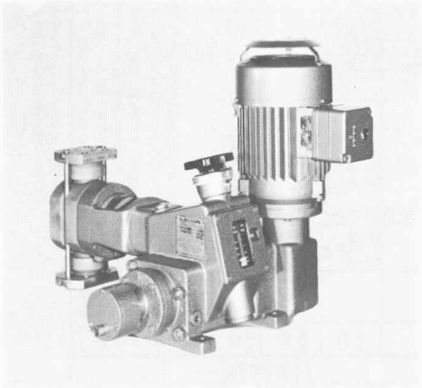
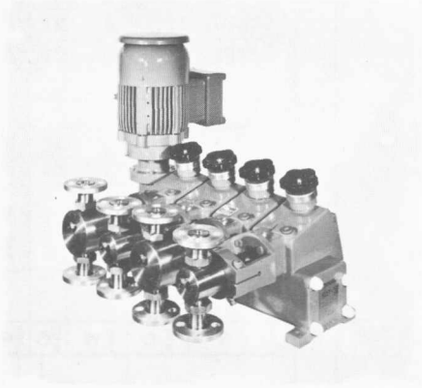
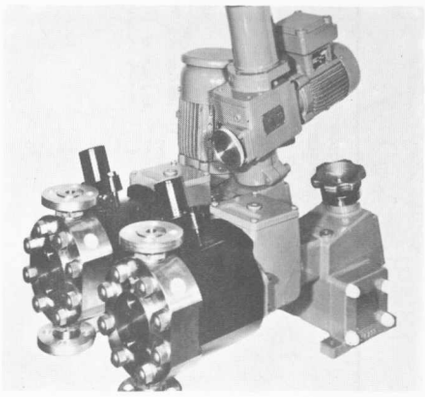
Type HU Rocker-Arm Pump Drive



HU1 with plastics pump head and pulse transmitter

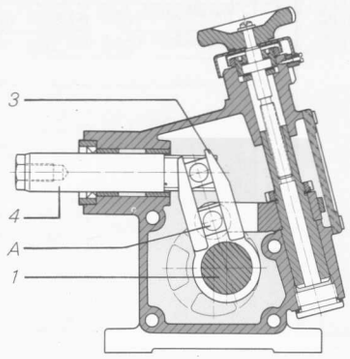


HU4 with stainless steel plunger pump heads



HU2 with diaphragm pump heads, electric stroke actuator and manual stroke adjustment

- **Plunger rod force 2500 N (560 lbs).**
- **Max. stroke 20 mm (0.787 in.), infinitely variable when stopped or running, with manual, electric (analog or digital) or pneumatic adjustment.**
- **Constant front plunger dead center.**
- **Extended operating life assured by oversized components and choice of materials, oilbath lubrication of all moving parts, weather- and splashproof construction.**
- **Simple to operate, easy to maintain.**
- **Up to twelve HU pump drives can be arranged horizontally side by side, operated by single motor. The HU can be combined with any other LEWA-modular-system pump drive.**
- **Pump head types: plunger, diaphragm, bellows.**
- **Drive motor: 3-phase AC or DC.**
- **Pulse transmitters, remote tachometer etc. are optionally available.**



Method of operation

Rocker arm (3) converts rotary motion of eccentric (1) into an oscillating movement, and transmits this to the plunger rod (4). Infinitely variable stroke adjustment, with the pump running or stationary, is obtained by moving of rocker arm fulcrum (A) through handwheel.

Distinctive features

Transmission components supported on two bearings.
Positive plunger movement.
Expanded stroke adjustment scale for maximum precision.
Constant front plunger dead center improves high-pressure, part-stroke metering accuracy and efficiency.

Performance data

Standard plunger (bellows) diameter	Q_{theor} [USGPH] [1] Displacement per pump head at max. stroke and no. of strokes n [min⁻¹] [2]			Maximum operating pressure of standard pump heads p_{abs} [psia].																	
				Type	Plunger pump head.													Diaphragm pump head.				
				Model Material [3]	K 101		K101.1	K 102			K 102.1		K102.2		K105	K301.1	M112	M122	M122.1	M152	
					2,3,3L,4,9		2,3 [5]	2	3		2,3,3L,4,9		2,3 [5]		3,4	5,6	3,4,9	3	2,3,4	3,4	
mm	n=150	n=192	n=246	Flange [4]	ASA	IG	ASA	IG	IG		ASA	IG	ASA		DIN	ASA	ASA	IG/ASA	ASA	DIN	
3	0,335	0,429	0,549		4620	–	2300	–	–		4620	–	2300		–	–	–	–	–	–	
5	0,933	1,194	1,530		4620	8200	2300	10000	8200		4620	8200	2300		2300	–	2300	12500	2300	–	
8	2,390	3,059	3,920		4620	7100	2300	7100	7100		4620	7100	2300		2300	300	2300	7100	2300	2300	
10	3,735	4,781	6,125		4550	–	2300	–	–		4550	–	2300		2300	300	2300	4550	2300	2300	
12	5,379	6,885	8,822		3130	–	2300	–	–		3130	–	2300		2300	300	2300	3130	2300	2300	
16	9,561	12,24	15,68		1780	–	1780	–	–		–	–	1780		1780	300	1780	1780	1780	1780	

				Type	Plunger pump head.								Diaphragm pump head.					Bellows.
				Model Material [3]	K 101		K101.1	K102.1	K102.2	K105	K301	K301.1	M112	M114/5	M122.1	M152	M314/5	B501
					1	2-4	3 [5]	2-4	3 [5]	3,4	5,6	5,6	3,4	2,3,4	3,4	3,4	5,6	16
20	14,94	19,12	24,50		–	1150	1150	1150	1150	1150	300	300	1150	1150	1150	1150	300	71
25	23,34	29,88	38,28		–	720	720	720	720	720	300	300	720	720	720	720	300	–
30	33,62	43,03	55,14		–	510	510	510	510	510	300	300	510	510	510	510	300	–
36	48,39	61,94	79,36		–	355	355	355	355	355	300	300	355	355	355	355	300	71
44	72,30	92,54	118,6		–	245	245	245	245	245	245	245	245	245	245	245	245	–
52	101,0	129,3	165,6		–	182	182	182	182	182	182	182	182	182	182	–	182	–
57	121,3	155,3	198,8		–	–	–	–	–	–	–	–	–	–	–	–	–	71
60	134,4	172,0	220,4		140	140	140	–	140	140	140	140	140	140	140	–	140	–
70	183,0	234,2	300,1		106	106	–	–	–	106	106	–	–	106	–	–	106	–
76	215,7	276,1	353,7		–	–	–	–	–	–	–	–	–	–	–	–	–	71
85	269,7	345,2	442,3		78	78	–	–	–	78	78	–	–	78	–	–	78	–
100	373,2	477,7	612,1		50	50	–	–	–	50	50	–	–	50	–	–	50	–

1) Q_{theor} from stroke volume x strokes per minute; Q_{eff} (= Q_{theor} x η_F) is quoted on specification sheet. For multiple-unit pumps, determine total metered flow by multiplying with the number of pump heads.

2) Other stroking speeds up to max. 320 str./min. available.

3) 1=Cast steel; 2=13% Cr steel; 3=CrNiMo 18/10/2 stainless steel; 3L= food industry version; 4=Hastelloy C; 5=PVC; 6=PTFE; 9=titanium; 16=glass. Other materials, i. e. tantalum, nickel, Hastelloy B, monel, polyethylene or PTFE-carbon to special order.

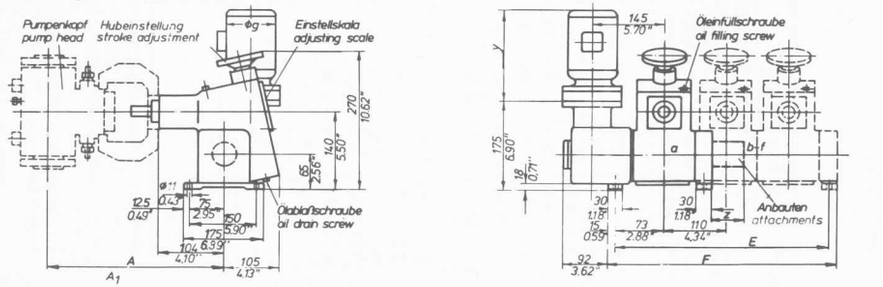
4) Standard pump head connections: FNPT thread or ASA flanges, sanitary connections. IG-high pressure connection. Specials on request.

5) With stuffing box flushing, operating pressure is restricted to max. 730 psia.

AMERICAN LEWA INC. 11 Mercer Road, Natick Ma. 01760, Tel. 617-653-0229, Telex 94-8420

Pump Drive

Dosierpumpe Typ HU mit Schneckentrieb
metering pump type HU with worm gear

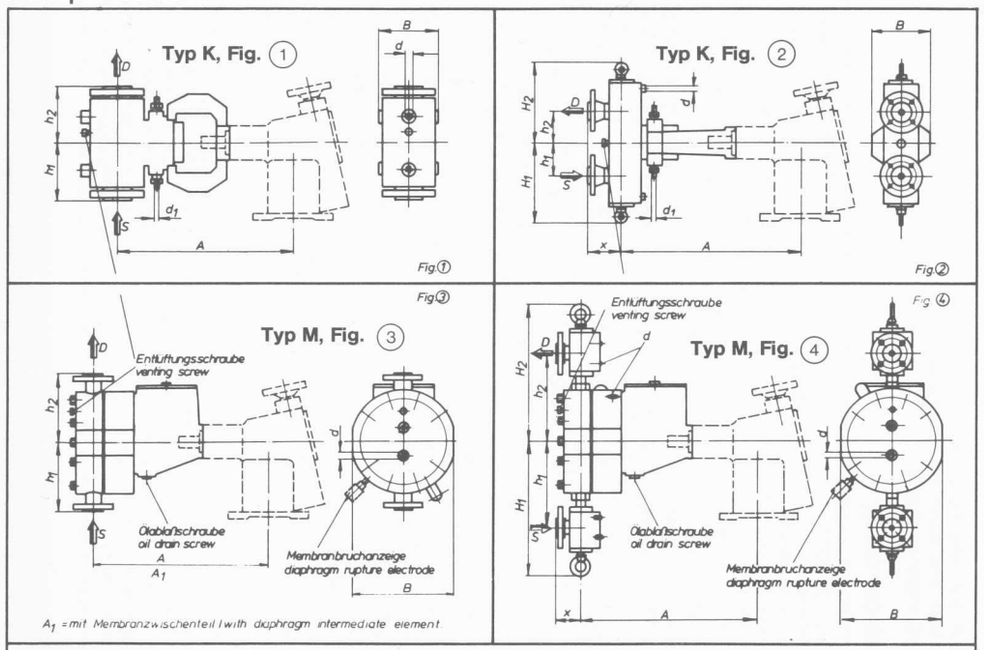


Motor Ex eG 3	y mm	y inches	Φg mm	Φg inches
1MA 3090-4BA 1	310	12.21	181	7.12
1MA 3080-4CA 1	227	8.94	157	6.18
1MA 3083-4BA 1	227	8.94	157	6.18

Anzahl der Elemente number of elements	E mm	E inches	F mm	F inches
1	156	6.54	196	7.72
2	277	10.91	306	12.10
3	387	15.24	417	16.42
4	498	19.61	528	20.79
5	608	23.86	638	25.12
6	719	28.31	749	29.49

Anbauten attachments	z mm	z inches

Pump Heads

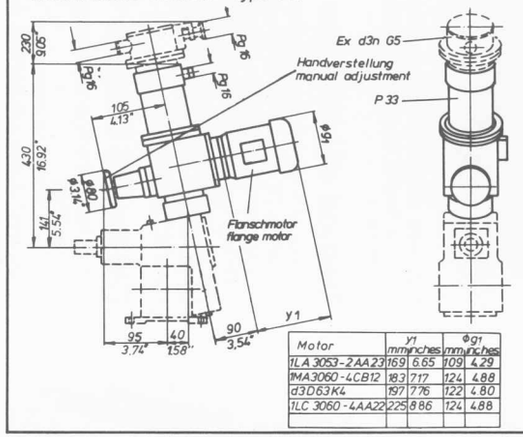


A_1 = mit Membranzwischenteil / with diaphragm intermediate element

D = Druckseite / discharge side
S = Saugseite / suction side
d = Heiz- bzw. Kühlanschlüsse / heating resp. cooling connections
d_1 = Schmier- bzw. Spülanschlüsse für Stopfbuchse / flushing resp. lubricating-connections for stuffing box

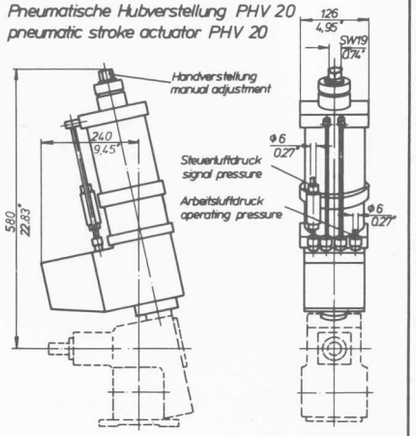
Servo Actuators

Elektr. Hubverstellung Typ V 16
electric stroke actuator type V 16



Motor	y1 mm	y1 inches	Φg1 mm	Φg1 inches
1LA 3053-2AA23	169	6.65	109	4.29
1MA 3060-4CB12	183	7.17	124	4.88
d3D63K4	197	7.76	122	4.80
1LC 3060-4AA22	225	8.86	124	4.88

Pneumatische Hubverstellung PHV 20
pneumatic stroke actuator PHV 20



Dimensions, Connections

Type Fig.	Element	Kolben⌀ plunger⌀	Flansch Norm	NW/ND	A	H_1	H_2	h_1	h_2	B	d	d_1	x
K101 ①		5 + 8	DIN	10/160	306			75	75	104	R 1/4" IGew.	R 1/8" IGew.	
			IG	61/325	306			76	76	104			
		10 – 16	DIN	10/160	306			81	81	104		R 1/8" AGew.	
			IG	61/325	306			82	82	104			
		20 + 25	DIN	10/160	306			90	90	120			
		30 + 38	DIN	10/160	306			90	90	120			
		30 + 36	DIN	10/40	306			81	81	120			
		44 + 52	DIN	15/40	309			87	87	126			
		60	DIN	25/40	304			110	110	120			
		70	DIN	25/40	304			116	116	120			
		85	DIN	32/40	304			138	138	136			
K1011 ①		3 – 8	DIN	10/160	254			78	78	105			
		10 – 20	DIN	10/160	254			78	78	105			
		25 + 30	DIN	10/160	254			95	95	105			
		25 + 30	DIN	10/40	254			86	86	105			
		36 + 44	DIN	10/40	254			86	86	105			
		52 – 60	DIN	15/40	254			93	93	108			
K102 ④		5 + 8	IG	61/700	306			128	128	104			
K1021 ①		5 + 8	DIN	10/160	306			114	114	104			
			IG	61/325	306			129	129	104			
		10 – 16	DIN	10/160	306			120	120	104			
			IG	61/325	306			135	135	104			
		20 + 25	DIN	10/160	306			117	117	120			
		30	DIN	10/40	306			117	117	120			
		36	DIN	10/40	306			117	117	120			
		44 + 52	DIN	15/40	309			144	144	126			
K1022 ①		3 – 8	DIN	10/160	254			115	115	105			
		10 – 20	DIN	10/160	254			115	115	105			
		25	DIN	10/40	254			121	121	105			
		30	DIN	10/40	254			121	121	105			
		36 + 44	DIN	10/40	254			121	121	105			
		52 + 60	DIN	15/40	254			150	150	108			
K105 ②		5 – 16	DIN	10/160	306	157	157	62	62	104			78
			DIN	10/320	306	157	157	62	62	104			78
		20 – 36	DIN	10/160	306	180	180	85	85	120			78
		44 + 52	DIN	15/40	306	213	213	88	88	126			65
		60 + 70	DIN	25/40	304	178	178	100	100	127			150
		85	DIN	32/40	304	203	203	120	120	148			155
K301 ①		20 – 36	DIN	10/40	299			100	100	120			
		44 + 52	DIN	15/40	299			106	106	126			
		60 + 70	DIN	25/40	353			136	136	136			
		85	DIN	32/40	349			190	190	156			
K302 ①		8 – 20	DIN	10/40	254			62	62	105			
		25 – 44	DIN	10/40	254			81	81	105			
		52 + 60	DIN	15/40	254			112	112	108			

Type Fig.	Element	Kolben⌀ plunger⌀	Flansch Norm	NW/ND	A	H_1	H_2	h_1	h_2	B	d	A_1	x
M112 ③		5	DIN	10/160	329			100	100	108	R 1/4" IGew.	358	
			DIN	10/160	329			110	110	128		358	
		12 – 20	DIN	10/160	330			125	125	158		358	
		25 + 30	DIN	10/160	331			163	163	227		359	
		36 + 44	DIN	10/40	356			172	172	263		371	
		52 + 60	DIN	15/40	360			201	201	325		389	
M114 ③		25 + 30	DIN	10/160	347			111	111	158		381	
		36 + 44	DIN	10/40	347			114	114	180		381	
		52 + 60	DIN	15/40	359			138	138	205		403	
		70 + 85	DIN	25/40	373			215	215	250			
		100	DIN	32/40	383			259	259	310		424	
M115 ③		25 + 30	DIN	10/160									
		36 + 44	DIN	15/40	399			126	126	158		403	
		52 + 60	DIN	15/40									
		70 + 85	DIN	25/40									
M122 ③		5	IG	61/700	328			162	162	127		365	
		8 + 10	IG	61/700	330			181	181	166		367	
M152 ④		8 – 12	DIN	10/160	329	230	230	115	115	128	R 1/4" IGew.		76
		16 + 20	DIN	10/160	326	240	240	125	125	158		371	76
		25 + 30	DIN	10/160	331	302	302	187	187	237			73
		36 + 44	DIN	10/40		320	320	200	200	263		371	80
		36 + 44	DIN	15/160	371	340	340	220	220	263		371	80
		70	DIN	25/40		415	415	283	283	375	R 3/8 IGew.	406	108
			DIN										
			DIN										
M314 ③		25 + 30	DIN	10/40	353			117	117	158		389	
		36 + 44	DIN	15/40	353			130	130	180			
		52 + 60	DIN	15/40	363			154	154	212			
		70	DIN	25/40	375			235	235	250		422	
		85	DIN	25/40	375			235	235	266		422	
M315 ③		52 + 60	DIN	15/40									
		70 – 85	DIN	25/40									
M312 ③		5	DIN	10/40	339			113	113	108		368	
		8 + 10	DIN	10/40	329			126	126	128		368	
		16 + 20	DIN	10/40	339			140	140	158		367	

Anmerkung / Remark:
Bei Verwendung anderer als der angegebenen Pumpenkopf-Anschlüsse können sich die Maße h_1 und h_2 geringfügig ändern.

(Flansche NW / ND = flanges nom. width / nom. pressure, IGew = I-thread, AGew = E-thread, Schlauch = hose).
When using other than the pumphead connections specified, e. g. NPT thread dimensions h_1 and h_2 may vary slightly.

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Die Maße gelten vorbehaltlich techn. Änderungen
Dimensions are subject to alterations