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**Specifications for special containers of the painted  
body**

**Functional requirements for RfQ and Production**

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### **1. General references**

- 1.1 Introduction
- 1.2 Company premises / Subcontracting
- 1.3 Contact person

### **2. Technical specifications**

- 2.1 Material
  - 2.1.1 Steel grade
  - 2.1.2 Plastic material
- 2.2 Weld joint
  - 2.2.1 Material preparation
- 2.3 Standard parts / Purchase parts
- 2.4 Painting / Identification

### **3. Engineering / Sample built / Production**

- 3.1 General references
- 3.2 BMW-base frame and special tube
- 3.3 CAD-Engineering / Patents / Data exchange
- 3.4 Automatic load-unload + Robcad-Simulation
- 3.5 Sample built
- 3.6 Equipment and dies
- 3.7 Checking fixture
- 3.8 Pre-series- / Series production / Quality assurance

### **4. Recycling of base frames / Scrap**

- 4.1 Identification of plastic parts
- 4.2 Recycling
- 4.3 Scrap

### **5. RfQ / Quotation**

### **6. Terms of delivery**

- 6.1 Delivery
- 6.2 Buy-Off + Warranty / Objection / Amendment

### **7. Tolerances / Mentioned norms and regulations**

### **8. Change log / Contact**

## 1 General references

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### 1.1 Introduction

The technical specification is the base for RfQ / engineering / production / buy-off and delivery of containers designated for press and body shop.

The suppliers guarantees the application of the below mentioned materials and methods. By bidding the supplier accepts the content of the document and commits itself to compliance.

Variations have to be made in writing.

The document doesn't harm the the general terms and conditions of BMW purchasing.

### 1.2 Company premises / Subcontracting

Assumption for order placement is the certification of the company according to an international accepted quality management system (For example DIN ISO 9001 / ISO/TS 16949 / QS 9000)

Beside the production equipment the company possesses the regular MS Office applications as well as a digital camera and email.

Subcontracting by the supplier must be announced to BMW before.

Suppliers of regularly sub contracted components (Stacking columns) must be announced in the price confirmation while bidding.

The technical specification is valid for sub suppliers too.

Sub contracting without written announcement to BMW in connection with quality defects will result the end of contract.

### 1.3 Contact person

At the beginning of the project a German speaking contact person has to be appointed.

This person is responsible and informative regarding quality, quantities, dates and deadlines as well as for Costs.

The project language in BMW over sea plants is English.



## 2 Technical specifications

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### 2.1 Material

The supplier has to up-date the valid norms and technical regulations for its Company independently.

#### 2.1.1 Steel grade

Raw material (Semi-finished parts) for all containers is mild steel with an elastic limit according to S235 JRG2 within DIN EN 10025-1 to -6. Welded tubes according DIN EN 10220, DIN EN 10305-3. DIN EN 10058-1 to -3 und DIN EN 10056-1 for semi-finished parts.

Stainless steel according DIN EN 10088-1 to -3. For contact surfaces to automotive parts use steel quality 1.4301, other surfaces in 1.4016.

Blank steel in DIN 1623-2 and DIN EN 10029.

Variations of steel dimensions allowed in projects of BMW over sea plants but no descent of structural stiffness of the container.

#### 2.1.2 Plastic material

General requirements of plastic parts over the period of use:

- No brittleness and hardening allowed
- Resistant against UV light
- Oil- and acid resistant
- Without silicone
- Cut proof + dimensionally stable within -20 °C to +80 °C
- Not hygroscopic
- Secure Connection between the single materials in case of sandwich material
- Carrier blanks for sandwich material in zinc coated version
- Recyclable

Plastic parts designed to carry automotive skin panels with hardness between 45-75 Shore.

Parts made of reclaimed rubber only after approval from BMW obtained.

## 2.2 Weld joint

For the production of the containers the so called „Kleiner Schweißnachweis“ is required. Described in DIN 18800-7, part 6.3. (No English version available)

General requirements for weld joints in DIN EN ISO 5817, Bewertungsgruppe C

Pallets for cranes must be produced along the requirements of DIN 18800-7, Part 6.2

For all crane containers a static certificate has to be provided.

### Requirements on weld joints:

Free from damages, in the middle of the batch, evenly and flat. Fusion penetration 75 % of material thickness. No porosity, weld seams on the outside of the container with abrasive finish. See point 2.3 Centre bolt.

Cover panels around containers must be welded 30 % of the total length. Minimum 30 mm length per seam.

Welding seams should be welded closed, respectively with 10 mm drain holes.

Centre bolts must be welded completely around the connection edge – the welding seam without Overlap.

### 2.2.1 Material preparation

No burrs allowed on all steel parts. – Tubes chamfered on the inside too.

## 2.3 Standard parts / Purchase parts

The supplier is responsible for the availability of standard and purchase parts needed for container built. All parts available on time in the right quality and quantity.

### Screws

Screws have to be used in quality 8.8 or higher with a washer and self-locking nut. All screws should be zinc coated – 2 pitches overlap of the winding after mounting. Movable Parts equipped with a spacer.

Screws for the adjustment of components like stacking columns or blocks should be covered with a drop of colour to make changes obvious.

Rivets along DIN EN ISO 15984

Gas struts with end cushioning in both directions.



Mounting position downwards to protect the driving rod gasket from dust and water. End





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Container colour:

Sample container	RAL 2000	
Container for press parts	RAL 6027	
Container for assemblies	RAL 5015	
Checking fixture	RAL 5015	

Identification

Container code as 7-digit-number + Name in Colour black or white, located on the end frame traverse and on the backside of the container.

All containers should be equipped with tare weight inscription and consecutive number.

Container for LH and RH parts

In relation to the container long side for LH parts the left end frame pillar on the backside of the container will be painted in red. For RH-parts the right pillar in black.

## Farbliche Markierung Änderungsstand

( Ende Endrahmen bis Endrahmenquerrohr )



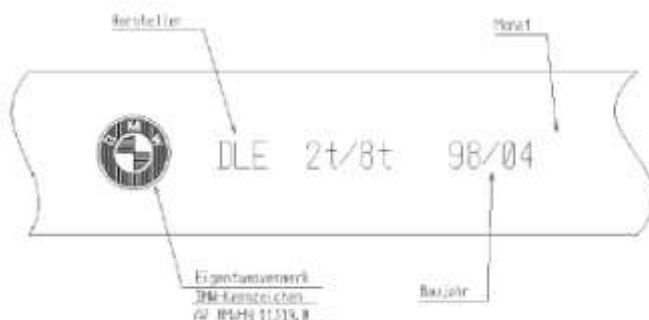
## Farbliche Markierung Behälter für links/rechts-Teile

( Ecksteheraußenseite gegenüber Beladeseite links rot / rechts schwarz )



Identification of the base frame:

K) Kennzeichen einschlagen; Schrifthöhe 18mm



## 3 Engineering / Sample built / Checking fixture

### 3.1 General advices

The CA-engineering and the sample container are the assumption for the features of the container in sense of transport quality, function, maintenance, ergonomics/operational safety and costs. Suggestions for improvement from supplier side are basically welcome by BMW.

### 3.2 BMW-base frame and special tube

For the containers of press and body shop a system of standard components is used to define the basic size of the containers.






In the list all standard components are obvious which are actually used:

**BMW Group**  
Technische Planung

Name: Wiener  
Kurzzeichen: TP-712  
Hausnr.: FIZ-42549



#### Zeichnungsnummern Rackbauteile

	Maße (in mm)	Nummer	
Grundrahmen 	1200 x 1000	3106644	
	2000 x 1200	3106639	
	2200 x 1200	3106640	
	2400 x 1200	3100416	
	2500 x 1200	3106641	
	2600 x 1200	3103773	
	3000 x 1200	3106642	
	3200 x 1200	3100118	
	3300 x 1200	3103870	
	3500 x 1200	3100142	
	3600 x 1200	3080642	
	3700 x 1200	3100929	
	3800 x 1200	3100872	
	4000 x 1200	3106643	
	4200 x 1200	3105106	
4400 x 1200	3101130		
4500 x 1200	3101432		
Grundrahmen mit Buchse 	2000 x 1200	3102826	
	2200 x 1200	3106583	
	2400 x 1200	3102827	
	2500 x 1200	3106584	
	2600 x 1200	3103778	
	3000 x 1200	3106585	
	3200 x 1200	3106586	
	3300 x 1200	3106587	
	3500 x 1200	3106588	
	3600 x 1200	3080643	
	3700 x 1200	3106589	
Endrahmen 	500	3106653	
	650	3100251	
	750	3106659	
	1090	3106554	
	1250	3106556	
	1300	3106700	
	1500	3106702	
Ausleger 	alle	3100417	
Stieher 	750	3106710	
	1500	3106711	
Endrahmen	Verlängerung	250	3106650
Bodengitter	alle		3106693

Deviant sizes should be agreed between the supplier and the planning department at BMW.





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Mesh flooring is also a standard part – production according drawing 3106693.

Special tube (Specification 60X60X3,5 radius inside 5,5 mm)

For the listed base and end frames a welded cold drawn precision tube is used according EN 10305-5 in material quality **E235** (1.0308). The radius on the inside differs from the S-Norm.

In the related drawings references to this tube can be found too.

## 3.3 CAD-Engineering / Patents / Data exchange

### Engineering

The engineering of the container takes place in **Catia V5**. From BMW side a concept will be provided to the supplier which was used for RfQ too. The BMW Engineering method is mandatory (To be found on the B2B-Portal) (CEG Catia-information's, OEM-Base advice, BMW CATIA adjustment, BMW Catia reference card).

The concept consists of the base and end frame as parametric CA-Data's, as well as the Part data's.

The engineering of the inlay to be effected by the supplier

The engineering must be agreed with the BMW planner continuously while in the development process.

Compatibility problems because of different CA systems will not be solved by the BMW planning department. Catia-Data's won't be changed into other filing formats.

### Patents

The supplier assures no abuse of patents.

All developed trade mark rights vest in BMW

The right of application for patent is subject to BMW.

### Data exchange

Data exchange takes place over Panama which is an internet server to provide access to the BMW systems by the suppliers.

Assumption for access to this server is an approval to the B2B-Portal of the BMW Group

<https://b2b.bmw.com>



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The approval to Panama takes place after request of the BMW container planner. The CA-models of the standard base and end frames are there available too.

## 3.4 Automatic load and unload + Robcad-Simulation

After finish of engineering the completed CA-model has to be supplied to BMW via Panama.

The BMW container planning initiates the Robcad-Simulation.

Necessary changes on the model because of collisions are included in the offered price and free of charge for BMW. Without written Robcad release the supplier has no permission to produce the sample container or pre-series amount.

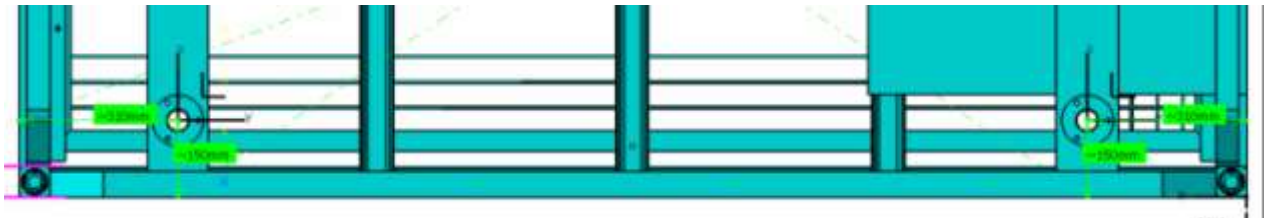
Automatic containers should be engineered as a frame-in-frame-system, in case of sufficient space. Means that end frames and Backside have the function of a collision protection. The parts which define the position of the parts in the container will be built up from the base frame.

## Parts positioning tolerances in X/Y/Z-Axis +/-2mm in relation to the bushings

Tolerance norm for length and angular measure DIN ISO 2768-1-m

Norm for welding DIN EN ISO 13920 –A

For the repeat accuracy positioning of the container in the pallet housing the base frame is equipped with 2 hardened bushings



## 3.5 Sample built

After inspection / Release of the engineering the sample built takes place.

A full working container including dunnages and stacking columns must be provided for sample buy-off. The buy-off takes place at BMW plant with substitutes of the BMW departments including a participant of the supplier. Changes on the sample and the CA-Model based on the results of the buy-off are included in the sample price and free of charge for BMW. As well as the costs for shipment and handling of the sample container to BMW and back to the supplier. See Point 6.2

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## 3.6 Equipment and dies

All Equipment and dies to produce containers are included in the offered price and property of BMW.

All Equipment and dies should be stored weatherproof over 7 Years and sent to BMW on demand.

## 3.7 Checking fixture

The development of the checking fixture takes place after design match with BMW.

Fixture built and definition of the master container after adjusting with BMW planning department. The release of series production doesn't start before fixture inspection by BMW container planner.

The checking fixture must be built up based upon Catia-Data's and double checked with a measuring device. The Verification of the fixture has to be effected by a test record.

The checking fixture must be stored weatherproof over 7 years and delivered to BMW on demand.

## 3.8 Pre-Series / Series production / Quality assurance

The production start of pre-series and series containers happens after release by BMW container planning department.

All containers must be checked before delivery.

Containers for automatic load and unload have to go through the checking fixture before delivery. The results of the Adjustment in the checking fixture should be documented in a check list. The collection of the check lists should be available for BMW on demand.



## 4 Recycling of base frames / Scrap

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### 4.1 Identification of plastic parts

All plastic parts to be identified with material id / container code / manufacturer and production date.

### 4.2 Recycling of base frames

To conserve resources and reduce costs BMW will recycle base frames.

In this connection base frames of containers used in former projects will be conditioned and reused for new containers.

The bases are checked by the disassembly Company. The surface is raw sand blasted.

If used bases are supplied by BMW the container manufacturer has to check the incoming goods once again before further processing.

### 4.3 Scrap

All dies and equipment, as well as the checking fixture may be scrapped after written approval by BMW container planning department. The allowance to scrap takes places earliest after end of series production of the part to be transported.

Costs for handling of the scrap material are not paid by BMW.

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## 5 RfQ + Quotation

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All inquiries will be distributed over the internet application ASTRAS.

<https://www.astras.net>

The supplier receives an invitation to the bidding in before by an automatic generated mail from Astras – In the mail a link is applied which leads to the homepage.

Base for the Quotation is the concept. It is available in the sub file “Down loads” and edit in the MS Office application format PowerPoint.

To bid it’s necessary to fill the precast Excel form.

Further it’s necessary to edit a price confirmation with company stamp and signature. The confirmation should be stored as PDF file in the area “up-loads”.

Meeting the timeline is mandatory.

Companies with delayed quotations will not attend purchasing negotiation.



## 6 Terms of delivery

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### 6.1 Delivery

The containers will be delivered to the place described in the inquiry or to a different place after agreement with the container planner. The delivery accomplishes according INCOTERMS 2000 as CPT – carriage free + no insurance.

Detailed time and place of unloading should be agreed between BMW and the supplier.

Containers to be delivered in up-right position without extra packaging material or transit support.

To relieve service confirmation the delivery notes should be sent to the planning department parallel per fax.

### 6.2 Buy-off + warranty / Objection / Amendment

**The regular advices regarding Buy-off, warranty, objection and amendment can be found in the general terms and conditions of BMW Group purchasing.**

**See B2B-Portal of BMW Group:**

<https://b2b.bmw.com>

#### Buy-off and warranty

Sample acceptance: The sample acceptance doesn't relieve the supplier to issue a guaranty. The buy-off is the functional confirmation of the developed concept.

Series buy-off: The buy-off takes place according to the GTC of BMW Group – Test duration 3 months under series conditions. Without related feedback from BMW the container is accepted 3 months after start of production of the car. Effective from this date the warranty is valid for 12 months.

The payment of the delivered goods does not represent a buy-off.

#### Objection

BMW commits itself to inform the supplier over objections in written form and gives the opportunity for analyses and amendment.

The supplier waives to overrule the objection because of delay.



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## Amendment

The supplier has the right to solve objections by rework or replacement delivery.

If the remedy of objection does not take place promptly BMW takes care to solve the problem. Accruing expenses will be charged to the supplier.

In case of further objections after rework or replacement BMW reserves the right to cancel the contract.



## 7 Tolerances / Mentioned norms and regulations

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### Tolerances

For length and angular measure DIN ISO 2768-1-m

For welding DIN EN ISO 13920 –A

### Mentioned norms and regulations:

DIN EN ISO 9001 / ISO/TS 16949 for QA-Systems

DIN EN ISO 5817 for welding application

DIN EN 10025-1 bis -6 / DIN EN 10220 / DIN EN 10305-3 / DIN EN 10305-5 /

DIN EN 10056-1 / DIN EN 10058-1 bis -3, DIN EN 10029, DIN 1623-2

for steel

DIN EN 10088-1 bis -3 für stainless steel

ISO 7041 for self-locking nuts

DIN EN ISO 15984, for rivets

DIN EN ISO 2409 for fence-cut-test

DIN 18800-7, 6.3 “Kleiner Schweißnachweis”

DIN 18800-7, 6.2 “Großer Schweißnachweis”

DIN EN ISO 12944-1 bis -8

### Further applicable documents:

Drawings for container standard components as well as the cross-references to other norms and regulations.

Regulations and standards about CA-Engineering can be found on the B2B-Portal of the BMW Group: <https://b2b.bmw.com>





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**Revision level: January 2010**

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