- 전선의 색상은 다음과 같다.
 - 회색 : 교류 및 직류 전원선으로
 - 적색 : 교류제어회로
 - 주황색 : 외부 전원에서 공급되는 연동장치 제어회로
 - 녹색 또는 녹색과 황색 혼용 : 접지선
2. CABLE MATERIAL : ☐ KIV OR EQUIVALENT ☐ MIN SIZE : 2.5sq
- 제어용 전선 : 2.5mm KIV,HIV
 - 제어시 다소 변경될수있음.
 - 외함 개방구조는 다음과 같을것.
 - 외함 개방시 충전부분이 차단되도록 할것.
 - 외함 개방후 충전되어있는 부분은 IP2X 이상의 직접 접촉 방호가 되어있을것.



NOTE

- UPPER LIMIT LS-1의 전원 허용 전류 용량 : AC 600V, 3A
- UPPER LIMIT LS-2의 전원 허용 전류 용량 : NFB 53AF
- EARTH TERMINAL RESISTANCE : 0.018 Ω
- POWER SOURCE : AC 3φ 460V 60HZ



KOREA OCCUPATIONAL SAFETY & HEALTH AGENCY

DRAWING	DESIGN	CHECKED	APPROVED	SCALE	DATE	ORDER NO.
HOISTING CONTROL BOX						
ARRANGEMENT DRAWING						
KUD KUK DONG HOIST CO., LTD.						KD10BA05
DATE	REVISIONS	CHK.	APP.			

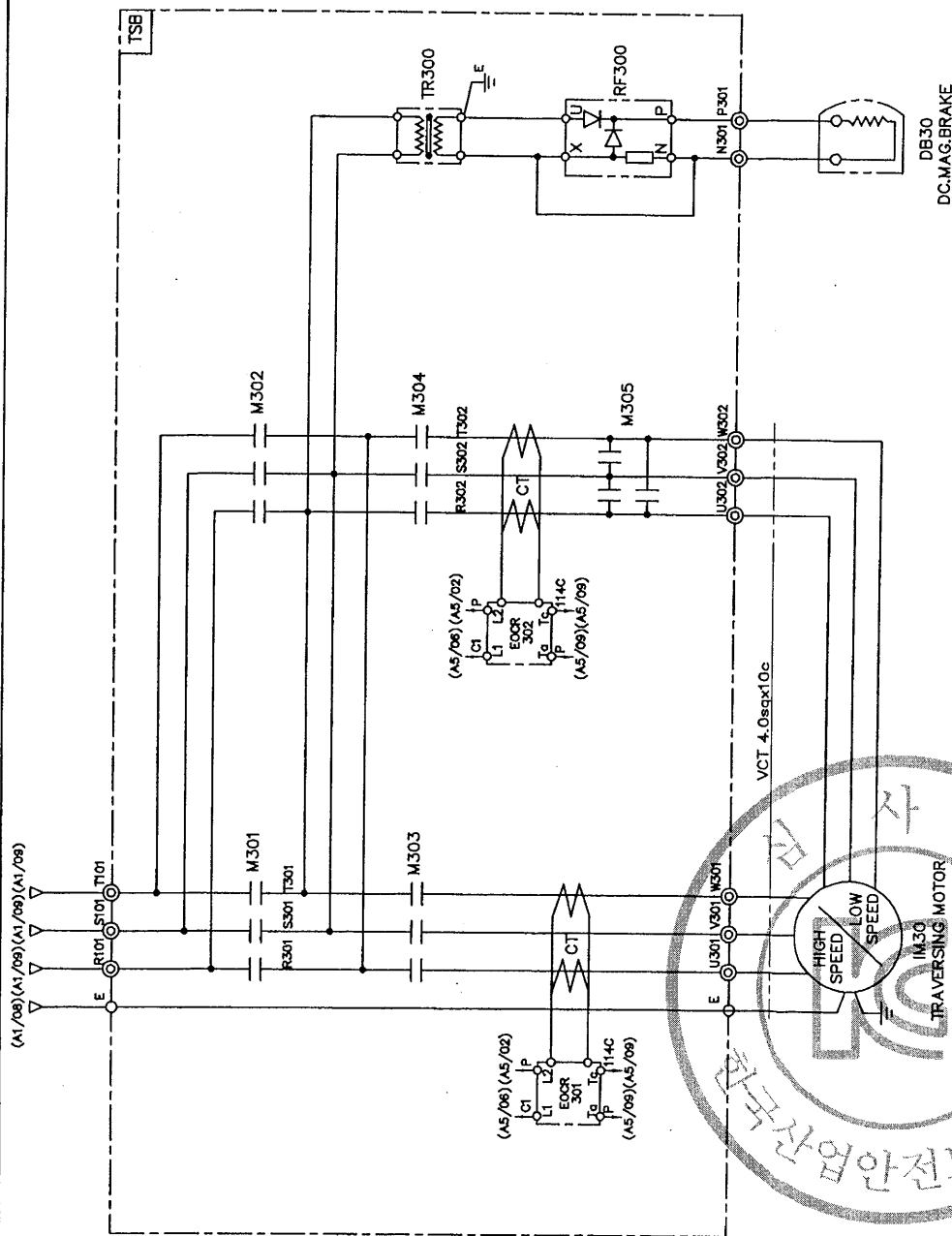
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
HOISTING MOTION										POWER CIRCUIT										ADR'S NO.	
TRAVERSING MOTION																				B1	

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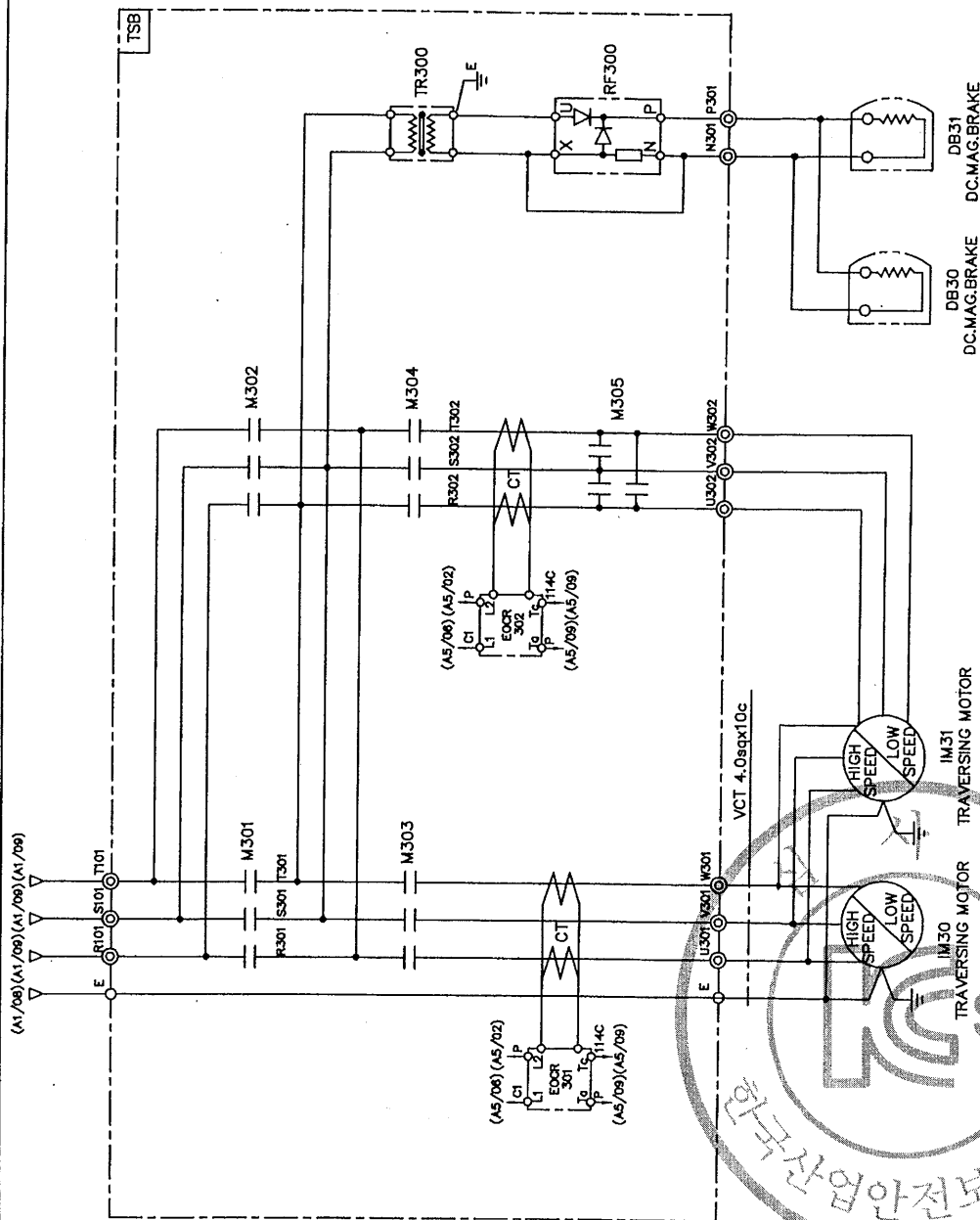
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
POWER CIRCUIT																			
TRAVERSING MOTION																			
ADR'S NO.																			C2



SPECIFICATION SYMBOLS		TRAVERSING MOTOR		DC MAG' BRAKE		MAGNET CONTACTOR		SILICON RECTIFIER		ELECTRIC OVER CURRENT RELAY		TRANSFORMER	
DESCRIPTION		IM 30		DB30		M301, M302, M303, M304, M305		RF 300		EOCR 301,302		TR300	
440V		0.8/0.4KWx4/8P AC3PH 440V 60Hz		DC 100V		DMC22C		DMC22C		SR-30		AC440/220V, 300VA	
440V		0.5/0.25KWx6/12P AC3PH 440V 60Hz		DC 100V		DMC22C		DMC22C		SR-30		AC440/220V, 300VA	
SELECTION													
MAKER				KUKDONG		DONG-A		ASECO				SHINHAN	
		CUSTOMER				DRAWING		DESIGN		CHECKED		APPROVED	
										SCALE		DATE	
		DRAWING TITLE		TRAVERSING POWER CONTROL CIRCUIT						NONE			
				DIAGRAM									
CHK.		REVISIONS								DWG. NO		KD10E45	
DATE													
MK													

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
POWER CIRCUIT																			
TRAVERSING MOTION																			
ADR'S NO.																			C2



SPECIFICATION		TRAVERSING MOTOR		DC MAG' BRAKE		MAGNET CONTACTOR		SILICON RECTIFIER		ELECTRIC OVER CURRENT RELAY		TRANSFORMER					
SYMBOLS DESCRIPTION		IM 30, 31		DB30, 31		M301, M302, M303, M304, M305		RF 300		EOCR 301,302		TR300					
		440V 0.8/0.4KWx4/8P AC3PH 440V 60Hz		DC 100V		DMC22C		SR-30		SS-05		AC440/220V, 300VA					
		440V 0.5/0.25KWx6/12P AC3PH 440V 60Hz		DC 100V		DMC22C		SR-30		SS-05		AC440/220V, 300VA					
SELECTION MAKER		KUKDONG				DONG-A				ASECO							
		CUSTOMER		DRAWING				DESIGN		CHECKED		APPROVED		SCALE		DATE	
				TRAVERSING POWER CONTROL CIRCUIT													
		DRAWING TITLE		DIAGRAM													
		CHK.		APP.													
REVISIONS		DATE														DWG. NO	
																KD10E46	

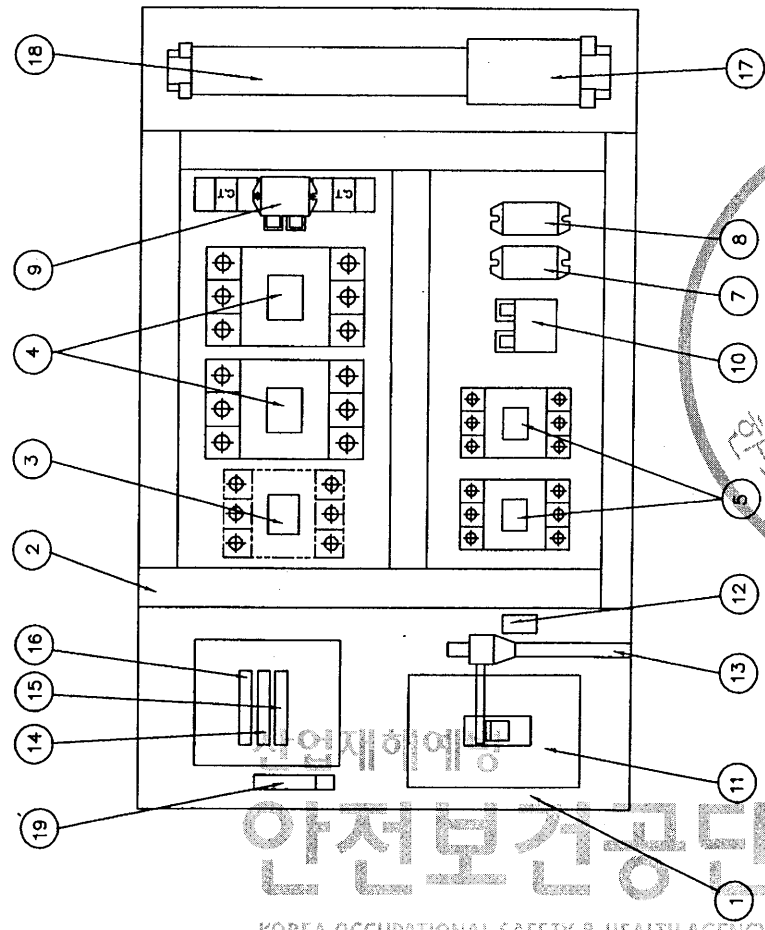
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

ADR'S NO.

NO	DESCRIPTION	SPECIFICATION	Q'TY	REMARK
1	CHASSIS PLATE		1	아연 도금
2	CABLE DUCT	-	1	
3	MAGNET CONTACT	DMC40C	1	M1, MAIN MAG.
4	MAGNET CONTACT	DMC65C	2	HOISTING
5	MAGNET CONTACT	DMC22C	2	TRAVERSING
7	SILICON RECTIFIER	SR-60	1	HOISTING
8	SILICON RECTIFIER	SR-30	1	TRAVERSING
9	E.O.C.R	SS-60	1	HOISTING
10	E.O.C.R	SS-05	1	TRAVERSING
11	MCCB100	53AF/40AT	1	LS-2
12	UPPER LIMIT	AC 600V/3A	1	LS-1
13	LIMIT LEVER	SS-400	1	
14	FUSE (F11,F12)	2 A	2	
15	FUSE (F13)	5 A	1	
16	TRANSFORMER	480V/110V,120V, 200VA	1	
17	TERMINAL BLOCK	60A, 25A		
18	TERMINAL BLOCK	15A		
19	EARTH TERMINAL	5t25x50	1	

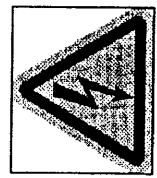
NOTE

- 전선의 색상은 다음과 같다.
 - 흑색 : 교류 및 직류 전원선으로
 - 적색 : 교류 제어선으로
 - 주황색 : 외부 전원에서 공급되는 연동장치 제어회로
 - 녹색 또는 녹색과 황색 혼용 : 접지선
- CABLE MATERIAL : ☐ KIV OR EQUIVALENT
MIN SIZE : 2.5sq
- 제어용 전선 : 2.5mm KIV,HIV
- 제작시 다소 변경될수있음.
- 외함 개방구조는 다음과 같을것.
 - 외함 개방시 충전부분이 차단되도록 할것.
 - 외함 개방후 충전되어있는 부분은 IP2X 이상의 직접 접촉 방호가 되어있을것.



NOTE

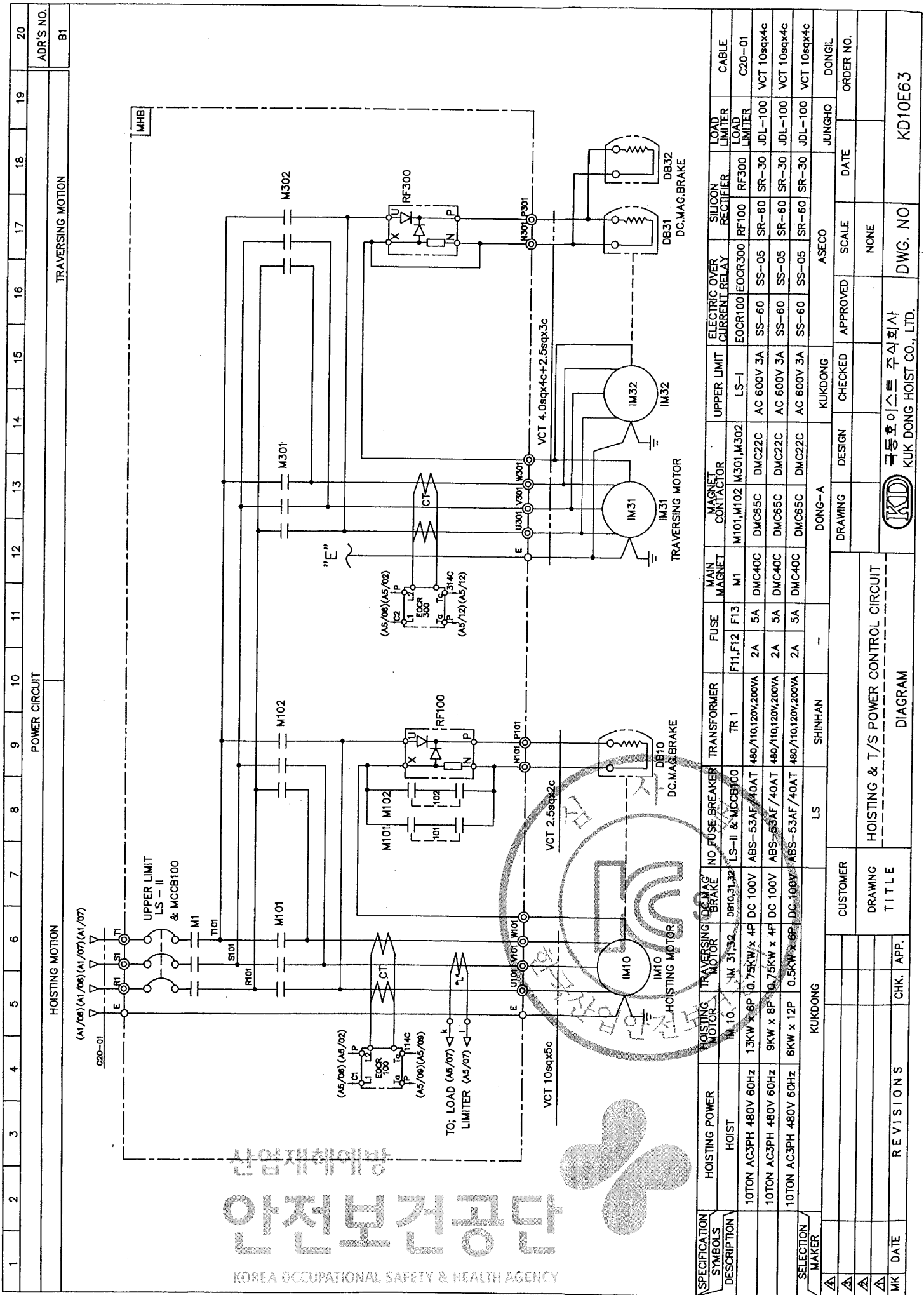
- UPPER LIMIT LS-1의 직접 허용 전류 용량 : AC-600V, 3A
- UPPER LIMIT LS-2의 직접 허용 전류 용량 : NFB 53AF
- EARTH TERMINAL RESISTANCE : 0.018 Ω
- POWER SOURCE : AC-3 ϕ 480V 60HZ



DRAWING		DESIGN	CHECKED	APPROVED	SCALE	DATE	ORDER NO.
HOISTING CONTROL BOX					NONE		
ARRANGEMENT DRAWING							
CUSTOMER		KUD KUK DONG HOIST CO., LTD.			DWG. NO		
DRAWING TITLE					KD10BA06		
CHK.	APP.						
REVISIONS							
DATE							

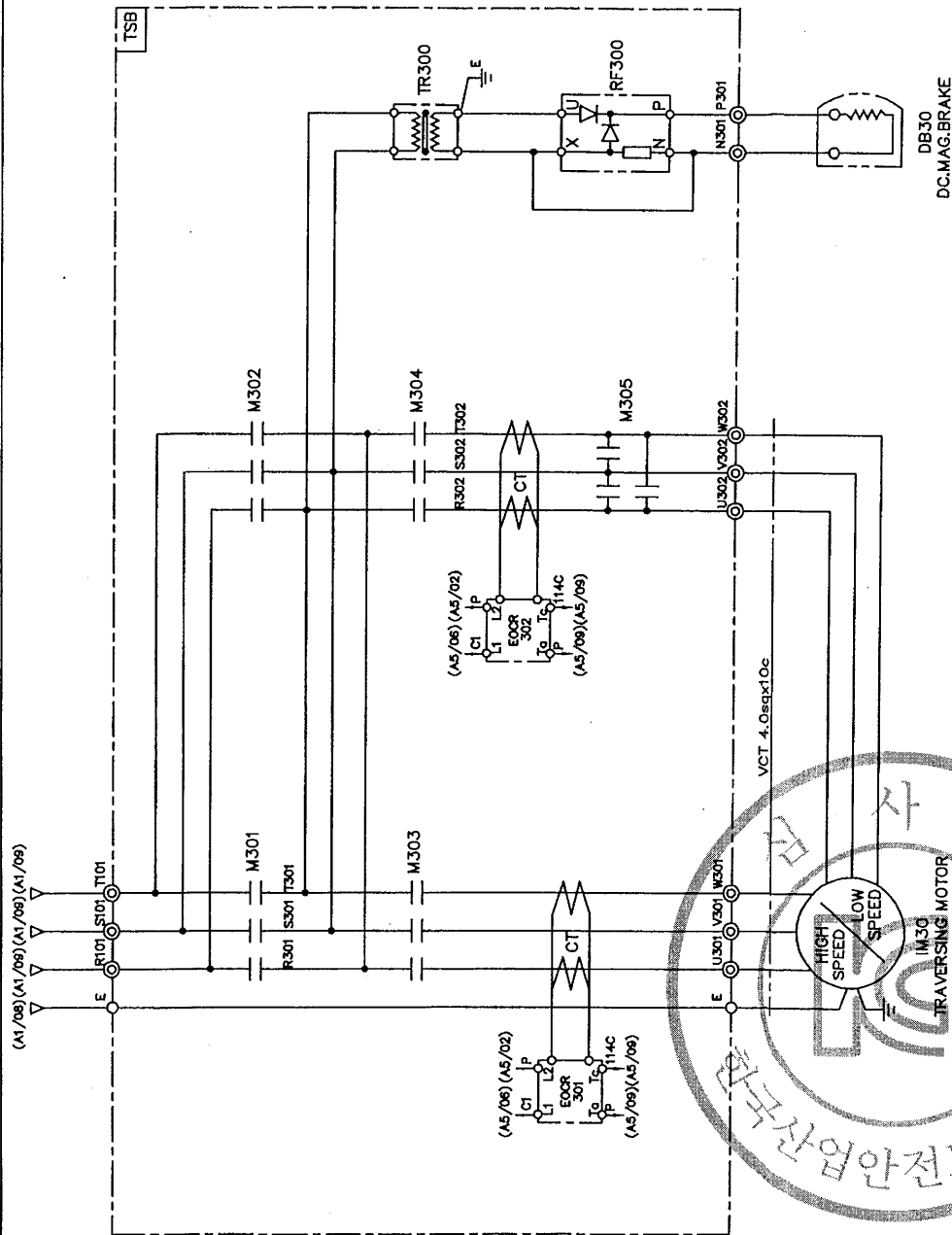
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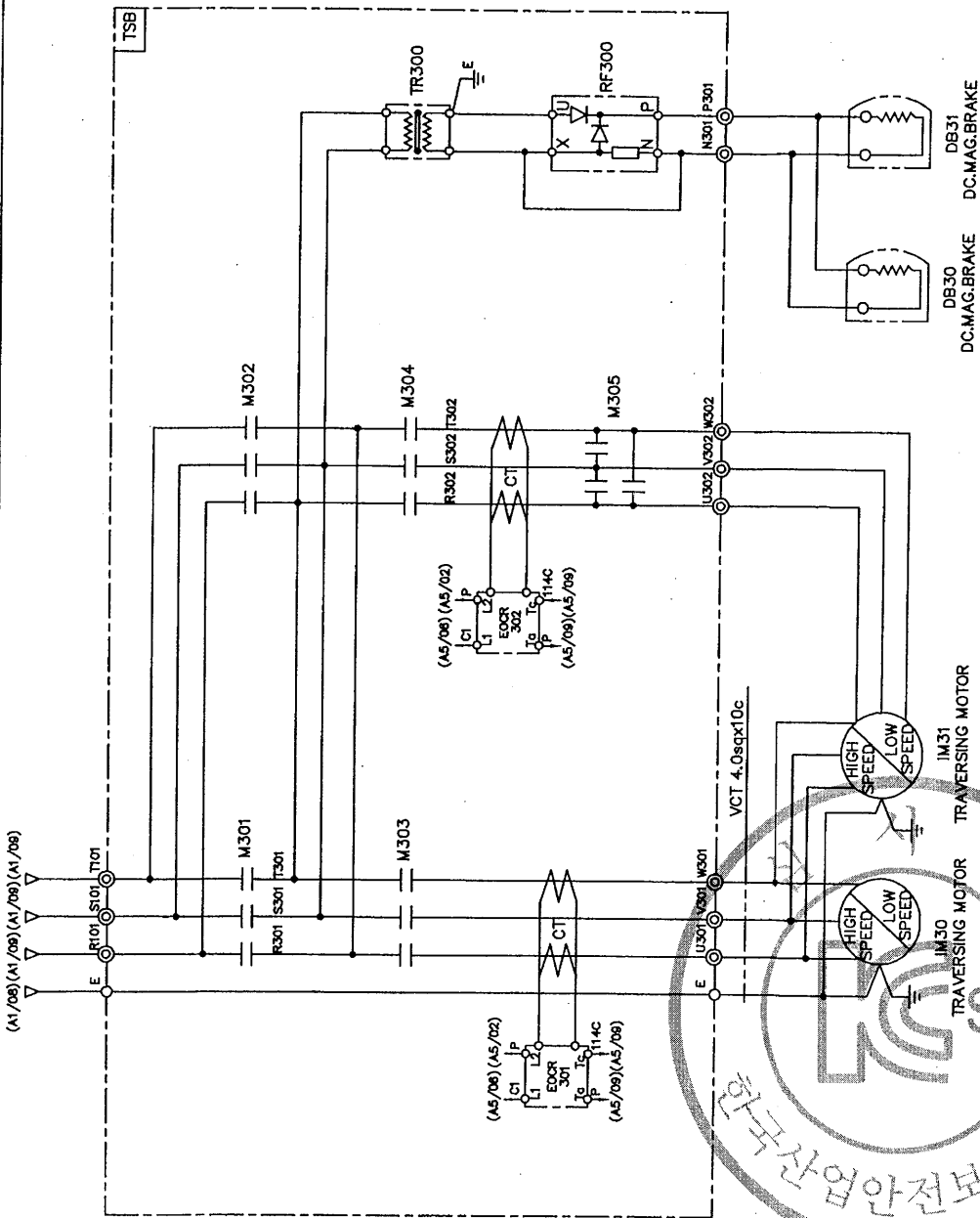
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
POWER CIRCUIT																			
TRAVERSING MOTION																			
ADR'S NO.																			C2

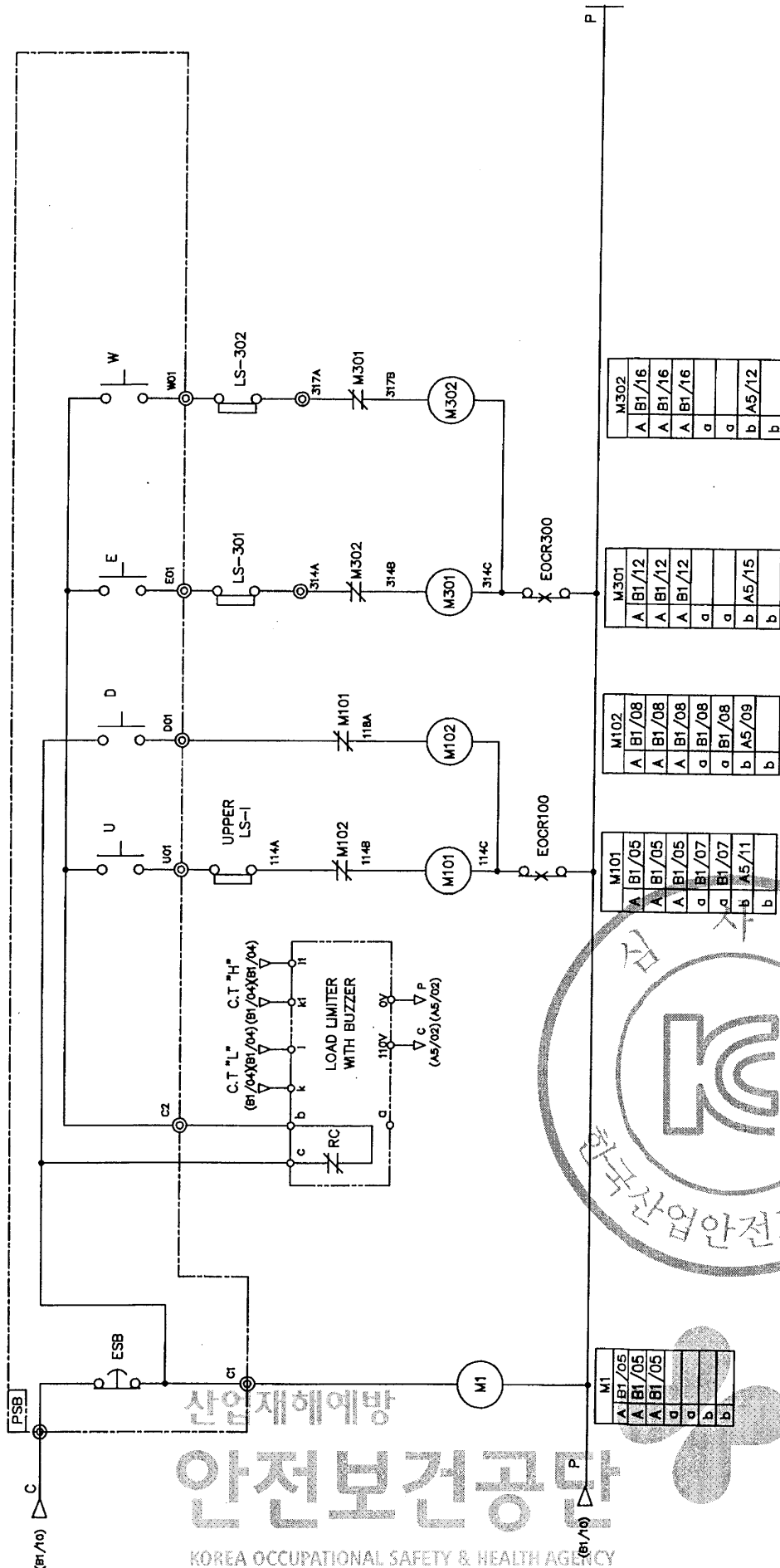


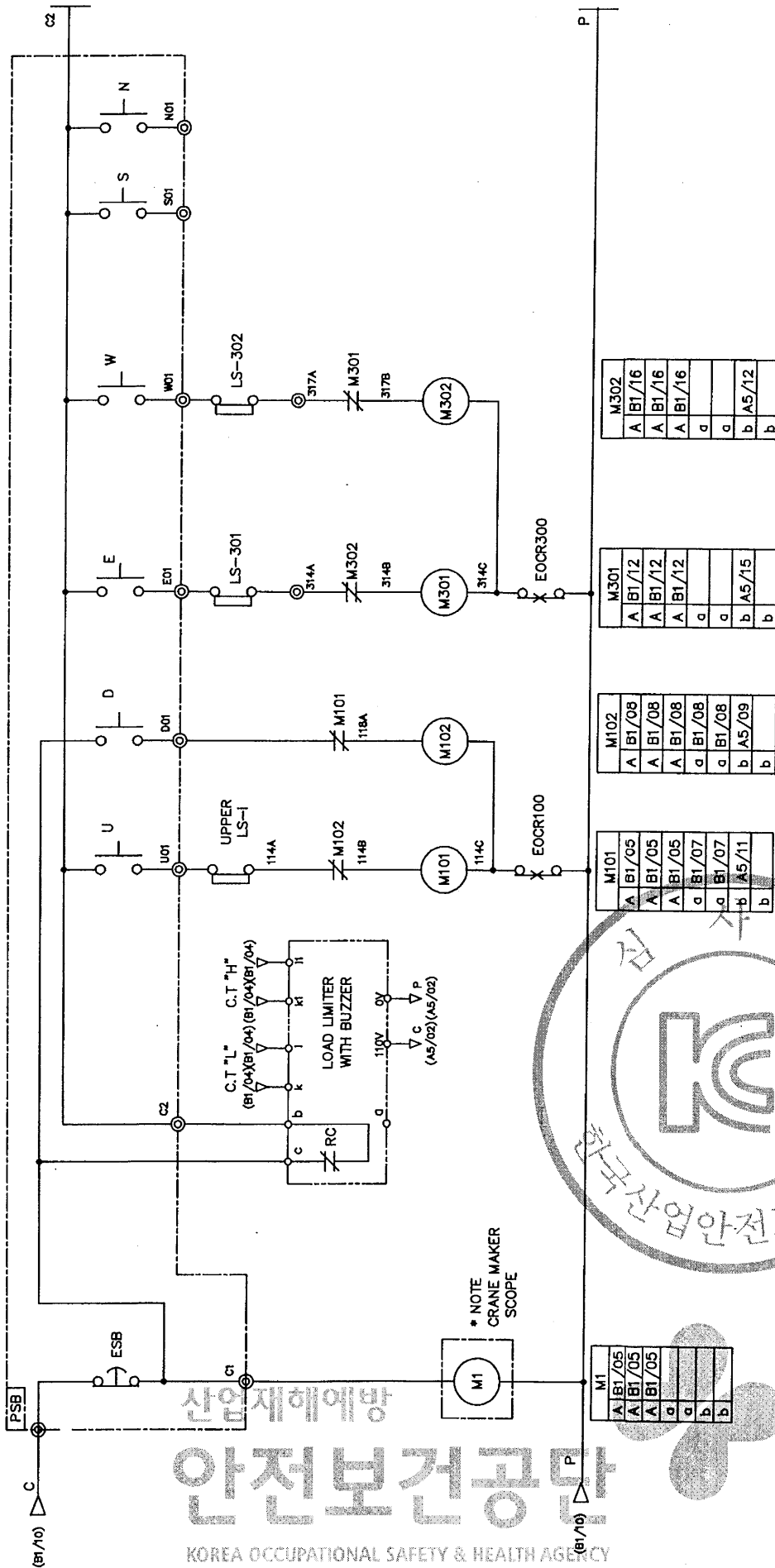
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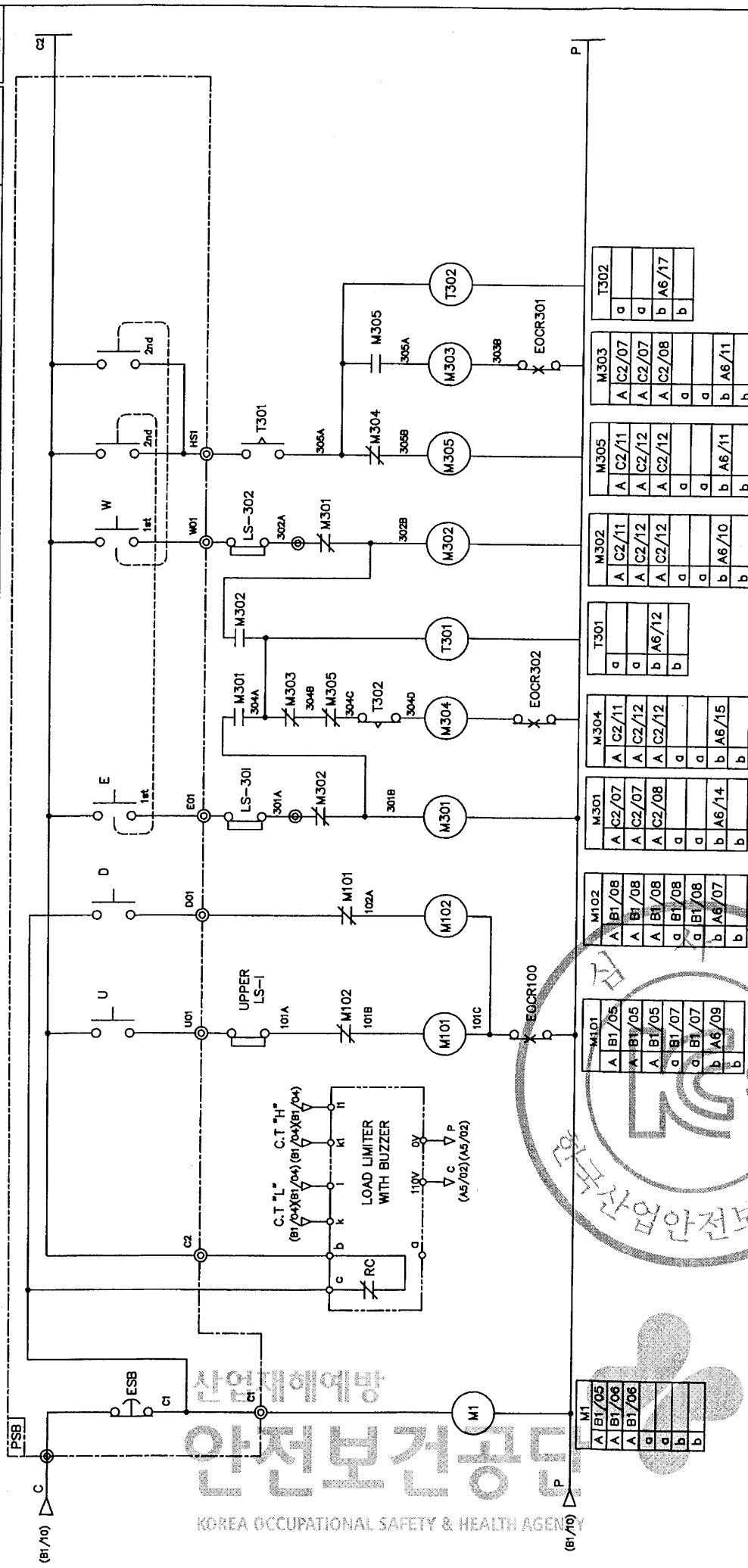
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
POWER CIRCUIT																			
TRAVERSING MOTION																			
ADR'S NO.																			C2



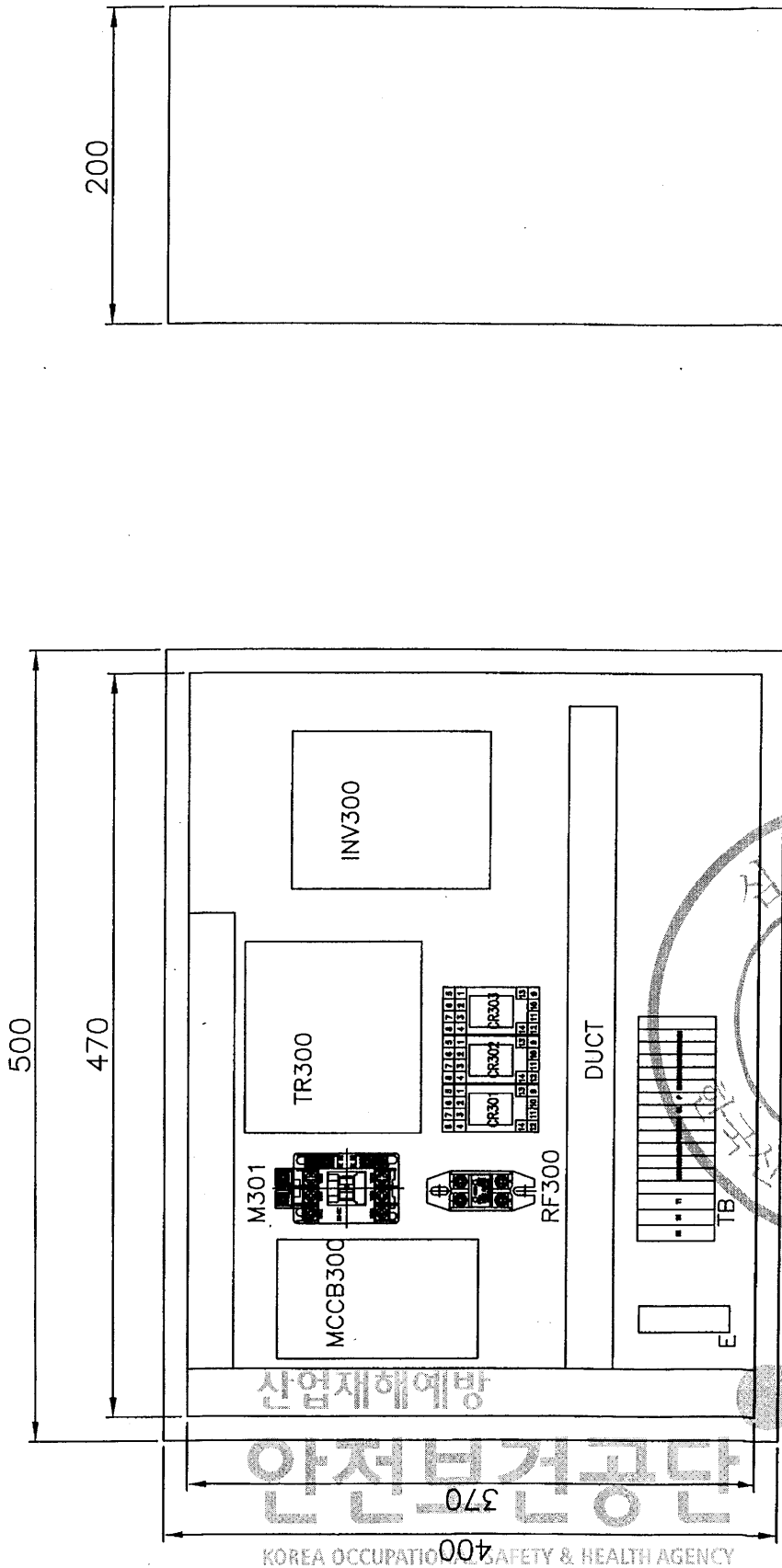
SPECIFICATION		TRAVERSING MOTOR	DC MAG' BRAKE	MAGNET CONTACTOR	SILICON RECTIFIER	ELECTRIC OVER CURRENT RELAY	TRANSFORMER
SYMBOLS							
DESCRIPTION							
	480V	1M 30, 31	DB30, 31	M301, M302, M303, M304, M305	RF 300	EOCR 301,302	TR300
		0.8/0.4KWx4/8P AC3PH 480V 60Hz	DC 100V	DMC22C	SR-30	SS-05	AC480/220V, 300VA
	480V	0.5/0.25KWx6/12P AC3PH 480V 60Hz	DC 100V	DMC22C	SR-30	SS-05	AC480/220V, 300VA
SELECTION		KUKDONG		DONG-A		ASECO	
MAKER						SHINHAN	
CUSTOMER		TRAVERSING POWER CONTROL CIRCUIT					
DRAWING TITLE		DIAGRAM					
REVISIONS		KUKDONG HOIST CO., LTD.					
CHK.	APP.	KUKDONG HOIST CO., LTD.					
DATE		DWG. NO					
		KD10E66					

[illegible]

[illegible]

[illegible]

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2	속 판	SS400	1						
1	T/S BOX	PUR	1						
NO.	DESCRIPTION	M'T'L	SUB	TOTAL	SUB	TOTAL	REMARKS.		
			QTY		WEIGHT(KG)				
PROJECT			DATE			DIM			
TITLE			T/S CONTROL PANEL(INVERTER)			SCALE		PROJECTION	
						A3/3		3rd	
DRAWN	DESIGNED	CHECKED	APPROVED	REF. DRAWING					
KID			KUDONGHUI스트 주식회사 KUK DONG HOIST CO., LTD.			SHEET No.		DWG No.	
						KD05E1001			

11	EARTH BUS BAR	PUR	1	
10	DUCT	PUR	1	
9	TERMINAL BLOCK	PUR	1	
8	INVERTER	PUR	1	
7	TR	PUR	1	
6	RELAY & SCKKET	PUR	1	
5	RF	PUR	1	
4	MC	PUR	1	
3	MCCB	PUR	1	

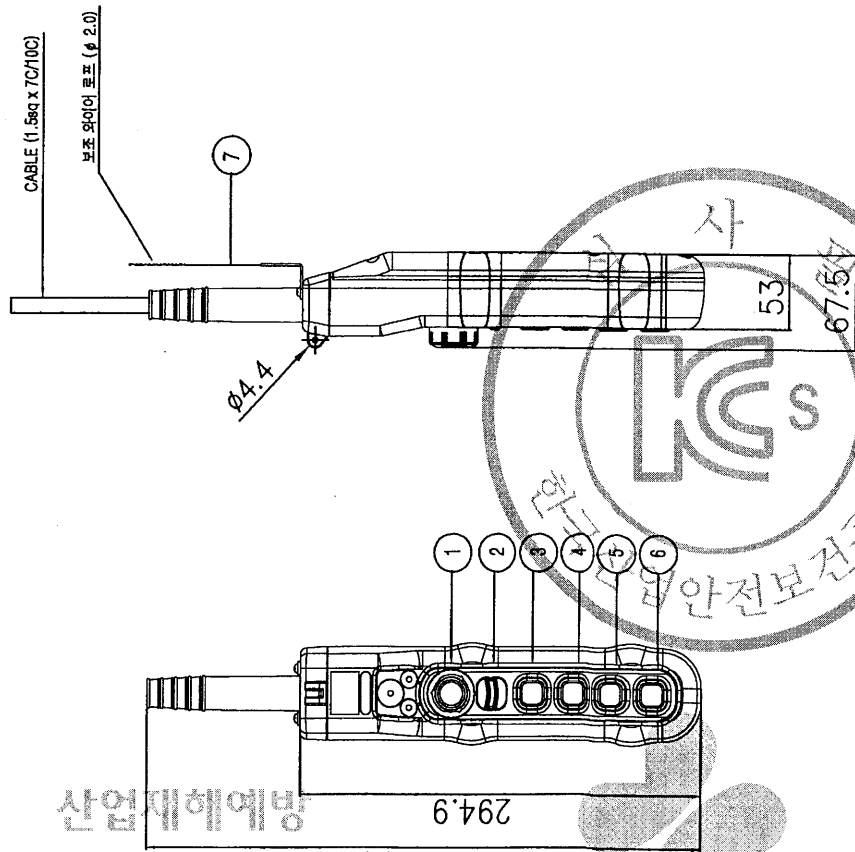
구분	색상	조작버튼	표시등
적색	비상	비상	비상
황색	비정상	비정상	비정상
녹색	정상	정상	정상
청색	의무	의무	의무
흰색, 회색 - 흑색	지정된의미없음		기타

* MATERIAL : POLYCARBONATE (PLASTIC)

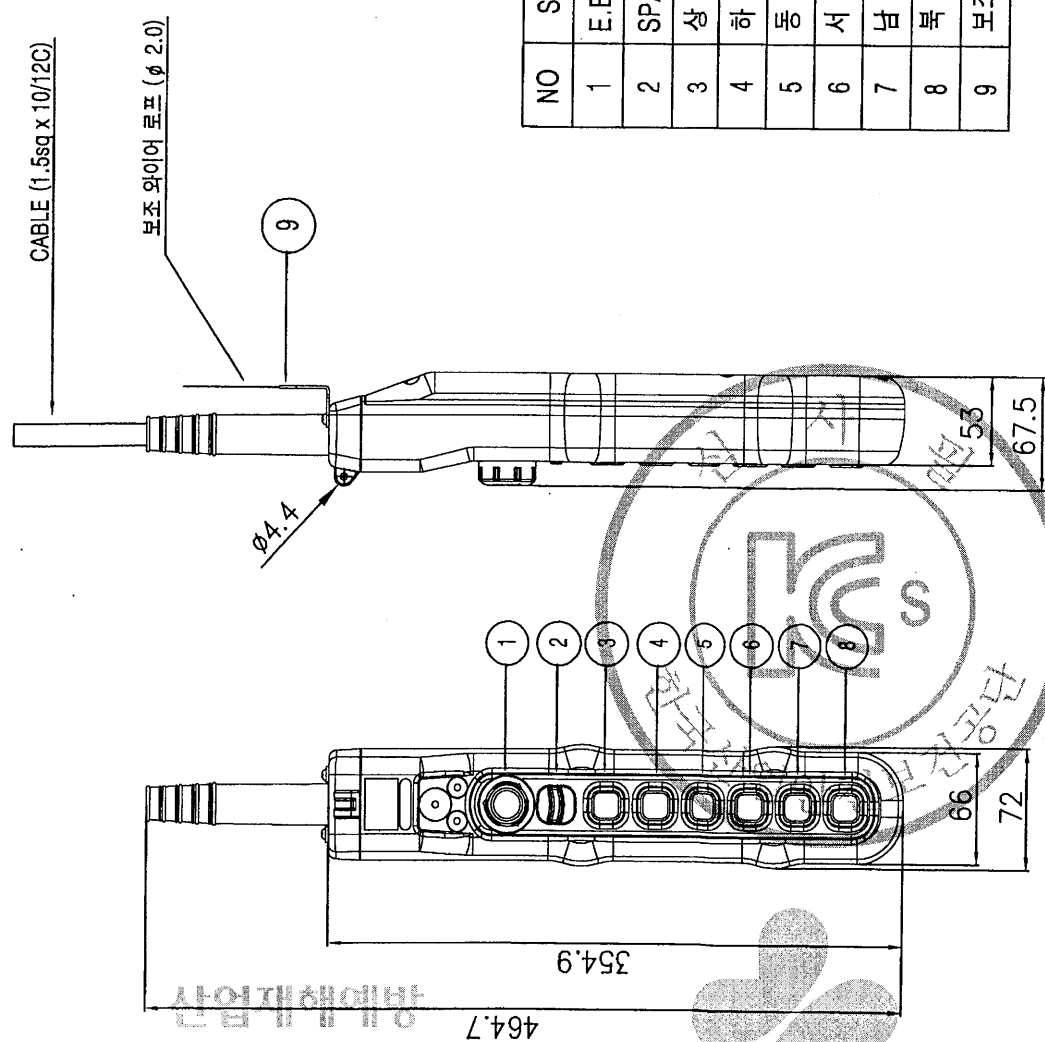
* BODY COLOR : YELLOW, BLACK

* IP : 55 이상

NO	SYMBOL	TYPE	SPEC.	COLOR
1	E.B.S	PUSH LOCK TURN RESET TYPE	250VAC x 6A	RED
2	SPARE			
3	상	1PUSH BUTTON 1STEP		BLACK
4	하	1PUSH BUTTON 1STEP		
5	동(전)	1PUSH BUTTON 1STEP		
6	서(후)	1PUSH BUTTON 1STEP		
7	보조 와이어	φ 2.0		



A	A	A	MK	DATE	REVISIONS	CHK.	APP.	DRAWING TITLE	CUSTOMER	PENDANT PUSH BUTTON SWITCH						
				LAY OUT				DRAWING	DESIGN	CHECKED	APPROVED	SCALE	DATE			
								KD KUK DONG HOIST CO., LTD.								DWG. NO



구분	색상	표시등
적색	조작버튼	표시등
황색	비상	비상
녹색	비정상	비정상
청색	정상	정상
회색, 회색-흑색	의무	의무
	지정된의미없음	기타

* MATERIAL : POLYCARBONATE(PLASTIC)
* BODY COLOR : YELLOW, BLACK
* IP : 55 이상

NO	SYMBOL	TYPE	SPEC.	COLOR
1	E.B.S	PUSH LOCK TURN RESET TYPE	250VAC x 6A	RED
2	SPARE			
3	상	1PUSH BUTTON 1STEP		BLACK
4	하	1PUSH BUTTON 1STEP		
5	동 (좌)	1PUSH BUTTON 1STEP		
6	서 (우)	1PUSH BUTTON 1STEP		
7	남 (전)	1PUSH BUTTON 1STEP		
8	북 (후)	1PUSH BUTTON 1STEP		
9	보조 WIRE	φ 2.0		

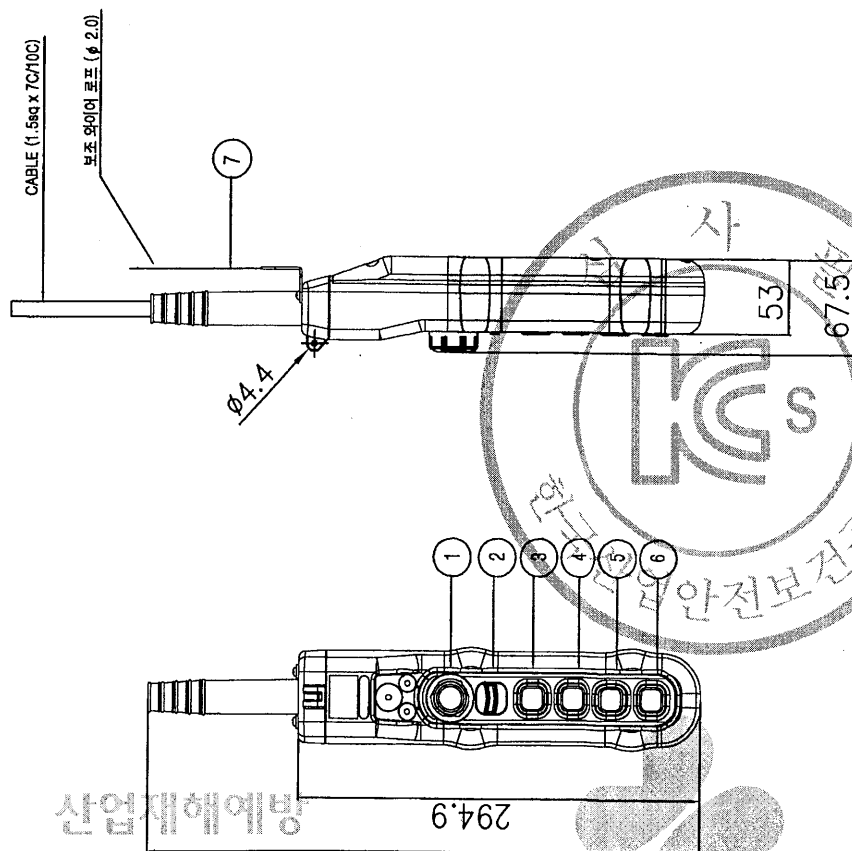
A	CUSTOMER	DRAWING				DESIGN	CHECKED	APPROVED	SCALE	DATE
	DRAWING TITLE		PENDANT PUSH BUTTON SWITCH							
A	REVISIONS		LAY OUT							
	MK	DATE	CHK.	APP.						
			KOS		KUK DONG HOIST CO., LTD.					
			DWG. NO							

* MATERIAL : POLYCARBOBATE(PLASTIC)

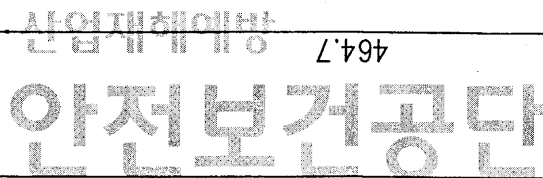
* BODY COLOR : YELLOW, BLACK

* IP : 55.0128

NO	SYMBOL	TYPE	SPEC.	COLOR
1	E.B.S	PUSH LOCK TURN RESET TYPE	250VAC x 6A	BLACK
2	SPARE			
3	상	1PUSH BUTTON 1STEP		
4	하	1PUSH BUTTON 1STEP		
5	동(전)	1PUSH BUTTON 2STEP		
6	서(후)	1PUSH BUTTON 2STEP		
7	보조와이어	ø 2.0		



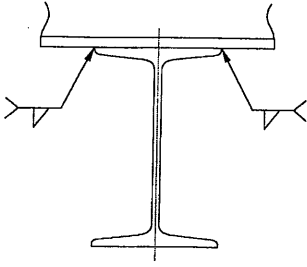
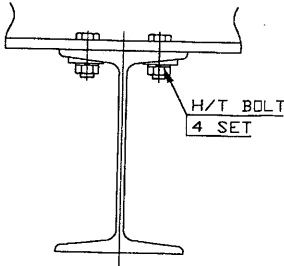
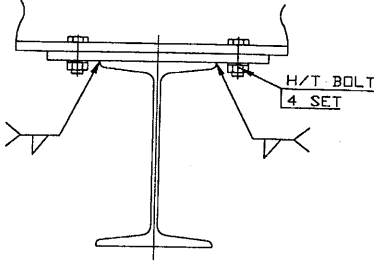
<u>A</u>												
<u>A</u>												
<u>A</u>												
MK	DATE	REVISIONS	CHK.	APP.	CUSTOMER	PENDANT PUSH BUTTON SWITCH LAY OUT	DRAWING	DESIGN	CHECKED	APPROVED	SCALE	DATE
					DRAWING TITLE							



* MATERIAL : POLYCARBONATE(PLASTIC)
* BODY COLOR : YELLOW, BLACK
* IP : 55 이상

A		CUSTOMER	DRAWING TITLE	PENDANT PUSH BUTTON SWITCH LAY OUT	DRAWING DESIGN CHECKED APPROVED SCALE DATE
A					
A					
A					
MK	DATE	REVISIONS	CHK.	APP.	KUK DONG HOIST CO., LTD. DWG. NO.

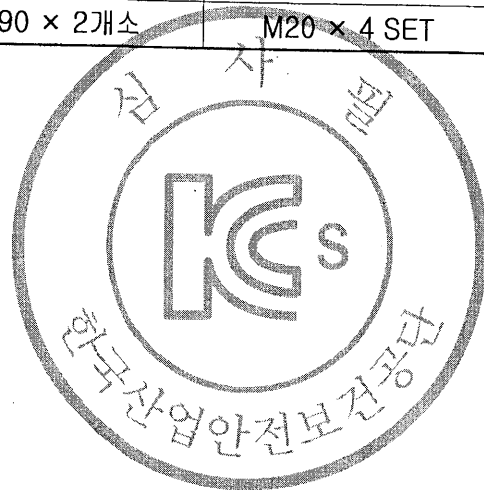
1. I-BEAM의 고정방법

용접구조	BOLT 체결구조	복합구조
	 H/T BOLT 4 SET	 H/T BOLT 4 SET

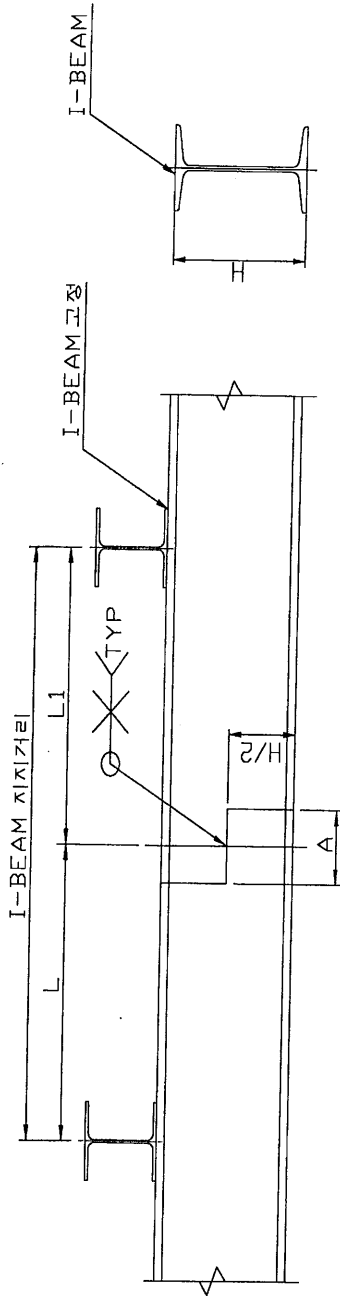
2. 기본조건 및 사양

- * 동하중에 의한 용접이음의 허용응력 (필릿용접 효율 80% 포함) : 560 kg/cm²
- * H/T BOLT의 허용 인장응력 : 2500kg/cm²

정격하중 (TON)	용접구조 (mm)		BOLT 체결구조
	용접두께	최소 용접길이	최소 BOLT SIZE
→ 10	1.4	150 × 2개소	M16 × 4 SET
15	1.8	175 × 2개소	M20 × 4 SET
20	2.4	190 × 2개소	M20 × 4 SET



3. I-BEAM의 연결방법



- * I-BEAM의 용접 연결부위는 I-BEAM 고정 지점과 동일 선상에 위치하지 않도록 한다. 구조 (단위 : mm)
- * 고정 지점 사이 중앙에 용접 연결부위가 일치하지 않도록 한다.



사용 I-BEAM	A	H	H/2	최대 지지거리		
				10 T	15 T	20 T
300×150×t10/18.5	300	300	150	1800		
350×150×t12/24	300	350	175	2800		
400×150×t10/18	300	400	200	1800	4400	3200
450×175×t13/26	300	450	225	4200	4400	3200
600×190×t16/35	300	600	300	5600	4400	3200

단, 사용 I-BEAM은 MODEL별 기술사항서의 BEAM 폭을 참조 할 것

* I-BEAM 고정 방법 중 용접 구조의 용접 강도

용접부 강도 $\sigma = 1.14 \times \frac{\text{I-BEAM자중} + 1.25 \times (\text{정격하중} + \text{Hoist자중})}{0.707 \times \text{용접두께} \times \text{용접길이}} \leq 560 \text{ kg/cm}^2$



I-BEAM 규격	BEAM 자중 (kg/m)	용접 두께 (cm)	최소 용접길이 (cm)	10 T		15 T		20 T	
				HOIST 자중 (KG)	용접강도 (kgal/cm ²)	HOIST 자중 (KG)	용접강도 (kgal/cm ²)	HOIST 자중 (KG)	용접강도 (kgal/cm ²)
300×150×t10/18.5	65.5	1.4	15×2	1210	540.5	-	-	-	-
350×150×t12/24	87.2	1.4	15×2	1210	541.3	-	-	-	-
400×150×t10/18	72	1.4	15×2	1210	540.7	2030	0.0	2430	0.0
450×175×t13/26	115	1.4	17.5×2	1210	464.9	2030	547.8	2430	540.4
600×190×t16/35	176	1.4	19.0×2	1210	430.0	2030	506.0	2430	498.8

단, 사용 I-BEAM은 MODEL 별 기술서양서의 BEAM 폭을 참조 할 것

* I-BEAM 고정 방법 중 BOLT 고정 강도

$$\text{BOLT 강도 } \sigma = 1.14 \frac{\text{I-BEAM 자중} + 1.25 \times (\text{정격하중} + \text{Hoist 자중})}{\text{BOLT 단면적} \times \text{BOLT 수}} \leq 2500 \text{ kg/cm}^2$$

I-BEAM 규격	BEAM 자중 (kg/m)	BOLT 규격	BOLT 수	BOLT 단면적 (cm ²)	10 T		15 T		20 T	
					HOIST 자중 (KG)	BOLT강도 (kg/cm ²)	HOIST 자중 (KG)	BOLT강도 (kg/cm ²)	HOIST 자중 (KG)	BOLT강도 (kg/cm ²)
300×150×t10/18.5	65.5	M16	4	2.01	1210	1996.1	-	-	-	-
350×150×t12/24	87.2	M16	4	2.01	1210	1999.2	-	-	-	-
400×150×t10/18	72	M20	4	3.15	1210	1274.3	2030	0.0	2430	0.0
450×175×t13/26	115	M20	4	3.15	1210	1278.2	2030	1936.4	2430	2547.1
600×190×t16/35	176	M20	4	3.15	1210	1283.7	2030	1941.9	2430	2552.7

I-5. I-BEAM의 최대 지지거리

5-1. 굽힘 MOMENT 계산

1. 수직하중에 의한 굽힘 MOMENT

$$\text{BEAM 자중에 의한 MOMENT : } M_s = \frac{M \times \text{I-BEAM 자중} \times (\text{지지거리})^2}{8} \quad \text{kg-cm}$$

$$M_s = \frac{1.05 \times 87.2 \times 180^2}{8} = 2785 \quad \text{kg-cm}$$

$$\text{이동하중에 의한 MOMENT : } M_d = F \times \frac{(\text{정격하중} + \text{호이스트 자중}) \times \text{지지거리}}{4} \quad \text{kg-cm}$$

$$M_d = 1.254 \times \frac{(10000 + 1210) \times 180}{4} = 632580 \quad \text{kg-cm}$$

$$\text{* 호이스트 자중} = 1210 \text{ KG M} \quad \text{용 량 : } 10000 \text{ KG}$$

$$\text{* DYNAMIC COEFFICIENT : } F = 1.254$$

$$\text{* STATIC COEFFICIENT : } M = 1.05$$

$$\text{굽힘 MOMENT 합계 : } \Sigma M_v = M_s + M_d = 2785 + 632580 = 635366 \quad \text{kg-cm}$$

2. 풍하중에 의한 굽힘 MOMENT

$$\text{풍하중에 의한 MOMENT : } M_w = \frac{\text{풍하중}(W) \times \text{지지거리}}{2}$$

$$M_w = \frac{281.08 \times 180}{2} = 39351.3 \quad \text{kg-cm}$$

$$\begin{aligned} \text{풍하중 : } W &= \text{속도압}(q) \times \text{속도계수}(C) \times \text{압력을 받는 면적}(A) \text{ (kg)} \\ &= 23.66 \times 1.2 \times 9.9 = 281.08 \text{ (kg)} \end{aligned}$$

$$\text{속도압 : } q = 8.5 \times \sqrt[4]{h} \text{ (kg/m}^2\text{)} = 8.5 \times \sqrt[4]{60} = 23.66 \text{ (kg/m}^2\text{)}$$

$$\text{속도계수 : } C = 1.2 \text{ (크레인 제작기준 참조)}$$

$$\begin{aligned} \text{풍압을 받는 면적 } A &= \text{I-BEAM의 면적} + \text{HOIST의 면적 (m}^2\text{)} \\ &= 9 + 0.90 = 9.90 \text{ (m}^2\text{)} \end{aligned}$$

$$\text{* 호이스트의 풍압을 받는 면적 } \approx 0.8 \text{ m}^2$$

I-BEAM 규격	BEAM 자중 (kg/m)	최 대 지지거리 (cm)	M _s (kg-cm)	M _d (kg-cm)	ΣM _v (kg-cm)	W (kg)	M _w (kg-cm)	A (m ²)
300×150×t10/18.5	65.5	180	2785.0	632580	635365	281.08	39351.3	9.90
350×150×t12/24	87.2	280	8972.9	984014	992987	323.67	45313.6	11.40
400×150×t10/18	72	180	3062	632580	635642	479.82	67175	16.90
450×175×t13/26	115	420	26625	1476021	1502646	562.16	78703	19.80
600×190×t16/35	176	560	72442	1968028	2040470	794.98	222593	28

단, 사용 I-BEAM은 MODEL별 기술서양서의 BEAM 폭을 참조 할 것

5-2. 굽힘 응력 계산

1. 수직하중에 의한 굽힘 응력

$$\begin{aligned} * \sigma_v &= \frac{\text{수직 굽힘 MOMENT 합계 : } \Sigma M_v}{\text{단면 계수 : } Z_x} \quad (\text{kg/cm}^2) \\ &= \frac{635365}{849} = 748.4 \quad (\text{kg/cm}^2) \end{aligned}$$

2. 풍하중에 의한 굽힘 응력

$$\begin{aligned} * \sigma_w &= \frac{\text{풍하중에 의한 굽힘 MOMENT : } M_w}{\text{단면 계수 : } Z_y} \quad (\text{kg/cm}^2) \\ &= \frac{39351.3}{118} = 333.5 \quad (\text{kg/cm}^2) \end{aligned}$$

2. 풍하중에 의한 굽힘 응력

$$* \Sigma \sigma = \sigma_v + \sigma_w \leq 0.8 \times 1449 = 1159 \text{ kg/cm}^2$$

I-BEAM 규격	단 면 계 수 Zx	단 면 계 수 Zy	ΣM_v (kg-cm)	Mw (kg-cm)	σ_v (kg/cm ²)	σ_w (kg/cm ²)	$\Sigma \sigma$ (kg/cm ²)
300×150×t10/18.5	849	118	635365	39351.3	748.4	333.5	1081.9
350×150×t12/24	1280	164	992987	45313.6	775.8	276.3	1052.1
400×150×t10/18	1220	115	635642	67175.5	521.0	584.1	1105.2
450×175×t13/26	2170	240	1502646	78702.6	692.5	327.9	1020.4
600×190×t16/35	4330	373	2040470	222593.3	471.2	596.8	1068.0

단, I-BEAM의 사용은 MODEL 별 기술사양서에 따른다.

산업재해예방

안전보건공단

KOREA OCCUPATIONAL SAFETY & HEALTH AGENCY

5-3. I-BEAM 처짐(DEFLECTION)

1. I-BEAM 자중에 의한 처짐

$$\begin{aligned} * \delta_s &= \frac{5 \times \text{I-BEAM 자중} \times \text{지지거리}^3}{384 \times 2100000 \times I_x} \quad (\text{cm}) \\ &= \frac{5 \times 65.5 \times 180^3}{384 \times 2100000 \times 12700} = 0.00186 \quad (\text{cm}) \end{aligned}$$

2. 이동하중에 의한 처짐 (DEFLECTION)

$$\begin{aligned} * \delta_d &= \frac{(\text{정격하중} + \text{호이스트자중}) \times \text{지지거리}^3}{48 \times 2100000 \times I_x} \quad (\text{cm}) \\ &= \frac{(10000 + 1210) \times 180^3}{48 \times 2100000 \times 12700} = 0.051 \quad (\text{cm}) \end{aligned}$$

3. 판 정

1) 이동하중에 의한 처짐판정(하단표기)

$$\begin{aligned} &\frac{\text{이동하중에 의한 처짐} : \delta_d}{\text{지지거리}} < \frac{1}{1000} \\ &= \frac{0.051}{180} = \frac{1}{3525} < \frac{1}{1000} \end{aligned}$$

2) 처짐량 합계에 의한 처짐판정 (하단표기)

$$\begin{aligned} &\frac{\text{I-BEAM 자중에 의한 처짐} : \delta_s + \text{이동하중에 의한 처짐} : \delta_d}{\text{지지거리}} < \frac{1}{800} \\ &= \frac{0.00186 + 0.051}{180} = \frac{1}{3400} < \frac{1}{800} \end{aligned}$$

I-BEAM 규격	단면2차 MOMENT I _x	BEAM 자중 (kg/m)	δ _s (cm)	δ _d (cm)	이동하중에 의한 처짐 판정	처짐량 합계에 의한 처짐판정
300×150×t10/18.5	12700	65.5	0.00186	0.051	1 / 3525	1 / 3400
350×150×t12/24	22400	87.2	0.0053	0.109	1 / 2569	1 / 2450
400×150×t10/18	24100	72	0.0011	0.101	1 / 1777	1 / 1763
450×175×t13/26	48800	115	0.0108	0.169	1 / 2488	1 / 2338
600×190×t16/35	130000	176	0.01474	0.150	1 / 3733	1 / 3399

단, I-BEAM의 사용은 MODEL 별 기술사양서에 따른다.

I-6. I-BEAM의 최대 지지거리

6-1. 굽힘 MOMENT 계산

1. 수직하중에 의한 굽힘 MOMENT

$$\text{BEAM 자중에 의한 MOMENT : } M_s = \frac{M \times \text{I-BEAM 자중} \times (\text{지지거리})^2}{8} \quad \text{kg-cm}$$

$$M_s = \frac{1.05 \times 87.2 \times 280^2}{8} = 8973 \quad \text{kg-cm}$$

$$\text{이동하중에 의한 MOMENT : } M_d = F \times \frac{(\text{정격하중} + \text{호이스트 자중}) \times \text{지지거리}}{4} \quad \text{kg-cm}$$

$$M_d = 1.254 \times \frac{(10000 + 1210) \times 280}{4} = 984014 \quad \text{kg-cm}$$

$$\text{* 호이스트 자중} = 1210 \text{ KG} \quad \text{용량 : } 10000 \text{ KG}$$

$$\text{* DYNAMIC COEFFICIENT : } F = 1.254$$

$$\text{* STATIC COEFFICIENT : } M = 1.05$$

$$\text{굽힘 MOMENT 합계 : } \Sigma M_v = M_s + M_d = 8973 + 984014 = 992987 \quad \text{kg-cm}$$

2. 풍하중에 의한 굽힘 MOMENT

$$\text{풍하중에 의한 MOMENT : } M_w = \frac{\text{풍하중}(W) \times \text{지지거리}}{2}$$

$$M_w = \frac{323.67 \times 280}{2} = 45313.6 \quad \text{kg-cm}$$

$$\begin{aligned} \text{풍하중 : } W &= \text{속도압}(q) \times \text{속도계수}(C) \times \text{압력을 받는 면적}(A) \text{ (kg)} \\ &= 23.66 \times 1.2 \times 11.4 = 323.67 \text{ (kg)} \end{aligned}$$

$$\text{속도압 : } q = 8.5 \times \sqrt[4]{h} \text{ (kg/m}^2\text{)} = 8.5 \times \sqrt[4]{60} = 23.66 \text{ (kg/m}^2\text{)}$$

$$\text{속도계수 : } C = 1.2 \text{ (크레인 제작기준 참조)}$$

$$\begin{aligned} \text{풍압을 받는 면적 } A &= \text{I-BEAM의 면적} + \text{HOIST의 면적 (m}^2\text{)} \\ &= 10.5 + 0.90 = 11.40 \text{ (m}^2\text{)} \end{aligned}$$

$$\text{* 호이스트의 풍압을 받는 면적 } \approx 0.8 \text{ m}^2$$

I-BEAM 규격	BEAM 자중 (kg/m)	최 대 지지거리 (cm)	M _s (kg-cm)	M _d (kg-cm)	ΣM _v (kg-cm)	W (kg)	M _w (kg-cm)	A (m ²)
300×150×t10/18.5	65.5	180	2785.0	632580	635365	281.08	39351.3	9.90
350×150×t12/24	87.2	280	8972.9	984014	992987	323.67	45313.6	11.40
400×150×t10/18	72	180	3062	632580	635642	479.82	67175	16.90
450×175×t13/26	115	420	26625	1476021	1502646	562.16	78703	19.80
600×190×t16/35	176	560	72442	1968028	2040470	794.98	222593	28

단, 사용 I-BEAM은 MODEL별 기술사양서의 BEAM 폭을 참조 할 것

6-2. 굽힘 응력 계산

1. 수직하중에 의한 굽힘 응력

$$\begin{aligned} * \sigma_v &= \frac{\text{수직 굽힘 MOMENT 합계 : } \Sigma M_v}{\text{단면 계수 : } Z_x} \quad (\text{kg/cm}^2) \\ &= \frac{992987}{1280} = 775.8 \quad (\text{kg/cm}^2) \end{aligned}$$

2. 풍하중에 의한 굽힘 응력

$$\begin{aligned} * \sigma_w &= \frac{\text{풍하중에 의한 굽힘 MOMENT : } M_w}{\text{단면 계수 : } Z_y} \quad (\text{kg/cm}^2) \\ &= \frac{45313.6}{164} = 276.3 \quad (\text{kg/cm}^2) \end{aligned}$$

2. 풍하중에 의한 굽힘 응력

$$* \Sigma \sigma = \sigma_v + \sigma_w \leq 0.8 \times 1449 = 1159 \text{ kg/cm}^2$$

I-BEAM 규격	단면 계수 Zx	단면 계수 Zy	ΣM_v (kg-cm)	M_w (kg-cm)	σ_v (kg/cm ²)	σ_w (kg/cm ²)	$\Sigma \sigma$ (kg/cm ²)
300×150×t10/18.5	849	118	635365	39351.3	748.4	333.5	1081.9
350×150×t12/24	1280	164	992987	45313.6	775.8	276.3	1052.1
400×150×t10/18	1220	115	635642	67175.5	521.0	584.1	1105.2
450×175×t13/26	2170	240	1502646	78702.6	692.5	327.9	1020.4
600×190×t16/35	4330	373	2040470	222593.3	471.2	596.8	1068.0

단, I-BEAM의 사용은 MODEL 별 기술사양서에 따른다.

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6-3. I-BEAM 처짐(DEFLECTION)

1. I-BEAM 자중에 의한 처짐

$$\begin{aligned} * \delta_s &= \frac{5 \times \text{I-BEAM 자중} \times \text{지지거리}^3}{384 \times 2100000 \times I_x} \quad (\text{cm}) \\ &= \frac{5 \times 87.2 \times 280^3}{384 \times 2100000 \times 22400} = 0.00530 \quad (\text{cm}) \end{aligned}$$

2. 이동하중에 의한 처짐 (DEFLECTION)

$$\begin{aligned} * \delta_d &= \frac{(\text{정격하중} + \text{호이스트자중}) \times \text{지지거리}^3}{48 \times 2100000 \times I_x} \quad (\text{cm}) \\ &= \frac{(10000 + 1210) \times 280^3}{48 \times 2100000 \times 22400} = 0.109 \quad (\text{cm}) \end{aligned}$$

3. 판 정

1) 이동하중에 의한 처짐판정(하단표기)

$$\begin{aligned} &\frac{\text{이동하중에 의한 처짐} : \delta_d}{\text{지지거리}} < \frac{1}{1000} \\ &= \frac{0.109}{280} = \frac{1}{2569} < \frac{1}{1000} \end{aligned}$$

2) 처짐량 합계에 의한 처짐판정 (하단표기)

$$\begin{aligned} &\frac{\text{I-BEAM 자중에 의한 처짐} : \delta_s + \text{이동하중에 의한 처짐} : \delta_d}{\text{지지거리}} < \frac{1}{800} \\ &= \frac{0.0053 + 0.109}{280} = \frac{1}{2450} < \frac{1}{800} \end{aligned}$$

I-BEAM 규격	단면2차 MOMENT I _x	BEAM 자중 (kg/m)	δ _s (cm)	δ _d (cm)	이동하중에 의한 처짐 판정	처짐량 합계에 의한 처짐판정
300×150×t10/18.5	12700	65.5	0.00186	0.051	1 / 3525	1 / 3400
350×150×t12/24	22400	87.2	0.0053	0.109	1 / 2569	1 / 2450
400×150×t10/18	24100	72	0.0011	0.101	1 / 1777	1 / 1763
450×175×t13/26	48800	115	0.0108	0.169	1 / 2488	1 / 2338
600×190×t16/35	130000	176	0.01474	0.150	1 / 3733	1 / 3399

단, I-BEAM의 사용은 MODEL 별 기술사양서에 따른다.

I-7. I-BEAM의 최대 지지거리

7-1. 굽힘 MOMENT 계산

1. 수직하중에 의한 굽힘 MOMENT

$$\text{BEAM 자중에 의한 MOMENT : } M_s = \frac{M \times \text{I-BEAM 자중} \times (\text{지지거리})^2}{8} \quad \text{kg-cm}$$

$$M_s = \frac{1.05 \times 72 \times 180^2}{8} = 3062 \quad \text{kg-cm}$$

$$\text{이동하중에 의한 MOMENT : } M_d = F \times \frac{(\text{정격하중} + \text{호이스트 자중}) \times \text{지지거리}}{4} \quad \text{kg-cm}$$

$$M_d = 1.254 \times \frac{(10000 + 1210) \times 180}{4} = 632580 \quad \text{kg-cm}$$

$$\text{* 호이스트 자중} = 1210 \text{ KG} \quad \text{용량 : } 10000 \text{ KG}$$

$$\text{* DYNAMIC COEFFICIENT : } F = 1.254$$

$$\text{* STATIC COEFFICIENT : } M = 1.05$$

$$\text{굽힘 MOMENT 합계 : } \Sigma M_v = M_s + M_d = 3062 + 632580 = 635642 \quad \text{kg-cm}$$

2. 풍하중에 의한 굽힘 MOMENT

$$\text{풍하중에 의한 MOMENT : } M_w = \frac{\text{풍하중}(W) \times \text{지지거리}}{2}$$

$$M_w = \frac{479.82 \times 180}{2} = 67175.5 \quad \text{kg-cm}$$

$$\begin{aligned} \text{풍하중 : } W &= \text{속도압}(q) \times \text{속도계수}(C) \times \text{압력을 받는 면적}(A) \text{ (kg)} \\ &= 23.66 \times 1.2 \times 16.9 = 479.82 \text{ (kg)} \end{aligned}$$

$$\text{속도압 : } q = 8.5 \times \sqrt[4]{h} \text{ (kg/m}^2\text{)} = 8.5 \times \sqrt[4]{60} = 23.66 \text{ (kg/m}^2\text{)}$$

$$\text{속도계수 : } C = 1.2 \text{ (크레인 제작기준 참조)}$$

$$\begin{aligned} \text{풍압을 받는 면적 } A &= \text{I-BEAM의 면적} + \text{HOIST의 면적 (m}^2\text{)} \\ &= 16 + 0.90 = 16.90 \text{ (m}^2\text{)} \end{aligned}$$

$$\text{* 호이스트의 풍압을 받는 면적} \approx 0.8 \text{ m}^2$$

I-BEAM 규격	BEAM 자중 (kg/m)	최대 지지거리 (cm)	M _s (kg-cm)	M _d (kg-cm)	ΣM _v (kg-cm)	W (kg)	M _w (kg-cm)	A (m ²)
300×150×t10/18.5	65.5	180	2785.0	632580	635365	281.08	39351.3	9.90
350×150×t12/24	87.2	280	8972.9	984014	992987	323.67	45313.6	11.40
400×150×t10/18	72	180	3062	632580	635642	479.82	67175.5	16.90
450×175×t13/26	115	420	26625	1476021	1502646	562.16	78703	19.80
600×190×t16/35	176	560	72442	1968028	2040470	794.98	222593	28

단, 사용 I-BEAM은 MODEL별 기술사양서의 BEAM 쪽을 참조 할 것

7-2. 굽힘 응력 계산

1. 수직하중에 의한 굽힘 응력

$$\begin{aligned} * \sigma_v &= \frac{\text{수직 굽힘 MOMENT 합계 : } \Sigma M_v}{\text{단면 계수 : } Z_x} \quad (\text{kg/cm}^2) \\ &= \frac{635642}{1220} = 521.0 \quad (\text{kg/cm}^2) \end{aligned}$$

2. 풍하중에 의한 굽힘 응력

$$\begin{aligned} * \sigma_w &= \frac{\text{풍하중에 의한 굽힘 MOMENT : } M_w}{\text{단면 계수 : } Z_y} \quad (\text{kg/cm}^2) \\ &= \frac{67175.5}{115} = 584.1 \quad (\text{kg/cm}^2) \end{aligned}$$

2. 풍하중에 의한 굽힘 응력

$$* \Sigma \sigma = \sigma_v + \sigma_w \leq 0.8 \times 1449 = 1159 \text{ kg/cm}^2$$

I-BEAM 규격	단면 계수 Zx	단면 계수 Zy	ΣM_v (kg-cm)	M_w (kg-cm)	σ_v (kg/cm ²)	σ_w (kg/cm ²)	$\Sigma \sigma$ (kg/cm ²)
300×150×t10/18.5	849	118	635365	39351.3	748.4	333.5	1081.9
350×150×t12/24	1280	164	992987	45313.6	775.8	276.3	1052.1
→ 400×150×t10/18	1220	115	635642	67175.5	521.0	584.1	1105.2
450×175×t13/26	2170	240	1502646	78702.6	692.5	327.9	1020.4
600×190×t16/35	4330	373	2040470	222593.3	471.2	596.8	1068.0

단, I-BEAM의 사용은 MODEL 별 기술사양서에 따른다.

7-3. I-BEAM 처짐(DEFLECTION)

1. I-BEAM 자중에 의한 처짐

$$\begin{aligned} * \delta_s &= \frac{5 \times \text{I-BEAM 자중} \times \text{지지거리}^3}{384 \times 2100000 \times I_x} \quad (\text{cm}) \\ &= \frac{5 \times 72 \times 180^3}{384 \times 2100000 \times 24100} = 0.00108 \quad (\text{cm}) \end{aligned}$$

2. 이동하중에 의한 처짐 (DEFLECTION)

$$\begin{aligned} * \delta_d &= \frac{(\text{정격하중} + \text{호이스트자중}) \times \text{지지거리}^3}{48 \times 2100000 \times I_x} \quad (\text{cm}) \\ &= \frac{(10000 + 1210) \times 180^3}{48 \times 2100000 \times 24100} = 0.101 \quad (\text{cm}) \end{aligned}$$

3. 판 정

1) 이동하중에 의한 처짐판정(하단표기)

$$\begin{aligned} &\frac{\text{이동하중에 의한 처짐} : \delta_d}{\text{지지거리}} < \frac{1}{1000} \\ &= \frac{0.101}{180} = \frac{1}{1777} < \frac{1}{1000} \end{aligned}$$

2) 처짐량 합계에 의한 처짐판정 (하단표기)

$$\begin{aligned} &\frac{\text{I-BEAM 자중에 의한 처짐} : \delta_s + \text{이동하중에 의한 처짐} : \delta_d}{\text{지지거리}} < \frac{1}{800} \\ &= \frac{0.00108 + 0.101}{180} = \frac{1}{1758} < \frac{1}{800} \end{aligned}$$

I-BEAM 규격	단면2차 MOMENT I _x	BEAM 자중 (kg/m)	δ _s (cm)	δ _d (cm)	이동하중에 의한 처짐 판정	처짐량 합계에 의한 처짐판정
300×150×t10/18.5	12700	65.5	0.00186	0.051	1 / 3525	1 / 3400
350×150×t12/24	22400	87.2	0.0053	0.109	1 / 2569	1 / 2450
400×150×t10/18	24100	72	0.0011	0.101	1 / 1777	1 / 1763
450×175×t13/26	48800	115	0.0108	0.169	1 / 2488	1 / 2338
600×190×t16/35	130000	176	0.01474	0.150	1 / 8733	1 / 3399

단, I-BEAM의 사용은 MODEL 별 기술사양서에 따른다.

I-8. I-BEAM의 최대 지지거리

8-1. 굽힘 MOMENT 계산

1. 수직하중에 의한 굽힘 MOMENT

$$\text{BEAM 자중에 의한 MOMENT : } M_s = \frac{M \times \text{I-BEAM 자중} \times (\text{지지거리})^2}{8} \quad \text{kg-cm}$$

$$M_s = \frac{1.05 \times 115 \times 420^2}{8} = 26625 \quad \text{kg-cm}$$

$$\text{이동하중에 의한 MOMENT : } M_d = F \times \frac{(\text{정격하중} + \text{호이스트 자중}) \times \text{지지거리}}{4} \quad \text{kg-cm}$$

$$M_d = 1.254 \times \frac{(10000 + 1210) \times 420}{4} = 1476021 \quad \text{kg-cm}$$

$$\star \text{ 호이스트 자중} = 1210 \text{ KG} \quad \text{용 량 : } 10000 \text{ KG}$$

$$\star \text{ DYNAMIC COEFFICIENT : } F = 1.254$$

$$\star \text{ STATIC COEFFICIENT : } M = 1.05$$

$$\text{굽힘 MOMENT 합계 : } \Sigma M_v = M_s + M_d = 26625 + 1476021 = 1502646 \quad \text{kg-cm}$$

2. 풍하중에 의한 굽힘 MOMENT

$$\text{풍하중에 의한 MOMENT : } M_w = \frac{\text{풍하중}(W) \times \text{지지거리}}{2}$$

$$M_w = \frac{562.16 \times 420}{2} = 78702.6 \quad \text{kg-cm}$$

$$\begin{aligned} \text{풍하중 : } W &= \text{속도압}(q) \times \text{속도계수}(C) \times \text{압력을 받는 면적}(A) \text{ (kg)} \\ &= 23.66 \times 1.2 \times 19.8 = 562.16 \text{ (kg)} \end{aligned}$$

$$\text{속도압 : } q = 8.5 \times \sqrt[4]{h} \text{ (kg/m}^2\text{)} = 8.5 \times \sqrt[4]{60} = 23.66 \text{ (kg/m}^2\text{)}$$

$$\text{속도계수 : } C = 1.2 \text{ (크레인 제작기준 참조)}$$

$$\begin{aligned} \text{풍압을 받는 면적 } A &= \text{I-BEAM의 면적} + \text{HOIST의 면적 (m}^2\text{)} \\ &= 18.9 + 0.90 = 19.80 \text{ (m}^2\text{)} \end{aligned}$$

$$\star \text{ 호이스트의 풍압을 받는 면적 } \approx 0.8 \text{ m}^2$$

I-BEAM 규격	BEAM 자중 (kg/m)	최 대 지지거리 (cm)	M _s (kg-cm)	M _d (kg-cm)	ΣM _v (kg-cm)	W (kg)	M _w (kg-cm)	A (m ²)
300×150×t10/18.5	65.5	180	2785.0	632580	635365	281.08	39351.3	9.90
350×150×t12/24	87.2	280	8972.9	984014	992987	323.67	45313.6	11.40
400×150×t10/18	72	180	3062	632580	635642	479.82	67175	16.90
450×175×t13/26	115	420	26625	1476021	1502646	562.16	78703	19.80
600×190×t16/35	176	560	72442	1968028	2040470	794.98	222593	28

단, 사용 I-BEAM은 MODEL별 기술사양서의 BEAM 폭을 참조 할 것

8-2. 굽힘 응력 계산

1. 수직하중에 의한 굽힘 응력

$$\begin{aligned} * \sigma_v &= \frac{\text{수직 굽힘 MOMENT 합계 : } \Sigma M_v}{\text{단면 계수 : } Z_x} \quad (\text{kg/cm}^2) \\ &= \frac{1502646}{2170} = 692.5 \quad (\text{kg/cm}^2) \end{aligned}$$

2. 풍하중에 의한 굽힘 응력

$$\begin{aligned} * \sigma_w &= \frac{\text{풍하중에 의한 굽힘 MOMENT : } M_w}{\text{단면 계수 : } Z_y} \quad (\text{kg/cm}^2) \\ &= \frac{78702.6}{240} = 327.9 \quad (\text{kg/cm}^2) \end{aligned}$$

2. 풍하중에 의한 굽힘 응력

$$* \Sigma \sigma = \sigma_v + \sigma_w \leq 0.8 \times 1449 = 1159 \text{ kg/cm}^2$$

I-BEAM 규격	단 면 계 수 Zx	단 면 계 수 Zy	ΣM_v (kg-cm)	M_w (kg-cm)	σ_v (kg/cm ²)	σ_w (kg/cm ²)	$\Sigma \sigma$ (kg/cm ²)
300×150×t10/18.5	849	118	635365	39351.3	748.4	333.5	1081.9
350×150×t12/24	1280	164	992987	45313.6	775.8	276.3	1052.1
400×150×t10/18	1220	118	635642	67175.5	521.0	584.1	1105.2
450×175×t13/26	2170	240	1502646	78702.6	692.5	327.9	1020.4
600×190×t16/35	4330	373	2040470	222593.3	471.2	596.8	1068.0

단, I-BEAM의 사용은 MODEL 별 기술사양서에 따른다.

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KOREA OCCUPATIONAL SAFETY & HEALTH AGENCY

8-3. I-BEAM 처짐(DEFLECTION)

1. I-BEAM 자중에 의한 처짐

$$\begin{aligned} * \delta_s &= \frac{5 \times \text{I-BEAM 자중} \times \text{지지거리}^3}{384 \times 2100000 \times I_x} \quad (\text{cm}) \\ &= \frac{5 \times 115 \times 420^3}{384 \times 2100000 \times 48800} = 0.01083 \quad (\text{cm}) \end{aligned}$$

2. 이동하중에 의한 처짐 (DEFLECTION)

$$\begin{aligned} * \delta_d &= \frac{(\text{정격하중} + \text{호이스트자중}) \times \text{지지거리}^3}{48 \times 2100000 \times I_x} \quad (\text{cm}) \\ &= \frac{(10000 + 1210) \times 420^3}{48 \times 2100000 \times 48800} = 0.169 \quad (\text{cm}) \end{aligned}$$

3. 판 정

1) 이동하중에 의한 처짐판정(하단표기)

$$\begin{aligned} &\frac{\text{이동하중에 의한 처짐} : \delta_d}{\text{지지거리}} < \frac{1}{1000} \\ &= \frac{0.169}{420} = \frac{1}{2488} < \frac{1}{1000} \end{aligned}$$

2) 처짐량 합계에 의한 처짐판정 (하단표기)

$$\begin{aligned} &\frac{\text{I-BEAM 자중에 의한 처짐} : \delta_s + \text{이동하중에 의한 처짐} : \delta_d}{\text{지지거리}} < \frac{1}{800} \\ &= \frac{0.0108 + 0.169}{420} = \frac{1}{2338} < \frac{1}{800} \end{aligned}$$

I-BEAM 규격	단면2차 MOMENT I _x	BEAM 자중 (kg/m)	δ _s (cm)	δ _d (cm)	이동하중에 의한 처짐 판정	처짐량 합계에 의한 처짐판정
300×150×t10/18.5	12700	65.5	0.00186	0.051	1 / 3525	1 / 3400
350×150×t12/24	22400	87.2	0.0053	0.109	1 / 2569	1 / 2450
400×150×t10/18	24100	72	0.0011	0.101	1 / 1777	1 / 1763
450×175×t13/26	48800	115	0.0108	0.169	1 / 2488	1 / 2338
600×190×t16/35	130000	176	0.01474	0.150	1 / 3733	1 / 3399

단, I-BEAM의 사용은 MODE별 기술사양서에 따른다.

I-9. I-BEAM의 최대 지지거리

9-1. 굽힘 MOMENT 계산

1. 수직하중에 의한 굽힘 MOMENT

$$\text{BEAM 자중에 의한 MOMENT : } M_s = \frac{M \times \text{I-BEAM 자중} \times (\text{지지거리})^2}{8} \quad \text{kg-cm}$$

$$M_s = \frac{1.05 \times 176 \times 560^2}{8} = 72442 \quad \text{kg-cm}$$

$$\text{이동하중에 의한 MOMENT : } M_d = F \times \frac{(\text{정격하중} + \text{호이스트 자중}) \times \text{지지거리}}{4} \quad \text{kg-cm}$$

$$M_d = 1.254 \times \frac{(10000 + 1210) \times 560}{4} = 1968028 \quad \text{kg-cm}$$

$$\text{* 호이스트 자중} = 1210 \text{ KG} \quad \text{용량 : } 10000 \text{ KG}$$

$$\text{* DYNAMIC COEFFICIENT : } F = 1.254$$

$$\text{* STATIC COEFFICIENT : } M = 1.05$$

$$\text{굽힘 MOMENT 합계 : } \Sigma M_v = M_s + M_d = 72442 + 1968028 = 2040469 \quad \text{kg-cm}$$

2. 풍하중에 의한 굽힘 MOMENT

$$\text{풍하중에 의한 MOMENT : } M_w = \frac{\text{풍하중}(W) \times \text{지지거리}}{2}$$

$$M_w = \frac{794.98 \times 280}{2} = 222593 \quad \text{kg-cm}$$

$$\begin{aligned} \text{풍하중 : } W &= \text{속도압}(q) \times \text{속도계수}(C) \times \text{압력을 받는 면적}(A) \text{ (kg)} \\ &= 23.66 \times 1.2 \times 28 = 794.98 \text{ (kg)} \end{aligned}$$

$$\text{속도압 : } q = 8.5 \times \sqrt[4]{h} \text{ (kg/m}^2\text{)} = 8.5 \times \sqrt[4]{60} = 23.66 \text{ (kg/m}^2\text{)}$$

$$\text{속도계수 : } C = 1.2 \text{ (크레인 제작기준 참조)}$$

$$\begin{aligned} \text{풍압을 받는 면적 } A &= \text{I-BEAM의 면적} + \text{HOIST의 면적 (m}^2\text{)} \\ &= 28.0 + 0.90 = 28.90 \text{ (m}^2\text{)} \end{aligned}$$

$$\text{* 호이스트의 풍압을 받는 면적} \approx 0.8 \text{ m}^2$$

I-BEAM 규격	BEAM 자중 (kg/m)	최대 지지거리 (cm)	M _s (kg-cm)	M _d (kg-cm)	ΣM _v (kg-cm)	W (kg)	M _w (kg-cm)	A (m ²)
300×150×t10/18.5	65.5	180	2785.0	632580	635365	281.08	39351.3	9.90
350×150×t12/24	87.2	280	8972.9	984014	992987	323.67	45313.6	11.40
400×150×t10/18	72	180	3062	632580	635642	479.82	67175	16.90
450×175×t13/26	115	420	26625	1476021	1502646	562.16	78703	19.80
600×190×t16/35	176	560	72442	1968028	2040470	794.98	222593	28

단, 사용 I-BEAM은 MODEL별 기술사항서의 BEAM 폭을 참조 할 것

9-2. 굽힘 응력 계산

1. 수직하중에 의한 굽힘 응력

$$\begin{aligned} * \sigma_v &= \frac{\text{수직 굽힘 MOMENT 합계 : } \Sigma M_v}{\text{단면 계수 : } Z_x} \quad (\text{kg/cm}^2) \\ &= \frac{2040470}{4330} = 471.2 \quad (\text{kg/cm}^2) \end{aligned}$$

2. 풍하중에 의한 굽힘 응력

$$\begin{aligned} * \sigma_w &= \frac{\text{풍하중에 의한 굽힘 MOMENT : } M_w}{\text{단면 계수 : } Z_y} \quad (\text{kg/cm}^2) \\ &= \frac{222593.3}{373} = 596.8 \quad (\text{kg/cm}^2) \end{aligned}$$

2. 풍하중에 의한 굽힘 응력

$$* \Sigma \sigma = \sigma_v + \sigma_w \leq 0.8 \times 1449 = 1159 \text{ kg/cm}^2$$

I-BEAM 규격	단 면 계 수 Zx	단 면 계 수 Zy	ΣM_v (kg-cm)	Mw (kg-cm)	σ_v (kg/cm ²)	σ_w (kg/cm ²)	$\Sigma \sigma$ (kg/cm ²)
300×150×t10/18.5	849	118	635365	39351.3	748.4	333.5	1081.9
350×150×t12/24	1280	164	992987	45313.6	775.8	276.3	1052.1
400×150×t10/18	1220	118	635642	67175.5	521.0	584.1	1105.2
450×175×t13/26	2170	240	1502646	78702.6	692.5	327.9	1020.4
→ 600×190×t16/35	4330	373	2040470	222593.3	471.2	596.8	1068.0

단, I-BEAM의 사용은 MODEL 별 기술사양서에 따른다.

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9-3. I-BEAM 처짐(DEFLECTION)

1. I-BEAM 자중에 의한 처짐

$$\begin{aligned} * \delta_s &= \frac{5 \times \text{I-BEAM 자중} \times \text{지지거리}^3}{384 \times 2100000 \times I_x} \quad (\text{cm}) \\ &= \frac{5 \times 176 \times 560^3}{384 \times 2100000 \times 130000} = 0.01474 \quad (\text{cm}) \end{aligned}$$

2. 이동하중에 의한 처짐 (DEFLECTION)

$$\begin{aligned} * \delta_d &= \frac{(\text{정격하중} + \text{호이스트자중}) \times \text{지지거리}^3}{48 \times 2100000 \times I_x} \quad (\text{cm}) \\ &= \frac{(10000 + 1210) \times 560^3}{48 \times 2100000 \times 130000} = 0.150 \quad (\text{cm}) \end{aligned}$$

3. 판 정

1) 이동하중에 의한 처짐판정(하단표기)

$$\begin{aligned} &\frac{\text{이동하중에 의한 처짐} : \delta_d}{\text{지지거리}} < \frac{1}{1000} \\ &= \frac{0.150}{560} = \frac{1}{3728} < \frac{1}{1000} \end{aligned}$$

2) 처짐량 합계에 의한 처짐판정 (하단표기)

$$\begin{aligned} &\frac{\text{I-BEAM 자중에 의한 처짐} : \delta_s + \text{이동하중에 의한 처짐} : \delta_d}{\text{지지거리}} < \frac{1}{800} \\ &= \frac{0.01474 + 0.15}{560} = \frac{1}{3394} < \frac{1}{800} \end{aligned}$$

I-BEAM 규격	단면2차 MOMENT I _x	BEAM 자중 (kg/m)	δ _s (cm)	δ _d (cm)	이동하중에 의한 처짐 판정	처짐량 합계에 의한 처짐판정
300×150×t10/18.5	12700	65.5	0.00186	0.051	1 / 3525	1 / 3400
350×150×t12/24	22400	87.2	0.0053	0.109	1 / 2569	1 / 2450
400×150×t10/18	24100	72	0.0011	0.101	1 / 1777	1 / 1763
450×175×t13/26	48800	115	0.0108	0.169	1 / 2488	1 / 2338
600×190×t16/35	130000	176	0.01474	0.150	1 / 3733	1 / 3399

단, I-BEAM의 사용은 MODEL 별 기술사양서에 따른다.

THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	HOISTNG HIGH
2. MANUFACTURE	KUK DONG HOIST (주)
3. FRAME NUMBER	200M
4. RATED POWER	13 KW x 6 P
5. RATED VOLTAGE AND FREQUENCY	220 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR ,OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 deg °C
10. FULL LOAD CURRENT	53.0 A
11. LOCKED MOTOR CURRENT	318.0 A
12. MINIMUM STARTING VOLTAGE	200 V
13. EFFICIENCY AT 100% RATED LOAD	83.5 %
14. POWER FACTOR AT 100% RATED LOAD	77 %
15. SLIP (FULL LOAD)	5.8 %
16. FULL LOAD TORQUE	20.18 Kg.m
17. SITE ALTITUDE(UNDER)	1000 m
18. ENCLOSURE & COOLING METHOD	T E N V
19. TYPE OF BEARING	PL 6311zz OPE 6310zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 °C
22. BEARING LUBRICATION	GREASE
23. MOTOR NET WEIGHT (ABOUT)	205 Kg
24. SERIAL NO	

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SCHEDULE OF TECHNICAL DATA

1. SERVICE	HOISTING HIGH
2. MANUFACTURE	KUK DONG HOIST (주)
3. FRAME NUMBER	200M
4. RATED POWER	13 KW x 6 P
5. RATED VOLTAGE AND FREQUENCY	380 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR ,OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 deg °C
10. FULL LOAD CURRENT	30.7 A
11. LOCKED MOTOR CURRENT	184.1 A
12. MINIMUM STARTING VOLTAGE	345 V
13. EFFICIENCY AT 100% RATED LOAD	83.5 %
14. POWER FACTOR AT 100% RATED LOAD	77 %
15. SLIP (FULL LOAD)	5.8 %
16. FULL LOAD TORQUE	20.18 Kg.m
17. SITE ALTTITUDE(UNDER)	1000 m
18. ENCLOSURE & COOLING METHOD	T E N V
19. TYPE OF BEARING	PL 6311zz OPL 6310zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 °C
22. BEARING LUBRICATION	GREASE
23. MOTOR NET WEIGHT (ABOUT)	205 Kg
24. SERIAL NO	

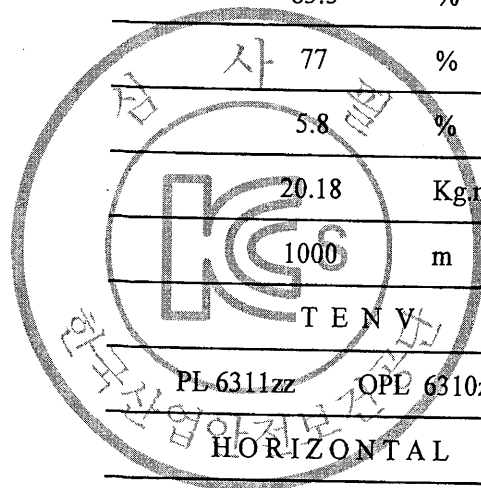
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SCHEDULE OF TECHNICAL DATA

1. SERVICE	HOISTNG HIGH
2. MANUFACTURE	KUK DONG HOIST (주)
3. FRAME NUMBER	200M
4. RATED POWER	13 KW x 6 P
5. RATED VOLTAGE AND FREQUENCY	440 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR ,OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 deg °C
10. FULL LOAD CURRENT	26.5 A
11. LOCKED MOTOR CURRENT	159.0 A
12. MINIMUM STARTING VOLTAGE	400 V
13. EFFICIENCY AT 100% RATED LOAD	83.5 %
14. POWER FACTOR AT 100% RATED LOAD	77 %
15. SLIP (FULL LOAD)	5.8 %
16. FULL LOAD TORQUE	20.18 Kg.m
17. SITE ALTITUDE(UNDER)	1000 m
18. ENCLOSURE & COOLING METHOD	T E N V
19. TYPE OF BEARING	PL-6311zz OPE 6310zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 °C
22. BEARING LUBRICATION	GREASE
23. MOTOR NET WEIGHT (ABOUT)	205 Kg
24. SERIAL NO	



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SCHEDULE OF TECHNICAL DATA

1. SERVICE	HOISTNG HIGH
2. MANUFACTURE	KUK DONG HOIST (주)
3. FRAME NUMBER	200M
4. RATED POWER	13 KW x 6 P
5. RATED VOLTAGE AND FREQUENCY	460 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATTING	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR ,OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 deg °C
10. FULL LOAD CURRENT	25.4 A
11. LOCKED MOTOR CURRENT	152.4 A
12. MINIMUM STARTING VOLTAGE	418 V
13. EFFICIENCY AT 100% RATED LOAD	83.5 %
14. POWER FACTOR AT 100% RATED LOAD	77 %
15. SLIP (FULL LOAD)	5.8 %
16. FULL LOAD TORQUE	20.18 Kg.m
17. SITE ALTTITUDE(UNDER)	1000 m
18. ENCLOSURE & COOLING METHOD	T E N V
19. TYPE OF BEARING	PL 6311zz OPL 6310zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 °C
22. BEARING LUBRICATION	GREASE
23. MOTOR NET WEIGHT (ABOUT)	205 Kg
24. SERIAL NO	

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SCHEDULE OF TECHNICAL DATA

1. SERVICE	HOISTING HIGH
2. MANUFACTURE	KUK DONG HOIST (주)
3. FRAME NUMBER	200M
4. RATED POWER	13 KW x 6 P
5. RATED VOLTAGE AND FREQUENCY	480 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATING	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR ,OUTDOOR, B CLASS
9. DESIGN TEMPERATURE RISE(BY RESISTANCE)	80 deg °C
10. FULL LOAD CURRENT	24.3 A
11. LOCKED MOTOR CURRENT	146.1 A
12. MINIMUM STARTING VOLTAGE	436 V
13. EFFICIENCY AT 100% RATED LOAD	83.5 %
14. POWER FACTOR AT 100% RATED LOAD	77 %
15. SLIP (FULL LOAD)	5.8 %
16. FULL LOAD TORQUE	20.18 Kg.m
17. SITE ALTITUDE(UNDER)	1000 m
18. ENCLOSURE & COOLING METHOD	T E N V
19. TYPE OF BEARING	PL 6311zz OPE 6310zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPERATURE	40 °C
22. BEARING LUBRICATION	GREASE
23. MOTOR NET WEIGHT (ABOUT)	205 Kg
24. SERIAL NO	

THREE PHASE INDUCTION MOTOR DATE SHEET

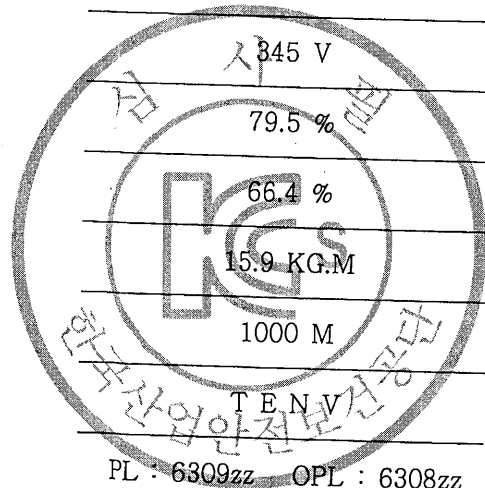
SCHEDULE OF TECHNICAL DATA

1. SERVICE	HOISTING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	160 L
4. RATED POWER	9.0 KW x 8 P
5. RATED VOLTAGE AND FREQUENCY	220 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	846 RPM
11. FULL LOAD CURRENT	45.0 A
12. STARTING CURRENT AT RATED VOLTAGE	213 A
13. MINIMUM STARTING VOLTAGE	200 V
14. EFFICIENCY AT 100% RATED LOAD	79.5 %
15. POWER FACTOR AT 100% RATED LOAD	66.4 %
16. STARTING TORQUE	15.9 KG.M
17. SITE ALTTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TEN V
19. TYPE OF BEARING	PL : 6309zz OPL : 6308zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE

THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	HOISTING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	160 L
4. RATED POWER	9.0 KW x 8 P
5. RATED VOLTAGE AND FREQUENCY	380 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	846 RPM
11. FULL LOAD CURRENT	26.0 A
12. STARTING CURRENT AT RATED VOLTAGE	122.9 A
13. MINIMUM STARTING VOLTAGE	345 V
14. EFFICIENCY AT 100% RATED LOAD	79.5 %
15. POWER FACTOR AT 100% RATED LOAD	66.4 %
16. STARTING TORQUE	15.9 KG.M
17. SITE ALTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TENV
19. TYPE OF BEARING	PL : 6309zz OPL : 6308zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE



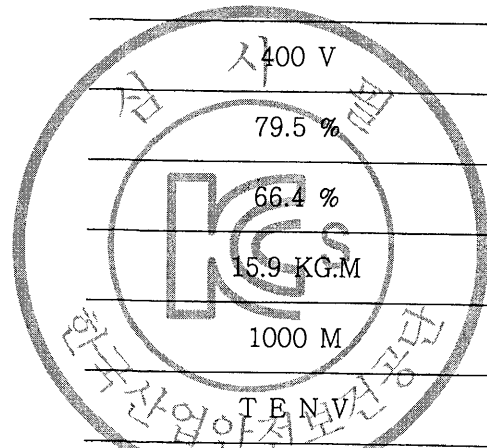
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SCHEDULE OF TECHNICAL DATA

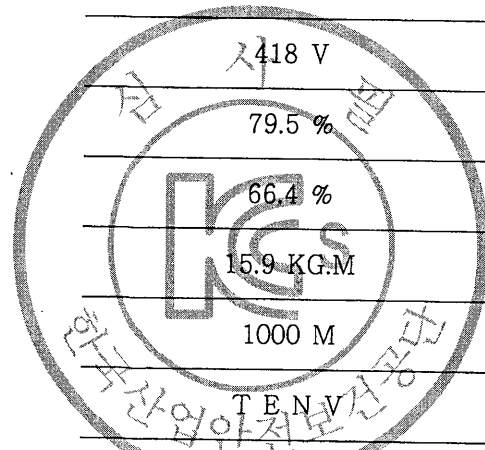
1. SERVICE	HOISTING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	160 L
4. RATED POWER	9.0 KW x 8 P
5. RATED VOLTAGE AND FREQUENCY	440 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	846 RPM
11. FULL LOAD CURRENT	22.5 A
12. STARTING CURRENT AT RATED VOLTAGE	106.0 A
13. MINIMUM STARTING VOLTAGE	사 400 V
14. EFFICIENCY AT 100% RATED LOAD	79.5 %
15. POWER FACTOR AT 100% RATED LOAD	66.4 %
16. STARTING TORQUE	15.9 KG-M
17. SITE ALTTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	T E N V
19. TYPE OF BEARING	PL : 6309zz OPL : 6308zz
20. MOUNTING	H O R I Z O N T A L
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	G R E A S E
23. STARTING METHOD	F U L L V O L T A G E



THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	HOISTING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	160 L
4. RATED POWER	9.0 KW x 8 P
5. RATED VOLTAGE AND FREQUENCY	460 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	846 RPM
11. FULL LOAD CURRENT	21.5 A
12. STARTING CURRENT AT RATED VOLTAGE	102.2 A
13. MINIMUM STARTING VOLTAGE	418 V
14. EFFICIENCY AT 100% RATED LOAD	79.5 %
15. POWER FACTOR AT 100% RATED LOAD	66.4 %
16. STARTING TORQUE	15.9 KG·M
17. SITE ALTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TENV
19. TYPE OF BEARING	PL : 6309zz OPL : 6308zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE



THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	HOISTING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	160 L
4. RATED POWER	9.0 KW x 8 P
5. RATED VOLTAGE AND FREQUENCY	480 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	846 RPM
11. FULL LOAD CURRENT	20.6 A
12. STARTING CURRENT AT RATED VOLTAGE	97.97 A
13. MINIMUM STARTING VOLTAGE	436 V
14. EFFICIENCY AT 100% RATED LOAD	79.5 %
15. POWER FACTOR AT 100% RATED LOAD	66.4 %
16. STARTING TORQUE	15.9 KG.M
17. SITE ALTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TEN V
19. TYPE OF BEARING	PL : 6309zz OPL : 6308zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE

THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	HOISTING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	200 M
4. RATED POWER	6.0 KW x 12 P
5. RATED VOLTAGE AND FREQUENCY	220 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	564 RPM
11. FULL LOAD CURRENT	45.4 A
12. STARTING CURRENT AT RATED VOLTAGE	192.8 A
13. MINIMUM STARTING VOLTAGE	200 V
14. EFFICIENCY AT 100% RATED LOAD	76.0 %
15. POWER FACTOR AT 100% RATED LOAD	45.5 %
16. STARTING TORQUE	15.9 KG.M
17. SITE ALTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TEN.V
19. TYPE OF BEARING	PL : 6311zz OPL : 6310zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE

THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	HOISTING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	200 M
4. RATED POWER	6.0 KW x 12 P
5. RATED VOLTAGE AND FREQUENCY	380 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1 . 0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	564 RPM
11. FULL LOAD CURRENT	26.3 A
12. STARTING CURRENT AT RATED VOLTAGE	11.62 A
13. MINIMUM STARTING VOLTAGE	345 V
14. EFFICIENCY AT 100% RATED LOAD	76.0 %
15. POWER FACTOR AT 100% RATED LOAD	45.5 %
16. STARTING TORQUE	15.9 KG.M
17. SITE ALTTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	T E N V
19. TYPE OF BEARING	PL : 6311zz OPL : 6310zz
20. MOUNTING	H O R I Z O N T A L
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	G R E A S E
23. STARTING METHOD	F U L L V O L T A G E

THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	HOISTING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	200 M
4. RATED POWER	6.0 KW x 12 P
5. RATED VOLTAGE AND FREQUENCY	440 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	564 RPM
11. FULL LOAD CURRENT	22.7 A
12. STARTING CURRENT AT RATED VOLTAGE	96.4 A
13. MINIMUM STARTING VOLTAGE	400 V
14. EFFICIENCY AT 100% RATED LOAD	76.0 %
15. POWER FACTOR AT 100% RATED LOAD	45.5 %
16. STARTING TORQUE	15.9 KG.M
17. SITE ALTTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TENV
19. TYPE OF BEARING	PL : 6311zz OPL : 6310zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE

THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	HOISTING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	200 M
4. RATED POWER	6.0 KW x 12 P
5. RATED VOLTAGE AND FREQUENCY	460 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	564 RPM
11. FULL LOAD CURRENT	21.9 A
12. STARTING CURRENT AT RATED VOLTAGE	92.12 A
13. MINIMUM STARTING VOLTAGE	418 V
14. EFFICIENCY AT 100% RATED LOAD	76.0 %
15. POWER FACTOR AT 100% RATED LOAD	45.5 %
16. STARTING TORQUE	15.9 KG.M
17. SITE ALTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TENV
19. TYPE OF BEARING	PL : 6311zz OPL : 6310zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE

THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	HOISTING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	200 M
4. RATED POWER	6.0 KW x 12 P
5. RATED VOLTAGE AND FREQUENCY	480 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPÉED	564 RPM
11. FULL LOAD CURRENT	21.2 A
12. STARTING CURRENT AT RATED VOLTAGE	88.36 A
13. MINIMUM STARTING VOLTAGE	사 436 V
14. EFFICIENCY AT 100% RATED LOAD	76.0 %
15. POWER FACTOR AT 100% RATED LOAD	45.5 %
16. STARTING TORQUE	15.9 KG.M
17. SITE ALTTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TEN V
19. TYPE OF BEARING	PL : 6311zz OPL : 6310zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE

THREE PHASE INDUCTION MOTOR DATE SHEET

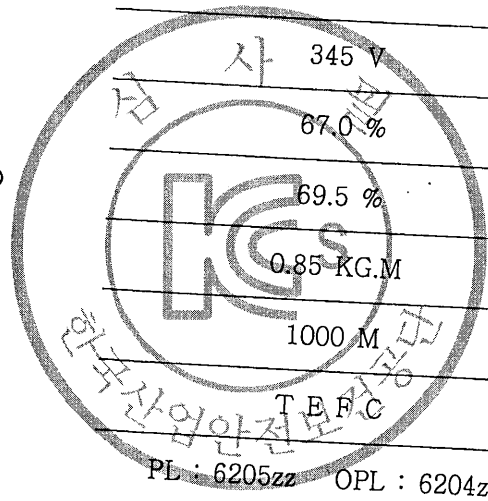
SCHEDULE OF TECHNICAL DATA

1. SERVICE	TRAVERSING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	90 S
4. RATED POWER	0.75 KW x 4 P
5. RATED VOLTAGE AND FREQUENCY	220 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1 . 0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	1764 RPM
11. FULL LOAD CURRENT	4.1 A
12. STARTING CURRENT AT RATED VOLTAGE	22.1 A
13. MINIMUM STARTING VOLTAGE	200 V
14. EFFICIENCY AT 100% RATED LOAD	66.0 %
15. POWER FACTOR AT 100% RATED LOAD	73.5 %
16. STARTING TORQUE	1.02 KG.M
17. SITE ALTTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TEN V
19. TYPE OF BEARING	PL : 6205zz OPL : 6204zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE

THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	TRAVELLING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	90 S
4. RATED POWER	0.75 KW x 4 P
5. RATED VOLTAGE AND FREQUENCY	380 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	1764 RPM
11. FULL LOAD CURRENT	2.4 A
12. STARTING CURRENT AT RATED VOLTAGE	13.5 A
13. MINIMUM STARTING VOLTAGE	345 V
14. EFFICIENCY AT 100% RATED LOAD	67.0 %
15. POWER FACTOR AT 100% RATED LOAD	69.5 %
16. STARTING TORQUE	0.85-KG.M
17. SITE ALTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TEFC
19. TYPE OF BEARING	PL : 6205zz OPL : 6204zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE



안전보건공단

KOREA OCCUPATIONAL SAFETY & HEALTH AGENCY

THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	TRAVERSING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	90 S
4. RATED POWER	0.75 KW x 4 P
5. RATED VOLTAGE AND FREQUENCY	440 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATTING	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	1764 RPM
11. FULL LOAD CURRENT	2.0 A
12. STARTING CURRENT AT RATED VOLTAGE	11.1 A
13. MINIMUM STARTING VOLTAGE	시 400 V
14. EFFICIENCY AT 100% RATED LOAD	67.0 %
15. POWER FACTOR AT 100% RATED LOAD	73.5 %
16. STARTING TORQUE	1.02-KG.M
17. SITE ALTTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TENV
19. TYPE OF BEARING	PL : 6205zz OPL : 6204zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE

THREE PHASE INDUCTION MOTOR DATE SHEET

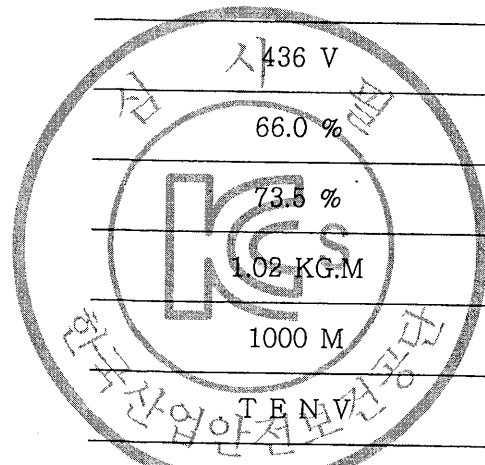
SCHEDULE OF TECHNICAL DATA

1. SERVICE	TRAVERSING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	90 S
4. RATED POWER	0.75 KW x 4 P
5. RATED VOLTAGE AND FREQUENCY	460 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1 . 0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	1764 RPM
11. FULL LOAD CURRENT	2.0 A
12. STARTING CURRENT AT RATED VOLTAGE	10.6 A
13. MINIMUM STARTING VOLTAGE	418 V
14. EFFICIENCY AT 100% RATED LOAD	66.0 %
15. POWER FACTOR AT 100% RATED LOAD	73.5 %
16. STARTING TORQUE	1.02 KG·M
17. SITE ALTTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TEN V
19. TYPE OF BEARING	PL : 6205zz OPL : 6204zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE

THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	TRAVERSING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	90 S
4. RATED POWER	0.75 KW x 4 P
5. RATED VOLTAGE AND FREQUENCY	480 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	1764 RPM
11. FULL LOAD CURRENT	1.9 A
12. STARTING CURRENT AT RATED VOLTAGE	10.2 A
13. MINIMUM STARTING VOLTAGE	436 V
14. EFFICIENCY AT 100% RATED LOAD	66.0 %
15. POWER FACTOR AT 100% RATED LOAD	73.5 %
16. STARTING TORQUE	1.02 KG.M
17. SITE ALTTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TENV
19. TYPE OF BEARING	PL : 6205zz OPL : 6204zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE



THREE PHASE INDUCTION MOTOR DATE SHEET

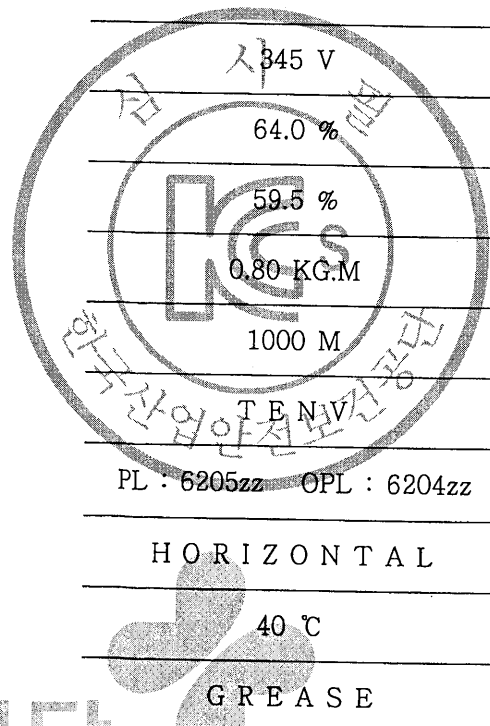
SCHEDULE OF TECHNICAL DATA

1. SERVICE	TRAVERSING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	90 S
4. RATED POWER	0.5 KW x 6 P
5. RATED VOLTAGE AND FREQUENCY	220 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATTING	1 . 0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	1176 RPM
11. FULL LOAD CURRENT	3.4 A
12. STARTING CURRENT AT RATED VOLTAGE	16.4 A
13. MINIMUM STARTING VOLTAGE	200 V
14. EFFICIENCY AT 100% RATED LOAD	64.0 %
15. POWER FACTOR AT 100% RATED LOAD	59.5 %
16. STARTING TORQUE	0.80 KG·M
17. SITE ALTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	T E N V
19. TYPE OF BEARING	PL : 6205zz OPL : 6204zz
20. MOUNTING	H O R I Z O N T A L
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	G R E A S E
23. STARTING METHOD	F U L L V O L T A G E

THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

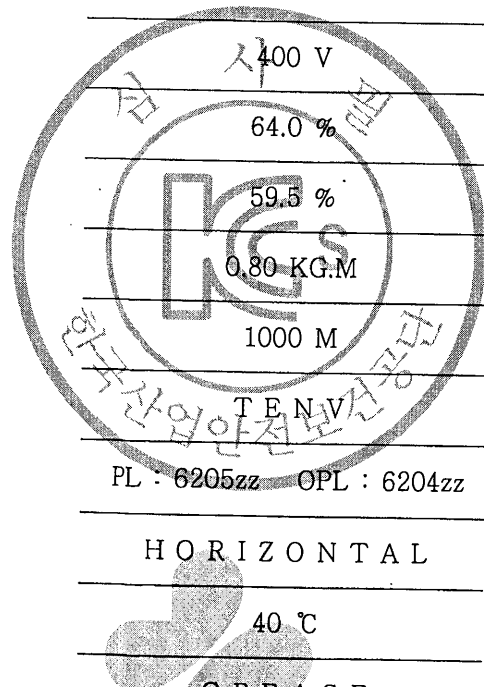
1. SERVICE	TRAVERSING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	90 S
4. RATED POWER	0.5 KW x 6 P
5. RATED VOLTAGE AND FREQUENCY	380 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	1176 RPM
11. FULL LOAD CURRENT	2.0 A
12. STARTING CURRENT AT RATED VOLTAGE	9.5 A
13. MINIMUM STARTING VOLTAGE	345 V
14. EFFICIENCY AT 100% RATED LOAD	64.0 %
15. POWER FACTOR AT 100% RATED LOAD	59.5 %
16. STARTING TORQUE	0.80 KG.M
17. SITE ALTTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TENV
19. TYPE OF BEARING	PL : 6205zz OPL : 6204zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE



THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	TRAVERSING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	90 S
4. RATED POWER	0.5 KW x 6 P
5. RATED VOLTAGE AND FREQUENCY	440 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	1176 RPM
11. FULL LOAD CURRENT	1.7 A
12. STARTING CURRENT AT RATED VOLTAGE	8.2 A
13. MINIMUM STARTING VOLTAGE	400 V
14. EFFICIENCY AT 100% RATED LOAD	64.0 %
15. POWER FACTOR AT 100% RATED LOAD	59.5 %
16. STARTING TORQUE	0.80 KG.M
17. SITE ALTTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TEN V
19. TYPE OF BEARING	PL : 6205zz OPL : 6204zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE



산업재해예방

안전보건공단

THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	TRAVERSING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	90 S
4. RATED POWER	0.5 KW x 6 P
5. RATED VOLTAGE AND FREQUENCY	460 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	1176 RPM
11. FULL LOAD CURRENT	1.7 A
12. STARTING CURRENT AT RATED VOLTAGE	7.9 A
13. MINIMUM STARTING VOLTAGE	418 V
14. EFFICIENCY AT 100% RATED LOAD	64.0 %
15. POWER FACTOR AT 100% RATED LOAD	59.5 %
16. STARTING TORQUE	0.80 KG.M
17. SITE ALTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TENV
19. TYPE OF BEARING	PL : 6205zz OPL : 6204zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE

THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	TRAVERSING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	90 S
4. RATED POWER	0.5 KW x 6 P
5. RATED VOLTAGE AND FREQUENCY	480 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATTING	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	1176 RPM
11. FULL LOAD CURRENT	1.6 A
12. STARTING CURRENT AT RATED VOLTAGE	7.5 A
13. MINIMUM STARTING VOLTAGE	436 V
14. EFFICIENCY AT 100% RATED LOAD	64.0 %
15. POWER FACTOR AT 100% RATED LOAD	59.5 %
16. STARTING TORQUE	0.80 KG.M
17. SITE ALTTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TENV
19. TYPE OF BEARING	PL : 6205zz OPL : 6204zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE

THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	TRAVERSING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	90 M
4. RATED POWER	0.8 / 0.4 KW x 4 / 8 P
5. RATED VOLTAGE AND FREQUENCY	220 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	1750 / 850 RPM
11. FULL LOAD CURRENT	4.8 / 4.25 A
12. LOCKED ROTOR CURRENT	14.2 / 13.6 A
13. MINIMUM STARTING VOLTAGE	200 V
14. EFFICIENCY AT 100% RATED LOAD	72.8 / 65.8 %
15. POWER FACTOR AT 100% RATED LOAD	82.3 / 75.0 %
16. FULL LOAD TORQUE	0.80 KG.M
17. SITE ALTTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TEN V
19. TYPE OF BEARING	PL : 6205zz OPL : 6204zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE

THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	TRAVERSING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	90 M
4. RATED POWER	0.8 / 0.4 KW x 4 / 8 P
5. RATED VOLTAGE AND FREQUENCY	380 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATTING	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	1750 / 850 RPM
11. FULL LOAD CURRENT	2.78 / 2.63 A
12. LOCKED ROTOR CURRENT	9.2 / 6.3 A
13. MINIMUM STARTING VOLTAGE	345 V
14. EFFICIENCY AT 100% RATED LOAD	72.8 / 65.8 %
15. POWER FACTOR AT 100% RATED LOAD	82.3 / 75.0 %
16. FULL LOAD TORQUE	0.80 KG·M
17. SITE ALTTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TEN V
19. TYPE OF BEARING	PL : 6205zz OPL : 6204zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE

THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	TRAVERSING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	90 M
4. RATED POWER	0.8 / 0.4 KW x 4 / 8 P
5. RATED VOLTAGE AND FREQUENCY	440 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	1750 / 850 RPM
11. FULL LOAD CURRENT	2.4 / 2.27 A
12. LOCKED ROTOR CURRENT	8.6 / 6.2 A
13. MINIMUM STARTING VOLTAGE	400 V
14. EFFICIENCY AT 100% RATED LOAD	72.8 / 65.8 %
15. POWER FACTOR AT 100% RATED LOAD	82.3 / 75.0 %
16. FULL LOAD TORQUE	0.80-KG·M
17. SITE ALTTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TENV
19. TYPE OF BEARING	PL : 6205zz OPL : 6204zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE

THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	TRAVERSING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	90 M
4. RATED POWER	0.8 / 0.4 KW x 4 / 8 P
5. RATED VOLTAGE AND FREQUENCY	460 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	1750 / 850 RPM
11. FULL LOAD CURRENT	2.3 / 2.17 A
12. LOCKED ROTOR CURRENT	8.5 / 6.2 A
13. MINIMUM STARTING VOLTAGE	418 V
14. EFFICIENCY AT 100% RATED LOAD	72.8 / 65.8 %
15. POWER FACTOR AT 100% RATED LOAD	82.3 / 75.0 %
16. FULL LOAD TORQUE	0.80 KG.M
17. SITE ALTTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TEN V
19. TYPE OF BEARING	PL : 6205zz OPL : 6204zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE

THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	TRAVERSING
2. MANUFACTURE	극동 호이스트 (주)
3. FRAME NUMBER	90 M
4. RATED POWER	0.8 / 0.4 KW x 4 / 8 P
5. RATED VOLTAGE AND FREQUENCY	480 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	1750 / 850 RPM
11. FULL LOAD CURRENT	2.3 / 2.1 A
12. LOCKED ROTOR CURRENT	8.4 / 6.15 A
13. MINIMUM STARTING VOLTAGE	436 V
14. EFFICIENCY AT 100% RATED LOAD	72.8 / 65.8 %
15. POWER FACTOR AT 100% RATED LOAD	82.3 / 75.0 %
16. FULL LOAD TORQUE	0.80 KG.M
17. SITE ALTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TENV
19. TYPE OF BEARING	PL : 6205zz OPL : 6204zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE

THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	TRAVERSING
2. MANUFACTURE	극동호이스트 (주)
3. FRAME NUMBER	90 L
4. RATED POWER	0.5/025 KW x 6/12 P
5. RATED VOLTAGE AND FREQUENCY	220 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATTING	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	1050/460 RPM
11. FULL LOAD CURRENT	3.2/3.6 A
12. STARTING CURRENT AT RATED VOLTAGE	12.8/10.8 A
13. MINIMUM STARTING VOLTAGE	200 V
14. EFFICIENCY AT 100% RATED LOAD	57.5/35 %
15. POWER FACTOR AT 100% RATED LOAD	64.5/50 %
16. STARTING TORQUE	0.757/0.506 KG.M
17. SITE ALTTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TENV
19. TYPE OF BEARING	PL : 6205zz OPL : 6204zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE

THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	TRAVERSING
2. MANUFACTURE	극동호이스트 (주)
3. FRAME NUMBER	90 L
4. RATED POWER	0.5/025 KW x 6/12 P
5. RATED VOLTAGE AND FREQUENCY	480 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATTING	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 °C
10. FULL LOAD SPEED	1050/460 RPM
11. FULL LOAD CURRENT	1.4/1.6 A
12. STARTING CURRENT AT RATED VOLTAGE	5.82/4.93 A
13. MINIMUM STARTING VOLTAGE	436 V
14. EFFICIENCY AT 100% RATED LOAD	57.5/35 %
15. POWER FACTOR AT 100% RATED LOAD	64.5/50 %
16. STARTING TORQUE	0.757/0.506 K.G.M
17. SITE ALTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TENV
19. TYPE OF BEARING	PL : 6205zz OPL : 6204zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 °C
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE

THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	TRAVERSING
2. MANUFACTURE	극동호이스트 (주)
3. FRAME NUMBER	90 L
4. RATED POWER	0.5/025 KW x 6/12 P
5. RATED VOLTAGE AND FREQUENCY	380 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	1050/460 RPM
11. FULL LOAD CURRENT	1.85/2.08 A
12. STARTING CURRENT AT RATED VOLTAGE	7.41/6.25 A
13. MINIMUM STARTING VOLTAGE	345 V
14. EFFICIENCY AT 100% RATED LOAD	57.5/35 %
15. POWER FACTOR AT 100% RATED LOAD	64.5/50 %
16. STARTING TORQUE	0.757/0.506 KGM
17. SITE ALTTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	TENV
19. TYPE OF BEARING	PL : 6205zz OPL : 6204zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE

THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	TRAVERSING
2. MANUFACTURE	극동호이스트 (주)
3. FRAME NUMBER	90 L
4. RATED POWER	0.5/025 KW x 6/12 P
5. RATED VOLTAGE AND FREQUENCY	440 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	1050/460 RPM
11. FULL LOAD CURRENT	1.6/1.8 A
12. STARTING CURRENT AT RATED VOLTAGE	6.4/5.4 A
13. MINIMUM STARTING VOLTAGE	400 V
14. EFFICIENCY AT 100% RATED LOAD	57.5/35 %
15. POWER FACTOR AT 100% RATED LOAD	64.5/50 %
16. STARTING TORQUE	0.757/0.506 KG.M
17. SITE ALTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	T E N V
19. TYPE OF BEARING	PL : 6205zz OPL : 6204zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE

THREE PHASE INDUCTION MOTOR DATE SHEET

SCHEDULE OF TECHNICAL DATA

1. SERVICE	TRAVERSING
2. MANUFACTURE	극동호이스트 (주)
3. FRAME NUMBER	90 L
4. RATED POWER	0.5/025 KW x 6/12 P
5. RATED VOLTAGE AND FREQUENCY	460 V 60 Hz
6. MOTOR TYPE	SQUIRREL CAGE ROTOR TYPE
7. SERVICE FACTOR AND RATting	1.0 , 30 MIN
8. LOCATION AND INSULATION CLASS	INDOOR, OUTDOOR, B CLASS
9. DESIGN TRMPERATURE RISE(BY RESISTANCE)	80 ℃
10. FULL LOAD SPEED	1050/460 RPM
11. FULL LOAD CURRENT	1.5/1.72 A
12. STARTING CURRENT AT RATED VOLTAGE	6.2/5.3 A
13. MINIMUM STARTING VOLTAGE	418 V
14. EFFICIENCY AT 100% RATED LOAD	57.5/35 %
15. POWER FACTOR AT 100% RATED LOAD	64.5/50 %
16. STARTING TORQUE	0.757/0.506 KG.M
17. SITE ALTITUDE(UNDER)	1000 M
18. ENCLOSURE & COOLING METHOD	T-E-N-V
19. TYPE OF BEARING	PL : 6205zz OPL : 6204zz
20. MOUNTING	HORIZONTAL
21. MAXIMUM AMBIENT TEMPURE	40 ℃
22. BEARING LUBRICATION	GREASE
23. STARTING METHOD	FULL VOLTAGE



ORIGINAL

CERT NO. 201201WRU56901

DATE May. 11, 2012

MILL TEST CERTIFICATE

THIS IS TO CERTIFY THAT THE MATERIAL DESCRIBED BELOW WAS MANUFACTURED
IN ACCORDANCE WITH KISWIRE LTD SPECIFICATION AND APPLICABLE SECTIONS

OF KSD 3514-2002 (B GRADE)

TO MESSRS

MATERIAL DESCRIPTION UNGALVANIZED STEEL WIRE ROPE

06 X 37 + FC 100M X 7 REEL

EX NO. PW9074

ORDER NO. 1W4164

REEL NO. 1~7

SAMPLING NO. 1

DIAMETER OF ROPE 16.00 mm TYPE OF CORE Fiber Core

SPECIFIED BREAKING LOAD 145.0 kN SAMPLE BROKE AT 152.3 kN

WT. OF ZINC COATING OF OUTER WIRE MIN. g/m²

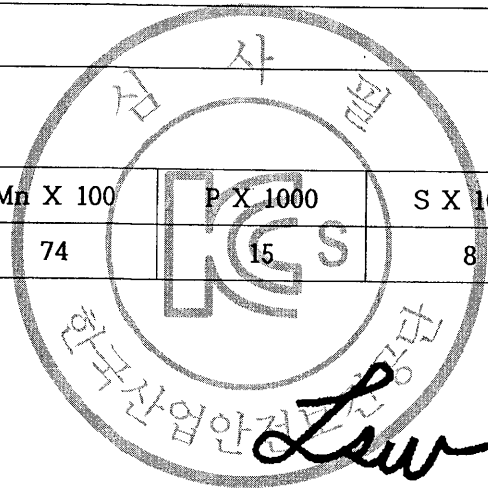
ROPE LAY RHRL LAY LENGTH 105.8 mm

LUBRICATION A-2

CHEMICAL ANALYSIS OF WIRE ROD

CHARGE NO.	C X 100	Si X 100	Mn X 100	P X 1000	S X 1000
SW01779	74	22	74	15	8

DATE OF SAMPLE TEST May 11, 2012



Approved by Q.C Manager S.W. LEE
KISWIRE LTD., KOREA



KS



JIS



API



ABS



KR



NK



G.Lloyd's



DNV



LR



BV

EN 60 947-5-1			
Clause	Requirement - Test	Result - Remark	Verdict

Annex C of IEC 60947-1			P
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Annex C	Degree of protection of enclosed control circuit-devices		P
C.1	Scope		
	This annex applies to degrees of protection of enclosed switchgear and control gear at rated voltages not exceeding 1000 V a.c. or 1500 V d.c. hereafter referred as "equipment"		
C.2	Object		
	Clause 2 of IEC 60529 applies with additional requirements of this annex		
C.3	Definitions		
	Clause 3 of IEC 60529 applies except that "Enclosure" is replaced by the following:		
	"A part providing a specified degree of protection of equipment against certain external influences and a specified degree of protection against approach to or contact with live parts and moving parts"		
C.4	Designation		
	Clause 4 of IEC 60529 applies except for letters H, M and S		N/A
C.5	Degrees of protection against access to hazardous parts and against ingress of solid foreign objects indicated by the first characteristic numeral		
	Clause 5 of IEC 60529 applies	6	P
C.6	Degrees of protection against ingress of water indicated by the second characteristic numeral		
	Clause 6 of IEC 60529 applies	5	P
C.7	Degrees of protection against access to hazardous parts indicated by the additional letter		
	Clause 7 of IEC 60529 applies		N/A
C.8	Supplementary letters		
	Clause 8 of IEC 60529 applies		N/A
C.9	Examples of designations with IP Code		
	Clause 9 of IEC 60529 applies		P
C.10	Marking		P

TRF-No.: IEC60947_5_1A

산업재해예방

C.5, C.6항이 IP65 PASS를 뜻함.

안전보건공단

KOREA OCCUPATIONAL SAFETY & HEALTH AGENCY

SUB VENDOR LIST

구분	NO	DESCRIPTION	SUB VENDOR	TEL NO.	REMARK
기 계	1	WIRE ROPE	만호 로우프(주)	051-332-3131	
			고려제강 (주)	02-776-4131	
	2	MAGNET CORE	극동호이스트(주)	031-491-5311	
	3	DRUM	극동호이스트(주)	031-491-5311	
	4	GEAR	극동호이스트(주)	031-491-5311	
	5	HOOK ASS'Y	제 일 단 철	032-527-2817	
			대 흥 단 조	032-561-0541	
	6	MIDDLE SHAFT	극동호이스트(주)	031-491-5311	
	7	RAIL CHANNEL ANGLE	인천제철(주)	032-763-5000	
			강원산업(주)	032-756-8881	
전 기	8	MAG CONTACTOR	L.G 전선 (주)	02-273-4140	전 품
			(주) 대 룡	02-242-4141	한국공업협회
			(주) 대성디에스	055-338-3125	
	9	E.O.C.R	삼화기연 (주)	032-62-1331	K.S
			아산 전기	02-2636-8035	
	10	PUSH BUTTON	한영전기 (주)	02-742-0430	전 품
			(주)케이치오토	02-247-3131	전 품
			반도기계 (주)	031-495-8353-4	전 품
	11	LOAD LIMITER	보 창 기 전	032-431-0150	산 안 검
			반도기계 (주)	031-495-8353-4	산 안 검
			정호 엔지니어링	02-681-0553	산 안 검
	12	SILICON	반도기계 (주)	031-495-8353-4	
			아산 전기	02-2636-8035	
			보 창 기 전	032-431-0150	

산업재해예방

안전보건공단

KOREA OCCUPATIONAL SAFETY & HEALTH AGENCY