



# SPU

Oil Supply Pumping Units



## Features

- Pre-engineered for optimum performance
- Skid mounted and prepped
- Double basket inlet strainer
- Direct mounted TEFC C-flange motors
- Wear resistant pump internals for heavy/recycled oils
- Field adjustable oil discharge pressure
- Light and heavy/recycled oil versions available

## Benefits

- Easy field installation
- Long service life
- Change strainers for cleaning without shutting down oil supply flow
- Elimination of pump/motor alignment issues via direct connected pump
- Maintains constant oil supply pressure via field adjustable pressure control

## HAUCK MANUFACTURING COMPANY

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Hauck SPU Supply Pumping Units provide efficient, dependable delivery of fuel oil to furnaces, kilns, ovens, dryers, boilers, etc. Presized and completely assembled on a skid, the SPU units are ready for connection to on-site fuel supply and electrical power. Available in multiple sizes for light oil and for heavy/recycled oil to meet the requirements for most applications. Consult Hauck for special design supply pumping units including different flow capacities or dual pumps for enhanced oil supply system reliability.

Combustion Excellence Since 1888



## Hauck Manufacturing Company

# SPU

OIL SUPPLY PUMPING UNITS



## ADVANTAGES OF THE SPU

### **Pre-Engineered for Optimum Performance**

### **Easy Field Installation**

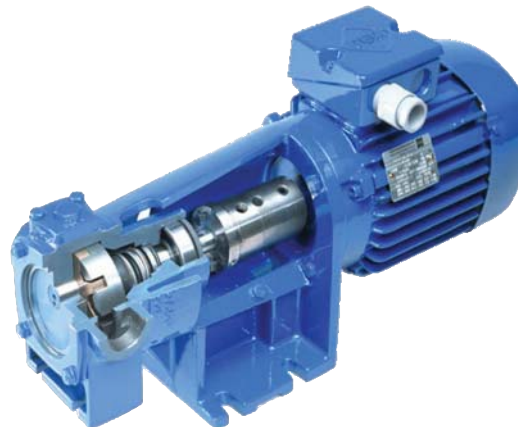
### **Long Service Life on Light and Heavy/Recycled Oils**

Hauck SPU oil supply pumping units provide efficient, dependable delivery of fuel oil to furnaces, kilns, ovens, dryers boilers, etc. Standard components are used to design an SPU system to each customer's exact requirements. All components are presized and selected for optimum performance. Possible problems (such as pump cavitation, excessive pressure drops, friction losses, etc.) resulting from mismatching or incorrect rating are avoided. SPU systems minimize startup and operating difficulties and reduce maintenance costs. Each unit is shipped completely assembled on a skid and interconnected with properly sized piping, fittings and required hardware, ready for connection to the on-site fuel supply and electrical power.

### **Construction**

Each SPU incorporates design simplicity and common components. Standard SPUs utilize a manual ball valve at the oil supply inlet to enable insulation for component maintenance. A double basket strainer contains stainless steel baskets with 1/16" (1.6 mm) openings to trap dirt and other foreign material present in the fuel oil to avoid clogging of downstream components such as pumps, control valves and burner nozzles. Fuel oil flow can be switched from one basket to the other to provide for uninterrupted fuel flow during cleaning of the idle basket.

A flexible hose is located at the inlet to the pump to accommodate piping expansion/contraction that occurs during various operating conditions. Each pump assembly consists of a TEFC C-flange motor that is direct mounted to the gear pump to eliminate alignment issues prevalent in coupled pump/motor units. Two specific pump designs are available for light oil and heavy/recycled oil. For the latter case, wear resistant pump internals and slower pump speeds are utilized to extend service life for the abrasive oil environment.



*Typical Gear Pump Cutaway*

A pressure relief valve, located in the return oil line, can be field adjusted to maintain the required oil supply pressure for the specific application. A check valve is located in the return oil line to prevent the unwanted reverse flow of oil. The SPU is mounted on a pan which will contain any oil leakage during operation or maintenance and prevent the unwanted discharge into the environment.

### **Operation**

A characteristic of each pump is the required net positive suction head (NPSH). This is the maximum amount of suction pressure (in absolute pressure) that the pump can develop without cavitation to lift the oil out of the tank and overcome pressure losses in the supply piping to the pump. The NPSH, also termed suction lift, varies based on pump design/size and fluid viscosity. However, for SPUs pumping fuel oil in the typical viscosity range from 40 to 2000 SSU ( $4.6 \times 10^{-6}$  to  $4.3 \times 10^{-4}$  m<sup>2</sup>/sec), the maximum value for priming SPU pumps is 7.2 psi (50 kPa) and when operating SPU pumps is 11.6 psi (80 kPa). To avoid issues that can occur with supply piping, Hauck recommends the use of sufficiently sized inlet piping and a flooded suction line.

### **Selection**

For Hauck asphalt burner applications, contact Hauck for the correct SPU that has been presized for each specific burner model. For other applications, determine the 1) type of fuel oil, 2) actual pumping viscosity, and 3) required discharge pressure prior to consulting Hauck for assistance in selection of the proper SPU.

For applications where the standard catalogued SPUs will not meet specific requirements, consult Hauck concerning specially designed SPUs, e.g., different flow capacities or dual pumps for enhanced oil supply reliability.



## SPU SUPPLY PUMPING UNIT LIGHT OIL

	Viscosity			
	40 SSU		90 SSU	
SPU Model No.	Discharge Pressure			
	50 psig	100 psig	50 psig	100 psig
	(gph)	(gph)	(gph)	(gph)
HD26-SK172/71L-1/2-860	218	188	226	206
GP26-56C-3/4-1200	308	286	313	298
GP26-56C-1-1800	477	455	482	468
GP33-145TC-1 1/2-1200	555	521	564	542
GP33-145TC-1 1/2-1800	860	826	869	847
GP41-145TC-1 1/2-1200	1,070	1,010	1,090	1,060
GP41-182TC-3-1800	1,670	1,610	1,690	1,650

**NOTES:**

1. Fuel oil flow capacities based on No. 2 fuel oil at a viscosity of 40 SSU and No. 4 fuel oil at a viscosity of 90 SSU with 60Hz power.
2. To calculate maximum Btu/hr throughput, multiply No. 2 fuel oil flow in gallons per hour (gph) by higher heating value (HHV) of 141,146 Btu/gal, or No. 4 fuel oil flow in gph by HHV of 146,130 Btu/gal.
3. For applications where catalogued flow capacities do not meet specific requirements, consult Hauck for information on special design supply pumping units.
4. SPU Model No. designators are as follows: Pump Model – Motor Frame – Motor HP – Pump RPM.

(See Reverse Side for Metric Capacities)

In accordance with Hauck's commitment to Total Quality Improvement, Hauck reserves the right to change the specifications of products without prior notice.



## SPU SUPPLY PUMPING UNIT HEAVY/RECYCLED OIL

	Viscosity			
	90 SSU		2000 SSU	
SPU Model No.	Discharge Pressure			
	50 psig	100 psig	50 psig	100 psig
	(gph)	(gph)	(gph)	(gph)
GP26-182TC-1-900	228	214	236	231
GP26-145TC-1-1200	313	298	321	315
GP33-182TC-1-900	412	390	425	417
GP33-184TC-2-1200	565	542	578	570
GP41-184TC-2-900	795	756	829	816
GP41-213TC-3-1200	1,100	1,060	1,130	1,110
HD51-184TC-5-930	1,900	1,790	1,990	1,960

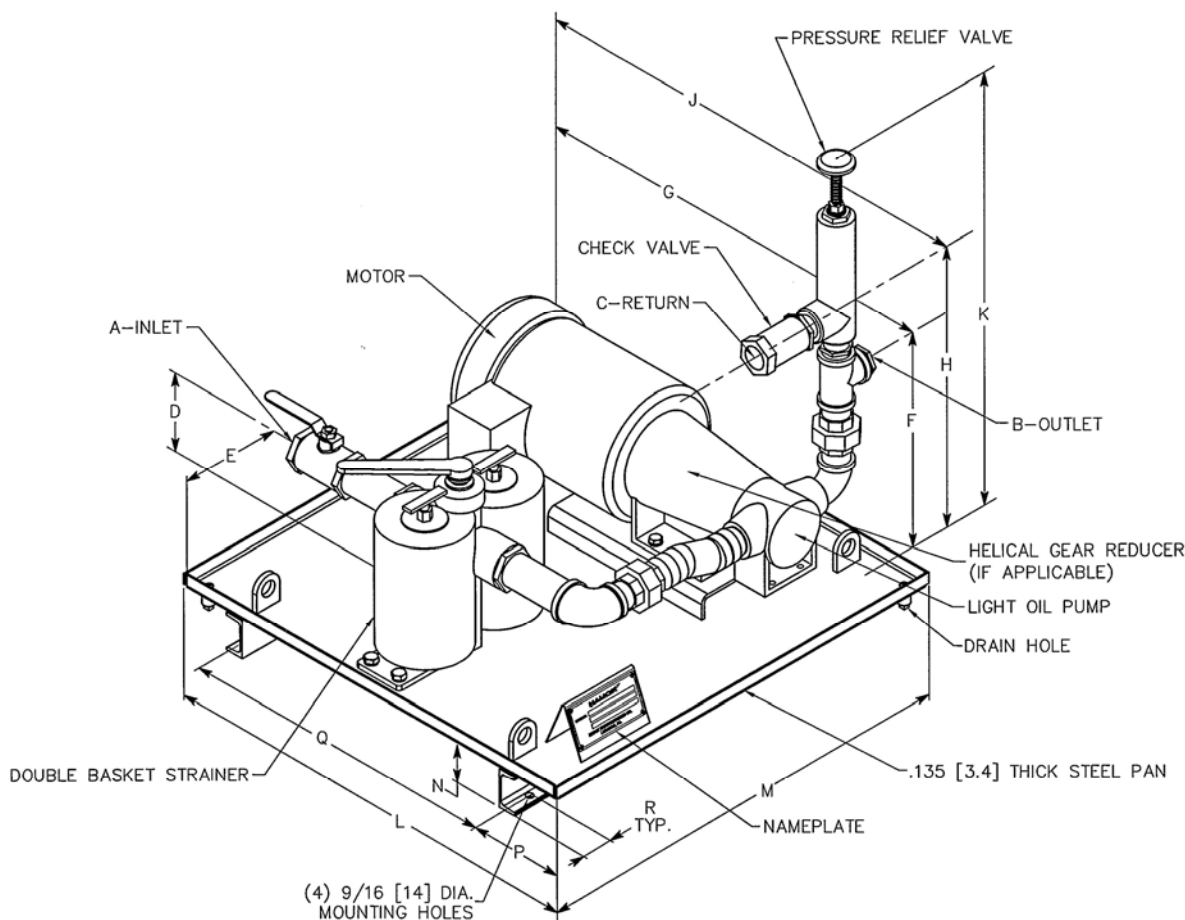
**NOTES:**

1. Fuel oil flow capacities based on No. 5, No.6, or recycled fuel oil heated to a viscosity of 90 SSU, and No.6 fuel oil at or heated to a viscosity of 2000 SSU with 60Hz power.
2. To calculate maximum Btu/hr throughput, multiply No. 5 fuel oil flow in gallons per hour (gph) by higher heating value HHV of 149,943 Btu/gal, or No. 6 fuel oil flow in gph by HHV of 157,174 Btu/gal or recycled oil flow in gph by HHV from fuel supplier.
3. Supply pumping units for heavy/recycled oil have special wear resistant internals not found in supply pumping units for light oil.
4. For applications where catalogued flow capacities do not meet specific requirements, consult Hauck for information on special design supply pumping units.
5. SPU Model No. designators are as follows: Pump Model – Motor Frame – Motor HP – Pump RPM.

(See Reverse Side for Metric Capacities)

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## SPU SUPPLY PUMPING UNITS LIGHT OIL



### NOTE:

1. ALL DIMENSIONS ARE IN INCHES [MM]; PIPE CONNECTIONS ARE IN NPT [DN].
2. ALL VERTICAL DIMENSIONS REFERENCED FROM TOP SURFACE OF PAN;  
ALL HORIZONTAL DIMENSIONS REFERENCED FROM OUTSIDE SURFACE OF PAN.
3. DO NOT USE FOR CONSTRUCTION PURPOSES; CERTIFIED DRAWINGS AVAILABLE AT TIME OF SHIPMENT.

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DIMENSIONS, LIGHT OIL

MODEL NO.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
SPU-HD26-SK172/71L-1/2-860	1 NPT	1 NPT	3/4 NPT	5	8 3/8	14 1/8	27 1/2	18 7/8	27 1/2	26 7/8	34	34	3	5 1/4	23 5/8	2
SPU-GP26-56C-3/4-1200	1 NPT	1 NPT	3/4 NPT	5	8 3/8	14 3/8	27 1/2	19	27 1/2	26 7/8	34	34	3	4 1/2	25	2
SPU-GP26-56C-1-1800	1 NPT	1 NPT	3/4 NPT	5	8 3/8	14 3/8	27 1/2	19	27 1/2	26 7/8	34	34	3	4 1/2	25	2
SPU-GP33-145TC-1 1/2-1200	1 1/4 NPT	1 NPT	1 NPT	6 13/16	8 3/4	15 7/8	28 1/2	20 7/8	28 1/2	28 1/8	34	34	3	5 1/4	23 5/8	2
SPU-GP33-145TC-1 1/2-1800	1 1/4 NPT	1 NPT	1 NPT	6 13/16	8 3/4	16 5/8	27 3/8	21 5/8	27 3/8	28 7/8	34	34	3	4 1/2	25	2
SPU-GP41-145TC-1 1/2-1200	2 NPT	1 1/4 NPT	1 1/4 NPT	8 1/4	10 5/8	15 1/2	29 1/8	20 3/4	29 1/8	32 3/4	34	34	3	4 1/2	25	2
SPU-GP41-182TC-3-1800	2 NPT	1 1/4 NPT	1 1/4 NPT	8 1/4	10 5/8	15 1/2	29 1/8	20 3/4	29 1/8	32 3/4	34	34	3	4 1/2	25	2

METRIC DIMENSIONS, LIGHT OIL

MODEL NO.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
SPU-HD26-SK172/71L-1/2-860	DN 25	DN 25	DN 20	127	171	359	699	479	699	683	864	864	76	133	600	51
SPU-GP26-56C-3/4-1200	DN 25	DN 25	DN 20	127	184	365	699	483	699	683	864	864	76	114	635	51
SPU-GP26-56C-1-1800	DN 25	DN 25	DN 20	127	184	365	699	483	699	683	864	864	76	114	635	51
SPU-GP33-145TC-1 1/2-1200	DN 32	DN 25	DN 25	173	216	403	724	530	724	714	864	864	76	133	600	51
SPU-GP33-145TC-1 1/2-1800	DN 32	DN 25	DN 25	173	216	422	695	549	695	733	864	864	76	114	635	51
SPU-GP41-145TC-1 1/2-1200	DN 50	DN 32	DN 32	210	203	394	740	527	740	832	864	864	76	114	635	51
SPU-GP41-182TC-3-1800	DN 50	DN 32	DN 32	210	203	394	740	527	740	832	864	864	76	114	635	51

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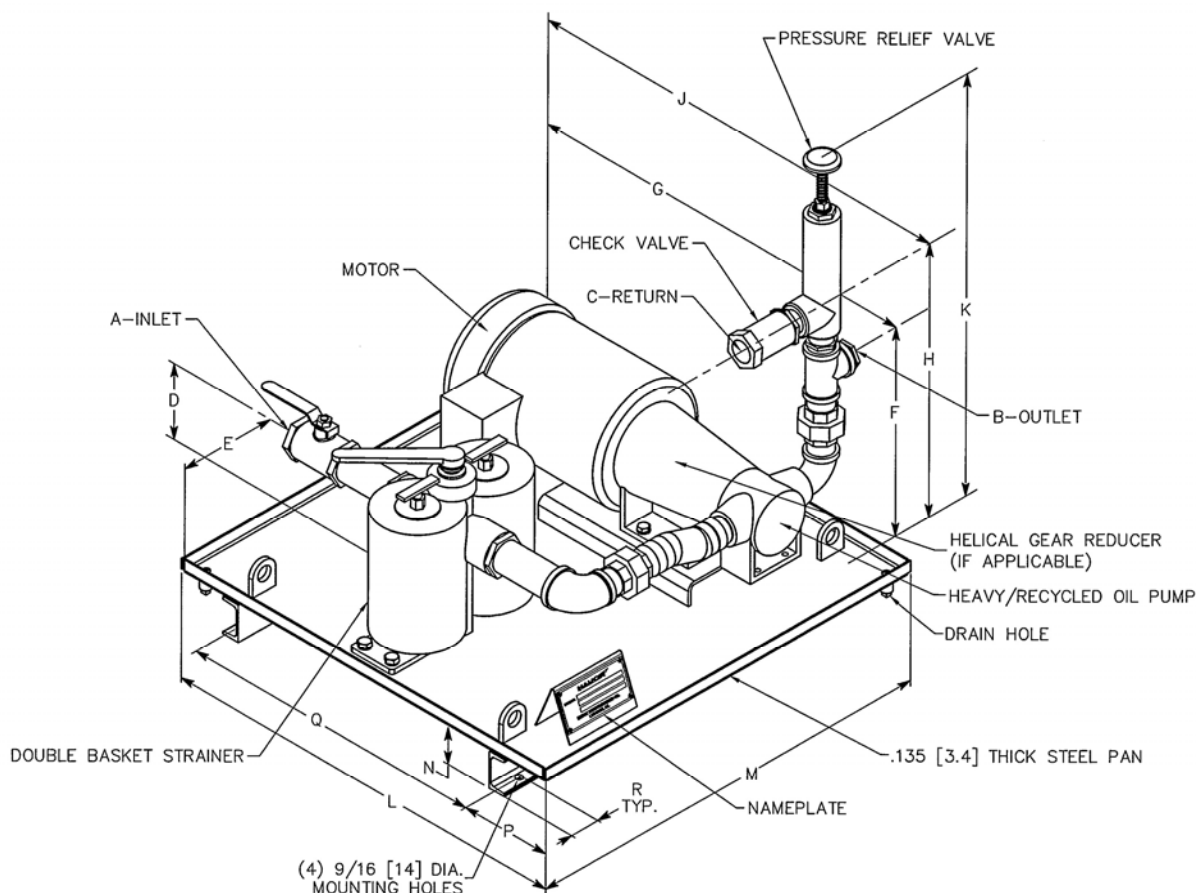
SPU-3

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# SPU SUPPLY PUMPING UNIT HEAVY/RECYCLED OIL



## NOTE:

1. ALL DIMENSIONS ARE IN INCHES [MM]; PIPE CONNECTIONS ARE IN NPT [DN].
2. ALL VERTICAL DIMENSIONS REFERENCED FROM TOP SURFACE OF PAN;  
ALL HORIZONTAL DIMENSIONS REFERENCED FROM OUTSIDE SURFACE OF PAN.
3. DO NOT USE FOR CONSTRUCTION PURPOSES; CERTIFIED DRAWINGS AVAILABLE AT TIME OF SHIPMENT.

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(NOT TO SCALE)

DIMENSIONS, RECYCLED OIL

MODEL NO.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
SPU-GP26-182TC-1-900	1 NPT	1 NPT	3/4 NPT	5	8 3/8	15 3/8	27 3/8	20 1/8	27 3/8	28 1/8	34	34	3	5 1/4	23 1/2	2
SPU-GP26-145TC-1-1200	1 NPT	1 NPT	3/4 NPT	5	8 3/8	14 3/8	27 1/2	19	27 1/2	26 7/8	34	34	3	4 1/2	25	2
SPU-GP33-182TC-1-900	1 1/4 NPT	1 NPT	1 NPT	6 13/16	8 3/4	16 5/8	28 1/2	21 5/8	28 1/2	28 7/8	34	34	3	5 1/4	23 1/2	2
SPU-GP33-184TC-2-1200	1 1/4 NPT	1 NPT	1 NPT	6 13/16	8 3/4	16 5/8	27 3/8	21 5/8	27 3/8	28 7/8	34	34	3	4 1/2	25	2
SPU-GP41-184TC-2-900	1 1/2 NPT	1 NPT	1 NPT	6 7/8	8 3/4	17 3/8	29 1/8	22 5/8	29 1/8	29 7/8	34	34	3	5 1/4	23 1/2	2
SPU-GP41.1-213TC-3-1200	1 1/2 NPT	1 NPT	1 NPT	6 13/16	8 3/4	17 3/8	29 3/16	22 5/8	29 3/16	29 7/8	34	34	3	4 1/2	25	2
SPU-GP41.2-213TC-3-1200	2 NPT	1 1/4 NPT	1 1/4 NPT	8 1/4	10 5/8	15 1/2	29 1/8	20 3/4	29 1/8	32 3/4	34	34	3	4 1/2	25	2
SPU-HD51-254TC-5-930	2 NPT	1 1/2 NPT	1 1/4 NPT	8 1/4	12 1/4	16 3/4	41 1/2	21 1/4	41 1/2	33 1/4	46	44	3	2	42	8

METRIC DIMENSIONS, RECYCLED OIL

MODEL NO.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R
SPU-GP26-182TC-1-900	DN 25	DN 25	DN 20	127	184	390	695	511	695	714	864	864	76	133	597	51
SPU-GP26-145TC-1-1200	DN 25	DN 25	DN 20	127	184	365	699	483	699	683	864	864	76	114	635	51
SPU-GP33-182TC-1-900	DN 32	DN 25	DN 25	173	216	422	724	549	724	733	864	864	76	133	597	51
SPU-GP33-184TC-2-1200	DN 32	DN 25	DN 25	173	216	422	695	549	695	733	864	864	76	114	635	51
SPU-GP41-184TC-2-900	DN 40	DN 25	DN 25	175	216	441	740	575	740	759	864	864	76	133	597	51
SPU-GP41.1-213TC-3-1200	DN 40	DN 25	DN 25	173	216	441	741	575	741	759	864	864	76	114	635	51
SPU-GP41.2-213TC-3-1200	DN 50	DN 32	DN 32	210	203	394	740	527	740	832	864	864	76	114	635	51
SPU-HD51-254TC-5-930	DN 50	DN 40	DN 32	210	308	425	1054	540	1054	845	1168	1118	76	51	1067	203

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## SUPPLEMENTAL DATA

**SPU SUPPLY PUMPING UNIT  
LIGHT OIL SELECTION FOR ASPHALT BURNERS****ECO-STAR BURNERS**

BURNER			SPU	
Model No.	Capacity (MM Btu/hr)	Light Oil Flow (gph)	Model No.	Light Oil Flow (gph)
ES 25	25	177	GP26-56C-3/4-1200	286
50	50	354	GP26-56C-1-1800	455
ESII 75	75	531	GP33-145TC-1 1/2-1800	826
100	100	708	GP33-145TC-1 1/2-1800	826
125	125	886	GP41-145TC-1 1/2-1200	1,010
150	150	1,060	GP41-182TC-3-1800	1,610
175	175	1,240	GP41-182TC-3-1800	1,610
200	200	1,420	GP41-182TC-3-1800	1,610

**STARJET BURNERS**

BURNER			SPU	
Model No.	Capacity (MM Btu/hr)	Light Oil Flow (gph)	Model No.	Light Oil Flow (gph)
SJ 075	15.2	108	HD26-SK172/71L-1/2-860	188
150	27.9	198	GP26-56C-3/4-1200	286
200	40.5	287	GP26-56C-1-1800	455
260	49.3	349	GP26-56C-1-1800	455
360	75.6	536	GP33-145TC-1 1/2-1800	826
520	96.8	686	GP33-145TC-1 1/2-1800	826
580	120	850	GP41-145TC-1 1/2-1200	1,010
750	150	1,060	GP41-182TC-3-1800	1,610
980	200	1,420	GP41-182TC-3-1800	1,610

## NOTES:

1. Burner capacities based on No. 2 fuel oil at a HHV of 141,146 Btu/gal, 35% excess air, and a stoichiometric ratio of 1371.1 ft<sup>3</sup> air/gal No. 2 fuel oil.
2. SPU light oil flows based on No. 2 fuel oil at a viscosity of 40 SSU, and pump discharge pressure of 100 psig.

(See Reverse Side for Metric Data)

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**SUPPLEMENTAL DATA****SPU SUPPLY PUMPING UNIT  
HEAVY/RECYCLED OIL  
SELECTION FOR ASPHALT BURNERS****ECO-STAR BURNERS**

BURNER			SPU	
Model No.	Capacity (MM Btu/hr)	Heavy/Recycled Oil Flow (gph)	Model No.	Heavy/Recycled Oil Flow (gph)
ES 25	25	159	GP26-145TC-1-1200	298
50	50	318	GP33-184TC-2-1200	542
ESII 75	75	477	GP41.1-213TC-3-1200	1,060
100	100	636	GP41.1-213TC-3-1200	1,060
125	125	795	GP41.2-213TC-3-1200	1,060
150	150	954	HD51-184TC-5-930	1,790
175	175	1,110	HD51-184TC-5-930	1,790
200	200	1,270	HD51-184TC-5-930	1,790

**STARJET BURNERS**

BURNER			SPU	
Model No.	Capacity (MM Btu/hr)	Heavy/Recycled Oil Flow (gph)	Model No.	Heavy/Recycled Oil Flow (gph)
SJ 075	15.2	101	GP26-182TC-1-900	214
150	27.9	186	GP26-145TC-1-1200	298
200	40.5	270	GP33-184TC-2-1200	542
260	49.3	329	GP33-184TC-2-1200	542
360	75.6	504	GP41.1-213TC-3-1200	1,060
520	96.8	646	GP41.1-213TC-3-1200	1,060
580	120	800	GP41.2-213TC-3-1200	1,060
750	150	1,000	HD51-184TC-5-930	1,790
980	200	1,330	HD51-184TC-5-930	1,790

**NOTES:**

1. Burner capacities based on No. 5 fuel oil at a HHV of 149,943 Btu/gal, 35% excess air, and a stoichiometric ratio of 1464.8 ft<sup>3</sup> air/gal No. 5 fuel oil.
2. SPU heavy/recycled oil flows based on fuel oil at a viscosity of 90 SSU, and pump discharge pressure of 100 psig.

(See Reverse Side for Metric Data)

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