BULLETIN 406

PROCELL® TANK WEIGHING ASSEMBLIES

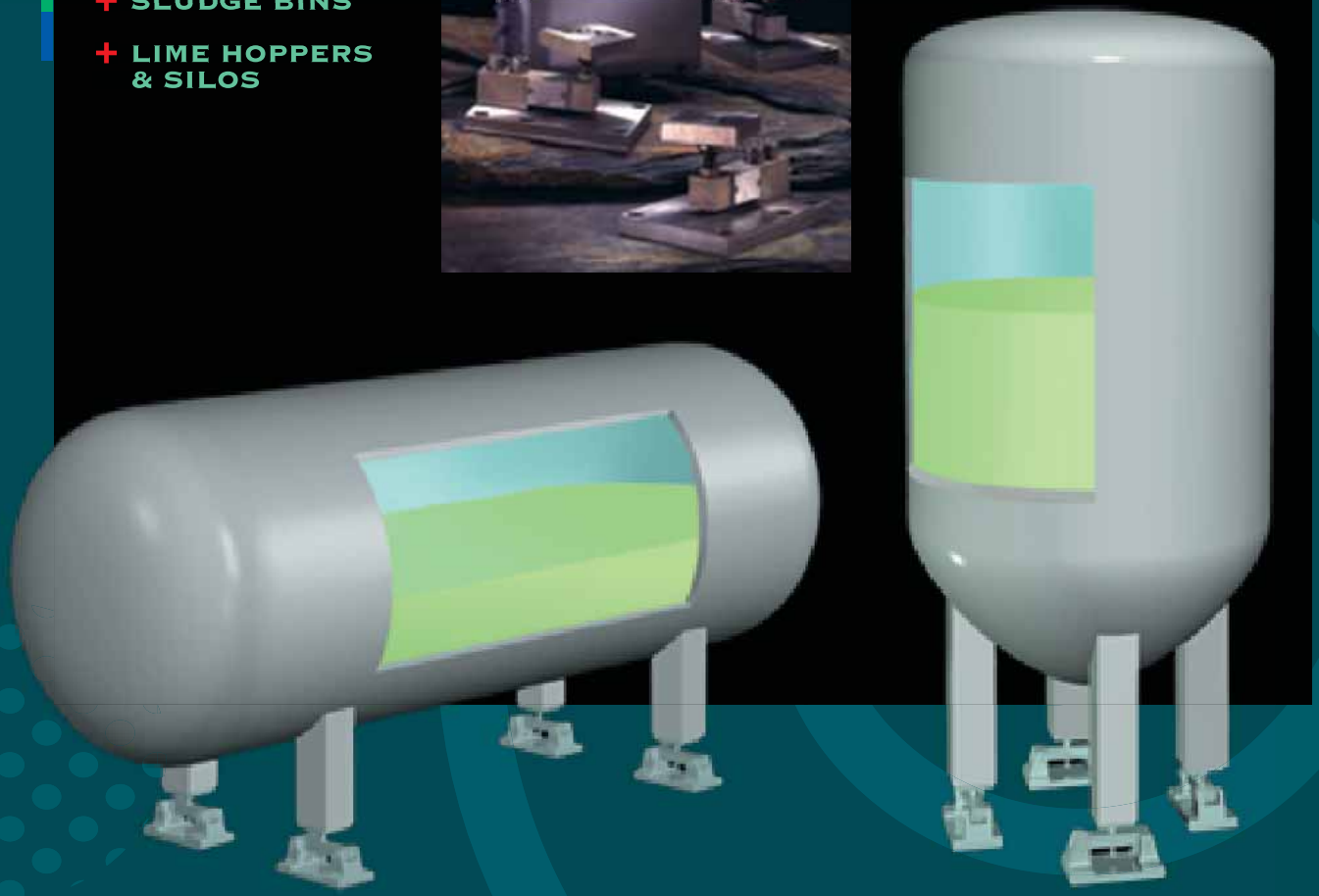
FOR CHEMICAL INVENTORY MANAGEMENT

PERFORMANCE GUARANTEED 5 YEAR WARRANTY™

NO FINGER POINTING.
NO FINE PRINT. ™

+ CHLORINE, SO_2 AND AMMONIA BULK TANKS
+ SLUDGE BINS
+ LIME HOPPERS & SILOS

OUR WIZARD 4000 WEIGHT INDICATOR SIMULTANEOUSLY MONITORS REMAINING CHEMICALS, FEED RATES AND USAGES ON UP TO 4 SEPARATE TANKS.



PROCELL® TANK WEIGHING ASSEMBLIES are designed to turn any leg, gusset or saddle supported vessel into a chemical monitoring system. Using tank weighing assemblies results in an inexpensive, non-intrusive, highly reliable method for measuring chemical inventory and usage. Other types of sensors require you to compensate for vessel shape, temperature changes or different specific gravities. Weight is accurate regardless of these things.

The **PROCELL®** simply bolts to the bottom of the support structure and anchors to the ground. The "self-checking" design of the **PROCELL** requires no other tank restraint or stabilizing hardware. The tank weighing assembly consists of an electronic shear beam load cell combined with a rugged mounting structure that accommodates uneven surfaces and thermal expansion/contraction of the tank or silo.

When combined with the **Wizard 4000®** digital display, plant operators can monitor remaining chemical, daily usage, feed rates and days until empty. Multiple alarms insure levels are maintained and that chemical is not over or underfed while the 4-20mA outputs allow remote monitoring from your PLC or SCADA system. The Wizard 4000 is an excellent tool for assisting with state and federal reporting requirements.

FORCE FLOW®

WWW.FORCEFLOW.COM

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PROCELL® TANK WEIGHING ASSEMBLIES

PROCELL SPECIFYING GUIDELINES:

1 DETERMINE THE QUANTITY OF PROCELLS® REQUIRED

TO DETERMINE THE REQUIRED NUMBER OF PROCELLS, THE MOST IMPORTANT CONSIDERATIONS ARE (A) HOW MANY SUPPORT POINTS THE TANK REQUIRES, AND (B) THE ACCURACY REQUIRED.

VERTICAL CYLINDRICAL VESSELS CAN EASILY DISTRIBUTE THEIR WEIGHT OVER 3 SUPPORT POINTS AND IS PREFERRED WHENEVER POSSIBLE. VERTICAL SQUARE VESSELS AND HORIZONTAL VESSELS USUALLY REQUIRE 4 SUPPORT POINTS. IF PROCELLS ARE USED AT ALL SUPPORT POINTS, SYSTEM ACCURACIES OF 1/10 OF 1% CAN BE ACHIEVED. FOR SYMMETRICAL TANKS WITH SELF CENTERING MATERIALS (LIQUIDS AND SLURRIES), YOU CAN ELIMINATE THE NEED FOR 2 PROCELLS BY USING 2 "PIVOT SUPPORTS" OR "FLEXURES" IN PLACE OF PROCELLS. THIS WILL SIGNIFICANTLY DECREASE THE OVERALL COST OF YOUR SYSTEM BUT WILL LIMIT THE ACCURACY TO 1/4 OF 1%. PLEASE CONSULT FACTORY FOR FURTHER INFORMATION ON FLEXURE BASED SYSTEMS OF THIS TYPE.

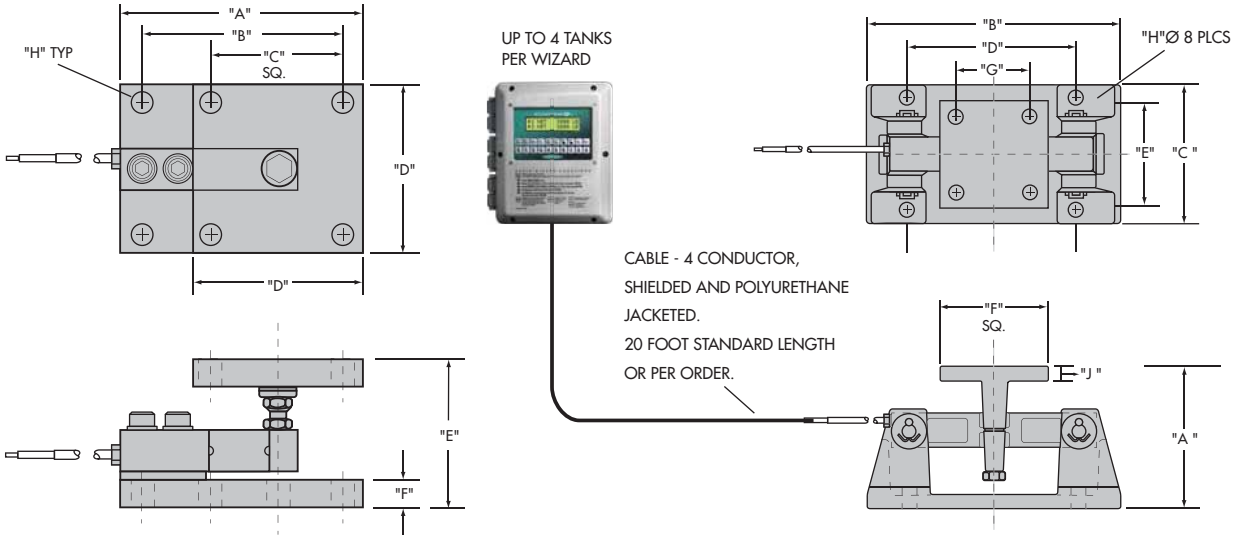
2 DETERMINE THE PROCELL® CAPACITY AND MODEL NUMBER

TO DETERMINE THE CAPACITY OF THE PROCELLS TO BE USED, YOU MUST FIRST DETERMINE THE GROSS CAPACITY OF THE SYSTEM INCLUDING THE NET WEIGHT OF THE PRODUCT, THE TARE WEIGHT OF THE VESSEL AND ANY OTHER APPARATUS THAT WILL BE SUPPORTED BY THE PROCELLS. THE FORMULA FOR DETERMINING THE PROCELL CAPACITY IS: GROSS CAPACITY DIVIDED BY NUMBER OF SUPPORT POINTS

EXAMPLE:

VESSEL TARE WEIGHT = 10,500 LBS
VESSEL CONTENTS = 85,000 LBS
NO. OF SUPPORT POINTS = 4

$$\frac{10{,}500 + 85{,}000}{4} = 23{,}875 \text{ LBS PER SUPPORT [25K PROCELL]}$$



MODEL PC820 500 – 10,000 LBS

CAPACITY (LBS)	A	B	C	D	E	F	H
0.5K	7.12	6.00	4.00	5.00	3.75-4.25	.70	.63
1K, 1.5K, 2.5K, 4K	7.12	6.00	4.00	5.00	4.00-4.50	.70	.63
5K, 10K	8.50	7.00	4.00	5.00	5.00-5.50	.94	.63

NOTES: FOR FURTHER TECHNICAL & INSTALLATION DATA ON PROCELL® ASSEMBLIES, CONSULT FACTORY.

MODEL PC160 1,000 – 75,000 LBS

CAPACITY (LBS)	A	B	C	D	E	F	G	H	J
1K, 5K	5.13	9.35	5.00	6.25	3.75	4.00	2.75	.56	.50
10K, 15K, 25K, 35K	7.90	12.00	8.00	7.50	6.00	8.00	6.00	.78	.75
50K, 75K	9.30	16.25	12.00	11.50	9.50	9.00	6.50	.78	1.00

MODEL PC160 FOR SEISMIC ZONE 4

DIMENSIONS ARE IN INCHES

TYPICAL SPECIFICATION FOR ELECTRONIC TANK WEIGHING ASSEMBLIES

SPECIFICATIONS

TANK WEIGHING ASSEMBLIES: A QUANTITY OF __(1, 2, 3, 4) TANK WEIGHING ASSEMBLIES SHALL BE INSTALLED FOR EACH TANK/HOPPER/BIN. EACH TANK WEIGHING ASSEMBLY SHALL HAVE A CAPACITY OF _____LBS FOR A TOTAL SYSTEM CAPACITY OF _____ LBS. FLEXIBLE CABLE SHALL CONNECT TANK WEIGHING ASSEMBLY TO INDICATOR FOR EASY REMOTE INSTALLATION OF THE READOUT. TANK WEIGHING ASSEMBLIES SHALL BE SELF-CHECKING AND HAVE PROVISIONS FOR THERMAL EXPANSION AND CONTRACTION. TANK WEIGHING ASSEMBLY LOAD PLATE SHALL BE ABLE TO COMPENSATE FOR MOUNTING SURFACES UP TO 4 DEGREES OFF-LEVEL.

INSTRUMENT ENCLOSURE, OUTPUTS & ALARMS: INDICATOR SHALL CARRY CE MARKING AND SHALL BE HOUSED IN A NEMA 4X, UL APPROVED ENCLOSURE. INDICATOR SHALL HAVE A 20 KEY DIGITAL KEYPAD & ABILITY TO DISPLAY DATA FOR 2 TANKS SIMULTANEOUSLY ON A BACKLIT ALPHANUMERIC LCD DISPLAY. IF MORE THAN 2 TANKS ARE BEING MONITORED, DISPLAY SHALL AUTOMATICALLY SCAN ALL CHANNELS IN THE SYSTEM. INDICATOR SHALL HAVE ADJUSTABLE 4-20MA OUTPUTS FOR NET WT, FEED RATE AND DAILY USED FOR EACH TANK. INDICATOR SHALL DISPLAY AN ALARM IN ANY OF THE FOLLOWING CONDITIONS: LOW LEVEL, HIGH LEVEL, LOW FEED RATE, HIGH FEED RATE, MAX DAILY USE, MIN DAILY USE, SUPPLY EXHAUSTED AND LOAD CELL FAILURE. AN ALARM LOG SHALL STORE THE MOST RECENT 30 ALARM CONDITIONS WITH TIME AND DATE OF OCCURRENCE. A QUANTITY OF _____ RELAYS (UP TO 12 PER INDICATOR) SHALL BE PROVIDED FOR REMOTE ALARM INDICATION OR TRANSFER PUMP CONTROL. INDICATOR SHALL ALLOW MODBUS COMMUNICATION VIA RS485/232.

DISPLAY & INVENTORY CONTROL SOFTWARE: KEYPAD AND MENU ITEMS SHALL HAVE INDEPENDENT PASSWORD PROTECTION TO PREVENT UNAUTHORIZED OPERATION. BOTH A NUMERICAL AND A BAR GRAPH DISPLAY SHALL GIVE OPERATOR THE ABILITY TO MONITOR CHEMICAL BY WEIGHT, VOLUME OR PERCENT FULL. EACH CHANNEL SHALL HAVE A USER SELECTABLE, TWO DIGIT SCALE ID NUMBER AND SHALL DISPLAY NET REMAINING, FEED RATE, DAILY USAGE, TOTAL AMOUNT USED, AND DAYS UNTIL EMPTY. A TANK LOAD KEY SHALL PAUSE & PROJECT USAGE ACCUMULATION DURING CHEMICAL RE-SUPPLY TO MAINTAIN ACCURATE USAGE DATA OVER MULTIPLE TANK LOADS. A DATA LOG SHALL STORE THE DAILY USAGE FOR EACH OF THE PREVIOUS 31 DAYS. INDICATOR RE-CALIBRATION IN THE FIELD SHALL BE ACCOMPLISHED THROUGH THE KEYPAD AND SHALL NOT REQUIRE THE USE OF DEAD WEIGHTS.

SYSTEM SHALL CARRY A FULL FIVE (5) YEAR FACTORY WARRANTY. "LIMITED" WARRANTIES SHALL BE CONSIDERED UNACCEPTABLE. PIVOTED WEIGHING SYSTEMS SHALL HAVE AN ACCURACY OF 1/4 OF 1%, ALL OTHERS 1/10 OF 1%. TANK WEIGHING ASSEMBLY SHALL BE PROCELL® MODEL PC_____-__ AND DIGITAL INDICATOR SHALL BE WIZARD 4000® MODEL 4000-__, MANUFACTURED BY FORCE FLOW, 2430 STANWELL DRIVE, CONCORD, CA 94520 USA (WWW.FORCEFLOW.COM).

OPTIONAL INDICATOR

SOLO 1000® DIGITAL WEIGHT INDICATOR

+ SINGLE OR DUAL CHANNEL
+ EASY TARE ADJUST
+ OUTPUTS AND RELAYS FOR REMOTE MONITORING/ALARMS

SEE BULLETIN 513 FOR MORE INFO

FORCE FLOW®
WWW.FORCEFLOW.COM

2430 STANWELL DRIVE, CONCORD, CA 94520 USA, PHONE 925.686.6700 FAX 925.686.6713, INFO@FORCEFLOW.COM