



# EXTRUDER RUPTURE DISKS

## GENERAL INFORMATION



### STANDARD FEATURES

Max Temp - 750°F  
 Inconel Diaphragm  
 Standard Threads:  
 1/2"-20UNF  
 5/8"-11UNC  
 3/4"-16UNF  
 +/-5% Accuracy  
 Ranges from:  
 0-1500 to 14,500psi

### OPTIONS

Max Temp - 1000°F  
 Hastelloy Diaphragm  
 Threads:  
 1"-20UNF  
 M18x1.5  
 M14x1.5  
 Others  
 Custom Tip Dimensions

Extruder rupture disks provide a reliable and economical pressure relief safety device in extrusion and polymer processing applications. A metal disk at the end of the rupture disk is designed to rupture within a specific pressure range to allow process material to flow out, and then release pressure. MPI extruder rupture disks are welded on to the body to ensure reliable high temperature operation up to 1000°F (535°C). Extruder rupture disks can also be referred to as rupture pins, rupture disks, burst plugs, blow plugs and burst disks.

### TESTING AND ACCURACY

A minimum of two rupture disks on each batch manufactured are tested to bursting pressure at room pressure, then derated to typical operating temperatures. All units are tested to 80% to check for manufacturing defects. All disks are rated to within +/-5% of pressure rating.

### TEMPERATURE EFFECTS

Inconel is utilized as our standard disk material because of its wide stable operating temperature range and corrosion resistance. Rated burst pressure varies only 2-3% from 200-1000°F.

### BURST PRESSURE SELECTION

MPI extruder rupture disks are designed for operation at a maximum of 70% of rated pressure to minimize early failures caused by material fatigue from repeated temperature cycling.

For example - if max operating pressure = 5000psi  
 (5000/0.7 = 7142psi ) select stock = 7500psi rating

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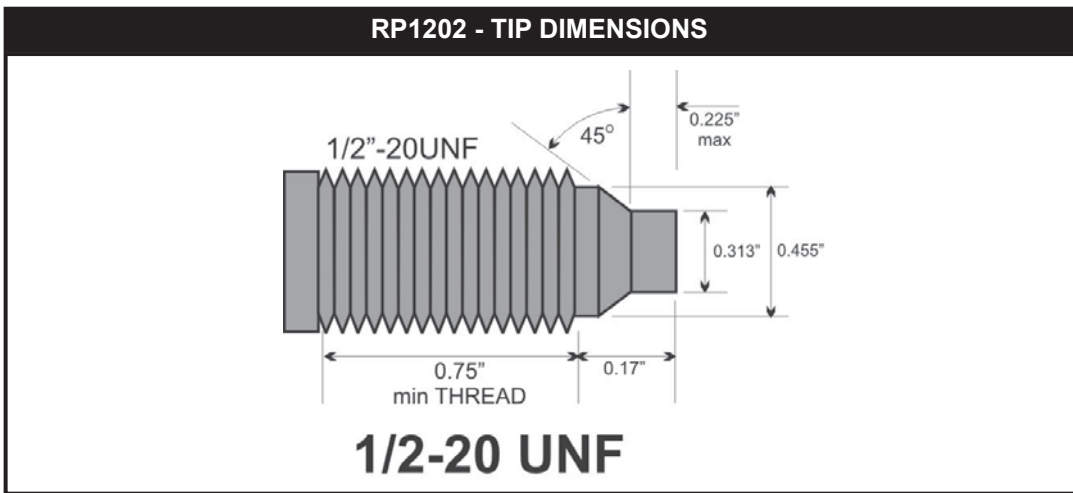
**RP1202 - 1/2"-20 UNF c/w SCREWDRIVER SLOT**

**STANDARD FEATURES-**

- Max Temp - 750°F
- Inconel Diaphragm
- 304 SS Body
- +/-5% Accuracy
- Welded Design
- Ranges from:
  - 0-1500 to 14,500psi
  - 100% Leak tested

**OPTIONS**

- Max Temp - 1000°F
- Hastelloy Diaphragm
- DischargeThreads:
  - 1/4"NPT
  - 3/8"NPT
  - 1/2"NPT
  - Others
  - Custom Tip Dimensions



**STOCK LIST - RP1202 - 1/2"-20UNF**

Pressure	P/N	Pressure	P/N	Pressure	P/N
1500psi	RP1202-1500	5500psi	RP1202-5500	9500psi	RP1202-9500
2500psi	RP1202-2500	6500psi	RP1202-6500	10000psi	RP1202-10000
3500psi	RP1202-3500	7500psi	RP1202-7500	10500psi	RP1202-10500
4500psi	RP1202-4500	8500psi	RP1202-8500	12000psi	RP1202-12000
5000psi	RP1202-5000	9000psi	RP1202-9000	14500psi	RP1202-14500

**RP12 - 1/2"-20 UNF c/w HEX HEAD**

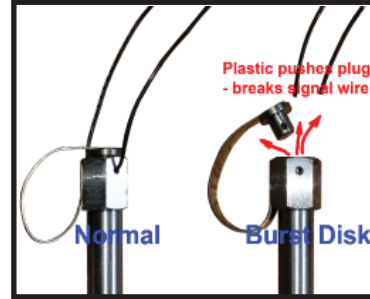
**STANDARD FEATURES-**

Max Temp - 750°F  
 Inconel Diaphragm  
 304 SS Body  
 +/-5% Accuracy  
 Welded Design  
 Ranges from:  
 0-1500 to 14,500psi  
 100% Leak tested

**OPTIONS**

Max Temp - 1000°F  
 Hastelloy Diaphragm  
 DischargeThreads:  
 1/4"NPT  
 3/8"NPT  
 1/2"NPT  
 Others  
 Custom Tip Dim.

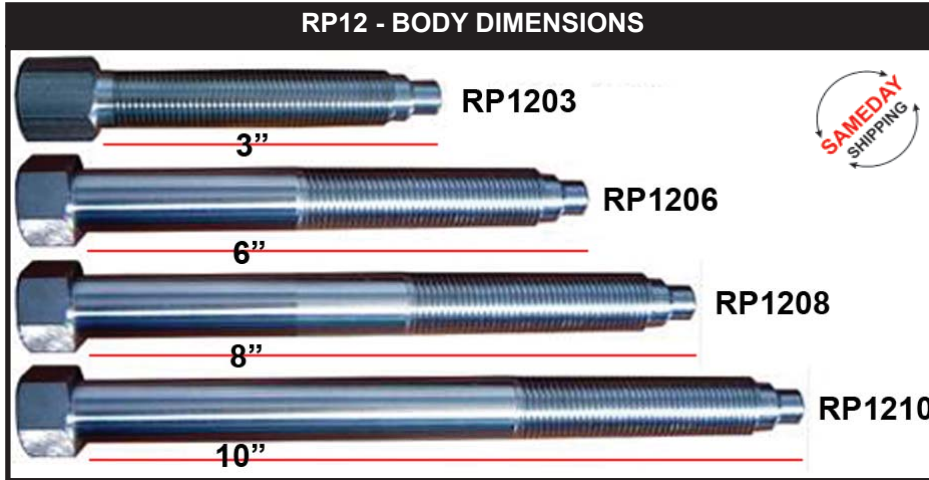
BI - Burst Indication (pg.10)



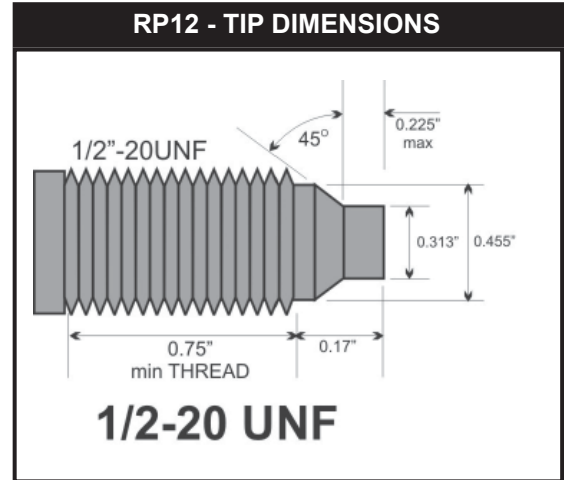
Discharge Thread



RP12 - BODY DIMENSIONS



RP12 - TIP DIMENSIONS



**STOCK LIST - RP12 HEX HEAD - 1/2"-20UNF**

Pressure	3" +Hex	6" +Hex	8" +Hex	10" +Hex	12" +Hex
1500psi	RP1203-1500	RP1206-1500	RP1208-1500	RP1210-1500	RP1212-1500
2500psi	RP1203-2500	RP1206-2500	RP1208-2500	RP1210-2500	RP1212-2500
3500psi	RP1203-3500	RP1206-3500	RP1208-3500	RP1210-3500	RP1212-3500
4500psi	RP1203-4500	RP1206-4500	RP1208-4500	RP1210-4500	RP1212-4500
5000psi	RP1203-5000	RP1206-5000	RP1208-5000	RP1210-5000	RP1212-5000
5500psi	RP1203-5500	RP1206-5500	RP1208-5500	RP1210-5500	RP1212-5500
6500psi	RP1203-6500	RP1206-6500	RP1208-6500	RP1210-6500	RP1212-6500
7500psi	RP1203-7500	RP1206-7500	RP1208-7500	RP1210-7500	RP1212-7500
8500psi	RP1203-8500	RP1206-8500	RP1208-8500	RP1210-8500	RP1212-8500
9000psi	RP1203-9000	RP1206-9000	RP1208-9000	RP1210-9000	RP1212-9000
9500psi	RP1203-9500	RP1206-9500	RP1208-9500	RP1210-9500	RP1212-9500
10000psi	RP1203-10000	RP1206-10000	RP1208-10000	RP1210-10000	RP1212-10000
10500psi	RP1203-10500	RP1206-10500	RP1208-10500	RP1210-10500	RP1212-10500
11000psi	RP1203-11000	RP1206-11000	RP1208-11000	RP1210-11000	RP1212-11000
12000psi	RP1203-12000	RP1206-12000	RP1208-12000	RP1210-12000	RP1212-12000
14500psi	RP1203-14500	RP1206-14500	RP1208-14500	RP1210-14500	RP1212-14500

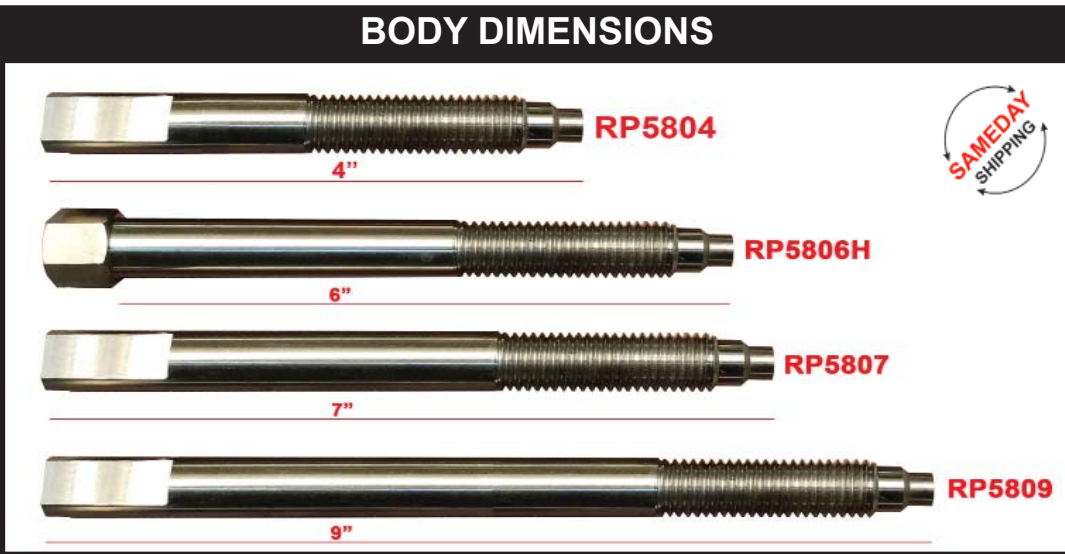
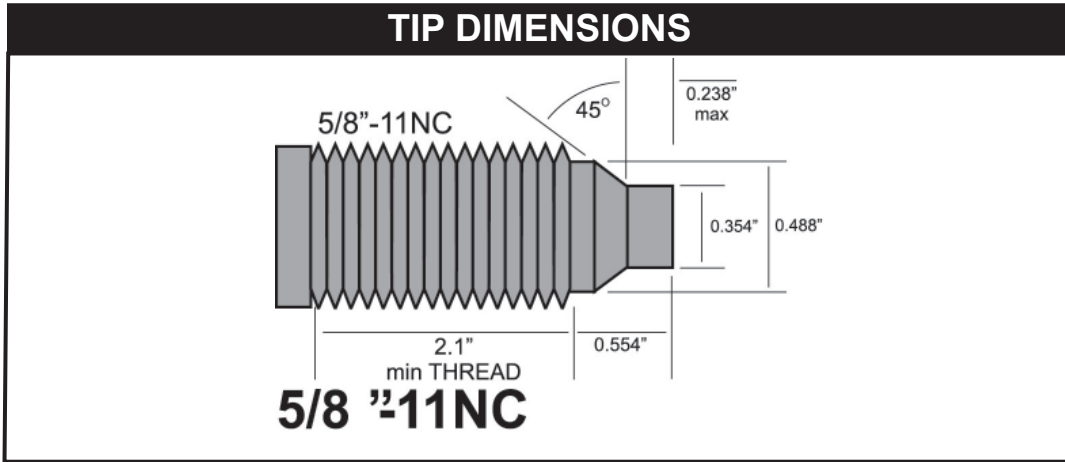
**5/8"-11 UNC EXTRUDER RUPTURE DISKS**

**STANDARD FEATURES-**

Max Temp - 750°F  
 Inconel Diaphragm  
 304 SS Body  
 +/-5% Accuracy  
 Welded Design  
 Ranges from:  
 0-1500 to 14,500psi  
 100% Leak tested

**OPTIONS**

Max Temp - 1000°F  
 Hastelloy Diaphragm  
 DischargeThreads:  
 1/4"NPT  
 3/8"NPT  
 1/2"NPT  
 Others  
 Custom Tip Dimensions



**STOCK LIST - 5/8"-11 UNC Thread**

LENGTH	5000psi	7500psi	9000psi	10,000psi
4"OAL - FLATS	RP5804-5000	RP5804-7500	RP5804-9000	RP5804-10000
6"L - HEX	RP5806H-5000	RP5806H-7500	RP5806H-9000	RP5806H-10000
7"OAL - FLATS	RP5807-5000	RP5807-7500	RP5807-9000	RP5807-10000
9"OAL - FLATS	RP5809-5000	RP5809-7500	RP5809-9000	RP5809-10000

# 3/4"-16 UNF EXTRUDER RUPTURE DISKS

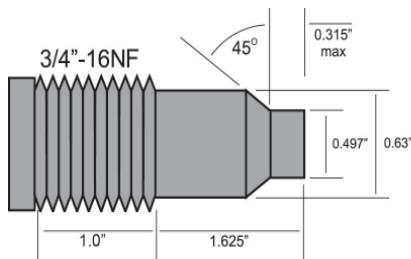
**STANDARD FEATURES-**

Max Temp - 750°F  
 Inconel Diaphragm  
 304 SS Body  
 +/-5% Accuracy  
 Welded Design  
 Ranges from:  
 0-1500 to 14,500psi  
 100% Leak tested

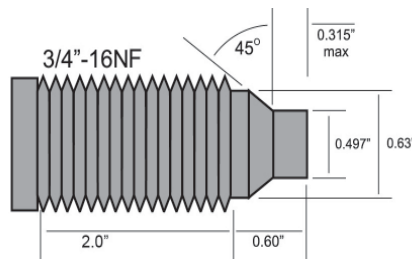
**OPTIONS**

Max Temp - 1000°F  
 Hastelloy Diaphragm  
 DischargeThreads:  
 1/4"NPT  
 3/8"NPT  
 1/2"NPT  
 Others  
 Custom Tip Dimensions

## TIP DIMENSIONS



**3/4"-16NF RECESSED**



**3/4"-16NF STANDARD**

## BODY DIMENSIONS



## STOCK LIST - 3/4"-16UNF Thread

MODEL	5000psi	7500psi	9000psi	10000psi	10000psi
RP344	RP344-5000	RP344-7500	RP344-9000	RP344-10000	RP344-12500
RP344R	RP344R-5000	RP344R-7500	RP344R-9000	RP344R-10000	RP344R-12500
RP345	RP345-5000	RP345-7500	RP345-9000	RP345-10000	RP345-12500
RP345R	RP345R-5000	RP345R-7500	RP345R-9000	RP345R-10000	RP345R-12500
RP349	RP349-5000	RP349-7500	RP349-9000	RP349-10000	RP349-12500
RP349R	RP349R-5000	RP349R-7500	RP349R-9000	RP349R-10000	RP349R-12500

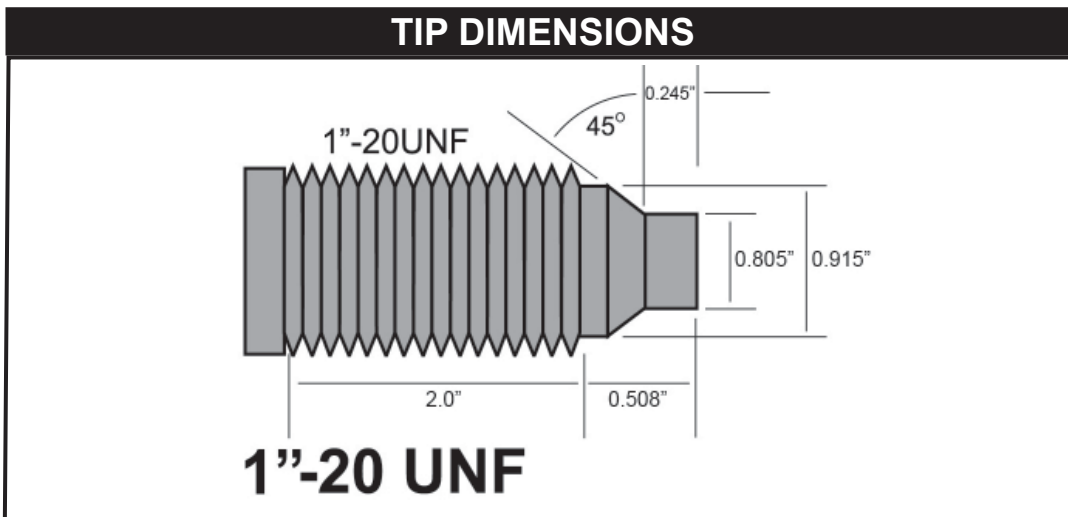
1"-20 UNF EXTRUDER RUPTURE DISKS

**STANDARD FEATURES-**

Max Temp - 750°F  
 Inconel Diaphragm  
 304 SS Body  
 +/-5% Accuracy  
 Welded Design  
 Ranges from:  
 0-1500 to 14,500psi  
 100% Leak tested

**OPTIONS**

Max Temp - 1000°F  
 Hastelloy Diaphragm  
 DischargeThreads:  
 1/4"NPT  
 3/8"NPT  
 1/2"NPT  
 Others  
 Custom Tip Dimensions



**STOCK LIST - 1"-20 UNF Thread**

LENGTH	3000psi	3500psi	5000psi
5.5"OAL - HEX	RP1020.55-3000	RP1020.55-3500	RP1020.55-5000
8.0"OAL - HEX	RP1020.80-3000	RP1020.80-3500	RP1020.80-5000
10.5"OAL - HEX	RP1020.105-3000	RP1020.105-3500	RP1020.105-5000

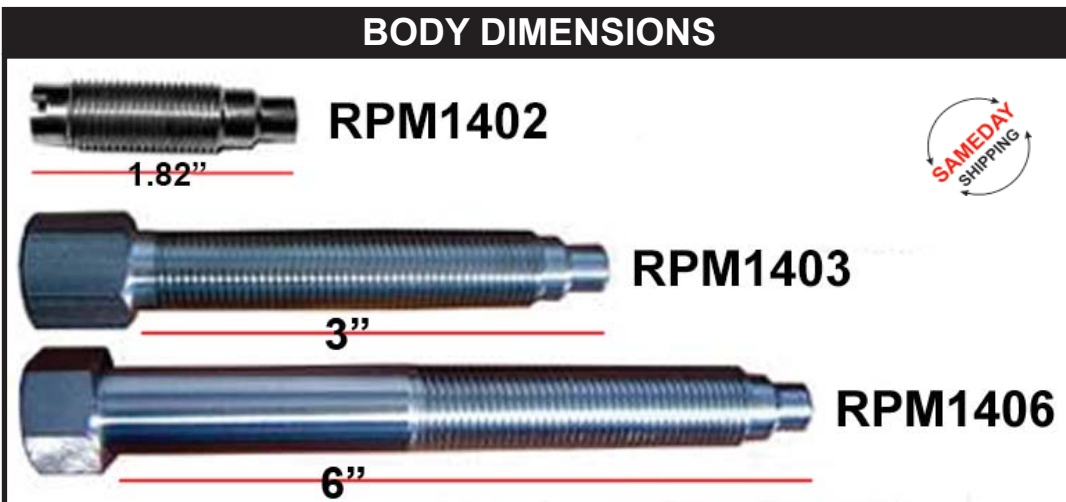
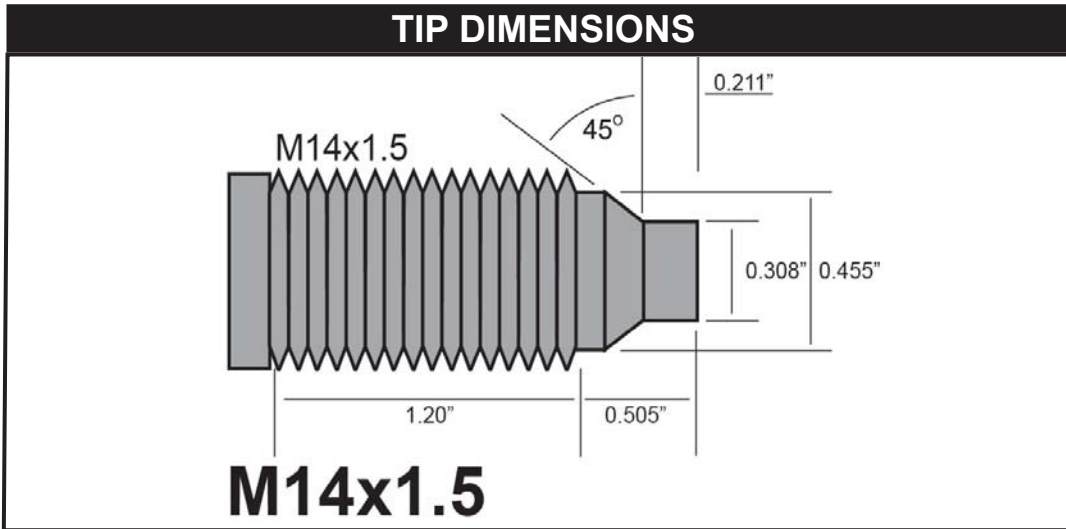
**M14x1.5 EXTRUDER RUPTURE DISKS**

**STANDARD FEATURES-**

Max Temp - 750°F  
 Inconel Diaphragm  
 304 SS Body  
 +/-5% Accuracy  
 Welded Design  
 Ranges from:  
 0-1500 to 14,500psi  
 100% Leak tested

**OPTIONS**

Max Temp - 1000°F  
 Hastelloy Diaphragm  
 DischargeThreads:  
 1/4"NPT  
 3/8"NPT  
 1/2"NPT  
 Others  
 Custom Tip Dimensions



**STOCK LIST - M14x1.5 Thread**

MODEL	3500psi	5500psi	7500psi	10,000psi
RPM1402 1.82"long	RPM1402-3500	RPM1402-5500	RPM1402-7500	RPM1402-10000
RPM1403 3"long	RPM1403-3500	RPM1403-5500	RPM1403-7500	RPM1403-10000
RPM1406 6"long	RPM1406-3500	RPM1406-5500	RPM1406-7500	RPM1406-10000

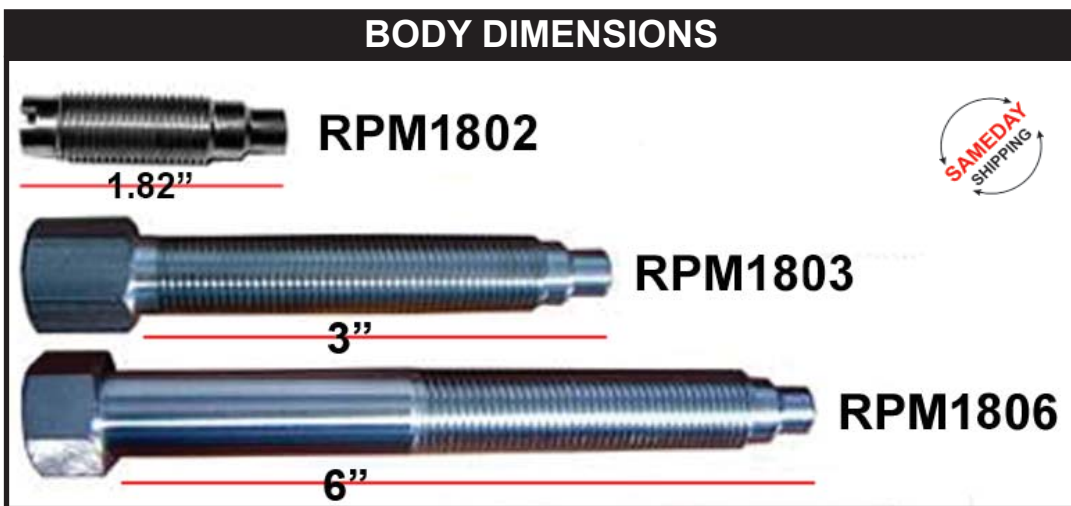
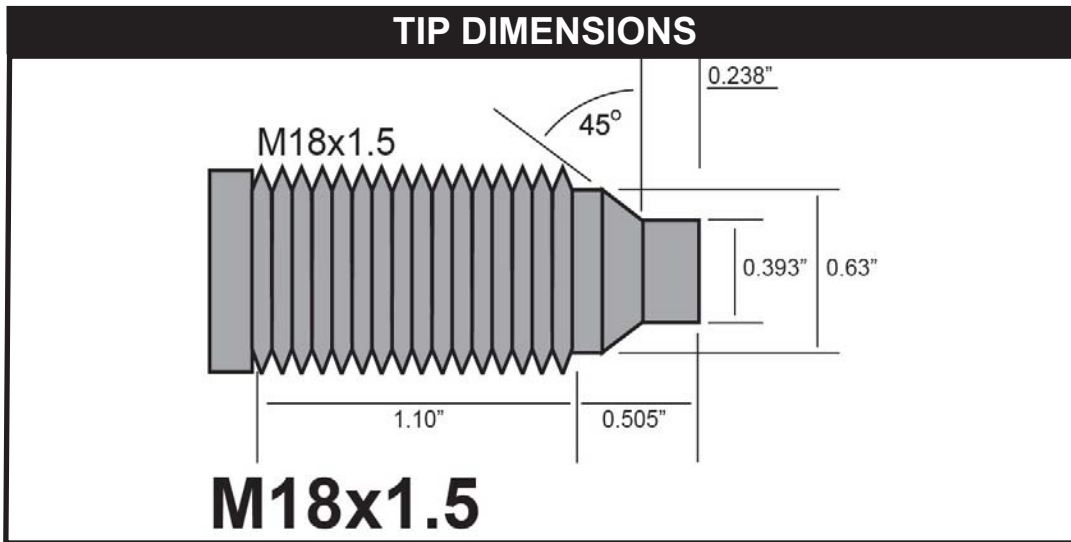
# M18x1.5 EXTRUDER RUPTURE DISKS

**STANDARD FEATURES-**

Max Temp - 750°F  
 Inconel Diaphragm  
 304 SS Body  
 +/-5% Accuracy  
 Welded Design  
 Ranges from:  
 0-1500 to 14,500psi  
 100% Leak tested

**OPTIONS**

Max Temp - 1000°F  
 Hastelloy Diaphragm  
 DischargeThreads:  
 1/4"NPT  
 3/8"NPT  
 1/2"NPT  
 Others  
 Custom Tip Dimensions



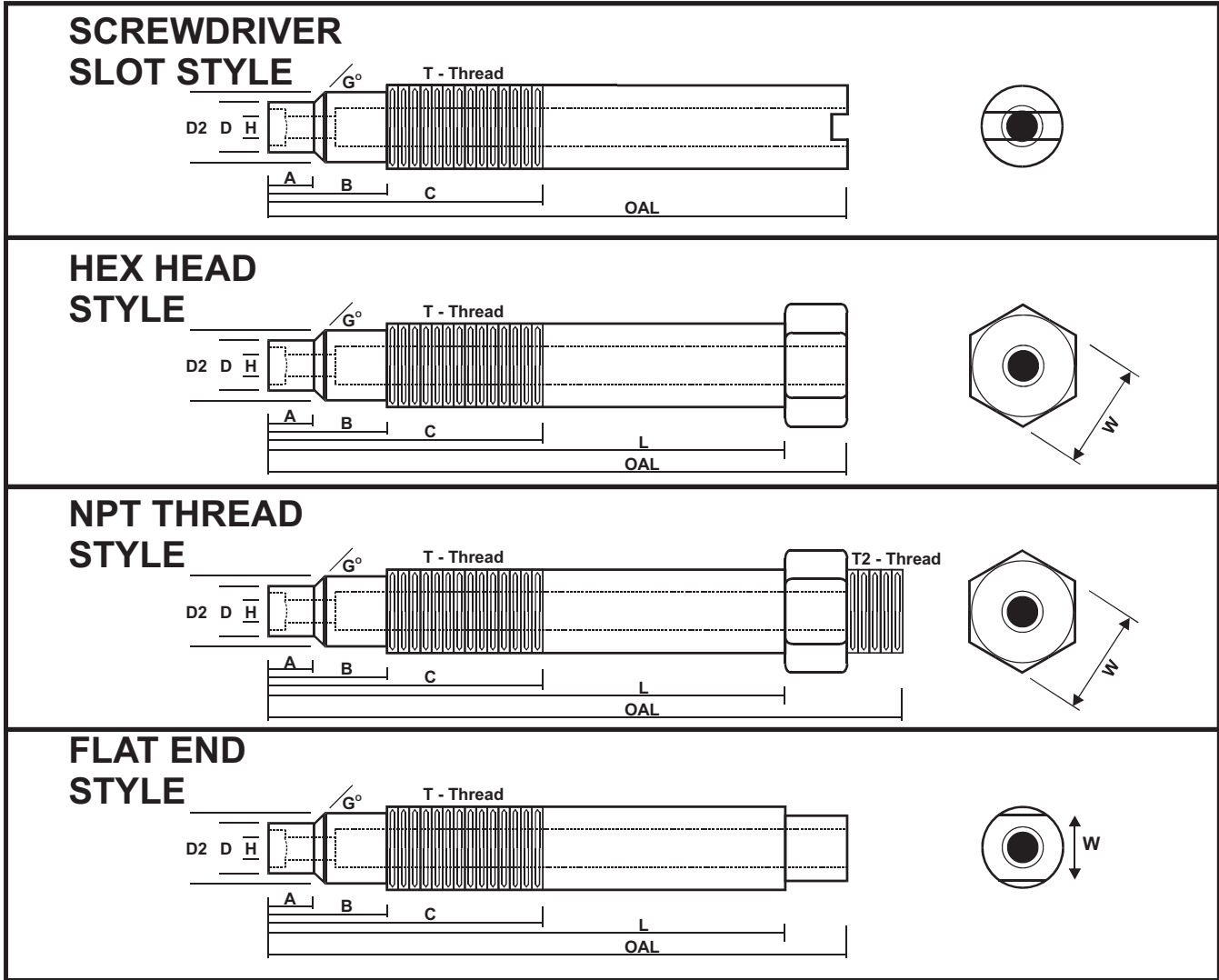
**STOCK LIST - M18x1.5 Thread**

MODEL	3500psi	5500psi	7500psi	9500psi
RPM1802 1.82"long	RPM1802-3500	RPM1802-5500	RPM1802-7500	RPM1802-9500
RPM1803 3"long	RPM1803-3500	RPM1803-5500	RPM1803-7500	RPM1802-9500
RPM1806 6"long	RPM1806-3500	RPM1806-5500	RPM1806-7500	RPM1802-9500



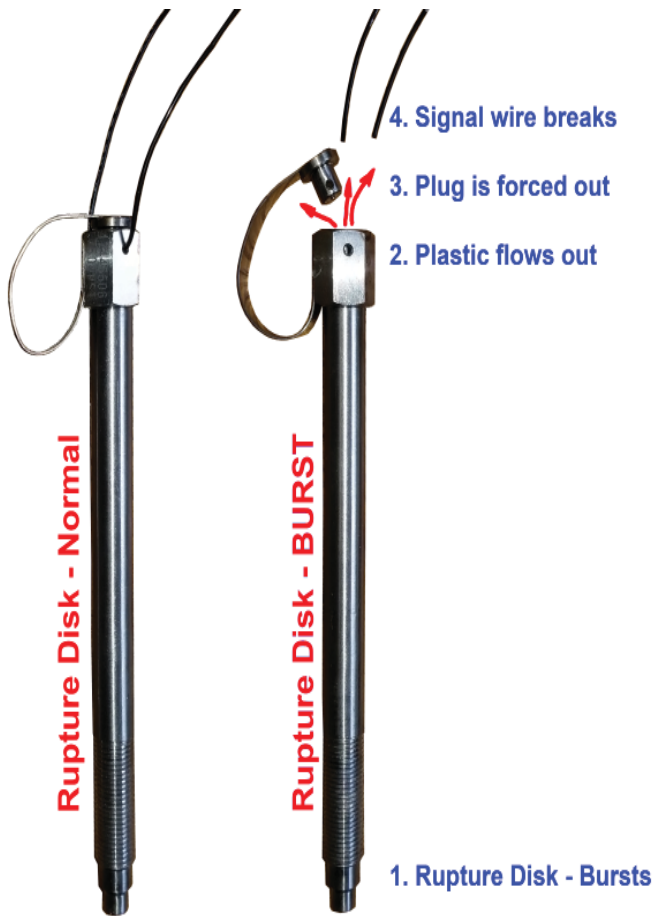
CUSTOM RUPTURE DISK DESIGNS

CUSTOM RUPTURE DISK SPECIFICATION SHEET



1. STYLE -  Screwdriver  HEX  NPT  FLATS
2. BODY MATERIAL -  304SS  Other
3. DISC MATERIAL -  Inconel  Other
4. PRESSURE RATING - \_\_\_\_\_ psig at \_\_\_\_\_ °F
5. QUANTITY - \_\_\_\_\_
6. DIM: \_\_\_\_\_ H \_\_\_\_\_ D \_\_\_\_\_ D2 \_\_\_\_\_ A \_\_\_\_\_ B \_\_\_\_\_ C \_\_\_\_\_ L \_\_\_\_\_ OAL  
 \_\_\_\_\_ W \_\_\_\_\_ G \_\_\_\_\_ T((Thread) \_\_\_\_\_ T2(Thread)

RUPTURE DISK with BURST INDICATION OPTION



“BI” - Burst Indication Option

STANDARD FEATURES

- Signal wire breaks when disk ruptures.
- Teflon insulated signal wire.
- Option for any Hex Head Extruder Rupture Disk
- Stainless steel body
- Inconel Burst Disk
- 100% Leak tested

Extruder Rupture Disks with Burst Indication (option - BI) offers an inexpensive signal output when the disk ruptures. A plug is fitted at the discharge end. A small hole is drilled through the hex head where a small diameter teflon insulated signal wire is placed through. When a rupture disc discharges, plastic flow causes the plug to pop out and shear the signal wire. This sheared wire can be used to send a signal to the control system.

**BI - Burst Disk Option** - can be added to any hex head rupture disk and can ship the same/next day.

ORDERING INFO

Using stock - **Part# RP1206-7500** - 1/2"-20unf x 6"L + Hex , 7500psi

With BI option - **Part# RP1206-7500-BI** - 1/2"-20unf x 6"L + Hex , 7500psi c/w BI - Burst Disk option

**TRANSDUCER / RUPTURE DISK - TIP SPACERS**

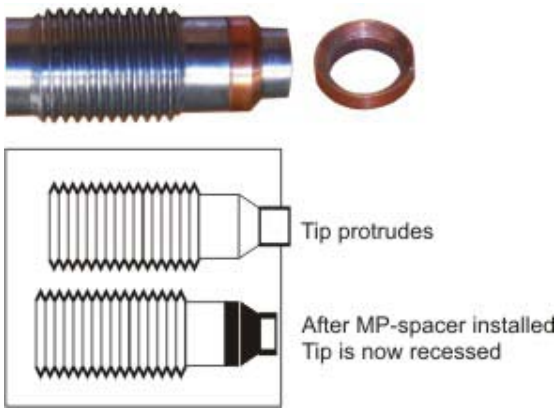
MPI melt pressure transducer/transmitter tip spacers are often used on old extruder barrels where sensor tips are protruding into the melt stream. Transducer tips should be recessed from the inner extruder barrel wall by approximately 0.010"-0.020" to prevent excessive wear and early failure of transducer diaphragms. Our tip spacers essentially push the diaphragm back from the inner wall, as shown in the diagram.

Melt Pressure Transducer Tip Spacer Features

Compatible with Dynisco, Gefran, GP50, and other melt pressure transducers and transmitters

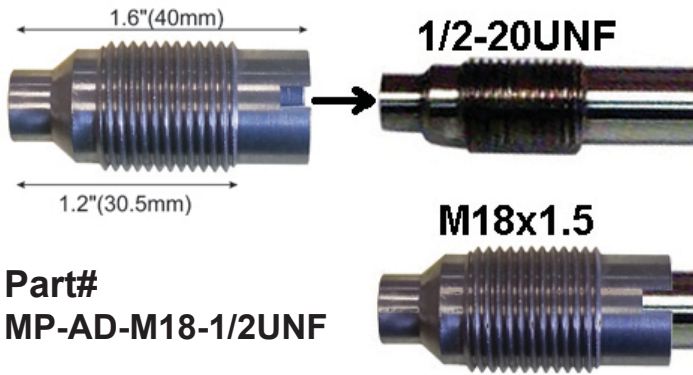
Available in thicknesses from 0.020" to 0.093"

Material options: copper, brass, stainless steel



STOCK LIST - TIP SPACER			
THICKNESS	1/2"-20 UNF	5/8"-11 UNC	3/4"-16 UNF
0.025" (0.64mm)	MP-SPACER-025	MP-SPACER5-025	MP-SPACER3-025
0.032" (0.81mm)	MP-SPACER-032	MP-SPACER5-032	MP-SPACER3-032
0.045" (1.14mm)	MP-SPACER-045	MP-SPACER5-045	MP-SPACER3-045
0.063" (1.60mm)	MP-SPACER-063	MP-SPACER5-063	MP-SPACER3-063
0.090" (2.29mm)	MP-SPACER-090	MP-SPACER5-090	MP-SPACER3-090

**M18 to 1/2"-20UNF ADAPTOR**



MPI - M18x1.5 to 1/2"-20UNF adaptors can be used as an emergency replacement to convert a stock 1/2"-20UNF transducer/transmitter to fit in a M18x1.5 non-stock pressure port.

Available - standard stock.

**TRANSDUCER HOLE PLUG**



MPI - Transducer hole plugs can be used to close a transducer pressure port that is no longer required.

Material - 304SS

STOCK LIST - HOLE PLUG			
LENGTH	1/2"-20 UNF	5/8"-11 UNC	3/4"-16 UNF
1.82" - SLOT	MP-PLUG-2		
3" + HEX	MP-PLUG-3		
6" + HEX	MP-PLUG-6		MP-PLUG3-6
7" + FLATS		MP-PLUG5-7	
8" + HEX	MP-PLUG-8		MP-PLUG3-8

**MOUNTING HOLE DRILL KITS**



MPI melt pressure transducer 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.

**STOCK LIST - DRILL KITS**

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

**MOUNTING HOLE CLEANING KITS**



MPI melt pressure 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.

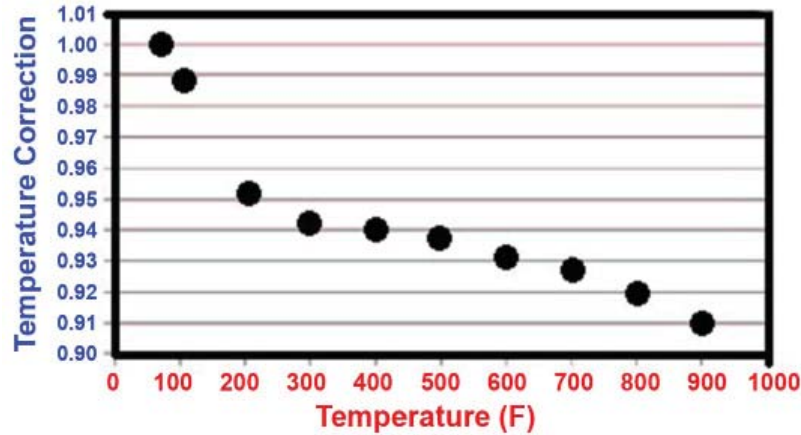
Cleaning kits include tools for tip hole cleaning, 45° seat surface, and thread cleaning. Please note that the cleaning should be performed when the polymer is molten, with zero pressure in the system.

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.

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

# BURST PRESSURE - TEMPERATURE DERATING

Temperature Correction  
Inconel Rupture Discs

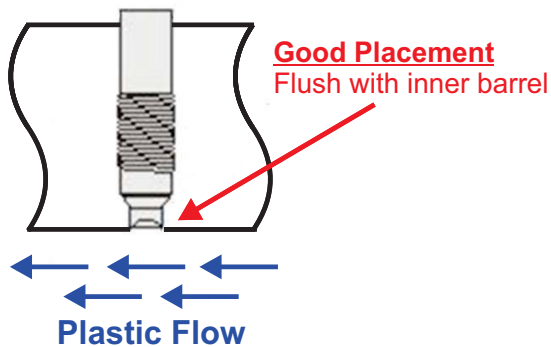


MPI's extruder rupture disks incorporate a standard Inconel burst disk. The Inconel disk allows the bursts plugs to be used over a wide temperature range with minimal burst pressure changes (a change of approximately 2% over the 300°F-600°F range). The chart below will help users estimate changes in rating based on temperature.

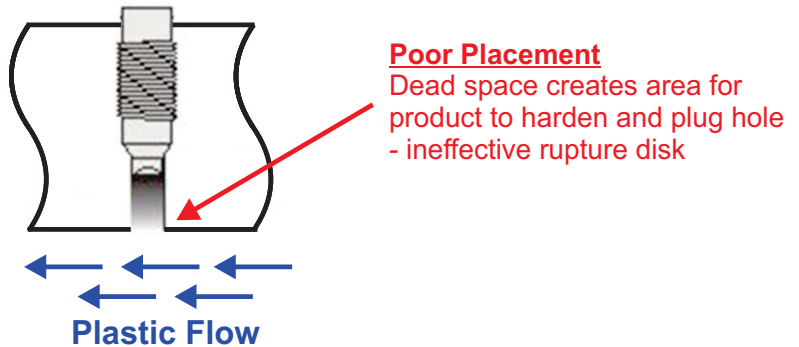
Note: The above chart is only valid for Inconel disk material. Other materials will have different derating curves.

# PROPER EXTRUDER RUPTURE DISK INSTALLATION

## Proper Placement



## Poor Placement




To ensure proper operation, MPI's extruder rupture disks must be installed correctly. They must be installed flush with the inner extruder wall with a small recess of approximately 0.020". Too much dead space can allow the plastic material to harden and form a plug, which can cause the extruder rupture disks to be ineffective and create a safety hazard.

MPI MELT PRESSURE - Other Products


**MPI MELT PRESSURE PRODUCTS**

**TRANSDUCERS & TRANSMITTERS**



750°F (400°C) Mercury Fill  
660°F (350°C) Mercury Free Fill  
1000°F (538°C) NaK - Mercury Free Fill

**INDICATORS , GAUGES, RUPTURE DISKS**



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New Catalog available

MPI Melt Pressure (MPI) is a customer needs-driven manufacturer of plastic melt pressure products that has been operating out of Toronto, Canada since 1999. MPI is staffed by engineers and technicians with an average of 20 years of industry experience. We work hard to ensure that all our products provide a worry-free experience.

MPI Melt Pressure offers products to directly replace models from Dynisco, Gefran, Gentran, Terwin, ISI, and GP50 with no wiring changes required.

Our huge, in-stock inventory helps minimize your downtime. 90% of orders are shipped same-day and delivered next-day to the United States and Canada. We also provide full engineering and technical support via telephone from 8am-4pm EST.

**Products manufactured by MPI Melt Pressure Include :**

- Melt Pressure Transducers
- Melt Pressure Transmitters
- Melt Pressure Digital and Mechanical Gauges
- Melt Pressure Indicators and Alarms
- Extruder Rupture Disks

## **MPI Melt Pressure Inc. - About Us**

MPI Melt Pressure has built Melt Pressure Transducers and Transmitters and Extruder Rupture Disks at our factory in Toronto, Canada since 1999. MPI engineers bring over 50 years of experience visiting and solving technical problems in the plastic extrusion industry in some of the most difficult environments. During this time we have experienced just about all the types of problems that can be encountered, and use this vast knowledge base to assist all our current customers.

Our philosophy is to provide cost competitive Melt Pressure Transducers, Transmitters and Rupture Disks with the quickest delivery and best technical support in the industry. Currently, 90% of our custom products ship out within 1-2 days. Our goal is to ship all orders the same day as we receive the order.

MPI provides full manufacturing operations in our Toronto plant including design, assembly, full testing and certifications in house. We have a fully trained manufacturing staff, with in house technicians and engineers available 12 hours, 5 days a week to aid customers with design selection and technical issues.

With continuous product development at our R&D lab we have implemented a Six Sigma philosophy with Lean manufacturing for continuous improvements. These continuous advancements translates to leading edge products with the best delivery for our customers.

Call MPI anytime you need Melt Pressure Transducer/Transmitter or Rupture Disks guidance or quick delivery of custom made products.



### **REPRESENTATIVE**

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