Rev. Level: 2
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Approved by: Shannon Hole

RYMS SS 001 SUPPLIER SPECIFICATIONS *Centerless Grind & Superfinishing*

1.0 Purpose

To ensure the proper handling and documentation requirements for part processes sent to outsource suppliers.

2.0 Scope

All parts that require centerless grind and superfinishing outsource work.

3.0 Responsibilities

Approved Suppliers.

4.0 QA Documents/Records

4.1 A copy of supplier quality inspection documentation will be supplied in packaging of parts only when specified on the purchase order including:

- OD and ID surface Ra test results required from centerless grind and superfinishing.
- OD and ID dimensional inspection results from centerless grind.

4.2 Refer ANSI ASQ Z1.4 standard, Level II inspection plan for sampling quantity requirements. Refer to copy of chart in section 7.0.

5.0 Handling Procedure

5.1 Parts will be handled with gloved hands in all processes of centerless grinding and superfinishing and kept free from hand oils and fingerprints.

5.2 Parts will be free of corrosion, dents and scratches from handling. Part to part contact should not occur throughout any process.

5.3 Parts must be clean of process media and coolants.

5.4 Parts must be completely dried after any cleaning process to prevent corrosion. Mobilarma 245 corrosion inhibitor must be applied to parts after cleaning and processing. No other corrosion inhibitor will be used on parts.

5.5 Parts will be shipped in required packaging and have an applied coating of Mobilarma 245 to prevent corrosion. Refer to RYMS 009 Approved Supplier List.

6.0 Distribution

6.1 This specification, including revisions, should be distributed to all approved centerless grind and superfinishing approved suppliers.

7.0 Reference Documents

Sampling Procedure
Single Sampling Plans for Normal Inspection

Sample Size Code Letter	Sample Size	Acceptable Quality Levels (Normal Inspection)																									
		0.010	0.015	0.025	0.040	0.065	0.10	0.15	0.25	0.40	0.65	1.0	1.5	2.5	4.0	6.5	10	15	25	40	65	100	150	250	400	650	1000
		AcRe	AcRe	AcRe	AcRe	AcRe	AcRe	AcRe	AcRe	AcRe	AcRe	AcRe	AcRe	AcRe	AcRe	AcRe	AcRe	AcRe	AcRe	AcRe	AcRe	AcRe	AcRe	AcRe	AcRe	AcRe	AcRe
A	2														↓	0 1		↓	1 2	2 3	3 4	5 6	7 8	10 11	14 15	21 22	30 31
B	3														0 1	↑		1 2	2 3	3 4	5 6	7 8	10 11	14 15	21 22	30 31	44 45
C	5													0 1	↑		1 2	2 3	3 4	5 6	7 8	10 11	14 15	21 22	30 31	44 45	↑
D	8												0 1	↓		1 2	2 3	3 4	5 6	7 8	10 11	14 15	21 22	30 31	44 45		
E	13											0 1	↑		1 2	2 3	3 4	5 6	7 8	10 11	14 15	21 22	30 31	44 45			
F	20										0 1	↓		1 2	2 3	3 4	5 6	7 8	10 11	14 15	21 22						
G	32									0 1	↑		1 2	2 3	3 4	5 6	7 8	10 11	14 15	21 22							
H	50								0 1	↓		1 2	2 3	3 4	5 6	7 8	10 11	14 15	21 22								
J	80							0 1	↓		1 2	2 3	3 4	5 6	7 8	10 11	14 15	21 22									
K	125						0 1	↓		1 2	2 3	3 4	5 6	7 8	10 11	14 15	21 22										
L	200					0 1	↑		1 2	2 3	3 4	5 6	7 8	10 11	14 15	21 22											
M	315				0 1	↓		1 2	2 3	3 4	5 6	7 8	10 11	14 15	21 22	↓											
N	500			0 1	↑		1 2	2 3	3 4	5 6	7 8	10 11	14 15	21 22	↑												
P	800		0 1	↓		1 2	2 3	3 4	5 6	7 8	10 11	14 15	21 22	↓													
Q	1250	0 1	↑		1 2	2 3	3 4	5 6	7 8	10 11	14 15	21 22	↑														
R	2000			1 2	2 3	3 4	5 6	7 8	10 11	14 15	21 22	↑															

↓ = Use first sampling plan below arrow. If sample size equals, or exceeds, lot or batch size, do 100 percent inspection.
↑ = Use first sampling plan above arrow. Ac = Acceptance number. Rc = Rejection number.

Explanation/Example: **Lot/Batch size is 222 pcs.**
From page 1 look in column "Lot or batch size" choose 151 to 280.
Column II under "General inspection levels" scroll down the list to "G".
From table II-A or page 1, find sample size code letter "G" sample size is 32 pcs.
The Acceptable Quality Level (AQL) for this example is 1.5. Scroll down to Ac1 Rc2.
If the number of nonconforming parts found in the sample is equal to or less than the acceptance number (Ac1), the lot shall be considered acceptable.
If the number of nonconforming parts found in the sample is equal to or greater than the rejection number (Rc2), the lot shall be considered not acceptable.
At this sample size and AQL 1.5 there is a possibility of 3.33 parts being non-conforming or a probability of 1.5 % defect rate out of 222 pieces.

At this sample size (32) and AQL 1.5 there is a possibility of 3.33 parts being non-conforming or a probability of 1.5 % defect rate out of 222 pieces. @ .5 minutes each inspection time = 16 min.

At this sample size (50) and AQL 1.0 there is a possibility of 2.22 parts being non-conforming or a probability of 1. % defect rate out of 222 pieces. @ .5 minutes each inspection time = 25 min.

At this sample size (80) and AQL .65 there is a possibility of 1.45 parts being non-conforming or a probability of .65 % defect rate out of 222 pieces. @ .5 minutes each inspection time = 40 min.

At this sample size (125) and AQL .4 there is a possibility of .888 parts being non-conforming or a probability of .4 % defect rate out of 222 pieces. @ .5 minutes each inspection time = 62.5 min.

At this sample size (200) and AQL .25 there is a possibility of .555 parts being non-conforming or a probability of .25 % defect rate out of 222 pieces. @ .5 minutes each inspection time = 100 min.

Lot or Batch Size			General Inspection Levels			Sample Size Code Letter	Sample Size
			I	II	III		
2	to	8	A	A	B	A	2
9	to	15	A	B	C	B	3
16	to	25	B	C	D	C	5
26	to	50	C	D	E	D	8
51	to	90	C	E	F	E	13
91	to	150	D	F	G	F	20
151	to	280	E	G	H	G	32
281	to	500	F	H	J	H	50
501	to	1200	G	J	K	J	80
1201	to	3200	H	K	L	K	125
3201	to	10000	J	L	M	L	200
10001	to	35000	K	M	N	M	315
35001	to	150000	L	N	P	N	500
150001	to	500000	M	P	Q	P	800
500001	to	Over	N	Q	R	Q	1250

8.0 Records

Suppliers are required to retain records for a minimum of (7) seven years.

Nonconforming incidents will require retrieval of supplier training records.

9.0 Record of Revisions:

Revision Date	Change Description	Sections Affected
6/9/17	Added reporting is only required when specified on the PO.	4.0
11/20/17	Remove review date from header, revised record requirements	Header, 8.0