

**Pneumatic linear drive unit**

with magnetic coupling  
(rodless cylinder)

Design:  
with elastic cushioning rings in the end positions

**Type DGO-12-...-P-A-B**

with adjustable end position cushioning at both ends

**Type DGO-...-PPV-A-B**



Accessory:

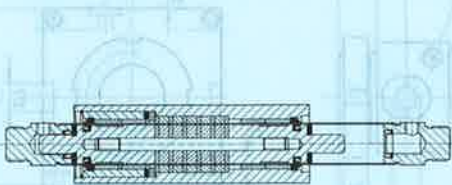
Adapter for torque-free power transmission

Type FKG-... (see sheet 1.290.1)

The double-acting linear drives are fitted with a magnetic coupling.

Motion is transmitted by the force-locking of the magnetic coupling onto the movable outer slide. This means that there is no piston rod to extend; the fitting space required is shorter than with conventional pneumatic cylinders.

Devices, loads and similar can be mounted directly to the mounting surface provided for this purpose on the outer slide. The piston is hermetically sealed from the outer slide, as there is no mechanical linkage. There are thus no leakage losses.



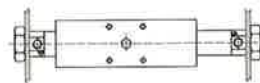
Intermediate and end positions of the piston can be sensed by proximity means, using a magnetic field. Appropriate proximity switches can be fitted externally.

For magnetically actuated proximity switches see sheet 1.350.

Details of a special design of linear drives for hydraulic operation may be obtained upon request

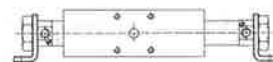
**Mounting of basic cylinder without mounting attachments**

Mounting by means of hex nut

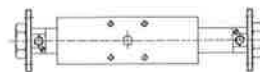


**Other types of installation and additional mounting attachments.**

Foot mounting

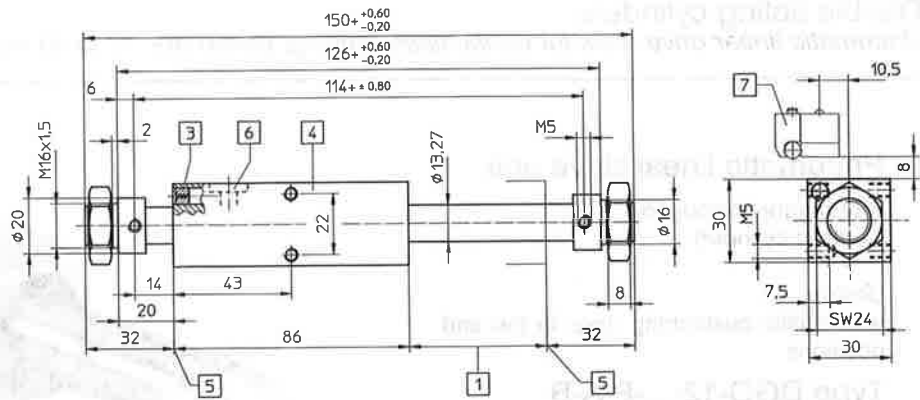


Flange mounting

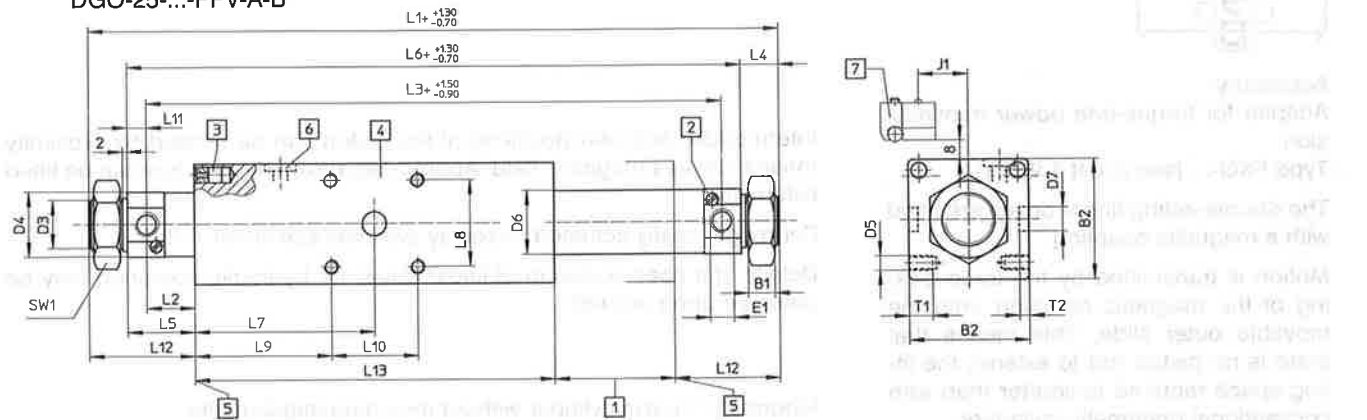


Order code (see sheet 1.291.2)		Part No. + DGO + piston dia. + stroke length + end position cushioning + sensing Order example: Piston dia. 40 mm, stroke length 2500 mm = 15226 DGO-40-2500-PPV-A-B						
Medium		Compressed air filtered (lubricated or unlubricated)*						
Design		Double-acting rodless cylinder with magnetic coupling						
Max. permissible operating pressure		7 bar						
Temperature range		-20 to +60 °C						
Materials		Bearing and end cap: anodized aluminium; cylinder barrel: X 5 Cr Ni 18 9; flange and side housing: aluminium; seals: perbunan						
Basic weight		kg	Ø 12: 0.32	Ø 16: 0.62	Ø 20: 1.00	Ø 25: 1.34	Ø 32: 2.40	Ø 40: 3.92
Weight per 10 mm stroke		kg	0.0020	0.0027	0.0038	0.0048	0.0060	0.0080
Piston dia. mm	Stroke length (longer strokes for 25 and 40 mm dia. on request) mm	Effective force at 6 bar		Breakaway force of magnetic coupling		Connection	Cushioning length mm	
		N	(≈ kp)	N	(≈ kp)			
12	10 to 1200	58	(5.8)	100	(10)	M 5	—	
16	10 to 2500	90	(9.0)	160	(16)	M 5	14	
20	10 to 3000	142	(14.2)	270	(27)	G 1/8	17	
25	10 to 3500	214	(21.4)	400	(40)	G 1/8	19	
32	10 to 3500	385	(38.5)	680	(68)	G 1/8	20	
40	10 to 4000	645	(64.5)	1050	(105)	G 1/4	23	

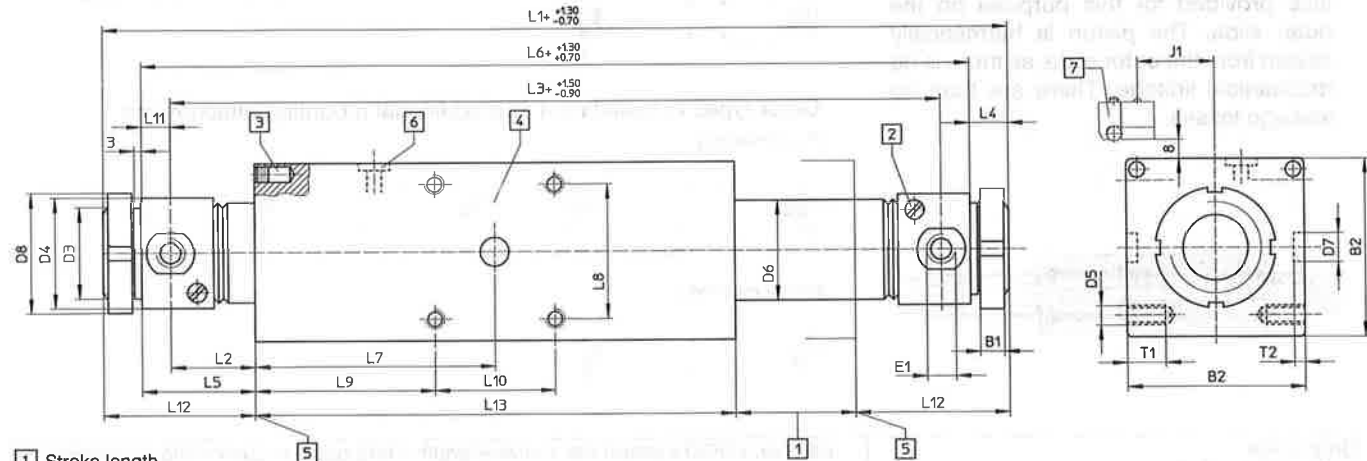
Type DGO-12...-P-A-B



Type DGO-16...-PPV-A-B  
DGO-20...-PPV-A-B  
DGO-25...-PPV-A-B



Type DGO-32...-PPV-A-B  
DGO-40...-PPV-A-B



- 1 Stroke length
  - 2 Regulating screw for adjustable end position cushioning
  - 3 Switching magnet for proximity switch
  - 4 Can be turned through 360°
  - 5 End position
  - 6 Lubricating nipple
  - 7 Proximity switch
- + = Plus stroke length

Piston dia. mm	B <sub>1</sub>	B <sub>2</sub>	D <sub>3</sub>	D <sub>4</sub>	D <sub>5</sub>	D <sub>6</sub>	D <sub>7</sub>	D <sub>8</sub>	E <sub>1</sub>	J <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	L <sub>5</sub>	L <sub>6</sub>	L <sub>7</sub>	L <sub>8</sub>	L <sub>9</sub>	L <sub>10</sub>	L <sub>11</sub>	L <sub>12</sub>	L <sub>13</sub>	T <sub>1</sub>	T <sub>2</sub>	SW <sub>1</sub>
16	8	36	M16 x 1.5	20	M5	17.5	8	—	M5	13.5	205	12	149	12	28	181	62.5	26	49.5	26	16	40	125	8	4	24
20	11	42	M22 x 1.5	27	M5	21.3	8	G 1/8	16.5	16.5	217	16.5	169	16	24.5	185	67.5	32	51.5	32	8	40.5	135	10	3	32
25	11	50	M22 x 1.5	27	M5	28.5	10	G 1/8*	20.5	238	20	190	16	28	208	75	36	57	36	8	44	150	10	4	32	
32	8	60	M30 x 1.5	38	M6	33.6	10	G 1/8	25.5	270	23.6	218	16	33.6	238	85	48	61	48	10	49.6	170	12.5	4	—	
40	10	74	M38 x 1.5	46	M8	41.6	12	G 1/4	32	327	35	271	16	47	295	100	58	75	50	12	63	200	16	4.5	—	

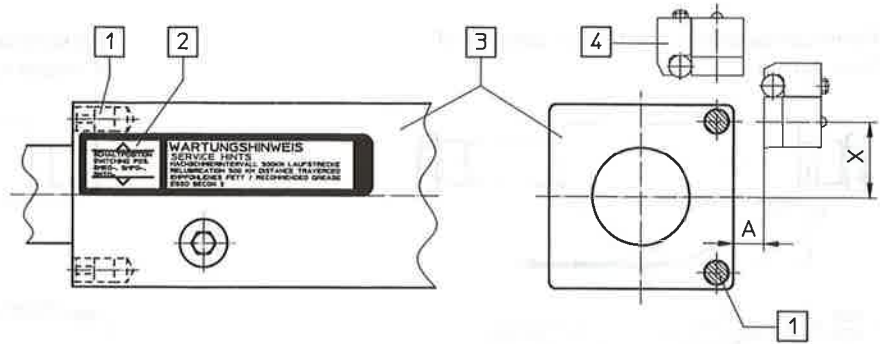
\* Max. screw-in depth 7 mm (use Festo connectors)

Installation of the proximity switches, Types SMEO, SMTO and SMPO, for proximity sensing of end positions and intermediate positions.

The proximity switches are mounted by the customer in the vicinity of the cylinder (e.g. on a 6 mm dia. bar).

Proximity sensing is possible only in the marked area.

If distance A is too small, this may lead to multiple switching.

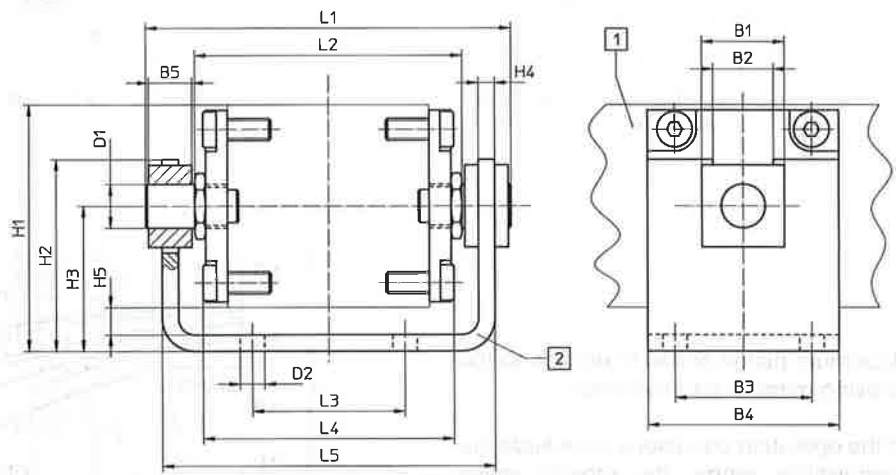


Proximity switch Type	Distance A mm	Distance X mm						Switching path mm	Hysteresis mm
		DGO-12	DGO-16	DGO-20	DGO-25	DGO-32	DGO-40		
SMEO, SMTO	5.0 to 9.0	10 to 11	13 to 14	16 to 17	20 to 21	25 to 26	32 to 33	7.5 to 13	1.0 to 4.5
SMPO	5.0 to 6.0	10 to 11	13 to 14	16 to 17	20 to 21	25 to 26	32 to 33	7.0 to 15	0.4 to 2.5

Moment compensator for torque-free force application  
Type FKG-... (see sheet 1.290.2)

The compensator makes it possible to avoid a tilting moment at the slide, thus enabling frictional losses to be reduced. It also allows alignment errors of parallel loads to be compensated.

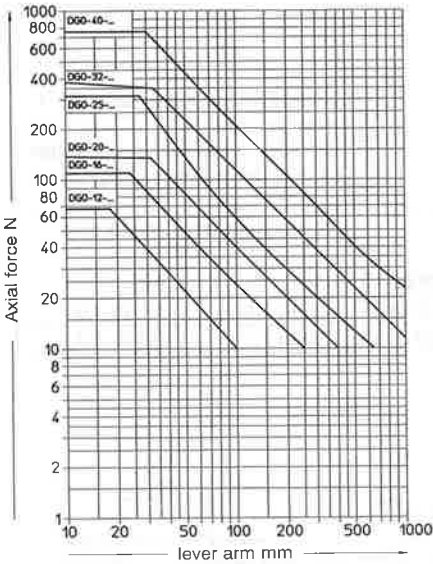
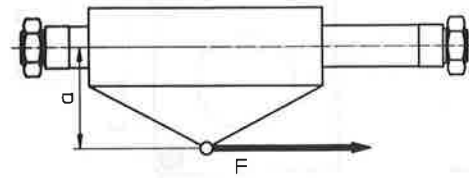
Maximum permissible alignment error of parallel guidance on longitudinal axis of cylinder  $\pm 1$  mm.



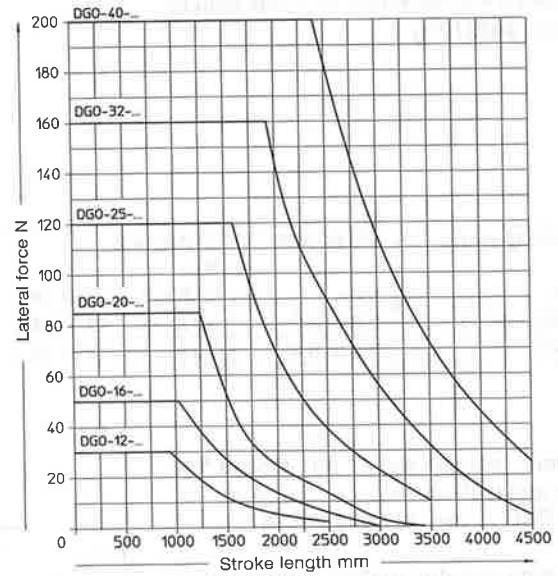
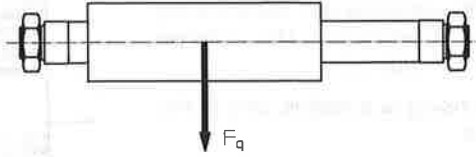
Type	B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>	B <sub>4</sub>	B <sub>5</sub>	D <sub>1</sub> ∅	D <sub>2</sub> ∅	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	H <sub>4</sub>	H <sub>5</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	L <sub>5</sub>
FKG-16-B	18	14	26	40	8	10	5.5	47	40	29	4	7	74	54	26	49	68
FKG-20-B	18	14	32	42	8	10	5.5	53	43	32	4	7	82	62	32	57	76
FKG-25-B	22	16	36	50	12	12	6.6	63	50	38	5	8	98	70	36	64	89
FKG-32-B	22	16	48	60	12	12	6.6	73	55	43	5	8	108	80	48	74	99
FKG-40-B	30	22	50	70	16	16	9	90	70	53	6	10	134	98	56	92	122

Permissible loads of pneumatic linear drive DGO-...

Permissible axial force  $F$  as a function of lever arm  $a$

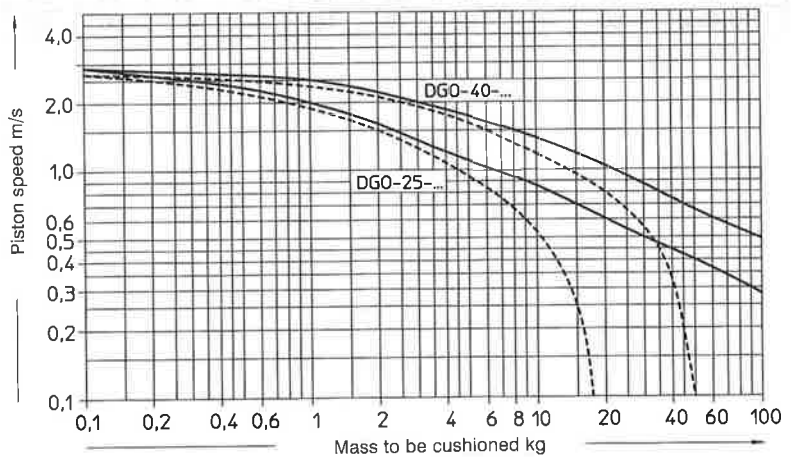
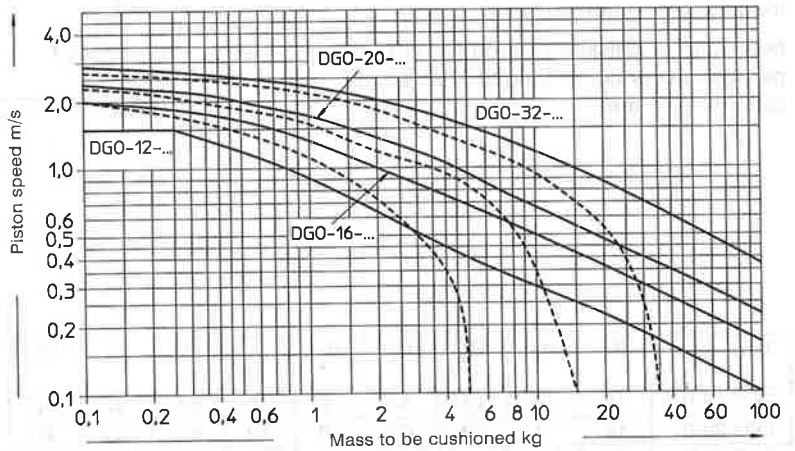


Permissible lateral force  $F_q$  as a function of stroke length



Maximum piston speed in relation to the moving mass to be cushioned.

If the operating conditions lie outside the permissible range, the moving mass should be intercepted externally by means of suitable devices (shock-absorbers, stops).



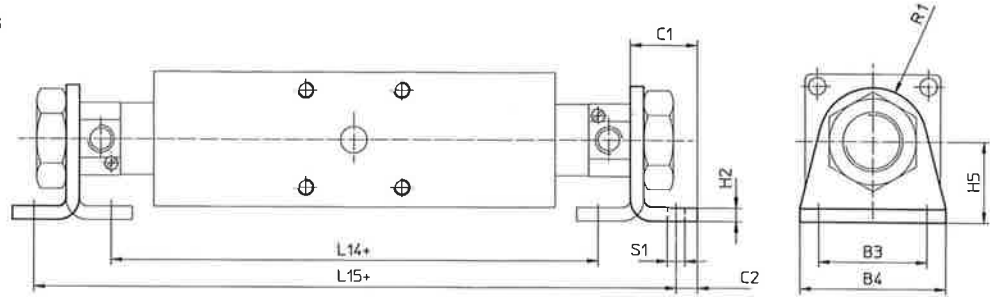
— mounted horizontally  
 - - - mounted vertically

Additional mounting components  
for type DGO-12-...-P-A-B

- DGO-16-...-PPV-A-B
- DGO-20-...-PPV-A-B
- DGO-25-...-PPV-A-B

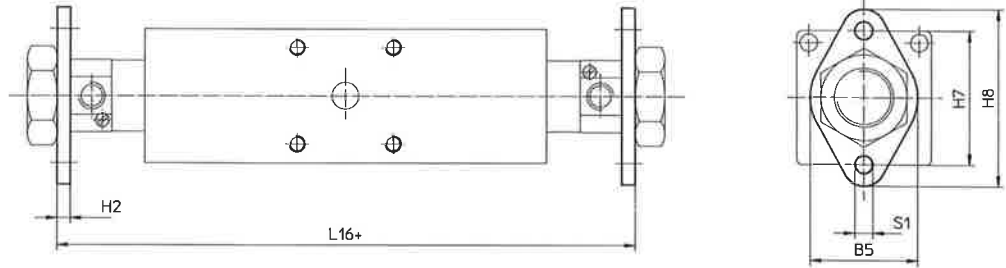
Foot mounting (1 foot)

- Type HBN-12/16-1
- HBN-12/16-1-A
- HBN-20/25-1-A



Flange mounting (1 flange)

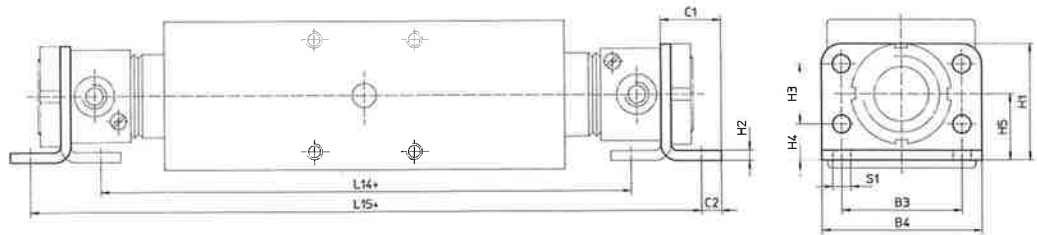
- Type FBN-12/16
- FBN-20/25



for Type DGO-32-...-PPV-A-B  
DGO-40-...-PPV-A-B

Foot mounting

- Type FV-32
- FV-40



+ = Plus stroke length

Piston dia. mm	B <sub>3</sub>	B <sub>4</sub>	B <sub>5</sub>	C <sub>1</sub>	C <sub>2</sub>	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	H <sub>4</sub>	H <sub>5</sub>	H <sub>7</sub>	H <sub>8</sub>	L <sub>14</sub>	L <sub>15</sub>	L <sub>16</sub>	R <sub>1</sub>	S <sub>1</sub> Ø
12	32	42	30	20	6	—	4	—	—	20	40	53	105	153	133	13	5.5
16	32	42	30	20	6	—	4	—	—	27	40	53	161	209	189	13	5.5
20	40	54	40	25	8	—	5	—	—	30	50	66	161	219	189	20	6.6
25	40	54	40	25	8	—	5	—	—	30	50	66	182	240	216	20	6.6
32	52	66	—	21	7	49	4	28	14	28	—	—	216	266	—	—	7
40	60	80	—	30	10	58	5	30	18	33	—	—	265	335	—	—	9

Piston dia. mm	Weight of mounting components, kg	
	HBN/FV Galvanized steel	FBN/FV Galvanized Steel
12	0.040	0.025
16	0.050	0.025
20	0.100	0.045
25	0.100	0.045
32		0.010
40		0.190

Order number, linear drive					Order number, mounting components					
Part No.	Type	Piston dia.	Stroke	End position	Foot mounting		Flange mounting		Moment compensator (adjuster)	
				ing	Part. No.	Type	Part. No.	Type	Part No.	Type
15221	DGO-12-...-	P	A-B	A-B	5125	HBN-12/16-1	5130	FBN-12/16		
15222	DGO-16-...-	PPV-	A-B	A-B	6062	HBN-12/16-1-A	5130	FBN-12/16	15233	FKG-16-B
15223	DGO-20-...-	PPV-	A-B	A-B	6064	HBN-20/25-1-A	5131	FBN-20/25	33339	FKG-20-B
15224	DGO-25-...-	PPV-	A-B	A-B	6064	HBN-20/25-1-A	5131	FBN-20/25	15234	FKG-25-B
15225	DGO-32-...-	PPV-	A-B	A-B			3754	FV-32	33340	FKG-32-B
15226	DGO-40-...-	PPV-	A-B	A-B			3765	FV-40	15235	FKG-40-B