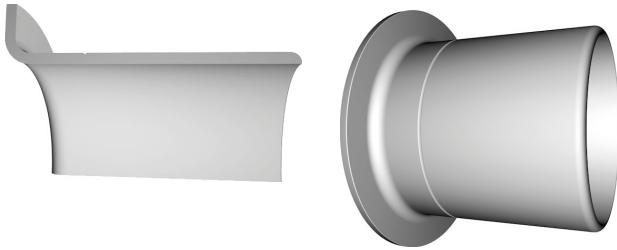


SL-10



Description

Shaft repair sleeves are metallic sleeves and are used as counterface replacement for radial shaft seals.

Applications

- Shaft repair sleeves are pushed onto shafts to repair the worn counterface for radial shaft seals. They are a quick and cost-effective alternative to replacing or often costly reworking of the shaft.
- Shaft repair sleeves can also be used as original equipment to eliminate the need for costly machining of the shaft surface.

Special features / advantages

- Quick and easy installation
- Cost-effective renewal of worn shaft surface
- Minimizes repair and downtime
- Thin wall thicknesses do not require a change in seal dimensions
- Precisely ground surface ensures long service life
- High availability for many common dimensions

Technical data

Surface finish/ roughness	$R_a = 0.2 - 0.8 \mu\text{m}$ $R_z = 1 - 5 \mu\text{m}$ $R_{\text{max}} \leq 6.3 \mu\text{m}$
Surface machining	free of orientation, non-directionally ground
Surface hardness	HV 220 (95 HRB) wear-resistant machining
Wall thickness	0.28 mm (0.011 inch) thin-walled design

Materials

Material sleeve	stainless steel 1.4301 (AISI 304)
Material assembly tool	Depending on version in standard steel / aluminium

Application parameters

The operating parameters are specified by the seal and are usually not limited by the shaft sleeve.

Assembly

Shaft sleeves can be installed quickly and easily using the supplied assembly sleeve. The notched, detachable assembly flange is easy to remove.

Assembly instructions are included in the packaging.

Assembly

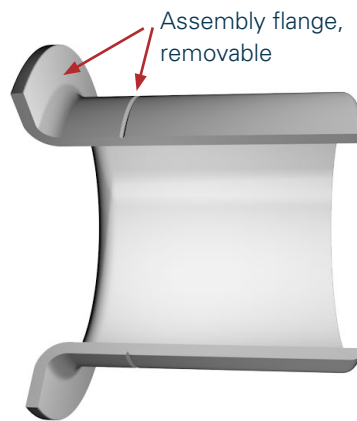
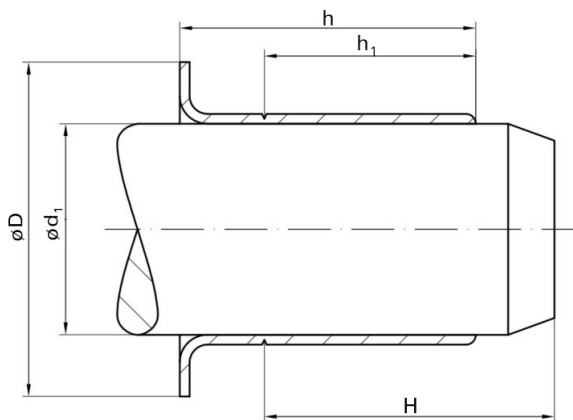
Shaft sleeves can be installed quickly and easily using the supplied assembly sleeve. The notched, detachable assembly flange is easy to remove. Assembly instructions are included in the packaging.

- Clean the worn counterface surface on the shaft. Remove unevenness with emery fleece or a fine file.
- Measure the diameter of the seal counterface surface in an undamaged area. Select the suitable sleeve size based on this value.
- Place the sleeve on the top of the shaft with the flange first.
- Place the supplied assembly sleeve against the flange of the sleeve. If the assembly sleeve is too short, a pipe can be used instead.
- Gently tap the centre of the assembly sleeve until the sleeve covers the worn area.
- The sleeve flange does not need to be removed unless it interferes with the application. If it must be removed, a cut should be made in the sleeve flange before assembly. The cut should end at the tearing groove. The pre-cut process and the flange removal must be done carefully to avoid damaging the outside diameter of the sleeve.
- Check again if there are burrs on the sleeve that could damage the seal.
- Lubricate the sleeve.
- Proceed with the installation of the seal.



Shaft Repair Sleeves

Metric Sizes



anyseals No.	Alternative Reference	Shaft \varnothing Range		Nominal Shaft \varnothing d_1 [mm]	Flange \varnothing D (± 1.60) [mm]	Width on Shaft h_1 (± 0.80) [mm]	Overall Width h (± 0.80) [mm]	Installation Tool Depth H Max [mm]
		Min [mm]	Max [mm]					
326354	99049	11.91	12.07	12.00	15.50	6.00	8.40	47.60
473654	99050	12.65	12.75	12.70	15.50	6.30	8.70	50.80
473655	99055	13.89	14.00	14.00	19.10	6.30	9.90	46.50
473656	99056	14.22	14.38	14.30	19.10	6.30	9.90	46.50
473657	99059	14.96	15.06	15.00	19.10	5.00	9.00	47.30
473658	99062	15.83	15.93	15.88	19.10	8.00	10.30	50.80
473659	99058	15.90	16.00	16.00	18.20	8.00	11.10	50.80
468582	99068	16.94	17.04	17.00	22.20	8.00	11.00	50.80
473660	99060	17.32	17.42	17.37	22.70	8.00	11.10	50.80
473661	99082	17.88	18.01	17.93	24.40	8.00	11.00	46.00
473662	99076	19.00	19.10	19.05	24.00	8.00	11.10	50.80
473663	99081	19.28	19.33	19.30	23.80	8.00	11.10	50.80
473664	99080	19.81	19.91	19.84	23.80	8.00	11.10	50.80
325287	99078	19.94	20.04	20.00	23.60	8.00	11.00	50.80
473665	99083	20.62	20.70	20.65	30.18	9.53	14.30	76.20
473666	99086	21.77	21.87	21.82	29.30	6.30	9.50	50.80
466068	99084	21.87	22.00	22.00	30.20	6.60	9.10	47.10
325839	99085	21.87	22.00	22.00	30.20	8.00	12.00	46.00
473667	99087	22.18	22.28	22.23	27.80	8.00	11.10	50.80
473668	99091	23.06	23.16	23.11	30.90	8.00	11.10	46.90
373610	99092	23.88	24.00	24.00	28.70	8.00	11.10	50.80
473669	99094	24.54	24.64	24.60	28.70	8.00	11.10	50.80
473670	99096	24.54	24.64	24.60	28.70	15.90	18.30	50.80
319085	99098	24.94	25.04	25.00	33.00	8.00	11.00	50.80
325849	99100	25.35	25.45	25.40	31.00	8.00	11.10	50.80
473671	99103	25.88	26.01	26.01	33.40	8.00	12.00	46.00
473672	99106	26.92	27.03	27.00	33.50	8.00	11.10	46.80
473673	99108	27.61	27.71	27.66	35.70	8.00	11.10	15.90
325840	99111	27.94	28.04	28.00	34.90	9.50	12.70	46.80

Shaft Repair Sleeves

Metric Sizes



anyseals No.	Alternative Reference	Shaft Ø Range		Nominal Shaft Ø d ₁ [mm]	Flange Ø D (± 1.60) [mm]	Width on Shaft h ₁ (± 0.80) [mm]	Overall Width h (± 0.80) [mm]	Installation Tool Depth H Max [mm]
		Min [mm]	Max [mm]					
473674	99112	28.53	28.63	28.58	38.10	8.00	11.10	17.50
473675	99116	28.53	28.63	28.58	38.10	9.50	12.70	17.50
473676	99120	29.31	29.41	29.36	34.30	9.50	12.70	17.50
473677	99122	29.80	29.92	29.85	35.60	8.00	11.10	17.50
319078	99114	29.95	30.07	30.00	35.60	8.00	11.00	17.50
473678	99118	30.10	30.23	30.18	35.60	8.00	11.10	17.50
473679	99123	30.89	31.04	30.96	39.70	8.00	11.00	15.90
473680	99141	31.42	31.58	31.50	39.10	8.00	11.10	17.50
473681	99125	31.67	31.83	31.80	38.10	8.00	11.10	17.50
423742	99128	31.92	32.08	32.00	38.10	8.00	11.10	17.50
473682	99121	32.94	33.05	33.00	40.49	15.01	18.00	20.65
473683	99129	33.22	33.38	33.35	40.60	6.30	9.50	20.70
473684	99131	33.27	33.43	33.35	40.50	12.70	15.90	20.70
473685	99134	33.86	34.01	34.01	41.30	12.70	15.90	20.70
473686	99133	34.82	34.98	34.93	41.60	8.00	11.10	20.70
469785	99138	34.82	34.98	34.93	41.60	12.70	15.90	20.70
319080	99139	34.93	35.08	34.93	41.60	13.00	16.00	20.70
325841	99146	35.84	36.00	36.00	45.20	13.00	17.00	25.00
473687	99143	36.37	36.53	36.53	45.20	14.30	17.50	25.80
473688	99144	36.45	36.60	36.53	45.20	9.50	12.70	25.80
469794	99147	37.85	38.00	38.00	45.20	13.00	17.00	25.00
473689	99149	38.02	38.18	38.10	45.20	14.30	17.50	25.80
326039	99150	38.02	38.18	38.10	45.20	9.50	12.70	25.80
473690	99152	38.61	38.76	38.68	47.20	11.10	14.30	25.80
466151	99155	39.34	39.50	39.42	47.20	11.10	14.30	25.80
327193	99156	39.60	39.75	39.70	47.20	14.30	17.50	25.80
473691	99159	39.78	39.93	39.85	47.20	15.90	19.10	25.80
319993	99153	39.85	40.00	40.00	46.90	9.90	12.90	25.40
325850	99157	39.93	40.08	40.08	47.00	13.00	16.00	26.00
473692	99160	40.69	40.84	40.77	49.20	12.70	16.30	25.40
473693	99163	40.84	41.00	41.00	49.20	12.70	15.90	25.80
473694	99161	41.20	41.35	41.28	47.60	8.00	11.10	25.80
473695	99162	41.20	41.35	41.28	47.60	14.30	17.50	20.70
473696	99166	41.83	42.00	41.90	53.00	11.30	14.50	21.40
325851	99169	41.83	42.00	41.90	53.00	14.30	17.50	21.00
473697	99165	41.99	42.14	42.06	53.00	14.00	17.50	21.00
473699	99168	42.77	42.93	42.88	48.40	14.30	17.50	22.20
473698	99167	42.80	42.95	42.88	48.40	8.00	11.10	22.20
473700	99182	42.85	43.00	43.00	48.40	12.70	15.90	21.30
473701	99171	43.56	43.71	43.66	51.60	14.30	17.50	20.70

Shaft Repair Sleeves

Metric Sizes



anyseals No.	Alternative Reference	Shaft Ø Range		Nominal Shaft Ø d ₁ [mm]	Flange Ø D (± 1.60) [mm]	Width on Shaft h ₁ (± 0.80) [mm]	Overall Width h (± 0.80) [mm]	Installation Tool Depth H Max [mm]
		Min [mm]	Max [mm]					
473702	99170	44.09	44.25	44.17	52.40	9.50	12.70	20.70
473703	99172	44.37	44.53	44.45	52.20	9.50	12.70	20.70
473704	99174	44.37	44.53	44.45	52.40	14.30	17.50	20.70
473705	99175	44.37	44.53	44.45	52.40	19.10	22.20	20.70
473706	99180	44.37	44.53	44.45	52.40	13.50	15.90	22.30
473707	99176	44.73	44.88	44.86	52.40	14.30	17.50	20.70
319082	99177	44.93	45.09	45.00	53.00	14.00	17.00	20.60
473708	99179	45.16	45.31	45.24	54.00	16.90	20.30	27.00
473709	99181	45.95	46.10	46.05	53.10	14.30	17.50	25.40
473710	99185	47.17	47.32	47.22	54.80	14.30	17.50	25.40
473711	99186	47.40	47.55	47.45	55.60	22.60	26.00	25.40
473712	99184	47.55	47.70	47.63	56.00	9.50	13.10	26.60
473713	99187	47.55	47.70	47.63	56.00	14.30	17.50	25.40
473714	99188	47.55	47.70	47.63	56.00	7.50	10.50	18.80
473715	99190	47.55	47.70	47.63	56.00	4.50	7.50	18.80
473716	99189	47.93	48.09	48.03	56.00	14.00	17.00	25.00
473717	99192	48.49	48.64	48.56	56.40	9.50	12.70	25.40
473718	99193	49.12	49.28	49.23	56.40	14.30	17.50	25.40
319081	99196	49.91	50.06	50.00	57.00	14.00	17.00	25.00
473719	99198	50.22	50.37	50.30	58.80	14.30	17.90	26.60
473720	99199	50.72	50.88	50.80	61.10	14.30	17.50	25.40
473721	99200	50.72	50.88	50.80	61.10	22.20	25.40	25.40
473722	99204	51.82	52.00	52.00	62.70	12.70	15.90	34.50
473723	99205	52.25	52.40	52.40	62.70	19.80	23.80	34.90
473724	99210	53.92	54.05	53.98	61.50	12.70	19.10	32.50
473725	99212	53.95	54.10	53.98	61.50	19.80	23.80	34.90
319084	99215	54.91	55.07	55.00	62.00	20.00	23.00	31.80
473726	99218	55.52	55.68	55.58	63.50	19.80	23.80	33.40
473728	99220	55.83	56.00	56.00	64.30	12.70	15.90	33.40
473729	99229	56.57	56.72	56.64	64.30	12.70	15.90	33.40
473730	99230	56.57	56.72	56.64	64.30	19.80	23.00	31.80
473731	99226	56.82	56.97	56.90	65.10	19.40	22.90	31.80
473732	99225	57.12	57.28	57.15	64.30	19.80	23.80	33.40
469793	99227	57.12	57.28	57.15	64.30	8.00	11.10	33.40
473733	99219	57.91	58.06	58.00	65.99	19.84	23.83	34.93
473734	99231	58.65	58.80	58.75	68.30	19.80	23.80	34.90
473735	99233	59.10	59.26	59.13	69.80	19.10	22.20	38.10
319083	99235	59.92	60.07	60.00	70.70	20.00	23.00	37.30
326789	99241	59.92	60.07	60.00	70.70	9.40	11.40	34.90
473736	99236	60.17	60.33	60.33	69.80	19.80	23.80	34.90

Shaft Repair Sleeves

Metric Sizes



anyseals No.	Alternative Reference	Shaft Ø Range		Nominal Shaft Ø d ₁ [mm]	Flange Ø D (± 1.60) [mm]	Width on Shaft h ₁ (± 0.80) [mm]	Overall Width h (± 0.80) [mm]	Installation Tool Depth H Max [mm]
		Min [mm]	Max [mm]					
473737	99238	60.25	60.40	60.33	69.80	15.10	19.10	34.90
473736	99237	60.30	60.45	60.33	69.80	19.80	23.80	34.90
473738	99240	60.30	60.45	60.33	69.80	13.40	17.40	34.90
473740	99243	61.82	61.98	61.92	71.80	19.80	23.80	35.40
330641	99244	61.82	62.00	62.00	71.80	12.70	15.90	36.10
473739	99242	61.85	62.00	61.93	71.80	12.70	15.90	36.10
473741	99249	63.22	63.37	63.30	73.00	19.80	23.80	35.40
473744	99253	63.42	63.58	63.50	71.60	14.10	16.50	22.60
473742	99248	63.50	63.65	63.50	71.80	12.70	16.70	35.40
473743	99250	63.50	63.65	63.50	71.60	19.80	23.80	34.90
473745	99251	63.75	63.91	63.91	71.80	19.80	23.00	36.50
325170	99254	64.92	65.08	65.00	72.40	20.00	23.00	34.90
473746	99256	65.02	65.18	65.10	73.40	19.80	23.80	34.90
473747	99259	65.91	66.07	66.00	76.00	19.80	23.80	31.80
473748	99261	66.49	66.65	66.57	77.40	19.80	23.80	34.90
473751	99264	66.57	66.73	66.68	77.40	19.80	23.00	34.90
473749	99260	66.60	66.75	66.68	77.40	12.70	15.90	34.90
473750	99262	66.68	66.83	66.68	77.40	19.80	23.80	34.90
473752	99266	67.82	68.00	68.00	79.40	19.10	22.20	42.90
473753	99268	69.27	69.42	69.34	79.40	19.80	23.00	33.40
473754	99273	69.60	69.75	69.67	77.80	19.80	23.80	31.80
473755	99267	69.77	69.93	69.85	78.10	36.50	41.30	41.30
473756	99270	69.77	69.93	69.85	79.40	19.80	23.80	31.80
424226	99269	69.85	70.00	69.85	79.40	28.60	31.80	33.30
325852	99272	69.85	70.00	69.85	79.40	10.30	14.30	31.80
325842	99276	69.93	70.08	70.00	79.40	20.00	24.00	31.80
473757	99281	71.35	71.50	71.45	81.00	15.10	17.50	31.80
424022	99284	71.83	72.00	72.00	81.90	19.10	22.20	34.10
473758	99282	72.09	72.24	72.09	81.90	12.70	16.70	31.80
473759	99286	72.80	72.95	72.87	81.00	19.80	23.80	31.80
473760	99287	72.97	73.13	73.03	81.80	19.80	23.80	31.80
473761	99290	74.60	74.75	74.63	84.90	12.70	16.30	33.80
473762	99293	74.60	74.75	74.63	84.90	19.80	23.80	33.40
424277	99289	74.93	75.08	75.00	83.10	15.10	17.50	27.50
325843	99294	74.93	75.08	75.00	84.00	22.00	26.00	33.40
473763	99292	75.49	75.59	75.54	82.20	20.60	25.40	31.80
473764	99291	75.95	76.10	76.02	85.30	12.30	15.90	33.80
473765	99298	75.95	76.10	76.02	85.30	14.30	17.50	34.90
473766	99299	75.95	76.10	76.02	85.10	20.60	25.40	32.50
473767	99296	76.12	76.28	76.20	82.30	20.60	23.80	34.90

Shaft Repair Sleeves

Metric Sizes



anyseals No.	Alternative Reference	Shaft Ø Range		Nominal Shaft Ø d ₁ [mm]	Flange Ø D (± 1.60) [mm]	Width on Shaft h ₁ (± 0.80) [mm]	Overall Width h (± 0.80) [mm]	Installation Tool Depth H Max [mm]
		Min [mm]	Max [mm]					
473768	99300	76.20	76.35	76.20	82.20	20.60	25.40	32.50
473769	99303	76.20	76.35	76.20	85.00	15.90	20.60	32.50
473770	99301	76.40	76.56	76.48	85.20	12.70	15.90	50.80
473771	99306	77.83	78.00	78.00	88.00	19.10	22.20	52.20
473773	99311	79.25	79.40	79.38	89.70	17.50	20.60	50.80
473774	99312	79.25	79.40	79.38	89.70	20.60	25.40	50.80
473772	99307	79.35	79.55	79.38	89.50	14.00	18.00	51.60
473775	99313	79.81	80.01	79.91	89.90	19.10	22.50	34.90
320489	99315	79.91	80.09	80.00	90.00	21.00	24.00	34.90
320294	99317	79.91	80.09	80.00	90.00	11.00	15.00	34.90
473776	99328	81.92	82.07	82.00	91.10	16.80	21.50	44.50
473777	99322	82.47	82.63	82.55	91.30	20.60	25.40	34.90
473778	99324	82.55	82.70	82.55	90.80	15.10	18.30	34.90
473779	99325	82.55	82.70	82.55	91.10	20.60	25.40	34.90
473780	99326	82.55	82.70	82.55	91.10	17.50	22.20	31.80
473781	99331	84.00	84.15	84.07	93.70	20.60	25.40	34.90
473782	99332	84.76	85.01	84.89	94.00	17.00	21.00	35.00
325853	99333	84.76	85.01	84.89	94.00	21.00	25.00	35.00
473783	99334	84.79	85.00	85.00	90.90	10.10	12.70	36.30
473784	99337	85.67	85.83	85.73	93.80	20.60	25.40	34.90
473785	99338	85.67	85.83	85.73	93.70	9.50	12.70	35.80
473786	99339	87.25	87.41	87.33	97.60	19.80	23.00	35.70
473787	99340	88.31	88.47	88.39	97.40	19.80	23.00	35.70
473788	99346	88.82	88.98	88.90	97.60	15.90	20.60	34.20
473789	99347	88.90	89.06	88.90	97.20	8.00	12.70	34.20
473790	99350	88.90	89.06	88.90	97.60	20.60	25.40	34.20
473791	99349	88.92	89.08	89.00	97.60	15.90	20.60	34.20
327553	99351	89.91	90.07	90.00	101.60	18.00	23.00	46.00
473792	99352	89.91	90.07	90.00	101.60	11.10	13.70	46.00
473793	99353	89.91	90.07	90.00	101.60	13.40	16.90	44.50
319079	99354	89.91	90.07	90.00	101.60	23.00	28.00	44.50
473794	99356	90.42	90.58	90.50	99.10	20.60	25.40	44.50
473795	99360	91.90	92.05	91.97	102.40	20.60	25.40	44.50
473796	99362	92.02	92.18	92.08	102.40	20.60	25.40	44.50
473797	99363	92.02	92.18	92.10	102.24	12.70	15.87	44.45
473799	99368	93.57	93.73	93.68	102.40	8.00	11.10	22.20
473798	99365	93.60	93.76	93.68	102.20	20.60	23.80	45.70
473800	99359	94.66	94.82	94.74	102.40	11.90	15.10	45.70
473801	99366	94.66	94.82	94.74	102.20	19.80	23.00	45.70
325844	99369	94.92	95.08	95.00	102.20	21.00	24.00	45.70

Shaft Repair Sleeves

Metric Sizes



anyseals No.	Alternative Reference	Shaft Ø Range		Nominal Shaft Ø d ₁ [mm]	Flange Ø D (± 1.60) [mm]	Width on Shaft h ₁ (± 0.80) [mm]	Overall Width h (± 0.80) [mm]	Installation Tool Depth H Max [mm]
		Min [mm]	Max [mm]					
469831	99364	95.00	95.15	95.00	102.50	11.90	15.10	45.70
473802	99374	95.00	95.15	95.00	102.40	8.70	12.70	45.70
473828	99490	95.00	95.15	125.00	137.20	10.00	14.00	36.50
473803	99376	95.15	95.30	95.25	102.20	14.30	17.50	45.70
473804	99367	95.25	95.41	95.25	102.20	8.70	12.70	45.70
473805	99372	95.25	95.41	95.25	102.10	17.50	22.20	45.70
473806	99386	98.24	98.40	98.32	106.30	20.65	25.40	47.63
473807	99387	98.37	98.43	98.43	107.20	20.60	25.40	47.60
325845	99393	99.95	100.11	100.00	109.50	20.60	25.40	52.00
473808	99395	101.55	101.75	101.60	111.10	15.20	18.40	52.00
327383	99399	101.55	101.75	101.60	111.10	20.60	25.40	52.00
473809	99400	101.55	101.75	101.60	111.10	16.50	19.70	34.90
473810	99401	101.55	101.75	101.60	111.10	12.70	15.90	52.50
473811	99409	103.89	104.09	104.00	112.70	20.00	24.00	36.00
473812	99412	104.70	104.90	104.78	113.50	20.60	25.40	34.90
325846	99413	104.90	105.10	105.00	113.50	20.00	23.20	35.00
473813	99418	106.25	106.45	106.38	114.30	20.60	25.40	34.90
473814	99423	107.34	107.54	107.54	117.10	19.80	23.00	36.50
473815	99424	107.90	108.10	107.95	117.10	20.60	25.40	36.50
473816	99434	109.78	110.00	110.00	125.00	11.40	15.00	32.90
468562	99435	109.91	110.11	109.93	125.00	12.90	16.50	32.00
473817	99437	111.00	111.20	111.13	120.70	20.60	25.40	42.00
473818	99438	111.80	112.00	111.91	120.70	19.10	22.50	33.00
473819	99439	112.63	112.83	112.73	122.20	25.40	29.00	33.40
473820	99450	114.20	114.40	114.30	124.50	20.60	25.40	32.00
325847	99452	114.89	115.09	115.00	127.00	20.60	23.80	32.00
473821	99463	117.38	117.58	117.50	128.60	25.40	31.80	34.90
473822	99465	117.38	117.58	117.50	127.00	11.10	15.90	34.90
473823	99468	119.00	119.20	119.08	128.60	20.60	25.40	34.90
473824	99471	119.89	120.09	120.00	129.80	8.00	11.00	33.60
327396	99473	119.89	120.09	120.00	129.80	20.00	25.00	32.00
408162	99475	120.55	120.75	120.65	127.00	12.70	19.10	38.10
473825	99472	121.90	122.10	122.00	131.50	20.00	24.00	32.00
473826	99484	122.91	123.11	123.00	132.80	20.00	25.00	31.60
473827	99487	123.73	123.93	123.83	133.30	15.90	19.10	36.50
473829	99492	124.89	125.10	125.00	137.20	26.00	32.00	36.50
473830	99498	126.95	127.15	127.00	137.20	17.50	22.20	36.50
473831	99499	126.95	127.15	127.00	136.90	20.60	25.40	36.50
473832	99501	126.95	127.15	127.00	137.20	13.70	17.30	36.50
473833	99494	129.79	130.00	129.90	139.50	19.10	23.80	30.00

Shaft Repair Sleeves

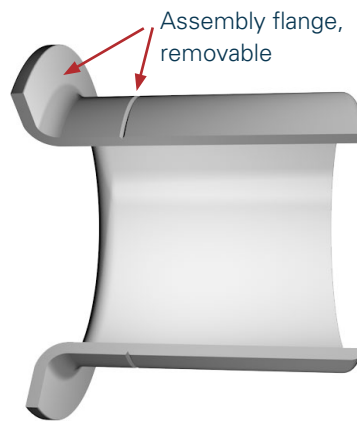
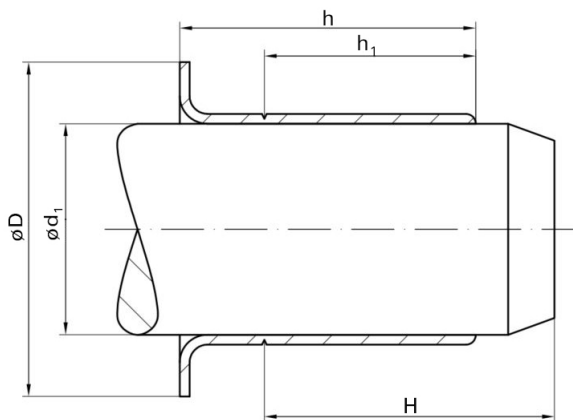
Metric Sizes



anyseals No.	Alternative Reference	Shaft Ø Range		Nominal Shaft Ø d ₁	Flange Ø D	Width on Shaft h ₁	Overall Width h	Installation Tool Depth H
		Min [mm]	Max [mm]					
473834	99491	129.97	130.18	130.18	139.50	22.00	25.30	32.50
473835	99513	130.05	130.25	130.18	139.70	20.60	25.40	31.80
473836	99525	133.25	133.45	133.35	141.20	20.60	25.40	31.80
473837	99533	134.80	135.00	134.95	145.70	20.50	25.40	31.80
473838	99537	136.43	136.63	136.53	149.20	20.60	25.40	31.80
473839	99548	138.03	138.23	138.13	146.10	38.10	49.90	47.60
473840	99547	138.99	139.19	139.09	149.90	14.30	19.10	31.30
473841	99549	139.65	139.85	139.70	150.80	20.60	25.40	31.80
473842	99550	139.65	139.85	139.70	150.80	13.20	17.90	31.80
473843	99552	139.90	140.11	140.00	151.00	20.50	25.40	31.80
473844	99560	142.77	142.98	142.88	157.18	22.23	25.40	46.02
473845	99571	144.75	145.00	145.00	154.90	19.10	22.20	46.00
473846	99562	145.44	145.64	145.64	154.90	14.30	19.10	49.20
473847	99575	145.95	146.15	146.05	157.00	20.60	25.40	44.50
473848	99587	149.13	149.33	149.23	157.20	25.40	31.80	33.40
325848	99595	149.75	150.01	150.00	159.00	26.00	30.00	32.50
473849	99596	150.73	150.93	150.83	161.90	25.40	28.60	47.60
473850	99599	152.27	152.47	152.40	161.90	25.40	31.80	44.50
473851	99601	152.27	152.47	152.40	161.50	12.70	19.10	44.50
473852	99605	153.87	154.13	154.00	161.90	26.00	30.00	33.00
473853	99606	154.75	155.00	154.86	167.00	26.00	30.00	33.00
473854	99620	157.43	157.69	157.56	168.30	20.60	27.00	44.50
473855	99625	158.62	158.88	158.75	168.30	26.20	31.80	44.50
473856	99630	159.74	160.00	160.00	171.40	25.40	31.80	35.00
473857	99650	164.97	165.23	165.10	177.80	25.40	31.80	35.00
319638	99640	169.75	170.00	169.88	182.60	31.80	38.00	44.50
473858	99675	171.32	171.58	171.45	181.00	20.60	27.00	44.50
473859	99687	174.75	175.01	175.01	187.00	28.00	32.00	35.00
473860	99700	177.67	177.93	177.80	189.90	25.40	31.80	42.80
325854	99721	179.75	180.01	180.01	190.50	33.00	38.00	44.50
473861	99725	183.99	184.25	184.15	197.10	31.80	38.10	55.20
473862	99726	184.74	185.00	184.86	197.10	32.00	38.00	55.20
473863	99745	189.08	189.33	189.31	199.60	20.60	25.40	31.80
473864	99750	190.37	190.63	190.50	200.00	20.60	25.40	31.80
473865	99775	196.72	196.98	196.85	210.10	25.40	33.40	47.60
441178	99787	199.87	200.13	200.03	212.70	34.50	38.10	44.50
473866	99799	201.50	201.75	201.63	212.70	25.40	31.80	44.50
473867	99800	203.07	203.33	203.20	212.70	25.40	31.80	44.50

Shaft Repair Sleeves

Inch Sizes



anyseals No.	Alternative Reference	Shaft \varnothing Range		Nominal Shaft \varnothing d_1	Flange \varnothing D	Width on Shaft h_1	Overall Width h	Installation Tool Depth H
		Min [inch]	Max [inch]					
326354	99049	0.469	0.475	0.472	0.610	0.236	0.331	1.874
473654	99050	0.498	0.502	0.500	0.610	0.248	0.343	2.000
473655	99055	0.547	0.551	0.551	0.752	0.248	0.390	1.831
473656	99056	0.560	0.566	0.563	0.752	0.248	0.390	1.831
473657	99059	0.589	0.593	0.591	0.752	0.197	0.354	1.862
473658	99062	0.623	0.627	0.625	0.752	0.315	0.406	2.000
473659	99058	0.626	0.630	0.630	0.717	0.315	0.437	2.000
468582	99068	0.667	0.671	0.669	0.874	0.315	0.433	2.000
473660	99060	0.682	0.686	0.684	0.894	0.315	0.437	2.000
473661	99082	0.704	0.709	0.706	0.961	0.315	0.433	1.811
473662	99076	0.748	0.752	0.750	0.945	0.315	0.437	2.000
473663	99081	0.759	0.761	0.760	0.937	0.315	0.437	2.000
473664	99080	0.780	0.784	0.781	0.937	0.315	0.437	2.000
325287	99078	0.785	0.789	0.787	0.929	0.315	0.433	2.000
473665	99083	0.812	0.815	0.813	1.188	0.375	0.563	3.000
473666	99086	0.857	0.861	0.859	1.154	0.248	0.374	2.000
466068	99084	0.861	0.866	0.866	1.189	0.260	0.358	1.854
325839	99085	0.861	0.866	0.866	1.189	0.315	0.472	1.811
473667	99087	0.873	0.877	0.875	1.094	0.315	0.437	2.000
473668	99091	0.908	0.912	0.910	1.217	0.315	0.437	1.846
373610	99092	0.940	0.945	0.945	1.130	0.315	0.437	2.000
473669	99094	0.966	0.970	0.969	1.130	0.315	0.437	2.000
473670	99096	0.966	0.970	0.969	1.130	0.626	0.720	2.000
319085	99098	0.982	0.986	0.984	1.299	0.315	0.433	2.000
325849	99100	0.998	1.002	1.000	1.220	0.315	0.437	2.000
473671	99103	1.019	1.024	1.024	1.315	0.315	0.472	1.811
473672	99106	1.060	1.064	1.063	1.319	0.315	0.437	1.843
473673	99108	1.087	1.091	1.089	1.406	0.315	0.437	0.626
325840	99111	1.100	1.104	1.102	1.374	0.374	0.500	1.843

Shaft Repair Sleeves

Inch Sizes



anyseals No.	Alternative Reference	Shaft Ø Range		Nominal Shaft Ø d ₁	Flange Ø D	Width on Shaft h ₁	Overall Width h	Installation Tool Depth H
		Min [inch]	Max [inch]					
473674	99112	1.123	1.127	1.125	1.500	0.315	0.437	0.689
473675	99116	1.123	1.127	1.125	1.500	0.374	0.500	0.689
473676	99120	1.154	1.158	1.156	1.350	0.374	0.500	0.689
473677	99122	1.173	1.178	1.175	1.402	0.315	0.437	0.689
319078	99114	1.179	1.184	1.181	1.402	0.315	0.433	0.689
473678	99118	1.185	1.190	1.188	1.402	0.315	0.437	0.689
473679	99123	1.216	1.222	1.219	1.563	0.315	0.433	0.626
473680	99141	1.237	1.243	1.240	1.539	0.315	0.437	0.689
473681	99125	1.247	1.253	1.252	1.500	0.315	0.437	0.689
423742	99128	1.257	1.263	1.260	1.500	0.315	0.437	0.689
473682	99121	1.297	1.301	1.299	1.594	0.591	0.709	0.813
473683	99129	1.308	1.314	1.313	1.598	0.248	0.374	0.815
473684	99131	1.310	1.316	1.313	1.594	0.500	0.626	0.815
473685	99134	1.333	1.339	1.339	1.626	0.500	0.626	0.815
473686	99133	1.371	1.377	1.375	1.638	0.315	0.437	0.815
469785	99138	1.371	1.377	1.375	1.638	0.500	0.626	0.815
319080	99139	1.375	1.381	1.375	1.638	0.512	0.630	0.815
325841	99146	1.411	1.417	1.417	1.780	0.512	0.669	0.984
473687	99143	1.432	1.438	1.438	1.780	0.563	0.689	1.016
473688	99144	1.435	1.441	1.438	1.780	0.374	0.500	1.016
469794	99147	1.490	1.496	1.496	1.780	0.512	0.669	0.984
473689	99149	1.497	1.503	1.500	1.780	0.563	0.689	1.016
326039	99150	1.497	1.503	1.500	1.780	0.374	0.500	1.016
473690	99152	1.520	1.526	1.523	1.858	0.437	0.563	1.016
466151	99155	1.549	1.555	1.552	1.858	0.437	0.563	1.016
327193	99156	1.559	1.565	1.563	1.858	0.563	0.689	1.016
473691	99159	1.566	1.572	1.569	1.858	0.626	0.752	1.016
319993	99153	1.569	1.575	1.575	1.846	0.390	0.508	1.000
325850	99157	1.572	1.578	1.578	1.850	0.512	0.630	1.024
473692	99160	1.602	1.608	1.605	1.937	0.500	0.642	1.000
473693	99163	1.608	1.614	1.614	1.937	0.500	0.626	1.016
473694	99161	1.622	1.628	1.625	1.874	0.315	0.437	1.016
473695	99162	1.622	1.628	1.625	1.874	0.563	0.689	0.815
473696	99166	1.647	1.654	1.650	2.087	0.445	0.571	0.843
325851	99169	1.647	1.654	1.650	2.087	0.563	0.689	0.827
473697	99165	1.653	1.659	1.656	2.087	0.551	0.689	0.827
473699	99168	1.684	1.690	1.688	1.906	0.563	0.689	0.874
473698	99167	1.685	1.691	1.688	1.906	0.315	0.437	0.874
473700	99182	1.687	1.693	1.693	1.906	0.500	0.626	0.839
473701	99171	1.715	1.721	1.719	2.031	0.563	0.689	0.815

Shaft Repair Sleeves

Inch Sizes



anyseals No.	Alternative Reference	Shaft Ø Range		Nominal Shaft Ø d ₁	Flange Ø D	Width on Shaft h ₁	Overall Width h	Installation Tool Depth H
		Min [inch]	Max [inch]					
473702	99170	1.736	1.742	1.739	2.063	0.374	0.500	0.815
473703	99172	1.747	1.753	1.750	2.055	0.374	0.500	0.815
473704	99174	1.747	1.753	1.750	2.063	0.563	0.689	0.815
473705	99175	1.747	1.753	1.750	2.063	0.752	0.874	0.815
473706	99180	1.747	1.753	1.750	2.063	0.531	0.626	0.878
473707	99176	1.761	1.767	1.766	2.063	0.563	0.689	0.815
319082	99177	1.769	1.775	1.772	2.087	0.551	0.669	0.811
473708	99179	1.778	1.784	1.781	2.126	0.665	0.799	1.063
473709	99181	1.809	1.815	1.813	2.091	0.563	0.689	1.000
473710	99185	1.857	1.863	1.859	2.157	0.563	0.689	1.000
473711	99186	1.866	1.872	1.868	2.189	0.890	1.024	1.000
473712	99184	1.872	1.878	1.875	2.205	0.374	0.516	1.047
473713	99187	1.872	1.878	1.875	2.205	0.563	0.689	1.000
473714	99188	1.872	1.878	1.875	2.205	0.295	0.413	0.740
473715	99190	1.872	1.878	1.875	2.205	0.177	0.295	0.740
473716	99189	1.887	1.893	1.891	2.205	0.551	0.669	0.984
473717	99192	1.909	1.915	1.912	2.220	0.374	0.500	1.000
473718	99193	1.934	1.940	1.938	2.220	0.563	0.689	1.000
319081	99196	1.965	1.971	1.969	2.244	0.551	0.669	0.984
473719	99198	1.977	1.983	1.980	2.315	0.563	0.705	1.047
473720	99199	1.997	2.003	2.000	2.406	0.563	0.689	1.000
473721	99200	1.997	2.003	2.000	2.406	0.874	1.000	1.000
473722	99204	2.040	2.047	2.047	2.469	0.500	0.626	1.358
473723	99205	2.057	2.063	2.063	2.469	0.780	0.937	1.374
473724	99210	2.123	2.128	2.125	2.421	0.500	0.752	1.280
473725	99212	2.124	2.130	2.125	2.421	0.780	0.937	1.374
319084	99215	2.162	2.168	2.165	2.441	0.787	0.906	1.252
473726	99218	2.186	2.192	2.188	2.500	0.780	0.937	1.315
473728	99220	2.198	2.205	2.205	2.531	0.500	0.626	1.315
473729	99229	2.227	2.233	2.230	2.531	0.500	0.626	1.315
473730	99230	2.227	2.233	2.230	2.531	0.780	0.906	1.252
473731	99226	2.237	2.243	2.240	2.563	0.764	0.902	1.252
473732	99225	2.249	2.255	2.250	2.531	0.780	0.937	1.315
469793	99227	2.249	2.255	2.250	2.531	0.315	0.437	1.315
473733	99219	2.280	2.286	2.283	2.598	0.781	0.938	1.375
473734	99231	2.309	2.315	2.313	2.689	0.780	0.937	1.374
473735	99233	2.327	2.333	2.328	2.748	0.752	0.874	1.500
319083	99235	2.359	2.365	2.362	2.783	0.787	0.906	1.469
326789	99241	2.359	2.365	2.362	2.783	0.370	0.449	1.374
473736	99236	2.369	2.375	2.375	2.748	0.780	0.937	1.374

Shaft Repair Sleeves

Inch Sizes



anyseals No.	Alternative Reference	Shaft Ø Range		Nominal Shaft Ø d ₁ [inch]	Flange Ø D (± 0.063) [inch]	Width on Shaft h ₁ (± 0.031) [inch]	Overall Width h (± 0.031) [inch]	Installation Tool Depth H Max [inch]
		Min [inch]	Max [inch]					
473737	99238	2.372	2.378	2.375	2.748	0.594	0.752	1.374
473736	99237	2.374	2.380	2.375	2.748	0.780	0.937	1.374
473738	99240	2.374	2.380	2.375	2.748	0.528	0.685	1.374
473740	99243	2.434	2.440	2.438	2.827	0.780	0.937	1.394
330641	99244	2.434	2.441	2.441	2.827	0.500	0.626	1.421
473739	99242	2.435	2.441	2.438	2.827	0.500	0.626	1.421
473741	99249	2.489	2.495	2.492	2.874	0.780	0.937	1.394
473744	99253	2.497	2.503	2.500	2.819	0.555	0.650	0.890
473742	99248	2.500	2.506	2.500	2.827	0.500	0.657	1.394
473743	99250	2.500	2.506	2.500	2.819	0.780	0.937	1.374
473745	99251	2.510	2.516	2.516	2.827	0.780	0.906	1.437
325170	99254	2.556	2.562	2.559	2.850	0.787	0.906	1.374
473746	99256	2.560	2.566	2.563	2.890	0.780	0.937	1.374
473747	99259	2.595	2.601	2.598	2.992	0.780	0.937	1.252
473748	99261	2.618	2.624	2.621	3.047	0.780	0.937	1.374
473751	99264	2.621	2.627	2.625	3.047	0.780	0.906	1.374
473749	99260	2.622	2.628	2.625	3.047	0.500	0.626	1.374
473750	99262	2.625	2.631	2.625	3.047	0.780	0.937	1.374
473752	99266	2.670	2.677	2.677	3.126	0.752	0.874	1.689
473753	99268	2.727	2.733	2.730	3.126	0.780	0.906	1.315
473754	99273	2.740	2.746	2.743	3.063	0.780	0.937	1.252
473755	99267	2.747	2.753	2.750	3.075	1.437	1.626	1.626
473756	99270	2.747	2.753	2.750	3.126	0.780	0.937	1.252
424226	99269	2.750	2.756	2.750	3.126	1.126	1.252	1.311
325852	99272	2.750	2.756	2.750	3.126	0.406	0.563	1.252
325842	99276	2.753	2.759	2.756	3.126	0.787	0.945	1.252
473757	99281	2.809	2.815	2.813	3.189	0.594	0.689	1.252
424022	99284	2.828	2.835	2.835	3.224	0.752	0.874	1.343
473758	99282	2.838	2.844	2.838	3.224	0.500	0.657	1.252
473759	99286	2.866	2.872	2.869	3.189	0.780	0.937	1.252
473760	99287	2.873	2.879	2.875	3.220	0.780	0.937	1.252
473761	99290	2.937	2.943	2.938	3.343	0.500	0.642	1.331
473762	99293	2.937	2.943	2.938	3.343	0.780	0.937	1.315
424277	99289	2.950	2.956	2.953	3.272	0.594	0.689	1.083
325843	99294	2.950	2.956	2.953	3.307	0.866	1.024	1.315
473763	99292	2.972	2.976	2.974	3.236	0.811	1.000	1.252
473764	99291	2.990	2.996	2.993	3.358	0.484	0.626	1.331
473765	99298	2.990	2.996	2.993	3.358	0.563	0.689	1.374
473766	99299	2.990	2.996	2.993	3.350	0.811	1.000	1.280
473767	99296	2.997	3.003	3.000	3.240	0.811	0.937	1.374

Shaft Repair Sleeves

Inch Sizes



anyseals No.	Alternative Reference	Shaft Ø Range		Nominal Shaft Ø d ₁ [inch]	Flange Ø D (± 0.063) [inch]	Width on Shaft h ₁ (± 0.031) [inch]	Overall Width h (± 0.031) [inch]	Installation Tool Depth H Max [inch]
		Min [inch]	Max [inch]					
473768	99300	3.000	3.006	3.000	3.236	0.811	1.000	1.280
473769	99303	3.000	3.006	3.000	3.346	0.626	0.811	1.280
473770	99301	3.008	3.014	3.011	3.354	0.500	0.626	2.000
473771	99306	3.064	3.071	3.071	3.465	0.752	0.874	2.055
473773	99311	3.120	3.126	3.125	3.531	0.689	0.811	2.000
473774	99312	3.120	3.126	3.125	3.531	0.811	1.000	2.000
473772	99307	3.124	3.132	3.125	3.524	0.551	0.709	2.031
473775	99313	3.142	3.150	3.146	3.539	0.752	0.886	1.374
320489	99315	3.146	3.153	3.150	3.543	0.827	0.945	1.374
320294	99317	3.146	3.153	3.150	3.543	0.433	0.591	1.374
473776	99328	3.225	3.231	3.228	3.587	0.661	0.846	1.752
473777	99322	3.247	3.253	3.250	3.594	0.811	1.000	1.374
473778	99324	3.250	3.256	3.250	3.575	0.594	0.720	1.374
473779	99325	3.250	3.256	3.250	3.587	0.811	1.000	1.374
473780	99326	3.250	3.256	3.250	3.587	0.689	0.874	1.252
473781	99331	3.307	3.313	3.310	3.689	0.811	1.000	1.374
473782	99332	3.337	3.347	3.342	3.701	0.669	0.827	1.378
325853	99333	3.337	3.347	3.342	3.701	0.827	0.984	1.378
473783	99334	3.338	3.346	3.346	3.579	0.398	0.500	1.429
473784	99337	3.373	3.379	3.375	3.693	0.811	1.000	1.374
473785	99338	3.373	3.379	3.375	3.689	0.374	0.500	1.409
473786	99339	3.435	3.441	3.438	3.843	0.780	0.906	1.406
473787	99340	3.477	3.483	3.480	3.835	0.780	0.906	1.406
473788	99346	3.497	3.503	3.500	3.843	0.626	0.811	1.346
473789	99347	3.500	3.506	3.500	3.827	0.315	0.500	1.346
473790	99350	3.500	3.506	3.500	3.843	0.811	1.000	1.346
473791	99349	3.501	3.507	3.504	3.843	0.626	0.811	1.346
327553	99351	3.540	3.546	3.543	4.000	0.709	0.906	1.811
473792	99352	3.540	3.546	3.543	4.000	0.437	0.539	1.811
473793	99353	3.540	3.546	3.543	4.000	0.528	0.665	1.752
319079	99354	3.540	3.546	3.543	4.000	0.906	1.102	1.752
473794	99356	3.560	3.566	3.563	3.902	0.811	1.000	1.752
473795	99360	3.618	3.624	3.621	4.031	0.811	1.000	1.752
473796	99362	3.623	3.629	3.625	4.031	0.811	1.000	1.752
473797	99363	3.623	3.629	3.626	4.025	0.500	0.625	1.750
473799	99368	3.684	3.690	3.688	4.031	0.315	0.437	0.874
473798	99365	3.685	3.691	3.688	4.024	0.811	0.937	1.799
473800	99359	3.727	3.733	3.730	4.031	0.469	0.594	1.799
473801	99366	3.727	3.733	3.730	4.024	0.780	0.906	1.799
325844	99369	3.737	3.743	3.740	4.024	0.827	0.945	1.799

Shaft Repair Sleeves

Inch Sizes



anyseals No.	Alternative Reference	Shaft Ø Range		Nominal Shaft Ø d ₁ [inch]	Flange Ø D (± 0.063) [inch]	Width on Shaft h ₁ (± 0.031) [inch]	Overall Width h (± 0.031) [inch]	Installation Tool Depth H Max [inch]
		Min [inch]	Max [inch]					
469831	99364	3.740	3.746	3.740	4.035	0.469	0.594	1.799
473802	99374	3.740	3.746	3.740	4.031	0.343	0.500	1.799
473828	99490	3.740	3.746	4.921	5.402	0.394	0.551	1.437
473803	99376	3.746	3.752	3.750	4.024	0.563	0.689	1.799
473804	99367	3.750	3.756	3.750	4.024	0.343	0.500	1.799
473805	99372	3.750	3.756	3.750	4.020	0.689	0.874	1.799
473806	99386	3.868	3.874	3.871	4.185	0.813	1.000	1.875
473807	99387	3.873	3.875	3.875	4.220	0.811	1.000	1.874
325845	99393	3.935	3.941	3.937	4.311	0.811	1.000	2.047
473808	99395	3.998	4.006	4.000	4.374	0.598	0.724	2.047
327383	99399	3.998	4.006	4.000	4.374	0.811	1.000	2.047
473809	99400	3.998	4.006	4.000	4.374	0.650	0.776	1.374
473810	99401	3.998	4.006	4.000	4.374	0.500	0.626	2.067
473811	99409	4.090	4.098	4.094	4.437	0.787	0.945	1.417
473812	99412	4.122	4.130	4.125	4.469	0.811	1.000	1.374
325846	99413	4.130	4.138	4.134	4.469	0.787	0.913	1.378
473813	99418	4.183	4.191	4.188	4.500	0.811	1.000	1.374
473814	99423	4.226	4.234	4.234	4.610	0.780	0.906	1.437
473815	99424	4.248	4.256	4.250	4.610	0.811	1.000	1.437
473816	99434	4.322	4.331	4.331	4.921	0.449	0.591	1.295
468562	99435	4.327	4.335	4.328	4.921	0.508	0.650	1.260
473817	99437	4.370	4.378	4.375	4.752	0.811	1.000	1.654
473818	99438	4.402	4.409	4.406	4.752	0.752	0.886	1.299
473819	99439	4.434	4.442	4.438	4.811	1.000	1.142	1.315
473820	99450	4.496	4.504	4.500	4.902	0.811	1.000	1.260
325847	99452	4.523	4.531	4.528	5.000	0.811	0.937	1.260
473821	99463	4.621	4.629	4.626	5.063	1.000	1.252	1.374
473822	99465	4.621	4.629	4.626	5.000	0.437	0.626	1.374
473823	99468	4.685	4.693	4.688	5.063	0.811	1.000	1.374
473824	99471	4.720	4.728	4.724	5.110	0.315	0.433	1.323
327396	99473	4.720	4.728	4.724	5.110	0.787	0.984	1.260
408162	99475	4.746	4.754	4.750	5.000	0.500	0.752	1.500
473825	99472	4.799	4.807	4.803	5.177	0.787	0.945	1.260
473826	99484	4.839	4.847	4.843	5.228	0.787	0.984	1.244
473827	99487	4.871	4.879	4.875	5.248	0.626	0.752	1.437
473829	99492	4.917	4.925	4.921	5.402	1.024	1.260	1.437
473830	99498	4.998	5.006	5.000	5.402	0.689	0.874	1.437
473831	99499	4.998	5.006	5.000	5.390	0.811	1.000	1.437
473832	99501	4.998	5.006	5.000	5.402	0.539	0.681	1.437
473833	99494	5.110	5.118	5.114	5.492	0.752	0.937	1.181

Shaft Repair Sleeves

Inch Sizes



anyseals No.	Alternative Reference	Shaft Ø Range		Nominal Shaft Ø d ₁	Flange Ø D	Width on Shaft h ₁	Overall Width h	Installation Tool Depth H
		Min [inch]	Max [inch]					
473834	99491	5.117	5.125	5.125	5.492	0.866	0.996	1.280
473835	99513	5.120	5.128	5.125	5.500	0.811	1.000	1.252
473836	99525	5.246	5.254	5.250	5.559	0.811	1.000	1.252
473837	99533	5.307	5.315	5.313	5.736	0.807	1.000	1.252
473838	99537	5.371	5.379	5.375	5.874	0.811	1.000	1.252
473839	99548	5.434	5.442	5.438	5.752	1.500	1.965	1.874
473840	99547	5.472	5.480	5.476	5.902	0.563	0.752	1.232
473841	99549	5.498	5.506	5.500	5.937	0.811	1.000	1.252
473842	99550	5.498	5.506	5.500	5.937	0.520	0.705	1.252
473843	99552	5.508	5.516	5.512	5.945	0.807	1.000	1.252
473844	99560	5.621	5.629	5.625	6.188	0.875	1.000	1.812
473845	99571	5.699	5.709	5.709	6.098	0.752	0.874	1.811
473846	99562	5.726	5.734	5.734	6.098	0.563	0.752	1.937
473847	99575	5.746	5.754	5.750	6.181	0.811	1.000	1.752
473848	99587	5.871	5.879	5.875	6.189	1.000	1.252	1.315
325848	99595	5.896	5.906	5.906	6.260	1.024	1.181	1.280
473849	99596	5.934	5.942	5.938	6.374	1.000	1.126	1.874
473850	99599	5.995	6.003	6.000	6.374	1.000	1.252	1.752
473851	99601	5.995	6.003	6.000	6.358	0.500	0.752	1.752
473852	99605	6.058	6.068	6.063	6.374	1.024	1.181	1.299
473853	99606	6.093	6.102	6.097	6.575	1.024	1.181	1.299
473854	99620	6.198	6.208	6.203	6.626	0.811	1.063	1.752
473855	99625	6.245	6.255	6.250	6.626	1.031	1.252	1.752
473856	99630	6.289	6.299	6.299	6.748	1.000	1.252	1.378
473857	99650	6.495	6.505	6.500	7.000	1.000	1.252	1.378
319638	99640	6.683	6.693	6.688	7.189	1.252	1.496	1.752
473858	99675	6.745	6.755	6.750	7.126	0.811	1.063	1.752
473859	99687	6.880	6.890	6.890	7.362	1.102	1.260	1.378
473860	99700	6.995	7.005	7.000	7.476	1.000	1.252	1.685
325854	99721	7.077	7.087	7.087	7.500	1.299	1.496	1.752
473861	99725	7.244	7.254	7.250	7.760	1.252	1.500	2.173
473862	99726	7.273	7.283	7.278	7.760	1.260	1.496	2.173
473863	99745	7.444	7.454	7.453	7.858	0.811	1.000	1.252
473864	99750	7.495	7.505	7.500	7.874	0.811	1.000	1.252
473865	99775	7.745	7.755	7.750	8.272	1.000	1.315	1.874
441178	99787	7.869	7.879	7.875	8.374	1.358	1.500	1.752
473866	99799	7.933	7.943	7.938	8.374	1.000	1.252	1.752
473867	99800	7.995	8.005	8.000	8.374	1.000	1.252	1.752