



HP Valves Oldenzaal BV

P.O. Box 151  
7570 AD Oldenzaal  
The Netherlands

Telephone +31 (0)541 519555  
Telefax +31 (0)541 522045  
Internet [www.hpvalves.com](http://www.hpvalves.com)  
E-mail [info@hpvalves.com](mailto:info@hpvalves.com)

## COVERPAGE TO INSPECTION / TEST CERTIFICATE

Customer : CMI (HRSG + Energy Services)  
Project : Yajva SBV  
Customer P/O no : 203/2010/900588  
Shop order no : 2010 0006  
Item no : 180 / 000  
Quantity : 4 pcs

KKS No :  
15HAJ50AA136 15HAJ50AA138  
15HAJ50AA137 15HAJ50AA139

Medium & high-pressure valves in  
accordance with ASME, API, BS & DIN

Bank ABN-AMRO SWIFT-address ABNANL2A  
EUR-account 59.55.41.437 IBAN-code NL88ABNA0595541437  
USD-account 57.60.74.780  
Trade register Enschede 060.567.50  
VAT no NL 008671242B01

Member of Indutrade AB



# TEST / INSPECTION CERTIFICATE

( EN 10204-3.1 )

Client : HP VALVES  
P.O. No. : P10 0043 / 2010 0006  
Report No. : TIC100614-01-09

KEY VALVE TECHNOLOGIES LTD.

Date of Issue : 2010. 06. 14

Item Description : P.S.G. VALVE(MANUAL, SW ENDS)		CLASS : 900LB		MATERIAL : A182-F22	
Serial No.	SN1000016~19	Size	1"	Q'ty	4 Sets

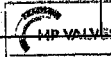
HYDRAULIC / PNEUMATIC TEST					
Hydraulic Test	Shell :	233 Barg	Pneumatic Test	Shell :	N/A Barg
	Seat :	171 Barg		Seat :	N/A Barg
Dimension Inspection		GOOD	Visual Inspection		GOOD
			Function Test		GOOD

MATERIAL SPECIFICATION					
Product Name	Material	ASTM	Heat No.	Code Marking	Remarks
Body	Forged Alloy Steel	A182-F22	161896	CQ6	
Bonnet	Forged Alloy Steel	A182-F22	S66220		
Seat Ring	13Cr Stainless Steel	13Cr+HF			Stellite #12
Disc	13Cr Stainless Steel	13Cr+HF			Stellite #6
Stem	13Cr Stainless Steel	A276-410			
		-BLANK-			

CHEMICAL COMPOSITION											
Heat No.	Element	C	Si	Mn	P	S	Cr	Mo			
	min.	0.05	-	0.30	-	-	2.00	0.87			
	max.	0.15	0.50	0.60	0.040	0.040	2.50	1.13			
161896		0.12	0.35	0.41	0.018	0.004	2.08	0.92			
S66220		0.135	0.253	0.452	0.010	0.015	2.187	0.906			
						-BLANK-					

MECHANICAL PROPERTIES						
Item	Tensile Strength min(Mpa)	Yield Strength min(Mpa)	Elongation min(%)	Reduction of Area min(%)	Hardness max(HB)	Remarks
	S.T.D	515.0	310.0	20.0	30.0	156 - 207
161896		565.4	344.7	26.0	41.0	181.0
S66220		544.7	372.3	32.0	78.0	165.0

Notes 1. These Standards for inspection conform to ASME B16.34 / API-598  
2. Hydrostatic test : Shell-holding time(15 sec), Seat-Holding time(15sec, leakage


 Medium & high pressure valves acc. ANSI, API, BS & DIN  
Your ref. : 203/2010/900-588  
Date : 2010 0006 Pos: 100/000  
Qty. : 4 pcs


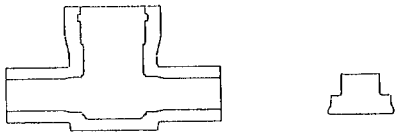
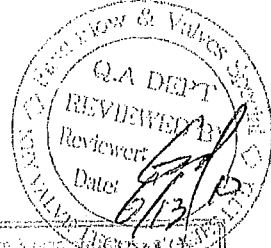
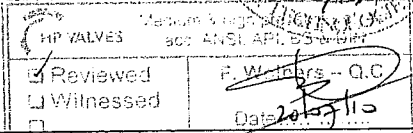
We here by certify that the result mentioned above are true correct in every detail.

Prepared by


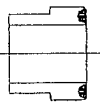
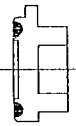
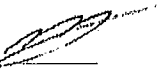
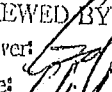
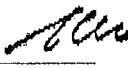
Reviewed by

Q.A Manager

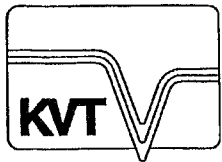
  
HP VALVES Medium & high pressure valves acc. ANSI, API, BS & DIN  
Reviewed by F. Valdes - Q.C.  
Witnessed by

 <b>(주) 지.티.에스</b> Global Technology Service Co., Ltd.	<b>자분탐상검사보고서</b> <i>Report of Magnetic Particle Examination</i>		보고서번호 Report No.	G10M-KVT-0006-01	
			쪽 번호 Page No.	1 of 2	
		검사일자 Date of		2010. 05. 27	
발 주 처 Customer	HP VALVES		제 작 자 Manufacturer	KVT	
제품명 / 번호 Item Name/No.	BODY & BONNET (All Surfaces)		공사명 / 번호 Project Name/No.	Yajvinskaya CAPP	
재 질 / 두께 Material/Thickness	See Next Page - <input type="checkbox"/> mm <input type="checkbox"/> in.		Serial No.	See Next Page	
전 처 리 Surface Preparation	SOLVENT CLEANING		표 면 상 태 Surface Condition	<input type="checkbox"/> As Welded <input type="checkbox"/> As Mchined <input checked="" type="checkbox"/> As Forged <input type="checkbox"/> As Casted	
검 사 방 법 Examination Method	<input checked="" type="checkbox"/> 연속법(Continuous) <input type="checkbox"/> 잔류법(Residual)		시 험 온 도 Surface Temperature	22 <input checked="" type="checkbox"/> °C <input type="checkbox"/> °F	
자분종류 / 적용방법 Magnetic Particle / Application	제조사(Maker) : NAWOO 형 식(Model) : 14-AM 제조번호(Batch No.): 05MPB06		자 화 방 법 Magnetization Technique	<input checked="" type="checkbox"/> Yoke <input type="checkbox"/> Prod <input type="checkbox"/> Coil <input type="checkbox"/> Head Shot	
	종류 (Type)			극 간 거 리 Pole Spacing: 3~6 <input type="checkbox"/> mm <input checked="" type="checkbox"/> in.	
	<input type="checkbox"/> 염색(Color) <input checked="" type="checkbox"/> 형광(Fluorescent) <input checked="" type="checkbox"/> 습식(Wet) <input type="checkbox"/> 건식(Dry)			자화전류 (Magnetizing Current)	
	적용방법(Application)			<input checked="" type="checkbox"/> 교류(AC) <input type="checkbox"/> 직류(DC) Ampere	
탈 자 Demagnetization	<input type="checkbox"/> 유(Yes) <input checked="" type="checkbox"/> 무(No)		자 화 방 향 Magnetization Direction	<input checked="" type="checkbox"/> 선형(Longitudinal) <input type="checkbox"/> 원형(Circular)	
자 외 선 등 Black Light	형 식 Model	UV-100	육안관찰등 Visible Light	형 식 Model	N/A
	일련번호 Serial No	NW0147	<input type="checkbox"/> 주 변 등 Ambient Light	일련번호 Serial No.	N/A
	강 도 Intensity	1250 $\mu W/cm^2$	<input type="checkbox"/> 보 조 등 Glow Lamp	강 도 Intensity	N/A Lux
총 검사수량 Examination Qty	30 SETS		검 사 시 기 Examination Time	<input type="checkbox"/> 열처리 전(Before PWHT) <input checked="" type="checkbox"/> 열처리 후(After PWHT)	
적 용 규 격 Code/Standard/Spec. ASME B16.34 APPENDIX II/ GTS-QP-MA-02 Rev.4					
도 면 Sketch <div style="text-align: center;">             BODY BONNET         </div>					
검 사 자 Examined & Interpreted by LEVEL II M. S. YUN			<input type="checkbox"/> Witnessed by <input type="checkbox"/> Reviewed by <div style="text-align: center;">  </div>		
책 임 자 Approved by LEVEL III Y. C. CHIN			<div style="text-align: center;">  </div>		

[illegible]

 <b>(주) 지.티.에스</b> Global Technology Service Co., Ltd.	<b>침투탐상검사보고서</b> <i>Report of Liquid Penetrant Examination</i>		보고서번호 Report No.	G10P-KVT-0006-01	
			쪽 번호 Page No.	1 of 2	
			검사일자 Date of	2010. 05. 27	
발 주 처 Customer	HP VALVE		제 작 자 Manufacturer	KVT	
제품명 / 번호 Item Name/No.	DISC / SEAT RING		공사명 / 번호 Project Name/No.	Yajvinskaya CCPP	
재 질 / 두께 Material/Thickness	- / - <input type="checkbox"/> mm <input type="checkbox"/> in.		Tag No.	See Next Page	
전 처 리 Surface Preparation	N/A		표 면 상 태 Surface Condition	<input type="checkbox"/> As Welded <input type="checkbox"/> As Formed <input checked="" type="checkbox"/> Hard Facing <input type="checkbox"/> As Casted	
침 투 제 Penetrant Type	<input checked="" type="checkbox"/> 염색(Color) <input type="checkbox"/> 형광(Fluorescent)		시 험 온 도 Surface Temperature	15 <input checked="" type="checkbox"/> °C <input type="checkbox"/> °F	
침투제(Penetrant) 제조사(Maker) : NAWOO 형 식(Model) : NPP-2 제조번호(Batch No.) : 05NPP06		세척제(Remover) 제조사(Maker) : NAWOO 형 식(Model) : NPR-1-3 제조번호(Batch No.) : 05NPR06		현상제(Developer) 제조사(Maker) : NAWOO 형 식(Model) : NPD-4 제조번호(Batch No.) : 05NPD06	
종류 (Type)      적용방법(Application) <input type="checkbox"/> 수세성 (W/W) <input checked="" type="checkbox"/> 분사(Spray) <input type="checkbox"/> 후유화성 (P/E) <input type="checkbox"/> 솔질(Brush) <input checked="" type="checkbox"/> 용제제거성(S/R) <input type="checkbox"/> 침적(Immerse)		종류 (Type)      적용방법(Application) <input checked="" type="checkbox"/> 용제(Solvent) <input checked="" type="checkbox"/> 닦음(Wiping) <input type="checkbox"/> 물 (Water) <input type="checkbox"/> 분사(Water Spray) <input type="checkbox"/> 침적(Water Immerse)		종류 (Type)      적용방법(Application) <input type="checkbox"/> 건 식 (Dry) <input checked="" type="checkbox"/> 분사(Spray) <input type="checkbox"/> 습 식 (Aqueous) <input type="checkbox"/> 솔질(Brush) <input checked="" type="checkbox"/> 속건식 (Nonaqueous) <input type="checkbox"/> 침적(Immerse)	
침투시간(Dwell Time) : 10 분(Min.)		현상시간(Bleed-out Time) : 20 분(Min.)			
자 외 선 등 Black Light	형 식 Model	N/A	육안관찰등 Visible Light	형 식 Model	N/A
	일련번호 Serial No	N/A	<input type="checkbox"/> 주 변 등 Ambient Light	일련번호 Serial No.	N/A
	강 도 Intensity	N/A $\mu W/cm^2$	<input checked="" type="checkbox"/> 보 조 등 Glow Lamp	강 도 Intensity	1200 Lux
적 용 규 격 Code/Standard/Spec.	ASME B16.34 APPENDIX III / GTS-QP-PA-02 Rev.4		검 사 시 기 Examination Time	<input type="checkbox"/> 열처리 전(Before PWHT) <input checked="" type="checkbox"/> 열처리 후(After PWHT)	
총 검 사 수 량 Examination Q'ty	30 SETS		검 사 결 과 Results	<input checked="" type="checkbox"/> 합 격 (Accept) <input type="checkbox"/> 불 합 격 (Reject)	
도 면 Sketch					
<div style="display: flex; justify-content: space-around; align-items: center;">   </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>GATE SEAT RING</span> <span>GATE DISC</span> </div>					
검 사 자 Examined & Interpreted by			<input type="checkbox"/> Witnessed by		
LEVEL II    M. S. YUN 			<div style="border: 1px solid black; border-radius: 50%; padding: 10px; text-align: center;">             Fluid Flow &amp; Valves Special              Q.A DEPT              REVIEWED BY              Reviewer              Date:  </div>		
책 임 자 Approved by			<input type="checkbox"/> Reviewed by		
LEVEL III    Y. C. CHIN 			<div style="border: 1px solid black; padding: 5px;">             HP VALVES    Medium &amp; high pressure              per ANSI API 6D &amp; 6B  <input checked="" type="checkbox"/> Reviewed    F. Williams - G.C.  <input type="checkbox"/> Witnessed              Date: 2010. 5. 27           </div>		

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# INSPECTION REPORT

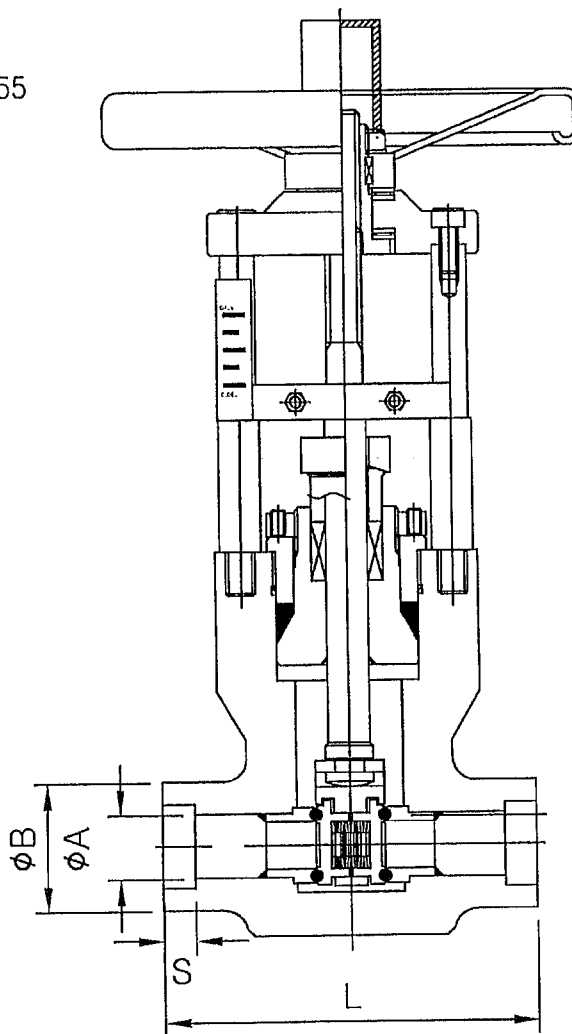
DOC.NO. : DIR100614-01

REV. NO. : 0

PAGE 8 OF 11

☐ 외 형도 ( OUTLINE DIMENSION )

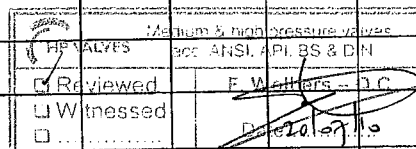
P.S.G. V/V 1"-CL900 SW Sch. 33.4x4.55  
(S)A182-F22 4EA MANUAL



☐ 치수검사 (DIMENSION INSPECTION)

UNIT:mm

구 분 (DIVISION)	L ±1.5	φA ± 0.3	φB ± 0.3	S										
STANDARD	130	26.3	33.8	12.7										
SN1000016	130.1	26.3	33.8	12.7										
SN1000017	130.0	26.2	33.9	12.7										
SN1000018	130.1	26.4	33.8	12.7										
SN1000019	130.3	26.3	33.8	12.7										



## REMARK

1. DIMENSION CHECK

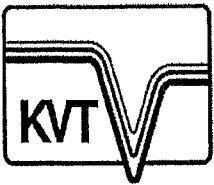
☒ SAMPLING CHECK

☐ 100% CHECK

PRE'D BY (QA.ENG'R)

VER'D BY (QA.MANAGER)

KEY VALVE TECHNOLOGIES LTD.

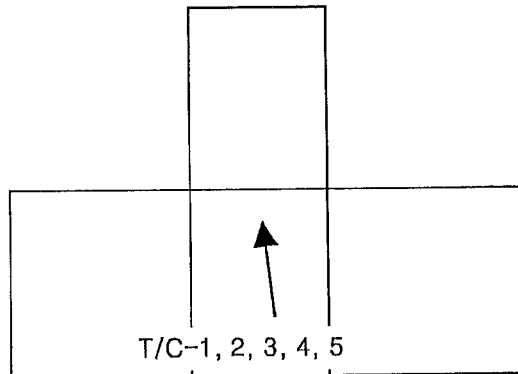


# PREHEAT TREATMENT CERTIFICATE

PAGE: 1 OF 3

PROJECT NAME	Yajvinskaya CCPP	CERT NO.	PW - 0006 - 03		
CLIENT	HP VALVES	MATERIAL	(S)A182-F22		
HEATING RATE	SPEC: N/A °C/HR	ACTUAL: N/A °C/HR	COOLING RATE	SPEC: N/A °C/HR	ACTUAL: N/A °C/HR
HOLDING TEMP	SPEC: Min. 205°C	ACTUAL: 240~245 °C	HOLDING TIME	SPEC: N/A HR	ACTUAL: 1 H 10 M
HEAT SOURCE	<input type="checkbox"/> HEATING TORCH <input checked="" type="checkbox"/> ELECTRIC ELEMENT				
DATE	2010. 05. 10		START TIME :	AM 09 : 30	

THERMOCOUPLE ( T/C ) LOCATION



SN1000013, 16~19 (5ea)  
2"-CL900, 1"- CL900  
Heat No.: 161895, 161896

THERMOCOUPLES NO

APPLICATION COLORS

T/C-1

T/C-2

T/C-3

T/C-4

T/C-5

REMARK: HP VALVES P.S.G.V(SEAT)  
(2" X CL900 X 25mm: 1 Sets, 1"XCL900 X16mm:4 Sets)

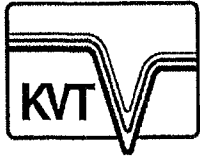
HP VALVES	Medium & high pressure valves acc. ANSI, API, BS & DIN
<input checked="" type="checkbox"/> Reviewed	F. Wulfsberg - Q.C.
<input type="checkbox"/> Witnessed	

Pre'd by

Rev'd by

Approved by





# P.W.H.T CERTIFICATE

CERT NO: PW - 0006 - 03







DATE : 2010. 05.10

PAGE : 2 OF 3

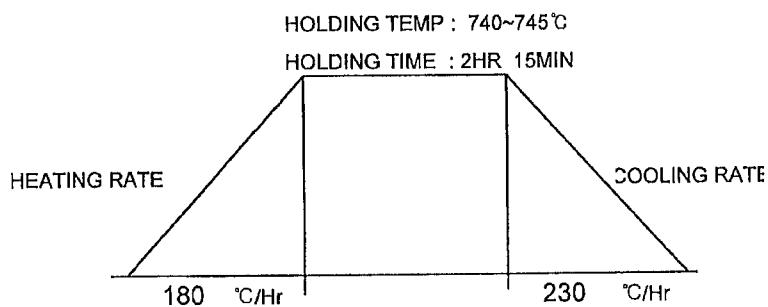
PROJECT	Yajvinskaya CCPP	CLIENT	HP VALVES	MATERIAL	(S)A182-F22
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NO	DESCRIPTION	THERMOCOUPLES NO.	SIZE x THK
1	Parallel Slide Gate Valve	T/C - 1	2" x25mm
2	Parallel Slide Gate Valve	T/C - 2	1" x16mm
3	Parallel Slide Gate Valve	T/C - 3	1" x16mm
4	Parallel Slide Gate Valve	T/C - 4	1" x16mm
5	Parallel Slide Gate Valve	T/C - 5	1" x16mm

## HEAT TREATMENT CONDITION

CONDITION	SPEC	ACTUAL	SOAKING SKETCH AND LOCATION OF THERMOCOUPLES	THERMOCOUPLES NO				
LOADING TEMP ( °C )	-	245	* See preheat treatment certificate Thermocouples location	APPLICATION COLORS				
HEATING RATE (°C/Hr)	Max.222	180		T/C-1				
HOLDING TEMP ( °C )	700~760	740~745		T/C-2				
HOLDING TIME ( HR )	Min. 1H	2H 15M		T/C-3				
COOLING RATE (°C/Hr)	Max.280	230		T/C-4				
UNLOADING TEMP (°C)	-	275		T/C-5				
HEAT SOURCE	ELECTRIC							
TEMP. MEASURING EQUIPMENT NO.	T95CK048							

## SKETCH WITH DIAGRAM



## REMARKS:

HP VALVES	Medium & high pressure valves acc. ANSI, API, BS & DIN
<input checked="" type="checkbox"/> Reviewed	<input checked="" type="checkbox"/> Witnessed
Date: 2010.05.10	

Pre'd by

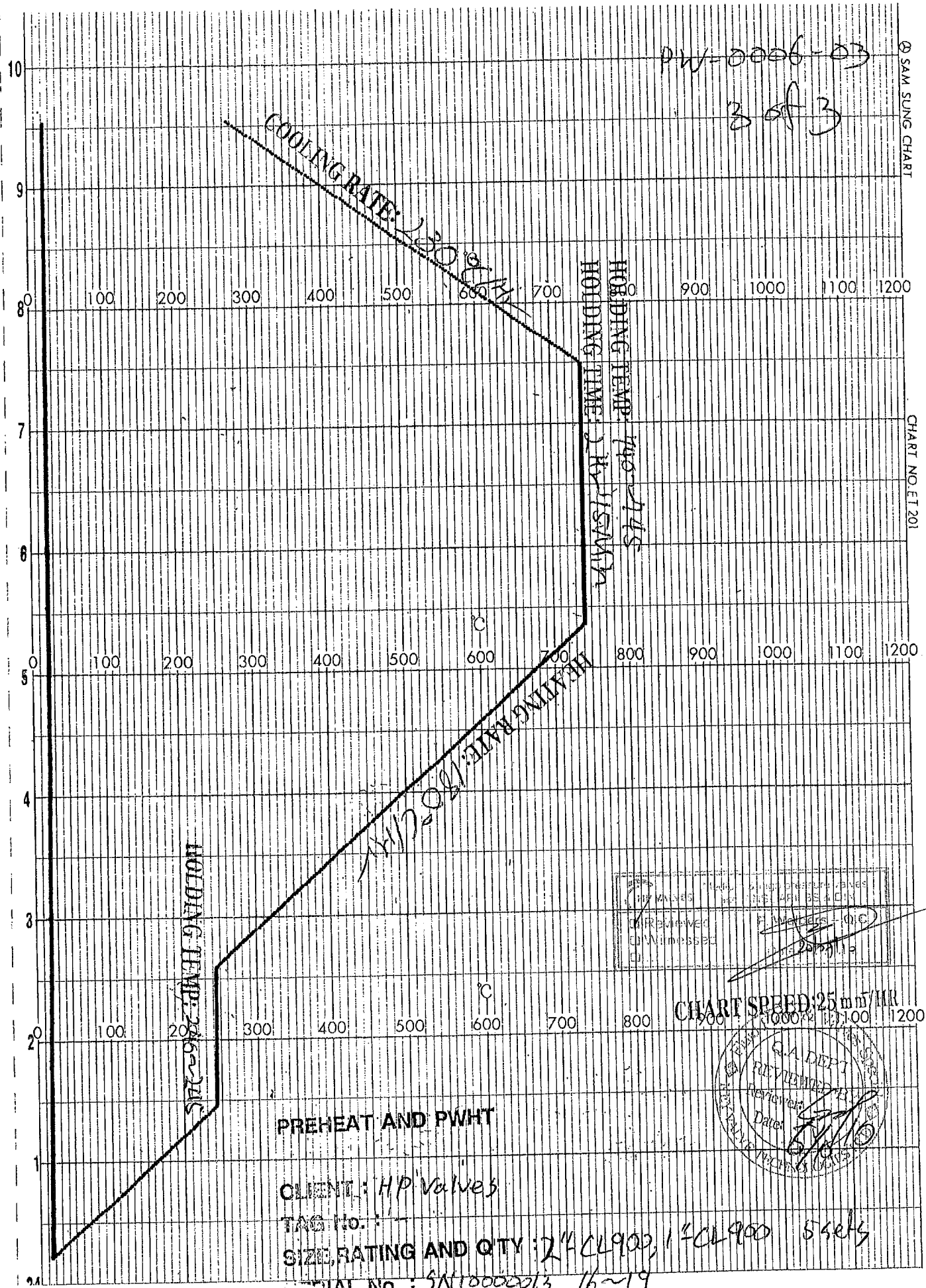
Rev'd by

Approved by

PW-0006-03  
3 of 3

Q SAM SUNG CHART

CHART NO. ET 201



Reviewed  
Checked  
Date: 2009.11.2

Q.A. DEPT  
REVIEWED  
Reviewed: [Signature]  
Date: 5/10/10