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Content

Businessline



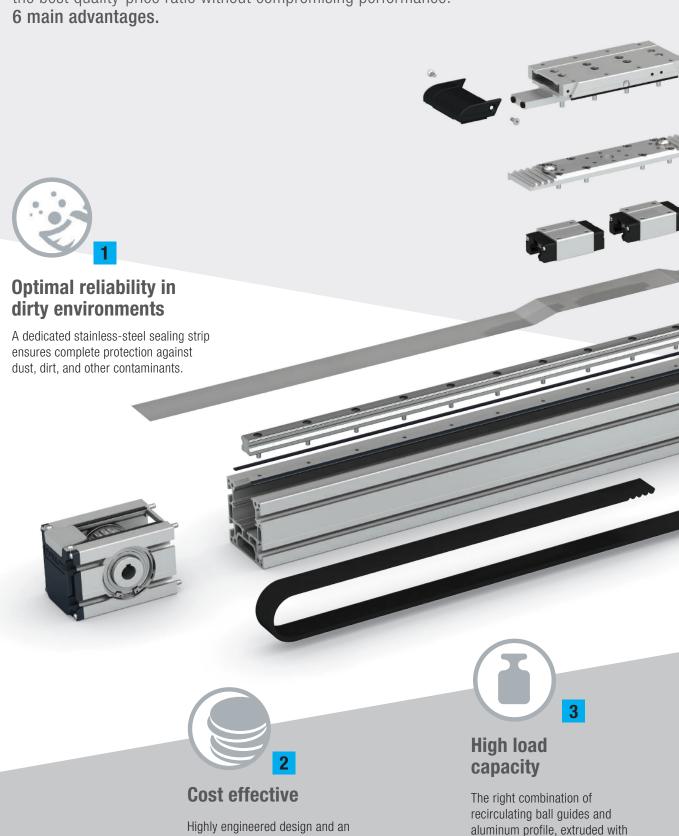
Technical features overview

1 HVE series

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Businessline

the best quality-price ratio without compromising performance.



accurate choice of components and materials allow best-in-class performance and reliability ratio.

elaborate geometries, allows for

high stiffness and load capacity.

Easy Iubrication

The greasing nipple allows for easy lubrication of the system.





Enhanced productivity

Quality design ensures high dynamics with stressful duty cycles: speed up to 3 m/s, acceleration up to 30 m/s².



Reliable repeatability accuracy

Up to \pm 0.05 mm.



6

Compact solution

Optimized driving head is designed to perfectly fit with the actuator body, creating a compact and streamlined solution.

HVE series /

HVE series description



Fig. 1

HVE

The HVE series linear units are the best quality-price ratio without compromising performance solution, that makes it an ideal choice for a wide range of industrial applications.

They have a self-supporting structure with a robust profile made of extruded and anodized aluminum, available in three sizes: 65 - 80 - 110 mm. The thrust force is transmitted by a steel reinforced, polyurethane belt. The moving carriage is guided and supported by a recirculating ball guide system featuring one or more blocks.

The HVE linear units are equipped with a stainless-steel sealing strips to ensure a complete protection against dust, dirt, and other contaminants.

The easy access to the greasing nipple allows to lubricate the system, ensuring the lifetime of the linear unit, preventing premature wear, and reducing maintenance costs.

The components

Extruded profile

The anodized aluminum alloy extrusions used for the profile of HVE series linear units are designed and manufactured to optimize weight while maintaining mechanical strength. The dimensional tolerances comply with EN 755-9 standard.

Driving belt

The Rollon HVE series linear units use steel reinforced polyurethane drive belts with HTD pitch. This belt is ideal due to its high load transmission characteristics, compact size and low noise. Optimization of the maximum belt width/body dimension ratio enables the following performance characteristics to be achieved:

- High speed
- Low noise
- Low wear

Carriage

The carriage of the HVE series linear units are made of anodized aluminum. Each carriage is equipped with threaded holes for mounting on the customers application. Rollon offers multiple carriages with a recirculating ball guide system featuring one or more blocks (SP1-SP2-SP3) to accommodate a vast array of applications. The unique design of the carriage allows for the sealing strip to pass through it.

Sealing strip

HVE series linear units are equipped with a stainless-steel sealing strip to protect all of the internal components from dust, contaminates, and other foreign objects. The sealing strip runs the length of the body and is kept in position by low-friction polymer plain bearings located inside the carriage. This minimizes resistance as the strip passes through the carriage while providing maximum protection.

The linear motion system

The linear motion system has been designed to meet the load capacity, speed, and maximum acceleration conditions of a wide variety of applications.

HVE with ball bearing guides

- A ball bearing guide with high load capacity is mounted in a dedicated seat inside the body.
- The carriage is assembled on two pre-loaded ball bearing blocks.
- The two ball bearing blocks enable the carriage to withstand loading in the four main directions.

The linear motion system described above offers:

- High speed and acceleration
- High load capacity
- High permissible bending moments
- Low friction
- Long life
- Maintenance free (depending on applications)
- Low noise

The driving head

The optimized driving head is designed to perfectly fit with the actuator body, creating a compact and streamlined solution.

It is possible to assemble the gearbox on either the right or the left side of the actuator by means of a standard assembly kit.

The assembly kit includes: adapter plate and fixing hardware; and can be ordered with the actuator. For more information see pag. BSL-10.

The same logic is valid when mounting the shaft to connect two units in parallel.

HVE section

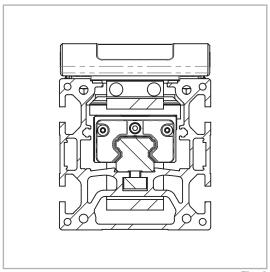
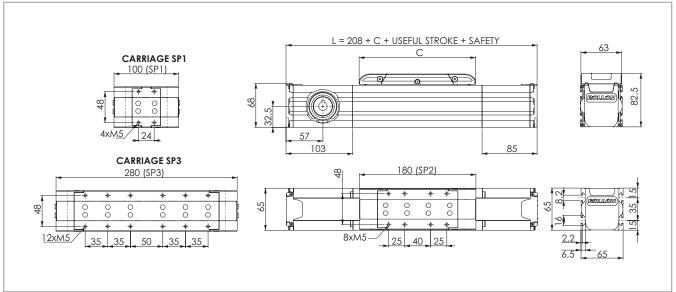


Fig. 2

HVE 65 SP1-SP2-SP3

HVE 65 Dimensions



The length of the safety stroke is provided on request according to the customer's specific requirements.

Fig. 3

Technical data

	Туре		
	HVE 65 SP1	HVE 65 SP2	HVE 65 SP3
Max. useful stroke length [mm]	6280	6200	6100
Max. positioning repeatability [mm]*1	± 0.05	± 0.05	± 0.05
Max. speed [m/s]	3.0	3.0	3.0
Max. acceleration [m/s²]	30	30	30
Type of belt	25 HTD 5M	25 HTD 5M	25 HTD 5M
Type of pulley	Z 30	Z 30	Z 30
Pulley pitch diameter [mm]	47.75	47.75	47.75
Carriage displacement per pulley turn [mm]	150	150	150
Carriage weight [kg]	0.4	0.8	1.0
Zero travel weight [kg]	2.6	3.4	4.3
Weight for 100 mm useful stroke [kg]	0.6	0.6	0.6
Starting torque [Nm]	1.0	1.4	2.1
Moment of inertia of pulleys [g·mm²]	134.000	134.000	134.000
Rail size [mm] *1) Positioning repeatability is dependent on the type of transmis	15 sion used	15	15 Tab. 1

^{*1)} Positioning repeatability is dependent on the type of transmission used

Moments of inertia of the aluminum body

Туре	l _x	l _y	_p
	[10 ⁷ mm ⁴]	[10 ⁷ mm ⁴]	[10 ⁷ mm ⁴]
HVE 65	0.055	0.069	0.123

Tab. 2

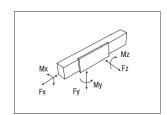
Driving belt

The driving belt is manufactured from a friction resistant polyurethane and with steel cords for high tensile stress resistance.

Туре	Type of	Belt width	Weight
	belt	[mm]	[kg/m]
HVE 65	25 HTD 5M	25	0.8

Tab. 3

Belt length (mm) = $2 \times L - 75 \text{ (SP1)}$ 2 x L - 155 (SP2) 2 x L - 255 (SP3)



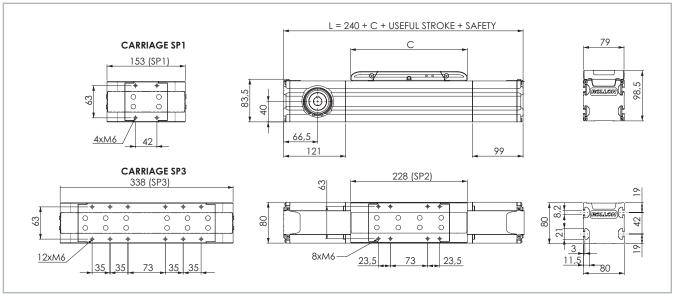
Load capacity

Туре	F [I	: Nj	F [!	: vj]	F _z [N]	M _× [Nm]	M _y [Nm]	M _z [Nm]
	Stat.	Dyn.	Stat.	Dyn	Stat.	Stat.	Stat.	Stat.
HVE 65 SP1	978	696	13500	8500	13500	101	67	67
HVE 65 SP2	978	696	27000	17000	27000	202	1350	1350
HVE 65 SP3	978	696	40500	25500	40500	303	2700	2700

See verification under static load and lifetime on page SL-2 and SL-3 $\boldsymbol{F}_{_{\boldsymbol{v}}}$ in the table represents the maximum capacity of the toothed belt.

HVE 80 SP1-SP2-SP3

HVE 80 Dimensions



The length of the safety stroke is provided on request according to the customer's specific requirements.

Fig. 4

Technical data

		Туре	
	HVE 80 SP1	HVE 80 SP2	HVE 80 SP3
Max. useful stroke length [mm]	6220	6150	6040
Max. positioning repeatability [mm]*1	± 0.05	± 0.05	± 0.05
Max. speed [m/s]	3.0	3.0	3.0
Max. acceleration [m/s²]	30	30	30
Type of belt	30 HTD 8M	30 HTD 8M	30 HTD 8M
Type of pulley	Z 22	Z 22	Z 22
Pulley pitch diameter [mm]	56.02	56.02	56.02
Carriage displacement per pulley turn [mm]	176	176	176
Carriage weight [kg]	0.8	1.5	1.9
Zero travel weight [kg]	4.8	5.8	7.0
Weight for 100 mm useful stroke [kg]	0.8	0.8	0.8
Starting torque [Nm]	1.2	2.0	3.1
Moment of inertia of pulleys [g·mm²]	296.000	296.000	296.000
Rail size [mm]	20	20	20

^{*1)} Positioning repeatability is dependent on the type of transmission used

Moments of inertia of the aluminum body

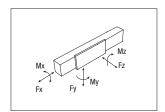
Туре	l _x [10 ⁷ mm⁴]	l _y [10 ⁷ mm⁴]	l _p [10 ⁷ mm⁴]
HVE 80	0.121	0.145	0.266
			Tab. 6

Driving belt

The driving belt is manufactured from a friction resistant polyurethane and with steel cords for high tensile stress resistance.

Туре	Type of	Belt width	Weight
	belt	[mm]	[kg/m]
HVE 80	30 HTD 8M	30	0.185

Tab. 7



Load capacity

Туре	F [[: Nj	F [1	: V N]	F _z [N]	M _x [Nm]	M _y [Nm]	M _z [Nm]
	Stat.	Dyn.	Stat.	Dyn	Stat.	Stat.	Stat.	Stat.
HVE 80 SP1	2211	1485	23500	13700	23500	235	143	143
HVE 80 SP2	2211	1485	47000	27400	47000	470	2585	2585
HVE 80 SP3	2211	1485	70500	41100	70500	705	5170	5170

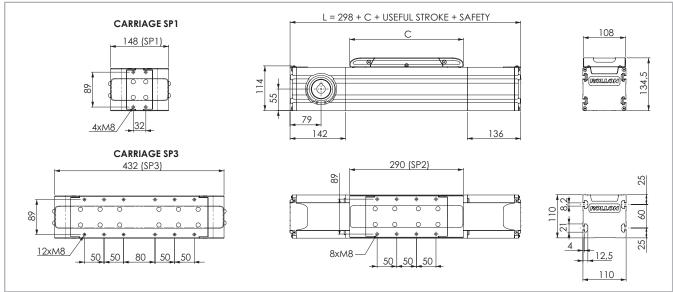
Tab. 5

See verification under static load and lifetime on page SL-2 and SL-3

 $[\]boldsymbol{F}_{_{\boldsymbol{X}}}$ in the table represents the maximum capacity of the toothed belt.

HVE 110 SP1-SP2-SP3

HVE 110 Dimensions



The length of the safety stroke is provided on request according to the customer's specific requirements.

Fig. 5

Technical data

		Туре	
	HVE 110 SP1	HVE 110 SP2	HVE 110 SP3
Max. useful stroke length [mm]	6230	6090	5950
Max. positioning repeatability [mm]*1	± 0.05	± 0.05	± 0.05
Max. speed [m/s]	3.0	3.0	3.0
Max. acceleration [m/s²]	30	30	30
Type of belt	50 HTD 8M	50 HTD 8M	50 HTD 8M
Type of pulley	Z 29	Z 29	Z 29
Pulley pitch diameter [mm]	73.85	73.85	73.85
Carriage displacement per pulley turn [mm]	232	232	232
Carriage weight [kg]	2.5	3.2	4.0
Zero travel weight [kg]	10.6	14.0	17.4
Weight for 100 mm useful stroke [kg]	1.5	1.5	1.5
Starting torque [Nm]	1.6	2.9	4.3
Moment of inertia of pulleys [g·mm²]	1.30x10^6	1.30x10^6	1.30x10^6
Rail size [mm]	25	25	25
*1) Positioning repeatability is dependent on the type of transmis	sion used		Tab. 9

¹⁾ Positioning repeatability is dependent on the type of transmission used

Moments of inertia of the aluminum body

Туре	l _x	l _y	Ι _p
	[10 ⁷ mm⁴]	[10 ⁷ mm⁴]	[10 ⁷ mm⁴]
HVE 110	0.423	0.573	0.997

Tab. 10

Driving belt

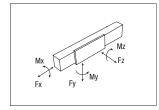
The driving belt is manufactured from a friction resistant polyurethane and with steel cords for high tensile stress resistance.

Туре	Type of	Belt width	Weight
	belt	[mm]	[kg/m]
HVE 110	50 HTD 8M	50	0.325

Tab. 11

Belt length (mm) =
$$2 \times L - 110 \text{ (SP1)}$$

 $2 \times L - 252 \text{ (SP2)}$
 $2 \times L - 394 \text{ (SP3)}$



Load capacity

Туре	F _x F _y [N]		F _x F _y [N] [N]		: V V	F _z M _x [N] [Nm]		M _y [Nm]	M _z [Nm]
	Stat.	Dyn.	Stat.	Dyn	Stat.	Stat.	Stat.	Stat.	
HVE 110 SP1	3852	2702	46000	26000	46000	529	446	446	
HVE 110 SP2	3852	2702	92000	52000	92000	1058	6632	6632	
HVE 110 SP3	3852	2702	138000	78000	138000	1587	13064	13064	

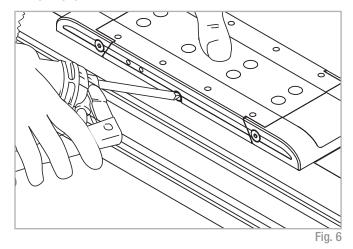
See verification under static load and lifetime on page SL-2 and SL-3 $\,$ $\boldsymbol{F}_{_{\boldsymbol{x}}}$ in the table represents the maximum capacity of the toothed belt.

Lubrication

HVE Linear units are equipped with self lubricating linear ball guides. This system guarantees a long interval between maintenances: every 2000 Km or 1 year of use, based on the value reached first.

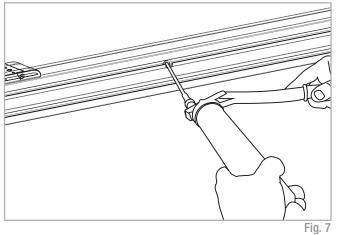
If a longer service life is required or in case of high dynamic or high loaded applications please contact our offices for further verification.

HVE SP2-SP3



- Insert the tip of the grease gun in the grease nipple.
- For lubrication of linear units use lithium soap grease NLGI 2.
- For specially stressed applications or difficult environmental conditions, lubrication should be carried out more frequently.
 Refer to Rollon for further advice.

HVE SP1



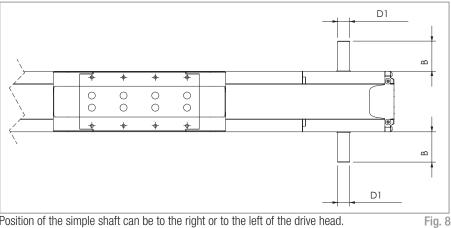
Quantity of lubricant necessary for re-lubrication:

Туре	Unit: [cm³]
HVE 65	1.4
HVE 80	2.8
HVE 110	4.8

Tab. 13

Simple shaft

AS type simple shafts



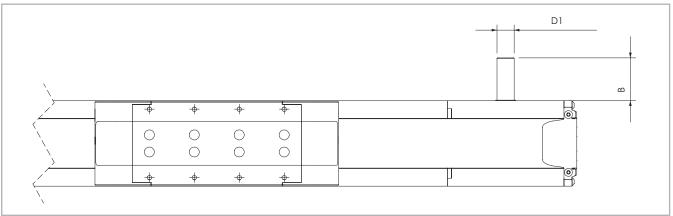
Position of the simple shaft can be to the right or to the left of the drive head.

This head configuration is obtained by utilizing an assembly kit delivered as a separate accessory item. Shaft can be installed on the left or right side of the drive head as decided by the customer.

Applicable to unit	Shaft type	В	D1	AS assembly kit code
HVE 65	AS 13	35	13h7	G004173
HVE 80	AS 16	40	16h7	G004174
HVE 110	AS 22	50	22h7	G004175

Tab. 14

BS type simple shafts



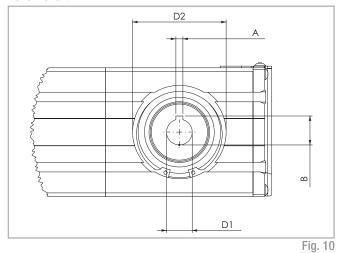
Position of the simple shaft can be to the right or to the left of the drive head.

Fig. 9

Applicable to unit	Shaft type	В	D1	AS assembly kit code
HVE 65	BS 13	35	13h7	G004171
HVE 80	BS 16	40	16h7	G004135
HVE 110	BS 22	50	22h7	G004172

Hollow shafts

Hollow shaft



An (optional) connection flange is required to fit the standard reduction units selected by Rollon.

For further information contact our offices.

ı

Dimensions (mm)

Appliable to unit	D1	D2	А	В	Drive head code
HVE 65	13G8	52G7	5P9	15.3	1R
HVE 03	12G8	52G7	4P9	13.8	2R
HVE 80	16G8	62G7	5P9	18.3	1R
UAE OO	20G8	62G7	6P9	22.8	2R
HVE 110	22G8	80G7	6P9	24.8	1R
	25G8	80G7	8P9	28.3	2R

Linear units in parallel

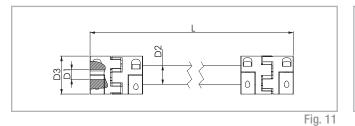
Synchronization kit for use of HVE linear units in parallel

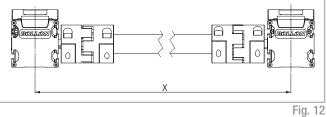
When movement consisting of two linear units in parallel is essential, a synchronization kit must be used.

Moment of inertia [g·mm²] C1 + C2 · (X-Y)

	C1	C2	Weight [Kg] D1+D2 · (X-Y)	
	[g·mm²]	[g·mm²]	D1 [Kg]	D2 [Kg mm]
HVE 65	305.200	350	0.32	0.0023
HVE 80	705.200	850	0.45	0.0037
HVE 110	2.015.600	2.000	0.94	0.005

Tab. 17





Dimensions (mm)

Appliable to unit	Shaft type	D1	D2	D3	Code	Formula for length calculation
HVE 65	AP 13	13	28	55	HGK131A	L= X-75mm
HVE 80	AP 16	16	35	65	HGK161A	L= X-90mm
HVE 110	AP 22	22	45	80	HGK221A	L= X-120mm

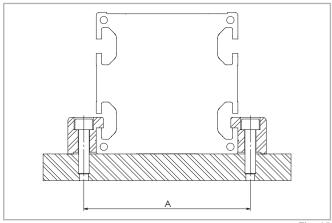
Tab. 18

Accessories

Fixing by brackets

The linear motion system used for the HVE series linear units enables them to support loads in any direction. They can therefore be installed in any position.

To install the units, we recommend the use of the dedicated T-slots in the extruded bodies as shown below.



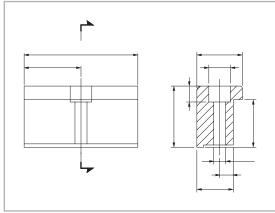
Unit	A (mm)
HVE 65	77
HVE 80	94
HVE 110	120

Tab. 19

Warning:

Do not fix the linear units through the drive ends.

Fixing brackets



Dimensions (mm)

Uni	t	Α	H1	В	С	Е	F	D1	D2	L	Lt	Code
HVE	65	20	17.5	6	16	11.5	6	9.4	5.3	50	25	1001490
HVE	80	20	20.7	7	16	14.7	7	11	6.4	50	25	1001491
HVE	110	36.5	28.5	10	31	20.9	11.5	16.5	10.5	100	50	1002377

Tab. 20

Fixing bracket

Anodized aluminum block for fixing the linear units through the side T-slots of the body.

Fig. 14

Dimensions (mm)

Unit	Thread	Lenght	Code
HVE 65	M5	20	6000436
HVE 80	M6	20	6000437
HVE 110	M6	20	6000437

Tab. 21

T-nuts

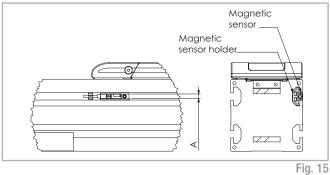
Steel nuts to be used in the T-slots of the body. The T-nuts also fit when the unit is mounted.

Sensor

Magnetic (fig.15) and proximity (fig.17) sensors holders are available as accessories for all sizes of HVE. The proximity sensor holder is in aluminum and features T-Nuts for fixing on the axis profile. The sensor dog is an iron plate mounted on the carriage used for the proximity operation.

Proximity and magnetic sensors are not supplied by Rollon..

Magnetic sensor



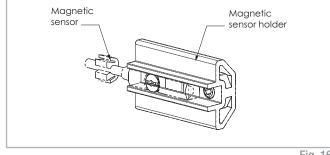
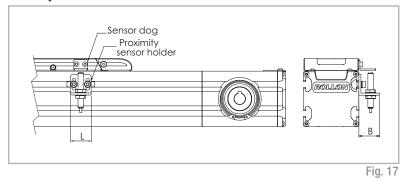


Fig. 16

Dimensions (mm)

Unit	А	Magnetic sensor holder code
HVE 65	5	G004190
HVE 80	5	G004191
HVE 110	5	G004192

Proximity sensor



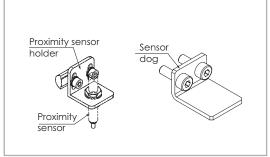


Fig. 18

Dimensions (mm)

Unit	В	L	For proximity	Sensor dog code	Proximity sensor holder code
HVE 65	30	30	Ø 8	G004179	G000901
HVE 80	30	30	Ø 8	G004180	G000838
HVE 110	30	30	Ø 8	G004181	G000838

Tab. 23

Gearbox assembly kit

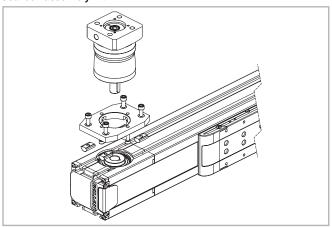


Fig. 19

Assembly kit includes: adapter plate and fixing hardware

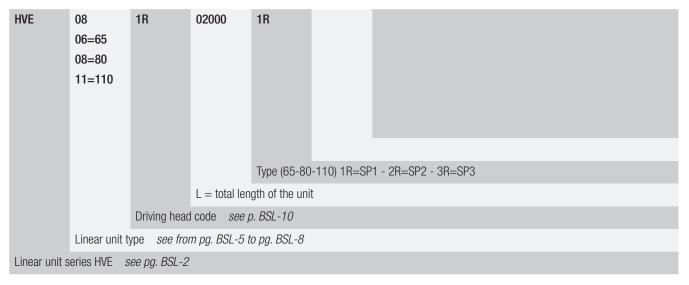
Unit	Gearbox type (not included)	Code
HVE 65	CLP 050	G004176
HVE 80	CLP 070	G004177
HVE 110	CLP 090	G004178

Tab. 24

For other gearbox type ask Rollon

Ordering key / ~

Identification codes for the HVE linear unit



In order to create identification codes for Actuator Line, you can visit: http://configureactuator.rollon.com

