INSPECTION CERTIFICATE

MESSRS	UNIMECH ENGINEERING (M) SDN. BHD.
DELIVER To	
JOB NAME	
JOB No.	
P.O.No.	APO-2004-0011
PRODUCT CODE	150SCTDZM<GT101>4

Certificate No.
1020331905-004-01-01

Date : 2020/07/07

KITZ

SPECIFICATION

Manuf No.	1020331905-004
Description	CLASS 150 CAST STEEL BALL VALVE FLANGED ENDS
Figure	150SCTDZ<GT101>4
Size	4 inch(B)
Quantity	5
Valve No.	
Item No.	5
Kiki No.	

MAIN PARTS

No.	Name of parts	Material
001	BODY	Gr. WCB
002	BODY CAP	Gr. WCB
003	STEM	TYPE316
004	BALL	Gr. CF8M

TEST

Pressure test	Judge.	Inspection fluid and pressure	
Shell		Hydro	-
	Good	Air	3.0 MPa
Seat		Hydro	-
	Good	Air	0.6 MPa
Back seat		Hydro	-
		Air	-

Item	Judge.	Attached sheet
Material	Good	Material Test Result
Dimension	Good	
Visual	Good	
Operation	Good	

NONDESTRUCTIVE EXAMINATION

Type of examination and judgement	Attached sheet

REMARKS

Witnessed by

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.

MATERIAL TEST RESULT

MESSRS	UNIMECH ENGINEERING (M) SDN. BHD.
JOB NAME	
JOB No.	
P.O.No.	APO-2004-0011
PRODUCT CODE	150SCTDZM<GT101>4

Certificate No.
1020331905-004-01-01-Z1

Date : 2020/07/07

KITZ

Figure	150SCTDZ<GT101>4	Valve No.	
	Material ASTM A 216 Gr. WCB	Item No.	5

№	Charge No.	Display No.	Name of Parts
1	KA031R		BODY
2	KA033D		BODY
3	KA031T		BODY
4	KA031P		BODY

CHEMICAL COMPOSITION %

Element	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V
Spec. / №	Max 0.30	Max 1.00	Max 0.035	Max 0.035	Max 0.60	Max 0.30	Max 0.50	Max 0.50	Max 0.20	Max 0.03
1	0.20	0.79	0.015	0.009	0.48	0.02	0.03	0.08	0.00	0.01
2	0.21	0.87	0.020	0.011	0.49	0.02	0.03	0.07	0.00	0.01
3	0.20	0.89	0.017	0.009	0.52	0.02	0.03	0.05	0.00	0.01
4	0.19	0.75	0.017	0.009	0.46	0.02	0.03	0.10	0.00	0.01

Element	CE
Spec. / №	Max 0.50
1	0.35
2	0.38
3	0.36
4	0.33

TENSION TEST **IMPACT TEST**

Item			Tensile str.	Yield str.	Elongation	Reduction
Unit			MPa	MPa	%	%
Spec. / №			485 655	Min 250	Min 22	Min 35
1			517	339	27	62
2			509	332	28	57
3			489	305	27	63
4			491	304	29	62

Item										
Unit										
Spec. / №										
1										
2										
3										
4										

HEAT TREATMENT °C

№	Spec.	
1	N:930°C*90min AC	
2	N:930°C*90min AC	
3	N:930°C*90min AC	
4	N:930°C*90min AC	

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

CE = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

Reviewed by

KITZ CORPORATION
QC Manager

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MATERIAL TEST RESULT

MESSRS	UNIMECH ENGINEERING (M) SDN. BHD.
JOB NAME	
JOB No.	
P.O.No.	APO-2004-0011
PRODUCT CODE	150SCTDZM<GT101>4

Certificate No.
1020331905-004-01-01-Z2

Date : 2020/07/07

KITZ

Figure	150SCTDZ<GT101>4	Valve No.	
	Material ASTM A 216 Gr. WCB	Item No.	5

№	Charge No.	Display No.	Name of Parts
1	KA0142		BODY CAP
2	KA04B5		BODY CAP
3	KA0354		BODY CAP
4	KA034H		BODY CAP

CHEMICAL COMPOSITION %

Element	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V
Spec. / №	Max 0.30	Max 1.00	Max 0.035	Max 0.035	Max 0.60	Max 0.30	Max 0.50	Max 0.50	Max 0.20	Max 0.03
1	0.20	0.68	0.015	0.006	0.46	0.02	0.01	0.05	0.02	0.01
2	0.21	0.81	0.020	0.009	0.51	0.02	0.02	0.10	0.00	0.01
3	0.22	0.71	0.017	0.008	0.55	0.02	0.02	0.09	0.00	0.01
4	0.20	0.74	0.016	0.009	0.48	0.02	0.02	0.06	0.00	0.01

Element	CE
Spec. / №	Max 0.50
1	0.33
2	0.37
3	0.36
4	0.34

TENSION TEST **IMPACT TEST**

Item			Tensile str.	Yield str.	Elongation	Reduction
Unit			MPa	MPa	%	%
Spec. / №			485 655	Min 250	Min 22	Min 35
1			500	312	29	62
2			522	298	29	60
3			522	333	28	55
4			510	306	28	60

Item										
Unit										
Spec. / №										
1										
2										
3										
4										

HEAT TREATMENT °C

№	Spec.	
1	N:930°C*90min AC	
2	N:930°C*90min AC	
3	N:930°C*90min AC	
4	N:930°C*90min AC	

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

CE = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

Reviewed by

KITZ CORPORATION
QC Manager

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MATERIAL TEST RESULT

MESSRS	UNIMECH ENGINEERING (M) SDN. BHD.
JOB NAME	
JOB No.	
P.O.No.	APO-2004-0011
PRODUCT CODE	150SCTDZM<GT101>4

Certificate No.
1020331905-004-01-01-Z3

Date : 2020/07/07

KITZ

Figure	150SCTDZ<GT101>4	Valve No.	
	Material ASTM A 216 Gr. WCB	Item No.	5

№	Charge No.	Display No.	Name of Parts
1	KA04B1		BODY CAP
2			
3			
4			

CHEMICAL COMPOSITION %

Element	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	V							
Spec. / №	Max 0.30	Max 1.00	Max 0.035	Max 0.035	Max 0.60	Max 0.30	Max 0.50	Max 0.50	Max 0.20	Max 0.03							
1	0.19	0.72	0.020	0.009	0.46	0.02	0.04	0.11	0.00	0.01							
2																	
3																	
4																	

Element	CE						
Spec. / №	Max 0.50						
1	0.34						
2							
3							
4							

TENSION TEST **IMPACT TEST**

Item			Tensile str.	Yield str.	Elongation	Reduction				
Unit			MPa	MPa	%	%				
Spec. / №			485 655	Min 250	Min 22	Min 35				
1			549	323	29	51				
2										
3										
4										

Item										
Unit										
Spec. / №										
1										
2										
3										
4										

HEAT TREATMENT °C

№	Spec.	
1	N:930°C*90min AC	
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

CE = C+Mn/6+(Cr+Mo+V)/5+(Ni+Cu)/15

Reviewed by

KITZ CORPORATION
QC Manager

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MATERIAL TEST RESULT

MESSRS	UNIMECH ENGINEERING (M) SDN. BHD.
JOB NAME	
JOB No.	
P.O.No.	APO-2004-0011
PRODUCT CODE	150SCTDZM<GT101>4

Certificate No.
1020331905-004-01-01-Z4

Date : 2020/07/07

KITZ

Figure	150SCTDZ<GT101>4	Valve No.	
	Material ASTM A 351 Gr. CF8M	Item No.	5

№	Charge No.	Display No.	Name of Parts
1	JA01M		BALL
2			
3			
4			

CHEMICAL COMPOSITION %

Element / Spec. / №	C	Mn	Si	S	P	Ni	Cr	Mo
Spec.	Max 0.08	Max 1.50	Max 1.50	Max 0.040	Max 0.040	9.0 12.0	18.0 21.0	2.0 3.0
1	0.05	0.90	0.60	0.011	0.029	9.5	18.6	2.2
2								
3								
4								

Element / Spec. / №						
1						
2						
3						
4						

TENSION TEST

IMPACT TEST

Item			Tensile str.	Yield str.	Elongation					
Unit			MPa	MPa	%					
Spec. / №			Min 485	Min 205	Min 30					
1			600	365	44					
2										
3										
4										

Item										
Unit										
Spec. / №										
1										
2										
3										
4										

HEAT TREATMENT °C

№	Spec.	Min 1040°C WQ	
1	ST:1100°C* 1h WQ		
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

Reviewed by

KITZ CORPORATION
QC Manager

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MATERIAL TEST RESULT

MESSRS	UNIMECH ENGINEERING (M) SDN. BHD.
JOB NAME	
JOB No.	
P.O.No.	APO-2004-0011
PRODUCT CODE	150SCTDZM<GT101>4

Certificate No.
1020331905-004-01-01-Z5

Date : 2020/07/07

KITZ

Figure	150SCTDZ<GT101>4	Valve No.	
	Material ASTM A 276 TYPE316	Item No.	5

№	Charge No.	Display No.	Name of Parts
1	6A439002		STEM
2			
3			
4			

CHEMICAL COMPOSITION %

Element / Spec. / №	C	Mn	P	S	Si	Ni	Cr	Mo									
Spec.	Max 0.08	Max 2.00	Max 0.045	Max 0.030	Max 1.00	10.00 14.00	16.00 18.00	2.00 3.00									
1	0.05	1.51	0.029	0.025	0.27	10.10	16.96	2.01									
2																	
3																	
4																	

Element / Spec. / №						
1						
2						
3						
4						

TENSION TEST **IMPACT TEST**

Item			Tensile str.	Yield str.	Elongation	Reduction				
Unit			MPa	MPa	%	%				
Spec. / №			Min 515	Min 205	Min 30	Min 40				
1			702	627	37	65				
2										
3										
4										

Item										
Unit										
Spec. / №										
1										
2										
3										
4										

HEAT TREATMENT °C

№	Spec.	
1	ST:1040°C WQ	
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

Reviewed by

KITZ CORPORATION
QC Manager

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