

# Installation Manual

## MG series - Digital Melt Pressure Gauge

### Models: MG1, MG2, MGJ



## DIGITAL MELT PRESSURE GAUGE - Installation Guidelines

### 1. HOLE LOCATION

The best position to mount the gauge is in front of the screw where the polymer is in a good molten state and shear stress is minimized. For reclaimed extrusion lines, care must be taken that the gauge is situated far enough from hopper to ensure all pellets are melted. Partially melted pellets can damage the tip.

Gauge Housing should be installed such that it doesn't get beyond 150F.

Care must be taken if gauge is mounted on the top of extruder. Heat rises and will heat the housing. If you can touch the housing, it is probably fine. If necessary, flex armour style may be recommended to get housing away from heat.

### 2. DRILLING MOUNTING HOLE

Follow outlines in the DRILL KIT MANUAL. Some points to take care.

#### a. MOUNTED HOLES CONCENTRICITY:

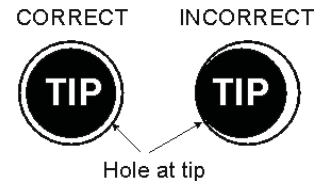
The gauge tip must be mounted in the center of the hole (within 0.002").

If the tip is not in the center, the gauge tip can be deformed during installation or removal. This can increase the error, or even cause the tip to fail prematurely.

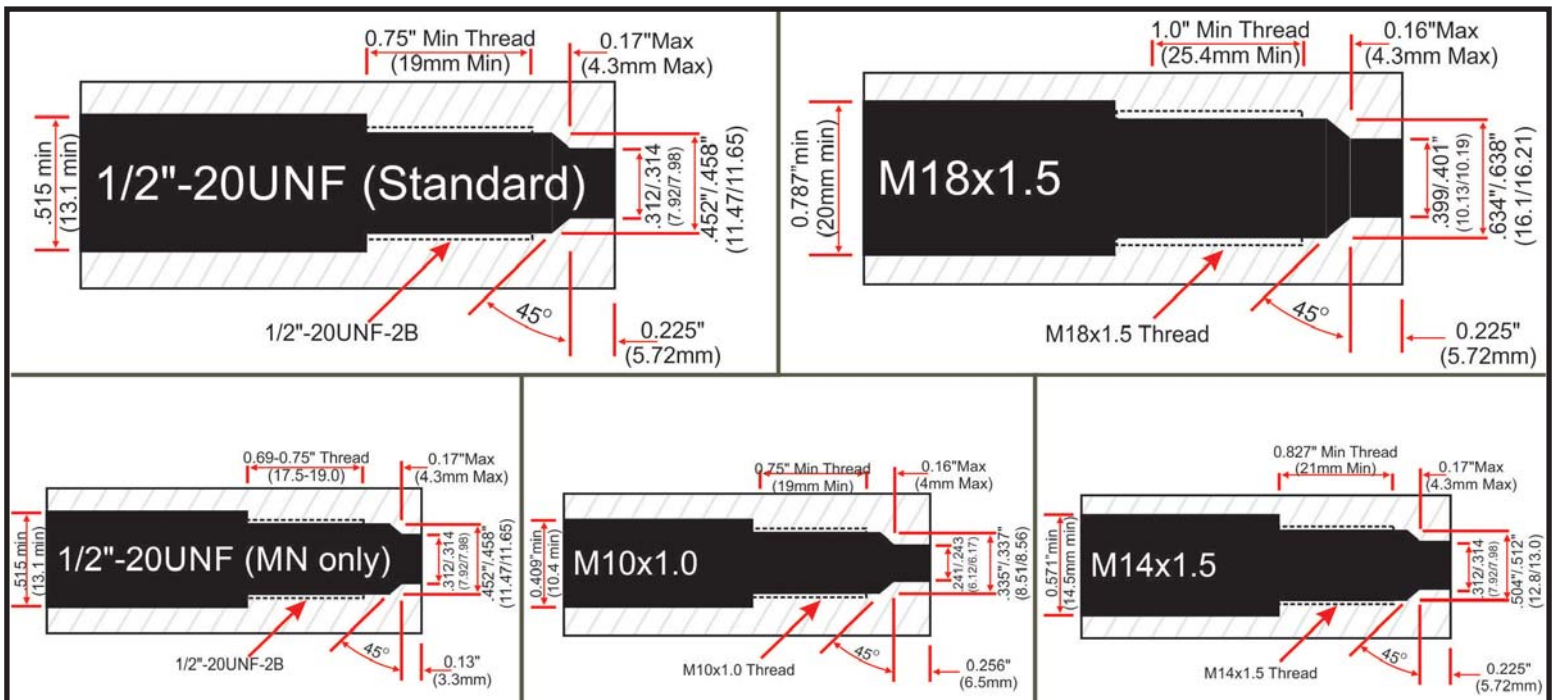
#### b. RECESSING OF THE TIP

The gauge tip should be installed within 0.08" to 0.1" of the interior of the extruder barrel. Any further, and this can create a cavity for polymers to collect, harden and then interfere with the pressure reading.

Some materials (such as nylons and polycarbonates) will actually shrink and pull the diaphragm towards to interior of the extruder. This sometimes causes the diaphragm to be ripped off. These materials should be recessed to approx 0.005".



## MOUNTING HOLE DETAILS



## 3. GAUGE INSTALLATION

Use a high temp anti seize compound to make it easier to remove gauge.

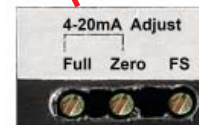
Mounting torque - 100-200inch/lbs (max 500inch/lbs)

Polymer must be in a molten state when gauge is installed.

## WIRING : DIGITAL MELT PRESSURE GAUGE



**GAUGE WIRING**



**RETRANS OUTPUT ADJUSTMENT**

Warning : only a trained technician should adjust

## ZERO and ALARM ADJUSTMENT

**RED PROCESS VALUE**



**GREEN ALARM VALUE**

**ZERO ADJUST**  
make sure PSI=0

**ALARM ADJUST**  
Adjust GREEN bar graph to setpoint

## DIGITAL MELT PRESSURE GAUGE - Operational Guidelines

### **A. AVOID COLD STARTS**

If the extruder is not heated up properly, the polymer can be in a solid state by the gauge.  
If the extruder is then started, the diaphragm can be ripped off.

### **B. GAUGE REMOVAL**

The gauge should only be removed or replaced while the machine is at operating temperature and the polymer is in a liquid state. Removal of the gauge from a cold extruder may cause the polymer to adhere to the diaphragm, and pull off or damage the diaphragm. A gauge should never be installed into a mounting hole where there is solid polymer. If the diaphragm is forced against a solid, the gauge can easily be overloaded and left with a very high zero offset - too high to be rezeroed by the zero potentiometer on the instrument or even damage the tip altogether.

ALWAYS CLEAN and CHECK TIP RECESSION before reinserting gauge.

### **C. TIP CLEANING**

If the gauge is removed from the barrel and it is still warm, the tip can be carefully cleaned with a clean soft cloth.

### **D. HOLE CLEANING**

Mounting holes should always be cleaned prior to installation. Any burrs or hardened polymer material may cause the diaphragm to be damaged during installation.

As the inner extruder barrel wears, it can reduce the size of the gauge hole.

Cleaning kits are available from MPI for 1/2-20UNF and M18x1.5 gauge holes and this will help ensure hole is maintained at the right size..

### **E. CHECK TIP RECESSION BEFORE REINSERTING**

As the extruder barrel wears, the gauge tip will get closer and closer to the inner barrel wall. If it is allowed to be flush with the extruder inner barrel wall, it will wear at the same rate as the inner wall. MPI recommends maintaining a minimum 0.02" recession. Copper shims can be made to push the tip away from inner wall.

### **F. KEEP DIGITAL GAUGES DRY**

Do not allow oil or water to come in contact with gauge or cables.

## TROUBLESHOOTING

### **1. INDICATOR FULL SCALE**

Check continuity of cables  
Make sure gauge tip is not bottoming out

### **2. INDICATOR UNSTABLE READING**

Check continuity of cables  
Check wire connections on indicator is tight  
Install away from high HP motors

### **3. INDICATOR READS ONLY "0"**

Check tip of gauge for damage.  
If still the same after calibration - return to MPI

### **4. INDICATES WRONG PRESSURE**

Perform Zero adjustment. - **AFTER 30min of warm up time.**  
If still the same after adjustment - contact factory

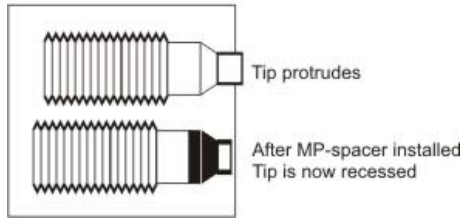
### **5. INDICATES READS "LLLL"**

Adjust ZERO setpoint (make sure pressure = 0psi)  
If stays same - contact factory

### **6. INDICATES READS "FFFF"**

Adjust ZERO setpoint (make sure pressure = 0psi)  
If stays same - contact factory

## GAUGE / TRANSMITTER / RUPTURE DISK - TIP SPACERS



### STOCK LIST - TIP SPACER

THICKNESS	1/2" -20 UNF
0.025" (0.64mm)	MP-SPACER-025
0.032" (0.81mm)	MP-SPACER-032
0.045" (1.14mm)	MP-SPACER-045
0.063" (1.60mm)	MP-SPACER-063
0.090" (2.29mm)	MP-SPACER-090

## MOUNTING HOLE DRILL KITS



### STOCK LIST - DRILL KITS

MP-DRILL-1/2	1/2" -20 UNF
MP-DRILL-5/8	5/8" -11 UNC
MP-DRILL-M10	M10x1.0
MP-DRILL-M18	M18x1.5
MP-DRILL-M14	M14x1.5

MPI melt pressure gauges, transducers and transmitter mounting hole drill kits are used to make the highly precise holes that are required for proper pressure sensor and extruder rupture disk operation. Our drilling kits include tools for tip hole drilling, 45° seat surface, and thread tapping.

Drilling kits are available for the following threads: 1/2"-20UNF, 5/8"-11NC, 3/4"-16UNF, M18x1.5, and M14x1.5. Custom thread options are also available.

Please note that the drilling should be performed with zero pressure in the system.

## MOUNTING HOLE CLEANING KITS



### STOCK LIST - DRILL KITS

MODEL	THREAD
MP-CLEAN-1/2	1/2" -20 UNF
MP-CLEAN-5/8	5/8" -11 UNC
MP-CLEAN-3/4	3/4" -16 UNF
MP-CLEAN-M18	M18x1.5
MP-CLEAN-M14	M14x1.5

MPI melt pressure gauge/transducer/transmitter mounting hole cleaning kits are used to clean plastic residue from dirty or plugged holes before installing pressure sensors or extruder rupture disks. Hardened plastic residue is one of the leading causes of failures of melt pressure sensors or extruder rupture disks. The hardened plastic residue can damage the fragile diaphragm on the tip of the pressure sensors and extruder rupture disks, and can make them ineffective.

Cleaning kits include tools for tip hole cleaning, 45° seat surface, and thread cleaning. Please note that the cleaning should be performed when the polymer is molten, with zero pressure in the system.

Cleaning kits are available for the following threads: 1/2"-20UNF, 5/8"-11NC, 3/4"-16UNF, M18x1.5, and M14x1.5. Custom thread options are also available.

## MPI Morheat inc.

**SALES & SERVICE**  
21 Meteor Dr., Toronto  
Ontario, Canada M9W 1A3

ph (416) 675-7329 toll free ph (800) 817-3486  
fx (416) 675-7349  
sales@mpimorheat.com