METAL HOSES

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INSTALLATION INSTRUCTIONS

Handling and installation

The type and form of installation of metal hoses are determined primarily by the direction, size and frequency of displacement.Therefore, we have given certain characteristic examples of installation here.When mounting, it is especially important to make sure that the pipe is laid without torsion stresses, and also that the axis of connection and displacement lie in the same plane.

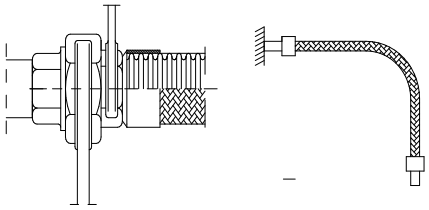
Necessarily pay attenntion to: Stress-free installation

No torsional requirements

- Installation without stress
- Without torsionrequirements

Example No 1.

Tighten the hose without twisting.For swivel threaded connections, be sure to use a second lock wrench. If no suitable surface for the key, then use pipe pliers.

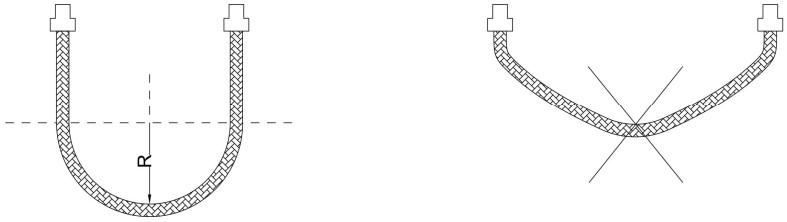


Example No. 1

Example No. 2.

An arc of 180 degrees with a sufficiently long neutral length. Determine the distance between the ends of the hose according to the bending radius R. When selecting the length of the hose, no displacement connections must occur. In case of need to save the connections, we can attach a protective coil to the ends.
Be sure to use a counter wrench for the **tightening by metal to metal taper seat**.
When determining the connections, make sure that a swivel connection is installed on one side of the hose.
The permissible bending radius should not be exceeded

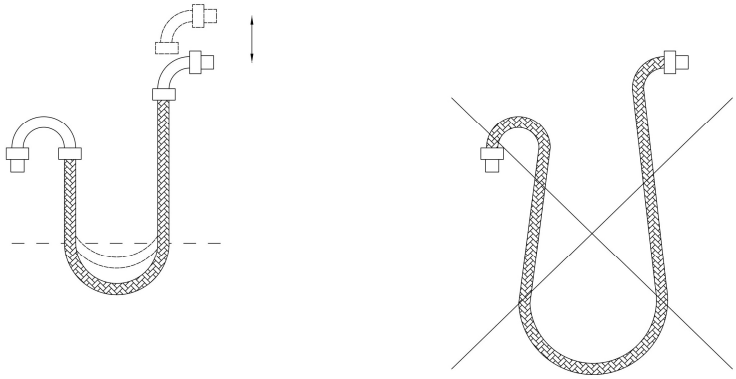
The minimum bending radius depends on the pressure temperature and the desired number of cycles. These values are given for all types of flexible hoses.



Example No. 2

Example No. 3

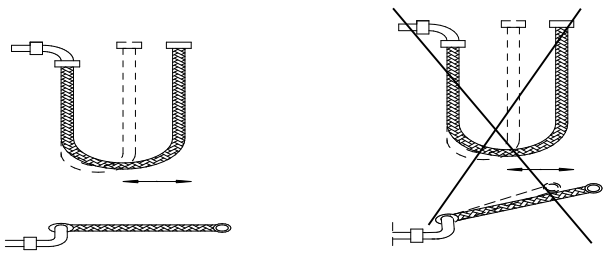
The use of a strong pipe arc prevents impermissible bending immediately behind the connection fittings.



Example No. 3

Example No. 4

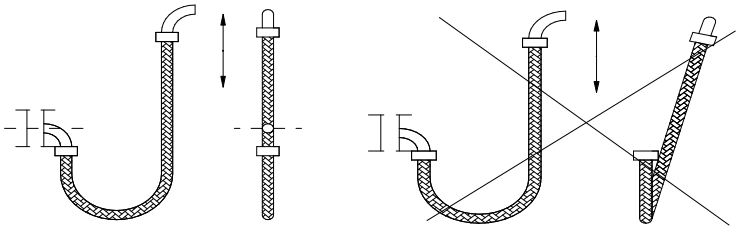
The direction of displacement and the pipe arc lie in the same plane. Harmful torsional stresses are thus prevented.



Example No. 4

Example No. 5

No bending is allowed immediately behind the connection fitting, which is prevented bythuse of a rigid pipe extension.

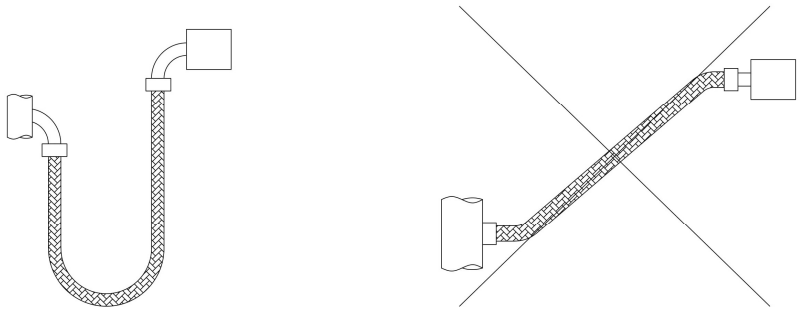


Example No. 5

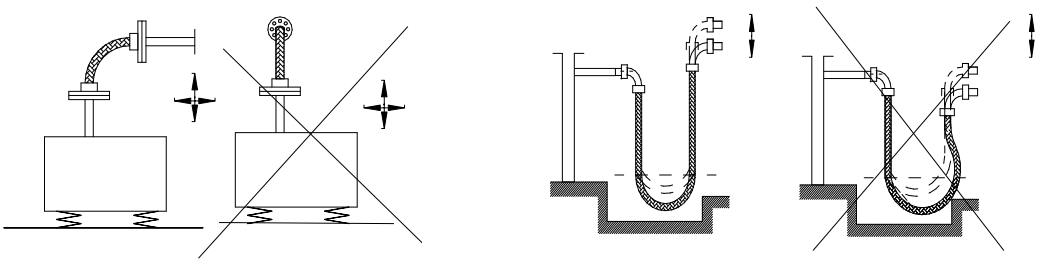
Place the hose in a free hanging arch so that it does not come into contact with the floor or other objects.

Vibrations example No. 6-7

Install pipes free of rotation. The main direction of vibration movement and the arc of the hose must lie in the same plane. This prevents harmful torsion effects.



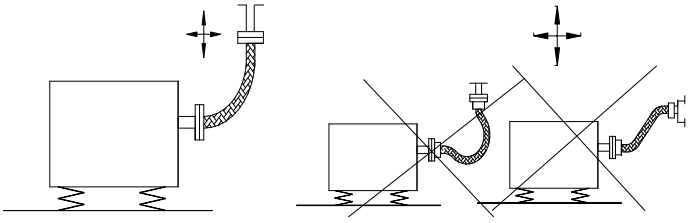
Example No.6



Example No. 7

Example No. 8

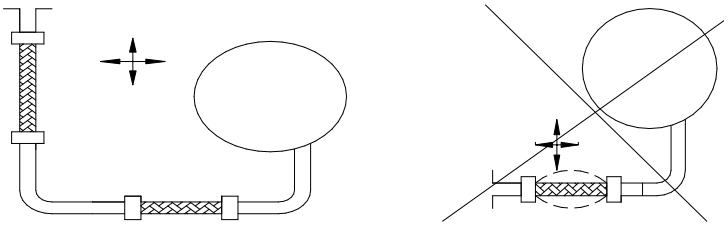
Arc 90° should be made with a permissible bending radius and a sufficiently neutral hose length. Folding and stretching of the hose arch is not allowed.



Example No. 8

Example No. 9

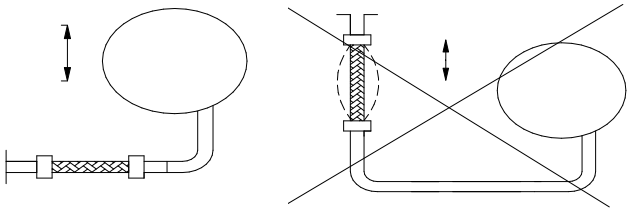
To absorb two or three-dimensional vibrations, the hose should be installed in this way.



Example No. 9

Example No. 10

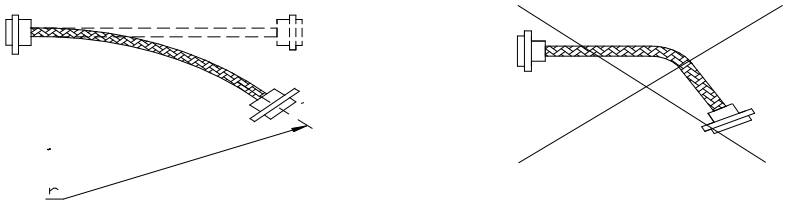
Install the hoses normally in the direction of vibration.



ExampleNo. 10

ExampleNo. 11

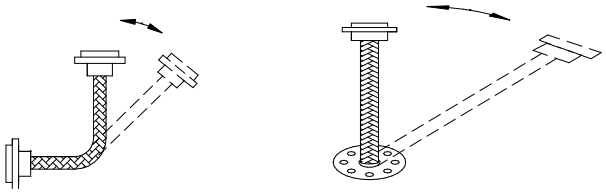
To take the angular displacements install the pipe with sufficient neutral length.Pay attention to the radius.



Example No. 11

Example No.12

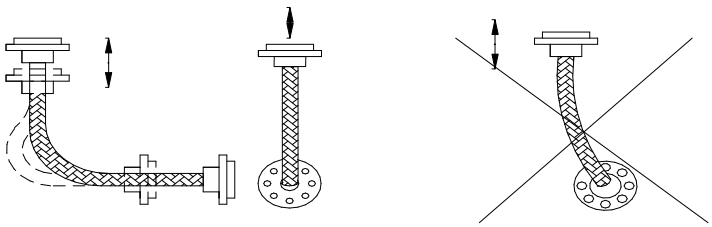
The angular displacement and the arc of the hose must lie in one plane.
This prevents harmful torsion stresses.



Example No. 12

Example No.13

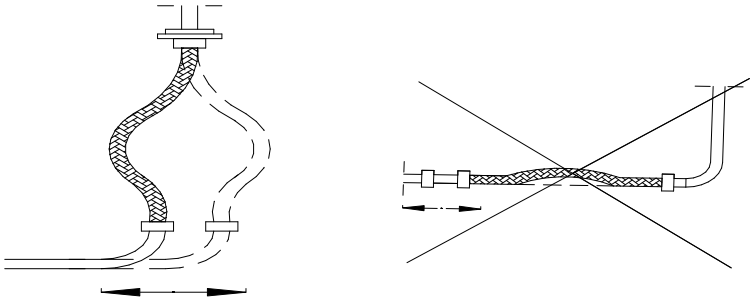
To take over the thermal displacements, provide a 90° arc with a sufficiently flat arm length. The hose bend and direction must lie in one plane.



Example No.13

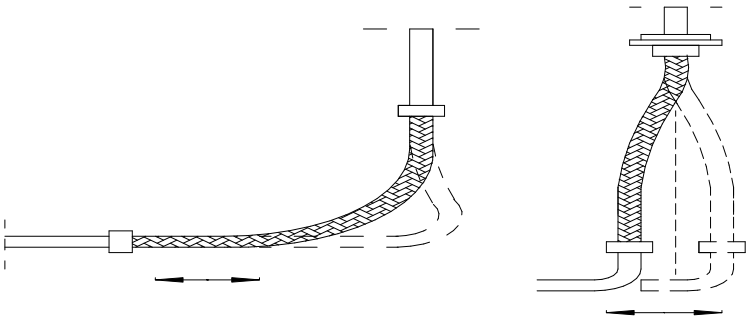
Example No.14-15

Lateral mounting is only allowed to take on minor shifts. Stretching or shrinking the pipe is not allowed.



Example No. 14

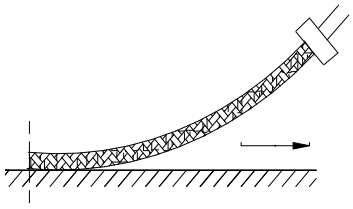
To take larger movements, install the pipe as a 90° arc. Lateral mounting is no longer allowed.



Example No.15

Example No.16

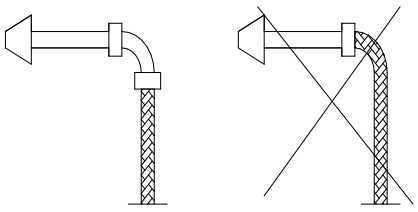
If it is impossible to prevent mechanical conditions (pulling on the floor), the hose can be protected with wire protection or with a protective hose over the existing one.



Example No. 16

Example No.17

When using the hose manually, protect it from unauthorized bending by using a strong pipe bend.



Example No.17

SLANGFLEX - N

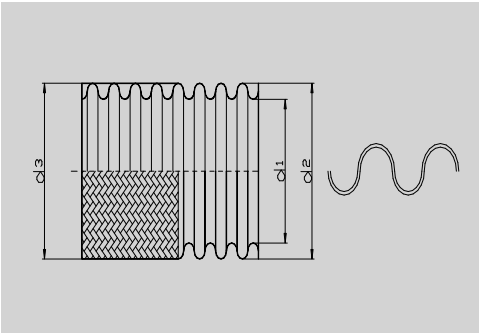
CONSTRUCTION
All metal single-walled flexible hose hydraulically formed from a buttwelded tube.

PROFILE
Normal parallel corrugations.

MATERIALS
Austenitic stainless steel according to material no.
- **W.Nr. 1.4571 (AiSi 316 Ti)**
- **W. Nr. 1.4401 (AiSi 316)**
- **W. Nr. 1.4404 (AiSi 316L)**
- **W. Nr. 1.4541 (AiSi 321)**

BRAIDS
Stainless steel wire according to material no.
W.Nr. 1.4301 (**AiSi 304**)

END FITTINGS
Flanges, thread connectors, weld ends etc



DIMENSIONS
DN 10 to DN 200.

PRESSURE RANGE
Depending on nominal diameter, number of braids, temperature range etc.

TEMPERATURE RANGE
- 196 º C to 600 º C

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APPLICATIONS

The conveyance of fluids and gas under pressure and vacuum. Owing to its all stainless steel construction, it is used in the most applications of corrosive fluids and atmosphere, as compensating elements for absorption, displacement of rigid thermal dilatations, compensation of misalignment of rigid tubes and the like.

WORKING PRESSURES

Working pressure (Pr), given in the table, is the maximal permissible working pressure at room temperature.

Maximal permissible working pressure at temperatures higher than room one can be calculated as follows: $P_{rt}=P_r$ x kt (bar)

Working temperature t(C)	**20**	**100**	**150**	**200**	**250**	**300**
Reduction coefficient kt(-)	**1**	**0,95**	**0,88**	**0,83**	**0,79**	**0,75**

Working temperature t(C)	**350**	**400**	**450**	**500**	**550**	**600**
Reduction coefficient kt(-)	**0,72**	**0,68**	**0,64**	**0,61**	**0,59**	**0,57**

SLANGFLEX

DN	Inside diameter		Outside diameter		Min. bending radius		Working pressure	Mass
	d1	tol. ±	d2, d3	tol. ±				(kg/m)
	mm	mm	mm	mm	static	dynamic	NP (bar)	tol. ±10%
10	9,2	0,3	14,8 16,0 17,2	0,3 0,4 0,5	32	160	16 75 150	0,090 0,220 0,350
12	12,4	0,3	19,8 21,4 23,0	0,3 0,5 0,6	45	210	12 75 105	0,120 0,310 0,500
15	15,5	0,3	22,9 24,2 25,5	0,3 0,5 0,6	50	230	7 65 90	0,155 0,350 0,545
20	18,8	0,3	27,2 28,5 29,8	0,3 0,5 0,6	50	240	5 47 70	0,230 0,470 0,710
25	25,1	0,3	35,5 36,8 38,1	0,3 0,5 0,6	60	250	4 38 55	0,320 0,620 0,920
32	31,5	0,3	43,5 44,7 45,9	0,3 0,6 0,8	80	265	3 34 48	0,420 0,870 1,320
40	37,8	0,3	50,6 53,1 55,6	0,3 0,6 0,8	110	310	2 30 41	0,490 1,190 1,890
50	49,9	0,4	65,6 67,7 70,0	0,4 0,8 1,0	140	355	1,5 25 36	0,780 1,720 2,660
65	63,2	0,4	80,6 82,8 85,0	0,4 0,8 1,0	180	415	1 21 30	1,290 2,490 3,690
80	75,7	0,4	95,5 97,8 100,8	0,4 0,8 1,0	200	475	0,7 19 27	1,530 2,930 4,330
100	101,8	0,5	124,8 127,0 129,0	0,5 1,0 1,2	225	585	0,5 14 20	2,120 4,020 5,920
125	126,4	0,6	151,3 153,7 156,2	0,6 1,2 1,4	425	850	0,3 10 14	3,300 6,100 8,900
150	149,2	0,7	173,0 175,5 178,0	0,7 1,2 1,4	525	1250	0,2 8 12	4,800 7,800 10,800
200	202,2	0,8	231,4 236,9 239,7	0,8 1,4 1,6	550	1650	0,12 7 10	5,800 9,300 12,800

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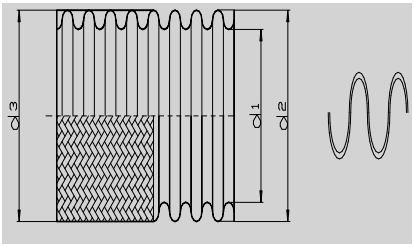
SLANGFLEX – S



CONSTRUCTION
All metal single-walled flexible hose hydraulically formed from a butt welded tube.

PROFILE
Close pitch parallel corrugations (omega profile).

MATERIALS
Austenitic stainless steel according to material no.
- **W.Nr. 1.4571 (AiSi 316 Ti)**
- **W. Nr. 1.4401 (AiSi 316)**
- **W. Nr. 1.4404 (AiSi 316L)**
- **W. Nr. 1.4541 (AiSi 321)**

BRAIDS
Stainless steel wire according to material no.
W.Nr. 1.4301 (**AiSi 304**)

END FITTINGS
Flanges, thread connectors, weld ends.

DIMENSIONS
DN 10 to DN 200.

PRESSURE RANGE
Depending on nominal diameter, number of braids, temperature range etc.

TEMPERATURE RANGE
- 196 º C to 600 º C

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APPLICATIONS

The conveyance of fluids and gas under pressure and vacuum. Owing to its all stainless steel construction, it is used in the most applications of corrosive fluids and atmosphere, as compensating elements for absorption, deplacement of rigid thermal dilatations, compensation of misalignment of rigid tubes and the like.

When more flexibility than type N is required and there are heavier vibration loading the type S is recommended.

WORKING PRESSURES

Working pressure (Pr), given in the table, is the maximal permissible working pressure at room temperature.

Maximal permissible working pressure at temperatures higher then room one can be calculated as follows: $P_{rt}=P_r$ x kt (bar)

Working temperature t(C)	**20**	**100**	**150**	**200**	**250**	**300**
Reduction coefficient kt(-)	**1**	**0,95**	**0,88**	**0,83**	**0,79**	**0,75**

Working temperature t(C)	**350**	**400**	**450**	**500**	**550**	**600**
Reduction coefficient kt(-)	**0,72**	**0,68**	**0,64**	**0,61**	**0,59**	**0,57**

DN	Inside diameter		Outside diameter		Min. bending radius		Working pressure	Mass
	d1	tol. ±	d2, d3	tol. ±				d1
	mm	mm	mm	mm	static	dynamic	mm	mm
10	8,8	0,3	16,0	0,4	32	125	75	0,255
			17,2	0,5			150	0,380
12	12,0	0,3	19,8	0,3	45	145	8	0,210
			21,4	0,5			75	0,400
			23,0	0,6			105	0,590
15	15,1	0,3	23,0	0,3	50	170	4	0,260
			24,3	0,5			65	0,455
			25,6	0,6			90	0,600
20	18,0	0,3	27,3	0,3	60	180	3,2	0,320
			28,6	0,5			47	0,560
			29,9	0,6			70	0,800
25	24,0	0,3	35,8	0,3	70	190	2	0,440
			37,1	0,5			38	0,740
			38,4	0,6			55	1,040
32	30,7	0,3	43,8	0.3	90	200	1,6	0,590
			45,0	0,6			34	1,040
			46,2	0,8			48	1,490
40	37,0	0,3	50.8	0,3	120	240	1	0,690
			53,3	0,6			30	1,320
			55,8	0,8			41	2,090
50	49,6	0,4	65,8	0,4	150	290	0,63	1,050
			67,9	0,8			25	1,990
			70,2	1,0			36	2,930
65	61,8	0,4	80,8	0,4	190	340	0,63	1,950
			83,0	0,8			21	3,150
			85,2	1,0			30	4,350
80	74,5	0,4	95,8	0,4	205	395	0,5	2,400
			98,1	0,8			19	3,630
			101,1	1,0			27	4,850
100	101,0	0,5	125,4	0,5	225	485	0,3	3,150
			127,4	1,0			14	5,050
			129,4	1,2			20	6,950
125	125,5	0,6	151,9	0,6	400	650	0,2	4,800
			154,3	1,2			10	7,600
			156,8	1,4			14	10,400
150	148,1	0,7	173,7	0,7	550	815	0,16	7,000
			176,2	1,2			8	10,000
			178,7	1,4			12	13,000
200	202,2	0,8	232,1	0,8	700	1250	0,12	8,000
			237,6	1,4			7	11,500
			240,2	1,6			10	15,000

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SLANGFLEX – N+

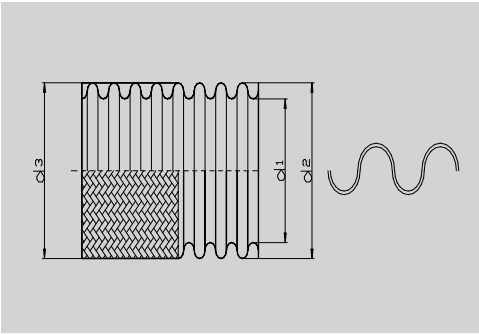
CONSTRUCTION
All metal single-walled flexible hose hydraulically formed from a buttwelded tube.

PROFILE
Normal parallel corrugations.

MATERIALS
Austenitic stainless steel according to material no.
- **W.Nr. 1.4571 (AiSi 316 Ti)**
- **W. Nr. 1.4401 (AiSi 316)**
- **W. Nr. 1.4404 (AiSi 316L)**
- **W. Nr. 1.4541 (AiSi 321)**

BRAIDS
Stainless steel wire according to material no.
W.Nr. 1.4301 (**AiSi 304**)

END FITTINGS
Flanges, thread connectors, weld ends etc



DIMENSIONS
DN 10 to DN 200.

PRESSURE RANGE
Depending on nominal diameter, number of braids, temperature range etc.

TEMPERATURE RANGE
- 196 º C to 600 º C

APPLICATIONS

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Reduction coefficient kt(-)	**1**	**0,95**	**0,88**	**0,83**	**0,79**	**0,75**

Working temperature t(C)	**350**	**400**	**450**	**500**	**550**	**600**
Reduction coefficient kt(-)	**0,72**	**0,68**	**0,64**	**0,61**	**0,59**	**0,57**

SLANGFLEX

DN	Inside diameter		Outside diameter		Min. bending radius		Working pressure	Mass
	d1	tol. ±	d2, d3	tol. ±				(kg/m)
	mm	mm	mm	mm	static	dynamic	NP (bar)	tol. ±10%
			15,0	0,3			16	0,220
10	9,2	0,3	16,5	0,4	55	195	100	0,385
			18,0	0,5			200	0,560
			20,0	0,3			12	0,290
12	12,4	0,3	22,0	0,5	75	260	90	0,540
			24,0	0,6			130	0,820
			23,0	0,3			7	0,360
15	15,5	0,3	25,0	0,5	85	275	65	0,630
			27,0	0,6			105	0,930
			28,0	0,3			5	0,445
20	18,8	0,3	30,0	0,5	90	285	62	0,775
			32,0	0,6			100	1,125
			36,0	0,3			4	0,560
25	25,1	0,3	38,0	0,5	105	305	48	0,990
			40,0	0,6			77	1,440
			44,0	0,3			3	0,700
32	31,5	0,3	46,5	0,6	135	325	40	1,220
			49,0	0,8			62	1,760
			51,0	0,3			2	0,880
40	37,8	0,3	55,0	0,6	170	390	36	1,860
			58,0	0,8			50	2,900
			66,0	0,4			1,5	1,150
50	49,9	0,4	70,0	0,8	190	470	30	2,420
			73,0	1,0			40	3,740
			81,0	0,4			1	1,600
65	63,2	0,4	85,0	0,8	230	590	27	2,800
			88,0	1,0			37	4,000
			96,0	0,4			0,7	1,900
80	75,7	0,4	99,0	0,8	260	700	24	3,350
			102,0	1,0			34	4,800
			126,5	0,5			0,5	2,700
100	101,8	0,5	130,0	1,0	410	965	16	4,400
			133,5	1,2			20	6,100
			152,0	0,6			0,3	3,900
125	126,4	0,6	156,0	1,2	605	1330	16	7,000
			159,0	1,4			19	10,100
			174,0	0,7			0,2	4,600
150	149,2	0,7	178,0	1,2	790	1690	10	8,100
			181,0	1,4			16	11,600
			232,0	0,8			0,12	6,000
200	202,2	0,8	237,0	1,4	850	1750	9	9,800
			241,0	1,6			16	13,500

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