



WILO AUSTRALIA PTY LTD  
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QLD,  
AU

Client Account Number: A00493572L0P  
Eurofins Quote Number: XC8UPH19011202

## Eurofins Sample Number NJ21AA0159-1

<b>Original Received Date:</b>	16-Dec-2020
<b>Description:</b>	Stratos Z 25/1-8, Yonos MAXO-Z 25/0.5-7, Yonos MAXO-Z 25/0.5-10
	Product Range:
	"Stratos PARA-Z 25/1-8"
	"Stratos-Z 30/1-8 Yonos MAXO-Z 30/0.5-7"
	"Stratos PARA-Z 30/1-8"
	"Stratos-Z 40/1-8 Yonos MAXO-Z 40/0.5-8"
<b>Containers Submitted:</b>	1 Unit(s)

## Analysis

## # AS/NZS 4020:2018 Compliance Testing

Refer to Attachment # 1

Method: AS/NZS 4020, Appendix A and in-house method TMP 191100 &amp; TMP 191101

Analysis Date: 15-Jan-2021

## Supplemental Information

Samples were tested as received. Specifications (if) reported are as provided by the client.

# Accredited for compliance with ISO/IEC 17025:2017. NATA Accreditation Number 15773.

## Contracted Company: Eurofins ams Laboratories (Sydney)

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amslabs@eurofins.com

TGA Licence No: MI-15112007-LI-002191-11 APVMA Licence No: 6139

Questions about this report should be directed to your project manager or the general email listed above.



**1. SAMPLE INFORMATION:**

**Methodology:** AS/NZS 4020, *Appendix A* and in-house method TMP-191100 & TMP-191101

<b>Cross Reference No.:</b>	Not Applicable
<b>Interim Reporting:</b>	Not Applicable
<b>Batch No./ Manufacturing Date:</b>	Information not Provided
<b>Product Manufacturer:</b>	WILO SE WILOPARK 1, 44263 DORTMUND, GERMANY
<b>Sampling Organisation:</b>	Wilo Australia Pty. Ltd.
<b>General Composition:</b>	Refer to Section 9
<b>Product Use:</b>	In-Line
<b>Temperature Range:</b>	(0 - 65)°C
<b>Previous Testing:</b>	Not Applicable
<b>Sample selection for tests:</b>	As provided by the Submitting Organisation

<b>Sample storage conditions:</b>	Prepared and controlled as per AS/NZS 4020, <i>Appendix A</i>
<b>Extracts:</b>	Prepared as per AS/NZS 4020, <i>Appendices C, D, E, F, G &amp; H</i>
<b>Testing procedure:</b>	<p>Testing is based on the recommended 'in-the-product' exposure with a scaling factor of 0.1 (1/10) applied at (65 ± 2)°C to cover a cold and hot water application up to ~65°C.</p> <p>Due to Metals passing at an evaluated exposure of 0.01 (1/100), Taste test only was conducted at 'in-the-product' exposure with a scaling factor of 0.1 (1/10) applied at (65 ± 2)°C</p> <p>Refer to Section 9 for product details.</p>
<b>Volume retention:</b>	~160mL

## 2. SUMMARY OF RESULTS:

APPENDIX	RESULTS
<b>C - TASTE (CLAUSE 6.2)</b>	PASSED at 'in-the-product' exposure with a scaling factor of 0.01 (1/100) applied
<b>D – APPEARANCE (COLOUR AND TURBIDITY) (CLAUSE 6.3)</b>	PASSED at 'in-the-product' exposure with a scaling factor of 0.1 (1/10) applied
<b>D – APPEARANCE (ORGANIC COMPOUNDS) (CLAUSE 6.8)</b>	PASSED at 'in-the-product' exposure with a scaling factor of 0.1 (1/10) applied
<b>E - GROWTH OF AQUATIC MICRO-ORGANISMS (CLAUSE 6.4)</b>	PASSED at 'total immersion' exposure
<b>F - CYTOTOXIC ACTIVITY (CLAUSE 6.5)</b>	PASSED at 'in-the-product' exposure with a scaling factor of 0.1 (1/10) applied
<b>G - MUTAGENIC ACTIVITY (CLAUSE 6.6)</b>	PASSED at 'in-the-product' exposure with a scaling factor of 0.1 (1/10) applied
<b>H - METALS (CLAUSE 6.7)</b>	PASSED at an evaluated 'in-the-product' exposure with a scaling factor of 0.01 (1/100) applied *

\* NOTE: Quantitative evaluation based on sample result, test scaling factor and AS/NZS 4020 test specification.

Based on completion and evaluation of all tests on 30/04/2021, the product, Stratos Z 25/1-8, Yonos MAXO-Z 25/0.5-7, Yonos MAXO-Z 25/0.5-10; fully complied with the test requirements of AS/NZS 4020:2018 to cover a cold and hot water application up to ~65°C, at the recommended 'in-the-product' exposure with a scaling factor of 0.01 (1/100) applied at (65 ± 2)°C.

Testing although determined by the relevant product Standard, is generally recognised for up to 5 years by the certifying body, providing the testing procedures remain the same, and the background information on all wetted parts and the product are adequately documented. Also, the results stated in the report relate to the samples of the product submitted for testing. Any changes in the material formulation and supplier/manufacturer of all wetted items, the process of manufacture, the method of application, or the surface area-to-volume ratio in the end-use, could affect the suitability of the product for use in contact with drinking water, and re-testing may be required before this actual time frame, governed by the completion and evaluation date.

### 3. TASTE:

**Methodology:** AS/NZS 4020, *Appendix C* and in-house method TMP-191130.

**Exposure:** 'in-the-product'

**Extraction temperature:** (65 ± 2)°C      **Scaling factor:** 0.01 (1/100)      **Number of Panellists:** 5

**No. of samples for Chlorine-free extract:** 1      **No. of samples for Chlorinated extract:** 1

Description	Extract	Test Water	Taste (+ / -)	Taste Description (No. of tasters)	Test Dilution *(Taste intensity )
Test Blank	First 24h	Chlorine-free	—	—	—
	Final 9-day	Chlorine-free	NA	NA	NA
Sample	First 24h	Chlorine-free	—	—	—
	Final 9-day	Chlorine-free	NA	NA	NA
Test Blank	First 24h	Chlorinated	—	—	—
	Final 9-day	Chlorinated	NA	NA	NA
Sample	First 24h	Chlorinated	—	—	—
	Final 9-day	Chlorinated	NA	NA	NA

+ Taste detected      — No taste detected      NA Not applicable

**AS/NZS 4020 test requirement: Minimum of 4 tasters with no discernible taste at the first 1/2 dilution.**

**Figure in brackets is the number of panellists detecting a taste at this dilution.**

Note:

1. Tasters are given a 14-point scale to describe its intensity, with minimum of 1 as extremely weak, and maximum of >14 as extremely strong. An average of all tasters represents taste intensity.
2. First extract becomes final extract.

### EVALUATION:

On the basis of these results the samples of this product referred to in this report have complied with the test requirements of AS/NZS 4020:2018, Taste; *Appendix C*.

#### 4.A. APPEARANCE: COLOUR AND TURBIDITY

**Methodology:** AS/NZS 4020, *Appendix D* and in-house methods TMP-191140 and TMP-191106.

**Exposure:** 'in-the-product'

**Extraction temperature:** (65 ± 2)°C

**Scaling factor:** 0.1 (1/10)

**No. of samples tested:** 1

	a) <b>TRUE COLOUR:</b> Hazen Units <b>(HU)</b>		b) <b>TURBIDITY:</b> Nephelometric Turbidity Units <b>(NTU)</b>	
	First 24h	Final 9-day	First 24h	Final 9-day
<b>Sample Extract</b> pH (24h) = 6.03	2.6	NA	0.24	NA
<b>Test Blank</b> pH (24h) = 6.06	2.2	NA	0.12	NA
<b>FINAL RESULT</b>	<2	NA	0.12	NA
<b>AS/NZS 4020 Test sample requirements</b>	<b>≤5</b>		<b>≤0.5</b>	

< = less than

≤ = less than or equal to

NA Not applicable

First extract becomes final extract

For test a), test extractions were performed by Eurofins |ams. The test extracts were subsequently subcontracted to Eurofins | Environment Testing for assessment (NATA Accreditation No. 1261), Report No. 769395-W-V3. In-house Method based on APHA 2120 B.

#### EVALUATION:

On the basis of these results the samples of this product referred to in this report have complied with the test requirements of AS/NZS 4020:2018, Appearance (Colour & Turbidity); *Appendix D*.

#### 4.B. APPEARANCE: ORGANIC COMPOUNDS

**Methodology:** AS/NZS 4020, Appendix D and in-house methods TMP-191140 and TMP-191106.

**Refer to Section 4.A for testing conditions (Exposure, Extraction temperature, Scaling factor & No. of Samples tested)**

Organic Compound	Drinking Water Guideline Maximum Allowable Concentration mg/L (ppm)	Limit of Reporting mg/L (ppm)	Test Blank mg/L (ppm)	Sample Extract mg/L (ppm)	FINAL RESULT mg/L (ppm)
<sup>1</sup> Benzene	0.001*	0.001	<0.001	<0.001	<0.001
<sup>1</sup> Bromodichloromethane	0.06**	0.001	0.002	<0.001	<0.001
<sup>1</sup> Carbon tetrachloride	0.003*	0.001	<0.001	<0.001	<0.001
<sup>1</sup> Chlorobenzene	0.3*	0.00001	<0.00001	<0.00001	<0.00001
<sup>1</sup> 1,2-dichlorobenzene	1.5*	0.0005	<0.0005	<0.0005	<0.0005
<sup>1</sup> 1,4-dichlorobenzene	0.04*	0.0005	<0.0005	<0.0005	<0.0005
<sup>1</sup> 1,2-dichloroethane	0.003*	0.00001	<0.00001	<0.00001	<0.00001
<sup>1</sup> 1,1-dichloroethene	0.03*	0.001	<0.001	<0.001	<0.001
<sup>1</sup> Cis 1,2-dichloroethene	0.06*	0.00001	<0.00001	<0.00001	<0.00001
<sup>1</sup> Trans 1,2-dichloroethene	0.06*	0.001	<0.001	<0.001	<0.001
<sup>1</sup> Dibromochloromethane	0.15**	0.00001	<0.00001	<0.00001	<0.00001
<sup>1</sup> Dichloromethane (methylene chloride)	0.004*	0.00002	0.00009	0.00015	0.00006
<sup>1</sup> 1,4-dioxane	0.05**	0.00001	<0.00001	<0.00001	<0.00001
<sup>1</sup> Epichlorohydrin	0.0005*	0.0004	<0.0004	<0.0004	<0.0004
<sup>1</sup> Ethylbenzene	0.3*	0.001	<0.001	<0.001	<0.001
<sup>1</sup> Hexachlorobutadiene	0.0007*	0.0001	<0.0001	<0.0001	<0.0001
<sup>2</sup> N-Nitrosodimethylamine (NDMA)	0.0001*	0.00001	0.000039	<0.00001	<0.00001
<sup>1</sup> Plasticisers di(2- ethylhexyl) (Phthalate)	0.009**	0.0005	<0.0005	<0.0005	<0.0005
<sup>1</sup> Benzo-(a)-pyrene (PAHs)	0.00001*	0.00001	<0.00001	<0.00001	<0.00001
<sup>1</sup> Styrene (Vinylbenzene)	0.03*	0.001	<0.001	<0.001	<0.001
<sup>1</sup> Tetrachloroethene	0.05*	0.00002	<0.00002	<0.00002	<0.00002
<sup>1</sup> Toluene	0.8*	0.001	<0.001	<0.001	<0.001
<sup>1</sup> Trichlorobenzenes	0.03*	0.0005	<0.0005	<0.0005	<0.0005
<sup>1</sup> Trichloroethene	0.02**	0.00001	<0.00001	<0.00001	<0.00001
<sup>1</sup> Vinyl chloride	0.0003*	0.00005	<0.00005	<0.00005	<0.00005
<sup>1</sup> Xylene	0.6*	0.003	<0.003	<0.003	<0.003

\*Australian Drinking Water Guideline \*\*NZ Drinking Water Guideline

<sup>1</sup> Test extractions were performed by Eurofins |ams. The test extracts were subsequently subcontracted to Eurofins | Environment Testing, NATA Accreditation No. 1261, Report No. 769394-W. In-house Method based on USEPA 522, 8260D & 8270E.

<sup>1</sup> (Epichlorohydrin) Test extractions were performed by Eurofins |ams. The test extracts were subsequently subcontracted to Eurofins | Eaton, ANSI-ASQ National Accreditation Board/ANAB Accreditation No. AT 1807, Report No. 923488. In-house Method based on USEPA 524.2 Modified.

<sup>2</sup> Test extractions were performed by Eurofins |ams. The test extracts were subsequently subcontracted to Sydney Water, NATA Accreditation No. 63, Report No. 238330. In-house Method based on USEPA 521.

**EVALUATION:** On the basis of these results the samples of this product referred to in this report have complied with the test requirements of AS/NZS 4020:2018, Appearance (Organic Compounds); Appendix D.

## 5. GROWTH OF AQUATIC MICRO-ORGANISMS:

**Methodology:** AS/NZS 4020, *Appendix E* and in-house method TMP-191150.

**Incubation temperature:** (30 ± 1)°C

**Exposure:** 'total immersion'

**No. of Samples:** 1

Component Name	Testing Exposure	Inoculum (mL)	* MEAN DISSOLVED OXYGEN DIFFERENCE (MDOD) in mg/L
i) Impeller (Part # 3)	1 / 1L	100	0.65
ii) EPDM Bellow (Part # 4.2) + Suction Ring (Part # 2C) + O-ring (Part # 8) + O-ring (Part # 19) + Rubber Sleeve (Part # 14) + Radial Bearing (Part # 6) + Radial Bearing (Part # 17)	1 of each / 1L	100	0.89
iii) Can (Part # 16)	1 / 1L	100	0.74
Negative Reference Control (glass plate)	~15,000mm <sup>2</sup> / 1L	100	0.52
Positive Reference Control (paraffin waxed glass plate)	~15,000mm <sup>2</sup> / 1L	100	5.77
Test Blank	Blank / 1L	100	7.20 in mg/L as mean dissolved oxygen

NA = Not applicable

\* Difference from test blank and represents mean of five readings (weeks 5, 5 ½, 6, 6 ½ & 7)

**AS/NZS 4020 test sample requirements: Less than or equal to 2.4 for MDOD**

### EVALUATION:

On the basis of these results the samples of this product referred to in this report have complied with the test requirements of AS/NZS 4020:2018, , Growth of Aquatic Micro-organisms; *Appendix E*.



## 6. CYTOTOXIC ACTIVITY:

**Methodology:** AS/NZS 4020, *Appendix F* and in-house method TMP-191160.

**Exposure:** 'in-the-product'

**Extraction temperature:**  $(65 \pm 2)^{\circ}\text{C}$

**Scaling factor:** 0.1 (1/10)

**Extracts:** 24h, 48h & 72h

**No. of samples tested:** 1

The test sample extracts from the product, as well as the test blank (test water) were used to prepare a nutrient growth medium, subsequently utilised to grow a monkey kidney cell line (VERO ATCC CCL 81).

Microscopic Examination	Test Sample Extract (24h, 48h and 72h)	Test Blank (24h, 48h and 72h)
Cell Morphology:	Satisfactory	Satisfactory
Monolayer: Confluence/Healthy Growth as ~%	100%	100%

Cytotoxicity was detected with Zinc Sulphate, used as a positive control and analysed at 0.4mM of Zinc. Water for Irrigation was included with the test blank as negative control.

**AS/NZS 4020 test sample requirements:** 1) Non-cytotoxic response- confluent monolayer similar to test blank.  
2) Cytotoxic response- irregularly shaped cells & cell death similar to positive control 0.4mM Zinc Sulphate.

## EVALUATION:

On the basis of these results the samples of this product referred to in this report have complied with the test requirements of AS/NZS 4020:2018, Cytotoxic Activity; *Appendix F*.

## 7. MUTAGENIC ACTIVITY:

**Methodology:** AS/NZS 4020, *Appendix G* and in-house method TMP-191170.

**Exposure:** 'in-the-product'

**Extraction temperature:** (65 ± 2)°C

**Scaling factor:** 0.1 (1/10)

**Extract:** 24h

**No. of samples tested:** 1

-S9	<i>Salmonella typhimurium</i> TA98	Mean	Std Deviation	+ S9	<i>Salmonella typhimurium</i> TA98	Mean	Std Deviation
-ve c	22 17 15	18	4	-ve c	45 37 42	41	4
2,4-DNPH	299 302 314	305	8	2-AA	91 89 95	92	3
T.BLK	22 23 18	21	3	T.BLK	40 41 38	40	2
Sample	17 18 20	18	2	Sample	39 41 42	41	2

-S9	<i>Salmonella typhimurium</i> TA102	Mean	Std Deviation	+ S9	<i>Salmonella typhimurium</i> TA102	Mean	Std Deviation
-ve c	899 760 890	850	78	-ve c	780 820 842	814	31
2,4-DNPH	980 990 986	985	5	Benzo(a)pyrene	1020 1122 1240	1127	110
T.BLK	916 712 932	853	123	T.BLK	920 940 960	940	20
Sample	488 728 720	645	136	Sample	760 780 810	783	25

+ S9 = \* Metabolic Activator

NA = Not applicable

> = greater than

2,4-DNPH = 2, 4-dinitrophenylhydrazine

2-AA = 2-aminoanthracene

-ve c = Negative Control

**AS/NZS 4020 test sample requirements:** (The differences in the mean number of revertants between either of the negative controls and test sample extracts should not exceed two standard deviations (for triplicate analysis)).

**Positive response:** If mean revertants for sample extract outside the range of spontaneous revertants for test strain.

### EVALUATION:

On the basis of these results the samples of this product referred to in this report have complied with the test requirements of AS/NZS 4020:2018, Mutagenic Activity; *Appendix G*.

## 8. METALS:

**Methodology:** AS/NZS 4020, Appendix H and in-house methods TMP-191180 and TMP-191230.

**Exposure:** 'in-the-product'

**Extraction temperature:** (65 ± 2)°C

**Scaling factor:** 0.1 (1/10)

**Extracts:** 24h & 9-day

**No. of samples for I:** 1

**No. of samples for II:** 1

Element	AS/NZS 4020: Maximum Allowable Concentration mg/L (ppm)	Limit of Reporting mg/L (ppm)	Test Blank mg/L (ppm)	Sample Extract I mg/L (ppm)	Sample Extract II mg/L (ppm)	FINAL RESULT I mg/L (ppm)	FINAL RESULT II mg/L (ppm)
Aluminium <sup>1</sup> (Al)	0.2	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Antimony <sup>1</sup> (Sb)	0.003	0.001	<0.001	<0.001	0.002	<0.001	0.002
Arsenic <sup>1</sup> (As)	0.01	0.001	<0.001	0.002	0.003	0.002	0.003
Barium <sup>1</sup> (Ba)	0.7	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron <sup>1</sup> (B)	1.4	0.05	0.24	<0.05	<0.05	<0.05	<0.05
Cadmium <sup>1</sup> (Cd)	0.002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Chromium <sup>1</sup> (Cr)	0.05	0.001	<0.001	0.001	<0.001	0.001	<0.001
Copper <sup>1</sup> (Cu)	2	0.001	0.004	0.018	0.011	0.014	0.007
Iron <sup>1</sup> (Fe)	0.3	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Lead <sup>1</sup> (Pb) a) First 24h: b) Final 9-day:	0.01	0.001	a) <0.001 b) <0.001	a) 0.059 b) 0.068	a) 0.022 b) 0.040	a) 0.059 b) 0.068	a) 0.022 b) 0.040
Manganese <sup>1</sup> (Mn)	0.1	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury <sup>1</sup> (Hg)	0.001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum <sup>1</sup> (Mo)	0.05	0.002	<0.002	<0.002	0.006	<0.002	0.006
Nickel <sup>1</sup> (Ni)	0.02	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium <sup>1</sup> (Se)	0.01	0.001	<0.001	<0.001	0.003	<0.001	0.003
Silver <sup>1</sup> (Ag)	0.1	0.001	<0.001	<0.001	<0.001	<0.001	<0.001

< = less than mg/L = milligram per litre <sup>1</sup> = ICPMS – In-house Method Code: LTM-MET 3040 First extract becomes final extract.

NA = Not applicable

Test extractions were performed by Eurofins |ams. The test extracts were subsequently subcontracted to Eurofins |Environment Testing for assessment (NATA Accreditation No. 1261), Report Nos. 769395-W-V3 & 771826-W. In-house Method based on US EPA Method 3010A & US EPA Method 6020B.

8. METALS CONT.

Evaluated Exposure = Highest 9-day Sample result x Maximum scaling factor allowed in AS/NZS 4020  
for Lead Test Scaling Factor

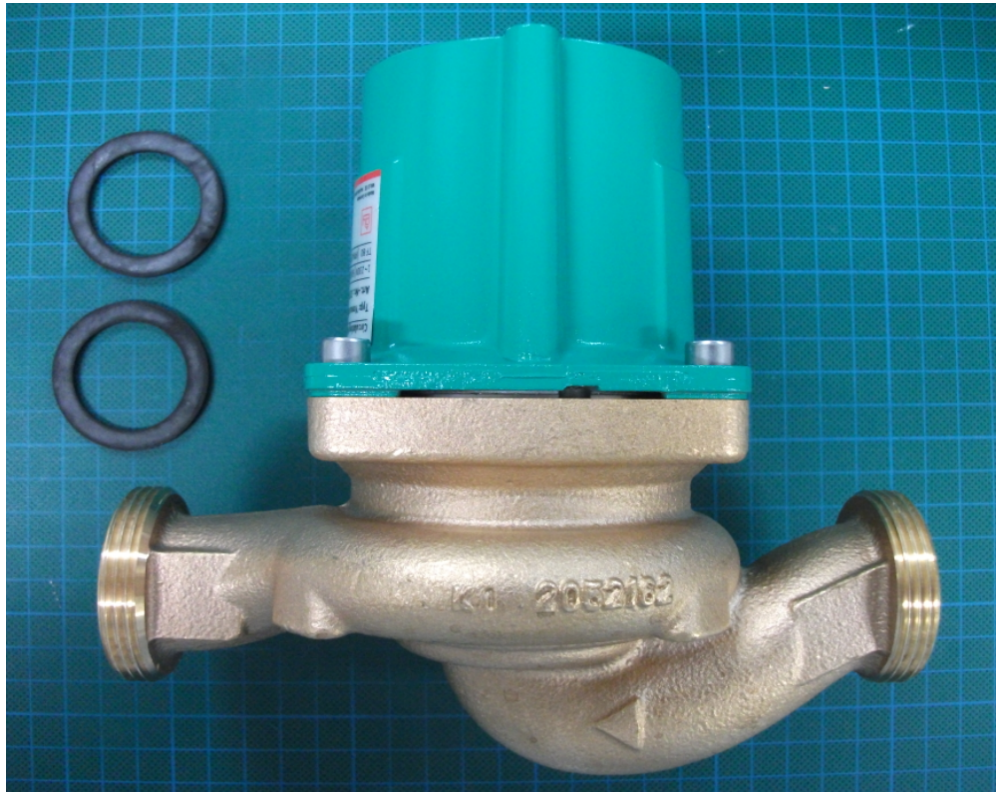
$$= (0.068 \times 0.01) / 0.1$$

$$= 0.0068\text{mg/L}$$

EVALUATION:

The results have not complied at the testing exposure but on final calculation of evaluated exposure, the samples of this product referred to in this report have complied with the test requirements of AS/NZS 4020:2018, Metals; *Appendix H*, at an evaluated 'in the-product' exposure with a scaling factor of 0.01 (1/100) applied.

9.I. PHOTO OF TEST SAMPLE:



**9.II. BILL OF MATERIAL (BOM) PRODUCT:**

Position	Designation	Material	Pump Designation - Ratio of Wetted Surface Area to Volume (cm2 per 1mL)							
			Stratos Z 25/1-8 Yonos MAXO-Z 25/0.5-7 Yonos MAXO-Z 25/0.5-10	Stratos PARA-Z 25/1-8	Stratos PARA-Z 25/1-11	Stratos-Z 30/1-8 Yonos MAXO-Z 30/0.5-7	Stratos PARA-Z 30/1-8	Stratos PARA-Z 30/1-11	Stratos PARA-Z 25/1-12	
			Volume (mL) ->	250	250	220	250	250	220	280
1	Pump Housing	CC499K	1.2141	1.2141	1.1793	1.2141	1.2141	1.1793	1.6431	
2	Suction Gasket/Casing Suction Ring	1.4301 1.4307	0.0000	0.0000	0.0515	0.0000	0.0000	0.0515	0.0000	
2a	Cap Gasket - Impeller (1)	1.4301	0.1205	0.1205	0.0000	0.1205	0.1205	0.0000	0.1075	
2b	Cap Gasket - Impeller (2)	1.4301	0.0854	0.0854	0.0000	0.0854	0.0854	0.0000	0.0763	
2c	Suction Ring	WITCOM PPS 2016-167	0.0794	0.0794	0.0000	0.0794	0.0794	0.0000	0.0709	
3	Impeller	NORYL FE 1630 PW Fortron 1140L6 SF3001	0.0000 0.7722	0.0000 0.7722	0.6233 0.0000	0.0000 0.7722	0.0000 0.7722	0.6233 0.0000	0.0000 0.6895	
3a	Insert - Impeller	CW612N CW617N	0.0060	0.0060	0.0068	0.0060	0.0060	0.0068	0.0054	
4	Mechanical Seal	-	-	-	-	-	-	-	-	
4a	Spring for Mechanical Seal	1.4404	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
4b	Frame for Mechanical Seal	1.4301	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
4c	Ceramic Ring for Mechanical Seal	SCC-950F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
4d	O-Ring for Mechanical Seal (sm)	E 7518 E 7561 70 EPDM 331 7 EP 1197	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
4e	O-Ring for Mechanical Seal (lg)	EP656	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	
4.1	Rotary Seal Ring	SCC-950F	0.0405	0.0405	0.0460	0.0405	0.0405	0.0460	0.0362	
4.2	EPDM Bellow	E 7518 E 7561 70 EPDM 331	0.0566	0.0566	0.0643	0.0566	0.0566	0.0643	0.0506	
4.3	Spring	1.4301	0.0257	0.0257	0.0292	0.0257	0.0257	0.0292	0.0230	
4.4	Ring	1.4301	0.0123	0.0123	0.0140	0.0123	0.0123	0.0140	0.0110	
4.4a	Locking Ring	1.4301	0.0212	0.0212	0.0241	0.0212	0.0212	0.0241	0.0189	
4.4b	Collar	1.4301	0.0503	0.0503	0.0572	0.0503	0.0503	0.0572	0.0449	
5	Endshield	CW612N CW617N	0.2347	0.2347	0.2667	0.2347	0.2347	0.2667	0.2497	
6	Radial Bearing (1)	HPC835 EK2239	0.0672	0.0672	0.0764	0.0672	0.0672	0.0764	0.0741	
7	Filter Plate	1.4301	0.1200	0.1200	0.1364	0.1200	0.1200	0.1364	0.2143	
8	O-Ring	E 7518 E 7561	0.0402	0.0402	0.0457	0.0402	0.0402	0.0457	0.0480	
9	Filter Plug	1.4301	0.0800	0.0800	0.0909	0.0800	0.0800	0.0909	0.0714	
10	Shaft	1.4122	0.1733	0.1733	0.1969	0.1733	0.1733	0.1969	0.1661	
11	Sleeve	1.4301	0.1574	0.1574	0.1788	0.1574	0.1574	0.1788	0.1888	
12	Sleeve Cover (1)	1.4301	0.0363	0.0363	0.0413	0.0363	0.0363	0.0413	0.0448	
13	Sleeve Cover (2)	1.4301	0.0367	0.0367	0.0417	0.0367	0.0367	0.0417	0.0448	
14	Rubber Sleeve	E 7518 E 7561	0.0776	0.0776	0.0882	0.0776	0.0776	0.0882	0.0812	
15	Thrust Plate	Rapox Brown C795 T195	0.0431	0.0431	0.0490	0.0431	0.0431	0.0490	0.0502	
16	CAN	Fortron 1140L6 SF3001	0.2467	0.2467	0.2803	0.2467	0.2467	0.2803	0.2645	
17	Radial Bearing (2)	HPC835 EK2239	0.0510	0.0510	0.0580	0.0510	0.0510	0.0580	0.0514	
18	Insert	CW612N CW617N	0.0695	0.0695	0.0789	0.0695	0.0695	0.0789	0.1770	
19	O-Ring	E 7518 E 7561 70 EPDM 331 7 EP 1197	0.1166	0.1166	0.1324	0.1166	0.1166	0.1324	0.0966	
20	Admission Slide (?)	1.4301	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

## 9.II. BILL OF MATERIAL (BOM) PRODUCT CONT.:

Position	Designation	Material	Stratos-Z 30/1-12	Stratos	Stratos-Z 40/1-8	Stratos-Z 40/1-12	Stratos-Z 50/1-9	Stratos-Z 65/1-12
			Yonos MAXO-Z 30/0.5-12	PARA-Z 30/1-12	Yonos MAXO-Z 40/0.5-8	Yonos MAXO-Z 40/0.5-12	Yonos MAXO-Z 50/0.5-9	Yonos MAXO-Z 65/0.5-12
		Volume (ml) ->	280	280	490	640	820	1350
1	Pump Housing	CC499K	1.6431	1.6431	1.2214	1.0786	1.0608	0.9969
2	Suction Gasket/Casing Suction Ring	1.4301 1.4307	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2a	Cap Gasket - Impeller (1)	1.4301	0.1075	0.1075	0.0668	0.0689	0.0538	0.0387
2b	Cap Gasket - Impeller (2)	1.4301	0.0763	0.0763	0.0288	0.0533	0.0416	0.0290
2c	Suction Ring	WITCOM PPS 2016-167	0.0709	0.0709	0.0466	0.0506	0.0395	0.0289
3	Impeller	NORYL FE 1630 PW Fortron 1140L6 SF3001	0.0000 0.6895	0.0000 0.6895	0.0000 0.3205	0.0000 0.3478	0.0000 0.2801	0.2681 0.0000
3a	Insert - Impeller	CW612N CW617N	0.0054	0.0054	0.0031	0.0023	0.0018	0.0022
4	Mechanical Seal	-	-	-	-	-	-	-
4a	Spring for Mechanical Seal	1.4404	0.0000	0.0000	0.0000	0.0272	0.0212	0.0377
4b	Frame for Mechanical Seal	1.4301	0.0000	0.0000	0.0000	0.0275	0.0215	0.0235
4c	Ceramic Ring for Mechanical Seal	SCC-950F	0.0000	0.0000	0.0000	0.0154	0.0120	0.0135
4d	O-Ring for Mechanical Seal (sm)	E 7518 E 7581 70 EPDM 331 7 EP 1197	0.0000	0.0000	0.0000	0.0056	0.0044	0.0053
4e	O-Ring for Mechanical Seal (lg)	EP856	0.0000	0.0000	0.0000	0.0061	0.0047	0.0059
4.1	Rotary Seal Ring	SCC-950F	0.0362	0.0362	0.0207	0.0000	0.0000	0.0000
4.2	EPDM Bellows	E 7518 E 7581 70 EPDM 331	0.0506	0.0506	0.0289	0.0000	0.0000	0.0000
4.3	Spring	1.4301	0.0230	0.0230	0.0131	0.0000	0.0000	0.0000
4.4	Ring	1.4301	0.0110	0.0110	0.0063	0.0000	0.0000	0.0000
4.4a	Locking Ring	1.4301	0.0189	0.0189	0.0108	0.0000	0.0000	0.0000
4.4b	Collar	1.4301	0.0449	0.0449	0.0257	0.0000	0.0000	0.0000
5	Endshield	CW612N CW617N	0.2497	0.2497	0.1427	0.1311	0.1023	0.1669
6	Radial Bearing (1)	HPC835 EK2239	0.0741	0.0741	0.0423	0.0596	0.0465	0.0547
7	Filter Plate	1.4301	0.2143	0.2143	0.1224	0.2344	0.1829	0.3704
8	O-Ring	E 7518 E 7581	0.0480	0.0480	0.0274	0.0272	0.0212	0.0198
9	Filter Plug	1.4301	0.0714	0.0714	0.0408	0.0313	0.0244	0.0148
10	Shaft	1.4122	0.1661	0.1661	0.0949	0.1176	0.0918	0.1149
11	Sleeve	1.4301	0.1888	0.1888	0.1079	0.1174	0.0916	0.0780
12	Sleeve Cover (1)	1.4301	0.0448	0.0448	0.0256	0.0300	0.0234	0.0308
13	Sleeve Cover (2)	1.4301	0.0448	0.0448	0.0256	0.0300	0.0234	0.0308
14	Rubber Sleeve	E 7518 E 7581	0.0812	0.0812	0.0464	0.0314	0.0245	0.0386
15	Thrust Plate	Rapox Brown C795 T195	0.0502	0.0502	0.0287	0.0380	0.0297	0.0447
16	CAN	Fortron 1140L6 SF3001	0.2645	0.2645	0.1511	0.1931	0.1507	0.2068
17	Radial Bearing (2)	HPC835 EK2239	0.0514	0.0514	0.0294	0.0426	0.0333	0.0361
18	Insert	CW612N CW617N	0.1770	0.1770	0.1011	0.0621	0.0485	0.0524
19	O-Ring	E 7518 E 7581 70 EPDM 331 7 EP 1197	0.0966	0.0966	0.0552	0.0577	0.0450	0.0319
20	Admission Slide (?)	1.4301	0.0000	0.0000	0.0000	0.0535	0.0418	0.0592

9.III. INTERNAL SPECIFICATIONS FOR PUMP BODY:

<b>wilo</b>	Designation: <b>Red Brass material: CC499K</b>		Replacement for: XXXXXXXX.XX	Page / Pages: <b>1 / 3</b>
	Number: <b>2163191.1</b>			

Red Brass material CC499K for use in  
contact with pumped media

Remarks:

01	159007	2015-06-19	Bahrsen	SIGN.	DATE	RELEASED:	SIGN.
IND.	TN-NO.	DATE	PREPARED BY:	SIGN.	DATE	RELEASED:	SIGN.

WRITTEN AUTHORIZATION



### 9.III. INTERNAL SPECIFICATIONS FOR PUMP BODY CONT.:

**wilo**

Designation:

Red Brass material: CC499K

Replacement for:

XXXXXXXXXX.XX

Page / Pages:

2 / 3

Number: 2163191.1

## Material

CC499K (CuSn5Zn5Pb2-C)

Material according to EN 1982. In case of drinking water applications, additional requirements need to be fulfilled, for example in Germany the fulfilment of DIN 50930-6 is imperative. This can be only reached by using materials listed in the UBA-list (Umwelt Bundesamt) which is based on the 4MS<sup>1</sup> list, this list is a legal binding document. In particular the chemical composition of the material has to be in compliance with the requirements of the UBA composition list of accepted metallic materials (Table N° 1). The material composition has to be documented by a certificate 3.1. according to EN 10204. All the elements which might exceed 0.02 % have to be included in this report.

Cu	Sn	Zn	Pb	Ni
84.0% - 88.0%	4.0% - 6.0%	4.0% - 6.0%	0.2% - 3.0%	0.1% - 0.60%

Impurities (% (m/m)):

Fe	P	S	Sb
≤ 0.30%	≤ 0.04%	≤ 0.04%	≤ 0.10%

Each other impurity  $\leq 0.02\%$

Table N° 1: Chemical composition range which has to be fulfilled for the use of CC499K in drinking water as defined in the UBA composition list of accepted metallic materials<sup>1</sup>

<sup>1</sup> France, Germany, the Netherlands and the United Kingdom (4MS) work together in the framework of the 4MS Common Approach as laid down in the Declaration of Intent (January 2011). This common approach aims for convergence of the respective national approval schemes for materials and products in contact with drinking water. The 4MS have adopted Part A of this document as a common basis for implementing the concept of accepting metallic materials in their national regulations. The document is subject to revisions agreed by the 4MS.

Part B of this document includes a Composition List of metallic materials accepted in all of the 4MS following the procedure described in Part A, this list was published in Germany by the UBA. In a second version which will be published soon, further alloys of the 4MS-list will be included in the UBA-list.

Further information may be obtained from any of the competent authorities of the 4MS.

Bundesministerium für Gesundheit (Deutschland)

Ministère du Travail, de l'Emploi et de la Santé (France)

Ministerie van Infrastructuur en Milieu (Nederland)

Department for Environment, Food and Rural Affairs (United Kingdom)

### 9.III. INTERNAL SPECIFICATIONS FOR PUMP BODY CONT.:

<b>wilo</b>	Designation:	Replacement for:	Page / Pages:
	<b>Red Brass material: CC499K</b>	XXXXXXX.XX	<b>3 / 3</b>
		Number: <b>2163191.1</b>	
<p><b>Cracks</b></p> <p>The delivered parts have to be free of cracks which can be detected in a light microscope at 10 times magnification.</p> <p><b>Tightness</b></p> <p>Parts designed for pressure containing elements have to be pressure tight upto 13 bar if there is no different specification in the drawing.</p> <p><b>Cleanliness</b></p> <p>The parts have to be cleaned from any contamination. Especially production aids have to be removed by a suitable cleaning process. Scale has to be removed by e.g. shot blasting or tumble grinding.</p> <p><b>Process Changes</b></p> <p>The release of a part refers to a certain process chain. As well process parameters as raw material suppliers and subcontractors are an important part of this process chain. If anything changes, Wilo has to be informed about it. If necessary, new initial samples have to be tested.</p>			