

Compact Cylinders
Magnetic Piston
Single Acting
 Ø 12 to 63 mm

- **Very compact – approximately one third the basic length of a corresponding ISO model**
- **Entirely manufactured from non-corrodible materials**
- **Magnetic piston as standard provides a wide range of control options**



Technical Data

Medium:

Compressed air, filtered, lubricated or non-lubricated

Operation:

RM/91000/M Single acting, non-cushioned, magnetic, sprung in

RM/93000/M Single acting, non-cushioned, magnetic, sprung out

Operating Pressure:

2 to 10 bar

Operating Temperature:

-5°C* to +80°C

*Consult our Technical Service for use below +2°C

Cylinder Diameters:

12, 16, 20, 25, 32, 40, 50, 63 mm

Standard Strokes:

5 mm Ø 12 to 25 mm

10 mm Ø 12 to 63 mm

25 mm Ø 32 to 63 mm

Non-standard Strokes:

Non-standard strokes are not available

Materials:

Anodised aluminium alloy barrel and end caps, stainless steel (Ø 12 to 40 mm Austenitic, Ø 50 and 63 mm Martensitic) piston rod, polyurethane and/or nitrile rubber seals

Alternative Cylinders:

See page N/UK 1.4.091.02

Ordering Information

To order a basic 63 mm bore cylinder, sprung in with a 25 mm stroke and magnet piston quote: RM/91063/M/25

To order a basic 16 mm bore cylinder, sprung out with a 5 mm stroke and magnet piston quote: RM/93016/M/5

To order mounting brackets refer to appropriate cylinder mounting table.

Order magnetically operated switches separately.

Accessories

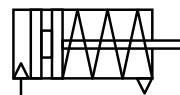
See page

Switch M/40

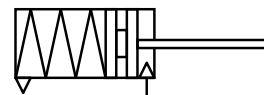
N/UK 4.3.041.01

Switches M/41, M/42

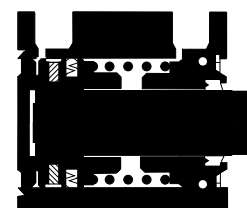
N/UK 4.3.043.01



Magnetic, sprung in



Magnetic, sprung out





Alternative Cylinders

| Symbol | Model (magnetic piston) | Description |
|--------|-------------------------|---|
| | RM/91000/N2 | Non-rotating piston rod (∅ 16 to 63 mm), sprung in |
| | RM/93000/N2 | Non-rotating piston rod (∅ 16 to 63 mm), sprung out |

Theoretical Forces • Air Consumption • Torque for Cylinders RM/91000/N2 and RM/93000/N2

| ∅ | RM/91000/M Theoretical forces (N) at 6 bar | | RM/93000/M Theoretical forces (N) at 6 bar | | Air consumption (l/cm stroke) at 6 bar | | Model | Torque max. (Nm) |
|----|---|------|---|------|--|----------|--------------------------|------------------|
| | Outstroke | F1 | Instroke | F1 | Outstroke | Instroke | | |
| 12 | 57 | 7 | 40 | 7 | 0,008 | 0,006 | - | - |
| 16 | 103 | 12,5 | 72 | 12,5 | 0,014 | 0,011 | RM/91016/N2, RM/93016/N2 | 0,15 |
| 20 | 161 | 14,5 | 119 | 14,5 | 0,022 | 0,017 | RM/91020/N2, RM/93020/N2 | 0,25 |
| 25 | 264 | 20 | 197 | 20 | 0,035 | 0,027 | RM/91025/N2, RM/93025/N2 | 0,40 |
| 32 | 432 | 32 | 311 | 32 | 0,056 | 0,042 | RM/91032/N2, RM/93032/N2 | 0,75 |
| 40 | 687 | 44 | 566 | 44 | 0,088 | 0,074 | RM/91040/N2, RM/93040/N2 | 0,75 |
| 50 | 1094 | 56,5 | 906 | 56,5 | 0,138 | 0,116 | RM/91050/N2, RM/93050/N2 | 1,50 |
| 63 | 1770 | 74,5 | 1582 | 74,5 | 0,218 | 0,196 | RM/91063/N2, RM/93063/N2 | 1,50 |

F1 = Return force of spring (N)

Weights of Cylinders and Mountings (kg)

| ∅ | Weight at 0 mm | Weight per 5 mm | Style 'B', 'G' | Style 'C' | Style 'F' | Nut | Stud or Adaptor |
|----|----------------|-----------------|----------------|-----------|-----------|-------|-----------------|
| 12 | 0,070 | 0,020 | 0,020 | 0,020 | 0,010 | 0,001 | 0,001 |
| 16 | 0,090 | 0,020 | 0,020 | 0,020 | 0,010 | 0,001 | 0,002 |
| 20 | 0,120 | 0,020 | 0,020 | 0,020 | 0,010 | 0,001 | 0,003 |
| 25 | 0,170 | 0,030 | 0,040 | 0,040 | 0,010 | 0,002 | 0,005 |
| 32 | 0,280 | 0,050 | 0,060 | 0,040 | 0,020 | 0,003 | 0,010 |
| 40 | 0,440 | 0,060 | 0,150 | 0,100 | 0,020 | 0,003 | 0,010 |
| 50 | 0,500 | 0,080 | 0,170 | 0,110 | 0,040 | - | 0,020 |
| 63 | 0,900 | 0,110 | 0,330 | 0,130 | 0,090 | - | 0,035 |

Warning

These products are intended for use in industrial compressed air systems only. Do not use these products where pressures and temperatures can exceed those listed under 'Technical Data'.

Before using these products with fluids other than those specified, for non-industrial applications, life-support systems, or other applications not within published specifications, consult NORGREN.

Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes.

The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure.

System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided.

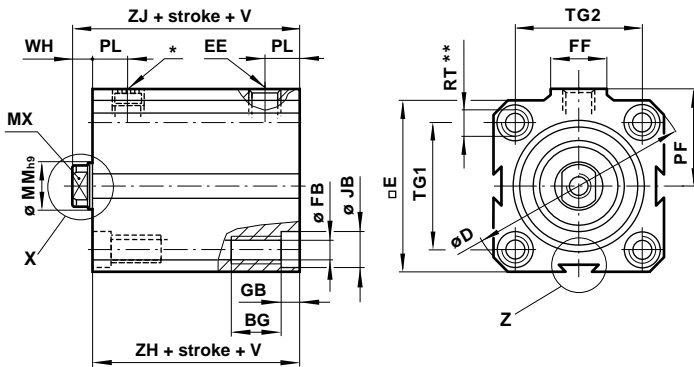
System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products.



Basic Dimensions

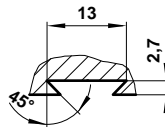
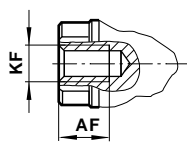
RM/91000/M

(∅ 12 to 63 mm)

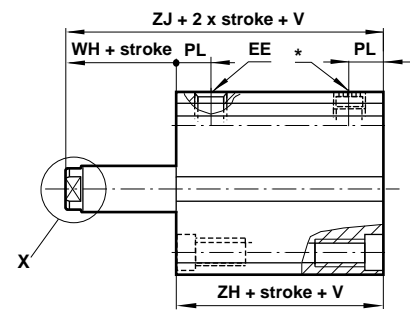


Section X

Section Z



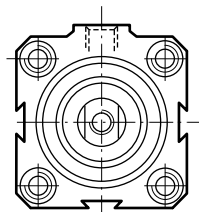
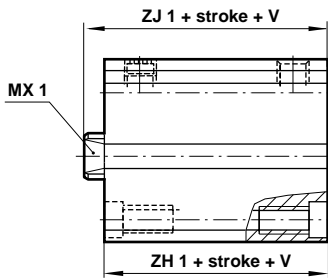
RM/93000/M



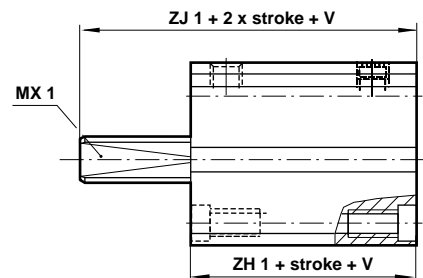
* Port thread with inserted filter, do not obstruct.
 ** Only the 4 front holes are tapped on stroke lengths of less than:
 ∅ 25 and 32 mm: 5 mm, ∅ 40 and 63 mm: 15 mm (.../N2: 5 mm)
 ∅ 50 mm: 10 mm
Note: ∅ 12 to 20 mm feature only two side dovetails.

Non-rotating piston rod RM/91000/N2

(∅ 16 to 63 mm)



RM/93000/N2

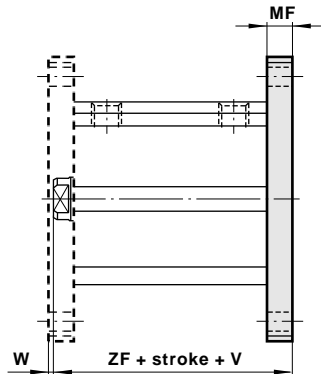
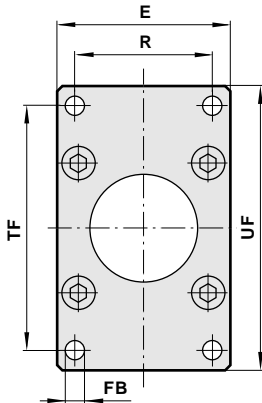


| Model | 91012, 93012 | 91016, 93016 | 91020, 93020 | 91025, 93025 | 91032, 93032 | 91040, 93040 | 91050, 93050 | 91063, 93063 |
|---------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| ∅ | 12 | 16 | 20 | 25 | 32 | 40 | 50 | 63 |
| AF | 6 | 7 | 8 | 9 | 12 | 12 | 14 | 16 |
| BG | 9 | 9 | 9 | 12 | 12 | 16 | 16 | 20 |
| ∅ D | 32,5 | 36,5 | 41,5 | 48 | 58 | 71,5 | 81 | 104 |
| □ E | 25 | 28 | 32 | 37 | 45 | 55 | 63 | 80 |
| EE | M 5 | M 5 | M 5 | M 5 | G 1/8 | G 1/8 | G 1/8 | G 1/4 |
| ∅ FB | 3,3 | 3,3 | 3,3 | 4,2 | 4,2 | 6,8 | 6,8 | 8,5 |
| FF | 10 | 10 | 10 | 10 | 18 | 18 | 18 | 22 |
| GB | 3,5 | 3,5 | 3,5 | 4,5 | 4,5 | 6,5 | 6,5 | 8,5 |
| ∅ JB | 6 | 6 | 6 | 7,5 | 7,5 | 10,5 | 10,5 | 13,5 |
| KF | M 3 | M 4 | M 5 | M 6 | M 8 | M 8 | M 10 | M 12 |
| ∅ MM h9 | 6 | 8 | 10 | 12 | 16 | 16 | 20 | 20 |
| MX (A/F) | 5 | 6 | 8 | 10 | 13 | 13 | 17 | 17 |
| MX 1 (A/F) | - | 6 | 8 | 10 | 13 | 13 | 16 | 16 |
| PF | 15 | 17 | 19,5 | 22 | 27,5 | 31,5 | 37 | 48 |
| PL | 7 | 7,5 | 7,5 | 8 | 9 | 10 | 10,5 | 13 |
| RT | M 4 | M 4 | M 4 | M 5 | M 5 | M 8 | M 8 | M 10 |
| TG 1 | 17 | 20 | 23 | 27 | 33 | 41 | 48 | 61 |
| TG 2 | 13 | 20 | 23 | 27 | 33 | 41 | 48 | 61 |
| V (strokes 0 to 25) | 14 | 15 | 17 | 18 | 19 | 20 | 30 | 30 |
| (strokes 26 to 50) | - | - | 34 | 36 | 38 | 40 | 60 | 60 |
| WH | 4,5 | 5,5 | 6 | 6,5 | 6,5 | 6,5 | 8 | 8 |
| ZH | 24 | 24,5 | 26 | 28,5 | 29 | 31,5 | 35 | 42,5 |
| ZH 1 | - | 34,5 | 36 | 38,5 | 39 | 41,5 | 45 | 52,5 |
| ZJ | 28,5 | 30 | 32 | 35 | 35,5 | 38 | 43 | 50,5 |
| ZJ 1 | - | 40 | 42 | 45 | 45,5 | 48 | 53 | 60,5 |

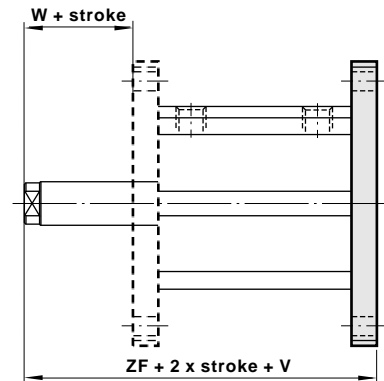


Rear Flange Mounting Style 'B'
Front Flange Mounting Style 'G'

RM/91000/M, RM/91000/N2

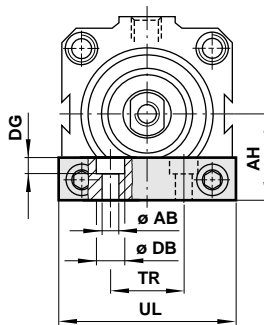
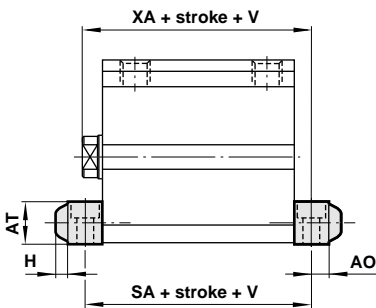


RM/93000/M, RM/93000/N2

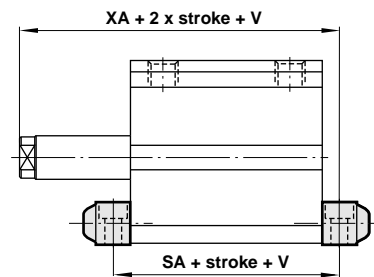


Foot Mounting Style 'C'

RM/91000/M, RM/91000/N2



RM/93000/M, RM/93000/N2



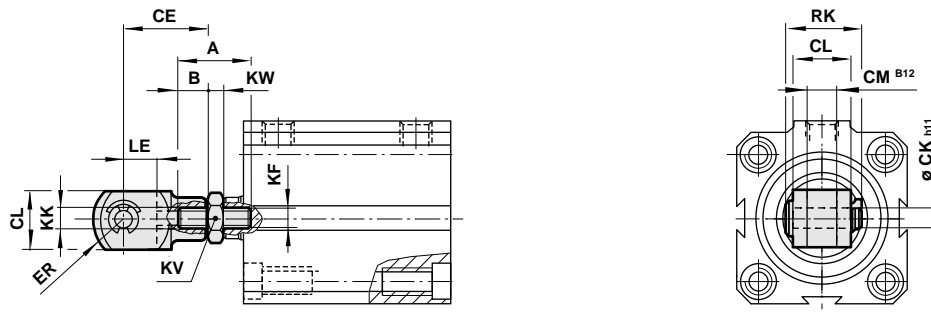
| Model 'B', 'G' | QM/90012/22 | QM/90016/22 | QM/90020/22 | QM/90025/22 | QM/90032/22 | QM/90040/22 | QM/90050/22 | QM/90063/22 |
|---------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Model 'C' | QM/90012/21 | QM/90016/21 | QM/90020/21 | QM/90025/21 | QM/90032/21 | QM/90040/21 | QM/90050/21 | QM/90063/21 |
| ∅ | 12 | 16 | 20 | 25 | 32 | 40 | 50 | 63 |
| ∅ AB | 3,4 | 3,4 | 3,4 | 4,3 | 4,3 | 6,4 | 6,4 | 8,4 |
| AH | 13,5 | 15 | 16,5 | 20 | 24 | 28,5 | 32 | 41,5 |
| AO | 4 | 4 | 4 | 5 | 5 | 6,5 | 6,5 | 8 |
| AT | 9,5 | 9,5 | 9,5 | 12,5 | 12,5 | 16 | 16 | 22 |
| ∅ DB | 6 | 6 | 6 | 7,5 | 7,5 | 10,5 | 10,5 | 13,5 |
| DG | 3,5 | 3,5 | 3,5 | 4,5 | 4,5 | 6,5 | 6,5 | 8,5 |
| E | 26 | 30 | 33 | 38 | 46 | 57 | 64 | 81 |
| H | 2 | 2 | 2 | 3 | 3 | 4,5 | 4,5 | 5,5 |
| ∅ FB | 3,5 | 3,5 | 3,5 | 4,5 | 4,5 | 6,5 | 6,5 | 8,5 |
| MF | 5 | 5 | 5 | 6,5 | 6,5 | 9,5 | 9,5 | 12,5 |
| R | 18 | 22 | 25 | 28 | 36 | 43 | 50 | 63 |
| TF | 38 | 42 | 48 | 54 | 66 | 78 | 90 | 110 |
| TR | 25 | 32 | 35 | 41 | 19 | 21 | 27 | 34 |
| UF | 46 | 50 | 56 | 64 | 76 | 92 | 104 | 128 |
| UL | 33 | 40 | 43 | 51 | 46 | 56 | 64 | 81 |
| V (strokes 0 to 25) | 14 | 15 | 17 | 18 | 19 | 20 | 30 | 30 |
| (strokes 26 to 50) | - | - | 34 | 36 | 38 | 40 | 60 | 60 |
| W | - 0,5 | 0,5 | 1 | 0 | 0 | - 3 | - 1 | - 4,5 |
| SA | 32 (42) | 32,5 (42,5) | 34 (44) | 38,5 (48,5) | 39 (49) | 44,5 (54,5) | 48 (58) | 58,5 (68,5) |
| XA | 32,5 (42,5) | 34 (44) | 36 (46) | 40 (50) | 40,5 (50,5) | 44,5 (54,5) | 49,5 (59,5) | 58,5 (68,5) |
| ZF | 33,5 (43,5) | 35 (45) | 37 (47) | 41,5 (51,5) | 45 (55) | 47,5 (57,5) | 52,5 (62,5) | 63,5 (73,5) |

Note: Dimension 'W' negative figures indicate that the piston is proud of the mounting face.

() = for non-rotating piston rod cylinders RM/91000/N2 and RM/93000/N2



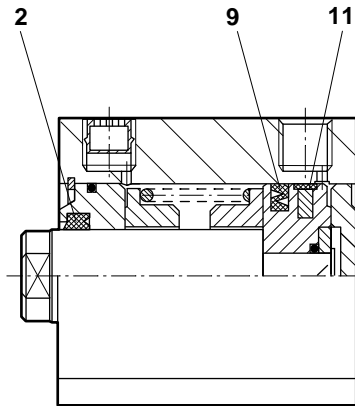
Piston Rod Clevis Mounting Style 'F'



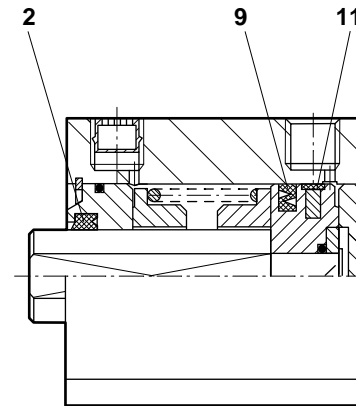
| | | | | | | | |
|-----------|-------------|------------|-------------|-------------|-------------|-------------|-------------|
| Model 'F' | QM/57008/25 | QM/8010/25 | QM/92020/25 | QM/57016/25 | QM/57020/25 | QM/57025/25 | QM/57040/25 |
| Stud | M/P1710/18 | M/P1710/19 | M/P1710/20 | M/P1710/21 | M/P1710/22 | - | - |
| Nut | M/P1500/111 | M/P1501/80 | M/P1501/109 | M/P1501/79 | M/P1501/60 | - | - |
| Adaptor | - | - | - | - | - | M/P71470/1 | M/P71470/2 |
| ∅ | 12 | 16 | 20 | 25 | 32 and 40 | 50 | 63 |
| A | 12 | 16 | 20 | 25 | 25 | 29 | 35 |
| B | - | - | - | - | - | 12 | 15 |
| CE | 11 | 16 | 20 | 20 | 24 | 26 | 40 |
| ∅ CK h11 | 3 h9 | 4 | 5 | 5 | 6 | 8 | 10 |
| □ CL | 6 | 8 | 10 | 10 | 12 | 14 | 20 |
| CM B12 | 3 | 4 | 5 | 5 | 6 | 7 | 10 |
| ER | 4,5 | 6,5 | 8 | 8 | 9,5 | 11,5 | 16 |
| KF | M 3 | M 4 | M 5 | M 6 | M 8 | M 10 | M 12 |
| KK | M 3 | M 4 | M 5 | M 6 | M 8 | M 10 x 1,25 | M 12 x 1,25 |
| KV (A/F) | 6 | 7 | 8 | 10 | 13 | 12 | 13 |
| KW | 2 | 2 | 2,5 | 3 | 4 | 5 | 5 |
| LE | 5 | 8 | 10 | 10 | 12 | 12 | 20 |
| RK | 10 | 11,5 | 14,5 | 14,5 | 17,5 | 20,5 | 29 |

To order a piston rod clevis mounting style 'F' complete: ∅ 12 to 40 mm = Model 'F' plus Stud and Nut, ∅ 50 and 63 mm = Model 'F' plus Adaptor.

Spares RM/91000/M, RM/93000/M



Spares RM/91000/N2, RM/93000/N2



| Model | Spares kit | Comprising Item | Description | Quantity |
|--------------------------|----------------|-----------------|-----------------|----------|
| RM/91050/M, RM/93050/M | QM/92050/00 | 2 | Piston rod seal | 1 |
| RM/91050/N2, RM/93050/N2 | QM/92050/N2/00 | 9 | Piston seal | 1 |
| RM/91063/M, RM/93063/M | QM/92063/00 | 11 | Wear ring | 1 |
| RM/91063/N2, RM/93063/N2 | QM/92063/N2/00 | | Grease | 1 |

Note: Please quote the cylinder number when ordering spare parts.
Spares are not available for ∅ 12 to 40 mm models.