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Test Report

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Report No	2371/3375396	This Report consists of 15 pages
Licence/Certificate No	VC 743696 (Application	)
Client	Crane Limited T/A Crane Building Serv 46-48 Wilbury Way Hitchin SG4 0UD	rices and Utilities
Authority & date	BSI Service Manageme	nt Order No 3375396
Items tested	MaxiFit - Ductile iron w	de tolerance couplings and flange adaptors
Specification	BS EN 14525:2004 Clau 4.1.3.5, 4.2.1, 4.2.2, 4. 4.6.2 Immersive Testing – Le Type test for verificatio	uses 4.1.1, 4.1.2, 4.1.3.1, 4.1.3.2, 4.1.3.3, 4.1.3.4, 3.1, 4.3.2, 4.4.1, 4.4.2, 4.4.3, 4.5.1, 4.5.2 and evel 1 n certificate
Results	Pass - See Summary of	Results on Page 2
Prepared by	C Higby	Senior Engineer
Authorized by	M Manito M.	Marito Team Manager
Issue Date	16 June 2021	
Conditions of issue	This Test Report is issued subje Service'. The results contained specific tests carried out, as det indicate any measure of Approv product. No extract, abridgeme advertise a product without the reject all or any of the details of	t to the conditions stated in current issue of 'BSI Terms of herein apply only to the particular sample(s) tested and to the ailed in this Test Report. The issuing of this Test Report does not al, Certification, Supervision, Control or Surveillance by BSI of any nt or abstraction from a Test Report may be published or used to written consent of BSI, who reserve the absolute right to agree or any items or publicity for which consent may be sought.

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#### EVALUATION, EXAMINATION AND ASSESSMENT OF MAXIFIT DUCTILE IRON WIDE TOLERANCE COUPLINGS AND FLANGE ADAPTORS SUBMITTED AS TYPE EVALUATION SAMPLES

#### INTRODUCTION

For the purpose of the verification certification the MaxiFit ductile iron wide tolerance couplings and flange adaptors detailed below, submitted on behalf of Crane Limited T/A Crane Building Services and Utilities, were evaluated and assessed against the requirements of BS EN 14525:2004 Clauses 4.1.1, 4.1.2, 4.1.3.1, 4.1.3.2, 4.1.3.3, 4.1.3.4, 4.1.3.5, 4.2.1, 4.2.2, 4.3.1, 4.3.2, 4.4.1, 4.4.2, 4.4.3, 4.5.1, 4.5.2 and 4.6.2 as indicated on the following pages of this Report. This request was made on a BSI Service Management Order.

It is emphasised that assessments were not made against the other clauses of the Specification.

The evaluations and assessments contained in this report was performed immersively at the client's site at Crane Limited T/A Crane Builidng Services and Utilities, 46-48 Wilbury Way, Hitchin, SG4 0UD from 19-22 April 2021, in the presence of BSI and technically evaluated by the test report author.

Sample No	Nominal Size (mm)	Component Description
1	DN 100	MaxiFit, Non-restrained flange adaptor
2	DN 200	MaxiFit, Non-restrained flange adaptor
3	DN 50	MaxiFit, Non-restrained flange adaptor
4	DN 50	MaxiFit, Non-restrained coupler
5	DN 100	MaxiFit, Non-restrained flange adaptor
6	DN 100	MaxiFit, Non-restrained coupler
7	DN 200	MaxiFit, Non-restrained flange adaptor
8	DN 200	MaxiFit, Non-restrained coupler
9	DN 300	MaxiFit, Non-restrained flange adaptor
10	DN 300	MaxiFit, Non-restrained coupler

#### **TEST ITEMS**

**Note:** Test items 1 and 2 were subject to the required performance tests in accordance with Clause 4.6.2

#### **SUMMARY OF RESULTS**

The test items assessed met the requirements or parts thereof, of the Specification against which evaluations were made.

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#### BS EN 14525:2004

### **PRODUCT EVALUATION**

CLAUSE 4 4.1 4.1.1	<b>Technical Requirements</b> <b>General</b> <b>Diameter Range</b> The working range defined by the minimum and maximum outside diameter range was declared by the manufacturer and was within the range as detailed with Table 1.	ASSESSMENT
	MinimumDeclaredMaximum DN of the pipes to be connected $40 < DN \le 100$ $10 \text{ mm}$ $20.0 - 40.0 \text{ mm}$ $125 < DN \le 150$ $15 \text{ mm}$ $20.0 - 40.0 \text{ mm}$ $175 < DN \le 200$ $15 \text{ mm}$ $25.0 - 50.0 \text{ mm}$ $225 < DN \le 250$ $20 \text{ mm}$ $25.0 - 50.0 \text{ mm}$ DN 300 $20 \text{ mm}$ $25.0 - 50.0 \text{ mm}$	Pass Pass Pass Pass Pass
4.1.2	<b>Surface condition and repairs</b> The manufacturer declared that no repairs were undertaken on the ductile iron castings.	Pass
4.1.3 4.1.3.1	<b>Type of joints and interconnection</b> <b>General</b> The manufacturer supplied documentary evidence detailing that the rubber gaskets used complied with the requirements of EN 681-1 type WA.	Pass
4.1.3.2	<b>Flanged joints</b> The flanged joints were constructed in such a way that they may be attached to flanges whose dimensions and tolerances comply with EN 1092-2. See sample tables 1-4.	Pass
4.1.3.3	<b>Flexible joints</b> The non-restrained flexible joints met the performance requirements of clause 5.	Pass
4.1.3.4	<b>Mechanical properties of bolts and nuts</b> The manufacturer declared that the bolts and nuts complied with DIN 125 grade 4.8. The manufacturer declared that the stainless steel washers (A2 ST/ST) complied with BS4320.	Pass Pass
4.1.3.5	Materials in contact with water intended for human consumption. The manufacturer provided valid WRAS certificates for the materials in contact with water intended for human consumption.	Pass

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#### BS EN 14525:2004

CLAUSE				ASSESSMENT
4	Technical Requirements (Cont	tinued)		
4.2	Dimensional requirements			
4.2.1	Wall thickness	Specified	Actual	
	DN 50 Flange Adaptor (mm)	4.0 min	4.01 min	Pass
	DN 50 Flange Coupler (mm)	4.0 min	4.50 min	Pass
	DN 100 Flange Adaptor (mm)	4.0 min	4.08 min	Pass
	DN 100 Coupler (mm)	4.0 min	4.53 min	Pass
	DN 200 Flange Adaptor (mm)	4.0 min	4.18 min	Pass
	DN 200 Coupler (mm)	4.0 min	4.69 min	Pass
	DN 300 Flange Adaptor (mm)	5.0 min	5.55 min	Pass
	DN 300 Coupler (mm)	5.0 min	5.04 min	Pass
4.2.2	Joint gap and depth of engage	ement		
	The manufacturer declared the manufacturer d	aximum allowa	ble joint gap	Pass
	Declared maximum joint gap	Specified	Declared	
	DN 50 Flange Adaptor (mm)	15 min	40 max	Pass
	DN 100 Flange Adaptor (mm)	15 min	40 max	Pass
	DN 100 Coupler (mm)	20 min	40 max	Pass
	DN 200 Flange Adaptor (mm)	20 min	40 max	Pass
	DN 200 Coupler (mm)	25 min	50 max	Pass
	DN 300 Flange Adaptor (mm)	30 min	60 max	Pass
	DN 300 Coupler (mm)	35 min	50 max	Pass
4.3 4.3.1	Tensile properties of duct Tensile properties The manufacturer provided docun minimum tensile strength was 480 elongation of 20.5% at fracture. T 420/5.	nentary eviden ) MPa and a m The minimum r	ce that the inimum equirement was	Pass
4.3.2	<b>Hardness</b> The manufacturer provided docun Brinell hardness was 164-165 HB. was 250 HB.	nentary eviden The maximum	ce that the value allowed	Pass
4.4 4.4.1	<b>Coatings</b> <b>General</b> The couplings and flange adaptors externally. The coating complied v and AWWA-C224-01. No relevant at the time of publication of this T	s were coated vith NFA 4907 EN standard co est Report.	internally and L3, NF 49-714 urrently exists	Pass
4.4.2	<b>Coating of ductile iron compo</b> The coating used was Rilsan Fine Primgreen LAT 12035 primer and	<b>nents</b> Powder T Blac was works- ap	k 7450 AC with plied.	Pass
4.4.3	<b>Coating of bolts and nuts</b> The bolts and nuts were suitably p The bolts and nuts were protected protection.	protected to inl by a zinc base	nibit corrosion. ed corrosion	Pass

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#### **BS EN 14525:2004**

CLAUSE		ASSESSMENT
4	Technical Requirements (Continued)	
4.5	Product information Marking an emineration	
4.5.1	Marking requirements	
	marked	Pass
	manca	1 435
	Specified marking:	
	- manufacturer's name or mark	Pass
	<ul> <li>identification of year of manufacture</li> </ul>	Pass
	- identification of ductile iron	Pass
	<ul> <li>DN and PN rating of flanges were applicable</li> </ul>	Pass
	- reference to this Standard	Pass
	- an identification of the minimum and maximum outside	
	diameters (range of external diameters over which the product	
	works)	Pass
	<ul> <li>PFA of the coupling or of the flange adaptor</li> </ul>	Pass
	The first five corresponding markings were cast. Additionally the other specified markings were applied by means of a label.	Pass
4.5.2	<b>Additional information</b> The following information was supplied by means of a label attached to the coupler or flange adaptor or available within the manufacturers jointing instruction literature.	Pass
	Specified Marking:	
	- maximum joint gap	Pass
	- minimum depth of engagement	Pass
	<ul> <li>maximum allowable angular deflection</li> </ul>	Pass
	- pipe materials for which the coupling or flange adaptor is	_
	intended to be used with non-restrained joints	Pass
	- need for supporting sleeves (insert)	- Dace
	- Doit toique	ra55
	Jointing instructions were available on the manufacturers	
	website and supplied with the product.	Pass

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#### **BS EN 14525:2004**

#### **PRODUCT EVALUATION (CONTINUED)**

#### CLAUSE

ASSESSMENT

# 4 Technical Requirements (Continued) 4.5 Product information (continued) 4.5.1/4.5.2 Marking requirements/ Additional information

(Continued) Actual marking

# DN 50 Coupler

**Cast on body and flange** VJ MAXIFIT 12390-15 D 18X20 YL3 57-74MM 12418-1 13J20 YL VJ MAXIFIT (LOGO) DN50 EN 14525 SG PN10-16

#### Label

VJ30001	MAXIFIT COUPLING
OD HANGE	RILSAN
PRODUCT COATING	SHERAPLEX
ROLT MATERIAL	STEEL GRADE 4.8
GASKET GRADE	E
MAKING PRESSURE (W)	16.0 bar
NORKING PRESSURE (G)	NOT SUITABLE
APPROX. WEIGHT	3.0Kg
BOLT TORQUE	55-65Nm
ADEQUAT	RODUCT DOES NOT PREVENT PULE OUT

#### DN 50 Flange adaptor Cast on body and flange

VJ MAXIFIT 12390-15 D10L20 YL2 57-74MM SG PN10-16 EN14525

Label

VJJUUGE	57-74mm	DAPTOR
ODHAING	50 PN10,16	-
FLANGE DITILETING	RILSAN	5 0
PRODUCT COATING	SHERAPLEX	0 1 2 16
BOLT MATERIAL	STEEL GRADE 4.8	14 I 4
GASKET GRADE	E	Kin M
WORKING PRESSURE (W)	16.0 bar	9 12 0
WORKING PRESSURE (G)	NOT SUITABLE	0 hr
APPROX. WEIGHT	2.7Kg	444
ROLT TOROLLE	55-65Nm	1 3 5 8 M
DO NOT DISASSEMBLE THIS P	RODUCT DOES NOT PREVENT PULL OUT.	00

#### DN100 Flange adaptor Cast on body and flange VJ MAXIFIT 107-132MM 13371-3 TL1D 06L20 YL 14L20 13374 SG PN10-16 DN100

Label

¥J32900	MAXIFIT PLUS FLANCE
OD RANGE	107-132mm
ELANGE DRILLING	100 PN10,16
PRODUCT COATING	RILSAN 5 C
BOLT COATING	SHERAPLEX
BOLT MATERIAL	STEEL GRADE 4.8
GASKET GRADE	- E
WORKING PRESSURE (W)	. 16.0 bar g t z o
WORKING PRESSURE (G)	01 11 10
APPROX. WEIGHT	4.7Kg
BOLT TORQUE	55-65Nm
DO NOT DISASSEMBLE	RODUCT DOES NOT PREVENT PULL OUT.
ADEQUATE	EATENNAL REGINART MUST BE PROVIDED
Name of Contrast	

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#### **BS EN 14525:2004**

#### **PRODUCT EVALUATION (CONTINUED)**

#### CLAUSE

ASSESSMENT

4 Technical Requirements (Continued)
4.5 Product information (continued)
4.5.1/4.5.2 Marking requirements/ Additional information (Continued)
Actual marking

#### DN200 Flange adaptor Cast on body and flange

YL D 128K20 218-244MM VIKING JOHNSON MAXIFIT 12390-9 12403 MAXIFIT PN10-16 DN200 EN 14525 SG YL13K20

#### Label

VJ30037	MAXIDAPTOR FLANGE ADAPTOR
OD RANGE	219 – 244mm
FLANGE DRILLING	200 PN10,16
PRODUCT COATING	RILSAN
BOLT COATING	SHERAPLEX
BOLT MATERIAL	STEEL GRADE 4.8
GASKET GRADE	E
WORKING PRESSURE (W)	16.0 bar
WORKING PRESSURE (G)	NOT SUITABLE
APPROX. WEIGHT	8.3Kg
BOLT TORQUE	55 – 65Nm
DO NOT DISASSEMBLE THISP	RODUCE DOES NOT PREVENT PULL OUT

#### DN300 Coupler Cast on body and coupler

315-349MM VIKING JOHNSON MAXIFIT 12390-13 (LOGO) D06L20 YL

YL 12418-14 03L20 (LOGO) SG VJ DN300 MAXIFIT EN 14525 Label

VJ30011 OD RANGE PRODUCT COATING BOLT COATING BOLT MATERIAL GASKET GRADE WORKING PRESSURE (W) WORKING PRESSURE (G) APPROX. WEIGHT	MAXIFIT COUPLING 315-349mm RILSAN SHERAPLEX STEEL GRADE 4.8 E 16.0 bar NOT SUITABLE 19.4Kg	MADE IN THE UK + 44 (0) 142 443322 Info @wikingjohnson.or
DO NOT DISASSEMBLE THIS	55 - 65Nm PRODUCT DOES NOT PREVENT PU	LE OUT.

# DN100 Coupler

Cast on body and coupler

VJ MAXIFIT 12390-3 107-132MM YL4 10J20 VJ DN100 MAXIFIT EN 14525 (LOGO) SG YL 12418-4 03J20 Label

		and the second sec
VJ30004	MAXIFIT COUPLING	~
OD RANGE	107 – 132mm	= (<)
PRODUCT COATING	RILSAN	104
BOLT COATING	SHERAPLEX	84 N
BOLT MATERIAL	STEEL GRADE 4.8	iki ga
GASKET GRADE	E	ng ng
WORKING PRESSURE (W)	16.0 bar	oh N N
WORKING PRESSURE (G)	NOT SUITABLE	HNN FHE IA33
APPROX. WEIGHT	4.9Kg	15 U
BOLT TORQUE	55 - 65Nm	Nor KIZ
DE NOT DISASSEMBLE THIS	PRODUCT DOES NOT PREVENT P	ULE OUT.
and the second se	Ser Der ser ser ser ser ser ser ser ser ser s	

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#### BS EN 14525:2004

#### **PRODUCT EVALUATION (CONTINUED)**

#### CLAUSE

ASSESSMENT

# 4 Technical Requirements (Continued) 4.5 Product information (continued) 4.5.1/4.5.2 Marking requirements/ Additional information (Continued) Actual marking

### DN 200 Coupler

Cast on body and coupler

VIKING JOHNSON 218-244MM YLD 05L20 12390-9 YL-1 12418-10 09M20 (LOGO) SG VJ DN200 MAXIFIT EN 14525

Label



#### DN300 Flange adaptor Cast on body and flange

VJ MAXIFIT VIKING JOHNSON (LOGO) YL V6L20 315-349MM 12390-18

25L20 SG EN 14525 PN10-16 DN300 MAXIFIT 12406 YL Label

VJ30040 OD RANGE FLANGE DRILLING PRODUCT COATING BOLT COATING BOLT MATERIAL GASKET GRADE WORKING PRESSURE (W) WORKING PRESSURE (G) APPROX. WEIGHT BOLT TORQUE	MAXIDAPTOR FLANGE A 315 – 349mm 300 PN10,16 RILSAN SHERAPLEX STEEL GRADE 4.8 E 16.0 bar NOT SUITABLE 14.8Kg 55 – 65Nm	ADAPTOR MADE IN THE UN + 44 (0) 1462 4433 into @vikingjohnson	(V) VIKING JOHNS
DO NOT DISASSEMBLEADEQUA	PRODUCT DOES NOT PREVENT PULL OUT TE EXTERNAL RESTRAINT MUST BE PROVIDED	.com	1º2

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#### **BS EN 14525:2004**

CLAUSE 5 5.3 5.3.1	Performance requirements for joints Flexible joints General The performance requirements were carried out in accordance with Table 4 and Clause 7.	ASSESSMENT
7 7.1	<b>Performance tests</b> <b>Leak tightness of joints to positive internal pressure.</b> Assemblies of socketed flange adaptors were tested in accordance with the method described in this clause using the relevant test conditions detailed in clause 5.3 and Table 4.	
	Product: MaxiDaptor (Plus) 100mm Flange Adaptor Pipe : 133mm rolled steel pipe (Maximum OD) Joint position: Deflected A flange adaptor assembly was pressurized to 29 bar for 2 hours with an angular deflection of 3.5°.	
	During the test there was no leakage from the joint	Pass
	<b>Product: MaxiDaptor (Plus) 100mm Flange Adaptor</b> <b>Pipe : 133mm rolled steel pipe (Maximum OD)</b> <b>Joint position: Aligned with shear load and withdrawn</b> An assembly with a maximum annular gap was pressurized to 29 bar for 2 hours with a shear load of 2000N min at 50mm from the coupling face.	
	During the test there was no leakage from the joint	Pass
	Product: MaxiDaptor (Plus) 100mm Flange Adaptor Pipe : 108mm rolled steel pipe (Minimum OD) Joint position: Deflected A flange adaptor assembly was pressurized to 29 bar for 2 hours with an angular deflection of 4.0°.	
	During the test there was no leakage from the joint	Pass
	<b>Product: MaxiDaptor (Plus) 100mm Flange Adaptor</b> <b>Pipe : 108mm rolled steel pipe (Minimum OD)</b> <b>Joint position: Aligned with shear load and withdrawn</b> An assembly with a maximum annular gap was pressurized to 29 bar for 2 hours with a shear load of 2000N min at 50mm from the coupling face.	
	During the test there was no leakage from the joint	Pass

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# **BS EN 14525:2004**

CLAUSE 7	Performance tests (Continued)	ASSESSMENT
7.1	Leak tightness of joints to positive internal pressure	
	<b>(Continued)</b> Assemblies of socketed flange adaptors were tested in accordance with the method described in this clause using the relevant test conditions detailed in clause 5.3 and Table 4.	
	Product: MaxiDaptor 200mm Flange Adaptor Pipe : 244.5mm rolled steel pipe (Maximum OD) Joint position: Deflected A flange adaptor assembly was pressurized to 29 bar for 2 hours with an angular deflection of 4.0°.	
	During the test there was no leakage from the joint	Pass
	<b>Product: MaxiDaptor 200mm Flange Adaptor</b> <b>Pipe : 244.5mm rolled steel pipe (Maximum OD)</b> <b>Joint position: Aligned with shear load and withdrawn</b> An assembly with a maximum annular gap was pressurized to 29 bar for 2 hours with a shear load of 4000N min at 50mm from the coupling face.	
	During the test there was no leakage from the joint	Pass
	Product: MaxiDaptor 200mm Flange Adaptor Pipe : 219mm rolled steel pipe (Minimum OD) Joint position: Deflected A flange adaptor assembly was pressurized to 29 bar for 2 hours with an angular deflection of 4.0°.	
	During the test there was no leakage from the joint	Pass
	<b>Product: MaxiDaptor 200mm Flange Adaptor</b> <b>Pipe : 219mm rolled steel pipe (Minimum OD)</b> <b>Joint position: Aligned with shear load and withdrawn</b> An assembly with a maximum annular gap was pressurized to 29 bar for 2 hours with a shear load of 4000N min at 50mm from the coupling face.	
	During the test there was no leakage from the joint	Pass

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#### **BS EN 14525:2004**

CLAUSE 7 7.1	Performance tests (Continued) Leak tightness of joints to positive internal pressure (Continued) Assemblies of socketed flange adaptors were tested in accordance with the method described in this clause using the relevant test conditions detailed in clause 5.3 and Table 4. Product: MaxiDaptor (Plus) 100mm Flange Adaptor Pipe : 110mm PVC PN10 pipe Joint position: Aligned with shear load and withdrawn An assembly with a maximum annular gap was pressurized to 20 bar for 2 hours with a shear load of 2000N min at 50mm from the coupling face.	ASSESSMENT
	During the test there was no leakage from the joint <b>Product: MaxiDaptor (Plus) 100mm Flange Adaptor</b> <b>Pipe : 110mm PVC PN16 pipe</b> <b>Joint position: Aligned with shear load and withdrawn</b> An assembly with a maximum annular gap was pressurized to 29 bar for 2 hours with a shear load of 2000N min at 50mm from the coupling face.	Pass
	During the test there was no leakage from the joint <b>Product: MaxiDaptor 200mm Flange Adaptor</b> <b>Pipe : 225mm PVC PN6 pipe</b> <b>Joint position: Aligned with shear load and withdrawn</b> An assembly with a maximum annular gap was pressurized to 14 bar for 2 hours with a shear load of 4000N min at 50mm from the coupling face.	Pass
	During the test there was no leakage from the joint <b>Product: MaxiDaptor 200mm Flange Adaptor</b> <b>Pipe : 225mm PVC PN10 pipe</b> <b>Joint position: Aligned with shear load and withdrawn</b> An assembly with a maximum annular gap was pressurized to 20 bar for 2 hours with a shear load of 4000N min at 50mm from the coupling face.	Pass
	During the test there was no leakage from the joint	Pass

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# **BS EN 14525:2004**

CLAUSE 7 7.2	<ul> <li>Ferformance tests (Continued) Leak tightness of joints to negative internal pressure (Continued)</li> <li>Assemblies of socketed flange adaptors were tested in accordance with the method described in this clause using the relevant test conditions detailed in clause 5.3 and Table 4.</li> <li>Product: MaxiDaptor (Plus) 100mm Flange Adaptor Pipe : 108mm rolled steel pipe (Minimum OD) Joint position: Aligned with shear load and withdrawn A flange adaptor assembly with a maximum annular gap was evacuated to -0.81 bar for 2 hours with a shear load of 2000N</li> </ul>			ASSESSMENT
	Change in internal pressure (bar)	Specified 0.08 max	<b>Actual</b> 0.01	Pass
	<b>Product: MaxiDaptor 200mm Flat</b> <b>Pipe : 219mm rolled steel pipe (</b> <b>Joint position: Aligned with shea</b> A flange adaptor assembly with a ma evacuated to -0.80 bar for 2 hours with Change in internal pressure (bar)	nge Adaptor Minimum OD r load and wi ximum annular ith a shear load Specified 0.08 max	) thdrawn gap was of 4000N Actual 0.00	Pass
	<b>Product: MaxiDaptor (Plus) 100n</b> <b>Pipe : 110mm PVC PN16 pipe</b> <b>Joint position: Aligned with shea</b> A flange adaptor assembly with a ma evacuated to -0.83 bar for 2 hours with Change in internal pressure (bar)	nm Flange Ad r load and wi ximum annular ith a shear load <b>Specified</b> 0.08 max	<b>thdrawn</b> gap was of 2000N <b>Actual</b> 0.01	Pass
	<b>Product: MaxiDaptor 200mm Flat</b> <b>Pipe : 225mm PVC PN6 pipe</b> <b>Joint position: Aligned with shea</b> A flange adaptor assembly with a ma evacuated to -0.80 bar for 2 hours with Change in internal pressure (bar)	nge Adaptor r load and wi ximum annular ith a shear load Specified 0.08 max	<b>thdrawn</b> gap was d of 4000N <b>Actual</b> 0.00	Pass

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#### **BS EN 14525:2004**

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7.3

#### **PRODUCT EVALUATION (CONTINUED)**

#### CLAUSE ASSESSMENT **Performance tests (Continued)** Leak tightness of joints to dynamic internal pressure (Continued) Assemblies of socketed flange adaptors were tested in accordance with the method described in this clause using the relevant test conditions detailed in clause 5.3 and Table 4. Product: MaxiDaptor (Plus) 100mm Flange Adaptor Pipe : 108mm rolled steel pipe (Minimum OD) Joint position: Aligned with shear load and withdrawn An assembly with a maximum annular gap was tested with the pressure cycled between 9 bar and 18 bar for 24000 cycles with a shear load of 2000N min at 50mm from the coupling face. During the test there was no leakage from the joint Pass Product: MaxiDaptor 200mm Flange Adaptor Pipe : 219mm rolled steel pipe (Minimum OD) Joint position: Aligned with shear load and withdrawn An assembly with a maximum annular gap was tested with the pressure cycled between 9 bar and 18 bar for 24000 cycles with a shear load of 4000N min at 50mm from the coupling face. During the test there was no leakage from the joint Product: MaxiDaptor (Plus) 100mm Flange Adaptor Pipe : 110mm PVC PN10 pipe Joint position: Aligned with shear load and withdrawn An assembly with a maximum annular gap was tested with the pressure cycled between 3 bar and 8 bar for 24000 cycles with a shear load of 2000N min at 50mm from the coupling face. During the test there was no leakage from the joint Pass **Product: MaxiDaptor 200mm Flange Adaptor** Pipe : 225mm PVC PN6 pipe Joint position: Aligned with shear load and withdrawn An assembly with a maximum annular gap was tested with the pressure cycled between 3 bar and 8 bar for 24000 cycles with a shear load of 4000N min at 50mm from the coupling face. During the test there was no leakage from the joint Pass

#### **BS EN 14525:2004**

#### **PRODUCT EVALUATION (CONTINUED)**

#### Sample Table No 1 : DN 50 PN10-PN16 flange adaptor

Refer to clause 4.1.3.2 of BS EN 14525:2004

Flange dimension: DN50 PN10-16	Specified	Actual	Assessment
Outside diameter D (mm)	165 nom <sup>(1)</sup>	165	-
Diameter of bolt circle K (mm)	125 nom <sup>(1)</sup>	128	-
Diameter of bolt holes L (mm)	19-20.5	19.1	Pass
Number of bolt holes	4	4	Pass
Flange thickness C (mm)	19 nom <sup>(1)</sup>	18.3	-
Flange thickness b (mm)	13-20	17.2	Pass
Raised face height f (mm)	1 min	1.1	Pass
Raised face diameter d (mm)	95 min	95.1	Pass

Flange dimensions from Tables 5 and 9 of EN 1092-2:1997 Flange dimension tolerances taken from Table 13 of EN 1092-2:1997

<sup>(1)</sup> No tolerance specified for these dimensions.

# Sample Table No 2 : DN 100 PN10-PN16 flange adaptor

Refer to clause 4.1.3.2 of BS EN 14525:2004

Flange dimension: DN100 PN10-16	Specified	Actual	Assessment
Outside diameter D (mm)	220 nom <sup>(1)</sup>	232	-
Diameter of bolt circle K (mm)	180 nom <sup>(1)</sup>	185	-
Diameter of bolt holes L (mm)	19-20.5	19.9	Pass
Number of bolt holes	8	8	Pass
Flange thickness C (mm)	19 nom <sup>(1)</sup>	20.6	-
Flange thickness b (mm)	13-20	19.4	Pass
Raised face height f (mm)	1 min	1.2	Pass
Raised face diameter d (mm)	152 min	152.9	Pass

Flange dimensions from Tables 5 and 9 of EN 1092-2:1997 Flange dimension tolerances taken from Table 13 of EN 1092-2:1997

 $^{\left( 1\right) }$  No tolerance specified for these dimensions.

#### **BS EN 14525:2004**

#### **PRODUCT EVALUATION (CONTINUED)**

#### Sample Table No 3 : DN 200 PN10-PN16 flange adaptor

Refer to clause 4.1.3.2 of BS EN 14525:2004

Flange dimension: DN200 PN10-16	Specified	Actual	Assessment
Outside diameter D (mm)	340 nom <sup>(1)</sup>	335	-
Diameter of bolt circle K (mm)	295 nom <sup>(1)</sup>	300	-
Diameter of bolt holes L (mm)	21.5-23	22.0	Pass
Number of bolt holes	12	12	Pass
Flange thickness C (mm)	20 nom <sup>(1)</sup>	20.9	-
Flange thickness b (mm)	14-21	19.4	Pass
Raised face height f (mm)	1 min	1.5	Pass
Raised face diameter d (mm)	261.5 min	265	Pass

Flange dimensions from Tables 5 and 9 of EN 1092-2:1997 Flange dimension tolerances taken from Table 13 of EN 1092-2:1997

<sup>(1)</sup> No tolerance specified for these dimensions.

#### Sample Table No 4 : DN 300 PN10-PN16 flange adaptor

Refer to clause 4.1.3.2 of BS EN 14525:2004

Flange dimension: DN300 PN10-16	Specified	Actual	Assessment
Outside diameter D (mm)	455 nom <sup>(1)</sup>	457	-
Diameter of bolt circle K (mm)	410 nom <sup>(1)</sup>	410	-
Diameter of bolt holes L (mm)	28-29.5	28.0	Pass
Number of bolt holes	12	12	Pass
Flange thickness C (mm)	24.5 nom <sup>(1)</sup>	24.1	-
Flange thickness b (mm)	17.5-24.5	21.7	Pass
Raised face height f (mm)	1 min	2.4	Pass
Raised face diameter d (mm)	365 min	369	Pass

Flange dimensions from Tables 5 and 9 of EN 1092-2:1997 Flange dimension tolerances taken from Table 13 of EN 1092-2:1997

<sup>(1)</sup> No tolerance specified for these dimensions.

End of Report