



ROTARY  
CYLINDER

# 短寸中実回転油圧シリンダ

## M series

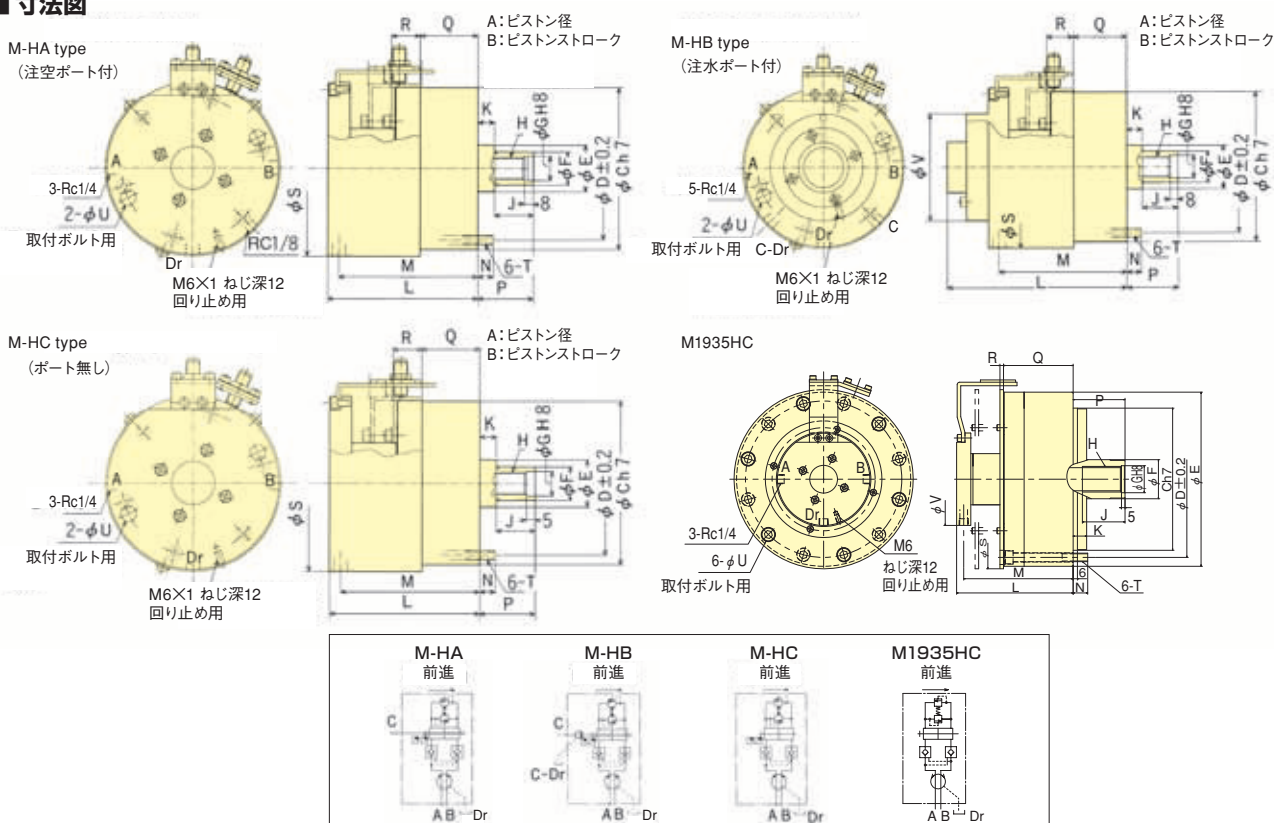
### 短寸、小型、軽量

### 旋盤の機能を十分に発揮させるコンパクト設計

- 超小型、軽量化を追求しました
  - ロックバルブ、リリーフバルブ内蔵、さらに確認センサ付
- \*CE対応品



#### ■ 寸法図



#### ■ 寸法表

寸法	A	B	C (H7)	D	E	F	G (H8)	H	J	K	L	M	N	P max.	P min.	Q max.	Q min.	R	S	T	U	V
M1120HA21N	110	20	145	128	42	30	22	M20	30	15	135	125	14	60	40	72	52	26	159.2	M 8	14	-
M1120HB21N	110	20	145	128	42	30	22	M20	30	15	175	125	14	60	40	72	52	26	159.2	M 8	14	104
M1120HC21N	110	20	145	128	42	30	22	M20	30	15	135	125	14	60	40	72	52	26	159.2	M 8	14	-
M1221HA21N	120	21	168	145	44	32	22	M20	30	15	138	128	14	60	39	75	54	27	182.2	M10	17	-
M1221HB21N	120	21	168	145	44	32	22	M20	30	15	178	128	14	60	39	75	54	27	182.2	M10	17	104
M1221HC21N	120	21	168	145	44	32	22	M20	30	15	138	128	14	60	39	75	54	27	182.2	M10	17	-
M1330HA21N	130	30	168	150	51	36	26	M24	35	15	144	134	18	60	30	79	49	37	182.2	M10	17	-
M1330HB21N	130	30	168	150	51	36	26	M24	35	15	184	134	18	60	30	79	49	37	182.2	M10	17	104
M1330HC21N	130	30	168	150	51	36	26	M24	35	15	144	134	18	60	30	79	49	37	182.2	M10	17	-
M1935HC	190	35	200	220	245	55	38	M36	60	19	164	154	20.5	73	38	133	98	5	252	M12	20	-

#### ■ 仕様表

\*ピストン推力：最高使用油圧力M1120H $\hat{H}$ 3.5MPa(35.7kgf/cm $\hat{H}$ )、M1221H $\hat{H}$ 4.0MPa(40.8kgf/cm $\hat{H}$ )、M1330H $\hat{H}$ 4.0MPa(40.8kgf/cm $\hat{H}$ )  
 \*ドレン量は油圧力3.0MPa(30.6kgf/cm $\hat{H}$ )、油温50 $\hat{H}$ の時 ※近接スイッチ：Model BES M12MI-PSC20B-BV02(バレーブ備製)DC24V 200mA PNP

型式	仕様	ピストン ストローク mm	ピストン表面積		ピストン推力		最高使用油圧力 MPa(kgf/cm $\hat{H}$ )	ドレン量 $\hat{H}$ /min	許容最高回転速度 min $\hat{H}$	質量 kg	慣性モーメント kg $\cdot$ m $\hat{H}$
			押側 cm $\hat{H}$	引側 cm $\hat{H}$	押側 kN(kgf)	引側 kN(kgf)					
M1120HA21N		20	87.6	84	28.0 (2855)	27.0 (2753)	3.5 (35.7)	1.2	6000	8.2	0.016
M1120HB21N		20	87.6	84	28.0 (2855)	27.0 (2753)	3.5 (35.7)	1.2	6000	8.5	0.016
M1120HC21N		20	87.6	84	28.0 (2855)	27.0 (2753)	3.5 (35.7)	1.2	6000	8.2	0.016
M1221HA21N		21	105.7	102	39.0 (3977)	38.0 (3875)	4.0 (40.8)	1.2	6000	10.2	0.028
M1221HB21N		21	105.7	102	39.0 (3977)	38.0 (3875)	4.0 (40.8)	1.2	6000	10.5	0.028
M1221HC21N		21	105.7	102	39.0 (3977)	38.0 (3875)	4.0 (40.8)	1.2	6000	10.2	0.028
M1330HA21N		30	125.3	119	47.0 (4793)	45.0 (4589)	4.0 (40.8)	1.2	6000	10.3	0.029
M1330HB21N		30	125.3	119	47.0 (4793)	45.0 (4589)	4.0 (40.8)	1.2	6000	10.6	0.029
M1330HC21N		30	125.3	119	47.0 (4793)	45.0 (4589)	4.0 (40.8)	1.2	6000	10.3	0.029
M1935HC		35	274	252	103 (10503)	94.6 (9646)	4.0 (40.8)	1.2	6000	23	0.15



**ROTARY CYLINDER**

# Compact Style Hydraulic Cylinder with Closed Centre

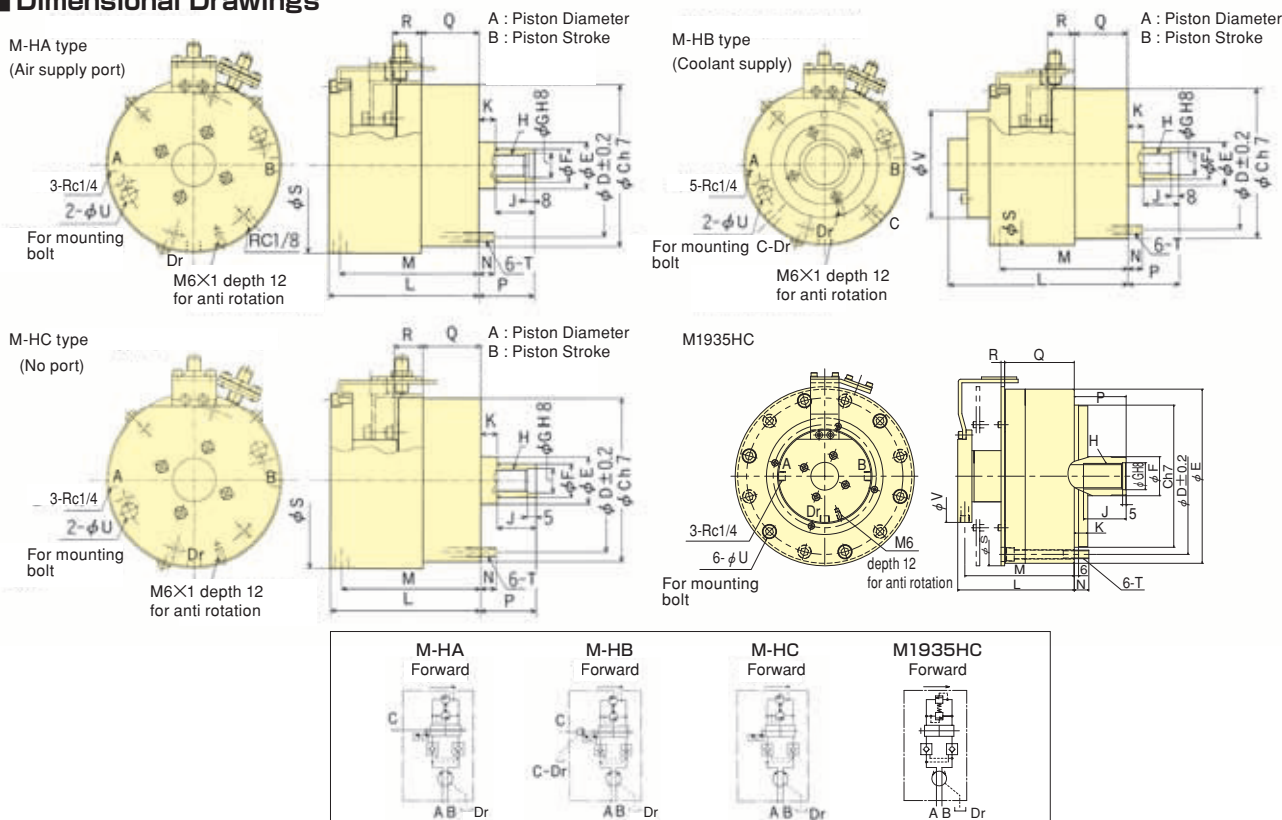
## M series

**Short, Compact, and Light**  
The compact design maximises Lathe performance

- Compact and lightweight
- Built-in check valve and pressure relief valve, and sensor switches
- \*CE correspondence



### Dimensional Drawings



### Dimensions

Dimensions	A	B	C (H7)	D	E	F	G (H8)	H	J	K	L	M	N	P max.	P min.	Q max.	Q min.	R	S	T	U	V
M1120HA21N	110	20	145	128	42	30	22	M20	30	15	135	125	14	60	40	72	52	26	1592	M 8	14	-
M1120HB21N	110	20	145	128	42	30	22	M20	30	15	175	125	14	60	40	72	52	26	1592	M 8	14	104
M1120HC21N	110	20	145	128	42	30	22	M20	30	15	135	125	14	60	40	72	52	26	1592	M 8	14	-
M1221HA21N	120	21	168	145	44	32	22	M20	30	15	138	128	14	60	39	75	54	27	1822	M10	17	-
M1221HB21N	120	21	168	145	44	32	22	M20	30	15	178	128	14	60	39	75	54	27	1822	M10	17	104
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M1935HC	190	35	200	220	245	55	38	M36	60	19	164	154	20.5	73	38	133	98	5	252	M12	20	-

### Specifications

\*Draw bar : Max. Operation Pressure M1120H 3.5MPa(35.7kgf/cm<sup>2</sup>), M1221H 4.0MPa(40.8kgf/cm<sup>2</sup>), M1330H 4.0MPa(40.8kgf/cm<sup>2</sup>)  
\*Leakage : Pressure 3.0MPa(30.6kgf/cm<sup>2</sup>)and oil temperature 50°C. \*Proximity switch : Model BES M12M-PSC20B-BV02(manufactured by Balluff) DC24V 200mA PNP

Specifications	Piston stroke mm	Piston Area		Draw bar		Max. Operation Pressure MPa(kgf/cm <sup>2</sup> )	Leakage ℓ/min	Max. Speed min <sup>-1</sup>	Net Weight kg	Moment of inertia kg·m <sup>2</sup>
		Push Side cm <sup>2</sup>	Pull Side cm <sup>2</sup>	Push Side kN(kgf)	Pull Side kN(kgf)					
M1120HA21N	20	87.6	84	28.0 (2855)	27.0 (2753)	3.5 (35.7)	1.2	6000	8.2	0.016
M1120HB21N	20	87.6	84	28.0 (2855)	27.0 (2753)	3.5 (35.7)	1.2	6000	8.5	0.016
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M1935HC	35	274	252	103 (10503)	94.6 (9646)	4.0 (40.8)	1.2	6000	23	0.15