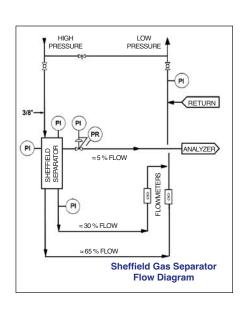


**GAS & LIQUID SEPARATORS** 

## Instruction / Installation Manual SS1200





## www.sheffieldseparators.com

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## The Sheffield Kinetic Separator -- SS-1200 Series

he Sheffield Kinetic Separator uses kinetic energy to separate the desired analyzer sample from impurities often found in a process stream. This is accomplished by establishing fast loop flow from a high pressure sample tap to a low pressure sample return and kinetic flow reversal of a relatively small slipstream sample. Condensate and particulates in gas samples and any heavy immiscible liquid phase (such as free water) and solid contaminants in liquid samples will not negotiate this reversal of flow direction. They are totally separated from the analyzer feed stream. To further effect this separation, a second kinetic chamber with a hydrophobic filter polishes the sample. Although kinetic energy will physically separate impurities, it will not alter the chemical composition of the sample.

## **How It Works**

Initially, the fast flow path enters the first chamber. Here system pressure forces the analyzer feed slipstream in the reverse direction; the main stream flow continues through the first chamber and exits the bottom of the filter housing. Gravity and inertia cause kinetic separation of the analytical process components. These are lighter than condensate and solids (particulates) in a gas sample and lighter than immiscible liquids and solids (particulates) in a liquid sample.

The Sheffield Kinetic Separator is rated for high-pressure service, thus the first chamber of the separator is designed for installation directly in-line to the fast loop sample transport system. This results

in a high flow rate and provides the inertia to effect the separation. This model embodies a special 10 inch, 15 micron Teflon®-lined (hydrophobic) self-cleaning low pressure drop filter.

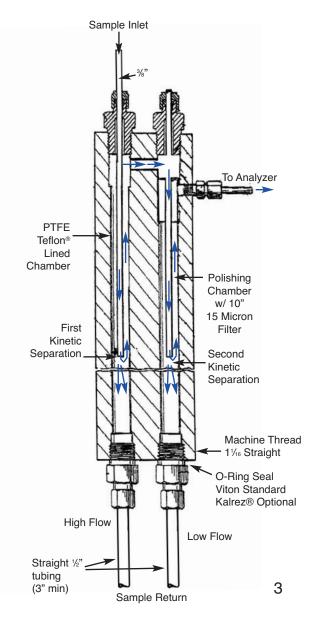
The second chamber is a kinetic polishing chamber, aided by a special 10 inch, 2 micron Teflon®-lined (hydrophobic) self-cleaning low pressure drop filter.

Most of the contaminates are separated in the first chamber. The second chamber filter only cleans the relatively small amount of sample going to the analyzer. Filter life is greatly enhanced. The filter element has a special Teflon®-lined interior, which repels water and particles as these impurities pass through the filter center with the sample. These impurities exit the bottom of the Sheffield Separator. These attributes combine to make the Sheffield Kinetic Separator virtually maintenance free.

Finally, both chambers exit the bottom of the separator to a common juncture with the fast loop return flow. This avoids product loss and disposal cost of the separated components.









## SHEFFIELD SEPARATOR MODEL SS1200 SPECIFICATIONS 0309

MAXIMUM PRESSURE: 2,000 PSIG

MAXIMUM FLOW RATE:

GAS: 40 SCFM w/ 100 psig LIQUID: 11 GPM w/ 100 psig

MINIMUM FLOW RATE:

GAS: 1.5 SCFH LIQUID: 2.5 GPH

**OPTIMUM FLOW RATE:** 

GAS: First Chamber Exit: Full or Partial Flow

Second Chamber Exit: 2 - 5 SCFH

LIQUID: First Chamber Exit: Full or Partial Flow

Second Chamber Exit: 3 - 6 GPH

MAXIMUM TEMPERATURE: 300° F (149° C)

PRESSURE DROP: 2 PSIG (Approximate)

MATERIALS OF CONSTRUCTION: 316L Stainless Steel (Carbon content .019)

Other Materials Available Upon Request

DIMENSIONS: 1.5" X 3" X 11.5"

INTERNAL VOLUME: 55 cu. cm.

INLET: 3/8" Tubing (3/4" NPT-F)

OUTLET TO ANALYZER: 1 /8" Tubing (1/8" NPT-F)

OUTLET TO RETURN: ½: Tubing (1 1/16" Straight -SAE 12)

(3" Min. Straight Run)

## OTHER MODELS AVAILABLE WITH VARYING SPECIFICATIONS

## **SERIES 1200:**

SS1200 GF: 12" Sheffield Kinetic Separator for gas service with hydrophobic filter.

SS1200LF: 12" Sheffield Kinetic Separator for liquid service with hydrophobic filter.

SS1200LF-H2O: 12" Sheffield Kinetic Separator for removal of water from liquid hydrocarbon SS1200PT: 12" Sheffield Kinetic Separator for removal of particulate in gas or liquid

SS1200G: 12" Sheffield Kinetic Separator for gas service with mist catcher

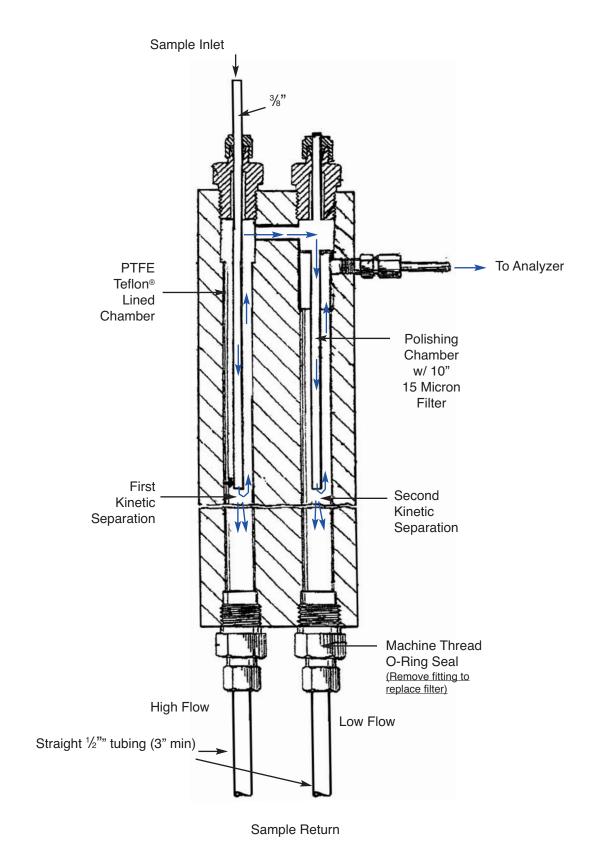
## **SERIES 300:**

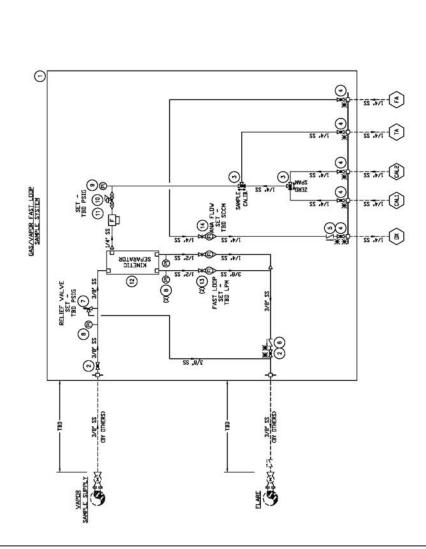
SS300: 3" Dual Sheffield Kinetic Filter Housing with 2 – 2 ¼" filters in series and condensable removal

## **SERIES 700:**

SS700GF: 7" Sheffield Kinetic Separator for gas service with 2 - 6" hydrophobic filter SS700LF: 7" Sheffield Kinetic Separator for liquid service with 2 - 6" hydrophobic filter

## **INSTALLATION NOTES**





NOTE:
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CONSULT A ANALYZER SYSTEMS ENGINERF
FOR SPECIFIC APPLICATIONS AND REQUIREMENTS.

## BILL OF MATERIAL

HEN	M DTY	DESCRIPTION	MANUFACTURER PART NUMBER	PART NUMBE
-	-	PLATE, ALUMINUM, 36" H X 30" W X 3/16" THICK		
2	a	VALVE, BALL, 3/8" TF (SS)		•
6	a	VALVE, BALL, 3-VAY, 1/4" TF (SS)	•	1
*	S	VALVE, BALL, 1/4" TF (SS)	6	į
w	-	CHECK, 1/3 PSIG,	,	
9	-	VALVE, CHECK, 1/3 PSIG, 3/8' TF (SS)	,	,
1	-	VALVE, RELIEF, ADJUSTABLE, 3/8" TF (SS)	•	,
8	6	GAUGE, PRESS., (2.5',GF), 100 PSIG, 1/4'TF-CBM (SS)		•
6	-	PRESS., C	Ü	ě
10	-	REGULATOR, PRESS., 0-50 PSIG, 1/4'NPT-F, (SS)	1	1
=	-	FILTER, 2. MICRON 2-1/4" ELEMENT, 1/4" NPT-F (SS)		1
12	-	RATOR,	SHEFFIELD	SSIEDOGF
13	a	FLOV NETER W/VALVE, (GLASS), TBD GPH, 1/4'NPT-FC SS)	7	į
14		FLOV NETER V/VALVE, (GLASS), 30SCCM, 1/4'NPT-F (SS)	i	,

# FILELD CONNECTION LEGEND

- (AL) VAPOR CALIBRATION 1

  (AL) VAPOR CALIBRATION 2

  (IA) SAMPLE TROM MALLYZER

  (AL) SLAME

  (AL) FLAME

  (AC) OUDIZER

# TUBE CONNECTION LEGEND

- | BULKHEAD FITTING | REDUCE TUBE SIZE

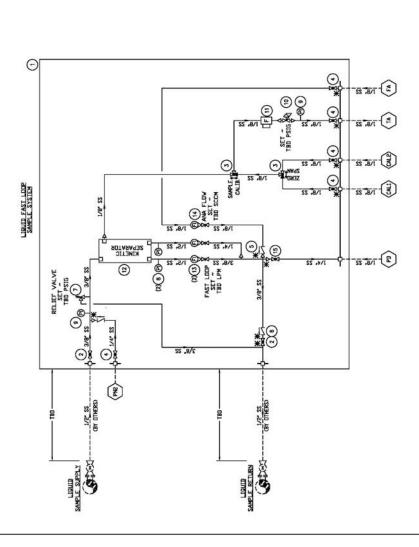
# \* - CLOSE COUPLE (AS SHORT AS PRACTICAL)

- SAMPLE SYSTEM NOTES

- 1. TUBING SHALL RE TIPE 316 SEMALESS, BRIGHT ANGALED, STAINLESS STEEL
  1.4" DB. AS SHOWN AND VALL THICKNESS AS FOLLDWS.
  1.4" DB. 0.039" VALL
  3.4" DB. 0.039" VALL
  1.2" DB. 0.039" VALL
  2. TUBE FITTINGS SHALL RE 316 STAINLESS STEEL
  3. ALL MUNING HARDWARE CUITS, BD.TS, VASHERS, ETC.) TO RE 316SS.
  4. TUBING SHALL RE CUIT SQUARE, EXAMED TO THE INSIDE DIAMETER, AND
  FILED SWORTH WITH AND BARRS OR SHAMP ETGES. TUBING SHALL RE BLOWN CLEAN VITH BRY AIR TO REMOVE FILENGS AFTER CUITING.
  - S. COMPONENTS SHALL BE INSTALLED VITH FRONT ACCESS ONLY TO ALLOW CONVENIENT RENOVAL.
- 6. NPT CONNECTONS TO COMPONENTS SHALL BE MADE WITH TETLON TAPE.
  7. TUBING SHALL TERNINESTE AT BALLOFEAD FITTINGS.
  8. TUBING SHALL RES SUPPORTED TO PREVENT DAMAGE GHAX SPAN OF 3 FEET) BUT ALLOW CONVENIENT ACCESS FOR REDOVAL OF COMPONENTS.

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## BILL OF MATERIAL

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1 1	PLATE, ALUMINUM, 36" H X 30" W X 3/16" THICK	-	
2	VALVE, BALL, 3/8" TF (SS)	•	
3	VALVE, BALL, 3-VAY, 1/8" TF (SS)		•
4	BALL,	e	į
2	CHECK,	,	
6 1	CHECK, 1/3 P	,	,
7	VALVE, RELIEF, ADJUSTABLE, 3/8" TF (SS)	,	,
8	GAUGE, PRESS., (2.5°,GF), 100 PSIG, 1/4*TF-CBM (SS)	•	,
6	GAUGE, PRESS., (2.5',GF), 60 PSIG, 1/4*TF-CBM (SS)	Ü	ě
10 1	REGULATOR, PRESS., 0-50 PSIG, 1/4"NPT-F, (SS)	,	1
11	FILTER, 2. MICRON 2-1/4" ELEMENT, 1/8" NPT-F (SS)	1	1
12 1	KINETIC SEPARATOR, 12" FOR LIDUID SERVICE (SS)	SHEFFIELD	SSIEDOLF
13	FLOV NETER V/VALVE, (GLASS), TBD GPH, 1/4"NPT-F( SS)	ī	ì
14 1	FLOV NETER V/VALVE, (GLASS), 30SCCM, 1/4*NPT-F (SS)	į.	í
15 1	VALVE, BALL, 1/4" TF (SS)	,	,

# FILELD CONNECTION LEGEND

- (AL) LIGUID CALIBRATION 1

  (AL) SAMPLE TO ANALYZER

  (A.) SAMPLE FROM ANALYZER

  (A.) SAMPLE FROM ANALYZER

  (A.) PRIDEESS DRAIN

# TUBE CONNECTION LEGEND

- 4 BULKHEAD FITTING
- > REDUCE TUBE SIZE
- X CLOSE COUPLE (AS SHORT AS PRACTICAL)

- 1. TUBING SHALL BE TIPE 316 SEMALESS, BRIGHT ANGALED, STAINLESS STEEL VITH DD. AS SHOWN AND VALL THICKNESS AS FOLLOWS.

  1.0° 101. 0.03° VALL

  3.0° 101. 0.03° VALL

  1.2° 101. 0.03° VALL

  2. TUBE FITTINGS SHALL BE 316 STAINLESS STEEL.

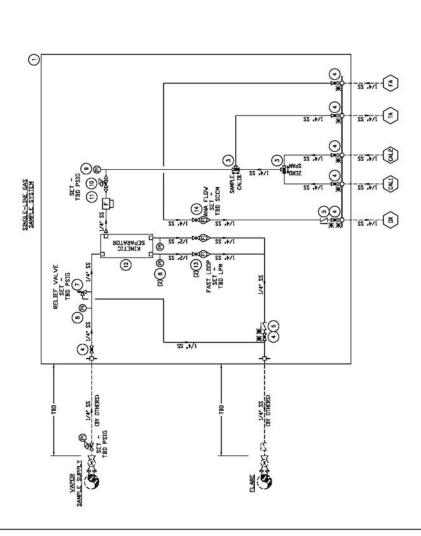
  3. ALL MUTHING HARDWARE CUITS, BOLTS, VASHERS, ETC.) TO BE 316SS.

  4. TUBING SHALL BE CUIT SQUARE, SEARCH TO THE INSIDE DIMPETER, AND FILED SAOTH WITH AND BARRE OR SHAPE EXPERT TO THE SHALL BE BLOWN CLEAN VITH BRY AIR TO REMOVE FILENGS AFTER CUITING. SAMPLE SYSTEM NOTES

- S. COMPONENTS SHALL BE INSTALLED VITH FRONT ACCESS ONLY TO ALLOV CONVENIENT REMOVAL.

  - 6. NPT CONNECTIONS TO COMPONENTS SHALL BE MADE VITH TEFLON TAPE.
    7. YUBING SHALL TERNINNER AT BLUKHEAD FITTINGS.
    8. YUBING SHALL BE SUPPORTED TO PREVENT DAMAGE OMAX SPAN OF 3 FEET) BUT ALLOY CONVENENT ACCESS FOR REDUYAL OF CHAPORANTS.

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## BILL OF MATERIAL

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1	PLATE, ALUMINUM, 36" H X 30" V X 3/16" THICK	•	
			•
3 6	ALL,	•	,
4	VALVE, BALL, 1/4" TF (SS)	6	ė
2	HECK, 1/3	,	
6 1	VALVE, CHECK, 1/3 PSIG, 3/8' TF (SS)	,	,
7 1	VALVE, RELIEF, ADJUSTABLE, 3/8" TF (SS)	,	,
8	RESS.,	•	•
9 1	GAUGE, PRESS, (2.5',GF), 15 PSIG, 1/4*TF-CBM (SS)	Ü	ë
10	REGULATOR, PRESS., 0-50 PSIG, 1/4*NPT-F, (SS)	,	1
11	FILTER, 2. MICRON 2-1/4" ELEMENT, 1/4" NPT-F (SS)		
12 1	8	SHEFFIELD	SSIEDOGF
13 2	FLOV METER V/VALVE, (GLASS), TBD GPH, 1/4"NPT-F( SS)	7	į
14 1	FLOV NETER V/VALVE, (GLASS), 30SCCM, 1/4*NPT-F (SS)	ij	í

# FILELD CONNECTION LEGEND

- (AL) VAPOR CALIBRATION 1 (AL) VAPOR CALIBRATION 2 (IA) SAMPLE TROM ANALYZER (A) SAMPLE FROM ANALYZER (A) FLARE (∞) OUDIZER

# TUBE CONNECTION LEGEND

- A BULKHEAD FITTING
- D REDUCE TUBE SIZE
- ★ CLOSE COUPLE (AS SHORT AS PRACTICAL)

SAMPLE SYSTEM NOTES

- L. TUBING SHALL BE TYPE 316 SEAMLESS, BRIGHT ANNEALED, STAINLESS STEEL VITH DD. AS SHOWN AND VALL THICKNESS AS FOLLDWS.

  LV4 DD. 0.089 VALL

  3/8 DD. 0.099 VALL

  LV2 DD. 0.099 VALL

  2. TUBE FITTINGS SHALL BE 316 STAINLESS STEEL

  3. ALL MOUNTAG HARDWARE CUITS, BD.TS, VANHERS, ETC.) TO BE 316SS.

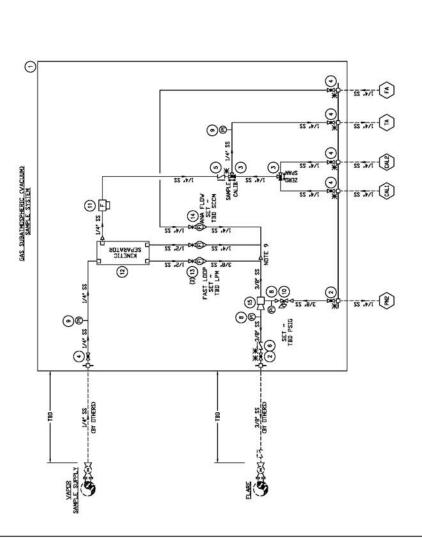
  4. TUBING SHALL BE CUIT STAINCE ERAPED TO THE INSIDE DIAMETER, AND FILED SHORTH VITH AND BARSO DE SHARP EIGES. TUBING SHALL BE BLIDWN CLEAN VITH BRY AIR TO REMOVE FILLINGS AFTER CUITING.
  - S. COMPONENTS SHALL BE INSTALLED VITH FRONT ACCESS DALY TO ALLOV CONVENIENT REMOVAL.

    - 6. NPT CONNECTIONS TO COMPONENTS SHALL BE MADE VITH TEFLON TAPE.

      7. TUBING SHALL TERNIWATE AT BALKHEAD FITTINGS.

      8. TUBING SHALL BE SUPPORTED TO PREVONT DAMAGE GHAX, SPAN OF 3 FEET) BUT
      ALLIDY CONVENENT ACCESS FINE REDIOTAL OF COMPONENTS.

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## BILL OF MATERIAL

TEM	FEM OTY	DESCRIPTION	MANUFACTURER PART NUMBER	PART NUMBER
-	-	PLATE, ALUMINUM, 36" H X 30" V X 3/16" THICK		
a	a	VALVE, BALL, 3/8" TF (SS)	•	
e	a	VALVE, BALL, 3-VAY, 1/4" TF (SS)		•
•	מו	VALVE, BALL, 1/4" TF (SS)	6	ė
v	-	VALVE, CHECK, 1/3 PSIG, 3/8" TF (SS)	,	
9	-	VALVE, CHECK, 1/3 PSIG, 3/8' TF (SS)	,	,
1	1		,	,
8	a	GAUGE, PRESS, (2.5',GF), 100 PSIG, 1/4'TF-CBM (SS)		•
6	cu	GAUGE, COMPOUND, C2.5',GF), -3-0-15 PSIG, 1/4'TF-CBM (SS)	Ü	ě
10	-	REGULATOR, PRESS., 0-100 PSIG, 1/4"NPT-F, (SS)	1	1
=	-	FILTER, 2. MICRON 2-1/4" ELEMENT, 1/4" NPT-F (SS)	•	
12	-	KINETIC SEPARATUR, 12" FUR VAPUR SERVICE (SS)	SHEFFIELD	SSI200GF
13	N	FLOV NETER V/VALVE, (GLASS), TBD GPH, 1/4"NPT-FC SS)	7	i
14	-	FLOV METER V/VALVE, (GLASS), 30SCCM, 1/4"NPT-F (SS)		í
15	-	EDUCTOR, 3/8 'NPT-F, (SS)	•	,

# FILELD CONNECTION LEGEND

- (AL) VAPOR CALIBRATION 1

  (AL) VAPOR CALIBRATION 2

  (IA) SAMPLE TO ANALYZER

  (FA) SAMPLE FROM ANALYZER

  (FA) PLANT NITROGEN

  (FL) FLANE

# TUBE CONNECTION LEGEND

- | BULKHEAD FITTING | REDUCE TUBE SIZE

SAMPLE SYSTEM NOTES

- \* CLOSE COUPLE (AS SHORT AS PRACTICAL)

- L. TUBING SHALL BE TYPE 316 SEAMLESS, BRIGHT ANNEALED, STAINLESS STEEL LIVE OB. AS STOWN AND VALL THICKNESS AS FOLLOWS.

  LIVE OB. 0.039 VALL

  3/8 ' 'DD. 0.039 'VALL

  2. 'UBE FITTINGS SHALL BE 316 STAINLESS STEEL

  3. ALL MOUNTAG HARDWARE CUITS, BOLTS, VANHERS, ETC.) TO BE 316SS.

  4. TUBING SHALL BE CLIT SAUNCE REAVED TO THE INSIDE DIAMETER, AND FILED SUGITH VITH AND BARRS OR SHAPE EXCENDED TO THE INSIDE DIAMETER, AND VITH BRY AIR TO REMOVE FILLINGS AFTER CUITING.
  - S. COMPONENTS SHALL BE INSTALLED VITH FROM ACCESS DALY TO ALLDV CONVENIENT REHOVAL.
    - 6. NPT CONNECTIONS TO COMPONENTS SHALL BE MADE VITH TEFLON TAPE.
- 7. TUBING SHALL TERMINATE AT BULKHEAD FITTINGS.
  B. TUBING SHALL BE SUPPORTED TO PREVENT DAMAGE OMX. SPAN OF 3 FEET) BUT
  ALLION CONVENENT ACCESS FOR RENDYNCHYS.
  S. WHEN AM AMALYZER IS EQUIPPED VITH A SAMPLE PUMP, THE MALYZER SLIP STREAM
  RETURN MIST TIE-IN TO THE DISCHARGE SIDE OF THE SAMPLE SYSTEM EDUCTOR.

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