FABRICATED VERTICAL BASKET STRAINERS



AITKEN

A DBM GLOBAL COMPANY

AITKENMFG.COM
SALES@AITKENMFG.COM
O: (281) 441-5438
F: (713) 699-5186

BREAKING THE MOLD

For over 80 years Aitken has partnered with clients to engineer and manufacture equipment solutions for their critical projects. Having earned trust from some of industry's iconic brands, it is our experience, expertise and willingness to challenge the norm that helps our clients, big and small, thrive.

Our team is crafted with people that drive innovation by thinking without limits. This allows us to be highly responsive to evolving needs throughout a project, manage tight fabrication schedules and maintain quality control timing to deliver products on time.

KEY PRODUCT CATEGORIES

Over the years, we have become known for working alongside our clients in helping to clearly identify the challenge so our engineering department can design custom solutions. When a more standardized product is needed, our catalogue offers a wide range of products that service heavy industrial industries. Products are available in carbon steel and most alloys ranging in size up to 72" and beyond.'

- Plate Products
- Flow Products
- Pressure Vessels
- Metering Products

AREAS OF EXPERTISE



Engineering Design
Inhouse PE and application engineers with direct experience with parts



Customization
Solution-focused designs



Specialty welding
450+ welding procedures for ferrous and exotic metals



Material Sourcing
Domestic and international



Fabrication
Advanced FEA and CFD capabilities



Field Installation
Access to 1,000+ craft labor for larger installs

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CERTIFICATIONS

H S U U2

Strainers

The problem with unwanted material in pipelines is a never ending one. Whether the flowing material is water, oil, gas, paint, or a variety of food or chemical products, there is often present unwanted matter that can cause serious problems. Dirt, foreign matter or even clumps of the product itself, can clog or damage spray nozzles, pumps, turbine meters, or similar equipment.

Strainers are a solution to these problems. They prevent the passage of unwanted matter in the line that could cause damage or even ruin the product itself.

When compared to the cost of replacing damaged pumps, meters, etc., strainers are an inexpensive insurance policy.

Strainers are widely used in the following industries:

- Tank cars and trucks
- Ceramics
- Chemicals
- Electric power
- Food processing
- Marine
- Turbine meter service
- Pipeline
- Paint, ink & latex
- Pulp & paper
- Petroleum refining
- Pharmaceutical
- Process equipment
- Waste & water treatment
- Compressor stations
- Co-generation

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Vertical Basket Strainer

Model VBS

STANDARD STRAINER:
The strainer most widely accepted by all type of industry. The standard strainer design makes it the most economical style strainer. Minimum open area ratio is 3:1.

SUPER STRAINER:
The super strainer's larger body and basket design allows for more removable capacity and less frequent clean out intervals. Minimum open area ratio is 4:1.

MATERIAL SPECIFICATIONS:
Standard material of construction is carbon steel. Basket material is specified by the customer.
Other materials available in:
1 1/4 CR - 1/2 MO
5 CR - 1/2 MO
9 CR - 1 MO
304/304L SS
316/316L SS
Monel
Other alloys-reviewed on an individual basis.

DIMENSIONAL DATA:
See following pages.

PRESSURE DROP INFORMATION:
See pressure drop charts.

RECOMMENDED SPARE PARTS:
1. Basket
2. Gaskets for access opening
3. O-rings for quick opening access closures

OPTIONS:
1. Quick opening closures
2. Pressure tap connections
3. Vents
4. Continuous slot-opening wedge wire basket
5. Davit for access blind flange
6. Flat top basket for offset nozzles
7. Self-flushing slowdown basket
8. Turbine meter strainer
9. Legs/skirt

DESIGN CODE(S) / STANDARDS:
Standard design and fabrication per ASME B31.3
other codes available are:
ASME 31.1
ASME B31.4
ASME B31.8
ASME pressure vessel and boiler code, section VIII, Div. 1
DOT
NACE
MDMT required for ASME B31.3 and section VIII design.

PAINT / COATINGS:
Provided with external SP-3 mechanical tool cleaning and one coat of shop primer or as specified by customer.

Optional paint/coating is available per customer/ project specifications.

MODEL NUMBER FOR VERTICAL BASKET STRAINERS

Typical model number: 6 - 15 - 10 - VBS - X

Inlet / Outlet Size

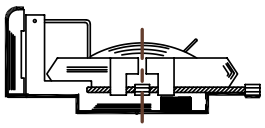
15 ANSI Class 150
30 ANSI Class 300
60 ANSI Class 600
90 ANSI Class 900
150 ANSI Class 1500
250 ANSI Class 2500

Body Size

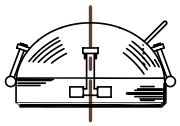
Specify other options required

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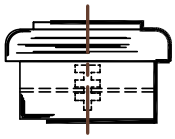
Strainer Options



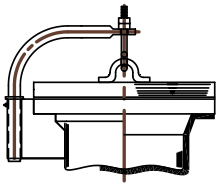
DOUBLE - BOLT CLOSURE



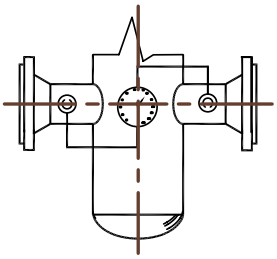
T-BOLT CLOSURE



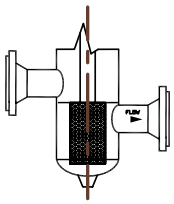
THREADED CLOSURE



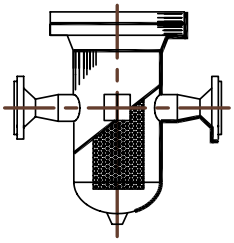
DAVIT FOR BLIND FLANGE



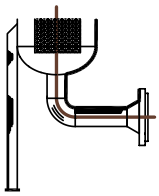
DIFFERENTIAL PRESSURE CONNECTIONS



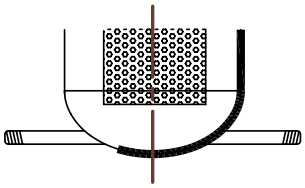
OFFSET NOZZLES



TURBINE METER STRAINER



LEG OR SKIRT W/ BOTTOM DRAIN

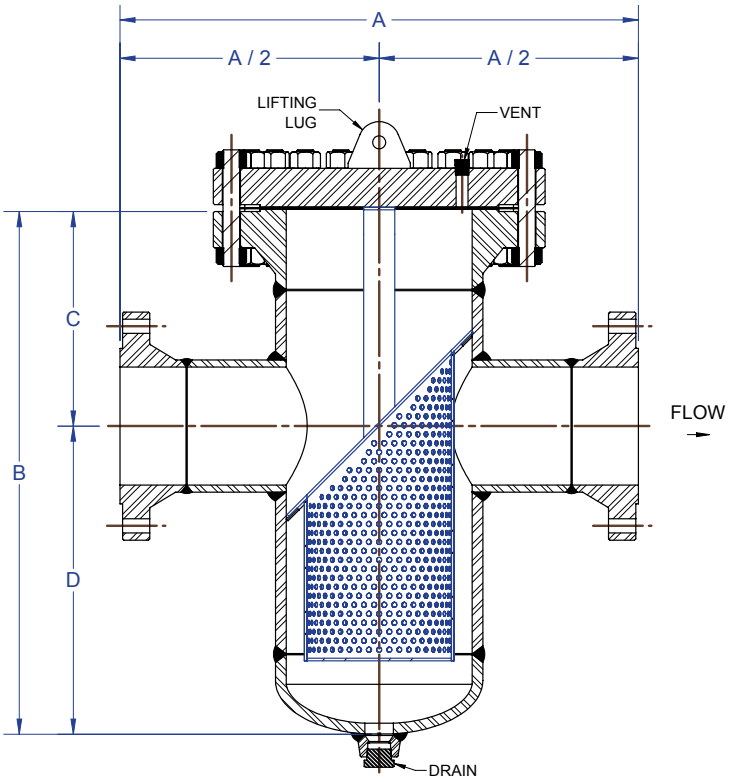


SIDE DRAIN

Note:
1. Modification of baskets for bi-directional flow available.
2. Custom options available upon request.

Vertical Basket Strainer

Model VBS
Standard



Note:
1. RTJWN flanges and vent connection options are also available.
2. Strainer face-to-face and height dimensions can be modified per customer specification.

+ CUSTOM SIZES AND RATINGS AVAILABLE UPON REQUEST

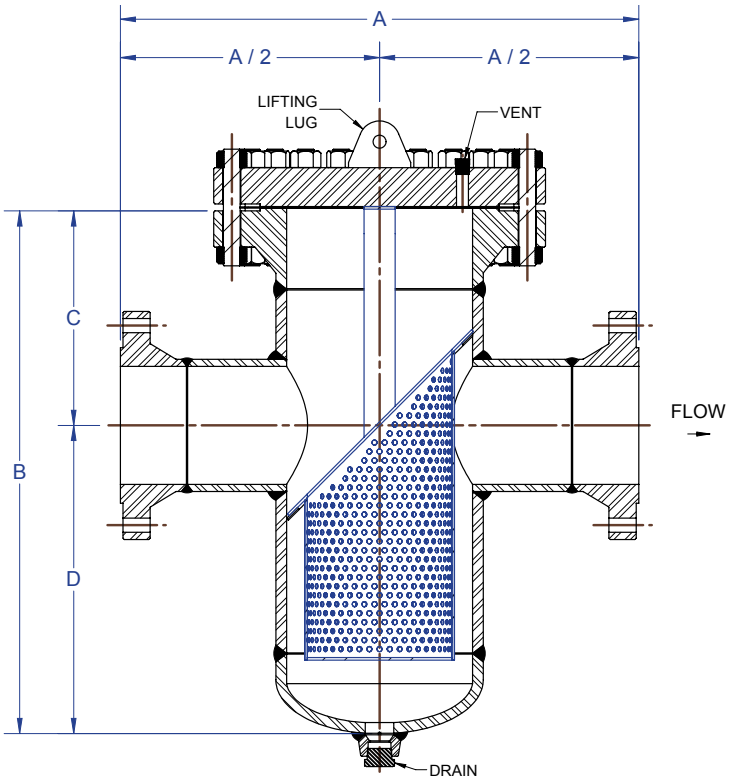
		DIMENSIONAL DATA (IN)						WT (LBS)		
NOZZLE SIZE (NPS)	VESSEL SIZE (NPS)	A	B*	C	D	OPEN AREA**	DRAIN SIZE	CLASS 150	CLASS 300	CLASS 600
2''	4''	19''	17''	9''	8''	589%	0.75''	70	100	135
2''	6''	22''	21''	9''	12''	1288%	0.75''	120	180	245
3''	6''	22''	21''	9''	12''	584%	0.75''	130	205	270
4''	8''	26''	25''	11''	14''	537%	0.75''	190	310	520
6''	10''	30''	31''	13''	18''	427%	0.75''	290	450	830
8''	12''	36''	36''	15''	21''	393%	1''	480	700	1,105
10''	16''	40''	42''	18''	24''	364%	1''	750	1,095	2,085
12''	18''	43''	49''	20''	29''	350%	1''	940	1,380	2,825
14''	20''	48''	51''	22''	29''	339%	2''	1,140	2,155	3,550
16''	20''	50''	51''	22''	29''	320%	2''	1,235	2,275	3,985
18''	24''	58''	67''	24''	43''	420%	2''	1,534	3,345	5,450
20''	24''	60''	67''	24''	43''	337%	2''	1,860	3,615	6,645
24''	30''	70''	83''	32''	51''	334%	2''	3,465	6,093	10,115

Dimensions for reference only. Certified drawings are available with order. *Also the recommended clearance for basket removal. **Ratio of the inlet ID area to basket open area. (Open area based on Class 150 with STD pipe schedule). Standard design and fabrication: ASME B31.3 (Other codes available). Larger sizes and higher ANSI ratings are also available.

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Vertical Basket Strainer

Model VBS
Super



Note:

1. RTJWN flanges, davit arm, quick opening closure, vent connections, differential pressure connections, flanged drain and support options are also available.
2. Strainer face-to-face and height dimensions can be modified per customer specification.

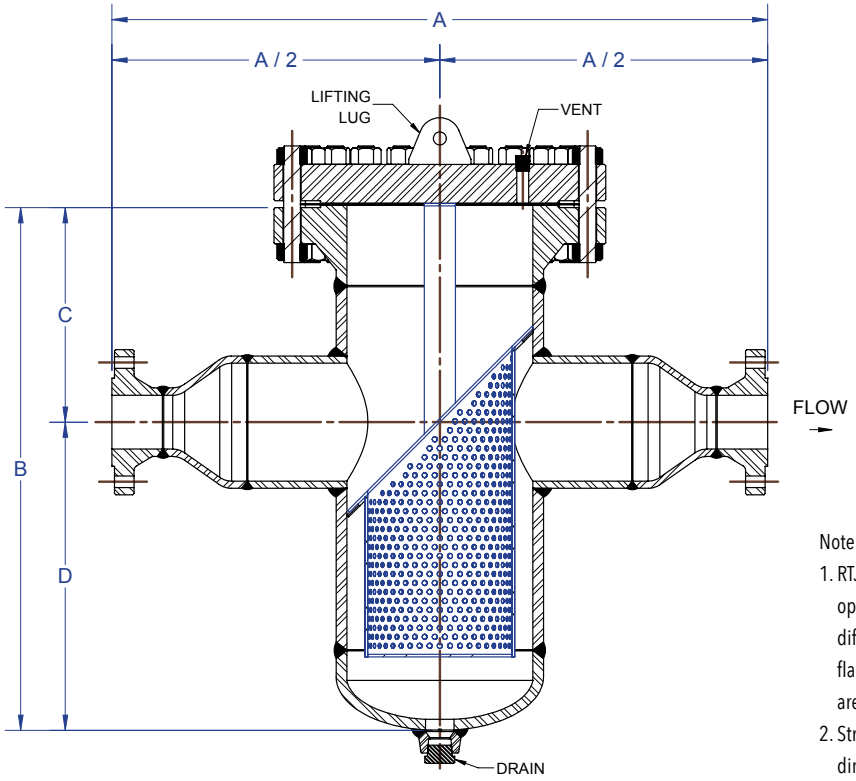
+ CUSTOM SIZES AND RATINGS AVAILABLE UPON REQUEST

		DIMENSIONAL DATA (IN)						WT (LBS)		
NOZZLE SIZE (NPS)	VESSEL SIZE (NPS)	A	B*	C	D	OPEN AREA**	DRAIN SIZE	CLASS 150	CLASS 300	CLASS 600
2''	8''	22''	23''	9''	14''	2038%	0.75''	152	215	415
3''	8''	22''	23''	9''	14''	925%	0.75''	168	235	438
4''	10''	26''	29''	11''	18''	970%	0.75''	254	420	705
6''	12''	30''	34''	13''	21''	681%	0.75''	376	650	1,045
8''	14''	36''	38''	15''	23''	515%	1''	518	885	1,425
8''	16''	36''	39''	15''	24''	574%	1''	604	1,025	1,910
10''	18''	40''	47''	18''	29''	592%	1''	787	1,265	2,600
12''	20''	43''	49''	20''	29''	413%	2''	1,030	2,030	3,350
14''	24''	48''	65''	22''	43''	711%	2''	1,492	3,120	5,025
16''	24''	50''	65''	22''	43''	537%	2''	1,534	3,345	5,450
18''	30''	58''	75''	24''	51''	607%	2''	2,990	4,950	8,250
20''	30''	60''	75''	24''	51''	488%	2''	3,125	5,326	8,780
24''	36''	70''	88''	32''	56''	432%	2''	4,760	8,550	12,700

Dimensions for reference only. Certified drawings are available with order. *Also the recommended clearance for basket removal.
**Ratio of the inlet ID area to basket open area. (Open area based on Class 150 with STD pipe schedule).
Standard design and fabrication: ASME B31.3 (Other codes available). Larger sizes and higher ANSI ratings are also available.

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Turbine Meter Vertical Basket Strainer



Note:

1. RTJWN flanges, davit arm, quick opening closure, vent connections, differential pressure connections, flanged drain and support options are also available.
2. Strainer face-to-face and height dimensions can be modified per customer specification.

+ CUSTOM SIZES AND RATINGS AVAILABLE UPON REQUEST

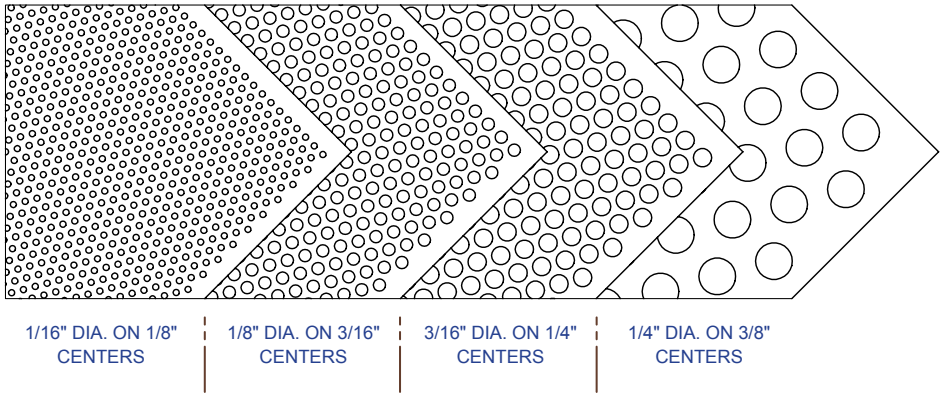
	DIMENSIONAL DATA (IN)								WT (LBS)		
NOZZLE SIZE (NPS)	VESSEL SIZE (NPS)	A	B*	C	D	OPEN AREA**	DRAIN SIZE	CLASS 150	CLASS 300	CLASS 600
3''/6''	10''	36''	31''	13''	18''	1670%	0.75''	264	320	452
4''/8''	12''	40''	36''	15''	21''	1547%	1''	353	431	515
6''/10''	16''	46''	42''	18''	24''	994%	1''	664	978	1,555
8''/12''	18''	51''	49''	20''	29''	935%	1''	1,057	1,454	2,185
10''/14''	20''	65''	51''	22''	29''	592%	2''	1,382	1,816	2,183
12''/18''	24''	71''	67''	24''	43''	867%	2''	2,193	2,430	4,383

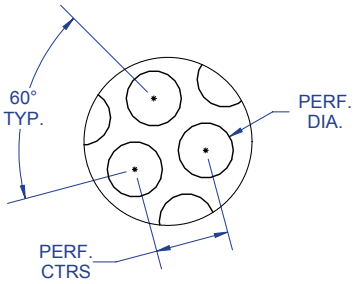
Dimensions for reference only. Certified drawings are available with order. *Also the recommended clearance for basket removal.
**Ratio of the inlet ID area to basket open area. (Open area based on Class 150 with STD pipe schedule).
Standard design and fabrication: ASME B31.3 (Other codes available). Larger sizes and higher ANSI ratings are also available.

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Base Material

Perforated





TYP. PERF. DETAIL

+ CUSTOM SIZES AVAILABLE UPON REQUEST

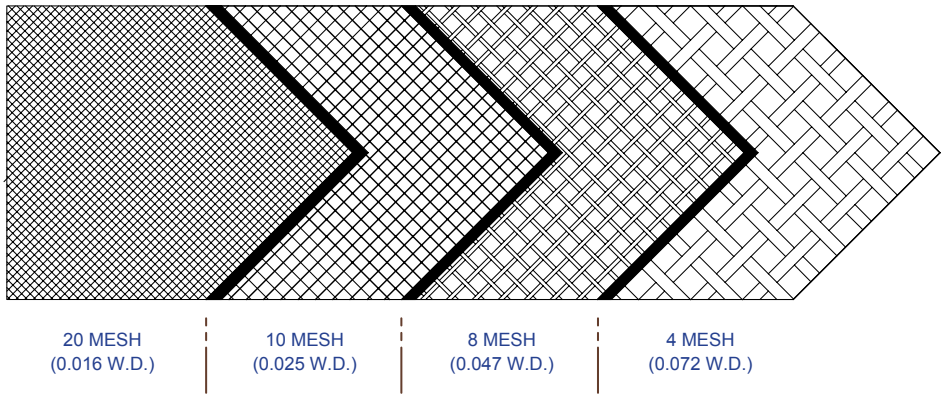
PERFORATED MATERIALS

GAGE	PERFORATIONS	HOLES / SQ IN	% OF OPEN AREA	MATERIAL RANGE
20	1/16''Ø on 1/8'' ctrs.	74.0	22.7%	Carbon Steel, 304SS, 316SS
16	1/8''Ø on 3/16'' ctrs.	33.0	40.3%	Carbon Steel, 304SS, 316SS 304L, 316L, Monel
16	3/16''Ø on 1/4'' ctrs.	18.5	51.0%	Carbon Steel, 304SS, 316SS
16	1/4''Ø on 3/8'' ctrs.	8.0	40.3%	Carbon Steel, 304SS, 316SS
14	1/8''Ø on 3/16'' ctrs.	33.0	40.3%	Carbon Steel, 304SS, 316SS
14	3/16''Ø on 1/4'' ctrs.	18.5	51.0%	Carbon Steel, 304SS, 316SS
14	1/4''Ø on 3/8'' ctrs.	8.0	40.3%	Carbon Steel, 304SS, 316SS
12	1/8''Ø on 3/16'' ctrs.	33.0	40.3%	Carbon Steel
11	1/8''Ø on 3/16'' ctrs.	33.0	40.3%	304SS, 316SS
11	1/4''Ø on 3/8'' ctrs.	8.0	40.3%	Carbon Steel, 304SS, 316SS

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Base Material

Wire Mesh Base
Wire Mesh Liner



+ CUSTOM SIZES AVAILABLE UPON REQUEST

WIRE MESH TYPE BASE MATERIAL

	WIRE DIAMETERS		WIDTH OF OPENING			
MESH	IN	MM	IN	MM	% OF OPENING	MATERIAL RANGE
2	0.063''	1.6	0.437''	11.10	76.4%	Carbon Steel, 304SS, 316SS
3	0.063''	1.6	0.270''	6.86	65.5%	Carbon Steel, 304SS, 316SS
4	0.063''	1.6	0.187''	4.75	56.0%	Carbon Steel, 304SS, 316SS
5	0.063''	1.6	0.137''	3.48	46.9%	Carbon Steel, 304SS, 316SS
6	0.047''	1.19	0.120''	3.50	51.8%	Carbon Steel, 304SS, 316SS
8	0.047''	1.19	0.078''	1.98	38.9%	Carbon Steel, 304SS, 316SS

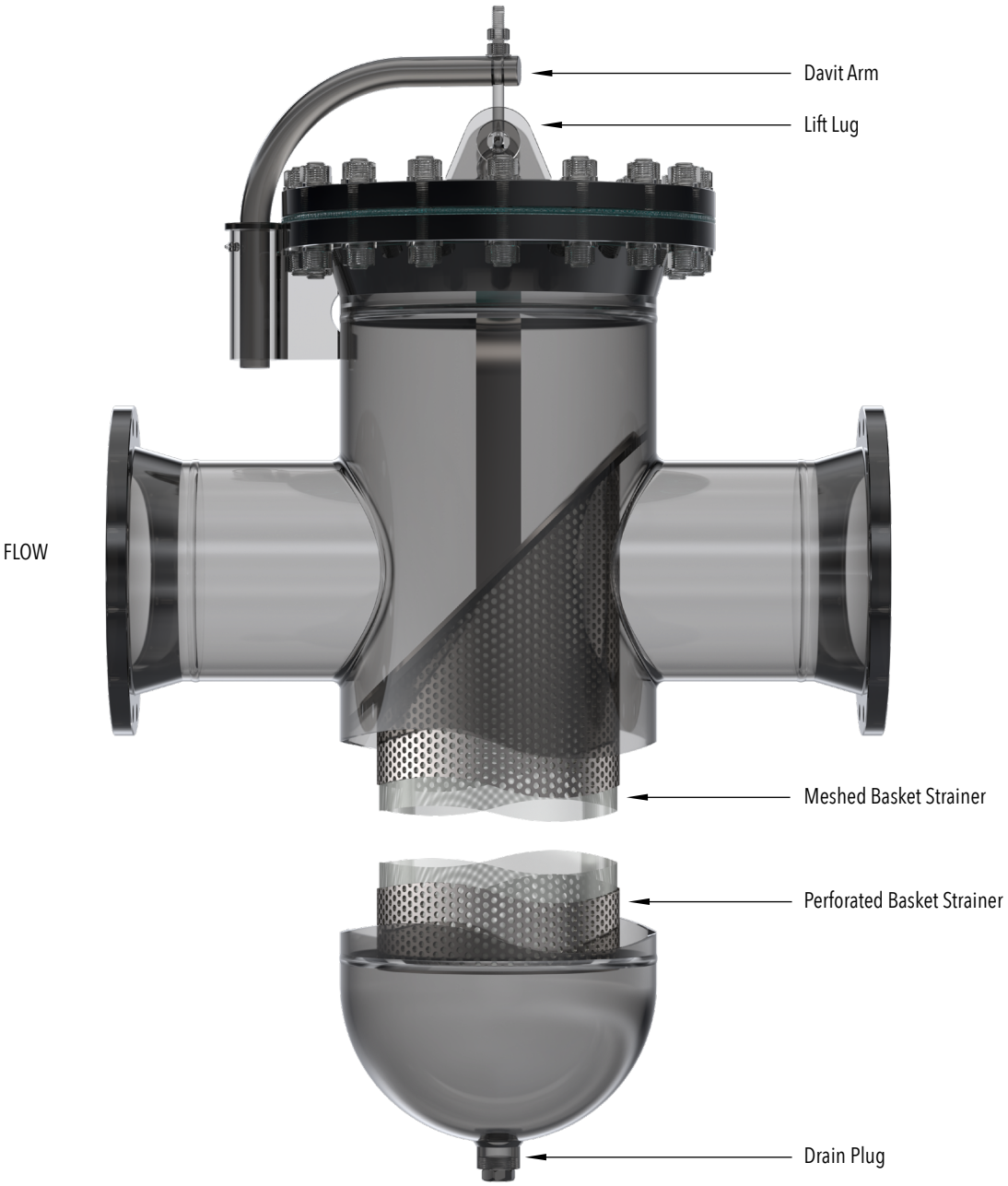
+ CUSTOM SIZES AVAILABLE UPON REQUEST

WIRE MESH LINER MATERIAL

	WIRE DIAMETERS		WIDTH OF OPENING			
MESH	IN	MM	IN	MM	% OF OPENING	MATERIAL RANGE
10	0.025''	0.640	0.075''	1.91	56.3%	304SS, 316SS
20	0.016''	0.406	0.034''	0.86	46.2%	304SS, 316SS
30	0.013''	0.330	0.020''	0.52	37.1%	304SS, 316SS
40	0.010''	0.254	0.015''	0.38	36.0%	304SS, 316SS
50	0.009''	0.229	0.011''	0.28	30.3%	304SS, 316SS
60	0.0075''	0.191	0.009''	0.23	30.5%	304SS, 316SS
80	0.0055''	0.140	0.007''	0.19	31.4%	304SS, 316SS
100	0.0045''	0.114	0.006''	0.14	30.3%	304SS, 316SS

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Vertical Basket Strainer



Vertical Basket Strainer

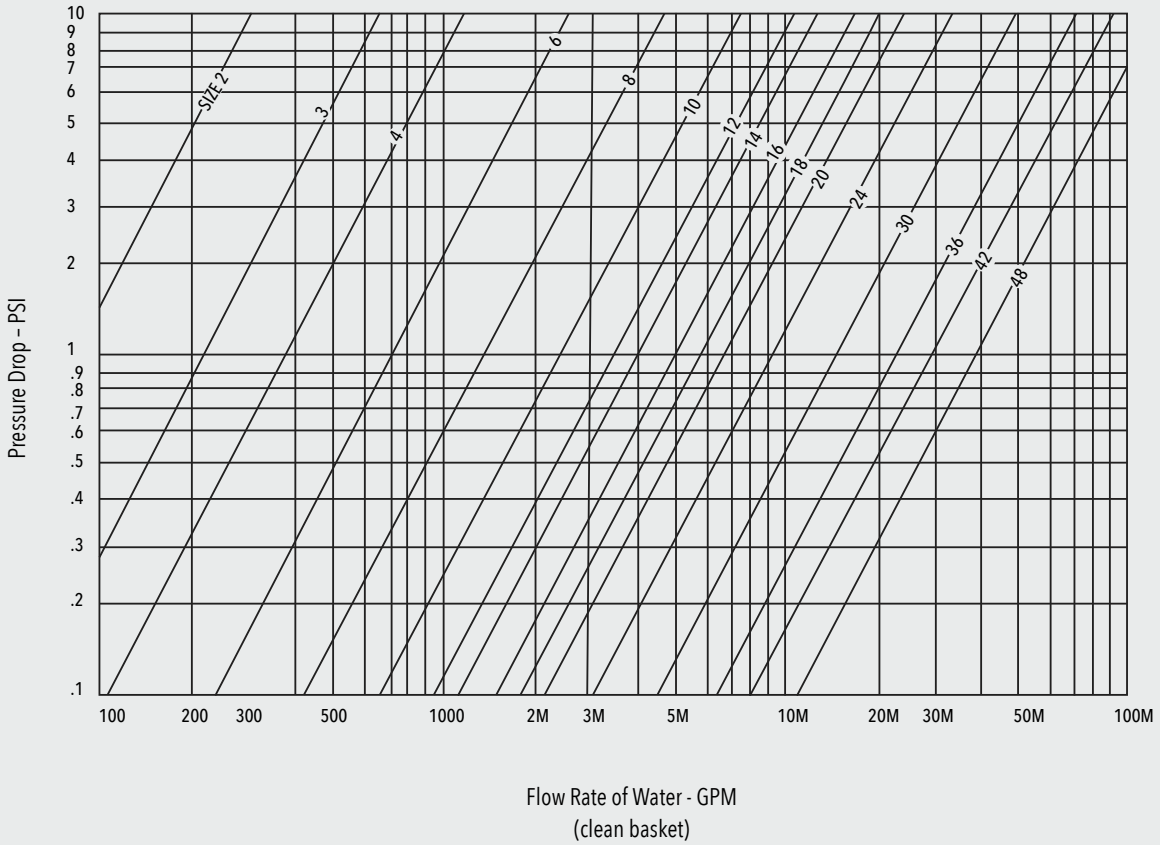
Pressure Drop
For Liquids

CORRECTION FACTOR:
For liquids more viscous than water or where wire cloth liner is added, multiply pressure in charts by:

VISCOSITY (SSU)	PERFORATED (1/8* HOLES)	PERFORATED W/ WIRE CLOTH		
		40 MESH	60 MESH	80 MESH
30	1	1.32	1.53	1.62
270	1.3	1.61	1.83	2
385	1.44	1.76	2	2.2
500	1.58	1.92	2.13	2.41
1000	1.66	2.22	2.41	2.63
2000	1.86	2.41	2.72	2.91

(Perforated basket 1/8" diameter holes on 3/16" centers)

PRESSURE DROP FOR LIQUIDS



REFERENCE INFO

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Standard English Conversion Tables

LENGTH

CONVERT FROM	CONVERT TO	MULTIPLY BY
Inches	Feet	0.083
Inches	Yards	0.028
Feet	Inches	12
Feet	Yards	0.333
Feet	Miles	0.000
Yards	Feet	3
Yards	Miles	0.001

AREA

CONVERT FROM	CONVERT TO	MULTIPLY BY
Sq inches	Sq feet	0.007
Sq inches	Sq yards	0.001
Sq feet	Sq inches	144
Sq feet	Sq yards	0.111
Sq yards	Sq inches	1,296
Sq yards	Sq feet	9
Sq yards	Acres	0.000
Acres	Sq feet	43,560

VOLUME

CONVERT FROM	CONVERT TO	MULTIPLY BY
Cu inches	Cu feet	0.001
Cu inches	Cu yards	0.000
Cu inches	US gal	0.004
Cu feet	Cu inches	1,728
Cu feet	Cu yards	0.037
Cu feet	US gal	7.481
Cu yards	Cu inches	46,656
Cu yards	Cu feet	27

WEIGHT

CONVERT FROM	CONVERT TO	MULTIPLY BY
Grains	Ounces	0.002
Ounces	Grains	437.5
Ounces	Pounds	0.063
Pounds	Ounces	16
Pounds	US tons	0.001
Pounds	Longtons	0.000
US tons	Pounds	2,000
Long tons	Pounds	2,240

SHEET INFORMATION

GAUGE	THICKNESS (IN)	WT/SQFT (LBS)
10	0.135	5.625
11	0.120	5
12	0.105	4.375
14	0.075	3
16	0.060	2.5
18	0.048	2
20	0.036	2
22	0.030	1
24	0.024	1

STEEL PLATE WEIGHT

THICKNESS (IN)	WT/SQFT (LBS)
3/16	7.66
1/4	10.21
5/16	12.76
3/8	15.32
1/2	20.42
5/8	25.53
3/4	30.63
7/8	35.74
1	40.84

DRILL SIZE FOR PIPE TAPS

NOMINAL PIPE SZ (IN)	TAP DRILL SZ (IN)	DECIMAL EQUIVALENT	NO OF THREADS PER IN	THREAD ENGAGEMENT
1/8	11/32	0.344	27	1/4
1/4	7/16	0.438	18	3/8
3/8	37/64	0.578	18	3/8
1/2	23/32	0.719	14	1/2
3/4	59/64	0.922	14	9/16
1	1 5/32	1.156	11.5	11/16
1 1/4	1 1/2	1.5	11.5	11/16
1 1/2	1 47/64	1.734	11.5	11/16

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Standard English Conversion Tables

CONVERSION OF LIQUID MEASURES AND WEIGHTS

TO CONVERT → / CONVERT FROM ↓	US GALLON	IMPERIAL GALLON	US PINT	US LB *H_2O	US CUBIC FT	US CUBIC IN	LITER	CUBIC METER
U.S. gallon	1	0.833	8	8.337	0.134	231	3.785	0.004
Imperial gallon	1.201	1	9.608	10	0.161	277.42	4.546	0.005
U.S. pint	0.125	0.104	1	1.042	0.017	28.875	0.473	0.000
U.S. pound *H20	0.120	0.1	0.960	1	0.016	27.708	0.454	0.000
U.S. cubic foot	7.481	6.229	59.844	62.365	1	1728	28.317	0.028
U.S. cubic inch	0.004	0.004	0.035	0.036	0.001	1	0.016	0.000
Liter	0.264	0.220	2.113	2.202	0.035	61.025	1	0.001
Cubic meter	264.17	219.969	2113.34	2202	35.314	61023.38	999.972	1

Water (H2O) @ 60˚F (15.6˚C) / 1 Barrel = 42 Gallons (Petroleum measure)

CONVERSIONS OF PRESSURE AND HEAD

TO CONVERT → / CONVERT FROM ↓	LB/IN2	LB/FT2	KG/CM2	KG/M2	IN *H2O	FT *H2O	IN **MERCURY	MM **MERCURY	†BAR	†MPA
Lb/In2	1	144	0.070	703.07	27.728	2.311	2.306	51 .715	0.069	0.007
Lb/Ft2	0.007	1	0.000	4.882	0.193	0.016	0.014	0.359	0.000	0.000
kg/cm2	14.223	2048.155	1	10000	394.38	32.865	28.959	735.559	0.981	0.098
kg/m2	0.001	0.205	0.000	1	0.039	0.003	0.003	0.074	0.000	0.000
In. *H2O	0.036	5.197	0.003	25.375	1	0.083	0.073	1.865	0.002	0.000
Ft. *H2O	0.433	62.321	0.030	304.275	12	1	0.881	22.381	0.030	0.003
In. **Mercury	0.491	70.726	0.035	345.316	13.619	1.135	1	25.400	0.034	0.003
Mm **Mercury	0.019	2.785	0.001	13.595	0.536	0.045	0.039	1	0.001	0.000
†Bar	14.504	2088.55	1.020	10197.2	402.156	33.513	29.53	750.062	1	0.1
†Mpa	145.038	20885.5	10.197	101972	4021 .56	335.13	295.3	7500.62	10	1

Water (H2O) @ 68˚F (20˚C) / **Mercury @ 32˚F (0˚C) / †Mpa (megapascal) = 10 Bar

CONVERSION OF FLOW RATES

TO CONVERT → / CONVERT FROM ↓	US GAL/MIN	IMP GAL/MIN	US MILLION GAL/DAY	CU FT /SEC (SEC-FT)	CU METERS / HOUR	LITERS / SEC	BARRELS (42 GAL/MIN)	BARRELS (42 GAL/DAY)
U.S. gal/min	1	0.833	0.001	0.002	0.227	0.063	0.024	34.286
Imp gal/min	1.201	1	0.002	0.003	0.273	0.076	0.029	41 .176
US Million gal/day	694.4	578.25	1	1.547	157.7	43.8	16.53	23810
Cu ft/sec	448.83	373.7	0.646	1	101 .9	28.32	10.686	15388
Cu m/sec	15852	13200	22.83	3535	3600	1000	377.4	-
Cu m/min	264.2	220	0.380	0.589	60	16.667	6.29	9058
Cu m/hr	4.403	3.67	0.006	0.009	1	0.278	0.105	151
Liters/sec	15.85	13.2	0.023	0.035	3.6	1	0.377	543.3
Liters/min	0.264	0.22	0.000	0.001	0.06	0.017	0.006	9.058
Barrels (42 gal)/min	42	34.97	0.061	0.094	9.538	2.65	1	1440
Barrels (42 gal)/day	0.029	0.024	0.000	0.000	0.007	0.002	0.001	1

To use above conversion charts, locate the unit to be converted in the left hand column. Then follow the conversion factors across the row for the desired conversion unit. Use this factor to multiply with your numerical value to convert. Example: Convert 5 psi to inches of water. From the Conversion of Pressure and Head Chart, 5 (psi) x 27.7276 (Conversion factor) = 138.638 inches of water.

AITKEN
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SI Units and Conversion Tables

LENGTH

CONVERT FROM	CONVERT TO	SI SYMBOL	MULTIPLY BY
Feet	Meter	m	0.030
Inch	Millimeter	mm	25.4
Microinches	Micrometer	µm	0.025
Statute miles	Kilometer	km	1.609

AREA

CONVERT FROM	CONVERT TO	SI SYMBOL	MULTIPLY BY
Sq inches	Sq millimeter	mm^2	645.163
Sq inches	Sq centimeter	cm^2	6.452
Sq inches	Sq meter	m^2	0.001
Sq feet	Sq meter	m^2	0.093
Acres	Hectare	ha	0.405

VOLUME

CONVERT FROM	CONVERT TO	SI SYMBOL	MULTIPLY BY
Cu inches	Cu millimeter	mm^3	16387
Cu inches	Cu centimeter	cm^3	16.387
Cu inches	Cu meter	m^3	0.000
Cu feet	Cu meter	m^3	0.028
Fluid ounce	Milliliter	mL	29.57
Quarts (US)	Liter	L	0.946
Gallons (US)	Liter	L	3.785

MASS

CONVERT FROM	CONVERT TO	SI SYMBOL	MULTIPLY BY
Pounds	Kilogram	kg	0.454
Ton (short)	Metric ton	t	0.907
Ton (long)	Metric ton	t	1.016

PRESSURE

CONVERT FROM	CONVERT TO	SI SYMBOL	MULTIPLY BY
lbs/in2	Pascal	Pa	6,895
lbs/in2	Kilopascal	kPa	6.895
lbs/in2	Megapascal	MPa	0.007
lbs/in2	Bar	Bar	0.069
Bar	Kilopascal	kPa	100
Millibar	Pascal	Pa	100

VELOCITY

CONVERT FROM	CONVERT TO	SI SYMBOL	MULTIPLY BY
Feet/Second	Meter/Second	m/s	0.305
Feet/Second	cm/sec	cm/sec	30.48
Feet/Minute	Meter/Second	m/s	0.005
Miles/Hour	Kilometer/Hour	km/h	1.609

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Conversion Temperature Tables

CONVERSION TEMPERATURE TABLE

°C		°F	°C		°F	°C		°F	°C		°F	°C		°F
-73.3	-100	-148	-3.3	26	78.8	21.1	70	158	110	230	446	354	670	1238
-67.8	-90	-130	-2.8	27	80.6	21.7	71	159.8	115	240	464	360	680	1256
-62.2	-80	-112	-2.2	28	82.4	22.2	72	161.6	121	250	482	365	690	1274
-59.5	-75	-103	-1.7	29	84.2	22.8	73	163.4	127	260	500	371	700	1292
-56.7	-70	-94	-1.1	30	86	23.3	74	165.2	132	270	518	376	710	1310
-53.9	-65	-85	-0.6	31	87.8	23.9	75	167	138	280	536	382	720	1328
-51.1	-60	-76	0	32	89.6	24.4	76	168.8	143	290	554	387	730	1346
-48.4	-55	-67	0.6	33	91.4	25	77	170.6	149	300	572	393	740	1364
-45.6	-50	-58	1.1	34	93.2	25.6	78	172.4	154	310	590	399	750	1382
-42.8	-45	-49	1.7	35	95	26.1	79	174.2	160	320	608	404	760	1400
-40	-40	-40	2.2	36	96.8	26.7	80	176	165	330	626	410	770	1418
-37.2	-35	-31	2.8	37	98.6	27.2	81	177.8	171	340	644	415	780	1436
-34.4	-30	-22	3.3	38	100.4	27.8	82	179.6	177	350	662	421	790	1454
-31.6	-25	-13	3.9	39	102.4	28.3	83	181.4	182	360	680	426	800	1472
-28.8	-20	-4	4.4	40	104	28.9	84	183.2	188	370	698	432	810	1490
-26.1	-15	5	5	41	105.8	29.4	85	185	193	380	716	438	820	1508
-23.3	-10	14	5.6	42	107.6	30	86	186.8	199	390	734	443	830	1526
-20.6	-5	23	6.1	43	109.4	30.6	87	188.6	204	400	752	449	840	1544
-17.8	0	32	6.7	44	111.2	31.1	88	190.4	210	410	770	454	850	1562
-17.2	1	33.8	7.2	45	113	31.7	89	192.2	215	420	788	460	860	1580
-16.7	2	35.6	7.8	46	114.8	32.2	90	194	221	430	806	465	870	1598
-16.1	3	37.4	8.3	47	116.6	32.8	91	195.8	226	440	824	471	880	1616
-15.6	4	39.2	8.9	48	118.4	33.3	92	197.6	232	450	842	476	890	1634
-15	5	41	9.4	49	120.2	33.9	93	199.4	238	460	860	482	900	1652
-14.4	6	42.8	10	50	122	34.4	94	201.2	243	470	878	487	910	1670
-13.9	7	44.6	10.6	51	123.8	35	95	203	249	480	896	493	920	1688
-13.3	8	46.4	11.1	52	125.6	35.6	96	204.8	254	490	914	498	930	1706
-12.8	9	48.2	11.7	53	127.4	36.1	97	206.6	260	500	932	504	940	1724
-12.2	10	50	12.2	54	129.2	36.7	98	208.4	265	510	950	510	950	1742
-11.7	11	51.8	12.8	55	131	37.2	99	210.2	271	520	968	515	960	1760
-11.1	12	53.6	13.3	56	132.8	37.8	100	212	276	530	986	520	970	1778
-10.6	13	55.4	13.9	57	134.6	43	110	230	282	540	1004	526	980	1796
-10	14	57.2	14.4	58	136.4	49	120	248	288	550	1022	532	990	1814
-9.4	15	59	15	59	138.2	54	130	266	293	560	1040	538	1000	1832
-8.9	16	60.8	15.6	60	140	60	140	284	299	570	1058	565	1050	1922
-8.3	17	62.6	16.1	61	141.8	65	150	302	304	580	1076	593	1100	2012
-7.8	18	64.4	16.7	62	143.6	71	160	320	310	590	1094	620	1150	2102
-7.2	19	66.2	17.2	63	145.4	76	170	338	315	600	1112	648	1200	2192
-6.7	20	68	17.8	64	147.2	83	180	356	321	610	1130	675	1250	2282
-6.1	21	69.8	1,8.3	65	149	88	190	374	326	620	1148	704	1300	2372
-5.6	22	71.6	18.9	66	150.8	93	200	392	332	630	1166	734	1350	2462
-5	23	73.4	19.4	67	152.6	99	210	410	338	640	1184	760	1400	2552
-4.4	24	75.2	20	68	154.4	100	212	413	343	650	1202	787	1450	2642
-3.9	25	77	20.6	69	156.2	104	220	428	349	660	1220	815	1500	2732

Example how to use table: Convert 70 degrees Fahrenheit to centigrade. Find your value (70) in the bold letters. To the left, under the column °C, is your conversion for centigrade. Answer: 70°F = 21.1 °C Note, for converting centigrade to Fahrenheit the same procedure would be used, except you would go to the right hand column for degrees Fahrenheit. Therefore, 70 degrees centigrade would equal to 158 degrees Fahrenheit.

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Specifications

MATERIAL SPECIFICATIONS

P-NO../GROUP NO.	NOMINAL STEEL DESIGNATION	FORGINGS (FLANGES, COUPLINGS, WELDOLETS, ETC)	WROUGHT FITTINGS (ELBOWS, REDUCERS, TEES, WELD CAPS, ETC)	PIPE	PLATE	REMARKS
1/1	Carbon	SA-105	SA-234-WPB	SA-106-B	SA-516-70 or SA-36	SA-36 for Non-pressure retaining parts
		SA-350-LF2	SA-420-WPL6	SA-333 Gr. 6	SA-516-70	Cold Temperature Service
4/1	1Cr - 1/2Mo	SA-182-F12	SA-234-WP12	SA-335-P12	SA-387-12	Alloy Steel
	1 1/4Cr - 1/2Mo	SA-182-F11	SA-234-WP11	SA-335-P11	SA-387-11	-
5A/1	2 1/4Cr - 1/2Mo	SA-182-F22	SA-234-WP22	SA-335-P22	SA-387-22	Alloy Steel
5B/1	5Cr - 1/2Mo	SA-185-F5	SA-234-WP5	SA-335-P5	SA-387-5	Alloy Steel
	9Cr - 1 Mo	SA-182-F9	SA-234-WP9	SA-335-P9	SA-387-9	-
8/1	18Cr - 8Ni	SA-182-F304	SA-403-WP304	SA-312-TP304	SA-240-304	Stainless Steel
	18Cr - 8Ni	SA-182-F304H	SA-403-WP304H	SA-312-TP304H	SA-240-304H	-
	16Cr - 12Ni - 2Mo	SA-182-F316	SA-403-WP316	SA-312-TP316	SA-240-316	Stainless Steel
	16Cr - 12Ni - 2Mo	SA-182-F316H	SA-403-WP316H	SA-312-TP316H	SA-240-316H	-
	18Cr - 8 Ni	SA-182-F304L	SA-403-WP304L	SA-312-TP304L	SA-240-304L	Low Carbon Stainless Steel
	16Cr - 12Ni - 2Mo	SA-182-F316L	SA-403-WP316L	SA-312-TP316L	SA-240-316L	Low Carbon Stainless Steel
43	67Ni - 30Cu	SB164		SB-165	SB-127	Money
45	35Ni-35Fe-20Cr-Cb	SB-462	SB-366	SB-729	SB-463	Alloy 20

BOLTING MATERIAL SPECIFICATION

MATERIAL	SPECIFICATION	DESCRIPTION	REMARKS
Carbon Steel	SA-193-B7	Stud	-
Carbon Steel	SA-194-2H	Nut	-
Carbon Steel	SA-193-B7M	Stud	Nace
Carbon Steel	SA-194-2HM	Nut	Nace
Carbon Steel	SA-320-L7	Stud	Low Temp. Service (-150°F)
Carbon Steel	SA-194-4	Nut	Low Temp. Service (-150°F)
304 Stainless Steel	SA-193-B8	Stud	-
304 Stainless Steel	SA-194-8	Nut	-
316 Stainless Steel	SA-193-B8M	Stud	-
316 Stainless Steel	SA-194-8M	Nut	-

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Gravity and Density

EQUIVALENTS OF API GRAVITY, BAUME GRAVITY, SPECIFIC GRAVITY, AND WEIGHT DENSITY AT 60°F / 60°F

API GRAVITY	BAUME GRAVITY	SPECIFIC GRAVITY(G)	WT DENSITY (LB/FT³)
6	4.099	1.029	64.18
8	2.049	1.014	63.26
10	10.00	1.000	62.37
12	11.98	0.986	61.50
14	13.96	0.973	60.65
16	15.94	0.959	59.83
18	17.92	0.947	59.03
20	19.89	0.934	58.25
22	21.87	0.922	57.87
24	23.85	0.910	56.75
26	25.83	0.898	56.03
28	27.81	0.887	55.32
30	29.79	0.876	54.64
32	31.77	0.865	53.97
34	33.75	0.855	53.32
36	35.72	0.845	52.69
38	37.70	0.835	52.06
40	39.68	0.825	51.46
42	41.66	0.816	50.86
44	43.64	0.806	50.28
46	45.62	0.797	49.72
48	50.60	0.788	49.16
50	50.58	0.780	48.62
52	51.55	0.771	48.09

API GRAVITY	BAUME GRAVITY	SPECIFIC GRAVITY(G)	WT DENSITY (LB/FT³)
54	53.53	0.763	47.57
56	55.51	0.755	47.07
58	57.49	0.747	46.57
60	59.47	0.739	46.08
62	61.45	0.731	45.61
64	63.43	0.724	45.14
66	65.41	0.717	44.68
68	67.39	0.709	44.23
70	69.36	0.702	43.79
72	71.34	0.695	43.36
74	73.32	0.689	42.94
76	75.30	0.682	42.53
78	77.28	0.675	42.12
80	79.26	0.669	41.72
82	81.24	0.663	41.33
84	83.22	0.657	40.95
86	85.19	0.651	40.57
88	87.17	0.645	40.20
90	89.15	0.639	39.84
92	91.13	0.633	39.48
94	93.11	0.628	39.13
96	95.09	0.622	38.79
98	97.07	0.617	38.45
100	99.05	0.611	38.12

The above table is based on the weight of oil @ 60°F in air to the same weight of water @ 60°F in air.
The relation of Degrees Baume' or API to Specific Gravity is expressed by the following formulas:

For liquids lighter than water
Degrees Baume' = 140/G - 130
Degrees A.P.I. = 141.5/G - 131.5

For liquids heavier than water:
Degrees Baume' = 145 - 145/G

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Hardness Conversion

BRINELL 10mm Ball 3000 kg Dia of impression	BRINELL	ROCKWELL C Brale 150 kg Load	ROCKWELL A Brale 60 kg Load	ROCKWELL B 1/4" Brale 100 kg Load	SHORE SCIEROSCOPE
-	-	80	92	-	-
-	-	79	91 .5	-	-
-	-	78	91	-	-
-	-	77	90.5	-	-
-	-	76	90	-	-
-	-	75	89.5	-	-
-	-	74	89	-	-
-	-	73	88.5	-	-
-	-	72	88	-	-
-	-	71	87	-	-
2.2	780	70	86.5	-	106
-	760	69	86	-	103
2.25	745	68	85.5	-	100
-	725	67	85	-	97
2.3	712	66	84.5	-	95
-	697	65	84	-	93
2.35	682	64	83.5	-	91
-	668	63	83	-	89
2.4	653	62	82.5	-	87
-	640	61	81.5	-	86
2.45	627	60	81	-	84
-	615	59	80.5	-	82
2.5	601	58	80	-	81
-	590	57	79.5	-	80
2.55	578	56	79	-	78
-	567	55	78.5	-	77
2.6	555	54	78	120	75
-	545	53	77.5	120	74
2.65	534	52	77	119	72
2.7	514	51	76.5	119	70
2.75	495	50	76	118	67
2.8	477	49	75.5	117	65
-	470	48	74.5	117	64
2.85	461	47	74	116	63
2.9	444	46	73.5	115	61
2.95	429	45	73	115	59
3	415	44	72.5	114	57
-	408	43	72	114	56
3.05	401	42	71 .5	113	55
3.1	388	41	71	112	54
3.15	375	40	70.5	111	52
3.2	363	39	70	111	51
3.25	352	38	69.5	110	49
-	346	37	69	110	48
3.3	341	36	68.5	109	47

BRINELL 10mm Ball 3000 kg Dia of impression	BRINELL	ROCKWELL C Brale 150 kg Load	ROCKWELL A Brale 60 kg Load	ROCKWELL B 1/4" Brale 100 kg Load	SHORE SCIEROSCOPE
3.35	331	35	68	109	46
3.4	321	34	67.5	108	45
3.45	311	33	67	108	44
3.5	302	32	66.5	107	43
3.55	293	31	66	106	42
3.6	285	30	65.5	105	40
3.65	277	29	65	104	39
3.7	269	28	64.5	104	38
3.75	262	27	64	103	38
-	258	26	63.5	102	37
3.8	255	25	63	102	37
3.85	248	24	62.5	101	36
3.9	241	23	62	101	35
-	238	22	61.5	100	34
3.95	235	21	61	99	34
4	229	20	60	98	33
4.05	223	-	59.5	97	32
4.1	217	-	59	96	31
4.15	212	-	58	95	31
4.2	207	-	57.5	94	30
4.25	202	-	57	93	30
4.3	197	-	56.5	92	29
4.35	192	-	56	91	28
4.4	187	-	55.5	90	28
4.45	183	-	55	89	27
4.5	179	-	54	88	27
4.55	174	-	53.5	87	26
4.6	170	-	53	86	26
4.65	166	-	52.5	85	25
4.7	163	-	52	84	25
4.75	159	-	Si	83	24
4.8	156	-	50.5	82	24
4.85	153	-	50	81	23
4.9	149	-	49.5	80	23
4.95	146	-	49	79	22
5	143	-	48.5	78	22
5.05	140	-	48	77	21
5.1	137	-	47	76	21
5.15	134	-	46.5	75	21
5.15	134	-	46	74	21
5.2	131	-	45.5	73	20
5.2	131	-	45	72	20
5.25	128	-	44.5	71	20
5.3	126	-	44	70	20
-	-	-	-	-	-

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Pipe Dimensions & Weights

NOMINAL PIPE SIZE	METRIC PIPE SIZE	OD (IN)	LEGEND	5S	5	10S	10	20	30	STD & 40S	40	60	XH & 80S	80	100	120	140	160	XXH
1/8	6	0.41	WT	-	0.035	0.049	0.049	-	0.057	0.068	0.068	-	0.095	0.095	-	-	-	-	-
			ID	-	0.335	0.307	0.307	-	0.291	0.269	0.269	-	0.215	0.215	-	-	-	-	-
			LBS/FT	-	0.138	0.19	0.19	-		0.24	0.24	-	0.31	0.31	-	-	-	-	-
1/4	8	W	WT	-	0.049	0.065	0.065	-	0.073	0.088	0.088	-	0.119	0.119	-	-	-	-	-
			ID	-	0.442	0.41	0.41	-	0.364	0.364	0.364	-	0.302	0.302	-	-	-	-	-
			LBS/FT	-	0.257	0.33	0.33	-	0.36	0.42	0.42	-	0.54	0.54	-	-	-	-	-
3/8	10	0.68	WT	-	0.049	0.065	0.065	-	0.073	0.091	0.091	-	0.126	0.126	-	-	-	-	-
			ID	-	0.577	0.545	0.545	-	0.529	0.493	0.493	-	0.423	0.423	-	-	-	-	-
			LBS/FT	-	0.328	0.42	0.42	-	0.47	0.57	0.57	-	0.74	0.74	-	-	-	-	-
1/2	15	0.84	WT	0.065	0.065	0.083	0.083	-	0.95	0.109	0.109	-	0.147	0.147	-	-	-	0.188	0.294
			ID	0.71	0.71	0.674	0.674	-	0.65	0.622	0.622	-	0.546	0.546	-	-	-	0.464	0.252
			LBS/FT	0.54	0.54	0.67	0.67	-	0.76	0.85	0.85	-	1.09	1.09	-	-	-	1.31	1.71
3/4	20	1.05	WT	0.065	0.065	0.083	0.083	-	0.095	0.113	0.113	-	0.154	0.154	-	-	-	0.219	0.308
			ID	0.92	0.92	0.884	0.884	-	0.86	0.824	0.824	-	0.742	0.742	-	-	-	0.612	0.434
			LBS/FT	0.69	0.69	0.86	0.86	-	0.97	1.13	1.13	-	1.47	1.47	-	-	-	1.94	2.44
1	25	1.32	WT	0.065	0.065	0.109	0.109	-	0.114	0.133	0.133	-	0.179	0.179	-	-	-	0.25	0.358
			ID	1.25	1.25	1.097	1.097	-	1.087	1.049	1.049	-	0.957	0.957	-	-	-	0.815	0.599
			LBS/FT	0.87	0.87	1.4	1.4	-	1.46	1.68	1.68	-	2.17	2.17	-	-	-	2.84	3.66
1-1/4	32	1.66	WT	0.065	0.065	0.109	0.109	-	0.117	0.14	0.14	-	0.191	0.191	-	-	-	0.25	0.382
			ID	1.53	1.53	1.442	1.442	-	1.426	1.38	1.38	-	1.278	1.278	-	-	-	1.16	0.896
			LBS/FT	1.11	1.11	1.81	1.81	-	1.93	2.27	2.27	-	3	3	-	-	-	3.76	5.21
1-1/2	40	1.90	WT	0.065	0.065	0.109	0.109	-	0.125	0.145	0.145	-	2	2	-	-	-	0.281	0.4
			ID	1.77	1.77	1.682	1.682	-	1.65	1.61	1.61	-	1.5	1.5	-	-	-	1.338	1.1
			LBS/FT	1.28	1.28	2.09	2.09	-	2.37	2.72	2.72	-	3.63	3.63	-	-	-	4.86	6.41
2	50	2.38	WT	0.065	0.065	0.109	0.109	-	0.125	0.154	0.154	-	0.218	0.218	-	-	-	0.344	0.436
			ID	2.245	2.245	2.157	2.157	-	2.125	2.067	2.067	-	1.939	1.939	-	-	-	1.687	1.503
			LBS/FT	1.61	1.61	2.64	2.64	-	3	3.65	3.65	-	5.02	5.02	-	-	-	7.46	9.03
2-1/2	65	2.88	WT	0.083	0.083	0.12	0.12	-	0.188	0.203	0.203	-	0.276	0.276	-	-	-	0.375	0.552
			ID	2.709	2.709	2.755	2.755	-	2.499	2.469	2.469	-	2.323	2.323	-	-	-	2.125	1.771
			LBS/FT	2.48	2.48	3.53	3.53	-	5.4	5.79	5.79	-	7.66	7.66	-	-	-	10.01	13.69
3	80	3.50	WT	0.083	0.083	0.12	0.12	-	0.188	0.216	0.216	-	0.3	0.3	-	-	-	0.438	0.6
			ID	3.334	3.334	3.26	3.26	-	3.124	3.068	3.068	-	2.9	2.9	-	-	-	2.624	2.3
			LBS/FT	3.03	3.03	4.33	4.33	-	6.65	7.58	7.58	-	10.25	10.25	-	-	-	14.32	18.58
3-1/2	90	4.00	WT	0.083	0.083	0.12	0.12	-	0.188	0.226	0.226	-	0.381	0.381	-	-	-	0.438	0.6
			ID	3.334	3.334	3.26	3.26	-	3.124	3.068	3.068	-	2.9	2.9	-	-	-	2.624	2.3
			LBS/FT	3.03	3.03	4.33	4.33	-	6.65	7.58	7.58	-	10.25	10.25	-	-	-	14.32	18.58
4	100	4.50	WT	0.083	0.083	0.12	0.12	-	0.188	0.237	0.237	-	0.337	0.337	-	0.438	-	0.531	0.674
			ID	4.334	4.334	4.26	4.26	-	4.124	4.026	4.026	-	3.826	3.826	-	3.624	-	3.438	3.152
			LBS/FT	3.92	3.92	5.61	5.61	-	8.66	10.79	10.79	-	14.98	14.98	-	19	-	22.51	27.54
4-1/2	120	5.00	WT	-	-	-	-	-	-	0.247	0.247	-	0.355	0.355	-	-	-	-	0.71
			ID	-	-	-	-	-	-	4.506	4.506	-	4.29	4.29	-	-	-	-	3.58
			LBS/FT	-	-	-	-	-	-	12.53	12.53	-	17.61	17.61	-	-	-	-	32.53

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Pipe Dimensions & Weights

NOMINAL PIPE SIZE	METRIC PIPE SIZE	OD (IN)	LEGEND	5S	5	10S	10	20	30	STD & 40S	40	60	XH & 80S	80	100	120	140	160	XXH
			WT	0.109	0.109	0.134	0.134	-	-	0.258	0.258	-	0.375	0.375	-	0.5	-	0.625	0.75
5	125	5.56	ID	5.345	5.345	5.295	5.295	-	-	5.047	5.047	-	4.813	4.813	-	4.563	-	4.313	4.063
			LBS/FT	6.36	6.36	7.77	7.77	-	-	14.62	14.62	-	20.78	20.78	-	27.04	-	32.96	38.55
			WT	0.109	0.109	0.134	0.134	-	-	0.28	0.28	-	0.432	0.432	-	0.562	-	0.719	0.864
6	150	6.63	ID	6.407	6.407	6.357	6.357	-	-	6.065	6.065	-	5.761	5.761	-	5.501	-	5.187	4.897
			LBS/FT	7.6	7.6	9.29	9.29	-	-	18.97	18.97	-	28.57	28.57	-	36.39	-	45.35	53.16
			WT	-	-	-	-	-	-	0.301	0.301	-	0.5	0.5	-	-	-	-	0.875
7	180	7.63	ID	-	-	-	-	-	-	7.023	7.023	-	6.625	6.625	-	-	-	-	5.875
			LBS/FT	-	-	-	-	-	-	23.57	23.57	-	38.05	38.05	-	-	-	-	63.08
			WT	0.109	0.109	0.148	0.148	0.25	0.277	0.322	0.322	0.406	0.5	0.5	0.594	0.719	0.812	0.906	0.875
8	200	8.63	ID	8.407	8.407	8.329	8.329	8.125	8.071	7.981	7.981	7.813	7.625	7.625	7.437	7.187	7.001	6.813	2.875
			LBS/FT	9.93	9.93	13.4	13.4	22.36	24.7	28.55	28.55	35.64	43.39	43.39	50.95	60.71	67.76	74.69	72.42
			WT	-	-	-	-	-	-	0.342	0.342	-	0.5	0.5	-	-	-	-	-
9	225	9.63	ID	-	-	-	-	-	-	8.941	8.941	-	8.625	8.625	-	-	-	-	-
			LBS/FT	-	-	-	-	-	-	33.9	33.9	-	48.72	48.72	-	-	-	-	-
			WT	0.134	0.134	0.165	0.165	0.25	0.307	0.365	0.365	0.5	0.5	0.594	0.719	0.844	1	1.125	1
10	250	10.75	ID	10.482	10.482	10.42	10.42	10.25	10.136	10.02	10.02	9.75	9.75	9.562	9.312	9.062	8.75	8.5	8.75
			LBS/FT	15.19	15.19	18.65	18.65	28.04	34.24	40.48	40.48	54.74	54.74	64.43	77.03	89.29	104.13	115.64	104.13
			WT	-	-	-	-	-	-	0.375	0.375	-	0.5	0.5	-	-	-	-	-
11	275	11.75	ID	-	-	-	-	-	-	11	11	-	10.75	10.75	-	-	-	-	-
			LBS/FT	-	-	-	-	-	-	45.55	45.55	-	60.07	60.07	-	-	-	-	-
			WT	0.156	0.165	0.18	0.18	0.25	0.33	0.375	0.406	0.562	0.5	0.688	0.844	1	1.125	1.312	1
12	300	12.75	ID	12.438	14.42	12.39	12.39	12.25	12.09	12	11.938	11.626	11.75	11.374	11.062	11.75	10.5	10.126	11.75
			LBS/FT	20.98	22.18	24.17	24.17	33.38	43.77	49.56	53.52	73.15	65.42	88.63	107.32	125.49	139.67	160.27	125.49
			WT	0.156	0.156	0.188	0.25	0.312	0.375	0.375	0.438	0.594	0.5	0.75	0.938	1.094	1.25	1.406	-
14	350	14.00	ID	13.688	13.688	13.624	13.5	13.376	13.25	13.25	13.124	12.812	13	12.5	12.124	11.812	11.5	11.188	-
			LBS/FT	23.07	23.07	27.73	36.71	45.61	54.57	54.57	63.44	85.05	72.09	106.13	194.96	150.79	170.21	189.11	-
			WT	0.165	0.165	0.188	0.25	0.312	0.375	0.375	0.5	0.656	0.5	0.844	1.031	1.219	1.438	1.594	-
16	400	16.00	ID	15.67	15.67	15.624	15.5	15.376	15.25	15.25	15	14.688	15	14.312	13.938	13.562	13.124	12.812	-
			LBS/FT	27.9	27.9	31.75	42.05	51.27	93.27	93.27	82.77	107.5	82.77	136.61	164.82	192.43	223.64	245.25	-
			WT	0.165	0.165	0.188	0.25	0.312	0.438	0.375	0.562	0.75	0.5	0.938	1.156	1.375	1.562	1.781	-
18	450	18.00	ID	17.67	17.67	17.624	17.5	17.376	17.124	17.25	16.876	16.5	17	16.124	15.688	15.25	14.876	14.438	-
			LBS/FT	31.43	31.43	35.76	47.39	58.94	82.15	70.59	104.67	138.17	93.45	170.92	207.96	244.14	274.22	308.5	-
			WT	0.188	0.188	0.218	0.25	0.375	0.5	0.375	0.594	0.812	0.5	1.031	1.281	1.5	1.75	1.969	-
20	500	20.00	ID	19.624	19.624	19.564	19.5	19.25	19	19.25	18.812	18.376	19	17.938	17.438	17	16.5	16.062	-
			LBS/FT	39.78	39.78	46.27	52.73	78.6	104.13	78.6	123.11	166.4	104.13	208.87	256.1	296.37	341.09	379.17	-
			WT	0.188	0.188	0.218	0.25	0.375	0.5	0.375	-	0.875	0.5	1.125	1.375	1.625	1.875	2.215	-
22	550	22.00	ID	21.624	21.624	21.564	21.5	21.25	21	21.25	-	20.25	21	19.75	19.25	18.75	18.25	17.75	-
			LBS/FT	43.8	43.8	50.94	58.07	86.61	114.81	86.61	-	197.41	114.81	250.81	302.88	353.61	403	451.06	-
			WT	0.218	0.218	0.25	0.25	0.375	0.562	0.375	0.688	0.969	0.5	1.219	1.531	1.812	2.062	2.344	-
24	600	24.00	ID	23.564	23.564	23.5	23.5	23.25	22.876	23.25	22.624	22.062	23	21.562	20.938	20.376	19.876	19.312	-
			LBS/FT	55.37	55.37	63.41	63.41	94.62	140.68	94.62	171.29	238.35	125.49	296.58	367.39	429.39	483.12	542.13	-

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Pipe Dimensions & Weights

NOMINAL PIPE SIZE	METRIC PIPE SIZE	OD (IN)	LEGEND	5S	5	10S	10	20	30	STD & 40S	40	60	XH & 80S	80	100	120	140	160	XXH
			WT	-	-	-	0.312	0.5	-	0.375	-	-	0.5	-	-	-	-	-	-
26	650	26.00	ID	-	-	-	25.376	25	-	25.25	-	-	25	-	-	-	-	-	-
			LBS/FT	-	-	-	85.6	136.17	-	102.63	-	-	136.17	-	-	-	-	-	-
			WT	-	-	-	0.312	0.5	0.625	0.375	-	-	0.5	-	-	-	-	-	-
28	700	28.00	ID	-	-	-	27.376	27	26.75	27.25	-	-	27	-	-	-	-	-	-
			LBS/FT	-	-	-	92.26	146.85	182.73	110.64	-	-	146.85	-	-	-	-	-	-
			WT	0.25	0.25	0.312	0.312	0.5	0.625	0.375	-	-	0.5	-	-	-	-	-	-
30	750	30.00	ID	29.5	29.5	29.376	29.376	29	29.75	29.25	-	-	29	-	-	-	-	-	-
			LBS/FT	79.43	79.43	98.93	98.93	157.53	196.08	118.62	-	-	157.53	-	-	-	-	-	-
			WT	-	-	-	0.312	0.5	0.625	0.375	0.688	-	0.5	-	-	-	-	-	-
32	800	32.00	ID	-	-	-	31.376	31	30.75	31.25	30.624	-	31	-	-	-	-	-	-
			LBS/FT	-	-	-	105.59	168.21	209.43	126.66	230.08	-	168.21	-	-	-	-	-	-
			WT	-	-	-	0.312	0.5	0.625	0.375	0.688	-	0.5	-	-	-	-	-	-
34	850	34.00	ID	-	-	-	33.376	33	32.75	33.25	32.624	-	33	-	-	-	-	-	-
			LBS/FT	-	-	-	112.25	178.89	222.78	134.67	244.77	-	178.89	-	-	-	-	-	-
			WT	-	-	-	0.312	0.5	0.625	0.375	0.75	-	0.5	-	-	-	-	-	-
36	900	26.00	ID	-	-	-	35.376	35	34.75	35.25	34.5	-	35	-	-	-	-	-	-
			LBS/FT	-	-	-	118.92	189.57	236.13	142.68	382.35	-	189.57	-	-	-	-	-	-
			WT	-	-	-	-	-	-	0.375	-	-	0.5	-	-	-	-	-	-
38	950	38.00	ID	-	-	-	-	-	-	37.25	-	-		-	-	-	-	-	-
			LBS/FT	-	-	-	-	-	-	150.82	-	-	200.43	-	-	-	-	-	-
			WT	-	-	-	-	-	-	0.375	-	-	0.5	-	-	-	-	-	-
40	1000	40.00	ID	-	-	-	-	-	-	39.25	-	-	39	-	-	-	-	-	-
			LBS/FT	-	-	-	-	-	-	158.84	-	-	211.12	-	-	-	-	-	-
			WT	-	-	-	-	-	-	0.375	-	-	0.5	-	-	-	-	-	-
42	1050	42.00	ID	-	-	-	-	-	-	41.25	-	-	41	-	-	-	-	-	-
			LBS/FT	-	-	-	-	-	-	166.86	-	-	221.81	-	-	-	-	-	-
			WT	-	-	-	-	-	-	0.375	-	-	0.5	-	-	-	-	-	-
44	1100	44.00	ID	-	-	-	-	-	-	43.25	-	-	43	-	-	-	-	-	-
			LBS/FT	-	-	-	-	-	-	174.88	-	-	232.5	-	-	-	-	-	-
			WT	-	-	-	-	-	-	0.375	-	-	0.5	-	-	-	-	-	-
46	1150	46.00	ID	-	-	-	-	-	-	45.25	-	-	45	-	-	-	-	-	-
			LBS/FT	-	-	-	-	-	-	182.89	-	-	243.19	-	-	-	-	-	-
			WT	-	-	-	-	-	-	0.375	-	-	0.5	-	-	-	-	-	-
48	1200	48.00	ID	-	-	-	-	-	-	47.25	-	-	47	-	-	-	-	-	-
			LBS/FT	-	-	-	-	-	-	190.91	-	-	253.88	-	-	-	-	-	-
			WT	-	-	-	-	-	-	0.375	-	-	0.5	-	-	-	-	-	-
54	1350	54.00	ID	-	-	-	-	-	-	53.25	-	-	53	-	-	-	-	-	-
			LBS/FT	-	-	-	-	-	-	215	-	-	286	-	-	-	-	-	-
			WT	-	-	-	-	-	-	0.375	-	-	0.5	-	-	-	-	-	-
60	1500	60.00	ID	-	-	-	-	-	-	59.25	-	-	59	-	-	-	-	-	-
			LBS/FT	-	-	-	-	-	-	239	-	-	318	-	-	-	-	-	-

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AITKENMFG.COM
SALES@AITKENMFG.COM
O: (281) 441-5438
F: (713) 699-5186

4920 Airline Drive
Houston, Texas 77022