

ASSESSMENT OF PROCESS CAPABILITY BY APPLYING THE MSA (MEASUREMENT SYSTEM ANALYSIS) METHOD TO CRITICAL CONTROL POINTS

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Abstract

In this article, a MSA method is used to the critical areas of the product in order to ensure the quality of the used gas companies produced at the Uz Dong Won co. During the analysis, the reliability of measuring instruments, operator's qualifying and measuring process is found concluded.

Keyword: MSA (Measurement System Analysis), process, style, control, detail.

Introduction

Today, the automotive industry and the demand for the quality of cars are increasing. The high-quality production of each manufactured product mainly depends on the standard. Bringing the car to the state of the finished product is important for the quality production of every detail. The second guide of the automotive industry prevents inconsistency one of the effective methods used in obtaining MSA-measurement system analysis (Measurement System Analysis, The second guide of the automotive industry prevents inconsistency one of the effective methods used in obtaining MSA-measurement system analysis (Measurement System Analysis, which was developed in the 1960s by the American Automotive Industry Standardization Group (AIAG) and (ASQC) Quality Management. developed by the automotive division of the American Society. In 1990, the Supplier Certification and Quality Assessment Group of Chrysler, Ford and General Motors, in agreement with the AIAG, developed the MSA method as a guide and began to require suppliers to apply





it. The manual has been updated several times since 1992 by the standardization group.

MSA METHOD

Clauses 7.1.5.1.1 of the International Standard for Automotive Quality Management System IATF 16949:2016 require:

▶ Each type of measurement and testing tools for variation analysis conducting statistical surveys where the results of the system are obtained;

This applies to the measurement system specified in the demand management plan;

> Applied analytical methods and acceptance criteria, measurement analysis by system Consumer Guide (MSA) sida conforming to the mentioned method and criteria

Another analytical method only when approved on the consumer side and use of admission criteria.

MSA-measurement system analysis advantage:

> Statistical indicators of the description of measurement and control processes evaluates;

Measurement and control instrument comparison (calibration) Intermediate Period guarantees;

> Upgrade, repair of out-of-turn measurement and control tools, determines whether replacement and improvement is necessary;

➢ It is permissible to measure the volatility of processes when measuring and adjusting basic principle to measurement and control processes for detection and establishes evaluation methods;

> In the measurement process, the actual produced sample, the real external environment, and provides qualified measurer (operator) participation;

> Identifies statistical techniques for measurement and control processes.[1]

In order to ensure the quality of used gas exhaust systems produced in the joint enterprise of "Uz Dong Won Co" LCC, the MSA method is applied to the critical points of the product. used gases front the output system conducted an MSA analysis on one of the cryric points. Analyze three operators for transfer and ten products by selection will need. Initially, the detail is placed on a special check table, and the handles fastened and given on the control sheet using a shop liner measurements are performed at a special point. Measurement tool during analysis summarizing about reliability, operator qualifications and suitability of the measurement process is obtained.[2]









1-table. Criteria for adopting a measurement system.

%R&R	Summary on the adoption of the measurement process
Error from 10%	Usually in this case, if the measurement process is accepted Is
Cam	
Error 10%<30%	In this case, the measurement process depends on the importance of
	can be taken out, measuring tool price, repair cost
	and taking into account others
Error from 30%	In this case, the measurement process cannot be accepted,
high	it is necessary to focus on improving all strength[3]
ndc≥5	ndc is the number of differentiations of categories (≥5, or greater be) break
	down the process scattering (break up can)







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Operator						Samp	les					Medial
		1	2	3	4	5	6	7	8	9	10	
Α	1	3,70	3,70	3,70	3,70	3,70	3,70	3,70	3,70	3,70	4,00	3,730
	2	4,20	3,70	3,70	3,70	3,70	3,70	3,70	3,70	3,70	4,00	3,780
	3	4,30	3,70	3,70	3,70	3,70	3,70	3,70	3,70	3,70	4,00	3,790
Average score		4,07	3,70	3,70	3,70	3,70	3,70	3,70	3,70	3,70	4,00	3,767
deviation	R	0,60	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,060

Operator	itor Samples											Medial	
		1	2	3	4	5	6	7	8	9	10	í l	
В	1	3,70	3,70	3,70	3,70	3,70	3,70	3,70	3,70	3,70	4,00	3,730	
	2	3,70	3,70	3,70	3,70	3,70	3,70	3,60	3,70	3,70	4,00	3,720	
	3	3,70	3,70	3,70	3,70	3,70	3,70	3,70	3,70	3,70	4,00	3,730	
Average		3,70	3,70	3,70	3,70	3,70	3,70	3,70	3,70	3,70	4,00	3,727	
score													
deviation	R	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,010	
Operator		Samples											
		1	2	3	4	5	6	7	8	9	10		
С	1	3,70	3,70	3,70	3,70	3,70	3,70	3,70	3,70	3,70	4,00	3,730	
	2	3,70	3,70	3,70	3,70	3,70	3,70	3,60	3,70	3,70	4,00	3,720	
	3	3,70	3,70	3,70	3,70	3,70	3,70	3,70	3,70	3,70	4,00	3,730	
Average		3,70	3,70	3,70	3,70	3,70	3,70	3,70	3,70	3,70	4,00	3,727	
score													
deviation	R	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,010	

The information received into the MSA program is entered.

				KOME	РИТЕЛЬ		DUFCCA .	1200							
													MEASUREMENT UNIT AN	ALYSIS	% TOLERANCE (Tol)
	Параме	TD		A	втомоби	пьный ко	мпонент		Средст	во измера	тепьной	техники	Повторяемость (EV)		%EV = 100 (EV/T d)
Номер дотали								- P	Номер измер	MILENSING 1			EV = R x K1	Kon K,	
GAP 2					Harmer	HORIZANIA (DO			Намменовани	е имерите	AND ROOM	Parison Inc.	0,016	3 0,5807	2,36
Верхняя граница драуска				Pipe ASM EXA PRT						IIIga - a	-		Воспроизводимость (А	N)	
	4,0												AV = 8*00 × Kal ² -	m - pendo:	500 - 100 (AV/1 a)
Ноюни граница допуска			21.06.2019 iina					Komevec me	ocipanape	10 10			P-Seek		
_									Количество	попыток		3	0,021	0,7071 0,5231	3,11
													Повторяемость и воспроизводи	HOCTLE (GRR)	%GRR = 100 (6F87/T a
													$GRR = GRV^2 + AV^2B^{10}$	Parts K.	
Оператор	рыи					OBP	азцы					Средние и	0,026	2 0,7087	3,90
nonem		1	2	3	4	5	6	7	8	9	10	размахи	Изменчивость образца (РV)	3 0,5236	SUN - 400 60474-8
	1	3,79	3,70	3,70	3,79	3,70	3,70	3,70	3,70	3,70	4,00	3,730	PV - Rex Ka	4 0,4464	
~	2	4,29	3,70	3,70	3,79	3,70	3,70	3,70	3,70	3,70	4,00	3,780	0.098	5 0,4032	14.68
	3	4,30	3,70	3,70	3,70	3,70	3,70	3,70	3,70	3,70	4,00	3,790		 0,3745 	
SENSE SHEP	-	4,00	3,70	3,70	3,70	3,70	3,70	3,70	3,70	3,70	4,00	3,767	Tolerance (Tol)	7 0,2034	mdc = 1.41(PV/GRR)
-ase ia	1	2,70	2 70	2 70	2.70	2 20	2.70	2.70	2.70	2.70	4.00	2 200	T CI - Opper - Lower / 6	3 0.3247	
Б	2	379	3,70	3,70	379	3,70	3.79	3.60	379	370	4.00	3.720	0,667	10 0,3145	5,00
	3	3,70	3,70	3,70	3,70	3,70	3,70	3,70	3,70	3,70	4,00	3,730			
Spagg, Singer	1	3,70	3,70	3,70	3,70	3,70	3,70	3,67	3,70	3,78	4,00	X. 3,727	R	an Chart	
² аон он ца	<u> </u>	0,00	0,00	0,00	0,00	0,00	0,00	0,10	0,00	0,00	0,00	A 0,010	4,40		
_	1	3,79	3,70	3,70	3,70	3,70	3,70	3,70	3,70	3,70	4,09	3,730	4.20		
в	2	3,79	3,70	3,70	3,79	3,70	3,70	3,79	3,79	3,60	4,00	3,720	4,10		
0	3	3,79	3,70	3,70	3,70	3,70	3,70	3,70	3,70	3,70	4,00	3,730	4,00		~
Cprpt 3604	-	3,70	3,70	3,70		3,70	3,70	3,70	3,70	0.10	4,00	Ac 3,121	3,80		/
2483	r -	3.83	2.70	2 70	2 20	2 70	2.70	2.69	3 70	3.69	4.00	X 3,740	3,60		
AVERA	GE	3,62	3,10	3,10	3,10	3,10	3,10	3,03	3,10	3,03	4,00	8,311	3,40		
(R _A +R ₆ +R _C) / (#	FOF APP	RAISERS	=								R	0,027	1.20		
X _{OIFF} = (Max X	- Min X) -		THE R. T.		-						Xnn	0,040	1 4 7 10	13 16	19 22 25 28
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According to the results obtained, it can be said using the table to measure can you accept the process.[4]

CONCLUSION

The results of this process mean that the use of the SPC method in the statistical management of product production processes allows for a high increase in product production efficiency and economic efficiency.

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