TWISTERTRAC®
VS350

PILOT CRUSHTEC®

More than machines, *we build trust.*

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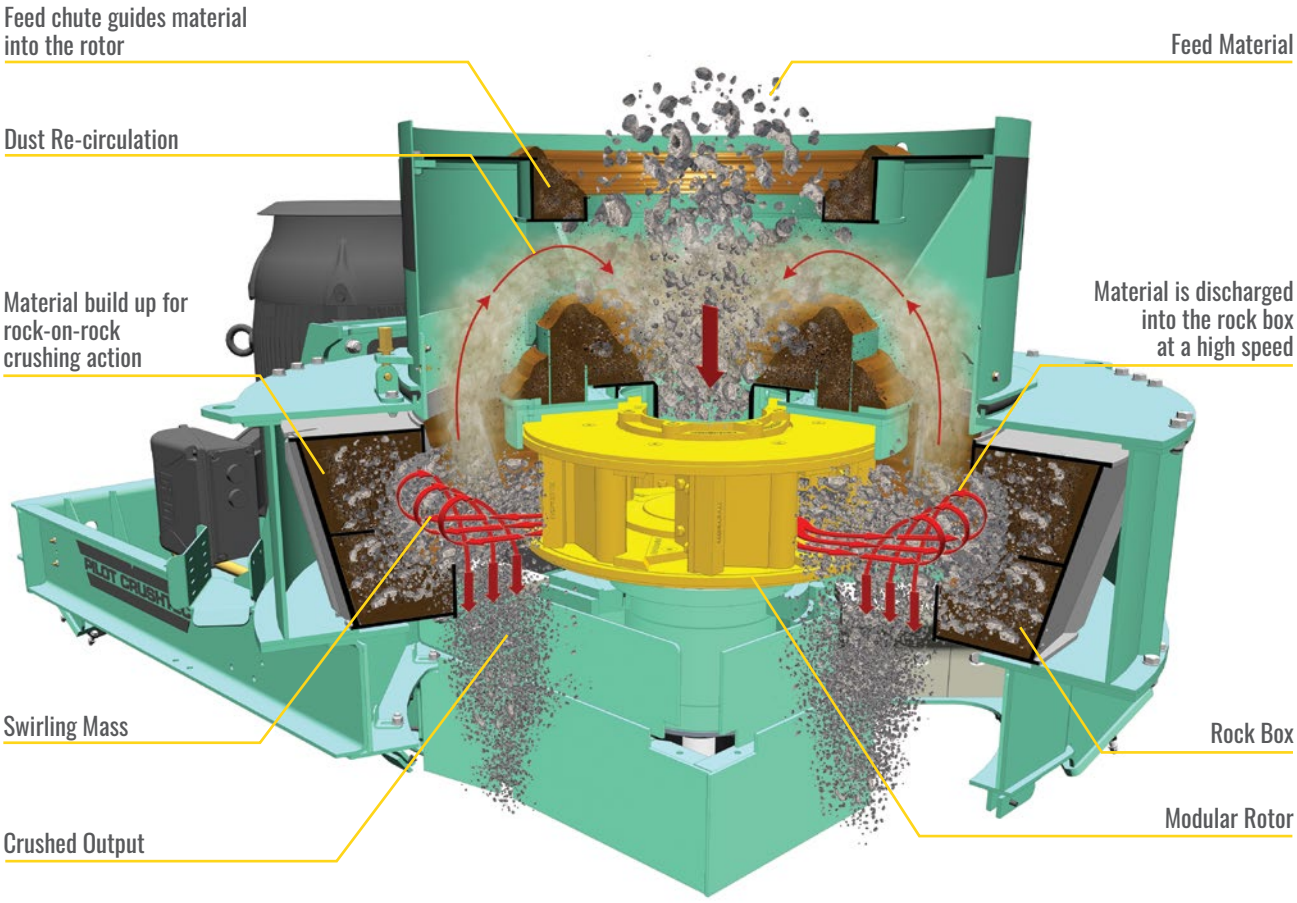
HOW THE TWISTER VERTICAL SHAFT AUTOGENOUS CRUSHER WORKS



The Twister is a Vertical Shaft Autogenous Crusher, which uses a rotor mounted on a vertical shaft, to provide the centrifugal force which starts the material (stone) reduction process. Feed material is fed into a rock lined feed hopper, which centralises the feed prior to it entering the crusher, via a cylindrical feed tube. This feed tube forces the material to fall directly and centrally into the rotor.

Inside the rotor, a cone spreads the material flow, and the centrifugal force, created by the spinning rotor, forces the material into three or six horizontal canals (rotor type and size dependent), lined with trapped material (stone). When the feed material meets the rotating arm of trapped stone, it is accelerated, rolling and sliding, along the arm to the rotor exit openings which are protected by tungsten carbide wear edges.

These accelerated particles are continuously discharged, at very high speeds, up to 80m/s, into the material lined periphery of the crushing chamber. On discharge into the crushing chamber, the particles together with the air stream, become part of a swirling mass of particles. Due to the shape of the crushing chamber and the resulting compacted material wall, the swirling mass (cyclone) of particles continually changes direction. The new particles entering the swirling mass collide with particles already in the cyclone, which in turn collide with particles deflected off the material lined wall and the rotor deflector plates. These continuous direct hits and glancing blows, cause the crushing action within the chamber. The material then falls from the chamber through a rubber discharge hopper and on to the conveyor belt.

This highly efficient stone-on-stone method of crushing does not require any stone-on-steel impact or pressure, which makes the Twister very economical to run.

PRODUCT IMAGES

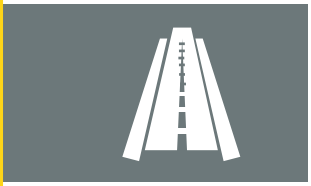
Before

After

WHERE SHOULD YOU USE A VSI CRUSHER?

QUARRYING & CONSTRUCTION INDUSTRY

The Twister crusher is commonly used in the quarrying and construction industry for producing consistent, cubically shaped aggregates for use in concrete mixes which increases concrete strength, enhances the workability and finish of concrete, reduces water consumption and reduces concrete strengthening time. Twister crushers are commonly used for producing manufactured sand with a uniform shape and free from impurities to ensure better bonding with cement in concrete mixes as well as product finishing and rendering materials to provide strength and durability.



ROAD BUILDING & INFRASTRUCTURE

The Twister is used in producing consistent, cubical shaped aggregate and a high first pass product yield of fines in a balanced particle sized distribution. The cubical shaped aggregates are used in asphalt production for road topping and the balanced high-fines sand creation assists in ensuring balanced fines-rich filling material in road layering.

MINERAL PROCESSING

Twister crushers are used for the beneficiation of processed mined ores. They are used as a cost-effective method to reduce the feed size of material for further processing in downstream operations such as grinding mills and ball mills, to produce sinter feed and fine material for heap leaching.

RECYCLING

Twister crushers can be used in recycling applications to process concrete, asphalt and demolition waste reducing the need for virgin materials. Twister crushers are used extensively in the glass recycling industry to produce fines from cullet and glass bottle waste for use in aggregates, glass bottle manufacturing, and as filter media. Twister crushers are extensively used to crush slag from metals processing facilities.

MATERIALS THAT CAN BE CRUSHED

INDUSTRIAL

Andalusite, Carborundum, Chalk, Coke, Cement clinker, Dolomite, Flint, Fused alumina, Garnet, Graphite, Magnesite, Nepheline synite, Quartzite, Silica, Siltstone & Steel slag

MINERAL ORES

Chromite, Copper Slag, Gold ore, Ferro chrome, Ferro manganese ore, Quartzite, Magnetite & Schist

AGGREGATES

Andesite, Basalt, Diorite, Dolerite, Granite, Greywacke, Limestone, Quartzite, Marble, Norite / Anorthosite & Sea dredged gravel

RECYCLING

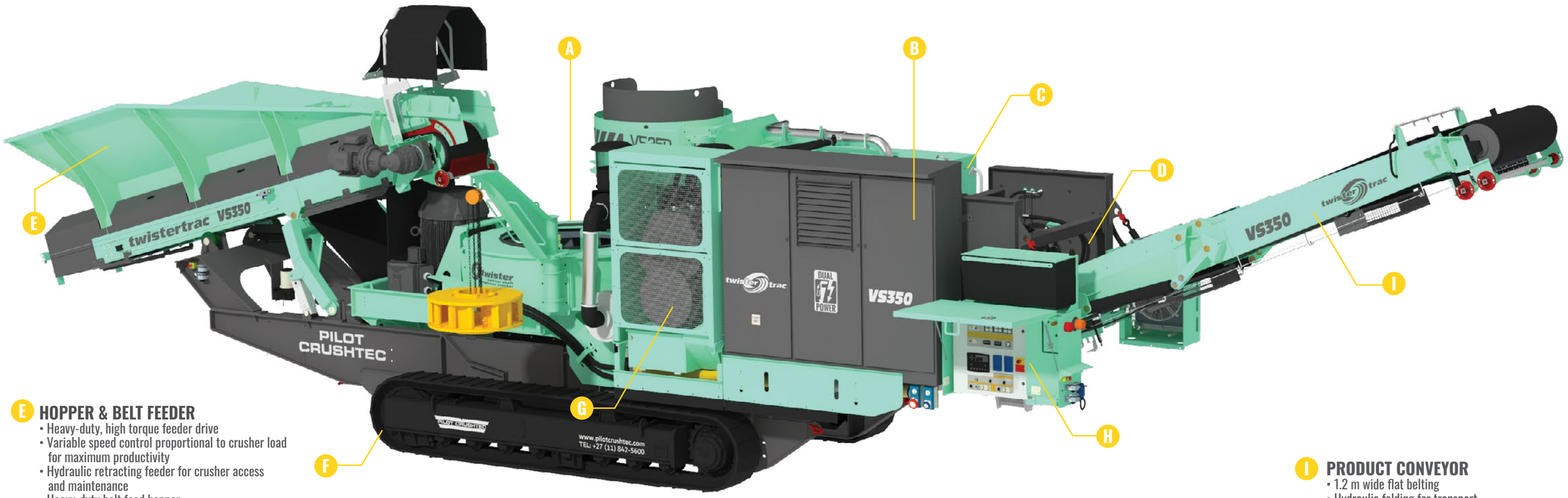
Asphalt, Bottles, Clay blocks, Concrete bricks, Cullet, Demolition waste & Various slags

A CRUSHER UNIT
- Pilot Crushtec VS350 vertical shaft impact crusher
- Various rotor options available, dependent on applications
- Heavy-duty grease lubricated bearing cartridge
- Variable crusher speed for flexible operation
- Hydraulic lifting of crusher housing cover and feed lid with mechanical rotation
- Replaceable rock box or anvil ring
- Jib crane for rotor removal and replacement
- Taper shaft rotor mount
- Rubber-mount crushing chamber isolation
- Rotor bypass system for power management in high tonnage applications

B POWER
- Diesel/Electrical or Diesel/Hydraulic drive configuration
- Different emission options to suit local requirements
- Deep Sea Electronics engine monitoring and protection system
- Highly fuel-efficient engine
- Heavy-duty self-cleaning engine air intake filter system with an exhaust ejector
- Heavy-duty water separator in the engine fuel system
- Diesel tank 1100ℓ capacity with a low level warning
- Engine with hot climate cooling pack

C HYDRAULICS
- Load sensing system for fuel saving
- Suction, pressure and return line filtration, integrated with control panel fault indication system
- Low hydraulic oil level protection

D MACHINE CONNECTIVITY
- Provision for upstream and downstream communication via umbilical cord
- Controls feed rate from primary crusher
- Remote genset monitoring option



E HOPPER & BELT FEEDER
- Heavy-duty, high torque feeder drive
- Variable speed control proportional to crusher load for maximum productivity
- Hydraulic retracting feeder for crusher access and maintenance
- Heavy-duty belt feed hopper, approximately 6 m^3 capacity
- Low-level drop-down rear feed flap
- Can be side fed by a front-end loader and rear fed by another crusher or screen
- Class 630/4 ply belt 5 mm top cover, 1.6 mm bottom cover
- Heavy-duty pre-tensioned belt scraper with replaceable scraper blades

F SITE MOBILITY
- Integrated planetary track drives with fail-safe internal brake system
- Mounted on crawler track system
- Pendant control box for tracking

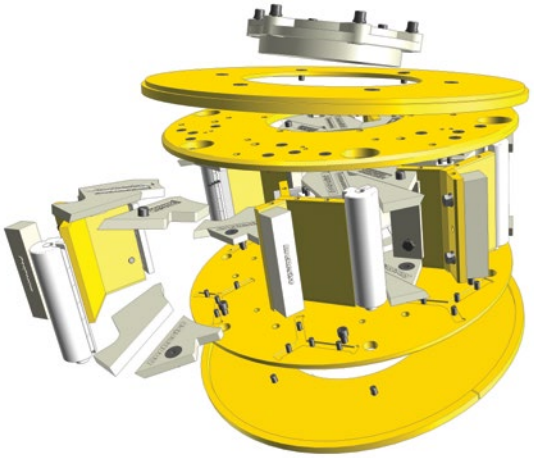
G DUAL POWER
- Diesel / Electric option can be powered from external source

H ELECTRICAL SYSTEM
- 24v DC Electrical control system for the diesel engine
- Simple, intuitive control panel
- Critical fault information annunciatior panel
- Fail-safe emergency stop circuit
- Fail-safe crusher housing status switch
- Pressurised motor control center

I PRODUCT CONVEYOR
- 1.2 m wide flat belting
- Hydraulic folding for transport
- 3.7 m stockpile height
- Heavy-duty high torque conveyor drum
- Belt adjustment at both drive and tail end
- Self tensioning drive drum belt scraper
- Guarding on return rollers
- Spray bars for dust suppression
- Dust encapsulation
- Secondary scraper for efficient belt cleaning

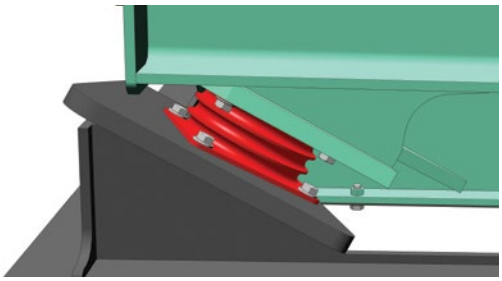
WHY IS THE TWISTER THE STANDARD OF EXCELLENCE

MODULAR ROTORS



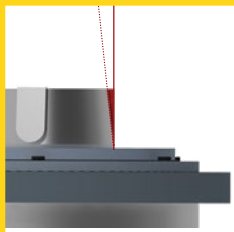
All components are machined and bolted together reducing the rotor balancing process and providing better vibration protection. Any damaged rotor body part can be replaced without welding.
Allows for rapid replacement of worn or damaged rotor body and wear parts.

VIBRATION MOUNTINGS



The complete crusher is mounted to the sub-frame using 4 easily replaceable, angled, specialised vibration mounts to decrease vibration and stress loading on the skid-frame.

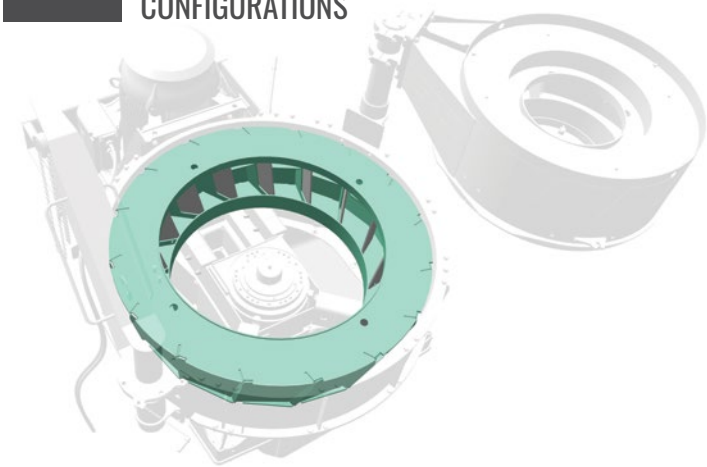
HEAVY-DUTY TAPERED SHAFT



Tapered Shaft

Heavy-duty, robust shafts with a precision taper ensure quick, secure rotor fitment of the rotor to the shaft. A rotor jacking and lifting tool is provided to ensure safe removal and fitment during rotor replacements.

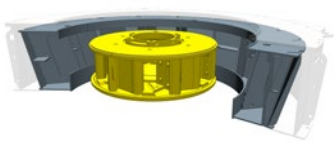
CRUSHING CHAMBER CONFIGURATIONS



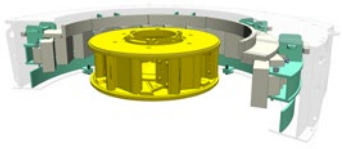
The drop-in crushing chamber rock box has replaceable liners and build up plates to assist with initial rock box build-up.

The rock box can be replaced.

An optional anvil ring crushing chamber is available for use in low abrasion applications.



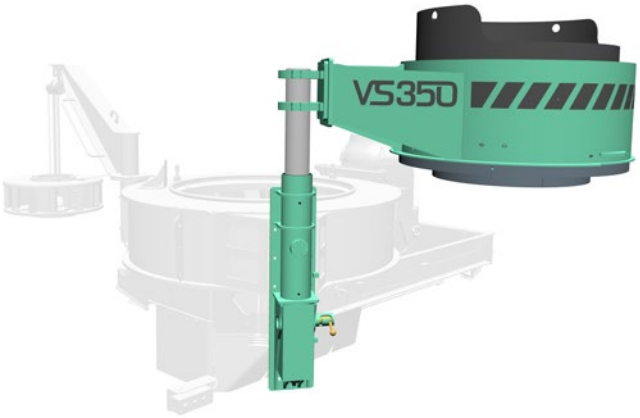
Rock Box



Anvil Ring

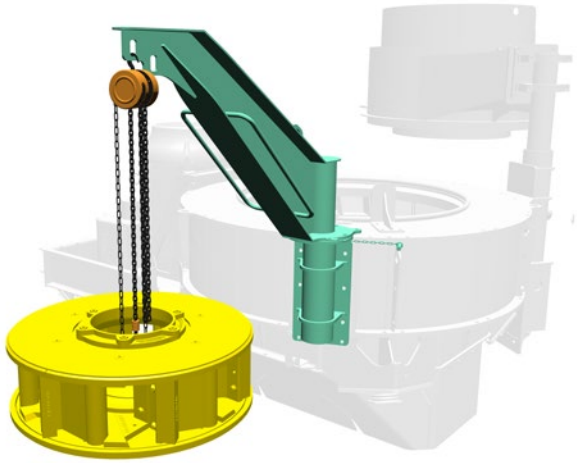
STANDARD WITH HALLS

HALLS
Hydraulic Automatic Lid Lifting System



The hydraulically controlled Hydraulic Automatic Lid Lifting and Slewing System (HALLS) allows one person to quickly, easily and safely open and close the crusher lid providing complete rotor access. Safety pins always ensure safe operation.

JIB CRANE



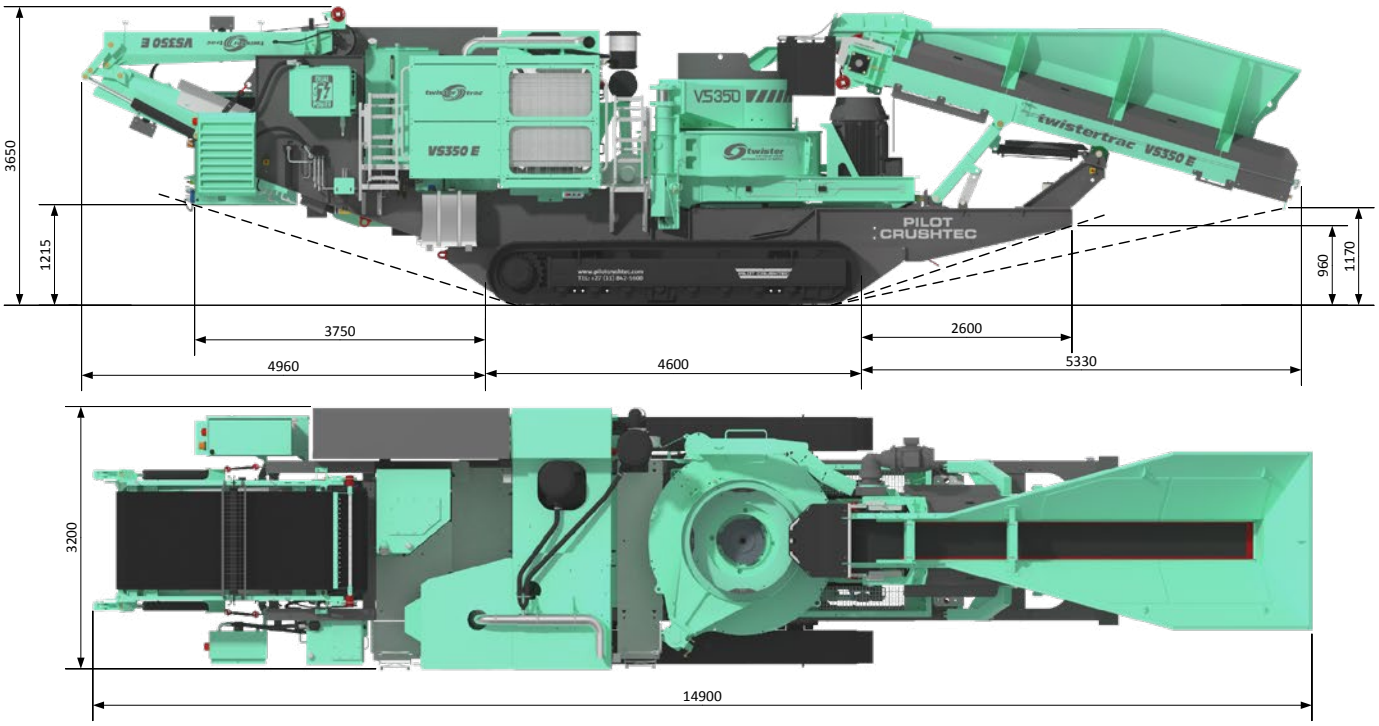
A sufficiently sized and safety engineered rotating jib crane is standard to allow quick, simple and safe rotor replacement. An off the shelf chain block is used to eliminate costly crane components.

TWISTER VS350	MR10 3 Port	SP09 6 Port
Rotor Diameter	1000mm	900mm
Feed Size (Maximum edge length)	50mm	60mm
Feed Size (Passing square mesh screen size)	45mm	50mm
Rotor Speed RPM	1200 - 1680	1200 - 1680
Rotor Throughput	50 - 220 tonnes/hr	50 - 280 tonnes/hr
Cascading System	Up to 400 tonnes/hr	Up to 450 tonnes/hr

Stage 2 (II)	Stage 3 (IIA)	Stage 5 (V)	TIER 4
TWISTER VS350E			
TAD346GE	TAD1355GE	TAD1382GE	Tier 4f
TWISTER VS350H			
TAD1345VE	TAD1353VE	TAD1385VE	TAD1385VE

Notes:
- All tonnages indicate “through-the-rotor” capacity
- All capacities quoted are provided as an application aid only. No performance guarantees are expressed or implied
- Higher and lower capacities can be expected and will depend on many factors including:
  - Type of feed material
  - Shape of the material
  - Size and grading of feed material
  - Size and speed for rotor
- The rotor revolutions and size of the rotor will determine the speed at which the material leaves the rotor
- The higher the rotor speed, the higher the reduction value
- Maximum feed size is indicative and will depend on the type of rock, capacity and grading of the feed material
- All dimensions are provided in millimeters (mm), and weights are expressed in metric tonnes

TRANSPORT DIMENSIONS



SOUTH AFRICA'S LEADING SUPPLIER OF CRUSHING AND SCREENING EQUIPMENT

DUAL POWER

The foundations of Pilot Crushtec were built from our Twister range of Vertical Shaft Autogenous Crushers first introduced in 1990, with rapid development of many technical innovations that still lead the way in VSI crushers today.

The introduction of bolt together modular rotors, hydraulic jacking of the crusher lid, single high powered crusher drives, a tapered rotor mounting shaft, vibration protection and many other innovations as well as the introduction in 2005 of the first tracked VSI globally, has ensured that Twister crushers remain at the forefront of VSI technology.

With a population exceeding 1000 units, users in more than 40 countries continue to use their Twister crushers and enjoy the uninterrupted support of Pilot Crushtec in industries as diverse as sand and aggregate production, mineral processing and glass recycling.

SPEAK TO AN EXPERT

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