INDAC
INNOVATIVE DESIGN AND CONSTRUCTION

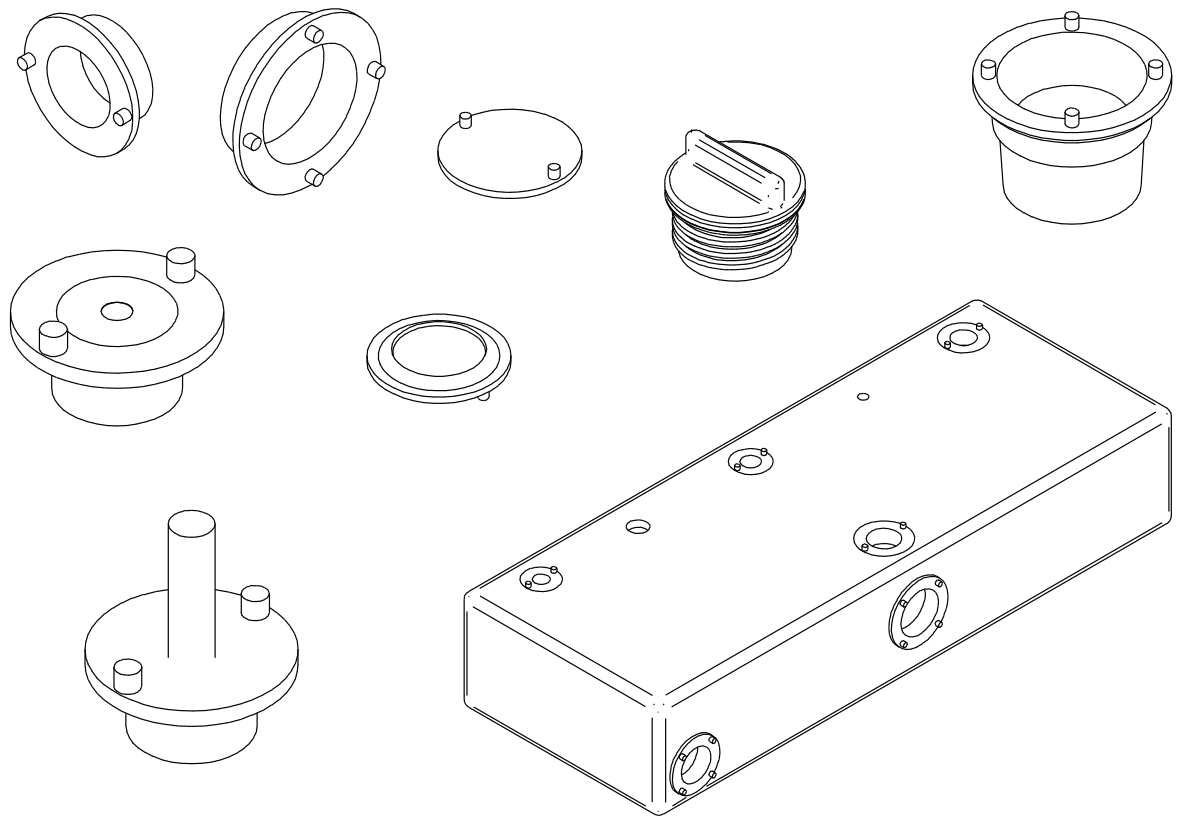
Indac Products and Services For Industry

- **Spinweld Caps**
- **Spinweld Cap Test Patch**
- **Spinweld BSP Threaded Fittings**
- **Spinweld 90mm and 100mm Two Start Thread**
- **Spinweld Male 2-inch BSPT Threaded Fitting**
- **Spinweld Male 2-inch BSPT Barrel Nipples**
- **Buttress Style Threaded Spinweld and Bung**
- **Spinweld Breather**
- **Router Bits and Driver Disk**
- **BSP Plugs**
- **Spigot 1 ½" BSP**
- **Spin – Slick**
- **Wallace Seals**
- **RJT Caps**
- **Indac Chest Handles**
- **Supavent Venting System**
- **Indac Aquaseal System**
- **Specialty Spinweld Fittings**
- **Custom Injection Moulding Design**
- **Custom Injection Moulded Products**

info@indac.co.nz www.indac.co.nz
NZ Freephone 0800 803 888 Freefax 0800 274 467
Australia Freephone 1800 553 055 Freefax 1800 553 550
PO Box 378, 24 Stuart Street, Blenheim New Zealand 7240

INDAC
INNOVATIVE DESIGN AND CONSTRUCTION

Take our Product for a Spin



Spin Weld Fittings for the Rotomoulding Industry

For further information or a product catalogue please contact us

Unless otherwise expressed all Prices exclude GST and freight. Prices are subject to change without notice.
All material used in rotationally moulded product is UV resistant suitable for NZ & Australian conditions.
All reference to size are nominal. info@indac.co.nz www.indac.co.nz
NZ Freephone 0800 803 888 Freefax 0800 274 467
Australia Freephone 1800 553 055 Freefax 1800 553 550
PO Box 378, 24 Stuart Street, Blenheim New Zealand 7240

INDAC
INNOVATIVE DESIGN AND CONSTRUCTION

Spinweld Fittings

Need a Thread in your Moulding, Use a Spinweld Threaded Fitting

- ✓ SAVE TIME
- ✓ SAVE ON TOOLING COSTS
- ✓ REDUCE MOULD LOADING TIMES
- ✓ SAVE ON REJECT PRODUCT
- ✓ IMPROVED DESIGN FREEDOM
- ✓ PERMANENT FITTING
- ✓ NO LEAKS
- ✓ HIGH DEFINITION THREAD

Need to cover a hole in your Moulding, Use a Spinweld Cap

- ✓ PERMANENT SEAL
- ✓ SAVE TIME
- ✓ SAVE ON REJECT PRODUCT
- ✓ NO LEAKS
- ✓ EASY TO REPAIR PRODUCT

info@indac.co.nz www.indac.co.nz
NZ Freephone 0800 803 888 Freefax 0800 274 467
Australia Freephone 1800 553 055 Freefax 1800 553 550
PO Box 378, 24 Stuart Street, Blenheim New Zealand 7240

INDAC
INNOVATIVE DESIGN AND CONSTRUCTION

Rotomoulded Spinweld Fittings

Produced from medium density polyethylene rotomoulding powder.

Vent Caps can be used for sealing vent tube holes in products, sealing, filling or venting holes when using PU foam, sealing holes in product which have been put in the wrong place etc.

Threaded fittings can be used to produce a threaded hole in a product at the post moulded stage. This avoids the difficulty experienced when moulding in fine threads, and the necessity of having easily damaged inserts for moulding in threads.

Spinweld fittings are fitted to the product using a router and special tool for spinning the fitting. The fitting is placed in a hole and lightly pressed against the product: the router is turned on and friction melts the contact faces. The result is a homogenous weld.

The fitting can be left proud of the product or can be embedded.

For router sizes, speeds, and settings please refer to ‘Router Settings’ chart.

It takes approximately 4 to 5 seconds to spin weld in a fitting dependant on whether you wish to embed the fitting in the product or leave it proud.

Our experience has shown us that it is possible to spin weld fittings to product with wall sections ranging from 3mm to 15mm+.

INDAC can design and manufacture a spinweld fitting to meet your needs including:

Stainless steel threads or threaded studs, all types of threads or fittings

Coloured fittings

Please contact us to discuss your requirements.

Visit Our Website www.indac.co.nz

INDAC
INNOVATIVE DESIGN AND CONSTRUCTION

Installation of Spinweld Fittings

Spinwelding is the term used for the method of friction welding circular plastic fittings into plastic tanks. To achieve a friction weld it is necessary to rotate one face of the fitting against the tank surface so that enough heat is generated to allow fusion of the fitting to the tank.

Finding the correct method of spinning the fitting often results in a compromise situation. The piece of equipment used to rotate the fitting has to have enough power to keep the fitting rotating whilst the friction is increasing. The use of wood working routers is the standard method for installing spin weld fittings, the routers are held so that only a light pressure is applied to the fitting and the liquefied plastic acts as a lubricant until enough heat is generated where upon the router is stopped and pressure applied to bed in the fitting. The extruded molten plastic spreads out and **Spin Slick** is used to prevent contamination of the surfaces.

The routers used vary from 1000 watts to 2300 watts. The smaller routers run at 24,000 rpm but when applying a spinweld this speed can drop to 15,000 to 18,000 rpm due to the frictional load. These machines must be able to withstand the over load applied to them and should only be used to install the small fittings ½" BSP and ¾" BSP and the range of spinweld caps up to 65 mm.

The larger router must be a speed-controlled router and it should be run on the lowest possible speed to achieve the best spinweld characteristics. As the diameter of the fittings increases so does the peripheral speed and so the router must be slowed. This is where the compromise must be made since the slower the router speeds the lower the torque of the motor and likelihood of it stalling increases. To prevent this happening, it is customary for the motor speed to be increased to raise the torque value. This can result in difficulty in applying large spinwelds. It is best to maintain the lower speed and reduce the pressure on the fitting so that that speed builds up.

Equipment for installation of spinwelds.

1. Makita RP0900X1 router ¼". 24,000 rpm. (1/4" Diameter Shaft Router Bit)
2. Makita RP2301FC router ½ ". 9,000 – 20,000 rpm. (1/2" Diameter Shaft Router Bit)
3. Bosch GWS 14-125 angle grinder. 2,800 – 11,000 rpm (a special driver bit needed).

Indac is developing a high torque driver. This is a specialist machine that has a 150% overload capability and will operate at lower speeds giving more control in the application of large spinwelds. 0 – 7,000 rpm constant torque driver for spinwelds 1" BSP to 100mm Two Start and Test Patch Caps.

info@indac.co.nz www.indac.co.nz
NZ Freephone 0800 803 888 Freefax 0800 274 467
Australia Freephone 1800 553 055 Freefax 1800 553 550
PO Box 378, 24 Stuart Street, Blenheim New Zealand 7240

INDAC
INNOVATIVE DESIGN AND CONSTRUCTION

Spinweld Fitting Procedure

1) Mark out Position Spinweld Fitting is to be placed in.

2) Drill correct hole size for fitting. Refer to attached page for hole saw sizes.

3) Deburr edges of the hole do not remove material from hole as this may result in the hole being too large for the fitting.

4) Check that the fitting fits into the hole and has approx 0.5 - 1mm of clearance around the fitting.

5) Use the fitting as a mask and apply spin-slick to the area around the fitting. This will stop the molten excess material produced during spin welding adhering to the moulded product and make clean up much easier.

   If the hole is too large this will result in the fitting being difficult to control when spinning and will also result in a lack of contact area between the fitting and the product thus giving a poor weld.

   If the hole is too small this will result in increased friction, which can cause the following two faults.

   a) **Reduction of speed in the router**, which will result in a lack of heat between the two parts being welded, thus, giving a poor weld, which is likely to fail.

   b) **The fitting trying to adhere** to the product around its outside diameter rather than on the actual weld faces, thus giving a poor weld, which is likely to fail.

6) If the fitting is tight in the hole remove some more material from the hole using a deburring tool, do not remove too much.

7) Using the correct Spinweld tool in the router place the fitting onto the tool, check the router setting is correct. **Refer to the 'Router Settings Chart'.**

8) Hold the fitting in the hole in the product and start the router, let the router float giving minimum downward pressure (see note below). This will generate friction and heat. This occurs quickly: approximately within 4-5 seconds. **(Refer to the 'Router Settings Chart').** Once the fitting has penetrated far enough into the product, stop the router and apply pressure on the fitting until the weld has cooled.

Note!! Only minimal pressure from the operator is required. If the fitting is pushed into the product too quickly this will cause the router to slow down and result in a lack of friction. This will result in a poor weld, which is likely to fail.

info@indac.co.nz www.indac.co.nz
NZ Freephone 0800 803 888 Freefax 0800 274 467
Australia Freephone 1800 553 055 Freefax 1800 553 550
PO Box 378, 24 Stuart Street, Blenheim New Zealand 7240

INDAC
INNOVATIVE DESIGN AND CONSTRUCTION

Router Settings

Product Size	Router Capacity in Watts	Recommended RPM	Recommended Welding Time	Recommended Rest Time at end of Welding
1/2" BSP	1200 Watts	24,000 RPM	4.5 Seconds	4 Seconds
3/4" BSP	1200 Watts	24,000 RPM	4.5 Seconds	4 Seconds
1/2" BSP	2300 Watts with Electronic Brake	9,000 RPM	3.5 Seconds	4 Seconds
3/4" BSP	2300 Watts with Electronic Brake	9,000 RPM	3.5 Seconds	4 Seconds
1" BSP	2300 Watts with Electronic Brake	9,000 RPM	4.5 Seconds	4 Seconds
11/4" BSP	2300 Watts with Electronic Brake	9,000 RPM	4.5 Seconds	4 Seconds
11/2" BSP	2300 Watts with Electronic Brake	9,000 RPM	4.5 Seconds	4 Seconds
2" BSP	2300 Watts with Electronic Brake	9,000 RPM	4.5 Seconds	4 Seconds
3" BSP	2300 Watts with Electronic Brake	9,000 RPM	5 Seconds	4 Seconds
100mm Two Start Thread	2300 Watts with Electronic Brake	9,000 RPM	5 Seconds	4 Seconds
2" Buttress Style Drain	2300 Watts with Electronic Brake	9,000 RPM	4.5 Seconds	4 Seconds
Spinweld Male 2" BSPT Threaded	2300 Watts with Electronic Brake	9,000 RPM	4.5 Seconds	4 Seconds
Spinweld Cap Test Patch	2300 Watts with Electronic Brake	9,000 RPM	3 Seconds	4 Seconds
S/Weld Cap 0-15mm	1200 Watts	24,000 RPM	2.5 Seconds	3 Seconds
S/Weld Cap 15-25mm	1200 Watts	24,000 RPM	2.5 Seconds	3 Seconds
S/Weld Cap 25-35mm	1200 Watts	24,000 RPM	2.5 Seconds	3 Seconds
S/Weld Cap 35-45mm	1200 Watts	24,000 RPM	2.5 Seconds	3 Seconds
S/Weld Cap 45-55mm	1200 Watts	24,000 RPM	2.5 Seconds	3 Seconds
S/Weld Cap 55-65mm	1200 Watts	24,000 RPM	2.5 Seconds	3 Seconds
Spinweld Breather	1200 Watts	24,000 RPM	2.5 Seconds	3 Seconds

info@indac.co.nz www.indac.co.nz
NZ Freephone 0800 803 888 Freefax 0800 274 467
Australia Freephone 1800 553 055 Freefax 1800 553 550
PO Box 378, 24 Stuart Street, Blenheim New Zealand 7240

INDAC
INNOVATIVE DESIGN AND CONSTRUCTION

Recommended Hole Saw Sizes

1) Code: XSWT12, 1\2" BSP Threaded Spinweld Fitting
   Recommended Hole Saw Size = 32mm

2) Code: XSWT34, 3\4" BSP Threaded Spinweld Fitting
   Recommended Hole Saw Size = 35mm

3) Code: XSWT1, 1" BSP Threaded Spinweld Fitting
   Recommended Hole Saw Size = 41mm

4) Code: XSWT114, 1 1\4" BSP Threaded Spinweld Fitting
   Recommended Hole Saw Size = 51mm

5) Code: XSWT112, 1 1\2" BSP Threaded Spinweld Fitting
   Recommended Hole Saw Size = 57mm

6) Code: XSWT2, 2" BSP Threaded Spinweld Fitting
   Recommended Hole Saw Size = 70mm

7) Code: XSWT3, 3" BSP Threaded Spinweld Fitting
   Recommended Hole Saw Size = 98mm

8) Code: XSWSWO90, Spinweld 90mm Two Start Thread
   Recommended Hole Saw Size = 108 mm

9) Code: XSWTT100 Spinweld 100mm Two Start Thread
   Recommended Hole Saw Size = 133mm

10) Code: XSWBSPTM2, 2" BSPT Male Threaded Spinweld Fitting
    Recommended Hole Saw Size = 51mm

11) Code: XSWBSPTF2, 2" BSPT Female Threaded Spinweld Fitting
    Recommended Hole Saw Size = 70mm

12) Code: XSWD, Buttress Style Threaded Drain Spinweld Fitting
    Recommended Hole Saw Size = 70mm

13) Code: XSWCPTP, Spinweld Cap Test Patch
    Recommended Hole Saw Size = 127mm

14) Code: XSWB349, Spinweld Breather 34mm x 0.93mm Mesh
    Recommended Hole Saw Size = 40mm

info@indac.co.nz www.indac.co.nz
NZ Freephone 0800 803 888 Freefax 0800 274 467
Australia Freephone 1800 553 055 Freefax 1800 553 550
PO Box 378, 24 Stuart Street, Blenheim New Zealand 7240

INDAC
INNOVATIVE DESIGN AND CONSTRUCTION

Spinweld Product Data Sheet

INDAC Spinwelds are produced from Rotational Grade Linear medium density polyethylene

The Indac Ltd range of spinweld fittings contains a fully formulated long term UV stabilisation package.

Food Contact Regulations

The base material used in Indac Ltd Spinwelds are suitable for food contact applications and the material complies with the Australian standard AS2070 parts 1 and 8 as well as the requirements of FDA CFR 21 177.1520 for further details contact your Indac representative.

Base Material Physical Properties:

Property	Value	SI Units	Test Method
Melt Index (MFI)	6.0	g/10 min	ASTM D 1238
Nominal Density	0.930	g/cm^3	ASTM D 1505
Flexural Modulus	550	MPa	ASTM D 747
Tensile Yield Strength 50mm / min	16	MPa	ASTM D 638
Elongation 50mm / min	1050	%	ASTM D 638
Shore Hardness	66	Shore D	ASTM D 2240
Softening Point (Vicat)	112	^0C	ASTM D 1525
ESCR F50 100% Igepal	>1000	Hrs	ASTM D 1693
Arm Impact Strength (3.2mm Rotomoulded Sample @ -40^0C)	73	Ft.lb	Arm Method

Note: Data shown are average values for the base material and should not be used for specification limits.

The information set out above is based on data provided by our suppliers. The data has been used in good faith and no responsibility can be accepted by us for its accuracy or for any claims or proceedings (including direct or indirect consequences arising from any claims or proceedings) or any direct or indirect loss or damage arising from the inaccuracy, use of or reliance upon this information. To the extent permitted by law, all warranties, representations, conditions, whether expressed or implied by law, trade, custom, or otherwise in respect of this information are also expressly excluded.

info@indac.co.nz www.indac.co.nz
NZ Freephone 0800 803 888 Freefax 0800 274 467
Australia Freephone 1800 553 055 Freefax 1800 553 550
PO Box 378, 24 Stuart Street, Blenheim New Zealand 7240

INDAC
INNOVATIVE DESIGN AND CONSTRUCTION

Spinweld Product Material Safety Data Sheet

INDAC Spinwelds are produced from Rotational Grade Linear Medium Density Polyethylene

Health Hazards:
The product is not classified as a dangerous preparation (EEC)
Prolonged inhalation of high doses of decomposition products can give a headache or irritation in the respiratory system

Environmental Hazard:
The product is not considered dangerous for the environment

Fire Hazard:
The product burns but is not classified as flammable.
Flash point approximately 360^0C

Fire Fighting:
Water in a spread jet, dry chemical, foam and carbon dioxide can be used.

Handling:
During application of fittings and thermal treatment of the product small amounts of volatile substances, hydrocarbons may occur. These should not be inhaled but ventilated away.

Waste:
The product can be used as landfill or incinerated. Check local regulations!
Proper combustion does not require special exhaust control technology.

Information:
If information is required regarding this product contact your Indac representative.

Note: Data shown are average values for the base material and should not be used for specification limits.

The information set out above is based on data provided by our suppliers. The data has been used in good faith and no responsibility can be accepted by us for its accuracy or for any claims or proceedings (including direct or indirect consequences arising from any claims or proceedings) or any direct or indirect loss or damage arising from the inaccuracy, use of or reliance upon this information. To the extent permitted by law, all warranties, representations, conditions, whether expressed or implied by law, trade, custom, or otherwise in respect of this information are also expressly excluded.