

**AUX PARTS**

PT01~PT49



EXTENSION NUT

FLANGE NUT

KNURLED NUT

SERRATED BALL END BOLT

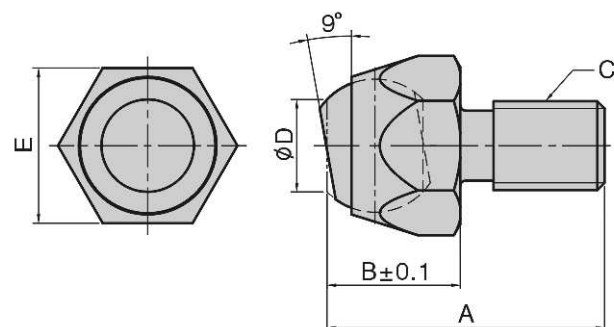
SMOOTH BALL END BOLT

562162.562445523644866256 00005555555555 0006563162  
562465523644866256 00005555555555 0006563162  
0000562162.562465523644866256 00005555555555 0006563162  
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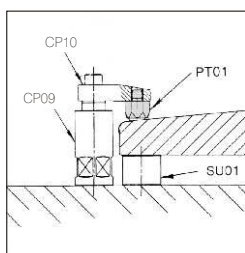


## PT01 SMOOTH BALL END BOLT

- Material / Finish:  
Material: Bolt==>S45C(JIS) / CK45(DIN),  
Heat treated to HRC 35°.  
Ball==>SUJ2(JIS) / 110Cr6(DIN)  
Heat treated to HRC 62°.  
Surface finish: Black Oxide.
- Application: Precision swivel ball that can be used either as a contact bolt or as a rest pad. As contact bolts, these swivel-ball units are ideal for evenly distributing clamping pressure on sloped or uneven surfaces.
- Features: Precision ground top surface.

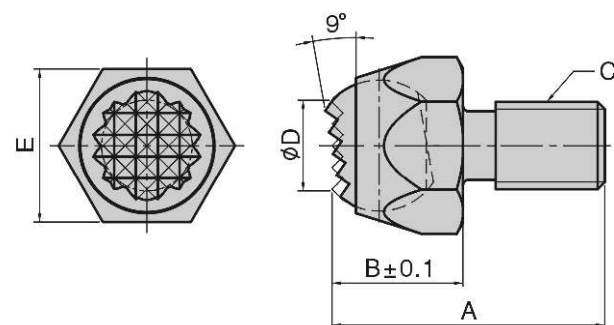


MODEL NO.	A	B	C	D	E	kg
PT01-0610	21	10	M6x1.00	6	10	0.012
PT01-0814	25	12	M8x1.25	8	14	0.015
PT01-1017	30	16	M10x1.50	10	17	0.025
PT01-1222	35	22	M12x1.75	12	22	0.070
PT01-1627	42	26	M16x2.00	14	27	0.140
PT01-2036	55	27	M20x2.50	14	36	0.280
PT01-2436	65	32	M24x2.00	18	36	0.560
PT01-3046	80	35	M30x2.00	21	46	0.880

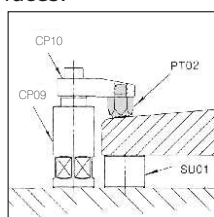


## PT02 SERRATED BALL END BOLT

- Material / Finish:  
Material: Bolt==>S45C(JIS) / CK45(DIN),  
Heat treated to HRC 35°.  
Ball==>SUJ2(JIS) / 110Cr6(DIN)  
Heat treated to HRC 62°.  
Surface finish: Black Oxide.
- Application: Swivel ball that can be used either as a contact bolts or as a rest pad. As contact bolts, these swivel-ball units are ideal for evenly distributing clamping pressure on sloped or uneven surfaces.
- Features: Serrated gripper is ideal for rough surfaces.

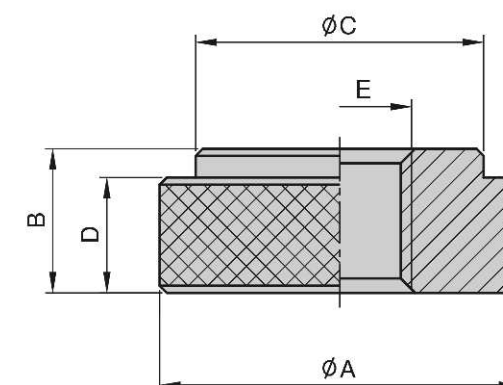


MODEL NO.	A	B	C	D	E	kg
PT02-0610	21	10	M6x1.00	6	10	0.012
PT02-0814	25	12	M8x1.25	8	14	0.015
PT02-1017	30	16	M10x1.50	10	17	0.025
PT02-1222	35	22	M12x1.75	12	22	0.070
PT02-1627	42	26	M16x2.00	14	27	0.140
PT02-2036	55	27	M20x2.50	14	36	0.280
PT02-2436	65	32	M24x2.00	18	36	0.560
PT02-3046	80	35	M30x2.00	21	46	0.880



## PT03 KNURLED NUT

- Material / Finish:  
Material: S45C(JIS) / CK45(DIN),  
Heat treated to HRC 30°~35°.  
Surface finish: Black Oxide.
- Application: use where quick hand assembly is needed.

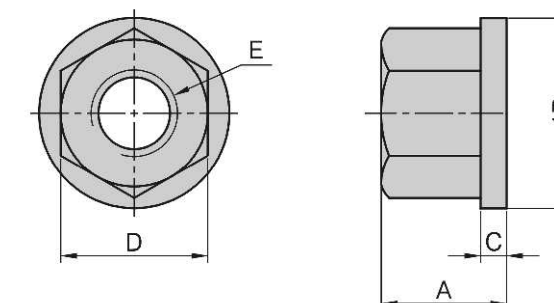


MODEL NO.	A	B	C	D	E	kg
PT03-0820	20	8	16	6	M 8	0.015
PT03-1025	25	10	20	8	M10	0.030
PT03-1228	28	12	24	10	M12	0.040
PT03-1630	30	12	25	10	M16	0.045



## PT04 FLANGE NUT

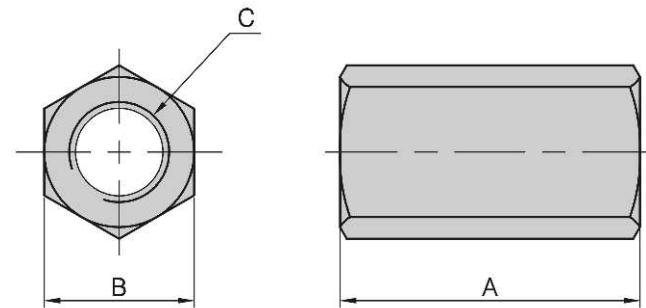
- Material / Finish:  
Material: S45C(JIS) / CK45(DIN),  
Heat treated to HRC 30°~35°.  
Surface finish: Black Oxide.



MODEL NO.	A	B	C	D	E	kg
PT04-0812	9	17	3	12	M 8	0.010
PT04-1017	13	22	3	17	M10	0.020
PT04-1219	17	28	4	19	M12	0.040
PT04-1422	17	28	4	22	M14	0.040
PT04-1624	20	32	5	24	M16	0.060
PT04-1827	20	35	5	27	M18	0.070
PT04-2030	25	40	6	30	M20	0.110
PT04-2232	28	45	6	32	M22	0.150
PT04-2436	28	47	6	36	M24	0.185

# PT05

## EXTENSION NUT

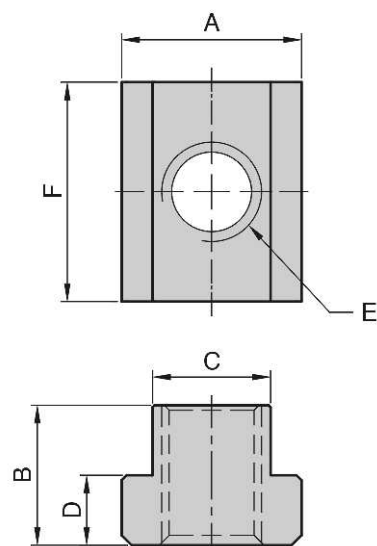


- Material / Finish:  
Material: S45C(JIS) / CK45(DIN),  
Heat treated to HRC 30°-35°.  
Surface finish: Black Oxide.
- Application: Extends the length of clamping studs.

MODEL NO.	A	B	C	kg
PT05-0813	22	14	M 8	0.020
PT05-1017	30	17	M10	0.030
PT05-1219	36	19	M12	0.046
PT05-1422	42	22	M14	0.065
PT05-1624	48	24	M16	0.110
PT05-1827	54	27	M18	0.150
PT05-2030	60	30	M20	0.220
PT05-2232	66	32	M22	0.350
PT05-2436	72	36	M24	0.350

# PT06

## T-SLOT NUT



- Material / Finish:  
Material: S45C(JIS) / CK45(DIN),  
Heat treated to HRC 30°~35°.  
Surface finish: Black Oxide.

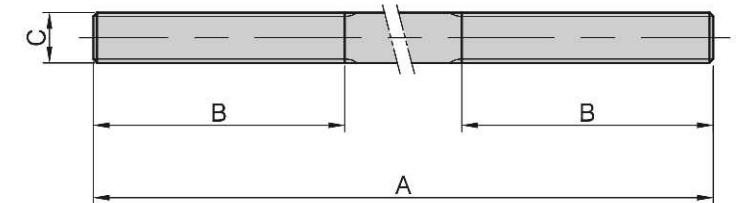
MODEL NO.	A	B	C	D	E	F	kg
PT06-1008	15.0	13.0	9.5	6.0	M 8	22	0.020
PT06-1210	18.0	14.0	11.8	7.0	M10	22	0.022
PT06-1410	22.0	16.0	13.8	8.0	M10	28	0.050
PT06-1412	22.0	16.0	13.8	8.0	M12	28	0.048
PT06-1612	25.0	16.0	15.8	8.0	M12	28	0.060
PT06-1614	25.0	16.0	15.8	8.0	M14	28	0.057
PT06-1810	28.0	20.0	17.7	10.5	M10	30	0.090
PT06-1812	28.0	20.0	17.7	10.5	M12	30	0.090
PT06-1814	28.0	20.0	17.7	10.5	M14	30	0.090
PT06-1816	28.0	20.0	17.7	10.5	M16	30	0.085
PT06-2016	32.0	19.0	19.0	11.9	M16	30	0.098
PT06-2018	32.0	25.0	20.0	14.0	M18	38	0.110
PT06-2218	36.0	25.0	22.0	14.0	M18	38	0.178
PT06-2220	36.0	25.0	22.0	14.0	M20	38	0.190
PT06-2418	38.0	25.0	24.0	14.0	M18	38	0.184
PT06-2420	38.0	25.0	24.0	14.0	M20	38	0.250
PT06-2620	41.3	25.0	25.0	15.8	M20	44	0.250
PT06-2622	41.3	25.0	25.0	15.8	M22	44	0.240
PT06-2822	44.0	28.5	27.0	17.5	M22	50	0.330
PT06-2824	44.0	28.5	27.0	17.5	M24	50	0.312

# PT07

## CLAMPING STUD



- Material / Finish:  
Material: S45C(JIS) / CK45(DIN),  
Heat treated to HRC 30°~35°.  
Surface finish: Black Oxide.



MODEL NO.	A	B	C	kg
PT07-08050	50	22	M8 P=1.25	0.020
PT07-08075	75	22		0.030
PT07-08100	100	38		0.040
PT07-08125	125	38		0.050
PT07-08150	150	50		0.060
PT07-08175	175	50		0.070
PT07-08200	200	50		0.080
PT07-08250	250	50		0.098
PT07-10050	50	22	M10 P=1.5	0.030
PT07-10075	75	30		0.042
PT07-10100	100	38		0.055
PT07-10125	125	38		0.070
PT07-10150	150	50		0.090
PT07-10175	175	50		0.108
PT07-10200	200	65		0.123
PT07-10250	250	65		0.154
PT07-12050	50	22	M12 P=1.75	0.040
PT07-12075	75	30		0.060
PT07-12100	100	38		0.080
PT07-12125	125	38		0.100
PT07-12150	150	50		0.125
PT07-12175	175	50		0.155
PT07-12200	200	65		0.160
PT07-12300	300	80		0.240
PT07-14050	50	22	M14 P=2.0	0.060
PT07-14075	75	30		0.090
PT07-14100	100	38		0.120
PT07-14125	125	38		0.150
PT07-14150	150	50		0.180
PT07-14175	175	50		0.210
PT07-14200	200	65		0.240
PT07-16050	50	22		M16 P=2.0
PT07-16075	75	30	0.120	
PT07-16100	100	38	0.145	
PT07-16125	125	38	0.180	
PT07-16150	150	50	0.230	
PT07-16175	175	50	0.276	
PT07-16200	200	65	0.290	
PT07-16250	250	65	0.350	
PT07-16300	300	80	0.450	
PT07-16400	400	100	0.580	
PT07-16500	500	100	0.700	

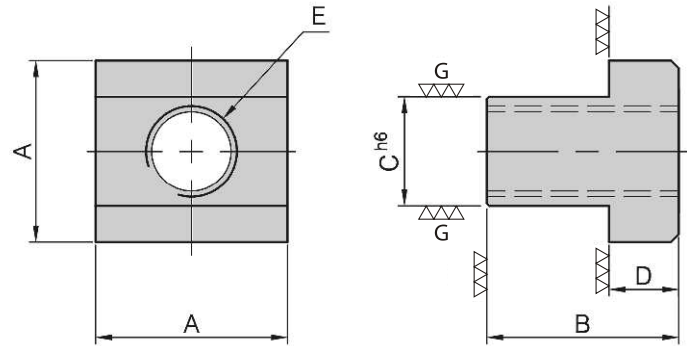
MODEL NO.	A	B	C	kg
PT07-18050	50	22	M18 P=2.5	0.100
PT07-18075	75	30		0.150
PT07-18100	100	38		0.200
PT07-18125	125	38		0.220
PT07-18150	150	50		0.300
PT07-18175	175	50		0.320
PT07-18200	200	65		0.360
PT07-18300	300	80		0.600
PT07-20050	50	22	M20 P=2.5	0.125
PT07-20075	75	30		0.170
PT07-20100	100	38		0.230
PT07-20125	125	38		0.275
PT07-20150	150	50		0.360
PT07-20175	175	50		0.437
PT07-20200	200	65		0.450
PT07-20250	250	65		0.550
PT07-20300	300	80	0.700	
PT07-20400	400	100	0.880	
PT07-20500	500	100	1.100	
PT07-22050	50	22	M22 P=2.5	0.150
PT07-22075	75	30		0.223
PT07-22100	100	38		0.300
PT07-22125	125	38		0.373
PT07-22150	150	50		0.448
PT07-22175	175	50		0.522
PT07-22200	200	65		0.597
PT07-22250	250	65		0.746
PT07-22300	300	80	0.895	
PT07-22400	400	100	1.194	
PT07-22500	500	100	1.492	
PT07-24050	50	22	M24 P=3.0	0.177
PT07-24075	75	30		0.266
PT07-24100	100	38		0.355
PT07-24125	125	38		0.443
PT07-24150	150	50		0.533
PT07-24175	175	50		0.620
PT07-24200	200	65		0.710
PT07-24250	250	65		0.880
PT07-24300	300	80	1.065	
PT07-24400	400	100	1.420	
PT07-24500	500	100	1.775	

## PT08

### T-SLOT NUT(GROUND)



- Material / Finish:  
Material: S45C(JIS) / CK45(DIN),  
Heat treated to HRC 30°~35°.
- Application: Ground surfaces provide accurate positioning inside of t-slot.



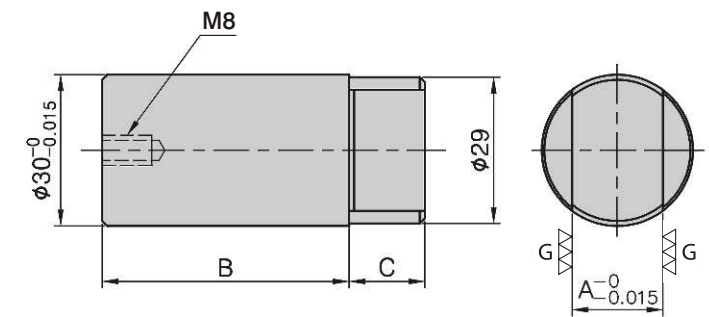
MODEL NO.	A	B	C	D	E	kg
PT08-1214	22	22	14	8	M12	0.045
PT08-1618	28	30	18	10	M16	0.080

## PT10

### LOCATING KEY



- Material / Finish:  
Material: SCM440(JIS) / 34CrMo4 (DIN),  
Heat treated to HRC 55°.
- Application: Multipurpose locating key.



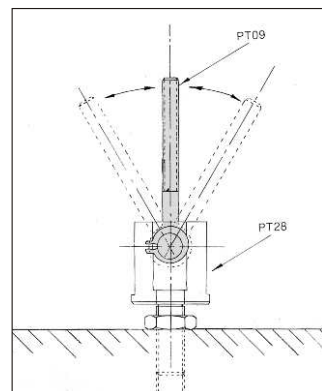
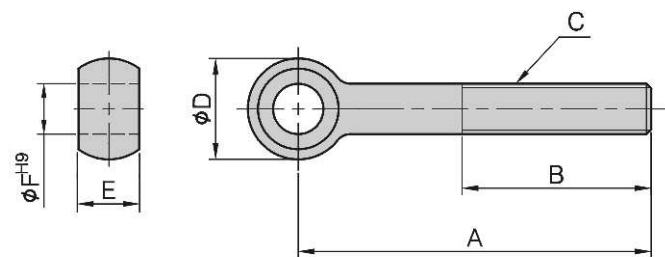
MODEL NO.	A	B	C	kg
PT10-1410	14	49	10.0	0.032
PT10-1815	18	49	15.0	0.033
PT10-2009	20	39	9.5	0.028
PT10-2010	20	49	10.0	0.033
PT10-2015	20	49	15.0	0.034

## PT09

### EYEBOLT



- Material / Finish:  
Material: SCM220  
Heat treated to HRC 30°~35°.
- Application: use with PT28 to build custom clamping components.
- Features: Reamed hole for smooth swiveling.



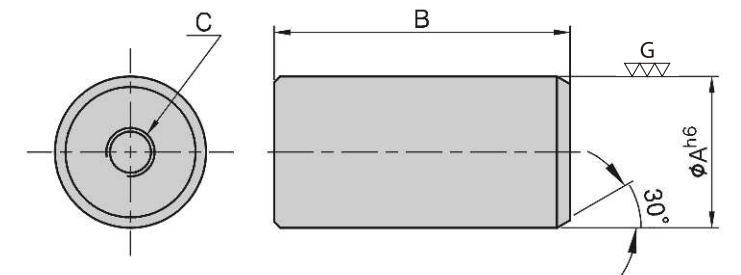
MODEL NO.	A	B	C	D	E	F	kg
PT09-10075	75	40	M10	20	12	10	0.060
PT09-10100	100	40	M10	20	12	10	0.080
PT09-12075	75	50	M12	25	14	12	0.095
PT09-12100	100	60	M12	25	14	12	0.120
PT09-16125	125	60	M16	32	17	16	0.250
PT09-16150	150	75	M16	32	17	16	0.300
PT09-20125	125	60	M20	40	22	20	0.400
PT09-20150	150	75	M20	40	22	20	0.485

## PT11

### THREADED DOWEL PINS



- Material / Finish:  
Material: SCM440(JIS) / 34CrMo4(DIN)  
Heat treated to HRC 45°.
- Application: Threaded end makes removal easy.



MODEL NO.	A	B	C	kg
PT11-0825	8	25	M4	0.010
PT11-1030	10	30	M5	0.015
PT11-1234	12	34	M6	0.030
PT11-1642	16	42	M6	0.060
PT11-2047	20	47	M8	0.100
PT11-2549	25	49	M8	0.160

# PT12

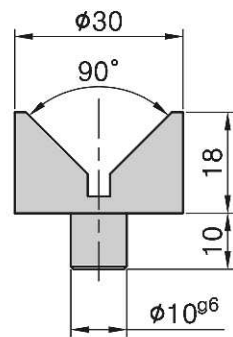
## JACK SCREW TIP

- Material / Finish:  
Material: SCM440(JIS) / 42CrMo4(DIN),  
Heat treated to HRC 60°.  
Surface finish: Black Oxide.
- Application: Multipurpose support tip, use with SU11.

**PT12A-3028**



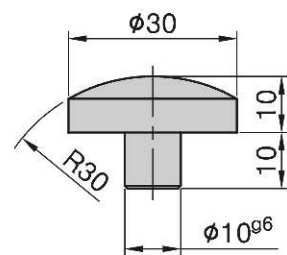
NW : 70g



**PT12B-3020**



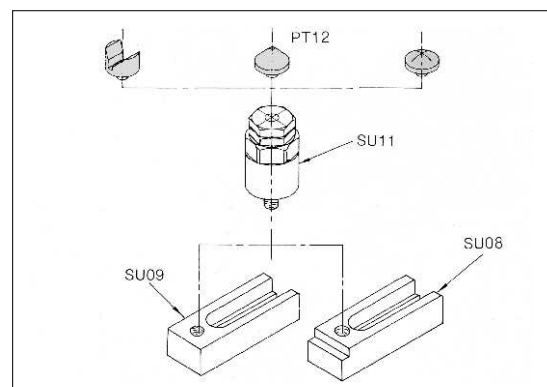
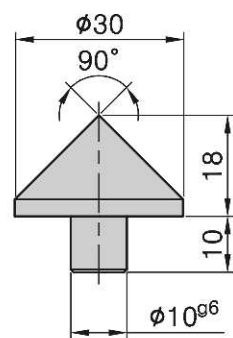
NW : 50g



**PT12C-3028**



NW : 60g



**PT13 SERRATED END**



**PT14 FLAT END**



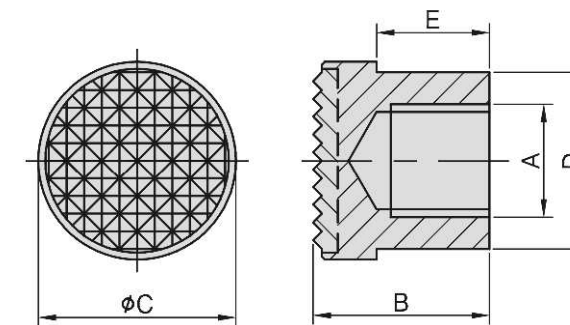
**PT15 ROUND END**



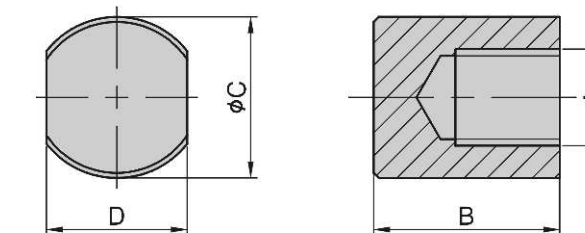
# PT13-15

## GRIPPER NUT

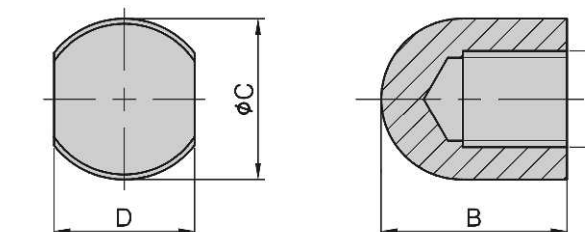
- Material / Finish:  
Material: SCM440(JIS) / 42CrMo4(DIN),  
Heat treated to HRC 60°.  
Surface finish: Black Oxide.
- Application: use for supporting workpiece.
- Features: Available with: Serrated, flat or round end.



MODEL NO.	A	B	C	D	E	kg
PT13-1220	M12	20	22	19	13	0.043
PT13-1625	M16	25	28	24	16	0.080



MODEL NO.	A	B	C	D	kg
PT14-1220	M12	20	22	19	0.043
PT14-1625	M16	25	28	24	0.076



MODEL NO.	A	B	C	D	kg
PT15-1220	M12	20	22	19	0.042
PT15-1625	M16	25	28	24	0.063

BP

BPA

BC

CP

SU

PT

SVF

ALV

OK-  
VISE

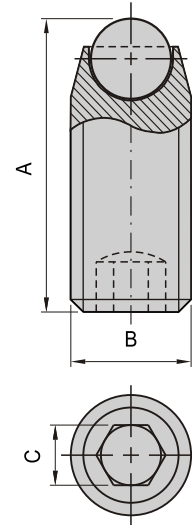
OTHER

Column  
for  
Technical  
Data

- Material / Finish:  
Material: Bolt ==> SCM21(JIS) / 34CrMo4(DIN),  
Heat treated to HRC 32°~38°.  
Ball = => SUJ2(JIS) / 100Cr6(DIN)  
Heat treated to HRC 62°.
- Application: Ideal for clamping odd shaped work pieces.
- Features: Available with: flat end, round end, serrated end, less chance of deforming the work piece due the rounded tip.

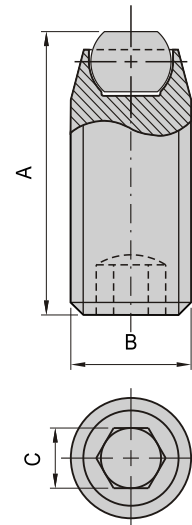
## PT16 SWIVEL CLAMPING SCREW

### PT16A ROUND END



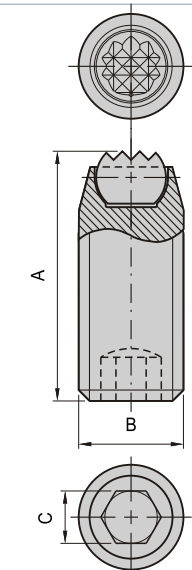
MODEL NO.	A	B	C	kg
PT16A-0615	13.5	M 6	3	0.0024
PT16A-0625	23.5	M 6	3	0.0038
PT16A-0812	12.0	M 8	4	0.0032
PT16A-0820	20.0	M 8	4	0.0058
PT16A-0830	30.0	M 8	4	0.0090
PT16A-1015	17.0	M10	5	0.0067
PT16A-1025	27.0	M10	5	0.0112
PT16A-1035	37.0	M10	5	0.0162
PT16A-1220	23.2	M12	6	0.0125
PT16A-1230	31.2	M12	6	0.0200
PT16A-1240	41.2	M12	6	0.0300
PT16A-1250	51.2	M12	6	0.0400
PT16A-1625	25.6	M16	8	0.0280
PT16A-1635	35.6	M16	8	0.0400
PT16A-1645	45.6	M16	8	0.0450
PT16A-1655	55.6	M16	8	0.0550
PT16A-1665	65.6	M16	8	0.0650

### PT16B FLAT END



MODEL NO.	A	B	C	kg
PT16B-0615	13.0	M 6	3	0.0024
PT16B-0625	23.0	M 6	3	0.0038
PT16B-0812	11.2	M 8	4	0.0032
PT16B-0820	19.2	M 8	4	0.0058
PT16B-0830	29.2	M 8	4	0.0090
PT16B-1015	15.0	M10	5	0.0067
PT16B-1025	25.0	M10	5	0.0112
PT16B-1035	35.0	M10	5	0.0162
PT16B-1220	22.0	M12	6	0.0125
PT16B-1230	30.0	M12	6	0.0200
PT16B-1240	40.0	M12	6	0.0300
PT16B-1250	50.0	M12	6	0.0400
PT16B-1625	24.0	M16	8	0.0280
PT16B-1635	34.0	M16	8	0.0400
PT16B-1645	44.0	M16	8	0.0450
PT16B-1655	54.0	M16	8	0.0550
PT16B-1665	64.0	M16	8	0.0650

### PT16C SERRATED END

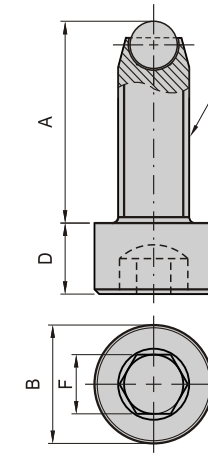


MODEL NO.	A	B	C	kg
PT16C-0615	13.0	M 6	3	0.0024
PT16C-0625	23.0	M 6	3	0.0038
PT16C-0812	11.2	M 8	4	0.0032
PT16C-0820	19.2	M 8	4	0.0058
PT16C-0830	29.2	M 8	4	0.0090
PT16C-1015	15.0	M10	5	0.0067
PT16C-1025	25.0	M10	5	0.0112
PT16C-1035	35.0	M10	5	0.0162
PT16C-1220	22.0	M12	6	0.0125
PT16C-1230	30.0	M12	6	0.0200
PT16C-1240	40.0	M12	6	0.0300
PT16C-1250	50.0	M12	6	0.0400
PT16C-1625	24.0	M16	8	0.0280
PT16C-1635	34.0	M16	8	0.0400
PT16C-1645	44.0	M16	8	0.0450
PT16C-1655	54.0	M16	8	0.0550
PT16C-1665	64.0	M16	8	0.0650

- Material / Finish:  
Material: Bolt ==> SCM21(JIS) / 34CrMo4(DIN),  
Heat treated to HRC 32°~38°.  
Ball = => SUJ2(JIS) / 100Cr6(DIN)  
Heat treated to HRC 62°.
- Application: Support or clamp the work piece.
- Features: Available with: Flat end, round end, serrated end, less chance of deforming the work piece due the rounded tip.

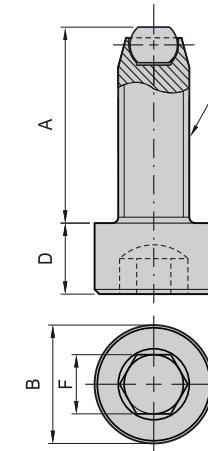
## PT17 SWIVEL SHOULDER CLAMPING SCREW

### PT17A ROUND END



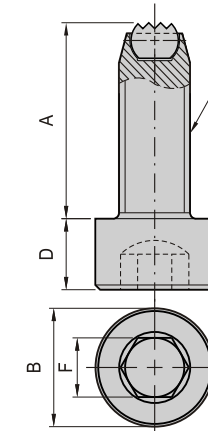
MODEL NO.	A	B	D	E	F	kg
PT17A-0615	14.5	10	6	M 6	5	0.0053
PT17A-0625	23.5	10	6	M 6	5	0.0074
PT17A-0635	33.5	10	6	M 6	5	0.0095
PT17A-0820	18.7	13	8	M 8	6	0.0135
PT17A-0830	28.7	13	8	M 8	6	0.0200
PT17A-0840	38.7	13	8	M 8	6	0.0240
PT17A-1025	25.0	16	10	M10	8	0.0260
PT17A-1040	40.0	16	10	M10	8	0.0340
PT17A-1060	60.0	16	10	M10	8	0.0460
PT17A-1230	31.2	18	12	M12	10	0.0400
PT17A-1245	46.2	18	12	M12	10	0.0500
PT17A-1265	66.2	18	12	M12	10	0.0700
PT17A-1280	81.2	18	12	M12	10	0.0830
PT17A-1640	40.6	24	16	M16	14	0.0900
PT17A-1650	50.6	24	16	M16	14	0.1100
PT17A-1665	65.6	24	16	M16	14	0.1300
PT17A-1690	90.6	24	16	M16	14	0.1700

### PT17B FLAT END



MODEL NO.	A	B	D	E	F	kg
PT17B-0615	14	10	6	M 6	5	0.0053
PT17B-0625	23	10	6	M 6	5	0.0074
PT17B-0635	33	10	6	M 6	5	0.0095
PT17B-0820	18	13	8	M 8	6	0.0135
PT17B-0830	28	13	8	M 8	6	0.0200
PT17B-0840	38	13	8	M 8	6	0.0240
PT17B-1025	24	16	10	M10	8	0.0260
PT17B-1040	39	16	10	M10	8	0.0340
PT17B-1060	59	16	10	M10	8	0.0460
PT17B-1230	30	18	12	M12	10	0.0400
PT17B-1245	45	18	12	M12	10	0.0500
PT17B-1265	65	18	12	M12	10	0.0700
PT17B-1280	80	18	12	M12	10	0.0830
PT17B-1640	39	24	16	M16	14	0.0900
PT17B-1650	49	24	16	M16	14	0.1100
PT17B-1665	64	24	16	M16	14	0.1300
PT17B-1690	89	24	16	M16	14	0.1700

### PT17C SERRATED END



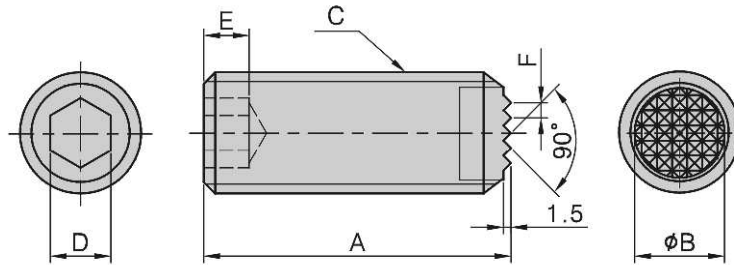
MODEL NO.	A	B	D	E	F	kg
PT17C-0615	14	10	6	M 6	5	0.0053
PT17C-0625	23	10	6	M 6	5	0.0074
PT17C-0635	33	10	6	M 6	5	0.0095
PT17C-0820	18	13	8	M 8	6	0.0135
PT17C-0830	28	13	8	M 8	6	0.0200
PT17C-0840	38	13	8	M 8	6	0.0240
PT17C-1025	24	16	10	M10	8	0.0260
PT17C-1040	39	16	10	M10	8	0.0340
PT17C-1060	59	16	10	M10	8	0.0460
PT17C-1230	30	18	12	M12	10	0.0400
PT17C-1245	45	18	12	M12	10	0.0500
PT17C-1265	65	18	12	M12	10	0.0700
PT17C-1280	80	18	12	M12	10	0.0830
PT17C-1640	39	24	16	M16	14	0.0900
PT17C-1650	49	24	16	M16	14	0.1100
PT17C-1665	64	24	16	M16	14	0.1300
PT17C-1690	89	24	16	M16	14	0.1700



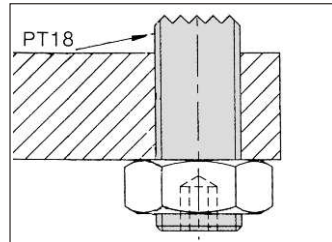
# PT18

## GRIPPER SCREW

- Material: SCM435(JIS) / 34CrMo4(DIN), Heat treated to HRC 32°~38°. Tooth plate: SKH9(JIS) / S18-1-2-5(DIN) Heat treated to HRC 60°. serrated surface to be heat treated with high frequency quenching. Surface finish: Black Oxide.
- Application: Multipurpose work support and clamping unit, ideal for rough parts.
- Features: Excellent holding power from the serrated face.



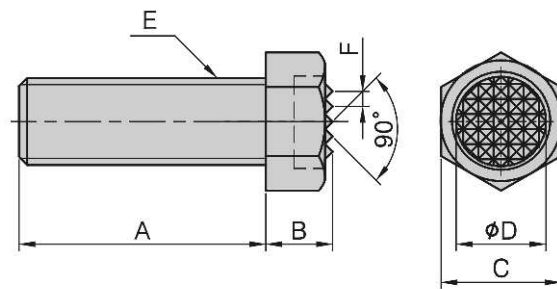
MODEL NO.	A	B	C	D	E	F	kg
PT18-1025	25	6.5	M10	5	4	2.3	0.015
PT18-1050	50	6.5	M10	5	5	2.3	0.030
PT18-1225	25	8.0	M12	6	5	2.3	0.022
PT18-1250	50	8.0	M12	6	5	2.3	0.045
PT18-1625	25	11.5	M16	8	6	3.0	0.038
PT18-1650	50	11.5	M16	8	6	3.0	0.078
PT18-2025	25	13.0	M20	10	8	3.0	0.058
PT18-2050	50	13.0	M20	10	8	3.0	0.120



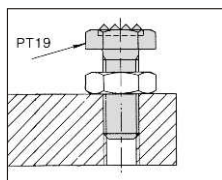
# PT19

## GRIPPER SCREW

- Material / Finish: Material: SCM435(JIS) / 34CrMo4(DIN), Heat treated to HRC 32°~38°. Tooth plate: SKH9(JIS) / S18-1-2-5(DIN) Heat treated to HRC 60°. serrated surface to be heat treated with high frequency quenching. Surface finish: Black Oxide.
- Application: Multipurpose work support and clamping unit, ideal for rough parts.
- Features: Excellent holding power from the serrated face.



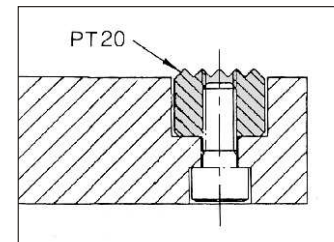
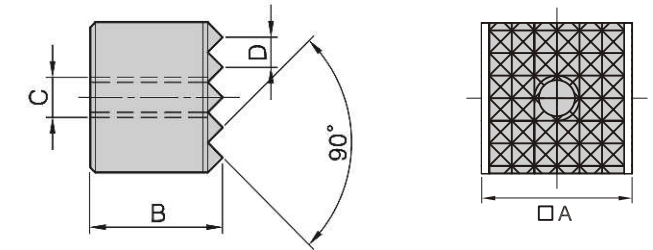
MODEL NO.	A	B	C	D	E	F	kg
PT19-061025	25	6.0	10	7.9	M 6	2.3	0.008
PT19-081325	25	7.3	13	9.5	M 8	3.0	0.015
PT19-101725	25	8.4	17	12.7	M10	3.0	0.030
PT19-101740	40	8.4	17	12.7	M10	3.0	0.035
PT19-121925	25	9.5	19	15.9	M12	3.0	0.035
PT19-121940	40	9.5	19	15.9	M12	3.0	0.050
PT19-162435	35	12.0	24	19.1	M16	3.0	0.085
PT19-162450	50	12.0	24	19.1	M16	3.0	0.100
PT19-203040	40	14.5	30	25.4	M20	3.0	0.160
PT19-203060	60	14.5	30	25.4	M20	3.0	0.205



# PT20

## GRIPPER PAD(SQUARE)

- Material / Finish: Material: SKH9(JIS) / S18-1-2-5(DIN). Heat treated to HRC 60°. Surface finish: Black Oxide.
- Application: Multipurpose work support and clamping unit, ideal for rough parts.

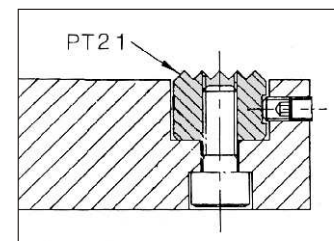
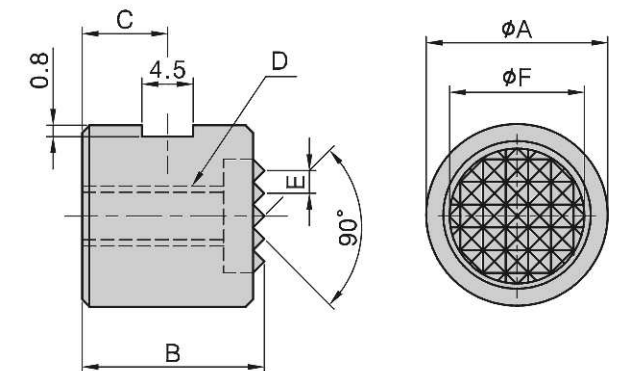


MODEL NO.	A	B	C	D	kg
PT20-1010	10	10	M5	2.3	0.008
PT20-1210	12	10	M6	3.0	0.010
PT20-2010	20	10	M6	3.0	0.030
PT20-2510	25	10	M6	3.0	0.043

# PT21

## GRIPPER PAD(ROUND)

- Material / Finish: Material: SKH9(JIS) / S18-1-2-5(DIN). Heat treated to HRC 60°. Surface finish: Black Oxide.
- Application: Multipurpose work support and clamping unit, ideal for rough parts.



MODEL NO.	A	B	C	D	E	F	kg
PT21-1010	10	10	3.4	M5	2.3	8.1	0.005
PT21-1212	12	12	4.0	M6	3.0	9.6	0.008
PT21-1612	16	12	4.0	M6	3.0	13.0	0.016
PT21-2012	20	12	4.0	M6	3.0	16.3	0.025
PT21-2512	25	12	4.0	M6	3.0	19.5	0.040

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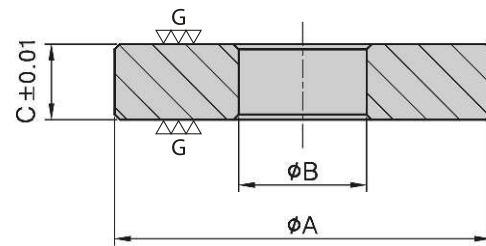
Column for Technical Data

## PT22

### SPACER



- Material / Finish:  
Material: S45C(JIS) / CK45(DIN),  
Heat treated to HRC 40°.
- Application: use with jig components for increasing height or extending length.



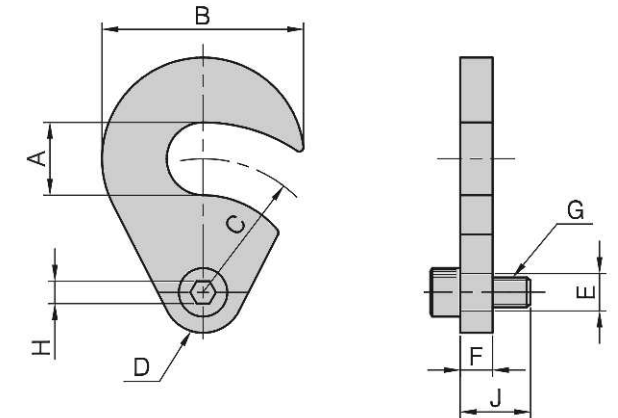
MODEL NO.	A	B	C	kg
PT22-1303	40	13	3	0.030
PT22-1305	40	13	5	0.045
PT22-1310	40	13	10	0.100
PT22-1330	40	13	30	0.300
PT22-1703	50	17	3	0.035
PT22-1705	50	17	5	0.070
PT22-1710	50	17	10	0.350
PT22-1730	50	17	30	0.950

## PT24

### SWING "C" WASHER



- Material / Finish:  
Material: 4140(JIS)/CK45(DIN),  
Heat treated to HRC 40°.
- Application: C washer that swings out of the way for clean loading. Can be reversed to swing into position either clockwise or counter-clockwise.



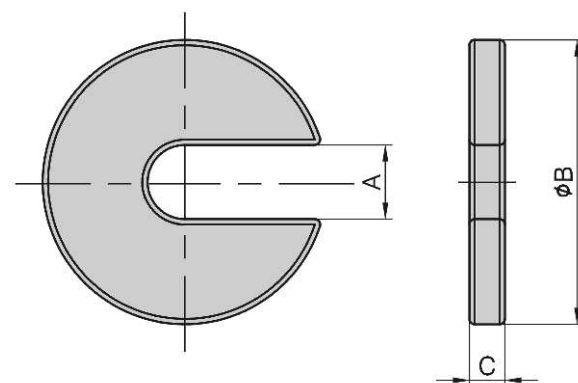
MODEL NO.	A	B	C	D	E	F	G	H	J	kg
PT24-0632	11.0	32	24	16	8	6	M6	8	15	0.050
PT24-0840	13.5	40	27	20	10	8	M8	10	20	0.090
PT24-0850	18.0	50	33	20	10	8	M8	10	20	0.130

## PT23

### "C" WASHER



- Material / Finish:  
Material: S45C(JIS) / CK45(DIN),  
Heat treated to HRC 40°.  
Surface finish: Black Oxide.
- Application: Use where quick assembly is important.
- Features: Washer that slides in and out of position for clean loading.



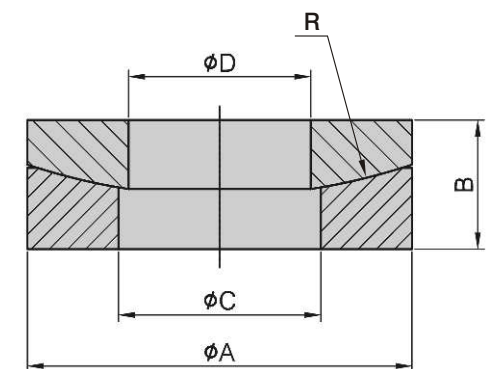
MODEL NO.	A	B	C	kg
PT23-0835	9	35	8	0.065
PT23-1040	11	40	8	0.065
PT23-1255	13	55	10	0.150
PT23-1665	17	65	10	0.200
PT23-2080	21	80	10	0.300
PT23-2490	25	90	12	0.470

## PT25

### SPHERICAL WASHER



- Material / Finish:  
Material: S45C(JIS) / CK45(DIN),  
Heat treated to HRC 38°.  
Surface finish: Black Oxide.
- Application: Two-piece washer that compensates whenever a stud and clamping surface are not exactly perpendicular.



MODEL NO.	φ A	B	φ C	φ D	R	kg
PT25-0819	19	6.2	10	9	30	0.013
PT25-1022	22	8.0	12	11	30	0.019
PT25-1226	26	7.5	15	13	32	0.024
PT25-1428	28	9.0	16	15	40	0.033
PT25-1632	32	9.0	19	17	40	0.058
PT25-1835	35	10.0	20	19	40	0.050
PT25-2040	40	11.8	23	21	48	0.089
PT25-2245	45	12.5	26	24	70	0.110
PT25-2450	50	13.5	28	27	70	0.150

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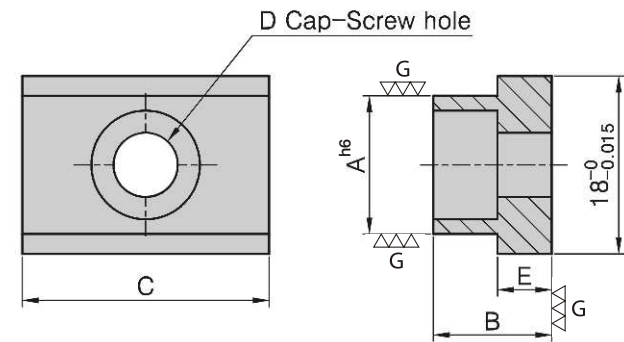
Column for Technical Data



## PT26 LOCATING KEY



- Material / Finish:  
Material: S45C(JIS) / C105W1(DIN),  
Heat treated to HRC 50°.
- Application: Locate & align jig  
components T-slot, ground surface  
provide accurate placement.

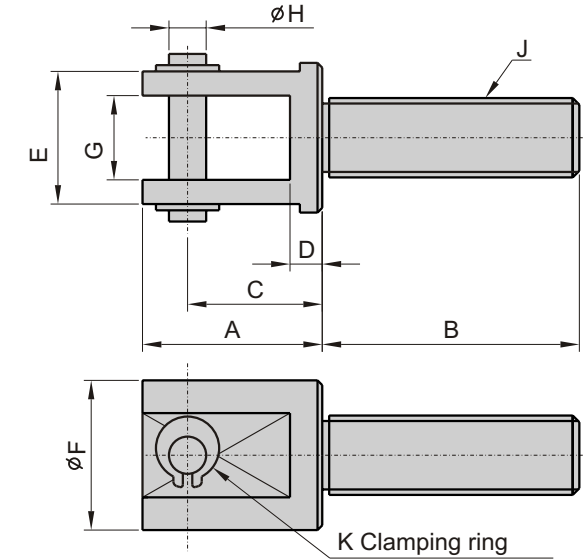


MODEL NO.	A	B	C	D	E	kg
PT26-1812	12	12	25	M6	5.5	0.035
PT26-1814	14	12	25	M6	5.5	0.040
PT26-1816	16	12	25	M6	5.5	0.040
PT26-1820	20	12	25	M6	5.5	0.040
PT26-1822	22	12	25	M6	5.5	0.040

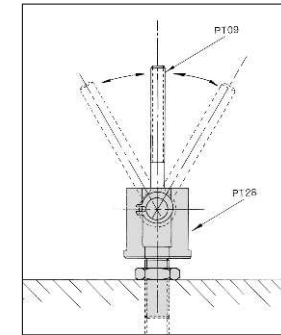


## PT28 SWIVEL JOINT SUPPORT

- Material / Finish:  
Material: S45C(JIS) / CK45(DIN),  
Heat treated to HRC 32°~38°.  
Surface finish: Black Oxide.
- Application: Use with PT09 to build up a  
swiveling jig.



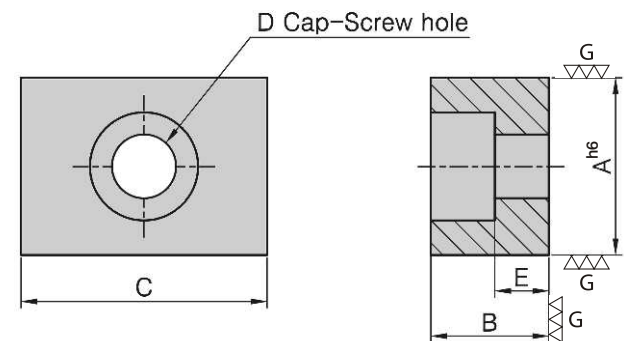
MODEL NO.	A	B	C	D	E	F	G	H	J	K	kg
PT28-1025	28	25	18	7.0	24	28	12	10	M10	10	0.055
PT28-1230	34	30	21	7.5	25	30	14	12	M12	12	0.105
PT28-1640	42	40	26	9.0	34	40	17	16	M16	16	0.210
PT28-2050	52	50	32	11.0	42	50	22	20	M20	20	0.300



## PT27 LOCATING KEY



- Material / Finish:  
Material: S45C(JIS) / C105W1(DIN),  
Heat treated to HRC 45°~50°.
- Application: Locate & align jig  
components in corresponding T-slot,  
ground surface provide accurate  
placement

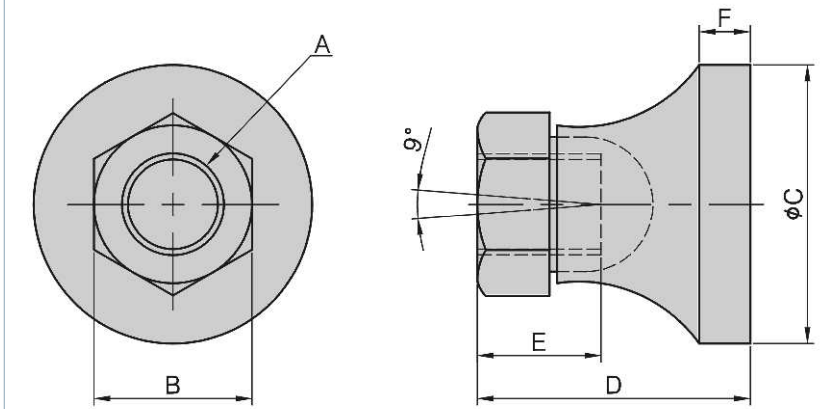


MODEL NO.	A	B	C	D	E	kg
PT27-1008	10	8	20	M4	3.5	0.015
PT27-1208	12	8	20	M5	2.5	0.019
PT27-1410	14	10	22	M6	3.5	0.020
PT27-1610	16	10	22	M6	3.5	0.020
PT27-1810	18	10	22	M6	3.5	0.025
PT27-2010	20	10	22	M6	3.5	0.025
PT27-2210	22	10	22	M6	3.5	0.030

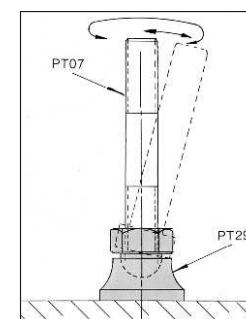


## PT29 SWIVEL PAD

- Material / Finish:  
Material: S45C(JIS) / CK45(DIN),  
Heat treated to HRC 32°~38°.  
Surface finish: Black Oxide.
- Application: Used for supporting uneven  
surfaces.



MODEL NO.	A	B	C	D	E	F	kg
PT29-1219	M12	19	35	24	11	7	0.080
PT29-1624	M16	24	40	29	13	8	0.150
PT29-2029	M20	29	50	40	18	10	0.300



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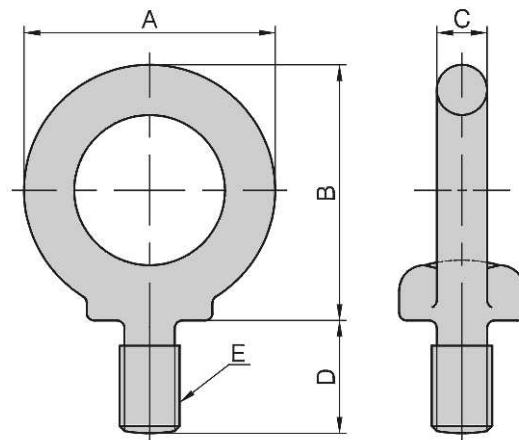
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Column for Technical Data

# PT30

## LIFTING EYEBOLT



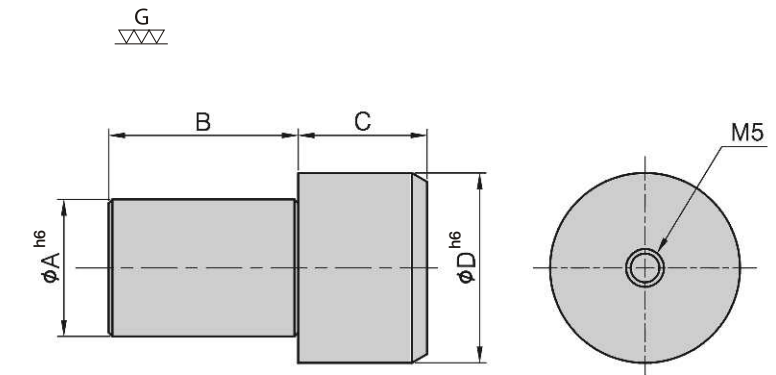
MODEL NO.	A	B	C	D	E	Load kg	kg
PT30-08	32.6	33.3	6.3	15	M 8	80	0.032
PT30-10	41.0	41.5	8.0	18	M10	150	0.063
PT30-12	50.0	51.0	10.0	22	M12	220	0.125
PT30-16	60.0	60.0	12.5	27	M16	450	0.216
PT30-20	72.0	71.0	16.0	30	M20	630	0.400
PT30-24	90.0	90.0	20.0	38	M24	950	0.830
PT30-30	110.0	110.0	25.0	45	M30	1500	1.500
PT30-36	133.0	131.5	31.5	55	M36	2300	2.900
PT30-42	151.0	150.5	35.5	65	M42	3400	4.400



- Material / Finish:  
Material: SCM435(JIS) / 34CrMo4(DIN),  
Heat treated to HRC 55°.
- Application: Multifunction positioning.

# PT32

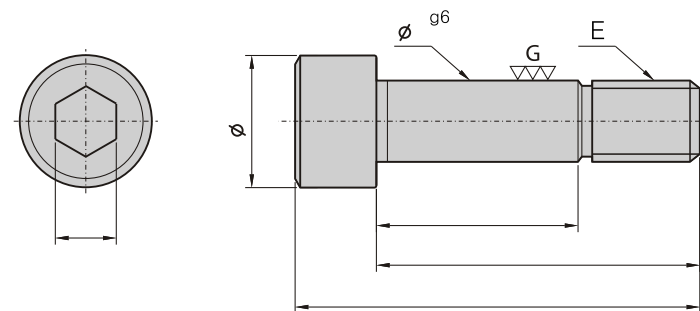
## SHOULDER DOWEL PIN



MODEL NO.	A	B	C	D	kg
PT32-081225	8	13	12	12	0.012
PT32-121632	12	18	14	16	0.032
PT32-142037	14	22	15	20	0.052
PT32-162239	16	22	17	22	0.072
PT32-182542	18	25	17	25	0.098

# PT31

## SHOULDER BOLT



- Material / Finish:  
Material: SCM435(JIS) / 34CrMo4(DIN),  
Heat treated to HRC 32°~38°.
- Application: Position & fasten this accurately ground bolt.

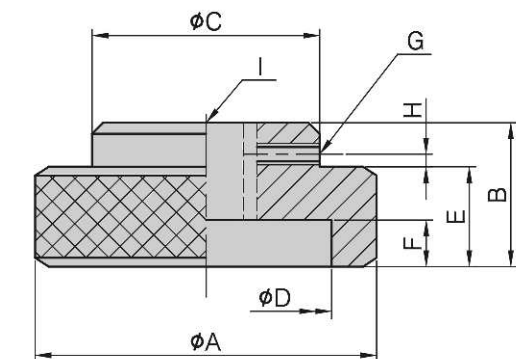
MODEL NO.	A	B	C	D	E	F	G	kg
PT31-1245	φ 12	45	18	23	M12	57	10	0.053
PT31-1255	φ 12	55	18	33	M12	67	10	0.060
PT31-1265	φ 12	65	18	43	M12	77	10	0.070
PT31-1275	φ 12	75	18	53	M12	87	10	0.078
PT31-1655	φ 16	55	24	28	M16	72	14	0.120
PT31-1665	φ 16	65	24	40	M16	82	14	0.140
PT31-1675	φ 16	75	24	50	M16	92	14	0.150



- Material / Finish:  
Material: S45C(JIS) / CK45(DIN)  
Heat treated to HRC 32°~38°.  
Surface finish: Black Oxide.
- Application: Used where quick hand assembly is needed.

# PT33

## KNURLED NUT



MODEL NO.	A	B	C	D	E	F	G	H	I	kg
PT33-0830	30	17	20	24	11	7	M4	3	M8	0.050
PT33-1035	35	20	28	30	13	8	M4	4	M10	0.090
PT33-1240	40	24	32	34	15	10	M5	4	M12	0.120
PT33-1645	45	30	35	38	18	12	M6	5	M16	0.180

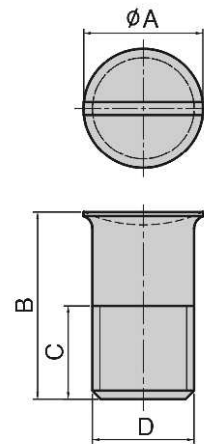
- BP
- BPA
- BC
- CP
- SU
- PT
- SVF
- ALV
- OK-VISE
- OTHER
- Column for Technical Data

- Material / Finish:  
Material: S45C(JIS) / CK45(DIN) / PBT / AL
- Application: Protect unused MTP holes from chips & dirt.

## PT34

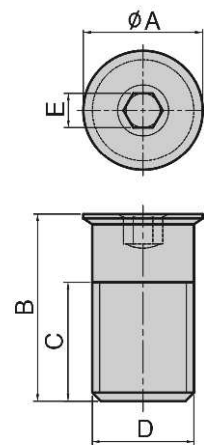
### PROTECTION PLUG

S45C(JIS) / CK45(DIN)



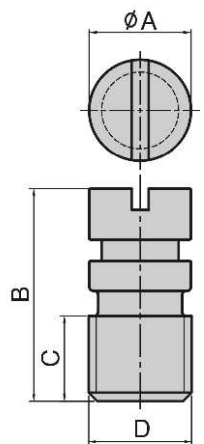
MODEL NO.	A	B	C	D	kg
PT34-10	11	19	10	M10	0.015
PT34-12	14	22	11	M12	0.018
PT34-16	18	25	13	M16	0.035

PBT



MODEL NO.	A	B	C	D	E	kg
PT34-12-PBT	14	22	14	M12	4	0.005
PT34-16-PBT	18	25	11	M16	5	0.010

AL



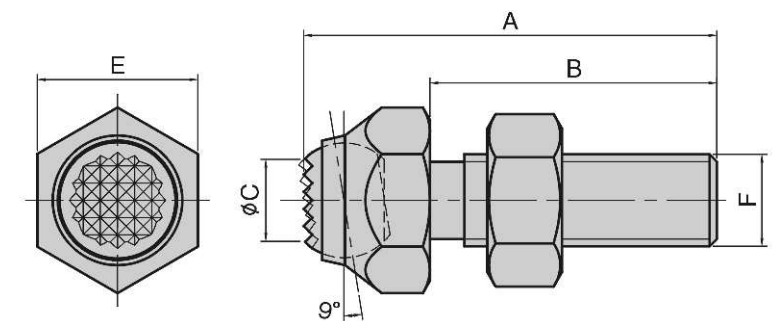
MODEL NO.	A	B	C	D	kg
PT34-12-AL	12	25	10	M12	0.007
PT34-16-AL	16	30	11	M16	0.015

## PT35

### SWIVELING JACK SCREW



- Material:  
Body: S45C(JIS)  
Ball: SUJ2
- Surface furace Finish :  
Black oxide
- Hardness:  
Body: HRC 35°  
Ball: HRC 62°



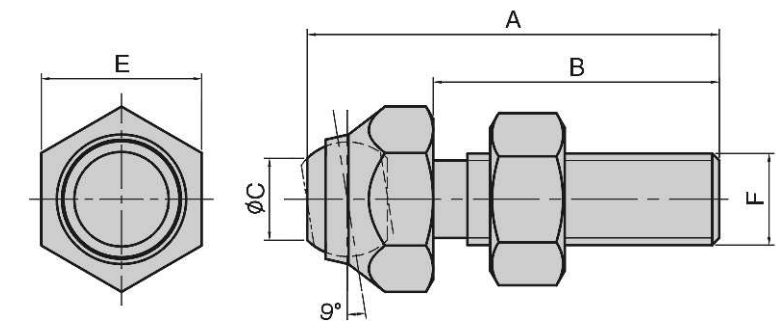
MODEL NO.	A	B	C	E	F	kg
PT35-0814	36	25	7	14	M8x1.25	0.025
PT35-1017	45	30	8	17	M10x1.50	0.055
PT35-1217	50	35	10	17	M12x1.75	0.055
PT35-1624	60	40	12	24	M16x2.00	0.140
PT35-2036	87	60	14	36	M20x2.50	0.330
PT35-2436	98	66	18	36	M24x2.00	0.660
PT35-3046	110	75	21	46	M30x2.00	1.100

## PT36

### SWIVELING JACK SCREW



- Material:  
Body: S45C (JIS)  
Ball: SUJ2
- Surface furace Finish :  
Black oxide
- Hardness:  
body: HRC 35°.  
Ball: HBC 62°



MODEL NO.	A	B	C	E	F	kg
PT36-0814	36	25	7	14	M8x1.25	0.025
PT36-1017	45	30	8	17	M10x1.50	0.055
PT36-1217	50	35	10	17	M12x1.75	0.070
PT36-1624	60	40	12	24	M16x2.00	0.115
PT36-2036	87	60	14	36	M20x2.50	0.330
PT36-2436	98	66	18	36	M24x2.00	0.660
PT36-3046	110	75	21	46	M30x2.00	1.100

BP

BPA

BC

CP

SU

PT

SVF

ALV

OK-  
VISE

OTHER

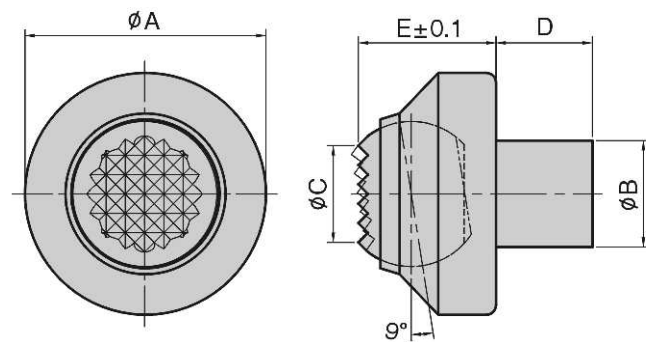
Column  
for  
Technical  
Data

## PT37

### SWIVEL REST TIP



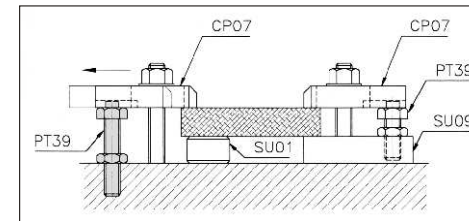
- Material:  
Body: S45C (JIS)  
Ball: SUJ2
- Surface furace Finish :  
Black oxide
- Hardness:  
body: HRC 35°  
Ball: HBC 62°



MODEL NO.	A	B	C	D	E	kg
PT37-1116	25	11	10	10	14.3	0.03
PT37-1118	30	11	12	10	18.0	0.04

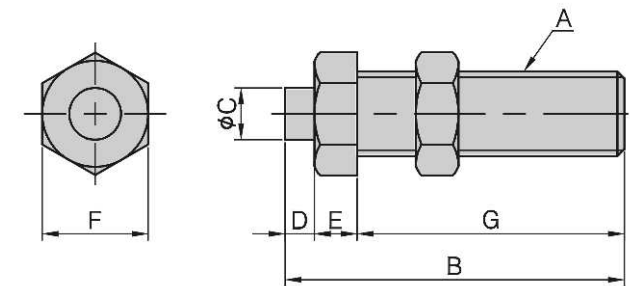


- Material: S45C(JIS)
- Surface furace Finish :  
Black oxide
- Hardness: HRC 35°



## PT39

### CLAMP REST



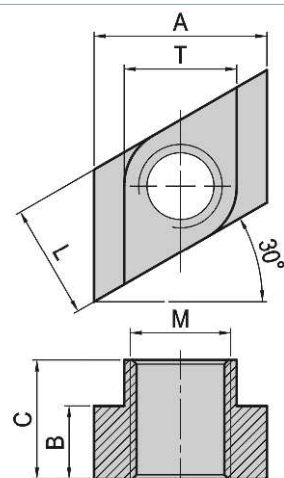
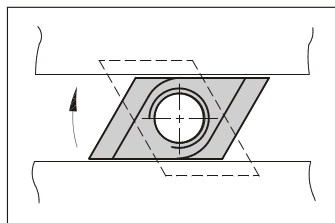
MODEL NO.	A	B	C	D	E	F	G	kg
PT39-1219	M12	75	9.5	6	9	19	60	0.09
PT39-1624	M16	80	11.0	7	10	24	63	0.17
PT39-2030	M20	100	12.0	8	12	30	80	0.35

## PT38

### ROTARY T-SLOT NUT



- Material: SCM220
- Surface Finish: Black Oxide.
- Heat treated to HRC 30°~35°.



MODEL NO.	T	A	B	C	L	M	kg
PT38-1210	11.7	17.5	5.5	12.7	11.5	M10	0.010
PT38-1412	13.8	22.2	8.7	15.8	13.5	M12	0.023
PT38-1614	15.8	25.4	8.7	15.8	15.5	M14	0.030
PT38-1816	17.8	28.5	11.1	19.0	17.5	M16	0.030
PT38-2018	19.7	31.7	11.9	19.0	19.5	M18	0.044
PT38-2220	21.7	36.0	13.8	25.4	21.5	M20	0.062
PT38-2420	23.5	38.2	14.0	25.4	23.5	M20	0.092
PT38-2824	26.9	41.3	17.5	28.5	27.5	M24	0.162

BP

BPA

BC

CP

SU

PT

SVF

ALV

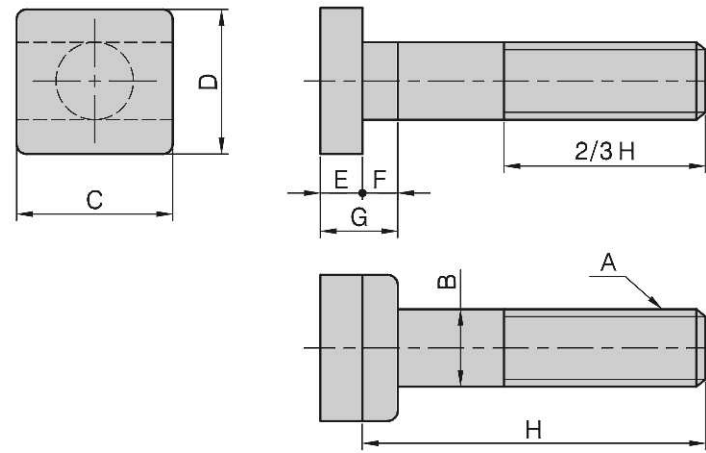
OK-  
VISE

OTHER

Column  
for  
Technical  
Data

# PT40

## T-SLOT BOLT

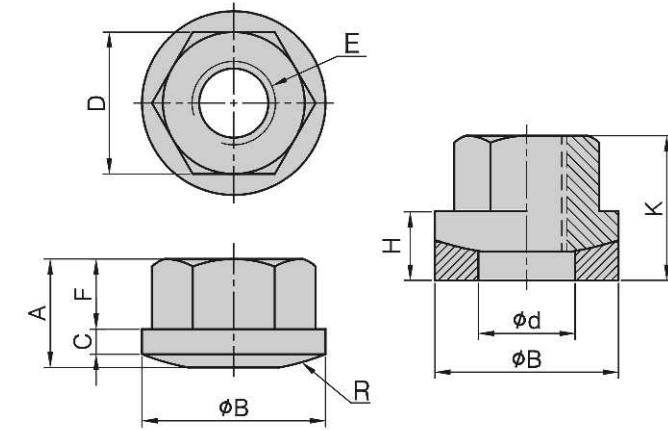


- Material / Finish:  
Material: S45C(JIS)steel forging  
Surface Finish: Black Oxide.
- Hardness: HRC 32°~38°

MODEL NO.	A	B	C	D	E	F	G	H	kg
PT40-12050								50	0.054
PT40-12075								75	0.057
PT40-12100								100	0.110
PT40-12125	M12	φ 12	26	22	7	6	13	125	0.125
PT40-12150								150	0.140
PT40-12175								175	0.170
PT40-12200								200	0.185
PT40-16050								50	0.130
PT40-16075								75	0.160
PT40-16100								100	0.200
PT40-16125	M16	φ 16	32	27	8	8	16	125	0.230
PT40-16150								150	0.270
PT40-16175								175	0.305
PT40-16200								200	0.325
PT40-18075								75	0.270
PT40-18100								100	0.320
PT40-18125	M18	φ 18	40	30	11	11	22	125	0.340
PT40-18150								150	0.385
PT40-18175								175	0.445
PT40-18200								200	0.490
PT40-20075								75	0.290
PT40-20100								100	0.350
PT40-20125								125	0.400
PT40-20150	M20	φ 20	40	30	11	11	22	150	0.455
PT40-20175								175	0.505
PT40-20200								200	0.560
PT40-20250								250	0.660
PT40-20315								315	1.000
PT40-22100								100	0.450
PT40-22125								125	0.510
PT40-22150	M22	φ 22	40	38	14	13	27	150	0.580
PT40-22175								175	0.635
PT40-22200								200	0.700
PT40-24100								100	0.650
PT40-24125								125	0.690
PT40-24150	M24	φ 24	50	44	16	15	31	150	0.775
PT40-24175								175	0.855
PT40-24200								200	0.925

# PT41

## SWIVEL FLANGE NUTS

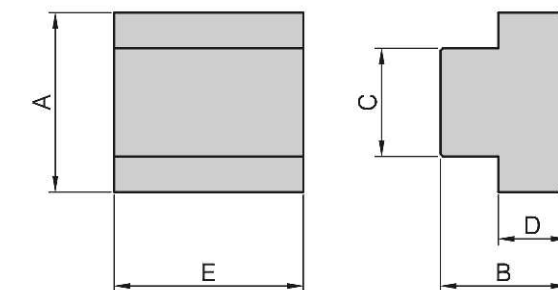


- Material: S45C
- Surface furace Finish :  
Black oxide
- Hardness: HRC 32°~35°

MODEL NO.	A	φ B	C	D	φ d	E	F	H	K	R	kg
PT41-0813	12.0	19	3.0	13	10	M 8	7.8	7	15.0	30	0.021
PT41-1017	13.0	22	3.0	17	12	M10	8.4	8	16.5	30	0.032
PT41-1219	14.3	26	4.0	19	15	M12	9.0	10	19.0	32	0.046
PT41-1422	17.5	28	4.5	22	16	M14	11.4	11	22.0	40	0.066
PT41-1624	20.0	32	4.5	24	19	M16	12.8	11	23.8	40	0.103
PT41-1827	20.6	35	4.5	27	20	M18	13.6	12	25.5	40	0.106
PT41-2030	25.0	40	6.0	30	23	M20	16.6	14	31.0	48	0.183
PT41-2232	25.4	45	6.0	32	26	M22	16.9	15	31.5	70	0.210
PT41-2436	28.0	50	6.0	36	28	M24	18.7	15	33.5	70	0.270

# PT42

## T-SLOT NUT-BLANK



- Material: S45C
- Surface furace Finish :  
Black oxide

MODEL NO.	A	B	C	D	E	kg
PT42-1022	15.8	12.7	9.5	4.7	22	0.026
PT42-1222	17.5	12.7	11.8	5.5	22	0.032
PT42-1428	22.2	15.8	13.8	8.7	28	0.064
PT42-1628	25.4	15.8	15.8	8.7	28	0.073
PT42-1830	28.5	19.0	17.5	11.1	30	0.112
PT42-2030	31.7	19.0	19.7	11.9	30	0.128
PT42-2238	36.0	25.4	21.7	13.8	38	0.223
PT42-2438	38.2	25.4	23.5	14.0	38	0.239
PT42-2644	41.3	25.6	24.7	15.8	44	0.309
PT42-2850	44.0	28.7	26.9	17.5	50	0.403

- BP
- BPA
- BC
- CP
- SU
- PT
- SVF
- ALV
- OK-  
VISE
- OTHER

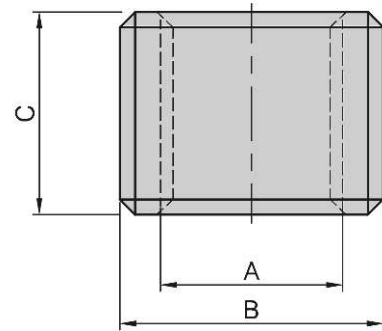
Column for Technical Data

# PT43

## THREADED INSERT



- Material: S45C
- Surface furace Finish : Black oxide
- Hardness: HRC 32°~35°



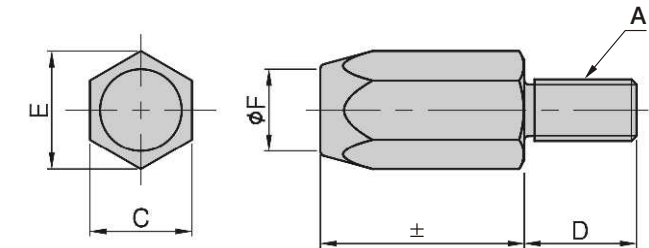
MODEL NO.	A	B	C	kg
PT43-0612-10	M6x1.00	M12x1.5	10	0.005
PT43-0814-12	M8x1.25	M14x1.5	12	0.008
PT43-1016-15	M10x1.50	M16x1.5	15	0.010
PT43-1218-16	M12x1.75	M18x2.0	16	0.015
PT43-1420-18	M14x2.00	M20x2.0	18	0.030
PT43-1622-14	M16x2.00	M22x2.0	14	0.020
PT43-1622-20	M16x2.00	M22x2.0	20	0.025
PT43-2028-25	M20x2.50	M28x2.0	25	0.050

# PT45

## FEET(FLAT END)



- Material: S45C
- High frequency quenching



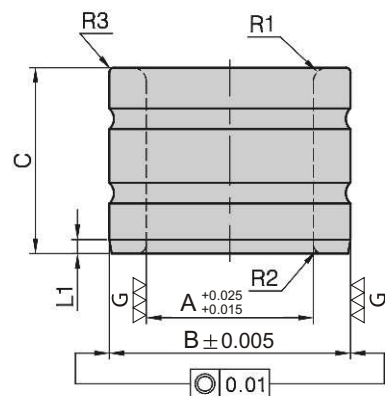
MODEL NO.	A	B	C	D	E	F	kg
PT45-0610	M 6	10	10	11	11.5	8	0.008
PT45-0620	M 6	20	10	11	11.5	8	0.013
PT45-0815	M 8	15	14	13	16.1	10	0.018
PT45-0830	M 8	30	14	13	16.1	10	0.033
PT45-1020	M10	20	17	16	19.6	13	0.044
PT45-1040	M10	40	17	16	19.6	13	0.080
PT45-1225	M12	25	19	20	21.9	15	0.070
PT45-1250	M12	50	19	20	21.9	15	0.126
PT45-1630	M16	30	24	25	27.7	20	0.130
PT45-1660	M16	60	24	25	27.7	20	0.230
PT45-2030	M20	30	30	25	34.6	28	0.200
PT45-2060	M20	60	30	25	34.6	28	0.360

# PT44

## POSITIONING BUSHING



- Material: SUJ2
- Hardness: HRC 60°



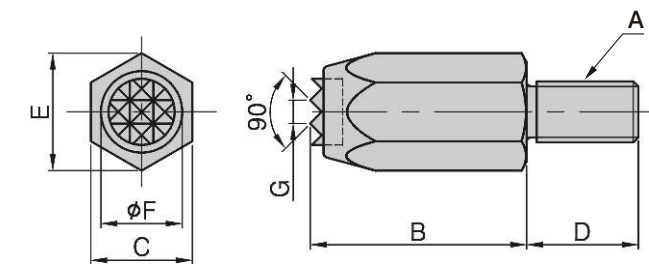
MODEL NO.	A	B	C	R1	R2	R3	L1	kg
PT44-0613-10	φ 6	φ 13	10	1.0	0.5	0.5	1.25	0.007
PT44-0815-10	φ 8	φ 15	10	1.0	0.5	0.5	1.25	0.009
PT44-1018-12	φ 10	φ 18	12	1.5	1.0	0.5	1.50	0.015
PT44-1220-12	φ 12	φ 20	12	1.5	1.0	0.5	1.50	0.017
PT44-1423-16	φ 14	φ 23	16	1.5	1.0	0.5	1.50	0.030
PT44-1523-16	φ 15	φ 23	16	1.5	1.0	0.5	1.50	0.028
PT44-1623-16	φ 16	φ 23	16	1.5	1.0	0.5	1.50	0.025
PT44-1623-20	φ 16	φ 23	20	1.5	1.0	0.5	1.50	0.030
PT44-1826-20	φ 18	φ 26	20	1.5	1.0	0.5	1.50	0.040
PT44-2030-20	φ 20	φ 30	20	2.0	1.5	0.5	2.50	0.060
PT44-2230-20	φ 22	φ 30	20	2.0	1.5	0.5	2.50	0.050
PT44-2535-20	φ 25	φ 35	20	2.0	1.5	0.5	2.50	0.070
PT44-3042-25	φ 30	φ 42	25	2.0	1.5	0.5	2.50	0.130
PT44-4055-30	φ 40	φ 55	30	3.0	2.0	1.0	3.00	0.255
PT44-5070-30	φ 50	φ 70	30	3.0	2.0	1.0	3.00	0.430

# PT46

## FEET(SERRATED END)



- Material / Finish: Material: S45C / 34CrMo4(DIN), Heat treated to HRC 28°~32°. Tooth plate: SKH9(JIS) / S18-1-2-5 (DIN) serrated surface to be heat treated with high frequency quenching. Surface finish: Black Oxide.
- Application: Multipurpose work support and clamping unit, ideal for rough parts.
- Features: Excellent holding power from the serrated face.



MODEL NO.	A	B	C	D	E	F	G	kg
PT46-0610	M 6	10	10	11	11.5	6.5	2.3	0.008
PT46-0620	M 6	20	10	11	11.5	6.5	2.3	0.013
PT46-0815	M 8	15	14	13	16.1	8.1	2.3	0.018
PT46-0830	M 8	30	14	13	16.1	8.1	2.3	0.033
PT46-1020	M10	20	17	16	19.6	11.4	3.0	0.044
PT46-1040	M10	40	17	16	19.6	11.4	3.0	0.080
PT46-1225	M12	25	19	20	21.9	13.0	3.0	0.070
PT46-1250	M12	50	19	20	21.9	13.0	3.0	0.126
PT46-1630	M16	30	24	25	27.7	16.2	3.0	0.130
PT46-1660	M16	60	24	25	27.7	16.2	3.0	0.230
PT46-2030	M20	30	30	25	34.6	25.2	3.0	0.200
PT46-2060	M20	60	30	25	34.6	25.2	3.0	0.360

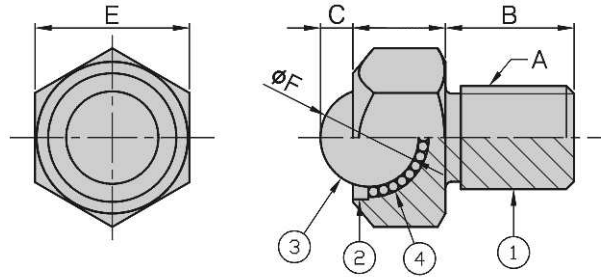
- BP
- BPA
- BC
- CP
- SU
- PT
- SVF
- ALV
- OK-VISE
- OTHER
- Column for Technical Data

# PT47-49

## BALL ROLLERS

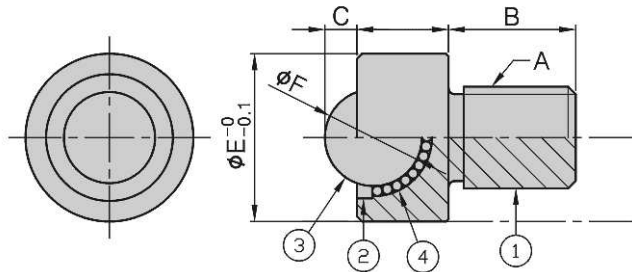
- Material: ①Body: SUS304  
 ②Spacer: SUS304  
 ③Main-ball: SUS440 HRC 55°  
 ④Sub-ball: SUS440 HRC 55°

**PT47**



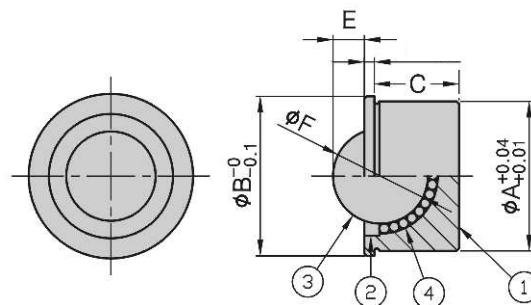
MODEL NO.	A	B	C	D	E	F	N(kgf)
PT47-1615	M16	20	3.3	16	24	15.87	343(35)
PT47-2018	M20	25	5.3	19	30	19.05	412(42)

**PT48**



MODEL NO.	A	B	C	D	E	F	G	N(kgf)
PT48-1615	M16	20	3.3	16	27	15.87	23	343(35)
PT48-2018	M20	25	5.3	19	33	19.05	29	412(42)

**PT49**



MODEL NO.	A	B	C	D	E	F	N(kgf)
PT49-2614	24	26	14	1.5	5.3	15.87	343(35)
PT49-3217	30	32	17	2	6.3	19.05	412(42)