MecVel®

HRS SERIES

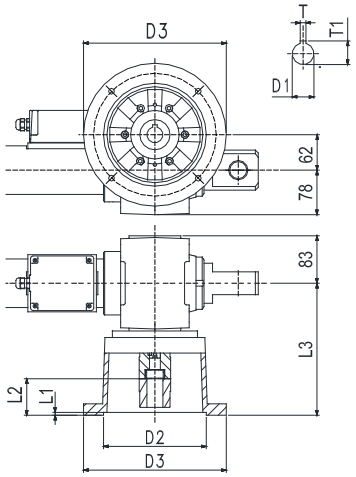
ELECTRIC LINEAR ACTUATORS

HYBRIDS DEVELOPED MATCHING PLUS OF LINEAR ACTUATORS AND SCREW JACKS TO GET THE BEST PERFORMANCES

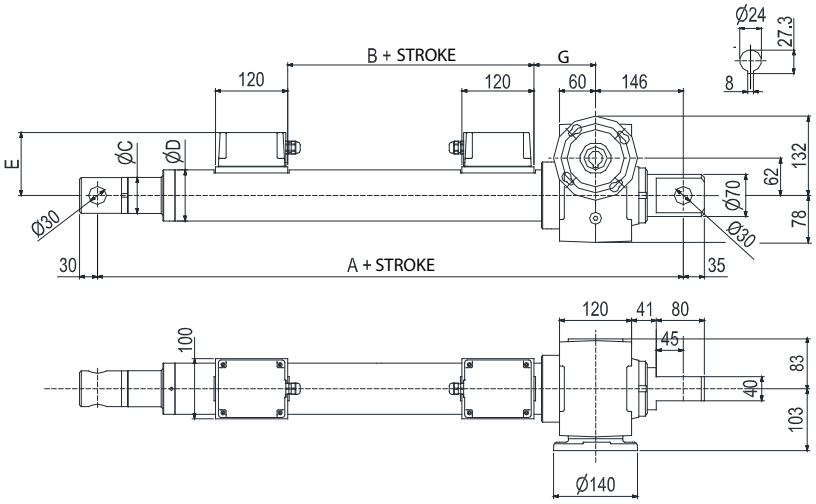
HRS50 PERFORMANCES

HRS50 TPN									
Fmax [N]	Speed [mm/sec]	Version	Motor size - IEC	Power [kW]	rpm	Ratio [i]	Screw d. [mm]	Pitch [mm]	Efficiency
18000	65	M01	IEC112 (bell flange+coupling)	4	1400	5	40	14	0,30 (reversible version)
29000	33	M02	IEC112 (bell flange+coupling)	4	1400	5	40	7	0,24
36500	11	M03	IEC90 (PAM)	2,2	2800	30	40	7	0,18
50000	5	M04	IEC90 (PAM)	1,5	1400	30	40	7	0,18
HRS50 VRS									
30000	47	M01	IEC90 (PAM)	1,8	1400	5	50	10	0,81
45000	23	M02	IEC90 (PAM)	1,5	1400	10	50	10	0,77
50000	7	M04	IEC71 (gear motor)	0,55	2800	10 + 7	50	10	0,64
50000	3	M05	IEC71 (gear motor)	0,25	1400	10 + 7	50	10	0,64

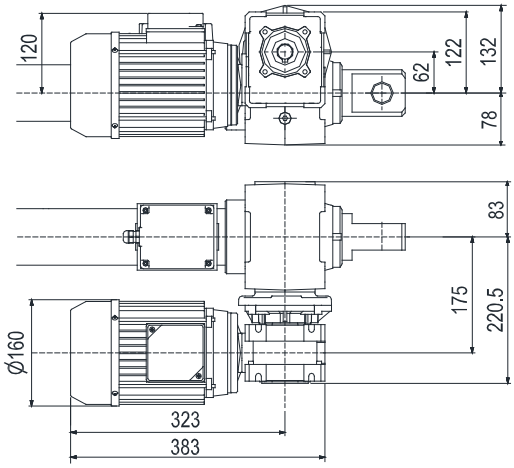
BELL FLANGE+COUPLING VERSION



PAM VERSION



GEAR MOTOR VERSION

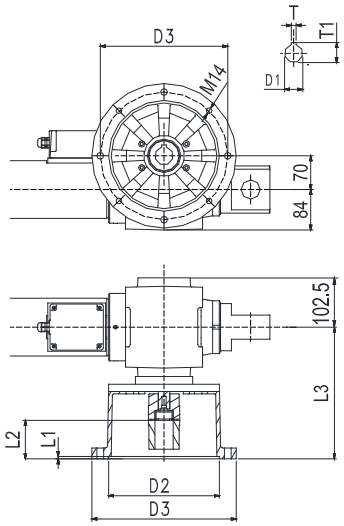


DIM.	TPN/VRS		DIM.	BELL FLANGE+COUPLING	
	HRS50 TPN	HRS50 VRS		IEC 90 B5	IEC 100/112 B5
A	575	715	D1	f24	f28
B	10	112	D2	f130	f180
C	60	70	D3	f165	f215
D	85	140	D4	f200	f250
E	105	132	F	M10	f14.5
G	103	121	L1	4.5	5
			L2	52	68
			L3	183	231
			T	8	8
			T1	27.3	31.3

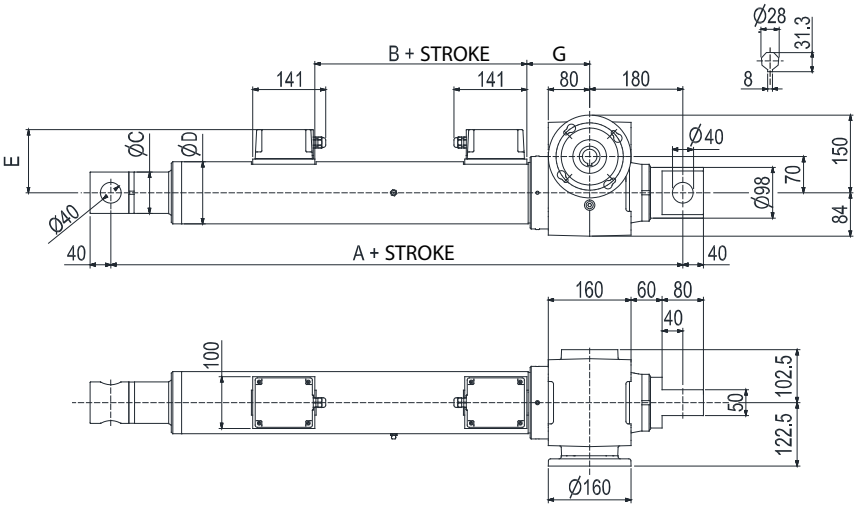
HRS100 PERFORMANCES

HRS100 TPN									
Fmax [N]	Speed [mm/sec]	Version	Motor size - IEC	Power [kW]	rpm	Ratio [i]	Screw d. [mm]	Pitch [mm]	Efficiency
38000	42	M01	IEC132 (bell flange+coupling)	7,5	1400	5	55	9	0,21
58000	14	M02	IEC112 (PAM)	5,5	2800	30	55	9	0,16
87000	7	M03	IEC112 (PAM)	4	1400	30	55	9	0,16
100000	2	M04	IEC80 (gear motor P63 ratio 1:7)	1,8	2800	210 (7*30)	55	9	0,16
HRS100 VRS									
51000	47	M01	IEC100 (bell flange+coupling)	3	1400	5	63	10	0,81
70000	23	M02	IEC100 (bell flange+coupling)	2,2	1400	10	63	10	0,77
92000	8	M03	IEC90 (PAM B5)	1,1	1400	30	63	10	0,67
100000	5	M04	IEC71 (gear motor)	0,75	2800	10 + 10	63	10	0,62
100000	2	M05	IEC71 (gear motor)	0,55	2800	30 + 7	63	10	0,55

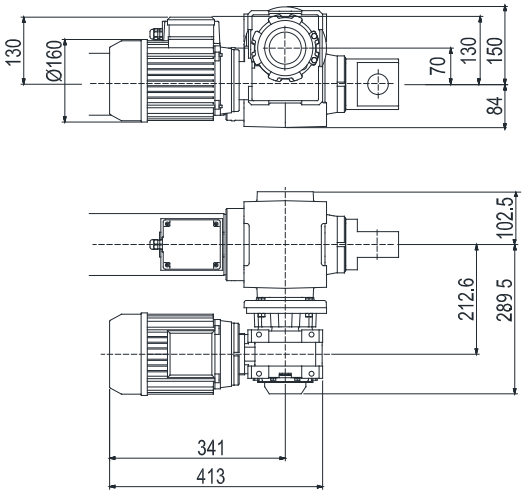
BELL FLANGE+COUPLING VERSION



PAM VERSION



GEAR MOTOR VERSION

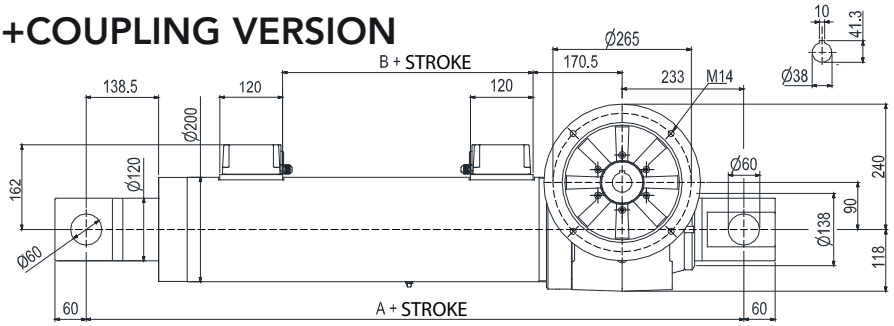


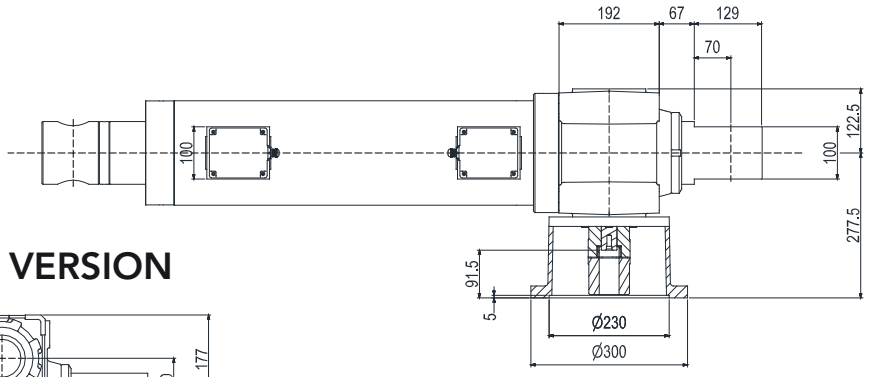
DIM.	TPN/VRS		DIM.	BELL FLANGE+COUPLING	
	HRS100 TPN	HRS100 VRS		IEC 100/112 B5	IEC 132 B5
A	706	780	D1	f28	f30
B	10	133	D2	f180	f230
C	80	80	D3	f215	f265
D	120	150	D4	f250	f300
E	122	137	F	f14.5	f14.5
G	121	141	L1	5	5
			L2	68	91
			L3	239	274
			T	8	10
			T1	31.3	41.3

HRS200 PERFORMANCES

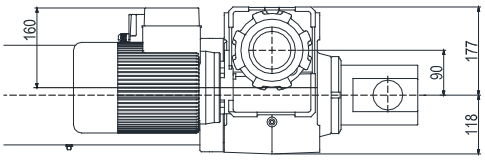
HRS200 TPN									
Fmax [N]	Speed [mm/sec]	Version	Motor size - IEC	Power [kW]	rpm	Ratio [i]	Screw d. [mm]	Pitch [mm]	Efficiency
44000	47	M01	IEC132 (bell flange+coupling)	9,2	1400	5	70	10	0,234
90000	16	M02	IEC132 (bell flange+coupling)	7,5	2800	30	70	10	0,1924
130000	8	M03	IEC132 (bell flange+coupling)	5,5	1400	30	70	10	0,1924
200000	2	M04	IEC90 (gear motor P75 ratio 1:7)	2,2	2800	210 (7*30)	70	10	0,1924
HRS200 VRS									
125000	47	M01	IEC132 (bell flange+coupling)	9,2	1400	5	80	10	0,81
174000	23	M02	IEC132 (bell flange+coupling)	5,5	1400	10	80	10	0,77
200000	7	M03	IEC90 (gear motor)	2,2	2800	10 + 7	80	10	0,64
200000	3	M04	IEC90 (gear motor)	2,2	2800	10 + 15	80	10	0,60

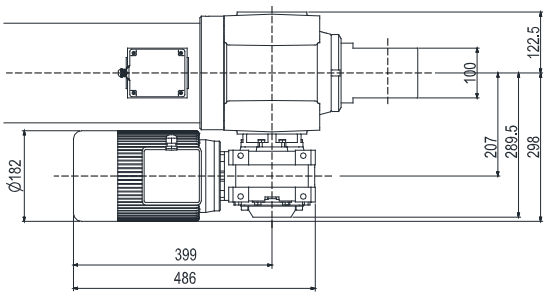
BELL FLANGE+COUPLING VERSION





GEAR MOTOR VERSION





DIM.	TPN/VRS	
	HRS200 TPN	HRS200 VRS
A	860	996
B	80	142

For motors' sizes it is possible to refer to IEC standard motors. Never allow the linear actuator to reach the mechanical stop in order to avoid damages of internal components.

ORDERING KEY

HRMS50/0250/M01/CA-400-50-T-90-4-1,5/AB/1/M0/E05/2FCI/P1/A1/L

MODEL:
HRS50 HRS50-P HRS100 HRS100-P HRS200 HRS200-P

STROKE (mm):
250 mm = 0250

VERSION:
M01/M02/M03/M04/M00 with not standard speed
With flat input motor flange (PAM version) indicate ratio and pitch

MOTOR:
Indicate version, voltage, type, size, n. of poles, power
With flat input motor flange (PAM version) indicate 0
With special flat input motor flange (PAM version) indicate PD

AC MOTOR OPTIONS:
Without motor: leave blank the following parameters
Only for flat input motor flange (PAM version): indicate the size (as 90B14 for IEC 90B14 version)
Protection: indicate only if different from IP65 (standard)
Brake: indicate only if brake motor (as FECA)
Further options: indicate if needed (as AB for 2° shaft)

E-BOX POSITION:
1 Without motor: leave blank

MOTOR POSITION:
M0 (standard) M1 (sx)

ENCODER (without encoder: leave blank):

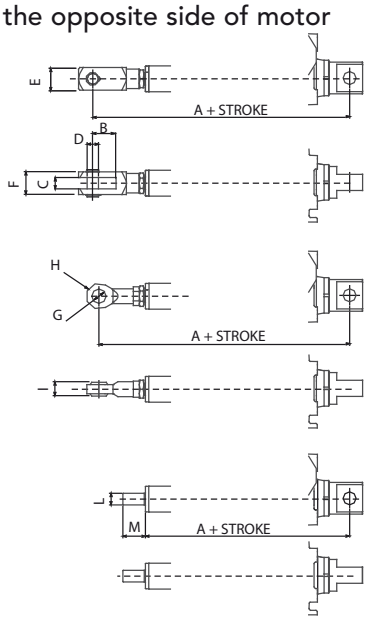
LIMIT SWITCHES (without limit switches: leave blank):

REAR END:
P1: eyelet (standard) P2: eyelet 90°

FRONT END:
A1: eyelet (standard) A3: yoke+clip A4: ball joint A7: male

OPTIONS:
B: bellows boot L: anti-rotation device T: additional shaft on the opposite side of motor

FRONT END	DIM.	HRS50		HRS100		HRS200	
		TPN	VRS	TPN	VRS	TPN	VRS
A3	A	660	815	834	908	1053	1189
	B	54		72		104	
	C	30		35		60	
	D	f30		f35		f60	
	E	55		70		120	
	F	55		70		120	
A4	A	667	822	815	889	1020	1156
	G	f30		f35		f60	
	H	R. 35		R. 40		R. 68.5	
	I	37.5		43		44	
A7	A	532	687	671	745	820	956
	L	M 30x2		M 36x2		M 52x3	
	M	55		70		80	



EFFICIENCY AND RESISTANCE MEET THE HIGHEST LOAD CAPACITY

How to match the typical power of screw jacks with the high standards in terms of linear actuators performances? MecVel R&D team has designed a range of products to answer to this market request: the HRS series

Since 1987 the core business of the company is the design and the manufacture of linear actuators and screw jacks, electromechanical devices transforming the rotatory motion of a motor into a linear movement, pushing, pulling, lifting or positioning loads even higher of 20 tons. These products are characterized by great strength, able to provide low friction and minimum wear with long life to the whole handling system. This range, in fact, has been developed in particular for the heavy industry, harsh applications and outdoor operations, where it is required to face critical climatic conditions. This is possible also thanks to the customization service offered by the company, that allows to develop each product according to customer requests, to tailor it in compliance with the technical specifications of the application for which it is intended. In the HRS series the standard structure of a screw jack is matched with typical linear actuator components, from internal guides up to the external cover tube, able to better withstand buckling loads. This, together with the high quality of materials used and the choice of really efficient gear boxes, allows to reach the best performances for MecVel linear motion.

TECHNICAL DATA

This series is splitted between the version using TPN (acme screw) and the one using VRS (ball screw), able to provide a relevant increase in terms of performances and also higher speed with the same load. Both versions are divided in three different "sizes", in order to supply the entire spectrum of possible handlings:

- HRS50 for loads up to 50000 N (5 tons)
- HRS100 for loads up to 100000 N (10 tons)
- HRS200 for loads up to 200000 N (20 tons)

These products can reach a speed of 65 mm/s but in this case, in order to avoid the reversibility, a brake must be considered to keep the load in static conditions or when it is required precision and repeatability.

HOW TO CHOOSE THE PRODUCT ACCORDING TO THE APPLICATION

The duty cycle required by the application is given by the ratio between the working time under load in the stated period, and the stated period itself (10 minutes), expressed in percentage:

- With Fs ≤ 30%, a linear actuator with TPN is recommended
- With Fs ≥ 30% a linear actuator with VRS is recommended

One of the main elements together with the internal components, is the external cover tube, made of steel to protect the screw and the whole device from damages due to dust, water and other contaminant agents, and furthermore allows the mounting of limit switches and anti-rotation devices (on request). To increase the safety level it is possible to add a bellows boot to protect the screw (on request), while flanges, bells and couplings, customized on the basis of technical drawings, are required for the matching with electric motors and servo motors (placed orthogonally or parallel to the linear actuator body, in case a reduction of the whole dimension is needed), allowing the customer to choose the preferred kind of motorization. The gear motor supplies a reduced torque and consequently the time to complete the stroke decreases up to 2 mm/s, in compliance with the speed required in the photovoltaic field for example, and reducing also the energy consumption. The electric system provided by MecVel, in fact, offers a series of benefits if compared to hydraulic and pneumatic ones, as:

- The installation is fast and clean
- Maintenance operations are minimal also in case of outdoor applications
- It does not need valves, pipes and compressors, excluding the risk of oil leaks and making the product suitable to work in sterile environments (as medical and food industry)
- It is self-locking in static conditions

MecVel®

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