MEMBRANE LINING SYSTEMS FOR COMMERCIAL AND RESIDENTIAL SWIMMING POOLS

DLW delifol®
Swimming Pool Linings

SPECIFICATION

EXCLUSIVELY DISTRIBUTED IN NORTH AMERICA BY

BRADFORD | PRODUCTS®

WWW.BRADFORDPRODUCTS.COM
710 SUNNYVALE DRIVE • WILMINGTON • NC • 28412 • (910) 791-2202

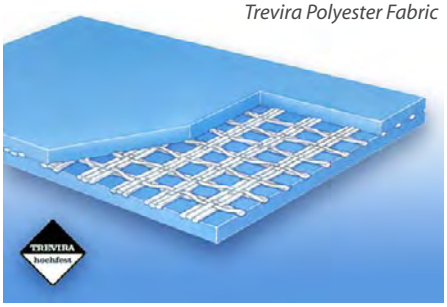
Today a swimming pool is a contribution to personal fitness and health. It is a joy to find relation in water at a pleasant temperature, and swimming keeps you fit.

The construction of a swimming pool is a matter of trust. Trust comes easily when backed by a solid reputation. In 40 years, Armstrong DLW delifol® coats more than 200,000 swimming pools, both public and private. The material is fitted perfectly by experts, and what applies to new swimming pool projects also applies to refurbishment projects.

Quality is the measure of all things. Because your decision for a swimming pool is a lasting one, choose the quality and durability of DLW delifol®. The PVC-P material strengthened with Trevira high tensile polyester fabric is extremely tear-proof and does not rot or weather.

DLW delifol® in the colors azur, blue, caribic, sand, black and white creates the perfect swimming pool paradise.

Trevira Polyester Fabric



Note: For further technical information, DLW delifol® CD-ROMs are available upon request.

Introduction Information

DLW delifol® linings have been developed to provide permanently sealed membranes for water containment facilities including swimming pools, tanks, ponds and lagoons. DLW delifol® linings are monomerically plasticized calandered PVC sheets (PVC-P) reinforced by an integrated TREVIRA high tensile fabric. They are produced in accordance with DIN 16938 and meet the properties required by this standard. Recipe and materials processing guarantee top quality. From the selection of the raw materials until the finished product, rigorous checks are carried out. Approval inspections take place after every production. The high quality requirements are reflected by DIN EN ISO 9001, ASTM, ANSI and IAPMO certification for our development, production and test departments.

Product characteristics and installation qualifications herein reflect the minimum requirements for any membrane system utilized in this project. Membrane systems failing to meet such standards will not be acceptable for this project. The membrane specifications for this project are provided by Armstrong DLW delifol®, which is distributed nationally by Bradford Products, LLC in Wilmington, NC. All specification information is proprietary information of Armstrong DLW delifol®.

Features and Benefits

- Quick, easy and extremely cost effective
- DLW delifol® conforms to high quality requirements reflected by DIN EN ISO 9001
- DLW delifol® has been tested by IAPMO R&T laboratories and conforms to sections 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.4, 8.1, 8.2, of ANSI Z124.7 – 1997
- DLW delifol® is produced in accordance with DIN 16938
- DLW delifol® is manufactured and tested in accordance with ASTM standards
- The membrane remains flexible regardless of the movement to the existing swimming pool shell
- Developed for installation in new and existing swimming pools
- Can be installed on any existing pool surface
- Ideal applications for commercial swimming pools, private pools, schools, hotels, health clubs and hydrotherapy pools
- Protects existing pool vessels against further corrosion
- DLW delifol® is offered in 18 different colors
- Drastically lowers maintenance costs
- 15 year warranty

Delivery, Storage and Handling

A) Packing and Shipping - Deliver all materials to site in original manufacturer's unopened packaging with labels intact. Protect finished surfaces with removable wrapping or coating resistant to weather elements.

B) Storage - Adequately store all materials in storage compounds which protect against any material damage.

C) Handling - Comply with manufacturer's instructions. Materials shall not be handled in any way that can cause damage.

Specified System Components

A) The manufacturer shall have engaged in the formulation and manufacturing of reinforced PVC-P membranes for a minimum of 25 consecutive years.

B) All PVC-P sheet goods and accessories shall be produced from one single manufacturer. The contractor shall supply and submit to the Architect or Engineer and the end user purchase orders from the manufacturer of all PVC-P system components used in this project. The membrane shall be no less than 60mil in thickness and shall conform to the physical and chemical properties listed herein. Roofing membranes, vinyl liners and those membranes with acrylic top coatings shall not be acceptable (please see report on acrylic acid EHC 191 produced by the World Health Organization) PVC-P membranes used in this project shall meet or exceed all of the following qualifications: ASTM, ANSI, IAPMO, DIN and ISO 9001.

C) The non-slip material shall be 080 mil (1.9 mm) in thickness and meet the required reference standards listed in the introduction. All non-slip material shall have pyramidical embossing designed specifically for high traffic areas. Dimpled embossing is not acceptable.

D) Separation Layer - Sanitized pre-compressed separation layer manufactured specifically to function as a cushioning, protection and drainage layer. Separation layer must be resistant to bacteria and be free of any foreign material that potentially may damage the membrane.

E) Compound sheeting profiles are required for securely connecting the DLW delifol® membrane different detailed areas of the swimming pool areas. The material composite shall be two sided hot galvanized with a PVC-P coating on one side. Stainless steel PVC-P coated profiles shall be accepted as an alternative.

F) PVC solution shall be applied to all visible seams to prevent moisture into the reinforcing fabric. PVC solution shall be the same color as the choice of membrane for this project.

G) Silicone used in detailed areas must be a one component-sealing agent and must be the same color as the choice of membrane for this project.

H) Dispersion adhesive used for gluing the separation layer shall be solvent free and shall be applied within 6 months of the production date. Alternative glues must be approved by the manufacturer.

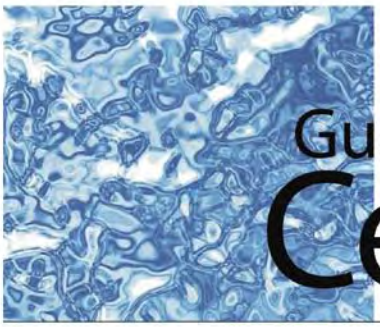
I) Sanitizing agent is used exclusively for treating the sub-base of swimming pools. Formulation of the agent shall be non-harmful to the environment and is highly resistant to bacteria and fungus attacks.

J) Rivets - Stainless steel expansion rivets used to fasten the compound sheeting profiles.

K) Targets and markings shall be welded in place in accordance to the certified drawings. All sizing if the targets must conform to the recognized associations (FINA, NCAA, NFSHSA an USS).

Specified Installation Details

- All PVC-P membrane work shall be performed by certified technicians. The DLW delifol® field supervisor shall have no less than 10 years experience or performed 50 similar installations. All crew members participating in the installation with the field supervisor shall posses a minimum of a level 1 DLW delifol® certification.
- The field supervisor shall ensure that all ground water treatment devices are working. Install secondary drainage at lowest point of pool floor. Pump outs are not acceptable.
- Contractor/Owner shall perform pressure tests on all pool plumbing.
- The pool walls and floor shall dry, smooth flat and free from voids, open cracks, burrs and sharp peaks.
- All pool inlets, lighting and anchors will be equipped with current model compression fittings. Accepted alternative is to install a ¼ inch type 1 grey PVC flange recessed, anchored and fitted within 1/8 inch of outer penetration. delifol® shall be hot air welded directly to the type 1 grey PVC. Exterior flanges equipped with screws and plastic plugs are not acceptable.
- Field supervisor shall ensure all welding equipment is in optimum working order.
- The entire swimming pool shall be treated with a sanitizing agent highly that is resistant to fungus and bacterial and is not harmful to the environment.
- All compound sheeting profiles shall be mechanically fastened with stainless steel expansion rivets or Stainless steel pop rivets. Placement of the profiles and number of rivets to be used shall be in accordance with the manufacturer's specifications.
- The certified delifol®installers shall fully adhere the separation layer throughout the entire interior of the Swimming pool. All separation layer seams shall be butt joined with a joint opening no more than 1/8 inch. Overlapped seams shall not be accepted.
- The field supervisor shall ensure the PVC-P membrane is immaculately fitted and securely hot air welded to the com pound sheeting profiles. The following shall not be accepted:
  - Any visible circular, square, size or shape of patching to the membrane.
  - Fully adhering the delifol®membrane to the fleece.
- All overlaps membrane overlaps shall be 2 inches unless otherwise specified by a qualified. Manufacturer's representative.
- The membrane shall be fixed horizontally on the walls with no visible seams unless specified by the manufacturer. All floor membrane seams shall be laid and fixed length wise unless otherwise specified.
- The floor to wall joint shall be hot air welded with the floor sheet overlapping the wall sheet. Overlapping and welding the wall sheet over the floor sheet shall not be accepted.
- All stair entries, beach entries or ramps shall be lined with 80 mil non-slip delifol®membrane.
- The field supervisor shall install the targets and demarcation lines as indicated on the certified drawings. All targets and demarcation lines shall be hot air welded on either side. Any air build shall be completely removed from the targets and lines prior to sealing the ends.
- The field supervisor shall inspect all welded seams with a rounded screw driver. Seams shall be cooled prior to inspection.
- All seams shall be cleaned with denatured alcohol and completely sealed with DLW delifol®PVC Solution.
- The top edge termination of the delifol®at the inside of the gutter shall be sealed with DLW delifol®Silicone paste.
- The field supervisor shall perform a final inspection to determine the installation was completed in accordance with the manufacturer's specifications.
- The contractor shall submit a maintenance manual to the owner which is specifically for the DLW delifol®membrane.



DLW delifol®
Swimming Pool Linings

Guarantee Certificate

We issue customers supplied by us with the DLW delifol® Swimming Pool Linings, together with the accessories, with a guarantee of

10 years

for the waterproof performance of the lining.

Extent of Guarantee:
In the case of a legitimate complaint concerning a defect due to faults in material, this guarantee covers free delivery and supply of the necessary replacement materials, in the same or similar composition, for DLW delifol® Swimming Pool-, Pond- and Container Linings, together with the accessories. In addition, we will reimburse the necessary installation costs incurred as a result of the defect being dealt with (the construction site wages, according to standard local or trade rates, actually paid).

The guarantee begins with the delivery of the DLW delifol® Swimming Pool Lining by an installer to the client, at the latest however, six months after the issue date of the Desso DLW Sports Systems GmbH invoice.

Replacement and/or repair under the guarantee does not effect the expiry date of the guarantee.

Slight differences in quality, weight, thickness, width, production materials, surface, pattern and colour or customary trade differences will not be recognized as defects.

This guarantee requires that

- our latest installation instructions are followed and that the mentioned products, aids and accessories determined by the system are made use of,
- maintenance of he water takes place as directed,
- damage is immediately reported to us and that we are given the opportunity to inspect the defective or damaged object and examine the damage.

The guarantee does not cover damage caused by a third party, force majeure, damage caused by faulty construction or the wrong underlay, damage caused by unprofessional installation as well as damage caused by chemicals.

Client:	Swimming Pool Specialist Installer:
Object/Place:	
delifol Type:	
Quantity in m²:	
Date:	

Desso DLW Sports Systems GmbH
Postfach • D-74379 Bietigheim-Bissingen
Phone +49 (7142) 71-782 • Fax +49 (7142) 71-660

DESSO DLW
SPORTS SYSTEMS

THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

IQNet and

DQS GmbH Deutsche Gesellschaft zur Zertifizierung von Managementsystemen
hereby certifies that the company

Armstrong DLW AG

with the areas:
DESSO DLW Textil GmbH und R & D
Stuttgarter Straße 75
D-74321 Bietigheim-Bissingen

DLW Aktiengesellschaft

Ludwig-Kaufmann-Straße 13
D-27753 Delmenhorst

for the scope

Development, manufacturing and sales / marketing of resilient and textile floor coverings
at the Bietigheim and Delmenhorst locations

has implemented and maintains a

Quality Management System.

An audit, documented in a report, has verified that
this quality management system fulfills the requirements
of the following standard:

ISO 9001 : 2000

This certificate is valid until 2009-09-27

Frankfurt am Main 2006-09-28

Registration Number: DE-001129 QM

Dr. Fabio Roversi
President of IQNet

Ass. iur. M. Drechsel
S. Heinloth
Managing Directors of DQS GmbH

IQNet Partners*:

AENOR *Spain* AFAQ AFNOR *France* AIB-Vinçotte International *Belgium* ANCE *Mexico* APCER *Portugal* CISQ *Italy* CQC *China* CQM *China* CQS *Czech Republic* Cro Cert *Croatia* DQS *Germany* DS *Denmark* ELOT *Greece* FCAV *Brazil* FONDONORMA *Venezuela* HKQAA *China* ICONTEC *Colombia* IMNC *Mexico* IRAM *Argentina* JQA *Japan* KFQ *Korea* MSZT *Hungary* Nemko AS *Norway* NSAI *Ireland* PCBC *Poland* PSB Certification *Singapore* QMI *Canada* Quality Austria *Austria* RR *Russia* SAI Global *Australia* Inspecta Certification *Finland* SII *Israel* SIQ *Slovenia* SQS *Switzerland* SRAC *Romania* TEST St Petersburg *Russia* YUQS *Serbia and Montenegro*

IQNet is represented in the USA by: AFAQ AFNOR, AIB-Vinçotte International, CISQ, DQS, NSAI, QMI and SAI Global

* The list of IQNet partners is valid at the time of issue of this certificate. Updated information is available under www.iqnet-certification.com

5001 E. Philadelphia Street, Ontario, CA 91761-2816 (909) 472-4100 FAX (909) 472-4250

CONTINUOUS COMPLIANCE INSPECTION REPORT AND SIGNATURE SHEET

Listee: Bradford Products LLC
Inspection Date: 2008-01-24
Mfr. (if different): BRADFORD PRODUCTS, LLC
Plant Contact: Clyde Scrooby
Mfr. Address: 710 SUNNYVALE DRIVE
City: WILMINGTON State: NC Zip: 28412 Country: USA
Phone: (910) 791-2202 Fax: (910) 791-0566 Email: clyde@bradfordproducts.com
ISO 9000 Certified?: ☐ Yes ☑ No If Yes, Name of Registrar
Plant Hours: 6:00am to 5:00pm/ Closed: Dec. 24 2007 to Jan 2 2008, Memorial Day, July 4th, Labor Day, Thanksgiving, Christmas and The Day After.
Warehouse where listed products are shipped: none
Files Inspected: NEW - 1/1,NEW - 1/1
Inspection Type: Initial
Additional Listing(s) Inspected: none
Inspection Summary: Satisfactory, corrective action plan within 30 days is required, see note #: 1
Items Inspected:

☑ Review Certificate of Listing for correctness	Satisfactory
☑ Current version of standard on site	Satisfactory
☑ Examine product marking according to their listing	Not Applicable
☑ Assess use of IAPMO R & T Certification Marks	Not Applicable
☑ Check Calibration records randomly for equipment used for in plant testing	Satisfactory, see note 1
☑ Verify that finished products are inspected or tested on a regular basis by manufacturer	Satisfactory
☑ Verify method of segregating non-conforming products	Satisfactory
☑ Conduct dimensional in-plant verification where applicable	Not Applicable
☑ Review literature	Satisfactory
☑ Review complaint records	Satisfactory, see note 1
☑ Review calibration records for equipment used in the production of listed products	Satisfactory, see note 1
☑ Review quality manual system records and practices	Satisfactory, see note 1
☑ Review the effectiveness of corrective action on non-conformances found at previous inspection	Not Applicable
☑ Review of raw material, component, and ingredient suppliers against Finalized Formulation List (FFL)	Not Applicable
☑ Verify components shown on the FFL are bused on the listed product	Not Applicable
☑ When samples have been selected for testing to NSF/ANSI 61, please verify FFL has been shipped with sample	Not Applicable
☑ Review of blending sheets	Not Applicable
☑ Other:	Not Applicable

For Plastic Pipe products please complete this Matrix

☐ **Sample Selection** *(The sample(s) that are to be sent to the laboratory shall be shipped out within 48 hours of the collection date)*

File No.	No. of Sample(s)	Backup Sample(s)	Model No.	Standard	Section(s) of Standard	Mfg Date	Testing Location

The purpose of this Initial Inspection is to evaluate the factory quality assurance system.
The QA Manager is Mr. Clyde Scrooby.
Current applicable standards are on hand and they are aware of the tests and requirements in relevant standards.
A Quality Assurance Manual is being developed with a new computer system. Documentation is missing yet that satisfactory procedures are followed. Instruments Calibration Program needs to be documented.
NOTE 1: Manufacturer shall notify IAPMO in writing within 30 days of Corrective Plan of Action.
This Initial Inspection is satisfactory.

2008-01-25 08:47:51 Page 1 of 2

Signature of the Plant Contact below indicates acknowledgement that a) he/she witnessed the presence of the IAPMO R & T inspector whose signature appears below at this plant/warehouse location on the day indicated, b) he/she acknowledges receipt of a completed copy of this form, c) he/she will see to it that a complete copy of this form is delivered to the responsible person in charge at this location. The Plant Contact signature does not indicate agreement or disagreement with the information entered onto this form.

Reminder: Please confirm client's website contains proper IAPMO listing / certification information. ☐ DONE

Reminder: Record results and observations including model numbers and leave a copy of inspection report with plant contact ☑ DONE

Plant Contact OT IAPMO R&T Inspector

Signature Signature

CC Staff Review Penalty Hours Print Name Oscar Zanoni

Signature

2008-01-25 08:47:51 Page 2 of 2

TEST REPORT

Ph: 909.472.4100 • Fax 909.472.4243 • Web: www.iapmo.org
5001 East Philadelphia Street • Ontario, California 91761-2816 - USA

Report Number: 1042-07001 **Project No.**: 14330

Report Issued: October 23, 2007

Client: Bradford Products LLC
710 Sunnyvale Drive
Wilmington, NC 28412

Source of Samples: The samples were sent to IAPMO R&T Lab by Bradford Products, LLC. The samples were received in good condition on September 19, 2007.

Sample Description: Several pieces of 1.5 mm thick reinforced PVC lining sheet with textured surface for swimming pool.

Name: DLW delifol® NG

The lining sheet consisted of PVC-P membrane reinforced with TREVIRA high tensile fabric, monochrome.

Date of Testing: September 29, 2007 to October 12, 2007.

Scope of Testing: The purpose of the testing was to determine if the samples tested of reinforced PVC lining sheet met the requirements of Sections 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.4, 8.1 and 8.2 of ANSI Z124.7-1997, entitled "American National Standard for Prefabricated Plastic Spa Shell".

Conclusion: The samples tested of the DLW delifol® NG PVC lining sheet for swimming pool COMPLIED with the requirements of Sections 4.1, 4.2, 4.3, 4.4, 5.1, 5.2, 5.4, 8.1 and 8.2 of ANSI Z124.7-1997.

By our signatures below we certify that all the testing and sample preparation for this report was performed under continuous, direct supervision of IAPMO R&T Lab., unless otherwise noted.

Tested By,

Larry Owens, Test Technician

Reviewed by,

Ken Wijaya, Senior Laboratory Director

LO:bp

Primary Standard: ANSI Z124.7-1997, "American National Standard for Prefabricated Plastic Spa Shell".

Sections Tested / Evaluated:

4.1 Unit Preparation
4.2 Method of Inspection of Unit Surface
4.3 Surface Test
4.4 Subsurface Test
5.1 Colorfastness Test
5.2 Wear and Cleanability Test
5.4 Chemical Resistance Test
8.1 Water Resistance Test
8.2 Thermal Shock Resistance

Test Results: All tests and evaluations were conducted per the written procedures as specified in the standard.

ANSI Z124.7-1997

4.1 Unit Preparation - FOLLOWED

The lining sheet was washed with standard liquid detergent and water and rinsed with clear water, and dried prior to application of ink.

4.2 Method of Inspection of Unit Surface - FOLLOWED

The surface of the floor assembly was inspected with the unaided eye for defects and blemishes from a distance of between 305 to 610 mm after being inked or soiled in accordance with ink test

4.3 Surface Test - COMPLIED

The floor assembly was inked, washed and dried before inspection. The floor assembly surface was free of cracks, chipped areas and blister.

4.4 Subsurface Test - COMPLIED.

There was no void below the original finish surface.

5.1 Colorfastness Test - COMPLIED

When tested per section 5.1.1 of the standard for 200 hours in accordance with ASTM D2565, the lining sheet tested showed no cracking, crazing,blistering or significant color or surface texture change.

The color or surface texture change was 2.53 CIE units. Maximum allowed is 3 CIE units.

5.2 Wear & Cleanability - COMPLIED.

Three specimens were subjected to 10,000 scrubing cycles of abrasive slurry with a flow rate of 3.5 mL per minute and a scrub cycle rate of 60 cycles per minute. At 2,500, 5000, and 7,500 cycles, respectively, the wear tester was stopped and excess slurry was washed from the specimen trays and switch brushes.

At the completion of the 10,000 cycles, the three samples were removed, rinsed in tap water, dried and measured for cleanability using the procedures outlined in 5.2.3.1, 5.2.3.2 and 5.2.3.3 of the standard.

Findings: The absolute percentage loss of white light reflectance of the samples were 1.81%, 1.96%, and 2.00% for samples 1, 2 and 3 respectively after cleaning with standard liquid detergent and slurry.

Requirements: After 10,000 cycles,the absolute percentage loss of white light reflectance shall be not more than 5% after cleaning with standard liquid detergent and the absolute percentage loss of white light reflectance shall be not more than 2% after the additional cleaning with abrasive slurry.

5.4 Chemical Resistance Test – COMPLIED

Two drops of each chemical (reagent) were applied to the surface finish. One test was conducted with each reagent uncovered and the other with each reagent covered with a watch glass. After 16 hours, the watch glass and excess reagent was removed. The samples were held for 24 hours at room temperature of 23 +/- 2 degree C and relative humidity of 50 +/- 5% before evaluation.

Findings:

Chemical	Uncovered	Covered	Status
Naphtha	Unaffected	Unaffected	Passed
Ethyl Alcohol	Unaffected	Unaffected	Passed
Household Ammonia (10%)	Unaffected	Unaffected	Passed
Citric Acid (10%)	Unaffected	Unaffected	Passed
Urea (6%)	Unaffected	Unaffected	Passed
Household Hydrogen Peroxide (3%)	Unaffected	Unaffected	Passed
Concentrated Sodium Hypochlorite	Unaffected	Unaffected	Passed
Phonol Solution	Unaffected	Unaffected	Passed
Ethyl *Acetate*	Affected*	Affected*	Passed
Lye (2%)	Unaffected	Unaffected	Passed
Acetone	Unaffected	Unaffected	Passed

*Affected areas were superficial and were removable by sanding with 600 grit wet/dry abrasive paper; resulting damage did not affect or impair the serviceability of the unit.

8.1 Water Resistance Test - COMPLIED

Three specimens were subjected to 150 degree F (+/- 2 degree) distilled water for 100 hr.

Findings:

	Sample 1	Sample 2	Sample 3	Average
Blisters	0	0	0	0
Color change	0	0	0	0
Change in surface profile	0	0	0	0
Cracks	0	0	0	0
Loss of visible gloss	0	0	0	0
Sum Rating per Specimen	0	0	0	0

Requirements: The water resistance rating shall be a maximum 9 when evaluated for color change, blistering, change in surface profile, cracks and loss of visible gloss. For any one of the five types of defects, the maximum average change for any specimen shall be 4.

8.2 Thermal Shock Resistance - COMPLIED

Hot water, at a temperature of 150 (+/-3) degrees Fahrenheit was impinged on the panel surface for a period of 1.5 minutes then allowed to drain for 30 seconds. Cold water, at a temperature at 50 (+/-3) degrees Fahrenheit was then immediately applied for 1.5 mintes and then allowed to drain for 30 seconds. The flow rate for the water was set at 1 (+/- 0.2) gpm. This constituted one cycle.

At the end of 250 cycles there was no cracking, crazing, blistering, spalling, or delamination when inspected per Section 4.2 of the standard.

DLW delifol® Swimming Pool Liner NG 1.5 mm

Property	Norm	Unit	Value	Notes
Material	PVC-P reinforced High Tensile Fabric			
Color	Blue, Azur, Carabic, Sand, Black, White			
Thickness	ASTM D751-00	in	0.060	
Weight	ASTM D751-00	lbs/yard	3.38	
Specific Gravity	ASTM D792-00		1.25	
Water Absorption	ASTM D570-98	%	1.7	
Tensile Strength	ASTM D638-03	lbs/in^2	5000 Warp Direction 3615 Fill Direction	
Grab Breaking Strength	ASTM D751-00	lbf	455 Warp Direction 438 Fill Direction	
Tongue Tear	ASTM D751-00	lbf	70 Warp Direction 62.75 Fill Direction	
Trapezoid Tear	ASTM D751-00	lbf	134.0 Warp Direction 122.0 Fill Direction	
Mullen Burst Strength	ASTM D3786-01	lbs/in^2	134.0	
Ball Burst Strength	ASTM D3786-01	lbf	638.0	
Puncture Resistance	ASTM D751-00	lbf	130.5	
Light Resistance	ASTM D4355-02		no effect	
Brittleness Temperature	ASTM D1790-22		-25°C	

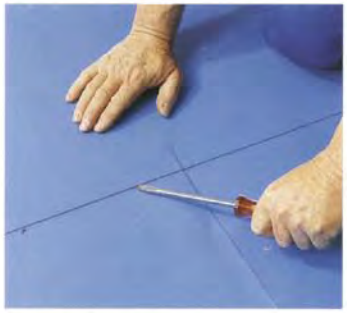
DLW delifol®

G.29 Installation instructions, photo documentation

a) Welding with welding agent

b) Hot gas welding

c) Subsequent pressing with roller for fixing a T-joint



d) Seam inspection

e) Sealing of seams

f) Welding of NGP

g) Condition at the beginning

h) Cutting at the top corner inside

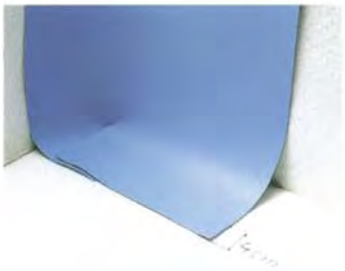
i) Formation of a loop

j) Corner under prestress on the backside

k) Welding of the loop inside

l) Welding of the loop outside

DLW delifol®



m) Formation of a concave fillet

n) Marking of corner seam

o) Condition after cut to size of corner

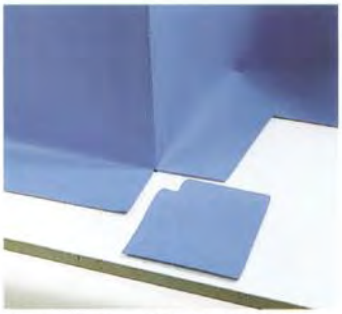
p) Welding of corner seam

q) Cutting at the top corner outside

r) Cutting at the bottom corner outside

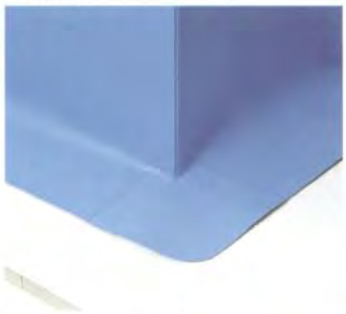
s) Outside corner after welding

t) Connection of wall lining to corner outside



u) Installation of hand-cut outside corner

v) Welding of corner part

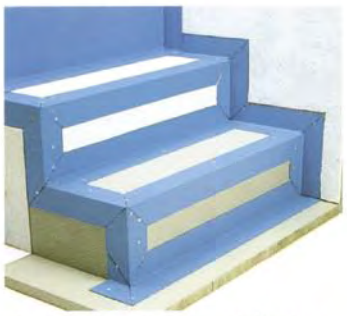


w) Outside corner after completion

x) Connection of floor lining

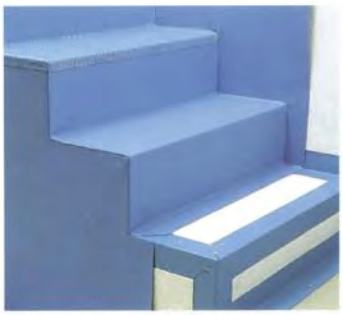
DLW delifol®

G.30 Sealing of stairs



a) Installation of compound sheetings

b) Installation of mattings



c) Installation of DLW delifol NG

d) Installation of DLW delifol NGP

e) Nosing of stairs in contrasting colour

f) Complete model of stairs

Armstrong®

WWW.DELIFOL.DE

Bradford® Products, LLC.

WWW.BRADFORDPRODUCTS.COM

Mr./Mrs./Ms. _____

Company _____

Took part, at _____

In the

level 1

level 2

level 3

DLW delifol® Installation Course

Laying DLW delifol® Swimming Pool Linings

The course dealt with:
Preparation and practical laying and installation of DLW delifol® Swimming Pool Linings in various pool shapes and designs: cutting of strips, fusing together, sticking, securing joints, fixing of edges, knowledge of supply points and connection possibilities as well as knowledge of the materials.

_____ ___/___/___

Greg Solmundson
Authorized Instructor

Date Completed

Armstrong DLW AG (Europe)
Stuttgarter Straße 75 . D-74321 Bietigheim-Bissingen
Tel.: +49 7142 71-292 • Fax.: +49 7142 71-660
email: delifol@armstrong.com
www.delifol.com

Bradford Products, LLC.
710 Sunnyvale Drive Wilmington, NC 28412
Tel.: 910 791 2202 • Fax.: 910 791 0566
email: delifol@bradfordproducts.com
www.bradfordproducts.com

Armstrong®

Bradford® Products, LLC.

Recent DLW delifol® Installation References

Project	Country	City	Contact	Telephone
Freibad Waldstetten	Germany	73550 Waldstetten	Mr. Rossmann, Mr. Nuding	(01149) 7171-44670
Freibad Wendlingen	Germany	73440 Wendlingen/Neckar	Mr. Gold	(01149) 7024-943-0
Ernst Freyer Bad Oberreisesheim	Germany	74172 Neckarsulm	Mr. Fuchs	(01149) 7132-41467
Heinrich-Fischer-Bad-Hanau	Germany	63450 Hanau	Mr. Ludwig	(01149) 6181-295970
Freibad Mendig	Germany	56743 Mendig	Mr. Hilgers, Mr. Reuter	(01149) 2652-98070
Lindener Bad	Germany	63457 Hanau-Großauheim	Mr. Läms	(01149) -6181-295405
Brahogsbadet	Sweden	24580 Staffansdorp	Mr. Mats Bengtsson	(01146) 4621340
Äventyrsbadet	Sweden	39234 Kalmar	Mr. Ola Ragnarsson	(01146) 48028444
Vitamare	Switzerland	5070 Frick	Mr. Gürtler	(01141) 62-8658881
Schwimmbad Obersiggenthal	Switzerland	5415 Obersiggenthal	Mr. Weber	(01141) 56-2822867
G.Leoni	Italy	Salsomaggiore	Arch. Pucciani	(01139) 524-573538
Brynowen Holiday Park	UK	Aberystwith (Wales)		(01144) 1970871366
St. Edmunds School	UK	Canterbury		(01144) 1227415600
Total Fitness (chain)	UK	Wilmslow, Greater Manchester		(01144) 1614402620
Winkler Town Pool	Canada	Winkler, Manitoba	Hank Hildebrand	(204) 325-8333
West Country Village	Canada	Winnipeg, Manitoba	Sheila Loewen	(204) 987-7600
Glendale Golf and Country Club	Canada	Station B Edmonton, Alberta	Darryl Asher	(780) 447-3529
Bayfield Salvation Army	Canada	London, Ontario	Director	(519) 433-6106
Chelsea Estates	USA	New York, New York	Dave Coonan	(203) 943-8190
Patrick Meli Aquatic Center	USA	Dania Beach, Florida	Christine Jones	(954) 651-5057
All American Equinox	USA	Great Neck, New York	Dave Coonan	(203) 847-2704
Diamond Condominiums	USA	Miami Beach, Florida	Esther Konig	(917) 405-4330
Private Residence	USA	Wilmington, North Carolina	Denise Evans	(910) 686-0290
Worldmark Resorts	USA	Redmond, WA	Bryan Jabara	(425) 498-3571

Recent DLW delifol® Installations cntd…

Project	Country	City	Contact	Telephone
Barry Rice Architects (residence)	USA	E. Hampton, NY	Greg Darvin	(631) 324-8240
Whitley Bay Development, Inc.	USA	Cocoa Beach, FL	Maath Bennett	(321) 784-8093
Weston YMCA	USA	Weston, FL	Dave Pinsker	(954) 424-9622
Queen's Grant Townhomes	USA	Surf City, NC	Sterling Bryson	(910) 328-2468
Winston Residence	USA	Oxford, NC	Tommy Winston	(919) 669-9162
Joe & Donna Graham	USA	Raeford, NC	Joe & Donna Graham	(910) 848-3419
Schnall Residence	USA	New York, NY	Dave Coonan	(203) 943-8190
Deerfield	USA	Deerfield, FL	Ed Green	(305) 324-4081
Camp Hillard	USA	Scarsdale, NY	John Libman	(914) 949-8857
Grosse Pointe Woods	USA	Grosse Pointe Woods, MI	John Juntunen	(734) 427-3235