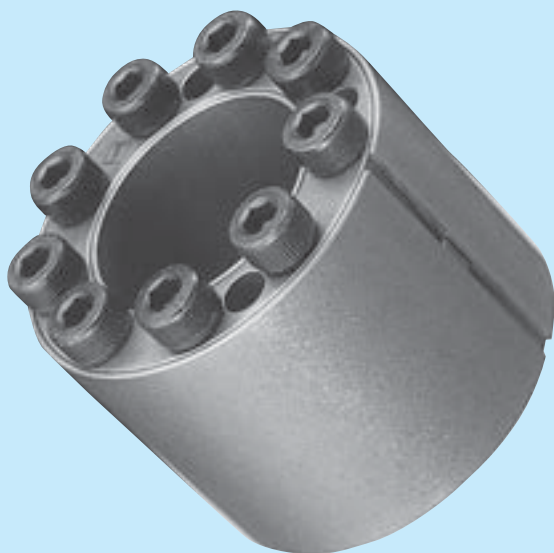


Power-Lock®

AD-N Series

Sizes : $\phi 19 \sim \phi 300$
 Shaft tolerance : h8
 Hub bore tolerance : H8
 Surface roughness : Ra1.6



RoHS compliant.

Features

1 High Capacity

Capable of transmitting 1.5 to 3 times the rated torque of the AS Series.

2 Same Inner and Outer Diameters as the AS Series

Designed with the same inner and outer diameters as an AS Series Power-Lock.

3 Self-Centering

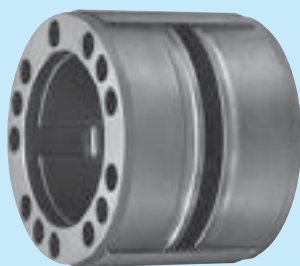
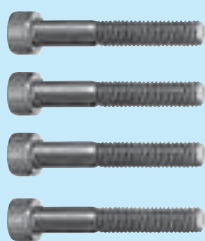
These units provide accurate shaft-hub alignment and concentricity, allowing straight bore mounting.

4 New Electroless Nickel-Plated Models

Electroless nickel-plated models also available in $\phi 50$ to $\phi 100$ mm.

Ideal for driving heavy transmission loads in clean rooms.

Parts



< Caution >

The taper angles of "Power-Lock" AD-N Series shaft-hub locking devices are smaller than those of other similar devices. To install or remove a "Power-Lock" AD-N Series shaft-hub locking device, you must tighten the bolts gradually. Rapid tightening will damage the bolts and screw holes. Even tightening may be best accomplished by turning each bolt in increments of approximately 30° .

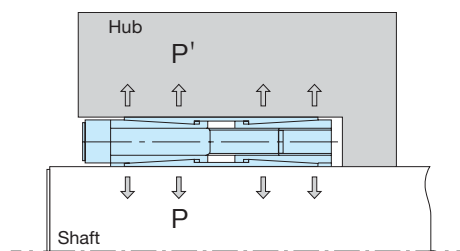
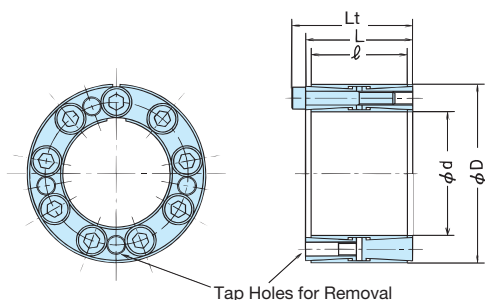
These products come in a complete one-piece unit, so the only removable parts are the locking bolts. The holes that do not contain bolts when delivered are the tap holes prepared for removal.

Reference Number System

PL 045 X 075 AD - N

PL: Power-Lock
 045: Shaft Diameter mm
 X: Outer Diameter mm
 075: Series
 AD - N: AD-N: Standard
 AD-N-KP: Electroless nickel-plated

Model Numbers and Specifications



P and P' represent the average contact pressure applied to the shaft and hub respectively. These values may vary from -20% to +40%, depending on the amount of friction applied to the bolts. Transmissible torque Mt and transmissible thrust Pax are calculated from the minimum allowable contact pressure.

* Note) 3

Model No. d X D Shaft Diameter X Outer Diameter mm	Dimensions mm			Transmissible Torque		Transmissible Thrust		Contact Pressure				Locking Bolts			Mass
	ℓ	L	Lt	Mt		Pax		Shaft P		Hub P'		Quantity	Size	Tightening Torque MA	kg
				N · m	{ kgf · m }	kN	{ kgf }	MPa	{ kgf/mm ² }	MPa	{ kgf/mm ² }			N · m	{ kgf · m }
PL 019 X 047 AD-N	30	35	41	382	39	40.6	4140	237	24.1	96	9.8	6	M6 × 28	16.7	1.7
PL 020 X 047 AD-N	30	35	41	402	41	40.6	4140	225	22.9	96	9.8	6	M6 × 28	16.7	1.7
PL 022 X 047 AD-N	30	35	41	441	45	40.6	4140	204	20.8	96	9.8	6	M6 × 28	16.7	1.7
PL 024 X 050 AD-N	35	40	46	647	66	54.2	5530	214	21.8	103	10.5	8	M6 × 30	16.7	1.7
PL 025 X 050 AD-N	35	40	46	676	69	54.2	5530	205	21.0	103	10.5	8	M6 × 30	16.7	1.7
PL 028 X 055 AD-N	35	40	46	755	77	54.2	5530	183	18.7	93	9.5	8	M6 × 30	16.7	1.7
PL 030 X 055 AD-N	35	40	46	784	80	54.2	5530	171	17.5	93	9.5	8	M6 × 30	16.7	1.7
PL 032 X 060 AD-N	45	50	56	1270	130	81	8300	189	19.2	101	10.3	10	M6 × 35	16.7	1.7
PL 035 X 060 AD-N	45	50	56	1370	140	81	8300	172	17.6	101	10.3	10	M6 × 35	16.7	1.7
PL 038 X 065 AD-N	52	57	63	1670	170	89	9100	151	15.4	88	9.0	11	M6 × 40	16.7	1.7
PL 040 X 065 AD-N	52	57	63	1760	180	89	9100	144	14.7	88	9.0	11	M6 × 40	16.7	1.7
PL 042 X 075 AD-N	56	64	72	3530	360	170	17300	192	19.6	108	11.0	9	M8 × 50	40.2	4.1
PL 045 X 075 AD-N	56	64	72	3820	390	170	17300	179	18.3	108	11.0	9	M8 × 50	40.2	4.1
PL 048 X 080 AD-N	56	64	72	4070	415	170	17300	168	17.1	101	10.3	9	M8 × 50	40.2	4.1
PL 050 X 080 AD-N	56	64	72	4210	430	170	17300	162	16.5	101	10.3	9	M8 × 50	40.2	4.1
PL 055 X 085 AD-N	56	64	72	4610	470	170	17300	147	15.0	95	9.7	9	M8 × 50	40.2	4.1
PL 060 X 090 AD-N	56	64	72	6170	630	208	21200	165	16.8	110	11.2	11	M8 × 50	40.2	4.1
PL 065 X 095 AD-N	56	64	72	6760	690	208	21200	130	13.3	89	9.1	11	M8 × 50	40.2	4.1
PL 070 X 110 AD-N	70	78	88	11600	1180	330	33700	179	18.3	114	11.6	11	M10 × 70	81.3	8.3
PL 075 X 115 AD-N	70	78	88	12300	1260	330	33700	167	17.0	109	11.1	11	M10 × 70	81.3	8.3
PL 080 X 120 AD-N	70	78	88	14400	1470	360	36700	171	17.4	114	11.6	12	M10 × 70	81.3	8.3
PL 085 X 125 AD-N	70	78	88	15300	1560	360	36700	161	16.4	109	11.1	12	M10 × 70	81.3	8.3
PL 090 X 130 AD-N	70	78	88	17500	1790	390	39800	165	16.8	114	11.6	13	M10 × 70	81.3	8.3
PL 095 X 135 AD-N	70	78	88	18500	1890	390	39800	156	15.9	110	11.2	13	M10 × 70	81.3	8.3
PL 100 X 145 AD-N	90	100	112	26500	2700	531	54200	157	16.0	108	11.0	12	M12 × 90	142	14.5
PL 110 X 155 AD-N	90	100	112	31700	3230	576	58800	155	15.8	110	11.2	13	M12 × 90	142	14.5
PL 120 X 165 AD-N	90	100	112	39900	4070	664	67800	164	16.7	119	12.1	15	M12 × 90	142	14.5
PL 130 X 180 AD-N	104	116	130	50700	5170	779	79500	153	15.6	111	11.3	13	M14 × 90	225	23.0
PL 140 X 190 AD-N	104	116	130	62900	6420	900	91800	164	16.7	121	12.3	15	M14 × 90	225	23.0
PL 150 X 200 AD-N	104	116	130	71900	7340	959	97900	164	16.7	123	12.5	16	M14 × 90	225	23.0
PL 160 X 210 AD-N	104	116	130	81500	8320	1020	104000	163	16.6	123	12.6	17	M14 × 90	225	23.0
PL 170 X 225 AD-N	134	146	162	106000	10800	1240	127000	146	14.9	110	11.2	15	M16 × 120	348	35.5
PL 180 X 235 AD-N	134	146	162	120000	12200	1330	136000	147	15.0	113	11.5	16	M16 × 120	348	35.5
PL 190 X 250 AD-N	134	146	162	134000	13700	1410	144000	148	15.1	113	11.5	17	M16 × 120	348	35.5
PL 200 X 260 AD-N	134	146	162	141000	14400	1410	144000	140	14.3	108	11.0	17	M16 × 120	348	35.5
PL 220 X 285 AD-N	134	146	162	183000	18700	1670	170000	150	15.3	118	12.0	20	M16 × 120	348	35.5
PL 240 X 305 AD-N	134	146	162	220000	22400	1830	187000	151	15.4	120	12.2	22	M16 × 120	348	35.5
PL 260 X 325 AD-N	134	146	162	238000	24300	1830	187000	114	11.6	91	9.3	22	M16 × 120	348	35.5
PL 280 X 355 AD-N	165	177	197	364000	37100	2600	265000	150	15.3	118	12.0	20	M20 × 150	676	69.0
PL 300 X 375 AD-N	165	177	197	429000	43800	2860	292000	154	15.7	123	12.5	22	M20 × 150	676	69.0

Notes) 1. Stocked models are in bold.

2. Mt indicates torque at 0 transmissible thrust, while Pax indicates transmissible thrust at 0 torque. If transmissible torque and thrust apply simultaneously calculate and compare the combined value with the transmissible torque provided in the table.

3. Dimensions when this product is attached to the shaft and hub.

Model Numbers and Specifications

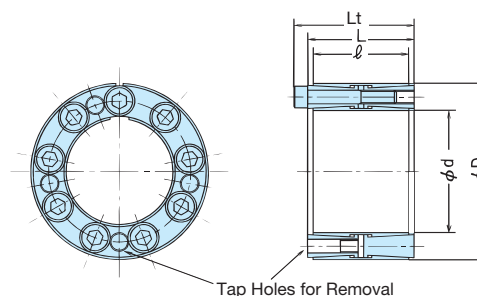
Electroless nickel-plated (AD-N-KP)

● Special notes

1. Dimensions and transfer torque are the same as the standard AD-N series.
No drop in rated torque capacity.
2. The units are plated with peel-proof electroless nickel.
3. The Locking Bolts are DISGO R treated so that assembly lubrication is not necessary.
The electroless nickel-plated models are chrome-free and environmentally friendly.

● Application

Most suitable for clean-room operation requiring minimum rust.



* Note) 3

Model No. d X D Shaft Diameter X Outer Diameter mm	Dimensions _{mm}			Transmissible Torque		Transmissible Thrust		Contact Pressure				Locking Bolts				Mass
	ℓ	L	Lt	Mt		Pax		Shaft P		Hub P'		Quantity	Size	Tightening Torque M _A		
				N · m	{ kgf · m }	kN	{ kgf }	MPa	{ kgf/mm ² }	MPa	{ kgf/mm ² }			N · m	{ kgf · m }	
PL 050 X 080 AD-N-KP	56	64	72	4210	430	170	17300	162	16.5	101	10.3	9	M8× 50	40.2	4.1	1.38
PL 055 X 085 AD-N-KP	56	64	72	4610	470	170	17300	147	15.0	95	9.7	9	M8× 50	40.2	4.1	1.49
PL 060 X 090 AD-N-KP	56	64	72	6170	630	208	21200	165	16.8	110	11.2	11	M8× 50	40.2	4.1	1.59
PL 065 X 095 AD-N-KP	56	64	72	6760	690	208	21200	130	13.3	89	9.1	11	M8× 50	40.2	4.1	1.71
PL 070 X 110 AD-N-KP	70	78	88	11600	1180	330	33700	179	18.3	114	11.6	11	M10× 70	81.3	8.3	3.18
PL 075 X 115 AD-N-KP	70	78	88	12300	1260	330	33700	167	17.0	109	11.1	11	M10× 70	81.3	8.3	3.36
PL 080 X 120 AD-N-KP	70	78	88	14400	1470	360	36700	171	17.4	114	11.6	12	M10× 70	81.3	8.3	3.52
PL 085 X 125 AD-N-KP	70	78	88	15300	1560	360	36700	161	16.4	109	11.1	12	M10× 70	81.3	8.3	3.70
PL 090 X 130 AD-N-KP	70	78	88	17500	1790	390	39800	165	16.8	114	11.6	13	M10× 70	81.3	8.3	3.88
PL 095 X 135 AD-N-KP	70	78	88	18500	1890	390	39800	156	15.9	110	11.2	13	M10× 70	81.3	8.3	4.06
PL 100 X 145 AD-N-KP	90	100	112	26500	2700	531	54200	157	16.0	108	11.0	12	M12× 90	142	14.5	6.13

Notes) 1. Stocked models are in bold.

2. Mt indicates torque at 0 transmissible thrust, while Pax indicates transmissible thrust at 0 torque. If transmissible torque and thrust apply simultaneously calculate and compare the combined value with the transmissible torque provided in the table.

3. Dimensions when this product is attached to the shaft and hub.

Hub Diameters (1)

■ Standard (AD-N) Series

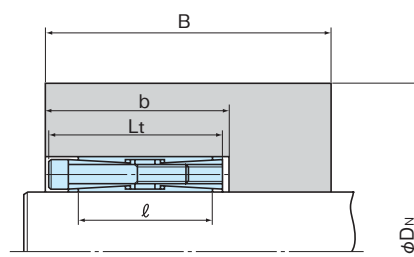
■ Electroless nickel-plated (AD-N-KP) Series

(1) Installing to hubs with a guide portion

when $B \geq 2\ell$

(See Installation Example A)

ϕD_N is the minimum hub diameter required to tolerate P' or the pressure exerted from within the hub.



Installation Example(A)
When installing to hubs with a guide portion
the hub configuration coefficient is as follows: $K_3 = 0.6$

Hub Configuration Coefficient $K_3 = 0.6$

Minimum hub diameter $\phi D_N(\text{mm})$

Model No. d X D Shaft Diameter X Outer Diameter mm	MPa kgf/mm²		Yield Point of Hub Material $\sigma_{0.2}$								Hub boring depth b (mm)
			206	225	245	274	294	343	392	441	
	21	23	25	28	30	35	40	45			
	FC350 SS400 SC410	SC450 S15C SF440	FCD400 SS490 SC480 S20C SF490	S30C SF540	S35C SF590	S45C	S55C	FCD700			
	MPa kgf/mm ²	FCMB360									
PL 019 X 047 AD-N	96	9.8	63	61	60	59	58	56	55	54	43
PL 020 X 047 AD-N	96	9.8	63	61	60	59	58	56	55	54	43
PL 022 X 047 AD-N	96	9.8	63	61	60	59	58	56	55	54	43
PL 024 X 050 AD-N	103	10.5	69	67	65	63	62	60	59	58	48
PL 025 X 050 AD-N	103	10.5	69	67	65	63	62	60	59	58	48
PL 028 X 055 AD-N	94	9.5	73	71	70	68	67	65	64	63	48
PL 030 X 055 AD-N	94	9.5	73	71	70	68	67	65	64	63	48
PL 032 X 060 AD-N	101	10.3	82	79	78	76	74	72	71	69	58
PL 035 X 060 AD-N	101	10.3	82	79	78	76	74	72	71	69	58
PL 038 X 065 AD-N	89	9.0	85	83	81	80	79	76	75	74	65
PL 040 X 065 AD-N	89	9.0	85	83	81	80	79	76	75	74	65
PL 042 X 075 AD-N	108	11.0	104	101	99	96	94	91	89	87	74
PL 045 X 075 AD-N	108	11.0	104	101	99	96	94	91	89	87	74
PL 048 X 080 AD-N	101	10.3	109	106	103	101	99	96	94	92	74
PL 050 X 080 AD-N (KP)	101	10.3	109	106	103	101	99	96	94	92	74
PL 055 X 085 AD-N (KP)	95	9.7	113	111	108	105	104	101	99	97	74
PL 060 X 090 AD-N (KP)	110	11.2	126	122	119	115	113	110	107	105	74
PL 065 X 095 AD-N (KP)	89	9.1	125	122	119	116	115	112	110	108	74
PL 070 X 110 AD-N (KP)	114	11.6	156	151	147	142	140	135	132	129	90
PL 075 X 115 AD-N (KP)	109	11.1	160	155	152	147	145	140	137	134	90
PL 080 X 120 AD-N (KP)	114	11.6	170	165	160	155	153	147	144	141	90
PL 085 X 125 AD-N (KP)	109	11.1	174	169	165	160	157	152	148	146	90
PL 090 X 130 AD-N (KP)	114	11.6	184	178	174	168	165	160	156	152	90
PL 095 X 135 AD-N (KP)	110	11.2	188	183	178	173	170	164	160	157	90
PL 100 X 145 AD-N (KP)	108	11.0	201	196	191	185	182	176	172	169	114
PL 110 X 155 AD-N	110	11.2	216	210	205	198	195	189	184	181	114
PL 120 X 165 AD-N	119	12.1	237	229	223	216	212	204	199	195	114
PL 130 X 180 AD-N	111	11.3	252	244	238	231	227	219	214	210	132
PL 140 X 190 AD-N	121	12.3	275	266	258	250	245	236	230	225	132
PL 150 X 200 AD-N	123	12.5	291	281	273	264	259	249	242	237	132
PL 160 X 210 AD-N	123	12.6	307	296	288	278	272	262	255	249	132
PL 170 X 225 AD-N	110	11.2	314	305	297	288	283	274	267	262	164
PL 180 X 235 AD-N	113	11.5	331	320	312	303	297	287	280	275	164
PL 190 X 250 AD-N	113	11.5	352	341	332	322	316	306	298	292	164
PL 200 X 260 AD-N	108	11.0	361	350	341	331	326	315	308	302	164
PL 220 X 285 AD-N	118	12.0	401	388	377	365	358	346	337	330	164
PL 240 X 305 AD-N	120	12.2	439	424	412	399	391	377	367	360	164
PL 260 X 325 AD-N	91	9.3	427	416	408	398	392	382	374	368	164
PL 280 X 355 AD-N	118	12.0	508	492	478	463	454	438	427	418	199
PL 300 X 375 AD-N	123	12.5	546	527	512	494	485	467	454	444	199

Notes) 1. The above figures do not take safety rates into account. Consider them prior to operation.

2. Calculate hub diameters using the formula $K_3=0.6$ as discussed in Selection Procedure.

Hub Diameters (2)

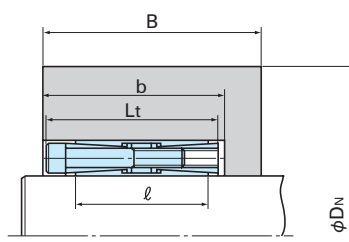
Standard (AD-N) Series

Electroless nickel-plated (AD-N-KP) Series

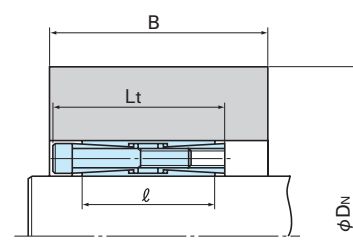
(2) Installing to hubs with a guide portion
when $L_t < B < 2\ell$
(See Installation Example B)

(3) Installing to hubs without a guide portion
(See Installation Example C)

ϕD_N is the minimum hub diameter required to tolerate P' or the pressure exerted from within the hub.



Installation Example(B)
When installing to hubs
with a guide portion,
the hub configuration coefficient
is as follows: $K_3 = 1.0$



Installation Example(C)
When installing to hubs
without a guide portion,
the hub configuration coefficient
is as follows: $K_3 = 1.0$

Hub Configuration Coefficient $K_3 = 1.0$

Minimum hub diameter $\phi D_N(\text{mm})$

Model No. d X D Shaft Diameter X Outer Diameter mm	Hub Contact Pressure P'		Yield Point of Hub Material $\sigma_{0.2}$								Hub boring depth b (mm)
			206	225	245	274	294	343	392	441	
	MPa	kgf/mm ²	21	23	25	28	30	35	40	45	
			FC350 SS400 SC410	SC450 S15C SF440	FCD400 SS490 SC480 S20C SF490	S30C SF540	S35C SF590	S45C	S55C	FCD700	
PL 019 X 047 AD-N	96	9.8	78	74	71	68	66	63	61	59	43
PL 020 X 047 AD-N	96	9.8	78	74	71	68	66	63	61	59	43
PL 022 X 047 AD-N	96	9.8	78	74	71	68	66	63	61	59	43
PL 024 X 050 AD-N	103	10.5	87	82	79	75	73	69	66	64	48
PL 025 X 050 AD-N	103	10.5	87	82	79	75	73	69	66	64	48
PL 028 X 055 AD-N	94	9.5	90	86	83	79	77	73	71	69	48
PL 030 X 055 AD-N	94	9.5	90	86	83	79	77	73	71	69	48
PL 032 X 060 AD-N	101	10.3	103	97	93	89	86	82	79	76	58
PL 035 X 060 AD-N	101	10.3	103	97	93	89	86	82	79	76	58
PL 038 X 065 AD-N	89	9.0	103	99	95	91	86	85	82	80	65
PL 040 X 065 AD-N	89	9.0	103	99	95	91	89	85	82	80	65
PL 042 X 075 AD-N	108	11.0	134	127	121	114	111	104	100	97	74
PL 045 X 075 AD-N	108	11.0	134	127	121	114	111	104	100	97	74
PL 048 X 080 AD-N	101	10.3	137	130	124	118	115	109	105	101	74
PL 050 X 080 AD-N (KP)	101	10.3	137	130	124	118	115	109	105	101	74
PL 055 X 085 AD-N (KP)	95	9.7	140	134	128	122	119	113	109	106	74
PL 060 X 090 AD-N (KP)	110	11.2	163	154	146	138	134	126	120	116	74
PL 065 X 095 AD-N (KP)	89	9.1	152	145	140	134	131	125	120	117	74
PL 070 X 110 AD-N (KP)	114	11.6	206	192	182	172	166	156	149	144	90
PL 075 X 115 AD-N (KP)	109	11.1	208	195	186	175	170	160	153	148	90
PL 080 X 120 AD-N (KP)	114	11.6	224	210	199	187	181	170	162	157	90
PL 085 X 125 AD-N (KP)	109	11.1	226	213	202	191	185	174	167	161	90
PL 090 X 130 AD-N (KP)	114	11.6	243	227	216	203	196	184	176	170	90
PL 095 X 135 AD-N (KP)	110	11.2	245	230	219	207	200	188	180	175	90
PL 100 X 145 AD-N (KP)	108	11.0	261	245	233	220	214	201	193	187	114
PL 110 X 155 AD-N	110	11.2	281	264	251	237	230	216	207	200	114
PL 120 X 165 AD-N	119	12.1	319	297	281	263	254	237	226	218	114
PL 130 X 180 AD-N	111	11.3	328	308	293	276	268	252	241	233	132
PL 140 X 190 AD-N	121	12.3	373	346	327	305	295	275	262	252	132
PL 150 X 200 AD-N	123	12.5	397	368	347	324	312	291	277	266	132
PL 160 X 210 AD-N	123	12.6	422	390	367	342	330	307	292	281	132
PL 170 X 225 AD-N	110	11.2	409	384	365	345	334	314	301	291	164
PL 180 X 235 AD-N	113	11.5	434	407	386	364	352	331	316	305	164
PL 190 X 250 AD-N	113	11.5	461	432	411	387	374	352	336	325	164
PL 200 X 260 AD-N	108	11.0	465	438	418	395	383	361	345	334	164
PL 220 X 285 AD-N	118	12.0	538	501	474	444	429	401	382	369	164
PL 240 X 305 AD-N	120	12.2	591	549	519	486	469	439	418	403	164
PL 260 X 325 AD-N	91	9.3	522	499	480	459	448	427	412	401	164
PL 280 X 355 AD-N	118	12.0	682	635	600	563	543	508	485	467	199
PL 300 X 375 AD-N	123	12.5	747	691	651	607	586	546	519	500	199

Notes) 1. The above figures do not take safety rates into account. Consider them prior to operation.
2. Calculate hub diameters using the formula $K_3=1.0$ as discussed in Selection Procedure.



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