

James Walker

Devlon® engineered thermoplastic components



ROV buckets for the oil and gas industry

Issue 1

Innovative Thermoplastic Engineering



Devlon® ROV buckets

Devlon® ROV buckets, manufactured in Devlon® V-API, provide docking, torque reaction, alignment and socket mating for ROV-deployed rotary tools and connectors.

Commonly fitted in applications including:

- Valve panels on subsea equipment such as trees, manifolds, control modules and templates
- Subsea jumpers and connectors
- Valves for actuation
- Surface and subsea torque verification units

Component design

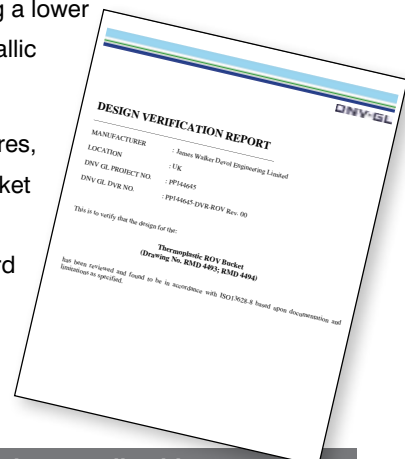
James Walker manufactures two main Class 4 bucket designs as standard, with a variety of mounting configurations available.

Alternatively, James Walker can assist in the design, manufacture and testing of customer-specific requirements.



Benefits of Devlon ROV buckets

- Weight reduction - ease of assembly
- Cost competitive
- Low maintenance through zero corrosion and reduced risk of damage
- Minimises marine growth
- No welding or coating certification required
- Qualified and tested to a design life of 30 years
- Fully recyclable and offering a lower carbon footprint than a metallic equivalent part
- DNV validated test procedures, material properties and bucket designs conform to the BS EN ISO 13628-8 standard



Devlon®

Devlon® materials are amongst the toughest and hardest wearing thermoplastics available. Produced by monomer casting, our materials provide a comprehensive range of wear resistance, impact strength and toughness.

Devlon materials are light-weight for ease of handling and installation and offer long operational life and reduced maintenance requirements in many applications.

Devlon V-API in particular is commonly used in subsea applications due to its superior mechanical properties and low moisture uptake giving good dimensional stability.

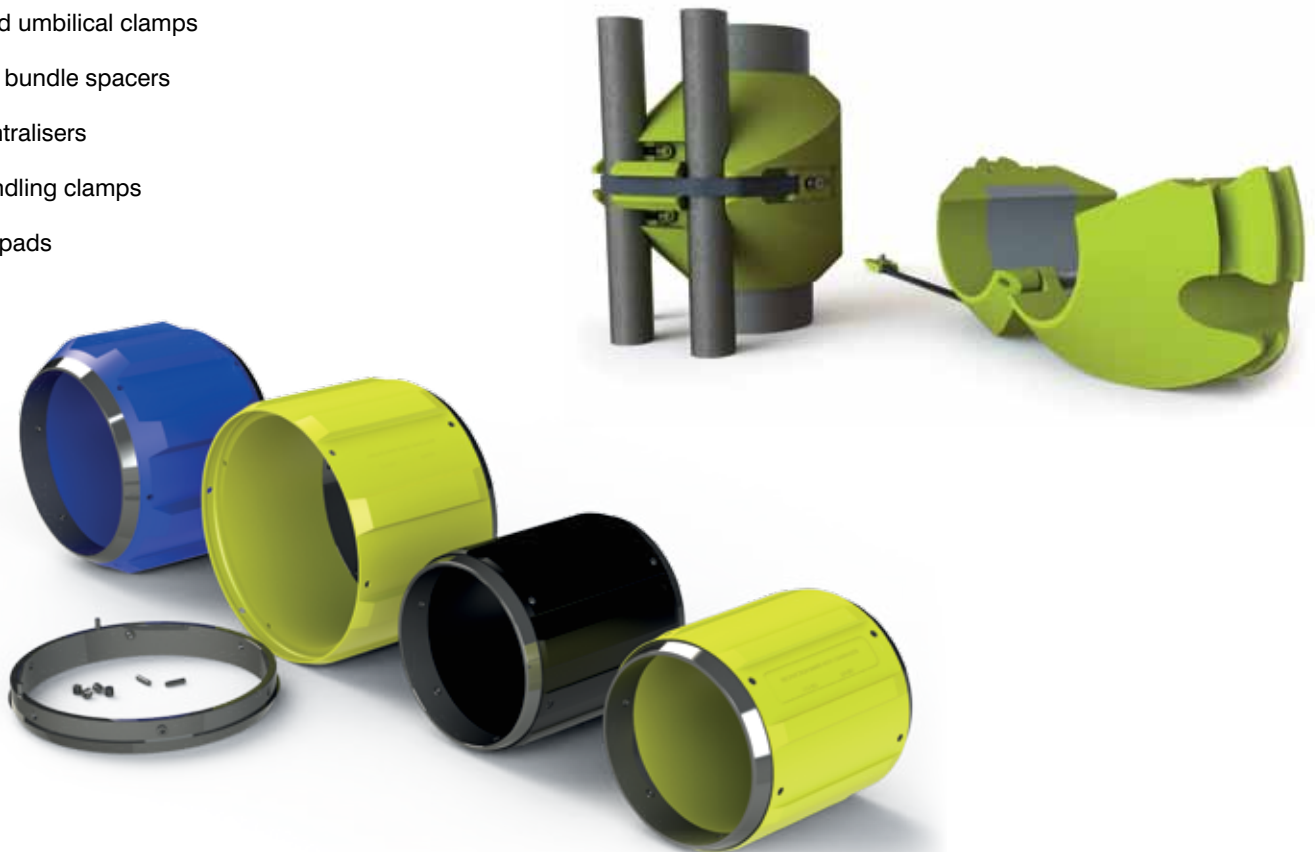
This material offers several advantages when compared with components manufactured in metal, including a significant weight saving opportunity, no need for coating and reduced maintenance through zero corrosion.

A further benefit to using Devlon V-API is the simplified supply chain, with all manufacturing and testing processes undertaken in-house at James Walker.

Typical offshore applications for Devlon® V-API

James Walker has been serving the global oil and gas industry for over 20 years. Our Devlon materials have been long proven in subsea applications including:

- Valve seats
- Riser and umbilical clamps
- Flowline bundle spacers
- Pipe centralisers
- Pipe handling clamps
- Tension pads



Materials and testing

To fully appreciate the significant weight saving opportunities offered by Devlon® ROV buckets, the following table compares the weight of our standard square-faced design manufactured in Devlon® V-API with the most common metal alternatives.

| | GR43 STEEL | TITANIUM | ALUMINIUM | DEVLON® V-API |
|--------------------------|------------|----------|-----------|---------------|
| Weight in air (kg) | 30.5 | 17.6 | 10.97 | 4.46 |
| Weight in sea water (kg) | 26.5 | 13.6 | 6.97 | 0.46 |

Testing and qualification

As part of our rigorous product development programme, our two standard bucket designs were tested to BS EN ISO 13628-8:2006*.



Testing highlights

- Capability to operate at over 3 times the required torque in relation to BS EN ISO 13628-8:2006
- Operating temperature range in line with BS EN ISO 13628-8:2006 (-15°C to +45°C)
- Qualified design life of 30 years
- Proven to withstand ROV FLOT impacts

The following tests were carried out in line with BS EN ISO 13628-8:2006:

- Torsion
- Hot Torsion
- Cold Torsion
- Drop Impact

In addition, James Walker also carried out the following tests:

- Pullout
- Cyclic Torsion
- Torsion Failure

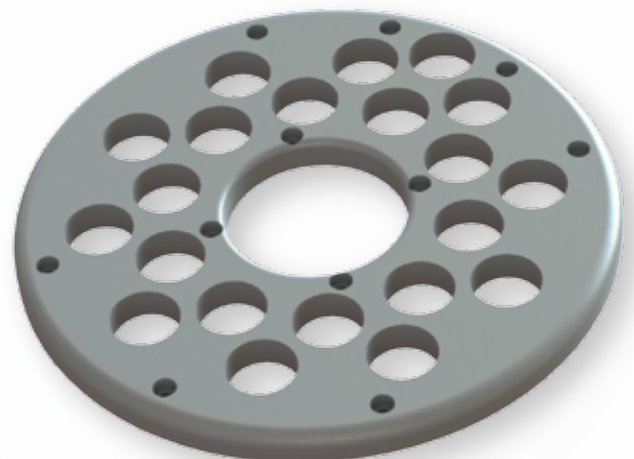
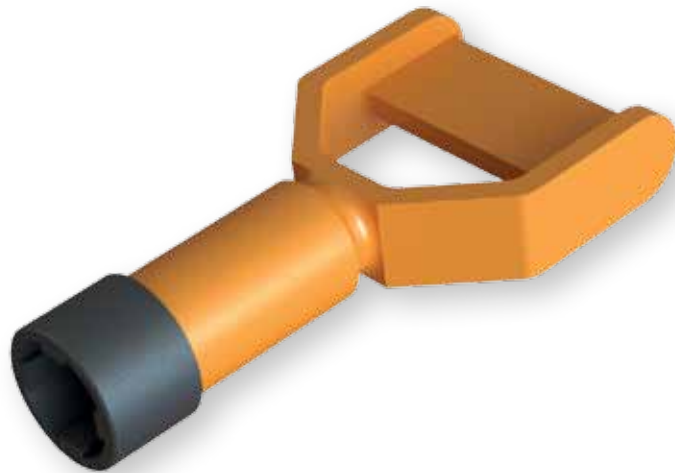


* incorporating elements from API-17D and API-17H

Associated products

In addition to manufacturing a range of associated ROV products to standard or custom designs, James Walker offers development, testing and manufacture of bespoke components and sub-assemblies to customer specifications.

- Dummy stabs
- Handles
- Stab plates
- Nose cone & guides
- Protective covers - including debris caps & transit covers
- Impact panels
- Parking stands
- Engineered sub-assemblies
- Other receptacles



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To ensure you are working with the very latest product specifications, please consult the relevant section of the James Walker website: www.jameswalker.biz.

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