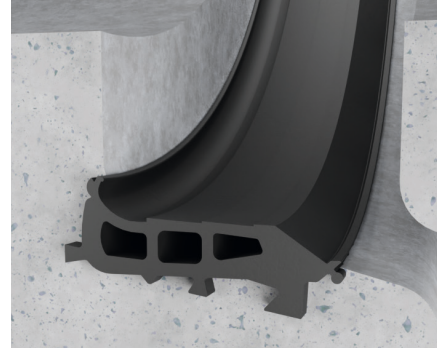# DS ANKERPLUS

DS ANKERPLUS is a sealing ring made from elastomers with dense structure for the DS ANKERPLUS plug-in socket, a connection for concrete pipes and reinforced concrete pipes according to DIN EN 1916 and DIN V 1201, whereby the seal is firmly embedded in the socket during manufacture of the pipe.

- DS Ankerplus is in accordance with the requirements of EN 681-1 / DIN 4060 (seals made from elastomers) and the FBS quality guidelines.

- DS ANLERPLUS pipe connections fulfill the criteria of DIN EN 1916, method 1-4.

- DS ANKERPLUS can be easily connected with the pipe: it is mounted on the base ring and is anchored during manufacture of the pipe in the pipe socket. After removal of the base ring the DS ANKERPLUS plug-in socket is ready for installation.

- DS ANKERPLUS can be used for all pipe production machines with core vibration and radial pressure roller head.

- DS ANKERPLUS requires special base rings which determine by their shape the seat of the seal.

- DS ANKERPLUS can be supplied for pipes DN 150 to DN 2600 in 6 specific cross sections.

- DS ANKERPLUS lines the inner wall of the socket up to the socket face. Lining the entire socket space prevents deposits of dirt and water (ice formation) behind the seal. Removal of a protective strip is not required.

- DS ANKERPLUS pipe connections resist high shearing forces.

**Tested and quality controlled
by MPA Berlin-Brandenburg.**

SPECIAL ADVANTAGES

- Forms an integrated unit together with the pipe, which enables a quick and safe installation.

- The wedge shape of the seal body facilitates the pipe centering.

- Thanks to the fully lined sleeve, the pipe connection offers an optimum sealing unit.

MATERIAL

DS ANKERPLUS is composed of styrene-butadiene rubber (SBR), hardness 50 ± 5 IRHD. The material resists the usual stresses caused by wastewater. In case of content of light liquids (oil, petrol, fuels) in the sewage water it is recommended to use seals out of acryl-nitrile-butadiene-rubber (NBR), hardness 45±4 IRHD, which has a higher resistance against light liquids.

QR 4060   FBS   MPA Berlin-Brandenburg   KOMO   CE

DS DICHTUNGSTECHNIK

PIPE REQUIREMENTS (all dimensions in mm)

- Reinforced concrete pipes must comply with the requirements of DIN EN 1916 and DIN V 1201.

- DS ANKERPLUS requires finely dimensioned smooth pipe spigot ends. When producing the pipes inner and outer supporting rings must be used to ensure compliance with spigot end diameters dsp shown in the table.

- The seal seat and the socket diameter at the built-in seal must be checked regularly.
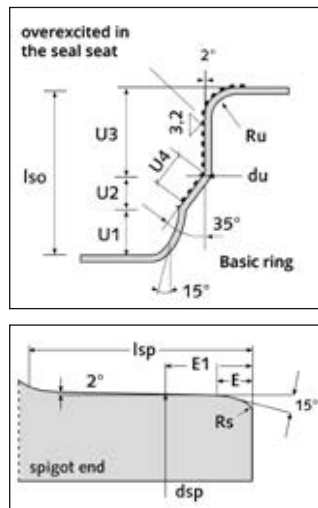
BASE RING

DN	ISO	U1	U2	U3 -0/+0,5	U4 min	Ru	du Concrete	du Reinforced	Tolerance du
150	60	16,6	10,9	32,5	13	10	199,4	213,4	-0/+0,5
200	-	-	-	-	-	-	257,4	263,4	-
250	80	22,6	13,9	43,5	16	13	315,6	341,6	-0/+0,5
300	-	-	-	-	-	-	377,6	395,6	-
400	85	20	16	49	18	13	486,2	495,5	-0/+0,5
500	90	25	-	-	-	-	600,2		-
600	-	-	-	-	-	-	716,2		-
700	100	22,6	23	54,4	26	15	831,4		-0,4/+0,8
800	-	-	-	-	-	-	949,4		-
900	-	-	-	-	-	-	1067,4		-
1000	-	-	-	-	-	-	1185,4		-
1100	-	-	-	-	-	-	1303,4		-
1200	-	-	-	-	-	-	1421,4		-
1300	125	30	28	67	32	17	1536,6		-0,7/+0,7
1400	-	-	-	-	-	-	1654,6		-
1500	-	-	-	-	-	-	1772,6		-
1600	145	30	35	80	41	19	dsp+2w-2hj		-0,8/+0,8
2000	145	30	35	80	41	19	dsp+2w-2hj		-0,8/+0,8

SPIGOT END

DN	E	Rs	Isp	E1	dsp Concrete	dsp Reinforced	Tolerance dsp recom. (extreme value*)
150	12,5	8	65	28	206	220	-0,5/+1,0 (-1,2/+1,7)
200	-	-	-	-	264	270	-
250	17	13	85	39	324	350	-0,7/+1,2 (-1,5/+2,0)
300	-	-	-	-	386	404	-
400	20	13	90	43	496	505,3	-0,9/+1,4 (-1,9/+2,4)
500	-	-	95	-	610		-
600	-	-	-	-	726		-
700	20	15	105	47	844		-1,0/+1,4 (-2,2/+2,6)
800	-	-	-	-	962		-
900	-	-	-	-	1080		-
1000	-	-	-	-	1198		-
1100	-	-	-	-	1316		-
1200	-	-	-	-	1434		-
1300	25	16	130	58	1552		-1,5/+1,5 (-3,0/+3,0)
1400	-	-	-	-	1670		-
1500	-	-	-	-	1788		-
1600	30	18	150	69	variable		-1,8/+1,8 (-3,6/+3,6)
2000	30	18	150	69	variable		-1,8/+1,8 (-3,6/+3,6)

Larger DN on request
- Recommended concrete tolerance: sealing ring deformation 30% to 40%
- Limit of concrete tolerance: sealing ring deformation 26.5% to 43.5%*)
*) With milled spigot ends recommended deformation is equal to limit of concrete tolerance

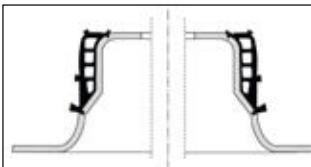## DIMENSIONING OF THE SEALING RING
(all dimensions in mm)
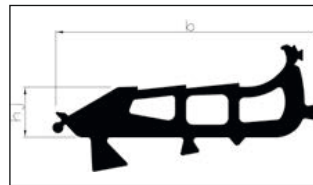
DN	Profile type	b	hj **)	W *)
150-200	ANKERPLUS 10	52,3	10 -0,4 / +0,6	6,7
250-300	ANKERPLUS 12	66,2	12 -0,4 / +0,8	7,8
400-600	ANKERPLUS 14	75,4	14 -0,4 / +0,8	9,1
700-1200	ANKERPLUS 18	85,6	18 -0,4 / +0,8	11,7
1300-1500	ANKERPLUS 22	104,8	22 -0,4 / +1,2	14,3
1600-2000	ANKERPLUS 26	123,9	26 -0,4 / +1,2	16,9

*) Socket gap width: gap between spigot end and socket in the main sealing area.
**) hi_{eff}: hj / $\sqrt{1,04}$

PRODUCTION OF THE DS ANKERPLUS PIPES

- Mount DS ANKERPLUS on the cleaned and lightly oiled base ring. Ensure correct seating and even pre-stretching of the sealing ring.

- Before vibrating ensure that the socket is completely filled with concrete. Then produce concrete pipe in normal manner.

- After removal of the pipe mould, place inner and outer supporting rings on the spigot end and leave them there until concrete has cured.

- Pull base ring centrically, remove supporting rings.

- After the concrete has fully cured DS ANKERPLUS plug-in socket pipe is ready for installation.
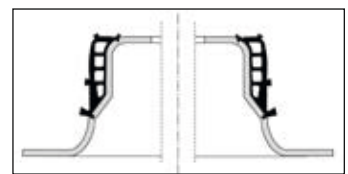
PIPE LAYING TIPS

The DS ANKERPLUS pipe connections can be installed without any problems using normal construction site equipment. When laying the pipes observe DIN EN 1610 and ATV-work sheet DWA-A 139.
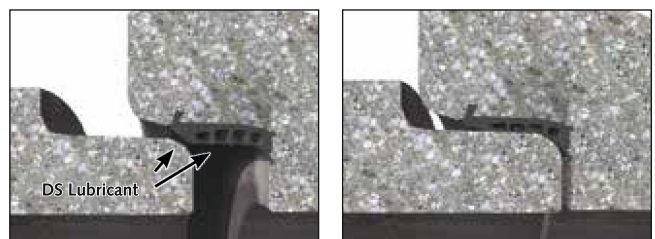
- Clean socket and spigot end.
- Cover thoroughly the spigot end with DS lubricant. The additional use of lubricant on the seal is recommended as this reduces the mounting forces.
- Move spigot end centrically into socket and pull pipes together.

DS
DICHTUNGSTECHNIK