



Arrow Film Converters Ltd.

fresh **thinking** in flexible packaging films



Arrow Film Converters Ltd.

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Plain Films

- High Quality Printing
- Print Lamination
- Anti-Mist
- Punch Hole in Register
- Hot Needle Perforation
- PET Lidding
- Label Replacement
- Barrier

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Arrow Film Converters are one of the UK's largest distributor of polypropylene, PET, laminates and special films supplied in reel format for use on automated packaging machinery including flow-wrap, VFFS, tray-sealing, thermoform, box wrap and sachet applications.

Arrow Film Converters have invested heavily over the past 5 years to install state of the art printing machinery and associated equipment including the latest X-rite Colour SpectroEYE® colour management system. Ensuring we are at the forefront of printed quality everytime.



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Our own in-house coater laminator enables ourselves to produce a flexible range of laminated structures to suit all possible applications and required barriers including Triple laminations using some of the following materials, OPP, PET, PE, FOIL, PAPER etc.

Certain products require Anti-Mist treatment on the film such as salad packs to enhance the products appearance by reducing the moisture on the window inside of each pack.



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Some products need larger holes for the product to breath extending the shelf life, summer fruit's are one such product. At Arrow Film Converters we can offer punched out holes in register to your printed films so the holes will never appear on your print, always giving a perfect clean punched hole and away from the printed area. This allows gases to be released easily from the product, reduces moisture within the package hence extending the shelf life of the product.

Hot Needle Perforation is available in P1, P8, P30 and P160 (perforations per square inch), these perforations are achieved using hot needles that rotate against the film in a pre-set pattern. This type of perforation is typically used on bakery products which require good airflow and control of moisture around the product.



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Lidding materials are becoming much more common for punnets instead of Vacuum Formed Plastic Lids, reducing packaging weights which in turn is much more environmentally friendly and much cheaper for the customer. At Arrow Film Converters we produce various lidding films for a wide range of applications. We also produce a thin laminate PET easy peel which will not shard when opening the pack.

With the ever rising cost of adhesive labels we encourage all our customers to review changing from a label application material to a printed film either as a continuous print or in register. We are pleased to aid in auditing these costs to try and save you money.

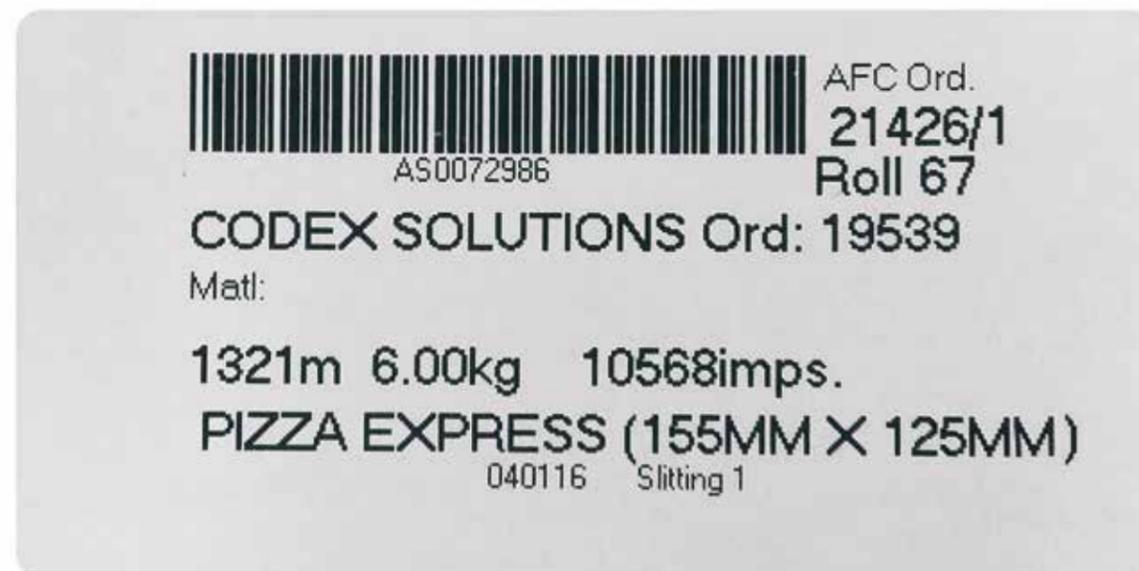


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Digital Workflow System
Ink Blending System
Colour Management
Slitting / Rewinding

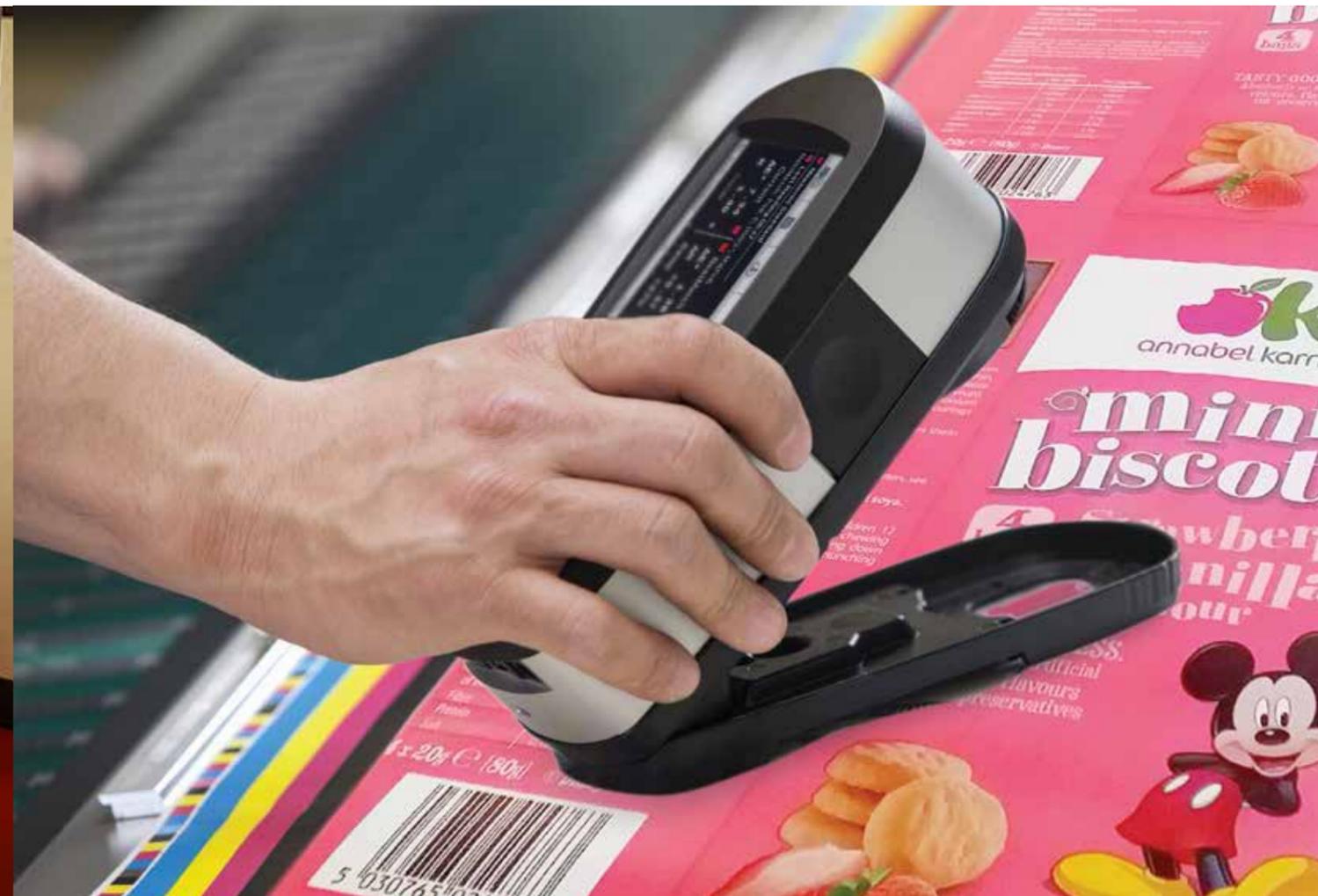
Overwrapping boxes to prevent strong smelling odours or potential contamination is something Arrow Film Converters can help with. We offer various substrates from Acrylic and PVDC coated films which boast excellent sealing properties together with the barriers required for the product.

We have developed our own in-house digital workflow system which allows all areas of the business to communicate including printing, lamination and slitting throughout every stage of our processes. Our reel labels show all information to our customers on their particular product and these materials are traceable back to the original mill reel of the film supplied to ourselves. The system enables us to track all orders in real time.



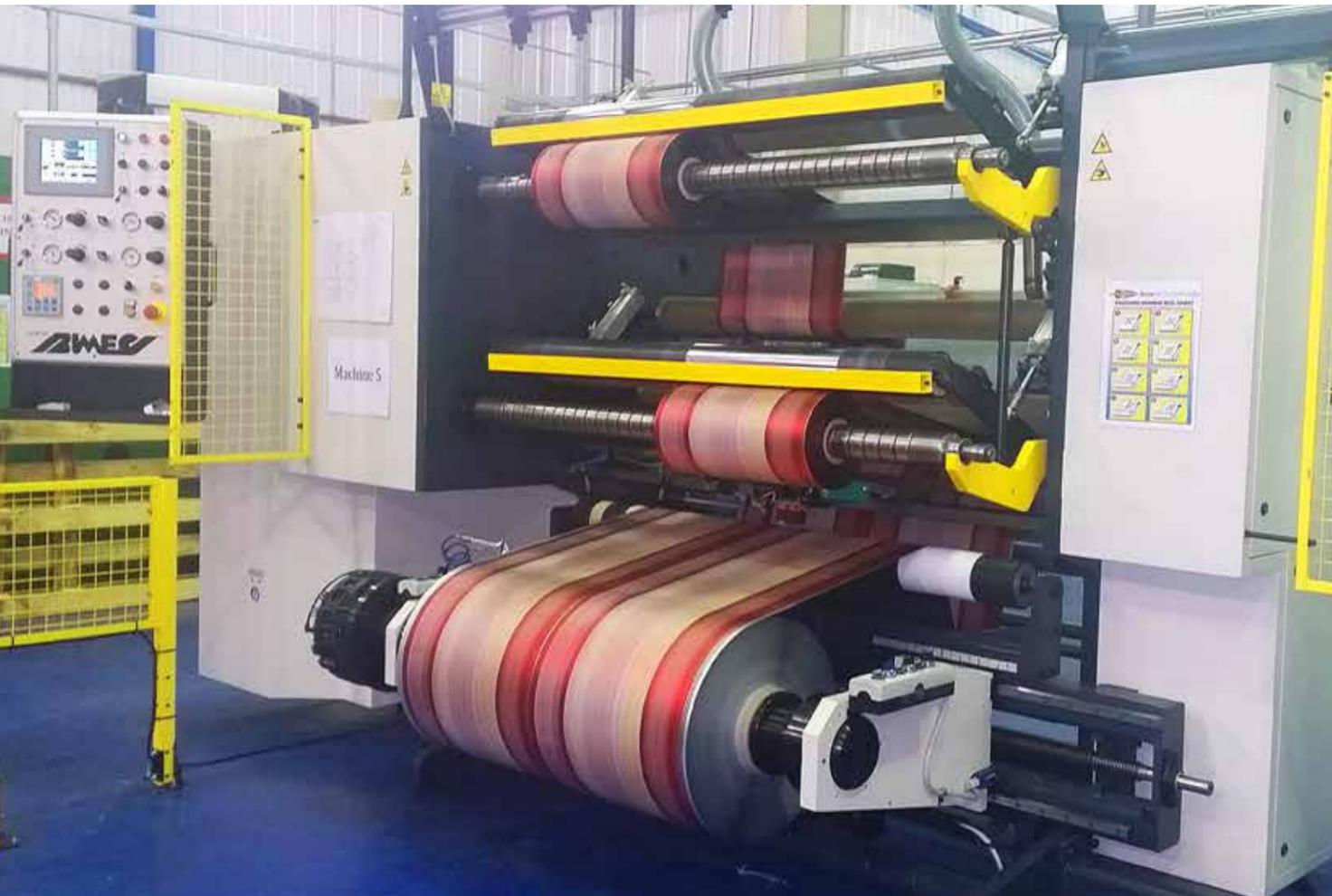
Colour is a critical part of our business and ensuring consistency is vital. Our Rexson Ink Dispenser assists us in doing this and can dispense to within ½ a gram recording the quantities used and saving these against the design.

With our new state of the art X-Rite Spectrometers we ensure that we achieve the correct colour printed on the substrate everytime. This highly calibrated piece of equipment will ensure that the tolerance set is reached on every roll produced.



Digital Workflow System
Ink Blending System
Colour Management
Slitting / Rewinding

We have invested heavily into our finishing department to guarantee that the materials produced are at their best when completed. The machinery used slits at speeds up to 600m/min.



Technical Specifications



PET Films

Easy Peel



Description

Type 10.63 is a EASY PEELABLE, thermosealable PET film designed for packaging of chilled and frozen foods in dual ovenable trays. It seals on trays and bottles made of APET, CPET, PETG or on PET films and PET coated cardboards.

Properties

- Excellent thermal and mechanical stability
- High barrier against gas, water vapour and aroma
- Can be used in direct contact with food
- Wide range for sealing temperature without deformation
- Self venting effect when heated in microwave or conventional oven
- EASY OPEN on the thermo sealable side
- The thermo sealable side provides ink adhesion

Property	Units	Nominal	Method	Conditions
Mechanical Properties				
Nominal thickness	μ	25	ASTM D-374	
Yield	m ² /kg	28.6	ASTM D-646	
Unit weight	g/m ²	35	ASTM D-646	
Elongation at break	MD	%	135	ASTM D-882
	TD	%	95	
Tensile strength	MD	kgf/mm ²	18	ASTM D-882
	TD	kgf/mm ²	16	
Initial modulus	MD	kgf/mm ²	370	ASTM D-882
	TD	kgf/mm ²	410	
Thermal Properties				
Heat shrinkage	MD	%	1.0	GT-MA-022 150 Deg. C/30 minutes
	TD	%	-0.2	
Heat seal strength (sealable side x sealable side)		gf/pol	240	140 Deg., 1,7bar, 1 sec
Surface Properties				
Co-efficient of friction static (int. side X ext. side)			0.2	ASTM D-1894
Co-efficient of friction dynamic (int. side X ext. side)			0.2	ASTM D-1894
Optical Properties				
Haze		%	14	ASTM D-1003
Barrier Properties				
Oxygen transmission rate		cm ³ /m ² day	60	ASTM D-3985 25 Deg. - dry
Water vapor transmission rate		g/m ² day	25	ASTM F-1249 38 Deg. 90% UR

Disclaimer

The information given above is to the best of our knowledge and experience at the time of printing. We make no warranty, express or implied, for specific product properties or as to the fitness of the product for any specific use or purpose. The above data is purely for reader's consideration, investigation and verification and should be read in conjunction with the general conditions for sale.

PET Films

Certificate of Migration Test



Our PET Films were tested for values of global migration using olive oil, distilled water, acetic acid solution and ethyl alcohol solution food stimulants in accordance with European Standards ENV-1186:2002.

All components are in conformance with EU Directive 2002/72/EC relating to plastic materials and articles intended to come into contact with foodstuffs and it's subsequent amendments up to last amendment 975/2009/EC.

Food Stimulant	Test Result (mg/dm ²)	Test Conditions
Olive Oil	<0.1 mg/dm ²	10 days@40 °-C
Distilled water	0.3 mg/dm ²	10 days@40 °-C
3% w/v acetic acid solution	0.9 mg/dm ²	10 days@40 °-C
10% w/v ethyl alcohol solution	<0.1 mg/dm ²	10 days@40 °-C

Limit for global migration is 10 mg/dm², assuming that no reduction factors are applicable.

We also confirm that the films comply with the migration testing of the regulation 82/711/ECC, it's amendments (1st amendment 93/8/ECC and 2nd amendment 97/48/EC) and 85/572/EC directive.

Please feel free to contact us if you have any questions.

OPP Films

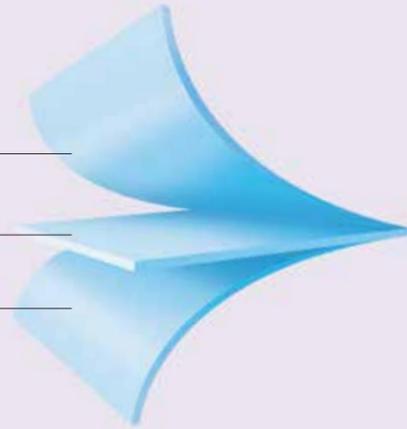


HS (H)

Heat Sealable Layer
Treated Side

OPP Core Layer

Heat Sealable Layer
Untreated Side



- Properties**
- Wide heat seal range
 - High slip and low antistatic property
 - Superior machinability
 - Good heat seal strength
 - Good optical and mechanical properties
 - Good resistance to most oils, fats and chemicals
 - Good barrier to moisture, odour and gases
 - Conforms to FDA Guidelines

Description

Arrow Film Converters HS (H) is a bi-axially orientated polypropylene film with both surfaces heat sealable, especially designed with high slip and low antistatic properties to offer excellent machinability on high speed automatic packaging (HFFS & VFFS). Widely used on machines for packing straws, cassettes, confectioneries etc.

Properties	Unit	Typical Values							Test Method	
		18	20	25	30	35	40	48		
Thickness	Microns	18	20	25	30	35	40	48	ASTM D 374	
Grammage	gm/m ²	16.38	18.2	22.75	27.3	31.85	36.4	43.68	GPIM	
Yield	m ² /kg	61.05	54.95	43.96	36.63	31.39	27.48	22.89	GPIM	
Haze	%	- 2.5							ASTM D 1003	
Gloss (45°)		- 85							ASTM D 2457	
Tensile Strength	MD	Kg/mm ²	15 ± 1							ASTM D 882
	TD		28 ± 3							
Elongation at Break	MD	%	170 ± 30							ASTM D 882
	TD		50 ± 15							
Coefficient of Friction	Film/Film		- 0.25							ASTM D 1894
Thermal Shrinkage	MD	%	- 4.0							GPIM
	TD		- 2.0							120°C, 5 min, air
Surface Tension	Dynes/cm		- 38							ASTM D 2578
Heat Seal Range	°C		105 - 140							GPIM
Heat Seal Strength	Film/Film	gm/15mm	> 275							GPIM 130°C, 1 bar, 1 sec

Arrow Film Converters HS (H) fully meets the EC Directive 94/62/EC, 2002/72/EC and USA FDA Code of federal regulations CFR21 section 177.1520 (Olefin Polymers) is suitable for food packaging.

The information contained in this brochure is to the best of our knowledge & experience. Since the conditions under which our products maybe used are beyond our control, recommendations are made without warranty or guarantee.

Bi-axially oriented polypropylene film ages with time and will exhibit deterioration of properties if it is not stored in a dry environment at a temperature 30 °C or below. We highly recommend our customers to use recommended storage conditions and consume product before 6 months from the date of production.

For related spec sheet with tolerance values, please contact our sales department.

OPP Films



Food Contact Compliance Declaration

We declare that the delivered BOPP films:

Are in conformity with the following laws, directives and regulations and therefore suitable for the direct contact to food stuffs:

- Framework regulation 1935/2004/EC of the European parliament and of the Council of 27th October 2004 on materials and articles intended to come into contact with food and repealing Directives 80/590/79/EEC, 89/109/EEC
- EU Regulation 10/2011/CE from May, 2011 (which replaces EC Directive 2002/72/EC and its amendments), these conditions may continue to be used to demonstrate safety of food contact plastics until 1st January 2016
- European Directive 2002/72/EC and subsequent AMENDMENTS 2004/1/EC, 2004/19/EC, 2005/79/EC, 2007/19/EC, 2008/39/EC.; 975/2009/EC
- Commission regulation (EC) 2023/2006 of 22 December 2006 on good manufacturing practice for materials and articles intended to come into contact with food
- Italy: Decreto Ministeriale (D.M) 21- 3-1973 and amendment DPR 777/82 of 23 August 1982 and amendments
- USA: FDA Regulations CFR Title 21 177.1520(c) (1.1) and (3.1) CFR 178.3297 - 178.2010.
- Germany: Bedarfgegenstandeverordnung vom 10 April 1992 as amended up to 08.08.2007.LFGB - 26.02.2008 - BFR Empfehlung VII - Polypropylene. Stand Vom 01.01.2010

Table 1. Following are listed chemical substances with Specific Migration Limit (SML) are present with a lower content than the limit fixed according to European Directive 2002/72/EC:

Chemical Name	PM REF NO	CAS NO	SML
Alkyl amin	39090	071786-60-2	1.2 mg/kg
Slip agent	68400	010094-4-45-8	5 mg/kg
Technical support agent	74880	74880	0.3 mg/kg

The SML will not be exceeded even with a 100% (worst case) migration.

Table 2. Overall migration tests were conducted by using the following food Simulants and test conditions listed below. The food simulants and test conditions are those defined in EC Directive 97/48/EC. Under the transitional arrangements contained in EU regulation 10/2011/CE from 2011, (which replaces EC Directive 2002/72/EC and its amendments). These conditions may continue to be used to demonstrate safety of food contact plastics until 1st January 2016.

Food Simulants	Test Conditions	
	Duration	Temperature
Simulants B - 3% W/V Acetic acid	10 days	40 °C
Simulants C - 10% V/V Ethanol	10 Days	40 °C
Simulants D - Rectified Olive Oil	10 Days	40 °C

The overall migration results obtained were found to be below the overall migration limits defined in EC Directive 2002/72/EC as amended.

OPP Films

Food Contact Compliance Declaration



Table 3. Presence of Dual - Use additives (Food Additives):

Chemical Name	PM REF NO	CAS NO	SML	Dual - Use
Alkyl amin	39090	071786-60-2	1.2 mg/kg	No
Slip agent	68400	010094-4-45-8	5 mg/kg	No
Technical support agent	74880	74880	0.3 mg/kg	No

The product does not comprise any "dual use" substances as mentioned by the European Directive 2004/19/EC.

- The product does not comprise any Mineral Oils.
- The product complies with requirements of European Directive 90/128/EC
- The product complies with requirements of European Directive 94/62/EC and following amendments
- The product complies with requirements of European Directive 1895/2005/EC
- The product complies with requirements of European Directive 84/2005/EC
- The product complies with requirements of European Directive 282/2008/EC

When a plastic functional barrier is used in a plastic multi-layer material or article, it must be confirmed that the material or article complies with the requirements of Article 7a(2),(3) and 4 of directive 2007/39/EC.

This confirmation applies to above specified goods delivered by us. All statements or recommendations are based on data and knowledge considered to be true and accurate at the time of printing but should be verified by the user. In addition the user of our products should satisfy themselves as to the suitability of our products for the intended applications. Therefore, we disclaim any liability for damages arising from the non-suitability of our products for the effected application and any quality modifications of the packed product due to chemical reaction with the packaging material or its components.

For Arrow Film Converters

John Graham
Managing Director

Our new production facility is located in Castleford, West Yorkshire and is within easy access to the M62, M1 and A1. We have an open door policy and welcome guests to visit anytime when passing.



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