

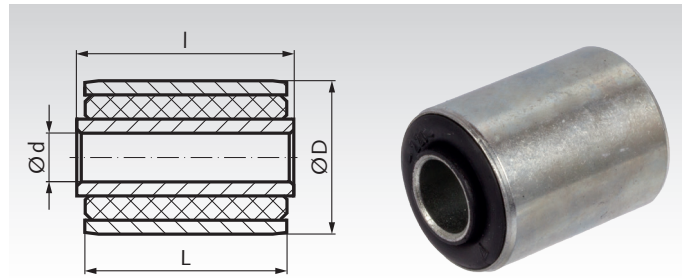
Heavy-Duty Steel Rubber Bushes PHO-V, Vulcanized Version

Material: Metal Parts: Steel, zinc-plated.
Elastomer: Natural rubber, hardness 55° Shore A.

Version: With medium-hard rubber, vulcanized at the inner bush and the outer bush. Good flexibility. Suitable for medium radial load and high axial load and high torsion.

Mounting hole tolerance: Depending on the actual size of the outer bush diameter, the borehole tolerance must be determined, in accordance with the required fit.

Temperature resistant up to 80°C.



Ordering Details: e.g.: Product No. 685 081 617V, Heavy Duty Bush PHO-V, 8 mm

Product No.	Internal Ø d mm	External Ø D mm	Length of Internal Bush l mm	Length of External Bush L mm	Radial Load*		Axial Load*		Torsion*			Weight g
					perm. stat. Radial Load F _r N	radial Spring Rate C _r N/mm	perm. stat. Axial Load F _a N	axial Spring Rate C _a N/mm	perm. stat. Torsion Angle φ degrees	perm. stat. Torsion Torque M _d Nm	perm. Spring Rate C _f Nm/degrees	
685 081 617V	8 ^{+0,15}	16 ^{+0,1}	17 ^{±0,1}	15 ^{±0,2}	300	2960	60	320	15	3,75	0,25	12
685 082 015V	8 ^{+0,15}	20 ^{+0,1}	17 ^{±0,1}	15 ^{±0,2}	300	1650	60	230	15	3,00	0,20	18
685 082 210V	8 ^{+0,15}	22 ^{+0,1}	16 ^{±0,1}	10 ^{±0,2}	100	570	140	109	13	1,56	0,12	16
685 101 818V	10 ^{+0,15}	18 ^{+0,1}	20 ^{±0,1}	18 ^{±0,3}	300	3400	80	480	15	6,15	0,41	17
685 102 230V	10 ^{+0,15}	22 ^{+0,1}	33 ^{±0,1}	30 ^{±0,3}	2800	5890	410	540	15	10,80	0,72	48
685 102 414V	10 ^{+0,15}	24 ^{+0,1}	17 ^{±0,1}	14 ^{±0,2}	200	1400	160	200	15	3,75	0,25	26
685 102 520V	10 ^{+0,15}	25 ^{+0,1}	24 ^{±0,1}	20 ^{±0,3}	4000	2060	410	220	15	5,10	0,34	36
685 122 435V	12 ^{+0,15}	24 ^{+0,1}	38 ^{±0,1}	35 ^{±0,3}	3000	6100	1330	550	10	10,60	1,06	61
685 122 525V	12 ^{+0,15}	25 ^{+0,1}	28 ^{±0,1}	25 ^{±0,3}	4900	4070	500	415	10	7,90	0,79	46
685 122 618V	12 ^{+0,15}	26 ^{+0,1}	24 ^{±0,1}	18 ^{±0,3}	690	2220	680	252	13	6,63	0,51	37
685 122 632V	12 ^{+0,15}	26 ^{+0,1}	36 ^{±0,1}	32 ^{±0,3}	1370	3960	840	515	13	12,61	0,97	61
685 133 040V	13 ^{+0,15}	30 ^{+0,1}	40 ^{±0,1}	40 ^{±0,3}	1670	3625	2310	450	15	14,85	0,99	97
685 143 067V	14 ^{+0,15}	30 ^{+0,1}	76 ^{±0,1}	67 ^{±0,3}	3900	5200	2310	780	15	28,50	1,90	154
685 163 216V	16 ^{+0,2}	32 ^{+0,15}	17 ^{±0,1}	16 ^{±0,3}	1900	1580	310	250	12,5	8,88	0,71	39
685 163 225V	16 ^{+0,2}	32 ^{+0,15}	28 ^{±0,1}	25 ^{±0,3}	3600	4560	770	380	15	16,50	1,10	76
685 163 250V	16 ^{+0,2}	32 ^{+0,15}	54 ^{±0,1}	50 ^{±0,3}	3900	4900	1230	590	7,5	13,88	1,85	122
685 164 032V	16 ^{+0,2}	40 ^{+0,15}	38 ^{±0,1}	32 ^{±0,3}	1600	1800	320	350	15	16,20	1,08	117
685 183 432V	18 ^{+0,3}	34 ^{+0,15}	36 ^{±0,1}	32 ^{±0,3}	1570	4180	830	530	14	23,52	1,68	95
685 204 555V	20 ^{+0,3}	45 ^{+0,15}	62,5 ^{±0,1}	55 ^{±0,3}	3430	5435	1860	585	15	44,55	2,97	253
685 204 559V	20 ^{+0,3}	45 ^{+0,15}	62,5 ^{±0,1}	59,5 ^{±0,3}	3900	4820	910	530	15	37,95	2,53	262
685 244 290V	24 ^{+0,3}	42 ^{+0,15}	96 ^{±0,1}	90 ^{±0,3}	3900	8460	5040	1744	5	54,65	10,93	414
685 255 065V	25 ^{+0,3}	50 ^{+0,15}	67,5 ^{±0,1}	65,5 ^{±0,3}	6380	9800	760	975	15	84,00	5,60	390
685 255 589V	25 ^{+0,3}	55 ^{+0,15}	93,5 ^{±0,1}	89,5 ^{±0,3}	9800	10350	1650	1015	10	83,30	8,33	697
685 264 040V	26 ^{+0,3}	40 ^{+0,15}	45 ^{±0,1}	40 ^{±0,3}	4900	7830	2550	940	7	38,22	5,46	323
685 305 589V	30 ^{+0,4}	55 ^{+0,15}	94 ^{±0,1}	89,5 ^{±0,3}	13700	17460	2600	1490	10	131,3	13,13	657
685 325 650V	32 ^{+0,4}	56 ^{+0,15}	55 ^{±0,1}	50 ^{±0,3}	15000	7660	1300	905	12,5	87,6	7,01	323
685 407 557V	40 ^{+0,4}	75 ^{+0,20}	70 ^{±0,1}	57 ^{±0,3}	5900	6910	4510	880	14	210,0	15,00	816
685 507 060V	50 ^{+0,4}	70 ^{+0,15}	60 ^{±0,1}	60 ^{±0,3}	11700	15970	2940	2020	3	150,9	51,30	619
685 508 095V	50 ^{+0,4}	80 ^{+0,20}	100 ^{±0,1}	95 ^{±0,3}	14700	14960	3430	1740	8	150,4	18,80	1105

* +/- 20%.

General

These premium rubber-metal, heavy-duty bushes feature a high flexibility with good vibration damping. The medium-hard rubber allows a medium-high radial load. The high axial load and large permissible torsional deformation is achieved because the rubber parts are firmly attached to the metal parts. The bushes withstand radial, axial and torsional load, without the rubber moving in relation to the metal parts. Minimal gimbal offset (tilting) of the axis of the inner tube in relation to the outer tube, or vice versa, is possible. The stiffness depends on the strength and length of the rubber.

Can be used in machine building or car manufacture as elastic joints, which at permanent operation have to withstand a deflection of approx. ±15° and have to absorb higher radial forces. During deflection a recoiling moment occurs, which is proportional to the torsional angle, as the rubber cannot move in relation to the

metal. The bushes are completely maintenance free, silent and vibration isolating along with a high fatigue strength. Spring element and joint are combined in one single element.

The grade of rubber used is not oil proof. An operating temperature of max. 80° must not be exceeded, otherwise the service life is shortened. The bushes are usually fixed to the outer tube by pressfit. The inner tube can, e.g., be fixed by applying pressure on the front face. In this case the bolt running through the bore of the bush presses the counter bearing against the front face of the inner tube.