克普典科技股份有限公司
Captain Science Corporation

www.capind.com.tw

聯絡方式

citb@ms11.hinet.net

Line ID : @vsh6593b

北區

地址：10057台北市中正區信義路二段61號2樓

電話：（02）2351-7107 轉 16 或 1

傳真：（02）2396-4950

中、南區

地址：台中市神岡區中山路667巷26弄18號

電話：（04）2561-0236 轉 11 或 18

傳真：（04）2561-0010

SAR series

SAR series description

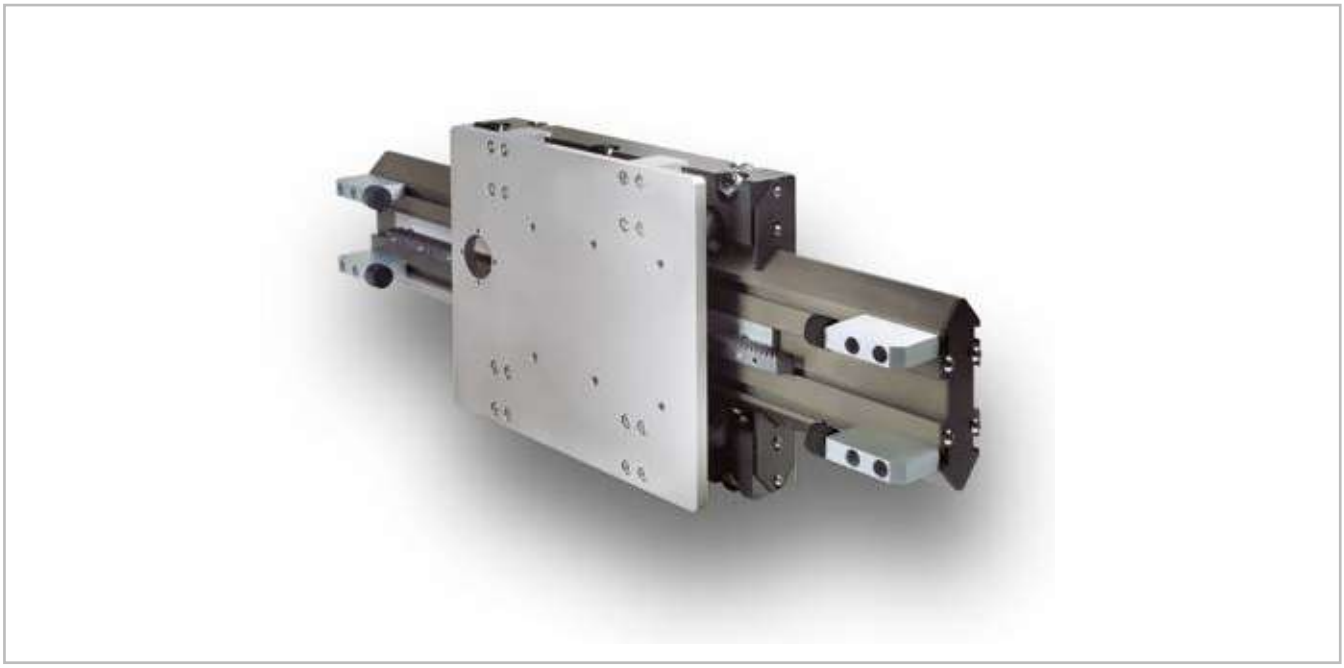


Fig. 29

SAR products are self-supporting extruded aluminum actuators driven by a rack and pinion system. Due to their deep hard anodized surface treatment and their plastic compound coated rollers, SAR series can achieve exceptionally high performances and load capacity with no maintenance or lubrication required. They also provide total reliability even in dirty environments, with uniquely quiet operation.

SAR series is defined by the use of **guides with cylindrical and V-shaped rollers** as linear motion components. These linear motion systems are lightweight, self-supporting, easy to assemble, cost effective, modular, clean and quiet. Thanks to this kind of solution they are specifically dedicated for dirty environments and high dynamics in automation. SAR series is available with profiles of different sizes: 120 -180 - 250 mm.

Some of the main **advantages** of SAR series are:

- High reliability
- Self-supporting for greatest design freedom
- High technical performance
- High load
- Optimal reliability in dirty environments
- Absence of lubrication
- Uniquely quiet
- Self-aligning system
- Potentially infinite strokes

The components

Extruded bodies

SAR beam is a heat-treated Aluminum alloy profile with hollow cross-sections which makes it very strong under torsion and deflection stresses. Beams are then subject to a special patented treatment which provides a smooth, hard surface, comparable to tempered steel, and an optimal resistance to wear, even in dirty environments.

Rack and pinion drive

The SAR series is driven by a rack and pinion system. This option is suitable to achieve long strokes and enables the possibility to mount and to manage multiple carriages. Hardened racks and pinions allow the system to work better in dirty environments, while straight teeth permit high load capacity, low noise and a smooth linear movement. SAR products can be provided with a lubrication kit, to eliminate periodic greasing operations.

Carriage

The carriage of the SAR series linear units is made of anodised aluminum. Different lengths of the carriages are available according to the different sizes.

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.

SAR with cylindrical and V-shaped rollers:

The SAR range includes a large selection of rollers both cylindrical and V-shaped, and sliders assembled with two or more rollers. SAR rollers are covered by a sintered plastic compound, resistant to pollutants and virtually maintenance-free. Ball and/or needle bearings with high performance are mounted into the rollers and can be maintained either with standard greasing procedure or lifetime lubricated. All roller boxes are equipped with concentric and eccentric pins for a quick adjustment of the contact between rollers and rail.

Supports are mounted on the frame when the rail is movable and on the trolleys when it is fixed.

SAR section

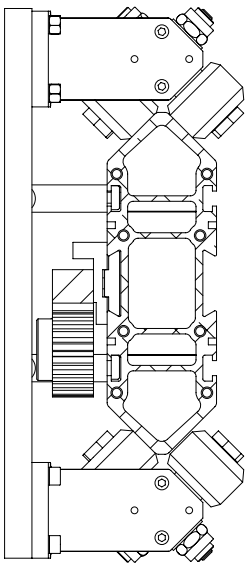
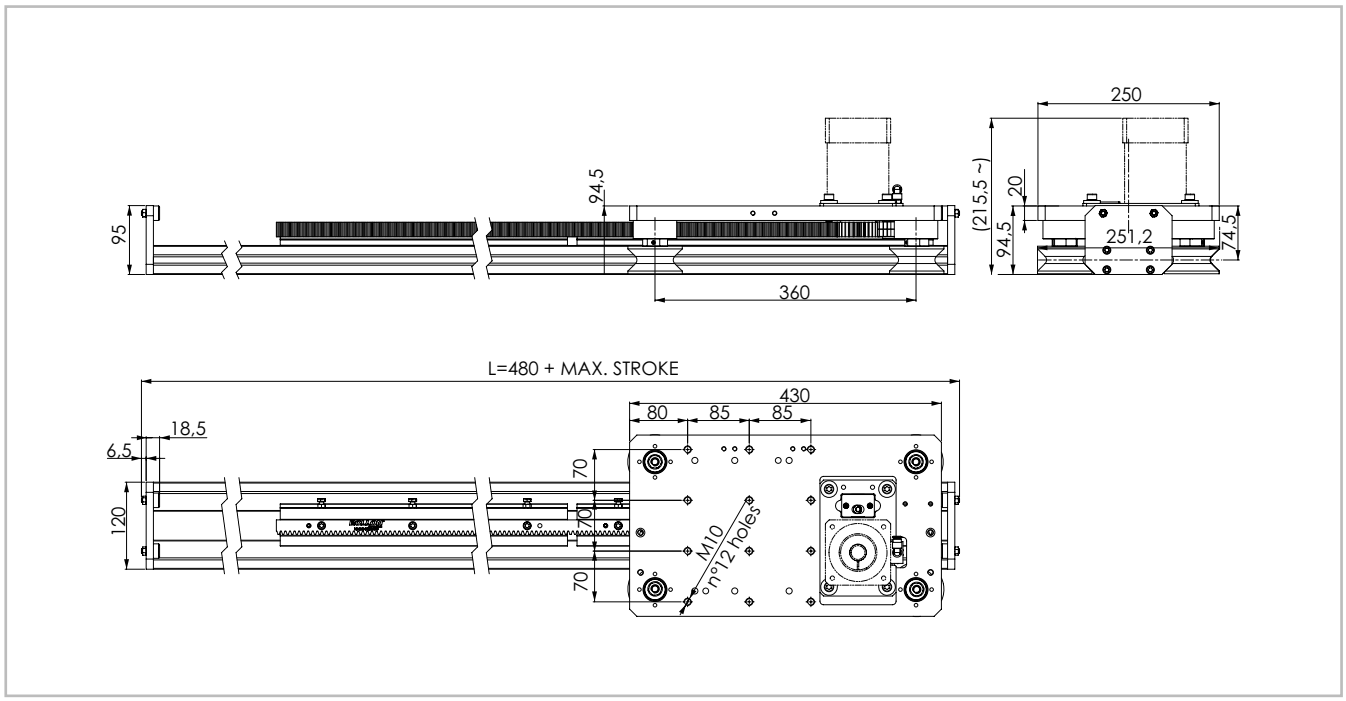


Fig. 30

SAR 120V

SAR 120V Dimension



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

Fig. 31

Technical data

	Type
	SAR 120V
Max. useful stroke length [mm]*1	NO LIMITS
Max. positioning repeatability [mm]*2	± 0.15
Max. speed [m/s]	3
Max. acceleration [m/s^2]	8
Rack module	m 2
Pinion pitch diameter [mm]	54
Carriage displacement per pinion turn [mm]	169.65
Carriage weight [kg]	7
Zero travel weight [kg]	12
Weight for 100 mm useful stroke [kg]	1.1
Rail size [mm]	120x40

*1) It is possible to obtain longer stroke by means of special Rollon joints
*2) Positioning repeatability is dependent on the type of transmission used

Tab. 44

Moments of inertia of the aluminum body

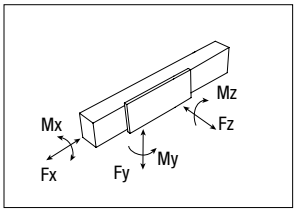
Type	I_x [10^7 mm^4]	I_y [10^7 mm^4]	I_p [10^7 mm^4]
SAR 120V	0.214	0.026	0.043

Tab. 45

Rack specifications

Type	Type of rack	Rack module	Quality
SAR 120V	Straight teeth Hardened	m 2	Q10

Tab. 46



Load capacity

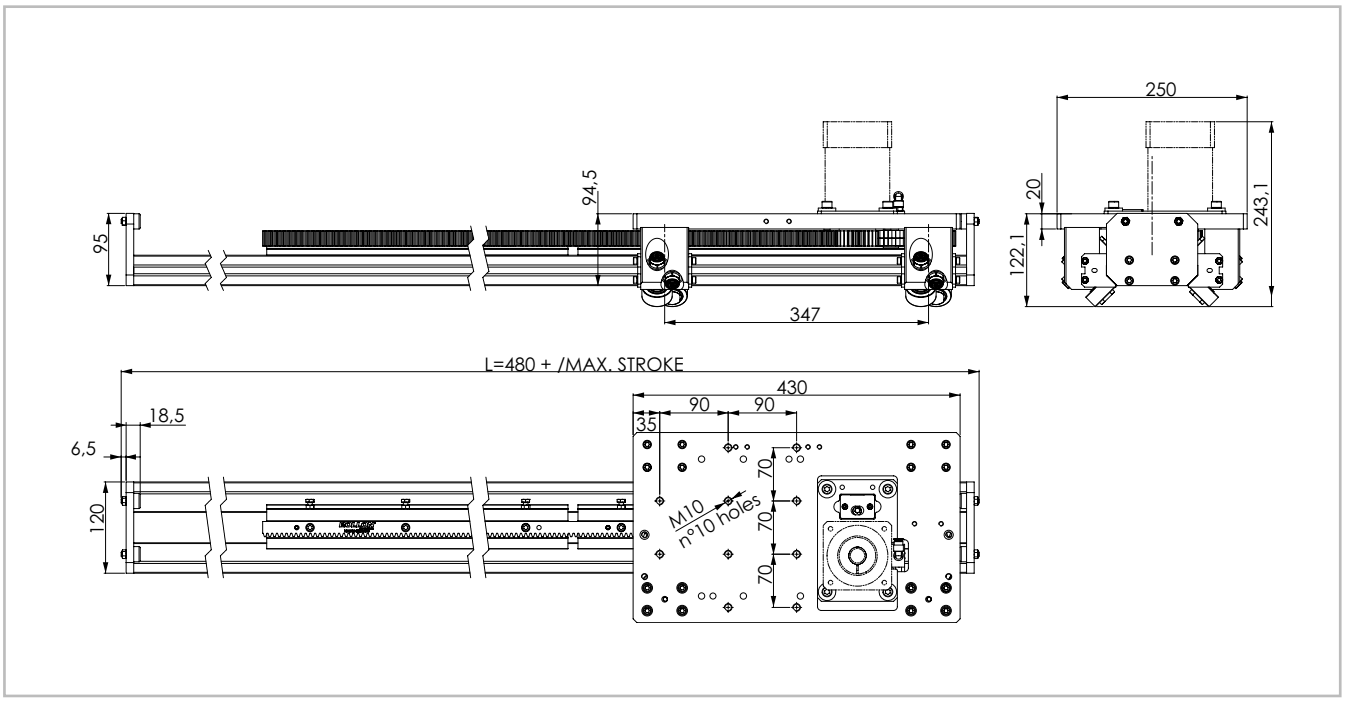
Type	F_x [N]	F_y [N]	F_z [N]	M_x [Nm]	M_y [Nm]	M_z [Nm]
SAR 120V	1633	1400	800	39.3	144	252

Non-cumulative moments referred to the median trolley axis and to a theoretical lifetime of the Speedy Rail guide and of the rollers of up to 80.000 km.

Tab. 47

SAR 120C

SAR 120C Dimension



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

Fig. 32

Technical data

	Type
	SAR 120C
Max. useful stroke length [mm]*1	NO LIMITS
Max. positioning repeatability [mm]*2	± 0.15
Max. speed [m/s]	3
Max. acceleration [m/s^2]	10
Rack module	m 2
Pinion pitch diameter [mm]	54
Carriage displacement per pinion turn [mm]	169.65
Carriage weight [kg]	8.4
Zero travel weight [kg]	13.5
Weight for 100 mm useful stroke [kg]	1.1
Rail size [mm]	120x40

*1) It is possible to obtain longer stroke by means of special Rollon joints
*2) Positioning repeatability is dependent on the type of transmission used

Tab. 48

Moments of inertia of the aluminum body

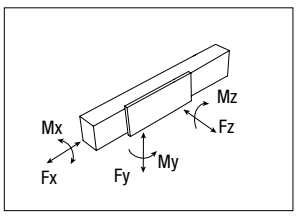
Type	I_x [10^7 mm^4]	I_y [10^7 mm^4]	I_p [10^7 mm^4]
SAR 120C	0.214	0.026	0.043

Tab. 49

Rack specifications

Type	Type of rack	Rack module	Quality
SAR 120C	Straight teeth Hardened	m 2	Q10

Tab. 50



Load capacity

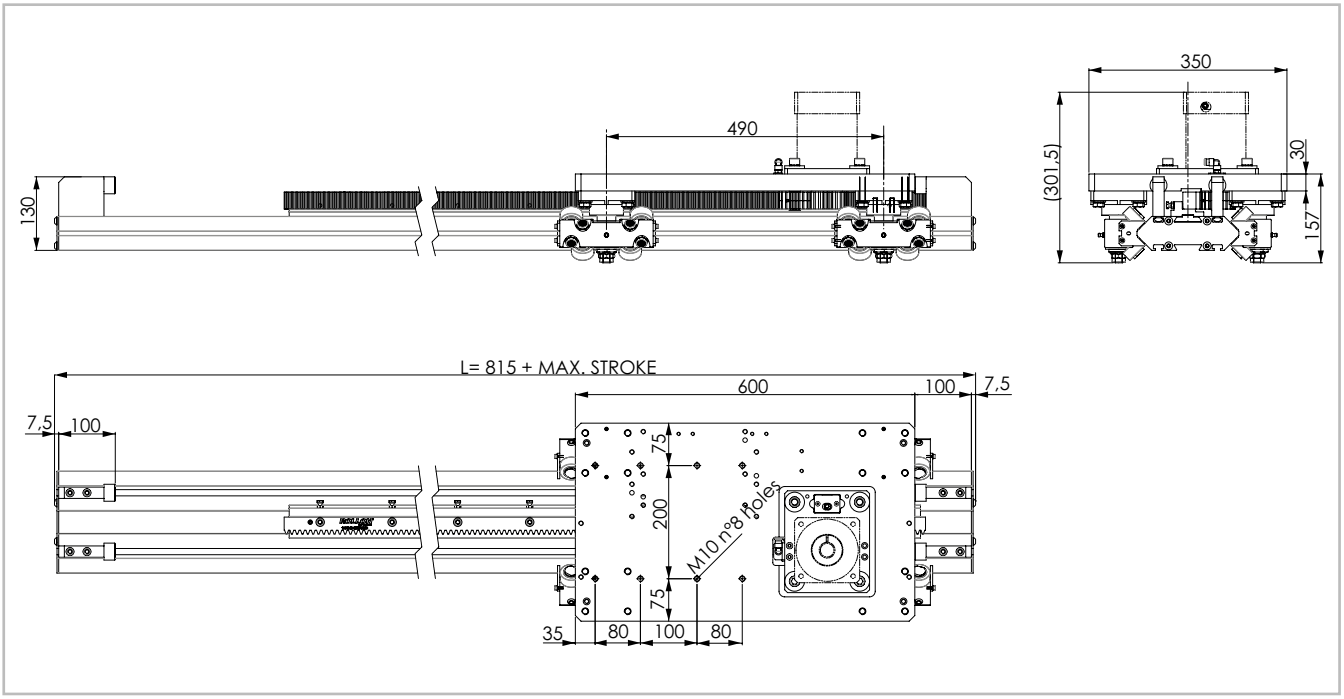
Type	F_x [N]	F_y [N]	F_z [N]	M_x [Nm]	M_y [Nm]	M_z [Nm]
SAR 120C	1633	2489	2489	98	432	432

Non-cumulative moments referred to the median trolley axis and to a theoretical lifetime of the Speedy Rail guide and of the rollers of up to 80.000 km.

Tab. 51

SAR 180C

SAR 180C Dimension



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

Fig. 33

Technical data

	Type
	SAR 180C
Max. useful stroke length [mm]*1	NO LIMITS
Max. positioning repeatability [mm]*2	± 0.15
Max. speed [m/s]	3
Max. acceleration [m/s²]	10
Rack module	m3
Pinion pitch diameter [mm]	63
Carriage displacement per pinion turn [mm]	197.92
Carriage weight [kg]	31.3
Zero travel weight [kg]	47
Weight for 100 mm useful stroke [kg]	2
Rail size [mm]	180x40

*1) It is possible to obtain longer stroke by means of special Rollon joints
*2) Positioning repeatability is dependent on the type of transmission used

Tab. 52

Moments of inertia of the aluminum body

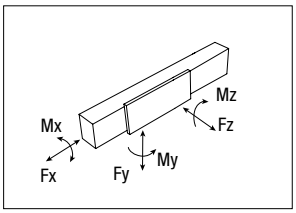
Type	I_x [10^7 mm⁴]	I_y [10^7 mm⁴]	I_p [10^7 mm⁴]
SAR 180C	1.029	0.128	0.260

Tab. 53

Rack specifications

Type	Type of rack	Rack module	Quality
SAR 180C	Straight teeth Hardened	m3	Q10

Tab. 54



Load capacity

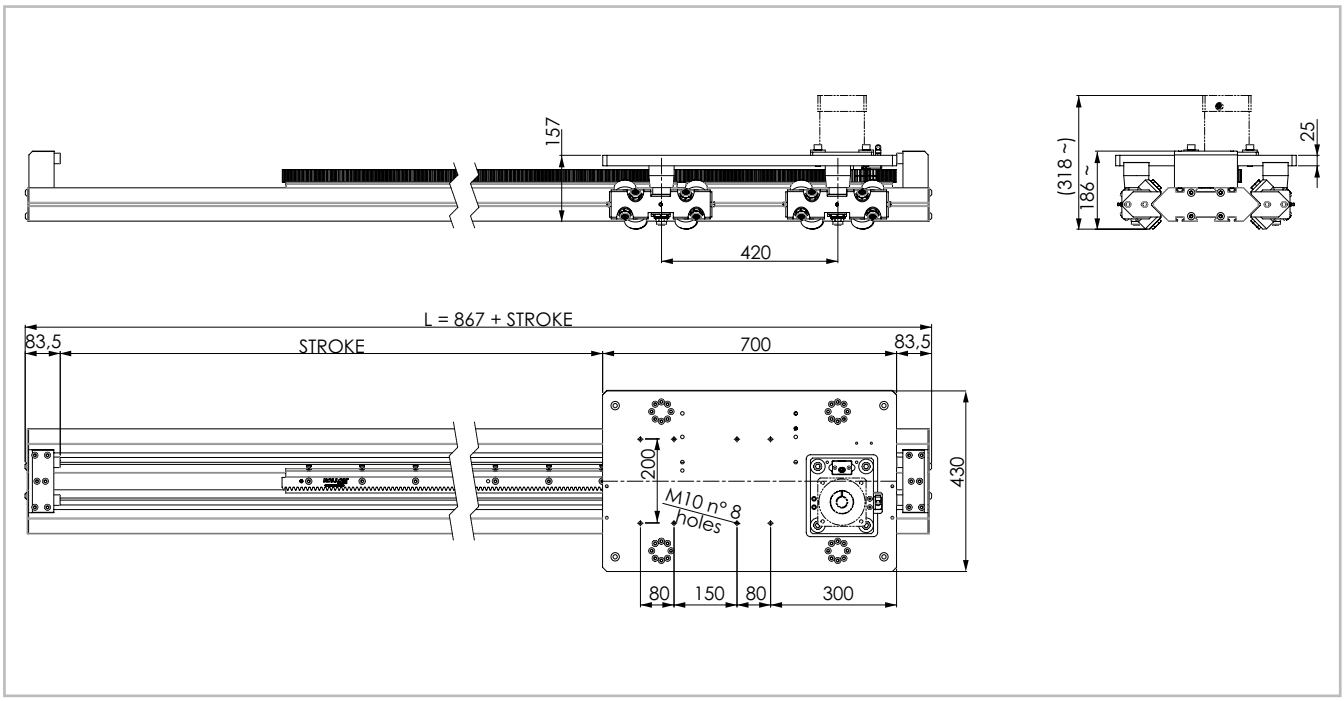
Type	F_x [N]	F_y [N]	F_z [N]	M_x [Nm]	M_y [Nm]	M_z [Nm]
SAR 180C	1905	4978	4978	246	1220	1220

Non-cumulative moments referred to the median trolley axis and to a theoretical lifetime of the Speedy Rail guide and of the rollers of up to 80.000 km.

Tab. 55

SAR 250C

SAR 250C Dimension



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

Fig. 34

Technical data

	Type
	SAR 250C
Max. useful stroke length [mm]*1	NO LIMITS
Max. positioning repeatability [mm]*2	± 0.15
Max. speed [m/s]	3
Max. acceleration [m/s^2]	10
Rack module	m3
Pinion pitch diameter [mm]	63
Carriage displacement per pinion turn [mm]	197.92
Carriage weight [kg]	40
Zero travel weight [kg]	64
Weight for 100 mm useful stroke [kg]	2.5
Rail size [mm]	250x180

*1) It is possible to obtain longer stroke by means of special Rollon joints
*2) Positioning repeatability is dependent on the type of transmission used

Tab. 56

Moments of inertia of the aluminum body

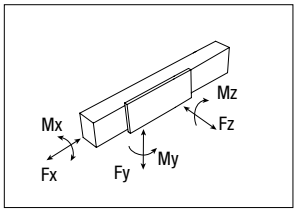
Type	I_x [10^7 mm^4]	I_y [10^7 mm^4]	I_p [10^7 mm^4]
SAR 250C	2.735	0.412	0,840

Tab. 57

Rack specifications

Type	Type of rack	Rack module	Quality
SAR 250C	Straight teeth Hardened	m3	Q10

Tab. 58



Load capacity

Type	F_x [N]	F_y [N]	F_z [N]	M_x [Nm]	M_y [Nm]	M_z [Nm]
SAR 250C	1905	7240	7240	744	1521	1521

Non-cumulative moments referred to the median trolley axis and to a theoretical lifetime of the Speedy Rail guide and of the rollers of up to 80.000 km.

Tab. 59

Rack specifications

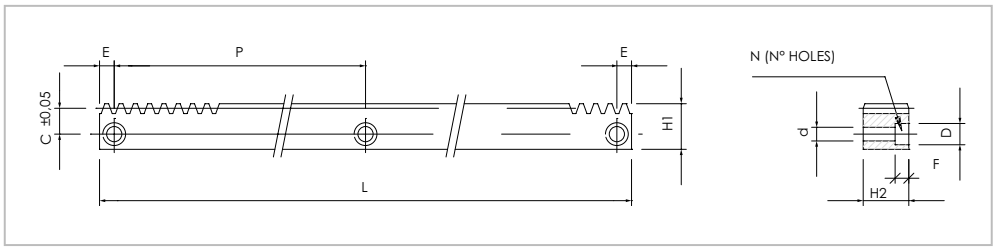


Fig. 35

Code	C	D	d	E	F	H1	H2	L	N	P	Mod.	Surface treatment / Material
1006919	10	11	7	62.8	7	20	20	1005.31	8	125.7	2	Black manganese phosphating/SAE1141
1006920	10	11	7	62.8	7	20	20	2010.6	16	125.7	2	Black manganese phosphating/SAE1141
1006430	10	11	7	19.41	7	20	20	998.82	9	120	2	Stainless steel AISI 304
1006242	18	15	10	63.6	9	30	30	1017.6	8	127.2	3	Black manganese phosphating/SAE1141
1006243	18	15	10	63.6	9	30	30	2035.2	16	127.2	3	Black manganese phosphating/SAE1141

Tab. 60

Lubrication

Programmable automatic rack lubrication

Grease is delivered by means of a programmable cartridge (average life: ca. 1 year) (a). The grease is spread evenly on the racks through a felt pinion (1). You will need one kit per rack.

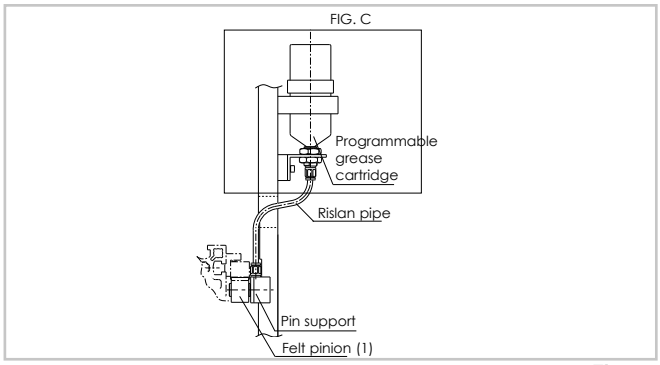


Fig. 36

Accessories

Kit spacer

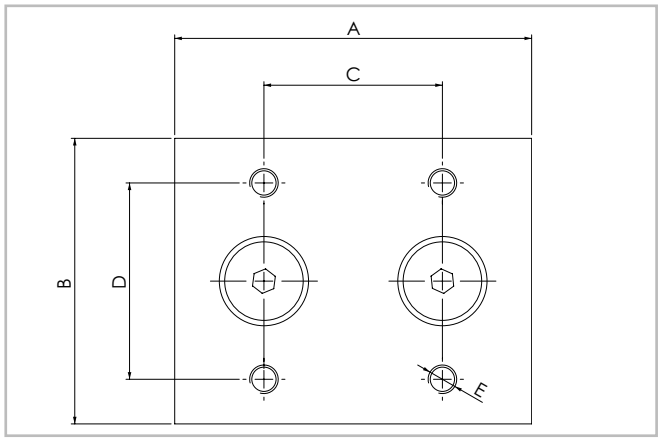


Fig. 37

Unit	A	B	C	D	E	Kit Code
SAR 120	100	80	50	55	M8	G002362
SAR 180	100	125	50	70	M10	G002466
SAR 250	100	145	50	80	M12	G002523

Tab. 61

Adapter flange for gearbox assembly

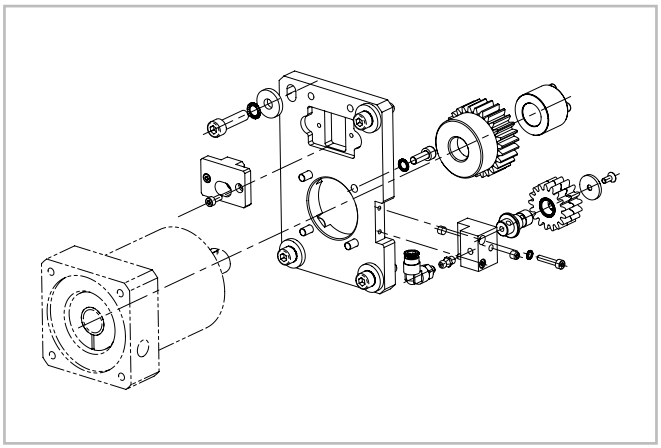


Fig. 38

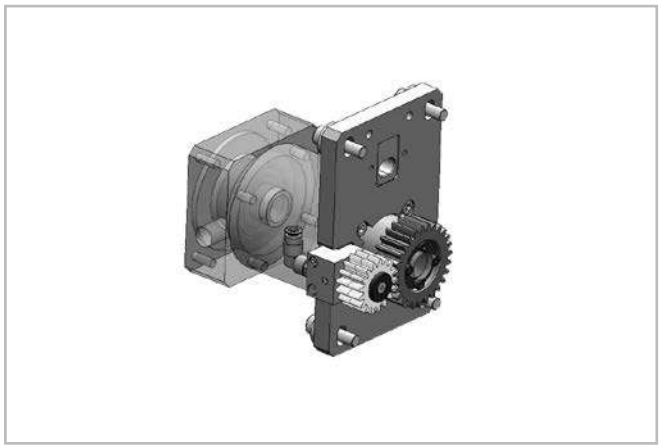


Fig. 39

Assembly kit includes: shrink disk; adapter plate; fixing hardware

Unit	Gearbox type (not included)	Kit Code
SAR 120	MP080	G002853
SAR 180 **SAR 250**	MP080 MP105	G003120 G002854

Tab. 62

For other gearbox type ask Rollon

Insert for: SAR 180C - SAR 180V - SAR 250C

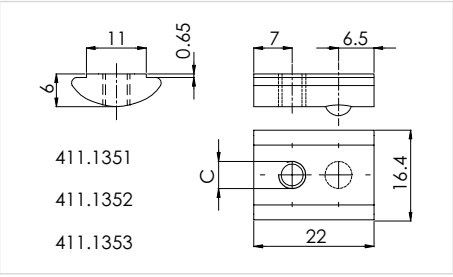
M5	Steel Std.	
M6	Steel Std.	
M8	Steel Std.	

Fig. 40

Quick front insert for: SAR 180C - SAR 180V - SAR 250C

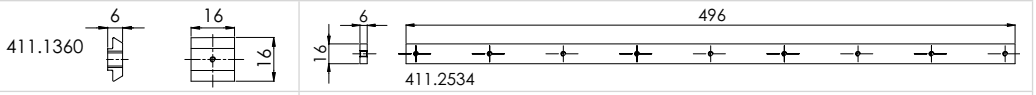
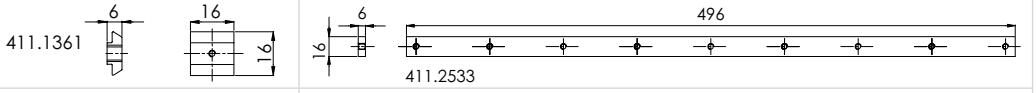
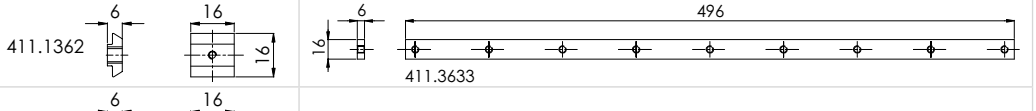
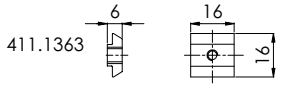
M4	Steel Std.	
M5	Steel Std.	
M6	Steel Std.	
M8	Steel Std.	

Fig. 41

Dovetails for: SAR 120C - SAR 120V - SAR 180C - SAR 180V - SAR 250C

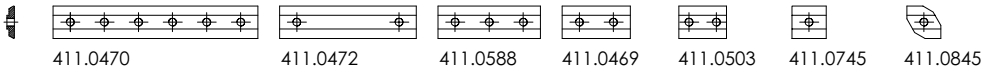
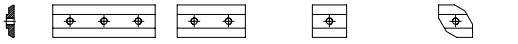
M12	Steel Std.	
M12	Steel Std.	
M10	Steel Std.	
M10	Steel Std.	
M8	Steel Std.	
M6	Steel Std.	
M8	Steel Std.	

Fig. 42

Ordering key

Identification codes for the SAR linear unit

SR	C V	12=120 18=180 25=250	1A	02000	1A=standard 1B=inox	
				L = total length of the unit		
			Multiple carriages: 1A=1 carriage, 2A=2 carriages, ... , 9A=9 carriages			
		Linear unit size see from pg. SRA-30 to pg. SRA-33				
	Roller type C=cylindrical, V=V-shaped					
SAR Series *see pg. SRA-27*						

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

Configure Actuator

Left/right orientation