

FREIGHT TRANSPORT

innovative solutions



Freight transp

As the European leader in railway running gear, Valdunes customises each of its solutions to its customers requirements for safety, speed, economy, comfort and environmental protection. Its high quality, service and ability to innovate have made the company a world-renowned force in the fields of both passenger and freight transport.

AS A RESULT OF FEEDBACK FROM ACTUAL OPERATING CONDITIONS, VALDUNES ARE CONSTANTLY IMPROVING PRODUCT QUALITY FOR THE BENEFIT OF THEIR CUSTOMERS.



PIGGY-BACK UNITS: VALDUNES IS COMMITTED TO INTERMODAL TRANSPORT.

specialist as well as standard products with the same attention to detail and careful observation of international specifications.

VALDUNES: CORPORATE STRENGTH

Today, one of Valdunes' major assets is indubitably its membership of a global group. This privileged position affords:

- mastery of raw material quality through the selection of recognised suppliers including Ascométal, the leader in special steels,
- technical mastery through the pooling of expertise throughout the Group's highly skilled workforce,
- mastery of technological innovation, optimised by the synergy created within the Group,
- economic skill based upon adaptability and responsiveness to customer requirements.

VALDUNES: THE APPROPRIATE SOLUTION

At Valdunes, flexibility and adaptability are the key words for effecting progress. Flexibility in the ability to manufacture small batches or large quantities. Adaptability in the sense that Valdunes' products fulfil their customers' requirements for



FROM THE TUNDRA TO THE DESERT, VALDUNES' WHEELS ARE DESIGNED FOR EXTREME CONDITIONS.

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The areas of technological progress in the field of railway wheels and axles relate principally to improved performance and operational profitability. In the freight sector, wear-resistance, increased axle payloads, loading height considerations, rim displacement and performance under braking, weight reduction of rolling stock and noise-damping of wheels are fields that are at an advanced stage of research and implementation at Valdunes.

From standard products to customised solutions

INCREASING PRODUCT LIFE AND PAYLOAD CAPACITY

To increase the payload, and reduce the pay-back period of freight-cars fitted with our products, Valdunes offers two approaches based on the operating conditions and freight-car design (axle loading). On the basis of these criteria, Valdunes offers wheels,

axles and wheelsets whose geometry and mechanical properties perfectly fulfil the operators' requirements. These advantages are particularly significant in the fields of heavy haul and intermodal transport. Forging near to net shape, closely controlled heat treatment and minimal machining of the quenched zone lead to an extension of the wheel service life.



AN EXAMPLE OF PARTNERSHIP: SMALL DIAMETER WHEELS FOR THE TRANSPORT OF MPVS.

When combined with optimised steel metallurgy, these methods allow wheels to be designed for axle loadings as high as 30 to 40 tonnes, which can be particularly cost effective for freight operators.

IMPROVING THE SAFETY OF MOUNTAIN TRAFFIC

Some extreme operating conditions such as prolonged braking may, due to the thermal stresses induced by the brake shoe, result in deformation and cracking of the wheel. In order to reduce these risks, Valdunes has designed and developed an anti-rim displacement wheel which is capable of absorbing greater braking energy.

Combined with good toughness of the steel, the Valdunes' anti-rim displacement wheel offers improved life cycle costs compares with wheels in terms of tonnes hauled per kilometre travelled.

INCREASING PAYLOAD HEIGHT

Other than significantly modifying freight-car bed design, the most obvious means of increasing available freight-car height is to reduce wheel diameter while maintaining axle load. It is precisely this solution that Valdunes adopted, offering one of its customers, a carrier of MPV's and commercial vehicles, a variant of the wheelsets used for freight traffic in the Channel Tunnel.



Design

Research and development play a vital role at Valdunes. Within the Technical Department, specialist teams work closely with experts in metallurgy, mechanical engineering, acoustics and vibration analysis from research laboratories such as IRSID (Steel Industry Research Institute); CREAS (Special Steels Research Centre), or from universities. The synergy of their expertise accelerates and consolidates the technological progress achieved.





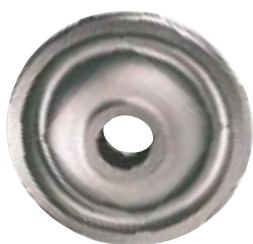
Wheelset for freight-car.
Valdunes also carries out assembly of brake discs and bearings.



Wheel for intermodal traffic.



22^T5 axle for freight cars.



VMS wheel for 25^T axle load.

ADAPTING RUNNING GEAR TO EXTREME TEMPERATURE CONDITIONS

Valdunes offers "cold climate" grade wheels that limit the consequences of loss of adhesion. The sliding of a wheel on the rail, combined with the effect of the load, leads to a metallurgical transformation of the steel at the surface due to thermal reaction which results in spalling. This phenomenon is accentuated in winter when the rail is lubricated by a mixture of snow and ice. The grades of steel recommended by Valdunes withstand large variations in ambient temperature, from -40°C to over -40°C.

REDUCING FREIGHT-CAR NOISE

Noise, the subject of rigorous standards and controls, remains one of the few pollutants created by rail transport. Valdunes offers simple, effective, low-cost solutions to reduce flange squeal caused by wheel vibration due to friction of the flange on the rails when transiting tight curves. Following the introduction of strict noise limits, any significant reduction in wheel noise can help operators by allowing more frequent night operations for freight trains in urban areas, thus increasing productivity. Some noise-damping techniques recommended by Valdunes are patented. Valdunes is also developing appropriate metallurgical solutions to allow a reduction of wheel diameter for certain types of traffic. This has the immediate effect of reducing train noise levels. In conjunction with French and international working groups such as ERRI, Valdunes is playing an active role in the reduction of running noise.

MOUNTAIN SERVICES REQUIRE WHEELS CAPABLE OF WITHSTANDING THE HIGH TEMPERATURES GENERATED BY BRAKING.



VALDUNES ENSURES OPTIMUM PROTECTION OF ITS PRODUCTS

As part of Valdunes' commitment to quality, each wheel coating is selected according to specifications and in-service conditions. Temporary coatings (varnishes and greases) are taken into consideration at the component design stage, and ensure perfect protection up to delivery and final assembly. Other coatings, such as paints or resins, guarantee maximum ongoing protection against mechanical impacts and extreme weather conditions.

On the same principle, the packing of components produced and supplied by Valdunes is designed to suit the individual user's transport and assembly arrangements. According to customer requirements, Valdunes supplies its components loose, on pallets, in crates or in reusable racks. This customised approach is complemented by refined logistics, lead times optimised by means of a synchronous flow management system, and particularly efficient after-sales service.

 **VALDUNES**

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