

MATERIAL:
316/316L STAINLESS STEEL
CARBON STEEL

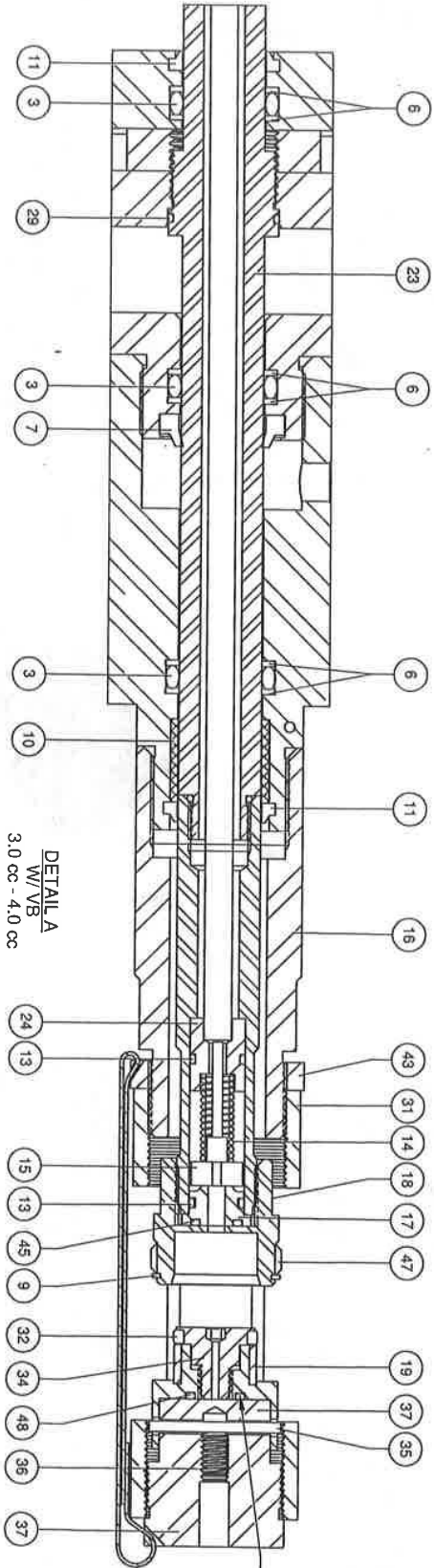
FINISH:
PRIME AND PAINT CARBON STEEL

TO PROTECT SENSITIVE PIPELINE EQUIPMENT, WELKER
RECOMMENDS INSTALLING ANY PRODUCT PROTRUDING INTO THE
PIPELINE UPSTREAM OF THE STRAINER.

DRAWING NUMBER:
AD460BJ.1

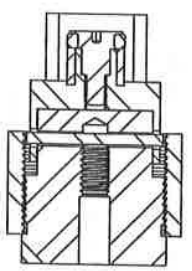
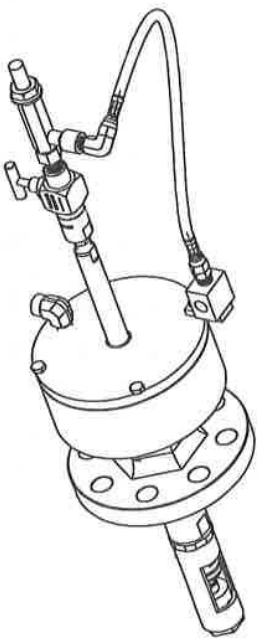
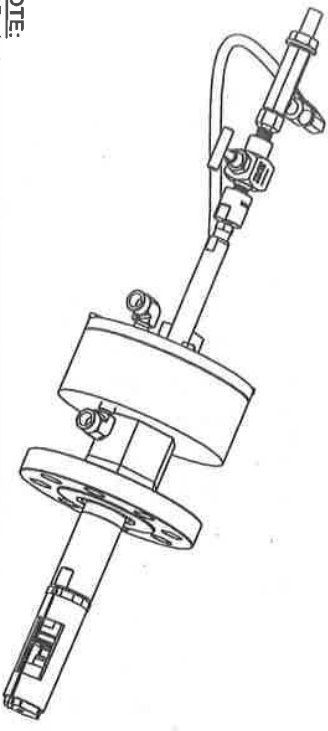
REV:
B

MAOP: 740 psig @ -20 °F TO 100 °F



DETAIL A
W/VB
3.0 cc - 4.0 cc

SEE DETAIL A1
FOR VARIANTS
W/O VB



DETAIL A1
W/O VB
.25 cc - 2.0 cc

NOTE:
USE ϕ 1/32" SAFETY WIRE TO SECURE COLLECTION HEAD.
VB = VACUUM BREAKER

DATE	REV.	RECORD	AUTH.	DRAFTER	CHECKED
12/04/18	B	ECN-12533	TDP	HHN	LKH
12/29/15	A	ER-10878	TDP	PVS	HNP



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TITLE: In Flow™ CRUDE OIL SAMPLER, 2" - 300 ANSI RF P/L CONN STYLE: LSM-12FTDA W/ VB COLLECTION HD INTERNAL / EXTERNAL SAND RELIEF		DRAWING NUMBER: AD460BJ.1	
CREATED BY: PVS	SCALE: STF	APPROVED BY: <i>Maddy Gorn</i>	SHEET: 2 of 3
CREATION DATE: 12/29/15	COMPLAINT:		REV: B

MATERIAL:
316/316L STAINLESS STEEL
CARBON STEEL

MAOP: 740 psig @ -20 °F TO 100 °F

FINISH:
PRIME AND PAINT CARBON STEEL

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DRAWING NUMBER
AD460BJ.1

REV
B

	VB	VB	VB
4.0 CC	CHB1078	CHB1088	CHB1095
3.0 CC	CHB1074	CHB1084	CHB1101
2.0 CC	CHB1070	CHB1080	CHB1099
1.0 CC	CHB1066	CHB1076	CHB1094
.5 CC	CHB1063	CHB1073	CHB1089
.25 CC	CHB1059	CHB1069	CHB1085
VOLUME	(18)	(19)	(34)

TABLE 2: TEFLON O-RING

	VB	VB	VB
4.0 CC	CHB1044	CHB1086	CHB1092
3.0 CC	CHB1074	CHB1084	CHB1091
2.0 CC	CHB1017	CHB1085	CHB1090
1.0 CC	CHB1016	CHB1083	CHB1089
.5 CC	CHB1039	CHB1081	CHB1088
.25 CC	CHB1119	CHB1121	CHB1089
VOLUME	(18)	(19)	(34)

TABLE 2: WELKER SEAL

RANGE (psig)	COLOR CODE	PART NO
3000-4000	WHITE	ESR1F
2250-3000	BROWN	ESR1E
1500-2250	ORANGE	ESR1D
750-1500	PURPLE	ESR1C
350-750	YELLOW	ESR1B
50-350	BLUE	ESR1A

TABLE 1: EXTERNAL RELIEF (42)

- NOTES:
 1. IF TEFLON MATERIAL IS REQUIRED INSERT "T" AT THE END OF THE PART NUMBER.
 EXAMPLE: CHB1030GT
 2. USE Ø 1/32" SAFETY WIRE TO SECURE COLLECTION HEAD.
 VB = VACUUM BREAKER



39	1	FLEXLINE, 15"	MF01300
38	1	JIC MALE ELBOW, 1/2" SS	MF0140X
37	1	BASE, 316/316L SS	LS2002
36	1	HEXOC SET SCREW, 1/2" - 20 x 3/8" SS	MA028BX
35	1	LOCK PIN	GS1012
34	1	RETAINER SA	SEE TABLE 2
33	1	PISTON, B-HD	SEE TABLE 2
32	1	WELKER SEAL OR TEFLON O-RING	SEE TABLE 2
31	1	HANGER	LSM6000
30	1	BASE SA, 2" - 300 ANSI RF CS	LSM1220
29	1	O-RING, Buna	HO70020
28	1	LSM PISTON	LSM0003X
27	1	CROWN SEAL	MS03600
26	3	HEXHD MACH SCR, 1/2" - 20 x 3/8" LG SS	MA032EX
25	2	STREET ELBOW, 1/2" SS	MF0660X
24	1	VOLUME ELIMINATOR BODY FOR SAND RELIEF	LSM00025
23	1	INNER SHAFT	LSM1202M
22	1	FITTING, VOLUME ELIMINATOR	LSM00019
21	1	FERRULE SET, 1/2" PTFE	MF0330T
20	1	COUPLING, VOLUME ELIMINATOR	LSM00017
19	1	PISTON BEARING	SEE TABLE 2
18	1	CYLINDER, B-HEAD	SEE TABLE 2
17	1	IRS-1 SEAT, SHORT	SR012
16	1	OUTER SHAFT EXTENSION	LS1226
15	1	INTERNAL POPPET SA	SR011
14	1	SPRING	SPR600X
13	2	O-RING, VITON	VO70012
12	1	VALVE, 1/2" NPT M/F SS	NV2MF
11	2	WIPER RING, 3/4" SHAFT	WP00100
10	1	SHAFT BEARING	LSM5005
9	1	RETAINING RING	RR0510X
8	1	HEXHD MACH SCR, 1/2" - 20 x 1" SS	MA032GX
7	1	WIPER RING, 3/4" SHAFT	WP01000
6	6	BACK-UP RING, SPIRAL PTFE	BU2103P
5	1	LSM, ONE PIECE SHORT MOTOR, CS	LSM5017
4	1	LOCK COLLAR	MA05300
3	3	O-RING, VITON	VO90210
2	1	O-RING, Buna	HO70160
1	1	MOTOR TOP CAP, CS	LSM0004
NO	REQ	DESCRIPTION	PART NO

48	1	O-RING, VITON	VO70012
47	1	ALIGNMENT RING	CHB1045
46	AR	316/316L TBG 1/2" OD x .035" WT	031650025103
45	1	O-RING, VITON	VO90011
44	1	MUFFLER, 1/2" MNPT	MF246AB
43	1	LOCK NUT, 316/316L SS	LSM6002
42	1	SAND EXTERNAL RELIEF	SEE TABLE 1
41	1	ELBOW SA, 1/2" W/BRACKET	LSM0010
40	1	JIC MALE CONNECTOR, 1/2"	MF0160X
NO	REQ	DESCRIPTION	PART NO



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 INTERNAL / EXTERNAL SAND RELIEF
 COMPANY:

SCALE: APPROVED BY:
 PVS STF
 CREATION DATE: 12/29/15
 DRAWING NUMBER: AD460BJ.1
 SHEET: 3 of 3
 REV: B
 Madbury Goon

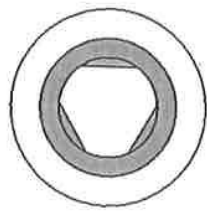
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12/04/18	B	EGN-12533	TDP	HHN	LKH
12/29/15	A	ER-10878	TDP	PVS	HNP



RKESRB
 REPAIR KIT FOR EXT SAND RELIEF



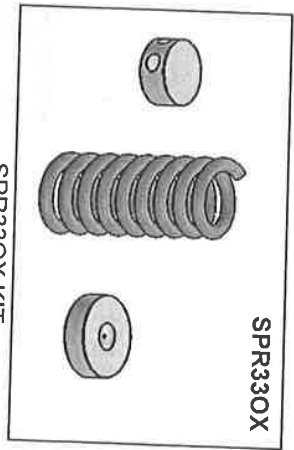
VO70012
 O-RING, VITON
 (BLACK)
 Quantity: 1



MS11000
 THREAD SEAL, 9/16" ZINK PLATED
 (BLACK/METALLIC)
 Quantity: 1



SR010
 POPPET, EXT SAND RELIEF
 (METALLIC)
 Quantity: 1

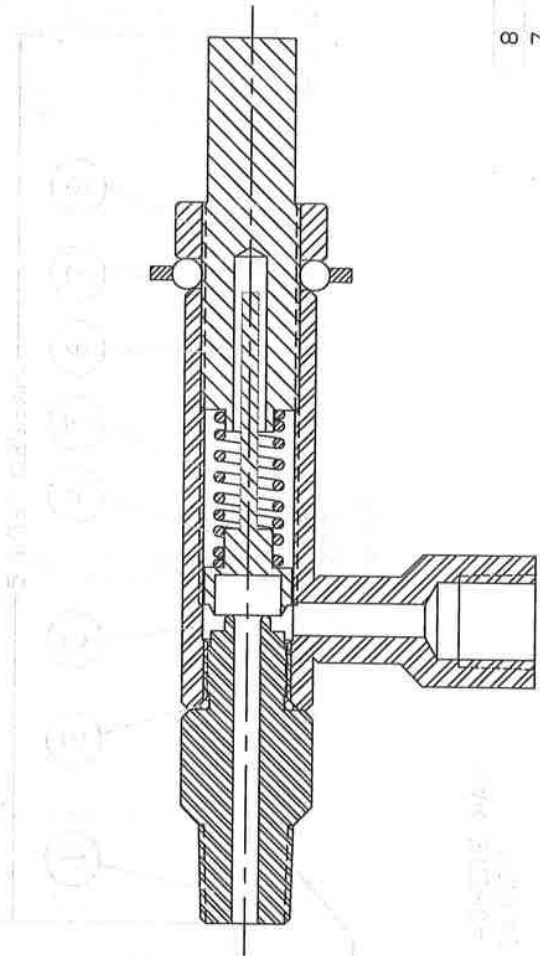


SPR330X KIT
 Quantity: 1

MATERIAL: 316 S.S. FINISH: N/A TO PROTECT SENSITIVE PIPELINE EQUIPMENT, WELKER INC. RECOMMENDS INSTALLING ANY PRODUCT PROTRUDING INTO THE PIPELINE UPSTREAM OF THE STRAINER. DRAWING NUMBER: AD089B0 REV: F



STOP



STOP



STOP

- 8 1 JAM NUT S.S. MA0370X
 - 7 1 STAT-SEAL MS1100D
 - 6 1 ADJUSTMENT SCREW SR003
 - 5 1 SPRING SEE TABLE
 - 4 1 POPPET ASS'Y SR010
 - 3 1 BODY ASS'Y SR002
 - 2 1 O-RING VD70012
 - 1 1 HEX BASE SR005
- NO. REQ. DESCRIPTION PART NO.

C	750-1500	SPR340X	PURPLE
B	350-750	SPR330X	YELLOW
A	50-350	SPR320X	BLUE
[]	NOMINAL PRESSURE RANGE (PSI)	(5)	COLOR CODE



THIS PRODUCT CONTAINS COPPER, ZINC, LEAD, AND OTHER HEAVY METALS WHICH MAY BE PRESENT IN THE RAW MATERIALS. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH FOOD OR DRINKING WATER. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH FUEL OIL OR DIESEL FUEL. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH ACETIC ACID OR OTHER STRONG ACIDS. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH STRONG ALKALIS. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH STRONG OXIDIZING AGENTS. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH STRONG REDUCING AGENTS. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH STRONG CORROSIVE AGENTS. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH STRONG TOXIC AGENTS. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH STRONG FLAMMABLE AGENTS. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH STRONG EXPLOSIVE AGENTS. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH STRONG INFLAMMABLE AGENTS. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH STRONG IRRITANT AGENTS. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH STRONG SENSITIZING AGENTS. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH STRONG ALLERGENIC AGENTS. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH STRONG CARCINOGENIC AGENTS. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH STRONG MUTAGENIC AGENTS. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH STRONG TERATOGENIC AGENTS. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH STRONG REPRODUCTIVE TOXIC AGENTS. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH STRONG DEVELOPMENTAL TOXIC AGENTS. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH STRONG IMMUNOTOXIC AGENTS. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH STRONG NEUROTOXIC AGENTS. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH STRONG RESPIRATORY TOXIC AGENTS. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH STRONG SKIN IRRITANT AGENTS. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH STRONG SKIN CORROSIVE AGENTS. THE PRODUCT IS NOT TO BE USED IN CONTACT WITH STRONG EYE IRRITANT AGENTS. 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TITLE: EXTERNAL SAND RELIEF STYLE: ESR-1	SCALE: APPROVED BY: JONCE LIN STF	DRAWING NUMBER: AD089B0
COMPANY:	DATE: 01/12/87	SHEET: 1 of 1
REV: F		



WELKER



RKLSM12BHD3W

REPAIR KIT, LSM-12FT



MF0330T
FERRULE SET, 1/4" PTFE
(WHITE)
Quantity: 1



SR012
IRS-1 SEAT, SHORT
(METALLIC)
Quantity: 1



SR011
INTERNAL POPPET SA
(METALLIC)
Quantity: 1



SPR600X
SPRING
(METALLIC)
Quantity: 1

VO70012
O-RING
(BLACK)
Quantity: 1

MS11000
THREAD SEAL, 9/16" ZINK PLATED
(BLACK/METALLIC)
Quantity: 1

SR010
POPPET, EXT SAND RELIEF
(METALLIC)
Quantity: 1

SPR330X
KIT
Quantity: 1

RKESRB

OKNV2

VO70003
Quantity: 1

VO70009
Quantity: 2

VO70013
Quantity: 1

RR046X
Quantity: 1

NO.	REQ.	DESCRIPTION	PART NUMBER
8	1	RETAINING RING	IR046X
7	1	SEAT	V137200
6	2	O-RING	K0009
5	1	O-RING	K0013
4	1	BONNET	NV1001
3	1	VALVE STEM	NV1002
2	1	KNOCK, 1/4" ROUND ALUMINUM	NV1015
1	1	HEX. SOCK SET SCREW	MA028BX

Date: 1/1/5/2019

RKESRB
SAND EXTERNAL
Quantity: 1

OKNV2 KIT COMPONENTS
Quantity: 1 KIT/SET



MF01300
FLEXLINE, **NOT TO SCALE
Quantity: 1



RKLSM12BHD3W

REPAIR KIT, LSM-12FT



VO90011
O-RING, VITON
(BLACK)
Quantity: 1



VO70012
O-RING, VITON
(BLACK)
Quantity: 3



VO70014
O-RING, VITON
(BLACK)
Quantity: 1



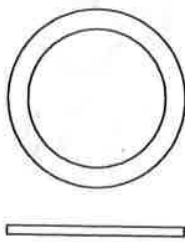
VO90210
O-RING, VITON
(BLACK)
Quantity: 3



HO70020
O-RING, BUNA
(BLACK)
Quantity: 1



CHB1030D
WELKER SEAL B-HEAD 3.0 cc
(WHITE)
Quantity: 1



BU210SP
BACK-UP, SPIRAL
(WHITE)
Quantity: 6



WP00100
WIPER RING, 3/4" SHAFT
(BLUE OR BLACK)
Quantity: 2



WP01000
WIPER RING, 3/4" SHAFT
(BLUE OR BLACK)
Quantity: 1



RR0510X
SPIROLOX, 1-1/8" SHAFT
(METALLIC)
Quantity: 1



CHB1045
ALIGNMENT RING
(BLACK)
Quantity: 1



CHB1084
PISTON BEARING, 3.0 cc
(BLACK)
Quantity: 1



LSM5005
SHAFT BEARING
(BLACK)
Quantity: 1



MATERIAL:
316/316L STAINLESS STEEL
CARBON STEEL

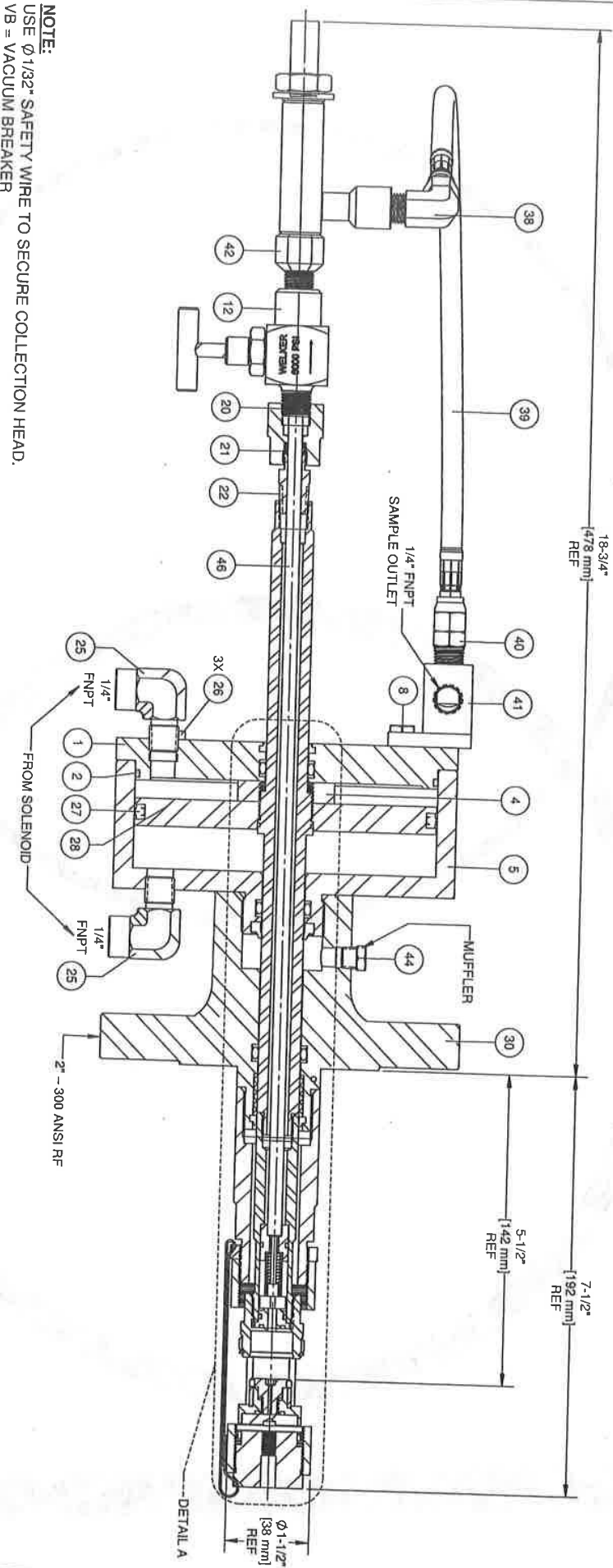
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REV.:
B

MAOP: 740 psig @ -20 °F TO 100 °F



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USE \varnothing 1/32" SAFETY WIRE TO SECURE COLLECTION HEAD.
VB = VACUUM BREAKER

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12/04/18	B	ECN-12533	TDP	HHN	LKH
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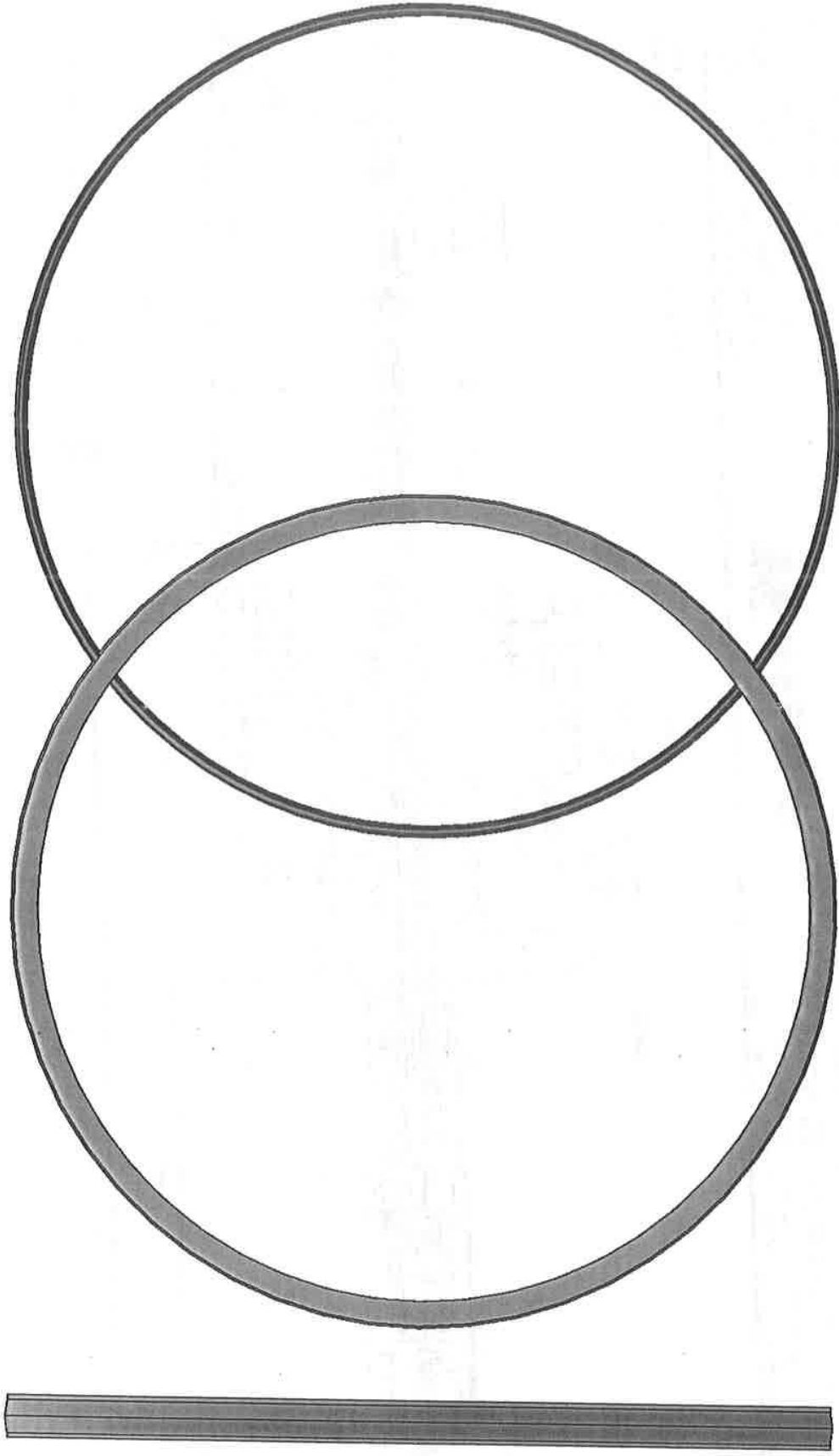
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TITLE: In Flow™ CRUDE OIL SAMPLER, 2" - 300 ANSI RF P/L CONN STYLE: LSM-12FTDA W/ "B" COLLECTION HD INTERNAL / EXTERNAL SAND RELIEF		CREATED BY: PVS		SCALE: STF		APPROVED BY: Mallory Gorn		DRAWING NUMBER: AD460BJ.1	
COMPANY: WELKER		CREATION DATE: 12/29/15						SHEET: 1 of 3	
								REV: B	



RKLSM12BHD3W

REPAIR KIT, LSM-12FT

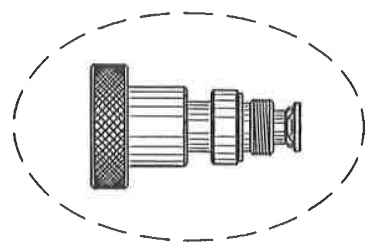


MS03600
CROWN SEAL
(TEAL/BLACK)
Quantity: 1

HO70160
O-RING, BUNA
(BLACK)
Quantity: 1

MATERIAL: 316 S.S. FINISH: N/A DRAWING NUMBER: AD456AG REV: E

TO PROTECT SENSITIVE PIPELINE EQUIPMENT, WELKER INC. RECOMMENDS INSTALLING ANY PRODUCT PROTRUDING INTO THE PIPELINE UPSTREAM OF THE STRAINER.



8	1	RETAINING RING	RR0461X
7	1	SEAT	NV2003
6	2	O-RING, VITON	VD70009
5	1	O-RING, VITON	VD70013
4	1	BONNET	NV1001
3	1	VALVE STEM	NV2001
2	1	KNOB, 1 1/4" ROUND ALUMINUM	NV1015
1	1	HEX SOCK SET SCREW 1/4"-20 X 3/8" S.S.	MA028BX
NO. REQ.		DESCRIPTION	PART NO.

WELKER

13839 WEST BELLFORT SUGAR LAND, TEXAS 77498-1671
PHONE (281) 491-2331 FAX (281) 491-8344

VALVE KIT, NV-2 (VL18200)

DATE	REV.	RECORDED	AUTHORIZED	DRAFTER	CHECKED
10/29/03	-	DR# 6587	GB	RDC	GB
2/10/05	A	CN# 5010	GB	TF	GB
6/9/09	B	CN# 6929	TDP	EBC	TDP
7/14/09	C	CN# 6929 7227	TDP	EBC	TDP
1/14/10	D	CN# 7227	TDP	TLN	JL
5/27/10	E	CN# 7438	TDP	MC	JL

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DRAWN BY: TONY
SCALE: STF
DATE: 10/29/03
APPROVED BY:

DRAWING NUMBER: AD456AG
SHEET: 1 of 1
REV: E



OKNV2
O-RING KIT, NV-2



NV2003
(SEAT, TRANSPARENT)
Quantity: 1



VO70009
(BLACK)
Quantity: 2



VO70013
(BLACK)
Quantity: 1



RR0461X
(RETAINING RING)
Quantity: 1