



# ISO Cylinder

## Series C85

ø8, ø10, ø12, ø16, ø20, ø25

Conforming to ISO 6432 and CETOP RP52P.

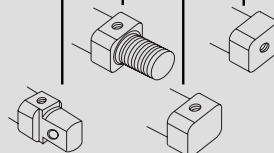


### Series Variations

Series	Action	Rod	Cushion	Head cover style				Switch mount		Rod boot (ø20, 25)	Bore size (mm)	Page
				N	E	F	Y	Rail	Band			
<b>Standard Series C85</b> 	Double acting	Single	Rubber	●	●	●	●	●	●	●	8 to 25	6-11-6
			Air	●	●	●	●	●	●	●	10 to 25	
		Double	Rubber	●	●	●	●	●	●	●	8 to 25	
			Air	●	●	●	●	●	●	●	10 to 25	
<b>Non-rotating rod Series C85K</b> 	Single acting	Single (SR, SE)	Rubber	●	●	●	●	●	●	●	8 to 25	6-11-23
				(Not for SE)				●	●	●	8 to 25	
				●	●	●	●	●	●	●	8 to 25	
				(Not for SE)				●	●	●	8 to 25	
<b>Direct mount Series C85R</b> 	Base	Double acting	Single	Rubber	●	●	●	●	●	●	8 to 25	6-11-38
					●	●	●	●	●	●	20, 25	
	Front	Double acting	Single	Rubber	●	●	●	●	●	●	8 to 25	
					●	●	●	●	●	●	20, 25	

Mounting style

SR = Spring Return  
SE = Spring Extended



CJ1
CJP
CJ2
CM2
CG1
MB
MB1
CA2
CS1
C76
<b>C85</b>
C95
CP95
NCM
NCA
D-
-X
20-
Data

# Series C85: $\varnothing 8$ , $\varnothing 10$ , $\varnothing 12$ ,

## Extended Service Life

Automated assembly guarantees 100% repeatable mounting accuracy.

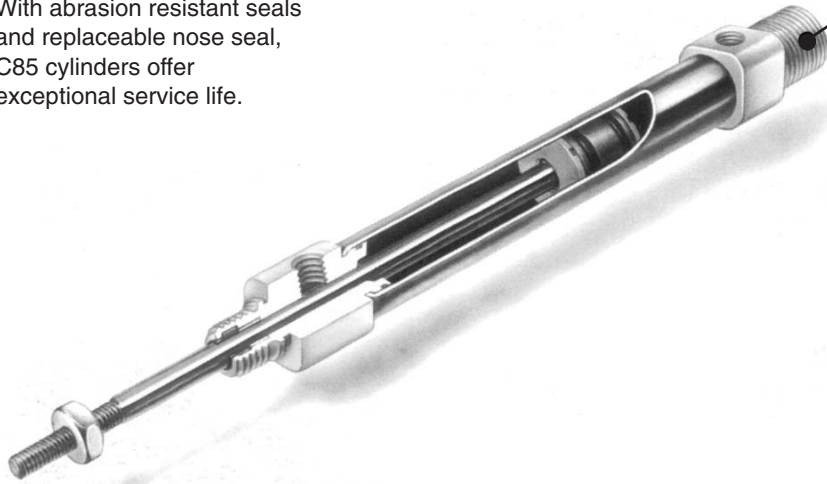
With abrasion resistant seals and replaceable nose seal, C85 cylinders offer exceptional service life.

## Corrosion Resistance

All parts are corrosion resistant. End covers and clevis are specially anodised while barrel is stainless steel. Piston rod is stainless steel up to  $\varnothing 16$ .  $\varnothing 20$  to  $\varnothing 40$  is C45 hard chromed.

## ISO Standard 6432

is compliant with auto switch type.



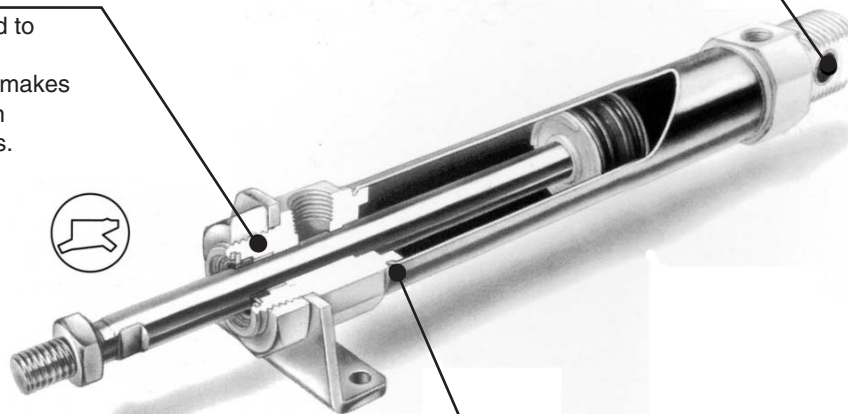
**C85:  $\varnothing 8$ ,  $\varnothing 10$ ,  $\varnothing 12$ ,  $\varnothing 16$**

## Bronze Bush Bearing

High quality bronze bush in clevis bearing extends the life of cylinder.

## High Dust Resistance

A unique rod seal is employed to prevent entry of dust. The effectiveness of the seal makes the cylinder suitable for use in extremely dusty environments.



**C85:  $\varnothing 20$ ,  $\varnothing 25$**

## Leak Proof Assembly

Double swaging of the end covers of the barrel provides an absolutely air tight union.

# ISO Cylinder: Standard/Non-rotating Type Double Acting, Single/Double Rod

## Series C85

ø8, ø10, ø12, ø16, ø20, ø25

### How to Order

<b>Double acting Single rod</b>	<b>C</b>	<b>D</b>	<b>85</b>	<b>K</b>	<b>N</b>	<b>16</b>	<b>40</b>	<b>C</b>	<b>J</b>	<b>A</b>	<b>R2</b>
<b>Double acting Double rod</b>	<b>C</b>	<b>D</b>	<b>85 W</b>	<b>E</b>	<b>16</b>	<b>40</b>	<b>C</b>	<b>JJ</b>	<b>B</b>		

<b>Built-in magnet</b>	
<b>Nil</b>	None
<b>D</b>	Built-in magnet

<b>Type</b>	
<b>Nil</b>	Standard
<b>K</b>	Non-rotating rod (Rubber cushion only)

<b>Mounting style</b>	
<b>Symbol</b>	<b>Mounting</b>
<b>N</b>	Basic integrated clevis
<b>E**</b>	Double end
<b>F**</b>	Front nose
<b>Y**</b>	Front nose in line port

\* Double acting, Double rod:  
Only double end style (E).  
\*\* Except air cushion type.

<b>Auto switch mounting type</b>	
<b>A</b>	Rail mounting
<b>B</b>	Band mounting

Applicable auto switches and bands are shown on page 6-11-44. Please order auto switches and bands separately.

<b>Option</b>	
<b>R</b>	Stainless steel piston rod, rod end nut and mounting nut
<b>R2</b>	Stainless steel piston rod and rod end nut

Note) Please refer to page 6-11-47 for additional options. Only one option can be selected.

<b>Rod boot (Only ø20, ø25)</b>	
<b>Nil</b>	Without rod boot
<b>J</b>	Nylon tarpaulin one side
<b>K</b>	Heat resistant tarpaulin one side
<b>JJ*</b>	Nylon tarpaulin both sides
<b>KK*</b>	Heat resistant tarpaulin both sides

\* In the case of double acting/double rod.

<b>Cushion</b>	
<b>Nil</b>	Rubber cushion (Standard)
<b>C</b>	Air cushion (Only "N" execution, bores 10 to 25 mm)

<b>Bore size (mm)</b>	<b>Standard stroke (mm)**</b>	<b>Max. stroke (mm)</b>		
		<b>Standard</b>	<b>Non-rotating</b>	<b>Double rod</b>
<b>8*</b>	10, 25, 40, 50, 80, 100	400	100	100
<b>10</b>				
<b>12</b>				
<b>16</b>	10, 25, 40, 50, 80, 100, 125, 160, 200	1000	1000	500
<b>20</b>	10, 25, 40, 50, 80, 100, 125, 160, 200, 250, 300			
<b>25</b>				

\* Not available with air cushion.  
\*\* Other strokes available on request.

### Mounting Bracket Part No.

Bore size (mm)		8	10	12	16	20	25
Mounting bracket	Foot (1 pc.)	C85L10A	C85L16A	C85L25A			
	Foot (2 pcs. with mounting nut 1 pc.)	C85L10B	C85L16B	C85L25B			
	Flange	C85F10	C85F16	C85F25			
	Trunnion	C85T10	C85T16	C85T25			
	Clevis	C85C10	C85C16	C85C25			
Accessory	Single knuckle joint	KJ4D	KJ6D	KJ8D	KJ10D		
	Double knuckle joint	GKM4-8	GKM6-10	GKM8-16	GKM10-20		
	Floating joint	JA10-4-070	JA15-6-100	JA20-8-125	JA30-10-125		

### Replacement Parts For Standard Cylinders

Bore size (mm)	Part no.	Note
20	C85-20PS	Every set includes: n°1 rod seal n°1 seal retaining washer n°1 retaining ring
25	C85-25PS	

### For Non-rotating Cylinders ("K")

Bore size (mm)	Part no.	Note
20	C85K-20PS	Every set includes: n°1 rod seal n°1 seal retaining washer n°1 retaining ring
25	C85K-25PS	

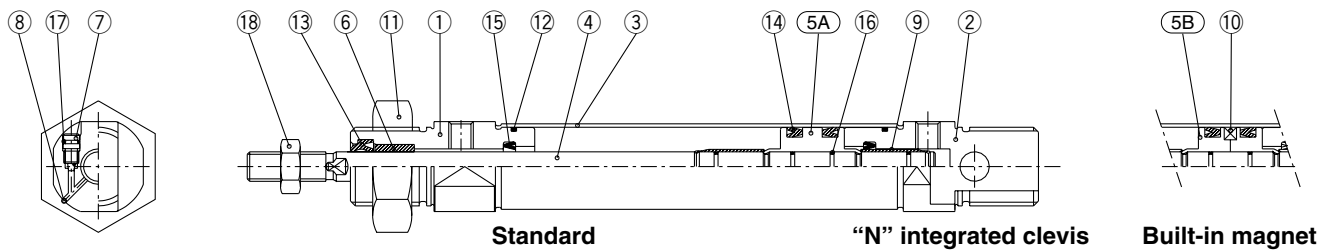
# Series C85

## Construction

[First angle projection]

Double acting, Single rod

C□85□10 to 16 Air cushion (Disassembly is not possible.)

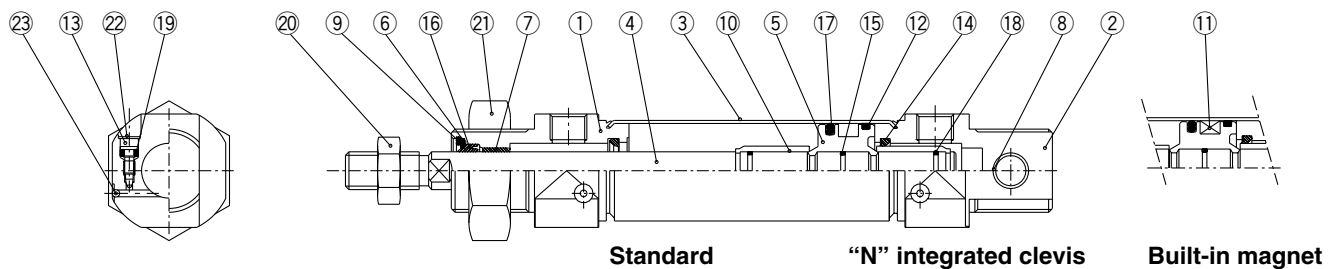


## Component Parts

No.	Description	Material	Qty.	Note
①	Rod cover	Aluminum alloy	1	White anodized
②	Head cover N	Aluminum alloy	1	White anodized
③	Cylinder tube	Stainless steel	1	
④	Piston rod	Stainless steel	1	
⑤A	Piston A	Brass	1	
⑤B	Piston B	Brass	2	(Switch type piston)
⑥	Bush	Sintered bronze	1	
⑦	Cushion needle	Stainless steel	2	
⑧	Steel ball	Bearing steel	2	

No.	Description	Material	Qty.	Note
⑨	Cushion ring	Brass	2	
⑩	Magnet	Magnet	1	(Switch type only)
⑪	Mounting nut	Carbon steel	1	Nickel plating
⑫	Tube gasket	NBR	2	
⑬	Rod seal	NBR	1	
⑭	Piston seal	NBR	2	
⑮	Check seal	NBR	2	
⑯	Piston gasket and cushion ring gasket	NBR	3	(4 for switch type)
⑰	Needle seal	NBR	2	
⑱	Rod end nut	Carbon steel	1	Nickel plating

C□85□20/25 Air cushion



## Component Parts

No.	Description	Material	Qty.	Note
①	Rod cover	Aluminum alloy	1	White anodized
②	Head cover N	Aluminum alloy	1	White anodized
③	Cylinder tube	Stainless steel	1	
④	Piston rod	Carbon steel	1	Hard chrome plated
⑤	Piston	Aluminum alloy	1	Chromate
⑥	Plain washer	Stainless steel	1	
⑦	Bush	Sintered bronze	1	
⑧	Bush	Sintered bronze	1	
⑨	Retaining ring	Carbon steel	1	Nickel plating
⑩	Cushion ring	Brass	2	
⑪	Magnet	Magnet	1	(Switch type only)
⑫	Wear ring	Resin	1	

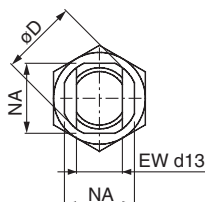
No.	Description	Material	Qty.	Note
⑬	Cushion needle	Alloy steel	2	Electroless nickel plating
⑭	Cushion seal	Urethane	2	
⑮	Piston gasket	NBR	1	
⑯	Rod seal	NBR	1	
⑰	Piston seal	NBR	1	
⑱	Cushion ring gasket	NBR	2	
⑲	Cushion needle seal	NBR	2	
⑳	Rod end nut	Carbon steel	1	Nickel plating
㉑	Mounting nut	Carbon steel	1	Nickel plating
㉒	Self locking ring	Stainless steel	2	
㉓	Steel ball	Stainless steel	2	

## Series C85

[First angle projection]

Rubber cushion: C  85N Bore  Stroke

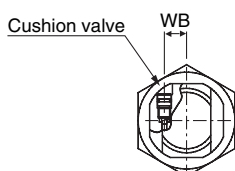
**Without magnet, Built-in magnet**



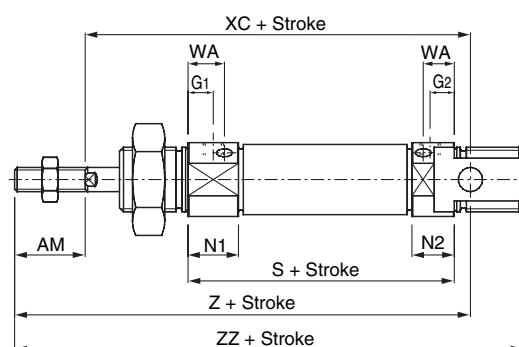
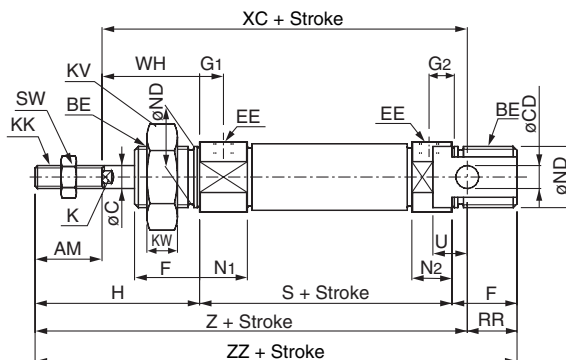
**Band mounting type (B)  
or non-magnet**

**Without magnet, Built-in magnet**

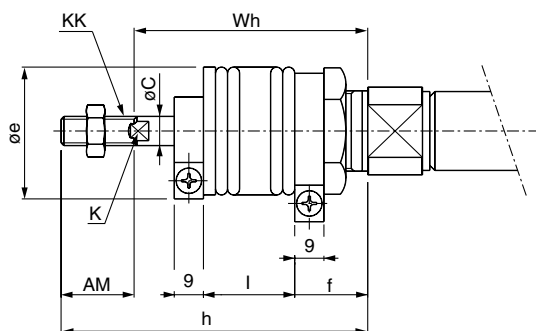
Without magnet, Built-in magnet



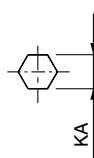
**Band mounting type (B)  
or non-magnet**



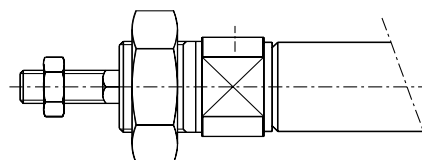
### With rod boot



**Non-rotating, Piston rod (Rubber cushion only)**



### Rod cross section



(mm)

Bore	AM	BE	oC	oCD H9	oD	EE	EW	F	G1	G2	WA	WB	H	HR	K	KA	KK	KV	KW	N1	N2	NA	oND h8	RR	S	SW	U	WH	XC	Z	ZZ
8	12	M12 x 1.25	4	4H9	16.7	M5 x 0.8	8	12	7	5	—	—	28	10	—	4.2	M4 x 0.7	19	6	11.5	9.5	15	12	10	46	7	6	16	64	76	86
10	12	M12 x 1.25	4	4H9	16.7	M5 x 0.8	8	12	<sup>7</sup> <sub>(5.5)</sub>	<sup>5</sup> <sub>(5.5)</sub>	10.5	4.5	28	10.5	—	4.2	M4 x 0.7	19	6	<sup>11.5</sup> <sub>(12.5)</sub>	<sup>9.5</sup> <sub>(13.5)</sub>	15	12	10	<sup>46</sup> <sub>(53)</sub>	7	6	16	<sup>64</sup> <sub>(71)</sub>	<sup>76</sup> <sub>(83)</sub>	<sup>86</sup> <sub>(93)</sub>
12	16	M16 x 1.5	6	6H9	19.7	M5 x 0.8	12	17	<sup>8</sup> <sub>(6.5)</sub>	<sup>6</sup> <sub>(5.5)</sub>	9.5	5.5	38	14	5	6.2	M6 x 1	24	8	<sup>12.5</sup> <sub>(12.5)</sub>	<sup>10.5</sup> <sub>(12.5)</sub>	18.3	16	14	<sup>50</sup> <sub>(54)</sub>	<sup>75</sup> <sub>(79)</sub>	10	9	22	<sup>105</sup> <sub>(109)</sub>	<sup>115</sup> <sub>(119)</sub>
16	16	M16 x 1.5	6	6H9	19.7	M5 x 0.8	12	17	<sup>8</sup> <sub>(6.5)</sub>	<sup>6</sup> <sub>(5.5)</sub>	9.5	5.5	38	14	5	6.2	M6 x 1	24	8	<sup>12.5</sup> <sub>(12.5)</sub>	<sup>10.5</sup> <sub>(12.5)</sub>	18.3	16	13	<sup>56</sup> <sub>(56)</sub>	10	9	22	<sup>82</sup> <sub>(82)</sub>	<sup>98</sup> <sub>(98)</sub>	<sup>111</sup> <sub>(111)</sub>
20	20	M22 x 1.5	8	8	28	G 1/8	16	20	8	8	11.5(13)	8.5	44	17	6	8.2	M8 x 1.25	32	11	15(17)	15(17)	24	22	11	62	13	12	24	95	115	126
25	22	M22 x 1.5	10		33.5	G 1/8	16	22	8	8	11.5(13)	10.5	50	20	8	10.2	M10 x 1.25	32	11	15(17)	15(17)	30	22	11	65	17	12	28	104	126	137

( ): In the case of air cushion.

## With Rod Boot

(mm)

Bore Item Stroke	AM	øC	øe	f	K	KK	h						
							1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500
20	20	8	36	20	6	M8 x 1.25	71	84	96	109	134	159	—
25	22	10	36	20	8	M10 x 1.25	74	87	99	112	137	162	187

Bore	Item Stroke	I							Wh						
		1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500
20		12.5	25	37.5	50	75	100	—	51	64	76	89	114	139	—
25		12.5	25	37.5	50	75	100	125	52	65	77	90	115	140	165

## 1 High Temperature XB6

### C85 Mounting Bore size – Stroke – XB6

N, E, F, Y 8, 10, 12, 16, 20, 25 mm

Standard cylinder seals are replaced with special ones and other modifications are made in order to enable the cylinder to operate at a high ambient temperature (–10 to 150°C).

#### Possible applications:

- Bore size 8 to 20 mm
- Rubber bumper
- Without magnets (Auto switches cannot be used at high temperature.)
- Single rod — Double acting
- Double rod — Double acting (W)

#### Dimensions unchanged

#### Specifications

Type	Air cylinder
Applicable size	ø8, ø10, ø16, ø20, ø25 mm
Action	Double acting
Ambient temperature range	–10 to 150°C
Piston speed	50 to 500 mm/s
Cushion	Rubber bumper
Material	Seal: Fluorocarbon rubber Wear ring: Fluorocarbon resin
Grease	Fluorinated grease

Note) Contact SMC for non-rotating type.

## 3 Low Speed XB9

### C85 Mounting Bore size – Stroke – XB9

N, E, F, Y 20, 25 mm

The cylinder does not generate any stick-slip phenomenon even at the rated low speed of 10 to 50 mm/s.

All strokes drive at a constant speed smoothly.

#### Possible applications:

- Bore size 20 and 25 mm
- Rubber bumper type only
- With or without magnets
- Single rod — Double acting

#### Dimensions unchanged

#### Specifications

Type	Air cylinder
Applicable size	ø20, ø25 mm
Action	Double acting
Piston speed	10 to 50 mm/s
Cushion	Rubber bumper

Note) Contact SMC for non-rotating type.

## 2 Low Temperature XB7

### C85 Mounting Bore size – Stroke – XB7

N, E, F, Y 20, 25 mm

Standard cylinder packing are replaced with special ones and other modifications are made in order to enable the cylinder to operate at a low ambient temperature (–55 to 70°C).

#### Possible applications:

- Bore size 20 and 25 mm
- Rubber bumper
- Without magnets (Auto switches cannot be used at low temperature.)
- Single rod — Double acting
- Double rod — Double acting (W)

#### Dimensions unchanged

#### Specifications

Type	Air cylinder
Applicable size	ø20, ø25 mm
Action	Double acting
Ambient temperature range	–55 to 70°C
Cushion	Rubber bumper
Material	Seal: Low nitrile rubber Wear ring: Fluorocarbon resin
Grease	Fluorinated grease

Note) Contact SMC for non-rotating type.

## 4 Heavy-duty Scraper XC4

### C85 Mounting Bore size – Stroke – XC4

N, E, F, Y 20, 25 mm

A heavy-duty scraper is used as wiper ring. Ideal for severe applications where the cylinder is exposed to dust, earth and sand. Applicable to casting machines, construction machines, industrial vehicles, etc.

#### Possible applications:

- Bore size 20 and 25 mm
- Rubber bumper type only
- With or without magnets
- Single rod — Double acting
- Double rod — Double acting (W)

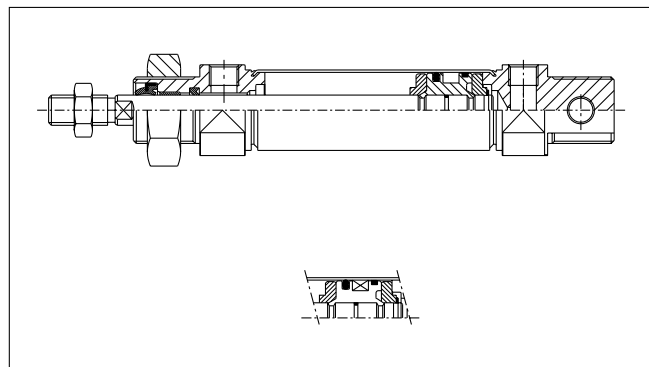
#### Dimensions unchanged

#### Specifications

Type	Air cylinder
Applicable size	ø20, ø25 mm
Max. operating pressure	1 MPa (10 bar)
Min. operating pressure	0.08 MPa (0.8 bar)
Cushion	Rubber bumper
Wiper ring	NBR (SCB)

Note) Not applicable for non-rotating type.

#### Construction



CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

C76

C85

C95

CP95

NCM

NCA

D-

-X

20-

Data