Pascal

mini Gas springs

www.pascaleng.co.jp

Pascal mini gas springs

Pascal is the only company who produces gas springs in Japan

model DSD

Large diameter rod
High initial force

page → 5

model DSA

High durability against side-load

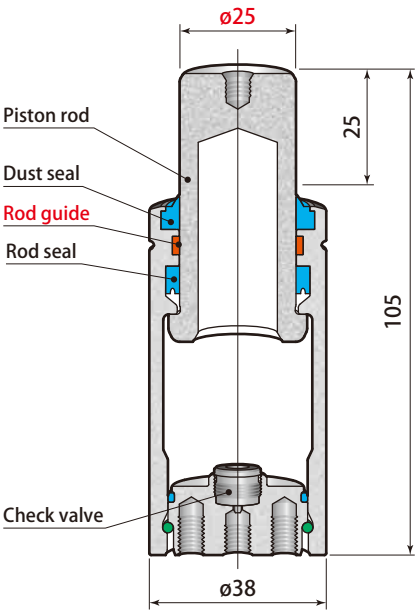
page → 7

model DSC

Compact body

page → 9

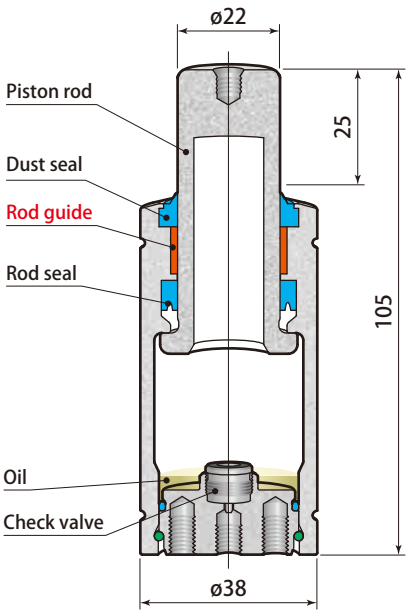
model DSD38-25



Rod seal, Sleeve-less construction

Initial force 10.3 kN (1051 kgf)
Max. side-load 0.52/100 mm
(Allowable eccentric angle 0.3°)

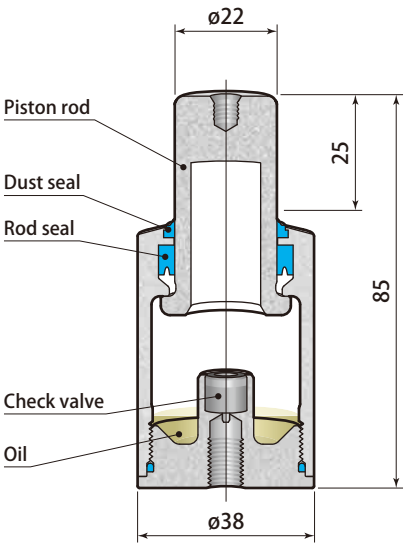
model DSA38-25



Rod seal, Sleeve-less construction

Initial force 7.98 kN (814 kgf)
Max. side-load 0.52/100 mm
(Allowable eccentric angle 0.3°)

model DSC38-25



Rod seal, Sleeve-less construction

Initial force 7.98 kN (814 kgf)
Max. side-load —

● model DSC is weaker against the side-load compared with model DSA due to the guide-less structure.

model **DNK**

model **DNR**

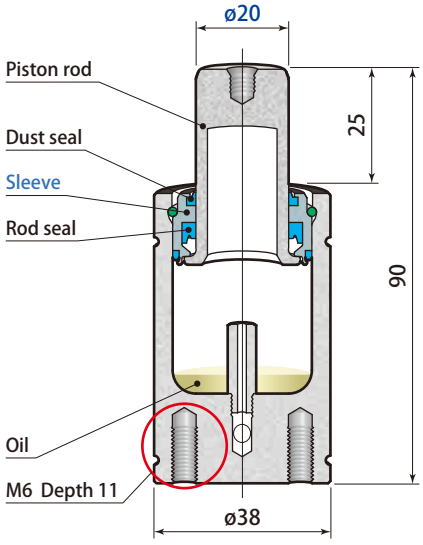
Compact body and hose-link type

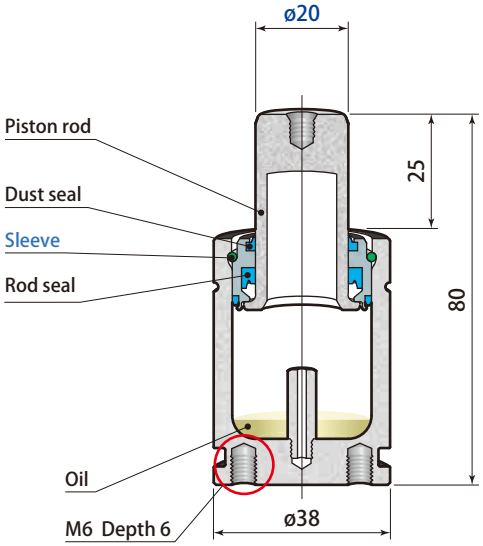
page → 11

page → 13

model DNK0500-25

model DNR0500-25





Rod seal, Sleeve construction

Initial force **4.71 kN (480kgf)**

Max. side-load **0.87/100 mm**
(Allowable eccentric angle 0.5°)

● Installation with a mount flange is advisable for model DNR due to the shallow tapped hole at the bottom.

Model designation

DSD 38 – 25 – 21

1 Cylinder diameter (mm)

2 Stroke (mm)

3 Gas charge pressure (MPa)

1 Cylinder diameter

32 : 32 mm
38 : 38 mm
50 : 50 mm

page → 6

2 Stroke

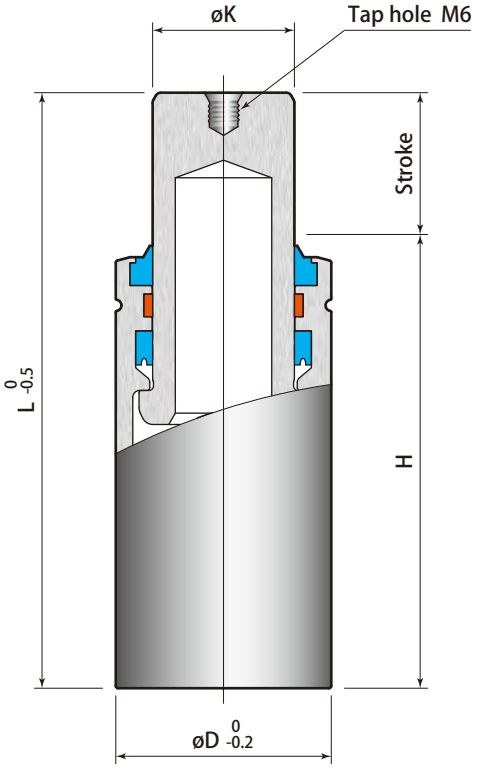
10 : 10 mm
15 : 15 mm
20 : 20 mm
25 : 25 mm
32 : 32 mm
38 : 38 mm
45 : 45 mm
50 : 50 mm
56 : 56 mm new
63 : 63 mm new
80 : 80 mm new

page → 6

3 Gas charge pressure

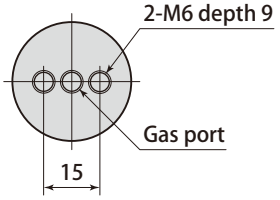
15 : 15 MPa
16 : 16 MPa ＊DSD32only
18 : 18 MPa
21 : 21 MPa
OS : Specify "OS" when delivery without gas charge.Charged pressure is unadjustable after delivery.

Dimensions

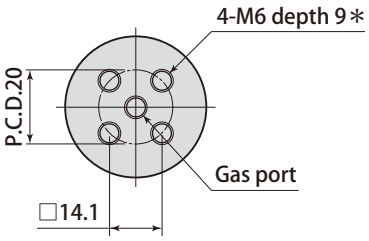


Cylinder base

DSD32

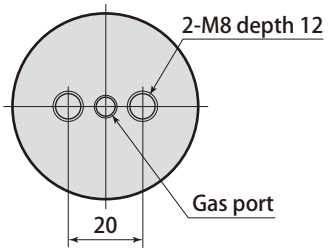


DSD38



＊Diagonal 2 tap holes can be used for mounting.

DSD50



Model	Stroke mm	Cylinder øD mm	Initial force kN	Initial force kgf	Full stroke load kN	Full stroke load kgf	Mass kg	L mm	H mm	K mm
DSD32-	10	32	6.60	673	8.46	863	0.3	75	65	20
	15				8.97	915	0.3	85	70	
	20				9.35	954	0.3	95	75	
	25				9.65	984	0.3	105	80	
	32				9.86	1006	0.3	120	88	
	38				9.83	1002	0.4	135	97	
	45				9.97	1016	0.4	150	105	
	50				10.1	1029	0.4	160	110	
	new 56				10.0	1024	0.4	175	119	
	new 63				9.87	1007	0.5	195	132	
	new 80				10.1	1032	0.5	230	150	
DSD38-	10	38	10.3	1051	13.5	1378	0.4	75	65	25
	15				14.4	1470	0.4	85	70	
	20				15.1	1539	0.4	95	75	
	25				15.6	1591	0.5	105	80	
	32				16.0	1631	0.5	120	88	
	38				15.9	1626	0.5	135	97	
	45				16.2	1651	0.6	150	105	
	50				16.4	1674	0.6	160	110	
	new 56				16.3	1665	0.6	175	119	
	new 63				15.3	1561	0.7	205	142	
	new 80				15.8	1611	0.8	240	160	
DSD50-	10	50	20.2	2060	25.5	2602	0.8	90	80	35
	15				24.9	2542	0.9	115	100	
	20				26.1	2660	1.0	125	105	
	25				27.1	2763	1.0	135	110	
	32				28.2	2874	1.1	150	118	
	38				28.7	2922	1.2	165	127	
	45				29.4	3000	1.2	180	135	
	50				30.0	3058	1.3	190	140	
	new 56				30.2	3081	1.3	205	149	
	new 63				30.7	3135	1.4	220	157	
	new 80				31.9	3257	1.5	255	175	

- Initial force and full stroke load in the table indicate the figure at 20° C, 21MPa charge pressure.
- **Calculate the load in case of 18MPa(16MPa, 15MPa) charge pressure with (Load at 21MPa) x 18 (16, 15) ÷ 21.**
- Refer to **page → 15～20** for performance table.
- Refer to **page → 33～34** for caution in use.

Model designation

DSA 32 – 38 – 21

1 Cylinder diameter (mm)

2 Stroke (mm)

3 Gas charge pressure (MPa)

1 Cylinder diameter

19 : 19 mm
25 : 25 mm
32 : 32 mm
38 : 38 mm
50 : 50 mm

page → 8

2 Stroke

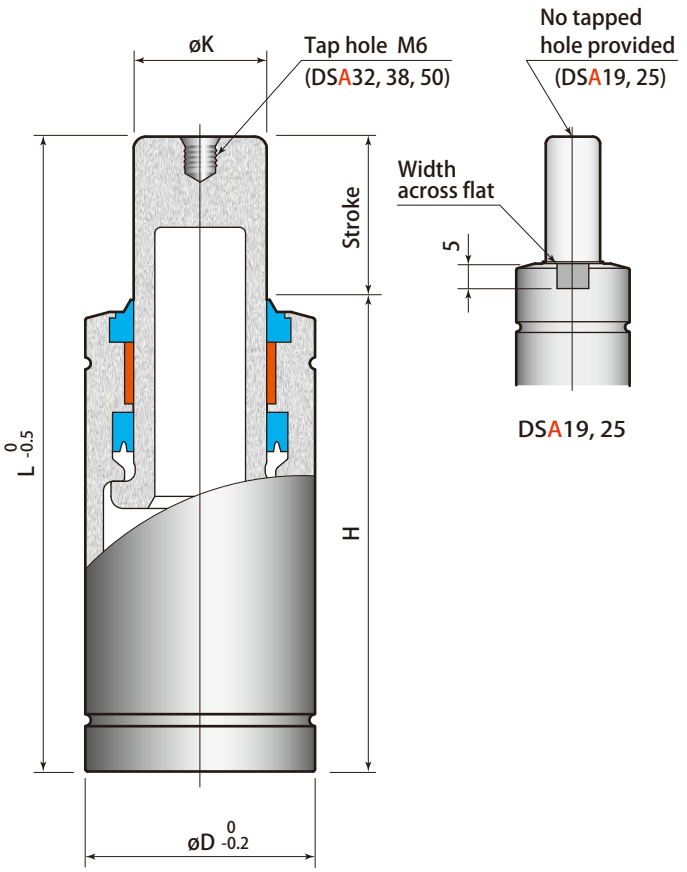
10 : 10 mm
15 : 15 mm
20 : 20 mm
25 : 25 mm
32 : 32 mm
38 : 38 mm
45 : 45 mm
50 : 50 mm

page → 8

3 Gas charge pressure

15 : 15 MPa
18 : 18 MPa
21 : 21 MPa
OS : Specify "OS" when delivery without gas charge.Charged pressure is unadjustable after delivery.

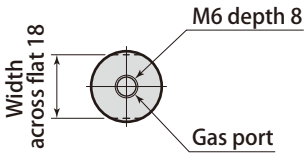
Dimensions



DSA19, 25

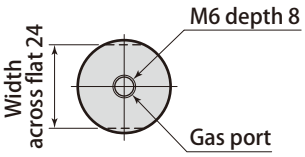
Cylinder base

DSA19



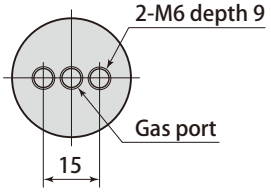
＊ Gas port can be used for mounting of gas spring.

DSA25

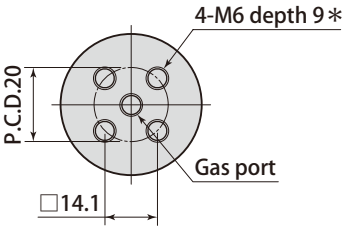


＊ Gas port can be used for mounting of gas spring.

DSA32

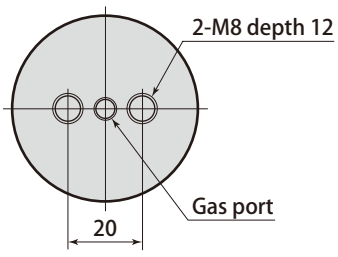


DSA38



＊Diagonal 2 tap holes can be used for mounting.

DSA50



⚠ Tips for stroke selection

Use gas spring stroke as long as possible to achieve optimal performance of lubrication inside the cylinder.

Model	Stroke mm	Cylinder øD mm	Initial force kN	Initial force kgf	Full stroke load kN	Full stroke load kgf	Mass kg	L mm	H mm	K mm
DSA19-	15	19	1.06	108	1.44	147	0.1	85	70	8
	20				1.44	147	0.1	95	75	
	25				1.44	147	0.1	105	80	
	32				1.43	146	0.1	120	88	
	38				1.47	150	0.1	135	97	
	45				1.45	148	0.1	150	105	
	50				1.45	148	0.2	160	110	
DSA25-	15	25	2.38	243	3.10	316	0.2	85	70	12
	20				3.14	320	0.2	95	75	
	25				3.21	327	0.2	105	80	
	32				3.23	329	0.2	120	88	
	38				3.34	341	0.2	135	97	
	45				3.33	340	0.2	150	105	
	50				3.34	341	0.3	160	110	
DSA32-	10	32	5.34	545	7.78	793	0.3	75	65	18
	15				8.01	817	0.3	85	70	
	20				8.14	830	0.3	95	75	
	25				8.23	839	0.3	105	80	
	32				8.20	836	0.4	120	88	
	38				8.30	846	0.4	135	97	
	45				8.27	843	0.4	150	105	
	50				8.30	846	0.4	160	110	
DSA38-	10	38	7.98	814	11.5	1173	0.4	75	65	22
	15				11.9	1213	0.4	85	70	
	20				12.2	1244	0.4	95	75	
	25				12.3	1254	0.5	105	80	
	32				12.3	1255	0.5	120	88	
	38				12.7	1295	0.6	135	97	
	45				12.6	1285	0.6	150	105	
	50				12.6	1285	0.6	160	110	
DSA50-	10	50	16.9	1723	23.5	2396	0.9	90	80	32
	15				23.5	2396	1.0	115	100	
	20				24.5	2498	1.0	125	105	
	25				25.3	2580	1.1	135	110	
	32				25.9	2641	1.1	150	118	
	38				25.8	2631	1.2	165	127	
	45				26.2	2672	1.3	180	135	
	50				26.5	2702	1.3	190	140	

- Initial force and full stroke load in the table indicate the figure at 20° C, 21MPa charge pressure.
- **Calculate the load in case of 18MPa(15MPa) charge pressure with (Load at 21MPa) x 18 (15) ÷ 21.**
- Refer to **page → 21～23** for performance table.
- Refer to **page → 33～34** for caution in use.

Model designation

DSC 38 – 25 – 21

1 Cylinder diameter (mm)

2 Stroke (mm)

3 Gas charge pressure (MPa)

1 Cylinder diameter

32 : 32 mm
38 : 38 mm
50 : 50 mm

page → 10

2 Stroke

10 : 10 mm
15 : 15 mm
20 : 20 mm
25 : 25 mm
32 : 32 mm
38 : 38 mm
45 : 45 mm
50 : 50 mm

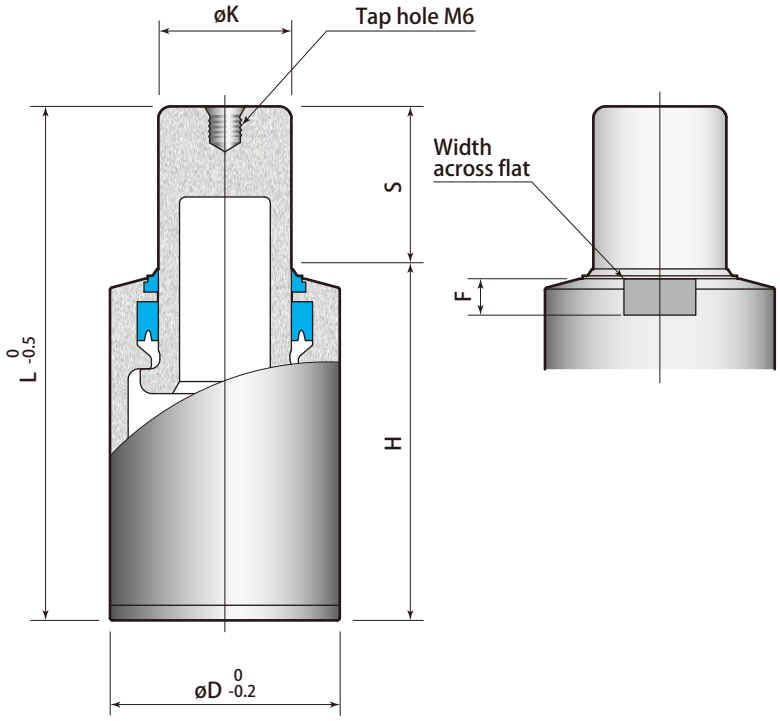
page → 10

3 Gas charge pressure

It varies in accordance with the model no.

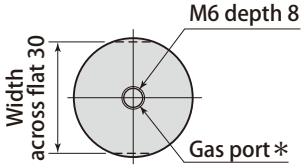
15 : 15 MPa ＊DSC32 only
18 : 18 MPa
21 : 21 MPa
OS : Specify "OS" when delivery without gas charge.Charged pressure is unadjustable after delivery.

Dimensions



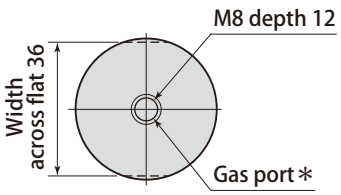
Cylinder base

DSC32



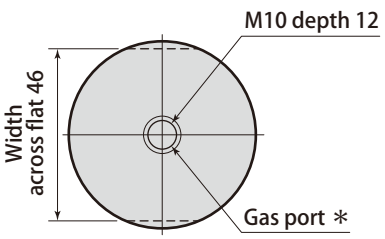
＊ Gas port can be used for the mounting of gas spring.

DSC38



＊ Gas port can be used for the mounting of gas spring.

DSC50



＊ Gas port can be used for the mounting of gas spring.

⚠ Tips for stroke selection

Use gas spring stroke as long as possible to achieve optimal performance of lubrication inside the cylinder.

Model	Stroke mm	Cylinder øD mm	Initial force kN	Initial force kgf	Full stroke load kN	Full stroke load kgf	Mass kg	L mm	H mm	F mm	K mm
DSC32-	10	32	3.82	389	5.96	608	0.2	55	45	5	18
	15				6.03	615	0.2	65	50		
	20				6.06	618	0.2	75	55		
	25				6.08	620	0.2	85	60		
	32				6.37	650	0.3	100	68		
	38				6.43	656	0.3	111	73		
	45				6.39	652	0.3	125	80		
	50				6.37	650	0.3	135	85		
DSC38-	10	38	7.98	814	12.3	1254	0.3	55	45	6	22
	15				12.5	1275	0.3	65	50		
	20				12.6	1285	0.3	75	55		
	25				12.7	1295	0.3	85	60		
	32				13.1	1336	0.4	100	68		
	38				13.3	1356	0.4	111	73		
	45				13.2	1346	0.4	125	80		
	50				13.2	1346	0.5	135	85		
DSC50-	10	50	14.8	1514	23.2	2366	0.6	60	50	8	30
	15				23.7	2417	0.6	70	55		
	20				24.0	2447	0.6	80	60		
	25				24.2	2468	0.7	90	65		
	32				24.6	2509	0.7	105	73		
	38				25.0	2549	0.8	116	78		
	45				25.0	2549	0.8	130	85		
	50				25.0	2549	0.9	140	90		

- Initial force and full stroke load in the table indicate the figure at 20° C, 21MPa charge pressure. (15MPa for model DSC32 only)
- **The load at 18MPa (15MPa) for DSC38/50 can be calculated with the formula of (Load at 21MPa) x 18(15) ÷ 21.**
- Refer to **page → 25～26** for performance table.
- Refer to **page → 33～34** for caution in use.

Model designation

DNK 0350 – 50 BF 18

1 Size
2 Stroke (mm)
3 Gas charge pressure (MPa)

1 Size

0350 0500

page → 12

2 Stroke

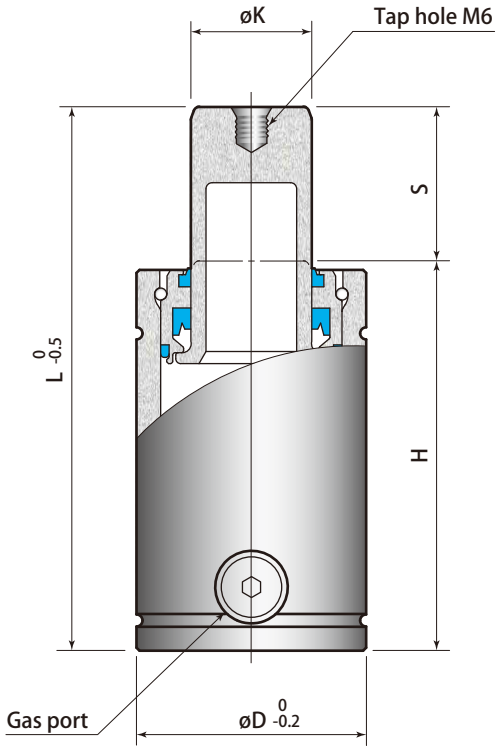
10	: 10 mm	50	: 50 mm
13	: 13 mm	63	: 63 mm
16	: 16 mm	75	: 75 mm
19	: 19 mm	80	: 80 mm
25	: 25 mm	100	: 100 mm
32	: 32 mm	125	: 125 mm
38	: 38 mm		

page → 12

3 Gas charge pressure

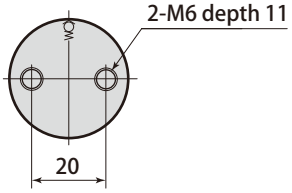
3.4	: 3.4MPa
6.9	: 6.9 MPa
10.3	: 10.3MPa
13.7	: 13.7 MPa
15	: 15MPa
18	: 18MPa ＊DNK350 only
OS	: Specify "OS" when delivery without gas charge.

Dimensions

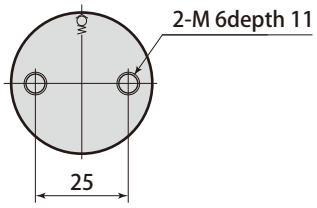


Cylinder base

DNK0350



DNK0500



⚠ Tips for stroke selection

Use gas spring stroke as long as possible to achieve optimal performance of lubrication inside the cylinder.

Model	Stroke mm	Cylinder øD mm	Initial force kN	Initial force kgf	Full stroke load kN	Full stroke load kgf	Mass kg	L mm	H mm	K mm
DNK0350-	10	32	3.62	369	5.86	597	0.2	60	50	16
	13				5.71	582	0.3	66	53	
	16				5.63	574	0.3	72	56	
	19				5.58	569	0.3	78	59	
	25				5.52	563	0.3	90	65	
	32				5.48	559	0.3	104	72	
	38				5.46	557	0.3	116	78	
	50				5.43	554	0.4	140	90	
	63				5.41	552	0.4	166	103	
	75				5.40	551	0.4	190	115	
	80				5.40	551	0.5	200	120	
	100				5.39	550	0.5	240	140	
	125				5.38	549	0.6	290	165	
DNK0500-	10	38	4.71	480	8.00	816	0.3	60	50	20
	13				8.03	819	0.4	66	53	
	16				7.87	803	0.4	72	56	
	19				7.77	793	0.4	78	59	
	25				7.65	780	0.4	90	65	
	32				7.58	773	0.4	104	72	
	38				7.54	769	0.5	116	78	
	50				7.49	764	0.5	140	90	
	63				7.45	760	0.6	166	103	
	75				7.43	758	0.6	190	115	
	80				7.43	758	0.7	200	120	
	100				7.41	756	0.8	240	140	
	125				7.39	753	0.9	290	165	

- Initial force and full stroke load in the table indicate the figure at 20° C, 15MPa charge pressure. (18MPa for model DNK0350 only)
- **The load for each gas pressure can be calculated with the formula of {Load of 15MPa(18MPa) x gas pressure ÷ 15(18)}.**
- Refer to **page → 27** for performance table.
- Refer to **page → 33～34** for caution in use.

Model designation

DNR 0500 – 63 BF 15

1 Size
2 Stroke (mm)
3 Gas charge pressure (MPa)

1 Size

0350 0500

page → 14

2 Stroke

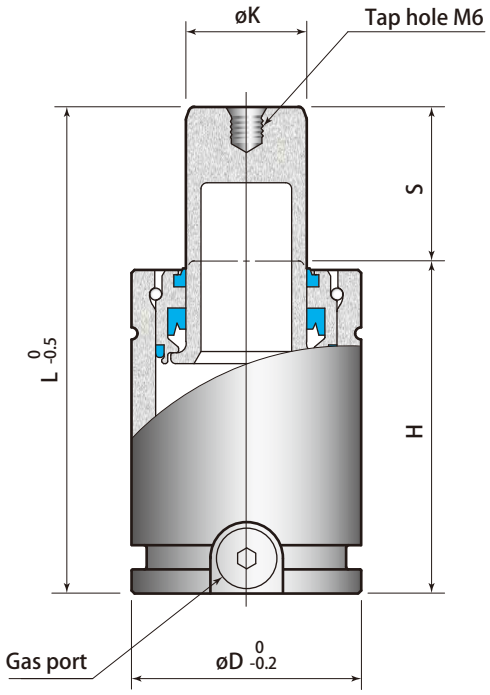
10	: 10 mm	50	: 50 mm
13	: 13 mm	63	: 63 mm
16	: 16 mm	75	: 75 mm
19	: 19 mm	80	: 80 mm
25	: 25 mm	100	: 100 mm
32	: 32 mm	125	: 125 mm
38	: 38 mm		

page → 14

3 Gas charge pressure

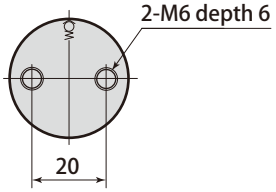
3.4	: 3.4MPa
6.9	: 6.9 MPa
10.3	: 10.3MPa
13.7	: 13.7 MPa
15	: 15MPa
18	: 18MPa ＊DNR350 only
OS	: Specify "OS" when delivery without gas charge.

Dimensions

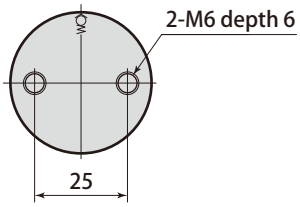


Cylinder base

DNR0350



DNR0500



⚠ Tips for stroke selection

Use gas spring stroke as long as possible to achieve optimal performance of lubrication inside the cylinder.

Model	Stroke mm	Cylinder øD mm	Initial force kN	Initial force kgf	Full stroke load kN	Full stroke load kgf	Mass kg	L mm	H mm	K mm
DNR0350-	10	32	3.62	369	5.89	601	0.2	50	40	16
	13				5.74	585	0.2	56	43	
	16				5.65	576	0.2	62	46	
	19				5.60	571	0.2	68	49	
	25				5.53	564	0.2	80	55	
	32				5.49	560	0.2	94	62	
	38				5.46	557	0.3	106	68	
	50				5.43	554	0.3	130	80	
	63				5.42	553	0.3	156	93	
	75				5.40	551	0.4	180	105	
	80				5.40	551	0.4	190	110	
	100				5.39	550	0.4	230	130	
	125				5.38	549	0.5	280	155	
DNR0500-	10	38	4.71	480	8.02	818	0.3	50	40	20
	13				7.83	798	0.3	56	43	
	16				7.72	787	0.3	62	46	
	19				7.66	781	0.3	68	49	
	25				7.57	772	0.3	80	55	
	32				7.52	767	0.4	94	62	
	38				7.49	764	0.4	106	68	
	50				7.45	760	0.4	130	80	
	63				7.42	757	0.5	156	93	
	75				7.41	756	0.5	180	105	
	80				7.40	755	0.6	190	110	
	100				7.39	753	0.7	230	130	
	125				7.38	752	0.8	280	155	

- Initial force and full stroke load in the table indicate the figure at 20° C, 15MPa charge pressure. (18MPa for model DNR0350 only)
- **The load for each gas pressure can be calculated with the formula of {Load of 15MPa(18MPa) x gas pressure ÷ 15(18)}.**
- Refer to **page → 29** for performance table.
- Refer to **page → 33 ~ 34** for caution in use.

Load kN

Model / Stroke (mm)	DSD32										page → 5
	10	15	20	25	32	38	45	50	56	63	80
0	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60	6.60
1	6.75	6.72	6.70	6.68	6.67	6.65	6.65	6.64	6.64	6.63	6.63
2	6.90	6.84	6.80	6.77	6.74	6.71	6.70	6.69	6.68	6.67	6.66
3	7.06	6.97	6.90	6.86	6.81	6.77	6.75	6.74	6.72	6.70	6.68
4	7.23	7.10	7.01	6.95	6.88	6.83	6.80	6.79	6.76	6.74	6.71
5	7.41	7.24	7.12	7.04	6.96	6.90	6.85	6.83	6.81	6.78	6.74
6	7.60	7.38	7.24	7.14	7.03	6.96	6.91	6.88	6.85	6.81	6.77
7	7.80	7.53	7.36	7.24	7.11	7.02	6.96	6.93	6.89	6.85	6.80
8	8.01	7.68	7.48	7.34	7.19	7.09	7.02	6.98	6.94	6.89	6.84
9	8.23	7.84	7.61	7.44	7.27	7.15	7.08	7.04	6.98	6.93	6.87
10	8.46	8.01	7.74	7.55	7.36	7.22	7.13	7.09	7.03	6.96	6.90
11		8.19	7.87	7.66	7.44	7.29	7.19	7.14	7.07	7.00	6.93
12		8.37	8.01	7.78	7.53	7.36	7.25	7.20	7.12	7.04	6.96
13		8.56	8.16	7.89	7.62	7.43	7.31	7.25	7.17	7.08	6.99
14		8.76	8.31	8.02	7.72	7.51	7.37	7.31	7.22	7.12	7.03
15		8.97	8.47	8.14	7.81	7.58	7.44	7.36	7.26	7.16	7.06
16			8.63	8.27	7.91	7.66	7.50	7.42	7.31	7.20	7.09
17			8.80	8.40	8.01	7.74	7.56	7.48	7.36	7.25	7.12
18			8.98	8.54	8.11	7.81	7.63	7.54	7.41	7.29	7.16
19			9.16	8.68	8.21	7.90	7.70	7.60	7.47	7.33	7.19
20			9.35	8.83	8.32	7.98	7.76	7.66	7.52	7.37	7.23
21				8.98	8.43	8.06	7.83	7.72	7.57	7.42	7.26
22				9.14	8.54	8.15	7.90	7.78	7.62	7.46	7.30
23				9.30	8.66	8.24	7.98	7.85	7.68	7.51	7.33
24				9.47	8.78	8.33	8.05	7.91	7.73	7.55	7.37
25				9.65	8.90	8.42	8.12	7.98	7.79	7.60	7.40
26					9.03	8.51	8.20	8.05	7.85	7.64	7.44
27					9.16	8.61	8.28	8.12	7.90	7.69	7.48
28					9.29	8.71	8.35	8.19	7.96	7.74	7.51
29					9.43	8.81	8.44	8.26	8.02	7.79	7.55
30					9.57	8.91	8.52	8.33	8.08	7.83	7.59
31					9.71	9.02	8.60	8.40	8.14	7.88	7.63
32					9.86	9.12	8.69	8.48	8.21	7.93	7.66
33						9.23	8.77	8.55	8.27	7.98	7.70
34						9.35	8.86	8.63	8.33	8.04	7.74
35						9.46	8.95	8.71	8.40	8.09	7.78
36						9.58	9.04	8.79	8.46	8.14	7.82
37						9.70	9.14	8.87	8.53	8.19	7.86
38						9.83	9.23	8.95	8.60	8.25	7.90
39							9.33	9.04	8.67	8.30	7.95
40							9.43	9.13	8.74	8.36	7.99

- Load in the table indicates the figure at 20° C, 21MPa charge pressure.
- **Calculate the load in case of 18MPa(16MPa, 15MPa) charge pressure with (Load at 21MPa) x 18 (16, 15) ÷ 21.**

Load kN

Model / Stroke (mm)	DSD32 page → 5				
	45	50	56	63	80
41	9.53	9.21	8.81	8.41	8.03
42	9.64	9.30	8.88	8.47	8.07
43	9.75	9.40	8.96	8.53	8.12
44	9.86	9.49	9.03	8.59	8.16
45	9.97	9.59	9.11	8.65	8.20
46		9.68	9.19	8.71	8.25
47		9.78	9.26	8.77	8.29
48		9.88	9.34	8.83	8.34
49		9.99	9.43	8.89	8.38
50		10.1	9.51	8.95	8.43
51			9.59	9.02	8.48
52			9.68	9.08	8.53
53			9.77	9.15	8.57
54			9.86	9.22	8.62
55			9.95	9.29	8.67
56			10.0	9.36	8.72
57				9.43	8.77
58				9.50	8.82
59				9.57	8.87
60				9.64	8.93
61				9.72	8.98
62				9.80	9.03
63				9.87	9.09
64					9.14
65					9.20
66					9.25
67					9.31
68					9.37
69					9.43
70					9.49
71					9.55
72					9.61
73					9.67
74					9.73
75					9.79
76					9.86
77					9.92
78					9.98
79					10.1
80					10.1

Load kN

Model / Stroke (mm)	DSD38										page → 5
	10	15	20	25	32	38	45	50	56	63	80
0	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3
1	10.6	10.5	10.5	10.5	10.4	10.4	10.4	10.4	10.4	10.4	10.4
2	10.8	10.7	10.6	10.6	10.5	10.5	10.5	10.5	10.4	10.4	10.4
3	11.1	10.9	10.8	10.7	10.7	10.6	10.6	10.5	10.5	10.5	10.4
4	11.4	11.2	11.0	10.9	10.8	10.7	10.7	10.6	10.6	10.5	10.5
5	11.7	11.4	11.2	11.1	10.9	10.8	10.7	10.7	10.7	10.6	10.5
6	12.0	11.6	11.4	11.2	11.0	10.9	10.8	10.8	10.7	10.6	10.6
7	12.4	11.9	11.6	11.4	11.2	11.0	10.9	10.9	10.8	10.7	10.6
8	12.7	12.2	11.8	11.6	11.3	11.1	11.0	11.0	10.9	10.8	10.7
9	13.1	12.4	12.0	11.7	11.5	11.3	11.1	11.0	11.0	10.8	10.7
10	13.5	12.7	12.2	11.9	11.6	11.4	11.2	11.1	11.0	10.9	10.8
11		13.0	12.5	12.1	11.7	11.5	11.3	11.2	11.1	10.9	10.8
12		13.4	12.7	12.3	11.9	11.6	11.4	11.3	11.2	11.0	10.9
13		13.7	13.0	12.5	12.0	11.7	11.5	11.4	11.3	11.1	10.9
14		14.0	13.2	12.7	12.2	11.9	11.6	11.5	11.4	11.1	11.0
15		14.4	13.5	12.9	12.4	12.0	11.7	11.6	11.4	11.2	11.0
16			13.8	13.2	12.5	12.1	11.8	11.7	11.5	11.2	11.1
17			14.1	13.4	12.7	12.2	11.9	11.8	11.6	11.3	11.1
18			14.4	13.6	12.9	12.4	12.1	11.9	11.7	11.4	11.2
19			14.7	13.9	13.1	12.5	12.2	12.0	11.8	11.4	11.2
20			15.1	14.2	13.3	12.7	12.3	12.1	11.9	11.5	11.3
21				14.4	13.4	12.8	12.4	12.2	12.0	11.6	11.3
22				14.7	13.6	13.0	12.5	12.3	12.1	11.6	11.4
23				15.0	13.8	13.1	12.7	12.4	12.1	11.7	11.5
24				15.3	14.1	13.3	12.8	12.6	12.2	11.8	11.5
25				15.6	14.3	13.4	12.9	12.7	12.3	11.8	11.6
26					14.5	13.6	13.0	12.8	12.4	11.9	11.6
27					14.7	13.8	13.2	12.9	12.5	12.0	11.7
28					15.0	13.9	13.3	13.0	12.6	12.1	11.7
29					15.2	14.1	13.5	13.1	12.7	12.1	11.8
30					15.5	14.3	13.6	13.3	12.8	12.2	11.9
31					15.7	14.5	13.8	13.4	13.0	12.3	11.9
32					16.0	14.7	13.9	13.5	13.1	12.4	12.0
33						14.9	14.1	13.7	13.2	12.4	12.0
34						15.1	14.2	13.8	13.3	12.5	12.1
35						15.3	14.4	13.9	13.4	12.6	12.2
36						15.5	14.5	14.1	13.5	12.7	12.2
37						15.7	14.7	14.2	13.6	12.8	12.3
38						15.9	14.9	14.4	13.7	12.8	12.3
39							15.0	14.5	13.9	12.9	12.4
40							15.2	14.7	14.0	13.0	12.5

- Load in the table indicates the figure at 20° C, 21MPa charge pressure.
- **Calculate the load in case of 18MPa(15MPa) charge pressure with (Load at 21MPa) x 18 (15) ÷ 21.**

Load kN

Model / Stroke (mm)	DSD38 page → 5				
	45	50	56	63	80
41	15.4	14.8	14.1	13.1	12.5
42	15.6	15.0	14.2	13.2	12.6
43	15.8	15.2	14.4	13.3	12.7
44	16.0	15.3	14.5	13.4	12.7
45	16.2	15.5	14.6	13.4	12.8
46		15.7	14.8	13.5	12.9
47		15.9	14.9	13.6	13.0
48		16.0	15.1	13.7	13.0
49		16.2	15.2	13.8	13.1
50		16.4	15.4	13.9	13.2
51			15.5	14.0	13.2
52			15.7	14.1	13.3
53			15.8	14.2	13.4
54			16.0	14.3	13.5
55			16.2	14.4	13.5
56			16.3	14.5	13.6
57				14.6	13.7
58				14.7	13.8
59				14.9	13.9
60				15.0	13.9
61				15.1	14.0
62				15.2	14.1
63				15.3	14.2
64					14.3
65					14.4
66					14.5
67					14.5
68					14.6
69					14.7
70					14.8
71					14.9
72					15.0
73					15.1
74					15.2
75					15.3
76					15.4
77					15.5
78					15.6
79					15.7
80					15.8

Load kN

Model / Stroke (mm)	DSD50										page → 5
	10	15	20	25	32	38	45	50	56	63	80
0	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2
1	20.6	20.5	20.4	20.4	20.4	20.4	20.3	20.3	20.3	20.3	20.3
2	21.1	20.7	20.7	20.6	20.6	20.5	20.5	20.5	20.4	20.4	20.4
3	21.6	21.0	20.9	20.8	20.8	20.7	20.6	20.6	20.6	20.5	20.5
4	22.0	21.3	21.2	21.1	20.9	20.9	20.8	20.7	20.7	20.7	20.6
5	22.6	21.6	21.4	21.3	21.1	21.0	20.9	20.9	20.8	20.8	20.7
6	23.1	21.9	21.7	21.5	21.3	21.2	21.1	21.0	20.9	20.9	20.8
7	23.7	22.2	21.9	21.8	21.5	21.4	21.2	21.2	21.1	21.0	20.9
8	24.2	22.5	22.2	22.0	21.7	21.5	21.4	21.3	21.2	21.1	21.0
9	24.9	22.8	22.5	22.2	22.0	21.7	21.6	21.5	21.3	21.2	21.1
10	25.5	23.1	22.8	22.5	22.2	21.9	21.7	21.6	21.5	21.4	21.2
11		23.5	23.1	22.8	22.4	22.1	21.9	21.8	21.6	21.5	21.3
12		23.8	23.4	23.0	22.6	22.3	22.0	21.9	21.7	21.6	21.4
13		24.2	23.7	23.3	22.8	22.5	22.2	22.1	21.9	21.7	21.5
14		24.5	24.0	23.6	23.1	22.7	22.4	22.2	22.0	21.9	21.6
15		24.9	24.3	23.8	23.3	22.9	22.6	22.4	22.2	22.0	21.7
16			24.7	24.1	23.5	23.1	22.7	22.6	22.3	22.1	21.8
17			25.0	24.4	23.8	23.3	22.9	22.7	22.5	22.3	21.9
18			25.3	24.7	24.0	23.5	23.1	22.9	22.6	22.4	22.0
19			25.7	25.0	24.3	23.7	23.3	23.1	22.8	22.5	22.1
20			26.1	25.4	24.5	23.9	23.5	23.2	22.9	22.7	22.2
21				25.7	24.8	24.1	23.7	23.4	23.1	22.8	22.4
22				26.0	25.1	24.4	23.9	23.6	23.2	23.0	22.5
23				26.4	25.4	24.6	24.1	23.8	23.4	23.1	22.6
24				26.7	25.6	24.8	24.3	24.0	23.5	23.2	22.7
25				27.1	25.9	25.1	24.5	24.1	23.7	23.4	22.8
26					26.2	25.3	24.7	24.3	23.9	23.5	22.9
27					26.5	25.6	24.9	24.5	24.0	23.7	23.1
28					26.9	25.8	25.1	24.7	24.2	23.8	23.2
29					27.2	26.1	25.3	24.9	24.4	24.0	23.3
30					27.5	26.3	25.5	25.1	24.6	24.1	23.4
31					27.8	26.6	25.8	25.3	24.7	24.3	23.6
32					28.2	26.9	26.0	25.5	24.9	24.5	23.7
33						27.2	26.2	25.8	25.1	24.6	23.8
34						27.4	26.5	26.0	25.3	24.8	23.9
35						27.7	26.7	26.2	25.5	25.0	24.1
36						28.0	27.0	26.4	25.7	25.1	24.2
37						28.3	27.2	26.6	25.9	25.3	24.3
38						28.7	27.5	26.9	26.1	25.5	24.5
39							27.7	27.1	26.3	25.6	24.6
40							28.0	27.3	26.5	25.8	24.8

- Load in the table indicates the figure at 20° C, 21MPa charge pressure.
- **Calculate the load in case of 18MPa(15MPa) charge pressure with (Load at 21MPa) x 18 (15) ÷ 21.**

Load kN

Model / Stroke (mm)	DSD50				page → 5
	45	50	56	63	80
41	28.3	27.6	26.7	26.0	24.9
42	28.6	27.8	26.9	26.2	25.0
43	28.8	28.1	27.1	26.4	25.2
44	29.1	28.3	27.3	26.6	25.3
45	29.4	28.6	27.5	26.8	25.5
46		28.9	27.8	26.9	25.6
47		29.1	28.0	27.1	25.8
48		29.4	28.2	27.3	25.9
49		29.7	28.5	27.5	26.1
50		30.0	28.7	27.8	26.2
51			28.9	28.0	26.4
52			29.2	28.2	26.5
53			29.4	28.4	26.7
54			29.7	28.6	26.9
55			30.0	28.8	27.0
56			30.2	29.1	27.2
57				29.3	27.4
58				29.5	27.5
59				29.8	27.7
60				30.0	27.9
61				30.2	28.1
62				30.5	28.2
63				30.7	28.4
64					28.6
65					28.8
66					29.0
67					29.2
68					29.4
69					29.6
70					29.8
71					30.0
72					30.2
73					30.4
74					30.6
75					30.8
76					31.0
77					31.3
78					31.5
79					31.7
80					31.9

Load kN

Model / Stroke (mm)	DSA19						page → 7	DSA25						page → 7
	15	20	25	32	38	45	50	15	20	25	32	38	45	50
0	1.06	1.06	1.06	1.06	1.06	1.06	1.06	2.38	2.38	2.38	2.38	2.38	2.38	2.38
1	1.07	1.07	1.07	1.06	1.06	1.06	1.06	2.41	2.40	2.40	2.39	2.39	2.39	2.39
2	1.09	1.08	1.08	1.07	1.07	1.07	1.07	2.45	2.43	2.43	2.41	2.41	2.41	2.40
3	1.11	1.10	1.09	1.08	1.08	1.08	1.07	2.49	2.46	2.45	2.44	2.43	2.42	2.42
4	1.14	1.12	1.10	1.09	1.09	1.08	1.08	2.53	2.50	2.48	2.46	2.45	2.44	2.43
5	1.16	1.13	1.12	1.10	1.10	1.09	1.09	2.58	2.53	2.51	2.48	2.47	2.45	2.45
6	1.18	1.15	1.13	1.11	1.10	1.10	1.09	2.62	2.56	2.53	2.50	2.49	2.47	2.46
7	1.21	1.16	1.14	1.12	1.11	1.10	1.10	2.67	2.60	2.56	2.52	2.51	2.49	2.48
8	1.23	1.18	1.16	1.13	1.12	1.11	1.10	2.72	2.63	2.59	2.54	2.53	2.50	2.49
9	1.26	1.20	1.17	1.14	1.13	1.12	1.11	2.76	2.67	2.62	2.57	2.55	2.52	2.51
10	1.28	1.22	1.18	1.15	1.14	1.12	1.12	2.82	2.70	2.65	2.59	2.57	2.54	2.52
11	1.31	1.24	1.20	1.16	1.15	1.13	1.12	2.87	2.74	2.68	2.61	2.59	2.55	2.54
12	1.34	1.26	1.21	1.17	1.16	1.14	1.13	2.93	2.78	2.71	2.64	2.61	2.57	2.55
13	1.37	1.28	1.23	1.18	1.17	1.15	1.14	2.98	2.82	2.75	2.66	2.64	2.59	2.57
14	1.40	1.30	1.24	1.19	1.18	1.15	1.14	3.04	2.86	2.78	2.68	2.66	2.61	2.58
15	1.44	1.32	1.26	1.20	1.19	1.16	1.15	3.10	2.90	2.82	2.71	2.68	2.63	2.60
16		1.34	1.28	1.21	1.20	1.17	1.16		2.95	2.85	2.74	2.70	2.64	2.62
17		1.37	1.29	1.23	1.21	1.18	1.16		2.99	2.89	2.76	2.73	2.66	2.63
18		1.39	1.31	1.24	1.22	1.19	1.17		3.04	2.92	2.79	2.75	2.68	2.65
19		1.42	1.33	1.25	1.23	1.19	1.18		3.09	2.96	2.82	2.78	2.70	2.67
20		1.44	1.35	1.26	1.24	1.20	1.19		3.14	3.00	2.84	2.80	2.72	2.69
21			1.36	1.27	1.25	1.21	1.19			3.04	2.87	2.83	2.74	2.70
22			1.38	1.29	1.26	1.22	1.20			3.08	2.90	2.85	2.76	2.72
23			1.40	1.30	1.27	1.23	1.21			3.12	2.93	2.88	2.78	2.74
24			1.42	1.31	1.28	1.24	1.22			3.17	2.96	2.90	2.80	2.76
25			1.44	1.33	1.30	1.24	1.22			3.21	2.99	2.93	2.82	2.78
26				1.34	1.31	1.25	1.23				3.02	2.96	2.85	2.79
27				1.36	1.32	1.26	1.24				3.05	2.99	2.87	2.81
28				1.37	1.33	1.27	1.25				3.09	3.02	2.89	2.83
29				1.38	1.34	1.28	1.25				3.12	3.05	2.91	2.85
30				1.40	1.36	1.29	1.26				3.16	3.08	2.94	2.87
31				1.41	1.37	1.30	1.27				3.19	3.11	2.96	2.89
32				1.43	1.38	1.31	1.28				3.23	3.14	2.98	2.91
33					1.40	1.32	1.29					3.17	3.01	2.93
34					1.41	1.33	1.30					3.20	3.03	2.96
35					1.42	1.34	1.31					3.23	3.06	2.98
36					1.44	1.35	1.31					3.27	3.08	3.00
37					1.45	1.36	1.32					3.30	3.11	3.02
38					1.47	1.37	1.33					3.34	3.13	3.04
39						1.38	1.34						3.16	3.07
40						1.39	1.35						3.19	3.09
41						1.41	1.36						3.21	3.11
42						1.42	1.37						3.24	3.14
43						1.43	1.38						3.27	3.16
44						1.44	1.39						3.30	3.18
45						1.45	1.40						3.33	3.21
46							1.41							3.23
47							1.42							3.26
48							1.43							3.29
49							1.44							3.31
50							1.45							3.34

- Load in the table indicate the figure at 20° C, 21MPa charge pressure.
- **Calculate the load in case of 18MPa(15MPa) charge pressure with (Load at 21MPa) x 18 (15) ÷ 21.**

Load kN

Model / Stroke (mm)	DSA32								DSA38							
	10	15	20	25	32	38	45	50	10	15	20	25	32	38	45	50
0	5.34	5.34	5.34	5.34	5.34	5.34	5.34	5.34	7.98	7.98	7.98	7.98	7.98	7.98	7.98	7.98
1	5.52	5.47	5.44	5.42	5.40	5.39	5.39	5.38	8.24	8.16	8.12	8.10	8.07	8.06	8.05	8.04
2	5.70	5.59	5.53	5.50	5.46	5.45	5.43	5.42	8.51	8.35	8.27	8.21	8.16	8.14	8.11	8.10
3	5.90	5.72	5.63	5.58	5.52	5.50	5.47	5.46	8.80	8.55	8.42	8.33	8.25	8.22	8.18	8.16
4	6.11	5.86	5.74	5.66	5.59	5.55	5.52	5.50	9.10	8.75	8.57	8.46	8.35	8.31	8.25	8.23
5	6.33	6.01	5.85	5.75	5.65	5.61	5.56	5.54	9.44	8.97	8.73	8.59	8.44	8.39	8.32	8.29
6	6.58	6.16	5.96	5.83	5.72	5.66	5.61	5.58	9.79	9.20	8.90	8.72	8.54	8.48	8.39	8.35
7	6.84	6.33	6.07	5.93	5.78	5.72	5.66	5.62	10.2	9.44	9.07	8.85	8.65	8.57	8.47	8.42
8	7.13	6.50	6.20	6.02	5.85	5.78	5.70	5.67	10.6	9.69	9.25	8.99	8.75	8.66	8.54	8.48
9	7.44	6.68	6.32	6.12	5.92	5.84	5.75	5.71	11.0	9.96	9.44	9.14	8.86	8.75	8.61	8.55
10	7.78	6.87	6.45	6.22	6.00	5.90	5.80	5.75	11.5	10.2	9.64	9.29	8.96	8.84	8.69	8.62
11		7.07	6.59	6.32	6.07	5.96	5.85	5.80		10.5	9.84	9.44	9.08	8.94	8.77	8.69
12		7.28	6.73	6.42	6.15	6.02	5.90	5.84		10.9	10.1	9.60	9.19	9.04	8.85	8.76
13		7.51	6.88	6.53	6.22	6.09	5.95	5.89		11.2	10.3	9.77	9.31	9.14	8.93	8.83
14		7.75	7.04	6.65	6.30	6.15	6.00	5.94		11.6	10.5	9.94	9.43	9.24	9.01	8.90
15		8.01	7.20	6.77	6.39	6.22	6.06	5.98		11.9	10.7	10.1	9.55	9.35	9.09	8.97
16			7.37	6.89	6.47	6.29	6.11	6.03			11.0	10.3	9.68	9.46	9.18	9.05
17			7.55	7.02	6.56	6.36	6.17	6.08			11.3	10.5	9.81	9.57	9.26	9.13
18			7.74	7.15	6.64	6.43	6.22	6.13			11.6	10.7	9.94	9.68	9.35	9.20
19			7.93	7.28	6.74	6.50	6.28	6.18			11.8	10.9	10.1	9.80	9.44	9.28
20			8.14	7.43	6.83	6.58	6.34	6.23			12.2	11.1	10.2	9.91	9.54	9.36
21				7.57	6.93	6.66	6.40	6.28				11.3	10.4	10.0	9.63	9.44
22				7.73	7.02	6.73	6.46	6.34				11.6	10.5	10.2	9.72	9.53
23				7.89	7.13	6.81	6.52	6.39				11.8	10.7	10.3	9.82	9.61
24				8.05	7.23	6.90	6.59	6.45				12.0	10.8	10.4	9.92	9.70
25				8.23	7.34	6.98	6.65	6.50				12.3	11.0	10.6	10.0	9.78
26					7.45	7.07	6.72	6.56					11.2	10.7	10.1	9.87
27					7.57	7.16	6.78	6.62					11.3	10.8	10.2	9.96
28					7.68	7.25	6.85	6.68					11.5	11.0	10.3	10.1
29					7.81	7.34	6.92	6.74					11.7	11.1	10.4	10.2
30					7.93	7.44	6.99	6.80					11.9	11.3	10.6	10.2
31					8.06	7.54	7.07	6.86					12.1	11.4	10.7	10.3
32					8.20	7.64	7.14	6.92					12.3	11.6	10.8	10.4
33						7.74	7.22	6.99						11.8	10.9	10.5
34						7.85	7.29	7.05						11.9	11.0	10.7
35						7.96	7.37	7.12						12.1	11.2	10.8
36						8.07	7.45	7.19						12.3	11.3	10.9
37						8.19	7.54	7.26						12.5	11.4	11.0
38						8.30	7.62	7.33						12.7	11.6	11.1
39							7.71	7.40							11.7	11.2
40							7.80	7.47							11.8	11.3
41							7.89	7.55							12.0	11.4
42							7.98	7.63							12.1	11.6
43							8.07	7.71							12.3	11.7
44							8.17	7.79							12.4	11.8
45							8.27	7.87							12.6	11.9
46								7.95								12.1
47								8.04								12.2
48								8.12								12.3
49								8.21								12.5
50								8.30								12.6

page → 7

page → 7

- Load in the table indicate the figure at 20° C, 21MPa charge pressure.
- **Calculate the load in case of 18MPa(15MPa) charge pressure with (Load at 21MPa) x 18 (15) ÷ 21.**

Load kN

Model / Stroke (mm)	DSA50							page → 7
	10	15	20	25	32	38	45	50
0	16.9	16.9	16.9	16.9	16.9	16.9	16.9	16.9
1	17.4	17.2	17.2	17.1	17.1	17.0	17.0	17.0
2	17.9	17.5	17.4	17.4	17.3	17.2	17.2	17.1
3	18.4	17.9	17.7	17.6	17.5	17.4	17.3	17.3
4	19.0	18.3	18.0	17.8	17.7	17.5	17.4	17.4
5	19.6	18.6	18.3	18.1	17.9	17.7	17.6	17.5
6	20.3	19.0	18.6	18.4	18.1	17.9	17.7	17.7
7	21.0	19.4	19.0	18.6	18.3	18.0	17.9	17.8
8	21.8	19.9	19.3	18.9	18.5	18.2	18.0	17.9
9	22.6	20.3	19.6	19.2	18.7	18.4	18.2	18.1
10	23.5	20.8	20.0	19.5	19.0	18.6	18.3	18.2
11		21.3	20.4	19.8	19.2	18.8	18.5	18.4
12		21.8	20.8	20.1	19.4	19.0	18.7	18.5
13		22.3	21.2	20.4	19.7	19.2	18.8	18.7
14		22.9	21.6	20.8	19.9	19.4	19.0	18.8
15		23.5	22.0	21.1	20.2	19.6	19.2	19.0
16			22.5	21.5	20.5	19.8	19.3	19.1
17			23.0	21.8	20.7	20.0	19.5	19.3
18			23.4	22.2	21.0	20.2	19.7	19.4
19			24.0	22.6	21.3	20.4	19.9	19.6
20			24.5	23.0	21.6	20.6	20.1	19.8
21				23.4	21.9	20.9	20.2	19.9
22				23.9	22.2	21.1	20.4	20.1
23				24.3	22.5	21.4	20.6	20.3
24				24.8	22.9	21.6	20.8	20.5
25				25.3	23.2	21.9	21.0	20.6
26					23.6	22.1	21.2	20.8
27					23.9	22.4	21.5	21.0
28					24.3	22.7	21.7	21.2
29					24.7	22.9	21.9	21.4
30					25.1	23.2	22.1	21.6
31					25.5	23.5	22.4	21.8
32					25.9	23.8	22.6	22.0
33						24.1	22.8	22.2
34						24.4	23.1	22.4
35						24.8	23.3	22.7
36						25.1	23.6	22.9
37						25.5	23.9	23.1
38						25.8	24.1	23.3
39							24.4	23.6
40							24.7	23.8
41							25.0	24.1
42							25.3	24.3
43							25.6	24.6
44							25.9	24.8
45							26.2	25.1
46								25.4
47								25.7
48								25.9
49								26.2
50								26.5

- Load in the table indicate the figure at 20° C, 21MPa charge pressure.
- **Calculate the load in case of 18MPa(15MPa) charge pressure with (Load at 21MPa) x 18 (15) ÷ 21.**

Load kN

Model / Stroke (mm)	DSC32								DSC38							
	10	15	20	25	32	38	45	50	10	15	20	25	32	38	45	50
0	3.82	3.82	3.82	3.82	3.82	3.82	3.82	3.82	7.98	7.98	7.98	7.98	7.98	7.98	7.98	7.98
1	3.96	3.91	3.89	3.87	3.87	3.86	3.85	3.85	8.27	8.18	8.13	8.10	8.08	8.07	8.05	8.05
2	4.11	4.01	3.96	3.93	3.92	3.90	3.89	3.88	8.58	8.39	8.29	8.23	8.18	8.15	8.13	8.11
3	4.28	4.12	4.04	4.00	3.97	3.94	3.92	3.91	8.92	8.61	8.45	8.36	8.29	8.24	8.20	8.18
4	4.46	4.23	4.12	4.06	4.02	3.99	3.96	3.94	9.28	8.84	8.62	8.49	8.39	8.33	8.27	8.24
5	4.65	4.35	4.21	4.12	4.07	4.03	4.00	3.98	9.68	9.08	8.79	8.62	8.50	8.42	8.35	8.31
6	4.87	4.47	4.29	4.19	4.13	4.08	4.03	4.01	10.1	9.33	8.97	8.76	8.61	8.52	8.43	8.38
7	5.10	4.60	4.39	4.26	4.18	4.13	4.07	4.04	10.6	9.60	9.16	8.91	8.73	8.61	8.51	8.45
8	5.36	4.74	4.48	4.33	4.24	4.17	4.11	4.08	11.1	9.89	9.36	9.06	8.84	8.71	8.59	8.52
9	5.64	4.89	4.58	4.41	4.30	4.22	4.15	4.11	11.7	10.2	9.57	9.22	8.96	8.81	8.67	8.59
10	5.96	5.05	4.68	4.48	4.36	4.27	4.19	4.15	12.3	10.5	9.78	9.38	9.09	8.92	8.75	8.67
11		5.22	4.79	4.56	4.43	4.33	4.23	4.19		10.9	10.0	9.54	9.22	9.02	8.84	8.74
12		5.40	4.91	4.65	4.49	4.38	4.28	4.22		11.2	10.2	9.72	9.35	9.13	8.93	8.82
13		5.59	5.03	4.73	4.56	4.43	4.32	4.26		11.6	10.5	9.90	9.48	9.24	9.01	8.90
14		5.80	5.15	4.82	4.63	4.49	4.36	4.30		12.1	10.8	10.1	9.62	9.35	9.10	8.98
15		6.03	5.28	4.91	4.70	4.55	4.41	4.34		12.5	11.0	10.3	9.77	9.47	9.20	9.06
16			5.42	5.01	4.77	4.61	4.45	4.38			11.3	10.5	9.91	9.59	9.29	9.14
17			5.57	5.11	4.85	4.67	4.50	4.42			11.6	10.7	10.1	9.71	9.39	9.22
18			5.72	5.21	4.93	4.73	4.55	4.46			11.9	10.9	10.2	9.84	9.49	9.31
19			5.89	5.34	5.01	4.79	4.60	4.50			12.3	11.1	10.4	9.96	9.59	9.39
20			6.06	5.44	5.09	4.86	4.65	4.54			12.6	11.4	10.6	10.1	9.69	9.48
21				5.55	5.18	4.92	4.70	4.59				11.6	10.7	10.2	9.79	9.57
22				5.68	5.27	4.99	4.75	4.63				11.9	10.9	10.4	9.90	9.66
23				5.81	5.36	5.06	4.81	4.68				12.1	11.1	10.5	10.0	9.76
24				5.94	5.46	5.14	4.86	4.73				12.4	11.3	10.7	10.1	9.85
25				6.08	5.55	5.21	4.92	4.77				12.7	11.5	10.8	10.2	9.95
26					5.66	5.29	4.97	4.82					11.7	11.0	10.4	10.0
27					5.76	5.37	5.03	4.87					11.9	11.1	10.5	10.1
28					5.88	5.45	5.09	4.92					12.1	11.3	10.6	10.3
29					5.99	5.54	5.15	4.97					12.3	11.5	10.7	10.4
30					6.11	5.62	5.22	5.02					12.6	11.6	10.8	10.5
31					6.24	5.71	5.28	5.08					12.8	11.8	11.0	10.6
32					6.37	5.81	5.35	5.13					13.1	12.0	11.1	10.7
33						5.90	5.42	5.19						12.2	11.3	10.8
34						6.00	5.49	5.24						12.4	11.4	10.9
35						6.10	5.56	5.30						12.6	11.5	11.0
36						6.21	5.63	5.36						12.8	11.7	11.2
37						6.32	5.71	5.42						13.0	11.8	11.3
38						6.43	5.78	5.49						13.3	12.0	11.4
39							5.86	5.55							12.2	11.5
40							5.94	5.62							12.3	11.7
41							6.03	5.68							12.5	11.8
42							6.11	5.75							12.7	11.9
43							6.20	5.82							12.8	12.1
44							6.30	5.89							13.0	12.2
45							6.39	5.97							13.2	12.4
46								6.04								12.5
47								6.12								12.7
48								6.20								12.9
49								6.28								13.0
50								6.37								13.2

page → 9

page → 9

- For model DSC32 load in the table indicate the figure at 20° C, 15MPa charge pressure. For model DSC38 load in the table indicate the figure at 20 ° C, 21MPa charge pressure.
- **Calculate the load in case of 18MPa(15MPa) charge pressure with (Load at 21MPa) x 18 (15) ÷ 21.**

Load kN

Model / Stroke (mm)	DSC50 page → 9							
	10	15	20	25	32	38	45	50
0	14.8	14.8	14.8	14.8	14.8	14.8	14.8	14.8
1	15.4	15.2	15.1	15.1	15.0	15.0	15.0	15.0
2	16.0	15.6	15.4	15.3	15.2	15.2	15.1	15.1
3	16.6	16.0	15.7	15.6	15.4	15.3	15.3	15.2
4	17.3	16.5	16.1	15.8	15.6	15.5	15.4	15.3
5	18.1	17.0	16.4	16.1	15.8	15.7	15.5	15.5
6	18.9	17.5	16.8	16.4	16.0	15.9	15.7	15.6
7	19.8	18.0	17.1	16.7	16.3	16.0	15.8	15.7
8	20.9	18.6	17.5	16.9	16.5	16.2	16.0	15.9
9	22.0	19.2	17.9	17.3	16.7	16.4	16.2	16.0
10	23.2	19.8	18.4	17.6	16.9	16.6	16.3	16.2
11		20.5	18.8	17.9	17.2	16.8	16.5	16.3
12		21.2	19.3	18.2	17.4	17.0	16.6	16.4
13		22.0	19.8	18.6	17.7	17.2	16.8	16.6
14		22.8	20.3	19.0	18.0	17.5	17.0	16.8
15		23.7	20.8	19.3	18.2	17.7	17.2	16.9
16			21.4	19.7	18.5	17.9	17.4	17.1
17			22.0	20.2	18.8	18.1	17.5	17.2
18			22.6	20.6	19.1	18.4	17.7	17.4
19			23.3	21.0	19.4	18.6	17.9	17.6
20			24.0	21.5	19.7	18.9	18.1	17.7
21				22.0	20.1	19.1	18.3	17.9
22				22.5	20.4	19.4	18.5	18.1
23				23.1	20.8	19.7	18.7	18.3
24				23.6	21.1	20.0	19.0	18.4
25				24.2	21.5	20.3	19.2	18.6
26					21.9	20.6	19.4	18.8
27					22.3	20.9	19.6	19.0
28					22.7	21.2	19.9	19.2
29					23.2	21.5	20.1	19.4
30					23.6	21.9	20.4	19.6
31					24.1	22.2	20.6	19.8
32					24.6	22.6	20.9	20.1
33						22.9	21.1	20.3
34						23.3	21.4	20.5
35						23.7	21.7	20.8
36						24.1	22.0	21.0
37						24.6	22.3	21.2
38						25.0	22.6	21.5
39							22.9	21.7
40							23.2	22.0
41							23.6	22.3
42							23.9	22.5
43							24.3	22.8
44							24.6	23.1
45							25.0	23.4
46								23.7
47								24.0
48								24.4
49								24.7
50								25.0

- For model DSC50 load in the table indicate the figure at 20° C, 21MPa charge pressure.
- **Calculate the load in case of 18MPa(15MPa) charge pressure with (Load at 21MPa) x 18 (15) ÷ 21.**

Load kN

Model / Stroke (mm)	DNK0350										page → 11			DNK0500									page → 11		
	10	13	16	19	25	32	38	50	63	75	80	100	125	10	13	16	19	25	32	38	50	63	75	80	100	125
0	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	4.71	4.71	4.71	4.71	4.71	4.71	4.71	4.71	4.71	4.71	4.71	4.71	4.71
1	3.76	3.72	3.70	3.69	3.67	3.66	3.65	3.64	3.64	3.64	3.63	3.63	3.63	4.91	4.87	4.83	4.81	4.79	4.77	4.76	4.75	4.74	4.74	4.73	4.73	4.73
2	3.92	3.84	3.79	3.76	3.72	3.70	3.68	3.67	3.66	3.65	3.65	3.64	6.34	5.13	5.03	4.96	4.92	4.86	4.83	4.81	4.78	4.77	4.76	4.76	4.75	4.74
3	4.09	3.95	3.88	3.83	3.78	3.74	3.72	3.69	3.68	3.67	3.66	3.66	3.65	5.37	5.21	5.10	5.02	4.94	4.89	4.86	4.82	4.80	4.78	4.78	4.76	4.75
4	4.27	4.08	3.97	3.91	3.83	3.78	3.75	3.72	3.70	3.68	3.68	3.67	3.66	5.64	5.40	5.24	5.14	5.02	4.95	4.91	4.86	4.83	4.81	4.80	4.78	4.77
5	4.47	4.21	4.07	3.99	3.89	3.82	3.79	3.74	3.72	3.70	3.70	3.68	3.67	5.93	5.60	5.39	5.26	5.10	5.01	4.96	4.89	4.85	4.83	4.82	4.80	4.78
6	4.70	4.36	4.18	4.07	3.95	3.87	3.82	3.77	3.74	3.72	3.71	3.69	3.68	6.25	5.82	5.55	5.38	5.19	5.07	5.01	4.93	4.88	4.85	4.85	4.82	4.80
7	4.94	4.51	4.29	4.16	4.01	3.91	3.86	3.80	3.76	3.73	3.73	3.70	3.69	6.61	6.06	5.72	5.51	5.28	5.14	5.06	4.97	4.91	4.88	4.87	4.84	4.81
8	5.21	4.67	4.41	4.25	4.07	3.95	3.90	3.82	3.78	3.75	3.74	3.72	3.70	7.02	6.32	5.90	5.65	5.37	5.20	5.12	5.01	4.94	4.90	4.89	4.85	4.82
9	5.52	4.85	4.53	4.34	4.13	4.00	3.93	3.85	3.80	3.77	3.76	3.73	3.71	7.48	6.60	6.09	5.79	5.47	5.27	5.17	5.05	4.97	4.93	4.91	4.87	4.84
10	5.86	5.04	4.66	4.44	4.20	4.05	3.97	3.88	3.82	3.79	3.77	3.74	3.72	8.00	6.91	6.29	5.94	5.57	5.34	5.23	5.09	5.00	4.95	4.94	4.89	4.85
11		5.25	4.80	4.54	4.27	4.10	4.01	3.91	3.84	3.80	3.79	3.75	3.73		7.24	6.51	6.10	5.67	5.42	5.29	5.13	5.04	4.98	4.96	4.91	4.87
12		5.47	4.95	4.65	4.34	4.15	4.05	3.93	3.86	3.82	3.81	3.77	3.74		7.62	6.74	6.27	5.78	5.49	5.34	5.17	5.07	5.01	4.99	4.93	4.88
13		5.71	5.10	4.77	4.41	4.20	4.09	3.96	3.88	3.84	3.82	3.78	3.75		8.03	6.99	6.45	5.89	5.57	5.41	5.21	5.10	5.03	5.01	4.95	4.90
14			5.27	4.89	4.48	4.25	4.13	3.99	3.91	3.86	3.84	3.79	3.76			7.26	6.64	6.00	5.65	5.47	5.26	5.13	5.06	5.03	4.97	4.91
15			5.45	5.01	4.56	4.30	4.17	4.02	3.93	3.87	3.86	3.81	3.77			7.56	6.84	6.12	5.73	5.53	5.30	5.16	5.08	5.06	4.98	4.93
16			5.63	5.14	4.64	4.36	4.22	4.05	3.95	3.89	3.87	3.82	3.78			7.87	7.05	6.25	5.81	5.60	5.35	5.20	5.11	5.08	5.00	4.94
17				5.28	4.73	4.42	4.26	4.08	3.97	3.91	3.89	3.83	3.79				7.28	6.38	5.90	5.66	5.39	5.23	5.14	5.11	5.02	4.96
18				5.43	4.81	4.47	4.31	4.11	4.00	3.93	3.91	3.85	3.80				7.52	6.52	5.99	5.73	5.44	5.27	5.17	5.13	5.04	4.97
19				5.58	4.90	4.53	4.35	4.14	4.02	3.95	3.93	3.86	3.81				7.77	6.66	6.08	5.80	5.48	5.30	5.19	5.16	5.06	4.99
20					5.00	4.59	4.40	4.18	4.04	3.97	3.94	3.87	3.82					6.80	6.17	5.87	5.53	5.34	5.22	5.19	5.08	5.00
21					5.09	4.66	4.45	4.21	4.07	3.99	3.96	3.89	3.83					6.96	6.27	5.94	5.58	5.37	5.25	5.21	5.10	5.02
22					5.19	4.72	4.50	4.24	4.09	4.01	3.98	3.90	3.84					7.12	6.37	6.02	5.63	5.41	5.28	5.24	5.12	5.03
23					5.30	4.79	4.55	4.28	4.12	4.03	4.00	3.91	3.85					7.29	6.47	6.09	5.68	5.44	5.31	5.27	5.14	5.05
24					5.41	4.86	4.60	4.31	4.14	4.05	4.02	3.93	3.86					7.47	6.58	6.17	5.73	5.48	5.34	5.29	5.16	5.06
25					5.52	4.93	4.65	4.34	4.17	4.07	4.03	3.94	3.87					7.65	6.69	6.25	5.78	5.52	5.37	5.32	5.18	5.08
26						5.00	4.70	4.38	4.19	4.09	4.05	3.96	3.88						6.80	6.34	5.84	5.56	5.40	5.35	5.20	5.10
27						5.07	4.76	4.41	4.22	4.11	4.07	3.97	3.89						6.92	6.42	5.89	5.59	5.43	5.38	5.23	5.11
28						5.15	4.81	4.45	4.24	4.13	4.09	3.99	3.91						7.04	6.51	5.95	5.63	5.46	5.40	5.25	5.13
29						5.23	4.87	4.49	4.27	4.15	4.11	4.00	3.92						7.17	6.60	6.00	5.67	5.49	5.43	5.27	5.15
30						5.31	4.93	4.52	4.30	4.17	4.13	4.01	3.93						7.30	6.69	6.06	5.71	5.52	5.46	5.29	5.16
32						5.48	5.05	4.60	4.35	4.21	4.17	4.04	3.95						7.58	6.88	6.18	5.79	5.58	5.52	5.33	5.19
34							5.18	4.68	4.41	4.26	4.21	4.07	3.97							7.09	6.30	5.88	5.65	5.58	5.38	5.23
36							5.32	4.76	4.46	4.30	4.25	4.10	4.00							7.31	6.43	5.97	5.72	5.64	5.42	5.26
38							5.46	4.85	4.52	4.35	4.29	4.14	4.02							7.54	6.56	6.06	5.79	5.70	5.47	5.30
40								4.94	4.58	4.39	4.33	4.17	4.04								6.70	6.15	5.86	5.77	5.51	5.33
42								5.03	4.65	4.44	4.38	4.20	4.07								6.84	6.24	5.93	5.83	5.56	5.37
44								5.12	4.71	4.49	4.42	4.23	4.09								6.99	6.34	6.00	5.90	5.61	5.40
46								5.22	4.77	4.54	4.47	4.26	4.11								7.15	6.44	6.08	5.97	5.66	5.44
48								5.32	4.84	4.59	4.51	4.30	4.14								7.31	6.55	6.15	6.04	5.71	5.47
50								5.43	4.91	4.64	4.56	4.33	4.16								7.49	6.65	6.23	6.11	5.76	5.51
52									4.98	4.69	4.61	4.36	4.19									6.77	6.31	6.18	5.81	5.55
54									5.06	4.75	4.65	4.40	4.22									6.88	6.40	6.26	5.86	5.59
56									5.13	4.80	4.70	4.43	4.24									7.00	6.48	6.33	5.92	5.63
58									5.21	4.86	4.76	4.47	4.27									7.12	6.57	6.41	5.97	5.67
60									5.29	4.92	4.81	4.51	4.29									7.25	6.66	6.49	6.03	5.71
63									5.41	5.01	4.89	4.56	4.33									7.45	6.80	6.62	6.11	5.77
65										5.07	4.94	4.60	4.36										6.90	6.70	6.17	5.81
70										5.23	5.09	4.70	4.43										7.16	6.93	6.32	5.91
75										5.40	5.24	4.80	4.50										7.43	7.17	6.48	6.02
80											5.40	4.91	4.58											7.43	6.65	6.14

- Load in the table indicate the figure at 20° C, 15MPa charge pressure. (18MPa for model DNK0350 only)
- **The load for each gas pressure can be calculated with the formula of {Load of 15MPa(18MPa) x gas pressure ÷ 15(18)}.**

Load kN

Model / Stroke (mm)	DNK0350										page → 11			DNK0500										page → 11	
	10	13	16	19	25	32	38	50	63	75	80	100	125	10	13	16	19	25	32	38	50	63	75	80	100	125
85												5.02	4.66												6.82	6.25
90												5.14	4.74												7.00	6.38
95												5.26	4.82												7.20	6.50
100												5.39	4.90												7.41	6.64
105													4.99													6.78
110													5.08													6.92
115													5.18													7.07
120													5.28													7.23
125													5.38													7.39

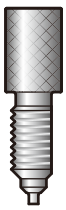
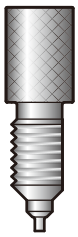
Load kN

Model / Stroke (mm)	DNR0350										page → 13			DNR0500										page → 13	
	10	13	16	19	25	32	38	50	63	75	80	100	125	10	13	16	19	25	32	38	50	63	75	80	100	125
0	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62	4.71	4.71	4.71	4.71	4.71	4.71	4.71	4.71	4.71	4.71	4.71	4.71	4.71
1	3.76	3.72	3.70	3.69	3.67	3.66	3.65	3.64	3.64	3.64	3.63	3.63	3.63	4.92	4.86	4.83	4.81	4.78	4.77	4.76	4.75	4.74	4.74	4.73	4.73	4.73
2	3.92	3.84	3.79	3.76	3.72	3.70	3.68	3.67	3.66	3.65	3.65	3.64	3.64	5.14	5.02	4.95	4.91	4.86	4.82	4.81	4.78	4.77	4.76	4.76	4.75	4.74
3	4.09	3.96	3.88	3.83	3.78	3.74	3.72	3.69	3.68	3.67	3.66	3.66	3.65	5.38	5.19	5.08	5.02	4.94	4.88	4.85	4.82	4.80	4.78	4.78	4.76	4.75
4	4.28	4.08	3.98	3.91	3.83	3.78	3.75	3.72	3.70	3.68	3.68	3.67	3.66	5.64	5.37	5.22	5.13	5.02	4.94	4.90	4.86	4.82	4.81	4.80	4.78	4.77
5	4.48	4.22	4.08	3.99	3.89	3.82	3.79	3.74	3.72	3.70	3.70	3.68	3.67	5.94	5.56	5.37	5.24	5.10	5.00	4.95	4.89	4.85	4.83	4.82	4.80	4.78
6	4.71	4.36	4.18	4.07	3.95	3.87	3.82	3.77	3.74	3.72	3.71	3.69	3.68	6.26	5.77	5.52	5.36	5.18	5.07	5.01	4.93	4.88	4.85	4.84	4.82	4.80
7	4.96	4.52	4.29	4.16	4.01	3.91	3.86	3.80	3.76	3.73	3.73	3.70	3.69	6.63	6.00	5.68	5.49	5.27	5.13	5.06	4.97	4.91	4.88	4.87	4.84	4.81
8	5.23	4.68	4.41	4.25	4.07	3.96	3.90	3.82	3.78	3.75	3.74	3.72	3.70	7.03	6.24	5.85	5.62	5.36	5.20	5.11	5.01	4.94	4.90	4.89	4.85	4.82
9	5.54	4.86	4.54	4.35	4.13	4.00	3.93	3.85	3.80	3.77	3.76	3.73	3.71	7.49	6.51	6.04	5.76	5.45	5.26	5.17	5.05	4.97	4.93	4.91	4.87	4.84
10	5.89	5.05	4.67	4.45	4.20	4.05	3.97	3.88	3.82	3.79	3.77	3.74	3.72	8.02	6.79	6.23	5.91	5.55	5.33	5.22	5.09	5.00	4.95	4.94	4.89	4.85
11		5.26	4.81	4.55	4.27	4.10	4.01	3.91	3.84	3.80	3.79	3.75	3.73		7.11	6.44	6.06	5.65	5.41	5.28	5.13	5.03	4.98	4.96	4.91	4.87
12		5.49	4.96	4.66	4.34	4.15	4.05	3.93	3.86	3.82	3.81	3.77	3.74		7.45	6.66	6.22	5.76	5.48	5.34	5.17	5.06	5.00	4.98	4.93	4.88
13		5.74	5.11	4.77	4.41	4.20	4.09	3.96	3.89	3.84	3.82	3.78	3.75		7.83	6.90	6.39	5.86	5.55	5.40	5.21	5.10	5.03	5.01	4.95	4.90
14			5.28	4.89	4.49	4.25	4.13	3.99	3.91	3.86	3.84	3.79	3.76			7.15	6.57	5.98	5.63	5.46	5.25	5.13	5.06	5.03	4.96	4.91
15			5.46	5.02	4.57	4.31	4.18	4.02	3.93	3.88	3.86	3.81	3.77			7.43	6.77	6.09	5.71	5.52	5.30	5.16	5.08	5.06	4.98	4.93
16			5.65	5.15	4.65	4.36	4.22	4.05	3.95	3.89	3.87	3.82	3.78			7.72	6.97	6.21	5.79	5.58	5.34	5.19	5.11	5.08	5.00	4.94
17				5.29	4.73	4.42	4.26	4.08	3.97	3.91	3.89	3.83	3.79				7.18	6.34	5.88	5.65	5.38	5.23	5.14	5.11	5.02	4.96
18				5.44	4.82	4.48	4.31	4.11	4.00	3.93	3.91	3.85	3.80				7.41	6.47	5.96	5.72	5.43	5.26	5.16	5.13	5.04	4.97
19				5.60	4.91	4.54	4.35	4.15	4.02	3.95	3.93	3.86	3.81				7.66	6.61	6.05	5.78	5.48	5.30	5.19	5.16	5.06	4.99
20					5.00	4.60	4.40	4.18	4.05	3.97	3.94	3.87	3.82					6.75	6.14	5.85	5.52	5.33	5.22	5.18	5.08	5.00
21					5.10	4.66	4.45	4.21	4.07	3.99	3.96	3.89	3.83					6.90	6.24	5.93	5.57	5.37	5.25	5.21	5.10	5.02
22					5.20	4.73	4.50	4.24	4.09	4.01	3.98	3.90	3.84					7.06	6.34	6.00	5.62	5.40	5.28	5.24	5.12	5.03
23					5.31	4.79	4.55	4.28	4.12	4.03	4.00	3.92	3.85					7.22	6.44	6.07	5.67	5.44	5.30	5.26	5.14	5.05
24					5.42	4.86	4.60	4.31	4.14	4.05	4.02	3.93	3.86					7.39	6.54	6.15	5.72	5.47	5.33	5.29	5.16	5.06
25					5.53	4.93	4.65	4.34	4.17	4.07	4.04	3.94	3.87					7.57	6.65	6.23	5.77	5.51	5.36	5.32	5.18	5.08
26						5.00	4.71	4.38	4.19	4.09	4.05	3.96	3.88						6.76	6.31	5.82	5.55	5.39	5.34	5.20	5.10
27						5.08	4.76	4.42	4.22	4.11	4.07	3.97	3.89						6.88	6.40	5.88	5.59	5.42	5.37	5.22	5.11
28						5.15	4.82	4.45	4.25	4.13	4.09	3.99	3.91						7.00	6.48	5.93	5.63	5.45	5.40	5.24	5.13
29						5.23	4.88	4.49	4.27	4.15	4.11	4.00	3.92						7.12	6.57	5.99	5.66	5.48	5.43	5.27	5.14
30						5.32	4.93	4.53	4.30	4.17	4.13	4.01	3.93						7.25	6.66	6.04	5.70	5.52	5.46	5.29	5.16
32						5.49	5.06	4.60	4.35	4.21	4.17	4.04	3.95						7.52	6.85	6.16	5.79	5.58	5.51	5.33	5.19
34							5.19	4.68	4.41	4.26	4.21	4.07	3.97							7.05	6.28	5.87	5.64	5.57	5.37	5.23
36							5.32	4.77	4.47	4.30	4.25	4.10	4.00							7.26	6.41	5.96	5.71	5.63	5.42	5.26
38							5.46	4.85	4.52	4.35	4.29	4.14	4.02							7.49	6.54	6.04	5.78	5.70	5.46	5.29
40								4.94	4.58	4.39	4.33	4.17	4.04								6.67	6.13	5.85	5.76	5.51	5.33
42								5.03	4.65	4.44	4.38	4.20	4.07								6.81	6.23	5.92	5.82	5.56	5.36
44								5.13	4.71	4.49	4.42	4.23	4.09								6.96	6.33	5.99	5.89	5.61	5.40
46								5.22	4.78	4.54	4.47	4.26	4.12								7.12	6.43	6.07	5.96	5.65	5.44
48								5.33	4.84	4.59	4.51	4.30	4.14								7.28	6.53	6.14	6.03	5.70	5.47
50								5.43	4.91	4.64	4.56	4.33	4.16								7.45	6.64	6.22	6.10	5.75	5.51
52									4.98	4.69	4.61	4.37	4.19									6.75	6.30	6.17	5.81	5.55
54									5.06	4.75	4.66	4.40	4.22									6.86	6.39	6.24	5.86	5.58
56									5.13	4.80	4.71	4.44	4.24									6.98	6.47	6.32	5.91	5.62
58									5.21	4.86	4.76	4.47	4.27									7.10	6.56	6.40	5.97	5.66
60									5.29	4.92	4.81	4.51	4.29									7.23	6.65	6.48	6.02	5.70
63									5.42	5.01	4.89	4.56	4.33									7.42	6.79	6.60	6.11	5.76
65										5.07	4.94	4.60	4.36										6.88	6.69	6.16	5.80
70										5.23	5.09	4.70	4.43										7.14	6.91	6.31	5.91
75										5.40	5.24	4.80	4.50										7.41	7.15	6.47	6.02
80											5.40	4.91	4.58											7.40	6.64	6.13

- Load in the table indicate the figure at 20° C, 15MPa charge pressure. (18MPa for model DNR0350 only)
- **The load for each gas pressure can be calculated with the formula of {Load of 15MPa(18MPa) x gas pressure ÷ 15(18)}.**

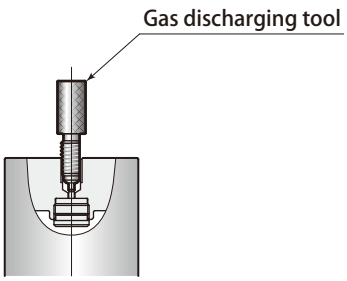
Load kN

Model / Stroke (mm)	DNR0350										page → 13		DNR0500										page → 13	
	10	13	16	19	25	32	38	50	63	75	80	100	125	10	13	16	19	25	32	38	50	63	75	80	100	125
85												5.02	4.66												6.81	6.25
90												5.14	4.74												6.99	6.37
95												5.26	4.82												7.19	6.50
100												5.39	4.90												7.39	6.63
105													4.99													6.77
110													5.08													6.91
115													5.18													7.06
120													5.28													7.21
125													5.38													7.38

Gas spring model	Gas discharging tool	model	Size
DSD32,38,50 DSA19,25,32,38,50 DSC32		DNJ-C-M6S	M6
DSC38		DNJ-C-M8S	M8
DSC50		DNJ-C-M10S	M10
DNK0350,0500 DNR0350,0500		DNJ-C-M6	M6

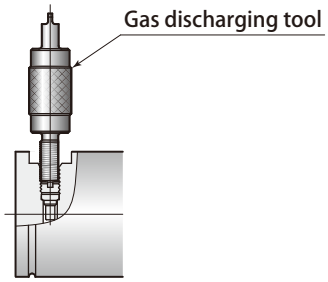
DSD,DSA,DSC

Screw the tool in the thread port
at the bottom of cylinder.



DNK,DNR

Screw the tool in the thread port
at the side of cylinder.



Storage / Transportation

- Storage
  The gas spring should be stored in dust, sunlight and humid-free area.

- Transportation
  Keep the gas spring in a way that it does not hit other gas spring. The scratches or dents made on the piston rod surface may deteriorate the product's durability. (FIG. 1)

Operation / Mounting

- Do not attempt to dismantle the gas spring. High pressure gas is sealed inside and the parts may pop out dangerously.
- Do not attempt to give additional machining onto the gas spring.
- Do not weld or cut the gas spring. Do not throw gas spring into the fire.
- Do not mount the gas spring by using the tap hole on the tip of piston rod.
- Do not attempt to lift the whole die assembly by using the tap hole on the tip of piston rod. The tap hole is provided for carrying and mount/dismount a single gas spring. (FIG. 2)
- The piston rod should be loaded to its full surface equally. If not, adjust the location of cushion pin or adaptor plate to achieve it. (FIG. 3)

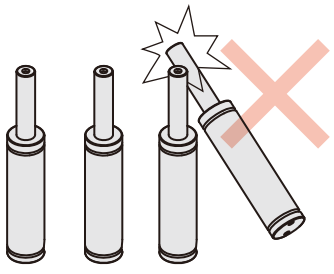


FIG. 1

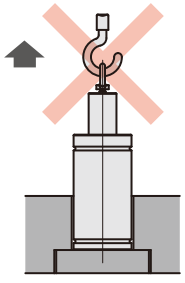


FIG. 2

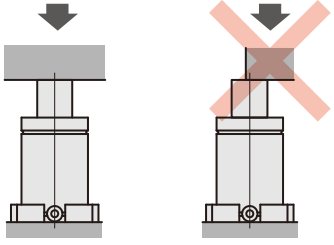


FIG. 3

Operation / Mounting

- The gas spring is securely mounted by the screws from the bottom or by the flanges.

- Do not attempt the grinding or welding operation close to the gas spring. If it is inevitable, cover the gas spring to protect them from debris or spatters. (FIG. 4)

- Do not use the gas spring under the high temperature environment. The maximum operating temperature is 70 ℃ .

- Avoid side-load to the piston as much as possible. The side-load significantly shorten the service-life of gas spring, specifically the mounting in lateral. The piston rod tends to lean because of its own weight in case of lateral mount. (FIG. 5)

- Use gas spring within the recommended stroke range. Over stroke may cause the damage.

- Mount the gas spring to die lubricant free area. If the oil wet gas spring strokes, the oil may become the oil film and intrude inside the cylinder. The accumulated draw oil may cause abnormal high pressure in the cylinder.
  Especially the chlorine and soluble oils must be avoided as they will deteriorate sealing capability of packing and shorter gas spring life. (FIG. 6)

- Never use the gas spring under the condition of piston sudden release. Sudden release is very dangerous and there is high risk of gas exhaust and serious damage of the cylinder.

- Exhaust internal gas pressure thoroughly before throw away the gas spring. Refer to **page → 31** for gas discharging tool. Ask Pascal representatives for the details of servicing.

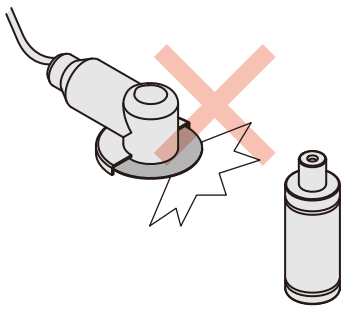


FIG. 4

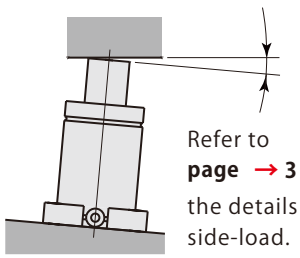


FIG. 5

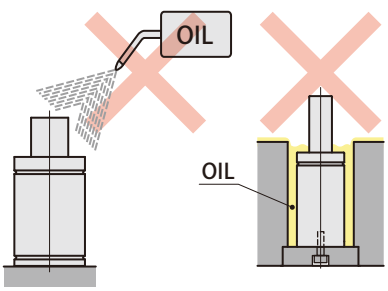
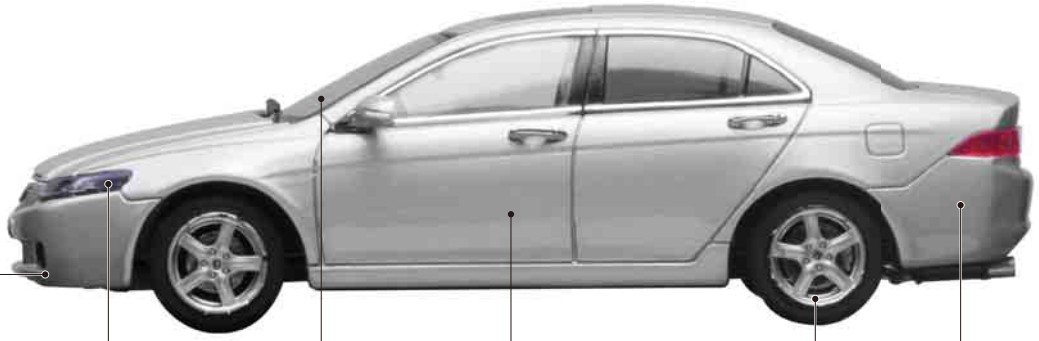


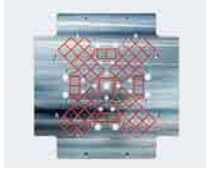
FIG. 6

Pascal all products



Bumper | Connector | Instrument panel | Door | Wheel | Body

For plastic molding



Mag clamp

Mold die clamping system

Auto coupler

For sheetmetal stamping

Traveling clamp

Stamping die clamp

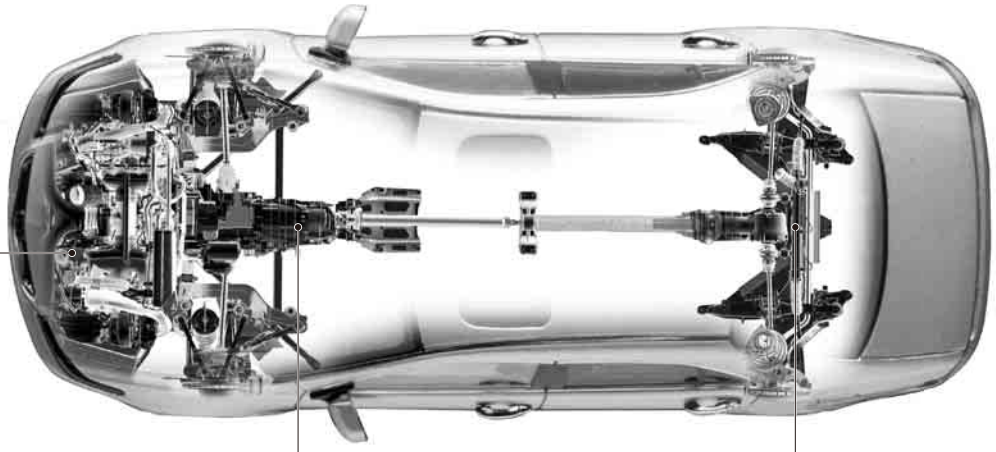
For automotive parts die & mold

N_2 gas springs

Press machine : Body , Roof , Door etc...

Molding machine : Bumper , Instrument panel etc...

Pascal products support
automotive production lines globally.



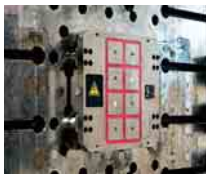
Engine

Transmission

Axle

For die cast machine

Die-clamping system



C-plate mag clamp

For metal cutting work

Work clamp

Pallet clamp

Index table

N_2 gas balancer

DOMESTIC LOCATIONS

JAPAN

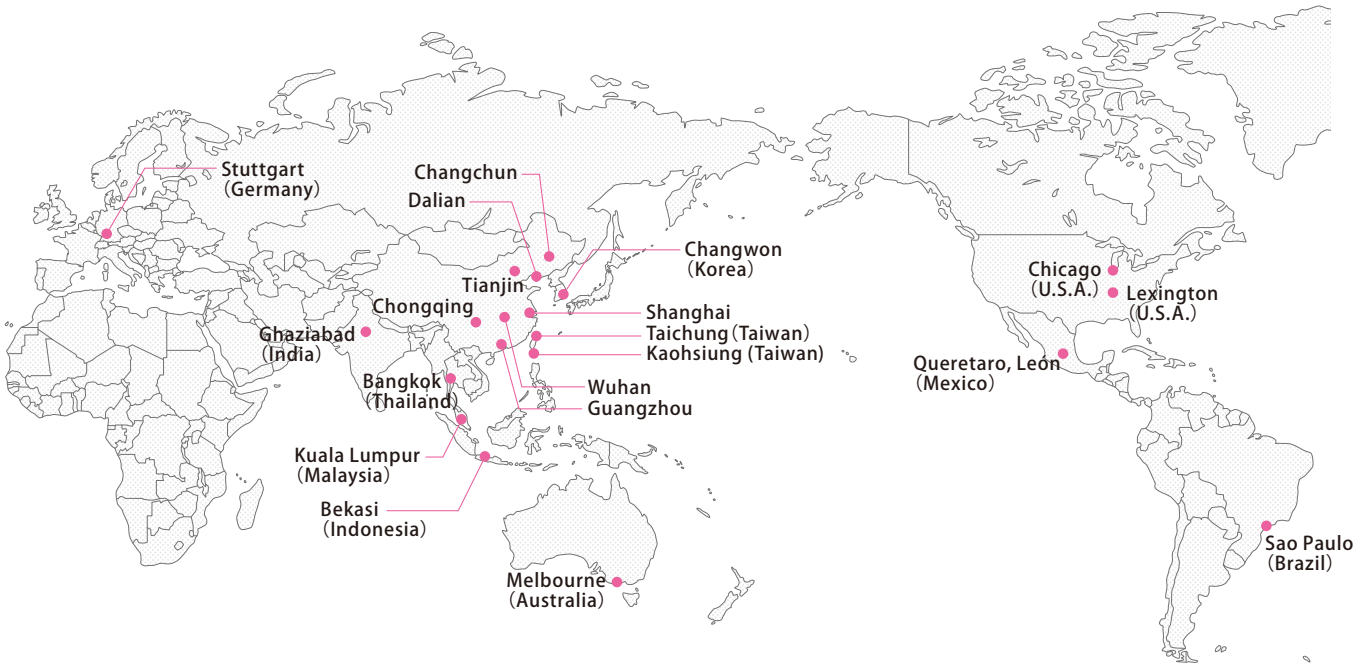
Head office / R & D center	◉ Itami, Hyogo
Sales office	● Osaka, Hyogo ● Kumagaya, Saitama, ● Atsugi, Kanagawa ● Nagoya, Aichi ● Yamagata ● Hiroshima
Plant	● Oita ● Yamagata

Head office / R & D center

Oita plant

Yamagata plant

GLOBAL NETWORK



ASIA

- Dalian [China] ● ●
- Shanghai [China] ●
- Changchun [China] ●
- Tianjin [China] ●
- Wuhan [China] ●
- Chongqing [China] ●
- Guangzhou [China] ●
- Taichung [Taiwan] ●
- Kaohsiung [Taiwan] ○
- Bangkok [Thailand] ●
- Changwon [Korea] ●
- Bekasi [Indonesia] ○
- Kuala Lumpur [Malaysia] ○
- Ghaziabad [India] ○
- Melbourne [Australia] ○

AMERICA

- Chicago , Lexington [U.S.A.] ● ○
- Queretaro , León [Mexico] ○
- Sao Paulo [Brazil] ○

EUROPE

- Stuttgart [Germany] ●

● Plant ● Subsidiary ● Sales office ● Liaison office ○ Agent

Pascal
corporation

Itami, Hyogo, Japan 664-8502
TEL. +81-72-777-3333 FAX. +81-72-777-3520

Chicago, U.S.A.	TEL. +1-847-427-1234
Stuttgart, Germany	TEL. +49-711-782-850-0
Dalian, China	TEL. +86-411-8732-2988
Shanghai, China	TEL. +86-21-5263-4122
Changwon, Korea	TEL. +82-55-274-0971
Bangkok, Thailand	TEL. +66-2173-5855

DCS-22E-12
2023. 04

CERTIFICATE OF APPROVAL ISO9001