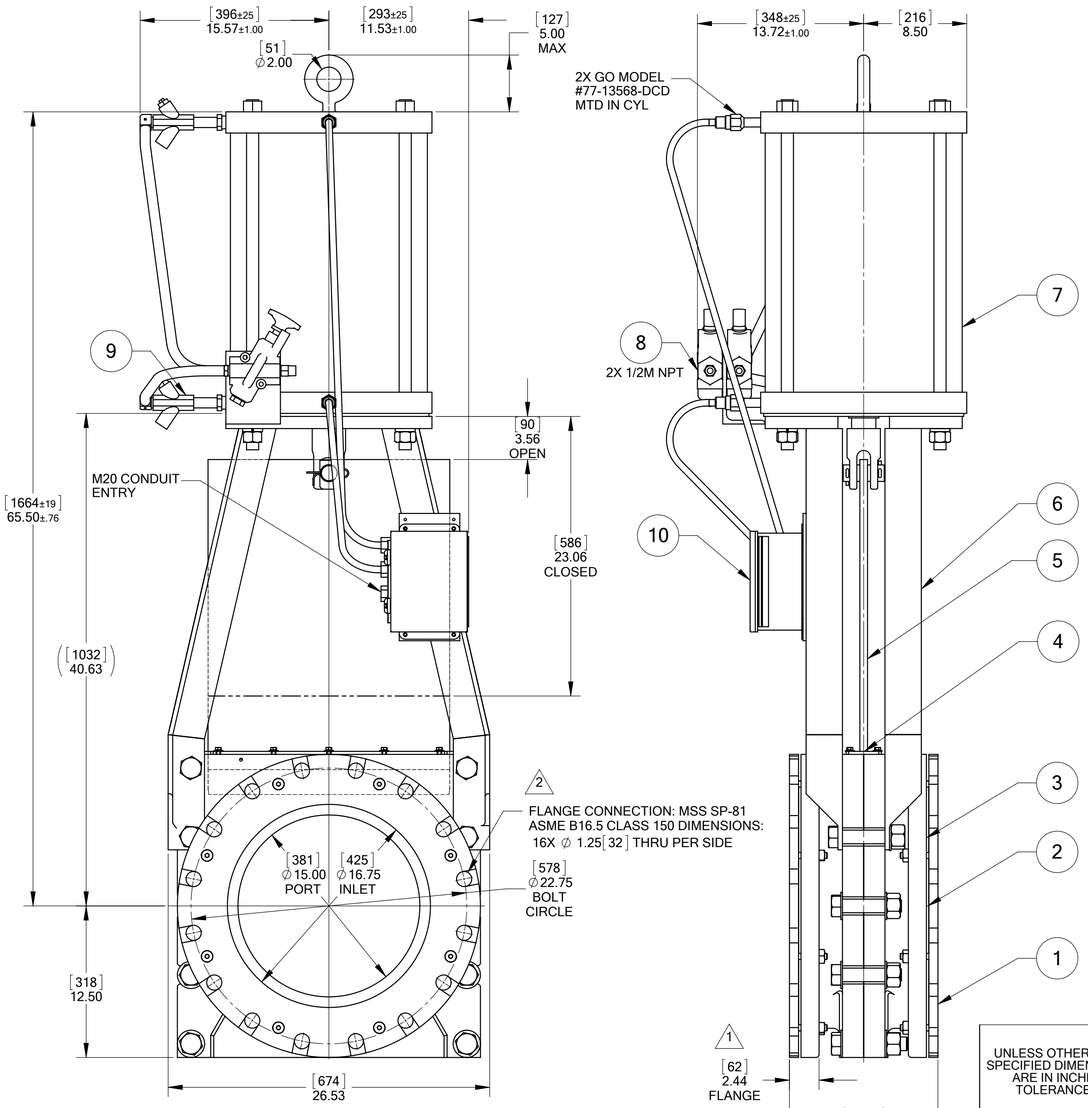
DRAWING NUMBER: MD-512-3000-EG-IN-DGA-6008-0010 REV: C02

NOTES:

1. THE RECOMMENDED ALLOWANCE FOR ELASTOMER SEALING COMPRESSION PER FLANGE CONNECTION IS .09 [2.3].
2. FLAT FACE OR RAISED FACE COMPANION FLANGES ARE RECOMMENDED.
3. CYLINDER BORE ∅16.00 [406], STROKE 19.25 [489]. MINIMUM AIR SUPPLY PRESSURE 58 PSI [4 KG/SQ.CM]. MAXIMUM 150 PSI [11 KG/SQ.CM]
4. MAXIMUM ALLOWABLE WORKING PRESSURE: 200 PSI [14 KG/CM SQ] (1379 KPAG)
5. RECOMMENDED MAXIMUM LINEAR GATE TRAVEL SPEED IS 1 INCH/SECOND.
6. ALL DIMENSIONS ARE SHOWN WITH MILIMETERS IN [ ].
7. REFERENCE DIMENSIONS ARE SHOWN ( ).
8. APPROXIMATE WEIGHT OF ASSEMBLY IS 1292 LBS [586 KG].
9. AIR PORT SIZE SHALL MATCH WITH SOLENOID CONTROL BOX DETAIL DRAWINGS.



CUSTOMER: HANWHA ENGINEERING & CONSTRUCTION
CUSTOMER P.O.: MD-512-3000-IN-MPO-6008-A01
PROJECT: MA'ADEN UMM WU'AL PHOSPHATE PHOSPHORIC ACID PLANT
KEYSTONE VALVE (KOREA) LLC P.O.: RE14001
PENTAIR VALVES & CONTROLS RENO/FACTORY REFERENCE: S.O. 77232

KGVS CLA A+18A5ZEE70300EF11HFZ0Z80000001
MODEL: KGA18+ACOZ-D13E10H07L3NR10SY8Z (VALVE SIZE 450MM / 18")

CLARKSON SERIES KGA+ HEAVY DUTY SLURRY KNIFE GATE VALVE
PNEUMATIC ACTUATION
PACKINGLESS, UNOBSTRUCTED, FULL PORT, BUBBLE TIGHT SHUT OFF
STANDARD MSS SP-81 DIMENSIONS, WITH END CONNECTIONS DRILLED AND TAPPED TO MATCH ASME B16.5 / CLASS 150
PRODUCT CODE/SIZE: KGVS CLA KGA+ 18 INCH
ACTUATOR: AIR CYLINDER OVERSIZED DOUBLE ACTING, 316 STAINLESS STEEL ROD, SIZED FOR 400 KPAG MIN. AIR SUPPLY, MODEL #PATJ8NX3CEK9N2, WITH (2) INTEGRAL SWITCHES, GO MODEL #77-13568-DCD, OPEN/CLOSE, 24 VDC
BORE SIZE: 400MM (16 INCH)
SLEEVE MATERIAL: EPDM ENCAPSULATED RING
RETAINER FLANGES: EPDM RUBBER LINED

GATE MATERIAL: ALLOY 2507 STAINLESS STEEL, RATED AT 1379 KPAG MAWP (200 PSI)
LOCK-OUTS: PNEUMATIC ENERGY LOCKOUT WITH 1/2" TO 1/2" ADAPTER (HEX, 316, NPT)
SECONDARY SEAL: EPDM
BODY/SEC SEAL RETAINER MATERIAL: DUCTILE IRON BODY (ASTM A536 Gr 65-45-12), CARBON STEEL SECONDARY SEAL RETAINER
BODY COATINGS/POST PROCESSING: EPOXY MASTIC PRIMER COAT + URETHANE MASTIC TOP COAT
FLANGE DRILLING PATTERN: ANSI CLASS 150
BOLTING MATERIAL: BODY & MOUNTING SCREWS A193-B7, NUTS A194-2H
YOKE/FRAME MATERIAL: CARBON STEEL
FLOW CONTROL: VERSA FLOW CONTROL, MODEL #FCV-5-316
JUNCTION BOX AND WIRING: TERMINAL BOX, 316 STAINLESS STEEL, IP65 ENCLOSURE WITH HINGED COVER, PHOENIX TERMINAL STRIP, QUICK DISCONNECTS, M20 ENTRY, WIRING DIAGRAM AFFIXED TO INSIDE OF DOOR FOR THE LANDING OF SWITCH LEADS.
TESTING: HYDROSTATIC, CERTIFIED FUNCTIONAL & NDE TESTING, PMI (GATE ONLY)

TAG NUMBERS: 23A3A-HV-2079, 23B3A-HV-2079, 23C3A-HV-2079, 23A3A-HV-2081, 23B3A-HV-2081, 23C3A-HV-2081

ITEM	SPARE P/N	DESCRIPTION	MAT'L	MAT'L STD	QTY
10		NEMA BOX HOFFMAN	316 SST	ASTM A240	1
9		NIPPLE 1/2IN X 3IN	316 SST	ASTM A269	2
9		FTG BUSH 3/4MP X 1/2FP	316 SST	ASTM A694	2
9		FLOW CONTROL VALVE	316 SST	VARIOUS	2
8		NIPPLE 1/2 HEX	316 SST	N/A	2
8		FTG STR 1/2MP X 8HB	BRASS	ASTM A694	2
8		FTG ELB 1/2MP X 8HB	BRASS	ASTM A694	2
8		FTG BREATHER 3/4 NPT	PLTD	ASTM A694	2
8		VALVE LOCKING AIR	CAST ALUMINUM	ASTM B557	2
7		WASHER 1 LOCK HELICAL	PLTD	ASTM F593	4
7		STUD 1-14 X 2-3/4IN	PLTD	ASTM A193	1
7		SHIM PLATE	HRMS	ASTM A36	1
7		YOKE KGA18-20-AC	DUCTILE IRON	ASTM A536	1
7		CYL ACO 16 X 19.25	VARIOUS	VARIOUS	1
6		WASHER 1-1/8 LOCK HELICAL	PLTD	ASTM F593	2
6		SCREW 1-1/8-7 X 6 HHCS	GR B7	ASTM A193	2
6		FRAME W/ BRKTS	HRMS	ASTM A36	1
6		FRAME	HRMS	ASTM A36	1
5		PIN COTTER 1/4 X 2-1/2	STL PLTD	N/A	2
5		PIN CLEVIS	303 SST	ASTM A276	1
5	11022597	GATE	ALLOY 2507	ASTM A240	1
4		WASHER 1/4 FLAT STD 316SS	316 SST	ASTM F593	10
4		SCREW 1/4-20-UNC X 7/8 HHCS	316 SST	ASTM F593	10
4		WSHR 1/4 LOCK HELICAL	316 SST	ASTM F593	10
4		RETAINER SEC SEAL	HRMS	ASTM A36	1
4	11012936	SECONDARY SEAL	EPDM	N/A	1
3		WASHER 1-1/8 FLAT SAE	PLTD	ASTM F844	14
3		SCREW 1-1/8-7 X 5.5	GR B7	ASTM A193	4
3		SCREW 1-1/8-7 X 5 HHCS	GR B7	ASTM A193	4
3		GASKET BODY KGA18	VFG 681	N/A	2
3		HOUSING	CAST DUCTILE IRON	ASTM A536	2
2	11012857	SLV KGA18 ENCAP	EPDM	NA	2
1		NUT 1/2-13 SQ	PLTD	ASTM A563	16
1		SCREW 1/2-13 X 3 SKT FHCS	STEEL	ASTM A354	16
1		FLANGE RETAINER	EPDM	N/A	2

TAG NUMBER	SIZE	RATING	CONNECTION
23A3A-HV-2079	450MM	1379 KPAG	ASME B16.5 CLASS 150
23B3A-HV-2079	450MM	1379 KPAG	ASME B16.5 CLASS 150
23C3A-HV-2079	450MM	1379 KPAG	ASME B16.5 CLASS 150
23A3A-HV-2081	450MM	1379 KPAG	ASME B16.5 CLASS 150
23B3A-HV-2081	450MM	1379 KPAG	ASME B16.5 CLASS 150
23C3A-HV-2081	450MM	1379 KPAG	ASME B16.5 CLASS 150

ZONE	REV.	DESCRIPTION	DATE	DRAWN BY
PENTAIR REVISIONS				
ALL	F	REVISED CUSTOMER CONNECTIONTO 1/2M	6/9/2015	JD
G8	E	REVISED TO CERT PRE BUILD	4/24/2015	JD

DOCUMENT NUMBER	REFERENCE DOCUMENTS	REV	DATE	REVISION DESCRIPTION	DRN	CHK	ENG	APP	EMP
		C02	6/9/2015	ISSUE FOR CONSTURCTION	-	-	-	-	-
		A03	3/24/2015	ISSUE FOR APPROVAL	-	-	-	-	-

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES:
DECIMAL: .X +/- 1.00 .XX +/- .25 .XXX +/- .13
ANGULAR: +/- 0.5°
FRACTIONS=1/8

DO NOT SCALE DRAWINGS.

DRAWN BY: JD 1/15/2015
SALES ORDER NO: 77232

☐ FOR REFERENCE ONLY ☒ CERTIFIED PRE BUILT
☐ FOR APPROVAL ☐ CERTIFIED AS BUILT

Reno Engineering
Digitally signed by Reno Engineering
DN: cn=Reno Engineering, o=Pentair, ou=Valves and Controls, email=do.not.email@pentair.com, c=US
Date: 2015.06.10 14:50:03 -07'00'
ENGINEERING PENTAIR VALVES & CONTROLS

THIS DRAWING IS THE PROPERTY OF PENTAIR VALVES & CONTROLS UNAUTHORIZED USE IS PROHIBITED © PENTAIR VALVES & CONTROLS

PENTAIR DWG NO. DC11317
PENTAIR REVISION: F
PAGE 1 OF 1

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PENTAIR Valves and Controls Flow Control Reno

Hanwha E&C

MA'ADEN WA'AD AL-SHAMAL معادن وعد الشمال

Hanwha Engineering & Construction

DOCUMENT APPRAISAL STAMP

REVIEWER'S NAME	SIGN	DATE

REVIEW GRADE

Result Code	Description
☐ A	Accepted
☐ C	Proceed with exceptions to next submission and Revision
☐ R	Do Not Proceed - Revise as noted and Resubmit

Acceptance in any of these categories in no way relieves the Contractor/Supplier of its responsibility for the due & proper performance of the Works in accordance with the Contract/Purchase Order

PROJECT MANAGER SIGN-OFF:

NAME		DATE:
DRAWN	JY. HONG	6/10/2015
CHECKED	JH. LIM	6/10/2015
ENGINEER	J. GEE	6/10/2015
APPROVED	KP. WON	6/10/2015
EMPLOYER		
SCALE	A1	

UMM WU'AL PHOSPHATE PROJECT (PAP)
GENERAL ARRANGEMENT DRAWING:
450MM, GATE ALLOY 2507
DOUBLE ACTING
FOR CONTROL VALVE (KNIFE GATE)

DRAWING NUMBER: MD-512-3000-EG-IN-DGA-6008-0010
REV: C02

$FILE$ $TIME$ $DATE$