

Uni-Valve A/s

VENTILER & INSTRUMENTER



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Pneumatisk aktuator
Pneumatic actuator

SCOTCH-YOKE

Type UNI-PD
Type UNI-PS



(UNI-PD/PS 50, 70, 85, 100, 125, 150, 200)

Introduktion / Introduction

Serie UNI-PD/PS fungerer efter Scotch-Yoke princippet fra type 50 til 200. Scotch-Yoke teknologien i aktuatorer er meget anvendelig for ventiler og spjæld da den yder højere drejemoment i både start- og slutstilling.

- UNI-PD/PS series Pneumatic Actuators are designed using Scotch-Yoke technology from size 50 to the largest of size 200. Scotch-Yoke technology is well known to all users as the most suitable actuator mechanism for valve and damper operation as it produces higher torque at both end positions.

UNI-PD/PS følger international standarder for hurtigere og lettere montage af tilbehør som magnetventiler, tilbagemeldere, positioners osv.

- Specification of UNI-PD/PS actuators follow international standards for faster and easier mounting of accessories like Solenoid valves, limit switches, positioners etc.

Den kan leveres som dobbeltvirkende fra 10 Nm til 4000 Nm og enkeltvirkende med fjederretur fra 5 Nm til 1900 Nm.

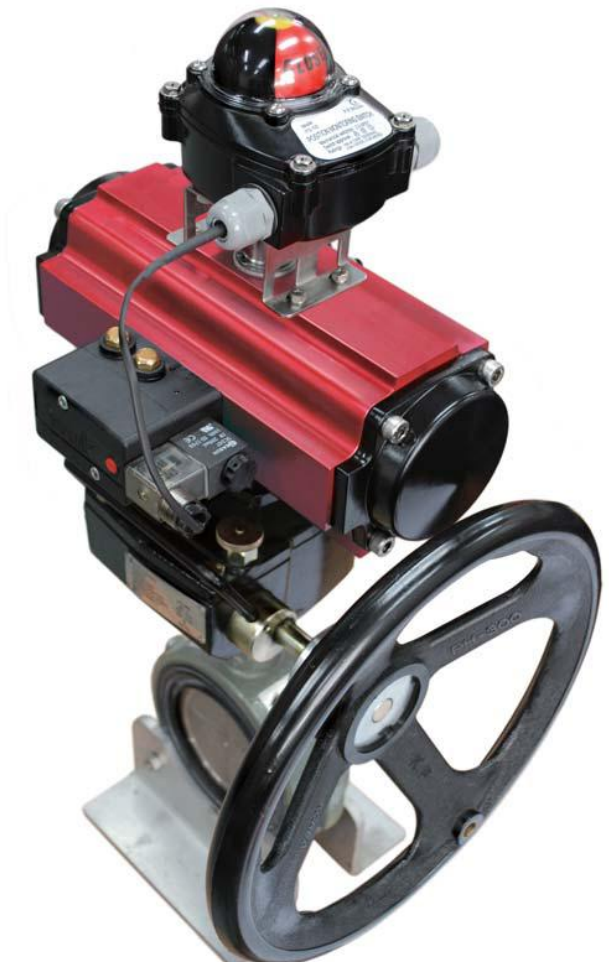
- Ranges available are 10Nm through 4000Nm double acting, and 5Nm through 1900Nm spring return.

Omgivelsestemperaturen spænder fra -20°C - +80°C som standard (for højere og lavere temperaturer venligst kontakt os).

- The range of ambient temperature for standard operation is -20oC~ 80oC as standard (For higher and lower temperature applications please consult manufacturer before placing order).

Montagedetaljer følger ISO-5211, DIN3337, NAMUR og VDI/VDE3845. Akslen, i bunden af aktuatoren, er udformet som en dobbeltfirkant for at passé til flest mulige ventilspindler.

- Mounting dimensions follow ISO5211, DIN3337, NAMUR, VDI/VDE3845 standards, The drive shafts come in various sizes with double square shape female bore for accomodating valve shaft, spring package is pre-compressed for increased safety, extremely long service life and reliable performance



Konstruktion / Construction

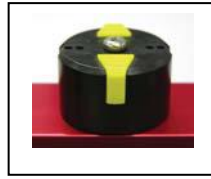
Positionsvisning / Position indicator

- Flad / Flat

- Kuppel / Dome



NAMUR aksel / NAMUR drive shaft
- (hexagon or double flat)



Cylinder
- Extruderet anodiseret aluminium
Cylinder
- Extruded anodised aluminium



Mekanisk stop
- Finindstilling af åben/lukke stilling
Center stopper bolts
- Adjustment for open & close positions

Mekanisk stop
Mechanical stopper

O-ring
- Special for lav friktion
O-ring
- Specially treated for low friction

Montagehuller for tilbehør
- Iht. VDI/VDE 3845 NAMUR
Mounting holes for accessories
- Easier mounting acc. To VDI/VDE 3845 NAMUR

Scotch-Yoke
- Forstærket Scotch Yoke kraft, kompakt
Scotch-Yoke
- Hardened Scotch Yoke power, compact unit

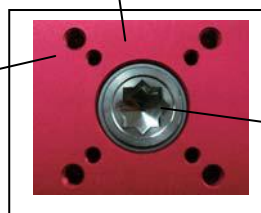


NAMUR tilslutning
Direct mounting NAMUR

Fjederboks
- Forkomprimeret for øget sikkerhed
Spring pack
- Pre-compressed for increased safety

Polerede overflader
- Lav friktion, lang levetid
Polished surface finish
- Low friction, max. working life

Montagehuller
- Iht. ISO 5211, DIN 3337, NAMUR
Mounting holes
- Acc. to international standard ISO 5211, DIN 3337, NAMUR



Dobbeltfirkant for ventilspindel
- ISO 5211NAMUR
Double square drive shaft
- ISO 5211 NAMUR

Egenskaber og fordele / Features and advantages



Fordele (Scotch-Yoke)

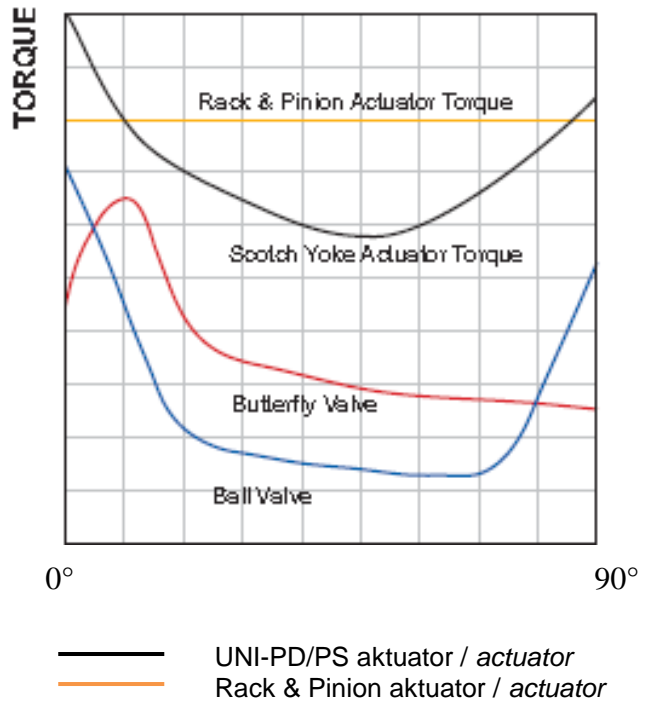
Aktuatoren yder ekstra moment i endepositionerne, som er optimalt for normal drift af ventiler

- Kompakt design
- Lang levetid
- Indstilleligt stop i begge endepositioner

Advantage (Scotch Yoke)

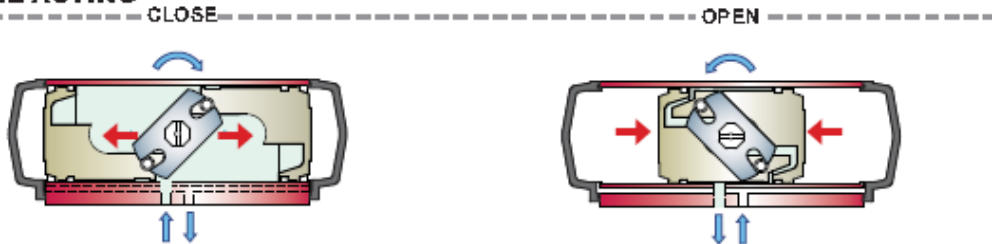
The actuators provide increased torque at open and close position, this closely matches the required torque for practical valve operation.

- Increased torque at the open and close position.
- Compact design and size
- Extremely long cyclic life
- Adjustable center stopper for both open & close positions

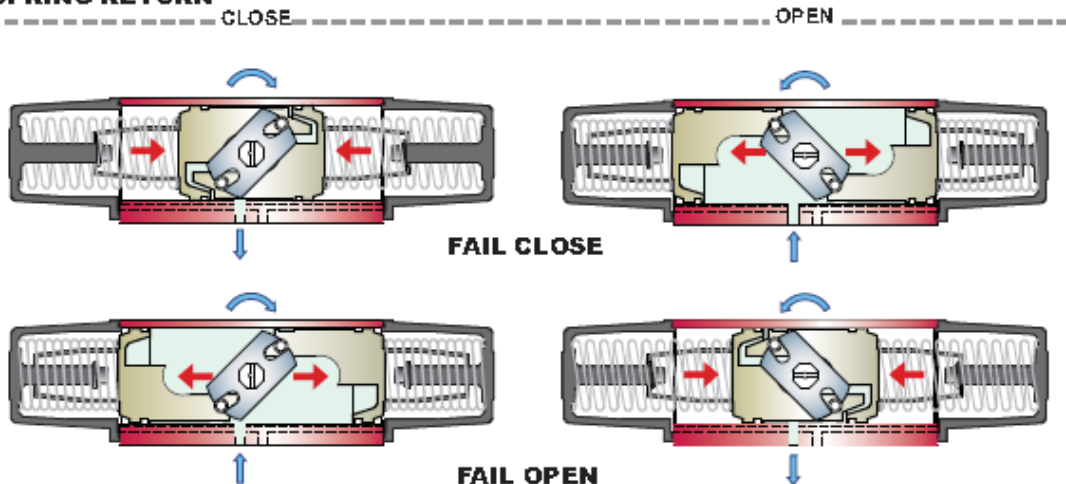


Mekanik / Mechanical movement and position inside

DOUBLE ACTING

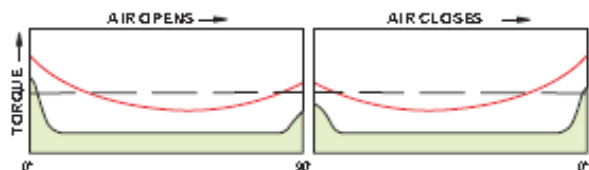


SPRING RETURN



Teknisk information / *Technical information*

Dobbeltvirkende drivmoment (Nm) / *Double acting output torque (Nm)*

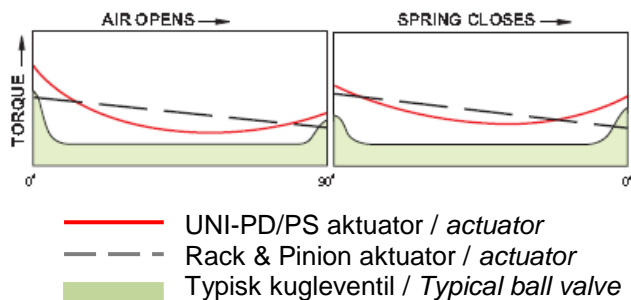


- UNI-PD/PS aktuator / *actuator*
- - - Rack & Pinion aktuator / *actuator*
- Typisk kugleventil / *Typical ball valve*



Type	Vinkel angle	2,8 bar 40 psi	3,5 bar 50 psi	4,2 bar 61 psi	5,5 bar 80 psi	6,0 bar 87 psi	7,0 bar 100 psi	8,0 bar 116 psi	Luftforbrug 5,5 bar Air consumption at 5,5 bar Open / Close		Gangtid 5,5 bar - Operating time at 5,5 bar
PD50	0°	27	34	41	54	59	69	79			
	45°	12	15	17	23	25	29	33	0,16	0,16	< 0,3 sec.
	90°	19	24	29	38	42	48	55			
PD70	0°	76	95	114	149	163	190	217			
	45°	32	40	48	62	68	79	90	0,46	0,46	< 0,6 sec.
	90°	53	66	78	104	114	133	152			
PD85	0°	141	176	212	277	302	353	403			
	45°	59	79	89	116	127	148	169	0,8	0,8	< 1,0 sec.
	90°	99	123	148	194	212	247	282			
PD100	0°	229	286	343	449	490	571	653			
	45°	96	120	144	188	205	239	273	1,32	1,28	< 2,0 sec.
	90°	160	200	240	314	343	400	457			
PD125	0°	438	547	657	860	938	1095	1250			
	45°	182	228	273	358	390	456	521	2,49	2,42	< 3,0 sec.
	90°	306	383	460	602	657	766	876			
PD160	0°	850	1062	1274	1668	1820	2124	2427			
	45°	355	444	533	698	761	888	1015	4,52	4,61	< 5,0 sec.
	90°	595	744	892	1168	1275	1487	1700			
PD200	0°	1622	2028	2433	3187	3476	4056	4635			
	45°	679	848	1018	1333	1454	1697	1939	9,07	9,21	< 6,0 sec.
	90°	1136	1420	1704	2231	2434	2840	3245			

Enkeltvirkende (fjederretur) drivmoment (Nm) / Spring return output torque (Nm)

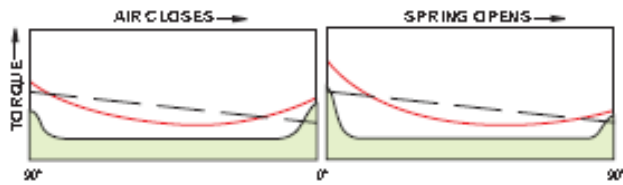


Fjeder lukker / Spring close

Type	Funktion - function	Vinkel - angle	4,2 bar 61 psi	5,5 bar 80 psi	6,0 bar 87 psi	7,0 bar 100 psi	Luftforbrug 5,5 bar Air consumption at 5,5 bar	Gangtid 5,5 bar Operating time at 5,5 bar
PS50	Luft åbne / Air to open	0°	25,6	34,6	37,6	42,5	0,16	< 0,3 sec.
		55°	8,3	11,1	12,0	13,4		
		90°	10,0	13,1	14,2	15,4		
	Fjeder lukke / Spring to close	90°	18,6	25,0	27,3	32,2		
		35°	9,0	12,0	13,1	15,5		
		0°	15,2	19,9	21,7	25,6		
PS70	Luft åbne / Air to open	0°	68,3	92,3	98,9	112,3	0,46	< 0,6 sec.
		55°	21,9	29,0	31,6	35,4		
		90°	29,0	38,0	41,7	46,2		
	Fjeder lukke / Spring to close	90°	49,5	66,7	72,1	84,6		
		35°	25,7	34,3	37,4	43,8		
		0°	43,8	57,2	63,6	74,6		
PS85	Luft åbne / Air to open	0°	131,9	176,2	187,9	216,7	0,79	< 1,0 sec.
		55°	40,1	53,4	57,9	66,9		
		90°	50,4	67,0	72,5	83,9		
	Fjeder lukke / Spring to close	90°	95,7	127,8	139,3	159,5		
		35°	48,4	64,5	70,4	80,6		
		0°	76,7	101,9	114,6	131,0		
PS100	Luft åbne / Air to open	0°	214,6	286,8	311,2	359,6	1,28	< 2,0 sec.
		55°	64,7	86,1	93,4	108,4		
		90°	80,5	106,7	115,7	134,9		
	Fjeder lukke / Spring to close	90°	156,0	208,7	227,2	259,2		
		35°	78,6	104,9	114,3	130,3		
		0°	123,2	163,5	178,5	203,3		
PS125	Luft åbne / Air to open	0°	412,5	552,4	601,3	689,3	2,42	< 3,0 sec.
		55°	115,9	164,9	189,4	217,2		
		90°	132,3	202,8	247,1	283,4		
	Fjeder lukke / Spring to close	90°	320,7	401,1	409,7	471,5		
		35°	158,4	200,9	208,4	240,0		
		0°	234,2	309,8	336,4	388,5		
PS160	Luft åbne / Air to open	0°	802,5	1075,6	1189,6	1373,0	4,61	< 5,0 sec.
		55°	239,6	319,5	341,8	395,8		
		90°	294,8	390,9	401,8	467,1		
	Fjeder lukke / Spring to close	90°	584,0	780,8	872,5	997,6		
		35°	292,7	390,2	429,9	491,3		
		0°	452,6	579,9	630,3	718,8		
PS200	Luft åbne / Air to open	0°	1561,3	2079,9	2272,7	2603,4	9,21	< 6,0 sec.
		55°	452,2	607,9	660,3	747,3		
		90°	536,6	729,5	786,7	877,1		
	Fjeder lukke / Spring to close	90°	1141,7	1508,2	1646,9	1920,1		
		35°	564,3	747,4	813,6	946,8		
		0°	835,6	1115,9	1202,8	1391,4		

Ret til ændringer forbeholdes / subject to changes

Enkeltvirkende (fjederretur) drivmoment (Nm) / Spring return output torque (Nm)



- UNI-PD/PS aktuator / actuator
- - - Rack & Pinion aktuator / actuator
- Typisk kugleventil / Typical ball valve

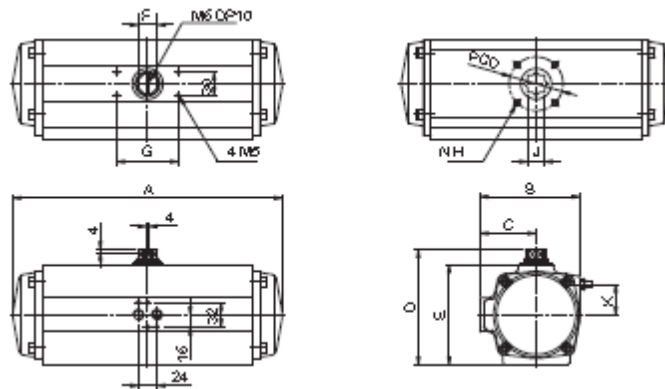


Fjeder åbner / Spring open

Type	Funktion - function	Vinkel - angle	4,2 bar 61 psi	5,5 bar 80 psi	6,0 bar 87 psi	7,0 bar 100 psi	Luftforbrug 5,5 bar Air consumption at 5,5 bar	Gangtid 5,5 bar Operating time at 5,5 bar
PS50	Luft lukke / Air to close	90°	17,9	24,2	26,3	29,8	0,16	< 0,3 sec.
		55°	8,3	11,1	12,0	13,4		
		0°	14,3	18,7	20,3	22,0		
	Fjeder åbne / Spring to open	0°	26,5	35,7	39,0	46,1		
		35°	8,3	11,0	12,0	14,1		
		90°	10,7	13,9	15,2	17,9		
PS70	Luft lukke / Air to close	90°	47,8	64,6	69,3	78,6	0,46	< 0,6 sec.
		55°	22,7	30,4	32,8	36,9		
		0°	41,4	54,2	59,6	66,0		
	Fjeder åbne / Spring to open	0°	70,7	95,3	103,0	120,8		
		35°	22,9	30,3	33,3	39,0		
		90°	30,7	40,1	44,6	52,2		
PS85	Luft lukke / Air to close	90°	92,4	123,4	131,6	151,7	0,8	< 1,0 sec.
		55°	42,3	56,4	61,2	70,6		
		0°	72,0	95,6	103,5	119,8		
	Fjeder åbne / Spring to open	0°	136,6	182,5	199,0	227,8		
		35°	42,1	56,1	61,2	70,0		
		90°	53,7	71,4	80,2	91,7		
PS100	Luft lukke / Air to close	90°	150,3	200,8	217,9	251,8	1,32	< 2,0 sec.
		55°	68,5	91,3	99,1	114,8		
		0°	114,9	152,3	165,3	192,7		
	Fjeder åbne / Spring to open	0°	222,8	298,0	324,4	370,2		
		35°	68,2	90,9	99,0	112,9		
		90°	86,2	114,5	125,0	142,4		
PS125	Luft lukke / Air to close	90°	288,8	386,8	421,0	482,6	2,49	< 3,0 sec.
		55°	125,6	175,2	191,1	219,1		
		0°	188,9	289,7	352,9	404,8		
	Fjeder åbne / Spring to open	0°	458,0	572,9	585,1	673,4		
		35°	135,1	173,5	189,4	218,3		
		90°	164,0	217,0	235,6	272,1		
PS160	Luft lukke / Air to close	90°	561,9	753,1	832,9	961,4	4,52	< 5,0 sec.
		55°	254,5	339,9	367,7	425,3		
		0°	421,0	558,3	573,8	667,0		
	Fjeder åbne / Spring to open	0°	834,1	1115,1	1246,1	1424,8		
		35°	255,9	340,6	372,4	425,4		
		90°	316,9	418,6	441,4	503,3		
PS200	Luft lukke / Air to close	90°	1093,2	1456,4	1591,3	1822,9	9,07	< 6,0 sec.
		55°	485,1	650,2	707,6	804,1		
		0°	766,4	1041,9	1123,5	1252,7		
	Fjeder åbne / Spring to open	0°	1630,5	2154,0	2352,0	2742,2		
		35°	481,5	639,3	693,9	806,1		
		90°	585,1	781,4	842,2	974,3		

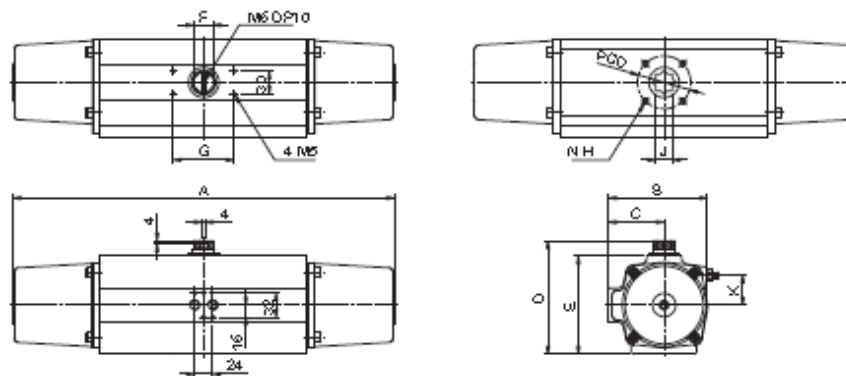
Dimensioner / Dimensions

Dobbeltvirkende type UNI-PD / Double acting UNI-PD series



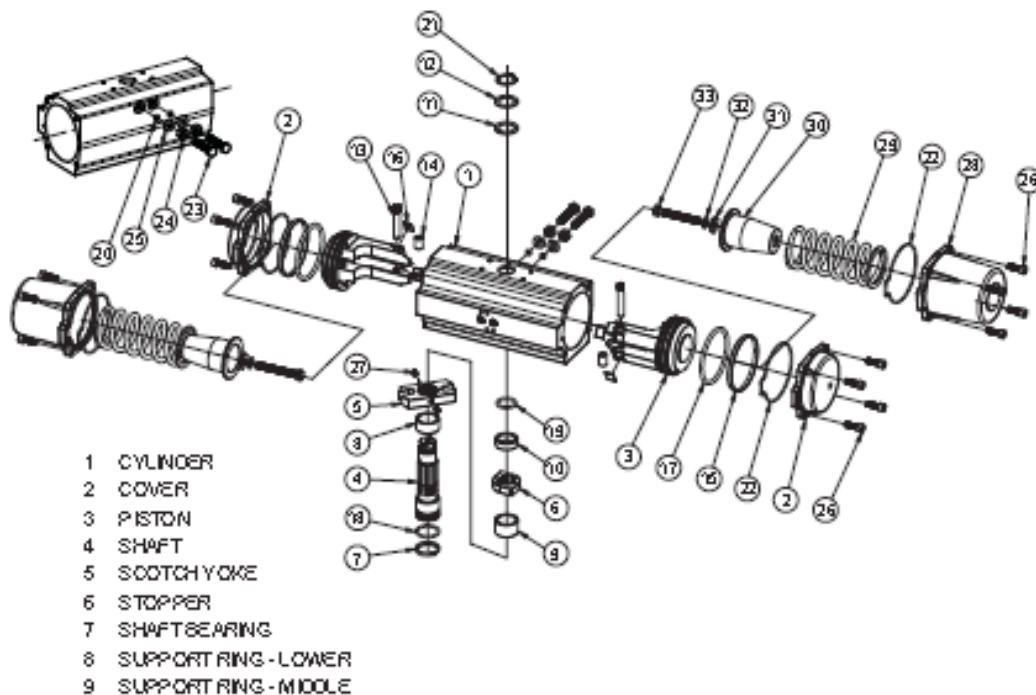
Type	A	B	C	D	E	F	G	ISO5211	PCD	N-H	J	DP	K	Vægt - Weight kg
PD50	186	73	42	91	71	11,4	80	F03/F05/F07	35/50/70	M5/M6	11x11	15	19,5	1,6
PD70	255	96	55	112	92	17	80	F05/F07	50/70	M6/M8	17x17	20	26	3
PD85	300	110	62	130	110	22	80	F05/F07	50/70	M6/M8	17x17	25	33	5
PD100	350	130	73	150	130	25,4	80	F07/F10	70/102	M8/M10	22x22	30	39,5	7,5
PD125	422	159	88	182	162	28,6	80/130	F10/F12	102/125	M10/M12	27x27	35	47,5	11
PD160	510	195	105	240	210	34	80/130	F10/F14	104/140	M10/M16	36x36	60	62	29
PD200	615	243	130	292	262	42,5	80/130	F12/F16	125/165	M12/M20	46x46	60	77,5	56

Enkeltvirkende (fjederretur) type UNI-PS / Spring return UNI-PS series



Type	A	B	C	D	E	F	G	ISO5211	PCD	N-H	J	DP	K	Vægt - Weight kg
PS50	255	73	42	91	71	11,4	80	F03/F05/F07	35/50/70	M5/M6	11x11	15	19,5	1,7
PS70	330	96	55	112	92	17	80	F05/F07	50/70	M6/M8	17x17	20	26	3,5
PS85	423	110	62	130	110	22	80	F05/F07	50/70	M6/M8	17x17	25	33	5,5
PS100	499	130	73	150	130	25,4	80	F07/F10	70/102	M8/M10	22x22	30	39,5	10
PS125	629	159	88	182	162	28,6	80/130	F10/F12	102/125	M10/M12	27x27	35	47,5	18
PS160	744	195	105	240	210	34	80/130	F10/F14	104/140	M10/M16	36x36	60	62	44
PS200	869	243	130	292	262	42,5	80/130	F12/F16	125/165	M12/M20	46x46	60	77,5	81

Eksploderet tegning / Exploded view



- 1 CYLINDER
- 2 COVER
- 3 PISTON
- 4 SHAFT
- 5 SCOTCH YOKE
- 6 STOPPER
- 7 SHAFT BEARING
- 8 SUPPORT RING - LOWER
- 9 SUPPORT RING - MIDDLE

- 10 SUPPORT RING - UPPER
- 11 THRUST WASHER
- 12 WASHER - SHAFT
- 13 ROLLER PIN
- 14 ROLLER
- 15 PISTON GUIDE PAD
- 16 SUPPORT BAND
- 17 O-RING - PISTON
- 18 O-RING - SHAFT, LOWER
- 19 O-RING - SHAFT, UPPER
- 20 O-RING - STOPPER
- 21 SNAP RING
- 22 O-RING - COVER
- 23 ADJUST BOLT
- 24 ADJUST NUT
- 25 WASHER-STOPPER
- 26 HEX HEAD SOCKET BOLT
- 27 SET SCREW
- 28 SPRING RETURN COVER
- 29 SPRING
- 30 SPRING RETAINER
- 31 PLANE WASHER
- 32 SPRING WASHER
- 33 PRE TENSION BOLT