



## Relative Bulk Strength

80

140

180

# 4D™ BULK SYSTEMS THE NEW DIMENSION IN BLASTING

Utilising emulsions blended with ammonium nitrate porous prills, 4D™ supports both pumped and augered loading methods, ensuring greater productivity and reduced cost.

Combining Orica's emulsion chemistry, smart Mobile Manufacturing Unit (MMU™) capability and process control, the revolutionary 4D™ bulk system enables customers to apply a greater range of energy matched explosives across wet, dewatered and dry blastholes in real-time.

[orica.com/4D](https://orica.com/4D)



# 4D™ CUSTOMER BENEFITS



## MATCH ENERGY TO ROCK STRENGTH<sup>1</sup>

Enables up to 43% reduced energy for soft rock applications and up to 23% increased energy for hard rock application, as well as enabling technical applications such as wall and vibration control.



## INCREASE PRODUCTIVITY

Increases productivity through optimised fragmentation with a greater range of energy matched explosives.



## REDUCE DRILL AND BLAST COSTS

Improves cost efficiency and flexibility through enhanced energy control in soft ground.



## REDUCE FUME RISK

Further reduces fume risk by better matching explosive energy to rock strength and improving product sensitivity.

# ENABLING TECHNOLOGIES

4D™ is delivered through our range of smart and advanced explosives delivery systems. Integration with our suite of BlastIQ™ digital blast optimisation technologies will further enable customers to maximise blast control and efficiency and operational cost and productivity with a comprehensive understanding of the geology and blasthole conditions.



To learn more about 4D™ and how it can support your operations, contact your local Orca representative or visit [orca.com/4D](http://orca.com/4D)

<sup>1</sup> Disclaimer: The explosive effective energy relative to ANFO with a density of 0.8 g/cm<sup>3</sup>. ANFO has an effective energy of 2.30 MJ/kg. Energies are calculated using Orca's proprietary theoretical iDeX computer code under ideal detonation conditions, with a 100MPa cut off pressure. Other computer codes may give different values. Actual energy values depend upon the conditions of use including the prevailing geological ground conditions, the diameter of the borehole and the degree of confinement.

© 2021 Orca Group. All rights reserved. All information contained in this document is provided for informational purposes only and is subject to change without notice. Since the Orca Group cannot anticipate or control the conditions under which this information and its products may be used, each user should review the information in the specific context of the intended application. To the maximum extent permitted by law, the Orca Group specifically disclaims all warranties express or implied in law, including accuracy, non infringement, and implied warranties of merchantability or fitness for a particular purpose. The Orca Group specifically disclaims, and will not be responsible for, any liability or damages resulting from the use or reliance upon the information in this document.

The word Orca and the Ring device are trademarks of Orca Group Companies.

