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Kalmar Group Standard

KGS 60101

Part
Method Standards

Group
Requirements for Suppliers

Name
Cleanliness - Designation

1 Scope

This Kalmar Group Standard, hereinafter referred to as KGS, defines how to designate cleanliness requirements in technical documents.

2 Purpose

The purpose of this KGS is to have one way of designating the requirement for cleanliness in Kalmar.

3 Responsibilities

Design Engineers / Principal System Engineers - when applicable, note the relevant information on the technical documents

4 Definitions

A Represents the number of particles ≥ 4 µm per milliliter of fluid.
B Represents the number of particles ≥ 6 µm per milliliter of fluid.
C Represents the number of particles ≥ 14 µm per milliliter of fluid.

5 References

ISO 4406 Hydraulic fluid power – Fluids – Method for coding the level of contamination [...]

6 Procedure description

The cleanliness requirement shall be written with the word Cleanliness followed by the letters KGS followed by a space followed by the relevant KGS number, followed by a space followed by the three scale numbers, one after the other, and separated by a slash, i.e.:
Cleanliness KGS 601XX A/B/C.

If no particles in the specific range are present, use “-” and if there are too many particles, use “*”.

6.1 Scale numbers

The scale numbers are allocated according to the number of particles counted per milliliter of the fluid sample, see table 1.

Table 1 - Allocation of scale numbers

Number of particles per milliliter		Scale number
More than	Up to and including	
2 500 000		> 28
1 300 000	2 500 000	28
640 000	1 300 000	27
320 000	640 000	26
160 000	320 000	25
80 000	160 000	24
40 000	80 000	23
20 000	40 000	22
10 000	20 000	21
5 000	10 000	20
2 500	5 000	19
1 300	2 500	18
640	1 300	17
320	640	16
160	320	15
80	160	14
40	80	13
20	40	12
10	20	11
5	10	10
2.5	5	9
1.3	2.5	8
0.64	1.3	7
0.32	0.64	6
0.16	0.32	5
0.08	0.16	4
0.04	0.08	3
0.02	0.04	2
0.01	0.02	1
0.00	0.01	0

6.2 Designation example

A fluid tank (KGS 60102) with below number of particles and sizes shall be designated as:
Cleanliness KGS 60102 22/18/13.

Particle size	**# of particles/ml (x)**	**Scale number**
≥ 4 µm	20000 < x ≤ 40000	22
≥ 6 µm	1300 < x ≤ 2500	18
≥ 14 µm	40 < x ≤ 80	13

Note 1.
Cleanliness KGS 60102 */18/13 means that this sample has too many particles ≥ 4 µm to count.

Note 2.
Cleanliness KGS 60102 -/18/13 means that there was no requirement to count particles ≥ 4 µm.