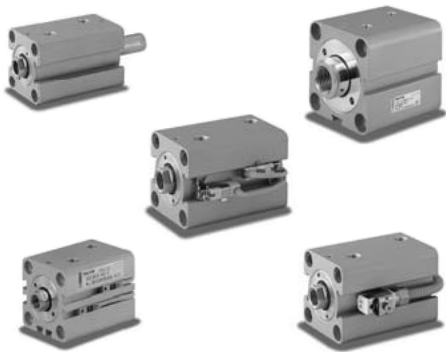


Operates at up to 16 MPa depending on the frequency of pressure supply

- A wide selection of models is available with cylinder bores from 20 mm to 100 mm.
- Light-weight, compact design hydraulic cylinders with bodies constructed of special aluminum alloy.
- Cost-effective selection is available based on frequency of operation and working pressure.
- Aluminum body, compact design hydraulic cylinder in pursuit of cost performance.
- Special copper alloy bearings are adopted to improve wear resistance.



Standard Specifications

Type	General purpose type	Cutting oil proof type
Rated pressure (according to rated pressure diagram)	$\phi 20, \phi 25, \phi 32, \phi 40, \phi 50$ 16 MPa (Fatigue durability (number of times) 6×10^5) 12 MPa (Fatigue durability (number of times) 1×10^7) $\phi 63, \phi 80, \phi 100$ 16 MPa (Fatigue durability (number of times) 3×10^5) 10 MPa (Fatigue durability (number of times) 1×10^7)	
Proof test pressure	20 MPa	
Minimum operating pressure	0.3 MPa	
Working speed range	8 to 100mm/s	
Working temperature range (ambient temp. and oil temp.)	Standard type..... -10 to +70°C Switch Set AX/AZ type, T type..... -10 to +70°C WR/WS type..... -10 to +60°C (No freezing)	
Structure of cushioning	None	
Adaptable fluid	Petroleum-based fluid (When using another fluid, refer to the table of fluid adaptability.)	
Tolerance for thread	JIS 6H/6g	
Tolerance of stroke	0 to 0.8mm	
Mounting style	SD, LD, FA, FB	
Rod end threads	Female thread and male thread	
Applicable sensor for Switch Set	$(\phi 20, \phi 25)$ T type HQS2R: $(\phi 32$ to $\phi 100)$ AX/AZ type WR/WS type	HQSW2R:WR/WS type

Double acting single rod



Standard type
(HQS2-HQSW2)



Switch Set
(HQS2R-HQSW2R)

Double acting double rod



Standard type
(HQS2D-HQSW2D)



Switch Set
(HQS2RD-HQSW2RD)

• The general purpose type and cutting oil proof type have the same dimensions.

Terminologies

Rated pressure

Working pressure which guarantees performance under a specified condition. The specified condition means our fatigue test with reference to the "Guidelines for selection and use of hydraulic cylinders, Annex 2: Strength test method of hydraulic cylinders," JFPS 1014:2002 (Japan Fluid Power Association Standards).

Proof test pressure

Static pressure used for inspection which does not cause abnormality when held for a specified time, and does not deteriorate cylinder performance when returning to the atmosphere pressure.

Minimum operating pressure

Minimum pressure at which cylinder installed horizontally operates under no load.

- Notes) • This series of cylinders does not have air vents.
• Since lateral load (eccentric load) must not be applied to the piston rod, take care when installing the cylinder.

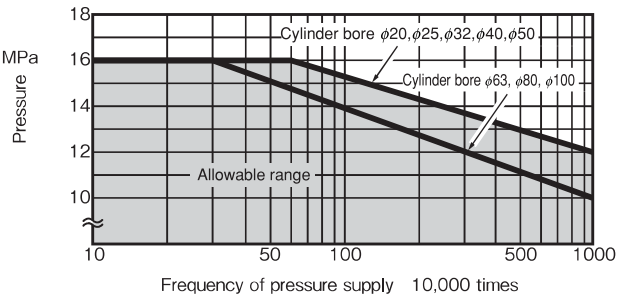
Product Lineup

Unit: mm

Series Variations	Type	Mounting style	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$	$\phi 100$
General purpose type	Double acting single rod	Standard type HQS2	SD							
		LD-FA-FB								
		Switch Set HQS2R	SD							
		LD-FA-FB								
	Double acting double rod	Standard type HQS2D	SD							
		LD-FA								
Cutting oil proof type	Double acting single rod	Standard type HQSW2	SD							
		LD-FA-FB								
		Switch Set HQSW2R	SD							
		LD-FA-FB								
	Double acting double rod	Standard type HQSW2D	SD							
		LD-FA								

- Notes) • When using a sensor, use a Switch Set Cylinder.
• No sensor can be mounted onto the standard type cylinder.

Rated Pressure Diagram



How to read the diagram

- Frequency of pressure supplied to the cylinder is taken along X-axis (horizontal).
- Move up vertically from the frequency, and the pressure where the line crosses the limit line of each bore indicates the pressure (rated pressure) at which the cylinder can be used up to the corresponding frequency of pressure supply. (Failure probability 1%)

● How to order

General Purpose Type (Bore φ20 to φ100) The item enclosed by broken line needs not to be entered, if unnecessary. Semi-standard specification

● Standard type

HQS2

● Switch Set

HQS2R

Type ①

6

Seal material ②

SD

Mounting style ③

40

Cylinder bore ④

N

Cushioning ⑤

50

Stroke ⑥

T

Thread type ⑦

G

Port type ⑧

—

Sensor symbol ⑨

L

Sensor quantity ⑩

—

Lock nut ⑪

—

Air vent ⑫

V

Double acting single rod

HQS2 : Standard type

HQS2R : Switch Set

Double acting double rod

HQS2D : Standard type

HQS2RD : Switch Set

③ Fluorocarbon

⑥ HNBR

Note) The seal of cylinders with bores of 20 and 25 mm is only HNBR.

SD SD style (basic style)

LD LD style (end angles)

FA FA style (rod flange)

FB FB style (cap flange)

Note) When ordering the mounting style LD or FA cylinder, it is necessary to change dimension WF of the SD style. For details, contact us.

Cylinder bore (mm)

φ20 to φ100

No cushion

Cylinder stroke (mm)

None No air vent (standard)

V With air vent (order made: φ32 to φ100)

L With one lock nut

Note) Available only for male thread type. Additional order is required when 2 or more lock nuts are necessary.

Sensor symbol

Note) Select applicable sensors out of the Sensor List.

① Notes on ordering Switch Set

● When no sensor is required, specify 0 for the sensor symbol ⑨ and the sensor quantity ⑩.

● Sensors are not mounted on cylinders at delivery.

None Rc thread

G G thread

Note) G thread is applicable only to the SD style.

Female thread type (No entry for standard type)

Male thread type

Note) In case of double acting double rod type, both sides are male thread type.

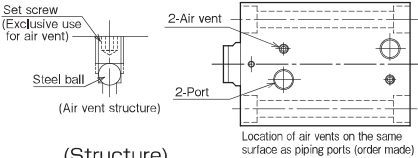
Adaptability of Fluid to Seal Material

Seal material	Adaptable fluid				
	Petroleum-based fluid	Water-glycol fluid	Phosphate ester fluid	Water in oil fluid	Oil in water fluid
③ Fluorocarbon	○	×	○	○	○
⑥ HNBR	○	◎	×	◎	◎

Notes) 1. ◎: Applicable ×: Inapplicable
2. The ◎-marked items are recommended seal materials in case of giving the first priority to abrasion resistance.

★ Specification of air vent (order made)

The air vents are laid on the port surface and located symmetrical positions to the ports.



(Structure)
Applicable to: Single rod, double rod SD/LD/FA/FB style
Bore φ32 to φ100

● How to order

Cutting Oil Proof Type (Bore φ32 to φ100) The item enclosed by broken line needs not to be entered, if unnecessary.

● Standard type

HQSW2

● Switch Set

HQSW2R

Type ①

6

Seal material ②

SD

Mounting style ③

40

Cylinder bore ④

N

Cushioning ⑤

50

Stroke ⑥

T

Thread type ⑦

G

Port type ⑧

—

Sensor symbol ⑨

L

Sensor quantity ⑩

—

Lock nut ⑪

—

Air vent ⑫

V

Double acting single rod

HQSW2 : Standard type

HQSW2R : Switch Set

Double acting double rod

HQSW2D : Standard type

HQSW2RD : Switch Set

⑤ WR525 (rear wiring, w/5 m cord)

⑧ WR535 (upper wiring, w/5 m cord)

⑤F WR525F (rear wiring, w/5 m cord/flexible tube attached)

⑧F WR535F (upper wiring, w/5 m cord/flexible tube attached)

RA AX205WCE (rear wiring, w/5 m cord)

RB AZ205WCE (upper wiring, w/5 m cord)

② WS235-1 (rear wiring, w/5 m cord)

① WS245-1 (upper wiring, w/5 m cord)

②F WS235-1F (rear wiring, w/5 m cord/flexible tube attached)

①F WS245-1F (upper wiring, w/5 m cord/flexible tube attached)

Note) For the details of types other than the above, refer to the general purpose type.

Cylinder bore (mm)

φ32 to φ100

Note) Bore size 20 mm and 25 mm are not available.

⑥ HNBR

Note) For the details of types other than the above, refer to the general purpose type.

Cutting Oil Proof Type: Adaptability of cutting oil to seal material

Seal material	Nonaqueous cutting oil		Aqueous cutting oil
	Type 1	Type 2	
⑥ HNBR	○	×	○

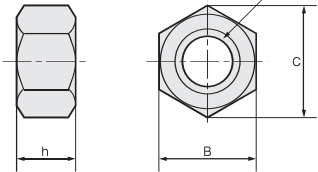
Note) ○: Applicable ×: Inapplicable

★ Port G thread type (only for SD style)

● Please specify the part number as following.
(Example) HQS2 6SD63N30—G
Port G thread type

Note) ● The port G thread has dimensions different from the standard dimensions depending on the bore. Refer to the dimensional tables.

★ Lock nut number for ordering



Dimensional Table

Bore	Part number	d	B	C	h
φ20	LNH-10F-H	M10×1.25	17	19.6	6
φ25	LNH-12F-H	M12×1.25	19	21.9	7
φ32	LNH-16F-H	M16×1.5	22	25.4	10
φ40	LNH-20F-H	M20×1.5	27	31.2	12
φ50	LNH-24F-H	M24×1.5	32	37.0	14
φ63	LNH-30F-H	M30×1.5	41	47.3	17
φ80	LNH-39F-H	M39×1.5	55	63.5	20
φ100	LNH-48F-H	M48×1.5	70	80.8	26

SD

Standard type

General purpose type HQS2 6 SD Bore N Stroke T (φ20 to φ100)

Cutting oil proof type HQSW2 6 SD Bore N Stroke T (φ32 to φ100)

None : Female thread type

T : Male thread type

Switch Set

General purpose type HQS2R 6 SD Bore N Stroke T Sensor symbol Sensor quantity (φ20 to φ100)

Cutting oil proof type HQSW2R 6 SD Bore N Stroke T Sensor symbol Sensor quantity (φ32 to φ100)

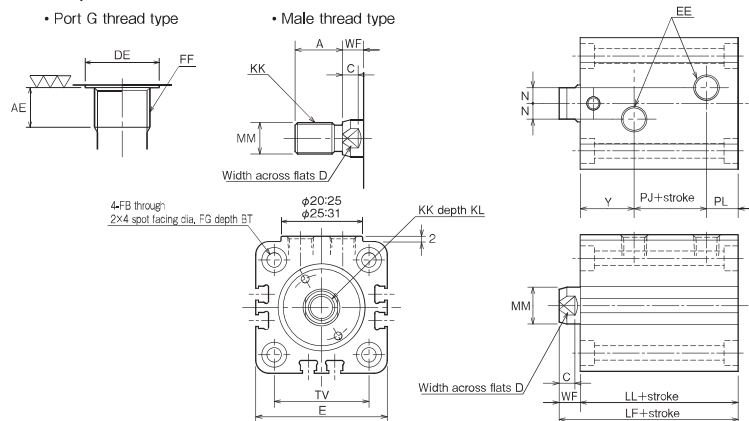
 : Female thread type

T : Male thread type

- Bore $\phi 20$ and $\phi 25$

- Port G thread type

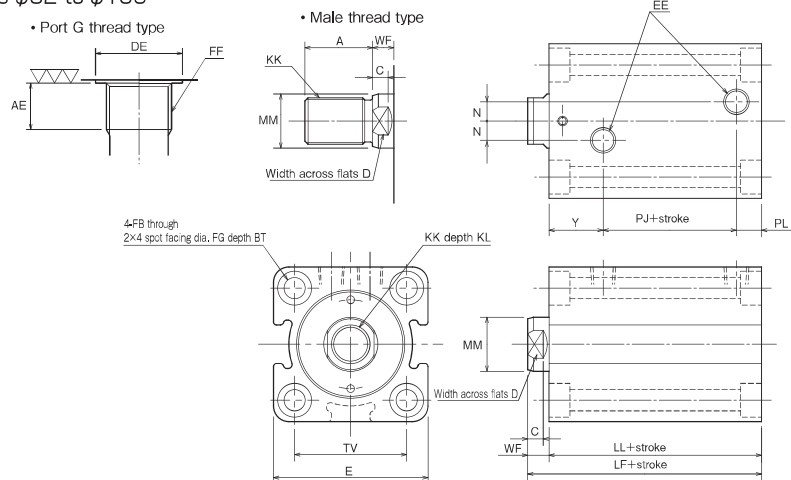
- Male thread type



- Bore $\phi 32$ to $\phi 100$

- Port G thread type

- Male thread type



- For the mounting of sensors, refer to the "dimensional drawings of Switch Set". All the contents other than sensor mounting dimensions are the same.
- The 100 mm bore cylinder has three sensor mounting grooves.

HQS2/THQS2 CAD/DATA is available.

Dimensional Table

Symbol	A	AE	BT	C	D	DE	E	EE	FB	FF	FG	KK		KL
Bore												Female thread type	Male thread type	
φ20	15(25)	8	5.4	6	10	φ17.2	□44	Rc1/8	φ5.5	G1/8	φ9.5	M8×1.25	M10×1.25	10
φ25	18(30)	8	5.4	6	12	φ17.2	□50	Rc1/8	φ5.5	G1/8	φ9.5	M10×1.5	M12×1.25	12
φ32	25(40)	8	6.5	7	14	φ17.2	□62	Rc1/4	φ6.6	G1/8	φ11	M12×1.75	M16×1.5	15
φ40	30(45)	8	8.6	7	19	φ17.2	□70	Rc1/4	φ9	G1/8	φ14	M16×2	M20×1.5	20
φ50	35(50)	12	10.8	8	24	φ21.5	□80	Rc1/4	φ11	G1/4	φ17.5	M20×2.5	M24×1.5	24
φ63	45(60)	12	13	9	30	φ21.5	□94	Rc1/4	φ14	G1/4	φ20	M27×3	M30×1.5	33
φ80	60(80)	12	15.2	14	41	φ21.5	□114	Rc3/8	φ16	G1/4	φ23	M30×3.5	M39×1.5	36
φ100	75(95)	12	17.5	22	50	φ25.5	□138	Rc3/8	φ18	G3/8	φ26	M39×4	M48×1.5	45

Bore	Symbol	LF	LL	MM	N		PJ		PL		TV	WF	Y	
					Rc thread	G thread	Rc thread	G thread	Rc thread	G thread			Rc thread	G thread
φ20		51	43	φ12	3	3	14.5	14.5	10	10	□30	8	18.5	18.5
φ25		53	45	φ14	6	6	12.5	12.5	12	12	□36	8	20.5	20.5
φ32		64	54	φ18	10	10	14	14	12	12	□47	10	28	28
φ40		65	55	φ22	10	10	16	16	12	12	□52	10	27	27
φ50		71	60	φ28	10	14	19	13.5	13	18.5	□58	11	28	28
φ63		80	67	φ36	10	16	24	20	13	17	□69	13	30	30
φ80		95	78	φ45	15	19	25	24	18	18	□86	17	35	36
φ100		122	96	φ56	15	18	26	26	28	28	□106	26	42	42

- (Notes) ● When the lock nut is used, the parenthesized dimension A is recommended. (Order made)
 ● The lock nut needs to be ordered separately. (Refer to the page of how to order.)
 ● 20 mm and 25 mm bore cylinders with a stroke of 5 mm have the same body size as those with a stroke of 10 mm.
 ● 20 mm and 25 mm bore sizes of the cutting oil proof type are not available.
 ● The tolerance of MM is f8.

LD

Standard type

General purpose type HQS2 6 LD Bore N Stroke T (φ20 to φ100)

Cutting oil proof type HQSW2 6 LD Bore N Stroke T (φ32 to φ100)

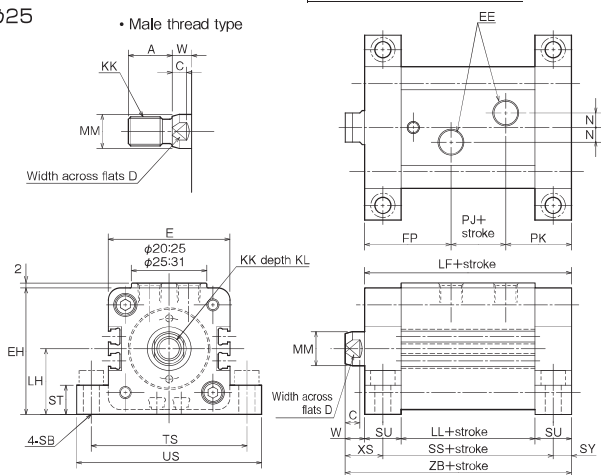
Switch Set

General purpose type HQS2R 6 LD Bore N Stroke T Sensor symbol Sensor quantity (φ20 to φ100)

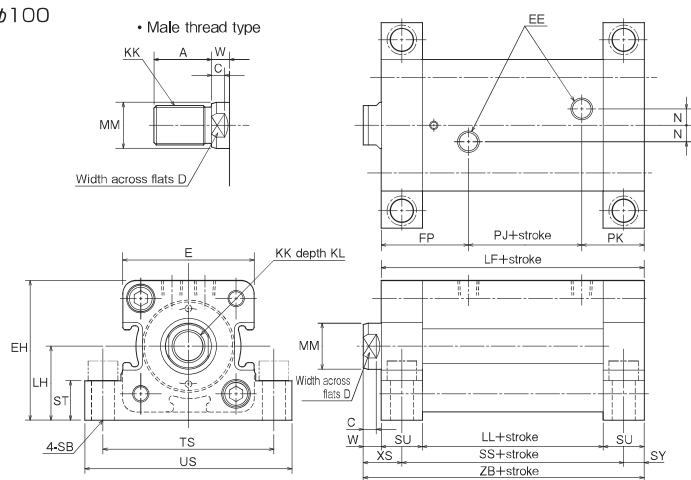
Cutting oil proof type HQSW2R 6 LD Bore N Stroke T Sensor symbol Sensor quantity (φ32 to φ100)

CAD/DATA
HQS2/THQS2 Bore is available.

• Bore φ20 and φ25



• Bore φ32 to φ100



- For the mounting of sensors, refer to the "dimensional drawings of Switch Set". All the contents other than sensor mounting dimensions are the same.
- * When installing the cylinder on the grounding surface, be sure to use hex. socket head cap screws.
- The 100 mm bore cylinder has three sensor mounting grooves.

Dimensional Table

Symbol Bore	A	C	D	E	EE	EH	FP	KK		KL	LF	LH
								Female thread type	Male thread type			
φ20	15(25)	6	10	□44	Rc1/8	46	33.5	M8×1.25	M10×1.25	10	73	24±0.15
φ25	18(30)	6	12	□50	Rc1/8	52	35.5	M10×1.5	M12×1.25	12	75	27±0.15
φ32	25(40)	7	14	□62	Rc1/4	66	48	M12×1.75	M16×1.5	15	94	35±0.15
φ40	30(45)	7	19	□70	Rc1/4	72.5	47	M16×2	M20×1.5	20	95	37.5±0.15
φ50	35(50)	8	24	□80	Rc1/4	85	53	M20×2.5	M24×1.5	24	110	45±0.15
φ63	45(60)	9	30	□94	Rc1/4	97	55	M27×3	M30×1.5	33	117	50±0.15
φ80	60(80)	14	41	□114	Rc3/8	117	65	M30×3.5	M39×1.5	36	138	60±0.25
φ100	75(95)	22	50	□138	Rc3/8	140	77	M39×4	M48×1.5	45	166	71±0.25

Symbol Bore	LL	MM	N	PJ	PK	SB	SS	ST	SU	SY	TS	US	W	XS	ZB
φ20	43	φ12	3	14.5	25	6.6	58	12	15	7.5	58	70	8	15.5	81
φ25	45	φ14	6	12.5	27	6.6	60	12	15	7.5	64	76	8	15.5	83
φ32	54	φ18	10	14	32	9	74	16	20	10	79	94	10	20	104
φ40	55	φ22	10	16	32	11	75	20	20	10	90	108	10	20	105
φ50	60	φ28	10	19	38	14	85	24	25	12.5	104	126	11	23.5	121
φ63	67	φ36	10	24	38	16	92	30	25	12.5	121	146	13	25.5	130
φ80	78	φ45	15	25	48	18	108	35	30	15	144	172	17	32	155
φ100	96	φ56	15	26	63	22	131	43	35	17.5	174	208	26	43.5	192

- Notes)
- When the lock nut is used, the parenthesized dimension A is recommended, (Order made)
 - The lock nut needs to be ordered separately. (Refer to the page of how to order.)
 - 20 mm and 25 mm bore cylinders with a stroke of 5 mm have the same body size as those with a stroke of 10 mm.
 - 20 mm and 25 mm bore sizes of the cutting oil proof type are not available.
 - The tolerance of MM is f8.

FA

Standard type

General purpose type HQS2 6 FA Bore N Stroke T (φ20 to φ100)

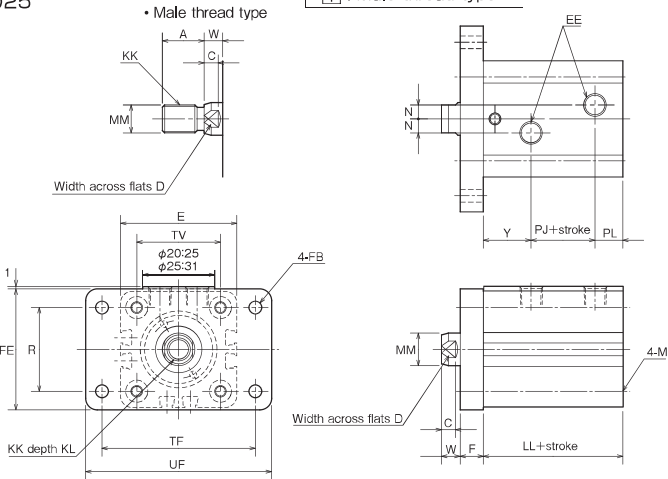
Cutting oil proof type HQSW2 6 FA Bore N Stroke T (φ32 to φ100)

Switch Set

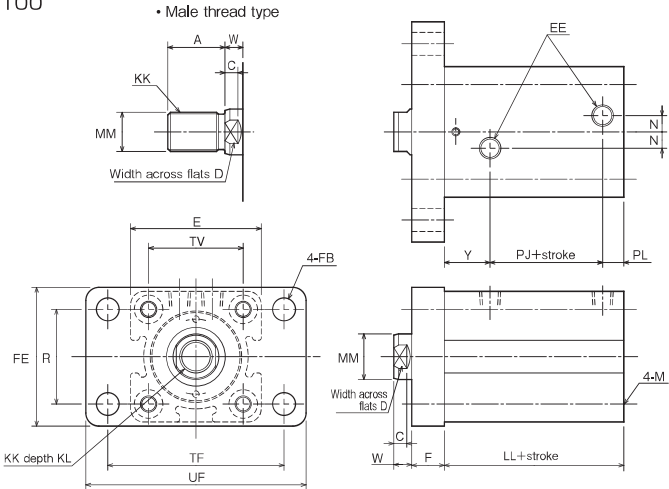
General purpose type HQS2R 6 FA Bore N Stroke T Sensor symbol Sensor quantity (φ20 to φ100)

Cutting oil proof type HQSW2R 6 FA Bore N Stroke T Sensor symbol Sensor quantity (φ32 to φ100)

- Bore φ20 and φ25



- Bore φ32 to φ100



- For the mounting of sensors, refer to the "dimensional drawings of Switch Set". All the contents other than sensor mounting dimensions are the same.
- The 100 mm bore cylinder has three sensor mounting grooves.

HQS2/THQS2 Bore CAD/DATA is available.



Dimensional Table

Symbol Bore	A	C	D	E	EE	F	FB	FE	KK		KL	LL
									Female thread type	Male thread type		
φ20	15(25)	6	10	□44	Rc1/8	10	φ5.5	46	M8×1.25	M10×1.25	10	43
φ25	18(30)	6	12	□50	Rc1/8	10	φ5.5	52	M10×1.5	M12×1.25	12	45
φ32	25(40)	7	14	□62	Rc1/4	15	φ6.6	62	M12×1.75	M16×1.5	15	54
φ40	30(45)	7	19	□70	Rc1/4	20	φ11	70	M16×2	M20×1.5	20	55
φ50	35(50)	8	24	□80	Rc1/4	20	φ14	85	M20×2.5	M24×1.5	24	60
φ63	45(60)	9	30	□94	Rc1/4	20	φ14	98	M27×3	M30×1.5	33	67
φ80	60(80)	14	41	□114	Rc3/8	25	φ18	118	M30×3.5	M39×1.5	36	78
φ100	75(95)	22	50	□138	Rc3/8	30	φ22	150	M39×4	M48×1.5	45	96

Symbol Bore	M	MM	N	PJ	PL	R	TF	TV	UF	W	Y
φ20	M5×0.8	φ12	3	14.5	10	30	60	□30	75	8	18.5
φ25	M5×0.8	φ14	6	12.5	12	36	66	□36	80	8	20.5
φ32	M6×1	φ18	10	14	12	40	80	□47	95	10	28
φ40	M8×1.25	φ22	10	16	12	46	96	□52	118	10	27
φ50	M10×1.5	φ28	10	19	13	58	108	□58	135	11	28
φ63	M12×1.75	φ36	10	24	13	65	124	□69	150	13	30
φ80	M14×2	φ45	15	25	18	87	154	□86	185	17	35
φ100	M16×2	φ56	15	26	28	109	190	□106	230	26	42

- Notes)
- When the lock nut is used, the parenthesized dimension A is recommended, (Order made)
 - The lock nut needs to be ordered separately. (Refer to the page of how to order.)
 - 20 mm and 25 mm bore cylinders with a stroke of 5 mm have the same body size as those with a stroke of 10 mm.
 - 20 mm and 25 mm bore sizes of the cutting oil proof type are not available.
 - The tolerance of MM is f8.

FB

Standard type

General purpose type HQS2 6 FB Bore N Stroke T (φ20 to φ100)

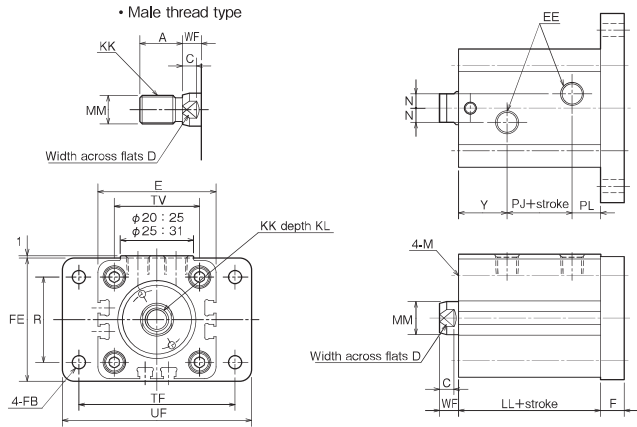
Cutting oil proof type HQSW2 6 FB Bore N Stroke T (φ32 to φ100)

Switch Set

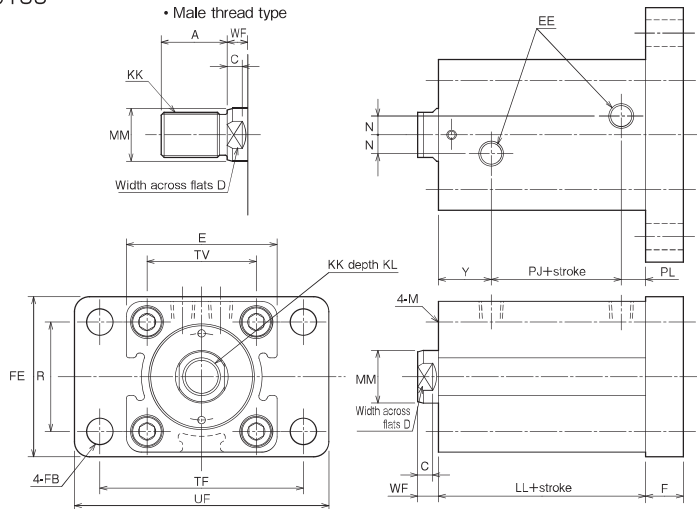
General purpose type HQS2R 6 FB Bore N Stroke T Sensor symbol Sensor quantity (φ20 to φ100)

Cutting oil proof type HQSW2R 6 FB Bore N Stroke T Sensor symbol Sensor quantity (φ32 to φ100)

• Bore φ20 and φ25



• Bore φ32 to φ100



- For the mounting of sensors, refer to the "dimensional drawings of Switch Set". All the contents other than sensor mounting dimensions are the same.
- The 100 mm bore cylinder has three sensor mounting grooves.

HQS2/THQS2 Bore is available. CAD/DATA is available.



Dimensional Table

Symbol Bore	A	C	D	E	EE	F	FB	FE	KK		KL	LL
									Female thread type	Male thread type		
φ20	15(25)	6	10	□44	Rc1/8	10	φ5.5	46	M8×1.25	M10×1.25	10	43
φ25	18(30)	6	12	□50	Rc1/8	10	φ5.5	52	M10×1.5	M12×1.25	12	45
φ32	25(40)	7	14	□62	Rc1/4	15	φ6.6	62	M12×1.75	M16×1.5	15	54
φ40	30(45)	7	19	□70	Rc1/4	20	φ11	70	M16×2	M20×1.5	20	55
φ50	35(50)	8	24	□80	Rc1/4	20	φ14	85	M20×2.5	M24×1.5	24	60
φ63	45(60)	9	30	□94	Rc1/4	20	φ14	98	M27×3	M30×1.5	33	67
φ80	60(80)	14	41	□114	Rc3/8	25	φ18	118	M30×3.5	M39×1.5	36	78
φ100	75(95)	22	50	□138	Rc3/8	30	φ22	150	M39×4	M48×1.5	45	96

Symbol Bore	M	MM	N	PJ	PL	R	TF	TV	UF	WF	Y
φ20	M5×0.8	φ12	3	14.5	10	30	60	□30	75	8	18.5
φ25	M5×0.8	φ14	6	12.5	12	36	66	□36	80	8	20.5
φ32	M6×1	φ18	10	14	12	40	80	□47	95	10	28
φ40	M8×1.25	φ22	10	16	12	46	96	□52	118	10	27
φ50	M10×1.5	φ28	10	19	13	58	108	□58	135	11	28
φ63	M12×1.75	φ36	10	24	13	65	124	□69	150	13	30
φ80	M14×2	φ45	15	25	18	87	154	□86	185	17	35
φ100	M16×2	φ56	15	26	28	109	190	□106	230	26	42

- Notes) • When the lock nut is used, the parenthesized dimension A is recommended, (Order made)
- The lock nut needs to be ordered separately, (Refer to the page of how to order.)
 - 20 mm and 25 mm bore cylinders with a stroke of 5 mm have the same body size as those with a stroke of 10 mm.
 - 20 mm and 25 mm bore sizes of the cutting oil proof type are not available.
 - The tolerance of MM is f8.

SD

Standard type

General purpose type HQS2D 6 SD Bore N Stroke T (φ20 to φ100)

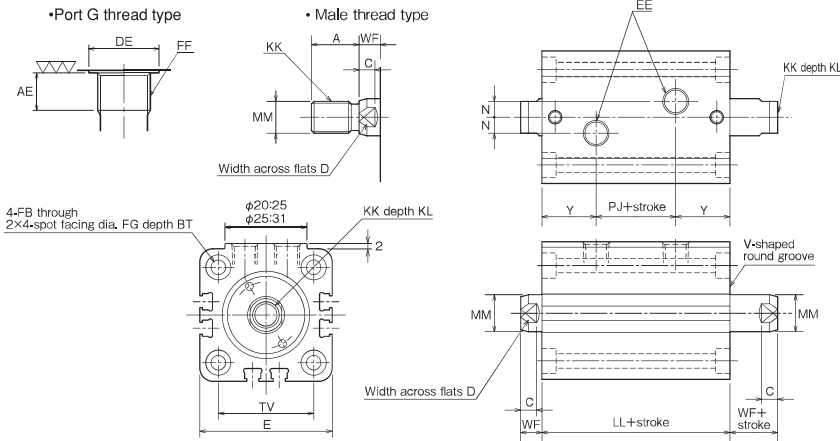
Cutting oil proof type HQSW2D 6 SD Bore N Stroke T (φ32 to φ100)

Switch Set

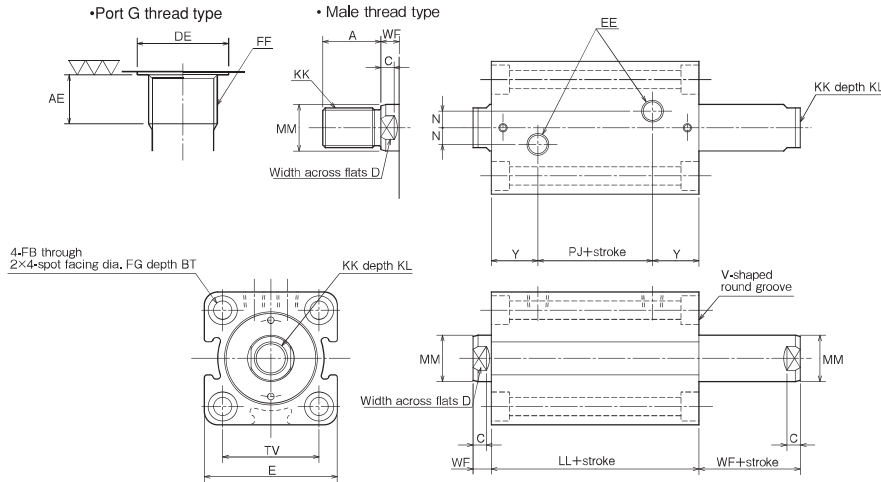
General purpose type HQS2RD 6 SD Bore N Stroke T Sensor symbol Sensor quantity (φ20 to φ100)

Cutting oil proof type HQSW2RD 6 SD Bore N Stroke T Sensor symbol Sensor quantity (φ32 to φ100)

• Bore φ20 and φ25



• Bore φ32 to φ100



- The surface without V-shaped round grooves on the end face is the mounting surface.
- For the mounting of sensors, refer to the "dimensional drawings of Switch Set". All the contents other than sensor mounting dimensions are the same.
- The 100 mm bore cylinder has three sensor mounting grooves.

HQS2/THQS2 Bore is available. CAD/DATA



Dimensional Table

Symbol Bore	A	AE	BT	C	D	DE	E	EE	FB	FF	FG	KK		KL
												Female thread type	Male thread type	
φ20	15(25)	8	5.4	6	10	φ17.2	□44	Rc1/8	φ5.5	G1/8	φ9.5	M8×1.25	M10×1.25	10
φ25	18(30)	8	5.4	6	12	φ17.2	□50	Rc1/8	φ5.5	G1/8	φ9.5	M10×1.5	M12×1.25	12
φ32	25(40)	8	6.5	7	14	φ17.2	□62	Rc1/4	φ6.6	G1/8	φ11	M12×1.75	M16×1.5	15
φ40	30(45)	8	8.6	7	19	φ17.2	□70	Rc1/4	φ9	G1/8	φ14	M16×2	M20×1.5	20
φ50	35(50)	12	10.8	8	24	φ21.5	□80	Rc1/4	φ11	G1/4	φ17.5	M20×2.5	M24×1.5	24
φ63	45(60)	12	13	9	30	φ21.5	□94	Rc1/4	φ14	G1/4	φ20	M27×3	M30×1.5	33
φ80	60(80)	12	15.2	14	41	φ21.5	□114	Rc3/8	φ16	G1/4	φ23	M30×3.5	M39×1.5	36
φ100	75(95)	12	17.5	22	50	φ25.5	□138	Rc3/8	φ18	G3/8	φ26	M39×4	M48×1.5	45

Symbol Bore	LL	MM	N		PJ		TV	WF	Y	
			Rc thread	G thread	Rc thread	G thread			Rc thread	G thread
φ20	54	φ12	3	3	17	17	□30	8	18.5	18.5
φ25	56	φ14	6	6	15	15	□36	8	20.5	20.5
φ32	72	φ18	10	10	16	16	□47	10	28	28
φ40	72	φ22	10	10	18	18	□52	10	27	27
φ50	75	φ28	10	14	19	19	□58	11	28	28
φ63	82	φ36	10	16	22	22	□69	13	30	30
φ80	95	φ45	15	19	25	23	□86	17	35	36
φ100	108	φ56	15	18	24	24	□106	26	42	42

- Notes) • When the lock nut is used, the parenthesized dimension A is recommended, (Order made)
- The lock nut needs to be ordered separately, (Refer to the page of how to order).
 - 20 mm and 25 mm bore cylinders with a stroke of 5 mm have the same body size as those with a stroke of 10 mm.
 - 20 mm and 25 mm bore sizes of the cutting oil proof type are not available.
 - The tolerance of MM is f8.

LD

Standard type

General purpose type HQS2D 6 LD Bore N Stroke T (φ20 to φ100)

Cutting oil proof type HQSW2D 6 LD Bore N Stroke T (φ32 to φ100)

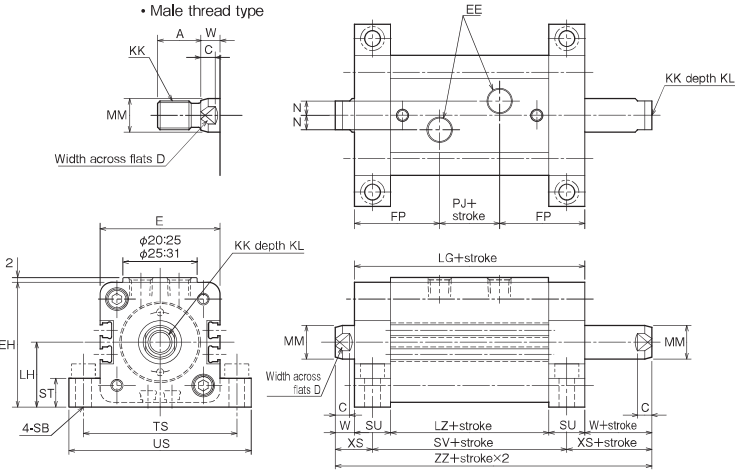
Switch Set

General purpose type HQS2RD 6 LD Bore N Stroke T Sensor symbol Sensor quantity (φ20 to φ100)

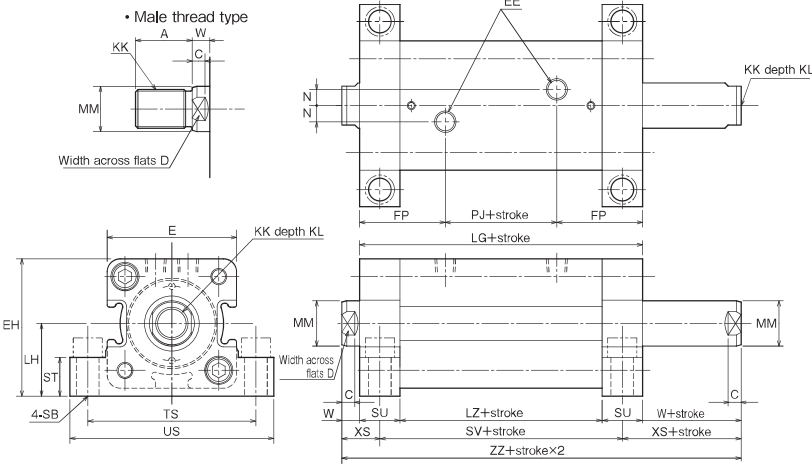
Cutting oil proof type HQSW2RD 6 LD Bore N Stroke T Sensor symbol Sensor quantity (φ32 to φ100)

HQS2/THQS2 Bore CAD/DATA is available.

- Bore φ20 and φ25



- Bore φ32 to φ100



- For the mounting of sensors, refer to the "dimensional drawings of Switch Set".
All the contents other than sensor mounting dimensions are the same.
- *When installing the cylinder on the grounding surface, be sure to use hex. socket head cap screws.
- The 100 mm bore cylinder has three sensor mounting grooves.

Dimensional Table

Symbol Bore	A	C	D	E	EE	EH	FP	KK		KL	LG	LH
								Female thread type	Male thread type			
φ20	15(25)	6	10	□44	Rc1/8	46	33.5	M8×1.25	M10×1.25	10	84	24±0.15
φ25	18(30)	6	12	□50	Rc1/8	52	35.5	M10×1.5	M12×1.25	12	86	27±0.15
φ32	25(40)	7	14	□62	Rc1/4	66	48	M12×1.75	M16×1.5	15	112	35±0.15
φ40	30(45)	7	19	□70	Rc1/4	72.5	47	M16×2	M20×1.5	20	112	37.5±0.15
φ50	35(50)	8	24	□80	Rc1/4	85	53	M20×2.5	M24×1.5	24	125	45±0.15
φ63	45(60)	9	30	□94	Rc1/4	97	55	M27×3	M30×1.5	33	132	50±0.15
φ80	60(80)	14	41	□114	Rc3/8	117	65	M30×3.5	M39×1.5	36	155	60±0.25
φ100	75(95)	22	50	□138	Rc3/8	140	77	M39×4	M48×1.5	45	178	71±0.25

Symbol Bore	LZ	MM	N	PJ	SB	ST	SU	SV	TS	US	W	XS	ZZ
φ20	54	φ12	3	17	6.6	12	15	69	58	70	8	15.5	100
φ25	56	φ14	6	15	6.6	12	15	71	64	76	8	15.5	102
φ32	72	φ18	10	16	9	16	20	92	79	94	10	20	132
φ40	72	φ22	10	18	11	20	20	92	90	108	10	20	132
φ50	75	φ28	10	19	14	24	25	100	104	126	11	23.5	147
φ63	82	φ36	10	22	16	30	25	107	121	146	13	25.5	158
φ80	95	φ45	15	25	18	35	30	125	144	172	17	32	189
φ100	108	φ56	15	24	22	43	35	143	174	208	26	43.5	230

- Notes)
- When the lock nut is used, the parenthesized dimension A is recommended. (Order made)
 - The lock nut needs to be ordered separately. (Refer to the page of how to order.)
 - 20 mm and 25 mm bore cylinders with a stroke of 5 mm have the same body size as those with a stroke of 10 mm.
 - 20 mm and 25 mm bore sizes of the cutting oil proof type are not available.
 - The tolerance of MM is f8.

FA

Standard type

General purpose type HQS2D 6 FA Bore N Stroke T (φ20 to φ100)

Cutting oil proof type HQSW2D 6 FA Bore N Stroke T (φ32 to φ100)

Switch Set

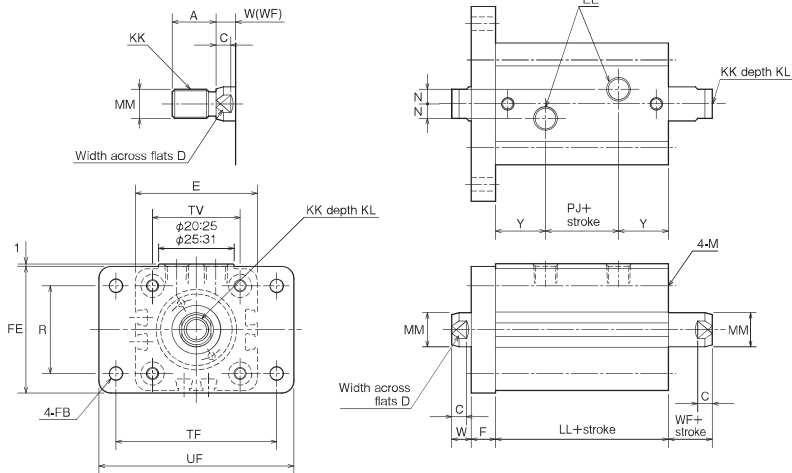
General purpose type HQS2RD 6 FA Bore N Stroke T Sensor symbol Sensor quantity (φ20 to φ100)

Cutting oil proof type HQSW2RD 6 FA Bore N Stroke T Sensor symbol Sensor quantity (φ32 to φ100)

HQS2/THQS2 Bore CAD/DATA is available.

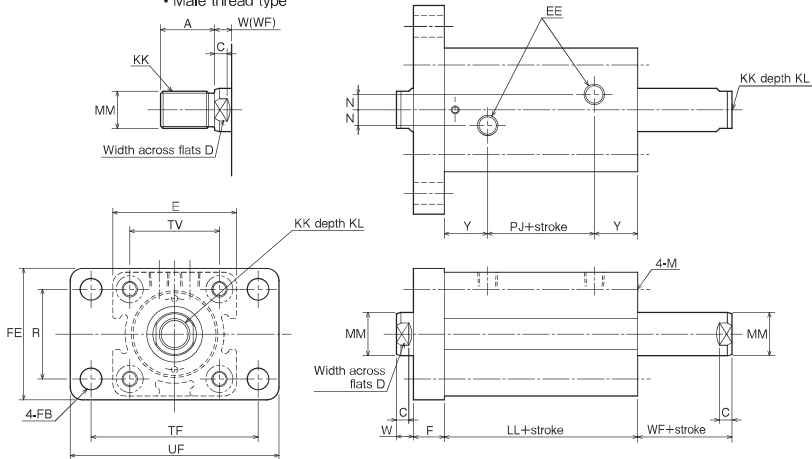
- Bore φ20 and φ25

• Male thread type



- Bore φ32 to φ100

• Male thread type



- For the mounting of sensors, refer to the "dimensional drawings of Switch Set". All the contents other than sensor mounting dimensions are the same.
- The 100 mm bore cylinder has three sensor mounting grooves.

Dimensional Table

Symbol Bore	A	C	D	E	EE	F	FB	FE	KK		KL	LL
									Female thread type	Male thread type		
φ20	15(25)	6	10	□44	Rc1/8	10	φ5.5	46	M8×1.25	M10×1.25	10	54
φ25	18(30)	6	12	□50	Rc1/8	10	φ5.5	52	M10×1.5	M12×1.25	12	56
φ32	25(40)	7	14	□62	Rc1/4	15	φ6.6	62	M12×1.75	M16×1.5	15	72
φ40	30(45)	7	19	□70	Rc1/4	20	φ11	70	M16×2	M20×1.5	20	72
φ50	35(50)	8	24	□80	Rc1/4	20	φ14	85	M20×2.5	M24×1.5	24	75
φ63	45(60)	9	30	□94	Rc1/4	20	φ14	98	M27×3	M30×1.5	33	82
φ80	60(80)	14	41	□114	Rc3/8	25	φ18	118	M30×3.5	M39×1.5	36	95
φ100	75(95)	22	50	□138	Rc3/8	30	φ22	150	M39×4	M48×1.5	45	108

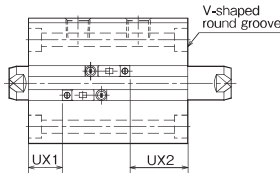
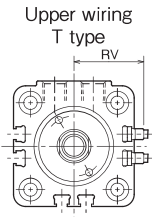
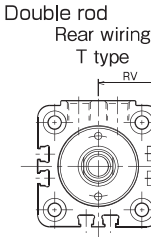
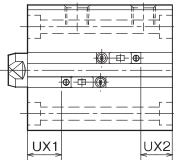
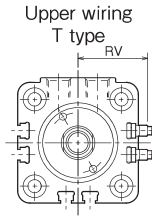
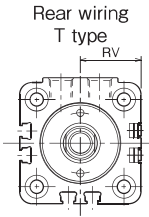
Symbol Bore	M	MM	N	PJ	R	TF	TV	UF	W	WF	Y
φ20	M5×0.8	φ12	3	17	30	60	□30	75	8	8	18.5
φ25	M5×0.8	φ14	6	15	36	66	□36	80	8	8	20.5
φ32	M6×1	φ18	10	16	40	80	□47	95	10	10	28
φ40	M8×1.25	φ22	10	18	46	96	□52	118	10	10	27
φ50	M10×1.5	φ28	10	19	58	108	□58	135	11	11	28
φ63	M12×1.75	φ36	10	22	65	124	□69	150	13	13	30
φ80	M14×2	φ45	15	25	87	154	□86	185	17	17	35
φ100	M16×2	φ56	15	24	109	190	□106	230	26	26	42

- Notes)
- When the lock nut is used, the parenthesized dimension A is recommended. (Order made)
 - The lock nut needs to be ordered separately. (Refer to the page of how to order.)
 - 20 mm and 25 mm bore cylinders with a stroke of 5 mm have the same body size as those with a stroke of 10 mm.
 - 20 mm and 25 mm bore sizes of the cutting oil proof type are not available.
 - The tolerance of MM is f8.

Switch Set

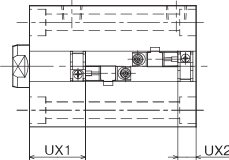
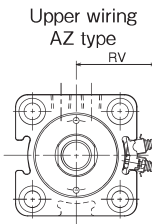
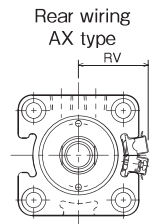
General purpose type	HQS2R(D)	6	Mounting style	Bore	N	Stroke	T	Sensor symbol	Sensor quantity
Cutting oil proof type	HQSW2R(D)	6	Mounting style	Bore	N	Stroke	T	Sensor symbol	Sensor quantity

- Bore $\phi 20$ and $\phi 25$
Single rod

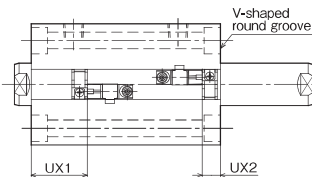
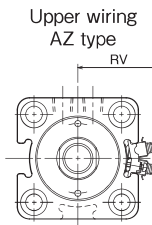
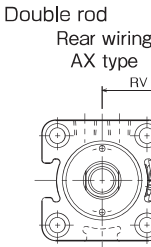


- The side without V-shaped round grooves on the end face corresponds to UX1.

- Bore $\phi 32$ to $\phi 100$
Single rod



- The 100 mm bore cylinder has three sensor mounting grooves.



- The 100 mm bore cylinder has three sensor mounting grooves.
- The side without V-shaped round grooves on the end face corresponds to UX1.

General purpose type

Dimensional Table (T/AX/AZ type)

Bore	RV						UX1						UX2					
	T0H·T5H T2H·T3H	T0V·T5V T2V·T3V	T2YH	T2YV	AX	AZ	Single rod			Double rod			Single rod			Double rod		
	T	AX	AZ	T	AX	AZ	T	AX	AZ	T	AX	AZ	T	AX	AZ	T	AX	AZ
$\phi 20$	22	26	28	31	—	—	13	—	—	13	—	—	12	—	—	23	—	—
$\phi 25$	25	29	31	34	—	—	14	—	—	14	—	—	13	—	—	24	—	—
$\phi 32$	—	—	—	—	37	44	—	19	19	—	19	19	—	17	17	—	35	35
$\phi 40$	—	—	—	—	41	48	—	20	20	—	20	20	—	17	17	—	34	34
$\phi 50$	—	—	—	—	46	53	—	22	22	—	22	22	—	20	20	—	35	35
$\phi 63$	—	—	—	—	54	61	—	24	24	—	24	24	—	25	25	—	40	40
$\phi 80$	—	—	—	—	63	70	—	30	30	—	30	30	—	30	30	—	47	47
$\phi 100$	—	—	—	—	76.5	83.5	—	36	36	—	36	36	—	42	42	—	53	53

Note) Dimension UX is for reference only. For details, refer to the sensor mountable minimum stroke table.

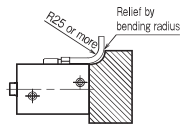
Operating Range and Hysteresis

Bore	Reed sensor						Solid state sensor									
	AX1**·AZ1**		T type		WR type		AX2**·AZ2**		AX*W·AZ*W		T2/T3 type		T2Y type		WS type	
	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis	Operating range	Hysteresis
$\phi 20$	—	—	3 to 10	2 or less	—	—	—	—	—	—	3 to 8	1 or less	5 to 10	1 or less	—	—
$\phi 25$	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
$\phi 32$	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
$\phi 40$	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
$\phi 50$	10 to 17	2 or less	—	—	10 to 17	2 or less	4 to 8	1 or less	15 to 22	2 or less	—	—	—	—	12 to 15	2 or less
$\phi 63$	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
$\phi 80$	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
$\phi 100$	6 to 14	—	—	—	7 to 15	2.5 or less	6 to 9	—	19 to 25	—	—	—	—	—	19 to 25	—

Cutting oil proof type

Dimensional Table

Bore	RV				RY				UX1				UX2			
	Rear wiring		Upper wiring		Rear wiring		Upper wiring		AX*W		WR		AX*W		WR	
	AX*W	WR·WS	AZ*W	WR·WS	AX*W	WR·WS	AZ*W	WR·WS	AZ*W	WR	WS	AZ*W	WR	WS	AZ*W	WR
$\phi 32$	37	53	44	53	74	106	88	106	13(13)	11(11)	15(15)	11(29)	12(28)	16(32)	14(33)	16(36)
$\phi 40$	41	57	48	57	82	114	96	114	14(14)	17(17)	20(20)	11(28)	14(33)	16(36)	14(33)	16(36)
$\phi 50$	46	62	53	62	92	124	106	124	16(16)	19(19)	21(21)	14(29)	16(35)	20(37)	14(33)	16(36)
$\phi 63$	54	69	61	69	108	138	122	138	17(17)	20(20)	24(24)	18(33)	21(36)	23(40)	14(33)	16(36)
$\phi 80$	63	79	70	79	126	158	140	158	22(22)	25(25)	29(29)	22(39)	25(43)	29(47)	14(33)	16(36)
$\phi 100$	76.5	91.5	83.5	91.5	153	183	167	183	27(27)	33(33)	35(35)	33(44)	40(50)	41(52)	14(33)	16(36)



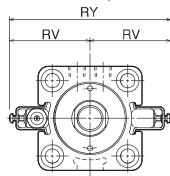
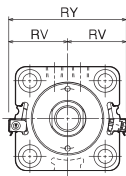
If the sensor cannot be mounted as shown above, use the upper wiring type.

- Notes) ● Ensure that the bending radius of the flexible tube is R25 or more.
If the bending radius is smaller, the wire may be broken.
● The parenthesized values apply to the double rod cylinders.

Sensor Attachment Dimensions

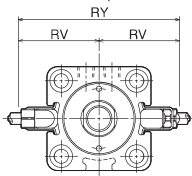
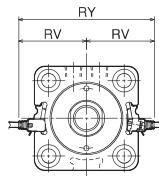
● Rear wiring

- AX205W(solid state sensor)
- WR525(reed sensor)
- WS235-1(solid state sensor)



● Upper wiring

- AZ205W(solid state sensor)
- WR535(reed sensor)
- WS245-1(solid state sensor)



*The 100 mm bore cylinder has mounting grooves in three surfaces.

Change of Rod End Shape

■ You can specify the shape and dimension of the rod end as shown below using the semi-standard symbols and dimension symbols. (No need to specify the dimension symbol if you order a cylinder with the basic dimensions. Specify only the semi-standard symbol.)

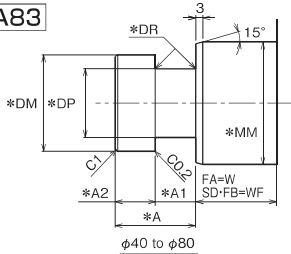
How to order

Series Model number – X

Semi-standard symbol Dimension symbol (Specify only when the dimension differs from the basic dimension.)

— KM and KP need to be specified as a pair.

Example **A83**



Note) In the case of this shape, only dimension WF can be changed.

- Bore $\phi 40$, rod end shape: A83, WF=60
- HQS2 6SD40N50T-X A83
- WF-60

Special Rod End Shapes
A00(T)

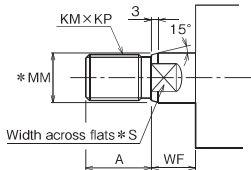


Table of Basic Dimensions (Standard dimensions)

Bore	A	KM	KP	* MM	* S	WF
$\phi 20$	15	10	1.25	$\phi 12$	10	8
$\phi 25$	18	12	1.25	$\phi 14$	12	8
$\phi 32$	25	16	1.5	$\phi 18$	14	10
$\phi 40$	30	20	1.5	$\phi 22$	19	10
$\phi 50$	35	24	1.5	$\phi 28$	24	11
$\phi 63$	45	30	1.5	$\phi 36$	30	13
$\phi 80$	60	39	1.5	$\phi 45$	41	17
$\phi 100$	75	48	1.5	$\phi 56$	50	26

A51

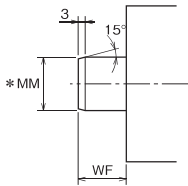
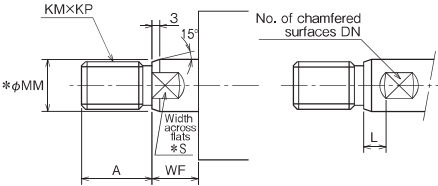


Table of Basic Dimensions

Bore	* MM	WF
$\phi 20$	$\phi 12$	8
$\phi 25$	$\phi 14$	8
$\phi 32$	$\phi 18$	10
$\phi 40$	$\phi 22$	10
$\phi 50$	$\phi 28$	11
$\phi 63$	$\phi 36$	13
$\phi 80$	$\phi 45$	17
$\phi 100$	$\phi 56$	26

A53



Note) Increase dimension WF by dimension L.

Table of Basic Dimensions

Bore	A	DN	KM	KP	L	* MM	* S	WF
$\phi 20$	15	2	10	1.25	0	$\phi 12$	10	8
$\phi 25$	18	2	12	1.25	0	$\phi 14$	12	8
$\phi 32$	25	2	16	1.5	0	$\phi 18$	14	10
$\phi 40$	30	2	20	1.5	0	$\phi 22$	19	10
$\phi 50$	35	2	24	1.5	0	$\phi 28$	24	11
$\phi 63$	45	2	30	1.5	0	$\phi 36$	30	13
$\phi 80$	60	2	39	1.5	0	$\phi 45$	41	17
$\phi 100$	75	2	48	1.5	0	$\phi 56$	50	26

Use this shape to move the width across flats S of 'A00(T)'.

- The *-marked dimension is fixed.
- If it is necessary to change the fixed dimension, consult us.

A54

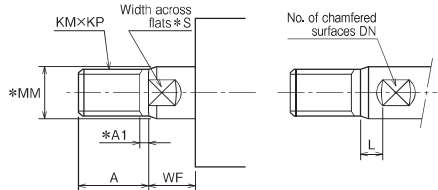


Table of Basic Dimensions

Bore	A	* A1	DN	KM	KP	L	* MM	* S	WF
$\phi 20$	15	4	2	10	1.25	0	$\phi 12$	10	8
$\phi 25$	18	4	2	12	1.25	0	$\phi 14$	12	8
$\phi 32$	25	4	2	16	1.5	0	$\phi 18$	14	10
$\phi 40$	30	4	2	20	1.5	0	$\phi 22$	19	10
$\phi 50$	35	4	2	24	1.5	0	$\phi 28$	24	11
$\phi 63$	45	4	2	30	1.5	0	$\phi 36$	30	13
$\phi 80$	60	4	2	39	1.5	0	$\phi 45$	41	17
$\phi 100$	75	4	2	48	1.5	0	$\phi 56$	50	26

A82

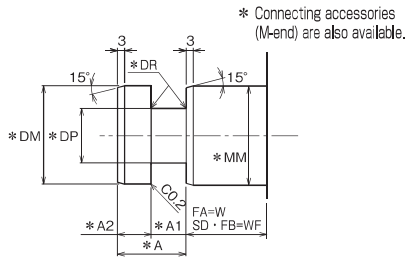


Table of Basic Dimensions (Standard dimensions)

Bore	* A	* A1 ^{+0.5/-0.3}	* A2 ^{+0.2/-0.3}	* DM ^{+0.1/-0.4}	* DP ^{+0.2/-0.3}	* DR	* MM	W FA style	WF SD/FB style
$\phi 20$	25	12.5	12.5	$\phi 12$	$\phi 8$	0.5	$\phi 12$	20	20
$\phi 25$	25	12.5	12.5	$\phi 14$	$\phi 10$	0.5	$\phi 14$	20	20
$\phi 32$	25	12.5	12.5	$\phi 18$	$\phi 13$	1.0	$\phi 18$	30	30
$\phi 40$	25	12.5	12.5	$\phi 22$	$\phi 16$	1.5	$\phi 22$	35	35
$\phi 50$	25	12.5	12.5	$\phi 28$	$\phi 21$	1.5	$\phi 28$	35	35
$\phi 63$	30	15	15	$\phi 36$	$\phi 26$	2.0	$\phi 36$	40	40
$\phi 80$	30	15	15	$\phi 45$	$\phi 31$	2.0	$\phi 45$	45	45
$\phi 100$	40	20	20	$\phi 56$	$\phi 38$	3.0	$\phi 56$	55	55

- The *-marked dimension is fixed.
- If it is necessary to change the fixed dimension, consult us.

A81

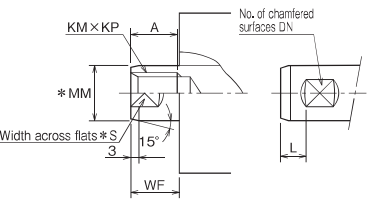


Table of Basic Dimensions

Bore	A	DN	KM	KP	L	* MM	* S	WF
$\phi 20$	10	2	8	1.25	0	$\phi 12$	10	8
$\phi 25$	12	2	10	1.5	0	$\phi 14$	12	8
$\phi 32$	15	2	12	1.75	0	$\phi 18$	14	10
$\phi 40$	20	2	16	2	0	$\phi 22$	19	10
$\phi 50$	24	2	20	2.5	0	$\phi 28$	24	11
$\phi 63$	33	2	27	3	0	$\phi 36$	30	13
$\phi 80$	36	2	30	3.5	0	$\phi 45$	41	17
$\phi 100$	45	2	39	4	0	$\phi 56$	50	26

A83

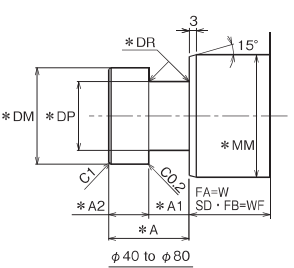


Table of Basic Dimensions (Standard dimensions)

Bore	* A	* A1 ^{+0.5/-0.3}	* A2 ^{+0.2/-0.3}	* DM ^{+0.1/-0.4}	* DP ^{+0.2/-0.3}	* DR	* MM	W FA style	WF SD/FB style
$\phi 40$	25	12.5	12.5	$\phi 18$	$\phi 13$	1.0	$\phi 22$	35	35
$\phi 50$	25	12.5	12.5	$\phi 22$	$\phi 16$	1.5	$\phi 28$	35	35
$\phi 63$	25	12.5	12.5	$\phi 28$	$\phi 21$	1.5	$\phi 36$	40	40
$\phi 80$	30	15	15	$\phi 36$	$\phi 26$	2.0	$\phi 45$	45	45