	NGPM-Standard	GPM-S-001
	Requirements to the residual dirt	
		Rev. 2
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This GPM Standard is valid for the following NIDEC GPM GmbH locations:

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| | <input checked="" type="checkbox"/> Crock location | <input type="checkbox"/> NIDEC GPM North America Corporation |

Previous Issues:GPM-S-001 Rev.01/ 01.03.13 German


Changes: translation in English

Application Remark GPM-S-001 Cleanliness Requirements:

This GPM-Standard is disabled / blocked from June 1st 2016 for new constructions. In the future for new constructions NGPM-S-011 "Requirements for Technical Cleanliness" is valid. For existing components and assemblies the GPM-S-001 is still valid. In case off a component index change a change to the new standard NGPM-S011 is possible but has to discuss / consult with the manufacturer / supplier.

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1 Scope of Application

This Standard specifies cleanliness requirements on all new drawings for single components and assemblies. In case of higher customer specification requirements these are to respect. Metallic and non-metallic particles are to consider.

2 Purpose

Description of cleanliness requirements for single components and Oil and Water/Coolant pumps.

3 Explanation

Coolant Pumps:

Coolant agent containing area - 10 mg residual contamination per 1000 cm² Components surface
max. Particle size 1 mm x Ø 0,4mm

Oil Pumps / Gear Oil Pumps / Fuel Pump

Oil containing area: - 8 mg residual contamination per 1000 cm² components surface
max. Particle size 0,6 mm x Ø 0,3mm

for sump pump the whole surface is to respect

Small components are define overall with 0,2 mg residual dirt, max. Particle size 1 mm x Ø 0,4mm for coolant pumps and max. Ø 0,6 mm for oil pumps.

On each drawing the containing/reference surface and the weight of the component had to be specified.

The morphology of fibers will not consider, but will count for the residual dirt.

4 Drawing Input:

Text in German

Bauteiloberfläche wasserführender Bereich: 500 cm²

Zulässige Restschmutzmenge 5 mg, max. Partikelgröße 1x Ø 0,4mm

(10 mg Restschmutzmenge auf 1000 cm², max. Partikelgröße 1 mm)

Text in Englisch:

Component surface water leading area: 500 cm²

Permissible amount of residual contamination: 5 mg, max. particle size 1 x Ø 0,4 mm

(10 mg amount of residual contamination lot at 1000 cm², max. particle size 1 mm)

On the drawing the design engineer specified containing surface, amount and size.

The determination of the residual dirt is given by the process planning and quality department.

Appendix 1 Guideline „ Technical cleanliness of connection elements in the automotive industry”

Reference values for achievable residual contamination values of connection elements in the automotive industry

Tabelle 1

OBERFLÄCHEN-SYSTEM	BLANK (+ÖL)	VERGÜTUNGS-SCHWARZ	PHOSPHATIERT (+ÖL)	GALV. ZINK ODER ZINK-LEGIERUNG	GALV. ZINK ODER ZINK-LEGIERUNG + VERSIEGELUNG	ZINK-LAMELLE (+ WACHS) (**)	ZINK-LAMELLE + VERSIEGELUNG(**)
Prüffläche oder Bauteiloberfläche [cm ²]	Schmutzmasse der Prüffläche / Bauteiloberfläche	Schmutzmasse der Prüffläche / Bauteiloberfläche	Schmutzmasse der Prüffläche / Bauteiloberfläche	Schmutzmasse der Prüffläche / Bauteiloberfläche	Schmutzmasse der Prüffläche / Bauteiloberfläche	Schmutzmasse der Prüffläche / Bauteiloberfläche	Schmutzmasse der Prüffläche / Bauteiloberfläche
<= 20	0,3 mg	0,5 mg	1 mg	0,3 mg	0,3 mg	3 mg	3 mg
21 - 50	0,5 mg	1 mg	2 mg	0,5 mg	0,5 mg	5 mg	5 mg
51 - 100	0,6 mg	2 mg	3 mg	1 mg	1 mg	10 mg	10 mg
101 - 400	1 mg	3 mg	5 mg	2 mg	2 mg	25 mg	25 mg
401 - 1000	3 mg	7 mg	10 mg	5 mg	5 mg	60 mg	60 mg
Maximale Partikelgrößen (ausgenommen weiche Partikel)	400 µm	800 µm	800 µm	800 µm	800 µm	2000 µm	2000 µm

(*) Die in der Tabelle aufgeführten Werte basieren auf Mittelwerten von Stichproben und können nicht als Garantiewerte angesehen werden. (siehe auch Pkt. 5 der Richtlin
 (**) Dieses Oberflächensystem eignet sich nicht zum Erreichen niedriger Restschmutzwerte, da kein Abklingverhalten im Sinne der VDA 19 erreicht wird.