



Available materials

- CC	Chrome steel AISI 52100 Balls. Machined AISI 1016 steel housing, toughened & zinc plated
Solve specific application requirements by upgrading materials. Select option by adding suffix i.e. - CS	
- CS	Stainless Steel Balls (AISI 420) but other materials as Standard. Reduce load by 30%.
- SS	All parts in Stainless Steel - out housing AISI 416, Balls AISI 420. Reduce load by 30%.
- CD	Acetal (POM) main ball option - reduce load. See chart overleaf

Fixing clip selection

Part No.	Ball Size	Minimum Bore ø	Maximum Bore ø
P2730.015	15	24,8	25,0
P2730.022	22	37,0	37,2
P2730.030	30	46,3	46,7

Clip requires a minimum plate thickness of 3mm to grip securely

How to select the correct unit

Ball Type	Max Load (Kg)	Friction (% of load)	Speed m/sec	Shock Loads		Arduous Conditions	Orientation	Instant Change
Medium Duty	20-3500	2%	1,5	✓✓✓	✓✓	✓✓		✓✓✓
Light Duty	7-250	3%	1,0	✓		✓✓		✓✓✓

Variables to consider:



Shock Loads:

Standard material ball units have Rockwell 'C' hardness of 60 minimum



Track Hardness/Conveyed Item Material:

Standard material ball units have Rockwell 'C' hardness of 60 minimum



Delicate Surfaces:

Ball Units - Acetal (POM) & Phenolic Resin

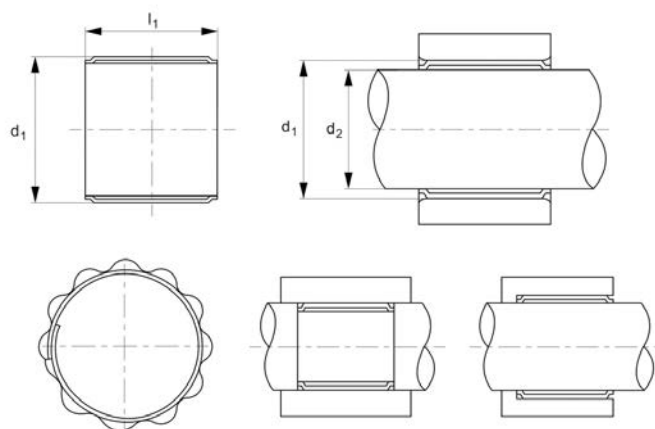


Operating Environment:

Wet, dirty, outdoor, radioactive



P0395



Material

Stainless steel (type 304, DIN 1.4301).

Technical Notes

Tolerance rings allow the mating of parts

with wider tolerances.

The waves are on the outside, the ring sits on the shaft with the waves being compressed by the housing bore.

Tips

For use where there is an accurate bore but the shaft may have a wide tolerance.

Order No.	d ₁ tol. h9	d ₁ nom.	l	d ₂ for bearings	d ₂ for torque transfer	Torque Nm max.	Radial load N max.	Material
P0395.SV005-005	5	5	5	4,01 to 4,06	4,14 to 4,18	0.17	180	Steel
P0395.SV005-008	5	5	8	4,01 to 4,06	4,18 to 4,18	0.35	260	Steel
P0395.SV005-010	5	5	10	4,01 to 4,06	4,14 to 4,18	0.50	310	Steel
P0395.SV006-006	6	6	6	5,01 to 5,06	5,14 to 5,18	0.33	380	Steel
P0395.SV006-008	6	6	8	5,01 to 5,06	5,14 to 5,18	0.45	575	Stainless
P0395.SV006-010	6	6	10	5,01 to 5,06	5,14 to 5,18	0.90	690	Stainless
P0395.SV006-012	6	6	12	5,01 to 5,06	5,14 to 5,18	1.25	940	Steel
P0395.SV008-005	8	8	5	6,51 to 6,57	6,65 to 6,71	0.45	550	Steel
P0395.SV008-007	8	8	7	6,51 to 6,57	6,65 to 6,71	0.68	780	Stainless
P0395.SV008-008	8	8	8	6,51 to 6,57	6,65 to 6,71	0.80	910	Steel
P0395.SV008-010	8	8	10	6,51 to 6,57	6,65 to 6,71	1.00	1125	Steel
P0395.SV008-014	8	8	14	6,51 to 6,57	6,65 to 6,71	1.30	1400	Stainless
P0395.SV009-008	9	9	8	7,51 to 7,57	7,65 to 7,71	0.85	1070	Steel
P0395.SV010-006	10	10	6	8,51 to 8,57	8,65 to 8,71	1.80	950	Stainless
P0395.SV010-010	10	10	10	8,51 to 8,57	8,65 to 8,71	3.00	1275	Steel
P0395.SV010-012	10	10	12	8,51 to 8,57	8,65 to 8,71	3.60	1650	Steel
P0395.SV010-014	10	10	14	8,51 to 8,57	8,65 to 8,71	3.90	2000	Stainless
P0395.SV010-016	10	10	16	8,51 to 8,57	8,65 to 8,71	4.50	2100	Steel
P0395.SV011-010	11	11	10	9,51 to 9,57	9,65 to 9,71	4.00	1400	Steel
P0395.SV011-014	11	11	14	9,51 to 9,57	9,65 to 9,71	5.50	1680	Steel
P0395.SV012-006	12	12	6	10,52 to 10,59	10,70 to 10,77	2.20	1075	Stainless
P0395.SV012-008	12	12	8	10,52 to 10,59	10,70 to 10,77	3.20	1300	Stainless
P0395.SV012-010	12	12	10	10,52 to 10,59	10,70 to 10,77	4.50	1560	Stainless
P0395.SV012-012	12	12	12	10,52 to 10,59	10,70 to 10,77	5.30	2100	Stainless
P0395.SV012-014	12	12	14	10,52 to 10,59	10,70 to 10,77	6.10	2400	Steel
P0395.SV012-018	12	12	18	10,52 to 10,59	10,70 to 10,77	7.90	3075	Stainless
P0395.SV013-008	13	13	8	11,52 to 11,59	11,70 to 11,77	4.00	1650	Stainless
P0395.SV013-010	13	13	10	11,52 to 11,59	11,70 to 11,77	4.75	1800	Stainless
P0395.SV013-012	13	13	12	11,52 to 11,59	11,70 to 11,77	5.60	2300	Stainless
P0395.SV013-015	13	13	15	11,52 to 11,59	11,70 to 11,77	7.20	3000	Stainless
P0395.SV014-008	14	14	8	12,52 to 12,59	12,70 to 12,77	4.20	1825	Stainless
P0395.SV014-010	14	14	10	12,52 to 12,59	12,70 to 12,77	4.90	2000	Stainless
P0395.SV014-014	14	14	14	12,52 to 12,59	12,70 to 12,77	5.60	3300	Stainless



Tolerance Rings - Shaft Variable- SV

SV type, A2 Stainless

Tolerance Rings



TOLERANCE RINGS

Order No.	d ₁ tol. h9	d ₁ nom.	l	d ₂ for bearings	d ₂ for torque transfer	Torque Nm max.	Radial load N max.	Material
P0395.SV014-020	14	14	20	12,52 to 12,59	12,70 to 12,77	8.00	4000	Stainless
P0395.SV015-006	15	15	6	13,52 to 13,59	13,70 to 13,77	3.70	1200	Stainless
P0395.SV015-008	15	15	8	13,52 to 13,59	13,70 to 13,77	3.90	1600	Stainless
P0395.SV015-010	15	15	10	13,52 to 13,59	13,70 to 13,77	4.80	2025	Stainless
P0395.SV015-012	15	15	12	13,52 to 13,59	13,70 to 13,77	6.80	2650	Stainless
P0395.SV015-014	15	15	14	13,52 to 13,59	13,70 to 13,77	8.90	2950	Stainless
P0395.SV015-016	15	15	16	13,52 to 13,59	13,70 to 13,77	11.00	3400	Stainless
P0395.SV015-019	15	15	19	13,52 to 13,59	13,70 to 13,77	12.50	3900	Steel
P0395.SV016-010	16	16	10	14,52 to 14,59	14,70 to 14,77	7.00	2600	Stainless
P0395.SV016-014	16	16	14	14,52 to 14,59	14,70 to 14,77	10.50	3100	Stainless
P0395.SV016-016	16	16	16	14,52 to 14,59	14,70 to 14,77	12.00	3500	Stainless
P0395.SV017-006	17	17	6	15,52 to 15,59	15,70 to 15,77	3.90	1500	Stainless
P0395.SV017-008	17	17	8	15,52 to 15,59	15,70 to 15,77	4.80	1800	Stainless
P0395.SV017-010	17	17	10	15,52 to 15,59	15,70 to 15,77	8.00	2650	Stainless
P0395.SV017-012	17	17	12	15,52 to 15,59	15,70 to 15,77	10.00	2800	Stainless
P0395.SV017-014	17	17	14	15,52 to 15,59	15,70 to 15,77	12.00	3200	Stainless
P0395.SV017-016	17	17	16	15,52 to 15,59	15,70 to 15,77	14.00	3650	Stainless
P0395.SV018-010	18	18	10	16,52 to 16,59	16,70 to 16,77	9.00	2650	Steel
P0395.SV018-016	18	18	16	16,52 to 16,59	16,70 to 16,77	15.00	3900	Stainless
P0395.SV018-022	18	18	22	16,52 to 16,59	16,70 to 16,77	21.00	5600	Stainless
P0395.SV019-010	19	19	10	17,52 to 17,59	17,70 to 17,77	10.00	2800	Stainless
P0395.SV019-019	19	19	19	17,52 to 17,59	17,70 to 17,77	19.00	4900	Stainless
P0395.SV019-022	19	19	22	17,52 to 17,59	17,70 to 17,77	22.00	6000	Stainless
P0395.SV020-006	20	20	6	18,02 to 18,11	18,25 to 18,33	7.00	1600	Stainless
P0395.SV020-007	20	20	7	18,02 to 18,11	18,25 to 18,33	8.00	1800	Stainless
P0395.SV020-008	20	20	8	18,02 to 18,11	18,25 to 18,33	9.00	2200	Stainless
P0395.SV020-010	20	20	10	18,02 to 18,11	18,25 to 18,33	12.00	2900	Stainless
P0395.SV020-012	20	20	12	18,02 to 18,11	18,25 to 18,33	15.00	3750	Stainless
P0395.SV020-014	20	20	14	18,02 to 18,11	18,25 to 18,33	18.00	4600	Stainless
P0395.SV020-015	20	20	15	18,02 to 18,11	18,25 to 18,33	19.00	5200	Stainless
P0395.SV020-018	20	20	18	18,02 to 18,11	18,25 to 18,33	23.00	5900	Stainless
P0395.SV020-020	20	20	20	18,02 to 18,11	18,25 to 18,33	25.00	6850	Stainless
P0395.SV020-022	20	20	22	18,02 to 18,33	18,25 to 18,33	28.00	7700	Stainless
P0395.SV022-012	22	22	12	20,02 to 20,11	20,25 to 20,33	18.00	4450	Stainless
P0395.SV022-015	22	22	15	20,02 to 20,11	20,25 to 20,33	26.00	5550	Stainless
P0395.SV022-022	22	22	22	20,02 to 20,11	20,25 to 20,33	33.00	8250	Stainless
P0395.SV024-010	24	24	10	22,02 to 22,11	22,25 to 22,33	30.00	5950	Stainless
P0395.SV024-015	24	24	15	22,02 to 22,11	22,25 to 22,33	30.00	5950	Stainless
P0395.SV024-022	24	24	22	22,02 to 22,11	22,25 to 22,33	40.00	9000	Stainless
P0395.SV024-024	24	24	24	22,02 to 22,11	22,25 to 22,33	48.00	10200	Stainless
P0395.SV025-008	25	25	8	23,02 to 23,11	23,25 to 23,33	15.00	3000	Stainless
P0395.SV025-010	25	25	10	23,02 to 23,11	23,25 to 23,33	20.00	3850	Stainless
P0395.SV025-012	25	25	12	23,02 to 23,11	23,25 to 23,33	22.00	4900	Stainless
P0395.SV025-015	25	25	15	23,02 to 23,11	23,25 to 23,33	28.00	6450	Stainless
P0395.SV025-018	25	25	18	23,02 to 23,11	23,25 to 23,33	38.00	7200	Stainless
P0395.SV025-020	25	25	20	23,02 to 23,11	23,25 to 23,33	41.00	7575	Stainless
P0395.SV025-021	25	25	21	23,02 to 23,11	23,25 to 23,33	43.00	7700	Stainless
P0395.SV025-025	25	25	25	23,02 to 23,11	23,25 to 23,33	53.00	10600	Stainless
P0395.SV028-012	28	28	12	26,02 to 26,11	26,25 to 26,33	30.00	5750	Stainless
P0395.SV028-020	28	28	20	26,02 to 26,11	26,25 to 26,33	53.00	10600	Stainless
P0395.SV028-022	28	28	22	26,02 to 26,11	26,25 to 26,33	60.00	11300	Stainless
P0395.SV028-025	28	28	25	26,02 to 26,11	26,25 to 26,33	71.00	12000	Stainless
P0395.SV030-008	30	30	8	28,02 to 28,11	28,25 to 28,33	25.00	2800	Stainless
P0395.SV030-010	30	30	10	28,02 to 28,11	28,25 to 28,33	29.00	4200	Stainless
P0395.SV030-012	30	30	12	28,02 to 28,11	28,25 to 28,33	35.00	5400	Stainless
P0395.SV030-015	30	30	15	28,02 to 28,11	28,25 to 28,33	47.00	7000	Stainless
P0395.SV030-020	30	30	20	28,02 to 28,11	28,25 to 28,33	60.00	10200	Stainless
P0395.SV030-023	30	30	23	28,02 to 28,11	28,25 to 28,33	70.00	12200	Stainless
P0395.SV030-030	30	30	30	28,02 to 28,11	28,25 to 28,33	95.00	16600	Stainless
P0395.SV032-012	32	32	12	30,02 to 30,11	30,25 to 30,33	44.00	5800	Stainless
P0395.SV032-016	32	32	16	30,02 to 30,11	30,25 to 30,33	56.00	8400	Stainless
P0395.SV032-030	32	32	30	30,02 to 30,11	30,25 to 30,33	110.00	17000	Stainless
P0395.SV035-010	35	35	10	33,03 to 33,13	33,25 to 33,40	40.00	4000	Stainless
P0395.SV035-012	35	35	12	33,03 to 33,13	33,25 to 33,40	48.00	4600	Stainless
P0395.SV035-015	35	35	15	33,03 to 33,13	33,25 to 33,40	60.00	4950	Stainless
P0395.SV035-025	35	35	25	33,03 to 33,13	33,25 to 33,40	110.00	8650	Stainless
P0395.SV035-030	35	35	30	33,03 to 33,13	33,25 to 33,40	130.00	9800	Stainless



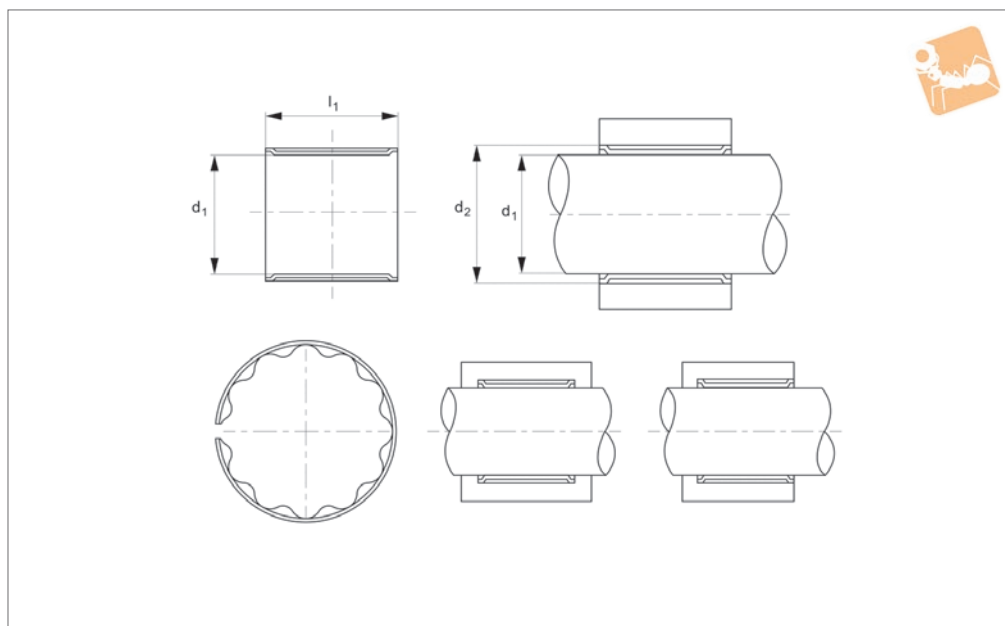
Order No.	d ₁ tol. h9	d ₁ nom.	l	d ₂ for bearings	d ₂ for torque transfer	Torque Nm max.	Radial load N max.	Material
P0395.SV036-012	36	36	12	34,03 to 34,13	34,30 to 34,40	55.00	4800	Stainless
P0395.SV036-015	36	36	15	34,03 to 34,13	34,30 to 34,40	63.00	5100	Stainless
P0395.SV036-030	36	36	30	34,03 to 34,13	34,30 to 34,40	135.00	10300	Stainless
P0395.SV040-010	40	40	10	38,03 to 38,13	38,30 to 38,40	55.00	3800	Stainless
P0395.SV040-012	40	40	12	38,03 to 38,13	38,30 to 38,40	63.00	4500	Stainless
P0395.SV040-015	40	40	15	38,03 to 38,13	38,30 to 38,40	83.00	5400	Stainless
P0395.SV040-023	40	40	23	38,03 to 38,13	38,30 to 38,40	104.00	8500	Steel
P0395.SV040-030	40	40	30	38,03 to 38,13	38,30 to 38,40	180.00	12000	Stainless
P0395.SV045-010	45	45	10	43,03 to 43,13	43,30 to 43,40	68.00	4250	Stainless
P0395.SV045-015	45	45	15	43,03 to 43,13	43,30 to 43,40	102.00	6230	Stainless
P0395.SV045-020	45	45	20	43,03 to 43,13	43,30 to 43,40	145.00	9400	Stainless
P0395.SV045-023	45	45	23	43,03 to 43,13	43,30 to 43,40	160.00	10100	Steel
P0395.SV045-025	45	45	25	43,03 to 43,13	43,30 to 43,40	200.00	11000	Stainless
P0395.SV045-030	45	45	30	43,03 to 43,13	43,30 to 43,40	230.00	13950	Stainless
P0395.SV050-012	50	50	12	48,03 to 48,13	48,30 to 48,40	107.00	5750	Stainless
P0395.SV050-016	50	50	16	48,03 to 48,13	48,30 to 48,40	141.00	7565	Steel
P0395.SV050-020	50	50	20	48,03 to 48,13	48,30 to 48,40	186.00	9575	Stainless
P0395.SV050-030	50	50	30	48,03 to 48,13	48,30 to 48,40	310.00	13400	Stainless
P0395.SV050-040	50	50	40	48,03 to 48,13	48,30 to 48,40	350.00	18000	Steel
P0395.SV055-010	55	55	10	52,53 to 52,65	52,85 to 52,97	125.00	4900	Stainless
P0395.SV055-014	55	55	14	52,53 to 52,65	52,85 to 52,97	175.00	6750	Stainless
P0395.SV055-015	55	55	15	52,53 to 52,65	52,85 to 52,97	185.00	6800	Stainless
P0395.SV055-029	55	55	29	52,53 to 52,65	52,85 to 52,97	330.00	12500	Stainless
P0395.SV060-020	60	60	20	57,53 to 57,65	57,85 to 57,97	310.00	12000	Stainless
P0395.SV060-022	60	60	22	57,53 to 57,65	57,85 to 57,97	350.00	13200	Stainless
P0395.SV060-028	60	60	28	57,53 to 57,65	57,85 to 57,97	420.00	18400	Stainless
P0395.SV065-020	65	65	20	62,53 to 62,65	62,85 to 62,97	480.00	14800	Stainless
P0395.SV065-033	65	65	33	62,53 to 62,65	62,85 to 62,97	650.00	21000	Stainless
P0395.SV080-012	80	80	12	77,53 to 77,65	77,85 to 77,97	550.00	15000	Stainless
P0395.SV080-017	80	80	17	77,53 to 77,65	77,85 to 77,97	700.00	16500	Stainless
P0395.SV085-022	85	85	22	82,04 to 82,18	82,44 to 82,58	800.00	19000	Stainless
P0395.SV090-024	90	90	24	87,04 to 87,18	87,44 to 87,58	850.00	22000	Stainless
P0395.SV090-030	90	90	30	87,04 to 87,18	87,44 to 87,58	1100.00	27000	Steel
P0395.SV100-024	100	100	24	97,04 to 97,18	97,44 to 97,58	1350.00	28000	Steel
P0395.SV100-036	100	100	36	97,04 to 97,18	97,44 to 97,58	1900.00	36000	Steel
P0395.SV140-015	140	140	15	136,04 to 136,20	136,52 to 136,68	1200.00	25500	Stainless
P0395.SV140-022	140	140	22	136,04 to 136,20	136,52 to 136,68	1250.00	32000	Steel



Tolerance Rings - Hole Variable- HV

HV type, A2 Stainless

Tolerance Rings



P0396

TOLERANCE RINGS

Material

Stainless steel (type 304, DIN 1.4301).

Technical Notes

Tolerance rings allow the mating of parts

with wider tolerances.

The waves are on the inside, the ring sits on the housing bore with the waves being compressed by the shaft diameter.

Tips

For use where there is an accurate shaft but the bore may have a wide tolerance.

Order No.	d ₁ tol. H9	d ₁ nom.	l	d ₂ for bearings	d ₂ for torque transfer	Torque Nm max.	Radial load N max.	Material
P0396.HV004-006	4	4	6	4,93 to 4,95	4,82 to 4,86	0.15	80	Steel
P0396.HV004-008	4	4	8	4,93 to 4,95	4,82 to 4,86	0.25	90	Steel
P0396.HV004-010	4	4	10	4,93 to 4,95	4,82 to 4,86	0.35	95	Steel
P0396.HV005-005	5	5	5	5,93 to 5,95	5,82 to 5,86	0.45	100	Steel
P0396.HV005-008	5	5	8	5,93 to 5,95	5,82 to 5,86	0.66	160	Steel
P0396.HV005-012	5	5	12	5,93 to 5,95	5,82 to 5,86	1.25	250	Steel
P0396.HV006-006	6	6	6	6,93 to 6,985	6,82 to 6,86	0.45	133	Steel
P0396.HV006-008	6	6	8	6,93 to 6,985	6,82 to 6,86	0.75	240	Steel
P0396.HV006-010	6	6	10	6,93 to 6,985	6,82 to 6,86	1.00	290	Steel
P0396.HV006-015	6	6	15	6,93 to 6,985	6,82 to 6,86	1.20	300	Steel
P0396.HV008-006	8	8	6	9,41 to 9,48	9,23 to 9,30	1.00	240	Steel
P0396.HV008-008	8	8	8	9,41 to 9,48	9,23 to 9,30	1.45	360	Steel
P0396.HV008-012	8	8	12	9,41 to 9,48	9,23 to 9,30	2.00	580	Steel
P0396.HV008-014	8	8	14	9,41 to 9,48	9,23 to 9,30	2.10	600	Steel
P0396.HV010-004	10	10	4	11,41 to 11,48	11,23 to 11,30	0.95	480	Stainless
P0396.HV010-006	10	10	6	11,41 to 11,48	11,23 to 11,30	2.30	850	Stainless
P0396.HV010-008	10	10	8	11,41 to 11,48	11,23 to 11,30	2.50	1020	Stainless
P0396.HV010-010	10	10	10	11,41 to 11,48	11,23 to 11,30	3.00	1220	Stainless
P0396.HV010-012	10	10	12	11,41 to 11,48	11,23 to 11,30	3.50	1650	Stainless
P0396.HV010-014	10	10	14	11,41 to 11,48	11,23 to 11,30	4.00	2050	Stainless
P0396.HV010-018	10	10	18	11,41 to 11,48	11,23 to 11,30	4.50	2500	Stainless
P0396.HV012-004	12	12	4	13,41 to 13,48	13,23 to 13,30	1.60	720	Stainless
P0396.HV012-006	12	12	6	13,41 to 13,48	13,23 to 13,30	3.00	1200	Stainless
P0396.HV012-010	12	12	10	13,41 to 13,48	13,23 to 13,30	4.00	1825	Stainless
P0396.HV012-012	12	12	12	13,41 to 13,48	13,23 to 13,30	6.00	2400	Stainless
P0396.HV012-016	12	12	16	13,41 to 13,48	13,23 to 13,30	8.00	3025	Stainless
P0396.HV012-018	12	12	18	13,41 to 13,48	13,23 to 13,30	9.00	3350	Stainless
P0396.HV014-008	14	14	8	15,41 to 15,48	15,23 to 15,30	5.00	1800	Stainless
P0396.HV014-012	14	14	12	15,41 to 15,48	15,23 to 15,30	7.00	2410	Stainless
P0396.HV014-014	14	14	14	15,41 to 15,48	15,23 to 15,30	9.00	2750	Stainless
P0396.HV015-008	15	15	8	16,41 to 16,48	16,23 to 16,30	5.50	1825	Stainless
P0396.HV015-012	15	15	12	16,41 to 16,48	16,23 to 16,30	7.50	2500	Stainless
P0396.HV015-014	15	15	14	16,41 to 16,48	16,23 to 16,30	11.00	2925	Stainless



Order No.	d ₁ tol. H9	d ₁ nom.	l	d ₂ for bearings	d ₂ for torque transfer	Torque Nm max.	Radial load N max.	Material
P0396.HV015-022	15	15	22	16,41 to 16,48	16,23 to 16,30	14.00	3500	Stainless
P0396.HV016-005	16	16	5	17,41 to 17,48	17,23 to 17,30	4.0	1100	Stainless
P0396.HV016-008	16	16	8	17,41 to 17,48	17,23 to 17,30	7.0	1900	Stainless
P0396.HV016-010	16	16	10	17,41 to 17,48	17,23 to 17,30	8.0	2275	Stainless
P0396.HV016-012	16	16	12	17,41 to 17,48	17,23 to 17,30	9.0	2800	Stainless
P0396.HV016-016	16	16	16	17,41 to 17,48	17,23 to 17,30	14.0	3650	Stainless
P0396.HV016-022	16	16	22	17,41 to 17,48	17,23 to 17,30	17.0	4500	Stainless
P0396.HV018-006	18	18	6	19,89 to 19,98	19,67 to 19,75	6.5	1300	Stainless
P0396.HV018-010	18	18	10	19,89 to 19,98	19,67 to 19,75	11.0	2450	Stainless
P0396.HV018-016	18	18	16	19,89 to 19,98	19,67 to 19,75	17.0	4100	Stainless
P0396.HV019-006	19	19	6	20,89 to 20,98	20,67 to 20,75	7.0	1875	Stainless
P0396.HV009-016	19	19	16	20,89 to 20,98	20,67 to 20,75	21.0	4450	Steel
P0396.HV020-012	20	20	12	21,89 to 21,98	21,67 to 21,75	18.0	3650	Stainless
P0396.HV020-014	20	20	14	21,89 to 21,98	21,67 to 21,75	22.0	4300	Steel
P0396.HV020-016	20	20	16	21,89 to 21,98	21,67 to 21,75	24.0	4900	Steel
P0396.HV020-020	20	20	20	21,89 to 21,98	21,67 to 21,75	30.0	6100	Steel
P0396.HV020-026	20	20	26	21,89 to 21,98	21,67 to 21,75	34.0	7250	Stainless
P0396.HV022-005	22	22	5	23,89 to 23,98	23,67 to 23,75	12.0	1650	Stainless
P0396.HV022-007	22	22	7	23,89 to 23,98	23,67 to 23,75	16.0	2450	Stainless
P0396.HV022-010	22	22	10	23,89 to 23,98	23,67 to 23,75	18.0	3525	Stainless
P0396.HV022-016	22	22	16	23,89 to 23,98	23,67 to 23,75	30.0	5450	Steel
P0396.HV022-020	22	22	20	23,89 to 23,98	23,67 to 23,75	35.0	7000	Steel
P0396.HV022-022	22	22	22	23,89 to 23,98	23,67 to 23,75	38.0	8200	Steel
P0396.HV024-006	24	24	6	25,89 to 25,98	25,67 to 25,75	17.0	2320	Stainless
P0396.HV024-007	24	24	7	25,89 to 25,98	25,67 to 25,75	18.0	2715	Stainless
P0396.HV024-012	24	24	12	25,89 to 25,98	25,67 to 25,75	29.0	5550	Stainless
P0396.HV024-016	24	24	16	25,89 to 25,98	25,67 to 25,75	32.0	7800	Steel
P0396.HV024-020	24	24	20	25,89 to 25,98	25,67 to 25,75	45.0	9000	Steel
P0396.HV025-010	25	25	10	26,89 to 26,98	26,67 to 26,75	24.0	4300	Steel
P0396.HV025-016	25	25	16	26,89 to 26,98	26,67 to 26,75	35.0	7800	Stainless
P0396.HV025-020	25	25	20	26,89 to 26,98	26,67 to 26,75	47.0	9000	Stainless
P0396.HV026-008	26	26	8	27,89 to 27,98	27,67 to 27,75	21.0	3425	Stainless
P0396.HV026-010	26	26	10	27,89 to 27,98	27,67 to 27,75	26.0	4500	Stainless
P0396.HV026-016	26	26	16	27,89 to 27,98	27,67 to 27,75	43.0	8250	Stainless
P0396.HV026-020	26	26	20	27,89 to 27,98	27,67 to 27,75	52.0	9600	Stainless
P0396.HV028-008	28	28	8	29,89 to 29,98	29,67 to 29,75	27.0	4000	Stainless
P0396.HV028-010	28	28	10	29,89 to 29,98	29,67 to 29,75	30.0	4700	Stainless
P0396.HV028-012	28	28	12	29,89 to 29,98	29,67 to 29,75	39.0	6250	Stainless
P0396.HV028-014	28	28	14	29,89 to 29,98	29,67 to 29,75	45.0	7250	Stainless
P0396.HV028-020	28	28	20	29,89 to 29,98	29,67 to 29,75	55.0	9050	Stainless
P0396.HV028-030	28	28	30	29,89 to 29,98	29,67 to 29,75	92.0	15250	Steel
P0396.HV030-008	30	30	8	31,89 to 31,98	31,67 to 31,75	28.0	4100	Stainless
P0396.HV030-012	30	30	12	31,89 to 31,98	31,67 to 31,75	40.0	5700	Stainless
P0396.HV030-016	30	30	16	31,89 to 31,98	31,67 to 31,75	50.0	8065	Stainless
P0396.HV030-030	30	30	30	31,89 to 31,98	31,67 to 31,75	95.0	15500	Steel
P0396.HV032-008	32	32	8	33,89 to 33,98	33,67 to 33,75	30.0	3000	Stainless
P0396.HV032-010	32	32	10	33,89 to 33,98	33,67 to 33,75	35.0	3200	Stainless
P0396.HV032-014	32	32	14	33,89 to 33,98	33,67 to 33,75	50.0	4200	Stainless
P0396.HV032-030	32	32	30	33,89 to 33,98	33,67 to 33,75	115.0	18000	Stainless
P0396.HV035-006	35	35	6	36,89 to 36,98	36,67 to 36,75	32.0	2900	Steel
P0396.HV035-010	35	35	10	36,89 to 36,98	36,67 to 36,75	43.0	3350	Stainless
P0396.HV035-014	35	35	14	36,89 to 36,98	36,67 to 36,75	58.0	5000	Stainless
P0396.HV035-016	35	35	16	36,89 to 36,98	36,67 to 36,75	70.0	8200	Stainless
P0396.HV040-008	40	40	8	41,89 to 41,98	41,67 to 41,75	54.0	2800	Steel
P0396.HV040-100	40	40	10	41,89 to 41,98	41,67 to 41,75	62.0	3300	Steel
P0396.HV040-012	40	40	12	41,89 to 41,98	41,67 to 41,75	72.0	4450	Stainless
P0396.HV040-016	40	40	16	41,89 to 41,98	41,67 to 41,75	91.0	6230	Stainless
P0396.HV040-020	40	40	20	41,89 to 41,98	41,67 to 41,75	125.0	8450	Stainless
P0396.HV040-030	40	40	30	41,89 to 41,98	41,67 to 41,75	180.0	12000	Stainless
P0396.HV042-012	42	42	12	43,89 to 43,98	43,67 to 43,75	75.0	4900	Stainless
P0396.HV042-030	42	42	30	43,89 to 43,98	43,67 to 43,75	225.0	13250	Stainless
P0396.HV045-012	45	45	12	46,89 to 46,98	46,67 to 46,75	90.0	6000	Stainless
P0396.HV045-020	45	45	20	46,89 to 46,98	46,67 to 46,75	165.0	8700	Stainless
P0396.HV047-006	47	47	6	48,89 to 48,98	48,67 to 48,75	65.0	2450	Steel
P0396.HV047-008	47	47	8	48,89 to 48,98	48,67 to 48,75	76.0	2850	Steel
P0396.HV047-014	47	47	14	48,89 to 48,98	48,67 to 48,75	117.0	6230	Steel
P0396.HV047-018	47	47	18	48,89 to 48,98	48,67 to 48,75	175.0	8300	Stainless



Tolerance Rings - Hole Variable- HV

HV type, A2 Stainless



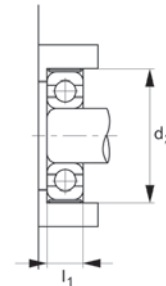
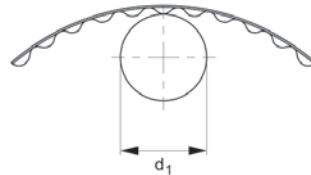
Tolerance Rings

Order No.	d ₁ tol. H9	d ₁ nom.	l	d ₂ for bearings	d ₂ for torque transfer	Torque Nm max.	Radial load N max.	Material
P0396.HV047-020	47	47	20	48,89 to 48,98	48,67 to 48,75	210.0	8450	Stainless
P0396.HV047-022	47	47	22	48,89 to 48,98	48,67 to 48,75	235.0	10750	Stainless
P0396.HV050-015	50	50	15	52,35 to 52,47	52,03 to 52,15	157.0	6600	Stainless
P0396.HV050-020	50	50	20	52,35 to 52,47	52,03 to 52,15	215.0	10100	Stainless
P0396.HV052-008	52	52	8	54,35 to 54,47	54,03 to 54,15	100.0	3200	Steel
P0396.HV052-015	52	52	15	54,35 to 54,47	54,03 to 54,15	165.0	7120	Stainless
P0396.HV055-012	55	55	12	57,35 to 57,47	57,03 to 57,15	156.0	5550	Stainless
P0396.HV055-020	55	55	20	57,35 to 57,47	57,03 to 57,15	260.0	10750	Stainless
P0396.HV060-015	60	60	15	62,35 to 62,47	62,03 to 62,15	280.0	8800	Stainless
P0396.HV060-025	60	60	25	62,35 to 62,47	62,03 to 62,15	475.0	15500	Stainless
P0396.HV062-010	62	62	10	64,35 to 64,47	64,03 to 64,15	215.0	5300	Stainless
P0396.HV062-015	62	62	15	64,35 to 64,47	64,03 to 64,15	290.0	8450	Stainless
P0396.HV065-025	65	65	25	67,35 to 67,47	67,03 to 67,15	520.0	14900	Stainless
P0396.HV065-063	65	65	63	67,35 to 67,47	67,03 to 67,15	850.0	46000	Stainless
P0396.HV070-025	70	70	25	72,35 to 72,47	72,03 to 72,15	550.0	16900	Stainless
P0396.HV072-010	72	72	10	74,35 to 74,47	74,03 to 74,15	230.0	6000	Stainless
P0396.HV072-017	72	72	17	74,35 to 74,47	74,03 to 74,15	420.0	13000	Stainless
P0396.HV072-019	72	72	19	74,35 to 74,47	74,03 to 74,15	470.0	14500	Stainless
P0396.HV072-020	72	72	20	74,35 to 74,47	74,03 to 74,15	490.0	15000	Stainless
P0396.HV075-016	75	75	16	77,35 to 77,47	77,03 to 77,15	520.0	13000	Stainless
P0396.HV075-020	75	75	20	77,35 to 77,47	77,03 to 77,15	600.0	17000	Stainless
P0396.HV080-012	80	80	12	82,35 to 82,47	82,03 to 82,15	280.0	11000	Steel
P0396.HV080-020	80	80	20	82,35 to 82,47	82,03 to 82,15	630.0	16800	Stainless
P0396.HV084-012	84	84	12	86,82 to 86,96	86,42 to 86,56	490.0	13000	Stainless
P0396.HV085-019	85	85	19	87,82 to 87,96	87,42 to 87,56	700.0	17000	Steel
P0396.HV090-015	90	90	15	92,82 to 92,96	92,42 to 92,56	560.0	14000	Stainless
P0396.HV090-020	90	90	20	92,82 to 92,96	92,42 to 92,56	770.0	18000	Steel
P0396.HV090-023	90	90	23	92,82 to 92,96	92,42 to 92,56	870.0	21000	Steel
P0396.HV090-025	90	90	25	92,82 to 92,96	92,42 to 92,56	950.0	22500	Stainless

TOLERANCE RINGS



P0397



Material

Stainless steel (type 304, DIN 1.4301).

Technical Notes

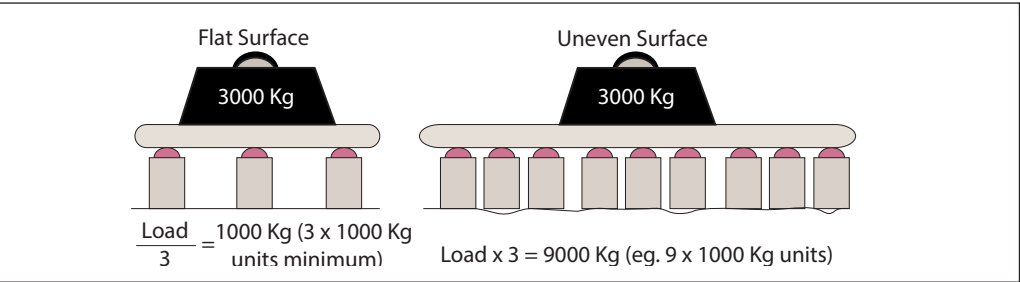
The waves are on the inside, the ring sits

on the housing bore with the waves being compressed by the shaft diameter. Used as a bearing mount where the bearings are required to float axially.

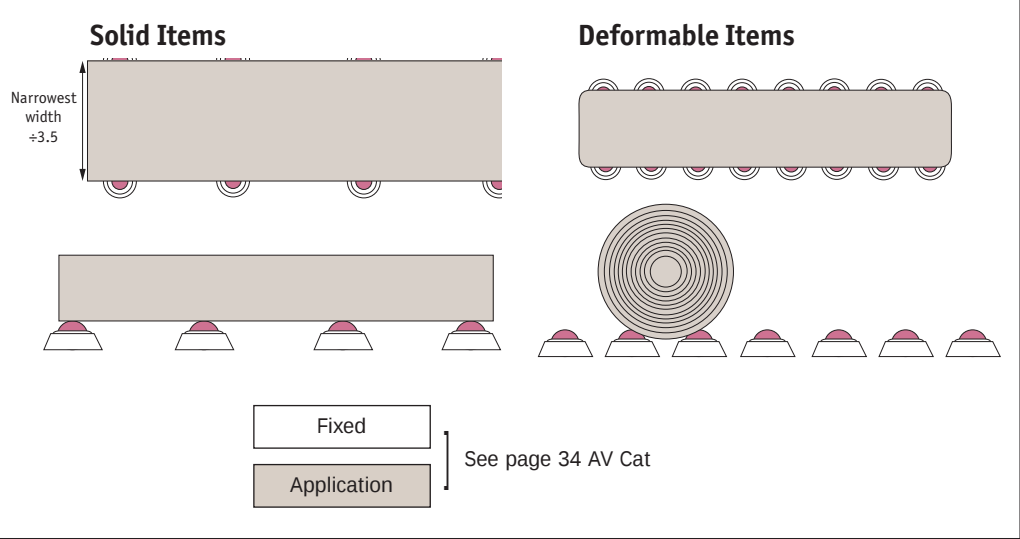
Order No.	d_1	l_1	Bearing dia. & no.	d_2	Radial load N max.
P0397.HVL013-005	13	5	13 (~624)	13,60 to 13,65	125
P0397.HVL016-005	16	5	16 (~625)	16,60 to 16,65	150
P0397.HVL019-006	19	6	19 (~626)	19,60 to 19,65	220
P0397.HVL022-007	22	7	22 (~608)	22,60 to 22,65	300
P0397.HVL024-007	24	7	24 (~609)	24,60 to 24,65	330
P0397.HVL026-008	26	8	26 (~629)	26,60 to 26,65	400
P0397.HVL028-008	28	8	28 (~6001)	28,60 to 28,65	440
P0397.HVL030-009	30	9	30 (~6200)	30,60 to 30,65	520
P0397.HVL032-008	32	8	32 (~16002)	32,60 to 32,65	500
P0397.HVL032-009	32	9	32 (~6002)	32,60 to 32,65	560
P0397.HVL032-010	32	10	32 (~6201)	32,60 to 32,65	620
P0397.HVL035-010	35	10	35 (~6003)	35,60 to 35,65	750
P0397.HVL035-015	35	15	35 (~6202)	35,60 to 35,65	1050
P0397.HVL052-015	52	15	52 (~6205)	52,60 to 52,65	1600



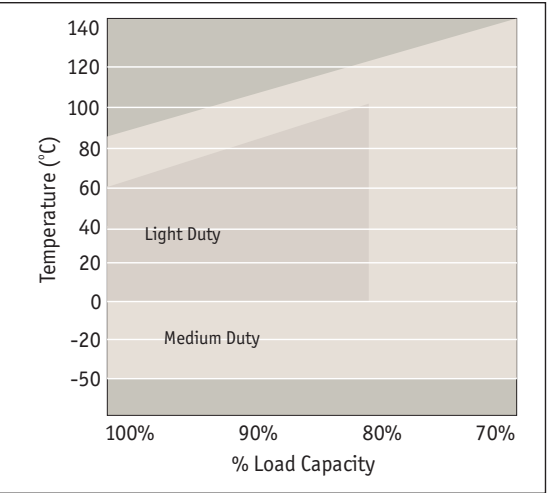
Load & Stability



Pitch & Spacing

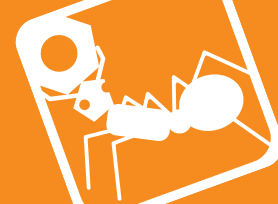


Operating Temperature

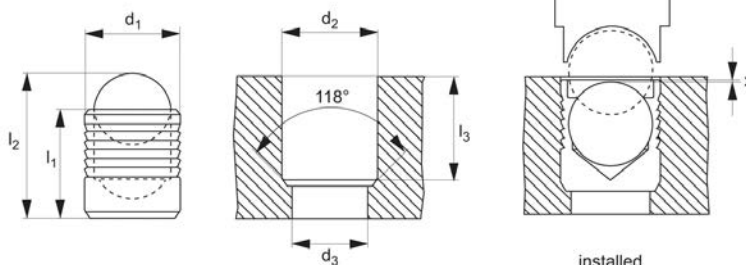


Ball Transfer Units from Automation Components

TOLERANCE RINGS



P0190



Material

Plug body: case hardened steel (zinc-plated), stainless steel (A2, AISI 303 & A4 AISI 316) or aluminium (2024-T4).
Ball: heat-treated bearing steel or stainless steel (A2, AISI 303 & A4 AISI 316).

Technical Notes

These high pressure sealing plugs are used to blank off externally drilled holes for air

and gas.

No need for tapping, reaming, machining of O-ring grooves or the use of tapes or sealants.

Ensure the ball is fully seated before applying pressure.

Tips

Working pressure up to 450 bar (dependent on body material and material into which

installed).

Please consult technical pages for installation instructions and performance data.

Important Notes

Please refer to technical pages for product installation details.

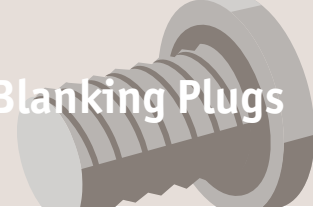
Order No.	d ₁	l ₁	l ₂	d ₂ +0.1 -0.0	d ₃ max.	l ₃ min.	x ±0.2	Body	Ball
P0190.030-ZP-BS	3.0	3.6	4.6	3.0	2.2	3.4	0.4	Steel ZP	Steel
P0190.040-ZP-BS	4.0	4.0	5.2	4.0	3.3	3.8	0.2	Steel ZP	Steel
P0190.050-ZP-BS	5.0	5.5	7.1	5.0	4.3	5.3	0.4	Steel ZP	Steel
P0190.060-ZP-BS	6.0	6.5	8.7	6.0	5.3	6.3	0.4	Steel ZP	Steel
P0190.070-ZP-BS	7.0	7.5	10.2	7.0	6.4	7.3	0.4	Steel ZP	Steel
P0190.080-ZP-BS	8.0	8.5	11.6	8.0	7.4	8.3	0.3	Steel ZP	Steel
P0190.090-ZP-BS	9.0	10.0	13.6	9.0	8.4	9.8	0.4	Steel ZP	Steel
P0190.100-ZP-BS	10.0	11.0	15.2	10.0	9.4	10.8	0.4	Steel ZP	Steel
P0190.120-ZP-BS	12.0	13.0	17.9	12.0	10.6	12.8	0.4	Steel ZP	Steel
P0190.140-ZP-BS	14.0	15.0	20.6	14.0	12.7	14.5	0.4	Steel ZP	Steel
P0190.160-ZP-BS	16.0	17.0	23.4	16.0	14.7	16.5	0.6	Steel ZP	Steel
P0190.180-ZP-BS	18.0	19.0	26.4	18.0	16.7	18.5	0.6	Steel ZP	Steel
P0190.200-ZP-BS	20.0	22.0	30.1	20.0	18.7	21.5	0.8	Steel ZP	Steel
P0190.220-ZP-BS	22.0	25.0	34.0	22.0	20.7	24.5	0.8	Steel ZP	Steel
P0190.030-A2-BS	3.0	3.6	4.6	3.0	2.2	3.4	0.4	A2 s/s	Steel
P0190.040-A2-BS	4.0	4.0	5.2	4.0	3.3	3.8	0.2	A2 s/s	Steel
P0190.050-A2-BS	5.0	5.5	7.1	5.0	4.3	5.3	0.4	A2 s/s	Steel
P0190.060-A2-BS	6.0	6.5	8.7	6.0	5.3	6.3	0.4	A2 s/s	Steel
P0190.070-A2-BS	7.0	7.5	10.2	7.0	6.4	7.3	0.4	A2 s/s	Steel
P0190.080-A2-BS	8.0	8.5	11.6	8.0	7.4	8.3	0.3	A2 s/s	Steel
P0190.090-A2-BS	9.0	10.0	13.6	9.0	8.4	9.8	0.4	A2 s/s	Steel
P0190.100-A2-BS	10.0	11.0	15.2	10.0	9.4	10.8	0.4	A2 s/s	Steel
P0190.120-A2-BS	12.0	13.0	17.9	12.0	10.6	12.8	0.4	A2 s/s	Steel
P0190.140-A2-BS	14.0	15.0	20.6	14.0	12.7	14.5	0.4	A2 s/s	Steel
P0190.160-A2-BS	16.0	17.0	23.4	16.0	14.7	16.5	0.6	A2 s/s	Steel
P0190.180-A2-BS	18.0	19.0	26.4	18.0	16.7	18.5	0.6	A2 s/s	Steel
P0190.200-A2-BS	20.0	22.0	30.1	20.0	18.7	21.5	0.8	A2 s/s	Steel
P0190.220-A2-BS	22.0	25.0	34.0	22.0	20.7	24.5	0.8	A2 s/s	Steel



Expansion Sealing Plugs

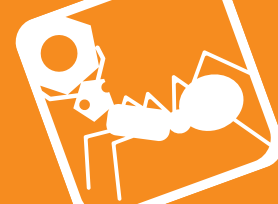
Metric - standard

Blanking Plugs

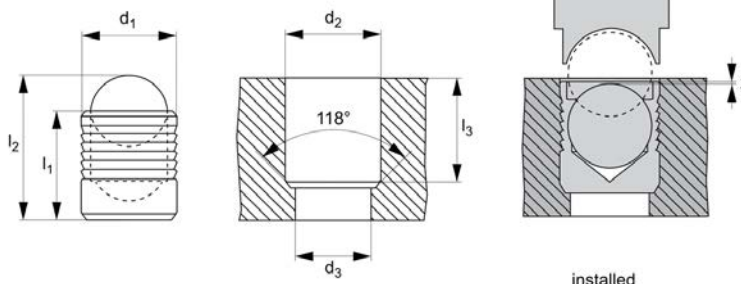


Order No.	d ₁	l ₁	l ₂	d ₂ +0.1 -0.0	d ₃ max.	l ₃ min.	x ±0.2	Body	Ball
P0190.030-A4-A4	3.0	3.6	4.6	3.0	2.2	3.4	0.4	A4 s/s	A4 s/s
P0190.040-A4-A4	4.0	4.0	5.2	4.0	3.3	3.8	0.2	A4 s/s	A4 s/s
P0190.050-A4-A4	5.0	5.5	7.1	5.0	4.3	5.3	0.4	A4 s/s	A4 s/s
P0190.060-A4-A4	6.0	6.5	8.7	6.0	5.3	6.3	0.4	A4 s/s	A4 s/s
P0190.070-A4-A4	7.0	7.5	10.2	7.0	6.4	7.3	0.4	A4 s/s	A4 s/s
P0190.080-A4-A4	8.0	8.5	11.6	8.0	7.4	8.3	0.3	A4 s/s	A4 s/s
P0190.090-A4-A4	9.0	10.0	13.6	9.0	8.4	9.8	0.4	A4 s/s	A4 s/s
P0190.100-A4-A4	10.0	11.0	15.2	10.0	9.4	10.8	0.4	A4 s/s	A4 s/s
P0190.120-A4-A4	12.0	13.0	17.9	12.0	10.6	12.8	0.4	A4 s/s	A4 s/s
P0190.140-A4-A4	14.0	15.0	20.6	14.0	12.7	14.5	0.4	A4 s/s	A4 s/s
P0190.160-A4-A4	16.0	17.0	23.4	16.0	14.7	16.5	0.6	A4 s/s	A4 s/s
P0190.180-A4-A4	18.0	19.0	26.4	18.0	16.7	18.5	0.6	A4 s/s	A4 s/s
P0190.200-A4-A4	20.0	22.0	30.1	20.0	18.7	21.5	0.8	A4 s/s	A4 s/s
P0190.220-A4-A4	22.0	25.0	34.0	22.0	20.7	24.5	0.8	A4 s/s	A4 s/s
P0190.030-AL-A2	3.0	3.6	4.6	3.0	2.2	3.4	0.4	Aluminium	A2 s/s
P0190.040-AL-A2	4.0	4.0	5.2	4.0	3.3	3.8	0.2	Aluminium	A2 s/s
P0190.050-AL-A2	5.0	5.5	7.1	5.0	4.3	5.3	0.4	Aluminium	A2 s/s
P0190.060-AL-A2	6.0	6.5	8.7	6.0	5.3	6.3	0.4	Aluminium	A2 s/s
P0190.070-AL-A2	7.0	7.5	10.2	7.0	6.4	7.3	0.4	Aluminium	A2 s/s
P0190.080-AL-A2	8.0	8.5	11.6	8.0	7.4	8.3	0.3	Aluminium	A2 s/s
P0190.090-AL-A2	9.0	10.0	13.6	9.0	8.4	9.8	0.4	Aluminium	A2 s/s
P0190.100-AL-A2	10.0	11.0	15.2	10.0	9.4	10.8	0.4	Aluminium	A2 s/s
P0190.120-AL-A2	12.0	13.0	17.9	12.0	10.6	12.8	0.4	Aluminium	A2 s/s
P0190.140-AL-A2	14.0	15.0	20.6	14.0	12.7	14.5	0.4	Aluminium	A2 s/s
P0190.160-AL-A2	16.0	17.0	23.4	16.0	14.7	16.5	0.6	Aluminium	A2 s/s
P0190.180-AL-A2	18.0	19.0	26.4	18.0	16.7	18.5	0.6	Aluminium	A2 s/s
P0190.200-AL-A2	20.0	22.0	30.1	20.0	18.7	21.5	0.8	Aluminium	A2 s/s
P0190.220-AL-A2	22.0	25.0	34.0	22.0	20.7	24.5	0.8	Aluminium	A2 s/s
P0190.030-A2-A2	3.0	3.6	4.6	3.0	2.2	3.4	0.4	A2 s/s	A2 s/s
P0190.040-A2-A2	4.0	4.0	5.2	4.0	3.3	3.8	0.2	A2 s/s	A2 s/s
P0190.050-A2-A2	5.0	5.5	7.1	5.0	4.3	5.3	0.4	A2 s/s	A2 s/s
P0190.060-A2-A2	6.0	6.5	8.7	6.0	5.3	6.3	0.4	A2 s/s	A2 s/s
P0190.070-A2-A2	7.0	7.5	10.2	7.0	6.4	7.3	0.4	A2 s/s	A2 s/s
P0190.080-A2-A2	8.0	8.5	11.6	8.0	7.4	8.3	0.3	A2 s/s	A2 s/s
P0190.090-A2-A2	9.0	10.0	13.6	9.0	8.4	9.8	0.4	A2 s/s	A2 s/s
P0190.100-A2-A2	10.0	11.0	15.2	10.0	9.4	10.8	0.4	A2 s/s	A2 s/s
P0190.120-A2-A2	12.0	13.0	17.9	12.0	10.6	12.8	0.4	A2 s/s	A2 s/s
P0190.140-A2-A2	14.0	15.0	20.6	14.0	12.7	14.5	0.4	A2 s/s	A2 s/s
P0190.160-A2-A2	16.0	17.0	23.4	16.0	14.7	16.5	0.6	A2 s/s	A2 s/s
P0190.180-A2-A2	18.0	19.0	26.4	18.0	16.7	18.5	0.6	A2 s/s	A2 s/s
P0190.200-A2-A2	20.0	22.0	30.1	20.0	18.7	21.5	0.8	A2 s/s	A2 s/s
P0190.220-A2-A2	22.0	25.0	34.0	22.0	20.7	24.5	0.8	A2 s/s	A2 s/s

BLANKING PLUGS



P0191



Material

Plug body: case hardened steel (zinc-plated), stainless steel (A2, AISI 303 & A4 AISI 316) or aluminium (2024-T4).

Ball: heat-treated bearing steel or stainless steel (A2, AISI 303 & A4 AISI 316).

Technical Notes

These high pressure sealing plugs are used to blank off externally drilled holes for air

and gas.

No need for tapping, reaming, machining of O-ring grooves or the use of tapes or sealants.

Ensure the ball is fully seated before applying pressure.

Dimensions in inches.

Tips

Working pressure up to 450 bar (dependent

on body material and material into which installed).

Please consult technical pages for installation instructions and performance data.

Important Notes

Please refer to technical pages for product installation details.

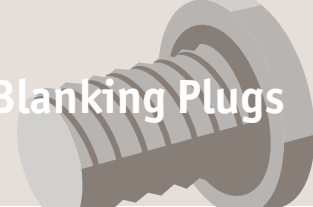
Order No.	d ₁	l ₁	l ₂	d ₂ +0.004 -0.000	d ₃ max.	l ₃ min.	x +0.0 -0.010	Body	Ball
P0191.093-ZP-BS	0.0937	0.098	0.12	0.0937	0.070	0.081	0.010	Steel ZP	Steel
P0191.125-ZP-BS	0.1250	0.125	0.16	0.1250	0.100	0.113	0.010	Steel ZP	Steel
P0191.156-ZP-BS	0.1562	0.125	0.17	0.1562	0.130	0.113	0.010	Steel ZP	Steel
P0191.187-ZP-BS	0.1875	0.187	0.24	0.1875	0.160	0.170	0.010	Steel ZP	Steel
P0191.218-ZP-BS	0.2187	0.187	0.25	0.2187	0.190	0.170	0.010	Steel ZP	Steel
P0191.250-ZP-BS	0.2500	0.225	0.30	0.2500	0.220	0.196	0.010	Steel ZP	Steel
P0191.281-ZP-BS	0.2812	0.225	0.35	0.2812	0.250	0.233	0.010	Steel ZP	Steel
P0191.312-ZP-BS	0.3125	0.280	0.39	0.3125	0.281	0.255	0.010	Steel ZP	Steel
P0191.343-ZP-BS	0.3437	0.307	0.43	0.3437	0.312	0.275	0.010	Steel ZP	Steel
P0191.406-ZP-BS	0.4062	0.365	0.52	0.4062	0.375	0.308	0.010	Steel ZP	Steel
P0191.093-A2-BS	0.0937	0.098	0.12	0.0937	0.070	0.081	0.010	A2 s/s	Steel
P0191.125-A2-BS	0.1250	0.125	0.16	0.1250	0.100	0.113	0.010	A2 s/s	Steel
P0191.156-A2-BS	0.1562	0.125	0.17	0.1562	0.130	0.113	0.010	A2 s/s	Steel
P0191.187-A2-BS	0.1875	0.187	0.24	0.1875	0.160	0.170	0.010	A2 s/s	Steel
P0191.218-A2-BS	0.2187	0.187	0.25	0.2187	0.190	0.170	0.010	A2 s/s	Steel
P0191.250-A2-BS	0.2500	0.225	0.30	0.2500	0.220	0.196	0.010	A2 s/s	Steel
P0191.281-A2-BS	0.2812	0.225	0.35	0.2812	0.250	0.233	0.010	A2 s/s	Steel
P0191.312-A2-BS	0.3125	0.280	0.39	0.3125	0.281	0.255	0.010	A2 s/s	Steel
P0191.343-A2-BS	0.3437	0.307	0.43	0.3437	0.312	0.275	0.010	A2 s/s	Steel
P0191.406-A2-BS	0.4062	0.365	0.52	0.4062	0.375	0.308	0.010	A2 s/s	Steel
P0191.093-A2-A2	0.0937	0.098	0.12	0.0937	0.070	0.081	0.010	A2 s/s	A2 s/s
P0191.125-A2-A2	0.1250	0.125	0.16	0.1250	0.100	0.113	0.010	A2 s/s	A2 s/s
P0191.156-A2-A2	0.1562	0.125	0.17	0.1562	0.130	0.113	0.010	A2 s/s	A2 s/s
P0191.187-A2-A2	0.1875	0.187	0.24	0.1875	0.160	0.170	0.010	A2 s/s	A2 s/s
P0191.218-A2-A2	0.2187	0.187	0.25	0.2187	0.190	0.170	0.010	A2 s/s	A2 s/s
P0191.250-A2-A2	0.2500	0.225	0.30	0.2500	0.220	0.196	0.010	A2 s/s	A2 s/s
P0191.281-A2-A2	0.2812	0.225	0.35	0.2812	0.250	0.233	0.010	A2 s/s	A2 s/s
P0191.312-A2-A2	0.3125	0.280	0.39	0.3125	0.281	0.255	0.010	A2 s/s	A2 s/s



Expansion Sealing Plugs - Inch

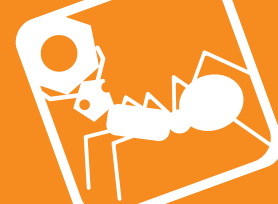
Inch - short

Blanking Plugs

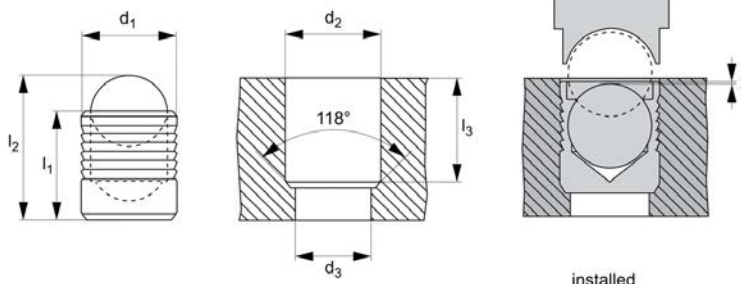


Order No.	d ₁	l ₁	l ₂	d ₂ +0.004 -0.000	d ₃ max.	l ₃ min.	x +0.0 -0.010	Body	Ball
P0191.343-A2-A2	0.3437	0.307	0.43	0.3437	0.312	0.275	0.010	A2 s/s	A2 s/s
P0191.406-A2-A2	0.4062	0.365	0.52	0.4062	0.375	0.308	0.010	A2 s/s	A2 s/s
P0191.093-A4-A4	0.0937	0.098	0.12	0.0937	0.070	0.081	0.010	A4 s/s	A4 s/s
P0191.125-A4-A4	0.1250	0.125	0.16	0.1250	0.100	0.113	0.010	A4 s/s	A4 s/s
P0191.156-A4-A4	0.1562	0.125	0.17	0.1562	0.130	0.113	0.010	A4 s/s	A4 s/s
P0191.187-A4-A4	0.1875	0.187	0.24	0.1875	0.160	0.170	0.010	A4 s/s	A4 s/s
P0191.218-A4-A4	0.2187	0.187	0.25	0.2187	0.190	0.170	0.010	A4 s/s	A4 s/s
P0191.250-A4-A4	0.2500	0.225	0.30	0.2500	0.220	0.196	0.010	A4 s/s	A4 s/s
P0191.281-A4-A4	0.2812	0.225	0.35	0.2812	0.250	0.233	0.010	A4 s/s	A4 s/s
P0191.312-A4-A4	0.3125	0.280	0.39	0.3125	0.281	0.255	0.010	A4 s/s	A4 s/s
P0191.343-A4-A4	0.3437	0.307	0.43	0.3437	0.312	0.275	0.010	A4 s/s	A4 s/s
P0191.406-A4-A4	0.4062	0.365	0.52	0.4062	0.375	0.308	0.010	A4 s/s	A4 s/s
P0191.093-AL-A2	0.0937	0.098	0.12	0.0937	0.070	0.081	0.010	Aluminium	A2 s/s
P0191.125-AL-A2	0.1250	0.125	0.16	0.1250	0.100	0.113	0.010	Aluminium	A2 s/s
P0191.156-AL-A2	0.1562	0.125	0.17	0.1562	0.130	0.113	0.010	Aluminium	A2 s/s
P0191.187-AL-A2	0.1875	0.187	0.24	0.1875	0.160	0.170	0.010	Aluminium	A2 s/s
P0191.218-AL-A2	0.2187	0.187	0.25	0.2187	0.190	0.170	0.010	Aluminium	A2 s/s
P0191.250-AL-A2	0.2500	0.225	0.30	0.2500	0.220	0.196	0.010	Aluminium	A2 s/s
P0191.281-AL-A2	0.2812	0.225	0.35	0.2812	0.250	0.233	0.010	Aluminium	A2 s/s
P0191.312-AL-A2	0.3125	0.280	0.39	0.3125	0.281	0.255	0.010	Aluminium	A2 s/s
P0191.343-AL-A2	0.3437	0.307	0.43	0.3437	0.312	0.275	0.010	Aluminium	A2 s/s
P0191.406-AL-A2	0.4062	0.365	0.52	0.4062	0.375	0.308	0.010	Aluminium	A2 s/s

BLANKING PLUGS



P0192



Material

Plug body: case hardened steel (zinc-plated), stainless steel (A2, AISI 303 & A4 AISI 316) or aluminium (2024-T4).
Ball: heat-treated bearing steel or stainless steel (A2, AISI 303 & A4 AISI 316).

Technical Notes

These high pressure sealing plugs are used to blank off externally drilled holes for air

and gas.

No need for tapping, reaming, machining of O-ring grooves or the use of tapes or sealants.

Ensure the ball is fully seated before applying pressure.

Dimensions in inches.

Tips

Working pressure up to 450 bar (dependent

on body material and material into which installed).

Please consult technical pages for installation instructions and performance data.

Important Notes

Please refer to technical pages for product installation details.

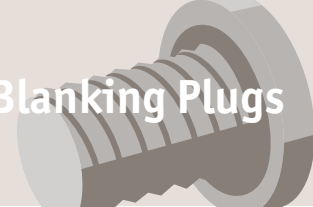
Order No.	d ₁	l ₁	l ₂	d ₂ +0.004 -0.000	d ₃ max.	l ₃ min.	x +0.0 -0.010	Body	Ball
P0192.156-ZP-BS	0.1562	0.157	0.21	0.1562	0.130	0.150	0.010	Steel ZP	Steel
P0192.187-ZP-BS	0.1875	0.216	0.28	0.1875	0.160	0.209	0.010	Steel ZP	Steel
P0192.218-ZP-BS	0.2187	0.220	0.28	0.2187	0.190	0.208	0.010	Steel ZP	Steel
P0192.250-ZP-BS	0.2500	0.256	0.34	0.2500	0.220	0.248	0.010	Steel ZP	Steel
P0192.281-ZP-BS	0.2812	0.295	0.40	0.2812	0.250	0.287	0.010	Steel ZP	Steel
P0192.312-ZP-BS	0.3125	0.334	0.46	0.3125	0.281	0.327	0.010	Steel ZP	Steel
P0192.343-ZP-BS	0.3437	0.394	0.53	0.3437	0.312	0.385	0.010	Steel ZP	Steel
P0192.375-ZP-BS	0.3750	0.433	0.60	0.3750	0.343	0.425	0.010	Steel ZP	Steel
P0192.406-ZP-BS	0.4062	0.437	0.59	0.4062	0.375	0.425	0.010	Steel ZP	Steel
P0192.437-ZP-BS	0.4375	0.515	0.68	0.4375	0.406	0.503	0.010	Steel ZP	Steel
P0192.468-ZP-BS	0.4687	0.512	0.71	0.4687	0.437	0.504	0.010	Steel ZP	Steel
P0192.156-A2-BS	0.1562	0.157	0.21	0.1562	0.130	0.150	0.010	A2 s/s	Steel
P0192.187-A2-BS	0.1875	0.216	0.28	0.1875	0.160	0.209	0.010	A2 s/s	Steel
P0192.218-A2-BS	0.2187	0.220	0.28	0.2187	0.190	0.208	0.010	A2 s/s	Steel
P0192.250-A2-BS	0.2500	0.256	0.34	0.2500	0.220	0.248	0.010	A2 s/s	Steel
P0192.281-A2-BS	0.2812	0.295	0.40	0.2812	0.250	0.287	0.010	A2 s/s	Steel
P0192.312-A2-BS	0.3125	0.334	0.46	0.3125	0.281	0.327	0.010	A2 s/s	Steel
P0192.343-A2-BS	0.3437	0.394	0.53	0.3437	0.312	0.385	0.010	A2 s/s	Steel
P0192.375-A2-BS	0.3750	0.433	0.60	0.3750	0.343	0.425	0.010	A2 s/s	Steel
P0192.406-A2-BS	0.4062	0.437	0.59	0.4062	0.375	0.425	0.010	A2 s/s	Steel
P0192.437-A2-BS	0.4375	0.515	0.68	0.4375	0.406	0.503	0.010	A2 s/s	Steel
P0192.468-A2-BS	0.4687	0.512	0.71	0.4687	0.437	0.504	0.010	A2 s/s	Steel
P0192.156-A2-A2	0.1562	0.157	0.21	0.1562	0.130	0.150	0.010	A2 s/s	A2 s/s
P0192.187-A2-A2	0.1875	0.216	0.28	0.1875	0.160	0.209	0.010	A2 s/s	A2 s/s
P0192.218-A2-A2	0.2187	0.220	0.28	0.2187	0.190	0.208	0.010	A2 s/s	A2 s/s
P0192.250-A2-A2	0.2500	0.256	0.34	0.2500	0.220	0.248	0.010	A2 s/s	A2 s/s
P0192.281-A2-A2	0.2812	0.295	0.40	0.2812	0.250	0.287	0.010	A2 s/s	A2 s/s
P0192.312-A2-A2	0.3125	0.334	0.46	0.3125	0.281	0.327	0.010	A2 s/s	A2 s/s



Expansion Sealing Plugs - Inch

Inch - standard

Blanking Plugs



Order No.	d ₁	l ₁	l ₂	d ₂ +0.004 -0.000	d ₃ max.	l ₃ min.	x +0.0 -0.010	Body	Ball
P0192.343-A2-A2	0.3437	0.394	0.53	0.3437	0.312	0.385	0.010	A2 s/s	A2 s/s
P0192.375-A2-A2	0.3750	0.433	0.60	0.3750	0.343	0.425	0.010	A2 s/s	A2 s/s
P0192.406-A2-A2	0.4062	0.437	0.59	0.4062	0.375	0.425	0.010	A2 s/s	A2 s/s
P0192.437-A2-A2	0.4375	0.515	0.68	0.4375	0.406	0.503	0.010	A2 s/s	A2 s/s
P0192.468-A2-A2	0.4687	0.512	0.71	0.4687	0.437	0.504	0.010	A2 s/s	A2 s/s
P0192.156-A4-A4	0.1562	0.157	0.21	0.1562	0.130	0.150	0.010	A4 s/s	A4 s/s
P0192.187-A4-A4	0.1875	0.216	0.28	0.1875	0.160	0.209	0.010	A4 s/s	A4 s/s
P0192.218-A4-A4	0.2187	0.220	0.28	0.2187	0.190	0.208	0.010	A4 s/s	A4 s/s
P0192.250-A4-A4	0.2500	0.256	0.34	0.2500	0.220	0.248	0.010	A4 s/s	A4 s/s
P0192.281-A4-A4	0.2812	0.295	0.40	0.2812	0.250	0.287	0.010	A4 s/s	A4 s/s
P0192.312-A4-A4	0.3125	0.334	0.46	0.3125	0.281	0.327	0.010	A4 s/s	A4 s/s
P0192.343-A4-A4	0.3437	0.394	0.53	0.3437	0.312	0.385	0.010	A4 s/s	A4 s/s
P0192.406-A4-A4	0.4062	0.437	0.59	0.4062	0.375	0.425	0.010	A4 s/s	A4 s/s
P0192.437-A4-A4	0.4375	0.515	0.68	0.4375	0.406	0.503	0.010	A4 s/s	A4 s/s
P0192.468-A4-A4	0.4687	0.512	0.71	0.4687	0.437	0.504	0.010	A4 s/s	A4 s/s
P0192.156-AL-A2	0.1562	0.157	0.21	0.1562	0.130	0.150	0.010	Aluminium	A2 s/s
P0192.187-AL-A2	0.1875	0.216	0.28	0.1875	0.160	0.209	0.010	Aluminium	A2 s/s
P0192.218-AL-A2	0.2187	0.220	0.28	0.2187	0.190	0.208	0.010	Aluminium	A2 s/s
P0192.250-AL-A2	0.2500	0.256	0.34	0.2500	0.220	0.248	0.010	Aluminium	A2 s/s
P0192.281-AL-A2	0.2812	0.295	0.40	0.2812	0.250	0.287	0.010	Aluminium	A2 s/s
P0192.312-AL-A2	0.3125	0.334	0.46	0.3125	0.281	0.327	0.010	Aluminium	A2 s/s
P0192.343-AL-A2	0.3437	0.394	0.53	0.3437	0.312	0.385	0.010	Aluminium	A2 s/s
P0192.375-AL-A2	0.3750	0.433	0.60	0.3750	0.343	0.425	0.010	Aluminium	A2 s/s
P0192.406-AL-A2	0.4062	0.437	0.59	0.4062	0.375	0.425	0.010	Aluminium	A2 s/s
P0192.437-AL-A2	0.4375	0.515	0.68	0.4375	0.406	0.503	0.010	Aluminium	A2 s/s
P0192.468-AL-A2	0.4687	0.512	0.71	0.4687	0.437	0.504	0.010	Aluminium	A2 s/s

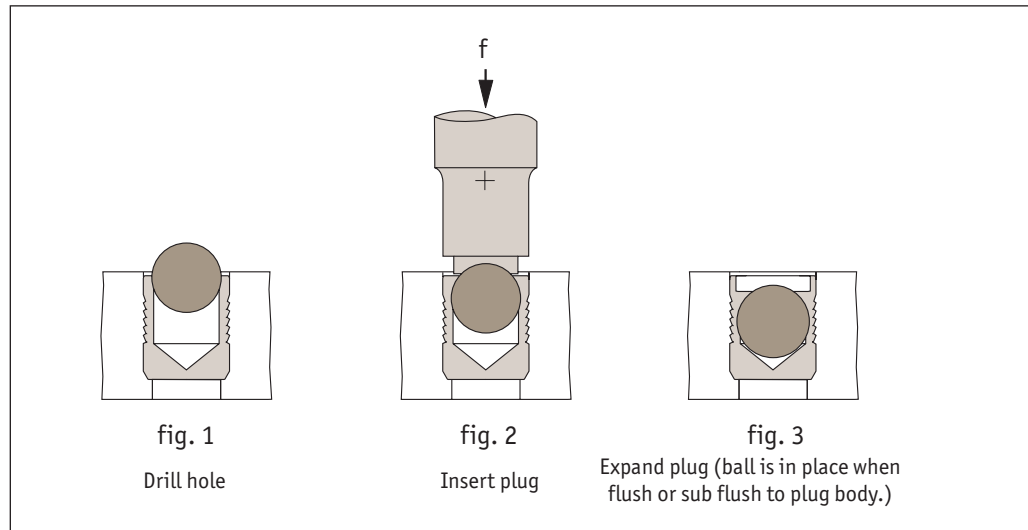
BLANKING PLUGS



Hydraulic and pneumatic components and systems are often cross-drilled to provide the correct channels for air and gas. Some of these channels have to be drilled from the outside and later need to be closed off (plugged).

The expansion sealing plugs are inserted into a drilled hole and the expander ball is driven into the plug sleeve. The independent grooved sealing rings on the plug ball are driven into the housing material to permanently plug and seal the hole. The ball is retained in place.

No need for tapping or reaming, no machining of O ring grooves or the use of tapes or sealants. To seal a hole, follow this procedure:



Applications

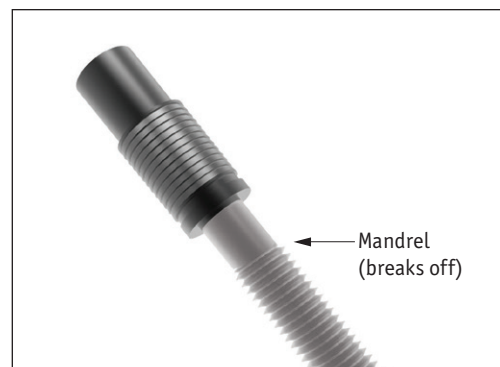
Some of the typical applications for our sealing screws include:

Pneumatics
Hydraulics
Fluid Power
Automation
Industrial

Aerospace
Valves
Regulators
Cylinders



"Standard" Expansion sealing plugs - push the ball which expands the sleeve and seals the channel.

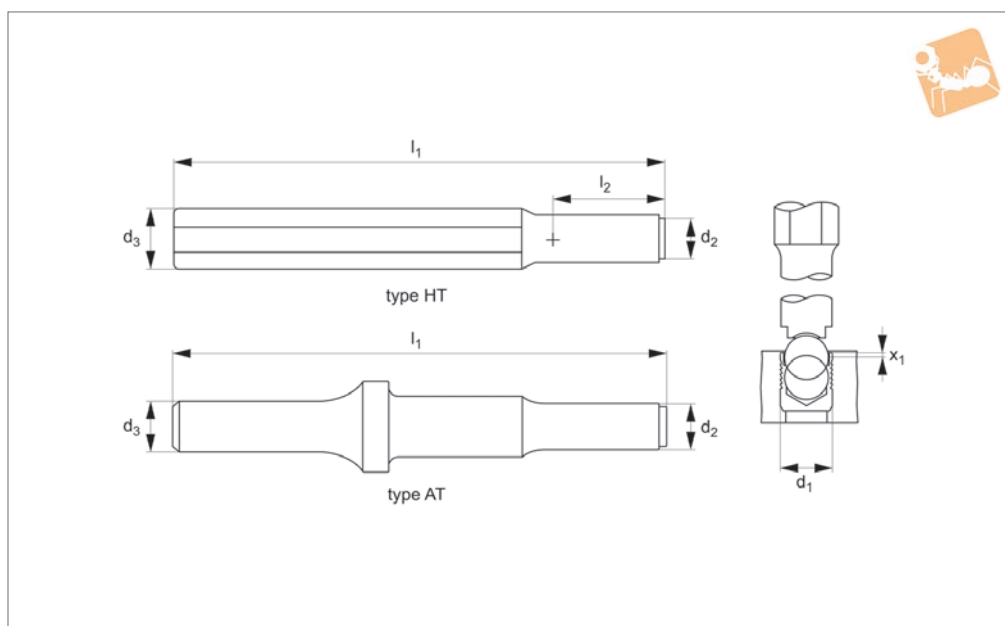


"Pull" Expansion sealing plugs. Pulling on the mandrel expands the sleeve, sealing the channel. At a predetermined force the mandrel breaks off.



Setting Tool for Sealing Plugs for expansion plugs

Blanking Plugs



P0193

BLANKING PLUGS

Material

Tool steel, heat-treated.

Technical Notes

Please consult technical pages for installa-

tion instructions and performance data.

Hand tool version and air tool (for multiple installations).

Ensure the ball is fully seated before

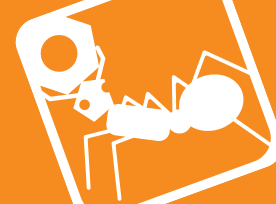
applying pressure.

Tips

Metric dimensions in mm.

Inch dimensions in inches.

Order No.	d ₁	d ₂	d ₃	l ₁	l ₂	x ±0.2	Type
P0193.030-HT	3.0	2.8	9.53	127	10	0.4	Hand
P0193.040-HT	4.0	3.8	9.53	127	10	0.2	Hand
P0193.050-HT	5.0	4.7	9.53	127	12	0.4	Hand
P0193.060-HT	6.0	5.8	9.53	127	15	0.4	Hand
P0193.070-HT	7.0	6.8	9.53	127	18	0.4	Hand
P0193.080-HT	8.0	7.8	9.53	127	20	0.3	Hand
P0193.090-HT	9.0	8.7	15.88	127	22	0.4	Hand
P0193.100-HT	10.0	9.8	15.88	127	25	0.4	Hand
P0193.120-HT	12.0	11.7	15.88	127	30	0.4	Hand
P0193.140-HT	14.0	13.7	19.05	127	35	0.4	Hand
P0193.160-HT	16.0	15.7	19.05	127	40	0.6	Hand
P0193.180-HT	18.0	17.7	19.05	127	45	0.6	Hand
P0193.200-HT	20.0	19.7	25.40	127	50	0.8	Hand
P0193.220-HT	22.0	21.7	25.40	127	55	0.8	Hand
P0193.093-HT	0,093"	0,082"	0,394"	3,94"	0,137"	0,010"	Hand
P0193.125-HT	0,125"	0,117"	0,394"	3,94"	0,137"	0,010"	Hand
P0193.156-HT	0,156"	0,148"	0,394"	3,94"	0,137"	0,010"	Hand
P0193.187-HT	0,187"	0,180"	0,394"	3,94"	0,137"	0,010"	Hand
P0193.218-HT	0,218"	0,211"	0,394"	3,94"	0,400"	0,010"	Hand
P0193.250-HT	0,250"	0,242"	0,394"	3,94"	0,400"	0,010"	Hand
P0193.281-HT	0,281"	0,273"	0,394"	3,94"	0,400"	0,010"	Hand
P0193.030-AT	3.0	2.8	10.19	100	0.4	0.4	Air
P0193.040-AT	4.0	3.8	10.19	100	0.2	0.2	Air
P0193.050-AT	5.0	4.7	10.19	100	0.4	0.4	Air
P0193.060-AT	6.0	5.8	10.19	100	0.4	0.4	Air
P0193.070-AT	7.0	6.8	10.19	100	0.4	0.4	Air
P0193.080-AT	8.0	7.8	10.19	100	0.3	0.3	Air
P0193.090-AT	9.0	8.7	10.19	100	0.4	0.4	Air
P0193.100-AT	10.0	9.8	10.19	100	0.4	0.4	Air
P0193.120-AT	12.0	11.7	10.19	100	0.4	0.4	Air
P0193.140-AT	14.0	13.7	10.19	100	0.4	0.4	Air
P0193.160-AT	16.0	15.7	10.19	100	0.6	0.6	Air
P0193.180-AT	18.0	17.7	10.19	100	0.6	0.6	Air
P0193.200-AT	20.0	19.7	10.19	100	0.8	0.8	Air



Order No.	d ₁	d ₂	d ₃	l ₁	l ₂	x ±0.2	Type
P0193.220-AT	22.0	21.7	10.19	100	0.8	0.8	Air



Blocker Sealing Plugs

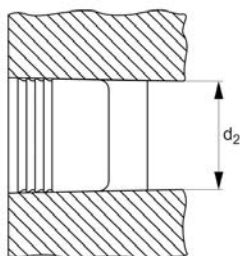
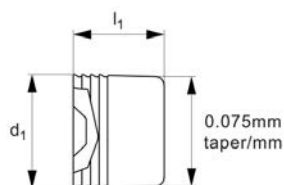
Aluminium

Blanking Plugs



P0194

BLANKING PLUGS



Material

Aluminium (6061).

a 0.075mm/mm taper over their length.
Burst pressure 35 bar (500 psi).

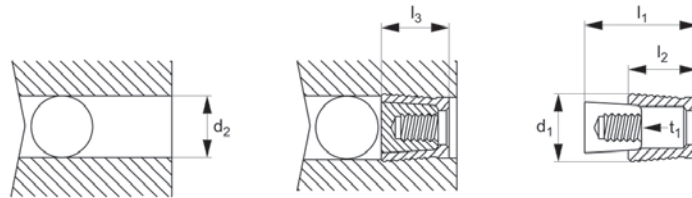
Technical Notes

These are high pressure sealing plugs with

Order No.	d ₁	d ₂ max.	l ₁	Size
P0194.070	7.01	6.50	5.5	7
P0194.090	9.01	8.38	5.5	9
P0194.110	11.03	10.39	5.5	11
P0194.130	13.03	12.40	5.5	13
P0194.160	16.08	15.39	5.5	16



P0195



Material

Sleeve: case-hardened steel, black oxide finish.

Pin: heat-treatable steel, black oxide finish.

to blank off externally drilled holes for air and gas.

No need for tapping, reaming, machining of O-ring grooves or the use of tapes or sealants.

product installation details.

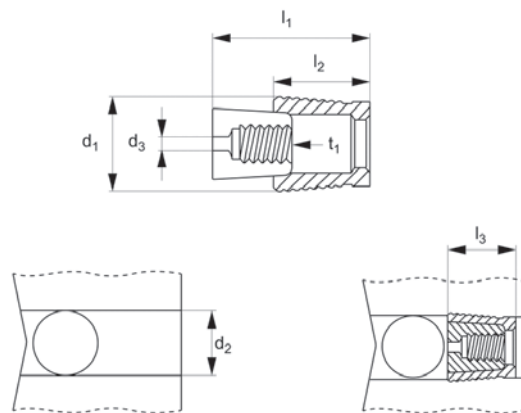
Technical Notes

These high pressure sealing plugs are used

Important Notes

Please refer to technical pages for

Order No.	d ₁	d ₂ +0.1 -0.0	l ₁	l ₂	l ₃	t ₁
P0195.070	7.0	7.0	13.0	7.5	8.0	4-40 UNC
P0195.080	8.0	8.0	14.0	8.5	9.0	6-32 UNC
P0195.090	9.0	9.0	16.0	9.5	10.0	8-32 UNC
P0195.100	10.0	10.0	18.0	10.5	11.0	10-32 UNC
P0195.120	12.0	12.0	21.0	12.5	13.0	10-32 UNC
P0195.140	14.0	14.0	25.0	14.5	15.0	1/4-20 UNC
P0195.160	16.0	16.0	28.0	16.5	17.0	1/4-20 UNC
P0195.180	18.0	18.0	31.5	18.5	19.0	5/16-18 UNC
P0195.200	20.0	20.0	35.0	20.5	21.0	3/8-16 UNC
P0195.220	22.0	22.0	38.5	22.5	23.0	3/8-16 UNC



P0196

BLANKING PLUGS

Material

Sleeve: case-hardened steel, black oxide finish.

Pin: heat-treatable steel, black oxide finish.

Technical Notes

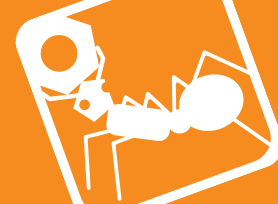
Select the bore size and d_3 required (in inches).

eg. P0196.070-030 is a 7mm pull plug restrictor with 0.030" orifice.

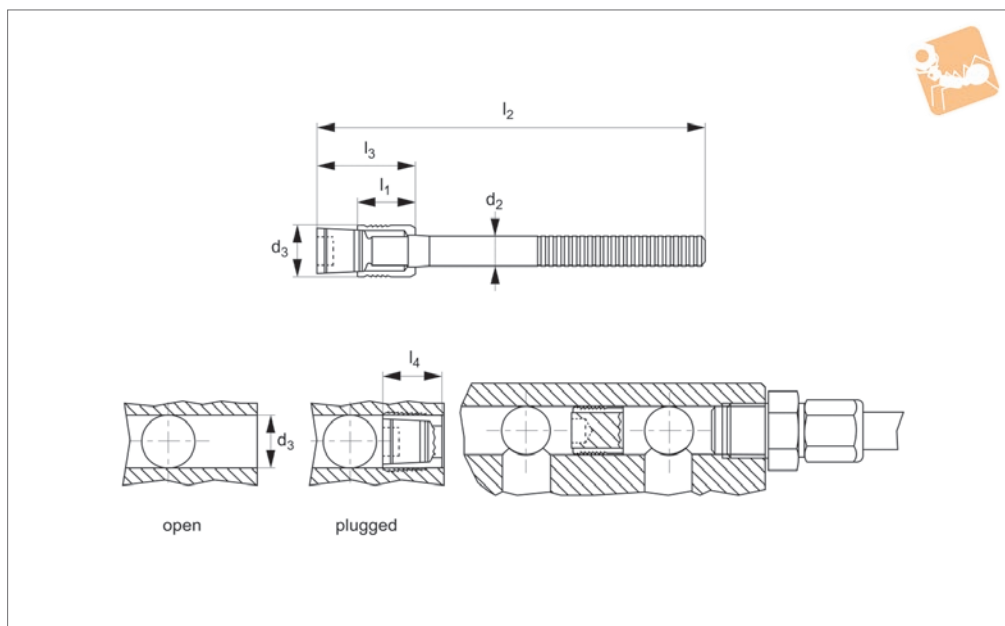
Important Notes

Please refer to technical pages for product installation details.

Order No.	d_1	d_2 +0.1 -0.0	d_3 inch	l_1	l_2	l_3	t_1
P0196.070-xxx	7.0	7.0	0,012-0,13	13.0	7.5	8.0	4-40 UNC
P0196.080-xxx	8.0	8.0	0,012-0,15	14.0	8.5	9.0	6-32 UNC
P0196.090-xxx	9.0	9.0	0,012-0,17	16.0	9.5	10.0	8-32 UNC
P0196.100-xxx	10.0	10.0	0,012-0,20	18.0	10.5	11.0	10-32 UNC
P0196.120-xxx	12.0	12.0	0,012-0,24	21.0	12.5	13.0	10-32 UNC
P0196.140-xxx	14.0	14.0	0,12-0,28	25.0	14.5	15.0	1/4-20 UNC
P0196.160-xxx	16.0	16.0	0,012-0,30	28.0	16.5	17.0	1/4-20 UNC
P0196.180-xxx	18.0	18.0	0,012-0,35	31.5	18.5	19.0	5/16-18 UNC
P0196.200-xxx	20.0	20.0	0,012-0,40	35.0	20.5	21.0	3/8-16 UNC
P0196.220-xxx	22.0	22.0	0,012-0,43	38.5	22.5	23.0	3/8-16 UNC



P0197



Material

Sleeve: case-hardened steel, black oxide finish.

Mandrel: heat-treated steel, black oxide finish.

Technical Notes

These high pressure sealing plugs are used to blank off externally drilled holes for air and gas.

No need for tapping, reaming, machining

of O-ring grooves or the use of tapes or sealants.

Short version - with short mandrel.

Long version - with long mandrel.

Tips

Working pressure up to 450 bar (dependent on body material and material into which installed).

Pulling on the mandrel forces the plug insert into the plug body, expanding the

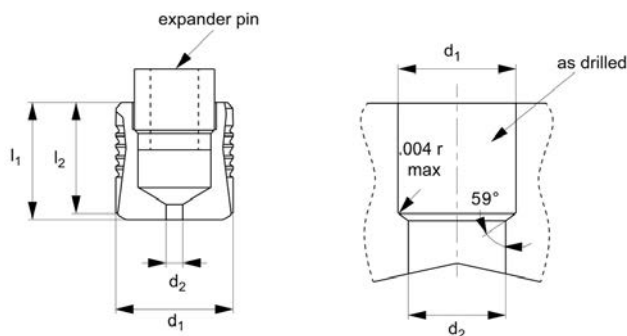
body out to grip on the channel walls.

At a set pressure the mandrel then breaks off and is removed with the plug remaining firmly set inside the bore.

Important Notes

Please refer to technical pages for product installation details.

Order No.	d ₁	d ₂	d ₃ +0.12 -0.0	l ₁	l ₂	l ₃ max.	l ₄ max.	Type
P0197.040-S	4.0	2.50	4.0	4.0	39	9.0	6.5	Short
P0197.050-S	5.0	3.00	5.0	5.5	41	10.0	7.5	Short
P0197.060-S	6.0	3.40	6.0	6.5	43	12.0	8.0	Short
P0197.070-S	7.0	4.10	7.0	7.5	38	14.0	9.0	Short
P0197.080-S	8.0	4.20	8.0	8.5	40	15.0	10.5	Short
P0197.090-S	9.0	4.50	9.0	9.5	43	17.0	11.0	Short



P0198

BLANKING PLUGS

Material

A2 Stainless steel.
Calibrated hole diameter (d_2).

Technical Notes

For restricting flow.
Select size required then add -xxx which

indicated reduced hole diameter (d_2), eg
P0198.090-015 indicated a 9mm bore size
with a 0.015" orifice.

Tips

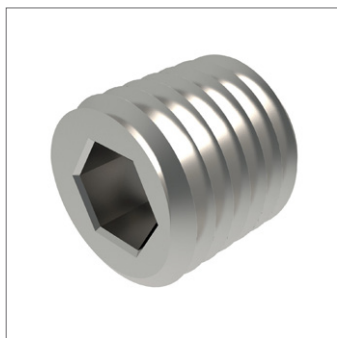
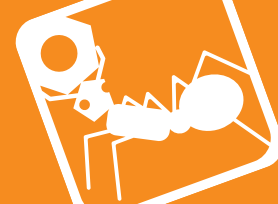
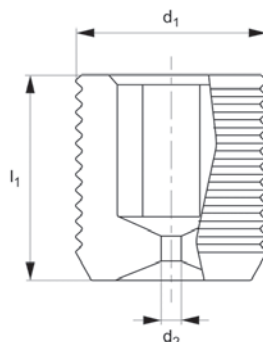
Metric dimensions in mm.
Imperial dimensions in inches. (Length

Tolerance $\pm 0,006$)

Important Notes

Please refer to technical pages for
product installation details.

Order No.	d_1 +0	d_2 $\pm 0,001$	d_3 $\pm 0,010$	d_4 max.	l_1 $\pm 0,010$	l_2 $\pm 0,010$	l_3 min.
P0198.040-XXX	4,00 -0,030	0,012-0,015"	4.00	3.3	4.0	3.7	3.8
P0198.050-xxx	5,00 -0,030	0,012-0,075"	5.00	4.3	5.0	5.2	5.3
P0198.060-XXX	6,00 -0,030	0,012-0,100"	6.00	5.3	6.0	6.2	6.3
P0198.070-XXX	7,00 -0,036	0,012-0,130"	7.00	6.2	7.0	7.2	7.3
P0198.080-XXX	8,00 -0,036	0,012-0,150"	8.00	7.2	8.0	8.2	8.3
P0198.090-xxx	9,00 -0,036	0,012-0,170"	9.00	8.2	9.0	9.70	9.8
P0198.100-xxx	10,00 -0,036	0,012-0,195"	10.00	9.2	10.0	10.70	10.8
P0198.120-xxx	12,00 -0,043	0,012-0,240"	12.00	11.0	12.0	12.70	12.8
P0198.140-XXX	14,00 -0,043	0,012-0,280"	14.00	13.0	14.0	14.40	14.5
P0198i.156-xxx	0,1562 -0,0012"	0,012-0,050"	0,1562"	0,130"	0,161"	0,149"	0,149"
P0198i.187-xxx	0,1875 -0,0012"	0,012-0,070"	0,1875"	0,160"	0,220"	0,208"	0,208"
P0198i.218-xxx	0,2187 -0,0012"	0,012-0,085"	0,2187"	0,190"	0,220"	0,208"	0,208"
P0198i.250-xxx	0,2500 -0,0012"	0,012-0,105"	0,2500"	0,220"	0,259"	0,247"	0,247"
P0198i.281-xxx	0,2817 -0,0014"	0,012-0,130"	0,2812"	0,250"	0,299"	0,287"	0,287"
P0198i.312-xxx	0,3125 -0,0014"	0,012-0,150"	0,3125"	0,281"	0,338"	0,326"	0,326"
P0198i.343-xxx	0,3437 -0,0014"	0,012-0,160"	0,3437"	0,312"	0,397"	0,385"	0,385"
P0198i.375-xxx	0,3750 -0,0014"	0,012-0,180"	0,3750"	0,343"	0,397"	0,385"	0,385"
P0198i.406-xxx	0,4062 -0,0014"	0,012-0,195"	0,4062"	0,375"	0,437"	0,425"	0,425"
P0198i.437-xxx	0,4375 -0,0014"	0,012-0,220"	0,4375"	0,406"	0,515"	0,503"	0,503"
P0198i.468-xxx	0,4687 -0,0017"	0,012-0,240"	0,4687"	0,437"	0,515"	0,503"	0,503"
P0198i.562-xxx	0,5625 -0,0017"	0,012-0,290"	0,5625"	0,510"	0,594"	0,570"	0,570"

**P0199****Material**

A2 stainless steel

Technical Notes

For restricting flow.

Select size required then add -xxx which indicated reduced hole diameter (d_2), eg P0199.080-0150 A2 indicated a 8mm bore size with a 0.38 orifice.

Important Notes

Please refer to technical pages for product installation details.

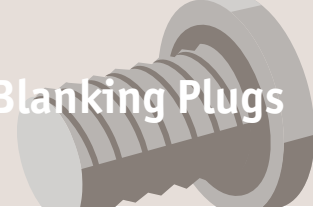
Order No.	d_1	d_1 nom.	d_2	l_1	A/F
P0199.040-003-A2	M 4x0,7	4	0.30	4	2
P0199.040-004-A2	M 4x0,7	4	0.38	4	2
P0199.040-005-A2	M 4x0,7	4	0.51	4	2
P0199.040-006-A2	M 4x0,7	4	0.61	4	2
P0199.040-007-A2	M 4x0,7	4	0.71	4	2
P0199.040-008-A2	M 4x0,7	4	0.81	4	2
P0199.040-009-A2	M 4x0,7	4	0.89	4	2
P0199.050-003-A2	M 5x0,8	5	0.30	5	2.5
P0199.050-004-A2	M 5x0,8	5	0.38	5	2.5
P0199.050-005-A2	M 5x0,8	5	0.51	5	2.5
P0199.050-006-A2	M 5x0,8	5	0.61	5	2.5
P0199.050-007-A2	M 5x0,8	5	0.71	5	2.5
P0199.050-008-A2	M 5x0,8	5	0.81	5	2.5
P0199.050-009-A2	M 5x0,8	5	0.89	5	2.5
P0199.050-010-A2	M 5x0,8	5	1.02	5	2.5
P0199.050-011-A2	M 5x0,8	5	1.12	5	2.5
P0199.050-012-A2	M 5x0,8	5	1.22	5	2.5
P0199.050-013-A2	M 5x0,8	5	1.27	5	2.5
P0199.050-014-A2	M 5x0,8	5	1.40	5	2.5
P0199.060-003-A2	M 6x1,0	6	0.30	6	3
P0199.060-004-A2	M 6x1,0	6	0.38	6	3
P0199.060-005-A2	M 6x1,0	6	0.51	6	3
P0199.060-006-A2	M 6x1,0	6	0.61	6	3
P0199.060-007-A2	M 6x1,0	6	0.71	6	3
P0199.060-008-A2	M 6x1,0	6	0.81	6	3
P0199.060-009-A2	M 6x1,0	6	0.89	6	3
P0199.060-010-A2	M 6x1,0	6	1.02	6	3
P0199.060-011-A2	M 6x1,0	6	1.12	6	3
P0199.060-012-A2	M 6x1,0	6	1.22	6	3
P0199.060-013-A2	M 6x1,0	6	1.27	6	3
P0199.060-014-A2	M 6x1,0	6	1.40	6	3
P0199.060-015-A2	M 6x1,0	6	1.50	6	3
P0199.060-016-A2	M 6x1,0	6	1.60	6	3
P0199.060-017-A2	M 6x1,0	6	1.70	6	3



Metric Threaded Restrictors

Stainless Steel

Blanking Plugs



Order No.	d ₁	d ₁ nom.	d ₂	l ₁	A/F
P0199.060-018-A2	M 6x1,0	6	1.80	6	3
P0199.060-019-A2	M 6x1,0	6	1.91	6	3
P0199.080-003-A2	M 8x1,25	8	0.30	8	4
P0199.080-004-A2	M 8x1,25	8	0.38	8	4
P0199.080-005-A2	M 8x1,25	8	0.51	8	4
P0199.080-006-A2	M 8x1,25	8	0.61	8	4
P0199.080-007-A2	M 8x1,25	8	0.71	8	4
P0199.080-008-A2	M 8x1,25	8	0.81	8	4
P0199.080-009-A2	M 8x1,25	8	0.89	8	4
P0199.080-010-A2	M 8x1,25	8	1.02	8	4
P0199.080-011-A2	M 8x1,25	8	1.12	8	4
P0199.080-012-A2	M 8x1,25	8	1.22	8	4
P0199.080-013-A2	M 8x1,25	8	1.27	8	4
P0199.080-014-A2	M 8x1,25	8	1.40	8	4
P0199.080-015-A2	M 8x1,25	8	1.50	8	4
P0199.080-016-A2	M 8x1,25	8	1.60	8	4
P0199.080-017-A2	M 8x1,25	8	1.70	8	4
P0199.080-018-A2	M 8x1,25	8	1.80	8	4
P0199.080-019-A2	M 8x1,25	8	1.91	8	4
P0199.080-020-A2	M 8x1,25	8	1.98	8	4
P0199.080-021-A2	M 8x1,25	8	2.08	8	4
P0199.080-022-A2	M 8x1,25	8	2.16	8	4
P0199.080-023-A2	M 8x1,25	8	2.29	8	4
P0199.080-024-A2	M 8x1,25	8	2.41	8	4
P0199.080-025-A2	M 8x1,25	8	2.54	8	4
P0199.080-026-A2	M 8x1,25	8	2.59	8	4
P0199.080-027-A2	M 8x1,25	8	2.69	8	4
P0199.080-028-A2	M 8x1,25	8	2.79	8	4
P0199.080-029-A2	M 8x1,25	8	2.92	8	4
P0199.100-003-A2	M10x1,5	10	0.30	10	5
P0199.100-004-A2	M10x1,5	10	0.38	10	5
P0199.100-005-A2	M10x1,5	10	0.51	10	5
P0199.100-006-A2	M10x1,5	10	0.61	10	5
P0199.100-007-A2	M10x1,5	10	0.71	10	5
P0199.100-008-A2	M10x1,5	10	0.81	10	5
P0199.100-009-A2	M10x1,5	10	0.89	10	5
P0199.100-010-A2	M10x1,5	10	1.02	10	5
P0199.100-011-A2	M10x1,5	10	1.12	10	5
P0199.100-012-A2	M10x1,5	10	1.22	10	5
P0199.100-013-A2	M10x1,5	10	1.27	10	5
P0199.100-014-A2	M10x1,5	10	1.40	10	5
P0199.100-015-A2	M10x1,5	10	1.50	10	5
P0199.100-016-A2	M10x1,5	10	1.60	10	5
P0199.100-017-A2	M10x1,5	10	1.70	10	5
P0199.100-018-A2	M10x1,5	10	1.80	10	5
P0199.100-019-A2	M10x1,5	10	1.91	10	5
P0199.100-020-A2	M10x1,5	10	1.98	10	5
P0199.100-021-A2	M10x1,5	10	2.08	10	5
P0199.100-022-A2	M10x1,5	10	2.16	10	5
P0199.100-023-A2	M10x1,5	10	2.29	10	5
P0199.100-024-A2	M10x1,5	10	2.41	10	5
P0199.100-025-A2	M10x1,5	10	2.54	10	5
P0199.100-026-A2	M10x1,5	10	2.59	10	5
P0199.100-027-A2	M10x1,5	10	2.69	10	5
P0199.100-028-A2	M10x1,5	10	2.79	10	5
P0199.100-029-A2	M10x1,5	10	2.92	10	5
P0199.100-030-A2	M10x1,5	10	3.00	10	5
P0199.100-031-A2	M10x1,5	10	3.10	10	5
P0199.100-032-A2	M10x1,5	10	3.18	10	5
P0199.100-033-A2	M10x1,5	10	3.30	10	5
P0199.100-034-A2	M10x1,5	10	3.43	10	5
P0199.100-035-A2	M10x1,5	10	3.51	10	5
P0199.100-036-A2	M10x1,5	10	3.58	10	5
P0199.100-037-A2	M10x1,5	10	3.68	10	5
P0199.100-038-A2	M10x1,5	10	3.81	10	5
P0199.100-039-A2	M10x1,5	10	3.91	10	5
P0199.120-003-A2	M12x1,75	12	0.30	12	6
P0199.120-004-A2	M12x1,75	12	0.38	12	6

BLANKING PLUGS



Order No.	d ₁	d ₁ nom.	d ₂	l ₁	A/F
P0199.120-005-A2	M12x1,75	12	0.51	12	6
P0199.120-006-A2	M12x1,75	12	0.61	12	6
P0199.120-007-A2	M12x1,75	12	0.71	12	6
P0199.120-008-A2	M12x1,75	12	0.81	12	6
P0199.120-009-A2	M12x1,75	12	0.89	12	6
P0199.120-010-A2	M12x1,75	12	1.02	12	6
P0199.120-011-A2	M12x1,75	12	1.12	12	6
P0199.120-012-A2	M12x1,75	12	1.22	12	6
P0199.120-013-A2	M12x1,75	12	1.27	12	6
P0199.120-014-A2	M12x1,75	12	1.40	12	6
P0199.120-015-A2	M12x1,75	12	1.50	12	6
P0199.120-016-A2	M12x1,75	12	1.60	12	6
P0199.120-017-A2	M12x1,75	12	1.70	12	6
P0199.120-018-A2	M12x1,75	12	1.80	12	6
P0199.120-019-A2	M12x1,75	12	1.91	12	6
P0199.120-020-A2	M12x1,75	12	1.98	12	6
P0199.120-021-A2	M12x1,75	12	2.08	12	6
P0199.120-022-A2	M12x1,75	12	2.16	12	6
P0199.120-023-A2	M12x1,75	12	2.29	12	6
P0199.120-024-A2	M12x1,75	12	2.41	12	6
P0199.120-025-A2	M12x1,75	12	2.54	12	6
P0199.120-026-A2	M12x1,75	12	2.59	12	6
P0199.120-027-A2	M12x1,75	12	2.69	12	6
P0199.120-028-A2	M12x1,75	12	2.79	12	6
P0199.120-029-A2	M12x1,75	12	2.92	12	6
P0199.120-030-A2	M12x1,75	12	3.00	12	6
P0199.120-031-A2	M12x1,75	12	3.10	12	6
P0199.120-032-A2	M12x1,75	12	3.18	12	6
P0199.120-033-A2	M12x1,75	12	3.30	12	6
P0199.120-034-A2	M12x1,75	12	3.43	12	6
P0199.120-035-A2	M12x1,75	12	3.51	12	6
P0199.120-036-A2	M12x1,75	12	3.58	12	6
P0199.120-037-A2	M12x1,75	12	3.68	12	6
P0199.120-038-A2	M12x1,75	12	3.81	12	6
P0199.120-039-A2	M12x1,75	12	3.91	12	6
P0199.120-040-A2	M12x1,75	12	4.01	12	6
P0199.120-041-A2	M12x1,75	12	4.11	12	6
P0199.120-042-A2	M12x1,75	12	4.19	12	6
P0199.120-043-A2	M12x1,75	12	4.32	12	6
P0199.120-044-A2	M12x1,75	12	4.42	12	6
P0199.120-045-A2	M12x1,75	12	4.50	12	6
P0199.120-046-A2	M12x1,75	12	4.60	12	6
P0199.120-047-A2	M12x1,75	12	4.70	12	6
P0199.120-048-A2	M12x1,75	12	4.83	12	6
P0199.120-049-A2	M12x1,75	12	4.90	12	6
P0199.120-050-A2	M12x1,75	12	4.95	12	6

Hole Preparation

Refer to the data sheet for the correct hole size to drill for the counterbored and drilled hole size and tolerance. Hole concentricity must be held within 0,05mm.

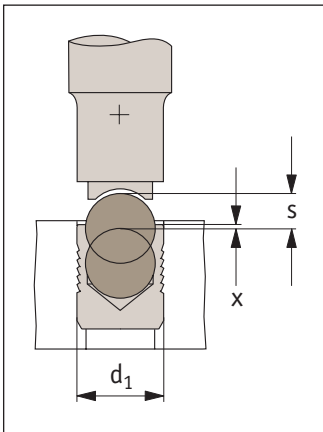
Bore roughness must be between Rz (RMS) 10-30µ (especially for hard materials).

Avoid spiral or longitudinal grooves as these may affect plug performance. Ensure the holes are clean and dirt free.

Installation

Insert the plug into the counterbored hole with the ball facing outwards, seated against the counterbore shoulder.

Press the ball into the sleeve so that the top of the ball is slightly below the top of the sleeve (note approximate values for x and s in table below):



d_1	3	4	5	6	7	8	9	10	12	14	16	18	20	22
Stroke - s	1.2	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.5	6.35	7.0	8.0	9.0	10.0
Top of ball relative to top of sleeve - x ± 0.2	0.4	0.2	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.6	0.6	0.8	0.8

Use the correct installation tool for each plug size. The plugs can be installed using a hammer and the installation tool. An air hammer with the correct air hammer installation tool can also be used.

Minimum wall thickness and distance from an edge

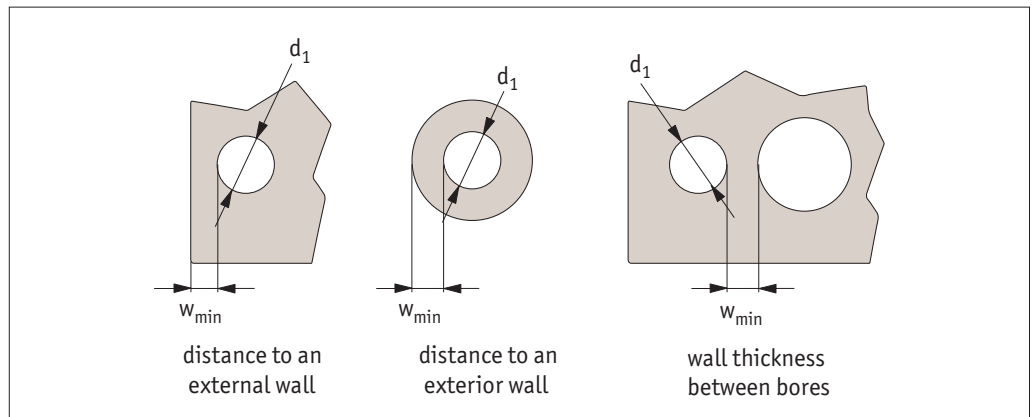
The radial expansion of the plug causes the housing material around the plug to deform plastically. Therefore a proper minimum wall thickness or distance from an edge is necessary to optimise the strength of the mechanical connection. The operating hydraulic pressure, thermal cycling, plug type and characteristics of the base metal also need to be considered – please consult our technical department.

$d_1 \geq 4\text{mm}$

$w_{\min} = f_{\min} \times d_1$

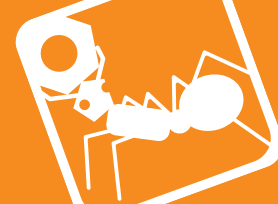
$d_1 < 4\text{mm}$

$w_{\min} = (f_{\min} \times d_1) + 0.5\text{mm}$



The guidelines for minimum wall thickness or distance from and edge ($W_{\min}$) are shown below – these minimum values produce only a very slight deformation on the exterior profile (less than 20 microns).

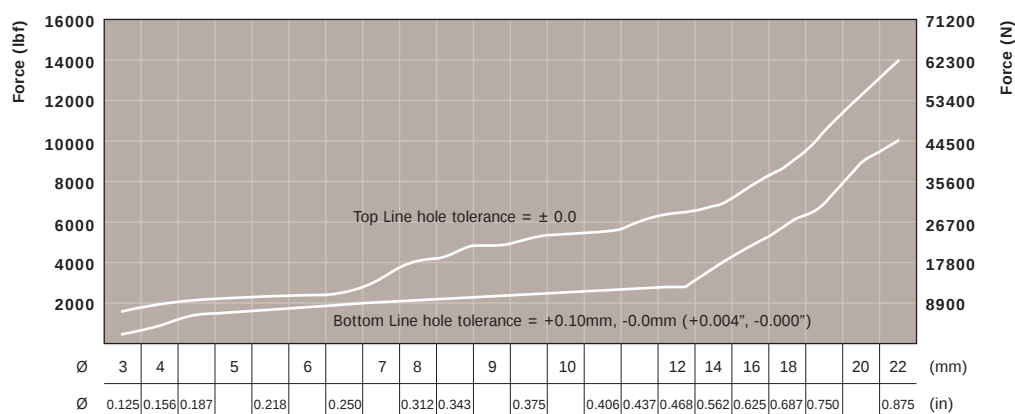
Sealing Plug type	Base Metal						
	Steel (SAE 1144)	Steel (SAE 10L15)	Cast Iron (ASTM A48)	Ductile Iron (ASTM A356)	Aluminium (2024-T4)	Aluminium (6061-T6)	Cast Aluminium (356-T6)
	Factor $f_{\min}$						
Steel body	0.5	0.6	1.0	0.6	0.6	1.0	1.0
Stainless Body	0.6	0.8	1.0	0.8	0.8	1.0	1.0
Pull PLugs	0.5	0.6	1.0	0.6	0.6	1.0	1.0



Installation Forces Guidelines

The values offered are to be used as a guideline. The base metal chosen for your specific application, the surface treatment, hole size and surface finish all affect the seal performance. Please contact our Technical Department for more information.

Installation Forces:



Pressure Performance Guidelines

	Steel (Case-hardened) Plug Body	
	Ø 3-10	Ø 12-32
Steel (SAE 1144)	350 bar working pressure 1,100 bar proof pressure	380 bar working pressure 900 bar proof pressure
Steel (SAE 10L15)		
Cast Iron (ASTM A48)		
Ductile Iron (ASTM A356)		
Aluminium (2024-T4)	310 bar working pressure 1,000 bar proof pressure	240 bar working pressure 800 bar proof pressure
Aluminium (6061-T6)		
Cast Aluminium (356-T6)		

	Stainless Steel (300 Series) Plug Body	
	Ø 3-10	Ø 12-32
Steel (SAE 1144)	450 bar working pressure 1,300 bar proof pressure	450 bar working pressure 1,100 bar proof pressure
Steel (SAE 10L15)		
Cast Iron (ASTM A48)		
Ductile Iron (ASTM A356)		
Aluminium (2024-T4)	380 bar working pressure 1,200 bar proof pressure	280 bar working pressure 900 bar proof pressure
Aluminium (6061-T6)		
Cast Aluminium (356-T6)		

	Aluminium (2024-T4) Plug Body	
	Ø 3-10	Ø 12-32
Steel (SAE 1144)	450 bar working pressure 1,300 bar proof pressure	350 bar working pressure 1,100 bar proof pressure
Steel (SAE 10L15)		
Cast Iron (ASTM A48)		
Ductile Iron (ASTM A356)		
Aluminium (2024-T4)	380 bar working pressure 1,200 bar proof pressure	280 bar working pressure 900 bar proof pressure
Aluminium (6061-T6)		
Cast Aluminium (356-T6)		



Blanking Plugs Heavy Duty

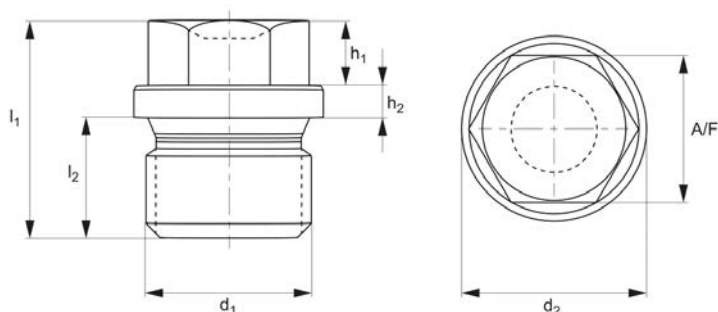
metric & BSPP

Blanking Plugs



P0182

BLANKING PLUGS



Material

Steel (self-colour & zinc-plated), stainless steel (A2 & A4), and brass.

are fine threads.

Inch threads beginning with „G“ indicate BSPP (British Standard Pipe Parallel threads ISO 228).

pressure, temperature, and material pairing

Also available on request with O rings (NBR, Viton, EPDM, Silicone etc), permanent magnet, and polyamide melt seal under head.

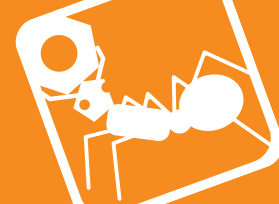
Technical Notes

To DIN 910. Most metric screw plug threads

Tips

Tightening torque is dependent on fluid,

Order No.	d ₁ x p	d ₂ tol. h14	h ₁	h ₂	l ₁	l ₂ ±0.2	A/F	Material
P0182.100-100-SC	M10 x1,0	14	6	3	17	8	10	Steel SC
P0182.080-100-SC	M 8 x1,0	14	6	3	17	8	10	Steel SC
P0182.120-150-SC	M12 x1,5	17	6	3	21	12	13	Steel SC
P0182.140-150-SC	M14 x1,5	19	6	3	21	12	13	Steel SC
P0182.160-150-SC	M16 x1,5	21	6	3	21	12	17	Steel SC
P0182.180-150-SC	M18 x1,5	23	8	4	24	12	17	Steel SC
P0182.200-150-SC	M20 x1,5	25	8	4	26	14	19	Steel SC
P0182.220-150-SC	M22 x1,5	27	8	4	26	14	19	Steel SC
P0182.240-150-SC	M24 x1,5	29	9	4	27	14	22	Steel SC
P0182.260-150-SC	M26 x1,5	31	10	4	30	16	24	Steel SC
P0182.270-200-SC	M27 x2,0	32	10	4	30	16	24	Steel SC
P0182.300-150-SC	M30 x1,5	36	11	5	30	16	24	Steel SC
P0182.300-200-SC	M30 x2,0	36	11	5	32	16	24	Steel SC
P0182.330-200-SC	M33 x2,0	39	11	5	32	16	27	Steel SC
P0182.360-150-SC	M36 x1,5	42	11	5	32	16	27	Steel SC
P0182.360-200-SC	M36 x2,0	42	11	5	32	16	27	Steel SC
P0182.380-150-SC	M38 x1,5	44	11	5	32	16	27	Steel SC
P0182.390-200-SC	M39 x2	44	11	5	32	16	27	Steel SC
P0182.420-150-SC	M42 x1,5	49	12	5	33	16	30	Steel SC
P0182.420-200-SC	M42 x2,0	49	12	5	33	16	30	Steel SC
P0182.450-150-SC	M45 x1,5	52	12	5	33	16	30	Steel SC
P0182.450-200-SC	M45 x2	52	12	5	33	16	30	Steel SC
P0182.480-150-SC	M48 x1,5	52	12	5	33	16	30	Steel SC
P0182.480-200-SC	M48 x2,0	55	12	5	33	16	30	Steel SC
P0182.520-200-SC	M52 x2,0	60	12	5	33	16	30	Steel SC
P0182.520-150-SC	M52 x1,5	60	12	5	33	16	30	Steel SC
P0182.560-200-SC	M56 x2,0	64	12	5	40	20	36	Steel SC
P0182.600-200-SC	M60 x2,0	72	15	5	40	20	36	Steel SC
P0182.640-200-SC	M64 x2,0	72	15	5	40	20	36	Steel SC
P0182.G1/8-SC	G1/8"	14	6	3	17	8	10	Steel SC
P0182.G1/4-SC	G1/4"	18	6	3	21	12	13	Steel SC



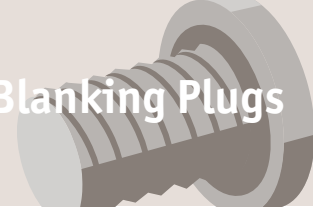
Order No.	d ₁ x p	d ₂ tol. h14	h ₁	h ₂	l ₁	l ₂ ±0.2	A/F	Material
P0182.G1/4x8-SC	G1/4"x8	18	6	3	21	12	13	Steel SC
P0182.G3/8-SC	G3/8"	22	6	3	21	12	17	Steel SC
P0182.G3/8x8-SC	G3/8"x8	22	6	3	17	8	17	Steel SC
P0182.G1/2-SC	G1/2"	26	8	4	26	14	19	Steel SC
P0182.G1/1x10-SC	G1/1"x10	26	8	4	22	10	19	Steel SC
P0182.G1/2x10-SC	G1/2"x10	26	8	4	22	10	19	Steel SC
P0182.G3/4-SC	G3/4"	32	10	4	30	16	24	Steel SC
P0182.G3/4x12-SC	G3/4"x12	32	10	4	26	12	24	Steel SC
P0182.G5/8-SC	G5/8"	28	10	4	30	16	24	Steel SC
P0182.G1-SC	G1"	39	11	5	32	16	27	Steel SC
P0182.G1-1/8-SC	G1-1/8"	44	11	5	32	16	27	Steel SC
P0182.G1-1/4-SC	G1-1/4"	49	12	5	33	16	30	Steel SC
P0182.G1-1/2-SC	G1-1/2"	55	12	5	33	16	30	Steel SC
P0182.G1-3/4-SC	G1-3/4"	62	10	4	40	20	24	Steel SC
P0182.G2-SC	G2"	68	15	5	40	20	36	Steel SC
P0182.G2-1/2-SC	G2-1/2"	85	15	5	40	20	36	Steel SC
P0182.G3-SC	G3	85	15	5	40	20	36	Steel SC
P0182.080-100-ZP	M 8 x1,0	14	6	3	17	8	10	Steel ZP
P0182.100-100-ZP	M10 x1,0	14	6	3	17	8	10	Steel ZP
P0182.120-100-ZP	M12 x1	17	6	3	21	12	13	Steel ZP
P0182.120-150-ZP	M12 x1,5	17	6	3	21	12	13	Steel ZP
P0182.140-150-ZP	M14 x1,5	19	6	3	21	12	13	Steel ZP
P0182.160-150-ZP	M16 x1,5	21	6	3	21	12	17	Steel ZP
P0182.180-150-ZP	M18 x1,5	23	8	4	24	12	17	Steel ZP
P0182.200-150-ZP	M20 x1,5	25	8	4	26	14	19	Steel ZP
P0182.220-150-ZP	M22 x1,5	27	8	4	26	14	19	Steel ZP
P0182.240-150-ZP	M24 x1,5	29	9	4	27	14	22	Steel ZP
P0182.260-150-ZP	M26 x1,5	31	10	4	30	16	24	Steel ZP
P0182.270-200-ZP	M27 x2,0	32	10	4	30	16	24	Steel ZP
P0182.300-150-ZP	M30 x1,5	36	11	5	30	16	24	Steel ZP
P0182.300-200-ZP	M30 x2,0	36	11	5	32	16	24	Steel ZP
P0182.330-200-ZP	M33 x2,0	39	11	5	32	16	27	Steel ZP
P0182.360-150-ZP	M36 x1,5	42	11	5	32	16	27	Steel ZP
P0182.360-200-ZP	M36 x2,0	42	11	5	32	16	27	Steel ZP
P0182.380-150-ZP	M38 x1,5	42	11	5	32	16	27	Steel ZP
P0182.390-200-ZP	M39 x2,0	42	11	5	32	16	27	Steel ZP
P0182.450-200-ZP	M45 x2,0	42	11	5	32	16	27	Steel ZP
P0182.480-150-ZP	M48 x1,5	42	11	5	32	16	27	Steel ZP
P0182.520-200-ZP	M52 x2,0	42	11	5	32	16	27	Steel ZP
P0182.G1/8-ZP	G1/8"	14	6	3	17	8	10	Steel ZP
P0182.G1/4-ZP	G1/4"	18	6	3	21	12	13	Steel ZP
P0182.G1/4x8-ZP	G1/4"x8	18	6	3	21	12	13	Steel ZP
P0182.G3/8-ZP	G3/8"	22	6	3	21	12	17	Steel ZP
P0182.G3/8x8-ZP	G3/8"x8	22	6	3	17	8	17	Steel ZP
P0182.G1/2-ZP	G1/2"	26	8	4	26	14	19	Steel ZP
P0182.G1/1x10-ZP	G1/1"x10	26	8	4	22	10	19	Steel ZP
P0182.G1/2x10-ZP	G1/2"x10	26	8	4	22	10	19	Steel ZP
P0182.G5/8-ZP	G5/8"	28	10	4	30	16	24	Steel ZP
P0182.G3/4-ZP	G3/4"	32	10	4	30	16	24	Steel ZP
P0182.G3/4x12-ZP	G3/4"x12	32	10	4	26	12	24	Steel ZP
P0182.G7/8-ZP	G7/8	32	10	4	26	12	24	Steel ZP
P0182.G1-ZP	G1"	39	11	5	32	16	27	Steel ZP
P0182.G1-1/8-ZP	G1-1/8"	44	11	5	32	16	27	Steel ZP
P0182.G1-1/4-ZP	G1-1/4"	49	12	5	33	16	30	Steel ZP
P0182.G1-1/2-ZP	G1-1/2"	55	12	5	33	16	30	Steel ZP
P0182.G1-3/4-ZP	G1-3/4"	55	12	5	33	16	30	Steel ZP
P0182.G2-ZP	G2	55	12	5	33	16	30	Steel ZP
P0182.G2-1/2-ZP	G2-1/2	55	12	5	33	16	30	Steel ZP
P0182.G3-ZP	G3	55	12	5	33	16	30	Steel ZP
P0182.G1/8-A4	G1/8"	14	6	3	17	8	10	A4 s/s
P0182.G1/4-A4	G1/4"	18	6	3	21	12	13	A4 s/s
P0182.G1/4x8-A4	G1/4"x8	18	6	3	21	12	13	A4 s/s
P0182.G3/8-A4	G3/8"	22	6	3	21	12	17	A4 s/s
P0182.G3/8x8-A4	G3/8"x8	22	6	3	17	8	17	A4 s/s
P0182.G1/2-A4	G1/2"	26	8	4	26	14	19	A4 s/s
P0182.G1/2x10-A4	G1/2"x10	26	8	4	22	10	19	A4 s/s
P0182.G5/8-A4	G5/8"	28	10	4	30	16	24	A4 s/s
P0182.G3/4-A4	G3/4"	32	10	4	30	16	24	A4 s/s



Blanking Plugs Heavy Duty

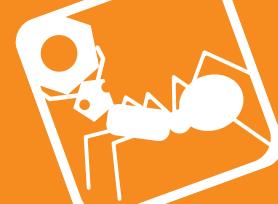
metric & BSPP

Blanking Plugs



BLANKING PLUGS

Order No.	d ₁ x p	d ₂ tol. h14	h ₁	h ₂	l ₁	l ₂ ±0.2	A/F	Material
P0182.G3/4x12-A4	G3/4"x12	32	10	4	26	12	24	A4 s/s
P0182.G7/8-A4	G7/8	32	10	4	26	12	24	A4 s/s
P0182.G1-A4	G1"	39	11	5	32	16	27	A4 s/s
P0182.G1-1/8-A4	G1-1/8"	44	11	5	32	16	27	A4 s/s
P0182.G1-1/4-A4	G1-1/4"	49	12	5	33	16	30	A4 s/s
P0182.G1-1/2-A4	G1-1/2"	55	12	5	33	16	30	A4 s/s
P0182.G1-3/4-A4	G1-3/4	62	15	5	40	20	36	A4 s/s
P0182.G2-A4	G2"	68	15	5	40	20	36	A4 s/s
P0182.100-100-A4	M10 x1,0	14	6	3	17	8	10	A4 s/s
P0182.120-150-A4	M12 x1,5	17	6	3	21	12	13	A4 s/s
P0182.140-150-A4	M14 x1,5	19	6	3	21	12	13	A4 s/s
P0182.160-150-A4	M16 x1,5	21	6	3	21	12	17	A4 s/s
P0182.180-150-A4	M18 x1,5	23	8	4	24	12	17	A4 s/s
P0182.200-150-A4	M20 x1,5	25	8	4	26	14	19	A4 s/s
P0182.220-150-A4	M22 x1,5	27	8	4	26	14	19	A4 s/s
P0182.240-150-A4	M24 x1,5	29	9	4	27	14	22	A4 s/s
P0182.260-150-A4	M26 x1,5	31	10	4	30	16	24	A4 s/s
P0182.270-200-A4	M27 x2,0	32	10	4	30	16	24	A4 s/s
P0182.300-150-A4	M30 x1,5	36	11	5	30	16	24	A4 s/s
P0182.300-200-A4	M30 x2,0	36	11	5	32	16	24	A4 s/s
P0182.420-150-A4	M42 x1,5	36	11	5	32	16	24	A4 s/s
P0182.100-100-A2	M10 x1,0	14	6	3	17	8	10	A2 s/s
P0182.120-150-A2	M12 x1,5	17	6	3	21	12	13	A2 s/s
P0182.140-150-A2	M14 x1,5	19	6	3	21	12	13	A2 s/s
P0182.160-150-A2	M16 x1,5	21	6	3	21	12	17	A2 s/s
P0182.180-150-A2	M18 x1,5	23	8	4	24	12	17	A2 s/s
P0182.200-150-A2	M20 x1,5	25	8	4	26	14	19	A2 s/s
P0182.220-150-A2	M22 x1,5	27	8	4	26	14	19	A2 s/s
P0182.240-150-A2	M24 x1,5	29	9	4	27	14	22	A2 s/s
P0182.260-150-A2	M26 x1,5	31	10	4	30	16	24	A2 s/s
P0182.270-200-A2	M27 x2,0	32	10	4	30	16	24	A2 s/s
P0182.300-150-A2	M30 x1,5	36	11	5	30	16	24	A2 s/s
P0182.300-200-A2	M30 x2,0	36	11	5	32	16	24	A2 s/s
P0182.G1/8-A2	G1/8"	14	6	3	17	8	10	A2 s/s
P0182.G1/4-A2	G1/4"	18	6	3	21	12	13	A2 s/s
P0182.G3/8-A2	G3/8"	22	6	3	21	12	17	A2 s/s
P0182.G1/2-A2	G1/2"	26	8	4	26	14	19	A2 s/s
P0182.G5/8-A2	G5/8"	28	10	4	30	16	24	A2 s/s
P0182.G3/4-A2	G3/4"	32	10	4	30	16	24	A2 s/s
P0182.G1-A2	G1"	39	11	5	32	16	27	A2 s/s
P0182.G1-1/8-A2	G1-1/8"	44	11	5	32	16	27	A2 s/s
P0182.G1-1/4-A2	G1-1/4"	49	12	5	33	16	30	A2 s/s
P0182.G1-1/2-A2	G1-1/2"	55	12	5	33	16	30	A2 s/s
P0182.G1-3/4-A2	G1-3/4	62	15	5	40	20	36	A2 s/s
P0182.G2-A2	G2"	68	15	5	40	20	36	A2 s/s
P0182.080-100-BR	M 8 x1,0	14	6	3	17	8	10	Brass
P0182.100-100-BR	M10 x1,0	14	6	3	17	8	10	Brass
P0182.120-150-BR	M12 x1,5	17	6	3	21	12	13	Brass
P0182.140-150-BR	M14 x1,5	19	6	3	21	12	13	Brass
P0182.160-150-BR	M16 x1,5	21	6	3	21	12	17	Brass
P0182.180-150-BR	M18 x1,5	23	8	4	24	12	17	Brass
P0182.200-150-BR	M20 x1,5	25	8	4	26	14	19	Brass
P0182.220-150-BR	M22 x1,5	27	8	4	26	14	19	Brass
P0182.240-150-BR	M24 x1,5	29	9	4	27	14	22	Brass
P0182.260-150-BR	M26 x1,5	31	10	4	30	16	24	Brass
P0182.270-200-BR	M27 x2,0	32	10	4	30	16	24	Brass
P0182.300-150-BR	M30 x1,5	36	11	5	30	16	24	Brass
P0182.300-200-BR	M30 x2,0	36	11	5	32	16	24	Brass
P0182.330-200-BR	M33 x2,0	39	11	5	32	16	27	Brass
P0182.360-150-BR	M36 x1,5	42	11	5	32	16	27	Brass
P0182.360-200-BR	M36 x2	42	11	5	32	16	27	Brass
P0182.420-150-BR	M42 x1,5	49	12	5	33	16	30	Brass
P0182.G1/8-BR	G1/8"	14	6	3	17	8	10	Brass
P0182.G1/4-BR	G1/4"	18	6	3	21	12	13	Brass
P0182.G1/4x8-BR	G1/4"x8	18	6	3	21	12	13	Brass
P0182.G3/8-BR	G3/8"	22	6	3	21	12	17	Brass
P0182.G3/8x8-BR	G3/8"x8	22	6	3	17	8	17	Brass
P0182.G1/2-BR	G1/2"	26	8	4	26	14	19	Brass



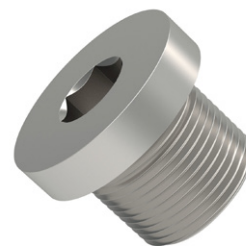
Order No.	d ₁ x p	d ₂ tol. h14	h ₁	h ₂	l ₁	l ₂ ±0.2	A/F	Material
P0182.G1/2x10-BR	G1/2"x10	26	8	4	22	10	19	Brass
P0182.G5/8-BR	G5/8"	28	10	4	30	16	24	Brass
P0182.G3/4-BR	G3/4"	32	10	4	30	16	24	Brass
P0182.G3/4x12-BR	G3/4"x12	32	10	4	26	12	24	Brass
P0182.G7/8-BR	G7/8	32	10	4	26	12	24	Brass
P0182.G1-BR	G1"	39	11	5	32	16	27	Brass
P0182.G1-1/8-BR	G1-1/8"	44	11	5	32	16	27	Brass
P0182.G1-1/4-BR	G1-1/4"	49	12	5	33	16	30	Brass
P0182.G1-1/2-BR	G1-1/2"	55	12	5	33	16	30	Brass
P0182.G1-3/4-BR	G1-3/4"	62	15	5	40	20	36	Brass
P0182.G2-BR	G2"	68	15	5	40	20	36	Brass



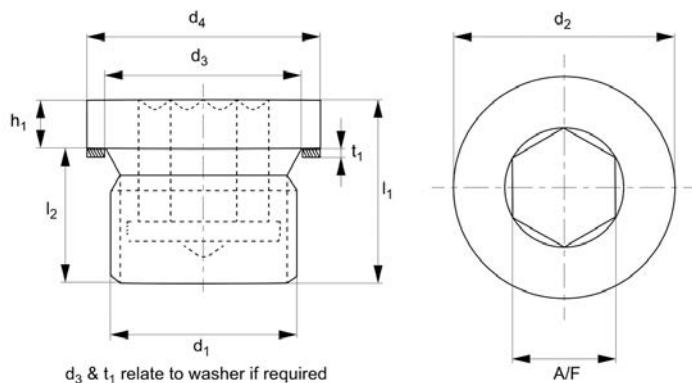
Blanking Plugs with Collar

metric & BSPP

Blanking Plugs



P0183



BLANKING PLUGS

Material

Steel (self-colour & zinc-plated, class 5.8), stainless steel (A2 & A4), and brass.

Technical Notes

To DIN 908. Most metric screw plug threads are fine threads.

Inch threads beginning with „G“ indicate BSPP (British Standard Pipe Parallel

threads ISO 228).

For sealing washers (copper to DIN 7603A see part no. P0334).

Tightening torque is dependent on fluid, pressure, temperature, and material pairing.

Tips

Also available on request with O rings

(NBR, Viton, EPDM, Silicone etc), permanent magnet, and polyamide melt seal under head (PS).

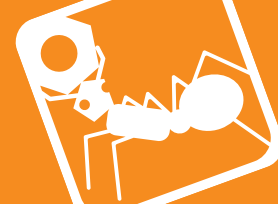
ZP - Zinc Plated

A2 - A2 Stainless Steel

A4 - A4 Stainless Steel

BR - Brass

Order No.	d ₁ x p	d ₂ tol. h14	h ₁ ±0.5	d ₃	d ₄	l ₁	l ₂ ±0.2	t ₁	A/F	Material
P0183.080-100-ZP	M 8 x1,0	12	3	8.3	11.5	11	8	1.0	4	Zinc Plated
P0183.100-075-ZP	M10 x0,75	14	3	10.3	13.5	11	8	1.0	5	Zinc Plated
P0183.100-100-ZP	M10 x1,0	14	3	10.3	13.5	11	8	1.0	5	Zinc Plated
P0183.100-125-ZP	M10 x1,25	17	3	12.3	16.0	15	12	1.5	6	Zinc Plated
P0183.100-150-ZP	M10 x1,5	14	3	10.3	13.5	11	8	1.0	5	Zinc Plated
P0183.120-100-ZP	M12 x1	17	3	12.3	16.0	15	12	1.5	6	Zinc Plated
P0183.120-125-ZP	M12 x1,25	17	3	12.3	16.0	15	12	1.5	6	Zinc Plated
P0183.120-150-ZP	M12 x1,5	17	3	12.3	16.0	15	12	1.5	6	Zinc Plated
P0183.140-125-ZP	M14 x1,25	19	3	14.3	18.0	15	12	1.5	6	Zinc Plated
P0183.140-150-ZP	M14 x1,5	19	3	14.3	18.0	15	12	1.5	6	Zinc Plated
P0183.160-100-ZP	M16 x1	21	3	16.3	20.0	15	12	1.5	8	Zinc Plated
P0183.160-150-ZP	M16 x1,5	21	3	16.3	20.0	15	12	1.5	8	Zinc Plated
P0183.160-200-ZP	M16 x2	21	3	16.3	20.0	15	12	1.5	8	Zinc Plated
P0183.180-100-ZP	M18 x1	23	4	18.3	22.0	16	12	1.5	8	Zinc Plated
P0183.180-150-ZP	M18 x1,5	23	4	18.3	22.0	16	12	1.5	8	Zinc Plated
P0183.200-150-ZP	M20 x1,5	25	4	20.3	24.0	18	14	1.5	10	Zinc Plated
P0183.220-150-ZP	M22 x1,5	27	4	22.3	27.0	18	14	1.5	10	Zinc Plated
P0183.240-150-ZP	M24 x1,5	29	4	24.3	29.0	18	14	2.0	12	Zinc Plated
P0183.260-150-ZP	M26 x1,5	31	4	26.3	31.0	20	16	2.0	12	Zinc Plated
P0183.270-200-ZP	M27 x2,0	32	4	27.3	32.0	20	16	2.0	12	Zinc Plated
P0183.300-150-ZP	M30 x1,5	36	4	30.3	36.0	20	16	2.0	17	Zinc Plated
P0183.300-200-ZP	M30 x2,0	36	4	30.3	36.0	20	16	2.0	17	Zinc Plated
P0183.330-200-ZP	M33 x2,0	39	5	33.3	39.0	21	16	2.0	17	Zinc Plated
P0183.360-150-ZP	M36 x1,5	42	5	36.3	42.0	21	16	2.0	19	Zinc Plated
P0183.360-200-ZP	M36 x2	42	5	36.3	42.0	21	16	2.0	19	Zinc Plated
P0183.380-150-ZP	M38 x1,5	44	5	38.3	44.0	21	16	2.0	19	Zinc Plated
P0183.380-200-ZP	M38 x2	44	5	38.3	44.0	21	16	2.0	19	Zinc Plated
P0183.390-200-ZP	M32 x2	44	5	38.3	44.0	21	16	2.0	19	Zinc Plated
P0183.420-150-ZP	M42 x1,5	49	5	42.3	49.0	21	16	2.0	22	Zinc Plated



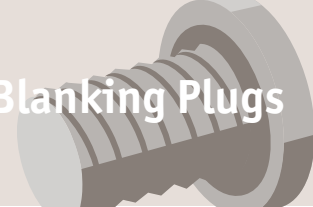
Order No.	d ₁ x p	d ₂ tol. h14	h ₁ ±0.5	d ₃	d ₄	l ₁	l ₂ ±0.2	t ₁	A/F	Material
P0183.420-200-ZP	M42 x2,0	49	5	42.3	49.0	21	16	2.0	22	Zinc Plated
P0183.450-150-ZP	M45 x1,5	55	5	48.3	55.0	21	16	2.0	24	Zinc Plated
P0183.450-200-ZP	M45 x2	55	5	48.3	55.0	21	16	2.0	24	Zinc Plated
P0183.480-150-ZP	M48 x1,5	55	5	48.3	55.0	21	16	2.0	24	Zinc Plated
P0183.480-200-ZP	M48 x2,0	55	5	48.3	55.0	21	16	2.0	24	Zinc Plated
P0183.520-150-ZP	M52 x1,5	60	5	52.3	60.0	21	16	2.0	24	Zinc Plated
P0183.520-200-ZP	M52 x2	60	5	52.3	60.0	21	16	2.0	24	Zinc Plated
P0183.560-200-ZP	M56 x2,0	64	5	56.3	64.0	25	20	2.0	32	Zinc Plated
P0183.600-200-ZP	M60 x2,0	68	5	60.3	68.0	25	20	2.0	32	Zinc Plated
P0183.640-200-ZP	M64 x2,0	72	5	64.3	72.0	25	20	2.0	32	Zinc Plated
P0183.G1/8-ZP	G1/8"	14	3	10.0	13.5	11	8	1	5	Zinc Plated
P0183.G1/4-ZP	G1/4"	18	3	13.4	18.0	15	12	1.5	6	Zinc Plated
P0183.G3/8-ZP	G3/8"	22	3	17.0	21.0	15	12	1.5	8	Zinc Plated
P0183.G1/2-ZP	G1/2"	26	4	21.3	26.0	18	14	1.5	10	Zinc Plated
P0183.G5/8-ZP	G5/8"	28	4	24.0	28.0	18	14	1.5	12	Zinc Plated
P0183.G3/4-ZP	G3/4"	32	4	26.7	32.0	20	16	2	12	Zinc Plated
P0183.G7/8-ZP	G7/8"	36	4	29.4	36.0	20	16	2	12	Zinc Plated
P0183.G1-ZP	G1"	39	5	33.5	39.0	21	16	2	17	Zinc Plated
P0183.G1-1/8-ZP	G1-1/8"	44	5	36.2	44.0	21	16	2	19	Zinc Plated
P0183.G1-1/4-ZP	G1 1/4"	49	5	42.2	49.0	21	16	2	22	Zinc Plated
P0183.G1-1/2-ZP	G1-1/2"	55	5	48.1	55.0	21	16	2	24	Zinc Plated
P0183.G1-3/4-ZP	G1-3/4"	62	5	51.8	62.0	25	20	2	32	Zinc Plated
P0183.G2-ZP	G2"	68	5	54.5	68.0	25	20	2	32	Zinc Plated
P0183.G2-1/2-ZP	G2-1/2"	68	5	54.5	68.0	25	20	2	32	Zinc Plated
P0183.G3-ZP	G3"	68	5	54.5	68.0	25	20	2	32	Zinc Plated
P0183.080-100-SC	M 8 x1,0	12	3	8.3	11.5	11	8	1.0	4	Self Colour
P0183.100-075-SC	M10 x0,75	14	3	10.3	13.5	11	8	1.0	5	Self Colour
P0183.100-100-SC	M10 x1,0	14	3	10.3	13.5	11	8	1.0	5	Self Colour
P0183.100-125-SC	M10 x1,25	14	3	10.3	13.5	11	8	1.0	5	Self Colour
P0183.100-150-SC	M10 x1,5	14	3	10.3	13.5	11	8	1.0	5	Self Colour
P0183.120-100-SC	M12 x1	17	3	12.3	16.0	15	12	1.5	6	Self Colour
P0183.120-125-SC	M12 x1,25	17	3	12.3	16.0	15	12	1.5	6	Self Colour
P0183.120-150-SC	M12 x1,5	17	3	12.3	16.0	15	12	1.5	6	Self Colour
P0183.140-125-SC	M14 x1,25	19	3	14.3	18.0	15	12	1.5	6	Self Colour
P0183.140-150-SC	M14 x1,5	19	3	14.3	18.0	15	12	1.5	6	Self Colour
P0183.160-100-SC	M16 x1	21	3	16.3	20.0	15	12	1.5	8	Self Colour
P0183.160-150-SC	M16 x1,5	21	3	16.3	20.0	15	12	1.5	8	Self Colour
P0183.160-200-SC	M16 x2	21	3	16.3	20.0	15	12	1.5	8	Self Colour
P0183.180-150-SC	M18 x1,5	23	4	18.3	22.0	16	12	1.5	8	Self Colour
P0183.200-150-SC	M20 x1,5	25	4	20.3	24.0	18	14	1.5	10	Self Colour
P0183.220-150-SC	M22 x1,5	27	4	22.3	27.0	18	14	1.5	10	Self Colour
P0183.240-150-SC	M24 x1,5	29	4	24.3	29.0	18	14	2.0	12	Self Colour
P0183.260-150-SC	M26 x1,5	31	4	26.3	31.0	20	16	2.0	12	Self Colour
P0183.270-200-SC	M27 x2,0	32	4	27.3	32.0	20	16	2.0	12	Self Colour
P0183.300-150-SC	M30 x1,5	36	4	30.3	36.0	20	16	2.0	17	Self Colour
P0183.300-200-SC	M30 x2,0	36	4	30.3	36.0	20	16	2.0	17	Self Colour
P0183.330-150-SC	M33 x1,5	39	5	33.3	39.0	21	16	2.0	17	Self Colour
P0183.330-200-SC	M33 x2,0	39	5	33.3	39.0	21	16	2.0	17	Self Colour
P0183.360-150-SC	M36 x1,5	42	5	36.3	42.0	21	16	2.0	19	Self Colour
P0183.360-200-SC	M36 x2	42	5	36.3	42.0	21	16	2.0	19	Self Colour
P0183.380-150-SC	M38 x1,5	44	5	38.3	44.0	21	16	2.0	19	Self Colour
P0183.380-200-SC	M38 x2	44	5	38.3	44.0	21	16	2.0	19	Self Colour
P0183.390-200-SC	M39 x2	44	5	38.3	44.0	21	16	2.0	19	Self Colour
P0183.420-150-SC	M42 x1,5	49	5	42.3	49.0	21	16	2.0	22	Self Colour
P0183.420-200-SC	M42 x2,0	49	5	42.3	49.0	21	16	2.0	22	Self Colour
P0183.450-150-SC	M45 x1,5	49	5	42.3	49.0	21	16	2.0	22	Self Colour
P0183.450-200-SC	M45 x2	49	5	42.3	49.0	21	16	2.0	22	Self Colour
P0183.480-150-SC	M48 x1,5	55	5	48.3	55.0	21	16	2.0	24	Self Colour
P0183.480-200-SC	M48 x2,0	55	5	48.3	55.0	21	16	2.0	24	Self Colour
P0183.520-150-SC	M52 x1,5	60	5	52.3	60.0	21	16	2.0	24	Self Colour
P0183.520-200-SC	M52 x2	60	5	52.3	60.0	21	16	2.0	24	Self Colour
P0183.560-200-SC	M56 x2,0	64	5	56.3	64.0	25	20	2.0	32	Self Colour
P0183.600-200-SC	M60 x2,0	68	5	60.3	68.0	25	20	2.0	32	Self Colour
P0183.640-200-SC	M64 x2,0	72	5	64.3	72.0	25	20	2.0	32	Self Colour
P0183.G1/8-SC	G1/8"	14	3	10.0	13.5	11	8	1.0	5	Self Colour
P0183.G1/4-SC	G1/4"	18	3	13.4	18.0	15	12	1.5	6	Self Colour
P0183.G3/8-SC	G3/8"	22	3	17.0	21.0	15	12	1.5	8	Self Colour
P0183.G1/2-SC	G1/2"	26	4	21.3	26.0	18	14	1.5	10	Self Colour



Blanking Plugs with Collar

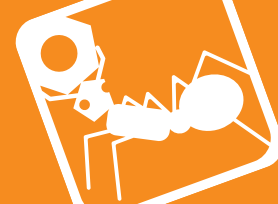
metric & BSPP

Blanking Plugs



BLANKING PLUGS

Order No.	d ₁ x p	d ₂ tol. h14	h ₁ ±0.5	d ₃	d ₄	l ₁	l ₂ ±0.2	t ₁	A/F	Material
P0183.G5/8-SC	G5/8"	28	4	24.0	28.0	18	14	1.5	12	Self Colour
P0183.G3/4-SC	G3/4"	32	4	26.7	32.0	20	16	2.0	12	Self Colour
P0183.G7/8-SC	G7/8"	36	4	29.4	36.0	20	16	2.0	12	Self Colour
P0183.G1-SC	G1"	39	5	33.5	39.0	21	16	2.0	17	Self Colour
P0183.G1-1/8-SC	G1-1/8"	44	5	36.2	44.0	21	16	2.0	19	Self Colour
P0183.G1-1/4-SC	G1 1/4"	49	5	42.2	49.0	21	16	2.0	22	Self Colour
P0183.G1-1/2-SC	G1-1/2"	55	5	48.1	55.0	21	16	2.0	24	Self Colour
P0183.G1-3/4-SC	G1-3/4"	62	5	51.8	62.0	25	20	2.0	32	Self Colour
P0183.G2-SC	G2"	68	5	54.5	68.0	25	20	2.0	32	Self Colour
P0183.080-100-A4	M 8 x1,0	12	3	8.3	11.5	11	8	1.0	4	A4 s/s
P0183.100-100-A4	M10 x1,0	14	3	10.3	13.5	11	8	1.0	5	A4 s/s
P0183.120-100-A4	M12 x1	17	3	12.3	16.0	15	12	1.5	6	A4 s/s
P0183.120-150-A4	M12 x1,5	17	3	12.3	16.0	15	12	1.5	6	A4 s/s
P0183.140-150-A4	M14 x1,5	19	3	14.3	18.0	15	12	1.5	6	A4 s/s
P0183.160-150-A4	M16 x1,5	21	3	16.3	20.0	15	12	1.5	8	A4 s/s
P0183.180-150-A4	M18 x1,5	23	4	18.3	22.0	16	12	1.5	8	A4 s/s
P0183.200-150-A4	M20 x1,5	25	4	20.3	24.0	18	14	1.5	10	A4 s/s
P0183.220-150-A4	M22 x1,5	27	4	22.3	27.0	18	14	1.5	10	A4 s/s
P0183.240-150-A4	M24 x1,5	29	4	24.3	29.0	18	14	2.0	12	A4 s/s
P0183.260-150-A4	M26 x1,5	31	4	26.3	31.0	20	16	2.0	12	A4 s/s
P0183.270-200-A4	M27 x2,0	32	4	27.3	32.0	20	16	2.0	12	A4 s/s
P0183.300-150-A4	M30 x1,5	36	4	30.3	36.0	20	16	2.0	17	A4 s/s
P0183.300-200-A4	M30 x2,0	36	4	30.3	36.0	20	16	2.0	17	A4 s/s
P0183.360-150-A4	M36 x1,5	36	4	30.3	36.0	20	16	2.0	17	A4 s/s
P0183.380-150-A4	M38 x1,5	36	4	30.3	36.0	20	16	2.0	17	A4 s/s
P0183.420-150-A4	M42 x1,5	36	4	30.3	36.0	20	16	2.0	17	A4 s/s
P0183.420-200-A4	M42 x2	36	4	30.3	36.0	20	16	2.0	17	A4 s/s
P0183.450-150-A4	M45 x1,5	36	4	30.3	36.0	20	16	2.0	17	A4 s/s
P0183.480-200-A4	M48 x2	36	4	30.3	36.0	20	16	2.0	17	A4 s/s
P0183.520-200-A4	M52 x2	36	4	30.3	36.0	20	16	2.0	17	A4 s/s
P0183.G1/8-A4	G1/8"	14	3	10.0	13.5	11	8	1.0	5	A4 s/s
P0183.G1/4-A4	G1/4"	18	3	13.4	18.0	15	12	1.5	6	A4 s/s
P0183.G3/8-A4	G3/8"	22	3	17.0	21.0	15	12	1.5	8	A4 s/s
P0183.G1/2-A4	G1/2"	26	4	21.3	26.0	18	14	1.5	10	A4 s/s
P0183.G5/8-A4	G5/8"	28	4	24.0	28.0	18	14	1.5	12	A4 s/s
P0183.G3/4-A4	G3/4"	32	4	26.7	32.0	20	16	2.0	12	A4 s/s
P0183.G7/8-A4	G7/8"	36	4	29.4	36.0	20	16	2.0	12	A4 s/s
P0183.G1-A4	G1"	39	5	33.5	39.0	21	16	2.0	17	A4 s/s
P0183.G1-1/8-A4	G1-1/8"	44	5	36.2	44.0	21	16	2.0	19	A4 s/s
P0183.G1-1/4-A4	G1 1/4"	49	5	42.2	49.0	21	16	2.0	22	A4 s/s
P0183.G1-1/2-A4	G1-1/2"	55	5	48.1	55.0	21	16	2.0	24	A4 s/s
P0183.G1-3/4-A4	G1-3/4"	62	5	51.8	62.0	25	20	2.0	32	A4 s/s
P0183.G2-A4	G2"	68	5	54.5	68.0	25	20	2.0	32	A4 s/s
P0183.080-100-A2	M 8 x1,0	12	3	8.3	11.5	11	8	1.0	4	A2 s/s
P0183.100-100-A2	M10 x1,0	14	3	10.3	13.5	11	8	1.0	5	A2 s/s
P0183.120-150-A2	M12 x1,5	17	3	12.3	16.0	15	12	1.5	6	A2 s/s
P0183.140-150-A2	M14 x1,5	19	3	14.3	18.0	15	12	1.5	6	A2 s/s
P0183.160-150-A2	M16 x1,5	21	3	16.3	20.0	15	12	1.5	8	A2 s/s
P0183.180-150-A2	M18 x1,5	23	4	18.3	22.0	16	12	1.5	8	A2 s/s
P0183.200-150-A2	M20 x1,5	25	4	20.3	24.0	18	14	1.5	10	A2 s/s
P0183.220-150-A2	M22 x1,5	27	4	22.3	27.0	18	14	1.5	10	A2 s/s
P0183.240-150-A2	M24 x1,5	29	4	24.3	29.0	18	14	2.0	12	A2 s/s
P0183.260-150-A2	M26 x1,5	31	4	26.3	31.0	20	16	2.0	12	A2 s/s
P0183.270-200-A2	M27 x2,0	32	4	27.3	32.0	20	16	2.0	12	A2 s/s
P0183.300-150-A2	M30 x1,5	36	4	30.3	36.0	20	16	2.0	17	A2 s/s
P0183.300-200-A2	M30 x2,0	36	4	30.3	36.0	20	16	2.0	17	A2 s/s
P0183.G1/8-A2	G1/8"	14	3	10.0	13.5	11	8	1.0	5	A2 s/s
P0183.G1/4-A2	G1/4"	18	3	13.4	18.0	15	12	1.5	6	A2 s/s
P0183.G3/8-A2	G3/8"	22	3	17.0	21.0	15	12	1.5	8	A2 s/s
P0183.G1/2-A2	G1/2"	26	4	21.3	26.0	18	14	1.5	10	A2 s/s
P0183.G5/8-A2	G5/8"	28	4	24.0	28.0	18	14	1.5	12	A2 s/s
P0183.G3/4-A2	G3/4"	32	4	26.7	32.0	20	16	2.0	12	A2 s/s
P0183.G7/8-A2	G7/8"	36	4	29.4	36.0	20	16	2.0	12	A2 s/s
P0183.G1-A2	G1"	39	5	33.5	39.0	21	16	2.0	17	A2 s/s
P0183.G1-1/8-A2	G1-1/8"	44	5	36.2	44.0	21	16	2.0	19	A2 s/s
P0183.G1-1/4-A2	G1 1/4"	49	5	42.2	49.0	21	16	2.0	22	A2 s/s
P0183.G1-1/2-A2	G1-1/2"	55	5	48.1	55.0	21	16	2.0	24	A2 s/s
P0183.G1-3/4-A2	G1-3/4"	62	5	51.8	62.0	25	20	2.0	32	A2 s/s



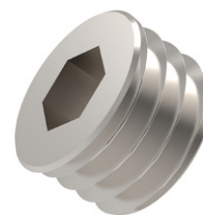
Order No.	d ₁ x p	d ₂ tol. h14	h ₁ ±0.5	d ₃	d ₄	l ₁	l ₂ ±0.2	t ₁	A/F	Material
P0183.G2-A2	G2"	68	5	54.5	68.0	25	20	2.0	32	A2 s/s
P0183.080-100-BR	M 8 x1,0	12	3	8.3	11.5	11	8	1.0	4	Brass
P0183.100-100-BR	M10 x1,0	14	3	10.3	13.5	11	8	1.0	5	Brass
P0183.120-150-BR	M12 x1,5	17	3	12.3	16.0	15	12	1.5	6	Brass
P0183.140-150-BR	M14 x1,5	19	3	14.3	18.0	15	12	1.5	6	Brass
P0183.160-150-BR	M16 x1,5	21	3	16.3	20.0	15	12	1.5	8	Brass
P0183.180-100-BR	M18 x1,0	23	4	18.3	22.0	16	12	1.5	8	Brass
P0183.180-150-BR	M18 x1,5	23	4	18.3	22.0	16	12	1.5	8	Brass
P0183.200-150-BR	M20 x1,5	25	4	20.3	24.0	18	14	1.5	10	Brass
P0183.220-150-BR	M22 x1,5	27	4	22.3	27.0	18	14	1.5	10	Brass
P0183.240-150-BR	M24 x1,5	29	4	24.3	29.0	18	14	2.0	12	Brass
P0183.260-150-BR	M26 x1,5	31	4	26.3	31.0	20	16	2.0	12	Brass
P0183.270-200-BR	M27 x2,0	32	4	27.3	32.0	20	16	2.0	12	Brass
P0183.300-150-BR	M30 x1,5	36	4	30.3	36.0	20	16	2.0	17	Brass
P0183.300-200-BR	M30 x2,0	36	4	30.3	36.0	20	16	2.0	17	Brass
P0183.330-200-BR	M33 x2,0	39	5	33.3	39.0	21	16	2.0	17	Brass
P0183.360-150-BR	M36 x1,5	42	5	36.3	42.0	21	16	2.0	19	Brass
P0183.360-200-BR	M36 x2	42	5	36.3	42.0	21	16	2.0	19	Brass
P0183.380-150-BR	M38 x1,5	44	5	38.3	44.0	21	16	2.0	19	Brass
P0183.420-150-BR	M42 x1,5	49	5	42.3	49.0	21	16	2.0	22	Brass
P0183.420-200-BR	M42 x2,0	49	5	42.3	49.0	21	16	2.0	22	Brass
P0183.450-200-BR	M45 x2,0	49	5	42.3	49.0	21	16	2.0	22	Brass
P0183.480-150-BR	M48 x1,5	55	5	48.3	55.0	21	16	2.0	24	Brass
P0183.480-200-BR	M48 x2,0	55	5	48.3	55.0	21	16	2.0	24	Brass
P0183.520-150-BR	M52 x1,5	60	5	52.3	60.0	21	16	2.0	24	Brass
P0183.520-200-BR	M52 x2	60	5	52.3	60.0	21	16	2.0	24	Brass
P0183.560-200-BR	M56 x2,0	64	5	56.3	64.0	25	20	2.0	32	Brass
P0183.600-200-BR	M60 x2,0	68	5	60.3	68.0	25	20	2.0	32	Brass
P0183.640-200-BR	M64 x2,0	72	5	64.3	72.0	25	20	2.0	32	Brass
P0183.G1/8-BR	G1/8"	14	3	10.0	13.5	11	8	1.0	5	Brass
P0183.G1/4-BR	G1/4"	18	3	13.4	18.0	15	12	1.5	6	Brass
P0183.G3/8-BR	G3/8"	22	3	17.0	21.0	15	12	1.5	8	Brass
P0183.G1/2-BR	G1/2"	26	4	21.3	26.0	18	14	1.5	10	Brass
P0183.G5/8-BR	G5/8"	28	4	24.0	28.0	18	14	1.5	12	Brass
P0183.G3/4-BR	G3/4"	32	4	26.7	32.0	20	16	2.0	12	Brass
P0183.G7/8-BR	G7/8"	36	4	29.4	36.0	20	16	2.0	12	Brass
P0183.G1-BR	G1"	39	5	33.5	39.0	21	16	2.0	17	Brass
P0183.G1-1/8-BR	G1-1/8"	44	5	36.2	44.0	21	16	2.0	19	Brass
P0183.G1-1/4-BR	G1 1/4"	49	5	42.2	49.0	21	16	2.0	22	Brass
P0183.G1-1/2-BR	G1-1/2"	55	5	48.1	55.0	21	16	2.0	24	Brass
P0183.G1-3/4-BR	G1-3/4"	62	5	51.8	62.0	25	20	2.0	32	Brass
P0183.G2-BR	G2"	68	5	54.5	68.0	25	20	2.0	32	Brass



Blanking Plugs

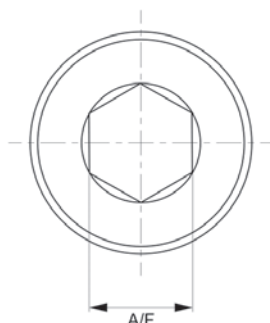
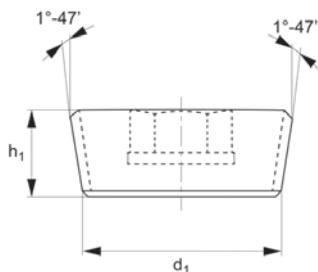
Metric & BSPT

Blanking Plugs



P0184

BLANKING PLUGS



Material

Steel (self-colour & zinc-plated), stainless steel (A2 & A4), and brass.

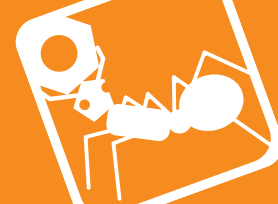
Technical Notes

To DIN 906. Metric fine taper threads.

Inch threads beginning with „R“ indicate BSPT (British Standard Pipe Taper threads ISO 7).

Tightening torque is dependent on fluid, pressure, temperature, and material pairing.

Order No.	d ₁	h ₁ tol. JS16	A/F	Material
P0184.060-100-ZP	M6 x1,0	6	3	Steel ZP
P0184.080-100-ZP	M8 x1,0	8	4	Steel ZP
P0184.100-100-ZP	M10 x1,0	8	5	Steel ZP
P0184.120-150-ZP	M12 x1,5	10	6	Steel ZP
P0184.140-150-ZP	M14 x1,5	10	7	Steel ZP
P0184.160-150-ZP	M16 x1,5	10	8	Steel ZP
P0184.180-150-ZP	M18 x1,5	10	8	Steel ZP
P0184.200-150-ZP	M20 x1,5	10	10	Steel ZP
P0184.220-150-ZP	M22 x1,5	10	10	Steel ZP
P0184.240-150-ZP	M24 x1,5	12	12	Steel ZP
P0184.260-150-ZP	M26 x1,5	12	12	Steel ZP
P0184.270-200-ZP	M27 x2,0	12	12	Steel ZP
P0184.300-150-ZP	M30 x1,5	12	17	Steel ZP
P0184.080-075-ZP	M8 x0,75	8	4	Steel ZP
P0184.080-125-ZP	M8 x1,25	8	4	Steel ZP
P0184.270-150-ZP	M27 x1,5	12	12	Steel ZP
P0184.300-200-ZP	M30 x2	12	17	Steel ZP
P0184.360-150-ZP	M36 x1,5	15	19	Steel ZP
P0184.420-150-ZP	M42x1,5	18	22	Steel ZP
P0184.520-150-ZP	M52 x1,5	20	24	Steel ZP
P0184.R1/8-ZP	R1/8"	8	5	Steel ZP
P0184.R1/4-ZP	R1/4"	10	7	Steel ZP
P0184.R3/8-ZP	R3/8"	10	8	Steel ZP
P0184.R1/2-ZP	R1/2"	10	10	Steel ZP
P0184.R5/8-ZP	R5/8"	10	10	Steel ZP
P0184.R3/4-ZP	R3/4"	12	12	Steel ZP
P0184.R1-ZP	R1"	12	17	Steel ZP
P0184.R1-1/4-ZP	R1 1/4"	18	22	Steel ZP
P0184.R1-1/2-ZP	R1 1/2"	20	24	Steel ZP
P0184.R2-ZP	R2"	22	32	Steel ZP
P0184.060-100-SC	M6 x1,0	6	3	Steel SC



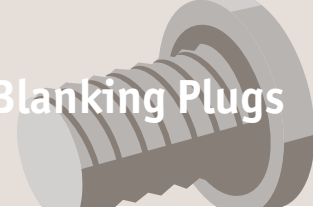
Order No.	d ₁	h ₁ tol. JS16	A/F	Material
P0184.080-100-SC	M8 x1,0	8	4	Steel SC
P0184.080-125-SC	M8 x1,25	8	4	Steel SC
P0184.080-075-SC	M8 x0,75	8	4	Steel SC
P0184.100-100-SC	M10 x1,0	8	5	Steel SC
P0184.120-100-SC	M12 x1,0	10	6	Steel SC
P0184.120-150-SC	M12 x1,5	10	6	Steel SC
P0184.140-150-SC	M14 x1,5	10	7	Steel SC
P0184.160-150-SC	M16 x1,5	10	8	Steel SC
P0184.180-150-SC	M18 x1,5	10	8	Steel SC
P0184.200-150-SC	M20 x1,5	10	10	Steel SC
P0184.220-150-SC	M22 x1,5	10	10	Steel SC
P0184.240-150-SC	M24 x1,5	12	12	Steel SC
P0184.260-150-SC	M26 x1,5	12	12	Steel SC
P0184.270-150-SC	M27 x1,5	12	12	Steel SC
P0184.270-200-SC	M27 x2,0	12	12	Steel SC
P0184.300-150-SC	M30 x1,5	12	17	Steel SC
P0184.300-200-SC	M30 x2,0	12	17	Steel SC
P0184.330-150-SC	M33 x1,5	12	17	Steel SC
P0184.330-200-SC	M33 x2,0	12	17	Steel SC
P0184.360-150-SC	M36 x1,5	15	19	Steel SC
P0184.360-200-SC	M36 x2	15	19	Steel SC
P0184.380-150-SC	M38 x1,5	15	19	Steel SC
P0184.420-200-SC	M42 x2,0	18	22	Steel SC
P0184.450-150-SC	M45 x1,5	18	22	Steel SC
P0184.480-150-SC	M48 x1,5	20	24	Steel SC
P0184.420-150-SC	M42 x1,5	18	22	Steel SC
P0184.480-200-SC	M48 x2,0	20	24	Steel SC
P0184.520-150-SC	M52 x1,5	20	24	Steel SC
P0184.520-200-SC	M52 x2	20	24	Steel SC
P0184.560-200-SC	M56 x2,0	22	32	Steel SC
P0184.600-200-SC	M60 x2,0	22	32	Steel SC
P0184.R1/8-SC	R1/8"	8	5	Steel SC
P0184.R1/4-SC	R1/4"	10	7	Steel SC
P0184.R3/8-SC	R3/8"	10	8	Steel SC
P0184.R1/2-SC	R1/2"	10	10	Steel SC
P0184.R5/8-SC	R5/8"	10	10	Steel SC
P0184.R3/4-SC	R3/4"	12	12	Steel SC
P0184.R1-SC	R1"	12	17	Steel SC
P0184.R1-1/4-SC	R1 1/4"	18	22	Steel SC
P0184.R1-1/2-SC	R1 1/2"	20	24	Steel SC
P0184.R2-SC	R2"	22	32	Steel SC
P0184.060-100-A4	M6 x1,0	6	3	A4 s/s
P0184.080-075-A4	M8 x0,75	8	4	A4 s/s
P0184.080-100-A4	M8 x1,0	8	4	A4 s/s
P0184.080-125-A4	M8 x1,25	8	4	A4 s/s
P0184.100-100-A4	M10 x1,0	8	5	A4 s/s
P0184.120-150-A4	M12 x1,5	10	6	A4 s/s
P0184.140-150-A4	M14 x1,5	10	7	A4 s/s
P0184.160-150-A4	M16 x1,5	10	8	A4 s/s
P0184.180-150-A4	M18 x1,5	10	8	A4 s/s
P0184.200-150-A4	M20 x1,5	10	10	A4 s/s
P0184.220-150-A4	M22 x1,5	10	10	A4 s/s
P0184.240-150-A4	M24 x1,5	12	12	A4 s/s
P0184.260-150-A4	M26 x1,5	12	12	A4 s/s
P0184.270-200-A4	M27 x2,0	12	12	A4 s/s
P0184.300-150-A4	M30 x1,5	12	17	A4 s/s
P0184.330-200-A4	M33 x2	12	17	A4 s/s
P0184.360-150-A4	M36 x1,5	15	19	A4 s/s
P0184.360-200-A4	M36 x2	15	19	A4 s/s
P0184.420-150-A4	M42 x1,5	18	22	A4 s/s
P0184.420-200-A4	M42 x2	18	22	A4 s/s
P0184.480-150-A4	M48 x1,5	20	24	A4 s/s
P0184.R1/8-A4	R1/8"	8	5	A4 s/s
P0184.R1/4-A4	R1/4"	10	7	A4 s/s
P0184.R3/8-A4	R3/8"	10	8	A4 s/s
P0184.R1/2-A4	R1/2"	10	10	A4 s/s
P0184.R5/8-A4	R5/8"	10	10	A4 s/s
P0184.R3/4-A4	R3/4"	12	12	A4 s/s



Blanking Plugs

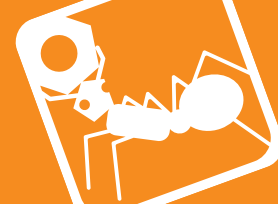
Metric & BSPT

Blanking Plugs

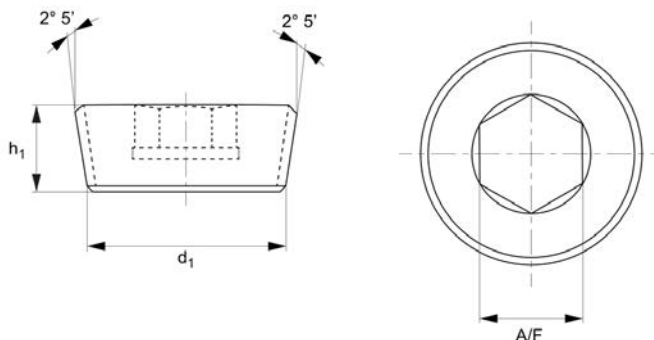


Order No.	d ₁	h ₁ tol. JS16	A/F	Material
P0184.R1-A4	R1"	12	17	A4 s/s
P0184.R1-1/4-A4	R1 1/4"	18	22	A2 s/s
P0184.R1-1/2-A4	R1 1/2"	20	24	A4 s/s
P0184.R2-A4	R2"	22	32	A4 s/s
P0184.R1/8-A2	R1/8"	8	5	A2 s/s
P0184.R1/4-A2	R1/4"	10	7	A2 s/s
P0184.R3/8-A2	R3/8"	10	8	A2 s/s
P0184.R1/2-A2	R1/2"	10	10	A2s/s
P0184.R3/4-A2	R3/4"	12	12	A2 s/s
P0184.R5/8-A2	R5/8"	12	12	A2 s/s
P0184.R1-A2	R1"	12	17	A2 s/s
P0184.R1-1/2-A2	R1 1/2"	20	24	A2 s/s
P0184.060-100-BR	M6 x1,0	6	3	Brass
P0184.080-075-BR	M8 x0,75	8	4	Brass
P0184.080-100-BR	M8 x1,0	8	4	Brass
P0184.080-125-BR	M8 x1,25	8	4	Brass
P0184.100-100-BR	M10 x1,0	8	5	Brass
P0184.120-150-BR	M12 x1,5	10	6	Brass
P0184.140-150-BR	M14 x1,5	10	7	Brass
P0184.160-150-BR	M16 x1,5	10	8	Brass
P0184.180-150-BR	M18 x1,5	10	8	Brass
P0184.200-150-BR	M20 x1,5	10	10	Brass
P0184.220-150-BR	M22 x1,5	10	10	Brass
P0184.240-150-BR	M24 x1,5	1	12	Brass
P0184.300-150-BR	M30 x1,5	12	17	Brass
P0184.300-200-BR	M30 x2	12	17	Brass
P0184.420-200-BR	M42 x2	18	22	Brass
P0184.R1/8-BR	R1/8"	8	5	Brass
P0184.R1/4-BR	R1/4"	10	7	Brass
P0184.R3/8-BR	R3/8"	10	8	Brass
P0184.R1/2-BR	R1/2"	10	10	Brass
P0184.R5/8-BR	R5/8"	10	10	Brass
P0184.R3/4-BR	R3/4"	12	12	Brass
P0184.R1-BR	R1"	12	17	Brass
P0184.R1-1/4-BR	R1 1/4"	18	22	Brass
P0184.R1-1/2-BR	R1 1/2"	20	24	Brass
P0184.R2-BR	R2"	22	32	Brass

BLANKING PLUGS



P0184.NL



Material

Steel (self-colour), stainless steel (A4) and brass.

Technical Notes

The Level Seal pressure plug has a 2° 5' taper thread extending its entire length and designed to provide a flush condition

with a standard 1° 47' tapered hole. It achieves a high pressure seal through the difference in taper, with dimensions pre-calculated to provide a higher sealing load near the large end of the plug and the threads near the top of the tapped hole. It is used in applications where high pressures are encountered and where protrusion is undesirable.

sion is undesirable.

Tightening torque is dependent on fluid, pressure, temperature, and material pairing.

Important Notes

For dry seal type plug see part P0184.NPT.

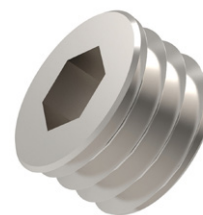
Order No.	d ₁	tpi	d ₁ max.	l ₁ nom.	A/F	Material
P0184.NL1/16-BR	NPT1/16"	27.0	7.8	6.35	5/32	Brass
P0184.NL1/8-BR	NPT1/8"	27.0	10.2	6.35	3/16	Brass
P0184.NL1/4-BR	NPT1/4"	18.0	13.4	10.3	1/4	Brass
P0184.NL3/8-BR	NPT3/8"	18.0	16.9	10.3	5/16	Brass
P0184.NL1/2-BR	NPT1/2"	14.0	21.1	13.5	3/8	Brass
P0184.NL3/4-BR	NPT3/4"	14.0	26.4	13.5	9/16	Brass
P0184.NL1-BR	NPT1"	11.5	33.1	16.7	5/8	Brass
P0184.NL1-1/4-BR	NPT1 1/4"	11.5	41.8	16.7	3/4	Brass
P0184.NL1-1/2-BR	NPT1 1/2"	11.5	47.9	16.7	3/4	Brass
P0184.NL1/16-SC	NPT1/16"	27.0	7.8	6.35	5/32	Steel SC
P0184.NL1/8-SC	NPT1/8"	27.0	10.2	6.35	3/16	Steel SC
P0184.NL1/4-SC	NPT1/4"	18.0	13.4	10.3	1/4	Steel SC
P0184.NL3/8-SC	NPT3/8"	18.0	16.9	10.3	5/16	Steel SC
P0184.NL1/2-SC	NPT1/2"	14.0	21.1	13.5	3/8	Steel SC
P0184.NL3/4-SC	NPT3/4"	14.0	26.4	13.5	9/16	Steel SC
P0184.NL1-SC	NPT1"	11.5	33.1	16.7	5/8	Steel SC
P0184.NL1-1/4-SC	NPT1 1/4"	11.5	41.8	16.7	3/4	Steel SC
P0184.NL1-1/2-SC	NPT1 1/2"	11.5	47.9	16.7	3/4	Steel SC
P0184.NL1/16-A4	NPT1/16"	27.0	7.8	6.35	5/32	A4 s/s
P0184.NL1/8-A4	NPT1/8"	27.0	10.2	6.35	3/16	A4 s/s
P0184.NL1/4-A4	NPT1/4"	18.0	13.4	10.3	1/4	A4 s/s
P0184.NL3/8-A4	NPT3/8"	18.0	16.9	10.3	5/16	A4 s/s
P0184.NL1/2-A4	NPT1/2"	14.0	21.1	13.5	3/8	A4 s/s
P0184.NL3/4-A4	NPT3/4"	14.0	26.4	13.5	9/16	A4 s/s
P0184.NL1-A4	NPT1"	11.5	33.1	16.7	5/8	A4 s/s
P0184.NL1-1/4-A4	NPT1 1/4"	11.5	41.8	16.7	3/4	A4 s/s
P0184.NL1-1/2-A4	NPT1 1/2"	11.5	47.9	16.7	3/4	A4 s/s



Blanking Plugs - Dry Seal

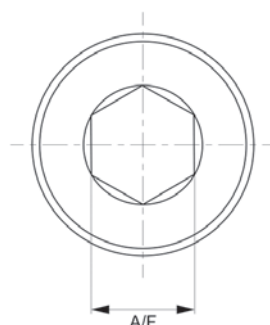
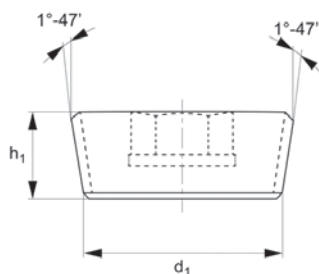
NPT and NPTF

Blanking Plugs



P0184.NPT

BLANKING PLUGS



Material

Steel (hardened or self-colour) and stainless steel (A4)

Technical Notes

To DIN 906. NPT (National Pipe Thread Taper) and NPTF (National Pipe Taper Fuel). The NPTF dry seal versions fit holes that are not as accurately tapped. Tightening torque is dependent on fluid, pressure, temperature, and material pairing.

Tips

NPTF threads will screw together with NPT threads and should have no noticeable assembly problem. There will most likely be an interference fit between the root and crest on either the major or minor diameter of the thread, depending on which part is NPTF. To accomplish a seal on the joint, a sealant will be required. NPTF threads are designed to screw together. They are designed to have interference at the roots and crests of the

threads on both the major and minor diameters. This interference should cause no assembly problem. The thread deformation caused by the interference fit and the wrench tightening is designed to make a dry mechanical seal.

Important Notes

For level of flush type plug see part P0184.NL.

Order No.	d ₁	tpi	d ₁ max.	l ₁ nom.	A/F	Material
P0184.NPT1/16-A4	NPT1/16"	27.0	8.08	7.92	5/32	A4 s/s
P0184.NPT1/8-A4	NPT 1/8"	27.0	10.40	7.92	3/16	A4 s/s
P0184.NPT1/4-A4	NPT 1/4"	18.0	13.80	11.10	1/4	A4 s/s
P0184.NPT3/8-A4	NPT 3/8"	18.0	17.40	12.70	5/16	A4 s/s
P0184.NPT1/2-A4	NPT 1/2"	14.0	21.10	15.90	3/8	A4 s/s
P0184.NPT3/4-A4	NPT 3/4"	14.0	26.90	19.00	1/4	A4 s/s
P0184.NPT1-A4	NPT 1"	11.5	33.90	20.60	1/2	A4 s/s
P0184.NPT1-1/4-A4	NPT 1-1/4"	11.5	33.90	20.60	1/2	A4 s/s
P0184.NPT1/16-SC	NPT1/16"	27.0	8.08	7.92	5/32	Steel SC
P0184.NPT1/8-SC	NPT1/8"	27.0	10.40	7.92	3/16	Steel SC
P0184.NPT1/4-SC	NPT1/4"	18.0	13.80	11.10	1/4	Steel SC
P0184.NPT3/8-SC	NPT3/8"	18.0	17.40	12.70	5/16	Steel SC
P0184.NPT1/2-SC	NPT1/2"	14.0	21.50	15.90	3/8	Steel SC
P0184.NPT5/8-SC	NPT5/8"	14.0	21.50	15.90	3/8	Steel SC
P0184.NPT3/4-SC	NPT3/4"	14.0	26.90	19.00	1/4	Steel SC
P0184.NPT1-SC	NPT1"	11.5	33.90	20.60	1/2	Steel SC
P0184.NPT1-1/4-SC	NPT1 1/4"	11.5	42.60	20.60	3/4	Steel SC
P0184.NPT1-1/2-SC	NPT1 1/2"	11.5	48.70	20.60	1	Steel SC
P0184.NPT2-SC	NPT2"	11.5	48.70	20.60	1	Steel SC
P0184.NPTF1/16-HS	NPTF1/16"	27.0	8.08	7.92	5/32	Hardened steel
P0184.NPTF1/8-HS	NPTF1/8"	27.0	10.40	7.92	3/16	Hardened steel
P0184.NPTF1/4-HS	NPTF1/4"	18.0	13.80	11.10	1/4	Hardened steel
P0184.NPTF3/8-HS	NPTF3/8"	18.0	17.40	12.70	5/16	Hardened steel
P0184.NPTF1/2-HS	NPTF1/2"	14.0	21.50	14.30	3/8	Hardened steel

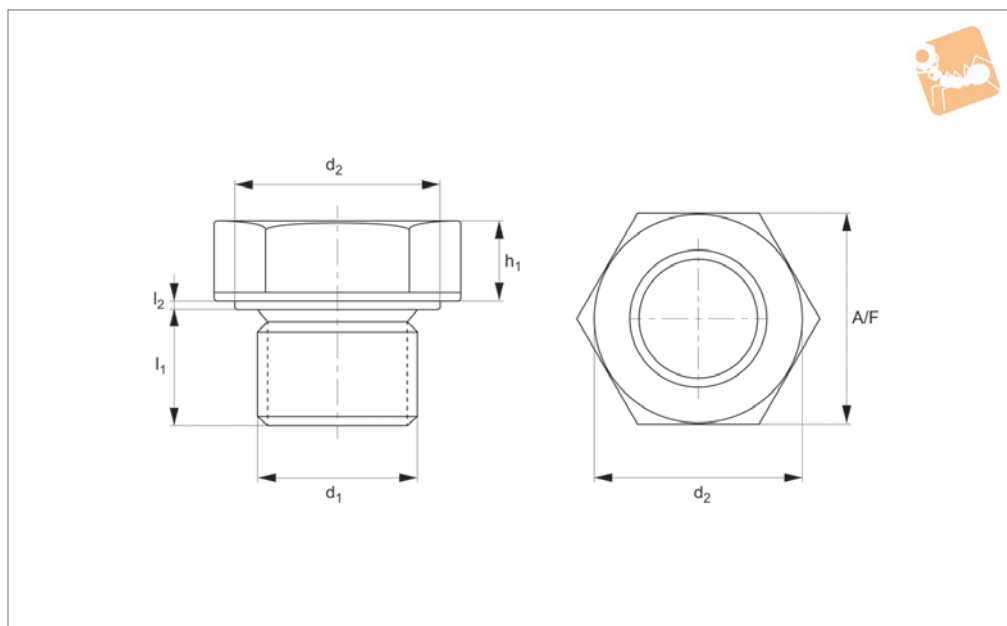
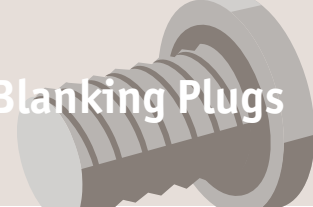


Order No.	d ₁	tpi	d ₁ max.	l ₁ nom.	A/F	Material
P0184.NPTF3/4-HS	NPTF3/4"	14.0	26.90	15.90	1/8	Hardened steel
P0184.NPTF1-HS	NPTF1"	11.5	33.90	19.00	1/2	Hardened steel



Hexagon Blanking Plugs

Blanking Plugs



P0187

BLANKING PLUGS

Material

Steel (self-colour), stainless steel (A4, AISI 316) or brass.

Technical Notes

To DIN 7604A. Most metric screw plug

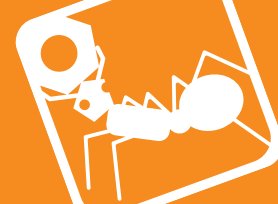
threads are fine threads.

Tightening torque is dependent on fluid, pressure, temperature, and material pairing.

Tips

Also available on request with O rings (NBR, Viton, EPDM, Silicone etc), permanent magnet, and polyamide melt seal under head.

Order No.	d ₁ x p	d ₂ tol. h14	h ₁	l ₁	l ₂ +0.2 -0	A/F	Material
P0187.100-100-ZP	M10 x1,0	14	4	6	0.5	14	Steel ZP
P0187.120-150-ZP	M12 x1,5	17	6	9	0.5	17	Steel ZP
P0187.140-150-ZP	M14 x1,5	19	6	9	0.5	19	Steel ZP
P0187.160-150-ZP	M16 x1,5	21	6	9	0.5	22	Steel ZP
P0187.180-150-ZP	M18 x1,5	23	6	9	2	17	Steel ZP
P0187.220-150-ZP	M22 x1,5	27	6	9	2	19	Steel ZP
P0187.260-150-ZP	M26 x1,5	31	8	9	2.5	22	Steel ZP
P0187.300-150-ZP	M30 x1,5	36	8	9	2.5	22	Steel ZP
P0187.100-100-A4	M10 x1,0	14	4	6	0.5	14	A4 s/s
P0187.120-150-A4	M12 x1,5	17	6	9	0.5	17	A4 s/s
P0187.140-150-A4	M14 x1,5	19	6	9	0.5	19	A4 s/s
P0187.160-150-A4	M16 x1,5	21	6	9	0.5	22	A4 s/s
P0187.180-150-A4	M18 x1,5	23	6	9	2	17	A4 s/s
P0187.220-150-A4	M22 x1,5	27	6	9	2	19	A4 s/s
P0187.260-150-A4	M26 x1,5	31	8	9	2.5	22	A4 s/s
P0187.300-150-A4	M30 x1,5	36	8	9	2.5	22	A4 s/s
P0187.100-100-BR	M10 x1,0	14	4	6	0.5	14	Brass
P0187.120-150-BR	M12 x1,5	17	6	9	0.5	17	Brass
P0187.140-150-BR	M14 x1,5	19	6	9	0.5	19	Brass
P0187.160-150-BR	M16 x1,5	21	6	9	0.5	22	Brass
P0187.180-150-BR	M18 x1,5	23	6	9	2	17	Brass
P0187.220-150-BR	M22 x1,5	27	6	9	2	19	Brass
P0187.260-150-BR	M26 x1,5	31	8	9	2.5	22	Brass
P0187.300-150-BR	M30 x1,5	36	8	9	2.5	22	Brass
P0187.100-100-SC	M10 x1,0	14	4	6	0.5	14	Steel SC
P0187.120-150-SC	M12 x1,5	17	6	9	0.5	17	Steel SC
P0187.140-150-SC	M14 x1,5	19	6	9	0.5	19	Steel SC
P0187.160-150-SC	M16 x1,5	21	6	9	0.5	22	Steel SC
P0187.180-150-SC	M18 x1,5	23	6	9	2	17	Steel SC
P0187.220-150-SC	M22 x1,5	27	6	9	2	19	Steel SC
P0187.260-150-SC	M26 x1,5	31	8	9	2.5	22	Steel SC
P0187.300-150-SC	M30 x1,5	36	8	9	2.5	22	Steel SC

**P0182**Hex head screw blanking plugs
DIN 910**P0183**Hex socket screw blanking plugs
DIN 908**P0184**Hex socket taper blanking plugs
DIN 906**P0184.NPT**Hex socket blanking plugs NPT
and NPTF dry seal**P0184.NL**Hex socket blanking plugs level
seal**P0187**Hexagon blanking plugs DIN
7604 A**Threads**

Blanking plugs come with either metric or inch threads. Most metric threads are fine threads (to DIN 13).

Inch threads come in four types:

G indicates BSPP British Standard pipe parallel (to ISO 288)

R indicates BSPT British Standard pipe taper (to ISO 7)

NPT indicates National Standard pipe taper (to ANSI B1.20.1)

NPTF indicates National Standard pipe taper fuel dry seal (to ANSI B1.20.3)

NL indicates National Standard pipe taper fuel level seal (to ANSI B1.20.3)

Materials

Blanking Plugs are available in three material types:

Steel (untreated or zinc plated)

Stainless steel (A2, AISI 303 and A4, AISI 316)

Brass

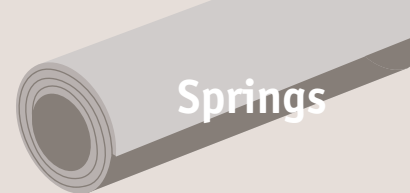
Options: with built-in magnet or with NBR seal and O Ring.

NPT and NPTF pipe threads

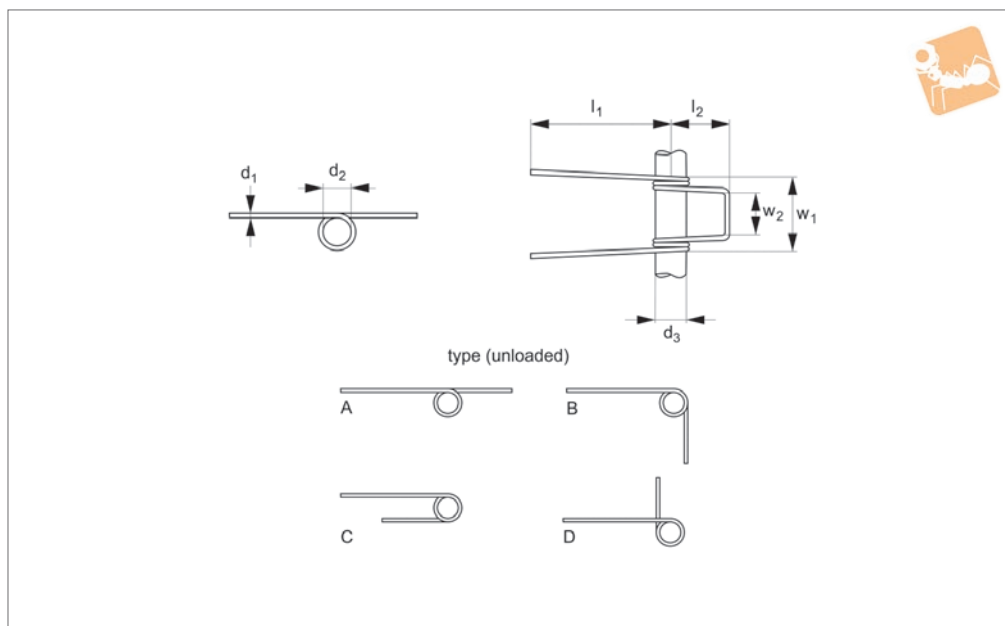
The two most common US standard taper pipe threads used are National Pipe Taper (NPT) and National Pipe Taper Fuel (NPTF). Applications range from electrical conduits and hand railings to high-pressure pipe lines that carry gas or caustic fluids. NPT threads are for mechanical or low-pressure air or fluid applications and often require the use of sealing compounds like Teflon tape, to provide the seal. When the application is more critical, and the sealing compound may fail due to high heat or pressure, NPTF Dryseal threads are used. This mechanical seal is produced by the mating and slight crushing of the threads when a wrench is applied to tighten the fittings.



Double Torsion Springs stainless



Springs



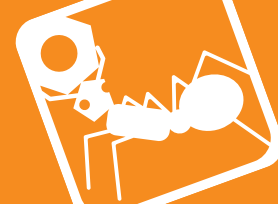
P1312

SPRINGS

Material

Stainless steel (DIN 1.4310).

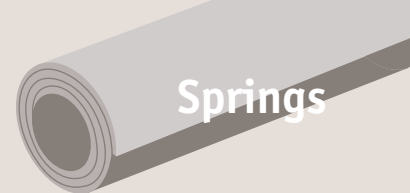
Order No.	d ₁	d ₂	d ₃	Leg	l ₁	w ₁	l ₂	w ₂	No. of coils	Torque angle	Torque Nmm max.	Spring rate Nmm/°
P1312.04-02545A	0.4	3	2.5	A	16	7	4	4.5	2	45	18.6	0.412
P1312.04-02551B	0.4	3	2.5	B	16	7	4	4.5	2.25	51	18.6	0.366
P1312.04-02557C	0.4	3	2.5	C	16	7	4	4.5	2.5	57	18.6	0.330
P1312.04-02562D	0.4	3	2.5	D	16	7.5	4	4.5	2.75	62	18.6	0.3
P1312.04-02568A	0.4	3	2.5	A	16	7.5	4	4.5	3	68	18.6	0.274
P1312.04-02596B	0.4	3	2.5	B	16	8.5	4	4.5	4.25	96	18.6	0.194
P1312.04-025147C	0.4	3	2.5	C	16	10.2	4	4.5	6.5	147	18.6	0.126
P1312.05-03040A	0.5	3.5	3.0	A	20	8.5	5	5.5	2	40	33.4	0.83
P1312.05-03045B	0.5	3.5	3.0	B	20	8.5	5	5.5	2.25	45	33.4	0.738
P1312.05-03050C	0.5	3.5	3.0	C	20	8.5	5	5.5	2.5	50	33.4	0.664
P1312.05-03055D	0.5	3.5	3.0	D	20	9.5	5	5.5	2.75	55	33.4	0.604
P1312.05-03060A	0.5	3.5	3.0	A	20	9.5	5	5.5	3	60	33.4	0.552
P1312.05-03086B	0.5	3.5	3.0	B	20	10.5	5	5.5	4.25	86	33.4	0.39
P1312.05-030131C	0.5	3.5	3.0	C	20	12.5	5	5.5	6.5	131	33.4	0.256
P1312.06-04046A	0.6	5.0	4.0	A	22	10.1	7	6.5	2	46	59.6	1.266
P1312.06-04052B	0.6	5.0	4.0	B	22	10.1	7	6.5	2.25	52	59.6	1.126
P1312.06-04058C	0.6	5.0	4.0	C	22	10.1	7	6.5	2.5	58	59.6	1.012
P1312.06-04064D	0.6	5.0	4.0	D	22	11.3	7	6.5	2.75	64	59.6	0.92
P1312.06-04070A	0.6	5.0	4.0	A	22	11.3	7	6.5	3	70	59.6	0.844
P1312.06-04099B	0.6	5.0	4.0	B	22	11.3	7	6.5	4.25	99	59.6	0.596
P1312.06-040151C	0.6	5.0	4.0	C	22	11.3	7	6.5	6.5	151	59.6	0.39
P1312.075-05044A	0.75	6.0	5.0	A	25	12.0	8	7.5	2	44	110	2.488
P1312.075-05050B	0.75	6.0	5.0	B	25	12.0	8	7.5	2.25	50	110	2.212
P1312.075-05055C	0.75	6.0	5.0	C	25	12.0	8	7.5	2.5	55	110	1.99
P1312.075-05061D	0.75	6.0	5.0	D	25	13.5	8	7.5	2.75	61	110	1.81
P1312.075-05066A	0.75	6.0	5.0	A	25	13.5	8	7.5	3	66	110	1.658
P1312.075-05094B	0.75	6.0	5.0	B	25	15.0	8	7.5	4.25	94	110	1.17
P1312.075-050143C	0.75	6.0	5.0	C	25	17.5	8	7.5	6.5	143	110	0.766
P1312.100-06038A	1.0	7.0	6.0	A	35	14.5	10	8.5	2	38	254	6.64
P1312.100-06043B	1.0	7.0	6.0	B	35	14.5	10	8.5	2.25	43	254	5.9
P1312.100-06048C	1.0	7.0	6.0	C	35	14.5	10	8.5	2.5	48	254	5.3
P1312.100-06052D	1.0	7.0	6.0	D	35	16.5	10	8.5	2.75	52	254	4.82
P1312.100-06057A	1.0	7.0	6.0	A	35	16.5	10	8.5	3	57	254	4.42
P1312.100-06081B	1.0	7.0	6.0	B	35	18.5	10	8.5	4.25	81	254	3.12



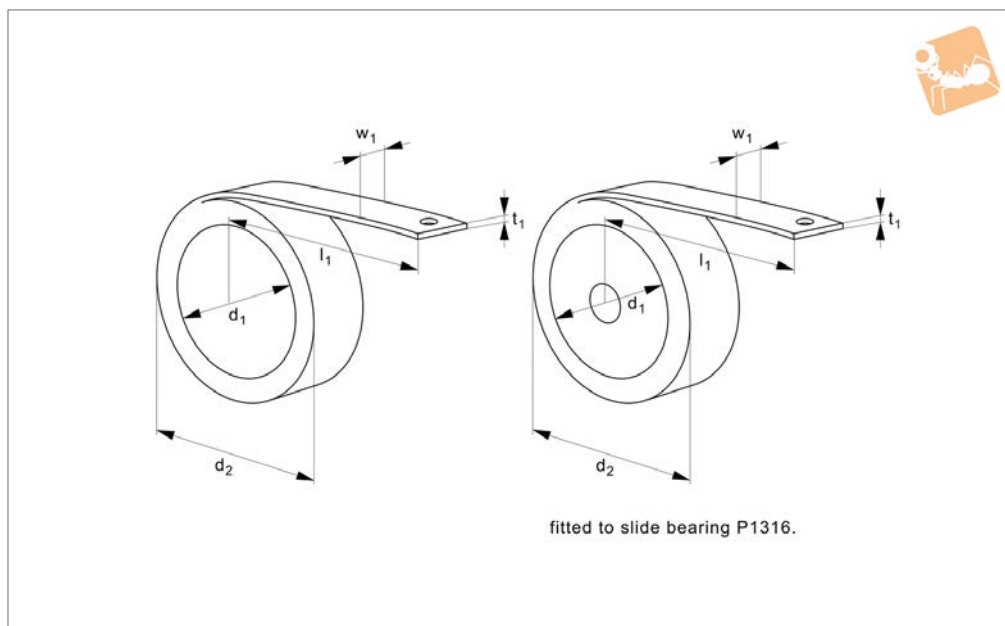
Order No.	d ₁	d ₂	d ₃	Leg	l ₁	w ₁	l ₂	w ₂	No. of coils	Torque angle	Torque Nmm max.	Spring rate Nmm/°
P1312.100-060124C	1.0	7.0	6.0	C	35	22.5	10	8.5	6.5	124	254	2.04
P1312.125-08038A	1.25	9.0	8.0	A	40	18.5	12	11	2	38	476	12.64
P1312.125-08042B	1.25	9.0	8.0	B	40	18.5	12	11	2.25	42	476	11.24
P1312.125-08047C	1.25	9.0	8.0	C	40	18.5	12	11	2.5	47	476	10.12
P1312.125-08052D	1.25	9.0	8.0	D	40	21.0	12	11	2.75	52	476	9.2
P1312.125-08057A	1.25	9.0	8.0	A	40	21.0	12	11	3	57	476	8.42
P1312.125-08080B	1.25	9.0	8.0	B	40	23.5	12	11	4.25	80	476	5.94
P1312.125-080123C	1.25	9.0	8.0	C	40	28.5	12	11	6.5	123	476	3.90
P1312.150-10040A	1.5	12.0	10.0	A	45	22.0	16	13	2	40	800	19.9
P1312.150-10045B	1.5	12.0	10.0	B	45	22.0	16	13	2.25	45	800	17.7
P1312.150-10050C	1.5	12.0	10.0	C	45	22.0	16	13	2.5	50	800	15.92
P1312.150-10055D	1.5	12.0	10.0	D	45	25.0	16	13	2.75	55	800	14.48
P1312.150-10060A	1.5	12.0	10.0	A	45	25.0	16	13	3	60	800	13.26
P1312.150-10085B	1.5	12.0	10.0	B	45	28.0	16	13	4.25	85	800	9.36
P1312.150-100130C	1.5	12.0	10.0	C	45	34.0	16	13	6.5	130	800	6.12
P1312.200-12034A	2.0	14.0	12.0	A	60	28.0	18	16	2	34	1830	53.08
P1312.200-12039B	2.0	14.0	12.0	B	60	28.0	18	16	2.25	39	1830	47.18
P1312.200-12043C	2.0	14.0	12.0	C	60	28.0	18	16	2.5	43	1830	42.46
P1312.200-12047D	2.0	14.0	12.0	D	60	32.0	18	16	2.75	47	1830	38.6
P1312.200-12052A	2.0	14.0	12.0	A	60	32.0	18	16	3	52	1830	35.38
P1312.200-12073B	2.0	14.0	12.0	B	60	36.0	18	16	4.25	73	1830	24.98
P1312.200-120112C	2.0	14.0	12.0	C	60	44.0	18	16	6.5	112	1830	16.34
P1312.250-15033A	2.5	17.0	15.0	A	70	37.0	24	21	2	33	3510	106.4
P1312.250-15037B	2.5	17.0	15.0	B	70	36.0	24	21	2.25	37	3510	94.4
P1312.250-15041C	2.5	17.0	15.0	C	70	36.0	24	21	2.5	41	3510	85.0
P1312.250-15045D	2.5	17.0	15.0	D	70	36.0	24	21	2.75	45	3510	77.4
P1312.250-15050A	2.5	17.0	15.0	A	70	41.0	24	21	3	50	3510	70.8
P1312.250-15070B	2.5	17.0	15.0	B	70	41.0	24	21	4.25	70	3510	50
P1312.250-150107C	2.5	17.0	15.0	C	70	56.0	24	21	6.5	107	3510	32.8
P1312.300-20035A	3.0	23.0	20.0	A	80	44.0	30	26	2	35	5828	165.4
P1312.300-20040B	3.0	23.0	20.0	B	80	44.0	30	26	2.25	40	5828	147
P1312.300-20044C	3.0	23.0	20.0	C	80	44.0	30	26	2.5	44	5828	132.2
P1312.300-20048D	3.0	23.0	20.0	D	80	50.0	30	26	2.75	48	5828	120.2
P1312.300-20053A	3.0	23.0	20.0	A	80	50.0	30	26	3	53	5828	110.2
P1312.300-20075B	3.0	23.0	20.0	B	80	56.0	30	26	4.25	75	5828	77.8
P1312.300-200115C	3.0	23.0	20.0	C	80	68.0	30	26	6.5	115	5828	50.8
P1312.400-25031A	4.0	28.0	25.0	A	90	55.0	40	31	2	31	13420	438
P1312.400-25035B	4.0	28.0	25.0	B	90	55.0	40	31	2.25	35	13420	390
P1312.400-25038C	4.0	28.0	25.0	C	90	55.0	40	31	2.5	38	13420	350
P1312.400-25042D	4.0	28.0	25.0	D	90	63.0	40	31	2.75	42	13420	318
P1312.400-25046A	4.0	28.0	25.0	A	90	63.0	40	31	3	46	13420	292
P1312.400-25065B	4.0	28.0	25.0	B	90	71.0	40	31	4.25	65	13420	206
P1312.400-250100C	4.0	28.0	25.0	C	90	87.0	40	31	6.5	100	13420	135
P1312.500-30029A	5.0	34.0	30.0	A	100	66.0	50	36	2	29	25072	876
P1312.500-30032B	5.0	34.0	30.0	B	100	66.0	50	36	2.25	32	25072	780
P1312.500-30036C	5.0	34.0	30.0	C	100	66.0	50	36	2.5	36	25072	702
P1312.500-30039D	5.0	34.0	30.0	D	100	76.0	50	36	2.75	39	25072	638
P1312.500-30043A	5.0	34.0	30.0	A	100	76.0	50	36	3	43	25072	584
P1312.500-30061B	5.0	34.0	30.0	B	100	86.0	50	36	4.25	61	25072	412
P1312.500-30093C	5.0	34.0	30.0	C	100	106.0	50	36	6.5	93	25072	270



Constant Force Springs stainless



Springs



P1315

SPRINGS

Material

Stainless steel (EN10270-3, DIN 1.4310).

Technical Notes

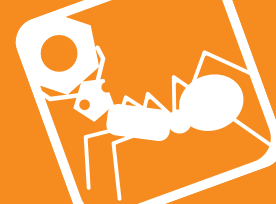
Constant force extension springs provide a

huge range of application opportunities.

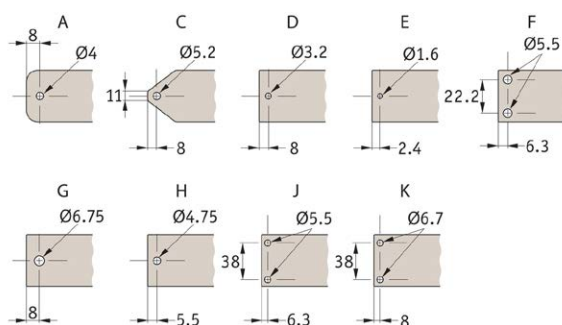
Springs can be extended in excess of 50 times the relaxed length of the spring, and can be mounted on a bobbin or bush free

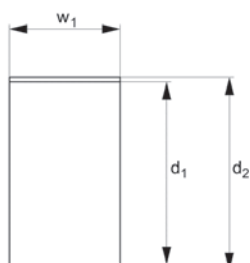
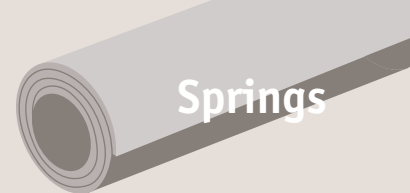
running in a cavity or recess. Springs can be joined or laminated to provide increased force with minimal increases in space requirements.

Order No.	t ₁	F N ±10%	d ₁	w ₁	d ₂	d ₃	d ₄	l ₁	Total length	N _c	Hole	For bearing No.
P1315.010-A	0.1	2.8	10	10	12.3	12	14.0	300	360	15000	D	P1316.10-12-10
P1315.010-B	0.1	1.6	14	10	15.9	16	17.7	300	400	40000	D	P1316.12-16-10
P1315.015-A	0.15	6.2	14	15	17.9	17	20.4	500	600	15000	D	P1316.15-17-15
P1315.015-B	0.15	4.4	19	15	22.3	23	25.8	500	640	40000	D	P1316.20-23-15
P1315.015-C	0.15	8.4	14	20	19.9	17	20.4	500	600	15000	H	P1316.15-17-20
P1315.015-D	0.15	5.5	19	20	22.3	23	25.8	500	640	40000	H	P1316.20-23-20
P1315.020-A	0.2	9.3	19	15	24.3	23	27.6	700	830	15000	D	P1316.20-23-15
P1315.020-B	0.2	4.3	29	15	33.1	34	37.6	700	900	40000	D	P1316.30-34-15
P1315.020-C	0.2	12.3	19	20	24.3	23	27.6	700	830	15000	H	P1316.20-23-20
P1315.020-D	0.2	5.7	29	20	33.1	34	37.6	700	900	40000	H	P1316.30-34-20
P1315.020-E	0.2	15.4	19	25	24.3	23	27.6	700	830	15000	H	P1316.20-23-25
P1315.020-F	0.2	7.1	29	25	33.1	34	37.6	700	900	40000	H	P1316.30-34-25
P1315.025-A	0.25	11.5	24	15	31.2	28	34.5	1000	1170	15000	D	P1316.25-28-15
P1315.025-B	0.25	6.1	33	15	39.0	39	44.3	1000	1250	40000	D	P1316.35-39-15
P1315.025-C	0.25	15.4	24	20	31.2	28	34.5	1000	1170	15000	H	P1316.25-28-20
P1315.025-D	0.25	8.1	33	20	39.0	39	44.3	1000	1250	40000	H	P1316.35-39-20
P1315.025-E	0.25	19.2	24	25	31.2	28	34.5	1000	1170	15000	H	P1316.25-28-25
P1315.025-F	0.25	10.1	33	25	39.0	39	44.3	1000	1250	40000	H	P1316.35-39-25
P1315.030-A	0.30	17.0	30	20	37.4	36	42.4	1000	1200	15000	H	P1316.32-36-20
P1315.030-B	0.30	9.8	42	20	48.0	50	55.2	1000	1270	40000	H	P1316.45-50-20
P1315.030-C	0.30	21.3	28	25	35.8	34	40.7	1000	1200	15000	H	P1316.32-34-25
P1315.030-D	0.30	12.3	42	25	48.0	50	55.2	1000	1270	40000	H	P1316.45-50-25
P1315.030-E	0.30	25.5	30	30	37.4	36	42.4	1000	1200	15000	G	P1316.32-36-30
P1315.030-F	0.30	14.7	42	30	48.0	50	55.2	1000	1270	40000	G	P1316.45-50-30
P1315.040-A	0.40	33.7	37	25	48.8	44	54.4	1500	1850	15000	G	P1316.40-44-25
P1315.040-B	0.40	16.3	56	25	64.8	65	72.8	1500	1900	40000	G	P1316.60-65-25
P1315.040-C	0.40	40.4	37	30	48.8	44	54.4	1500	1850	15000	G	P1316.40-44-30
P1315.040-D	0.40	19.5	56	30	64.8	65	72.8	1500	1900	40000	G	P1316.60-65-30
P1315.040-E	0.40	54.0	37	40	48.8	44	54.4	1500	1850	15000	F	P1316.40-44-40
P1315.040-F	0.40	26.0	56	40	65.0	65	73.0	1500	1900	40000	F	P1316.60-65-40
P1315.050-A	0.50	51.2	46	30	58.6	55	66.0	1500	1900	15000	G	P1316.50-55-30
P1315.050-B	0.50	27.9	65	30	75.1	80	88.6	1500	2000	40000	G	P1316.75-80-30
P1315.050-C	0.50	68.3	46	40	58.6	55	66.0	1500	1900	15000	F	P1316.50-55-40



Order No.	t ₁	F N ±10%	d ₁	w ₁	d ₂	d ₃	d ₄	l ₁	Total length	N _c	Hole	For bearing No.
P1315.050-D	0.50	37.1	65	40	75.1	80	88.6	1500	2000	40000	F	P1316.75-80-40
P1315.050-E	0.50	85.3	46	50	58.6	55	66.0	1500	1900	15000	F	P1316.50-55-50
P1315.050-F	0.50	46.5	65	50	75.1	80	88.6	1500	2000	40000	F	P1316.75-80-50
P1315.060-A	0.60	100.0	53	40	69.2	65	78.9	2000	2400	15000	F	P1316.60-65-40
P1315.060-B	0.60	35.7	88	40	100.2	105	115.6	2000	2700	40000	F	P1316.100-105-40
P1315.060-C	0.60	125.2	53	50	69.2	65	78.9	2000	2400	15000	F	P1316.60-65-50
P1315.060-D	0.60	44.6	88	50	100.2	105	115.6	2000	2700	40000	F	P1316.100-105-50
P1315.060-E	0.60	150.2	53	60	69.2	65	78.9	2000	2400	15000	K	P1316.60-65-60
P1315.060-F	0.60	53.5	88	60	100.2	105	115.6	2000	2700	40000	K	P1316.100-105-60





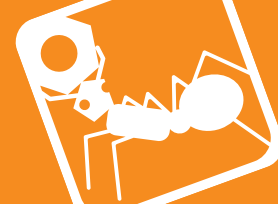
P1316

SPRINGS

Material

Stainless steel (EN10270-3, DIN 1.4310).

Order No.	d ₁	d ₂	l ±0.25	For spring
P1316.10-12-10	10	12	10	P1315.10-A
P1316.12-16-10	12	16	10	P1315.10-B
P1316.15-17-15	15	17	15	P1315.15-A
P1316.20-23-15	20	23	15	P1315.15-B
P1316.15-17-20	15	17	20	P1315.15-C
P1316.20-23-20	20	23	20	P1315.15-D
P1316.30-34-15	30	34	15	P1315.20-B
P1316.30-34-20	30	34	20	P1315.20-D
P1316.20-23-25	20	23	25	P1315.20-E
P1316.30-34-25	30	34	25	P1315.20-F
P1316.25-28-15	25	28	15	P1315.25-A
P1316.35-39-15	35	39	15	P1315.25-B
P1316.25-28-20	25	28	20	P1315.25-C
P1316.35-39-20	35	39	20	P1315.25-D
P1316.25-28-25	25	28	25	P1315.25-E
P1316.35-39-25	35	39	25	P1315.25-F
P1316.32-36-20	32	36	20	P1315.30-A
P1316.45-50-20	45	50	20	P1315.30-B
P1316.32-34-25	30	34	25	P1315.30-C
P1316.45-50-25	45	50	25	P1315.30-D
P1316.32-36-30	32	36	30	P1315.30-E
P1316.45-50-30	45	50	30	P1315.30-F
P1316.40-44-25	40	44	25	P1315.40-A
P1316.60-65-25	60	65	25	P1315.40-B
P1316.40-44-30	40	44	30	P1315.40-C
P1316.60-65-30	60	65	30	P1315.40-D
P1316.40-44-40	40	44	40	P1315.40-E
P1316.60-65-40	60	65	40	P1315.40-F
P1316.50-55-30	50	55	30	P1315.50-A
P1316.75-80-30	75	80	30	P1315.50-B
P1316.50-55-40	50	55	40	P1315.50-C
P1316.75-80-40	75	80	40	P1315.50-D
P1316.50-55-50	50	55	50	P1315.50-E
P1316.75-80-50	75	80	50	P1315.50-F



Order No.	d ₁	d ₂	l ±0.25	For spring
P1316.100-105-40	100	105	40	P1315.60-B
P1316.60-65-50	60	65	50	P1315.60-C
P1316.100-105-50	100	105	50	P1315.60-D
P1316.60-65-60	60	65	60	P1315.60-E
P1316.100-105-60	100	105	60	P1315.60-F