

Technical Manual



UNI-FLEX S Ø 19 - 172 MM | PN25/16

Steel materials Components	W5 (standard)	W4 (on request)	W2 (on request)
Casing	1.4404 (316L), 1.4571 (316Ti), 1.4462 (318LN), 1.4162 (Lean Duplex)	1.4301 (304)	1.4016 (301)
Bolts	A4-80, A4-70		12.9, 10.9
Bars	1.4404 (316L), 1.4571 (316Ti), 1.4462 (318LN), 1.4162 (Lean Duplex)		1.0760 (1141)
Strip Insert (Optional)	1.4404 (316L), 1.4571 (316Ti), 1.4462 (318LN), 1.4162 (Lean Duplex)		

Sealing Sleeve Application	EPDM	NBR	Viton (on request)	Silicone (on request)
Temperature range	-30°C up to +125°C	-20°C up to +80°C	-20°C up to +180°C	
Medium	all qualities of water, waste water, air, solids and chemical products	water, gas, oil, fuel and other hydrocarbons	ozone, oxygen, acids, gas, oil and fuel (only with strip insert)	

Pressure indication:



= Working pressure for industrial and land-based applications with 1.5x safety factor in bars



= Working pressure for marine applications with 4x safety factor in bars

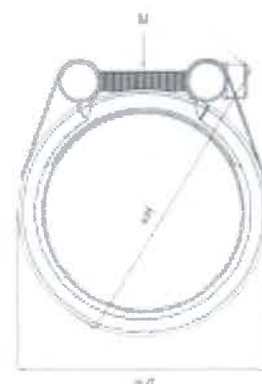
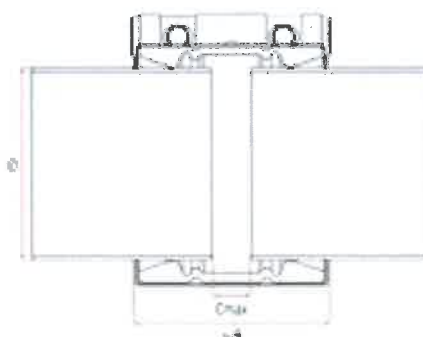
Use insert stiffeners for installation on PE, PVC, PP or PB pipes! (page 116 & 117)



Important remarks:

- + Follow fitting/disassembly instructions
- + The pressure values are valid for radial rigid carbon steel pipes with a minimal wall thickness under static loads
- + For metric to imperial conversion table see page 28
- + Strip inserts are required for special applications
- + Free from paint wetting disruptive substances

Technical details are subject to change. Typing errors may occur.





Article Nr.	OD Ø min.	OD Ø max.	OD Ø Nominal	Pressure		Coupling dimensions not fitted					Torque rate (Nm)	Weight ~ kg/pcs.	Packing quantity
				PN	PN	~ B	Cmax	~ d	~ H	M			
1-S-F-W5-*-19-21	19	21	20	25	16	45	10	42	69	M6	3	0.20	10
1-S-F-W5-*-21-24	21	24	21.3/21.6	25	16	45	10	46	76	M6	3	0.20	10
1-S-F-W5-*-25-29	25	29	26.9/28	25	16	45	10	46	76	M6	3	0.20	10
1-S-F-W5-*-29-32	29	32	30	25	16	45	10	54	84	M6	3	0.20	10
1-S-F-W5-*-33-36	33	36	33.7/35	25	16	45	10	54	84	M6	3	0.20	10
1-S-F-W5-*-36-39	36	39	38	25	16	60	15	66	104	M8	5	0.40	10
1-S-F-W5-*-39-43	39	43	42.4	25	16	60	15	66	104	M8	5	0.40	10
1-S-F-W5-*-43-47,5	43	47.5	44.5	25	16	60	15	74	112	M8	5	0.40	10
1-S-F-W5-*-47,5-52,5	47.5	52.5	48.3	25	16	60	15	74	112	M8	5	0.40	10
1-S-F-W5-*-52,5-58	52.5	58	54/57	25	16	75	25	85	125	M8	5	0.60	10
1-S-F-W5-*-58-64	58	64	60.3/63	25	16	75	25	85	125	M8	5	0.60	10
1-S-F-W5-*-64-72	64	72	66.6/68/69/70	25	16	95	30	108	164	M10	10	1.00	10
1-S-F-W5-*-72-80	72	80	73/76.1/79.5	25	16	95	30	108	164	M10	10	1.00	10
1-S-F-W5-*-80-88	80	88	84	25	16	95	30	124	170	M10	10	1.00	10
1-S-F-W5-*-88-96	88	96	88.9	25	16	95	30	124	170	M10	10	1.00	10
1-S-F-W5-*-97-105	97	105	98/100.6/101.6/104	25	16	95	30	141	187	M10	10	1.10	10
1-S-F-W5-*-104-112	104	112	104.8/108/110	25	16	95	30	141	187	M10	10	1.10	10
1-S-F-W5-*-112-120	112	120	114.3/118	25	16	95	30	158	202	M10	12.5	1.20	10
1-S-F-W5-*-122-130	122	130	125/127/129	25	16	95	30	158	202	M10	12.5	1.20	10
1-S-F-W5-*-129-137	129	137	130.2/131/133	25	16	110	40	178	230	M12	20	2.10	5
1-S-F-W5-*-137-145	137	145	139.7/141.3/141.6	25	16	110	40	186	238	M12	25	2.20	5
1-S-F-W5-*-149-157	149	157	154/155	25	16	110	40	197	249	M12	30	2.30	5
1-S-F-W5-*-157-165	157	165	159	25	16	110	40	205	255	M12	30	2.30	5
1-S-F-W5-*-164-172	164	172	165/168.3	25	16	110	40	212	262	M12	30	2.40	5

*Article Nr.: E for EPDM and N for NBR.

UNI-FLEX S Ø 185 - 745 MM | PN25/16

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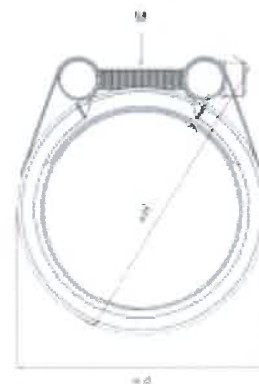
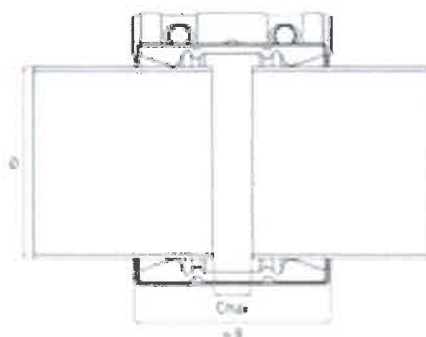
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				PN	PN	~ B	Cmax	~ d	~ H	M			
2-S-F-B-W5*-185-198	185	198	185/187/190/191/193,7/195/196/197	25	16	140	40	236	262	M12	30	5.04	1
2-S-F-B-W5*-198-211	198	211	200/202/203/204/205/206/208/210	25	16	140	40	249	275	M12	30	5.19	1
2-S-F-B-W5*-210-223	210	223	211/212/215/216/217/219,1/220/222	25	16	140	40	261	287	M12	30	5.34	1
2-S-F-B-W5*-221-234	221	234	224/225/226/228/229/230/232/234	25	16	140	40	272	298	M12	30	5.47	1
2-S-F-B-W5*-234-247	234	247	236/238/240/241/242/244/244,5/246	25	16	140	40	285	311	M12	30	5.63	1
2-S-F-B-W5*-247-260	247	260	248/249/250/252/254/255/256/257/259	25	16	140	40	298	324	M12	30	5.79	1
2-S-F-B-W5*-263-276	263	276	264/268/267/271/272/273,1/274/275	25	16	140	40	314	340	M12	30	5.98	1
2-S-F-C-W5*-277-290	277	290	278/280/284/286/287/288/289	25	16	142	40	328	354	M16	30	7.58	1
2-S-F-C-W5*-288-301	288	301	290/292/295/296/298/300	25	16	142	40	339	365	M16	30	7.76	1
2-S-F-C-W5*-301-314	301	314	304/305/306/308/310/311/313	25	16	142	40	352	378	M16	30	7.97	1
2-S-F-C-W5*-315-328	315	328	315/316/318/320/321/323,9/326/327	25	16	142	40	366	392	M16	30	8.19	1
2-S-F-C-W5*-327-340	327	340	330/333,8/334/336/337/339	25	16	142	40	378	404	M16	50	8.39	1
2-S-F-C-W5*-340-353	340	353	340/342/343/345/346/348/350/352	25	16	142	40	391	417	M16	50	8.60	1
2-S-F-C-W5*-350-363	350	363	352/353/354/355/355,6/356/358/360/362	25	16	142	40	401	427	M16	50	8.76	1
2-S-F-G-W5*-361-374	361	374	367/368/372	25	16	146	40	412	438	M16	50	12.61	1
2-S-F-G-W5*-374-387	374	387	376/378/380/382/384/385/386	25	16	146	40	425	451	M16	50	12.94	1
2-S-F-G-W5*-387-400	387	400	388/392/394/395/396/398/399	25	16	146	40	438	464	M16	50	13.26	1
2-S-F-G-W5*-400-413	400	413	400/403/404/405/406/406,4/408/410/412	25	16	146	40	451	477	M16	50	13.59	1
2-S-F-G-W5*-412-425	412	425	419/420/421	25	16	146	40	463	489	M16	50	13.89	1
2-S-F-G-W5*-422-435	422	435	426/427/428/429/430/432/433/434	25	16	146	40	473	499	M16	50	14.14	1
2-S-F-G-W5*-438-451	438	451	439/440/441/442/444/448/450	25	16	146	40	489	515	M16	50	14.54	1
2-S-F-G-W5*-451-464	451	464	452/453/454/456/457,2/459/460/463	25	16	146	40	502	528	M16	50	14.87	1
2-S-F-G-W5*-460-473	460	473	464/468/470	25	16	146	40	511	537	M16	50	15.09	1
2-S-F-G-W5*-476-489	476	489	478/480/486/488	25	16	146	40	527	553	M16	50	15.49	1
2-S-F-G-W5*-488-501	488	501	490/492/494/496/498/500	25	16	146	40	539	565	M16	50	15.80	1
2-S-F-G-W5*-503-516	503	516	504/506/507/508/510/512/514/515	25	16	146	40	554	580	M16	50	16.17	1
2-S-F-G-W5*-520-533	520	533	520/521/524/526/530/532	25	16	146	40	575	603	M16	60	16.60	1
2-S-F-G-W5*-531-544	531	544	537/538/540/542/543	25	16	146	40	586	614	M16	60	16.87	1
2-S-F-G-W5*-546-559	546	559	546/548/549/550/558	25	16	146	40	601	629	M16	60	17.25	1
2-S-F-G-W5*-557-570	557	570	559/560/564/568	25	16	146	40	612	640	M16	60	17.53	1
2-S-F-G-W5*-571-584	571	584	571/572/574/576/582/583	25	16	146	40	626	654	M16	60	17.88	1
2-S-F-G-W5*-600-613	600	613	600/605/606/609,6/610/612	25	16	146	40	655	683	M16	60	18.60	1
2-S-F-G-W5*-610-623	610	623	613,7/620/622	25	16	146	40	665	693	M16	70	18.85	1
2-S-F-G-W5*-628-641	628	641	630/632/633/634/635/640	25	16	146	40	683	711	M16	70	19.31	1
2-S-F-G-W5*-648-661	648	661	650/651/654/655/658/659/660	25	16	146	40	703	731	M16	70	19.81	1
2-S-F-G-W5*-676-689	676	689	676/677/678/680/686/688	25	16	146	40	731	759	M16	70	20.51	1
2-S-F-G-W5*-688-701	688	701	690/691/698/700	25	16	146	40	743	771	M16	70	20.81	1
2-S-F-G-W5*-700-713	700	713	702,6/705/710/711,2	25	16	146	40	755	783	M16	70	21.11	1
2-S-F-G-W5*-717-730	717	730	718/720/726/729	25	16	146	40	772	800	M16	70	21.54	1
2-S-F-G-W5*-732-745	732	745	734/735/738/743/744	25	16	146	40	787	815	M16	70	21.91	1

*Article Nr.: E for EPDM, N for NBR and V for Viton.

FEATURES AND UNIQUE PATENTED SOLUTIONS

Patented seal with an integrated compensation solution

Once installed, the unique seal with coupling compensation beads makes the use of stainless steel inserts superfluous in most applications. This actively prevents potential corrosion problems.

There will be a progressive sealing effect due to the wedged shaped structure. This ensures a watertight sealing even at high pressures. Due to the solid seal design (without thin lips) robustness of the seal guarantees durability even under harsh conditions.

Fire protection for your safety

For applications in which a fire protection must be guaranteed we meet the high demands of the shipbuilding industry according to ISO 19921/19922. These high requirements are ensured by our additional fire protective housing named UNI-Fire.

Progressive anchoring with spherical profile

Internal pressure or axial forces cause tensile loads which is absorbed by the progressive anchoring ring.

The teeth show a spherical profile which ensures a high tip hardness and therefore a solid grip even on the toughest pipe surfaces. Especially important when it comes to thin walled stainless steel or cast iron pipes.

Thanks to the simultaneous cuts of the teeth a firm grip on other surfaces like metallic coated pipes is also guaranteed. This because the teeth penetrate the outer surface and anchor into the pipe wall.

Patented seal



Axially flexible



Progressive anchoring



Axially restrained



COUNTLESS BENEFITS

Universal use

- + Suitable for any pipe material
- + Compatible with any traditional jointing system
- + Joins pipes of similar or dissimilar materials
- + Leakproof joint for liquids, gas and solids
- + Quick and simple repairs of damaged pipes without service interruptions
- + Installation and sealing principle consistent throughout the range
- + Axially restrained or axially flexible (compensator) versions available

Economical

- + Pre-assembled design ensures simple and quick installation
- + For use on plain end pipes without the need for costly pipe end preparation
- + Simply cut pipes to length, center coupling and tighten bolts
- + Suitable for thick and thin wall pipes
- + No expensive installation tools required

Reliable

- + Stress free, flexible pipe joint
- + Compensates axial movement and angular deflection
- + Pressure resistant and leak tight even with inaccurate pipe assembly
- + Dampens water hammer, vibration and structure-borne noise

Easy handling

- + Detachable and reusable
- + Maintenance free and trouble free
- + No time consuming alignment and fitting work
- + Easy installation technology
- + No heat or fire hazard: can be fitted in fire risk or confined spaces without special equipment

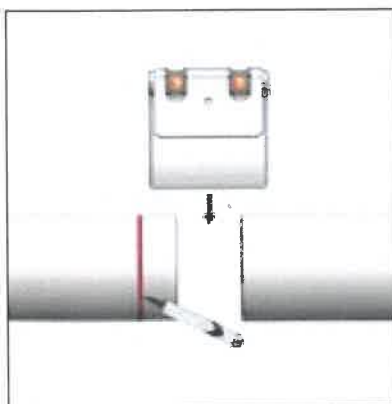
Durable

- + Progressive sealing effect
- + Progressive anchoring effect
- + Corrosion resistant and temperature resistant
- + Good resistance to chemicals
- + Long service life

Space saving

- + Compact design for space saving installation of pipes
- + Needs little space
- + Choice of mounting position
- + Lightweight
- + Increases the payload

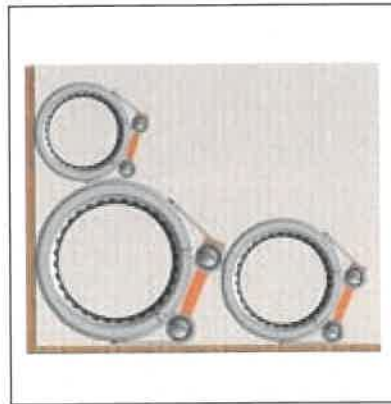
Universal use



Reliable



Space saving



Safe

- + Absorbs vibrations/oscillations
- + Reduces pressure surges
- + Reduces fatigue fractures
- + No fire or explosion hazard during installation
- + No cost for protective measures
- + Quadruple safety
- + Absorbs overloading through flexibility

Damping

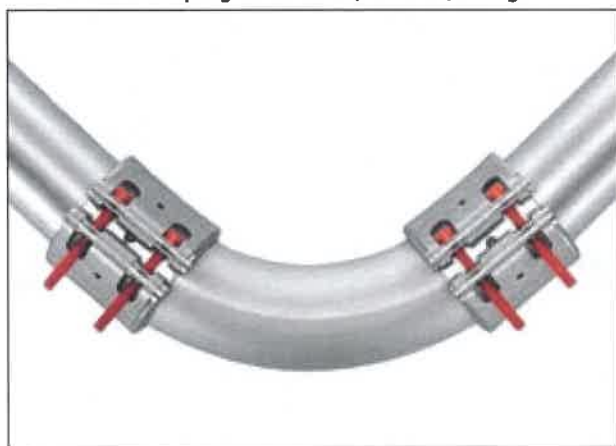
- + Increases the life of valves and systems
- + Compensates axial offset and angles
- + Coupler and compensator in one

Long-lasting stress free

- + Corrosion resistant
- + Good resistance to temperature and chemicals
- + Low torque guarantees long service life

PN16; Ø 114,3 mm

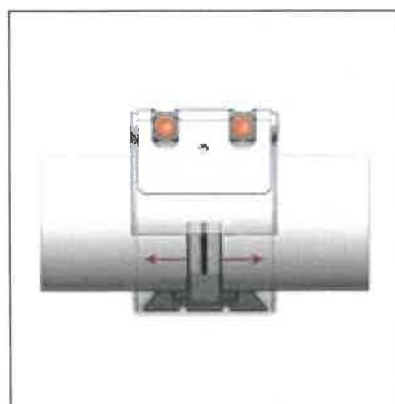
UNI-Coupling Connection (2 x DN80) 8,7 kg



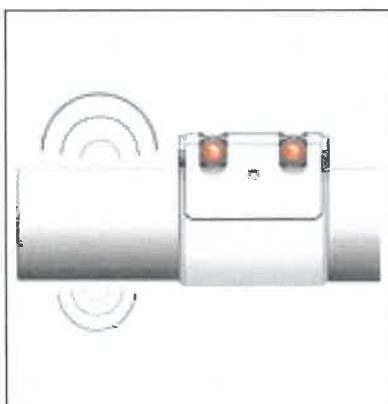
Flange Connection (2 x 2 pieces) 21,9 kg



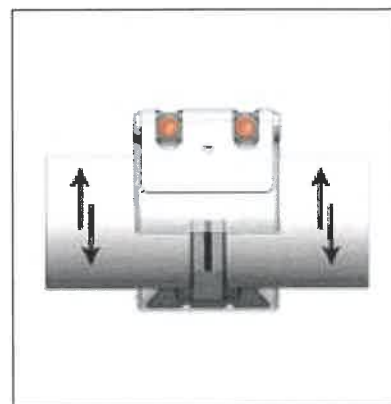
Safe



Damping



Long lasting stress free



APPROVALS

UNI-Coupling has several approvals, more approvals are pending. Certificates available on request.

DVGW



- + DIN EN 681
- + DIN EN 682
- + KTW 1.3.13
- + W270

ISO: 9001:2008 +
ISO: 14001:2004 +

TÜV NORD



IACS



- + According to IACS Standard P2 Rules for piping design, construction and testing

Bureau Veritas



Class NK



Lloyd's Register



DET Nörske Veritas / Germanischer Lloyd's



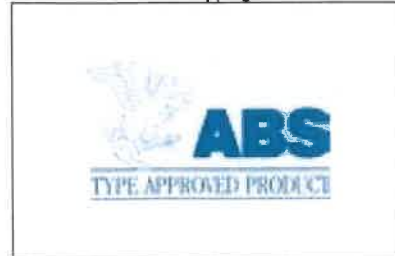
RINA Services



Korean Register



American Bureau of Shipping



Russian Maritime Register of Shipping



China Classification Society

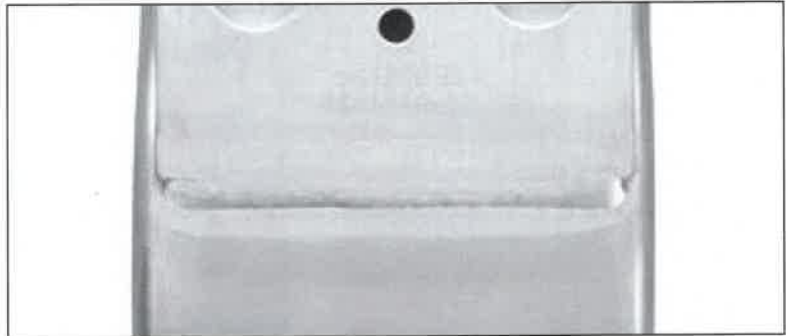


IN-HOUSE TESTING FACILITIES

Corrosion test

264 hours salt spray corrosion test. Tested according to ASTM B117, DIN-EN-ISO 9227.

+ Test results and detailed specifications available on request



Fire test

Certified custom build fire test bench. Capable of testing under conditons up to 850°C and to a maximum of 24 bar pressure.

+ Test results and detailed specifications available on request



Vacuum test

Custom build vacuum test capable of testing up to a vacuum of 0,1 bar absolute pressure.

+ Test results and detailed specifications available on request



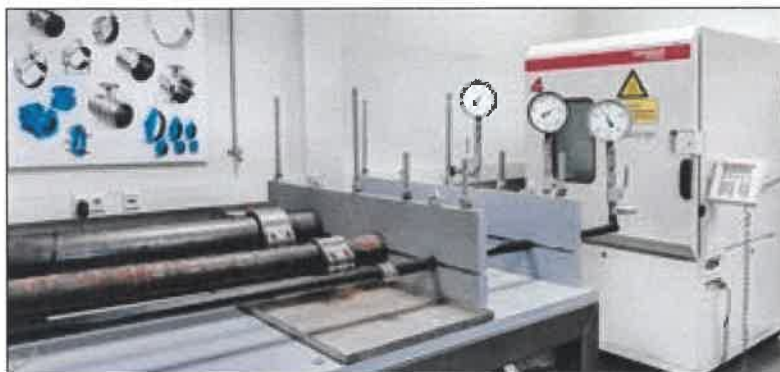
Youtube Channel

Check our UNI-Coupling Youtube Channel for Testing video's / Fitting instructions and more...

Vibration test

Custom build vibration bench capable of testing diameters up to DN600 under 3 different frequencies and 3 different RPM's.

- + Test results and detailed specifications available on request



Gasket test

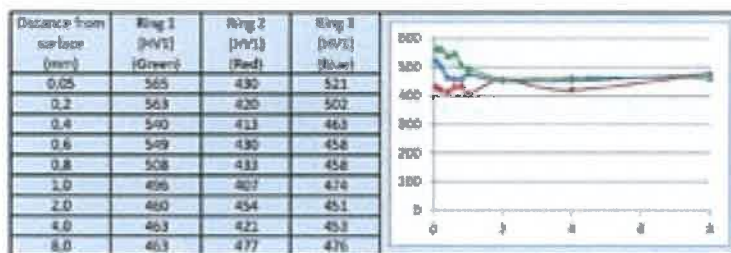
- + No pressure on gasket centre
- + No strip insert
- + No corrosion



Anchoring test

- + Results: hardening from: 1450 N/mm² (460 HV1) to 1850 N/mm² (565 HV1 = 53 HRC)
- + Ring 1 = UNI-Coupling (green), ring 2 (red) and 3 (blue) = competitors
- + Test results and detailed specifications available on request

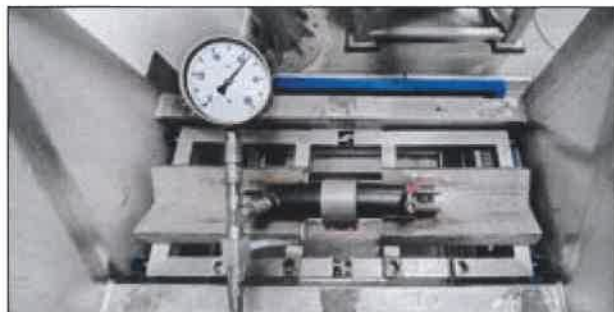
Table 1. Results of the Micro-Vickers Hardness tests about the cross-sections of the rings



Tightness and burstpressure test

Custom build pressure bench capable of testing all diameters, pipe materials and pressure ratings.

- + Test results and detailed specifications available on request



Pullout test

Custom build pullout bench capable of testing diameters up to DN750 under maximum pullout force up to 50 tons.

- + Test results and detailed specifications available on request

