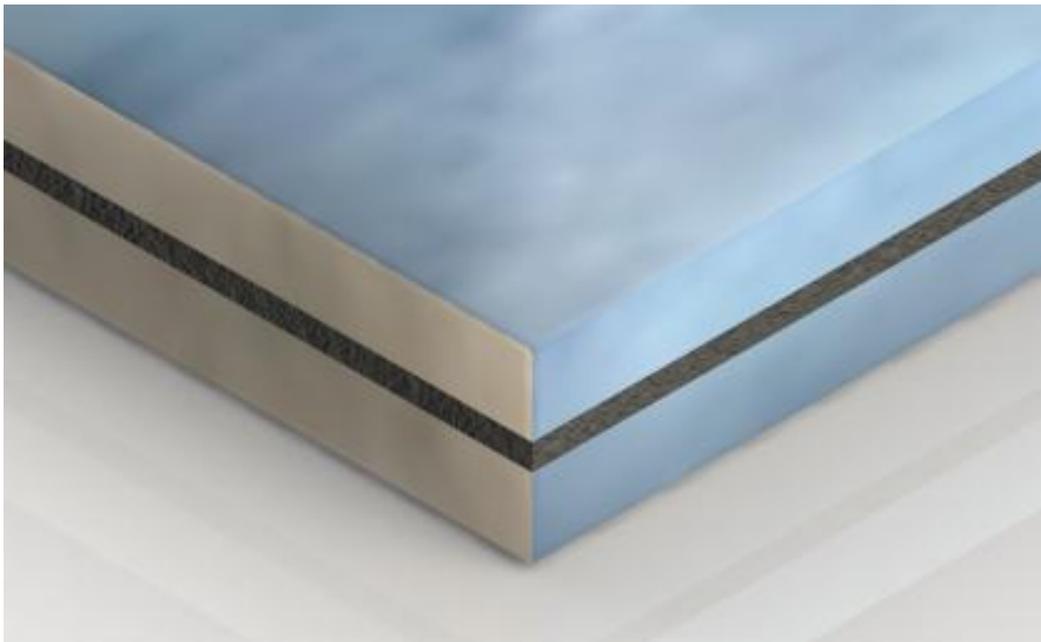


buildings and major commercial, industrial and public buildings and structures throughout Australasia and the Asia-Pacific.

Hercules' range of HGSJ and HSSJ Grease Slip Joints is deliberately tailored to the needs of the construction market as the essence of simplicity, says Mr David Booty, Manager, Hercules Engineering (a division of Cut To Size Plastics).

“It's horses for courses when it comes to the preferences of architects, engineers and specifiers, who select technologies in terms of efficient construction, versatility and durability. Specifiers of these cost-efficient slip joints get exactly what they need and don't have to pay for performance features they don't want,” says Mr Booty, who has more than 30 years' experience in specifying slip joints and bearings, including high performance types.

Unlike Hercules' more sophisticated HSC, the HGSJ and HSSJ types are not required to accommodate sliding face rotation of supported structures or to evenly distribute their weight. Grease slip joints are also typically not a slip joint from which permanent performance is required, but rather one that can be used under cast-in-situ concrete slabs and structural components to accommodate +/- 5mm movement as the structure settles and cures after construction.



A typical HGSJ or HSSJ slip joint

The slip joints (above) consist of a sandwich comprising two layers of 0.55mm thick galvanized steel or stainless steel with molybdenum grease in-between for sliding properties and protection of sliding surfaces. Bound strongly together by industrial tape, either galvanized steel or Grade 304 Stainless Steel is used for the regular slip joints, while Grade 316SS is used in modified types for applications near the water or for the use in corrosive environments.

“Grease slip joints are simply designed to accommodate interim expansions and satisfy the linear single-plain sliding movement requirements, as opposed to the versatile, long design life and ongoing reliability of composite slip joints incorporating layers of high-performance engineering plastics and other high grade materials.

“They do the job they are required to do during the construction and finishing phase, after which their slip performance is no longer required and they become part of the integrated structure. Their huge pluses are cost-efficiency, simplicity and durability – they can be drilled to accommodate positioning dowels to lock a slab, for example - a process that would fracture and destroy more elaborate and expensive joints.”

Recent applications where they have excelled include health care applications, where they have been incorporated into retirement village construction. Other applications include car parks and high rise apartments. Cavity bridge types (below) are also available where precision slab positioning is required.



Cavity bridge type

Design specifications recommended include

- Coefficient of friction* 0.04 (Zinc-Zinc) - 0.16 (Steel-Steel)
- Expansion capacity ± 2 to ± 5 mm
- Recommended contact stress** 100 – 150MPa
- Operating Temperature Range -25°C to $+120^{\circ}\text{C}$ (peak $+130^{\circ}\text{C}$)
- Dropping Point for Grease $+175^{\circ}\text{C}$

Hercules Engineering has provided a broad range of long-lasting slip joints and structural bearings for use in structures as diverse as the Sydney Opera House, the Hang Seng bank in Hong Kong, Australia’s New Parliament House in Canberra and the world’s largest copper mine, Kansanshi, in Zambia.

The company has just released a new technical brochure ([see here](#)) which includes recommended slip joint solutions for optimum cost-efficiency and durability for buildings ranging from hospitals, health care structures and shopping centres, car parks, transport terminals, office towers and warehouses through to factories, storage tanks, silos, boilers and industrial and resources plants.