

2009

ALBERTA

MACHINERY & EQUIPMENT

ASSESSMENT

MINISTER'S GUIDELINES

Government of Alberta ■
Municipal Affairs



ALBERTA
MUNICIPAL AFFAIRS

Office of the Minister
MLA, Lac La Biche - St. Paul

MINISTERIAL ORDER NO. L:228/09

I, Ray Danyluk, Minister of Municipal Affairs, pursuant to Sections 322 and 322.1 of the *Municipal Government Act* and the applicable regulations, make the following order:

- The 2009 Alberta Farm Land Assessment Minister's Guidelines,
- The 2009 Alberta Linear Property Assessment Minister's Guidelines,
- The 2009 Alberta Machinery and Equipment Assessment Minister's Guidelines,
- The 2009 Alberta Railway Property Assessment Minister's Guidelines, and
- The 2005 Alberta Construction Cost Reporting Guide

as set out in the attached document, are established and become effective for the 2009 assessment year for taxation in 2010 and subsequent years.

This Ministerial Order rescinds Ministerial Order No. L:249/08 as of December 31, 2009.

Dated at Edmonton, Alberta, this 16th day of December, 2009.

Ray Danyluk
Minister of Municipal Affairs



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1.000 APPLICATION

Pursuant to section 9 of the Regulation, the assessor appointed by the municipality must follow the procedures set out in the *2009 Alberta Machinery and Equipment Assessment Minister's Guidelines*.

1.001 DEFINITIONS

In the *2009 Alberta Machinery and Equipment Minister's Guidelines*,

- (a) **Act** means the *Municipal Government Act* (RSA 2000 Ch. M-26);
- (b) **assessment year** has the meaning given to it in the Regulation;
- (c) **assessment year modifier**, means the factor which is applied to the base cost of machinery and equipment in order to adjust its base cost to the assessment year;
- (d) **assessor** has the meaning given to it in the Act;
- (e) **base cost** means either
 - (i) the value resulting from the formula shown in Schedule A of the *2009 Machinery and Equipment Minister's Guidelines*, or
 - (ii) the value of *included costs* multiplied by the *cost factor*;
- (f) **cost factor (cf)** means the factor that adjusts included cost (ic) from the year built to the base cost;
- (g) **included costs (ic)** means the value of machinery and equipment calculated in accordance with the *2005 Construction Cost Reporting Guide*, prior to adjustment by the *cost factor*;
- (h) **machinery and equipment** has the meaning given to it in the Regulation (AR220/2004), as amended.

1.002 CALCULATION OF ASSESSMENT

The assessment of machinery and equipment in a municipality shall be calculated by:

- (a) establishing the base cost as prescribed in Schedule A of the *2009 Alberta Machinery and Equipment Assessment Minister's Guidelines*;
- (b) multiplying the base cost by the appropriate assessment year modifier prescribed in Schedule B of the *2009 Alberta Machinery and Equipment Assessment Minister's Guidelines* to adjust the base cost to the assessment year;
- (c) multiplying the amount determined in clause (b) by the appropriate depreciation factor prescribed in Schedule C of the *2009 Alberta Machinery and Equipment Assessment Minister's Guidelines*;
- (d) if applicable, adjusting the amount determined in clause (c) for additional depreciation as prescribed in Schedule D of the *2009 Alberta Machinery and Equipment Assessment Minister's Guidelines*.

1.003 MINISTERIAL PRESCRIPTION

For the purposes of Minister's Guidelines and section 1(j) of the Regulation (AR220/2004), it is hereby prescribed that the cost of all computer software, including both basic software and applications software, intended for or used in connection with the monitoring, control or operation of any assessable property shall be included in the base cost of the property which is otherwise assessable.

2.000 SCHEDULE A –BASE COST**2.001 MACHINERY AND EQUIPMENT NOT DESCRIBED IN SCHEDULE A**

The cost factors in Table 1 and the formula below shall be used to determine the base cost for machinery and equipment that is not described in Schedule A.

Formula: Base Cost = $ic \times cf$

Where ic = the cost of machinery and equipment determined in accordance with the 2005 Construction Cost Reporting Guide.

cf = the cost factor to convert the cost of the machinery and equipment from the year it was constructed in to its cost in 2005.

2.001.100 TABLE 1—COST FACTORS

Year of Construction	Cost Factor	Year of Construction	Cost Factor	Year of Construction	Cost Factor
1913	26.19	1946	12.40	1979	2.18
1914	27.10	1947	11.53	1980	1.94
1915	27.61	1948	11.03	1981	1.72
1916	25.49	1949	11.04	1982	1.61
1917	21.63	1950	10.74	1983	1.78
1918	18.83	1951	9.64	1984	1.86
1919	16.63	1952	9.03	1985	1.81
1920	13.61	1953	8.50	1986	1.81
1921	15.10	1954	8.40	1987	1.75
1922	16.36	1955	8.33	1988	1.72
1923	15.94	1956	8.00	1989	1.64
1924	16.13	1957	7.72	1990	1.57
1925	16.38	1958	7.57	1991	1.49
1926	16.51	1959	7.49	1992	1.46
1927	16.53	1960	7.42	1993	1.43
1928	16.14	1961	7.36	1994	1.39
1929	15.53	1962	7.35	1995	1.36
1930	16.07	1963	7.31	1996	1.35
1931	17.31	1964	7.01	1997	1.31
1932	18.65	1965	6.75	1998	1.26
1933	19.56	1966	6.50	1999	1.22
1934	19.26	1967	5.96	2000	1.22
1935	19.07	1968	6.22	2001	1.18
1936	18.53	1969	6.10	2002	1.17
1937	17.35	1970	5.51	2003	1.14
1938	17.67	1971	5.31	2004	1.08
1939	17.50	1972	4.90	2005	1.00
1940	16.61	1973	4.60	2006	0.89
1941	15.15	1974	4.07	2007	0.79
1942	13.88	1975	3.38	2008	0.76
1943	13.57	1976	2.97	2009	0.78
1944	13.49	1977	2.72		
1945	13.38	1978	2.47		

2.005 MACHINERY AND EQUIPMENT DESCRIBED IN SCHEDULE A

The rates in Schedule A reflect typical costs for field installations of component types. These rates apply to each component type regardless of the exact configuration of the system.

The rates for property described in Schedule A must be used to determine the base cost for that property and no changes or adjustments to the rates are permissible.

The base cost for machinery & equipment described in Schedule A is determined as follows:

- 1) select the component category (e.g. Tanks, Steel Bolted);
- 2) select the specific component (e.g. Size, Type) to identify the base rate; and
- 3) multiply the base rate by the quantity.

2.010 TANKS**2.010.100A ABOVE GROUND TANKS – STEEL WELDED**

Note: 1 barrel (Oil, 42 US Gallons) = 0.158 987 m³

Rate includes: Based on a typical flat bottom, cone deck design complete with thief hatch, vacuum relief, clean out door, two 24" manways, earthen berm, and painting. All valves and nozzles terminate with a blind flange.

Tank insulation, piping to and from tanks, protective coatings, and tank mixers are not included in the rate.

Size (m ³)	(bbl)	Diameter (m)	Height (m)	Base Rate (\$)
8.0	50	2.36	1.83	13 423
14.0	90	2.41	3.05	15 733
16.0	100	2.90	2.44	16 311
33.0	210	3.05	4.57	21 553
48.0	300	3.66	4.57	26 727
64.0	400	3.66	6.10	32 468
79.0	500	6.55	2.44	36 552
119.0	750	4.72	7.32	39 910
159.0	1 000	6.55	4.88	57 214
238.0	1 500	6.55	7.32	67 445
318.0	2 000	9.07	4.88	79 458
397.0	2 500	9.07	6.10	95 415
477.0	3 000	9.07	7.32	282 156
636.0	4 000	10.52	7.32	330 210
795.0	5 000	11.79	7.32	378 265
1 590.0	10 000	16.76	7.32	531 694
3 179.0	20 000	20.42	9.75	769 982
5 565.0	35 000	24.38	12.19	937 437
8 744.0	55 000	30.48	12.19	2 407 635

2.010.100B ABOVE GROUND TANKS – STEEL BOLTED

Rate includes: Based on a typical flat bottom, cone deck design complete with thief hatch, vacuum relief, clean out door, two 24" manways, earthen berm, and painting. All valves and nozzles terminate with a blind flange.

Tank insulation, piping to and from tanks, protective coatings, and tank mixers are not included in the rate.

Size (m ³)	Diameter (bbl)	Diameter (m)	Height (m)	Base Rate (\$)
8.0	50	2.36	1.83	13 186
14.0	90	2.41	3.05	15 187
16.0	100	2.90	2.44	15 733
33.0	210	3.05	4.57	20 314
48.0	300	3.66	4.57	21 253
64.0	400	3.66	6.10	33 841
79.0	500 (Low)	6.55	2.44	42 512
79.0	500 (High)	4.72	4.88	44 625
119.0	750	4.72	7.32	46 737
159.0	1 000 (Low)	9.07	2.44	67 585
159.0	1 000 (High)	6.55	4.88	101 388
238.0	1 500	6.55	7.32	73 501
318.0	2 000	9.07	4.88	92 937
397.0	2 500	9.07	6.10	114 085
477.0	3 000	9.07	7.32	130 986
636.0	4 000	10.52	7.32	146 197
795.0	5 000	11.79	7.32	159 507
1 590.0	10 000	16.76	7.32	260 498
3 179.0	20 000	20.42	9.75	459 796

2.010.100c SKIDDED STEEL POP TANKS

Rate includes: Based on a skidded unit circular or rectangle design complete with thief hatch, vacuum relief, clean out door, one 24" manway, painting. All valves and nozzles terminate with a blind flange.

Tank insulation, berm, piping to and from tanks and protective coatings are not included in the rate.

Size (m ³)	Diameter (bbl)	Base Rate (\$)
8.0	50	13 870
16.0	100	16 628
33.0	210	23 153
64.0	400	36 155

2.010.100D SKIDDED ABOVE GROUND DOUBLE WALLED, HEATED AND INSULATED STEEL TANKS

Rate includes: Based on a skidded unit circular design complete with thief hatch, vacuum relief, clean out door, two 24" manways, painting, and standard 250,000 Btu heater for propane or natural gas. All valves and nozzles terminate with a blind flange.

Supply and insulation of 50mm of Urethane insulation complete with a sealer. Pressure switches, stairs, stiles, walkways, tank gauges, tank mixers and tank piping including fuel gas piping to and from tanks is not included in the rate.

Size (m ³)	(bbl)	Base Rate (\$)
8.0	50	33 020
16.0	100	43 080
33.0	210	54 204
64.0	400	79 135

2.010.100E SKIDDED CIRCULAR HORIZONTAL DUAL COMPARTMENT STEEL FUEL STORAGE TANK

Rate includes: Based on a skidded design complete with thief hatch, vacuum relief, clean out door, two 24" manways, painting, two vents, spill containment box, two 3/4" by 16' long hoses, ladder and a platform, two pump mounts, two gasboy pumps, two fill limiters, gauge stick and chart. All valves and nozzles terminate with a blind flange.

Stairs, stiles, walkways, tank gauges, tank insulation, piping to and from tanks and protective coatings are not included in the rate.

Size (m ³)	(bbl)	Base Rate (\$)
24.0	150	30 102
33.0	210	33 768
47.0	300	35 339

2.010.200 STAIRWAYS–WALKWAYS–STILES

Rate includes: Excavation for foundation based on 12" depth. Excavated material stockpiled on site. Fill (gravel) for foundation based on 18" depth. Fill (gravel) will come from approximately 15 km away. Concrete pads (6' X 4' X 1') to support stairways, stiles and walkways. Includes structural steel, serrated grating, handrail, toe plate, sand blasting, priming and painting.

Stairway	Base Rate (per unit)
Less than 4.3 m of rise	6 986
4.3 m to 7.3 m of rise	9 190

Walkways or platforms	Base Rate (per unit)
1.2 m X 1.2 m (metal)	4 533

Stiles	Base Rate per unit(\$)
Per stile over berm	12 131

2.010.300 WELDED UNDER GROUND DOUBLE WALLED STEEL TANKS

Rate includes: Based on a skidded unit circular design complete with one 24" manway c/w 6' extension and cover, and painting. Piping will extend 8' above tank top and terminate with valves and a blind flange. Two tie-down straps c/w concrete pad for ballast.

Volume (gal.)	(bbl)	Base Rate (\$)
550	16	18 812
875	25	24 682
1 750	50	37 160
3 500	100	44 733
5 250	150	58 031
7 000	200	64 659
8 750	250	69 392
10 500	300	74 126

2.010.400 VARIOUS TANK INSULATION & COATING COSTS

Insulation (mm)	Coating Type	Base Rate (\$ per m ²)
	Epoxy internal coating	114.69
50.0	Fibreglass, c/w metal cladding	109.61
76.0	Fibreglass, c/w metal cladding	122.81
51.0 6.35	Urethane for fibreglass tanks c/w Diathon coating	67.15
25.0	Urethane Insulation, c/w sealer	56.08
38.0	Urethane Insulation, c/w sealer	63.55
50.0	Urethane Insulation, c/w sealer	71.46
63.0	Urethane Insulation, c/w sealer	78.51
76.0	Urethane Insulation, c/w sealer	85.68

Rates include: surface preparation, and installation

Note: Use the following formula to find the area of tank to be covered:

Horizontal Tank:

$$\text{Area} = (2 \times 3.14 \times r^2) + (2 \times 3.14 \times r \times l)$$

Vertical Tank (only one end and the cylinder):

$$\text{Area} = (1 \times 3.14 \times r^2) + (2 \times 3.14 \times r \times h)$$

Where: r = radius = ½ of diameter

l = length

h = height

2.010.420 CALCULATED FIBREGLASS INSULATION (50 MM) FOR VERTICAL STEEL TANKS

Size (bbl)	Diameter X Height (m x m)	Base Rate (\$ per 50 mm)
50	2.36 x 1.83	1 965
90	2.41 x 3.05	3 030
100	2.90 x 2.44	3 159
210	3.05 x 4.57	5 598
300	3.66 x 4.57	6 910
400	3.66 x 6.10	8 837
500 (Low)	6.55 x 2.44	9 192
500 (High)	4.72 x 4.88	9 844
750	4.72 x 7.32	13 809
1 000 (Low)	9.07 x 2.44	14 696
1 000 (High)	6.55 x 4.88	14 692
1 500	6.55 x 7.32	20 194
2 000	9.07 x 4.88	22 312
2 500	9.07 x 6.10	26 120
3 000	9.07 x 7.32	29 929
4 000	10.52 x 7.32	36 026
5 000	11.79 x 7.32	41 664
10 000	16.76 x 7.32	66 395
20 000	20.42 x 9.75	104 405

2.010.430 CALCULATED FIBREGLASS INSULATION (76 MM) FOR VERTICAL STEEL TANKS

Size (bbl)	Diameter X Height (m x m)	Base Rate (\$ per 76 mm)
50	2.36 x 1.83	2 202
90	2.41 x 3.05	3 394
100	2.90 x 2.44	3 539
210	3.05 x 4.57	6 272
300	3.66 x 4.57	7 742
400	3.66 x 6.10	9 901
500(Low)	6.55 x 2.44	10 299
500(High)	4.72 x 4.88	11 030
750	4.72 x 7.32	15 472
1 000 (Low)	9.07 x 2.44	16 465
1 000 (High)	6.55 x 4.88	16 461
1 500	6.55 x 7.32	22 625
2 000	9.07 x 4.88	24 999
2 500	9.07 x 6.10	29 266
3 000	9.07 x 7.32	33 533
4 000	10.52 x 7.32	40 364
5 000	11.79 x 7.32	46 681
10 000	16.76 x 7.32	74 390
20 000	20.42 x 9.75	116 977

2.010.500 CALCULATED URETHANE INSULATION (25 MM) FOR VERTICAL STEEL TANKS

Size (bbl)	Diameter X Height (m x m)	Base Rate (\$ per 25 mm)
50	2.36 x 1.83	1 005
90	2.41 x 3.05	1 550
100	2.90 x 2.44	1 616
210	3.05 x 4.57	2 864
300	3.66 x 4.57	3 535
400	3.66 x 6.10	4 521
500(Low)	6.55 x 2.44	4 702
500(High)	4.72 x 4.88	5 036
750	4.72 x 7.32	7 064
1 000 (Low)	9.07 x 2.44	7 518
1 000 (High)	6.55 x 4.88	7 516
1 500	6.55 x 7.32	10 331
2 000	9.07 x 4.88	11 415
2 500	9.07 x 6.10	13 363
3 000	9.07 x 7.32	15 311
4 000	10.52 x 7.32	18 430
5 000	11.79 x 7.32	21 315
10 000	16.76 x 7.32	33 966
20 000	20.42 x 9.75	53 412

2.010.510 CALCULATED URETHANE INSULATION (38 MM) FOR VERTICAL STEEL TANKS

Size (bbl)	Diameter X Height (m x m)	Base Rate (\$ per 38 mm)
50	2.36 x 1.83	1 140
90	2.41 x 3.05	1 757
100	2.90 x 2.44	1 832
210	3.05 x 4.57	3 246
300	3.66 x 4.57	4 006
400	3.66 x 6.10	5 124
500 (Low)	6.55 x 2.44	5 330
500 (High)	4.72 x 4.88	5 708
750	4.72 x 7.32	8 007
1 000 (Low)	9.07 x 2.44	8 521
1 000 (High)	6.55 x 4.88	8 519
1 500	6.55 x 7.32	11 709
2 000	9.07 x 4.88	12 937
2 500	9.07 x 6.10	15 145
3 000	9.07 x 7.32	17 353
4 000	10.52 x 7.32	20 888
5 000	11.79 x 7.32	24 157
10 000	16.76 x 7.32	38 496
20 000	20.42 x 9.75	60 535

2.010.520 CALCULATED URETHANE INSULATION (50 MM) FOR VERTICAL STEEL TANKS

Size (bbl)	Diameter X Height (m x m)	Base Rate (\$ per 50 mm)
50	2.36 x 1.83	1 281
90	2.41 x 3.05	1 975
100	2.90 x 2.44	2 060
210	3.05 x 4.57	3 650
300	3.66 x 4.57	4 505
400	3.66 x 6.10	5 761
500 (Low)	6.55 x 2.44	5 993
500 (High)	4.72 x 4.88	6 418
750	4.72 x 7.32	9 003
1 000 (Low)	9.07 x 2.44	9 581
1 000 (High)	6.55 x 4.88	9 579
1 500	6.55 x 7.32	13 166
2 000	9.07 x 4.88	14 547
2 500	9.07 x 6.10	17 030
3 000	9.07 x 7.32	19 513
4 000	10.52 x 7.32	23 488
5 000	11.79 x 7.32	27 165
10 000	16.76 x 7.32	43 288
20 000	20.42 x 9.75	68 070

2.010.600 SKIDDED VERTICAL ABOVE GROUND DOUBLE WALLED FIBREGLASS TANKS

Rate includes: Based on a skidded unit circular design complete with one 24" manway. All valves and nozzles terminate with a blind flange.

Tank insulation, piping to and from tanks and protective coatings are not included in the rate.

Size (m ³)	(bbl)	Base Rate (\$)
14.0	90	17 432
33.0	210	25 165
48.0	300	26 326
64.0	400	27 487
80.0	500	41 911
119.0	750	74 698

2.010.620 FIBREGLASS TANKS—UNDERGROUND

Rate includes: Based on a skidded unit circular design complete with one 24" manway c/w 6' extension and cover, and painting. Piping will extend 8' above tank top and terminate with valves and a blind flange. Two tie-down straps c/w concrete pad for ballast.

Size (m ³)	(bbl)	Base Rate (\$)
2.3	14	11 511
4.6	29	12 364
7.9	50	18 363
16.0	100	26 304
32.0	200	36 260

2.010.640 CALCULATED URETHANE INSULATION (51 MM) WITH 6.35 MM DIATHON COATING FOR VERTICAL FIBREGLASS TANKS

Rates include: preparation and installation

Size (m ³)	(bbl)	Base Rate (\$)
14.0	90	1 856
16.0	100	1 935
33.0	210	2 939
48.0	300	4 233
64.0	400	5 414
80.0	500	6 046
119.0	750	8 460

2.010.720 SKIDDED LIQUID PROPANE GAS (LPG) HORIZONTAL STORAGE VESSELS

Rate includes: Based on a skidded horizontal cylinder design complete with two saddle supports, relief, one 16" manway, and painting. Steel ladder and platform is included on larger tanks. All valves and nozzles terminate with a blind flange.

Tank insulation, piping to and from tanks and protective coatings are not included in the rate.

Note: One US gallon equals 3.8 litres.

Size (m ³)	(US gal.)	Base Rate (\$)
1.9	500	9 907
3.8	1 000	11 036
5.7	1 500	16 946
8.0	2 000	18 640
19.0	5 000	35 890
34.0	9 100	56 051
45.0	12 000	71 771
68.0	18 000	89 220
114.0	30 000	109 711

2.010.720 SKIDDED LIQUID PROPANE GAS (LPG) HORIZONTAL STORAGE VESSELS (CONT.)

Steel ladder and Platform	Base Rate (\$)
Add each	5 453

2.010.800 SKIDDED ABOVE GROUND STEEL CHEMICAL STORAGE TANKS

Rate includes: Based on a skidded unit circular design complete with thief hatch, vacuum relief, clean out door, one 24" manway, tank stand and painting. All valves and nozzles terminate with a blind flange.
Tank insulation, piping to and from tanks and protective coatings are not included in the rate.

Size (l)	(Imp. gal.)	Base Rate (\$)
1 365	300	3 732
2 275	500	4 007
4 550	1 000	5 278

2.010.820 SKIDDED ABOVE PLASTIC CHEMICAL STORAGE TANKS

Rate includes: Based on a skidded unit circular design complete with thief hatch, vacuum relief, clean out door, one 24" manway, tank stand and painting. All valves and nozzles terminate with a blind flange.
Tank insulation, piping to and from tanks, secondary containment (steel, plastic or concrete) and protective coatings are not included in the rate.

Size (l)	(Imp. gal.)	Base Rate (\$)
410	90	5 678
819	180	6 967
910	200	7 046
1 000	220	7 124
1 365	300	7 392
2 275	500	8 661
3 412	750	9 133
4 550	1 000	11 919
6 825	1 500	12 928

2.020 HEATERS, GAUGES, AND SWITCHES

2.020.100 TANK HEATERS

Note: 3 412.14 Btu/h = 1 kW

Rate includes: All piping terminates at unit edge with a block valve and a blind flange. Includes flame arrestor, stack, burners, controls, internal ¾" fuel gas piping, c/w gas regulator, filter and scrubber. Self contained with no electrical service to the unit.

Rating (kW)	(Btu)	Base Rate (\$)
73 kW & smaller	250 000	6 103
147 kW	500 000	6 948

2.020.200 SKIDDED INDIRECT FIRED LINE HEATERS

Rate includes: Skidded Unit, entirely self contained. All piping, which includes inlet, outlet and fuel gas terminates at unit edge with a block valve and blind flange. Includes flame arrestor, stack, burners, fire tube, pilot, controls, pressure sustaining valve (PSV), high temperature switch, internal 1" fuel gas piping, c/w a gas regulator, filter and scrubber, pressure and temperature gauge, expansion drum, thief hatch, one 24" manway, and insulated c.w external cover.

Electrical Cost for a 100' service to the end devices includes:

- One 3C, #10 american wire gauge (AWG) Teck 90 Triax power cable for end device power.
- Three 3C, #16 AWG Teck 90 Triac communication cables for assumed three end devices.

Note: 3412.14 Btu/h = 1 kW
Direct Heaters are considered obsolete

Rating (kW)	(Btu/h)	Diameter (mm)	Length (m)	Base Rate (\$)
22.0	75000	457	0.4	25 424
26.4	90000	457	0.5	25 626
44.0	150000	610	0.6	28 409
73.0	250 000	610	2.3	30 291
147.0	500 000	660	3.5	31 323
220.0	750 000	762	4.1	36 405
293.0	1 000 000	914	4.4	42 308
440.0	1 500 000	1 118	5.6	58 506
586.0	2 000 000	1 219	6.6	67 143
879.0	3 000 000	1 524	7.5	82 056
1 172.0	4 000 000	1 829	8.4	86 562
1 465.0	5 000 000	2 134	8.7	112 285
1 758.0	6 000 000	2 337	8.7	131 592

2.020.300 TANK GAUGES

Rate includes: Includes guide piping, aluminum gauge head, elbows, brackets and anchor bar.

Electrical Cost for a 100' service to the end devices includes:

- One 3C, #10 AWG Teck 90 Triax power cable for end device power.
- One 3C, #16 AWG Teck 90 Triac communication cables for the end device.

Type	Base Rate (\$)
Varec 2500 automatic	4 915
Varec 6700	3 588
Hawkeye Roadside Gauge Board System	3 613
Sealed mechanical gauge VISI 1310	2 730

2.020.400 LEVEL SWITCHES

Rate includes: Includes tubing, valves and flanges.

Electrical Cost for a 100' service to the end devices includes:

- One 3C, #10 AWG Teck 90 Triax power cable for end device power.
- One 3C, #16 AWG Teck 90 Triac communication cables for the end device.

Type	Base Rate (\$)
Roof Mount	3 860
Static Pressure Sensing	3 321

2.030 TREATERS**2.030.100 SKIDDED VERTICAL TREATERS**

Rate includes: Rate is based on a typical skidded oilfield vertical self contained treater installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange.

Rate includes firetube, flame arrestors, stack, anodes, high level switch, thermostats, valves, ladder, crows nest, one 24" manway, water siphon, thermometer and pressure gauge, two dump valves, level controllers, site glasses, back pressure valve, relief valve, gas meter, oil and water meters, insulation and skid, ¾" fuel gas and instrument gas systems complete with a block valve, regulators, senior orifice fitting and meter run, chart recorder, filter and scrubber.

Electrical Cost for a 100' service to the end devices includes:

- One 3C, #10 AWG Teck 90 Triax power cable for end device power.
- Three 3C, #16 AWG Teck 90 Triac communication cables for assumed three end devices.

Note: 6.894757 pound force per square inch = 1 kilopascal (kPa)

Diameter (m)		Height (m)		Pressure (kPa)		Base Rate (\$)
(ft)	(ft)	(ft)	(ft)	(psi)	(psi)	
1.22	4	6.1	20.0	345	50	49 923
1.22	4	8.4	27.5	345	50	59 657
1.83	6	6.1	20.0	345	50	71 124
1.83	6	8.4	27.5	345	50	76 964
2.44	8	6.1	20.0	345	50	87 460
2.44	8	8.4	27.5	345	50	95 247
3.05	10	6.1	20.0	345	50	132 486
3.05	10	8.4	27.5	345	50	138 327
1.22	4	6.1	20.0	517	75	55 763
1.22	4	8.4	27.5	517	75	65 497
1.83	6	6.1	20.0	517	75	76 964
1.83	6	8.4	27.5	517	75	90 591
2.44	8	6.1	20.0	517	75	101 087
2.44	8	8.4	27.5	517	75	106 927
3.05	10	6.1	20.0	517	75	140 273
3.05	10	8.4	27.5	517	75	148 060

2.030.200 MECHANICAL—HORIZONTAL

Rate includes: Rate is based on a typical skidded oilfield horizontal self contained treater installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange.

Rate includes firetube, flame arrestors, stack, anodes, high level switch, thermostats, valves, ladder, crows nest, one 24" manway, water siphon, thermometer and pressure gauge, two dump valves, level controllers, site glasses, back pressure valve, relief valve, gas meter, oil and water meters, insulation and skid, ¾" fuel gas and instrument gas systems complete with a block valve, regulators, orifice meter run, chart recorder, filter and scrubber.

Electrical Cost for a 100' service to the end devices includes:

- One 3C, #10 AWG Teck 90 Triax power cable for end device power.
- Three 3C, #16 AWG Teck 90 Triac communication cables for assumed three end devices.

Diameter (m)	Height		Pressure		Base Rate (\$)	
	(ft)	(m)	(kPa)	(psi)		
1.83	6	6.1	20	345	50	92 928
2.44	8	6.1	20	345	50	94 875
2.44	8	7.6	25	345	50	120 479
2.44	8	9.1	30	345	50	134 106
3.05	10	9.1	30	345	50	174 232
3.05	10	12.2	40	345	50	189 806
3.05	10	15.2	50	345	50	201 783
3.05	10	21.3	70	345	50	279 651
1.83	6	6.1	20	517	75	102 662
2.44	8	6.1	20	517	75	122 129
2.44	8	7.6	25	517	75	132 159
2.44	8	9.1	30	517	75	149 679
3.05	10	9.1	30	517	75	182 019
3.05	10	12.2	40	517	75	201 486
3.05	10	15.2	50	517	75	213 463
3.05	10	21.3	70	517	75	320 921

2.030.300 SKIDDED ELECTROSTATIC/DUAL POLARITY–HORIZONTAL TREATERS

Rate includes: Rate is based on a typical skidded oilfield horizontal self contained treater installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange.

Rate includes fire tube, flame arrestors, stack, anodes, high level switch, thermostats, valves, ladder, crows nest, one 24" manway, water siphon, thermometer and pressure gauge, two dump valves, level controllers, site glasses, back pressure valve, relief valve, gas meter, oil and water meters, insulation and skid. ¾" fuel gas and instrument gas systems complete with a block valve, regulators, orifice fitting and meter run, chart recorder, filter and scrubber.

Electrical Cost for a 100' service to the end devices includes:

- One 3C, #10 AWG Teck 90 Triax power cable for 480, single phase, 40A power supply.
- One 3C, #10 AWG Teck 90 Triax power cable for end device power.
- Three 3C, #16 AWG Teck 90 Triac communication cables for assumed three end devices.

Diameter (m)	(ft)	Height		Pressure		Base Rate (\$)
		(m)	(ft)	(kPa)	(psi)	
1.83	6	6.1	20	345	50	246 624
2.44	8	6.1	20	345	50	268 569
2.44	8	7.6	25	345	50	290 810
2.44	8	9.1	30	345	50	378 590
3.05	10	9.1	30	345	50	412 522
3.05	10	12.2	40	345	50	434 467
3.05	10	15.2	50	345	50	456 708
3.05	10	21.3	70	345	50	566 237
1.83	6	6.1	20	517	75	268 569
2.44	8	6.1	20	517	75	290 514
2.44	8	7.6	25	517	75	301 783
2.44	8	9.1	30	517	75	400 357
3.05	10	9.1	30	517	75	434 467
3.05	10	12.2	40	517	75	456 341
3.05	10	15.2	50	517	75	500 474
3.05	10	21.3	70	517	75	610 074

2.040 SEPARATORS**2.040.100 SKIDDED TWO PHASE VERTICAL SEPARATORS**

Rate includes: Rate is based on a typical skidded oilfield vertical self contained separator installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange.

Rate includes skidded vertical separator c/w liquid dump valve, controller, site glass, high level switch, one 24" manway, pressure sustaining valve (PSV), pressure and temperature gauges, senior orifice meter run and meter, chart recorder, 3/4" instrument gas piping, regulator, filter and scrubber.

Electrical Cost for a 100' service to the end devices includes:

- One 3C, #10 AWG Teck 90 Triax power cable for end device power.
- Three 3C, #16 AWG Teck 90 Triac communication cables for assumed three end devices.

862–1896 kPa (125 psi–275 psi)				
Diameter		Height		Base Rate
(mm)	(in.)	(m)	(ft)	(\$)
300	12	1.5	5.0	54 258
400	16	1.5	5.0	57 557
500	20	1.5	5.0	58 382
600	24	1.5	5.0	60 918
750	30	1.5	5.0	71 018
900	36	1.5	5.0	73 500
400	16	2.3	7.5	62 060
500	20	2.3	7.5	63 087
600	24	2.3	7.5	65 216
750	30	2.3	7.5	75 493
900	36	2.3	7.5	78 119

5102 kPa (740 psi)				
Diameter		Height		Base Rate
(mm)	(in.)	(m)	(ft)	(\$)
400	16	1.5	5.0	59 364
500	20	1.5	5.0	60 685
600	24	1.5	5.0	63 876
750	30	1.5	5.0	75 340

10204 kPa (1480 psi)				
Diameter		Height		Base Rate
(mm)	(in.)	(m)	(ft)	(\$)
400	16	1.5	5.0	66 385
500	20	1.5	5.0	68 276
600	24	1.5	5.0	76 067
750	30	1.5	5.0	96 816
400	16	2.3	7.5	73 453
500	20	2.3	7.5	75 804
600	24	2.3	7.5	81 603
750	30	2.3	7.5	104 028
900	36	2.3	7.5	111 097

2.040.200 SKIDDED THREE PHASE VERTICAL SEPARATORS

Rate includes: Rate is based on a typical skidded oilfield vertical self contained separator installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange.

Rate includes skidded vertical separator c/w two liquid dump valves, two controllers, two site glasses, high level switch, one 24" manway, PSV pressure and temperature gauges, senior orifice meter run and meter, chart recorder, ¾" instrument gas piping, regulator, filter and scrubber.

Electrical Cost for a 100' service to the end devices includes:

- One 3C, #10 AWG Teck 90 Triax power cable for end device power.
- Three 3C, #16 AWG Teck 90 Triac communication cables for assumed three end devices.

862–1896 kPa (125 psi – 275 psi)				
Diameter (mm)	(in.)	Height (m)	(ft)	Base Rate (\$)
400	16	2.3	7.5	66 369
500	20	2.3	7.5	68 238
600	24	2.3	7.5	69 248
750	30	2.3	7.5	85 711
900	36	2.3	7.5	87 243
1 200	48	2.3	7.5	89 111
500	20	3.0	10.0	71 051
600	24	3.0	10.0	72 178
750	30	3.0	10.0	79 854
900	36	3.0	10.0	88 624
1 200	48	3.0	10.0	90 274
1 500	60	3.0	10.0	92 462

10204 kPa (1480 psi)				
Diameter (mm)	(in.)	Height (m)	(ft)	Base Rate (\$)
400	16	2.3	7.5	75 953
500	20	2.3	7.5	78 866
600	24	2.3	7.5	81 517
900	36	2.3	7.5	108 921
1 200	48	2.3	7.5	118 003
400	16	3.0	10.0	81 780
600	24	3.0	10.0	87 891
900	36	3.0	10.0	116 356
1 200	48	3.0	10.0	168 353

2.040.300 SKIDDED TWO PHASE HORIZONTAL SEPARATORS

Rate includes: Rate is based on a typical skidded oilfield horizontal self contained separator installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange.

Rate includes skidded horizontal separator c/w two liquid dump valves, two controllers, two site glasses, high level switch, one 24" manway, PSV pressure and temperature gauges, senior orifice meter run and meter, chart recorder, 3/4" instrument gas piping, regulator, filter and scrubber.

Electrical Cost for a 100' service to the end devices includes:

- One 3C, #10 AWG Teck 90 Triax power cable for end device power.
- Three 3C, #16 AWG Teck 90 Triac communication cables for assumed three end devices.

862–1896 kPa (125 psi–275 psi)				
Diameter (mm)	(in.)	Height (m)	(ft)	Base Rate (\$)
600	24	3.0	10.0	88 295
750	30	3.0	10.0	98 092
900	36	3.0	10.0	99 529

10204 kPa (1480 psi)				
Diameter (mm)	(in.)	Height (m)	(ft)	Base Rate (\$)
500	20	3.0	10.0	90 311
600	24	3.0	10.0	99 206
750	30	3.0	10.0	129 268
900	36	3.0	10.0	135 063

2.040.400 SKIDDED THREE PHASE HORIZONTAL SEPARATORS

Rate includes: Rate is based on a typical skidded oilfield horizontal self contained separator installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange. Rate includes skidded horizontal separator c/w two liquid dump valves, two controllers, two site glasses, high level switch, one 24" manway, PSV pressure and temperature gauges, senior orifice meter run and meter, chart recorder, 3/4" instrument gas piping, regulator, filter and scrubber.

Electrical Cost for a 100' service to the end devices includes:

- One 3C, #10 AWG Teck 90 Triax power cable for end device power.
- Three 3C, #16 AWG Teck 90 Triac communication cables for assumed three end devices.

862-1896 kPa (125 psi–275 psi)				
Diameter (mm)	(in.)	Height (m)	(ft)	Base Rate (\$)
600	24	3.0	10.0	88 544
750	30	3.0	10.0	98 367
900	36	3.0	10.0	99 808

2.040.400 SKIDDED THREE PHASE HORIZONTAL SEPARATORS (CONT.)

4960 kPa (720 psi)				
Diameter		Height		Base Rate
(mm)	(in.)	(m)	(ft)	(\$)
400	16	2.30	7.5	94 894
508	20	2.30	7.5	99 236
508	20	3.05	10	101 032
610	24	2.3	7.5	109 438

9922 kPa (1440 psi)				
Diameter		Height		Base Rate
(mm)	(in.)	(m)	(ft)	(\$)
508	20	3.05	10	103 906
610	24	3.05	10	109 826
762	36	3.05	10	137 937
914	36	3.05	10	143 748
914	36	4.60	15	169 266

2.040.500 SKIDDED VERTICAL CENTRIFUGAL/RECYCLING SEPARATORS

Rate includes: Rate is based on a typical skidded oilfield vertical self contained separator installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange.

Rate includes skidded vertical separator c/w two liquid dump valves, two controllers, two site glasses, high level switch, one 24" manway, PSV pressure and temperature gauges, senior orifice meter run and meter, chart recorder, 3/4" instrument gas piping, regulator, filter and scrubber.

Electrical Cost for a 100' service to the end devices includes:

- One 3C, #10 AWG Teck 90 Triax power cable for end device power.
- Three 3C, #16 AWG Teck 90 Triac communication cables for assumed three end devices.

10204 kPa (1480 psi²)				
Diameter		Height		Base Rate
(mm)	(in.)	(m)	(ft)	(\$)
150	6	1.5	5.0	83 952
200	8	1.5	5.0	85 212
300	12	1.5	5.0	116 936
400	16	2.6	8.5	140 621
600	24	3.7	12.0	236 311
800	32	4.6	15.0	298 126

Note: Use the following table to cross reference American National Standards Institute (ANSI) ratings to working pressure:

2.040.500 SKIDDED VERTICAL CENTRIFUGAL/RECYCLING SEPARATORS (CONT.)**WORKING PRESSURE****Service Temperature****-28.9 to 37.8C (-20 to 100F)**

ANSI	kPa	psi
150	1 896	275
300	5 102	740
600	10 204	1 480
900	14 893	2 160
1 500	24 821	3 600
2 500	41 369	6 000

2.040.600 ENVIRONMENTAL SKIDDED LOW STAGE SEPARATOR TANK UNITS**Rate includes:** Rate is based on a typical skidded oilfield separator installation.

All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange. Rate includes Low Stage Separator Tank Unit c/w sand frac flow back vessel, frac tees, ¾" senior meter run, dry flow meter, sand diffuser, liquid dump valve, controller, site glass, high level switch, one 24" manway, PSV, ladder and platform, scrubber and filter.

Electrical Cost for a 100' service to the end devices includes:

- One 3C, #10 AWG Teck 90 Triax power cable for end device power.
- Three 3C, #16 AWG Teck 90 Triac communication cables for assumed three end devices.

Size (bbl)	Base Rate (\$)
50	78 448
100	107 286
330	187 326
450	206 831
490	208 386

2.040.700 PRE-FABRICATED ENVIRONMENTAL BATTERY UNITS

Standard Unit Rates include: 500 barrel used railway oil tank car horizontal separator, high level and high pressure shut off valves, dry flow recorders and fluid level indicators, flow lines, meter, flare lines, 100mm x12.2m flare stack, scrubber, filter, ignition and arrestor, steel skids and saddles, weir plank pad and installation

Heated Unit Rates include: 250mm fire tube, burner and pilot light, 500 barrel used railway oil tank car horizontal separator, high level and high pressure shut off valves, dry flow recorders and fluid level indicators, flow lines, meter, flare lines, 100mm x12.2m flare stack, ignition and arrestor, steel skids and saddles, weir plank pad and installation

Treating Unit Rates include: degassers and down comers, spreader pan and baffle plates, individual fluid level gauges for oil, gas and water, 500 barrel used railway oil tank car horizontal separator, high level and high pressure shut off valves, dry flow recorders and fluid level indicators, flow lines, meter, flare lines, 100mm x12.2m flare stack, ignition and arrestor, steel skids and saddles, weir plank pad and installation

Companion Storage Tank Rates include: extension of site work, weir, pad and installation, steel skids and saddles, connecting piping to main unit, meters, valves and indicators

Low pressure Unit (48kPa)	Lines & Meter Runs (mm)	Base Rate (\$)
Standard Unit unheated	50	62 637
Standard Unit unheated	75	65 063
Heated Unit	50	69 915
Heated Unit	75	72 342
Treating Unit	50	89 324
Treating Unit	75	91 749
Companion Storage Tank	add each	37 347

High Pressure Unit (345kPa)	Lines & Meter Runs (mm)	Base Rate (\$)
Standard Unit, Unheated	75	127 438

2.040.800 SKIDDED LOW FLOW DRIP SEPARATOR

Rate includes: Rate is based on a typical skidded oilfield separator installation. All piping such as inlet, outlet, water dump line and drain line terminates at unit edge with a block valve and blind flange. Rate includes skidded Low Flow Drip Separator Unit c/w dump valve, controller, two PSV's, gas dryer (scrubber), gas filter, one manway, methanol pump, meter run, chart recorder, 5 gallon tank, and pressure and temperature gauges.

Design Pressure (kpa)	(psi)	Base Rate (\$ per unit)
10200	1 480	34 502

2.050 FUEL GAS SCRUBBERS**2.050A FUEL GAS SCRUBBERS—ANSI 150 VALVES**

Rate includes: Rate is based on a typical skidded (6' X 8') oilfield vertical self contained fuel gas separator installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange. Rate includes skidded scrubber c/w ¾" liquid dump valves, controller, site glass, high level switch, one manway, pressure and temperature gauges, senior orifice meter run, chart recorder, ¾" instrument gas piping, regulator. No building costs are included. The industry standard is to install a 2' X 4' X 5' high self framing building for a cost of \$1853.00 to house the instruments. Electrical Cost for a 100' service to the end devices includes:

- One 3C, #10 AWG Teck 90 Triax power cable for end device power.
- Three 3C, #16 AWG Teck 90 Triac communication cables for assumed three end devices.

Diameter (mm)	Height/Length			Base Rate (\$)
	(in)	(m)	(ft)	
152.00	6	0.76	2.5	14 143
152.00	6	0.91	3.0	14 187
203.00	8	0.76	3.0	14 224
203.00	8	0.91	3.0	14 704
254.00	10	0.76	2.5	15 040

2.050B FUEL GAS SCRUBBERS—ANSI 300 VALVES

Rate includes: Rate is based on a typical skidded (6' X 8') oilfield vertical self contained fuel gas separator installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange. Rate includes skidded scrubber c/w ¾" liquid dump valves, controller, site glass, high level switch, one manway, pressure and temperature gauges, senior orifice meter run, chart recorder, ¾" instrument gas piping, regulator. No building costs are included. The industry standard is to install a 2' X 4' X 5' high self framing building for a cost of \$1600.00 to house the instruments. Electrical Cost for a 100' service to the end devices includes:

- One 3C, #10 AWG Teck 90 Triax power cable for end device power.
- Three 3C, #16 AWG Teck 90 Triac communication cables for assumed three end devices.

Diameter (mm)	Height/Length			Base Rate (\$)
	(in)	(m)	(ft)	
102.00	4	0.61	2.0	14 056
152.00	6	0.76	2.5	14 224
152.00	6	0.91	3.0	14 267
203.00	8	0.76	3.0	14 785
203.00	8	0.91	3.0	14 872
254.00	10	0.76	3.0	15 208

2.060 FREE WATER KNOCKOUTS

Rate includes: Rate is based on a typical skidded (10' X 15') oilfield self contained free water knockout separator installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange.

Rate includes skidded free water knockout c/w two ¾" liquid dump valves, two controllers, two site glasses, high level switch, back pressure control valve, pressure and temperature gauges, senior orifice meter run, chart recorder, ¾" instrument gas piping, regulator.

Electrical Cost for a 100' service to the end devices includes:

- One 3C, #10 AWG Teck 90 Triax power cable for end device power.
- Three 3C, #16 AWG Teck 90 Triac communication cables for assumed three end devices.

Diameter (m)	(ft)	Length (m)	(ft)	Base Rate (\$)
1.83	6.0	3.0	10.0	50 482
1.83	6.0	4.6	15.0	67 445
2.44	8.0	4.6	15.0	77 342
3.05	10.0	6.1	20.0	106 967
3.05	10.0	9.1	30.0	125 057
3.05	10.0	12.2	40.0	150 284

2.070 GAS BOOTS

Rate includes: Rate is based on a typical skidded (12' X 10') oilfield self contained gas boot installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange.

Rate includes skidded vertical separator c/w one ¾" liquid dump valve, one controller, one site glass, high level switch, pressure and temperature gauges, senior orifice meter run, chart recorder, ¾" instrument gas piping, regulator, filter and scrubber, two 16" manways, guy wires, PSV.

Electrical Cost for a 100' service to the end devices includes:

- One 3C, #10 AWG Teck 90 Triax power cable for end device power.
- Three 3C, #16 AWG Teck 90 Triac communication cables for assumed three end devices.

Note: Average heights used are 9.1 to 12.2 m (30 to 40 feet).

Diameter (mm)	(in.)	Base Rate (\$)
600	24	23 064
750	30	23 555
900	36	24 671
1 050	42	28 026
1 200	48	30 826
1 500	60	33 252

2.080 FLARE SYSTEMS

2.080.100 VENT STACKS 100 MM (4 IN.) STACK

Rate includes: Rate is based on a typical oilfield vertical self contained vent stack installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange. Rate includes the following:
4" vent stack, 30 to 50 gallon knockout drum, , pile foundation, two 4" valves, and three guy wires c/w pile foundation.

Height (m)	(ft)	Base Rate (\$)
9.1	30	16 660
12.2	40	17248
15.2	50	18764
18.3	60	20563
21.3	70	24370
24.4	80	25695
27.4	90	29349
30.5	100	30722

2.080.120 VENT STACKS 150 MM (6 IN.) STACK

Rate includes: Rate is based on a typical oilfield vertical self contained vent stack installation. All piping such as inlet, outlet, water dump line and drain line terminates at unit edge with a block valve and blind flange. Rate includes the following:
6" vent stack, 30 to 50 gallon knockout drum, pile foundation, two 6" valves, and three guy wires c/w pile foundation.

Height (m)	(ft)	Base Rate (\$)
9.1	30	20 104
12.2	40	21528
15.2	50	23911
18.3	60	26303
21.3	70	30793
24.4	80	32622
27.4	90	36559
30.5	100	38150

2.080.140 VENT STACKS 203 MM (8 IN.) STACK

Rate includes: Rate is based on a typical oilfield vertical self contained vent stack installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange.

Rate includes the following:

8" vent stack, 30 to 50 gallon knockout drum, , pile foundation, two 8" valves, and three guy wires c/w pile foundation.

Height (m)	(ft)	Base Rate (\$)
9.1	30	23 255
12.2	40	24 468
15.2	50	26 543
18.3	60	28 592
21.3	70	33 654
24.4	80	35 738
27.4	90	39 528
30.5	100	41 155

2.080.200 FLARE STACKS PILOT & SHOTTUBE 100 MM (4 IN.) STACK

Rate includes: Rate is based on a typical oilfield vertical self contained vent stack installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange.

Rate includes the following:

4" flare stack, knockout 30 to 50 gallon knockout drum, igniter, foundation, two 4" valves, three guy wires c/w pile foundation, 1" fuel line and electrical line terminating at bottom of skid, pilot and shot tube.

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service.
- Three 3C, #16 AWG Teck 90 Triac communication cables.

Height (m)	(ft)	Base Rate (\$)
9.1	30	24 893
12.2	40	25 706
15.2	50	27 729
18.3	60	29 777
21.3	70	34 107
24.4	80	35 910
27.4	90	40 034
30.5	100	41 896

2.080.220 FLARE STACKS PILOT & SHOTTUBE 150 MM (6 IN.) STACK

Rate includes: Rate is based on a typical oilfield vertical self contained vent stack installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange.

Rate includes the following:

6" flare stack, 30 to 50 gallon knockout drum, igniter, foundation, two 6" valves, three guy wires c/w pile foundation, 1" fuel line and electrical line terminating at bottom of skid, pilot and shot tube.

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service.
- Three 3C, #16 AWG Teck 90 Triac communication cables.

Height (m)	(ft)	Base Rate (\$)
9.1	30	27 798
12.2	40	29 381
15.2	50	31 996
18.3	60	34 552
21.3	70	39 306
24.4	80	41 472
27.4	90	45 684
30.5	100	47 631

2.080.240 FLARE STACKS PILOT & SHOTTUBE 200 MM (8 IN.) STACK

Rate includes: Rate is based on a typical oilfield vertical self contained vent stack installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange.

Rate includes the following:

8" flare stack, 30 to 50 gallon knockout drum, igniter, foundation, two 8" valves, three guy wires c/w pile foundation, 1" fuel line and electrical line terminating at bottom of skid, pilot and shot tube.

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service.
- Three 3C, #16 AWG Teck 90 Triac communication cables.

Height (m)	(ft)	Base Rate (\$)
9.1	30	31 135
12.2	40	32 573
15.2	50	34 652
18.3	60	37 036
21.3	70	42 334
24.4	80	44 743
27.4	90	48 820
30.5	100	50 798

2.080.300A FLARE STACKS—MANUAL IGNITER 100 MM (4 IN.) STACK

Rate includes: Rate is based on a typical oilfield vertical self contained vent stack installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange.

Rate includes the following:

4" flare stack, 30 to 50 gallon drum, igniter, foundation, two 4" valves, three guy wires c/w pile foundation, 1" fuel line and electrical line terminating at bottom of skid edge, manual igniter.

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service.
- Three 3C, #16 AWG Teck 90 Triac communication cables.

Height (m)	(ft)	Base Rate (\$)
9.1	30	27 210
12.2	40	28 022
15.2	50	30 070
18.3	60	32 357
21.3	70	36 815
24.4	80	38 745
27.4	90	43 034
30.5	100	45 015

2.080.300B FLARE STACKS—AUTOMATIC IGNITER 100 MM (4 IN.) STACK

Rate includes: Rate is based on a typical oilfield vertical self contained vent stack installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange.

Rate includes the following:

4" flare stack, 30 to 50 gallon knockout drum, foundation, two 4" valves, three guy wires c/w pile foundation, 1" fuel line and electrical line terminating at bottom of skid edge, auto igniter.

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service.
- Three 3C, #16 AWG Teck 90 Triac communication cables.

Height (m)	(ft)	Base Rate (\$)
9.1	30	28 985
12.2	40	29 867
15.2	50	32 004
18.3	60	34 312
21.3	70	38 707
24.4	80	40 310
27.4	90	44 606
30.5	100	46 777

2.080.300C FLARE STACKS—SOLAR IGNITER 100 MM (4 IN.) STACK

Rate includes: Rate is based on a typical oilfield vertical self contained vent stack installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange.

Rate includes the following:

4" flare stack, 30 to 50 gallon knockout drum, foundation, two 4" valves, three guy wires c/w pile foundation, 1" fuel line and electrical line terminating at bottom of skid edge, solar igniter.

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service.
- Three 3C, #16 AWG Teck 90 Triac communication cables.

Height (m)	(ft)	Base Rate (\$)
9.1	30	31 362
12.2	40	32 243
15.2	50	34 296
18.3	60	36 689
21.3	70	41 106
24.4	80	42 946
27.4	90	47 315
30.5	100	49 223

2.080.320A FLARE STACKS—MANUAL IGNITER 150 MM (6 IN.) STACK

Rate includes: Rate is based on a typical oilfield vertical self contained vent stack installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange.

Rate includes the following:

6" flare stack, 30 to 50 gallon knockout drum, foundation, two 6" valves, three guy wires c/w pile foundation, 1" fuel line and electrical line terminating at bottom of skid edge, and manual igniter.

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service.
- Three 3C, #16 AWG Teck 90 Triac communication cables.

Height (m)	(ft)	Base Rate (\$)
9.1	30	21 759
12.1	40	22 788
15.2	50	24 570
18.2	60	26 313
21.3	70	29 888
24.4	80	31 126
27.4	90	34 178
30.5	100	35 531

2.080.320B FLARE STACKS—AUTOMATIC IGNITER (6 IN.) STACK

Rate includes: Rate is based on a typical oilfield vertical self contained vent stack installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange.

Rate includes the following:

6" flare stack, 30 to 50 gallon knockout drum, foundation, two 6" valves, three guy wires c/w pile foundation, 1" fuel line and electrical line terminating at bottom of skid edge, auto igniter.

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service.
- Three 3C, #16 AWG Teck 90 Triac communication cables.

Height (m)	(ft)	Base Rate (\$)
9.1	30	30 950
12.1	40	32 577
15.2	50	35 273
18.2	60	37 643
21.3	70	43 097
24.4	80	44 908
27.4	90	49 151
30.5	100	51 112

2.080.320C FLARE STACKS—SOLAR IGNITER (6 IN.) STACK

Rate includes: Rate is based on a typical oilfield vertical self contained vent stack installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange.

Rate includes the following:

6" flare stack, 30 to 50 gallon knockout drum, foundation, two 6" valves, three guy wires c/w pile foundation, 1" fuel line and electrical line terminating at bottom of skid edge, solar igniter.

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service.
- Three 3C, #16 AWG Teck 90 Triac communication cables.

Height (m)	(ft)	Base Rate (\$)
9.1	30	34 363
12.1	40	36 017
15.2	50	38 773
18.2	60	41 546
21.3	70	46 787
24.4	80	48 627
27.4	90	53 068
30.5	100	55 069

2.080.340A FLARE STACKS—MANUAL IGNITER 200 MM (8 IN.) STACK

Rate includes: Rate is based on a typical oilfield vertical self contained vent stack installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange.

Rate includes the following:

8" flare stack, 30 to 50 gallon knockout drum, foundation, two 8" valves, three guy wires c/w pile foundation, 1" fuel line and electrical line terminating at bottom of skid edge, manual igniter.

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service.
- Three 3C, #16 AWG Teck 90 Triac communication cables.

Height (m)	(ft)	Base Rate (\$)
9.1	30	33 558
12.1	40	35 023
15.2	50	37 350
18.2	60	39 686
21.3	70	45 144
24.4	80	47 675
27.4	90	51 914
30.5	100	54 021

2.080.340B FLARE STACKS—AUTOMATIC IGNITER 200 MM (8 IN.) STACK

Rate includes: Rate is based on a typical oilfield vertical self contained vent stack installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange.

Rate includes the following:

8" flare stack, 30 to 50 gallon knockout drum, foundation, two 8" valves, three guy wires c/w pile foundation, 1" fuel line and electrical line terminating at bottom of skid edge, auto igniter.

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service.
- Three 3C, #16 AWG Teck 90 Triac communication cables.

Height (m)	(ft)	Base Rate (\$)
9.1	30	35 425
12.1	40	36 986
15.2	50	39 343
18.2	60	41 777
21.3	70	47 141
24.4	80	49 617
27.4	90	53 871
30.5	100	55 914

2.080.340C FLARE STACKS—SOLAR IGNITER 200 MM (8 IN.) STACK

Rate includes: Rate is based on a typical oilfield vertical self contained vent stack installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange.

Rate includes the following:

8" flare stack, 30 to 50 gallon knockout drum, foundation, two 8" valves, three guy wires c/w pile foundation, 1" fuel line and electrical line terminating at bottom of skid edge, solar igniter.

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service.
- Three 3C, #16 AWG Teck 90 Triac communication cables.

Height (m)	(ft)	Base Rate (\$)
9.1	30	37 886
12.1	40	39 429
15.2	50	41 770
18.2	60	44 212
21.3	70	49 614
24.4	80	52 082
27.4	90	56 392
30.5	100	58 418

2.080.500 INCINERATORS

Rate includes: Rate is based on a typical oilfield vertical self contained incinerator installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange. Rate includes stack, pile foundation, two 6" valves, three guy wires, pilot assembly, ignitor tube, 1" fuel line and electrical line terminating at bottom of skid, electric ignition.

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service.
- Three 3C, #16 AWG Teck 90 Triac communication cables.

Height (m)	(ft)	Base Rate (\$)
9.1	30	102 509
12.2	40	114 728
14.3	47	119 310
15.2	50	122 364
18.3	60	141 455
21.3	70	152 146
24.4	80	162 837
27.4	90	174 292
28.6	94	178 110

2.090 COMPRESSORS

2.090.100 VAPOUR RECOVERY–BLOWER

Rate includes: Rate is based on a typical skidded (10' X 8') oilfield self contained vapour recovery blower installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange.

Included in the price are:

skidded electric driven blower and motor, reciprocating compressor, 1" junior orifice meter run, 3 pen recorder, skid mounted control panel, lube oil tank.

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service.
- Three 3C, #16 AWG Teck 90 Triac communication cables.
- Building electrical service to skid edge only.
- Power service to motor, motor starter, cable, local disconnects

Cost for self framing building, heating, lighting, plumbing, fire and gas detection, hazard lights, variable frequency drive (VFD), gas cooler, RTU, chemical injectors, chemical tank, meters, totalizers, analyzers, control valves, pumps, piping to and from unit and crane **are not included.**

Size (kW)	(hp)	Base Rate (\$)
1.5	2	22 818
3.7	5	31 288
7.5	10	42 499

2.090.200 PACKAGED SINGLE STAGE COMPRESSOR, ELECTRIC DRIVE

Rate includes: Rate is based on a typical skidded oilfield self contained compressor installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange. Included in the price is a skidded single stage reciprocating compressor c/w electric drive, inlet separator c/w auto drain, PSV, high level switch (HLS), site glass, control panel on the skid, 2" junior orifice meter run c/w 3 pen recorder, lube oil system c/w day tank and scrubber.

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for Power Service.
- Three 3C, #16 AWG Teck 90 Triac communication cables.
- Building electrical service to skid edge only.
- Power service to motor, motor starter, cable, local disconnects

Cost for self framing building, heating, lighting, plumbing, fire and gas detection, hazard lights, VFD, gas cooler, RTU, chemical injector, chemical tank, meters, totalizers, analyzers, control valves, blow case, pumps, noise abatement systems, piping to and from units and crane and craneway **are not included.**

Size (kW)	(hp)	Base Rate (\$)
3.7	5	113 369
11.0	15	120 171
18.7	25	138 837
37.3	50	152 941
74.6	100	258 115
111.9	150	355 969

2.090.300 PACKAGED SINGLE STAGE COMPRESSOR, GAS DRIVEN

Rate includes: Rate is based on a typical skidded (10' X 8') oilfield self contained compressor installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange.

Included in the rate is a skidded single stage reciprocating compressor c/w gas drive, inlet separator c/w auto drain, PSV, HLS, site glass, control panel on the skid, 2" junior orifice meter run c/w 3 pen recorder, lube oil and glycol systems c/w day tanks, 1" fuel gas and starting gas lines c/w regulators and scrubber.

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service.
- Three 3C, #16 AWG Teck 90 Triac communication cables.
- Building electrical service to skid edge only.

Cost for self framing building, heating, lighting, plumbing, fire and gas detection, hazard lights, VFD, gas cooler, RTU, chemical injector, chemical tank, meters, totalizers, analyzers, control valves, blow case, pumps, noise abatement systems, piping to and from units, crane and craneway **are not included.**

Note: Horsepower (electric) x 0.746 = kilowatt (kW)

Size (kW)	(hp)	Base Rate (\$)
11.0	15	128 793
18.7	25	145 965
37.3	50	154 692
56.0	75	257 343
74.6	100	287 894
93.3	125	333 955
111.9	150	393 556

2.090.400 GAS COMPRESSORS—TWO STAGE ELECTRIC DRIVE—PACKAGED

Rate includes: Pricing is based on a typical skidded oilfield self contained compressor installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange. Included in the price is a skidded two stage reciprocating compressor c/w electric drive, two separators c/w auto drain, PSV, HLS, site glass, control panel on the skid, 2" junior orifice meter run c/w 3 pen recorder, lube oil system c/w day tank, first and second stage gas cooler (25hp), and scrubber. Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service.
- Three 3C, #16 AWG Teck 90 Triac communication cables.
- Building electrical service to skid edge only.
- Power service to motor, motor starter, cable, local disconnects for one gas cooler (25hp).

Cost for self framing building, heating, lighting, plumbing, fire and gas detection, hazard lights, VFD, , RTU, chemical injector, chemical tank, meters, totalizers, analyzers, control valves, blow case, noise abatement systems, piping to and from units and crane **are not included**.

Size (kW)	(hp)	Base Rate (\$)
14.9	20	149 941
37.3	50	167 728
44.8	60	167 915
74.6	100	256 009
93.3	125	297 682
149.2	200	349 624
223.8	300	403 299

2.090.500 GAS COMPRESSORS—TWO STAGE GAS DRIVE—PACKAGED

Rate includes: Rate is based on a typical skidded oilfield self contained compressor installation. All piping such as inlet, outlet, vapour, water, fuel gas and dump line terminates at unit edge with a block valve and blind flange. Included in the price is a skidded two stage reciprocating compressor c/w gas drive, two separators c/w auto drain, PSV, HLS, site glass, control panel on the skid, 2" junior orifice meter run c/w 3 pen recorder, lube oil system c/w day tank, first and second stage gas cooler (25hp).

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service.
- Three 3C, #16 AWG Teck 90 Triac communication cables.
- Building electrical service to skid edge only.
- Power service to motor, motor starter, cable, local disconnects for one gas cooler (25hp).

Cost for self framing building, heating, lighting, plumbing, fire and gas detection, hazard lights, VFD, , RTU, chemical injector, chemical tank, meters, totalizers, analyzers, control valves, blow case, noise abatement systems, piping to and from units and crane **are not included**.

Size (kW)	(hp)	Base Rate (\$)
14.9	20	181 911
37.3	50	196 696
44.8	60	196 696
56.0	75	299 353
74.6	100	329 898
93.3	125	375 959
111.9	150	406 624
149.2	200	438 283
223.8	300	489 922
298.0	400	629 530
373.0	500	774 010
448.0	600	812 029
552.0	700	1 010 444
597.0	800	1 135 108
671.0	900	1 294 353
746.0	1000	1 374 357

2.100 PUMPS**2.100.100 VERTICAL TURBINE PUMPS**

Rate includes: Rate is based on a typical skidded oilfield pump installation.

All piping such as inlet and outlet lines will terminate at unit edge with a block valve and blind flange. Includes pump, base plate, explosion proof electric motor and drive assembly c/w couplings.

Electrical Cost for a 100' service includes:

- Power service to motor, motor starter, cable, local disconnects.

Cost for self framing building, heating, lighting, plumbing, fire and gas detection, hazard lights, VFD, gas cooler, piping to and from unit and crane **are not included.**

Inlet (mm)	(in.)	Motor (kW)	(hp)	Base Rate (\$)
100	4	1.5	2.0	28 591
100	4	2.2	3.0	28 618
100	4	3.7	5.0	29 098
100	4	5.6	7.5	29 668
150	6	2.2	3.0	33 436
150	6	3.7	5.0	33 916
150	6	5.6	7.5	34 352
150	6	7.5	10.0	36 130
150	6	11.2	15.0	37 080
150	6	14.9	20.0	38 758
150	6	18.7	25.0	39 788
150	6	22.4	30.0	40 798

2.100.200 CENTRIFUGAL PUMPS—END SUCTION

Rate includes: Rate is based on a typical skidded oilfield pump installation.

All piping such as inlet and outlet lines will terminate at unit edge with a block valve and blind flange. Includes pump, base plate, explosion proof electric motor and drive assembly c/w couplings, mechanical seals.

Electrical Cost for a 100' service includes:

- Power service to motor, motor starter, cable, local disconnects.

Cost for self framing building, heating, lighting, plumbing, fire and gas detection, hazard lights, VFD, gas cooler, piping to and from unit and crane **are not included.**

Inlet (mm)	(in.)	Motor (kW)	(hp)	Base Rate (\$)
38	1.5	1.5	2.0	11 676
38	1.5	2.2	3.0	11 817
38	1.5	3.7	5.0	11 958
75	3.0	1.5	2.0	14 670
75	3.0	2.2	3.0	14 837
75	3.0	3.7	5.0	15 004
100	4.0	2.2	3.0	16 720
100	4.0	3.7	5.0	16 894
100	4.0	5.6	7.5	17 027
100	4.0	7.5	10.0	19 850
100	4.0	11.2	15.0	24 113

2.100.300 CENTRIFUGAL PUMPS—VERTICAL INLINE

Inlet (mm)	(in.)	Motor (kW)	(hp)	Base Rate (\$)
50	2.0	1.5	2.0	17 079
50	2.0	2.2	3.0	17 310
50	2.0	3.7	5.0	17 840
75	3.0	1.5	2.0	17 692
75	3.0	2.2	3.0	17 955
75	3.0	3.7	5.0	18 335
100	4.0	2.2	3.0	20 945
100	4.0	3.7	5.0	21 200
100	4.0	5.6	7.5	21 514
100	4.0	7.5	10.0	25 825
100	4.0	11.2	15.0	32 056

2.100.400

ROTARY GEAR PUMPS

Rate includes: Rate is based on a typical skidded oilfield pump installation.

All piping such as inlet and outlet lines will terminate at unit edge with a block valve and blind flange. Includes pump, base plate, explosion proof electric motor and drive assembly c/w couplings, mechanical seals.

Electrical Cost for a 100' service includes:

- Power service to motor, motor starter, cable, and local disconnects.

Cost for self framing building, heating, lighting, plumbing, fire and gas detection, hazard lights, VFD, gas cooler, piping to and from unit and crane **are not included.**

Inlet (mm)	(in.)	Motor (kW)	(hp)	Base Rate (\$)
38	1.5	1.5	2.0	11 447
38	1.5	2.2	3.0	11 634
38	1.5	3.7	5.0	11 822
63	2.5	1.5	2.0	12 825
63	2.5	2.2	3.0	13 206
63	2.5	3.7	5.0	13 588
75	3.0	7.5	10.0	16 875
75	3.0	11.2	15.0	17 879

2.100.500

PROGRESSIVE CAVITY PUMPS

Rate includes: Rate is based on a typical skidded oilfield pump installation.

All piping such as inlet and outlet lines will terminate at unit edge with a block valve and blind flange.

Includes pump, base plate, explosion proof electric motor, V-Belt Drive and guard assembly, steel rotor and stator, mechanical seals.

Electrical Cost for a 100' service includes:

- Power service to motor, motor starter, cable, and local disconnects.

Cost for self framing building, heating, lighting, plumbing, fire and gas detection, hazard lights, VFD, gas cooler, piping to and from unit and crane **are not included.**

Inlet (mm)	(in.)	Motor (kW)	(hp)	Base Rate (\$)
50	2.0	1.5	2.0	13 078
63	2.5	2.2	3.0	14 521
75	3.0	2.2	3.0	16 394
100	4.0	3.7	5.0	18 546
150	6.0	5.6	7.5	21 341
150	6.0	7.5	10.0	26 084
150	6.0	11.2	15.0	30 690

2.100.600 PISTON / PLUNGER PUMPS

Rate includes: Rate is based on a typical skidded oilfield pump installation.

All piping such as inlet and outlet lines will terminate at unit edge with a block valve and blind flange.

Includes pump, base plate, explosion proof electric motor, V-Belt Drive assembly, PSV, c/w couplings, equipment skid for 30 HP and greater.

Electrical Cost for a 100' service includes:

- Power service to motor, motor starter, cable, and local disconnects.

Cost for self framing building, heating, lighting, plumbing, fire and gas detection, hazard lights, VFD, and piping to and from unit **are not included**.

Type	Motor		Base Rate (\$)
	(kW)	(hp)	
Simplex	3.7	5.0	25 673
Duplex	7.5	10.0	36 084
Triplex	11.2	15.0	33 881
Triplex	22.4	30.0	51 141
Triplex	37.3	50.0	64 709
Triplex	74.6	100.0	99 461
Quintuplex	22.4	30.0	60 664
Quintuplex	37.3	50.0	76 369
Quintuplex	56.0	75.0	97 217
Quintuplex	74.6	100.0	100 105
Quintuplex	186.5	250.0	123 070

2.100.700 WATERFLOOD PUMPS

Rate includes: Rate is based on a typical skidded oilfield pump installation.

All piping such as inlet and outlet lines will terminate at unit edge with a block valve and blind flange. Includes pump, base plate, explosion proof electric motor, V-Belt Drive assembly, PSV, c/w couplings, equipment skid for 30 HP and greater.

Electrical Cost for a 100' service includes:

- Power service to motor, motor starter, cable, and local disconnects.

Cost for self framing building, heating, lighting, plumbing, fire and gas detection, hazard lights, VFD and piping to and from unit **are not included**.

Type	Motor		Base Rate (\$)
	(kW)	(hp)	
Triplex	22.4	30	48 432
Triplex	44.8	60	56 838
Triplex	74.6	100	80 682
Triplex	123.1	165	109 574
Triplex	149.2	200	139 273
Triplex	279.8	375	221 576
Quintuplex	186.5	250	179 460
Quintuplex	223.8	300	210 828
Quintuplex	373.0	500	378 504
Quintuplex	466.3	625	430 134

2.110 AIR COMPRESSORS

2.110.100 UTILITY AIR COMPRESSORS

Rate includes: Rate is based on a typical skidded oilfield pump installation. All piping such as inlet and outlet lines will terminate at unit edge with a block valve and blind flange. Skidded single stage reciprocating air compressor, electric driver, PSV, air receiver c/w manual drain, high pressure shutdown. Electrical Cost for a 100' service includes:

- Power service to motor, motor starter, cable, and local disconnects.

Cost for self framing building, heating, lighting, plumbing, fire and gas detection, hazard lights, VFD, and extra air tanks **are not included**.

Size (kW)	(hp)	Base Rate (\$)
0.7	1.0	7 331
1.5	2.0	9 580
3.7	5.0	16 953
7.5	10.0	23 807
11.2	15.0	25 533

2.110.200 INSTRUMENT AIR COMPRESSORS—RECIPROCATING

Rate includes: Rate is based on a typical skidded oilfield installation. All piping such as inlet and outlet lines will terminate at unit edge with a block valve and blind flange. Includes skidded single stage reciprocating air compressor, electric driver, PSV, air receiver, after cooler, dryer, high pressure switch, Control panel on skid. Electrical Cost for a 100' service includes:

- Power service to motor, motor Starter, cable, and local disconnects.
- One 3C, #10 AWG Teck 90 Triax power cable for power service for end devices.
- Three 3C, #16 AWG Teck 90 Triac communication cables.

Cost for self framing building, heating, lighting, plumbing, fire and gas detection, hazard lights, VFD and extra air tanks are not included.

Size (kW)	(hp)	Base Rate (\$)
3.7	5.0	22 347
7.5	10.0	29 212
11.2	15.0	31 917

2.110.300 INSTRUMENT AIR COMPRESSORS—ROTARY SCREW

Rate includes: Rate is based on a typical skidded oilfield installation.

All piping such as inlet and outlet lines will terminate at unit edge with a block valve and blind flange. Includes skidded single stage lubricated oil injection air compressor, electric driver, PSV, high pressure switch, after cooler, air dryer, and oil separator c/w a pump.

Electrical Cost for a 100' service includes:

- Power service to motor, motor Starter, cable, local disconnects.
- One 3C, #10 AWG Teck 90 Triax power cable for power service for end devices.
- Three 3C, #16 AWG Teck 90 Triac communication cables.

Cost for self framing building, heating, lighting, plumbing, fire and gas detection, hazard lights, VFD and extra air tanks are not included.

Size (kW)	(hp)	Base Rate (\$)
11.2	15.0	30 908
18.7	25.0	36 413
37.3	50.0	123 580
44.7	60.0	127 159
55.9	75.0	135 372
74.6	100.0	163 765

2.120 CHEMICAL INJECTORS

2.120.100 ELECTRIC DRIVE CHEMICAL INJECTORS

Rate includes: Rate is based on a typical skidded oilfield installation.

All piping such as inlet and outlet lines will terminate at unit edge with a block valve and blind flange. Includes electric driver, pump and base, PSV, tubing c/w 3/4" valve, 5 gallon tank c/w site glass

Electrical Cost for a 100' service includes:

- Power service (Single or 3 Phase) to motor, motor starter, cable, and local disconnects.

Cost for self framing building, heating, lighting, plumbing, fire and gas detection, hazard lights, VFD and above ground chemical tanks **are not included**.

Single Head-6 mm			
Motor (kW)	(hp)	Phases	Base Rate (\$)
0.19	0.25	1	10 821
0.19	0.25	3	12 747
0.37	0.50	1	11 548
0.37	0.50	3	13 785

Two Heads-6 mm			
Motor (kW)	(hp)	Phases	Base Rate (\$)
0.19	0.25	1	11 102
0.19	0.25	3	13 021
0.37	0.50	1	11 858
0.37	0.50	3	14 116

2.120.200 AIR OR GAS DRIVEN CHEMICAL INJECTORS

Rate includes: Rate is based on a typical oilfield installation.

All piping such as inlet and outlet lines will terminate at unit edge with a block valve and blind flange. Includes pump and base, PSV, tubing c/w 3/4" valve, 5 gallon tank c/w site glass

Cost for self framing building, heating, lighting, plumbing, fire and gas detection, hazard lights, VFD and above ground chemical tanks **are not included**.

Plunger Size (mm)	(in.)	Base Rate (\$)
6	0.25	3 691
12	0.50	5 686
19	0.75	6 526
25	1.00	5 851
31	1.25	5 986

2.120.300A OSCILLAMATIC CHEMICAL INJECTORS—MORGAN PRODUCTS HD

Rate includes: Rate is based on a typical oilfield installation.
 Includes pump and base, PSV, tubing c/w 3/4" valve, 5 gallon tank c/w site glass.
 Electrical Cost for a 100' service includes:
 • Power service (Single or 3 Phase) to motor, motor Starter, cable, and local disconnects.
 Cost for above ground chemical tanks **are not included**.

Model	Base Rate (\$)
HD187-TR1	6 605
HD312-TR1	6 938
HD312-3K-TR1	7 272
HD312-5K-TR1	7 621
HD562-TR1	6 619
HD562-3K-TR1	7 694
HD562-5K	7 490
HD1062-TR1-SR1S	10 902
HD1062-3K-TR1-SR1S	11 788
HD2000-TR1-SR2S	21 241

2.120.300B OSCILLAMATIC CHEMICAL INJECTORS—MORGAN PRODUCTS PNEUMATIC DIAPHRAGM INJECTORS

Rate includes: Rate is based on a typical oilfield installation.
 Includes pump and base, PSV, tubing c/w 3/4" valve, 5 gallon tank c/w site glass.
 Electrical Cost for a 100' service includes:
 • Power service (Single or 3 Phase) to motor, motor starter, cable, and local disconnects.
 Cost for above ground chemical tanks **are not included**.

Model	Base Rate (\$)
D10-316-TR1	6 271
D15-PVC-TR1	6 271
D25-316-TR1	6 212
D40-PVC-TR1	7 563

2.120.300C OSCILLAMATIC CHEMICAL INJECTORS—MORGAN PRODUCTS PNEUMATIC CHEMICAL INJECTORS

Rate includes: Rate is based on a typical oilfield installation.

Includes pump and base, PSV, tubing c/w 3/4" valve, 5 gallon tank c/w site glass.

Electrical Cost for a 100' service includes:

- Power service (Single or 3 Phase) to motor, motor starter, cable, and local disconnects.

Cost for above ground chemical tank is not included.

Model	Base Rate (\$)
55DS-TR1	6 750
125-TR1	6 358
225DS-TR1	6 314
235-TR1	6 808
275DS-TR1	7 200
325-TR1	6 880
335DS-TR1	7 200
375-TR1	7 127
425DS-TR1-SR1S	7 998
435-TR1-SR1S	8 100
475DS-TR1-SR1S	8 390
3755-TR1	8 870
4755DS-TR1-SR1S	9 552
3500-TR1	9 494
4500DS-TR1-SR1S	11 280
880DS-TR1-SR2S	13 792
1255DS-TR1-SR2S	14 881
5500DS-TR1-SR2S	15 665
8500DS-TR1-SR2S	17 088

2.120.300D OSCILLAMATIC CHEMICAL INJECTORS—WILLIAMS INSTRUMENTS

Rate includes: Rate is based on a typical oilfield installation.

Includes pump and base, PSV, tubing c/w 3/4" valve, 5 gallon tank c/w site glass.

Electrical Cost for a 100' service includes:

- Power service (Single or 3 Phase) to motor, motor starter, cable, and local disconnects.

Cost for above ground chemical tanks **are not included**.

Model	Base Rate (\$)
CP125	6 750
CP250	6 750
CP500	6 909
CRP750	8 332
CRP1000	11 178
CRP1500	12 848

2.130 CONTROL VALVES**2.130.100 EMERGENCY SHUTDOWN VALVES (ESD)**

Rate includes: Rate is based on a typical oilfield installation.

Includes reverse acting WKM gate valve, self contained actuator, high/low pressure pilot switch, tubing c/w 3/4" valves.

Type	Size (mm) (in.)		Base Rate (\$)
WKM Ball Valve	60	2	14 669
	89	3	19 063
	114	4	30 618
	168	6	50 254

2.130.200 2-WAY PNEUMATIC VALVES

Rate includes: Rate is based on a typical installation. Includes control valve, actuator, positioner, pilot switch, tubing c/w 3/4" valves.

Additional cost for 2-Way electric actuation are: \$240 plus an additional cost for power service of \$2590.00.

Note: 3-Way Pneumatic Valves are considered obsolete.

Valve size (mm)	ANSI size (in.)	Actuator size	Base Rate (\$)	
25	1.0	NPT	30	4 926
25	1.0	300	30	6 568
25	1.0	600	30	6 673
38	1.5	NPT	34	6 832
38	1.5	300	34	8 173
38	1.5	600	34	9 009
50	2.0	300	40	11 669
50	2.0	600	45	11 970
75	3.0	300	45	15 672
75	3.0	600	45	15 960
100	4.0	300	45	19 602
100	4.0	600	45	20 067
150	6.0	300	70	30 618
150	6.0	600	70	32 019

2.130.300 INTERMITTER-TIME CYCLE CONTROLLER

Rate includes: Rate is based on a typical oilfield installation.

Size (mm)	Base Rate (\$)
51.0	6 220
76.0	7 677
102.0	9 275
152.0	14 178

2.140 CHOKES**2.140.100 WELLHEAD/MANIFOLDS–WILLIS MANUAL**

Rate includes: Rate is based on a typical oilfield installation.

Manual choke includes only the flanged control valve c/w a handwheel.

Size (mm)	(in.)	Model	ANSI Rating (Inlet)	Base Rate (\$)
33	1	M-1A	600	2 075
33	1	M-1A	900/1500	2 075
33	1	M-1A	2500	2 075
60	2	M-2	600	4 200
60	2	M-2	900/1500	4 380
60	2	M-2	2500	4 725
89	3	M-3	600	8 496
89	3	M-3	900	8 496
89	3	M-3	1500	8 496
89	3	M-3	2500	10 103
114	4	M-4	600	9 422
114	4	M-4	900	9 814
114	4	M-4	1500	9 814
114	4	M-4	2500	11 703

2.140.200 WELLHEAD/MANIFOLDS–MASTER FLO MANUAL CHOKE

Rate includes: Rate is based on a typical oilfield installation.

Manual choke includes only the flanged control valve c/w a hand wheel.

Size (mm)	(in.)	Model	ANSI Rating (Inlet)	Base Rate (\$)
33	1	P-1	600	2 707
33	1	P-1	900/1500	2 788
33	1	P-1	2500	2 936
60	2	P-2	600	3 776
60	2	P-2	900/1500	3 991
60	2	P-2	2500	4 152
89	3	P-3	600	6 450
89	3	P-3	900	6 639
89	3	P-3	1500	6 941
89	3	P-3	2500	8 225
114	4	P-4	600	18 456
114	4	P-4	900	18 765
114	4	P-4	1500	18 724
114	4	P-4	2500	20 943
168	6	P-6	600	38 648
168	6	P-6	900	39 562
168	6	P-6	1500	40 496
168	6	P-6	2500	44 455

2.140.300 WELLHEAD/MANIFOLDS–WILLIS PNEUMATIC CHOKE

Rate includes: Rate is based on a typical oilfield installation.

Includes a pneumatically operated control valve and linear actuator, tubing c/w ¾" valve.

Size (mm)	(in.)	Model	ANSI Rating (Inlet)	Base Rate (\$)
33	1	M-1A	600	5 732
33	1	M-1A	900/1500	5 732
33	1	M-1A	2500	5 732
60	2	PA-2	600	7 863
60	2	PA	900/1500	9 141
60	2	PA	2500	9 486
89	3	M-3	600	13 506
89	3	M-3	900	13 506
89	3	M-3	1500	13 506
89	3	M-3	2500	15 105
114	4	M-4	600	14 666
114	4	M-4	900	15 058
114	4	M-4	1500	15 058
114	4	M-4	2500	16 955

2.140.400 WELLHEAD/MANIFOLDS–MASTER FLO PNEUMATIC CHOKE

Rate includes: Rate is based on a typical oilfield installation.

Includes a pneumatically operated control valve and linear actuator, tubing c/w ¾" valve.

Size (mm)	(in.)	Model	ANSI Rating (Inlet)	Base Rate (\$)
33	1	P-1	600	5 327
33	1	P-1	900/1500	5 549
33	1	P-1	2500	5 770
60	2	P-2	600	7 095
60	2	P-2	900/1500	7 316
60	2	P-2	2500	7 882
89	3	P-3	600	11 830
89	3	P-3	900	11 999
89	3	P-3	1500	12 275
89	3	P-3	2500	14 894
114	4	P-4	600	27 192
114	4	P-4	900	27 503
114	4	P-4	1500	27 883
114	4	P-4	2500	29 746
168	6	P-6	600	47 932
168	6	P-6	900	47 599
168	6	P-6	1500	50 812
168	6	P-6	2500	54 764

2.150 ORIFICE FITTING AND METER RUNS**2.150.100 SENIOR ORIFICE FITTING AND METER RUN**

Rate includes: Rate is based on a typical oilfield installation.

Includes orifice fittings and plate, plate holder, flanged meter run, and tubing c/w $\frac{3}{4}$ " valve.

ANSI 150		
Size (mm)	(in.)	Base Rate (\$)
60	2	7 388
89	3	9 100
114	4	10 967
168	6	14 407
219	8	18 596
273	10	25 576

ANSI 300		
Size (mm)	(in.)	Base Rate (\$)
60	2	7 898
89	3	9 355
114	4	11 244
168	6	14 856
219	8	20 184
273	10	27 704

ANSI 600		
Size (mm)	(in.)	Base Rate (\$)
60	2	8 602
89	3	10 314
114	4	12 382
168	6	18 256
219	8	27 615
273	10	44 258

2.150.200 SIMPLEX ORIFICE FITTING AND METER RUNS

Rate includes: Rate is based on a typical oilfield installation.

Includes orifice fittings and plate, plate holder, flanged meter run, and tubing c/w 3/4" valve.

ANSI 150		
Size (mm)	(in.)	Base Rate (\$)
60	2	3 019
89	3	3 778
114	4	4 925
168	6	6 474
219	8	12 686
273	10	15 508

ANSI 300		
Size (mm)	(in.)	Base Rate (\$)
60	2	3 061
89	3	3 841
114	4	5 023
168	6	8 763
219	8	13 722
273	10	16 726

ANSI 600		
Size (mm)	(in.)	Base Rate (\$)
60	2	3 131
89	3	3 946
114	4	5 345
168	6	7 517
219	8	14 689
273	10	22 650

2.160 METERING AND ANALYSIS**2.160.100 MECHANICAL LIQUID METERS**

Rate includes: Rate is based on a typical oilfield installation.

Includes flanged positive displacement meter c/w two isolation valves.

Note: The meters below are positive displacement meters for the measurement of brine, production water and oil production.

Type	Size		Base Rate (\$)
	(mm)	(in.)	
Barton Flotrac 306	33	1.0	3 599
Barton Flotrac 380	33	1.0	3 599
Floco F-2500	33	1.0	4 150
Floco 382 NPT	60	2.0	10 133
Floco 382 600 ANSI	60	2.0	10 758
Floco 383 NPT	89	3.0	12 657
Floco 383 600 ANSI	89	3.0	11 571

2.160.200 MECHANICAL GAS METERS

Rate includes: Rate is based on a typical oilfield installation.

Includes a flanged or threaded gas meter.

Type	(mm)	Size (in.)	Base Rate (\$)
Romet	60	2 NPT	4 876
Dresser Roots	89	3" Flanged	8 745
Dresser Roots	114	4" Flanged	9 686

2.160.200A NATURAL GAS SAMPLERS

Rate includes: Rate is based on a typical oilfield installation.

Includes a sample probe, regulator, and small supply panel.

Manufacturer	Model	Base Rate (\$)
Arcco	MB-200-16	7 172

2.160.200B GAS MONITORING SYSTEM—H₂S

Rate includes: Rate is based on a typical oilfield installation.

Includes a detector, one H₂S Sensor, panel, mounting hardware and strobe light.

Manufacturer	Model	Base Rate (\$)
BW Technologies	Big-Rat II	12 192

2.160.300 LIQUID TURBINE METERS

Rate includes: Rate is based on a typical oilfield installation. Includes a liquid turbine meter complete with two isolation valves.

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for Power Service for end devices.
- Three 3C, #16 AWG Teck 90 Triac communication cables.

Cost for totalizers and analyzers are **not included**.

ANSI 150			
Type	Size		Base Rate
	(mm)	(in.)	(\$)
Barton	27.0	0.75	5 715
Barton	33.0	1.00	5 849
Barton	48.0	1.50	6 009
Barton	60.0	2.00	6 945
Barton	89.0	3.00	7 847
Barton	114.0	4.00	11 102

ANSI 600			
Type	Size		Base Rate
	(mm)	(in.)	(\$)
Barton	27.0	0.75	5 880
Barton	33.0	1.00	6 148
Barton	48.0	1.50	6 315
Barton	60.0	2.00	7 736
Barton	89.0	3.00	9 002
Barton	114.0	4.00	13 596

2.160.400 TOTALIZERS AND ANALYZERS

Rate includes: Rate is based on a typical skidded oilfield installation.

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service for end devices.
- Three 3C, #16 AWG Teck 90 Traic communication cables.

Type	Base Rate
	(\$)
Barton FQ1-11	3 529
Halliburton (Local) Clif Mock	1 573
Halliburton MC-11 Analyzer	3 637
Halliburton Net Oil 332	10 398

Halliburton Net Oil-332 Analyzer works with a capacitance probe to give a percent(%) of water in an oil stream. The rate does not include the meter or the capacitance probe.

2.160.500 CAPACITANCE PROBES

Rate includes: Rate is based on a typical oilfield installation.

Includes probe c/w electrical wiring.

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service for end devices.
- Three 3C, #16 AWG Teck 90 Triac communication cables.

ANSI 150		
Size (mm)	(in.)	Base Rate (\$)
60	2	6 725
89	3	7 242
114	4	7 653

ANSI 300		
Size (mm)	(in.)	Base Rate (\$)
60	2	6 805
89	3	7 440
114	4	8 098

2.160.600 CHART RECORDERS

Rate includes: Rate is based on a typical oilfield installation.

For the 2 pen recorder-100" wc differential, 1000 psig element pressure rating, chart drive, enclosure and pipe stand.

For the 3 pen recorder –100"wc differential, 1000 psig element pressure rating, 200 deg F temperature element, chart drive, enclosure and pipe stand.

5 valve manifold for both recorders.

Type	Base Rate (\$)
2 Pen Circular–6 900 kPa element	4 177
3 Pen Circular–6 900 kPa element	4 992

2.160.700

TRANSMITTERS

Rate includes: Rate is based on a typical skidded oilfield installation.

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service for end devices.
- Three 3C, #16 AWG Teck 90 Triac communication cables.

Costs for RTU unit and any extra solar panels **are not included**

Note: Rates are for Barton, Rosemount or Foxboro types.

Type	Base Rate (\$)
Differential Pressure Flow	6 340
Pressure	6 371
Temperature	5 562

2.170 PRODUCTION MANIFOLDS**2.170.100 MANUAL PRODUCTION MANIFOLDS—PER WELL**

Rate includes: Rate is based on a typical skidded oilfield installation. All piping and instrumentation terminates at skid edge with a block valve or blind flange.

For the initial well:

Includes full steel 15' X 20' skid, gravel pad, piles, portion of group header, portion of the test header, portion of the pig receiver header, seven block valves, flange and blind flange on inlet and outlet at skid edge, three flanged tees c/w blind flanges for future expansion. No building, heating, lights, process control or electrical required on site.

Note: To determine the total cost of a multi-well manual manifold, multiply the cost per well (below) by the number of wells entering the manifold.

Size (mm)	(in.)	Base Rate (\$)
60	2	28 468
89	3	33 789
114	4	42 679
168	6	54 713

2.170.200 ROTARY SELECTOR PRODUCTION MANIFOLDS

Rate includes: Rate is based on a typical skidded oilfield installation.

All piping and instrumentation terminates at skid edge with a block valve or blind flange.

For the 8 wells:

Includes full steel 15' X 20' skid, gravel pad, piles, 4" Group Header, 2" Test Header, eight 2" inlet lines c/w eight 2" Masterflow pig receiver valves, temperature and pressure indicator, 10 block valves, flange and blind flange on inlet and outlet at skid edge, one test valve, one group valve selector c/w electric auto actuator.

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for Power Service for end devices.
- Three 3C, #16 AWG Teck 90 Triac communication cables.

No building, heating or lights are included.

Type	Base Rate (\$)
Rotary Selector Valve	9 250

2.180 PIGGING EQUIPMENT**2.180.100 PIG LAUNCHER/RECEIVER TRAPS**

Rate includes: Rate is based on a typical skidded oilfield installation.

All piping such as outlet and drain lines will terminate at unit edge with a block valve and blind flange. Includes one barrel c/w two block valves, bypass line c/w a block valve, hinged flange closure, bleed and drains. Barrel can be expanded to run a smart pig.

Cost does not include riser or steel tank for fluid drainage.

Size (mm)	(in.)	Base Rate (\$)
60	2	19 717
89	3	23 716
114	4	30 508
168	6	43 333
219	8	58 241
273	10	80 777
323	12	111 942

2.180.110 PIG BALL VALVES-PNEUMATICALLY OPERATED

Rate includes: Rate is based on a typical skidded oilfield installation.

All piping such as outlet and drain lines will terminate at unit edge with a block valve and blind flange. Includes one automatic pneumatic pig injector c/w a block valve.

Size (mm)	(in.)	Base Rate (\$)
60	2	8 160
89	3	9 484
114	4	14 385

2.180.200 PIG ENTRY TEES

Rate includes: Rate is based on a typical oilfield installation.

Includes one flanged ANSI 600 Pig Entry Tee.

Size (mm)	(in.)	Base Rate (\$)
60	2	2 750
89	3	4 239
114	4	7 520

2.180.210 REMOTE TELEMETRY UNITS (RTU)

Rate includes: Rate is based on a typical oilfield installation.

Includes one remote telemetry unit and a 10 watt solar panel.

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for Power Service for end devices.
- Three 3C, #16 AWG Teck 90 Triac communication cables.

Manufacturer	Model	Base Rate (\$)
Itron	CID 2 Port	5 668
Itron	CID 4 Port	5 938
Metretek	CPA	5 563
Metretek	IMU	6 507
Metretek	EC1-II	7 653

2.180.220 FLOW COMPUTERS (RTU)

Rate includes: Rate is based on a typical oilfield installation.

Includes one remote telemetry unit, AC power service or a 15 watt @ 12VDC Thermo Electric Generator (see section 2.190.400), or a 10 watt solar panel (see section 2.190.410).

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for Power Service for end devices.
- Three 3C, #16 AWG Teck 90 Triac communication cables.

Manufacturer	Model	Base Rate (\$)
Barton	Scanner 1140	15 441
Daniel Industries	Series 3000	16 788
Bristol Babcock	3305 RTU	19 174

2.180.300 PIG BALL VALVES—MANUAL INJECTORS

Rate includes: Rate is based on a typical oilfield installation.

Includes one flanged ANSI 600 injector/receiver pig ball valve.

Size (mm)	(in.)	Base Rate (\$)
60	2	3 669
89	3	4 686
114	4	7 386
168	6	16 910

2.190 ELECTRICAL SERVICES**2.190.100 GENERAL SERVICE ENTRANCE ON THE SITE**

Rate includes: Rate is based on a typical oilfield installation into an on site existing electrical building. Assume a power source is available at the plant site boundary. The service extension length is 30m (100').

Single phase costs include the following: all material and installation costs for a 24 circuit panel box, main breaker, branch circuit breakers, grounding, trenching, teck cable, termination of the wiring.

Unit	Base Rate (\$)
Single Phase Service, 120/240V, 101A to 200A*	6 376
Three Phase Service, 480V, 201A to 400A*	18 483
Three Phase Service, 480V, 401A to 800A*	33 187

*Does not include line up to and including the meter.

2.190.200 SOLAR PANELS

Rate includes: Rate is based on a typical oilfield installation in an outside area. Includes the unit, regulator, 2" X 4' pipe for mounting the unit, mounting bracket.

Electrical cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service for end devices.
- Three 3C, #16 AWG Teck 90 Triac communication cables.

Unit	Base Rate (\$)
10 Watt Solar Panel	1 731
20 Watt Solar Panel	1 854

2.190.400 THERMO-ELECTRIC GENERATORS

Rate includes: Rate is based on a typical oilfield installation in an outside area. Includes the unit, regulator, 2" X 4' pipe for mounting the unit, mounting bracket.

Electrical cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service for end devices.
- Three 3C, #16 AWG Teck 90 Triac communication cables.

Unit	Base Rate (\$)
15 Watts @ 12 VDC	4 621
21 Watts @ 12 VDC	10 715
54 Watts @ 12 VDC	7 432
108 Watts @ 12 VDC	12 329
220 Watts @ 12 VDC	22 607

2.190.500 REMOTE SYSTEM SELF SUPPORTING RADIO TOWERS

Rate includes: Rate is based on a typical oilfield installation in an outside area. Includes sectionalized self supporting tower, tower mounted radio antenna, and four piles.

Electrical cost for a 100' service includes:

- Three 3C, #16 AWG Teck 90 Triac communication cables.
- One 15 watt @ 12VDC Thermo Electric Generator (TEG) - See Section 2.190.400

Rate for Radio Antennas - Building Mounted Antenna, includes:

Antenna 3 feet in height, building mounting bracket, cable from antenna to receiver (assume 100 feet), and installation.

Self-Supporting Height (m)	(ft)	Base Rate (\$)
8.5	28	8 465
11.0	36	8 648
13.4	44	9 582
16.5	54	9 870
20.7	68	11 191
Radio Antennas Building Mounted Antenna		711

2.190.600 FIRE AND GAS DETECTION SYSTEMS

Rate includes: Rate is based on a typical oilfield installation in an existing building, and includes all of the devices as noted below.

Electrical cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service for end devices.
- Three 3C, #16 AWG Teck 90 Triac communication cables.

Unit	Base Rate (\$)
Fire/Gas detection controller	19 215
Detection head/sensor – 2 fire/1 gas	10 292
Horn/siren	3 614
Warning lights	3 987

2.230 DEHYDRATORS**2.230.100 SKIDDED CALCIUM CHLORIDE DRYERS**

Rate includes: Rate is based on a typical skidded oilfield vertical self contained dehydration installation. All piping such as inlet, outlet, fuel gas, glycol and drain lines will terminate at unit edge with a block valve and a blind flange.
Rate includes integral scrubber, two foot bed of glass beads fuel gas scrubber c/w ¾" inlet and outlet, ½" drain c/w valves, one 16" manway.
Calcium chloride pellets, scrubber heating coil, two dump valves, one site glass, PSV, locally mounted control panel, temperature and pressure gauges, drying tower, orifice fitting and meter run, and chart recorder.

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service for end devices.
- Three 3C, #16 AWG Teck 90 Triac communication cables.
- Building electrical service to skid edge only.

Costs for self framing building, heating, lighting, plumbing, fire and gas detection, hazard lights, RTU, transmitters, extra solar panels, chemical injectors, chemical tank, meters, totalizers and analyzers, control valves, pumps and piping to and from unit **are not included**.

Diameter (mm)	(in.)	Height		Base Rate (\$)
		(m)	(ft)	
300	12	8.2	27	54 359
400	16	8.2	27	59 810
500	20	8.2	27	63 274
600	24	8.2	27	71 746
750	30	8.2	27	78 831

2.230.200 SKIDDED 2 PHASE GLYCOL DEHYDRATOR

Rate includes: Rate is based on a typical skidded oilfield vertical self contained dehydration installation. All piping such as inlet, outlet, fuel gas, glycol and drain lines will terminate at unit edge with a block valve and a blind flange. Rate includes four trays, integral two phase scrubber, glycol regenerator c/w reboiler, and glycol/glycol exchanger. Installation also includes flame arrestor, firetube, burner and pilot assembly, gas sparger, fuel gas scrubber and controls, standard instrumentation, one glycol pumps, on-skid piping, skid, two PSV's, chart recorder c/w valve manifold, three temperature and two pressure gauges, orifice fitting and meter run, and chart recorder.

Electrical Cost for a 100' service includes:

- One 3C, #10 AWG Teck 90 Triax power cable for power service for end devices.
- Three 3C, #16 AWG Teck 90 Triac communication cables.
- Building electrical service to skid edge only.

Costs for self framing building, heating, lighting, plumbing, fire and gas detection, hazard lights, extra trays, third phase, standby glycol pump, RTU unit, transmitters, extra solar panels, chemical injectors, chemical tank, meters, totalizers and analyzers, control valves, pumps and piping to and from unit **are not included**.

Diameter (mm)	(in.)	Height		Base Rate (\$)
		(m)	(ft)	
300	12	4.3	14	144 605
400	16	4.3	14	177 077
500	20	4.3	14	198 725
600	24	4.3	14	223 894
750	30	4.3	14	321 311

2.230.300 GLYCOL DEHYDRATOR PACKAGE OPTIONS

The following costs should be added to the glycol dehydrator rates found under Section 2.230.200

ADDITIONAL TRAYS

Note: Each additional 450 mm (18 in.) of vessel height above 4.3 m (14 ft) is assumed to contain one tray. Vessel heights are measured from seam to seam.

Vessel Diameter (mm)	(in.)	Rate/Tray (\$)
300	12	1 332
400	16	1 508
500	20	1 698
600	24	2 035
700	30	3 192

2.230.300 GLYCOL DEHYDRATOR PACKAGE OPTIONS (CONT'D)**THIRD PHASE ADDITION**

Note: For a third phase, the rates below are added to the scrubber and controls.

Vessel Diameter (mm)	(in.)	Rate/Tray (\$)
300	12	4 261
400	16	4 261
500	20	4 261
600	24	4 700
700	30	4 700

STANDBY GLYCOL PUMP ADDITION

Note: For a standby glycol pump complete with piping and valves, add the rates below.

Vessel Diameter (mm)	(in.)	Rate (\$)
300	12	6 208
400	16	6 208
500	20	8 060
600	24	8 060
700	30	10 601

2.240 FILTERS**2.240.100 PECO LIQUID FILTERS**

Rate includes: Rate is based on a typical skidded oilfield installation.

All piping such as inlet, outlet, fuel gas, glycol and drain lines will terminate at unit edge with a block valve and a blind flange. Rate includes filter pressure vessel c/w removable end closure, 1" bypass c/w block valve, 1" drain, 1" purge, Differential pressure gauge (DPI). No instrumentation or PSV included in the price.

Diameter (mm)	(in.)	Height (mm)	(in.)	Base Rate (\$)
168	6.6	787	31	5 978
168	6.6	1 168	46	5 978
219	8.6	813	32	6 972
219	8.6	1 422	56	6 972

2.240.200 PECO GAS FILTER SEPARATIONS

Rate includes: Rate is based on a typical skidded oilfield installation.

All piping such as inlet, outlet, fuel gas, glycol and drain lines will terminate at unit edge with a block valve and a blind flange. Rate includes filter pressure vessel c/w removable end closure, 1" bypass c/w block valve, 1" drain, 1" purge, Differential pressure gauge (DPI). No instrumentation or PSV included in the price.

Diameter (mm)	(in.)	Height (mm)	(in.)	Base Rate (\$)
168	6.6	1 391	55	15 288
168	6.6	1 772	70	15 362
168	6.6	2 002	79	15 436
219	8.6	2 178	86	20 613

2.240.300 PECO DRY GAS FILTERS

Rate includes: Rate is based on a typical skidded oilfield installation.

All piping such as inlet, outlet, fuel gas, glycol and drain lines will terminate at unit edge with a block valve and a blind flange. Rate includes filter pressure vessel c/w removable end closure, 1" bypass c/w block valve, 1" drain, 1" purge, Differential pressure gauge (DPI). No instrumentation or PSV included in the price.

Diameter (mm)		Height (mm)		Base Rate (\$)
	(in.)	(mm)	(in.)	
168	6.6	660	26	6 931
168	6.6	1 041	41	7 026
168	6.6	1 270	50	7 108

Note: No instrumental or PSVs have been included in any of the rates. Filters may be applied in the removal of particles and liquid separation such as hydrocarbon fluids, glycols, process fluids, salt water, fresh water, and water solutions as well as filtering and separating gases. Filter pressure vessels can be vertical or horizontal with removable end closures.

2.250 LACT UNITS**2.250.100A 2" LEASE AUTOMATION CUSTODY TRANSFER (LACT) UNITS**

Rates Include: Rate is based on a typical skidded oilfield installation complete with 2" inlet and outlet. All piping such as inlet, outlet, prover lines and drain lines will terminate at unit edge with a block valve and blind flange. Included is a 5 HP booster pump c/w on/off level controls on the supply tank, local on/off, high pressure shut off, variable HP transfer pumps, with high/low pressure and vibration shutoffs, manual on/off, 4" pig launcher, pressure sensor based (PSB), temperature and pressure gauges, nine 2" block valves, 2" back pressure valve, 2" strainer, two 1" prover lines, 2" check valves, two 2" Smith meter runs, and transmitters for discharge pressure.
Fire and gas detection **is not included**.

Pump Size (kW)	(hp)	Base Rate (\$)
7.5	10	144 976
11.2	15	146 542
14.9	20	147 685
18.6	25	149 015

2.250.100B 3" LEASE AUTOMATION CUSTODY TRANSFER (LACT) UNITS

Rates Include: Rate is based on a typical skidded oilfield installation complete with 2" inlet and outlet. All piping such as inlet, outlet, prover lines and drain lines will terminate at unit edge with a block valve and blind flange. Included is a 5 HP booster pump c/w on/off level controls on the supply tank, local on/off, high pressure shut off, variable HP transfer pumps, with high/low pressure and vibration shutoffs, manual on/off, 4" pig launcher, PSB, temperature and pressure gauges, nine 2" block valves, 2" back pressure valve, 2" strainer, two 1" prover lines, 2" check valves, two 2" Smith meter runs, and transmitters for discharge pressure.
Fire and gas detection **is not included**

Pump Size (kW)	(hp)	Base Rate (\$)
7.5	10	199 539
11.2	15	200 778
14.9	20	201 593
18.6	25	202 596
22.4	30	203 300
29.8	40	204 967
37.3	50	207 775
74.6	100	213 927

2.250.200 114 MM PIPING UNITS

Rate includes: Rate is based on a typical skidded (15" X 20") oilfield installation complete with 3" inlet and outlet. All piping such as inlet, outlet, prover lines and drain lines will terminate at unit edge with a block valve and a blind flange. Included is a 15 HP booster pump c/w on/off level controls on the supply tank, local on/off, high pressure shut off, variable HP transfer pumps, with high/low pressure and vibration shutoffs, manual on/off, 4" pig launcher, PSV, temperature and pressure gauges, nine 3" block valves, 3" back pressure valve, 3" strainer, two 1" prover lines, 3" check valves, two 3" Smith meter runs, 3" X 4" PSV.

¾" sampler loop c/w 3 HP pump and motor, sample points, sample bottles, bottom sediment and water (BS & W) monitor c/w transfer pump shutdown capability.

Transmitters for discharge pressure, status of pumps, BS & W.

Electrical Cost for a 100' service includes:

- Storage tank two 3C, #10 AWG Teck 90 Triax power cable for power service and two 3C, #16 AWG Teck 90 Triac communication cables for end devices.
- LACT bldg six 3C, #16 AWG Teck 90 Teck 90 Triax power cable for Power service and six 3C, #16 AWG Teck 90 Triac communication cables for end devices.
- Power service to booster and main charge pump motors, motor starters, cables and local disconnects.

Costs for self framing building (\$20,191.00), heating, lighting, plumbing, fire and gas detection, hazard lights and variable frequency drive (VFD) **are not included.**

Note: LACT units found with pump sizes exceeding 74.6 kW (100 hp) should be considered as special installations and costs obtained.

Pump Size (kW)	(hp)	Base Rate (\$)
7.5	10	236 490
11.2	15	237 728
14.9	20	238 707
18.6	25	239 382
22.4	30	240 251
29.8	40	241 754
37.3	50	244 562
74.6	100	250 714

3.000 SCHEDULE B—ASSESSMENT YEAR MODIFIERS

The following assessment year modifiers are for machinery and equipment described in the *2009 Alberta Machinery and Equipment Assessment Minister's Guidelines*.

Assessment Year	Assessment Year Modifier
2006	1.12
2007	1.270
2008	1.320
2009	1.28

4.000 SCHEDULE C–DEPRECIATION

The depreciation factors for machinery and equipment described in the *2009 Alberta Machinery and Equipment Assessment Minister's Guidelines* are listed in Table 2–Depreciation Factors. Depreciation for machinery and equipment that is *not* described in Schedule C of the *2009 Alberta Machinery and Equipment Assessment Minister's Guidelines* shall be determined in a manner that is fair and equitable with the depreciation factors listed in Table 2.

The anticipated age life for machinery and equipment described in Schedule A is 20 years. The anticipated age life for machinery and equipment located in specific types of property is listed in Table 1.

Age refers to the chronological age or the effective age, in years.

Chronological age is the actual number of years elapsed from the year the machinery and equipment was built, to the assessment year.

Effective age refers to the estimated age of machinery and equipment based on its present condition, design features and engineering amenities. Effective age may be less than, equal to, or greater than actual age. Effective age is determined by examining the present condition, design features and engineering factors of comparable types of machinery and equipment.

4.001

TABLE 1—ANTICIPATED AGE LIFE

TYPE OF PROPERTY	ANTICIPATED AGE LIFE OF M & E
Acid Plant	20 years
Brewery	25 years
Brick Plant	25 years
Cannery	20 years
Chemical Plant	20 years
Cement Plant	20 years
Coal Processing Plant	20 years
Distillery	25 years
Dairy, Creamery	25 years
Enhanced Oil Recovery	15 years
Feed or Flour Mill	25 years
Gas Processing (including sour gas)	20 years
Gas Injection or Compression	20 years
Insulation Plant	20 years
Meat Packing Plant	25 years
Methanol Plant	15 years
Oil Sand Processing Plant	15 years
Oilfield Battery	20 years
Plywood/OSB*/Wallboard Manufacturing Plant	20 years
Pulp Mill	15 years
Pelitzing Plant (Feed)	20 years
Refinery (Metal)	15 years
Refinery (Oil)	20 years
Refinery (Sugar)	20 years
Roofing Plant	20 years
Saw or Stud Mill	20 years
Seed Cleaning Plant	25 years
Soft Drink Plant	20 years
Steel Mill	20 years
Sulphur or Fertilizer Plant	15 years
Tire Plant	15 years
Water Flood	20 years

*OSB—Oriented Strand Board

4.002

TABLE 2—DEPRECIATION FACTORS—ANTICIPATED AGE LIFE

Age (Years)	10 Years	15 Years	20 Years	25 Years	30 Years	35 Years	50 Years	60 Years
0	75	75	75	75	75	75	75	75
1	75	75	75	75	75	75	75	75
2	75	75	75	75	75	75	75	75
3	73	75	75	75	75	75	75	75
4	66	75	75	75	75	75	75	75
5	59	71	75	75	75	75	75	75
6	53	66	74	75	75	75	75	75
7	48	62	70	75	75	75	75	75
8	43	58	66	72	75	75	75	75
9	40	54	63	69	74	75	75	75
10		50	60	67	71	75	75	75
11		47	57	64	69	73	75	75
12		44	54	61	67	71	75	75
13		41	51	59	64	69	75	75
14		40	49	57	62	67	75	75
15			46	54	60	65	74	75
16			44	52	58	63	72	75
17			42	50	56	61	71	75
18			40	48	54	59	70	74
19				46	53	58	68	73
20				44	51	56	67	72
21				42	49	54	65	70
22				41	47	53	64	69
23				40	46	51	63	68
24					44	50	62	67
25					43	48	60	66
26					41	47	59	65
27					40	46	58	64
28						44	57	63
29						43	56	61
30						42	55	60
31						41	54	59
32						40	52	58
33							51	57
34							50	57
35							49	56

Note: Expressed as percentage remaining.

TABLE 2–Depreciation Factors–Anticipated Age Life (CONT.)

Age (Years)	10 Years	15 Years	20 Years	25 Years	30 Years	35 Years	50 Years	60 Years
36							48	55
37							47	54
38							46	53
39							46	52
40							45	51
41							44	50
42							43	49
43							42	49
44							41	48
45							40	47
46								46
47								45
48								45
49								44
50								43
51								42
52								42
53								41
54								40

Note: Expressed as percentage remaining.

5.000 SCHEDULE D—ADDITIONAL DEPRECIATION

For any depreciation that is not reflected in Schedule C, the assessor may adjust for additional depreciation provided acceptable evidence of such loss in value exists.

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