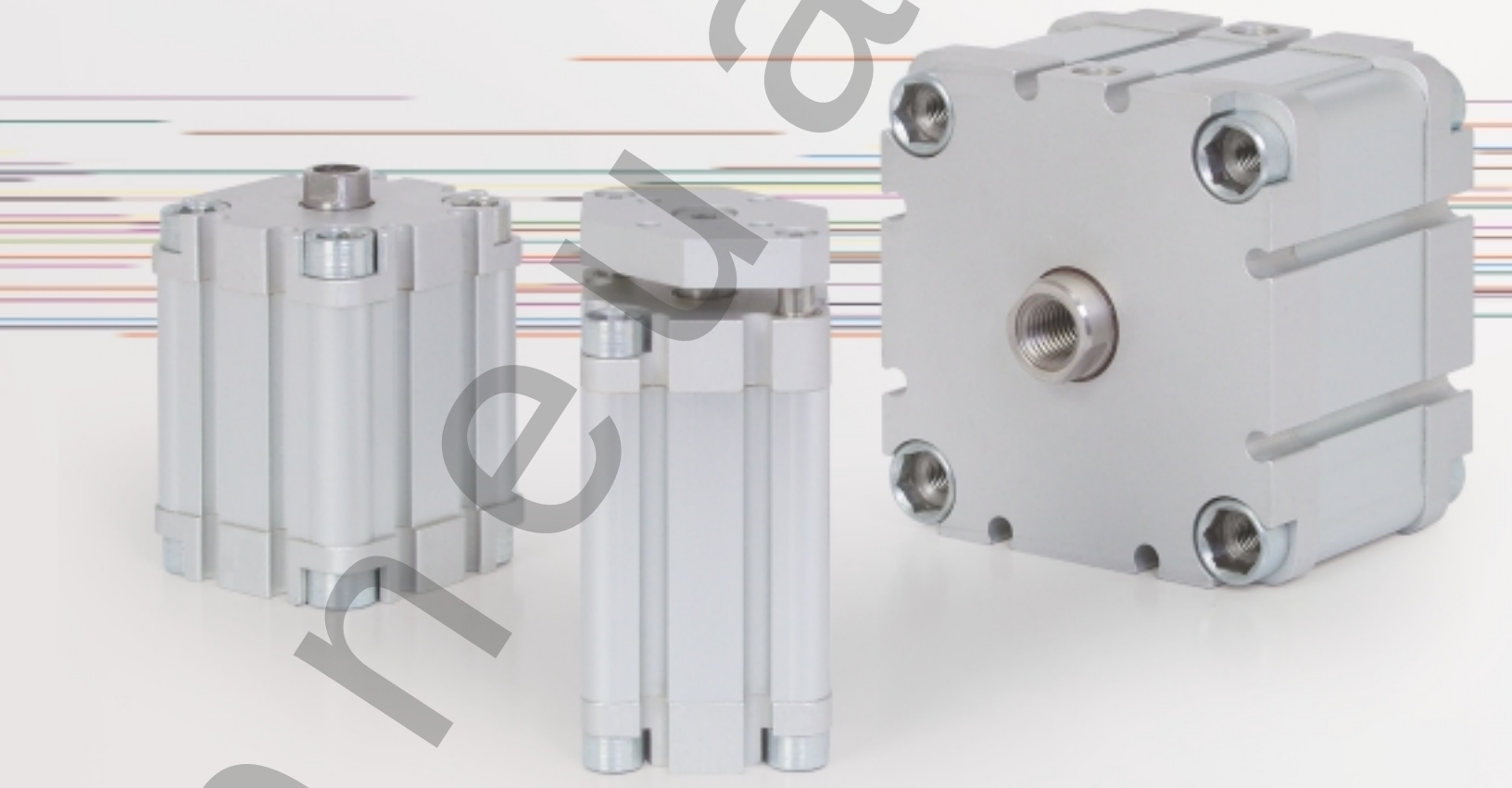
numatics®

Cylinders



K Series

Metric Compact Cylinder Line

We're everywhere you need us to be!

K Series

Rev. 11/03

ORDER ONLINE

numatics®

K Series
Metric Compact

The **K Series** is a metric compact cylinder line. It is specifically designed to maximize performance while minimizing space requirements. The aluminum extruded tubing features threaded body and through-hole mounting. This provides flexibility and dependability in any design application. A unique design features about the K Series is that recessed switches fit flush with the cylinder body to economize space and protect the switch from damage. More positive features of the K Series include: ISO/VDMA mounting interchangeability and porting flexibility. The K Series is an extremely proficient and diverse product that will exceed all of your requirements.

Tube
The **tube** is hard coat anodized. The hard coating is an electro-chemical process, which produces a very dense surface of aluminum oxide. This surface has extreme hardness (60 RC.), excellent wear and corrosion resistance, and low coefficient of friction. Additionally, profile tubing includes flush mount switch grooves.

End Caps
The bolt-on anodized aluminum **end caps** are available with either NPT or G ports.

Rod Bushing
The K Series includes DU® composite **rod bushing** for maximum load bearing support.

Rod Seal and Wiper
The quad ring **rod seal** and **wiper** ensures proper sealing.

Piston Rod
The stainless steel **piston rod** is roller burnished. This surface provides maximum life for both the rod bushing and the seals.

Piston Seal
The bi-directional, air activated PZ **piston seal** ensures proper sealing even at low pressures.

Piston
The solid aluminum alloy **piston** is strong and durable.

Tube End Seal and Bumper
The **tube end seal** also doubles as a **bumper** for increased longevity.

Wear Band
A Delrin® **wearband** is located at the rear of the piston.

Standard Specifications:
- One piece ring magnet
- Bore sizes from 32 mm to 100 mm
- Nominal pressure rating is 150 psi air
- Standard temperature -10°F to 165°F (-23°C to 74°C)
- All aluminum construction
- NPT and G ports
- Flexible port locating

DU® is a registered trademark of the Dana Corporation.
Delrin® is registered trademark of DuPont.

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How to Order

K B M M 040 N 030 000

Cylinder Series
K = K Series Metric Compact

Type
A = Single Acting, Single Rod End, Spring Return
B = Single Acting, Single Rod End, Spring Extend
C = Single Acting, Double Rod End
D = Double Acting, Single Rod End
E = Double Acting, Double Rod End
F = Double Acting With Guide Plate

Piston Type
F = Female Thread
M = Male Thread (N/A Type "F")

Magnet
M = With Magnetic (Magnet - Standard)

Bore
032 = 32 mm
040 = 40 mm
050 = 50 mm
063 = 63 mm
080 = 80 mm
100 = 100 mm

Mount
000* = Without Mounting Parts
C01* = Foot Bracket
CF2* = Front Flange
CR2* = Rear Flange
C03 = Foot Bracket (Inside)
CF4* = Rod Clevis
CD4 = Rod Clevis (Only Type C and E)
CF5 = Oscillating Clevis
CD5 = Oscillating Clevis (Only Type C and E)
C07 = Oscillating Bracket with Lugs
C08 = Oscillating Bracket Fork Type
*Not available with Type "F".

Stroke
005 = 5mm
010 = 10mm
015 = 15mm
020 = 20mm
025 = 25mm
030 = 30mm
040 = 40mm
050 = 50mm
060 = 60mm
080 = 80mm
100 = 100mm
Consult factory for non-standard stroke lengths.

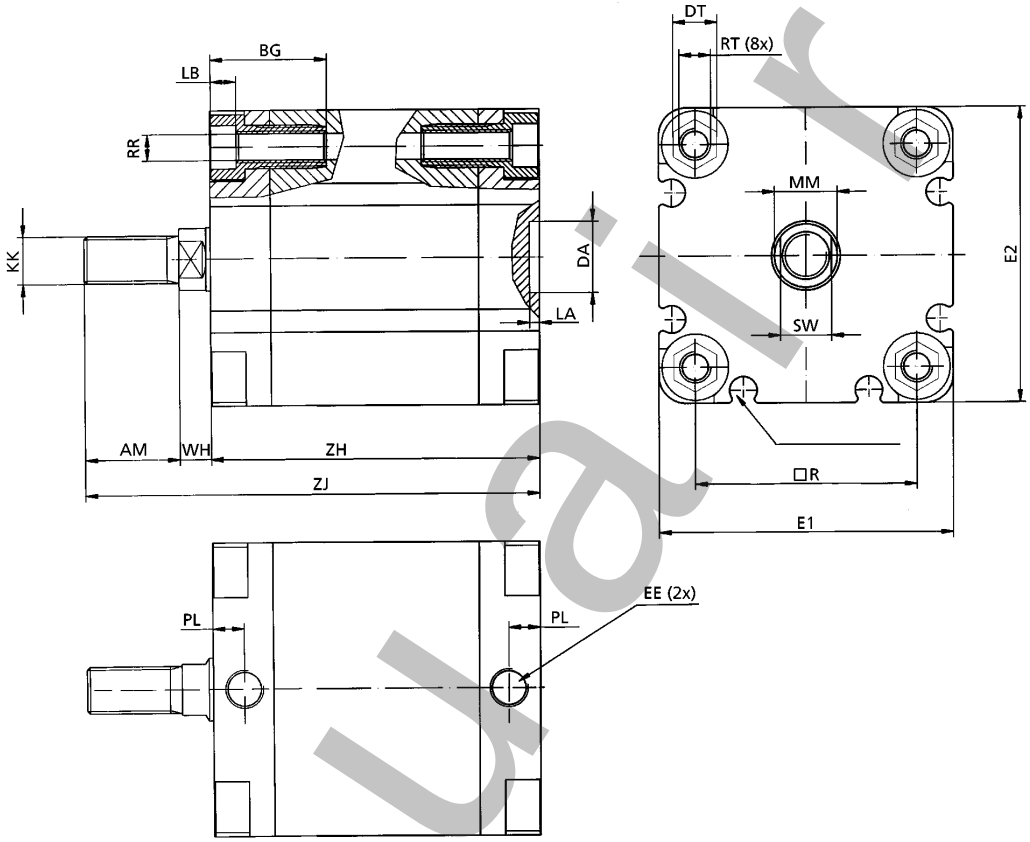
Ports
/ = G Ports
N = NPT Ports

Maximum Recommended Stroke Lengths

BORE SIZE	SINGLE ACTING	DOUBLE ACTING	DOUBLE ACTING WITH GUIDE
32 mm	25 mm	300 mm	100 mm
40 mm	25 mm	300 mm	100 mm
50 mm	35 mm	400 mm	100 mm
63 mm	35 mm	400 mm	100 mm
80 mm	40 mm	400 mm	100 mm

Single Rod End, Single and Double Acting

Cylinder with Male Thread



Dimensions (mm)

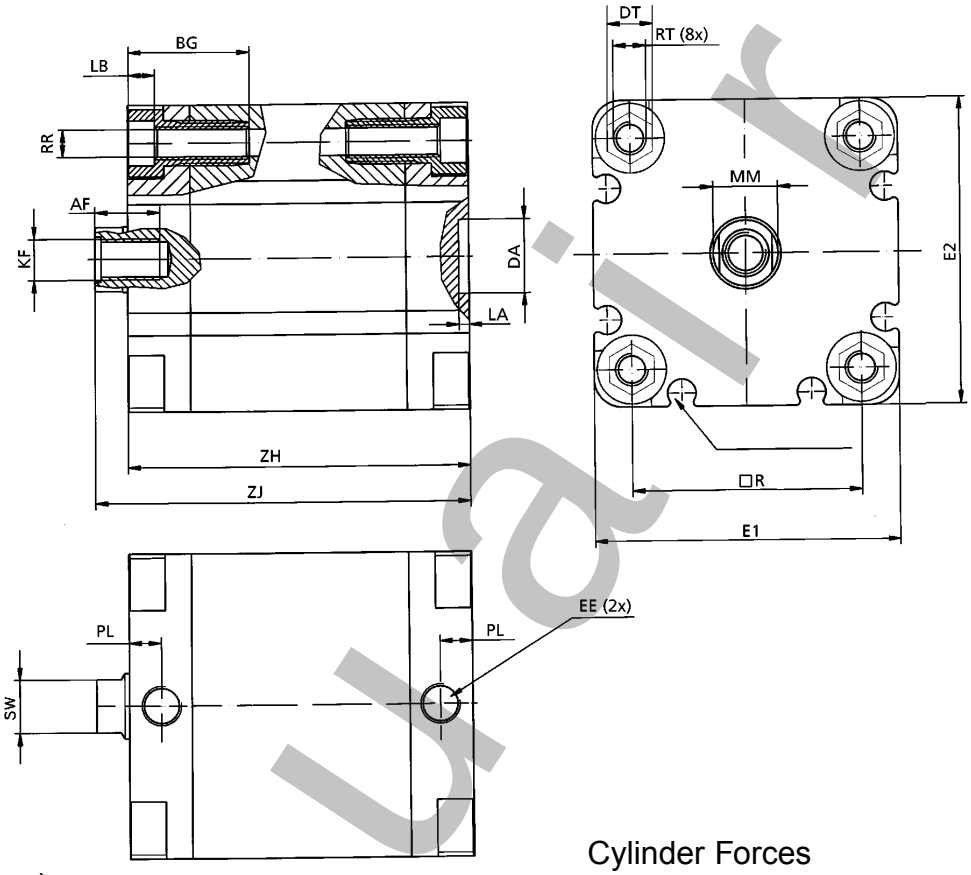
PISTON Ø	R	E1 X E2	RT	EE	ZH	ZJ	MM	KK	AM	Ø DA H11	LA	PL
32	32.5	47 x 47	M6	G 1/8	44/53*	73/82*	12.0	M10 x 1.25	22.0	14.0	2.5	8.0
40	38.0	52 x 52	M6	G 1/8	45/52*	74/81*	12.0	M10 x 1.25	22.0	14.0	2.5	8.0
50	46.5	65 x 65	M8	G 1/8	45.0	77.0	16.0	M12 x 1.25	24.0	18.0	2.5	8.0
63	56.5	75 x 75	M8	G 1/8	49.0	81.0	16.0	M12 x 1.25	24.0	18.0	2.5	8.0
80	72.0	94 x 95	M10	G 1/8	54.0	96.0	20.0	M16 x 1.5	32.0	23.0	3.0	8.5
100	89.0	112 x 114	M10	G 1/4	62.0	112.0	25.0	M20 x 1.5	40.0	28.0	3.0	10.5

* double/single acting

PISTON Ø	SW	WH	DT	LB	RR Ø	BG min
32	10.0	6.0	9.0	5.5	5.3	22.0
40	10.0	6.0	9.0	5.5	5.3	22.0
50	13.0	6.5	11.0	6.5	6.4	28.0
63	13.0	6.5	11.0	6.5	6.4	28.0
80	16.0	8.0	14.0	7.5	8.4	32.0
100	21.0	10.0	14.0	7.5	8.4	32.0

Single Rod End, Single and Double Acting

Cylinder with Female Thread



Dimensions (mm)

PISTON Ø	SW	DT	LB	Ø RR	BG min	PL
32	10.0	9.2	5.5	5.3	22.0	8.0
40	10.0	9.2	5.5	5.3	22.0	8.0
50	13.0	11.2	6.5	6.4	28.0	8.0
63	13.0	11.2	6.5	6.4	28.0	8.0
80	16.0	14.2	7.5	8.4	32.0	8.5
100	21.0	14.2	7.5	8.4	32.0	10.5

Cylinder Forces (Double Acting Cylinders)

PISTON DIAMETER (mm)	THRUST AT 6 BAR / 87 PSIG (N) (lbs)	TENSION AT 6 BAR / 87 PSIG (N) (lbs)
32	435 / 95	380 / 85
40	680 / 150	620 / 135
50	1100 / 245	950 / 210
63	1750 / 390	1600 / 355
80	2800 / 625	2600 / 580
100	4300 / 965	4000 / 895

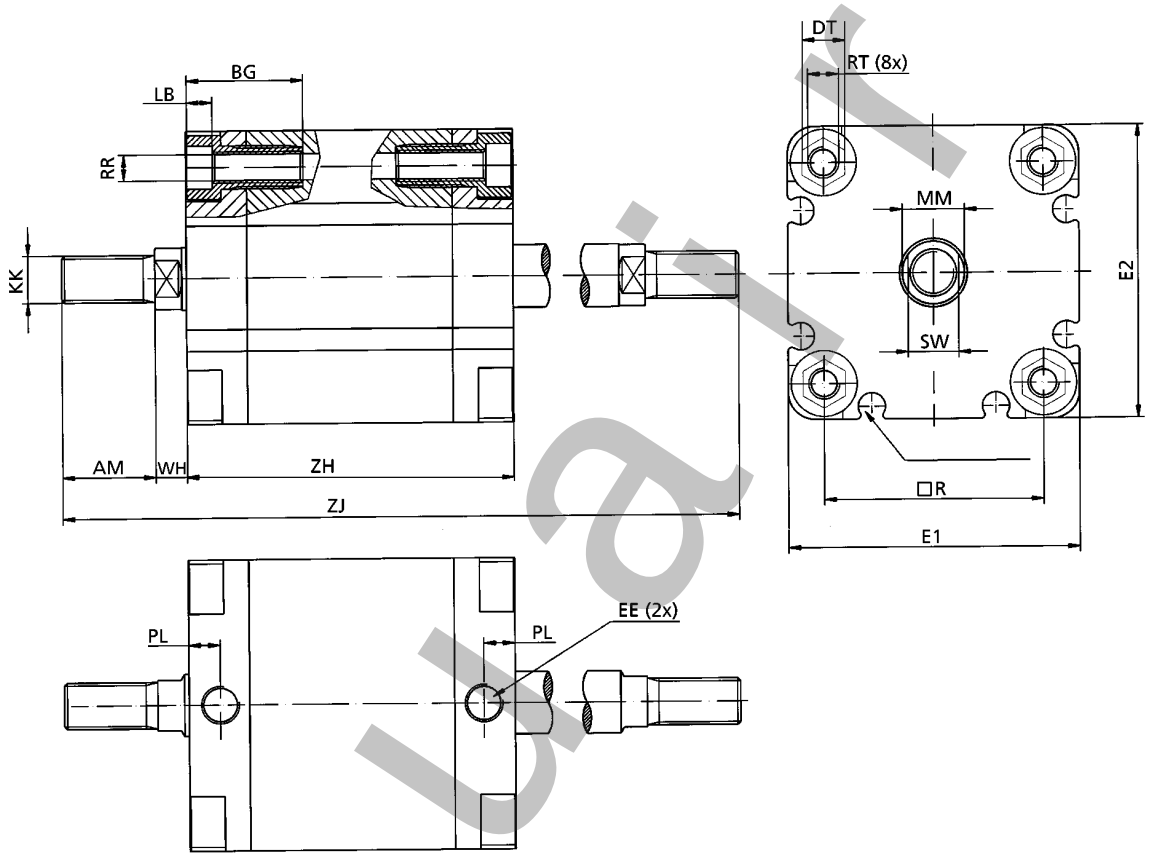
Spring forces diagram for single acting cylinders, please refer to page 10.

PISTON Ø	R	E1 x E2	RT	EE	ZH	ZJ	Ø MM	KF	AF	Ø DA H11	LA
32	32.5	47 x 47	M6	G 1/8	44/53*	51/60*	12.0	M8	12.0	14.0	2.5
40	38.0	52 x 52	M6	G 1/8	45/52*	52/59*	12.0	M8	12.0	14.0	2.5
50	46.5	65 x 65	M8	G 1/8	45.0	53.0	16.0	M10	16.0	18.0	2.5
63	56.5	75 x 75	M8	G 1/8	49.0	57.0	16.0	M10	16.0	18.0	2.5
80	72.0	94 x 95	M10	G 1/8	54.0	64.0	20.0	M12	20.0	23.0	3.0
100	89.0	112 x 114	M10	G 1/4	62.0	72.0	25.0	M16	22.0	28.0	3.0

double/single acting

Double Rod End, Single and Double Acting

Cylinder with Male Threads



Dimensions (mm)

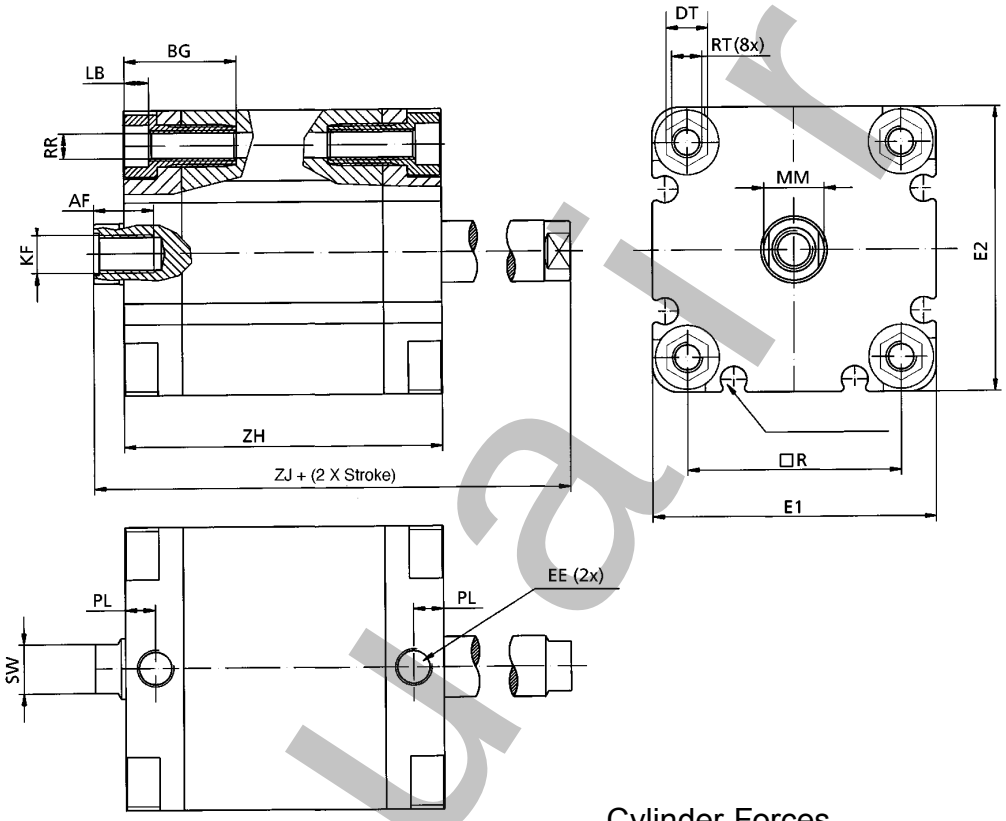
PISTON Ø	R	E1 x E2	RT	EE	ZH	ZJ	MM	KK	AM	PL	SW
32	32.5	47 x 47	M6	G 1/8	44/53*	102/111*	12.0	M10 x 1.25	22.0	8.0	10.0
40	38.0	52 x 52	M6	G 1/8	45/52*	103/110*	12.0	M10 x 1.25	22.0	8.0	10.0
50	46.5	65 x 65	M8	G 1/8	45.0	109.0	16.0	M12 x 1.25	24.0	8.0	13.0
63	56.5	75 x 75	M8	G 1/8	49.0	113.0	16.0	M12 x 1.25	24.0	8.0	13.0
80	72.0	94 x 95	M10	G 1/8	54.0	138.0	20.0	M16 x 1.5	32.0	8.5	16.0
100	89.0	112 x 114	M10	G 1/4	62.0	162.0	25.0	M20 x 1.5	40.0	10.5	21.0

* double/single acting

PISTON Ø	WH	DT	LB	Ø RR	BG min
32	6.0	9.0	5.5	5.3	22.0
40	6.0	9.0	5.5	5.3	22.0
50	6.5	11.0	6.5	6.4	28.0
63	6.5	11.0	6.5	6.4	28.0
80	8.0	14.0	7.5	8.4	32.0
100	10.0	14.0	7.5	8.4	32.0

Double Rod End, Single and Double Acting

Cylinder with Female Thread



Dimensions (mm)

PISTON Ø	SW	WH	DT	LB	RR Ø	BG min
32	10.0	6.0	9.0	5.5	5.3	22.0
40	10.0	6.0	9.0	5.5	5.3	22.0
50	13.0	6.5	11.0	6.5	6.4	28.0
63	13.0	6.5	11.0	6.5	6.4	28.0
80	16.0	8.0	14.0	7.5	8.4	32.0
100	21.0	10	14.0	7.5	8.4	32.0

Cylinder Forces (Double Acting Cylinders)

PISTON DIAMETER (MM)	RETRACT AT 6 BAR / 87 PSIG (N) (lbs)
32	380 / 85
40	620 / 135
50	950 / 210
63	1600 / 355
80	2600 / 580
100	4000 / 895

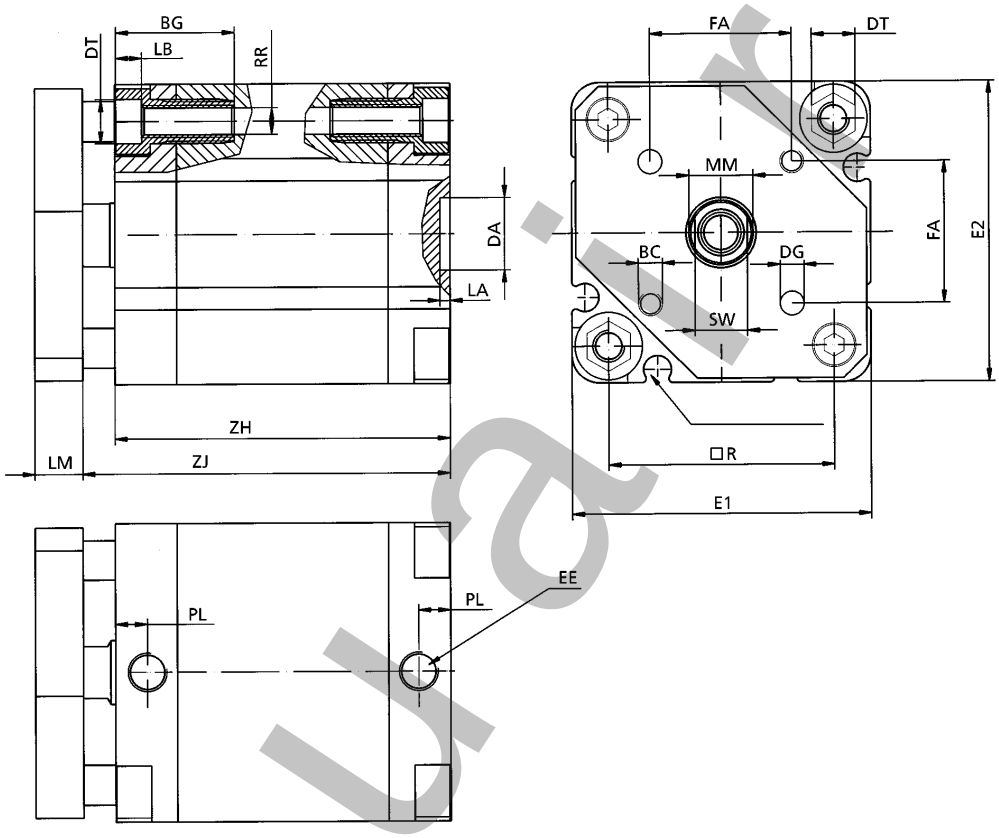
Spring forces diagram for single acting cylinders, please refer to page 10.

PISTON Ø	R	E1 x E2	RT	EE	ZH	ZJ	Ø MM	KF	AF	PL
32	32.5	47 x 47	M6	G 1/8	44/53*	58/67*	12.0	M8	12.0	8.0
40	38.0	52 x 52	M6	G 1/8	45/52*	59/66*	12.0	M8	12.0	8.0
50	46.5	65 x 65	M8	G 1/8	45.0	61.0	16.0	M10	16.0	8.0
63	56.5	75 x 75	M8	G 1/8	49.0	65.0	16.0	M10	16.0	8.0
80	72.0	94 x 95	M10	G 1/8	54.0	74.0	20.0	M12	20.0	8.5
100	89.0	112 x 114	M10	G 1/4	62.0	82.0	25.0	M16	22.0	10.5

* double/single acting

Guided Rod End, Double Acting

Cylinder with Guiding Plate



Dimensions (mm)

PISTON Ø	LB	Ø RR	BG min	LM	DG H 13	BC	FA
32	5.5	5.3	22.0	10.0	5.0	M5	19.8
40	5.5	5.3	22.0	10.0	5.0	M5	23.3
50	6.5	6.4	28.0	12.0	6.0	M6	29.7
63	6.5	6.4	28.0	12.0	6.0	M6	35.4
80	7.5	8.4	32.0	14.0	8.0	M8	46.0
100	7.5	8.4	32.0	14.0	10.0	M10	56.6

Cylinder Forces (Double Acting Cylinders)

PISTON DIAMETER (mm)	THRUST AT 6 BAR / 87 PSIG (N) (lbs)	TENSION AT 6 BAR / 87 PSIG (N) (lbs)
32	435 / 95	380 / 85
40	680 / 150	620 / 135
50	1100 / 245	950 / 210
63	1750 / 390	1600 / 355
80	2800 / 625	2600 / 580
100	4300 / 965	4000 / 895

Spring forces diagram for single acting cylinders, please refer to page 10.

Piston Ø	R	E1 x E2	RT	EE	ZH	ZJ	Ø MM	Ø DA H11	LA	PL	SW	DT
32	32.5	47 x 47	M6	G 1/8	44.0	51.0	12.0	14.0	2.5	8.0	10.0	9.0
40	38.0	52 x 52	M6	G 1/8	45.0	52.0	12.0	14.0	2.5	8.0	10.0	9.0
50	46.5	65 x 65	M8	G 1/8	45.0	53.0	16.0	18.0	2.5	8.0	13.0	11.0
63	56.5	75 x 75	M8	G 1/8	49.0	57.0	16.0	18.0	2.5	8.0	13.0	11.0
80	72.0	94 x 95	M10	G 1/8	54.0	64.0	20.0	23.0	3.0	8.5	16.0	14.0
100	89.0	112 x 114	M10	G 1/4	62.0	72.0	25.0	28.0	3.0	10.5	21.0	14.0

* double/single acting

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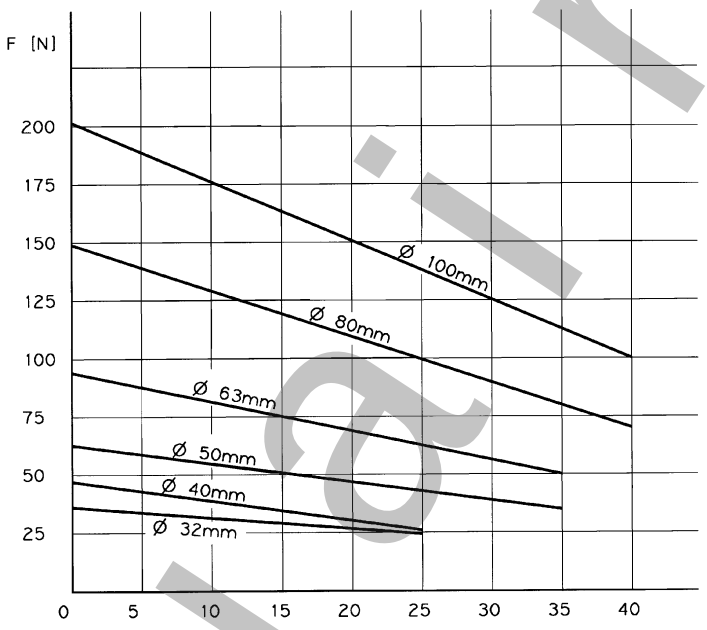
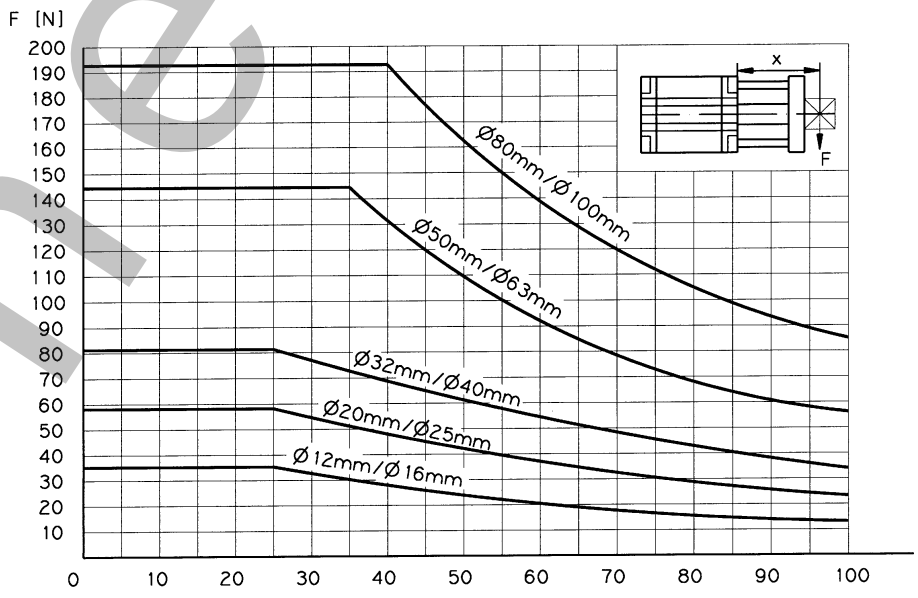
Diagrams

Spring Forces for Single Acting Cylinders (Types: KA, KB, KC)

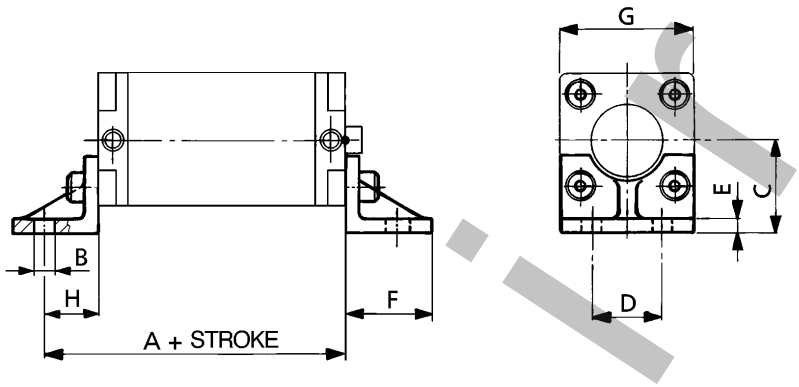


Load Diagram for Cylinders with Guiding Plate (Type: KF)



Accessories - Mounting Parts

Foot brackets (outside) - ISO 6431/VDMA 24562

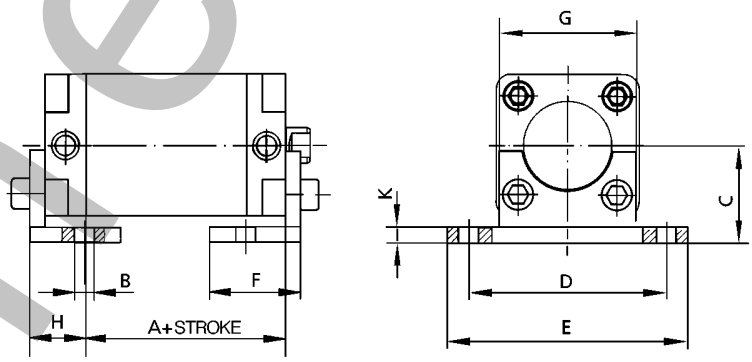


Dimensions (mm)

PISTON DIAMETER	A	B Ø H14	C Js15	D Js14	E ±0.5	F	G -0.2	H ±0.2	ORDER CODE
32	68.0	7.0	32	32	4	35.0	45	24	VC01/032
40	730	9.0	36	36	4	36.0	52	28	VC01/040
50	77.0	9.0	45	45	5	47.0	65	32	VC01/050
63	81.0	9.0	50	50	5	45.0	75	32	VC01/063
80	95.0	12.0	63	63	6	55.0	95	41	VC01/080
100	103.0	14.0	71	75	6	57.0	115	41	VC01/100

Includes fastening bolts for cylinders.
*Not included in standard VDMA24562 T.2 (MS1).
Foot brackets are delivered in packs of two. Material: Steel

Foot brackets (inside) - ISO 6431/VDMA 24562



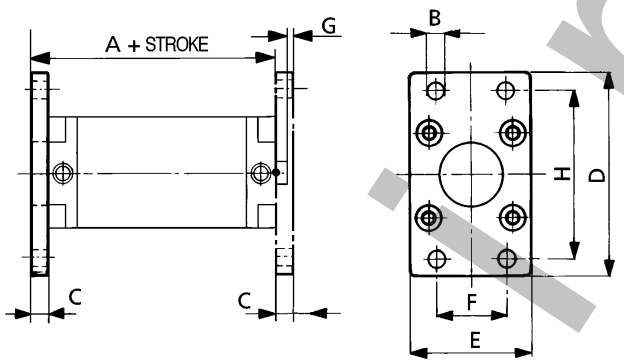
Dimensions (mm)

PISTON DIAMETER	A	B Ø H14	C Js15	D Js14	E -0.2	F +1	G ±0.2	H ±0.2	K ±0.3	ORDER CODE
32	31.0	6.5	32.0	65.0	79.0	30.0	45.0	18.0	5.0	VC03/032
40	32.0	6.5	36.0	75.0	90.0	30.0	55.0	18.0	5.0	VC03/040
50	29.0	8.5	45.0	90.0	110.0	35.0	65.0	21.0	5.0	VC03/050
63	33.0	8.5	50.0	100.0	120.0	35.0	75.0	21.0	5.0	VC03/063
80	33.0	10.5	63.0	128.0	153.0	45.0	95.0	27.0	6.0	VC03/080
100	40.0	10.5	71.0	148.0	178.0	45.0	115.0	27.0	6.0	VC03/100

Includes fastening bolts for cylinders.
Foot brackets are delivered in packs of two. Material: Steel

Accessories - Mounting Parts

Flanges - ISO 6431/VDMA 24562



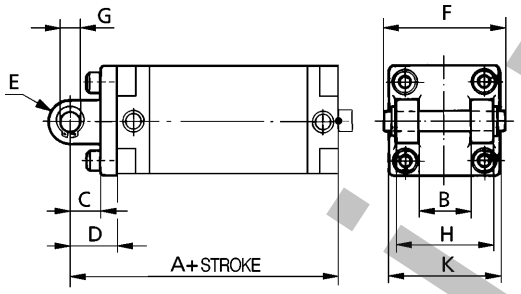
Dimensions (mm)

PISTON DIAMETER	A	B H13	C ±0.2	D	E	F Js14	G	H ±0.2	ORDER CODE
32	54.0	7.0	10.0	80.0	45.0	32.0	4.0	64.0	VC02/032
40	55.0	9.0	10.0	90.0	52.0	36.0	4.0	72.0	VC02/040
50	57.0	9.0	12.0	110.0	65.0	45.0	5.0	90.0	VC02/050
63	61.0	9.0	12.0	120.0	75.0	50.0	5.0	100.0	VC02/063
80	70.0	12.0	16.0	150.0	95.0	63.0	8.0	126.0	VC02/080
100	78.0	14.0	16.0	170.0	115.0	75.0	6.0	150.0	VC02/100

Includes fastening bolts for cylinders.
Material: Steel

Accessories - Mounting Parts

Oscillating Brackets - ISO 6431/VDMA 24562

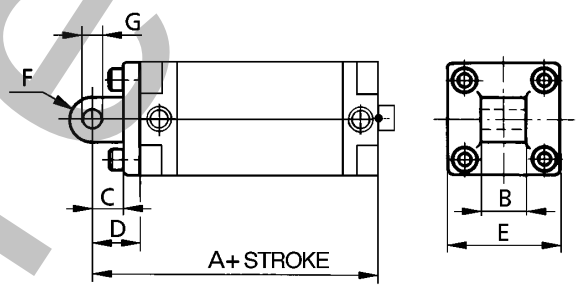


Dimensions (mm)

PISTON DIAMETER	A	B H14	C	D ±0.2	E	F	G H9	H h14	K	ORDER CODE
32	66.0	26.0	13.0	22.0	10.0	53.0	10.0	45.0	45.0	VC08/032
40	70.0	28.0	16.0	25.0	12.0	60.0	12.0	52.0	52.0	VC08/040
50	72.0	32.0	16.0	27.0	12.0	68.0	12.0	60.0	65.0	VC08/050
63	81.0	40.0	21.0	32.0	16.0	78.0	16.0	70.0	75.0	VC08/063
80	90.0	50.0	22.0	36.0	18.0	98.0	16.0	90.0	95.0	VC08/080
100	103.0	60.0	27.0	41.0	20.0	118.0	20.0	110.0	115.0	VC08/100

Includes pins and fastening bolts for cylinders.
Material: Aluminium, pins made from steel

Oscillating Brackets with Lugs - ISO 6431/VDMA 24562



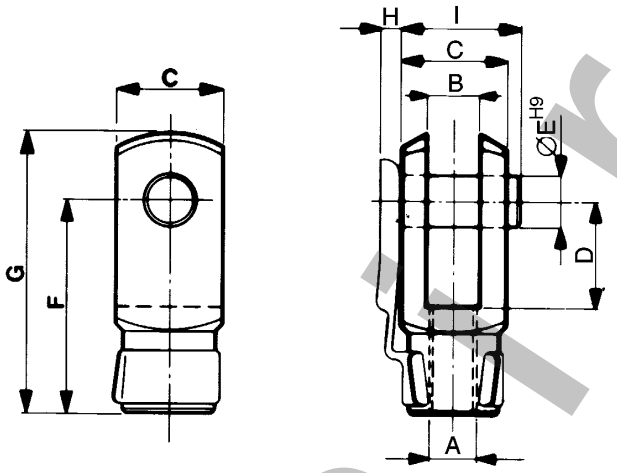
Dimensions (mm)

PISTON DIAMETER	A	B -0.2/-0.6	C	D ±0.1	E	F	G H9	ORDER CODE
32	66.0	26.0	13.0	22.0	45.0	10.0	10.0	VC07/032
40	70.0	28.0	16.0	25.0	52.0	12.0	12.0	VC07/040
50	72.0	32.0	16.0	27.0	65.0	12.0	12.0	VC07/050
63	81.0	40.0	21.0	32.0	75.0	16.0	16.0	VC07/063
80	90.0	50.0	22.0	36.0	95.0	16.0	16.0	VC07/080
100	103.0	60.0	27.0	41.0	115.0	20.0	20.0	VC07/100

Includes fastening bolts for cylinders.
*Not included in standard VDMA 24562 T.2 (MS1).
Material: Aluminum

Accessories - Mounting Parts

Rod Clevis

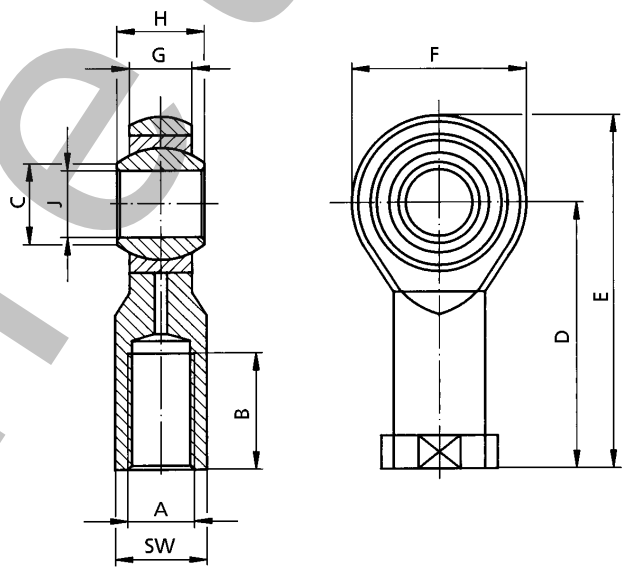


Dimensions (mm)

PISTON DIAMETER	A	B	C	D	E Ø H9	F	G	H	J	ORDER CODE
32/40	M10 x 1.25	10.0	20.0	20.0	10.0	40.0	52.0	3.0	23.0	SC4/025
50/63	M12 x 1.25	12.0	24.0	24.0	12.0	48.0	62.0	4.0	28.0	SC4/040
80	M16 x 1.5	16.0	32.0	32.0	16.0	64.0	83.0	4.0	36.0	SC4/050
100	M20 x 1.5	20.0	40.0	40.0	20.0	80.0	105.0	4.0	44.0	SC4/080

Material: steel

Oscillating Rod Clevis



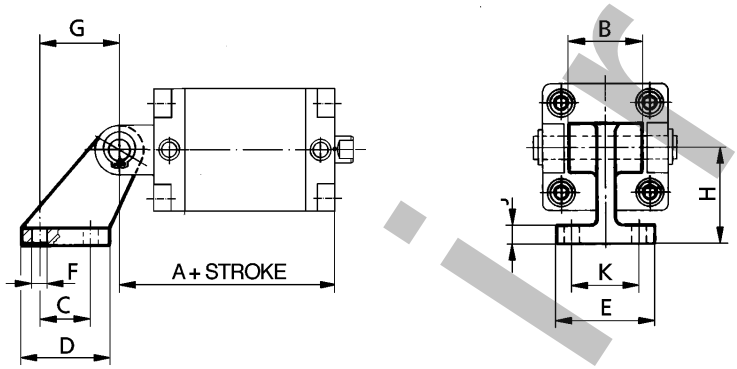
Dimensions (mm)

PISTON DIAMETER	A	B	C	D	E	F	G	H	J Ø H7	SW	ORDER CODE
32/40	M10 x 1.25	20.0	13.0	43.0	57.0	28.0	10.5	14.0	10.0	17.0	SC5/025
50/63	M12 x 1.25	22.0	15.5	50.0	66.0	32.0	12.0	16.0	12.0	19.0	SC5/040
80	M16 x 1.5	28.0	19.5	64.0	85.0	42.0	15.0	21.0	16.0	22.0	SC5/050
100	M20 x 1.5	33.0	24.5	77.0	102.0	50.0	18.0	25.0	20.0	30.0	SC5/080

Material: Steel

Accessories - Mounting Parts

Oscillating Rear Clevis with Lugs - ISO 6431/VDMA 24562

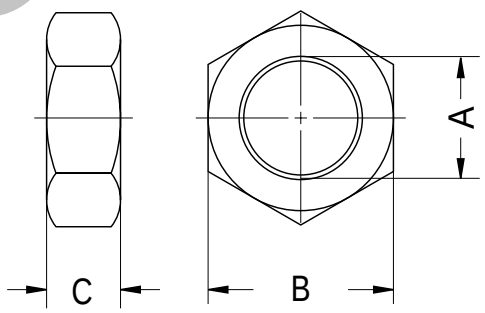


Dimensions (mm)

PISTON DIAMETER	A	B	C Js14	D	E	F Ø	G Js14	H Js15	J	K Js15	ORDER CODE
32	66.0	26.0	18.0	31.0	51.0	6.6	21.0	32.0	8.0	38.0	VC11/032
40	70.0	28.0	22.0	35.0	54.0	6.6	24.0	36.0	10.0	41.0	VC11/040
50	72.0	32.0	30.0	45.0	65.0	9.0	33.0	45.0	12.0	50.0	VC11/050
63	81.0	40.0	35.0	50.0	67.0	9.0	37.0	50.0	12.0	52.0	VC11/063
80	90.0	50.0	40.0	60.0	86.0	11.0	47.0	63.0	14.0	66.0	VC11/080
100	103.0	60.0	50.0	70.0	96.0	11.0	55.0	71.0	15.0	76.0	VC11/100

Material: Steel

Piston Rod Nut



Dimensions (mm)

PISTON DIAMETER	A	B	C	ORDER CODE GALVANIZED STEEL	ORDER CODE STAINLESS STEEL
32/40	M10 x 1.25	17.0	5.0	128-194	44.1359
50/63	M12 x 1.25	19.0	6.0	128-195	128-302
80	M16 x 1.5	24.0	8.0	128-196	128-303
100	M20 x 1.5	30.0	10.0	128-197	128-285