Series MNBW

ø32, ø40, ø50, ø63, ø80, ø100

How to Order

Standard type MNBW L 50 — 100 — D

With auto switch MDNBW L 50 — 100 — D — A53

With auto switch

Double rod type

Mounting bracket

B	Basic type
L	Axial foot type
F	Front flange type

Bore size

32	32mm
40	40mm
50	50mm
63	63mm
80	80mm
100	100mm

Cylinder stroke (mm)
Refer to standard stroke table on Page 16.

Rod boot

Nil	None
J	Nylon tarpaulin
K	Heat resistant tarpaulin

Locking direction

D	Two-way

Type of auto switch

Nil	Without auto switch

∗ Select the applicable auto switch type from the table below.

Auto switch quantity

Nil	2 pcs.
S	1 pc.
n	n pcs.

Applicable auto switch types / Tie-rod mount

Type	Special Functions	Electrical entry	Indicator lights	Wiring (output)	Load voltage DC		Load voltage AC	Auto switch part no.	∗ Lead wire length (m) 0.5 (Nil)	3 (L)	5 (Z)	Applicable load	
Reed switch	——	Grommet	Yes	3 wire (NPN equiv.)	—	5V	——	A56	●	●	—	IC circuit	—
			Yes	2 wire	24V	12V	——	A53	●	●	●	—	Relay PLC
						12V	100V, 200V	A54	●	●	●		
			No			5V, 12V	——	A67	●	●	—	IC circuit	
						12V	200V or less	A64	●	●	—		
	Diagnostic indicator (2 color)		Yes			——	——	A59W	●	●	—	—	
Solid state switch	——	Grommet	Yes	3 wire (NPN)	24V	5V, 12V	——	F59	●	●	○	IC circuit	Relay PLC
				3 wire (PNP)				F5P	●	●	○		
				2 wire	—	——	100V, 200V	J51	●	●	○	—	
					24V	12V	——	J59	●	●	○		
	Diagnostic indicator (2 color)			3 wire (NPN)		5V, 12V		F59W	●	●	○	IC circuit	
				3 wire (PNP)				F5PW	●	●	○		
	Improved water resistance (2 color indicator)			2wire		12V		J59W	●	●	○	—	
								F5BA	—	●	○		
	With timer			3 wire (NPN)		5V, 12V		F5NT	—	●	○	IC circuit	
	With diagnostic output (2 color indicator)			4 wire (NPN)				F59F	●	●	○		
	Latch type with diagnostic output (2 color indicator)					——		F5LF	●	●	○	—	

∗ Lead wire length symbol 0.5m..... Nil (Ex.) A53
3m ..... L (Ex.) A53L
5m ..... Z (Ex.) A53Z

∗ Solid state switches marked with a ○ are manufactured upon receipt of order.

Cylinders with built-in magnets

In cases of built-in magnets without auto switches, the symbol for auto switch type will be Nil. (Ex.) MDNBL40-100-D

Mounting bracket parts

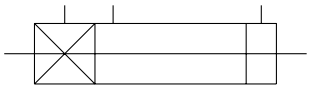
Refer to P.17 regarding types of mounting brackets for other than basic type air cylinders.

Auto switch mounting brackets/Part Nos.

Applicable bore size (mm)	32, 40	50, 63	80, 100
Mounting bracket part no.	BT-03	BT-05	BT-06

[Stainless steel mounting screw kit]
The following stainless steel mounting screw kit (including set screws) has been prepared for use, depending upon the operating environment.
(Mounting brackets are not included, and must be arranged separately.)
BBA1: Stainless steel screw kit for D-A5/A6/F5/J5
The above stainless steel screws are used when a cylinder is shipped with D-F5BA type switches. The above screw kit is also included when D-F5BA type switches are shipped separately.

JIS symbol
Cylinder with brake



Models

Series	Model	Cylinder action	Locking action	Cylinder bore size (mm)
MNB	Non-lube type	Double acting	Spring lock	32, 40, 50, 63, 80, 100

Cylinder Specifications

Bore size (mm)	32, 40, 50, 63, 80, 100
Model	Non-lube type
Fluid	Air
Proof pressure	1.5MPa {15.3kgf/cm²}
Maximum operating pressure	1.0MPa {10.2kgf/cm²}
Minimum operating pressure	0.08MPa {0.82kgf/cm²}
Piston speed	50 to 1000mm/s Note)
Ambient and fluid temperature	Without auto switch : -10°C to 70°C (without freezing) With auto switch : -10°C to 70°C (without freezing)
Cushion	Double side air cushion
Stroke length tolerance	to 250: $^{+1.0}_{0}$, 251 to 1000: $^{+1.4}_{0}$, 1001 to 1500: $^{+1.8}_{0}$
Bracket type	Basic type, Axial foot type, Front flange type

Note) Load limits exist depending upon piston speed when locked, mounting direction and operating pressure.

Lock Specifications

Lock actuation	Spring lock (exhaust lock)
Unlocking pressure	0.25MPa{2.5kgf/cm²} or more
Locking pressure	0.20MPa {2.0kgf/cm²} or less
Maximum operating pressure	1.0MPa {10.0kgf/cm²}
Locking direction	Two-way

Standard Stroke / For cases with auto switches, refer to the table of minimum strokes for mounting of auto switches on page 12.

Bore size (mm)	Standard stroke (mm)
32	25,50,75,100,125,150,175,200,250,300,350,400,450,500
40	25,50,75,100,125,150,175,200,250,300,350,400,450,500
50	25,50,75,100,125,150,175,200,250,300,350,400,450,500,600
63	25,50,75,100,125,150,175,200,250,300,350,400,450,500,600
80	25,50,75,100,125,150,175,200,250,300,350,400,450,500,600,700,800
100	25,50,75,100,125,150,175,200,250,300,350,400,450,500,600,700,800

Stopping Accuracy

Unit: mm

Locking system	Piston speed (mm/s)			
	100	300	500	1000
Spring lock	±0.3	±0.6	±1.0	±2.0

Conditions / Horizontal supply pressure P=0.5MPa{5kgf/cm²}
Load weight ..... Upper limit of allowable value
Solenoid valve for locking mounted on the unlocking port
Maximum value of stopping position dispersion from 100 measurements

Spring Lock Holding Power (Maximum Static Load)

Bore size (mm)	**32**	**40**	**50**	**63**	**80**	**100**
Holding power N {kgf}	552 {56}	882 {90}	1370 {140}	2160 {220}	3430 {350}	5390 {550}

Bracket Part Numbers

Bore size (mm)	32	40	50	63	80	100
Foot type Note 1)	MB-L04	MB-L04	MB-L05	*MNB-L	MB-L08	MB-L10
Flange type	*MNB-F04	*MNB-F04	*MNB-F05	*MNB-F06	MB-F08	MB-F10

Note 1) When ordering foot type brackets, 2 pcs. should be arranged for each cylinder.
Note 2) The following parts are included with each mounting bracket.
Foot, Flange: Body mounting bolts
Note 3) All are common to the MB series air cylinders, except for the sections marked with a ∗.

Rod Boot

Symbol	Material	Maximum ambient temperature
J	Nylon tarpaulin	70°C
K	Heat resistant tarpaulin	110°C Note)

Note) Maximum ambient temperature for the rod boot itself.

Accessories

Mounting		Basic type	Foot type	Front flange type
Standard equipment	Rod end nut	•	•	•
Options	With rod boot	•	•	•

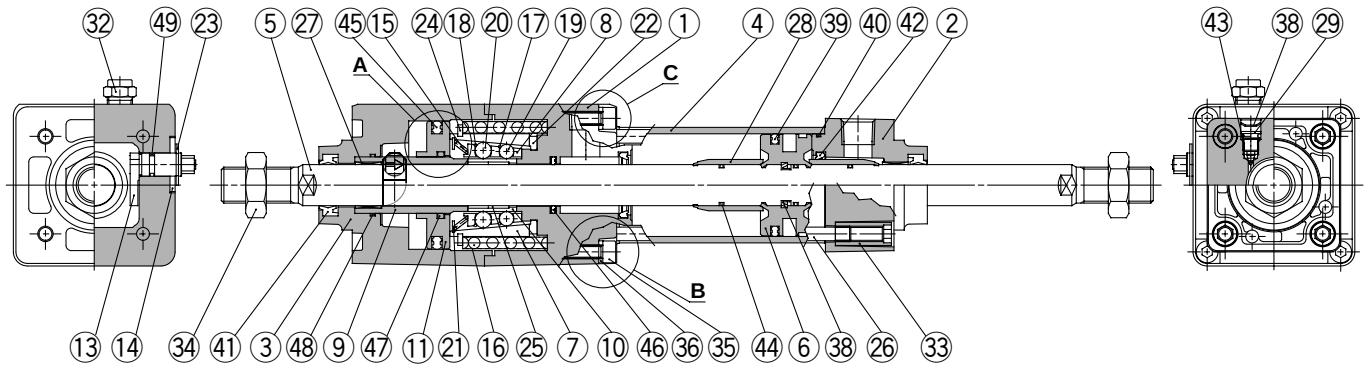
Double Rod Weight Table/Aluminum Tube

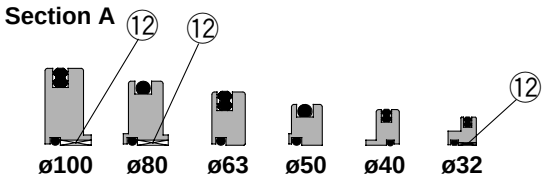
(kg)

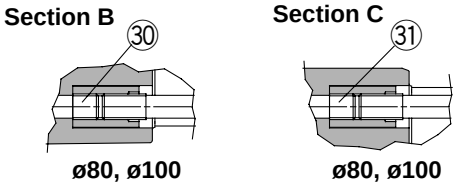
Bore size (mm)		32	40	50	63	80	100
Basic weight	Basic type	1.26	1.82	2.91	4.24	7.23	10.70
	Foot type	1.36	1.94	3.09	4.50	7.66	11.29
	Flange type	1.50	2.14	3.44	4.98	8.68	14.01
Additional weight per 50mm of stroke	All mounting brackets	0.15	0.24	0.34	0.35	0.61	0.84
Accessories	Single knuckle	0.15	0.23	0.26	0.26	0.60	0.83
	Double knuckle (with pin)	0.22	0.37	0.43	0.43	0.87	1.27

Calculation method
(Example) MNBWB32-100 (basic type, ø32, 100st)
• Basic weight ..... 1.26 (basic type, ø32)
• Additional weight ..... 0.11/50mm stroke
• Cylinder stroke ..... 100mm stroke
1.26 + 0.11 x 100/50 = 1.48kg

Construction







Parts list

No.	Description		Material	Note
①	**Rod cover A**		Aluminum alloy	Hard anodized & metallic coated
②	**Rod cover B**		Die-cast aluminum	Chromated & metallic coated
③	**Cover**		Aluminum alloy	Hard anodized & metallic coated
④	**Cylinder tubing**		Aluminum alloy	Hard anodized
⑤	**Piston rod**		Carbon steel	Hard chrome plated
⑥	**Piston**		Aluminum alloy	Chromated
⑦	**Taper ring**		Carbon steel	Heat treated
⑧	**Ball retainer**		Special resin	
⑨	**Piston guide**		Carbon steel	Zinc chromated
⑩	**Brake shoe holder**		Special steel	Heat treated
⑪	**Release piston**	ø40	Aluminum alloy	Hard anodized
		ø50		
		ø63		
		ø32	Carbon steel	Zinc chromated
		ø80		
		ø100		
⑫	**Release piston bushing**		Steel + special resin	ø32, ø80, ø100 only
⑬	**Unlocking cam**		Chrome molybdenum steel	Glossy chromated
⑭	**Washer**		Carbon steel	Black zinc chromated
⑮	**Retainer pre-load spring**		Steel wire	Zinc chromated
⑯	**Brake spring**		Steel wire	Zinc chromated
⑰	**Clip A**		Stainless steel	
⑱	**Clip B**		Stainless steel	
⑲	**Steel ball A**		Carbon steel	
⑳	**Steel ball B**		Carbon steel	
㉑	**Tooth ring**		Stainless steel	
㉒	**Damper**		Polyurethane rubber	
㉓	**C type retaining ring for unlocking cam shaft**		Carbon steel	
㉔	**C type retaining ring for taper ring**		Carbon steel	
㉕	**Brake shoe**		Special friction material	
㉖	**Tie-rod**		Carbon steel	Chromated
㉗	**Bushing**		Lead-bronze casting	
㉘	**Cushion ring**		Brass	

Parts list

No.	Description	Material	Note
㉙	**Cushion valve**	Steel wire	Nickel plated
㉚	**Unit holding tie-rod A**	Carbon steel	Chromated ø80, ø100 only
㉛	**Unit holding tie-rod B**	Carbon steel	Chromated ø80, ø100 only
㉜	**BC element**		
㉝	**Tie-rod nut**	Carbon steel	Nickel plated
㉞	**Rod end nut**	Carbon steel	Nickel plated
㉟	**Hexagon socket head cap screw**	Chrome molybdenum steel	Nickel plated ø32 to ø63 only
㊱	**Spring washer for hex. socket head cap screw**	Steel wire	Nickel plated ø32 to ø63 only
㊲	**Retaining ring**	Spring steel	
㊳	**Piston holder**	Urethane	
㊴	**Piston seal**	NBR	
㊵	**Cylinder tube gasket**	NBR	
㊶	**Rod seal A**	NBR	
㊷	**Cushion seal**	NBR	
㊸	**Cushion valve seal**	NBR	
㊹	**Piston gasket**	NBR	
㊺	**Release piston seal**	NBR	
㊻	**Rod seal B**	NBR	
㊼	**Release piston gasket**	NBR	
㊽	**Piston guide gasket**	NBR	
㊾	**Unlocking cam gasket**	NBR	

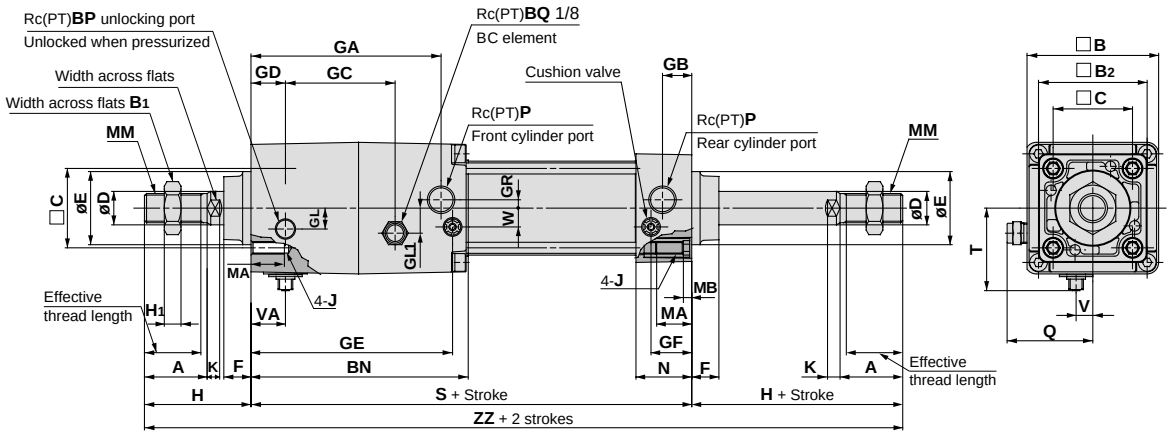
Replacement parts list (seal kits)

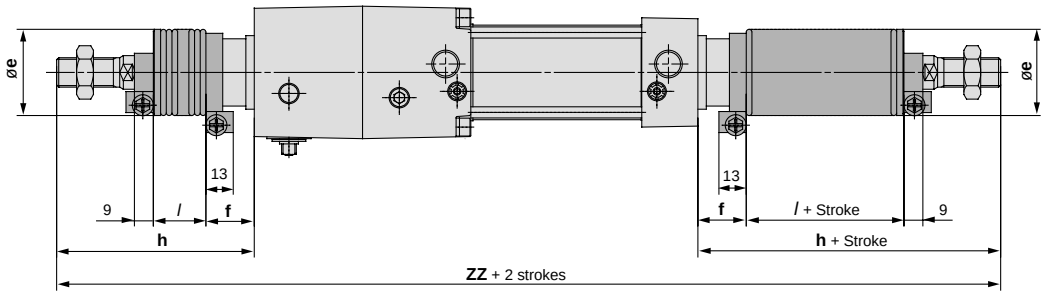
Bore size (mm)	Order No.	Contents
32	MB 32-PS	A kit containing nos. 39, 40, 41 and 42 (2pcs.) from the table above.
40	MB 40-PS	
50	MB 50-PS	
63	MB 63-PS	
80	MB 80-PS	
100	MB100-PS	

∗ As a general rule, the lock section of the MNBW series is replaced as a unit, and therefore, the replacement seal kits are for the cylinder section only. These can be ordered using the order number for each bore size.

Dimensions

Basic type (B) / MNBWB





With rod boot

(mm)

Bore size (mm)	Stroke range (mm)	Effective thread length (mm)	Width across flats	A	B	B1	H1	B2	BN	BP	C	D	Ee11	F	GA	GB	GC	GD	GL	GL1
32	to 500	19.5	10	22	54	17	6	46	97	1/8	32.5	12	30	13	83	13	45.5	13	8.5	12
40	to 500	27	14	30	63	22	8	52	104	1/8	38	16	35	13	91	14	52.5	16.5	10	12
50	to 600	32	18	35	75	27	11	65	120.5	1/4	46.5	20	40	14	104.5	15.5	58.5	19	12.5	15
63	to 600	32	18	35	90	27	11	75	134.5	1/4	56.5	20	45	14	119.5	16.5	68	23	17.5	12
80	to 750	37	22	40	102	32	13	95	169	1/4	72	25	45	20	150	19	81	33	22	18
100	to 750	37	26	40	116	41	16	114	189	1/4	89	30	55	20	170	19	96	37.5	25	20

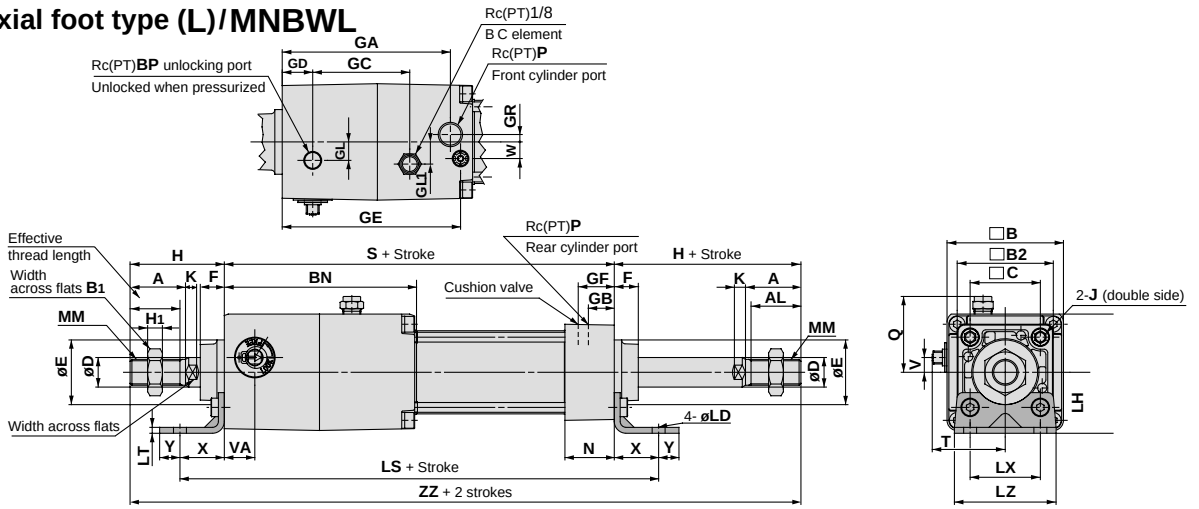
Bore size (mm)	GR	GE	GF	J	MB	K	MM	N	P	Q	H	S	T	V	VA	W	ZZ
32	4	88.5	18.3	M6 x 1.0	4	6	M10 x 1.25	27	1/8	37	47	154	34	6.5	13	6.5	248
40	4	96.5	19.5	M6 x 1.0	4	6	M14 x 1.5	27	1/4	41.5	51	161	39.5	8	16.5	9	263
50	5	111.2	22.4	M8 x 1.25	5	7	M18 x 1.5	31.5	1/4	47.5	58	183	47	9	20	10.5	299
63	9	123.5	20.7	M8 x 1.25	5	7	M18 x 1.5	31.5	3/8	55	58	197	55.5	8.5	23	12	313
80	11.5	157	26	M10 x 1.5	5	10	M22 x 1.5	38	3/8	61	72	245	61.5	10.5	33	14	389
100	17	177	26	M10 x 1.5	5	10	M26 x 1.5	38	1/2	68	72	265	69.5	10.5	37.5	15	409

With rod boot

Note) ZZ indicates dimensions for double side rod boot.

Bore size (mm)	e	f	R										h										∗ ZZ									
			1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	501 to 600	601 to 700	701 to 750	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	501 to 600	601 to 700	701 to 750	1 to 50	51 to 100	101 to 150	151 to 200	201 to 300	301 to 400	401 to 500	501 to 600	601 to 700	701 to 750
32	36	23	12.5	25	37.5	50	75	100	125	–	–	–	73	86	98	111	136	161	186	–	–	–	300	326	350	376	426	476	526	–	–	–
40	41	23	12.5	25	37.5	50	75	100	125	–	–	–	81	94	106	119	144	169	194	–	–	–	323	349	373	399	449	499	549	–	–	–
50	51	25	12.5	25	37.5	50	75	100	125	150	–	–	89	102	114	127	152	177	202	227	–	–	361	387	411	437	487	537	587	637	–	–
63	51	25	12.5	25	37.5	50	75	100	125	150	–	–	89	102	114	127	152	177	202	227	–	–	375	401	425	451	501	551	601	651	–	–
80	56	29	12.5	25	37.5	50	75	100	125	150	175	187.5	101	114	126	139	164	189	214	239	264	276	447	473	497	523	573	623	673	723	773	797
100	61	29	12.5	25	37.5	50	75	100	125	150	175	187.5	101	114	126	139	164	189	214	239	264	276	467	493	517	543	593	643	693	743	793	817

Axial foot type (L)/MNBWL

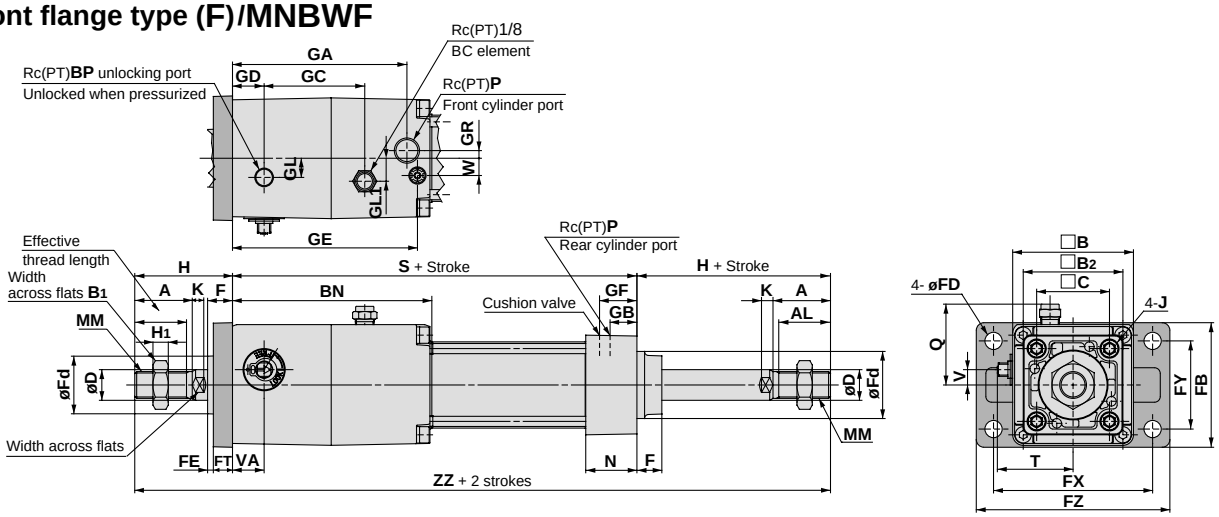


(mm)

Bore size (mm)	Stroke range (mm)	Effective thread length (mm)	Width across flats	A	B	B1	H1	B2	BN	BP	C	D	Ee11	F	GA	GB	GC	GD	GL	GL1	GR	GE	GF
32	to 500	19.5	10	22	54	17	6	46	97	1/8	32.5	12	30	13	83	13	45.5	13	8.5	12	4	88.5	18.3
40	to 500	27	14	30	63	22	8	52	104	1/8	38	16	35	13	91	14	52.5	16.5	10	12	4	96.5	19.5
50	to 600	32	18	35	75	27	11	65	120.5	1/4	46.5	20	40	14	104.5	15.5	58.5	19	12.5	15	5	111.2	22.4
63	to 600	32	18	35	90	27	11	75	134.5	1/4	56.5	20	45	14	119.5	16.5	68	23	17.5	12	9	123.5	20.7
80	to 750	37	22	40	102	32	13	95	169	1/4	72	25	45	20	150	19	81	33	22	18	11.5	157	26
100	to 750	37	26	40	116	41	16	114	189	1/4	89	30	55	20	170	19	96	37.5	25	20	17	177	26

Bore size (mm)	J	LD	LH	LS	LT	LX	LY	LZ	K	MM	N	P	Q	H	S	T	V	VA	W	X	Y	ZZ
32	M6 x 1.0	7	30	198	3.2	32	57	50	6	M10 x 1.25	27	1/8	37	47	154	34	6.5	13	6.5	22	9	248
40	M6 x 1.0	9	33	209	3.2	38	64.5	55	6	M14 x 1.5	27	1/4	41.5	51	161	39.5	8	16.5	9	24	11	263
50	M8 x 1.25	9	40	237	3.2	46	77.5	70	7	M18 x 1.5	31.5	1/4	47.5	58	183	47	9	20	10.5	27	11	299
63	M8 x 1.25	12	48	251	3.6	56	93	80	7	M18 x 1.5	31.5	3/8	55	58	197	55.5	8.5	23	12	27	14	313
80	M10 x 1.5	12	55	305	4.5	72	106	100	10	M22 x 1.5	38	3/8	61	72	245	61.5	10.5	33	14	30	14	389
100	M10 x 1.5	14	65	329	4.5	89	123	120	10	M26 x 1.5	38	1/2	68	72	265	69.5	10.5	37.5	15	32	16	409

Front flange type (F)/MNBWF



Bore size (mm)	Stroke range (mm)	Effective thread length (mm)	Width across flats	A	FB	B	B1	H1	B2	BN	BP	BQ	C	D	F	Fd	FD	FE	FT	FX	FY	FZ
32	to 500	19.5	10	22	56	54	17	6	46	97	1/8	1/8	32.5	12	13	25	7	3	10	72	38	87
40	to 500	27	14	30	65	63	22	8	52	104	1/8	1/8	38	16	13	31	9	3	10	83	46	101
50	to 600	32	18	35	77	75	27	11	65	120.5	1/4	1/8	46.5	20	14	38.5	9	2	12	100	52	120
63	to 600	32	18	35	92	90	27	11	75	134.5	1/4	1/8	56.5	20	14	39.5	9	2	12	115	62	135
80	to 750	37	22	40	100	102	32	13	95	169	1/4	1/8	72	25	20	45.5	12	4	16	126	63	153
100	to 750	37	26	40	120	116	41	16	114	189	1/4	1/8	89	30	20	54	14	4	16	150	75	178

Bore size (mm)	GA	GB	GC	GD	GL	GL1	GR	GE	GF	J	K	MM	N	P	Q	H	S	T	V	VA	W	ZZ
32	83	13	45.5	13	8.5	12	4	88.5	18.5	M6 x 1.0	6	M10 x 1.25	27	1/8	37	47	154	34	6.5	13	6.5	248
40	91	14	52.5	16.5	10	12	4	96.5	19.5	M6 x 1.0	6	M14 x 1.5	27	1/4	41.5	51	161	39.5	8	16.5	9	263
50	104.5	15.5	58.5	19	12.5	15	5	111.2	22.4	M8 x 1.25	7	M18 x 1.5	31.5	1/4	47.5	58	183	47	9	20	10.5	299
63	119.5	16.5	68	23	17.5	12	9	123.5	20.7	M8 x 1.25	7	M18 x 1.5	31.5	3/8	55	58	197	55.5	8.5	23	12	313
80	150	19	81	33	22	18	11.5	157	26	M10 x 1.5	10	M22 x 1.5	38	3/8	61	72	245	61.5	10.5	33	14	389
100	170	19	96	37.5	25	20	17	177	26	M10 x 1.5	10	M26 x 1.5	38	1/2	68	72	265	69.5	10.5	37.5	15	409