



CERTIFICATE OF CONFORMANCE

Date: 06/07/2013
Sales Order No: PJ03050
Line #: 4

Customer: KEYSTONE PIPELINE LIMITED
Customer PO: 25472101POAPV14W0001.
Address: PARTNERSHIP

ATTN: KEYSTONE KXL PAYABLES
450-1ST STREET S.W.
CALGARY, ALBERTA T2P-5H1

Crane Energy Flow Solutions certifies that the valve manufactured, all materials used in the manufacturing of the valve, and the inspection and testing process are all in compliance with applicable Crane Co. codes and standards.

PO# 25472-101-POA-PV14-W0001 ITEM# 44 123-MTRSP-B5-WCHK-1051 BODY SERIAL:205 LEFT PLATE SERIAL:367
RIGHT PLATE SERIAL:369

Brad Toler
Crane Energy Representative

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067

CRANE

Energy Flow Solutions

CERTIFIED MATERIAL TEST REPORT

Date: 06/07/2013

Sales Order No: PJ03050

Line #: 4

Customer: KEYSTONE PIPELINE LIMITED

Customer PO: 25472101POAPV14W0001.

Address: PARTNERSHIP
ATTN: KEYSTONE KXL PAYABLES
450-1ST STREET S.W.
CALGARY, ALBERTA T2P-5H1**Heat Numbers**

Part Number	Part Description	Serial Number	Optional Tag Number	Body	Shaft	Plate-R	Plate-L	N/A
30H60SMF3	H60SMF3 30	E025999		S0138	---	D1161	D1195	---

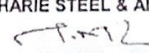
Material Test Results

Material Spec: A216-WCB																	
Heat #	C	MN	S	P	SI	CR	MO	NI	V	Cu	TNSL KSI	YLD KSI	ELONG %	Reduction of Area%	BHN	CE	AI
Ranges	0.3 MAX	1.0 MAX	0.045 MAX	0.04 MAX	0.6 MAX	0.5 MAX	0.2 MAX	0.5 MAX	0.03 MAX	0.3 MAX	95.0/70.0	36.0 MIN	22.0 MIN	35 Min	237 Max	.45 MAX	0.08 MAX
D1195	0.2	0.86	0.012	0.014	0.52	0.24	0.03	0.13	0.005	0.02	76.897	45.962	32.4	58.38	---	---	---
D1161	0.22	0.89	0.011	0.023	0.413	0.12	0.008	0.089	0.02	0.015	80.29	47.68	33.54	62.68	154	0.405	0.04
S0138	0.217	0.858	0.011	0.02	0.383	0.131	0.008	0.034	0.007	0.018	73.27	48.86	33	61.82	152	0.393	0.04

Hydrostatic/Pneumatic Test Report

Serial #	Test	Test Type	P.S.I.	SEC	Leak Allow	Leak Actual	Medium	Date	Oper Inits	Comments
E025999	API 598 shell	SHELL	2225	300	0	0	WATER	06/07/2013	BT	
E025999	API 598 seat	SEAT	1630	120	0	0	WATER	06/07/2013	BT	

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		SHREE HARIE STEEL & ALLOYS ISO 9001 : 2008 & AD 2000-Merkblatt W8 CERTIFIED SF NO.461/1A, MASANDIPALAYAM, KAREKAVUNDANPALAYAM (PO) ANNUR, COIMBATORE (DT) - 641 697, India Phone : 04254 265480, 04254 202245 Fax : 04254-265480 Mail : hariesteels@yahoo.co.in												
MATERIAL TEST CERTIFICATE AS PER EN-10204-3.1														
Customer : KARMEN INTERNATIONAL PVT.LTD CHENNAI 600 058		T.C No. : A6528/13 T.C Date : 07/01/2013												
P.Order No. : PO1-2012001182/BECH02973 Dt: 03/12/2012		Heat No. : S0138 Pouring Date : 25/12/2012												
Specification : ASTM A 216 Gr. WCB		CASTING PROCESSED BY INDUCTION MELTING FOUNDRY IDENTIFICATION : HSA												
CHEMICAL COMPOSITION - %														
Element	C	Si	Mn	S	P	Cr	Ni	Mo	Cu	V	CE	Al		
Req. Min	---	---	---	---	---	---	---	---	---	---	---	---		
Actual	0.220	0.600	1.000	0.045	0.040	0.500	0.500	0.200	0.300	0.030	0.430	0.080		
Actual	0.217	0.383	0.858	0.011	0.020	0.131	0.034	0.008	0.018	0.007	0.393	0.040		
HEAT TREATMENT : NORMALISED : HEATED TO 920°C, SOAKED FOR 11 Hrs AND OPEN AIR COOLED. TEMPERED : HEATED TO 680°C, SOAKED FOR 8 Hrs AND OPEN AIR COOLED.														
MECHANICAL PROPERTIES														
Requirements	Yield Strength		Tensile Strength		% Elong GL=50 mm	% of Reduction Area	Hardness BHN	Bend Test D = 2T at 90 °	Impact Test In (Joules)					
	Mpa	ksi	Mpa	ksi					(10mm X 10mm X 55mm) CVN 2mm 45 °					
Minimum	250	36.26	485	70.34	22.00	35.00	---	---						
Maximum	---	---	655	95.00	---	---	---	---	1	2	3	Avg		
Actual	336.87	48.86	505.21	73.27	33.00	61.82	152	---	--	--	--	--		
ITEM DESCRIPTION														
SL No.	Description					Drawing No.		Part No.	Quantity					
1	XT1230 30"600 DOUBLE FLANGE BODY					27103-000-43 - S1 No : 2-05		-	1					
Remarks : CONFIRMS TO ASTM A 216 Gr. WCB Visual inspection carried as per MSS-SP-55 II - XII a Satisfactory. MPI No.:M18464														
We hereby Certify that the items mentioned above have been tested, inspected and are found to be in accordance with the specification.														
for SHREE HARIE STEEL & ALLOYS  M. NAGARAJAN HOD - QA														

Karmen International Pvt. Ltd.Engineering Division
CHENNAI - 600 095, INDIA.

Report No.:KIPL/XT-C/MT/12-13/096

Date: 28.01.2013

MAGNETIC PARTICLE TESTING REPORT

Customer : CRANE VALVES, U.S.A

P.O.No. : BECH03050

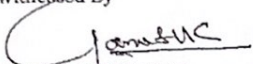
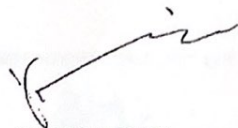
Specification : ASTM A216 Gr.WCB

Equipment : Electro Magnetic Yoke
Sensitivity : Field Indicator
Powder : Black (Make: Electro Mugfield
Controls and Services)

Sl No	Item Description	Drg.No	Ident No.	Sl.No	Qty	MT No.
1	30"600 DOUBLE FLANGE BODY	27103-000-43MM	S0138	205	1	MA5559

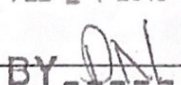
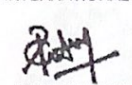
Stage of Test : After Machining
Area Coverage : All accessible Areas 100%
Method : Visible Wet Continuous Water Based Yoke Magnetization.
Type of Magnetisation : Longitudinal Yoke Method
Prod Spacing : 4" to 6"
Acceptance Standard : ASME B 16.34-2004 Mandatory App II.
Procedure : ASME SE709 Sec V
Result : No Relevant Indication observed.
Remarks : Acceptable to ASME B 16.34 App II.

Witnessed By


GANESAN KUPPURAJ
CRANE ENERGY
K.SUBRAMANIAN
ASNT - LEVEL III

QF-QA:18/July/2002

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K A R M E N	KARMEN INTERNATIONAL PVT. LTD., CASTMETALS DIVISION A-12, SIPCOT INDUSTRIAL GROWTH CENTER, ORAGADAM, PIN : 602105, INDIA.		ISO 9001 : 2008 CERTIFIED BY TUV NORD										
	MATERIAL TEST CERTIFICATE (As per EN 10204-3.1)												
Customer : Karmen International Pvt. Ltd.- UNIT I Chennai. 600 058		T.C. No. : KC2697 T.C. Date : 17/11/2012											
P. Order No. : P01-2012000576/BECH02973A Dt: 02/08/2012		Heat No. : D1195 Pouring Date : 18/10/2012											
Specification : ASTM A 216/ Gr. WCB - 2008.		CASTING PROCESSED BY INDUCTION MELTING FOUNDRY IDENTIFICATION : KC											
CHEMICAL COMPOSITION - %													
Element	C	Mn	Si	P	S	Cr	Ni	Mo	Cu	V	Al	TRE	CE
Req. Min	---	---	---	---	---	---	---	---	---	---	---	---	---
Max	0.220	1.000	0.600	0.040	0.045	0.500	0.500	0.200	0.300	0.030	0.080	1.000	0.430
Actual	0.198	0.890	0.384	0.020	0.011	0.121	0.089	0.011	0.021	0.004	0.047	0.246	0.381
HEAT TREATMENT : NORMALIZING: Heated to 920°C soaked for 4 Hrs and then air cooled. TEMPERING: Heated to 650°C soaked for 5 Hrs and then Air cooled.													
MECHANICAL PROPERTIES													
Requirements	Yield Strength Mpa 0.2% Proof Stress	Tensile Strength MPa	% Elongation in 2" GL : 50 mm	% Reduction of Area	Hardness BHN	Bend Test	Impact Test In (Joules) (10mm X 10mm X 55mm) CVN 2mm 45 ° at						
Minimum	250	485	22.00	35.00	---								
Maximum	---	655	---	---	---		1	2 3 Avg					
Actual	334	592	30.64	59.43	158		--	-- -- --					
ITEM DESCRIPTION													
Sl. No.	Product	Description	Drawing No.	Part No.	Poured Qty								
1	010064	XT115 30" 600 PLATE	22600 R/O - ST No. 349, 347	INSPECTED FEB 21 2013 BY: 	4								
Remarks : TRE=Total Residual Elements : (%Cr+%Ni+%Mo+%Cu+%V) Visual Inspection carried out as per MSS-SP 55-Accepted. We Certify that the material is free of contamination from Radioactive Elements.													
We here by certify that the items mentioned above have been tested, inspected and found to be in accordance with customer's drawing, specification, purchase order and satisfy the requirements of ASTM A 216/ Gr. WCB - 2008.,													
for KARMEN INTERNATIONAL PVT. LTD.,  P. KUMARESAN QUALITY ASSURANCE (Works Expert)													

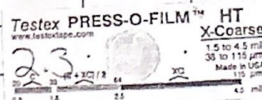
K A R M E N	KARMEN INTERNATIONAL PVT. LTD., CASTMETALS DIVISION A-12, SIPCOT INDUSTRIAL GROWTH CENTER, ORAGADAM, PIN : 602105, INDIA											ISO 9001 : 2008 CERTIFIED BY TUV NORD	
	MATERIAL TEST CERTIFICATE (As per EN 10204-3.1)												
Customer : Karmen International Pvt. Ltd. - UNIT I Chennai. 600 058											T.C. No. : KC2697 T.C. Date : 17/11/2012		
P.Order No. : P01-2012000576/BECH02973A Dt. 02/08/2012											Heat No. : D1195 Pouring Date : 18/10/2012		
Specification : ASTM A 216/ Gr. WCB - 2008.											CASTING PROCESSED BY INDUCTION MELTING FOUNDRY IDENTIFICATION : KC		
CHEMICAL COMPOSITION - %													
Element	C	Mn	Si	P	S	Cr	Ni	Mo	Cu	V	Al	TRE	CE
Req. Min	---	---	---	---	---	---	---	---	---	---	---	---	---
Max	0.220	1.000	0.600	0.040	0.045	0.500	0.500	0.200	0.300	0.030	0.080	1.000	0.430
Actual	0.198	0.890	0.384	0.020	0.011	0.121	0.069	0.011	0.021	0.004	0.047	0.246	0.381
HEAT TREATMENT : NORMALIZING: Heated to 920°C soaked for 4 Hrs and then air cooled. TEMPERING: Heated to 650°C soaked for 5 Hrs and then Air cooled.													
MECHANICAL PROPERTIES													
Requirements	Yield Strength Mpa 0.2% Proof Stress		Tensile Strength MPa		% Elongation in 2" GL : 50 mm		% Reduction of Area		Hardness BHN		Bend Test		Impact Test in (Joules) (10mm X 10mm X 5.5mm) CVN 2mm 45 ° at
Minimum	250		485		22.00		35.00		---		---		1 2 3 Avg
Maximum	---		655		---		---		---		---		1 2 3 Avg
Actual	334		592		30.64		59.43		158		---		1 2 3 Avg
ITEM DESCRIPTION													
SL.No.	Product	Description	Drawing No.		Part No.		Poured Qty						
1	010064	XT115 30" 600 PLATE	22600 R/O		SL. NO: 349, 366, 367 4395		4						
INSPECTED MAR 25 2013													
Remarks : TRE=Total Residual Elements : (%Cr+%Ni+%Mo+%Cu+%V) Visual Inspection carried out as per MSS-SP 55-Accepted. We Certify that the material is free of contamination from Radioactive Elements.													
We here by certify that the items mentioned above have been tested, inspected and found to be in accordance with customer's drawing, specification, purchase order and satisfy the requirements of ASTM A 216/ Gr. WCB - 2008.,													
for KARMEN INTERNATIONAL PVT. LTD., P. KUMARESAN QUALITY ASSURANCE (Works Expert)													

SUPERIOR SHOT PEENING INSPECTION REPORT

JOB#: 164344
WO# DPJ03050-4

INSPECTOR: JOSE AMEZCUA

PART NUMBER/DESCRIPTION		PAINT SPECIFICATION				QUANTITY		
30H60SMF3 - 30" VALVES		BECHTEL DOC# 25472-100-3PS-NXSO-W001 REV 1				13		
SURFACE PREP		INSPECTION ACTION						
		1ST COAT		2ND COAT		3RD COAT		NOTES
AIR TEMP	86	AIR TEMP		AIR TEMP		AIR TEMP		PAINTING DONE
HUMIDITY	50%	BRAND	CARBOLINE	BRAND	CARBOLINE	BRAND	CARBOLINE	INSIDE BUILDING
DEW POINT	25	TYPE	CARBOZAK11	TYPE	CARBOXANE2000	TYPE	CARBOXANE2000	
METAL TEMP.		BATCH#	13FD8473L	BATCH#	11ED5420L	BATCH#	11ED5420L	
BLAST TYPE	SP10	WET MILS	6	WET MILS	8	WET MILS	8	
		THINNER	#26	THINNER	#10	THINNER	#10	
ABRASIVE SIZE	GREEN DIAMOND	COLOR	GREY A700	COLOR	WHITE 1864	COLOR	WHITE 1864	
		DRY MILS	3	DRY MILS	4	DRY MILS	2	
A.P. DEPTH		THINNER		THINNER		THINNER		
23		DRY MILS		DRY MILS		DRY MILS		
SAVE TAPE:	1	COLOR		COLOR		COLOR		
		DRY MILS	TO	DRY MILS	TO	DRY MILS	9 TO 11	
NOTES:								



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