

## VIA/VIAS

Rotary shaft seal in standard design according to DIN 3760 with a completely elastomer-encased metal insert and a spring-energised sealing lip. In addition, the standard model is available with a protective lip (VIAS) on the air side.

### Standard materials

FPM 80  
Colour: brown  
Energised spring: rust and acid-resistant steel 1.4571 (AISI 304)  
Metal insert: non-alloy steel according to DIN EN 10139

### Areas of application

Sealing of rotating machine elements such as shafts, hubs and axles.

### Function

The VIA/VIAS is a single acting rotary shaft seal for rotating or pivoting shafts with optional protective lip sealing action (VIAS) on the side facing away from the medium against dirt accumulation from the outside. The elastomer outer sheath provides good static sealing, good thermal expansion balance, e.g. in light-metal housings, better sealing with greater roughness and secure sealing for split housings as well as good static sealing with thin liquid or gaseous media. FPM is superior to the NBR materials for high temperature applications, high peripheral speeds and chemically aggressive media.

The combination of FPM material, the standard fully-encased metal insert and the spring made of non-rusting steel enables application in chemically aggressive media.

## Media

Mineral oils and greases, synthetic oils and greases, engine, gear and ATF oils, fuels, aromatic and chlorinated hydrocarbons, broad chemicals and solvents resistance. Please also refer to our media resistance tables on page 22 of this catalogue.

### Operational application limits

Pressure (MPa/bar):  $\leq 0.05/0.5$   
Temperature (°C):  $-30$  to  $+200$   
Peripheral speed (m/s):  $\leq 35$   
Please also refer to our rotational speed diagram on page 20 of this catalogue.

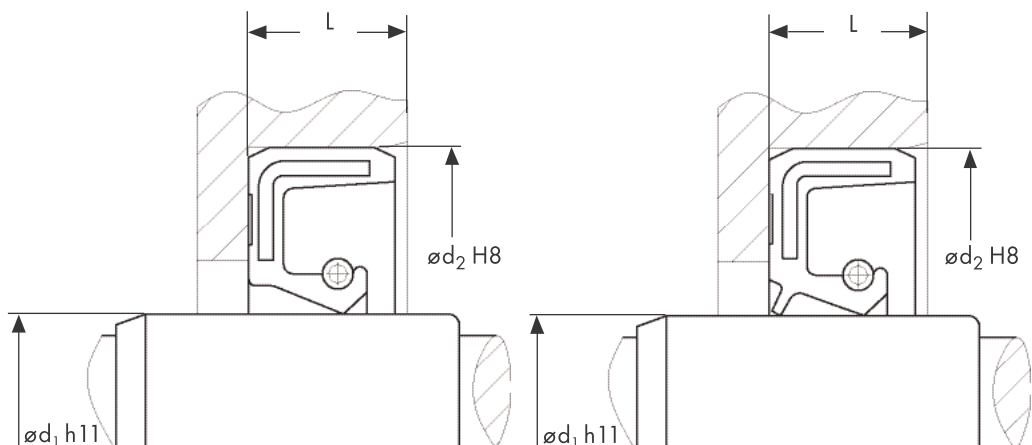
### Installation

Suitable tools should be used for installation. It is recommended that the installation housing is designed to provide the rotary shaft seal with axial support. Please also refer to our general installation instructions on page 30 of this catalogue.

### Remarks

The nominal widths mentioned on the following pages represent the standard dimensions.

Other dimensions and different designs, e.g. double dust protection lip, spiral on the sealing lip, springs or metal inserts made of other steel grades can be produced as well as all kinds of special designs. Minimum quantities may be obligatory for dimensions outside of the standard.



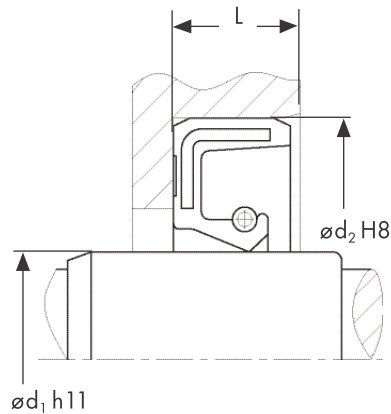
**VIA**

**Sizes  
metric**

Part No.	Dimensions in mm			Part No.	Dimensions in mm		
	ød <sub>1</sub>	ød <sub>2</sub>	L		ød <sub>1</sub>	ød <sub>2</sub>	L
128125	4	10	6	20466	10	30	7
73217	4	11	6	60311	10	30	8
150919	4	12	4	35204	11	17	4
77494	4	12	6	20263	11	22	7
20255	5	15	6	104187	11	22	8
22550	5	16	7	62560	11	26	6
20731	6	14	6	62493	11	26	7
73218	6	15	4	104188	11	30	7
104172	6	15	6	104189	12	18	4.5
104174	6	16	5	104190	12	18	5
20732	6	16	6	62617	12	19	5
20459	6	16	7	48599	12	20	5
104175	6	18	5	104192	12	21	4
20733	6	19	6	56742	12	22	4
62615	6	19	7	20734	12	22	4.5
56735	6	20	6	62620	12	22	6
20256	6	22	7	20264	12	22	7
104176	6	22	8	62621	12	22	8
20257	7	16	7	62624	12	24	6
20258	7	22	7	83161	12	24	6.5
104177	7	22	8	34929	12	24	7
43924	8	15	3	62625	12	24	8
20259	8	16	7	55894	12	25	5
56736	8	18	5	68241	12	25	7
104178	8	18	6	62633	12	25	8
37123	8	19	7	62561	12	26	7
83159	8	20	8	62562	12	26	8
104179	8	22	6	22551	12	28	7
20260	8	22	7	104193	12	28	8
104180	8	22	8	22552	12	30	7
62491	8	24	7	62576	12	30	10
127740	8	26	6.5	104194	12	32	5
62575	8	30	7	62489	12	32	7
62638	9	18	7	115494	12	35	7
104181	9	19	4	104317	12	50	5
56738	9	22	7	62622	13	22	4
56739	9	24	7	104195	13	22	5
62632	9	25	8	104196	13	25	7
62637	9	26	7	69946	13	26	7
83160	10	16	4	56746	13	30	7
104182	10	16	5	62577	13	30	8
62613	10	18	4	62623	14	22	4
104184	10	18	5	104197	14	22	7
104183	10	18	6	62626	14	24	6
104185	10	18	9	20265	14	24	7
62616	10	19	6	62634	14	25	7
20261	10	19	7	104198	14	26	7
56019	10	22	6	20735	14	27	7
20262	10	22	7	62566	14	28	7
62619	10	22	8	83162	14	28	10
56740	10	24	7	20266	14	30	7
104186	10	25	6	104199	14	30	8
62492	10	26	7	104200	14	32	7
56741	10	28	7	62596	14	35	7
20460	10	28	8	62597	14	35	8

**VIA**

**Sizes metric**



Part No.	Dimensions in mm			Part No.	Dimensions in mm		
	$\varnothing d_1$	$\varnothing d_2$	L		$\varnothing d_1$	$\varnothing d_2$	L
62618	15	21	4	62565	17	27	7
104201	15	22	7	62568	17	28	5
62627	15	24	5	62569	17	28	6
20267	15	24	7	20275	17	28	7
44932	15	25	5	20738	17	28	8
104202	15	25	6	62573	17	28.5	6
104203	15	26	4.5	104210	17	30	6
38305	15	26	7	20276	17	30	7
38306	15	26.5	4.6	62580	17	30	8
62563	15	27	7	20277	17	32	7
48601	15	28	5	62588	17	32	8
62567	15	28	6	20278	17	32	10
56747	15	28	7	62595	17	34.5	4
56748	15	30	4.5	104211	17	35	5
104204	15	30	5	104212	17	35	6
104205	15	30	5.5	22554	17	35	7
84881	15	30	6	62602	17	35	8
20268	15	30	7	62603	17	35	9.5
62578	15	30	8	20279	17	35	10
20269	15	30	10	153248	17	36	7
104206	15	32	5.5	104213	17	37	7
20270	15	32	7	62654	17	37	10
104207	15	33	7	62657	17	38	11
62599	15	35	5	62665	17	40	6
22553	15	35	7	60304	17	40	7
62600	15	35	8	104214	17	40	8
62601	15	35	10	62666	17	40	8.5
20736	15	37	7	62667	17	40	10
62664	15	40	10	20739	17	47	7
56749	15	42	7	104216	17	47	8
20271	15	42	10	104215	17	47	10
62635	15.6	25	7	62570	17.5	28	6
48603	16	22.2	4	62571	18	28	4
56750	16	24	4	56754	18	28	6
62628	16	24	5	20280	18	28	7
62629	16	24	7	56755	18	28	8
56730	16	26	7	20281	18	30	7
20272	16	28	7	56756	18	32	5
62574	16	29	10	62589	18	32	6
20273	16	30	7	20461	18	32	7
104208	16	30	8	62590	18	32	8
62579	16	30	10	104217	18	35	6
104319	16	32	7	62499	18	35	7
83163	16	32	8	62604	18	35	8
62586	16	32	10	36849	18	35	10
60305	16	35	7	44743	18	40	7
20274	16	35	10	62639	18	40	10
20476	16	40	10	62676	18	42	8
62587	16.5	32	9	62501	19	27	6
62630	17	24	5	20367	19	30	7
62631	17	24	7	62591	19	32	6
48604	17	25	4	62592	19	32	7
20737	17	26	6	62594	19	34	6
104209	17	26	7	104219	19	35	8
62564	17	27	6	104218	19	35	10

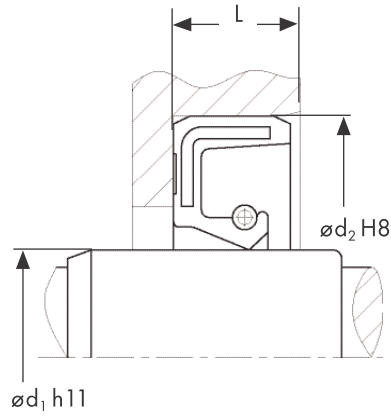
**VIA**

**Sizes  
metric**

Part No.	Dimensions in mm			Part No.	Dimensions in mm		
	ød <sub>1</sub>	ød <sub>2</sub>	L		ød <sub>1</sub>	ød <sub>2</sub>	L
104220	19	37	10	45802	22	40	5
104221	19	40	10	20294	22	40	7
62572	20	28	6	104234	22	40	8
104222	20	28	7	62670	22	40	8.5
37678	20	30	4.5	56764	22	40	10
72731	20	30	4.6	62678	22	42	7
20762	20	30	5	20295	22	42	10
20282	20	30	7	62857	22	45	7
104223	20	30	8	20740	22	47	7
104224	20	32	5	104235	22	47	10
104225	20	32	6	62659	23	38	7
20283	20	32	7	62660	23	38	8
22555	20	33	10	104236	23	40	10
104227	20	35	5	62915	23	52	12
104226	20	35	6	73220	24	35	6
20284	20	35	7	62503	24	35	7
62605	20	35	8	20462	24	36	7
22556	20	35	10	62504	24	37	7
104228	20	36	7	22561	24	38	10
115831	20	36	8	56766	24	38.5	10
62655	20	37	8	20296	24	40	7
104229	20	37	10	20297	24	40	10
62658	20	38	7	104238	24	42	7
22557	20	38	8	62679	24	42	8
62668	20	40	6	104237	24	42	10
20285	20	40	7	48611	24	45	7
62669	20	40	8.5	62868	24	47	7
20286	20	40	10	62869	24	47	10
62674	20	40.2	6	62916	24	52	10
62677	20	42	6	56767	24.5	40	8.5
20287	20	42	7	83166	25	32	6
22558	20	42	10	104239	25	32	7
62687	20	43	7.5	39210	25	33	6
62856	20	45	10	104240	25	35	5
20288	20	47	7	20298	25	35	7
62867	20	47	8	62649	25	35	8
20289	20	47	10	104241	25	35	10
62898	20	48	9	62653	25	36	7
22559	20	52	7	56768	25	37	5
62913	20	52	10	104242	25	37	6
62581	21	30	6.5	62656	25	37	7
83165	22	30	7	20299	25	38	7
20290	22	32	5.5	62662	25	38.1	8
56758	22	32	5.6	83167	25	40	5
20291	22	32	7	20300	25	40	7
104230	22	32	10	62671	25	40	8
62606	22	35	5.5	20301	25	40	10
104231	22	35	6	121228	25	41.2	6
62647	22	35	6.5	62680	25	42	6
20292	22	35	7	20463	25	42	7
22560	22	35	8	20302	25	42	8
62648	22	35	10	62681	25	42	8.5
104232	22	37	7	20303	25	42	10
20293	22	38	7	62692	25	43	9
104233	22	38	8	48615	25	43	10

**VIA**

**Sizes metric**



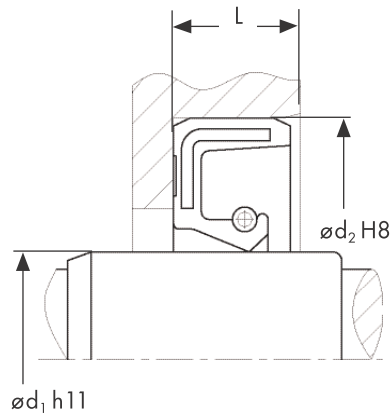
Part No.	Dimensions in mm			Part No.	Dimensions in mm		
	$\varnothing d_1$	$\varnothing d_2$	L		$\varnothing d_1$	$\varnothing d_2$	L
62505	25	45	7	56775	28	45	7
20304	25	45	10	20313	28	45	8
62864	25	46	7	20314	28	45	9
34930	25	47	7	36911	28	47	7
20305	25	47	8	104252	28	47	8
20306	25	47	10	20315	28	47	10
56769	25	50	7	104253	28	50	8
20307	25	50	10	20382	28	50	10
104243	25	50	12	21073	28	52	7
62912	25	51	11	62920	28	52	10
22562	25	52	7	62921	28	52	12
62917	25	52	8	104254	28	62	10
20308	25	52	10	63215	28	62	12
62918	25	52	12	62686	29	42	7
20370	25	55	10	62859	29	45	8
73222	25	62	7	62860	29	45	9.5
63214	25	62	8	62873	29	47	10
20309	25	62	10	62902	29	50	10
85351	25	72	7	62922	29	52	9
73957	26	34	4	63180	29	55	9
62650	26	35	7	63216	29	62	10
56771	26	36	7	73223	30	40	5
39719	26	37	7	20316	30	40	7
62640	26	37	10	104256	30	40	8
104244	26	40	7	104255	30	40	9
62682	26	42	6	62673	30	40	10
62507	26	42	7	104257	30	42	6
20310	26	47	7	20317	30	42	7
104245	26	47	10	104258	30	42	8
104246	26	52	8	20386	30	42	10
62651	27	35	4	124788	30	42.5	6
62652	27	35	7	104259	30	43	8
22563	27	37	7	62855	30	44	10
27548	27	41	10	104260	30	45	5
62683	27	42	7	104261	30	45	6
62684	27	42	10	62641	30	45	7
104247	27	47	6	22565	30	45	8
62870	27	47	8	20464	30	45	10
62871	27	47	9.8	62863	30	45.2	10
20311	27	47	10	104262	30	46	10
104248	27	50	10	144301	30	47	5
62919	27	52	8	104263	30	47	6
104249	28	38	5.5	20318	30	47	7
62661	28	38	6	62874	30	47	8
22564	28	38	7	20319	30	47	10
62672	28	40	5	37438	30	48	8
20312	28	40	7	104264	30	48	10
104250	28	40	8	62510	30	50	7
20742	28	40	10	62903	30	50	8
62685	28	42	7	20320	30	50	10
104251	28	42	8	73224	30	52	5
56774	28	42	10	62923	30	52	6
62693	28	43	9	20321	30	52	7
62852	28	43	10	62924	30	52	8
62854	28	44	10	20322	30	52	10

**VIA**
**Sizes  
metric**

Part No.	Dimensions in mm			Part No.	Dimensions in mm		
	ød <sub>1</sub>	ød <sub>2</sub>	L		ød <sub>1</sub>	ød <sub>2</sub>	L
62925	30	52	12	62931	33	52	6
63175	30	54	10	63163	33	52	8
56924	30	55	7	104272	33	52	10
20323	30	55	10	63190	33	56	12
63181	30	55	12	20743	34	44	7
104265	30	56	8	104273	34	45	7
20324	30	56	10	62865	34	46	10
104266	30	56	12	22570	34	49	8
63193	30	57	8	104274	34	50	8
63203	30	60	10	62644	34	50	10
20325	30	62	7	62911	34	50.8	7.8
63218	30	62	8	22571	34	52	7.5
20326	30	62	10	63164	34	52	8
63219	30	62	12	60221	34	52	10
104267	30	65	10	104321	34	55	7
62643	30	72	10	63184	34	55	9
22566	31	47	7	73226	34	55	10
62875	31	47	10	63194	34	58	13
62926	31	52	6	63221	34	62	10
62927	31	52	7	56785	35	44	7
62928	31	52	9	20744	35	45	7
63182	31	55	9	104275	35	45	10
38282	32	42	7	104276	35	47	5
62862	32	45	6	56786	35	47	6
20327	32	45	7	20331	35	47	7
104268	32	45	8	62896	35	47	10
22567	32	45	10	104320	35	48	7
73225	32	47	6	104277	35	48	8
24863	32	47	7	62901	35	48	9
104269	32	47	8	20332	35	50	7
62895	32	47	10	56787	35	50	8
62899	32	48	7	20333	35	50	10
56782	32	48	8	20334	35	52	7
62511	32	50	7	104278	35	52	8
62904	32	50	8	63166	35	52	8.8
20328	32	50	10	20335	35	52	10
62906	32	50	12	63167	35	52	12
62512	32	52	7	57150	35	53	9
62929	32	52	7.5	63177	35	54	8
104270	32	52	8	22572	35	54	10
20329	32	52	10	63185	35	55	8
62930	32	52	12	20336	35	55	10
63183	32	55	10	104279	35	55	12
59728	32	56	10	63191	35	56	8
22568	32	57	9.5	20337	35	56	10
104271	32	62	8	104280	35	56	12
63220	32	62	10	63195	35	58	7.5
63249	32	66	10	63196	35	58	10
22569	32	70	8	63197	35	58	12
62853	33	43	7	63204	35	60	10
56783	33	45	7	63205	35	60	12
62900	33	48	12	20338	35	62	7
62907	33	50	6	20339	35	62	10
83171	33	50	8	63223	35	62	12
20330	33	50	10	63239	35	65	9

**VIA**

**Sizes metric**



Part No.	Dimensions in mm			Part No.	Dimensions in mm		
	ød <sub>1</sub>	ød <sub>2</sub>	L		ød <sub>1</sub>	ød <sub>2</sub>	L
104281	35	65	10	62909	40	50	8
63240	35	65	12	104291	40	52	5
22573	35	68	6	56798	40	52	6
24429	35	68	10	20346	40	52	7
63255	35	68	12	63172	40	52	8
49578	35	72	7	63174	40	52	10
20340	35	72	10	56697	40	55	7
63272	35	72	12	20347	40	55	8
104282	35	80	10	63188	40	55	10
104283	35	80	12	104292	40	56	7
62515	36	47	7	22577	40	56	8
22574	36	48	10	20349	40	56	10
83172	36	50	7	38545	40	56	12
56796	36	50	10	104294	40	58	7
62517	36	52	7	104293	40	58	8
22575	36	54	7.5	57151	40	58	9
60592	36	56	10	20465	40	58	10
48626	36	58	10	62521	40	60	7
63198	36	58	12	104295	40	60	8
63225	36	62	7	20350	40	60	10
63227	36	62	10	104296	40	60	12
48627	36	65	10	20351	40	62	7
63256	36	68	10	104297	40	62	8
63297	36	75	12	20352	40	62	10
20483	37	52	8	63230	40	62	12
22576	37	52	10	20353	40	65	10
63228	37	62	8	63242	40	65	12
63274	37	72	12	20354	40	68	10
20341	38	50	7	63259	40	68	11
44635	38	50	8	104298	40	68	12
104284	38	50	10	104300	40	70	8
20342	38	52	7	63269	40	70	10
63169	38	52	8	104299	40	70	12
63170	38	52	10	22578	40	72	7
56797	38	54	6.5	20355	40	72	10
63178	38	54	10	104301	40	72	12
63186	38	55	6	104302	40	78	10
62518	38	55	7	104303	40	80	8
104285	38	55	10	22579	40	80	10
20343	38	56	10	63305	40	80	13
104286	38	58	10	20745	40	85	10
62519	38	60	7	62910	42	50	7
20344	38	60	10	121811	42	52	8
104287	38	60	12	62645	42	55	7
62520	38	62	7	35882	42	55	8
104288	38	62	8	104304	42	55	10
20345	38	62	10	20356	42	56	7
63229	38	62	12	63199	42	58	10
63236	38	63.5	9.5	104305	42	60	8
36037	38	65	8	44553	42	60	10
104289	38	65	10	22580	42	60	12
63275	38	72	10	22581	42	62	7
63294	38	74	10	37439	42	62	8
63241	39	65	9	20357	42	62	10
104290	40	50	7	63232	42	62	12

**VIA**

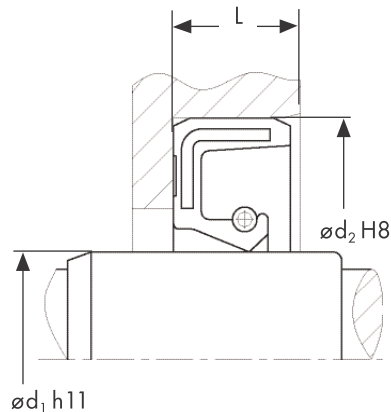
**Sizes  
metric**

Part No.	Dimensions in mm			Part No.	Dimensions in mm		
	ød <sub>1</sub>	ød <sub>2</sub>	L		ød <sub>1</sub>	ød <sub>2</sub>	L
104343	42	65	8	57152	46	64	9
20358	42	65	10	83173	46	72	10
63243	42	65	12	22586	47	58	6
62523	42	68	8	48646	47	62	6
63260	42	68	11.5	20368	47	65	10
62524	42	72	8	63254	47	67	12
25635	42	72	10	63289	47	72	9
104306	42	72	12	83174	47	80	8
63306	42	80	10	104327	47	80	10
63318	42	81	13	20369	48	62	8
63206	43	60	10	63235	48	62	10
63233	43	62	10	83175	48	65	7
63244	43	65	13	20467	48	65	10
63250	43	66	10	104322	48	68	8
63251	43	66	12	63261	48	68	12
22582	43	70	12	63270	48	70	10
63307	43	80	10	62532	48	72	8
63179	44	54	4.5	20371	48	72	10
75998	44	55	7	63290	48	72	12
63200	44	58	10	63295	48	74	10
63207	44	60	10	104311	48	80	8
104307	44	62	10	20372	48	80	10
62525	44	65	8	63320	48	85	6
20359	44	65	10	63321	48	85	10
63286	44	72	10	63322	48	85	13
63293	44	73	12	63341	48	90	10
20504	45	55	7	59611	50	58	8
104308	45	55	8	56806	50	60	7
20360	45	60	7	20373	50	62	7
44088	45	60	8	118798	50	62	8
22583	45	60	10	20374	50	65	8
104309	45	60	12	132907	50	65	9
20746	45	62	7	63248	50	65	10
20361	45	62	8	63253	50	66	10
20362	45	62	10	20748	50	68	8
22584	45	62	12	20375	50	68	10
63237	45	63.5	9.5	63263	50	68	12
20363	45	65	8	62533	50	70	8
20364	45	65	10	20376	50	70	10
63246	45	65	12	20377	50	70	12
20747	45	66	6	20378	50	72	8
63252	45	66	10	20379	50	72	10
44796	45	68	10	22587	50	72	12
63266	45	68.2	12	69906	50	75	10
104310	45	70	10	63298	50	75	12
20365	45	70	12	20380	50	80	8
36447	45	72	8	20381	50	80	10
63287	45	72	9	104312	50	85	10
20366	45	72	10	63323	50	85	13
63288	45	72	12	20383	50	90	10
56803	45	75	10	20484	52	62	8
22585	45	80	10	20468	52	68	8
63308	45	80	13	63267	52	69	10
62646	45	85	10	20384	52	72	8
63238	46	64	8	20385	52	72	10



**VIA**

**Sizes metric**



Part No.	Dimensions in mm			Part No.	Dimensions in mm		
	ød <sub>1</sub>	ød <sub>2</sub>	L		ød <sub>1</sub>	ød <sub>2</sub>	L
104313	52	72	12	20399	58	80	10
73232	52	75	10	63329	58	85	10
22588	52	75	12	63330	58	85	13
60355	52	80	10	63338	58	86	14
63310	52	80	13	63346	58	90	10
63264	53	68	10	73233	60	72	8
63311	53	80	10	20400	60	75	8
63265	54	68	10.5	22596	60	75	10
22589	54	70	12	63300	60	75	12
63291	54	72	10	35753	60	78	10
63296	54	74	8	20401	60	80	8
63301	54	76	12.5	20402	60	80	10
83176	54	85	10	39761	60	80	12
63324	54	85	15	63313	60	80	13
22590	54	90	10	116639	60	82	12
22591	54	90	13	56817	60	85	8
83177	55	68	8	20403	60	85	10
148479	55	70	7	63331	60	85	13
20387	55	70	8	35517	60	90	8
20388	55	70	10	20404	60	90	10
20389	55	72	8	20405	60	90	13
20390	55	72	10	20406	60	95	10
36701	55	75	8	63358	60	100	10
20391	55	75	10	63449	60	100	13
22592	55	75	12	63464	60	110	12
63303	55	78	10	56819	60	110	13
20392	55	80	8	48657	60	130	12
20393	55	80	10	61337	61	75	8
104314	55	80	12	63314	61	80	13
20394	55	80	13	83178	62	76	10
26934	55	85	8	73234	62	80	10
62535	55	85	10	63315	62	80	12
20395	55	85	13	20407	62	85	10
63327	55	85	16	20749	62	85	12
20396	55	90	10	63332	62	85	13
63345	55	90	13	62540	62	90	10
34294	55	100	13	63347	62	90	11
63357	55	100	16	63450	62	100	10
48656	55	120	12	20471	63	85	10
56812	56	70	8	62541	63	90	10
20397	56	72	8	63348	63.5	90	13
63292	56	72	10	63316	64	80	8
63302	56	76	11	63333	64	85	13
62538	56	80	8	20408	65	80	8
22593	56	80	12	20409	65	80	10
36884	56	85	8	63317	65	80	12
63339	56	88	10	56827	65	85	8
63340	56	88	13	20410	65	85	10
71719	56	90	10	62543	65	85	12
20398	58	72	8	79619	65	85	13
56814	58	72	10	20411	65	90	10
22594	58	75	8	62544	65	90	12
56815	58	78	13	63350	65	90	13
22595	58	80	8	63351	65	92	13
20470	58	80	9	20458	65	95	10

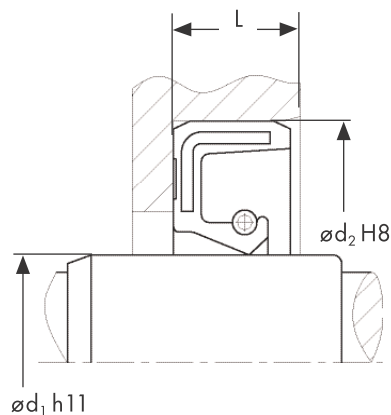
**VIA**

**Sizes  
metric**

Part No.	Dimensions in mm			Part No.	Dimensions in mm		
	ød <sub>1</sub>	ød <sub>2</sub>	L		ød <sub>1</sub>	ød <sub>2</sub>	L
63353	65	95	13	44828	75	120	10
20750	65	100	10	63482	75	120	12
63451	65	100	12	143474	75	130	13
63452	65	100	13	63461	76	105	13
63465	65	110	10	63455	77	100	10
63491	65	125	12	63356	78	95	11
38370	68	90	6	20482	78	95	13
20412	68	90	10	20427	78	100	10
63354	68	95	13	83182	78	105	13
20413	68	100	10	20433	78	110	12
63453	68	100	13	63530	78	150.5	13
83179	70	85	7	20481	80	95	8
20414	70	85	8	20428	80	100	10
63336	70	85	10	62549	80	100	12
56831	70	88	9	63456	80	100	13
20415	70	90	10	63462	80	105	10
56833	70	90	12	20505	80	105	12
20472	70	90	13	63463	80	105	13
63352	70	92	13	62550	80	110	10
20473	70	95	10	20429	80	110	12
20418	70	95	13	104315	80	110	13
20419	70	100	10	63477	80	113	12
20420	70	100	12	56837	80	115	12
22597	70	100	13	63483	80	120	13
63459	70	105	13	63492	80	125	12
56834	70	110	10	63501	80	130	13
63466	70	110	12	63515	80	140	13
63474	70	110	13	63521	80	145	13
63475	70	112	12	20430	82	105	12
63481	70	120	13	63467	82	110	12
134947	70	125	12	104316	83	110	13
63508	70	135	12	127705	85	100	9
63337	72	85	8	67964	85	105	10
22598	72	85	10	104323	85	105	12
83180	72	90	10	60338	85	105	13
20474	72	95	10	69609	85	110	10
69688	72	95	12	20431	85	110	12
63355	72	95	13	63469	85	110	13
62547	72	100	10	63478	85	115	13
63454	72	100	13	23736	85	120	12
20426	73	100	13	63484	85	120	13
63458	74	101.4	12	63493	85	125	12
63460	74	105	12	63496	85	126	13
116427	75	85	13	83183	86	100	7
20421	75	90	8	63471	87	110	13
20422	75	90	10	20432	88	110	12
20423	75	95	10	63472	88	110	13
20424	75	95	12	63486	88	120	12
20425	75	100	10	63497	88	126	12
56835	75	100	12	63499	88	128	12
60332	75	100	13	63516	88	140	13
63457	75	101	12	75066	90	110	10
22599	75	110	12	20434	90	110	12
22600	75	110	13	37669	90	115	9
63476	75	112	12	44008	90	115	12

**VIA**

**Sizes metric**



Part No.	Dimensions in mm			Part No.	Dimensions in mm		
	ød <sub>1</sub>	ød <sub>2</sub>	L		ød <sub>1</sub>	ød <sub>2</sub>	L
63479	90	115	13	63518	105	140	13
35176	90	120	9	63522	105	145	16
20435	90	120	12	63548	105	170.5	12
56840	90	120	13	48666	110	128	9
63494	90	125	14	20753	110	130	8
63503	90	130	13	20443	110	130	12
63513	91	136	12	22605	110	130	13
37613	92	120	13	56850	110	130	14.5
63487	92	120	14	63511	110	135	12
22601	93	115	13	63512	110	135	13
83184	95	110	6	20445	110	140	12
83185	95	110	10	22606	110	140	13
63473	95	110	12	63523	110	145	13
62552	95	115	13	26445	110	150	13
20436	95	120	12	63528	110	150	15
63489	95	120	13	63531	110	155	15
20751	95	125	12	48667	110	200	13
63495	95	125	13	63519	112	140	13
63504	95	130	13	20444	114	140	13
63509	95	135	13	63507	115	130	12
63526	95	150	15	83187	115	135	9
63532	95	160	15	57142	115	135	10
156564	95	170	13	36719	115	137	9
63547	95	170.5	12	56851	115	140	10
34302	96	117	10	20446	115	140	12
63514	96	136	12	63524	115	145	13
63505	97	130	14	36451	115	150	12
20437	98	120	13	63533	115	160	15
34307	98	125	13	63549	115	170.5	13
63500	98	128	10	83188	120	135	12
63553	98	180.5	13	35046	120	140	10
63480	100	115	9	116428	120	140	12
57141	100	120	10	20447	120	140	13
20438	100	120	12	20448	120	150	12
22602	100	120	13	20754	120	150	13
20439	100	125	12	62556	120	150	15
22603	100	125	13	83733	120	150	16
63498	100	127	13	56855	120	160	12
20440	100	130	12	63534	120	160	13
63506	100	130	13	20450	120	160	15
56845	100	130	14	56856	125	140	10
63517	100	140	13	20451	125	150	12
63527	100	150	13	63529	125	150	13
22604	104	120	13	62558	125	150	15
24731	104	125	10	56857	125	155	12
20752	105	125	13	20479	125	160	12
134450	105	129	12	63535	125	160	15
20441	105	130	12	63542	127	170	14
60192	105	130	13	63525	128	146	13.5
56848	105	130	15	22607	128	150	13
104331	105	132	12	56860	128	158	20
48665	105	135	12	56861	130	150	10
63510	105	135	13	126322	130	150	13
132958	105	135	15	34870	130	160	12
20442	105	140	12	20478	130	160	13

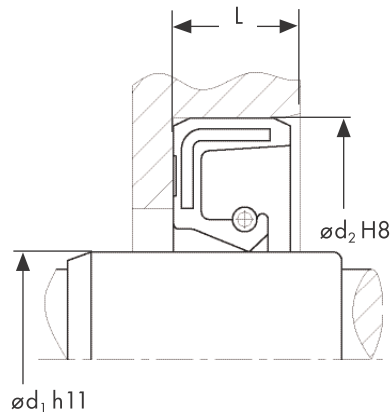
**VIA**

**Sizes  
metric**

Part No.	Dimensions in mm			Part No.	Dimensions in mm		
	ød <sub>1</sub>	ød <sub>2</sub>	L		ød <sub>1</sub>	ød <sub>2</sub>	L
20452	130	160	15	63557	160	200	12
63539	130	165	13	63558	160	200	15
35701	130	170	12	20501	162	190	12
22608	130	170	13	92193	164.5	190	13
3543	130	170	15	144474	165	190	8
63554	130	182	16	22611	165	190	13
143318	130	230	14	64840	165	200	15
48677	130	230	15	118033	170	190	12
22609	135	160	12	20486	170	190	15
63536	135	160	13	57145	170	192	12
63540	135	165	12	20456	170	200	12
60467	135	165	15	49444	170	200	13
37462	135	170	12	20457	170	200	15
36455	135	170	15	83189	175	200	10
56863	138	160	15	134452	175	200	12
149918	140	160	13	27474	175	200	15
57143	140	162	12	127896	175	205	15
79560	140	165	12	22612	175	210	14
56476	140	165	15	151764	175	210	15
56501	140	165	16	20487	180	200	13
38656	140	170	12	36182	180	200	15
63544	140	170	13	57146	180	202	12
20453	140	170	15	22613	180	210	15
56865	140	180	12	20488	180	215	15
25848	140	180	13	22614	180	215	16
20480	140	180	15	24749	180	220	15
63537	144	160	12	73240	185	210	10
48678	144.5	165	13	20489	185	210	13
63541	145	165	13	48705	185	215	16
63545	145	170	15	57140	190	212	12
20477	145	175	15	20490	190	220	15
20755	145	180	12	71699	190	225	16
20485	145	180	13	75102	195	220	16
22610	145	180	14	57147	200	222	12
92182	146	163	7	56872	200	225	15
56866	148	170	14.5	20491	200	230	13
48682	149.5	180	13	20492	200	230	15
20475	150	170	12	151763	200	235	18
63546	150	170	15	20493	200	250	15
56867	150	180	12	56873	205	230	16
20469	150	180	13	57148	210	232	12
20454	150	180	15	22615	210	240	15
60232	155	174	12	56874	210	250	15
48693	155	175	12	56875	210	290	20
57144	155	177	12	65053	215	240	12
134451	155	180	12	60326	220	250	12
37105	155	180	13	20494	220	250	15
63551	155	180	15	48711	220	255	16
63552	158	180	15	72596	220	260	15
118032	160	180	12	36230	220	260	16
56868	160	185	10	20495	230	260	15
63555	160	185	15	22616	230	280	15
126323	160	190	12	130175	230	280	16
63556	160	190	13	20496	240	270	15
20455	160	190	15	71700	240	275	16

**VIA**

**Sizes metric**



Part No.	Dimensions in mm		
	ød <sub>1</sub>	ød <sub>2</sub>	L
56877	240	280	15
20497	250	280	15
134769	250	290	16
118680	255	290	16
48713	260	290	15
73047	260	290	16
117338	260	290	20
75104	260	300	16
22617	260	300	20
44090	265	290	16
152978	270	300	15
129934	270	310	16
20498	280	310	15
36946	280	320	20
56878	280	350	16
56906	290	330	20
24094	300	340	18
36073	300	340	20
35008	300	344	20
149518	310	350	18
124924	320	350	15
20499	320	360	18
27394	320	360	20
122109	325	365	16
48718	330	370	18
122603	335	375	18
150888	340	372	16
44619	340	380	18
134402	340	380	20
56879	350	390	18
78377	360	400	18
118859	365	405	18
56880	370	410	15
26244	380	420	20
56882	390	430	20
56883	394	420	16
56884	400	440	20
37895	420	460	20
26245	440	480	20
83190	450	500	22
134401	460	500	20
117891	460	510	22
56887	480	520	20
56655	500	540	20
44881	500	550	22
83384	560	610	20
59499	600	640	20
130179	670	730	25

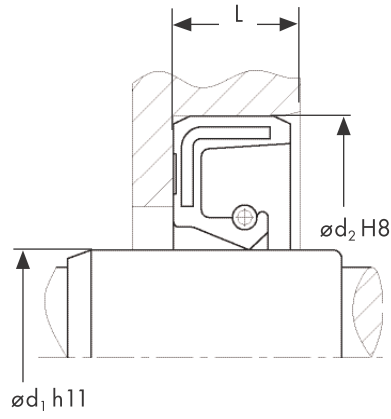
**VIA**

**Sizes  
inch**

Part No.	Dimensions in mm			Dimensions in inch		
	ød <sub>1</sub>	ød <sub>2</sub>	L	ød <sub>1</sub>	ød <sub>2</sub>	L
83158	6.35	15.87	4.76	0.25	0.625	0.187
37270	6.35	19.05	6.35	0.25	0.75	0.25
104318	12.7	22.22	6.35	0.5	0.875	0.25
56744	12.7	25.4	4.76	0.5	1	0.187
37714	12.7	25.4	6.35	0.5	1	0.25
56745	12.7	31.75	9.52	0.5	1.25	0.375
62636	15.7	25.5	4.6	0.618	1.004	0.181
27465	15.87	25.4	4.76	0.625	1	0.187
49505	15.87	28.57	6.35	0.625	1.125	0.25
56753	17.27	28.44	9.52	0.68	1.12	0.375
156524	17.46	28.57	6.35	0.687	1.125	0.25
83164	19.05	28.57	6.35	0.75	1.125	0.25
78356	19.05	31.75	6.35	0.75	1.25	0.25
38250	22.22	34.92	6.35	0.875	1.375	0.25
56761	22.22	35.15	9.52	0.875	1.384	0.375
56765	23.81	36.51	6.35	0.937	1.437	0.25
115832	25.4	41.27	6.35	1	1.625	0.25
83168	25.4	41.27	7.93	1	1.625	0.312
78520	25.4	44.45	5.16	1	1.75	0.203
45081	25.4	44.45	9.52	1	1.75	0.375
62675	26.92	41.15	7.87	1.06	1.62	0.31
44746	26.98	38.1	6.35	1.062	1.5	0.25
83169	26.98	47.62	9.52	1.062	1.875	0.375
21145	28.57	41.27	9.52	1.125	1.625	0.375
21144	28.57	50.8	11.11	1.125	2	0.437
38292	28.57	50.8	12.7	1.125	2	0.5
62663	28.6	39.65	4.75	1.126	1.561	0.187
56777	30.16	44.45	6.35	1.187	1.75	0.25
83170	31.75	44.45	9.52	1.25	1.75	0.375
116982	31.75	47.62	6.35	1.25	1.875	0.25
38254	31.75	50.8	9.52	1.25	2	0.375
76485	34.92	49.9	9.92	1.375	1.965	0.391
41539	36.51	57.15	7.93	1.437	2.25	0.312
120894	44.45	61.91	7.93	1.75	2.437	0.312
38148	44.45	63.5	9.52	1.75	2.5	0.375
26354	44.45	63.5	12.7	1.75	2.5	0.5
48640	44.65	60.32	6.35	1.758	2.375	0.25
104325	45.65	60.32	6.35	1.797	2.375	0.25
56805	47.62	69.85	12.7	1.875	2.75	0.5
63268	49.2	69.95	9.5	1.937	2.754	0.374
56807	50.8	63.5	6.35	2	2.5	0.25
38149	50.8	69.85	9.52	2	2.75	0.375
56810	53.97	79.37	12.7	2.125	3.125	0.5
56813	57.15	82.55	12.7	2.25	3.25	0.5
41540	61.91	88.9	9.52	2.437	3.5	0.375
56820	61.91	95.73	12.7	2.437	3.769	0.5
55947	63.5	73.02	6.35	2.5	2.875	0.25
73235	63.5	82.55	9.52	2.5	3.25	0.375
56825	63.5	88.9	11.11	2.5	3.5	0.437
63342	65.88	88.9	12.7	2.594	3.5	0.5
56828	66.67	85.72	9.52	2.625	3.375	0.375
56829	66.67	92.07	11.91	2.625	3.625	0.469
56830	69.85	88.9	9.52	2.75	3.5	0.375
83181	76.2	107.95	12.7	3	4.25	0.5
73236	77.78	114.3	12.7	3.062	4.5	0.5

**VIA**

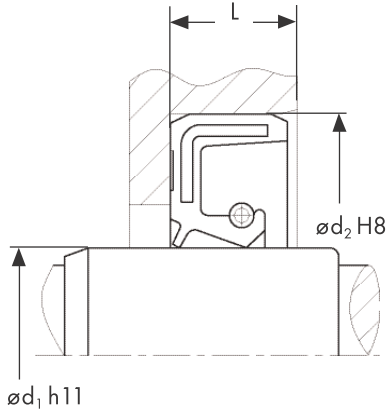
**Sizes  
inch**



Part No.	Dimensions in mm			Dimensions in inch		
	ød <sub>1</sub>	ød <sub>2</sub>	L	ød <sub>1</sub>	ød <sub>2</sub>	L
107883	101.6	127	11.11	4	5	0.437
56907	101.6	139.7	12.7	4	5.5	0.5
83186	104.77	136.39	12.7	4.125	5.37	0.5
38097	107.95	133.35	12.7	4.25	5.25	0.5
56859	127	152.4	12.7	5	6	0.5
63538	134.94	161.92	12.7	5.313	6.375	0.5
38098	158.75	184.15	12.7	6.25	7.25	0.5
80401	165.1	190.5	14.28	6.5	7.5	0.562
69474	177.8	203.2	12.7	7	8	0.5
48704	177.8	206.38	10.15	7	8.125	0.4
148712	177.8	222.25	9.52	7	8.75	0.375
56870	184.15	222.25	14.28	7.25	8.75	0.562
37031	234.95	266.7	15.87	9.25	10.5	0.625
56208	266.7	317.5	25.4	10.5	12.5	1
92197	285.75	336.55	23.81	11.25	13.25	0.937
148710	330.2	376.23	15.87	13	14.812	0.625
148711	342.9	388.93	15.87	13.5	15.312	0.625

**VIAS**

**Sizes metric**

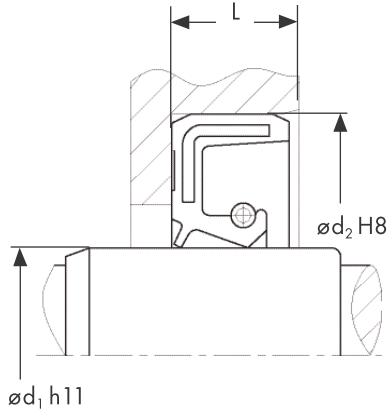


Part No.	Dimensions in mm			Part No.	Dimensions in mm		
	$\varnothing d_1$	$\varnothing d_2$	L		$\varnothing d_1$	$\varnothing d_2$	L
56737	8	22	7	22500	25	40	7
152053	9	18	7	73221	25	40	8
62614	10	18	6	20774	25	42	7
135245	10	19	7	62689	25	42	8
62494	11	26	7	62858	25	45	10
56743	12	22	7	62872	25	47	7
62612	12	24	7	56770	25	52	7
76242	12	28	7	82368	25	62	7
88549	14	24	5	62506	26	37	7
62495	14	28	7	22501	26	42	7
22497	15	24	7	135018	26	47	7
62582	15	26	7	56772	26	52	10
134230	15	28	7	62690	27	42	10
62584	15	30	7	62508	28	38	7
82246	15	35	7	134897	28	40	7
56751	16	28	7	56776	28	47	7
62585	16	30	4.5	22161	28	47	10
62496	16	32	7	22502	28	52	7
62497	16	35	7	44792	30	40	7
56752	17	28	6	72723	30	42	6
62583	17	28	7	22503	30	42	7
34254	17	30	7	62691	30	42	8
62498	17	32	7	62509	30	45	7
62610	17	35	8	62861	30	45	8
35375	17	39	9.5	21967	30	47	7
45841	17	47	5	36444	30	52	7
88212	18	28	6	22504	30	52	10
152998	18	28	7	76243	30	55	7
73219	18	30	7	56778	30	55	10
62607	18	32	6	63217	30	62	7
40556	18	32	7	64390	30	62	8
83096	18	32	8	56779	30	72	8
62500	18	35	7	84916	32	40	7
152997	19	30	6.5	115489	32	47	6
80199	19	30	7	56781	32	47	7
62593	19	32	10	88552	32	48	8
38946	20	30	7	62905	32	50	10
126248	20	32	5	143691	32	52	7
25717	20	32	7	63189	32	56	10
62611	20	35	7	40293	32	65	13
127927	20	35	10	126808	32	72	7
22498	20	40	7	63271	34	72	14.5
62502	20	42	7	157345	35	46	7
62866	20	47	7	22505	35	47	7
62897	20	47.5	7	62513	35	48	7
48609	22	32	7	38947	35	50	7
83191	22	35	7	56794	35	50	8
56763	22	40	7	62908	35	50	10
62914	22	52	10	56795	35	52	5.5
22107	24	36	7	22506	35	52	6
22499	24	38.5	10	63165	35	52	7
62688	24	40	7	22507	35	52	10
62609	25	32	6	62514	35	55	7
72722	25	35	5	73227	35	55	10
21966	25	35	7	44802	35	55	11



# VIAS

## Sizes metric



Part No.	Dimensions in mm			Part No.	Dimensions in mm		
	$\varnothing d_1$	$\varnothing d_2$	L		$\varnothing d_1$	$\varnothing d_2$	L
63192	35	56	12	21208	45	62	7
36445	35	62	7	56698	45	62	8
63222	35	62	8	60647	45	62	10
104344	35	62	10	157346	45	63	10
63224	35	62	12	62527	45	65	8
124582	35	72	7	63245	45	65	10
81536	35	72	10	36448	45	72	8
63273	35	72	12	60352	45	72	10
127007	35	80	12	135227	45	75	7
62516	36	50	7	62528	45	75	8
22508	36	52	6	56804	45	75	10
22509	36	52	7	73231	45	80	10
63168	36	52	9	74479	45	85	10
22510	36	62	7	63343	45	90	10
22237	38	52	7	132867	45	100	10
122477	38	55	7	60319	46	65	8
63187	38	55	10	48649	48	62	8
22511	38	62	7	62529	48	65	8
73228	38	62	10	22514	48	65	10
63171	39	52	10	62530	48	68	8
56561	40	52	7	63262	48	68	14
63173	40	52	9	22515	48	72	8
130576	40	52	10	22516	50	65	8
22512	40	55	6	56808	50	68	8
22513	40	55	7	83193	50	68	10
20348	40	55	8	38949	50	70	10
75767	40	58	8	22517	50	72	7
63202	40	59	9.5	36449	50	72	8
84822	40	60	10	22518	50	72	10
20775	40	62	7	48650	50	72	12
38948	40	62	10	48653	50	75	10
48635	40	62	12	22519	50	80	8
60690	40	65	10	63309	50	80	10
75825	40	65	12	22520	50	80	13
56799	40	68	10	121798	50	90	10
48637	40	72	7	121799	50	110	10
73229	40	72	10	62531	52	68	8
73230	40	80	10	22521	52	72	8
63304	40	80	12	63319	54	81	10
127620	40	85	10	22522	55	70	8
56800	40	90	12	38950	55	70	10
77493	42	55	7	56811	55	72	8
62522	42	55	8	22523	55	72	10
75063	42	55	9	62534	55	75	8
48638	42	56	7	63299	55	75	10
104346	42	60	7	135224	55	75	12
63231	42	62	7	83194	55	78	12
56801	42	62	8	36453	55	80	8
63234	44	62	10	56232	55	80	10
143525	45	55	7	63326	55	85	10
104345	45	56	7	63344	55	90	10
63201	45	58	7	152972	55	100	10
63208	45	60	7	62536	56	70	8
62526	45	60	8	62537	56	72	8
63213	45	60	10	63328	57	85	13

**VIAS**

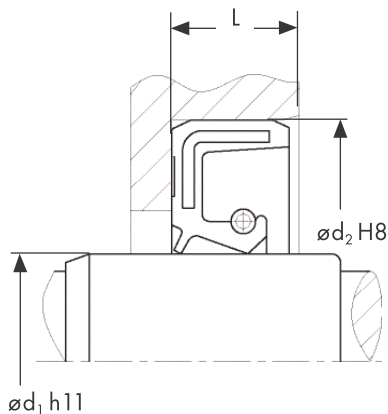
**Sizes  
metric**

Part No.	Dimensions in mm			Part No.	Dimensions in mm		
	ød <sub>1</sub>	ød <sub>2</sub>	L		ød <sub>1</sub>	ød <sub>2</sub>	L
152909	58	72	10	22540	85	120	12
22524	58	80	8	63485	85	120	13
22238	58	80	9	63502	85	130	12
22525	60	75	8	22541	85	130	13
151001	60	75	10	56838	90	110	12
121712	60	78	9	56839	90	110	13
22526	60	80	7	57135	90	115	12
36454	60	80	8	73237	90	117.5	12.5
63312	60	80	9	157489	90	120	12
21156	60	80	10	125902	95	110	10
21666	60	80	12	22542	95	115	13
83195	60	85	8	63488	95	120	10
21157	60	85	10	36450	95	120	12
62539	60	90	8	38119	95	120	13
56818	60	90	10	22543	95	125	12
157166	60	95	10	56841	95	125	13
22527	63	85	10	152197	95	145	13
62542	63	90	10	56842	100	115	9
63334	64	85	16	66385	100	120	8
63349	64	90	13	63490	100	120	10
56826	65	80	8	73238	100	120	12
22528	65	80	10	62553	100	120	13
36446	65	85	10	57136	100	125	12
22529	65	85	13	21344	100	130	12
22530	65	90	10	45436	100	135	13
62545	65	100	10	56846	100	135	15
156945	65	100	12	149669	100	180	12
130572	68	80	7	148593	104	125	10
38371	68	90	6	56847	105	125	13
22531	68	90	10	134453	105	129	12
63335	70	85	8	66391	105	130	8
22532	70	90	10	62554	105	130	12
84926	70	90	12	37962	105	130	13
83196	70	90	13	118724	108	130	13
62546	70	95	10	56849	110	130	12
22533	70	100	8	42642	110	140	12
22534	70	100	10	63520	112	140	13
134959	70	125	12	22544	115	140	12
62548	72	100	10	36452	115	150	12
119050	73	96	9	62555	120	140	12
83197	75	90	8	56853	120	140	13
22535	75	95	10	22545	120	150	12
22536	75	100	10	57149	120	150	13
59397	75	100	12	56854	120	150	15
48661	75	115	12	62557	120	160	12
130573	77	95	10	22546	125	150	12
35355	80	100	10	56858	125	155	12
22537	80	100	13	48670	128	146	13.5
22538	80	110	10	56862	130	150	12
146162	80	130	13	48672	130	150	15
63468	84	110	16	73239	130	160	12
135225	85	100	12	22547	130	160	15
62551	85	105	12	62559	130	170	12
22539	85	110	12	134454	135	160	12
63470	85	110	13	83198	135	160	15

**VIAS**

**Sizes metric**

Part No.	Dimensions in mm			Part No.	Dimensions in mm		
	$\varnothing d_1$	$\varnothing d_2$	L		$\varnothing d_1$	$\varnothing d_2$	L
36456	135	170	15	117548	560	590	20
127396	140	160	13	134118	670	730	25
22548	140	170	12	130529	720	760	20
37164	140	170	13				
60178	140	170	14				
56864	140	170	15				
156268	140	180	15				
48679	145	170	15				
83199	145	175	15				
151519	145	184	15				
90735	150	180	10				
57137	150	180	13				
63550	150	180	14				
69508	150	180	15				
134455	155	180	12				
57138	155	185	15				
69911	155	190	15				
48695	160	180	10				
151602	160	185	10				
25697	160	190	15				
148905	162	190	15				
149618	168	200	13				
149619	170	200	13				
27300	170	200	15				
72495	170	204	10				
134456	175	200	12				
56869	180	200	16				
24676	180	210	15				
60259	185	210	13				
48707	190	215	16				
124590	190	220	15				
56871	190	225	16				
48708	190	230	16				
27506	200	230	15				
57139	200	240	16				
48709	207	240	16				
143883	210	240	15				
56876	210	290	20				
48710	220	250	15				
22549	230	260	15				
48712	240	270	15				
42609	265	290	16				
73241	280	320	20				
48717	310	340	15				
48719	360	390	15				
48720	360	400	20				
56881	380	420	20				
104347	394	420	16				
56885	420	470	20				
48723	440	480	20				
56886	450	500	22				
135295	470	500	20				
48724	480	520	20				
56888	500	540	20				
116745	540	590	20				



**VIAS****Sizes  
inch**

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Part No.	Dimensions in mm			Dimensions in inch		
	ød <sub>1</sub>	ød <sub>2</sub>	L	ød <sub>1</sub>	ød <sub>2</sub>	L
48600	12.7	22.22	6.35	0.5	0.875	0.25
56757	19.05	31.75	6.35	0.75	1.25	0.25
152317	20.63	31.75	6.35	0.812	1.25	0.25
56762	22.22	35.15	9.52	0.875	1.384	0.375
46854	25.4	38.1	9.52	1	1.5	0.375
157077	25.4	44.45	6.76	1	1.75	0.266
83192	25.4	44.45	9.52	1	1.75	0.375
44747	26.98	38.1	6.35	1.062	1.5	0.25
134033	29.36	38.1	4.76	1.156	1.5	0.187
134030	29.36	42.82	7.93	1.156	1.686	0.312
56780	31.75	41.27	6.35	1.25	1.625	0.25
134034	36.51	47.62	6.35	1.437	1.875	0.25
134031	36.51	50.8	7.93	1.437	2	0.312
63176	37.5	52.6	12.5	1.476	2.071	0.492
149273	38.1	57.15	9.52	1.5	2.25	0.375
134029	41.27	53.97	6.35	1.625	2.125	0.25
134032	41.27	60.32	9.52	1.625	2.375	0.375
39636	47.62	70.84	15.87	1.875	2.789	0.625
156704	50.8	69.85	11.11	2	2.75	0.437
79690	60.32	79.37	9.52	2.375	3.125	0.375
79689	63.5	92.07	9.52	2.5	3.625	0.375
69713	63.5	95.25	9.52	2.5	3.75	0.375
134355	69.85	88.9	12.7	2.75	3.5	0.5
59417	85.72	111.12	9.52	3.375	4.375	0.375
59418	107.95	133.35	7.93	4.25	5.25	0.312
48692	152.4	187.32	19	6	7.375	0.748
148709	273.05	323.85	25.4	10.75	12.75	1