

General Manufacturing and Action Guidelines for Suppliers

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Editorial Team

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1. Scope

These manufacturing and action guidelines are part of the purchase order and apply to all deliveries and services provided by suppliers.

Please note the different delivery addresses of our sites in Wedel:

Wedel Headquarter

*Strandbaddamm 6, 22880 Wedel
(Delivery of goods via Deichstraße)*

Wedel Production Site „Kronskamp“

Kronskamp 138, 22880 Wedel

2. Specifications

Our purchase orders include the latest drawings, specifications and any other order documents that may apply. Please follow the instructions on required measurement reports, certificates and other confirmations and documentation.

In order to provide comprehensive specifications for structural components, TRIOPTICS provides PDF-format, 2D drawings in compliance with applicable standards, as well as, upon request, files in STEP- and DXF format and assembly overviews as an EDRAWING or 3D PDF.

The PDF-format 2D drawings are the reference document and defining basis for all structural components.

They may include requirements that go beyond mere geometry.

The drawings describe the required delivery condition and do not replace work schedules or intermediate stages in the manufacturing process that must be described.

Devices or assembly groups are defined by a bill of material. When an order is placed the currently valid bill of material will be attached to it and will replace previous versions if necessary.

Where manufacturer data are prescribed, these are binding. Alternative solutions can be used in coordination with TRIOPTICS when they fulfil the relevant requirements. A written notification of change is mandatory and must be sent to purchaser, who is responsible for internal clarification and will inform the contractor about the approval.

3. Delivery / Delivery Documents

Please note the acceptance times of our goods receiving department:

Monday – Thursday	7.00 – 15:30
Friday	7.00 – 12.00

Please follow the instructions below for deliveries and allocations in Receiving:

- No delivery without a delivery note
- Indicate our purchase order number and type and quantity of goods delivered on the delivery note.
- Clearly allocate the goods/delivery note information to our purchase order items.
- Label the goods/packaging using our part number.
- The goods must be packaged and labelled in a way that ensures that we can enter, store and pick the goods according to our purchase order items without having to repackage.
- In the case of purchase orders/deliveries of sets or assemblies, these must always be packaged and delivered as a set (!) to enable direct order picking/shipping.
- If the scope of a purchase order item makes packaging as one (1) set in one (1) packaging unit impossible and requires several packaging units, every single package must be labeled.

This includes:

- TRIOPTICS part number
- Numbering including total number of packages
(e.g. Part no. 123-.., cardboard box no. 1 of 5).

When delivering structural components (according to drawing) as individual parts or assemblies, the following documents must be attached to the delivery note (2.1 and 2.2).

3.1. Structural components as per drawing

Attachment to the delivery note:

- Latest drawing including information on and confirmation of verified dimensions.

3.2. Assemblies as per bills of materials

Attachment to the delivery note:

- Latest bill of materials including a confirmation of completeness and verified dimensions,
- for unconnected parts individual check and confirmation of the quantity supplied.
- Documentation of inspection specifications/setting specifications if requested.

4. Materials

4.1. Applications without specific material requirements

General designations such as “Ms”, “St”, or “AlMg” are used.

4.2. Aluminium Cast Plates - EN AW-5083 (O3)

On our drawings this alloy is designated with EN AW-5083 (O3) or a brand name as C250®, Dogal® etc.

4.3. Aluminium Cast Plates – Anodization - Black

In order to achieve an even black surface when anodizing cast aluminum, the use of a special alloy is recommended.

Alloy	> EN AW 5083 (O3) Eloxal (EQ) = for Anodization
Surface	> E0 / Anodization - Black, Layer thickness 20µm

5. Surfaces

5.1. General requirements

- Tolerances of the finished dimensions as per drawing (PDF document) must be met
- Special requirements of the drawing must be observed
- Fits and smooth internal threads must be ensured;
if necessary, they must be covered before surface treatment
- Optically flawless surfaces

5.2. Blasting = glass bead blasting

Ultra-fine finish for matte surfaces (grit size $\leq 200 \mu$).

(NO sandblasting)

5.3. Chemical coatings and electroplating

Surface treatment / matt

Coatings must be matt unless otherwise specified on the drawings.

Passivation =Chromium(VI)-free.

Anodization / black

A uniformly black surface is required. A dark brown surface obtained due to the use of some electrolytical processes should be avoided.

Nickel-, zinc coating, chromed or chromated / black

For black coated/galvanized parts the use of alternative methods might be admissible. A written approval by Trioptics must be obtained in advance.

5.4. Powder coating

Powder coating materials from the manufacturers listed below must be used for the following functional areas to ensure a uniform appearance.

The layer thickness is freely variable - in consideration of the general requirements (4.1) - unless specified in the drawing. Please pay attention to possible uncoated surfaces indicated in the drawings.

Color samples can be provided. The article numbers are listed below:

Housing inside, smooth / dull matt:

RAL 9005	Jet black
Type	REPO EP Protect S/DM
Manufacturer	AkzoNobel
Item no.	8239418
Formerly:	(RELEST Powder Hybrid RAL9005 S/DM 5%)
Color sample:	on request

Housing outside, fine structure:

RAL 5005 Signal blue
Type ML-MA315, RAL5005 FS/matt
Manufacturer Ganzlin Beschichtungspulver GmbH
Item no. ML-5005-MA315
Color sample 0-500-332

RAL 5007 Brilliant blue
Type ML-MA315, RAL5007 FS/matt
Manufacturer Ganzlin Beschichtungspulver GmbH
Item no. ML-5007-MA315
Color sample 0-500-314

RAL 7035 Light grey
Type MEGAMIX® ST/M
Manufacturer Cenaris
Color sample 0-500-315

RAL 9005 Jet black
Type MEGAMIX FS/M Serie 120-24
Manufacturer Cenaris
Item no. 120-24-9005-225
Color sample 0-500-316

RAL 9006 White aluminium (silver)
Type Drylac, Silber ME/GL/CO 9006
Manufacturer Tiger Coatings GmbH & Co. KG
Item no. 059/90715
Color sample 0-500-317

RAL 9007 Grey aluminium
Type IGP-Duraface, RAL9007 FS/matt
Manufacturer IGP Pulvertechnik
Item no. 581ME90070A10
Color sample 0-500-318

Special applications

Electrically conductive coating powder for electrostatic discharge (ESD):

The function is influenced by the layer thickness. To ensure the function, the manufacturer's specifications must be carefully observed.

RAL 5005 Signal blue
Type DURA[®]mix 331M IGP 50050 R fs/matt / ESD-Ableitfähig
Manufacturer IGP Pulvertechnik
Color sample 0-500-333

RAL 5007 Brilliant blue
Type DURA[®]mix 331M IGP 50070 R fs/matt / ESD-Ableitfähig
Manufacturer IGP Pulvertechnik
Item no. 331MA50072C00
Color sample 0-500-319

RAL 7035 Light grey
Type DURA[®]mix 331M IGP 70350 R fs/matt / ESD-Ableitfähig
Manufacturer IGP Pulvertechnik
Item no. 331MA70350C00
Color sample 0-500-320

RAL 9005 Jet black
Type DURA[®]mix 331M IGP 90050 R fs/matt / ESD-Ableitfähig
Manufacturer IGP Pulvertechnik
Item no. 331MA90050C00
Color sample 0-500-321

RAL 9006 White aluminium (silver)
Type DURA[®]pol RAL 9006 perlglimmer, tiefmatt / ESD-Ableitfähig
Manufacturer IGP Pulvertechnik
Item no. 681TE90064C10
Color sample 0-500-322

RAL 9007 Grey aluminium
Type DURA[®]pol RAL 9007 perlglimmer, tiefmatt / ESD-Ableitfähig
Manufacturer IGP Pulvertechnik
Item no. 681TE90078C10
Color sample 0-500-323

For other colors you may choose any manufacturer.

5.5. Paint

Matt textured finish

Type BUCOPUR 2K PU
Manufacturer Bucolin

Other paint may be used following the alignment of colour samples.
We can send color samples on request.

RAL 5005	Signal blue	Color sample: 0-500-334
RAL 5007	Brilliant blue	Color sample: 0-500-324
RAL 7035	Light Grey	Color sample: 0-500-325
RAL 9005	Jet Black	Color sample: 0-500-326
RAL 9006	White aluminium	Color sample: 0-500-327
RAL 9007	Grey aluminium	Color sample: 0-500-328

Paint / deep black, matt optical paint, (= "totmatt, tiefschwarz")

For minimization of any stray light

Type **NEXTEL® Velvet Coating 811-21 / 9218 schwarz/black**
 NEXTEL® Verdünner/Paint Thinner 8061
Supplier Mankiewicz Gebr. & Co., Hamburg, DE
or alternative products.

For small surfaces:

Type **Optical paint, deep black, matt**
 Manufacturer/supplier may be chosen by contractor

Alternative: **Albrecht Schultafelfarbe schwarz/deep black**

or other alternative products.

5.6. Primer / Undercoat

The contractor may choose the type/color/manufacturer according to the requirements.

6. Preservative Coating

Only silicone-free agents must be used

7. Labelling of Parts

In order to ensure that the parts can be clearly allocated in receiving and internal transport, the parts are to be labelled using removable labels (alternatively, use tags or write on packaging). This does not pertain to parts whose surface might be damaged by labelling or parts for which a different type of labelling is specified in the drawing or specifications.

8. Packaging

Packaging must be suitable for the part to be packaged and ensure the following functions:

- Protective function
- Loading and transport protection
- Storage function

Care must be taken to ensure that the packaging can withstand the strains of the functions.

Small parts must be packed separately – if necessary use a larger cardboard box. The packaging has to be marked with our part number.

(Small parts must not be packed between/within other/larger parts.)

9. Applicable Instructions

We would like to point out the relevant quality assurance obligations as well as the required compliance with legal provisions.

In this context, the following sections in our General Purchasing Terms and Conditions must be followed in particular with regard to manufacturing, delivery and documentation:

- 3 / Included in delivery: technical design and documentation
- 9 / Quality assurance and product liability
- 10 / Hazardous substances