

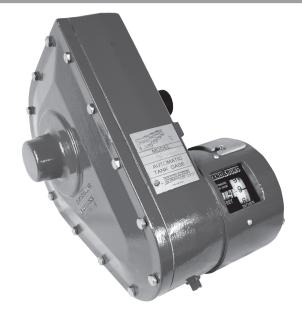
92021 Automatic Tank Gauge

The Shand & Jurs 92021 Automatic Tank Level Gauge is a float actuated tape driven gauge and by means of a digital counterindicates float travel accurately to 1/16 inch. The 92021 meets all the specifications and recommendations of the American Petroleum Institute in accordance with API Bulletin 2509B.

This Automatic Tank Gauge comes equipped with the Acutrak 90TM modular cartridge kit. The kit consists of a spring motor drum, a power hub and a stainless steel constant power spring. The cartridge and tape drum are constructed of RYTON®, a specially engineered polymer that offers outstanding chemical resistance, mechanical strength and abrasion resistance. Also included in the tank gauge is an accurately perforated stainless steel tape. Bearing loads are well distributed through Teflon bushings rotating on polished stainless steel shafts.

Local readout is by means of a digital counter featuring large black numerals on a white background. Remote reading is added by simply removing the counter housing cover, installing a 2" coupling and bolting a transmitter in place of the counter housing cover. Gauge calibration is quick and easy. Loosen screws and swing open access plate; then simply rotate large inch wheel until counter wheels are set. This is the fastest and most positive calibration available on any float actuated counter type gauge.

Choice of materials, rugged construction and counter housing sealed from gauge head permits application of the gauging system to a wide variety of environmental conditions. An operational checker for manually jogging the tape to insure a "free movement" system is standard on gauge head as well as provisions for optional high and low level limit switches. A hand crank for manually raising and lowering the float is also optional. Complete accessory kits are available for all standard and most special tank configurations and cover a broad selection of materials.



Features

- 1/16" Accuracy
- 90 Foot gauging range
- Simple installation
- Ground or roof reading
- Completely automatic
- Easily serviced
- Economical





Specifications:

Type of service:

Normal (Aluminum) Ammonia (Aluminum) Severe (Iron)

Maximum Pressure:

15 PSIG, Normal or Ammonia Service 50 PSIG, Severe Service

Temperature Range:

-30° to 180°F*

Gauging Range:

to 90 feet (Standard)**
to 27.4 meters (Standard)**

Materials of Construction:

Body and Cover:

Cast Aluminum (Normal & Ammonia Service) Nodular Iron (Severe Service)

Counter Housing:

Cast Aluminum

Constant Power Spring:

Stainless Steel

Perforated Tape:

316 Stainless Steel

Sprocket Wheel:

Cast Aluminum

Tape Reel:

Ryton®

Bearing & Seals:

Ball Bearings and Teflon

Hardware:

Steel

Storage Hub:

Ryton®

Advantages & Benefits:

Accuracy

Large digital readout driven by accurately perforated tape meets API standards of accuracy.

Reliability

Long contact arc of tape on sprocket and nonjamming construction of rotating parts assure reliability. Constant tension on float results in accurate reading; also, ventilated counter housing is non-fogging.

Versatile

Low copper aluminum body, carefully selected materials for internals, optional features and accessories make this system adaptable to most products and storage vessels.

Economical

Limited number of mounting brackets minimize installation cost. Complete gauging system "kits" for each installation further reduce cost.

Easier Service

Negator spring and housing easily replaced.

Safe

Totally enclosed negator motor protects maintenance personnel during service.



^{*} For service below -30°F consult factory.

^{**} For higher ranges consult factory.



Specifications:

Type of Kit Class:

Class (A) Normal Service

Class (B) Ammonia Service

Class (C) Severe Service

Maximum Pressure:

15 PSIG* (With Standard 316 Stainless Steel Float) 50 PSIG* (With Reinforced 304 Stainless Steel Float)

Support Bracket:

Steel

Anchor Bar:

Steel

Guide Wire Spring Assembly:

Steel

Guide Wire:

Stainless Steel

Pulley Housing:

Cast Aluminum - Class A & B; Nodular Iron- Class C

Pulley:

Delrin - Class A: Cast Aluminum - Class B Class C

Floats:

Model JB3010 - 21

Standard Stainless Steel Pan Float (11-3/4" Diameter) 15 PSIG with guides (13-1/4" Centers)

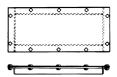
Model JB3025-18

Stainless Steel Pan Type Float (17-1/4" Diameter)- for Floating Roof tanks below 3 PSIG without guides

Model JB3031-1

Reinforced Stainless Steel Pan Type Float (11-3/4" Diameter) 50 PSIG with guides (13-1/4" Centers)

Auxiliary Gauging Accessories:



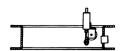
Inspection Frame & Cover Model JB3530-1

Recommended for use on in-service cone roof tank, Type I, installation through existing manhole.



Ventilator Model JB3555-2

Recommended to prevent corrosive vapors from entering the gauge head.



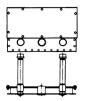
Model JB3516-2 (20" API) or JB3516-3 (24" API)

Manhole adapter & Cover for use on in-service cone roof tank, Type II, installation through existing manhole.



Flexible Tank Entry Model 9399-19000

Provides a non-rigid tape entry if roof movement is present.



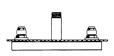
Model JC3517-2

Recommended for use on tank entry in-service cone roof tank, Type III, installation through tank top.



Tape/Cable Block Valve Model 93421

Isolates the gauge head from tank; recommended for inspection and servicing of gauging system.



Model JB3518-3

Tank entry assembly for in-service cone roof tank, Type IV, installation through tank top.



Limit Switch Model 99050

Contains up to 6 cam operated switches in an explosion-proof housing for Class I, Group D, Division 1. Switches can be used to indicate high and/or low level alarms, or to actuate pump, motor operated valves or other actuating equipment.

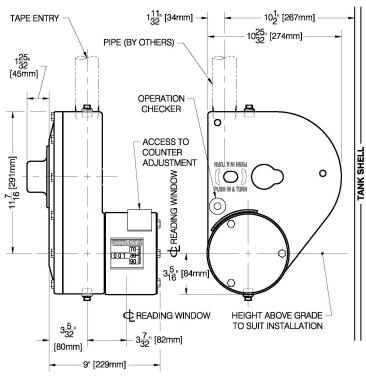




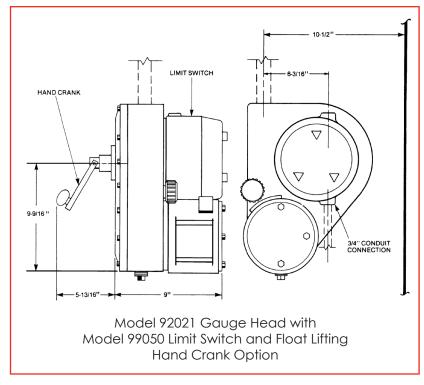
^{*50} PSIG service available for Kit No. 12C & 14C



Outline Dimensions



Shipping Weight: 46 LBS. Horizontal center line of reading window. Install at any height above grade to suit installation.



All designs subject to change. Certified dimensions and specifications available upon request.





92021 Ordering Guide

Model Number Selection

The model number will have a base number 92021 followed by 8 digit numbers. These digits will represent 5 sets of option tables.

92021 - AB - CD - EF - GH

Ordering Information

Specify:

- 1. Model 92021 Automatic Tank Gauge
- 2. Type of Service:

Normal, Ammonia or Severe

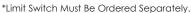
3. Gauge Head Options:

Gauge Head Only; with Limit Switch* Provisions; With Float Lifting Hand Crank; With Float Lifting Hand Crank; With Float Lifting Hand Crank and Limit Switch* Provisions.

4. Type of Calibration:

Feet and Inches; Decimal Feet or Metric

- 5. Type of Readout:
 - A) Innage or Outage
 - B) Maximum Tank Height
- 6. Type of Installation:
 - A) Gauge Head only (Without Tape for Ground Reading)
 - B) Ground Reading (fixed roof tanks)
 - C) Ground Reading (floating roof tanks)
 - D) Roof Reading
 - E) Turbulent Tanks**
- 7. Type of Accessory Kit and Class
- 8. Auxiliary Gauging Accessories, as Required
- 9. Specify CE for Ordinary EU Locations use Table G1 or G2
- 10. ATEX Certification for Group IIB, IIA EU Locations, use Table G3 or G4



^{**}Use Kits 3 or 14 Only.







Materials of Construction - Gauge Head

Service	Body	Cover	Counter Housing	Tape Reel	Sprocket	Hardware
Normal	CA	CA	CA	CA	CA	RP
Ammonia	CA	CA	CA	CA	CA	RP
Severe	NI	NI	CA	CA	CA	RP

Sprocket pins, negator, tapes, shafts, and Ball Bearings are Stainless Steel, Sleave Bearings are Teflon.

CA = Cast Aluminum

SS = Stainless Steel

RP = Rust Proof Steel

NI = Nodular Iron

Pipe Support Bracket = Steel angle Brackets are furnished to fasten pipe to tank every 10'

Table AB - Gauge Head Options and Service (with Operation Checker)

Option AB	Description	Service
31		Normal*
41	Gauge Head Only	Ammonia*#
51		Severe**
32	Gauge Head with Provision for	Normal*
42	Limit Switch Assembly Mounted	Ammonia*#
52	to Side of Gauge Head***	Severe**
33		Normal*
43	Gauge Head with Float Lifting Hand Crank	Ammonia*#
53	Tidila Cidilk	Severe**
34	Gauge Head with Float Lift-	Normal*
44	ing Hand Crank & Provision for	Ammonia*#
54	Limit Switch Assembly Mounted to Side of Gauge Head***	Severe**

* Maximum Pressure: 15 psig

** Maximum Pressure: 50 psig. Specify kits 12C or 14C when used for 3 to 50 psig service. Select tape block valves from the 94321 product data sheet.

*** When mounting limit switch assembly to counter housing there will be a charge applied to the gauge price. See the 99050 for selection of limit switch assembly and appropriate adapter.

Table C - Calibration Reading

Option C	Calibration	Reading
0	Feet and Inches	Innage
1	reel and inches	Outage
2	Decimal Feet	Innage
3	Decimal reel	Outage
4	Metric	Innage
5	Memc	Outage



Table D - Maximum Tank Height

Option D	Maximum Tank Height
5	60 Feet or 18.2 Meters
8	90 Feet or 30 Meters
9	120 Feet*

^{*}Does not have Acutrak Cartridge

Table EF - Type of Installation

Option EF	Description				
01	Ground Reading (Fixed Roof)				
02	Ground Reading (Internal Floating Roof)				
03	Roof Reading				
04	Turbulent Tanks*				
05	Ground Reading (External Floating Roof)				

^{*}Use Kits 3 or 14 only

Table GH - Certification

Option GH	Description	
00	Standard	
10	CE	
30	ATEX Certification	

Accessory Kits:

The following accessories are grouped together in various typical combinations for use with the gauge head to provide a complete gauging system. These accessory combinations are assigned kit numbers for convenient references. When the tank requirement is known, select the corresponding kit and material. From the kit shown, select the parts required and list separately on the sales order. Other accessories are available and are listed on this Key Data.

Pressure Ratings:

The standard accessory kits listed are for low pressure tanks (less than 3 psi) with the exception of kits $\underline{12C}$ and $\underline{14C}$ which are rated up to 50 psi.

Kit Legend (For use with kit diagrams):

1 - Tank Gauge

2 - Tank Bracket

3 - 90° Pulley

4 - Tape

5 - Stainless Steel Float

6 - Guide Wire

7 - Anchor Bar

8 - Guide Wire Spring

9 - 45° Pulley

10 - Header Assembly

11 - Guide Wire Bracket

12 - Cable Block Valve

13 - Cut-Off Pulley

14 - Guide Wire Bracket

16 - "A" Frame 17 - Pan Float 18 - Cable

19 - Inspection Frame

20 - Manhole Adaptor Assembly

21 - Tank Entry

22 - Guide Wire Hanger Assembly

23 - Ventilator

24 - Liquid Seal





Materials of Construction

	Guide Wire and Spring Assemblies							
Type	Housing	Cap	Tube	Washer	Spring	Retainer	Wire	
Class A							Clatalana	
Class B	Steel	Steel	Steel	Steel	Steel	Steel	Stainless Steel	
Class C							31661	

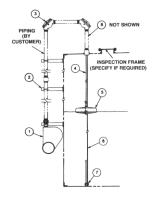
	Pulley Assembly						
Type	Housing	Cover	Pulley	Bearing	Shaft		
Class A	Cast Aluminum	Cast Aluminum	Delrin	Teflon	Stainless Steel		
Class B	Cast Aluminum	Cast Aluminum	Aluminum	Teflon	Stainless Steel		
Class C	Nodular Iron	Nodular Iron	Aluminum	Teflon	Stainless Steel		

NOTE: MAX. Pressure: 3psig, Except Kits 12C & 14C

Kit Class: A = Normal B = Ammonia

C = Severe (Rated 50 psig MAX)

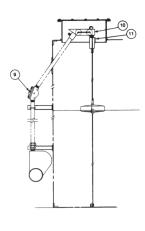
Kit Number 1 - Cone Roof Tank



Description	Number Required	Kit 1A Class "A"	Kit 1B Class "B"	Kit 1C Class "C"
Pulley, 90°, 1-1/2" NPT	2	9399-13440	9399-13450	9399-13460
Guide Wire Spring Assembly	2	JB3486-11	JB3486-11	JB3486-11
Float	1	JB3010-21	JB3010-21	JB3010-21
Anchor Bar	1	JA3540-3	JA3540-3	JA3540-3
Tape Clamp	1	090142	090142	090142
Tape Thimble	1	514-504	514-504	514-504
Tank Bracket	*	JB3435-1	JB3435-1	JB3435-1
	40'	1A1	1B1	1C1
Tank Height & Kit Number	66'	1A2	1B2	1C2
NII NOTTIDOT	90'	1A3	1B3	1C3

^{*} One Bracket for every 10 feet Installation through Tank Roof.

Kit Number 2 - Cone Roof Tank, Shell Entry

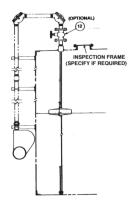


Description	Number Required	Kit 2A Class "A"	Kit 2C Class "C"
Pulley, 45°, 1-1/2" NPT	1	9399-13470	9399-13490
Guide Wire Spring Assembly	2	JB3485-17	JB3485-17
Float	1	JB3010-21	JB3010-21
Anchor Bar	1	JA3540-3	JA3540-3
Header Assembly	1	JB3505-2	JB3505-2
Tape Clamp	1	090142	090142
Tape Thimble	1	514-504	514-504
Guide Wire Bracket Assembly	1	JB3490-1	JB3490-1
Tank Bracket	*	JB3435-1	JB3435-1
	40'	2A1	2C1
Tank Height & Kit Number	66'	2A2	2C2
KII NOTTIOOT	90'	2A3	2C3

^{*} One Bracket for every 10 feet





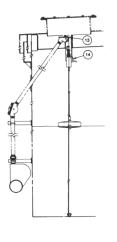


Kit Number 3 - Turbulent Tank for Cone Roof Tank, Side Mounted

Description	Number Required	Kit 3B Class "B"	Kit 3C Class "C"
Float	1	JB3010-21	JB3010-21
Pulley, 90°, 1-1/2" NPT	2	9399-13450	9399-13460
Tape Clamp	1	090142	090142
Guide Wire Spring Assembly	2	JB3486-11	JB3486-11
Anchor Bar	1	JA3540-3	JA3540-3
Tank Bracket	**	JB3435-1	JB3435-1
Cable Block Valve	1	93421-21	93421-21*
	40'	3B1	3C1
Tank Height & Kit Number	66'	3B2	3C2
NII TOTTIBOT	90'	3B3	3C3

^{*} Block Valve NOT INCLUDED in Kit; Specify separately, and price per list 93421

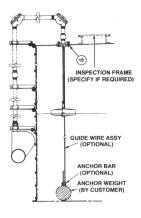
Kit Number 4 - Moveable Roof Tank, Side Mounted



Description	Number Required	Kit 4A Class "A"	Kit 4C Class "C"	
Pulley, 45°, 1-1/2" NPT	1	9399-13470	9399-13490	
Guide Wire Spring Assembly	2	JB3485-17	JB3485-17	
Float	1	JB3010-21	JB3010-21	
Cutoff Pulley	1	9399-13500	9399-13500	
Anchor Bar	1	JA3540-3	JA3540-3	
Tape Clamp	1	090142	090142	
Tape Thimble	1	514-504	514-504	
Guide Wire Bracket Assembly	1	JB3490-1	JB3490-1	
Tank Bracket	*	JB3435-1	JB3435-1	
	40'	4A1	4C1	
Tank Height & Kit Number	66'	4A2	4C2	
KII NOTTIDEI	90'	4A3	4C3	

One Bracket for first 20 feet plus one for each additional 10 feet

Kit Number 5 - Bolted Tank, Side Mounted



Description	Number Required	Kit 5A Class "A"	Kit 5C Class "C"
Pulley, 90°, 1" NPT	2	JB3561-1	JB3560-3
Float	1	JB3010-21	JB3010-21
Tape Clamp	1	090142	090142
Tape Thimble	1	514-504	514-504
Pipe Bushing 1-1/2" x 1" NPT	1	229-194	229-194
Tank Bracket Assembly	*	JA3446-1	JA3446-1
Tape Entry Assembly	1	090871	090871
	8'	5A1	5C1
Tank Height & Kit Number	16'	5A2	5C2
MINOMBE	24'	5A3	5C3

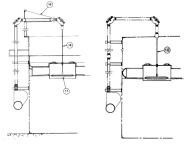
^{*} Standard Height for Bolted Tanks are: 8 feet, 16 feet, and 24 feet Number of brackets required are:

² for 8 foot tank; 3 for 16 foot tank; 4 for 24 foot tank



^{**} One Bracket for every 10 feet





Kit Number 6 - Floating Roof Tank, Side Mounted Kit Number 7 - Covered Floating Roof Tank, Side Mounted

Description	Number Required	Kit 6A Class "A"	Kit 7A Class "A"
Pulley, 90°, 1-1/2" NPT	2	9399-13440	9399-13440
Elbow Support Bracket	1	JC3436-1	
Pan Type Float	1	JB3025-18	JB3025-18
Tank Bracket	*	JB3435-1	JB3435-1
T 111 : 110	40'	6A1	7A1
Tank Height & Kit Number	66'	6A2	7A2
NII NOITIDOI	90'	6A3	7A3

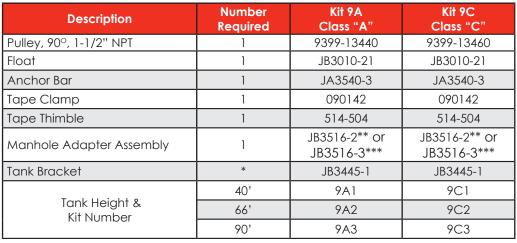
^{*} One Bracket for every 10 feet

Kit Number 8 - Tank in Service (Type 1), Side Mounted

Description	Number Required	Kit 8A Class "A"	Kit 8C Class "C"
Pulley, 90°, 1-1/2" NPT	2	9399-13440	9399-13460
Guide Wire Spring Assembly	2	JB3486-11	JB3486-11
Float	1	JB3010-21	JB3010-21
Anchor Bar	1	JA3540-3	JA3540-3
Tape Clamp	1	090142	090142
Tape Thimble	1	514-504	514-504
Tank Bracket	*	JB3445-1	JB3445-1
Inspection Frame	1	JB3530-1	JB3530-1
	40'	8A1	8C1
Tank Height & Kit Number	66'	8A2	8C2
N. Nomber	90'	8A3	8C3

^{*} One Bracket for every 10 feet

Kit Number 9 - Tank in Service (Type 2), Side Mounted



^{*} One Bracket for every 10 feet

^{***} API 650, 24" Diameter. Consult factory for other sizes.

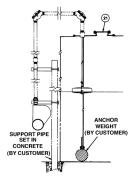


CONCRETE

(BY CUSTOMER)

^{**} API 650, 20" Diameter. Consult factory for other sizes.





Kit Number 10 - Tank in Service (Type 3), Side Mounted

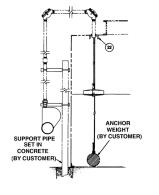
Description	Number Required	Kit 10A Class "A"	Kit 10C Class "C"
Pulley, 90°, 1-1/2" NPT	2	9399-13440	9399-13460
Tank Entry Assembly	1	JC3517-2	JC3517-2
Float	1	JB3010-21	JB3010-21
Anchor Bar	1	JA3540-3	JA3540-3
Tape Clamp	1	090142	090142
Tape Thimble	1	514-504	514-504
Tank Bracket	*	JB3445-1	JB3445-1
	40'	10A1	10C1
Tank Height & Kit Number	66'	10A2	10C2
NII NOITIDOI	90'	10A3	10C3

^{*} One Bracket for every 10 feet

Kit Number 11 - Tank in Service (Type 4), Side Mounted

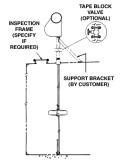
Description	Number Required	Kit 11A Class "A"	Kit 11C Class "C"
Pulley, 90°, 1-1/2" NPT	1	9399-13440	9399-13460
Float	1	JB3010-21	JB3010-21
Anchor Bar	1	JA3540-3	JA3540-3
Tape Clamp	1	090142	090142
Tape Thimble	1	514-504	514-504
Guide Cable Hanger Assembly	2	JB3518-3	JB3518-3
Tank Bracket	*	JB3445-1	JB3445-1
	40'	11A1	11C1
Tank Height & Kit Number	66'	11A2	11C2
	90'	11A3	11C3

^{*} One Bracket for first 10 feet



Kit Number 12 - Roof Reading, Roof Mounted

Description	Number Required	Kit 12A Class "A"	Kit 12C Class "C"
Float	1	JB3010-21	JB3031-1
Tape Clamp	1	090142	090142
Tape Thimble	1	514-504	514-504
Guide Wire Spring Assembly	2	JB3486-11	JB3486-11
Anchor Bar	1	JA3540-3	JA3540-3
Kit Number		12A1	12C1





TAPE SUPPORT 180° (SPECIFY IF REQUIRED)

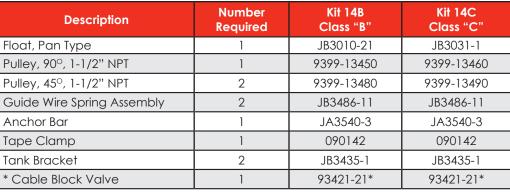
(OPTIONAL)

Kit Number 13 - Cone Roof Tank with Liquid Seal, Side Mounted

Description	Number Required	Kit 13A Class "A"
Pulley, 90°, 1-1/2" NPT	1	9399-13440
Guide Wire Spring Assembly	2	JB3486-11
Float	1	JB3010-21
Anchor Bar	1	JA3540-3
Tape Clamp	1	090142
Tape Thimble	1	514-504
Liquid Seal	1	See Chart on Next Page*
Tank Bracket	**	JB3435-1
Ventilator	***	JB3555-2
	40'	13A1
Tank Height & Kit Number	66'	13A2
NI NOTIDEI	90'	13A3

^{*} Substitution of any liquid seals on next page is at no additional cost.

Kit Number 14 - Turbulent Spherical Tank



^{*} Cable Block Valve not included in Kit

FRAME (SPECIFY IF REQUIRED)

Kit Number 15 - Spirally Guided Cover

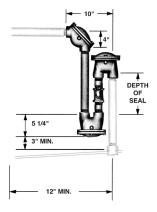
Description	Number Required	Kit 15A Class "A"	Kit 15B Class "B"
Float, Pan Type	1	JB3010-21	JB3031-1
Pulley, 90°, 1-1/2" NPT	1	9399-13450	9399-13460
Pulley, 45°, 1-1/2" NPT	2	9399-13480	9399-13490
Guide Wire Spring Assembly	2	JB3486-11	JB3486-11
Anchor Bar	1	JA3540-3	JA3540-3
Tape Clamp	1	090142	090142
Tank Bracket	2	JB3435-1	JB3435-1
* Cable Block Valve	1	93421-21*	93421-21*

^{*} Cable Block Valve not included in Kit

^{**} One Bracket for first 10 feet

^{***} Ventilator not included in Kit; specify separately and price.





Liquid Seals Maximum Tank Pressure with Fluids Used

Description	Seal Depth (Inches)	Ethylene Glycol (oz./sq. in.)	Oil (0.8 sp. gr.) (oz./sq. in.)	Class
JC3603-10	8-1/2"	5.2	3.9	Α
JC3603-11	9-1/2''	5.9	4.4	Α
JC3603-12	11-1/2"	7.1	5.3	Α
JC3603-13	13-1/2"	8.3	6.2	Α
JC3603-14	15-1/2''	9.6	7.2	Α
JC3603-15	17-1/2''	10.8	8.1	A

Seal depth over 17-1/2 are special, consult factory for pricing. When liquid seal is used, the next highest tank height should be used on the gauge head (Table II B).

Anti-freeze Solution 1.07 Specific Gravity Medium Weight Lubrication Oil 0.8 Specific Gravity.

Adapter

Part Number	Description	
9202-11000	To mount Model 92021 gauge to an existing Model 92006 gauge mounting bracket. This adapter requires a special model number when ordering. Consult Factory.	

NOTE: Model 92021 replaces models: 92006, 92007, 92105, 92106, 93206, 93207, 93275, 93274, 92020

Accessories

A. Floats

Description	Part Number
304 Stainless Steel (11-3/4" DIA)	JB3010-7
Monel (11-3/4" DIA)	JB3010-4
(11-3/4" DIA) Max Pres 50 psig.	JB3031-1
304 Stainless Steel Foamglass (9" x 12" x 3")	JC3000-1
316 Stainless Steel 4.25 LBS	JB3010-21-4LB
* 304 Stainless Steel (11-3/4" DIA)	JB3010-8

^{*} For asphalt service only

C. Liquid Seals - 1-1/2" NPT Connection - 8-1/2" Depth (Kit 13 Only)

Description	Part Number
All 316 Stainless Steel	LA277-536-21
Aluminum Housing 316 Stainless Steel Wheel	LA277-536-12
Nodular Iron Housing	LA277-536-6
All PVC	LB277-543

E. Guide Wire Spring Assemblies

Description	Part Number
All 316 Stainless Steel	93486-18
All 304 Stainless Steel	93486-12

B. Pulley Assemblies Upgrades -1-1/2" NPT Connection - 90°

Description	Part Number
316 Stainless Steel Housing 316 Stainless Steel Wheel	LB270-692
Aluminum Housing 316 Stainless Steel Wheel	LB270-649
Nodular Iron Housing 316 Stainless Steel Wheel	LB270-651
PVC Housing Delrin Wheel	BB3560-012

D. Anchor Bar - 13-1/4"

Description	Part Number
All 316 Stainless Steel	JA3540-4

