

HARNESSEFLEX CUSTOMER CASE STUDY

Harnessflex® Specialist Conduit Systems

Providing robust cable and connector protection for agricultural sprayers

Harnessflex®
SPECIALIST CONDUIT SYSTEMS



Harnessflex® Specialist Conduit Systems

provide robust cable and connector protection for Househam Sprayers
Agricultural machinery

Househam Sprayers is a self-propelled crop sprayer manufacturer, incorporating advanced technology that help growers to maximise performance, efficiency and productivity.



Househam Sprayers have been creating innovative new solutions incorporating groundbreaking new technologies. All based on the same principle: advanced sprayers that help their customers to achieve better crops.



Equipped with

VFP

Vibration Friendly Profile (VFP) Harnessflex® conduit systems.

They have been using a large variety of Harnessflex® Specialist Conduit Systems on the electrical systems for their crop sprayers for well over 15 years. To find out more, the ABB Installation Products team spoke to Alex Fisher from Househam Sprayers.

The Requirement

With Househam Sprayers' machines being agricultural equipment, they are often exposed to the worst conditions imaginable, with only limited steel protective covers fitted to allow good serviceability. This means in a lot of areas on the machine, the electrical harnesses are bundled with their hydraulic water hoses for routing purposes, meaning they are normally exposed.



01



01 A fully assembled wiring harness used on the Househam Sprayers' machines, created entirely from Harnessflex® conduits, fittings and connector interfaces.

In addition to this, farmers tend to be vigorous in making sure the machine is clean with intense pressure washers. This means the electrical harness must be well protected to stop mud and stones being lodged between the individual cables, preventing them from slowly rubbing and eroding over time.

Furthermore, **Househam Sprayers** are designed to spray chemical mixtures onto fields. So overall, they need a chemical resistant solution that is also robust enough to cope with the demands of the agricultural environment. As the sprayers tend to live outside for 9 months of the year, they must also protect the electrical cables from the degrading effects of UV from the sun, have a high abrasion resistance to the harsh environment and a good fatigue life.

"We have been using Harnessflex® products exclusively for the last 8 years for our exterior wiring loom protection on our machines because of the superior protection and quality their solutions offer."

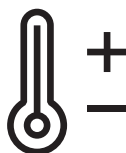
Alex Fisher - Technical Engineer,
Househam Sprayers Ltd.

Harnessflex® conduit systems provide

High
abrasion resistance



UV 
& heat stabilisation
for protection in outdoor
weather conditions.





“We mainly use Harnessflex® NC conduit in various different sizes depending on the wire cluster size. We will also use their CTPA conduit on larger gauge or main power cables to allow it to be as flexible as possible, helping maintain mechanical reliability and fatigue life.”

Alex Fisher - Technical Engineer,
Househam Sprayers Ltd.

Type **TPS+YPS** Harnessflex® hinged fittings



1

Compact design
Reducing distance
between centres.

2

High pull-off strength
Conduit corrugations sit tightly
into joiner junctions.

3

Integral retaining clips
Retains conduit in position
during assembly.



The Solution

ABB **Harnessflex®** is one of the largest ranges of flexible conduits, sealed fittings, hinged connector interfaces and Y&T pieces, anywhere in the global cable protection market. **Househam Sprayers** currently produces over 35 self-propelled crops sprayers a year, each using over:

- 135m of Harnessflex® conduit
- 50 Harnessflex® TPS & YPS Fittings
- 85 Harnessflex® Connector Interfaces

Featuring a unique vibration friendly profile (VFP) as standard, as well as UV and heat stabilisation as standard, **Harnessflex® conduit systems** provide 10-150% greater life expectancy in dynamic or vibrating applications, when compared with other products. This makes them ideal for **Househam Sprayers'** machines, helping to maximise the productivity of the system being protected, whilst minimising the risk of electrical failure.

Alex explains, “We use a lot of **YPS** and **TPS hinged conduit fittings** when we need to spur off the main harness routing or route it cleaner to the chassis steelwork design. Then we use a lot of the Amphenol Sine System AT series plugs for our component connection points. So, a lot of the **Harnessflex® CI08-DT2 connector interfaces** were used throughout to give a clean, waterproof and strain-relieving finish to the key interface points.”



Work on the **ECOSTAR²**

01



01 Harnessflex®
NC conduit system +
Amphenol Sine
System AT series plug
+ CI08-DT2 connector
interface for component
connection points.

When **Househam Sprayers** embarked on making their new machine, the **ECOSTAR²** trailed sprayer, they wanted to have a complete 3D CAD routed machine with all systems modelled and defined before the first build – something they had never done previously.

This kind of request is not uncommon for **Harnessflex®**, as the team will often work closely with many OEMs to develop protection for electrical connectors (a critical area of an engine harness).

Our experienced internal design team uses 3D CAD modelling software to produce various concepts for customer approval. With **Harnessflex's** history of connector interface design and our understanding of customers' requirements, we often produce bespoke designs to integrate electrical connectors into a harness design, which is what we delivered for **Househam Sprayers**.

Alex explains, "With our contacts at **ABB** we were able to get all the necessary 3D models of all the **Harnessflex®** products we wanted to use, ensuring everything was routed exactly where we wanted it."



Harnessflex®
NC

conduit cable protection
for heavy automotive 12V
and 24V systems.



Harnessflex®
CI08-DT2

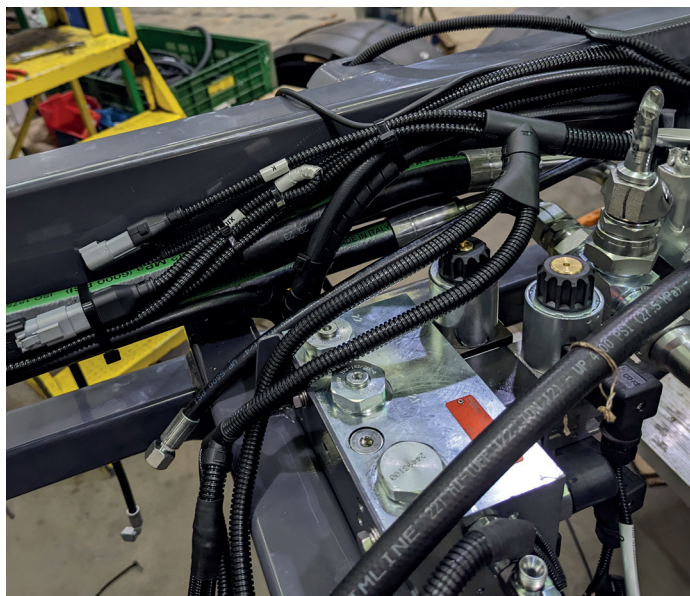
connector interface for Amphenol
Sine System AT series plugs.





“As this machine is aimed at markets in Africa, we had to be confident the looms had the reliability and operated fully within the design space of the mechanical linkage, to survive the harsh climate and road conditions out there.”

Alex Fisher - Technical Engineer,
Househam Sprayers Ltd.



The **ECOSTAR²** is a trailed sprayer which means it has three looms - a Power Adapter Loom (dependent on Tractor), Controller Harness and the Sprayer Harness. Overall per trailed machine, **Househam Sprayers** have used over 36 meters of **NC conduit** in various sizes, 19 **YPS** and 5 **TPS hinged conduit fittings** and 12 **CI08-DT2 connector interfaces** to Amphenol AT06-2S connectors. This amount is roughly 1/4 the amount used on the larger self-propelled machine of which they are producing around three per month.

Alex explains, “This not only improved the efficiency of the loom design but also allowed us to have the necessary fixings on the steelwork exactly where the loom needed it, helping us to secure it in the best possible way.”

“It is great to see the high standard of engineering the team at **Househam Sprayers** work towards, along with the understanding of the importance of the protection of electrical systems” says Jack Semmonds, Technical Sales Specialist in **ABB's Harnessflex® team**.

“Supporting with CAD models allowed for validation at the design stage and the suggested back shells for correct cable routing was particularly important for the machine due to the operating environment. This ensured the machine was robust and reliable for the end user/operator.”



Harnessflex® conduit systems are designed to provide

10-150%

Greater life expectancy in dynamic or vibrating applications.



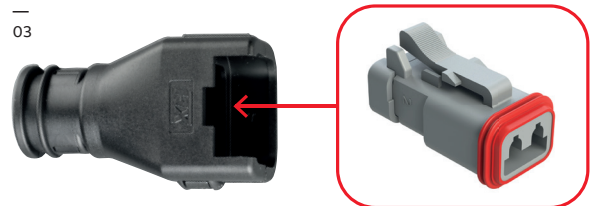
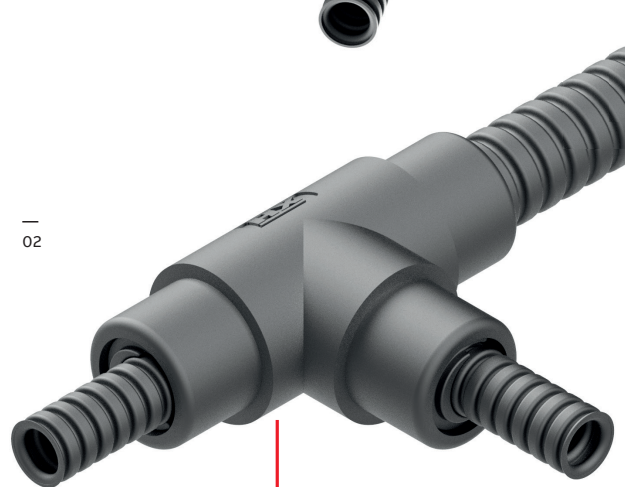
What's Next?

Having used **Harnessflex®** Conduits, Fittings and Connector Interfaces to protect the wiring on their vehicles for 15+ years, **Househam Sprayers** value the support and advice from the **ABB Installation Products team** as they continue to grow going forward.

—
01 Y-piece fitting
(YPS060606).

—
03 T-piece fitting
(TPS060606).

—
03 CI08-DT2 interface
+ Amphenol Sine
System AT series plug



"We will continue to work closely with the Harnessflex® technical sales team because of the outstanding support and service they provide."

"It just makes it so easy to try ideas knowing you have the opportunity to get samples and expert support to help you find ways around any issues you face when creating a new design."

Alex Fisher - Technical Engineer,
Househam Sprayers Ltd.



—
**For more information on ABB Harnessflex®
Specialist Conduit Systems, visit or contact:**

Tel: +44 (0) 1675 468 200

Email: cmg.conduitsystems@abb.com

harnessflex.com

**For more information on Househam Sprayers,
visit or contact:**

Tel: +44 (0) 1400 276050

Email: info@househamsprayers.com

www.househamsprayers.co.uk