SCHAEFFLER

Zusammenarbeit

Verantwortung

Integrität

Respekt

Fairness

Vertrauen

Transparenz

SUPPLIER EVALUATION ON FINISHED GOODS-RELEVANT
PRODUCTS, PROCESSES AND SERVICES
SCHAEFFLER GROUP

CALCULATION PRINCIPLES AND RULES

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2   OVERALL QUALITY GKZ Q

Schaeffler regularly evaluates the performance of its suppliers on the basis of the evaluation criteria described below. This applies to products and services supplied to defined commodities within Schaeffler, see section 5.

The overall criterion GKZ Q for the supplier evaluation comprises the four criteria of quality perfor-mance QKZ, QM certification ZKZ, sample performance MKZ and sustainability CKZ, where QKZ is in-cluded directly as a dynamic component and the other criteria are taken into consideration by means of classification rules. Sample quality is shown separately as a standalone value.

The previous rule of not taking into account suppliers with less than three (< 3) goods receipts due to the lack of meaningfulness is not in accordance with IAFT 16949. Since the Schaeffler System (PUR 4011) already realizes this and the restriction was only made via a filter, this rule is hereby cancelled.

Abbreviation	Criterion	Weighting
QKZ	Quality Performance	100%
ZKZ	QM Certification	0% [1]
MKZ	Sample Quality Performance	0%
CKZ	Corporate Responsibility	0% [2]

Technical information/posting rules:

Criteria that are not used for the purposes of evaluation must be set to "0" points / 0 % in the evaluation system (blanking out without an influence on evaluation).

[1]   Direct influence if ZKZ = 59 points, GKZ Q is set to "C".
[2]   Direct influence if CKZ = 1 point, GKZ Q is reduced by one step.

In addition, the following classification rules apply:

- If there is a special status notification NBH (New Business on Hold because of qualitative reasons), this is included in the ZKZ 3 and leads to a devaluation of GKZ Q to 59% and the rating "C"
- The same applies if a QM certificate has expired: GKZ Q to 59% and rating "C"
- Where a supplier supplies the Schaeffler Automotive Division and the QM certificate is not in ac-cordance with IATF 16949 or permissible alternatives (VDA, ISO/TS 22163 or AS9100), GKZ Q is downgraded by one step (for example, from "AB" to "B")
- If it does not fulfil any element of the sustainability component, CKZ becomes 1, leading to a down-grade of GKZ Q by one step (for example, from "AB" to "B")

2.1 CRITERION: QUALITY PERFORMANCE QKZ

The criterion of quality performance QKZ comprises the two individual criteria QKZ1 and QKZ2 shown in the following overview and have different weightings:

Abbreviation	Individual criterion	Weighting [2]		Type(s) of notification [1]	Coding [1]
QKZ 1	Mass Pro-duction Quality	75 %	100 %	Quality defect notifications on volume production Quality defect notifications on tooling	P003 T003
QKZ 2	Defective Quantity (ppm)	25 %	0 %	Quality defect notifications on volume production-Qual-ity defect notifications on tooling	P003 T003

[1]   Technical information: within Schaeffler only

[2]   Exclusion rule for Category NM04 Oils and Greases and NI04 (M21165): QKZ 2 is omitted here

The standard formula for calculating the KPI quality performance QKZ is as follows:

QKZ = 0,75 x QKZ 1 + 0,25 x QKZ 2

The quality criteria QKZ 1 and QKZ 2 are determined by evaluating the technically justified quality defect notifications (with status either open or closed) occurring within a defined assessment period.

2.1.1 Mass Production Quality QKZ 1

The KPI of volume production quality QZ 1 is generated from the ratio between the number of quality defect notifications and the number of goods inwards items (included on the delivery note).

The reason for quality defect notifications is deviations from the product specification (e.g. dimensions, material, surface, etc.).

The formula for calculating the KPI QKZ 1 is as follows:

$$QKZ\ 1 = 100 - 1000 \times \frac{\text{Number of quality defect notifications (cases) in mass production (factor 2 with detection location K0 and KF)}}{\text{Number of goods inwards items in total (max. 500)}}$$

Technical information / posting rules:
If the calculated value is less than 1, a value of 1 is always assigned in accordance with the definition to QKZ 1 for technical reasons. If 10% of deliveries are the subject of concerns, the QKZ 1 value is therefore 1 instead of 0.

The degree of severity of the quality defect notification plays a role. In this way, customer complaints caused by the supplier (quality defect notifications with detection location K0 = Yard hold or zero kilometres or KF = delivery stop or field failure) are counted in QKZ1 with a factor 2.

In addition, the number of goods inward items is restricted to a maximum of 500 over a period of 6 months.

Reason: Suppliers who make frequent deliveries, such as "Just in Sequence" in small lots have previously appeared better with identical delivery quantities in relation to weekly deliveries.

Note/definition:

The KPI cannot have a value < 1 (see above).
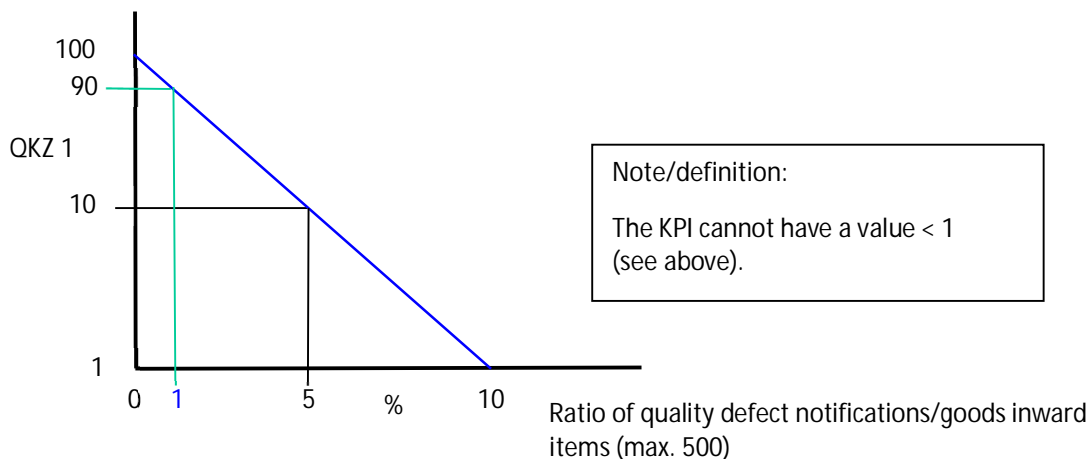
2.1.2 Defect Quantity (ppm) QKZ 2

The standard formula for determining ppm values on the basis of quantity is defined as:

$$\text{ppm value}^{\,1)} = \frac{\text{Delivery quantity rejected}}{\text{Delivery quantity in total}} \times 1\,000\,000$$

[1] ppm = parts per million

The following applies to the formula for calculating the KPI QKZ 2:

$$\text{QKZ 2} = 100 - B \times \frac{\text{ppm value}}{100}$$

The Commodity Factor B (see section 5) is a technology-specific or product-specific compensation factor for handling different requirements.

If the calculated value is less than 1, a value of 1 is assigned in accordance with the definition to QZ 2 for technical reasons. An exception is the category NM04 (Oils/greases) (QKZ 2 is defined as 0) i.e. it is not taken into consideration in QKZ.

Adjustment of ppm values

If material deliveries are returned, the supplier is required to determine the actual defective quantity and, if there is a discrepancy relative to the quantity rejected by Schaeffler, to notify the Schaeffler location submitting the concern.

If the quantity that is actually defective is notified within a period of two months following the receipt of the goods at the supplier that are the subject of the complaint, the ppm values can be adjusted on the system by the quality function of the Schaeffler location. Otherwise, the total rejected quantity is recorded as defective in the calculation of QKZ 2.

2.2 CRITERION: QM CERTIFICATION ZKZ

2.2.1 Certification ZKZ 1

Based on certification to IATF 16949, Schaeffler also requests evidence of QM systems from its suppliers. Schaeffler has quality management systems, corresponding to the requirements of its customers, in accordance with IATF 16949 / VDA 6.1 (Automotive), ISO/TS 22163 (Rail) and AS 9100 (Aerospace).

Furthermore, special status notifications with the escalation status "NBH" (for qualitative reasons) and expired certifications have an influence on the evaluation.
To the benefit of the supplier, equivalent systems lead to identical evaluation numbers/points.

If the corresponding certificates are held by Schaeffler, the KPI Certification ZKZ 1 receives points as follows:

Certification	Points			
	1)	2)	3)	4)
IATF 16949, VDA 6.1, AS 9100 or ISO/TS 22163 (IRIS)	100	100	0	-
ISO 9001	90	100	0	-
Escalation status New Business Hold qualitative (NBH) or quality certificate expired	59	59	0	59
No QM-system 5)	1	1		59
ISO IEC 17025	-	-	-	100
Self-declaration ISO IEC 17025	-	-	-	90

1) Production material suppliers

2) Suppliers for profiles, raw materials for friction and plain linings (Schaeffler Commodities M017, M033).

3) Not relevant to evaluation for part-specific tooling, plastic injection moulding tooling and packing materials (Schaeffler Categories NT02, NT01, NM05 and M384).

4) Category NI04 (M21165) for calibrating service provider

5) System-related by definition "1" point/No applying for calibrating service provider (see section 4)), because it is compulsory to do a self-declaration regarding ISO IEC 17025.

Escalation status New Business Hold qualitative (NBH) or expiry of quality certificate

If Schaeffler imposes the escalation status New Business Hold for qualitative reasons on a supplier (see Escalation process) or the quality certification of the supplier has expired, the overall evaluation Quality GKZ Q and the evaluation results for the KPI ZKZ is reduced to 59 points (corresponding to a C classification). A C classification means that the supplier is not "quality-capable" and should not be sent enquiries for new projects.

The number of points originally awarded will only be awarded again during the subsequent evaluation period once the status New Business Hold has been rescinded.

2.3 CRITERION: CR CORPORATE RESPONSIBILITY CKZ

The criterion Corporate Responsibility comprises 3 individual criteria with different weighting. A devaluation of the GKZ Q only occurs if the supplier fulfils none of the 3 individual criteria. If the supplier cannot provide any certificates, he should be confirmed by recognition of the Schaeffler Code of Conduct that he is nevertheless acting responsibly in the spirit of sustainability aspects.

Abbreviation	Individual criterion	Weighting [1]	
CKZ 1	Environmental Certificate	40%	0%
CKZ 2	Safety and Health Protection	30%	0%
CKZ 3	Code of Conduct	30%	0%

[1] Exception for calibration service providers NI04 (M21165).

The formula for calculating the KPI Corporate Responsibility CKZ 1 is as follows:

$$CKZ = 0{,}4 \times CKZ\ 1 + 0{,}3 \times CKZ\ 2 + 0{,}3 \times CKZ\ 3$$

If CKZ = 1, GKZ Q is downgraded by one evaluation class.

2.3.1 Environmental Certificate CKZ 1

In line with the requirements of its customers, Schaeffler has introduced environmental management systems to ISO 14001 and/or EMAS and requires appropriate certificates from its suppliers.

If the corresponding certificates are held by Schaeffler, the KPI Environmental Certification CKZ1 receives points as follows:

Certification	Points
EMAS	100
ISO 14001	90
No environmental certificate present or certificate(s) expired [1]	1

[1] System-related by definition "1" point

2.3.2   Health and Safety Protection CKZ 2

In line with the requirements of its customers, Schaeffler has introduced occupational health and safety systems to ISO 45001 and requires appropriate systems of its suppliers.

If the corresponding certificates are held by Schaeffler, the KPI Occupational health and safety CKZ 2 receives points as follows:

Certification	Points [1]
OHSAS 18001 or ISO 45001	100
No occupational health and safety system present or certificate expired	1

[1]   System-related by definition "1" point

2.3.3   Code of Conduct (CoC) / Supplier Code of Conduct (SCoC) CKZ 3

Schaeffler expects recognition of the Supplier Code of Conduct (SCoC) from suppliers. As an alternative, and with confirmation of the agreement of expectations in terms of content, the supplier can also confirm its own Code of Conduct (CoC) to Schaeffler. For historical reasons, the requirement is also considered fulfilled through recognition of Schaeffler CoC by means of the supplier approval process (potential analysis carried out on or after 05.2012).

Code of Conduct	Points
Schaeffler SCoC/CoC recognized or CoC of supplier present	100
No SCoC/CoC recognised or present [1]	1

[1]   System-related by definition "1" point

2.4 CRITERION: SAMPLE QUALITY MKZ

2.4.1 Sample Quality Performance MKZ 1

Since the sample quality KPI does not describe the volume production process but the pilot production process, this remains separate as a performance characteristic and is no longer charged.

The procedure for calculation is the same as for the criterion of volume production quality QKZ 1.

| Abbreviation	Individual criterion	Weighting	Type(s) of notification [1]	Coding [1]
MKZ 1	Sample Quality Performance	100 %	Quality defect notifications on samples M4, M5 and M6 [2]	P002

[1] for information within Schaeffler only

[2] Schaeffler sample types: initial volume production sample M4, modification sample M5 and repeat sample M6

The formula for calculating the KPI MKZ is as follows:

	Number of quality defect notifications (number of cases) on samples	
MKZ 1 = 100 – 500 x	Number of goods inwards items in total (max. 500)	

If the calculated value is less than 1, a value of 1 is always assigned in accordance with the definition to MKZ. If 20 % of sample deliveries are the subject of complaints, the MKZ value is therefore 1 instead of 0.

Ratio of quality defect notifications/
goods inward items (max. 500)
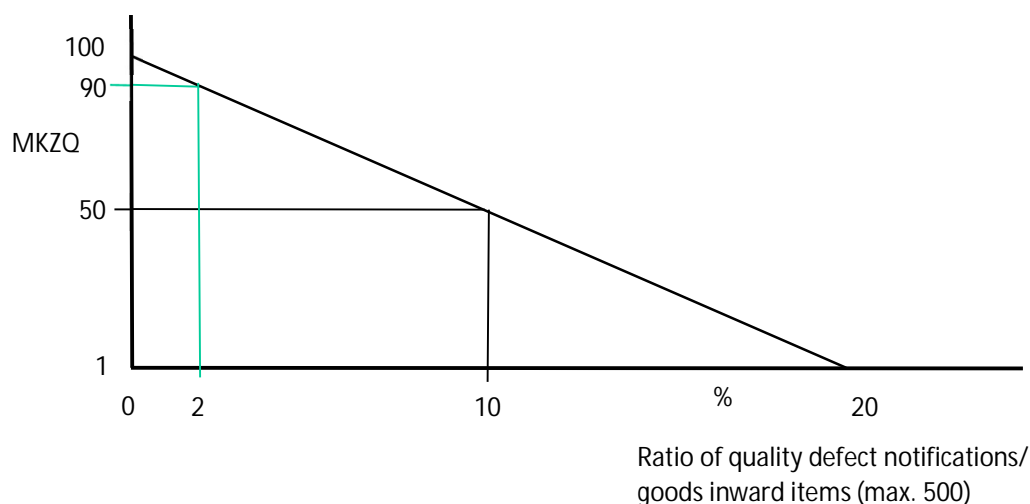
3 OVERALL DELIVERY PERFORMANCE GKZ L

The delivery performance GKZ L is also regularly evaluated by Schaeffler on the basis of the criteria described below.

3.1 CRITERION: DELIVERY PERFORMANCE LKZ

The supplier evaluation criterion for delivery performance LZ comprises three individual criteria that have different weightings:

Abbreviation	Individual criterion	Weighting	3)	Type of notification 1)	Coding 1)
LKZ 1	Date Reliability	40 %	40%	-	
LKZ 2	Quantity Reliability	40 %	0%	-	
LKZ 3	Logistics quality	20 %	20%	Logistics notifications	L001 L002/L003 4)

1)   for information within Schaeffler only

2)   Exception for calibration service providers NI04 (M21165)

3)   See 3.1.2 - if complaints are booked for incidents involving additional freight costs in L002/L003, they can be considered here if the technical conditions are realized.

The formula for calculating the KPI delivery performance LKZ is:

$$LKZ = \frac{0{,}4 \times LKZ\ 1 + 0{,}4 \times LKZ\ 2 + 0{,}2 \times LKZ\ 3}{0{,}4 + 0{,}4 + 0{,}2}$$

Where individual criteria are not used for evaluation, the weighting of the remaining criteria is adjusted in accordance with the example named in the table above 3), in this case without the adherence to quantities LKZ 2:

$$LKZ = \frac{0{,}4 \times LKZ\ 1 + 0{,}2 \times LKZ\ 3}{0{,}4 + 0{,}2}$$

### 3.1.1 Date Reliability LKZ 1 and Quantity Reliability LKZ 2

The KPIs for date reliability LKZ 1 and quantity reliability LKZ 2 are calculated in accordance with a standardized evaluation scheme.

To calculate quantity and on-time delivery performance, the quantity received and the delivery date are compared with the target data of the purchasing document on which the delivery is based when the goods receipt is posted.

The evaluations of the individual deliveries within the evaluation period are each consolidated into a KPI for adherence to deadlines and for adherence to quantities.

Point scheme for date reliability   Point scheme for quantity reliability
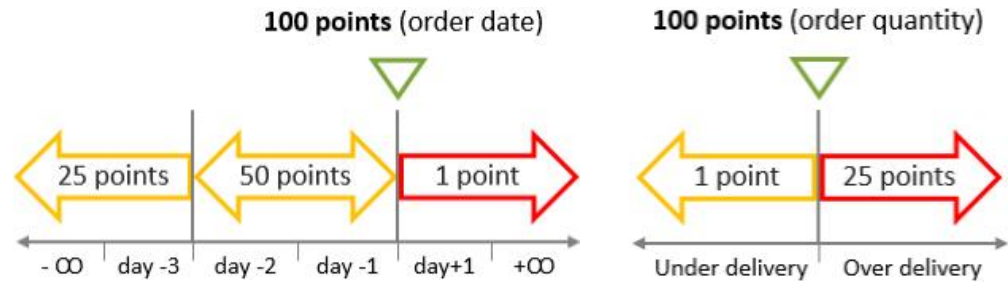
3.1.2   Logistics Quality LKZ 3

The KPI for logistics quality LKZ 3 is calculated on the same basis as QKZ 1 using logistics quality defect notifications occurring within the evaluation period in relation to volume products.

In particular, quality defect notifications relating to logistics include missing documentation, packaging errors, damage to packaging, delays in delivery which are associated with additional outlay for Schaeffler and production line stoppages at Schaeffler or at the premises of its customers.

Note

The recording and approval of the cases associated with additional freight costs is carried out in the so-called ERS tool in the relevant plant function for logistics. Within the framework of these activities, a logistics complaint must be created for linkage to supplier evaluation. It is irrespective in this case whether the supplier has given notification of this case himself or it has been identified by Schaeffler.

It is also the case that special journeys made without any disruptive reason (deviation in deadline/quantity) or additional costs, for example by the supplier must be evaluated as a logistics complaint.

The following applies to the calculation of the KPI for logistics quality LKZ 3:

$$\text{LKZ 3} = 100 - 1000 \times \frac{\text{Number of quality defect notifications (number of cases) relating to logistics}}{\text{Number of goods inwards items logistics (max. 500)}}$$

If the calculated value is less than 1, a value of 1 is always assigned in accordance with the definition to LKZ 3. If 10% of deliveries are the subject of complaints, LKZ 3 is therefore 1 instead of 0.

Ratio of logistics quality defect notifications/ to goods inward items (max. 500)
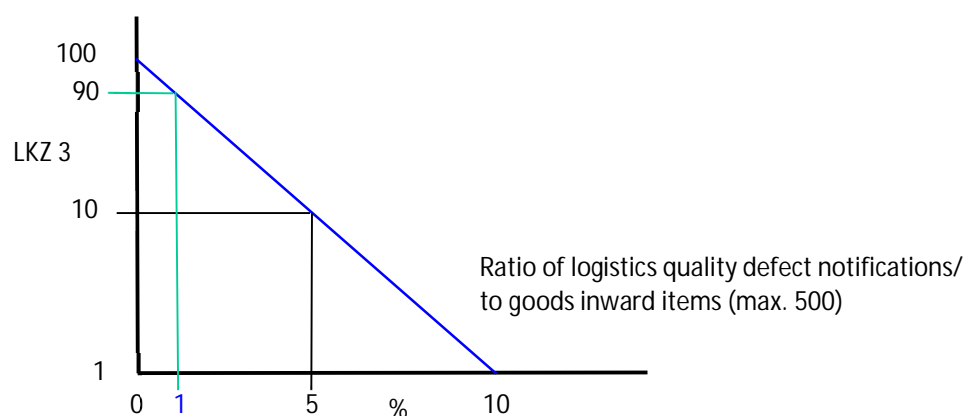
4 OVERALL VMI (VENDOR MANAGED INVENTORY) GKZ V

The evaluation of VMI GKZ V is also regularly evaluated by Schaeffler in relation to the performance of its suppliers, on the basis of the evaluation criteria described below, in accordance with defined internal Schaeffler rules (where VMI processing is carried out). Here it is necessary to pay attention to material sourcing, since VMI is agreed at the material level.

4.1 CRITERION: VKZ VMI

The KPI for supplier evaluation VKZ VMI comprises 3 individual criteria with different weightings.

Abbreviation	Individual criterion	Weighting	Type of notification [1]	Coding [1]
VKZ 1	VMI Quantity Reliability	80 %	-	
VKZ 2	VMI Logistics Quality	20 %	Logistics quality defect notifications	L001

The formula for calculating the KPI for delivery performance VKZ is:

$$\text{VKZ VMI} = \frac{0{,}8 \times \text{VKZ 1} + 0{,}2 \times \text{VKZ 2}}{0{,}8 + 0{,}2}$$

4.1.1 VMI Quantity Reliability VKZ 1

VKZ 1 VMI is determined, on the basis of daily inventory measurements, in comparison with the minimum and maximum limits agreed with our suppliers. Points are deducted if the actual values are above or below the limits.

Depending on the system requirements (minimum and maximum limits) of individual Schaeffler locations, the evaluation method and scheme for calculating the KPI VKZ VMI may vary.

The KPI for logistics quality VMI VKZ 2 is determined on the same basis as QKZ 1 using logistics quality defect notifications occurring within the evaluation period in relation to volume products that are identified as VMI materials (material master/scheduling 1/ scheduling characteristic = VI).

4.1.2 VMI Logistics Quality VKZ 2

The following applies to the calculation of the criterion logistics quality VKZ 2:

$$\text{VKZ 2} = 100 - 1000 \times \frac{\text{Number of quality defect notifications (number of cases) for VMI material}}{\text{Number of goods inward items for VMI material (max. 500)}}$$

If the calculated value is less than 1, a value of 1 is always assigned in accordance with the definition to VKZ 2. If 10% of deliveries are the subject of concerns, the VKZ 2 value is therefore 1 instead of 0.

Ratio of logistics notifications/
goods inward items VMI material (Max 500)
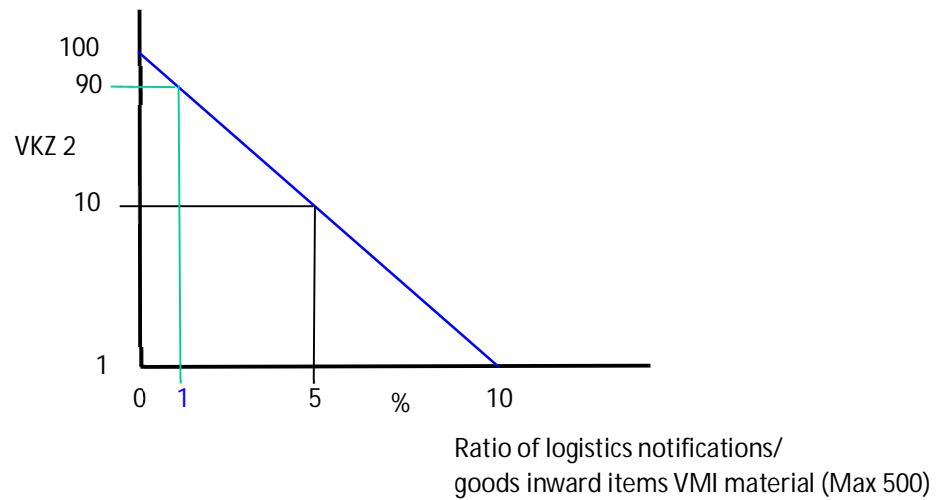
5 EVALUATION PARAMETERS

The evaluation parameters underlying the calculation formula for QKZ 2 are listed in the following table.

No.	Commodity	B-Factor	ppm limit
M011	Rod/wire	1	1000
M012	Tube	1	1000
M013	Cold strip	1	1000
M014	Rolled rings	1	1000
M016	Forged parts	1	1000
M017	Profiles	4	250
M018	Hot strip	1	1000
M019	Drawn wire	1	1000
M021	Non-ferrous metals	4	250
M031	Granulate	4	250
M032	Semi-finished plastic products	4	250
M033	Raw materials for friction linings	4	250
NT02	Part-specific tooling for forming and moulding	0,4	2500
NM05	Packaging	4	250
NM04	Oils and greases for production	4	250
M310	Injection moulded plastic parts	4	250
M314	Friction linings, wet	4	250

No.	Commodity	B-Factor	ppm limit
M315	Friction linings, dry	4	250
M316	Crown wheels	4	250
M317	Lines for clutch release systems	4	250
M320	Elastomer moulded parts/seals	4	250
M330	Aluminium castings including machining	4	250
M340	Bearing housings	1	1000
M341	Investment castings	4	250
M342	Iron castings	1	1000
M343	Sintered parts	4	250
M345	Extruded parts	4	250
M346	Brass cages	4	250
M350	Blanked components	4	250
M355	Industrial springs	4	250
M360	Turned rings	4	250
M361	Turned and milled parts	4	250
M362	Turned flanges	4	250
M366	Toothed parts	4	250
M370	Electromechanics	4	250
M371	Electronic modules	4	250
M372	Motors/magnets	4	250
M373	Mechanical modules	4	250
M374	MCU/active/passive	4	250
M380	Subcontract facilities in general	4	250
M381	Surface treatment	4	250
M382	Heat treatment	4	250
M384	Customized surveillance service provider	4	250
M392	Traded goods: ball/roller bearings	4	250
M393	Rolling elements (balls, needle rollers, rollers)	4	250
M394	Plain bearings	4	250
M411	Aerospace steel	4	250

6 CHANGES AND NOTES TO THIS ISSUE

The changes are marked in green.

Because of the requirements in IATF 16949:2016, the requirements and rules governing "calibration service providers" and for "customer-specific control service providers" have been identified and included.

For organizational reasons, the supplier evaluation of logistics service providers (transport and storage) is carried out separately by the SCM & Logistics Department.

In chapter 2. the previous rule for carrying out the supplier evaluation from 3 goods receipts onwards was cancelled.

In chapter 2.1 the item collective scrap S 0001 was removed.

In chapter 2.3.3 the distinction between Schaeffler and supplier CoC was removed

In Chapter 3.1, the special rule was removed due to the deviations from the IATF requirement.

In chapter 3.1 (see also 3.1.2) it was added that incidents in L002/L003 associated with additional freight costs can also be booked if a complaint booking take place and if it is technically possible.

In chapter 3.1.1, the harmonized evaluation scheme for adherence to delivery dates and quantities was added.

Version date: September 2020