



HUBATA SEALS

THE BETTER SEALS ...

STATIC SEALS



www.hubata-seals.com

STATIC SEALS

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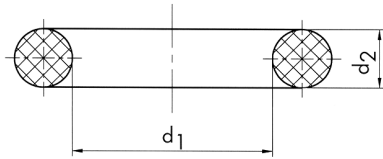
The purpose of this catalogue is to present standard seals dimensions.

For information about stock availabilities, please contact our sales department.

We are able to supply other dimensions required.

O-RINGS

O-rings are closed circular sealing elements. The way they work is based on deformation of the cross section. They are made through vulcanization from form tools as a complete ring.



The simplicity of the shape of an O-ring and the reliability of its function is ingenious, and that is why they are the most frequently used type of seal. They are also economical to manufacture and easy to fit, which makes them unbeatable.

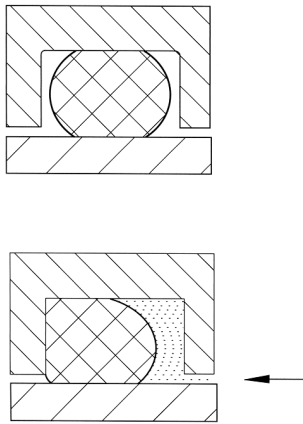
The O-ring designation is given from the dimension of its inner diameter and the cross section thickness in mm, the name of the material and its hardness (elasticity)

e.g. 25 x 1.5 NBR 70

Mode of operation

The sealing function of the installed O-ring is achieved by compression between two or more elements in the sealing gland groove.

When ready to operate, the medium pressure promotes the deformation and increases the sealing effectivity. If the pressure drops to "zero", the deformation reverts almost to the fitted state.

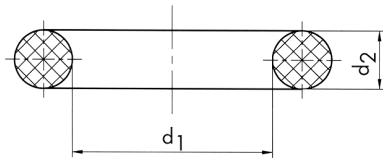


Applications

We differentiate between the static sealing of non-moving or dynamic sealing in moving machine elements. You will find further details in the chapter entitled "Installation housings and design recommendations" on page 9.

Dimensions and tolerances

Basic tolerances for O-rings
DIN ISO 3601 and DIN 3771



d 1	Tol	d 1	Tol	d 1	Tol
≤ 2.5	± 0.13	75	± 0.66	272	± 2.02
4.5	± 0.14	77.5	± 0.67	280	± 2.08
6.3	± 0.15	80	± 0.69	290	± 2.14
8.5	± 0.16	82.5	± 0.71	300	± 2.21
10.0	± 0.17	85	± 0.73	307	± 2.25
11.2	± 0.18	87.5	± 0.75	315	± 2.3
14	± 0.19	90	± 0.77	325	± 2.37
16	± 0.2	92.5	± 0.79	335	± 2.43
18	± 0.21	95	± 0.81	345	± 2.49
20	± 0.22	97.5	± 0.83	355	± 2.56
21.2	± 0.23	100	± 0.84	365	± 2.62
23.6	± 0.24	103	± 0.87	375	± 2.68
25	± 0.25	106	± 0.89	387	± 2.76
26.5	± 0.26	109	± 0.91	400	± 2.84
28	± 0.28	112	± 0.93	412	± 2.91
30	± 0.29	115	± 0.95	425	± 2.99
31.5	± 0.31	118	± 0.97	437	± 3.07
33.5	± 0.32	122	± 1	450	± 3.15
34.5	± 0.33	125	± 1.03	462	± 3.22
35.5	± 0.34	128	± 1.05	475	± 3.3
36.5	± 0.35	132	± 1.08	487	± 3.37
37.5	± 0.36	136	± 1.1	500	± 3.45
38.7	± 0.37	140	± 1.13	515	± 3.54
40	± 0.38	145	± 1.17	530	± 3.63
41.2	± 0.39	150	± 1.2	545	± 3.72
42.5	± 0.4	155	± 1.24	560	± 3.81
43.7	± 0.41	160	± 1.27	580	± 3.93
45	± 0.42	165	± 1.31	600	± 4.05
46.2	± 0.43	170	± 1.34	615	± 4.13
47.5	± 0.44	175	± 1.38	630	± 4.22
48.7	± 0.45	180	± 1.41	650	± 4.34
50	± 0.46	185	± 1.44	670	± 4.46
51.5	± 0.47	190	± 1.48	>670	± 0.7%
53	± 0.48	195	± 1.51		
54.5	± 0.5	200	± 1.55		
56	± 0.51	206	± 1.59		
58	± 0.52	212	± 1.63		
60	± 0.54	218	± 1.67		
61.5	± 0.55	224	± 1.71		
63	± 0.56	230	± 1.75		
65	± 0.58	236	± 1.79		
67	± 0.59	243	± 1.83		
69	± 0.61	250	± 1.88		
71	± 0.63	258	± 1.93		
73	± 0.64	265	± 1.98		
				d 2	Tol
				≤ 1.8	± 0.08
				≤ 2.65	± 0.09
				≤ 3.55	± 0.1
				≤ 5.3	± 0.13
				≤ 7	± 0.15
				≤ 8	± 0.16
				≤ 10	± 0.18

For intermediate sizes, the next tolerance up is chosen.

The dimensional tolerances of the finished O-ring are achieved by using appropriately designed form tools and allowing for the shrinkage factor of the elastomer. It is often

possible to use moulds and elastomers with similar shrinkage; in these cases the tolerances in the above chart do not apply.

The quoted tolerances can be reduced even further by modifying the elastomer and using special manufacturing procedures.

Materials

Hubata Seals offers O-rings in four standard and a wide range of special materials, most of which are elastomers. The starting material for elastomer is caoutchouc, which can be obtained in the form of natural rubber but is nowadays usually used in a synthetic form manufactured by the chemical industry.

Elastomers differ in the basic polymer from which they are made. The following table contains the nomenclature used for elastomers according to DIN ISO 1629 and ASTM D 1418.

Nomenclature for basic polymers

Chemical description	Abbreviation	
	DIN ISO 1629	ASTMD 1418
acrylonitrile-butadiene rubber	NBR	NBR
hydrogenated acrylonitrile-butadiene rubber	(HNBR)	HNBR
fluoro rubber	FKM	FKM
perfluoro rubber	(FFKM)	FFKM
ethylene propylene diene rubber	EPDM	EPDM
silicone rubber	VMQ	VMQ
fluorosilicone rubber	FVMQ	FVMQ
chloroprene rubber	CR	CR
polyester urethane	AU	AU
polyether urethane	EU	EU
natural rubber	NR	NR
acrylate rubber	ACM	ACM
styrene-butadiene rubber	SBR	SBR
ethylene oxide epichlorhydrine rubber	ECO	ECO
chlorosulfonated polyethylene	CSM	CSM
butadiene rubber	BR	BR
isoprene rubber	IR	IR
butyl rubber	MR	IIR

() = not listed in the standard

The finished material is created by mixing the basic polymer with the appropriate fillers, softeners, processing aids, curing agents, accelerators and other additives. This process enables us to achieve the specified material properties and offer standard compounds for a wide range of applications as well as special mixtures for highly specialised applications.

The O-ring ultimately achieves its stable shape by the vulcanisation process, in which the plastic rubber mixture changes into a rubber-elastic state and the O-ring acquires its final mechanical properties (hardness, tensile strength, ultimate elongation, compression set etc.).

Standard elastomers

Hubata Seals has a wide range of O-ring sizes in four standard materials in stock:

Hubata Seals standard compounds

Basic elastomer	Abbreviation DIN ISO 1629	Hardness [Shore A]	Colour	Temp. range [°C]		
				low	high	
Acrylonitrile Butadiene Rubber	NBR	70 80 + 90	black	- 30 - 25	100 100	120* 120*
Fluororubber	FKM	80	black	- 15	200	*short term
Ethylene Propylene Diene Rubber	EPDM	70	black	- 45	130	
Silicone Rubber (Methyl Vinyl Polysiloxane)	VMQ	70	red-brown	- 55	200	

Temperature range and media resistance are primary criteria when choosing a material. Nevertheless, sufficient consideration must be given to the mechanical-technological values of an elastomer mixture as these are decisive for a seal's service life. Hubata Seals resistance guide provides details of the different elastomer compounds' media resistance.

NBR—acrylonitrile-butadiene rubber / trade name e.g. Perbunan®— (Bayer)

NBR is the most common standard material for O-rings because of its good mechanical properties and resistance to mineral oil-based lubricants and greases. These properties are usually determined by the acrylonitrile content (ACN between 18% and 50%). A low ACN content ensures good flexibility at low temperatures, but offers limited resistance to oils and fuels; as the ACN content increases, the low temperature flexibility reduces and the resistance to oils and fuels improves.

The Hubata Seals standard NBR material for O-rings offers an average ACN content to suit a wide range of applications with balanced properties. It has good mechanical-technological values such as high abrasion resistance, as well as low gas permeability and good resistance to mineral oil-based lubricants and greases, hydraulic oils H, H-L, H-LP, non-inflammable pressure liquids HFA, HFB, HFC, aliphatic hydrocarbons, silicone oil and greases, and water to approx. 80°C.

NBR is generally not resistant to aromatic and chlorinated hydrocarbons, fuels with a high aromatic content, polar solvents, glycol-based brake fluids and non-inflammable hydraulic fluids HFD. It also has a low resistance to ozone, weathering and ageing, but in most applications this has no negative effect.

FKM—fluoro rubber / trade name e.g. Viton® (Du Pont-Dow Elastomers)

FKM materials are noted for their very high resistance to temperatures and chemicals. Other key benefits are its excellent resistance to ageing and ozone, very low gas permeability (excellent for vacuum application) and the fact that it is self-extinguishing.

The standard FKM material for O-rings has excellent resistance to mineral oils and greases, aliphatic, aromatic and chlorinated hydrocarbons, fuels, non-inflammable hydraulic pressure fluids HFD and many organic solvents and chemicals.

In addition to the standard FKM materials, a number of special compounds with different compositions of polymer chains and varying fluoro-contents (65% to 71%) are developed for special applications.

FKM is generally not resistant to hot water, steam, polar solvents, glycol-based brake fluids and low-molecular organic acids.

EPDM—ethylene propylene diene rubber / trade name e.g. Nordel®, (Du Pont-Dow Elastomers)

EPDM materials generally have a high resistance to hot water, steam, ageing and chemicals, and are suitable for a wide range of temperature applications. They are divided into sulphur- and peroxide-cured types. Peroxide-cured compounds are suitable for higher temperature ranges and have a much lower compression set.

EPDM has a good resistance to hot water and steam, detergents, caustic potash solutions, sodium hydroxide solutions, silicone oil and greases, many polar solvents, many diluted acids and chemicals. Special qualities are recommended for glycol-based brake fluids. EPDM materials are totally unsuitable for use with all mineral oil products (lubricants, fuels). They can be used between -45°C and +130°C (peroxide-cured -50°C to +150°C).

VMQ—silicone rubber / trade name e.g. Silopren® (Bayer)

Silicone rubbers are noted for its wide thermal range and excellent resistance to ozone, weathering and ageing. Compared with other elastomers, silicone's mechanical properties are on the low side. Generally, silicone materials are physiologically harmless; they are also used by the food and medical industries.

The standard silicone material can be applied at temperatures from -55°C to +200°C and is resistant to water (up to 100°C), aliphatic engine and transmission oils, animal and plant oils and fats.

Silicone is generally not resistant to fuels, aromatic mineral oils, steam (short term up to 120°C possible), silicone oils and greases, acids and alkalis.

Comparison of several elastomer properties

Properties	Materials									
	NBR	FKM	EPDM sulphur	EPDM peroxide	VMQ	HNBR	FFKM	FVMQ	CR	AU / EU
Compression set	1	1	3	1	2	1	3	2	2	3
Tear strength	2	2	3	2	4	1	2	3	2	1
Abrasion resistance	2	2-3	2	2	4	2	3	3	2	1
Ageing resistance	4	1	2	2	1	2	1	1	2	1
Ozone resistance	4	1	2	2	1	2	1	1	2	1
Resistance to oil and grease	2	1	5	5	3	2	1	2	3	2
Fuel resistance	4**	2**	5	5	4	3	1	2	3	3
Resistance to hot water [°C]	80**	80**	130	150	100	100**	***	100	80	50
Resistance to steam [°C]	-	-	130	175	120*	-	***	120*	-	-
Heat resistance standard materials [°C]	100	200	130	150	200	150	260	175	100	100
Heat resistance special materials [°C]	120	-	-	-	250	-	330	-	-	-
Low temperature resistance standard materials [°C]	-30	-15	-45	-50	-55	-30	-15	-55	-40	-40
Low temperature resistance special materials [°C]	-50	-35	-	-	-	-40	-35	-	-50	-

1 = very good / 2 = good / 3 = average / 4 = low / 5 = weak

* = short term / ** = better result only with special compound / *** = depends on compound

Special elastomers

HNBR—hydrogenated acrylonitrile-butadiene rubber / trade name e.g. Therban® (Bayer)

HNBR is obtained by fully or partly hydrogenating NBR. It leads to considerable improvement of the resistance to heat, ozone and ageing, and gives it very good mechanical properties. The media resistance compares to that of NBR.

FFKM—perfluoro rubber /trade name Kalrez® (Du Pont-DowElastomers)

The chemical and heat resistance of perfluoro elastomers are similar to those of PTFE. They combine the positive properties of PTFE with the elastic behaviour of FKM. Because this material group is considerably more expensive, perfluoro elastomers are only used if other materials cannot meet the specifications and if safety requirements justify the higher expenditure.

Typical applications for perfluoro elastomers include the chemical, oil and semi-conductor industries, high-vacuum technology, and the aerospace industry.

FVMQ—fluorosilicone rubber / trade name e.g. Silastic LS® (Dow Corning)

Although fluorosilicone elastomers have the same mechanical properties as silicone, they are far more resistant to oils and fuels. The temperature range of applications is somewhat more restricted than that of silicone.

CR—chloroprene rubber / trade name e.g. Neoprene® (Du Pont-Dow Elastomers)

Chloroprenes have excellent resistance to ozone, ageing and weathering and also good mechanical properties. They have average resistance to mineral oils, and are suitable for use with many refrigerants.

AU—polyester urethane EU—polyether urethane Polyurethane /trade name e.g. Desmopan® (Bayer)

Polyurethanes differ from classic elastomers in that they have much higher mechanical properties for example a high resistance to abrasion, wear and extrusion, a high tensile strength and tear resistance. The material is resistant to ageing and ozone, and can be used with mineral oils and greases, silicone oils and greases, non-inflammable fluids HFA and HFB and water up to of 50°C, as well as pure aliphatic hydrocarbons.

SBR—styrene-butadiene rubber / trade name e.g. Buna Hüls® (Hüls)

SBR is used in glycol-based brake fluids, water, alcohols, glycols, silicone oils and greases. The temperature application range is from -50°C to +100°C.

TFE/P—tetrafluoroethylene-propylene rubber /trade name e.g. Aflas® (3M)

TFE/P is a relatively new addition to the group of fluoroelastomers and is noted for its excellent thermal (0°C to +200°C) and chemical resistance. It is particularly suitable for use in hot water, steam, acids, alkaline solutions, ammonia, amines, alloyed engine and transmission oils, brake fluids (based on glycol, mineral oil and silicone oil), crude oil, and sour gas.

ACM—acrylate rubber

ACM is used mainly by the automotive industry as it is resistant to engine, transmission and ATF oils even at high temperatures. The temperature application range is from -20°C to + 150°C.

NR—natural rubber

Natural rubber is still obtained from the latex of certain plants. Vulcanized natural rubber has good low-temperature and mechanical properties and a high elasticity. NR vulcanized materials are resistant to water, glycols, alcohols, glycol-based brake fluids, silicone oils and greases and diluted acids and bases. The temperature application range is from approx. -50°C to +80°C.

PTFE O-rings, PTFE-encapsulated O-rings, PTFE - polytetrafluoroethylene

PTFE is a fluorinated plastic material. It is noted for its almost universal resistance to chemicals, wide temperature range (-100°C to +250°C), extremely low coefficient of friction, physiological suitability and almost unlimited resistance to ozone, weathering and ageing.

Solid PTFE O-rings are far less elastic than elastomer O-rings, which means they are difficult to install (the installation space usually has to be split), and they tend to "flow", especially at high temperatures. This is why slotted PTFE O-rings and PTFE-encapsulated elastomer O-rings are used. The position of the gap (pure PTFE O-rings) or of the joint or overlap (PTFE-encapsulated O-rings) is determined here, depending on the particular application.

FEP-encapsulated O-rings FEP—fluorinated ethylene-propylene

FEP is a thermoplastic material with similar properties to PTFE. Seamless FEP-encapsulated O-rings have an elastic core in FKM or VMQ. They are used at very high thermal and chemical loads. The extremely high chemical resistance of the cover protects the elastic core material against the chosen medium. Another advantage of the cover is its very low coefficient of friction.

This results in a combination of very high chemical and thermal load-bearing ability and the elastic properties of standard commercial elastomers. The core material is chosen to suit the temperature range and medium.

Because of its limited flexibility, great care is required during installation. Warming the material in water or oil to between approx. 80°C and 100°C increases flexibility and supports the installation.

Depending on the core material, the temperature application range is from -55°C to +200°C.

Installation housings and design recommendations

The installation housings

(grooves) for O-rings should if possible be produced with right angles. The dimensions for the required depth and width depend on the particular application and cross-section. The dimensions are recommendations for the particular type of installation, and refer to the nominal sizes. They should be observed because the sealing function depends on the precise execution of the grooves.

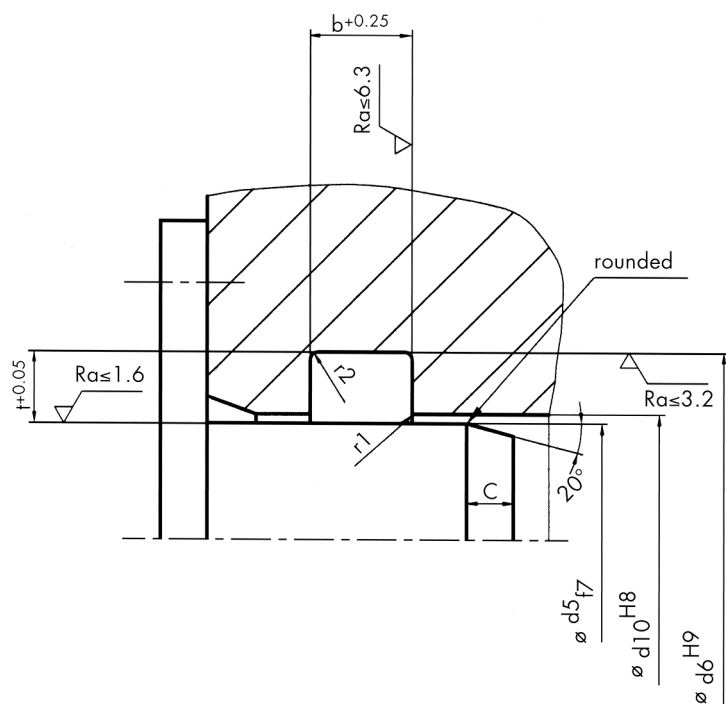
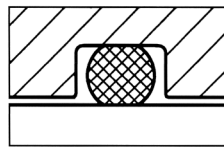
Static Sealing

O-rings are ideal for sealing resting machine elements. We speak of a static or resting seal when the machine elements that are to be sealed do not move in relation to each other. If the groove is executed correctly, the items used as intended and the right material chosen, O-rings can seal pressures of up to 1000 bar. (Back-rings may also be required.)

Rectangular groove by radial deformation

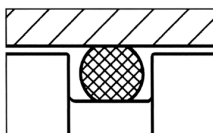
This type of sealing is the preferred choice for sealing pins, bolts, tube connections or cylindrical tubes. The O-ring section is deformed radially on installation, i.e. in the direction of the centre of the bolt/pipe. The position of the groove, whether on the inside or the outside, does not play a functional part on solid components, but depends on the processing and installation possibilities. On thin walled parts where elastic deformation could occur such as with a cylindrical pipe, the groove should be on the fixed outer part (cylinder bottom) so that the groove on the side that is not subject to pressure does not increase as the item opens out.

Static sealing, internal sealing, rectangular groove by radial deformation

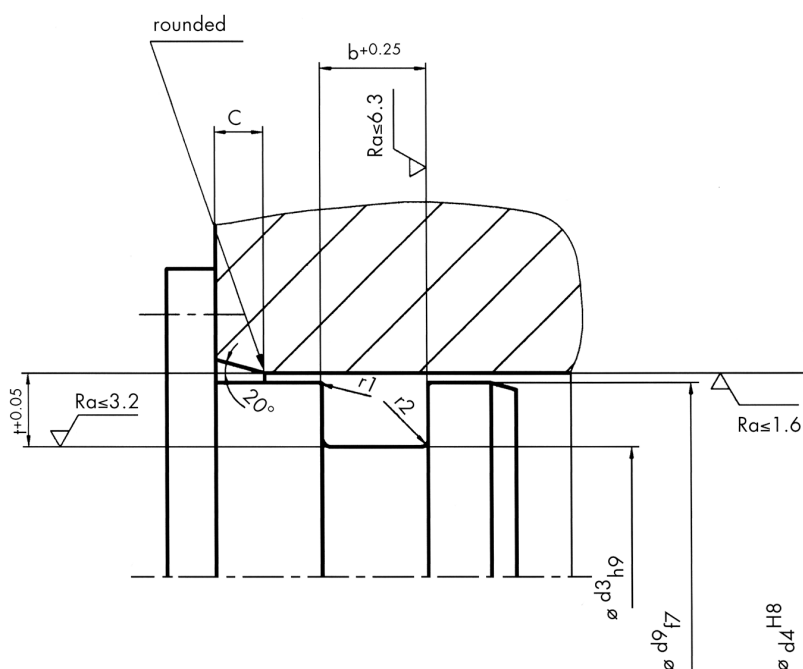


Groove dimensions

d2	Groove depth $t + 0.05$	Groove width $b + 0.25$	Lead-in chamfer C	d2	Groove depth $t + 0.05$	Groove width $b + 0.25$	Lead-in chamfer C
1	0.75	1.3	1.2	4	3.2	5.2	3
1.2	0.9	1.6	1.2	4.3	3.4	5.6	3
1.25	0.9	1.7	1.2	4.5	3.6	5.8	3
1.3	1	1.7	1.2	5	4	6.5	3
1.5	1.1	2	1.5	5.3	4.3	7	3
1.6	1.2	2.1	1.5	5.33	4.3	7.1	3.5
1.78	1.3	2.4	1.5	5.5	4.5	7.2	3.5
1.8	1.3	2.4	1.5	5.7	4.6	7.6	3.5
1.9	1.4	2.5	1.5	6	4.9	7.9	3.5
2	1.5	2.6	2	6.5	5.4	8.4	4
2.2	1.7	3	2	6.99	5.8	9.2	4
2.4	1.8	3.2	2	7	5.8	9.3	4
2.5	1.9	3.3	2	7.5	6.3	9.8	4
2.6	2	3.4	2	8	6.7	10.5	4
2.62	2	3.5	2	8.4	7.1	10.9	4.5
2.65	2	3.6	2	8.5	7.2	11	4.5
2.7	2.1	3.6	2	9	7.7	11.7	4.5
2.8	2.2	3.7	2	9.5	8.2	12.3	4.5
3	2.3	3.9	2.5	10	8.6	13	5
3.1	2.4	4	2.5	10.5	9	13.8	5
3.5	2.7	4.6	2.5	11	9.5	14.3	5
3.53	2.7	4.7	2.5	12	10.5	15.6	5
3.55	2.8	4.7	2.5	15	13.2	19.2	5
3.6	2.8	4.8	2.5				
3.7	2.9	4.9	2.5				



Static sealing, external sealing,
rectangular groove by radial
deformation



Rectangular groove by axial deformation

This type of installation is used primarily for flange and cover sealing. The O-ring cross section is deformed axially.

Note that the O-ring should be placed against the non-pressure side of the groove on installation in order to prevent it from moving in the groove when pressure is applied or increases.

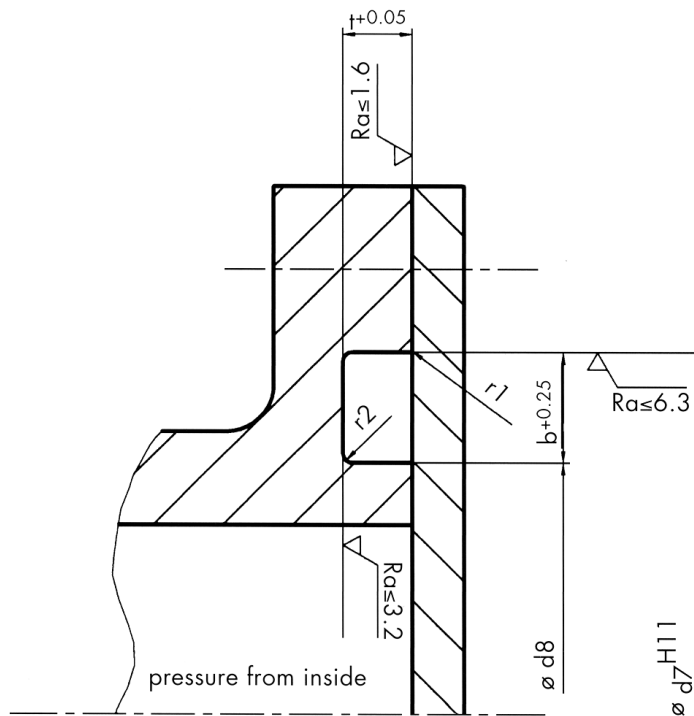
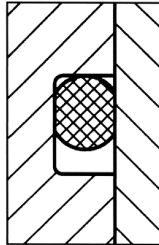
If the O-ring moves in the groove, it will be stretched and compressed, which causes material fatigue and premature wear. Observing the pressure direction will prevent the surface of the O-ring from possibly rolling, and thus being destroyed.

- If pressure is applied from the inside, the outer diameter of the O-ring should be placed against the outer diameter of the groove, or else be up to max. 3% bigger (the O-ring will be compressed).

- If pressure is applied from the outside, the inner diameter of the O-ring should be placed against the inner diameter of the groove or else be up to max. 6% smaller (the O-ring will be stretched).

When the item is intended for axial installation, the cover screwing should be very strongly designed to ensure that the gap between the sealed surfaces never exceeds the permitted size. The pressure could otherwise squeeze out the O-ring.

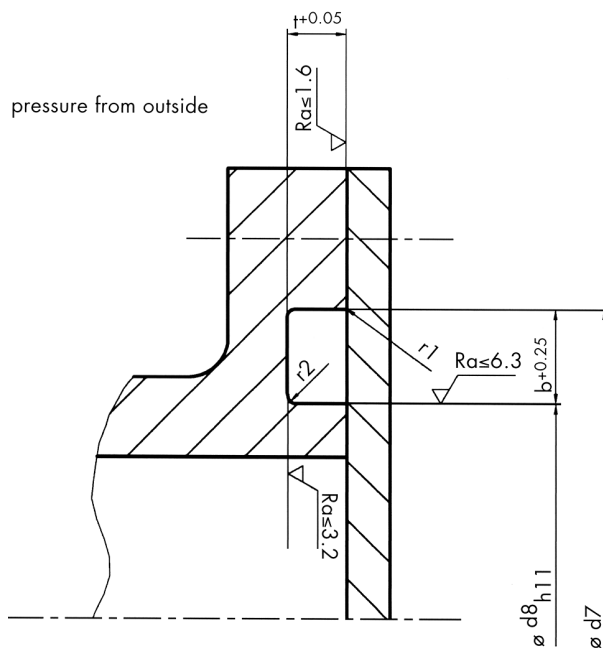
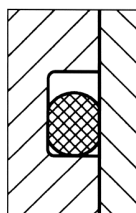
Static sealing, pressure from inside, rectangular groove by axial deformation



Groove dimensions

d2	Groove depth t ^{+0.05}	Groove width b ^{+0.25}	d2	Groove depth t ^{+0.05}	Groove width b ^{+0.25}
1	0.7	1.4	4	3.1	5.5
1.2	0.9	1.6	4.3	3.3	5.9
1.25	0.9	1.7	4.5	3.5	6.1
1.3	1	1.7	5	4	6.7
1.5	1.1	2.1	5.3	4.2	7.2
1.6	1.2	2.2	5.33	4.2	7.3
1.78	1.3	2.5	5.5	4.5	7.4
1.8	1.3	2.6	5.7	4.6	7.6
1.9	1.4	2.7	6	4.8	8.1
2	1.5	2.8	6.5	5.3	8.6
2.2	1.6	3.1	6.99	5.7	9.7
2.4	1.8	3.3	7	5.7	9.7
2.5	1.9	3.5	7.5	6.2	10.1
2.6	2	3.6	8	6.6	10.7
2.62	2	3.7	8.4	7.1	11.1
2.65	2	3.8	8.5	7.2	11.3
2.7	2.1	3.8	9	7.6	12
2.8	2.1	4	9.5	8.1	12.5
3	2.3	4.1	10	8.5	13.6
3.1	2.4	4.2	10.5	8.9	14
3.5	2.7	4.8	11	9.4	14.7
3.53	2.7	4.9	12	10.4	15.7
3.55	2.7	5	15	13.2	19.4
3.6	2.8	5.1			
3.7	2.9	5.2			

Static sealing, pressure from outside, rectangular groove by axial deformation

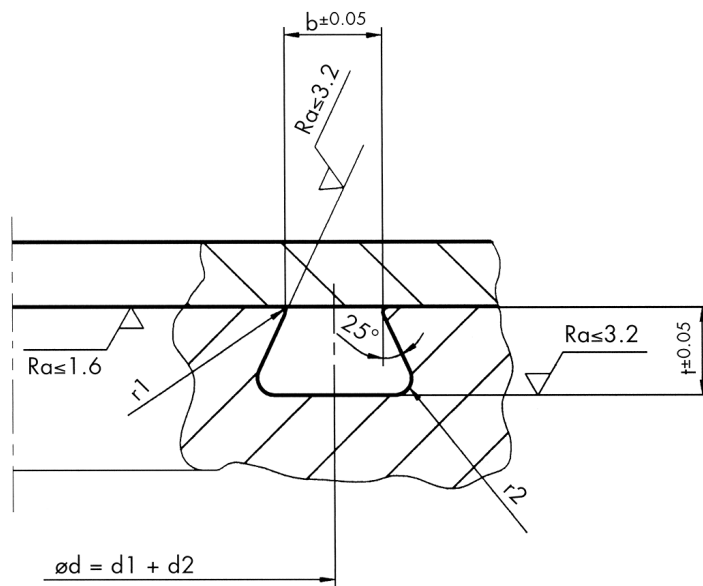
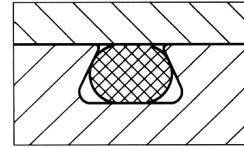
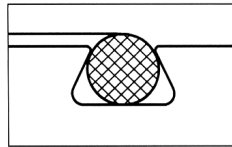


Trapezoidal groove

Trapezoidal grooves are difficult and expensive to manufacture. This groove geometry is only worthwhile if the O-ring needs to be held in the groove during assembly, for the application and removal of compression moulding tools, or for overhead installations.

A trapezoidal groove is really only advisable for cross sections of 2 mm and more. The average groove diameter equates to the inner diameter plus the cord thickness of the O-ring.

Static sealing, trapezoidal groove

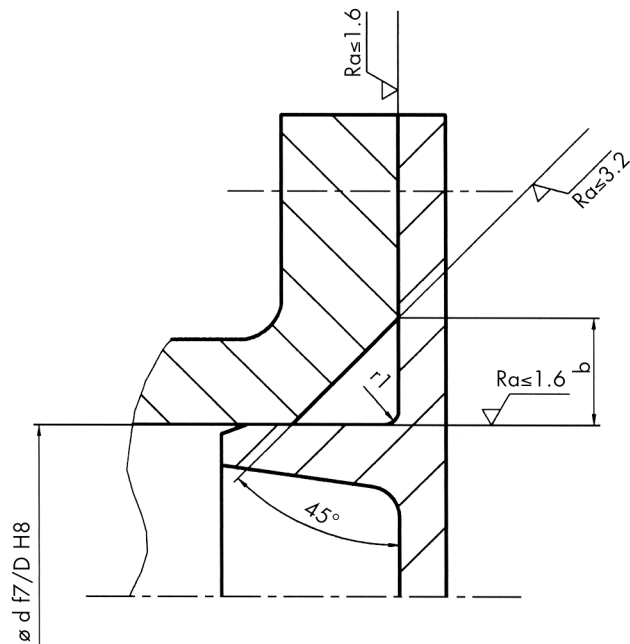
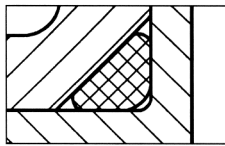


d2	Groove depth f ±0.05	Groove width b±0.05	r2	r1
2	1.5	1.6	0.4	0.25
2.2	1.6	1.7	0.4	0.25
2.4	1.8	1.9	0.4	0.25
2.5	2	2	0.4	0.25
2.6	2.1	2.1	0.4	0.25
2.62	2.1	2.1	0.4	0.25
2.65	2.1	2.1	0.4	0.25
2.7	2.2	2.1	0.4	0.25
2.8	2.3	2.2	0.4	0.25
3	2.4	2.4	0.4	0.25
3.1	2.5	2.5	0.4	0.25
3.5	2.8	2.9	0.8	0.25
3.53	2.8	2.9	0.8	0.25
3.55	2.8	2.9	0.8	0.25
3.6	2.9	3	0.8	0.25
3.7	3	3.1	0.8	0.25
4	3.2	3.3	0.8	0.25
4.3	3.3	3.6	0.8	0.25
4.5	3.7	3.7	0.8	0.25
5	4.2	4	0.8	0.25
5.3	4.6	4.2	0.8	0.4
5.33	4.6	4.2	0.8	0.4
5.5	4.7	4.4	0.8	0.4
5.7	4.9	4.5	0.8	0.4
6	5.1	4.7	0.8	0.4
6.5	5.6	5.1	0.8	0.4
6.99	6	5.6	1.6	0.4
7	6	5.6	1.6	0.4
7.5	6.4	6.1	1.6	0.4
8	6.9	6.3	1.6	0.4
8.4	7.3	6.7	1.6	0.5
8.5	7.4	6.8	1.6	0.5
9	7.8	7.2	1.6	0.5
9.5	8.2	7.7	1.6	0.5
10	8.7	8	1.6	0.5

Conical groove

In individual cases involving screwed flange and cover sealing design, requirements may call for a conical groove. However, with this particular groove geometry it can be difficult to ensure a defined deformation of the O-ring. Furthermore, the restricted space of a conical groove can be disadvantageous if the surrounding media then cause the O-ring to swell.

Static sealing, conical groove



Groove dimensions

d2	Side length b	Tolerance (+)	r1
1	1.45	0.1	0.25
1.2	1.7	0.1	0.25
1.25	1.75	0.1	0.25
1.3	1.8	0.1	0.3
1.5	2.1	0.1	0.3
1.6	2.15	0.1	0.3
1.78	2.4	0.1	0.3
1.8	2.45	0.1	0.3
1.9	2.6	0.1	0.4
2	2.75	0.1	0.4
2.2	3	0.1	0.4
2.4	3.25	0.15	0.4
2.5	3.4	0.15	0.5
2.6	3.55	0.15	0.5
2.62	3.6	0.15	0.5
2.65	3.6	0.15	0.5
2.7	3.7	0.15	0.6
2.8	3.8	0.15	0.6
3	4.1	0.2	0.6
3.1	4.25	0.2	0.6
3.5	4.8	0.2	0.8
3.53	4.8	0.2	0.8
3.55	4.85	0.2	0.8
3.6	4.9	0.2	0.9
3.7	5.05	0.2	0.9
4	5.5	0.2	1.2
4.3	5.9	0.2	1.2
4.5	6.15	0.2	1.2
5	6.85	0.25	1.2
5.3	7.25	0.25	1.4
5.33	7.3	0.25	1.4
5.5	7.55	0.25	1.5
5.7	7.8	0.25	1.5
6	8.2	0.3	1.5
6.5	8.9	0.3	1.7
6.99	9.6	0.3	2
7	9.6	0.3	2
7.5	10.3	0.3	2
8	11	0.4	2
8.4	11.55	0.4	2
8.5	11.7	0.4	2
9	12.4	0.4	2.5
9.5	13.05	0.4	2.5
10	13.7	0.4	2.5
10.5	14.4	0.4	2.5
10	15.1	0.4	2.5
12	16.5	0.5	3
15	20.6	0.5	3

Vacuum sealing

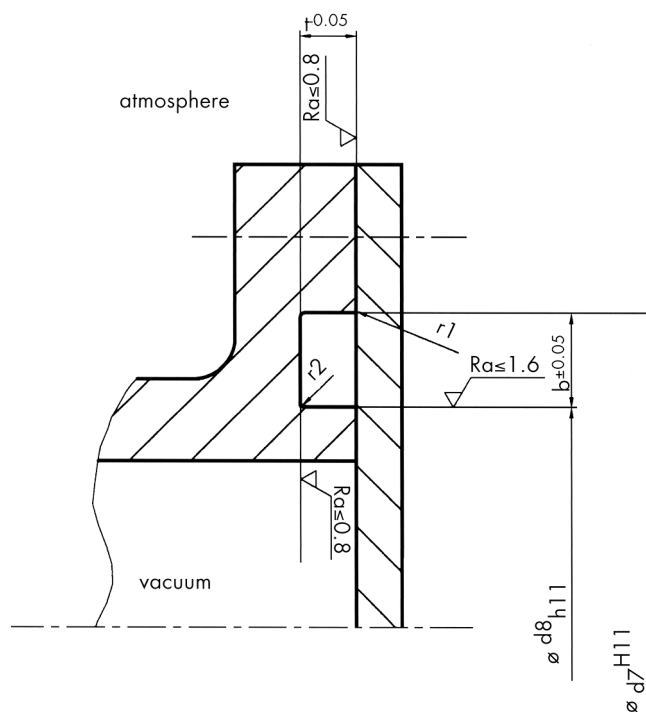
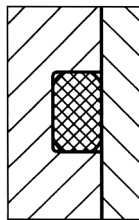
Vacuum sealing is a special kind of static O-ring sealing. In this type, the system pressure that is to be sealed is less than the atmospheric pressure ($p_{atm} = 1.01325 \text{ bar}$).

Contrary to the general installation guidelines for static O-ring sealing, the following recommendations apply for vacuum sealing:

- The groove should be almost 100% filled by the deformed O-ring. This creates greater contact surfaces and increases the diffusion time through the elastomer material.
- The deformation of the O-ring section should be about 30%.

- A vacuum grease should be used (reduces leakage).
- The surface quality (roughness depth) of the groove and sealed surfaces should be considerably better than of standard static sealing, and the percentage contact area should be $t_p > 50\%$.
- The chosen elastomer should be gas compatible, have low permeability and a low compression set. We recommend fluoro rubber for standard applications.

Static sealing, vacuum sealing



Groove dimensions

d2	Groove depth $t_{-0.05}$	Groove width $b_{+0.05}$	r1	r2
1.5	1.05	1.8	0.1	0.2
1.78	1.25	2.1	0.1	0.2
1.8	1.25	2.1	0.1	0.2
2	1.4	2.3	0.1	0.3
2.5	1.75	2.9	0.1	0.3
2.6	1.8	3	0.1	0.4
2.62	1.85	3.1	0.1	0.4
2.65	1.85	3.1	0.1	0.4
2.7	1.9	3.15	0.1	0.4
2.8	1.95	3.2	0.1	0.4
3	2.1	3.5	0.1	0.6
3.1	2.2	3.6	0.1	0.6
3.5	2.45	4.1	0.2	0.6
3.53	2.5	4.1	0.2	0.6
3.55	2.5	4.15	0.2	0.6
3.6	2.5	4.2	0.2	0.6
3.7	2.6	4.3	0.2	0.6
4	2.8	4.7	0.2	0.6
4.5	3.15	5.3	0.2	0.8
5	3.5	5.9	0.2	0.8
5.3	3.7	6.3	0.2	1
5.33	3.7	6.3	0.2	1
5.5	3.8	6.6	0.2	1
5.7	4	6.7	0.2	1
6	4.2	7.1	0.2	1
6.5	4.6	7.6	0.2	1
6.99	4.9	8.2	0.3	1
7	4.9	8.2	0.3	1
7.5	5.3	8.7	0.3	1
8	5.6	9.4	0.3	1
8.4	5.9	9.9	0.3	1
8.5	6	10	0.3	1
9	6.4	10.5	0.3	1
9.5	6.7	11.2	0.3	1
10	7.1	11.7	0.3	1

Dynamic sealing

O-rings are used successfully as sealing elements in dynamic applications. However, their use is limited to lower pressures and speeds, or to use in small installation housings.

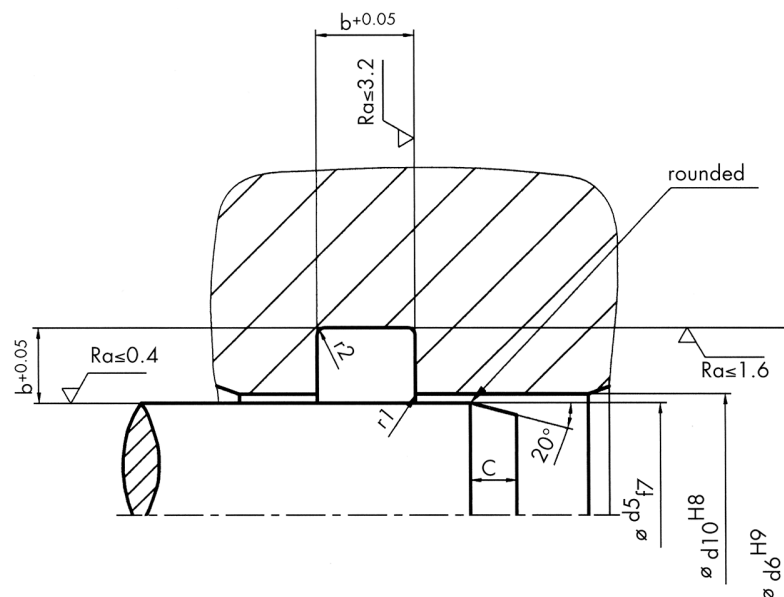
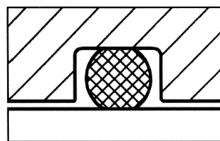
Because of the friction resistance in movement, e.g. in hydraulic or pneumatic components, a smaller O-ring deformation is chosen than for static sealing. The item should always be well lubricated in order to prevent a loss of power due to friction and premature wear of the O-ring if it runs dry.

The installation housings are the same for the reciprocating movement, and for the movement with simultaneous rotating (helical) movement. There are differences between the housings of hydraulic and pneumatic applications, because of the differences in pressure and lubrication.

Hydraulics

O-rings should only be used to seal hydraulic pistons and rods if there is little space for the installation, or if the rod stroke is relatively short with a low frequency, and the seal does not have to be completely leak-proof. In fact, a tiny amount of leakage is desirable as it provides a lubricant film that reduces friction and wear.

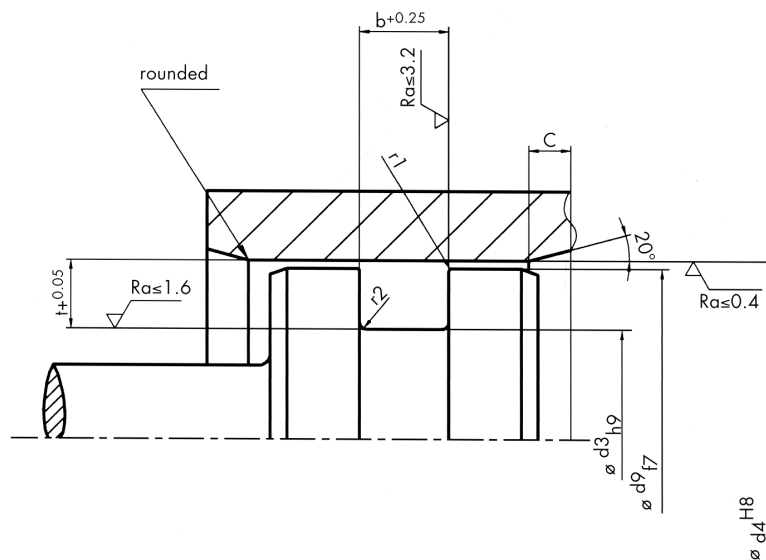
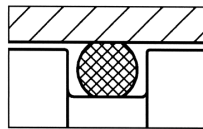
Dynamic sealing, internal groove by radial deformation



Groove dimensions

d2	Groove depth $t^{+0.05}$	Groove Width $b^{+0.25}$	Lead-in chamfer C	d2	Groove depth $t^{+0.05}$	Groove Width $b^{+0.25}$	Lead-in chamfer C
1	0.9	1.3	1	3.7	3.2	4.8	2
1.2	1	1.6	1	4	3.5	5.1	2
1.25	1.1	1.6	1	4.3	3.8	5.5	2.5
1.3	1.1	1.7	1.2	4.5	4	5.7	2.5
1.5	1.3	1.9	1.2	5	4.4	6.4	2.7
1.6	1.4	2	1.2	5.3	4.7	6.8	2.9
1.78	1.5	2.3	1.3	5.33	4.7	6.9	2.9
1.8	1.5	2.4	1.3	5.5	4.9	7.1	3
1.9	1.6	2.5	1.3	5.7	5.1	7.2	3
2	1.7	2.6	1.3	6	5.4	7.5	3.6
2.2	1.9	2.8	1.3	6.5	5.8	8.1	3.6
2.4	2.1	3	1.4	6.99	6.2	8.8	3.6
2.5	2.2	3.1	1.4	7	6.2	8.9	3.6
2.6	2.2	3.3	1.5	7.5	6.7	9.4	3.8
2.62	2.2	3.4	1.5	8	7.1	10.2	4
2.65	2.3	3.4	1.5	8.4	7.5	10.6	4.2
2.7	2.4	3.4	1.5	8.5	7.6	10.8	4.2
2.8	2.4	3.6	1.6	9	8.1	11.4	4.5
3	2.6	3.8	1.8	9.5	8.5	12	4.5
3.1	2.7	3.9	1.8	10	9	12.6	4.5
3.5	3.1	4.4	2	10.5	9.5	13.2	5
3.53	3.1	4.5	2	11	9.9	13.9	5
3.55	3.1	4.5	2	12	10.9	15.1	5
3.6	3.1	4.6	2	15	13.7	18.8	5

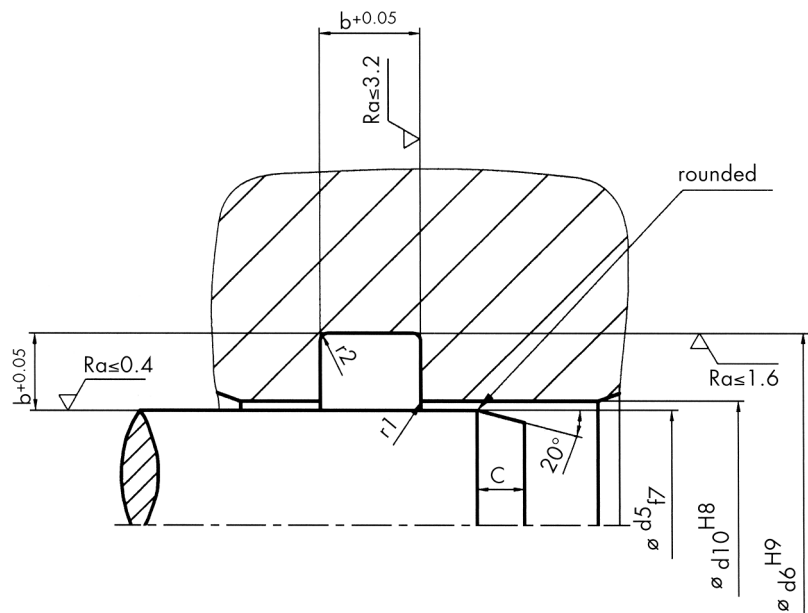
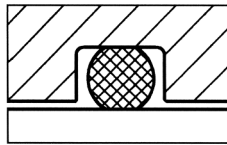
Dynamic sealing, external groove by radial deformation



Pneumatics

In pneumatics, O-rings are used primarily to seal reciprocating movements. The deformation of the O-ring should be less than in hydraulic applications in order to keep the loss of power due to friction down, even with inadequate lubrication, in order to achieve the maximum possible lifetimes.

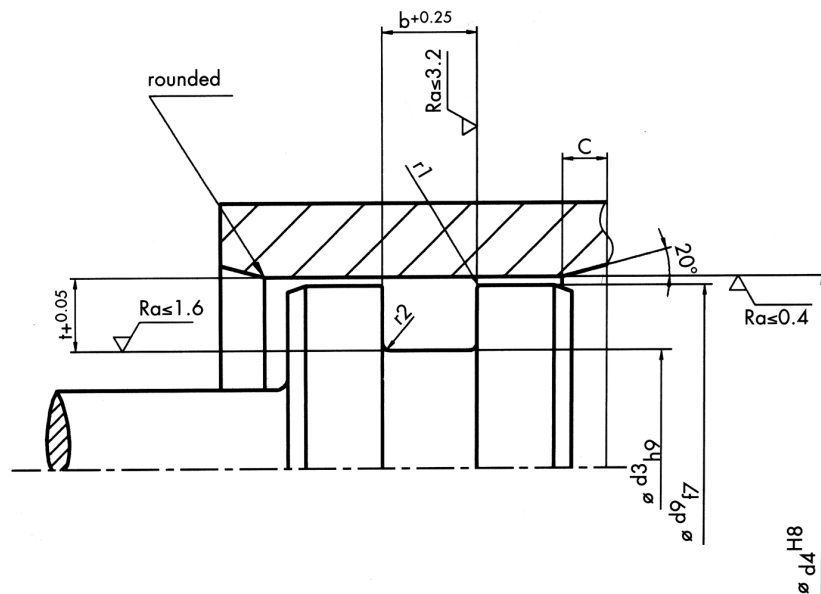
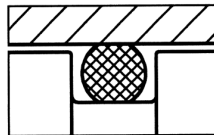
**Dynamic sealing,
internal sealing,
rectangular groove by
radial deformation**



Groove dimensions

d2	Groove depth $t^{+0.05}$	Groove Width $b^{+0.25}$	Lead-in chamfer C	d2	Groove depth $t^{+0.05}$	Groove Width $b^{+0.25}$	Lead-in chamfer C
1	0.95	1.2	0.9	4	3.7	4.8	2
1.2	1.05	1.5	1	4.3	4	5.1	2
1.25	1.15	1.5	1	4.5	4.2	5.4	2.3
1.3	1.15	1.6	1.1	5	4.65	5.9	2.3
1.5	1.35	1.8	1.1	5.3	4.95	6.4	2.7
1.6	1.45	1.9	1.2	5.33	4.95	6.4	2.7
1.78	1.55	2.2	1.2	5.5	5.15	6.5	2.8
1.8	1.55	2.3	1.2	5.7	5.35	6.8	3
1.9	1.7	2.3	1.2	6	5.6	7.2	3.1
2	1.8	2.4	1.2	6.5	6.1	7.8	3.3
2.2	2	2.6	1.4	6.99	6.55	8.4	3.6
2.4	2.15	2.9	1.4	7	6.6	8.4	3.6
2.5	2.25	3	1.4	7.5	7.1	8.9	3.8
2.6	2.35	3.1	1.4	8	7.6	9.5	4
2.62	2.35	3.1	1.5	8.4	7.9	10.1	4.2
2.65	2.35	3.2	1.5	8.5	8	10.2	4.2
2.7	2.45	3.3	1.5	9	8.5	10.8	4.3
2.8	2.55	3.4	1.5	9.5	9	11.4	4.3
3	2.7	3.6	1.5	10	9.5	12	4.5
3.1	2.8	3.7	1.5				
3.5	3.15	4.2	1.8				
3.53	3.2	4.3	1.8				
3.55	3.2	4.3	1.8				
3.6	3.3	4.3	1.8				
3.7	3.4	4.4	1.8				

**Dynamic sealing,
external sealing,
rectangular groove by
radial deformation**



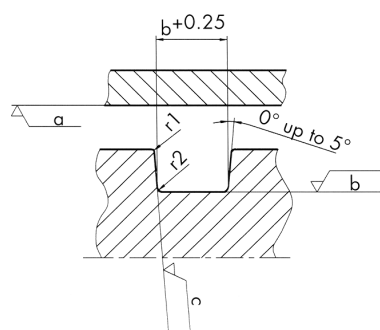
Design guidelines

Once the dimensions and geometric shape of the installation housing have been determined, the following details must be observed for a correct function.

- Any component edges and transition points that come into contact with the O-ring should be burr-free, rounded and polished if necessary.
- The transition point between the groove flank and groove base r_2 , and the transition between the groove flank and component surface r_1 , must be slightly rounded.

- Avoid marks, holes and scratches on the surface.
- Roughness values are classified to DIN 4768 with various parameters. In many cases, simply stating the average roughness value R_a is not sufficient for classifying the surface quality, and so the average roughness depth R_z , maximum roughness depth R_{max} and the contact area percentage t_p are also quoted. The contact area percentage should be more than 50% if at all possible.

The radii relating to the cross section are given in the following table:

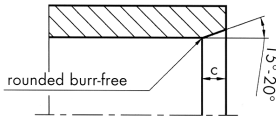
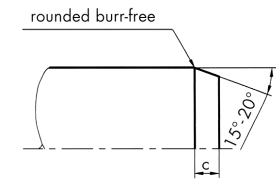


d2	r1	r2
1-2	0.1	0.3
2-3	0.2	0.3
3-4	0.2	0.5
4-5	0.2	0.6
5-6	0.2	0.6
6-7	0.2	0.8
8-10	0.2	1
10-12	0.2	1
12-15	0.2	1.2

- The surface quality is to be designed for the particular application. For dynamic applications, the surface must be finer than for a static one the same also applies for pulsating pressures.

Surface qualities

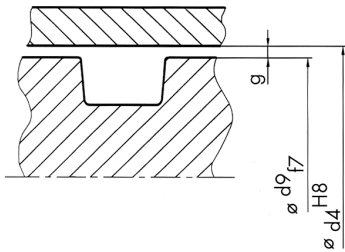
Type of sealing application	Surface	Pressure	R_a [μm]	R_z [μm]	R_{max} [μm]
dynamic radial	counter surface a		≤ 0.4	≤ 1.2	≤ 1.6
	groove base b		≤ 1.6	≤ 3.2	≤ 6.3
	groove flanks c		≤ 3.2	≤ 6.3	≤ 10
static radial / axial	sealing surface a	not	≤ 1.6	≤ 6.3	≤ 10
	groove base b	pulsating	≤ 3.2	≤ 10	≤ 12.5
	groove flanks c		≤ 6.3	≤ 12.5	≤ 16
	sealed surface a	pulsating	≤ 0.8	≤ 1.6	≤ 3.2
	groove base b		≤ 1.6	≤ 3.2	≤ 6.3
	groove flanks c		≤ 3.2	≤ 6.3	≤ 10



Lead-in chamfers

Lead-in chamfers should be used to prevent damage to the O-ring and ensure correct installation.

The angles between the lead-in chamfers and the level should be between 15° and 20°. Chamfer lengths C are given in the groove dimension tables.



Maximum permitted values for radial sealing gap g [mm]

The permitted values for the sealing gap are determined by the pressure, material hardness and diameter.

Type of sealing application	Pressure [bar]	Material hardness [Shore A]		
		70	80	90
static	≤ 60	0.2	0.25	0.3
	> 60–100	0.1	0.2	0.25
	> 100–160	0.05	0.1	0.2
	> 160–250	–	0.05	0.1
	> 250–350	–	–	0.05
dynamic	≤ 30	0.2	0.25	0.3
	> 30–60	0.1	0.17	0.2
	> 60–80	–	0.1	0.15
	> 80–100	–	–	0.1
	> 100–160	–	–	–

The gap dimensions given in the chart apply for all elastomer materials with the exception of silicone.

Back-up rings are to be used with bigger gap dimensions.

Sealing gap

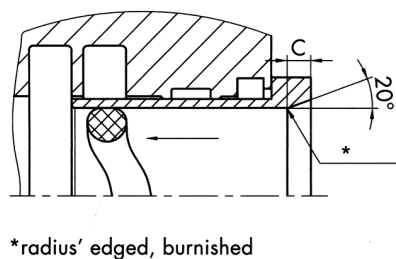
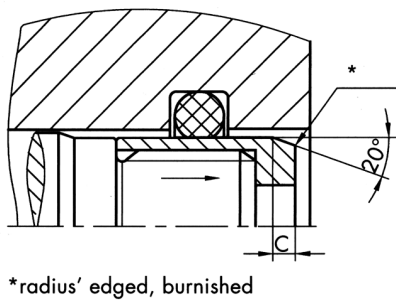
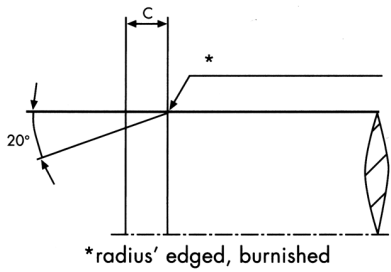
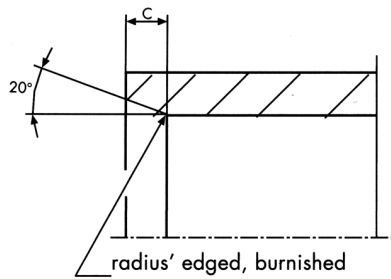
The gap that is to be sealed should be as small as possible, so the fits and tolerances shown on installation tables and drawings should be observed.

However, do not forget that working loads, such as those exerted on a cylindrical tube under high pressure, will cause the gap to expand. If the gap is too big, there is a strong risk of gap extrusion. This means that the O-ring migrates into the gap as pressure is applied, where it will soon be destroyed.

In cases of dynamic sealing, the O-ring is destroyed by ripping and peeling. We recommend the use of back-up rings to protect the O-ring against gap extrusion.

General installation instructions

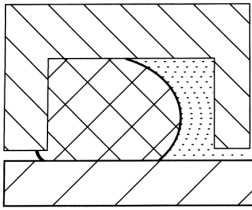
Avoid damaging the O-ring during installation as this will cause leakage. Observe the following:



- The O-ring must not be expanded to its elongation limit.
- Edges must be burr-free; radii and angles applied smoothly.
- Dust, dirt, metal chips and other particles are to be removed

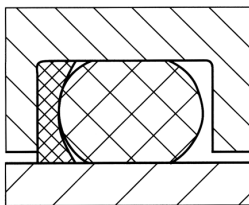
- Tips of screws and installation housings for other sealing and guiding elements should be covered by an assembly sleeve.
- A suitable grease is to be applied to the assembly surfaces and O-rings.
- Elastomer materials are made smoother if they are heated in oil or hot water to approx. 80°C. This makes it easier to stretch the O-ring for assembly.
- Any assembly tools used, such as expansion mandrels or sleeves, should be made of a soft material (e.g. POM) and not have any sharp edges.
- The O-ring should not be rolled over assembly surfaces. Ensure the O-ring is not twisted as it slots into the groove.

Back-up rings



Back-up rings are used to prevent O-rings from gap extrusion. In the case of the combination of rising pressures and large sealing gaps there is the risk, that the O-ring material will be pressed into the sealing gap on the low pressure side. If this is repeated several times and the pressure continues rising, the O-ring can be damaged irreversible and finally get completely destroyed.

Back-up rings do not provide any sealing function. Through reduction of the sealing gap on the low pressure side they take care, that the O-ring can fulfill it's sealing function without being damaged.



Materials

The selection of materials for back-up rings is primarily based upon the pressure and the appropriate extrusion resistance resp. hardness. Additionally parameters like height of the extrusion gap, media resistance and temperature range have to be taken into consideration. In practice there are various plastics and elastomers like for example PTFE, PA, POM, polyurethane, polyesterelastomer as well as NBR, FKM and EPDM available.

Installation housings

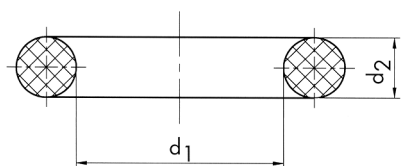
Back-up rings are normally installed in wider designed housings on the low pressure side. Because of the plurality of O-ring housings which are common in the market, the back-up ring dimensions normally have to be adapted to the existing housing geometry. To layout back-up rings the following parameters are required:

- housing dimensions, including tolerances
- type of application:
 - static / dynamic sealing
 - internal / external sealing
- O-ring dimensions
 - pressure, medium, temperature

If back-up rings from existing dimension ranges are used e.g. like NBR 90 the installation housing has to be designed according to the producers guidelines.

Please contact us for any further assistance.

DIMENSIONS



Dimensions

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
0.7	1.5	1.8	1.2	2.6	1.3	3.17	1.78	3.8	1.25	4.5	2.25
0.73	1.02	1.8	1.4	2.6	1.4	3.2	1	3.8	1.27	4.5	2.4
0.75	1	1.8	1.5	2.6	1.7	3.2	1.05	3.8	1.35	4.5	2.5
0.75	1.02	1.8	1.8	2.6	1.8	3.2	1.1	3.8	1.5	4.5	2.65
0.78	1.02	1.85	1.5	2.6	1.9	3.2	1.2	3.8	1.7	4.5	3
0.8	0.5	1.9	1.35	2.6	2	3.2	1.5	3.8	1.75	4.5	3.5
0.8	1.25	1.9	1.78	2.6	2.25	3.2	1.6	3.8	1.9	4.5	5
0.8	2	1.9	2.6	2.66	1.97	3.2	1.78	3.8	2.4	4.57	1.02
0.9	1.52	2	0.5	2.68	1.78	3.2	1.8	3.8	2.8	4.6	1.2
0.9	1.6	2	0.65	2.69	0.63	3.2	2.5	3.81	0.61	4.6	1.8
1	1	2	0.7	2.69	1.37	3.2	3	3.89	1.55	4.6	1.85
1	1.5	2	1	2.7	1	3.25	0.63	3.9	1.8	4.6	2
1	2	2	1.1	2.7	1.2	3.3	0.6	3.95	1.78	4.6	2.3
1.02	1.78	2	1.25	2.7	1.5	3.3	1	3.96	1.6	4.6	2.4
1.06	1.25	2	1.3	2.7	1.6	3.3	1.3	4	1	4.6	2.5
1.07	1.21	2	1.5	2.7	1.8	3.3	1.5	4	1.2	4.6	3.2
1.07	1.25	2	1.6	2.7	1.9	3.3	1.7	4	1.3	4.7	0.79
1.07	1.27	2	1.7	2.73	1.7	3.3	2.4	4	1.5	4.7	0.9
1.1	2	2	1.75	2.75	1.25	3.3	2.5	4	1.6	4.7	1
1.15	1	2	1.8	2.75	1.6	3.34	0.5	4	1.75	4.7	1.2
1.2	1	2	2	2.79	1.02	3.35	1.78	4	1.8	4.7	1.42
1.2	1.1	2	2.25	2.79	1.24	3.4	0.5	4	1.9	4.7	1.5
1.2	1.25	2	2.5	2.8	0.8	3.4	0.9	4	2	4.7	1.6
1.2	2	2	3	2.8	1	3.4	1	4	2.2	4.7	1.78
1.22	1.07	2.01	1.6	2.8	1.1	3.4	1.3	4	2.5	4.7	1.9
1.24	2.62	2.06	2.62	2.8	1.3	3.4	1.7	4	2.6	4.7	2.7
1.25	1	2.13	1.7	2.8	1.5	3.4	1.8	4	2.62	4.7	3
1.25	1.5	2.13	3.2	2.8	1.6	3.4	1.9	4	3	4.75	1
1.27	1.02	2.15	1.4	2.8	1.8	3.4	2.8	4	3.5	4.75	1.24
1.3	1	2.2	0.5	2.8	1.9	3.45	2.02	4	4	4.75	1.27
1.3	1.1	2.2	1	2.8	3.1	3.5	0.9	4	4.5	4.75	1.5
1.35	1.63	2.2	1.3	2.82	1.52	3.5	1	4	5	4.75	2.62
1.4	1.25	2.2	1.6	2.84	1.78	3.5	1.1	4	5.5	4.76	1.78
1.4	1.27	2.2	1.8	2.84	2.62	3.5	1.2	4.1	1.6	4.8	0.81
1.4	1.65	2.2	2.2	2.85	2.32	3.5	1.3	4.2	0.5	4.8	1.3
1.42	1.52	2.24	1.78	2.87	1.09	3.5	1.5	4.2	1.4	4.8	1.35
1.42	1.78	2.24	1.8	2.9	0.5	3.5	1.6	4.2	1.5	4.8	1.5
1.44	1.01	2.3	0.65	2.9	0.85	3.5	1.8	4.2	1.6	4.8	1.8
1.5	0.85	2.3	0.8	2.9	1	3.5	2	4.2	1.8	4.8	1.9
1.5	1	2.3	1.2	2.9	1.05	3.5	2.5	4.2	1.9	4.87	1.78
1.5	1.02	2.3	1.3	2.9	1.75	3.5	2.6	4.25	2	4.87	1.8
1.5	1.07	2.3	1.5	2.9	1.78	3.5	3	4.25	2.25	4.87	3.53
1.5	1.2	2.3	2.4	2.9	2.62	3.5	3.9	4.3	1	4.9	1.3
1.5	1.25	2.31	1.5	2.95	0.79	3.53	1.02	4.3	1.3	4.9	1.5
1.5	1.3	2.35	1	2.95	0.97	3.55	1.6	4.3	1.4	4.9	1.9
1.5	1.5	2.37	2.62	3	0.9	3.55	1.8	4.3	1.5	4.9	1.95
1.5	1.75	2.4	1.05	3	1	3.56	1.27	4.3	1.8	4.9	2.62
1.5	2	2.4	1.9	3	1.1	3.6	1.3	4.3	2.4	4.93	1.5
1.6	1	2.4	2.8	3	1.2	3.6	2	4.34	3.53	4.95	1.28
1.6	1.1	2.49	0.66	3	1.25	3.6	2.4	4.4	1.1	5	0.8
1.6	1.2	2.5	0.65	3	1.5	3.6	2.7	4.4	1.6	5	1
1.6	1.3	2.5	1	3	1.6	3.62	1.64	4.4	1.8	5	1.2
1.6	1.35	2.5	1.2	3	1.75	3.63	2.62	4.42	2.62	5	1.25
1.6	1.4	2.5	1.3	3	1.8	3.65	1.78	4.47	1.02	5	1.35
1.6	1.6	2.5	1.5	3	1.85	3.66	1.19	4.47	1.27	5	1.4
1.6	1.78	2.5	1.6	3	2	3.66	1.9	4.47	1.87	5	1.5
1.65	1.6	2.5	1.75	3	2.4	3.68	1.25	4.48	1.78	5	1.6
1.7	1.5	2.5	1.78	3	2.7	3.68	1.78	4.5	0.75	5	1.75
1.7	2.4	2.5	1.8	3	3	3.7	1	4.5	0.8	5	1.8
1.75	0.8	2.5	2	3	3.5	3.7	1.2	4.5	1	5	1.9
1.77	1.01	2.5	2.25	3	3.9	3.7	1.6	4.5	1.2	5	2
1.78	0.91	2.5	3	3	4	3.7	1.8	4.5	1.32	5	2.2
1.78	1.02	2.54	1.02	3	4.5	3.7	1.9	4.5	1.5	5	2.3
1.78	1.19	2.57	1.78	3.05	1.27	3.7	2.8	4.5	1.7	5	2.5
1.78	1.78	2.59	0.99	3.1	1.25	3.72	1.02	4.5	1.75	5	2.65
1.8	0.8	2.6	1	3.1	1.6	3.75	1.8	4.5	1.8	5	3
1.8	1	2.6	1.2	3.15	1.25	3.8	1	4.5	1.9	5	3.5
1.8	1.02	2.6	1.25	3.15	1.8	3.8	1.1	4.5	2	5	4

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
5	5	5.8	1.9	6.3	1.8	7	1.5	7.6	1.5	8	3.7
5	5.5	5.8	2.6	6.3	2	7	1.58	7.6	1.6	8	4
5	6	5.82	1.2	6.3	2.39	7	1.6	7.6	1.8	8	4.2
5	8	5.88	2.62	6.3	2.4	7	1.7	7.6	1.9	8	4.5
5.1	1	5.9	0.9	6.3	2.6	7	1.8	7.6	2	8	5
5.1	1.1	5.9	1.8	6.3	4.8	7	2	7.6	2.4	8	6
5.1	1.6	5.9	2.05	6.35	0.81	7	2.2	7.6	2.62	8	8
5.1	1.8	5.9	2.55	6.35	0.89	7	2.3	7.6	3	8.04	1
5.15	1.8	5.94	3.53	6.35	1	7	2.5	7.6	4	8.1	1.6
5.2	0.6	6	0.75	6.35	1.6	7	2.7	7.62	1.27	8.1	2.1
5.2	1.7	6	1	6.35	1.78	7	3	7.64	1.63	8.13	1.78
5.23	2.62	6	1.1	6.35	2.03	7	3.5	7.65	1.63	8.2	1.65
5.28	1.78	6	1.2	6.35	3.28	7	4	7.65	1.68	8.2	1.9
5.3	1.27	6	1.3	6.36	1.58	7	4.5	7.65	2.62	8.2	2
5.3	1.5	6	1.4	6.4	1.3	7	5	7.65	2.65	8.28	1.3
5.3	1.7	6	1.5	6.4	1.8	7	5.5	7.66	1.78	8.3	1
5.3	1.75	6	1.6	6.4	1.9	7	6	7.66	2.4	8.3	2.4
5.3	1.8	6	1.7	6.4	2.5	7	12	7.7	0.8	8.32	1.78
5.3	2	6	1.75	6.5	1	7.01	1.19	7.7	1.5	8.38	1.27
5.3	2.2	6	1.8	6.5	1.1	7.06	1.17	7.7	1.9	8.4	1.8
5.3	2.4	6	1.9	6.5	1.25	7.1	1.5	7.7	2	8.4	2.5
5.3	2.5	6	2	6.5	1.5	7.1	1.6	7.75	2.62	8.43	0.79
5.3	2.65	6	2.1	6.5	1.55	7.1	1.8	7.8	1.25	8.45	2.15
5.3	4.3	6	2.2	6.5	1.6	7.14	3.57	7.8	1.6	8.48	1.78
5.3	5	6	2.3	6.5	1.9	7.2	1	7.8	1.75	8.5	1
5.37	1.7	6	2.4	6.5	2	7.2	1.3	7.8	1.8	8.5	1.27
5.37	1.78	6	2.5	6.5	2.08	7.2	1.78	7.8	1.9	8.5	1.35
5.41	1.02	6	2.6	6.5	2.2	7.2	1.9	7.8	2	8.5	1.5
5.49	1.35	6	2.65	6.5	2.5	7.2	2.2	7.8	2.5	8.5	1.6
5.5	1	6	2.7	6.5	3	7.2	2.4	7.8	5	8.5	1.8
5.5	1.25	6	2.75	6.5	3.2	7.2	4.9	7.87	1.37	8.5	1.9
5.5	1.3	6	2.8	6.5	3.5	7.24	2.44	7.9	0.51	8.5	2
5.5	1.5	6	3	6.5	4	7.28	1.78	7.9	0.79	8.5	2.5
5.5	1.6	6	3.2	6.5	4.75	7.3	1.2	7.9	0.8	8.5	3
5.5	1.8	6	3.5	6.5	5	7.3	1.78	7.9	1.25	8.5	3.5
5.5	2	6	3.75	6.55	1	7.3	2.2	7.9	1.6	8.5	4
5.5	2.3	6	4	6.55	1.1	7.3	2.4	7.9	1.8	8.51	0.9
5.5	2.4	6	4.5	6.55	1.55	7.3	2.7	7.9	2.1	8.51	1.78
5.5	2.5	6	5	6.55	3.7	7.3	3.2	7.9	2.3	8.55	2.1
5.5	3	6	5.2	6.6	2.4	7.37	1.14	7.9	2.5	8.56	2.62
5.5	3.5	6	5.5	6.7	1.4	7.4	2	7.9	4.7	8.6	1.6
5.51	1.24	6	6	6.7	1.5	7.4	3	7.92	2.62	8.6	2.4
5.56	1.59	6	6.5	6.7	1.8	7.44	0.99	7.94	1.78	8.6	3
5.59	3.05	6	7	6.7	1.9	7.5	0.8	7.94	4.76	8.6	3.3
5.6	1	6.02	2.62	6.7	2	7.5	1	8	0.6	8.64	2.03
5.6	1.2	6.03	1.88	6.71	2.01	7.5	1.2	8	1	8.65	1.78
5.6	1.7	6.07	0.76	6.75	1.78	7.5	1.27	8	1.1	8.66	1.05
5.6	1.8	6.07	1.02	6.8	1.3	7.5	1.3	8	1.2	8.7	1.65
5.6	2	6.07	1.3	6.8	1.6	7.5	1.5	8	1.25	8.7	2
5.6	2.3	6.07	1.63	6.8	1.85	7.5	1.6	8	1.5	8.7	2.9
5.6	2.4	6.07	1.78	6.8	1.9	7.5	1.7	8	1.6	8.73	1.78
5.6	2.5	6.07	1.88	6.8	2	7.5	1.78	8	1.64	8.76	1.8
5.64	2.62	6.1	1.6	6.8	2.2	7.5	1.8	8	1.7	8.8	1.4
5.67	1.78	6.1	1.8	6.8	2.4	7.5	1.85	8	1.75	8.8	1.9
5.69	2.18	6.14	1.78	6.8	2.62	7.5	1.9	8	1.8	8.8	2.4
5.7	1	6.15	1	6.85	1.1	7.5	2	8	1.9	8.8	2.7
5.7	1.2	6.17	1.72	6.86	1.78	7.5	2.2	8	2	8.8	3.2
5.7	1.4	6.2	1	6.9	1.8	7.5	2.3	8	2.02	8.9	1.5
5.7	1.78	6.2	1.74	6.9	2.65	7.5	2.4	8	2.1	8.9	1.6
5.7	1.9	6.2	1.8	6.9	3.5	7.5	2.5	8	2.2	8.9	1.8
5.7	2.15	6.2	1.83	6.97	3.53	7.5	2.8	8	2.4	8.9	1.9
5.74	1.02	6.2	1.9	6.97	3.57	7.5	3	8	2.5	8.9	2.6
5.75	1	6.2	2	7	0.6	7.5	3.5	8	2.6	8.9	2.7
5.75	2.15	6.2	3	7	1	7.5	5	8	2.62	8.92	1.83
5.79	1.02	6.2	4.1	7	1.2	7.52	3.53	8	2.8	9	0.8
5.8	1.5	6.3	0.6	7	1.3	7.59	2.62	8	3	9	1
5.8	1.6	6.3	1.5	7	1.35	7.6	1.2	8	3.3	9	1.2
5.8	1.78	6.3	1.6	7	1.4	7.6	1.3	8	3.5	9	1.4

Dimensions

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
9	1.5	9.5	2.75	10	3.3	10.78	2.62	11.2	2.75	12	1
9	1.6	9.5	2.8	10	3.5	10.8	1.2	11.2	4.3	12	1.2
9	1.65	9.5	2.9	10	4	10.8	1.3	11.2	7.6	12	1.5
9	1.8	9.5	3	10	4.5	10.8	1.5	11.3	1.2	12	1.6
9	1.85	9.5	3.2	10	5	10.8	1.6	11.3	1.3	12	1.7
9	2	9.5	3.5	10	6	10.8	1.7	11.3	1.6	12	1.75
9	2.2	9.5	4.5	10	6.5	10.8	1.75	11.3	1.75	12	1.8
9	2.25	9.5	5	10	7	10.8	1.8	11.3	2	12	1.85
9	2.3	9.5	6	10	8	10.8	1.9	11.3	2.2	12	1.9
9	2.5	9.5	6.7	10	10	10.8	2	11.3	2.4	12	2
9	2.6	9.52	1.78	10.1	1	10.8	2.2	11.3	2.5	12	2.25
9	2.65	9.52	2.61	10.1	1.6	10.8	2.4	11.3	2.7	12	2.4
9	2.75	9.53	1.14	10.1	1.7	10.8	2.6	11.4	1.7	12	2.5
9	2.9	9.6	1.6	10.1	1.75	10.8	2.65	11.4	2.1	12	2.7
9	3	9.6	2	10.1	1.8	10.8	2.75	11.4	4.4	12	2.75
9	3.2	9.6	2.3	10.15	2.34	10.8	2.8	11.5	1	12	2.8
9	3.5	9.6	2.4	10.16	1.57	10.8	3	11.5	1.25	12	3
9	4	9.6	2.5	10.2	2.4	10.82	1.28	11.5	1.3	12	3.05
9	4.5	9.6	2.95	10.2	2.5	10.82	1.78	11.5	1.5	12	3.2
9	5	9.6	4.8	10.28	2.66	10.85	2.75	11.5	1.6	12	3.25
9	5.5	9.65	0.66	10.3	1.2	10.9	1.25	11.5	1.78	12	3.3
9	6	9.66	1.78	10.3	1.7	10.9	2.03	11.5	1.9	12	3.5
9	10	9.7	1	10.3	2.05	11	0.7	11.5	2	12	3.8
9.02	1.78	9.7	1.27	10.3	2.4	11	1	11.5	2.1	12	4
9.1	1.6	9.7	1.3	10.3	3	11	1.2	11.5	2.2	12	4.5
9.1	1.65	9.75	1.78	10.32	1.78	11	1.25	11.5	2.4	12	5
9.12	1.7	9.75	2.35	10.35	1.92	11	1.3	11.5	2.5	12	5.5
9.12	3.53	9.75	2.5	10.4	1	11	1.5	11.5	2.7	12	6
9.13	2.62	9.8	0.56	10.4	2.2	11	1.6	11.5	2.8	12	7
9.19	1.78	9.8	1	10.4	2.5	11	1.75	11.5	3	12	8
9.19	2.62	9.8	1.5	10.4	2.8	11	1.8	11.5	3.5	12	9
9.2	1	9.8	1.6	10.4	4	11	1.85	11.5	4	12	10
9.2	1.1	9.8	1.7	10.45	2	11	1.9	11.6	1.2	12.07	5.33
9.2	1.6	9.8	1.9	10.46	5.33	11	2	11.6	1.6	12.1	1.3
9.2	1.9	9.8	2.4	10.5	1	11	2.2	11.6	1.7	12.1	1.6
9.2	2	9.8	2.7	10.5	1.5	11	2.25	11.6	1.78	12.1	1.7
9.2	2.65	9.8	2.8	10.5	1.75	11	2.3	11.6	2.3	12.1	1.8
9.2	3.5	9.8	3	10.5	1.8	11	2.4	11.6	2.4	12.1	1.9
9.24	1.52	9.83	1.85	10.5	1.83	11	2.5	11.6	2.5	12.1	2.1
9.25	1.78	9.88	0.56	10.5	1.9	11	2.75	11.6	2.8	12.1	2.2
9.25	1.83	9.9	1.8	10.5	2	11	2.8	11.6	2.9	12.1	2.35
9.25	1.86	9.9	1.9	10.5	2.25	11	3	11.6	2.95	12.1	2.4
9.25	2.62	9.9	2.4	10.5	2.3	11	3.2	11.6	6.35	12.1	2.7
9.3	1.5	9.9	2.6	10.5	2.4	11	3.5	11.64	1.78	12.17	1.27
9.3	2	9.92	1.83	10.5	2.5	11	4	11.7	2.3	12.2	1.3
9.3	2.2	9.92	1.9	10.5	2.6	11	4.5	11.7	2.62	12.2	1.7
9.3	2.4	9.92	2.62	10.5	2.7	11	5	11.7	2.7	12.2	1.9
9.3	3	10	0.6	10.5	3	11	5.2	11.7	3.5	12.2	2.5
9.4	1	10	1	10.5	3.25	11	5.3	11.7	5.8	12.2	2.8
9.4	1.02	10	1.25	10.5	3.5	11	5.5	11.77	3.15	12.2	3.2
9.4	1.9	10	1.3	10.5	4.5	11	6	11.8	1.5	12.2	4.4
9.4	2.1	10	1.4	10.5	5.9	11	7	11.8	1.8	12.25	2.8
9.4	2.3	10	1.5	10.52	1.83	11	8	11.8	1.9	12.29	3.53
9.5	0.8	10	1.6	10.57	1.5	11.08	1.8	11.8	2.1	12.3	1
9.5	1	10	1.78	10.6	1	11.1	1.2	11.8	2.3	12.3	2.4
9.5	1.3	10	1.8	10.6	1.3	11.1	1.6	11.8	2.4	12.3	2.5
9.5	1.4	10	1.9	10.6	1.8	11.1	2.3	11.8	2.5	12.37	2.62
9.5	1.5	10	2	10.6	2	11.1	5.5	11.8	2.65	12.37	2.76
9.5	1.6	10	2.1	10.6	2.3	11.11	1.59	11.8	2.8	12.4	1
9.5	1.7	10	2.2	10.6	2.4	11.11	1.78	11.8	3	12.4	1.9
9.5	1.8	10	2.4	10.6	2.6	11.11	2.38	11.8	3.53	12.4	2
9.5	1.9	10	2.5	10.6	2.65	11.18	1.27	11.8	10	12.4	2.18
9.5	2	10	2.6	10.6	4.5	11.2	1.3	11.84	2.4	12.4	2.6
9.5	2.1	10	2.65	10.6	6.7	11.2	1.8	11.89	1.98	12.4	2.7
9.5	2.2	10	2.7	10.64	1.12	11.2	1.9	11.9	1.78	12.42	1.78
9.5	2.4	10	2.8	10.69	3.53	11.2	2.2	11.9	2.63	12.45	1.02
9.5	2.5	10	3	10.7	1.1	11.2	2.3	11.91	2.62	12.47	1.78
9.5	2.62	10	3.1	10.77	2.95	11.2	2.5	11.99	0.81	12.5	1

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
12.5	1.1	13	3.6	13.8	2.54	14.3	1.75	15	4.25	15.7	1.3
12.5	1.5	13	3.8	13.8	3	14.3	2	15	4.5	15.7	2.7
12.5	1.7	13	4	13.8	6	14.3	2.4	15	5	15.7	2.9
12.5	1.75	13	4.5	13.85	1.52	14.3	3.5	15	5.5	15.8	1.8
12.5	1.8	13	5	13.87	1.7	14.3	4	15	5.6	15.8	2.4
12.5	2	13	5.5	13.87	3.53	14.4	1	15	6	15.8	4.1
12.5	2.2	13	6	13.9	2.3	14.4	1.8	15	7	15.85	2.4
12.5	2.25	13	8	13.9	2.4	14.4	2	15	8	15.88	1.78
12.5	2.5	13.1	1.6	13.94	3.6	14.43	1.78	15	9	15.88	2.36
12.5	2.6	13.1	2.62	13.95	2.62	14.5	1	15	10	15.88	2.62
12.5	2.65	13.1	3.18	13.95	2.65	14.5	1.5	15	12.5	15.88	3.96
12.5	2.75	13.2	1.6	13.95	2.72	14.5	1.6	15.08	1.78	15.9	2.3
12.5	3	13.2	1.78	14	0.41	14.5	1.65	15.08	2.62	15.9	2.4
12.5	3.2	13.2	1.8	14	0.55	14.5	1.8	15.1	1.6	15.9	2.55
12.5	3.5	13.2	1.9	14	1	14.5	2	15.1	2.6	15.9	2.7
12.5	4.2	13.2	2.5	14	1.1	14.5	2.4	15.1	2.7	16	0.9
12.5	8	13.2	2.65	14	1.2	14.5	2.5	15.2	1.78	16	1
12.6	2.4	13.23	1.78	14	1.25	14.5	3	15.2	1.8	16	1.2
12.6	2.5	13.3	1.8	14	1.3	14.5	3.5	15.2	2.8	16	1.25
12.6	2.7	13.3	2.2	14	1.4	14.5	4	15.2	4	16	1.5
12.6	3.25	13.3	2.4	14	1.5	14.5	4.5	15.22	2.62	16	1.6
12.6	3.5	13.3	3.8	14	1.6	14.5	5	15.24	1.33	16	1.7
12.6	3.6	13.34	1.32	14	1.78	14.5	5.7	15.24	5.33	16	1.78
12.64	1.78	13.34	1.34	14	1.8	14.5	5.8	15.3	1.78	16	1.8
12.65	2.77	13.34	1.8	14	1.9	14.6	2.4	15.3	2	16	1.9
12.7	1.6	13.4	1.9	14	2	14.6	2.48	15.3	2.3	16	2
12.7	1.7	13.4	2.1	14	2.08	14.6	2.6	15.3	2.4	16	2.1
12.7	1.8	13.4	2.7	14	2.1	14.6	2.95	15.3	4.3	16	2.2
12.7	2	13.4	2.8	14	2.2	14.6	3.2	15.39	0.76	16	2.25
12.7	2.62	13.44	2.1	14	2.3	14.61	2.52	15.4	1	16	2.3
12.7	2.8	13.44	2.5	14	2.4	14.61	3.28	15.4	1.5	16	2.4
12.7	3.18	13.44	2.62	14	2.5	14.63	3.53	15.4	2.1	16	2.5
12.7	3.2	13.46	2.08	14	2.6	14.65	2	15.4	3	16	2.6
12.7	4.96	13.5	1	14	2.65	14.68	1.02	15.47	3.53	16	2.65
12.72	2.62	13.5	1.3	14	2.7	14.7	1.4	15.5	1	16	2.7
12.73	1.57	13.5	1.5	14	2.75	14.7	1.57	15.5	1.25	16	2.8
12.73	1.63	13.5	1.6	14	2.8	14.8	1.5	15.5	1.5	16	3
12.78	6.05	13.5	1.87	14	2.9	14.8	2.4	15.5	1.55	16	3.15
12.8	1.6	13.5	2	14	3	14.81	1.02	15.5	1.75	16	3.5
12.8	1.8	13.5	2.1	14	3.15	14.82	1.78	15.5	1.9	16	3.55
12.8	2.4	13.5	2.4	14	3.2	14.85	1.5	15.5	2	16	4
12.8	2.8	13.5	2.5	14	3.5	14.87	3.53	15.5	2.3	16	4.25
12.8	3.2	13.5	2.6	14	3.55	14.9	2.45	15.5	2.4	16	4.5
12.8	4.5	13.5	2.7	14	3.9	14.94	2.92	15.5	2.5	16	4.75
12.9	1.24	13.5	2.75	14	4	15	1	15.5	3	16	5
12.9	9.9	13.5	3	14	4.5	15	1.2	15.5	3.1	16	5.5
12.95	0.86	13.5	3.5	14	5	15	1.25	15.5	3.25	16	5.6
13	1	13.5	4.25	14	5.3	15	1.3	15.5	3.5	16	6
13	1.2	13.5	5	14	6	15	1.5	15.5	3.8	16	7
13	1.25	13.54	3.6	14	6.5	15	1.6	15.5	4	16	8
13	1.3	13.6	1.6	14	7	15	1.78	15.5	4.2	16	10
13	1.4	13.6	2	14	7.5	15	1.8	15.5	4.3	16	12
13	1.5	13.6	2.2	14	8	15	1.82	15.5	4.5	16.03	1.57
13	1.6	13.6	2.3	14	10	15	2	15.5	5.3	16.1	1.6
13	1.7	13.6	2.4	14.01	2.62	15	2.15	15.54	2.62	16.1	1.8
13	2	13.6	2.5	14.1	1	15	2.25	15.54	2.82	16.1	2.25
13	2.15	13.6	2.7	14.1	1.6	15	2.4	15.55	2.65	16.1	2.3
13	2.35	13.6	2.75	14.1	2.2	15	2.5	15.6	1.78	16.1	2.62
13	2.4	13.6	2.8	14.1	2.5	15	2.6	15.6	1.96	16.1	3
13	2.5	13.6	3	14.12	2.62	15	2.65	15.6	2	16.1	3.5
13	2.6	13.6	3.6	14.2	1.2	15	2.7	15.6	2.3	16.2	1.15
13	2.7	13.64	5.33	14.2	1.9	15	2.9	15.6	2.4	16.2	2.25
13	2.75	13.65	2.62	14.2	2.8	15	3	15.6	2.5	16.3	2.4
13	2.8	13.7	2.9	14.2	3	15	3.2	15.6	2.6	16.3	2.5
13	3	13.7	4.15	14.2	5.5	15	3.5	15.6	2.95	16.3	2.6
13	3.2	13.8	1.9	14.27	1.59	15	3.55	15.6	3	16.33	0.79
13	3.28	13.8	2	14.27	6.35	15	3.8	15.6	3.25	16.36	2.2
13	3.5	13.8	2.4	14.3	0.76	15	4	15.6	3.4	16.36	2.21

Dimensions

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
16.4	1.3	17.13	2.62	17.93	2.46	18.5	5.3	19.2	2	20	1.5
16.4	1.78	17.13	2.79	17.96	2.62	18.52	3.75	19.2	2.3	20	1.6
16.4	2.2	17.16	1.78	18	1	18.6	1.3	19.2	2.4	20	1.7
16.5	1	17.2	1	18	1.15	18.6	1.8	19.2	2.5	20	1.78
16.5	1.5	17.2	1.5	18	1.3	18.6	2.3	19.2	2.62	20	1.8
16.5	2	17.2	1.6	18	1.5	18.6	2.4	19.2	3	20	2
16.5	2.25	17.2	1.9	18	1.65	18.6	2.7	19.2	3.4	20	2.2
16.5	2.5	17.2	2.62	18	1.8	18.64	3.53	19.2	4	20	2.4
16.5	3	17.2	3	18	2	18.7	1.3	19.25	1.78	20	2.42
16.5	3.5	17.2	5.7	18	2.2	18.7	1.9	19.3	1.5	20	2.5
16.5	9	17.25	1.2	18	2.3	18.7	3	19.3	1.78	20	2.62
16.55	2.13	17.25	3	18	2.5	18.72	2.62	19.3	2.2	20	2.65
16.56	1.78	17.27	4.01	18	2.65	18.72	2.82	19.3	2.4	20	2.7
16.6	1	17.3	1	18	2.75	18.72	3.15	19.3	3.5	20	2.8
16.6	1.78	17.3	1.75	18	2.8	18.77	1.78	19.3	4.5	20	3
16.6	2.4	17.3	2.2	18	3	18.77	1.85	19.3	4.6	20	3.15
16.66	3.53	17.3	2.4	18	3.15	18.8	1.85	19.4	1.3	20	3.25
16.7	1.45	17.3	4	18	3.5	18.8	2	19.4	2.1	20	3.3
16.7	2.5	17.35	1.5	18	3.55	18.8	2.4	19.4	2.4	20	3.5
16.75	1.78	17.37	4.34	18	3.7	18.8	3	19.4	2.6	20	3.55
16.79	1	17.4	1.6	18	4	18.9	1.7	19.4	4.65	20	3.6
16.8	2.2	17.4	2.1	18	4.2	18.9	3	19.4	14	20	4
16.8	2.4	17.4	2.5	18	4.5	19	1	19.45	8	20	4.15
16.8	2.8	17.4	2.55	18	5	19	1.3	19.46	2.03	20	4.3
16.81	5.33	17.4	2.8	18	5.2	19	1.5	19.5	1	20	4.4
16.9	2.7	17.4	3.53	18	5.75	19	1.6	19.5	1.5	20	4.5
16.9	2.75	17.46	1.59	18	6	19	1.7	19.5	1.78	20	5
17	1	17.46	2.62	18	6.5	19	1.75	19.5	1.8	20	5.25
17	1.1	17.5	1	18	7	19	1.78	19.5	2	20	5.33
17	1.2	17.5	1.3	18	8	19	1.8	19.5	2.4	20	5.5
17	1.3	17.5	1.5	18	8.5	19	2	19.5	2.5	20	5.7
17	1.5	17.5	1.6	18	9	19	2.2	19.5	2.8	20	6
17	1.6	17.5	1.8	18	9.5	19	2.3	19.5	3	20	6.5
17	1.78	17.5	2	18	11	19	2.4	19.5	3.25	20	7
17	1.8	17.5	2.4	18.1	1.6	19	2.5	19.5	3.5	20	7.5
17	2	17.5	2.5	18.2	1.6	19	2.6	19.5	4	20	8
17	2.2	17.5	2.6	18.2	1.7	19	2.65	19.5	5.3	20	10
17	2.4	17.5	2.7	18.2	1.9	19	2.7	19.5	6	20	12
17	2.5	17.5	3	18.2	2.6	19	2.75	19.5	8	20.07	0.9
17	2.65	17.5	3.15	18.2	2.7	19	3	19.5	8.4	20.1	1.6
17	2.7	17.5	3.25	18.2	3	19	3.15	19.51	2.03	20.12	2
17	2.8	17.5	3.5	18.2	3.5	19	3.2	19.6	2.3	20.15	2.45
17	2.9	17.5	4	18.2	3.8	19	3.35	19.6	2.4	20.2	1.78
17	3	17.5	4.2	18.27	2.6	19	3.4	19.6	3	20.2	2.5
17	3.2	17.5	6.25	18.3	1.02	19	3.5	19.6	3.53	20.2	2.7
17	3.25	17.5	9	18.3	2.4	19	3.55	19.6	4	20.2	3
17	3.35	17.6	1	18.3	2.6	19	3.6	19.6	4.8	20.2	5.3
17	3.5	17.6	1.83	18.3	3	19	4	19.7	1.5	20.2	6
17	3.55	17.6	2.4	18.3	3.6	19	4.5	19.7	1.7	20.22	3.53
17	3.8	17.61	2.62	18.4	1.78	19	5	19.7	2	20.22	4.04
17	4	17.69	2.62	18.4	2.7	19	5.5	19.7	2.55	20.24	1.78
17	4.2	17.7	1	18.4	2.8	19	6	19.7	3.5	20.29	2.62
17	4.5	17.7	1.3	18.42	1.02	19	6.5	19.7	3.6	20.3	2.4
17	5	17.74	1.78	18.42	5.33	19	6.8	19.75	8	20.3	3
17	5.33	17.8	1.5	18.45	4.45	19	7	19.8	1.3	20.35	1.78
17	5.5	17.8	1.8	18.5	1	19	8	19.8	1.78	20.4	2.5
17	6	17.8	2.4	18.5	1.2	19	9	19.8	1.98	20.5	1
17	6.5	17.8	2.6	18.5	1.5	19	10	19.8	2.3	20.5	1.5
17	7	17.8	3	18.5	1.6	19.05	0.89	19.8	2.4	20.5	1.8
17	8	17.8	10	18.5	1.7	19.05	1.78	19.8	3.2	20.5	2
17	10	17.86	2.62	18.5	1.8	19.05	2.62	19.8	3.6	20.5	2.4
17	12	17.86	2.76	18.5	2	19.05	2.69	19.84	2.39	20.5	2.5
17.04	3.53	17.86	3.6	18.5	2.2	19.05	6.35	19.9	2.6	20.5	2.6
17.1	1.3	17.9	1.3	18.5	2.5	19.1	1.6	19.99	5.33	20.5	3
17.1	1.58	17.9	2.6	18.5	3	19.1	1.78	20	1	20.5	3.2
17.1	1.6	17.9	2.8	18.5	3.5	19.1	2.4	20	1.2	20.5	4
17.12	1.14	17.93	1.78	18.5	3.7	19.17	1.78	20	1.3	20.5	5
17.12	2.62	17.93	1.8	18.5	4.5	19.18	2.46	20	1.4	20.5	5.75

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
20.5	7.5	21.4	1.6	22	7	22.7	2.6	23.5	3.72	24	6.5
20.6	1.5	21.4	2.4	22	7.5	22.7	2.8	23.5	4	24	7
20.6	1.9	21.49	2.01	22	7.8	22.8	0.8	23.5	5	24	8
20.6	2.3	21.5	1	22	8	22.8	1.5	23.5	5.25	24	9
20.6	2.4	21.5	1.2	22	9	22.8	3.15	23.5	6	24	10
20.63	2.62	21.5	1.5	22	10	22.8	5.3	23.5	6.5	24	12.5
20.65	5.33	21.5	1.7	22	11	22.89	1	23.5	7.25	24	13
20.72	2.62	21.5	2	22	11.5	23	1	23.5	8.4	24.1	1.6
20.75	3.53	21.5	2.2	22.05	1.5	23	1.2	23.52	1.83	24.18	1.7
20.8	1.5	21.5	2.4	22.05	1.6	23	1.5	23.53	1.78	24.2	1.78
20.8	1.78	21.5	2.5	22.08	0.8	23	1.75	23.55	0.71	24.2	2.4
20.8	1.9	21.5	2.75	22.1	1.6	23	2	23.59	1	24.2	2.5
20.8	2.4	21.5	3	22.1	2	23	2.3	23.6	1.02	24.2	3
20.8	2.7	21.5	3.5	22.1	3.5	23	2.4	23.6	1.7	24.2	3.3
20.8	2.8	21.5	3.9	22.16	5.35	23	2.5	23.6	1.8	24.2	3.5
20.8	4	21.5	4	22.2	1.8	23	2.7	23.6	2	24.2	4.1
20.9	1.5	21.5	4.5	22.2	2	23	2.9	23.6	2.5	24.2	5.7
20.9	5.7	21.5	5	22.2	3	23	3	23.6	2.65	24.28	1.85
20.96	3.28	21.5	7.2	22.2	3.1	23	3.2	23.6	3.15	24.3	2.4
21	1	21.59	5.33	22.2	3.2	23	3.23	23.6	3.2	24.4	3
21	1.5	21.6	1.78	22.2	3.6	23	3.5			24.4	3.1
21	1.75	21.6	2	22.2	4.7	23	3.6	23.6	3.5	24.4	3.2
21	2	21.6	2.4	22.22	2.62	23	4	23.6	3.55	24.4	3.5
21	2.2	21.65	3.65	22.22	3.5	23	4.33	23.7	1.58	24.45	1.2
21	2.4	21.7	1	22.22	4.32	23	4.5	23.7	1.78	24.5	1
21	2.5	21.7	3.5	22.23	3.96	23	5	23.7	1.9	24.5	1.5
21	2.75	21.75	3.9	22.23	6.35	23	5.3	23.7	2.38	24.5	1.8
21	3	21.8	1.5	22.26	6.33	23	5.5	23.7	3.5	24.5	2
21	3.17	21.8	2.4	22.3	2.4	23	6	23.74	0.61	24.5	2.4
21	3.5	21.8	3	22.3	2.48	23	6.5	23.75	3.53	24.5	2.5
21	4	21.8	3.5	22.3	2.5	23	7	23.75	5	24.5	2.7
21	4.5	21.82	3.15	22.3	3	23	8	23.79	6.35	24.5	2.8
21	5	21.82	3.53	22.33	1.02			23.8	1.3	24.5	3
21	6	21.82	3.71	22.4	1.5	23	9	23.8	1.6	24.5	3.6
21	6.5	21.82	4.2	22.4	1.8	23	10	23.8	3.5	24.5	3.65
21	7	21.89	2.62	22.4	2.5	23	11	23.81	1.78	24.5	4
21	8	21.92	2.95	22.4	2.65	23	12.5	23.81	2.62	24.5	4.5
21	8.5	21.95	1.78	22.4	3.15	23	13	23.9	5	24.5	5.25
21	10	21.95	2	22.4	3.2	23	16	23.95	3.53	24.5	5.5
21	12	22	1	22.4	3.55	23.17	5.33	23.99	2.62	24.5	6
21.1	1.85	22	1.1	22.4	5	23.2	3.53	24	1	24.6	1.8
21.1	1.9	22	1.2	22.42	1.78	23.3	2	24	1.1	24.6	2.4
21.1	2.5	22	1.3	22.5	1	23.3	2.4	24	1.2	24.6	2.9
21.2	1.4	22	1.4	22.5	1.4	23.3	2.9	24	1.3	24.6	3
21.2	1.78	22	1.5			23.3	3	24	1.5	24.6	3.15
21.2	1.8	22	1.7	22.5	1.5	23.3	5.3	24	1.6	24.6	3.4
21.2	1.9	22	1.78	22.5	2	23.35	1.78	24	1.7	24.6	3.5
21.2	2.2	22	1.8	22.5	2.4	23.4	1.6	24	1.78	24.6	3.6
21.2	2.4	22	2	22.5	2.5	23.4	2.3	24	2	24.64	2.62
21.2	2.5	22	2.15	22.5	2.75	23.4	2.7	24	2.1	24.66	1.78
21.2	2.65	22	2.2	22.5	2.8	23.4	3.53	24	2.2	24.7	1.7
21.2	3	22	2.3	22.5	3	23.4	4.27	24	2.25	24.7	2.67
21.2	3.2	22	2.4	22.5	3.1	23.4	5.8	24	2.3	24.7	3
21.2	3.3	22	2.5	22.5	3.25	23.4	5.99	24	2.4	24.7	3.5
21.2	3.55	22	2.62	22.5	3.5	23.47	2.62	24	2.5	24.76	2.62
21.2	3.6	22	2.7	22.5	3.7	23.47	2.95	24	2.7	24.77	5
21.2	4	22	3	22.5	4	23.47	2.96	24	2.8	24.77	5.33
21.2	4.9	22	3.2	22.5	4.5	23.5	1	24	3	24.8	1
21.25	2.05	22	3.5	22.5	5	23.5	1.5	24	3.15	24.8	1.5
21.3	1	22	3.6	22.5	7	23.5	1.78	24	3.5	24.8	1.9
21.3	1.6	22	3.7	22.53	3.28	23.5	2	24	3.6	24.8	2.2
21.3	1.8	22	4	22.6	1.1	23.5	2.3	24	3.8	24.8	3.4
21.3	2.4	22	4.5	22.6	1.8	23.5	2.4	24	4	24.8	5.5
21.3	3.5	22	5	22.6	3.2	23.5	2.5	24	4.5	24.8	6
21.3	3.53	22	5.5	22.67	1.78	23.5	2.55	24	4.8	24.8	7
21.3	3.6	22	6	22.7	1.5	23.5	2.7	24	5	24.9	3.6
21.3	3.95	22	6.5	22.7	1.78	23.5	3	24	5.5	24.9	3.8
21.35	3	22	6.75	22.7	2.3	23.5	3.5	24	6	24.99	1.27

Dimensions

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
24.99	3.53	25.4	3.18	26.2	3.6	27.3	2.4	28	3.4	28.9	3.6
25	1	25.4	3.5	26.25	2.35	27.3	2.5	28	3.5	29	1
25	1.2	25.4	3.53	26.3	2	27.3	2.7	28	3.55	29	1.5
25	1.3	25.4	4	26.3	2.4	27.3	3.2	28	3.65	29	1.78
25	1.5	25.4	6.35	26.33	2	27.31	3.28	28	3.7	29	1.8
25	1.6	25.5	1	26.34	5.33	27.38	0.76	28	4	29	2
25	1.7	25.5	1.2	26.4	5.2	27.4	2.5	28	4.1	29	2.5
25	1.76	25.5	1.6	26.5	1	27.4	2.7	28	4.3	29	3
25	1.8	25.5	1.78	26.5	1.2	27.4	3	28	4.4	29	3.15
25	2	25.5	1.8	26.5	1.5	27.4	3.53	28	4.5	29	3.3
25	2.2	25.5	2	26.5	1.7	27.4	4	28	4.75	29	3.5
25	2.3	25.5	2.5	26.5	1.8	27.43	4.57	28	5	29	4
25	2.4	25.5	3	26.5	2	27.5	1	28	5.3	29	4.5
25	2.5	25.5	3.2	26.5	2.3	27.5	1.1	28	5.5	29	5
25	2.6	25.5	3.5	26.5	2.5	27.5	1.25	28	6	29	6
25	2.65	25.5	3.7	26.5	2.65	27.5	1.5	28	6.5	29	8
25	3	25.5	4.5	26.5	3	27.5	2	28	7	29	8.3
25	3.15	25.5	5	26.5	3.15	27.5	2.3	28	8	29	8.5
25	3.2	25.5	5.5	26.5	3.25	27.5	2.4	28	8.5	29	10
25	3.3	25.6	1.78	26.5	3.5	27.5	2.5	28	8.75	29	16
25	3.5	25.6	5.49	26.5	3.55	27.5	2.7	28	10	29.1	1.6
25	3.55	25.67	1.78	26.5	4	27.5	3	28	11	29.1	2.55
25	3.6	25.7	1.5	26.5	8	27.5	3.2	28	12	29.1	3
25	3.7	25.7	1.9	26.57	3	27.5	4	28.1	2.62	29.2	2.62
25	4	25.7	3.5	26.58	3.53	27.5	4.5	28.1	4.3	29.2	3
25	4.15	25.8	1.8	26.59	2.95	27.5	6	28.15	3.2	29.2	3.3
25	4.3	25.8	2.65	26.6	2.2	27.5	6.8	28.17	3.53	29.2	3.5
25	4.5	25.8	3.2	26.6	2.4	27.5	7.5	28.17	3.73	29.2	4.7
25	5	25.8	3.53	26.6	3.5	27.56	3.17	28.2	1	29.25	1.6
25	5.33	25.8	3.55	26.64	2.62	27.58	1.7	28.2	3	29.28	2.8
25	5.5	25.8	6.9	26.7	1.78	27.6	1.78	28.2	5.3	29.3	1
25	5.7	25.9	4.8	26.7	2.5	27.6	2.2	28.25	2.62	29.3	1.78
25	6	26	1	26.77	2.1	27.6	2.4	28.3	1	29.3	2.62
25	6.5	26	1.2	26.8	1.6	27.6	6	28.3	1.6	29.3	3.6
25	7	26	1.3	26.8	2.5	27.7	2.4	28.3	1.78	29.4	1
25	7.5	26	1.37	26.8	3	27.7	2.7	28.3	1.8	29.4	3
25	8	26	1.5	26.8	4	27.7	3.4	28.3	2	29.4	3.1
25	9	26	1.6	26.9	1.5	27.7	3.5	28.3	2.4	29.45	4.39
25	10	26	1.78	26.9	2	27.8	1.5	28.3	2.7	29.5	1
25	12	26	2	27	1	27.8	1.78	28.3	3.1	29.5	1.2
25	13	26	2.1	27	1.15	27.8	2	28.3	3.55	29.5	1.5
25	14	26	2.15	27	1.3	27.8	2.62	28.4	3	29.5	2
25	15	26	2.2	27	1.5	27.8	3	28.42	2.62	29.5	2.3
25	15.5	26	2.3	27	1.78	27.8	3.2	28.45	3.18	29.5	2.5
25.04	2.95	26	2.4	27	2	27.8	3.5	28.5	1	29.5	2.7
25.07	2.62	26	2.5	27	2.2	27.8	3.53	28.5	1.5	29.5	3
25.1	1.6	26	2.6	27	2.5	27.8	3.6	28.5	1.8	29.5	3.15
25.12	1.78	26	3	27	2.7	27.8	5	28.5	2	29.5	3.5
25.12	2	26	3.2	27	3	27.8	8	28.5	2.5	29.5	3.6
25.12	2.03	26	3.5	27	3.2	27.93	5.33	28.5	3	29.5	4.5
25.2	1.2	26	3.6	27	3.5	28	1	28.5	3.3	29.5	5
25.2	1.7	26	3.67	27	4	28	1.3	28.5	3.5	29.5	5.7
25.2	1.8	26	3.7	27	4.5	28	1.5	28.5	4	29.5	8.5
25.2	2.3	26	4	27	5	28	1.6	28.5	4.25	29.51	5.33
25.2	2.5	26	4.5	27	5.25	28	1.7	28.5	4.5	29.6	2.4
25.2	2.9	26	5	27	5.33	28	1.8	28.56	2.38	29.69	1.14
25.2	3	26	5.5	27	5.5	28	1.9	28.6	1.6	29.7	1
25.2	3.2	26	6	27	6	28	2	28.6	2.2	29.7	2.7
25.2	3.5	26	6.5	27	6.5	28	2.2	28.6	3.5	29.7	2.8
25.25	2.8	26	7	27	7	28	2.3	28.7	3.5	29.7	3
25.3	1.6	26	8	27	8	28	2.5	28.75	3.53	29.7	3.5
25.3	2.4	26	8.75	27	12	28	2.62	28.8	2.5	29.74	2.95
25.3	2.6	26	9	27	13	28	2.65	28.8	3.2	29.75	1
25.3	3	26	10	27	16	28	2.8	28.8	3.53	29.75	3.53
25.4	1.5	26	12	27.1	1	28	3	28.87	1.78	29.8	1
25.4	1.58	26.07	2.62	27.1	1.6	28	3.15	28.88	3.28	29.8	3.2
25.4	2.5	26.2	2.3	27.2	5.7	28	3.2	28.9	3	29.8	4.5
25.4	3.17	26.2	3	27.28	3.53	28	3.25	28.9	3.1	29.82	2.62

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
29.87	1.52	30.8	1.78	31.5	4	32.2	3	33.27	1.58	34	4.5
29.87	1.78	30.8	2.5	31.5	4.5	32.2	4	33.27	1.78	34	4.7
29.9	1	30.8	3.53	31.5	5	32.21	1.78	33.3	1.3	34	5
29.9	3.53	30.8	3.6	31.5	5.3	32.3	2	33.3	2	34	5.5
29.92	2.62	30.8	3.7	31.5	6	32.3	5.7	33.3	2.4	34	5.75
30	1	30.8	4.5	31.5	6.5	32.4	2.1	33.3	2.6	34	6
30	1.2	30.81	3.78	31.6	1.32	32.4	3	33.3	4	34	7
30	1.5	30.95	2.64	31.6	1.6	32.5	1.5	33.32	3.53	34	7.5
30	1.8	31	1.5	31.6	2.4	32.5	1.7	33.34	2.38	34	8
30	1.82	31	1.7	31.63	2	32.5	1.8	33.4	2	34	10
30	2	31	2	31.7	3.2	32.5	2	33.4	3	34	11
30	2.2	31	2.1	31.7	3.5	32.5	2.2	33.5	1	34	12
30	2.3	31	2.2	31.74	1.78	32.5	2.4	33.5	1.5	34.1	3
30	2.4	31	2.5	31.75	1.57	32.5	2.5	33.5	1.6	34.1	3.6
30	2.5	31	3	31.75	1.6	32.5	2.6	33.5	1.8	34.2	2
30	2.65	31	3.5	31.75	2.03	32.5	2.65	33.5	2	34.2	2.3
30	2.7	31	3.7	31.75	3.17	32.5	2.85	33.5	2.5	34.2	2.8
30	2.8	31	3.8	31.75	6.35	32.5	3	33.5	2.65	34.2	3
30	3	31	4	31.8	1	32.5	3.5	33.5	2.8	34.2	3.3
30	3.1	31	4.5	31.8	1.4	32.5	3.55	33.5	3	34.29	1.19
30	3.15	31	4.7	31.8	1.5	32.5	3.6	33.5	3.15	34.29	5.33
30	3.2	31	5	31.8	1.6	32.5	4	33.5	3.5	34.3	2.5
30	3.5	31	5.3	31.8	3.2	32.5	5	33.5	3.55	34.3	4.6
30	3.55	31	5.5	31.8	3.5	32.5	5.7	33.5	4	34.3	5
30	3.6	31	6	32	1	32.6	1.2	33.5	4.6	34.4	3.1
30	3.7	31	6.4	32	1.1	32.6	1.8	33.5	5	34.42	2.95
30	4	31	6.5	32	1.25	32.6	2.4	33.5	5.2	34.5	1
30	4.3	31	8	32	1.3	32.69	5.33	33.5	6	34.5	1.5
30	4.4	31	9	32	1.5	32.7	1.3	33.5	7	34.5	1.7
30	4.5	31	9.5	32	1.6	32.7	1.5	33.5	13	34.5	1.8
30	4.8	31	10	32	1.78	32.7	3	33.55	3.71	34.5	2
30	5	31	12	32	1.8	32.7	5.33	33.6	1.78	34.5	2.35
30	5.33	31	14	32	2	32.7	6.5	33.6	2.7	34.5	2.4
30	5.5	31	15	32	2.2	32.9	5.3	33.6	4	34.5	2.5
30	5.7	31	18.5	32	2.3	32.92	3.53	33.6	6	34.5	2.65
30	5.8	31.1	0.8	32	2.4	32.92	5.33	33.7	2	34.5	3
30	6	31.1	1.4	32	2.5	32.92	5.53	33.7	2.2	34.5	3.5
30	6.5	31.12	5.33	32	2.6	33	1	33.7	3	34.5	3.55
30	7	31.14	0.79	32	2.7	33	1.2	33.7	3.5	34.5	3.65
30	7.5	31.2	2.4	32	2.8	33	1.5	33.7	3.7	34.5	3.7
30	8	31.2	3	32	3	33	1.78	33.71	3.53	34.5	4
30	9	31.2	3.5	32	3.2	33	2	33.77	2.65	34.5	4.5
30	10	31.2	4.7	32	3.5	33	2.5	33.99	2.34	34.5	5
30	11	31.3	2	32	3.53	33	2.62	34	1	34.5	5.5
30	12	31.3	3.5	32	3.6	33	2.8	34	1.1	34.5	7
30	13	31.34	1.98	32	4	33	3	34	1.2	34.52	3.53
30	17.5	31.34	3.53	32	4.2	33	3.5	34	1.4	34.57	1.25
30.1	2.62	31.4	5	32	4.5	33	4	34	1.5	34.59	2.62
30.16	2.38	31.42	1.5	32	5	33	4.5	34	1.6	34.6	1.78
30.2	1	31.42	1.78	32	5.5	33	5	34	1.7	34.6	2.4
30.2	3	31.42	2.6	32	5.7	33	5.2	34	1.75	34.6	2.6
30.2	3.6	31.42	2.62	32	6	33	5.7	34	1.9	34.6	4
30.23	1.27	31.42	2.8	32	6.2	33	6	34	2	34.62	2
30.3	2.4	31.47	1.78	32	6.5	33	6.5	34	2.1	34.65	1.78
30.3	5.7	31.5	1.2	32	7	33	7	34	2.16	34.7	2.8
30.35	3.6	31.5	1.5	32	8	33	7.5	34	2.3	34.7	3.5
30.43	1.78	31.5	1.75	32	9	33	8	34	2.4	34.7	4.3
30.5	1	31.5	1.8	32	10	33	9	34	2.5	34.8	3
30.5	1.5	31.5	1.95	32	12	33	10	34	2.6	35	1
30.5	2	31.5	2	32	13.5	33	12	34	3	35	1.2
30.5	2.5	31.5	2.5	32	14	33	14	34	3.2	35	1.25
30.5	3	31.5	2.65	32	16	33.05	1.78	34	3.25	35	1.5
30.5	5	31.5	3	32.05	1.55	33.12	1.52	34	3.5	35	1.9
30.5	7	31.5	3.15	32.1	1.6	33.12	3.53	34	3.6	35	2
30.5	15	31.5	3.3	32.11	3.45	33.2	1.3	34	3.75	35	2.1
30.6	1	31.5	3.5	32.15	3.53	33.2	2.4	34	3.8	35	2.15
30.7	3.5	31.5	3.55	32.2	1.4	33.2	3.5	34	4	35	2.2
30.75	1	31.5	3.65	32.2	2.5	33.21	3.53	34	4.1	35	2.5

Dimensions

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
35	2.6	36	1.78	36.9	5.3	37.9	3.51	39	3.5	40	3.15
35	2.8	36	1.8	36.91	1.19	38	1	39	4	40	3.2
35	3	36	2	37	1	38	1.2	39	4.3	40	3.3
35	3.1	36	2.2	37	1.2	38	1.5	39	4.5	40	3.5
35	3.2	36	2.3	37	1.5	38	1.7	39	5	40	3.55
35	3.3	36	2.5	37	1.8	38	1.8	39	5.3	40	3.75
35	3.5	36	2.7	37	2	38	2	39	5.5	40	3.9
35	3.6	36	3	37	2.4	38	2.4	39	6	40	4
35	4	36	3.2	37	2.5	38	2.5	39	6.2	40	4.5
35	4.25	36	3.5	37	2.6	38	2.6	39	6.3	40	5
35	4.5	36	3.53	37	3	38	2.7	39	6.5	40	5.2
35	5	36	3.8	37	3.5	38	3	39	7.2	40	5.25
35	5.3	36	4	37	3.6	38	3.5	39	8	40	5.3
35	5.33	36	4.5	37	4	38	3.6	39	10	40	5.35
35	6	36	4.6	37	4.5	38	4	39.1	1.3	40	5.5
35	7	36	5	37	5	38	4.5	39.2	1.9	40	5.72
35	8	36	5.37	37	5.3	38	5	39.2	2	40	5.9
35	9	36	5.5	37	5.5	38	5.2	39.2	2.5	40	6
35	10	36	5.7	37	6	38	5.3	39.2	3	40	6.4
35	12	36	6	37	8	38	5.5	39.2	3.7	40	6.5
35	15	36	6.5	37	10	38	6	39.2	3.9	40	7
35	21	36	7	37.1	1	38	6.5	39.2	5	40	7.5
35.1	1	36	8	37.1	1.6	38	7	39.2	5.7	40	8
35.1	1.6	36	9	37.1	1.8	38	7.1	39.2	6	40	9
35.2	1	36	10	37.1	2.1	38	8	39.34	2.62	40	10
35.2	2.4	36	11	37.1	2.62	38	9	39.37	2.34	40	11
35.2	2.5	36.07	1.78	37.2	2.5	38	10	39.4	1.6	40	12
35.2	2.62	36.1	3.53	37.2	3	38	12	39.4	3.1	40	13
35.2	3	36.17	1.02	37.2	3.53	38	20	39.4	6.6	40	15
35.2	3.5	36.17	1.78	37.2	3.6	38.1	1.35	39.4	10	40	16
35.2	4	36.17	2.38	37.2	4.1	38.1	1.59	39.45	1.78	40	18
35.2	5	36.17	2.62	37.2	5.7	38.1	3.18	39.49	3.53	40.04	2.62
35.2	5.7	36.2	1.52	37.21	2.62	38.1	6.35	39.5	1.2	40.06	2.7
35.3	2.4	36.2	1.57	37.3	1.5	38.1	11.1	39.5	1.5	40.2	1.75
35.3	2.5	36.2	1.8	37.3	3.5	38.12	2.39	39.5	2	40.2	3
35.3	4.5	36.2	2	37.3	3.6	38.2	2	39.5	2.4	40.2	5.3
35.3	4.9	36.2	2.4	37.4	4.5	38.2	3.6	39.5	2.5	40.3	2.4
35.31	2.62	36.2	2.6	37.42	3	38.2	4.7	39.5	3	40.5	2
35.4	2.2	36.2	2.65	37.46	3	38.2	5	39.5	3.2	40.5	2.4
35.4	3	36.2	3	37.47	3	38.35	1.27	39.5	3.25	40.5	2.5
35.4	3.1	36.2	3.7	37.47	5.33	38.4	1.6	39.5	3.5	40.5	3
35.4	3.2	36.2	5.7	37.5	1.25	38.4	2	39.5	5.5	40.5	3.4
35.4	3.25	36.25	1.14	37.5	1.5	38.5	1.5	39.5	6	40.5	3.5
35.5	1	36.27	1.78	37.5	2	38.5	1.93	39.5	8.5	40.5	4.5
35.5	1.5	36.36	2.62	37.5	2.5	38.5	2	39.5	10	40.5	5
35.5	1.78	36.4	3.8	37.5	2.65	38.5	2.3	39.6	2.4	40.5	5.5
35.5	1.8	36.5	1	37.5	3	38.5	2.5	39.6	3.7	40.5	6
35.5	2	36.5	1.5	37.5	3.15	38.5	3	39.69	2.38	40.59	2.62
35.5	2.5	36.5	1.8	37.5	3.5	38.5	3.5	39.69	3.53	40.6	3.2
35.5	2.65	36.5	2	37.5	3.55	38.5	6.3	39.7	3.5	40.6	3.53
35.5	3	36.5	2.5	37.5	4	38.5	8.5	39.7	3.6	40.65	5.33
35.5	3.15	36.5	2.65	37.5	4.5	38.7	2.65	39.7	4.35	40.7	3
35.5	3.55	36.5	3	37.5	5.3	38.7	2.8	39.76	3	40.7	3.5
35.5	4	36.5	3.5	37.6	1.2	38.7	3.5	39.8	2.2	40.8	3.5
35.5	4.5	36.5	3.55	37.6	2.4	38.7	3.55	39.9	3.53	40.8	3.8
35.5	6.4	36.5	3.75	37.6	4.5	38.7	5.3	40	1	40.8	4.7
35.5	11.5	36.5	6	37.69	3.53	38.86	1.19	40	1.2	40.87	3.53
35.5	16.5	36.51	6.99	37.7	3	38.9	1.45	40	1.25	40.95	2.62
35.52	2.53	36.6	1.6	37.7	3.5	39	1	40	1.5	40.99	5.33
35.6	3.6	36.6	2.2	37.7	4	39	1.2	40	1.6	41	1
35.7	2.62	36.6	2.5	37.7	5.3	39	1.5	40	1.8	41	1.2
35.7	3.5	36.6	3	37.7	5.53	39	1.6	40	2	41	1.4
35.76	1.02	36.7	2	37.77	2.62	39	1.78	40	2.2	41	1.5
35.8	1	36.8	1	37.8	2	39	2	40	2.4	41	1.6
35.97	1.78	36.8	1.2	37.8	2.38	39	2.2	40	2.5	41	1.75
36	1	36.8	3	37.82	1.6	39	2.5	40	2.65	41	1.78
36	1.3	36.83	3.28	37.82	1.78	39	3	40	2.8	41	1.8
36	1.5	36.9	1.2	37.82	2	39	3.2	40	3	41	2

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
41	2.5	42	3.2	43	3.5	44.1	2.6	45	12	46.7	2.5
41	3	42	3.5	43	4	44.12	2.5	45	15	46.8	4.1
41	3.5	42	3.8	43	4.5	44.12	2.62	45	25	46.99	1.14
41	4	42	4	43	5	44.17	1.78	45.2	2.4	46.99	3.67
41	4.5	42	4.2	43	5.2	44.2	2	45.2	2.8	46.99	5.33
41	4.6	42	4.5	43	5.5	44.2	2.5	45.2	3	46.99	5.97
41	5	42	5	43	6	44.2	3	45.2	5.7	47	1
41	5.5	42	5.2	43	6.5	44.2	3.3	45.3	5.7	47	1.5
41	6	42	5.4	43	8	44.2	3.7	45.36	3.53	47	1.6
41	6.5	42	5.5	43	9	44.2	5.1	45.4	6.5	47	2
41	7	42	5.6	43	10	44.2	5.7	45.5	1.2	47	2.13
41	7.5	42	6	43	11	44.2	6.7	45.5	1.5	47	2.5
41	8	42	6.4	43	12	44.2	7.5	45.5	5.5	47	2.6
41	15	42	7	43	16	44.3	5.7	45.5	6.8	47	2.7
41	21	42	7.5	43	20	44.4	3.1	45.6	1.2	47	3
41.1	5.8	42	8	43.2	2	44.4	3.17	45.6	1.5	47	3.2
41.2	1.6	42	9	43.2	3	44.4	4.8	45.62	3.53	47	3.5
41.2	1.8	42	10	43.4	1.8	44.4	5.33	45.69	2.62	47	3.7
41.2	2.65	42	11	43.4	3.6	44.45	2.62	45.69	3.53	47	4
41.2	3	42	11.7	43.5	3	44.45	3.53	45.7	1.5	47	4.5
41.2	3.55	42	12	43.5	4	44.5	1.6	45.7	3.5	47	5
41.2	4.7	42	13	43.5	5.3	44.5	2	45.72	1.78	47	5.33
41.2	5.3	42	14	43.5	5.4	44.5	2.15	45.84	1.78	47	5.5
41.2	5.7	42	16	43.55	3.55	44.5	2.4	46	1	47	6
41.28	1.59	42	20	43.69	2.62	44.5	2.5	46	1.1	47	6.5
41.28	3.53	42.2	1.5	43.69	3	44.5	3	46	1.2	47	6.7
41.3	1.6	42.2	1.8	43.69	3.5	44.5	3.18	46	1.5	47	7
41.3	1.8	42.2	3	43.7	1.8	44.5	3.5	46	2	47	7.5
41.3	2.62	42.2	5.7	43.7	2.8	44.5	4.8	46	2.2	47	8
41.3	2.7	42.4	1.2	43.7	3	44.5	5.5	46	2.4	47	9
41.3	3.17	42.4	4.13	43.7	3.5	44.5	6	46	2.5	47	10
41.3	3.2	42.4	5.33	43.7	3.55	44.5	6.25	46	2.6	47	12
41.3	4	42.42	1.78	43.7	5.3	44.5	8.5	46	3	47	16.5
41.37	1.78	42.5	1.78	43.8	1.78	44.6	2.4	46	3.2	47.11	1
41.4	5.3	42.5	1.8	43.8	4.1	44.7	2.9	46	3.5	47.2	1.5
41.5	1.5	42.5	2.65	43.82	5.33	44.7	3	46	4	47.2	2.4
41.5	1.6	42.5	3	43.92	2.9	44.7	3.5	46	4.5	47.2	3.3
41.5	2.9	42.5	3.15	43.99	1.5	44.8	3.5	46	5	47.2	3.5
41.5	3	42.5	3.2	43.99	2.01	44.99	1.78	46	5.34	47.2	5.7
41.5	3.15	42.5	3.5	44	1	45	1	46	5.5	47.22	3.53
41.5	3.5	42.5	3.55	44	1.3	45	1.2	46	6	47.22	5.53
41.5	4	42.5	4	44	1.5	45	1.5	46	7	47.24	4.27
41.5	4.5	42.5	4.3	44	2	45	1.6	46	8	47.29	2.62
41.5	6	42.5	5.3	44	2.5	45	2	46	10	47.35	1.27
41.6	1.6	42.5	8	44	2.6	45	2.5	46	11	47.37	1.78
41.6	1.78	42.5	8.3	44	2.8	45	2.62	46	22	47.4	4
41.6	2.4	42.52	2.62	44	3	45	2.75	46.04	3.53	47.4	4.8
41.7	3.5	42.57	3.53	44	3.15	45	2.8	46.1	2.4	47.5	1.5
41.7	4.05	42.6	4	44	3.17	45	3	46.2	2	47.5	1.8
41.7	4.13	42.8	3.53	44	3.5	45	3.15	46.2	3	47.5	2.5
41.8	2.6	42.8	3.7	44	3.65	45	3.5	46.2	3.5	47.5	2.65
41.82	3.53	42.8	5.33	44	3.7	45	3.55	46.2	3.55	47.5	2.7
41.83	2.79	42.86	3.53	44	4	45	3.75	46.2	5.3	47.5	3
41.9	3	42.86	4.36	44	4.2	45	4	46.2	5.33	47.5	3.15
41.91	6.35	42.86	6.35	44	4.5	45	4.5	46.4	4.6	47.5	3.18
42	1	42.9	4.82	44	5	45	4.8	46.4	5.3	47.5	3.2
42	1.2	42.96	3.53	44	5.25	45	5	46.4	5.4	47.5	3.55
42	1.5	43	1	44	5.34	45	5.3	46.5	1.8	47.5	4
42	1.6	43	1.3	44	5.5	45	5.5	46.5	2.5	47.5	4.5
42	1.78	43	1.5	44	6	45	6	46.5	3.5	47.5	5.3
42	2	43	1.6	44	6.5	45	6.4	46.5	4	47.5	5.33
42	2.25	43	1.8	44	7	45	6.5	46.5	5	47.5	5.5
42	2.3	43	2	44	8	45	7	46.5	5.33	47.5	5.75
42	2.5	43	2.2	44	9	45	7.5	46.5	5.7	47.5	6
42	2.6	43	2.5	44	11	45	8	46.5	6	47.5	6.5
42	2.7	43	2.8	44	12	45	8.5	46.5	7.2	47.55	1.78
42	3	43	3	44.04	3.53	45	9	46.69	2.62	47.55	3.55
42	3.15	43	3.2	44.1	1.6	45	10	46.7	1.78	47.6	2.4

Dimensions

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
47.6	3.53	49	1.5	50	5.3	51.5	3.55	53	4.5	54.2	2.3
47.6	3.6	49	1.6	50	5.33	51.5	4.5	53	5	54.2	3
47.6	4	49	1.7	50	5.5	51.5	5.3	53	5.3	54.2	5.3
47.6	5.7	49	2	50	5.7	51.6	2.4	53	5.5	54.2	5.7
47.6	9.5	49	2.5	50	6	51.6	4.6	53	5.7	54.3	3
47.63	3.18	49	3	50	6.5	51.6	5.7	53	5.8	54.3	5.7
47.63	3.53	49	3.5	50	7	51.7	5.3	53	6	54.4	3.1
47.63	6.99	49	4	50	7.5	51.8	3	53	7	54.4	4.13
47.65	1.57	49	4.5	50	8	51.94	3.53	53	10	54.5	2.5
47.7	1.5	49	5	50	8.5	51.99	2.77	53	12	54.5	2.7
47.7	2.62	49	5.3	50	9	52	1	53	14	54.5	3
47.7	3.5	49	5.5	50	10	52	1.5	53	16	54.5	3.55
47.7	4.75	49	6	50	11	52	2	53.09	3	54.5	5.5
47.8	3	49	6.25	50	12	52	2.4	53.1	3	54.5	7
47.96	2.36	49	7	50	13.5	52	2.5	53.19	3.53	54.6	2.4
48	1	49	9	50	15	52	2.7	53.25	4	54.6	5.7
48	1.2	49	12	50	16	52	2.8	53.28	0.99	54.7	1.4
48	1.5	49.1	5.8	50.1	3.2	52	3	53.3	3.53	54.75	2
48	1.55	49.15	1.78	50.1	3.3	52	3.3	53.3	5.3	55	1
48	1.7	49.2	1.8	50.16	5.33	52	3.5	53.34	2.44	55	1.2
48	1.78	49.2	2.4	50.17	1.78	52	3.9	53.34	5.33	55	1.5
48	1.8	49.2	3	50.17	6.99	52	4	53.4	3.5	55	1.78
48	2	49.2	4	50.2	2.5	52	4.5	53.5	1.2	55	1.8
48	2.5	49.2	4.5	50.2	3	52	5	53.5	1.5	55	2
48	2.6	49.2	5.7	50.3	2.4	52	5.33	53.5	3	55	2.5
48	2.62	49.2	6.3	50.4	2.62	52	5.5	53.5	3.53	55	2.6
48	2.75	49.21	3.53	50.4	3.53	52	6	53.5	4	55	3
48	3	49.22	3.96	50.47	2.62	52	6.5	53.5	5.8	55	3.2
48	3.5	49.3	5.7	50.5	2.4	52	7.5	53.5	9	55	3.5
48	3.65	49.4	2.8	50.5	3	52	8	53.52	2.62	55	3.7
48	4	49.4	3.1	50.5	6.3	52	9	53.57	3.53	55	4
48	4.2	49.44	3.53	50.52	1.78	52	10	53.6	2.6	55	4.5
48	4.5	49.5	2.5	50.8	1.6	52	12	53.6	3.17	55	4.7
48	5	49.5	3	50.8	1.78	52.07	2.62	53.6	3.53	55	4.8
48	5.3	49.5	3.5	50.8	3.18	52.1	1	53.6	5.64	55	5
48	5.5	49.5	4.5	50.8	3.2	52.2	3	53.64	2.65	55	5.2
48	6	49.5	5	50.8	3.53	52.2	5.7	53.65	2.62	55	5.33
48	6.1	49.5	5.5	50.8	5.1	52.3	1.7	53.67	1.78	55	5.5
48	6.5	49.5	6.25	50.8	6.35	52.3	5.7	53.8	4	55	6
48	7	49.6	2.4	50.9	2.4	52.39	3.53	53.97	4.76	55	6.5
48	8	49.6	3.5	51	1.5	52.4	5.3	53.98	3.53	55	7
48	9	49.6	5.7	51	2	52.5	1.78	53.98	6.35	55	7.5
48	10	49.65	1.78	51	2.5	52.5	1.8	54	1	55	8
48	11	49.7	3.5	51	3	52.5	2.2	54	1.5	55	10
48	12	49.7	5.3	51	3.2	52.5	3	54	2	55	13
48	13	49.7	5.7	51	3.5	52.5	3.5	54	2.3	55	13.5
48	16	49.8	1.8	51	3.6	52.5	4.5	54	2.5	55.2	2
48	22	50	1	51	3.8	52.5	5.2	54	2.65	55.2	3
48.1	1.2	50	1.2	51	4	52.5	5.7	54	3	55.2	5.7
48.2	1.2	50	1.5	51	4.3	52.5	6.9	54	3.17	55.25	1.78
48.25	4	50	2	51	4.5	52.54	5.33	54	3.2	55.25	2.62
48.3	3.2	50	2.35	51	5	52.6	1.75	54	3.5	55.3	5.7
48.32	5.33	50	2.4	51	5.2	52.6	2.4	54	4	55.35	2.62
48.38	2.62	50	2.5	51	5.5	52.6	2.8	54	4.5	55.5	1.78
48.4	3.5	50	2.7	51	6	52.6	3.5	54	4.75	55.5	3
48.5	1.5	50	2.8	51	9	52.6	5.7	54	5	55.52	2.62
48.5	3.5	50	3	51	9.5	52.75	1.78	54	5.5	55.56	3.53
48.5	4	50	3.25	51	10	52.9	5.33	546		55.6	5.7
48.5	5.8	50	3.5	51	12	53	1	54	6.3	55.7	2.5
48.5	7	50	3.55	51	12.5	53	1.2	54	6.5	55.7	3.75
48.7	2.65	50	3.6	51.05	1.78	53	1.5	54	7	55.7	4
48.7	3.5	50	3.85	51.1	1.6	53	2	54	8	55.8	2.1
48.7	3.53	50	4	51.2	3.6	53	2.5	54	9.5	55.88	2.03
48.7	3.55	50	4.5	51.2	5.3	53	3	54	12	55.9	2.4
48.7	5.3	50	4.7	51.2	5.7	53	3.5	54	20	56	1
48.8	4	50	4.8	51.5	1.5	53	3.55	54.1	3.18	56	1.4
48.9	2.62	50	5	51.5	2	53	3.6	54.1	3.7	56	1.5
49	1	50	5.2	51.5	2.1	53	4	54.2	1.65	56	1.78

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
56	1.8	57	9.5	58.7	5.5	60	3.55	61.5	1.78	63	1.8
56	2	57	10	58.72	6.35	60	3.65	61.5	2	63	2
56	2.3	57	15	58.74	3.53	60	4	61.5	2.5	63	2.4
56	2.4	57	17	58.75	6.36	60	4.2	61.5	2.65	63	2.5
56	2.5	57.1	1.78	58.8	4.2	60	4.5	61.5	3.55	63	2.65
56	3	57.1	3.2	58.8	6	60	4.6	61.5	5.3	63	2.7
56	3.15	57.14	3.28	58.8	6.2	60	4.8	61.5	7	63	2.8
56	3.2	57.15	2.03	58.88	2.62	60	5	61.5	7.5	63	3
56	3.5	57.15	2.24	59	1	60	5.3	61.6	2.4	63	3.2
56	3.55	57.15	3.53	59	1.5	60	5.34	61.6	2.62	63	3.5
56	4	57.2	1.6	59	2	60	5.4	61.6	2.7	63	3.55
56	4.3	57.2	3	59	2.4	60	5.5	61.6	2.9	63	4
56	4.5	57.2	5.7	59	2.5	60	5.7	61.6	5.7	63	4.5
56	5	57.3	1.5	59	2.7	60	6	61.7	4.5	63	5
56	5.2	57.3	5.2	59	3	60	7	61.8	7	63	5.3
56	5.3	57.5	5	59	3.5	60	7.5	61.83	2.36	63	5.5
56	5.5	57.5	10	59	4	60	8	61.9	3.53	63	6
56	6	57.53	2.08	59	5	60	8.5	61.94	2.24	63	6.5
56	6.3	57.53	3.35	59	5.5	60	9	62	1.5	63	7
56	6.5	57.6	1.4	59	6	60	10	62	1.78	63	7.5
56	6.8	57.6	2.4	59	6.5	60	11	62	2	63	8
56	7	57.6	3.3	59	7	60	12	62	2.5	63	9
56	7.5	57.6	5.7	59	10	60	13	62	2.6	63	10
56	8	57.61	2.16	59	11	60	14	62	3	63	14
56	10	57.65	3.53	59	12	60	15	62	3.2	63	15
56	12	57.75	4	59.1	5.8	60	16	62	3.5	63	16
56.16	5.33	57.8	2.6	59.18	1.02	60	18	62	3.53	63.09	3.53
56.16	5.34	57.84	6.35	59.2	5.33	60	20	62	4	63.09	3.8
56.2	3	58	1	59.2	5.7	60.04	1.78	62	4.5	63.1	2.2
56.2	3.4	58	1.5	59.2	11.2	60.1	1.6	62	5	63.1	2.4
56.4	2.5	58	2	59.3	3.73	60.1	5.7	62	5.2	63.12	3.63
56.5	1.7	58	2.5	59.3	5	60.2	2.5	62	5.5	63.17	2.62
56.5	2.4	58	2.67	59.3	5.7	60.2	2.8	62	5.7	63.22	1.5
56.5	2.45	58	3	59.36	3	60.2	3	62	6	63.22	1.75
56.5	3.1	58	3.2	59.4	2.8	60.2	5.35	62	6.5	63.22	1.78
56.5	3.5	58	3.5	59.4	3.1	60.3	5.33	62	7	63.3	10.75
56.5	4	58	3.55	59.44	2.01	60.3	15	62	8	63.46	2.89
56.5	5.33	58	4	59.5	2	60.33	3.53	62	8.5	63.49	9.53
56.5	7	58	4.2	59.5	3	60.4	3.2	62	9	63.5	2.7
56.5	15	58	4.5	59.5	5.17	60.5	2	62	10	63.5	3.1
56.52	5.33	58	5	59.5	6	60.5	2.25	62	11	63.5	3.15
56.6	2.4	58	5.3	59.5	6.5	60.5	5.5	62	12	63.5	3.2
56.7	2.8	58	5.5	59.52	2.62	60.8	2	62	14	63.5	3.53
56.74	3.53	58	5.8	59.6	2.4	61	1	62	15	63.5	3.7
56.74	5.53	58	6	59.6	5.7	61	1.5	62	18	63.5	4
56.79	2.92	58	6.5	59.7	3.53	61	1.6	62.1	2.62	63.5	4.3
56.8	6	58	7	59.7	5.33	61	2	62.2	3	63.5	4.5
56.82	2.62	58	7.5	59.7	5.7	61	2.5	62.2	5.7	63.5	5.33
56.87	1.78	58	8	59.7	7	61	3	62.23	4.06	63.5	5.5
57	1	58	9	59.9	2.62	61	3.2	62.3	3.2	63.5	5.7
57	1.3	58	10	59.9	5.2	61	3.5	62.3	5.7	63.5	6.35
57	1.5	58	20	59.92	3.53	61	4	62.33	1.78	63.5	6.5
57	2	58	23	60	1	61	4.3	62.4	2.8	63.5	7
57	2.5	58.2	3.1	60	1.25	61	4.5	62.4	4	63.6	4.7
57	2.6	58.39	1.78	60	1.5	61	5	62.4	5.3	63.8	5.66
57	3	58.4	1.3	60	1.8	61	5.9	62.5	1.3	63.8	6.2
57	3.5	58.42	2.62	60	2	61	6	62.5	1.8	63.88	5.5
57	3.53	58.44	1.78	60	2.2	61	8.5	62.5	2.3	63.9	2
57	4	58.5	1.25	60	2.3	61	9	62.5	2.5	63.9	2.4
57	4.5	58.5	3	60	2.5	61	10	62.5	5	64	1
57	5	58.5	3.5	60	2.62	61	12.5	62.6	5.7	64	1.4
57	5.5	58.5	5	60	2.65	61.01	2.49	62.8	2.3	64	1.5
57	5.7	58.5	5.33	60	2.8	61.2	1.5	62.87	2.03	64	1.6
57	6	58.5	5.7	60	3	61.2	4.2	62.87	5.33	64	2
57	6.5	58.5	6.2	60	3.15	61.2	5.7	62.9	2.4	64	2.5
57	7	58.5	6.5	60	3.2	61.24	3.53	63	1	64	2.6
57	8	58.6	3	60	3.3	61.3	1.78	63	1.3	64	2.62
57	9	58.6	7	60	3.5	61.5	1.5	63	1.5	64	3

Dimensions

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
64	3.5	65	5.8	66.5	2	68	6	70	0.6	71.5	1.2
64	3.75	65	6	66.5	2.5	68	6.5	70	1	71.5	1.5
64	4	65	7	66.6	4.73	68	7	70	1.4	71.5	1.6
64	4.5	65	7.5	66.6	5.4	68	8	70	1.5	71.5	2
64	4.8	65	8	66.6	5.7	68	8.5	70	1.6	71.88	3.48
64	5	65	9	66.67	3.53	68	10	70	1.78	71.9	6
64	5.33	65	9.5	66.67	4.76	68	12	70	1.8	72	1.5
64	5.5	65	10	66.68	3.52	68	15	70	2	72	2
64	5.7	65	10.5	66.68	6.35	68.26	3.53	70	2.2	72	2.1
64	6	65	11	66.7	2	68.3	2.4	70	2.5	72	2.5
64	6.5	65	11.2	66.7	3.2	68.5	1	70	3	72	2.8
64	7	65	12	66.87	3.53	68.5	1.8	70	3.2	72	3
64	8	65	13	67	1	68.5	5.9	70	3.37	72	3.25
64	9.27	65	15	67	1.5	68.5	6.8	70	3.5	72	3.5
64	9.5	65.1	2.4	67	2	68.5	7.5	70	4	72	4
64	10	65.1	3.15	67	2.1	68.5	12.5	70	4.5	72	4.2
64	11	65.1	3.53	67	2.5	68.52	2.62	70	4.6	72	4.5
64	16	65.2	5	67	2.7	68.6	2.2	70	5	72	4.75
64.2	1.6	65.32	1.56	67	2.8	68.7	5.33	70	5.5	72	5
64.2	1.9	65.35	1.55	67	3	68.8	3.53	70	5.7	72	5.5
64.2	5	65.4	1.67	67	3.4	68.8	3.85	70	5.8	72	6
64.2	5.7	65.5	1.5	67	3.5	68.8	5.5	70	6	72	6.99
64.3	1.5	65.5	1.55	67	3.55	68.84	3.68	70	6.5	72	7
64.3	5.7	65.5	1.68	67	4	68.95	5.3	70	7	72	7.5
64.39	1.78	65.5	2	67	4.3	69	1.5	70	7.5	72	8
64.4	3	65.5	3	67	4.5	69	2	70	8	72	8.5
64.4	3.1	65.5	3.5	67	5	69	2.1	70	9.5	72	9
64.4	3.15	65.5	4	67	5.3	69	2.4	70	10	72	10
64.4	4.5	65.5	5	67	5.33	69	2.5	70	11	72	11
64.47	2.62	65.5	15	67	5.5	69	3	70	12	72	12
64.5	1.5	65.6	5.3	67	6	69	3.5	70	15	72	18
64.5	1.8	65.7	1.78	67	7	69	3.55	70	17.5	72.19	5.33
64.5	2	65.8	1.68	67	7.5	69	4	70.2	4.2	72.2	5.7
64.5	2.5	65.8	1.8	67	8	69	4.5	70.2	5.7	72.4	1.78
64.5	2.7	66	1	67	10	69	5	70.44	3	72.4	5.33
64.5	3	66	1.5	67	13	69	5.3	70.5	2.4	72.5	1.5
64.5	3.2	66	2	67	16	69	5.5	70.5	2.5	72.5	2.4
64.5	3.5	66	2.2	67	20	69	5.7	70.5	3	72.5	3.5
64.5	5.5	66	2.5	67.05	2.05	69	6	70.5	4.5	72.5	4
64.6	2.4	66	2.6	67.1	1.6	69	8	70.5	7.2	72.5	5
64.6	3.5	66	3	67.1	2	69	11	70.6	5.7	72.5	6.5
64.6	5.7	66	3.5	67.2	3.6	69.2	5.7	70.6	7	72.62	3.53
64.7	3	66	3.8	67.2	5	69.22	5.33	70.6	8	72.62	5.33
64.7	5.3	66	4	67.2	5.7	69.22	7	70.8	5.3	72.69	2.62
64.77	1.02	66	4.5	67.4	4.55	69.3	2.4	70.8	6.2	72.76	1.78
64.77	2.49	66	5	67.49	2.26	69.3	5.7	71	1.5	73	1
64.77	2.62	66	5.7	67.5	4	69.4	2.8	71	1.65	73	1.2
64.9	2.6	66	6	67.6	2.4	69.4	3.1	71	2	73	1.5
64.9	6.6	66	6.5	67.95	2.62	69.4	5.2	71	2.5	73	2
65	1	66	7	68	1	69.44	3.53	71	2.65	73	2.2
65	1.5	66	7.5	68	1.2	69.44	4	71	3	73	2.5
65	1.7	66	8	68	1.5	69.5	2	71	3.5	73	2.65
65	1.8	66	9	68	1.7	69.5	2.5	71	3.55	73	3
65	2	66	9.5	68	1.8	69.5	3	71	4	73	3.2
65	2.5	66	27	68	2	69.5	3.5	71	4.5	73	3.5
65	2.65	66.04	1.78	68	2.4	69.5	4	71	5	73	3.55
65	2.75	66.04	5.33	68	2.5	69.5	4.5	71	5.3	73	3.9
65	2.8	66.2	5.7	68	2.7	69.5	5	71	8	73	4
65	3	66.27	2.5	68	2.8	69.5	8	71	8.5	73	4.5
65	3.5	66.27	2.62	68	3	69.52	2.62	71	9	73	5
65	3.55	66.27	3.53	68	3.2	69.57	1.78	71	9.5	73	5.3
65	4	66.3	2.38	68	3.5	69.6	2	71	10	73	6
65	4.5	66.35	2.62	68	3.53	69.6	2.4	71	11	73	6.99
65	4.8	66.39	1.9	68	4	69.6	5.7	71.12	2.62	73	8
65	5	66.4	1.78	68	4.5	69.8	5.3	71.2	2	73	11
65	5.3	66.4	5.33	68	5	69.85	3.53	71.2	2.2	73	12
65	5.5	66.5	1	68	5.33	69.85	5.7	71.2	5.7	73	15
65	5.7	66.5	1.5	68	5.5	69.9	3.17	71.44	3.53	73.02	3.53

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
73.17	2.62	75	6	77	2.5	79	2	80	6.3	82	4
73.18	3	75	7	77	3	79	2.1	80	6.5	82	4.5
73.28	5.33	75	7.5	77	3.5	79	2.4	80	7	82	5
73.39	5.33	75	8	77	4	79	2.5	80	7.5	82	5.3
73.5	2	75	9	77	4.3	79	2.6	80	8	82	5.5
73.5	3	75	10	77	4.5	79	3	80	8.5	82	6
73.5	5	75	12.5	77	5	79	3.17	80	9	82	6.5
73.7	3.6	75	13	77	5.5	79	3.2	80	10	82	7
73.8	4.5	75	15	77	6	79	3.5	80	11	82	7.5
74	1	75	16	77	7	79	4	80	12	82	8
74	1.5	75.5	2	77	8	79	4.5	80	13	82	10
74	2	75.5	9.5	77	10	79	5	80	15	82	12
74	2.5	75.56	6.99	77	12	79	5.7	80	16.5	82.14	3.53
74	3	75.57	3.53	77.1	2.62	79	6	80.42	2.62	82.16	4.63
74	3.15	75.57	5.33	77.2	1.26	79	6.3	80.44	1.78	82.2	5.7
74	3.3	75.6	2	77.2	5.7	79	7	80.5	1.75	82.22	2.62
74	3.5	75.7	9.45	77.22	3.53	79	8	80.5	2	82.27	5.33
74	4	75.8	3.53	77.3	2.62	79.05	2.62	80.5	2.4	82.28	1.78
74	4.5	75.8	3.8	77.3	4.5	79.2	2.7	80.5	4	82.34	2.62
74	5	75.8	5.33	77.3	5.7	79.2	4	80.5	7	82.5	2.2
74	5.5	75.87	2.62	77.39	3.53	79.2	5.7	80.6	2.62	82.5	2.4
74	5.7	75.92	1.68	77.4	6.6	79.2	7.5	80.7	3.6	82.5	3.2
74	6	75.92	1.78	77.5	1.78	79.3	2.5	80.8	2.3	82.5	3.55
74	6.4	75.97	3.53	77.5	2.5	79.3	3.53	80.8	2.6	82.5	4
74	7	76	1	77.5	2.62	79.3	5.3	80.8	5.33	82.5	5.3
74	7.5	76	1.2	77.5	3.55	79.3	5.7	80.85	3.53	82.5	9
74	8	76	1.5	77.5	5.3	79.4	2	81	1	82.55	3.18
74	9	76	2	77.5	6	79.4	3.1	81	1.5	82.6	2.2
74	10	76	2.2	77.62	3.53	79.4	4.75	81	2	82.6	4
74	11	76	2.5	77.69	3.53	79.4	6.1	81	2.4	82.7	5.7
74	14	76	3	77.9	5.7	79.5	2	81	2.5	82.8	5
74.1	3.3	76	3.2	78	1	79.5	2.5	81	3	82.8	5.9
74.1	8.4	76	3.5	78	1.2	79.5	2.62	81	3.5	82.87	5.33
74.14	2.62	76	4	78	1.25	79.5	3	81	4	82.9	2
74.2	5.7	76	4.1	78	1.5	79.5	4	81	4.5	83	1
74.3	2.62	76	4.25	78	1.78	79.5	5.2	81	5	83	1.5
74.3	5.7	76	4.5	78	2	79.5	7	81	5.1	83	2
74.4	3.1	76	4.76	78	2.3	79.6	5.7	81	5.34	83	2.5
74.5	3	76	5	78	2.5	79.62	3.53	81	5.5	83	3
74.5	3.1	76	5.2	78	3	79.77	5.33	81	6	83	3.2
74.5	3.2	76	5.5	78	3.5	79.79	3.53	81	7	83	3.25
74.5	6	76	5.6	78	3.6	80	1	81	14	83	3.5
74.5	6.7	76	6	78	4	80	1.2	81.15	4.52	83	3.75
74.6	3	76	7.65	78	4.3	80	1.25	81.2	5.7	83	4
74.6	3.53	76	8	78	4.5	80	1.3	81.4	3	83	4.5
74.6	3.6	76	10	78	5	80	1.5	81.5	1.25	83	5
74.6	5.7	76	11	78	5.33	80	1.75	81.5	1.5	83	5.5
74.63	5.33	76	12	78	5.5	80	2	81.5	2.5	83	6
75	1	76	13	78	6	80	2.4	81.5	2.8	83	6.5
75	1.5	76	15	78	6.5	80	2.5	81.5	4	83	7
75	1.78	76	20	78	8	80	2.8	81.5	6	83	9
75	2	76.2	3.17	78	10	80	3	81.51	2.5	83	10
75	2.4	76.2	3.2	78	13	80	3.2	81.52	3.53	83	12
75	2.5	76.2	5.33	78	16	80	3.33	81.6	2.2	83.05	3.51
75	2.7	76.2	5.7	78.2	5.7	80	3.5	81.7	1.78	83.2	2
75	2.8	76.2	6.35	78.5	1.78	80	3.55	81.7	7	83.2	5.7
75	3	76.2	6.8	78.5	2.5	80	3.6	81.75	1.8	83.4	3.5
75	3.5	76.3	2.4	78.5	5	80	3.8	81.9	1.78	83.5	1.2
75	3.55	76.5	5.5	78.5	5.7	80	4	81.9	5.3	83.5	1.25
75	4	76.5	5.7	78.5	6	80	4.3	81.92	5.33	83.5	3
75	4.5	76.7	4.5	78.6	1	80	4.5	81.92	6.99	83.5	3.3
75	4.8	76.9	3.53	78.74	2.62	80	4.8	82	1.5	83.5	5
75	5	76.94	1.78	78.74	5.33	80	5	82	2	83.7	4.5
75	5.3	76.99	2.45	78.8	5.1	80	5.3	82	2.4	83.8	2.62
75	5.4	77	1	78.8	6.81	80	5.5	82	2.5	84	1.5
75	5.5	77	1.5	78.97	3.53	80	5.7	82	3	84	1.78
75	5.6	77	1.8	79	1.5	80	5.8	82	3.4	84	2
75	5.8	77	2	79	1.78	80	6	82	3.5	84	2.5

Dimensions

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
84	3	85	14	87	4.5	88.57	2.62	90	5.5	92	13
84	3.5	85	15	87	5	88.57	3.15	90	5.7	92	14
84	4	85	16	87	5.33	88.59	5.32	90	5.72	92.2	5.7
84	4.5	85.09	5.33	87	5.89	88.62	1.78	90	5.8	92.33	1.78
84	5	85.09	6.99	87	6	88.8	3	90	6	92.38	3.53
84	5.3	85.32	3.53	87	7	88.86	6.99	90	6.3	92.5	2
84	5.4	85.34	1.78	87	8	88.9	2.4	90	6.5	92.5	2.2
84	5.7	85.4	3	87	8.5	88.9	2.5	90	7	92.5	3.5
84	6	85.4	7	87	10	88.9	3.5	90	7.5	92.5	3.55
84	6.5	85.5	2.4	87	12	88.9	3.96	90	8	92.5	5.3
84	7	85.5	2.5	87	15	88.9	5.84	90	8.3	92.62	5.33
84	8	85.5	3.2	87	18	88.9	6.35	90	8.5	92.71	2.62
84	9	85.5	3.5	87	20	89	1.5	90	9	92.76	2.62
84	10	85.5	4.3	87.1	2.4	89	1.78	90	10	92.92	2.62
84	12	85.5	5.7	87.2	2.5	89	1.9	90	11	92.99	2.03
84.1	3.5	85.5	6	87.2	5.7	89	2	90	12	93	1.5
84.1	5.7	85.55	3.18	87.2	8	89	2.3	90	14	93	2
84.2	3	85.6	3.2	87.3	6.99	89	2.4	90	15	93	2.5
84.2	5.7	85.62	3.53	87.43	7	89	2.5	90	16	93	2.8
84.3	2.6	85.7	4.76	87.45	6.98	89	3	90	20	93	3
84.3	5.7	85.8	1.25	87.5	1.5	89	3.5	90	25	93	3.5
84.3	6.4	85.9	5.33	87.5	1.7	89	4	90.3	4	93	4
84.4	3.1	86	1.25	87.5	3.5	89	4.5	90.35	1.78	93	5
84.4	4	86	1.5	87.5	3.55	89	5	90.47	3.18	93	5.33
84.5	2	86	1.6	87.5	3.6	89	5.5	90.49	5.33	93	6
84.5	3	86	1.7	87.5	5.3	89	5.7	90.5	1.5	93	6.5
84.5	3.5	86	2	87.5	6.2	89	6	90.7	3.6	93	12
84.5	4.5	86	2.4	87.6	3.5	89	7	90.77	4	93	12.7
84.5	5	86	2.5	87.63	4.19	89	7.5	91	1.5	93	20
84.5	9.45	86	2.7	87.9	5.3	89	8	91	2	93.2	3.6
84.52	2.62	86	3	88	1.5	89	11	91	2.5	93.2	9.5
84.6	3	86	3.5	88	2	89	12	91	2.65	93.34	12.7
84.6	5.7	86	3.98	88	2.2	89	13	91	3	93.5	2
84.68	2.62	86	4	88	2.5	89.1	5.7	91	3.5	93.5	4.5
84.7	1.2	86	4.1	88	2.62	89.1	5.8	91	4	93.73	1.85
85	1	86	4.5	88	2.8	89.2	3	91	5	93.75	2
85	1.5	86	5	88	3	89.2	5.7	91	7	94	1
85	1.78	86	5.4	88	3.2	89.3	5.7	91	8	94	1.5
85	1.8	86	5.5	88	3.5	89.4	3.1	91.2	5.7	94	2
85	2	86	6	88	3.6	89.4	5.3	91.44	5.33	94	2.3
85	2.4	86	6.4	88	3.7	89.41	3.18	91.5	3	94	2.5
85	2.5	86	6.5	88	3.75	89.5	2.5	91.5	3.2	94	2.62
85	2.62	86	7	88	3.8	89.5	3	91.5	7	94	2.95
85	3	86	7.5	88	4	89.5	3.5	91.6	3.6	94	3
85	3.1	86	8	88	4.5	89.6	3.15	91.67	3.53	94	3.5
85	3.5	86	10	88	5	89.6	5.7	91.67	3.8	94	4
85	3.55	86	12	88	5.3	89.69	5.33	91.7	1.78	94	5
85	3.75	86	12.5	88	5.5	90	1	92	1.5	94	5.5
85	4	86.2	5.7	88	5.7	90	1.5	92	1.73	94	5.7
85	4.5	86.3	2.6	88	6	90	2	92	2	94	6
85	4.9	86.36	2.62	88	7.5	90	2.2	92	2.5	94	7
85	5	86.5	2	88	8	90	2.5	92	3	94	8
85	5.25	86.5	2.5	88	10	90	2.8	92	3.2	94	9
85	5.3	86.5	3	88	12	90	2.9	92	3.5	94	9.5
85	5.5	86.5	4.75	88	15	90	3	92	3.53	94	10.5
85	5.8	86.5	5	88	20	90	3.1	92	4	94.1	5.7
85	6	86.69	5.33	88	21	90	3.5	92	4.5	94.1	6
85	6.3	86.7	3	88.1	3.6	90	3.55	92	5	94.2	5.5
85	6.5	86.7	3.5	88.24	2.38	90	3.9	92	5.3	94.2	5.7
85	6.99	86.9	3.6	88.26	6.98	90	4	92	5.5	94.3	5.7
85	7	87	1.5	88.27	5.33	90	4.2	92	6	94.4	3.1
85	7.5	87	2	88.27	6.99	90	4.5	92	7	94.5	2
85	8	87	2.5	88.3	2.62	90	4.6	92	7.5	94.5	2.5
85	9	87	2.6	88.3	7	90	4.8	92	8	94.5	3
85	10	87	3	88.49	5.57	90	5	92	8.5	94.6	5.3
85	12	87	3.5	88.5	2.5	90	5.1	92	9	94.6	5.7
85	12.5	87	4	88.5	3.53	90	5.25	92	9.5	94.62	5.33
85	13	87	4.4	88.5	5.7	90	5.3	92	10	94.84	3.53

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
94.84	4.75	97	1	99	5.7	101	4	103	10	105	5.8
94.93	2.62	97	1.5	99	6	101	4.3	103	12	105	5.9
94.97	1.78	97	1.6	99	6.5	101	4.5	103	14	105	6
95	1	97	2	99	7	101	5	103.5	1.5	105	6.4
95	1.5	97	2.5	99	7.7	101	5.33	103.5	3	105	6.5
95	1.78	97	2.75	99	8	101	5.5	103.5	3.2	105	7
95	1.8	97	3	99	9	101	6	103.5	4	105	7.25
95	2	97	3.5	99.1	2.4	101	7	103.5	4.2	105	7.5
95	2.2	97	3.8	99.1	5.7	101	12	103.5	4.5	105	8
95	2.3	97	4	99.2	5.7	101.2	3.53	103.51	3.18	105	8.4
95	2.5	97	4.5	99.3	3	101.2	4.2	104	1.78	105	8.5
95	2.65	97	5	99.3	5.7	101.2	5.7	104	2.5	105	9.5
95	3	97	5.2	99.4	3.1	101.27	2.62	104	2.62	105	10
95	3.5	97	5.5	99.4	4.1	101.3	7.2	104	3	105	10.3
95	3.55	97	6	99.4	6.3	101.34	1.78	104	3.5	105	12
95	4	97	7	99.5	1.8	101.4	4.8	104	4	105	14
95	4.5	97	8	99.5	3	101.5	2	104	4.5	105	15
95	5	97	9	99.5	4.5	101.5	3	104	5	105	17.5
95	5.3	97	16	99.6	5.7	101.5	3.5	104	5.5	105.1	2
95	5.5	97.2	5.7	100	1	101.6	3.2	104	5.7	105.1	4.5
95	5.6	97.29	5.33	100	1.4	101.6	5.7	104	6	105.2	5.7
95	5.7	97.4	5.3	100	1.5	101.6	6.35	104	6.13	105.28	5.33
95	6	97.5	3	100	1.6	101.6	6.99	104	7	105.5	1.5
95	6.3	97.5	3.55	100	2	101.6	9.5	104	8	105.5	2.4
95	6.5	97.5	4.5	100	2.2	102	1.5	104	9	105.5	3
95	7	97.5	5	100	2.5	102	2	104	10.5	105.5	4
95	7.5	97.5	5.3	100	2.75	102	2.5	104	13	105.8	5.4
95	8	97.5	5.5	100	3	102	3	104	14	106	1
95	10	97.76	2.62	100	3.4	102	3.5	104	16	106	1.8
95	11	97.79	6.33	100	3.5	102	4	104.1	3.18	106	2
95	11.2	97.79	6.35	100	3.55	102	4.5	104.1	5.7	106	2.4
95	12	97.8	3.53	100	4	102	4.75	104.14	5.33	106	2.5
95	15	97.8	5.33	100	4.5	102	5	104.14	6.99	106	2.62
95	20	98	1	100	4.7	102	5.5	104.2	3	106	3
95.09	5.34	98	1.5	100	5	102	5.7	104.2	5.7	106	3.5
95.2	2.4	98	2	100	5.2	102	6	104.3	5.7	106	3.55
95.25	4.76	98	2.2	100	5.3	102	6.5	104.3	6	106	4
95.5	3	98	2.5	100	5.33	102	7	104.37	3.53	106	4.5
95.5	4	98	3	100	5.5	102	8	104.37	3.8	106	5
95.5	4.32	98	3.5	100	5.7	102	9.5	104.4	1.78	106	5.3
95.5	6	98	4	100	6	102	12	104.4	3.1	106	5.5
96	1.5	98	4.2	100	6.3	102	14	104.4	5.3	106	6
96	1.7	98	4.5	100	6.5	102.2	3.53	104.5	2	106	6.3
96	2	98	5	100	7	102.3	9	104.5	2.6	106	6.5
96	2.5	98	5.2	100	7.5	102.3	9.2	104.5	3	106	6.8
96	3	98	5.5	100	8	102.5	1.6	104.5	4	106	7
96	3.5	98	6	100	9.5	102.5	2.4	104.5	5	106	8
96	4	98	6.8	100	10	102.5	2.5	104.5	6	106	8.5
96	4.3	98	7	100	12	102.5	5.5	104.6	5.7	106	10
96	4.5	98	7.5	100	12.5	102.5	6.99	104.77	4.76	106	12
96	5	98	8	100	13.5	102.6	4.5	104.78	9.53	106.3	3.34
96	5.33	98	9	100	15	102.8	3.3	104.8	5.33	106.5	2.4
96	6	98	10	100	16	102.8	9.5	105	1.5	106.5	4.75
96	7	98.02	3.53	100	20	103	1.5	105	1.78	106.5	4.8
96	8	98.05	1.78	100.2	4.35	103	2	105	2	107	1.5
96	10	98.42	4.77	100.5	2.4	103	2.5	105	2.5	107	2
96	14	98.5	1.5	100.5	3.5	103	3	105	2.75	107	2.5
96	15	98.5	3.5	100.5	4.5	103	3.2	105	3	107	2.7
96.1	5.7	98.5	5.3	100.5	5.3	103	3.5	105	3.1	107	3
96.11	2.62	99	1.5	100.5	7	103	3.55	105	3.5	107	3.5
96.3	3.6	99	2	100.9	7.6	103	4	105	4	107	4
96.5	2.62	99	2.5	100.95	1.6	103	4.5	105	4.3	107	4.3
96.5	4	99	3	100.97	5.33	103	5	105	4.4	107	4.5
96.5	6.5	99	3.2	100.97	6.99	103	5.2	105	4.5	107	5
96.6	1.6	99	3.5	101	2	103	5.3	105	4.6	107	5.5
96.6	10	99	4	101	2.5	103	6	105	5	107	6
96.7	7.3	99	5	101	3	103	7	105	5.3	107	7
96.76	1.86	99	5.5	101	3.5	103	8	105	5.5	107	7.5

Dimensions

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
107	8	109.6	5.7	111.8	3.53	114.19	5.43	116.5	4.1	119	5
107	9	109.75	4.8	112	1.5	114.2	5.7	116.5	4.5	119	5.2
107	10	109.78	4.83	112	2	114.3	3.15	116.7	4.4	119	5.7
107	14	109.78	4.85	112	2.5	114.3	4.2	116.84	5.33	119	6
107	15	110	1.5	112	3	114.3	4.7	116.84	6.99	119	6.2
107.2	5.33	110	1.6	112	3.5	114.3	5.7	117	1.5	119	7
107.32	5.33	110	1.78	112	3.55	114.3	15	117	2	119	8
107.32	6.99	110	2	112	4	114.4	3.1	117	2.5	119	10
107.5	3.4	110	2.25	112	4.5	114.4	3.8	117	2.75	119.2	5.2
107.54	3.53	110	2.5	112	4.6	114.5	2.5	117	3	119.2	5.7
107.54	4	110	3	112	5	114.5	3	117	3.5	119.3	5.7
107.6	3.6	110	3.2	112	5.3	114.5	3.3	117	4	119.4	3.1
107.63	2.62	110	3.5	112	6	114.5	4	117	4.2	119.5	2
107.7	1.78	110	4	112	6.3	114.5	6	117	4.4	119.5	3
108	2	110	4.5	112	7	114.5	12	117	5	119.5	3.3
108	2.5	110	4.6	112	8	114.6	5.7	117	5.3	119.5	5.5
108	3	110	4.75	112	11	114.7	6.99	117	6	119.5	7
108	3.2	110	5	112	14	114.81	5.34	117	6.5	119.6	5.7
108	3.5	110	5.3	112.1	5.3	114.9	5.43	117	7	119.8	1.5
108	4	110	5.5	112.3	5.7	115	1.5	117	8	119.8	3
108	4.2	110	5.6	112.5	1.78	115	2	117	9	119.85	4.45
108	4.5	110	5.7	112.5	5	115	2.5	117	19	119.89	3.53
108	4.75	110	5.8	112.5	5.5	115	3	117.06	3.81	120	1.5
108	5	110	6	113	1.5	115	3.3	117.07	3.53	120	1.6
108	5.2	110	6.5	113	2	115	3.5	117.1	1.78	120	2
108	5.3	110	7	113	2.5	115	3.55	117.2	5.7	120	2.1
108	5.5	110	7.5	113	3	115	3.6	117.48	3.18	120	2.2
108	6	110	7.7	113	3.5	115	4	117.48	5.33	120	2.5
108	7	110	8	113	3.53	115	4.1	117.5	2.5	120	2.7
108	8	110	8.5	113	4	115	4.5	117.5	3.2	120	3
108	9	110	9	113	5	115	5	117.5	3.53	120	3.2
108	9.5	110	9.5	113	5.5	115	5.07	117.5	4	120	3.26
108	10	110	10	113	6	115	5.1	117.5	5	120	3.5
108	11	110	11	113.41	6.35	115	5.3	117.5	5.33	120	3.6
108	15	110	12	113.5	2	115	5.5	117.5	5.7	120	3.7
108	16	110	14	113.5	5.33	115	5.6	117.8	6.35	120	4
108	18	110	15	113.5	6.8	115	6	118	2	120	4.5
108.3	3.8	110	20	113.66	8.5	115	7	118	2.5	120	5
108.5	2	110.3	2.4	113.67	5.33	115	7.5	118	2.62	120	5.6
108.5	11.5	110.4	5.8	113.67	6.99	115	8	118	2.65	120	5.8
108.8	6	110.49	3.53	113.7	5.5	115	8.4	118	3	120	6
109	2	110.49	5.33	113.7	7	115	8.5	118	3.25	120	6.5
109	2.5	110.49	6.99	113.8	8.4	115	9	118	3.5	120	7
109	3	110.5	2.4	113.9	3.53	115	9.1	118	3.55	120	8
109	3.4	110.5	3	113.98	2.62	115	10	118	4	120	8.5
109	3.5	110.5	6	114	1.3	115	14	118	4.5	120	9.1
109	3.55	110.72	3.53	114	1.6	115	15	118	5	120	10
109	4	110.74	1.78	114	1.78	115	20	118	5.3	120	11.5
109	4.5	110.8	4	114	2	115.7	5.7	118	6	120	12
109	5	111	2	114	2.5	115.75	3	118	6.3	120	14
109	5.3	111	2.5	114	3	116	1.5	118	7	120	15
109	5.5	111	3	114	3.5	116	1.75	118	8	120	16
109	5.7	111	3.3	114	4	116	2	118	9	120	25
109	5.8	111	3.5	114	4.6	116	2.5	118	10	120	30
109	6	111	4	114	5	116	3	118	13	120.02	5.16
109	7	111	5	114	5.3	116	3.5	118.4	4	120.02	5.33
109	8.5	111	6	114	5.5	116	4	118.47	9.27	120.02	6.99
109.1	5.7	111	7.7	114	5.7	116	4.5	118.5	3	120.25	3.53
109.14	3.53	111	9	114	6	116	5	118.5	5	120.32	3.15
109.2	5.7	111.1	1.6	114	6.5	116	5.3	118.5	6.5	120.33	2.62
109.3	5.7	111.13	4.76	114	7	116	5.5	118.65	4.45	120.34	3.53
109.4	3.1	111.2	5.7	114	8	116	6	118.72	2.62	120.4	1.78
109.5	3	111.5	2.4	114	9	116	7	118.8	8.4	120.4	3.8
109.5	4.75	111.5	2.5	114	10	116	7.5	119	2	120.5	6.8
109.5	5	111.5	2.6	114	10.5	116	10	119	2.5	120.5	12
109.5	8.4	111.5	3	114	14	116	15	119	3	120.62	2.62
109.52	3.53	111.5	5	114	17	116.4	6.99	119	3.5	120.65	9.53
109.54	5.33	111.6	5.7	114.19	3.53	116.5	2	119	4	120.7	5.33

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
120.82	2.62	123.2	5.33	125	10	128	5.3	130	11	133	3.25
121	1.4	123.2	6.99	125	12	128	6	130	12	133	3.5
121	1.5	123.26	3.68	125	12.5	128	6.6	130	15	133	4
121	1.6	123.42	3.53	125	15	128	7	130	25	133	4.4
121	2.5	123.44	1.78	125.1	6.6	128	7.5	130.18	5.33	133	4.5
121	3	123.5	3	125.2	5.7	128	8.5	130.5	2.5	133	5
121	3.5	123.5	3.5	125.5	5	128	9	130.5	3	133	6
121	4	123.5	4	126	2	128	10	130.5	3.5	133	7
121	5	123.75	4.25	126	2.2	128	12	130.5	4	133	8
121.4	7.8	123.8	3.2	126	2.4	128.5	2.5	130.7	6	133	10
121.5	1.2	123.8	4.76	126	2.5	128.5	2.6	130.85	7	133	12
121.5	2	123.8	5.33	126	3	128.5	3.5	131	1.7	133	13
121.5	2.2	124	2.5	126	3.2	128.5	4	131	2.4	133	16
121.5	3	124	3	126	3.5	128.5	12	131	2.5	133.07	1.78
121.5	4	124	3.2	126	4	129	2	131	3	133.2	5.7
121.5	5.7	124	3.5	126	4.5	129	2.5	131	3.5	133.3	6.4
122	1	124	4	126	5	129	3	131	4	133.35	3.17
122	1.25	124	4.15	126	5.33	129	3.5	131	4.5	133.35	5.33
122	1.3	124	4.5	126	5.5	129	4	131	5	133.35	12.7
122	1.8	124	5	126	5.7	129	4.3	131	5.3	133.5	4
122	1.9	124	5.4	126	6	129	4.5	131	7	133.5	7
122	2	124	5.7	126	7	129	5	131	10	133.6	2.2
122	2.5	124	6	126	7.5	129	5.5	131.2	2.4	133.8	8.4
122	3	124	6.5	126	8	129	8	131.2	5.7	134	1.5
122	3.5	124	7	126	9	129	10	131.3	5.7	134	1.6
122	3.55	124	8	126	10	129	11	131.5	3.55	134	2
122	4	124	8.5	126	13	129.04	5.33	131.5	4	134	2.5
122	4.2	124	9	126	14	129.1	3.3	131.5	4.5	134	3
122	4.5	124	13	126	18	129.14	3.1	131.57	1.78	134	3.1
122	4.7	124	18	126.37	5.33	129.2	5.7	131.6	5.7	134	3.2
122	5	124.2	1.78	126.37	6.99	129.3	5.4	131.74	1.78	134	3.5
122	5.3	124.2	2.62	126.5	3	129.3	5.7	131.8	1.78	134	4
122	5.34	124.2	5.7	126.5	3.2	129.4	1.78	132	1.5	134	4.2
122	5.5	124.2	6.99	126.57	5.33	129.4	3.1	132	1.7	134	4.5
122	6	124.3	5.7	126.6	3.53	129.5	3	132	1.8	134	5
122	7	124.4	2.62	126.67	2.62	129.5	5	132	2	134	6
122	8	124.4	3.1	126.76	1.78	129.5	5.33	132	2.4	134	6.8
122	8.5	124.5	2	126.9	6.4	129.54	1.65	132	2.5	134	8
122	9	124.5	3	127	1.5	129.54	5.33	132	3	134	11
122	9.5	124.5	4	127	2	129.54	6.99	132	3.5	134.1	8.4
122	10	124.5	5	127	2.5	129.6	5.7	132	3.55	134.2	4
122	12	124.6	3.5	127	3	129.77	3.53	132	3.9	134.2	5.7
122	18	124.6	5.7	127	3.5	129.77	3.8	132	4	134.3	5.7
122	20	124.6	6.99	127	4	130	1.5	132	4.5	134.3	6
122.42	3.53	124.8	2.5	127	4.5	130	2	132	5	134.4	3.1
122.5	2	124.8	9	127	5	130	2.4	132	5.3	134.5	1.78
122.5	2.5	124.82	1.78	127	5.33	130	2.5	132	5.65	134.5	2
122.5	4	125	1.5	127	5.5	130	3	132	6	134.5	3
122.8	3.5	125	1.8	127	6.75	130	3.15	132	7	134.5	4
123	2	125	2	127	8	130	3.5	132	8	134.5	4.5
123	2.5	125	2.4	127	10	130	4	132	10	134.5	5
123	3	125	2.5	127.5	2	130	4.2	132.2	2.3	134.5	6.99
123	3.3	125	2.65	127.5	3	130	4.3	132.2	5.7	134.6	5.7
123	3.5	125	3	127.5	4	130	4.5	132.4	2.62	135	1.5
123	4	125	3.5	127.5	5.7	130	5	132.5	1.6	135	1.9
123	4.5	125	3.55	127.5	6.8	130	5.5	132.5	2.4	135	2
123	5	125	4	127.7	1.5	130	5.8	132.7	5.7	135	2.2
123	6	125	4.2	127.7	4	130	6	132.72	2.62	135	2.5
123	6.3	125	4.5	128	1.5	130	6.35	132.72	5.33	135	2.65
123	6.5	125	5	128	2	130	6.5	132.72	6.99	135	2.75
123	7	125	5.3	128	2.5	130	6.65	132.9	2.5	135	3
123	7.5	125	6	128	2.6	130	7	132.94	3.53	135	3.1
123	8	125	6.5	128	3	130	7.5	133	1.5	135	3.2
123	9	125	7	128	3.5	130	8	133	2	135	3.38
123	12	125	7.5	128	3.55	130	9	133	2.5	135	3.5
123	13	125	8	128	4	130	9.6	133	2.62	135	4
123.03	3.68	125	8.5	128	4.5	130	10	133	3	135	4.1
123.19	4.85	125	9.1	128	5	130	10.8	133	3.2	135	4.5

Dimensions

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
135	5	138	3	140	7	143.4	3	146	5	149.5	2
135	5.5	138	3.5	140	7.5	143.5	1.6	146	5.5	149.5	3
135	5.7	138	4	140	8	143.5	1.78	146	6	149.5	8.4
135	5.8	138	4.4	140	8.6	144	2.5	146	7	149.5	9.5
135	6	138	4.5	140	10	144	3	146	8	149.6	5.7
135	6.5	138	5	140	11	144	3.5	146	12	150	1.2
135	7	138	5.3	140	12	144	3.7	146.05	5.33	150	2
135	7.5	138	6	140	15	144	3.8	146.07	4.7	150	2.38
135	7.7	138	6.5	140	16	144	4	146.1	3.2	150	2.5
135	8	138	7	140.37	3.53	144	4.5	146.3	5.7	150	2.62
135	9	138	8	140.5	4.5	144	5	146.5	4	150	3
135	9.1	138	10	140.64	5.34	144	5.25	147	1.78	150	3.1
135	10	138	16	141	2.4	144	5.5	147	2.5	150	3.5
135	11	138.5	6.55	141	2.5	144	6	147	3	150	3.55
135	12	138.94	1.78	141	3	144	6.5	147	3.5	150	4
135	13	139	2.5	141	3.5	144	8	147	4	150	4.5
135	15	139	3	141	4	144	10	147	4.33	150	5
135	17	139	3.5	141	4.5	144	10.7	147	5	150	5.3
135	17.5	139	4	141	5	144.02	1.78	147	6.5	150	5.4
135	18	139	4.5	141	6.25	144.1	8.4	147	8	150	5.5
135.4	4.2	139	5	141	7	144.2	3	147	14	150	5.8
135.5	4	139	6	141	9.8	144.2	5.7	147	15	150	6
135.5	9.2	139	7	141.5	2.5	144.27	4.06	147.3	3	150	6.35
135.6	4.12	139.07	1.78	141.5	3	144.3	5.7	147.5	3	150	6.5
135.7	3.53	139.07	5.33	141.5	7	144.4	3.1	147.5	4.5	150	6.7
135.76	1.78	139.07	6.99	141.5	10	144.5	3	147.55	2.62	150	7
135.9	5.33	139.2	2.4	141.5	12	144.5	3.7	148	1.78	150	7.5
135.9	6.99	139.2	2.8	142	2	144.5	4	148	2	150	8
136	2.5	139.2	5	142	2.5	144.6	5.7	148	2.5	150	9
136	3	139.2	5.7	142	3	144.7	3	148	3	150	10
136	3.5	139.2	6	142	3.5	145	1.5	148	3.5	150	11
136	3.55	139.3	2.4	142	4	145	2.5	148	3.75	150	12
136	4	139.3	3.53	142	5	145	3	148	4	150	15
136	4.25	139.3	5.7	142	5.33	145	3.5	148	4.5	150	20
136	5	139.38	2.62	142	6	145	3.55	148	5	150.88	3.53
136	5.3	139.4	3.1	142	6.3	145	4	148	5.5	151	2.6
136	6	139.5	3	142	6.5	145	4.2	148	6	151	3
136	7	139.5	4.5	142	7	145	5	148	7	151	3.5
136	8	139.6	5.7	142	7.5	145	5.25	148	8	151	4
136	10	139.7	4.75	142	8	145	5.3	148	10	151	5
136	12	139.7	5.33	142	10	145	5.5	148	12	151	7
136	13	139.7	6.99	142	12	145	6	148.2	5.7	151	8
136	17	139.7	7.92	142	18	145	6.5	148.46	1.78	151.4	4
136.12	3.53	139.7	15	142.11	1.78	145	7	148.5	2	151.5	2.5
136.5	4	140	1.5	142.24	5.33	145	7.5	148.5	4	151.5	8.5
136.5	4.5	140	1.78	142.24	6.99	145	8	148.5	5	151.59	1.78
136.5	6	140	2	142.47	3.53	145	8.6	148.5	7.5	151.64	1.78
136.53	5.33	140	2.3	142.5	3	145	10	148.5	8.4	151.69	3.2
137	2.5	140	2.4	142.5	5	145	15	148.59	5.33	151.77	3
137	2.62	140	2.5	142.7	5.7	145.29	1.78	148.6	5.33	151.77	5.33
137	3	140	2.65	142.8	5.8	145.41	3.3	148.6	6.99	151.77	6.99
137	3.4	140	3	142.88	5.33	145.42	5.16	148.82	3.53	151.78	1
137	3.5	140	3.15	143	1.78	145.42	5.33	149	2.5	151.8	4
137	4	140	3.2	143	2	145.42	6.99	149	3	151.99	2.4
137	4.5	140	3.5	143	2.5	145.42	7.92	149	3.5	151.99	3.53
137	4.7	140	3.55	143	3	145.45	6.55	149	4	152	1.5
137	5	140	3.75	143	3.5	145.5	6.35	149	5	152	1.6
137	6	140	3.8	143	3.7	145.5	6.5	149	6	152	2
137	6.5	140	4	143	3.97	145.65	3.53	149	6.5	152	2.5
137	7	140	4.3	143	4	145.72	2.62	149	7	152	2.6
137	8	140	4.5	143	5	145.77	1.78	149	8	152	3
137.37	2.62	140	5	143	5.7	146	2	149	12	152	3.5
137.5	2.5	140	5.3	143	6	146	2.5	149.1	8.4	152	4
137.5	3	140	5.5	143	6.35	146	3	149.2	4.76	152	5
137.8	20	140	5.8	143	6.5	146	3.5	149.2	5.7	152	5.1
138	2	140	6	143	8	146	4	149.2	6.2	152	5.5
138	2.1	140	6.3	143	10	146	4.5	149.23	5.33	152	6
138	2.5	140	6.35	143	12	146	4.57	149.3	5.7	152	7

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
152	7.5	155	6	158.35	3.53	161.1	10	164.47	5.33	167.5	5.7
152	8	155	6.75	158.4	3.2	161.16	1.78	164.47	6.99	167.5	8
152	8.5	155	7	158.41	2.62	161.3	5.33	164.5	2	167.51	1.78
152	10	155	7.5	158.44	3.53	161.3	10	164.5	3	167.7	5.33
152	12	155	8	158.59	5.33	161.6	2.4	164.5	3.53	167.8	2.62
152.07	2.62	155	9	158.75	6.35	161.9	6.99	164.5	7	168	2
152.09	5.12	155	9.5	158.75	12.7	162	2.3	164.5	8.4	168	3
152.2	5.5	155	10	158.8	6.4	162	2.5	164.5	13	168	3.5
152.5	1.5	155	15	158.88	2.62	162	3	164.67	5.33	168	4
152.5	2.5	155.5	6	159	2.5	162	3.15	164.7	3.53	168	4.5
152.5	7	155.5	7	159	3	162	3.5	164.78	2.62	168	5
152.62	2.62	155.6	5.33	159	3.5	162	3.53	165	1.5	168	6
153	2	155.6	6.99	159	4	162	4	165	2	168	7
153	2.5	156	2	159	5	162	4.5	165	2.4	168	8
153	3	156	2.5	159	6	162	5	165	2.5	168	10
153	3.5	156	3	159	6.3	162	6	165	3	168	11
153	4	156	3.5	159	6.8	162	7	165	3.5	168	12
153	4.5	156	4	159	7	162	8	165	3.55	168	16
153	5	156	4.8	159	11	162	10	165	4	168.3	5.7
153	6	156	5	159.1	8.4	162	12	165	4.5	168.3	6.99
153	10	156	5.5	159.2	5.7	162.1	5.2	165	5	168.5	3
153	14	156	6	159.2	7	162.3	2.5	165	5.3	168.5	6.25
153	15	156	6.5	159.3	2.4	162.3	6.35	165	5.5	169	2.4
153.5	1.6	156	7	159.3	5.7	162.5	2.5	165	6	169	2.5
153.5	3	156	8	159.5	2.5	162.5	3.5	165	6.2	169	3
153.5	5	156	10	159.5	3	162.5	4	165	6.5	169	3.5
153.5	6.8	156	12	159.5	6.99	162.6	7	165	7	169	4
153.52	6.99	156	16	159.5	8.4	162.76	2.38	165	7.5	169	5
154	3	156.3	5.7	159.5	9.5	163	1.5	165	8	169	6
154	3.5	156.5	2.5	159.7	3	163	1.78	165	10	169	15
154	4	156.5	5.7	160	1.5	163	2	165	12	169.1	8.4
154	5	156.5	7	160	2	163	3	165	14	169.2	5.7
154	6	157	1.5	160	2.3	163	3.5	165	16	169.2	6.2
154	7	157	2	160	2.4	163	4	165	20	169.2	7
154	8	157	3	160	2.5	163	4.5	165.4	5.33	169.3	5.7
154	10	157	3.5	160	3	163	5	165.5	4	169.5	3
154	12	157	4	160	3.5	163	6	165.5	5.5	169.5	8.4
154.1	8.4	157	4.5	160	3.55	163	6.35	166	1.78	170	1.78
154.2	5.33	157	5	160	4	163	7	166	2.5	170	2
154.2	5.7	157	6	160	4.2	163	9	166	3	170	2.4
154.3	5.7	157	6.5	160	4.5	163.1	2.5	166	3.5	170	2.48
154.3	6.4	157	6.55	160	4.75	163.3	2.5	166	4	170	2.5
154.4	3.1	157	7.5	160	5	163.6	2.2	166	5	170	2.62
154.4	4	157	8	160	5.25	163.7	8.6	166	6	170	3
154.5	3	157	8.3	160	5.3	163.8	7	166	6.2	170	3.1
154.5	4	157	15	160	5.5	164	2	166	10	170	3.2
154.5	5	157	20	160	5.8	164	3	166	13	170	3.5
154.5	8.4	157.5	7	160	6	164	3.5	166	15	170	3.55
154.5	10	158	1.78	160	7	164	4	166	19	170	4
154.81	1.78	158	2	160	7.2	164	4.1	166.1	2.5	170	4.5
155	1.5	158	2.5	160	7.5	164	4.7	166.2	14	170	5
155	1.7	158	3	160	8	164	5	166.2	20	170	5.3
155	2	158	3.5	160	8.5	164	6	166.7	6.99	170	5.5
155	2.5	158	4	160	9	164	7	166.75	2	170	5.8
155	2.6	158	4.5	160	10	164	7.2	166.8	5.3	170	6
155	3	158	5	160	12	164	8	167	2.5	170	6.4
155	3.1	158	6	160	14	164	8.3	167	3	170	6.5
155	3.2	158	6.5	160	14.3	164	8.4	167	3.5	170	7
155	3.5	158	6.7	160	15	164	8.5	167	4	170	7.5
155	3.55	158	6.9	160	16	164	10	167	5	170	8
155	4	158	7	160	20	164	12	167	6.5	170	8.5
155	4.2	158	8	160.3	2.5	164	12.7	167	7	170	9
155	4.5	158	12	161	2.4	164.1	8.4	167	8	170	9.5
155	5	158	16	161	3	164.2	5.7	167	10	170	10
155	5.3	158	18	161	3.5	164.2	6.99	167.28	8	170	12
155	5.33	158.12	2.62	161	4	164.3	3	167.4	3.3	170	12.5
155	5.5	158.12	5.33	161	5	164.3	5.7	167.5	2.62	170	13
155	5.7	158.12	6.99	161	10	164.34	1.78	167.5	3.5	170	14

Dimensions

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
170	15	174.1	8.4	177.5	12	181	4	185	3.5	189.2	5.7
170.3	4.7	174.2	3.6	177.8	6.35	181	5	185	3.55	189.3	5.33
170.39	3.53	174.2	5.7	177.8	6.6	181	6.99	185	4	189.3	5.5
170.4	4	174.3	5.33	177.9	8	181	7	185	4.2	189.3	5.7
170.69	1.78	174.3	5.7	178	2	181.4	4.3	185	4.5	189.5	2.5
170.82	5.33	174.4	3.2	178	3	181.48	5.33	185	5	189.5	3
170.82	5.83	174.5	3	178	3.5	181.5	2.5	185	5.3	189.5	4.5
170.82	6.99	174.5	8.4	178	4	181.5	16	185	6	189.5	8.4
171	2.7	174.6	6.99	178	4.5	181.8	2.4	185	6.5	189.6	5
171	3	175	2	178	5	182	1.78	185	7	189.8	2.5
171	3.5	175	2.4	178	6	182	2	185	7.5	189.86	7.06
171	3.53	175	2.5	178	7	182	3	185	8	189.87	5.33
171	4	175	2.62	178	8	182	3.5	185	8.5	189.87	6.99
171	5	175	2.7	178	10	182	4	185	9	190	2
171	7	175	3	178	12	182	5	185	10	190	2.5
171	9	175	3.5	178	15	182	6	185	15	190	2.6
171	10	175	3.55	178	20	182	7	185.34	3.5	190	2.65
171	11	175	4	179	2.5	182	8	185.4	5.33	190	2.7
171	12	175	4.5	179	3	182	8.3	185.5	8.5	190	3
171.05	3.53	175	5	179	3.2	182.3	7	186	3	190	3.1
171.13	2.62	175	5.2	179	3.5	182.5	4	186	3.5	190	3.2
171.4	3.2	175	5.3	179	4	183	3	186	4	190	3.5
171.45	6.35	175	5.5	179	5	183	3.5	186	4.5	190	3.55
172	1.78	175	6	179	5.5	183	4	186	5	190	4
172	2	175	7	179	8	183	5	186	6	190	4.5
172	2.5	175	7.5	179	10	183	6	186	7	190	5
172	3	175	8	179	12	183	7	186	8	190	5.3
172	3.5	175	10	179.1	8.4	183	9	186	9.5	190	5.5
172	4	175	12	179.2	5.7	183	10	186.5	3.53	190	5.8
172	4.2	175	13	179.3	5.7	183.33	2.62	186.5	8.5	190	6
172	4.5	175	15	179.4	3.1	183.5	3	187	3	190	6.3
172	4.8	175.13	5.33	179.5	2	183.52	5.33	187	3.5	190	6.5
172	5	175.3	2.4	179.5	3	183.52	6.99	187	3.53	190	7
172	5.5	175.5	3	179.5	5	183.74	5.33	187	4	190	7.5
172	6	175.6	14	179.5	8.4	183.75	3.53	187	5	190	8
172	6.3	175.6	20	180	1.5	183.83	2.62	187	5.33	190	8.5
172	7	176	2.4	180	2	184	1.5	187	7	190	9
172	8	176	2.5	180	3	184	1.78	187.3	6.99	190	10
172.5	2.5	176	2.7	180	3.1	184	2	187.5	4	190	12
172.5	3.5	176	3	180	3.5	184	2.5	187.5	6	190	13
173	2	176	3.5	180	3.55	184	3	187.5	15	190	14
173	2.4	176	3.6	180	4	184	3.5	187.62	2.62	190	15
173	2.5	176	4	180	4.2	184	4	187.7	1.7	190	20
173	3	176	5	180	4.5	184	5	187.7 4	3.53	190	25
173	3.1	176	6	180	4.76	184	5.7	188	1.5	190.1	3.53
173	3.5	176	7	180	5	184	6	188	2	190.18	2.62
173	3.6	176.2	7	180	5.3	184	6.4	188	3	190.5	3.17
173	4	176.26	2.38	180	5.4	184	6.5	188	3.5	191	3
173	5	176.8	3.53	180	5.5	184	7	188	4	191	3.5
173	5.33	176.8	3.6	180	5.7	184	8	188	5	191	4
173	8	177	1.5	180	5.8	184	8.4	188	6	191	5
173	9	177	1.78	180	6	184	10	188	6.5	191	5.5
173	10	177	2	180	7	184	12.7	188	7	191	6
173.37	5.7	177	2.62	180	7.5	184	15	188	8	191	7
173.5	3	177	3	180	8	184.1	8.4	188	10	191	7.5
173.5	5	177	3.5	180	9	184.15	6.35	188	12	191	8
173.87	1.78	177	4	180	10	184.2	5.7	188	15	191	14
174	2.5	177	4.4	180	10.2	184.3	5.7	188.1	2.5	191.1	6
174	2.62	177	5	180	14	184.5	3	188.5	9	191.2	6
174	3	177	7	180	15	184.5	8.4	189	2.6	192	2
174	3.2	177.17	5.33	180	16	185	1.5	189	3	192	2.5
174	3.3	177.17	6.99	180	17	185	2	189	3.5	192	3
174	3.5	177.4	3.53	180	20	185	2.5	189	4	192	3.5
174	4	177.4	5	180.34	1.78	185	2.62	189	4.5	192	4
174	5	177.4	5.5	180.37	2.39	185	3	189	5	192	4.5
174	5.25	177.47	2.62	181	2	185	3.1	189	6	192	5
174	5.33	177.5	4.2	181	3	185	3.2	189	8.4	192	6
174	6	177.5	10	181	3.5	185	3.25	189.1	8.4	192	6.1

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
192	7	196	10	200	10	205	3.6	209.23	2.62	214	2.5
192	8	196.22	1.78	200	10.2	205	4	209.3	5.7	214	3
192	14	196.22	5.33	200	11	205	4.5	209.5	3	214	3.5
192.22	6.99	196.22	6.99	200	12	205	5	209.5	6	214	4
193	1.5	196.22	8	200	15	205	5.33	209.5	8.4	214	4.5
193	2	196.44	3.53	200.5	8.4	205	5.5	209.55	6.35	214	5
193	2.62	196.44	6.35	200.7	6.99	205	6	210	1.5	214	5.5
193	3	196.53	2.62	201	3	205	7	210	1.8	214	6
193	3.5	196.9	3.2	201	3.5	205	7.5	210	2	214	7
193	4	197	3	201	4	205	8	210	2.5	214	12
193	5	197	3.5	201	5	205	9	210	3	214	20
193	6	197	4	201	6	205	11	210	3.1	214.1	8.4
193	6.5	197	5	201	8	205	15	210	3.5	214.3	5.7
193	7	197	8	201	9	205	20	210	4	214.5	3
193	16	197.15	3.53	201	10	205.3	6	210	4.5	214.5	7
193.5	4	198	3	201	11	205.87	11.1	210	5	214.5	8.4
193.5	5	198	3.5	201	12	206	3	210	5.5	215	2.2
193.5	5.33	198	3.8	202	2	206	3.5	210	6	215	2.5
193.7	6.99	198	4	202	3	206	4	210	6.4	215	3
194	2	198	5	202	3.5	206	5	210	6.5	215	3.5
194	2.2	198	6	202	3.6	206	5.3	210	7	215	4
194	2.5	198	6.5	202	4	206	5.7	210	7.5	215	4.5
194	3	198	7	202	5	206	6.99	210	8	215	5
194	3.5	198	7.5	202	5.5	206	7	210	8.6	215	5.3
194	4	198	8	202	6	206	8	210	9.5	215	5.5
194	5	198	9.5	202	7	206	10	210	10	215	5.7
194	5.33	198	10	202	8	206	12	210	11	215	6
194	6.1	198.5	3	202	12.5	206	14	210	12	215	6.4
194	7	198.7	10	202	12.7	206	15	210	13	215	6.5
194.1	8	199	3	202	18	206.5	3.53	210	20	215	7
194.1	8.4	199	3.5	202.57	5.33	207	3	211	3	215	7.5
194.2	5.7	199	4	202.57	6.99	207	3.5	211	3.5	215	8
194.3	3.1	199	5	202.79	3.53	207	4	211	4	215	10
194.3	5.7	199	7	202.87	2.62	207	4.5	211	5	215	13.5
194.44	2.53	199	11	203	3	207	5	211	5.7	215	20
194.5	2	199.1	8.4	203	3.5	207	5.7	211	12	215.17	2.62
194.5	3	199.2	5.7	203	4	207	7	211.5	5.7	215.27	2.62
194.5	8.4	199.2	7	203	5	207	9	212	1.78	215.27	5.33
194.7	5.3	199.3	3	203	6	207.5	5.5	212	2.5	215.27	6.99
195	2	199.3	5.7	203	6.35	207.5	7.5	212	2.75	215.49	1.78
195	2.5	199.5	3	203	7	208	3	212	3	215.49	3.53
195	3	199.5	8.4	203	12	208	3.3	212	3.15	215.58	2.62
195	3.5	199.8	6.99	203	15	208	3.5	212	3.5	215.65	1.59
195	3.55	200	1.5	203.5	4	208	3.6	212	3.55	215.67	5.33
195	3.75	200	1.6	203.5	6	208	4	212	4	215.9	1.78
195	4	200	1.78	204	2.5	208	4.5	212	5	215.9	6.35
195	5	200	2	204	3	208	5	212	5.3	216	2
195	5.3	200	2.5	204	3.5	208	5.5	212	5.7	216	3
195	5.5	200	2.62	204	4	208	6	212	6	216	3.5
195	5.9	200	2.8	204	4.5	208	6.65	212	6.3	216	4
195	6	200	3	204	5	208	7	212	6.5	216	5
195	7	200	3.2	204	6	208	8	212	7	216	6
195	7.5	200	3.5	204	7	208	8.5	212	8	216	6.99
195	8	200	3.55	204	8	208	9	212	10	216	8
195	8.6	200	4	204	8.4	208.5	3.5	212	12	216.5	2.5
195	9	200	4.2	204	15	208.5	8.4	212.4	7.3	216.65	1.9
195	10	200	4.5	204.1	8.4	208.92	5.33	212.5	4.5	216.65	2.7
195	15	200	5	204.2	5.2	208.92	6.99	212.5	15	217	1.78
195	16	200	5.3	204.2	5.7	209	1.78	212.6	2.18	217	3
195.5	5	200	5.5	204.4	14	209	3	213	2.4	217	3.5
196	3	200	5.6	204.5	3	209	3.5	213	3	217	4
196	3.5	200	6	204.5	8.4	209	4	213	3.5	217	5
196	4	200	6.3	204.7	3.5	209	5	213	4	217	5.2
196	4.5	200	6.5	205	1.5	209	5.3	213	5	217	6
196	5	200	7	205	2	209	7	213	5.4	217	7
196	6	200	8	205	2.5	209.1	8.4	213	8.5	217	7.5
196	7	200	8.35	205	3	209.14	3.53	213.91	6.35	217	8
196	8	200	8.6	205	3.5	209.2	5.7	214	2	217.5	2.5

Dimensions

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
218	2	221	5	225	10	230	3.55	234.5	5.33	239	6.5
218	2.2	221	6	225	12	230	3.8	234.5	8.4	239	7
218	3	221	8	225	15	230	4	234.54	3.53	239	7.5
218	3.5	221.5	5.7	225	20	230	4.5	234.63	2.62	239	8
218	3.55	221.62	5.33	225.2	5.7	230	5	234.82	2.62	239	10
218	3.6	221.62	6.99	225.5	5	230	5.3	235	2	239.1	8
218	4	221.84	3.53	226	2	230	5.33	235	2.3	239.1	8.4
218	4.2	221.93	2.62	226	2.5	230	5.5	235	2.5	239.1	10
218	4.5	222	1.78	226	3	230	5.7	235	3	239.2	5.7
218	5	222	2	226	3.5	230	6	235	3.5	239.3	5.7
218	5.3	222	2.5	226	4	230	7	235	4	239.3	6.5
218	5.33	222	2.62	226	5	230	7.5	235	5	239.3	7
218	5.8	222	3	226	6	230	8	235	5.33	239.5	2.75
218	6	222	3.2	226	8	230	8.72	235	5.5	239.5	3
218	6.35	222	3.5	226	10	230	9	235	6	239.5	7.5
218	7	222	4	226	11	230	10	235	6.99	239.5	8.4
218	7.2	222	5	226	12.7	230	11	235	7	240	2
218	8	222	5.5	227	2	230	15	235	8	240	2.5
218	10	222	6	227	2.5	230	18	235	8.5	240	3
218	12	222	6.5	227	3	230	20	235	9	240	3.5
218	19	222	6.53	227	3.3	230.84	3.5	235	10	240	3.53
218.19	3.53	222	7	227	3.5	231	3	235	12	240	4
218.4	4.18	222	12	227	4	231	3.5	235	15	240	4.2
218.5	4.5	222	12.7	227	4.5	231	4	235	15.9	240	4.5
218.5	5.8	222.4	5	227	5	231	5	236	3	240	4.8
218.7	2	222.5	3	227	6.5	231	8.4	236	3.5	240	5
219	3	222.5	6	227	7	231	15	236	3.55	240	5.7
219	3.4	222.94	2.6	227	9	231.78	11.11	236	4	240	6
219	3.5	223	2	227	10	232	2.5	236	5	240	6.5
219	4	223	3	227	20	232	3	236	5.3	240	7
219	4.5	223	3.5	227.97	5.33	232	3.5	236	6	240	7.5
219	5	223	4	227.97	6.99	232	4	236	7	240	8
219	8.4	223	5	228	2.5	232	5	236	12	240	8.4
219	16	223	6	228	2.6	232	6	236	14	240	8.6
219.1	8.4	223	12	228	3	232	7	236.55	4.33	240	9
219.2	5.7	223.3	5.7	228	3.5	232	8	237	3	240	10
219.3	5.7	223.9	8.2	228	4	232	9.5	237	3.15	240	11
219.49	3.53	224	3	228	5	232	9.52	237	3.5	240	12
219.5	3	224	3.5	228	5.7	232	17	237	3.53	240	14
219.5	5.33	224	3.55	228	6	232.2	3.6	237	4	240	15
219.5	8.4	224	3.8	228	7	232.55	3.53	237	4.2	240	20
220	2	224	4	228	7.5	233	3	237	5	240.1	3.9
220	3	224	5	228	8	233	3.2	237	5.5	240.67	5.33
220	3.5	224	5.3	228	10	233	3.5	237	6	240.67	6.99
220	4	224	6.3	228	20	233	4	237	7	240.89	3.53
220	4.5	224	7	228.19	3.53	233	5	237	7.5	240.98	2.62
220	5	224	8.4	228.28	2.62	233	6.5	237.2	2.2	241	2.5
220	5.33	224	10	228.47	7.66	233	7	237.5	6	241	3
220	5.7	224.2	2.5	228.6	6.35	233	8	238	2	241	3.5
220	6	224.3	3.1	228.8	2.5	234	2.5	238	3	241	4
220	6.5	224.5	6.4	229	3	234	3	238	3.2	241	5
220	6.8	224.5	8.4	229	3.5	234	3.5	238	3.5	241	5.3
220	7	225	2	229	4	234	4	238	3.6	241	6
220	7.5	225	2.5	229	5	234	5	238	4	241	6.4
220	8	225	2.8	229	6	234	6	238	5	241	7
220	8.2	225	3	229	9	234	6.5	238	5.5	242	3
220	8.4	225	3.5	229	12	234	8	238	5.7	242	3.5
220	8.6	225	3.53	229.1	8.4	234	8.4	238	6	242	4
220	10	225	4	229.2	5.7	234	8.5	238	6.3	242	4.5
220	10.11	225	4.5	229.3	5.7	234	10	238	7	242	5
220	14	225	5	229.5	3	234	15	238	8	242	6
220	15	225	5.2	229.5	5	234	16	238	10	242	6.5
220	16	225	5.7	229.5	8.4	234.1	8.4	238	12	242	8
220	20	225	6	230	1.78	234.22	5.33	239	3	242.02	5.33
221	3	225	6.3	230	2	234.3	5.7	239	3.5	242.5	8
221	3.5	225	6.5	230	2.5	234.32	5.33	239	4	242.5	10
221	4	225	7	230	3	234.32	6.99	239	5	242.6	6
221	4.5	225	8	230	3.5	234.5	3.3	239	6	243	2.93

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
243	3	247.33	2.62	251.3	7	256	10	262	2	266.07	6.99
243	3.3	248	2	252	2	256	12	262	3.5	266.1	10
243	3.5	248	3	252	2.5	256.5	8.5	262	4	266.3	3.53
243	4	248	3.2	252	3.5	257	3	262	5	266.5	3
243	4.5	248	3.5	252	3.53	257	3.5	262	5.25	266.7	4.76
243	5	248	4	252	3.6	257	4	262	5.5	266.7	6.35
243	7	248	5	252	4	257	4.5	262	6	266.7	6.99
243	8.5	248	6	252	5	257	5	262	7	267	2
243	17	248	7	252	5.7	257.5	3	262	8	267	2.5
243.5	1.78	248	8	252	6	257.8	2.62	262	9	267	2.7
243.5	6	248	9	252	10	258	3	262	10	267	3
244	2	248	10	252	15	258	3.5	262	13	267	3.5
244	3	248	11	252.8	3.6	258	3.55	262	14	267	4
244	3.5	248	12	253	3.5	258	4	262.34	3.53	267	4.5
244	4	248	13	253	4	258	5	262.5	5.5	267	5
244	5	248	15	253	5	258	6	263	3.5	267	6
244	5.5	248.2	7.2	253	5.34	258	6.3	263	4	267	6.5
244	6	248.5	7	253	7	258	7	263	5	267	7
244	7	249	3	253	8	258	8	263	6.5	267	14
244	8	249	3.5	253	12	258	9	263.4	5	267.5	5.5
244	9	249	4	253.3	6.99	258	10	263.5	7	268	2.5
244	11	249	5	253.37	5.33	258	12	263.52	9.5	268	3
244.1	8.4	249	6	253.4	7	258	15	263.7	8.6	268	3.5
244.3	5.7	249	7	253.5	3.53	258.5	3.5	264	2.8	268	4
244.5	8.4	249	8	253.57	5.33	258.5	9	264	3	268	5
245	2	249	8.4	253.57	6.99	259	2.62	264	3.5	268	6.8
245	2.5	249.1	8.4	253.59	1.78	259	3	264	4	268	7
245	2.62	249.1	8.5	253.59	3.53	259	3.5	264	4.5	268	8
245	3	249.2	5.7	253.77	7	259	4	264	4.6	268	8.4
245	3.5	249.3	5.7	253.8	14	259	5	264	4.8	268	10
245	4	249.5	3	253.97	6.99	259	6	264	5	268.5	8.4
245	5	249.5	8.4	254	3	259	8	264	8	268.8	8.4
245	5.34	250	2	254	3.5	259	10	264	8.2	269	2
245	6	250	2.5	254	4	259	18	264	8.4	269	2.5
245	6.5	250	2.62	254	5	259.1	8.4	264	18	269	3
245	6.7	250	3	254	6.35	259.2	5.7	264.1	8.4	269	3.5
245	7	250	3.5	254	8	259.24	3.53	264.2	5.7	269	3.53
245	7.5	250	3.53	254	10	259.26	2.62	264.5	2.62	269	4
245	8	250	3.55	254.1	1.9	259.3	3	264.5	8.4	269	5
245	10	250	4	254.3	5.7	259.3	5.7	264.8	6.6	269	5.5
245	11	250	4.5	254.5	3	259.5	5	265	2	269	6
245	12	250	4.6	254.5	4.52	259.5	8.4	265	2.5	269	6.9
245	15	250	5	254.5	8.4	259.7	6.99	265	3	269	8
245.2	5.7	250	5.3	254.7	8	260	2	265	3.2	269	9
246	2	250	5.33	255	2	260	2.5	265	3.5	269.2	5.7
246	2.5	250	5.5	255	2.5	260	3	265	3.55	269.24	5.33
246	3	250	5.7	255	3	260	3.5	265	4	269.3	5.5
246	3.5	250	6	255	3.5	260	3.53	265	4.4	269.3	5.7
246	4	250	6.3	255	3.53	260	4	265	5	269.5	6
246	5	250	6.5	255	4	260	4.1	265	5.3	269.5	8
246	6	250	7	255	4.2	260	4.5	265	5.33	269.5	8.4
246	8	250	8	255	5	260	5	265	5.5	270	2.2
246	9.5	250	9	255	5.7	260	5.5	265	5.7	270	2.5
246	15	250	10	255	6	260	6	265	6	270	3
247	2	250	12	255	7	260	6.5	265	6.5	270	3.5
247	3	250	15	255	8	260	6.99	265	7	270	4
247	3.5	250	18	255	10	260	7	265	8	270	5
247	4	250	20	255	20	260	8	265	10	270	5.3
247	5	250.5	9.5	255.5	10.2	260	8.6	265.5	2.5	270	5.5
247	5.33	250.9	9.1	256	2	260	10	266	3.5	270	6
247	6	251	3	256	2.5	260	20	266	4	270	6.3
247	6.99	251	3.5	256	3.5	260.5	3.3	266	5	270	6.5
247	7	251	4	256	4	260.5	5.3	266	5.7	270	7
247	8	251	5	256	5	261	3.5	266	6	270	7.5
247	10	251	7	256	7.2	261	4	266	7	270	7.6
247	12	251	8	256	7.3	261	5	266	10	270	8
247.02	5.33	251	12	256	7.5	261	5.33	266	19	270	9
247.24	3.53	251.14	6.99	256	8	261.5	8	266.07	5.33	270	10

Dimensions

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
270	12	276	6	281	4.5	287	15	293	2.5	298	10
270	13	276	6.4	281	5	287	20	293	3	298	11
270	14	276	7	282	3.5	287.7	5.3	293	3.5	298	12
271	3	276	8	282	4	288	2.62	293	4	298	15
271	3.5	276	12	282	5	288	3.5	293	5	298.5	6.35
271	4	276.43	2.62	282	6	288	3.53	293	5.5	298.5	9
271	5	277	3	282	8	288	4	293	6	298.7	8.6
271	5.33	277	3.3	282	14	288	5	293	7	299	2.62
272	2.5	277	3.5	282.17	3.53	288	6	294	2.7	299	3.5
272	3	277	4	283	2	288	7	294	3	299	4
272	3.5	277	5	283	3.5	288	14	294	3.5	299	5
272	3.53	277	6	283	4	288	18	294	4	299	8.6
272	4	277	7.5	283	5	288.2	6	294	5	299.1	8.4
272	4.3	277.8	2.62	283	5.33	289	3.5	294	6	299.2	5.7
272	5	278	3	283.18	6.99	289	4	294	11.5	299.3	5.7
272	5.3	278	3.15	283.18	12.7	289	5	294	14	299.5	8.4
272	7	278	3.2	283.5	9	289	8.4	294	17	300	1
272.4	6.99	278	3.5	284	2.62	289.2	5.7	294	20	300	2
272.4	7	278	4	284	3.5	289.3	5.7	294.2	5.7	300	2.3
272.64	3.53	278	5	284	4	289.5	8.4	294.48	7	300	2.5
272.97	5.55	278	6	284	5	290	2	294.5	6	300	2.62
273	3.5	278	8	284	6	290	2.5	294.5	8.4	300	3
273	4	278	10	284	8	290	3	295	2	300	3.2
273	4.5	278	12	284	8.4	290	3.5	295	2.6	300	3.5
273	5	278.7	3.53	284	9	290	3.55	295	2.9	300	3.53
273	6	278.7	5.7	284	10	290	3.75	295	3	300	3.55
273	7	278.7	7.4	284	12	290	4	295	3.5	300	4
273	8	278.77	5.33	284	14	290	5	295	4	300	4.5
273	12	278.77	6.99	284.2	5.7	290	5.3	295	5	300	5
273	16	278.89	3.53	284.3	5.7	290	5.33	295	6	300	5.3
274	2	279	3	284.3	6	290	6	295	7	300	5.7
274	3	279	3.5	284.5	4	290	6.5	295	8	300	6
274	3.5	279	3.53	284.5	8.4	290	7	295	10	300	6.5
274	4	279	4	284.75	3.53	290	7.5	295	12	300	7
274	5	279	5	285	2.4	290	8	295	15	300	7.5
274	6.5	279	6	285	3	290	9	295	17	300	8
274	8	279	6.9	285	3.5	290	9.6	295	20	300	8.4
274	8.4	279	7	285	4	290	10	295.5	5	300	8.6
274	8.6	279	8.4	285	5	290	12	295.5	8.4	300	9
274.2	5.7	279.1	8.4	285	5.33	290	15	295.8	12.7	300	10
274.3	3.1	279.2	5.7	285	6	291	3	296	2.5	300	12
274.5	4	279.3	3.17	285	7	291	3.5	296	3	300	12.5
274.5	8.4	279.3	5.7	285	8.4	291	4	296	3.5	300	12.7
275	2.5	279.4	6.35	285	9.53	291	5	296	4	300	15
275	3	279.5	8.4	285	10	291	6.2	296	5	301	1.78
275	3.5	280	2.5	285	10.7	291.4	3.53	296	5.33	301	3.5
275	4	280	3	285	15	291.47	5.33	296	8.4	301	4
275	5	280	3.5	285	17	291.47	6.99	296	12	301	4.5
275	5.15	280	3.55	285.1	6.99	291.47	7.82	297	2.4	301	5
275	6	280	4	285.75	7.94	291.7	3.53	297	3	301	6
275	7	280	4.5	285.87	3.53	292	1.5	297	3.5	301.5	2.62
275	7.4	280	5	286	2.4	292	2.65	297	4	302	3.5
275	7.5	280	5.3	286	2.43	292	3	297	5	302	3.53
275	7.6	280	5.33	286	3.5	292	3.17	297	7	302	4
275	8	280	6	286	4	292	3.5	297	8.8	302	4.3
275	8.4	280	6.3	286	5	292	4	297.5	5	302	5
275	10	280	7	286	5.5	292	5	297.57	5.7	302	8
275	13	280	8	286	6	292	5.7	297.8	6.99	302	8.4
275	14	280	8.6	286	6.2	292	6	298	2.4	302	12.5
275.6	3.53	280	9	286	7	292	7	298	2.5	303	3.5
275.8	8	280	10	286	8	292	8	298	2.53	303	4
276	2	280	12	286	10	292	9	298	2.62	303	5
276	2.15	280	15	286.8	8	292	10	298	3.5	303	6
276	3	280	16	287	3.5	292	20	298	4	303	9.5
276	3.5	280	17	287	4	292.1	3.18	298	5	303.5	9
276	4	280	20	287	4.2	292.1	6.35	298	6	304	3
276	5	281	3.5	287	5	292.6	8.4	298	7	304	3.5
276	5.34	281	4	287	10	292.79	3.53	298	7.2	304	4

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
304	5	309.2	5.7	315	4.5	320	10	326	11	332	3
304	5.7	309.5	4.5	315	5	320	12	327	3.5	332	3.5
304	6	310	2	315	5.3	320	20	327	3.53	332	4
304	7	310	2.5	315	5.33	320.5	14	327	3.6	332	5
304	8	310	3	315	6	321	3.5	327	3.7	332	5.33
304	8.4	310	3.5	315	6.99	321	4	327	4	332	6
304	9.53	310	4	315	7	321	5	327	5	332	16
304.1	5.7	310	4.5	315	8	321	5.33	327	8	333	3.5
304.17	5.33	310	5	315	10	321	12.7	327	14	333	4
304.17	6.99	310	5.7	315	12	321	13	327.56	5.33	333	4.5
304.2	5.7	310	6	315	15	322	3.5	328	2.5	333	5
304.36	5.7	310	6.5	315	20	322	4	328	2.98	333	6
304.39	3.53	310	6.6	315.6	6.99	322	5	328	3	333	7
304.8	3.2	310	7	315.8	3.53	322	8	328	3.5	333	8
304.8	6.3	310	8	316	2.62	322	9	328	4	333	10
305	3	310	8.4	316	3.5	322	13	328	5	333	12
305	3.5	310	8.5	316	4	322.5	4	328	6	333.2	3.6
305	4	310	9	316	5	322.86	8.02	328	7.5	334	2.5
305	4.5	310	10	316	7	323	2.62	328	10	334	3.5
305	5	310	12	316	8	323	3.5	328	12	334	4
305	5.3	310	15	316	9	323	4	328.5	6	334	5
305	6	310	16	316	12	323	5	328.5	6.5	334	8
305	6.35	310.13	5.33	316.26	2.62	323	5.7	328.6	8	334.2	12.3
305	6.7	310.5	6.99	316.7	5.33	323	7	329	3.5	334.3	5.7
305	7	311	3.5	316.87	6.99	323	10	329	4	334.5	8.4
305	7.25	311	4	316.9	12.5	323.2	6.99	329	5	334.7	8.6
305	7.5	311	5	317	3.5	323.3	5.7	329	8	335	2.4
305	8	311	6	317	4	323.7	8.6	329.2	5.7	335	3
305	8.5	312	2.62	317	5	323.8	5	329.3	5.7	335	3.5
305	10	312	3	317	7	324	3.5	329.5	8.4	335	3.55
305	20	312	3.5	317	9	324	4	329.57	5.33	335	4
305.5	8	312	4	317.5	2.62	324	5	329.57	6.99	335	4.5
306	3.5	312	5	317.5	6.35	324	5.34	329.8	3.53	335	5
306	4	312	5.3	317.5	9.5	324	6	329.8	3.75	335	5.3
306	5	312	5.5	318	2	324	7	330	2	335	5.34
306	6	312	6.3	318	3	324	8	330	3	335	6
306	6.3	312	8	318	3.5	324	8.4	330	3.2	335	7
306	8	312	10	318	4	324	9.53	330	3.5	335	7.5
306.4	2.62	312	18	318	5	324	17	330	4	335	8
306.5	2	313	3	318	6.3	324.1	8.4	330	4.5	335	8.4
306.8	10	313	3.5	318	14	324.3	5.7	330	5	335	10
307	3.5	313	4	318.5	5	324.5	7.5	330	5.5	335	20
307	3.55	313	5	319	3.5	325	2.5	330	5.7	335.9	6.99
307	4	313	7	319	4	325	3	330	6	336	3.5
307	5	313	10	319	5	325	3.5	330	6.5	336	4
307	5.3	313.26	2.62	319	5.7	325	3.52	330	7	336	5
307	6.8	313.5	7	319	7	325	4	330	7.5	336	6
307	7	314	2.62	319	8.4	325	5	330	8	336	7
307	8.4	314	3	319	10	325	5.2	330	8.4	336	7.4
307	9	314	3.5	319.1	8.4	325	5.3	330	8.5	336	8
307	9.2	314	4	319.2	3.53	325	5.5	330	8.75	336	9.35
307	12	314	5	319.2	5.7	325	6	330	9	336	9.53
307.57	3.53	314	6	319.3	5.7	325	6.5	330	9.53	336	12
308	3	314	7	319.5	5.7	325	7	330	10	336.5	5.5
308	3.5	314	7.5	319.5	8.4	325	7.5	330	13	336.6	3.18
308	4	314	8	320	2	325	8	330	14	336.6	5.8
308	5	314	8.4	320	2.5	325	10	330	15	336.6	8
308	6	314	8.6	320	3	325	11	330	16	337	3.5
308	7	314	12	320	3.5	325	12.7	330	20	337	4
308	8	314.3	5.7	320	4	325	16	330.2	6.3	337	5
308	9	314.5	5.7	320	5	325.6	3.2	330.2	6.35	337	6
308.86	5.33	314.5	8.4	320	5.33	326	3	330.2	12.7	337	8
309	3	315	2.5	320	5.5	326	3.5	330.3	12.5	337.5	7
309	3.5	315	3	320	6	326	4	331	3	338	3
309	4	315	3.5	320	6.5	326	5	331	3.5	338	3.5
309	4.5	315	3.53	320	7	326	5.5	331	3.53	338	4
309	5	315	3.55	320	8	326	5.7	331	4	338	5
309.1	8.4	315	4	320	8.6	326	8	331	5	338	6

Dimensions

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
338	6.3	344	2.62	349.5	2.5	355	12	363	3	370	5.3
338	7	344	3	350	2	355	15	363	3.5	370	5.5
338	9	344	3.5	350	2.5	355	20	363	4	370	5.7
338	12	344	4	350	3	355.2	3.53	363	5	370	6
338	13	344	5	350	3.5	355.6	6.5	363	5.34	370	7
338.4	1.5	344	5.7	350	4	355.6	6.99	363	6	370	7.5
338.4	1.6	344	6	350	4.5	356	3.5	363	8	370	8
338.4	3.53	344	8	350	5	356	4	364	3.5	370	8.4
339	3.5	344	8.4	350	5.2	356	5	364	3.53	370	10
339	4	344	9	350	5.5	356	8	364	4	370	11
339	5	344	16	350	6	356.5	10	364	5	370	12
339	7	344	20	350	6.5	357	2.62	364	8.4	370	14
339	8.4	345	2	350	7	357	3	364.2	5.7	370	15
339	15	345	3	350	8	357	3.5	365	2	370.75	14
339.2	5.7	345	3.15	350	9	357	4	365	3	371	3.5
339.3	5.7	345	3.5	350	10	357	5	365	3.5	371	4
339.5	8.4	345	4	350	11	357	5.7	365	4	371	5
339.57	5.33	345	5	350	12	357	7.5	365	4.5	371	8
339.6	3	345	5.3	350	13	357	8	365	5	371	8.5
340	3	345	5.33	350	17	357	12	365	5.3	372	3.5
340	3.5	345	5.6	350	20	357.4	5	365	5.75	372	4
340	4	345	5.7	351	3.5	357.4	5.7	365	6	372	5
340	4.6	345	6	351	4	358	3	365	7	372	6
340	5	345	6.5	351	5	358	3.5	365	8	372	8
340	5.33	345	7	351	7	358	4	365	8.5	372	10
340	5.5	345	8	351	10	358	5	365	10	372	12
340	5.7	345	10	352	3	358	5.7	365.1	8.4	373	2
340	6	345	20	352	3.5	358	6	365.5	12.5	373	2.4
340	6.4	346	2	352	4	358	6.3	366	2.5	373	3.5
340	7	346	3	352	4.5	359	3.5	366	3.5	373	4
340	7.2	346	3.5	352	5	359	4	366	4	373	5
340	7.5	346	4	352	6	359	5	366	5	373	7
340	8	346	5	352	8	359	5.33	366	7	373	8
340	8.6	346	6	352	10	359	7	366	8	373.5	5
340	9.3	346	8	352	12	359	8	366	9	374	3.5
340	10	346	9.4	352.5	5.7	359	8.4	366.1	3	374	4
340	11	346	9.5	353	2.62	359.1	8.4	366.54	3.53	374	5
340	12	347	3.5	353	3	359.2	5.7	367	3	374	5.7
340	16	347	4	353	3.5	359.3	5.7	367	3.5	374	8
340.4	3	347	5	353	4	359.5	8.4	367	4	374	9.52
340.4	6	347	6	353	5	360	3	367	5	374	10
340.6	7.2	347	7	353	6	360	3.5	367	7	374	16
341	3.5	347	9	353	7	360	4	367	7.5	374.2	6.35
341	4	347	18	353	10	360	5	367	8	374.5	8.4
341	5	348	3	353.37	3.53	360	5.5	367	20	374.5	9.52
342	3	348	3.5	353.37	6.99	360	5.6	367.67	6.99	375	2.5
342	3.2	348	3.53	353.7	8.6	360	6	367.9	5.5	375	3
342	3.5	348	4	354	3	360	6.5	368	2.5	375	3.4
342	4	348	5	354	3.5	360	7	368	3.5	375	3.5
342	5	348	6	354	4	360	7.5	368	4	375	3.55
342	6	348	7	354	5	360	8	368	5	375	4
342	7	348	8	354	5.33	360	8.6	368	5.33	375	5
342	7.5	348	8.5	354	7.5	360	9	368	6	375	5.3
342	8	348	11	354	8	360	10	368	7	375	6
342.27	5.33	348	12	354.07	5.33	360	11	368	8	375	6.4
342.27	6.99	348.4	3.53	354.3	5.7	360	12	368	10	375	7
342.3	12.5	348.5	6	354.5	8.4	360	15	368.3	4.5	375	7.5
342.5	7.4	349	2.5	354.97	5.33	361	3.5	369	3.5	375	8
342.9	3.53	349	3	354.97	6.99	361	4	369	4	375	8.4
342.9	5.33	349	3.5	355	3	361	5	369	5	375	9
343	3.5	349	4	355	3.5	361	6	369	9	375	10
343	4	349	5	355	3.55	362	3	369.1	8.4	375	11
343	4.5	349	5.33	355	4	362	3.5	369.3	5.7	375	13
343	5	349	5.7	355	5	362	4	370	2.5	376	3
343	6	349	7.5	355	5.3	362	5	370	3	376	3.5
343	7	349.1	8.4	355	6	362	7	370	3.5	376	4
343	10	349.2	5.33	355	7	362	8	370	4	376	5
344	2.5	349.2	5.7	355	7.5	362	12	370	5	376	6

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
376	8	383	8.1	390	6.55	397	7	404	3	410	7
376	9.5	383	8.4	390	6.7	397	8	404	3.5	410	8
376	12	384	3.5	390	7	397	10	404	4	410	8.4
376	14	384	4	390	7.2	397	13	404	6	410	9
377	3.5	384	5	390	8	397.1	8.4	404	6.5	410	10
377	4	384	8	390	9	397.51	9.53	404	8	410	12
377	5	384	8.4	390	10	397.66	3.53	404	12	410	15
377	8	384	9.52	390	16	397.7	5.7	404.1	8.4	410	20
377	10	384	14.09	390	18	398	2.62	405	3	410.5	7
377	15	384.5	8.4	390.5	3.5	398	3	405	3.5	411	3.5
377.5	10	384.55	14.09	391	3.5	398	3.5	405	4	411	4
377.7	5.7	385	3	391	4	398	4	405	5	411.48	5.33
378	3	385	3.5	391	5	398	5	405	6	412	3.5
378	3.5	385	4	391	6.99	398	6	405	6.5	412	4
378	4	385	5	392	3.5	398	8	405	7	412	5
378	5	385	6	392	3.53	398	10	405	7.5	412	7
378	6	385	6.3	392	4	398	12	405	8	412	8
378	8	385	7	392	5	399	3.5	405	9.5	412	9
378	8.6	385	8	392	5.33	399	4	405	10	412	10
378	12	385	8.6	392	5.7	399	4.1	405	12	412.7	5.6
379	3.5	385	10	392	6	399	5	405	15	413	3.5
379	4	385	12.5	392	6.3	399	6	405	17	413	4
379	4.5	385	12.7	392	8	399.1	8.4	405	20	413	12
379	5	385.5	6	392.8	3	399.2	5.7	405.26	3.53	413.7	5.33
379	6	386	3.5	393	3	399.3	5.7	405.26	5.33	414	3.5
379.1	8.4	386	4	393	3.5	399.42	5.33	405.26	6.99	414	4
379.2	5.7	386	5	393	3.53	399.5	8.4	405.26	7.5	414	5
379.3	5.7	386	6	393	4	399.5	8.5	405.26	8	414	5.33
379.8	7	386	7.5	393	5	399.6	8.4	405.3	9.5	414	6.3
380	3	386	14	393	7	400	2	406	2.62	414	8.4
380	3.5	386.3	5.7	393.07	6.99	400	2.5	406	3	414	10
380	3.53	386.5	5	393.1	12.5	400	3	406	3.5	414	12
380	4	386.87	6.99	393.45	6.3	400	3.5	406	4	414	13
380	5	386.94	3.53	393.7	2.9	400	4	406	5	414	16
380	5.5	387	3	393.7	3.5	400	4.5	406	10	414.1	8.4
380	6	387	3.5	394	2.62	400	5	406.26	5.33	414.3	5.7
380	6.2	387	4	394	3.5	400	5.3	406.4	3.17	415	3
380	6.5	387	5	394	4	400	5.5	406.4	6.35	415	3.5
380	7	387	5.3	394	4.8	400	5.6	406.4	6.5	415	4
380	7.5	387	6.4	394	5	400	6	406.4	15.8	415	4.5
380	8	387	7	394	6	400	6.3	407	3.5	415	5
380	8.4	387	8	394	8	400	6.5	407	4	415	5.5
380	9	387	20	394	8.4	400	6.7	407	5	415	5.7
380	10	387.35	6.73	394	9	400	7	407	5.7	415	6
380	14	388	3.5	394	15	400	7.5	407	6.3	415	7
380	17	388	4	394.72	3.53	400	8	407	6.35	415	7.5
380	20	388	4.5	394.97	5.33	400	8.4	408	3.5	415	8.4
380.37	5.33	388	5	395	2	400	8.5	408	4	415	15
380.37	6.99	388	6	395	2.5	400	9	408	5	416	3.5
380.6	3.53	388	7	395	3	400	10	408	6	416	4
381	3.5	388	10	395	3.5	400	12	408	6.3	416	6
381	4	389	3.5	395	4	400	15	408	7.5	416	16
381	5	389	4	395	5	400	16	408	8	417	3.5
381	6.35	389	5	395	6	401	3.5	408	12	417	3.53
381	11.11	389	5.33	395	7	401	4	408.3	9.5	417	4
381.87	5.7	389	5.7	395	8	402	3.5	408.41	8	417	8
382	3	389	6	395	10	402	4	409	3.5	417.5	5.33
382	3.5	389	8	395	12	402	4.5	409	4	417.9	7
382	4	389.3	5.7	395	14	402	5.33	409	10	417.96	4
382	5	389.3	8.5	396	3.5	402	6	410	3	417.96	6.99
382	8	390	3	396	3.55	402	6.3	410	3.5	418	3.5
382	10	390	3.5	396	4	402	9	410	4	418	4
382	16	390	4	396	5	403	3	410	4.5	418	5.7
383	3	390	5	396	5.5	403	3.5	410	5	418	7
383	3.5	390	5.5	396	10	403	4	410	5.7	418	8
383	4	390	5.7	397	3.5	403	6	410	6	419	3.5
383	5	390	6	397	4	403	7	410	6.3	419	4
383	7.5	390	6.3	397	5	403.4	5	410	6.5	419	6

Dimensions

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
419	7	426	4	435	5.7	443	4	453	6.4	463	9.5
419	8.4	426	5.7	435	6	443	7	453.3	5.7	463.55	7
419	14	426	6	435	7	443.36	6.99	454	4	463.55	12.7
419.1	6.35	426	17	435	8	444	3	454	5	464	3.5
419.1	8.4	427	3.5	435	8.5	444	4	454	8	464	4
419.2	5.7	427	4	435	12	444	5	454	9.5	464	6
419.3	5.7	427	5	435	14	444	6	454	10	464	7.5
419.5	8.4	427	5.5	435	15.2	444	8	455	3	464	8
419.7	6.35	427	10	435	20	444	8.4	455	4	464	9
420	2.5	427	20	436	3	444.2	5.7	455	5	465	3
420	3	428	2.62	436	3.5	445	3.53	455	6	465	4
420	3.5	428	3.5	436	4	445	4	455	6.2	465	5
420	4	428	4	436	7	445	5	455	7	465	6
420	5	428	6	437	3.5	445	5.7	455	8.4	465	7
420	5.33	428	8	437	4	445	6	455	13	465	8.4
420	5.5	429	3.5	437	6	445	7	456	4	465	9
420	6	429	4	437	7	445	8	456	7	465	10
420	6.5	429	5.7	438	3	445	9	456	7.5	465.3	5.7
420	7	429	6	438	3.5	445	12	456.06	3.53	466	4
420	8	430	3	438	4	445	15	456.06	5.33	466	5
420	9	430	3.5	438	6	446	4	456.06	6.99	466.72	6.35
420	10	430	4	438	7.5	446	5.33	457	3	467	4
420	12.7	430	5	438	12	446	6	457	4	467	5.7
421	3.5	430	5.7	438	12.7	446	8	457	6.35	467	7.8
421	4	430	7	438	14	446	10	457	7	467	8.4
421	5	430	7.5	438.1	3.5	446	14	457	8	467	10
421	5.2	430	8	439	3	447	4	457	8.4	468	3.53
421.5	2.65	430	9	439	3.5	447	8	457	9	468	4
422	2	430	10	439	4	448	3	457	9.52	468	6
422	3	430	12	439	5.7	448	4	457.2	7	468	6.3
422	3.5	430	13	439	6	448	5	458	4	468	7
422	4	430	15	439	7	448	6	458	6	468	8
422	5.7	430	17	439.1	8.4	448	8	458	9	468.76	6.99
422	6	430	20	439.2	5.7	448	10	458	10	468.9	6.35
422	6.9	430.5	5.33	439.3	5.7	448	14	458	12	469	3
422	7.5	430.66	3.53	439.34	5.33	449	4	458.5	10	469	4
422.2	6.2	430.66	5.33	439.5	4	449	6	459	4	469	4.77
422.2	6.9	430.66	6.99	439.5	5.7	449	6.99	459.2	5.7	469	5.7
423	3.5	431	3.5	440	2	449.1	8.4	459.3	5.7	469	6.35
423	3.53	431	4	440	2.5	449.2	6.3	460	3	469	7
423	4	431	8	440	2.8	449.3	5.7	460	4	469.3	5.7
423	6	431	8.4	440	3	449.8	6	460	5	469.5	6.4
423	9	431.3	8.4	440	3.5	449.8	6.2	460	6	469.9	6.35
423	10	431.8	3.17	440	4	450	3	460	6.5	469.97	4.77
424	3	431.8	6.35	440	4.2	450	4	460	7	470	2.5
424	3.5	432	3.5	440	4.5	450	5	460	7.4	470	3
424	4	432	4	440	5	450	6	460	8	470	3.5
424	5	432	5	440	5.6	450	6.3	460	8.2	470	4
424	7	432	10	440	6	450	6.5	460	8.4	470	4.5
424	8.5	433	3	440	6.3	450	7	460	8.5	470	5
424	9.52	433	3.5	440	7	450	8	460	10	470	5.2
425	3	433	4	440	8	450	8.6	460	12	470	5.3
425	3.5	433	4.5	440	8.5	450	10	461	4	470	5.33
425	4	433	7	440	9	451	4	461	5	470	5.5
425	5	433.36	6.99	440	10	451	7	461	7	470	5.7
425	5.33	433.5	5.5	440	14	451	9	461	8.4	470	6
425	5.5	434	3.5	440	15	451	10	461	8.6	470	7
425	6	434	4	440	16	452	4	461.4	8.6	470	8
425	6.5	434	5	440	20	452	5.33	462	3	470	9.5
425	7	434	7	440.69	2.62	452	6	462	4	470	10
425	8	434	8	440.69	5.33	452	8	462	5.33	470	12
425	8.4	434	10	441	2.5	452	12	462	7	470.4	5.7
425	8.5	434.5	8.4	441	4	452.4	9	462	10	470.4	6
425	16	434.9	8.25	441	5	453	3.5	462	13	471	4
425.45	3.97	435	3	441	8	453	4	462	15	471	9
425.45	9.52	435	3.5	442	4	453	5.7	462.1	8.4	471	10
426	3.5	435	4	442	6	453	6	463	4	472	3.53
426	3.53	435	5	442	12	453	6.35	463	8	472	4

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
472	5	482	5.34	492	10	502	8.2	513	4	526	3.5
472	5.7	482	6	492.13	5.33	502	8.6	513	5.66	526	4
472	8	482.6	6.35	492.25	3.53	502	16	514	8	526	20
472	10	483	3	493	4	502.9	8.4	514	8.4	526.4	5.7
473	4	483	4	493	7	503	6	514	10	527	4.7
473	6.5	483	6	493	12.7	503	7.5	514	14	527	7
473	7.5	483	7	493.5	4	503	10	514.3	5.7	528	3
473.6	5.7	483	7.15	494	4	504	6	514.6	5.33	528	3.5
474	3	483	8.4	494	4.5	504	8	514.9	16	528	8
474	3.53	484	3	494	5.34	504.5	8	515	3	528	10
474	4	484	4	494	6	505	2.62	515	4	528	10.82
474	12	485	3	494	7	505	3	515	5	528	17
474.3	5.7	485	4	494	8	505	4	515	6	528.5	10.82
474.5	8.4	485	5	494.1	5.7	505	5.7	515	7	529	3
475	3	485	8	494.1	8.4	505	6	515	8	529	5.34
475	4	485	15	494.16	6.5	505	7	515	10	529.3	5.7
475	5	485.3	4.8	494.16	6.99	505	8	516	6	530	3
475	6	486	4	494.5	8	505	10	516	8	530	3.5
475	7	486	6	494.6	5.33	506	3.5	516	8.4	530	4
475	8	486	7	494.67	7	506	6	516	12	530	5
475	10	486	12	495	3	506	7	518	3	530	5.33
475	15	486	17	495	4	506	8	518	6.4	530	6
475.08	8.74	486	20	495	4.5	506.81	5.33	518	8	530	6.5
475.4	5	486.76	6.99	495	5	506.86	6.99	518.5	3	530	7
476	4	487	4	495	6.3	506.86	8	519	2.62	530	8
476	4.5	487	7	495	7	507	3	519	6	530	9
476	5	487	8	495	8	507	4	519	8	530	9.5
476	5.5	487	10	495	8.4	507	5	519.3	5.7	530	9.55
476	7	488	4	495	14	507	8.5	520	3.5	530	10
477	4	488	5	495.3	6.35	507	15	520	3.53	530	12
477	6.99	488	6	496	4	507.5	5.3	520	4	531	7
477	8	488	9	496	6	508	4	520	5	531	8
478	4	488	10	496	10	508	6	520	5.5	532	4
478	5	488.5	3	496	12	508	6.35	520	6	532	6.5
478	6	489	3	496.9	5.33	508	8	520	7	532	7
478	8	489	4	497	4	508	8.5	520	8	532	8.4
478	14	489	6	497	5.34	508	10	520	9	532	10
478	17	489.2	5.7	498	4	508	12	520	10	532.2	5.33
479	4	489.87	6.99	498	6.99	508.74	4	520	12	532.26	6.99
479.2	5.7	490	2	498	8	509	3.5	520.06	6.99	533	6
479.3	5.7	490	4	498.5	7.5	509.1	8.4	520.06	7	533	7
479.42	4.75	490	5	499	4	509.3	5.7	520.5	9.98	533	8
480	4	490	5.33	499	12	509.4	6	520.5	15	533.4	9.5
480	5	490	6	499.2	5.7	509.6	6	520.7	6.35	534	4
480	6	490	6.35	499.3	5	510	3	521	5.33	534	5.7
480	7	490	6.5	499.3	5.7	510	3.5	522	3	534	16
480	7.5	490	6.7	499.5	7	510	4	522	6	534.1	8.4
480	8	490	7	499.5	8.4	510	4.5	522	7	534.5	8.4
480	8.6	490	7.5	500	3	510	5	522	8	535	4
480	9	490	8	500	3.53	510	5.7	522	8.4	535	5
480	10	490	8.4	500	4	510	6	522	8.7	535	5.7
480	12	490	9	500	5	510	6.5	522	9.5	535	7
480	14	490	10	500	6	510	7	522	10	535	8
480	16	490	12	500	6.3	510	8	523	5	535	10
480	20	490	12.7	500	6.99	510	8.5	523	7	537	7
481	3.55	490	15	500	7	510	9	524	3	537	8
481	4	490	16	500	7.5	510	10	524.8	10	538	3
481	5.33	491	4	500	8	510	12	525	2.62	538	6
481	6	491	5.33	500	8.5	510	16	525	3	538	7
481	7	491.49	5.33	500	9	511.5	8	525	4	538	8
481	8	491.5	4	500	10	512	3	525	5	538	8.4
481	8.4	491.5	8.5	500	12	512	4	525	5.7	538	12
481.46	5.33	492	4	500	14	512	6	525	6	538.5	8
481.46	6.99	492	5.33	500	15	512	7	525	7	539	3.5
481.83	5.3	492	6	501	5	512	7.6	525	8	539	7
482	3.53	492	6.3	501.65	3.53	512	8	525	9	540	3
482	4	492	8	502	5.33	512	10	525	12	540	4
482	5	492	9	502	8	512	18	525.9	13	540	4.5

Dimensions

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
540	5	554	7	567	20	580	10	595	5	609.6	12.7
540	5.7	554	10	567.4	5.33	580	12	595	6	610	3.5
540	6	554	12	568	4	580	18	595	8	610	4
540	6.5	554.3	5.7	568	4.4	581	3.53	595	10	610	5
540	7	555	3.53	568	4.5	581	16	595	12	610	5.33
540	8	555	5	568	5	582	7	595	14	610	5.7
540	10	555	6	568	6	582	8	595	16	610	6
540	12	555	6.2	568	7	582	12	596	7	610	6.35
540	20	555	6.35	568	8	582	12.7	596	8	610	6.4
541	14	555	7	568.5	10	582	14	596	9	610	6.5
542	7	555	9	568.6	8.4	582.68	5.33	596.27	6.99	610	7
542	8	555	10	569	6	582.68	6.99	596.6	16	610	7.5
542	10	555	11.5	569	7	583	6.7	596.75	5	610	8
542.9	8.4	555	12	569.27	6.99	583	7	597	4.48	610	10
543	3.5	556	8	569.6	8.7	583	12	597	4.5	610	12
544	6	556	10	570	3	584	6.5	597	7	610	16
544	6.5	556	18	570	3.53	584	7	597.03	5.33	612	4
544	8	557	5.33	570	4	584	8.4	598	5.5	612	7
544	16	557.61	5.33	570	5	584	20	598	6	612	8
544.3	5.7	557.66	6.99	570	5.7	584.1	8.4	598	8	612	10
545	3	558	3	570	6	584.2	9.52	598	12	613	5.33
545	4	558	4	570	7	585	4	599	7.3	613	5.7
545	5	558	5.7	570	8	585	5	599.3	5.7	613	6.35
545	5.7	558	6.3	570	8.4	585	6	599.4	7.3	614	7
545	7	558	7	570	9.5	585	6.3	599.6	14.4	615	5
545	8	558	10	570	10	585	7	600	3	615	5.3
545	9	558.5	8.5	570	12	585	7.5	600	3.53	615	5.8
545	12	558.8	4	570.65	8.4	585	8	600	4	615	6
545	15	559.1	6.35	571	5	585	9.55	600	5	615	7
545.47	6.99	559.6	12	571	6.35	585	10	600	5.7	615	8.4
546	8	560	3	571	10	585	16	600	6	615	10
546	14	560	4	571.5	5	586	5.7	600	6.5	615	12
546	15	560	4.35	571.5	6.35	586	6	600	7	616	6
546.1	6.35	560	4.5	572	4	586	7	600	8	616	15.6
547	8	560	5	572	5.33	586	7.5	600	8.2	617	7
547	14	560	6	572	10	586	8	600	9	618	3
547.6	9.5	560	6.3	572.4	9	586.5	10	600	10	618	7
548	3.5	560	7	574	5.34	587	6	600	11	618	8
548	5.7	560	8	574	7	587	10	600	12	618	12.7
548	6.5	560	8.2	574	10	588	6	600	16	618	14
549	3	560	8.4	575	5	588	6.3	601	7.5	618	18
549	6	560	9.6	575	6	588	6.35	601.5	9.5	619	7
549	9.52	560	10	575	6.5	588	7	603	10	620	4
550	3	560	12	575	7	588	8.4	604	7	620	5
550	4	561	5	575	8	589	3.53	605	5	620	6
550	5	561	8	576	6	589	5	605	5.7	620	7
550	5.5	561	8.5	576	7	589	10	605	8.4	620	8
550	6	561.5	8.5	576	8	589	12	605.9	6.35	620	9
550	7	561.5	9	577	7	590	3	606	3	620	10
550	8	562	4	577	20	590	3.53	606	3.53	620	12
550	9	562	7.5	577	21	590	4	607	3	620	15
550	10	563	3	577.85	6.99	590	4.5	607	5	621	7
550	13	563	7	578	12	590	5	607	7	621	8
550	14	564	5.33	578	17	590	6	608	6	621	9
550	16	564	6	579	6	590	7	608	6.4	622	5.33
552	2.62	564	8	579	8	590	8.5	608	7	622	7
552	4	565	5	579.3	5.7	590	9	608	8.4	622	8
552	5.33	565	5.3	580	3	590	15	608	9	622	9
552	6	565	5.7	580	3.53	590	15.88	608	10	622.3	5.7
552	6.3	565	6	580	4	590	16	608	11	622.3	15.88
552	8	565	7	580	4.5	591	8	608.08	5.33	623	8
553	8	565	8	580	5	592	8	608.08	6.99	623	9
553	8.4	565	8.4	580	5.33	592	8.6	608.5	10	624	5
553.34	6.99	565	10	580	5.7	593	4	608.8	5.33	624	5.4
554	3.8	565.9	7	580	6	594	5.7	608.88	6.99	624	6.99
554	4	566	6.35	580	7	594	8	608.9	9	624	8
554	5	566	9	580	8	594	15	609	8	624	17
554	5.33	567	3	580	9	594.51	7.14	609.5	8	625	3

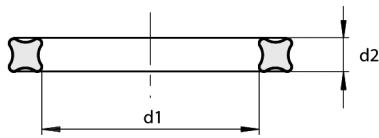
d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
625	5	643	5	660	5.33	680	6.3	700	6	720	6.5
625	5.33	643	8.4	660	5.7	680	7	700	6.3	720	7
625	6	643.9	8.4	660	6	680	7.3	700	6.35	720	8
625	6.35	644	10	660	7	680	8	700	7	720	10
625	7	644	11	660	8	680	8.2	700	7.3	720	12
625	8.4	645	5	660	9	680	8.4	700	8	722	8
625	10	645	6	660	10	680	9	700	8.4	722	16
626	7	645	7	660	12	680	10	700	9	723	6
628	5	645	8	660	12.7	680	11.5	700	10	723	7
628	7	645	10	660	13	680	12	700	12	723.9	12.7
628	9.05	646	8.4	661	10	680	15	700	13	724	5.7
628.5	7	647.07	7	661	14	680.6	8.2	700.4	14.8	724	7
629	3	647.7	5.33	662	6.9	681	7.5	701.8	3.53	724	12
629	5.7	647.7	6.99	662	8	681	8.2	701.8	7	725	3.53
629	6	648	5	663	5.4	682	6	702	3	725	4
629.3	5.7	648	5.3	663	6	682	7.5	702	8.6	725	5
630	3.5	648	6	663	8.8	682	8	702	20	725	5.33
630	4	648	7	664	10	683	5	702.66	5.33	725	5.7
630	5	648	8	665	5	683	8	703	10	725	6
630	6	648	8.4	665	5.33	683	10	704	10.8	725	6.99
630	6.3	648	15	665	5.7	684	6	704.9	13.97	725	7
630	7	649	8.4	665	6	684	7	705	5	725	9
630	7.2	650	3	665	6.35	685	3	705	5.3	725	10
630	8	650	3.53	665	7	685	4	705	5.33	725	17
630	8.4	650	4	665	8.4	685	5.34	705	6	726	7
630	10	650	5	665	12	685	5.7	705	7	726	12
630.6	8.2	650	5.7	665	16	685	6.3	705	8	726	13
631	9	650	6	665.18	5.33	685	6.99	705	14	726.6	12
632	3	650	6.7	665.4	6	685	7	705.6	8.2	727	8
632	8	650	7	666	9	685	20	707.54	6.99	728.98	13.97
632	12	650	8	667	6	686	3.5	708	4	729	7
633	6	650	9.5	667	7	686	7	708	6	730	3.53
633	7	650	10	668	6	686	8	708	7	730	4
633.48	5.33	650	11	668	7	687	6.35	710	3	730	5
633.48	6.99	650	12	668	12	687	7	710	4	730	5.7
634	6	650	15	669	13.2	688	6	710	5	730	7
634	7	650	20	669	18	690	3	710	5.7	730	8
635	5	651	4	669.5	5.6	690	4	710	6	730	8.2
635	5.1	651	7	670	3	690	5	710	7	730	8.4
635	5.7	651.5	11.5	670	4	690	5.33	710	8	730	9
635	6	652	6	670	5	690	6	710	8.4	730	10
635	6.35	652	9.5	670	6	690	7	710	9	730	12
635	7	653	4	670	7	690	7.5	710	10	730	16
635	7.3	653	8	670	8	690	8	710	12	730.4	13.97
635	8	654	6	670	8.4	690	8.4	712	10	730.5	7
635	8.4	654	18	670	10	690	9	712	11	731	7
635	9.5	655	4	671	10	690	10	713	7	731	10
635	10	655.34	5.33	671	15	691	8	714	8	731.32	6.99
635	12.7	656	6	672	4	692	5.34	714.3	5	731.52	7
636.9	3.53	656	7.9	672	10	692	7	715	5.7	732	9
637	10	656	8	672	16	694	6	715	8	732.4	8
638	4	657	8.4	673.1	3.53	694	7	715	8.4	734	7
638	4.9	658	5.7	673.5	8.2	694	10	715	10	735	5
638	6	658	6	674	5.7	695	6	716	5.3	735	6
639	4	658	7	675	5.33	695	8	716	7	735	6.35
640	3	658	8.2	675	7	695	8.4	717	10	735	8
640	4	658.54	5.33	675	8	695	10	718	5.4	736	5
640	5	658.6	8.2	675	15	696	7	718	6	736	7
640	6	658.88	5.33	675.16	6.99	697	4	718	8	736	9.5
640	6.3	658.88	6.99	676	8	697	12	718	9.5	736.6	5.33
640	7	658.9	7.3	678	10.82	698	7	719	3	736.6	6.99
640	8	659	7	679	5.33	699	7	719	6.9	736.6	8
640	9	659	9.52	679.5	3.53	700	3	719	12	736.6	9.52
641	8.6	660	3	679.5	5.33	700	4	719.3	5.7	737	5.33
641.6	8.7	660	3.5	680	3	700	4.15	720	4	737	7.3
642	3.53	660	4	680	4	700	5	720	5	737	9.5
642	5.7	660	5	680	5	700	5.3	720	6	738	10
642	8	660	5.3	680	5.33	700	5.7	720	6.3	738	10.25

Dimensions

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
738.5	8.2	760	5.33	785	8.4	815	10	844	3	875	10
739	3	760	5.9	785	10	816	5	844	7	876	7
740	4	760	6	785	16	817	8.4	844.2	5.7	880	5
740	5	760	7	785	20	818	12	845	2.5	880	7
740	5.3	760	8	786	6	819.3	5.7	845	7	880	8
740	6	760	8.4	786	7	819.87	7	845	8	880	8.4
740	6.3	760	10	786	10	820	3.53	845	8.4	880	10
740	6.35	760	12	787	7	820	5	845	10	881	7
740	7	760	14	787	8.4	820	5.33	846	7	882	3
740	8.4	761	8	788	6	820	6	846	8	882	6.35
740	9	762	5	789	10.82	820	6.3	847	5.34	882	7
740	10	762	6.35	790	5	820	7	850	3	882	10
740	12	762	15	790	5.33	820	8	850	4	882.6	6.35
740	20	763	6.99	790	5.7	820	9	850	5	883	3
741.5	10	763	7	790	6.5	820	10	850	6	883	12
742	7	764.3	5.7	790	8	820	12	850	7	885	4
742	8.4	765	7	790	10	820	20	850	8	885	5.5
742	10	765	12	790.3	8.4	822	5	850	8.4	885	8
742	20	766	5.33	791	10	822.5	8.4	850	9	885	8.4
742.9	6.99	766	7	792	8	825	5.33	850	10	886	7
743	3.5	767	10	792	20	825	8	850	14.5	887	7
743	7	767	19	793	12	825	9	850	15	888	8.4
743	8	768	8.4	794	3.53	825	10	850	20	889	8
743.3	5.7	769.3	5.7	794	7	825	20	853	5.33	889.2	5.7
744	8	770	4	794	8.4	826	6	854	5.7	890	3.53
745	6.35	770	7	795	5.33	826	7	854	7	890	5
745	7	770	8	795	7	828	6	854	15.9	890	5.3
745	8.4	770	8.2	797.3	5.7	828	7	855	6	890	5.34
745	10	770	8.3	798	4.2	829	8	855	7	890	5.7
748	3	770	8.4	798	5.7	829	10	855	8	890	6
748	5.33	770	10	799	8.4	830	4	855	10	891	17
749	3	770.3	8.4	799	12	830	5	858	16.5	892	8
749	5.7	771	8.5	799.5	8.4	830	5.33	860	3	894	3.53
750	3.53	771.5	8.5	800	3.53	830	6	860	5.34	894	12
750	4	774	8.4	800	4	830	7	860	6.99	894	13
750	5	774	20	800	5	830	8.4	860	7	894	14
750	5.33	774.1	8.4	800	5.33	830	9	860	8	895	3.53
750	6	775	5.33	800	5.7	830	10	860	10	895	4
750	7	775	8	800	6	831	3	860	12	895	6
750	7.5	775	8.4	800	7	834	6.5	860	20	895	8
750	8	775	16	800	8	834	10.5	863	7	895	8.4
750	8.4	776	7	800	8.4	835	5.3	864	3.2	895	12
750	9	778	3	800	9	835	5.34	864	5	900	5
750	10	779	10	800	10	835	8	864	10	900	5.33
750	15	779.46	5.33	801	3	835	10	865	3	900	6.35
751	7	780	5	802	15.6	835	12	865	6	900	7
752	5	780	5.7	804	6.35	836	5.7	865	8	900	7.5
752	6	780	6	804	8	836	7	865	8.4	900	8
752	7	780	7	804.2	5.7	837	9.5	865	9	900	9
752.5	8.4	780	7.5	805	5.33	837	10	865	10	900	10
754	7	780	8	805	20	838	5	865	12	902	4
754	8	780	8.4	806	6	838	6	865	14	902.6	3
754.5	8.4	780	9	806	6.99	838.2	9.52	865.8	16.5	904	6.99
755	5	780	10	806	10	839	5.7	867	7	904	7
755	5.34	780	11	809	3.1	840	4	868	10	905	3.53
755	7	780	12	809	5	840	4.5	869.3	5.7	905	10
755	8.4	780.47	5.34	809.63	7	840	5	870	5	906	7
756	7	782	6.99	810	6	840	6.35	870	6	907	5.33
757	3	782	9	810	7	840	7	870	8	910	5
757	7	782	10	810	8	840	8	870	10	910	6.5
758	6	783	10	810	8.4	840	9	870	12	910	8
758	8	784	7	810	9	840	10	872	5	910	8.4
758	12	784	8.5	810	10	840	12	874!	3	910	10
758	12.7	785	3	813	12	840	20	874.5	8.4	910	12
758.8	7	785	5	814	5.33	840	25	875	4	913	6
758.83	13.97	785	6.35	815	5	842	7	875	5.33	914	3.2
759	5.7	785	7	815	6	843	7	875	6.99	914	9.52
760	5	785	8	815	8	843	10	875	8	914.4	6.35

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
914.4	9.52	958	10	1010	7	1067	16	1135	8	1300	15
915	6	959	8.4	1010	8	1068	8	1139	5.37	1305	8
915	8.4	960	7	1010	9	1070	7	1140	7	1307.5	6
915	10	960	8.4	1010	10	1070	12	1140	12	1320	7
916	7	960	10	1012	9	1071	6	1142	7	1320	8
918	5.7	961	12	1013	6	1071	7	1142	8	1320	10
918	6	963	6.35	1013	7	1075	5.33	1143	6.35	1325	10
918	12	963	10	1014	5.34	1075	5.7	1145	8.4	1340	8
920	4	964.3	5.7	1014	8	1075	8.4	1145	10	1350	6
920	6	965	5	1014	8.4	1075	20	1145	19.8	1350	10
920	7	965	7	1014	9.5	1077	6.99	1150	4	1350	12
920	8	965	7.14	1015	8	1080	5.33	1150	7	1368.42	6.99
920	8.5	965	8	1016	6.35	1080	7	1150	8	1370	5
920	10	965	10	1016	7	1080	8	1150	8.4	1370	10
920	12	968	7	1016.4	12	1080	9	1150	10	1375	6
922	7	968	12	1017	5	1080	10	1150	16	1380	7
925	5.33	969	6	1019	5.7	1082	5	1151	12		
925	7	970	5.33	1020	4	1082	5.34	1155	6.35		
925	8	970	7	1020	8	1085	7	1157	5.33		
925	10	970	10	1020	10	1085	12	1160	5.7		
926	5.34	975	5	1023	7	1088	12	1160	8		
927	3	975	5.33	1023	15	1090	6	1160	9		
927	6	975	6	1024	7	1090	6.99	1160	10		
927	8	975	6.99	1025	5.33	1090	8	1164.5	5.33		
930	5	975	7	1025	12	1090	9	1165	10		
930	6	975	8	1026	3	1090	10	1170	5.5		
930	7	977	7	1026	6.99	1090	12	1170	7		
930	9	980	5	1027	12	1094.3	5.7	1170	10		
930	10	980	8	1029	6.35	1095	4	1172	5		
932	12	980	9	1030	5.7	1095	8	1172	5.7		
932.54	6.99	980	10	1030	8	1098	6.35	1175	5		
933	7	980	12	1030	9	1100	5	1175	15		
934	8.4	980	16.5	1030	10	1100	6	1180	7		
935	8	981	11	1030	13	1100	7	1180	8		
935	10	982	3	1030	13.7	1100	8.4	1180	8.4		
935	20	983	7	1030	14	1100	9	1185	7		
936	9.52	984	3	1033	12	1100	12	1185	8		
936	10	985	8.4	1035	10	1100	20	1185	12		
938	7	985	16	1036	9	1102	5.33	1190	7		
939.3	5.7	987	8	1038	10	1108	10	1192	10		
940	5	987	10	1040	5.33	1110	3.53	1195	8		
940	6	988	5.33	1040	7	1110	6.99	1209	6.35		
940	6.35	988	7	1040	10	1110	9	1210	8		
940	10	990	6.35	1044	8	1112	7	1220	5		
940	12	990	8	1045	5.33	1112	8.4	1220	10		
941	3	990	9	1045	5.7	1113	7	1225	8		
944	7	990	12	1046	7	1114	8.4	1226	7		
945	7	992	8	1046	12	1116	12	1230	7		
945	10	995	7	1047	14.8	1120	4.76	1235	15		
950	3	1000	3	1050	7	1120	6.35	1240	8.4		
950	5	1000	6	1050	8	1120	6.99	1240	10		
950	6	1000	7	1050	9	1120	8.4	1246	8		
950	7	1000	8	1050	10	1120	10	1250	10		
950	8	1000	8.4	1051	5.34	1122	5	1260	5		
950	10	1000	10	1052	6	1125	5.33	1260	6.35		
950	20	1000	12	1054	10	1125	8	1260	10		
952	7	1000	15	1056	12	1125	14.8	1260	12		
952.5	7	1002	3.53	1057	5	1125	15	1265	7		
953	7	1003	6.99	1060	5.34	1127.6	8.4	1268	5		
954	4	1003.6	8.4	1060	8	1129	5.7	1270	6		
955	9	1005	6	1060	8.4	1130	5	1270	10		
955	10	1005	9.52	1060	10	1130	5.7	1280	10		
956	3.53	1005.85	9.52	1060	11	1130	7	1286	14		
956	7	1006	5.33	1062	5.5	1130	8	1290	7		
957	3	1010	3.53	1062	6	1130	9	1290	10		
957	5.34	1010	5	1065	8.4	1130	10	1295	15		
957	7	1010	5.3	1065	10	1134	8.4	1300	6		
957	20	1010	6.99	1066	5.33	1135	5.34	1300	10		

X-RINGS



X-rings are four lipped seals with especially developed sealing profile. They are characterized by their annular form with a fourlipped profile. Their dimensions are specified with the inside diameter and the cross-section

Standard material

NBR70
FKM70

The choice of a suitable material is determined by the temperature, pressure and media.

Media

Depending on material: different liquids, gases and chemicals.

Function

X-rings are self energizing double-acting sealing elements. The forces acting in radial or axial direction due to the installation give them its initial squeeze.

Area of applications

X-rings can be used for a wide range of different applications. They are used predominantly for dynamic sealing functions.

Dynamic applications

For sealing of reciprocating pistons, rods, plungers
For sealing oscillating or rotating movements

Static applications

As a radial-static seal
As an axial-static seal
As an energizer element for elastomer energized hydraulic seals

Operational application limits

Working pressure, dynamic application

Reciprocating
up to 5 MPa (50 bar) without Back-up Ring
up to 30 MPa (300 bar) with Back-up Ring

Rotating
up to 15 MPa (150 bar) with Back-up Ring

Working pressure, static application

up to 5 MPa (50 bar) without Back-up Ring
up to 40 MPa (400 bar) with Back-up Ring

Speed

Reciprocating: up to 0.5 m/s
Rotating: briefly up to 2.0 m/s

Operating temperature range

NBR: -30°C to + 100°C
FKM: - 18°C to + 200°C

d1	d2	d1	d2	d1	d2	d1	d2	d1	d2	d1	d2
1.78	1.78	17.13	2.62	12.29	3.53	209.14	3.53	88.27	5.33	142.24	6.99
2.57	1.78	17.75	2.62	13.87	3.53	215.49	3.53	89.59	5.33	145.42	6.99
2.9	1.78	18.72	2.62	15.47	3.53	221.84	3.53	91.44	5.33	148.6	6.99
3.68	1.78	19.6	2.62	17.04	3.53	228.19	3.53	94.62	5.33	151.77	6.99
4.48	1.78	20.29	2.62	18.2	3.53	234.54	3.53	97.8	5.33	155.02	6.99
4.62	1.78	21.89	2.62	18.64	3.53	240.89	3.53	100.97	5.33	158.12	6.99
5.28	1.78	23.47	2.62	20.22	3.53	247.24	3.53	102.34	5.33	161.02	6.99
5.7	1.78	25.07	2.62	20.9	3.53	253.59	3.53	104.14	5.33	164.47	6.99
6.07	1.78	26.64	2.62	21.82	3.53	266.3	3.53	105.8	5.33	167.02	6.99
6.65	1.78	28.25	2.62	23.4	3.53	279	3.53	107.32	5.33	170.82	6.99
8.2	1.78	29.82	2.62	23.99	3.53	291.7	3.53	110.49	5.33	177.17	6.99
9.25	1.78	31.42	2.62	24.99	3.53	304.39	3.53	113.67	5.33	183.52	6.99
9.7	1.78	34.59	2.62	25.9	3.53	329.8	3.53	116.84	5.33	189.87	6.99
10.82	1.78	36.17	2.62	26.58	3.53	355.2	3.53	120.02	5.33	196.22	6.99
12.42	1.78	37.77	2.62	27.57	3.53	380.6	3.53	123.2	5.33	202.57	6.99
14	1.78	39.34	2.62	28.17	3.53	405.26	3.53	126.37	5.33	215.27	6.99
15.6	1.78	40.95	2.62	29.75	3.53	430.66	3.53	129.54	5.33	227.97	6.99
17.16	1.78	42.52	2.62	31.34	3.53	456.06	3.53	132.72	5.33	240.67	6.99
18.77	1.78	44.12	2.62	32.04	3.53	10.46	5.33	135.9	5.33	253.57	6.99
20.35	1.78	45.69	2.62	32.06	3.53	12.07	5.33	139.07	5.33	266.07	6.99
21.95	1.78	47.29	2.62	32.92	3.53	13.64	5.33	142.24	5.33	278.77	6.99
23.53	1.78	48.9	2.62	33.8	3.53	15.24	5.33	145.42	5.33	291.47	6.99
25.12	1.78	50.47	2.62	34.52	3.53	16.81	5.33	148.6	5.33	304.17	6.99
26.7	1.78	52.07	2.62	36.1	3.53	18.42	5.33	151.77	5.33	316.87	6.99
28.3	1.78	53.65	2.62	37.69	3.53	19.99	5.33	158.12	5.33	329.57	6.99
29.87	1.78	55.25	2.62	40.87	3.53	21.59	5.33	164.47	5.33	342.27	6.99
31.47	1.78	56.82	2.62	44.04	3.53	23.17	5.33	170.82	5.33	354.97	6.99
33.05	1.78	58.42	2.62	47.22	3.53	24.77	5.33	177.17	5.33	367.67	6.99
34.65	1.78	60	2.62	50.4	3.53	26.34	5.33	183.52	5.33	380.37	6.99
37.82	1.78	61.6	2.62	53.57	3.53	27.93	5.33	189.87	5.33	393.07	6.99
41	1.78	63.17	2.62	56.74	3.53	29.51	5.33	196.22	5.33	405.26	6.99
44.17	1.78	64.77	2.62	59.92	3.53	31.12	5.33	202.57	5.33	417.96	6.99
47.35	1.78	66.35	2.62	63.09	3.53	32.69	5.33	208.92	5.33	430.66	6.99
50.52	1.78	67.95	2.62	69.44	3.53	34.29	5.33	215.27	5.33	443.36	6.99
53.67	1.78	69.52	2.62	72.62	3.53	37.47	5.33	221.62	5.33	456.06	6.99
56.87	1.78	91.12	2.62	75.8	3.53	39.2	5.33	227.97	5.33	468.76	6.99
60.04	1.78	72.69	2.62	78.97	3.53	39.64	5.33	234.32	5.33	481.46	6.99
63.22	1.78	75.87	2.62	82.14	3.53	40.65	5.33	240.67	5.33	494.16	6.99
66.4	1.78	82.22	2.62	85.32	3.53	41.8	5.33	247.02	5.33	506.89	6.99
69.57	1.78	88.57	2.62	88.5	3.53	43.82	5.33	253.37	5.33	532.26	6.99
72.76	1.78	94.93	2.62	91.67	3.53	45.04	5.33	266.07	5.33	557.66	6.99
75.92	1.78	101.27	2.62	94.84	3.53	45.2	5.33	278.77	5.33	582.68	6.99
82.28	1.78	107.63	2.62	98.02	3.53	47	5.33	291.47	5.33	608.08	6.99
88.62	1.78	113.98	2.62	101.2	3.53	47.8	5.33	304.17	5.33	633.48	6.99
94.97	1.78	120.33	2.62	104.37	3.53	49.2	5.33	329.57	5.33	658.88	6.99
101.34	1.78	126.67	2.62	107.54	3.53	50.16	5.33	354.97	5.33		
107.7	1.78	133	2.62	110.72	3.53	52	5.33	380.37	5.33		
114	1.78	139.38	2.62	113.9	3.53	53.34	5.33	405.26	5.33		
120.4	1.78	145.72	2.62	117.07	3.53	54.5	5.33	430.66	5.33		
126.76	1.78	152.07	2.62	120.25	3.53	56.52	5.33	456.06	5.33		
133.07	1.78	158.41	2.62	123.42	3.53	57.52	5.33	481.46	5.33		
2.06	2.62	164.78	2.62	126.6	3.53	59.7	5.33	506.81	5.33		
2.84	2.62	171.13	2.62	129.77	3.53	61.54	5.33	532.2	5.33		
3.63	2.62	177.47	2.62	132.94	3.53	62.87	5.33	557.61	5.33		
4.42	2.62	183.83	2.62	136.12	3.53	64.59	5.33	582.68	5.33		
5.23	2.62	190.18	2.62	139.3	3.53	66.04	5.33	608.08	5.33		
6.02	2.62	196.53	2.62	142.47	3.53	67.64	5.33	633.48	5.33		
9.19	2.62	202.87	2.62	145.65	3.53	69.22	5.33	658.88	5.33		
9.8	2.62	209.23	2.62	148.82	3.53	70.64	5.33	113.67	6.99		
10.2	2.62	215.58	2.62	151.99	3.53	72.4	5.33	115.84	6.99		
10.78	2.62	221.93	2.62	158.35	3.53	73.84	5.33	116.84	6.99		
11.7	2.62	228.28	2.62	164.7	3.53	75.57	5.33	120.02	6.99		
12.37	2.62	234.63	2.62	171.05	3.53	78.74	5.33	123.2	6.99		
12.8	2.62	240.98	2.62	177.4	3.53	80.09	5.33	126.37	6.99		
13.95	2.62	247.33	2.62	183.75	3.53	81.92	5.33	129.54	6.99		
14.7	2.62	5.94	3.53	190.1	3.53	83.39	5.33	132.72	6.99		
15.54	2.62	9.12	3.53	196.44	3.53	85.09	5.33	135.9	6.99		
16.2	2.62	10.69	3.53	202.79	3.53	86.64	5.33	139.07	6.99		

BONDED SEALS

BS US



BS USS



Bonded seals represent a combination of metal washer and elastomer sealing lip. Vulcanised to the edge of the metal part and was originally designed to replace cooper type washers in pressure systems.

Materials

NBR
FKM
Metal- anti-corrosion plated

Function

When the bolted connection is tightened, the sealing lip is pressed against the flat surfaces. The thickness of the metal ring limits the deformation of the elastomer seal. The internal pressure increases the sealing force by energising the sealing lip.

Media

Mineral oils, water, water-oil emulsion, gases

Operational application limits

Temperature

NBR -30 °C to + 100 °C
FKM -18 °C to + 200 °C

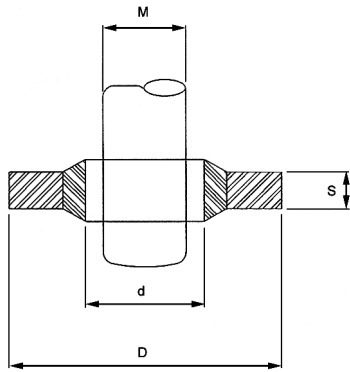
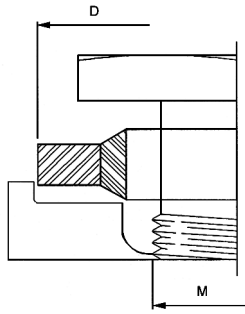
Pressure

Max pressure is depends on design, material and dimensions.
Up to 250 to 2000 bar max. pressure.

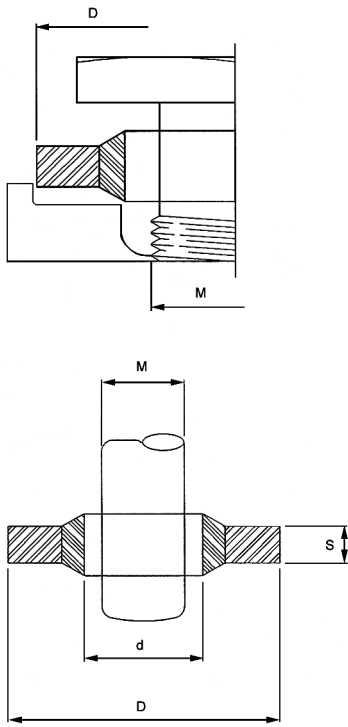
The key benefits

Reliable high and low pressure sealing
Metal washer prevents over-compression and extrusion
Re usable

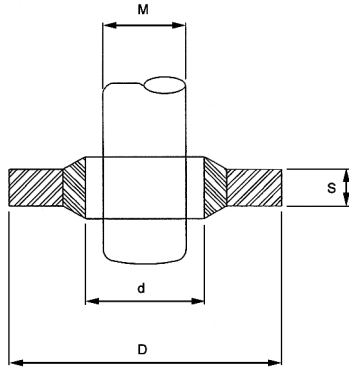
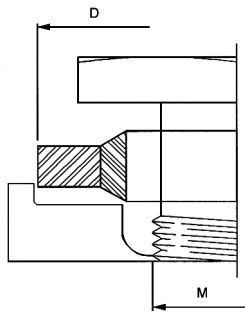
**BS US
BONDED SEALS**



Thread size M				Dimensions in mm		
Metric	Inch	B.S.P.	Dowty ref. No.	d	D	S
	6BA		001	3.05	6.35	1.22
M3			301	3.60	7.50	1.00
M3.5			201	4.10	7.20	1.00
	4BA		002	4.12	7.26	1.22
M4			202	4.50	7.00	1.00
M4			302	4.60	9.00	1.00
	2BA		003	5.21	8.38	1.22
M5			303	5.60	10.00	1.00
M5			203	5.70	9.00	1.00
M5			204	5.70	10.00	1.00
M5.5			205	6.20	9.20	1.00
M6			304	6.60	11.00	1.00
M6			206	6.70	10.00	1.00
M6			207	6.70	11.00	1.00
M6			208	6.70	11.00	2.50
M6			305	6.85	13.27	1.30
	1/4		004	6.86	13.21	1.22
	1/4		005	6.99	13.34	1.22
M6			306	7.00	11.40	1.00
M6.5			209	7.10	12.00	1.00
M6.7			210	7.30	10.20	1.00
		1/16	519	8.30	12.70	1.25
	5/16		006	8.31	13.34	1.22
M8			211	8.50	13.40	1.00
M8			307	8.60	13.00	1.00
	5/16		007	8.64	14.22	1.22
M8			212	8.70	13.00	1.00
M8			213	8.70	14.00	1.00
M8			214	8.70	16.00	1.00
M8.5			215	9.30	13.30	1.00
M10			216	10.35	16.00	2.00
	3/8	1/8	020	10.37	15.88	2.03
		1/8	510	10.40	14.70	1.25
M10			217	10.70	16.00	1.50
M10			310	10.70	17.00	1.50
M10			218	10.70	18.00	1.50
	40		008	11.26	18.36	2.03
M11			219	11.40	16.30	1.50
	7/16		009	11.69	19.05	2.03
M11			312	11.80	18.10	1.50
M11			220	11.80	18.50	1.50
M11			221	11.80	19.10	1.50
M12			222	12.70	18.00	1.50
M12			313	12.70	19.00	1.50
M12			223	12.70	20.00	1.50
M13			224	13.70	20.00	1.50
M13			225	13.70	22.00	1.50

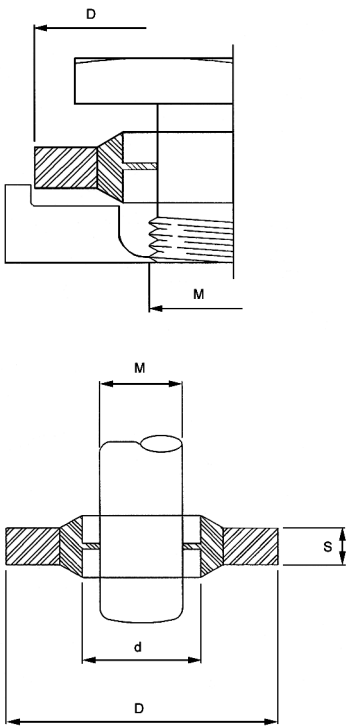


Thread size M				Dimensions in mm		
Metric	Inch	B.S.P.	Dowty ref. No.	d	D	S
	1/2	1/4	021	13.74	20.57	2.03
M13			315	13.80	20.10	1.50
		1/4	511	13.85	18.70	1.25
M13.5			226	14.00	18.70	1.50
M14			316	14.70	21.00	1.50
M14			227	14.70	22.00	1.50
	9/16		010	14.86	22.23	2.03
	60		022	15.83	22.23	2.03
M15			228	16.00	22.70	1.50
	5/8		011	16.51	25.40	2.03
M16			317	16.70	23.00	1.50
M16			229	16.70	24.00	1.50
M16.5			319	17.20	23.90	2.10
		3/8	023	17.28	23.80	2.03
		3/8	512	17.35	22.70	1.25
M17			230	17.40	24.00	1.50
M17.5			231	18.00	24.70	1.50
	11/16		012	18.16	25.40	2.34
M18			232	18.70	26.00	1.50
M18			320	18.70	27.00	2.00
	3/4		024	19.69	26.92	2.34
M20			233	20.70	28.00	1.50
M20			321	20.70	29.00	2.00
M21			234	21.50	28.70	2.50
	13/16	1/2	025	21.54	28.58	2.34
		1/2	513	21.65	26.70	1.25
M22			235	22.50	28.00	1.50
M22			236	22.70	30.00	2.00
M22			237	22.70	30.00	3.00
M22			324	22.70	31.00	2.00
	7/8	5/8	026	23.49	31.75	2.34
M23			325	23.70	32.00	2.00
	15/16		013	24.26	33.27	2.34
M24			238	24.70	32.00	2.00
M24			326	24.70	33.00	2.00
M26			239	26.70	35.00	2.00
M26			327	27.00	35.30	2.00
	1	3/4	027	27.05	34.93	2.34
M27			240	27.20	36.00	2.00
		3/4	514	27.30	32.50	1.25
M27			328	27.70	36.00	2.00
	1 1/16		028	27.82	38.61	2.34
M28			329	28.60	36.00	2.00
M28			241	28.70	37.00	2.00
M28.5			330	29.20	37.50	2.00
	1 1/8		014	29.33	36.58	2.34
M30			331	30.70	39.00	2.00
	1 3/16	7/8	029	30.81	38.10	2.34
M30			242	31.00	39.00	2.00
	1 1/4		015	32.64	41.40	3.25
M33			243	33.70	42.00	2.00



Thread size M				Dimensions in mm		
Metric	Inch	B.S.P.	Dowty ref. No.	d	D	S
M33			332	33.70	42.00	2.00
	$1\frac{5}{16}$	1	031	33.89	42.80	2.34
	$1\frac{5}{16}$	1	030	33.89	42.80	3.25
		1	515	34.20	39.50	2.00
M33			244	34.30	43.00	2.00
	$1\frac{3}{8}$		016	35.94	44.45	3.25
M36			245	36.70	46.00	2.00
M36			333	37.00	48.00	2.50
	$1\frac{1}{2}$		017	38.96	47.75	3.25
M39			246	40.00	51.00	2.50
M39			334	40.00	51.00	2.50
M42			247	42.70	53.00	3.00
		$1\frac{1}{4}$	516	42.80	49.50	2.00
	$1\frac{5}{8}$	$1\frac{1}{4}$	032	42.93	52.38	3.25
M42			335	43.00	54.00	2.50
	$1\frac{3}{4}$		018	45.34	57.15	3.25
M45			336	46.00	57.00	2.50
	$1\frac{7}{8}$	$1\frac{1}{2}$	033	48.44	58.60	3.25
		$1\frac{1}{2}$	517	48.70	55.50	2.00
M48			248	48.70	59.00	3.00
M48			337	49.00	60.00	2.50
	2		019	51.69	63.50	3.25
M51			249	52.00	60.00	3.00
M52			250	53.30	64.50	3.00
	$2\frac{1}{8}$	$1\frac{3}{4}$	034	54.89	69.85	3.25
	$2\frac{1}{4}$		035	58.04	70.36	3.25
		2	518	60.50	68.50	2.00
		2	036	60.58	73.03	3.25
M60			251	60.70	73.00	3.00
	$2\frac{1}{2}$		037	64.39	77.22	3.25
		$2\frac{1}{4}$	038	66.68	79.50	3.25
M68			252	68.60	79.50	3.50
		$2\frac{1}{2}$	039	76.08	90.30	3.25
M75			253	76.08	90.30	3.28
M88			254	89.09	101.48	3.25
M125			255	127.00	143.67	5.00

**BS USS
SELF-CENTERING BONDED SEALS**



Thread size M			Dimensions in mm			
Metric	Inch	B.S.P.	Dowty ref. No.	d	D	S
M8			866	8.70	14.00	1.00
		$\frac{1}{8}$	820	10.37	15.88	2.00
M10			708	10.70	16.00	1.50
M12			867	12.70	19.00	1.50
		$\frac{1}{4}$	821	13.74	20.57	2.00
M14			868	14.70	22.00	1.50
	$\frac{5}{8}$		869	16.51	25.40	2.00
M16			870	16.70	24.00	1.50
		$\frac{3}{8}$	823	17.28	23.80	2.00
	$\frac{11}{16}$		871	18.16	25.40	2.40
M18			872	18.70	26.00	1.50
M20			873	20.70	28.00	1.50
		$\frac{1}{2}$	825	21.54	28.58	2.47
M22			874	22.70	30.00	2.00
		$\frac{5}{8}$	826	23.49	31.75	2.47
M24			875	24.70	32.00	2.00
		$\frac{3}{4}$	827	27.05	34.93	2.47
		$\frac{7}{8}$	829	30.81	38.10	2.47
		1	830	33.89	42.80	3.40
		$1\frac{1}{4}$	832	42.93	52.38	3.40
		$1\frac{1}{2}$	833	48.44	58.60	3.40
		$1\frac{3}{4}$	834	54.89	69.85	3.40
		2	836	60.58	73.03	3.40
		$2\frac{1}{4}$	838	66.68	79.50	3.40
		$2\frac{1}{2}$	839	76.08	90.17	3.40



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