

# Solutions for Recycling of Waste Tires

Waste Tire Recycling Equipment  
Crumb Rubber Processing  
Equipment Financing  
Consulting Services



# Welantech International

## Introduction of Welantech International

Welantech International of Taiwan is a leading supplier of rubber and plastic processing equipment with offices in Taiwan, China, and Austria. The company has more than 25 years experience in supplying its customers with high quality solutions in the petrochemical, chemical, plastics, rubber, and other related industries!

## Benefits of working with Welantech

Welantech International has great experience in providing the best possible solutions to its customers. We will always offer our customers the most suitable quality at the most suitable price, in order to guarantee the shortest return on investment (ROI) for our customers!

Welantech is also a strong partner who has a deep interest in the prosperity and future development of its customers. At Welantech we do not see customers as customers, but rather as partners for a long term cooperation and joint development!

Some of our long-term customers:



# Waste Tire Recycling

## Introduction of Waste Tire Recycling

In general, processed waste tires refer to applications of chipped tires or crumb rubber. Crumb rubber, also referred to as ground rubber, is a wire-free fine rubber particle made by size reduction from scrap tires. Various size reduction techniques can be used to achieve a wide range of particle sizes down to 600 microns or less. Chipped tires also result in wire-free shredded tire particles of relatively large particle size compared to crumb rubber. Compared to the applications of whole tires, crumb rubber has larger and broader potential markets.

## Rubber Modified Asphalt

As one major application of crumb rubber, rubber modified asphalt could have the largest market for waste tire recycling. Moreover, this application results in an important improvement for road construction technology.

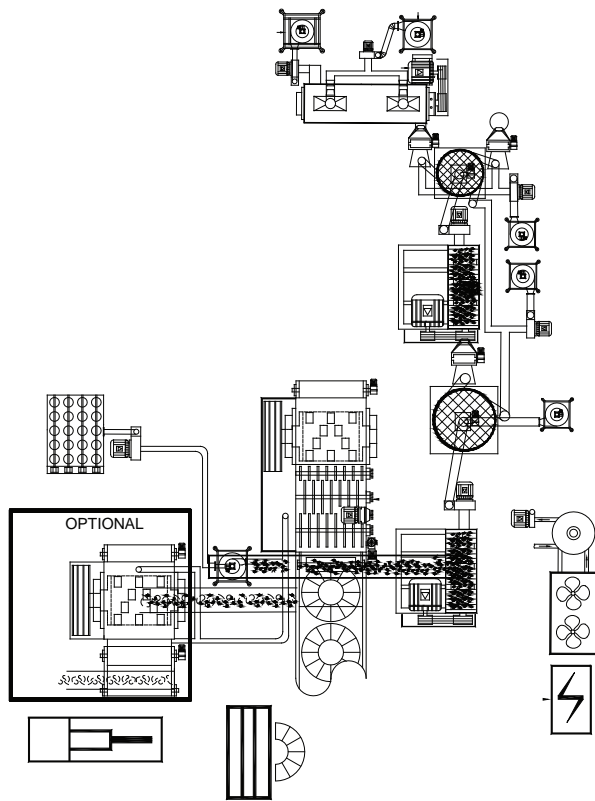
Rubber modified asphalt has been known to improve the rheological properties at low and high temperatures and provide a life up to three times longer than conventional asphalt. Even though rubber modified asphalt may cost more than regular asphalt, the advantages may justify the added cost.

Recent studies have shown that chemically-modified crumb rubber asphalt can overcome several problems with rubber modified asphalt and improve the required properties for road construction (see picture).



Picture (left):  
After 8 years the improved quality of CR Modified Asphalt becomes visible. The left side of the picture shows regular asphalt, while the right side shows CRM Asphalt.

# Tire Recycling System -TRS800



## Specifications

Capacity: 800-1000Kg/h

Floor Space Requirement: 30m(L)x18m(W)x6m(H)

Labor Requirement: 3-4 operators per shift

Operation: up to 24 hours

## Processing Capacity

120~160 units of passenger car tires/hr

15~20 units of steel truck tires/hr

## Finished Products

Crumb Rubber: 650~800 Kg/hr from steel truck tires

450~600 Kg/hr from other types of scrap tires

Steel Wire: 160~240 Kg/hr is processed from steel truck tires

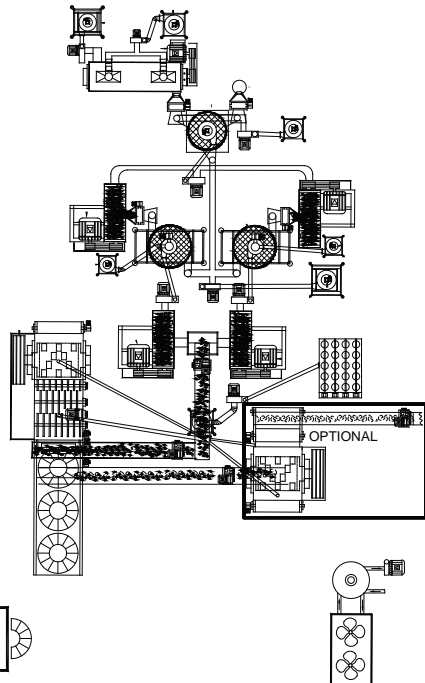
80~120 Kg/hr is from other types of scrap tires

Nylon: 20~300 Kg/hr (difference is caused by contents of tires)





# Tire Recycling System -TRS1200



## Specifications

Capacity: 1600-2000Kg/h

Floor Space Requirement: 30m(L)x22m(W)x6m(H)

Labor Requirement: 5-6 operators per shift

Operation: up to 24 hours

## Processing Capacity

125~300 units of passenger car tires/hr

30~40 units of steel truck tires/hr

## Finished Products

Crumb Rubber: 1200~1600 Kg/hr from steel truck tires

800~1200 Kg/hr from other types of scrap tires

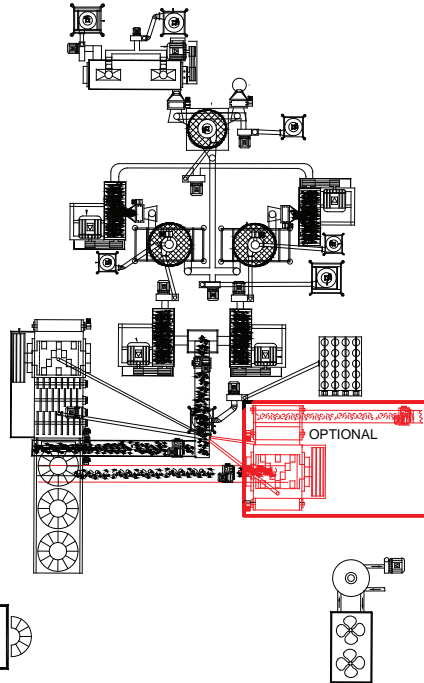
Steel Wire: 300~500 Kg/hr is processed from steel truck tires

150~200 Kg/hr is from other types of scrap tires

Nylon: 20~500 Kg/hr (difference is caused by contents of tires)



# Precise Steel Separator (optional)



## Description

The Precise Steel Separator is used to reduce the rubber contamination of the steel to less than 0.1-0.2% (from 2-8%).

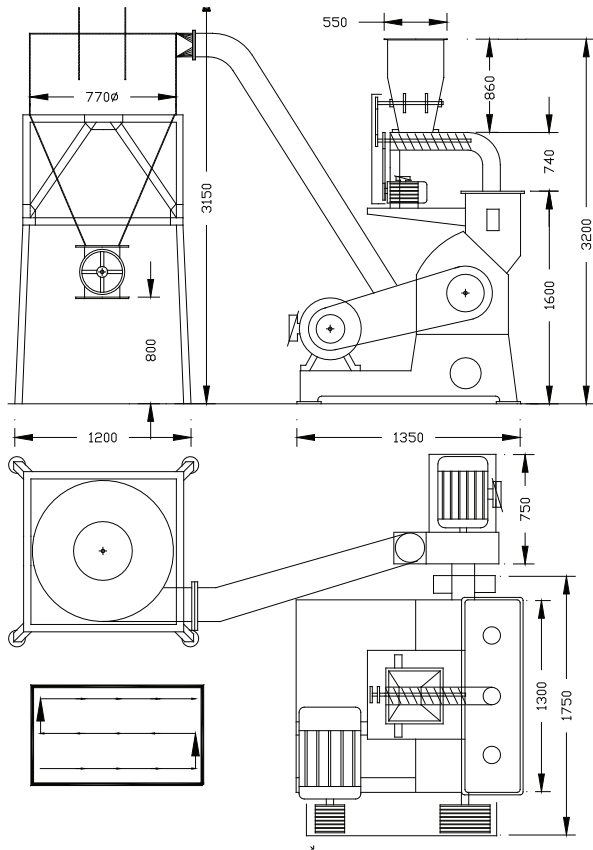
Only necessary if very pure steel is needed from the process!



## Product Yield

	Truck Tires	Car Tires
<b>Crumb Rubber</b>	70%	70%
<b>Steel</b>	27%	15%
<b>Nylon</b>	3%	15%

# Super Micro Grinder



## Specifications

This optional equipment allows the crumb rubber to be further processed into rubber powder.

Floor Space Requirement: 3.8m(L)x2m(W)x4m(H)

Water Cooling System: 1.1m(L)x1m(W)x1.6m(H)

## Processing Capacity

Final Particle Size 20 mesh: 200 Kg/hr

Final Particle Size 30 mesh: 120 Kg/hr

Final Particle Size 40 mesh: 80 Kg/hr

## Conversion of Mesh to millimeter

Mesh	mm	Mesh	mm
3.50	5.66	4.00	4.76
5.00	4.00	6.00	3.36
7.00	2.83	8.00	2.38
10.0	2.00	20.0	0.84
30.0	0.59	40.0	0.42

# Rubber Sheet Extrusion

## Value Added Products

Welantech International also offers solutions for the processing of recycled crumb rubber into rubber sheets, which can be used for various applications including:

- Flooring
- Roofing
- Acoustic panels (sound insulation)
- Playground surfaces
- Sport Mats
- Impact protection
- Etc.



## Welantech's Solution

Our solution is able to utilize up to 75% recycled rubber, while the remaining 25% needs to be virgin rubber (EVA), or LDPE as binding material. This allows the recycling company to produce value added products, which have a wider marketability than crumb rubber itself!

The advantages of using Welantech's solution are:

- No rubber degradation
- No smell
- Up to 80% of recycled rubber material
- 100% recyclable
- Thermo-formable
- Wide range of application

## Technology Used

Welantech International utilizes a new type of rubber extruder and calendar rolls, which allow easy extrusion without high temperatures, thus preserving the rubber characteristics.

### Technical Parameters:

Product Width: up to 2000mm

Product Length: up to customer's requirements

Product Thickness: 0.5-5mm

Extrusion Capacity: up to 1200kg/h



# Rubber Tile Presses

## Rubber Floor Tiles

Rubber floor tiles can easily be utilized for playgrounds, sport fields, and many other applications.

## Process Description

The crumb rubber is fed into the press in batches. The electrically heat controlled press will form the crumb rubber to fit the mold at approximately 150° C. Each batch takes 5-6 minutes to finish! Different master batches can be added in order to achieve the desired color!

## Available Capacities

Currently Welantech International is able to offer two capacities for the presses:

50kg/h single press (1 mold per machine)

200kg/h multi press (4 molds per machine)

Multiple presses can be combined to reach higher capacities and to produce different forms at the same time. For example, in order to reach a processing capacity of 1,000kg/h, the customer has the option to install 5x multi presses (with 4 molds each), or 20x single presses. This means that the customer has the option to produce either 5 different products, or 20 different products at the same time!

## Raw Material Utilization

The press can utilize up to 97% recycled rubber crumbs, while the remaining 3% should be binding material (i.e. Poly Urethane, EVA, etc.). The final formulation will be based on customer's required end products, as different materials have different characteristics, and can be used for different applications (i.e. soft material for fall protection on sport fields, waterproof for insulation, etc.).



# Equipment Leasing Option

## Welantech's Leasing Option

Welantech International is cooperating with reputable banks to offer leasing options on its equipments for selected markets and countries. These options are available through Welantech's good relationship with leading financial institutions.

## Available Countries

Currently Welantech International is cooperating with financial institutions for the following countries/markets:

- Austria
- Poland
- Hungary
- Czech Republic
- Slovenia
- Slovakia
- Croatia
- Romania
- Bulgaria
- Italy
- Germany
- Ukraine
- Bosnia and Herzegovina
- Serbia and Montenegro
- Latvia
- Russia
- Turkey

Leasing is made available by(\*):



We are constantly working to improve our services for our customers, and we will be able to serve additional markets through leasing options soon!

\* All leasing offers are extended directly by the banks. Approval or disapproval, as well as leasing conditions cannot be influenced by Welantech International. Leasing application does not automatically qualify for leasing approval, and evaluation by the potential client will be carried out through the banks. UniCredit Logo and Raiffeisen Logo are trademarks of the respective companies.

# Welantech Consulting Service

## Welantech's Consulting Service

Welantech can offer consulting services to the Buyer for the management of the Buyer's plant, factory, or business as described in the management proposal. Welantech will offer its services in order to assist the Buyer in business decisions, and with the management of the Buyer's daily operations.

The standard term for consulting services is up to two years after plant start-up. This allows the Buyer enough time to successfully start operation of the recycling business and to get familiar with the plant's operation as well as the tire recycling industry!

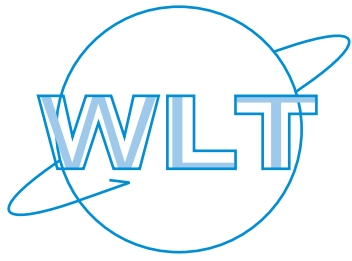
This allows the Buyer to start this exciting business with the knowledge that an experienced partner is always there to give the right advice!

## Services include

Welantech International will assist the Buyer with:

1. Plant construction
2. Plant operation
3. Personnel selection
4. Further processing of rubber
5. Sale of final product





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