

# WASTEWATER TREATMENT CAPABILITIES



*Martin*

SPROCKET & GEAR, INC.

[www.martinsprocket.com](http://www.martinsprocket.com)



*Martin* Screw Conveyors are used to remove grit which can be harmful to equipment .



*Martin* Couplings and Sheaves can be found in the pumps at the lift station and in various other areas to move water from station to station.



*Martin* Roller Chain & Engineering Class Sprockets are used in bar screens which removes large debris for transport to the landfill or incineration.



*Martin* Sheaves are use in the aeration tanks.

*Martin* Sprocket & Gear is at the heart of the wastewater treatment process. Whether you are looking at Municipal water supplies, Industrial or Agricultural treatment plants, *Martin* manufactures products that are used in every facet of the industry. While the process may vary from plant to plant, one thing remains constant. . . You can count on *Martin* to provide the highest quality products, teamed with service second to none and delivery rates unsurpassed in the industry.

• Sprockets • Sheaves • Couplings  
• Bushings • Screw Conveyors  
**SAME DAY/ NEXT DAY ALTERATIONS  
QUICK TURN-AROUNDS ON MTO'S**



*Martin* Shaftless screws are used for removal of sludge which is hauled off to landfill or incinerated. In addition *Martin* V-Belt Sheaves are used on the motors.

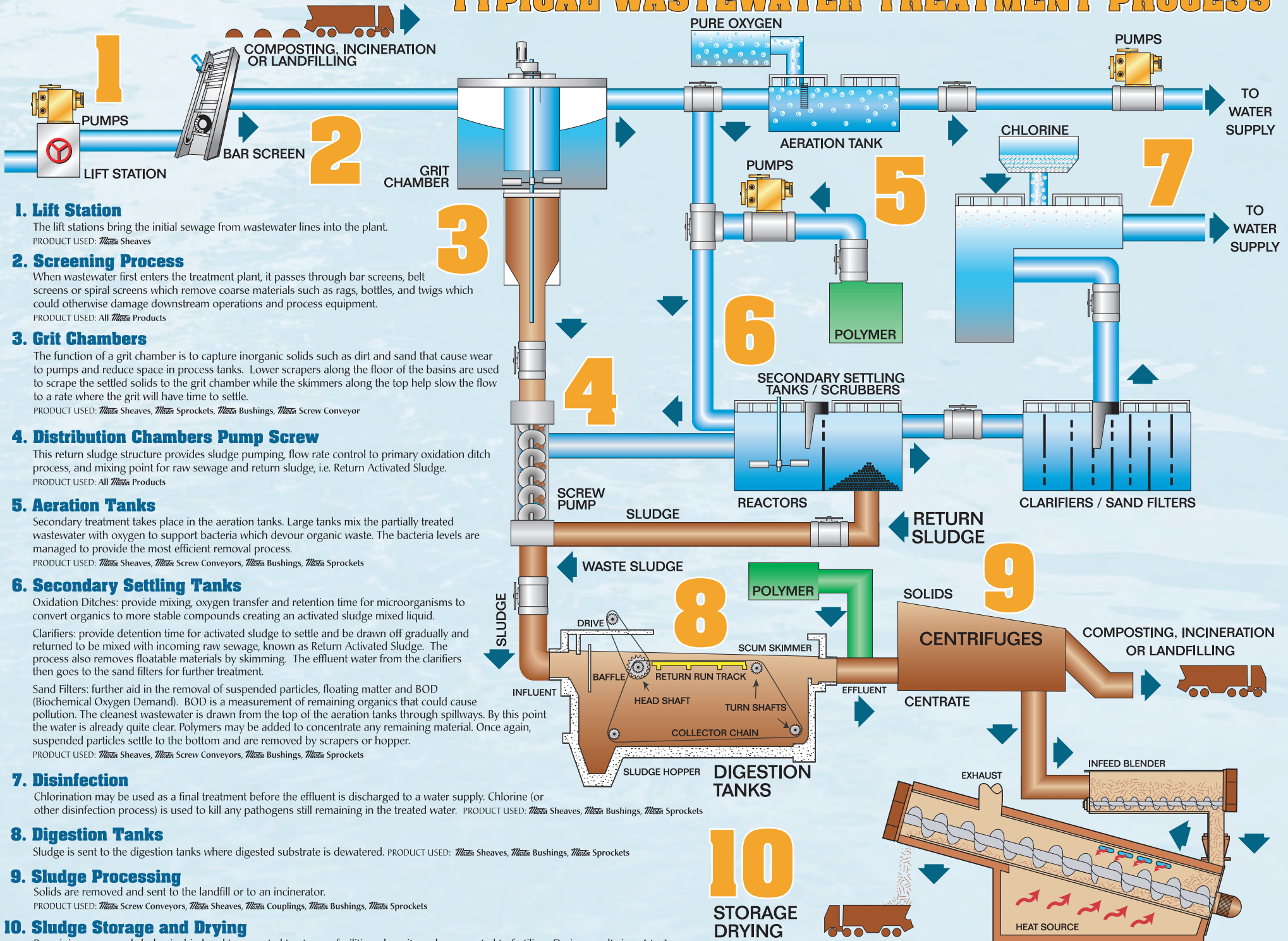


*Martin* Engineered Class Sprockets are used in the settling tanks.

	Shaftless Screw Conveyors	Shafted Screw Conveyors	Roller Chain Sprockets	Split & Engineering Class Sprockets	V-Belt Sheaves (Pumps)	Couplings	Bushings	Shear Pin Sprockets
LIFT STATION					☼	☼	☼	
BAR SCREEN	☼	☼	☼	☼	☼	☼	☼	☼
GRIT CHAMBERS	☼	☼	☼				☼	
DISTRIBUTION CHAMBERS	☼	☼	☼	☼	☼	☼	☼	☼
AERATION TANKS			☼	☼	☼	☼	☼	
SETTLING TANKS	☼	☼	☼	☼	☼		☼	☼
DISINFECTION			☼		☼		☼	
DIGESTION TANKS			☼		☼		☼	
SLUDGE PROCESSING	☼	☼	☼		☼	☼	☼	



# TYPICAL WASTEWATER TREATMENT PROCESS



## 1. Lift Station

The lift stations bring the initial sewage from wastewater lines into the plant.  
 PRODUCT USED: *Mesta* Sheaves

## 2. Screening Process

When wastewater first enters the treatment plant, it passes through bar screens, belt screens or spiral screens which remove coarse materials such as rags, bottles, and twigs which could otherwise damage downstream operations and process equipment.  
 PRODUCT USED: All *Mesta* Products

## 3. Grit Chambers

The function of a grit chamber is to capture inorganic solids such as dirt and sand that cause wear to pumps and reduce space in process tanks. Lower scrapers along the floor of the basins are used to scrape the settled solids to the grit chamber while the skimmers along the top help slow the flow to a rate where the grit will have time to settle.  
 PRODUCT USED: *Mesta* Sheaves, *Mesta* Sprockets, *Mesta* Bushings, *Mesta* Screw Conveyor

## 4. Distribution Chambers Pump Screw

This return sludge structure provides sludge pumping, flow rate control to primary oxidation ditch process, and mixing point for raw sewage and return sludge, i.e. Return Activated Sludge.  
 PRODUCT USED: All *Mesta* Products

## 5. Aeration Tanks

Secondary treatment takes place in the aeration tanks. Large tanks mix the partially treated wastewater with oxygen to support bacteria which devour organic waste. The bacteria levels are managed to provide the most efficient removal process.  
 PRODUCT USED: *Mesta* Sheaves, *Mesta* Screw Conveyors, *Mesta* Bushings, *Mesta* Sprockets

## 6. Secondary Settling Tanks

Oxidation Ditches: provide mixing, oxygen transfer and retention time for microorganisms to convert organics to more stable compounds creating an activated sludge mixed liquid.  
 Clarifiers: provide detention time for activated sludge to settle and be drawn off gradually and returned to be mixed with incoming raw sewage, known as Return Activated Sludge. The process also removes floatable materials by skimming. The effluent water from the clarifiers then goes to the sand filters for further treatment.  
 Sand Filters: further aid in the removal of suspended particles, floating matter and BOD (Biochemical Oxygen Demand). BOD is a measurement of remaining organics that could cause pollution. The cleanest wastewater is drawn from the top of the aeration tanks through spillways. By this point the water is already quite clear. Polymers may be added to concentrate any remaining material. Once again, suspended particles settle to the bottom and are removed by scrapers or hopper.  
 PRODUCT USED: *Mesta* Sheaves, *Mesta* Screw Conveyors, *Mesta* Bushings, *Mesta* Sprockets

## 7. Disinfection

Chlorination may be used as a final treatment before the effluent is discharged to a water supply. Chlorine (or other disinfection process) is used to kill any pathogens still remaining in the treated water.  
 PRODUCT USED: *Mesta* Sheaves, *Mesta* Bushings, *Mesta* Sprockets

## 8. Digestion Tanks

Sludge is sent to the digestion tanks where digested substrate is dewatered.  
 PRODUCT USED: *Mesta* Sheaves, *Mesta* Bushings, *Mesta* Sprockets

## 9. Sludge Processing

Solids are removed and sent to the landfill or to an incinerator.  
 PRODUCT USED: *Mesta* Screw Conveyors, *Mesta* Couplings, *Mesta* Bushings, *Mesta* Sprockets

## 10. Sludge Storage and Drying

Remaining processed sludge is dried and transported to storage facilities where it can be converted to fertilizer. Drying results in a 4 to 1 reduction in sludge volume.  
 PRODUCT USED: *Mesta* Conveyors, *Mesta* Bushings, *Mesta* Sprockets

# *Martin* Products at Work in the Wastewater Treatment Industries



Quadra Flex®  
Coupling



Discharge  
Gate



Jaw Coupling



Coupling Cover



Shaftless Screw



Chain  
Coupling



Screw Conveyor



TB Sprocket & Bushing



QD Bushing



Double 200  
Sprocket & Pinion



Sheave



D Sprocket



MST Bushing



Shear Pin Sprocket



Special Sprocket



Triple Sprocket



TB Bushing