Series 1500 Ecompact

These cylinders are built according to ISO 21287 standards. New barrel profile has two sensor slots on the three sides (Ø 20 and Ø 25 one slot) suitable for sensors 1580._, MRS._, MHS._ series housing, without need for adaptors.
Versions with end stroke adjustable pneumatic cushioning are also available, allowing adjustments to deceleration and keeping the required overall dimensions according to ISO 21287.
For fixing operation is possible to use the four threaded holes on the end covers, or screws in body holes, alternatively all the fixing devices of UNITOP RU-P/6-P/7 (Ø20 and Ø25) and ISO 15552 (from Ø32 to Ø100) series.

Construction characteristics

Body	anodized aluminium
Piston rod bushings	sintered bronze
Seals	standard: NBR Oil resistant rubber, PUR Piston rod seals (PUR or FPM on request)
Springs	stainless steel
Pistons	from Ø20 to Ø40 acetal resin (aluminium on request), Ø50 and Ø100 aluminium (with FPM seals, aluminium piston for all standard diameters)
Piston rod	from Ø 20 to Ø 25 stainless steel from Ø32 to Ø100 C43 chromed (on request stainless steel)
End caps	aluminium alloy casting painted
Fixing screws	zinc plated steel

Operational characteristics

Fluid	filtered and preferably lubricated air or not (if lubricated the lubrication must be continuous)
Max. pressure	10 bar
Working temperature	-5°C ... +70°C with standard seals (magnetic or non magnetic piston) -30°C ... +80°C with PUR seals (magnetic or non magnetic piston) -5°C ... +80°C with FPM seals (magnetic piston) -5°C - +150°C with FPM seals (non magnetic piston)

Please follow the suggestions below to ensure a long life for these cylinders:
- use clean and lubricated air.
- correct alignment during assembly with regard to the applied load so as to avoid radial components or bending the rod.
- avoid high speeds together with long strokes and heavy loads: this would produce kinetic energy which the cylinder cannot absorb, especially if used as a limit stop (in this case use mechanical stop device).
- evaluate the environmental characteristics of cylinder used (high temperature, hard atmosphere, dust, humidity etc.).

Please note: air must be dried for applications with lower temperature.
Use hydraulic oils H class (ISO VG32) for correct continued lubrication.

Stroke tolerance, minimum and maximum spring loads and cushioning length

Bore (mm)	Stroke tolerance (mm)	Minimum springs load (N)	Maximum springs load (N)	Cushioning length (mm)
Ø20	+ 1,5 / 0 mm	10,8	19,6	/
Ø25		16,7	22,6	5
Ø32	+ 2 / 0 mm	19,6	25,5	6,5
Ø40		25,5	42,2	8
Ø50		44,1	96,3	7,5
Ø63	+ 2,5 / 0 mm	44,1	96,3	7,5
Ø80		63,8	100,1	8
Ø100		107,9	193,3	12

Standard strokes

DOUBLE ACTING BASIC version and THROUGH ROD CYLINDER version

Cylinders with longer strokes than those in the chart are also available.
The end user is responsible for the load applied on the product and for its correct use.
For special applications, please get in touch with our sales rep.

	Stroke																											
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	100	125	150	160	200	250	300	320	350	400	450	500
Bore	WITHOUT CUSHIONING DEVICE																											Maximum suggested strokes
Ø20	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●							450
Ø25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●							
Ø32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					650
Ø40	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
Ø50	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
Ø63	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
Ø80	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ø100	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Bore	WITH CUSHIONING DEVICE																											Maximum suggested strokes
Ø20																												450
Ø25					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●							
Ø32					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					650
Ø40					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
Ø50					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
Ø63					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
Ø80					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ø100					●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

DOUBLE ACTING THROUGH ROD CYLINDER BORED version

Cylinders with longer strokes than those in the chart are also available.
The end user is responsible for the load applied on the product and for its correct use.
For special applications, please get in touch with our sales rep.

	Stroke																											
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	25	30	35	40	45	50	55	60	65	70	75	80
Bore	WITHOUT CUSHIONING DEVICE																WITH CUSHIONING DEVICE											Maximum suggested strokes
Ø20	●	●	●	●	●	●	●	●	●	●																		110
Ø25	●	●	●	●	●	●	●	●	●	●							●	●	●	●	●	●						
Ø32	●	●	●	●	●	●	●	●	●	●							●	●	●	●	●	●						125
Ø40	●	●	●	●	●	●	●	●	●	●							●	●	●	●	●	●						
Ø50	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	150
Ø63	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	
Ø80	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	200
Ø100	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

DOUBLE ACTING version WITH NON-ROTATING DEVICE

Cylinders with longer strokes than those in the chart are also available, exceptionally for applications without twisting moments and/or radial loads on the anti-rotation device.

	Stroke																										
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	25	30	35	40	45	50	55	60	65	70	75	80
Bore	WITHOUT CUSHIONING DEVICE																WITH CUSHIONING DEVICE											
Ø20	●	●	●	●	●	●	●	●																				
Ø25	●	●	●	●	●	●	●	●									●	●	●	●								
Ø32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ø40	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ø50	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ø63	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ø80	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ø100	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

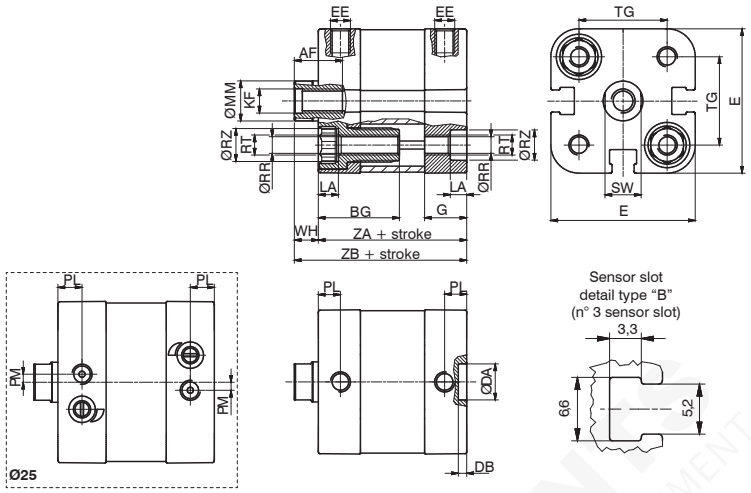
SINGLE ACTING version

Please get in touch with our sales rep. for dimensions over 25 mm stroke.

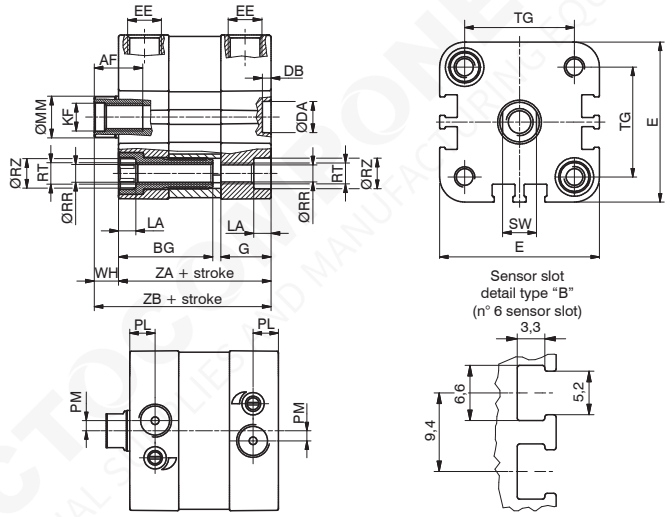
	Bore							
Stroke	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
5	●	●	●	●	●	●	●	●
10	●	●	●	●	●	●	●	●
15	●	●	●	●	●	●	●	●
20	●	●	●	●	●	●	●	●
25	●	●	●	●	●	●	●	●
Maximum suggested strokes	75							

BASIC version double and single acting

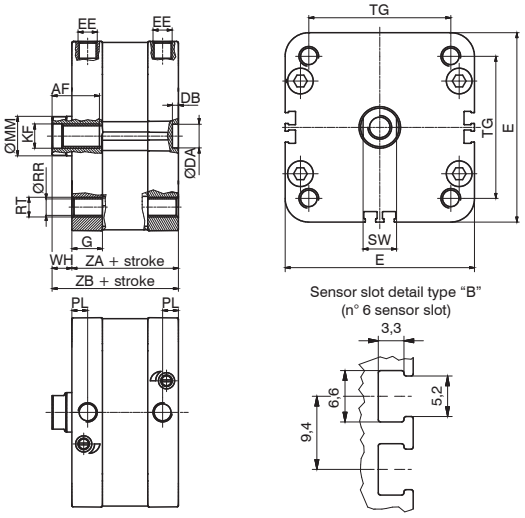
Ø20 and Ø25



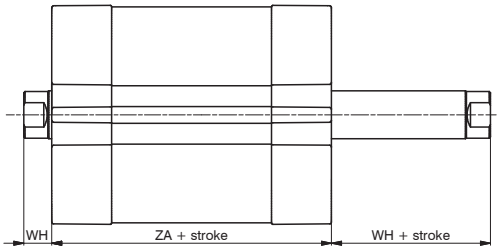
from Ø32 to Ø63



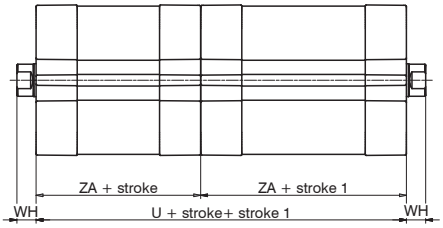
Ø80 and Ø100



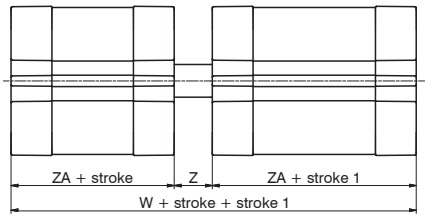
THROUGH ROD CYLINDER version, double and single acting



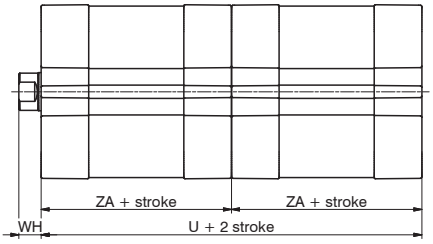
TANDEM version with opposed rods



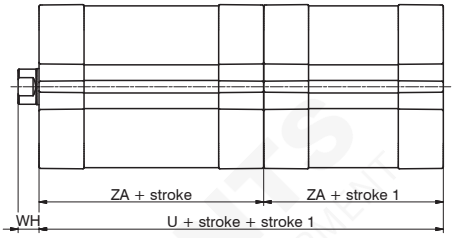
TANDEM version opposed common rod



TANDEM version push with common rods



TANDEM version push with independent rods



Ordering code

Basic and Through rod cylinder version

15 _ _ .Ø.stroke. _ _ . _

- **1**= magnetic piston, Double acting
- **2**= magnetic piston, Single acting with front spring
- **3**= magnetic piston, Single acting with rear spring
- **4**= non magnetic piston, Double acting
- **5**= non magnetic piston, Single acting with front spring
- **6**= non magnetic piston, Single acting with rear spring

**
- **01**= Basic, female threaded rod
- **02**= Basic, male threaded rod
- **03**= through rod, female threaded rod
- **04**= through rod, male threaded rod
- **05**= through rod, bored female threaded rod
- **06**= through rod, bored male threaded rod
- **07**= with non-rotating device
- **08**= through rod, female threaded rod, with non-rot. device on one side ***
- **09**= through rod, male threaded rod, with non-rot. device on one side ***

- **0**=NBR seals and C43 chromed plated rod*
- **1**=NBR seals and stainless steel rod (starting from bore Ø32)
- **4**=PUR seals and C43 chromed plated rod *
- **5**=PUR seals and stainless steel rod (starting from bore Ø32)
- **6**=FPM seals and C43 chromed plated rod*
- **7**=FPM seals and stainless steel rod (starting from bore Ø32)

* (Ø20 and Ø25 stainless steel)

- **4**=Non-cushioned versions (mechanical cushioning only)
- **5**=Versions with adjustable end of stroke cushioning system (from Ø25)

** It is possible to order the Ø20, Ø25, Ø32 and Ø40 cylinders with an aluminium piston by replacing the '0' with 'K' in the ordering code.
Example: 1540.20.10.01.1 (Acetyl Resin Piston)
1540.20.10.K1.1 (Aluminium Piston version)

*** for single acting version, the spring is on the anti-rotation side

TANDEM version (magnetic pistons)

15 _ _ . Ø .stroke. (stroke 1) . _

C= female threaded rod **G**= male threaded rod **H**= with through rod and female threaded rod **R**= with through rod and male threaded rod **N**= with non-rotating device	**Tandem push with common rods**
B= female threaded rod **F**= male threaded rod **M**= with non-rotating device **P**= with through rod and female threaded rod **Q**= with through rod and male threaded rod	**Tandem push with independent rods**
D= **Opposed tandem with common rod**	
A= female threaded rod **E**= male threaded rod **L**= with non-rotating device on both ends	**Tandem with opposite rods**

- **0**=NBR seals and C43 chromed plated rod*
- **1**=NBR seals and stainless steel rod (starting from bore Ø32)
- **4**=PUR seals and C43 chromed plated rod*
- **5**=PUR seals and stainless steel rod (starting from bore Ø32)
- **6**=FPM seals and C43 chromed plated rod*
- **7**=FPM seals and stainless steel rod (starting from bore Ø32)

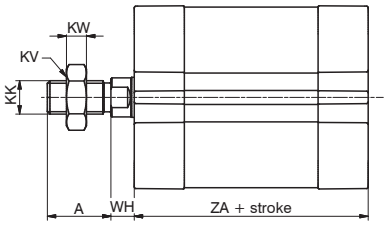
* (Ø20 and Ø25 stainless steel)

- **4**= Non-cushioned version (mechanical cushioning only)
- **5**= Versions with adjustable end of stroke cushioning system (from Ø25)

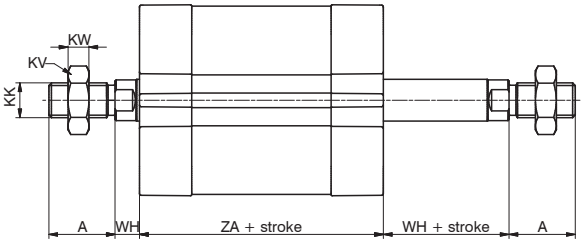
Seals compounds scheme: **NBR** oil resistant nitrilic rubber
PUR: polyurethane seals **FPM**: fluoropolymer rubber seals

Bore		Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
AF (min)		12	12	14	14	18	18	24	24
BG		20	20	16	16	16	16	/	/
DA (H9)		9	9	9	9	12	12	12	12
DB (+0,1/0)		2,1	2,1	2,5	2,5	2,6	2,6	3	3
E (max)		36	40,5	47,5	55	66	78	96	116
EE		M5	M5	G1/8	G1/8	G1/8	G1/8	G1/8	G1/8
G		10,5	12	14,5	15	15	15	15,5	18,5
KF		M6	M6	M8	M8	M10	M10	M12	M12
LA (0/-0,1)		4.1	4,1	5	5	5	5	/	/
MM (f7)		10	10	12	12	16	16	20	25
PL (+0,1/0)		5,5	6	7,5	8	8	8	8	8
PM		/	2	3	/	/	/	/	/
RR (min)		4,1	4,1	5,1	5,1	6,6	6,6	8,4	8,4
RT		M5	M5	M6	M6	M8	M8	M10	M10
RZ (min)		7,5	7,5	8,5	8,5	10,5	10,5	/	/
SW (0/-0,1)		9	9	10	10	13	13	17	22
TG (±0,2)		22	26	32,5	38	46,5	56,5	72	89
U		74	78	88	90	90	98	108	134
W		83	89	100	103	105	113	124	154
WH (±1)		6	6	7	7	8	8	10	10
Z		9	11	12	13	15	15	16	20
ZA (±0,5)		37	39	44	45	45	49	54	67
ZB (+1/0)		43	45	51	52	53	57	64	77
Weight (g)	stroke	105	110	200	270	420	550	760	1400
	every 5mm	10	10,5	13	17	23,5	27	37	51

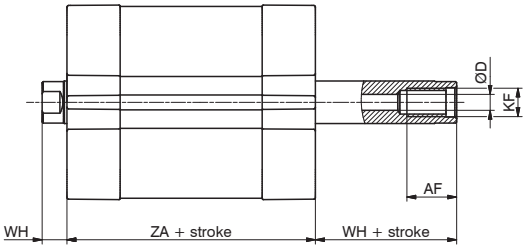
Basic version male piston rod



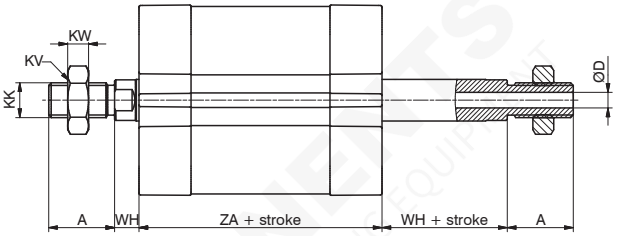
Through rod cylinder version male rod



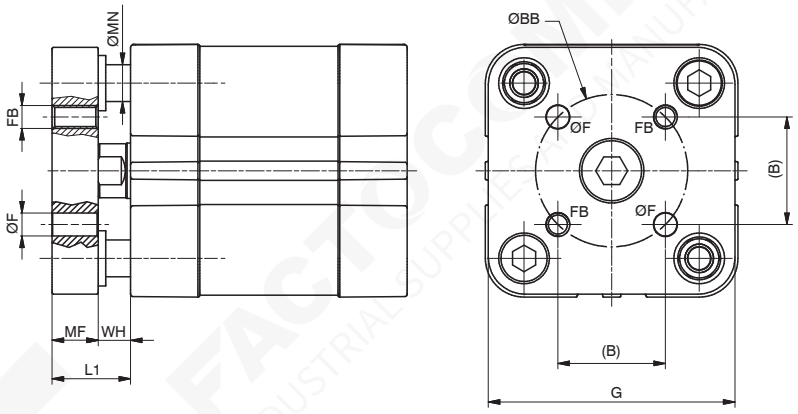
Through rod cylinder version bored female piston rod



Through rod cylinder version bored male piston rod



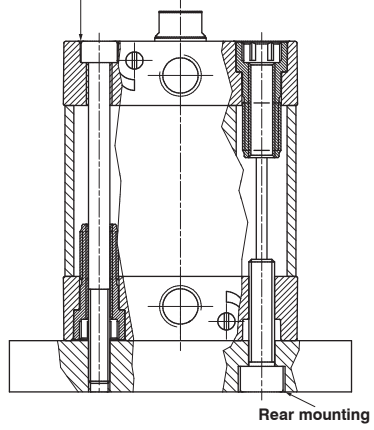
Non-rotating version



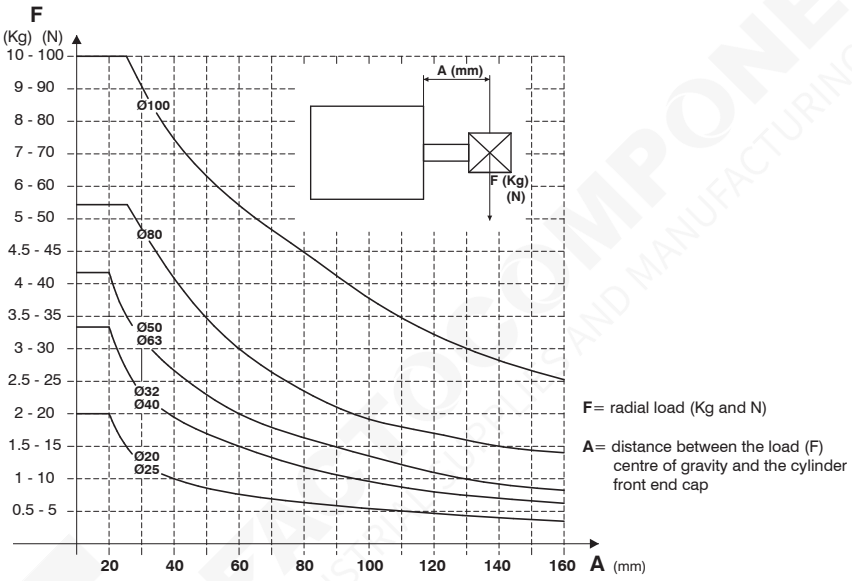
Bore	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
A (0/-0,5)	16	16	19	19	22	22	28	28
AF (min)	12	12	14	14	18	18	24	24
B	12	15,6	19,8	23,3	29,7	35,4	46	56,6
BB (±0,1)	17	22	28	33	42	50	65	80
D	3	3,8	4,5	4,5	6	6	8	10
F (+0,1/0)	4	5	5	5	6	6	8	10
FB	M4	M5	M5	M5	M6	M6	M8	M10
G	35	39,5	45	52	65	75	95	115
KF	M6	M6	M8	M8	M10	M10	M12	M12
KK	M8x1,25	M8x1,25	M10x1,25	M10x1,25	M12x1,25	M12x1,25	M16x1,5	M16x1,5
KV	13	13	17	17	19	19	24	24
KW	5	5	6	6	7	7	8	8
L1	14	14	17	17	20	20	24	24
MF (+0,1/0)	8	8	10	10	12	12	14	14
MN (f7)	6	6	8	8	10	10	12	12
WH (±1)	6	6	7	7	8	8	10	10
ZA (±0,5)	37	39	44	45	45	49	54	67

Alternative fixing options

Frontal mounting
- from Ø20 to Ø40 bolt head
- the use of non-magnetic screws is recommended



Admissible maximum radial load diagram

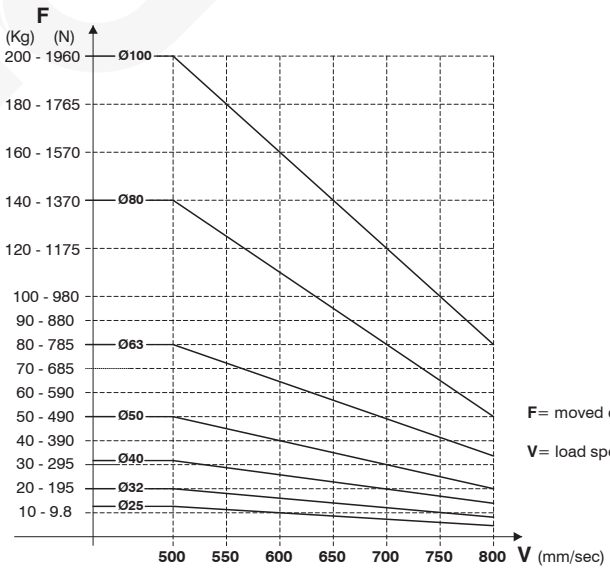


F= radial load (Kg and N)

A= distance between the load (F) centre of gravity and the cylinder front end cap

The diagram shows the maximum radial load **F** (in Newtons) that can be applied to the cylinder piston rod as a function of the distance **A** (in mm), based upon the standard version cylinder under static conditions.
Important: Do not exceed the recommended values in the table as reduced life or damage to the cylinder may result.

End of stroke cushioning capacity diagram



F= moved cylinder load (Kg and N)

V= load speed

The diagram shows, for each diameter, the safety curves relative to the maximum loads which can be moved by the cylinder in function of it's speed **V**. The data has been calculated under the following test conditions: Cylinder mounted vertically with the rod pointing down, air pressure at 5 bar and with a guided load.
Important: Do not exceed the recommended values in the table as reduced life or damage to the cylinder may result.