

Table of Contents

Ready-to-operate erection of the piping system,
Tank farm area, ASU No. 9 Kosice

1	General	
1.1	Specification for Quotation	Vol. 1
1.2	General Arrangement Plan	Vol. 1
1.3	General Arrangement Plan Tankfarm Area	Vol. 1
1.4	Job Site Installation	Vol. 1
1.5	P&I Diagram	Vol. 1
2	Standards	
2.1	Piping Material Specifications (piping Classes, Air Liquid Standards)	Vol. 1+2
2.2	AL Safety	Vol. 2
3	Piping	
3.1	Piping List (Piping Vendor)	Vol. 2
3.2	Valve List	Vol. 2
3.3	List of Control valves	Vol. 2
3.4	Safety Valve List	Vol. 2
3.5	Installation Drawings	Vol. 3
3.6	List of Isometrics	Vol. 3
3.7	Isometric Drawings	Vol. 3
3.8	Bill of Material per Single Line	Vol. 3
3.9	Bill of Total piping material	Vol. 3
4	Supports (General)	
4.1	List of Pipe Supports	Vol.4
4.2	List of Pipe Shoe's	Vol.4
4.3	Pipe Support Drawings	Vol.4
4.4	Pipe Shoe Drawings	Vol.4
5	Steel Structures and Special Designs	
5.1	Product Blow Out / Overview Steel Construction for Blow out	Vol.5
5.2	Pipe bridge	Vol.5
5.3	LOX tank	Vol.5
5.4	LIN tank	Vol.5
6	Erection of equipment and pumps	
6.1	Equipment dimension sheets	Vol.5
6.2	Pumps dimension sheets	Vol.5

**Pipe Class
Specification PN 63**

**Tube parts catalogue
Pipe class: AA63C1**

- 1 Aim** Aim of this guideline is the specification of tube parts under defined operating conditions under consideration of the requirements of guideline 97/23/EC (Pressure equipment guideline)
- 2 Scope** Air Liquide Deutschland GmbH
- 3 Material** 1.0254 (St 37.0)
- 4 Pipe class** Standard pipe class according to AD-2000-leaflet
- 5 Seal form** Form B2 according to DIN EN 1092-1
- 6 Corrosion surcharge** 1,00 mm
- 7 Screws**

Screw bolts	5.6
Hexagon nut	5-2
- 8 Permitted media** argon, compressed air, rare gases, natural gas, carbon dioxide, oxygen, nitrogen, hydrogen, and its mixtures in gaseous form
- 9 Operating pressure** 10 bar
- 10 Operating temperature** from 263 K (-10°C) to 393 K (120°C)

ND	15	20	25	32	40	50	65	80	100	125	150	200	250
d _a /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	2	2,3	2,6	3,6	4	4,5	5	5,6	6,3	6,3	7,1	8	8,8

ND	300												
d _a /mm	323,9												
s/mm	10												

- 11 Safety notices** The flow rate of conducting gaseous oxygen is not allowed to exceed 8 m/s in tubes of this class with operating pressures > 40 bar.

Vertical impacting gaseous oxygen to the tube wall must be avoided; therefore turns in branches are not allowed to occur in sharp kinks but only in bendings.

To avoid a weakening of the wall thickness at bending tubes, the bending radius must not fall below a value of 5 D.

When using Elbows according to DIN, the bending radius may fall below this value.

Tubes leading oxygen must be free of oil, grease, welding beads and processing shavings and comply with standard 06401.

12 Additional notices

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

When using hydrogen, comb defined seals according to Standard 40008 only must be provided for flange joints.

Tube part	nom. width		iden- tifica- tion	dimension standard / terms of delivery	certificate
	from	to			
Caps	15	300	KAP	DIN 2617, DIN 2609	3.1.B according to DIN EN 10204
Comb defined seals	15	300	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	200	200	RB1,5DG	DIN 2605-1, DIN 2609	3.1.B according to DIN EN 10204
Elbow 90° R=2,5 DA, welded	200	300	RB2,5DG	DIN 2605-1, DIN 2609	3.1.B according to DIN EN 10204
Pipe, welded	200	300	RG	DIN EN 10220, DIN 1626	3.1.B according to DIN EN 10204
Pipe, seamless	15	150	RN	DIN EN 10220, DIN 1629	3.1.B according to DIN EN 10204
Welding neck flanges	15	300	VF	DIN EN 1092-1, DIN EN 1092-1	3.1.B according to DIN EN 10204
Reducer, eccentric, seamless	20	250	RZEN	DIN 2616-1, DIN 2609	3.1.B according to DIN EN 10204
Reducer, concentric, seamless	20	250	RZKN	DIN 2616-1, DIN 2609	3.1.B according to DIN EN 10204
Tee made of seamless pipe	15	200	TN	DIN 2615-1, DIN 2609	3.1.B according to DIN EN 10204
Elbow 90° R=1,5 DA, seamless	15	150	RB1,5DN	DIN 2605-1, DIN 2609	3.1.B according to DIN EN 10204
Elbow 90° R=2,5 DA, seamless	15	150	RB2,5DN	DIN 2605-1, DIN 2609	3.1.B according to DIN EN 10204
Blanks	15	300	BSS	Uhde-Norm 3902-1, DIN EN 10025	3.1.B according to DIN EN 10204
Blind flanges	15	300	BF	DIN EN 1092-1, DIN EN 1092-1	3.1.B according to DIN EN 10204
Hexagon head screws	12	33	SB	DIN 2510, DIN 267-13	3.1.B according to DIN EN 10204
Hexagon nuts	12	33	SKM	DIN 2510, DIN 267-13	3.1.B according to DIN EN 10204

10 Valid and listed documents

Standard 06401
Standard 40008
AD 2000-leaflet
DGRL 97/23/EG
DIN 1626
DIN 1629
DIN 2510
DIN 2605-1
DIN 2609
DIN 2615-1
DIN 2616-1
DIN 2617
DIN EN 1092-1
DIN EN 10025
DIN EN 10204
DIN EN 10220
Uhde-Norm 3902-1

Pipe Class
Specification PN 63

pipe parts * pipe class: AA63C1
pipe, seamless

1	Pipe class	AA63C1
2	Part Identification	RN
3	Pipe class part	pipe, seamless
4	Material	1.0254 (St 37.0)
5	Dimension standard	DIN EN 10220
6	Terms of delivery	DIN 1629
7	Certificate	3.1.B according to DIN EN 10204
8	Identification	DIN 1629, section 6
9	Ordering addition	<p>Pipes at fixed length of 6 m</p> <p>Inner surfaces free of oil, grease and slip additive (max.: 200 mg/m²)</p> <p>Ends closed with caps</p> <p>Requirements AD 2000-leaflet W4, especially section 5, must be met</p>

Ident-No.	nom. diameter	dimensions	weights
	ND	d _a x s	kg
21143	15	21,3 x 2	0,95
21144	20	26,9 x 2,3	1,40
21145	25	33,7 x 2,6	1,99
21146	32	42,4 x 3,6	3,44
21147	40	48,3 x 4	4,37
21148	50	60,3 x 4,5	6,19
21149	65	76,1 x 5	8,77
21150	80	88,9 x 5,6	11,50
21151	100	114,3 x 6,3	16,80
21152	125	139,7 x 6,3	20,70
21153	150	168,3 x 7,1	28,20

10	Valid an listed documents	<p>AD 2000-leaflet W4</p> <p>DIN 1629</p> <p>DIN EN 10204</p> <p>DIN EN 10220</p>
----	---------------------------	---

Pipe Class
Specification PN 63

pipe parts * pipe class: AA63C1
pipe, welded

1	Pipe class	AA63C1
2	Part identification	RG
3	Pipe class part	pipe, welded
4	Material	1.0254 (St 37.0)
5	Dimension standard	DIN EN 10220
6	Terms of delivery	DIN 1626
7	Certificate	3.1.B according to DIN EN 10204
8	Identification	DIN 1626, section 6
9	Ordering addition	Pipes at fixed length of 6 m

Calculation stress: 100%

Inner surfaces free of oil, grease and slip additive
(max.: 200 mg/m²)

Ends closed with caps

Requirements AD 2000-leaflet W4, especially section 5,
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

Ident- No.	nom. diameter	dimensions	weights
	ND	d _a x s	kg
21140	200	219,1 x 8	41, 60
21141	250	273 x 8,8	57,30
21142	300	323,9 x 10	77,40

10 Valid and listed documents

AD 2000-leaflet W4
DIN 1626
DIN EN 10204
DIN EN 10220

This document is protected by copyright and may not be distributed, copied, used in any way, or passed to third parties without permission.

Pipe Class
Specification PN 63

pipe parts * pipe class: AA63C1
Elbow 90° R=1,5 DA, seamless

1	Pipe class	AA63C1
2	Part identification	RB1,5DN
3	Pipe class part	Elbow 90° R=1,5 DA, seamless
4	Material	1.0254 (St 37.0)
5	Dimension standard	DIN 2605-1
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	<p>Elbow 90°, type 3, with decreased utilization factor, made of seamless pipe according to DIN 1629</p> <p>Weld preparation according to DIN 2559-1 and DIN 2559-2</p> <p>Inner surfaces free of oil, grease and slip additive (max.: 200 mg/m²)</p> <p>Ends closed with caps</p> <p>Requirements AD 2000-leaflet W4, especially section 5, must be met</p>

Ident- No.	nom. diameter	dimensions	weights	pipe connection wall thickness
	ND	d _a x s	kg	s _R
21155	15	21,3 x 2	0,04	2,00
21156	20	26,9 x 2,3	0,06	2,30
21157	25	33,7 x 2,6	0,12	2,60
21158	32	42,4 x 3,6	0,26	3,60
21159	40	48,3 x 4	0,39	4,00
21160	50	60,3 x 4,5	0,74	4,50
21161	65	76,1 x 5	1,31	5,00
21162	80	88,9 x 5,6	2,06	5,60

Ident-No.	nom. diameter	dimensions	weights	pipe connection wall thickness
	ND	d _a x s	kg	s _R
21163	100	114,3 x 6,3	4,01	6,30
21164	125	139,7 x 6,3	6,18	6,30
21165	150	168, 3 x 7,1	10,14	7,10

10 Valid and listed documents

AD 2000-leaflet W4
DIN 2559-1
DIN 2559-2
DIN 2605-1
DIN 2609
DIN EN 10204

Pipe Class
Specification PN 63

pipe parts * pipe class: AA63C1
Elbow 90° R=1,5 DA, welded

1	Pipe class	AA63C1
2	Part identification	RB1,5DG
3	Pipe class part	Elbow 90° R=1,5 DA, welded
4	Material	1.0254 (St 37.0)
5	Dimension standard	DIN 2605-1
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	<p>Elbow 90°, type 3, with decreased utilization factor, made of welded pipe according to DIN 1626</p> <p>Weld preparation according to DIN 2559-1 and DIN 2559-3</p> <p>Inner surfaces free of oil, grease and slip additive (max.: 200 mg/m²)</p> <p>Ends closed with caps</p> <p>requirements AD 2000-leaflet W4, especially section 5, must be met</p>

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

Ident- No.	nom. diameter	dimensions	weights	pipe connection wall thickness
	ND	d _a x s	kg	s _R
21154	200	219,1 x 12,5	30,52	8,00
21155	250	273 x 12,5	48,06	8,80
21156	300	323,9 x 12,5	68,91	10,00

10 Valid and listed documents

AD 2000-leaflet W4
DIN 2559-1
DIN 2559-3
DIN 2605-1
DIN 2609
DIN EN 10204

Pipe Class
Specification PN 63

pipe parts * pipe class: AA63C1
Elbow 90° R=2,5 DA, seamless

1	Pipe class	AA63C1
2	Part identification	RB2,5DN
3	Pipe class part	Elbow 90° R=2,5 DA, seamless
4	Material	1.0254 (St 37.0)
5	Dimension standard	DIN 2605-1
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	<p>Elbow 90°, type 5, with decreased utilization factor, made of seamless pipe according to DIN 1629</p> <p>Weld preparation according to DIN 2559-1 and DIN 2559-2</p> <p>Inner surfaces free of oil, grease and slip additive (max.: 20 mg/m²)</p> <p>Ends closed with caps</p> <p>Requirements AD 2000-leaflet W4, especially section 5, must be met</p>

Ident- No.	nom. diameter	dimensions	weights	pipe connection wall thickness
	ND	d _a x s	kg	s _R
21169	15	21,3 x 2	0,06	2,00
21170	20	26,9 x 2,3	0,13	2,30
21171	25	33,7 x 2,6	0,23	2,60
21172	32	42,4 x 3,6	0,50	3,60
21173	40	48,3 x 4	0,74	4,00
21174	50	60,3 x 4,5	1,31	4,50
21175	65	76,1 x 5	2,41	5,00
21176	80	88,9 x 5,6	3,70	5,60

Ident-No.	nom. diameter	dimensions	weights	pipe connection wall thickness
	ND	d _a x s	kg	s _R
21177	100	114,3 x 6,3	7,13	6,30
21178	125	139,7 x 6,3	10,73	6,30
21179	150	168,3 x 7,1	17,28	7,10

10 Valid and listed documents AD 2000-leaflet W4
 DIN 2559-1
 DIN 2559-2
 DIN 2605-1
 DIN 2609
 DIN EN 10204

Pipe Class
Specification PN 63

pipe parts * pipe class: AA63C1
Elbow 90° R=2,5 DA, welded

1	Pipe class	AA63C1
2	Part identification	RB2,5DG
3	Pipe class part	Elbow 90° R=2,5 DA, welded
4	Material	1.0254 (St 37.0)
5	Dimension standard	DIN 2605-1
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	<p>Elbow 90°, type 5, with decreased utilization factor, made of welded pipe according to DIN 1626</p> <p>Weld preparation according to DIN 2559-1 and DIN 2559-3</p> <p>Inner surfaces free of oil, grease and slip additive (max.: 200 mg/m²)</p> <p>Ends closed with caps</p> <p>Requirements AD 2000-leaflet W4, especially section 5, must be met</p>

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

Ident- No.	nom. diameter	dimensions	weights	pipe connection wall thickness
	ND	d _a x s	kg	s _R
14095	200	219,1 x 4,5	19,07	4,50
14096	250	273 x 5	33,69	5,00
14097	300	323,9 x 5,6	53,56	5,60

10 Valid and listed documents

AD 2000-leaflet W4
DIN 2559-1
DIN 2559-3
DIN 2605-1
DIN 2609
DIN 1626
DIN EN 10204

Pipe Class
Specification PN 63

pipe parts * pipe class: AA63C1
Tee made of seamless pipe

1	Pipe class	AA63C1
2	Part identification	TN
3	Pipe class part	Tee made of seamless pipe
4	Material	1.0254 (St 37.0)
5	Dimension standard	DIN 2615-1
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	<p>Tee with decreased utilization factor, made of seamless pipe according to DIN 1629</p> <p>type A according to DIN 2615-1</p> <p>Weld preparation according to DIN 2559-1 and DIN 2559-2</p> <p>Inner surfaces free of oil, grease and slip additive (max.: 200 mg/m²)</p> <p>Ends closed with caps</p> <p>Requirements AD 2000-leaflet W4, especially section 5, must be met</p>

This document is protected by copyright and may not be distributed, copied, used in any way, or passed to third parties without permission.

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	*R ₁	*R ₂
21221	15	15	21,3 x 3,2	21,3 x 3,2	0,09	2,00	2,00
21222	20	15	26,9 x 3,2	21,3 x 3,2	0,13	2,30	2,00
21223	20	20	26,9 x 3,2	26,9 x 3,2	0,14	2,30	2,30
21224	25	15	33,7 x 3,2	21,3 x 3,2	0,22	2,60	2,00
21225	25	20	33,7 x 3,2	26,9 x 3,2	0,23	2,60	2,30
21226	25	25	33,7 x 3,2	33,7 x 3,2	0,23	2,60	2,60

Ident-No.	nom. width		dimensions		weights	pipe connection wall thickness	
	ND1	ND2	d1 x s1	d2 x s2	kg	ND1	ND2
21227	32	15	42,4 x 3,6	21,3 x 3,2	0,38	3,60	2,00
21228	32	20	42,4 x 3,6	26,9 x 3,2	0,40	3,60	2,30
21229	32	25	42,4 x 3,6	33,7 x 3,2	0,41	3,60	2,60
21230	32	32	42,4 x 3,6	42,4 x 3,6	0,42	3,60	3,60
21231	40	20	48,3 x 4	26,9 x 3,2	0,58	4,00	2,30
21232	40	25	48,3 x 4	33,7 x 3,2	0,60	4,00	2,60
21233	40	32	48,3 x 4	42,4 x 3,6	0,62	4,00	3,60
21234	40	40	48,3 x 4	48,3 x 4	0,64	4,00	4,00
21235	50	20	60,3 x 4,5	26,9 x 3,2	0,77	4,50	2,30
21236	50	25	60,3 x 4,5	33,7 x 3,2	0,79	4,50	2,60
21237	50	32	60,3 x 4,5	42,4 x 3,6	0,83	4,50	3,60
21238	50	40	60,3 x 4,5	48,3 x 4	0,87	4,50	4,00
21239	50	50	60,3 x 4,5	60,3 x 4,5	0,90	4,50	4,50
21240	65	25	76,1 x 5	33,7 x 3,2	1,43	5,00	2,60
21241	65	32	76,1 x 5	42,4 x 3,6	1,48	5,00	3,60
21242	65	40	76,1 x 5	48,3 x 4	1,52	5,00	4,00
21243	65	50	76,1 x 7,1	60,3 x 5,6	2,14	5,00	4,50
21244	65	65	76,1 x 7,1	76,1 x 7,1	2,30	5,00	5,00
21245	80	32	88,9 x 5,6	42,4 x 3,6	2,15	5,60	3,60
21246	80	40	88,9 x 5,6	48,3 x 4	2,19	5,60	4,00
21247	80	50	88,9 x 8	60,3 x 5,6	3,10	5,60	4,50
21248	80	65	88,9 x 8	76,1 x 7,1	3,30	5,60	5,00
21249	80	80	88,9 x 8	88,9 x 8	3,42	5,60	5,60

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	ND ₁	ND ₂
21250	100	40	114,3 x 8,8	48,3 x 5	5,14	6,30	4,00
21251	100	50	114,3 x 8,8	60,3 x 5,6	5,25	6,30	4,50
21252	100	65	114,3 x 8,8	76,1 x 7,1	5,50	6,30	5,00
21253	100	80	114,3 x 8,8	88,9 x 8	5,67	6,30	5,60
21254	100	100	114,3 x 8,8	114,3 x 8,8	5,91	6,30	6,30
21255	125	50	139,7 x 10	60,3 x 5,6	8,50	6,30	4,50
21256	125	65	139,7 x 10	76,1 x 7,1	8,78	6,30	5,00
21257	125	80	139,7 x 10	88,9 x 8	9,00	6,30	5,60
21258	125	100	139,7 x 10	114,3 x 8,8	9,31	6,30	6,30
21259	125	125	139,7 x 10	139,7 x 10	9,67	6,30	6,30
21260	150	65	168,3 x 11	76,1 x 7,1	13,22	7,10	5,00
21261	150	80	168,3 x 11	88,9 x 8	13,49	7,10	5,60
21262	150	100	168,3 x 11	114,3 x 8,8	13,88	7,10	6,30
21263	150	125	168,3 x 11	139,7 x 10	14,36	7,10	6,30
21264	150	150	168,3 x 11	168,3 x 11	14,73	7,10	7,10
21265	200	80	219,1 x 12,5	88,9 x 8	24,40	8,00	5,60
21266	200	100	219,1 x 12,5	114,3 x 8,8	24,94	8,00	6,30
21267	200	150	219,1 x 12,5	139,7 x 10	0,00	8,00	6,30
21268	200	200	219,1 x 12,5	168,3 x 11	0,00	8,00	7,10
21269	250	100	273 x 14,2	114,3 x 8,8	0,00	10,00	6,30
21270	250	125	273 x 14,2	139,7 x 10	0,00	10,00	6,30
21271	250	150	273 x 14,2	168,3 x 11	0,00	10,00	7,10

- 10 Valid and listed documents**
- AD 2000-leaflet W4
 - DIN 2559-1
 - DIN 2559-2
 - DIN 2615-1
 - DIN 2609
 - DIN 1629
 - DIN EN 10204

Pipe Class
Specification PN 63

pipe parts * pipe class: AA63C1
Reducer, concentric, seamless

1	Pipe class	AA63C1
2	Part identification	RZKN
3	Pipe class part	Reducer, concentric, seamless
4	Material	1.0254 (St 37.0)
5	Dimension standard	DIN 2616-1
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	<p>Reducer, concentric, with decreased utilization factor, made of seamless pipe according to DIN 1629</p> <p>Weld preparation according to DIN 2559-1 and DIN 2559-2</p> <p>Inner surfaces free of oil, grease and slip additive (max.: 300 mg/m²)</p> <p>Ends closed with caps</p> <p>Requirements AD 2000-leaflet W4, especially section 5, must be met</p>

This document is protected by copyright and may not be distributed, copied, used in any way, or passed to third parties without permission.

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	ND ₁	ND ₂
21095	20	15	26,9 x 2,3	21,3 x 2	0,05	2,30	2,00
21096	25	15	33,7 x 2,6	21,3 x 2	0,08	2,60	2,00
21097	25	20	33,7 x 2,6	26,9 x 2,3	0,09	2,60	2,30
21098	32	15	42,4 x 3,6	21,3 x 3,2	0,13	3,60	2,00
21099	32	20	42,4 x 3,6	26,9 x 3,2	0,14	3,60	2,30
21100	32	25	42,4 x 3,6	33,7 x 3,2	0,15	3,60	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	ND ₁	ND ₂
21101	40	20	48,3 x 4	26,9 x 3,2	0,22	4,00	2,30
21102	40	25	48,3 x 4	33,7 x 3,2	0,24	4,00	2,60
21103	40	32	48,3 x 4	42,4 x 3,6	0,26	4,00	3,60
21104	50	20	60,3 x 4,5	26,9 x 3,2	0,34	4,50	2,30
21105	50	25	60,3 x 4,5	33,7 x 3,2	0,36	4,50	2,60
21106	50	32	60,3 x 4,5	42,4 x 3,6	0,40	4,50	3,60
21107	50	40	60,3 x 4,5	48,3 x 4	0,42	4,50	4,00
21108	65	25	76,1 x 5	33,7 x 3,2	0,56	5,00	2,60
21109	65	32	76,1 x 5	42,4 x 3,6	0,61	5,00	3,60
21110	65	40	76,1 x 5	48,3 x 4	0,64	5,00	4,00
21111	65	50	76,1 x 5	60,3 x 4,5	0,70	5,00	4,50
21112	80	32	88,9 x 5,6	42,4 x 3,6	0,76	5,60	3,60
21113	80	40	88,9 x 5,6	48,3 x 4	0,79	5,60	4,00
21114	80	50	88,9 x 5,6	60,3 x 4,5	0,86	5,60	4,50
21115	80	65	88,9 x 5,6	76,1 x 5	0,96	5,60	5,00
21116	100	40	114,3 x 6,3	48,3 x 4	1,18	6,30	4,00
21117	100	50	114,3 x 6,3	60,3 x 4,5	1,21	6,30	4,50
21118	100	65	114,3 x 6,3	76,1 x 5	1,39	6,30	5,00
21119	100	80	114,3 x 6,3	88,9 x 5,6	1,49	6,30	5,60
21120	125	50	139,7 x 6,3	60,3 x 4,5	1,87	6,30	4,50
21121	125	65	139,7 x 6,3	76,1 x 5	2,02	6,30	5,00
21122	125	80	139,7 x 6,3	88,9 x 5,6	2,14	6,30	5,60
21123	125	100	139,7 x 6,3	114,3 x 6,3	2,38	6,30	6,30

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	ND ₁	ND ₂
21124	150	65	168,3 x 11	76,1 x 7,1	4,30	7,10	5,00
21125	150	80	168,3 x 11	88,9 x 8	4,52	7,10	5,60
21126	150	100	168,3 x 7,1	114,3 x 6,3	3,30	7,10	6,30
21127	150	125	168,3 x 7,1	139,7 x 6,3	3,61	7,10	6,30
21128	200	80	219,1 x 12,5	88,9 x 8	6,73	8,00	5,60
21129	200	100	219,1 x 12,5	114,3 x 8,8	7,31	8,00	6,30
21130	200	125	219,1 x 12,5	139,7 x 10	7,88	8,00	6,30
21131	200	150	219,1 x 12,5	168,3 x 11	8,53	8,00	7,10
21132	250	100	273 x 14,2	114,3 x 8,8	11,35	10,00	6,30
21133	250	125	273 x 14,2	139,7 x 10	12,11	10,00	6,30
21134	250	150	273 x 14,2	168,3 x 11	12,97	10,00	7,10
21135	250	200	273 x 14,2	219,1 x 12,5	14,51	8,00	8,00
21136	300	125	323,9 x 10	139,7 x 6,3	0,00	10,00	6,30
21137	300	150	323,9 x 16	168,3 x 11	18,63	10,00	7,10
21138	300	200	323,9 x 16	219,1 x 12,5	20,61	10,00	8,00
21139	300	250	323,9 x 16	273 x 14,2	22,70	10,00	10,00

- 10 Valid and listed documents**
- AD 2000-leaflet W4
 - DIN 2559-1
 - DIN 2559-2
 - DIN 2616-1
 - DIN 2609
 - DIN 1629
 - DIN EN 10204

Pipe Class
Specification PN 63

pipe parts * pipe class: AA63C1
Reducer, eccentric, seamless

1	Pipe class	AA63C1
2	Part identification	RZEN
3	Pipe class part	Reducer, eccentric, seamless
4	Material	1.0254 (St 37.0)
5	Dimension standard	DIN 2616-1
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	<p>Reducer, eccentric, with decreased utilization factor, made of seamless pipe according to DIN 1626</p> <p>Weld preparation according to DIN 2559-1 and DIN 2559-2</p> <p>Inner surfaces free of oil, grease and slip additive (max.: 200 mg/m²)</p> <p>Ends closed with caps</p> <p>Requirements AD 2000-sheet W4, especially section 5, must be met</p>

Ident-No.	nom. width		dimensions		weights	pipe connection wall thickness	
	DN ₁	DN ₂	d ₁ x s ₁	d ₂ x s ₂	kg	*R ₁	*R ₂
21050	20	15	26,9 x 2,3	21,3 x 2	0,05	2,30	2,00
21051	25	15	33,7 x 2,6	21,3 x 2	0,08	2,60	2,00
21052	25	20	33,7 x 2,6	26,9 x 2,3	0,09	2,60	2,30
21053	32	15	42,4 x 3,6	21,3 x 3,2	0,13	3,60	2,00
21054	32	20	42,4 x 3,6	26,9 x 3,2	0,14	3,60	2,30
21055	32	25	42,4 x 3,6	33,7 x 3,2	0,15	3,60	2,60

This document is protected by copyright and may not be distributed, copied, used in any way, or passed to third parties without permission.

Ident-No.	nom. width		dimensions		weights	pipe connection wall thickness	
	DN1	DN2	d1 x s1	d2 x s2	kg	*R1	*R2
21056	40	20	48,3 x 4	26,9 x 3,2	0,22	4,00	2,30
21057	40	25	48,3 x 4	33,7 x 3,2	0,24	4,00	2,60
21058	40	32	48,3 x 4	42,4 x 3,6	0,26	4,00	3,60
21059	50	20	60,3 x 4,5	26,9 x 3,2	0,34	4,50	2,30
21060	50	25	60,3 x 4,5	33,7 x 3,2	0,36	4,50	2,60
21061	50	32	60,3 x 4,5	42,4 x 3,6	0,40	4,50	3,60
21062	50	40	60,3 x 4,5	48,3 x 4	0,42	4,50	4,00
21063	65	25	76,1 x 5	33,7 x 3,2	0,56	5,00	2,60
21064	65	32	76,1 x 5	42,4 x 3,6	0,61	5,00	3,60
21065	65	40	76,1 x 5	48,3 x 4	0,64	5,00	4,00
21066	65	50	76,1 x 5	60,3 x 4,5	0,70	5,00	4,50
21067	80	32	88,9 x 5,6	42,4 x 3,6	0,76	5,60	3,60
21068	80	40	88,9 x 5,6	48,3 x 4	0,79	5,60	4,00
21069	80	50	88,9 x 5,6	60,3 x 4,5	0,86	5,60	4,50
21070	80	65	88,9 x 5,6	76,1 x 5	0,96	5,60	5,00
21071	100	40	114,3 x 6,3	48,3 x 4	1,18	6,30	4,00
21072	100	50	114,3 x 6,3	60,3 x 4,5	1,21	6,30	4,50
21073	100	65	114,3 x 6,3	76,1 x 5	1,39	6,30	5,00
21074	100	80	114,3 x 6,3	88,9 x 5,6	1,49	6,30	5,60
21075	125	50	139,7 x 6,3	60,3 x 4,5	1,87	6,30	4,50
21076	125	65	139,7 x 6,3	76,1 x 5	2,02	6,30	5,00
21077	125	80	139,7 x 6,3	88,9 x 5,6	2,14	6,30	5,60
21078	125	100	139,7 x 6,3	114,3 x 6,3	2,38	6,30	6,30

Ident-No.	nom. width		dimensions		weights	pipe connection wall thickness	
	DN ₁	DN ₂	d ₁ x s ₁	d ₂ x s ₂	kg	*R ₁	*R ₂
21079	150	65	168,3 x 11	76,1 x 7,1	4,30	7,10	5,00
21080	150	80	168,3 x 11	88,9 x 8	4,52	7,10	5,60
21081	150	100	168,3 x 7,1	114,3 x 6,3	3,30	7,10	6,30
21082	150	125	168,3 x 7,1	139,7 x 6,3	3,61	7,10	6,30
21083	200	80	219,1 x 12,5	88,9 x 8	6,73	8,00	5,60
21084	200	100	219,1 x 12,5	114,3 x 8,8	7,31	8,00	6,30
21085	200	125	219,1 x 12,5	139,7 x 10	7,88	8,00	6,30
21086	200	150	219,1 x 12,5	168,3 x 11	8,53	8,00	7,10
21087	250	100	273 x 14,2	114,3 x 8,8	11,35	10,00	6,30
21088	250	125	273 x 14,2	139,7 x 10	12,11	10,00	6,30
21089	250	150	273 x 14,2	168,3 x 11	12,97	10,00	7,10
21090	250	200	273 x 14,2	219,1 x 12,5	14,51	10,00	8,00
21091	300	125	323,9 x 10	139,7 x 6,3	0,00	10,00	6,30
21092	300	150	323,9 x 16	168,3 x 11	18,63	10,00	7,10
21093	300	200	323,9 x 16	219,1 x 12,5	20,61	10,00	8,00
21094	300	250	323,9 x 16	273 x 14,2	22,70	10,00	10,00

- 10 Valid and listed documents AD 2000-leaflet W4
DIN 2559-1
DIN 2559-2
DIN 2616-1
DIN 2609
DIN 1629
DIN EN 10204

Pipe Class
Specification PN 63

pipe parts * pipe class: AA63C1
caps

1	Pipe class	AA63C1
2	Part identification	KAP
3	Pipe class part	Caps
4	Material	1.0254 (St 37.0)
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	<p>Cap to weld in, made of seamless or welded pipe, made of seamless or welded pipe according to DIN 1629 resp. 1626</p> <p>Weld preparation according to DIN 2559</p> <p>Inner surfaces free of oil, grease and slip additive (max.: 200 mg/m²)</p> <p>Ends closed</p> <p>Requirements AD 2000-leaflet W4 must be met</p>

Ident-No.	nom. diameter	dimensions	weights	pipe connection wall thickness
	ND	d _a x s	kg	SR
21036	15	21,3 x 2	0,02	2,00
21037	20	26,9 x 2,3	0,04	2,30
21038	25	33,7 x 2,6	0,08	2,60
21039	32	42,4 x 3,6	0,14	3,60
21040	40	48,3 x 4	0,17	4,00
21041	50	60,3 x 4,5	0,25	4,50
21042	65	76,1 x 5	0,36	5,00
21043	80	88,9 x 5,6	0,63	5,60

Ident-No.	nom. diameter	dimensions	weights	pipe connection wall thickness
	ND	d _a x s	kg	SR
21044	100	114,3 x 6,3	1,17	6,30
21045	125	139,7 x 6,3	1,74	6,30
21046	150	168,3 x 7,1	2,79	7,10
21047	200	219,1 x 8	4,82	8,00
21048	250	273 x 8,8	8,32	8,80
21049	300	332,9 x 10	13,45	10,00

10 Valid and listed documents AD 2000-leaflet W4
DIN 1626
DIN 1629
DIN 2559
DIN 2609
DIN 2617
DIN EN 10204

**Pipe Class
Specification PN 63**
**pipe parts * pipe class: AA63C1
Blanks**

1	Pipe class	AA63C1
2	Part identification	BSS
3	Pipe class part	Blanks
4	Material	1.0038 (S235JRG2)
5	Dimension standard	Uhde- Norm 3902-1
6	Terms of delivery	DIN EN 10025
7	Certificate	3.1.B according to DIN EN 10204
8	Identification	AD 2000-leaflet W1, section 4
9	Ordering addition	<p>Two-part figure-eight blank for DIN-flange with flat seal, made of hot-rolled flat steel according to DIN EN 10029, class A</p> <p>free of oil, grease and slip additive (max.: 200 mg/m²)</p> <p>Packed in PE-bags, diameter 200 and above shrink-wrapped in PE-foil</p> <p>Requirements AD 2000-leaflet W1 must be met</p>

Ident-No.	nom. width	diameter	diameter	thickness	weights
	ND	d ₁	d ₂	s ₁	kg
21012	15	60,00	20,00	10	0,00
21013	25	81,00	30,00	10	0,00
21014	40	102,00	45,00	15	0,00
21015	50	112,00	57,00	10	0,00
21016	65	137,00	73,00	11	0,00
21017	80	147,00	85,00	13	0,00
21018	100	173,00	110,00	15	0,00
21019	125	209,00	135,00	20	0,00
21020	150	246,00	160,00	25	0,00

Ident-No.	nom. width	diameter	diameter	thickness	weights
	ND	d ₁	d ₂	s ₁	kg
21021	200	308,00	210,00	30	0,00
21022	250	363,00	260,00	40	0,00
21023	300	423,00	312,00	40	0,00

- 10 **Valid and listed documents**
- AD 2000-leaflet W1
 - DIN EN 10025
 - DIN EN 10029-A
 - DIN EN 10204
 - Uhde-Norm 3902-1

Pipe Class
Specification PN 63

pipe parts * pipe class: AA63C1
Welding neck flanges

1	Pipe class	AA63C1
2	Part identification	VF
3	Pipe class part	Welding neck flanges
4	Material	1.0038 (S235JRG2)
5	Dimension standard	DIN EN 1092-1
6	Terms of delivery	DIN EN 1092-1
7	Certificate	3.1.B according to DIN EN 10204
8	Identification	AD 2000-leaflet W9, section 5
9	Ordering addition	<p>Forged or seamless rolled welding neck flange with flat seal (shape B2)</p> <p>Surfaces free of rust and scale</p> <p>Inner surfaces free of oil, grease and slip additive (max.: 200 mg/m²)</p> <p>Ends closed with caps</p> <p>Requirements AD 2000-leaflet W9 must be met</p>

Ident-No.	nom. diameter	dimensions	weights
	ND	ND x ØA	kg
21284	15	15 x 21,3	1,00
21285	25	25 x 33,7	2,50
21286	40	40 x 48,3	4,00
21287	50	50 x 60,3	4,50
21288	65	65 x 46,1	5,50
21289	80	80 x 88,9	6,50
21290	100	100 x 114,3	9,50
21291	125	125 x 139,7	14,50
21292	150	150 x 168,3	21,50

Ident-No.	nom. diameter	dimensions	weights
	ND	ND x ØA	kg
21293	200	200 x 219,1	34,00
21294	250	250 x 273	48,00
21295	300	300 x 323,9	67,50

10 Valid and listed documents

AD 2000-leaflet W9
DIN EN 1092-1
DIN EN 10204

**Pipe Class
Specification PN 63**
**pipe parts * pipe class: AA63C1
blind flanges**

1	Pipe class	AA63C1
2	Part identification	BF
3	Pipe class part	Blind flanges
4	Material	1.0038 (S235JRG2)
5	Dimension standard	DIN EN 1092-1
6	Terms of delivery	DIN EN 1092-1
7	Certificate	3.1.B according to DIN EN 10204
8	Identification	AD 2000-leaflet W9, section 5
9	Ordering addition	<p>Forged, seamlessly rolled or blanked out of sheets blind flanges made by metal-cutting processing with flat seals (shape B2)</p> <p>free of oil, grease and slip additive (max.: 200 mg/m²)</p> <p>Packed in PE-bags, diameter 200 and above shrink-wrapped in PE-foil</p> <p>Requirements AD 2000-Merkblatt W1 and W9, must be met</p>

Ident-No.	nom. diameter	weights
	ND	kg
21000	15	1,50
21001	25	2,50
21002	40	4,50
21003	50	5,00
21004	65	6,00
21005	80	7,50
21006	100	10,50
21007	125	16,50
21008	150	24,50

Ident-No.	nom. diameter	weights
	ND	kg
21009	200	40,50
21010	250	58,00
21011	300	83,50

10 Valid and listed documents

AD 2000-leaflet W1
AD 2000-leaflet W9
DIN EN 1092-1
DIN EN 10204

**Pipe Class
Specification PN 63**

**pipe parts * pipe class: AA63C1
hexagon head screws**

1	Pipe class	AA63C1
2	Part identification	SB
3	Pipe class part	Screw bolts
4	Material	5.6
5	Dimension standard	DIN 2510
6	Terms of delivery	DIN 267-13
7	Certificate	3.1.B according to DIN EN 10204
8	Identification	AD 2000-leaflet W7, section 5
9	Ordering addition	Screw bolts, shape L according to DIN 2510 Product class T2 Surface galvanized according to DIN EN ISO 4042 Requirements AD 2000-leaflet W7 must be met

Ident-No.	thread x length	weights
		kg
21194	M 12 x 75	0,08
21195	M 12 x 90	0,09
21196	M 16 x 90	0,17
21197	M 16 x 110	0,20
21198	M 20 x 100	0,30
21199	M 20 x 110	0,33
21200	M 20 x 120	0,36
21201	M 20 x 130	0,37
21202	M 24 x 120	0,53
21203	M 24 x 140	0,60
21204	M 27 x 130	0,72
21205	M 27 x 160	0,86

Ident-No.	thread x length	weights
		kg
21206	M 30 x 150	1,03
21207	M 30 x 180	1,20
21208	M 33 x 160	1,35
21209	M 33 x 170	1,41
21210	M 33 x 180	1,48
21211	M 33 x 200	1, 61
21212	M 33 x 220	1, 75
21213	M 33 x 240	1, 88

10 Valid and listed documents

AD 2000-leaflet W7
DIN 267-13
DIN 2510
DIN EN ISO 4042
DIN EN 10204

**Pipe Class
Specification PN 63**

**pipe parts * pipe class: AA63C1
hexagon nuts**

- 1 **Pipe class** AA63C1
- 2 **Part identification** SKM
- 3 **Pipe class part** Hexagon nuts
- 4 **Material** 5-2
- 5 **Dimension standard** DIN 2510
- 6 **Terms of delivery** DIN 267-13
- 7 **Certificate** 3.1.B according to DIN EN 10204
- 8 **Identification** AD 2000-leaflet W7. section 5
- 9 **Ordering addition**

Hexagon nuts, shape NF according to DIN EN ISO 4042

Product class T2

Surface galvanized according to DIN EN ISO 4042

Requirements AD 2000-leaflet W7 must be met

Ident-No.	thread	weights
		kg
21214	M 12	0,02
21215	M 16	0,03
21216	M 20	0,06
21217	M 24	0,11
21218	M 27	0,17
21219	M 30	0,22
21220	M 33	0,29

10 Valid and listed documents

AD 2000-leaflet W7
DIN 267-13
DIN 2510
DIN EN ISO 4042
DIN EN 10204

This document is protected by copyright and may not be distributed, copied, used in any way, or passed to third parties without permission.

**Pipe Class
Specification PN 63**

**pipe parts * pipe class: AA63C1
Comb defined seals**

- | | | |
|----------|----------------------------|---|
| 1 | Pipe class | AA63C1 |
| 2 | Part identification | KAD |
| 3 | Pipe class part | Comb defined seals |
| 4 | Material | 1.4541 (X 6 CrNiTi 18 10 - Graphite) |
| 5 | Dimension standard | |
| 6 | Terms of delivery | Standard 40008 |
| 7 | Certificate | 2.1 according to DIN EN 10204 concerning purity in accordance with Standard 06401 |
| 8 | Identification | According to Standard 40008 |
| 9 | Ordering addition | Type according to standard 40008 |

Ident-No.	nom. width	diameter	diameter	diameter	thickness
	ND	d ₃	d ₂	d ₁	s
21024	15	61,00	42,00	26,00	5,00
21025	25	82,00	52,00	36,00	5,00
21026	40	103,00	69,00	53,00	5,00
21027	50	113,00	81,00	65,00	5,00
21028	65	137,00	100,00	81,00	5,00
21029	80	148,00	115,00	95,00	5,00
21030	100	174,00	138,00	118,00	5,00
21031	125	210,00	162,00	142,00	5,00
21032	150	247,00	190,00	170,00	5,00
21033	200	309,00	240,00	220,00	5,00
21034	250	364,00	290,00	270,00	5,00
21035	300	424,00	340,00	320,00	5,00

- 10 Valid and listed documents** Standard 06401
Standard 40008
DIN EN 10204