



# YOUR PARTNER IN PROCESS MEASUREMENT

- PEOPLE
- PROCESS
- SOLUTIONS
- PRODUCTIVITY

# LEVERAGE PEOPLE WHO ARE COLLABORATING TO HELP YOU

### **Rockwell Automation PartnerNetwork™**

Hardy Process Solutions is an Encompass Partner in the Rockwell Automation PartnerNetwork program. The PartnerNetwork is a framework of wellmanaged relationships formed as a result of customer needs. It provides manufacturers with access to a local, regional and worldwide network of experts. These partners offer the industry experience and technological know-how to help solve business challenges both large and small.

### PartnerNetwork™



*" collaborating to accelerate your manufacturing productivity "* 

### www.hardysolutions.com

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# **LEVERAGE A COMPANY WHO UNDERSTANDS YOUR PROCESS**

# Four Reasons to Partner with Hardy

- We specialize in process weighing.
  - We serve manufacturers and processors.
- We **measure**, integrate to **automation** and deliver **productivity**.
- Our solutions optimize **stock, make, pack and ship** operations.



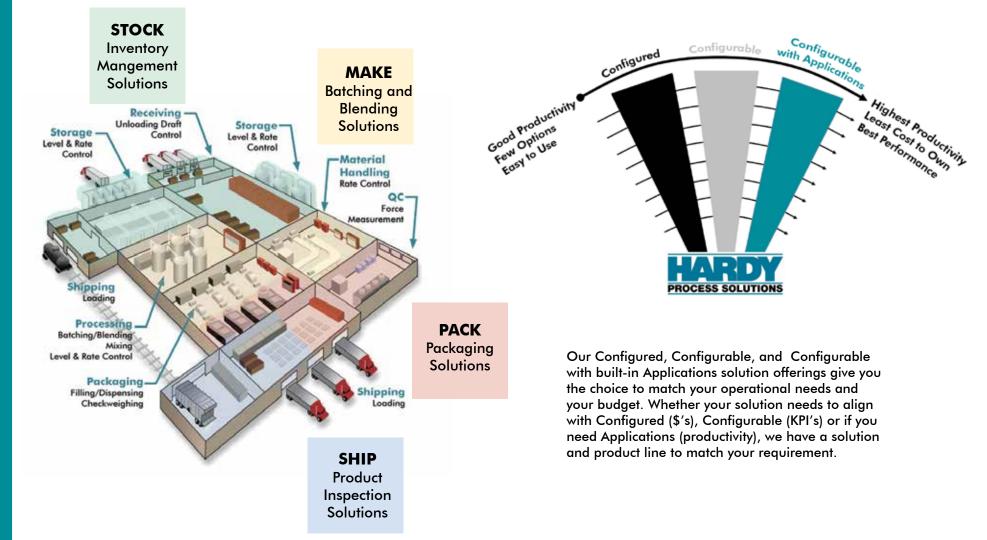
We know Measurement, Automation & Productivity. Our solutions optimize your operations:

- Hardy was founded as Hardy Scales in 1918
- Hardy developed the first PLC integrated weighing system for an Allen Bradley PLC
- Hardy pioneered WAVERSAVER®, the technology which eliminates the effects of vibration on weighing systems.
- Hardy is part of Roper Industries, a \$3 B+ public company.



# SOLUTIONS

# LEVERAGE SOLUTIONS THAT ARE STRUCTURED TO MEET YOUR BUSINESS NEEDS



### **DEPLOY A TOOLKIT THAT DELIVERS VALUE ACROSS MULTIPLE BUSINESS FUNCTIONS** VALUE DELIVERED VALUE DELIVERED **TO ENGINEERING & TO FINANCE &** MAINTENANCE **OPERATIONS** - 1 PROCESS TOOLBOX ACCURATE STABLE FAST FASY ANYWHERE Weight Free Calibrations **TESTED &** SAVES LOCAL OR NO WEIGHTS ecal **F**2 FACTORY DOCUMENTED ~ 4 HOURS **PUSH BUTTON** Saves time, Increases Safety CALIBRATED REMOTE **Operator Diagnostics** T INTEGRATED ERROR **TESTED &** SAVES LOCAL OR PUSH DOCUMENTED ~ 3 HOURS REMOTE BUTTON Saves Time, Increases Uptime FREE WAVERSAVER' Digital Vibration Filtering, Stability REDUCES FEWER READ DECREASES ALMOST ANY SIMPLE **APPLICATION** WASTE ERRORS PROCESS TIME SETUP WAVERSAVER'+ Saves Time, Higher Throughput **Proactive Feed Management** IMPROVES MANAGES SAVES RAW ALMOST ANY AUTOMATIC FEED-MASTER QUALITY **EXCEPTIONS** APPLICATION ADJUSTMENT Saves Material, Higher throughput MATERIALS **Proactive Piece Inspection** DECREASES ALMOST ANY INCLUDES REDUCES **FEWER READ** CHECK-MASTER WASTE ERRORS **READ TIMES** APPLICATION PIECE DETECT Saves Product, Reduces Risk No software/PC Setup ACCELERATES LOCALOR **TESTED &** ERROR NO Webserver DOCUMENTED SETUP/MAINT SOFTWARE FREE REMOTE Saves Time, Increases Access

ERROR

FREE

ERROR

FREE

SMM-SD

Automation Encompass Product Partner

Protected, Transferrable Setup

Saves Time, Reduces Risk

Validated Integration Tools

Saves Time, Reduces Risk

**TESTED &** 

DOCUMENTED

**TESTED &** 

DOCUMENTED

SAVES

~2 HOURS

SAVES

~3 HOURS

**OPEN SOURCE** 

MEDIUM

**IN-CHASSIS** 

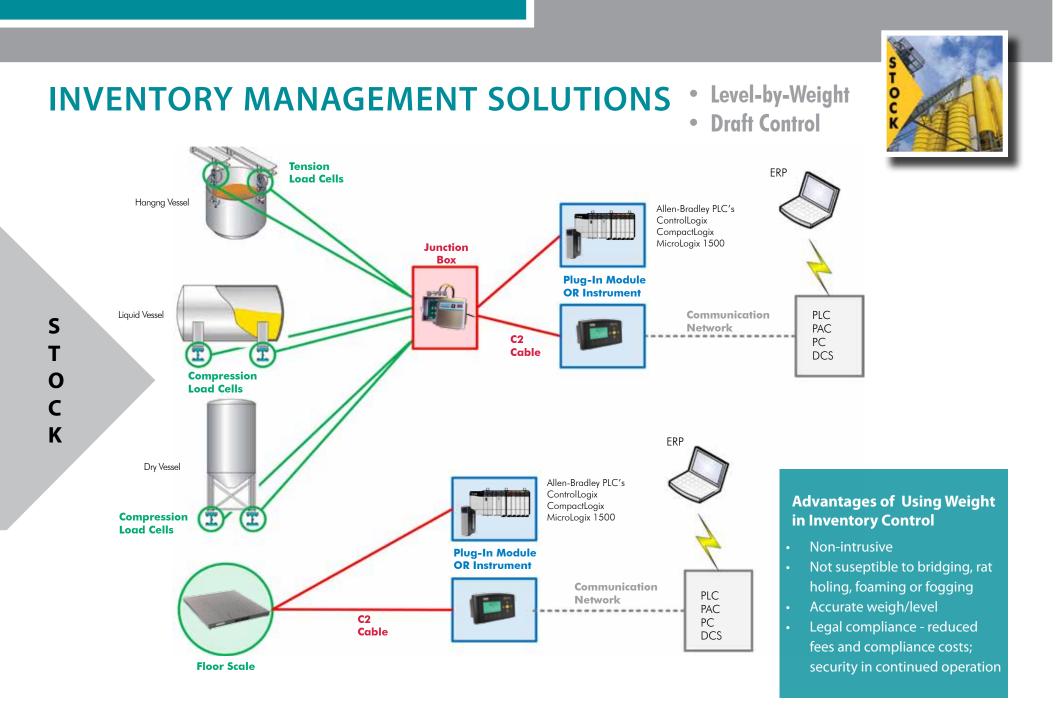
**OR ON-WIRE** 

EASY CARD

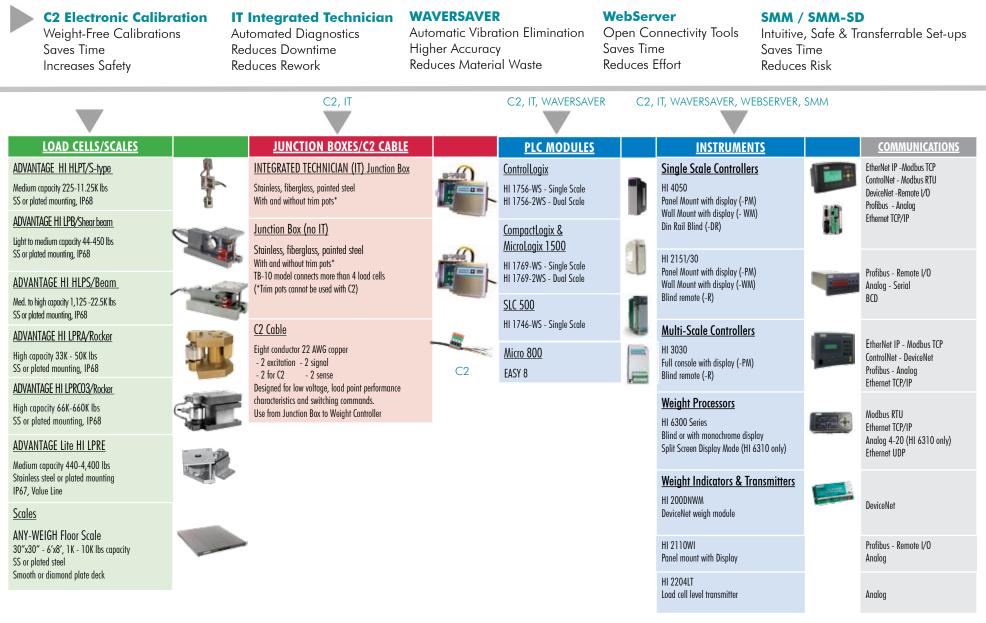
**EXCHANGE** 

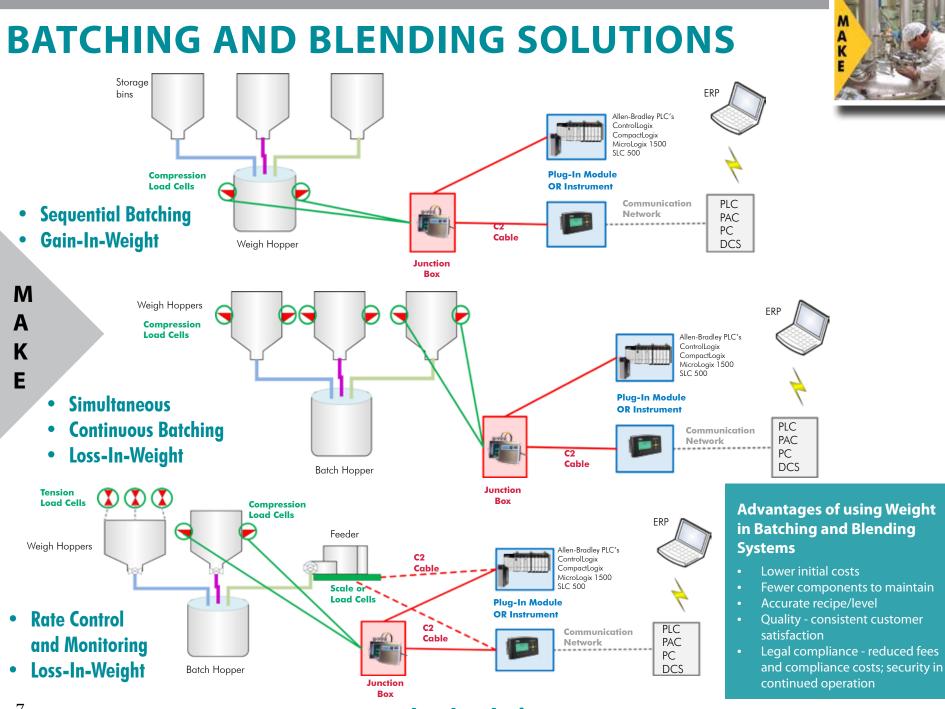
PRE CERTIFIED

PROFILES

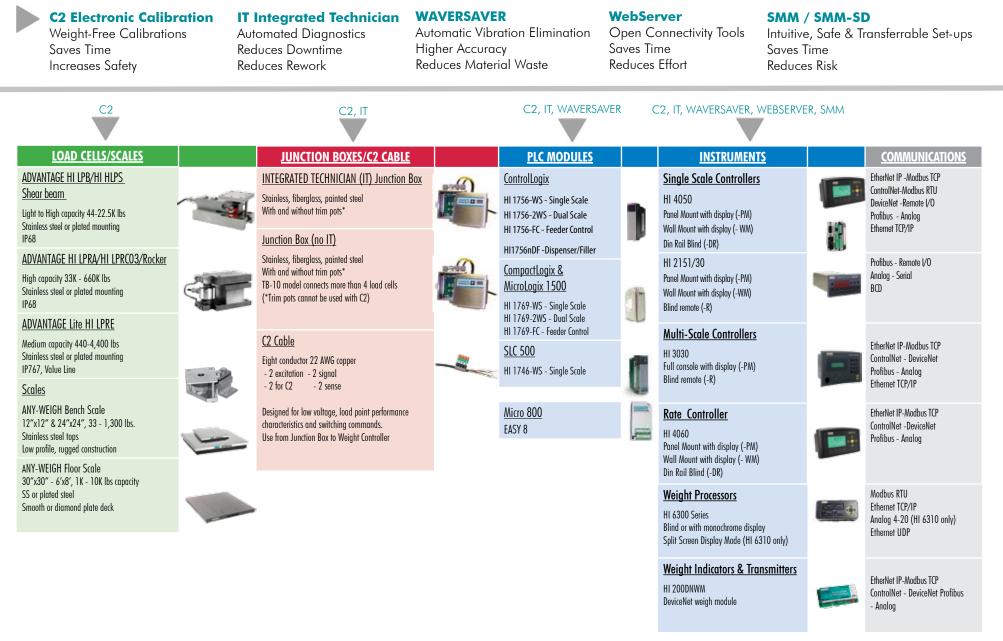


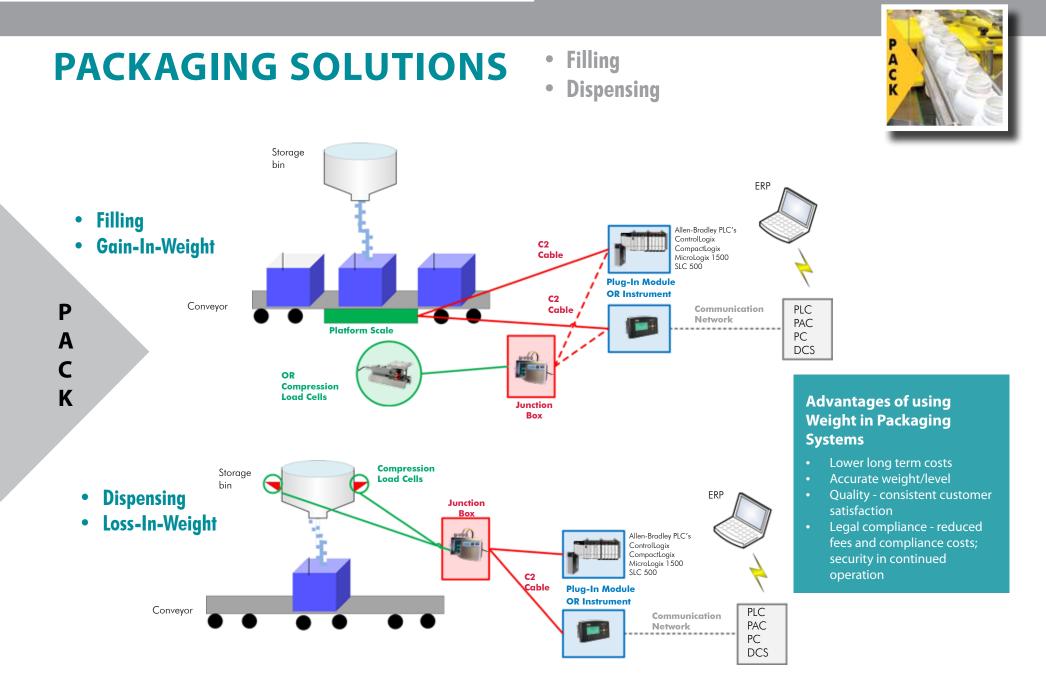
# **BENEFITS OF HARDY CORE FEATURES IN INVENTORY MANAGEMENT**



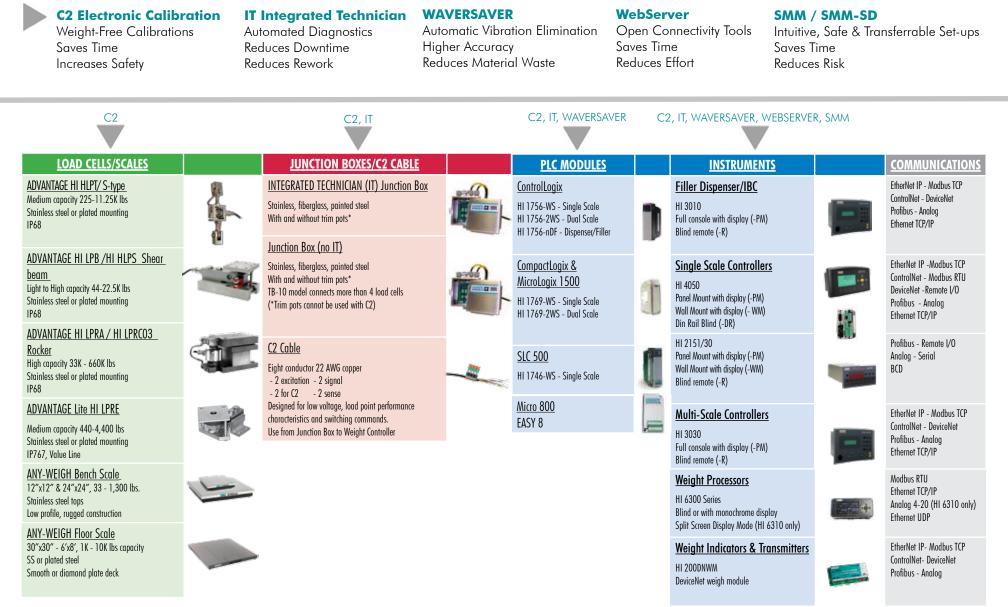


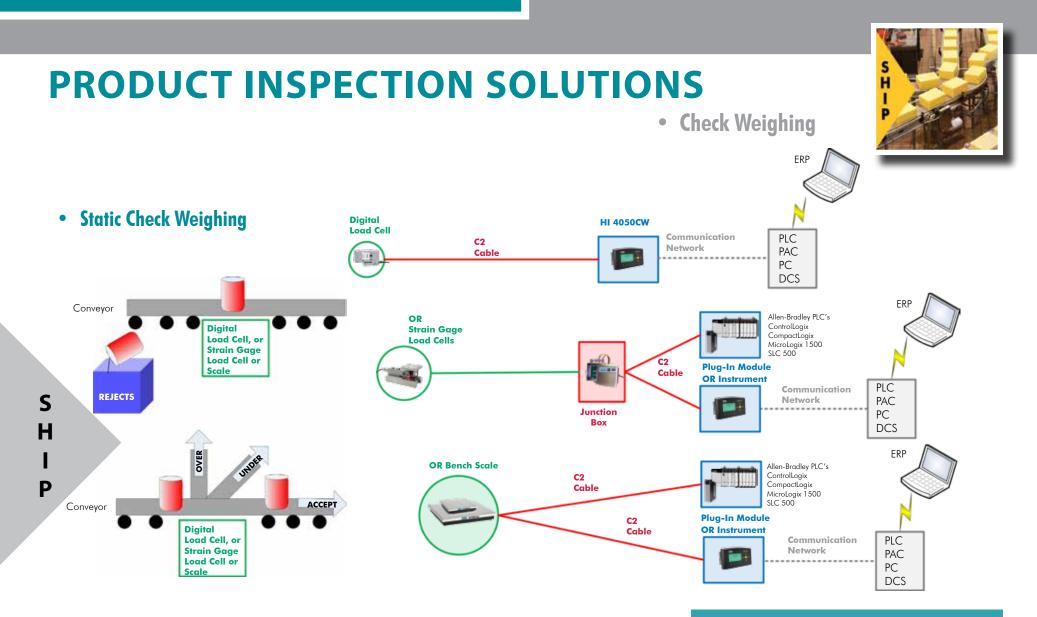
# **BENEFITS OF HARDY CORE FEATURES IN BATCHING AND BLENDING**





# **BENEFITS OF HARDY CORE FEATURES IN PACKAGING SOLUTIONS**



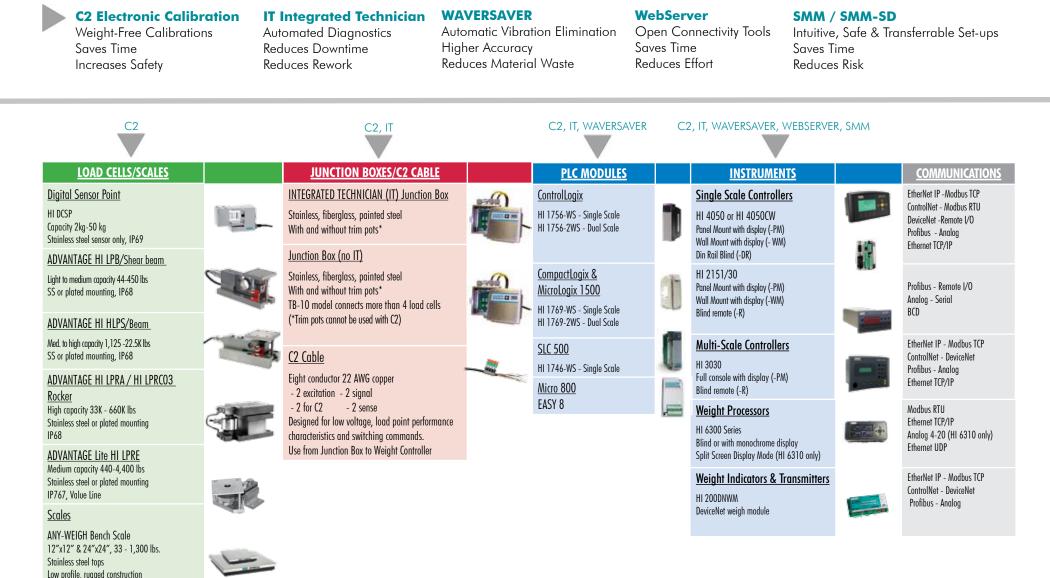


• Dynamic Check Weighing

### Advantages of using Weight in Product Inspection Systems

- Quick response time
- No need for On/Off sensors (Digital LC)
- Legal Compliance reduced fees etc.
- Quality consistent customer satisfaction

# **BENEFITS OF HARDY CORE FEATURES IN PRODUCT INSPECTION SOLUTIONS**



# **SELECTING LOAD CELLS**

### **ADVANTAGE LINE - Load Points/Sensors**

Hardy's ADVANTAGE® Line load point assemblies are designed to provide exceptional performance in a safe and predictable manner. The load point consists of a precision, C2® load sensor assembled with matched mounting hardware. Each load point comes with an installation and maintenance manual which is also available for download from our Internet site at www.hardysolutions.com.

All Advantage sensors are designed with safe and ultimate loading limits which are the highest in the industry. The safe limit (200% of rated capacity) is that value above which some degradation of calibration can occur but with no permanent shift in performance. The ultimate limit (300% of rated capacity) is that point at which physical failure may occur. In selecting a load point, it is essential that the gross loadings that are anticipated fall well within the safe limits of the capacity chosen.

All Advantage load sensors are matched and calibrated for mV/V/ohm and mV/V. This removes the need for potentiometers in the summing junction box and allows a load sensor to be replaced in a weigh system without the need to re-calibrate the system.

Advantage load sensors are very accurate when the load is applied in the correct manner. Our mounting hardware is designed to direct the load properly to the load sensor while resisting angular effects and reducing moment sensitivity.

Free sliding Advantage mounts permit thermal expansion and contraction and are self checking with lift-off protection. With many years of process weighing experience, Hardy has incorporated mount designs into its load point assemblies to provide you with optimum performance.

### **Selection of Load Points**

The following steps will quickly isolate which individual load sensors or load point assemblies will satisfy your application.

- 1. Determine whether the vessel to be weighed will be hung in tension or set on top of the load point assemblies in compression. Count the number of support points.
- 2. Determine the unloaded weight of the scale structure, vessel and all equipment to be mounted (valves, gates, vibrators, etc.) on (from) the load points. This is called the "Dead Load" (DL).
- **3.** Determine the maximum total weight of the heaviest material to be weighed. This is called the "Live Load" (LL).
- 4. Calculate each load sensor's required capacity.

### Load Sensor Capacity Range = <u>(Dead Load + Live Load)</u> Number of Support Points



### **System Selection**

You can also determine the load point system required by calculating the system total load.

- 1. Determine whether the vessel to be weighed will be suspended in tension or set on top of the load point assemblies in compression. Count the number of support points.
- 2. Determine the unloaded weight of the scale structure, vessel and all equipment to be mounted (valves, gates, vibrators, etc.) on (from) the load points. This is called the "Dead Load" (DL).
- **3.** Determine the maximum total weight of the heaviest material to be weighed. This is called the "Live Load" (LL).
- 4. Calculate the system capacity.

### System Capacity = (DL) + (LL)

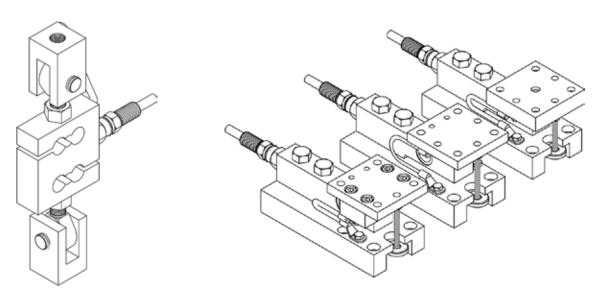
5. Based on the number of support points, use the single load point capacity and multiply those values by 3 or 4. Add a junction box and cable to interface with your instrument requirements, and your system is complete.

### **Environment**

The environment where the load point is to function may be a factor in selection. For example, the Advantage load sensors are designed to operate at temperatures of 175°F to -40°F; for higher temperature, special load sensors are available. Advantage sensors are hermetically sealed in the gauge area and at the cable entry allowing them to be classified at IP68. This rating provides protection from the entry of dust and the full long-term immersion in water. The sensors and mounts (-43) are made of 17-4 stainless steel, providing a high degree of chemical corrosive resistance to solvents, alkalis and acids. Even the bolts are stainless steel and are rated to meet the sensors capacity. You can select zinc-plated steel mounting hardware for less rigorous environments. The -45 series of Load Points are plated with 12-15um Electro Zinc plus Yellow Chromate Dip.

- The long-term corrosion resistance of zinc is directly proportional to thickness. Typically commercial coatings are 3-5um thick, Hardy specifies a heavier coating of 12-15um.
- The electro zinc plating is enhanced by chemical chromate passivation conversion which applies a harder surface film, referred to as ZYC (zinc yellow chromate).
- In dry indoors environments this plating's service life prior to first signs of corrosion can be greater than 20yrs.

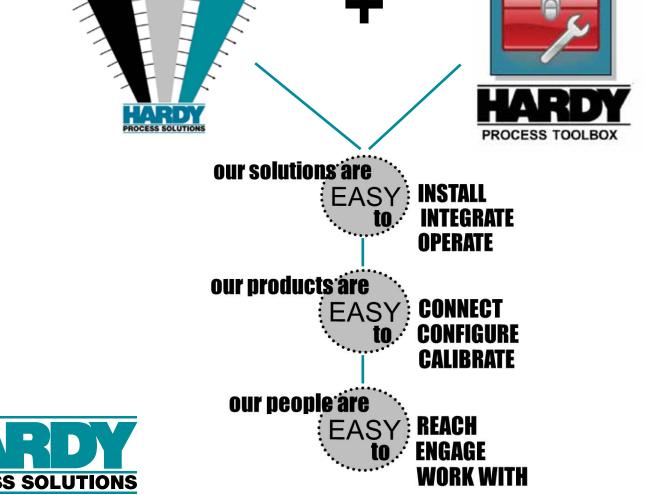
Refer to www.hardysolutions.com for PDF and CAD drawings.



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**SUPPORTING FINANCE, OPERATIONS, ENGINEERING & MAINTENANCE** 

WE DELIVER VALUE ACROSS YOUR MANUFACTURING SUPPLY CHAIN





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CERTIFIED

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