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Guideline

Pipe classes
Specification PN 40

Pipe parts catalogue
Pipe class: ZB40C1

- 1 **Aim** Aim of this guideline is the specification of pipe parts at defined operating conditions under consideration of the requirements of the guideline 97/23/EC (pressure equipment guideline)
- 2 **Scope** Air Liquide Deutschland GmbH
- 3 **Material** 1.4541 (X 6 CrNiTi 18 10)
- 4 **Pipe class** Standard pipe class according to AD 2000 leaflet
- 5 **Thick form** Form B1 according to DIN EN 1092-1
- 6 **Corrosion surcharge**
- 7 **Screws** Hexagon head screws A2-70 or. A2-50
Hexagon nuts A2-70 or. A2-50
- 8 **Permitted media** argon, ethylene, dinitrogenoxide, compressed air, noble gases, natural gas, carbon dioxide, methane, oxygen, nitrogen, hydrogen and its mixtures in gaseous and liquid form, water and steam
- 9 **Operating pressure** 40 bar

- 10 **Operating temperature** 3 K (-270 °C) to 393 K (120 °C)

DN	15	20	25	32	40	50	65	80	100	125	150	200	250
da/mm	21,3	26,9	33,7	42,4	48,3	60,3	76,1	88,9	114,3	139,7	168,3	219,1	273
s/mm	1,6	1,6	2	2	2	2	2,3	2,3	2,6	2,6	4	4,5	5

DN	300	350	400	500	600								
da/mm	323,9	355,6	406,4	508	610								
s/mm	5,6	8	8,8	11	12,5								

- 11 **Safety notice** Oxygen leading pipes must be cleaned of oil, grease, welding beads, processing shaving etc. inside and comply with the standard 06401 before putting into operation.

12 Additional notices

At operating temperatures of $-200\text{ °C} \leq TS < -10\text{ °C}$ the requirements to be met must be according to account 2000 leaflet W10 ad.

Additionally, when using LH2, the special requirements to the examination of the notched bar impact work have to be met according to notice 2000 leaflet W10, table 1. This is caused by the lowest application temperature of -253 °C .

At operating temperatures of $50\text{ °C} < TS \leq 120\text{ °C}$ flanges of the next higher pressure level must be used.

When using hydrogen, comb defined seals only must be provided for flange joints.

The application fields (medium, pressure, temperature) defined in the standards 4002, 4007 and 4008 must be absolutely adhered to.

Screws from A2-70 or A2-50 are allowed to be used according to AD 2000 leaflet W10 only to $TS = -200\text{ °C}$.

Tube part	nom. width		iden- tifica- tion	dimension standard / terms of delivery	certificate
	from	to			
Flat packings	15	500	FLD	DIN EN 1514-1, Standard 40002	2.1 according to DIN EN 1024 concerning purity in accordance with Standard 06401
Fibrous packings	15	500	FAD	DIN EN 1514-1, Standard 40007	2.1 according to DIN EN 1024 concerning purity in accordance with Standard 06401
Caps	15	600	KAP	DIN 2617, DIN 2609	3.1.B according to DIN EN 10204
Comb defined seals	15	500	KAD	DIN 2617, Standard 40008	2.1 according to DIN EN 1024 concerning purity in accordance with Standard 06401
Elbow 90° R=1,5 DA, welded	15	600	RB1,5DG	DIN 2605-1, DIN 2609	3.1.C or 3.2 according to DIN EN 10204
Elbow 90° R=2,5 DA, welded	15	600	RB2,5DG	DIN 2605-1, DIN 2609	3.1.C or 3.2 according to DIN EN 10204
Reducer, eccentric, welded	20	500	RZEG	DIN 2616-1, DIN 2609	3.1.C or 3.2 according to DIN EN 10204
Pipe, welded	15	600	RG	DIN EN ISO 1127, DIN 17457	3.1.C or 3.2 according to DIN EN 10204
Reducer, concentric, welded	20	500	RZKG	DIN 2616-1, DIN 2609	3.1.C or 3.2 according to DIN EN 10204
Tee made of welded pipe	15	500	TG	DIN 2615-1, DIN 2609	3.1.C or 3.2 according to DIN EN 10204
Welding neck flanges	15	500	VF	DIN EN 1092-1, DIN EN 1092-1	3.1.C or 3.2 according to DIN EN 10204
Blanks	15	500	BSS	Uhde-Norm 3902-1, DIN 17440	3.1.C or 3.2 according to DIN EN 10204
Blind flanges	15	500	BF	DIN EN 1092-1, DIN EN 1092-1	3.1.C or 3.2 according to DIN EN 10204
Hexagon head screws	12	39	SKS	DIN EN ISO 4014, DIN EN ISO 3506	3.1.B according to DIN EN 10204
Hexagon nuts	12	39	SKM	DIN EN ISO 4032, DIN EN ISO 3506	3.1.B according to DIN EN 10204

13	Valid and listed documents	Standard 06401 Standard 40002 Standard 40007 Standard 40008 Standard 50006 App. 1 – 15 AD 2000-leaflet W10 DGRL 97/23/EG DIN 2605-1 DIN 2609 DIN 2615-1 DIN 2616-1 DIN 2617 DIN 17440 DIN 17457 DIN EN 1092-1 DIN EN 1514-1 DIN EN 10204 DIN EN ISO 1127 DIN EN ISO 3506 DIN EN ISO 4014 DIN EN ISO 4032 Uhde-Norm 3902-1
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**Pipe Class
Specification PN 40**

**pipe parts * pipe class: ZB40C1
pipe, welded**

1	Pipe class	ZB40C1
2	Part identification	RG
3	Pipe class part	pipe, welded
4	Material	1.4541 (X 6 CrNiTi 18 10)
5	Dimension standard	DIN EN ISO 1127
6	Terms of delivery	DIN 17457
7	Certificate	3.1.C or 3.2 according to DIN EN 10204
8	Identification	DIN 17457, section 7, across whole length
9	Ordering addition	Pipes at fixed lengths of 6 m Tolerance class D2, T3 according to DIN EN ISO 1127 Testing class 2 according to DIN 17457, AD 2000-leaflet W2 Inner surfaces free of oil, grease and slip additive (max.: 300 mg/m²) Ends closed with caps Requirements AD 2000-leaflet W2 and W10, table 1, must be met At wall thicknesses ≤ 10 mm, an inspection certificate 3.1.B is sufficient, if the requirements according to AD 2000-leaf W2, section 6.2.1, are met.

Ident- No.	nom. diameter	dimensions	weights
	ND	d _a x s	kg
18256	15	21,3 x 1,6	0,79
18257	20	26,9 x 1,6	1,01
18258	25	33,7 x 2	1,58
18259	32	42,4 x 2	2,02
18260	40	48,3 x 2	2,31
18261	50	60,3 x 2	2,92

Ident-No.	nom. diameter	dimensions	weights
	ND	d _a x s	kg
18262	65	76,1 x 2,3	4,25
18263	80	88,9 x 2,3	4,98
18264	100	114,3 x 2,6	7,27
18265	125	139,7 x 2,6	8,92
18266	150	168,3 x 4	16,40
18267	200	219,1 x 4,5	23,80
18268	250	273 x 5	33,50
18269	300	323,9 x 5,6	44,70
18270	350	355,6 x 8	69,60
18271	400	406,4 x 8,8	87,60
18272	500	508 x 11	137,00
18273	600	610 x 12,5	187,00

10 Valid and listed documents

AD 2000-leaflet W2
AD 2000-leaflet W10
DIN 17457
DIN EN 10204
DIN EN ISO 1127

**Pipe Class
Specification PN 40**

pipe parts * pipe class: ZB40C1
Elbow 90° R=1,5 DA, welded

AIR LIQUIDE

1	Pipe class	ZB40C1
2	Part identification	RB1,5DG
3	Pipe class part	Elbow 90° R=1,5 DA, welded
4	Material	1.4541 (X 6 CrNiTi 18 10)
5	Dimension standard	DIN 2605-1
6	Terms of delivery	DIN 2609
7	Certificate	3.1.C or 3.2 according to DIN EN 10204
8	Identification	DIN 2609, section 6
9	Ordering addition	Elbow 90°, type 3, with decreased utilization factor, made of welded pipe according to DIN 17457 Type d2 / k2 according to DIN 17457, table 6 Weld preparation according to DIN 2559-1 and DIN 2559-3 Testing class 2 according to DIN 17457, AD 2000-leaflet W2 Inner surfaces free of oil, grease and slip additive (max.: 300 mg/m²) Ends closed with caps Requirements AD 2000-leaflet W2 and W10, table 1, must be met An inspection certificate 3.1.C is required as proof, if the manufacturer does not meet the requirements according to AD 2000-leaflet W4, section 2.2 At wall thicknesses ≤ 10 mm, an inspection certificate 3.1.B is sufficient, if the requirements according to AD 2000-sheet W2, section 6.2.1, are met.

Ident- No.	nom. diameter	dimensions	weights	pipe connection wall thickness
	ND	d _a x s	kg	s _R
18274	15	21,3 x 1,6	0,03	1,60
18275	20	26,9 x 1,6	0,05	1,60
18276	25	33,7 x 2	0,09	2,00
18277	32	42,4 x 2	0,15	2,00

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Ident-No.	nom. diameter	dimensions	weights	pipe connection wall thickness
	ND	d _a x s	kg	s _R
18278	40	48,3 x 2	0,21	2,00
18279	50	60,3 x 2	0,35	2,00
18280	65	76,1 x 2,3	0,63	2,30
18281	80	88,9 x 2,3	0,89	2,30
18282	100	114,3 x 2,6	1,74	2,60
18283	125	139,7 x 4	4,06	2,60
18284	150	168,3 x 4	5,90	4,00
18285	200	219,1 x 4,5	11,40	4,50
18286	250	273 x 6,3	25,14	5,00
18287	300	323,9 x 7,1	40,40	5,60
18288	350	355,6 x 8	58,27	8,00
18289	400	406,4 x 8,8	83,94	8,80
18290	500	508 x 11	163,98	11,00
18291	600	610 x 12,5	268,48	12,50

10 Valid and listed documents

AD 2000-leaflet W2
 AD 2000-leaflet W10
 DIN 2559-1
 DIN 2559-3
 DIN 2605-1
 DIN 2609
 DIN 17457
 DIN EN 10204

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**Pipe Class
Specification PN 40**

pipe parts * pipe class: ZB40C1
Elbow 90° R=2,5 DA, welded

AIR LIQUIDE

1	Pipe class	ZB40C1
2	Part identification	RB2,5DG
3	Pipe class part	Elbow 90° R=2,5 DA, welded
4	Material	1.4541 (X 6 CrNiTi 18 10)
5	Dimension standard	DIN 2605-1
6	Terms of delivery	DIN 2609
7	Certificate	3.1.C or 3.2 according to DIN EN 10204
8	Identification	DIN 2609, section 6
9	Ordering addition	Elbow 90°, type 5, with decreased utilization factor, made of welded pipe according to DIN 17457 Type d2 / k2 according to DIN 17457, table 6 Weld preparation according to DIN 2559-1 and DIN 2559-3 Testing class 2 according to DIN 17457, AD 2000-leaflet W2 Inner surfaces free of oil, grease and slip additive (max.: 300 mg/m²) Ends closed with caps Requirements AD 2000-leaflet W2 and W10, table 1, must be met An inspection certificate 3.1.C is required as proof, if the manufacturer does not meet the requirements according to AD 2000-leaflet W4, section 2.2 At wall thicknesses ≤ 10 mm, an inspection certificate 3.1.B is sufficient, if the requirements according to AD 2000-sheet W2, section 6.2.1, are met.

Ident- No.	nom. diameter	dimensions	weights	pipe connection wall thickness
	ND	d _a x s	kg	s _R
18292	15	21,3 x 1,6	0,05	1,60
18293	20	26,9 x 1,6	0,09	1,60
18294	25	33,7 x 2	0,18	2,00
18295	32	42,4 x 2	0,29	2,00

Ident-No.	nom. diameter	dimensions	weights	pipe connection wall thickness
	ND	d _a x s	kg	s _R
18296	40	48,3 x 2	0,39	2,00
18297	50	60,3 x 2	0,62	2,00
18298	65	76,1 x 2, 3	1,17	2, 30
18299	80	88,9 x 2,3	1,60	2,30
18300	100	114,3 x 2,6	3,08	2,60
18301	125	139,7 x 4	7,05	2,60
18302	150	168,3 x 4	10,05	4,00
18303	200	219,1 x 4,5	19,07	4,50
18304	250	273 x 6,3	42,88	5,00
18305	300	323,9 x 7,1	68,54	5,60
18306	350	355,6 x 8	92,93	8,00
18307	400	406,4 x 8,8	133,47	8,80
18308	500	508 x 11	267,92	11,00
18309	600	610 x 12,5	447,95	12,50

10 Valid and listed documents

AD 2000-leaflet W2
AD 2000-leaflet W10
DIN 2559-1
DIN 2559-3
DIN 2605-1
DIN 2609
DIN 17457
DIN EN 10204

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**Pipe Class
Specification PN 40**

pipe parts * pipe class: ZB40C1
Tee made of welded pipe

AIR LIQUIDE

1	Pipe class	ZB40C1
2	Part identification	TG
3	Pipe class part	Tee made of welded pipe
4	Material	1.4541 (X 6 CrNiTi 18 10)
5	Dimension standard	DIN 2615-1
6	Terms of delivery	DIN 2609
7	Certificate	3.1.C or 3.2 according to DIN EN 10204
8	Identification	DIN 2609, section 6
9	Ordering addition	Tee with decreased utilization factor, made of welded pipe according to DIN 17457 Style of execution d2 / k2 according to DIN 2559-1 and DIN 2559-3 Weld preparation according to DIN 2559-1 and DIN 2559-3 Testing class 2 according to DIN 17457, AD 2000-sheet W2 Inner surfaces free of oil, grease and slip additive (max.: 300 mg/m²) Ends closed with caps Requirements AD 2000-sheet W2 and W10, table 1, must be met At wall thicknesses <= 10 mm, an inspection certificate 3.1.B is sufficient, if the requirements according to AD 2000-sheet W2, section 6.2.1, are met.

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Ident-Nr.	Nom. width		dimensions		weights	Pipe connection wall thickness	
	DN1	DN2	d1 x s1	d2 x s2	kg	*R1	*R2
18421	15	15	21,3 x 1,6	21,3 x 1,6	0,05	1,60	1,60
18422	20	15	26,9 x 1,6	21,3 x 1,6	0,07	1,60	1,60
18423	20	20	26,9 x 1,6	26,9 x 1,6	0,07	1,60	1,60

Ident-Nr.	Nom. width		dimensions		weights	Pipe connection wall thickness	
	DN1	DN2	d1 x s1	d2 x s2	kg	*R1	*R2
18424	25	15	33,7 x 2	21,3 x 1,6	0,14	2,00	1,60
18425	25	20	33,7 x 2	26,9 x 1,6	0,15	2,00	1,60
18426	25	25	33,7 x 2	33,7 x 2	0,15	2,00	2,00
18427	32	15	42,4 x 2	21,3 x 1,6	0,22	2,00	1,60
18428	32	20	42,4 x 2	26,9 x 1,6	0,23	2,00	1,60
18429	32	25	42,4 x 2	33,7 x 2	0,24	2,00	2,00
18430	32	32	42,4 x 2	42,4 x 2	0,25	2,00	2,00
18431	40	20	48,3 x 2	26,9 x 1,6	0,31	2,00	1,60
18432	40	25	48,3 x 2	33,7 x 2	0,33	2,00	2,00
18433	40	32	48,3 x 2	42,4 x 2	0,34	2,00	2,00
18434	40	40	48,3 x 2	48,3 x 2	0,34	2,00	2,00
18435	50	20	60,3 x 2,9	26,9 x 2,3	0,58	2,00	1,60
18436	50	25	60,3 x 2,9	33,7 x 2,6	0,60	2,00	2,00
18437	50	32	60,3 x 2,9	42,4 x 2,6	0,63	2,00	2,00
18438	50	40	60,3 x 2,9	48,3 x 2,6	0,64	2,00	2,00
18439	50	50	60,3 x 2,9	60,3 x 2,9	0,68	2,00	2,00
18440	65	25	76,1 x 2,9	33,7 x 2,6	0,73	2,30	2,00
18441	65	32	76,1 x 2,9	42,4 x 2,6	0,76	2,30	2,00
18442	65	40	76,1 x 2,9	48,3 x 2,6	0,77	2,30	2,00
18443	65	50	76,1 x 2,9	60,3 x 2,9	0,98	2,30	2,00
18444	65	65	76,1 x 2,9	76,1 x 2,9	1,01	2,30	2,30
18445	80	32	88,9 x 3,2	42,4 x 2,6	1,30	2,30	2,00
18446	80	40	88,9 x 3,2	48,3 x 2,6	1,33	2,30	2,00
18447	80	50	88,9 x 3,2	60,3 x 2,9	1,37	2,30	2,00
18448	80	65	88,9 x 5,6	76,1 x 5	2,37	2,30	2,30
18449	80	80	88,9 x 5,6	88,9 x 5,6	2,46	2,30	2,30

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Ident-Nr.	Nom. width		dimensions		weights	Pipe connection wall thickness	
	DN ₁	DN ₂	d ₁ x s ₁	d ₂ x s ₂	kg	^s R ₁	^s R ₂
18450	100	40	114,3 x 3,6	48,3 x 2,6	2,28	2,60	2,00
18451	100	50	114,3 x 3,6	60,3 x 2,9	2,34	2,60	2,00
18452	100	65	114,3 x 6,3	76,1 x 5	4,10	2,60	2,30
18453	100	80	114,3 x 6,3	88,9 x 5,6	4,22	2,60	2,30
18454	100	100	114,3 x 6,3	114,3 x 3,6	4,41	2,60	2,60
18455	125	50	139,7 x 6,3	60,3 x 4,5	5,67	2,60	2,00
18456	125	65	139,7 x 6,3	76,1 x 5	5,83	2,60	2,30
18457	125	80	139,7 x 6,3	88,9 x 5,6	6,00	2,60	2,30
18458	125	100	139,7 x 6,3	114,3 x 6,3	6,23	2,60	2,60
18459	125	125	139,7 x 6,3	139,7 x 6,3	6,35	2,60	2,60
18460	150	65	168,3 x 7,1	76,1 x 5	8,92	4,00	2,30
18461	150	80	168,3 x 7,1	88,9 x 5,6	9,11	4,00	2,30
18462	150	100	168,3 x 7,1	114,3 x 6,3	9,42	4,00	2,60
18463	150	125	168,3 x 7,1	139,7 x 6,3	9,59	4,00	2,60
18464	150	150	168,3 x 7,1	168,3 x 7,1	9,86	4,00	4,00
18465	200	80	219,1 x 8	88,9 x 5,6	12,70	4,50	2,30
18466	200	100	219,1 x 8	114,3 x 6,3	12,95	4,50	2,60
18467	200	125	219,1 x 8	139,7 x 6,3	13,22	4,50	2,60
18468	200	150	219,1 x 8	168,3 x 7,1	13,52	4,50	4,00
18469	200	200	219,1 x 12,5	219,1 x 12,5	27,10	4,50	4,50
18470	250	100	273 x 8,8	114,3 x 6,3	27,32	5,00	2,60
18471	250	125	273 x 14,2	139,7 x 10	43,70	5,00	2,60
18472	250	150	273 x 14,2	168,3 x 11	44,50	5,00	4,00
18473	250	200	273 x 14,2	219,1 x 12,5	45,70	5,00	4,50
18474	250	250	273 x 14,2	273 x 14,2	47,10	5,00	5,00

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Ident-Nr.	Nom. width		dimensions		weights	Pipe connection wall thickness	
	DN ₁	DN ₂	d ₁ x s ₁	d ₂ x s ₂	kg	^s R ₁	^s R ₂
18475	300	125	323,9 x 16	139,7 x 10	67,42	5,60	2,60
18476	300	150	323,9 x 16	168,3 x 11	68,50	5,60	4,00
18477	300	200	323,9 x 16	219,1 x 12,5	70,30	5,60	4,50
18478	300	250	323,9 x 16	273 x 14,2	72,30	5,60	5,00
18479	300	300	323,9 x 16	323,9 x 16	74,00	5,60	5,60
18480	350	150	355,6 x 17,5	168,3 x 11	89,40	8,00	4,00
18481	350	200	355,6 x 17,5	219,1 x 12,5	91,50	8,00	4,50
18482	350	250	355,6 x 17,5	273 x 14,2	93,76	8,00	5,00
18483	350	300	355,6 x 17,5	323,9 x 16	96,00	8,00	5,60
18484	350	350	355,6 x 17,5	355,6 x 17,5	97,66	8,00	8,00
18485	400	150	406,4 x 20	168,3 x 11	125,83	8,80	4,00
18486	400	200	406,4 x 20	219,1 x 12,5	128,45	8,80	4,50
18487	400	250	406,4 x 20	273 x 14,2	131,52	8,80	5,00
18488	400	300	406,4 x 20	323,9 x 16	134,45	8,80	5,60
18489	400	350	406,4 x 20	355,6 x 17,5	136,90	8,80	8,00
18490	400	400	406,4 x 20	406,4 x 20	137,80	8,80	8,80
18491	500	200	508 x 25	219,1 x 12,5	244,10	11,00	4,50
18492	500	250	508 x 25	273 x 14,2	248,46	11,00	5,00
18493	500	300	508 x 25	323,9 x 16	253,10	11,00	5,60
18494	500	350	508 x 25	355,6 x 17,5	256,78	11,00	8,00
18495	500	400	508 x 25	406,4 x 20	259,95	11,00	8,80
18496	500	500	508 x 25	508 x 25	268,78	11,00	11,00

10 Valid and listed documents

AD 2000-leaflet W2
AD 2000-leaflet W10
DIN 2559-1
DIN 2559-3
DIN 2615-1
DIN 2609
DIN 17457
DIN EN 10204

**Pipe Class
Specification PN 40**

**pipe parts * pipe class: ZB40C1
Reducer, concentric, welded**

1	Pipe class	ZB40C1
2	Part identification	RZKG
3	Pipe class part	Reducer, concentric, welded
4	Material	1.4541 (X 6 CrNiTi 18 10)
5	Dimension standard	DIN 2616-1
6	Terms of delivery	DIN 2609
7	Certificate	3.1.C or 3.2 according to DIN EN 10204
8	Identification	DIN 2609, section 6
9	Ordering addition	Reducer, concentric, with decreased utilization factor, made of welded pipe according to DIN 17457 Type d2 /k2 according to DIN 17457, table 6 Weld preparation according to DIN 2559-1 and DIN 2559-3 Testing class 2 according to DIN 17457, AD 2000-leaflet W2 Inner surfaces free of oil, grease and slip additive (max.: 300 mg/m²) Ends closed with caps Requirements AD 2000-sheet W2 and W10, must be met At wall thicknesses ≤ 10 mm, an inspection certificate 3.1.B is sufficient, if the requirements according to AD 2000-sheet W2, section 6.2.1, are met.

Ident-No.	nom. width		dimensions		weights	pipe connection wall thickness	
	ND ₁	ND ₂	d ₁ x s ₁	d ₂ x s ₂	kg	S _{R1}	S _{R2}
18192	20	15	26,9 x 1,6	21,3 x 1,6	0,03	1,60	1,60
18193	25	15	33,7 x 2	21,3 x 1,6	0,06	2,00	1,60
18194	25	20	33,7 x 2	26,9 x 1,6	0,07	2,00	1,60

Ident-No.	nom. width		dimensions		weights	pipe connection wall thickness	
	ND ₁	ND ₂	d ₁ x s ₁	d ₂ x s ₂	kg	S _{R1}	S _{R2}
18195	32	15	42,4 x 2	21,3 x 1,6	0,08	2,00	1,60
18196	32	20	42,4 x 2	26,9 x 1,6	0,08	2,00	1,60
18197	32	25	42,4 x 2	33,7 x 2	0,09	2,00	2,00
18198	40	20	48,3 x 2	26,9 x 1,6	0,12	2,00	1,60
18199	40	25	48,3 x 2	33,7 x 2	0,13	2,00	2,00
18200	40	32	48,3 x 2	42,4 x 2	0,14	2,00	2,00
18201	50	20	60,3 x 2	26,9 x 1,6	0,16	2,00	1,60
18202	50	25	60,3 x 2	33,7 x 2	0,17	2,00	2,00
18203	50	32	60,3 x 2	42,4 x 2	0,19	2,00	2,00
18204	50	40	60,3 x 2	48,3 x 2	0,20	2,00	2,00
18205	65	25	76,1 x 2,3	33,7 x 2	0,27	2,30	2,00
18206	65	32	76,1 x 2,3	42,4 x 2	0,30	2,30	2,00
18207	65	40	76,1 x 2,3	48,3 x 2	0,31	2,30	2,00
18208	65	50	76,1 x 2,3	60,3 x 2	0,34	2,30	2,00
18209	80	32	88,9 x 2,3	42,4 x 2	0,33	2,30	2,00
18210	80	40	88,9 x 2,3	48,3 x 2	0,35	2,30	2,00
18211	80	50	88,9 x 2,3	60,3 x 2	0,38	2,30	2,00
18212	80	65	88,9 x 2,3	76,1 x 2,3	0,42	2,30	2,30
18213	100	40	114,3 x 3,6	48,3 x 2,6	0,52	2,60	2,00
18214	100	50	114,3 x 2,6	60,3 x 2	0,55	2,60	2,00
18215	100	65	114,3 x 2,6	76,1 x 2,3	0,61	2,60	2,30
18216	100	80	114,3 x 2,6	88,9 x 2,3	0,65	2,60	2,30
18217	125	50	139,7 x 4	60,3 x 2,9	1,23	2,60	2,00
18218	125	65	139,7 x 4	76,1 x 2,9	1,33	2,60	2,30
18219	125	80	139,7 x 4	88,9 x 3,2	1,41	2,60	2,30
18220	125	100	139,7 x 2,6	114,3 x 2,6	1,03	2,60	2,60

Ident-No.	nom. width		dimensions		weights	pipe connection wall thickness	
	ND ₁	ND ₂	d ₁ x s ₁	d ₂ x s ₂	kg	s _{R1}	s _{R2}
18221	150	65	168,3 x 4	76,1 x 2,9	1,67	4,00	2,30
18222	150	80	168,3 x 4	88,9 x 3,2	1,80	4,00	2,30
18223	150	100	168,3 x 4	114,3 x 3,6	2,00	4,00	2,60
18224	150	125	168,3 x 4	139,7 x 4	2,10	4,00	2,60
18225	200	80	219,1 x 6,3	88,9 x 3,2	3,60	4,50	2,30
18226	200	100	219,1 x 6,3	114,3 x 3,6	3,90	4,50	2,60
18227	200	125	219,1 x 6,3	139,7 x 4	4,20	4,50	2,60
18228	200	150	219,1 x 4,5	168,3 x 4	3,25	4,50	4,00
18229	250	100	273 x 8,8	114,3 x 6,3	7,30	5,00	2,60
18230	250	125	273 x 8,8	139,7 x 6,3	7,80	5,00	2,60
18231	250	150	273 x 6,3	168,3 x 4,5	6,10	5,00	4,00
18232	250	200	273 x 5	219,1 x 4,5	5,40	5,00	4,50
18233	300	125	323,9 x 10	139,7 x 6,3	11,37	5,60	2,60
18234	300	150	323,9 x 10	168,3 x 7,1	12,10	5,60	4,00
18235	300	200	323,9 x 7,1	219,1 x 6,3	9,56	5,60	4,50
18236	300	250	323,9 x 7,1	273 x 6,3	10,60	5,60	5,00
18237	350	150	355,6 x 8	168,3 x 4,5	16,90	8,00	4,00
18238	350	200	355,6 x 8	219,1 x 6,3	18,52	8,00	4,50
18239	350	250	355,6 x 8	273 x 6,3	20,30	8,00	5,00
18240	350	300	355,6 x 8	323,9 x 7,1	21,96	8,00	5,60
18241	400	150	406,4 x 12,5	168,3 x 7,1	30,84	8,80	4,00
18242	400	200	406,4 x 8,8	219,1 x 6,3	23,90	8,80	4,50
18243	400	250	406,4 x 8,8	273 x 6,3	26,00	8,80	5,00
18244	400	300	406,4 x 8,8	323,9 x 7,1	27,95	8,80	5,60
18245	400	350	406,4 x 8,8	355,6 x 8	29,15	8,80	8,00

Ident-No.	nom. width		dimensions		weights	pipe connection wall thickness	
	ND ₁	ND ₂	d ₁ x s ₁	d ₂ x s ₂	kg	s _{R1}	s _{R2}
18246	500	200	508 x 11	219,1 x 6,3	49,67	11,00	4,50
18247	500	250	508 x 11	273 x 6,3	53,43	11,00	5,00
18248	500	300	508 x 11	323,9 x 7,1	57,00	11,00	5,60
18249	500	350	508 x 11	355,6 x 8	59,10	11,00	8,00
18250	500	400	508 x 11	406,4 x 8,8	62,60	11,00	8,80
18251	600	250	610 x 17,5	273 x 8,8	95,35	12,50	5,00
18252	600	300	610 x 17,5	323,9 x 10	100,10	12,50	5,60
18253	600	350	610 x 12,5	355,6 x 8	75,14	12,50	8,00
18254	600	400	610 x 12,5	406,4 x 8,8	79,10	12,50	8,80
18255	600	500	610 x 12,5	508 x 11	87,01	12,50	11,00

10 Valid and listed documents

AD 2000-leaflet W2
 AD 2000-leaflet W10
 DIN 2559-1
 DIN 2559-3
 DIN 2616-1
 DIN 2609
 DIN 17457
 DIN EN 10204

**Pipe Class
Specification PN 40**

**pipe parts * pipe class: ZB40C1
Reducer, eccentric, welded**

1	Pipe class	ZB40C1
2	Part identification	RZEG
3	Pipe class part	Reducer, eccentric, welded
4	Material	1.4541 (X 6 CrNiTi 18 10)
5	Dimension standard	DIN 2616-1
6	Terms of delivery	DIN 2609
7	Certificate	3.1.C or 3.2 according to DIN EN 10204
8	Identification	DIN 2609, section 6
9	Ordering addition	Reducer, eccentric, with decreased utilization factor, made of welded pipe according to DIN 17457 Type d2 / k2 according to DIN 17457, table 6 Weld preparation according to DIN 2559-1 and DIN 2559-3 Testing class 2 according to DIN 17457, AD 2000-leaflet W2 Inner surfaces free of oil, grease and slip additive (max.: 300 mg/m²) Ends closed with caps Requirements AD 2000-sheet W2 and W10, table 1, must be met At wall thicknesses ≤ 10 mm, an inspection certificate 3.1.B is sufficient, if the requirements according to AD 2000-sheet W2, section 6.2.1, are met.

Ident-No.	nom. width		dimensions		weights	pipe connection wall thickness	
	ND ₁	ND ₂	d ₁ x s ₁	d ₂ x s ₂	kg	s _{R1}	s _{R2}
18128	20	15	26,9 x 1,6	21,3 x 1,6	0,03	1,60	1,60
18129	25	15	33,7 x 2	21,3 x 1,6	0,06	2,00	1,60
18130	25	20	33,7 x 2	26,9 x 1,6	0,07	2,00	1,60

Ident-No.	nom. width		dimensions		weights	pipe connection wall thickness	
	ND ₁	ND ₂	d ₁ x s ₁	d ₂ x s ₂	kg	s _{R1}	s _{R2}
18131	32	15	42,4 x 2	21,3 x 1,6	0,08	2,00	1,60
18132	32	20	42,4 x 2	26,9 x 1,6	0,08	2,00	1,60
18133	32	25	42,4 x 2	33,7 x 2	0,09	2,00	2,00
18134	40	20	48,3 x 2	26,9 x 1,6	0,12	2,00	1,60
18135	40	25	48,3 x 2	33,7 x 2	0,13	2,00	2,00
18136	40	32	48,3 x 2	42,4 x 2	0,14	2,00	2,00
18137	50	20	60,3 x 2	26,9 x 1,6	0,16	2,00	1,60
18138	50	25	60,3 x 2	33,7 x 2	0,17	2,00	2,00
18139	50	32	60,3 x 2	42,4 x 2	0,19	2,00	2,00
18140	50	40	60,3 x 2	48,3 x 2	0,20	2,00	2,00
18141	65	25	76,1 x 2,3	33,7 x 2	0,27	2,30	2,00
18142	65	32	76,1 x 2,3	42,4 x 2	0,30	2,30	2,00
18143	65	40	76,1 x 2,3	48,3 x 2	0,31	2,30	2,00
18144	65	50	76,1 x 2,3	60,3 x 2	0,34	2,30	2,00
18145	80	32	88,9 x 2,3	42,4 x 2	0,33	2,30	2,00
18146	80	40	88,9 x 2,3	48,3 x 2	0,35	2,30	2,00
18147	80	50	88,9 x 2,3	60,3 x 2	0,38	2,30	2,00
18148	80	65	88,9 x 2,3	76,1 x 2,3	0,42	2,30	2,30
18149	100	40	114,3 x 3,6	48,3 x 2,6	0,52	2,60	2,00
18150	100	50	114,3 x 2,6	60,3 x 2	0,55	2,60	2,00
18151	100	65	114,3 x 2,6	76,1 x 2,3	0,61	2,60	2,30
18152	100	80	114,3 x 2,6	88,9 x 2,3	0,65	2,60	2,30
18153	125	50	139,7 x 4	60,3 x 2,9	1,23	2,60	2,00
18154	125	65	139,7 x 4	76,1 x 2,9	1,33	2,60	2,30
18155	125	80	139,7 x 4	88,9 x 3,2	1,41	2,60	2,30
18156	125	100	139,7 x 2,6	114,3 x 2,6	1,03	2,60	2,60

Ident-No.	nom. width		dimensions		weights	pipe connection wall thickness	
	ND ₁	ND ₂	d ₁ x s ₁	d ₂ x s ₂	kg	S _{R1}	S _{R2}
18157	150	65	168,3 x 4	76,1 x 2,9	1,67	4,00	2,30
18158	150	80	168,3 x 4	88,9 x 3,2	1,80	4,00	2,30
18159	150	100	168,3 x 4	114,3 x 3,6	2,00	4,00	2,60
18160	150	125	168,3 x 4	139,7 x 4	2,10	4,00	2,60
18161	200	80	219,1 x 6,3	88,9 x 3,2	3,60	4,50	2,30
18162	200	100	219,1 x 6,3	114,3 x 3,6	3,90	4,50	2,60
18163	200	125	219,1 x 6,3	139,7 x 4	4,20	4,50	2,60
18164	200	150	219,1 x 4,5	168,3 x 4	3,25	4,50	4,00
18165	250	100	273 x 8,8	114,3 x 6,3	7,30	5,00	2,60
18166	250	125	273 x 8,8	139,7 x 6,3	7,80	5,00	2,60
18167	250	150	273 x 6,3	168,3 x 4,5	6,10	5,00	4,00
18168	250	200	273 x 5	219,1 x 4,5	5,40	5,00	4,50
18169	300	125	323,9 x 10	139,7 x 6,3	11,37	5,60	2,60
18170	300	150	323,9 x 10	168,3 x 7,1	12,10	5,60	4,00
18171	300	200	323,9 x 7,1	219,1 x 6,3	9,56	5,60	4,50
18172	300	250	323,9 x 7,1	273 x 6,3	10,60	5,60	5,00
18173	350	150	355,6 x 8	168,3 x 4,5	16,90	8,00	4,00
18174	350	200	355,6 x 8	219,1 x 6,3	18,52	8,00	4,50
18175	350	250	355,6 x 8	273 x 6,3	20,30	8,00	5,00
18176	350	300	355,6 x 8	323,9 x 7,1	21,96	8,00	5,60
18177	400	150	406,4 x 12,5	168,3 x 7,1	30,84	8,80	4,00
18178	400	200	406,4 x 8,8	219,1 x 6,3	23,90	8,80	4,50
18179	400	250	406,4 x 8,8	273 x 6,3	26,00	8,80	5,00
18180	400	300	406,4 x 8,8	323,9 x 7,1	27,95	8,80	5,60
18181	400	350	406,4 x 8,8	355,6 x 8	29,15	8,80	8,00

Ident-No.	nom. width		dimensions		weights	pipe connection wall thickness	
	ND ₁	ND ₂	d ₁ x s ₁	d ₂ x s ₂	kg	s _{R1}	s _{R2}
18182	500	200	508 x 11	219,1 x 6,3	49,67	11,00	4,50
18183	500	250	508 x 11	273 x 6,3	53,43	11,00	5,00
18184	500	300	508 x 11	323,9 x 7,1	57,00	11,00	5,60
18185	500	350	508 x 11	355,6 x 8	59,10	11,00	8,00
18186	500	400	508 x 11	406,4 x 8,8	62,60	11,00	8,80
18187	600	250	610 x 17,5	273 x 8,8	95,35	12,50	5,00
18188	600	300	610 x 17,5	323,9 x 10	100,10	12,50	5,60
18189	600	350	610 x 12,5	355,6 x 8	75,14	12,50	8,00
18190	600	400	610 x 12,5	406,4 x 8,8	79,10	12,50	8,80
18191	600	500	610 x 12,5	508 x 11	87,01	12,50	11,00

10 Valid and listed documents

AD 2000-leaflet W2
 AD 2000-leaflet W10
 DIN 2559-1
 DIN 2559-3
 DIN 2616-1
 DIN 2609
 DIN 17457
 DIN EN 10204

**Pipe Class
Specification PN 40**

**pipe parts * pipe class: ZB40C1
Caps**

1	Pipe class	ZB40C1
2	Part identification	KAP
3	Pipe class part	Caps
4	Material	1.4541 (X 6 CrNiTi 18 10)
5	Dimension standard	DIN 2617
6	Terms of delivery	DIN 2609
7	Certificate	3.1.B according to DIN EN 10204
8	Identification	DIN 2609, section 6
9	Ordering addition	Cap to weld in, made of sheet steel, forging or bar stock Weld preparation according to DIN 2559-1 and DIN 2559-3 Inner surfaces free of oil, grease and slip additive (max.: 300 mg/m²) Ends closed with caps Requirements AD 2000-sheet W2 and W10, table 1, must be met

Ident-No.	nom. diameter	dimensions	weights	pipe connection wall thickness
	DN	d _a x s	kg	s _R
18110	15	21,3 x 1,6	0,02	1,60
18111	20	26,9 x 1,6	0,03	1,60
18112	25	33,7 x 2	0,06	2,00
18113	32	42,4 x 2	0,08	2,00
18114	40	48,3 x 2	0,10	2,00
18115	50	60,3 x 2	0,12	2,00
18116	65	76,1 x 2,3	0,18	2,30
18117	80	88,9 x 2,3	0,29	2,30

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Ident-No.	nom. diameter	dimensions	weights	pipe connection wall thickness
	DN	d _a x s	kg	s _R
18118	100	114,3 x 2,6	0,53	2,60
18119	125	139,7 x 2,6	0,77	2,60
18120	150	168,3 x 4	1,66	4,00
18121	200	219,1 x 4,5	2,84	4,50
18122	250	273 x 5	4,95	5,00
18123	300	323,9 x 5,6	7,89	5,60
18124	350	355,6 x 8	13,29	8,00
18125	400	406,4 x 8,8	18,21	8,80
18126	500	508 x 11	36,48	11,00
18127	600	610 x 12,5	58,42	12,50

10 Valid and listed documents

AD 2000-leaflet W2
AD 2000-leaflet W10
DIN 2559-1
DIN 2559-2
DIN 2609
DIN 2617
DIN EN 10204

**Pipe Class
Specification PN 40**

**pipe parts * pipe class: ZB40C1
Blanks**

1	Pipe class	ZB40C1
2	Part identification	BSS
3	Pipe class part	Blanks
4	Material	1.4541 (X 6 CrNiTi 18 10)
5	Dimension standard	Uhde- Norm 3902-1
6	Terms of delivery	DIN 17440
7	Certificate	3.1.C or 3.2 according to DIN EN 10204
8	Identification	
9	Ordering addition	Two-part figure-eight blank for DIN-flange with flat seal, made of hot-rolled flat steel according to DIN EN 10029, class A Inner surfaces free of oil, grease and slip additive (max.: 300 mg/m²) Packed in PE-bags, diameter 200 and above shrink-wrapped in PE-foil Requirements AD 2000-sheet W2 and W10, table 1, must be met At wall thicknesses ≤ 30 mm, an inspection certificate 3.1.B is sufficient

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Ident-Nr.	nom. width	diameter	diameter	thickness	weights
	ND	d ₁	d ₂	s ₁	kg
18042	15	40,00	20,00	10	0,00
18043	20	60,00	25,00	10	0,00
18044	25	70,00	30,00	10	0,00
18045	32	81,00	40,00	10	0,00
18046	40	91,00	45,00	10	0,00
18047	50	106,00	57,00	10	0,00
18048	65	126,00	73,00	10	0,00

Ident-Nr.	nom. width	diameter	diameter	thickness	weights
	ND	d ₁	d ₂	s ₁	kg
18049	80	141,00	85,00	10	0,00
18050	100	167,00	110,00	15	0,00
18051	125	193,00	135,00	15	0,00
18052	150	223,00	160,00	20	0,00
18053	200	289,00	210,00	25	0,00
18054	250	351,00	262,00	30	0,00
18055	300	416,00	312,00	40	0,00
18056	350	473,00	342,00	40	0,00
18057	400	545,00	390,00	50	0,00
18058	500	627,00	498,00	50	0,00

- 10 Valid and listed documents
- AD 2000-leaflet W2
 - AD 2000-leaflet W10
 - DIN 17440
 - DIN EN 10029-A
 - DIN EN 10204
 - Uhde-Norm 3902-1

Pipe Class
Specification PN 40

pipe parts * pipe class: ZB40C1
Welding neck flanges

1	Pipe class	ZB40C1
2	Part identification	VF
3	Pipe class part	Welding neck flanges
4	Material	1.4541 (X 6 CrNiTi 18 10)
5	Dimension standard	DIN EN 1092-1
6	Terms of delivery	DIN EN 1092-1
7	Certificate	3.1.C or 3.2 according to DIN EN 10204
8	Identification	AD 2000-leaflet W9, section 5
9	Ordering addition	Forged welding neck flanges with flat seal (shape B1)

free of oil, grease and slip additive
(max.: 300 mg/m²)

Ends closed with caps

Requirements AD 2000-Merkblatt W2, W9 and W10,
table 1, must be met

At forged pieces with wall thicknesses ≤ 250 mm, an
inspection certificate 3.1.B is sufficient according to AD
2000-leaf W2, table 6.2

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Ident-No.	nom. diameter	dimensions	weights
	ND	ND x ØA	kg
18497	15	15 x 21,3	1,00
18498	20	20 x 26,9	1,00
18499	25	25 x 33, 7	1, 00
18500	32	32 x 42,4	2,00
18501	40	40 x 48,3	2,00
18502	50	50 x 60,3	3,00