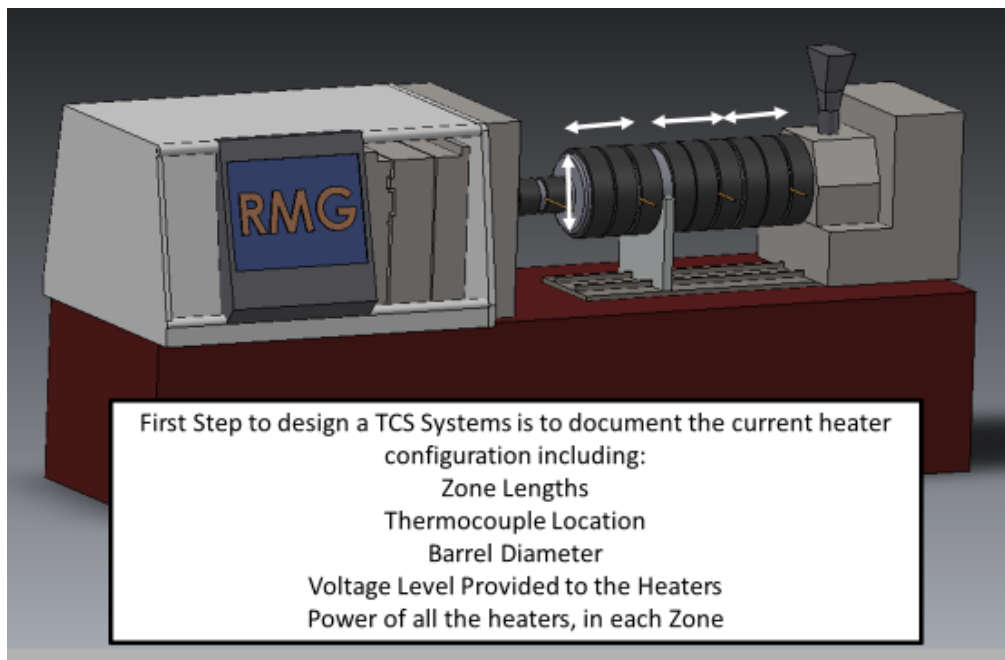


Rex Materials' TCS

System Design - TCS

- TCS system design should mimic existing heater configuration, so control systems are not impacted and will not require modification.
- Understanding and sketching the current set-up including zone lengths, barrel diameter, heater input voltage, thermocouple locations and total heater power in each zone, is the first step.
- **It is important to note if Rapid Cool Down, or Cooling by Zone, is required.**
- NOTE: TCS requires 3.25" of clearance, around the entire circumference of the barrel.

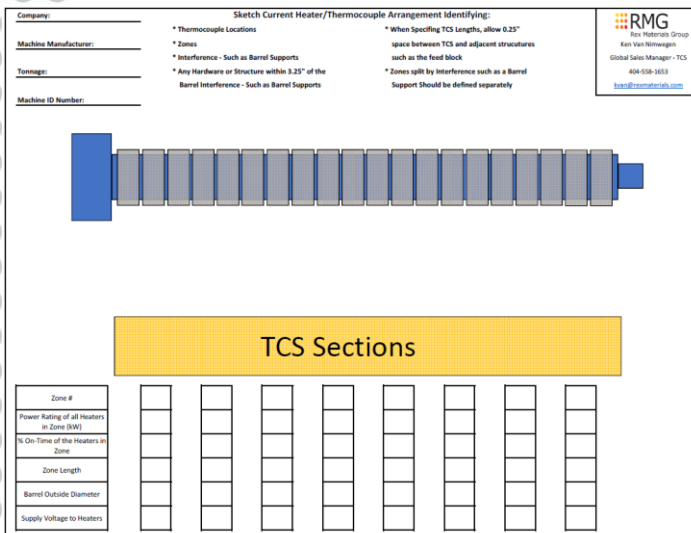


- The TCS data submission form provides space to sketch the current configuration and capture the required information. A completed, example form is also provided.

Company: _____
Machine Manufacturer: _____
Tonnage: _____
Machine ID Number: _____

Sketch Current Heater/Thermocouple Arrangement Identifying:

- * Thermocouple Locations
- * Zones
- * Interference - Such as Barrel Supports
- * Any Hardware or Structure within 3.25" of the Barrel Interference - Such as Barrel Supports
- * when Specifying TCS Lengths, allow 0.25" space between TCS and adjacent structures such as the feed block
- * Zones split by Interference such as a Barrel Support Should be defined separately

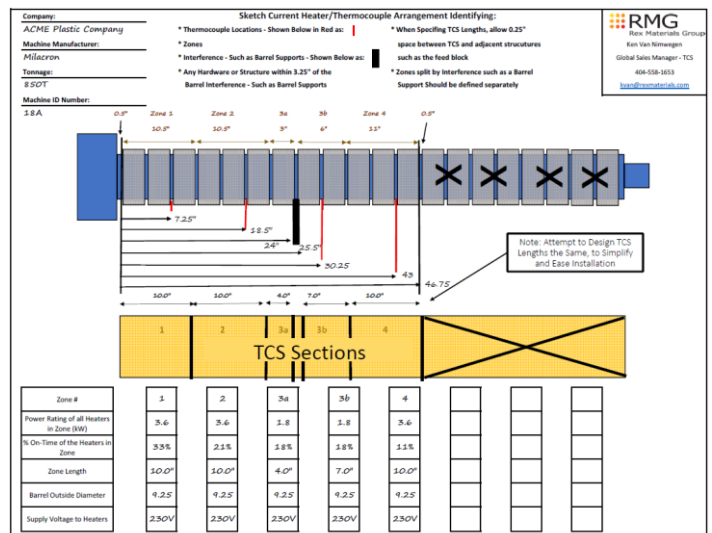


Zone #	1	2	3a	3b	4			
Power Rating of all Heaters in Zone (kW)								
% On-Time of the Heaters in Zone								
Zone Length								
Barrel Outside Diameter								
Supply Voltage to Heaters								

Company: ACME Plastic Company
Machine Manufacturer: Milacron
Tonnage: 8.50T
Machine ID Number: 38A

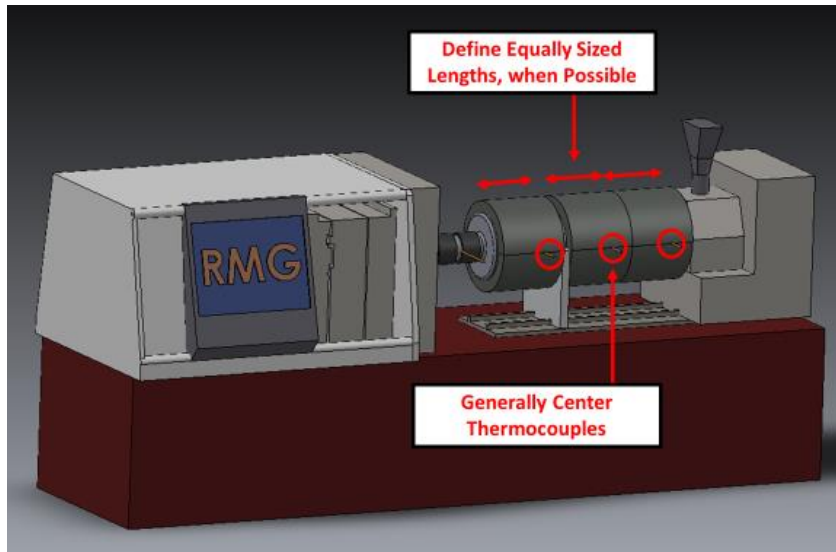
Sketch Current Heater/Thermocouple Arrangement Identifying:

- * Thermocouple Locations - Shown Below in Red
- * Zones
- * Interference - Such as Barrel Supports - Shown Below as
- * Any Hardware or Structure within 3.25" of the Barrel Interference - Such as Barrel Supports
- * when Specifying TCS Lengths, allow 0.25" space between TCS and adjacent structures such as the feed block
- * Zones split by Interference such as a Barrel Support Should be defined separately

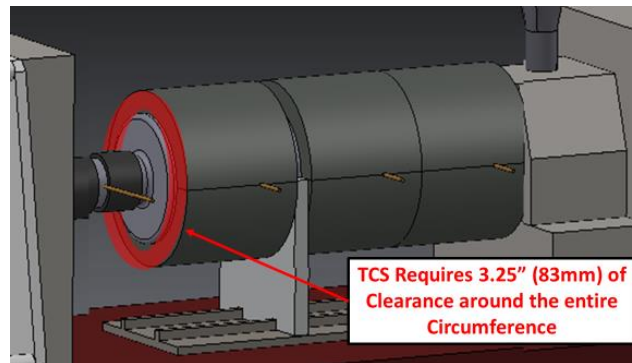


Zone #	1	2	3a	3b	4			
Power Rating of all Heaters in Zone (kW)	3.6	3.6	1.8	1.8	3.6			
% On-Time of the Heaters in Zone	33%	33%	33%	33%	33%			
Zone Length	10.0"	10.0"	4.0"	7.0"	10.0"			
Barrel Outside Diameter	4.25"	4.25"	4.25"	4.25"	4.25"			
Supply Voltage to Heaters	230V	230V	230V	230V	230V			

- When specifying TCS Section Lengths, efforts should be made to:
 - Use identical TCS Section Lengths when possible
 - Insure Thermocouples are generally centered on the TCS Section
 - Do not specify over-sized TCS lengths – TCS cannot be cut down in the field



- TCS Requires 3.25' (83mm) of clearance around the circumference of the barrel



- If a zone is split by interference, length on either side of the interference must be defined

