

Not to be distributed outside of FM Approvals and its affiliates except by Customer

APPROVAL REPORT

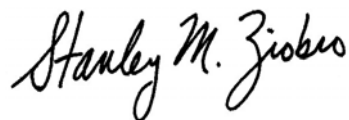
Project No: PR449812
Class: 1635
Product Type: Plastic Pipe and Fittings for Wet Pipe Automatic Sprinkler Systems in HC-1 Occupancies
Product Name: ABN//Instal CT FASER RD FIRE SDR 11 PP-R CT Pipe and Fittings in sizes 40 through 125 mm (External Diameter)
Name of Report Holder: ABN Pipe Systems SLU
Address of Report Holder: Parque Empresarial Medina On Autovía A-6 KM 152 (Salida 149) 47400 Medina del Campo, Valladolid Spain
Customer ID: 129462-1
Customer Website: www.abnpipesystems.com

Prepared by

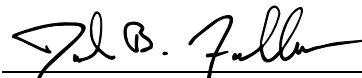


Aaron Butler
Senior Engineer

Reviewed by



Stanley M. Ziobro
AVP, Technical Team Manager



David B. Fuller
VP, Manager of Fire Protection

December 24, 2019

Date of Approval

1 INTRODUCTION

1.1 ABN Pipe Systems SLU requested Approval of their ABN//Instal CT FASER RD FIRE SDR 11 PP-R CT pipe and fittings in sizes 40 through 125 mm (external diameter) for use in wet pipe automatic sprinkler systems in HC-1 occupancies. These pipes and fittings are joined using a fusion welding process. Use of ABN Pipe Systems SLU fusion equipment and strict adherence to ABN Pipe Systems SLU fusion techniques are required to ensure proper joints.

1.2 This Report may be freely reproduced only in its entirety and without modification.

1.3 Standard

FM Approvals Standards

Title	Number	Issue Date
Plastic Pipe and Fittings for Automatic Sprinkler Systems	1635	February 2018

1.4 Listing

The ABN//Instal CT FASER RD FIRE SDR 11 PP-R CT pipe and fittings for use in wet pipe automatic sprinkler systems in HC-1 occupancies will be updated in the Approval Guide, an on-line resource of FM Approvals, as detailed in an attachment at the end of this Report. Deletions from any current product listing are shown with strikethroughs and additions to the current Approval listing are shown in red text.

2 DESCRIPTION

2.1 The ABN//Instal CT FASER RD FIRE pipe fittings discussed in this Report are designed to meet or exceed the requirements of ASTM F238 Standard Specification for Pressure-rated Polypropylene (PP) Piping Systems.

2.2 The ABN//Instal CT FASER RD FIRE pipe and fittings are constructed of PP-R CT (Polypropylene Random Copolymer with modified crystalline structure and enhanced temperature performance) and is marketed by ABN Pipe Systems SLU for use in automatic fire sprinkler systems. The raw material is identified as XN125-P from Lyondellbasell.

2.3 This Approval allows pipe and fittings, discussed in this Report, to be used in aboveground wet pipe fire protection systems for HC-1 Occupancy sprinkler systems only. All pipe and fittings must be completely separated by non-removable, fire resistant barriers from any area protected by the system. A non-removable barrier cannot be removed without substantial cosmetic damage. A fire-resistant barrier has a minimum finish fire rating of 15 minutes when tested per ASTM E 119. Except for minimal exposure at a sprinkler connection, the intent is that the sprinkler system will not be exposed to a fire environment.

2.4 The rated working pressure of the ABN//Instal CT FASER RD FIRE PP-R CT pipe and fittings discussed in this Report is 175 psi (1200 kPa) at 120°F (49°C).

3 EXAMINATIONS AND TESTS

- 3.1** Samples were submitted for examination and testing. The samples were considered to be representative of the product line and were examined, tested, and compared to the manufacturer's drawings. All data is on file at FM Approvals along with other documents and correspondence applicable to this program.
- 3.2** All testing and analysis considered appropriate was conducted and verified to be in compliance with the standard defined in Section 1.3.

4 MARKING

- 4.1** The following information appears on all ABN//Instal CT FASER RD FIRE SDR 11 PP-R CT pipe identified within this Report and meets standard requirements:

- Manufacturer name
- Country of Origin
- Nominal Size
- Material Designation
- Date of manufacture
- Rated working pressure and temperature rating
- The FM Mark of Approval with the words "UNEXPOSED SERVICE ONLY"

- 4.2** The following information is molded on a visible portion of the ABN//Instal CT FASER RD FIRE PP-R CT fittings discussed in this Report and meets Standard requirements:

- Manufacturer's name, code or trademark
- Nominal Size
- Material Designation
- Unique item identification, traceable to pressure rating and temperature rating
- Mold cavity identification

The following information is on the packaging of the ABN//Instal CT FASER RD FIRE PP-R CT fittings discussed in this Report and meets Standard requirements:

- The FM Mark of Approval

See attached marking drawing D.A. 7.5.1.

5 REMARKS

- 5.1** The FM Global Property Loss Prevention Data Sheets should be strictly adhered to when installing this product.
- 5.2** Because of the unique characteristics of the PPR material, successful installation and reliable performance are highly dependent upon proper technique. For this reason, the manufacturer's installation recommendations must be strictly followed to produce installed assemblies of pipe and fittings which will provide their full design performance.
- 5.3** The PP-R CT fittings discussed in this Report are Approved for use in wet pipe automatic sprinkler systems in HC-1 occupancies for unexposed use.

6 SURVEILLANCE AUDIT

The design and manufacturing facilities at the following locations are subject to follow-up audit inspections. The facilities and quality control procedures in place have been found to be satisfactory to manufacture product identical to that examined and tested as described in this Report. An FM Approved Product Revision Request Form shall be submitted to FM Approvals for requesting any additional manufacturing facilities which are not listed below. The products discussed in this Report are FM Approved only when designed and manufactured in the following facilities:

Design	Manufacturing
ABN Pipe Systems SLU Parque Empresarial Medina On Autovía A-6 KM 152 (Salida 149) 47400 Medina del Campo, Valladolid Spain	ABN Pipe Systems SLU Parque Empresarial Medina On Autovía A-6 KM 152 (Salida 149) 47400 Medina del Campo, Valladolid Spain

7 MANUFACTURER'S RESPONSIBILITIES

- 7.1 Documentation considered critical to this Approval is on file at FM Approvals and is listed in the Documentation File, Section 8, of this Report. No changes of any nature shall be made unless notice of the proposed change has been given and written authorization obtained from FM Approvals. The FM Approved Product Revision Request Form shall be forwarded to FM Approvals as notice of proposed changes.
- 7.2 The manufacturer is responsible for control of the product marking and installation instructions for the product.
- 7.3 The manufacturer shall provide installation, operating, and maintenance manual(s) with each system.
- 7.4 In accordance with the Master Agreement, the manufacturer shall make full and immediate disclosure to FM Approvals of all information concerning any defect in, or potential hazard of, the product or service manufactured or provided by the Customer which is Approved by, or being examined by, FM Approvals. The manufacturer shall make all necessary arrangements for the investigation of complaints / anomalies applicable to this approval and shall keep records of all complaints / anomalies including actions taken.
- 7.5 The manufacturer shall measure and record critical component dimensions, material thickness, and markings (as applicable) at the beginning of each production run. Thereafter, these measurements shall be recorded every 4 hours. The number of samples to be measured shall be based on the manufacturer's Quality Control Manual, but in no case shall be less than five samples. Measurements shall be compared to the latest revision of the component drawings.

8 DOCUMENTATION FILE

All pertinent Report documents are outlined in the ATTACHMENTS list below.

9 CONCLUSION

The ABN//Instal CT FASER RD FIRE SDR 11 PP-R CT pipe and fittings in sizes 40 through 125 mm (external diameter) for use in wet pipe automatic sprinkler systems in HC-1 occupancies meets FM Approvals requirements. Since a duly signed Master Agreement is on file for this manufacturer, Approval is effective the date of this Report.

PROJECT DATA RECORD: PR449812

ATTACHMENTS: Listing Sheet
Marking Drawing D.A. 7.5.1
CDL Control Drawing Blueprint Report PR449812

LISTING SHEET

☑ Fire Protection ☑ Automatic Sprinkler Systems ☑ Pipes and Fittings for Aboveground ☑ Plastic Pipe and Fittings

ABN//Instal CT FASER RD FIRE PP-R CT Pipe and Fittings

<i>Designation</i>	<i>Product Description</i>	<i>Pipe Size, mm (External Diameter)</i>
D0CTFF5004000	PIPE ABN INSTAL CT FASER RD FIRE S-5	40
D0CTFF5005000	PIPE ABN INSTAL CT FASER RD FIRE S-5	50
D0CTFF5006300	PIPE ABN INSTAL CT FASER RD FIRE S-5	63
D0CTFF5007500	PIPE ABN INSTAL CT FASER RD FIRE S-5	75
D0CTFF5009000	PIPE ABN INSTAL CT FASER RD FIRE S-5	90
D0CTFF5011000	PIPE ABN INSTAL CT FASER RD FIRE S-5	110
D0CTFF5012500	PIPE ABN INSTAL CT FASER RD FIRE S-5	125
D0CTFF50040M0	PIPE ABN INSTAL CT FASER RD FIRE S-5 WITH SOCKET	40
D0CTFF50050M0	PIPE ABN INSTAL CT FASER RD FIRE S-5 WITH SOCKET	50
D0CTFF50063M0	PIPE ABN INSTAL CT FASER RD FIRE S-5 WITH SOCKET	63
D0CTFF50075M0	PIPE ABN INSTAL CT FASER RD FIRE S-5 WITH SOCKET	75
D0CTFF50090M0	PIPE ABN INSTAL CT FASER RD FIRE S-5 WITH SOCKET	90
D0CTFF50110M0	PIPE ABN INSTAL CT FASER RD FIRE S-5 WITH SOCKET	110
D0CTFF50125M0	PIPE ABN INSTAL CT FASER RD FIRE S-5 WITH SOCKET	125
D1M0400000000	SOCKET	40
D1M0500000000	SOCKET	50
D1M0630000000	SOCKET	63
D1M0750000000	SOCKET	75
D1M0900000000	SOCKET	90
D1M1100000000	SOCKET	110
D1M1250000000	SOCKET	125
D1C0400900000	ELBOW 90°	40
D1C0500900000	ELBOW 90°	50
D1C0630900000	ELBOW 90°	63
D1C0750900000	ELBOW 90°	75
D1C0900900000	ELBOW 90°	90
D1C1100900000	ELBOW 90°	110
D1C1250900000	ELBOW 90°	125
D1C0400450000	ELBOW 45°	40
D1C0500450000	ELBOW 45°	50
D1C0630450000	ELBOW 45°	63
D1C0750450000	ELBOW 45°	75
D1C0900450000	ELBOW 45°	90
D1C1100450000	ELBOW 45°	110
D1C1250450000	ELBOW 45°	125
D1R0500400000	REDUCING SOCKET	50 x 40
D1R0630400000	REDUCING SOCKET	63 x 40

FM APPROVALS PROJECT NO: PR449812

<i>Designation</i>	<i>Product Description</i>	<i>Pipe Size, mm (External Diameter)</i>
D1R0630500000	REDUCING SOCKET	63 x 50
D1R0750400000	REDUCING SOCKET	75 x 40
D1R0750500000	REDUCING SOCKET	75 x 50
D1R0750630000	REDUCING SOCKET	75 x 63
D1R0900630000	REDUCING SOCKET	90 x 63
D1R0900750000	REDUCING SOCKET	90 x 75
D1R1100630000	REDUCING SOCKET	110 x 63
D1R1100750000	REDUCING SOCKET	110 x 75
D1R1100900000	REDUCING SOCKET	110 x 90
D1R1251100000	REDUCING SOCKET	125 x 110
D1T0400000000	TEE	40
D1T0500000000	TEE	50
D1T0630000000	TEE	63
D1T0750000000	TEE	75
D1T0900000000	TEE	90
D1T1100000000	TEE	110
D1T1250000000	TEE	125
D1TR050040050	RED. TEE	50 x 40 x 50
D1TR063040063	RED. TEE	63 x 40 x 63
D1TR063050063	RED. TEE	63 x 50 x 63
D1TR075040075	RED. TEE	75 x 40 x 75
D1TR075050075	RED. TEE	75 x 50 x 75
D1TR075063075	RED. TEE	75 x 63 x 75
D1TR090050090	RED. TEE	90 x 50 x 90
D1TR090063090	RED. TEE	90 x 63 x 90
D1TR090075090	RED. TEE	90 x 75 x 90
D1TR110063110	RED. TEE	110 x 63 x 110
D1TR110075110	RED. TEE	110 x 75 x 110
D1TR110090110	RED. TEE	110 x 90 x 110
D1TA0400000000	END CAP	40
D1TA0500000000	END CAP	50
D1TA0630000000	END CAP	63
D1TA0750000000	END CAP	75
D1TA0900000000	END CAP	90
D1TA1100000000	END CAP	110
D1TA1250000000	END CAP	125
D1P0400000000	FLANGE ADAPTER	40
D1P0500000000	FLANGE ADAPTER	50
D1P0630000000	FLANGE ADAPTER	63
D1P0750000000	FLANGE ADAPTER	75
D1P0900000000	FLANGE ADAPTER	90
D1P1100000000	FLANGE ADAPTER	110

FM APPROVALS PROJECT NO: PR449812


<i>Designation</i>	<i>Product Description</i>	<i>Pipe Size, mm (External Diameter)</i>
D1P1250000000	FLANGE ADAPTER	125
D1BPPA0400320	BRIDA PP ALMA ACERO	40
D1BPPA0500400	BRIDA PP ALMA ACERO	50
D1BPPA0630500	BRIDA PP ALMA ACERO	63
D1BPPA0750650	BRIDA PP ALMA ACERO	75
D1BPPA0900800	BRIDA PP ALMA ACERO	90
D1BPPA1101000	BRIDA PP ALMA ACERO	110
D1BPPA1401250	BRIDA PP ALMA ACERO	125
D1CRU04000000	EQUAL CROSS	40
D1CRUR0630400	REDUCTION CROSS	63 x 40
D1CRUR0750400	REDUCTION CROSS	75 x 40
D1CRUR0750500	REDUCTION CROSS	75 x 50
D1CRUR0900500	REDUCTION CROSS	90 x 50
D2ERHTE PIECE040114	TRANSITION PIECE R.H.PP TUER.HEXA	40
D2ERHTE PIECE050112	TRANSITION PIECE R.H.PP TUER.HEXA	50
D2ERHTE PIECE063002	TRANSITION PIECE R.H.PP TUER.HEXA	63
D2ERHTE PIECE075212	TRANSITION PIECE R.H.PP TUER.HEXA	75
D2ERHTE PIECE090003	TRANSITION PIECE R.H.PP TUER.HEXA	90
D2ERHTE PIECE110004	TRANSITION PIECE R.H.PP TUER.HEXA	110
D2ERMTE PIECE040114	TRANSITION PIECE R.M.PP TUER.EXA	40
D2ERMTE PIECE050112	TRANSITION PIECE R.M.PP TUER.EXA	50
D2ERMTE PIECE063002	TRANSITION PIECE R.M.PP TUER.EXA	63
D2ERMTE PIECE075212	TRANSITION PIECE R.M.PP TUER.EXA	75
D2ERMTE PIECE090003	TRANSITION PIECE R.M.PP TUER.EXA	90
D2ERMTE PIECE110004	TRANSITION PIECE R.M.PP TUER.EXA	110
D2TURH0401140	UNION NUT R.H.	40
D2TURH0501120	UNION NUT R.H.	50
D2TURH0630002	UNION NUT R.H.	63
D2TURH0750212	UNION NUT R.H.	75
D2TURH0900003	UNION NUT R.H.	90
D2TURH1100004	UNION NUT R.H.	110
D2TURM0401140	UNION NUT R.M.	40
D2TURM0501120	UNION NUT R.M.	50
D2TURM0630002	UNION NUT R.M.	63
D2TURM0750212	UNION NUT R.M.	75
D2TURM0900003	UNION NUT R.M.	90
D2TURM1100004	UNION NUT R.M.	110
D2IH040025012	FEMALE RED. WELD-IN-SADDLE 40x25x1/2**	40
D2IH040025034	FEMALE RED. WELD-IN-SADDLE 40x25x3/4***	40
D2IH050025012	FEMALE RED. WELD-IN-SADDLE 50x25x1/2***	50
D2IH050025034	FEMALE RED. WELD-IN-SADDLE 50x25x3/4***	50
D2IH063025012	FEMALE RED. WELD-IN-SADDLE 63x25x1/2***	63

FM APPROVALS PROJECT NO: PR449812

<i>Designation</i>	<i>Product Description</i>	<i>Pipe Size, mm (External Diameter)</i>
D2IH063025034	FEMALE RED. WELD-IN-SADDLE 63x25x3/4***	63
D2IH075025012	FEMALE RED. WELD-IN-SADDLE 75x25x1/2***	75
D2IH075025034	FEMALE RED. WELD-IN-SADDLE 75x25x3/4***	75
D2IH090025012	FEMALE RED. WELD-IN-SADDLE 90x25x1/2***	90
D2IH090025034	FEMALE RED. WELD-IN-SADDLE 90x25x3/4***	90
D2IH110025012	FEMALE RED. WELD-IN-SADDLE 110x25x1/2***	110
D2IH110025034	FEMALE RED. WELD-IN-SADDLE 110x25x3/4***	110
D2IH125025012	FEMALE RED. WELD-IN-SADDLE 125x25x1/2***	125
D2IH125025034	FEMALE RED. WELD-IN-SADDLE 125x25x3/4***	125
D2IH075032001	FEMALE RED. WELD-IN-SADDLE 75x32x1***	75
D2IH090032001	FEMALE RED. WELD-IN-SADDLE 90x32x1***	90
D2IH110032001	FEMALE RED. WELD-IN-SADDLE 110x32x1***	110
D2IH125032001	FEMALE RED. WELD-IN-SADDLE 125x32x1***	125
D4ME040000000	ELECTROFUSION SOCKET	40
D4ME050000000	ELECTROFUSION SOCKET	50
D4ME063000000	ELECTROFUSION SOCKET	63
D4ME075000000	ELECTROFUSION SOCKET	75
D4ME090000000	ELECTROFUSION SOCKET	90
D4ME110000000	ELECTROFUSION SOCKET	110
D4ME125000000	ELECTROFUSION SOCKET	125
D5IDM04009000	WELD-IN SADDLE	40 x 90
D5IDM04011000	WELD-IN SADDLE	40 x 110
D5IDM0404 (125)00	WELD-IN SADDLE	40 x 125
D5IDM05009000	WELD-IN SADDLE	50 x 90
D5IDM05011000	WELD-IN SADDLE	50 x 110
D5IDM0504 (125)00	WELD-IN SADDLE	50 x 125
D5IDM06311000	WELD-IN SADDLE	63 x 110
D5IDM0634 (125)00	WELD-IN SADDLE	63 x 125

Marking proposal once FM approval is obtained for: (this proposal is described in technical instructions I.T. 7.5.1.11 R1 (for injection) and I.T.7.5.3.1 R2 (for extrusion))

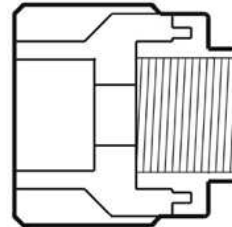
1) Pipes

MARKING												
(LogoinstalCTFaserRD1Fire T24 + LogoinstalCTFaserRD2Fire T24)	PP-RCT RP/PP-RCT RP+FW/PP-RCT RP Ø63x5,8 S-5		AENOR CC	B-s1,d0	APTO PARA RIESGO RL Y RO	(Clase 1/6bar Clase 2/6bar) (20°C/20,3bar/50a) (60°C/11,3bar/50a) DIN 8078	SF=1,25 NTC 4897	Hora	Fecha	Logo ABN (T32)		
		UNEXPOSED SERVICE ONLY	001W000646 R.P. 001.78	Certificado Afili-Licof	Ensayado según RP01.84	(Clase 4/6bar Clase 5/4bar) (70°C/9,5bar/50a) (80°C/8,1bar/25a) Opaco	Antimicrobiano Plus	L-1	R.T. O.P. KK			Made in Spain

2) FITINGS:

ABN // INSTAL FITTINGS PPR-RD

ENLACE RH TUERCA HEX.
 FEMALE HEX.THREADED ADAPTOR/
 JOELHOS ROSCA FÊMEA HEX.



Diám./ grados: **50-11/2"**

Código: **DR2ERHTE50112**

Nº piezas: **4**

Nº lote: **XXXX**

Nº operario:

2456				
------	--	--	--	--



UNEXPOSED SERVICE ONLY
 UNE EN ISO 15874 PP-R CT Class1/10 bar, Class 2/8bar. OPACO.

Blueprint Report

ABN Pipe Systems SLU (129462)

Class No 1635

Original Project I.D. 449812

<u>Drawing No.</u>	<u>Revision Level</u>	<u>Drawing Title</u>	<u>Last Report</u>	<u>Electronic Drawing</u>
Cruz_reducida_D63-d40	1/3/2019	Reducing Cross D63-d40	PR449812	Yes (pdf)
Cruz_reducida_D75-40	1/3/2019	Reducing Cross D75-40	PR449812	Yes (pdf)
Cruz_reducida_D75-50	1/3/2019	Reducing Cross D75-50	PR449812	Yes (pdf)
Cruz_reducida_D90-50	1/3/2019	Reducing Cross D90-50	PR449812	Yes (pdf)
D.A. 7.5.1	12/12/2019	Markings	PR449812	Yes (pdf)
D1M0400_SOCKET-SOCKET	2/19/2019	Socket 40	PR449812	Yes (pdf)
ENLACE_R-H_TUERCA HEXAGONAL_1	11/29/2019	ENLACE_R-H_TUERCA HEXAGONAL_1	PR449812	Yes (pdf)
ENLACE_R-H_TUERCA HEXAGONAL_2	11/29/2019	ENLACE_R-H_TUERCA HEXAGONAL_2	PR449812	Yes (pdf)
ENLACE_R-H_TUERCA HEXAGONAL_3	11/29/2019	ENLACE_R-H_TUERCA HEXAGONAL_3	PR449812	Yes (pdf)
ENLACE_R-H_TUERCA HEXAGONAL_4	11/29/2019	ENLACE_R-H_TUERCA HEXAGONAL_4	PR449812	Yes (pdf)
ENLACE_R-M_TUERCA HEXAGONAL_1	11/29/2019	ENLACE_R-M_TUERCA HEXAGONAL_1	PR449812	Yes (pdf)
ENLACE_R-M_TUERCA HEXAGONAL_2	11/29/2019	ENLACE_R-M_TUERCA HEXAGONAL_2	PR449812	Yes (pdf)
ENLACE_R-M_TUERCA HEXAGONAL_3	11/29/2019	ENLACE_R-M_TUERCA HEXAGONAL_3	PR449812	Yes (pdf)
ENLACE_R-M_TUERCA HEXAGONAL_4	11/29/2019	ENLACE_R-M_TUERCA HEXAGONAL_4	PR449812	Yes (pdf)
INJERTO_D25-110_con_inserto_3-4	6/9/2019	INJERTO_D25-110_con_inserto_3-4	PR449812	Yes (pdf)
INJERTO_D25-63_con_inserto_3-4	6/9/2019	INJERTO_D25-63_con_inserto_3-4	PR449812	Yes (pdf)
INJERTO_D32-110_con_inserto_1_V1	6/9/2019	INJERTO_D32-110_con_inserto_1_V1	PR449812	Yes (pdf)
Injerto_50-40_110	2/19/2019	Injerto_50-40_110	PR449812	Yes (pdf)
Injerto_50-40_125	2/19/2019	Injerto_50-40_125	PR449812	Yes (pdf)
Injerto_50-40_160	2/19/2019	Injerto_50-40_160	PR449812	Yes (pdf)
Injerto_50-40_200	2/19/2019	Injerto_50-40_200	PR449812	Yes (pdf)
Injerto_50-40_250	2/19/2019	Injerto_50-40_250	PR449812	Yes (pdf)
Injerto_50-40_315	2/19/2019	Injerto_50-40_315	PR449812	Yes (pdf)
Injerto_50-40_90	2/19/2019	Injerto_50-40_90	PR449812	Yes (pdf)
Injerto_50-50_110	2/19/2019	Injerto_50-50_110	PR449812	Yes (pdf)
Injerto_50-50_125	2/19/2019	Injerto_50-50_125	PR449812	Yes (pdf)
Injerto_50-50_160	2/19/2019	Injerto_50-50_160	PR449812	Yes (pdf)
Injerto_50-50_200	2/19/2019	Injerto_50-50_200	PR449812	Yes (pdf)
Injerto_50-50_250	2/19/2019	Injerto_50-50_250	PR449812	Yes (pdf)
Injerto_50-50_315	2/19/2019	Injerto_50-50_315	PR449812	Yes (pdf)
Injerto_50-50_90	2/19/2019	Injerto_50-50_90	PR449812	Yes (pdf)
Injerto_63-63_110	2/19/2019	Injerto_63-63_110	PR449812	Yes (pdf)
Injerto_63-63_125	2/19/2019	Injerto_63-63_125	PR449812	Yes (pdf)
Injerto_63-63_160	2/19/2019	Injerto_63-63_160	PR449812	Yes (pdf)
Injerto_63-63_200	2/19/2019	Injerto_63-63_200	PR449812	Yes (pdf)
Injerto_63-63_250	2/19/2019	Injerto_63-63_250	PR449812	Yes (pdf)
Injerto_63-63_315	2/19/2019	Injerto_63-63_315	PR449812	Yes (pdf)
Manguito_D110_190925	3/14/2019	Manguito_D110_190925	PR449812	Yes (pdf)
Manguito_D125_190924	3/14/2019	Manguito_D125_190924	PR449812	Yes (pdf)
Manguito_D50_190920	10/14/2019	Manguito_D50_190920	PR449812	Yes (pdf)
Manguito_D63_190913	9/18/2019	Manguito_D63_190913	PR449812	Yes (pdf)
Manguito_D75_190305	3/14/2019	Manguito_D75_190305	PR449812	Yes (pdf)
Manguito_D90_190926	3/14/2019	Manguito_D90_190926	PR449812	Yes (pdf)
T igual 40	2/19/2019	Equal Tee 40	PR449812	Yes (pdf)
T igual 50	2/19/2019	Equal Tee 50	PR449812	Yes (pdf)
TUERCA_UNION_HEMBRA_2_D63_BSP	10/17/2019	TUERCA_UNION_HEMBRA_2_D63_BSP	PR449812	Yes (pdf)
TUERCA_UNION_HEMBRA_3_D90_BSP	10/17/2019	TUERCA_UNION_HEMBRA_3_D90_BSP	PR449812	Yes (pdf)
TUERCA_UNION_MACHO_1_1-2_D50_BSP	10/17/2019	TUERCA_UNION_MACHO_1_1-2_D50_BSP	PR449812	Yes (pdf)
TUERCA_UNION_MACHO_1_1-4_D40_BSP	10/17/2019	TUERCA_UNION_MACHO_1_1-4_D40_BSP	PR449812	Yes (pdf)

TUERCA_UNION_MACHO_2_1-2_D75_BSP	10/17/2019	TUERCA_UNION_MACHO_2_1-2_D75_BSP	PR449812	Yes (pdf)
TUERCA_UNION_MACHO_2_D63_BSP	10/17/2019	TUERCA_UNION_MACHO_2_D63_BSP	PR449812	Yes (pdf)
TUERCA_UNION_MACHO_3_D90_BSP	10/17/2019	TUERCA_UNION_MACHO_3_D90_BSP	PR449812	Yes (pdf)
Te igual 110	2/19/2019	Equal Tee 110	PR449812	Yes (pdf)
Te igual 125	2/19/2019	Equal Tee 125	PR449812	Yes (pdf)
Te igual 63	2/19/2019	Equal Tee 63	PR449812	Yes (pdf)
Te igual 75	2/19/2019	Equal Tee 75	PR449812	Yes (pdf)
Te igual 90	2/19/2019	Equal Tee 90	PR449812	Yes (pdf)
Te reducida 110-90	2/19/2019	Reducing Tee 110-90	PR449812	Yes (pdf)
Te reducida 50-40-50	2/19/2019	Reducing Tee 50-40-50	PR449812	Yes (pdf)
Te reducida 63-40-63	2/19/2019	Reducing Tee 63-40-63	PR449812	Yes (pdf)
Te reducida 63-50-63	2/19/2019	Reducing Tee 63-50-63	PR449812	Yes (pdf)
Te reducida 75-50-75	2/19/2019	Reducing Tee 75-50-75	PR449812	Yes (pdf)
Te reducida 75-63	2/19/2019	Reducing Tee 75-63	PR449812	Yes (pdf)
Te reducida 90-75	2/19/2019	Reducing Tee 90-75	PR449812	Yes (pdf)
codo 45° 110	2/19/2019	Elbow 45° 110	PR449812	Yes (pdf)
codo 45° 125	2/19/2019	Elbow 45° 125	PR449812	Yes (pdf)
codo 45° 40	2/19/2019	Elbow 45° 40	PR449812	Yes (pdf)
codo 45° 50	2/19/2019	Elbow 45° 50	PR449812	Yes (pdf)
codo 45° 63	2/19/2019	Elbow 45° 63	PR449812	Yes (pdf)
codo 45° 75	2/19/2019	Elbow 45° 75	PR449812	Yes (pdf)
codo 45° 90	2/19/2019	Elbow 45° 90	PR449812	Yes (pdf)
codo 90° 110	2/19/2019	Elbow 90° 110	PR449812	Yes (pdf)
codo 90° 125	2/19/2019	Elbow 90° 125	PR449812	Yes (pdf)
codo 90° 40	2/19/2019	Elbow 90° 40	PR449812	Yes (pdf)
codo 90° 50	2/19/2019	Elbow 90° 50	PR449812	Yes (pdf)
codo 90° 63	2/19/2019	Elbow 90° 63	PR449812	Yes (pdf)
codo 90° 75	2/19/2019	Elbow 90° 75	PR449812	Yes (pdf)
codo 90° 90	2/19/2019	Elbow 90° 90	PR449812	Yes (pdf)
reducción 110-63	2/19/2019	reducción 110-63	PR449812	Yes (pdf)
reducción 110-75	2/19/2019	reducción 110-75	PR449812	Yes (pdf)
reducción 110-90	2/19/2019	reducción 110-90	PR449812	Yes (pdf)
reducción 125-110	2/19/2019	reducción 125-110	PR449812	Yes (pdf)
reducción 50-40	2/19/2019	reducción 50-40	PR449812	Yes (pdf)
reducción 63-40	2/19/2019	reducción 63-40	PR449812	Yes (pdf)
reducción 63-50	2/19/2019	reducción 63-50	PR449812	Yes (pdf)
reducción 75-40	2/19/2019	reducción 75-40	PR449812	Yes (pdf)
reducción 75-50	2/19/2019	reducción 75-50	PR449812	Yes (pdf)
reducción 75-63	2/19/2019	reducción 75-63	PR449812	Yes (pdf)
reducción 75-90	2/19/2019	reducción 75-90	PR449812	Yes (pdf)
reducción 90-63	2/19/2019	reducción 90-63	PR449812	Yes (pdf)
tapón 110	2/19/2019	Cap 110	PR449812	Yes (pdf)
tapón 125	2/19/2019	Cap 125	PR449812	Yes (pdf)
tapón 40	2/19/2019	Cap 40	PR449812	Yes (pdf)
tapón 50	2/19/2019	Cap 50	PR449812	Yes (pdf)
tapón 63	2/19/2019	Cap 63	PR449812	Yes (pdf)
tapón 75	2/19/2019	Cap 75	PR449812	Yes (pdf)
tapón 90	2/19/2019	Cap 90	PR449812	Yes (pdf)
ENLACE_R-H_TUERCA HEXAGONAL_1_1-2	11/29/2019	ENLACE_R-H_TUERCA HEXAGONAL_1_1-2	PR449812	Yes (pdf)
ENLACE_R-H_TUERCA HEXAGONAL_1_1-4	11/29/2019	ENLACE_R-H_TUERCA HEXAGONAL_1_1-4	PR449812	Yes (pdf)
ENLACE_R-H_TUERCA HEXAGONAL_2_1-2	11/29/2019	ENLACE_R-H_TUERCA HEXAGONAL_2_1-2	PR449812	Yes (pdf)
ENLACE_R-M_TUERCA HEXAGONAL_1_1-2	11/29/2019	ENLACE_R-M_TUERCA HEXAGONAL_1_1-2	PR449812	Yes (pdf)
ENLACE_R-M_TUERCA HEXAGONAL_1_1-4	11/29/2019	ENLACE_R-M_TUERCA HEXAGONAL_1_1-4	PR449812	Yes (pdf)
ENLACE_R-M_TUERCA HEXAGONAL_2_1-2	11/29/2019	ENLACE_R-M_TUERCA HEXAGONAL_2_1-2	PR449812	Yes (pdf)
INJERTO_D25-110_con_inserto_1-2_V1	6/9/2019	INJERTO_D25-110_con_inserto_1-2_V1	PR449812	Yes (pdf)
INJERTO_D25-63_con_inserto_1-2_V1	6/9/2019	INJERTO_D25-63_con_inserto_1-2_V1	PR449812	Yes (pdf)
TUERCA_UNION_HEMBRA_1_1-2_D50_BSP	10/17/2019	TUERCA_UNION_HEMBRA_1_1-2_D50_BSP	PR449812	Yes (pdf)

TUERCA_UNION_HEMBRA_1_1-4_D40_BSP	10/17/2019	TUERCA_UNION_HEMBRA_1_1-4_D40_BSP	PR449812	Yes (pdf)
TUERCA_UNION_HEMBRA_2_1-2_D75_BSP	10/17/2019	TUERCA_UNION_HEMBRA_2_1-2_D75_BSP	PR449812	Yes (pdf)