

Catalog for Material Packaging

1. Applied area (적용범위)

This regulation applies to all packaging used for parts delivery in-house and supplier for the production of LG Magna products.

However, parts corresponding to the following items may be excluded.

본 규정은 LG마그나 제품 생산을 위해 사내 및 협력회사에서 부품 납품에 사용되는 모든 포장재에 대해 적용한다. 단, 다음 각 항에 해당되는 부품은 제외될 수 있다.

1) Raw materials

원재료

2) Consumable materials for non-mass production

양산 미적용 소모성 자재

3) Parts that manufacture and deliver packaging products (Box, wood)

포장품(Box, 목재)을 제작 납품하는 부품

4) Unit packaging parts for very small parts (Screw, Washer, etc.)

극소형 부품(Screw, Washer 등)의 단위포장 부품

5) EP molded products, cut products, glass products

EP성형물, 절단물, 유리제품

6) VMI container goods, direct delivery to tier 2/3 suppliers (Serveone)

VMI 컨테이너 입고품, 2/3차 협력사 직납품(서브원)

2. Purpose (목적)

Classification and simplification of carts supplied by supplier according to size, color, and components and standardization for quality protection of parts during transportation and convenience of work, etc.

협력회사에서 납입되는 포장재에 대해 Size, 색상 및 구성품에 따라 분류하고 단순화하여 운반 중 부품의 품질 보호, 작업의 편리성 등을 위해 규격으로 표준화한다.

1) Securing part quality (material impact, pressing)

부품 품질의 확보 (자재 충격, 눌림)

2) Efficiency in workability (easy material handling)

작업성의 효율화 (Material Handling 용이)

3) Easy inspection (quantity management) and inspection

검수(수량관리) 및 검사 용이

4) Improvement of the field environment (T5S settlement: 3 arrangement, 5S, visual management)

현장 환경개선 (T5S 정착: 3정, 5S, 눈으로 보는 관리)

3. Standardization principle (표준화 원칙)

No	Item	Description
1	Transport quality guarantee 운반품질 보증	Manufactured to prevent defective parts due to transportation and storage. A structure that does not damage parts due to packaging. 운반, 보관에 의한 부품의 불량을 방지할 수 있도록 제작한다. 포장재로 인한 부품 손상이 없는 구조로 한다.
2	Ease of use 사용의 편리성	It must be manufactured so that workers can use it conveniently in the process of the line. Prevent workers from pushing, pulling, and rotating the cart. Prevent loss due to two touch work. Line의 공정에서 작업자가 사용이 편리하도록 제작되어야 한다. 작업자가 대차를 밀고 당기고 회전하지 않도록 한다. Two touch 작업에 따른 loss가 발생하지 않도록 한다.
3	Management of loading quantity 장입수량 관리	The loading quantity inside the container should be easy to check. Manage the charging of multiples of 5, but for special materials, proceed after discussing the charging quantity. 용기 내부의 장입 수량 확인을 쉽게 할 수 있어야 한다. 5배수 장입 관리를 하되, 특수자재는 장입 수량을 협의 후 진행한다.

4	Logistics facilitation 물류 원활화	Produced conveniently for loading and unloading. Manufactured conveniently for transportation and collection of packaging. Determine and manufacture specifications to improve vehicle loading efficiency 상차 및 하역에 편리하게 제작한다. 포장재의 운반 및 회수에 편리하게 제작한다. 차량 적재효율이 향상되도록 Spec을 결정하여 제작한다
5	Principles for use same packaging 동일 포장재 사용 원칙	Use same container in same part no. If multiple suppliers ship the same part from multiple suppliers, apply the same packaging specifications. 동일한 부품 번호에 동일한 용기를 사용합니다. 여러 공급업체에서 동일한 부품을 배송하는 경우 동일한 포장 사양을 적용한다.
6	Packaging Weight 포장재 중량	It should be easy and convenient to load parts and use in the process, and not burden the operator. Boxes shall be designed in accordance with musculoskeletal standards, and bogies shall not exceed 400kg including parts for press weight and 500Kg for maximum weight. 부품 적재 및 공정 사용시 쉽고 편리하고 작업자의 부담이 없도록 제작되어야 한다. Box는 근골격계 기준에 맞게 설계를 하며, 대차는 Press 중량물의 경우 부품 포함 400kg내외로 하며 최대 500Kg이 넘지 않도록 한다.
7	Packaging size 포장재 크기	The size of the packaging(W, L, H) is conveniently manufactured for handling by one person. 대차의 크기(W, L, H)는 한 사람이 편리하게 취급할 수 있도록 제작한다.
8	Packaging Color 색상	Colors conform to standards. 색상은 표준을 준수한다.
9	Cart No. 대차 No.	대차 (①C :Cart, ② 가로(L)×세로(W)× 높이(H)) - C <u> </u> <u> </u> <u> </u>

※ For parts that are difficult to apply the standard cart due to the character of the parts, a dedicated cart is applied.
부품 특성상 표준 대차 규격을 적용하기 어려운 부품은 전용 대차를 적용한다.

4. Box Standard

4.1 Box type



Danpla Box



Plastic Box



Cardboard Box

4.2 Box color & printing

Box Material	Color		Font	Position of Printing
	Box	Letter		
Normal	Light gray (Munshell, N-6.5 F-806500)	Black	LG Smart .Character spacing : 0% .Aspect Ratio : 100%	2 places for long side of box (Both side)
	Light brown(Cardboard)			
Anti-Static	Black	White		

4.3 Printing detail



※ Refer to Brand Communication Guideline

No	Font size (Printing detail X size)	
	LG-MAGNA logo	Supplier name
1	50 (X) x 424.25	25 (0.5X)
2	30 (X) x 224.55	15 (0.5X)
3	20 (X) x 149.7	10 (0.5X)
4	16 (X) x 135.76	1.5 (0.5X)

4.4 Danpla box

4.4.1 Standard size

No	Box dimension	
	Length	Width
A	1160	960
B		480
C	580	480
D	385	480
E		240

No	Box dimension	Box thickness
	Height	
1	960	4t
2	480	
3	320	
4	240	
5	190	
6	160	
7	135	
8	120	

4.4.2 Detailed standard

No	Box dimension		Font (Printing)	
	Outside (L x W x H)	Inside (L x W x H)	LG-MAGNA Logo (L x W)	Supplier Name (H)
A-1	1160 x 960 x 960	1150 x 950 x 925	50 x 424.25	25
A-2	1160 x 960 x 480	1150 x 950 x 445		
A-3	1160 x 960 x 320	1150 x 950 x 285		
A-4	1160 x 960 x 240	1150 x 950 x 205		
B-1	1160 x 480 x 480	1150 x 470 x 445	50 x 424.25	25
B-2	1160 x 480 x 320	1150 x 470 x 285		
B-3	1160 x 480 x 240	1150 x 470 x 205		
B-4	1160 x 480 x 220	1150 x 470 x 185		
C-1	580 x 480 x 480	570 x 470 x 445	30 x 224.55	15
C-2	580 x 480 x 320	570 x 470 x 285		
C-3	580 x 480 x 240	570 x 470 x 205		
C-4	580 x 480 x 190	570 x 470 x 155		
C-5	580 x 480 x 160	570 x 470 x 125	20 x 149.7	10
C-6	580 x 480 x 135	570 x 470 x 100		
C-7	580 x 480 x 120	570 x 470 x 85		
D-1	385 x 480 x 320	570 x 230 x 285	30 x 224.55	15
D-2	385 x 480 x 240	570 x 230 x 205		
D-3	385 x 480 x 190	570 x 230 x 155		
D-4	385 x 480 x 160	570 x 230 x 125	20 x 149.7	10
D-5	385 x 480 x 135	570 x 230 x 100		




D-6	385 x 480 x 120	570 x 230 x 85		
E-1	385 x 240 x 240	375 x 230 x 205	30 x 224.55	15
E-2	385 x 240 x 190	375 x 230 x 155		
E-3	385 x 240 x 160	375 x 230 x 125		
E-4	385 x 240 x 135	375 x 230 x 100	20 x 149.7	10
E-5	385 x 240 x 120	375 x 230 x 85		



4.5 Plastic box

4.5.1 Standard size

No	Box dimension						Font (Printing)	
	Outside			Inside (Effective size)			LG MAGNA logo (L x W)	Supplier Name (H)
	Length	Width	Height	Length	Width	Height		
A	480	380	105	440 (430)	340 (330)	95(85)	20 x 149.7	10
B			153			146 (139)		
C			200			195 (185)		
D			295			289 (279)		
E	600	400	210	560 (538)	360 (332)	200 (191)	30 x 224.55	15

4.5.2 Detailed standard

Type	Box Dimension						Font (Printing)		Picture
	Outside			Inside (Effective size)			LG MAGNA Logo (L x W)	Supplier name (H)	
	Length	Width	Height	Length	Width	Height			
A	480	380	105	440 (430)	340 (330)	95 (85)	20 x 149.7	10	
B	480	380	153	440 (430)	340 (330)	146 (139)	20 x 149.7	10	
C	480	380	200	440 (430)	340 (330)	195 (185)	30 x 224.55	15	

D	480	380	295	440 (430)	340 (330)	289 (279)	30 x 224.55	15	
E	600	400	210	560 (538)	360 (332)	200 (191)	30 x 224.55	15	

4.6 Cardboard box

4.6.1 Standard size

No	Box dimension	
	Length	Width
A	1160	960
B		480
C	580	480
D	385	480
E		240

No	Box dimension	Box thickness
	Height	
1	960	Decide to according to the required strength
2	480	
3	320	
4	240	
5	190	요구 강도에 따름
6	160	

4.6.2 Detailed standard

No	Box dimension	Font (Printing)	
	Outside (L x W x H)	LG-MAGNA Logo (L x W)	Supplier Name (H)
A-1	1160 x 960 x 960	50 x 424.25	25
A-2	1160 x 960 x 480		
A-3	1160 x 960 x 320		
A-4	1160 x 960 x 240		
B-1	1160 x 480 x 480	50 x 424.25	25
B-2	1160 x 480 x 320		
B-3	1160 x 480 x 240		
B-4	1160 x 480 x 190		
C-1	580 x 480 x 320	30 x 224.55	15
C-2	580 x 480 x 240		

C-3	580 x 480 x 190		
C-4	580 x 480 x 160		
D-1	385 x 480 x 240	20 x 149.7	10
D-2	385 x 480 x 190		
D-3	385 x 480 x 160		
E-1	385 x 240 x 240		
E-2	385 x 240 x 190		
E-3	385 x 240 x 160		

4.6.3 Requirement of Quality

1. Supplier has responsibility of quality during transportation.

공급업체는 운송 중 품질에 대한 책임이 있다.

2. Supplier has to guarantee quality for 'A' days.

공급업체는 'A'일 동안 품질을 보증해야 한다.

$$A = a + b + c$$

a : Supplier in-house stocking days from manufacture to shipping.

제조부터 배송까지 공급업체 자체 재고 보유 일수

b : Days of transportation.

운송 일수

c : Stocking days of customer's warehouse.

고객사 창고 보관 일수

3. Supplier doesn't need packaging test if they has any experience or other test result, but if not, supplier must submit test result. Following condition is LG Magna's recommendation.

공급업체가 포장 시험 경험이나 기타 시험 결과가 있는 경우 포장 시험이 필요하지 않지만, 그렇지 않은 경우 공급업체는 반드시 시험 결과를 제출해야 한다. 다음 조건은 LG마그나에서 권장하는 조건이다.

[Vibration]

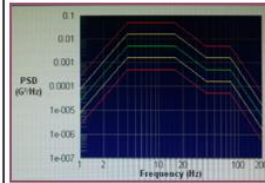
Test conditions can be determined and tested in accordance with ASTM D4169 conditions criteria,

and a general transport strength test (based on for North American) is conducted in accordance with Truck Level II. (0.52Grms, Z-axis, 3hr, 1 Pallet)

Tests corresponding to Level I can be reviewed as a common concept of accidents depending on road conditions.

시험 조건은 ASTM D4169 기준에 따라 결정하여 시험할 수 있습니다. 일반적인 운송 강도 시험(복미향 기준)은 트럭 레벨 2에 따라 실시한다. (0.52Grms, Z-axis, 3hr, 1 Pallet) 레벨 1에 해당하는 시험은 일반적인 사고 개념으로 볼 수 있다.

표준 조건		조건 상세				Graph
Truck	Level I	Freq. (Hz)	PSD(G ² /Hz)			Slope (dB/Oct)
			Level I	Level II	Level III	
	1	0.0001	0.00005	0.000025	11.465784	
	Level II	4	0.02	0.01	0.005	0
		16	0.02	0.01	0.005	-7.5388246
	Level III	40	0.002	0.001	0.0005	0
		80	0.002	0.001	0.0005	-15.077649
200		0.00002	0.00001	0.000005	0	



[Shock]

The drop test is performed by tying a finished good palletized with PP bands, etc. to a rope and subjecting it to a single free fall from a height of 15 cm to check the packaging condition.

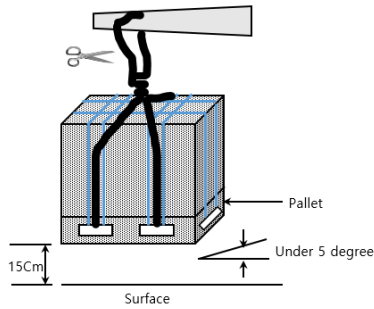
If the forklift rises vertically, check whether the pallet is broken by the rope before the free fall.

In addition, the package should be kept horizontal during the free fall, and the angle of inclination should be within 5 degrees.

낙하 시험은 PP 밴드 등으로 팔레타이징한 완제품을 로프로 묶어 15cm 높이에서 자유 낙하를 1회 실시하여 포장 상태를 확인한다.

지게차가 수직으로 상승하는 경우 자유낙하 전 밧줄에 의한 팔레트 파손 여부를 확인한다.

또한 자유낙하시 포장물을 수평으로 유지해야 하며 5도 이내의 경사각을 가져야 한다.



[Anti-corrosion]

For products that require rust prevention, test by applying the following cycle. (14cycle, 14-day trial, 90-day warranty, pallet or single-product test available, DIN standard application)

녹 방지가 필요한 제품의 경우 다음 사이클을 적용하여 테스트해야 한다. (14주기, 14일 시험, 90일 보증, 팔레트 또는 단일 제품 테스트 가능, DIN 표준 적용)

Temp. (C)	Humidity(%)	Comments
25	98	keeping for 6 hours
55	95	changing for 3 hours
55	95	keeping for 9 hours
25	98	Changing for 3 hours
25	98	Keeping for 3 hours

In order to protect from corrosion, supplier has to input VCI bag/sheet, anti-rust agent or desiccant. 부식으로부터 보호하기 위해 공급업체는 VCI 백/시트, 방청제 또는 건조제를 투입해야 한다.

[Compression strength]

$$S = W \times k \times (n-1)$$

S : Required compression strength (요구 압축 하중)

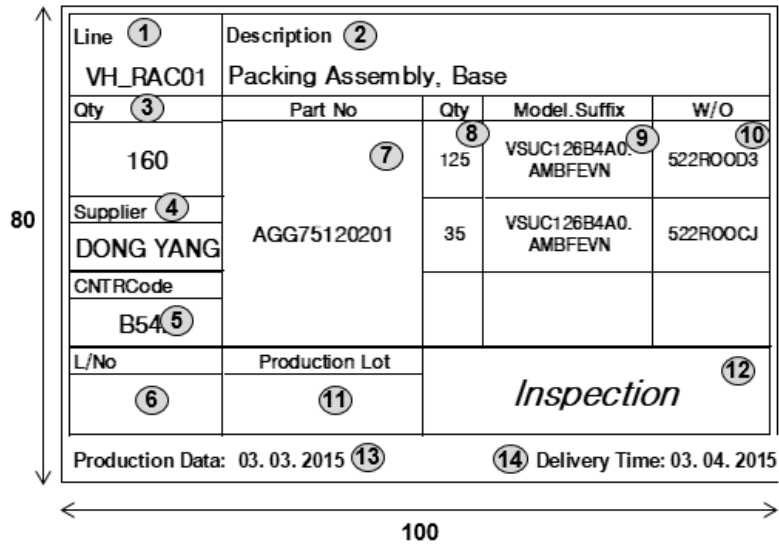
W : Gross(Unit load) weight (1 Pallet 전체 중량)

k : Safety factor (In general, 3) (안전 계수, 일반적으로 3 적용)

n : Stacking level (적재 단수)

4.7 Label

4.7.1 in Detail



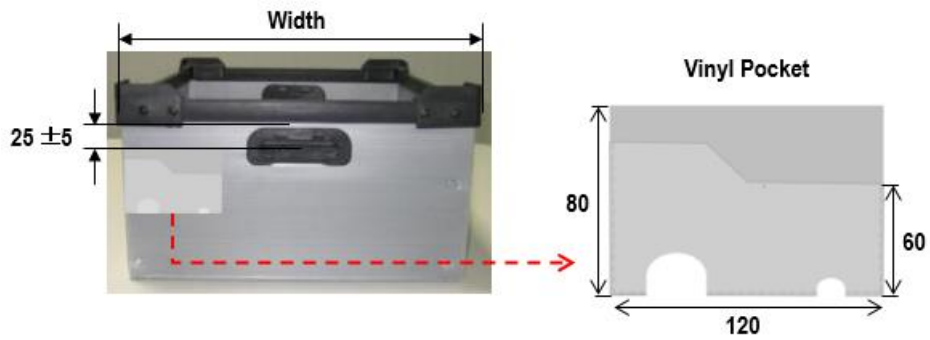
No.	Name	Comment
1	Line	Production line (생산라인 정보)
2	Description	Part name (부품명)
3	Quantity	Part quantity in box (장입수량)
4	Supplier	Supplier name (협력사명)
5	CNTR Code	Container code (표준용기코드)
6	Location No	Delivery location (납품위치)
7	Part No	Part Number (부품번호)
8	Detail Quantity	Production Lot Quantity (생산 lot 수량) - In the case of the same Part No., it is possible to track the lot by classifying the quantity.
9	Model Suffix	Model of Production (생산 모델) - In the case of other models of the same Part No., it is intended for quantitative supply
10	W/O	Work Order (생산 제번) - In the case of the same part number, it is possible to track the lot by classifying the W/O
11	Production Lot	Production lot No. (생산 lot 번호)
12	Inspection	Quality check (품질확인)
13	Production Data	협력사 생산 일자
14	Delivery Time	협력사 공급 일자

※ In the case of exceptions to the size and contents of the label, consultation with the Control Tower is required

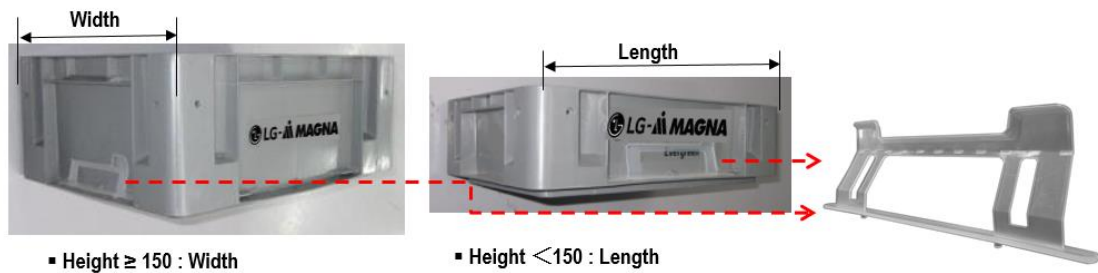
Label Size 및 내용 예외 경우는 Control Tower 협의 필요

4.7.2 Position of Label

4.7.2.1 Danpla box



4.7.2.2 Plastic box



5. Cart standard (대차 규격)

5.1 Authority and responsibility (권한과 책임)

1. The person in charge of manufacturing engineering and material are notified of the change by product when there is a change in the balance.

생산기술과 자재 담당자는 대차 변경사항이 발생하면 제품별로 변경사항을 통보한다.

2. The person in charge of manufacturing engineering and material shall review the conformity of the request for revision and supplementation from the department using the cart, based on the cart transfer standard, reflect the changes in the standard, and notify the changes by product.

생산기술의 담당자와 자재는 대차 사용 부서에서 개정 및 보완 의뢰 시, 대차 전사 표준에 기준하여 적합성 여부를 검토하고, 변경사항을 표준에 반영하며, 제품별로 변경사항을 통보한다.

5.2 Production and management (제작 및 관리)

1. Applied when manufacturing cart according to development grade B or higher or new parts.

개발 등급 B급 이상 또는 신규 부품에 따른 대차 제작 시 적용한다

2. New carts are manufactured based on company-wide standards for carts, and the internal structure and appearance are reviewed in manufacturing engineering and material, and the final decision is made by reflecting manufacturing opinions.

신규 대차는 대차 전사 표준에 기준하여 제작하며, 내부구조 및 외관은 생산기술, 자재에서 검토하며 제조의견을 반영하여 최종 결정하며, 제작은 구매 주관아래 협력회사가 실시한다.

3. If a cart loses its functionality and needs to be repaired, the manufacturing team will coordinate with the supplier to repair it according to the standard.

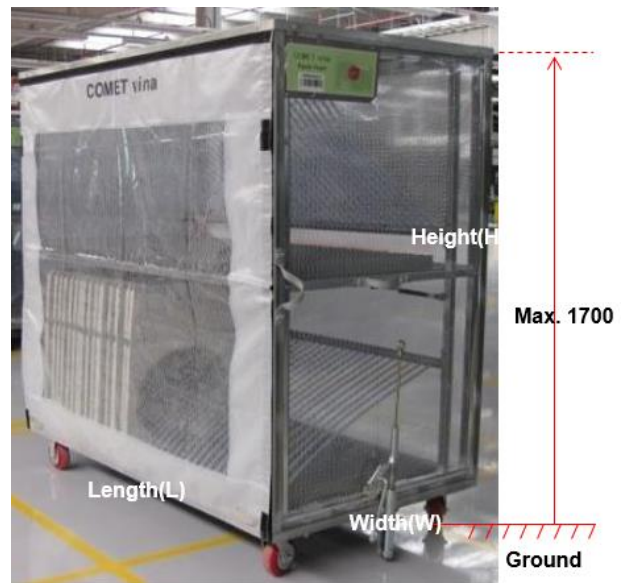
대차의 기능을 상실하여 수리가 필요한 경우 제조팀에서 협력사와 연계하여 표준을 따라 수리한다.

4. Maintained and managed by the using department (manufacturing, materials, quality)

사용부서(제조, 자재, 품질)에서 유지, 관리한다.

5.3 Size

Item	Standard
Length (L)	Max. 1800
	Consider worker work radius 작업자 작업반경 고려
Width (W)	700 ~ 1200
	Worker arm length = 700 Container load width = 2300
Height (H)	Max. 1700
	Consider worker height and workability 작업자 신장 및 작업성 고려



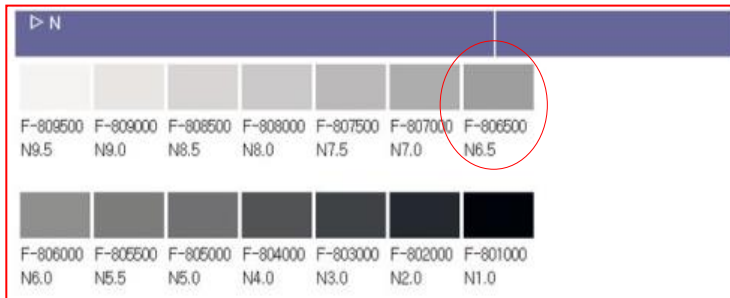
1. Height(H) is max. 1700mm from the ground. (Existence of part-specific exceptions)

높이는 지면으로부터 1700mm 이하이다. (부품별 예외 존재)

2. Length(L) / Width(W) exist exception with loading quantity, truck size.

적재 수량, 트럭 크기에 따라 길이(L)/너비(W) 예외가 존재한다.

5.4 Standard color of cart is light gray. (N-6.5 F-806500)



Munsell			RAL	
No.	RGB	Name	No.	RGB
N 1.5	55,54,54	Black	RAL 9017	30,030,030
N6.0	143,143,141		RAL 7045	144,144,144
N 6.5	158,158,158	Light Gray	RAL 7032	182,181,166
N 9.5	243,243,243	white	RAL 9018	201,207,202
5B 7/4	139,181,204	Grayish bluish cyan	RAL 5024	93,155,155

5.5 Frame

Zinc Square Pipe



Stainless Circular Pipe



Stainless Square Pipe



Item		Standard
Type		Zinc Square Pipe Stainless Circular Pipe, Stainless Square Pipe Steel (Requires painting in standard color)
Color		Zinc Square Pipe (Raw color) Stainless (Raw color) Steel (Light Gray Munsell no, N-6.5 F-806500 painting)
Standard	Zinc	Thickness : 0.9 ~ 1.6t (Depending on your application) Size : Apply suitability review based on balance sheet structure/use
	Stainless	Thickness of circular pipe : STS304, Ø28 ×1.2 t Thickness of square pipe : STS304, 1.1 ~ 2.5 t

		Size : Apply suitability review based on balance sheet structure/use
--	--	--

1. Galvanized steel is an alloy made of zinc and iron in contact with each other, and although there is no flower shape on the surface, the zinc does not fall off when bent or stretched.

아연도금은 아연과 철과의 접촉면에 합금을 만든 것으로 표면에 꽃 모양은 없으나, 굽히거나 늘려도 아연이 벗어져 떨어지는 염려가 없다.

2. STS 304 is a stainless steel that has corrosion resistance, heat resistance, low temperature strength, High machinability, hardening by heat treatment, and no magnetism.

STS 304는 스테인레스 강으로써 내식성, 내열성, 저온강도를 가지고 있으며 가공성은 크고 열처리로서는 경화가 되지 않으며 자성은 없다

[Example of Frame Application]



Stainless Circular Pipe



Zion Square Pipe

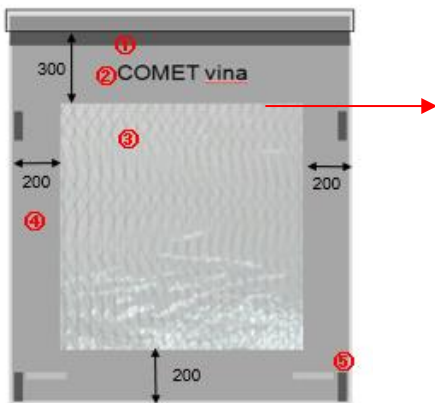


Zion Square Pipe Frame

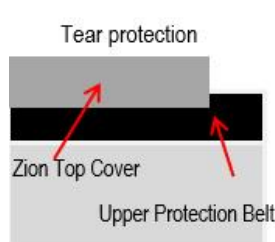
5.6 Front Cover

Item		Standard
Upper Protection Belt 상측 보호벨트	1. Color / Width	- Black / 50, Maintain consistent spacing without stuttering 틀어짐 없이 일정하게 간격 유지 - Protecting the top with a woven belt to prevent tearing 상단 찢어짐 방지용 웨이빙벨트 적용 보호 처리 - Make sure to line up with the top plate end line without deviation 상판 끝선과 편차 없이 일직선이 되게 할 것
Printing Type	2. Color / Type	Black / Height 60mm, Thickness 10mm, Font : Arial Narrow

Cover	3. Transparent(투명) Vinyl	Wave type with internal nylon thread 0.5t 내부 나일론 실이 있는 Wave Type 0.5t
	4. Opaque(불투명) Vinyl	Opaque Awning Vinyl 0.5t / 불투명 천막 비닐 0.5t
	5. Cover Location	300mm from the end of the top cover to the clear window / 200mm elsewhere 상측 덮개 끝단에서 투명창까지 300mm / 그 외 200mm
Velcro	6. Color / Width	Black / Width 25mm
	7. Location	Cover Inner Border (Frame Joints) Cover outer length 80mm, 4 locations (For Cover Open)
Handle	8. Color / Size	Light Gray / 150mm x2t



협력사명 인쇄
 - 높이 : 60 mm
 - 굵기 : 10 mm
 - 색상 : 검정
 - 폰트 : Arial



5.7 Top, Left, Right, Bottom Cover

Item		Standard
Top cover	Galvanized Plate 아연 도금판	Galvanized steel 1.6t (Cover the "L" corner of the joint) 아연도금 강판 1.6t (접합부 모서리 "L" Cover 씌울 것)
Back cover	Vinyl 비닐	Soft Transparent Wave Type 0.5t (The part must be visible from the back) 연질투명 Wave Type 0.5t (후면에서 부품이 보여야 됨)
Side cover	Vinyl 비닐	Soft Transparent Wave Type 0.5t 연질투명 Wave Type 0.5t
	Danpla 단프라	Color : Munsell no Light Gray 4~5t (Light Gray N-6.5 F-806500) Apply Black Danpla when applying for papermaking 제전용 적용시 검정색 단프라 적용

Bottom cover	Galvanized Plate 아연 도금판	Galvanized steel 1.6t 아연도금 강판 1.6t
	Danpla 단프라	Color : Munsell no Light Gray 4~5t (Light Gray N-6.5 F-806500) Apply Black Danpla when applying for papermaking 제전용 적용시 검정색 단프라 적용

Galvanized Plate



Danpla



Transparent Wave Vinyl



Wave Type Transparent Vinyl



Side Danpla Application



1. When fixing the transparent vinyl, attach double-sided tape to the frame and fix it.

투명 비닐 고정시 Frame에 양면 Tape를 부착, 고정한다.

2. Attach a plate for fixing the outer part and fasten it with Washer + Screw.

외곽 부분은 고정용 Plate를 부착하고, Washer + Screw로 체결한다.

3. Screws should be spaced less than 300mm apart.

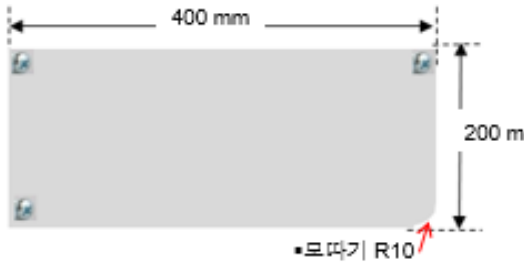


Screw는 300mm 이하의 간격으로 체결한다

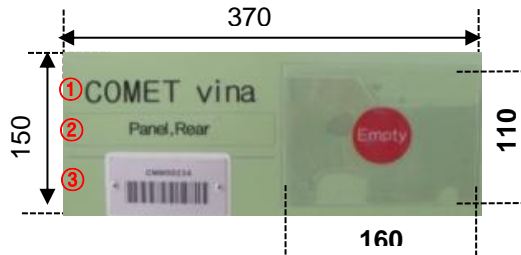
5.8 Material Label Plate / Attachment Label

✓ **Plate**

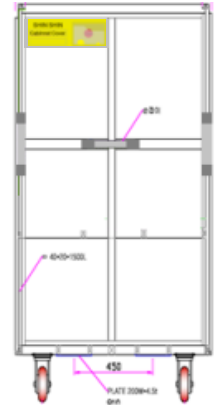
- 아연판 (Zinc plate), Thickness 1 ~ 1.6t



✓ **Label / Pocket Size**



- ① Supplier name
- ② Material (Example : Cover Bottom)
- ③ No mark area for management (for tow cart, other Bar Cord attach)



[Printing Standard]

Item		Standard
Attachment Location 부착 위치		Top Left of Cart Progression 대차 진행방향 좌측 상단
Font Size	1	Font : HY Headline M Font size : 20 ~ 30 mm Font thickness : 3~5mm
	2	Font size : 15 mm Font thickness : 2 mm
Font Color		Black
Background color 바탕색		See color palette (by product family & supplier) 색상표 참조 (제품군 & 협력사별)

5.9 Material Label of Cart (대차 부품표)

Line ①	Description ②			
VH_RAC01	Packing Assembly, Base			
Qty ③	Part No	Qty	Model. Suffix	W/O
160	AGG75120201 ⑦	125 ⑧	VSUC126B4A0. AMBFEVN ⑨	522ROOD3 ⑩
Supplier ④		35	VSUC126B4A0. AMBFEVN	522ROOCJ
DONG YANG				
CNTRCode				
B54 ⑤				
L/No	Production Lot	<i>Inspection</i> ⑫		
⑥	⑪			
Production Data: 03. 03. 2015 ⑬		⑭ Delivery Time: 03. 04. 2015		

80

100

No	Item	Contents
1	Line	The information of production line
2	Description	Part name
3	Qty	How many parts per cart
4	Supplier	Supplier name
5	CNTRCode	Should be delivered by Standard Box or Cart
6	Location No	Should be delivered in designated place
7	Part No	Part number
8	Detail Qty	Quantity of production lot
9	Model. Suffix	Production model
10	W/O	Work order
11	Production Lot	Production lot
12	Inspection	Quality approval
13	Production Data	Supplier's production date
14	Deliver Time	LG production date

5.10 Handle (손잡이)

[Belt Type Handle 사양]

Item		Standard
Handle	Color	Light Gray (N-6.5 FF-806500)
	Size	350 x 25 x 2t
	Material	Cotton and nylon composite 면과 나일론 합성
Bracket	For rectangles	50 x 34
	For circular	50 x 30
Attachment surface 부착면	Caster & Label Attachment Side (Attach to grab from the side (W)). 대차 회전 Caster & Label 부착면 (측면(W)에서 잡을 수 있도록 부착)	
Attachment Spec	Horizontal Type	1100mm range from the center ground of the cart. Deviation based on bar position. 대차 중앙 지면에서 1100mm 범위 Bar 위치에 따라 편차 발생
	Vertical Type	Fixed at 1100mm above ground level 지면에서 1100mm 위치에 고정
	Attachment Range	Spacing after attachment 300 mm range 부착 후 간격 300mm 범위
Screw	Size	1 type : 4×16

※ Attach the handle (protruding type not available)

- Attachment Location Convenient location around 1100mm from the ground
- Handle Type : Use standard belt type

※ Handle 부착 (돌출형 사용 불가)

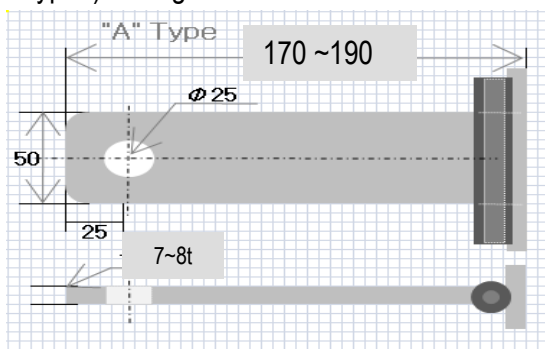
- 부착위치 지면에서 1100mm 부근 사용 편한 위치
- Handle Type : Belt형 표준품 사용

5.11 Tow hooks (견인고리)

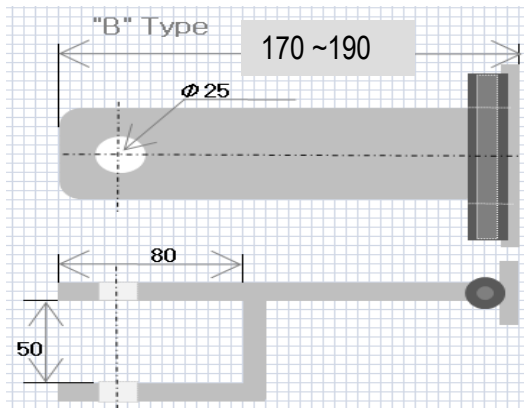
Item			Standard
Machining	Front	Color	Light Gray (Munsell no, N-6.5 F-806500)
		Type	170~190×50×7~8t, Connecting Pins Hole Ø25
	Rear	Color	Light Gray (Munsell no, N-6.5 F-806500)
		Type	170~190×50×7~8t, Connecting Pins Hole Ø25
Material			Flat iron SS400
Attachment	Location	Front	Progression Forward Rotation Caster Frame 진행방향 앞쪽 회전 Caster Frame
		Rear	Rear Fixed Caster Frame with Connecting Pins 뒤쪽 고정 Caster Frame, 연결핀 부착
	Height	250 to 300 mm off the ground 지면에서 250~ 300mm 지점	

< For Front >

Type1) Falling structures

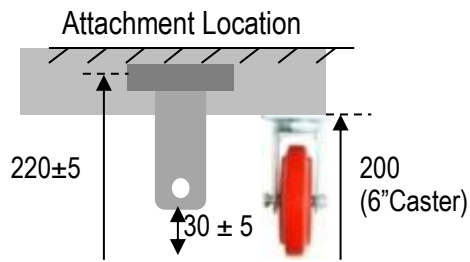


< For Rear >

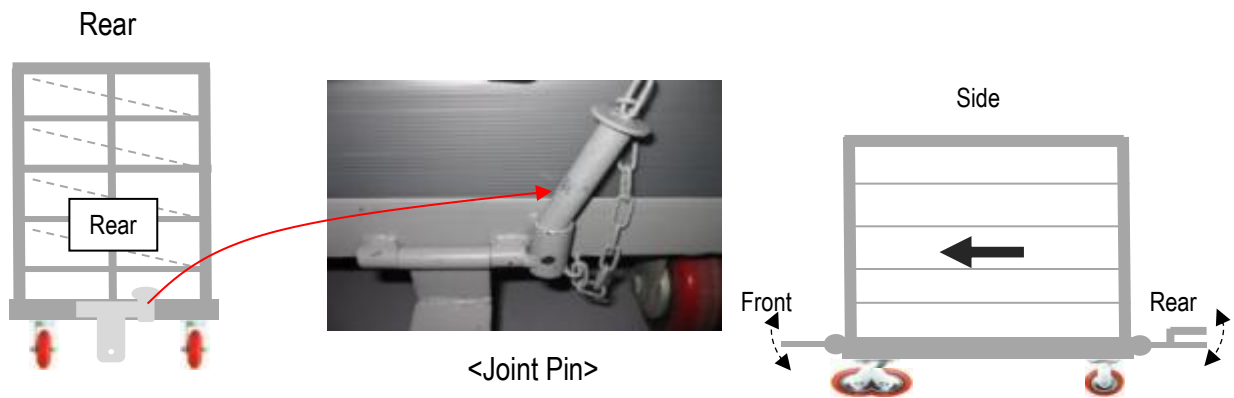


Type2) Stand-up and plug-in structure





30 ± 5 mm from the ground



※ 340 ~ 380mm including front/rear length (based on Caster 6")

- Corner turning radius is secured by considering the distance between bogies.

※ 전/후면 길이 포함 340 ~ 380mm (Caster 6" 기준)

- 대차간 거리 고려 하여 코너부 회전반경 확보 조건임

5.12 Caster

Item		Standard
Type	General + Brake	Need to brake on a slope 경사면 Brake 필요시
	General → Rotational	For front wheels 앞 바퀴용
	General → Fixed	For rear wheels 뒷 바퀴용
Attachment Location	Rotational Caster : Front, Fixed Caster : Rear	
Caster Color	Red (Other color for anti-static)	
Material	Polyurethane	
Standard	Size 6 inches (with normal proportions) 크기 6인치 (일반대차 적용)	

※ Caster Application Summary

- Transfer Standard Caster: 6" red polyurethane
- Heavy Duty : 8 inch, Spring caster, Wide

※ Summary of Caster

- General Standard for Caster : 6inch, Red color, Polyurethane
- Heavy weight : 8inch, Spring caster, wide-width

Reference) Loading Spec by Caster Size

Dimensions (inches, width)	Specification	Limit	Allowance (75%)	Safe load (50%)
4_32(Φ32)	102kg x 4	408	306	204
5_38(Φ38)	250kg x 4	1000	750	500
6_38(Φ38)	250kg x 4	1000	750	500
6_50(Φ50)	360kg x 4	1440	1080	720
8_50(Φ50)	400kg x 4	1600	1200	800

[Kind of Caster and For use]



- 1) Spring Caster : For parts that may be damaged or rejected due to impact during transportation.

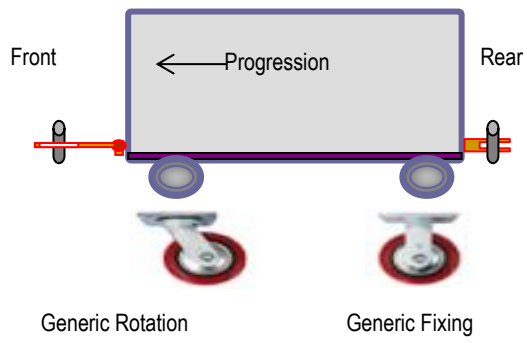
Spring Caster : 운반 중 충격으로 부품 손상 및 불량 발생이 우려 되는 부품용

- 2) Spring Caster + Brake : Need to ramp and secure material + heavy items that are prone to damage and failure.

Spring Caster + Brake : 손상 및 불량 발생이 우려되는 부품 + 중량품으로 경사로 작업 및 고정 필요 시.

- 3) General Caster : for available generic materials with no special provisions

일반 Caster : 특별한 규정이 없는 사용 가능한 일반 부품용



※ Double-sided bogies for in-place rotation or fine-tuning of bogies.

Front and rear swivel casters can be applied when transport is required.

※ 양면 대차로 제자리 회전이 필요한 경우나, 대차 미세 조정
운반이 필요한 경우 전, 후면 회전 바퀴 적용가능.