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All components provide peak performance for millions of cycles, and once initial life-cycle has been achieved, components can be restored to original operating efficiency within minutes using our available seal kits and bearing kits.



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Meto-Fer Automation is your worldwide solution to industrial automation. Notable products include a full line of conveyor systems; linear belt pallet transfer systems (MP), and linear pallet over / under systems.

Our complete line of quality automation components includes linear slides with air cylinder, ball screws or timing belts, alignment slides, grippers, rotary actuators, elastomer - oil cushions, flow controls, height gauge controls, suction cups, mounting brackets, stands and adapter plates, precision stop system with sensing elements, electronic sensors, spring feeders, shaft hoppers, and modular pick and place units.

Meto-Fer products are engineered to provide long lasting trouble-free performance.

		1
TO CONVERT	то	MULTIPLY BY
inches	mm	25.4
mm	Inches	.0394
lb	kg	.4535
kg	lb	2.2050
lb	N	4.4484
N	lb	.2248
psi	bar	.069
bar	psi	14.5
lb.in	Nm	.113
Nm	lb.in	8.85
lb.sq.ft	kgm2	.0421
kgm2	lb.sq.ft	23.73
scf	NL	28.361
NL	scf	.0353
hp	kW	.7457
kW	hp	1.341

Metric Conversions





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Linear units LH

- Progressive working oil cushions, includes oil reservoir KOB 50 (see sheet 6.001)
- Patented stop screws with sensing device
- High repeat accuracy
- Many combination possibilities
- Third position stop dowel pin for use with vertical unit VE *









Туре	Stroke (mm)	A (mm)	B (mm)	Piston force at 72.5 psi (5 bar)	Max. Load	Air consumption for each double stroke at 72.5 psi (5 bar)	Weight
LH 100	0-100	352	234	51 lb (226 N)	61.7 lb (28.0 kg)	.026 scf (0,73 NL)	11.0 lb (5,0 kg)
LH 150	0-150	452	284	51 lb (226 N)	35.3 lb (16.0 kg)	.038 scf (1,09 NL)	12.8 lb (5,8 kg)
LH 200	0-200	552	334	51 lb (226 N)	19.8 lb (9.0 kg)	.051 scf (1,45 NL)	14.6 lb (6,6 kg)
LH 300	0-300	752	434	51 lb (226 N)	9.9 lb (4,5 kg)	.077 scf (2,18 NL)	18.1 lb (8,2 kg)
LH 400	0-400	952	534	51 lb (226 N)	6.6 lb (3,0 kg)	.102 scf (2,90 NL)	21.6 lb (9,8 kg)

Technical data:

-Stroke steplessly adjusted bybuilt in patented stop screws with fine threads.

-The stop screws can be fitted with patented sensing elements. (see section "Stop Screws with plug-in sensing elements").

-End position damped with adjustable oil cushions.

-Designed for high operating rates / long life (expected life 20 million cycles)

- -Seal repair kits available
- -Linear ball bushings.
- -Operating medium
- -Operating pressure
- -Repeatability
- -Air connection

Compressed air oiled / not oiled 43.5 - 116 psi (3 - 8 bar) $\pm 0.01 \text{mm} (0.0004")$ R 1/8" (adapter see sheet 5.032)



O=Without cushions A=Elastomer cushions (KB08) B=Oil cushions and KOB50 (OB15/10K)

Stroke / mm

Intermediate position kit for LH

Description:

The intermediate stop operates via a cylinder introducing a robust stop slide into the path of the horizontal units rear adjustable flange bracket to that is attached the stop screw and oil cushions. This stop assembly can be reversed to operate in either the forward or reverse mode. More than on intermediate stop may be fitted, minimum distance between them 30 mm. They must all operate in the same direction.

The intermediate position can be utilized both in forward or reverse modes.



* SA... = Stop slide see page 1.071

393

493

375

475

ZB 03.050

ZB 03.055

LH 300

LH 400

ZB 03.050 A

ZB 03.055 A

Vertical Unit VE

In combination with mechanical gripper NW12 order NW25











Mounting of two vertical units



Type	Stroke	Adjusting	A	B	С	Piston force at	Air consumption for each	Weight
	(mm)	range				72.5 psi (5 bar)	double stroke at 72.5 psi (5bar)	lb (kg)
VE-22	0-20	0-20	68	144	32	24lb (107N)	0.003scf (0.07NL)	2.4 (1.1)
VE-52	0-50	12-50	98	204	62	24lb (107N)	0.006scf (0.17NL)	3.1 (1.4)
VE-82	0-80	42-80	128	264	92	24lb (107N)	0.010scf (0.28NL)	3.7 (1.7)

Order No.

- A = Elastomer cushions (Standard type)

└ Туре

VE-...

Technical data:

-Built in stop screw with fine threads provide adjustable, stepless stroke.

-The stop screws can be fitted with patented sensing elements.

(see section 8. "Stop system with plug-in sensing elements").

-End position damped with elastomer or oil cushions.

-Bearing: Linear ball bushing

-Positioning holes facilitate the assembly to the linear unit.

-Provision	to add	

-Mechanical gripper -Vacuum head

-Operating medium	Compressed air oiled/ not oiled
-Operating pressure	43.5 - 116 psi (3 - 8bar)
-Piston diameter	25mm (1")
-Repeatability	+/- 0.01mm (0.0004")
-Air connection	M5

Linear units LG 50



Type S	Stroke	A	В	Piston force at		Max loa	d stat./dyn.		Mx	Mv	M7	Air consumption	
Type	e (mm) (mm) (mn	(mm)	72.5 psi (5 bar)	F1	F2	F3	F4	(Nm)	(Nm)	(Nm)	double stroke at 72.5 psi (5 bar)	Weight	
LG 50/200	0-200	522	266	156 lb (694 N)	45 lb (200 N)	90 lb (400 N)	225 lb (1000 N)	292 lb (1300N)	50	114	148.2	.162 scf (4.58 NL)	23.4 lb (10.6 kg)
LG 50/300	0-300	722	366	156 lb (694 N)	34 lb (150 N)	70 lb (310 N)	169 lb (750N)	219 lb (975 N)	37.5	123	159.9	.243 scf (6.87 NL)	28.7 lb (13.0 kg)
LG 50/400	0-400	922	466	156 lb (694 N)	27 lb (120 N)	56 lb (250 N)	135 lb (600 N)	175 lb (780 N)	30	128.4	166.9	.323 scf (9.16 NL)	34.0 lb (15.4 kg)
LG 50/500	0-500	1122	566	156 lb (694 N)	20 lb (90N)	45 lb (200 N)	112 lb (500 N)	146 lb (650 N)	25	132	171.6	.404 scf (11.45 NL)	39.2 lb (17.8 kg)
LG 50/600	0-600	1322	666	156 lb (694 N)	18 lb (80 N)	38 lb (170 N)	90 lb (400 N)	117 lb (520 N)	20	125.6	163.6	.485 scf (13.73 NL)	44.5 lb (20.2 kg)
LG 50/800	0-800	1722	866	156 lb (694 N)	13 lb (60 N)	29 lb (130 N)	67 lb (300 N)	88 lb (390 N)	15	124.2	161.5	.647 scf (18.31 NL)	55.1 lb (25.0 kg)

Order No.





Technical data:

- Built in stop screws with fine threads provide adjustable, stepless stroke.
- The stop screws can be fitted with patented sensing elements (see section "Stop screws with plug in sensing elements").
- End position damped with adjustable oil cushions.
- Designed for high operating rates and long life.
- Bearing: Long life sleeve bearing.
- Attachable intermediate position.
- Piston ø 50mm (1,96")
- Operating medium
- Operating pressure
- Repeatability
- Air connection

Compressed air oiled/ not oiled 43.5–116 psi (3–8 bar) ± 0,01mm (.0004")

R 1/4" (adapter see sheet 5.021)

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Mini linear unit ML13

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Туре	Stroke	Adjusting	A	Piston force at	Max. load stat./dyn.				Ma	Mb	Air consumption for	Weight
		range		72.5 psi (5 bar)		lb	(N)		lb.in (Nm)	lb.in (Nm)	each double stroke at	lb (kg)
	(mm)	(mm)			F1	F2	F3	F4			72.5 psi (5bar)	
ML13-25	0-25	0-25	115	7lb (32N)	29 (131)	31 (137)	38 (167)	44 (196)	40 (4.5)	84 (9.5)	0.001scf (0.03NL)	1.5 (0.70)
ML13-50	0-50	13-50	140	7lb (32N)	19 (84)	20 (88)	43 (190)	44 (196)	40 (4.5)	84 (9.5)	0.002scf (0.06NL)	1.7 (0.76)
ML13-75	0-75	38-75	165	7lb (32N)	14 (62)	15 (65)	43 (190)	44 (196)	40 (4.5)	84 (9.5)	0.003scf (0.09NL)	1.8 (0.82)
ML13-100	0-100	63-100	190	7lb (32N)	9 (41)	10 (43)	43 (190)	44 (196)	40 (4.5)	84 (9.5)	0.004scf (0.12NL)	1.9 (0.88)

Order No. ML13 - . . . -

 \Box O = Without cushions

A = Elastomer cushions (Standard / M8X1)

Stroke

Technical data:

-Built in stop screw with fine threads provide adjustable, stepless stroke.

-The stop screws can be fitted with patented sensing elements. (see sectioon 8 "Stop system with plug-in sensing elements").

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- -End position damped with elasotmer cushions.
- -Bearing: Linear ball bushing.
- -Operating mediumCompressed air oiled/ not oiled-Operating pressure43.5 116 psi (3 8 bar)-Piston diameter12mm-Repeatability+/- 0.01mm (0.0004")

M5

-Air connection

mB

ø32

98

Mini linear unit ML26 ø10 26 M6 in ഗ 23 Air connection R1/8 Hole for M5 A 80 Stroke+2_20 20 10 20 20 20 10 M6/-F4 and the second -/9 (+)28 28 38 æ 0 ۲ Ó **0** C 33 a ф ¢, 0 4 ₽ \oplus 16 33 60 ۲ 0 60 Ð ሐ ۲ 10% \oplus φ ŧ MB 2 I. Ø5-F8/ ŝ F2 Air connection R1/8" 18 62 20



Ma Stop screw AS 10/50 LE1 ́тю-THE £ ഗ 39. 37. œ 37. 6 TF3 1.5 Cushion KB 080R0B15/10K

Туре	Stroke	Adjusting	Α	Piston force at		Max. load	stat./dyn.		Ma	Mb	Air consumption for	Weight
		range		72.5 psi (5 bar)		lb ((N)		lb.in (Nm)	lb.in (Nm)	each double stroke at	lb (kg)
		(mm)			F1	F2	F3	F4			72.5 psi (5bar)	
ML26-25	0-25	0-25	147	35lb (154N)	162 (721)	170 (754)	168 (746)	173 (770)	248 (28.0)	359 (40.5)	0.005scf (0.14NL)	3.7 (1.7)
ML26-50	0-50	0-50	172	35lb (154N)	91 (404)	95 (422)	175 (777)	179 (794)	199 (22.5)	297 (33.5)	0.009scf (0.27NL)	4.0 (1.8)
ML26-75	0-75	24-75	197	35lb (154N)	67 (297)	70 (311)	160 (712)	165 (734)	177 (20.0)	261 (29.5)	0.014scf (0.41NL)	4.2 (1.9)
ML26-100	0-100	49-100	222	35lb (154N)	49 (216)	51 (226)	139 (617)	143 (636)	159 (18.0)	230 (26.0)	0.019scf (0.54NL)	4.4 (2.0)
ML26-125	0-125	74-125	247	35lb (154N)	36 (162)	38 (169)	123 (546)	127 (563)	142 (16.0)	208 (23.5)	0.024scf (0.68NL)	4.6 (2.1)
ML26-150	0-150	99-150	272	35lb (154N)	31 (136)	32 (143)	117 (518)	123 (548)	137 (15.5)	199 (22.5)	0.028scf (0.81NL)	4.9 (2.2)
ML26-200	0-200	149-200	322	35lb (154N)	22 (99)	23 (104)	111 (494)	115 (509)	128 (14.5)	190 (21.5)	0.038scf (1.08NL)	5.5 (2.5)

Order No. ML 26 - . . .

O=Without cushions

A=Elastomer cushions (Standard type), KB08

B=Oil cushions without compensation reservoir, OB 15/10K

C=Oil cushions with compensation reservoir (KOB50)

Stroke

Technical data:

-Built in stop screw with fine threads provide adjustable, stepless stroke.

- -The stop screws can be fitted with patented sensing elements.
- (see section 8. "Stop system with plug-in sensing elements").
- -End position damped with elastomer or oil cushion.
- -Bearing: Linear ball bushing.
- -Operating medium
- -Operating pressure
- -Piston diameter
- -Repeatability
- -Air connection

Compressed air oiled / not oiled 43.5 - 116 psi (3 - 8 bar) 25mm +/- 0.01mm (0.0004") R1/8"



Туре	Stroke	Adjusting	A	Piston force at		Max. load	l stat./dyn.		Ma	Mb	Air consumption for	Weight
		range		72.5 psi (5 bar)	lb (N)				lb.in (Nm)	lb.in (Nm)	each double stroke at	lb (kg)
	(mm)	(mm)			F1	F2	F3	F4			72.5 psi (5bar)	
ML33-25	0-25	0-27	157	68lb (300N)	185 (823)	194 (861)	183 (814)	189 (840)	336 (38.0)	567 (64.0)	0.008scf (0.23NL)	8.9 (4.05)
ML33-50	0-50	0-52	182	68lb (300N)	112 (499)	117 (522)	221 (982)	228 (1013)	288 (32.5)	482 (54.5)	0.016scf (0.45NL)	9.4 (4.25)
ML33-75	0-75	8-77	207	68lb (300N)	77 (340)	80 (355)	195 (865)	201 (892)	252 (28.5)	420 (47.5)	0.024scf (0.67NL)	9.9 (4.50)
ML33-100	0-100	33-102	232	68lb (300N)	63 (281)	66 (295)	195 (865)	201 (892)	252 (28.5)	420 (47.5)	0.032scf (0.90NL)	10.4 (4.70)
ML33-125	0-125	58-127	257	68lb (300N)	46 (203)	48 (213)	164 (728)	169 (750)	212 (24.0)	354 (40.0)	0.039scf (1.12NL)	10.8 (4.90)
ML33-150	0-150	83-152	282	68lb (300N)	40 (178)	42 (168)	164 (728)	169 (750)	212 (24.0)	354 (40.0)	0.047scf (1.35NL)	11.4 (5.15)
ML33-175	0-175	108-177	307	68lb (300N)	33 (148)	35 (155)	153 (680)	158 (702)	199 (22.5)	332 (37.5)	0.055scf (1.57NL)	11.8 (5.35)
ML33-200	0-200	133-202	332	68lb (300N)	28 (125)	29 (131)	143 (637)	148 (657)	181 (20.5)	305 (34.5)	0.063scf (1.79NL)	12.2 (5.55)
ML33-250	0-250	183-252	382	68lb (300N)	23 (100)	24 (105)	137 (610)	141 (628)	177 (20.0)	297 (33.5)	0.078scf (2.24NL)	13.2 (6.00)
ML33-300	0-300	233-302	432	68lb (300N)	18 (79)	19 (83)	126 (561)	130 (578)	164 (18.5)	270 (30.5)	0.094scf (2.69NL)	14.1 (6.40)
ML33-350	0-350	283-352	482	68lb (300N)	15 (66)	16 (69)	120 (532)	124 (549)	155 (17.5)	261 (29.5)	0.110scf (3.14NL)	15.1 (6.85)
ML33-400	0-400	333-402	532	68lb (300N)	13 (57)	13 (59)	115 (512)	119 (528)	146 (16.5)	248 (28.0)	0.126scf (3.59NL)	16.0 (7.24)

Order No. ML 33 - . . . - . . .

_		
	Stroke	

O=Without cushions

A=Elastomer cushions, KB08

B=Oil cushions without compensation reservoir, OB 15/10K

C=Oil cushions with compensation reservoir (KOB50)

Technical data:

-Built in stop screw with fine threads provide adjustable, stepless stroke.

-The stop screws can be fitted with patented sensing elements. (see section 8 "Stop system with plug-in sensing elements").

Compressed air oiled/ not oiled

- -End position damped with elastomer or oil cushion.
- -Bearing: Linear ball bushing.
- -Operating medium
- -Operating pressure 43.5 - 116 psi (3 - 8 bar)
- -Piston diameter 32mm
- -Repeatability
- +/- 0.01mm (0.0004") -Air connection R1/8"

Linear Unit ML 50 308 Air connection G1/8 Hole for M6 Stroke +2 25 12.5 2.5 F4 |F2 48-EF? œ Ó 0 (\circ) 66-EF7/-**}**₽ ≈ 8 ۲ Ð 80 φ 0 4 0 - 0 \$5-EF?)D 2 36.5 100 20 Air connection G1/8" Ma <u>D</u>B - 0

F3 Stop screw AS 12 / 60

Туре	Stroke (mm)	Adjustable Range (mm)	A (mm)	Piston Force @ 72.5 PSI (5 bar)	F1 lb. (N)	F2 lb. (N)	F3 lb. (N)	F4 lb. (N)	Ma lb. in (Nm)	Mb lb. in (Nm)	Air Consumption for each double stroke @ 72.5 PSI (5 bar)	Weight Ib (kg)
ML 50-50	0-50	0-50	222	162 LB (722N)	168 (750)	168 (750)	247 (1100)	241 (1075)	371 (42)	531 (60)	0.040 scf (1.14 NL)	14.3 (6.5)
ML 50-75	0-75	25-75	247	162 LB (722N)	123 (550)	101 (450)	236 (1050)	229 (1020)	336 (38)	513 (58)	0.060 scf (1.71 NL)	14.9 (6.8)
ML 50-100	0-100	50-100	272	162 LB (722N)	89 (400)	78 (350)	220 (980)	218 (970)	318 (36)	487 (55)	0.080 scf (2.28 NL)	15.4 (7.0)
ML 50-150	0-150	100-150	322	162 LB (722N)	56 (250)	56 (250)	197 (880)	195 (870)	300 (34)	442 (50)	0.117 scf (3.43 NL)	16.5 (7.5)
ML 50-200	0-200	150-200	372	162 LB (722N)	42 (190)	42 (190)	170 (760)	173 (770)	274 (31)	416 (47)	0.161 scf (4.57 NL)	17.6 (8.0)
ML 50-250	0-250	200-250	422	162 LB (722N)	35 (160)	35 (160)	160 (710)	160 (710)	256 (29)	389 (44)	0.201 scf (5.72 NL)	17.4 (8.5)
ML 50-300	0-300	250-300	472	162 LB (722N)	29 (130)	31 (140)	146 (650)	148 (660)	239 (27)	354 (40)	0.242 scf (6.86 NL)	19.8 (9.0)
ML 50-400	0-400	350-400	572	162 LB (722N)	20 (90)	22 (100)	128 (570)	134 (600)	221 (25)	336 (38)	0.322 scf (9.15 NL)	22.0 (10.0)
ML 50-500	0-500	450-500	672	162 LB (722N)	16 (75)	16 (75)	121 (540)	126 (560)	186 (21)	327 (37)	0.403 scf (11.44 NL)	24.2 (11.0)



O=Without cushions

A=Elastomer cushions, KB08

 $B{=}Oil$ cushions without compensation reservoir, OB 15/10K

C=Oil cushions with compensation reservoir (KOB50)

5.

Elastomer or Oil cushion

Technical data:

-Built in stop screw with fine threads provide adjustable, stepless stroke.

-The stop screws can be fitted with patented sensing elements. (see section 8. "stop system with plug-in sensing elements")

- -End position damped with elastomer or oil cushion.
- -Bearing: Linear ball bushing.
- -Operating medium
- -Operating pressure
- -Piston diameter
- -Repeatability
- -Air connection

Compressed air oiled / not oiled 43.5 – 116 psi (3 – 8bar) 50mm +/- 0.01mm (0.0004") G1/8

Linear Unit LMP-60

Twin Rail









Stroke mm	Adjusting Range mm	A mm	B mm	C mm	D mm	E mm	Fmm	X mm	Piston force @ 72.5 PSI (5 bar) lb (N)	F1 Ib (N)	F2 Ib (N)	Ma lb. in (Nm)	Mb lb. in (Nm)	Air Consumption for each double stroke @ 72.5 PSI (5 bar)	Weight Ib (kg)
0-50	0-50	197	39.5	120	36.5	70	310	2	34 lb (154 N)	168 (750)	112 (500)	6.7 (30)	6.7 (30)	0.009 scf (0.27 NL)	8.3 (3.8)
0-75	24-75	222	52.0	120	49.0	95	360	2	34 lb (154 N)	168 (750)	112 (500)	6.7 (30)	6.7 (30)	0.014 scf (0.40 NL)	9.0 (4.1)
0-100	49-100	247	64.5	120	61.5	120	410	2	34 lb (154 N)	168 (750)	112 (500)	6.7 (30)	6.7 (30)	0.019 scf (0.54 NL)	9.7 (4.4)
0-150	99-150	297	89.5	120	86.5	170	510	2	34 lb (154 N)	168 (750)	112 (500)	6.7 (30)	6.7 (30)	0.065 scf (0.81 NL)	11.0 (5.0)
0-200	149-200	347	74.5	200	71.5	220	610	4	34 lb (154 N)	168 (750)	112 (500)	6.7 (30)	6.7 (30)	0.038 scf (1.08 NL)	12.3 (5.6)
0-250	199-250	397	99.5	200	96.5	270	710	4	34 lb (154 N)	168 (750)	112 (500)	6.7 (30)	6.7 (30)	0.047 scf (1.35 NL)	13.6 (6.2)
0-300	249-300	447	124.5	200	121.5	320	810	4	34 lb (154 N)	168 (750)	112 (500)	6.7 (30)	6.7 (30)	0.057 scf (1.62 NL)	15.2 (6.9)
0-400	349-400	547	174.5	200	171.5	420	1010	4	34 lb (154 N)	168 (750)	112 (500)	6.7 (30)	6.7 (30)	0.76 scf (2.16 NL)	17.8 (8.1)

Order No. LMP 60 -

	O=Without cushions	
	A=Elastomer cushion	S
	B=Oil cushions witho	ut compensation reservoir
	C=Oil cushions with o	compensation reservoir (KOB50
02=Stroke 50	06=Stroke 150	12=Stroke 300
03=Stroke 75	08=Stroke 200	16=Stroke 400

Туре

03=Stroke 75 04=Stroke 100 10=Stroke 250

Compressed air oiled / not oiled

16=Stroke 400 Custom strokes available

Technical data:

-Built in stop screw with fine threads provide adjustable, stepless stroke.

- -The stop screws can be fitted with patented sensing elements.
- (see section 8 "stop system with plug-in sensing elements")
- -End position damped with elastomer or oil cushion.

-Linear twin rails with carriage.

- -Operating medium
- -Operating pressure
- 43.5 116 PSI (3 8 bar) -Piston diameter 25 mm -Repeatability +/- 0.01mm (0.0004") G1/8" -Air connection

The units can also be

used as x-y tables

Easy mounting with the following units: -LMP-60 -LMP-60-A -LM-60-RW -LM-60-RWA

Linear Unit LMP-60-A

Twin Rail with cover









Stroke mm	Adjusting Range mm	A mm	Bmm	C mm	D mm	Emm	Fmm	X mm	Piston force @72.5 PSI (5 bar) lb (N)	F1 lb (N)	F2 lb (N)	Ma lb. in (Nm)	Mb lb. in (Nm)	Air Consumption for each double stroke @ 72.5 PSI (5 bar)	Weight Ib (kg)
0-50	0-50	197	39.5	120	36.5	70	310	2	34 lb. (154 N)	168 (750)	112 (500)	6.7 (30)	6.7 (30)	0.009 scf (0.27 NL)	11.0 (5.0)
0-75	24-75	222	52.0	120	49.0	95	360	2	34 lb. (154 N)	168 (750)	112 (500)	6.7 (30)	6.7 (30)	0.014scf (0.40 NL)	11.6 (5.3)
0-100	49-100	247	64.5	120	61.5	120	410	2	34 lb. (154 N)	168 (750)	112 (500)	6.7 (30)	6.7 (30)	0.019 scf (0.54 NL)	12.3 (5.6)
0-150	99-150	297	89.5	120	86.5	170	510	2	34 lb. (154 N)	168 (750)	112 (500)	6.7 (30)	6.7 (30)	0.065 scf (0.81 NL)	13.8 (6.3)
0-200	149-200	347	74.5	200	71.5	220	610	4	34 lb. (154 N)	168 (750)	112 (500)	6.7 (30)	6.7 (30)	0.038 scf (1.08 NL)	15.2 (6.9)
0-250	199-250	397	99.5	200	96.5	270	710	4	34 lb. (154 N)	168 (750)	112 (500)	6.7 (30)	6.7 (30)	0.047 scf (1.35 NL)	16.5 (7.5)
0-300	249-300	447	124.5	200	121.5	320	810	4	34 lb. (154 N)	168 (750)	112 (500)	6.7 (30)	6.7 (30)	0.057 scf (1.62 NL)	18.3 (8.3)
0-400	349-400	547	174.5	200	171.5	420	1010	4	34 lb. (154 N)	168 (750)	112 (500)	6.7 (30)	6.7 (30)	0.76 scf (2.16 NL)	21.1 (9.6)

Order No. LMP 60A - . . . - . . .

O=Without cushions

A=Elastomer cushions

B=Oil cushions without compensation reservoir

C=Oil cushions with compensation reservoir (KOB50)

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	(
	(

02=Stroke 50 06=Stroke 150 03=Stroke 75 08=Stroke 200 04=Stroke 100 10=Stroke 250

Compressed air oiled / not oiled

12=Stroke 300 16=Stroke 400 Custom strokes available

Technical data:

-Built in stop screw with fine threads provide adjustable, stepless stroke.

- -The stop screws can be fitted with patented sensing elements.
- (see section 8. "stop system with plug-in sensing elements")

Type

- -End position damped with elastomer or oil cushion.
- -Linear twin rails with carriage.
- -Operating medium
- -Operating pressure 43.5 116 PSI (3 8 bar) -Piston diameter 25 mm
- -Repeatability
- -Air connection
- 25 mm +/- 0.01mm (0.0004") G1/8"

The units can also be

used as x-y tables

Easy mounting with the following units: -LMP-60 -LMP-60-A -LM-60-RW -LM-60-RWA

Linear Unit LKP-100





Stroke mm	Adjusting Range mm	A mm	B mm	C mm	Emm	Fmm	X mm	Piston 72.5P Ib	n force@ SI(5bar) (N)	F1 lb (N)	F2 lb (N)	Ma lb. in (Nm)	Mb lb. in (Nm)	Air Consumption for each double stroke @ 72.5 PSI (5 bar)	Weight Ib (kg)
0-50	0-50	255	59.5	89	104	402	1	34	(154 N)	168 (750)	112 (500)	265 (30)	265 (30)	0.009 scf (0.27 NL)	13.4 (6.1)
0-75	25-75	280	72	89	129	452	1	34	(154 N)	168 (750)	112 (500)	265 (30)	265 (30)	0.014 scf (0.40 NL)	14.5 (6.6)
0-100	50-100	305	84.5	89	154	502	1	34	(154 N)	168 (750)	112 (500)	265 (30)	265 (30)	0.019 scf (0.54 NL)	15.4 (7.0)
0-150	100-150	355	109.5	89	204	602	1	34	(154 N)	168 (750)	112 (500)	265 (30)	265 (30)	0.028 scf (0.81 NL)	16.5 (7.5)
0-200	150-200	405	134.5	89	254	702	1	34	(154 N)	168 (750)	112 (500)	265 (30)	265 (30)	0.038 scf (1.08 NL)	18.7 (8.0)
0-250	200-250	455	70.5	267	304	802	5	34	(154 N)	168 (750)	112 (500)	265 (30)	265 (30)	0.047 scf (1.35 NL)	18.7 (8.5)
0-300	250-300	505	95.5	267	354	902	5	34	(154 N)	168 (750)	112 (500)	265 (30)	265 (30)	0.057 scf (1.62 NL)	19.8 (9.0)
0-400	350-400	605	145.5	267	454	1102	5	34	(154 N)	168 (750)	112 (500)	265 (30)	265 (30)	0.76 scf (2.16 NL)	21.8 (9.9)
0-500	450-500	705	195.5	267	554	1302	5	34	(154 N)	168 (750)	112 (500)	265 (30)	265 (30)	0.095 scf (2.71 NL)	24.0 (10.9)

Order No. LKP 100 - . . . - . . .

	0	=Without cushions		
	A	=Elastomer cushion	S	
	B	=Oil cushions witho	ut compensation rese	ervoir
	C	=Oil cushions with a	compensation reserve	bir (KOB50)
	02=Stroke 50	06=Stroke 150	12=Stroke 300	
	03=Stroke 75	08=Stroke 200	16=Stroke 400	
	04=Stroke 100	10=Stroke 250	20=Stroke 500	Custom strokes available
Туре				

Technical data:

-Built in stop screw with fine threads provide adjustable, stepless stroke.

-The stop screws can be fitted with patented sensing elements. (see section 8. "stop system with plug-in sensing elements")

-End position damped with elastomer or oil cushion.

-Twin rails with carriage.

-Operating medium	Compressed air oiled / not oiled
-Operating pressure	43.5 – 116 PSI (3 – 8 bar)
-Piston diameter	25 mm
-Repeatability	+/- 0.01mm (0.0004")
-Air connection	G1/8"

Subject to change without notice / January 2005

Linear Unit LKP-100-A

Twin Rails









Stroke mm	Adjusting Range mm	A mm	B mm	Fmm	X mm	Piston force@ 72.5 PSI (5bar)	F1 lb (N)	F2 lb (N)	Ma lb. in (Nm)	Mb lb. in (Nm)	Air Consumption for each double stroke @ 72.5 PSI (5 bar)	We Ib	eight (kg)
0-50	0-50	255	59.5	402	1	34 (154 N)	168 (750)	112 (500)	265 (30)	265 (30)	0.009 scf (0.27 NL)	13.8	(6.3)
0-75	25-75	280	72.0	452	1	34 (154 N)	168 (750)	112 (500)	265 (30)	265 (30)	0.014 scf (0.40 NL)	14.3	(6.5)
0-100	50-100	305	84.5	502	1	34 (154 N)	168 (750)	112 (500)	265 (30)	265 (30)	0.019 scf (0.54 NL)	14.7	(6.7)
0-150	100-150	355	109.5	602	1	34 (154 N)	168 (750)	112 (500)	265 (30)	265 (30)	0.028 scf (0.81 NL)	15.6	(7.1)
0-200	150-200	405	134.5	702	1	34 (154 N)	168 (750)	112 (500)	265 (30)	265 (30)	0.038 scf (1.08 NL)	16.5	(7.5)
0-250	200-250	455	70.5	802	5	34 (154 N)	168 (750)	112 (500)	265 (30)	265 (30)	0.047 scf (1.35 NL)	17.4	(7.9)
0-300	250-300	505	95.5	902	5	34 (154 N)	168 (750)	112 (500)	265 (30)	265 (30)	0.057 scf (1.62 NL)	18.5	(8.4)
0-400	350-400	605	145.5	1102	5	34 (154 N)	168 (750)	112 (500)	265 (30)	265 (30)	0.076 scf (2.16 NL)	20.2	(9.2)
0-500	450-500	705	195.5	1302	5	34 (154 N)	168 (750)	112 (500)	265 (30)	265 (30)	0.095 scf (2.71 NL)	22.2	(10.1)

Order No. LKP 100A -



Technical data:

-Built in stop screw with fine threads provide adjustable, stepless stroke.

G1/8"

-The stop screws can be fitted with patented sensing elements. (see section 8. "stop system with plug-in sensing elements")

-End position damped with elastomer or oil cushion.

- -Twin rails with carriage.
- -Operating medium

Operating medium	Compressed air oiled / not oiled
Operating pressure	43.5 – 116 PSI (3 – 8 bar)
Piston diameter	25 mm
Repeatability	+/- 0.01mm (0.0004")

-Repeatability

-Air connection

Standard roller slide NT 61





Туре	Stroke (mm)	Piston force at 72.5 psi (5 bar)	Max. load F stat.	Max. load F dyn.	Air consumption for each double stroke at 72.5 psi (5 bar)	Weight
NT 61	0-60	35 lb (154 N)	337 lb (1500 N)	214 lb (950 N)	,013 scf (0,36 NL)	5.5 lb (2,5 kg)

Order No.

NT 61 – . . .

- \Box O = without cushions
 - A = with elastomer cushions (standard type)
 - B = with oil cushions, without compensation reservoir
 - C = with oil cushions, with compensation reservoir (KOB50)
- Standard roller slide NT 61

Technical data:

- -Built in stop screw with fine threads provide adjustable, stepless stroke.
- -The stop screws can be fitted with patented sensing elements. (see section 8"Stop system with plug-in sensing elements").
- -End position damped with adjustable elastomer or oil cushion.
- -Designed for high operating rates and long life
- -Bearing: Linear ball bushing.

-Operating medium	Compressed air or hydraulic oil
-Operating pressure	43.5 - 116 psi (3 - 8 bar)
 Piston diameter 	
-Repeatability	+/- 0.01mm (0.0004")
-Air connection	M5

Standard roller slide NT 120



Туре	Stroke Piston force at (mm) 72.5 psi (5 bar)		Max. load F stat.	Max. load F dyn.	Air consumption for each double stroke at 72.5 psi (5 bar)	Weight
NT 120	0-120	53 lb (235 N)	540 lb (2400 N)	360 lb (1600 N)	.032 scf (0,91 NL)	14.3 lb (6,5 kg)

Order No.

NT120-0 O = NT120-A A = v

O = without cushions A = with oil cushions

A = with oil cushions, without compensation reservoir

NT120-B B = with oil cushions, with compensation reservoir

Intermediate position to NT 120: Stop screw assembly for NT and stop slide SA

Order No. see sheet 1.071

Technical data:

-Built in stop screw with fine threads provide adjustable, stepless stroke.

-The stop screws can be fitted with patented sensing elements. (see section 8"Stop system with plug-in sensing elements").

-End position damped with adjustable oil cushions.

-Designed for high operating rates and long life

-Intermediate position can be added

-Bearing: Linear ball bushing

-Operating medium	Compressed air or hydraulic oil
-Operating pressure	43.5 - 116 psi (3 - 8 bar)
-Repeatability	+/- 0.01mm (0.0004")
–Air connections	R 1/8"

Elevating table HT











Туре	Stroke (mm)	A	В	С	Piston force at 72.5 psi (5 bar)	Air consumption for each double stroke at 72.5 psi (5 bar)	Weight
HT 20	0-20	115	24	38	61 lb (272 N)	.007 scf (0,19 NL)	10.1 lb (4,6 kg)
HT 50 K	0-50	147	56	68	61 lb (272 N)	.016 scf (0,46 NL)	11.2 lb (5,1 kg)

Order No.

HT 20 A	HT 50 KA
HT 20 B	HT 50 KB
HT 20 C	HT 50 KC

A = with elastomer cushions (standard type)

B = with oil cushions, without compensation reservoir

C = with oil cushions, with compensation reservoir

Technical data:

- -Built in stop screw with fine threads provide adjustable, stepless stroke.
- -The stop screws can be fitted with patented sensing elements. (see section 8"Stop system with plug-in sensing elements").
- -End position damped with adjustable elastomer or oil cushions.
- -Designed for high operating rates and long life
- -Bearing: Linear ball bushing
- -Operating medium

-Repeatability

Compressed air or hydraulic oil -Operating pressure 43.5 - 116 psi (3 - 8 bar) +/- 0.01mm (0.0004")

M5

-Air connections

Elevating table HT



Intermediate position to HT 50 & HT 100 Stop screw assembly for HT and stop slide SA Order No. see sheet 1.071 Using an intermediate position the programs featured below can be carried out. Other programs can also be carried out on this basis.

HT 100 with intermediate position.

Туре	Stroke (mm)	A	В	C	D	E	F	Piston force at 72.5 psi (5 bar)	Air consumption for each double stroke at 72.5 psi (5 bar)	Weight
HT 50	0-50	160	20	230	48	86	M5	61 lb (272 N)	.016 scf (0,46 NL)	22.1 lb (10 kg)
HT 100	0-100	232	25	302	70	64	R 1⁄8	156 lb (694 N)	.081 scf (2,29 NL)	33.1 lb (15 kg)

Order No.

HT 50 HT 100 HT 50 A HT 100 A HT 50 B HT 100 B

A = Intermediate position with * SA 01 B = Intermediate position with * SA 01 A * SA... = Stop slide see sheet 1.071

Technical data:

-Built in stop screw with fine threads provide adjustable, stepless stroke.

- -The stop screws can be fitted with patented sensing elements. (see section 8"Stop system with plug-in sensing elements").
- -End position damped with adjustable oil cushions.

-Designed for high operating rates and long life

-Intermediate position can be added.

-Bearing: Linear ball bushing (HT 50) / Long life sleeve bearing (HT 100) Compressed air or hydraulic oil

- -Operating medium
- -Operating pressure 43.5 - 116 psi (3 - 8 bar)
- -Repeatability +/- 0.01mm (0.0004") See table
- -Air connections

Stopslide SA

The stop slide cylinder is a robust double acting cylinder which may be fitted to most of the linear slide units as an intermediate stop device.





Туре	Stroke (mm)	Piston force at 72.5 psi (5 bar)	Air consumption for each double stroke at 72.5 psi (5 bar)	Weight
SA 01	0-20	8 lb (35 N)	.001 scf (0,03 NL)	1.5 lb (0,7 kg)

Order No.

SA 01 SA 01 A without bracket

A = with bracket for sensors (IM008)

Technical data:

- Operating medium
- Operating pressure
- Air connection
- Material of construction

Cylindrical pin DIN 6325

Compressed air or hydraulic oil

Sensor Order No.: IM-008-NS-U2L (NPN) IM-008-PS-U2L (PNP)

Stopscrew assembly

The stopscrew and cushion assembly is available as an accessory. The oil reservoir is not included.



Stopscrew assembly for LH Order No. ZB 03.005



Stopscrew assembly for HT Order No. ZB 06.015

43.5–116 psi (3–8 bar) M5 Steel, slide piston hardened





Stopscrew assembly for NT 120 Order No. ZB 16.005

Pick and Place

Complete station with linear unit, vertical unit and stand



- Linear Unit with integrated flow controls and precision stop system and cushions
- Vertical Unit with cushions and precision stop system (stop screw) third down position on vertical unit in home position of linear unit
- Easy Gripper / Rotary modular assembly-with standard components
- Expected life: 20-25 million cycle times
- Seal / Bearing Kits available

l	_inear Uni	t	Vertical Unit				
Stroke	А	В	Stroke	С	D		
100+	352	234	20*	13	251.5		
150+	452	284	50*	73	311.5		
200+	552	334	80*	133	371.5		

H=Height (adjustable +/- 20 mm)









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Linear Unit LM-26-RW Type S

Ball Screw, Twin Rail Positioning (Zero Backlash)







Stroka	٨	C	П	F	F1 [N]	F3	Ма	Mb	We	ight
OLIOKE	~	0	D	L	(stat./dyn.)	[N]	[Nm]	[Nm]	[lb]	(kg)
0-50	197	82	35	42	750	*	30	30	8.3	(3.8)
0-75	222	95	30	37	750	*	30	30	9.0	(4.1)
0-100	247	107	30	37	750	*	30	30	9.7	(4.4)
0-150	297	132	30	37	750	*	30	30	11.0	(5.0)
0-200	347	157	30	37	750	*	30	30	12.3	(5.6)
0-250	397	182	30	37	750	*	30	30	13.6	(6.2)
0-300	447	207	30	37	750	*	30	30	15.2	(6.9)
0-400	547	257	30	37	750	*	30	30	17.8	(8.1)

*see back page

LM26RW-5-...-S **Order No.**



Type

Note: Sensors, Flange and Coupling need to be ordered separately. See back page.

Linear Unit LM-26-RW Type S

Ball Screw, Twin Rail Positioning (Zero Backlash)

Sensor:	IM-008-NS-U2L (NPN)
	IM-008-PS-U2L (PNP)

Additional sensor and cables may be found in the Sensor Catalog.

Motor Flange:

The motor flange is mounted with four M4 screws and serves simultaneously to secure the double race thrust bearing. Standard flanges are available for stepper motors as accessories. Flanges for DC-Motors are manufactured upon request. Please include a sketch of the desired motor pattern.

Order No. Motor Flange for LM-26-RW

Coupling:

It is recommended to mount a high torque flex coupling between motor and unit.

Order No. Coupling for LM-26-RW Motor shaft ø . . . mm

Inertial mass "J"

The listed inertial mass "J" reflects the entire unit including the coupling (motor not included). At a stroke of 25mm: $J = 0.30 \text{ kgcm}^2$ J increases per additional 25mm stroke by 0.012 kgcm²

F5 is dependent upon motor torque Md:

By pitch 5mm:	Md [Ncm] 0.08	= N	max. allowed 1000 N
	0.00		

Ball Screw:

Rolled ball screw, ISO Class 7 (DIN 69051) Zero clearance ball screw nut

Bearing of the Ball Screw: Precision ball bearing, axial play = 0.007 - 0.024mm.

The units can be used as X-Y Tables:



mpp-far

Linear Unit LM-60-RW

Ball Screw (anti-backlash), Twin Rail









Stroke mm	A mm	B mm	C mm	D mm	X mm	F1 Ib (N)	F2 Ib (N)	F3 Ib (N)	Ma lb. in (Nm)	Mb Ib. in (Nm)	Weight Ib. (kg)
0-50	197	39.5	120	36.5	2	168 (750)	112 (500)	*	265 (30)	265 (30)	8.3 (3.8)
0-75	222	52.0	120	49.0	2	168 (750)	112 (500)	*	265 (30)	265 (30)	9.0 (4.1)
0-100	247	64.5	120	61.5	2	168 (750)	112 (500)	*	265 (30)	265 (30)	9.7 (4.4)
0-150	297	89.5	120	86.5	2	168 (750)	112 (500)	*	265 (30)	265 (30)	11.0 (5.0)
0-200	347	74.5	200	71.5	4	168 (750)	112 (500)	*	265 (30)	265 (30)	12.3 (5.6)
0-250	397	99.5	200	96.5	4	168 (750)	112 (500)	*	265 (30)	265 (30)	13.6 (6.2)
0-300	447	124.5	200	121.5	4	168 (750)	112 (500)	*	265 (30)	265 (30)	15.2 (6.9)
0-400	547	174.5	200	171.5	4	168 (750)	112 (500)	*	265 (30)	265 (30)	17.8 (8.1)

*see back page



Note: Sensors, Flange, and Coupling need to be ordered separately-see back page.

Linear Unit LM-60-RW

Ball Screw, Twin Rail

Sensor Order No.	IM-008-NS-U2L (NPN)
	IM-008-PS-U2L (PNP)

Additional sensor and cables may be found in the Sensor Catalog.

Motor Flange:

The motor flange is mounted with M4 screws and secures the bearing. Standard flanges are available. Please include a sketch of desired motor pattern.

Order No. Motor Flange for LM-26-60-RW

Coupling:

It is recommended to use a high torque flex coupling.

Order No. Coupling for LM-26-60-RW Motor shaft ø . . . mm

Inertial mass "J"

The listed inertial mass "J" reflects the entire unit including the coupling (motor not included). At a stroke of 25mm: $J = 0.23 \text{ kgcm}^2$ J increases per additional 25mm stroke by 0.005 kgcm²

= N

F5 is dependent upon motor torque Md:

By pitch 5mm:

Md [Ncm] 0.08

max. allowed 1000 N

Ball Screw: Rolled ball screw, ISO Class 7 (DIN 69051) Ball screw nut (anti-backlash)

Ball Screw Bearing: Precision ball bearing, axial play = 0

The units can be used as X-Y Tables:



Easy mounting with the following units:

LMP-60 LMP-60A LM-60-RW LM-60-RWA

199-940 (Mailer 1997)

Linear Unit LM-60-RWA

Ball Screw (anti-backlash), Twin Rail, with cover







Stroke	A	B	C	D	X	F1 Ib (N)	F2 Ib (N)	F3 Ih (N)	Ma Ih In (Nm)	Mb Ib In (Nm)	Weight
0-50	197	39.5	120	36.5	2	168 (750)	112 (500)	*	265 (30)	265 (30)	11.0 (5.0)
0-75	222	52.0	120	49.0	2	168 (750)	112 (500)	*	265 (30)	265 (30)	11.6 (5.3)
0-100	247	64.5	120	61.5	2	168 (750)	112 (500)	*	265 (30)	265 (30)	12.3 (5.6)
0-150	297	89.5	120	86.5	2	168 (750)	112 (500)	*	265 (30)	265 (30)	13.8 (6.3)
0-200	347	74.5	200	71.5	4	168 (750)	112 (500)	*	265 (30)	265 (30)	15.2 (6.9)
0-250	397	99.5	200	96.5	4	168 (750)	112 (500)	*	265 (30)	265 (30)	16.5 (7.5)
0-300	447	124.5	200	121.5	4	168 (750)	112 (500)	*	265 (30)	265 (30)	18.3 (8.3)
0-400	547	174.5	200	171.5	4	168 (750)	112 (500)	*	265 (30)	265 (30)	21.1 (9.6)

*see back page





Note: Sensors, Flange, and Coupling need to be ordered separately-see back page.

Linear Unit LM-60-RWA

Ball Screw, Twin Rail, with cover

Sensor Order No.	IM-008-NS-U2L (NPN)
	IM-008-PS-U2L (PNP)

Additional sensors and cables may be found in the Sensor Catalog.

Motor Flange:

The motor flange is mounted with M4 screws and also secures the bearing. Standard flanges are available. Please include a sketch of the desired motor pattern.

Order No. Motor Flange for LM-60-RWA

Coupling:

It is recommended to use a high torque flex coupling between motor and LM.

 $\label{eq:complexity} \textbf{Order No.} \qquad \text{Coupling for LM-60-RWA} \qquad \text{Motor shaft } \emptyset \dots mm$

Inertial mass "J"

The listed inertial mass "J" reflects the entire unit including the coupling (motor not included). At a stroke of 25mm: $J = 0.23 \text{ kgcm}^2$ J increases per additional 25mm stroke by 0.005 kgcm²

= N

F5 is dependent upon motor torque Md:

By pitch 5mm:

Md [Ncm] 0.08

max. allowed 1000 N

Ball Screw: Rolled ball screw, ISO Class 7 (DIN 69051) Ball screw nut (anti-backlash)

Ball Screw Bearing: Precision ball bearing, axial play = 0

The units can be used as X-Y Tables:



Easy mounting with the following units:

LMP-60 LMP-60A LM-60-RW LM-60-RWA M14×1

5

33

M12x1

Linear Unit LK 100-RW

Ball Screw (anti-backlash), Twin Rail, with cover







Stroke mm	A mm	B mm	C mm	X mm	F1 Ib (N)	F2 Ib (N)	F3 Ib (N)	Ma lb. ln (Nm)	Mb lb. In (Nm)	Weight Ib. (kg)
0-200	405	134.5	89	1	168 (750)	112 (500)	*	265 (30)	265 (30)	17.6 (8.0)
0-250	455	70.5	267	5	168 (750)	112 (500)	*	265 (30)	265 (30)	18.7 (8.5)
0-300	505	95.5	267	5	168 (750)	112 (500)	*	265 (30)	265 (30)	19.8 (9.0)
0-350	555	120.5	267	5	168 (750)	112 (500)	*	265 (30)	265 (30)	20.9 (9.5)
0-400	605	145.5	267	5	168 (750)	112 (500)	*	265 (30)	265 (30)	21.8 (9.9)
0-500	705	195.5	267	5	168 (750)	112 (500)	*	265 (30)	265 (30)	24.0 (10.9)
0-600	805	245.5	267	5	146 (650)	89 (400)	*	265 (30)	265 (30)	26.0 (11.8)
0-800	1005	345.5	267	5	146 (650)	89 (400)	*	265 (30)	265 (30)	29.1 (13.2)
0-1000	1205	445.5	267	5	146 (650)	89 (400)	*	265 (30)	265 (30)	34.3 (15.6)

*see back page



Note: Sensors, Flange, and Coupling need to be ordered separately-see back page.

Linear Unit LK 100-RW

Ball Screw, Twin Rail, with cover

Sensor Order No.	IM-008-NS-U2L (NPN)
	IM-008-PS-U2L (PNP)

Additional sensor and cables may be found in the Sensor Catalog.

Motor Flange:

The motor flange is mounted with M4 screws and also secures the bearing. Standard flanges are available. Please include a sketch of desired motor pattern.

Order No. Motor Flange for LK-100-RW

Coupling:

It is recommended to use a high torque flex coupling.

Order No. Coupling for LK-100-RW Motor shaft ø . . . mm

Inertial mass "J"

The listed inertial mass "J" reflects the entire unit including the coupling (motor not included). At a stroke of 25mm: $J = 0.23 \text{ kgcm}^2$ J increases per additional 25mm stroke by 0.005 kgcm²

= N

F3 is dependent upon motor torque Md:

By pitch 5mm:

Md [Ncm] 0.08

max. allowed 1000 N

Ball Screw:

Rolled ball screw, ISO Class 7 (DIN 69051) Ball screw nut (anti-backlash)

Ball Screw Bearing:

Precision ball bearing, axial play = 0

Linear Unit LK-100-RWA

Ball Screw (anti-backlash), Twin Rail











Mb	

Stroke mm	A mm	F1 Ib (N)	F2 Ib (N)	F3 Ib (N)	Ma Ib. In (Nm)	Mb Ib. In (Nm)	Weight Ib. (kg)
0-200	405	168 (750)	112 (500)	*	265 (30)	265 (30)	16.5 (7.5)
0-250	455	168 (750)	112 (500)	*	265 (30)	265 (30)	17.4 (7.9)
0-300	505	168 (750)	112 (500)	*	265 (30)	265 (30)	18.5 (8.4)
0-350	555	168 (750)	112 (500)	*	265 (30)	265 (30)	19.4 (8.8)
0-400	605	168 (750)	112 (500)	*	265 (30)	265 (30)	20.2 (9.2)
0-500	705	168 (750)	112 (500)	*	265 (30)	265 (30)	22.2 (10.1)
0-600	805	146 (650)	89 (400)	*	265 (30)	265 (30)	24.2 (11.0)
0-800	1005	146 (650)	89 (400)	*	265 (30)	265 (30)	26.9 (12.2)
0-1000	1205	146 (650)	89 (400)	*	265 (30)	265 (30)	31.9 (14.5)

*see back page



Note: Sensors, Flange, and Coupling need to be ordered separately-see back page.

Linear Unit LK-100-RWA

Ball Screw, Twin Rail

Sensor Order No.	IM-008-NS-U2L (NPN)
	IM-008-PS-U2L (PNP)

Additional sensor and cables may be found in the Sensor Catalog.

Motor Flange:

The motor flange is mounted with M4 screws and also secures the double race thrust bearing. Standard flanges are available. Please include a sketch of desired motor pattern.

Order No. Motor Flange for LK-100-RWA

Coupling:

It is recommended to use a high torque flex coupling.

Order No. Coupling for LK-100-RWA Motor shaft ø . . . mm

Inertial mass "J"

The listed inertial mass "J" reflects the entire unit including the coupling (motor not included). At a stroke of 25mm: $J = 0.23 \text{ kgcm}^2$ J increases per additional 25mm stroke by 0.005 kgcm²

= N

F5 is dependent upon motor torque Md:

By pitch 5mm:

Md [Ncm] 0.08

max. allowed 1000 N

Ball Screw:

Rolled ball screw, ISO Class 7 (DIN 69051) Ball screw nut (anti-backlash)

Ball Screw Bearing:

Precision ball bearing, axial play = 0

Linear Unit LK-120-ZR Timing Belt, Twin Rail 12 26 |F2 ▼ 0.5 ¢ ø15 154 180 _____ 8 • ÷-Ġ 0.5 6 ø24 max Ø 24 mm motor flange ø15 КŢ ø50 100 stroke 135 Sensor cable 102^{±0.01} ø15/8.5 Mb Ø6-EF7 64 99 12 2 65 180

ø8-EF7 Thru hole for M8 M10

LK-120-ZR-2 (with 2 carriages)

Stroke	Α	В	C	D	F1	F2	F3	Ma	Mb	Weight
mm	mm	mm	mm	mm	lb (N)	lb (N)	lb (N)	lb. In (Nm)	lb. In (Nm)	lb. (kg)
0-250	772	175	88	24	168 (750)	112 (500)	*	265 (30)	265 (30)	37.0 (16.8)
0-500	1022	175	88	24	168 (750)	112 (500)	*	265 (30)	265 (30)	42.5 (19.3)
0-750	1272	175	88	24	146 (650)	90 (400)	*	265 (30)	265 (30)	48.2 (21.9)
0-1000	1522	175	88	24	146 (650)	90 (400)	*	265 (30)	265 (30)	53.8 (24.4)
0-1250	1722	175	88	24	134 (600)	78 (350)	*	265 (30)	265 (30)	58.8 (26.7)
0-1500	2022	175	88	24	123 (550)	67 (300)	*	265 (30)	265 (30)	65.0 (29.5)
0-2000	2522	175	88	24	112 (500)	56 (250)	*	265 (30)	265 (30)	76.2 (34.6)
0-2500	3022	175	88	24	101 (450)	45 (200)	*	265 (30)	265 (30)	87.5 (39.7)

LK-120-ZR-4 (with 4 carriages)

Stroke	A	В	C	D	F1	F2	F3	Ma	Mb	Weight
mm	mm	mm	mm	mm	ID (N)	ID (N)	ID (N)	ID. IN (NM)	1b. In (NM)	ID. (KG)
0-250	832	220	95.5	31.5	303(1350)	202 (900)	*	486 (55)	486 (55)	41.2 (18.7)
0-500	1082	220	95.5	31.5	303(1350)	202 (900)	*	486 (55)	486 (55)	46.7 (21.2)
0-750	1332	220	95.5	31.5	269(1200)	157 (700)	*	486 (55)	486 (55)	52.4 (23.8)
0-1000	1582	220	95.5	31.5	269(1200)	157 (700)	*	486 (55)	486 (55)	57.9 (26.3)
0-1250	1782	220	95.5	31.5	224(1000)	146 (650)	*	486 (55)	486 (55)	63.7 (28.9)
0-1500	2082	220	95.5	31.5	224(1000)	123 (550)	*	486 (55)	486 (55)	69.2 (31.4)
0-2000	2582	220	95.5	31.5	20(900)	101 (450)	*	486 (55)	486 (55)	80.4 (36.5)
0-2500	3082	220	95.5	31.5	180(800)	78 (350)	*	486 (55)	486 (55)	91.7 (41.6)

*see back page





30=Stroke 1000 35=Stroke 1250 40=Stroke 1500 45=Stroke 2000 50=Stroke 2500 Custom strokes available

Note: Sensors, Flange, and Coupling need to be ordered separately-see back page.

Linear Unit LK-120-ZR

Timing Belt, Twin Rail

Sensor Order No.	IM-008-NS-U2L (NPN)
	IM-008-PS-U2L (PNP)

Please find additional information in our Electronic Catalog.

Motor Flange:

The motor flange is mounted with M6 screws. To manufacture the flange please include drawing of motor pattern.

Order No. Motor Flange for LK-120-ZR

Coupling:

It is recommended to use a high torque flex coupling.

Order No. Coupling for LK-120-ZR Motor shaft ø . . . mm

Timing Belt:

Pitch 5 mm, drive gear 25 tooths, division Ø=39.78 mm, stroke per turn=125 mm

F3 is dependent upon motor torque Md:

F3=

Md [Ncm] 1.989

= N

max. allowed 2,660 N

Linear Unit LK 160-ZR

Electric Linear Actuator with timing belt









r			
Туре	Stroke	A	Weight ¹
LK160-ZR-03	0- 300	700	55.1 lb (25.0 kg)
LK160-ZR-04	0- 400	800	60.6 lb (27.5 kg)
LK160-ZR-05	0- 500	900	66.2 lb (30.0 kg)
LK160-ZR-06	0- 600	1000	71.7 lb (22.5 kg)
LK160-ZR-07	0- 700	1100	77.2 lb (35.0 kg)
LK160-ZR-08	0-800	1200	82.7 lb (37.5 kg)
LK160-ZR-09	0-900	1300	88.2 lb (40.0 kg)
LK160-ZR-10	0-1000	1400	93.7 lb (42.5 kg)
LK160-ZR-12	0-1200	1600	104.7 lb (47.5 kg)
LK160-ZR-14	0-1400	1800	115.8 lb (52.5 kg)
LK160-ZR-16	0-1600	2000	126.8 lb (57.5 kg)

Order No. $\frac{LK 160 - ZR - \dots - \dots}{M} = With DC motor$ M = With DC motor

1 Without Motor

- Technical data:
- Timing belt drive
- Self supporting solid Aluminum extrusion
- High load capacity as a result of ball bearings on hardened guide rails
- High speed up to 2.5 m/sec (98.4"/sec)
- High repeatability 0.05 mm (.002")
- High resolution 0.05 mm (.002")
- High cycle rate: The standard motor can be loaded up to 9 Nm (79.65 lb. in) in start-stop cycling when using forced ventilation
- Overtravel switches in both end positions, plus mechanical shock absorbers
- Home position switch
- Easy mounting due to dovetail groove in extrusion
- Stroke per turn 125 mm
map-far

Max. controllable load parameters



Acceleration time/deceleration time



Acceleration distance/deceleration distance



Dynamic mechanical load capacity for 5000 km (1000 km)

 $M_A = 44 \text{ Nm} (74 \text{ Nm})$

 $M_{B} = 57 \text{ Nm} (98 \text{ Nm})$



Deflection of carrier unit with ends supported Deflection f < 0.2 mm (< .008'') with F₁ = 1500 N (337.2 lb) Support L = 1350 mm (53.15")

> 31 10

> > 3

for M10

S

OPTION 1

Mounting options

Option 1

- With clamps

Option 2

- Tapped mounting plate and through holes

Option 3

- Front mounting plate according to data sheet, sheet 2.091
- Combination: Front mounting and clamp
- Option 4
- with key



OPTION 3

LK-04-901

Width 25





 $F_1 = 1500 \text{ N} (2590 \text{ N})$

 $F_2 = 1500 \text{ N} (2590 \text{ N})$

Rotary indexing table RE 75

Electrical Actuator









Technical Data

Hole for cyl. pin ø5-h6

Type of drive		Stepping motor	DC-motor
Procedural mode	[°]	360	360
Travel per revolution of motor shaft	[°]	24°	24°
Drive element		worm gear	worm gear
Transport load	[lb (kg)]	110.3 (50)	110.3 (50)
Carrying power F1 dyn.	[lb (N)]	124 (550)	124 (550)
Radial force F 2 dyn.	[lb (N)]	337 (1500)	337 (1500)
Dead weight			
Torque [I	b. in (Nm)]	95.58 (10,8)	
Step angle	[°]	0.9	
Starting frequency	[cycles]	900	
Operating frequency	[cycles]	4800	
Impulse generator [imp./rev.]		600
Motor revs.	[rpm]	720	· · · · · · · · · · · · · · · · · · ·
Motor torque [I	b. in (Nm)]	1.59 (0,18)	
Stopping momentum		self-locking	
Acceleration time	[s]	0.1	
Rotating speed	[%]	60	
Resolution	["]	45	30
Repeatability	["]	45	30
Installation position		as desired	as desired
Weight (without motor)	[lb (kg)]	5.1 (2,3)	5.1 (2,3)

Order No.

RE 75 — ... Type of drive: OM = Without motor SM = Stepping motor DC = DC-motor





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Rotary Actuators MD

Features: – Backlash free – Ball bearings – External stops



Model A (MD 20)



Model V (MD 20)



Model B (MD 12)



MD51 / 180B1, with oil cushion



Model S (MD 12)



Position of the Stop screw by MD12, MD20, MD32

Angle of rotation: $0-60^{\circ}$ Stop screw in Pos. B Angle of rotation: $60-90^{\circ}$ Stop screw in Pos. A

Position of the shaft by MD12, MD20, MD32



Position of the Stop screw by MD 51Angle of rotation:0 - 45°Stop screw in Pos. AAngle of rotation:45 - 90°Stop screw in Pos. B

Rotary Actuator MD 12

Model S



Туре	Α	В	С	Angle of	Air consumption for each	Weight
				rotation	double stroke at 5 bar	(lb (kg))
MD 12/ 90 S	74	48	40	90°	.001 scf (0.02 NL)	.55 (0.25)
MD 12/180 S	105	60	60	180°	.002 scf (0.04 NL)	.66 (0.30)
Max. load radial to shaft: Max. load axial to shaft:					67 lb (300 N) 67 lb (300 N)	
Torque at 72.5	i psi	(5 ba	ar) :		3.36 lb.in (0.38 Nm)	
Order No.	rder No. MD 12/ 90 S MD 12/180 S			0 S 0 S		

Model A

Ø6 -h8



Model B



Туре	Angle of	Air consumption for each	Weight
	rotation	double stroke at 72.5 psi (5 bar)	
MD 12/ 90 A	0 - 90°	.001 scf (0.02 NL)	.73 lb (0.33 kg)
MD 12/180 A	0 - 180°	.002 scf (0.04 NL)	.79 lb (0.36 kg)

Max. load radial to shaft: Max. load axial to shaft: Repeatability: Torque at 72.5 psi (5 bar) :

MD 12/ 90 A

MD 12/180 A

Order No.

67 lb (300 N) 67 lb (300 N) +/- 320 Arc sec 3.36 lb.in (0.38 Nm)

Туре	Angle of	Air consumption for each	Weight
	rotation	double stroke at 72.5 psi (5 bar)	
MD 12/ 90 B	0 - 90°	.001 scf (0.02 NL)	.77 lb (0.35 kg)
MD 12/180 B	0 - 180°	.002 scf (0.04 NL)	.88 lb (0.40 kg)

Max. load radial to shaft: Max. load axial to shaft: **Repeatability:** Torque at 72.5 psi (5 bar) :

Order No. MD 12/ 90 B MD 12/180 B

34 lb (150 N) 54 lb (240 N) +/- 320 Arc sec 3.36 lb.in (0.38 Nm)

Technical data:

- Built in patented stop screws with fine threads provide for stepless adjustable angle of rotation.
- The stop screws can be fitted with patented sensing elements (see section "Stop Screws with plug-in sensing elements").
- Intermediate position can be added.
- Designed for high operating rates and long life.
- Operating medium Compressed air or hydraulic oil

M5

- Operating pressure 43.5 - 116 psi (3 - 8 bar)
- Air connection

Rotary Actuator MD 12/180 H

Rotary actuator with hollow shaft



Т	ype	Angle of rotation	Max. load radial to shaft	Max. load axial to shaft	Torque at 72.5 psi (5 bar)	Air consumption for each double stroke at 72.5 psi (5 bar)	Weight	Order No.
MD 12	?/180H	0-1 8 0°	337 lb (1500 N)	34 lb (150 N)	4.07 lb.in (0,46 Nm)	.002 scf (0,04 NL)	1.65 lb (0,75 kg)	MD 12/180 H

Technical data:

- Built in patented stop screws with fine threads provide for stepless adjustable angle of rotation.

- The stop screws can be fitted with patented sensing elements (see section "Stop Screws with plug-in sensing elements").
- Intermediate position can be added. (see sheet 3.051)
- Designed for high operating rates and long life.

- Operating medium

- Operating pressure

- Repeatability

- Air connection

Compressed air or hydraulic oil 43.5 - 116 psi (3 - 8 bar) ± 190 Arc sec M5

Rotary Actuator MD 12 D/180 H

Rotary actuator with hollow shaft and 2 piston

à

22

σ

81

26



Туре	Angle of rotation	Max. load radial to shaft	Max. load axial to shaft	Torque at 72.5 psi (5 bar)	Air consumption for each double stroke at 72.5 psi (5 bar)	Weight	Order No.
MD 12 D/180 H	0-180°	337 lb (1500 N)	34 lb (150 N)	8.14 lb.in (0,92 Nm)	.003 scf (0,08 NL)	2.09 lb (0,95 kg)	MD 12 D/ 180 H

Technical data:

- Built in patented stop screws with fine threads provide for stepless adjustable angle of rotation.
- The stop screws can be fitted with patented sensing elements (see section "Stop Screws with plug-in sensing elements").
- Intermediate position can be added. (see sheet 3.051)
- Designed for high operating rates and long life.

- Operating medium

- Operating pressure
- Repeatability
- Air connection

Compressed air or hydraulic oil 43.5 - 116 psi (3 - 8 bar) ± 190 Arc sec M5

Rotary Actuator MD 12/90V





AIR CONNECTION M5

Order No.: MD12/90V





Rotary Actuator MD 12/180V







Technical data:

- Built in patented stop screws with fine threads provide adjustable angle of rotation.
- The stop screws can be fitted with patented sensing elements (see section "Stop Screws with plug-in sensing elements")
- Designed for high operating rates

Rotary Actuator MD 20/180

Model S



DIN 6888 b=3; h=3.

MU01.008



Model B



Туре	Angle of	Air consumption for each	Weight
	rotation	double stroke at 5 bar	
MD 20/180 S	180°	.004 scf (0.12 NL)	2.0 lb (0.9 kg)
Max. load radi Max. load axia	al to shaft Il to shaft:	: 79 lb (350 N) 61 lb (270 N)	
Torque at 72.5	5 psi (5 ba	r) : 9.74 lb.in (1.1	Nm)
Order No. MD 20/180 S			

MD 20/180 S1 end cover for oil cushions or elastomer cushions

OIL CUSHIONS = OB 15/IOL ELASTOMER = KB08/M14X1

Туре	Angle of	Air consumption for each	Weight
	rotation	double stroke at 5 bar	
MD 20/180 A	0 - 180°	.004 scf (0.12 NL)	2.4 lb (1.1 kg)

Max. load radial to shaft: Max. load axial to shaft: Repeatability: Torque at 72.5 psi (5 bar) : 79 lb (350 N) 61 lb (270 N) +/- 200 Arc sec 9.74 lb.in (1.1 Nm)

Order No.

MD 20/180 A MD 20/180 A1 end cover for oil cushions or elastomer cushions

NOTE: when using cushions need 2 nuts, o-rings (MU01.008)

Туре	Angle of	Air consumption for each	Weight
	rotation	double stroke at 5 bar	
MD 20/180 B	0 - 180°	.004 scf (0.12 NL)	2.6 lb (1.2 kg)
Max. load radi	al to shaft	: 40 lb (180 N)	
Repeatability:		+/- 200 Arc se	ec
Torque at 72.5	i psi (5 ba	r) : 9.74 lb.in (1.1	Nm)

Order No.

MD 20/180 B MD 20/180 B1 end cover for oil cushions or elastomer cushions

Technical data:

-Built in patented stop screws with fine threads provide for stepless adjustable angle of rotation.

-The stop screws can be fitted with patented sensing elements (see section "Stop Screws with plug-in sensing elements"). -Intermediate position can be added (on model B).

-Designed for high operating rates and long life.

-Operating medium	Compressed air or hydraulic oil	Cushions page 5.001
-Operating pressure	43.5 - 116 psi (3 - 8 bar)	
-Air connection	M5	

Rotary Actuator MD 20/360



Туре	Angle of rotation	Max. load radial to shaft	Max. load axial to shaft	Torque at 72.5 psi (5 bar)	Air consumption for each double stroke 72.5 psi (5 bar)	Weight
MD 20/360	0-360°	337 lb (1500 N)	34 lb (150 N)	7.26 lb.in (0,82 Nm)	.006 scf (0,17 NL)	4.0 lb (1,8 kg)

Order No.

MD 20/360

MD 20/360-1 end cover for oil cushions or elastomer cushions

Technical data:

-Built in patented stop screws with fine threads provide for stepless adjustable angle of rotation.

-The stop screws can be fitted with patented sensing elements (see section "Stop Screws with plug-in sensing elements").

-End position can be damped with adjustable oil cushions.

- -Designed for high operating rates and long life.
- -Operating medium Compressed air or hydraulic oil
- -Operating pressure
- -Repeatability -Air connection

Compressed all of figure
43.5 - 116 psi (3 - 8 bar)
± 294 Arc sec
M5

Cushions page 5.001

Rotary Actuator MD 20/180V









Rotation: 0-180 degrees Max Load Radial To Shaft: 40 lb (180 N) Max Load Axial To Shaft: 67 lb (300 N) Repeatability: ±200 ARC SEC. Torque: 9.74 lb IN (1.1 Nm) **Operating Medium:** compressed air or hydraulic oil **Operating Pressure:** 43.5-116 PSI (3-8 bar) Air Connection: M5 Air Consumption For Each Double Stroke: 0.004 scf (0.12 NL) Weight: 2.6 lb. (1.20 kg)

Order No.: MD20/180V MD20/180V1 WITH END COVER FOR OIL OR ELASTOMER CUSHIONS

Technical data:

- Built in patented stop screws with fine threads provide adjustable angle of rotation.
- The stop screws can be fitted with patented sensing elements (see section "Stop Screws with plug-in sensing elements"
- End position can be damped with adjustable oil cushions. (OB15/10L) or Elastomer (KB08)
- Designed for high operating rates

Rotary Actuator MD 32/180



Model A



Model B



Туре	Angle of	Air consumption for each	Weight	
	rotation	double stroke at 5 bar		
MD 32/180 S	180°	.013 scf (0.37 NL)	4.9 lb (2.2 kg)	
Max. load radial to shaft: Max. load axial to shaft:		:: 247 lb (1100 337 lb (1500	247 lb (1100 N) 337 lb (1500 N)	
Torque at 72.5	i psi (5 ba	r): 31.86 lb.in (3	.6 Nm)	
Order No. MD 32/180 S MD 32/180 S1	end cov	er for oil cushions		

OIL CUSHÌONS = OB 15/IOL/OB12/20 ELASTOMER = KB08

Туре	Angle of rotation	Air consumption for each double stroke at 5 bar	Weight
MD 32/180 A	0 - 180°	.013 scf (0.37 NL)	5.7 lb (2.6 kg)

Max. load radial to shaft: Max. load axial to shaft: Repeatability: Torque at 72.5 psi (5 bar) : 247 lb (1100 N) 337 lb (1500 N) +/- 210 Arc sec 31.86 lb.in (3.6 Nm)

Order No.

MD 32/180 A MD 32/180 A1 end cover for oil cushions

NOTE: when using cushions need 2 nuts, o-rings (MU01.008)

Туре	Angle of rotation	Air consumption for each double stroke at 5 bar	Weight
MD 32/180 B	0 - 180°	.013 scf (0.37 NL)	6.0 lb (2.7 kg)

Max. load radial to shaft: Max. load axial to shaft: Repeatability: Torque at 72.5 psi (5 bar) : 124 lb (550 N) 169 lb (750 N) +/- 150 Arc sec 31.86 lb.in (3.6 Nm)

Order No.

MD 32/180 B MD 32/180 B1 end cover for oil cushions

NOTE: when using cushions need 2 nuts, o-rings (MU01.008)

Technical data:

-Built in patented stop screws with fine threads provide for stepless adjustable angle of rotation.

- -The stop screws can be fitted with patented sensing elements (see section "Stop Screws with plug-in sensing elements").
- -End position can be damped with adjustable oil cushions.
- -Designed for high operating rates and long life.
- -Operating medium
- -Operating pressure
- -Air connection

n R 1/8"

Rotary Actuator MD 32/180V



Order No.: MD32/180V MD32/180V1 WITH END COVER FOR OIL OR ELASTOMER CUSHIONS

Technical data:

- Built in patented stop screws with fine threads provide adjustable angle of rotation.
- The stop screws can be fitted with patented sensing elements (see section "Stop Screws with plug-in sensing elements"
- End position can be damped with adjustable oil cushions. (OB15/10L or OB12/20) or Elastomer (KB08)
- Designed for high operating rates



MD 51/180B	0-180°	1124 lb (5000 N)	629

Order No.

MD 51/180 B

MD 51/180 B1 with end cover for oil cushions

Technical data:

-Built in patented stop screws with fine threads provide for stepless adjustable angle of rotation.

-The stop screws can be fitted with patented sensing elements (see section "Stop Screws with plug-in sensing elements"). -End position can be damped with adjustable oil cushions.

lb (2800 N) 117.3 lb.in (13.25 Nm)

-Intermediate position can be added.

-Designed for high operating rates and long life.

-Operating medium	Compressed air or hydrau	lic oil
-Operating pressure	43.5 - 116 psi (3 - 8 bar)	Cushions page 5.001
-Repeatability	+/- 75 Arc sec	
-Air connection	R 1/8"	

17.9 lb (8.1 kg)

0.048 scf (1.35 NL)



Туре	Angle of	Max. load	Max. load	Torque at	Air consumption for each	Weight
	rotation	radial to shaft	axial to shaft	72.5 psi (5 bar)	double stroke at 5 bar	
MD 51 D/180	0-180°	1124 lb (5000 N)	629 lb (2800 N)	234.5 lb.in (26.50 Nm)	0.060 scf (1.70 NL)	22.4 lb (10.2 kg)

Order No.: MD 51D/180 - 0 MD 51D/180 - A MD 51D/180 - B O = without oil cushions

A = with oil cushions

B = with oil cushions and KOB (page 5.001)

Technical data:

-Built in patented stop screws with fine threads provide for stepless adjustable angle of rotation.

-The stop screws can be fitted with patented sensing elements (see section "Stop Screws with plug-in sensing elements"). -End position can be damped with adjustable oil cushions.

-Intermediate position can be added.

-Designed for high operating rates and long life.

-Operating medium	Compressed air or hydraulic oil
-Operating pressure	43.5 - 116 psi (3 - 8 bar)
-Repeatability	+/- 190 Arc sec
-Air connection	R 1/8"





Order No. for Split sleeve ZB 07.009

Order No. for Conical bar KS

No. of Conical bar

Rotary gripper head for use with rotary loader arms





Technical data: Sheet 3.011 Rotary gripper head and support must be ordered separately. Order No. for Rotary gripper head (delivery as per photo) ZD 12/180L Order No. for Conical bar see sheet 8.022

Order No. for Gripper mounting tubes see sheet 8.022





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Rotary gripper head ZD 12D/180 Rotary gripper head for Vertical units VE







	Conical bar for MZ 12		Conical bar for MZ 25	
Туре	A	Conical bar No.	В	Conical bar No.
ZD 12D/180				
ZD 12D/180 VE 22	231	KS 01.017	324	KS 02.004
ZD 12D/180 VE 52	291	KS 01.018	384	KS 02.008
ZD 12D/180 VE 82	351	KS 01.019	444	KS 02.000

Technical data: Sheet 3.012

Rotary gripper head and support must be ordered seperately. Order No. for Rotary gripper head (delivery as per photo) ZD 12D/180 Order No. for Split sleeve ZB 07.009 Order No. for Conical bar KS

— No. of Conical bar

Rotary gripper head for use with rotary loader arms





Technical data: Sheet 3.012

Rotary gripper head and support must be ordered separately. Order No. for Rotary gripper head (delivery as per photo) ZD 12/180L Order No. for Conical bar see sheet 8.022 Order No. for Gripper mounting tubes see sheet 8.022





Rotary gripper head ZD 20/360





Туре	Angle of rotation	Max. load radial	Max. load axial	Torque at 72.5 psi (5 bar)	Air consumption for each double stroke at 72.5 psi (5 bar)	Weight
ZD 20/360	0-360°	337 lb (1500 N)	34 lb (150 N)	7.26 lb. in (0,82 Nm)	.006 scf (0,17 NL)	4.2 lb (1,9 kg)

	(Conical bar for MZ 12	Conical bar for MZ 25	
Туре	А	Conical bar No.	В	Conical bar No.
ZD 20/360	—			
ZD 20/360 VE 22	231	KS 01.017	324	KS 02.004
ZD 20/360 VE 52	291	KS 01.018	384	KS 02.008
ZD 20/360 VE 82	351	KS 01.019	444	KS 02.000

Rotary gripper head and support must be ordered seperately.

Order No.

ZD 20/360

ZD 20/360-1 end cover for oil cushions or elastomer cushions

Order No. for Conical bar

KS.....

Order No. for Split sleeve ZB 07.009

- No. of Conical bar

Technical data:

-Built in patented stop screws with fine threads provide for stepless adjustable angle of rotation.

- -The stop screws can be fitted with patented sensing elements (see section "Stop Screws with plug-in sensing elements").
- -Designed for high production rates and long life.
- -Ball bearings

-Operating medium	Compressed air or hydraulic oil
-Operating pressure	43.5 - 116 psi (3 - 8 bar)
-Repeatability	+/- 294 Arc sec
-Air connection	M5

Angle Loader WL

Individual angle loader components are available in various versions and should, therefore, be ordered separately. Components can be determined with the aid of the following list according to the description.

> SD 01.001 SD 01.005

SE 01.001

SE 01.004

ZB 02.007

ZB 11.021

ZB 12.005

VE...

Description		Sheet
KOB	Compensation reservoir	5.001
* KS	Conical bar	
LH	Linear unit	1.001
MD 32/180 B	Rotary drive	3.031
MD 51/180 B	Rotary drive	3.041
* MZ 12	Mechanical gripper	4.001
OB 15/10L	Oil cushion	5.001
OB 12/20	Oil cushion	5.001
Pillar ø 40 x	Pillar	6.002

* KS, MZ 12 und ZZ 12 can be ordered as NW... (Sheet 4.001).





LH

õ

Stroke

ZB 11.021

MD 51/180 B...

Pillar ø40 ×

SD 01.001

OB 12/20

SD 01.005

Description Sheet Stand base6.002 Stand base6.001 Mounting plate6.001 Vertical unit1.011 Plate Plate Flange (MD 32) Gripper cylinder4.001

> The oil cushions and the compensation reservoir for the rotary drive have to be ordered separately. Page 5.001



Plate Order No. ZB 02.007

The oil cushions for the rotary drive must be ordered separately. The compensation reservoir is included with the linear unit.



WL 32





GRIPPERS: ANGULAR, SEMI-PARALLEL, 180° ANGULAR, PARALLEL, THREE FINGER ANGULAR



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Mechanical Gripper (use with Hollow Shaft Units)



Mechanical gripper MZ

Тур	A	В	С	D	E	F	øG	н	J	к	L	м	N	0	Ρ	Weight	Clamping force	Order No.
																	at 72.5 psi (5 bar)	
MZ 12	63.5	37	26.5	10	30	38	15 - H7	16	10	5	15	10	20	29°	16	0.27 lb (0.12 kg)	4 lb (18 N)	MZ 12
MZ 25	114	57	57	20	40	60	20 - H7	19	20	6	30	20	40	23°	36	1.45 lb (0.66 kg)	20 lb (90 N)	MZ 25

Mechanical gripper for vertical units

Order No.

NW ... VE ...

Vertical unit VE 22, VE 52, VE 82 Gripper cylinder ZZ12 or ZZ 25

M 5

Air connection

NW 12 VE 22 NW 12 consists of:

Ordering example:

	MZ12, ZZ12 and Conical bar
NW 25 VE 22	NW 25 consists of: MZ 25, ZZ 25 and Conical bar, Adapter ZB 02.011 and
	Gripper bracket ZB 02.012

Mounting flange for compact grippers



GRIPPER	Α	В	С	D	ORDER NO.
12	28	20	15-H7	12	ZB.08.010
20	35	24	15-H7	15	ZB.08.001
25	40	30	15-H7	15	ZB.08.002
32	60	40	15-H7	15	ZB.08.003
50	70	50	15-H7	15	ZB.08.008

Angular Gripper KZ















Mounting flange for KZ see sheet 4.013

Din	nens	ions for	air co	nnec	tions]	۲ (ype		Clamp	oing fo	orce	Air cons	sumpt	ion fo	r eac	h We	eight	
Туре		A1	B 1		C1	D1	1				at 72.5	psi (5	bar)	double	e stro	ke at !	5 bar		0	
KZ 12		18.25	9.7	5 1	4.5	6	1	۲	(Z 12		4 lb	(19	N)	.0002	scf (0.004	NL)	0.3 lb (0.12 k	(g)
KZ 20		23.5	11.5	5 1	7.5	6	1	۲	(Z 20		7 lb	(30	N)	.0005	scf (0.014	NL)	0.6 lb (0.25 k	(g)
KZ 25		26	14	1	9.5	5	1	۲	(Z 25		11 lb	(48	N)	.0010	scf ((0.027	NL)	0.8 lb (0.35 k	(g)
*KZ 32		30	30		34	8	1	T	(Z 32		19 lb	(85	N)	.0025	scf ((0.072	NL)	2.4 lb (1.10 k	(g)
*KZ 50		35	35		33	8	1	T	(Z 50		49 lb	(220	N)	.0079	scf ((0.224	NL)	3.6 lb (1.65 k	(g)
*for these t	ypes,	the dim	ension	s A1 &	B1 ar	e equa	ป	-												
Туре	Α	В	С	D	E	F	G	. H	J	К	L	Μ	Ν	0	Ρ	Q	R	Y	α	
KZ12	28	31.5	14.5	20	4	7	25	16	1.5	12	6-H7	3	M3	M4/8	5	20	3.5	ø2-EF7/5	52°	
KZ20	35	39	15	24	5.5	7	32	18	1.5	14	7-H7	3.5	M4	M4/12	6	25	4	ø3-EF7/5	52°	
KZ25	40	44	20	30	5	7	37	23	1.5	14	7-H7	5	M4 -	M5/15	8	30	4	ø4-EF7/5	58°	
KZ32	60	72	32	40	10	8	56	32	2	25	12-H7	9	M6	M6/15	10	45	7	ø5-EF7/4	56°	
KZ50	70	72	40	50	10	8	66	38	2	30	15-H7	9.5	M6	M8/17	15	55	9	ø5-EF7/4	60°	
Order No.	ĸ	(Z12 (Z12D		KZ20 KZ20	D	KZ KZ	25 25D		KZ32 KZ32	2 2D	KZ5 KZ5	0 0D	w D	vithout se = with s (IM.	ensor senso sen	bracke r brack isors r	et ket not inc	luded)		
Order No. (Sensors)	rder No. KZ12D KZ25D I Sensors) IM-004-NS-U2L (NPN) IM-004-PS-U2L (PNP)							25D Order No. (Sensors)				2D 06-NS 06-PS	۲ G-U2L G-U2L	(Z50D (NPN) (PNP)						
Technical	echnical data:																			
-Operating	perating medium Comp								d/ not	oiled										
-Operating	perating medium comp								oar)											
-Air conner	ction				M5		I (,											
-Sensor on	tion	Two IM	1 pro	vimit		ors	arinn	er on	en/ ar	inner	closed									
001001 00		1 100 110		······	,		gripp	o, op	gi "gi	PPCI '	0.0000									

Semi-Parallel Gripper KZP







Clamping force

at 72.5 psi (5 bar)

7 lb

11 lb

19 lb

4 lb (19 N)

49 lb (220 N)

(30 N)

(48 N)

(85 N)





Air consumption for each

double stroke at 5 bar

.0002 scf (0.004 NL)

.0005 scf (0.014 NL)

.0010 scf (0.027 NL)

.0025 scf (0.072 NL)

.0079 scf (0.224 NL)

Weight

0.4 lb (0.18 kg)

0.7 lb (0.30 kg)

1.0 lb (0.45 kg)

3.7 lb (1.70 kg)

5.1 lb (2.30 kg)

Mounting flange for KZP see sheet 4.013

Dime	nsions for	air conn	ections	
Туре	A1	B1	C1	D1
KZP 12	18.25	9.75	14.5	6
KZP 20	23.5	11.5	17.5	6
KZP 25	26	14	19.5	5
*KZP 32	30	30	34	8
*KZP 50	35	35	33	8

*For these types, the dimensions A1 & B1 are equal.

Туре	A	В	С	D	Е	F	G min.	G max.	H min.	H max.	J min.	J max.	к	L	М	N	[.] 0	Ρ	Q	R	s	т	Y
KZP12	28	31.5	20.5	20	4	7	22.5	31	33.5	42	41.5	50	17	3.5	13.5	M4	M4/8	4	1.1	8	41	19.5	ø2-EF7/5
KZP20	35	39	31	24	5.5	7	33	45	45	57	57	69	20	5	15	M5	M4/12	5	2.3	10	55	24	ø3-EF7/5
KZP25	40	44	31	30	5	7	38	51.5	50	63.5	62	75.5	20	5	15	M5	M5/15	5	2.7	10	60	28	ø4-EF7/5
KZP32	60	72	49	40	10	8	47	68	75	96	95	116	35	10	25	M6	M6/15	7.5	2.7	15	95	44	ø5-EF7/4
KZP50	70	72	47	50	10	8	50	74	82	106	102	126	40	10	30	M6	M8/17	7.5	3	15	105	42	ø5-EF7/4

Order No.	KZP12 KZP12D	KZP20 KZP20D	KZP25 KZP25D	KZP32 KZP32D	KZP50 KZP50D	without sensor bracket D = with sensor bracket (IM sensors not included)	
Order No. (Sensors)	KZP12D IM-004-NS-	KZP20D U2L (NPN)	KZP25D	Order No. (Sensors)	KZP32D IM-006-NS-I	KZP50D U2L (NPN)	

Туре

KZP 12

KZP 20 KZP 25 KZP 32

KZP 50

Technical data:

-Operating medium

-Operating pressure

Compressed air oiled/ not oiled 43.5 - 116 psi (3 - 8 bar) M5

-Air connection

-Sensor option: Two IM...proximity sensors...gripper open/ gripper closed

180° Angular Gripper KZ 180













(IM... sensors not included)

Mounting flange for KZ 180 see sheet 4.013

Dime	ensions fo	or air con	inections	5
Туре	A1	B1	C1	D1
KZ 180/12	18.25	9.75	24.5	6
KZ 180/20	23.5	11.5	30	6
KZ 180/25	26	14	35	5
*KZ 180/32	30	30	50.5	7.2
*KZ 180/50	35	35	58.5	8.5

Туре	Clamping force	Air consumption for each	Weight
	at 72.5 psi (5 bar)	double stroke at 5 bar	
KZ 180/12	4 lb (16 N)	.0006 scf (0.016 NL)	0.3 lb (0.15 kg)
KZ 180/20	11 lb (49 N)	.0022 scf (0.063 NL)	0.7 lb (0.30 kg)
KZ 180/25	20 lb (87 N)	.0038 scf (0.108 NL)	1.0 lb (0.45 kg)
KZ 180/32	30 lb (135 N)	.0095 scf (0.269 NL)	2.6 lb (1.25 kg)
KZ 180/50	65 lb (291 N)	.0276 scf (0.782 NL)	4.5 lb (2.05 kg)

for these types, the dimensions A1 & B1 are equal

Type	Α	В	С	D	Е	F	G	н	J	κ	L	М	Ν	0	Ρ	Q	R	S	Т	U	V	W	Х	Y
KZ180/12	28	52	10	20	4	6	30	18	1	12	8-H7	4	M4	M4/8	5	25	9	63	30	6	16	29.5	10.5	ø2-EF7/5
KZ180/20	35	64	10	24	5.5	6	42	24	1.5	12	8-H7	6	M4	M4/12	7	35	12	79	42	9	18.5	37	13	ø3-EF7/5
KZ180/25	40	76.5	13	30	5	6	47	29	1.5	14	10-H7	6	M5	M5/15	8	40	13.5	93	50	9	21.5	43.5	15	ø4-EF7/5
KZ180/32	60	108.5	20	40	10	8	65	39	2	25	12-H7	9	M6	M6/15	10	55	20	135	68	13	33.5	59.5	24	ø5-EF7/4
KZ180/50	70	125.5	33	50	10	8	77	47	2.5	30	15-H7	10	M6	M8/17	15	65	23.5	178	80	15	49	67.5	35	ø5-EF7/4

Order No.	KZ180/12	KZ180/20	KZ180/25	KZ180/32	KZ180/50	without sens	or bracket
	KZ180/12D	KZ180/20D	KZ180/25D	KZ180/32D	KZ180/50D	D = with sen	sor bracket
Order No.	KZ180/12D	KZ180/20D	KZ180/25D		Order No.	(IM s KZ180/32D	sensors not in KZ180/50D
(Sensors)	IM-004-NS-U IM-004-PS-U	2L (NPN) 2L (PNP)			(Sensors)	IM-006-NS-U	2L (NPN)
Technical da	ta:					IM-006-PS-0	ZL (PNP)
-Operating m	edium	Compr	ressed air oiler	d/ not oiled			

-Operating medium -Operating pressure 43.5 - 116 psi (3 - 8 bar)

-Air connection

M5 -Sensor option: Two IM...proximity sensors...gripper open/ gripper closed

Parallel Gripper KZL













Mounting flange for KZL see sheet 4.013

Dim	ensions fo	r air con	nections	
Туре	A1	B1	C1	D1
KZL 12	18.25	9.75	14.5	6
KZL 20	23.5	11.5	17.5	6
KZL 25	26	14	19.5	5
*KZL 32	30	30	34	8
*KZL 50	35	35	33	8

*for these types, the dimensions A1 & B1 are equal

Туре	Clamping force	Air consumption for each	Weight
	at 72.5 psi (5 bar)	double stroke at 5 bar	
KZL 12	7 lb (31 N)	.0002 scf (0.004 NL)	0.3 lb (0.15 kg)
KZL 20	20 lb (88 N)	.0005 scf (0.014 NL)	0.4 lb (0.20 kg)
KZL 25	31 lb (137 N)	.0010 scf (0.027 NL)	0.8 lb (0.35 kg)
KZL 32	51 lb (225 N)	.0025 scf (0.072 NL)	2.1 lb (0.95 kg)
KZL 50	124 lb (550 N)	.0079 scf (0.224 NL)	3.3 lb (1.50 kg)

Туре	А	в	с	D	Е	F	G	H min.	H max.	J	κ	L	М	N	0	Ρ	Q	R	S min.	S max.	Т	U	v	w	Y
KZL12	28	49.5	48	20	4	7.5	7.5	8	15	6	3.5	6-H7	17	5.5	M4/8	1.2	3.2	10	28	35	М3	25	20	8	ø2-EF7/5
KZL20	35	55.5	56	24	5.5	3	6	9.5	17.5	8	4.5	8-H7	21	5.5	M4/12	1.5	4.2	13	35.5	43.5	M4	25	19.5	8	ø3-EF7/5
KZL25	40	65.5	60	30	5	4	7	10	20	8	4.5	10-H7	26	5.2	M5/15	1.5	4.2	15	40	50	M5	30	22.5	8	ø4-EF7/5
KZ1.32	60	87.5	90	40	10	8	8	15	31	10	5.5	12-H7	28	14	M6/15	2.5	5.2	22.5	60	76	M6	35	26.5	9.5	ø5-EF7/4
KZL50	70	102	107	50	10	16	16	20	40	11	6.6	15-H7	40	13	M8/17	2.5	6.2	25	70	90	M6	50	39	9.5	ø5-EF7/4

Order No.	KZL12 KZL12D	KZL20 KZL20D	KZL25 KZL25D	KZL32 KZL32D	KZL50 KZL50D	without sensor bracket D = with sensor bracket (IM sensors not included)
Order No. (Sensors)	KZL12D IM-004-NS-U IM-004-PS-U	KZL20D 2L (NPN) 2L (PNP)	KZL25D	Order No. (Sensors)	KZL32D, KZL50 IM-006-NS-U2 IM-006-PS-U2	DD PL (NPN) L (PNP)

Technical data:

-Operating medium	Compressed air oiled/ not oiled
Operating pressure	43.5 - 116 psi (3 - 8 bar)
-Air connection	M5

-Sensor option: Two IM...proximity sensors... gripper open / gripper closed

Three Finger Angular Gripper KZ3







Section A-A

Ø



Mounting flange for KZ3 see sheet 4.013

	go			300 31	1001 4.0	10									x								
Dim	ens	sions	for	air co	nnectior	S]	Г	Ty	ce		Clar	npi	ng for	ce	Air co	nsur	nptio	n for	each	٧	Veigh	t
Туре	Τ	A1	1	B1	C1	D1	1					at 72.	5 p	osi (5	bar)	dou	ble s	troke	at 5	bar		•	
KZ 3/12	1	8.25	5 9	9.75	14.5	6	1	Γ	ΚZ	3/12		4	lb	(19	N)	.000	D2 sc	f (0.0	004 N	L)	0.3 lb	0.1	5 kg)
KZ 3/20		23.5		11.5	17.5	6	1	Γ	ΚZ	3/20		7	lb	(30	N)	.000	05 sc	f (0.0	014 N	L)	0.6 lb	(0.2	5 kg)
KZ 3/25		26		14	19.5	5	1	Γ	ΚZ	3/25		11	lb	(48	N)	.0010 scf (0.027 NL)					0.9 lb (0.40 kg)		
*KZ 3/32		30		30	34	8	1	Γ	κz	3/32		19 Ib (85 N)				.0025 scf (0.072 NL)					3.1 lb	(1.40	0 kg)
*KZ 3/50		35		35	33	8	1		KZ 3/50 49 lb (220 N)								79 sc	f (0.2	224 N	L)	4.4 lb	(2.0	0 kg)
*for these typ	for these types, the dimensions A1 & B1 are equal																						
Туре	A	В	С	D	Е	F	G	Н	1	J	ĸ	L		М	N	0	Р	Q	R	S	Т	U	α
KZ 3/12 4	0	28	20	4	M4/8	14.5	12	19.5	5	46	13.5	5 12	e	5-H7	3	M3	4.5	1.5	7.5	10	3.5	6	26°
KZ 3/20 5	i0	35	24	5.5	M4/12	15	15	24	6	54	16.5	i 14	7	7-H7	3.5	M4	7	1.5	10	11.5	4	6	26°
KZ 3/25 5	5	40	30	5	M5/15	20	16	28	8	64	19.5	5 14	7	7-H7	3.5	M4	7	1.5	10	14.5	4	6	29°
KZ 3/32 9	0	60	40	10	M6/15	32	28	44	10	104	30	25	12	2-H7	6.5	M6	12	2	16	21.5	7	8	28°
KZ 3/50 10	00	70	50	10	M8/17	40	30	42	15	112	36	30	15	5-H7	7.5	M6	14	2	18	25.5	9	8	30°
Order No.	ΚZ	Z3/12	2	K	Z3/20	K	Z3/2	5	KZ3/32			KZ3/50 without sensor bracket											
	ΚZ	Z3/12	2D	K	Z3/20D	K	Z3/2	5D	K	Z3/32	2D	KZ3/50D D = w					= with sensor bracket						
	~~				70/000			_								् (I	M s	sensc	ors no	t includ	ed)		
Order No.	KZ	23/12	2D	K	Z3/20D	Kz	23/25	5D	0	rder	No.	KZ:	3/3	2D	K	Z3/50	D						
(Sensors)	IM	-004	-NS	-U2L	(NPN)				(S	Senso	ors)	IM-	00	6-NS-	U2L	(NPN)						
	IM	-004	-PS-	-U2L	(PNP)							IM-	00	6-PS-	U2L	(PNP)						
Technical da	ta:																						
-Operating me	ediu	um			Co	mpres	sed	air oile	ed/ ı	not o	iled												
-Operating pr	Dperating pressure 43.5 - 116 psi (3 - 8 bar)									r)													
-Air connectio	on				M5																		
-Sensor optio	n: T	Two	IM	.proxi	imity ser	sors	. grij	pper c	per	/ gri	pper	close	d										

Subject to change without notice (October 2007)





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Elastomer cushion KB





Туре	А	В	С	L	Force KE Lb. in (Nm)	Weight ounces (g)	Order No.
KB07/12.5	7	6.5	39	46	17.7 (2.0)	0.78 (22)	KB07/12.5
KB08/12.5	7	6.5	34	41	17.7 (2.0)	0.71 (20)	KB08/12.5
KB14/12.5	14	12.5	39	53	39.8 (4.5)	0.82 (23)	KB14/12.5

Туре	Force KE Lb. in (Nm)	Weight ounces (g)	Order No.
KB06	17.7 (2.0)	0.32 (g)	KB06



KB07 9 7 29 5 43 39.8 (4.5) 0.96 (27) KB07 KB07 44 5 5 43 39.8 (4.5) 0.96 (27) KB07	Тур	be	A	В	С	D	L	Force KE Lb. in (Nm)	Weight ounces (g)	Order No.
	KB	07	9	7	29	5	43	39.8 (4.5)	0.96 (27)	KB07
KB08 14 12.5 43 / 64 39.8 (4.5) 1.42 (40) KB08	KB	08	14	12.5	43	7	64	39.8 (4.5)	1.42 (40)	KB08





OB 12/20



KOB 50

The oil cushions are intended to absorb the kinetic energy of a moving mass and arrest the momentum in a progressive manner. They provide stable motion of slide ways and rotary units by bringing them to a gentle stop without undue wear on the stops. The oil cushion should be adjusted such that it is not used as the final stop, only the stop screws are designed for this purpose.

OB 15/10K and OB 15/10L



OB 9/10 and OB 10/10



ന്ത്രി-സ്ത്ര



Suction cups



Туре	A (mm)	B (mm)	C (mm)	D (mm)	AF (mm)	Suction force	Cup only Order No.	Suction cup holder Order No.	Complete Order No.
VA 10.06	6	M 5	6	18	8	.2 lb (0,7 N)	VA-SN-06	VA 03.001	VA-SK-06
VA 10.08	8	M 5	6	19	8	.3 lb (1,2 N)	VA-SN-08	VA 03.002	VA-SK-08
VA 10.12	12	M 5	6	23	10	.6 lb (2,8 N)	VA-SN-12	VA 03.003	VA-SK-12
VA 10.15	15	M 5	6	24	10	1.0 lb (4,4 N)	VA-SN-15	VA 03.003	VA-SK-15
VA 10.18	18	M 5	6	24	10	1.4 lb (6,3 N)	VA-SN-18	VA 03.003	VA-SK-18
VA 10.22	22	M 5	6	25	10	2.1 lb (9,5 N)	VA-SN-22	VA 03.003	VA-SK-22
VA 10.25	25	M 5	6	28	10	2.8 lb (12,3 N)	VA-SN-25	VA 03.004	VA-SK-25
VA 10.30	30	M 5	6	28	10	4.0 lb (17,6 N)	VA-SN-30	VA 03.004	VA-SK-30
VA 10.45	45	R1⁄8″	8	34	15	8.9 lb (39,8 N)	VA-SN-45	VA 03.007	VA-SK-45
VA 10.60	60	R%″	8	36	15	15.9 lb (70,6 N)	VA-SN-60	VA 03.007	VA-SK-60
VA 10.85	85	R1⁄8″	8	58	22	31.9 lb (141,8 N)	VA-SN-85	VA 03.010	VA-SK-85

Suction refers to components with a flat ground surface at max. vacuum of -10.2 psi(-0.7 bar).

Technical data:

- Temperature range

 -4° to 158° F (-20° to 70°C) yes

- Oil-resistant ____
- Acid-resistant ____ no 60 Shore
- _ Hardness
- ____ Good mechanical properties

Air filter (vacuum)



In locations where dirt particles can be picked up by vacuum generators it is recommended that a filter is used.

Replacement filter Order No. VA 06 E

Flow control valve DV

Adjustable, with swivel connector



These valves are used to regulate exhaust airflow. For example: to control the piston on double-acting cylinders. An adjustment screw allows variable flow in one direction (arrow) and permits air to flow freely in the opposite direction. These space saving valves mount directly into the cylinder port. The body can be rotated 360° for optimum alignment.



Туре	Orifice	A	В	С	D	E	F	G	н	J	K	L	М	N	0	Р	٥	R	Weight	Order No.
DV-M5	2.5	M5	5.5	29.5	15	9	14	17	13.5	7	11	8	4	8.5	9	9	6	4	.45 ounces (13 g)	DV-M 5
DV-R ¹ /8″	2.5	R1∕8″	7	31	15	9	14	17	13.5	7	11	8	4	8.5	9	9	6	4	.55 ounces (15.5 g)	DV-R1/8″
DV-R1⁄4″	4	R¼″	9	44.5	20	15.5	18	18	16	9	15	11	8.5	12.5	10	14	8	6	1.45 ounces (41 g)	DV-R1/4″

Hand slide valve HV



Order No. HV-R1/4"

X-Y Axis Alignment Slides (X-Y stage)

The X-Y Axis Alignment Slide has the advantage of one side operation for both axes. This is especially beneficial for use in small spaces. These X-Y slides are being used extensively in inkjet printers and other standard printer applications. Very fine adjustments are possible from one side by means of an adjusting screw, allowing adjustment in both directions as well as locking of the spindle.







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Stands and Modular Mounting Brackets and Adapter Plates



To achieve peak operation of precise, dynamic handling systems, a robust, vibration resistant supporting structure is essential. Only with such a structure is it possible to exploit the high repeat accuracies and speeds of the individual elements.

Our ground, chromium plated single and double columns allow precise, simple clamping and adjustment of mounting plates and transverse connectors. Through the use of these standard modular components, a wide range of mounting arrangements can be easily configured.

Product features:

- Chrome-Plated Shafting, diameter 40 mm
- Standard Lengths or custom lengths available
- Simple, Precise and Secure
- Easy height adjustment
- No need to design; use standard modular assembly blocks
- Precision components
- Grey anodized mounting blocks Order 20 pc. or more choose your color; black, red, green, blue, purple, or gold)

Application:



Stands and Mounting Brackets – Examples of Application





Stands and Mounting Brackets – Examples of Application





Stands & Modular Mounting Brackets & Adapter Plates

SE01.001	SE01.017	SE01.068	SE01.007
			9
SE01.060	SE03.001	SE01.027	SE01.008
SE01.014	SE01.023	SE01.024	SE01.010
SE01.018	SE01.055	SE01.054	SE01.019
SE01.003	SE01.030	SD01.001	SD03.001
SD01.005	SD01.003	SD01.002	SD01.006

Stands & Modular Mounting Brackets & Adapter Plates

SD01.004	SD01.013	SD01.032	SD01.008
SD01.009	SD01.025	SD01.200	SD01.201
SD01.202	SD01.190	SD01.011	SD01.012
SD01.016	SE03.300	SD50.001	SD50.140
SE40.300	SE40.M06	SE50.300	N003.008
	3	0	NO03.008 WASHER



















Mounting Plate

SE 01.023 100 mm SE 01.022 160 mm SE 01.021 200 mm SE 01.020 250 mm SE 01.012 278 mm	Order Number	Dimension A
SE 01.022 160 mm SE 01.021 200 mm SE 01.020 250 mm SE 01.012 278 mm	SE 01.023	100 mm
SE 01.021 200 mm SE 01.020 250 mm SE 01.012 278 mm	SE 01.022	160 mm
SE 01.020 250 mm SE 01.012 278 mm	SE 01.021	200 mm
SE 01.012 278 mm	SE 01.020	250 mm
	SE 01.012	278 mm

































Mounting Bracket

Number A B C D E SD 01.013 NT 61 130 30 14.5 101 M6/18 SD 01.014 NT 120 150 40 8 134 M8/20	Number A B C D E SD 01.013 NT 61 130 30 14.5 101 M6/18 SD 01.014 NT 120 150 40 8 134 M8/20	Order		Di	mensi	on	
SD 01.013 30 14.5 101 M6/18 SD 01.014 NT 120 150 40 8 134 M8/20 A 2X E 4X M8 SHCS	SD 01.013 NT 61 130 30 14.5 101 M6/18 SD 01.014 NT 120 150 40 8 134 M8/20 A A A A A A A C SH M8 SHCs C SH M8 SHCs	Number	Α	В	C	D	E
SD 01.014 NT 120 150 40 8 134 M8/20	SD 01.014 NT 120 150 40 8 134 M8/20 A 4X M8 SHCS 4X M8 SHCS	SD 01.013 NT 61	130	30	14.5	101	M6/18
		SD 01.014 NT 120	150	40	8	134	M8/20
2X E							
	- D - C -						

































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Automated Tray Changer (Transfer and tray storage unit AP)



Description

The transfer and tray storage unit is used for automatic loading/unloading of trays.

The tray to be loaded is singled out on the tray stack downward and is brought into the loading position by the electrical drive unit.

The advance of the trays is programmable to your choice and programs can be stored in the controller unit.

The loaded trays are stacked onto each other and lowered within the unit downward to the transfer unit.

This transfer unit moves the whole stack of trays out of the system.

This unit is designed to allow the procedure described above also to be carried out in reverse order.

This unit is equipped with an individual controller, which also allows the controlling of the handling unit.

In addition, this transfer and tray storage unit can be equipped with any automation component of modular design within our range of products. The parts can then be loaded/unloaded individually or serially.

Typical applications are: difficult parts to sort out, or parts which must not be scratched, e.g. cosmetic products.

Technical Data:

- Tray size 400 x 600 mm (other dimensions are also possible)
- Tray changing time approx.. 5 seconds
- Stack height 400 mm
- Total weight of tray stack approx.. 30 kgs





Shaft Hopper WM-01



The shaft hopper separates and prepositions shafts with a diameter from 6 to 26mm. The length of the work pieces can range from 56 to 254mm. (2,2" to 10")

Parts must have the same length and the same orientation. A simple shifting of the internal partitioning adjusts to a different work piece length.

A stepped mechanic that moves up and down separates the shafts. It is driven by a pneumatic cylinder. The uppermost step can be used as an unloading position for the parts; but it is also possible to convey the shafts to another suited installation (for example transport device) without using an unloading device.

The shaft hopper is equipped with a level measuring device and a control for the unloading position. A flap at the side allows to magazine even short shafts without problems.

Weight of the hopper approx. 44 lb (20 kg)

Spring feeder FG

For disentangling and feeding of cylindrical springs with air.

SPRING:

- Outer spring diameter 2-8mm (0.0788"- 0,3152")
- Length up to 30mm (1,182")
- Special version up to ø 18mm (0.708")
- Length 5-45mm (0.196" 1,771")

Technical data:

- Simple and quick refill of springs
- Hopper for additional bulk quantity of springs (see back page)
- 1-6 outputs (dependant on feed rate, dimension and form of spring)
- Rate per output: up to 100 PCS/ min. R 1/8"
- Air connection:
- Operating medium: compressed air / oil free

per operating cycle at 72.5 psi

(5 bar): .883 scf (25 NL)

0,5 litre (.55 quarts)

- Operating pressure: 2-6 bar (30-90 psi)
- Air consumption:
- Volume
- Weight

30 kg (66.2 lb) The unit is supplied with a matching nozzle, tube mount and 2-meter tube.

CONTROL UNIT:

The control unit is equipped with an automatic on / off (FG will switch on only as required) 24 volts DC Voltage:

Order No.



Ring initiator version PNP Order No. IR PSK-IBS

Ring Diameter (I.D.)

Single escapement EF for springs and cylindrical pins



NOTE: Each spring must be checked out individually for feed suitability. About 0.3 liter (.33 guarts) of regular production springs are needed for evaluation.









The single escapement must be matched to the spring diameter. Technical data:

- Outer spring diameter 2-8mm (0,078" 0,315")
- Spring length 5 to 40mm (.196"-1,574")
- Call us for details about your custom size
- Air connection M5 Operating medium: compressed air/ oil free
- Operating pressure: 2–6 bar (30–90 psi)
- Air Consumption: per operating cycle at 72.5 psi: 0.014 NL
- Weight: 0,85 kg (1.87lb)
- Order No. EF 01.000

Hopper FG

Available in two models, the Hopper holds a bulk quantity of springs and easily facilitates automatic refilling of the Spring Feeder.

MODEL – S

This model does not have a quick empty feature.

Order No.: FG-Hopper-S







MODEL – L

FG-Hopper-L is recommended when your application requires feeding various types of springs with the same spring feeder. Model – L also provides a Quick-Empty feature, by simply pulling the drawer.

Order No.: FG-Hopper-L





8





NC-Winding Machine FW-01

for spiral torque springs



The Meto-Fer NC-winding machine produces spiral springs with legs, for use in torquing applications, and coiled resistance wires directly from a spool. The machine can be integrated directly into an assembly installation, or used as a stand-alone machine.

A traversing spindle is used to wind the springs. Two programmable DC motor driven CNC-axes drive the winding process. All other movements are controlled pneumatically. The CNC control unit is an integral part of the spring winding machine. Tooling adjusts to accommodate different coil lengths. Simple tooling changes accommodate different coil diameters and leg lengths. If necessary, additional tools can be used to bend and form the legs of the springs. Please note that this standard machine is optimized to produce spiral springs with legs, and is not intended to be used to produce compression springs or tension springs.

Technical Data:	Smallest wire diameter	approx.	0.2	mm
	Largest wire diameter	approx.	1.5	mm (depends on torque)
	Smallest coil diameter (centerline to centerline)	approx.	2	mm
	Largest coil diameter (centerline to centerline)	approx.	30	mm (depends on torque)
	Minimum length of legs		1/2	of outside diameter
	Maximum length of legs		50	mm
	Maximum total length of both legs		100	mm (legs 2 x 50 mm)
	Maximum length of coil		42	mm
	Nominal RPM of winding spindle	:	300	RPM
	Nominal torque	Э	3.6	lb.in (3.8 Nm)
	Fast vertical motion of winding spindle	4	9.2	ft/min (15 m/min)
	Force of cutting tool	:	562	lb at 72.5 psi (2500 N at 5 bar)
	Pneumatic operating pressure	58 -	116	psi (4 - 8 bar)
,	Electrical power requirements	approx. 1.3	341	hp (1 kW)
	Overall dimensions (Length x Width x Height)	1420 x 505 x	610	mm
	Weight	approx.	200	lb (90 kg)

Pick and Place Load Station

(with Vibratory Bowl Feeder)



Complete Pick and Place Station

- Linear Unit (LH), Vertical Unit (VE), Rotary Actuator (ZD12/180), Mechanical Gripper (ZZ12, MZ 12)
- Vibratory Feeder with incline track and Rotary Actuator with single escapement
- Standard modular components (no custom adapter plates needed)
- Stroke and rotation adjustable with stop screws (also used for output signal)
- Up to 25 million cycle times
- Seal / Bearing Kits available for all meto-fer components
- PLC for Pick and Place available
- For more information, call 412-488-3488; 1-888-METO-FER (1-888-638-6337) or visit our website: www.meto-fer.com





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	M5 x 0.5mm7
	6mm x 6mm / ø 6.5 mm8
	M8 x 1mm
	8mm x 8mm / M12 x 1mm10
	M18 x 1mm11
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Sensor reference codes

Designation	Casing form	Output technique	Switching function	Cable or connector	Status indicator	Option
XX -	XXX	X	X -	XX	х -	X
 IR Inductive round IM Inductive quadratic QE Sensing elements RL Reflex light barrier 	003 Ø 3 mm 004 Ø 4 mm 4x4 mm 005 M5 006 6 x 6 mm 065 Ø 6.5 mm 008 8 x 8 mm M8 x 1 010 Ø 10 mm 012 M12 x 1 018 M18 x 1 022 12 x 22 mm 812 8 x 12 mm 525	 A Analog N NPN Output P PNP Output E Electromechanical R Controllable extern D Digital 	S Normally open O Normally closed H Lighton D Dark on B Normally open and Normally closed X Vacant	 U2 Cable PUR 2 meter U5 Cable PUR 5 meter U9 Cable PUR 9 meter 01 Connector Meto-Fer 02 Connector Meto-Fer 10 3 -Channel connector 11 3 -Channel connector 	L with LED 0 without LED	A without corporate name Meto-Fer Elektronik AG

Cable reference codes

Designation	Connector form	Number of leads	Cable cross section	Cable and length	Status indcator
XX -	XXX -	Х	X -	×	X
ST Cable	 01G Meto-Fer connector straight 02G Meto-Fer connector straight threaded connection 10G 3 Channel connector straight 10W 3 Channel connector right angle 11G 3 Channel connector straight threaded connection 11W 3 Channel connector right angle threaded connection 30G 4 Channel connector straight threaded connection 30W 4 Channel connector right angle threaded connection 	2 Lead 3 Lead 4 Lead	A 0.14mm B 0.25mm	U2 Cable PUR 2 meter U5 Cable PUR 5 meter U9 Cable PUR 9 meter	X without LED

NAMUR, PNP and NPN Information

NAMUR Proximity Switch:



NAMUR-proximity switches have 2 wires which are connected to the supply with a current limiting resistor. The value of the limiting resistor depends on the supply voltage. According to NAMUR, the limiting resistor has a value of 1kOhm at a supply voltage of 8.2V (Temp = $+20^{\circ}$ C ($+68^{\circ}$ F)).

When the load is activated, the current consumption of the proximity switch is small; i.e. the voltage drop over the sensor element is large.

When the load is not activated, the current consumption of the proximity switch is large; i.e. the voltage drop over the sensor element is small.

Caution: A serial mounting of NAMUR proximity switches is not allowed!

LOGIC Proximity Switch:



All logic proximity switches that are alternatively available in PNP <u>or</u> NPN version have 3 wires. The PNP-output signal is measured between the PNP-output wire and the negative-voltage supply-wire (blue). The NPN-output signal is measured between the NPN-output wire and the positive-voltage supply-wire (brown).

The parallel-, as well as the serial mounting of 3-wire or 4-wire proximity switches is allowed. The maximum number of serial mounted proximity switches varies depending on the value of the supply voltage and is limited by the value of the respective voltage drop of the elements.

Precision Stop System With Sensing Element

For monitoring mechanical motions, Meto-Fer has a patented Stop System that provides fine stroke adjustment of the stop position and simultaneously provides an output in electrical, electronic, or pneumatic form to confirm that the stop position has been met.



- The stop screw is used to adjust the mechanical end-position of the motion.
- The fine thread of the stop screw allows exact adjustment of the mechanical end position. The locknut secures the adjusted position.
- The stop screw contains a spring and hardened stop pin, which operates the attached sensing element when the pin is driven to the end position.
- The stroke of the hardened stop striker is 1.5 mm.
- This combination eliminates the need for a secondary sensor adjustment after the hard stop adjustment has been made.
- They come standard on all our rotary and linear actuators, or they can be integrated into your design as stand alone products whenever precision feedback and adjustment are required.

Stop Screw AS

	Part No.				
A	В	С	L	LB (N)	
M8x1	5.5	1.5	15	450 (2,000 N)	AS 08/15
M8x1	5.5	1.5	40	450 (2,000 N)	AS 08/40
M10x1	7.5	2.5	50	2,135 (9,500 N)	AS 10/50
M12x1	9	2.5	60	4,600 (20,500 N)	AS 12/60
M12x1	9	2.5	80	4,600 (20,500 N)	AS 12/80
M18x1	14	2.5	100	10,100 (45,000 N)	AS 18/100
1/2-20	9	2.5	60	4,600 (20,500 N)	AS 1/2-20
5/16-24	5.5	1.5	40	450 (2,000 N)	AS 5/16-20



F =force or load (N) F = m x aM = mass (kg) a =acceleration (m/s)

Marking of cables and connectors

Important: Sensors and cables have to be ordered separately. All the indicated part numbers of the sensors in the catalogue which do not have an incorporated cable refer only to the sensor - the corresponding cable is not included in this part-number

The corresponding cable has to be ordered separately according the following table.



Part-Number of cables which correspond to the Meto-Fer connector 01 and 02 (cable cross section: 0.14mm_)

straigh	nt plug
ST-02G-3A-U2X	U2X=2m
ST-02G-3A-U5X	U5X=5m
ST-02G-3A-U9X	U9X=9m

Part-Number of cables which correspond to the Standard-Connector 10 (cable cross section: 0.25mm_)

straight plug (NAMUR / LOGIC)	right angle plug (90º) (NAMUR / LOGIC)	Length
ST-10G-3B-U2X	ST-10W-3B-U2X	U2X=2m
ST-10G-3B-U5X	ST-10W-3B-U5X	U5X=5m
ST-10G-3B-U9X	ST-10W-3B-U9X	U9X=9m

Part-Number of cables which correspond to the Standard-Connector 11 (cable cross section: 0.25mm_)

straight plug (NAMUR / LOGIC)	right angle plug (90º) (NAMUR / LOGIC)	Length
ST-11G-3B-U2X	ST-11W-3B-U2X	U2X=2m
ST-11G-3B-U5X	ST-11W-3B-U5X	U5X=5m
ST-11G-3B-U9X	ST-11W-3B-U9X	U9X=9m

Part-Number of cables which correspond to the Standard-Connector 30 (cable cross section: 0.25mm_)

straight plug (NAMUR / LOGIC)	right angle plug (90º) (NAMUR / LOGIC)	Length
ST-30G-4B-U2X	ST-30W-4B-U2X	U2X=2m
ST-30G-4B-U5X	ST-30W-4B-U5X	U5X=5m
ST-30G-4B-U9X	ST-30W-4B-U9X	U9X=9m

 for non-contact detection of all ferrous- and non-ferrous metals highest precision smallest size flush mount easily mounted IP 67 system of protection LED status indicator 	size: ø 3mm switching dist: 0.6mm
	ø 3mm LOGIC
Meto-Fer sensors meet and in most cases exceeed the required minimal switching distances per DIN EN 50010	LED 5 22
wiring diagram br = brown sw = black bl = blue	NPN
wires are colore coded according to EN 50044	PNP SW PNP
TECHNICAL DATA	
switching hysteresis	<10%
repeatability	<0.01mm
supply voltage	10V30V DC
residual ripple per DIN 41755	20%
load current (-10%, +25%)	100mA
current drain, activated	<10mA
current drain, not activated	<2mA
overvoitage spike protection	yes
polarity protection	yes
short direction protection / overvoitage protection	
	NDN ar DND
ED status indicator	
switching rate	
operating temperature range	-20°C ±70°C
casing material	200+700
cable cross section	0 14mm ²
cable: -standard PUR cable	cable integral molded
-special length on request	
system of protection per DIN 40050	IP 67
color of active surface	black

remarks to the part-number	Part Number
Reference codes see page 1	IR-003-NS-U2L IR-003-PS-U2L

size: ø 4mm		size: 4mm x 4mm	
switching distance: 0.8n	nm	switching distance: 0.8	mm
ø 4mm NAMUR	ø 4mm LOGIC	4 x 4mm NAMUR	4 x 4mm LOGIC
25		30	30
NAMUR brows - UB	NPN br o + UB bL o - PNP br o + UB BW o PNP bL o -	NAMUR bt o-o-R1 o+ us	NPN bl o - PNP bl o - PNP bl o -
	<10%		<10%
<0.01mm	<0.01mm	<0.01mm	<0.01mm
5V24 V DC	8V30V DC	5V24V DC	8V30V DC
10%	10%	10%	10%
and and A	200mA		200mA
<ima< td=""><td><15mA</td><td></td><td><15mA</td></ima<>	<15mA		<15mA
<401A		<4/IIIA	
····			
		· · · · · ·	yes
analog	normally open	analog	normally open
Namur per DIN 19234	NPN or PNP	Namur per DIN 19234	NPN or PNP
	ves		ves
2 kHz	2 kHz	2 kHz	2 kHz
-20°C+70°C	-20°C+70°C	-20°C+70°C	-20°C+70°C
metal	metal	metal	metal
0.14mm ²	0.14mm ²	0.14mm ²	0.14mm ²
cable integral molded	cable integral molded	cable integral molded	cable integral molded
IP 67	IP 67	IP 67	IP 67
NAMUR = blue	NPN = red / PNP = green	NAMUR = blue	NPN = red / PNP = green

Part Number	Part Number	Part Number	Part Number
IR-004-AX-U20	IR-004-NS-U2L IR-004-PS-U2L	IM-004-AX-U20	IM-004-NS-U2L IM-004-PS-U2L

Reference codes see page 1

Meto-Fer sensors meet and in most cases exceeed the required minimal switching distances per DIN EN 50010 M5 x 0.5mm NAMUR M5 x 0.5mm LOGIC wiring diagram br = brown we white bl = blue viring diagram we we white bl = blue viring diagram	 for non-contact detection of all ferrous- and non-ferrous metals highest precision smallest size large switching distances easily mounted IP 67 system of protection (plug: IP 65) LED status indicator 	size: M5 x 0.5mm	m
Meto-Fer sensors meet and in most cases exceeed the required minimal switching distances per DIN EN 50010 Image: Construction of the sense of		M5 x 0.5mm NAMUR	M5 x 0.5mm LOGIC
wiring diagram br = brown sw = black we = white bl = blue wires are color coded according to EN 50044 TECHNICAL DATA switching hysteresis repeatability supply voltage frequent (-10%, +20%) current drain, activated current drain, not activated current drain, not activated current drain, not activated current drain, not activated switching rate polarity protection switching rate switching rate switching rate polarity protection / overvoltage protection switching rate polarity protection / overvoltage protection switching rate switching rate polarity protection / overvoltage protection switching rate switching rate polarity from the current drain, activated switching rate polarity protection / overvoltage protection switching rate polarity from the current drain activated polarity from the current drain activated switching rate polarity from the current drain activated polarity from the current drain activated switching rate polarity from the current drain activated polarity from the current drain activated switching rate polarity from the current drain activated polarity from the current drain activated switching rate polarity from the current drain activated polarity from the current drain activated switching rate polarity from the current drain activated polarity from the current drain acti	Meto-Fer sensors meet and in most cases exceeed the required minimal switching distances per DIN EN 50010	SW7 20 5	SW7 20 5
TECHNICAL DATAswitching hysteresis<10%	wiring diagram br = brown sw = black we = white bl = blue wires are color coded according to EN 50044	NAMUR	PNP
IncontrolDataswitching hysteresis<10%			
Switching nysteresis<0.01mm<0.01mmrepeatability<0.01mm	switching hystoresis		<10%
repeatability 20.011111 20.011111 supply voltage 5V24V DC 8V30V DC residual rippple per DIN 41755 10% 10% load current (-10%, +20%) 200mA 200mA current drain, activated <1mA	repeatability	<0.01mm	<0.01mm
supply voltageSV24V DCSV30V DCresidual rippple per DIN 4175510%10%load current (-10%, +20%)200mAcurrent drain, activated<1mA	supplyvoltage		
Testodial hppple per DiN 4173310%10%load current (-10%, +20%)200mAcurrent drain, activated<1mA	supply voltage	1094	1004
Itead current (PT070, +2070)200mAcurrent drain, activated<1mA	load current (-10% +20%)	1070	200mA
current drain, activated <1mA	current drain, activated	<1mA	<15mA
Our or relation, not activated C4m/r C2m/r overvoltage spike protection yes polarity protection yes short circuit protection / overvoltage protection yes switching rate analog normally open (NO) output type NAMUR per DIN 19234 NPN or PNP LED status indicator yes switching rate 2 kHz 2 kHz operating temperature range -20°C+70°C -20°C+70°C casing material metal metal cable cross section 0.14mm² 0.14mm² cable: -PUR cable is standard integral molded cable	current drain, activated	<td><1011A</td>	<1011A
overvortage spine protectionyespolarity protectionyesshort circuit protection / overvoltage protectionyesswitching rateanalognormally open (NO)output typeNAMUR per DIN 19234NPN or PNPLED status indicatoryesswitching rate2 kHz2 kHzoperating temperature range-20°C+70°C-20°C+70°Ccasing materialmetalmetalcable cross section0.14mm²0.14mm²cable:-PUR cable is standardintegral molded cable	oven/oltage snike protection		
short circuit protection yes short circuit protection / overvoltage protection yes switching rate analog normally open (NO) output type NAMUR per DIN 19234 NPN or PNP LED status indicator yes switching rate 2 kHz 2 kHz operating temperature range -20°C+70°C -20°C+70°C casing material metal metal cable cross section 0.14mm² 0.14mm² cable: -PUR cable is standard integral molded cable integral molded cable	polarity protection		
switching rate analog normally open (NO) output type NAMUR per DIN 19234 NPN or PNP LED status indicator yes switching rate 2 kHz 2 kHz operating temperature range -20°C+70°C -20°C+70°C casing material metal metal cable cross section 0.14mm² 0.14mm² cable: -PUR cable is standard integral molded cable integral molded cable	short circuit protection / overveltage protection		yes
Switching rate arraiog normally open (NO) output type NAMUR per DIN 19234 NPN or PNP LED status indicator yes switching rate 2 kHz 2 kHz operating temperature range -20°C+70°C -20°C+70°C casing material metal metal cable cross section 0.14mm² 0.14mm² cable: -PUR cable is standard integral molded cable integral molded cable	switching rate	analog	pormally open (NO)
LED status indicator yes switching rate 2 kHz 2 kHz operating temperature range -20°C+70°C -20°C+70°C casing material metal metal cable cross section 0.14mm² 0.14mm² cable: -PUR cable is standard integral molded cable integral molded cable	output type	NAMUR per DIN 19234	
switching rate 2 kHz 2 kHz operating temperature range -20°C+70°C -20°C+70°C casing material metal metal cable cross section 0.14mm² 0.14mm² cable: -PUR cable is standard integral molded cable integral molded cable	LED status indicator		
operating temperature range -20°C+70°C -20°C+70°C casing material metal metal cable cross section 0.14mm² 0.14mm² cable: -PUR cable is standard integral molded cable integral molded cable	switching rate	2 6 4 7	2 kH7
casing material metal metal cable cross section 0.14mm² 0.14mm² cable: -PUR cable is standard integral molded cable integral molded cable	operating temperature range	$20^{\circ}C + 70^{\circ}C$	-20°C +70°C
Cashig matchai metal cable cross section 0.14mm² cable: -PUR cable is standard integral molded cable	casing material		
cable cross section 0.14000 cable: -PUR cable is standard integral molded cable	cable cross section		
	cable: _PLIR cable is standard	integral molded cable	integral molded cable
	-cable has to be ordered separately (page 12)		
system of protection per DIN 40050	system of protection per DIN 40050	ID 67	
color of the active surface NIDUL areas	color of the active surface		NPN - rod / PNP - groop

remarks to the part number	Part Number	Part Number
Reference codes see page 1	IR-005-AX-U20	IR-005-NS-U2L IR-005-PS-U2L


size: ø 6.5mm

switching distance: NAMUR 1.5mm / Logic 2mm

switching distance: NAMUR 1.5mm / Logic 2mm

6 x 6mm NAMUR	6 x 6mm LOGIC	ø 6.5mm LOGIC		
φ ^Γ	در 40		U20	
در]	φ[01 25 7.5 01 32.5 8	
<u>br</u> -οοΩ1 ο + UB	NPN bloo-		10 v 32 v 27 5	
NAMUR -	PNP <u>sw</u> opNP <u>bL</u> PNP			
	<10%		<10%	
<0.01mm	<0.01mm	<0.01mm	<0.01mm	
5V24V DC	8V30V DC	5V24V DC	8V30V DC	
10%	10%	10%	10%	
	200mA		200mA	
<1mA	<15mA	<1mA	<15mA	
<4mA	<2mA	<4mA	<2mA	
	yes		yes	
	yes		yes	
	yes		yes	
analog	normally open	analog	normally open	
Namur per DIN 19234	NPN or PNP	Namur per DIN 19234	NPN or PNP	
			yes (plug version only)	
-20 C+70 C	-20 C+70 C	-20 C+70 C	-20°C+/0°C	
0.14mm ²	0.14 mm ²	0.14 mm ²	0.14 mm ²	
0.1411111-	0.14mm	integral molded cable or	integral molded cable or	
integral molded cable	integral molded capie	connector (see nage 12)	connector (see nage 12)	
IP 67	IP 67	IP 67 (with plug = IP 65)	IP 67 (with plug = IP 65)	
Namur – blue	NPN = red / PNP = green	Namur = blue	NPN = red / PNP = green /	
	1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 +			

Part Number	Part Number	Part Number	Part Number
IM-006-AX-U20	IM-006-NS-U2L IM-006-PS-U2L	IR-065-AX-U20 IR-065-AX-010 IR-065-AX-100	IR-065-NS-10L IR-065-PS-10L IR-065-NS-01L IR-065-PS-01L IR-065-NS-U2L IR-065-PS-U2L

Reference codes see page 1

 for non-contact detection of all ferrous- and non-ferrous metals highest precision easily mounted large switching distances cable- and plug version IP 67 system of protection (plug version: IP 65) LED status indicator 	switching dist: NAMUR = 1.5mm / Logic = 2mm			
Meto-Fer sensors meet and in most cases exceeed the required minimal switching distances per DIN EN 50010	M8 x 1mm NAMUR	M8 x 1mm LOGIC		
	01 5410 25 32,5 			
wiring diagram br = brown sw = black we = white bl = blue				
wires are color coded accoerding to EN 50044				
IECHNICAL DATA				
switching hysteresis	0.01	<10%		
supply voltage	<0.01mm	<0.01mm		
residual ripple per DIN 41755	5V24V DC	8V3UV DC		
load current $(-10\% + 20\%)$	1076	10%		
current drain, activated	<1mA	<15mA		
current drain, not activated	<4mA	<2mA		
overvoltage spike protection		Ves		
polarity protection		ves		
short circuit protection / overvoltage protection		yes		
switching protection	analog	normally open		
output type	NAMUR per DIN 19234	NPN or PNP		
LED status indicator		yes (plug version)		
switching rate	2 kHz	2 kHz		
operating temperature range	-20°C+70°C	-20°C+70°C		
casing material	metal	metal		
cable: _PLIR cable is standard	U.14mm ²	0.14mm ²		
-cable has to be ordered soparately (page 4)	connector (acc name 1)	integral molded cable or		
system of protection per DIN 40050	IP 67 (plug version -IP 65)	Connector (see page 4)		
color of the active surface	NAMUR = blue	NPN = red / PNP = groop		
remarks to the part number	Part Number	Part Number		
Reference codes see page 1	IR-008-AX-U20 IR-008-AX-010 IR-008-AX-110	IR-008-NS-11L IR-008-PS-11L IR-008-NS-01L IR-008-PS-01L IR-008-NS-U2L IR-008-PS-U2L		

/





switching distance: NAMUR = 3mm / Logic = 3mm

Torono and the second second

size: M12 x 1mm

(8)	x 8mm NAMUR	8>	8mm LOGIC	M12 x 1mm NAMUR			M12 x 1mm LOGIC	
U20	10 20 5 10 10	U20				U20	sw15 33 172	
01	5	01		02		02	Sur15 20	
10	20 43.2 4.	10		30		30		
					NAMUR		br o+ UB br. o+ UB BN 0 PNP PB SN 0 PNP N.O. bit 0 o+ UB PB SN 0 PNP N.O. bit 0 o+ UB PB SN 0 PNP N.O. bit 0 o+ UB SN 0 PNP NB bit 0 o+ UB SN 0 PNP N.O. NB bit 0 o+ UB SN 0 PNP N.O. NB	
							· · · · · · · · · · · · · · · · · · ·	
	<10%				<10%			
<0	.02mm	<0.02mm		<0	.05mm	<0	<0.05mm	
<u>5</u> V	24VDC	8V30V DC		<u>5</u> V	24V DC	80	30V DC	
109	%	10%		10	%	10	%	
	200mA			0	20	UMA CmA		
<1	mA mA	<	Amc mA	<1	mA	< 1		
<4				<4				
<u> </u>			5 				<u> </u>	
}	. .		2 2				s	
an	nole		rmally open	an	alog	no	rmally open/closed	
Na	mur per DIN 19234	NF	'N or PNP	Na	mur per DIN 19234	NF	'N or PNP	
		ve	s (plug version)			yes	s (plug version)	
1 k	Hz	1 1	Hz	11	(Hz	1 k	Hz	
-20)°C+70°C	-20)°C+70°C	-20)°C+70°C	-20)°C+70°C	
me	tal	me	etal	me	etal	me	etal	
0.1	4mm ²	0.1	4mm ²	0.1	4mm ²	0.1	4mm ²	
inte	egral cable or cable with	int	egral cable or cable with	int	egral cable or cable with	int	egral cable or cable with	
coi	nnector (see page 4)	co	nnector (see page 4)	со	nnector (see page 4)	co	connector (see page 4)	
IP	67 (with plug = IP 65)	IP	67 (with plug = IP 65)	IP	67 (with plug = IP 65)	IP	65 (with plug = IP $\overline{65}$)	
	MUR = blue	NF	N = red / PNP = green	NA	IAMUR = blue NPN = red / PNP = greer		PN = red / PNP = green	

Part Number	Part Number	Part Number	Part Number
IM-008-AX-100	IM-008-NS-10L	IR-012-AX-U20	IR-012-NB-30L
IM-008-AX-010	IM-008-PS-10L	IR-012-AX-300	IR-012-PB-30L
IM-008-AX-U20	IM-008-NS-01L	IR-012-AX-020	IR-012-NS-02L
	IM-008-PS-01L		IR-012-PS-02L
	IM-008-NS-U2L		IR-012-NS-U2L
	IM-008-PS-U2L		IB-012-PS-U2L

Reference codes see page 1

 for non-contact detection of all ferrous- and non-ferrous metals highest precision large switching distances plug version (IP 65) easily mounted LED staus indicator 	size: M18 x 1mm
Meto-Fer sensors meet and in most cases exceeed the required minimal switching distances per DIN EN 50010	M 18 x 1mm LOGIC
	30
wiring diagram br = brown sw = black we = white bl = blue	Image: State
wires are color coded according to EN 50044	
TECHNICAL DATA	
switching hysteresis	<10%
repeatability	<0.1mm
supply voltage	8V30V DC
residual ripple DIN 41755	10%
load current (-10%, +25%)	200mA
current drain, activated	<15mA
overveltage enike protection	<2mA
polarity protection	yes
short circuit protection / overvoltage protection	
switching function	normally open/closed
output type	NPN or PNP
LED status indicator	yes
switching rate	500 Hz
operating temperature range	-20°C+70°C
casing material	metal
cable cross section	
cable: - cable has to be ordered separately (see page 4)	
system of protection per DIN 40050	IP 65
<pre>color of active surface (NPN = red / PNP = green)</pre>	depend on output function
remarks to the part number	Part-Number
Reference codes see page 1	IR-018-NB-30L IR-018-PB-30L IR-018-NS-02L IR-018-PS-02L



electro-mechanical	pneumatic	stop screw
switch for stop screw	valve for stop screw	type AS
Switch for stop screw	Valve for stop screw	(Jpc AD
electro-mechanical	type P = pneumatic	stop screws AS
U20/02	AS 28 1 1 1 1 1 1 1 1 1 1 2 1 2 1 2 1 2 1 2 1 2 2 1 2 2 1 2 2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2	SW 2 2 2 2 2 2 2 2 2 2 2 2 2
		dimensionen Part No. A B C L F max. M8x1 5.5 1.5 15 2000N AS 08/15 M8x1 5.5 1.5 40 2000N AS 08/40 M10x1 7.5 2.5 50 9500N AS 10/50 M12x1 9 2.5 60 20500N AS 12/60 M18x1 14 2.5 100 45000N AS 18/100 F = force or load (N) F = m x a A
	supply prossure P - 1 - 8 bar	m = mass (kg)
	signal pressure A = P	spherical head type AK 40 for
	nominal width NW = 2.5mm	operating the stop screw AS 08/40
	pneumatic connection = M5	at an off centre angle
1.5 A 48 VDC 230 VAC (only for cable versio change over contact el. mechanical change over sw	n) tch	
-20C+70C		Part Number: AK 40
plastic	plastic	nuts with fine-pitch thread
0.14mm ²		
or cable with plug		
IP 41		
stop screw	stop screw	СВ
		dimensionen Part No.
Part Number Cable (2m.6FT)	Part Number	A B C
*5m and 9m also available	,	M5x0.5 2.5 8 MU 01.001
QE-022-EB-110 ST-11G-3B-U2	P	M6x0.5 2.5 8 MU 01.002
QE-022-EB-U20 INTEGRAL	the pneumatic element is available	MI8X1 4 10 MU01.003
MOLDED CABL	E In one type only	M12x1 4 15 MIL01.004
		M14x1 4 16 MU 01.006
l		M18x1 6 22 MU 01.007

Reference codes see page 1

StopScrew AS (with extended stroke)

Use of the Stopscrew with Extended Stroke and the QE-OSN-PS-11L Sensing Unit (see QE022-PS-11L data on page 12) enables achievement of shorter cycle times.

Depending on designated stroke (5, 10 or 20mm) the signal is advanced accordingly by 5, 10 or 20mm before the end stop. (The signal will be held).

Early signal compensation will be allowed for the start delay of a motion (approx. 0.1 sec.) through values and air flow.



No Material

Subject to change without notice (October 2007)



Application:

- -Tolerance control with output signal for too short, acceptable, too long
- -Check for failure
- -Presence control

The height gauge KV is used for the control of two adjustable positions with a range from 0.03 to 5 mm.

Whenever precision feedback and adjustment are required. Output signal; when the preset limiting values are reached.

Order No.

KV 01- ...

O-without proximity switches

A-with 2 inductive proximity switches IR-004-NS-U2L (NPN, normally open) B-with 2 inductive proximity switches IR-004-PS-U2L (PNP, normally open)

C-with 2 inductive proximity switches IR-004-AX-U20 (NAMUR, analog)

*All proximity switches have molded cable, see page 6

Technical data:

-Control range is adjustable with two set screws (sensor position 1 and 2)

- -Adjustable range: 0.03 5 mm (0.00118-0.196 inch)
- -Spring force: 140 210 g (0.308-0.463 lb)
- -Repeatability: +/- 0.03 mm (+/-0.00118 inch)
- -Weight: 0.07 kg (0.154 lb)

-For horizontal and vertical applications





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Linear Transfer System MP



- The MP System supports manual, semi-automatic or fully automatic operation
 The MP System can be easily expanded and all modules can be entirely re-used
 The MP System facilitates fast and reliable transport of aluminum pallets
 Any number of manual work modules can be directly integrated into the main system



Switch Point



Partial Track Connection



Position Station



Partial Track with Drive Unit



Vertical End Module with Lift See web page: www.meto-fer.com/2LTSsub.html



End Module

Following is the list of components used in the Modular Assembly System:

	Component No.	Page No.
Pallet (Coding "MC")	(1) (2) MPA-010-xxx-xxx (1) = Pallet Length in mm (2) = Pallet Width in mm	10.003
Positioning for automation workstation/manual workstation	MPA-020-xxx-xxx MPA-025-xxx-xxx	10.004
Partial transport tracks	MPA-030-xxx-xxx	10.005
Connecting transport tracks	MPA-040-xxx-xxx MPA-045-xxx-xxx	10.005
End modules	MPA-050-xxx-xxx MPA-051-xxx-xxx	10.006
Manual workstation A (in line)	MPA-060-xxx-xxx	10.006
Manual workstation B (parallel exit)	MPA-070-xxx-xxx	10.007
Manual workstation C (perpendicular exit)	MPA-080-xxx-xxx	10.007
Base table	MPA-090-xxx-xxx MPA-091-xxx-xxx MPA-092-xxx-xxx MPA-093-xxx	10.008
Support stands	MPA-110-xxx	10.008

Combination Examples of MP Systems



INQUIRY SHEET: Pallet / Chain Transporter or MP-System (2 belt)

COMPANY:			PHONE: _			
CONTACT NAME:			FAX:			
ADDRESS:			EMAIL:			
CITY / STATE / ZIP:						
SYSTEM DATA INFO:						
Approximate Length of syste	em:		Approxima	ate Width o	of system:	
Dimensions of product to be	handled: Length:		Width:			Height:
Weight of product:	_					
Weight of work piece holder	per pallet:	-				
Pallet size:	Length:		Width:			
Number of Pallets:	_					
Chain/Belt Speed:	_					
Direction of travel:	Clockwise	Counter clock	wise			
Including proximity switch:		NO	I NPN	or	D PNP	
Automatic Workstation:	(1pc. Pre-stop, 1pc. S	Stop, 1pc. lift)		_pc. (+ / -	0.02 mm accura	асу)
Manual Workstation:	(1pc. Pre-stop and 1p	oc. Stop)	pc.	(+ / - 0.5 n	nm accuracy)	
Height of system:	_ (Top of Chain/Belt)					
Coding systems:		NO				
Additional comments:						
PLEASE SEND OR FAX INQUIRY REQU mf automation, Inc. 355 Wyoming Street • Pittsb	EST TO: urgh, PA 15211					

Phone: 412-488-3488 Fax: 412-488-3498

Pallets

- The pallets provide a platform for fixtures and coding system.
- Meto-Fer® offers a mechanical coding system ("MC").
- The positioning accuracy of the pallets is 0.02mm (standard). Option: Positioning accuracy for pallet size up to 200 x 200 mm, 0.01mm.
- The wide range of pallets allows for optimal adaptation to your product.

Standard Sizes

Pallet Size	C	D	Pallet Interchange	Material
AxB			Time (sec.)	
150x100	82	10	1.2	
150x150	120	10	1.2	
200x150	120	10	1.4	
200x200	170	10	1.4	Aluminum
250x200	170	10	1.6	(AIMg4.5Mn
250x250	220	10	1.6	No. 5083)
300x200	170	10	1.8	
300x300	270	10	1.8	
400x300	270	10	2.2	
400x400	370	10	2.2	
500x400	370	10	2.6	
500x500	470	10	2.6	
	Option	up to 1	1,500 x 1,000mm poss	ible

Recommendation for number of pallets per systems: 3 pcs. per station + an additional 6 pcs.



Order No. for Pallets

(2) = Pallet Width in mm

Mechanical Coding System MC

The Coding System transfers information regarding the status of assembly, such as:

- acceptable / failure
- part present/not present
- status of process
- transportation destination (exit, straight forward)

Coding Block: Type MC-CB

This is the information carrier about the status of the work piece which circulates on the MP-System from station to station. In each coding block are 2 coding pins. One pin is for the "Set", the other for the "Read" and reserve. The mechanical coding system requires that each pallet is equipped with a minimum of one coding block. Several coding blocks can be mounted next to each other.

Order No. MC-CB-01-06

Coding Setter: Type MC-CS

The Coding Setter serves to "Set" and "Reset" of the coding pin. It consists of a single acting cylinder which is mounted to the MP-profile by an adapter. To "Set" the coding pin, the pallets have to be stopped.

Pallet Thickness—D	L	A
10	121	61.5

Air consumption per stroke 0.1 ml Amount: 1 pc. per station

Order No. MC-CS-01-10 (for pallet thickness 10mm)

Code Reader: Type MC-CL

The code reader is used to read the coding	Pallet Thickness—D	L	Α
pins. The reading is done by inductive prox-	10	102	42.5
IIIII SWIGH WITH LED UISDIAV.			

Amount: 1 pc. per station

Order No. MC-CL-01-10 (for pallet thickness 10mm)

NOTE: Sensors and cables are not included with the pallet system and need to be ordered separately.

Sensor: Order No. IR-065-NS-10L (NPN) or IR-065-PS-10L (PNP)

Cable: Order No. ST-10W-3B-U2X (2m) ST-10W-3B-U5X (5m)











Positioning (Automatic Workstation)

- For accurate positioning, the pallets are lifted from the transport belts and positioned with pins/cones.
- The positioning accuracy is +/- 0.02mm in the standard version. We offer options up to 200 x 200 pallet size with a positioning accuracy of +/- 0.01mm.
- The positionings can be fixed at any place over the entire length of the lateral transport without any mechanical modifications.
- 2 or more workstations can be set up per partial lateral transport.
- The pallets are cushioned in the end position.
- If required, positioning stations are available for:
- access from underneath (working from below possible)
- the pallet supported from underneath (press from above possible)
- the pallet to be changed by quick exchange (short pallet changing times)







NOTE: Sensors (4 pieces) and cables are not included with
the pallet system and need to be ordered separately.Sensor:Order No.IR-008-NS-11L (NPN) or
IR-008-PS-11L (PNP)Cable:Order No.ST-11W-3B-U2X

Order No. for Positioning Automatic Station:

Air Consumption per Stroke 0.4 NL 3 Cyl. diameter 32 with 5mm stroke

Pallet Size AxB	E	F	G	Н	К
150x100	111	60	14	80	135
150x150	165	90	20	115	189
200x150	165	90	20	115	189
200x200	215	90	20	115	239
250x200	215	90	20	115	239
250x250	265	90	20	115	289
300x200	215	90	20	115	239
300x300	315	90	20	115	339
400x300	315	90	20	115	339
400x400	415	90	20	115	439
500x400	415	90	20	115	439
500x500	515	90	20	115	539

MPA-020-XXX-XXX (1) = Pallet Length in mm (2) = Pallet Width in mm

Positioning (Manual Workstation)

The pallets at the manual workstations are not accurately positioned as on the automatic workstations. They are individually centered with guides such that the position within approximately +/- 0.5mm can be maintained. The pallets are not lifted from the transport belt. Upon request automatic positioning can be added at any time.





Pre-Stop

Station Stop



NOTE: Sensors (2 pcs.) and cables are not included with the MP System and must be ordered separately

Sensor:	Order No.	IR-008-NS-11L (NPN) or IR-008-PS-11L
Cable:	Order No.	ST-11W-3B-U2X (2m)

Pallet Size			
AxB	Е	F	G
150x100	111	60	14
150x150	165	90	20
200x150	165	90	20
200x200	215	90	20
250x200	215	90	20
250x250	265	90	20
300x200	215	90	20
300x300	315	90	20
400x300	315	90	20
400x400	415	90	20
500x400	415	90	20
500x500	515	90	20

Order No. for Positioning Manual Workstation:

(1) (2) MPA-025-xxx-xxx

(1) = Pallet Length in mm (2) = Pallet Width in mm

Partial Transport Track

- A partial transport track consists of 2 equal length transport belts and a common drive with rubber coated drive pulley. The belts of the transport tracks can be separately tightened and exchanged.
- The drive can be fixed at any place of the partial track.
- In addition to standard lengths of partial tracks, special lengths between 300mm and 5000mm are available.
- Several stations can be mounted on a partial track.



Standard - Track Length

Pallet Length	Track Length	D	E	F	G	v* [mm/s]
100	1000	25	50	60	14	300
150	1000	40	80	90	20	300
200	1000	40	80	90	20	300
250	1200	40	80	90	20	300
300	1400	40	80	90	20	200
400	1800	40	80	90	20	200
500	2200	40	80	90	20	200

* faster or slower transport speeds available (max.500mm/s, depending on transport weight

3 Phase AC Motor 208

1

MPA-030-xxx-xxx

(2)

(1) = Pallet Length in mm (2) = Pallet Width in mm

Order No. for Partial Transport Track:

Connecting Transport Tracks

- Each connecting transport track consists of two transport belts of different lengths and one common drive as similar to the partial transport track.
- •Two each connecting tracks are identical.
- Special lengths up to 5000 mm are available.
- Small single purpose systems can be constructed using only one drive. See example 2 on page 10.002.
- Automatic stations and manual stations can be integrated into the connecting transport tracks

Standard Dimension:

Pallet Length	L
100	1000
150	1000
200	1000
250	1200
300	1400
400	1800
500	2200





Pallet Width + 15mm* *11mm for a Pallet Width of 100

(2) 1 MPA-040-xxx-xxx MPA-045-xxx-xxx (1) = Pallet Length in mm (2) = Pallet Width in mm

End Module

- Each turn-around consists of two transport belts of different lengths and a common drive as on the partial transport track.
- The turn-around to the left and right are identical.
- Each turn-around contains tow angles with guiding track and support transfers for the transport pallets.
- The End Modules are directly assembled to the connecting transport tracks.
- Automatic Stations and manual stations can be integrated into the end modules. (Dimension D; Change)

Standard Dimensions:

Pallet Width B	D
100	810
150	910
200	1010
250	1210
300	1310
400	1510
500	1710

250 to a pallet width of 200 300 from a pallet width of 200



Pallet Width + 15mm*

Order No. for End Module:

MPA-050-xxx-xxx

*11mm for a pallet width of 100

(1) = Pallet Length in mm (2) = Pallet Width in mm

End Module Vertical

Α	_	Pallet	Lenath
	_	i anci	Longui

B = Pallet Width



for End Module Vertical:



MPA-051-xxx-xxx

(1) = Pallet Length in mm (2) = Pallet Width in mm

Order No.

Manual Workstation "A"

"In Line"

- This workstation is "in line" assembled and fulfills all ergonomic and economical requirements.
- The transport track is mounted on a stand which is directly integrated into the assembly line.
- The arm- and feet rests are adjustable. The feet rest is coated with a slip resistant, black rubber.
- The pallets can be positioned with either manual or automatic workstations (Sheet 10.004).
- The throughput of the system can be influenced with this workstation. The working content should not exceed the throughput of the slowest automatic station.



MPA-060-xxx-xxx

Order No. Automatic Workstation Positioning (Sheet 10.004)



Order No. Manual Workstation Positioning (Sheet 10.004)



(1) = Pallet Length in mm (2) = Pallet Width in mm



Manual Workstation "B"

"PARALLEL EXIT"

- Ideal for repair or random check working place, or if several working places in sequence are needed.
- This requirement does not influence the throughput directly.
- Random checks/tests also can be executed with Automatic Stations. Air consumption per positioning 0.26 ml, 2 cylinders diameter 12mm with 15mm stroke



⁽¹⁾ = Pallet Length in mm (2) = Pallet Width in mm

Manual Workstation "C"

"PERPENDICULAR EXIT"

- This kind of exit can be used by manual a well as by automatic workstations.
- Length A and width B basically can be configured of any size, whereby the minimum dimension for B = 2 x (Pallet width + 15) + 120mm.
- Standard dimensions for A = 1500 or 2000 mm.





Order No. for Manual Workstation "C": (without Positioning)





Order No. Automatic Workstation Positioning (Sheet 10.004)

MPA-020-xxx-xxx

Air consumption per positioning 0.26 ml, 2 Cyl. diameter 12mm with 15mm stroke

Pallet Length	A	В
100 - 300	1500	See Text
300 - 500	2000	See Text

Order No. Manual Workstation Positioning (Sheet 10.004)



(1) = Pallet Length in mm (2) = Pallet Width in mm

Base Table

- The table top of the Base Table consists of a 25mm thick ground and zinc plated steel plate.
- The lower frame consists of MFP-080-080 profiles and is screw assembled.
- Two angled brackets on the rear of the plate are for the mounting and positioning of a pneumatic channel profile.

Standard Dimension:

Pallet width	F	G	Н	
150 - 200	250	900	992	
250 - 300	300	1050	1000	
350 - 400	300	1150	1000	
450 - 500	300	1300	1100	





Order No. For Base Table with Stand: For Base Table without Stand: For Base Table without Steel plate, with Stand: For a Stand:



— Length in mm (standard 360 mm)

Stand

- The stands are used as support of the tracks.
- After assembly the stands can be anchored to the floor.
- The stands can be adjusted in height +/- 15mm Standard 945mm, top of belt





Example of Track with 4 Stands

Order No. For Stand:



Length in mm (Standard 945 mm)

Example of Pallet Transfer System OVER / UNDER (with Elevators)

Meto-Fer Automation's modular, non-synchronous Pallet Transfer Systems incorporate a dual belt conveyor with manual or fully automatic assembly stations.

Pallets, which contain the work piece, travel from assembly station to station, pallets can accumulate in front of every work place for maximum efficiency and system flexibility. Our elevators specifically designed for over / under systems, reduce your lines overall floor space requirements, and any elevator stroke is possible.





Order No.

Elevator



(Additional information for price: stroke length, cycle time and pallet load)

(1) = Pallet Length in mm (2) = Pallet Width in mm

Large Pallet System GP (Over-Under System)



Design and Function:

- The GP-System consists of 3 exchangeable elements:
 - GP-01 Work Station
 - GP-02 Lift Station
 - GP-04 Manual Work Station
- Length of the linear transport system: as required
- Linear travel by a two-belt-system

Technical data:

Size of pallets (area)	min.	400 x 1000	mm	
	max.	1000 x 2000	mm	
velocity, standard conveyor belt		36	m/min	
Max. pallet load		80	kg	(176 lb)
Positioning accuracy (on work station GP-02)		+/- 0.2	mm	
Height of transport belt from floor (standard)		900	mm	
(This height can be adapted to the customers requirements)				
	Size of pallets (area) velocity, standard conveyor belt Max. pallet load Positioning accuracy (on work station GP-02) Height of transport belt from floor (standard) (This height can be adapted to the customers requirements)	Size of pallets (area) min. max. velocity, standard conveyor belt Max. pallet load Positioning accuracy (on work station GP-02) Height of transport belt from floor (standard) (This height can be adapted to the customers requirements)	Size of pallets (area)min.400 x 1000 max.velocity, standard conveyor belt36Max. pallet load80Positioning accuracy (on work station GP-02)+/- 0.2Height of transport belt from floor (standard)900(This height can be adapted to the customers requirements)900	Size of pallets (area)min. max.400 x 1000 mm max.velocity, standard conveyor belt36 m/min 80 kgMax. pallet load80 kgPositioning accuracy (on work station GP-02)+/- 0.2 mm 900 mmHeight of transport belt from floor (standard)900 mm(This height can be adapted to the customers requirements)

Large Pallet System GP

Work Station GP-01

At this station, the pallets are singled out (with initiators and pneumatic cylinders) and indexed into the work station. The maximum force of pressure of one station is 1000 N.



Order No. GP-01

Technical data:

- Operating medium
- Operating pressure
- Air connections
- Positioning accuracy
- Electrical connection

Compressed air 43.5 - 116 psi (3-8 bar) R1/4" +/- 0.2 mm Please specify on order: Voltage, Number of phases, and Frequency (Standard: 3 phase / 208 / 50 Hz)