

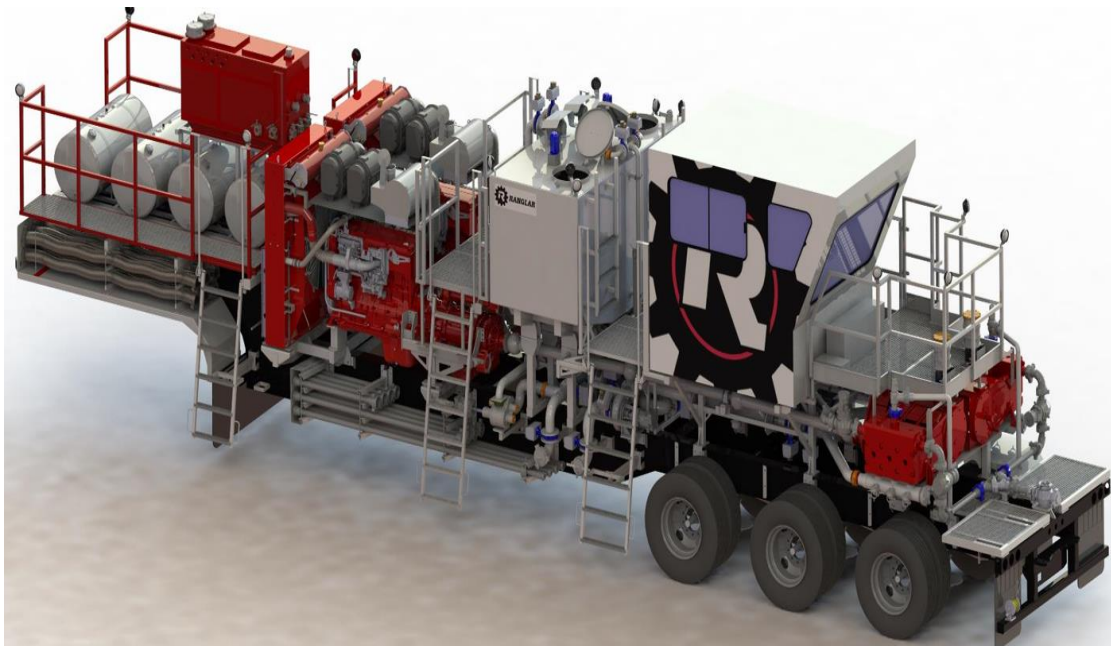


Presents the following quote

**Trailer Mounted Twin Pumper with HP Options
Example Specifcation**

RANGLAR MANUFACTURING QUALITY STANDARDS

1. Ranglar Manufacturing is certified ISO 9001-2015, and have been operating to this standard since 2017.
2. APEGA certified Engineering
3. Certified Canadian welding bureau for all structural steel, since 2015.
4. NIVIS certified for Transportation Canada regulations.
5. API 4F certification & Monogram program.



****EXAMPLE ONLY****

TABLE OF CONTENTS

RANGLAR MANUFACTURING QUALITY STANDARDS	2
WHY RANGLAR?	4
BUSINESS CREDENTIALS AND CERTIFICATIONS	5
SCOPE OF SUPPLY –TWIN FLUID PUMPER TRAILER MOUNTED	6
1.0 SPECIFICATIONS.....	6
2.0 TRAILER OPTION 1 – FOR 2600 BHP	6
3.0 TRAILER OPTION 2 – FOR 2000 BHP	6
4.0 ENGINE GROUP – OPTION 1	6
5.0 TRANSMISSION GROUP – OPTION 1	8
6.0 ENGINE GROUP – OPTION 2	9
7.0 TRANSMISSION GROUP – OPTION 2	10
8.0 COOLING SYSTEM	11
9.0 PUMP GROUP – OPTION 1	12
10.0 PUMP GROUP – OPTION 2	13
10.1 HIGH PRESSURE DISCHARGE IRON (OPTIONAL)	14
10.2 BOOST PUMPS / CIRCULATION AND PRESSURISER PUMPS	14
11.0 PRIME WELL SERVICE INSTRUMENTATION FLUID PUMP DAS SYSTEM – (OPTIONAL).....	15
12.0 STANDARD HYDRAULIC AND PUMP LUBRICATION.....	17
12.1 MAGNETIC FILTRATION (OPTIONAL).....	17
12.2 PLUNGER LUBE SYSTEM	18
12.3 LUBRICATION SELECTIONS (STANDARD SUPPLY)	19
13.0 RANGLAR REAL TIME CONDITION MONITORING:.....	21
14.0 OPERATORS CONTROL CAB:	23
15.0 “PUMP TECH” OPERATING SYSTEM (OPTIONAL)	23
16.0 FLUID MIXING TANKS	24
17.0 PAINT.....	25
18.0 TRAINING, TESTING & COMMISSIONING - OPTIONAL	25



3111 Shepard Place S.E.

WHY RANGLAR?

Why chose Ranglar Manufacturing? In a word – **Service**.

Ranglar specializes in custom-made mobile equipment. Our ownership and board of directors, our project managers, engineers, supervisors and technicians are some of the best and brightest in their fields with over 200 years of experience between them.

We are machine experts - from small water pumps to large industrial hydraulic and control systems. Our fabrication credentials speak for themselves. We are held to account by strict manufacturing guidelines such as ISO-9001 / API 4F as well as the Canadian Welding Bureau. Our QHSM system is in place and our employees are dedicated to following its protocols and procedures.

What makes us different, and we believe better, are our core values:

- **Increasing Safety** – we create a safe and considerate working environment and our equipment is designed with your safety in mind.
- **Delivering Value-Added Service** – this is not just a bland, catch all statement. To us it means giving a damn for the detail and taking care of our clients' individual business needs.
- **Authentic** - means we pride ourselves on being honest, transparent and fair.
- **Creative and Different** – we encourage originality and innovation and promote enthusiasm. We evolve how we think, behave and operate and are continually developing.
- **Caring for our Environment** – we aim always to make positive contributions to the communities we operate in. We reduce our footprint by having cleaner operating systems.
- **Investing in our People** - Ranglar Manufacturing believes in investing in its employees and is committed to continuous training for all its employees.
- **Dependable** - every time and first time.

BUSINESS CREDENTIALS AND CERTIFICATIONS

Certificates and Business Qualifications

Our business scope as per our QMS manual.

Manufacturing of equipment such as:

- Conventional & Mast Coil Tubing units.
- Offshore skid units standard & DNV ATEX, Zone II certified
- Offshore Skid CTU & pumping units
- Fluid & Nitrogen pumping equipment
- Acid & cementing units
- Draw-works for Workover rigs
- Retrofit of cement units, pumping equipment, etc.
- Industrial sand blasting and painting
- LV4 Inspection of Coil, workover and drilling rigs
- CVIP inspections for mobile oil field equipment.

Certificates Obtained Authorized to use under Coil Solutions / Ranglar Manufacturing:

- AMVIC
- CVIP
- Department of Transport NSM (National Safety Mark)
- ISO 9001:2015
 - CWB W47.1 W59.1 Fusion welding of Steel
- API 4F Monogram 9th Edition
- CWB W47.2-11 W59.2-M1991 Fusion welding of Aluminum



ALBERTA MOTOR VEHICLE
INDUSTRY COUNCIL





3111 Shepard Place S.E.

SCOPE OF SUPPLY –TWIN FLUID PUMPER TRAILER MOUNTED

1.0 SPECIFICATIONS

The Ranglar Manufacturing model TFP-Custom is a trailer mounted, twin fluid pumper.

This proposal covers two HP ranges, 2000 BHP with MSI 1000 Quintplex and a 2600 BHP twin pumping unit capable of pressures up to 15000 PSI and flow rates up to 1850 GPM (two pumps on line).

The 2600 BHP unit is powered by (2) QST30 Tier 4, engines rated to 1500 BHP each and they drive (2) QMSI 1300 fluid pumps with 3" plungers. Typical operations include oil well displacements, fracturing, acidizing, solvent pumping and pressure testing. This power option comes mounted on a 4 axle, 24-wheel trailer.

The 2000 BHP unit is powered by (2) CAT C27 Tier 4, engines rated to 1100 BHP each and they drive (2) QMSI 1000 fluid pumps with 3" plungers. Typical operations include oil well displacements, fracturing, acidizing, solvent pumping and pressure testing. This power option comes mounted on a 3 axle, 16-wheel trailer.

2.0 TRAILER OPTION 1 – FOR 2600 BHP

2019 KINETIC Twin Pumper Trailer with a 24-wheel, tandem axle, air ride suspension.

Capacity: 110,000 lbs.

Dimensions: 590" overall length
484" wheelbase
11' 3" overall width at tires
21" drop
45" deck height laden
66" rail centers

3.0 TRAILER OPTION 2 – FOR 2000 BHP

2019 KINETIC Twin Pumper Trailer with a 16-wheel, tandem axle, air ride suspension.

Capacity: 90,000 lbs.

Dimensions: 590" overall length
484" wheelbase
10' 6" overall width at tires
21" drop
45" deck height laden
66" rail centers

4.0 ENGINE GROUP – OPTION 1

Ranglar has selected (2) QST30 Tier 4, 1500HP engines.

- Bore 5.51 in (140 mm)
- Stroke 6.50 in (165 mm)
- Displacement 30.5 L (1861 cubic in)
- Engine Power* 850-1500 hp (634-1119 kW)
- Aspiration Turbocharged and Aftercooled
- Wet Weight** 7337 lb (3328 kg)
- Coolant Capacity 22.2 gal (84 L)
- Lube Oil Capacity 34.9 gal (132 L)
- Rotation Clockwise (viewed from the front of the engine)



Model: QST30 - 1500
Output Power: 1500 bhp

Engine Speed	Torque Output		Power Output		BSFC	
	lb-ft	N-m	hp	kW	lb/hp-hr	g/kW-hr
1400	4,877	6,612	1,300	969	0.324	197
1600	4,596	6,231	1,400	1,044	0.324	197
1800	4,377	5,934	1,500	1,119	0.335	204
1900	4,146	5,621	1,500	1,119	0.342	208
2000	3,786	5,133	1,442	1,075	0.350	213

5.0 TRANSMISSION GROUP – OPTION 1

- 9817 OFS (2)
- 1750 BHP output power
- Output disc brake kit
- TC-1070 Torque convertor.
- CEC 5 lockup valve body
- Remote mount oil filter system
- Fifth generation transmission control module
- Cooler ports to front
- Close ratio 7 speed base model
- Transmission control module (Calibration to be determined)
- Engine driven pto rated @ 300HP Cont.
- Push button shifter and harness
- Dipstick & fill tube right side

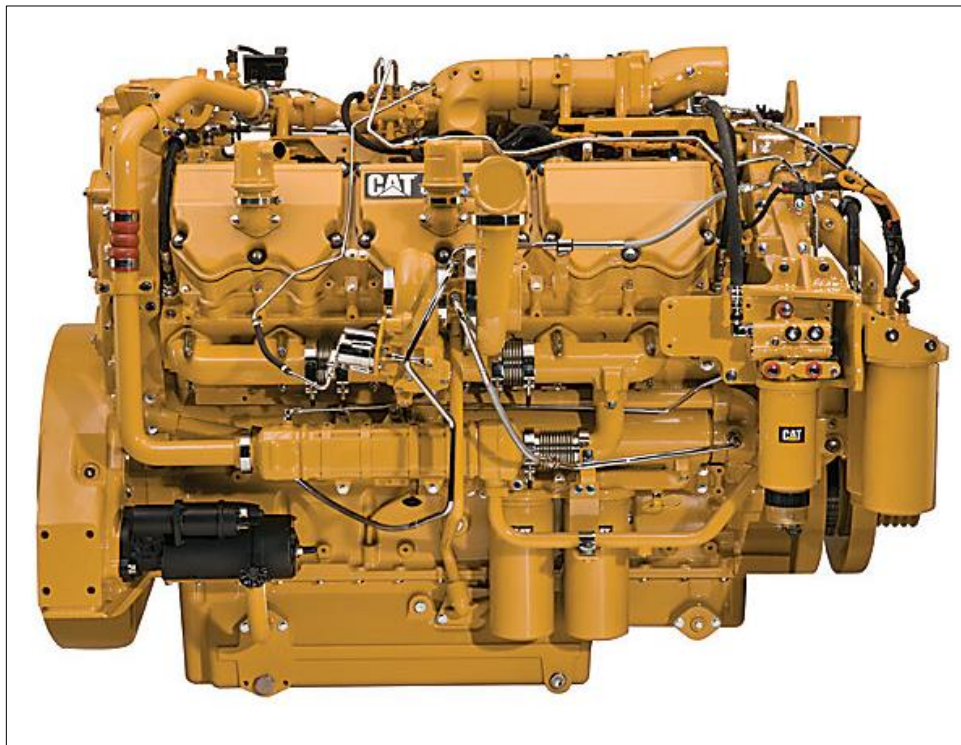


****Show for example only****

6.0 ENGINE GROUP – OPTION 2

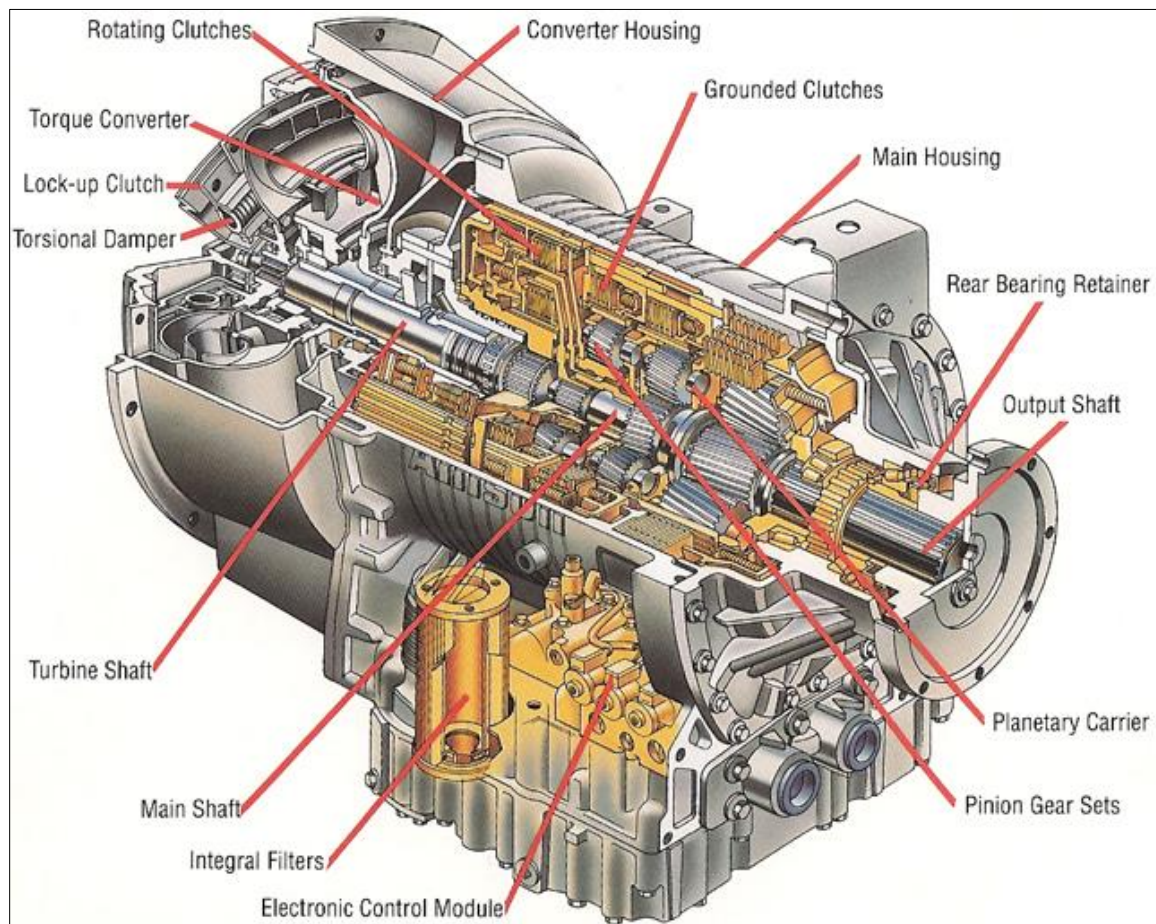
Ranglar has selected (2) CAT C27 Tier 4, 1100HP engines.

- Bore 5.4 in
- Stroke 6 in
- Displacement 1648 cubic in
- Engine Power* 850-1100 hp
- Aspiration Turbocharged and Aftercooled
- Wet Weight** 6351 lb (3328 kg)
- Coolant Capacity 16 gal
- Lube Oil Capacity 29 gal
- Rotation Clockwise (viewed from the front of the engine)



7.0 TRANSMISSION GROUP – OPTION 2

- 8610 OFS (2)
- 1200 BHP output power
- Output disc brake kit
- TC-890 Torque convertor.
- CEC 5 lockup valve body
- Remote mount oil filter system
- Fifth generation transmission control module
- Cooler ports to front
- Close ratio 7 speed base model
- Transmission control module (Calibration to be determined)
- Push button shifter and harness
- Dipstick & fill tube right side



8.0 COOLING SYSTEM

The Copper Core cooling system for both of the engine power groups has been designed to reject the necessary BTUs from all system components up to an ambient of 40c. The radiators are protected via Amot thermostatic valves for winter startup operations.

- Engines – Glycol & Air
- Transmissions
- Hydraulics
- Lube Oil

Two (2) separate radiator systems are enclosed in one structure to reduce space on the trailer. The radiators are mounted horizontally above the engines and are driven by (2) separate hydraulic fan motor systems.

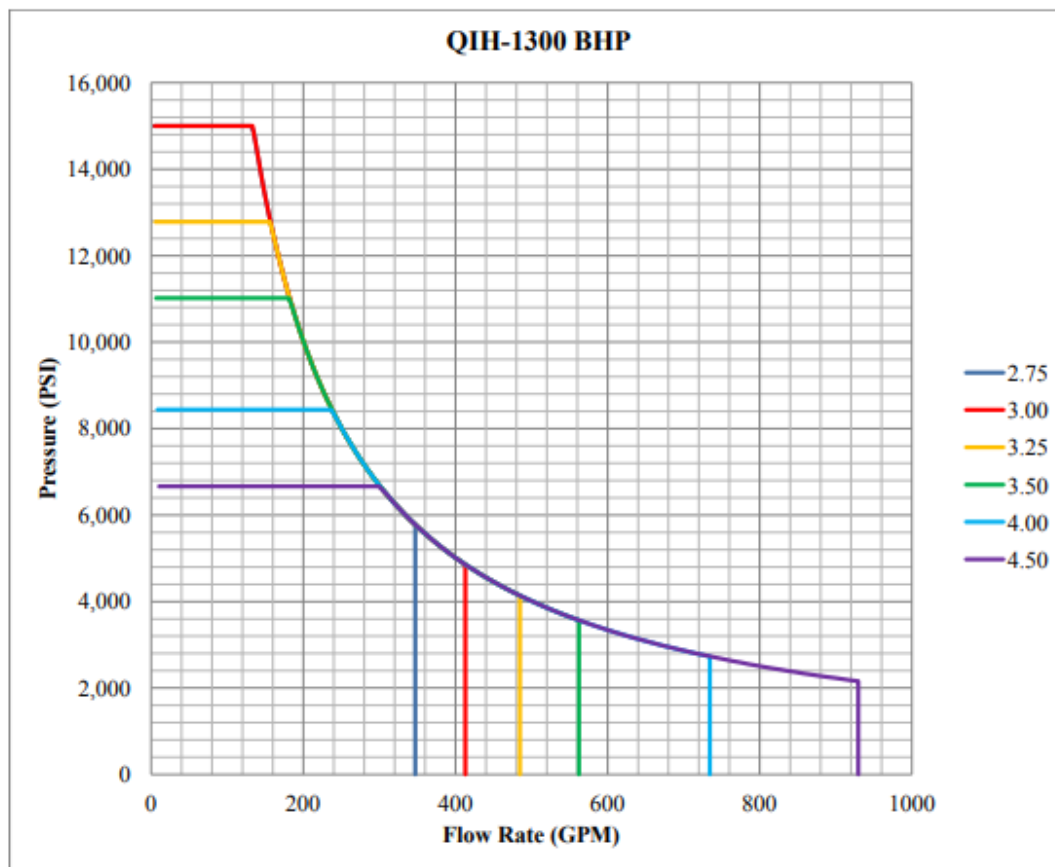


9.0 PUMP GROUP – OPTION 1

(2) MSI QI-1300 with 3" plungers. (Customer to confirm plunger size prior to ordering) The MSI QI-1300 combines the high flow rate of a quintplex design and the strength to handle pressures in excess of 15,000 psi. Based on proven, well-service technology and endurance-tested to 1 million cycles at maximum load, it's designed to increase uptime through enhanced flexibility and ease of maintenance.

A QIH-1300 will produce the following capacities:

PLUNGER			2.75	3.00	3.25	3.50	4.00	4.50	BHP
GAL/REV			0.77	0.92	1.08	1.25	1.63	2.07	
RPM	50	GPM	39	46	54	62	82	103	446
		PSI	15,000	15,000	12,781	11,020	8,438	6,667	
	100	GPM	77	92	108	125	163	207	893
		PSI	15,000	15,000	12,781	11,020	8,438	6,667	
	200	GPM	154	184	215	250	326	413	1,300
		PSI	12,999	10,923	9,307	8,025	6,144	4,854	
	300	GPM	231	275	323	375	490	620	
		PSI	8,666	7,282	6,205	5,350	4,096	3,236	
	450	GPM	347	413	485	562	734	929	
		PSI	5,777	4,854	4,136	3,567	2,731	2,158	

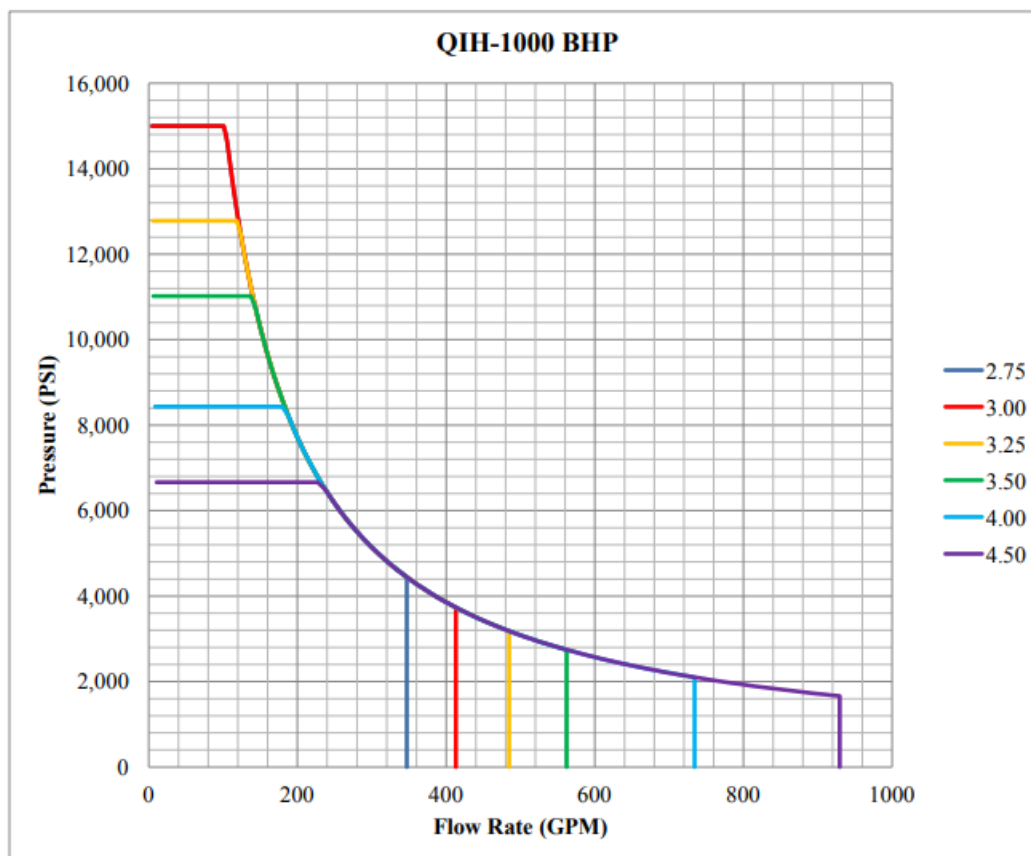


10.0 PUMP GROUP – OPTION 2

(2) MSI QI-1000 with 3" plungers. (Customer to confirm plunger size prior to ordering) The MSI QI-1000 combines the high flow rate of a quintplex design and the strength to handle pressures in excess of 15,000 psi. Based on proven, well-service technology and endurance-tested to 1 million cycles at maximum load, it's designed to increase uptime through enhanced flexibility and ease of maintenance.

A QIH-1000 will produce the following capacities:

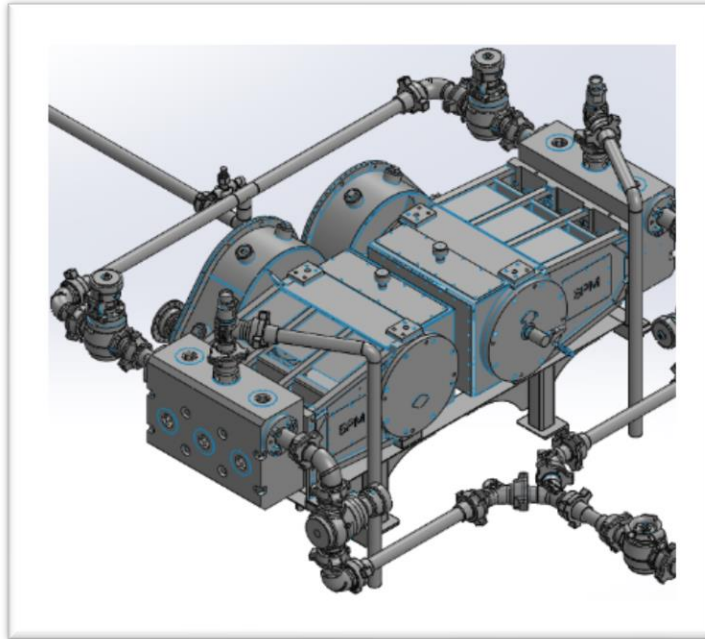
PLUNGER			2.75	3.00	3.25	3.50	4.00	4.50	
GAL/REV			0.77	0.92	1.08	1.25	1.63	2.07	BHP
RPM	50	GPM	39	46	54	62	82	103	446
		PSI	15,000	15,000	12,781	11,020	8,438	6,667	
	100	GPM	77	92	108	125	163	207	893
		PSI	15,000	15,000	12,781	11,020	8,438	6,667	
	200	GPM	154	184	215	250	326	413	1,000
		PSI	9,999	8,402	7,159	6,173	4,726	3,734	
	300	GPM	231	275	323	375	490	620	
		PSI	6,666	5,601	4,773	4,115	3,151	2,489	
	450	GPM	347	413	485	562	734	929	
		PSI	4,444	3,734	3,182	2,744	2,100	1,660	



10.1 HIGH PRESSURE DISCHARGE IRON (OPTIONAL)

The unit does not come with tie in Iron, this is customer supplied and listed as an option.

The listed items connect both pumps into one discharge complete with plug valves and two relief valves for pump protection. Also listed as an option is the service iron set which consists of 100' of pups, 6 swivels and 4 plug valves all rated to 15000 PSI.



**** Show For Example Only****

10.2 BOOST PUMPS / CIRCULATION AND PRESSURISER PUMPS

To supply charge pressure for the MSI pumps, as well as the requirements for circulation and pressurisation Ranglar selects (4) Mission Magnum centrifugal pumps 6X5X14 that are hydraulically driven. The pumps are controlled from the cab. The pumps come with mechanical seals for longer service life. Pump size is consistent to reduce spare parts needed on hand. All clean, boost fluid is measured by (2) 6" Promag W 400 flow meter.



11.0 PRIME WELL SERVICE INSTRUMENTATION FLUID PUMP DAS SYSTEM – (OPTIONAL)

X20, Model A DAQ Module

Channel Schedule:

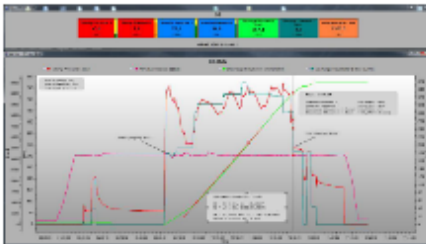
- 8 analog (two IS)
- 4 frequency
- 2 relay
- 2 encoder

DMS - Data Management Software

Overview:
The Prime Data Management System (DMS) is designed to meet operator's and engineer's needs for well service data acquisition. It combines an easy set up in the field and online monitoring with advanced functions to analyze and report on well treatments.

Key features:

- Recording data in real time
- Visualising data in real time
- Filtering, modifying data
- Creating job reports



Data Management Software PRO

- Data Reader
- Premium Reporting
- Digital View
- Chart View
- Local Report Storage
- Data Sender
- Event Logger
- Job Report Emailing
- MEDCO Compatible
- Multi-Unit Networking

Monthly subscription includes 24/7 technical support and software updates.

Billable monthly by credit card. No minimum commitment required.

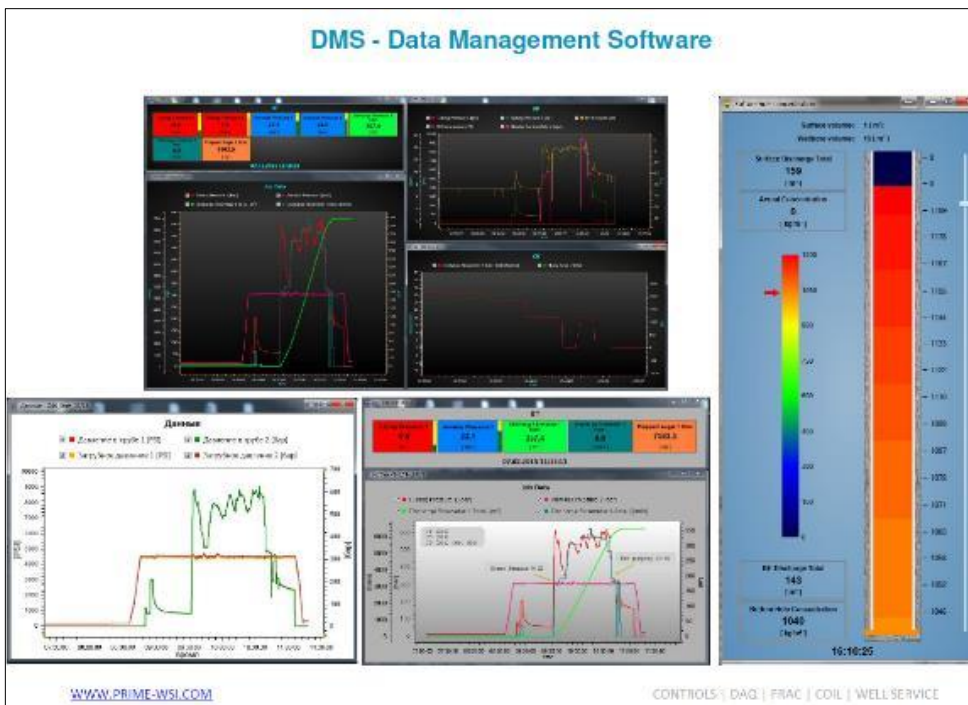
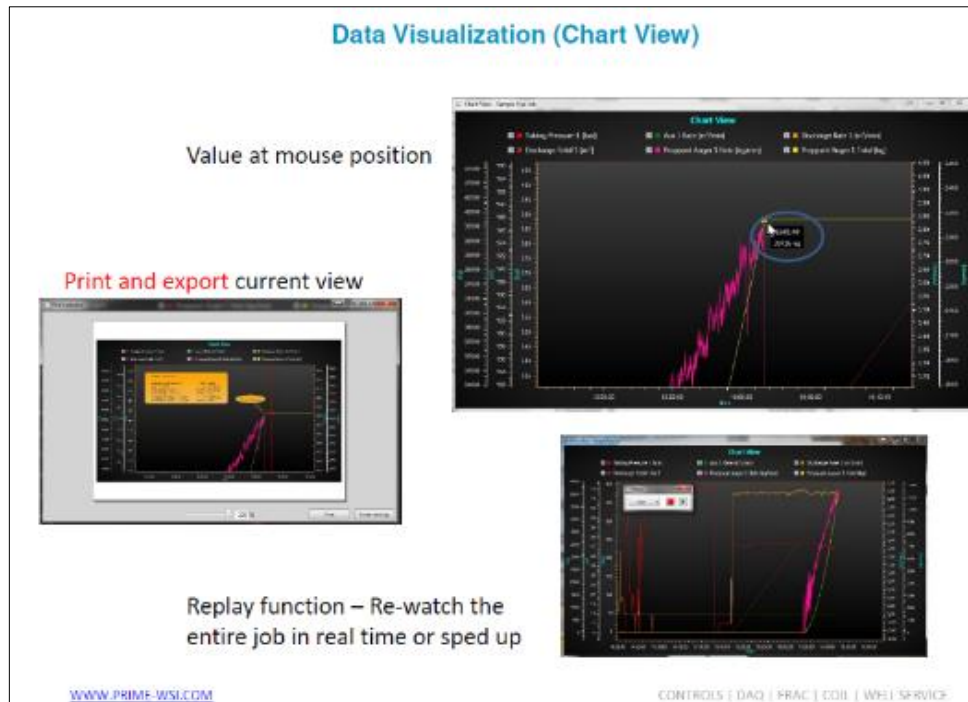
Minimum system requirements: Windows 7, 8 or 10, Intel compatible 32 bit or 64 bit CPU, 2 GB RAM, 20 GB free space

Computer

- Panasonic Toughbook + Docking station
- Mounting hardware with Locking Arm
- Extra display + Mounting for Fatigue software

Comes with all necessary hardware for a Twin Fluid Pumping unit

- Cables
- Reels
- Bulkhead connections
- Hammer Union Connectors
- Pressure Sensors
- Encoders



12.0 STANDARD HYDRAULIC AND PUMP LUBRICATION

The hydraulic reservoir is 150 gallons for added cooling.

(1) High capacity hydraulic cooler and (2) high capacity lubrication coolers are hydraulically driven and sized for cooling in ambient temperatures of 40 degrees C.

(2) separate lube reservoirs for the power ends hold 100 gallons each of lube oil and are located central in the trailer chassis.

Complete standard system filtration consists of the following pleated filters:

- (2) high pressure, open loop rated at 10 Micron Boost pump drives
- (2) high pressure, open loop rated at 10 Micron - Auxiliary
- (4) Magnetic suction screens – Hydraulic tank
- (1) High capacity in tank return filter
- (2) High capacity in line lube filters – Power Ends
- (2) Magnetic suction screens – Lube tanks.

12.1 MAGNETIC FILTRATION (OPTIONAL)

- Magnetic filtration consists of specialized filters with permanent earth magnets.
- The cost advantages are that they are only purchased once.
- A life span of 10+ years is typical.
- Simply clean at recommended intervals as part of a PM program
- Only a +/- 2% reduction in flow at high and low pressure, perfect for case drains.
- High capacity, typically up to 350 lbs. on tank return filters with little flow reduction
- Captures both ferrous and nonferrous particles due to static charges
- Filters to sub-micron ratings.



12.2 PLUNGER LUBE SYSTEM

(2) QPC Pneumatic PP-1 pump systems with the following characteristics lubricate the pony rods on the fluid pumps:

- Pneumatic drive
- 17 lbs. capacity
- Pneumatic timers
- NEMA 4X FRP enclosure w/view window
- Steel mount H-bracket w/shock mounts
- PE-170 pumping elements
- High pressure grease pump



12.3 LUBRICATION SELECTIONS (STANDARD SUPPLY)

Ranglar can supply your Twin Pumper with any brand of fluid available for sale in Canada, however our standard fluid for High Ambient temperature environments are as follows:

Hydraulic Fluid:

HYDREX MV 60 hydraulic fluids are recommended for high temperature use in piston, gear and vane hydraulic pumps found on industrial machinery and mobile equipment. HYDREX MV 60 offers minimal fluid friction at low start-up temperatures and provides the correct viscosity at high operating temperatures. HYDREX MV may be used in systems equipped with fine filters down to 3 microns without loss of additives or filter plugging.

HYDREX MV 60 hydraulic fluids are approved for use in equipment manufactured by Bosch-Rexroth and are recommended for use in equipment manufactured by Eaton Vickers, Denison, Komatsu, Sauer-Danfoss, Oilgear, Hydreco, Dynex and others.

Typical Performance Data

PROPERTY	TEST METHOD	HYDREX MV		
		MV 22	MV 36	MV 60
Start-up Temperature ¹ , °C/°F	–	-41/-42	-35/-31	-26/-15
Operating Temperature Range ² , °C/°F	–			
Mobile Equipment		-25 to 64 / -13 to 147	-18 to 77 / 0 to 171	-5 to 91 / 23 to 196
Industrial Machinery		-25 to 57 / -13 to 135	-18 to 66 / 0 to 151	-5 to 83 / 23 to 181
Viscosity, cSt @ 40°C	D445	23.8	32.3	58.0
cSt @ 100°C		5.0	6.3	8.9
SUS @ 100°F		123	165	297
SUS @ 210°F		42.7	47.0	55.8
cP @ -35°C (-31°F)	D2983	–	–	51,770
cP @ -40°C (-40°F)		5,810	24,700	–
Viscosity Index	D2270	141	149	131
Flash Point, °C/°F	D92	208/406	226/439	223/433
Pour Point, °C/°F	D5950	-51/-60	-48/-54	-48/-54
Oxidation Stability, hours	D943	7000+	7000+	7000+
Oxidation Stability ³ , mg sludge	D4310	Pass	Pass	Pass
Rust, procedures A & B, 24 h	D665	Pass	Pass	Pass
Hydrolytic Stability ³ , Copper Loss, mg/cm ²	D2619	Pass	Pass	Pass
FZG Failure Load Stage	D5182	11	12	>12
Dielectric breakdown voltage, kV	D877	47	47	42
Four-Ball Wear Test, Scar Diam. (mm) 40 kg, 1200 rpm, 75°C, 1hr.	D4172	0.5	<0.5	<0.5
Water Separability at 54°C (129°F)	D1401	40-40-0(5)	40-40-0(5)	40-40-0(10) ⁴

¹ Start-up is defined by the temperatures at which the oil viscosity is 10,000 cP.

² Operating temperature limits are determined by the equipment manufacturer. Petro-Canada has chosen to define the upper operating temperature to be the after-shear oil viscosity of 10 cSt for mobile equipment and 13 cSt for industrial machinery, while the lower operating temperature to be the fresh oil viscosity of

Gear Fluid:

ENDURATEX EP 100 Gear Oils are specially formulated to deliver sustained long-life, anti-wear and extreme pressure protection to industrial gear drives and bearings.

Typical Performance Data

PROPERTY	TEST METHOD	ENDURATEX EP Oils									XL SYNTHETIC BLEND		
		32	68	100	150	220	320	460	680	1000	68/150	68/220	
AGMA Number		-	2EP	3EP	4EP	5EP	6EP	7EP	8EP	8AEP	3EP	4EP	
Density, kg/L @ 15°C/59°F	ASTM D4052	0.847	0.864	0.872	0.882	0.890	0.899	0.903	0.912	0.902	0.868	0.870	
Colour	ASTM D1500	<1.0	<1.0	<1.0	2.5	3.0	4.0	<5.0	>8.0	<5.5	<1.0	1.0	
Viscosity	cSt @ 40°C	ASTM D445	32.0	68.0	101	150	220	325	452	688	1077	98.2	152
	cSt @ 100°C	ASTM D445	6.0	9.1	11.3	15.0	19.4	25.2	30.4	34.5	55	14.3	22.2
	SUS @ 100°F	ASTM D2161	164	351	527	787	1163	1727	2420	3733	5845	503	777
	SUS @ 210°F	ASTM D2161	46	57	65	79	96	124	148	179	265	76	110
Viscosity Index	ASTM D2270	136	109	97	100	99	100	97	88	100	149	183	
Flash Point, °C/°F	ASTM D92	224/435	240/464	240/464	269/516	275/527	287/549	276/529	297/567	237/459	250/482	251/484	
Pour Point, °C/°F	ASTM D5950	-51/-60	-39/-38	-33/-27	-33/-27	-27/-17	-21/-6	-15/5	-9/16	-15/5	-39/-38	-33/-27	
Channel Point,°C/°F	FDSTD791/ D3456.2	-58/-72	-46/-51	-40/-40	-37/-35	-37/-35	-29/-20	-24/-11	-18/0	—	-55/-67	-54/-65	
Brookfield viscosity 150,000 cP Temperature, °C / °F	ASTM D2983	47/-53	-33/-27	-29/-20	-26/-15	-18/0	-13/9	-13/9	-9/16	—	-32/-26	-31/-24	
Timken EP Test, kg / lb	ASTM D2782	27/60	30/65	32/70	32/70	32/70	32/70	32/70	32/70	34/75	32/70	32/70	
Four-Ball Weld Load, kg	ASTM D4172	250	250	250	250	250	250	250	250	315	250	250	
Four-Ball Scar Diameter mm, 1 hour, 20 kg / 44 lb, 54°C / 129°F, 1800 rpm	ASTM D2782	0.31	0.30	0.29	0.27	0.29	0.28	0.33	0.27	0.38	0.28	0.28	
Load Wear Index	ASTM D2783	45	49	49	47	47	48	54	49	55	46	46	
FZG Failure Load Stage	DIN 51 354 Part 2	12+	12+	12+	12+	12+	12+	12+	12+	12+	12+	12+	
Demulsibility Test													
Water separated, mL	ASTM D2711	85.0	86.3	86.0	85.6	83.4	83.0	82.0	82.0	—	76.0	74.5	
Emulsion formed, mL		1.0	0.1	0.1	0.2	0.5	0.8	0.0	0.0	—	1.4	1.6	
Foaming Characteristics													
Vol. after blow/settling, 24°C / 75°F	ASTM D892	5/0	20/0	0/0	0/0	0/0	0/0	0/0	0/0	—	5/0	0/0	
93.5°C / 200°F		0/0	40/0	0/0	0/0	0/0	0/0	0/0	0/0	—	0/0	5/0	
Oxidation Stability													
% Viscosity Increase 312 hours, 121°C / 250°F	ASTM D2893	3.7	2.7	3.7	3.8	4.9	7.3	7.9	7.9	—	3.5	3.5	
Rust Test Procedure B, 48 hrs	ASTM D665	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	—	Pass	Pass	
Copper Strip Corrosion Test, 3 hours @ 100°C / 212°F	ASTM D130	1a	1a	1a	1b	1b	1a	1b	1b	1a	1a	1a	

The values quoted above are typical of normal production. They do not constitute a specification.

Engine Oils:

DURON-E 15W / 40 is specially formulated with a unique high performance additive system in combination with the patented HT purity process to produce 99.9% pure, crystal-clear base oils - one of the purest in the world. DURON-E 15W / 40 is formulated to the highest 4-stroke diesel and gasoline engine oil standards and is ideal for use in extended oil drain interval service. The keys to success in extending service intervals are good operating practices and maintenance programs including a regular oil analysis program.

Typical Performance Data

PROPERTY	ASTM TEST METHOD	DURON-E			
		Synthetic 10W-40	XL 15W-40	10W-30	15W-40
Flash Point, °C / °F	D92	235 / 455	231 / 448	233 / 451	230 / 446
Kinematic Viscosity cSt @ 40°C / SUS @ 100°F cSt @ 100°C / SUS @ 210°F	D445	99 / 506 15.1 / 79	115 / 591 15.5 / 81	78 / 172 11.6 / 53	117 / 600 15.4 / 81
Viscosity Index	D2270	160	142	142	139
High Temp/High Shear Viscosity cP @ 150°C	D4683	4.3	4.4	3.4	4.3
Cold Cranking Viscosity, cP @ °C	D5293	5957 (-25°C / -13°F)	5686 (-20°C / -4°F)	6159 (-25°C / -13°F)	6000 (-20°C / -4°F)
Pour Point, °C / °F	D5950	(-48 / -54)	(-45 / -49)	(-45 / -49)	(-42 / -44)
Borderline Pumping Viscosity cP @ °C	D4684	34588 (-30°C / -22°F)	18922 (-25°C / -13°F)	18690 (-30°C / -22°F)	25238 (-25°C / -13°F)
Sulphated Ash, % wt	D874	< 1.0 %	< 1.0 %	< 1.0 %	< 1.0 %
Total Base No. (TBN), mg KOH/g	D2896	10.3	10.3	8.6	8.3

The values quoted above are typical of normal production. They do not constitute a specification.

Transmission Fluid:

HEAVY DUTY SYNTHETIC BLEND Automatic Transmission Fluid is specially formulated to perform under the demanding severe service operating conditions found in heavy duty transmission systems. It is designed for use in commercial applications where a Severe Duty and Extended Drain Interval fluid is specified.

Typical Performance Data

PROPERTY	TEST METHOD	HEAVY DUTY SYNTHETIC BLEND ATF
Density, kg/l @ 15°C (60°F)	ASTM D4052	0.854
Colour	—	Red
Flash Point, COC, °C (°F)	ASTM D92	189 (372)
Pour Point, °C (°F)	ASTM D5950	-45 (-49)
Viscosity, cSt @ 40°C (SUS @ 100°F) cSt @ 100°C (SUS @ 210°F)	ASTM D445	34 (173) 7.8 (52)
Viscosity Index	D2270	208
Brookfield Viscosity, cP @ -40°C (-40°F)	ASTM D2983	9,700
Qualification Numbers Allison ZF Voith Turbo	— —	C-4-29493700 (Legacy) ZF TE-ML 03D, 04D, 14B, 16L and 17C (ZF001236) H55.6336.xx (formerly G1363)

The values quoted above are typical of normal production. They do not constitute a specification.

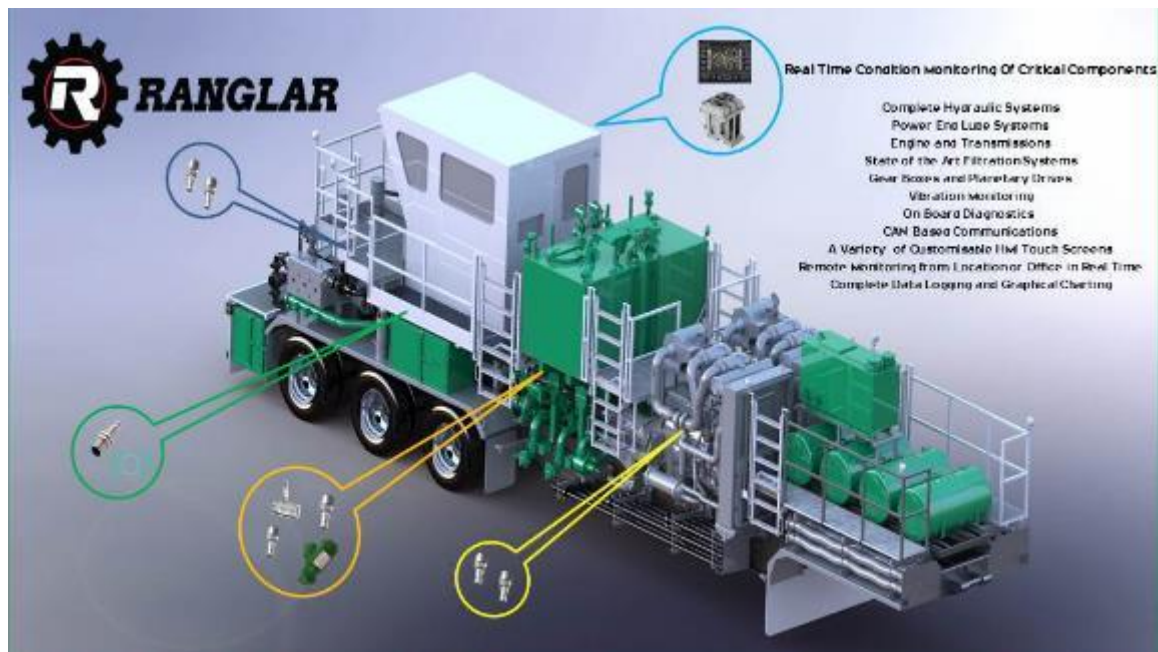
13.0 RANGLAR REAL TIME CONDITION MONITORING:

Budgetary Costing – Dependent on client CM selections

Ranglar proposes the use of state of the art technology in the areas of condition monitoring (CM) The CM sensors and components can be stand alone with separate visual displays or can be integrated into our controls platform and can be shared with home office in real time (depending on Wi-Fi signal)

Sensors and switches:

- Main hydraulic components have low restriction, turbine flow sensors and are part of the system to measure efficacy of the components.
- HOS circuits have temperature sensors.
- We use a dedicated circulation pump in conjunction with 4 sensor systems. These are in the hydraulic tank and measure dielectric constant of the oil condition, H2O saturation % level, temperature and a ISO cleanliness level sensor to monitor over all oil health.
- Lubrication systems for power ends use sensors to measure dielectric constant of the oil condition, H2O saturation % level, temperature and pressure.
- The truck or power unit engine can have a sensor to measure dielectric constant, oil temp and water saturation % level. The engine also can have a level switch that alerts to both low level and high level, as well a pressure sensor is installed in the cooling system. The intake air system can be monitored for restriction.
- Any transfer case or lubrication system has a small digital flow meter, pressure sensor as well as sensors to measure dielectric constant, water saturation % levels and temperature. The transfer case is also equipped with a low oil level switch.
- Truck manual transmission can be equipped with a magnetic switch that alerts at the point of collection ferrous material, it is a warning device only.



14.0 OPERATORS CONTROL CAB:

The operators cab is a self-contained cab that is located at the rear of the trailer. It has full view access windows with a man door located on the driver's side.

- High output AC for operations in +50c
- Red running lights for night time operations
- Hand held spot light
- The cab is sized to accommodate 3 people
- The operators console is constructed using aluminum.
- The cab comes fully insulated
- Control cabin is constructed using aluminum tubing
- Aluminum sheeting will be used to cover the inside and the outside of the cabin
- Two fans will be mounted, one on either side of the windshield to help circulate air and assist defrosting windows.
- Toggle style lights switches will be used inside cabin.
- Electrical outlets will have a removable threaded cap.
- Cabin will have both 110V and 12/24V lighting.
- Two fixed work lights will be mounted to the outside, one on each side of the main cabin windshield



****Show for example only****

Air pressure gauge (fluid filled face)	Manifold control for butterfly valves
Auxiliary pressure gauges	Emergency stop controls
Lube pressure gauges	Over pressure shutdown
Strokes per minute gauges	Dry additive flow rate and total flow
Electronic discharge flow rate gauge	Liquid additive flow rate and total flow
Electronic discharge pressure	Throttle increase/decrease – self centering switch
Electronic RPM gauge	Transmission gear range selector
Horn – plunger switch	Wiper/Washer control
On/Off power switch with indicator light	Instruments on/off protected switch
Throttle control on/off switch with indicator light	Remote flood/spotlights
Engine kill control	Heater fan high/low/off switch

15.0 “PUMP TECH” OPERATING SYSTEM (OPTIONAL)

- The Pump controls system has been developed by Ranglar in conjunction with Danfoss controls group and is based on the Danfoss Plus1 platform.
- Can be configured to suit multiple unit types such as cementers, N2 & Acid Pumpers etc.
- Purpose build components for off highway equipment, robotic mining and industrial machines make them more reliable in the field. Fully supported by Danfoss world wide dealer networks.
- Microprocessors and screen manufactured for all weather conditions and the high vibrations associated with off HI way heavy equipment
- High speed and reliable CAN-Bus technology
- Fully scalable and customisable
- Fully automated controls with minimal operator input – “Auto Sense”
- Safer and faster operations due to less human input requirements
- Fully compatible with modern engine and transmission controls
- Features such as:
 - Complete electronic monitoring and control
 - Mixing measuring & controls
 - Pump controls
 - Heat load control
 - Blower controls
 - Pressure set points for pre-job testing
 - Manifold valve control
 - Flow rate logging
 - Plunger lube control
 - Pressure rate logging
 - Automatic transmission control with emergency neutral
 - Load sense engine control
 - Customizable touch screens
 - Maintenance logging, PTO hours, hours under load etc.
 - Telematics for Wi-Fi communication in real time of all data
 - Integrated real-time oil condition / analysis
 - Scalable to control multiple fluid pumping units, Blenders etc.
 - Remote data exchange between machines that are working together.
 - Onboard storage of operational data

16.0 FLUID MIXING TANKS

(2) 12-barrel mixing tanks are installed on the trailer. They come with top mounted hydraulic mixers to keep solids suspended. The tanks each have Level flex FMP51 probes level indicators and a stainless steel visual indicator in the tank. Explosion proof lighting is installed above the tanks to see the contents during night operations.

17.0 PAINT

Customer paint specifications to be used for all painted surfaces

(customer to provide paint spec)

Ranglar uses ENDURA top coats for all our equipment due to its superior quality.

- All components are first sand blasted (commercial - SSPC-SP6)

The Top Coated to the following specifications.

PRODUCT NAME	DRY FILM THICKNESS
Primer: EP-521 Epoxy Primer Tinted 5:1 mix ratio	3.5 – 4.5 mils
Topcoat: EX-2C Topcoat 1:1 mix ratio	2.0 – 3.0 mils
Clear coat: EX-2C Clear 100 1:1 mix ratio	1.5 – 2.0 mils
Total Film Thickness	7.0 – 9.5 mils

18.0 TRAINING, TESTING & COMMISSIONING - OPTIONAL

Ranglar Manufacturing can supply 2 technicians for a period of 2 days to help with orientation, training and maintenance. This has been listed as an option.

WARRANTY TERMS AND CONDITIONS

a) TERMS AND CONDITIONS

These terms and conditions shall apply to any and all offers pertaining to sales of goods and services by Ranglar Manufacturing (hereinafter Ranglar).

Any suggested exceptions shall be submitted and shall not be effective unless agreed to by both parties in writing. Any attempt to substitute or add any additional or conflicting terms and conditions is hereby expressly rejected, and shall be of no force or effect. If a conflict exists between these terms and conditions and a term or condition set forth in the body of the proposal of which this is a part, the term or condition in the body of the proposal will control.

b) PRICES AND SPECIFICATIONS

The prices and specifications shown herein are subject to change without notice, except when the specifications are deemed acceptable to both parties and valid signatures from both parties are on the contract acceptance page and accepted by the management of Ranglar.

Prices agreed upon will be held for the duration of the signed contract. All orders are subject to acceptance by Ranglar, prior to sale and to availability of materials. Clerical errors are subject to corrections.

c) QUOTATIONS

All quotations made are informational only and do not constitute a contract. Prices are based upon our understanding of your requirements and specifications.

d) TAX

Canadian GST will be charged on all orders within Canada, any other tax e.g. municipal, federal, import or export tax, type of usage or other similar taxes etc. if charged to seller will be paid in full by the buyer unless otherwise stated.

e) PAYMENT TERMS

Regular terms of sale are an agreed upon deposit and possible milestone payments with balance of funds payable on delivery or an irrevocable letter of credit.

f) TITLE & RISK

Full risk of loss including transportation delays and losses shall pass to the buyer upon delivery of the equipment at the delivery point. The seller retains the right and option to repossess any and all products sold that are in default of payment by the buyer. The buyer is to provide proof of insurance coverage before moving goods from facility.

g) CANCELLATION

Buyer's remorse or orders cancelled after being entered and in the process of being manufactured are subject to a cancellation charge payable by the customer. Orders for "Custom Manufacturing" or "Engineered to Order" for the most part may be deemed non-stock items and cannot be returned to the OEM without a full 100% restocking fee. Components that can be returned to our vendor will be charged a restocking fee as per our vendor's terms and conditions. If components are common items and can be used for other projects there will be a 25% restocking fee charged. All labor expended on the job will be billed at shop rate.

h) SHIPMENTS

Quotations are quoted Ex-Works (Incoterms 2010) Ranglar Manufacturing, Calgary, Alberta unless otherwise stated.

i) RETURN SHIPMENTS

Return shipments for warranty will not be accepted without a Returned Goods Authorization Number from Ranglar.

j) DAMAGED SHIPMENTS

For your protection, before accepting any shipment, examine it

carefully. If there is evidence of damage or a shortage, insist that the delivering carrier make suitable notation to that effect on the freight bill before signing. If, after receipt of shipment, concealed damage is discovered, notify the carrier immediately. Caution: When you give the delivering carrier a clear receipt for a shipment in which there is damage or shortage, the carrier is relieved of further responsibility. Any claim for damage, shortage, loss or delay must be filed by you with the delivering carrier within ten days of receipt of shipment. Your recourse is with the delivering carrier.

k) EQUIPMENT WARRANTY

Ranglar warrants our products to be free from defects in workmanship or material for a period of 365 days from the date of customer acceptance. During the warranty period, only such defects will be repaired, or the defective product will be replaced at the discretion of Ranglar, without charge. Products must be installed and maintained according to manufacturer instructions and used under normal working conditions.

Ranglar reserves the right to reject any claims resulting from lack of user maintenance, neglect, user misuse or accidental user damage. This warranty covers defective material replacement only and does not include transportation or labor charges.

Original equipment manufacturer will be warranted by the original manufacturer unless damaged, misaligned or an incorrect installation by Ranglar.

Ranglar does not guarantee or warranty the performance of any parts supplied by the customer nor can it guarantee used parts, which the customer may acquire to complete an installation or repair

Warranty will not apply to any equipment that is misused, modified, altered, improperly adjusted, has progressive damage or subject to improper or inadequate maintenance.

The foregoing warranties are exclusive and in lieu of all other warranties of quality or performance, express, implied, statutory or otherwise, including without limitation any warranties of merchantability or of fitness for a particular purpose

l) LIMIT OF LIABILITY

In no event shall Ranglar be liable to the purchaser for incidental or consequential damages whether in contract, tort or otherwise, including but not limited to damages related to loss of profits or revenue, loss of use of the goods or any associated equipment, cost of substitute goods, downtime costs, or other damages to purchaser or its customers.

m) INVENTIONS

Purchaser acknowledges and agrees that any and all ideas, discoveries and improvements, whether patentable or not, made during the performance of this Agreement shall be solely owned by Ranglar.

n) FORCE MAJEURE

Neither Ranglar nor Purchaser shall have any liability to the other or to third parties for any failure or delay in performing any obligation under this Agreement due to circumstances beyond its reasonable control including, without limitation, acts of God or nature, act of government or insurrections, fires, floods, hurricanes, strikes (including labor trouble or other industrial disturbance), acts of terrorism, war, embargoes or blockades, legal restrictions, or power, communication, satellite or network failure.