



# MATERIAL TEST RESULT

MESSRS	UNIMECH ENGINEERING (M) SDN. BHD.
JOB NAME	
JOB No.	
P.O.No.	APO-2004-0010
PRODUCT CODE	

Certificate No.  
1020330662-024-01-01-Z1

Date : 2020/07/03



Figure	10SF11/4	Valve No.	
Material	ASTM A 395 Gr. 60-40-18	Item No.	38
Charge No.	Display No.	Name of Parts	
1 139		BODY	
2			
3			
4			

**CHEMICAL COMPOSITION %**

Element	C	Si	P	Mn												
Spec.	Min	*Max	Max													
	3.00	2.50	0.080													
1	3.62	2.66	0.018	0.28												
2																
3																
4																

**TENSION TEST**

**IMPACT TEST**

Item			Tensile str.	Yield str.	Elongation				
Unit			MPa	MPa	%				
Spec.			Min	Min	Min				
			415	275	18				
1			425	281	21				
2									
3									
4									

Item	Hardness	Microstructure							
Unit	HBW	%							
Spec.	143	Min							
	187	90							
1	143	90							
2									
3									
4									

**HEAT TREATMENT °C**

Spec.		
1		
2		
3		
4		

N:Normalizing      A:Annealing      T:Tempering      Q:Quenching      AC:Air Cooling  
 WQ:Water Quenching      OQ:Oil Quenching      WC:Water Cooling      FC:Furnace Cooling      ST:Solution Treatment

**REMARKS**

\* Every 0.01% P reduction enables 0.08% Si increase each within the maximum 2.75%.  
 EN10204 Type 2.2

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 Reviewed by

*R. Miyazawa*  
**KITZ CORPORATION**  
 QC Manager

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1020330662-024-01-01-Z2

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Figure	10SF11/4	Valve No.	
Material	ASTM A 217 Gr. CA15	Item No.	38
Charge No.	Display No.	Name of Parts	
1 00210AA12		CAP	
2			
3			
4			

**CHEMICAL COMPOSITION %**

Element	C	Mn	P	S	Si	Ni	Cr	Mo								
Spec.	Max	Max	Max	Max	Max	Max	11.5	Max								
	0.15	1.00	0.040	0.025	1.50	1.00	14.0	0.50								
1	0.12	0.82	0.012	0.009	1.25	0.10	12.6	0.00								
2																
3																
4																

**TENSION TEST**

**IMPACT TEST**

Item			Tensile str.	Yield str.	Elongation	Reduction				
Unit			MPa	MPa	%	%				
Spec.			620	Min	Min	Min				
			795	450	18	30				
1			782	608	23	49				
2										
3										
4										

Item										
Unit										
Spec.										
1										
2										
3										
4										

**HEAT TREATMENT °C**

Spec.	
1	980°C Oil Quenching , 700°C Air Quenching
2	
3	
4	

N:Normalizing      A:Annealing      T:Tempering      Q:Quenching      AC:Air Cooling  
 WQ:Water Quenching      OQ:Oil Quenching      WC:Water Cooling      FC:Furnace Cooling      ST:Solution Treatment

**REMARKS**

EN10204 Type 2.2

Reviewed by \_\_\_\_\_

*R. Miyazawa*

**KITZ CORPORATION**  
QC Manager

We hereby certify that the articles listed above are satisfactory in accordance with the requirements of the standard and purchase order.