CUT TO SIZE plastics

NSW: Cnr. Dursley & Fairfield Roads
Yennora NSW 2161
PH: 02 9681 0400 Fax: 02 9681 0450
sales@cuttosize.com.au

QLD: Unit 1 & 2, 33 Stockwell Place
Archerfield QLD 4108
PH: 07 3276 6700 Fax: 07 3276 6799
qld@cuttosize.com.au

HERCULES ENGINEERING

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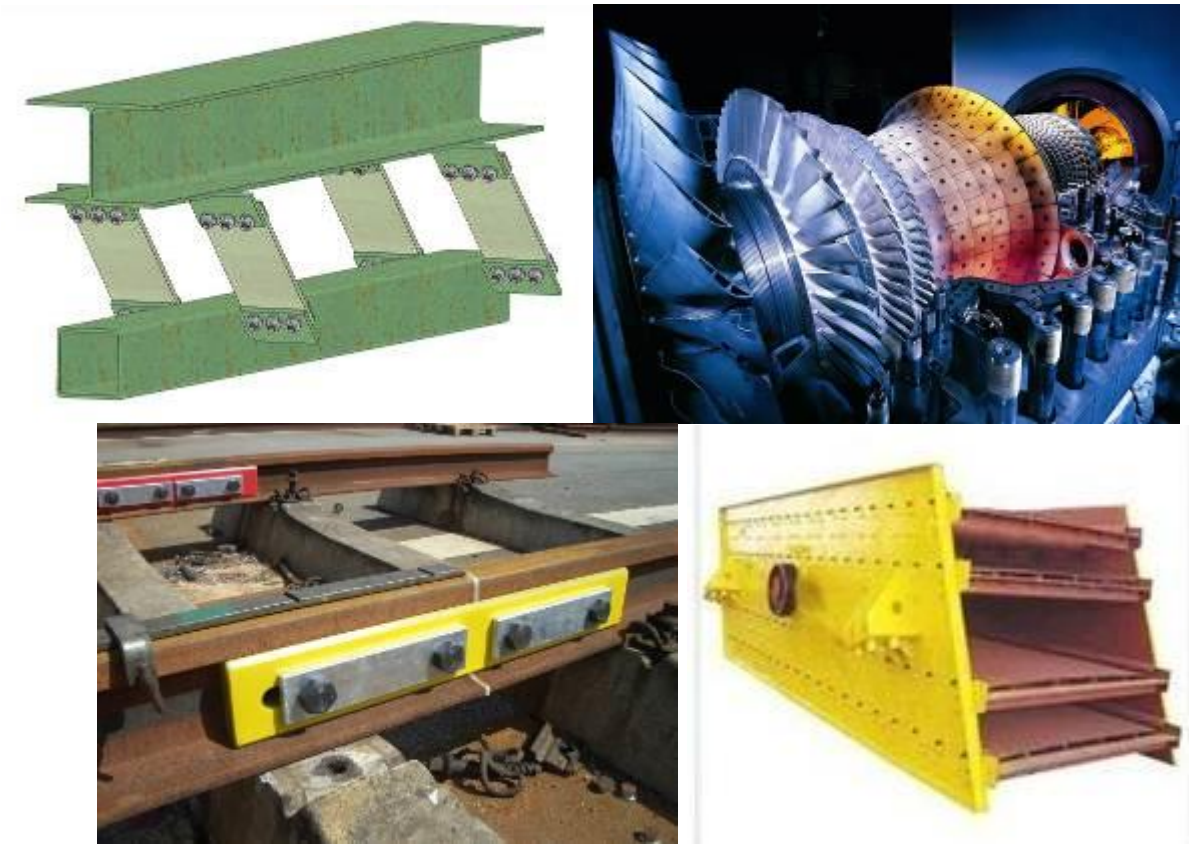
High strength-to-weight and chemically resistant Wearply offers outstanding fatigue life in machinery and plant



Wearply from Cut To Size Plastics is used for applications ranging from vibratory conveyor leaf springs (above left) through to electrical motor, generator and transformer components; insulated rail joints, and minerals processing components.

A hugely durable reinforced plastic composite that weighs less than aluminium but has up to 10 times the specific strength of 1020 steel is being offered by Cut To Size Plastics for

demanding mining and energy, materials handling, electrical and rail applications.

Wearply reinforced plastic composite – which can withstand millions of stress cycles at 1400 bar (20,000 psi) without fatigue failure – is used to optimize design and performance of machinery and plant components in which performance and reliability is vital including.

- Vibratory conveyor, feeder, screening and materials handling technology
- Insulated rail jointing – food and primary product processing
- Flexible couplings that can transmit torque even when shafts are misaligned
- Electrical motor, generating and transformer products

Wearply derives its enormous strength, performance and durability from epoxy resins reinforced with continuously aligned, non-woven filaments. This allows plies to be laid so reinforcement is oriented to give greater strength and stiffness in the direction, or directions, in which it is most needed. Parallel filaments resist the stress abrasion that can shorten the fatigue life in conventional reinforced plastics, says Cut To Size Plastics Managing Director Mr Laurie Green.

“This advanced engineering material is winning the attention of machinery designers globally for its superior performance in a huge range of applications, from vibratory machinery in minerals and primary production processing to its hygienic, highly resilient high insulation properties in food and beverage plant and electrical applications. The same qualities that make it suitable for advanced aerospace and medical applications – such as helicopter blades and MRI equipment – mean it can be employed with confidence in automotive, rail, marine and high-precision tasks where reliability is vital.”

Material advantages include:

- *High strength-to-weight performance, including 50 per cent greater compression strength than 1020 steel and a strength-to-weigh ratio up to 75x 10^6 mm. Aluminium is 45 per cent heavier*
- *High impact strength and low notch sensitivity*
- *High resistance to fatigue, which, combined with other properties such as high dynamic strength, makes the material very suitable for helper, guide and drive springs in swing and screen technology*
- *Longer service life, which, in the case of linear and circular conveyors with magnetic drive, provides longer service life that results in higher outputs for food production, for example*
- *High temperature stability – dry service temperature up to 177 C (350F)*
- *Chemical and corrosion resistance – demonstrated in a wide range of vibratory conveyors, feeders and screening equipment working in aggressive environments. Resistant to cleaning fluids and solvents*
- *Improved electrical resistance – for performance as an electrical insulator in areas such as rail jointing, where it is used in standard, heavy duty and adhesive types, and as a structural high temperature composite in generators and transformers*
- *Damped vibration, noise and shock, qualities which, combined with other material properties, contribute to automotive leaf springs that offer ride smoothness, handling performance, longer life (and freedom from rust).*
- *High elastic storing capacity combined with high mechanical strength, to provide higher resiliency as compared with normal steel leaf springs, higher internal damping, well balanced resilience behaviours and six-fold storage capacity as to elastic energy compared with steel springs. Also used in shock and strut structures*