

Information

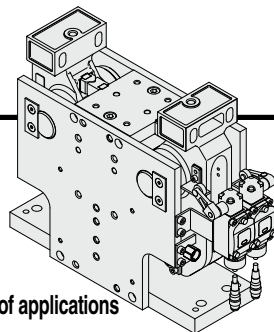
Frame Clamp Cylinder Series WRF100

High Output

20,000 N

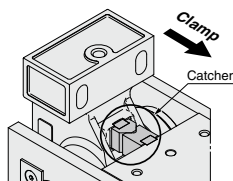
(Operating pressure: At 0.5 MPa)

High clamping force makes it suitable for a broad range of applications

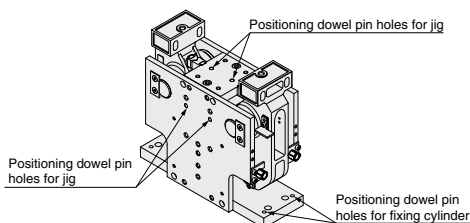


High repeatability

Catcher (detented positioning structure) is a standard feature for repeatable positioning.

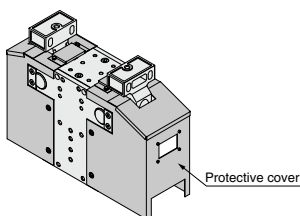


Dowel pin holes for repeatable mounting when reassembling.
Allows for repeatable mount positioning in reassembly.



Optional spatter protective cover available.

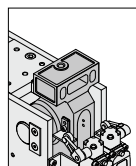
Modular structure allows easy assembly even after the cylinder is installed.



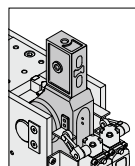
Standardized T-type arms and S-type arms.

Shape selectable to meet specifications/application.

- T-type arm width: 200, 240, 270 mm
- S-type arm width: 130, 200, 240 mm



T-type arms

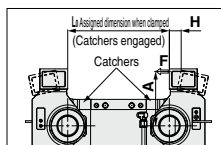
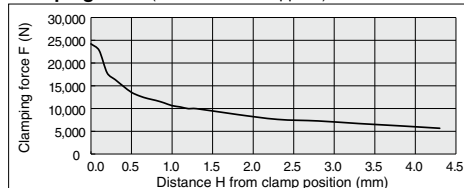


S-type arms

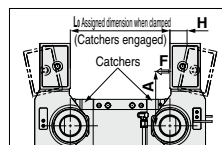
Clamping force characteristics

<Relationship between clamp position and clamping force>
Refer to the following graph for the relationship between a distance H from a clamp position when the mutually acting catchers are engaged and a clamping force F.

Clamping force (when 0.5 MPa supplied)



T-type arms



S-type arms

Generated position of clamping force F (mm)

Arm type	A
T200, T240, T270	107
S130, S200, S240	

Air Cylinders

CKJ2

CM2

CG1

MB

CA2

CQ2

CQS

Lube-
retainer

JA

MXH

MXQ

MGP

C□Y

C□X

CK□1

C(L)□

C(L)KU

CKQ

CKZ2N

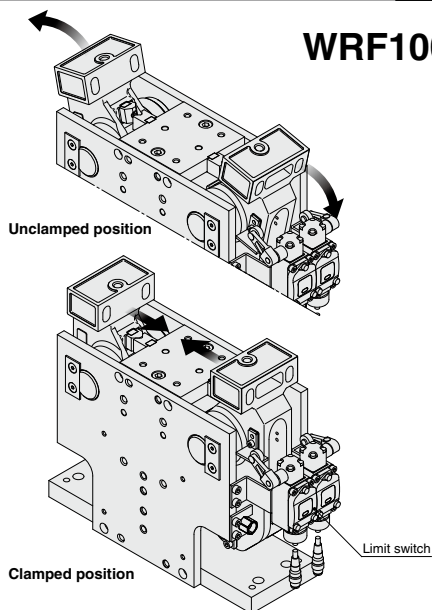
WRF

INDEX

Frame Clamp Cylinder

Series WRF100

How to Order



WRF100 - T200 C

• Protective cover

Nil	Without cover
C	With cover

• Clamp arm

Symbol	T-type arms	Symbol	S-type arms
T200		S130	
T240		S200	
T270		S240	

Note) This product does not include the limit switch.

(The limit switch should be prepared by the customer.)

Applicable limit switches have part numbers listed on the right.

For mounting the limit switch, order the switch mounting bracket (WRF-BK) separately.

For details, refer to page 1354.

<Applicable limit switches for part number>

OMRON Corp.: WLG2-LDAS-DGJS03T

Yamatake Corp.: 1LS74-JWC-P025

Specifications

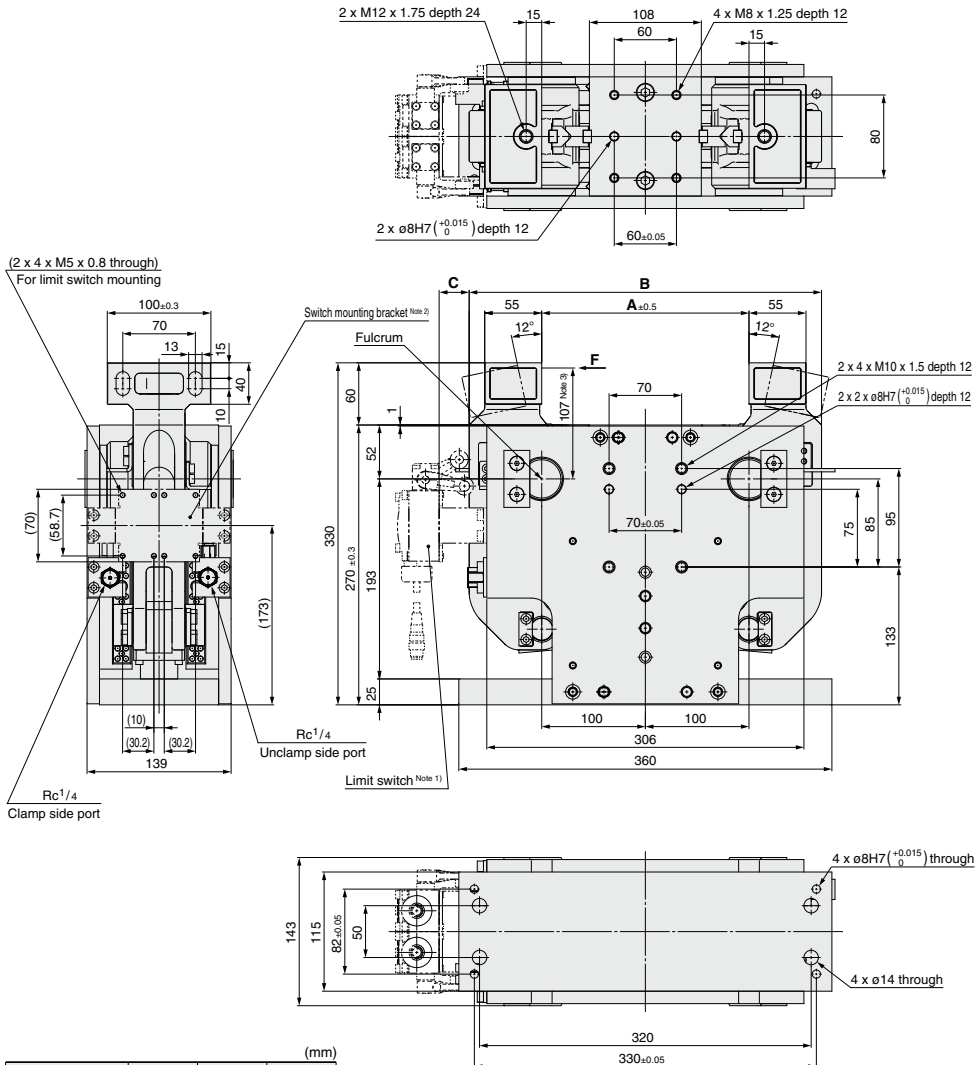
Bore size	100 mm
Stroke	48 mm
Fluid	Air
Proof pressure	0.8 MPa
Maximum operating pressure	0.5 MPa
Minimum operating pressure	0.2 MPa
Ambient and fluid temperature	-10 to 60°C (No freezing)
Cushion	Clamp side : None Unclamp side: Rubber bumper
Lubrication	Non-lube
Operating time	1.0 s or more (Both clamp and unclamp)
Arm opening angle	24° (12° each side)
Clamping force	20,000 N or more (At 0.5 MPa) Note)
Weight	47 kg (WRF100-T200)
	47 kg (WRF100-S200)

Note) For the position where the clamping force is generated, refer to the dimensions on pages 1350 to 1352 and page 1348.

Dimensions

WRF-□/T-type clamp arms (Without cover)

WRF100-T200/T240/T270



Note 1) This product does not include the limit switch.

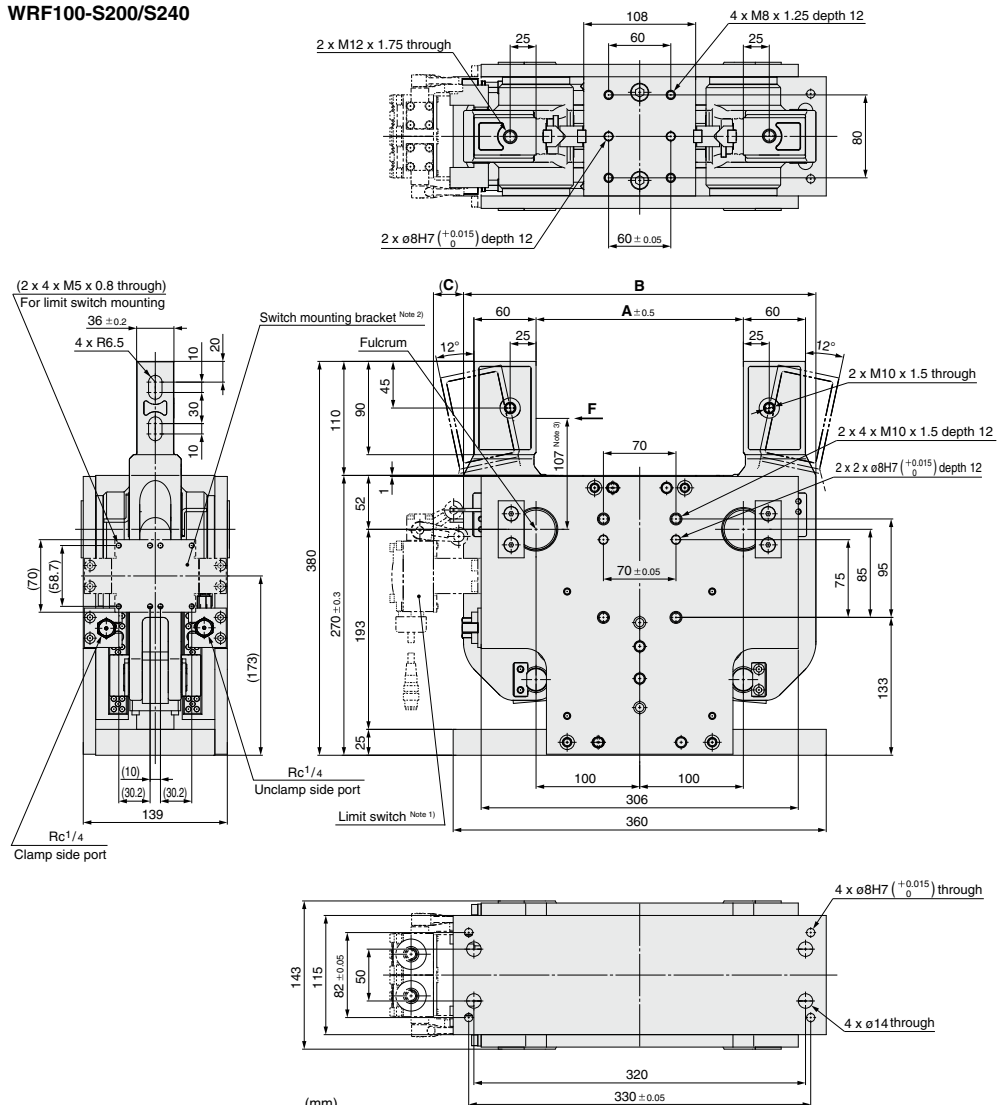
Note 2) For mounting the limit switch, order the switch mounting bracket (WRF-BK) separately. For details, refer to page 1354.

Note 3) The symbol F in the dimensions indicates the position where the clamping force is generated defined by the product specifications.

Dimensions

WRF-S□/S-type clamp arms (Without cover)

WRF100-S200/S240



Arm type	A	B	C
S200	200	340	29
S240	240	360	19

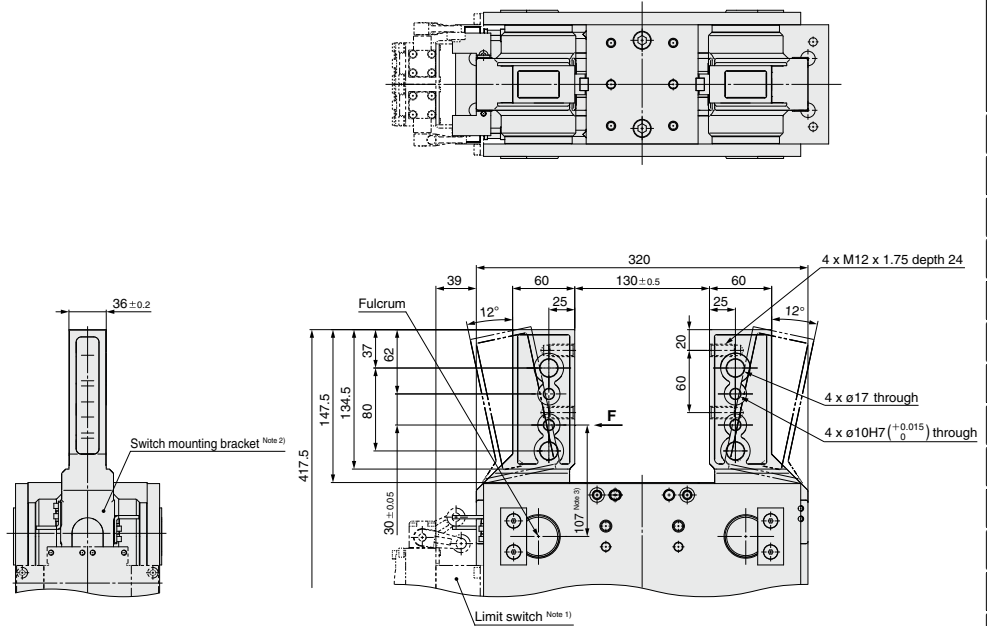
Note 1) This product does not include the limit switch.

Note 2) For mounting the limit switch, order the switch mounting bracket (WRF-BK) separately. For details, refer to page 1354.

Note 3) The symbol F in the dimensions indicates the position where the clamping force is generated defined by the product specifications.

WRF100-S130

* Dimensions other than those below are the same as WRF100-S200/S240 on page 1351.



Note 1) This product does not include the limit switch.

Note 2) For mounting the limit switch, order the switch mounting bracket (WRF-BK) separately. For details, refer to page 1354.

Note 3) The symbol F in the dimensions indicates the position where the clamping force is generated defined by the product specifications.

Air Cylinders

CJ2

CM2

CG1

MB

CA2

CQ2

CQS

Lube-
retainer

JA

MXH

MXQ

MGP

C□Y
C□X

CK□1

C(L)K□

C(L)KU

CKQ

CKZ2N

WRF

INDEX

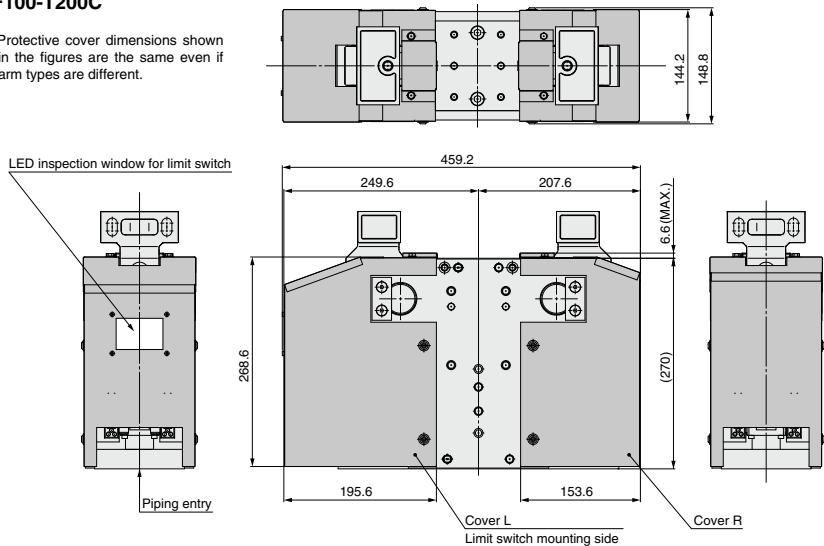
Series WRF100

Dimensions

WRF-^T_SC/With protective cover

WRF100-T200C

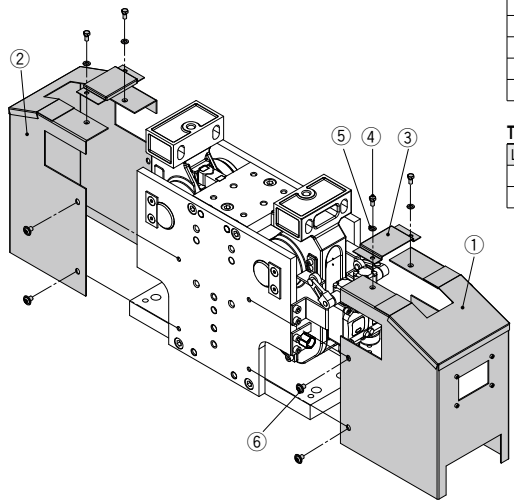
Note) Protective cover dimensions shown in the figures are the same even if arm types are different.



Protective Cover Kit (Option)

A protective cover can be retrofitted.

Fixing method for protective covers



Applicable product	Kit no.	Contents
WRF100-S130	WRF-C130	① Cover L (1 pc.)
WRF100-T200	WRF-C200	② Cover R (1 pc.)
WRF100-S200		③ Top covers (2 pcs.)
WRF100-T240		④ Hexagon head bolts (4 pcs.)
WRF100-S240	WRF-C240	⑤ Flat washers (4 pcs.)
WRF100-T270	WRF-C270	⑥ Cover mounting bolts (8 pcs.)

Tightening torque for cover mounting bolts

Location	Tightening torque (N·m)
④	3.0 to 4.0
⑥	5.0 to 7.0

<Mounting procedure>

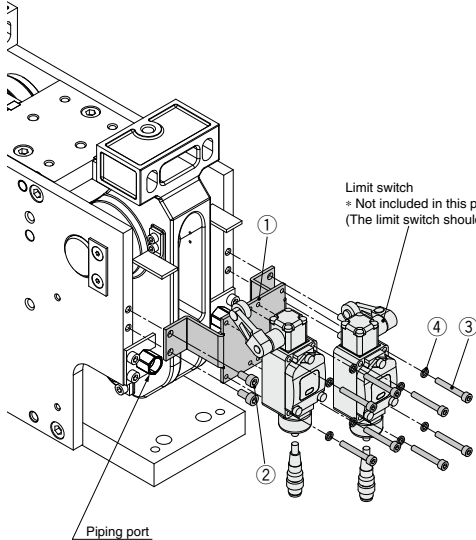
1. Mount the cover L (①) and cover R (②) on the cylinder body.
Mount the cover L (①) on the side where a limit switch is mounted.
2. Mount the top covers (③) to the cover L (①) and cover R (②).

* When mounting the protective cover, confirm that all air has been exhausted from inside the cylinder.

Limit Switch Mounting Bracket (Option)

Bracket for attaching a limit switch.

Fixing method for switch mounting brackets



Applicable product	Kit no.	Contents
Applicable to all types	WRF-BK	① Switch mounting bracket (1 pc.) ② Bracket mounting bolts (4 pcs.) ③ Switch mounting bolts (8 pcs.) ④ Flat washers (8 pcs.)

Tightening torque for mounting bolts of switch mounting bracket

Location	Tightening torque (N·m)
②	5.0 to 7.0
③	3.0 to 4.0

Note) This product does not include the limit switch. (The limit switch should be prepared by the customer.)
 Applicable limit switches have part numbers listed below.
 For mounting the limit switch, order the switch mounting bracket (WRF-BK) separately.

<Applicable limit switches for part number>
 OMRON Corp.: WLG2-LDAS-DGJS03T
 Yamatake Corp.: 1LS74-JWC-P025

- *1 When mounting accessories, confirm that all air has been exhausted from inside the cylinder.
- *2 A limit switch can also be mounted on the side opposite to that with the piping port.



Series WRF100 Specific Product Precautions

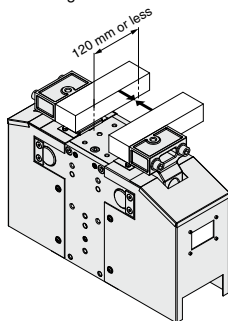
Be sure to read before handling. Refer to page 1574 for Safety Instructions, "Handling Precautions for SMC Products" (M-E03-3) and the Operation Manual for Actuator Precautions. Please download it via our website. <http://www.smcworld.com>

Design

Warning

1. When clamping with the clamping position offset horizontally, ensure that the offset is 120 mm or less from the center of cylinder.

With a large offset, twisting forces will be applied to the cylinder. This twisting force can potentially accelerate wear and breakage of parts with the abrasion of sliding parts. In addition, changes in the force on the cylinder parts may cause dangerous movement to occur with forceful impact.



2. Affix a protective cover in places where there is a danger of personal injury.

A large gripping force is generated during clamping. If there is a possible pinching hazard, design the structure to avoid contact with the human body.

3. Securely tighten all stationary parts and connected parts so that they will not become loose. Take special care when the cylinder is installed where there is a lot of vibration, ensure that all parts remain secure.

4. Consider a possible loss of power.

Measures should be taken to protect against bodily injury and equipment damage in the event that there is a loss of power to equipment controlled by pneumatics, electricity, or hydraulics.

5. Consider emergency stops.

Design so that human injury and/or damage to machinery and equipment will not be caused when machinery is stopped by a safety device under abnormal conditions, a power outage or a manual emergency stop.

6. Consider the action when operation is restarted after an emergency stop or abnormal stop.

Design the machinery so that human injury or equipment damage will not occur upon restart of operation. When the cylinder has to be reset at the starting position, install manual safety equipment.

7. No self-locking mechanism

At air shutoff, there is no force generated to hold the workpiece. External forces will cause the workpiece to move out of place in the event that air is lost. Measures should be taken to protect against bodily injury with the hazard.