

# RC SERIES ELECTRIC CYLINDERS FOR STEPPING & SERVOMOTORS



*Look Ahead!*

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## INTRODUCING R.T.A. GROUP



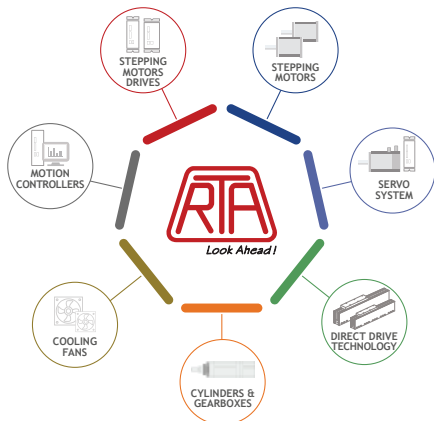
Founded in 1976 in Pavia (Italy), R.T.A. is a leading player in the industrial automation industry, with specific excellence in the core business: design and production of Stepping Motor Solutions.

Over the years the product portfolio and the technical expertise have expanded, integrating motion controllers, servo systems, cooling fans, gearboxes and the latest electric cylinders.

Today the “complete R.T.A. solution” responds to the most diverse motion control needs with a solid range of products and highly specialized technical support.

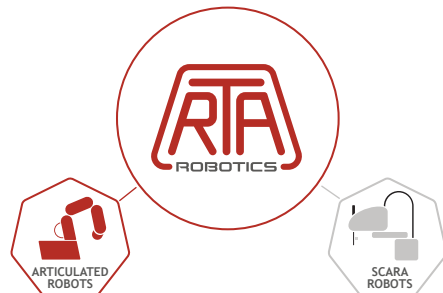
In 2021 R.T.A. launched R.T.A. Robotics, which offers high-performance integrated robotics solutions.

### SINCE 1976



### SINCE 2021

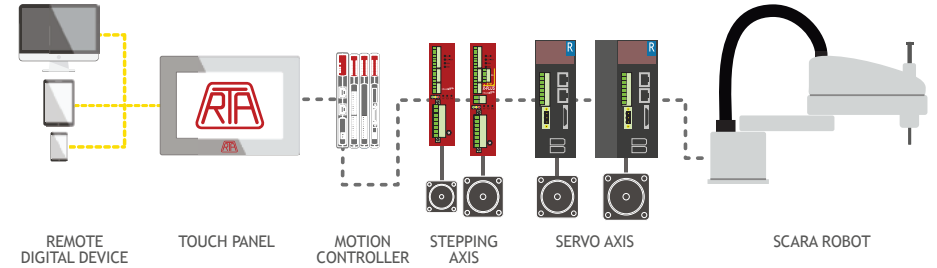
R.T.A. Robotics is focused on the robotic market with a dedicated technical team and a comprehensive portfolio of solutions made up by 6-axis articulated robots and 4-axis SCARA robots.



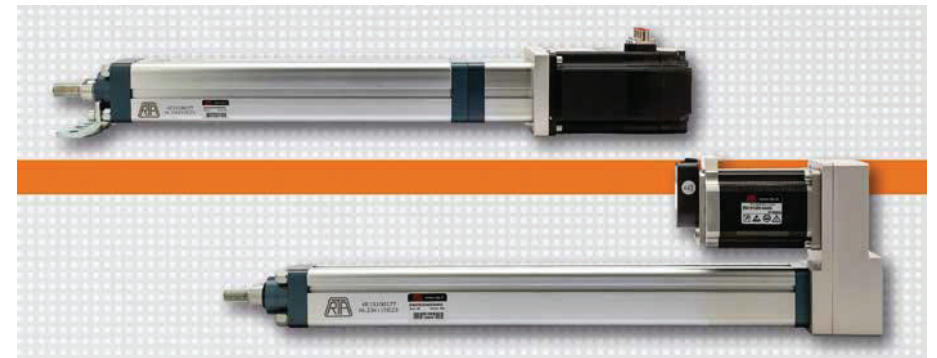
## ROBOTICS & AUTOMATION IN TRUE TECHNICAL SINERGY

There is a strong commercial and technical synergy between Automation and Robotics and R.T.A. offers a true integration between robots and machines,

thanks to its more than 45 years of experience in hardware solutions and a solid know-how in software engineering.



## INTRODUCING R.T.A. ELECTRIC CYLINDERS



RC series is a full range of electric cylinders, combining high performances, excellent resistance and versatility, with possible customization, according to the technical characteristics of the application.

Two versions available:

- With recirculating ball profile, for high tip loads and whenever significant screw rotation speeds and good precision are required.
- With trapezoidal profile, when the peak load is very low or negligible in the system, i.e. when low loads, low speeds and lower accuracy are required.

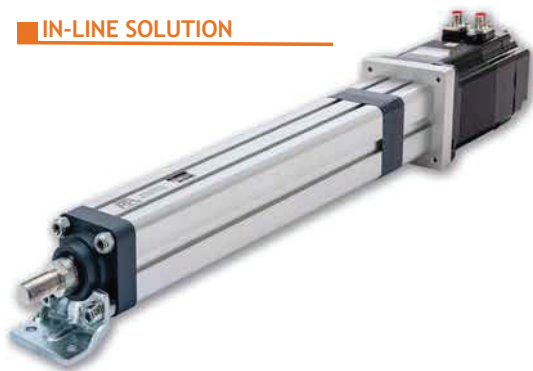
Perfectly compatible with R.T.A. stepping and servomotors, forming a reliable modular system, electric cylinders can match with different types of motors and accessories:

- NEMA 23, NEMA 24 and NEMA 34 flange stepping motors.
- Up to 7500 W servomotors.
- Integrated electronics stepping motor (COMBO-UNIT solutions).
- Stepping motors with encoder and/or brake.
- Stepping or servomotors with gearbox.

# STEPPING SOLUTION



## IN-LINE SOLUTION



## PARALLEL SOLUTION



### R.T.A. STEPPING MOTORS

- Flange size: NEMA 23, NEMA 24, NEMA 34.
- Holding torque from 0,65 Ncm to 920 Ncm.
- Encoder and/or brake versions available.

### R.T.A. STEPPING MOTOR DRIVES

- Drive types: EtherCAT, Modbus TCP/IP, Step/Dir, Analog input, Programmable.
- Current range from 0,1 A to 10 A.
- Operating voltage range: from 24 VDC to 230 VAC.
- UL/CSA certified versions.



### R.T.A. FRONT BRAKES

- Flange size: NEMA 23, NEMA 24, NEMA 34.
- 24 VDC power supply.
- M12 connectors.

### R.T.A. COMBO-UNIT

- Five motor sizes series of stepping motor with integrated drives.
- EtherCAT interface.
- Incremental or battery less absolute encoder versions.

# SERVO SOLUTION



### R.T.A. PLANETARY GEARBOXES

- Stepping and servomotor versions for different flange sizes.
- Gearbox body from 40 mm to 120 mm.



### R.T.A. SERVO MOTORS

- 48 VDC - Incremental encoder.
- 230 VAC - Battery less Absolute encoder.
- 230 VAC - Incremental encoder.
- 400 VAC - Incremental encoder.



### R.T.A. SERVOAMPLIFIERS

- 48 VDC servoamplifiers.
- 230 VAC servoamplifiers.
- 400 VAC servoamplifiers.



## KEY ADVANTAGES OF R.T.A. ELECTRIC CYLINDERS

- Motion transmission using large, strong and durable ball screw.
- Anti-rotation device onboard on all models.
- High resistance to radial loads due to oversized stem diameter.
- Modular solution with high scalability.
- Extremely compact and easy-to-install motor + cylinder solution.
- Different options of pitch-screws for motion transmission.
- Extensive customization possibilities.
- Aluminium structure tested for systems where high strength is required.

## ISO 15552

R.T.A electric cylinders comply with ISO 15552 standard and are fully compatible with most of the accessories for pneumatic solutions on the market.

## TECHNICAL FEATURES & SUGGESTED MOTORS

SIZE		32		40		50		63			
Screw pitch	mm	5	10	4	12.7	5	10	16	5	10	20
Actuator flange	mm	60X60		70X70		86X86		90X9			
Standard stroke up to	mm	800		1000		1200		1400			
Suggested stepping motor		NEMA 23 NEMA 24		NEMA 23 NEMA 24		NEMA 34		NEMA 34			
Suggested servo motor		100 W 200 W		200 W 400 W		400W 750 W		750 W 1000 W			
Maximum axial force	N	2100	2100	3000	3400	6400	5400	6400	9500	7300	7300
Average axial force for 2500 km life	N	832	698	702	1375	1594	1573	2276	1854	1542	2453
Maximum speed	mm/s	556	1111	381	1333	444	889	1422	333	667	1333
Maximum acceleration	m/s <sup>2</sup>	3.2	6.4	2.5	8.1	3.2	6.4	10.2	3.2	6.4	12.7
Maximum air humidity (without condensation)	%	90									
Actuator protection degree		IP44 o IP65									
Accuracy	mm	± 0.035									
Reference standard		ISO 15552									
Duty cycle	%	100									
Internal rotation stopper		Available on all sizes									
Rod end		Male or female									
Rod material		Chromium plated (standard) Stainless steel upon request									
Mounting		On front cap or with accessories									
End stroke sensor		Available on all sizes									

NOTE: the technical data refer to the cylinder only, without the motor

NOTE 2: the technical data refer to the standard screw version cylinder, for the oversized screw data contact R.T.A.

	80			100			125		
	5	10	25	10	20	20	10	20	20
	130X130			150X150			185X185		
	1800			2400			3000		
	\			\			\		
	1500 W 2000 W			2000 W 3000 W			3500 W 4500 W 7500 W		
	12100	11500	12700	53500	53500	88300			
	2064	2538	3635	12442	12302	19744			
	267	533	1333	351	702	533			
	3.2	6.4	15.9	6.4	12.7	12.7			

## R.T.A. PLUG&GO SOLUTION

### AN EXAMPLE OF IN-LINE SOLUTION



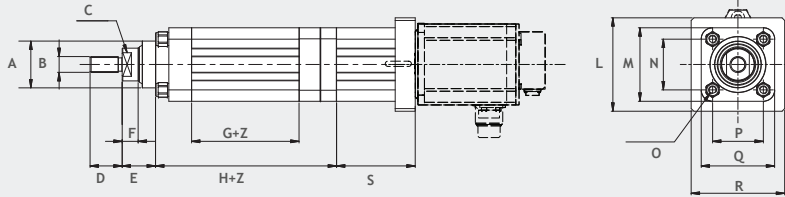
R.T.A. offers an exclusive professional assembly service of stepping and servomotors with the wide range of electric cylinders.

- Select the characteristics you need for the electric cylinders and any accessories and motors from our wide range of possibilities.
- Our highly qualified staff will make the assembly and testing of the products.  
The assembled motor/accessories/cylinder combo is ready to use.
- More assembled products - only one code to manage. No more storage charges, assembly and quality control.



## MECHANICAL DIMENSIONS (mm) FOR STANDARD BALL SCREW

### IN-LINE SOLUTION



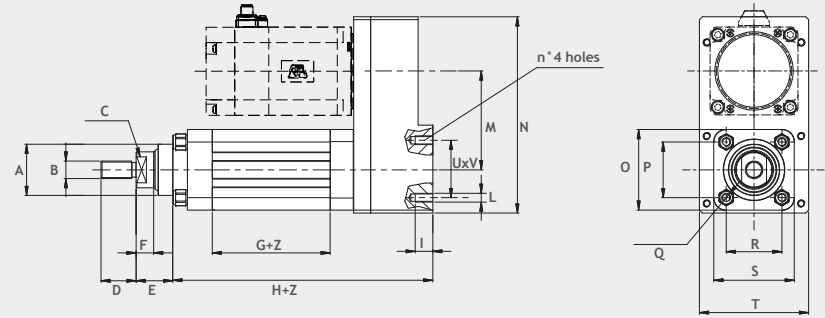
SIZE	32	40	50	63	80	100	125
A	Ø30h7	Ø35h7	Ø40h7	Ø45h7	Ø60h7	Ø90h7	Ø125h7
B	M10x1.25	M12x1.25	M16x1.5	M16x1.5	M20x1.5	M42x2	M48x2
C	CH15	CH17	CH20	CH24	CH42	CH65	CH80
D	22	24	32	32	40	70	96
E	22.5	25	25	28	34	42.3	63
F	10	12	12	12	16	16	21
G+Z	73.5 + Z (for BS* 12x5)	80.5 + Z (for BS* 12.7x12.7)	83.2 + Z (for BS* 16x5)	93.1 + Z (for BS* 20x5)	121.4 + Z (for BS* 25x5)	166.5 + Z (for BS* 38x10)	
	73.5 + Z (for BS* 12x10)	64.5 + Z (for BS* 14x4)	83.2 + Z (for BS* 16x10)	93.1 + Z (for BS* 20x10)	121.4 + Z (for BS* 25x10)	166.5 + Z (for BS* 38x20)	247 + Z (for BS* 50x20)
			85.2 + Z (for BS* 16x16)	95.1 + Z (for BS* 20x20)	121.4 + Z (for BS* 25x25)		
H+Z	120.4 + Z (for BS* 12x5)	135.6 + Z (for BS* 12.7x12.7)	148.3 + Z (for BS* 16x5)	163.1 + Z (for BS* 20x5)	233.2 + Z (for BS* 25x5)	321.1 + Z (for BS* 38x10)	
	120.4 + Z (for BS* 12x10)	119.6 + Z (for BS* 14x4)	148.3 + Z (for BS* 16x10)	163.1 + Z (for BS* 20x10)	233.2 + Z (for BS* 25x10)	321.1 + Z (for BS* 38x20)	422.5 + Z (for BS* 50x20)
			150.3 + Z (for BS* 16x16)	165.1 + Z (for BS* 20x20)	233.2 + Z (for BS* 25x25)		
L	60	70	86	90	130	150	185
M	45.5	55	63.5	77	98	120	150
N	32.5	38	46.5	56.5	72	89	110
O	M6x13	M6x13	M8x15	M8x16	M12x22	M14x28	M16x30
P	32.5	38	46.5	56.5	72	89	110
Q	45.5	55	63.5	77	98	120	150
R	60	70	86	90	130	150	185

Z: Stroke up value - BS\*: Ball screw (Diameter Ø x Pitch)

Note: for the mechanical measurements of the oversized screw or acme screw versions, please, contact R.T.A.

SIZE	MOTOR TYPE		S	SIZE	MOTOR TYPE		S		
32	STEPPER	NEMA 23	52,7	63	STEPPER	NEMA 34	82,5		
		NEMA 24	52,7			750 W	92,5		
		100 W	57,1				1000 W	87,5	
40	SERVO	200W	62,1	80	SERVO	1500 W		97,2	
		400 W	66,4			2000 W	102,2		
		750 W	81,4				100	SERVO	2000 W
50	STEPPER	NEMA 23	53,5	100	SERVO	3000 W			123,6
		NEMA 24	53,5			3500 W			166,6
		200 W	66,4				4500 W	166,6	
50	SERVO	400 W	66,4	125	SERVO	7500 W		180,6	
		750 W	81,4						

### PARALLEL SOLUTION



SIZE	32	40	50	63	80	100	125
A	Ø30h7	Ø35h7	Ø40h7	Ø45h7	Ø60h7	Ø90h7	Ø125h7
B	M10x1.25	M12x1.25	M16x1.5	M16x1.5	M20x1.5	M42x2	M48x2
C	CH15	CH17	CH20	CH24	CH42	CH65	CH80
D	22	24	32	32	40	70	96
E	22.5	25	25	28	34	42.3	63
F	10	12	12	12	16	16	21
G+Z	73.5 + Z (for BS* 12x5)	80.5 + Z (for BS* 12.7x12.7)	83.2 + Z (for BS* 16x5)	93.1 + Z (for BS* 20x5)	121.4 + Z (for BS* 25x5)	166.5 + Z (for BS* 38x10)	
	73.5 + Z (for BS* 12x10)	64.5 + Z (for BS* 14x4)	83.2 + Z (for BS* 16x10)	93.1 + Z (for BS* 20x10)	121.4 + Z (for BS* 25x10)	166.5 + Z (for BS* 38x20)	247 + Z (for BS* 50x20)
			85.2 + Z (for BS* 16x16)	95.1 + Z (for BS* 20x20)	121.4 + Z (for BS* 25x25)		
H+Z	161.25 + Z (for BS* 12x5)	177.6 + Z (for BS* 12.7x12.7)	196.3 + Z (for BS* 16x5)	231.6 + Z (for BS* 20x5)	302.9 + Z (for BS* 25x5)	397.8 + Z (for BS* 38x10)	
	161.25 + Z (for BS* 12x10)	161.5 + Z (for BS* 14x4)	196.3 + Z (for BS* 16x10)	231.6 + Z (for BS* 20x10)	302.9 + Z (for BS* 25x10)	397.8 + Z (for BS* 38x20)	514.2 + Z (for BS* 50x20)
			198.3 + Z (for BS* 16x16)	233.6 + Z (for BS* 20x20)	302.9 + Z (for BS* 25x25)		
I	11	10.5	14	15	16	30	32
L	M6	M6	M8	M8	M10	M14	M16
M	67.5	67.5	82.5	90	120	148	200
N	130	134	164	186	243	300	380
O	45.5	55	63.5	77	98	120	150
P	32.5	38	46.5	56.5	72	89	110
Q	M6x13	M6x13	M8x15	M8x16	M12x22	M14x28	M16x30
R	32.5	38	46.5	56.5	72	89	110
S	45.5	55	63.5	77	98	120	150
T	65	74.5	90	99	136	159	198
UxV	32.5x32.5	38x38	46.5x46.5	56.5x56.5	72x72	64x133	133x168

Z: Stroke up value - BS\*: Ball screw (Diameter Ø x Pitch)

Note: for the mechanical measurements of the oversized screw or acme screw versions, please, contact R.T.A.

## R.T.A. ELECTRIC CYLINDERS ENCODING MODEL

**ROD END**  
 M = Male thread (standard)  
 F = Female thread  
 C = Clevis cap  
 S = Spherical cap  
 L = Self-centring coupler  
 X = Special

**ANTI-ROTATION + BRAKE**  
 B = Anti-rotation and brake version  
 A = Brake version  
 0 = No anti-rotation and no brake version  
 1 = Anti-rotation version

**MOTOR SERIES**  
 HH = H motor series  
 SM = SM motor series  
 RM = RM motor series  
 VM = VM motor series  
 R2 = R2 motor series  
 EM = EM motor series

**SCREW TYPE**  
 S = Ball screw  
 T = Lead screw  
 R = Roller screw  
 M = Oversized ball screw

**SIZE**  
 032, 040, 050,  
 063, 080,  
 100, 125

**RC 063-1350-S 10-HH782X-BTT0L-053-3N030-000**

R.T.A. electric cylinders series name

**STROKE (mm)**  
 Max 800 mm for size 032  
 Max 1000 mm for size 040  
 Max 1200 mm for size 050  
 Max 1400 mm for size 063  
 Max 1800 mm for size 080  
 Max 2400 mm for size 100  
 Max 3000 mm for size 125

**SCREW LEAD (mm)**  
 04 = 4 mm for lead screw  
 05 = 5 mm - 04 = 4 mm  
 10 = 10 mm - 12 = 12 mm  
 13 = 12.7 mm - 16 = 16 mm  
 20 = 20 mm  
 25 = 25 mm

**MOTOR TYPE**  
 712X = For H7123 and H7126 motor series  
 782X = For H7823 and H7822 motor series  
 2861 = For SM2861 motor series  
 286X = For SM2862 and SM2863 motor series  
 0X00 = For R2 200W and R2 400W motor series  
 0400 = For R2 400W motor series  
 0750 = For R2 750W motor series  
 1000 = For R2 1000W motor series

**MOUNTING TYPE**  
 T = Front threaded holes (standard)  
 A = Front flange (MF1)  
 C = Rear clevis (MP2)  
 D = Rear eye (MP4)  
 G = Feet (MS1)  
 L = Intermediate trunnions (MT4)

**FLANGE TYPE / MOTOR MOUNTING FLANGE**  
 1 = Parallel (ratio 1:1) (standard)  
 L = In line  
 2 = Parallel (ratio 1:2)

**BACKLASH (ARCMIN)**  
 0 = no gearbox coupled  
 3 = 3' 5 = 5' 6 = 6' 8 = 12' 9 = 15'

**END STROKE SENSOR PCS**  
 N = None A = Single  
 D = Double T = Triple  
 Q = Quadruple

**LUBRIFICATION POINT**  
 N = None  
 (compulsory for EC\*3-032)  
 0 = Centred ore 12 o'clock  
 3 = Centred 3 o'clock  
 6 = Centred 6 o'clock  
 9 = Centred 9 o'clock

**NUMBERS OR LETTERS**  
 Coding for possible special P/N  
 For servomotors:  
 1 = Incremental encoder  
 2 = Absolute encoder  
 For stepping motors with encoder:  
 1 = 400 cpr with index version  
 2 = 4000 cpr with index version

0 = standard screw  
 M = Oversized screw

**ROD OFFSET**  
 0 = No offset (standard)  
 1 = Offset 10 mm  
 Custom offset on request

**END STROKE SENSOR TYPE**  
 0 = No sensor  
 1 = PNP normally open  
 2 = PNP normally closed  
 3 = NPN normally open  
 4 = NPN normally closed

**MOTOR POSITION**  
 0 = 12 o'clock  
 3 = 3 o'clock  
 6 = 6 o'clock  
 9 = 9 o'clock

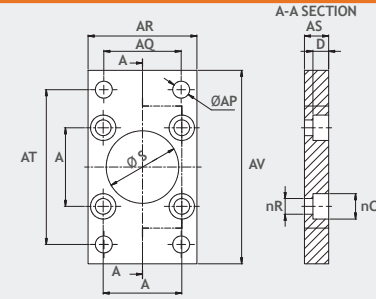
**GEAR RATIO**  
 00 0 no gearbox coupled  
 03 = 3  
 05 = 5  
 09 = 9  
 10 = 10  
 25 = 25

**CYLINDER PROTECTION DEGREE**  
 N = IP44  
 S = IP65  
 0 = Not specified

## ACCESSORIES

The range of accessories is not limited to just the examples shown here. Contact R.T.A. for further information on all the available accessories and for the special versions.

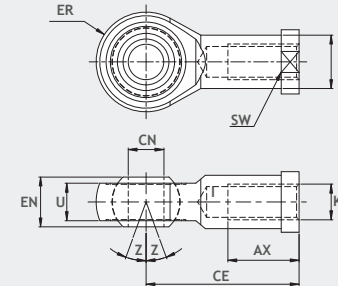
### FRONT FLANGE



TYPE	SIZE	S	A	AP	R	AS	AR	AQ	AT	AV	C	D
FFP-032	032	30	32.5	7	6.5	10	45	32	64	80	10.5	6.5
FFP-040	040	35	38	9	6.5	10	52	36	72	90	10.5	6.5
FFP-050	050	40	46.5	9	8.5	12	65	45	90	110	13.5	8.5
FFP-063	063	45	56.5	9	8.5	12	75	50	100	120	13.5	8.5
FFP-080	080	60	72	12	12.5	18	95	63	126	150	19	13
FFP-100	100	90	89	14.5	14.5	20	115	75	150	170	22	15
FFP-125	125	125	110	16.5	16.5	25	140	90	180	205	25	18

NOTE: Withstands the same loads as for cylinders - dimensions in mm

### SPHERICAL EYE (ISO 8139)



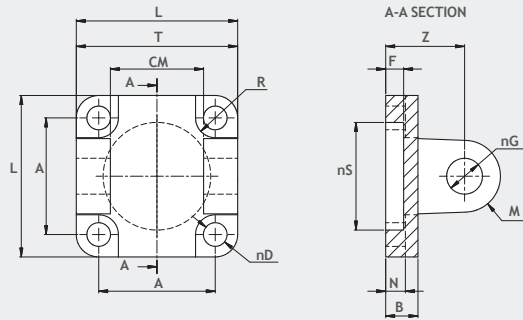
TYPE	SIZE	KK	CN	U	EN	ER	AX	CE	T	Z	SW	MAX LOAD (N)
SPP-M10	032	M10x1.25	10	10.5	14	28	20	43	15	6.5	17	3500
SPP-M12	040	M12x1.25	12	12	16	32	22	50	17.5	6.5	19	4750
SPP-M16	050	M16x1.5	16	15	21	42	28	64	22	7.5	22	12000
SPP-M16	063	M16x1.5	16	15	21	42	28	64	22	7.5	22	12000
SPP-M20	080	M20x1.5	20	18	25	50	33	77	27.5	7	30	13000
SPP-M42	100	M42x2	40	33	49	91	60	142	53	8	55	65000
SPP-M48	125	M48x2	50	45	60	117	65	162	65	7	65	77000

NOTE: Please contact us for heavier loads.- dimensions in mm

10 NOTE: the range of possible combinations is not limited to the codes shown here. Contact R.T.A. for further informations.

11

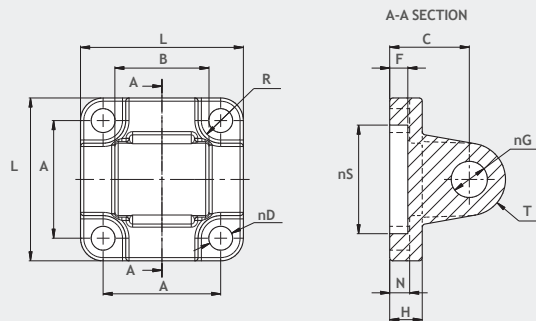
## REAR CLEVIS



TYPE	SIZE H9	G ± 0.2	A	L H13	D H13	R ± 0.5	N	B H11	S	F ± 0.2	Z	M H14	CM H14	T (N)	MAX LOAD
RPC-032	032	10	32.5	45	6.6	11	5.5	9	30	5	22	10	26	45	1760
RPC-040	040	12	38	52	6.6	11	5.5	9	35	5	25	12	28	52	3230
RPC-050	050	12	46.5	65	9	15	6.5	11	40	5	27	12	32	60	5150
RPC-063	063	16	56.5	75	9	15	6.5	11	45	5	32	16	40	70	7010
RPC-080	080	16	72	95	11	18	10	14	45	5	36	16	50	90	12060
RPC-100	100	25	110	140	14	20	10	20	60	7	50	25	70	130	20220
RPC-125	125	30	140	180	18	26	10	20	65	7	55	25	90	170	32730

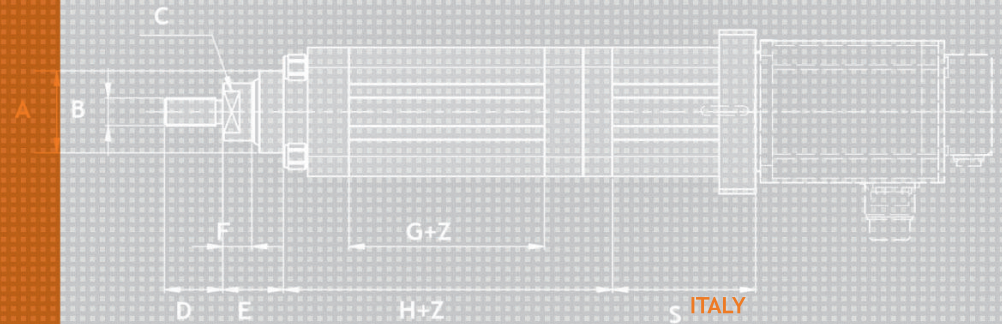
NOTE: The pin is to be ordered separately  
The clevis withstands loads up to the value indicated in the table. For heavier loads please contact us.  
Dimensions in mm

## REAR EYE



TYPE	SIZE H9	G ± 0.2	A	L H13	D H13	R ± 0.5	N	H H11	S	F ± 0.2	C MAX	T -0.2-0.6 (N)	B	MAX LOAD
REP-032	032	10	32.5	45	6.6	11	5.5	9	30	5	22	10	26	2410
REP-040	040	12	38	52	6.6	11	5.5	9	35	5	25	12	28	3770
REP-050	050	12	46.5	65	9	15	6.5	11	40	5	27	12	32	5890
REP-063	063	16	56.5	75	9	15	6.5	11	45	5	32	16	40	9550
REP-080	080	16	72	95	11	18	10	14	45	5	36	16	50	15080
REP-100	100	25	110	140	14	20	10	20	60	7	50	25	70	23560
REP-125	125	30	140	180	18	26	10	26	65	7	55	25	90	36820

12 NOTE: Please contact us for heavier loads - dimensions in mm



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